

APPENDIX

TABLE 1 - Sacramento River Levee System - Erosion Sites - 2003

TABLE 2 - Sacramento River Levee System - Newly Identifies Erosion Sites - 2003

TABLE 3 - Sacramento River Levee System - Sites Removed from Inventory - 2003

TABLE 4 - Sacramento River Levee System - Potentially Critical and Critical Erosion Sites - 2003

Table 1. Sacramento River Levee System - Erosion Sites -2003

2003 SACRAMENTO RIVER RECONNAISSANCE EROSION INVENTORY
Includes Inventoried Erosion Sites from 1997-2002 (Revised)

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Sacramento	8	Left			243	100	Levee slope	Waves, Drawdown	Riprap - low	In		View upstream; oversteepened section of levee; Horseshoe bend; Wave erosion at base; Old timber piles in water; Call box sign location; Need to extend rock to higher elevation	New small slump in eroded bank; No other observed changes.	Some new erosion apparent.	No observed change	No observed changes	No observed changes.	D4P6
Sacramento	11	Left			15	165	Whole Bank	Wave Wash and Slumping	Rock Riprap at beach margin	In					NEW SITE - Vertical bank with a wide beach at toe and extending ~30 meters riverward to low boulder riprap and old pilings; Top bank was parking area, rapid retreat due to wave wash erosion of toe and mass failure of bank; New rock riprap on bank just downstream.	Repaired at upstream end; no other observed changes	New rock riprap at upstream end but just downstream of 200-ft long unprotected section. No other observed changes.	D4P5
Sacramento	20.8	Left	472	473		395	Partially Repaired	Partially Repaired	None	In		Outside of bend; erosion into levee toe - 2 large pockets; depth 10-12';	Only D/S 30 m has been repaired with rock riprap; No observed change U/S. (*Old length = 150 m, revised length = 120 m)	No observed change	No observed change	No observed changes	Some new minor slope erosion. No other observed changes.	D3P66
Sacramento	21.5	Left	470	471		215	Partially Repaired	Partially Repaired	Rock riprap	In		Outside of bend; depth 20-22'	Repaired with rock riprap only on D/S 40 m; No observed change U/S. (*Old length = 105 m, revised length = 65 m)	No observed change	No observed change	No observed changes	No observed changes.	D3P65
Sacramento	22.5	Left	293	292		850	Berm	Fluvial, Mass failure, Wave wash		Near	10	Large pockets eroded into berm; Berm sections eroding but erosion is not quite into levee slope; Lots of vegetation on berm.	Need to monitor.	No observed change	No observed change	Spot rock riprapped along berm, but not in pockets; no other observed changes	No observed changes.	D3P64 View U/S
Sacramento	22.7	Left	295	294		210	Berm	Fluvial, Mass failure, Wave wash		Near	0	Scallops into berm and very close to levee toe.	Need to monitor.	No observed change. Still in poor condition.	No observed change	No observed changes	No observed changes.	D3P63
Sacramento	23.2	Left	297	296		475	Berm	Fluvial, Mass failure, Wave wash		Near	10	Few scallops in berm, some getting close to levee toe; Large trees on berm.	Need to monitor.	Newly downed cottonwood at downstream end of site. No other observed changes.	No observed change	No observed changes	Some new minor erosion. No other observed changes.	D3P62
Sacramento	23.3	Left	299	298		165	Berm	Mass failure, Fluvial, Wave wash		Near	25	Few scallops in berm, some getting close to levee toe; Large trees on berm.	Need to monitor.	No observed change	No observed change	No observed changes	No observed changes.	D3P61
Sacramento	24.8	Left	534	300		375	Berm slope	Mass failure, Fluvial, Wave wash		In	10	Slow erosion of berm at water line; bench below water.	Need to monitor.	No observed change	No observed change	No observed changes	No observed changes.	D3P60 View U/S
Sacramento	25.2	Left	536	56	535		Berm slope	Mass failure, Fluvial, Wave wash	Rock riprap	Near	10	Rock riprap is in poor condition and has failed in places; Scallops in berm with remnants of old rock riprap in the toe area.	Need to monitor.	No observed change	No observed change	No observed changes; WPT #536 (15m long site), #535 (30m long site) and #56 (10m long site) are within a single reach with 3 pockets at waypoints	No observed changes.	D3P59 at U/S site
Sacramento	26	Left	466	467		1380	Partially Repaired	Partially Repaired	None	In at D/S end	0-50	Outside of bend; pockets of erosion into levee toe; depth 17-18';	Partially repaired with rock riprap; No observed change at D/S 40 m and U/S 385 m. (Old length = 570 m, revised length = 420 m)	Middle portion partially repaired in places, but ends not repaired. No other observed changes.	No observed change	Have 2 rock riprap sections (50m long) at downstream end ;no other observed changes	No observed changes.	D3P57 D3P58
Sacramento	26.1	Right	101	100		310	Levee slope	Fluvial	Riprap	In		Erosion of sandy levee materials above riprap	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D3P56
Sacramento	26.4	Left		558		490	Middle, Toe	Wave wash, Slope failure	None	In	0						NEW SITE - Have serious pocket erosion into toe and lower slope behind trees.	D3P55
Sacramento	26.5	Left	103	102		460	Toe, Levee slope	Toe scour	Riprap	In		Erosion along base of levee on top left bank; rock riprap stops just downstream of bridge	No observed change. **POTENTIALLY CRITICAL**	No observed change. ***POTENTIALLY CRITICAL*** Beach at toe.	No observed change. **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL**	D3P53 D/S D3P54 U/S
Sacramento	26.9	Left	105	104		210	Toe	Toe scour	Cobble	In	0	Failed cobble revetment site; outside of bend	No observed change.	**Contract 42F Site**	No observed change ***CRITICAL-42F SITE***	No observed change ***CRITICAL-42F SITE***	No observed change ***CRITICAL-42F SITE***	D3P52
Sacramento	31.4	Right	233	362		460	Toe, Partially Repaired	Partially Repaired	Rock Riprap	In		Outside of bend; severe toe damage in existing rock riprap; multiple ages of rock along site; immediately U/S, a levee-top site has been repaired, i.e. SM/SP problem. Erosion of upper levee above Rock R/R; Sandy levee (SM); Just upstream of powerline crossing	U/S 140-m part of reach repaired with rock riprap; D/S 140-m section shows no observed change. (*Old length = 205 m, revised length = 140 m)	No observed change. (Potential Maintenance Site)	No observed change	No observed changes	No observed changes.	D3P51 View U/S

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River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Sacramento	31.6	Right	236	238		755	Levee slope	Fluvial	Riprap	In		Erosion of upper sandy levee material above Rock R/R located at and below water line; Straight reach	Only small pocket repaired with rock riprap; Remainder of reach shows no observed change.	No observed change	No observed change	No observed changes	No observed changes. New guard rail along road.	D3P50 View U/S
Sacramento	32.5	Right	276	277		1855	Toe, Levee slope	Fluvial, Mass failure	Intermittent rock riprap, concrete rubble	In	0	Big trees on steep levee slope with some mass failures into cohesive levee toe; Slow erosion; Long riparian zone.	Need to monitor closely.	No observed change	No observed change	No observed changes	Some new erosion/slump pockets at U/S end. No observed changes at D/S end. *** POTENTIALLY CRITICAL ***	D3P49 at U/S end
Sacramento	33	Right		557		330	Toe, Lower bank slope	Tree popouts, Rotational failures, wave wash	Rock Riprap	In	0						NEW SITE - Into levee toe. Need to watch.	D3P48
Sacramento	34.5	Right	231	232		425	Partially Repaired	Partially Repaired	Concrete rubble	In		View upstream; Toe erosion in concrete rubble section; Upper levee erosion; Outside of bend (SM at downstream end of site); Old timber pile 20 feet from toe of bank; In levee section	Spot repairs with rock riprap; Majority of intervening areas remain unrepaired with no observed change.	Maintenance Site (3 small 10m pockets remain)	No observed change	PUT BACK INTO INVENTORY - Still into levee section with 3 pockets that are about 12m wide	Last years site fixed but have new failure about 50 feet upstream in unprotected area. *** POTENTIALLY CRITICAL ***	D3P31 View D/S D3P32 at erosion
Sacramento	35.4	Left		556		130	Toe, Lower bank slope	Eddy and wave wash	Rock Riprap (?)	In	0-10						NEW SITE - Toe and lower slope eroding, rock riprap in water and few pieces on the slope. Rock riprap upstream and downstream.	D3P47
Sacramento	38.5	Right	219	218		250	Partially Repaired	Partially Repaired	Riprap	In		Straight reach; Erosion of toe of riprap section; Some erosion of levee above Rock R/R	Repaired D/S 90-m part of reach with rock riprap; U/S 40-m part of reach unrepaired with no observed change. (*Old length = 130 m, revised length = 40 m)	No observed change	No observed change	No observed changes	No observed changes.	No Photo
Sacramento	41.9	Right	360	215		1310	Structural problem	Mass Failures	Cobble (short section)	In		Straight reach; depth 10'-16'; structural problem rather than an erosional site; upper levee SM/SP, dry ravel in places; failed cobble riprap at downstream end	Revised site; Old reach defined by WPTs 360 & 361 (length = 490 m) contains smaller reach between WPTs 215 & 214 (length 90 m) which is omitted here.	No observed change	No observed change	No observed changes	No observed changes.	D3P30
Sacramento	43.3	Right	210	213		1070	Levee slope	Fluvial	Concrete rubble, rock, and cobble	In	0	Erosion into upper levee section; Heavily vegetated at river's edge; Local Rock R/R sections; Outside of bend	Revised site; Combined old reaches defined by WPTs 212 to 213 (RM 43.1) and 210 to 211 (RM 43.4); New downed trees along bank.	**Contract 42F Site**	No observed change ***CRITICAL-42F SITE***	No observed change ***CRITICAL-42F SITE***	***CRITICAL-42F SITE*** A few new small pockets. No other observed changes.	D3P28 D3P29
Sacramento	43.7	Right	208	209		1115	Partially Repaired D/S; Toe, Levee slope	Partially Repaired D/S; Fluvial at U/S 20m section	None D/S; Rock riprap at 20m U/S end	In		View of eroded and filled pocket; Erosion of upper levee section- SM; Probably have to revet entire bank eventually as toe continues to retreat; Inside of bend - crossing	Marked spot repairs at WPT #s 273, 274, and 275; No observed change elsewhere.	No observed change	No observed change	Combined RM 43.7L and 43.8L sites into one continuous site; No observed changes	No observed changes.	D3P27 at U/S end
Sacramento	44.7	Right	206	207		1410	Partially Repaired	Partially Repaired	None	In		Erosion of sandy levees along most of the reach - SM; Cottonwoods directing flow into levee; Inside of bend; In places have almost lost guard rail on top of levee to erosion; Filled with riprap; Toe needs riprap eventually	Localized spot repairs; Still have steep scallops and toe erosion in levee slope; No observed change elsewhere.	No observed change	No observed change	Some new spot fixes with dumped rock riprap; no other observed changes	No observed changes. Still have bad spots.	D3P27 U/S end D3P26 D/S end
Sacramento	47.9	Right	202			100	Toe, Levee slope	Toe scour	Riprap	In		View upstream; Eroding site on top right bank; No riprap in levee section; Large number of large cottonwoods in water as snags; Bank retreat; Erosion of sandy upper levee section as well	No observed change.	Need to <u>Monitor Closely</u>	No observed change	Repaired with rock riprap except 30m long section at upstream end; removed WPT #203	No observed changes.	D3P24
Sacramento	48.2	Right		201		65	Toe	Toe scour	Riprap	In		View of top right bank; Damaged riprap revetment; Loss of toe rock; Old site- 20 to 30 year old cottonwoods growing in riprap; In levee section	No observed change; One hole due to loss of tree and subsequent scour.	No observed change	No observed change	No observed changes	No observed changes.	D3P23 View U/S
Sacramento	49.6	Left			39	165	Toe, Berm	Fluvial	None	Near	10					NEW SITE - Large trees on narrow berm. If trees fall, failure pocket created by loss of rootball could extend into levee toe	New downed tree has plucked out toe area. No other observed changes. 2003 FEMA Site	D3P21
Sacramento	49.7	Left			359	100	Toe, Berm	Fluvial	None	Very close	15	Inside of bend; depth 17'; berm erosion between two adjacent recently rock sites; why not done?; RM 49.7 (MRP); scalloped alignment to rock	No observed change; Loss of large trees could pose problem for levee; Requires close observation.	No observed change (new riprap repairs placed between trees, but no below trees where toe of bank and tree is being undercut by low flow wave wash).	No observed change	No observed changes	No observed changes.	D3P22

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Sacramento	49.9	Left			198	30	Repaired	Repaired	Riprap	In		Gap in new riprap; Little berm left in levee section; Stormwater outfall just downstream of Pump Site	No observed change; Loss of large trees could pose problem for levee; Requires close observation.	No observed change (new riprap repairs placed between trees, but no below trees where toe of bank and tree is being undercut by low flow wave wash).	No observed change	No observed changes	No observed changes. 2003 FEMA Site	D3P20
Sacramento	50.2	Left	357	358		655	Berm	Fluvial	None	Near	25-30	Outside of bend; depth 20'; fairly wide berm; series of piles near upstream end (old dock?)	No observed change.	Upper berm erosion above less cohesive toe. No observed change.	No observed change	No observed changes	Some new berm retreat. No other observed changes. 2003 FEMA Site	D3P19
Sacramento	50.8	Left				1000	Berm, Levee toe		Cobbles		0						***CRITICAL*** NEW SITE No berm, slope steeper than 2:1 WELL BELOW LEVEE TEMPLATE, LOWER SLOPE STEEPER THAN 1.5:1, Active Erosion. 2003 FEMA Site	
Sacramento	51.1	Left			25	30	Toe, Mid-slope	Fluvial	None	In	0					NEW SITE - Scour off downstream side of dock is into toe of levee section	No observed changes.	D3P18
Sacramento	51.5	Left	270	271		1310	Berm, Levee toe	Fluvial		In or near	5	Slow fluvial erosion of berm; lots of large trees on berm; berm is large at D/S end; small section of old cobble riprap in middle of reach.	Need to monitor closely.	Retreat of upper berm slope by high flow wave wash over hard toe. No observed change.	No observed change - Middle 75-90 meters protected by rock riprap and cobbles; have 15 meters of rock riprap at ends of 30 meters of cobble riprap.	No observed changes	Some new minor slope erosion at downstream end. No other observed changes. 2003 FEMA Site	D3P17 View U/S
Sacramento	53.1	Left		355		65	Levee slope (upper) and toe	Fluvial	None (Rock riprap U/S and D/S)	In	0-30	Recent rock repair job, upper part of levee still showing erosion; job done from land side, no rock below trees left on bank; depth 20'-12'; field book sketch; complete toe rock loss immediately d/s for approx. 60'; some berm left above toe	No observed change; 10-m spot of toe erosion at U/S end.	No observed change. New rock riprap repairs did not go far enough upstream; 20m section at upstream end still unrepaired; hard toe.	No observed change	No observed changes	No observed changes. 2003 FEMA Site	D3P16
Sacramento	53.5	Right	23	5		165	Whole Bank	Fluvial	Concrete Rubble Toe, Old Cobbles above	In	5			NEW SITE - Scallop in whole levee slope; failed concrete rubble @ toe in water; oversized levee section; eddying/separation causing scour; berms eroding upstream and downstream.	No observed change	No observed changes (WPTs moved/added)	Some new minor mid-slope erosion. No other observed changes.	D3P15
Sacramento	55.1	Left				2200	Toe	Fluvial	Old Cobbles	In	0-5						New Site - Pockets of toe erosion at low flow waterline	
Sacramento	55.5	Left	353	354		380	Levee slope	Mass failure	Rock riprap	In	15	Outside of bend; depth 30' - 20'; berm width: >10m U/S, =5m D/S, but some very large cottonwoods on slope; video (MRP); depths 15-20' up to 30'; oversized section to levee at this area	No observed change.	No observed change	No observed change	No observed changes	Some minor sloughing. No other observed changes.	D3P14 View D/S
Sacramento	55.8	Right	351	352		850	Levee slope	Fluvial	None	In or near		D/S riprap not shown on COE maps; almost no berm left; dry ravel on levee slope; old timber piles 10-15' from waters edge; MRP 3/1 view upslope near d/s end; 3/2 view d/s along site from midpoint; berm evident u/s, eroded at site	Localized spot repairs of riprap at D/S end; No observed change elsewhere.	No observed change. Toe is OK, mid-slope is veg'ed, but eroding due to trampling; site is on inside of bend.	No observed change	No observed changes	No observed changes.	D3P13 View D/S
Sacramento	56.5	Right	349	350		380	Berm	Fluvial	Rock riprap	Very close	20	Depth 12-14"; low berm is contributing to erosion at this site; RM 56.6 (MRP); old timber pile dikes above water parallel to bank/waters edge; MRP 2/34 upstream mitigation low berm kicks flow separation at site	Some new localized erosion with < 0.3 m of bank retreat.	Some new erosion at upstream end. Fat toe deposits at toe.	No observed change	No observed changes	Some new erosion upstream, but have wide berm. No other observed changes.	D3P12
Sacramento	56.6	Left			269	30	Toe, Levee slope	Fluvial, Mass failure	Concrete rubble	Levee is set back	130	Erosion at pump station; concrete debris and plastic showing	Continues to erode; No observed change.	**QUESTIONABLE** - No observed change. Separation scour of bank due to poor transition.	No observed change	No observed changes	No observed changes.	D3P11
Sacramento	56.7	Left	347	348		1675	Structural problem	Fluvial	Rock, concrete, and cobble	In		Structural problem; levee slope 1:1 or 1:1.25; factor of safety approximately 1; violates Sac Bank criteria; but trees 50-60 years old on slope; depth at toe 20-25'	No observed change.	No observed change	No observed change	No observed changes	***CRITICAL*** Based on site inspection 12-09-03 2003 FEMA Site	D3P10 View U/S at D/S end
Sacramento	56.8	Right	345	346		740	Toe, Levee slope	Fluvial, shelf retreat	None	In or near	0	Toe and levee erosion, shelf retreat	No observed change.	No observed change. Levee slope still eroding.	No observed change	No observed changes	No observed changes. Erosion of sediment deposits at toe.	D3P9 View D/S

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Sacramento	57	Right		344		165	Toe	Fluvial	None	In		Inside of bend; old timber pile dikes remnant approximately 30' out into channel; Oversized levee section.	Oversized levee section; Some additional erosion at water line (<0.3m). (Waypoint #343 is bad)	No observed change	No observed change	No observed changes	No observed changes.	D3P8
Sacramento	60	Left	337	338		230	Toe, Levee slope	Fluvial	Concrete rubble, cobble, and rock	In		Depths 15-16'; eroding bank downstream of large snag pile; downstream of American River; note concrete rubble in failed section of upper bank; eroding toe; RM 59 is a railroad bridge; crib wall at downstream end	D/S end is still eroding into levee; No observed change.	No observed change. Mid-bank erosion caused by old city intake tower just upstream causing eddy scour.	No observed change	No observed changes	***CRITICAL*** 2003 FEMA Site	D3P6
Sacramento	62.5	Right			334	165	Levee	Fluvial	Rehabilitated cobble with rock riprap	In	0	Erosion of bank downstream of I-80 pier; rehabilitated cobble site (with rock riprap); P2/1 view of I-5 or I-80 Bridge right abutment, trash rack is causing downstream bank erosion; outside of bend	Oversized levee section; Minor amount of new erosion.	No observed change	No observed change	No observed changes	Downstream tree fell, some new erosion. No other observed changes.	D3P5
Sacramento	62.9	Right	332	333		165	Toe	Fluvial	Concrete rubble and cobble	In		This may have been a cobble rehabilitation site, prior to 1957 cobble put in all the way to I-880 bridge, riprap over pre-1951 cobbles in this reach (MRP)	Oversized levee section; Small erosion pockets; No observed change.	No observed change	No observed change	No observed changes	Still very close to levee and into levee toe. No observed changes.	D3P3
Sacramento	63	Right			331	100	Toe	Fluvial	Rock and rubble	In		Erosion at near downstream corner of weir.	Oversized levee section; No observed change.	No observed change. Local human-induced damage.	No observed change	No observed changes	No observed changes.	D3P4
Sacramento	69.9	Right	325	326		2000	Toe, Levee slope	Fluvial	None	In (at U/S end)		MDH 2/2 view upstream lower part of site toe; depth 12-15'; high, steep bank; soils are variable along the reach; worst erosion on downstream end of rock riprap, upstream end of site; CL material upstream, ML downstream	Oversized levee section; No observed change; ***POTENTIALLY CRITICAL*** at U/S end.	***POTENTIALLY CRITICAL*** with erosion into levee toe. Worst area is at upstream end.	***POTENTIALLY CRITICAL*** No observed change	***POTENTIALLY CRITICAL*** No observed change	No observed changes but still ***CRITICAL*** at upstream end.	D2P46
Sacramento	70.7	Right	323	324		1740	Berm slope	Fluvial	Cobble and rubble	Near	10	Outside of bend; may be failed cobble; depth 9-12'; toe very tough and erosion resistant. Lower end of site has rubble riprap in pockets; houses inside levee	No observed change.	No observed change. Continue to monitor. Very cohesive vertical bank.	No observed change	No observed changes	Some minor new erosion. No other observed changes.	D2P45
Sacramento	71.3	Right	321	322		430	Berm	Scallops	Cobble	Near	25	Outside of bend; depth 10-12'; P2/2 of old pump station	No observed change.	No observed change. Continue to monitor. Very cohesive vertical bank.	No observed change	No observed changes	Some minor new erosion. No other observed changes.	D2P44 at D/S end
Sacramento	71.7	Right	319	320		560	Berm	Fluvial	Cobble	Very close	20	Outside of bend; depth 16-20'; relatively erosion resistant materials have held alignment	No observed change; **POTENTIALLY CRITICAL**	No observed change. Still **POTENTIALLY CRITICAL** . Continue to monitor. Very cohesive vertical bank.	***POTENTIALLY CRITICAL*** No observed change	***POTENTIALLY CRITICAL*** No observed change	***POTENTIALLY CRITICAL*** No observed change	D2P43
Sacramento	72.2	Right	317	318		1360	Levee toe, Berm slope	Fluvial	None	In (at toe)	15	Outside of bend; depth 12-15'; high, steep, poorly vegetated bank; toe ML with moderate plasticity (2nd trip); Away from toe depth is approximately 27 feet (1st trip)	No observed change; **POTENTIALLY CRITICAL**	No observed change. Still **POTENTIALLY CRITICAL** . Continue to monitor. Very cohesive vertical bank.	***POTENTIALLY CRITICAL*** No observed change	***POTENTIALLY CRITICAL*** No observed change	No observed changes but still ***CRITICAL*** at upstream end.	D2P42 at U/S end
Sacramento	73	Right			245	50	Levee slope	Scallops	None	Near	0	Poor transition at U/S end of riprap causing scour/scallops into levee toe.	No observed change; **POTENTIALLY CRITICAL**	***POTENTIALLY CRITICAL*** Poor transition of riprap at downstream end. No observed change. Continue to monitor.	***POTENTIALLY CRITICAL*** No observed change	***POTENTIALLY CRITICAL*** No observed changes; new sand deposition downstream	***POTENTIALLY CRITICAL*** No observed change	D2P41
Sacramento	74	Right	315	316		3985	Berm	Deep-seated rotational failure, scallops	None	Near	30-50	Scallops backfilled with sands; inside of bend; depth 12-13-14'; bank height 20-25'; fieldbook sketch; MRP P1/22 view of slough caused by eddy from upstream failed tree; weak upper bank causing bank/veg failures; sandy bank	No observed change; SRA site.	No observed change. SRA Site.	No observed change	No observed changes	No observed changes.	D2P40 View D/S
Sacramento	74.4	Right	313	314		1410	Toe of berm	Toe retreat	None	Near	30-50	Depth 10'; steep, high bank (15-20'); RM 74.5 (MRP); toe ML - increasing sand and lower plasticity as go downstream	No observed change; SRA site.	No observed change. SRA Site.	No observed change	No observed changes	No observed changes.	D2P39 View D/S at U/S end
Sacramento	75.3	Right	311	312		2805	Levee toe, Berm slope	Mass failure, Toe erosion	None	Near	30-50	Outside of bend; depth 10-11'; bank height approx. 25' and very steep	No observed change; SRA site.	No observed change. SRA Site.	No observed change	No observed changes	No observed changes.	D2P38 View D/S at middle

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River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #	
Sacramento	77.2	Left	10	11		310	Toe	Fluvial	Concrete rubble	In	30	View upstream; Levee section problem at irrigation pump; Levee goes away from river downstream; Away from toe depth is approximately 18 feet	No observed change.	No observed change (may be related to irrigation intake).	No observed change	No observed changes	No observed changes.	D2P37	
Sacramento	78	Left	307	308		1100	Berm or Levee slope	Fluvial	None	In or near	10	Depth 4'; 13 feet depth approximately 20 feet out; some erosion around roots of large cottonwoods on upper bank; signs of bank retreat; oversized levee	New downed tree but not much bank retreat; No observed change at D/S end; **POTENTIALLY CRITICAL** at U/S end if get scour in downed tree pockets.	**POTENTIALLY CRITICAL** No observed change. Continue to monitor closely.	**POTENTIALLY CRITICAL** No observed change - Presently drilling into levee at upstream end	**POTENTIALLY CRITICAL** No observed changes	**POTENTIALLY CRITICAL** No observed changes.	D2P36 View D/S	
Sacramento	78.3	Left	305	306		574	Toe of berm	Fluvial	None	Near	15	Outside of bend; berm and very cohesive toe; depth 11'	No observed change.	No observed change. Cohesive toe; USGS gage site.	No observed change - Not moving due to cohesive toe.	No observed changes	No observed changes.	D2P35	
Sacramento	78.8	Left	301	302		640	Toe, Berm slope	Fluvial, slow retreat of levee/berm ? slope	None	In or very close	35	Slow retreat exposing cottonwood roots, does not look as though there has been any retreat behind the upstream end of rock riprap; MRP photos around bridge site; concrete rubble section in middle of site; depth 14'; View upstream of top left bank; Has probably invaded levee section; 3:1 slope; Outside of Bend	No observed Change. (This site is same as site with WPTs #6 and 7, site descriptions are combined here)	No observed change. D/S of marina.	No observed change - Not moving due to cohesive toe.	No observed changes	No observed changes.	D2P34 View D/S	
Sacramento	85.6	Right	36	35		430	Toe	Toe scour	Cobble	In	0	View upstream; Very old site with cottonwoods growing on top of cobbles; 1:1 slope in levee section; toe damage; outside of bend	No observed change.	**Contract 42F Site** - No observed change. Lots of big mature trees on top of bank; 8m deep at bank toe at D/S waypoint.	**CRITICAL-42F SITE** No observed change	**CRITICAL-42F SITE** No observed change	Still looks bad. Into Levee slope. *** CRITICAL-42F SITE***	D2P33 at U/S end	
Sacramento	86	Left	38	37		1640	Toe	Toe scour	Cobble	Near	0-30	Intermittent cobble damage; View upstream; No woody vegetation; cobble from upper part of bank is launching to fill gap; high flow impingement problem	No observed change.	No observed change. Lots of mature walnut trees on top of bank.	No observed change - WPT #38 moved to point downstream of wide berm with trees	No observed changes	No observed changes.	D2P32 View D/S	
Sacramento	92.8	Left	43	42		805	Toe	Toe scour	Cobble	In	0-15	View downstream; Damage to cobble revetment on top left bank; Toe damage; Depth in bend Apex = 36 to 37 feet	Stable with no observed change.	No observed change	No observed change	No observed changes	No observed changes.	D2 P31 View U/S	
Sacramento	93.7	Left	45	44		835	Toe, Levee slope	Fluvial, Mass failure	None	Near	15	Very erosion resistant, slow retreat; channel may have lost the cobble; Shelf retreat	Close to levee at D/S end; Only 5-6m from levee U/S; No observed change.	No observed change. Very cohesive lower bank (Modesto Fm.)	No observed change	No observed changes	No observed changes.	D2P30 View D/S	
Sacramento	95.8	Left	481	479		1130	Berm		Concrete rubble, rock, bricks, and steel	Near	40	No toe on large upstream riprap; mix of broken concrete, bricks, rock, steel - probably should be replaced; oversized berm	No observed change.	No observed change.	No observed change except at downstream end (photo) where there is a new slump	No observed changes	Some minor bank retreat at downstream end (D2P29). No other observed changes.	D2P29 View D/S	
Sacramento	96.2	Left	483	482		900	Berm	Fluvial	None	Near	30	Inside of bend; photo is of large rock on lower bank at RM 95.9, no toe, downstream of pumpstation; wide berm; depth 7-10'	Some new minor erosion; No significant change.	No observed change. Vertical Modesto Fm. bank with mass failures.	No observed change	No observed changes	Upstream end point has some new bank retreat. No other observed changes.	D2P28 at U/S end	
Sacramento	99	Left	48	47		1080	Berm or Levee slope	Toe scour	Riprap - handplaced	In or near	10	View upstream; intermittent toe failure of hand-placed riprap; outside of bend; failure of toe materials; no upper bank failure; 3:1 slope	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D2P27 View D/S	
Sacramento	99.3	Right		555		100	Whole Bank	Rotational Failure	Rock Riprap	In	15							NEW SITE - Unsure if COE levee or not, but is significant cut into present levee. Intact rock riprap upstream and downstream. Located on inside of bend.	D2P26
Sacramento	99.5	Right	50	49		1015	Levee toe, slope	Toe scour and piping	Riprap - handplaced	In	0	View upstream; "Yugo Bend"; Sycamore Slough Pump Station; Retreat may be due to piping out of the fines in the silt from beneath (No Filter)	**POTENTIALLY CRITICAL** No observed change;	**POTENTIALLY CRITICAL** No observed change. (Rough & Ready Intake)	**POTENTIALLY CRITICAL** No observed change;	**POTENTIALLY CRITICAL** No observed change;	**POTENTIALLY CRITICAL** No observed change;	D2P25	
Sacramento	101.3	Right	485	484		215	Toe	Toe Scour	Cobble	In		Toe damage and loss of cobbles in cobble revetment (2nd trip); Small patch of local damage to cobble revetment; Not in levee section (1st trip)	No observed change.	No observed change. Cohesive vertical toe. Revegetation site (borderline maintenance site).	No observed change (Modesto Fm. toe)	No observed changes	No observed changes.	D2P24 View D/S	

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River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Sacramento	104	Left	492	491		3495	Levee toe, Berm slope	Pocket erosion	Cobble	In or near	35	Outside of bend; pocket failures of toe of cobble revetment; scallops of rock loss along bank; depth 9-20'; China Bend; developing irregular bankline; deposited sands above	No observed change.	No observed change.	No observed change - still have small scallops in the toe of the berm which has >12 meters topwidth in most locations	No observed changes	No observed changes.	D2P23 View D/S
Sacramento	104.5	Left	494	493		850	Levee toe, Berm slope	Fluvial	Cobble	In or near	40	Cobbles eroded off CL/CH material; not much evidence of erosion of toe; China Bend; loss of cobbles getting plucked off harder toe	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D2P22 at U/S end
Sacramento	116	Left	22	1		655	Toe and Berm	Fluvial	None	Near	30			**NEW SITE** - Eroding, vertical berm slope over vertical cohesive toe. Slow erosion, But getting close to levee.	No observed change	Erosion is getting close to levee, still eroding with some new small slumps; no other observed changes; set new WPT at upstream end	Some minor new erosion. No other observed changes.	D2P21
Sacramento	116.5	Left	502	501		3690	Berm	Localized mass failures	None	In or Near	10	Field note sketch; Very D/S end is most significant erosion; Cohesive toe and bench overlain by silts and sands on outside of bend.	No observed change.	Some new scallops and new erosion. Cohesive, low benched toe with deposition on top. Worst at D/S end with 3m wide berm; 5.5m deep near toe.	Still eroding at toe at the downstream end; Some new small slabs have recently failed at toe	Still getting some slumping along toe; no other observed changes	New sedimentation and some new small toe scallops at upstream end. Downstream end has new erosion. Changed upstream waypoint coordinate.	D2P19 View D/S at U/S end D2P20 View D/S at D/S end
Sacramento	122	Right			267	100	Lower bank	Mass failure		Near	40	Mass failure of lower cohesive bank and toe; Inside of bend.	Need to monitor.	Still eroding = steeply dipping foresets in toe are spalling off; continue to monitor.	No observed change	No observed changes	No observed changes.	D2P18
Sacramento	122.3	Right	19	507		330	Whole Bank	Toe scour	None	Near	40					NEW SITE - upstream end has recent slope failure and exposure of tree roots. If trees fall, upper bank will then have a berm width of less than 10m; downstream end was an older site (WPT #507)	Some new minor slope erosion with new snags rafted in onto bank. No other observed changes.	D2P17
Sacramento	123.5	Left			171	330	Toe	Mass failure, scour	None	In	0	View upstream of loss of large Rock R/R dumped from top bank; Erosion into lower section	No observed change.	**Contract 42F Site** - No observed change.	**CRITICAL-42F Site** No observed change	**CRITICAL-42F Site** Some minor changes including man-made steps cut into bank; no other observed changes	**CRITICAL-42F Site** No observed change	D2P16
Sacramento	123.7	Right			172	130	Toe	Toe scour	Concrete rubble	Near	15	Erosion into levee section; Old concrete rubble loss at toe; Transition between Rock R/R downstream and cobble R/R upstream	No observed change.	No observed change. Cohesive bench with concrete slabs on top; 8m deep scour hole D/S, 3m deep at toe of bench.	No observed change	No observed changes	No observed changes.	D2P15
Sacramento	125.8	Left			173	165	Levee slope	erosion, high flows	Riprap	In		Erosion of toe of old cobble site; Flow impinges directly against the cobble and has caused deep scour at back; In levee section; Outside of right angle bend	No observed change.	**CRITICAL SITE** under present conditions. New rotational failure forming scallop in lower levee slope of unrepaired section. New emergency rock riprap (PL 84-99) at D/S end includes 10m wide rotational failure in repaired bank. Channel is 7-12m deep along toe.	**CRITICAL SITE** No observed change	**CRITICAL SITE** No observed change	**CRITICAL SITE** No observed change	D2P14
Sacramento	127.9	Right			266	50	Whole bank	Scour		Near	35	Major scour off downstream end of existing rock riprap creating scour pocket where levee starts to diverge from bankline.	Need to monitor.	Some minor erosion; 6m deep at downstream eddy. Continue to monitor.	No observed change	No observed changes	No observed changes.	D2P13
Sacramento	130	Left	18	174		560	Levee Toe, Berm Slope	Fluvial	Cobble	In or near	0-65	Erosion of cobble site on outside of bend; D/S end is old WPT # 174; depth 20-10'; failure caused by erosion of material from behind cobbles and cobbles rolling down slope; failure just above toe level; some repair has been done in about a 10m reach at the U/S end of site	No observed change.	**Contract 42F Site** - No observed change.	**CRITICAL-42F SITE** No observed change	**CRITICAL-42F SITE** No observed changes; moved WPT #174 at downstream end and set new WPT #18 at upstream end	**CRITICAL-42F SITE** No observed change	D2P12 View U/S
Sacramento	130.8	Right			175	195	Toe, Levee slope	Toe scour	Cobble	In	0	View upstream; Erosion into levee section; Failed cobble R/R due to toe scour' Outside of very low Rc bend; Upstream end of Rock R/Rap; Direct high flow impingement	No observed change.	**Contract 42E Site** - No observed change.	**CRITICAL-42F Site** No observed change	**CRITICAL-42F Site** No observed change	Tree has fallen and created pocket in bank. Still looks bad. No other observed changes. ***CRITICAL - 42F SITE***	D2P11
Sacramento	133	Left	177	176		920	Toe	Toe scour	Cobble and concrete rubble	Near	30	Views upstream and downstream; Cobble R/R toe failures over a reach; Outside of bend	No observed change.	No observed change. Small pump station 30m upstream. Erosion into levee toe at downstream end.	No observed change - still slowly unravelling	Some fresh erosion at upstream end and at downstream end; no other observed changes	No observed changes. Downstream end is worst part.	D2P10 at U/S end

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River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Sacramento	133.8	Left			178	100	Toe	Toe scour	Cobble	In		View upstream; Local toe scour of cobble site; Eroded into levee section; Outside of moderate Rc bend; Some Rock R/R rehabilitation performed	No observed change; Requires close observation.	No observed change	No observed change	No observed changes	No observed changes.	D2P9 View U/S
Sacramento	135.3	Right	516	515		970	Toe	Recession	None	Levee is set back	60	Bare bank with eroding toe; appears to be very slow rate of recession; variable edge and width to shelf; depth 3-4'	No observed change.	**QUESTIONABLE** - No observed change. Modesto Fm. in toe creating bench.	No observed change	No observed changes	No observed changes.	D2P8
Sacramento	136.6	Left	180	179		375	Toe	Toe scour	Cobble	In		View upstream; Toe erosion on a cobble revetment on outside of low Re bend in levee section	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D2P7 View U/S
Sacramento	136.7	Right			518	100	Pocket, Toe	Mass failure, Fluvial		Near	30	Small pockets and some toe erosion in cohesive material.	Need to monitor.	New minor toe erosion. Some active block failure of less cohesive toe. 3m deep at toe.	No observed change - still small eroding scallops	Appears a little worse; no other observed changes	A little worse but still have large depositional berm. No other observed changes.	D2P6
Sacramento	136.9	Right			264	130	Whole bank	Fluvial, Mass failure	Cobble upstream	Near	30	Cohesive, near-vertical bank with cohesive bench D/S; site is D/S of old cobble riprap; turbulence off D/S end of cobble revet. causing failure of revet.	Possible problem if mass failure occurs in slope.	No observed change	No observed change	No observed changes	No significant changes. Still looks bad, but bank material is very cohesive and not easily eroded.	D2P5 View U/S
Sacramento	138.1	Left	182	181		1215	Toe	Toe scour	Cobble	In		View upstream; Loss of cobble revetment in levee section on outside of moderate bend	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D2P4 View U/S from D/S end
Sacramento	141.4	Right	185 186	183	263	2000	Toe, levee slope	Toe scour, scallops, mass failure	Riprap and cobble	In or near	0	View upstream; Loss of toe cobble and rock along entire reach; in levee section; Approximately 15 to 20 feet of toe retreat; Outside of moderate bend; Large currents; 1.5:1 slope on rock; Upstream end of intermittent loss of riprap on top right bank at WPT #185; May have put in some toe rock at WPT #185; Local loss of toe riprap on top right bank at U/S end.	Combined site (WPT #s 183, 184, 185, and 186); New large failure pocket near WPT #184 is **POTENTIALLY CRITICAL** ; PL 84-99(?) repair at one site near U/S end but does not extend U/S (10m) far enough.	**POTENTIALLY CRITICAL** with erosion into levee toe at upstream end. Erosion of berm with only 3m of berm left.	**POTENTIALLY CRITICAL** No observed change - some trees leaning out over bank, photo is at upstream end of emergency rock riprap repair	WPT #186 is 15m site at upstream end and WPT #185 is upstream end of erosion site with PL84-99 revetment between; WPT #183 is at downstream end; WPT # 263 is located at a ** POTENTIALLY CRITICAL ** section that is about 30m long	*** POTENTIALLY CRITICAL *** No observed changes at upstream end. Have small slump (3-4m) wide in toe at downstream end (D2P3).	D2P1 at U/S end D2P2 and D2P3 at D/S end
Sacramento	149.8	Left	189	188		115	Levee	Toe scour	Cobble	Near	20	View downstream; Slow loss of cobble upstream of a large riprap section on top left bank; May be in levee section; Outside of sharp Re bend; some berm left	No observed change.	No observed change	No observed change	No observed changes	No observed changes.	D1P15
Sacramento	154.5	Right	251	16		215	Partially Repaired	Partially Repaired	Cobbles, emergency riprap	Near	20	Cobbles underlie depositional berm with scallops into berm and exposure of cobbles.	PL 84-99(?) repair but poor transition U/S; Scallops in D/S berm still exist.	PL 84-99 Site. Still eroding at both ends. Poor transition and gradation of rock (dumped). Mid-point rock is launching due to being at angle of repose.	No observed change - Still unravelling at ends and center is sloughing	Still unravelling at ends; Set waypoints at ends; PL84-99 rock riprap between	No observed changes.	D1P15
Sacramento	163	Left	260	261		1115	Whole bank	Fluvial			65(?)	Identified by COE as Contract 42A site.	Contract 42A Site.	No observed change. Snags along toe at downstream end. Slow erosion.	A couple of small fresh slumps in the lower bank section	No observed changes; berm width is questionable	No observed changes.	D1P13 View D/S from U/S end
Sacramento	164	Right	194	193		490	Toe	Toe scour	None	In	0	View upstream; Erosion of top right bank; May not be in levee section but the materials at the toe appear to be very erodible; There has been a recent upper berm failure	No observed change.	**Contract 42F Site** Still eroding; no repairs yet.	**CRITICAL-42F SITE** No observed change	**CRITICAL-42F SITE** No observed changes; moved waypoints	**CRITICAL-42F SITE** No observed change	D1P12
Sacramento	164.3	Right			257	100	Whole bank	Fluvial, Mass failure		Near	30	Short section of near vertical eroding bank and some pockets near levee.	New site.	Small area of toe erosion with minor upper bank/berm erosion. No other observed change.	No observed change	No observed changes	No new erosion or observed changes, but have large fallen tree just downstream of downstream waypoint.	D1P11
Sacramento	164.4	Right	258	259		2000	Whole bank	Fluvial			20	Near-vertical, bare, cohesive bank undergoing slow erosion; Well established trees on bank slope; Bend is migrating D/S and could increase erosion; Toe is benched in places.	Slow erosion.	No observed change	No observed change	No observed changes	Small new blocks in one spot at upstream end. Snags along bank are gone now. No other observed changes.	D1P9 D1P10 view D/S at U/S end
Sacramento	168.3	Left	195	17		395	Berm slope	Toe scour	None	Near	30	View upstream; erosion of top left bank; eroding downstream of Rock R/R section where levee is closest to bank; Approximately 40 to 50 feet of bank retreat downstream of Rock R/R; Some berm left	Some new beach sedimentation at toe; No other observable change.	No observed change. Snags in eddy area could induce bank erosion at higher flows.	No observed change	No observed changes except that small bar is gone; set upstream and downstream waypoints	No new erosion, but bar is present and is higher. No other observed changes.	D1P8

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Sacramento	177.8	Right	197	196		1345	Toe	Toe scour	Cobble	In		View of toe failure; Toe erosion towards upper end of site; Slow rate of retreat but the slope is the levee; In levee section	No observable change.	Downstream end protected by new irrigation diversion facility (Princeton Cadora). No observed change.	No observed change	No noticeable change, but have some small and medium size blocks of Modesto Fm. in water	Couple of places with small slump blocks at bank and slow wearing away of the mid slope area near downstream end. No other observed changes.	D1P7 View D/S
Sacramento	182	Right	255	256		1280	Toe, Lower bank slope	Fluvial, Mass failure	Cobbles	Near	100	Toe and lower bank eroding and failing with loss of cobble riprap at toe and lower bank.	Small, fresh mass failures in toe; Fluvial erosion is fairly slow.	**QUESTIONABLE** - No observed change.	No observed change - 30 meter section in middle still has vertical toe	Appears to be getting longer at upstream end with slow erosion along middle and downstream part; no other observed changes	No observed changes.	D1P6 View D/S
Sacramento	192.4	Left	249	252	248	950	Whole bank	Mass failure		Private Levee is set back	30	Vertical bank with mass failures and active retreat; worst site at U/S end near road and local levee; erosion extends D/S to RM 192.	**LOCAL LEVEE**	**LOCAL LEVEE** - Some new erosion at mid-point and downstream end. Eddying at downstream end of riprap resulting in flanking of riprap and threatens levee. Erosion extends to WPT 252 but threat to levee ends at WPT 248.	Small new erosion spots along middle to lower end; fresh erosion at WPT #248	WPT #248 is located at downstream end of potential threat to levee; upstream part looks the same with no observed changes; some fresh erosion downstream of WPT #248 (but not new threat)	No observed changes.	D1P4 View toward D1P5 View D/S
Bear	2.4	Left	115 *	114 *		152	Berm	toe erosion, upper bank slope	None	Near	50	* WPT taken from top of levee				Part of existing PL84-99 Site (Candidate for Emergency Repair). Sandy banks are actively eroding and has worsened since last year. **CRITICAL**	**CRITICAL** <u>NOT OBSERVED</u>	
Bear	9.9	Right	117 *	118 *		152	Upper Bank	toe erosion, upper bank slope	Riprap	Near	0-30	* WPT taken from top of levee				No berm to about 10 feet. Site has been rocked, upper bank rocked but is sliding down. There are two erosion scallops at toe of slope.	<u>NOT OBSERVED</u>	
Bear	10.1	Right	116 *	117 *		213	Berm	toe erosion, upper bank slope	None	Near	0	* WPT taken from top of levee				No berm, 1:1 or 1.5:1 slope from toe of levee to river bottom. No rock protection. **CRITICAL**	**CRITICAL** <u>NOT OBSERVED</u>	
Cache Creek	LM 0.8	Right	75 *	72 *		1100	Bank Slope	toe erosion, upper bank collapse	None	Near	140	* WPT taken from top of levee					<u>NOT OBSERVED</u>	
Cache Creek	LM 0.8	Left			76 *	350	Bank Slope	toe erosion, upper bank collapse	None	Near	60	* WPT taken from top of levee				**CRITICAL** Erosion extends 150 ft U/S and 200 ft D/S of WPT	**CRITICAL** Additional Erosion	
Cache Creek	LM 1.1	Left			85 *	525	Bank Slope	toe erosion, upper bank collapse	None	Near	90	* WPT taken from top of levee				**CRITICAL** Erosion extends 150 ft U/S and 375 ft D/S of WPT	**CRITICAL** Some New Erosion	
Cache Creek	LM 1.8	Right	68 *	63 *		249	Bank Slope	toe erosion, upper bank collapse	None	Near	160	* WPT taken from top of levee					<u>NOT OBSERVED</u>	
Cache Creek	LM 2.4	Left			86 *	570	Bank Slope	toe erosion, upper bank collapse	None	Near	90	* WPT taken from top of levee				**CRITICAL** Erosion extends 240 ft U/S and 3300 ft D/S of WPT	**CRITICAL** Some New Erosion	
Cache Creek	LM 2.8	Left	87 *			1100	Bank Slope	toe erosion, upper bank collapse	None	Near	130	* WPT taken from top of levee					<u>NOT OBSERVED</u>	
Cache Creek	LM 3.4	Left			106 *	470	Bank Slope	toe erosion, upper bank collapse	None	Near	165	* WPT taken from top of levee				Erosion extends 200 ft U/S and 270 ft D/S of WPT	<u>NOT OBSERVED</u>	
Cache Creek	LM 3.6	Right			62 *	200	Bank Slope	toe erosion, upper bank collapse	None	Near	60	* WPT taken from top of levee				**CRITICAL**	**CRITICAL** <u>NOT OBSERVED</u>	
Cache Creek	LM 3.9	Left			107 *	350	Bank Slope	toe erosion, upper bank collapse	None	Near	130	* WPT taken from top of levee				Erosion extends 200 ft U/S and 150 ft D/S of WPT	<u>NOT OBSERVED</u>	
Cache Creek	LM 4.2	Left			112 *	710	Bank Slope	toe erosion, upper bank collapse	None	Near	130	* WPT taken from top of levee				Erosion extends 360 ft U/S and 350 ft D/S of WPT	<u>NOT OBSERVED</u>	
Cache Slough	21.2	Right			59	15	Whole Bank	Slumping	None	In	0					NEW SITE - small slump (scallop pocket) *** POTENTIALLY CRITICAL ***	Possible Maintenance Site. No observed changes. Small site	D4P2
Cache Slough	21.8	Right	551	552		1590	Whole Bank and toe	Rotational failure, fluvial toe erosion	None	In	0						NEW SITE - new rotational failure pockets along bank (3 spots) with worst at downstream waypoint, other 2 just upstream at 50' and 100' *** POTENTIALLY CRITICAL ***	D4P3 at D/S wpt.

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Cache Slough	23.6	Right			135	1200	Levee slope	Mass failure	Riprap	In		Shrinkage of ML/CL materials; Cracks all the way up the levee; failure is through the top of the tidal range	No observed change	No observed change	No observed change	No observed changes	Possible Maintenance Site. No observed changes.	D4P4
Elk Slough		Both			40 41	30	Levee slope	Mass failure	None	In	0	Most of lower Elk Slough contains high, near-vertical banks (both) with erosion into levee slope; Channel almost appears incised.	Need to monitor closely.	No observed change. Continue to monitor	NOT OBSERVED	Set waypoints at sites where levee slope = bank that is near vertical and is severely eroding and could fail catastrophically, including levee; slope erosion plus surface at top of bank	Several spots on right bank show new erosion. No other observed changes.	LB = D3P33 D/S D3P34 U/S RB = D3P35
Feather	0.6	Left		522		30	Toe	Scour	Cobble	In	15	Deposits over top of cobble on upper slope; P8/10 at d/s end; P8/11 view u/s from d/s end		Old cobble site in poor shape. Some toe retreat, but very little change since first site visit. Steep bank (<1:1) at berm.	No observed change	No observed changes	No observed changes.	D5P1
Feather	1	Left	531	532		655	Toe	Scour	None	Near	15			Site is relatively stable except for some toe erosion at upstream end. Recommend monitoring upstream end just downstream of riprap.	No observed change	No observed changes	No observed changes.	D5P2
Feather	5	Left	13	60	12	490	Berm	Fluvial	None	>10m	>30	Waypoint at middle of site		Steep bank off berm with some slumps and fallen trees. Erosion is continuing. Continue monitoring.	No observed change	No observed change; waypoint #12 is worst part (This is a combined site previously identified as RM 4.9L at WPT 12 and RM 5.1L at WPT 13 because of vertical bank along most of reach)	No observed changes.	D5P3
Feather	7	Left	526	525		410	Toe, Levee slope	Fluvial	Cobble	In		WP#225 is upstream end on COE repair job and continuation of damaged cobbles		Some active toe erosion of damaged old cobble site. Need to monitor closely.	No observed change	No observed changes	No observed changes.	D5P5
Feather	17.8	Left		553		245-330	Whole Bank	Fluvial, Slope failures	None	Near	>165			Not An Erosion Site - REMOVE from inventory. (hard toe, no activity)	No observed change		**POTENTIALLY CRITICAL** NEW SITE - Previous erosion site but has gotten a little worse. Bank is near-vertical.	D5P6 D5P7 D5P8
Feather	19.7	Left		554		330	Whole Bank	Fluvial, Slope failures	None	Near	>165						**POTENTIALLY CRITICAL** NEW SITE - Erosion at toe with massive, 200-ft long upper bank failure still present but hidden by veg.	D5P9 D5P10 D5P11
Feather	37.9	Right				2000			None	Near					NOT OBSERVED	NOT OBSERVED	NOT OBSERVED	
Georgiana Slough	0.3	Left	432	431		1280	Repaired	Repaired	None	In		Erosion of pockets into levee toe; not continuous; depth 10-12"; series of pockets around alders into levee	3 or 4 small pockets fixed with rock riprap, rest shows no observed change	No observed change	No observed change	New "Brush Boxes" along bank toe in places; no other observed changes	No observed changes.	D4P7 near U/S end
Georgiana Slough	1.2	Left	437	436		460	Toe, Levee slope	Pocket erosion and scour	Rock riprap	In		Pocket erosion into levee and loss of rock riprap along the toe	No observed change	No observed change (only small pockets)	No observed change	No observed changes	No observed changes.	D4P8
Georgiana Slough	1.7	Left	441	440		1050	Toe	Pocket erosion	Rock riprap	In		Old damaged rock riprap along the toe	D/S 120 m repaired with rock riprap, U/S end no observed change (old length = 440m)	No observed change (only small pockets)	No observed change	New rock riprap/concrete rubble section at downstream waypoint (10m long)	No observed changes.	D4P9 at D/S end
Georgiana Slough	2.3	Left	444	442	443	1180	Toe, Levee slope	Pocket erosion	Some rock riprap (dumped)	In		Series of pockets of erosion into the levee toe and slope; some have been repaired; extends up to RM 2.5	Spots repaired with rock riprap at U/S end and in D/S half of reach (old length = 715m)	No observed change (only small pockets)	No observed change except newly staked, low facine walls at bankline in places	New spot rock riprap at downstream waypoint ; no other observed change	Wattles missing in some of boxes. No other observed changes.	D4P10 at D/S end
Georgiana Slough	2.5	Left	446	445		330	Toe	Erosion pockets	None	In		Erosion pockets into toe of levee	No observed change	No observed change (only small pockets)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P11
Georgiana Slough	3.6	Left	450	449		1200	Levee slope	Erosion pockets	None	In		Pockets into levee at water line; alders are being undercut and rotating out into the channel	No observed change	No observed change	No observed change	New "Brush Boxes" along bank toe in most places; no other observed changes	New erosion pocket at middle (D4P13). No other observed changes.	D4P12 at D/S end D4P13 at middle
Georgiana Slough	3.7	Left	452	451		115	Toe	Erosion pockets	None	In		Pockets of erosion into levee at water line	No observed change	No observed change	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P14
Georgiana Slough	3.7	Left			453	30	Toe	Local pocket	None	In		Midpoint at pipeline - large local pocket in levee at water line	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P15
Georgiana Slough	4	Left	455	454		475	Levee	Fluvial	Rock riprap	In		Damaged rock riprap in site	No observed change	No observed change except some new minor erosion	No observed change except newly staked, low facine walls at bankline at downstream end	No observed changes	No observed changes.	D4P16
Georgiana Slough	4.3	Left	458	456	457	850	Toe	Erosion pockets	Rock riprap	In		Pockets of erosion into levee toe	Minor rock riprap and willow bundles placed in a couple of spots	No observed change	No observed change except newly staked, low facine walls at bankline in places	No observed changes	Small unprotected pockets till eroding. No observed changes elsewhere.	D4P17

Table 1. Sacramento River Levee System - Erosion Sites -2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Georgiana Slough	4.5	Left			459	30	Toe	Pocket erosion	None	In		Pocket erosion upstream end; note: where alders are present the soils are ML or CL or rock riprap	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P18
Georgiana Slough	4.6	Left	461	460		1000	Toe	Pocket erosion	None	In		Pocket erosion into levee toe under alders	No observed change	No observed change	No observed change	No observed changes	New brush boxes with wattles on bank (D4P19). No other observed changes.	D4P19 D4P20
Georgiana Slough	4.6	Right	463	462		670	Toe	Erosion pockets	None	In		Pockets of erosion into levee toe	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P21
Georgiana Slough	5.3	Left	465	464		3080	Levee slope	Erosion pockets	None	In		Pocket erosion into toe of levee along the site; some are not very obvious landward of the alder treeline; site extends to RM 5.5	No observed change, large pockets staked for future repair	No observed change (scallops in banks with small colored flags, biotech. rolls present in some)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	Still have visibly bad spots, especially at upstream end (D4P23). No other observed changes.	D4P22 view D/S D4P23 U/S end
Georgiana Slough	6.1	Left	416	417		1835	Levee toe, Berm slope	Deep pockets	Some rock riprap	In (in spots)	10	Depth 12'; narrow berm with deep erosion pockets; rock is damaged in part of reach; part of reach characterized by lots of pockets into existing berm and/or levee slope	No observed change	No observed change	No observed change	Some new "Brush Boxes" at upstream end; no other change	No observed changes.	D4P24
Georgiana Slough	6.4	Left	413	415		525	Repaired	Repaired	None	In	10	Deep pocket in narrow berm; depth 12'; one site with erosion into levee in pockets; ties to rock (1978)	Repaired only in one spot and at very D/S end, No observed change elsewhere	No observed change. Moved waypoint to new downstream end	No observed change - Repaired <u>only</u> at downstream end	New "Brush Boxes" along bank toe in most places; no other observed changes	No observed changes.	D4P25
Georgiana Slough	6.6	Left	411	412		390	Levee	Deep pockets	None	In		Inside of bend; deep pockets of erosion and narrow berm; depth 20'	Some pockets filled with rock riprap, No observed change elsewhere	No observed change except exposed filter fabric	No observed change except newly staked, low facine walls at bankline in places	New spot rock riprap at upstream end; no other observed change	No observed changes.	D4P26
Georgiana Slough	6.8	Left	409	410		1150	Levee slope	Deep pockets	None	In	15	Outside of bend; deep pockets of erosion into narrow berm starting downstream of riprap; depth 20'		No observed change. (scallops in banks with small colored flags; some new biotech. rolls in with older rolls in some scallops; others have no biotech. rolls)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P27
Georgiana Slough	7	Right	407	408		210	Toe	Scour	Rock riprap	In		Outside of bend; toe damaged rock; depth 20'	One pocket filled with gravel, No observed change elsewhere	No observed change. (eroding beach with some biotech. rolls and stakes remaining, some gravel on slope)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P28
Georgiana Slough	7.3	Left	404	405		210	Levee	Large pocket	None	In		Outside of bend; narrow eroding berm, depth 19-20'	No observed change	No observed change	No observed change except newly staked, low facine walls at bankline in places; New rock riprap at WPT #405 only	No observed changes	No observed changes.	D4P29
Georgiana Slough	7.7	Right			403	30	Repaired	Repaired	None	Near	25	Single deep erosional pocket into berm; photos of patched erosional pocket on right bank RM 7.7 just downstream	One pocket filled with gravel, No observed change elsewhere	No observed change (eroding gravel-covered beach)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P30
Georgiana Slough	8.1	Right	399	400		230	Levee toe, Berm slope	Erosion pockets	Rock riprap	In	10	Inside of bend; narrow berm with deep erosion pockets; depth 18-20'; large vegetation, scalloped areas	One pocket filled with gravel, No observed change elsewhere	No observed change (gravel only at downstream end of scallop)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P31
Georgiana Slough	8.3	Left	397	398		130	Levee slope	Fluvial	None	In	15	Outside of bend; narrow eroding berm upstream of existing riprap	No observed change	No observed change	No observed change except newly staked, low facine walls at bankline in places	No observed changes	No observed changes.	D4P32
Georgiana Slough	8.4	Left	395	396		985	Levee slope	Erosion pockets	None	In	15	WP 395 is an erosion pocket approximately 40' across, depth 20'; pockets all along river this section; high SRA values - 6 alders, etc.; very narrow berm; deeper pockets of erosion into narrow berm that approach the levee; depth 24-25'	Some pockets fixed with willow bundles, others show no observed change but some are staked for future repair	No observed change (numerous scallops; few with biotech. rolls and plantings)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	New brush boxes at upstream and downstream ends and in middle. No other observed changes.	D4P33
Georgiana Slough	8.7	Left	393	394		115	Levee toe, Berm slope	Fluvial, some deeper pockets	None	In	30	Inside of bend; narrow berm with alders; pockets of deeper erosion towards levee; depth 21-22'; pockets of erosion between clumps of vegetation; MRP 4/6 snag; sandy silt SM at toe of pocket	Some pockets fixed with willow bundles, others show no observed change but some are staked for future repair	No observed change (scallops in banks with small colored flags, biotech. rolls present in some)	No observed change except newly staked, low facine walls at bankline in places	No observed changes	New brush box installed. No other observed changes.	D4P34
Georgiana Slough	9	Right	391	392		900	Toe	Scour	Rock riprap	In		Outside of bend; intermittent loss of toe rock; depth 19-20'; narrow berm	Some pockets filled with gravel which has eroded away in places, No observed change elsewhere	No observed change (gravel still washing away)	No observed change - Fairly wide berm but still have erosion into levees slope at toe	No observed changes	No observed changes.	D4P35
Georgiana Slough	9.1	Left	389	390		280	Repaired	Repaired	None	In		Inside of bend; very narrow eroding berm; variable width berm	Small pocket fixed with rock riprap at U/S end, No observed change elsewhere	No observed change	Upstream end (30 - 40 feet) repaired; No observed change downstream	No observed changes	No observed changes.	D4P36

Table 1. Sacramento River Levee System - Erosion Sites -2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Georgiana Slough	9.3	Left	387	388		920	Levee	Fluvial	Rock riprap	In		Outside of bend; depth 20-22'; loss of rock at toe; pockets of upper berm erosion; very narrow berm width; toe rock problem; 20' deep 20' out; lean clay toe; some berm; erosion pockets in rock	No observed change	No observed change (pockets between trees)	No observed change	New "Brush Boxes" along bank toe at worst sites; no other observed changes	No observed changes.	D4P37
Georgiana Slough	10.3	Left	381	382		240	Levee toe, Berm slope	Fluvial	None	In	15	Outside of bend; depth 23-25'; narrow berm	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P38
Georgiana Slough	10.4	Left	379	380		230	Levee toe, Berm slope	Fluvial	None	In	10	Outside of bend; depth 22-23'; some berm left but not much; narrow	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P39
Georgiana Slough	10.6	Left	377	378		310	Levee	Fluvial	None	In		Outside of bend; depth 17'; narrow berm	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P40
Georgiana Slough	10.9	Left	375	376		345	Berm or Levee slope	Fluvial	None	In or near	30	Inside of bend; depth 10-11'; large trees near waters edge; narrow berm	No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P41
Georgiana Slough	11.6	Left	373	374		640	Levee toe, Berm slope	Fluvial	None	In	15	Outside of bend; depths 17-20'; erosion of fairly narrow berm; narrow berm along this site	Within a Contract 42B site, No observed change	No observed change	No observed change	No observed changes	No observed changes.	D4P42
Lower American	1.8	Left					Toe	toe erosion, upper slope failure									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	2.5	Left					Levee Slope	erosion of waterside slope									Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	4.2	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	6.4	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	6.9	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	7	Right					Overbank, Toe	erosion of overbank at toe of levee and levee waterside									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	7.3	Right					Overbank	Potential for large overbank scour hole									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	8	Right					Levee Slope	erosion of waterside slope									Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	9	Right					Slope, Toe	slope and toe erosion, then slope failure									Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	9.7	Left				1530			None	Near							Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	10	Left					Slope, Toe	slope and toe erosion, then slope failure									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 report.	
Lower American	10.2	Right					Overbank, Levee Slope	erosion of overbank and waterside levee slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	

Table 1. Sacramento River Levee System - Erosion Sites -2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Steamboat	16.6	Right			142	410	Levee slope	Fluvial, wavewash	Riprap	In		Eroding sandy levees on top right bank above riprap/R	No observed change. Need to OBSERVE this site closely.	No observed change	No observed change	No observed changes	No observed changes.	D3P69
Steamboat	18.8	Right		282		525	Levee slope, toe	erosion above riprap	Riprap	In	0		No observed change.	Slow erosion of lower and mid-slope with rock riprap bench at low-water line. No observed change.	No observed change	No observed changes	No observed changes.	D3P70
Steamboat	19.7	Right	150	151		410	Levee slope	Fluvial	None	In		Erosion of sand levee; No Rock R/R on top right bank; mouth of side slough; Oversized levee section.	No observed change.	Some rock riprap dumped in heads of gullies on top shoulder of levee slope. Sandy levee slope still slowly eroding due to trampling by people. No observed change.	No observed change	No observed changes	No observed changes.	D4P1
Steamboat	22.7	Right			155	50	Levee slope	Fluvial	None	In		Erosion of sandy levee to top; Of; No Rock R/R; top right bank	No observed change. Still in BAD shape.	Two rotational failures off hard toe. Toe area being colonized by veg. No observed change.	No observed change - REMOVE FROM INVENTORY	PUT BACK INTO INVENTORY - New 10m pocket failure into levee slope	No observed changes.	D3P40
Steamboat	23.2	Left			8	250	Whole Bank	Partially Repaired	Intermittent Concrete Rubble	In	0			NEW SITE - High vertical eroding bank; lots of veg. Debris and concrete rubble on downstream end; unprotected upstream; seperation off riprap upstream; potential future large rotational failure could severely damage levee.	No observed change - Undercut at toe of bank at downstream end of riprap	No observed changes	No observed changes.	D3P41
Steamboat	23.9	Right	161	160		145	Partially Repaired	Partially Repaired	None	In		Top right bank; vegetated but has retreated into levee; could get a deep seated notch failure of levee; Between 2 Rock R/R sites	D/S half of reach repaired with rock riprap, U/S half not repaired; No observed change in U/S half of reach.	Approx. 40m length of eroding bank between upstream and downstream riprap. Trees leaning into water. No observed change.	No observed change	No observed changes	No observed changes.	D3P42
Steamboat	24.7	Right	163	162		330	Partially Repaired	Partially Repaired	Riprap	In		Erosion of very sandy levee behind large stand of riparian vegetation on top right bank; inside of bend; Dry ravel of sand	Rock riprap (quarry waste) dumped down levee slope; POOR repair job; Still eroding in places; Eroding at mid slope off fabric.	No observed change	No observed change; moved upstream waypoint	No observed changes; changed length	No observed changes.	D3P43
Steamboat	25	Left	165	164		345	Partially Repaired	Partially Repaired	None	In		Erosion of sandy levee on top left bank; Downstream of Rock R/R section; Large riparian trees on bank	U/S half of reach repaired with rock riprap except for 10 m pocket at U/S end; No observed change of D/S half of reach.	Rock riprap upstream and downstream. No revetment at trees. No observed change.	No observed change - Two small sites: (1) extending 30 meters upstream of WPT #164; (2) extending 15 meters upstream of WPT #165	Rock riprap starting to slide off geotextile at upstream end of riprap section at WPT #165; no other observed changes	Moved downstream waypoint (D3P45 at D/S end). No observed changes.	D3P44 U/S end D3P45 D/S end
Steamboat	26	Left	285	286		330	Berm slope, Toe	Mass failure, Wave wash		In	5	Mass failure of berm slope and wavewash erosion; Large trees on top of berm, some failed trees; New area of low rock toe located U/S.	Need to monitor.	Some new minor erosion near downstream end. No other observed change.	No observed change	No observed changes	No observed changes.	D3P46
Sutter	24.7	Right	166	54		2330	Partially Repaired	Partially Repaired	Riprap, dumped from topbank	In		Inside of bend at D/S end: Top right bank; Intermittent over-steepened sections; Large riparian vegetation along length of entire reach; have attempted to dump Rock R/R from to bank, not very successful	New rock riprap repair of D/S end of reach (120-155 m). (*Old incorrect length = 410 m, corrected to 710 m)	No observed change. Set new downstream waypoint as a result of new upstream repairs.	No observed change	Some minor spot repairs, no other observed changes; reset downstream waypoint	No observed changes.	D3P39 Middle
Sutter	24.8	Left	166	167		900	Levee slope	Mass Failure, Scallops	None	In		Erosion of sandy levee material on downstream end of a Rock R/R section on left bank; Inside of bend	Some new erosion but no new mass failures.	No observed change	No observed change	Scour pockets along most of reach; no other observed changes	No observed changes.	D3P38 at U/S end
Sutter	25.4	Right	53	550			Toe, Berm slope	Slumping	None	In	0-15					NEW SITE - Scour pocket into cohesive toe	Looks somewhat worse, extended site to include several new pockets. No other observed changes.	D3P37
Sutter	26.5	Left	52	51		100	Toe	Toe unravelling	Rock Riprap	In	0					NEW SITE - Original rock riprap over geotextile on cohesive toe is sliding off geotextile and end is coming unravelled	Some minor new erosion of downstream end. No other observed changes.	D3P36

Table 2. Sacramento River Levee System - Newly Identified Erosion Sites - 2003

2003 SACRAMENTO RIVER RECONNAISSANCE EROSION INVENTORY

2003 SITES ADDED TO DATABASE

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Bern Width (ft)	2003 Recon Comments	2003 Photo #
Sacramento	26.4	Left		558		490	Middle, Toe	Wave wash, Slope failure	None	In	0	NEW SITE - Have serious pocket erosion into toe and lower slope behind trees.	D3P55
Sacramento	33	Right		557		330	Toe, Lower bank slope	Tree popouts, Rotational failures, wave wash	Rock Riprap	In	0	NEW SITE - Into levee toe. Need to watch.	D3P48
Sacramento	35.4	Left		556		130	Toe, Lower bank slope	Eddy and wave wash	Rock Riprap (?)	In	0-10	NEW SITE - Toe and lower slope eroding, rock riprap in water and few pieces on the slope. Rock riprap upstream and downstream.	D3P47
Sacramento	50.8	Left				1000						***CRITICAL*** NEW SITE No berm, slope steeper than 2;1 WELL BELOW LEVEE TEMPLATE, LOWER SLOPE STEEPER THAN 1.5:1, Active Erosion. 2003 FEMA Site	
Sacramento	55.1	Left				2200	Toe	Fluvial	Old Cobbles	In	0-5	NEW SITE - Pockets of toe erosion at low flow waterline	
Sacramento	99.3	Right		555		100	Whole Bank	Rotational Failure	Rock Riprap	In	15	NEW SITE - Unsure if COE levee or not, but is significant cut into present levee. Intact rock riprap upstream and downstream. Located on inside of bend.	D2P26
Cache Slough	21.8	Right	551	552		1590	Whole Bank and toe	Rotational failure, fluvial toe erosion	None	In	0	*** POTENTIALLY CRITICAL *** NEW SITE - new rotational failure pockets along bank (3 spots) with worst at downstream waypoint, other 2 just upstream at 50' and 100'	D4P3 at D/S wpt.
Feather	17.8	Left		553		245-330	Whole Bank	Fluvial, Slope failures	None	Near	>165	NEW SITE - Previous erosion site but has gotten a little worse. Bank is near-vertical.	D5P6 D5P7 D5P8
Feather	19.7	Left		554		330	Whole Bank	Fluvial, Slope failures	None	Near	>165	NEW SITE - Erosion at toe with massive, 200-ft long upper bank failure still present but hidden by veg.	D5P9 D5P10 D5P11

Table 2. Sacramento River Levee System - Newly Identified Erosion Sites - 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Bern Width (ft)	2003 Recon Comments	2003 Photo #
Lower American	1.8	Left					Toe	toe erosion, upper slope failure				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	2.5	Left					Levee Slope	erosion of waterside slope				Site classified as an erosion site from the Ayres, July 2003 report.	
Lower American	4.2	Left					Levee Slope	erosion of waterside slope				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	6.4	Left					Levee Slope	erosion of waterside slope				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	6.9	Left					Levee Slope	erosion of waterside slope				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	7	Right					Overbank, Toe	erosion of overbank at toe of levee and levee waterside slope				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	7.3	Right					Overbank	Potential for large overbank scour hole				Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	8	Right					Levee Slope	erosion of waterside slope				Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	9	Right					Slope, Toe	slope and toe erosion, then slope failure				Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	9.7	Left					Levee Slope	erosion of waterside slope				Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	10	Left					Slope, Toe	slope and toe erosion, then slope failure				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	
Lower American	10.2	Right					Overbank, Levee Slope	erosion of overbank and waterside levee slope				***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report.	

Table 3. Sacramento River Levee System - Sites Removed from Inventory, 2003

2003 SACRAMENTO RIVER RECONNAISSANCE EROSION INVENTORY

SITES REMOVED FROM DATABASE IN 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	2003 Recon Comments	2003 Photo #
Sacramento	57.2	Right	340	341		460	Toe	Scour	Cobble	In		REMOVE FROM INVENTORY Oversized levee section at this site.	D3P7
Sacramento	60.7	Right	335	336		475	Toe	Fluvial	None	In		REMOVE FROM INVENTORY Oversized levee section at this site.	---
Sacramento	63.3	Right			330	100	Toe	Toe retreat	Concrete rubble (intermittent)	In	0	REMOVE FROM INVENTORY Does not meet basic criteria	D3P2
Sacramento	63.3	Right			329	100	Toe	Toe retreat	Concrete rubble (intermittent)	Near	15	REMOVE FROM INVENTORY Does not meet basic criteria	D3P1 View U/S
Sacramento	134	Left			265	65	Levee	Hydraulic effects from pier could be factor	Cobble	In	10	REMOVE FROM INVENTORY Bridge Maintenance Site	---
Lower American	0	Left				1200			None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	0.15	Left				100	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	0.2	Left				200	Bridge Abutment		Cobble	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	4	Left				200	Bridge Abutment		Riprap	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	5.75	Right				1200			None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	6.6	Left				100	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	6.6	Right				100	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	

Table 3. Sacramento River Levee System - Sites Removed from Inventory, 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	2003 Recon Comments	2003 Photo #
Lower American	7.75	Right				200	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	7.75	Left				200	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	9.25	Right				150	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	9.25	Left				150	Bridge Abutment		None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	9.6	Left				490	Berm	toe erosion of berm	None	Near	30	REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	9.7	Left				1530			None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Lower American	10.2	Left				1640			None	Near		REMOVED FROM INVENTORY Lower American sites have been replaced with those from the Ayres, July 2003 Draft Report	
Steamboat	15.4	Left	137	281		850	Toe, Levee slope	Scallops	Riprap	In		REMOVE FROM INVENTORY Downstream of project levee. Erosion at upstream end at gate area is bad but is not threatening levee at present.	D3P67 at Gate D3P68

Table 4. Sacramento River Levee System - Potentially Critical and Critical Erosion Sites - 2003

2003 SACRAMENTO RIVER RECONNAISSANCE EROSION INVENTORY

CRITICAL SITES FROM DATABASE IN 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #	
Sacramento	26.5	Left	103	102		460	Toe, Levee slope	Toe scour	Riprap	In		Erosion along base of levee on top left bank; rock riprap stops just downstream of bridge	No observed change. **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL** Beach at toe	No observed change. **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL**	D3P53 D/S D3P54 U/S	
Sacramento	26.9	Left	105	104		210	Toe	Toe scour	Cobble	In	0	Failed cobble revetment site; outside of bend	No observed change.	**Contract 42F Site**	No observed change	No observed changes	**CRITICAL-42F SITE** No observed changes	D3P52	
Sacramento	32.5	Right	276	277		1855	Toe, Levee slope	Fluvial, Mass failure	Intermittent rock riprap, concrete rubble	In	0	Big trees on steep levee slope with some mass failures into cohesive levee toe; Slow erosion; Long riparian zone.	Need to monitor closely.	No observed change	No observed change	No observed change	No observed change	Some new erosion/slump pockets at U/S end. No observed changes at D/S end. ** POTENTIALLY CRITICAL**	D3P49 at U/S end
Sacramento	34.5	Right	231	232		425	Partially Repaired	Partially Repaired	Concrete rubble	In		View upstream; Toe erosion in concrete rubble section; Upper levee erosion; Outside of bend (SM at downstream end of site); Old timber pile 20 feet from toe of bank; In levee section	Spot repairs with rock riprap; Majority of intervening areas remain unrepaired with no observed change.	Maintenance Site (3 small 10m pockets remain)	No observed change	PUT BACK INTO INVENTORY - Still into levee section with 3 pockets that are about 12m wide	Last years site fixed but have new failure about 50 feet upstream in unprotected area. *** POTENTIALLY CRITICAL ***	D3P31 View D/S D3P32 at erosion	
Sacramento	43.3	Right	210	213		1070	Levee slope	Fluvial	Concrete rubble, rock, and cobble	In	0	Erosion into upper levee section; Heavily vegetated at river's edge; Local Rock R/R sections; Outside of bend	Revised site; Combined old reaches defined by WPTs 212 to 213 (RM 43.1) and 210 to 211 (RM 43.4); New downed trees along bank.	**Contract 42F Site**	***CRITICAL-42F SITE*** No observed changes	***CRITICAL-42F SITE*** No observed changes	***CRITICAL-42F SITE*** A few new small pockets. No other observed changes.	D3P28 D3P29	
Sacramento	50.8	Left				1000	Berm, Levee toe		Cobble		0							***CRITICAL*** NEW SITE No berm, slope steeper than 2:1 WELL BELOW LEVEE TEMPLATE, LOWER SLOPE STEEPER THAT 1.5:1, Active Erosion. 2003 FEMA Site	
Sacramento	56.7	Left	347	348		1675	Structural problem	Fluvial	Rock, concrete, and cobble	In		Structural problem; levee slope 1:1 or 1:1.25; factor of safety approximately 1; violates Sac Bank criteria; but trees 50-60 years old on slope; depth at toe 20-25'	No observed change	No observed change	No observed change	No observed change	No observed change	***Critical*** Based on site inspection 12-09-03 by Corps	D3P10 View U/S at D/S end
Sacramento	69.9	Right	325	326		2000	Toe, Levee slope	Fluvial	None	In (at U/S end)		MDH 2/2 view upstream lower part of site toe; depth 12-15'; high, steep bank; soils are variable along the reach; worst erosion on downstream end of rock riprap, upstream end of site; CL material upstream, ML downstream	Oversized levee section; No observed change; **POTENTIALLY CRITICAL** at U/S end.	Still **POTENTIALLY CRITICAL** with erosion into levee toe. Worst area is at upstream end.	No observed change **POTENTIALLY CRITICAL**.	No observed change **POTENTIALLY CRITICAL**.	No observed changes ***CRITICAL*** at upstream end.	D2P46	
Sacramento	71.7	Right	319	320		560	Berm	Fluvial	Cobble	Very close	20	Outside of bend; depth 16-20'; relatively erosion resistant materials have held alignment	No observed change; **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL** Still Continue to monitor. Very cohesive vertical bank.	No observed change **POTENTIALLY CRITICAL**.	No observed change **POTENTIALLY CRITICAL**.	No observed change **POTENTIALLY CRITICAL**.	D2P43	
Sacramento	72.2	Right	317	318		1360	Levee toe, Berm slope	Fluvial	None	In (at toe)	15	Outside of bend; depth 12-15'; high, steep, poorly vegetated bank; toe ML with moderate plasticity (2nd trip); Away from toe depth is approximately 27 feet (1st trip)	No observed change; **POTENTIALLY CRITICAL**	No observed change. Still **POTENTIALLY CRITICAL**. Continue to monitor. Very cohesive vertical bank.	No observed change; **POTENTIALLY CRITICAL**	No observed change; **POTENTIALLY CRITICAL**	No observed changes but still ***CRITICAL*** at upstream end.	D2P42 at U/S end	
Sacramento	73.0	Right			245	50	Levee slope	Scallops	None	Near	0	Poor transition at U/S end of riprap causing scour/scallops into levee toe.	No observed change; **POTENTIALLY CRITICAL**	**POTENTIALLY CRITICAL** Poor transition of riprap at downstream end. No observed change. Continue to monitor.	No observed change; **POTENTIALLY CRITICAL**	No observed changes; **POTENTIALLY CRITICAL** new sand deposition downstream	No observed change; **POTENTIALLY CRITICAL**	D2P41	
Sacramento	78.0	Left	307	308		1100	Berm or Levee slope	Fluvial	None	In or near	10	Depth 4'; 13 feet depth approximately 20 feet out; some erosion around roots of large cottonwoods on upper bank; signs of bank retreat; oversized levee	New downed tree but not much bank retreat; No observed change at D/S end; **POTENTIALLY CRITICAL** at U/S end if get scour in downed tree pockets.	No observed change. **POTENTIALLY CRITICAL** Continue to monitor closely.	No observed change **POTENTIALLY CRITICAL**. Presently drilling into levee at upstream end	No observed change; **POTENTIALLY CRITICAL**	No observed change; **POTENTIALLY CRITICAL**	D2P36 View D/S	

Table 4. Sacramento River Levee System - Potentially Critical and Critical Erosion Sites - 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Sacramento	85.6	Right	36	35		430	Toe	Toe scour	Cobble	In	0	View upstream; Very old site with cottonwoods growing on top of cobbles; 1:1 slope in levee section; toe damage; outside of bend	No observed change. **CRITICAL**.	**Contract 42F Site** **CRITICAL** No observed change. Lots of big mature trees on top of bank; 8m deep at bank toe at D/S waypoint.	No observed change **CRITICAL-42F SITE**.	No observed change **CRITICAL-42F SITE**.	Still looks bad. Into Levee slope. **CRITICAL-42F SITE**.	D2P33 at U/S end
Sacramento	99.5	Right	50	49		1015	Levee toe, slope	Toe scour and piping	Riprap - handplaced	In	0	View upstream; "Yugo Bend"; Sycamore Slough Pump Station; Retreat may be due to piping out of the fines in the silt from beneath (No Filter)	No observed change; **POTENTIALLY CRITICAL**	No observed change. **POTENTIALLY CRITICAL** (Rough & Ready Intake)	No observed change; **POTENTIALLY CRITICAL**	No observed change; **POTENTIALLY CRITICAL**	No observed change; **POTENTIALLY CRITICAL**	D2P25
Sacramento	123.5	Left			171	330	Toe	Mass failure, scour	None	In	0	View upstream of loss of large Rock R/R dumped from top bank; Erosion into lower section	No observed change; **POTENTIALLY CRITICAL**	**Contract 42F Site** No observed change.* **POTENTIALLY CRITICAL**	No observed change; **POTENTIALLY CRITICAL**	**POTENTIALLY CRITICAL** Some minor changes including man-made steps cut into bank; no other observed changes	No observed change; **POTENTIALLY CRITICAL-42F SITE**	D2P16
Sacramento	125.8	Left			173	165	Levee slope	erosion, high flows	Riprap	In		Erosion of toe of old cobble site; Flow impinges directly against the cobble and has caused deep scour at back; In levee section; Outside of right angle bend	**CRITICAL** No observed change;	**CRITICAL SITE** under present conditions. New rotational failure forming scallop in lower levee slope of unrepaired section. New emergency rock riprap (PL 84-99) at D/S end includes 10m wide rotational failure in repaired bank. Channel is 7-12m deep	**CRITICAL** No observed change;	**CRITICAL** No observed change;	**CRITICAL** No observed change;	D2P14
Sacramento	130.0	Left	18	174		560	Levee Toe, Berm Slope	Fluvial	Cobble	In or near	0-65	Erosion of cobble site on outside of bend; D/S end is old WP # 174; depth 20-10'; failure caused by erosion of material from behind cobbles and cobbles rolling down slope; failure just above toe level; some repair has been done in about a 10m reach at the	No observed change.	**Contract 42F Site** **CRITICAL** No observed change.	**CRITICAL-42F SITE** No observed change	**CRITICAL-42F SITE** No observed changes moved WPT #174 at downstream end and set new WPT #18 at upstream end	**CRITICAL-42F SITE** No observed change	D2P12 View U/S
Sacramento	130.8	Right			175	195	Toe, Levee slope	Toe scour	Cobble	In	0	View upstream; Erosion into levee section; Failed cobble R/R due to toe scour' Outside of very low Rc bend; Upstream end of Rock R/Rap; Direct high flow impingement	**CRITICAL** No observed change;	**Contract 42F Site** **CRITICAL** No observed change	**CRITICAL** No observed change;	**CRITICAL** No observed change;	Tree has fallen and created pocket in bank. Still looks bad. No other observed change. **CRITICAL - 42F SITE**	D2P11
Sacramento	141.4	Right	185 186	183	263	2000	Toe, levee slope	Toe scour, scallops, mass failure	Riprap and cobble	In or near	0	View upstream; Loss of toe cobble and rock along entire reach; in levee section; Approximately 15 to 20 feet of toe retreat; Outside of moderate bend; Large currents; 1.5:1 slope on rock; Upstream end of intermittent loss of riprap on top right bank at WP	Combined site (WPT #s 183, 184, 185, and 186); New large failure pocket near WPT #184 is **POTENTIALLY CRITICAL**; PL 84-99(?) repair at one site near U/S end but does not extend U/S (10m) far enough.	**POTENTIALLY CRITICAL** with erosion into levee toe at upstream end. Erosion of berm with only 3m of berm left.	No observed change **POTENTIALLY CRITICAL** some trees leaning out over bank, photo is at upstream end of emergency rock riprap repair	WPT #186 is 15m site at upstream end and WPT #185 is upstream end of erosion site with PL84-99 revetment between; WPT #183 is at downstream end; WPT #263 is located at a **POTENTIALLY CRITICAL** section that is about 100ft long.	No observed change **POTENTIALLY CRITICAL** at upstream end. Have small slump (3-4M) wide in toe at downstream end (D2P3)	D2P1 at U/S end D2P2 and D2P3 at D/S end
Sacramento	164.0	Right	194	193		490	Toe	Toe scour	None	In	0	View upstream; Erosion of top right bank; May not be in levee section but the materials at the toe appear to be very erodible; There has been a recent upper berm failure	**CRITICAL** No observed change;	**Contract 42F Site** - Still eroding; no repairs yet.	**Critical-42F SITE** No observed change.	**Critical-42F SITE** No observed change moved waypoints	**Critical-42F SITE** No observed change.	D1P12.
Bear	2.4	Left	115 *	114 *		152	Berm	toe erosion, upper bank slope	None	Near	50	* WPT taken from top of levee				Part of existing PL84-99 Site (Candidate for Emergency Repair). Sandy banks are actively eroding and has worsened since last year. **CRITICAL**	**CRITICAL** NOT OBSERVED	
Bear	10.1	Right	116 *	117 *		213	Berm	toe erosion, upper bank slope	None	Near	0	* WPT taken from top of levee				No berm, 1:1 or 1.5:1 slope from toe of levee to river bottom. No rock protection. **CRITICAL**	**CRITICAL** NOT OBSERVED	
Cache Creek	LM 0.8	Left			76 *	350	Bank Slope	toe erosion, upper bank collapse	None	Near	60	* WPT taken from top of levee				**CRITICAL** Erosion extends 150 ft U/S and 200 ft D/S of WPT	**CRITICAL** Additional Erosion	

Table 4. Sacramento River Levee System - Potentially Critical and Critical Erosion Sites - 2003

River	River Mile	Bank	U/S WPT	D/S WPT	Mid WPT	Est. Length (ft)	Erosion Location	Erosion Mechanism	Revetment Type	Proximity to Levee	Min. Berm Width (ft)	1997-1998 Field Notes	1999 Recon Comments	2000 Recon Comments	2001 Recon Comments	2002 Recon Comments	2003 Recon Comments	2003 Photo #
Cache Creek	LM 1.1	Left			85 *	525	Bank Slope	toe erosion, upper bank collapse	None	Near	90	* WPT taken from top of levee				**CRITICAL** Erosion extends 150 ft U/S and 375 ft D/S of WPT	**CRITICAL** Some New Erosion	
Cache Creek	LM 2.4	Left			86 *	570	Bank Slope	toe erosion, upper bank collapse	None	Near	90	* WPT taken from top of levee				**CRITICAL** Erosion extends 240 ft U/S and 3300 ft D/S of WPT	**CRITICAL** Some New Erosion	
Cache Creek	LM 3.6	Right			62 *	200	Bank Slope	toe erosion, upper bank collapse	None	Near	60	* WPT taken from top of levee				**CRITICAL**	**CRITICAL** NOT OBSERVED	
Cache Slough	21.8	Right	551	552		1590	Whole Bank and toe	Rotational failure, fluvial toe erosion	None	In	0						NEW SITE - new rotational failure pockets along bank (3 spots) with worst at downstream waypoint, other 2 just upstream at 50' and 100' *** POTENTIALLY CRITICAL ***	D4P3 at D/S wpt.
Feather	17.8	Left		553		245-330	Whole Bank	Fluvial, Slope failures	None	Near	>165			<u>Not An Erosion Site - REMOVE from inventory.</u> (hard toe, no activity)	No observed change		**POTENTIALLY CRITICAL** NEW SITE - Previous erosion site but has gotten a little worse. Bank is near-vertical.	D5P6 D5P7 D5P8
Feather	19.7	Left		554		330	Whole Bank	Fluvial, Slope failures	None	Near	>165						**POTENTIALLY CRITICAL** NEW SITE - Erosion at toe with massive, 200-ft long upper bank failure still present but hidden by veg.	D5P9 D5P10 D5P11
Lower American	1.8	Left					Toe	toe erosion, upper slope failure									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	4.2	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	6.4	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	6.9	Left					Levee Slope	erosion of waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	7	Right					Overbank, Toe	erosion of overbank at toe of levee and levee waterside slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	7.3	Right					Overbank, Toe	Potential for large overbank scour hole									***CRITICAL*** Site Classified as an erosion site from the Ayres, July 2003 Draft Report	
Lower American	10	Left					Slope, Toe	slope and toe erosion, then slope failure									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	
Lower American	10.2	Right					Overbank, Levee Slope	erosion of overbank and waterside levee slope									***CRITICAL*** Site classified as an erosion site from the Ayres, July 2003 Draft Report & Corps recommendation.	