

**2015 ANNUAL EROSION RECONNAISSANCE
ENGINEERING REPORT**

APPENDIX A

SACRAMENTO RIVER BANK PROTECTION PROJECT

SACRAMENTO RIVER AND TRIBUTARIES

July 2016



**US Army Corps
of Engineers®**

SACRAMENTO DISTRICT

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
62	BER 0.8 L	Bear River	0.8	-	L	RD 1001 (Unit 3)	Rio Oso	eroding	2006	452	15	Fluvial	none	none	No	2006 - Multiple rotational failures in the berm. Erosion is into the levee toe and lower slope. Tension cracks extensive at top of bank. Cohesive toe creates a bench on which failures occur. 2007 - Still steep bank with some berm with pistol-butted reeds. 2012 - Site extended upstream due to additional slumping. Slopes slightly steeper.	Last observed in 2013.
124	BER 1.9 L	Bear River	1.9	-	L	RD 1001 (Unit 3)	Rio Oso	eroding	2011	432	10	Whole Bank Failure	none	none	No	2011 - Large slumped sections of bank. 2012 - Slopes slightly steeper.	Last observed in 2013.
125	BER 2.5 L	Bear River	2.5	-	L	RD 1001 (Unit 3)	Rio Oso	eroding	2011	222	25	Whole Bank Failure	none	none	No	2011 - Large section of bank has slumped off. RD has flagged and appears to be watching. 2012 - Slopes slightly steeper. 2013 - Minor new erosion observed.	Last observed in 2013.
134	BER 4.9 R	Bear River	4.9	-	R	RD 784 (Unit 3)	Johnson Ranch	eroding	2009	64	10	Fluvial	none	none	No	2009 - Small site which could be repaired with maintenance. Erosion into the levee toe, rock has started to fail.	Last observed in 2013.
110	BER 5.7 L	Bear River	5.7	-	L	RD 1001 (Unit 3)	Bear	eroding	2008	474	15	Whole Bank Failure	Fluvial	none	No	2008 - Sandy/silty banks with rotational slab failures creating near vertical bank with pop-outs due to tree failures. Narrow berm.	Last observed in 2013.
178	CBD 0.5 L	Colusa Basin Drainage Canal	-	0.5	L	RD 787 (Unit 1)	RD 787	eroding	2011	611	5	fluvial	tree pop-outs	none	No	2011 - Large scallops throughout the entire reach. Toe scour due to tree pop-outs, resulting in a steepening slope. The reduced resistive forces plus clay levee may increase the loading. Additional erosion due to human use.	Site is part of the extended inventory, last inspected 2011.
179	CBD 0.9 L	Colusa Basin Drainage Canal	-	0.9	L	RD 787 (Unit 1)	RD 787	eroding	2011	968	0	tree pop-outs	fluvial	none	No	2011 - Large scallops throughout the entire reach. Toe scour due to tree pop-outs, resulting in a steepening slope. The reduced resistive forces plus clay levee may increase the loading.	Site is part of the extended inventory, last inspected 2011.
177	CBD 19.2 L	Colusa Basin Drainage Canal	-	19.2	L	RD 108 (Unit 1)	Grimes	eroding	2011	397	0	fluvial	toe scour	none	No	2011 - Toe scour at the bottom of a steep bank, large sections of the toe are sliding down. Erosion may be due to the upstream bend.	Site is part of the extended inventory, last inspected 2011.
102	CHC 2.4 L	Cache Creek	-	2.4	L	DWR Cache Creek (Unit 1)	Yolo	critical	2002	218	15	Toe Scour	Whole Bank Failure	none	No	Site identified as CRITICAL in 2002. 2006 - Currently constructing a setback levee. New failures present and extensive. Downstream end of the setback levee did not extend far enough. Upstream end was repaired. 2007 - DWR repaired with a setback levee, but the levee did not go far enough downstream. 2012 - New cracks observed. 2013 - Fresh erosion on upper bank.	No observed changes.
38	CHC 2.8 L	Cache Creek	-	2.8	L	DWR Cache Creek (Unit 1)	Yolo	eroding	2002	209	20	Toe Scour	Whole Bank Failure	none	No	2006 - Large new failure. 2008 - Plans for repair currently in the design phase. 2010 - Planned setback levee by CA DWR, 60% design complete, construction planned for 2012. 2011 - Construction delayed to 2013 - 2014.	No observed changes.
57	CHC 3.4 L	Cache Creek	-	3.4	L	DWR Cache Creek (Unit 1)	Yolo	eroding	2002	487	15	Toe Scour	Whole Bank Failure	none	No	2006 - Some significant new erosion, especially fresh upper bank slumping. Still substantial berm. 2010 - Site extended downstream, some new erosion, heavily vegetated and hard to see. Planned setback levee by CA DWR, 60% design complete, construction planned for 2012. 2011 - Construction delayed to 2013 - 2014.	No observed changes.
146	CHC 3.5 R	Cache Creek	-	3.5	R	DWR Cache Creek (Unit 2)	Woodland	eroding	2010	450	25	Fluvial	Tree Pop-Outs	none	No	2010 - Large slump on the upper berm, a tree has recently slid down the slope. 2011 - Large slump and new erosion. 2012 - Slightly steeper slopes and cracks observed.	No observed changes.
133	CHC 5.4 L	Cache Creek	-	5.4	L	DWR Cache Creek (Unit 2)	Yolo	eroding	2009	198	15	Whole Bank Failure	Tree Pop-Outs	none	No	2009 - Erosion into the levee slope. 2010 - Minor new erosion. 2011 - New erosion and a freshly fallen tree. 2012 - New animal holes and slightly steeper slopes. 2013 - New tree popout and 2 feet of erosion along the top bank.	No observed changes.
170	CHK 11.7 R	Cherokee Canal	-	11.7	R	M.A. 13 (Unit 1)	Butte Basin	eroding	2011	34	0	eddy scour	none	none	Weir and headwall	2011 - Small erosion pocket likely caused by irrigation diversion structure.	Site is part of the extended inventory, last inspected 2011.
77	CHS 15.9 L	Cache Slough	15.9	-	L	RD 501 (Unit 2)	Ryer Island	eroding	2005	377	3	Wave Wash	Other	quarry stone on part of the bank in fair condition	Pipes through levee	2005 - Large vertical sections due to wave wash. New stone dumped on the bank with exposed geotextile. Cohesive toe has thin weak stratigraphic unit that is washing out. 2006 - Partially repaired, but 100 ft in the middle of the reach has exposed filter fabric and stone riprap is gone. 2010 - Site extended downstream to include new erosion pocket.	No observed changes.
202	CHS 21.1 R	Cache Slough	21.1	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2011	1,625	0	Toe Scour	Wave Wash	none	Pipe	2011 - Several pockets of erosion from rotational failure and slumping toe. 2013 - Site extended downstream to include new erosion pockets.	No observed changes.
	CHS 22.5 R	Cache Slough	22.5	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2013	191	0	Erosion Pockets	Whole Bank Failure	none	No	2013 - Erosion pockets into the levee toe.	Erosion pockets have increased in size.
41	CHS 22.6 R	Cache Slough	22.6	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2008	933	0	Erosion Pockets	Whole Bank Failure	none	No	2008 - Small scour pockets and mid-slope wave wash. 2010 - More vegetation growth, could be fixed through maintenance. 2011 - Site extended downstream and new erosion.	No observed changes.
74	CHS 22.8 R	Cache Slough	22.8	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2007	258	0	Wave Wash	Erosion Pockets	none	No	2007 - Geotechnical failure of midside slope and wave wash/scalloping in toe area. Stone revetment upstream and downstream of site. Similar sites are present all along the right bank downstream of this site, most could be repaired with some maintenance. 2010 - Minor new erosion.	No observed changes.
	CHS 22.9 R	Cache Slough	22.9	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2013	260	0	Erosion Pockets	Whole Bank Failure	none	No	2013 - Pockets of erosion behind willows.	No observed changes.

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143	CHS 23.0 R	Cache Slough	23.0	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2010	348	0	Toe Scour	Erosion Pockets	none	No	2010 - Small maintenance site.	No observed changes.
85	CHS 23.6 R	Cache Slough	23.6	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2005	1,149	0	Fluvial	none	quarry stone at toe in sections in fair condition	PG&E overhead transmission line	Site added in 1997 and removed in 2003. 2005 - Put back in the inventory. 2006 - Stone repair at the middle of the site. 2011 - Some rock place at toe in the past year. 2013 - Site extended both upstream and downstream to include new erosion pockets.	No observed changes.
152	DEC 0.9 R	Deer Creek	-	0.9	R	Tehama County (Unit 2)	Butte Basin	eroding	2006	265	15	tree pop-outs	fluvial	Old cobbles in sections	No	2006 - Banks are composed of lithified cobble alluvial soils (relict alluvial fan deposits). Slow erosion of lithified lower bank materials with faster erosion of overlying less cohesive soils resulting in channel "skating" across lithified horizon. 2011 - The Deer Creek Watershed Conservation Group is planning a reach-wide repair for Deer Creek.	Site is part of the extended inventory, last inspected 2011.
150	DEC 2.4 L	Deer Creek	-	2.4	L	Tehama County (Unit 1)	Butte Basin	eroding	2006	97	20	whole bank failure		none	No	2006 - Erosion along outer bank of a meandering bend that is getting close to the projection of the levee toe. Trees are leaning out into the channel and ready to fall. Whole bank in reach is actively eroding. 2011 - New erosion pocket caused by an eddy. The Deer Creek Watershed Conservation Group is planning a reach-wide repair for Deer Creek.	Site is part of the extended inventory, last inspected 2011.
126	DWS 5.0 L	Deep Water Ship Channel	-	5.0	L	RD 999 (Unit 1)	Clarksburg	eroding	2006	81	200	wave wash		none	No	2006 - Slump failure of lower slope. Longitudinal cracks present along the levee slope. 2011 - Difficult to see due to overgrown vegetation. A small section of the levee has slumped. Sties DWS 5.0 and DWS 5.01 were combined.	Site is part of the extended inventory, last inspected 2011.
153	ELC 1.4 L	Elder Creek	-	1.4	L	Tehama County (Unit 4)	Butte Basin	eroding	2006	331	20	fluvial		none	No	2006 - High vertical bank due to mass failures. Thalweg meandering and erosion of bank. Banks are cohesive with non-cohesive gravel horizons. 2011 - Foundation is silty-sand with gravel. New slumping at the toe, mass failure continues.	Site is part of the extended inventory, last inspected 2011.
149	ELC 3.0 R	Elder Creek	-	3.0	R	Tehama County (Unit 5)	Butte Basin	eroding	2006	129	20	fluvial		none	No	2006 - Mass failure of this bank due to being along the outside of a bend where erosion and undercutting are the greatest. Low flow is being forced into the toe of this bank by point bar on the opposite side of the creek. 2011 - Toe of the bank continues to be undercut.	Site is part of the extended inventory, last inspected 2011.
144	ELK 0.2 L	Elk Slough	0.2	-	L	RD 150 (Unit 3)	Merritt Island	eroding	1997	49,631	0	Whole Bank Failure	Tree Pop-Outs	quarry stone in sections in good condition	Multiple pipes through levee, boat docks, and bridge	1997 - Most of lower Elk Slough contains high near vertical banks, with erosion into the levee slope. Channel almost appears incised. 2002 - Sites where the levee slope is near vertical and severely eroding. It could fail catastrophically. 2004 - Looks bad in terms of vertical slopes and fallen trees. 2005 - Banks are still over steepened in most places and potentially susceptible to geotechnical failures. 2006 - Both banks are still over steepened in most places and potentially susceptible to geotechnical failures. 2010 - The entire reach is in poor condition, with severely eroding near vertical slopes, needs a regional repair. 2011 - Channel banks are still oversteepened with erosion continuing. 2012 - New cracks and animal holes observed.	No observed changes.
145	ELK 0.2 R	Elk Slough	0.2	-	R	RD 999 (Unit 5)	Clarksburg	eroding	1997	49,983	0	Whole Bank Failure	Tree Pop-Outs	none	Multiple pipes through levee, boat docks, and bridge	1997 - Most of lower Elk Slough contains high near vertical banks, with erosion into the levee slope. Channel almost appears incised. 2002 - Sites where the levee slope is near vertical and severely eroding. It could fail catastrophically. 2004 - Looks bad in terms of vertical slopes and fallen trees. 2005 - Banks are still over steepened in most places and potentially susceptible to geotechnical failures. 2006 - Both banks are still over steepened in most places and potentially susceptible to geotechnical failures. 2010 - The entire reach is in poor condition, with severely eroding near vertical slopes, needs a regional repair. 2011 - Channel banks are still oversteepened with erosion continuing. 2012 - New cracks and animal holes observed. 2013 - Fresh erosion around pump structure.	No observed changes.
61	FHR 0.6 L	Feather River	0.6	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	1997	901	15	Toe Scour	Fluvial	cobbles at toe in sections in poor condition	No	1997 - Deposits over top of cobble on the upper slope. 2000 - Old cobble site in poor shape; some toe retreat, but little change; steep bank. 2010 - Site extended upstream due to new toe erosion. 2012 - Minor new erosion at toe, new slumping, animals holes and cracks observed.	No observed changes.
63	FHR 1.0 L	Feather River	1.0	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2000	1,054	15	Toe Scour	Fluvial	none	Pump structure in middle of site with failed sheet pile wall and power pole	2000 - Site is relatively stable except for some toe erosion at the upstream end, recommend monitoring the upstream end. 2004 - Some new block failures (10ft deep) at the toe of the upstream end. 2007 - Some minor new slumping at the waterline. 2013 - Minor new erosion along the bank toe.	No observed changes.

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71	FHR 3.8 L	Feather River	3.8	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2006	2,094	15	Fluvial	Whole Bank Failure	none	Pump structure near downstream end	2006 - Sandy, silty bank with intermittent pockets of erosion. Rotational failure and tree pop outs are most of the problem. Some upper slope fluvial erosion. 2010 - Site extended upstream. The lower Feather may benefit from a regional repair. 2011 - Site combined with 3.6. Minimal new erosion. 2013 - New erosion observed at bank toe. Trees on site now have exposed roots.	No observed changes.
15	FHR 5.0 L	Feather River	5.0	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2000	1,666	25	Whole Bank Failure	Fluvial	none	No	2000 - Steep bank off berm with some slumps and fallen trees, continued erosion. 2002 - Site lengthened upstream and downstream due to vertical bank along most of the reach. 2010 - Site extended upstream. 2011 - Minimal new erosion. 2012 - Site extended on the upstream end, new tree pop-out, and bank erosion continues to worsen. 2013 - Minor new erosion at the toe and top of bank.	No observed changes.
204	FHR 5.8 L	Feather River	5.8	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2011	1,030	10	Whole Bank Failure	Fluvial	small cobbles at toe in poor condition	Pipe through levee and pump structure at downstream end	2011 - Large slumped sections on the lower bank. 2012 - New cracks observed.	No observed changes.
205	FHR 6.0 L	Feather River	6.0	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2011	487	20	Whole Bank Failure	Fluvial	none	No	2011 - Tall slumping sections. Scour around trees has exposed most of the roots.	Recent large slope failure observed.
203	FHR 6.6 L	Feather River	6.6	-	L	RD 1001 (Unit 4)	Rio Oso	eroding	2011	710	5	Fluvial	Toe Scour	cobbles at toe in poor condition	Pipe through levee, pump at upstream end, and power pole	2011 - Erosion pockets from tree popouts. Sections of the lower bank have slumped off. 2013 - Scallop from tree popouts no longer visible on site. Minor new erosion at the middle of the bank.	Fresh erosion from human use.
	FHR 12.3 R	Feather River	12.3	-	R	DWR M.A. 3 (Unit 1)	Yuba City	eroding	2013	177	12	Toe Scour		none	Ecological Reserve	2013 - Minor toe scour causing gradual erosion of bank slope. Site is within ecological reserve.	Last observed in 2013.
	FHR 12.8 R	Feather River	12.8	-	R	DWR M.A. 3 (Unit 1)	Yuba City	eroding	2013	293	15	Toe Scour		none	No	2013 - Minor toe scour causing gradual erosion into the bank slope.	Last observed in 2013.
147	FHR 17.8 L	Feather River	17.8	-	L	RD 784 (Unit 2)	Arboga	eroding	2010	1,858	50	Fluvial	Tree Pop-Outs	none	Pump structure and pipes through levee	2003 - Bank is near vertical. Identified as a Potentially Critical site. 2004 - Eddy flow off downstream end of Modesto formation eroding the fluvial sediments. 2005 - Some new slumping. Actively eroding but berm width is greater than 50 ft. 2006 - Downgraded to regular erosion site. Still actively eroding. Large old rotational failures in high bank on the downstream end. 2008 - Removed from inventory due to wide berm width does not meet criteria for an erosion site. 2010 - Added back to the inventory after 10 ft of bank erosion in the winter 2009 storm. Steep vertical face. 2011 - Bank has retreated an additional 2.5 ft from last year. New tree popouts and erosion throughout the site. 2012 - Site continues to worsen with new tree popouts and many sections of new erosion.	Last observed in 2013.
171	FHR 47.5 R	Feather River	47.5	-	R	DWR M.A. 7 (Unit 1)	Live Oak	eroding	2011	842	100	toe scour		large quarry stone at upstream end	Pipes through levee and canal on landside slope	2011 - The toe of the levee has been excavated by the land owner. Small holes throughout the site have been filled with a plaster like substance. Large canal on landside slope and over the levee toe.	Site is part of the extended inventory, last inspected 2011.
	FHR 50.9 R	Feather River	50.9	-	R	DWR M.A. 7 (Unit 1)	Live Oak	eroding	2012	371	15	Whole Bank Failure		quarry stone in fair condition	Old bridge piers and canal on landside slope.	2012 - Oversteepened slope with failing rock (from repair completed in 1954). Likely slope stability issues.	Site is part of the extended inventory, last inspected 2011.
60	GEO 0.3 L	Georgiana Slough	0.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	1,096	0	Erosion Pockets	Whole Bank Failure	quarry stone in sections in good condition	No	1997 - Erosion pockets into the levee toe. 1999 - Some small pockets fixed with rock riprap. 2002 - New "brush boxes" along the bank toe. 2005 - Brush boxes are empty. Some pockets are filled with new stone. 2006 - Some new rock at the downstream end (~100 ft long). Several small pockets of new rock in scallops. Brush boxes in poor to fair condition. 2010 - Site looks a little worse, some toe rock but still has erosion scars at lower to mid slope. 2011 - Site upgraded to CRITICAL. Significant new erosion. Erosion scallops are vertical and almost the height of the levee. 2012 - Rock has been placed in some of the erosion scallops and therefore the site is no longer critical. 2013 - Site shortened site. The downstream half of site was repaired by RD. Pipe no longer in site limits.	Last observed in 2013.
64	GEO 1.7 L	Georgiana Slough	1.7	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	1,528	5	Erosion Pockets	Wave Wash	quarry stone in sections in good condition	No	1997 - Old damaged rock riprap along the toe. 1999 - Downstream end (400 ft) repaired with rock. 2002 - New rock/concrete rubble section on the downstream end. 2004 - Small pocket repairs at the downstream end. 2005 - Some new bundles in the brush boxes. 2012 - Some rock has been placed in last year.	Last observed in 2013.
81	GEO 2.5 L	Georgiana Slough	2.5	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	992	0	Erosion Pockets	Wave Wash	none	No	1997 - Erosion pockets into the toe of the levee. 2001 - Staked low fascine walls at the bankline. 2004 - Numerous "Brush Boxes." 2005 - Some new bundles in the brush boxes. 2012 - Site extended downstream to account for new bank sloughing. 2013 - Some rock added to the upstream end by the local RD.	Last observed in 2013.

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40	GEO 3.8 L	Georgiana Slough	3.8	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	2,589	0	Erosion Pockets	Wave Wash	quarry stone in sections in poor to fair condition	Pipe through levee	1997 - Pockets of erosion into the levee at the water line. Alders are being undercut and rotating out into the channel. Damaged rock at upstream end. 2000 - New minor erosion. 2001 - Staked low fascine walls at bankline. 2002 - New "Brush Boxes" along the bank toe. 2003 - New erosion pockets in the middle of the site. 2005 - Some new bundles in the brush boxes. 2011 - Site upgraded to CRITICAL. Significant new erosion. Sites 3.6, 3.7, 3.71, and 4.0 were combined. 2012 - Rock has been placed in some of the erosion pockets since last year, however site remains critical. 2013 - Site no longer critical. The worst pockets were filled with rock by the local RD.	Last observed in 2013.
1	GEO 4.3 L	Georgiana Slough	4.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	1,052	0	Erosion Pockets	Wave Wash	quarry stone in sections in fair condition	PG&E pipeline crossing	1997 - Pockets of erosion into the levee toe. 1999 - Minor rock riprap and willow bundles place in a couple of spots. 2001 - Staked, low fascine walls at bankline. 2003 - Small unprotected pockets still eroding. 2004 - Numerous brush boxes, some falling apart, some with new bundles. 2005 - Some new brush boxes installed; some boxes are empty. Levee slope and banks still look bad with pocket scallops into the levee slopes. 2011 - Erosion continues and the number of pockets is increasing. 2013 - Some of the downstream end was repaired by the RD.	Last observed in 2013.
88	GEO 4.5 L	Georgiana Slough	4.5	-	L	RD 563 (Unit 1)	Tyler Island	critical	1997	1,396	0	Erosion Pockets	Wave Wash	none	Bridge, underground telephone crossing, and pipe	1997 - Pocket erosion at upstream end and into the levee toe under the Alder trees. 2003 - New brush boxes with wattles on bank. 2004 - No brush boxes. 2005 - Site extended from the downstream side of the bridge. Whole bank is vertical. 2010 - Some minor new erosion. 2011 - Site upgraded to CRITICAL. New erosion pockets throughout the site. Sites 4.5, and 4.6 were combined.	Last observed in 2013.
109	GEO 5.3 L	Georgiana Slough	5.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	3,389	0	Erosion Pockets	Wave Wash	quarry stone in sections in fair condition	Pipes	1997 - Pocket erosion into the toe of the levee. 2000 - Scallops in banks with small colored flags, biotech rolls present. 2001 - Staked, low fascine walls at bankline. 2003 - Still have visibly bad spots, especially at the upstream end. 2005 - Some new brush bundles in the brush boxes; some with missing bundles. Some boxes too low relative to high tide. 2010 - Site extended upstream. 2011 - Minor new erosion.	Last observed in 2013.
	GEO 5.8 L	Georgiana Slough	5.8	-	L	RD 563 (Unit 1)	Tyler Island	eroding	2013	458	0	Wave Wash	Toe Scour	none	No	2013 - Erosion pockets into the levee prism. Erosion pockets primarily located behind unmaintained brush boxes.	Last observed in 2013.
49	GEO 6.3 L	Georgiana Slough	6.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	4,152	0	Erosion Pockets	Wave Wash	quarry stone and rubble at the toe in poor condition	Pipes and PG&E crossing	1997 - Deep pockets of erosion and narrow berm. Reach is characterized by lots of pockets into the existing berm and/or levee slope. 1999 - Some pockets filled with rock riprap. 2000 - Exposed fabric. 2001 - Staked, low fascine walls at bankline. 2002 - New spot of rock at upstream end. Some new brush boxes. 2005 - Some stone sliding off the underlying geotextile fabric. Some new brush bundles in the brush boxes; some with missing bundles. Some boxes too low relative to high tide. 2009 - Minimal new erosion, site length extended. 2010 - New erosion on downstream end, site extended downstream. 2011 - Sites 6.1, 6.4 and 6.6 were combined. New erosion pockets, site extended to include the erosion in between the old sites. 2012 - Rock has been placed in portions of the bank since last year.	Last observed in 2013.
96	GEO 6.8 L	Georgiana Slough	6.8	-	L	RD 563 (Unit 1)	Tyler Island	critical	1997	1,251	0	Wave Wash	Tree Pop-Outs	some quarry stone in fair condition	Pipe	1997 - Deep pockets of erosion into a narrow berm just downstream of the rock. 2000 - Scallops in banks with small colored flags, some new biotech rolls in with older rolls in the scallops. 2001 - Staked, low fascine walls at the bankline. 2011 - Site upgraded to CRITICAL. Site extended upstream due to new erosion pocket. New tree popouts and new erosion. 2013 - Pipe observed at upstream end of site.	Last observed in 2013.
98	GEO 7.0 R	Georgiana Slough	7.0	-	R	RD 556 (Unit 1)	Brannan Andrus Islands	eroding	1997	774	5	Toe Scour	Wave Wash	sections of quarry stone in poor condition	Pipe through levee	1997 - Toe damaged rock. 1999 - One pocket filled with gravel. 2000 - Eroding beach with some biotech rolls and stakes; some gravel on slope. 2001 - Staked, low fascine walls at bankline. 2005 - Stone revetment in between pockets. 2006 - New rock on upper slope behind brush boxes at the upstream end, Stone is sliding off the hard toe.	Last observed in 2013.
128	GEO 7.2 L	Georgiana Slough	7.2	-	L	RD 563 (Unit 1)	Tyler Island	eroding	2009	332	0	Wave Wash	Toe Scour	sections of quarry stone in poor condition	No	2009 - Small scallops of erosion into the levee toe behind brush boxes. 2011 - Minor new erosion. 2012 - Site extended upstream to account for addition erosion pockets.	Last observed in 2013.
114	GEO 8.3 L	Georgiana Slough	8.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	565	0	Fluvial	Wave Wash	sections of quarry stone, ranging from poor to fair condition	No	1997 - Narrow eroding berm upstream of existing rock. 2001 Staked, low fascine walls at bankline. 2011 - Minor new erosion. Site extended downstream. 2012 - Rock repair failing in one erosion pocket.	Last observed in 2013.

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51	GEO 9.3 L	Georgiana Slough	9.3	-	L	RD 563 (Unit 1)	Tyler Island	eroding	1997	1,117	0	Toe Scour	Whole Bank Failure	quarry stone, sections at toe in poor conditions and sections on entire bank in good condition	Pipes through levee	1997 - Loss of rock at toe; pockets of upper berm erosion; very narrow berm width; toe rock problem; erosion pockets in rock. 2002 - New brush boxes at toe of the worst spots. 2005 - Upstream 200 ft removed because of the wide berm. 2006 - Some rock repair pockets behind the brush boxes at the upstream end. 2010 - Some new erosion. 2013 - New rock placed on the levee slope.	Last observed in 2013.
197	GEO 11.0 L	Georgiana Slough	11.0	-	L	RD 563 (Unit 1)	Tyler Island	eroding	2011	449	0	Wave Wash	none	none	No	2011 - Short sections of eroding bank at the waterline and holes in toe of levee. 2012 - Site extended upstream. 2013 - Erosion pockets filled with an insufficient amounts of revetment.	Last observed in 2013.
168	HAS 7.9 L	Haas Slough	-	7.9	L	RD 2098 (Unit 3)	Moore Tract	eroding	2011	2,150	0	wave wash	toe scour	none	Pump and walkway	2011 - Large vertical erosion pockets and bank slumping.	Site is part of the extended inventory, last inspected 2011.
167	HAS 9.7 L	Haas Slough	-	9.7	L	RD 2098 (Unit 4)	Moore Tract	eroding	2011	1,595	0	whole bank failure	other	none	No	2011 - Several scallops of erosion. Erosion primarily due to the weight of cattle on the slope.	Site is part of the extended inventory, last inspected 2011.
156	KLR 3.0 L	Knights Landing Ridge Cut	-	3.0	L	Knights Landing Ridge Drainage District (Unit 2)	Knights Landing	eroding	2006	1,113	0	wave wash		none	No	2006 - The whole levee toe area is slowly slumping into the channel (creep) due to dewatering and poor slope soils. Occasional piping in the levee slope evident as well. Pistol-butted trees at the levee toe indicate slow retreat. 2011 - Multiple scallops throughout the site and slumping of the toe.	Site is part of the extended inventory, last inspected 2011.
148	KLR 3.1 L	Knights Landing Ridge Cut	-	3.1	L	Knights Landing Ridge Drainage District (Unit 2)	Knights Landing	eroding	2006	658	0	fluvial		none	No	2006 - The whole levee toe area is slowly slumping into the channel (creep) due to dewatering and poor slope soils. Occasional piping in the levee slope evident as well. Pistol-butted trees at the levee toe indicate slow retreat. 2011 - Slumping of the levee toe.	Site is part of the extended inventory, last inspected 2011.
184	KLR 3.5 R	Knights Landing Ridge Cut	-	3.5	R	Knights Landing Ridge Drainage District (Unit 1)	Yolo	eroding	2011	418	0	toe scour		none	Pipe through levee	2011 - Toe scour and bank slumping.	Site is part of the extended inventory, last inspected 2011.
182	KLR 3.7 L	Knights Landing Ridge Cut	-	3.7	L	Knights Landing Ridge Drainage District (Unit 2)	Knights Landing	eroding	2011	678	0	tree pop-outs	whole bank failure	none	Abandoned pipe and concrete box	2011 - The toe has eroded away and there are a few scallops from bank slumping.	Site is part of the extended inventory, last inspected 2011.
183	KLR 3.9 R	Knights Landing Ridge Cut	-	3.9	R	Knights Landing Ridge Drainage District (Unit 1)	Yolo	eroding	2011	366	0	tree pop-outs		none	No	2011 - Toe erosion and erosion pockets from tree popouts. More tree popouts are expected due to the eroding toe.	Site is part of the extended inventory, last inspected 2011.
181	KLR 4.7 L	Knights Landing Ridge Cut	-	4.7	L	Knights Landing Ridge Drainage District (Unit 2)	Knights Landing	eroding	2011	1,266	0	fluvial		none	No	2011 - This site is the downstream section of the old KLR 5.3L site. Levee toe is slowly retreating. Cracking on top of the levee may indicate potential mass movement.	Site is part of the extended inventory, last inspected 2011.
180	KLR 5.8 L	Knights Landing Ridge Cut	-	5.8	L	Knights Landing Ridge Drainage District (Unit 2)	Knights Landing	eroding	2011	2,986	0	fluvial		none	Pipes through levee and concrete structure	2011 - This site is the upstream section of the old KLR 5.3L site. Levee toe is slowly retreating. Cracking on top of the levee may indicate potential mass movement.	Site is part of the extended inventory, last inspected 2011.
0	LAR 1.8 L	Lower American River	1.8	-	L	American River Flood Control District (Unit 4)	Sacramento	eroding	2012	190	15	Fluvial	Eddy Scour	quarry stone at toe in poor condition	No	2012 - Located just downstream of older repair. Failing rock at the upstream end. Erosion of the bank has exposed large tree roots.	No observed changes.
162	LDS 0.6 R	Lindsey Slough	-	0.6	R	RD 536 (Unit 1)	Lindsey	eroding	2011	1,620	0	toe scour		none	No	2011 - Multiple sections of slumping bank.	Site is part of the extended inventory, last inspected 2011.
163	LDS 0.7 R	Lindsey Slough	0.7	-	R	RD 536 (Unit 1)	Lindsey	eroding	2011	280	0	Tree Pop-Outs	Fluvial	none	No	2011 - Levee toe is unraveling with large slumping sections. This site is downstream of old bank rock. 2012 - Erosion pocket has increased in size.	Site is part of the extended inventory, last inspected 2011.
166	LDS 0.8 R	Lindsey Slough	0.8	-	R	RD 536 (Unit 1)	Lindsey	eroding	2011	86	0	Tree Pop-Outs	Fluvial	quarry stone in sections in fair condition	Pipe through levee and pump just downstream	2011 - Multiple erosion pockets from tree popouts. A smaller erosion pocket in the middle of a failing bank repair. Pump structure at the downstream end may be contributing to the erosion.	Site is part of the extended inventory, last inspected 2011.
164	LDS 1.9 L	Lindsey Slough	1.9	-	L	RD 2060 (Unit 1)	Hastings Tract	eroding	2011	358	0	wave wash	fluvial	none	No	2011 - Multiple erosion pockets. Deep cracks throughout site could lead to further bank failure.	Site is part of the extended inventory, last inspected 2011.
165	LDS 2.4 L	Lindsey Slough	2.4	-	L	RD 2060 (Unit 1)	Hastings Tract	eroding	2011	139	0	wave wash	fluvial	none	No	2011 - Two erosion pockets from rotational failures. Very soft soil.	Site is part of the extended inventory, last inspected 2011.
169	MUD 4.4 R	Mud Creek	-	4.4	R	Butte County (Unit 1)	Butte Basin	eroding	2011	300	20	fluvial		none	No	2011 - Two large erosion scallops at the toe from a rotational failure. Deep cracks along the slope indicate the potential for further failures.	Site is part of the extended inventory, last inspected 2011.
157	NCC 3.0 R	Natomass Cross Canal	-	3.0	R	RD 1001 (Unit 5)	Rio Oso	eroding	2006	191	40	fluvial		none	No	2006 - Noted old saturation slumping of upper levee slope that is into the levee core (near high water line). 2011 - Erosion is into the top of the levee. This site is actually located at LM 2.5.	Site is part of the extended inventory, last inspected 2011.
186	PUC 0.1 L	Putah Creek	-	0.1	L	DWR Putah Creek (Unit 1)	Davis	eroding	2011	423	0	wave wash		cobbles at toe in fair condition	PG&E utility poles	2011 - Old cobble site is unraveling, likely causing the toe of the bank to become unstable.	Site is part of the extended inventory, last inspected 2011.
187	PUC 7.2 L	Putah Creek	-	7.2	L	DWR Putah Creek (Unit 1)	Davis	eroding	2011	305	0	whole bank failure	tree pop-outs	none	Storm drain through levee	2011 - The toe to mid-bank is slumping. Large tree pop-outs have furthered the erosion. Slope is slightly steeper than 1:1.	Site is part of the extended inventory, last inspected 2011.
200	SAC 7.3 L	Sacramento River	7.3	-	L	RD 341 (Unit 2)	Sherman Island	critical	2011	619	0	Other	Whole Bank Failure	none	Fish release system, pipes, pillings, conduit, netting, and power poles.	2011 - Large slump at downstream end. Gully formed from surface runoff from the road. Shallow slumping throughout site. 2012 - The gully at upstream end has increased in size and site continues to worsen.	No observed changes.
199	SAC 7.9 L	Sacramento River	7.9	-	L	RD 341 (Unit 2)	Sherman Island	critical	2011	481	0	Whole Bank Failure	Wave Wash	scattered rock	Pipe through levee	2011 - Large slump section. 2012 - Site extended downstream, upgraded to critical, severe windwave. Slope is very steep and may be effecting the highway on top of the levee.	No observed changes.

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
47	SAC 8.0 L	Sacramento River	8.0	-	L	RD 341 (Unit 2)	Sherman Island	critical	1999	758	0	Wave Wash	Whole Bank Failure	quarry stone on part of the toe in poor condition	No	1999 - New small slump in eroded bank. 2005 - Reach extended because of vertical bank along the roadway upstream. 2011 - More slumping since last year. 2012 - Site upgraded to critical. Very steep slope which may be effecting the highway on top of the levee.	New erosion towards downstream end of site.
198	SAC 8.2 L	Sacramento River	8.2	-	L	RD 341 (Unit 2)	Sherman Island	eroding	2011	203	0	Wind Wave	Whole Bank Failure	small quarry stone at toe in fair condition	No	2011 - Large new erosion pocket probably hidden by vegetation in the past.	No observed changes.
2	SAC 10.8 L	Sacramento River	10.8	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	eroding	2004	820	0	Wave Wash	none	cobbles at the toe in fair condition, quarry stone on the outboard berm in good condition	Pipe	2004 - Wave wash pockets approximately 100 ft long with new full bank rock between the pockets. 2005 - Spot repairs, but toe is still eroding in several places. 2006 - Low vertical bank along roadway. 2007 - A PL 84-99 repair was constructed, it cover the majority of the site with the exception of the upstream 150 to 200 ft and the downstream 250 ft, therefore it is being kept in the inventory. 2009 - Minimal new erosion. 2010 - Outboard berm looks good, but the banks are still very steep. 2011 - While the outboard berm is protecting against wave wash, bank still has slumping issues.	No observed changes.
42	SAC 11.2 L	Sacramento River	11.2	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2008	1,229	0	Wave Wash	Whole Bank Failure	quarry stone at toe in fair condition	Pipe through levee	2008 - Erosion causing vertical bank at the highway on top of levee. The whole bank along the highway should be repaired. 2009 - Minimal new erosion. 2011 - Bank continues to slowly erode. 2012 - Upgrade to critical, new erosion since lat year and steeper slopes in sections.	Road foundation and cables exposed. Extremely large tree with exposed roots looks likely to fail and take out a significant portion of the levee.
142	SAC 12.1 L	Sacramento River	12.1	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2010	1,165	0	Whole Bank Failure	Tree Pop-Outs	none	Pipe through levee, gas line, ramp, dock, boat launch, and utility poles	2010 - Small inlet area behind a man-built spit. Bank is slumping and could possibly be fixed with maintenance. 2011 - Site continues to worsen.	Upgraded to Critical
201	SAC 13.6 L	Sacramento River	13.6	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	eroding	2011	303	0	Whole Bank Failure	Wave Wash	quarry stone at toe in fair condition	Marina at upstream end	2011 - Large section of bank slumped off.	No observed changes.
78	SAC 16.8 L	Sacramento River	16.8	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2008	591	0	Fluvial	Wave Wash	quarry stone and rubble at the toe in poor condition	Pump intake	2008 - Overstepped levee section with pocket erosion. Plans for repair currently in the design phase. 2010 - Very steep slope with slumps, longitudinal cracking, and overturned trees. 2011 - Upgraded to CRITICAL. Sections of vertical slope with highway on top. Heavy vegetation in front of most of the erosion pockets.	New rock placed on the levee slope for most of the downstream end, but bad spots still remain.
131	SAC 17.2 L	Sacramento River	17.2	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2009	1,001	0	Fluvial	Whole Bank Failure	concrete rubble and some quarry stone in poor condition	Boat dock, pipe, pump, building, and dolphin	2009 - Fluvial erosion, into the levee slope, close to vertical bank with roadway on top. Pilings that were once at the bankline are now 30 ft out. 2010 - Very steep slope with slumps and overturned trees. 2011 - Upgraded to CRITICAL. Sections of vertical slope with highway on top. Heavy vegetation in front of most of the erosion pockets. Structures built into the levee on the upstream end. 2012 - Site continues to worsen. 2013 - Some rock added on the upstream end, but site remains critical.	More rock has been placed in spots along the toe, but it is still insufficient.
123	SAC 18.0 L	Sacramento River	18.0	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	eroding	2009	444	0	Fluvial	Whole Bank Failure	quarry stone at toe in fair condition	No	2009 - Large scallop from rotational failure. One fallen tree and one large tree with half of its root structure exposed.	Large tree expected to pop out within next couple of years, will take very large chunk of levee out.
122	SAC 18.1 L	Sacramento River	18.1	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	eroding	2009	267	0	Fluvial	Other	quarry stone and rubble at toe in fair condition	No	2009 - Short reach of vertical bank at the toe. 2010 - Large tree is getting ready to fall in.	Freshly exposed tree roots.
56	SAC 21.5 L	Sacramento River	21.5	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	547	5	Wave Wash	none	none	No	1999 - Downstream 140 ft repaired with rock. 2010 - Lots of woody debris, but no changes to site.	Site extended upstream due to erosion pockets.
	SAC 21.9 L	Sacramento River	21.9	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	2013	237	5	Fluvial	Wave Wash	none	No	2013 - Erosion pockets encroaching on levee foundation.	No observed changes.
82	SAC 22.5 L	Sacramento River	22.5	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	900	10	Fluvial	Wave Wash	quarry stone in sections in poor fair condition	Pipe and pump structure	2002 - Spot rock along berm, but not in the erosion pockets. 2005 - Some new minor stone revetment at the upstream end. Brush boxes present. 2006 - Currently installing new brush in downstream brush boxes. 2007 - Rock in middle portion for about 150 ft. 2010 - Some attempt at repairs but still has pockets of erosion. 2012 - More erosion along the toe.	No observed changes.
83	SAC 22.7 L	Sacramento River	22.7	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	311	0	Tree Pop-Outs	Wave Wash	none	No	1997 - Scallops into berm and very close to levee toe. 2005 - Brush boxes present. 2011 - New toe scour and freshly fallen tree. 2012 - New tree popout has taken significant portion of soil out of the levee.	No observed changes.
25	SAC 23.2 L	Sacramento River	23.2	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	589	0	Fluvial	Wave Wash	none	No	2000 - Recently fallen cottonwood at the downstream end. 2005 - Empty brush boxes. 2011 - A few trees have fallen since last year. 2012 - Potential new tree popout since last year. 2013 - New erosion at downstream end of site and a recent tree pop-out observed.	No observed changes.
24	SAC 23.3 L	Sacramento River	23.3	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	584	30	Fluvial	Wave Wash	scattered rock in poor condition	No	1997 - Few scallops in berm, some getting close to levee toe. 2005 - Brush boxes present. 2012 - More erosion of the toe since last year.	No observed changes.
23	SAC 24.8 L	Sacramento River	24.8	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	783	5	Fluvial	Wave Wash	none	No	1997 - Slow erosion of the berm at the waterline; bench below water. 2005 - Brush boxes present. 2010 - Minor new erosion. 2013 - There is little to no berm remaining at downstream end of this site.	No observed changes.

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
9	SAC 25.2 L	Sacramento River	25.2	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	1997	326	5	Fluvial	Wave Wash	none	No	1997 - Rock is in poor condition and has failed in many places. Scallops in berm with remnants of old rock in the toe area. 2005 - Brush boxes present. 2013 - Site extended upstream approximately 300 ft to include new erosion pockets.	Minor new erosion at toe.
10	SAC 26.0 L	Sacramento River	26.0	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	under construction	1997	1,547	0	Fluvial	Wave Wash	small section of quarry stone in good condition	Pump and USGS gage station	2002 - Two rock sections (150 ft long) at the downstream end. 2005 - Lots of old brush boxes, some with established vegetation in the area behind the boxes. 2006 - Some small spots fixed with stone. 2009 - Minimal new erosion, rock in the middle of the reach may be new. 2011 - Minor new erosion at the toe. 2013 - Minor new erosion.	Site is currently under construction.
121	SAC 26.3 R	Sacramento River	26.3	-	R	RD 3 (Unit 2)	Grand Island	eroding	2008	472	0	Fluvial	Wave Wash	none	Boad dock	2009 - Hole left in levee toe from a fallen tree. Could be repaired under maintenance. 2010 - Minor new erosion.	Minor new erosion at toe.
130	SAC 27.0 L	Sacramento River	27.0	-	L	RD 554 (Unit 1)	Tyler Island	eroding	2009	504	0	Whole Bank Failure	none	quarry stone at toe in fair to poor condition	No	2009 - Tension cracks on road on top of levee. Erosion into the levee slope and mass failure. 2013 - Short vertical sections at bank toe.	No observed changes.
16	SAC 31.6 R	Sacramento River	31.6	-	R	RD 3 (Unit 2)	Grand Island	eroding	1997	442	0	Fluvial	none	small quarry stone at toe in fair condition	Pipes and pump house	1997 - Erosion of supper sandy levee material above the water line, straight reach. 1999 - Small pocket repaired with rock. 2005 - Downstream 400 ft have been repaired. 2011 - Site is overgrown with vegetation.	Site appears stable, may consider removal if no change after the next large storm event.
	SAC 33.9 R	Sacramento River	33.9	-	R	RD 349 (Unit 1)	Sutter Island	eroding new	2015	328	10	Toe Scour	Wave Wash	quarry stone at toe in fair condition	No		Erosion observed at the toe.
87	SAC 35.4 L	Sacramento River	35.4	-	L	RD 755 (Unit 1)	Courtland	eroding	2003	484	5	Wave Wash	Other	quarry stone at lower bank at toe, bank rock unraveling, toe rock in fair condition	No	2003 - Toe and lower slope eroding, rock in water and a few pieces on the slope; rock at upstream and downstream ends. 2005 - Looks a little worse. Two major holes with vertical banks and smaller intermittent pockets in between. Stone is present upstream, downstream, and at toe. 2008 - Repaired at both ends (50 ft of new stone) but middle remains unrepaired. 2011 - Site extended downstream to include new scour. 2013 - At the downstream end, behind tree, there is a new animal burrow. Tree has exposed roots.	New rock placed at toe in middle of site, hole remains behind the tree.
53	SAC 38.5 R	Sacramento River	38.5	-	R	RD 150 (Unit 2)	Merritt Island	eroding	1997	364	0	Fluvial	Whole Bank Failure	small quarry stone at toe in fair to poor condition	No	1999 - Downstream end (300 ft) repaired with rock. 2010 - Toe erosion, some vertical slopes lower down. 2011 - Failing rock repair. Slumping of the lower bank. Minor new erosion. 2013 - Tree at upstream end has exposed roots. Some new erosion.	No observed changes.
89	SAC 41.9 R	Sacramento River	41.9	-	R	RD 999 (Unit 4)	Clarksburg	eroding	1997	1,360	0	Fluvial	Wave Wash	none	Gas pipeline at downstream end and power poles	1997 - Structural problem rather than erosional, failed cobble at downstream end. 2005 - New brush boxes at waterline for several hundred feet downstream, No toe or bank protection present. 2006 - Some minor new erosion. Brush boxes not working well; most of the brush has floated out. 2007 - Brush boxes have recently been repaired.	No observed changes.
192	SAC 43.1R	Sacramento River	43.1	-	R	RD 307 (Unit 1)	Borges	eroding	2011	646	0	Tree Pop-Outs	Whole Bank Failure	cobbles at toe in poor condition	Large discharge pipes	2011 - Erosion pockets likely from tree popouts. This site has been in the inventory before and been fixed with emergency bank rock but continues to fail.	No observed changes.
108	SAC 43.2 R	Sacramento River	43.2	-	R	RD 307 (Unit 1)	Borges	eroding	2008	992	0	Tree Pop-Outs	Whole Bank Failure	quarry stone at toe, good in some sections and poor in other sections	Pipe through levee	2008 - Large rotational failure in bank and well into the levee slope. Could be a significant problem in the next high flow event. 2009 - Minimal new erosion, site extended upstream. 2010 - Minor new erosion. 2011 - Tree popout has left a large hole. Large slump area. Rock on the bank is failing in some locations. 2012 - The toe appears to be scouring out.	No observed changes.
	SAC 48.6 R	Sacramento River	48.6	-	R	RD 307 (Unit 1)	Borges	eroding	2012	581	0	Whole Bank Failure	Tree Pop-Outs	quarry stone at toe in fair condition	No	2012 - Bank is slowly eroding, old rock protection starting to unravel.	No observed changes.
191	SAC 50.3 L	Sacramento River	50.3	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2011	89	0	Tree Pop-Outs	none	cobbles at toe in fair condition	No	2011 - Tree popout at the toe has taken out the rock toe protection.	No observed changes.
139	SAC 52.4 L	Sacramento River	52.4	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2010	117	0	Eddy Scour	Whole Bank Failure	none	Wooden steps	2004 - A large tree cave was identified. 2005 - Site repaired. 2010 - At the downstream end of the repair at 52.5, bad transition is inducing further erosion. 2011 - Minor new erosion on bank.	No observed changes.
138	SAC 52.7 L	Sacramento River	52.7	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2010	158	0	Fluvial	Tree Pop-Outs	scattered rock at toe in poor condition	No	2010 - Small section of slumping, can be fixed with maintenance. 2011 - Freshly fallen tree and minor new toe erosion.	No observed changes.
190	SAC 53.8 L	Sacramento River	53.8	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2011	155	15	Fluvial	Wave Wash	none	Caltrans pipeline	2011 - Erosion into upper and lower slope. There has been significant scour around the tree roots.	No observed changes.
189	SAC 54.8 L	Sacramento River	54.8	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2011	325	0	Tree Pop-Outs	Wave Wash	scattered rock at toe in poor condition	No	2011 - A large tree has fallen behind a larger tree, putting stress on an already compromised tree. Toe erosion due to wave wash. 2013 - Site extended upstream due to steep bank.	Site extended upstream due to steep bank.
34	SAC 55.2 L	Sacramento River	55.2	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	2003	866	5	Fluvial	Wave Wash	areas of cobbles and rock at toe in poor condition	Pump, pipes, boat docks, and fences	Site previously named 55.1. 2003 - Pockets of toe erosion at low flow waterline. 2005 - Site renamed 55.2. Still have pockets of erosion but rock bench at waterline is still present. 2010 - Site extended upstream due to new erosion. 2011 - Some of the toe rock has failed. The upper levee slope seems to be slumping. 2012 - Minor new slumping.	No observed changes.

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OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
90	SAC 55.5 L	Sacramento River	55.5	-	L	DWR MA 9 (Unit 1)	Sacramento	eroding	1997	384	15	Toe Scour	Fluvial	quarry stone at toe in some sections in fair condition	Large marina and parking lot on waterside berm	1997 - Large cottonwoods on slope. 2003 - Some minor sloughing. 2004 - New sediment deposition on the downstream end. 2007 - New dock was installed without notification to USACE and halted the planned repair due to ROW issues.	Minor new erosion at toe.
111	SAC 55.7 R	Sacramento River	55.7	-	R	RD 900 (Unit 1)	Southport	eroding	2008	1,150	0	Whole Bank Failure	Wave Wash	sections of quarry stone on bank in fair condition	Boat dock, pipes, power poles, and dolphins	2008 - Erosion into levee toe. Over steepened levee slope, worst at the upstream end. 2009 - Near vertical banks from rotational slumping, hidden by vegetation. 2010 - Boat sinking more, may be causing eddy scour around it. Difficult to see the vertical slumps due to dense vegetation. 2011 - Minor new erosion at the toe. The paddleboat that was sitting at this site for years has been removed. 2012 - Site extended upstream due to additional erosion.	No observed changes.
91	SAC 56.5 R	Sacramento River	56.5	-	R	RD 900 (Unit 1)	Southport	eroding	1997	465	10	Fluvial	Wave Wash	none	No	1997 - Low berm is contributing to erosion. Old timber pile dikes above water parallel to bank. The upstream mitigation low berm causes a flow separation at the site. 1999 - Some new localized erosion with less than one foot of bank retreat. 2000 - Some new erosion at the upstream end. Fat toe deposits at toe. 2003 - Some new erosion upstream, but have a wide berm. 2011 - Minor new erosion at toe.	No observed changes.
92	SAC 56.6 L	Sacramento River	56.6	-	L	City of Sacramento (Unit 1)	Sacramento	eroding	1997	262	0	Fluvial	Whole Bank Failure	rubble on bank in poor condition	SMUD structure and pipe	1997 - Erosion at pump station, concrete debris and plastic showing. 2000 - Separation scour of bank due to poor transition. 2004 - New large tree pop out; city dumped fill dirt/rock into hole. 2006 - Minor new erosion at top of bank. 2010 - Some new rock placed in tree pop-out. 2011 - A large tree has fallen and flood fighting was performed by the city on the upper levee slope. 2012 - Small rock placed in hole from tree popout.	No observed changes.
93	SAC 56.7 R	Sacramento River	56.7	-	R	RD 900 (Unit 1)	Southport	eroding	2007	662	10	Fluvial	Wave Wash	none	Power poles	2007 - Have good berm width with minor toe erosion. Close to the levee toe protection, but levee slope is steep. 2011 - New large erosion pocket. 2012 - Minor new erosion at the toe.	No observed changes.
112	SAC 58.5 L	Sacramento River	58.5	-	L	City of Sacramento (Unit 1)	Sacramento	eroding	2008	386	0	Fluvial	Other	concrete rubble at toe in poor condition	Pipe through levee, railroad and bikepath on top of levee, and monitoring wells	2008 - Oversized levee, should be repaired under maintenance. 2009 - Shallow slumps at the mid bank. 2010 - Some minor erosion at the toe, likely from wave wash. Some new shallow slumps. 2011 - One new tree has fallen. 2013 - Erosion continues on the slope surface, site extended upstream.	No observed changes.
97	SAC 62.9 R	Sacramento River	62.9	-	R	RD 537 (Unit 1)	West Sacramento	eroding	1997	537	10	Erosion Pockets	Wave Wash	concrete rubble and quarry stone at toe in poor condition	Ramp and structure on top of levee	1997 - This may have been a cobble rehabilitation site to the 1957 cobble that was placed all the way to the I-80 Bridge. 2000 - Local damage induced by human use. 2003 - Site is still very close to the levee and into the levee toe. 2011 - One new tree has fallen.	62.9 and 63.0 have been combined into one site.
99	SAC 71.3 R	Sacramento River	71.3	-	R	RD 1600 (Unit 1)	Elkhorn	eroding	1997	522	25	Erosion Pockets	Wave Wash	none	No	2000 - Very cohesive vertical bank. 2003 - Some minor new erosion. 2006 - Some minor erosion in old pockets. 2009 - Minimal new erosion. 2011 - Multiple new erosion pockets and a few new tree popouts.	No observed changes.
43	SAC 74.4 R	Sacramento River	74.4	-	R	RD 1600 (Unit 1)	Elkhorn	eroding	1997	1,343	25	Toe Scour	Tree Pop-Outs	none	No	1997 - Steep high bank. 2005 - Some small pockets in the low toe near the waterline. 2006 - Minor slope clearing. 2010 - Minor new erosion. 2011 - Multiple trees have fallen since last year. Some other trees look ready to fall. Significant new erosion since last year. 2012 - Minor new erosion. 2013 - Minor new erosion.	New minor erosion at toe.
44	SAC 75.3 R	Sacramento River	75.3	-	R	RD 1600 (Unit 1)	Elkhorn	eroding	1997	2,753	30	Toe Scour	Whole Bank Failure	none	Pump and pipe through levee	1997 - Very steep bank. 2005 - Lots of small trees down along the bank at the upstream end. 2006 - Minor new erosion, but slow. 2010 - Almost all of the roots are exposed on the trees, appears ready to fall. 2011 - New erosion and tree popouts. 2012 - Site has become overgrown with vegetation, making it hard to observe.	Dense vegetation made observation difficult.
45	SAC 77.7 R	Sacramento River	77.7	-	R	RD 1600 (Unit 1)	Elkhorn	eroding	2006	156	10	Eddy Scour	Tree Pop-Outs	none	USACE wing dam	2006 - Eddy scour off end of rock causing erosion and scour hole near levee. Sandy silt bank with rock on upstream end. 2010 - Trees are leaning more, minor new erosion. 2011 - Many of the tree roots have scoured out and trees look ready to fall.	No observed changes.
46	SAC 78.3 L	Sacramento River	78.3	-	L	RD 1000 (Unit 1)	Natomas	eroding	1997	654	15	Fluvial	Wave Wash	none	Pipes, PG&E power poles	1997 - Very cohesive toe. 2005 - Site was staked and rock was stockpiled along the top of the bank. 2010 - New adjacent levee under construction. 2011 - New animal burrow.	No observed changes.
48	SAC 83.9 R	Sacramento River	83.9	-	R	Yolo County Service Area 6 (Unit 1)	Knights Landing	eroding	2006	987	35	Tree Pop-Outs	Whole Bank Failure	none	Gage station	2006 - Approximately 18 to 20 ft of bank near levee at the corner of the levee and the Fremont Weir. Vertical bank with undercutting/mass failure. 2007 - Staked at top of bank for monitoring. 2011 - Site has become significantly worse with more of the toe and lower bank eroded. Many trees have fallen since last year. 2012 - Site looks worse with more erosion around trees. 2013 - Additional erosion into the toe.	Site extended upstream about 500 ft to account for eroding bank.
120	SAC 85.4 R	Sacramento River	85.4	-	R	Yolo County Service Area 6 (Unit 1)	Knights Landing	eroding	2009	1,025	5	Fluvial	none	cobbles at toe in fair condition	Pipe	2009 - Erosion into the levee toe. Some cobbles have been dumped into the erosion pockets. 2010 - Old cobble site starting to unravel. 2012 - Slope continues to steepen and new animal holes. 2013 - Downstream cobble is unraveling.	No observed changes.

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
115	SAC 86.3 L	Sacramento River	86.3	-	L	RD 1500 (Unit 1)	South Sutter	eroding	2006	3,035	30	Fluvial	Whole Bank Failure	cobbles at toe in fair to poor condition	Pipe and electrical conduit through levee	2006 - New erosion upstream, new bank failures near levee but still fairly wide berm in most places. 2008 - Large berm, questionable as to if it should remain in the inventory. 2010 - Minor new erosion, old cobble starting to fail. 2011 - Cobble continues to unravel and additional slumping. 2012 - Minor new erosion at bank mid point. 2013 - Minor new erosion.	No observed changes.
50	SAC 86.9 R	Sacramento River	86.9	-	R	Yolo County Service Area 6 (Unit 1)	Knights Landing	eroding	2006	517	25	Toe Scour	Wave Wash	none	Pump and conduit through levee	2006 - Short section is into the levee toe, rest is near the levee toe. Mass failure and fluvial erosion of depositional material. Rock at the upstream and downstream ends. 2011 - Minor new erosion. 2012 - Slope continues to steepen, tree roots have become exposed, and new eddy formed.	No observed changes.
116	SAC 87.1 L	Sacramento River	87.1	-	L	RD 1500 (Unit 1)	South Sutter	eroding	2010	1,239	40	Fluvial	Wave Wash	none	Pipe and PG&E pipeline	2010 - The upstream end of the repair site at 87.0. Repair did not extend far enough upstream. 2011 - New erosion pockets. 2012 - Minor new erosion at toe. 2013 - Minor new erosion.	Significant new toe erosion.
117	SAC 92.8 L	Sacramento River	92.8	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	833	0	Fluvial	Toe Scour	cobbles at toe in fair condition	Pipe	1997 - Damage to cobble revetment on top left bank and toe damage. 2004 - Site is pretty minor. 2010 - Cobbles continue to deteriorate. 2011 - Minor new erosion at the toe. 2013 - Might be able to shorten due to deposition.	Site shortened, downstream end has plenty of berm and deposited material, well vegetated.
100	SAC 95.8 L	Sacramento River	95.8	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	912	15	Fluvial	none	rubble on sections of bank in poor condition	Pipes and concrete pad	1997 - No toe on the large upstream rubble (mix of broken concrete, bricks, rock, and steel) - should be replaced. Oversized bank. 2001 - New slump at the downstream end. 2003 - Some minor bank retreat at the downstream end. 2004 - Some new retreat at the downstream end. 2006 - Some new erosion, mainly on the steep slope and scarps. (Pumping station is not part of the erosion site.) 2010 - Minor new erosion. 2011 - Minor new erosion at the toe.	Fresh slumping.
118	SAC 99.0 L	Sacramento River	99.0	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	1,745	10	Fluvial	none	hand-placed stone in fair condition	Pipe and pump structure	1997 - Intermittent toe failure of the hand placed riprap; failure of toe materials.	No observed changes.
13	SAC 101.3 R	Sacramento River	101.3	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	1997	188	25	Toe Scour	Fluvial	cobbles in sections at toe in poor condition	No	1997 - Toe damage and loss of cobble revetment and small patch of local damage to the cobble revetment. 2000 - Cohesive vertical toe; revegetation site.	No observed changes.
72	SAC 104.0 L	Sacramento River	104.0	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	3,443	40	Fluvial	none	cobbles at toe in fair condition	Pumping plant and discharge pipe	1997 - Pocket failures of cobble revetment toe; scallops of rock loss along the bank; irregular bankline developing. 2001 - Small scallops in the toe of the berm. 2005 - Still multiple erosion pockets in the toe. 2006 - Two new small slumps. 2011 - Old cobble continue to fail causing minor slumping. 2012 - Portions of site appears to be stabilizing.	No observed changes.
73	SAC 104.5 L	Sacramento River	104.5	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	1,424	25	Whole Bank Failure	Fluvial	cobbles on some of the toe in poor condition	Pump and pipes through levee	1997 - Cobbles eroded off the clay materials; not much evidence of erosion on the toe; cobble loss on the toe. 2011 - Some minor new erosion.	No observed changes.
119	SAC 111.0 R	Sacramento River	111.0	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2009	110	20	Toe Scour	Whole Bank Failure	scattered rock at toe in poor condition	No	2009 - Minor erosion, should be repaired under maintenance. 2011 - Some new minor erosion at the toe.	No observed changes.
74	SAC 115.9 R	Sacramento River	115.9	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2008	540	30	Fluvial	Toe Scour	cobbles at toe in fair condition	No	2008 - Slippage of cobbles off hard underlying toe material. 2011 - Minor slumping site. 2012 - Failing cobble site, site extended upstream.	No observed changes.
65	SAC 116.0 L	Sacramento River	116.0	-	L	RD 1500 (Unit 1)	South Sutter	eroding	2000	831	30	Fluvial	none	concrete rubble on parts of bank in poor condition	Pipe through levee	2000 - Eroding, vertical berm slope over a vertical cohesive toe; slow erosion but getting close to the toe. 2002 - Erosion is getting close to the levee, still eroding with some new small slumps. 2004 - Some minor new erosion. 2006 - Some new erosion, cleaned off older scars and slump faces. 2008 - New, small, partial rotational failure. 2011 - Some new minor erosion.	No observed changes.
66	SAC 116.5 L	Sacramento River	116.5	-	L	RD 1500 (Unit 1)	South Sutter	eroding	1997	3,393	30	Whole Bank Failure	Fluvial	none	Pipe through levee and pump	2003 - New sedimentation and some new small toe scallops at the upstream end; downstream end has some new erosion. 2004 - Some new erosion at the toe and upper bank and some small new rotational failures (mainly minor, except at the downstream end). 2007 - Some new slumps. 2009 - Some new scallops and site was extended upstream. 2010 - New deposition along upstream end of site, however there is also new erosion throughout the site. Site seems to be worsening, and eroding fast. Large habitat for bank swallows. 2011 - Some new minor erosion. 2012 - Minor new erosion.	No observed changes.
75	SAC 118.0 R	Sacramento River	118.0	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2008	837	10	Fluvial	Whole Bank Failure	none	No	2008 - Whole bank is eroding, nearly vertical slope with cohesive toe. Bed is very deep along the toe (greater than 30 ft deep at 20 ft from the shore). 2011 - Some new minor erosion.	No observed changes.
76	SAC 120.6 L	Sacramento River	120.6	-	L	RD 1660 (Unit 1)	North Sutter	eroding	2011	190	20	Fluvial	Tree Pop-Outs	none	No	2009 - Erosion on levee toe where an old cobble site is failing. 2011 - Some new minor erosion. 2012 - Site extended downstream, bank is being impacted from the weight of the trees. 2013 - Minor new erosion at the toe.	Minor new erosion at the toe.

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
67	SAC 122.0 R	Sacramento River	122.0	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	1997	311	40	Whole Bank Failure	Eddy Scour	none	No	1997 - Mass failure of the lower cohesive bank and toe. 2000 Still eroding, steeply dipping foresets in the toe are falling off. 2010 - Some new erosion and some new deposition. Eddy current off the upstream rock. 2011 - Still plenty of berm left.	No observed changes.
68	SAC 122.3 R	Sacramento River	122.3	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2002	236	40	Fluvial	Whole Bank Failure	none	No	2002 - Upstream end has recent slope failure and exposure of tree roots. 2003 - Some new minor slope erosion with new snags on the bank. 2004 - Appears a little worse. 2005 - Scallop in bank at the upstream end looks worse. 2009 - Minimal new erosion, Berm width is still large, but one large event or one fallen tree and it could go fast. 2010 - New erosion, bank is nearly all vertical from slumping. Site looks bad. 2011 - Site continues to look bad. 2012 - Minor new erosion.	Undermining of toe rock.
32	SAC 123.3 L	Sacramento River	123.3	-	L	RD 70 (Unit 2)	North Sutter	eroding	2006	679	30	Fluvial	Whole Bank Failure	none	No	2006 - Erosion into the levee toe. Rock at upstream end has poor transition causing eddy scour. 2010 - Minor new erosion. 2011 - Some fresh erosion. 2012 - Additional slumping on the previously slumped bank, site extended downstream.	No observed changes.
54	SAC 123.7 R	Sacramento River	123.7	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	1997	122	15	Fluvial	none	concrete rubble in poor condition	No	1997 - Erosion into the levee section; old concrete rubble loss at toe; transition between the rock upstream and the cobble downstream. 2000 - Cohesive bench with concrete slabs on top; 25 ft deep scour hole on the downstream end.	No observed changes.
104	SAC 125.6 R	Sacramento River	125.6	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2008	415	15	Fluvial	none	cobbles at toe in poor condition	No	2008 - Slow erosion of the hard toe. 2010 - Cobble rubble is failing, erosion is into the toe of the levee, with vertical slumping. 2012 - Site appears to be relatively stable. 2013 - New animal holes.	No observed changes.
137	SAC 125.8 L	Sacramento River	125.8	-	L	RD 70 (Unit 2)	North Sutter	eroding	2008	115	5	Fluvial	none	cobbles at toe in fair condition	Pipe	2005 - Site was repaired. 2009 - Site is at upstream end of the repair site. 2011 - Still minor erosion. 2012 - Site shortened to remove non-eroding section, minor erosion with failing cobbles.	No observed changes.
3	SAC 127.9 R	Sacramento River	127.9	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	1997	562	35	Eddy Scour	Whole Bank Failure	none	No	1997 - Major scour off the downstream end of existing rock, creating a scour pocket where the levee starts diverging from the bankline. 2000 - Some minor erosion, 20 ft deep hole at downstream end. 2004 - Small amount of new erosion. 2010 - Bad transition off downstream end of rock revetment, some new erosion. 2012 - Site extended downstream, minor new erosion. 2013- Minor new erosion.	No observed changes.
55	SAC 130.0 L	Sacramento River	130.0	-	L	RD 70 (Unit 2)	North Sutter	eroding	1997	712	10	Fluvial	none	cobbles at toe in fair condition	Pump and PG&E power pole	1997 - Critical Site - Erosion of cobble site on outside of a bend. Failure caused by erosion of a material from behind the cobbles and cobbles rolling down the slope. Failure is just above the toe levee. Some repairs had been done at the upstream end. 2004 - Some minor new erosion at the top of the berm. 2005 - Trees look okay and the downstream end has some new rock repair. Site is no longer critical. 2006 - No longer critical, some repairs.	No observed changes.
69	SAC 131.8 L	Sacramento River	131.8	-	L	RD 70 (Unit 2)	North Sutter	eroding	2005	665	25	Toe Scour	Fluvial	none	Pipe	2005 - (known as 132) On inside of bend. Erosion of berm toe. Levee slope is steep. Erosion probably due to eddy scour off upstream cobble. 2009 - Groins may be a good option for repair. 2010 - Scour off the upstream rock, some new erosion. 2011 - Site extended downstream. 2012 - Minor new erosion since last year and new animal holes. 2012 - Minor new erosion since last year and new animal holes. 2013 - New tree popout.	No observed changes.
70	SAC 136.6 L	Sacramento River	136.6	-	L	RD 70 (Unit 2)	North Sutter	eroding	1997	616	15	Fluvial	none	cobbles at toe in fair condition	Pipe and pump	1997 - Toe erosion on a cobble revetment on the outside of a low receding bend. 2012 - Toe appears pretty stable with old cobbles.	No observed changes.
136	SAC 136.6 R	Sacramento River	136.6	-	R	Sacramento River West Side Levee District (Unit 1)	Grimes	eroding	2010	725	35	Toe Scour	Fluvial	none	No	2010 - Lower portion of 136.7 that did not extend far enough. Abrupt transition from upstream site. 2012 - Site extended upstream, minor new erosion. 2013 - Minor new erosion at the toe. New tree popout. Downstream limit extended.	No observed changes.
5	SAC 138.1 L	Sacramento River	138.1	-	L	RD 70 (Unit 2)	North Sutter	eroding	1997	1,308	10	Toe Scour	Fluvial	cobbles at toe in fair condition	Pipe through levee	1997 - Loss of cobble revetment in levee section. 2004 - New fresh erosion in a short section of the downstream end. 2010 - New deposition on cobbles.	No observed changes.
29	SAC 141.5 R	Sacramento River	141.5	-	R	Sacramento River West Side Levee District (Unit 1)	Colusa Basin	eroding	2010	696	30	Fluvial	Tree Pop-Outs	cobbles at toe in fair condition	Power pole	2010 - Old cobble site starting to unravel at toe. 2011 - Cobbles continue to unravel. 2013 - Site extended downstream to revetment.	No observed changes.
30	SAC 143.5 R	Sacramento River	143.5	-	R	Sacramento River West Side Levee District (Unit 1)	Colusa Basin	eroding	2011	602	15	Fluvial	Tree Pop-Outs	cobbles at toe in fair condition	No	2011 - Multiple scallops, one tree pop out. Old cobble site starting to unravel at midbank. 2012 - Mid bank slumping continues to worsen but cobble at the toe appears stable.	No observed changes.
27	SAC 151.0 R	Sacramento River	151.0	-	R	DWR East Levee Sacramento River (Unit 1)	Colusa Basin	eroding	2009	1,748	10	Fluvial	none	cobbles at toe in fair condition	Pipe	2009 - Slump in the middle of the section has left a vertical section on the bank. 2010 - Old cobble site unraveling, site extended downstream.	Last observed in 2013.

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OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
20	SAC 152.6 L	Sacramento River	152.6	-	L	DWR East Levee Sacramento River (Unit 1)	Butte Basin	eroding	2008	1,555	30	Whole Bank Failure	Fluvial	none	No	2008 - Large rotational/mass failure in the bank with tree slump. 2009 - Minimal new erosion, the tree is leaning further into the river. 2011 - Site extended downstream. 2012 - Minor new erosion and tree roots are further exposed.	Last observed in 2013.
17	SAC 152.8 L	Sacramento River	152.8	-	L	DWR East Levee Sacramento River (Unit 1)	Butte Basin	eroding	2006	299	20	Tree Pop-Outs	Fluvial	none	Utility pole, pipes, and pump	2006 - Large rotational/mass failure in the bank with tree slump. Tough clayey toe material. 2007 - Site is between stone revetments with a pump station at the downstream end. 2010 - Erosion is into the levee toe. 2011 - Minor new erosion. 2012 - Minor new erosion.	Last observed in 2013.
18	SAC 157.7 R	Sacramento River	157.7	-	R	DWR East Levee Sacramento River (Unit 1)	Colusa Basin	eroding	2004	484	30	Toe Scour	Fluvial	none	No	2004 - Slowly eroding but near vertical with no vegetation to hold it. 2005 - Erosion is close to levee toe but not into the levee section yet. 2010 - Some new toe scour.	Last observed in 2013.
22	SAC 164.3 R	Sacramento River	164.3	-	R	DWR East Levee Sacramento River (Unit 1)	Colusa Basin	eroding	2009	1,200	10	Whole Bank Failure	Toe Scour	none	PG&E gas line through levee	Erosion site added in 1997 and removed in 2005. 2009 - Site added back in, hard toe with slow moving erosion. Potential geotechnical failure. 2011 - Site extended downstream.	Last observed in 2013.
21	SAC 164.7 R	Sacramento River	164.7	-	R	L.D. 2 (Unit 1)	Colusa Basin	eroding	2009	1,117	20	Toe Scour	Whole Bank Failure	none	No	2009 - Very slow retreat, hard toe, encroaching into the levee projection. 2010 - Slowly eroding. 2011 - Site extended downstream.	Last observed in 2013.
19	SAC 168.3 L	Sacramento River	168.3	-	L	L.D. 3 (Unit 1)	Butte Basin	eroding	1997	149	30	Toe Scour	Eddy Scour	none	No	1997 - Erosion of top left bank; eroding downstream of rock section where levee is closest to the bank, approximately 40 to 50 ft of bank retreat, some berm left. 1999 - Some new beach sedimentation at toe. 2000 - Snags in eddy area could induce bank erosion at higher flows. 2002 - Small bar is gone. 2003 - Bar is present and higher. 2004 - Some new deposition on the bank at the upstream end. 2006 - New sand on bar and bank. 2007 - New sand deposition with vegetation colonizing bars between dikes. 2008 - More eddy sedimentation and vegetation on bar along bank. Bank is healing due to retreat of right bank. 2009 - Additional bar sedimentation. 2010 - some deposition at toe, new erosion on opposite bank. Site continues to heal. 2012 - Majority of site healed but upstream end still needs toe rock.	Last observed in 2013.
7	SAC 172.0 L	Sacramento River	172.0	-	L	L.D. 3 (Unit 1)	Butte Basin	eroding	2007	1,546	15	Toe Scour	Fluvial	none	No	2007 - Getting close to the levee. Bank is clayey silt with clayey/silty toe. 2008 - Looks a little worse at the upstream end. 2009 - Some new erosion and slumping. 2010 - Some new erosion upstream of site, actively eroding at low flow. New bank swallow colony noted. 2011 - Significant erosion since last year, with an estimated 10 to 15 feet of berm lost. Large sections of the bank have slumped off. 2012 - Part of the site appears to be stabilizing, but still minor slumping in other locations. 2013 - Minor new erosion at toe.	Last observed in 2013.
172	SBP 11.1 L	Sutter Bypass	-	11.1	L	East Levee Sutter Bypass (Unit 1)	Yuba City	eroding	2011	162	15	wind wave		none	No	2011 - Small section of the mid levee slope has eroded from wind wave.	Site is part of the extended inventory, last inspected 2011.
105	STM 15.7 R	Steamboat Slough	15.7	-	R	RD 501 (Unit 1)	Ryer Island	eroding	2008	338	0	Whole Bank Failure	Tree Pop-Outs	rubble at toe in poor condition	No	2008 - Overstepped levee section with multiple small pockets of erosion 10 - 20 ft wide. 2013 - Site has fresh erosion and taller vertical sections.	No observed changes.
79	STM 18.8 R	Steamboat Slough	18.8	-	R	RD 501 (Unit 1)	Ryer Island	eroding	1999	359	0	Fluvial	Wave Wash	none	Pipe	2000 - Slow erosion of lower and mid-slope with rock bench at the low water line.	No observed changes.
127	STM 18.9 R	Steamboat Slough	18.9	-	R	RD 501 (Unit 1)	Ryer Island	eroding	2009	330	0	Fluvial	Wave Wash	rock at toe in fair condition	Pipe	2009 - Rock is starting to unravel, probably from a tree pop-out, hard toe.	No observed changes.
140	STM 22.8 R	Steamboat Slough	22.8	-	R	RD 349 (Unit 2)	Sutter Island	eroding	2010	643	0	Fluvial	Wave Wash	none	No	2010 - Slumping sections on the lower bank, appears to be scouring around the trees. 2011 - Soil beach at toe.	No observed changes.
195	STM 23.6 R	Steamboat Slough	23.6	-	R	RD 349 (Unit 2)	Sutter Island	eroding	2011	768	0	Wave Wash	Tree Pop-Outs	quarry stone at end in fair condition	No	2011 - Toe scour at the tidal zone.	New tree popout and minor new erosion.
12	STM 23.9 R	Steamboat Slough	23.9	-	R	RD 349 (Unit 2)	Sutter Island	eroding	1997	168	0	Fluvial	Wave Wash	none	Pipe and pump house	1997 - Top right bank has retreated into the levee. Site is between two rock sites. 1999 - Downstream half of the reach repaired with rock. 2000 - Trees leaning into the water. 2010 - Site appears worse. 2011 - New erosion at the toe. 2013 - Short vertical sections observed at upstream end.	Minor new erosion.
196	STM 24.1 R	Steamboat Slough	24.1	-	R	RD 349 (Unit 2)	Sutter Island	eroding	2011	55	0	Erosion Pockets	Wave Wash	quarry stone in fair condition	No	2011 - Small scallop caused by erosion and wave wash.	No observed changes.
11	STM 24.7 R	Steamboat Slough	24.7	-	R	RD 349 (Unit 2)	Sutter Island	critical	1997	949	0	Fluvial	Wave Wash	occasional quarry stone in poor condition	Pipe	1997 - Erosion of very sandy levee behind large stand of riparian vegetation on top right bank. Dry ravel of sand. 1999 - Quarry waste rock was dumped down the levee slope; poor repair job; still eroding in places. Eroding at midslope of fabric. 2005 - Length revised, only the middle 150 - 200 ft are eroding. 2006 - Some rock/small material dumped down the bank but it is slowly unraveling. Upstream end is unraveling faster. Steep slope with poor gradation so fines are washing out. 2010 - Lots of overhanging trees and erosion pockets. 2011 - This site is upgraded to CRITICAL. Near vertical bank at the downstream end. New erosion at various locations throughout the site.	No observed changes.

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106	STM 24.8 L	Steamboat Slough	24.8	-	L	RD 3 (Unit 1)	Grand Island	eroding	2008	773	0	Whole Bank Failure	Tree Pop-Outs	none	No	2008 - Area closed sign on bank. Newly fallen trees at both ends and pop outs along the bank. 2010 - Site extended downstream. 2011 - New erosion at the toe. More trees popouts. 2013 - Short vertical sections observed at the downstream end.	New erosion at toe.
52	STM 25.0 L	Steamboat Slough	25.0	-	L	RD 3 (Unit 1)	Grand Island	eroding	1997	264	0	Fluvial	Tree Pop-Outs	none	Pipe through levee	1997 - Erosion of sandy levee on top left bank. Site is downstream of a rock section. Large riparian trees on the bank. 1999 - Upstream half of the reach repaired with rock, except for a 30 ft reach at the upstream end. 2001 - Rock repair on the upstream and downstream ends; no revetment at the trees. 2002 - Rock repair is starting to slide off the geotextile at the upstream end. 2005 - One new small tree has fallen. 2006 - 50 ft pocket at the downstream end and at the upstream end with new rock in between. 2007 - Upstream end has been repaired. 2010 - Some minor new erosion. 2011 - Minor new erosion. 2012 - Minor new erosion at the toe.	Significant new erosion, large oak tree on verge of popping out.
141	STM 25.5 R	Steamboat Slough	25.5	-	R	RD 349 (Unit 2)	Sutter Island	eroding	2010	580	3	Fluvial	Wave Wash	none	No	2010 - Small maintenance, erosion into the toe. 2011 - Minor new erosion at toe.	Minor new erosion at toe, new tree popout.
39	STM 25.8 R	Steamboat Slough	25.8	-	R	RD 349 (Unit 2)	Sutter Island	eroding	2007	243	0	Wave Wash	Fluvial	none	No	2007 - Slow erosion, probably due to wave wash and fluvial erosion. Site has likely been here for awhile but was unseen due to boats parked in front.	Large tree popout, scarp reaches crown of levee.
86	STM 26.0 L	Steamboat Slough	26.0	-	L	RD 3 (Unit 1)	Grand Island	eroding	1997	312	8	Whole Bank Failure	Wave Wash	none	No	1997 - Mass failure of berm slope and wave wash erosion. Large trees on top of berm, some failed trees. New area of low rock to on the upstream end. 2000 - Some minor erosion near the downstream end. 2005 - One new small tree has fallen. 2009 - Minimal new erosion. 2010 - Minor new erosion. 2013 - Observed new animal holes and vertical sections at middle of site.	Minor new erosion.
26	STR 24.7 R	Sutter Slough	24.7	-	R	RD 999 (Unit 3)	Clarksburg	critical	1997	2,180	0	Toe Scour	Whole Bank Failure	quarry stone on part of the bank in poor condition	Pipe	1997 - Intermittent over-steepened sections. Large riparian vegetation along the length of the entire reach. Attempts to repair with rock on bank have failed. 1999 - New rock repair at the downstream end. 2002 - Some minor spot repairs. 2009 - Minimal new erosion. 2010 - Appears that fresh rock placed on downstream portion of site. Toe scour and overhanging trees with some overturned. 2012 - Minor new erosion at the toe. 2013 - Site upgraded to CRITICAL. Severe slumping into levee at downstream end of site. Fresh erosion into bank toe.	New slumping, tall vertical sections.
107	STR 25.2 R	Sutter Slough	25.2	-	R	RD 999 (Unit 3)	Clarksburg	eroding	2008	694	0	Toe Scour	Tree Pop-Outs	none	No	2008 - Over steepened levee section. 2009 - Significant new erosion. 2010 - Minor new erosion.	No observed changes.
194	STR 25.7 R	Sutter Slough	25.7	-	R	RD 999 (Unit 3)	Clarksburg	eroding	2011	709	5	Toe Scour	Whole Bank Failure	none	No	2011 - Toe scour along length of site and erosion pockets. 2012 - Site extended slightly upstream due to new erosion pocket. 2013 - Tall vertical sections at upstream end of site.	No observed changes.
	STR 26.1 R	Sutter Slough	26.1	-	R	RD 349 (Unit 3)	Sutter Island	eroding new	2015	252	0	Toe Scour	Wave Wash	none	No		Tall vertical sections into the levee slope and erosion along the toe.
31	STR 26.5 L	Sutter Slough	26.5	-	L	RD 999 (Unit 3)	Sutter Island	eroding	2002	621	0	Toe Scour	Erosion Pockets	some quarry stone at toe in poor condition	No	2002 - Original rock over geotextile is sliding off and the end is coming unraveled. 2003 - Some minor new erosion on the downstream end. 2004 - Site has gotten worse. Underlined geofabric is exposed. 2005 - Still looks bad with exposed geotextile fabric. 2006 - Still have some new unraveling and exposed fabric. Site lengthened upstream. 2009 - Minimal new erosion. 2010 - geotextile fabric placed since last year, possible flood fight. 2012 - Exposed geotech style fabric, assume rock on top slid off.	Erosion pockets covered with plastic.
	STR 26.9 L	Sutter Slough	26.9	-	L	RD 349 (Unit 3)	Sutter Island	eroding new	2015	637	20	Toe Scour	Wave Wash	none	No		Large Tree popout and tall vertical sections into the levee slope.
0	STR 27.1 R	Sutter Slough	27.1	-	R	RD 999 (Unit 3)	Clarksburg	eroding	2012	255	0	Whole Bank Failure		some quarry stone at toe in fair condition	No	2012 - Slumping of upper levee slope.	No observed changes.
193	STR 27.3 R	Sutter Slough	27.3	-	R	RD 999 (Unit 3)	Clarksburg	eroding	2011	1,023	0	Whole Bank Failure	Erosion Pockets	quarry stone in section in poor condition	Pipe	2011 - Multiple erosion pockets. Some likely from tree popouts. 2013 - Tall vertical sections.	New tree popout and significant new erosion.
	STR 28.4 R	Sutter Slough	28.4	-	R	RD 150 (Unit 1)	Merritt Island	eroding	2013	314	0	Toe Scour	Wave Wash	quarry stone in sections in fair condition	Bridge	2013 - Old toe repair unraveling. Bridge at upstream end of site.	No observed changes.
176	SYC 9.3 L	Sycamore Slough	-	9.3	L	DWR MA 12 (Unit 1)	Grimes	eroding	2011	98	0	eddy scour	overtopping scour	cobbles on upper slope in poor condition	Culvert	2011 - Erosion occurring upstream and downstream of an irrigation diversion structure.	Site is part of the extended inventory, last inspected 2011.
173	WAD 2.1 L	Wadsworth Canal	-	2.1	L	DWR Wadsworth Canal (Unit 1)	Yuba City	eroding	2011	3,422	5	Whole Bank Failure		none	Pipes through levee and utility poles	2011 - Whole bank is starting to unravel, with failure from poor soils.	Site is part of the extended inventory, last inspected 2011.
175	WAD 2.1 R	Wadsworth Canal	-	2.1	R	DWR Wadsworth Canal (Unit 2)	Sutter Town	eroding	2011	3,376	5	whole bank failure		none	Pipes through levee and utility poles	2011 - Whole bank is starting to unravel, with failure from poor soils.	Site is part of the extended inventory, last inspected 2011.
159	WAD 2.4 L	Wadsworth Canal	-	2.4	L	DWR Wadsworth Canal (Unit 1)	Yuba City	eroding	2010	4,603	10	whole bank failure		none	PG&E gas line, bridge, and power poles	2010 - Over steepened levees, some slumping, reach-wide problem. 2011 - Still a reach-wide problem.	Site is part of the extended inventory, last inspected 2011.

Table A-1. 2015 SRBPP Erosion Sites

OBJECTID	Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
160	WAD 2.4 R	Wadsworth Canal	-	2.4	R	DWR Wadsworth Canal (Unit 2)	Sutter Town	eroding	2010	4,617	5	whole bank failure		none	Pipe, bridge, and power poles	2010 - Over steepened levees, some slumping, reach-wide problem. 2011 - Still a reach-wide problem.	Site is part of the extended inventory, last inspected 2011.
174	WAD 4.3 R	Wadsworth Canal	-	4.3	R	DWR Wadsworth Canal (Unit 2)	Sutter Town	eroding	2011	106	0	fluvial		none	No	2011 - Small erosion pocket.	Site is part of the extended inventory, last inspected 2011.
161	YAS 1.7 L	Yankee Slough	-	1.7	L	RD 1001 (Unit 2)	Rio Oso	eroding	2011	147	3	fluvial		none	Pipe through levee	2011 - New erosion site. Steep eroding slope. Fairly old scarp with vegetation growth.	Site is part of the extended inventory, last inspected 2011.
37	YOL 0.1 R	Yolo Bypass	-	0.1	R	RD 2035 (Unit 2)	Woodland	eroding	2006	427	0	wave wash	fluvial	none	No	2006 - Wave wash erosion and some saturation slumping occurring. Tension/separation cracks evident in fine grained levee slope materials. 2011 - Slumping of the lower toe. New slumped section on downstream end.	Site is part of the extended inventory, last inspected 2011.
185	YOL 1.2 R	Yolo Bypass	-	1.2	R	RD 2035 (Unit 2)	Woodland	eroding	2011	215	0			none	AT&T fiberoptic cable under levee	2011 - Small sections of slumping, likely from wind wave.	Site is part of the extended inventory, last inspected 2011.
151	YOL 2.0 R	Yolo Bypass	-	2.0	R	RD 2035 (Unit 2)	Woodland	eroding	2006	267	0	wave wash	fluvial	cobbles	No	2006 - Wave wash erosion and some saturation slumping occurring. Tension/separation cracks evident in fine grained levee slope materials. 2011 - Small sections of slumping lower bank, just downstream of bank rock.	Site is part of the extended inventory, last inspected 2011.
35	YOL 2.3 R	Yolo Bypass	-	2.3	R	RD 2035 (Unit 2)	Woodland	eroding	2011	1,822	0			none	No	2011 - Erosion from wind waves along entire length of the levee toe. Several sections of slumping bank along the toe.	Site is part of the extended inventory, last inspected 2011.
155	YOL 2.6 R	Yolo Bypass	-	2.6	R	DWR West Levee Yolo Bypass (Unit 1)	Knights Landing	eroding	2006	827	0	wave wash		none	No	2006 - Slow wave wash and general fluvial erosion of the toe area under river cobbles. Erosion is creating a scarp and cobble covered wave-cut bench. 2011 - Site appears better than it looked in 2006, but still eroding.	Site is part of the extended inventory, last inspected 2011.
36	YOL 2.8 R	Yolo Bypass	-	2.8	R	RD 2035 (Unit 2)	Woodland	eroding	2011	2,502	0			none	No	2011 - Wave wash erosion and several sections of slumping bank along the toe.	Site is part of the extended inventory, last inspected 2011.
158	YOL 4.2 R	Yolo Bypass	-	4.2	R	RD 2035 (Unit 2)	Woodland	eroding	2006	1,652	0	wave wash		none	No	2006 - Wave wash erosion and some saturation slumping occurring. Several small scallops present in lower levee slope/toe due to saturation slumping. Tension/separation cracks evident in fine-grained levee slope materials. 2011 - Small pockets of erosion throughout the site. Site formerly called 3.8.	Site is part of the extended inventory, last inspected 2011.
										263,303							

Table A-2. 2015 SRBPP Critical Erosion Sites

Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
CHC 2.4 L	Cache Creek	-	2.4	L	DWR Cache Creek (Unit 1)	Yolo	critical	2002	218	15	Toe Scour	Whole Bank Failure	none	No	Site identified as CRITICAL in 2002. 2006 - Currently constructing a setback levee. New failures present and extensive. Downstream end of the setback levee did not extend far enough. Upstream end was repaired. 2007 - DWR repaired with a setback levee, but the levee did not go far enough downstream. 2012 - New cracks observed. 2013 - Fresh erosion on upper bank.	No observed changes.
GEO 4.5 L	Georgiana Slough	4.5	-	L	RD 563 (Unit 1)	Tyler Island	critical	1997	1,396	0	Erosion Pockets	Wave Wash	none	Bridge, underground telephone crossing, and pipe	1997 - Pocket erosion at upstream end and into the levee toe under the Alder trees. 2003 - New brush boxes with wattles on bank. 2004 - No brush boxes. 2005 - Site extended from the downstream side of the bridge. Whole bank is vertical. 2010 - Some minor new erosion. 2011 - Site upgraded to CRITICAL. New erosion pockets throughout the site. Sites 4.5, and 4.6 were combined.	Last observed in 2013.
GEO 6.8 L	Georgiana Slough	6.8	-	L	RD 563 (Unit 1)	Tyler Island	critical	1997	1,251	0	Wave Wash	Tree Pop-Outs	some quarry stone in fair condition	Pipe	1997 - Deep pockets of erosion into a narrow berm just downstream of the rock. 2000 - Scallops in banks with small colored flags, some new biotech rolls in with older rolls in the scallops. 2001 - Staked, low fascine walls at the bankline. 2011 - Site upgraded to CRITICAL. Site extended upstream due to new erosion pocket. New tree popouts and new erosion. 2013 - Pipe observed at upstream end of site.	Last observed in 2013.
SAC 7.3 L	Sacramento River	7.3	-	L	RD 341 (Unit 2)	Sherman Island	critical	2011	619	0	Other	Whole Bank Failure	none	Fish release system, pipes, pillings, conduit, netting, and power poles.	2011 - Large slump at downstream end. Gully formed from surface runoff from the road. Shallow slumping throughout site. 2012 - The gully at upstream end has increased in size and site continues to worsen.	No observed changes.
SAC 7.9 L	Sacramento River	7.9	-	L	RD 341 (Unit 2)	Sherman Island	critical	2011	481	0	Whole Bank Failure	Wave Wash	scattered rock	Pipe through levee	2011 - Large slump section. 2012 - Site extended downstream, upgraded to critical, severe windwave. Slope is very steep and may be effecting the highway on top of the levee.	No observed changes.
SAC 8.0 L	Sacramento River	8.0	-	L	RD 341 (Unit 2)	Sherman Island	critical	1999	758	0	Wave Wash	Whole Bank Failure	quarry stone on part of the toe in poor condition	No	1999 - New small slump in eroded bank. 2005 - Reach extended because of vertical bank along the roadway upstream. 2011 - More slumping since last year. 2012 - Site upgraded to critical. Very steep slope which may be effecting the highway on top of the levee.	New erosion towards downstream end of site.
SAC 11.2 L	Sacramento River	11.2	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2008	1,229	0	Wave Wash	Whole Bank Failure	quarry stone at toe in fair condition	Pipe through levee	2008 - Erosion causing vertical bank at the highway on top of levee. The whole bank along the highway should be repaired. 2009 - Minimal new erosion. 2011 - Bank continues to slowly erode. 2012 - Upgrade to critical, new erosion since lat year and steeper slopes in sections.	Road foundation and cables exposed. Extremely large tree with exposed roots looks likely to fail and take out a significant portion of the levee.
SAC 12.1 L	Sacramento River	12.1	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2010	1,165	0	Whole Bank Failure	Tree Pop-Outs	none	Pipe through levee, gas line, ramp, dock, boat launch, and utility poles	2010 - Small inlet area behind a man-built spit. Bank is slumping and could possibly be fixed with maintenance. 2011 - Site continues to worsen.	Upgraded to Critical
SAC 16.8 L	Sacramento River	16.8	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2008	591	0	Fluvial	Wave Wash	quarry stone and rubble at the toe in poor condition	Pump intake	2008 - Overstepped levee section with pocket erosion. Plans for repair currently in the design phase. 2010 - Very steep slope with slumps, longitudinal cracking, and overturned trees. 2011 - Upgraded to CRITICAL. Sections of vertical slope with highway on top. Heavy vegetation in front of most of the erosion pockets.	New rock placed on the levee slope for most of the downstream end, but bad spots still remain.
SAC 17.2 L	Sacramento River	17.2	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	critical	2009	1,001	0	Fluvial	Whole Bank Failure	concrete rubble and some quarry stone in poor condition	Boat dock, pipe, pump, building, and dolphin	2009 - Fluvial erosion, into the levee slope, close to vertical bank with roadway on top. Pilings that were once at the bankline are now 30 ft out. 2010 - Very steep slope with slumps and overturned trees. 2011 - Upgraded to CRITICAL. Sections of vertical slope with highway on top. Heavy vegetation in front of most of the erosion pockets. Structures built into the levee on the upstream end. 2012 - Site continues to worsen. 2013 - Some rock added on the upstream end, but site remains critical.	More rock has been placed in spots along the toe, but it is still insufficient.
STM 24.7 R	Steamboat Slough	24.7	-	R	RD 349 (Unit 2)	Sutter Island	critical	1997	949	0	Fluvial	Wave Wash	occasional quarry stone in poor condition	Pipe	1997 - Erosion of very sandy levee behind large stand of riparian vegetation on top right bank. Dry ravel of sand. 1999 - Quarry waste rock was dumped down the levee slope; poor repair job; still eroding in places. Eroding at midslope off fabric. 2005 - Length revised, only the middle 150 - 200 ft are eroding. 2006 - Some rock/small material dumped down the bank but it is slowly unraveling. Upstream end is unraveling faster. Steep slope with poor gradation so fines are washing out. 2010 - Lots of overhanging trees and erosion pockets. 2011 - This site is upgraded to CRITICAL. Near vertical bank at the downstream end. New erosion at various locations throughout the site.	No observed changes.

Table A-2. 2015 SRBPP Critical Erosion Sites

STR 24.7 R	Sutter Slough	24.7	-	R	RD 999 (Unit 3)	Clarksburg	critical	1997	2,180	0	Toe Scour	Whole Bank Failure	quarry stone on part of the bank in poor condition	Pipe	1997 - Intermittent over-steepened sections. Large riparian vegetation along the length of the entire reach. Attempts to repair with rock on bank have failed. 1999 - New rock repair at the downstream end. 2002 - Some minor spot repairs. 2009 - Minimal new erosion. 2010 - Appears that fresh rock placed on downstream portion of site. Toe scour and overhanging trees with some overturned. 2012 - Minor new erosion at the toe. 2013 - Site upgraded to CRITICAL. Severe slumping into levee at downstream end of site. Fresh erosion into bank toe.	New slumping, tall vertical sections.
									11,838							

Table A-3. 2013 and 2015 SRBPP New Erosion Sites

Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
2013 New Erosion Sites																
CHS 22.5 R	Cache Slough	22.5	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2013	191	0	Erosion Pockets	Whole Bank Failure	none	No	2013 - Erosion pockets into the levee toe.	Erosion pockets have increased in size.
CHS 22.9 R	Cache Slough	22.9	-	R	RD 2060 (Unit 3)	Hastings Tract	eroding	2013	260	0	Erosion Pockets	Whole Bank Failure	none	No	2013 - Pockets of erosion behind willows.	No observed changes.
FHR 12.3 R	Feather River	12.3	-	R	DWR M.A. 3 (Unit 1)	Yuba City	eroding	2013	177	12	Toe Scour		none	Ecological Reserve	2013 - Minor toe scour causing gradual erosion of bank slope. Site is within ecological reserve.	Last observed in 2013.
FHR 12.8 R	Feather River	12.8	-	R	DWR M.A. 3 (Unit 1)	Yuba City	eroding	2013	293	15	Toe Scour		none	No	2013 - Minor toe scour causing gradual erosion into the bank slope.	Last observed in 2013.
GEO 5.8 L	Georgiana Slough	5.8	-	L	RD 563 (Unit 1)	Tyler Island	eroding	2013	458	0	Wave Wash	Toe Scour	none	No	2013 - Erosion pockets into the levee prism. Erosion pockets primarily located behind unmaintained brush boxes.	Last observed in 2013.
SAC 21.9 L	Sacramento River	21.9	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	eroding	2013	237	5	Fluvial	Wave Wash	none	No	2013 - Erosion pockets encroaching on levee foundation.	No observed changes.
STR 28.4 R	Sutter Slough	28.4	-	R	RD 150 (Unit 1)	Merritt Island	eroding	2013	314	0	Toe Scour	Wave Wash	quarry stone in sections in fair condition	Bridge	2013 - Old toe repair unraveling. Bridge at upstream end of site.	No observed changes.
									1,930							
2015 New Erosion Sites																
SAC 33.9 R	Sacramento River	33.9	-	R	RD 349 (Unit 1)	Sutter Island	eroding new	2015	328	10	Toe Scour	Wave Wash	quarry stone at toe in fair condition	No		Erosion observed at the toe.
STR 26.1 R	Sutter Slough	26.1	-	R	RD 349 (Unit 3)	Sutter Island	eroding new	2015	252	0	Toe Scour	Wave Wash	none	No		Tall vertical sections into the levee slope and erosion along the toe.
STR 26.9 L	Sutter Slough	26.9	-	L	RD 349 (Unit 3)	Sutter Island	eroding new	2015	637	20	Toe Scour	Wave Wash	none	No		Large Tree popout and tall vertical sections into the levee slope.
									1,217							
									3,147							

Table A-4. 2015 SRBPP Erosion Sites Under Construction

Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
SAC 26.0 L	Sacramento River	26.0	-	L	RD 556 (Unit 2)	Brannan Andrus Islands	under construction	1997	1,547	0	Fluvial	Wave Wash	small section of quarry stone in good condition	Pump and USGS gage station	2002 - Two rock sections (150 ft long) at the downstream end. 2005 - Lots of old brush boxes, some with established vegetation in the area behind the boxes. 2006 - Some small spots fixed with stone. 2009 - Minimal new erosion, rock in the middle of the reach may be new. 2011 - Minor new erosion at the toe. 2013 - Minor new erosion.	Site is currently under construction.
									1,547							

Table A-5. 2013 and 2015 SRBPP Removed and Repaired Sites

Site Identification	Waterway	River Mile	Levee Mile	Bank	Maintaining Agency	Damage Basin	Status	Year Added	Erosion Length (ft)	Berm Width (ft)	Erosion Mecanism (Primary)	Erosion Mecanism (Secondary)	Revetment Details	Encroachment at Site	Site History	2015 Field Notes
2013 Removed or Repaired Sites																
CHC 3.9 L	Cache Creek	-	3.9	L	DWR Cache Creek (Unit 1)	Yolo	repaired	2002	429	10	Toe Scour	Whole Bank Failure	none	No	Site identified as CRITICAL in 2006. 2006 - Some significant new erosion, especially fresh upper bank slumping. Also have a small piping failure due to recent overbank flows. 2007 - Some new minor upper bank slumps. 2010 - Planned setback levee by CA DWR, 100% design complete, construction planned for 2011. 2011 - Minor new erosion, construction delayed to 2012. 2012 - Minimal new erosion, construction planned for 2013. 2013 - Site repaired by CA Department of Water Resources with a setback levee.	
CHC 4.2 L	Cache Creek	-	4.2	L	DWR Cache Creek (Unit 1)	Yolo	repaired	2002	728	10	Toe Scour	Whole Bank Failure	none	No	Site identified as CRITICAL in 2006. 2006 - Some significant new erosion, especially fresh upper bank slumping. Also have a small piping failure due to recent overbank flows. 2010 - New erosion, flood fought in early 2010. Planned setback levee by CA DWR, 100% designs complete, construction planned for 2011. 2011 - Large sections of bank have slumped since the previous year. 2012 - Significant new erosion along top of bank. Construction planned for 2013. 2013 - Site repaired by CA Department of Water Resources with a setback levee.	
GEO 2.0 L	Georgiana Slough	2.0	-	L	RD 563 (Unit 1)	Tyler Island	repaired	2009	652	0	Erosion Pockets	Wave Wash	quarry stone in sections, ranging from poor to good condition	No	2009 - Upgraded to full erosion site. Small scour pockets and mid slope wave wash. 2010 - New rock and freshly fallen trees. 2011 - Site upgraded to CRITICAL. Significant new erosion. Rotational failures for the full height of the levee. 2012 - Some rock has been placed in last year, however the site remains critical. 2013 - Site repaired by the RD.	
SAC 46.7 L	Sacramento River	46.7	-	L	DWR MA 9 (Unit 1)	Sacramento	repaired	2010	162	0	Wave Wash	Other	cobbles on part of the bank in poor condition	Railroad on top of levee	Site identified by DWR MA and flood fought following the 2010 storm events. 2010 - Railroad on levee, may be an encroachment; DWR flood fought in January 2010. Eroding of the upper and middle bank, lots from people. 2011 - Site continues to worsen. More erosion at the toe. 2012 - Site currently under construction. 2013 - Site repaired by CA DWR	
SAC 163.0 L	Sacramento River	163.0	-	L	L.D. 3 (Unit 1)	Butte Basin	removed	1997	1482	30	Fluvial	Whole Bank Failure	none	No	2000 - Snags along toe at downstream end; slow erosion. 2001 - A couple of small fresh slumps in the lower bank section. 2006 - Some minor new erosion at the downstream end. 2009 - Some new erosion. 2010 - New toe erosion. 2011 - Minor new erosion. 2012 - Minor new erosion at the toe. 2013 - Site removed because sufficient berm width, does not meet criteria.	
									3,453							
2015 Removed or Repaired Sites																
SAC 15.0 L	Sacramento River	15.0	-	L	Brannan-Andrus Levee District (Unit 2)	Brannan Andrus Islands	repaired	2009	203	0	Other	Fluvial	quarry stone at toe in fair condition	No	2009 - Tension cracks on road on top of levee. Erosion into the levee slope with large mass failure scallop. 2010 - Site extended further upstream to account for additional erosion. Very steep slope with slumping.	Local RD rocked the whole slope, site is considered repaired.
SAC 57.0 R	Sacramento River	57.0	-	R	RD 900 (Unit 1)	Southport	repaired	1997	184	0	Fluvial	Eddy Scour	none	No	1997 - Old timber pile dikes remnant approximately 30 ft out into the channel. Oversized levee section. 1999 - Some additional erosion at water line. 2008 - Plans for setback levee repair (along with 57.2) currently in the design phase. 2011 - Setback levee under construction. 2013 - Setback levee is constructed, should be finalized in 2014.	Setback levee complete, site is repaired.
SAC 57.2 R	Sacramento River	57.2	-	R	RD 900 (Unit 1)	Southport	repaired	2007	647	0	Fluvial		cobbles at toe in poor condition	No	2007 - Steep levee slope with cobble revetment rolling off the bank and a silty clay toe. 2008 - Plans for setback levee repair currently in the design phase. 2011 - Setback levee under construction. 2013 - Setback levee is constructed, should be finalized in 2014.	Setback levee complete, site is repaired.
SAC 77.0 R	Sacramento River	77.0	-	R	RD 1600 (Unit 1)	Elkhorn	removed	2011	347	15	Fluvial	none	cobbles at toe in fair condition	No	2011 - Large vertical eroded face from a rotational failure just below pump.	Does not meet criterial.
SAC 96.2 L	Sacramento River	96.2	-	L	RD 1500 (Unit 1)	South Sutter	removed	1997	1,489	15	Fluvial	Toe Scour	scattered rock in poor condition	Pipes through levee, pump house, debris catcher, and old foundation	2000 - Vertical Modesto Formation bank with mass failure. 2003 - Upstream end has some new bank retreat. 2004 - Upstream end is worse. 2006 - Some new erosion, mainly on the steep slope and scarps. (Pumping station is not part of the erosion site.) 2010 - Some new erosion and deposition at upstream end, definite encroachments. 2011 - Minor new erosion at the toe.	Site removed, sufficient berm width.
									2,869							
									6,322							

Table A-6. 2014 SRBPP Erosion Site Coordinates

Site Identification	WATERWAY	Midpoint Longitude	Midpoint Latitude	Upstream Longitude	Upstream Latitude	Downstream Longitude	Downstream Latitude
BER 0.8 L	Bear River	-121.56374200100	38.94703404300	-121.56339039000	38.94759112760	-121.56409361100	38.94647695840
BER 1.9 L	Bear River	-121.55008146100	38.95467494750	-121.54952812200	38.95506985670	-121.55059151200	38.95422748420
BER 2.5 L	Bear River	-121.54510857000	38.96430160760	-121.54496677700	38.96458304820	-121.54522754500	38.96400994920
BER 4.9 R	Bear River	-121.51592367500	38.98133537790	-121.51584805700	38.98139958170	-121.51599929400	38.98127117400
BER 5.7 L	Bear River	-121.50197071900	38.98265489270	-121.50114443800	38.98273746330	-121.50279700000	38.98257232210
BTC 2.5 R	Butte Creek	-121.84648037700	39.54420111370	-121.84636610200	39.54437412750	-121.84659465300	39.54402809990
CBD 0.5 L	Colusa Basin Drainage Canal	-121.73156831500	38.79550181320	-121.73256636100	38.79526831350	-121.73062748600	38.79593052750
CBD 0.9 L	Colusa Basin Drainage Canal	-121.73728423500	38.79580674060	-121.73890198500	38.79622503420	-121.73564734600	38.79548648110
CBD 19.2 L	Colusa Basin Drainage Canal	-121.98589252700	39.01712160380	-121.98637399000	39.01751621640	-121.98541106400	39.01672699130
CHC 2.4 L	Cache Creek	-121.79752385300	38.73276046530	-121.79789339100	38.73283619620	-121.79715431600	38.73268473450
CHC 2.8 L	Cache Creek	-121.79335226600	38.73411914410	-121.79371301700	38.73406748430	-121.79299151500	38.73417080390
CHC 3.4 L	Cache Creek	-121.78515599100	38.73229617300	-121.78496540300	38.73294167470	-121.78523062000	38.73162645900
CHC 3.5 R	Cache Creek	-121.75986000400	38.72275200380	-121.75973587800	38.72213787610	-121.75958780100	38.72329384020
CHC 3.9 L	Cache Creek	-121.78100049200	38.72791729470	-121.78167297700	38.72816546630	-121.78035868600	38.72759959620
CHC 4.2 L	Cache Creek	-121.77566229900	38.72719803910	-121.77692114300	38.72726106860	-121.77443539300	38.72690281740
CHC 5.4 L	Cache Creek	-121.76049886100	38.72320004300	-121.76056135100	38.72293298990	-121.76043637100	38.72346709620
CHK 11.7 R	Cherokee Canal	-121.75987970700	39.44277954960	-121.75985114500	39.44282108360	-121.75990826900	39.44273801550
CHS 15.9 L	Cache Slough	-121.65575962900	38.19963693020	-121.65563822400	38.20014624260	-121.65588103400	38.19912761780
CHS 21.1 R	Cache Slough	-121.69782939100	38.26246438950	-121.69886772000	38.26458539750	-121.69640292100	38.26059295480
CHS 22.5 R	Cache Slough	-121.71237287400	38.27795909170	-121.71260909200	38.27814460410	-121.71213665700	38.27777357930
CHS 22.6 R	Cache Slough	-121.71367720600	38.27934154390	-121.71463266300	38.28037703970	-121.71272174900	38.27830604820
CHS 22.8 R	Cache Slough	-121.71656830500	38.28180485950	-121.71681723200	38.28210010370	-121.71631937900	38.28150961530
CHS 22.9 R	Cache Slough	-121.71724149700	38.28257880360	-121.71748718300	38.28288014120	-121.71699581100	38.28227746600
CHS 23.0 R	Cache Slough	-121.71814261300	38.28370380020	-121.71847113200	38.28410517540	-121.71781409300	38.28330242500
CHS 23.6 R	Cache Slough	-121.72400105300	38.28732429860	-121.72518367100	38.28859786390	-121.72281843600	38.28605073330
DEC 0.9 R	Deer Creek	-122.02422421900	39.96796531910	-122.02382818700	39.96816479610	-122.02462025000	39.96776584220
DEC 2.4 L	Deer Creek	-122.03154541600	39.96281711410	-122.03142052600	39.96290989410	-122.03167030600	39.96272433420
DWS 5.0 L	Deep Water Ship Channel	-121.59775507400	38.43740112330	-121.59770722100	38.43750589070	-121.59780292600	38.43729635590
ELC 1.4 L	Elder Creek	-122.16364253200	40.05178706410	-122.16417878600	40.05159550920	-122.16310627700	40.05197861900
ELC 3.0 R	Elder Creek	-122.14040780100	40.05484967300	-122.14057769700	40.05472971840	-122.14023790400	40.05496962760
ELK 0.2 L	Elk Slough	-121.54348294300	38.37618544310	-121.52289574100	38.41389258960	-121.58362505200	38.33273502970
ELK 0.2 R	Elk Slough	-121.54422406800	38.37640864510	-121.52315558200	38.41415662000	-121.58444930600	38.33264290820
FHR 0.6 L	Feather River	-121.62902966900	38.79442444070	-121.62990320900	38.79545470870	-121.62815613000	38.79339417260
FHR 1.0 L	Feather River	-121.63258244800	38.79950795250	-121.63305034700	38.80092030170	-121.63193912000	38.79816483000
FHR 3.8 L	Feather River	-121.63512727800	38.83418360630	-121.63412768400	38.83696626120	-121.63637096200	38.83149774200
FHR 5.0 L	Feather River	-121.63005188400	38.85019884520	-121.62923097700	38.85239369740	-121.63087279100	38.84800399290
FHR 5.8 L	Feather River	-121.62228770300	38.86270063010	-121.62138799200	38.86394568930	-121.62331578100	38.86155816530
FHR 6.0 L	Feather River	-121.62037799600	38.86527565380	-121.61998328700	38.86587469610	-121.62081273800	38.86470572860
FHR 6.6 L	Feather River	-121.61594897800	38.87324783890	-121.61538036900	38.87411308580	-121.61650444000	38.87237264740
FHR 12.3 R	Feather River	-121.58849146200	38.93769409860	-121.58851231100	38.93745124690	-121.58847061400	38.93793695020
FHR 12.8 R	Feather River	-121.58623334600	38.94557763100	-121.58609588000	38.94518788100	-121.58639446200	38.94595803970
FHR 17.8 L	Feather River	-121.57863556100	39.00706458850	-121.57976600700	39.00936641450	-121.57914343000	39.00454904170
FHR 47.5 R	Feather River	-121.63354328000	39.33311998980	-121.63390827000	39.33423997970	-121.63317829000	39.33200000000
FHR 50.9 R	Feather River	-121.64759322900	39.36712753140	-121.64786617100	39.36760552400	-121.64721672800	39.36672638300
GEO 0.3 L	Georgiana Slough	-121.58544793400	38.12994590470	-121.58833702800	38.13112560540	-121.58226568100	38.13036822450
GEO 1.7 L	Georgiana Slough	-121.59818952000	38.14182039060	-121.59967662200	38.14351877480	-121.59698568800	38.13991779250
GEO 2.0 L	Georgiana Slough	-121.60000741600	38.14676544420	-121.59943345700	38.14753669310	-121.60058137600	38.14599419530
GEO 2.5 L	Georgiana Slough	-121.59526943900	38.15117313800	-121.59365029200	38.15082034290	-121.59685772300	38.15064670830
GEO 3.8 L	Georgiana Slough	-121.59127640300	38.15664234690	-121.58742733500	38.15698739730	-121.59112927000	38.15291884130
GEO 4.3 L	Georgiana Slough	-121.58574303200	38.15891103580	-121.58505613700	38.16026051070	-121.58654324400	38.15762467080
GEO 4.5 L	Georgiana Slough	-121.58390907200	38.16265808660	-121.58309192600	38.16446155640	-121.58480713600	38.16088822530

Table A-6. 2014 SRBPP Erosion Site Coordinates

Site Identification	WATERWAY	Midpoint Longitude	Midpoint Latitude	Upstream Longitude	Upstream Latitude	Downstream Longitude	Downstream Latitude
GEO 5.3 L	Georgiana Slough	-121.57978047100	38.17226783880	-121.57974711500	38.17686095660	-121.58161593200	38.16795901880
GEO 6.3 L	Georgiana Slough	-121.56948086700	38.18234135020	-121.56329595300	38.18547864520	-121.57629174200	38.18135919430
GEO 6.8 L	Georgiana Slough	-121.55992513700	38.18689926250	-121.55844157500	38.18821640230	-121.56166676500	38.18596802760
GEO 7.0 R	Georgiana Slough	-121.55860717200	38.18898597170	-121.55772910800	38.18977489720	-121.55941251800	38.18812085210
GEO 7.2 L	Georgiana Slough	-121.55676702000	38.18979813140	-121.55630672000	38.19007274200	-121.55722732000	38.18952352080
GEO 8.3 L	Georgiana Slough	-121.54341212800	38.20033312420	-121.54257102900	38.20073274680	-121.54424943200	38.19992548550
GEO 9.3 L	Georgiana Slough	-121.53673008600	38.21279773040	-121.53777838100	38.21413297420	-121.53543591300	38.21173704010
GEO 11.0 L	Georgiana Slough	-121.52976338800	38.22683946910	-121.52909439300	38.22652174180	-121.53043238200	38.22715719630
HAS 7.9 L	Haas Slough	-121.72789615000	38.29688743280	-121.72862092300	38.29960556260	-121.72543272800	38.29485846200
HAS 9.7 L	Haas Slough	-121.74030951900	38.32238861830	-121.74025393400	38.32458670530	-121.74018331400	38.32023966760
KLR 3.0 L	Knights Landing Ridge Cut	-121.69273368500	38.75643331190	-121.69304758600	38.75792498850	-121.69265303400	38.75489891550
KLR 3.1 L	Knights Landing Ridge Cut	-121.69394898100	38.75938537930	-121.69468646100	38.76005318910	-121.69335890900	38.75858677910
KLR 3.5 R	Knights Landing Ridge Cut	-121.69558605500	38.75890639370	-121.69606286600	38.75933205710	-121.69515807400	38.75843230230
KLR 3.7 L	Knights Landing Ridge Cut	-121.70096693200	38.76639297340	-121.70102252200	38.76733570770	-121.70060841600	38.76552187480
KLR 3.9 R	Knights Landing Ridge Cut	-121.70178590000	38.76444761480	-121.70207351900	38.76490536550	-121.70143449000	38.76403692440
KLR 4.7 L	Knights Landing Ridge Cut	-121.70482214400	38.77678872130	-121.70619547200	38.77811503660	-121.70368540400	38.77527090970
KLR 5.8 L	Knights Landing Ridge Cut	-121.72040764700	38.78948083840	-121.72409089600	38.79239529300	-121.71672439700	38.78656638390
LAR 1.8 L	Lower American River	-121.48006261900	38.59895086960	-121.47979886100	38.59879070710	-121.48033728700	38.59909457800
LDS 0.6 R	Lindsey Slough	-121.75907171900	38.25166619260	-121.76016491800	38.24961522260	-121.75797852000	38.25371716250
LDS 0.7 R	Lindsey Slough	-121.70717291100	38.24615329760	-121.70760908100	38.24598106000	-121.70673674100	38.24632553520
LDS 0.8 R	Lindsey Slough	-121.70846576600	38.24562388760	-121.70860485500	38.24558071080	-121.70832667700	38.24566706430
LDS 1.9 L	Lindsey Slough	-121.72478805400	38.25702630970	-121.72482262100	38.25751748640	-121.72475348600	38.25653513300
LDS 2.4 L	Lindsey Slough	-121.73218784600	38.25727161780	-121.73242288500	38.25731946140	-121.73195280600	38.25722377420
MUD 4.4 R	Mud Creek	-121.89534791800	39.77361306830	-121.89507769200	39.77396883730	-121.89561814400	39.77325729930
NCC 3.0 R	Natomas Cross Canal	-121.57479094100	38.80404127590	-121.57452892100	38.80420576030	-121.57505296100	38.80387679140
PUC 0.1 L	Putah Creek	-121.63139265000	38.52253728710	-121.63151885700	38.52196843610	-121.63135583600	38.52311876890
PUC 7.2 L	Putah Creek	-121.75229600900	38.51739710350	-121.75282360700	38.51735486040	-121.75177783800	38.51736162450
SAC 10.8 L	Sacramento River	-121.68805795200	38.12869740440	-121.68746766000	38.12972197540	-121.68864604800	38.12767157070
SAC 11.2 L	Sacramento River	-121.68593861400	38.13977860890	-121.68534603100	38.14139942110	-121.68653119800	38.13815779680
SAC 12.1 L	Sacramento River	-121.68260287000	38.15031125320	-121.68220054700	38.15186681850	-121.68278998900	38.14871128010
SAC 13.6 L	Sacramento River	-121.67084908800	38.16618820130	-121.67068369700	38.16658280670	-121.67101447800	38.16579359590
SAC 15.0 L	Sacramento River	-121.65216011700	38.17265625530	-121.65182099900	38.17257958200	-121.65249923600	38.17273292850
SAC 16.8 L	Sacramento River	-121.61832874500	38.16309326100	-121.61732257200	38.16295867060	-121.61931211400	38.16333362440
SAC 17.2 L	Sacramento River	-121.61453359600	38.16266571760	-121.61280039900	38.16264058500	-121.61626298600	38.16282758010
SAC 18.0 L	Sacramento River	-121.60114070100	38.16499273850	-121.60047696500	38.16530334560	-121.60180443700	38.16468213130
SAC 18.1 L	Sacramento River	-121.59971270200	38.16572154240	-121.59934492400	38.16594534520	-121.60008048100	38.16549773970
SAC 21.5 L	Sacramento River	-121.55752695200	38.20095598420	-121.55730537000	38.20168706000	-121.55774853400	38.20022490830
SAC 21.9 L	Sacramento River	-121.55716310800	38.20605101410	-121.55718395400	38.20637710790	-121.55710804500	38.20572932690
SAC 22.5 L	Sacramento River	-121.55711950000	38.21234666750	-121.55719704900	38.21358141480	-121.55704195100	38.21111192020
SAC 22.7 L	Sacramento River	-121.55675406400	38.21852750400	-121.55668907500	38.21895100920	-121.55681905400	38.21810399890
SAC 23.2 L	Sacramento River	-121.55566430700	38.22404154900	-121.55564146100	38.22485021730	-121.55568715300	38.22323288080
SAC 23.3 L	Sacramento River	-121.55556807600	38.22740225890	-121.55550212600	38.22820220520	-121.55560528300	38.22660053470
SAC 24.8 L	Sacramento River	-121.54544869100	38.24058612210	-121.54410591800	38.24040070690	-121.54679146300	38.24077153740
SAC 25.2 L	Sacramento River	-121.53781571700	38.23903091800	-121.53678784600	38.23877238620	-121.53884539900	38.23926504950
SAC 26.0 L	Sacramento River	-121.52655971300	38.23832309860	-121.52393161500	38.23878437200	-121.52918781100	38.23786182520
SAC 26.3 R	Sacramento River	-121.52017115300	38.23986721540	-121.51936100200	38.23998269790	-121.52098928400	38.23986988680
SAC 27.0 L	Sacramento River	-121.51130898100	38.24561914650	-121.51087751900	38.24622157320	-121.51174044400	38.24501671970
SAC 31.6 R	Sacramento River	-121.56583530800	38.29524353630	-121.56629457100	38.29573006660	-121.56537604500	38.29475700590
SAC 33.9 R	Sacramento River	-121.57704894600	38.32629314850	-121.57697913400	38.32674256460	-121.57711875800	38.32584373230
SAC 35.4 L	Sacramento River	-121.55846433000	38.34281977890	-121.55770616800	38.34307135020	-121.55916288300	38.34242568980
SAC 38.5 R	Sacramento River	-121.52319231600	38.37141835090	-121.52331563900	38.37190918990	-121.52306899400	38.37092751200

Table A-6. 2014 SRBPP Erosion Site Coordinates

Site Identification	WATERWAY	Midpoint Longitude	Midpoint Latitude	Upstream Longitude	Upstream Latitude	Downstream Longitude	Downstream Latitude
SAC 41.9 R	Sacramento River	-121.52397706200	38.41603920040	-121.52508279500	38.41769150510	-121.52287132900	38.41438689570
SAC 43.1R	Sacramento River	-121.53311730000	38.43084176120	-121.53319965700	38.43172635100	-121.53303494300	38.42995717150
SAC 43.2 R	Sacramento River	-121.53224982500	38.43356631530	-121.53115898600	38.43456000800	-121.53297811200	38.43228714030
SAC 46.7 L	Sacramento River	-121.50340923700	38.46466391240	-121.50344831000	38.46488463490	-121.50337016300	38.46444318990
SAC 48.6 R	Sacramento River	-121.52971269600	38.47307021710	-121.53098826200	38.47305882010	-121.52843713000	38.47308161400
SAC 50.3 L	Sacramento River	-121.55344592100	38.49098910750	-121.55354028600	38.49108614820	-121.55335155500	38.49089206680
SAC 52.4 L	Sacramento River	-121.54294561100	38.51524198990	-121.54275548100	38.51529969360	-121.54313574000	38.51518428620
SAC 52.7 L	Sacramento River	-121.54044336600	38.51584065650	-121.54017414500	38.51588742390	-121.54071258800	38.51579388910
SAC 53.8 L	Sacramento River	-121.52312722500	38.52077975180	-121.52307196100	38.52099590140	-121.52326068900	38.52060607190
SAC 54.8 L	Sacramento River	-121.52707712300	38.53161137600	-121.52656572700	38.53180574660	-121.52758851800	38.53141700550
SAC 55.2 L	Sacramento River	-121.52163705700	38.53364455630	-121.52026302100	38.53414414030	-121.52301035400	38.53314294620
SAC 55.5 L	Sacramento River	-121.51659675000	38.53639612760	-121.51610679100	38.53675633470	-121.51708670800	38.53603592040
SAC 55.7 R	Sacramento River	-121.51473882900	38.53996758540	-121.51356122900	38.54124645270	-121.51591642800	38.53868871800
SAC 56.5 R	Sacramento River	-121.51420282300	38.55070460480	-121.51442308300	38.55131893980	-121.51398256400	38.55009026990
SAC 56.6 L	Sacramento River	-121.51246307800	38.55192285190	-121.51259039500	38.55226804260	-121.51233576000	38.55157766120
SAC 56.7 R	Sacramento River	-121.51500773100	38.55339092470	-121.51526332800	38.55427743740	-121.51475213400	38.55250441200
SAC 57.0 R	Sacramento River	-121.51675303300	38.55795549990	-121.51685893500	38.55819436140	-121.51664713100	38.55771663850
SAC 57.2 R	Sacramento River	-121.51778361500	38.55975506330	-121.51837583300	38.56051207100	-121.51719139700	38.55899805550
SAC 58.5 L	Sacramento River	-121.51253059700	38.57272344250	-121.51199777100	38.57316943710	-121.51306342400	38.57227744790
SAC 62.9 R	Sacramento River	-121.55303263500	38.60114766100	-121.55325029100	38.60138784620	-121.55281498000	38.60090747580
SAC 63.0 R	Sacramento River	-121.55375619200	38.60190428560	-121.55390929800	38.60210099540	-121.55360308600	38.60170757580
SAC 7.3 L	Sacramento River	-121.72941220200	38.08044815220	-121.72834116100	38.08036986370	-121.73048324300	38.08052644070
SAC 7.9 L	Sacramento River	-121.70816848500	38.08601421130	-121.70778613100	38.08660259680	-121.70860677400	38.08545852880
SAC 71.3 R	Sacramento River	-121.63402477800	38.68340671340	-121.63421907500	38.68410637580	-121.63383048100	38.68270705090
SAC 74.4 R	Sacramento River	-121.60673721400	38.71951393530	-121.60641388600	38.72135114790	-121.60742254400	38.71776953240
SAC 75.3 R	Sacramento River	-121.60518493800	38.73244136720	-121.60415347500	38.73610979280	-121.60584416200	38.72868411690
SAC 77.0 R	Sacramento River	-121.59408868900	38.75571081580	-121.59402431700	38.75618601080	-121.59420642400	38.75524634890
SAC 77.7 R	Sacramento River	-121.59498726900	38.76500988910	-121.59504880600	38.76521922180	-121.59492573200	38.76480055630
SAC 78.3 L	Sacramento River	-121.59832650100	38.77371425750	-121.59886516500	38.77450704190	-121.59778783600	38.77292147320
SAC 8.0 L	Sacramento River	-121.70683073800	38.08958003480	-121.70668360500	38.09062012450	-121.70712716800	38.08857238190
SAC 8.2 L	Sacramento River	-121.70637998000	38.09486898110	-121.70636663100	38.09514783850	-121.70639332900	38.09459012370
SAC 83.9 R	Sacramento River	-121.66911913300	38.75889956700	-121.67075922900	38.75900017860	-121.66750012300	38.75939003230
SAC 85.4 R	Sacramento River	-121.68581367600	38.76317372000	-121.68756699700	38.76348637510	-121.68403773900	38.76331250040
SAC 86.3 L	Sacramento River	-121.68693077600	38.77307427160	-121.68584059200	38.77728215150	-121.69055259100	38.77039039490
SAC 86.9 R	Sacramento River	-121.68783487700	38.77977165080	-121.68823818600	38.78040664310	-121.68743156800	38.77913665850
SAC 87.1 L	Sacramento River	-121.68896631600	38.78348131910	-121.69003318600	38.78493555050	-121.68803323400	38.78196167140
SAC 92.8 L	Sacramento River	-121.72824331400	38.84001066100	-121.72685706500	38.84034688770	-121.72959127900	38.83954578780
SAC 95.8 L	Sacramento River	-121.75071361800	38.87127511890	-121.75205901400	38.87058108620	-121.74933017800	38.87185287110
SAC 96.2 L	Sacramento River	-121.75464394200	38.86964420760	-121.75710834300	38.86913854560	-121.75223651100	38.87047377020
SAC 99.0 L	Sacramento River	-121.78352295300	38.85955996290	-121.78405701900	38.86189920000	-121.78377064900	38.85723890750
SAC 101.3 R	Sacramento River	-121.81330483900	38.87498148440	-121.81359176300	38.87510869180	-121.81301791500	38.87485427700
SAC 103.4 L	Sacramento River	-121.80330370000	38.90109601920	-121.80322532700	38.90119885600	-121.80338207300	38.90099318250
SAC 104.0 L	Sacramento River	-121.79551848400	38.90023936520	-121.79067691700	38.90272067120	-121.80117518100	38.90133701580
SAC 104.5 L	Sacramento River	-121.79095748800	38.90604999320	-121.79279637300	38.90669726400	-121.79029802100	38.90404072610
SAC 111.0 R	Sacramento River	-121.84066689500	38.95418587990	-121.84077406300	38.95431187690	-121.84055972600	38.95405988280
SAC 115.9 R	Sacramento River	-121.79844089300	38.99801592380	-121.79929756500	38.99833605820	-121.79758422000	38.99769578940
SAC 116.0 L	Sacramento River	-121.80188630600	39.00058830570	-121.80288859100	39.00141325160	-121.80089814000	38.99974481520
SAC 116.5 L	Sacramento River	-121.81029709900	39.00550134940	-121.81592589800	39.00607194380	-121.80502409000	39.00330077380
SAC 118.0 R	Sacramento River	-121.82505512200	39.01545025290	-121.82422988400	39.01640126230	-121.82588036000	39.01449924340
SAC 120.6 L	Sacramento River	-121.83747943300	39.04413841900	-121.83765382100	39.04436068750	-121.83730504600	39.04391615050
SAC 122.0 R	Sacramento River	-121.83909498000	39.06362036310	-121.83933513000	39.06399743660	-121.83892730500	39.06320850230

Table A-6. 2014 SRBPP Erosion Site Coordinates

Site Identification	WATERWAY	Midpoint Longitude	Midpoint Latitude	Upstream Longitude	Upstream Latitude	Downstream Longitude	Downstream Latitude
SAC 122.3 R	Sacramento River	-121.84327594700	39.06608619230	-121.84360222700	39.06628657040	-121.84294966800	39.06588581420
SAC 123.3 L	Sacramento River	-121.85696171100	39.06963550740	-121.85799467300	39.06916591250	-121.85592875000	39.07010510220
SAC 123.7 R	Sacramento River	-121.86711739800	39.06695228180	-121.86732152300	39.06690103990	-121.86691327200	39.06700352370
SAC 125.6 R	Sacramento River	-121.89502900200	39.07881649700	-121.89531721800	39.07935124930	-121.89465566700	39.07833986450
SAC 125.8 L	Sacramento River	-121.89136460000	39.08065187140	-121.89116376500	39.08066909620	-121.89156430800	39.08062101590
SAC 127.9 R	Sacramento River	-121.90398075500	39.10009652050	-121.90432041600	39.10083607980	-121.90343042700	39.09948216730
SAC 130.0 L	Sacramento River	-121.90949801000	39.12165061600	-121.91012136100	39.12245858560	-121.90915217700	39.12068445130
SAC 131.8 L	Sacramento River	-121.93560560800	39.13146982660	-121.93652105800	39.13203955790	-121.93469015800	39.13090009530
SAC 133.0 L	Sacramento River	-121.93441787900	39.14300246970	-121.93265227400	39.14240326470	-121.93611914900	39.14377504620
SAC 133.8 L	Sacramento River	-121.91846522000	39.14242853660	-121.91833271100	39.14267632270	-121.91859772900	39.14218075050
SAC 136.6 L	Sacramento River	-121.93831811900	39.17313695060	-121.93874507000	39.17391150070	-121.93792501400	39.17234438070
SAC 136.6 R	Sacramento River	-121.93981840600	39.17377768230	-121.94073740800	39.17494896140	-121.93905282700	39.17250129280
SAC 138.1 L	Sacramento River	-121.93446254200	39.19187604970	-121.93578285000	39.19321902020	-121.93419912900	39.19003825000
SAC 141.5 R	Sacramento River	-121.98830093000	39.19466667580	-121.98862141600	39.19559482860	-121.98790050600	39.19376903920
SAC 143.5 R	Sacramento River	-121.99859177600	39.21373866940	-121.99964066500	39.21386923650	-121.99754288700	39.21360810230
SAC 150.2 L	Sacramento River	-122.00339564000	39.27140082170	-122.00349658100	39.27149429260	-122.00329469800	39.27130735080
SAC 151.0 R	Sacramento River	-122.01785423800	39.26534517260	-122.02068188400	39.26631538180	-122.01492493900	39.26573036590
SAC 152.6 L	Sacramento River	-122.01718035500	39.28188861150	-122.01611298900	39.28385312960	-122.01822103000	39.27990962640
SAC 152.8 L	Sacramento River	-122.01544871700	39.28493319620	-122.01520775800	39.28529799940	-122.01568967500	39.28456839290
SAC 154.0 R	Sacramento River	-122.02353384600	39.29773174360	-122.02372814700	39.29771421920	-122.02335391100	39.29781050350
SAC 157.7 R	Sacramento River	-122.02969631400	39.33208160980	-122.02995281000	39.33271606910	-122.02943981900	39.33144715040
SAC 163.0 L	Sacramento River	-122.00285057100	39.39800709730	-122.00352204500	39.39995912770	-122.00245061300	39.39598245520
SAC 164.3 R	Sacramento River	-122.00900080500	39.40947429550	-122.00923825800	39.41111111280	-122.00876335200	39.40783747820
SAC 164.7 R	Sacramento River	-122.01011101900	39.41616917700	-122.01036878800	39.41768925620	-122.00985325000	39.41464909780
SAC 168.3 L	Sacramento River	-121.99416215900	39.45489579890	-121.99421725700	39.45509565120	-121.99410706100	39.45469594660
SAC 172.0 L	Sacramento River	-121.98506951600	39.50643894490	-121.98656195200	39.50811709130	-121.98530090300	39.50438815150
SBP 11.1 L	Sutter Bypass	-121.72686864700	39.02461699920	-121.72692892800	39.02483461200	-121.72680836600	39.02439938640
STM 15.7 R	Steamboat Slough	-121.64359253600	38.18971567440	-121.64315972200	38.19000094730	-121.64391653000	38.18931131270
STM 18.8 R	Steamboat Slough	-121.60984373100	38.21208471170	-121.60975972600	38.21257344690	-121.60992773700	38.21159597640
STM 18.9 R	Steamboat Slough	-121.60843941500	38.21445613030	-121.60812874300	38.21483771390	-121.60875008700	38.21407454670
STM 22.8 R	Steamboat Slough	-121.59058291300	38.26240924750	-121.58948071300	38.26250965500	-121.59169017800	38.26253308480
STM 23.6 R	Steamboat Slough	-121.58875580800	38.27290092600	-121.58874491600	38.27385412580	-121.58942361200	38.27199778010
STM 23.8 L	Steamboat Slough	-121.58990625600	38.27742791640	-121.58977330300	38.27759495340	-121.59003921000	38.27726087940
STM 23.9 R	Steamboat Slough	-121.58973406900	38.27880660930	-121.58961455700	38.27901654050	-121.58985358200	38.27859667820
STM 24.1 R	Steamboat Slough	-121.58944035400	38.27999396940	-121.58944256400	38.28006909710	-121.58943814400	38.27991884170
STM 24.7 R	Steamboat Slough	-121.58397675800	38.28736048120	-121.58382271000	38.28872687320	-121.58502606700	38.28647481950
STM 24.8 L	Steamboat Slough	-121.58305332100	38.29063501240	-121.58299299500	38.29169457720	-121.58309191000	38.28957450490
STM 25.0 L	Steamboat Slough	-121.58264746600	38.29303065410	-121.58255405400	38.29338615630	-121.58274087700	38.29267515190
STM 25.5 R	Steamboat Slough	-121.58193203600	38.29816545660	-121.58157063800	38.29889694950	-121.58217637500	38.29738431800
STM 25.8 R	Steamboat Slough	-121.57994357700	38.30209393110	-121.57970734500	38.30235756700	-121.58009304000	38.30177232300
STM 26.0 L	Steamboat Slough	-121.57778363300	38.30276174860	-121.57735709500	38.30303543790	-121.57824084900	38.30254432540
STR 24.7 R	Sutter Slough	-121.60473167800	38.29262660610	-121.60564791900	38.29550515090	-121.60434331300	38.28963422940
STR 25.2 R	Sutter Slough	-121.60207348000	38.29994941880	-121.60111774500	38.30054221090	-121.60305576700	38.29940157220
STR 25.7 R	Sutter Slough	-121.59909982100	38.30594797580	-121.59826618800	38.30666692870	-121.59993345400	38.30522902280
STR 26.1 R	Sutter Slough	-121.59735992700	38.31112377110	-121.59697203500	38.31128844900	-121.59774781900	38.31095909330
STR 26.5 L	Sutter Slough	-121.59179349700	38.31459595450	-121.59143306300	38.31540731450	-121.59225919400	38.31383565880
STR 26.9 L	Sutter Slough	-121.59010437300	38.32135545580	-121.59012659200	38.32223315140	-121.58992747700	38.32049076320
STR 27.1 R	Sutter Slough	-121.59047163700	38.32276641500	-121.59020874900	38.32304190640	-121.59069272400	38.32245696080
STR 27.3 R	Sutter Slough	-121.58680404700	38.32427991510	-121.58592462600	38.32559222850	-121.58822568600	38.32366742070
STR 28.4 R	Sutter Slough	-121.57711721500	38.32828950050	-121.57669295200	38.32801996330	-121.57754351200	38.32855547540
SYC 9.3 L	Sycamore Creek	-122.02195041000	39.15809145630	-122.02195045700	39.15822631510	-122.02195036300	39.15795659760

Table A-6. 2014 SRBPP Erosion Site Coordinates

Site Identification	WATERWAY	Midpoint Longitude	Midpoint Latitude	Upstream Longitude	Upstream Latitude	Downstream Longitude	Downstream Latitude
WAD 2.1 L	Wadsworth Canal	-121.74619536000	39.13778861590	-121.74293940000	39.14175669740	-121.74952644900	39.13388668030
WAD 2.1 R	Wadsworth Canal	-121.74648250700	39.13790554150	-121.74325982800	39.14181433460	-121.74978072400	39.13406397500
WAD 2.4 L	Wadsworth Canal	-121.73826630900	39.14750943970	-121.73439040900	39.15309546040	-121.74260886200	39.14223536080
WAD 2.4 R	Wadsworth Canal	-121.73847809600	39.14753229960	-121.73461054600	39.15315049480	-121.74284734500	39.14225370500
WAD 4.3 R	Wadsworth Canal	-121.72796077100	39.16879767250	-121.72790543800	39.16893653650	-121.72801610400	39.16865880840
YAS 1.7 L	Yankee Slough	-121.49457795600	38.96968985670	-121.49432684900	38.96973996070	-121.49482906300	38.96963975280
YOL 0.1 R	Yolo Bypass	-121.67162435500	38.67264925490	-121.67173246600	38.67322901830	-121.67151624300	38.67206949140
YOL 1.2 R	Yolo Bypass	-121.66898421600	38.65975757910	-121.66902821600	38.66005016480	-121.66894021600	38.65946499340
YOL 2.0 R	Yolo Bypass	-121.66651885600	38.64852988560	-121.66665260800	38.64888138160	-121.66638510300	38.64817838960
YOL 2.3 R	Yolo Bypass	-121.66348333400	38.64315833320	-121.66508888900	38.64531944440	-121.66187777800	38.64099722200
YOL 2.6 R	Yolo Bypass	-121.66330268000	38.72494495880	-121.66204103800	38.72550510900	-121.66456432200	38.72438480860
YOL 2.8 R	Yolo Bypass	-121.65805555600	38.63575694460	-121.66024722300	38.63873055560	-121.65586388800	38.63278333370
YOL 4.2 R	Yolo Bypass	-121.64674839500	38.62026273940	-121.64820123800	38.6222385680	-121.64529555200	38.61830162210
YUB 2.3 L	Yuba River	-121.51570002500	39.15202769350	-121.51391954600	39.15361293720	-121.51748050300	39.15044244990