Matilija Dam Ecosystem Restoration Project

Fine Material Study Group Meeting #1

December 10, 2010
Fine Material Disposal

• Background / Overview / Timeline / Status
• Feasibility Study Detail – Fine Sediments
• Design Phase Detail – Fine Sediments
• Consensus - Current State
• Conclusion
Government Action

Resolution by County Supervisors (≈1999).

Department of Interior: BOR
• Appraisal Report: 2000
• Demonstration: 2000

Department of Defense: USACE
• Reconnaissance: 2000
• Feasibility: 2001-04
• Design: 2005 -
Project Coordination

Coordination
- Public Meetings
- Stakeholder Meetings
- Technical Meetings
- Experts and Panels
Feasibility Study Detail
Fine Sediment

Constraints
• Keep Whole
• Land Availability
• Environmental Evaluation
  • Riparian
  • Fish Passage
  • Natural Processes
  • Frequent vs One Time Impacts
• Water Quality
• Funding
• Consensus
Feasibility Study Detail
Fine Sediment

Options - Evaluated
- Do Nothing
- Notching
- Trucking
- Conveyor (to many locations)
- Slurry (to many locations)
- Up Stream Sequestration
- Agricultural Grading
- Daily Cover for Landfill
Feasibility Study Detail
Fine Sediment

Preferred Option
• Slurry
  • BRDA
  • MODA
  • Agriculture

Recommended Plan
• BRDA – 4(b)
Design Phase Detail
Fine Sediment - Slurry Line
Environmental Documents

Extensive Involvement During Development
• Public Meetings
• Stakeholder Meetings
• Coordinated Alternative Development and Evaluation

Outcome
• No Challenges to EIS/EIR
• General Support
Design Phase

Events

- Chief’s Report
- OMB Clearance
- Project Caution/Flags
- Design Agreement/Budget
- DOG Formation
- Goal:
  - Hold Project Cost
  - Conform to Environmental Documents
  - Constructability
  - Expedite Scheduled
Design Phase Detail
Fine Sediment

Recommended Option
• 4(b)
  • Deviations from 4(b)
  • Constructability
  • Cost
General Assumptions

• Each disposal site will be cleared: all plants and trees within the footprint of the material placement will be removed, mulched and stockpiled for use in closure.
• “Starter Dikes” will be built around the perimeter of disposal areas except adjacent to bluffs. Borrow for dikes will come from disposal area native material.
• 2.1 M CY of fines will be dredged/excavated from the area behind dam underlying the existing reservoir.
• Fine material will be hydraulically slurried to the site.
• Material will be dried and placed.
• Pre-production efforts to take 6 to 9 months; production, 18 months; final closure 9 months to one year (3 years total).
• Extracted water will be pumped back up to the dam for reuse.
• Following adequate drying, the upper 3’ of top soil, excavated and stockpiled prior to beginning the slurry process, will be replaced. Final grading for drainage.
• Final closure will include application of mulch, seed mix, weed treatment, and watering for one year.
• The acreages shown are only for placement of the fine materials; it does not include stockpiles, staging and office areas and access roads and other necessary construction (temporary) facilities.
BRDA  
SUB-SITE 1

- 50 acres  
- 800,000 cy storage  
- 4.6 miles from dam  
- 11.2 acres pipeline disturbance  
- No buffer to the active channel (use of site restricts wildlife movement)  
- 44 Oak trees  
- No Black Walnut
BRDA
Sub-Site 2

- 25 acres
- 500,000 cy storage
- 5.3 miles from dam
- 12.8 acres pipeline disturbance
- No buffer to the active channel (use of site restricts wildlife movement)
- 57 Oak trees
- No Black Walnut
BRDA

Sub-Site 3

• 11 acres
• 240,000 cy storage
• 6.5 miles from dam
• 15.8 acres pipeline disturbance
• No buffer to the active channel (use of restricts wildlife movement)
• 8 Oak trees
• 5 Black Walnut
BRDA Sub-Site 4

- 32 acres
- 700,000 cy storage
- 7.5 miles from dam
- 18.8 acres pipeline disturbance
- 50 – 600 feet west of the active channel (use of site allows for some wildlife movement)
- 19 Oak trees
- No Black Walnut
Design Phase Detail
Fine Sediment

Recommended Option
- 4(b)
  - Deviations from 4(b)
  - Constructability
  - Cost
  - Parking Lot
Design Phase Detail
Fine Sediment

MODA Option
- Land Ownership
- Developed MODA options
MODA

- 76 acres
- 2,339,000 cy storage
- 3.0 miles from dam
- 7.9 acres pipeline disturbance
- 300 – 700 feet east of the active channel (provides corridor for wildlife movement)
- 132 Oak trees
- 31 Black Walnut
# Disposal Site Comparison

## Table 1. Comparison of Slurry Disposal Sites

<table>
<thead>
<tr>
<th>Site</th>
<th>MODA</th>
<th>BRDA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>West MODA</td>
<td>East MODA</td>
</tr>
<tr>
<td>Site Area (acres)</td>
<td>27</td>
<td>40</td>
</tr>
<tr>
<td>Pipeline Area (acres)</td>
<td>7.9</td>
<td>7.9</td>
</tr>
<tr>
<td>Total Area (acres)</td>
<td>34.9</td>
<td>56.9</td>
</tr>
<tr>
<td>Distance from Matilija Dam (approximate miles)</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Storage Volume (cubic yards)</td>
<td>671,000</td>
<td>1,667,000</td>
</tr>
<tr>
<td>Average Height of Fill (feet)</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>Proximity to Active Channel</td>
<td>YES. Good quality native upland habitat present</td>
<td>YES. Good quality native upland habitat present</td>
</tr>
<tr>
<td>Is there an existing buffer to the active river channel?</td>
<td>YES. Good quality native upland habitat present</td>
<td>YES. Good quality native upland habitat present</td>
</tr>
<tr>
<td>Slurry Disposal Site Containment*</td>
<td>Use of on-site native material to construct containment dikes to stabilize slurred sediments</td>
<td>Same as West MODA around exposed perimeter except along east bank adjacent to bluff.</td>
</tr>
<tr>
<td>Site Visibility</td>
<td>Visible from private property to the north and recreationists in the area.</td>
<td>Highly visible from the community of Meiners Oaks, to the north and east.</td>
</tr>
</tbody>
</table>
Design Phase Detail
Fine Sediment

MODA Option
• Land Ownership
• Developed MODA options
• Advantages
  • Smaller Impact Area
  • Lower Cost
  • Less Construction Risk
  • Avoids Frequent Impact
• Disadvantages
  • Not recommended Alternative
  • Permanent Sequestration
  • Adjacent Property Owner Opposition
  • Visual / Recreation Impacts
  • Potential Expanded Land Use
  • Cozy Dell
  • Environmental Impacts
• Parking Lot
Design Phase Detail
Fine Sediment

USA Concept
• Underlying Premise – Conform to Design Goals
• Brainstormed Cursory Review with DOG
• USA Initial Site Layout:
  • Permanent Sequestration
  • Water Quality
  • Maintains Historic Creek Centerline
Upstream Storage Area
## Disposal Alternatives Comparison

<table>
<thead>
<tr>
<th>HABITAT</th>
<th>MODA</th>
<th>BRDA (1&amp;2)</th>
<th>Net USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alluvial Scrub</td>
<td>29.5</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>Grassland</td>
<td>32.5</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Coastal Sage Scrub</td>
<td>1.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Freshwater Marsh</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lake/Dam Pool</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Channel</td>
<td>3</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Mule Fat Scrub</td>
<td>0</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Riparian Tribs</td>
<td>0</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>Giant Reed/Willow</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chaparral</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Oak Woodland Types</td>
<td>8</td>
<td>2</td>
<td>17.5</td>
</tr>
<tr>
<td>Ruderal/Barren</td>
<td>0.5</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Total Acres</td>
<td>75</td>
<td>71.5</td>
<td>37</td>
</tr>
</tbody>
</table>
Disposal Area Alternative Costs

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRDA 1-4</td>
<td>$50</td>
</tr>
<tr>
<td>MODA East</td>
<td>$40</td>
</tr>
<tr>
<td>MODA SE, BRDA 1, 2</td>
<td>$30</td>
</tr>
<tr>
<td>BRDA 1 and 2</td>
<td>$20</td>
</tr>
<tr>
<td>MODA E, BRDA 2</td>
<td>$10</td>
</tr>
<tr>
<td>MODA 94 ac</td>
<td>$0</td>
</tr>
<tr>
<td>MODA 74, whole</td>
<td>$10</td>
</tr>
<tr>
<td>MODA 74, split</td>
<td>$20</td>
</tr>
<tr>
<td>USA</td>
<td>$30</td>
</tr>
</tbody>
</table>
Design Phase Detail
Fine Sediment

USA Concept
- Underlying Premise – Conform to Design Goals
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- USA Initial Site Layout:
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  - Water Quality
  - Maintains Historic Creek Centerline
- Advantages
  - Smaller Impact Area, Lower Cost,
  - Less Construction Risk, Avoids Chronic Impact
- Disadvantages
  - Not recommended Alternative
  - Permanent Sequestration
  - Adjacent Property Owner Opposition
  - Visual / Recreation Impacts
- Parking Lot
Consensus – Current State

Constraints / non-Constraints
  • Conform to Design Goals
  • Maintain Project Schedule

Advantages / Disadvantages
  • BRDA
  • MODA
  • USA

Identify Information Gaps Causing Disagreement

Identify Further Existing Information relevant to discussion of Alternatives
Conclusion

Appreciate your Participation

Continue with and Goals of Design Goals

• Hold Project Cost
• Conform to Environmental Documents
• Constructability
• Expedite Scheduled

Look Forward to Efforts of Study Group