

Robles Diversion Mitigation

Matilija TAC

January 28, 2013

Background and Introduction

The State Coastal Conservancy (SCC), Ventura County Watershed Protection District (VCWPD) and the Army Corps of Engineers (Corps) have been active partners and fiscal supporters of the multi-year Federal effort to develop an environmentally and economically sound plan for removing Matilija Dam on the Ventura River, and collectively form the Management Team for the project.

Determining how to manage six million cubic yards of fine and coarse sediment that have accumulated behind the dam since its construction in the late 1940s has proven challenging. Utilizing an extensive public stakeholder process, the local Sponsor (VCWPD) and the Corps completed a feasibility study for removal of the Dam. That study included as a preferred alternative (known as Alternative 4b), the removal of about two million cubic yards of fine sediment behind the dam and their transport to temporary storage sites located downstream in or along the vicinity of the Baldwin Road bridge in Ojai.

After the certification of the project's EIS/EIR in 2004, initiation of the design phase, Congressional project authorization (WRDA 2007) and extensive subsequent study and investigation, the Corps reported concerns related to increasing construction cost estimates and constructability concerns related to the slurry and disposal of fine sediment at the Baldwin Road Disposal Area (BRDA) sites. The subsequent alternate proposals offered by the Corps in late 2009 and early 2010 as conceptual plans for managing the fine sediments upstream of the dam met with opposition from some of the major stakeholder groups, resource agencies, and other members of the project's Design Oversight Group (DOG).

To help resolve this issue, and at the urging of some stakeholders, the Management Team initiated a facilitated technical dialogue with selected stakeholders. The objectives of the process were to assess the current status of the project, evaluate the utility of additional scientific consultation, and develop a process for resolving the sediment management issue so that final engineering

work on the dam removal project could be completed within the scope of the federally authorized project. The SCC retained a professional mediation team led by Mary Selkirk from the Center for Collaborative Policy (a program of CSU Sacramento) to assist in this effort.

This facilitated effort recommended the formation of a Technical Advisory Council (TAC) to address data and research needs that could facilitate the resolution of the sediment management issue associated with Matilija Dam Removal.

The Technical Advisory Council for the proposed removal of Matilija Dam developed this scope of work to address mitigation for water supply impacts at the Robles Diversion under dam removal scenarios.

Task 3: Robles Diversion Mitigation

The removal of Matilija Dam has the potential to increase the sediment concentration within Matilija Creek and the Ventura River downstream of the dam during and after the removal process. This scope of work would develop methods to mitigate the impact to water supply through supplying water of acceptable quality during the period of impact. This study would be done in close collaboration with Task 1 and 2 (1: Dam Removal Plans and 2: Erosion and Sediment Transport Modeling Analysis). Task 3 will determine the potential for lost diversion opportunity at Robles as well as the magnitude and duration of lost diversion opportunity by computing the duration and seasonal timing when diversions will be precluded by high turbidity. The magnitude and duration of lost diversion opportunity will guide the water loss mitigation analysis.

For the purposes of this study, it is assumed that there will be significant increases in the fine sediment concentration (and the attached organic material) during the dam removal process. It is also assumed that Casitas Municipal Water District will not divert water when the concentration of reservoir fine sediment in the water is high, as defined by Task 2 and/or the TAC. The purpose of Task 3 is to analyze the potential to mitigate water loss at Robles Diversion during periods of impact through use of one or more of the following features:

1. Infiltration or Groundwater well galleries. These consist of buried pipes that would extract the shallow groundwater that would be of acceptable quality to divert into Lake Casitas, while minimizing impacts to other

environmental resources. Acceptable sites will be given to the contractor by the County of Ventura. The shallow groundwater will be pumped out and fed directly into Robles Canal. One of the goals of the design would be that the wells operate according to the low flow criteria in Matilija Creek and Ventura River as defined by the National Marine Fisheries Service Biologic Opinion (2003).

2. Diversion of “clean water” through and/or around reservoir site to Robles. Several diversion capacities could be investigated from 20 cfs up to 500 cfs. The diversion could provide clean water during non-flood flow periods below the dam to support fisheries and could be recaptured at Robles Diversion or directly piped into the diversion. Fish screening designs will be addressed at the diversion intake and outflow site(s) as specified by NOAA and CA DFG (National Marine Fisheries Service, 1997). One of the goals of the diversion would be to meet current low flow criteria in Matilija Creek and Ventura River as defined by the National Marine Fisheries Service Biologic Opinion (2003) as well as adequate fish migration flows between Robles Diversion Dam and habitat upstream on the Ventura River and N.F. Matilija Creek. Options for the diversion would be:
 - a. Diversion only around reservoir site and return immediately below the dam.
 - b. Diversion around reservoir and a direct connection into Robles Canal. A portion of the water could be returned to the river immediately downstream of the dam to meet in-stream flow requirements and a portion could be diverted via pipeline or open channel into Robles canal. This could be accomplished with one or two pipelines or canals. Minimum in stream flow criteria will be assumed to be the same as current Robles Operations.
 - c. Combination(s) of the infiltration galleries and diversion options a. and b.

Depending upon the dam removal alternative(s) chosen and the particular hydrologic conditions, the period that the mitigation measure would be operating could be between 1 to 20 years. More detail on the potential time frames of impact will be provided by Tasks 1 and 2 or by the TAC.

The task should be split into two phases (Phase 1 and 2). Phase 1 will be a conceptual design in which the full range of options is considered. The feasibility and water supply mitigation potential for each option would be assessed in relative terms and the following questions will be answered:

1. What is the estimated volume of lost surface water supplies for various reaches downstream of Matilija Dam under various hydrologic scenarios due to the dam removal options developed in Task 2?
2. What is the relative cost of implementing the measure?
3. What is the expected water yield of mitigation measure under various hydrologic scenarios?
4. What is the expected impact to surface and groundwater supplies downstream of Robles Diversion?

After review of the Phase 1 conceptual designs by the TAC, Phase 2 will begin in which a single alternative or a reduced set of alternative will be chosen and the contractor will quantify the items to a greater degree of certainty.

Deliverables

The deliverable for Task 1 Phase 1 will be a single report containing the following items:

1. Overview of the work performed
2. Summary of the flow mitigation alternatives considered
3. Answers to the questions posed in the Task 1 Phase 1 scope of work for each of the alternatives considered
4. Appropriate conceptual level drawings of the alternatives considered

The contractor will submit a draft report for review by the TAC. The final report will include response to all comments.

References

National Marine Fisheries Service (2003). Biological Opinion for the construction and future operation of the Robles Diversion Fish Passage Facility. Protected Resource Division, Southwest Region, March 31, 2003. 70pp.

National Marine Fisheries Service (1997). Fish Screening Criteria for Anadromous Salmonids. Protected Resource Division, Southwest Region, January, 1997. 12pp.

Reclamation (2004). *Hydrology, Hydraulics and Sediment Studies of Alternatives for the Matilija Dam Ecosystem Restoration Project, Ventura, CA*. Technical Service Center, US Bureau of Reclamation, Denver, CO.

Reclamation (2008). *Matilija Dam Removal Analysis Using GRAVDAM*, Technical Memorandum No. MDR-86-6811 O-IE-2008-01, Technical Service Center, US Bureau of Reclamation, Denver, CO.

US Army Corps of Engineers (2002). *Impounded sediment characterization, Matilija Dam, Matilija Creek watershed, Ventura County, California*, Los Angeles District, Engineering Division, Geotechnical Branch, Geology and Investigations Section

US Army Corps of Engineers (2004), *Matilija Dam Ecosystem Restoration Feasibility study*, Environmental Impact Statement/Environmental Impact Report.