

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

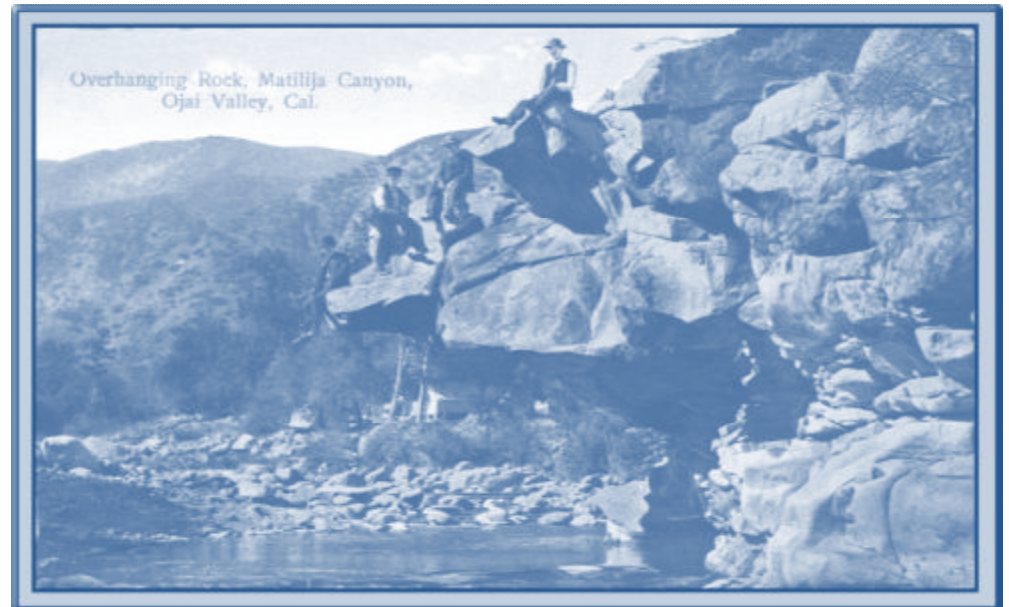
Resolution by County
Supervisors (≈1999).

Department of Interior: BOR

- Appraisal Report: 2000
- Demonstration: 2000

Department of Defense: USACE

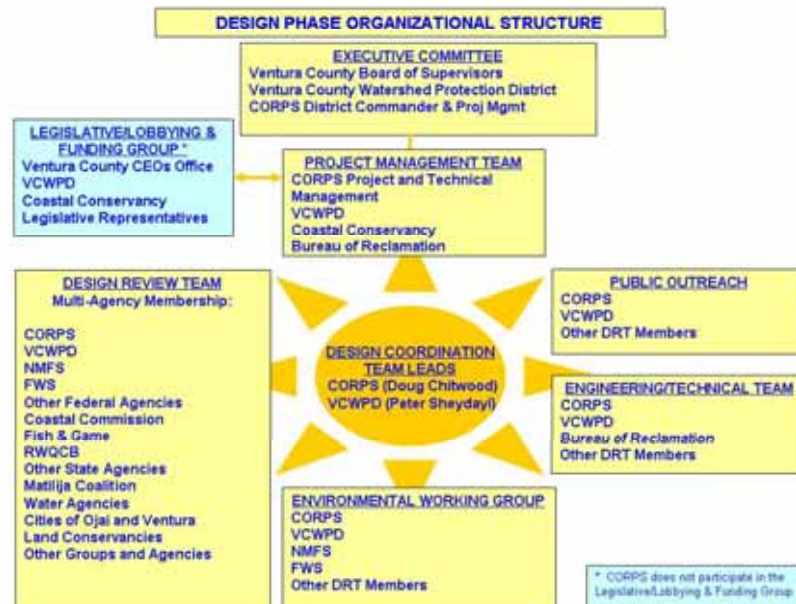
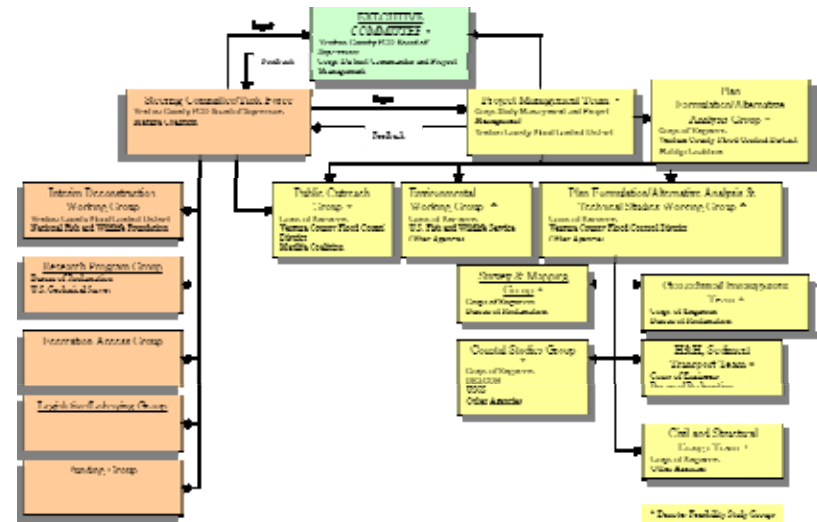
- Reconnaissance: 2000
- Feasibility: 2001-04
- Design: 2005 -



Project Coordination

Coordination

- Public Meetings
- Stakeholder Meetings
- Technical Meetings
- Experts and Panels

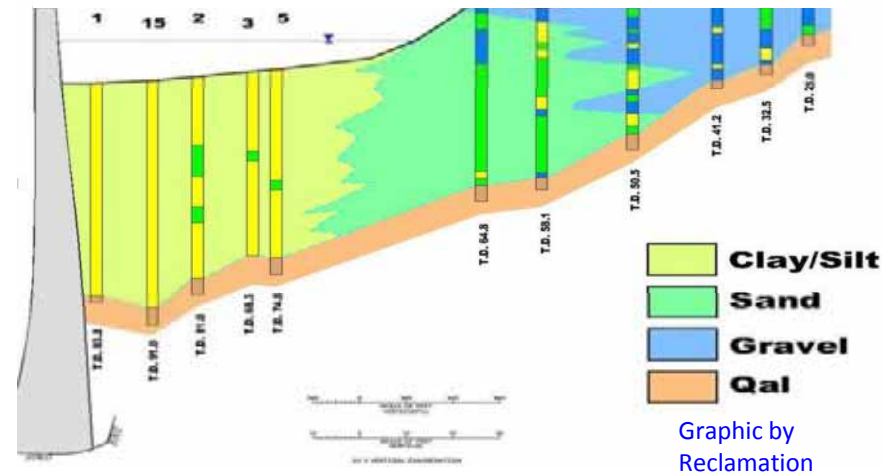
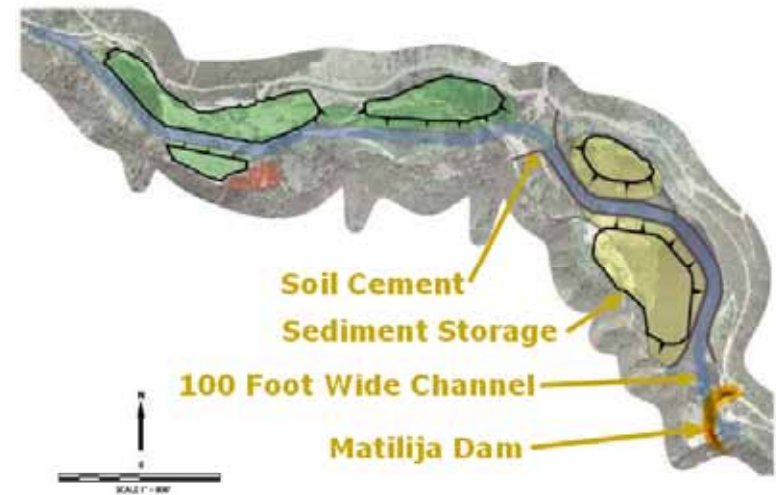


Feasibility Study Detail

Fine Sediment

Constraints

- Keep Whole
- Land Availability
- Environmental Evaluation
 - Riparian
 - Fish Passage
 - Natural Processes
 - Frequent vs One Time Impacts
- Water Quality
- Funding
- Consensus

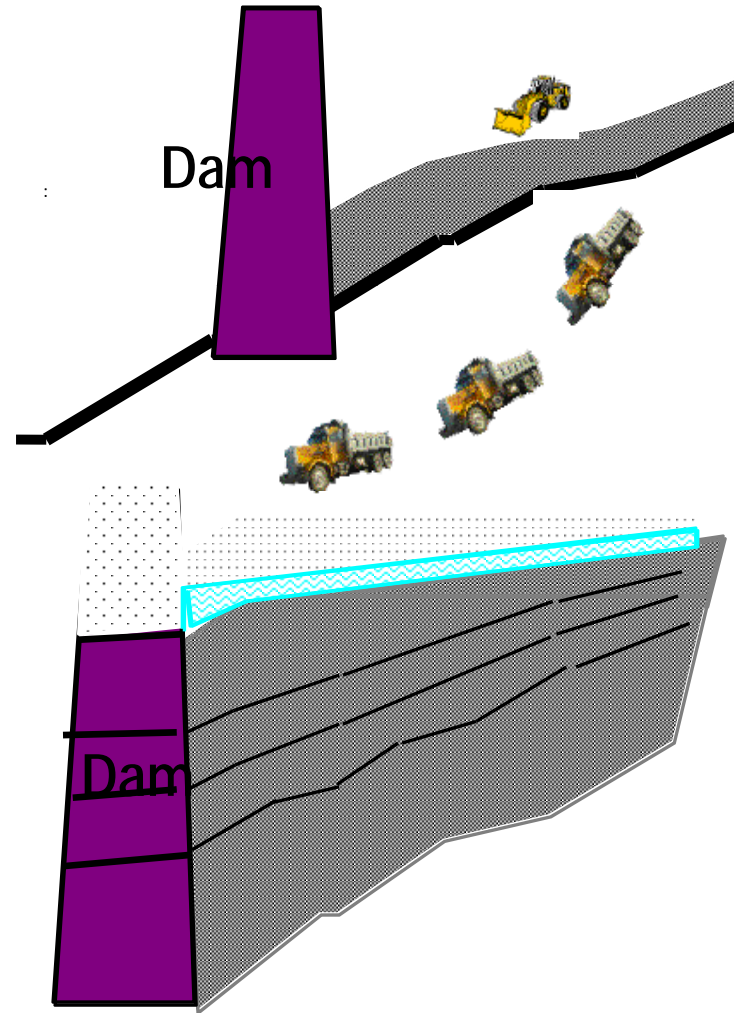


Feasibility Study Detail

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

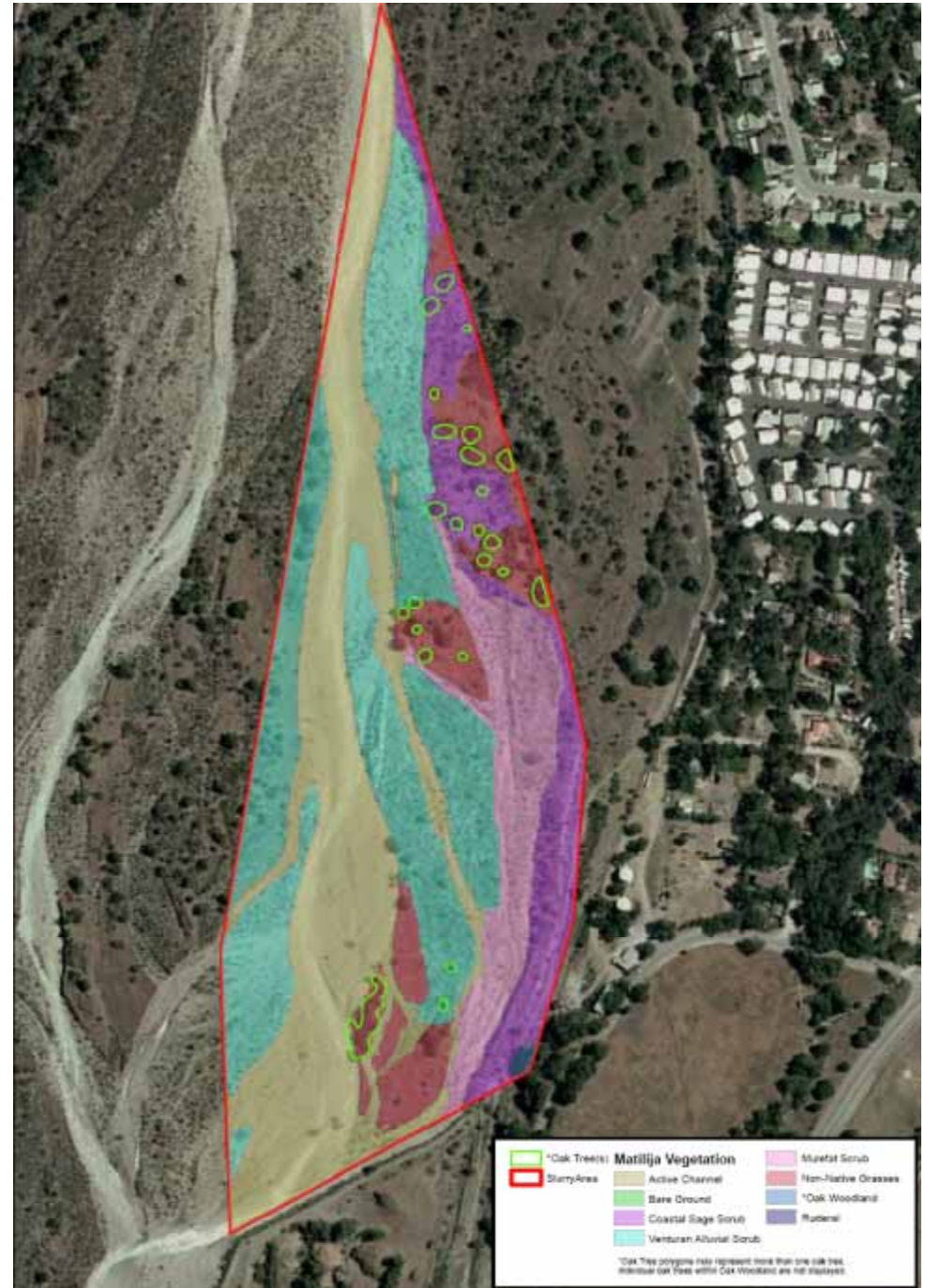


General Assumptions

- 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.

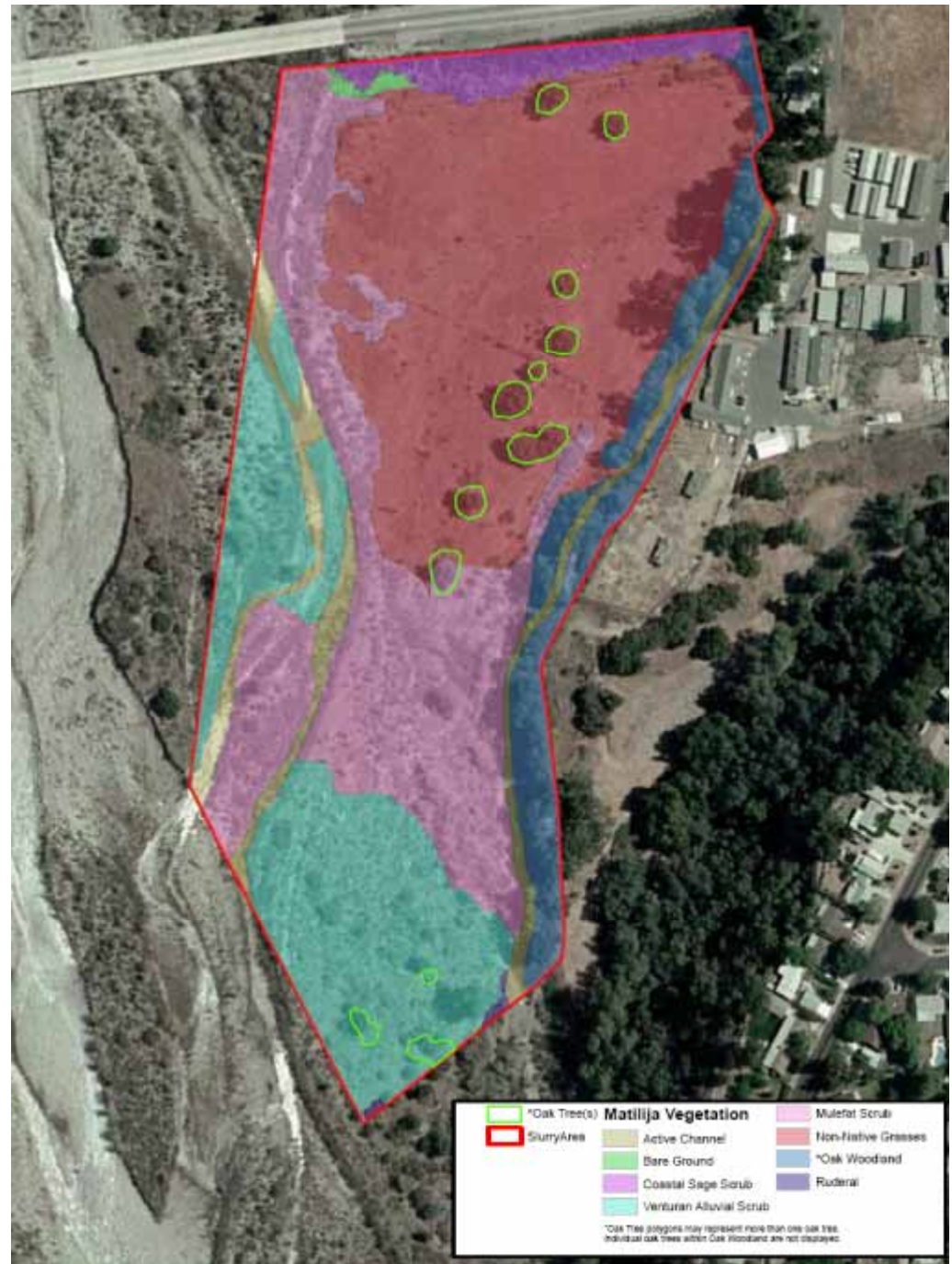
BRDA SUB-SITE 1

- 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



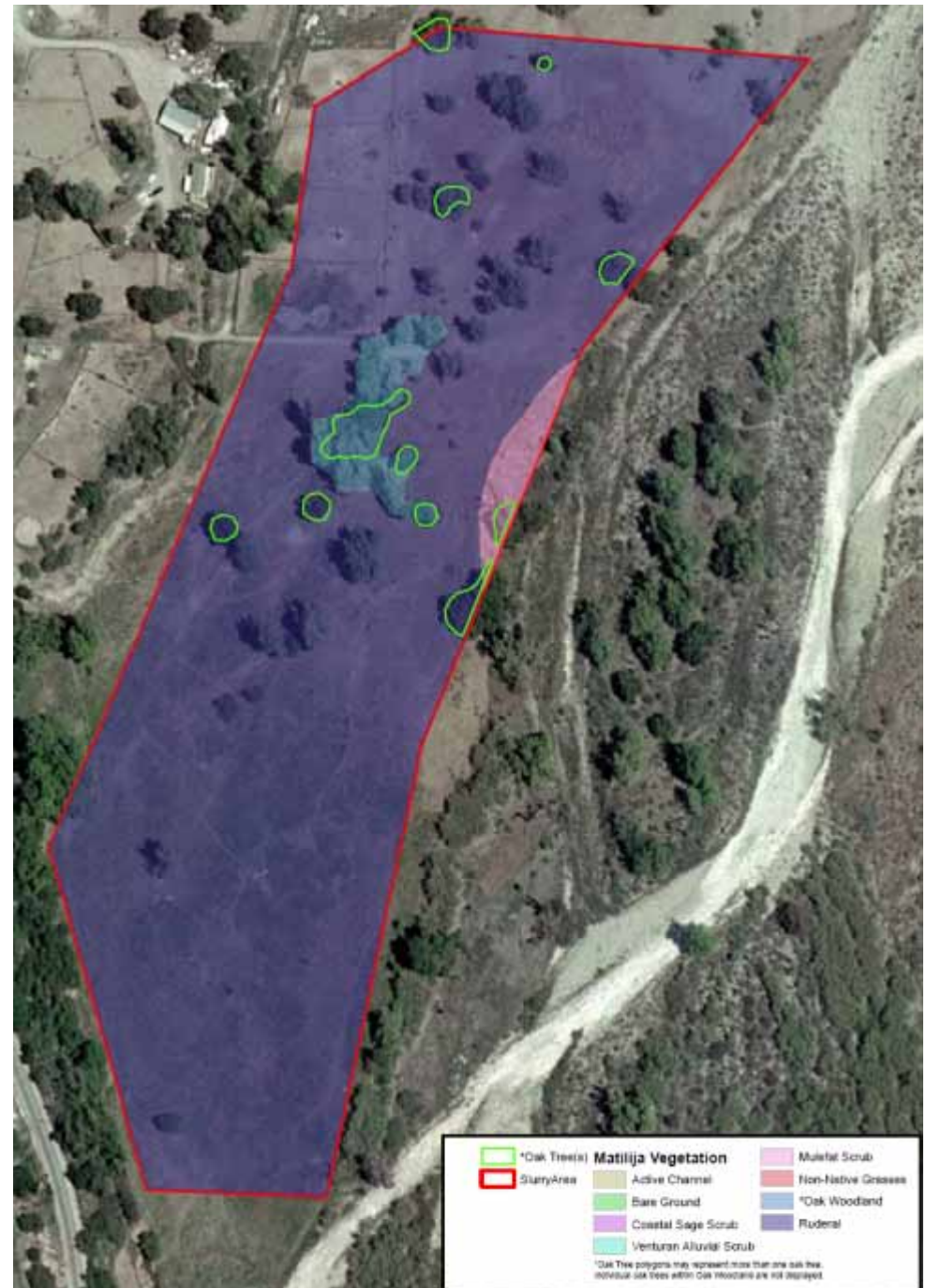
BRDA SUB-SITE 3

- 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

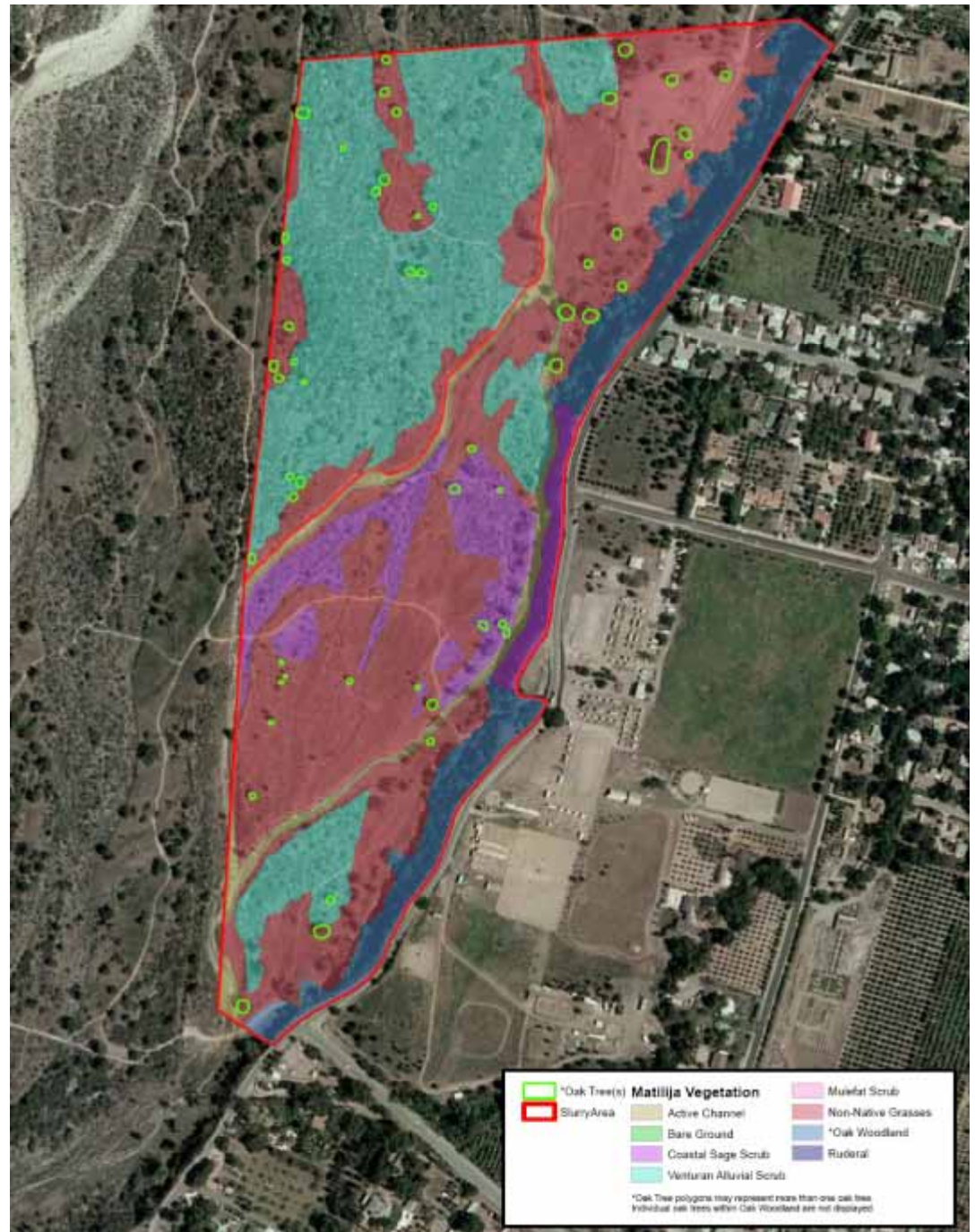
Fine Sediment

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*

Site	MODA			BRDA				
	West MODA	East MODA	Combined MODA	Sub-Site 1	Sub-Site 2	Sub-Site 3	Sub-Site 4	Combined BRDA
Site Area (acres)	27	49	76	50	25	11	32	118
Pipeline Area ¹ (acres)	7.9	7.9	7.9	11.2	12.8	15.8	18.8	18.8
Total Area ² (acres)	34.9	56.9	83.9	61.2	37.8	26.8	50.8	135.8
Distance from Matilija Dam (approximate miles) ³	3.0	3.0	3.0	4.6	5.3	6.5	7.5	4.6 - 7.5
Storage Volume (cubic yards) ⁴	671,000	1,667,000	2,339,000	800,000	500,000	240,000	700,000	2,240,000
Average Height of Fill (feet) ⁵	15	35	15 – 35	6	15	13	14	6 – 15
Proximity to Active Channel	300+ feet to the east	700 feet to the east	-	Within the active channel	Within the active channel	0 feet to the west	50 – 600 feet to the west	-
Is there an existing buffer to the active river channel?	YES. Good quality native upland habitat present.	YES. Good quality native upland habitat present.	-	NO.	NO.	NO.	YES. Good quality native upland habitat present.	-
Slurry Disposal Site Containment ⁶	Use of on-site native material to construct containment dikes to stabilize slummed sediments	Same as West MODA around exposed perimeter except along east bank adjacent to bluff.	-	Use of containment dikes, similar to West MODA, except this site will also require riprap stone of approx 2-ft diameter outside dike slopes to provide 5-10 yr level of erosion protection during frequent flood events	Similar to West MODA. Some on-site boulders may be used for dike construction.	Similar to Sub-Site 2	Similar to Sub-Site 2	-
Site Visibility	Visible from private property to the north and recreationists in the area.	Highly visible from the community of Meiners Oaks, to the north and east.	-	Visible in the distance from homes on either bank of the river channel and from Hwy 150 to the south.	Visible from portions of private residences to the east and from Hwy 150 to the north.	Minimal visibility from homes to the east; high visibility from private equestrian property to the west.	Minimal public visibility, but high visibility from private home and equestrian property to the west.	-

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

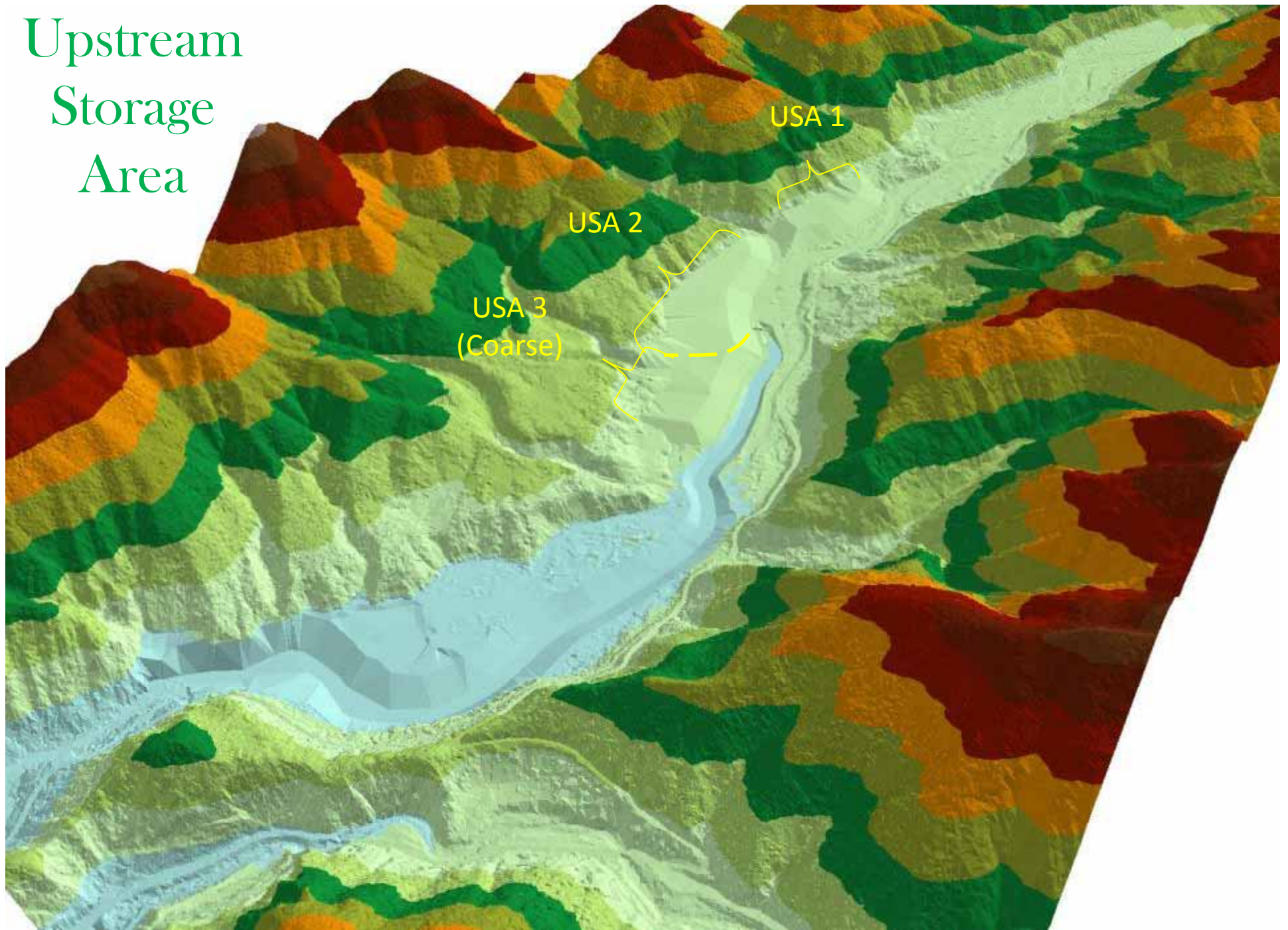
Design Phase Detail

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

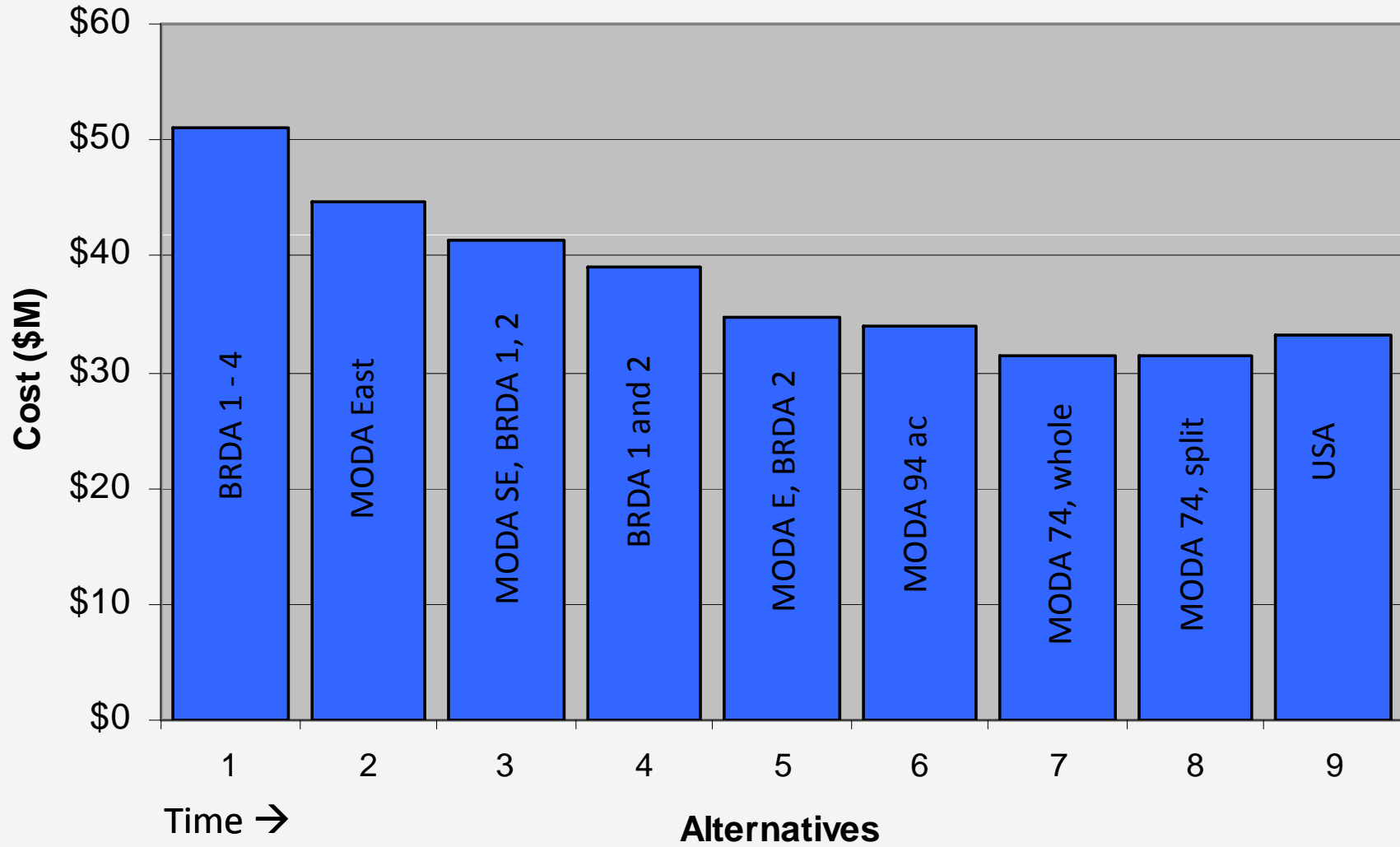
Upstream Storage Area



Disposal Alternatives Comparison

HABITAT	MODA	BRDA (1&2)	Net USA
Alluvial Scrub	29.5	26	0
Grassland	32.5	14	0
Coastal Sage Scrub	1.5	0	0
Freshwater Marsh	0	0	0
Lake/Dam Pool	0	0	0
Channel	3	18	0
Mule Fat Scrub	0	11	0
Mixed Riparian Tribs	0	0	2.5
Giant Reed/Willow	0	0	0
Chaparral	0	0	17
Oak Woodland Types	8	2	17.5
Ruderal/Barren	0.5	0.5	0
Total Acres	75	71.5	37

Disposal Area Alternative Costs



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
- 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