INITIAL STUDY
AND
MITIGATED NEGATIVE DECLARATION
OF ENVIRONMENTAL IMPACT

MIRABEL FISH LADDER AND FISH SCREEN REPLACEMENT PROJECT

November 21, 2012

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This Initial Study and Mitigated Negative Declaration has been prepared by the Sonoma County Water Agency (Water Agency) for the **Mirabel Fish Screen and Fish Ladder Replacement Project.**

INTRODUCTION

The Water Agency is the lead agency in accordance with the California Environmental Quality Act (CEQA) for the proposed project. An Initial Study is a preliminary analysis of a project's potential environmental impacts used to determine whether a Negative Declaration or an Environmental Impact Report will be prepared. This document is intended to provide a clear understanding of the environmental impacts associated with the construction and operation of the proposed project for decision-makers, responsible and trustee agencies under CEQA, and the public. If an Initial Study identifies potentially significant impacts but the project is modified or revised to clearly mitigate the impacts, a Mitigated Negative Declaration may be prepared. If an Initial Study concludes that a project may have a significant effect on the environment, an Environmental Impact Report should be prepared. Based on the analysis contained herein, the Water Agency has determined that all project impacts can be mitigated to a level considered less than significant. Accordingly, adoption of this Initial Study/Mitigated Negative Declaration (IS/MND) is appropriate and satisfies the requirements of CEQA.

This IS/MND for the Mirabel Fish Screen and Fish Ladder Replacement Project was prepared in accordance with the provisions of the CEQA, the State CEQA Guidelines, and the Water Agency's *Procedures for the Implementation of CEQA*. The Water Agency is the Lead Agency pursuant to CEQA, and will consider all comments received in response to this IS/MND, including comments from responsible and trustee agencies, property owners, and interested parties regarding the scope and content of the information included in this IS/MND. After completion of the public review period for this document, this IS/MND, along with a summary of comments submitted and the Water Agency's responses to those comments, will be brought before the Water Agency's Board of Directors for their consideration.

The replacement of the Mirabel fish screen portion of the project is required by the National Marine Fisheries Service's (NMFS) 2008 *Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation District in the Russian River Watershed* (Russian River Biological Opinion). The replacement of one of the existing fish ladder's with a vertical-slot fish ladder, which will also include the addition of a viewing chamber to enhance educational opportunities, is not required under the Russian River Biological Opinion; however, the new fish ladder and viewing opportunities will be designed to complement and enhance the fish screen project.

PROJECT BACKGROUND

The Water Agency was created in 1949 by the California Legislature as a special district to provide flood protection and water supply services. The Sonoma County Board of Supervisors acts as the Water Agency's Board of Directors. The Water Agency's powers and duties, as authorized by the California Legislature, include the production and supply of surface water and groundwater for beneficial uses, control of flood waters, generation of electricity, providing recreational facilities (in connection with the Water Agency's facilities), and the treatment and disposal of wastewater.

The Russian River originates in central Mendocino County approximately 15 miles north of Ukiah. The Russian River watershed drains an area of approximately 1,485 square miles, including much of Mendocino and Sonoma counties, and empties into the Pacific Ocean at Jenner in Sonoma County, about 20 miles west of Santa Rosa (Figure 1). The main channel of the Russian River is about 110 miles long and runs generally southward from its headwaters near Redwood and Potter Valleys, to Mirabel Park, where the channel's direction changes to generally westward as it crosses the Coast Range. Principal Russian River tributaries are the East Fork of the Russian River (which receives water diverted from the Eel River through Pacific Gas and Electric Company's (PG&E) Potter Valley Project, Big Sulphur Creek, Maacama Creek, Dry Creek, and Mark West Creek. Communities and cities along the Russian River include Ukiah, Hopland, Cloverdale, Geyserville, Healdsburg, Forestville, Mirabel Park, Rio Nido, Guerneville, Monte Rio, Duncans Mills, and Jenner.

Two major reservoir projects provide water supply storage in the Russian River watershed: 1) Coyote Valley Dam/Lake Mendocino, located on the East Fork of the Russian River three miles east of Ukiah, and 2) Warm Springs Dam/Lake Sonoma, located on Dry Creek 14 miles northwest of Healdsburg. The Water Agency is the local sponsor for these two federal water supply and flood control projects, collectively referred to as the Russian River Project. Under agreements with the United States Army Corps of Engineers (USACE), the Water Agency manages the water supply storage space in these reservoirs to provide a water supply and maintain minimum instream flows in the Russian River and Dry Creek. The Water Agency releases water from storage in these reservoirs where it flows downstream to the Water Agency's primary points of diversion at Wohler and Mirabel Park. At Wohler and Mirabel Park, the Water Agency operates a series of wells that pump water from the aquifer beneath the Russian River and deliver that water through its transmission pipeline system to municipalities, where the water is used primarily for residential, governmental, commercial, and industrial purposes.

At Mirabel Park, the Water Agency operates an inflatable dam , known as the Mirabel Dam, located approximately 2,600 feet downstream of the Wohler Bridge (Figure 2), which is used seasonally when the Russian River flows fall below 1,000 cubic feet per second (cfs). When the dam is inflated, the water level behind the dam raises by 11 feet and submerges a diversion structure consisting of drum fish screens, pump intake structure piping, and a pump station (Photos 1 and 2). The Water Agency uses this

diversion structure to pump water from the Russian River into infiltration ponds adjacent to the Russian River. These infiltration ponds help to recharge the gravel aquifer underneath the Russian River thereby enhancing the Water Agency's ability to more efficiently collect naturally filtered groundwater. When the Mirabel Dam is inflated, two fish ladders on either end of the dam allow fish passage. The Water Agency operates a video monitoring system at the fish ladders to track fish passing upstream or downstream of the inflatable rubber dam. The replacement of the existing fish screens, the modification of the intake structure at the diversion structure, and the modification of one of the existing fish ladders is the subject of the Mirabel Fish Screen and Fish Ladder Replacement Project.

Studies have found that the existing fish screening facilities at the diversion structure perform less than adequately for full protection of juvenile fish, particularly young salmon and steelhead. The Russian River Biological Opinion requires that the fish screens be replaced by October 2014 to meet contemporary performance criteria. These guidelines and criteria are summarized in a document prepared by NMFS titled "Fish Screening Criteria for Anadromous Salmonids" (NMFS 1997).

Additionally, the Water Agency is replacing the existing west side (river right) fish ladder to complement the new fish screens and to enhance fish passage while increasing operational flexibility with the inflatable dam. Proposed modifications would occur on the western bank of the Russian River. No modifications are proposed for the existing fish ladder on the eastern bank of the Russian River. The Water Agency currently inflates the Mirabel Dam with a notch to concentrate flows over a specific portion of the dam (Photo 3). Fish monitoring studies have shown that fish passage downstream over the Mirabel Dam is enhanced through the addition of this notch (Manning 2005). However, maintaining this notch presents operational challenges. Daily adjustments in the notch are necessary to maintain consistent downstream flows, due to the expansion and contraction of the dam in response to heat and sunlight. The proposed west side fish ladder reconstruction would allow for flows through the new fish ladder that are attractive to fish migrating downstream, so that notching the Mirabel Dam would no longer be necessary. In addition to reducing current operational challenges, the proposed design of the new fish ladder (proposed vertical slot fish ladder versus the existing Denil type fish ladder) would expand the effectiveness of the fish ladder over a wider range of flows.

A redesign of the fish ladder would allow the Water Agency to enhance existing fisheries video monitoring and provide better opportunities for viewing fish migration. The new fish ladder facility would contain a dedicated viewing window room that would house the video monitoring equipment and would only be accessible to employees. A separate viewing window area and viewing platform are also proposed as part of the upgrades to the facility. Approximately 3,000 schoolchildren visit the existing fish ladder facility at Mirabel as part of the Water Agency's Water Education Program. The proposed viewing areas would enhance the visitor experience by providing a better overall view of the facility and a view into the side of the fish

ladder. During the migration season, the viewing window would allow visitors to see fish migrating through the new fish ladder.

Figure 1

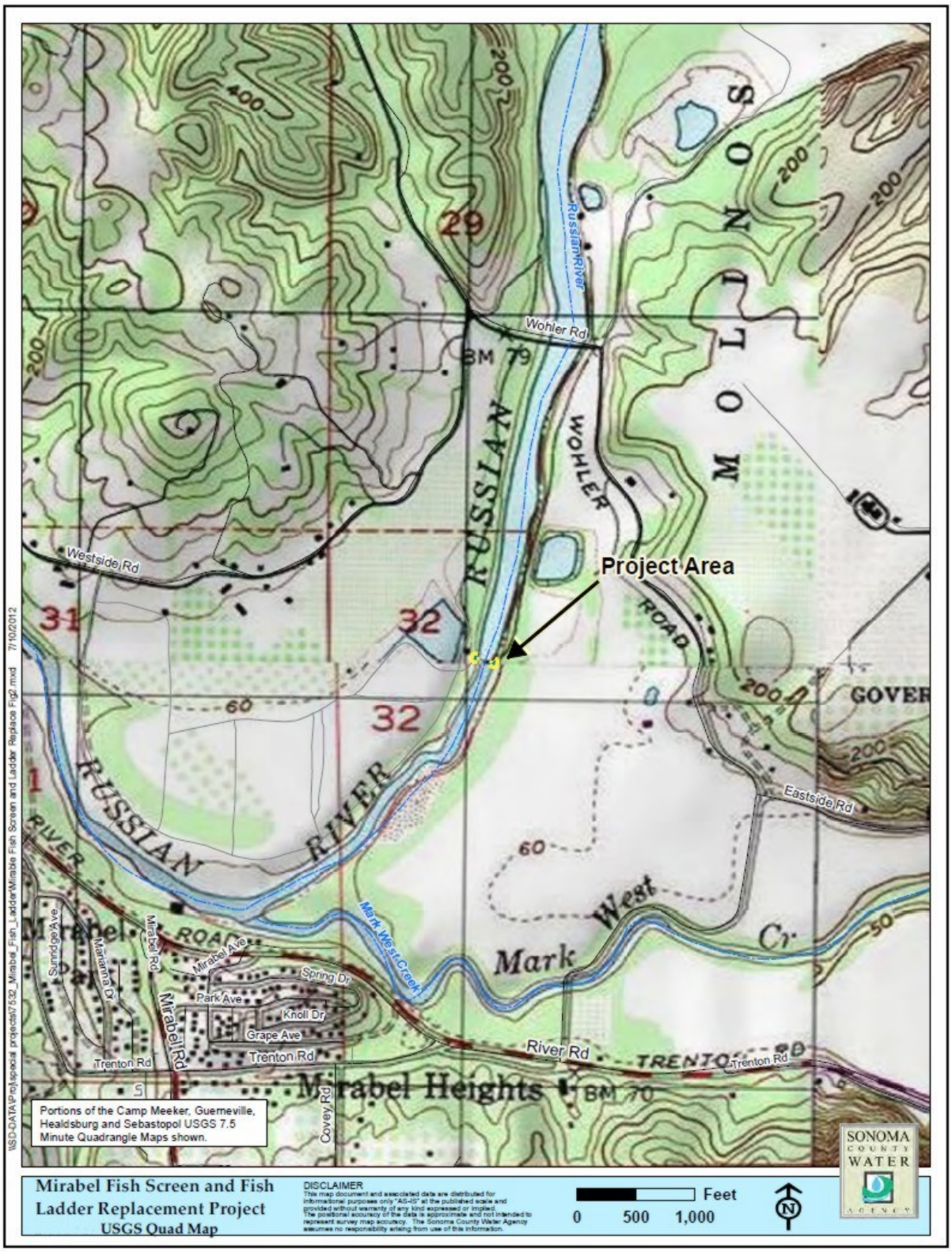
Project Area
Russian River
Wohler Rd
Westside Rd
Eastside Rd
Mirabel Heights
Mark West Creek
River Rd
Trenton Rd
Covey Rd
Portions of the Camp Meeker, Guerneville, Healdsburg and Sebastopol USGS 7.5 Minute Quadrangle Maps shown.
Mirabel Fish Screen and Fish Ladder Replacement Project
USGS Quad Map
DISCLAIMER
Feet
0 500 1,000
SONOMA COUNTY WATER AGENCY

Figure 2

Photo 1. Mirabel Dam

Photo 2. Existing Mirabel West Side Fish Ladder and Fish Screen/Intake Structures

Photo 3. Mirabel Dam With Notch

PROJECT OBJECTIVE

The objective of the Mirabel Fish Screen and Fish Ladder Replacement Project is to provide a fish screen that meets hydraulic design criteria to avoid impacts to threatened and endangered fish, maintain or improve fish passage through the fish ladder, and improve monitoring and educational opportunities at the Mirabel Dam and diversion facilities.

PROJECT LOCATION

The Mirabel Fish Screen and Fish Ladder Replacement Project would be located at the site of the Water Agency's existing Mirabel Dam along the Russian River approximately 2,600 feet downstream of the Wohler Bridge in Sonoma County, California, shown on Figure 1 and 2 above and in Figure 3 below. Proposed modifications would occur on the western bank of the Russian River. No modifications are proposed for the existing fish ladder on the eastern bank of the Russian River.

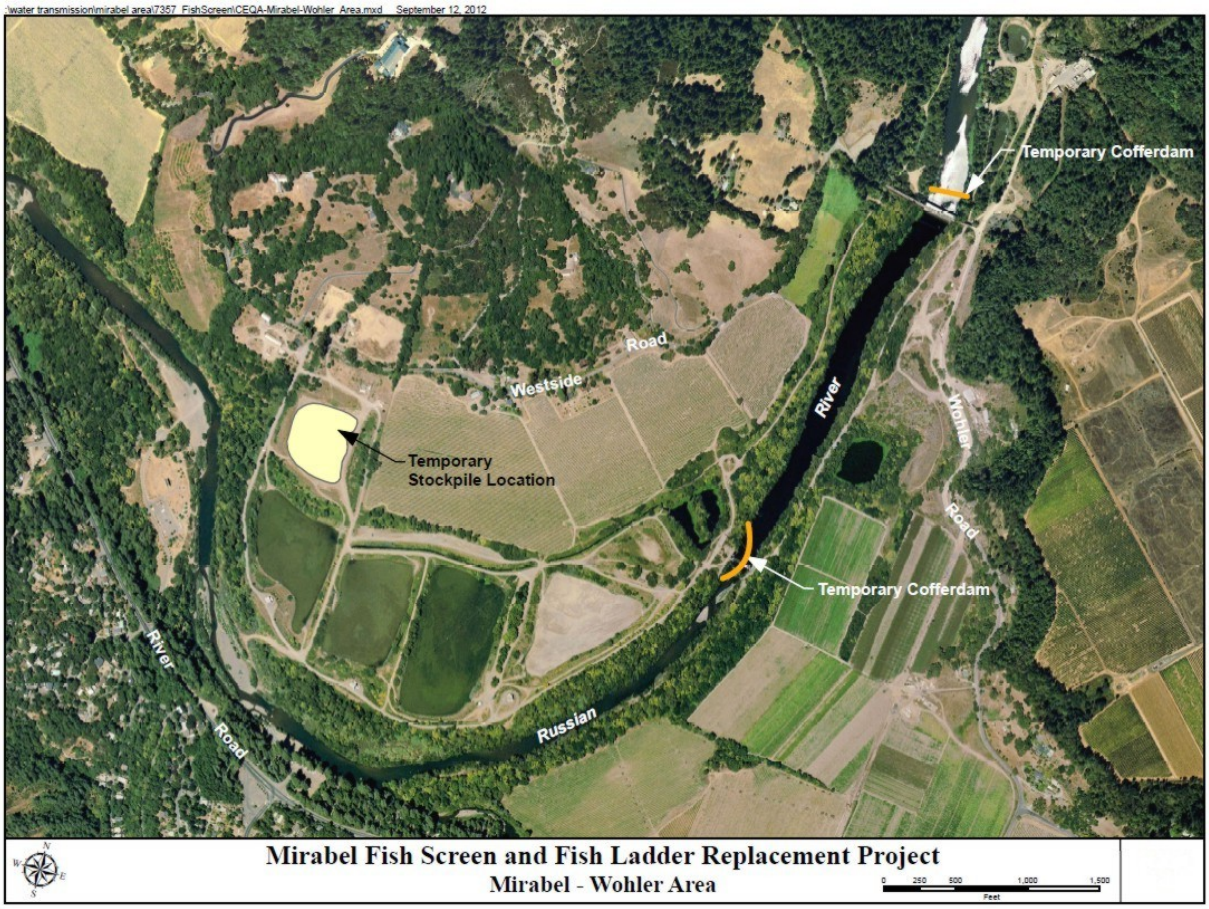

Figure 3

PROJECT DESCRIPTION

Project components consist of those relating to the fish screen modifications and those relating to the fish ladder modifications. Project construction activities would require isolating the work area from the active flow of the Russian River, demolishing the existing fish screen/intake and fish ladder structures on the western bank of the Russian River, and constructing the new fish screen/intake and fish ladder structures. The new facilities would extend approximately 40 feet farther upstream and approximately 100 feet farther downstream than the existing facilities. This larger footprint is necessary to meet contemporary fish screen and fish passage design criteria (NMFS 1997). Figure 4 shows a plan view of the proposed project design. Figure 5 shows a conceptual design drawing of the proposed project components.

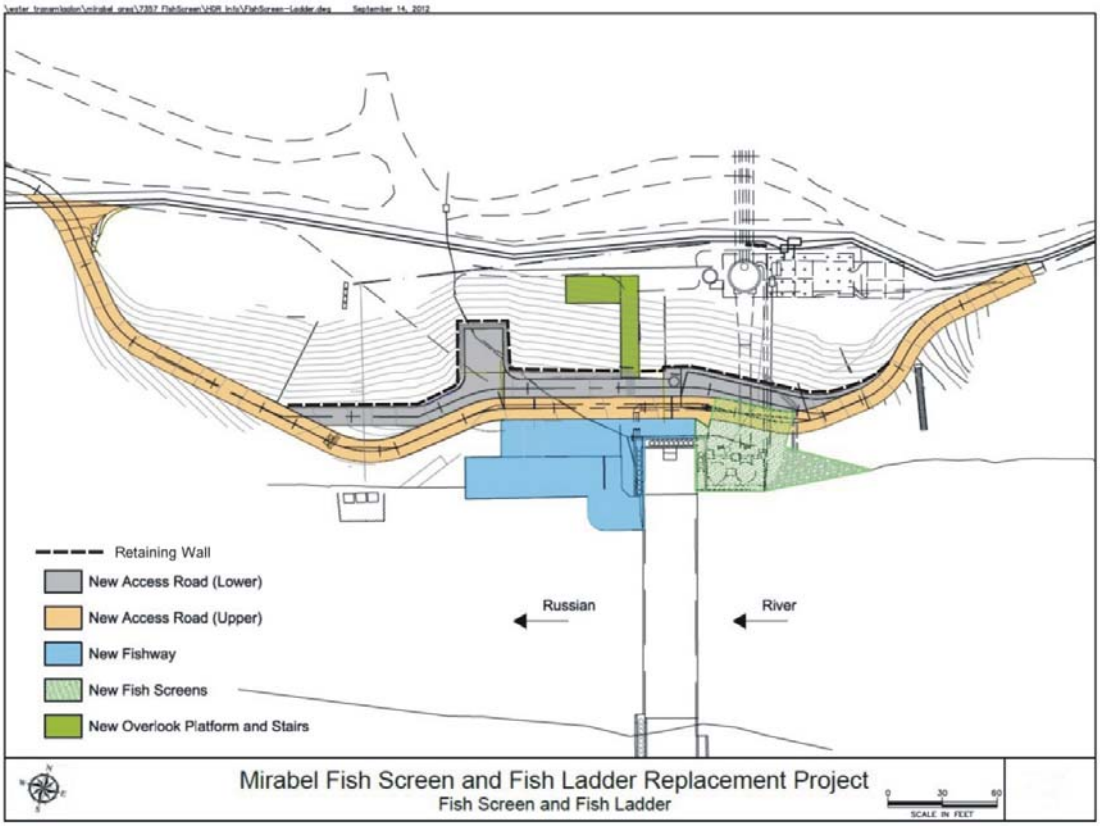

Figure 4

Figure 5

Fish Screen

The proposed intake screen would consist of six 12-foot tall by 6-foot wide panels, with a total area of 432 square feet. The new fish screen would also incorporate a cleaning system to ensure that the screen material does not become clogged. Clogged screens result in higher flows through unclogged portions of the screen, which can lead to fish getting trapped against the screen. The cleaning mechanism is anticipated to be an electric motor-driven mechanical brush system that periodically moves back and forth to clean the intake screen structure.

Fish Ladder

A vertical slot type fish ladder was selected as the recommended design to provide passage for upstream migrating salmonids. Vertical slot fish ladders are commonly used for salmon and steelhead (among other fish species) throughout the world. A vertical slot fish ladder consists of a sloped, reinforced concrete rectangular channel separated by vertical baffles with 15-inch wide slots that extend down the entire depth of the baffle. The baffles are located at even increments to create a step-like arrangement of resting pools.

The design would be self-regulating and provide consistent velocities, flow depths, and water surface differentials at each slot throughout a range of operating conditions. It is anticipated that the ladder would be configured to accommodate a range of fish passage conditions while the Mirabel Dam is up and river flows ranging from 125 to 800 cfs. Fish passage while the Mirabel Dam is down would also be accommodated, but is not the primary focus of design. The fish ladder would extend approximately 100 feet further downstream than the existing fish ladder at the site.

Fisheries Monitoring Components

The Water Agency currently conducts a variety of fisheries monitoring activities at its Mirabel Dam facilities. The new fish ladder design would support these monitoring activities by providing a dedicated viewing window and video equipment room and a fish trapping and holding area built into the fish ladder. The monitoring information collected by Water Agency staff is critical in tracking population trends and movement of different species in the Russian River system.

Education Opportunities

The existing facility at Mirabel is visited every year by approximately 3,000 schoolchildren as part of the Water Agency's water education efforts. The existing facility allows schoolchildren to see a critical component of the Water Agency's water supply system, but the views of the top of the existing fish ladder do not offer much opportunity for observing and learning about the fisheries of the Russian River system. The proposed project would include a viewing area, separate from the video monitoring viewing window, which would allow visitors to see into the side of the fish ladder. The educational experience for schoolchildren would be improved by having the opportunity to actually see fish travelling up or down the fish ladder.

Supporting Components

The project design would also include a variety of other components that would support the primary fish screen and fish ladder aspects of the project. These other components consist of items such as replacement of the buoy warning line upstream of the Mirabel Dam, modification of the existing access road to the project site, and the installation of a viewing platform to allow visitors a safe location to view the overall facility. The existing access road down to the Mirabel Dam is a steep one-way road. Vehicles going down to the Mirabel Dam area must be turned around or backed up the road down to the project site. The proposed project includes a modification of the access road so that the road will not be as steep and will include both an entrance and exit ramp from the Mirabel Dam site. Because the site is a major component of the Water Agency's water education program where several thousand schoolchildren are brought out to the site each year, the design for the new access road also includes a parking area at the Mirabel Dam that is compliant with Americans with Disabilities Act access standards. The viewing platform would be a deck area at the elevation of the existing upper levee road above the Mirabel Dam that would allow visitors to the site to view the facility. A stairway from the top of bank down to the Mirabel Dam would allow visitor access from the upper levee road area down to the Mirabel Dam.

POTENTIAL IMPACT PERIODS

Projects typically can have potential impacts to the environment during the construction of the facility, during the anticipated operation of the facility, and as a result of expected future maintenance activities associated with the facility.

Construction

Construction activities can result in longer term impacts that extend beyond the construction period, such as would occur with removal of vegetation during construction or the placement of new facilities within a scenic area. However, the majority of potential construction-related impacts are temporary in nature and cease to occur upon completion of construction activities. Typically, this would include activities such as construction vehicle traffic, construction noise related to vibratory or hydraulic hammer pile and sheet pile driving, removal of the existing fish screen and ladder, and the construction of new project components. Construction activities are anticipated to occur between June 15th and October 15th of 2013 and 2014. Depending on weather, construction activities out of the water and not requiring any water diversion or dewatering could continue between October 15, 2013 and June 15, 2014.

Temporary dewatering of the work area will require cofferdams to divert the flow of the Russian River away from the west bank of the project area during construction. Figure 6 shows the proposed location of the temporary cofferdam and dewatered work area at the Mirabel Dam location. Water would either be isolated by temporary cofferdams to the eastern side of the river channel or diverted around the eastern abutment of the Mirabel Dam. An existing set of sheet pile walls east of the Mirabel

Dam can be utilized to divert flows around the Mirabel Dam. Using this sheet pile channel would require excavating the soil between the sheet pile walls at the eastern abutment of the Mirabel Dam and installing a temporary inflatable cofferdam upstream to divert the river flow through the sheet pile channel. Photo 4 shows the top of this existing sheet pile channel and an upstream (gravel) cofferdam that was used in 1995 when the bladder for the Mirabel Dam was replaced. An example of the installation of a water-filled temporary cofferdam is shown in Photo 5, taken in 2006 during repair work at the Mirabel Dam. Once river flow is diverted to isolate the work area, water from within the isolated work area would be pumped out of the construction zone and into the Water Agency's existing infiltration ponds west of the Russian River. Because of the permeability of the gravels in the work area and the depth of excavation, dewatering from within the work area would likely require multiple pumping points, using temporary wells or "well points". Additional sheet piling may be necessary within the isolated area to cut off infiltrating groundwater, and to shore the excavation cuts for the structure foundations.

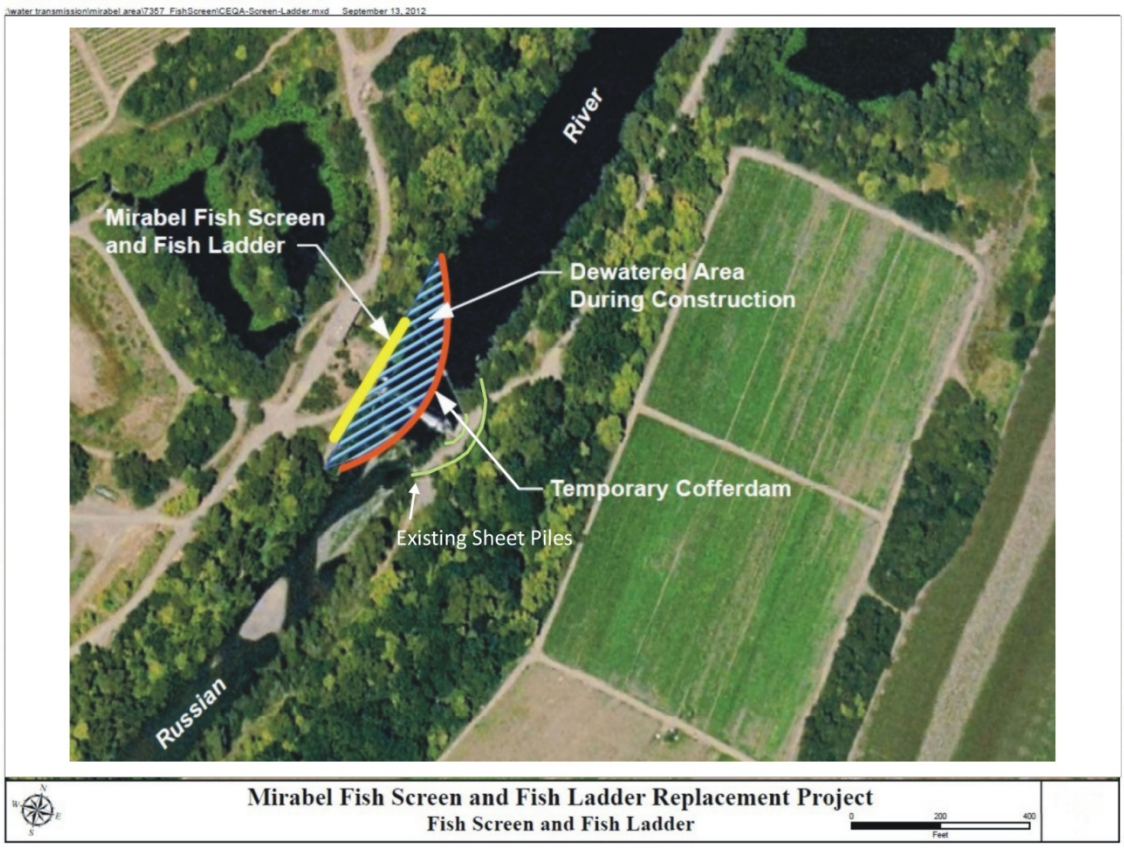

Figure 6

Photo 4: Existing sheet pile channel and an upstream (gravel) cofferdam that was used in 1995 when the bladder for the Mirabel Dam was replaced

Photo 5: Example of the installation of a water-filled temporary cofferdam

Because the Mirabel Dam, and the associated pool of water that backs up behind the dam, is critical to the operation of the Water Agency's potable water delivery system, a temporary cofferdam upstream of the project area would need to be installed throughout the summer construction periods. This temporary cofferdam would be installed just upstream of the Wohler Bridge (location shown in Figure 3 above). Access to this location would be along existing service roads. Disturbance to vegetation is anticipated to be minimal (minor trimming of vegetation at either end of the cofferdam). The cofferdam material would likely be an inflatable water-filled bag spanning the river at this location; although a gravel cofferdam was used at this location in the past and could be another option. Whatever material is utilized, the temporary cofferdam would include a temporary fish ladder to allow continued fish passage through the area. Photo 6 below is an example of one type of seasonal fish ladder installed at a summer dam in the Vacation Beach area of the Russian River. Other passage methods, such as a series of cofferdams to provide a cascading riffle below the primary cofferdam may be utilized. A portage route around the temporary cofferdam location already exists. Temporary signage for the portage route and warning buoys and signs for the cofferdam would be installed during construction.

Photo 6: Example of one type of seasonal fish ladder installed at a summer dam in the Vacation Beach area along the Russian River

Approximately 8,000 cubic yards of material will be removed to construct the fish ladder structure. Materials excavated from the work area for the construction of the project components and the access roads would be transported to an existing spoils disposal area within the Water Agency's Mirabel facility (location shown in Figure 3).

In addition to the fish ladder and fish screen structures, extensive over-excavation may also be necessary to construct the retaining wall supporting the high cut bank above the lower portion of the access road, the parking area, and fish ladder viewing gallery. The retaining wall will range from approximately 4 to 25 feet in height, and construction of the retaining wall and associated anchoring will require removing (excavating) and reconstructing the levee adjacent to the fish ladder and fish screen structures down to the elevation of the access road, and may involve as much as 5,000 cubic yards of additional earthwork. Extensive excavation will also be necessary adjacent to the new fish ladder structure to expose and tie in the multiple piping connections to the Pump Station.

Operation and Maintenance

For the proposed project, the new facility is not expected to result in any new activities during the operation and maintenance phases beyond those that already occur with the existing facilities. The Water Agency has to annually clean up some materials and debris that deposits on the Mirabel Dam facilities. Due to the nature of the proposed viewing gallery, this area would be subject to collecting material during high flows., which would increase the level of clean-up effort after the each high flow season. Cleanup will require mucking out all the sediment that accumulates in the gallery and washdown. All washdown water would be pumped over the levee into the ponds. In addition, preparation for flood events (or a shutdown for the entire high flow season) would require the installation of protective covers on the viewing gallery windows to protect them from damage.

PROJECT ALTERNATIVES

The Water Agency is required under the Russian River Biological Opinion to design a new fish screen at its Mirabel facilities that meets current California Department of Fish and Game (CDFG) and NMFS specifications for avoiding impingement of fish against the screens or stranding of listed salmonids. Because of this requirement, alternatives for the screen portion of the project are limited to alternative types of screens. Similarly, because the proposed fish ladder and visitor viewing aspect of the proposed project is integrally tied in with the modification of the existing facility at Mirabel, alternatives for the fish ladder and viewing chamber are limited to alternative screen designs that can meet CDFG and NMFS specifications. Since the viewing chamber and fish way re-design are not required by the Russian River Biological Opinion, the option of just replacing the fish screens and not including the fish ladder re-design or the viewing chamber does existing; however, without the fish ladder re-design, any fish screen design would need to be bigger to counteract the lower sweeping velocities that currently exist.

In 2009, the Water Agency began a feasibility study to evaluate what type of fish screen and fish ladder would be suitable for the Mirabel site. A copy of the 2009 feasibility study is included in Appendix A. The objectives of this feasibility study were to:

- Provide for a fish screen that meets contemporary hydraulic design criteria (approach velocity = 0.33 feet per second; sweeping velocity = 2 times approach velocity) at the 100 cfs maximum diversion rate.
- Maintain or improve downstream fish passage and provide for control of steady bypass flows. Control should be through the use of a fish-friendly hydraulic structure or structures that can accommodate a range of expected bypass flow requirements.
- Maintain existing diversion rate and operating water surface. (Elevation 38.0 feet is normal operating water surface, elevation 39.0 feet is maximum operable, elevation 36.0 feet is considered the minimum operable water level).
- Provide a design that is compatible with and does not preclude opportunities for significant future dam modifications or replacement.
- Maintain or improve upstream fish passage monitoring capability.
- Maintain or improve upstream fish passage.
- Provide for educational opportunity.
- Maintain recreational river portage around dam and enhance portage with new facilities that also provide educational opportunities.
- Identify a project that offers good value and reliable known costs over the next 50 years.
- Provide for water diversions at low, non-impounded flows.

A Technical Advisory Committee (TAC) was formed with representatives from CDFG, NMFS, and the Water Agency. The first TAC meeting was held on July 20, 2009 in which the statement of objectives was reviewed and fish screen replacement alternatives were discussed. The meeting helped guide the concept designs toward a preferred alternative.

A preferred concept design alternative was determined and was presented to the TAC on September 28, 2009. The preferred concept design consisted of an inclined fish screen with a vertical slot fish ladder. The TAC concluded that this design better matched the project objectives compared to other concepts. The components of the preferred concept design included a new intake with an inclined[1] flat plate fish screen system, an oversized screen for increased bypass flow control and capacity, and a bypass fish ladder in the form of a vertical slot fish ladder. The TAC also reviewed the preferred concept design alternative in the field during a site visit. TAC feedback was positive for the concept design and the Water Agency proceeded to move forward to the next phase of design with the preferred concept.

[1] The preferred project design has since been modified to have the intake screens be vertical instead of inclined.

Basis for Preferred Concept Design Alternative

In working through the concept design alternatives it became increasingly apparent that the objectives of improving downstream fish passage and providing for control of steady bypass flows were equally important components of providing a fish screen that meets contemporary hydraulic design criteria. The Water Agency's design consultant determined that that a new fish screen meeting criteria can be easily designed if a fish-friendly passageway component for flow bypass can be combined with the new intake structure. The challenge was not in providing an adequate fish screen so much as providing for attractive fish migration and bypass flow control. In essence, the integration of a new fish ladder, and its associated hydraulics creating higher sweeping velocities for the upstream fish screen structure, was an important concept design strategy. A new fish ladder providing higher sweeping velocities would allow for a smaller fish screen structure. Higher sweeping velocities (flows downstream) offset the potential for fish to get trapped (impinged) by flows going through the fish screens into the diversion intake. Many variations and options of a fish-friendly configuration that provided good bypass flow control and flow capacity were considered. These included replacing all or part of the dam with overflow gate systems, integrating a gate and control system just outside of either dam abutment, and relocating the water diversion into a canal. These options vary in degrees of fish-friendliness and flow capacity and control but in general, the more fish-friendly any individual component or system may become the less capacity and control for bypass flow it tends to have for water diversions. A balance of the two aspects was obtained by focusing the design strategy on developing a large capacity fish-friendly bypass structure. The most beneficial structure for fish passage, other than a natural channel, is a fish ladder. The advantage of fish ladders, with well-defined flow ranges, is that they can be located in smaller areas by folding their hydraulic profile into a smaller footprint when compared to a natural channel.

A revised alternative that includes a vertical slot fish ladder was developed and better matched the project objectives compared to previous concepts. The components of this revised concept include a new diversion intake with a vertical flat plate fish screen system, an oversized screen for increased bypass flow control and capacity, and a bypass fish ladder in the form of a vertical slot fish ladder. The increased sweeping flows past the intake structure that would occur with a new vertical slot fish ladder allowed for the proposed intake screens to be vertical instead of inclined, which results in a smaller footprint area for the screens and reduced maintenance requirements since vertical panels would be subject to less debris accumulation than inclined panels.

Other Alternatives Considered

The first concept alternative considered was to simply retrofit the existing drum screens or intake. One variation of this could include fixing the drums in place so that they do not rotate, adding baffling behind the screen material, replacing the solid top of the drum with screen material, and other features to help reduce the chaotic

nature of the hydraulics around the drums. This approach is considered experimental and would likely require many trial and error attempts at proving that the retrofit would meet CDFG and NMFS fish screen criteria. It would also not meet many of the project objectives and was therefore dropped from further consideration.

During preparation of the Biological Assessment[2], and subsequent to the Mirabel fish screen performance evaluation, a concept design alternative of permanent modifications to the facility was developed (Borcalli and Associates 2001). This alternative was designed to strictly meet the objective of adhering to contemporary fish screen criteria. This 2001 concept alternative included a vertical, flat plate fish screen oriented on a diagonal to the bank and integrated into the existing intake structure with some concrete intake modifications at the upstream end. It also included mechanical straps to adjust the dam shape for more controlled hydraulics and flow over the dam. Based on recommendations from the dam manufacturer, the Water Agency determined that the mechanical straps over the dam would not be allowed. This concept alternative was included with the others in the evaluation process but because it did not significantly improve downstream fish migration and bypass flow control it was not considered viable going forward. This fish screen configuration was used as a design basis in the other concept design alternatives.

The next concept design alternative that was considered is a newer type of modular fish screen system called a cone screen. Two removable cone screens would be placed into a retrofitted intake. As part of this concept the intake pipes under the drum screens would be relocated to better balance the flows between them. Because this concept would require substantial reworking of the intake and did not meet many of the other project objectives it was not considered further.

Three more concept design alternatives were developed. These included a new fish screen with a vertical slot fish ladder, a new fish screen with pool-and-chute fish ladder, and a east bank bypass channel (opposite side of river) with a separate fish screen improvement inclusive of the above concepts. The ladders and bypass channel were primarily considered for enhancing the quantity and attractiveness of flow components for downstream fish migration. The bypass channel was analyzed for the left bank because there are two existing rows of sheet pile around the dam abutment about 20 feet apart that can form the sides of a bypass channel. These existing sheet pile rows were used in the past as a river bypass during the construction and subsequent repairs to the Mirabel Dam. The new fish screen with a vertical slot fish ladder was selected as the Preferred Concept Design Alternative.

[2] The Biological Assessment was an evaluation of how the U.S. Army Corps of Engineers, Water Agency, and Mendocino County Russian River Flood Control and Water Conservation District's existing operations impacted Endangered Species Act listed salmonid species in the Russian River basin. The Biological Assessment is the basis for the NMFS 2008 Russian River Biological Opinion.

No Project Alternative
The No Project alternative would mean that the Mirabel fish screens would not be brought up to current CDFG and NMFS design criteria and that the Water Agency would be out of compliance with one of the required components of NMFS Russian River Biological Opinion.

NOTICE OF PREPARATION AND SUMMARY OF COMMENTS
On July 20, 2012, a Notice of Preparation (NOP) of an Initial Study was distributed to the following jurisdictional and permitting agencies:

- U.S. Army Corps of Engineers
- National Marine Fisheries Service
- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region

Copies of the NOP were also posted with the California Governor's Office of Planning and Research's State Clearinghouse, the Sonoma County Clerk, and sent to property owners adjacent to the project area. Comments regarding the proposed project were received from the CDFG, the California State Water Resources Control Board, and the California State Lands Commission. Copies of the NOP and comments received are included in Appendix B. A summary of written comments and the Water Agency's responses are provided below.

California Department of Fish and Game
Summary of Comments: The CDFG submitted comments on the NOP requesting an assessment of the habitats, flora, and fauna within and adjacent to the project area. CDFG advised that a California Endangered Species Act Permit must be obtained if the project has the potential to result in the take of species of plants or animals listed under the California Endangered Species Act. CDFG also advised that a Lake and Streambed Alteration Agreement pursuant to Section 1600 et seq. of the California Fish and Game Code would be required.

Response: The Water Agency has included a description of the proposed project as well as a breakdown of the habitat types within the project area. Upon completion of the CEQA process, the Water Agency will submit permit applications for coverage under the California Endangered Species Act and Section 1600 et seq. of the California Fish and Game Code. The Water Agency has been coordinating the project design with NMFS and CDFG staff to ensure that the project design as well as implementation, effectiveness, and validation monitoring are in compliance with NMFS and CDFG standards.

California State Water Resources Control Board

Summary of Comments: The California State Water Resources Control Board (State Board) submitted comments on the NOP noting that the Water Agency is required under conditions of a 2012 Temporary Urgency Change Petition (TUCP) order issued by the State Board to monitor and record salmonid migration at Mirabel Dam. The State Board recommended in its NOP comments that the Water Agency continue compliance with the 2012 TUCP Order and ensure that the Project does not interfere with terms in the Water Agency's existing water rights.

Response: The Water Agency intends to continue its monitoring of salmonids migration in the project area throughout construction; however, some monitoring methods may have to be modified. It is likely that downstream migrant screw-trap monitoring would be able to continue in the spring and early summer. Once the demolition of the fish ladder on the western side of the dam begins, video monitoring of adult upstream migrants in the fall would not occur until construction is complete. The Water Agency is investigating the feasibility of using acoustic sonar cameras as an alternative means of monitoring upstream migration during construction.

California State Lands Commission

Summary of Comments: The California State Lands Commission (CSLC) submitted comments on the NOP requesting that the Water Agency provide a thorough and complete Project Description in the Initial Study; consider sensitive species in the project area; evaluate noise and vibration impacts on fish and birds from construction activities; evaluate greenhouse gas emissions for the project; evaluate cultural resources; and evaluate the cumulative effects of the proposed project along with other projects required under the Russian River Biological Opinion.

Response: This IS/MND provides a thorough and complete description of the proposed project and the consideration of the potential impacts to environmental resources in the project area.

ENVIRONMENTAL SETTING

The Russian River watershed consists of a series of valleys surrounded by two mountainous coast ranges, the Mendocino Highlands to the West and the Mayacamas Mountains to the east. The Santa Rosa Plain, Alexander Valley, Hopland (or Sanel) Valley, Ukiah Valley, Redwood Valley, Potter Valley and other small valleys comprise about 15 percent of the watershed. The remaining area is hilly to mountainous. Principal communities are Ukiah, Hopland, Potter Valley, Cloverdale, Healdsburg, Windsor, Forestville, Sebastopol, Santa Rosa, Rohnert Park, Cotati, and the Russian River resort area, stretching from Mirabel Park to the mouth of the Russian River and includes the communities of Rio Nido, Guerneville, Monte Rio, Duncans Mills and Jenner. The project area is located in rural, unincorporated Sonoma County, near the town of Forestville. The project area is accessible from Westside Road south of the Wohler Bridge.

Recreation is also a major industry in the Russian River watershed. Besides recreational opportunities at Lakes Mendocino and Sonoma, the Russian River itself is extensively used for water sports such as canoeing, swimming, and fishing. Many summer homes and resorts are located along the Russian River near Healdsburg and between Mirabel Park and Duncans Mills.

Topography

The project area is located on the west bank of the Russian River just downstream of the Wohler Bridge. The Russian River valley is approximately 3,000 feet wide at the Mirabel dam. The land generally rises gradually from the Russian River, although in some places there are steep embankments or terraces. Topography is relatively flat on the tops of the levees in the project area. Throughout the project site, bank heights are approximately 30 feet high.

Soils and Geology

The principal geologic formations in the lower Russian River valley are alluvium and consolidated bedrock of Jurassic and Cretaceous Age. Also included are river-channel deposits, erosional remnants of terrace deposits, and the Merced Formation. Bedrock at the site consists of sandstone, shale, chert, and metamorphic rocks of the Jurassic age Franciscan, and Cretaceous age Knoxville formations (Herzog Associates, 1992). Generally the rocks are highly fractured and absorb and store water (Cardwell, 1965).

Upstream of the Mirabel dam, the Russian River enters a narrow "canyon" that ranges from less than 1000 feet wide at Wohler Bridge to more than 3000 feet wide in the Mirabel area. Upstream of this "canyon", the river valley is more than a mile wide. A constriction in valley width generally results in higher energy river flows, and deposition of coarser, more permeable materials (Harding Lawson Associates, 1988). Just downstream of the Mirabel Dam area the Russian River valley becomes even wider, up to 5000 feet, where Mark West Creek enters the Russian River valley (Herzog Associates, 1992).

The subsurface material in the well field area is alluvium deposited by the Russian River. (Cardwell, 1965) Well logs indicate that alluvium in the well field area varies in thickness from 60 to 70 feet. (Herzog Associates, 1992) This alluvium is generally composed of Quaternary-age deposits of fine-grained silty sand overlying sand and gravel. The sand and gravel, which contains interbedded silt and clay lenses, comprises the predominant aquifer material in the Russian River valley. Recharge to this alluvial aquifer is primarily by infiltration from the River and from the artificially constructed infiltration ponds located near the Water Agency's Mirabel Collector Wells, which are large wells where water is pumped for water supply purposes from the aquifer underlying the Russian River. Recharge from rainwater infiltration through the surrounding bedrock is considered to be minor by comparison (Harding Lawson Associates, 1988) (Herzog Associates, 1992).

Four soil types characterize the Mirabel area: alluvial land, riverwash, Yolo sandy loam, and Yolo loam overwash. These soils are generally suitable for gravel mining, orchards and vineyards, pasture, timber, and wildlife habitat (USDA Forest Service and Soil Conservation Service, 1972).

Seismicity

Two known fault traces occur near the Mirabel area: 1) a probable extension of the Mt. Jackson Fault Zone, which likely trends beneath the alluvium in the vicinity of the Mirabel Collector Wells, and 2) a projected trace of the Porter Creek Fault Zone, which parallels the Mt. Jackson Fault approximately one-half mile northeasterly. Both Fault Zones are considered potentially active, although they have not produced any significantly damaging earthquake during historic time (Bace Geotechnical, 1994).

The nearest active fault to the site is the Healdsburg-Rodgers Creek Fault, which is located approximately 10 miles easterly of the site. Future damaging earthquakes could occur on this fault, or on the active San Andreas Fault, which is located approximately 15 miles southwesterly of the site. Intensity of ground shaking at the site would depend on the distance to the earthquake epicenter, the magnitude of the quake, and the response characteristics of the underlying materials. The maximum earthquake potential at the site is from a major event on either the San Andreas or Healdsburg-Rodgers Creek Faults. The Maximum Credible Richter-scale Magnitude quakes for the active San Andreas and Healdsburg-Rodgers Creek Faults are 8.5 and 7.0, respectively (Bace Geotechnical, 1994).

Vegetation

Vegetation in the project area has undergone considerable changes caused by past and present agricultural use and Water Agency activities, and by past gravel mining activities. The project area is located at an existing facility with existing access roads in the area. The project area footprint does expand beyond the existing facility footprint into vegetated areas surrounding the Mirabel dam. The surrounding riparian vegetation contains a mix of native species and introduced non-native species. The dominant canopy trees in the area adjacent to the Russian River include: box elder (*Acer negundo*), cottonwood (*Populus fremontii*), walnut (*Juglans hindsii*), and willow (*Salix* sp.). The understory is characterized by Pacific and Himalayan blackberry (*Rubus ursinus* and *Rubus discolor*), mugwort (*Artemesia douglasiana*), periwinkle (*Vinca major*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), stinging nettle (*Urtica dioica* ssp. *gracilis*) , and areas of giant reed (*Arundo donax*). Some live oak trees (*Quercus agrifolia*), blue elderberry (*Sambucus mexicana*) and coyote brush (*Baccharis pilularis*) are located on the far side of the levees, away from the Russian River (Cuneo, 2012). A copy of special status species potentially occurring in the project area is included in Appendix C and a list of plant species observed within the project area is included in Appendix D.

Wildlife and Fisheries

Riparian woodland is the predominant habitat type in and around the project area. In the immediate vicinity of the Mirabel Dam, the riparian vegetation was previously disturbed during the construction of the existing facility.

Coho salmon, Chinook salmon, and steelhead use the lower mainstem Russian River (including the project area) primarily as a migration corridor. Adults pass through the Mirabel Reach of the river during their migration to upstream spawning and rearing habitat. Juveniles (smolts) migrate through the area during their downstream journey to the ocean. However, small numbers of steelhead have been observed in the project area throughout the summer period, indicating that either they migrate at low levels throughout the year, or that rearing occurs in the area, albeit at low levels. Besides salmonids, California roach, sculpin (prickly and riffle), Sacramento sucker, Pacific lamprey, western brook lamprey, bluegill, green sunfish, fathead minnow, hardhead, hitch, Russian River tule perch, Sacramento pikeminnow, Sacramento sucker, and threespine stickleback are other species known to occur within the Russian River.

Construction in or near the streambed for the proposed project would occur during the low flow months of June-October when special status fish species would least likely be in the area. The construction site on the west side of the river would be dewatered during construction activities. There is potential for upstream migrating adult Chinook salmon to be present within the project area during September and October. Juvenile steelhead could potentially be present within the project area during June-October. Dewatering would require installation of cofferdams around the project site and diverting stream flow around the project site. All dewatered areas would require fish rescue and relocation to areas outside of the project site.

An inventory search for status and locations of rare plants and animals for the CDFG California Natural Diversity Database was conducted for the project site (Guerneville quadrangle) and the adjacent quadrangle (Healdsburg). CDFG Species of Special Concern, northwestern pond turtle (*Actinemys marmorata marmorata*) is inventoried in the adjacent quadrangle of the project area. Given the project area's supportive habitat, the project site would provide potential habitat for northwestern pond turtle. Construction activities may result in temporary loss of habitat availability within the project site. Prior to beginning construction activities, pre-construction surveys would be performed within the project site. Should northwestern pond turtle be found within the construction area, individuals would be relocated by a qualified biologist to an area of appropriate habitat outside of the construction area.

The project area includes potential nesting habitat for numerous common and special-status birds. Project activities such as ground clearing, earthmoving, grading, trenching, and trimming or removal of trees during the breeding season (generally February 1 to August 31) have the potential to result in direct mortality of these species. In addition, human disturbances and construction noise have the potential to cause indirect impacts due to nest abandonment and death of young, or loss of reproductive potential at active nests located near project activities. Any activities

occurring during the breeding season would require the following mitigations to reduce potential impacts to a less than significant level:

- Whenever feasible, vegetation shall be removed during the non-breeding season.
- For ground disturbing activities occurring during the breeding season (February 1 to August 31), a qualified wildlife biologist would conduct pre-construction surveys of the project site for nesting raptors within a 500-foot radius of construction activities, and for other nesting birds within a 50-foot radius of construction activities. Pre-construction surveys would occur within 14 days of the start of construction activities.
- If active bird nests are found during pre-construction surveys, a 500-foot "no disturbance" buffer would be established around active raptor nests during the breeding season. A 50-foot buffer zone would be established around the nests of other special status birds, or until it is determined that all young have fledged.
- These buffer zones are consistent with CDFG avoidance guidelines; however, they may be modified in coordination with CDFG based on existing conditions at work locations.
- If pre-construction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located at least 50 feet from active nests may be removed.

Cultural Resources

The Mirabel Dam area is located on river alluvium soils in an area that has been subject to flooding and major fluctuation in river patterns for over a century. Although riparian areas are generally considered highly sensitive to the potential occurrence of cultural resources, such a location lessens the chance of recovering any archaeological matter intact. In addition, the original construction of the Mirabel Dam in 1975 required extensive excavation and movement of soil throughout the project area. Potential cultural resources located in the area would likely have been discovered at that time.

A cultural resources literature search was conducted in December 1992 by the California Archaeological Inventory, Northwest Information Center. The literature search concluded that there is a low possibility of prehistoric or historic resources within the project vicinity. In 2012, a cultural resource survey was conducted for the proposed project (Hegensieker 2012).[3] No archeological resources or historical buildings or structures were found within the study area.

[3] Hagensieker, B.A. and Janine M. Loyd, M.A./R.P.A. *A Cultural Resources Survey for the Mirabel Fish Screen and Fish Ladder Replacement Project near Forestville, Sonoma County, California*. Tom Origer and Associates. July 27, 2012.

LAND USE AND CONFORMANCE WITH GENERAL PLAN

Historical and Present Land Use

The Water Agency has owned the subject property since the 1970's and has constructed and operated the Mirabel Collector Wells and ancillary facilities (infiltration ponds, rubber dam and diversion facilities) since that time. Fishing, swimming, and sunbathing have been frequent recreational activities in the project area along the Russian River. Although dedicated and signed public access to the Mirabel facilities is not provided, people frequently utilize the Water Agency's service roads for walking. The Russian River itself is also heavily utilized as a recreational access and use through the project area.

Conformance with the General Plan

The project area is subject to the land use policies and designations adopted in the Sonoma County General Plan (General Plan). The General Plan designates the project area as *Resources and Rural Development* (LIA) at a specified density of 20 acres per unit. The proposed project would not alter the Water Agency's existing operations that currently occur in the Mirabel area. The proposed project would not limit or restrict any existing activities that occur in the project area.

CUMULATIVE EFFECTS

The Russian River Biological Opinion involves both immediate and long-term actions to improve habitat and fish populations that will guide operations to protect threatened or endangered salmonids in the Russian River watershed through the year 2023. The Water Agency has developed the Russian River Instream Flow and Restoration (RRFIR) Program to implement the mandates under the Russian River Biological Opinion. In addition to modifying the fish screens at Mirabel, the following actions are mandated by the Russian River Biological Opinion:

- Permanent Modifications to the State Water Resources Control Board's (SWRCB) Decision 1610 to reduce instream flow requirements in the mainstem Russian River and Dry Creek and temporary modifications to the SWRCB's Decision 1610 instream flow requirements in the mainstem Russian River;
- Estuary Management: the Water Agency will adaptively manage the Russian River Estuary near Jenner with the primary objectives of enhancing rearing habitat for juvenile salmonids, particularly steelhead, and managing Russian River Estuary water levels to minimize flood hazard;
- Continue support of the Coho Broodstock Program;
- Decommissioning the Wohler infiltration ponds;
- Flood Control: Stream Maintenance Program; and
- Dry Creek Habitat Enhancement.

Construction effects associated with the Mirabel Fish Ladder and Fish Screen Replacement Project are anticipated to be short-term and temporary, and would not directly overlap geographically or spatially with implementation of other components of the Russian River Biological Opinion; therefore these impacts associated with the proposed project along with other components of the Russian River Biological Opinion are not adversely cumulatively considerable. Geographically, the closest Russian River Biological Opinion related project is the decommissioning of the Wohler infiltration ponds located upstream of the Wohler Bridge. Work necessary to decommission the Wohler ponds was completed in 2011. Modification of fish screens and providing an improved fish ladder design at Mirabel, is intended to minimize or remove one potential limiting factor impacting the life histories of listed salmonid species in the region. Combined with the other components of the Russian River Biological Opinion, the proposed project is anticipated to contribute to a long-term cumulatively beneficial impact designed to contribute to the recovery of steelhead, Chinook and coho salmon in the Russian River.

RIGHT-OF-WAY

The proposed project is located on land already owned by the Water Agency. No new right-of-way would be required for the project.

ENVIRONMENTAL EVALUATION AND MITIGATION MONITORING

The potential environmental impacts of the proposed project and related mitigation measures are identified in the Environmental Checklist. All of the impacts identified in the checklist can be mitigated to a level considered less than significant. Mitigation measures have been developed for impacts that fall within the "Less Than Significant with Mitigation" category. In addition, mitigation measures have been developed for some impacts that are not potentially significant, even without mitigation. The Water Agency proposes implementation of these mitigation measures to further minimize the less than significant impacts.

In compliance with Section 21081.6 of CEQA and the Water Agency's Jurisdiction-Wide Mitigation Monitoring Program, a Draft Mitigation Monitoring Plan (MMP) has been prepared and is included in Appendix E. At the conclusion of the IS/MND public review period, a Final MMP will be prepared, if needed, to incorporate any additional mitigation measures proposed by regulatory agency representatives or the public during the public review period. The Final MMP will be submitted to the Water Agency's Board of Directors, along with the IS/MND, for consideration and approval and adoption.

JURISDICTIONAL/PERMITTING AGENCIES

The following are public entities and agencies that may require review of the project or that may have jurisdiction over the project area:

- U.S. Army Corps of Engineers
- National Marine Fisheries Service

- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- California State Water Resources Control Board
- California State Lands Commission
- Sonoma County Permit and Resources Management Department

FINDING

On the basis of the IS/MND, the General Manager of the Sonoma County Water Agency has determined that although the proposed project may have a significant effect on the environment, there will not be a significant effect in this case because the effects can be mitigated to a less than significant level. Mitigation measures that have been incorporated in the proposed project are discussed below in the Environmental Checklist and in the MMP in Appendix E.

SUMMARY OF ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Less Than Significant with Mitigation" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

ENVIRONMENTAL CHECKLIST

The following checklist is based on the Environmental Checklist Form (Checklist) included as Appendix G to the CEQA Guidelines (California Code of Regulations Title, Sections 15000 et. seq.) as adopted December 30, 2009 (effective March 18, 2010). The checklist provides a summary of potential impacts that may result from implementation of the proposed project.

With regard to the checklist, a "No Impact" response indicates that no impact would result from implementation of the project. A "Less Than Significant Impact" response indicates that an impact is involved, but is at a level which is less than significant. A "Less Than Significant With Mitigation" response indicates that an impact may

potentially be significant, but the incorporation of mitigation measures would reduce the impact to a level of insignificance. For these responses, mitigation measures are included after the discussion of the impact. A "Potentially Significant Impact" response indicates that impacts may be significant if mitigation measures are unknown, infeasible, or not proposed. Each response is discussed at a level of detail commensurate with the potential for adverse environmental effect. The mitigation measures identified in this section would be incorporated into the project, and included in the Mitigation Monitoring Plan.

Supporting Information Sources for each response are indicated in parentheses after each impact topic. Refer to the end of the Checklist for a listing of the Supporting Information Sources.

I. AESTHETICS

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista? (1,2)	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (2)	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings? (2)	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The project area is located along the Russian River just downstream of the Wohler Bridge. The project area is not identified as a Scenic Landscape Unit in the Sonoma County General Plan 2020; however, the Russian River as a whole is a scenic area that offers aesthetically pleasing views for a wide range of viewers. There would be a short-term visual impacts associated with construction activities. Project activities, such as dewatering, stockpiling of materials, removal of vegetation, demolition of existing fish ladder and screen components, excavation for the new components, and construction of the new fish screen and fish ladder components, may be considered an aesthetic impact by some people. These construction activities would be clearly visible to people traveling down the Russian River in the project area. Views of the project area from other locations are limited. Initially after construction, the project area will exhibit signs of being recently disturbed. In particular, the vegetation removed in order to construct the new access road would be noticeable. The new fish screens and fish ladders would cover a slightly larger area; however, the overall aesthetics of the new components would not be significantly different than those of the existing facilities being replaced. Because riparian plants along the banks of the Russian River grow fairly rapidly due to the high quality soils and abundant year-round water, it is anticipated that plantings incorporated into the project design will fill in within a fairly short time period (2-3 years) and the post-construction aesthetics of the project area will return to the current pre-construction condition.

b) Please refer to Item I a). The proposed project would not result in any long-term damage of scenic resources.

c) Please refer to Item I a). The proposed project would not result in any long-term degradation of the project area.

d) Lighting may be required during the construction phase of the project. Dewatering activities may require 24-hour pumping to keep the work area adequately dewatered. If 24-hour pumping is required, an operator would be required on site at all times to maintain the pumping equipment, or available on

short notice after receiving a remote alarm. For safety purposes, portable lighting would be brought in to light the work area during nighttime hours. All lighting would be removed at the completion of construction. Localized site light of the facility would be made available for the safety of employees and visitors accessing the viewing chambers or the site after dark. Because of the limited views of the site from other properties, proposed site lighting is not anticipated to result in any new or significant sources of light or glare.

II. AGRICULTURAL AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (3)	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract? (2)	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? (2)	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use? (2)	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project will not result in the conversion of any farmlands to other uses. The entire project area is already owned by the Water Agency and is already used as part of the Water Agency water supply system. The proposed project will not result in any changes in current uses or any conversion of farmlands.

b) Please refer to Item II.a) above. The proposed project will not result in the conversion of any farmlands to other uses or require the cancellation of any existing Williamson Act Contracts.

c) Please refer to Item II.a) above. No timber harvest activities are occurring or expected to occur within the project area,

d) Please refer to Item II.a) above. No timber harvest activities are occurring or expected to occur within the project area,

e) Please refer to Item II.a) above. The proposed project would not result in a change in existing land use.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan? (2)	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (4,5)	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? (2,4)	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations? (2,4)	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project is not anticipated to conflict with any air quality plan.

b) The project site is within the boundaries of the Northern Sonoma County Air Pollution Control District (NSCAPCD). The NSCAPCD is primarily rural and mountainous, and contains one urbanized area (Forestville). According to the State of California Air Resources Board, based on 2011 area designations for air quality, the NSCAPCD area is in attainment for the State Particulate Matter (PM10) standard. PM10 is dust less than 10 microns in diameter. Fugitive dust is a source of particulate matter emissions. Dust generation during restoration activities is anticipated to be minimal, principally because the soils that would be moved would have a high moisture content due to their proximity to the Russian River. The proposed project is also located in an agricultural and rural residential area and is not anticipated to result in any air quality violations. The following measures are included to minimize fugitive dust generation during restoration activities.

Mitigation Measure MFSFL-1*: The project specifications will require the contractor to comply with the dust control provisions of the Sonoma County Water Agency's Standard Contract Documents and the Northern Sonoma County Air Pollution Control District's Rule 430 that regulate fugitive dust emissions. Measures to reduce dust emissions may include, but are not limited to: sprinkling unpaved construction areas with water; covering trucks hauling dirt; limiting dust*

generating activities during periods of high winds (greater than 15 miles per hour); replacing ground cover in disturbed areas as soon as possible; enclosing, covering, watering, or applying soil binders to exposed stock piles; removing earth tracked onto neighboring paved roads at least once daily; and limiting equipment speed to 10 miles per hour in unpaved areas.

Mitigation Measure MFSFL-2: *The project specifications will require that all construction vehicles and equipment emission levels meet current air quality standards and that idling time for all heavy equipment be minimized to reduce on-site emissions.*

c) Please refer to Item III b).

d) Please refer to Item III b).

e) No objectionable odors would result from the proposed construction activities or operation of the project.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (2)	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (2)	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, including, but not limited to, marsh, vernal pool, coastal, through direct removal, filling, hydrological interruption, or other means? (2)	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (2)	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (2)	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local regional, or state habitat conservation plan? (2,6,7)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The project area currently provides limited summer rearing habitat for salmonids, in particular for the federal Endangered Species Act listed as endangered coho salmon and threatened steelhead and Chinook salmon. Summer water temperatures in the project area limit the suitability of the Russian River in the project area for salmonids; therefore, no impacts to salmonid species are anticipated as a result of project construction activities. The completion and operation of the project is anticipated to have a beneficial impact for salmonid species. The replacement of the existing fish screens at Mirabel is a requirement of the NMFS Russian River Biological Opinion. The new fish screens would be designed to meet current design standards to reduce the potential for juvenile fish to become impinged or trapped against the screen. In addition to the new screens, the new fish ladder design, will complement the new screens by providing improved sweeping flows along the screens and into the fish ladder just

downstream of the screens. These improved sweeping flows increase fish movement downstream and reduce the potential for fish to become trapped at the screens. The new design will also allow the fish ladder to operate under a wider range of flow conditions than the existing fish ladder, which will benefit both upstream and downstream fish passage. The new fish ladder and screens is anticipated to enhance fish passage for coho, steelhead, and Chinook, as well as other fish species, such as Pacific lamprey, that move through the project area.

Construction in or near the streambed is scheduled for the months of June through October during summer low-flows. Construction earlier than June or later than October may occur depending upon weather conditions and permission from regulatory agencies. All flows in the Russian River would need to be diverted around the work area. Work areas would be isolated from the moving stream using some type of imported barrier or material (water filled bladders, gravel cofferdams, sheet pile cofferdams, etc.). An existing sheet pile channel on the eastern bank of the Mirabel Dam may be utilized. Two rows of sheet pile are already in place. The material between these sheet pile rows would be excavated out creating the channel area where the Russian River would flow around the eastern edge of the concrete edge of the base of the Mirabel Dam. A temporary barrier would be installed across the river to direct river flows into the sheet pile channel and away from the work area. Upon completion of construction, the temporary barrier across the river would be removed and the temporary sheet pile channel area would again be backfilled. This existing sheet pile channel diversion was utilized when the dam was originally constructed and again when the inflatable bag at the dam was replaced in 1995. The sheet piling remains in place for future construction or maintenance activities at the Mirabel Dam that require directing the flow of the Russian River around the Mirabel Dam. Water from the work area would be re-located out of the work area and back into the Russian River. Dewatering of the work area would then be accomplished by pumping water out of the work area and over the access road levee and into the Water Agency's existing infiltration basins west of the Russian River.

In order to maintain the Water Agency's pumping capacity for water supply throughout the summer, a temporary cofferdam upstream of the project area near the Wohler Bridge would be required to maintain the necessary aquifer infiltration for the continued operation of the Water Agency's three collector wells at Wohler. Access for installation and removal of the temporary cofferdam would be along an existing access road owned and maintained by the Water Agency and would require little disturbance to riparian vegetation in order to install. The temporary cofferdam would be designed and installed with a system to allow water and fish to continue downstream of the cofferdam. The Water Agency would adhere to the same rates of elevation rise as is used for the Mirabel inflatable dam in order to avoid stranding of fish or a disruption in flows downstream of the project. The following mitigation measure is incorporated into the project to minimize impacts to special status fish species as a result of temporary loss of habitat availability during construction activities through the removal of fish species to appropriate habitat outside of the project site.

Mitigation Measure MFSFL-3: *During dewatering activities, fish located within the project site would be removed and relocated to appropriate habitat downstream of the project site. Qualified fisheries biologists, using methods approved by the National Marine Fisheries Service and California Department of Fish and Game, would perform the fish rescue and relocation.*

Given the project area's supportive habitat, the project site would provide potential habitat for northwestern pond turtle. Construction activities may result in temporary loss of habitat availability within the project site.

Mitigation Measure MFSFL-4: *Prior to beginning construction activities, pre-construction surveys would be performed within the project site. Should northwestern pond turtle be found within the construction area, individuals would be relocated by a qualified biologist to an area of appropriate habitat outside of the construction area.*

The project area includes potential nesting habitat for numerous common and special-status birds. Project activities such as ground clearing, earthmoving, grading, trenching, and trimming or removal of trees during the breeding season (generally February 1 to August 31) have the potential to result in direct mortality of these species. In addition, human disturbances and construction noise have the potential to cause indirect impacts due to nest abandonment and death of young, or loss of reproductive potential at active nests located near project activities. Any activities occurring during the breeding season would require the following mitigation measure to reduce potential impacts to a less than significant level:

Mitigation Measure MFSFL-5: *Whenever feasible, vegetation shall be removed during the non-breeding season. For ground disturbing activities occurring during the breeding season (February 1 to August 31), a qualified wildlife biologist shall conduct pre-construction surveys of the project site for nesting raptors within a 500-foot radius of construction activities, and for other nesting birds within a 50-foot radius of construction activities. Pre-construction surveys shall occur within 14 days of the start of construction activities. If active bird nests are found during pre-construction surveys, a 500-foot "no disturbance" buffer shall be established around active raptor nests during the breeding season. A 50-foot buffer zone shall be established around the nests of other special status birds, or until it is determined that all young have fledged. Physical barriers such as fencing will be installed to establish the buffer zones to prevent construction equipment from disturbing the nest. Nests will be monitored weekly during construction activities, and protection measures or construction activities will be modified as necessary.*

b) Construction of the proposed fish screen and fish ladder, as well as construction of a new access road to the site would require the removal of riparian vegetation and bank excavation along the Russian River. Access road construction would require the removal of vegetation along an area approximately 600 feet in length and 50 feet in width. The proposed access road is being designed to avoid as many trees as possible, including the avoidance of several large cottonwood and willow species in the project area. Replanting of native riparian trees and shrubs in the area is a component of the proposed project. The following measure is included to reduce potential impacts to less than significant.

Mitigation Measure MFSFL-6: *The Water Agency will prepare and implement a revegetation plan to mitigate the loss of native riparian vegetation. Recontoured banks will be seeded and revegetated. Erosion control fabric will be placed on all exposed banks to prevent erosion. Plant species selected for revegetation will be based upon surveys of riparian habitat along the Russian River upstream and downstream of the project site. Planting requirements in the revegetation plan will be based upon species composition and density recommendations associated with the overall habitat enhancement design for the project. The final revegetation plan will include details regarding planting, implementation, maintenance, and monitoring.*

c) The proposed project is intended to increase fish passage opportunities and to reduce potential impacts to fisheries as a result of the Water Agency's existing operations at Mirabel. For work proposed within the banks of the Russian River, the Water Agency will apply for an Individual Permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, a water quality certification from the North Coast Regional Water Quality Control Board under Section 401 of the Clean Water Act, a Streambed Alteration Permit from the California Department of Fish and Game under Section 1600 of the California Fish and Game Code, and a County of Sonoma 3836R anti-roiling permit. The total amount of existing Corps of Engineers jurisdictional area within the project area is 3.6 acres (3 acres within Ordinary High Water at the Mirabel Dam location and 0.6 acre within Ordinary High Water upstream at the temporary cofferdam location). The project would require work and fill material within Corps jurisdictional areas; however, the majority of fill would be temporary in nature (temporary cofferdams). The permanent fill material associated with the structures built is not anticipated to result in any net reduction of Corps of Engineers jurisdictional area. No additional mitigation measures are proposed for impacts to wetlands and riparian resources since the proposed project is primarily within the footprint of the Water Agency's existing facilities and since the purpose of the proposed activities is to improve passage for threatened and endangered fish species within the project site. No substantial adverse effects to wetlands or other waters of the United States are anticipated to result from the proposed project.

d) Construction activities would temporarily restrict fish movements into the project site. Cofferdams would be located at the upstream and downstream ends of the project site that would restrict fish passage into the project site. Chinook salmon have the potential to be present in the project area; however, the proposed

construction period is in the early portion of the Chinook salmon run in the Russian River and instream work would be complete before the peak migration period. This temporary impact is considered less than significant because the restriction is temporary, would not occur during a critical life stage for passage, and the fish passage in the project area is anticipated to improve as a result of the project. The project site is located at an existing Water Agency facility along the Russian River which receives daily vehicle traffic and operation noises at the site. Construction activities are not anticipated to significantly increase the potential to restrict wildlife movements in the project area. Any potential disturbance that occurs as a result of construction activities will be temporary (June-October), is limited to the project site, and alternative wildlife corridors around the project site exist in the area.

Water Agency biologists[4] conducted dipnet surveys for California freshwater shrimp (a state and federally listed endangered species) on May 18, 2012 along bank vegetation in the project area. No shrimp were found and no undercut banks greater than 6-inches were found. Based on negative survey findings, lack of suitable winter refugia, marginal summer habitat, and an abundance of predatory fish there is no suitable habitat for the California freshwater shrimp in the project area.

e) The proposed project would not conflict with any local policies or ordinances protecting biological resources.

f) The proposed project would not conflict with any Habitat Conservation, Natural Community Conservation, or any other conservation plans within the project area. The project would support the goals of the NMFS's *Recovery Plan for the Evolutionary Significant Unit of Central California Coast Coho Salmon* and the California Department of Fish and Game's *Recovery Strategy for California Coho Salmon*.

[4] David Cook and Andrew Moratto – under federal permit TE-808241-4 and state Scientific Collector's Permit SCP-514.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5? (8)	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5? (8)	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (8)	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries? (8)	☐	☐	☒	☐

DISCUSSION OF POTENTIAL IMPACTS

a) An archaeological investigation of the project site did not identify any cultural resources within the project area. The majority of the project area has already been excavated when the existing facilities at the project site were constructed. The project is not anticipated to have an adverse effect to historical or archaeological resources. However, excavation during project construction has the potential to expose and affect subsurface cultural resources that were not visible and identified during cultural resource field survey for the project. The potential for impacts to potential unknown cultural resources in the project area would be less than significant with incorporation of the following mitigation measure.

Mitigation Measure MFSFL-7: *The project specifications will require the contractor to comply with the Water Agency's Standard Contract Documents regarding the discovery of cultural resources. The Water Agency Construction Inspector and construction personnel will be notified of the possibility of encountering archaeological materials during project construction. The project specifications will provide that if discovery is made of items of historical, archaeological or paleontological interest, the contractor will immediately cease all work activities in the area of discovery. Archaeological indicators may include, but are not limited to, dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, human bones, and fossils. After cessation of excavation, the contractor will immediately contact the Water Agency's Construction Inspector. The contractor will not resume work until authorization is received from the Construction Inspector. If archaeological indicators are discovered during construction, the Water Agency will retain the services of a qualified professional archaeologist to evaluate the significance of the items prior to resuming any activities that could impact the site. If it is determined that the find is unique and/or potentially eligible for listing in the California Register, and the site cannot be avoided, an archaeologist shall provide a research design and excavation plan outlining recovery of the resource, analysis, and reporting of the find. The research design and excavation plan will be*

submitted to the Water Agency's Construction Inspection Section and approved by the Water Agency prior to construction being resumed.

b) Please refer to Item V (a).

c) No unique paleontological resources or unique geologic features were identified within the project site.

d) No human remains have been identified within the project site. Please refer to Item V (a).

VI. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (2, 9)	☐	☐	☒	☐
2) Strong seismic ground shaking? (2,9)	☐	☐	☒	☐
3) Seismic-related ground failure, including liquefaction? (2,9)	☐	☐	☒	☐
4) Landslides? (2)	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil? (2)	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (2)	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (10)	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) 1) Regional geologic mapping show an unnamed fault strand immediately adjacent to the project area. This fault strand is indicated as having been last active in the Early Quaternary period (700,000 to 2,000,000 years ago); however, due to presence of the San Andreas, Rodgers Creek, and Maacama faults within Sonoma County, the entire project area could be subject to seismic ground shaking as a result of a large earthquake along one of these faults. Seismic hazard analysis prepared for the Water Agency's water supply facilities identifies a potential risk to some of the water supply facilities at Mirabel due to liquefaction and lateral spread of the gravel banks of the Russian River during a large seismic event. The proposed project will be designed with these seismic concerns considered to minimize potential risks to employees or the public in the event of a seismic event. The stability necessary for the proposed fish ladder and fish screen project may also provide incidental seismic stability

for existing adjacent Water Agency facilities (e.g., the existing River Diversion Station building immediately adjacent to the project area). Construction of the proposed project would not expose people or property to risks associated with potential fault rupture greater than those that exist under present conditions, therefore the impact is considered less than significant.

2) Please refer to Item a1 above. Construction of the proposed project would not expose people or property to risks associated with potential fault rupture greater than those that exist under present conditions, therefore the impact is considered less than significant.

3) Please refer to Item a1 above. Construction of the proposed project would not expose people or property to risks associated with potential seismic-related ground failure, including liquefaction, greater than those that exist under present conditions, therefore the impact is considered less than significant.

4) Please refer to Item a1 above. The project area is located in a valley away from surrounding hillsides. Construction of the proposed project would not expose people or property to risks associated with potential landslides greater than those that exist under present conditions, therefore the impact is considered less than significant.

b) The proposed project is primarily the removal of existing structures and re-building new structures in relatively the same footprint. The proposed facilities will extend both farther upstream and downstream than the existing facilities, and a longer access road will be installed. All areas above the low-flow water line that are disrupted by construction activities will be protected from erosion through the use of seeding/revegetation and/or protected with erosion control fabric to minimize erosion potential. The project is not anticipated to result in any significant impacts due to soil erosion.

c) The project site is located in an area that is alluvial material and saturated due to the year-round flows in the Russian River. It is an area subject to liquefaction potential. However, as noted above in a1, construction of the proposed project would not expose people or property to risks associated with potential seismic-related ground failure, including liquefaction, or failure due to landslides, greater than those that exist under present conditions. As noted in a1 above, the proposed project may actually reduce risks of liquefaction as a result of improved soil stability in the project area. It is not anticipated that the project area would result in the area becoming unstable or result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse, therefore the impact is less than significant.

d) The project site is primarily on soils classified as Riverwash with adjacent lands outside of the Russian River primarily part of the Yolo soils series. Riverwash materials consist of very recent depositions of gravel, sand, and silt alluvium. Yolo series soils consist of well-drained loams underlain by recent alluvium. Shrink-swell potential is a description of the extent to which a soil type shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is

influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils causes much damage to building foundations, roads and other structures. The soil types in the project area have low levels of clay and therefore have correspondingly low shrink-swell potential. In addition, because of the project's proximity to the Russian River, soils in the project area are likely to stay saturated throughout the year which would limit any potential shrinking and swelling of the soil. The proposed project would not create substantial risks to life or property as a result of construction on expansive soils, therefore the impact is less than significant.

e) The proposed project would not include septic tanks or alternative wastewater disposal systems.

VII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (2)	☐	☐	☐	☒
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) Construction activities would require equipment such as vehicles and generators that would generate greenhouse gas emissions. Operation and maintenance of the proposed facilities is not anticipated to require any additional vehicle trips over what currently occurs for the existing facilities at the site. Vehicle trips associated with construction activities is not anticipated to result in a substantial increase in traffic in the Russian River corridor. The project itself would not generate any greenhouse gas emissions.

Construction will require a variety of heavy equipment and machinery. The Water Agency anticipates that construction elements such as the cofferdams, sheet piling, and steel concrete reinforcement mat handling will require a 20 to 35 ton crane, as well as a diesel operated vibratory sheet pile driver. One to two excavators, a skip loader, bulldozer, backhoe, and a 10 wheel dump truck will likely be used for grading and excavation.

Concrete trucks will deliver batched concrete, and a truck-mounted concrete boom pump will be used to place the concrete. A sheepsfoot vibratory compactor will be used to compact the subgrade prior to placement of concrete foundation structures.

Projected gasoline and diesel use for the proposed project was estimated based on the Water Agency's experience with construction projects of similar scope. Based on the estimates, diesel use will be approximately 5,625 gallons and the gasoline use will be approximately 1,875 gallons.

Given the limited and temporary nature of the greenhouse gas emission sources associated with the project, significant emissions, either directly or indirectly, of greenhouse gases is not anticipated as a result of the proposed project

b) Being the largest energy user in Sonoma County, in 2006, the Water Agency committed to the goal of operating a carbon free water system by 2015. To achieve this goal, the Water Agency is actively working to diversify its energy portfolio and reduce its energy and fuel needs through efficiency and renewable energy production. Through this effort the Water Agency is helping to pioneer new

technologies that have been carefully evaluated for economic viability. The proposed project would not negatively conflict with any of the Water Agency's efficiency and renewable energy production programs. The proposed project is not anticipated to conflict with any other applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases.

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal, of hazardous materials? (2)	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (2)	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (2)	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (2)	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? (2)	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (2)	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (2)	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project would require the occasional transport of vehicles, construction equipment, and construction materials that use hazardous materials (e.g. motor oil, gasoline), but will not include the routine transport or disposal of hazardous materials. Therefore, the impact is considered less than significant.

b) The Water Agency has owned and operated for water supply purposes the project area for approximately 40 years. The soils of the project site have been excavated as part of past construction activities during the building and maintenance of the existing facilities at Mirabel. No hazardous wastes are anticipated to be encountered during the construction of the proposed project Construction of the project would require the use of vehicles and equipment that

may have a slight potential for accidentally spilling oil or fuel. Accidental release of any hazardous materials (e.g. motor oil, gasoline) would not create a significant hazard to the public or environment because the project is located in a sparsely populated area, the quantity and toxicity of materials that could be released would be low, best management practices would be employed to prevent a spill from occurring, and the project site would be isolated by cofferdams from upstream and downstream sections of the Russian River. Therefore, the construction of the proposed project would not create a significant hazard to the public or environment. However, the following mitigation measure is included to reduce the impact further.

Mitigation Measure MFSFL-8: *The project specifications will require the contractor to comply with the Sonoma County Water Agency's Standard Contract Documents to protect the project area from being contaminated by the accidental release of any hazardous materials and/or wastes. Disposal of all hazardous materials will be in compliance with all current hazardous waste disposal laws. The construction contractor will contact the local fire agency and the Sonoma County Department of Environmental Health for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.*

Mitigation Measure MFSFL-9: *The project specifications will require the contractor to prepare a Safety Plan in accordance with the Sonoma County Water Agency's Standard Contract Documents. If hazardous materials are encountered during construction activities, the contractor will be required to halt construction immediately and notify the Water Agency's Construction Inspection Section. Disposal of all hazardous materials will be in compliance with all applicable hazardous waste disposal laws.*

c) As noted above in Item VII a) and b), the potential for release of hazardous materials is low and limited to only during construction. In addition, the nearest existing or proposed school is over 1 mile south of the project site. Therefore, no impact to an existing or proposed public school within one-quarter mile of the project site is expected.

d) Please refer to the Item VII b) above.

e) The project site is approximately 3.5 miles west of the Charles M. Shulz-Sonoma County Airport. The project would not alter existing elevations or involve the construction of any structures that might interfere with airport operations.

f) The project site is not located near a private airstrip.

g) The proposed project is located on Water Agency property and would not interfere with an adopted emergency response plan or emergency evacuation plan.

h) The project site is located in an area of mixed agricultural and residential uses adjacent to wildlands. The proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires beyond the risks that currently exist in the vicinity of the project area.

IX. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements? (2)	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? (2)	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site? (2)	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (2)	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (2)	☐	☐	☐	☒
f) Otherwise substantially degrade water quality? (2)	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (2)	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (11)	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (2,11)	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project would require installation of cofferdams, diverting flows around the project site, dewatering the project area, and earthwork within the bed and bank of the Russian River. These activities have the potential to violate water quality or waste discharge requirements. Construction of the project would require a water quality certification from the California Regional Water Quality Control Board, North Coast Region, under Section 401 of the Clean Water Act associated with the placement of fill within waters of the United States. The

Water Agency will submit a dewatering plan and stormwater pollution control plan to the California Regional Water Quality Control Board, North Coast Region for their approval prior to commencing construction.

b) A slight temporary increase in turbidity of the river immediately below the site would occur as the temporary cofferdams are installed or removed during construction Work will be performed under the terms of the water quality certification issued by the California North Coast Regional Water Quality Control Board. To further minimize water quality concerns the project specifications will provide that equipment shall not be operated in the stream channel of the flowing live stream except as may be necessary for the construction of the proposed temporary cofferdams. Anticipated increases in turbidity during construction would be of short duration and minor in nature; therefore, no significant impacts to water quality are anticipated as a result of the proposed project.The proposed project could require diverting flows around portions of the project site during construction. This short-term diversion of flows around the work area is not anticipated to deplete groundwater supplies or interfere with groundwater recharge because of the limited distance of the proposed diversion area and underflow through the gravels beneath the work area would likely still occur. The proposed project would not result in any significant barriers to groundwater infiltration. The Mirabel Dam facility, as it currently exists and as it would exist after project construction, is intended to facilitate groundwater recharge as part of the Water Agency's water supply facilities.

c) The proposed project will require short-term construction related disturbance to the channel bank of the Russian River in the area of the existing Mirabel Dam. Construction activities would include the implementation of erosion control Best Management Practices such as silt fencing, erosion control fabrics, mulching, wattles, hydroseeding, and revegetation. Upon completion of construction, all disturbed surfaces would be covered. The project would not alter any drainages or the flow of the Russian River

d) Refer to the Items VIII a, b, and c above. The proposed project involves the modification of an existing facility along the Russian River. The proposed project design would not result in a substantial change to the existing drainage pattern of the site or area or result in flooding on- or off-site.

e) The proposed project would not affect stormwater drainage systems or water quality because the proposed project would not create additional runoff water or provide an additional source of polluted runoff.

f) The proposed project is intended to improve aquatic habitat within the Mirabel Dam area by improving the fish screening at the Water Agency's diversion intake and by providing improved passage past the Mirabel Dam. As noted in Item VIII a) above, short-term turbidity increases may occur during construction activities. Operation of the proposed project would not result in any changes to water quality.

g) The proposed project would not include the construction of housing.

h) The Mirabel Fish Screen and Fish Ladder Replacement Project proposes work within a FEMA regulated floodway and requires consideration of hydraulic impacts of improvements. Hydraulic analysis of the proposed post-project conditions revealed no increase in 100-year base flood elevations associated with project development. Based on the analysis performed, the Project complies with federal and local regulatory requirements for an encroachment within a floodway. A FEMA No-Rise certificate could be prepared for this project. The Water Agency will confirm that proposed facilities are constructed as designed and analyzed in order to verify that the constructed facilities will not result in any increase in flood levels.have a No-Rise condition.

i) Please refer to Item VIII h). The proposed project includes the modification of existing facilities along the channel bank of the Russian River at the Water Agency's Mirabel Dam. The proposed project is not expected to result in any significant changes from existing conditions in how the Mirabel Dam is operated

j) The proposed project is not located in an area subject to inundation by seiche, tsunami, or mudflow.

X. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community? (2)	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance)? (2)	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project would not physically divide or otherwise alter an established community.

b) The project site is located in an area zoned for agricultural lands and rural residential uses. The proposed project would not change the existing land use of the project site or adjacent land uses.

c) Please refer to Item IV f).

XI. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (2)	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) No gravel mining operations are currently operating in the vicinity of the project site, although gravel mining has occurred in the past. The proposed project is not anticipated to result in a loss of availability of any known mineral resources. The proposed project would not alter from existing conditions the continued natural movement of gravel and sediment through the project area during high flows. Construction would also occur during the summer low-flow period when bedload movement in the Russian River is not occurring in any significant manner. The temporary diversion of flows around the work area during the summer low-flow period would not impact sediment bedload transport in the Russian River. Therefore, the impact is less than significant.

b) There are no known locally-important mineral resource recovery sites within the project vicinity.

XII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies? (2,12)	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (2)	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (2)	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (2)	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (2)	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) Construction of the proposed project would result in a temporary increase in noise associated with construction activities. Due to the nature of having to divert stream flow in order to construct the project, construction activities could occur on a 24-hour basis in order to limit the time that diversion of stream flows is required. The overall project area is an agricultural setting with the closest residences 0.3 mile from the Mirabel Dam site. Existing noise-generating agricultural activities can and do occur at various hours over a 24-hour period depending upon needs (e.g. harvest, frost protection activities). The proposed construction activities would be temporary during the construction period and would not represent a significant new source of noise in the project area. Future maintenance activities would occur during regular daytime work hours (weekdays, 8:00 a.m. to 5:00 p.m.).

b) Please refer to Item XI a).

c) The proposed project would not result in any permanent increase in ambient noise levels.

d) Construction of the proposed project would result in a temporary increase in noise associated with the operation of construction vehicles and equipment. Construction of the project would not result in substantial temporary or periodic increases in ambient noise levels above levels existing without the project because

the project is located in an agricultural area subject to temporary and periodic increases in noise levels as a result of farm equipment operations. Therefore, the impact is less than significant.

e) The proposed project site is approximately 3.5 miles from the Charles M. Schulz-Sonoma County Airport; however, the Charles M. Schulz-Sonoma County Airport does not generate a significant amount of noise in the project area. In addition, since the project does not consist of the construction of any new homes or work locations, the project does not consist of any components that would result in placing new sensitive receptors in the project area.

f) The proposed project is not located within the vicinity of a private airstrip.

XIII. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (2)	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (2)	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project would not directly or indirectly induce population growth in the area because no new homes and businesses are proposed. The proposed project would not require extension of roads or other infrastructure. The porposed project would not expand the Water Agency's delivery capacity or modify its water rights to allow for any increase in water diversions.

b) The proposed project would not displace housing because no homes exist within the project site.

c) The proposed project would not displace people because there are no inhabitants within the project site.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in: 1) substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities; or 2) the need for new or physically altered governmental facilities, of which the construction could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
1) Fire protection? (2)	☐	☐	☐	☒
2) Police protection? (2)	☐	☐	☐	☒
3) Schools? (2)	☐	☐	☐	☒
4) Parks? (2)	☐	☐	☐	☒
5) Other public facilities? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a1) The proposed project would not require alteration of existing or construction of new governmental facilities, including fire protection.

a2) The proposed project would not require alteration of existing or construction of new governmental facilities, including police protection.

a3) The proposed project would not require alteration of existing or construction of new governmental facilities, including schools.

a4) The proposed project would not require alteration of existing or construction of new governmental facilities, including parks.

a5) The proposed project would consist of the modification of an existing publically owned water supply facility. The proposed changes in the facility are to enhance fish passage at the site.

XV. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (2)	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) There are no parks or other recreational facilities located within the project site. The proposed project would not impact parks or other recreational facilities.

b) The proposed project does not include the construction or expansion of recreation facilities. The Russian River is a popular destination for canoeing and kayaking. People using the Russian River in the project area are required under existing conditions to portage around the Mirabel Dam when it is in use. During construction, the portage location would be relocated to an upstream location where the temporary cofferdam near the Wohler Bridge would be located. Canoes and kayaks would be allowed to continue through the project area without portaging a second time at the Mirabel Dam; therefore, the proposed construction activities would not significantly alter canoe or kayak passage.

XVI. TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (2,13)	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? (2)	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (2)	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (2)	☐	☐	☐	☒
e) Result in inadequate emergency access? (2)	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) Construction activities would all occur outside of roadways and within property owned by the Water Agency. However, construction vehicles may cause a short-term delay of traffic along Wohler Bridge, Wohler Road, and Westside Road, as vehicles enter and exit the project site. It is not anticipated that the short-term increase in traffic related to construction vehicles accessing the project site would substantially increase traffic or cause traffic congestion in relation to the capacity of the road. Wohler Road and Westside Road are designated as Rural Major Collectors. Traffic control would be implemented by the construction contractor if necessary to allow the passage of construction vehicles and the delivery of materials to the site.

b) Construction vehicle traffic is expected to temporarily increase by approximately 45 vehicle trips per day. Vehicles traveling to and from the site during project construction would not exceed, either individually or cumulatively, the level of service standard for Westside Road or Wohler Road. The increase in vehicle traffic

would be temporary and would primarily be concentrated over a few months during the construction period. Therefore, the temporary impact would be less than significant.

c) The proposed project does not include air transportation and would not affect air traffic patterns.

d) The proposed project would not change any road design or cause any road obstructions.

e) The proposed project would not change emergency access from the existing conditions.

f) The proposed project would not conflict with alternative transportation policies, plans, or programs. The proposed project would be located on private property. There is adequate room to stage construction vehicles, equipment, and materials. No off-site parking would be necessary.

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (2)	☐	☐	☐	☒
b) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (2)	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (2)	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (2)	☐	☐	☐	☒
e) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (2)	☐	☐	☐	☒
f) Comply with federal, state, and local statutes and regulations related to solid waste? (2)	☐	☐	☐	☒
g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project would not require or result in the construction or expansion of wastewater treatment facilities.

b) The proposed project would not require wastewater treatment.

c) The proposed project would not require wastewater treatment.

d) The proposed project would not require new potable water supplies.

e) The proposed project would not require or result in the construction or expansion of stormwater drainage features.

f) Excess construction debris would be disposed at a nearby landfill or an appropriate recycling facility. Excess soils would be stockpiled within an existing material stockpile location within the Water Agency's property at Mirabel.

g) The proposed project would require the disposal of construction-related debris. The quantity of solid waste is not expected to substantially affect the capacity of the landfill. In addition, all materials that can be recycled (e.g. metal, concrete) would be taken to appropriate recycling facilities.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (2)	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? (2)	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (2)	☐	☐	☐	☒

DISCUSSION OF POTENTIAL IMPACTS

a) The proposed project is designed to increase fish passage, improve fish screening, and enhance fisheries monitoring and education opportunities at the Water Agency's Mirabel Dam facility. The project meets, in part, requirements of the Russian River Biological Opinion designed specifically to reduce the Water Agency's operations that result in adverse impacts to Endangered Species Act listed fish populations. The proposed project does not have potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history.

b) The proposed project does not have impacts that are individually limited, but cumulatively considerable. Modification of fish screens and providing an improved fish ladder design at Mirabel is intended to minimize or remove one potential limiting factor impacting the life histories of listed salmonid species in the region. Combined with the other components of the Russian River Biological Opinion, the proposed project is anticipated to contribute to a long-term cumulatively beneficial impact designed to contribute to the recovery of steelhead, Chinook and coho salmon in the Russian River.

c) The proposed project does not have environmental effects that would cause substantial adverse effects on human beings.

DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: _____ Date: 11-26-12

Grant Davis - General Manager

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6. National Marine Fisheries Service. Mendocino County Planning Department. *Recovery Plan for the Evolutionary Significant Unit of Central California Coast Coho Salmon.* Draft -March 2010.
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12. County of Sonoma Permit and Resource Management Department. *Sonoma County General Plan 2020*. *Noise Element*. 2008.
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APPENDIX A
Mirabel Fish Screen Reconfiguration Feasibility and Alternatives Study

Mirabel Fish Screen Reconfiguration Feasibility and Alternatives Study

Final Report - December 2009

Prepared for

SONOMA COUNTY WATER AGENCY

Prepared by

PRUNUSKE CHATHAM, INC.

Mirabel Fish Screen Reconfiguration Feasibility and Alternatives Study
Final Report – December 2009

This report, including analyses and conceptual designs contained within, was prepared by, and under the supervision of:

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The Mirabel Fish Screen Reconfiguration Feasibility and Alternatives Study is a project of the Sonoma County Water Agency.

Project Manager:
Mathew Vail
Water Agency Principal Engineer
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This study was accomplished with the great help of Matt Vail and the following individuals:

Erik Brown, Water Agency Engineer
Steven Chatham, President, Prunuske Chatham, Inc.
Grant Davis, Assistant General Manager, SCWA
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Darryl Hayes, P.E., Prunuske Chatham, Inc.
David Manning, Principal Environmental Specialist, SCWA
Jim Zambenini, Water Agency Coordinator

Table of Contents

Summary of Study Results

Sonoma County Water Agency manages the Russian River diversion at Mirabel as a critical water supply component for providing high quality drinking water to over 600,000 people in Sonoma and northern Marin Counties. The inflatable dam serves to increase production capacity 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. (Information from http://www.scwa.ca.gov/water-supply/) As a result of the Biological Opinion issued by NMFS, the fish screening facilities have been found to perform less than adequately for full protection of fish and downstream migration.

This study was conducted to develop a preferred conceptual design that meets many of the project objectives while ensuring that the fish screening facilities adhere to contemporary fish screening design criteria. A Technical Advisory Committee composed of the Sonoma County Water Agency, National Marine Fisheries Service, and the California Department of Fish and Game provided guidance in refining the objectives and identifying alternatives.

Six concept alternatives were evaluated for meeting the project objectives. Schematic designs and critical details were developed for these concept alternatives to assess physical feasibility and to be able to evaluate the alternatives relative to the objectives. The preferred concept design alternative was determined through an interactive evaluation and was selected because it meets or exceeds the project objectives.

The preferred concept design alternative includes a new intake with an inclined flat plate fish screen system, an oversized screen for increased bypass flow control and capacity, and a bypass fishway in the form of a vertical slot fish ladder. It also includes a fish viewing chamber with a window which will allow for real-time monitoring along with excellent education and outreach opportunities. The preferred conceptual design alternative will be a significant improvement for the water supply system and ecosystem protection. This alternative best meets the project objectives and is considered feasible for construction.

The estimated construction cost of the preferred conceptual design alternative is in the range of $3.5M to $4.0M. The construction cost estimate is not a total project cost. Other project costs will be considered in the next phase of project planning and design.

The next step of the project is to begin detailed environmental evaluation and engineering design of the preferred conceptual design alternative. It is feasible to complete the design of the project by October 2011 and the construction of the project by October 2014, as required by the Biological Opinion.

Introduction

The Sonoma County Water Agency (Agency) operates and maintains the Mirabel area inflatable dam and water diversion facilities on the Russian River. The facilities are located downstream of Wohler Bridge as shown in Figure 1. Figure 2 shows the existing configuration of the dam and diversion from an aerial perspective and Figure 3 is a photograph of the dam and diversion facilities from the East bank during routine operations. The inflatable dam is used to impound the river to a water surface elevation of approximately 38 feet. This allows for a surface water diversion of up 100 cubic feet per second (cfs) through the intake structure, fish screens and pump station, into the adjacent infiltration ponds. The Agency generally raises the dam once in spring when flow in the river reaches 400 cfs and lowers the dam in the fall/winter when flow reaches 1,000 cfs.

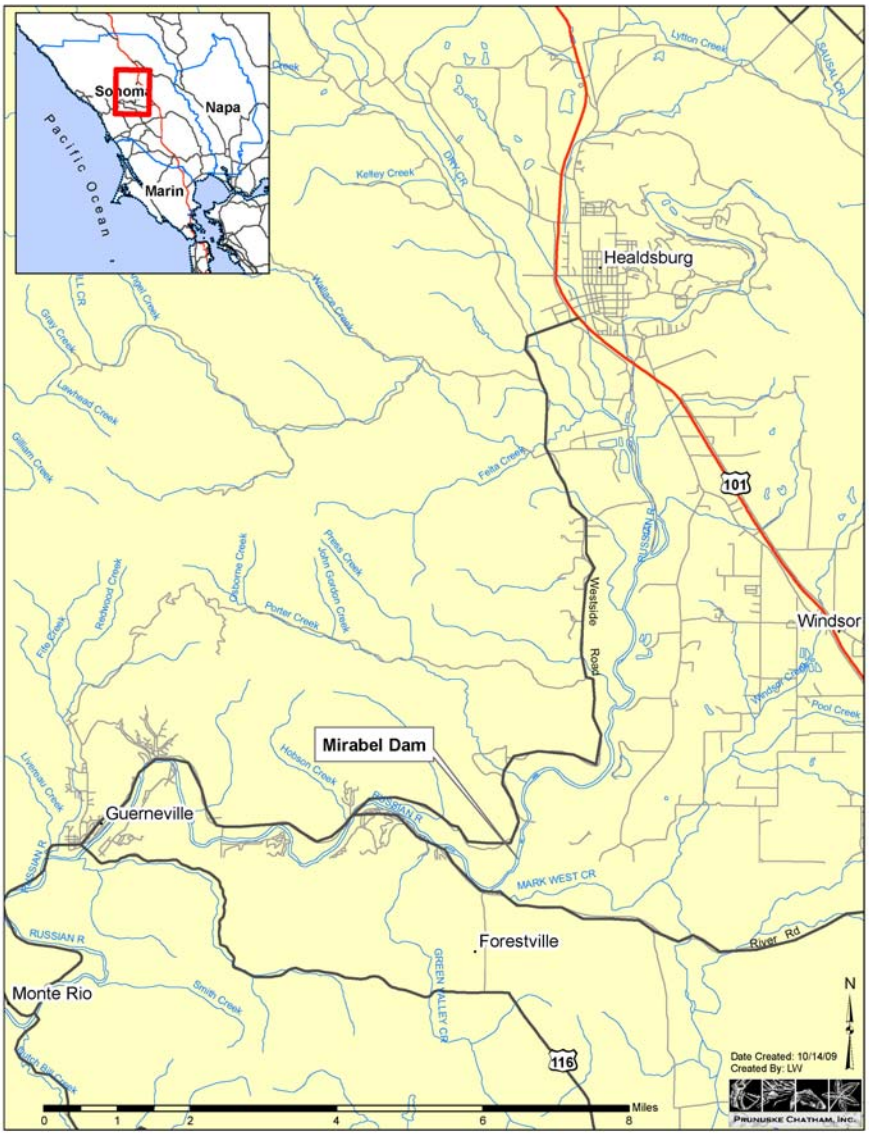


Figure 1 - Location Map

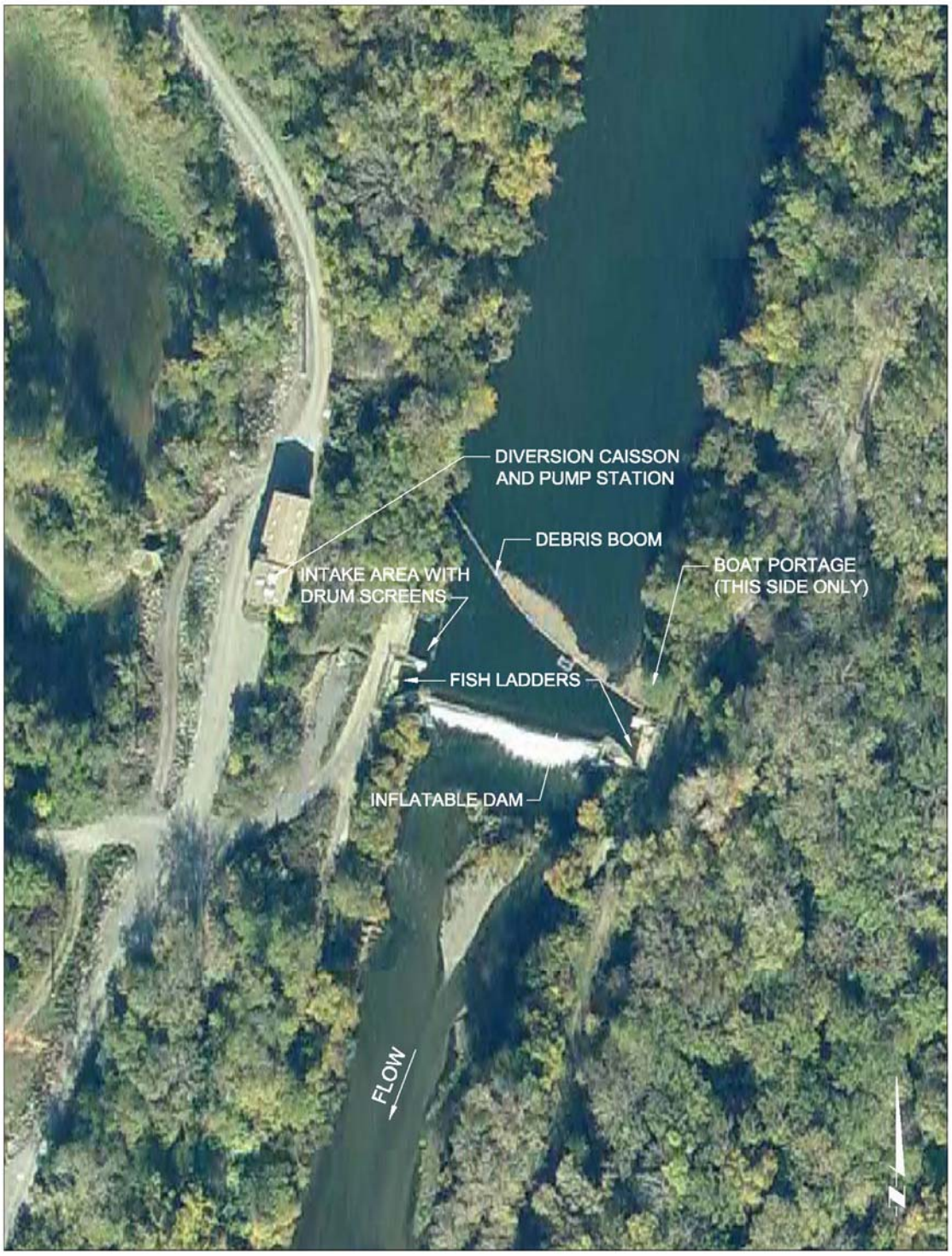


Figure 2 - Mirabel Diversion Facility

Figure 3 - Inflatable Dam under Normal Operation with Diversion on West Bank

The Agency is required to operate these facilities for long-term reliability, sound watershed stewardship, and good economy for its customers. The Agency is interested in supporting healthier fish populations, finding a solution to eliminate fluctuations in downstream flow rates that occur from notching of the inflatable dam, and replacing the fish screens to meet contemporary criteria as required by the National Marine Fisheries Service (NMFS) in the recent Russian River Biological Opinion (NMFS 2008). The Biological Opinion specifically says the Agency "shall complete design of the new fish screen at Mirabel within three years of the issuance of this biological opinion, and replace the fish screen within three years after completion of the design". The Biological Opinion was issued on September 24, 2008. In addition, the Agency would like to provide opportunities for public outreach and education. The first step to achieve these outcomes is this Fish Screen Reconfiguration Feasibility and Alternatives Study (Study) that was initiated in April 2009.

The fish screens and intake consist of two drums that rotate about a vertical axis with intake pipes directly under the drums (see Figures 4 and 5). A fish screen performance evaluation was conducted in 2000 under the Biological Assessment work leading up the Biological Opinion. This evaluation (Borcalli and Associates 2000) identified that the upstream screen takes more of the diversion flow than the downstream screen. Although this is expected given the intake pipe configuration (see Figure 6), it results in approach velocities through the

upstream screen that are much higher than NMFS allows. The downstream screen was found to operate at the margin of acceptable approach velocities. The opinion of the evaluators was that "the fish screen structure will require modifications to alleviate the concern of impinging juvenile salmonids upon the screen face during the Agency's routine diversion operations."

Figure 4 - Intake Drum Screens at Low Water Level

Figure 5 - Intake at Normal Operating Water Level with Drum Screens Submerged

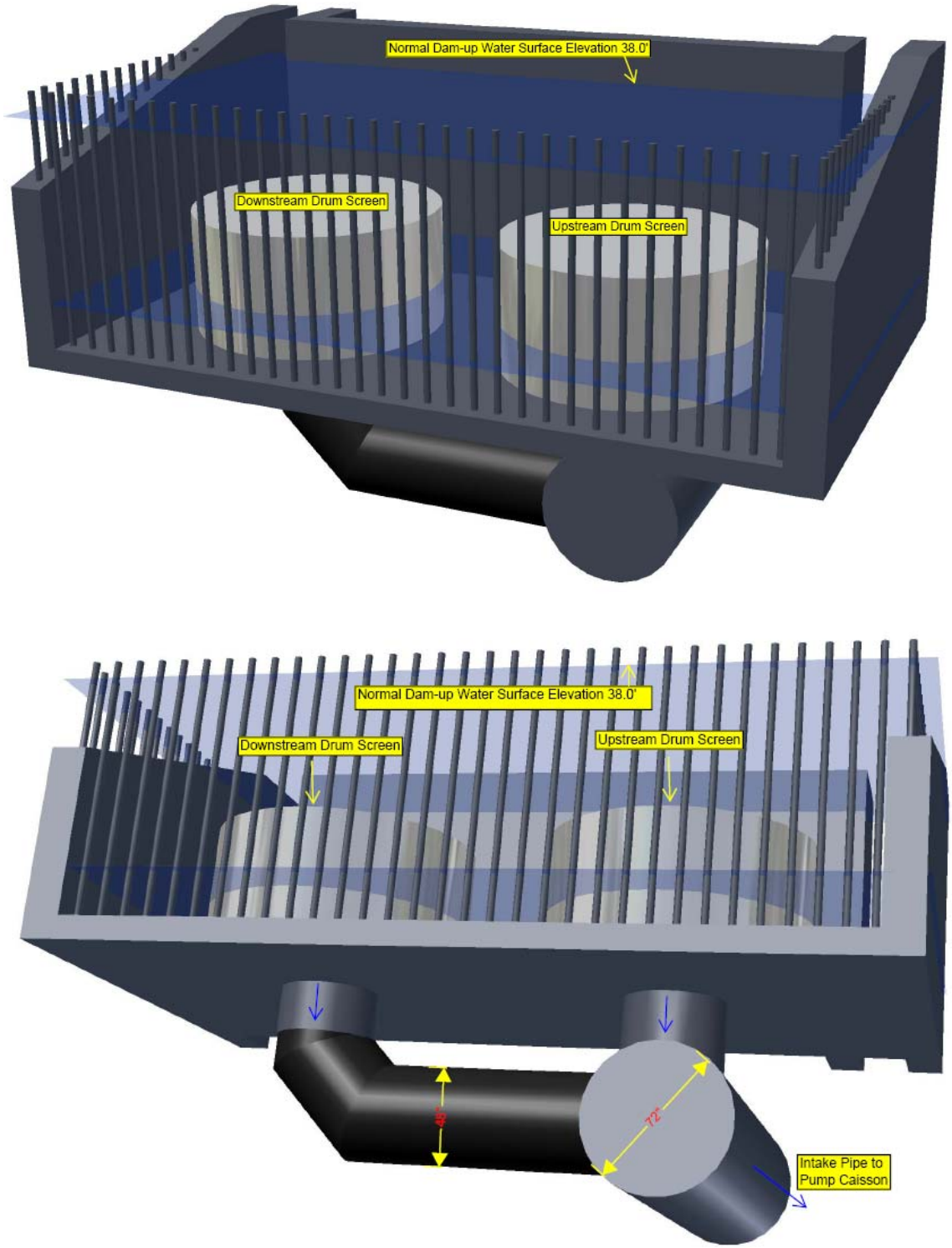


Figure 6 - Existing Intake Pipe Configuration below Drum Screens

The Agency is also required to maintain steady bypass flows downstream of the Mirabel dam. A study conducted by the Agency from 2001 to 2004 (Manning, et. al. 2005) showed significant improvement in downstream fish migration rates through notching of the inflatable dam. Figure 7 shows the dam in a notched configuration. This notching creates unsteady bypass flows as the dam material heats up from increased surface exposure to the sun and results in changing the notch shape in a diurnal fashion. Continued notching of the inflatable dam is also an undesirable operation from a structure fatigue standpoint and is not a long-term solution.

Figure 7 - Inflatable Dam in Notched Configuration

In addition to the above, the Agency would like its water contractors and the general public to have more opportunity to understand their efforts to recover salmonid populations. The Agency desires to use the Mirabel area facilities to contribute to such outreach and education.

Study Methodology and Process

The Study began in April 2009 with a scoping meeting between the Agency and the consultant team. A draft statement of objectives was developed and a range of project design concepts were discussed. After careful review of existing conditions information the advantages and disadvantages of the range of project design concepts were considered. The statement of objectives was also refined.

These project objectives include:

1. Provide for a fish screen that meets contemporary hydraulic design criteria (approach velocity = 0.33 fps; sweeping velocity = 2 times approach velocity) at the 100 cfs maximum diversion rate.
2. Maintain or improve downstream fish passage and provide for control of steady bypass flows. Control should be through the use of a fish friendly hydraulic structure or structures that can accommodate a range of expected bypass flow requirements.
3. Maintain existing diversion rate and operating water surface. (Elevation 38.0' is normal operating water surface, elevation 39.0' is maximum operable, elevation 36.0' is considered the minimum operable water level).
4. Provide a design that is compatible with and does not preclude opportunities for significant future dam modifications or replacement.
5. Maintain or improve upstream fish passage monitoring capability.
6. Maintain or improve upstream fish passage.
7. Provide for educational opportunity.
8. Maintain recreational river portage around dam and enhance portage with new facilities that also provide educational opportunities.
9. Identify a project that offers good value and reliable known costs over the next 50 years.
10. Provide for river diversion at low, non-impounded flows.

Schematic designs and critical details were developed for selected alternatives to assess physical feasibility and to be able to evaluate the alternatives relative to the objectives. These alternatives will be described in the next section of the report. A Technical Advisory Committee (TAC) was formed with representatives from the Department of Fish and Game (DFG), NMFS, and Agency technical support personnel. The first TAC meeting was held on July 20, 2009 in which the statement of objectives was reviewed and selected fish screen replacement alternatives were discussed. The meeting helped guide the concept designs toward a preferred alternative.

The preferred concept design alternative was determined through interactive evaluation with the Agency and was presented at a second TAC meeting on September 28, 2009. The TAC also reviewed the preferred concept design alternative in the field during a site visit. TAC feedback was positive for the concept design and it was agreed that it was the preferred concept to carry

forward to the next phase of design. The preferred concept design alternative is described initially in the next section and more fully in a subsequent section of the report.

Concept Alternatives Considered

The first concept alternative considered was to simply retrofit the existing drum screens or intake. One variation of this could include fixing the drums in place so that they do not rotate, baffling behind the screen material, replacing the solid top of the drum with screen material, and other features to help reduce the chaotic nature of the hydraulics around the drums. This approach is considered experimental and would likely require many trial and error attempts at proving that the retrofit would meet fish screen criteria. It would also not meet many of the project objectives and was dropped from further consideration.

During the Biological Assessment work, and subsequent to the Mirabel fish screen performance evaluation, a concept design alternative of permanent modifications to the facility was developed (Borcalli and Associates 2001). This alternative was designed to strictly meet the objective of adhering to contemporary fish screen criteria. This 2001 concept alternative included a vertical, flat plate fish screen oriented on a diagonal to the bank and integrated into the existing intake structure with some concrete intake modifications at the upstream end. It also included mechanical straps to adjust the dam shape for more controlled hydraulics and flow over the dam. Based on recommendations from the dam manufacturer, the Agency has determined that the mechanical straps over the dam will not be allowed. This concept alternative was included with the others in the evaluation process but because it did not significantly improve downstream fish migration and bypass flow control it is not considered viable going forward. The fish screen configuration was used as a design basis in the other concept design alternatives.

The next concept design alternative that was considered is a newer type of modular fish screen system called a cone screen. Two removable cones screens would be placed into a retrofitted intake as shown in Figure 8. As part of this concept the intake pipes under the drum screens would be relocated to better balance the flows between them. Because this concept would require substantial reworking of the intake and does not meet many of the other project objectives it was not considered further.

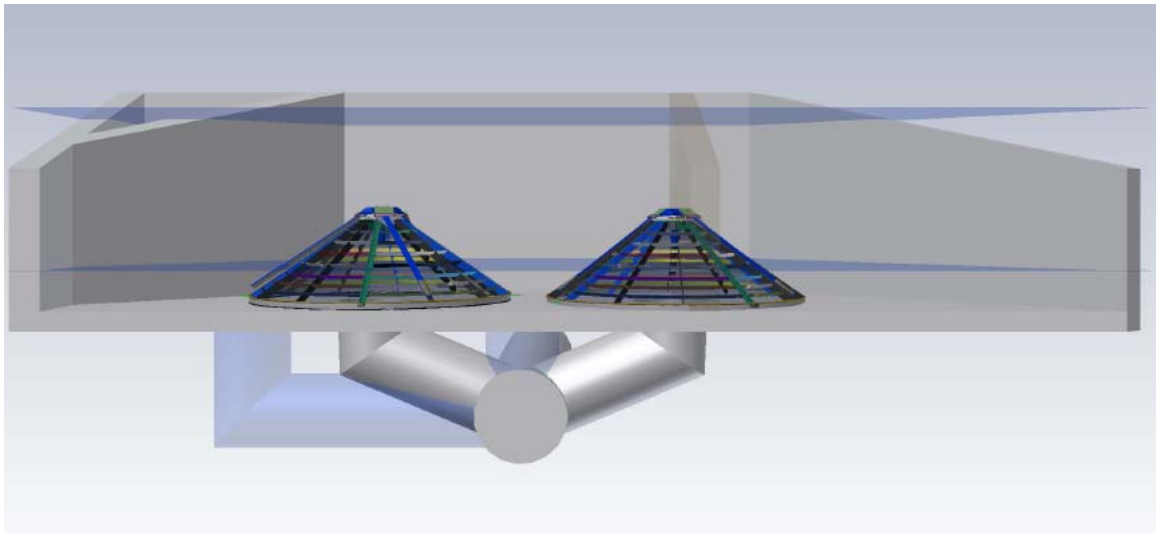


Figure 8 - Cone Screen Concept

Three more concept design alternatives were developed. These included a new inclined fish screen with a vertical slot fish ladder, a new vertical fish screen with pool-and-chute fish ladder, and a left bank bypass channel (opposite side of river) with a separate fish screen improvement inclusive of the above concepts. The ladders and bypass channel were primarily considered for enhancing the quantity and attractiveness of flow components for downstream fish migration. The bypass channel was analyzed for the left bank because there are two rows of sheetpile around the dam abutment about 20 feet apart that can form the sides of a bypass channel. It is understood that this area was used as a river bypass during the construction or repair of the dam.

A summary of the concept design alternatives evaluation relative to the project objectives is shown in Table 1. A revision of one of the concept design alternatives (number 4) was carried forward as the preferred alternative. An explanation of the basis for the preference and a detailed description of the concept design are provided in the next sections of this report.

Table 1 – Concepts and Project Objectives Evaluation

	Concept	Objectives 1	2	3	4	5	6	7	8	9	10	General Pros	General Cons
		Provide for a fish screen that meets contemporary hydraulic design criteria at the 100 cfs maximum diversion rate.	Maintain or improve downstream fish passage and provide for control of steady bypass flows.	Maintain existing diversion rate and operating water surface.	Provide a design that is compatible with and does not preclude opportunities for significant future dam modifications or replacement.	Maintain or improve upstream fish passage monitoring capability.	Maintain or improve upstream fish passage.	Provide for educational opportunity.	Maintain recreational river portage around dam and enhance portage with new facilities that also provide educational opportunities.	Identify a project that offers good value and reliable known costs over the next 50 years.	*Provide for river diversion at low, non-impounded flows. (added May 14)*		
1	Retrofit existing drum screens and dam	Experimental - may require trial and error fixes and hydraulic evaluations to prove.	Maintaining or improving depends on dam retrofit. Straps may be experimental.	Maintained with existing Denil ladders.	Yes	Maintained at existing Denil fish ladders.	Maintained	Limited to interpretive signage.	Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.	Maybe - trial of drum or intake box retrofits could add up in long term.	Limited to existing condition.	Limited modification of existing intake (e.g., minimal concrete work). Possibly low costs.	May not solve hydraulic performance problems. Still needs improved, fish friendly bypass flow control structure through dam retrofit or other configuration.
2	2001 Borcalli new vertical fish screen and intake reconfiguration with dam retrofit (straps)	Yes	Maintaining or improving depends on dam retrofit. Straps may be experimental.	Maintained with existing Denil ladders.	Yes	Maintained at existing Denil fish ladders.	Maintained	Limited to interpretive signage.	Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.	Yes	Limited by fish screen sill elevation.	Contemporary fish screen configuration.	Requires substantial modification of existing intake. Still needs improved, fish friendly bypass flow control structure through dam retrofit or other configuration.
3	Cone screens with intake retrofit	Yes - if caisson intake pipes are reconfigured.	Maintaining or improving requires added component such as dam retrofit or other configuration.	Maintained with existing Denil ladders.	Yes	Maintained at existing Denil fish ladders.	Maintained	Limited to interpretive signage.	Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.	Yes	Yes - similar to existing condition. Could be improved by lowering intake floor when reconfiguring caisson intake pipes.	Contemporary fish screens with ease of maintenance and good reliability. Limited construction footprint with modification of existing intake.	Still needs improved, fish friendly bypass flow control structure through dam retrofit or other configuration.
4	New vertical slot fish ladder with new integrated intake/screen	Yes	Improved - Vertical slot ladder capacity is approx. 50 cfs and auxiliary flow can increase total bypass flow without spill over dam to 150 cfs. Will need bypass slot/weir at dam abutment since ladder inlet is 100 ft upstream of dam.	Maintained. There are advantages to a lower operating water surface for a shortened ladder.	Yes. There are advantages to include dam replacement coincident with construction of new fish ladder and screen.	Improved through use of full depth monitoring/viewing chamber.	Improved with vertical slot ladder that allows for different hydraulic patterns compared to the Denil ladders and full depth slot may favor wider range of species preferences. Possible reduced delay for salmon.	Yes - underwater, full depth viewing chamber can provide excellent educational opportunity in addition to interpretive signage.	Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.	Values and costs not assessed at this time.	Yes - depends on intake floor/fish screen sill elevations.	Smallest footprint for a new ladder. Enhanced upstream fish passage and diversity of upstream fish passage when combined with existing left bank Denil ladder. May be able to take all of minimum bypass flows through new ladder and auxiliary flow components. Improved monitoring and active underwater viewing/educational component.	Requires substantial reworking of existing intake and river bank. Inlet location relative to dam may still cause some downstream passage delay compared to an inlet closer to the dam. River training structures and/or channel maintenance may be needed for sediment accumulation near new inlet.
5	New pool-and-chute fish ladder with new integrated intake/screen	Yes	Improved - Ladder to take majority or all of minimum bypass flow. This large pool-and-chute ladder can handle over 85 cfs alone. Will need bypass slot/weir at dam abutment since ladder inlet is 120 ft upstream of dam.	Maintained. There are advantages to a lower operating water surface for a shortened ladder.	Concept calls for reconfiguring right abutment and shortening dam. New fish ladder can be pushed into bank to avoid right abutment work but trade-off is more bank reconfiguration with bigger retaining walls. There are advantages to include dam replacement coincident with construction of new fish ladder and screen.	Improved through use of full depth monitoring/viewing chamber.	Improved passage for other species and life stages. Possible reduced delay for salmon.	Yes - underwater, full depth viewing chamber can provide excellent educational opportunity in addition to interpretive signage.	Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.	Values and costs not assessed at this time.	Yes - depends on intake floor/fish screen sill elevations.	Enhanced upstream fish passage and diversity of upstream fish passage when combined with existing left bank Denil ladder. May be able to take all of minimum bypass flows through new ladder. Improved monitoring and active underwater viewing/educational component.	Large footprint. Requires substantial reworking of existing intake and river bank. Inlet location relative to dam may still cause some downstream passage delay compared to an inlet closer to the dam. River training structures and/or channel maintenance may be needed for sediment accumulation near new inlet.
6	Left bank bypass channel with separate fish screen improvement	Would need to be combined with fish screen improvement option which could include any of the first three concepts.	Improved - Channel can be sized to take majority or all of minimum bypass flows. Denil ladders at dam can be maintained for additional bypass routes and flow.	Maintained. There are advantages to a lower operating water surface for a shorter bypass channel.	Yes	Maybe maintained - monitoring efficiency may be reduced with large channel inlet configuration. Existing Denil fish ladders can be retained.	Improved passage for other species and life stages. Possible reduced delay for salmon.	Yes - Interpretive signage. Underwater viewing windows may still be possible with an in ground chamber.	Bypass channel may provide boat-pass. Safety and nuisance factors will need to be considered. Quicker pass-by and not getting out of boat will limit interpretive signage observing.	Values and costs not assessed at this time.	Depends on fish screen improvement option.	Enhanced upstream fish passage and diversity of upstream fish passage when combined with existing left bank Denil ladder. May be able to take all of minimum bypass flows through new channel. Enhanced recreational opportunity if used as a boat-pass. Channel may provide enhanced temporal habitat compared to adjacent river.	Requires modification of left river bank between sheet pile walls. Sheet pile walls may also need substantial reconfiguration for longer, better performing channel. Monitoring reliability may be decreased.

Prepared by J. Mann, Prunuske Chatham, Inc. - July 17, 2009

Basis for Preferred Concept Design Alternative

In working through the concept design alternatives it became increasingly apparent that the objectives of improving downstream fish passage and providing for control of steady bypass flows were equally as important as providing a fish screen that meets contemporary hydraulic design criteria. It was also found that a new fish screen meeting criteria can be easily designed with a substantial modification of the intake so long as a fish-friendly passageway component for flow bypass can be combined with the new intake structure. The challenge was not in providing an adequate fish screen so much as providing for attractive fish migration and bypass flow control and increased capacity. In essence, the integration of a new fish screen, and its associated hydraulics, with a large bypass for downstream fish passage was an important concept design strategy.

Many variations and options of a fish-friendly configuration that also provided good bypass flow control and capacity were considered. These included replacing all or part of the dam with overflow gate systems, integrating a gate and control system just outside of either dam abutment, and relocating the diversion into a canal. These options vary in degrees of fish-friendliness and flow capacity and control but in general, the more fish-friendly any individual component or system may become the less capacity and control for bypass flow it tends to have. A balance of the two aspects was obtained by focusing the design strategy on developing a large capacity fish-friendly bypass structure. The friendliest structure for fish passage, other than a natural channel, is a fishway (fish ladder). The advantage of fishways, with well-defined flow ranges, is that they can be located in smaller areas by folding their hydraulic profile into a smaller footprint when compared to a natural channel.

A revision of the inclined fish screen with a vertical slot fish ladder was developed and better matched the project objectives compared to previous concepts. The components of this revised concept include a new intake with an inclined flat plate fish screen system, an oversized screen for increased bypass flow control and capacity, and a bypass fishway in the form of a vertical slot fish ladder. The preliminary drawings for this concept design are shown in Appendix A.

The evaluation of the project objectives with the preferred concept design is listed here (bold indicates assessment of how the design meets each project objective):

1. Provide for a fish screen that meets contemporary hydraulic design criteria at the 100 cfs maximum diversion rate. **Yes, screen oversized for improved bypass flow control.**
2. Maintain or improve downstream fish passage and provide for control of steady bypass flows. Control should be through the use of a fish friendly hydraulic structure or structures that can accommodate a range of expected bypass flow requirements. **Improved – bypass fishway flow**

capacity can be significantly increased compared to existing Denil fishway and auxiliary flow from bypass pipe can increase total bypass flow capability with improved control and without spill over dam (flow calculations to be completed in next phase of design).

3. Maintain existing diversion rate and operating water surface. (Elevation 38.0' is normal operating water surface, elevation 39.0' is maximum operable, elevation 36.0' is considered the minimum operable water level). **Maintained – bypass fishway can more easily accommodate water surface elevation ranges compared to existing Denil fishways.**
4. Provide a design that is compatible with and does not preclude opportunities for significant future dam modifications or replacement. **Yes**
5. Maintain or improve upstream fish passage monitoring capability. **Improved through use of full depth monitoring/viewing chamber.**
6. Maintain or improve upstream fish passage. **Improved with vertical slot ladder that allows for different hydraulic patterns compared to the existing Denil fishway and full depth slot may favor wider range of species preferences. Possibly improved performance and higher capacity for salmon.**
7. Provide for educational opportunity. **Yes - underwater, full depth viewing chamber can provide excellent educational opportunity in addition to interpretive signage on the river bank.**
8. Maintain recreational river portage around dam and enhance portage with new facilities that also provide educational opportunities. **Maintained. Enhanced if river portage is also included on right bank (intake side) with interpretive signage.**
9. Identify a project that offers good value and reliable known costs over the next 50 years. **Yes**
10. Provide for river diversion at low, non-impounded flows. **Yes - with intake floor at elevation 25.0' and fish screen sill elevation at approx. 25.5' up to approximately 30 cfs of diversion capability (river water surface at 28.0' and submerged depth of fish screens at 2.5').**

Some general advantages of the preferred concept design alternative include:

1. Higher certainty of hydraulic performance and meeting fish screen criteria.
2. Higher level of bypass flow control compared to existing condition. This configuration will be able to take all of minimum bypass flows through new bypass fishway and auxiliary flow components.
3. Enhanced upstream fish passage and diversity of upstream fish passage, especially when combined with existing left bank Denil fishway.
4. Improved monitoring and active underwater viewing and educational component.
5. Smaller footprint for a new fishway compared to other ladder types.

Some disadvantages of the preferred concept design alternative may include:

1. Requires reworking of existing intake and river bank.
2. River training structures and/or channel maintenance may be needed for sediment accumulation near new intake.
3. Bypass fishway entrance (downstream end) requires substantial depth.
4. Bank grading and tall retaining walls may be required in addition to new walls for intake and bypass fishway.

Description of Preferred Concept Design Alternative

Drawings for the preferred concept design alternative are included in Appendix A. A summary of hydrology that was used as a preliminary basis of design is included in Appendix B.

Diversion Intake and Fish Screen Configuration

Sheet 1 of the concept drawing shows the plan and elevation view of the proposed fish screen layout. The inclined fish screen was conceptually designed using the DFG Fish Screening Criteria (CDFG 2000) and the NMFS Fish Screening Criteria for Anadromous Salmonids (NMFS 1997). The intent of the fish screening criteria is to provide design guidelines and criteria that result in juvenile fish being prevented from entrainment in, or impingement upon, a water diversion's intake. This is basically to make the diversion hydraulically transparent to the fish and to not alter their natural biology. In this case, the target fish being excluded from the diversion intake are salmonid fry. Because of the life history of juvenile salmonid fish in the Russian River, and that diversion operations may occur during the early spring when juvenile fish are present, the fry criteria portion of the screen criteria is used. NMFS will normally assume that fry-sized salmonids are present at all sites unless adequate biological investigation proves otherwise.

The fish screening criteria determines the required area of the screen by the amount of water diversion occurring and where the intake is placed (river, canal, tidal, etc.) for the maximum approach velocity allowed. Approach velocity is the water velocity vector component perpendicular to the screen face. With a maximum allowable approach velocity of 0.33 ft/s for screens in streams and rivers, and a maximum pumped diversion of 100 cfs, the minimum required wetted screen area is 303 square feet. Adding 25 percent to the required wetted area to compensate for a reduction of screen area due to structural members is a common design practice. The required screen area then becomes approximately 380 square feet.

The proposed intake screen will consist of removable panels of stainless steel profile bar set into the reinforced concrete intake structure. The intake screen consists of four 14-ft x 10-ft panels, with a total area of 560 square feet. A photo of an example screen panel is shown in Figure 9. Not all of the screen area is submerged during normal diversion operations. The proposed design has the panels sitting on a concrete sill that elevates them above the forebay floor. This allows for some variability from sediment that may accumulate and for a brush cleaning arm to extend slightly beyond the screen face for complete cleaning coverage. Additionally, the proposed design configuration will allow for some freeboard on the screen for slight variation in operating water surface elevation and pump flow curves.

Figure 9 – Example Intake Screen Panel

The oversizing of the screen area also allows for a bypass flow control pipe to be considered between the intake and the pump caisson as shown on the concept design. Operators of the facility have expressed a desire to have more bypass flow quantity control. They are currently limited to about 20 cfs of flow control from the existing intake bypass. Regulating the flow in that bypass at low flows is not conducive to the hydraulics for fish passage in the existing intake. A new, precisely controlled bypass valve and pipe for increased flow as conceptually designed would likely be limited only by the availability of excess screen area after subtracting out the area required for the diversion pumping rate. If the

diversion rate is maxed out at 100 cfs there will be approximately 180 square feet of screen area for about 60 cfs of bypass flow. Lowering the pumping rate of the diversion on occasion, usually in 20 cfs increments based on water supply demand, will allow for increased bypass flow and more precise control. Another advantage to the bypass pipe with its inlet located behind the intake screen is that it can be the source of auxiliary water for the fishway entrance (the outlet at the downstream end). The auxiliary flow and bypass fishway will be explained in the next section of the report. Detailed hydraulic analysis for the bypass flow control pipe and optimization of screen size with respect to bypass flow control requirements will be conducted in the next phase of design.

For water supply reliability during drier winter and spring conditions the Agency may need to divert water from the free-flowing river when the inflatable dam is down. The pumping capability when the dam is down is lessened because of the lack of head from the impoundment and is determined by the river flow and water surface elevation. Appendix B contains an estimated dam-down rating curve of the river channel and Figures 10 and 11 show the river with the dam down at different flow rates in which dam-down diversions could occur. The lowered forebay floor and intake screen sill elevations of the proposed concept design may allow for adequate screen area during these lessened diversion operations depending on the pumping capability and water supply demand. The diversion pump station currently contains two 100 horsepower and one 50 horsepower pumps that when combined in operation have a 100 cfs capacity with the design head and dam-up conditions (water surface elevation of 38 feet). The pumping capacity is lessened when the dam is down and dependent upon the river water surface elevation. It is expected that dam-down diversion rates will be in the range of 15 to 40 cfs depending on pump operations. Detailed hydraulic analysis for the intake elevations and optimization of screen area with respect to dam-down diversion operations will be conducted in the next phase of design.

Figure 10 – 4/30/2009 – Free Flowing River at ~ 250 cfs and Water Surface El. of 28.7′

Figure 11 – 2/13/2002 – Free Flowing River at ~ 1,100 cfs (Hacienda Gage) After Peak Flow of 44,000 cfs on January 3rd., Estimated River Depth = 3 ft

The fish screening criteria requires that the sweeping velocity be greater than the approach velocity. Sweeping velocity is the water velocity vector component parallel and adjacent to the screen face. Observed sweeping velocities at the location of the proposed fish screen are near zero during normal diversion conditions with the inflatable dam in the up position and depending on incoming river flow. Because of the impounding effect of the dam and these slow velocities, the sweeping velocity criteria may not be met during some flow conditions. In addition to downstream fish migration attraction hydraulics, as explained previously, this is an important consideration in locating the bypass fishway relative to the intake screen face. The concept design locates the bypass fishway at the downstream end of the intake screen to provide a drawing of flows along the face of the screen as sweeping velocity. The influence of this drawing effect is determined by the amount of flow going down the bypass fishway and the geometry of the intake relative to the bypass fishway inlet. Detailed hydraulic modeling and analysis will occur during the next phase of design to ensure sweeping velocities and distribution of approach velocities are satisfactory. Training walls or other appurtenances for enhancing sweeping velocities will be considered at that time. The Agency will include in the design phase of the project a requirement for such a modeling effort.

The fish screening criteria also requires uniform flow distribution over the surface of the screen. The configuration of the intake relative to the river channel and river hydraulics is usually the first step in ensuring uniform flow distribution. In this case, because the river velocities are very low during routine diversion operations (dam-up), the intake was designed to be symmetrical about the caisson pipe and the transition plenum component added to help transition flows as equally as possible. This design approach for considering hydraulics at the macro-scale was taken in the absence of a detailed study to optimize the intake configuration. A detailed study can be conducted as part of other hydraulic modeling and analysis efforts mentioned previously. Some intake screen designs use porosity plates, louvers, baffles, isolation walls, and valves, or combinations of these components to ensure uniform flow distribution. The proposed concept design has four equalization bays, one for each screen panel. The bays are connected to the transition plenum and individually controlled with a valve. This allows for flow control and hydraulic tuning of the individual screen panels. While this will likely help with tuning of the macro-scale hydraulics, other components in the individual bays may be needed to fine tune the micro-scale hydraulics (juvenile fish scale size). Porosity plates are an example of a component that may be installed behind the screen to ensure an even flow distribution over the face of each individual screen panel.

The intake screen will have a cleaning system that will be determined in the next phase of design. A flat plate screen with this kind of river location and with this type of operational condition typically has a sweeping brush system controlled by a motor located on top of the intake structure. Other cleaning systems like air

backwash or water backwash may also be considered. Stage sensors on both sides of the screen panels can be installed to ensure cleaning system frequency is adequate and to ensure flow equalization.

A debris rack will be required in front of the intake screen to prevent damage to the screen face from large floating debris. The debris rack will be built with 12-inch wide openings between vertical members. This allows for the least amount of flow restriction and allows enough room for fish passage through the members without sacrificing too much in debris catching efficiency. Provisions for cleaning the debris rack may include a superstructure on top of the rack for maintenance and mechanized equipment for debris removal. The exact placement and configuration of the debris rack will be determined in the next phase of design.

Bypass Fishway Configuration

Removing the existing Denil fishway and replacing it with a larger and better performing fishway will provide greater bypass conveyance capacity during routine diversion operations. It will improve fish passage while avoiding significant changes to the water diversion operations. The bypass fishway consists of a new vertical slot reinforced concrete fish ladder and an auxiliary water supply system that provides increased attraction flow at the fishway entrance (downstream end). Vertical slot fish ladders are commonly used for salmon and steelhead, among other fish species, throughout California and the West Coast of North America. A vertical slot fish ladder consists of a sloped, rectangular channel separated by vertical slot baffles. The baffles are located at even increments to create a step-like arrangement of resting pools. The design is self-regulating and provides nearly constant velocities, flow depths, and water surface differentials at each baffle throughout a range of operating conditions.

This new bypass fishway is an integral component of the new intake screen in that the fishway inlet is immediately downstream of the screen panels. This provides juvenile fish an attractive and safe pathway as they migrate downstream and is a major accomplishment of downstream fish passage objectives. The vertical slot configuration is well-suited for this application because it provides a full depth for fish to use as they move either upstream or downstream. The higher conveyance capacity of the bypass fishway also improves upstream fish passage by enhancing attraction at the entrance. The larger size and inherent hydraulics of vertical slot fishways also provides improved upstream passage for a wider range of fish species and life stages.

The footprint of the new fishway will be larger than the existing Denil fishway but will have a turn along its length to keep the entrance near the same location. The increased flow capacity and location of the entrance enhances the ability for fish to find the ladder. Exact placement of the entrance and its configuration relative

to the dam spill under different river flow conditions will be optimized during the next phase of design.

During normal water diversion operating conditions with a water surface elevation of approximately 38.0 feet (when the dam is up and the river is impounded) the bypass fishway will convey approximately 50 to 80 cfs, depending on final design. Currently, the inflatable dam, the intake bypass openings, and the Denil fishways control the water surface elevation in the river and bypass flow quantity. The capacity of each Denil is approximately 20 cfs and the intake bypass openings can pass another 20 cfs. So a total bypass flow capability, without spill over the dam, with the existing facilities is approximately 60 cfs. With the new bypass fishway and bypass flow control pipe (as described with the intake screen improvements) this total bypass flow can be more than doubled over existing conditions without spill over the dam. The exact amount will depend on final configurations of the bypass fishway and the ultimate capacities of the bypass flow control pipe and auxiliary water system. A vertical slide gate may be installed on the east bank Denil fishway to help control bypass flow rates during routine diversion operations. These capacities will be determined during detailed hydraulic analysis in the next phase of design.

Diagrams with the proposed conceptual design alternative have been illustrated to help understand preliminarily, the flow routing and new component capacities under different river flows and operating condition scenarios. These diagrams are provided in Appendix B.

The bypass fishway design also includes viewing chamber and window located on the side of the ladder near the intake. This chamber and window allows for fish migration monitoring and would replace the monitoring video box that is currently used to count Chinook salmon migrating upstream through the Denil fishways. The monitoring video box for the Denil fishway on the East side would remain. Because the bypass fishway is a vertical slot ladder and fish may pass at any depth the window will need to be full depth. The video monitoring equipment used with the new fish ladder will need to be spread out over this depth depending on camera field of view and quality of fish recognition needed. To improve fish recognition (species and size) a background wall and flow separation gratings can be installed temporarily that will allow fish to be closer to the window. An example of a viewing chamber, window, marked background wall, and monitoring camera is shown in Figure 12.

Figure 12 – Fishway Monitoring Chamber and Viewing Window, Woodbridge Dam near Lodi

The viewing chamber and window will also allow for live, in-person monitoring of fish and increased educational and interpretive opportunities. California aquariums were contacted for feasibility determination of such a large window. Reynolds Polymer Technology, Inc. of Grand Junction, Colorado has been supplier of large windows to aquariums and some fishways. The exact size and design details, along with operating and maintenance considerations for the fishway viewing window will be determined in the next phase of design.

Operations and Maintenance Considerations

An operations and maintenance plan will be developed as part of the next phase of design. It will be reviewed and approved by DFG and NMFS prior to design completion. Operational capability and control is expected to increase with the proposed conceptual design alternative and maintenance demands will likely be the same as existing conditions. Since the vertical slot bypass fishway is self-regulating the flow controls will be with the bypass pipe and auxiliary water system. Flow sensors on the bypass pipe and valve controls will be required to maintain accurate bypass flow releases.

To ensure fish screen approach velocity criteria are met, stage sensors can be installed on the upstream and downstream side of the screen panels. Flow sensors can also be installed on the valves of the flow equalization bays to monitor the flow through the panels. These sensors can serve to actuate controls for flow, alarms, or shut down the pump station if an undesirable condition is sensed. The sensors will also serve to monitor the small debris accumulation on the screen panels and help to determine the performance of the screen cleaning system on a real-time basis. Periodic maintenance and cleaning of the screens will be necessary, similar to what occurs now with the drum screens.

Functional reliability can be increased with designed-in features of the intake and to allow for easier screen maintenance. For example, screen panel removal and cleaning during diversion operations can be accomplished by inserting a blank panel behind the screen panel and removing and replacing the screen panel with a clean one. Cleaning typically includes pressure washing the panels to remove small debris and algae buildup.

Large debris accumulation on the debris rack will require routine removal, typically at the onset of diversion operations. Sediment accumulation on the intake forebay floor may occur during river floods and needs to be considered during final design to minimize potential maintenance requirements. Sediment accumulation in the bypass fishway will likely flush out as flows increase in the ladder, similar to what occurs now with the Denil fishways. Resilience to flood damage of the improvements will likely be the same or slightly better when compared to the existing condition.

Steel grating will be used to cover the top of the bypass fishway to help ensure the safety of personnel working on or around the structure, and to help prevent large debris from entering the bypass fishway when the river is in flood stage. The grating will also be used as a walkway and working platform to access different parts of facility for maintenance activities.

Preliminary Construction Cost Estimate

The preliminary cost estimate for construction is based on the work conducted as part of this Study, the conceptual drawings and current industry standard construction costs. Comparisons were also made with recent, similar fish passage projects. The cost estimate is subject to review by the Agency. The quantities and costs illustrated are preliminary and not intended for bidding or construction purposes as final design work may result in changes to any or all quantities and costs. The final cost estimate will ultimately be determined by the final design engineer and the Agency.

For a conservative estimate it was assumed that the project construction may need to occur in two separate phases over two different years of the in-stream

construction work window (June to October). The order of construction is that the intake screen will be constructed as a first phase with limited, temporary components and then the fishway bypass will be added in the second phase. Construction of both phases is likely possible with one in-stream construction work window of five months and the cost savings for one versus two years of construction is mainly within some of the general costs like mobilization and some of the construction preparation costs like dewatering associated with each phase. The estimated construction cost of the preferred conceptual design alternative is within the range of $3,500,000 to $4,000,000.

The construction cost estimate does not include the following costs that are typically part of total project costs and will need to be considered in the next phase of project planning and design:

- Final engineering design, permitting or other environmental compliance work
- Construction procurement, management, administration and inspections
- Pumps or other equipment that may be necessary for temporary surface water supply diversion during the construction (it is expected that the emergency intakes downstream of the dam will be used for the temporary diversion)
- Any mitigation that may be required for the project
- Annual operations and maintenance costs

Project Preliminary Schedule Estimate

As mentioned previously, construction for the preferred conceptual design alternative is estimated to occur within a five month (summer) in-stream construction work window. However, environmental compliance, engineering design, and permitting will be required prior to construction. Below is an estimated project schedule assuming that funding availability does not restrain the timeline. The Biological Opinion requires that the Agency complete design of the project by October 2011 and construct the project within three years after completion of the design. If design of the new intake screen and bypass fishway are completed in 2011 the construction of the project could occur anytime during the summers of 2012, 2013, and 2014.

End of 2009	Agency reviews feasibility and provides direction for the next phase of the project
2010 -2011	Engineering design environmental compliance, and permitting
2012 -2014	Construction and commissioning

Final Design Considerations

The concept drawings contained in this report will be used as a basis during the final design process. Additional surveys may be necessary because of changes in the site conditions since this Study was conducted. Detailed hydraulic analyses will be needed to gain additional information required for final design. Final designs will be subject to approval by DFG, NMFS, and others.

Final design work will be governed by the following codes and standards:

- Structural design will comply with the latest Uniform Building Code requirements.
- Concrete design will comply with the latest American Concrete Institute Building Code Requirements for Reinforced Concrete Design.
- All current applicable Cal OSHA safety standards will be met.
- All environmental permit conditions will be met.

Final designs will adhere to the following requirements and criteria:

- An operations and maintenance manual should be made available for review by DFG and NMFS prior to design completion.
- Follow NMFS and DFG fish screen design criteria and widely recognized fishway design guidelines.
- The elevations shown in drawings are based on as-built and survey information provided by the Agency. Descriptions and elevations of control points can be obtained from the Agency.
- Actual concrete thickness, foundation requirements, and reinforcement requirements will be determined by the final design engineer.
- Some concrete, grading, and other work was included for cost estimating purposes but are not shown on the concept drawings. Actual dimensions and extent of work required for construction will be determined by the final design engineer.
- Fences, railings, gratings and other components for safety, security and maintenance will require consideration in the final design.

Bank grading and changes to the alignment of the emergency pump intakes access road downstream of the dam will likely be required to facilitate ingress and egress for vehicles. Retaining walls may be needed to handle steep or abrupt grade changes in and around the new works. Access ramps into the river for channel maintenance and boat portage at the upstream and downstream ends of the new works should be considered in the next phase of design.

Detailed hydraulic analysis of the river that occurs for the optimization of the intake screen configuration and bypass fishway will likely result in elevation differences of those components as compared to the concept design drawings.

Special Considerations

The Mirabel inflatable dam and river diversion is located within a Federal Emergency Management Agency Flood Insurance Rate Map Zone AE, special flood hazard area and floodway. The Russian River floods frequently at this location and overtopping of the intake, dam abutments and fishways is a common occurrence. The replacement of the intake and construction of a new fishway bypass within the river channel's cross section is not expected to raise the 100 year base flood elevation within this reach of the river. This must be verified in final design and the provisions of Code of Federal Regulations Chapter 44, Part 65 (Identification and Mapping of Special Hazard Areas) considered.

Construction Considerations

Construction access for the site is from the Westside Road gate and the Agency's access roads in the Mirabel area. An access road to the intake and dam exists on the West side of the river near the pump station. All access roads are surfaced with gravel and are presently in good condition. Staging areas for the construction are available near the pump station. The limits of construction, staging areas, and access roads will be determined in the next phase of design.

Excavation will be required at the project site for the intake screen and bypass fishway. Excavated material will either be reused at the project site or hauled off to a disposal site, which will be determined by the Agency. The excavation will require the construction area to be dewatered for preparing the foundation and placing concrete. A dewatering and river flow control plan will be developed in the next phase of design. A cofferdam would be required to isolate the work area for construction of the new intake and the bypass fishway. Given the composition of the subgrade in this area seepage from the river is expected to be significant. Use of sheetpile as cofferdam to isolate the construction activity and control seepage into the work area may be necessary. Water pumped from the work area may be allowed to be discharged into the adjacent infiltration ponds where water would percolate readily and prevent sediment from entering the river.

A species protection plan will also be required. Aquatic species will need to be relocated from the dewatered area. Adequate fish passage for the construction window should be incorporated in the dewatering plan if diversion of the river flow around the whole channel will be required or the dam is used to impound the river during construction. This may be accomplished by utilizing the existing East bank Denil fishway if full or partial impoundment occurs during construction. Maintaining the water surface elevation in the river upstream of the dam may be desirable during the summer for increased infiltration rates for water supply demand. The existing emergency pumps intakes downstream of the inflatable

dam may need to be used for temporary surface water diversion during construction, depending on water supply demand and Agency operations.

Construction of the improvements would be of conventional construction with generally available materials, equipment and labor. The work includes earthwork, reinforced concrete construction, pipeline installation, miscellaneous mechanical and metalwork installation, electrical controls, and associated electrical services. Concrete would come from common suppliers in the area and rock for slope protection is locally available. Permanent cut slopes will be shaped, graded, and vegetated, as appropriate, to ensure the slopes remain stable and erosion is controlled. Existing roads will be regraded and resurfaced with gravel as necessary for pre-project use and future use related to the project. All areas temporarily disturbed by construction will be restored to pre-project conditions. Staging areas will be restored to the previous condition.

Conclusions and Recommendations

The Association of California Water Agencies Board of Directors has recently (Nov. 2008) adopted policy principles embracing environmental and economic sustainability as equal priorities for water management in California. The principles express strong support for policies that promote significant improvements in both water supply reliability and ecosystem health. One of the principles outlines that investments in fish screens, fish ladders, and habitat improvement projects are investments in sustainability because the reliability of the water supply system and the health of the ecosystem are inextricably linked. It is also recognized that investments in water system improvements made in an environmentally sustainable system serves the economic interests of all water users, can significantly lower conflict levels between water supply and environmental objectives, and assure the long-term reliability of available supplies.

The preferred conceptual design alternative will be a significant improvement for the water supply system and ecosystem protection. This alternative best meets the project objectives and is considered feasible for construction. Final feasibility determination will likely occur in the next phase of design and requires analyzing the project relative to environmental impacts and funding availability. Performing more detailed hydraulic analysis and modeling will be required to optimize the configuration of the preferred conceptual design. A two-dimensional (2D) hydraulic model is recommended at a minimum. A 2D or 3D model is particularly useful for analyzing flows with in-stream structures and complex geometries. It can help to analyze circulation patterns, local velocities and variations, and flow over and around structures.

References

Borcalli and Associates, 2000 – Mirabel Diversion Structure Fish Screen Performance Evaluation.

Borcalli and Associates, 2001 – Draft Mirabel Diversion Facility Project Description.

California Department of Fish and Game (CDFG), 2000 – Fish Screening Criteria.

Manning DJ, Mann JA, White SK, Chase SD, Benkert RC, 2005 - Steelhead Emigration in a Seasonal Impoundment Created by an Inflatable Rubber Dam. North American Journal of Fisheries Management: Vol. 25, No. 4 pp. 1239–1255.

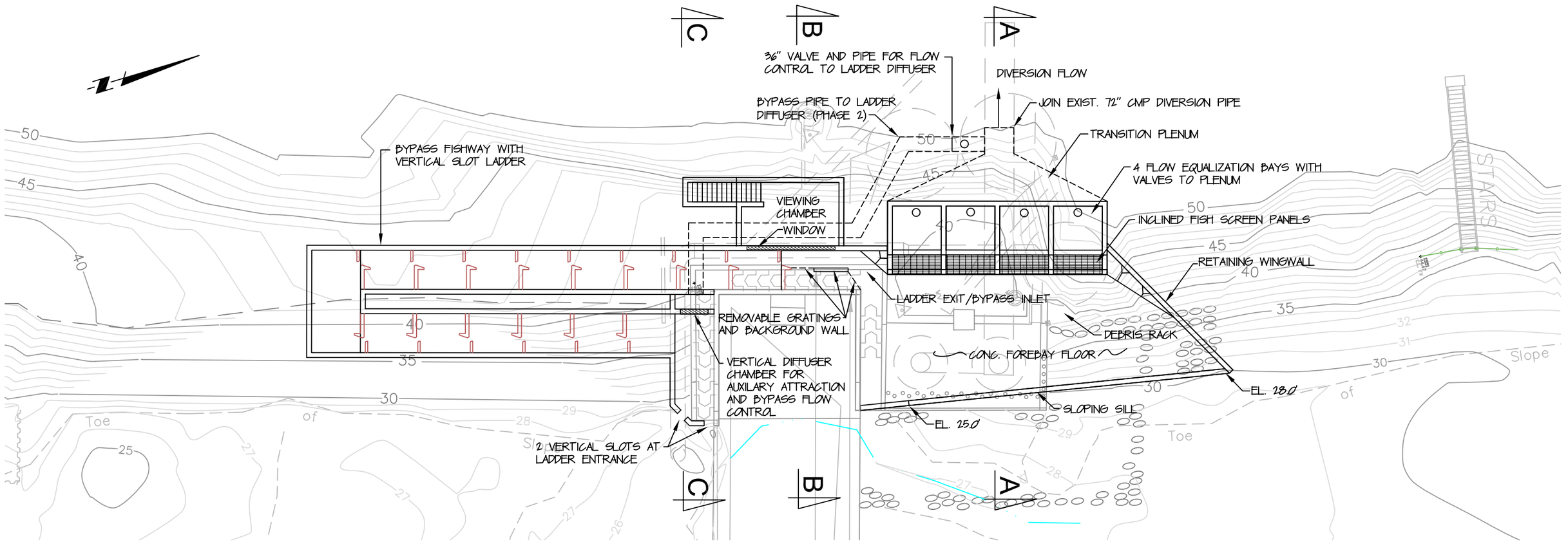
National Marine Fisheries Service (NMFS), Southwest Region, 2008 - Endangered Species Act Section 7 Consultation Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed.

NMFS, 1997 – Fish Screening Criteria for Anadromous Salmonids.

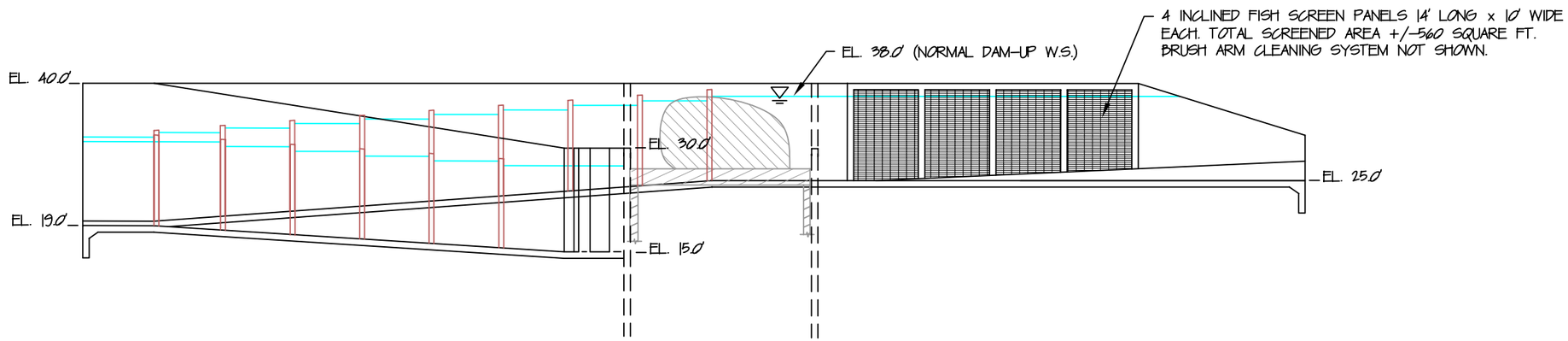
Sonoma County Water Agency website, 2009 - http://www.scwa.ca.gov/index.php

Appendix A

Preferred Concept Design Alternative



PLAN



PROFILE

PRELIMINARY

DATE : Sep 24, 2009

PRUNUSKE CHATHAM, INC.
400 MORRIS STREET, SUITE G
SEBASTOPOL, CA 95472
(707) 824-4600

DATE: SEPT. 10, 2009
SCALE: 1" = 20'
DESIGNED BY: JMANN
DRAFTED BY: JP
CHECKED BY: JMANN

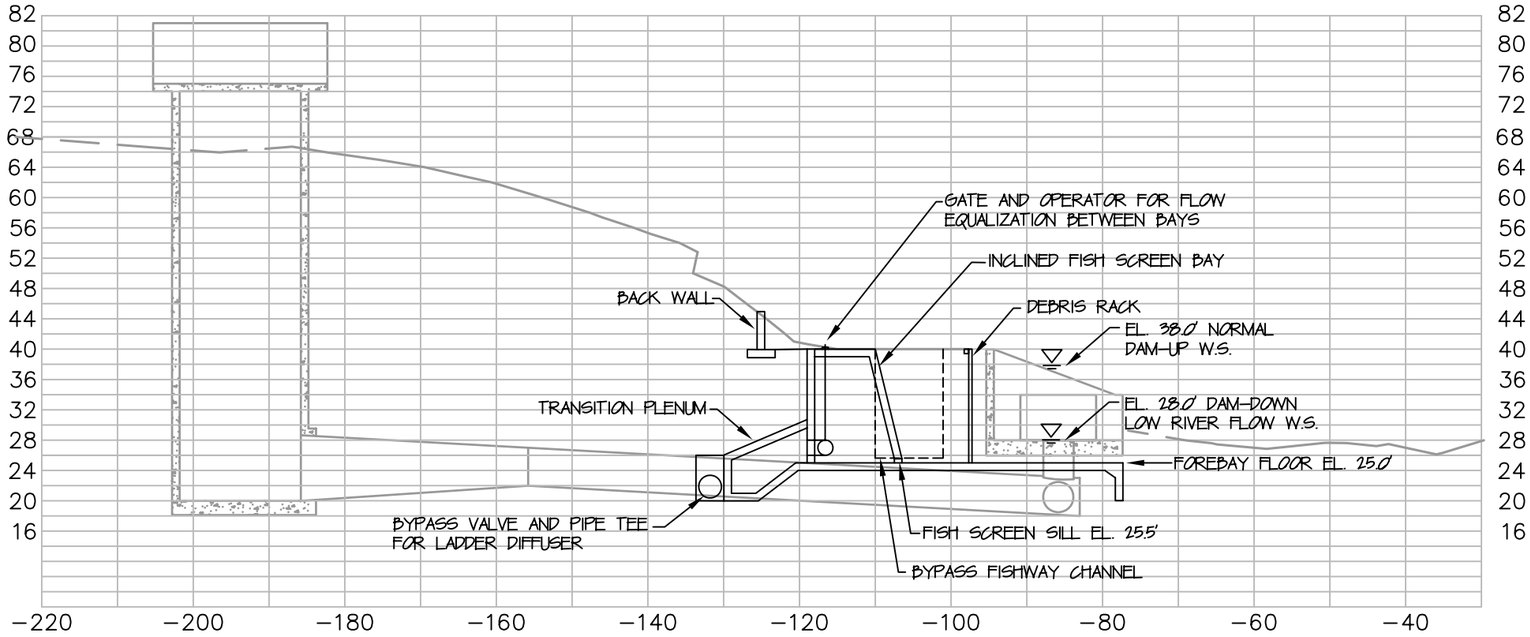
REVISIONS	DATE	BY

PREPARED FOR:
SONOMA COUNTY WATER AGENCY
MIRABEL FISH SCREEN RECONFIGURATION AND ALTERNATIVES STUDY

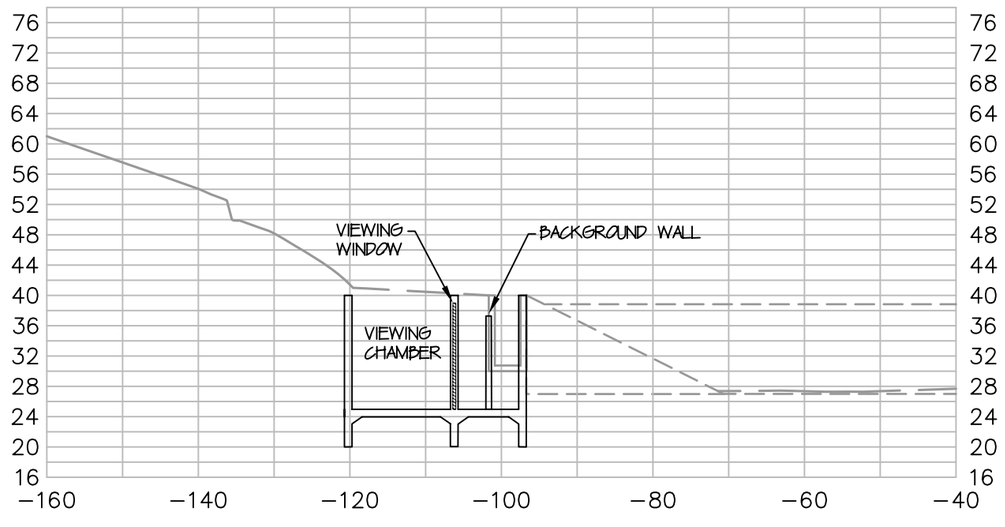
INCLINED FISH SCREEN WITH BYPASS FISHWAY CONCEPT ALTERNATIVE

SHEET 1 OF 2

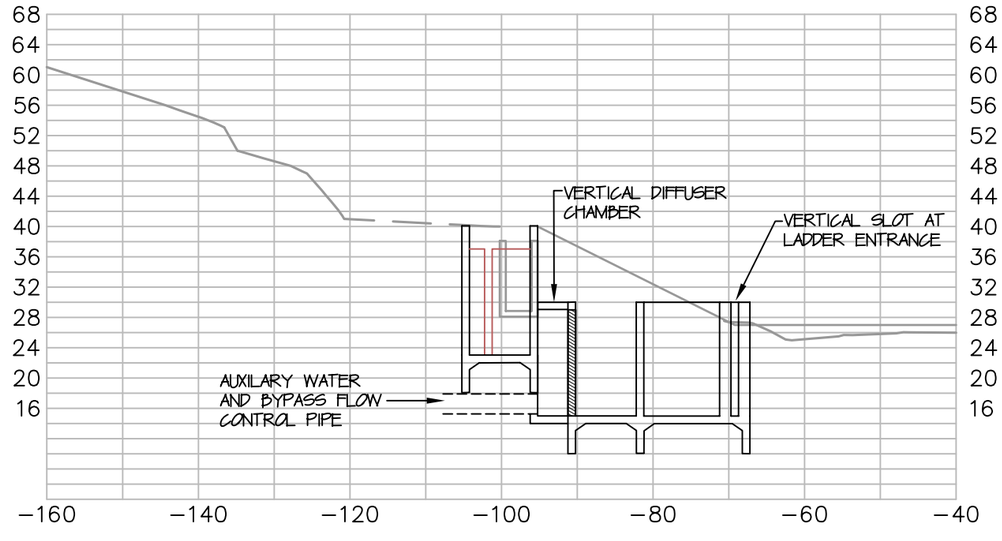
[AutoCAD file name: G:\ACAD Drawings\SCWA Mirabel Fish Screen v2008\dwg\Mirabel Fish Screen-hc phase 1-2 30.dwg]
[Xref files: Dam Trenches; WPDMA MADS3 v2007; 7357TOPO; wfdma_MDS] [Image files: mirabel; PCI_logo_for_plans.jpeg] [Plot Date:Sep 24, 2009 10:37am]



SECTION A-A



SECTION B-B



SECTION C-C

PRELIMINARY

DATE : Sep 23, 2009

PRUNUSKE CHATHAM, INC.
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DATE: SEPT. 10, 2009
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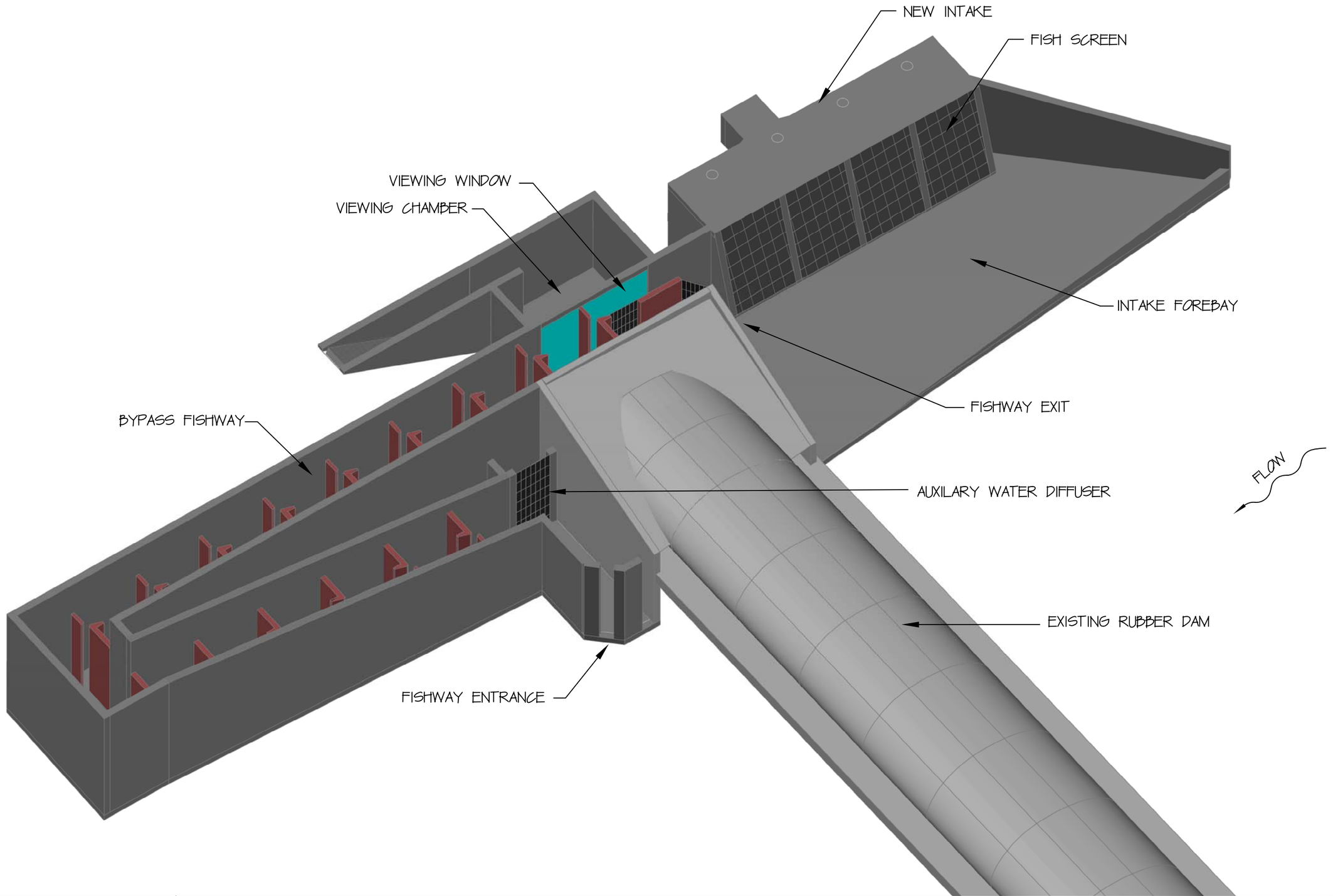
CHECKED BY: JMANN

REVISIONS	DATE	BY

PREPARED FOR:
SONOMA COUNTY WATER AGENCY
MIRABEL FISH SCREEN RECONFIGURATION AND ALTERNATIVES STUDY

INCLINED FISH SCREEN WITH BYPASS FISHWAY CONCEPT ALTERNATIVE

SHEET 2 OF 2



PRUNUSKE CHATHAM, INC.
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PREPARED FOR:
SONOMA COUNTY WATER AGENCY
MIRABEL FISH SCREEN RECONFIGURATION AND ALTERNATIVES STUDY

INCLINED FISH SCREEN WITH BYPASS FISHWAY CONCEPT ALTERNATIVE ISOMETRIC VIEW

FIGURE
1

Appendix B

Hydrology Summary
River Channel Rating Curve
Flow Routing and Capacity Diagrams

Russian River at Mirabel Hydrology Summary – version date: 9/25/09

Historical flow data sources include the USGS gages upstream of Wohler, which is upstream of the Mirabel area. The most immediate upstream gages are USGS 11464000, Russian River near Healdsburg, and USGS 11465350, Dry Creek near mouth near Healdsburg. Another USGS gage, number 11463980, Russian River at Digger Bend near Healdsburg, is upstream of USGS gage 11464000 and is a low flow (recorded data below 400 cfs) only gage. The Dry Creek gage is also a low flow only gage with recorded data only below 200 cfs.

During the dry season (June through October), most of the flow in the Russian River is water released from Lakes Mendocino and Sonoma. The coincident records of USGS gages 11464000 and 11465350 were combined to estimate the total flow at Wohler in select periods of the year to perform flow duration frequency analysis. The coincident period of record is October, 1981 to April, 2009. There are some periods of time during the record in which there is no data. The dates and data for those times were not used in the analysis. It should be noted that this is only an estimate since there are contributing streams and diversions between the gages and Wohler. In addition, the SCWA diverts water at Wohler and the reach loses flow depending on the operation of collectors (pumping plants) along the river.

The flow duration analysis resulted in the following flow exceedances:

11464000 and 11465350 Combined Flow (cfs) *

Percent of time flow is equaled or exceeded*	Entire Year	April through November	April through October	April only	May only	June only	July only	August only	September only	October Only	November Only	December Only
1%	1598	1238	1187	1838	1587	811	493	349	390	1556	1485	1898
10%	766	545	557	1012	871	558	376	323	319	651	499	1133
50%	302	284	281	550	385	304	271	269	259	286	307	422
90%	209	206	204	303	239	202	216	217	194	195	218	213
99%	156	156	154	180	149	126	186	179	168	163	184	180

* Dry Creek gage data limited to 200 cfs and below. Flows during months other than summer may actually be higher in response to storms and will skew exceedance calculations during April, May, November, December, and possibly June and October.

These would approximate the river flow statistics in the Wohler and Mirabel areas and can be used as a surrogate for the flow coming into the Mirabel facility to design new facilities or for determining ranges of operation and design. The maximum diversion rate is 100 cfs though the Mirabel intake and the actual diversion depends on the number of operating pumps at the River Diversion Structure (RDS). Most diversions do not occur at the maximum rate at the beginning of the diversion season.

Minimum streamflows are specified in the State Water Resources Control Board's (SWRCB) Decision 1610, which stipulates that the annual minimum instream summer flow in the Russian River downstream of Dry Creek is:

- 125 cfs during normal water supply conditions;
- 85 cfs during dry water supply conditions; and
- 35 cfs during critical water supply conditions.

These are subject to change pending the outcome of the recent D1610 petition.

The Sonoma County Water Agency also maintains a water level gage called RDS just upstream of the Mirabel Dam and intake indexed to the structure and ground elevations. Data from 5/27/2003 to 4/29/2009 was analyzed for correlation to flow data. A statistical summary of the data is included here:

RDS Gage Mean – 36.3' (all parts of years)
RDS Gage Median – 38.0' (June to October for normal dam operating years)
RDS Gage Max – 62.9' (December 14 and 25, 2003 and January 1-2, 2006)
RDS Gage Min – 27.4' approximate base of dam/river control, represents very low flow periods

The nearest downstream gage is the USGS 11467000, Russian River near Guerneville, and is also referred to as the Hacienda gage. Between the Mirabel site and this gage there is a very large contributing watershed, Mark West Creek and tributaries. The tributaries include Santa Rosa Creek and tributaries along with the Laguna de Santa Rosa and its tributaries. The watershed area of the Hacienda gage is 1,338 mi^2. USGS gage 11466800 is located on Mark West Creek approximately 3 miles upstream of the Russian River confluence. The drainage area at this gage is 251 mi^2. Daily discharge data is available for gage 11466800 since October 2005. The data from this gage was subtracted from concurrent daily flow data of the Hacienda gage to estimate the flow at Mirabel during the period of January to April 2009. This data from the USGS is provisional and subject to revision when officially published for the water year (October 2008 – September 2009).

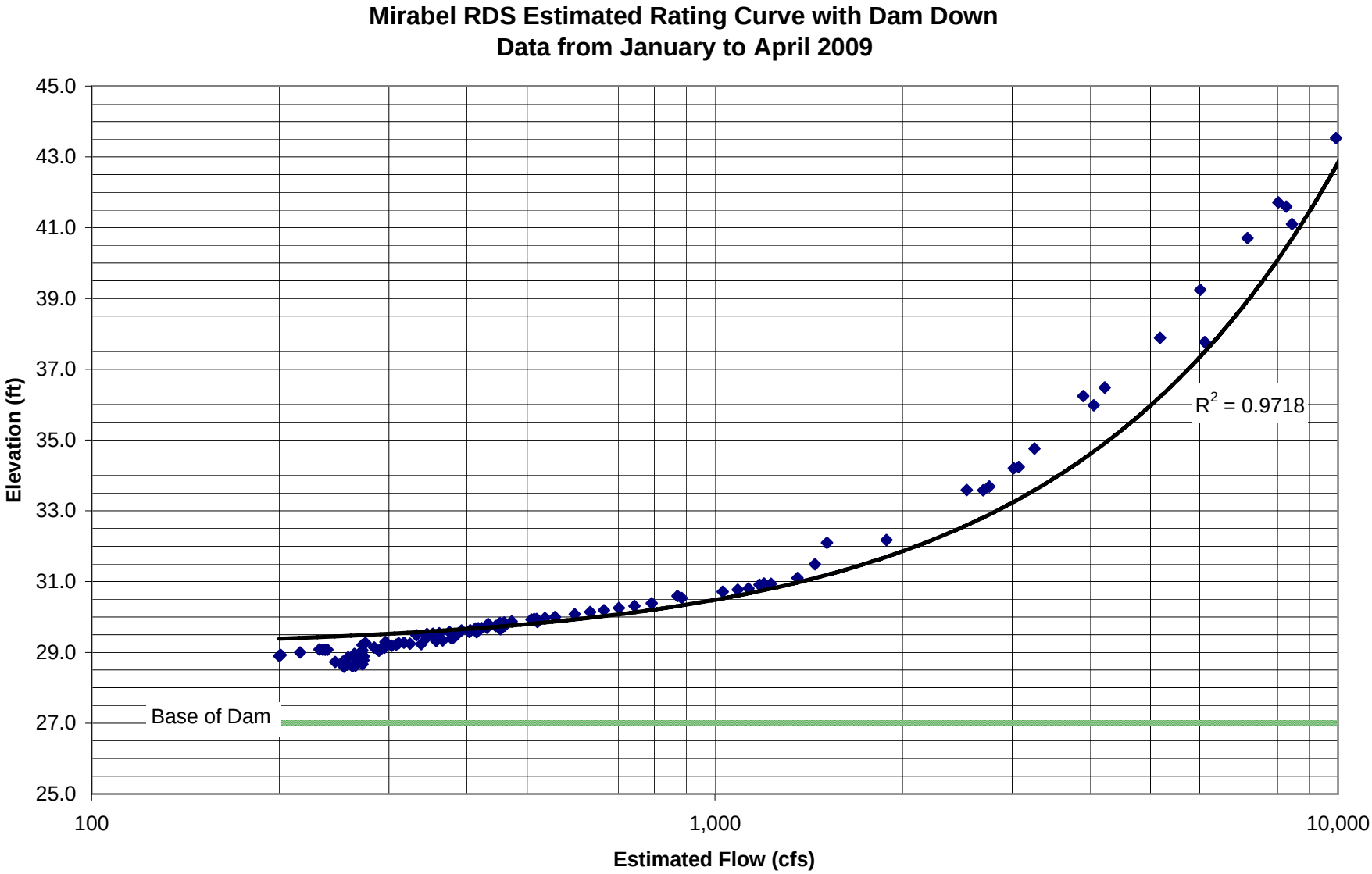
To evaluate water surface elevations that can be used for design, a rating curve was developed for the river from data when the inflatable dam was down. The curve was developed using the estimated flows as described in the previous paragraph matched to the concurrent RDS gage level data. This data provided by SCWA is preliminary and is not reviewed in accordance with quality control/quality assurance procedures. The correlated data is presented in the following table.

January - April 2009 Date	RDS Water Surface Elevation (ft)	Mirabel Estimated Flow (cfs)
1/1/2009	29.7	445
1/2/2009	29.7	417
1/3/2009	29.7	418
1/4/2009	29.8	460
1/5/2009	29.7	431
1/6/2009	29.7	417
1/7/2009	29.7	450
1/8/2009	29.7	422
1/9/2009	29.6	392
1/10/2009	29.6	375
1/11/2009	29.5	361
1/12/2009	29.5	353
1/13/2009	29.5	345
1/14/2009	29.5	332
1/15/2009	29.3	317

1/16/2009	29.2	308
1/17/2009	29.2	303
1/18/2009	29.1	295
1/19/2009	29.1	291
1/20/2009	29.0	289
1/21/2009	28.9	273
1/22/2009	28.8	266
1/23/2009	28.9	273
1/24/2009	28.8	273
1/25/2009	28.7	272
1/26/2009	28.6	265
1/27/2009	28.6	262
1/28/2009	28.6	254
1/29/2009	28.7	246
1/30/2009	29.1	239
1/31/2009	29.1	237
2/1/2009	29.1	235
2/2/2009	29.1	232
2/3/2009	29.0	216
2/4/2009	28.9	200
2/5/2009	28.9	201
2/6/2009	29.3	275
2/7/2009	29.6	404
2/8/2009	29.4	345
2/9/2009	29.3	296
2/10/2009	29.2	272
2/11/2009	29.4	345
2/12/2009	29.9	519
2/13/2009	30.6	871
2/14/2009	31.5	1448
2/15/2009	34.2	3073
2/16/2009	41.6	8260
2/17/2009	43.8	10270
2/18/2009	41.7	8020
2/19/2009	36.2	3900
2/20/2009	33.6	2536
2/21/2009	32.2	1886
2/22/2009	37.8	6110
2/23/2009	49.4	17250
2/24/2009	48.9	16510
2/25/2009	40.7	7160
2/26/2009	37.9	5180
2/27/2009	36.0	4055
2/28/2009	34.2	3018
3/1/2009	33.7	2755
3/2/2009	41.1	8440
3/3/2009	45.1	11910
3/4/2009	43.5	9930
3/5/2009	39.2	6010
3/6/2009	36.5	4224
3/7/2009	34.8	3259
3/8/2009	33.6	2695

3/9/2009	N.A.	2255
3/10/2009	N.A.	1942
3/11/2009	N.A.	1698
3/12/2009	32.1	1514
3/13/2009	31.1	1357
3/14/2009	30.9	1231
3/15/2009	30.8	1132
3/16/2009	30.8	1088
3/17/2009	30.9	1199
3/18/2009	30.9	1179
3/19/2009	30.7	1030
3/20/2009	30.6	N.A.
3/21/2009	30.5	N.A.
3/22/2009	30.5	N.A.
3/23/2009	30.6	N.A.
3/24/2009	30.5	885
3/25/2009	30.4	792
3/26/2009	30.3	743
3/27/2009	30.3	702
3/28/2009	30.2	664
3/29/2009	30.1	631
3/30/2009	30.1	596
3/31/2009	30.0	554
4/1/2009	30.0	534
4/2/2009	29.9	518
4/3/2009	29.9	513
4/4/2009	29.9	508
4/5/2009	29.8	459
4/6/2009	29.8	433
4/7/2009	29.7	413
4/8/2009	29.9	472
4/9/2009	29.8	452
4/10/2009	29.8	458
4/11/2009	29.7	453
4/12/2009	29.6	415
4/13/2009	29.6	405
4/14/2009	29.5	384
4/15/2009	29.4	378
4/16/2009	29.4	380
4/17/2009	29.3	366
4/18/2009	29.3	357
4/19/2009	29.2	338
4/20/2009	29.2	324
4/21/2009	29.3	311
4/22/2009	29.2	297
4/23/2009	29.1	284
4/24/2009	29.1	272
4/25/2009	29.0	264
4/26/2009	28.9	258
4/27/2009	28.7	253
4/28/2009	28.7	257

N.A. = Not Available


Mirabel RDS Estimated Rating Curve with Dam Down
Data from January to April 2009
45.0
43.0
41.0
39.0
37.0
35.0
33.0
31.0
29.0
27.0
25.0
Elevation (ft)
100
1,000
10,000
Estimated Flow (cfs)
Base of Dam
R2 = 0.9718

River Inflow = 185 cfs

Operational Scenario:

Dam full up (w.s.=38.0') with no spill.
Proposed normal conditions minimum bypass requirements (subject to D1610 permanent changes).

Combined Intake Flow = 165 cfs

Fish Screen Panels = 120 cfs

Diversion = 100 cfs

Bypass Fishway = 65 cfs

Denil Fishway = Closed

No Dam Spill

Fishway Outlet = 85 cfs

Bypass Flow Control Pipe = +/- 20 cfs

River Outflow = 85 cfs

FLOW ROUTING AND CAPACITY* DIAGRAM

Preliminary - For Study Purposes Only

**capacities are subject to change and will be determined during final design*

PRUNUSKE CHATHAM, INC.
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(707) 824-4600

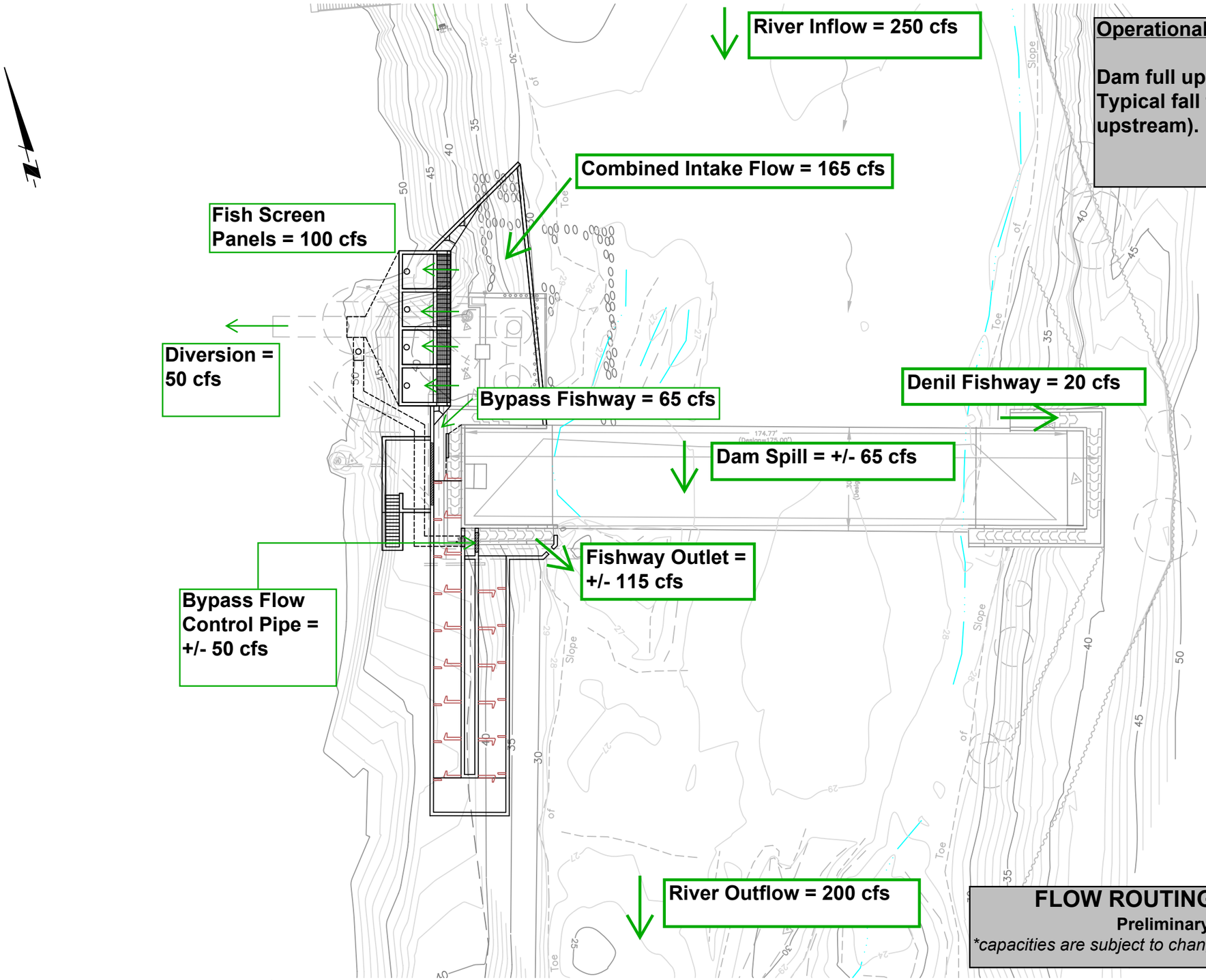
DATE:	SEPT. 10, 2009
SCALE:	1" = 30'
DESIGNED BY:	JMANN
DRAFTED BY:	JP
CHECKED BY:	JMANN

REVISIONS	DATE	BY

PREPARED FOR:
SONOMA COUNTY WATER AGENCY
MIRABEL FISH SCREEN RECONFIGURATION AND ALTERNATIVES STUDY

INCLINED FISH SCREEN WITH BYPASS FISHWAY CONCEPT ALTERNATIVE

1



Operational Scenario:

Dam full up (w.s.=38.0') with spill.
Typical fall flows (with Chinook migrating upstream).

FLOW ROUTING AND CAPACITY* DIAGRAM

Preliminary - For Study Purposes Only

**capacities are subject to change and will be determined during final design*

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INCLINED FISH SCREEN WITH BYPASS FISHWAY CONCEPT ALTERNATIVE

2

Operational Scenario:

Dam full up (w.s.=38.0') with spill.
Typical spring flows.

River Inflow = 400 cfs

Combined Intake Flow = 215 cfs

Fish Screen Panels = 150 cfs

Diversion = 100 cfs

Bypass Fishway = 65 cfs

Denil Fishway = 25 cfs

Dam Spill = +/- 160 cfs

Fishway Outlet = +/- 115 cfs

Bypass Flow Control Pipe = +/- 50 cfs

River Outflow = 300 cfs

FLOW ROUTING AND CAPACITY* DIAGRAM

Preliminary - For Study Purposes Only

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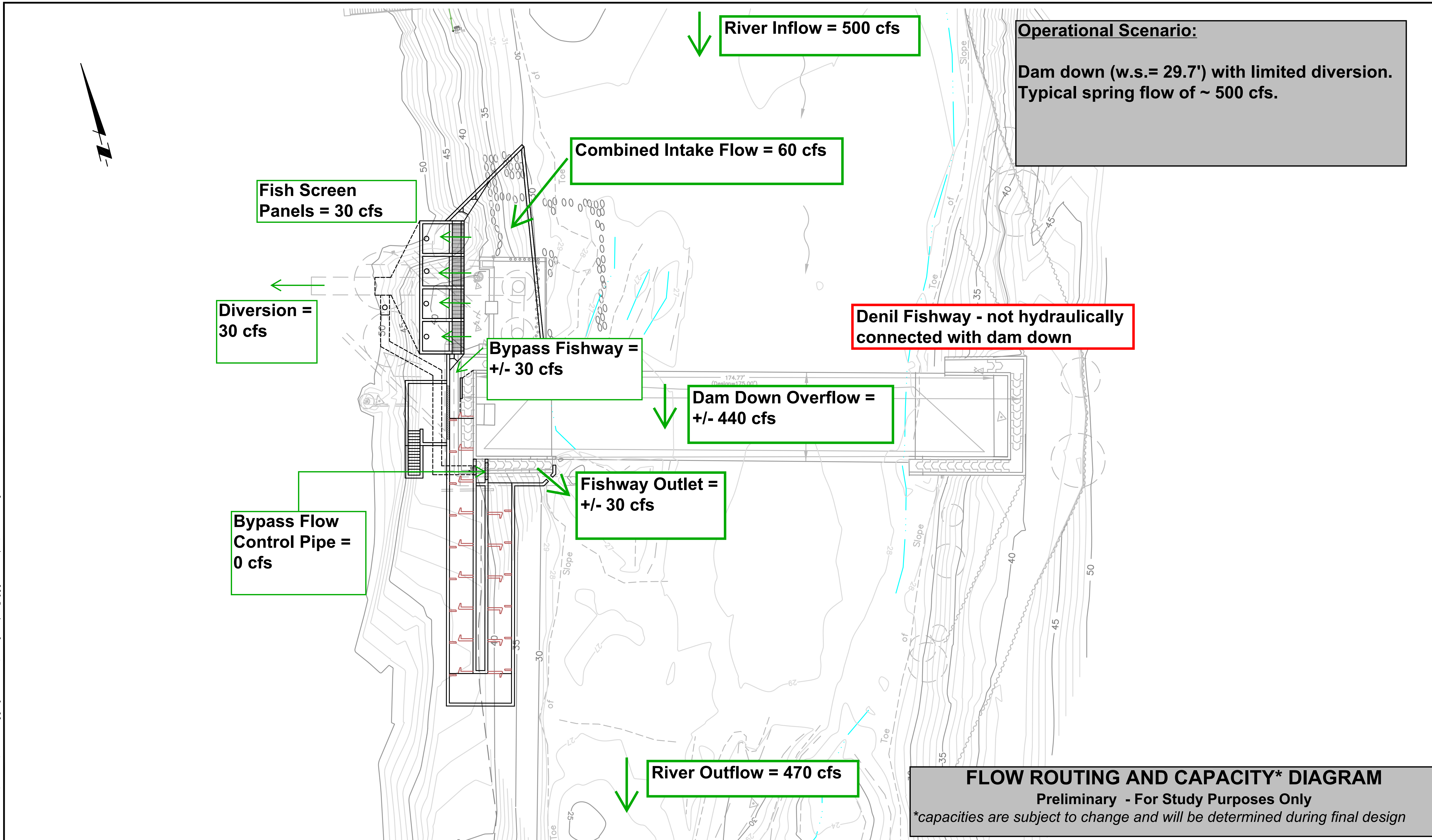
3



FLOW ROUTING AND CAPACITY* DIAGRAM

Preliminary - For Study Purposes Only

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APPENDIX B
Notice of Preparation and Comment Letters Received

This notice was posted on AUG 07 2012
and will remain posted for a period of thirty days
until thru 9/7/12

JANICE ATKINSON, Co. Clerk
BY: DEPUTY CLERK

Notice of Preparation of Initial Study

July 20, 2012

TO: State Clearinghouse
Responsible and Trustee Agencies
Interested Agencies and Parties

FROM: Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa, CA 95403

Mirabel Fish Screen and Fish Ladder Replacement Project

The Sonoma County Water Agency (Water Agency) is preparing an Initial Study for the Mirabel Fish Screen and Fish Ladder Replacement Project. An Initial Study is a preliminary analysis of a project's potential environmental impacts used to determine whether a Negative Declaration or an Environmental Impact Report will be prepared. It is a public document that analyzes the potential environmental effects related to construction, operation, and maintenance of a project and describes ways to reduce or avoid possible environmental impacts.

The Initial Study for the Mirabel Fish Screen and Fish Ladder Replacement Project will be prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the Water Agency's *Procedures for the Implementation of CEQA*. The Water Agency will act as the Lead Agency pursuant to CEQA, and will consider all comments received in response to this Notice of Preparation (NOP), including comments from responsible and trustee agencies, property owners, and interested parties regarding the scope and content of the information to be included in the Initial Study. Agencies and interested members of the public are invited to provide input on the scope and content of the environmental information that should be included in the Initial Study.

ORIGINAL DOCUMENT
SONOMA COUNTY WATER AGENCY

SEP 18 2012
TO: CONED

SONOMA COUNTY WATER AGENCY

The Water Agency is a special district created by the California Legislature and operates under the direction of a Board of Directors, composed of the members of the Sonoma County Board of Supervisors. The law that created the Water Agency and defines its powers and duties authorizes it to produce and furnish surface water and groundwater for beneficial uses, to control flood waters, to generate electricity, to provide recreational facilities in connection with Water Agency water supply facilities, and to treat and dispose of wastewater.

BACKGROUND INFORMATION

The Russian River originates in central Mendocino County approximately 15 miles north of Ukiah. The Russian River watershed is shown on Figure 1. It drains an area of approximately 1,485 square miles, including much of Mendocino and Sonoma counties, and empties into the Pacific Ocean at Jenner in Sonoma County, about 20 miles west of Santa Rosa. The main channel of the Russian River is about 110 miles long and runs generally southward from its headwaters near Redwood and Potter Valleys, to Mirabel Park, where the channel's direction changes to generally westward as it crosses the Coast Range. Principal Russian River tributaries are the East Fork of the Russian River [which receives water diverted from the Eel River through Pacific Gas and Electric Company's (PG&E) Potter Valley Project], Big Sulphur Creek, Maacama Creek, Dry Creek, and Mark West Creek. Communities and cities along the Russian River include Ukiah, Hopland, Cloverdale, Geyserville, Healdsburg, Forestville, Mirabel Park, Rio Nido, Guerneville, Monte Rio, Duncans Mills, and Jenner.

Two major reservoir projects provide water supply storage in the Russian River watershed: 1) Coyote Valley Dam/Lake Mendocino, located on the East Fork of the Russian River three miles east of Ukiah, and 2) Warm Springs Dam/Lake Sonoma, located on Dry Creek 14 miles northwest of Healdsburg. The Water Agency is the local sponsor for these two federal water supply and flood control projects, collectively referred to as the Russian River Project. Under agreements with the United States Army Corps of Engineers (USACE), the Water Agency manages the water supply storage space in these reservoirs to provide a water supply and maintain summertime Russian River and Dry Creek streamflows. The Water Agency releases water from storage in these reservoirs where it flows downstream to the Water Agency's primary points of diversion at Wohler and Mirabel Park. At Wohler and Mirabel Park, the Water Agency operates a series of wells that pump water from the aquifer beneath the Russian River and deliver that water through its transmission pipeline system to municipalities, where the water is used primarily for residential, governmental, commercial, and industrial purposes.

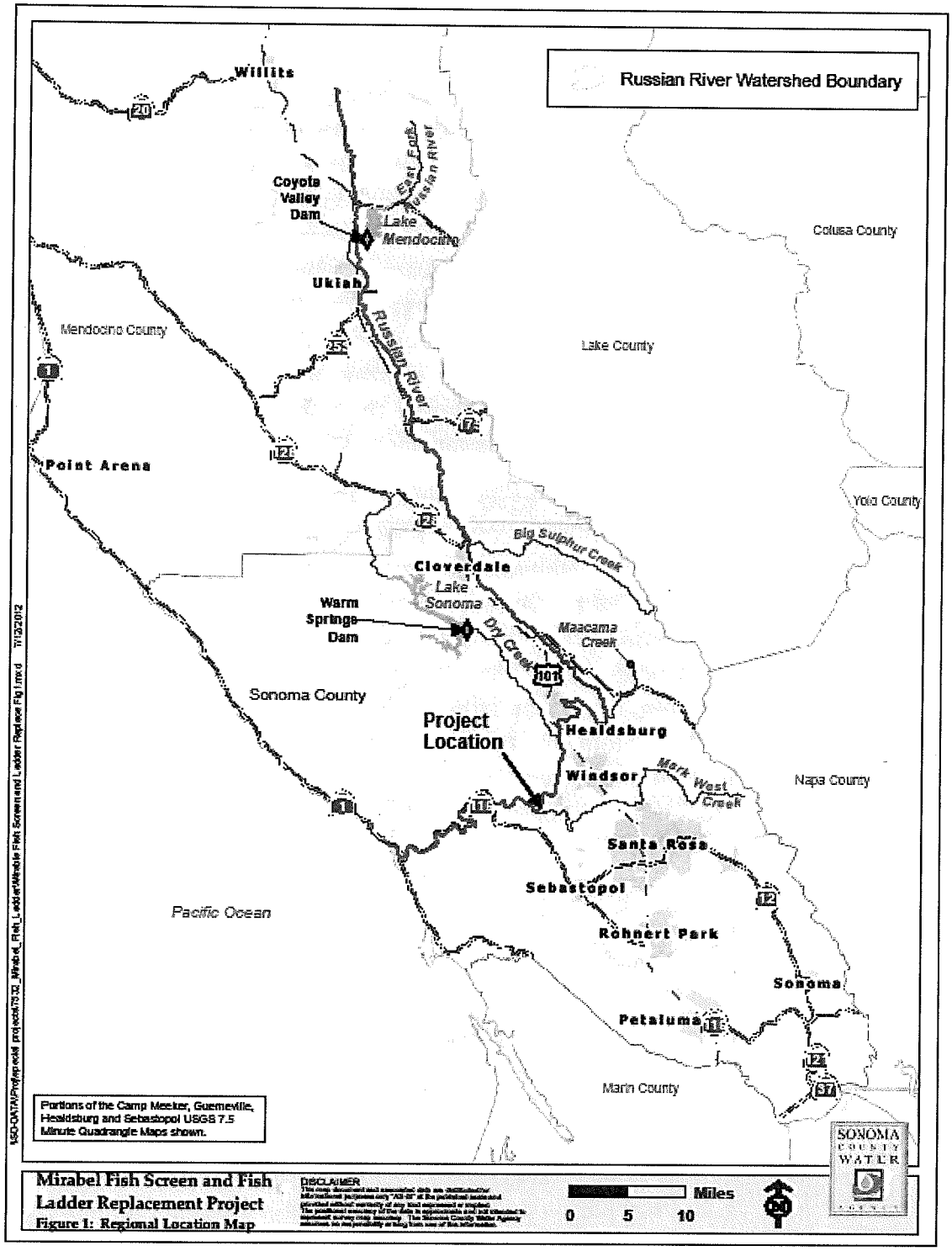

Figure 1. Russian River Watershed

At Mirabel, the Water Agency operates an inflatable dam approximately 2,600 feet downstream of the Wohler Bridge (Figure 2) that is used seasonally. When the dam is inflated, the water level behind the dam rises by 11 feet, which submerges a diversion structure consisting of drum fish screens and pump intake piping. (Figures 3 and 4). The Water Agency uses this diversion structure to pump water from the Russian River into infiltration ponds adjacent to the Russian River. These infiltration ponds help to recharge the gravel aquifer underneath the Russian River and enhances the Water Agency's ability to more efficiently collect naturally filtered groundwater. When the dam is inflated, two fish ladders on either end of the dam allow fish passage. The Water Agency operates a video monitoring system at the fish ladders to track fish passing upstream or downstream of the inflatable rubber dam. The replacement of the existing fish screens, the modification of the intake structure, and the modification of one of the existing fish ladders is the subject of the Mirabel Fish Screen and Fish Ladder Replacement Project.

The replacement of the Mirabel fish screen portion of the project is required by the National Marine Fisheries Service (NMFS) 2008 *Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation District in the Russian River Watershed* (Russian River Biological Opinion). Studies found that the existing fish screening facilities at the diversion structure perform less than adequately for full protection of fish and downstream migration. NMFS' Russian River Biological Opinion requires that the fish screens be replaced by October 2014 to meet contemporary performance criteria. These guidelines and criteria are summarized in a document prepared by NMFS titled "Fish Screening Criteria for Anadromous Salmonids" (NMFS 1997).

Additionally, the Water Agency is interested in replacing one of the existing fish ladders to complement the new fish screens and to better enhance fish passage while increasing operational flexibility with the inflatable dam. The Water Agency currently inflates the dam with a notch to concentrate flows over a specific portion of the dam (Figure 5). Fish monitoring studies have shown that fish passage downstream over the inflatable dam is enhanced through the addition of this notch. However, maintaining this notch presents operational challenges. With the notch in the dam, it is not possible to maintain consistent downstream flows due to the expansion and contraction of the dam in response to heat and sunlight. The proposed fish ladder replacement would allow for flows through the fish ladder that are attractive to fish migrating downstream, so that notching the inflatable dam would no longer be necessary. In addition to reduce current operational challenges, the proposed design of the new fish ladder (proposed vertical slot fish ladder versus the existing

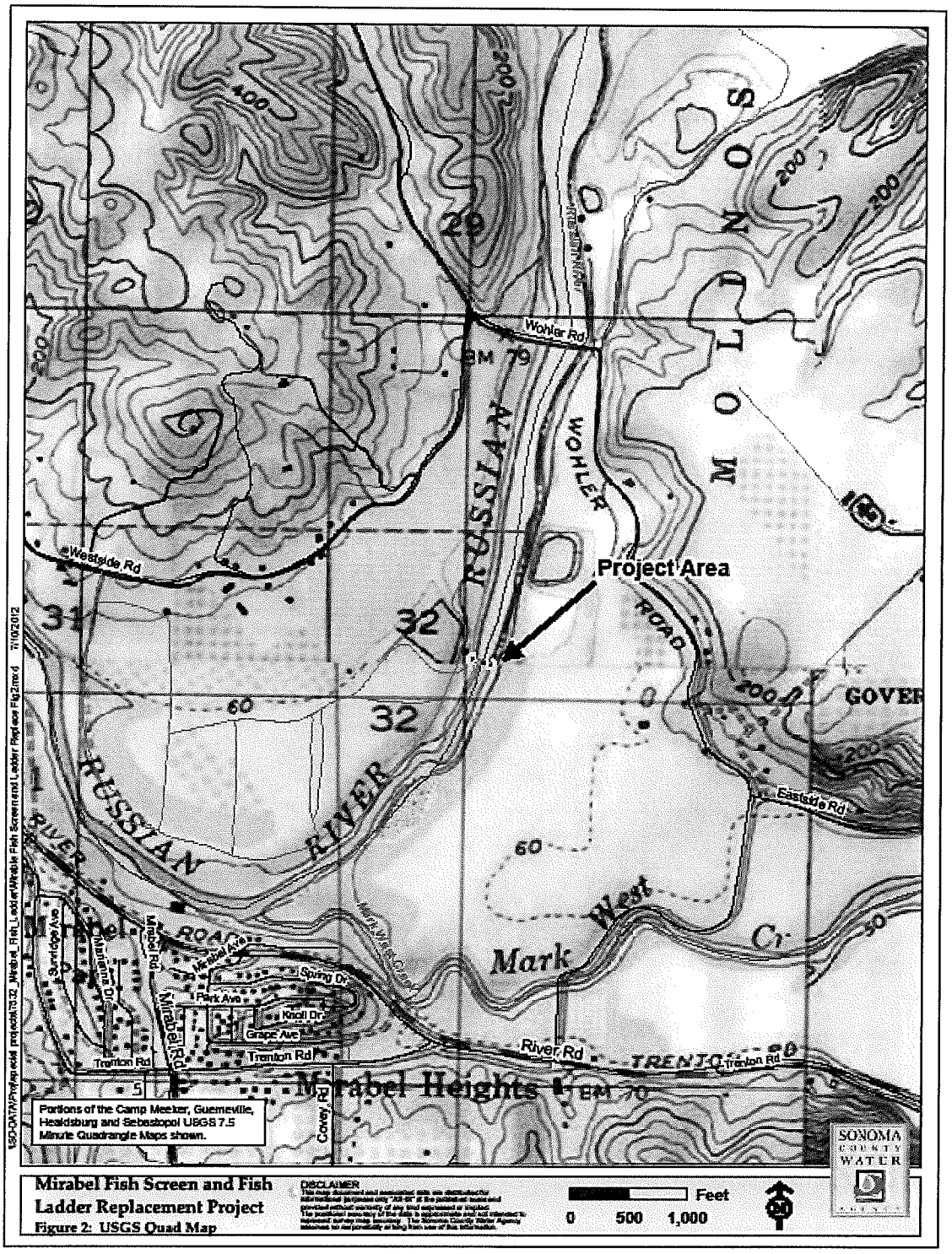

Figure 2. Location of Mirabel Inflatable Dam

Denil type fish ladder) would expand the range of flows and water levels that the fish ladder would be effective for fish passage.

A redesign of the fish ladder would allow the Water Agency to enhance existing video monitoring and provide better opportunities to view fish migration. The new fish ladder facility would contain a dedicated viewing window room that would house the video monitoring equipment and would only be accessible to employees. A separate viewing window area and viewing platform are also proposed as part of the upgrades to the facility. The Water Agency currently brings approximately 3,500 schoolchildren to the existing fish ladder facility at Mirabel as part of the Water Agency's Water Education Program. The proposed viewing areas will enhance the visitor experience by providing a better overall view of the facility and by providing a view into the side of the fish ladder. During the migration season, the viewing window would allow people to see fish moving through the fish ladder.

Figure 3. Existing Mirabel Fish Ladder and Fish Screen/Intake Structures

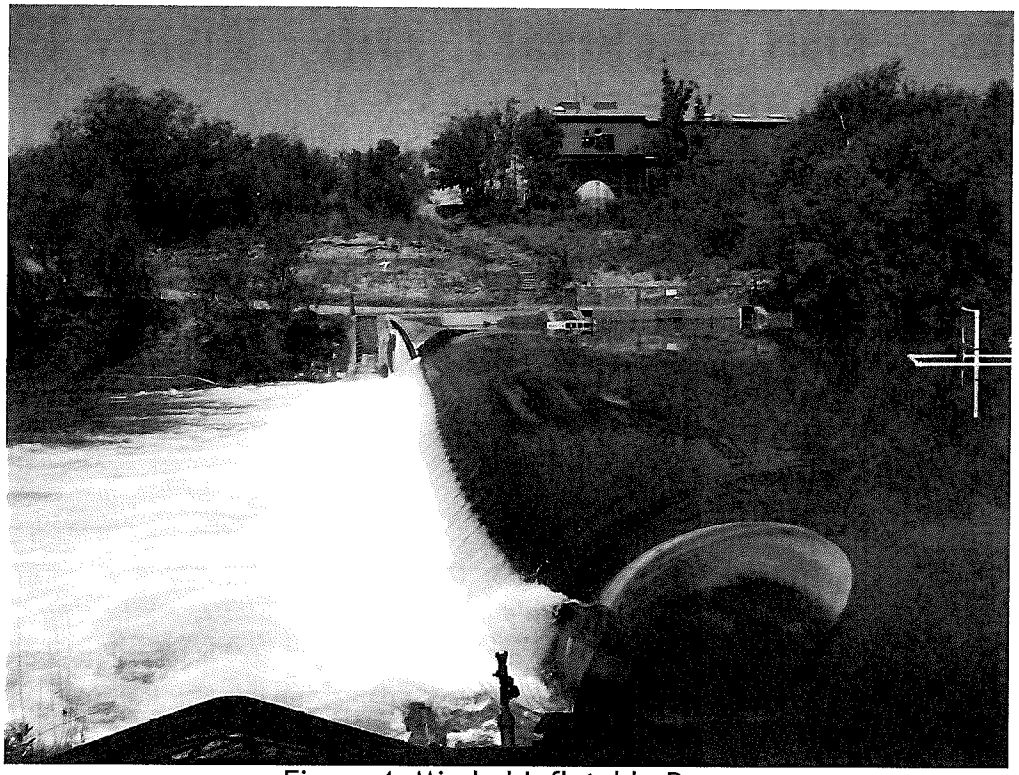

Figure 4. Mirabel Inflatable Dam

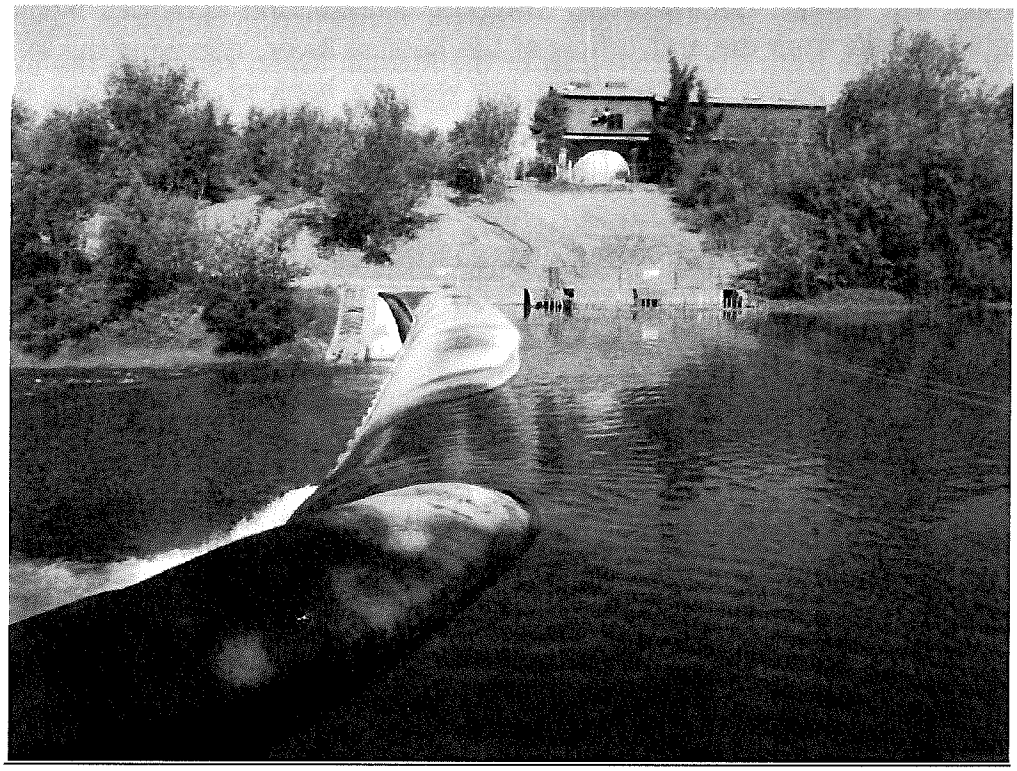

Figure 5. Mirabel Inflatable Dam With Notch

MIRABEL FISH SCREEN AND FISH LADDER REPLACEMENT PROJECT

Objective

The objective of the Mirabel Fish Screen and Fish Ladder Replacement Project is to provide a fish screen that meets hydraulic design criteria to avoid impacts for threatened and endangered fish, maintain or improve fish passage at the fish ladder, and to improve monitoring and educational opportunities at the Mirabel inflatable dam and diversion facilities.

Location

The Mirabel Fish Screen and Fish Ladder Replacement Project would be located at the site of the Water Agency's existing inflatable rubber dam along the Russian River approximately 2,600 feet downstream of the Wohler Bridge in Sonoma County, California. Proposed improvements would occur on the western bank of the Russian River. No improvements are proposed for the existing fish ladder on the eastern bank of the Russian River.

Description

Project components consist of those relating to the fish screen replacement and those relating to the fish ladder modifications. Project construction activities would require isolating the work area from the active flow of the Russian River, removing the existing fish screen/intake and fish ladder structures on the western bank of the Russian River, and constructing the new fish screen/intake and fish ladder structures. The new facilities would extend approximately 40 feet farther upstream and approximately 100 feet farther downstream than the existing facilities. This larger footprint is necessary to meet contemporary fish screen and fish passage design criteria. Figure 6 shows a conceptual design drawing of the proposed project components.

Fish Screen

The proposed intake screen would consist of six 12-foot tall by 6-foot wide panels, with a total area of 432 square feet. The new fish screens would also incorporate a cleaning system to ensure that the screen material does not become clogged. Clogged screens result in higher flows through unclogged portions of the screen, which can lead to fish getting trapped against the screen. The cleaning mechanism is anticipated to be an electric motor-driven mechanical brush system that periodically moves back and forth to clean the intake screen structure.

Fish Ladder

A vertical slot type fish ladder is the recommended fishway to provide passage for upstream migrating salmonids. Vertical slot fish ladders are commonly used for salmon and steelhead (among other fish species) throughout the world. A vertical slot fish ladder consists of a sloped, reinforced concrete rectangular channel separated by vertical baffles with 15-inch wide slots that extend down to the entire depth of the baffle. The baffles are located at even increments to create a step-like arrangement of resting pools.

The design would be self-regulating and provide consistent velocities, flow depths, and water surface differentials at each slot throughout a range of operating conditions. It is anticipated that the ladder will be configured to accommodate a range of fish passage conditions while the inflatable rubber dam is up and river flows range from 125 to 800 cfs. Fish passage while the dam is down would also be accommodated, but is not the primary focus of design.

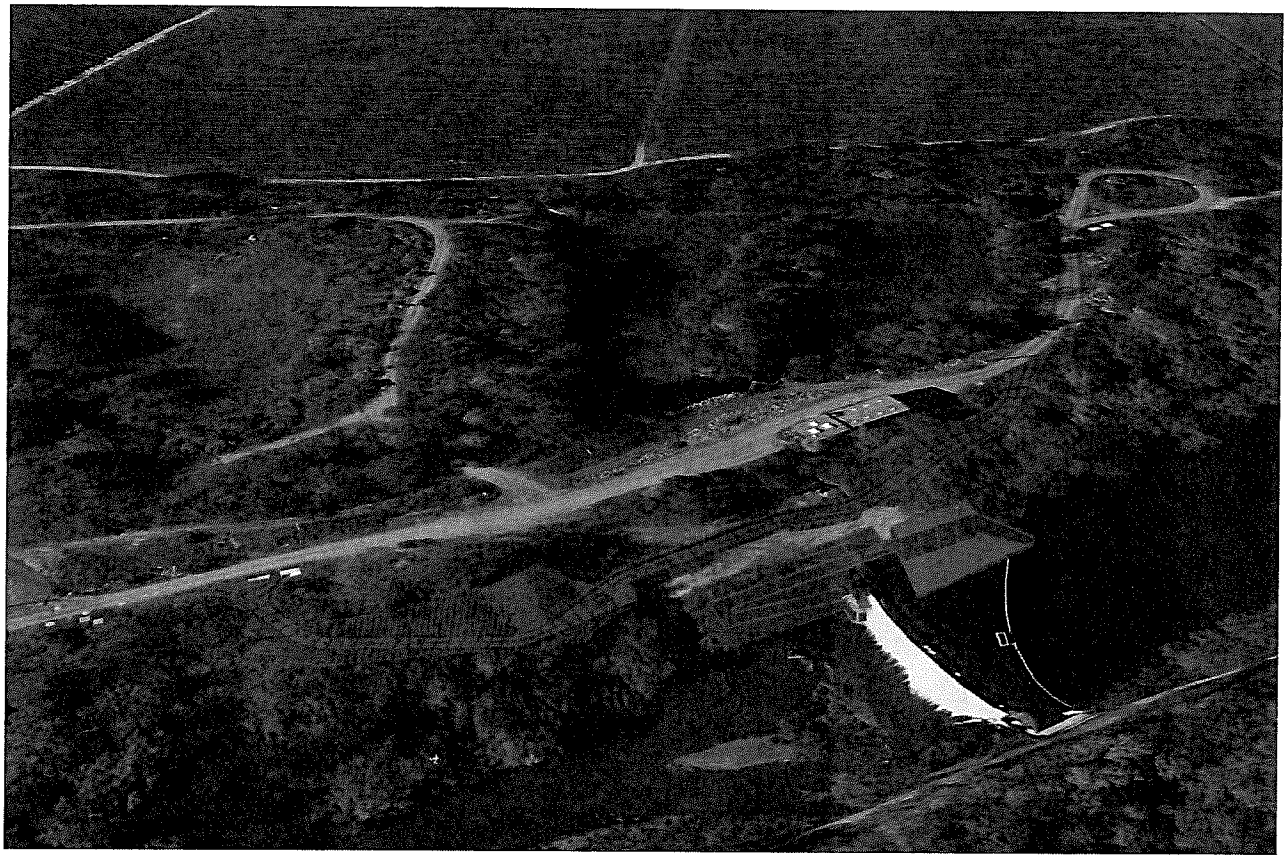

Figure 6. Mirabel Fish Screen and Fish Ladder Replacement Project Site Plan

Supporting Components

The project design would also include a variety of other components that would support the primary fish screen and fish ladder aspects of the project. These other components consist of items such as replacement of the buoy warning line upstream of the inflatable dam, modification of the existing access road to the project site, and the incorporation of a viewing gallery and fish monitoring equipment into the project design.

ISSUES TO BE ADDRESSED IN THE INITIAL STUDY

In accordance with CEQA, the Mirabel Fish Screen and Fish Ladder Replacement Project Initial Study will address the potential environmental impacts, either individually or cumulatively, associated with the construction, operation, and maintenance of the proposed project. Specific areas of analysis in the Initial Study will include: Aesthetics, Agricultural Resources, Air Quality, Biological/Fisheries Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Noise, Public Services, Recreation, Transportation/Circulation, and Utilities and Service Systems. Where feasible, mitigation measures will be proposed to reduce or avoid impacts. Other areas of analysis may be added based on input from the public and public agencies during the NOP review period. Decision-makers, responsible and trustee agencies under CEQA, and interested persons and parties will also have an opportunity to comment on the Initial Study after it is published and circulated for public review.

JURISDICTIONAL/PERMITTING AGENCIES

The following are public entities and agencies that may require review of the project or that may have jurisdiction over the project area:

- U.S. Army Corps of Engineers
- National Marine Fisheries Service
- California Department of Fish and Game
- Regional Water Quality Control Board, North Coast Region
- Sonoma County Permit and Resource Management Department

PUBLIC COMMENT PERIOD FOR THIS NOTICE OF PREPARATION

The public comment period will close at 5:00 p.m. on August 24, 2012, which is 35 days after the date of publication. Please include a name, address, and telephone number of a contact person in your agency for all future correspondence on this subject. Please send comments to:

David Cuneo
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403.

Comments may also be submitted electronically to: david.cuneo@scwa.ca.gov

Documents or files related to the Mirabel Fish Screen and Fish Ladder Replacement Project are available for review online at www.sonomacountywater.org, or at the Water Agency's office located at 404 Aviation Boulevard, Santa Rosa, California, 95403. If you have any questions regarding this Notice of Preparation, or if you wish to update information on our mailing list, please contact David Cuneo, Senior Environmental Specialist, at (707) 547-1935.

You may also submit comments electronically at the Water Agency's website:

www.sonomacountywater.org/rrifr

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

EDMUND G. BROWN JR., *Governor*
CHARLTON H. BONHAM, *Director*

August 23, 2012

Mr. David Cuneo
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

Dear Mr. Cuneo:

Subject: Mirabel Fish Screen and Fish Ladder Replacement Project, Notice of Preparation, SCH #2012082040, Sonoma County

The Department of Fish and Game (DFG) has reviewed the documents provided for the subject project, and we have the following comments.

Please provide a complete assessment (including but not limited to type, quantity and locations) of the habitats, flora and fauna within and adjacent to the project area, including endangered, threatened, and locally unique species and sensitive habitats. The assessment should include the reasonably foreseeable direct and indirect changes (temporary and permanent) that may occur with implementation of the project. Rare, threatened and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380). DFG recommended survey and monitoring protocols and guidelines are available at http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

Please be advised that a California Endangered Species Act (CESA) Permit must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to the CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit.

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to the CEQA. DFG, as a responsible agency under CEQA, will

consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the LSAA notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/; or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520.

If you have any questions, please contact Mr. Adam McKannay, Environmental Scientist, at (707) 944-5534; or Ms. Karen Weiss, Senior Environmental Scientist, at (707) 944-5525.

Sincerely,

Scott Wilson
Acting Regional Manager
Bay Delta Region

cc: State Clearinghouse

e✉: A. McKannay, K. Weiss
AM/rp

David Cuneo

From: Payne, Elizabeth@Waterboards [Elizabeth.Payne@waterboards.ca.gov]
Sent: Monday, August 20, 2012 1:51 PM
To: David Cuneo
Cc: Lee, Katherine@Waterboards
Subject: SWRCB-Division of Water Rights comments on NOP for Mirable Fish Project draft EIR

Dear Sir,

This letter transmits the State Water Resources Control Board (SWRCB), Division of Water Rights' comments regarding the NOP of draft EIR (SCH #2012082040) for SCWA's Mirabel Fish Screen and Fish Ladder Replacement Project, in which the SWRCB, Division of Water Rights was identified as a possible reviewing agency.

The SWRCB, Division of Water Rights recently approved a Temporary Urgency Change Petition for SCWA permits 12947A, 12949, 12950, and 16596. As conditioned by the associated May 2, 2012 Order, SCWA is required to monitor and record salmonid migration at Mirabel Dam (see Terms 2 through 6 of the Order). It is unclear from the NOP whether the Project would interfere with these requirements or future TUCP requirements for salmonid monitoring.

The Division of Water Rights recommends SCWA continue compliance with the 2012 TUCP Order and ensure the Project does not interfere with terms in SCWA's existing water rights. The SWRCB, Division of Water Rights appreciates the opportunity to comment on the NOP for this project. If you have any questions, please contact me at (916) 341-5426.

Sincerely,

Beth Payne
Environmental Scientist
Russian River Watershed Unit
State Water Resources Control Board
Division of Water Rights
epayne@waterboards.ca.gov
phone (916) 341-5426

STATE OF CALIFORNIA

EDMUND G. BROWN JR., *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

CURTIS L. FOSSUM, *Executive Officer*
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone **1-800-735-2929**
from Voice Phone **1-800-735-2922**

Contact Phone: **(916) 574-1900**
Contact FAX: **(916) 574-1885**

Proj/Mirabel Fish Screen and Fish Ladder Replacement 45-5.1-7 #P1

September 10, 2012

File Ref: SCH # 2012082040

David Cuneo
Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa, CA 95403

Subject: Notice of Preparation (NOP) of Initial Study, Mirabel Fish Screen and Fish Ladder Replacement Project, Sonoma County

Dear Mr. Cuneo,

The California State Lands Commission (CSLC) staff has reviewed the subject NOP of Initial Study (IS) for the Mirabel Fish Screen and Fish Ladder Replacement Project (Project) prepared by the Sonoma County Water Agency (SCWA). The SCWA, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC staff appreciates the opportunity to provide input as a trustee agency with responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. The CSLC may also be a responsible agency should the Project require a lease or other approval from the CSLC, as described below.

CSLC staff notes that SCWA appears to be seeking input, by way of the NOP, on the nature and scope of Project-related effects that SCWA should consider in its IS. Under CEQA, a lead agency typically issues an "NOP" as part of required scoping for a draft environmental impact report (EIR), with a completed initial study often included with the NOP (Pub. Resources Code, §§ 21080.4, 21083.9, subd. (a); State CEQA Guidelines,[1] § 15082). Therefore, CSLC staff provides the below comments assuming (1) that SCWA is seeking preliminary input on the proposed IS consistent with various other provisions of CEQA and the State CEQA Guidelines (Pub. Resources Code, § 21080.3; State CEQA Guidelines, § 15063, subd. (g)) and (2) that, in the event the IS indicates that preparation of an EIR is necessary, SCWA will circulate a new NOP for scoping for the EIR with the initial study attached. If that assumption is incorrect, please contact Sarah Sugar at the contact information at the end of this letter.

[1] The State "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low water mark and a Public Trust easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Section 6327 of the Public Resources Code provides that the CSLC "may, upon written application, grant a permit for the use and occupancy of state lands under the jurisdiction of the [CSLC] for the installation of facilities for procurement of fresh-water from and construction of drainage facilities into navigable rivers, streams, lakes and bays, except that if such applicant obtain the required permit for such use from the local reclamation district, the Reclamation Board, the Department of Water Resources, the California Debris Commission or the Corps of Engineers of the United States Army, then such application shall not be required by the State Lands Commission."

Upon review of the information contained in the NOP, CSLC staff understands that the proposed Project to replace existing fish screens and modify one of the existing fish ladders located at the Mirabel area inflatable dam may include work waterward of the ordinary low water mark of the Russian River, which is State-owned sovereign land under the jurisdiction of the CSLC. However, because this Project falls within the description of Public Resources Code section 6327, a lease and formal authorization from the CSLC is not required, provided the SCWA provides CSLC staff with a copy of one of the above-listed permits. Please contact Ninette Lee at the contact information at the end of this letter for more information on section 6327 requirements.

Project Description

The SCWA proposes to replace existing fish screens and modify an existing water intake structure and one of two fish ladders at the inflatable dam at Mirabel Park to meet the agency's objectives and needs as follows:

- Provide a fish screen that meets hydraulic design criteria to avoid impacts for threatened and endangered fish;
- Maintain or improve fish passage at the fish ladder; and
- Improve monitoring and educational opportunities at the Mirabel inflatable dam and diversion facilities.

As described in the NOP, the Project would include the following components:

- Fish Screen. Replace existing fish screens at the water diversion structure with screens that meet the National Marine Fisheries Service's (NMFS) "Fish Screening Criteria for Anadromous Salmonids" and more fully protect fish and their downstream migration.
- Fish Ladder. Replace one of the two existing Denil-type fish ladders at the dam with a new vertical slot fish ladder to preclude having to "notch" the inflatable dam, thus improving control over the consistency of downstream flows; the new ladder would also allow SCWA to enhance existing video monitoring and improve public viewing of fish migration.
- Supporting Components. Replace an upstream buoy warning line, modify the existing access road to the site, and incorporate a viewing gallery and fish monitoring equipment into the Project design.

Environmental Review

Pursuant to the State CEQA Guidelines, section 15063, subd. (g), a lead agency preparing an initial study is expected to consult with trustee and responsible agencies to obtain recommendations on whether an EIR or Negative Declaration (ND) should be prepared. Based on the level of specificity in the NOP, CSLC staff is unable to make such a recommendation at this time; instead, CSLC staff provides the following input on potential impacts that may be at issue if the Project is implemented and avoidance and minimization measures that should be considered by SCWA during preparation of the IS. If potentially significant impacts are identified, but Project revisions are not made by SCWA to reduce them to a less than significant level, an EIR should be prepared.

General Comments

1. Project Description: A thorough and complete Project Description should be included in the IS to facilitate meaningful environmental review of potential impacts and, if necessary, mitigation measures and alternatives. The Project Description should be as precise as possible in describing the details of all allowable activities (e.g., types of equipment or methods that may be used, maximum area of impact or volume of sediment removed or disturbed, seasonal work windows, locations for material disposal, etc.), as well as the details of the timing and length of activities. Thorough descriptions will facilitate CSLC staff's determination of the extent and locations of its leasing jurisdiction, make for a more robust analysis of the work that may be performed, and minimize the potential for subsequent environmental analysis to be required.

Biological Resources

2. Sensitive Species: The SCWA should conduct queries of the California Department of Fish and Game's (DFG) California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service's (USFWS) Special Status Species Database to identify any special-status plant or wildlife species that may occur in the Project area. The IS should analyze the potential for such species to occur in the Project area and, if impacts to special-status species are found to be significant, identify adequate mitigation measures.

3. Construction Noise: The IS should also evaluate noise and vibration impacts on fish and birds from construction activities in the water and for land-side supporting structures. Mitigation measures could include species-specific work windows as defined by DFG, USFWS, and NMFS. Again, staff recommends early consultation with these agencies to minimize the impacts of the Project on sensitive species.

Climate Change

4. Greenhouse Gases: A greenhouse gas (GHG) emissions analysis consistent with the California Global Warming Solutions Act (AB 32) and required by the State CEQA Guidelines should be included in the IS. This analysis should identify a threshold for significance for GHG emissions, calculate the level of GHGs that will be emitted as a result of construction and ultimate build-out of the Project, determine the significance of the impacts of those emissions, and, if impacts are significant, identify mitigation measures that would reduce them to less than significant.

Cultural Resources

5. Submerged Resources: The IS should evaluate potential impacts to submerged cultural resources in the Project area. The CSLC maintains a shipwrecks database that can assist with this analysis. CSLC staff requests that the County contact Senior Staff Counsel Pam Griggs at the contact information noted at the end of this letter to obtain shipwrecks data from the database and CSLC records for the Project site. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks remain unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in State waters for more than 50 years is presumed to be significant.

6. Title to Resources: The IS should also mention that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. CSLC staff requests that SCWA consult with Pam Griggs at the contact information noted at the end of this letter, should any cultural resources on state lands be discovered during construction of the Project.

Cumulative Effects

7. Russian River Biological Opinion (BO): In response to the NMFS' 2008 BO, SCWA has proposed other projects, including the Russian River Estuary Management Project and the Fish Habitat Flows and Water Rights Project, whose environmental impacts on the Russian River watershed may magnify or mitigate the impacts of the proposed Project. Although other projects are in various states of review and implementation and may not have established start dates, the IS should consider the potential for this Project's incremental impacts to be cumulatively considerable in light of other projects pursuant to Public Resources Code section 21094, subdivision (e).

Additional Review

8. Mitigation: In order to avoid the improper deferral of mitigation, mitigation measures should either be presented as specific, feasible, enforceable obligations, or should be presented as formulas containing "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (State CEQA Guidelines §15126.4, subd. (b)).

Thank you for the opportunity to comment on the Project NOP. As a responsible agency, the CSLC will need to rely on the Final CEQA document for the issuance of any amended or new lease as specified above; therefore, please consider our comments prior to adoption or certification of an ND or EIR.

Please send additional information on the Project to the CSLC staff as plans become finalized. Please also send copies of future Project-related documents, including electronic copies of the Final ND or EIR, Notice of Determination (NOD), and, if applicable, Mitigation Monitoring and Reporting Program (MMRP), CEQA Findings and Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Sarah Sugar, Environmental Scientist, at (916) 574-2274 or via e-mail at Sarah.Sugar@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Senior Staff Counsel Pam Griggs at (916) 574-1854 or via email at Pamela.Griggs@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Ninette Lee, Public Land Manager, at (916) 574-1869, or via email at Ninette.Lee@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Ninette Lee, CSLC
Pam Griggs, CSLC
Sarah Sugar, CSLC

APPENDIX C
Special Status Species Potentially Occurring Within the Mirabel Fish Ladder and Fish Screen Replacement Project Area

Species Name	Common Name	Status	Habitat Requirements	Probability of Encountering
Actinemys marmorata	western pond turtle	SSC	Slack or slow-moving aquatic habitat with available aerial and aquatic basking sites. Upland breeding sites are typically on unshaded, south facing slopes with soils of high clayor silt composition.	Likely
Antrozous pallidus	pallid bat	SSC	Forages in a variety of habitats. Roosts in caves, crevices, mines, and occasionally hollow trees and buildings. Prefers mesic sites.	Unlikely
Elanus leucurus	white-tailed kite	FP	Tree-dotted lowland or hillside fields, ungrazed or fallow grasslands,	Unlikely
Ardea herodias	great blue heron	None	Occurs widely in freshwater and calm-water intertidal habitats	Likely
Hysterocarpus traski pomo	Russian River tule perch	SSC	Tule perch are abundant in the Russian River. Tule perch prefer pool habitats, and are known to inhabit the river immediately below the current dam.	Likely
Lavinia symmetricus	California roach	SSC	Roach inhabit a wide variety of habitats in the Russian River Basin, but appear to be most abundant in small tributaries. Although not abundant, they are likely to be found in the Project Area during the construction phase.	Likely
Oncorhynchus kisutch	coho salmon - Central California Coast ESU	FE, SE	Juvenile and adult migrations occur in the spring and fall/winter, respectively. Juveniles of this species rear in small tributaries, and do not rear in the Russian River (mainstem) during the months of construction (July through September). Based on sampling, juvenile emigration would be expected to be completed prior to the onset of construction.	Unlikely
Oncorhynchus mykiss	Central California Coast steelhead	FT	Juveniles emigrate primarily March through mid June, and adults migrate primarily from December through March. Although juvenile steelhead primarily rear in tributaries, they do occupy portions of the mainstem Russian River. While not abundant in the project area, they are occasionally found in this section of the mainstem.	Low
Oncorhynchus tshawytscha	California Coastal Chinook	FT	Juveniles emigrate primarily March through June, and adults migrate September through December (primarily late October through mid November. Juvenile Chinook salmon migrate to the ocean shortly after hatching and do not rear in the mainstem Russian River. Juvenile emigration is essentially completed by the end of June; however, it is possible for juvenile Chinook to be present (particularly early in the construction period), in very low numbers.	Low
Pandion haliaetus	osprey	WL	Lakes, reservoirs, rivers, estuaries and open sea coast	Likely
Rana boylii foothill	yellow-legged frog	SSC	Moderate to high gradient streams with gravel to cobble substrate. Breeds in pools with slower moving water.	Unlikely
Rana draytonii	California red-legged frog	FT, SSC	Streams ponds, and marshes with permanent or temporary water bordered by emergent or riparian vegetation. Requires 4-6 months of permanent water for larval development.	Unlikely

1. List of species based on review of the California Department of Fish and Game Natural Diversity Data Base and lists provided by U.S. Fish and Wildlife Service for the Healdsburg and Guerneville U.S. Geological Survey 7.5-minute quadrangles.

2. Status

FE	Listed as endangered under the federal Endangered Species Act (ESA).
FP	Fully protected under California Fish and Game Code.
FT	Listed as threatened under the federal ESA.
SE	Listed as endangered by the State of California.
ST	Listed as threatened by the State of California.
SC	U.S. Fish and Wildlife Service designated "Species of Concern."
SSC	California Department of Fish and Game designated "Species of Concern."
WL	Watch listed.

Species Name	Common Name	Status	Habitat Requirements	Potential to Occur On Site
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	FE, 1B.1	Freshwater marshes and swamps, riparian scrub	Potential habitat present (poor quality)
Campanula californica	Swamp harebell	1B.2	Meadows and seeps	Potential habitat present
Carex comosa	bristly sedge	2.1	Marshes and swamps	Potential habitat present (poor quality)
Erythronium revolutum		2.2	Bogs and fens, broadleafed upland forest, North Coast coniferous forest/mesic, streambanks	Potential habitat present
Juglans californica var. hindsii	Northern California black walnut	SC, 1B	Riparian woodlands, floodplain terraces	Habitat Present
Microseris paludosa	marsh microseris	1B.2	Grassy and wooded areas	Potential habitat present (poor quality)

1. List of species based on review of the California Department of Fish and Game Natural Diversity Data Base and lists provided by U.S. Fish and Wildlife Service for the Healdsburg and Guerneville U.S. Geological Survey 7.5-minute quadrangles.

2. Status

FE	Listed as endangered under the federal Endangered Species Act (ESA).
FT	Listed as threatened under the federal ESA.
SE	Listed as endangered by the State of California.
ST	Listed as threatened by the State of California.
SC	U.S. Fish and Wildlife Service designated "Species of Concern"
SR	Listed as rare under the California Native Plant Protection Act.
1B	California Native Plant Society List 1B: Plants rare, threatened or endangered in California and elsewhere.
2	California Native Plant Society List 2: Plants rare, threatened, or endangered in California and elsewhere.

3. Threat Ranks

0.1	Seriously threatened in California (high degree/immediacy of threat)
0.2	Fairly threatened in California (moderate degree/immediacy of threat)
0.3	Not very threatened in California (low degree/immediacy of threats or no current threats known)

APPENDIX D
Plant Species Observed Within the Mirabel Fish Ladder and Fish Screen Replacement Project Area

Plants Observed at Mirabel Fish Ladder and Fish Screen Project Site - May 21, 2012.

Scientific Name	Common Name	Family	Habitat
Acer negundo	box elder	Aceraceae	valleys, along streams
Agrostis exarata	spike bent	Poaceae	streamsides, damp or wet places
Anagallis arvensis	pimpernel	Primulaceae	disturbed places
Anthriscus caucalis	bur-chervil	Apiaceae	waste places
Artemisia douglasiana	mugwort	Asteraceae	Open to shady places
Arundo donax	giant reed	Poaceae	moist places, streamsides, very invasive
Avena fatua	wild oats	Poaceae	disturbed places, open slopes
Baccharis pilularis ssp. *consanguinea*	coyote bush	Asteraceae	hillsides, canyons
Briza minor	lquaking grass	Poaceae	shaded or moist open sites
Bromus diandrus	ripgut	Poaceae	disturbed places, fields
Carex nudata	torrent sedge	Cyperaceae	beds, edges of perennial stream banks
Conium maculatum	poison hemlock	Apiaceae	moist, especially disturbed places
Cynosurus echinatus	Hedgehog dogtail	Poaceae	fields, waste places
Elymus glaucus	wild rye grass	Poaceae	grassy and wooded places
Erodium cicutarium	storksbill	Geraniaceae	open cultivated and dry areas
Foeniculum vulgare	fennel	Apiaceae	waste places
Fraxinus latifolia	Oregon ash	Oleaceae	canyons and near streams
Galium aparine	bedstraw	Rubiaceae	grassy, half-shady places
Hirschfeldia incana (Brassica geniculata)	wild mustard	Brassicaceae	Roadsides, creek bottoms, disturbed areas
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Poaceae	dry to moist disturbed sites
Juncus sp.		Juncaceae	
Lolium multiflorum	Italian ryegrass	Poaceae	disturbed sites
Marah fabaceus	man-root	Cucurbitaceae	common, slopes, embankments
Medicago polymorpha	California bur-clover	Fabaceae	waste places, grasslands
Mentha pulegium	common mint, pennyroyal	Lamiaceae	low damp places

Mentha spicata	spearmint	Lamiaceae	
Pentagramma triangularis	goldback fern	Pteridaceae	summerdried slopes, partial shade
Phalaris aquatica	Harding grass	Poaceae	open places
Picris echioides	ox-tongue	Asteraceae	waste places
Poa annua	annual bluegrass	Poaceae	fields, moist, disturbed areas
Polypogon monspeliensis	rabbit-foot grass	Poaceae	low moist places
Populus fremontii	Fremont cottonwood	Salicaceae	along waterways
Quercus agrifolia	coast live oak	Fagaceae	flatlands, slopes
Quercus lobata	valley oak	Fagaceae	bottomlands, adjacent hills
Rosa sp.	woodland rose	Rosaceae	
Rubus discolor	Himalayan blackberry	Rosaceae	thickets
Rubus ursinus	California blackberry	Rosaceae	woods, damp places
Rumex pulcher	fiddle dock	Polygonaceae	waste places
Salix exigua	narrow-leaf willow, sandbar willow	Salicaceae	along streams
Salix laevigata	red willow	Salicaceae	along streams
Salix lasiolepis var. *lasiolepis*	arroyo willow	Salicaceae	along streams
Sambucus mexicana	blue elderberry	Caprifoliaceae	common, open places
Scrophularia californica	figwort	Scrophulariaceae	"+/- damp places, common"
Sonchus asper	prickly sow thistle	Asteraceae	disturbed areas
Taraxacum officinale	dandelion	Asteraceae	widely scattered
Toxicodendron diversilobum	poison oak	Anacardiaceae	variable, common
Urtica dioica ssp. *gracilis*	stinging nettle	Urticaceae	wet, brushy thickets
Veronica anagallis-aquatica	speedwell	Scrophulariaceae	wet places
Vicia sp.		Fabaceae	
Vinca major	greater periwinkle	Apocynum	escaped invasive, moist shaded places
Vulpia bromoides	annual fescue	Poaceae	marshes, moist flats

APPENDIX E

Mirabel Fish Ladder and Fish Screen Replacement Project
Draft Mitigation Monitoring Plan

MIRABEL FISH LADDER AND FISH SCREEN REPLACEMENT PROJECT
Draft Mitigation Monitoring Plan

In compliance with Section 21081.6 of the California Environmental Quality Act, the Sonoma County Water Agency (Water Agency) had prepared this Mitigation Monitoring Plan (MMP) for the Mirabel Fish Ladder and Fish Screen Replacement Project. All mitigation measures proposed in the Mirabel Fish Ladder and Fish Screen Replacement Project Initial Study and Mitigated Negative Declaration (IS/Mitigated Negative Declaration) have been included in the MMP. Each mitigation measure and the method of monitoring or verifying the completion of the measure are described in the MMP. Upon approval of the MMP by the Water Agency's Board of Directors, each mitigation measure will be entered onto one the Water Agency's Mitigation Monitoring Report forms (MMR) and the mitigation measure will be entered into the Water Agency's Mitigation Monitoring Inventory Database. A sample MMR is provided in Exhibit A (which was prepared for another project). Before monitoring of a specific mitigation measure is required, the MMR will be forwarded by the Water Agency's Environmental Resources Section to the Water Agency department and/or staff responsible for monitoring.

Various Water Agency departments/staff members responsible for monitoring or verification of project mitigation measures and their general areas of responsibility are as follows:

The **Project Engineer** is responsible for project design.

The **Technical Writing Section** is responsible for preparation of project specifications.

The **Construction Inspection Section** is responsible for enforcement of the provisions of the project specifications during the construction period.

The **Environmental Resources Section** is responsible for preparation of the MMP, for informing the various departments of their mitigation responsibilities, for distribution of the appropriate reporting forms, for maintenance of the Database that tracks the status of mitigation measures, and for logging and evaluating the effectiveness of the mitigation measures. The Environmental Resources Section is also responsible for implementing and monitoring of some of the mitigation measures.

The **Right-of-Way Section** is responsible for coordinating with private property owners for acquisition of property or temporary and/or permanent easements; and for coordinating any issues concerning property rights with property owners.

The **Operations and Maintenance Division** is responsible for implementation of mitigation measures during the operation and maintenance phase of the project.

The Water Agency's **Board of Directors** approves and adopts the MMP and approves the project specifications.

The following is a description of the project's mitigation measures and the required monitoring/verification. Mitigation measure numbers correspond to the numbers presented in the Initial Study Environmental Checklist.

AIR QUALITY

Mitigation Measure MFSFL-1*: The project specifications will require the contractor to comply with the dust control provisions of the Sonoma County Water Agency's Standard Contract Documents and the Northern Sonoma County Air Pollution Control District's Rule 430 that regulate fugitive dust emissions. Measures to reduce dust emissions may include, but are not limited to: sprinkling unpaved construction areas with water; covering trucks hauling dirt; limiting dust generating activities during periods of high winds (greater than 15 miles per hour); replacing ground cover in disturbed areas as soon as possible; enclosing, covering, watering, or applying soil binders to exposed stock piles; removing earth tracked onto neighboring paved roads at least once daily; and limiting equipment speed to 10 miles per hour in unpaved areas.*

___	Project Engineer	_X_	Technical Writing	
_X_	Construction Inspection	___	Right-of-Way	
			Operations	and
___	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Mitigation Measure MFSFL-2: *The project specifications will require that all construction vehicles and equipment emission levels meet current air quality standards and that idling time for all heavy equipment be minimized to reduce on-site emissions.*

___	Project Engineer	_X_	Technical Writing	
_X_	Construction Inspection	___	Right-of-Way	
			Operations	and
___	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

BIOLOGICAL RESOURCES

Mitigation Measure MFSFL-3: *During dewatering activities, fish located within the project site would be removed and relocated to appropriate habitat downstream of the project site. Qualified fisheries biologists, using methods approved by the National Marine Fisheries Service and California Department of Fish and Game, would perform the fish rescue and relocation.*

X	Project Engineer	___	Technical Writing	
X	Construction Inspection	___	Right-of-Way Operations	and
X	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when fish rescue operations have been implemented and fish have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure MFSFL-4: *Prior to beginning construction activities, pre-construction surveys would be performed within the project site. Should northwestern pond turtle be found within the construction area, individuals would be relocated by a qualified biologist to an area of appropriate habitat outside of the construction area.*

X	Project Engineer	___	Technical Writing	
X	Construction Inspection	___	Right-of-Way Operations	and
X	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure MFSFL-5: *Whenever feasible, vegetation shall be removed during the non-breeding season. For ground disturbing activities occurring during the breeding season (February 1 to August 31), a qualified wildlife biologist shall conduct pre-construction surveys of the project site for nesting raptors within a 500-foot radius of construction activities, and for other nesting birds within a 50-foot radius of construction activities. Pre-construction surveys shall occur within 14 days of the start of construction activities. If active bird nests are found during pre-construction surveys, a 500-foot "no disturbance" buffer shall be established around active raptor nests during the breeding season. A 50-foot buffer zone shall be established around the nests of other special status birds, or*

until it is determined that all young have fledged. Physical barriers such as fencing will be installed to establish the buffer zones to prevent construction equipment from disturbing the nest. Nests will be monitored weekly during construction activities, and protection measures or construction activities will be modified as necessary.

X	Project Engineer	___	Technical Writing	
X	Construction Inspection	___	Right-of-Way Operations	and
X	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to protect nests, and/or when disturbance or destruction of nests have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure MFSFL-6: *The Water Agency will prepare and implement a revegetation plan to mitigate the loss of native riparian vegetation. Recontoured banks will be seeded and revegetated. Erosion control fabric will be placed on all exposed banks to prevent erosion. Plant species selected for revegetation will be based upon surveys of riparian habitat along the Russian River upstream and downstream of the project site. Planting requirements in the revegetation plan will be based upon species composition and density recommendations associated with the overall habitat enhancement design for the project. The final revegetation plan will include details regarding planting, implementation, maintenance, and monitoring.*

X	Project Engineer	___	Technical Writing	
X	Construction Inspection	X	Right-of-Way Operations	and
X	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when the revegetation plan has been designed and implemented. Monitoring will terminate 5 years after installation of plants.

CULTURAL RESOURCES

Mitigation Measure MFSFL-7: *The project specifications will require the contractor to comply with the Water Agency's Standard Contract Documents regarding the discovery of cultural resources. The Water Agency Construction Inspector and construction personnel will be notified of the possibility of encountering archaeological materials during project construction. The project specifications will provide that if discovery is made of items of historical, archaeological or paleontological interest, the contractor will immediately cease all work activities in the area of discovery. Archaeological indicators may include, but are not limited to,*

dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, human bones, and fossils. After cessation of excavation, the contractor will immediately contact the Water Agency's Construction Inspector. The contractor will not resume work until authorization is received from the Construction Inspector. If archaeological indicators are discovered during construction, the Water Agency will retain the services of a qualified professional archaeologist to evaluate the significance of the items prior to resuming any activities that could impact the site. If it is determined that the find is unique and/or potentially eligible for listing in the California Register, and the site cannot be avoided, an archaeologist shall provide a research design and excavation plan outlining recovery of the resource, analysis, and reporting of the find. The research design and excavation plan will be submitted to the Water Agency's Construction Inspection Section and approved by the Water Agency prior to construction being resumed.

X	Project Engineer	X	Technical Writing	
X	Construction Inspection	___	Right-of-Way Operations	and
___	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential cultural resource site and construction is halted at the site until an evaluation of the site's significance can be made. Monitoring will terminate upon completion of construction.

HAZARDS AND HAZARDOUS MATERIALS

Mitigation Measure MFSFL-8: *The project specifications will require the contractor to comply with the Sonoma County Water Agency's Standard Contract Documents to protect the project area from being contaminated by the accidental release of any hazardous materials and/or wastes. Disposal of all hazardous materials will be in compliance with all current hazardous waste disposal laws. The construction contractor will contact the local fire agency and the Sonoma County Department of Environmental Health for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.*

___	Project Engineer	X	Technical Writing	
X	Construction Inspection	___	Right-of-Way Operations	and
___	Environmental Resources	___	Maintenance	

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed

in compliance with the project specifications. Monitoring will terminate upon completion of construction and acceptance of contractor's work by the Water Agency.

Mitigation Measure MFSFL-9: *The project specifications will require the contractor to prepare a Safety Plan in accordance with the Sonoma County Water Agency's Standard Contract Documents. If hazardous materials are encountered during construction activities, the contractor will be required to halt construction immediately and notify the Water Agency's Construction Inspection Section. Disposal of all hazardous materials will be in compliance with all applicable hazardous waste disposal laws.*

___	Project Engineer	_X_	Technical Writing
_X_	Construction Inspection	___	Right-of-Way Operations and
___	Environmental Resources	___	Maintenance

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Exhibit A. Mitigation Monitoring Report Sample
SONOMA COUNTY WATER AGENCY MITIGATION MONITORING REPORT

Project Name: Starr Creek Drainage Improvements **Report No.:** SCDI-4B

Project Type: ___ Water Supply X Flood Control ___ Sanitation ___ Other

Inspection/Verification Date: April 20, 1994

Inspection/Verification Performed By: Patty Clark Flugum, Susan Kuehn

(print name and initial)

(division/department) Technical Writing Section

Report Prepared By: Patty Clark Flugum

Impact Type: AIR

Mitigation Measure: The Technical Writing Section staff will verify that the specifications include the following provision. The Project specifications shall require the contractor(s) to comply with the dust control provisions of the *Standard Specifications for Public Works Construction* and any requirements of the Bay Area Air Quality Management District.

Mitigation Measure Status: Complete

Section 2.15, ENVIRONMENTAL PROTECTION

Subsection 2.15.2, Cleanup, Dust, and Air Pollution Control (in specs)

Exceptions From Mitigation Measures Described Above: none

Remaining Work Needed To Complete Mitigation Measure: none

Estimated Date For Completion of Mitigation: August 31, 1993

Mitigation Monitoring Report Due Date: September 30, 1993

To be filled out by the Environmental Resources Section:

Date sent to division/department: _____

Date returned to ECS: May 2, 1994

Date entered into MMP database & project binder: May 5, 1994

Entered into MMP database by: RTW

Date next Mitigation Report is required: N/A