Matilija Dam Ecosystem Restoration Project **DRAFT**
Fine Sediment Management Study Group
(Bob Thiel/Mary Selkirk, 3/2/11)

Consolidated flip-chart notes
from February 2 and February 24, 2011 meetings

MANAGEMENT OPTIONS

1. **"Run 4b to ground:"** Further analysis of potential modifications to Alternative 4b (slurrying to the Baldwin Road Disposal Areas) to reduce the cost of that option and improve its technical feasibility.

   Data gaps and other constraints

   - What needs to be done to "run 4b to ground"?
     - Engineering to ____? percent design?
     - More detailed site-level analysis to get more accurate overall costs
     - Could sites be managed to reduce costs?

   - Could deposition of the slurried material be phased to promote rapid erosion and downstream transport of the material from the BRDA sites?

   - Water Costs
     - Difference in cost if no recycled water, and pump from Meiners Oaks
     - Cost difference of recycling versus Casitas water
     - Cost of maximizing use of water captured from de-silting

   - Re-vegetation Costs:
     - Refine and cost out acceptable re-vegetation standard
     - Cost increases due to dealing with large rocky substrate
     - More detailed site analysis of on-site fauna

   - Additional Regulatory permitting costs

   - Compare 4b/BRDA with other comparable dams with sediment issues (e.g. Elhwa, Rogue) for sediment transport costs, water quality impacts on public drinking water supplies

2. **"Hybrid option:"** Modifications to 4b to reduce the amount of water and sediment that must be slurried to the BRDA sites. Accomplished through the use of one or more of the following:

   a. Slurry a portion of (but not all) of the 2m cubic yards to one or more BRDA sites
   b. Notch the dam to the 2011 sediment level
   c. Notch the dam and meter natural transport of some portion of the fine material over time
   d. Sequester (permanently or temporarily) some portion of the fine material upstream of the reservoir but out of the flood plain of Matilija Canyon (e.g. terraces, below the road).
   e. "Downstream option:" Reduce the sediment risks to the public water supply by transporting natural sediment flows below Robles (see alternative 3 below).

A strawman design of such an "optimized" 4b scenario could feature

+/- 50% BRDA 1, 2, and maybe 3, plus 'downstream option'

+/- 25% Notching
Interim to sediment line

+/- 25% Road Bed + physical sequestering upstream (upland & terraces)

_____
100% ***Fines handled***

Data gaps and other constraints:
(see also those listed in 1 above and 3 below)

- How do we analyze and quantify the risks to the public water supply from some level of natural transport of fine sediments (and nutrient-laden sediments)?
  - Impacts on well water quality as well as management of Lake Casitas
  - What are the background level of nutrients in Casitas's supply?
  - *Casitas*: If natural transport to be considered, has to look at: hydrology, nutrient impacts, chronic impacts.
  - *MOWD*: On-site impacts of deposited sediment on MOWD wells; impacts of instream sediment on wells; relationship between storms and well shutdowns required.
  - *VRCWD: Sediment disposal impacts on wells; solubility of sediment;* flooding potential at BRDA sites

- Need to redefine the "without-project alternative:" continued accumulation of sediment in Matilija Reservoir
  - Need to re-evaluate impacts on water loss, sediment transport to Casitas

- How do we analyze and quantify the impacts on steelhead, other aquatic organisms (as well as other beneficial uses) of notching and phased natural transport versus erosion from slurry deposition sites? What are the NMFS/DFG thresholds of sediment impacts on fish?

- Quantify water costs/benefits from slurrying less fines

- How to optimize a scenario to account for water costs

- How much can we remove with initial notching and follow-ons

- Costs: does phase notching cost less than slurrying?

- Upstream sequestration: Cost of road option, volume of fines required

- Can notching and controlled release slow slurrying process?

- Is any permanent downstream storage acceptable?

- Could the MODA site be used for only temporary storage of material?

- What can be learned from other dam removal projects?

- Cost comparison of notching, controlled releases versus BRDA at ____% design?

3. **Full notching and phased natural transport**: This option would replace Alternative 4b with a variation of Alternative 2 and completely avoid slurrying any material downstream.

    a. Full notching

    b. Phased or metered transport of fine material

    c. "Downstream option:" Reduce the sediment risks to the public water supply by use of various design features:

        Temporary coffer dam above the dam
        Divert water directly to Robles canal and Lake Casitas
        Transport sediment flows by conduit below Robles diversion
        Transport
        Infiltration gallery below the dam
        Treat bypass as a manifold and inject lower VRCWD and MOWD wells
        Enhanced desilting basin
        Divert less water through increased water conservation to contribute to safe yield or mitigate for water loss

Data gaps and other constraints
(also see those in Option 2 above)

- Feasibility, construction complexity of 'downstream option"
- What is an optimal/practicable diversion (in cfs) of water to Casitas and other diverters?
- Duration and timing of diversions
- Are costs of "downstream option" significantly less than slurrying/4b?
- Effects of downstream transport of sediment/nutrients on groundwater wells
- Would it be feasible to divert water to North Fork Matilija?
- Impacts on water rights
- Could the downstream option be permitted/ approved by regulatory agencies?

GENERAL REGULATORY AND OTHER AGENCY CONSTRAINTS

USACE

Re-authorization triggers:
If costs are greater than 20% above authorized project

Data gap: *Has BRDA triggered that threshold? Can there be enough cost reductions to keep below this threshold?*

If changes in anticipated benefits (up *or* down) are more than 20% of authorized project

Data gap: *How would benefits/impacts change if the "without project alternative" is re-defined to refer to date in the future?*

Los Angeles Regional Water Quality Control Board

Issues affecting permitting:

Duration of sediment pulses
Timing. If during natural events, less of an issue
Nutrient levels in sediments behind the dam: how and when they come down
Defining "chronic" sediment: critically important

Data Gaps:
% sediment threshold in the Basin Plan
Determination of beneficial use for salmon/steelhead

DFG (CEQA, 1600 Stream Alteration, CESA incidental take)

Would need to see much more detailed descriptions of actions, e.g. at the 65% design level, to determine if mitigation will be required

Outstanding Question: Will DFG accept programmatic EIR for the entire removal project, or require mitigation for specific elements?

Constraint/possible mitigation trigger: loss of habitat at slurry sites

Data Gap: *need more specific level of design*

USFWS

Trigger: More detailed design (of any kind) will re-open the Biological Opinion and Section 7 consultation, likely for red-legged frog, least Bell's vireo, willow flycatcher

NOAA/NMFS

Trigger: Similar to FWS
4b. Biological Opinion may need to be re-opened, but not necessarily a negative

Data Request: *NMFS provide any firm data or guidance to the USACE design team on sediment thresholds for anadromous fish]*