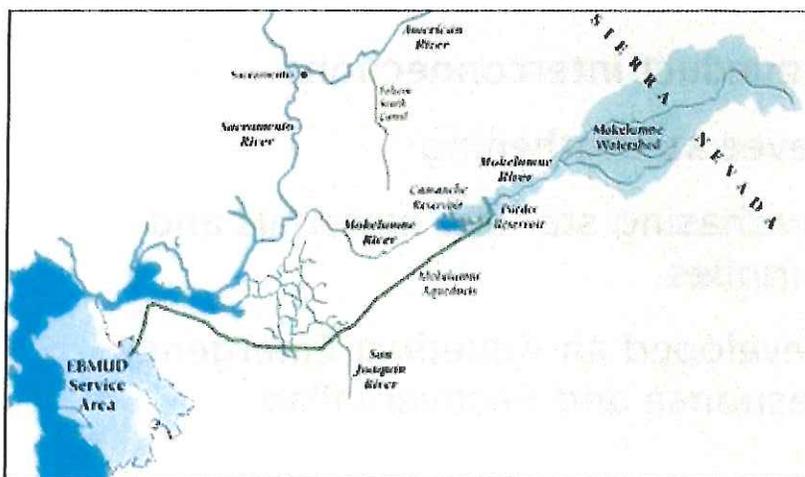


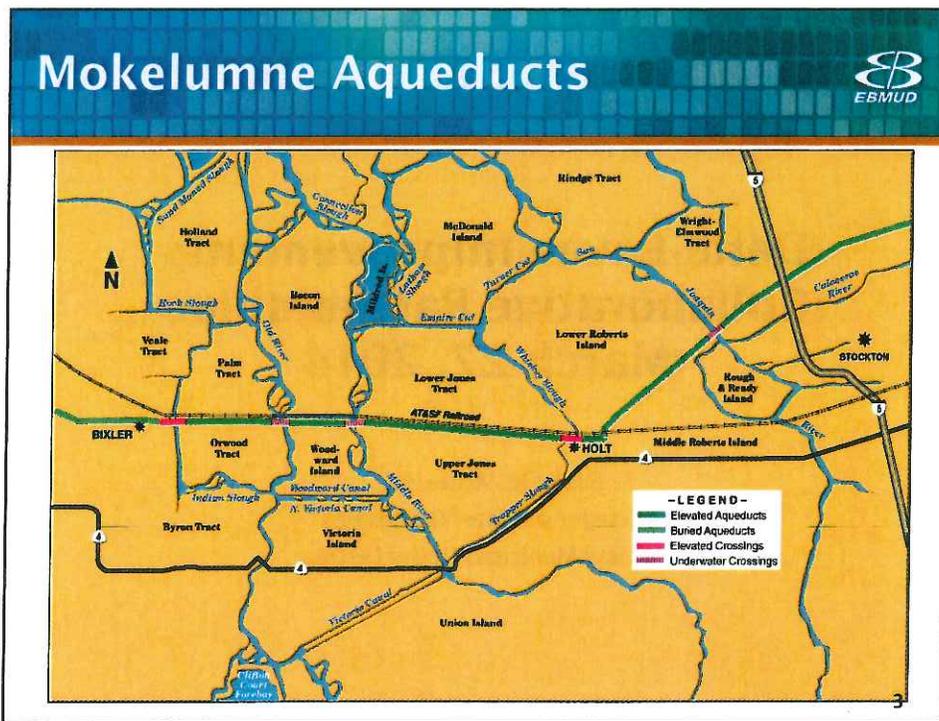


Delta Levee Improvements Collaborative Partnerships March 27, 2014

Eileen M. White, P.E.
Manager of Water Operations
East Bay Municipal Utility District

EBMUD Water Supply System





Multi-Pronged Approach to Protect the Aqueducts

- Aqueduct interconnections
- Levee strengthening
- Purchasing standby materials and supplies
- Developed an Aqueduct Emergency Response and Recovery Plan

4

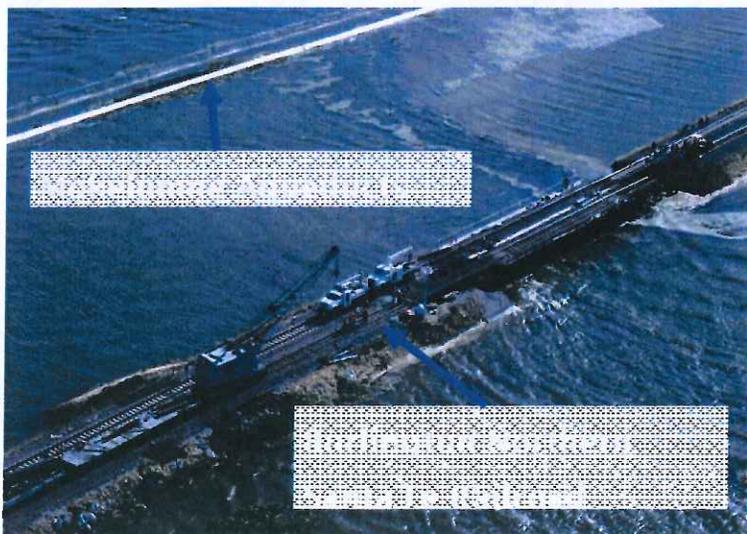
Aqueduct Flood Vulnerabilities



- Instability – High Winds & Waves cause stress
- Damage from floating debris
- Scour and foundation erosion
- Empty aqueducts will float
- Corrosion – pipelines and coatings are not designed to be submerged

5

Jones Tract Flooding - 2004

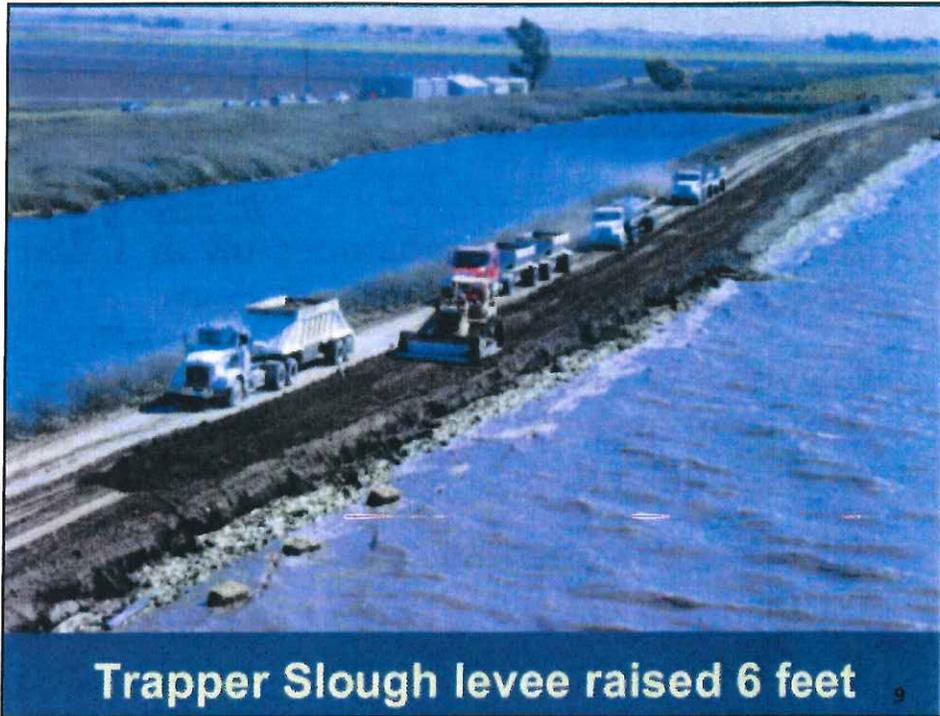


6



Mokelumne Aqueduct parallels railroad





Department of Water Resources Recommendations



- Fund ten projects
- Total Project Cost = \$41.3 million
- State Cost Share - \$35.2 million*
- Local Cost Share = \$6.1 million*
- Total Levee Miles Improved = 40 miles

* Reclamation District's receive funding

DWR and Reclamation Districts Agreements



- State provides cash advances up to 90% of the 85% state funding costs
- Leaves a temporary cash burden of approximately \$4 million that needed to be financed
- RDs lack the finances to meet these costs

11

EBMUD and Reclamation Districts Funding Agreement



EBMUD agreed to:

- Provide the non-refundable local share (\$6.1 million)
- Advance temporary cash flow (approximately \$4 million)
- Maintain financial oversight

12

EBMUD and Reclamation Districts Funding Agreement



Reclamation Districts agreed to:

- Execute Grant Agreements with the Department of Water Resources
- Be the Engineer of Record
- Issue all contracts

13

Delta Levee Projects Recap

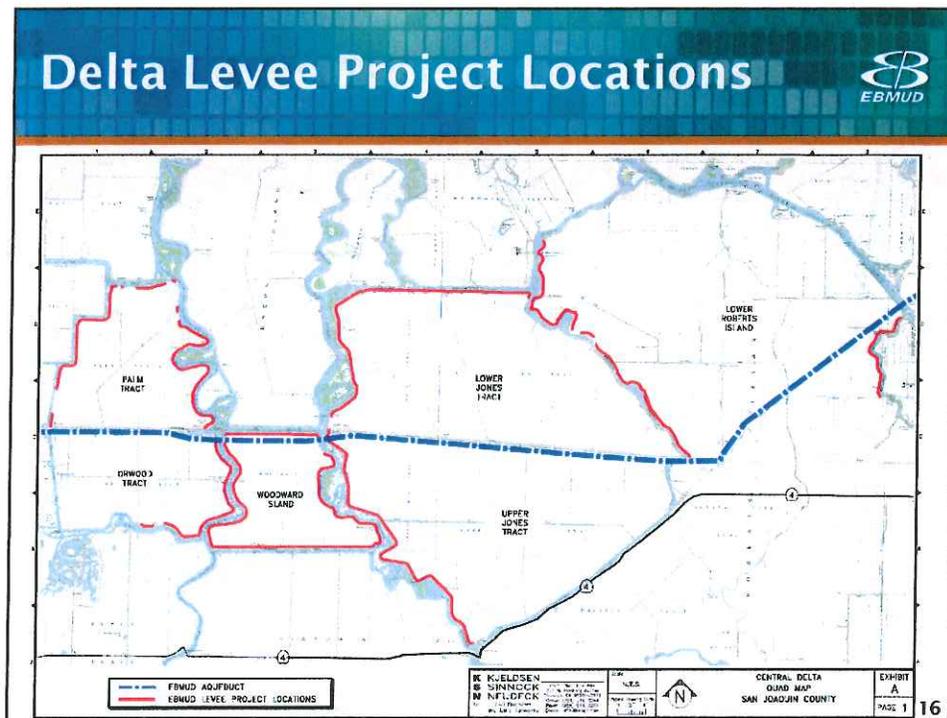


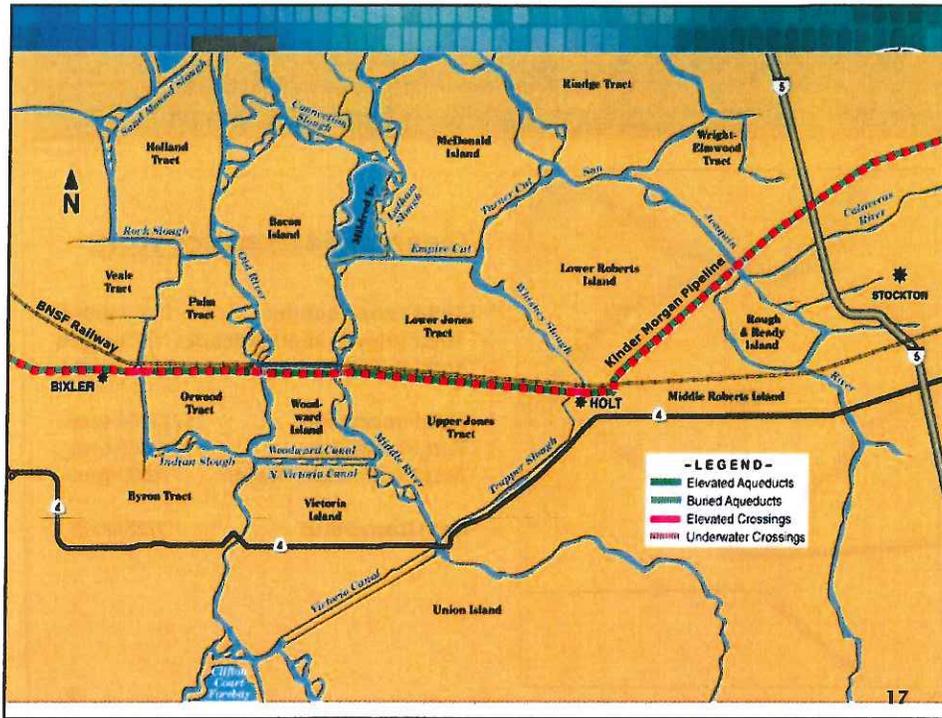
RECLAMATION DISTRICT	FUNDING AGREEMENT	TOTAL BUDGET	STATE COST SHARE	EBMUD 15% SHARE
RD 684 Lower Roberts Island	RL-10-1.0	\$3,157,895	\$2,684,211	\$473,684
RD 689 Lower Roberts Island	RL-10-2.0	\$4,015,328	\$3,413,029	\$602,299
RD 2038 Lower Jones Tract	LJ-10-1.0	\$5,540,216	\$4,709,184	\$831,032
RD 2039 Upper Jones Tract	UJ-10-2.0	\$3,573,984	\$3,037,886	\$536,098
RD 2039 Upper Jones Tract	UJ-10-3.0	\$4,054,526	\$3,446,347	\$608,179
RD 2072 Woodward Island	WD-10-1.0	\$5,244,156	\$4,457,533	\$786,623
RD 2072 Woodward Island	WD-10-2.0	\$5,225,941	\$4,442,050	\$783,891
RD 2024 Orwood and Palm Tract	OP-10-1.0	\$3,093,864	\$2,629,784	\$464,080
RD 2024 Orwood and Palm Tract	OP-10-2.0	\$5,513,158	\$4,686,184	\$826,974
TOTALS		\$39,419,068	\$33,506,208	\$5,912,860

Delta Levee Projects

- \$20 million for five projects were approved by the Delta Stewardship Council on July 28, 2011
- \$13.5 million for four additional levee projects were approved by the Delta Stewardship Council on January 26, 2012
- The nine projects were completed over a year ago
- Waiting for reimbursement of \$1.7 million

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Summary

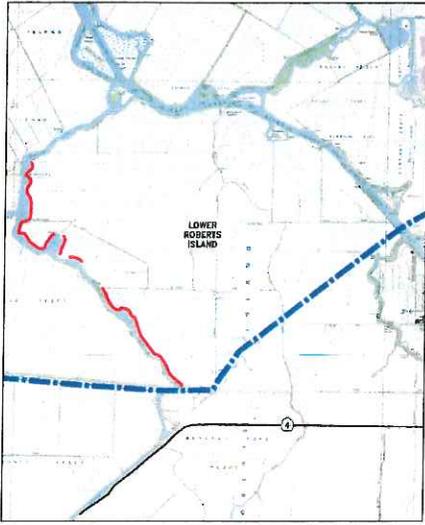


The projects

- reduce the risk of levee failures in the Delta
- protect assets of statewide importance
- meet the co-equal goals of ecosystem restoration and water supply reliability
- have been successful because of the collaborative partnership of DWR, the Reclamation Districts, EBMUD, and the Delta Stewardship Council

Lower Roberts Island RL-10-1.0

Levee Crown, Slope, and Habitat/Setback Improvements



General Features of Work

- Total Levee Length 14.5 miles
- Total Project Improvements 3.9 miles
- Total Habitat/Setback 0.27 miles
- Total Import Fill 142,000 tons
- Total Road Base 17,600 tons
- Total Rock Slope Repair 7,800 tons
- Date Completed 7/23/2012

19

Lower Roberts Island RL-10-1.0

Levee Crown, Slope, and Habitat/Setback Improvements



2:1

BEFORE
AFTER – Habitat Setback Levee

4:1 SLOPE

WIDENED CROWN

10.30.2012 14:36

20

Lower Roberts Island RL-10-1.0

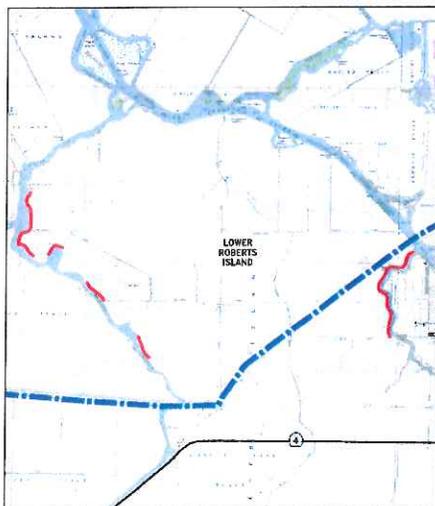
Levee Crown, Slope, and Habitat/Setback Improvements



21

Lower Roberts Island RL-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



General Features of Work

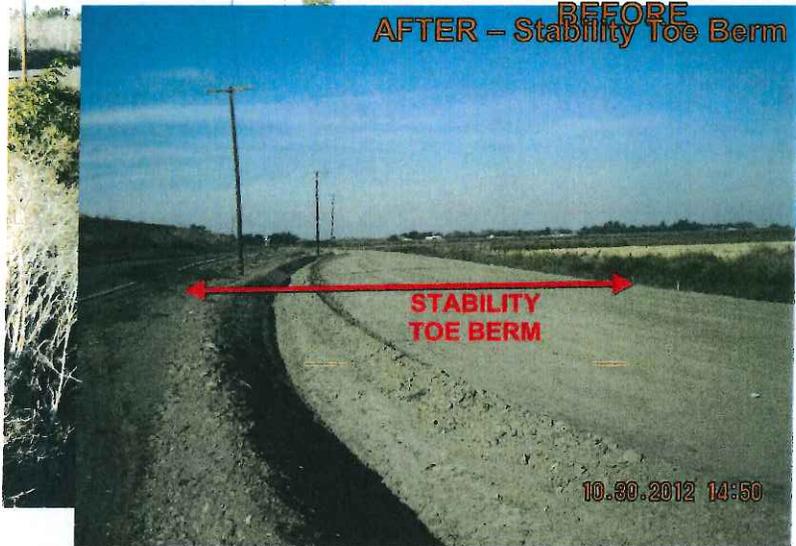
- Total Levee Length 14.5 miles
- Total Project Improvements 3.3 miles
- Total Habitat/Setback 0.57 miles
- Total Import Fill 340,000 tons
- Total Road Base 4,000 tons
- Total Rock Slope Repair 500 tons
- Date to be Completed 5/30/13

22

Lower Roberts Island RL-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



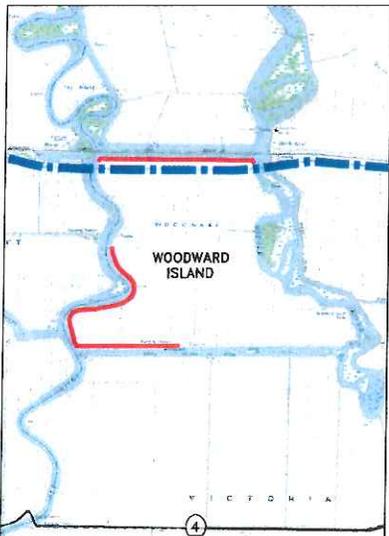


23

Woodward Island WD-10-1.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements





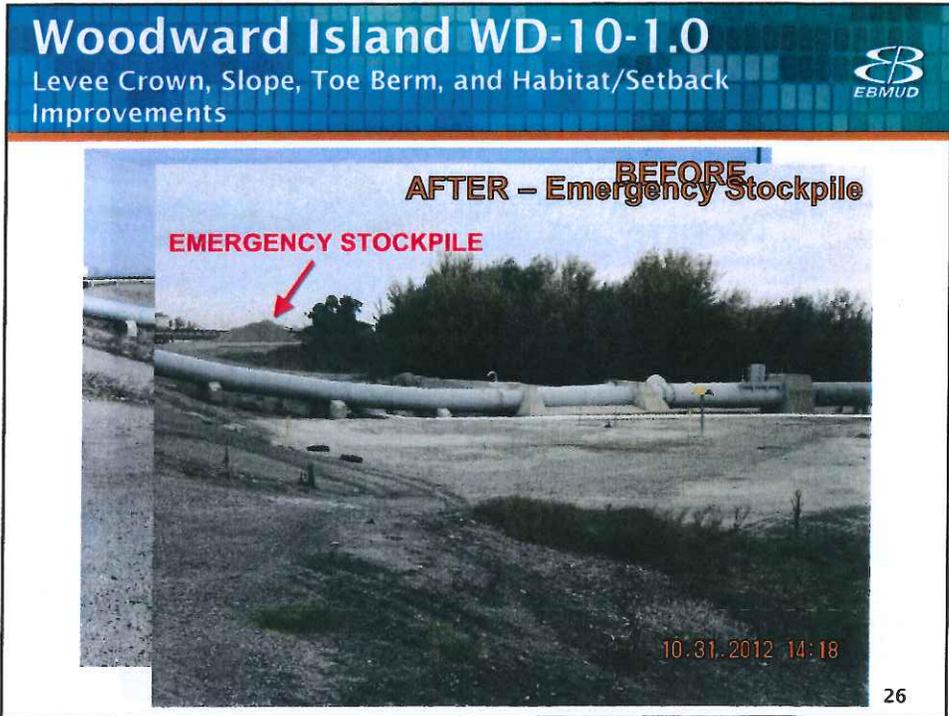
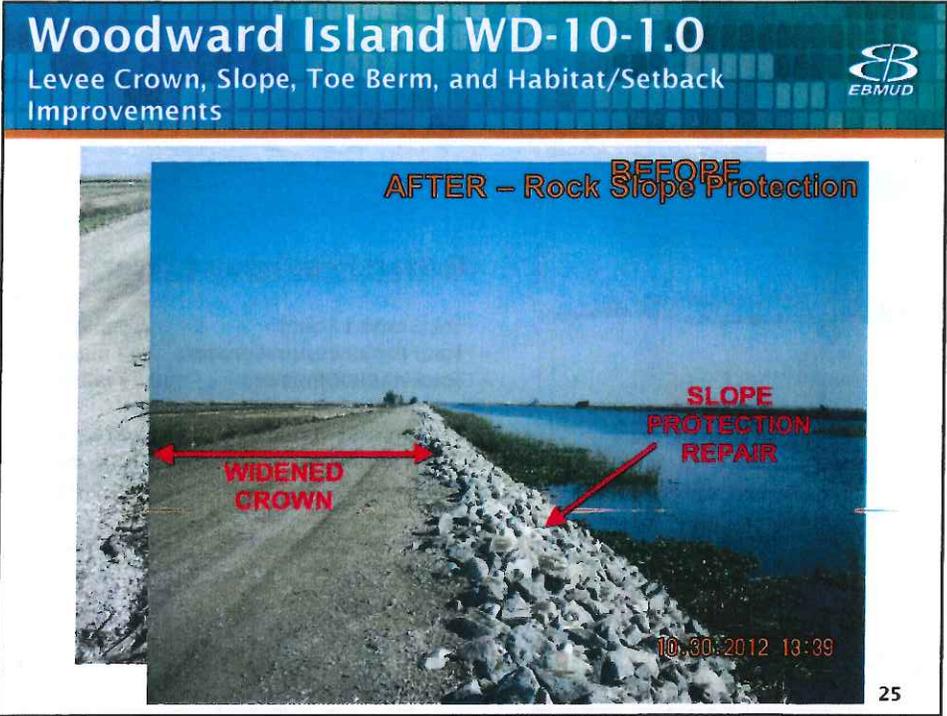
General Features of Work

- Total Levee Length 8.9 miles
- Total Project Improvements 3.1 miles
- Total Habitat/Setback 0.19 miles

- Total Import Fill 344,000 tons
- Total Road Base 9,250 tons
- Total Rock Slope Repair 8,900 tons

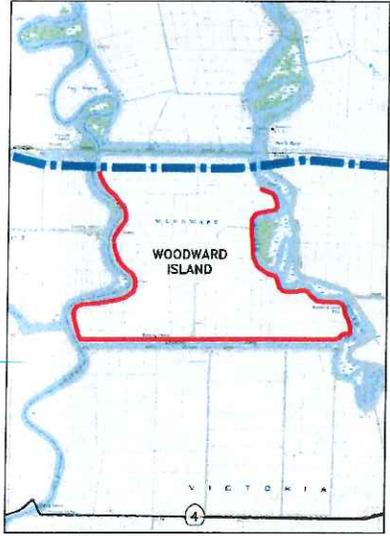
- Date Completed 10/12/12

24



Woodward Island WD-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



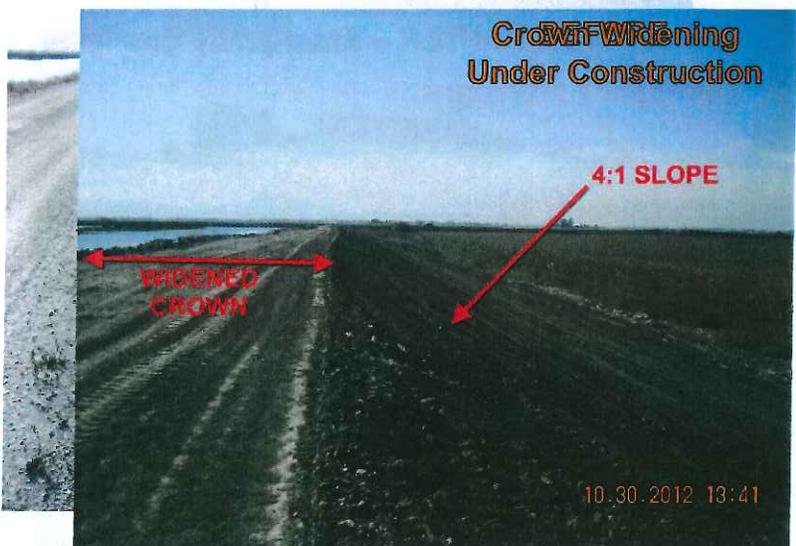
General Features of Work

- Total Levee Length 8.9 miles
- Total Project Improvements 6.7 miles
- Total Habitat/Setback 0.19 miles
- Total Import Fill 410,000 tons
- Total Road Base 15,000 tons
- Total Rock Slope Repair 3,500 tons
- Date to be Completed 2/28/2013

27

Woodward Island WD-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



Crown Widening Under Construction

4:1 SLOPE

WIDENED CROWN

10.30.2012 13:41

28

Orwood-Palm Tract OP-10-1.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



General Features of Work

- Total District Levee Length (Orwood 6.5 miles) 14.4 miles
- Total Project Improvements 2.2 miles
- Total Habitat/Setback 0.19 miles
- Total Import Fill 252,000 tons
- Total Road Base 7,200 tons
- Total Rock Slope Repair 1,000 tons
- Total Drain Rock 2,400 tons
- Date Completed 11/9/12

Orwood-Palm Tract OP-10-1.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



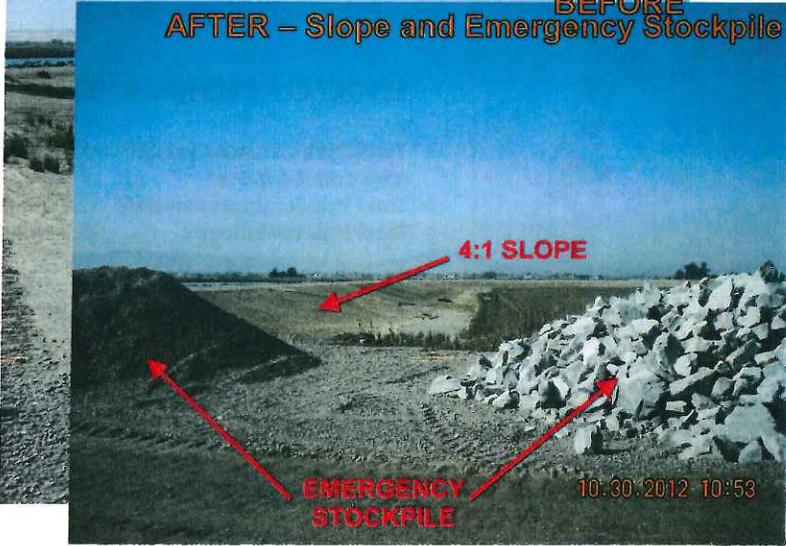
Orwood-Palm Tract OP-10-1.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



BEFORE

AFTER – Slope and Emergency Stockpile

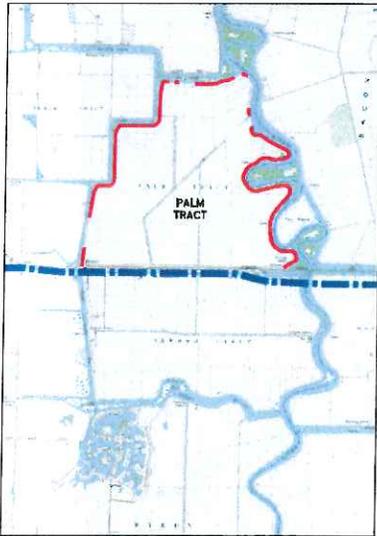


31

Orwood-Palm Tract OP-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements





General Features of Work

- Total District Levee Length 14.4 miles
(Palm 7.9 miles)
- Total Project Improvements 5.8 miles
- Total Habitat/Setback 0.38 miles

- Total Import Fill 427,000 tons
- Total Road Base 16,000 tons
- Total Rock Slope Repair 4,900 tons

- Date Completed 7/11/12

32

Orwood-Palm Tract OP-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



33

Lower Jones Tract LJ-10-1.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements



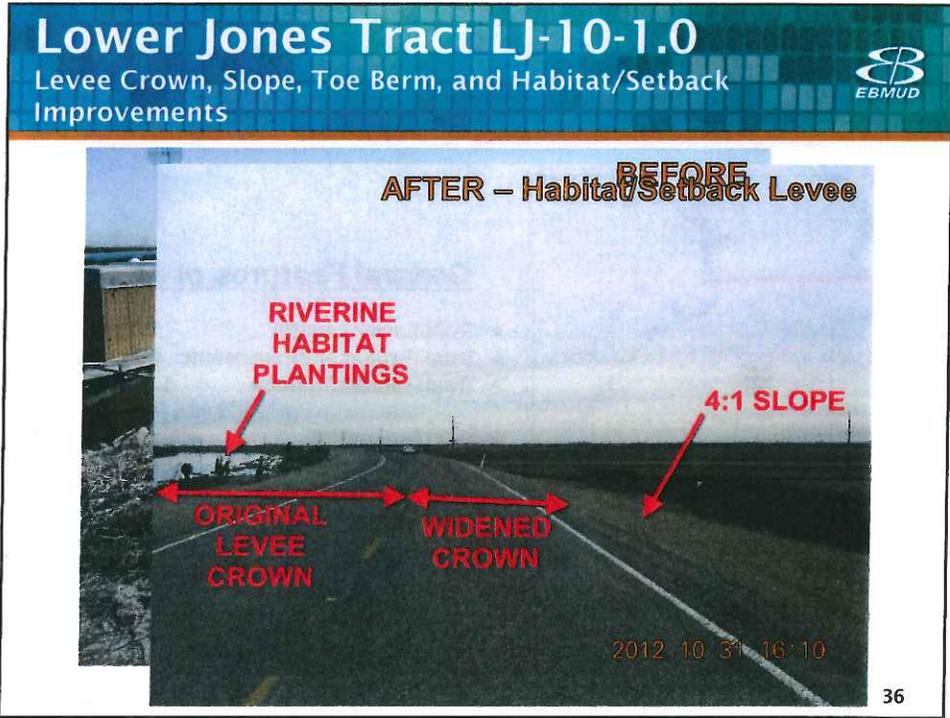
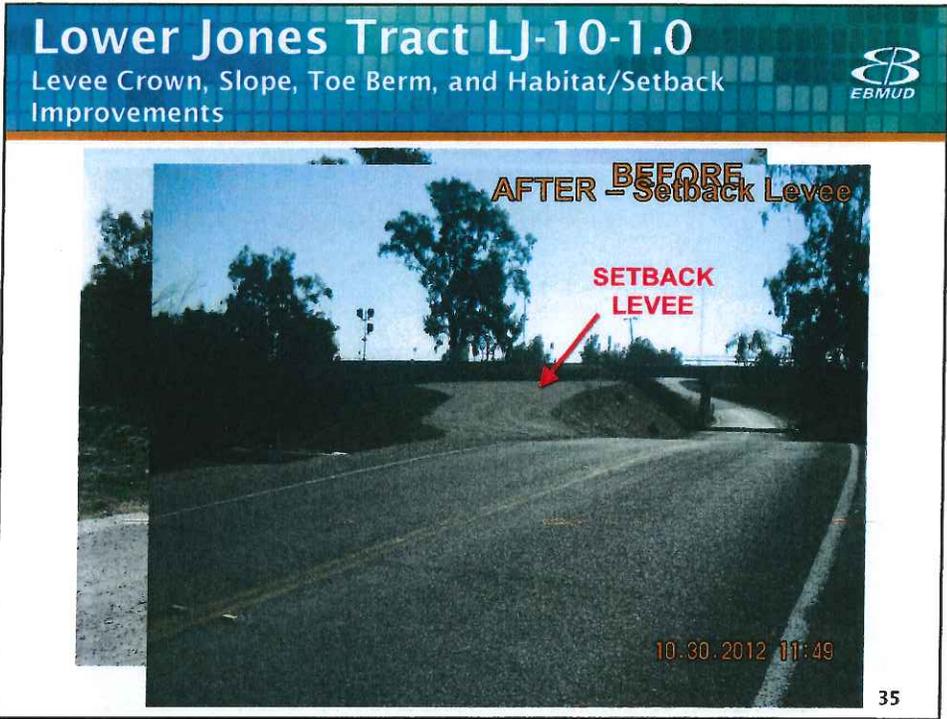
General Features of Work

- Total Levee Length 9.1 miles
- Total Project Improvements 4.9 miles
- Total Habitat/Setback 0.47 miles

- Total Import Fill 413,000 tons
- Total Road Base 18,700 tons

- Date Completed 6/25/2012

34



Upper Jones Tract UJ-10-2.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements





General Features of Work

- Total Levee Length 5.0 miles
- Total Project Improvements 3.2 miles
- Total Habitat/Setback 0.3 miles

- Total Import Fill 296,000 tons
- Total Road Base 12,500 tons
- Total Rock Slope Repair 9,000 tons

- Date to be Completed 12/01/2012

37

Upper Jones Tract UJ-10-3.0

Levee Crown, Slope, Toe Berm, and Habitat/Setback Improvements





General Features of Work

- Total Levee Length 5.0 miles
- Total Project Improvements 1.8 miles
- Total Habitat/Setback 0.3 miles

- Total Import Fill 285,000 tons
- Total Road Base 14,800 tons
- Total Rock Slope Repair 3,500 tons

- Date Completed 5/25/2012

38

