APPENDIX C - LOGISTIC REGRESSION SUPPLEMENT: DATA, PARAMETER ESTIMATES, AND ADDITIONAL RESULTS

List of Figures in Appendix C

List of Tables in Appendix C

Table C.1 – Summary of logistic regression models of incising/braiding vs. stable single-thread in unconfined valleys: d_{50} 0.5 – 100 mm

Flow			Variable (1)		Variable (2)		Model Performance		
Source	Interval (yrs)	β_0	β_1^*	p	β_2^*	p	p	% Correctly Classified	
								Unstable	Stable
			d_{50} (mm)		MI ($m^{1.5}/s^{0.5}$)				
USGS	2	-16.8	1.28	0.002	-3.15	0.001	<0.0001	96%	46%
USGS	10	-14.9	1.47	0.002	-3.38	0.001	<0.0001	96%	46%
USGS	25	-13.9	1.52	0.002	-3.43	0.001	<0.0001	96%	46%
HBavg	2	-17.4	1.51	0.002	-3.46	0.001	<0.0001	98%	46%
HBm1	2	-15.1	1.17	0.001	-3.10	0.001	<0.0001	98%	46%
HBm3	2	-16.2	1.39	0.002	-3.15	0.001	<0.0001	98%	54%
HBm5	2	-18.9	2.24	0.005	-3.29	0.002	<0.0001	94%	69%
HBavg	10	-23.2	2.54	0.003	-5.79	0.003	<0.0001	98%	62%
HBm1	10	-15.6	1.57	0.001	-3.95	0.001	<0.0001	96%	62%
HBm3	10	-20.1	2.23	0.001	-4.83	0.001	<0.0001	96%	77%
HBm5	10	-33.7	4.40	0.002	-7.74	0.002	<0.0001	96%	77%
NRCS	2, 24 hr	-20.1	2.07	0.001	-4.10	0.001	<0.0001	96%	62%
			d_{50} (mm)		ω (Watt/m^2)				
USGS	2	1.64	1.39	0.002	-2.13	0.001	<0.0001	98%	54%
USGS	10	3.90	1.33	0.002	-1.99	0.001	<0.0001	98%	54%
USGS	25	4.30	1.25	0.003	-1.83	0.001	<0.0001	98%	54%
HBavg	2	2.28	1.46	0.001	-2.10	0.001	<0.0001	96%	62%
HBm1	2	2.73	1.27	0.001	-2.07	<0.001	<0.0001	98%	62%
HBm3	2	1.95	1.37	0.002	-1.97	0.001	<0.0001	96%	62%
HBm5	2	0.48	3.92	0.007	-3.76	0.005	<0.0001	98%	77%
HBavg	10	6.49	1.77	0.003	-2.64	0.001	<0.0001	98%	69%
HBm1	10	6.32	1.53	0.002	-2.48	0.001	<0.0001	98%	62%
HBm3	10	5.85	1.67	0.002	-2.47	0.001	<0.0001	96%	62%
HBm5	10	12.2	4.44	0.008	-5.56	0.006	<0.0001	96%	85%
NRCS	2, 24 hr	3.16	1.99	0.001	-2.47	0.001	<0.0001	98%	77%
			d_{50} (mm)		τ_*				
USGS	2	-2.97	-1.42	0.006	-2.74	0.001	<0.0001	94%	46%
USGS	10	-0.84	-1.71	0.003	-3.16	<0.001	<0.0001	98%	54%
USGS	25	0.05	-1.75	0.003	-3.20	<0.001	<0.0001	96%	62%
HBavg	2	-2.35	-1.50	0.005	-2.92	<0.001	<0.0001	98%	54%
HBm1	2	-1.97	-1.62	0.005	-2.90	0.001	<0.0001	96%	54%
HBm3	2	-2.35	-1.40	0.006	-2.73	<0.001	<0.0001	98%	54%
HBm5	2	-5.19	-1.70	0.002	-4.61	0.001	<0.0001	94%	77%
HBavg	10	0.19	-2.14	0.001	-3.89	<0.001	<0.0001	98%	77%
HBm1	10	0.36	-2.15	0.001	-3.72	<0.001	<0.0001	96%	69%
HBm3	10	0.015	-2.05	0.002	-3.77	<0.001	<0.0001	98%	69%
HBm5	10	-0.86	-3.24	0.003	-6.97	0.003	<0.0001	98%	92%
NRCS	2, 24 hr	-2.44	-1.61	0.004	-3.60	<0.001	<0.0001	98%	69%

General abbreviations and symbol definitions (excluding units of measure):

d_{50}	grain size that 50 percent of the particles are finer than
HBavg	average of all five Hawley-Bledsoe (In review) peak-flow models
HBm1	Hawley-Bledsoe model 1, Q = f (A, P), best performance across all flows during cross validation
HBm3	Hawley-Bledsoe model 3, Q = f (Strm, P_{224}), best performance across all flows during final calibration
HBm5	Hawley-Bledsoe model 5, Q = f (Strm, Shp, IP, Sv), best performance during cross validation and final calibration at Q_2
MI	screening index = $S_v * Q_i^{0.5}$
NRCS	NRCS Curve Number method
p	probability value
Q_i	instantaneous peak flow with return interval i years
S_v	valley slope
USGS	USGS regional equations (Waananen and Crippen, 1977)
β-parameters	correspond to log-transformed variables (i.e., $\beta_1{}^* \ln(d_{50})$, $\beta_2{}^* \ln(S_v{}^*Q_2{}^{0.5})$)
τ_*	dimensionless shear stress
ω	specific stream power = $\gamma{}^*S{}^*Q_i/W$

Table C.2 – Summary of logistic regression models of incising/braiding vs. stable single-thread in unconfined valleys: d_{50} 0.5 – 16 mm

Flow Source	Flow Interval (yrs)	β_0	Variable (1) β_1^*	Variable (1) p	Variable (2) β_2^*	Variable (2) p	Model Performance p	% Correctly Classified Unstable	% Correctly Classified Stable
			d_{50} (mm)		MI ($m^{1.5}/s^{0.5}$)				
USGS	2	-12.8	0.34	0.54	-2.42	0.006	0.003	98%	29%
USGS	10	-11.7	0.49	0.40	-2.69	0.006	0.001	98%	29%
USGS	25	-11.1	0.54	0.36	-2.77	0.006	0.0008	98%	29%
HBavg	2	-15.3	0.98	0.15	-3.04	0.007	0.0002	98%	29%
HBm1	2	-13.2	0.67	0.26	-2.71	0.007	0.002	98%	29%
HBm3	2	-15.6	0.82	0.19	-3.09	0.006	0.0001	98%	43%
HBm5	2	-53.2	8.43	0.19	-9.19	0.17	<0.0001	98%	71%
HBavg	10	-14.3	1.21	0.15	-3.53	0.012	0.0001	98%	29%
HBm1	10	-11.0	0.72	0.25	-2.73	0.005	0.0011	98%	29%
HBm3	10	-14.5	0.99	0.16	-3.52	0.007	<0.0001	98%	43%
HBm5	10	-31.8	4.57	0.07	-7.23	0.04	<0.0001	98%	43%
NRCS	2, 24 hr	-14.0	1.20	0.12	-2.82	0.008	0.0003	98%	29%
			d_{50} (mm)		ω (Watt/m^2)				
USGS	2	2.38	0.14	0.81	-2.23	0.003	<0.0001	98%	57%
USGS	10	4.96	0.14	0.81	-2.21	0.002	<0.0001	98%	57%
USGS	25	6.01	0.18	0.76	-2.25	0.002	<0.0001	98%	71%
HBavg	2	2.53	0.39	0.53	-2.01	0.003	<0.0001	98%	57%
HBm1	2	2.93	0.31	0.60	-1.98	0.002	0.0001	98%	57%
HBm3	2	2.42	0.20	0.74	-2.02	0.003	<0.0001	98%	57%
HBm5	2	0.91	6.60	0.13	-6.26	0.11	<0.0001	100%	86%
HBavg	10	6.07	0.41	0.52	-2.38	0.003	<0.0001	98%	71%
HBm1	10	6.20	0.43	0.48	-2.31	0.002	<0.0001	98%	71%
HBm3	10	5.90	0.17	0.79	-2.38	0.003	<0.0001	98%	71%
HBm5	10	11.2	2.56	0.22	-5.10	0.04	<0.0001	98%	86%
NRCS	2, 24hr	2.97	0.76	0.25	-2.12	0.003	<0.0001	98%	71%
			d_{50} (mm)		τ_*				
USGS	2	-2.49	-2.89	0.008	-3.04	0.004	0.0002	98%	57%
USGS	10	-0.19	-3.24	0.006	-3.49	0.003	<0.0001	98%	57%
USGS	25	0.77	-3.34	0.006	-3.64	0.003	<0.0001	98%	57%
HBavg	2	-1.96	-2.60	0.007	-3.10	0.002	<0.0001	98%	57%
HBm1	2	-1.58	-2.72	0.006	-3.16	0.003	0.0001	98%	57%
HBm3	2	-2.03	-2.76	0.007	-3.09	0.002	<0.0001	98%	57%
HBm5	2	-7.90	-2.92	0.06	-6.98	0.04	<0.0001	98%	86%
HBavg	10	0.58	-3.24	0.007	-3.82	0.003	<0.0001	98%	71%
HBm1	10	0.82	-3.20	0.007	-3.77	0.003	<0.0001	98%	57%
HBm3	10	0.41	-3.38	0.006	-3.75	0.003	<0.0001	98%	71%
HBm5	10	-2.09	-7.51	0.22	-11.9	0.18	<0.0001	98%	100%
NRCS	2, 24 hr	-1.78	-2.41	0.01	-3.21	0.003	<0.0001	98%	57%

General abbreviations and symbol definitions (excluding units of measure):

d_{50}	grain size that 50 percent of the particles are finer than
HBavg	average of all five Hawley-Bledsoe (In review) peak-flow models
HBm1	Hawley-Bledsoe model 1, Q = f (A, P), best performance across all flows during cross validation
HBm3	Hawley-Bledsoe model 3, Q = f (Strm, P_{224}), best performance across all flows during final calibration
HBm5	Hawley-Bledsoe model 5, Q = f (Strm, Shp, IP, Sv), best performance during cross validation and final calibration at Q_2
MI	screening index = $S_v * Q_i^{0.5}$
NRCS	NRCS Curve Number method
p	probability value
Q_i	instantaneous peak flow with return interval i years
S_v	valley slope
USGS	USGS regional equations (Waananen and Crippen, 1977)
β-parameters	correspond to log-transformed variables (i.e., $\beta_1^* \ln(d_{50})$, $\beta_2^* \ln(S_v * Q_2^{0.5})$)
τ_*	dimensionless shear stress
ω	specific stream power = $\gamma * S * Q_i / W$

Table C.3 – Summary of logistic regression models of incising/braiding vs. stable single-thread in unconfined valleys: d_{50} 16 – 100 mm

Flow Source	Flow Interval (yrs)	β_0	Variable (1) β_1^*	Variable (1) p	Variable (2) β_2^*	Variable (2) p	Model Performance p	% Correctly Classified Unstable	% Correctly Classified Stable
			d_{50} (mm)		MI ($m^{1.5}/s^{0.5}$)				
USGS	2	-82.3	5.77	0.18	-16.6	0.24	0.0006	100%	89%
USGS	10	-39.6	4.26	0.15	-9.02	0.07	0.002	83%	89%
USGS	25	-32.9	4.04	0.15	-7.98	0.06	0.003	83%	89%
HBavg	2	-22.4	2.28	0.18	-4.21	0.08	0.03	100%	67%
HBm1	2	-18.7	1.55	0.26	-3.82	0.08	0.06	100%	67%
HBm3	2	-18.5	1.84	0.22	-3.46	0.08	0.06	100%	67%
HBm5	2	-33.8	2.87	0.20	-7.26	0.15	0.01	100%	67%
HBavg	10	-376.3	47.3	0.42	-82.4	0.41	<0.0001	100%	100%
HBm1	10	-471.5	55.3	0.36	-105.4	0.34	<0.0001	100%	100%
HBm3	10	-523.1	61.3	0.35	-122.9	0.34	<0.0001	100%	100%
HBm5	10	-328.7	44.5	0.46	-69.0	0.44	<0.0001	100%	100%
NRCS	2, 24 hr	-590.7	67.3	0.42	-108.2	0.43	<0.0001	100%	100%
			d_{50} (mm)		ω (Watt/m^2)				
USGS	2	4.05	8.01	0.25	-9.62	0.29	0.002	89%	100%
USGS	10	10.8	3.86	0.11	-5.11	0.15	0.005	89%	67%
USGS	25	3.01	2.55	0.12	-2.37	0.10	0.02	89%	67%
HBavg	2	-1.15	4.29	0.06	-3.77	0.05	0.009	89%	83%
HBm1	2	0.50	3.67	0.06	-3.70	0.06	0.02	89%	83%
HBm3	2	-0.36	3.83	0.06	-3.58	0.06	0.01	89%	83%
HBm5	2	-0.06	3.20	0.08	-2.97	0.04	0.01	89%	67%
HBavg	10	52.8	29.0	0.44	-31.1	0.43	0.0004	100%	83%
HBm1	10	42.1	15.5	0.30	-19.4	0.28	0.0006	89%	83%
HBm3	10	19.3	9.69	0.41	-10.7	0.39	0.0008	89%	83%
HBm5	10	9.92	4.27	0.13	-4.96	0.10	0.002	78%	83%
NRCS	2, 24 hr	7.53	11.1	0.20	-10.8	.23	0.0004	89%	83%
			d_{50} (mm)		τ_*				
USGS	2	-10.7	-3.61	0.27	-8.84	0.09	0.004	89%	83%
USGS	10	-2.49	-3.58	0.24	-7.95	0.08	0.003	89%	83%
USGS	25	-1.20	-2.58	0.27	-6.23	0.06	0.004	89%	83%
HBavg	2	-6.05	-0.59	0.69	-3.26	0.08	0.06	89%	67%
HBm1	2	-5.02	-0.66	0.66	-2.88	0.10	0.10	89%	67%
HBm3	2	-5.50	-0.57	0.71	-2.96	0.09	0.09	89%	67%
HBm5	2	-5.11	-0.64	0.68	-3.00	0.07	0.06	89%	50%
HBavg	10	-2.88	-2.01	0.33	-5.69	0.04	0.003	89%	83%
HBm1	10	-2.62	-2.38	0.28	-6.15	0.05	0.003	89%	83%
HBm3	10	-2.88	-1.99	0.32	-5.64	0.04	0.004	89%	83%
HBm5	10	-2.23	-1.75	0.36	-4.81	0.04	0.005	89%	83%
NRCS	2, 24 hr	-9.86	-4.41	0.50	-12.4	0.36	0.001	89%	67%

General abbreviations and symbol definitions (excluding units of measure):

d_{50}	grain size that 50 percent of the particles are finer than
HBavg	average of all five Hawley-Bledsoe (In review) peak-flow models
HBm1	Hawley-Bledsoe model 1, Q = f (A, P), best performance across all flows during cross validation
HBm3	Hawley-Bledsoe model 3, Q = f (Strm, P_{224}), best performance across all flows during final calibration
HBm5	Hawley-Bledsoe model 5, Q = f (Strm, Shp, IP, Sv), best performance during cross validation and final calibration at Q_2
MI	screening index = $S_v * Q_i^{0.5}$
NRCS	NRCS Curve Number method
p	probability value
Q_i	instantaneous peak flow with return interval i years
S_v	valley slope
USGS	USGS regional equations (Waananen and Crippen, 1977)
β-parameters	correspond to log-transformed variables (i.e., $\beta_1^* \ln(d_{50})$, $\beta_2^* \ln(S_v{*}Q_2^{0.5})$)
τ_*	dimensionless shear stress
ω	specific stream power = $\gamma{*}S{*}Q_i/W$

Table C.4 – Summary of bank stability models

Bank Data	β_0	Height (m)		Angle (°)		Model Performance		
		β_1^*	p	β_2^*	p	p	% Correctly Classified Unstable	% Correctly Classified Stable
moderate/well-consolidated	110	-8.46	0.012	-26.6	0.015	<0.0001	94%	97%
poor/moderate/well-consolidated	28.4	-1.27	0.002	-7.28	<0.0001	<0.0001		
confined hillslope	46.6	-3.39	0.08	-10.2	0.07	<0.0001		

General abbreviations and symbol definitions (excluding units of measure):

p	probability value
β-parameters	correspond to log-transformed variables (i.e., $\beta_1^*\ln(\text{height})$, $\beta_1^*\ln(\text{angle})$)

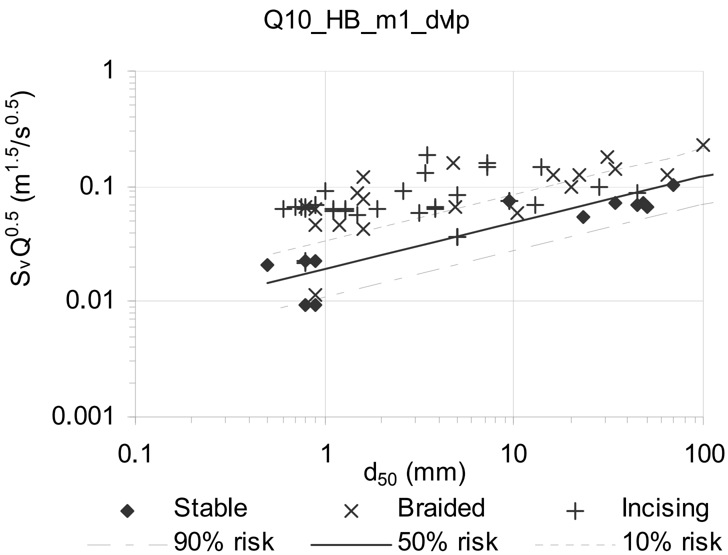

Figure C.1 – Screening index logistic regression of all grain sizes using HBm1 at Q_{10} vs. d_{50}

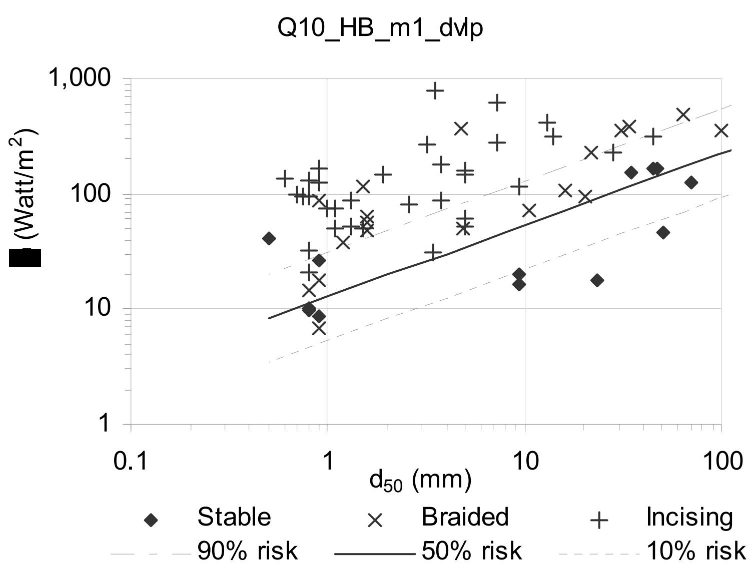

Figure C.2 – Specific stream power logistic regression of all grain sizes using HBm1 at Q_{10} vs. d_{50}

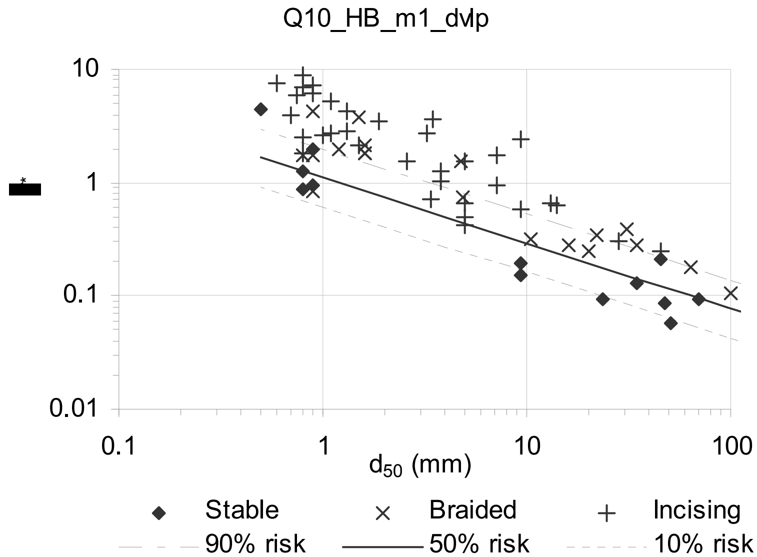

Figure C.3 – Dimensionless shear stress logistic regression of all grain sizes using HBm1 at Q_{10} vs. d_{50}

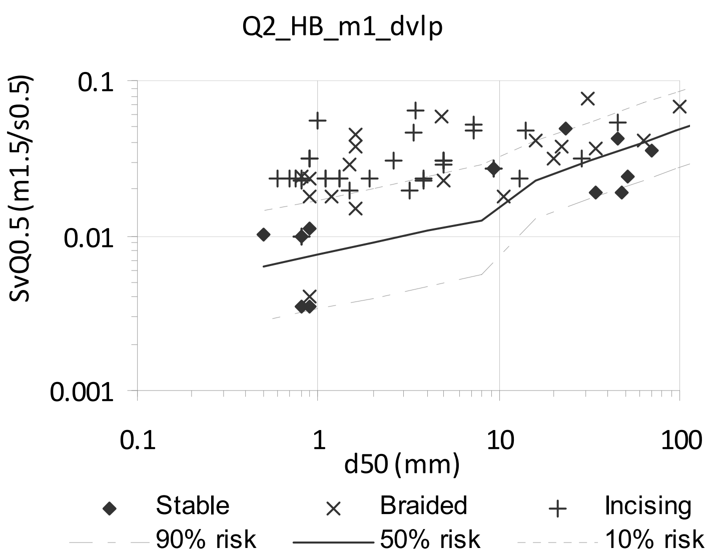

Figure C.4 – Combined screening index logistic regression of d_{50} < 16 mm and $d_{50} \geq$ 16 mm using HBm1 at Q_2 vs. d_{50}

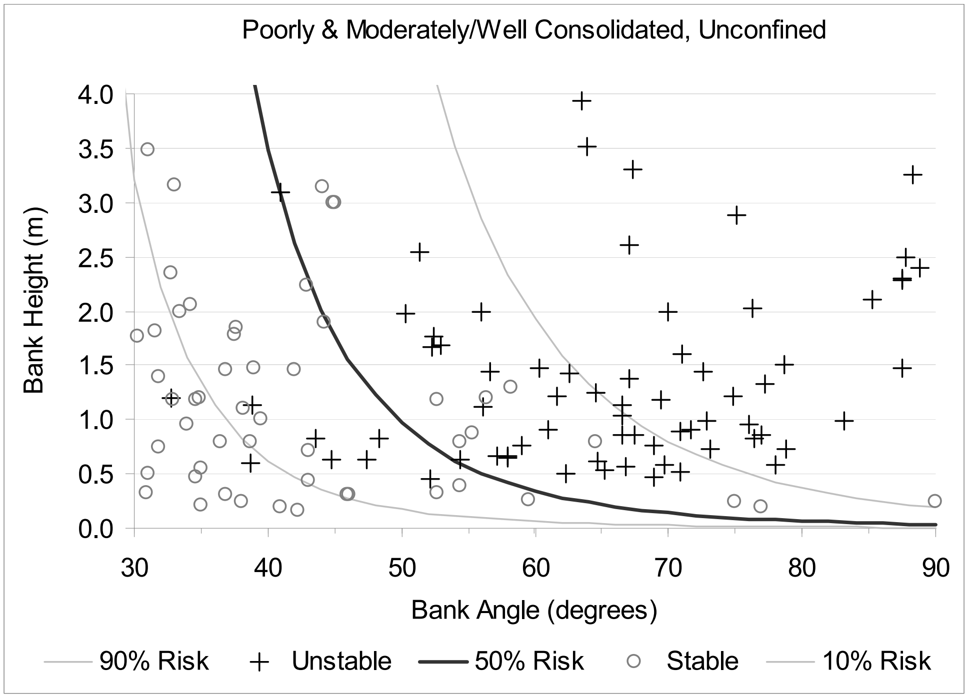

Figure C.5 – Risk of bank failure in poorly and moderately-/well-consolidated materials

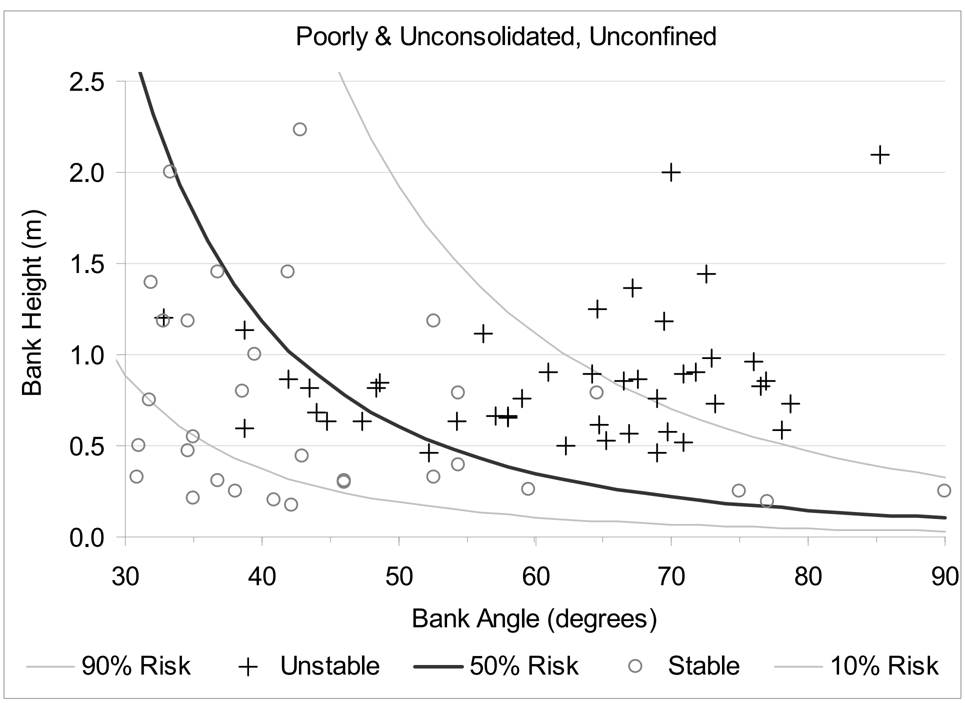

Figure C.6 – Risk of bank failure in poorly and unconsolidated materials

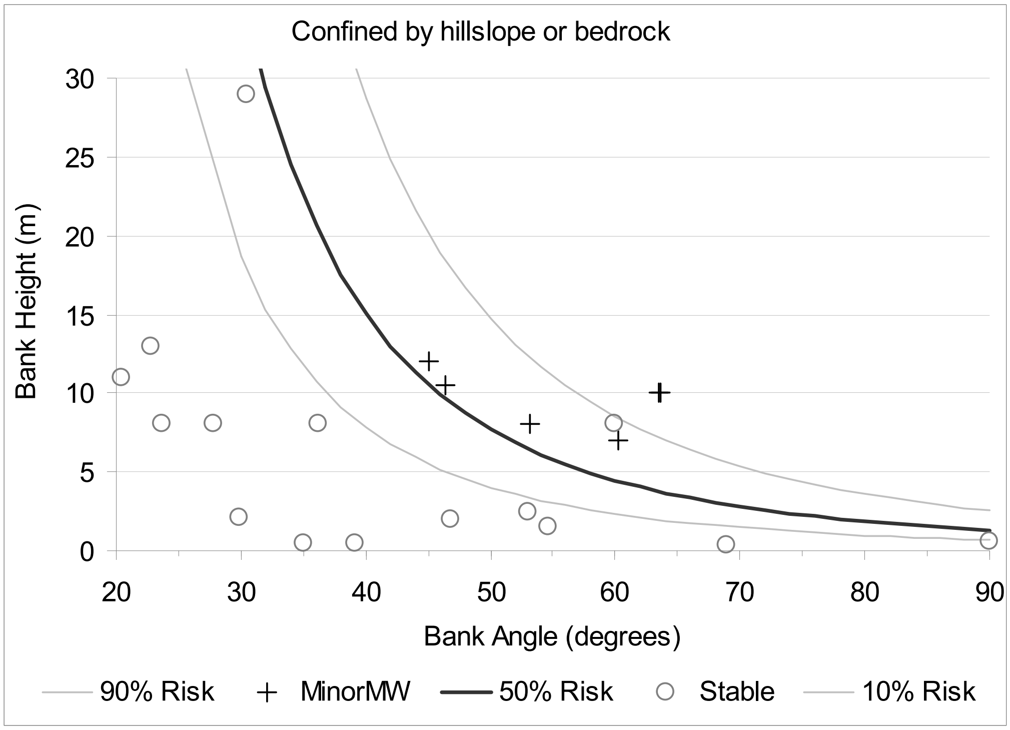

Figure C.7 – Risk of minor mass wasting in hillslope if channel directly connected to hillslope (i.e., confined)

Table C.5 – Incising and braiding data

	2-yr Flow Metrics								10-yr Flow Metrics							Bed-material Metrics								
	Total Drain-age Area	Avg_Dvlp Hawley-Bledsoe 2-yr Flow	2-yr Specific Stream Power	2-yr Dimen-sionless Specific Stream Power	2-yr Shear Stress	2-yr Dimen-sionless Shear Stress	2-yr Width to Depth Ratio	2-yr Screenin g index	Avg_Dvl p Hawley-Bledsoe 10-yr Flow	10-yr Specific Stream Power	10-yr Dimen-sionless Specific Stream Power	10-yr Shear Stress	10-yr Dimen-sionless Shear Stress	10-yr Width to Depth Ratio	10-yr Screenin g index	Median Bed Material	16th Per-centile Bed Material	84th Per-centile Bed Material	Percent Sand	Current CEM Phase	Screen-ing Logistics	Re-sponse for SAS	CEM Description	Vertical Stabilty Rating
	Drn_Area_km	Q2_HB_urbn	ω_2yr	ω*_2yr	τ_2yr	τ*_2yr	W/D_2yr	Q2^.5*Sv	Q10_HB_urbn	ω_10yr	ω*_10yr	τ_10yr	τ*_10yr	W/D_10yr	Q10^.5*Sv	d50	d16	d84	Prcnt_Sand	CEM				
Unique ID	(km^2)	(m^3/s)	($Watt/m^2$)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(m^3/s)	($Watt/m^2$)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(mm)	(mm)	(mm)	(%)					(Stable, Unstable, or NA)
Santiago_B	33.67	5.20	63.36	0.10	54.81	0.10	17.13	0.0387	53.03	290.37	0.44	135.94	0.25	15.26	0.124	34	6.4	127.4	9%	1C	1C	Cnst	Constructed	NA
Hasley_1_TRIB	0.42	0.12	6.14	0.32	21.65	0.42	31.10	0.0154	0.72	23.82	1.26	45.02	0.87	24.81	0.037	3.2	0.5	25.7	44%	1C	1C	Cnst	Constructed	NA
Hicks_A_08	3.87	1.41	40.70	26.48	22.34	2.30	16.75	0.0304	9.37	169.86	110.50	52.62	5.42	11.18	0.079	0.6	0.3	1.3	93%	1C	1C	Cnst	Constructed	NA
Borrego_A	7.06	5.93	44.66	6.67	46.55	1.80	31.94	0.0476	15.83	349.12	52.16	79.23	3.06	18.85	0.078	1.6	0.8	11.2	64%	1C	1C	Cnst	Constructed	NA
Oakglenn_A	1.77	1.08	235.08	0.63	134.72	0.36	9.96	0.1157	6.08	879.14	2.35	289.29	0.76	7.14	0.274	23.4	3	84.1	9%	1C	1C	Cnst	Constructed	NA
Hasley_2_A	11.69	2.77	20.36	3.04	29.05	1.12	88.65	0.0506	24.30	84.09	12.56	66.38	2.56	82.77	0.150	1.6	0.5	11.6	56%	2B	2B	B	Braided_Widening_Sed	U
Hasley_2_TRIB	5.05	1.63	29.65	4.88	41.44	1.71	105.82	0.0401	13.24	198.37	32.65	120.79	4.97	55.01	0.115	1.5	0.5	40	58%	2B	2B	B	Braided_Widening_Sed?	U
Acton_A	2.02	0.57	18.21	0.51	37.37	0.47	43.31	0.0334	2.59	54.54	1.52	62.11	0.78	47.61	0.071	4.9	2.3	12.1	10%	2B	2B	B	Braiding_Valley&Sed	U
Borrego_B	6.99	6.15	10.55	1.58	37.10	1.43	93.39	0.0575	15.77	61.55	9.19	54.08	2.09	89.86	0.092	1.6	0.8	11.2	64%	4B	4B	B	Braided_Sed	U
Yucaipa_B	11.48	2.83	72.81	2.09	26.34	0.34	90.63	0.0601	21.66	382.87	11.01	124.39	1.60	40.04	0.166	4.8	2	18.6	17%	4B	4B	B	Constructed_Braided_ Valley&Wide&Sed	U
Santiago_A	35.09	5.27	62.23	0.18	55.08	0.15	22.30	0.0385	53.82	227.73	0.67	119.47	0.34	23.85	0.123	22	2	70.8	18%	B1	B1	B	Braiding_Valley	U
Ltl_Cedar_B	7.21	1.68	35.92	0.12	45.64	0.14	36.81	0.0387	15.78	247.46	0.82	115.03	0.35	23.53	0.119	20.3	7.8	62.8	7%	B1	B1	B	Braiding_Valley	U
Proctor_A	11.23	1.13	14.23	0.13	21.59	0.13	23.66	0.0166	13.20	70.09	0.62	52.20	0.31	24.88	0.057	10.5	1.6	70.6	19%	B1	B1	B	Braiding_nonalluvial	U-NF
Proctor_B	5.81	0.91	12.83	1.92	24.09	0.93	15.96	0.0149	7.23	54.26	8.11	45.84	1.77	22.38	0.042	1.6	0.3	17.7	55%	B1	B1	B	Braiding_nonalluvial	U-NF
Perris_3_A	1.46	0.35	5.81	2.46	13.09	1.01	37.67	0.0252	2.60	15.19	6.42	23.14	1.79	56.23	0.069	0.8	0.3	2.3	82%	B1	B1	B	Braiding_Valley&Sed	U
Perris_3_B	1.39	0.33	6.74	2.39	14.55	1.00	38.10	0.0244	2.30	17.87	6.33	25.94	1.78	53.79	0.065	0.9	0.3	2.9	75%	B1	B1	B	Braiding_Valley&Sed	U
AltPerris_A	1.64	0.33	1.78	0.63	5.57	0.38	150.07	0.0040	2.31	6.19	2.19	11.75	0.81	156.24	0.011	0.9	0.4	1.9	86%	B1	B1	B	Braiding_Tribsed?nonalluvial	U-NF
Topanga_B	49.80	5.04	57.33	0.02	63.00	0.04	20.51	0.0601	62.46	325.41	0.10	164.73	0.10	18.60	0.212	100	14.6	331.7	4%	B1	B1	B	Braiding_Valley	U
Sanjuan_A	105.24	11.28	98.11	0.15	70.25	0.13	24.59	0.0408	133.91	379.38	0.57	158.46	0.28	35.76	0.141	34.4	2	104.8	21%	B1	B1	B	Braiding_Valley	U
Escondido_B	156.73	29.29	35.55	0.06	101.92	0.20	15.11	0.0751	173.73	371.42	0.64	201.05	0.40	15.23	0.183	31.2	9.6	123.1	3%	B1	B1	B	Braiding_Valley	U

Unique ID	Total Drainage Area	Avg_Dvlp Hawley-Bledsoe 2-yr Flow	2-yr Specific Stream Power	2-yr Dimensionless Specific Stream Power	2-yr Shear Stress	2-yr Dimensionless Shear Stress	2-yr Width to Depth Ratio	2-yr Screening index	Avg_Dvlp Hawley-Bledsoe 10-yr Flow	10-yr Specific Stream Power	10-yr Dimensionless Specific Stream Power	10-yr Shear Stress	10-yr Dimensionless Shear Stress	10-yr Width to Depth Ratio	10-yr Screening index	Median Bed Material	16th Percentile Bed Material	84th Percentile Bed Material	Percent Sand	Current CEM Phase	Screening Logistics	Response for SAS	CEM Description	Vertical Stabilty Rating
	2-yr Flow Metrics								10-yr Flow Metrics							Bed-material Metrics								
	Drn_Area_km	*Q2_HB_urbn*	*ω_2yr*	*ω*_2yr*	*τ_2yr*	*τ*_2yr*	*W/D_2yr*	*Q2^.5*Sv*	*Q10_HB_urbn*	*ω_10yr*	*ω*_10yr*	*τ_10yr*	*τ*_10yr*	*W/D_10yr*	*Q10^.5*Sv*	*d50*	*d16*	*d84*	*Prcnt_Sand*	*CEM*				
	(km^2)	(m^3/s)	($Watt/m^2$)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(m^3/s)	($Watt/m^2$)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(mm)	(mm)	(mm)	(%)					(Stable, Unstable, or NA)
Sanantoni_B	31.14	12.88	39.12	0.18	39.24	0.15	54.22	0.0601	94.91	178.58	0.84	97.00	0.37	46.12	0.163	16	3.1	70.2	11%	B1	B1	B	Braided	U
Pigeon_A	6.47	1.67	28.46	6.55	36.64	1.89	9.64	0.0206	10.55	25.73	5.92	70.91	3.65	43.49	0.052	1.2	0.4	2.7	75%	B2	B2	B	Incising	U
Pigeon_B	6.47	1.67	27.22	9.64	41.14	2.82	23.17	0.0206	10.55	119.54	42.33	83.13	5.71	23.19	0.052	0.9	0.4	2.4	80%	B2	B2	B	Incising	U
Sanantoni_A	31.14	12.88	236.85	0.14	122.92	0.12	15.54	0.0601	94.91	638.11	0.38	221.88	0.21	20.06	0.163	64	16	180	8%	B2	B2	B	Incising	U
Hasley_1_A	3.98	1.24	130.42	0.84	71.20	0.34	4.64	0.0318	8.70	559.06	3.61	163.09	0.78	3.32	0.084	13	2.1	92.6	15%	2	2	I	Incising	U
Hasley_2_B	6.41	1.88	23.22	1.67	32.02	0.76	28.86	0.0417	14.06	111.64	8.05	78.69	1.87	21.58	0.114	2.6	0.6	28.9	46%	2	2	I	Incising	U
Hicks_B_08	3.87	1.43	45.13	29.36	38.00	3.91	8.15	0.0306	9.42	175.32	114.06	86.89	8.95	6.52	0.079	0.6	0.3	1.3	93%	2	2	I	Incised	U
Hicks_E_08	3.58	1.35	79.67	16.25	71.88	3.42	4.91	0.0298	8.75	106.98	21.82	101.01	4.80	12.68	0.076	1.3	0.4	53.7	58%	2	2	I	Incising	U
Hicks_E_07	3.58	1.35	72.40	18.97	79.70	4.48	4.80	0.0298	8.75	92.09	24.13	105.13	5.90	13.38	0.076	1.1	0.4	36.3	64%	2	2	I	Incising	U
Hicks_F_08	3.51	1.35	62.64	12.78	61.19	2.91	5.15	0.0297	8.61	37.79	7.71	59.88	2.85	22.80	0.075	1.3	0.4	53.7	58%	2	2	I	Incising	U
Hicks_F_07	3.51	1.35	67.74	17.75	62.28	3.50	3.94	0.0297	8.61	60.88	15.96	46.06	2.59	10.66	0.075	1.1	0.4	36.3	64%	2	2	I	Incising	U
Agua_Hedi_A	27.12	19.09	16.83	0.46	43.11	0.53	5.46	0.0300	54.80	260.25	7.04	72.32	0.89	3.78	0.051	5	2.2	15.5	13%	2	2	I	Incising	U
Agua_Hedi_C	26.84	18.98	6.59	0.18	28.95	0.36	3.17	0.0299	53.90	79.88	2.16	43.70	0.54	2.91	0.050	5	2.2	15.5	13%	2	2	I	Incising	U
Ltl_Cedar_A	7.21	1.65	54.09	0.11	58.77	0.13	12.47	0.0385	15.64	311.20	0.62	163.76	0.35	7.38	0.118	28.5	16	83.7	2%	2	2	I	Incising	U
Perris_1_B	0.45	0.20	9.09	3.84	18.11	1.40	11.70	0.0106	0.84	32.28	13.64	32.31	2.49	8.72	0.022	0.8	0.3	2.6	79%	2	2	I	Incising	U
Perris_1_C	0.43	0.18	5.88	2.49	12.57	0.97	5.81	0.0103	0.79	20.30	8.58	23.27	1.80	4.67	0.021	0.8	0.3	2.7	78%	2	2	I	Incised	U
Acton_B	1.95	0.53	38.92	1.59	30.30	0.49	30.61	0.0323	2.14	175.67	7.17	63.33	1.03	18.06	0.065	3.8	2	8.8	20%	2	2	I	Transition	U
Acton_E	1.42	0.36	403.95	4.24	199.66	1.31	3.80	0.0346	1.17	1824.24	19.14	325.53	2.14	1.71	0.063	9.4	2.7	33.1	10%	2	2	I	Incising	U
Borrego_E	5.68	5.73	67.22	0.07	152.00	0.21	5.62	0.0683	14.15	418.15	0.42	214.35	0.29	5.51	0.107	45	2.3	105.2	16%	2	2	I	Incising	U

	2-yr Flow Metrics								10-yr Flow Metrics							Bed-material Metrics								
	Total Drain-age Area	Avg_Dvlp Hawley-Bledsoe 2-yr Flow	2-yr Specific Stream Power	2-yr Dimen-sionless Specific Stream Power	2-yr Shear Stress	2-yr Dimen-sionless Shear Stress	2-yr Width to Depth Ratio	2-yr Screening index	Avg_Dvlp Hawley-Bledsoe 10-yr Flow	10-yr Specific Stream Power	10-yr Dimen-sionless Specific Stream Power	10-yr Shear Stress	10-yr Dimen-sionless Shear Stress	10-yr Width to Depth Ratio	10-yr Screening index	Median Bed Material	16th Per-centile Bed Material	84th Per-centile Bed Material	Percent Sand	Current CEM Phase	Screen-ing Logistics	Re-sponse for SAS	CEM Description	Vertical Stabilty Rating
	Drn_Area_km	Q2_HB_urbn	ω_2yr	ω*_2yr	τ_2yr	τ*_2yr	W/D_2yr	Q2^.5*Sv	Q10_HB_urbn	ω_10yr	ω*_10yr	τ_10yr	τ*_10yr	W/D_10yr	Q10^.5*Sv	d50	d16	d84	Prcnt_Sand	CEM				
Unique ID	(km^2)	(m^3/s)	(Watt/m^2)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(m^3/s)	(Watt/m^2)		(N/m^2)			($m^{1.5}/s^{0.5}$)	(mm)	(mm)	(mm)	(%)					(Stable, Unstable, or NA)
Challengr_B	7.32	2.12	22.27	1.07	35.12	0.64	3.34	0.0547	14.79	36.53	1.76	42.05	0.76	10.99	0.144	3.4	2	7.5	4%	2	2	I	Incising	U
Pigeon_C	3.53	0.79	14.42	2.37	25.05	1.03	5.68	0.0225	6.53	58.07	9.56	57.10	2.35	5.11	0.065	1.5	0.6	3.3	62%	2	2	I	Incising	U
Santiagbd_B	17.84	3.45	43.35	0.68	46.34	0.40	33.42	0.0487	32.34	286.93	4.49	113.91	0.98	20.12	0.149	7.2	2	21.1	17%	2	2	I	Confined_Incising_Temp	U
Santiagnl_A	17.07	3.39	100.43	1.57	69.14	0.59	20.64	0.0538	31.73	651.15	10.19	210.12	1.80	9.28	0.165	7.2	2	21.1	17%	2	2	I	Confined_Incising_Temp	U
Hasley_1_B	3.98	1.24	89.39	4.72	74.23	1.43	11.67	0.0267	8.59	355.35	18.77	167.12	3.23	8.81	0.070	3.2	0.5	25.7	44%	3	3	I	3	U
Hicks_C_08	3.87	1.43	53.97	2.20	60.73	0.99	10.12	0.0307	9.43	113.09	4.62	87.23	1.42	18.82	0.079	3.8	0.5	31.2	44%	3	3	I	3	U
Hicks_D_08	3.73	1.39	109.72	12.67	86.23	2.80	5.48	0.0302	9.08	175.61	20.27	113.01	3.67	10.01	0.077	1.9	0.6	72.4	51%	3	3	I	3	U
Hicks_D_07	3.73	1.39	102.15	43.16	93.67	7.23	4.96	0.0302	9.08	164.01	69.30	123.03	9.50	10.56	0.077	0.8	0.3	11.3	71%	3	3	I	3	U
Agua_Hedi_B	26.97	19.03	7.69	0.21	33.62	0.42	5.22	0.0300	54.34	97.62	2.64	52.54	0.65	4.43	0.051	5	2.2	15.5	13%	3	3	I	3	U
Dry_A	3.16	1.41	33.97	17.54	24.65	2.18	54.61	0.0360	9.27	170.28	87.91	60.46	5.34	30.57	0.092	0.7	0.4	1.3	94%	3	3	I	3	U
Dry_B	3.09	1.40	36.49	16.99	40.07	3.30	25.32	0.0359	9.10	152.35	70.92	94.78	7.81	16.51	0.091	0.75	0.4	4.35	86%	3	3	I	3	U
Dry_C	2.98	1.39	32.66	13.80	46.61	3.60	32.52	0.0357	8.92	168.18	71.07	124.18	9.59	17.35	0.091	0.8	0.4	7.4	78%	3	3	I	3	U
Santimeta_A	1.45	0.58	874.08	309.52	93.50	6.42	1.23	0.0349	2.29	4673.45	1654.94	173.04	11.88	0.84	0.069	0.9	0.3	6	72%	3	3	I	3	U
Santimeta_B	1.45	0.59	31.90	11.29	57.18	3.93	30.69	0.0350	2.29	162.26	57.46	105.89	7.27	22.19	0.069	0.9	0.35	4.65	74%	3	3	I	3	U
Santimeta_C	1.45	0.57	20.59	7.29	42.11	2.89	60.65	0.0344	2.29	121.39	42.99	87.07	5.98	37.66	0.069	0.9	0.4	3.3	77%	3	3	I	3	U
Acton_C	1.87	0.47	38.67	1.05	66.81	0.83	19.32	0.0398	1.62	130.94	3.54	113.73	1.41	15.17	0.074	5	2.1	16.9	15%	3	3	I	3	U
Acton_D	1.42	0.37	22.48	0.24	42.90	0.28	21.56	0.0351	1.24	89.38	0.94	76.68	0.50	13.43	0.065	9.4	2.7	33.1	10%	3	3	I	3	U
Borrego_C	6.84	6.42	14.61	4.42	32.38	2.00	66.07	0.0705	15.71	106.92	32.33	52.12	3.22	44.82	0.110	1	0.4	24.2	71%	3	3	I	Braiding_Sed	U
Santiagbd_A	17.84	3.45	76.21	0.44	61.49	0.27	16.57	0.0487	32.35	324.69	1.85	146.59	0.64	14.61	0.149	14.1	3.6	98.3	10%	3	3	I	Confined_Incising-Wide_Temp	U
Yucaipa_A	16.70	3.31	100.94	4.66	65.46	1.16	43.72	0.0650	28.22	795.69	36.74	202.03	3.57	18.22	0.190	3.5	2.1	8.4	12%	3	3	I	Constructed_Widening	U

	2-yr Flow Metrics								10-yr Flow Metrics							Bed-material Metrics								
	Total Drain-age Area	Avg_Dvlp Hawley-Bledsoe 2-yr Flow	2-yr Specific Stream Power	2-yr Dimen-sionless Specific Stream Power	2-yr Shear Stress	2-yr Dimen-sionless Shear Stress	2-yr Width to Depth Ratio	2-yr Screenin g index	Avg_Dvl p Hawley-Bledsoe 10-yr Flow	10-yr Specific Stream Power	10-yr Dimen-sionless Specific Stream Power	10-yr Shear Stress	10-yr Dimen-sionless Shear Stress	10-yr Width to Depth Ratio	10-yr Screenin g index	Median Bed Material	16th Per-centile Bed Material	84th Per-centile Bed Material	Percent Sand	Current CEM Phase	Screen-ing Logistics	Re-sponse for SAS	CEM Description	Vertical Stabilty Rating
	Drn_Area_km	*Q2_HB_urbn*	*ω_2yr*	*ω*_2yr*	*τ_2yr*	*τ*_2yr*	*W/D_2yr*	*Q2^.5*Sv*	*Q10_HB_urbn*	*ω_10yr*	*ω*_10yr*	*τ_10yr*	*τ*_10yr*	*W/D_10yr*	*Q10^.5*Sv*	*d50*	*d16*	*d84*	*Prcnt_Sand*	*CEM*				
Unique ID	(km^2)	(m^3/s)	(Watt/m^2)		(N/m^2)			(m$^{1.5}$/s$^{0.5}$)	(m^3/s)	(Watt/m^2)		(N/m^2)			(m$^{1.5}$/s$^{0.5}$)	(mm)	(mm)	(mm)	(%)					(Stable, Unstable, or NA)
Perris_2_A	0.14	0.09	11.23	3.98	17.51	1.20	13.04	0.0121	0.39	29.63	10.49	30.47	2.09	13.40	0.025	0.9	0.3	2.2	82%	1	1	S	1	S
Perris_2_B	0.11	0.06	10.57	9.04	20.02	2.47	15.46	0.0094	0.28	42.96	36.74	36.41	4.50	11.45	0.021	0.5	0.25	1.6	90%	1	1	S	1	S
AltPerris_B	1.25	0.31	1.74	0.62	5.52	0.38	96.60	0.0037	2.07	8.79	3.11	13.81	0.95	59.53	0.009	0.9	0.4	1.8	90%	1	1	S	Transition	S
AltPerris_C	1.24	0.30	2.26	0.96	4.61	0.36	42.82	0.0036	1.99	9.86	4.17	11.11	0.86	28.01	0.009	0.8	0.3	1.7	90%	1	1	S	1	S
Acton_F	1.42	0.35	6.70	0.07	18.96	0.12	19.99	0.0343	1.13	16.79	0.18	26.77	0.18	26.17	0.062	9.4	2.7	33.1	10%	1.5	1	S	1	S
Acton_G	1.42	0.35	3.58	0.04	11.89	0.08	50.89	0.0342	1.13	12.63	0.13	19.77	0.13	35.32	0.061	9.4	2.7	33.1	10%	1	1	S	1	S
Challengr_A	7.43	2.06	31.43	0.03	39.69	0.05	6.01	0.0280	14.99	53.50	0.04	50.79	0.06	14.75	0.076	51.2	16.6	112.7	4%	1.5	1	S	Incised	S?
Challengr_C	7.06	1.83	83.68	0.04	81.47	0.07	8.36	0.0408	14.61	147.14	0.08	112.44	0.10	18.42	0.115	69.7	3.4	151.8	13%	1	1	S	1	S
Dulzura_A	70.24	5.25	18.43	0.03	25.31	0.05	21.18	0.0173	79.66	141.18	0.21	70.82	0.13	14.45	0.067	34.6	3.2	81.3	14%	5	5	S	1	S
Dulzura_B	70.24	5.26	27.53	0.03	33.13	0.04	11.72	0.0173	79.75	154.73	0.14	65.74	0.09	11.55	0.067	47.7	2	129.4	20%	5	5	S	1	S
Mcgonigle_A	5.12	3.57	3.97	0.01	34.41	0.09	28.68	0.0402	13.46	29.64	0.08	48.49	0.13	53.45	0.078	23.4	11.7	41.9	1%	1V	1.5	S	Vegetated	S?
Perris_1_A	0.45	0.20	3.21	1.36	9.23	0.71	10.13	0.0108	0.90	10.23	4.32	16.49	1.27	9.57	0.023	0.8	0.3	2.5	79%	1.5	1.5	S	Incised	R?
Borrego_D	5.76	5.52	30.33	0.03	123.25	0.17	22.88	0.0530	14.20	233.52	0.23	186.77	0.26	17.95	0.085	45	2.3	105.2	16%	4	1.5	S	4	R?
Hovnanian_A	3.76	1.76	79.63	0.11	92.41	0.16	11.77	0.0545	8.77	263.11	0.36	185.08	0.31	9.90	0.122	36.7	2	157.1	24%	1	1Cf	S	Confined and Hardpan	NA
Hovnanian_B	3.74	1.77	116.30	0.55	116.74	0.45	5.54	0.0547	8.67	379.64	1.79	224.78	0.87	5.13	0.121	16	2	173.3	38%	1	1Cf	S	Confined and Hardpan	NA
Proctor_TRIB	3.48	0.58	37.34	0.76	38.63	0.39	8.86	0.0234	5.71	74.41	1.51	60.64	0.62	20.69	0.073	6.05	0.95	44.15	37%	1	1Cf	S	Confined	NA
Topanga_A	49.80	4.92	120.50	0.04	100.78	0.07	13.96	0.0547	61.24	662.30	0.24	259.64	0.18	12.79	0.193	87.8	24.7	240.1	0%	1	1Cf	S	Confined	NA
Topanga_C	48.92	5.09	1340.46	0.04	419.61	0.05	4.86	0.2208	62.38	5680.81	0.15	1234.86	0.15	4.08	0.773	499.5	270.6	1591.2	0%	1	1Cf	S	Confined	NA
Sanjuan_B	103.67	11.19	51.18	0.03	49.87	0.05	14.15	0.0418	131.67	245.07	0.15	135.10	0.14	12.43	0.144	61.2	3.2	252.4	13%	1	1Cf	S	Confined	NA
Stewart_A	4.73	3.85	621.82	0.10	364.51	0.15	7.30	0.1885	20.11	1642.85	0.27	657.44	0.27	7.88	0.431	151.8	6.8	724	2%	1	1Cf	S	Confined	NA

	2-yr Flow Metrics								10-yr Flow Metrics							Bed-material Metrics								
	Total Drain-age Area	**Avg_Dvlp Hawley-Bledsoe 2-yr Flow**	**2-yr Specific Stream Power**	**2-yr Dimen-sionless Specific Stream Power**	**2-yr Shear Stress**	**2-yr Dimen-sionless Shear Stress**	**2-yr Width to Depth Ratio**	**2-yr Screenin g index**	**Avg_Dvl p Hawley-Bledsoe 10-yr Flow**	**10-yr Specific Stream Power**	**10-yr Dimen-sionless Specific Stream Power**	**10-yr Shear Stress**	**10-yr Dimen-sionless Shear Stress**	**10-yr Width to Depth Ratio**	**10-yr Screenin g index**	**Median Bed Material**	**16th Per-centile Bed Material**	**84th Per-centile Bed Material**	**Percent Sand**	**Current CEM Phase**	**Screen-ing Logistics**	**Re-sponse for SAS**	**CEM Description**	**Vertical Stabilty Rating**
	Drn_Area_km	*Q2_HB_urbn*	*ω_2yr*	*ω_*_2yr*	*τ_2yr*	*τ_*_2yr*	*W/D_2yr*	*Q2^.5*Sv*	*Q10_HB_urbn*	*ω_10yr*	*ω_*_10yr*	*τ_10yr*	*τ_*_10yr*	*W/D_10yr*	*Q10^.5*Sv*	*d50*	*d16*	*d84*	*Prcnt_Sand*	*CEM*				
Unique ID	(km^2)	(m^3/s)	(Watt/m^2)		(N/m^2)			(m$^{1.5}$/s$^{0.5}$)	(m^3/s)	(Watt/m^2)		(N/m^2)			(m$^{1.5}$/s$^{0.5}$)	(mm)	(mm)	(mm)	(%)					(Stable, Unstable, or NA)
Santiagnl_B	16.99	3.38	182.03	0.41	115.07	0.27	7.59	0.0537	31.66	801.81	1.81	271.64	0.64	7.29	0.164	26.2	4.9	298.6	9%	1	1Cf	S	Confined	NA
Silverado_A	21.75	5.37	321.89	0.06	183.60	0.08	6.54	0.1284	44.70	1355.14	0.24	446.30	0.19	5.79	0.370	141.5	35.9	353.7	7%	1	1Cf	S	Confined	NA
Silverado_B	21.75	5.37	400.22	0.09	193.88	0.10	6.12	0.1284	44.75	1688.95	0.37	443.23	0.22	5.73	0.371	124.3	16.8	384	11%	1	1Cf	S	Confined	NA
Escondido_A	156.73	29.27	180.04	0.04	317.42	0.15	12.64	0.0750	173.73	1909.11	0.40	630.91	0.30	11.72	0.183	128	35.9	370.5	0%	1	1Cf	S	Constricting_Confined	NA
Alt_RC2_A	0.16	0.12	37.84	258.86	35.00	17.30	5.69	0.0222	0.62	110.96	759.11	66.22	32.73	5.18	0.050	0.125	0.125	0.6	96%	1	1	NA	1	NA - only one point this fine

Note: gray shading indicates columns used in the final models

General abbreviations and symbol definitions (excluding units of measure):

CEM	Channel Evolution Model
ID	identification
SAS	Statistical Analysis Software

SAS responses:

B	braided
Cnst	constructed
I	incising
NA	not applicable
S	stable

CEM phases:

1	stable	no significant channel incision or bank failure
1.5	beginnings of incision	incision but not past critical bank height
2	incising	nearing, at, or beyond critical bank height, but no significant widening
3	widening	significant widening (~> 10% channel width) – incision still possible/likely
4	deposition	bank failure and widening still possible, but clear evidence of significant deposition (with possible beginnings of floodplain reformation, alternating bars, etc.)
5	recovered	return to single-thread equilibrium
1C	constructed	stable but constructed via bed and/or bank protection
1V	vegetated	stable, vegetated encroached low-flow channel
B1	braided	braided but relatively stable active belt width
B2	braided-incising	incision near, at, or beyond critical bank height within a braided channel
2B	wide-to-braided	evidence that a single-thread channel transitioned to braided planform with little intermediate incision (i.e., not far beyond critical bank height, but change in width >>2x)
4B	incised-wide-braided	evidence that a single-thread channel first incised well past critical bank height before widening to the current braided form

Table C.6(a) – Bank data: left banks

		Left Bank (looking downstream)															
Unique ID	Site Description	Bank Height Total *LBank_h_tot* (m)	Bank Height above Break *LBank_h_top* (m)	Bank Height below Break *LBank_h_btm* (m)	Bank Angle above Break *LBank_a_top* (°)	Bank Angle below Break *LBank_a_btm* (°)	Average Bank Angle *LBank_a_avg* (°)	Representative Bank Height for MW *LBank_ht*	Representative Bank Angle for MW *LBank_angl*	Global Stability (S/U)	Mass Wasting (A/B/C/F)	Fluvial Significant (FF/NF)	Consolidation (MC/PC/UC)	Confinement (HC/BC/UC)	Vegetation (A/B/F/T+C/T/H)	Artificial (E/F/G/R/N)	Geotechnical Stability of Left Bank via log-logistic of Un-confined, Moderately-/Well-consolidated *LB_Ng*
Santiago_A	DS-braided	2.00	N/A	N/A	55.9	55.9	55.9	2.0	55.9	U	C	NF	MC	UC	FT	N	1.45
Santiago_B	US-pool-riffle	1.529	0.637	0.892	54.67	26.05	33.89	1.529	54.67	S	A	NF	MC	HC	TT	N	Confined
Hasley_1_A	DS-incised, CEM 2	3.138	1.7	1.44	28.1	72.56	40.79	1.44	72.56	U	C	NF	PC	UC	AC	N	2.37
Hasley_1_B	US-wide, CEM 3	1.18	0.18	1	23.49	69.4	56.14	1.18	69.4	U	C	NF	PC	UC	AC	N	1.69
Hasley_1_TRIB	TRIB-stable	1.08	N/A	N/A	18.14	N/A	13.36	1.08	18.14	S	A	NF	MC	UC	TT	N	0.02
Hasley_2_A	DS-braided	1.444	0.9885	0.459	27.04	14.93	21.58	1.444	27.04	U	F	NF	PC	UC	AC	N	0.11
Hasley_2_B	US-incised	2.609	1.454	1.155	67.01	21.99	36.88	2.609	67.01	U	C	NF	MC	UC	FC	N	3.34
Hasley_2_TRIB	TRIB-braided	0.5	N/A	N/A	N/A	N/A	62.29	0.5	62.29	U	C	NF	PC	UC	FC	N	0.51
Hicks_A_08	stable @ road	0.91	0.71	0.19	22.78	77.01	17.64	0.19	77.01	S	B	FF	UC	UC	BC	E?	0.38
Hicks_B_08	incised	0.535	0.34	0.195	30.96	44.27	30.73	0.535	30.96	U	F	FF	UC	UC	BC	N	0.06
Hicks_C_08	wide	0.66	0.33	0.295	47.73	57.17	32.01	0.66	57.17	U	C	FF	PC	UC	BC	N	0.51
Hicks_D_08	wide_LVL	0.86	0.4	0.46	32.01	66.5	49.8	0.86	66.5	U	C	FF	PC	UC	BC	N	1.08
Hicks_D_07	wide_SRVY	0.57	0.14	0.43	26.01	66.82	50.75	0.57	66.82	U	C	FF	PC	UC	TC	N	0.72
Hicks_E_08	wide_LVL	0.905	0.605	0.3	71.71	25.99	53.13	0.905	71.71	U	C	FF	PC	UC	BC	N	1.44
Hicks_E_07	wide_SRVY	0.89	0.67	0.22	70.89	13.21	36.96	0.89	70.89	U	C	FF	PC	UC	TC	N	1.36
Hicks_F_08	incise_LVL	0.665	0.43	0.235	57.99	21.39	33.62	0.665	57.99	U	C	NF	PC	UC	BC	N	0.54
Hicks_F_07	incise_SRVY	0.635	0.406	0.229	47.37	15.76	28.18	0.635	47.37	U	C	NF	PC	UC	TC	N	0.27
Agua_Hedi_A	DS, CEM 2, almost beginning to widen	1.89	1.24	0.48	32.56	44.28	35.24	1.89	44.28	S	A	NF	MC	UC	TT	N	0.66
Agua_Hedi_B	mid, CEM 3	1.97	1.51	0.46	50.26	61.85	49.45	1.97	50.26	U	C	NF	MC	UC	TT	N	1.02
Agua_Hedi_C	US, CEM 2-3	2.03	1.12	0.79	76.34	40.79	58.08	2.03	76.34	U	C	NF	MC	UC	TT	N	3.92
Dry_A	DS, CEM 2-3	N/A	3.48	0.95	31.12	38.43	N/A	3.48	31.12	S	A	NF	MC	UC	SC	N	0.40
Dry_B	mid, CEM 3-4?	N/A	3.78	1.01	26.56	21.64	N/A	3.78	26.56	S	A	NF	MC	UC	SC	N	0.26

Unique ID	Site Description	Left Bank (looking downstream) Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Average Bank Angle	Representative Bank Height for MW	Representative Bank Angle for MW	Global Stability	Mass Wasting	Fluvial Significant	Consolidation	Confinement	Vegetation	Artificial	Geotechnical Stability of Left Bank via log-logistic of Un-confined, Moderately-/Well-consolidated
		LBank_h_tot	*LBank_h_top*	*LBank_h_btm*	*LBank_a_top*	*LBank_a_btm*	*LBank_a_avg*	*LBank_ht*	*LBank_angl*								*LB_Ng*
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/F/T+C/T/H)	(E/F/G/R/N)	
Dry_C	US, CEM 3	1.76	0.73	1.03	32.83	27.71	30.22	1.76	30.22	S	A	NF	MC	UC	TH	N	0.18
Hovnanian_A	DS-stable	1.47	0.44	1.02	23.92	39.01	30.23	1.47	39.01	S	A	NF	MC	UC	TT	N	0.34
Hovnanian_B	US-stable	0.96	0.17	0.79	18.49	33.91	25.73	0.96	33.91	S	A	NF	MC	UC	TT	N	0.14
Santimeta_A	DS, CEM 3	N/A	3.3	1.13	67.34	66.53	N/A	3.3	67.34	U	C	NF	MC	UC	ST	N	4.30
Santimeta_B	mid, CEM 3	1.61	N/A	N/A	N/A	N/A	71.06	1.61	71.06	U	C	NF	MC	UC	SC	N	2.48
Santimeta_C	US, CEM 3	1.04	0.54	0.31	40.02	66.5	19.43	1.04	66.5	U	C	NF	MC	UC	SC	N	1.30
Ltl_Cedar_A	DS, forced single	1.433	0.707	0.726	32.51	78.74	34.3	0.726	78.74	U	C	NF	PC	UC	TH	N	1.55
Ltl_Cedar_B	US, braided	0.67	0.437	0.233	15.01	3.91	7.58	0.437	15.01	S	A	NF	UC	UC	SC	N	0.01
Proctor_A	DS	0.49	0.19	0.3	21.34	29.29	25.66	0.49	29.29	S	F	NF	UC	UC	TC	N	0.05
Proctor_B	US	N/A	0.27	0.17	18.93	42.25	N/A	0.17	42.25	S	B	NF	UC	UC	TC	N	0.05
Proctor_TRIB	TRIB	N/A	0.51	0.57	15.73	28.28	N/A	0.47	28.28	S	F	NF	UC	UC	TC	N	0.04
Perris_1_A	DS, CEM 2, responded?	0.98	0.75	0.19	31.8	28.03	N/A	0.75	31.8	S	A	NF	PC	UC	SC	N	0.09
Perris_1_B	mid, CEM2, 3?, responding	N/A	N/A	0.44	N/A	14.8	N/A	0.44	14.8	S	A	NF	PC	UC	SC	N	0.00
Perris_1_C	US, CEM2, US of conc. Outfall, responded?	1.52	0.4	0.43	38.71	44.79	N/A	0.63	44.79	U	B	NF	PC	UC	SC	N	0.23
Perris_2_A	DS, CEM1	0.34	0.28	0.06	9.79	4.11	7.86	0.34	9.79	S	A	NF	PC	UC	SC	N	0.00
Perris_2_B	US, CEM1	N/A	1	0.19	11.31	12.45	N/A	1	11.31	S	A	NF	PC	UC	SC	N	0.00
Perris_3_A	DS, braided, stable	N/A	0.53	0.36	6.65	6.06	N/A	0.53	6.65	S	A	NF	UC	UC	SC	N	0.00
Perris_3_B	US, braided, stable	N/A	0.71	0.22	3.01	9.96	N/A	0.22	9.96	S	A	NF	PC	UC	SC	N	0.00
AltPerris_A	DS-braided	0.5	0.1	0.4	4.4	19.98	11.77	0.5	19.98	S	A	NF	PC	UC	SC	N	0.01
AltPerris_B	mid-reach single thread	0.27	0.19	0.08	10.57	4.81	7.37	0.27	10.57	S	A	NF	PC	UC	SC	N	0.00
AltPerris_C	US-possibly slight incision	0.58	0.36	0.22	8.81	15.64	8.25	0.58	15.64	S	A	NF	PC	UC	SC	N	0.01

Unique ID	Site Description	Left Bank (looking downstream): Bank Height Total *LBank_h_tot* (m)	Bank Height above Break *LBank_h_top* (m)	Bank Height below Break *LBank_h_btm* (m)	Bank Angle above Break *LBank_a_top* (°)	Bank Angle below Break *LBank_a_btm* (°)	Average Bank Angle *LBank_a_avg* (°)	Representative Bank Height for MW *LBank_ht*	Representative Bank Angle for MW *LBank_angl*	Global Stability (S/U)	Mass Wasting (A/B/C/F)	Fluvial Significant (FF/NF)	Consolidation (MC/PC/UC)	Confinement (HC/BC/UC)	Vegetation (A/B/F/T+C/T/H)	Artificial (E/F/G/R/N)	Geotechnical Stability of Left Bank via log-logistic of Un-confined, Moderately-/Well-consolidated *LB_Ng*
Dulzura_A	DS-incised or stable?	1.39	0.24	1.15	12.31	31.87	25.23	1.39	31.87	S	A	NF	PC	UC	ST	N	0.17
Dulzura_B	US-incised or stable?	N/A	0.7	0.25	19.29	8.53	N/A	0.7	19.29	S	F	NF	PC	UC	ST	N	0.02
Acton_A	DS brd	0.3	0.1	0.2	7.13	26.57	14.04	0.3	26.57	S	A	NF	PC	UC	SC	N	0.02
Acton_B	transition	0.79	0.58	0.21	21.8	64.54	26.28	0.79	64.54	S	B	NF	PC	UC	SC	N	0.90
Acton_C	widening	N/A	1.48	0.76	87.51	59.04	N/A	1.48	87.51	U	C	FF	MC	UC	SC	N	4.40
Acton_D	incised/wide	N/A	2.4	N/A	88.81	N/A	N/A	2.4	88.81	U	C	NF	MC	UC	SC	N	7.47
Acton_E	US incised	N/A	2.3	N/A	87.51	N/A	N/A	2.3	87.51	U	C	NF	MC	UC	SC	N	6.83
Acton_F	US starting to incise	N/A	0.25	0.16	14.04	17.74	N/A	0.16	17.74	S	A	NF	PC	UC	SC	G	0.00
Acton_G	US 'stable'	N/A	0.25	N/A	14.04	N/A	N/A	0.25	14.04	S	A	NF	PC	UC	SC	G	0.00
Borrego_A	DS constrct (I-C)	N/A	2.99	N/A	44.9	N/A	N/A	2.99	44.9	S	A	NF	MC	UC	SC	R	1.09
Borrego_B	braided (IV-B)	1.44	0.91	0.53	56.6	27.92	41.99	1.44	56.6	U	C	NF	MC	UC	TT	N	1.08
Borrego_C	widening	4.02	3.57	0.45	67.21	26.57	59.16	4.02	67.21	U	C	NF	MC	UC	TT	N	5.20
Borrego_D	incised/wide	N/A	6	N/A	45	N/A	N/A	6	45	U	C	NF	MC	UC	TT	N	2.20
Borrego_E	US incised	3.13	1.76	1.37	52.43	67.09	38.04	1.76	52.43	U	C	NF	MC	UC	TT	N	1.04
Topanga_A	DS incised/braided	N/A	1.45	1.34	41.99	21.8	N/A	1.34	21.8	S	A	NF	UC	UC	TH	N	0.05
Topanga_B	braided	8.43	8	0.43	53.13	19.29	77.75	8	53.13	S	B	NF	MC	HC	TT	N	Confined
Topanga_C	US steppool	N/A	7	3	60.26	20.56	N/A	7	60.26	S	B	NF	MC	HC	TT	N	Confined
Challengr_A	DS-stable	0.98	0.83	0.15	83.13	36.87	72.98	0.98	83.13	U	C	FF	MC	UC	TT	N	2.48
Challengr_B	mid-incised	1.5	0.64	0.86	24.7	76.91	36.87	0.86	76.91	U	C	NF	PC	UC	TT	N	1.70
Challengr_C	US-stable	0.71	0.28	0.43	43.03	30.96	26.89	0.71	43.03	S	A	NF	MC	UC	TT	N	0.23
Mcgonigle_A	vegetated	N/A	0.4	0.21	20.56	25.02	NA	0.4	20.56	S	A	NF	UC	UC	TH	N	0.01
Sanjuan_A	DS-braided	0.87	0.27	0.6	41.99	27.89	28.54	0.87	41.99	U	C	NF	UC	UC	SC	N	0.26
Sanjuan_B	US-steppool	1.29	0.6	0.69	24.78	17.28	18.75	1.29	24.78	S	A	NF	UC	UC	SC	N	0.07

		Left Bank (looking downstream)															
		Bank Height Total	**Bank Height above Break**	**Bank Height below Break**	**Bank Angle above Break**	**Bank Angle below Break**	**Average Bank Angle**	**Representative Bank Height for MW**	**Representative Bank Angle for MW**	**Global Stability**	**Mass Wasting**	**Fluvial Significant**	**Consolidation**	**Confinement**	**Vegetation**	**Artificial**	**Geotechnical Stability of Left Bank via log-logistic of Un-confined, Moderately-/Well-consolidated**
		LBank_h_tot	*LBank_h_top*	*LBank_h_btm*	*LBank_a_top*	*LBank_a_btm*	*LBank_a_avg*	*LBank_ht*	*LBank_angl*								*LB_Ng*
Unique ID	**Site Description**	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/F/T+C/T/H)	(E/F/G/R/N)	
Pigeon_A	DS-incised/braided	0.98	0.22	0.76	65.56	72.9	70.97	0.98	72.9	U	C	NF	PC	UC	AT	N	1.64
Pigeon_B	mid-braided	0.73	0.48	0.25	73.14	50.19	50.58	0.73	73.14	U	C	NF	PC	UC	AT	N	1.23
Pigeon_C	US-pool riffle	1.48	0.58	0.9	24.04	60.95	36.33	0.9	60.95	U	B	NF	PC	UC	TT	N	0.86
Stewart_A	cascade	1.24	0.68	0.56	27.61	16.35	22.46	1.24	27.61	S	A	NF	UC	UC	TT	N	0.10
Santiagbd_A	DS-incised	N/A	10	0.26	63.64	59.53	N/A	10	63.64	S	B	NF	MC	HC	BT	N	Confined
Santiagbd_B	US - planebed	N/A	10.47	0.1	46.32	26.57	N/A	10.47	46.32	S	B	NF	MC	HC	BT	N	Confined
Santiagnl_A	DS - planebed	N/A	12	0.39	45	54.46	N/A	12	45	S	B	NF	MC	HC	BT	N	Confined
Santiagnl_B	US steppool	1.73	0.55	1.18	34.99	52.67	16.85	1.18	52.67	S	C	NF	UC	UC	TT	N	0.71
Silverado_A	DS-steppool	N/A	8	1.21	36.25	26.57	N/A	1.21	26.57	S	A	NF	MC	UC	TT	N	0.08
Silverado_B	US-steppool	N/A	8	0.64	23.75	27.14	N/A	0.64	27.14	S	A	NF	MC	UC	TT	N	0.05
Escondido_A	DS-steppool	N/A	13	1.23	22.85	16.04	N/A	1.23	16.04	S	A	NF	UC	UC	TT	N	0.02
Escondido_B	US-braided-veg	1.87	0.84	1.03	19.09	19.88	18.16	1.87	18.16	S	A	NF	UC	UC	TT	N	0.04
Sanantoni_A	DS-braided/incised	N/A	0.85		48.58			0.85	48.58	U	C	NF	UC	UC	SH	N	0.40
Sanantoni_B	US_braided, about to incise	N/A	2.1	0.25	85.24	18.43	N/A	2.1	85.24	U	C	NF	PC	UC	ST	N	5.74
Alt_RC2_A	incised	1.82	0.68	1.14	23.83	26.87	22.02	1.82	26.87	S	A	NF	MC	UC	ST	N	0.13
Yucaipa_A	DS-incised/widening right at threshold - veg is holding MW back at x-sec, but MW extensive up and downstream	2.55	2	0.55	51.32	28.84	44.44	2.55	51.32	U	B	NF	MC	UC	TT	N	1.41
Yucaipa_B	US-braided/incised	5	4	1	78.69	32.02	64.37	5	78.69	U	C	NF	MC	UC	TT	N	10.63
Oakglenn_A	steppool	3.49	0.75	2.74	56.31	38.83	34.92	1.2	56.31	S	B	NF	MC	UC	TT	N	0.89

General abbreviations and symbol definitions (excluding units of measure):

CEM	Channel Evolution Model	MW	mass wasting
conc	concrete	N/A	not applicable
constrct	constructed	TRIB	tributary
DS	downstream	US	upstream
ID	identification	veg	vegetated
mid	middle	x-sec	cross-section

Global stability:

S	stable	although MW may be present (such as through unconsolidated media or sections of bank), x-section is generally not actively widening, particularly not widening beyond the original banks. MW may be occurring in sections but banks seem relatively stable - that is their height and angle may be near stable/unstable threshold such that any current failure should result in slopes and heights even closer or equal to that of stable. Vegetation or confinement may also be playing a significant role in the global stability.
U	unstable	MW seems more complete and the channel seems to be more actively widening. Furthermore, failure in a bank typically results in a form that remains critically unstable. That is, these banks are so far past the stability threshold that failure does not move them significantly closer to stable form.

Mass wasting:

A	absent	MW is absent from cross-section and adjacent reach in general
B	broken	MW is broken (fractured/incomplete), occuring in thin slumps across only parts of the bank (vertically and/or longitudinally). MW seems to be such that it is a local phenomenon of temporary state rather than global and more perpetual.
C	complete	MW is complete, occuring in large failure blocks, such that the post-failure geometry remains in a critically unstable state. Provided the stream does not 'fill' the channel back in and reach a new equilibrium, the banks seem destined to remain perpetually unstable
F	failed	MW has recently occured such that the geometry of the survey reflects that of the failed state rather than critically unstable.

Fluvial significant:

FF	fluvial factor	direct fluvial bank erosion is a significant factor in the cause of instability.
NF	no fluvial	fluvial erosion is not a significant factor (although it may be present)

Consolidation:

MC	moderately or well consolidated	bank appears moderately to well consolidated
PC	poorly consolidated	bank seems poorly consolidated. This includes banks that may be composed of historic channel beds; however, they show at least some consolidation (that is, they typically have had a chance to begin to consolidate such that they don't fail at the angle of repose of sand)
UC	unconsolidated	material that until recently (<10yrs) was the channel bed. Although in the form of a bank, it shows no real consolidation and fails at angles of the angle of repose of sand ~ 300.

Confinement:

HC	hillslope confined	the measured height and angle is that of a hillslope which confines the channel and restricts its overall ability to significantly wident
BC	boulder or bedrock confined	the measured height and angle is that of a boulder or exposed bedrock which is confining the channel and restricting its overall ability to widen
UC	unconfined	the measured bank height and angle being rated is not directly confined by hillslope, boulder, or bedrock

Dominant vegetation (extent + type):

extent:	A	absent	vegetation at cross-section is absent from both the tops and slopes of banks
	B	burned	vegetation was recently burned and has not recovered to pre-fire state
	F	fragmented	vegetation is present but fragmented at cross section
	T	thick	vegetation is thick and likely playing a significant role in slope stability
dominant type:	C	chaparral	stereotypical Chaparral of southern California – generally dry and shrubby
	T	temperate trees and grasses	temperate species such as grasses and trees
	H	hydrophilic	hydrophilic species that occur only in regularly moist soils
Artificial (term that best describes artificial measures affecting current bank stability)	E	embanked	embanked (although not riprap, typically more intended or permanent than fill soil)
	F	fill	fill (fill soil with little compaction or consolidation)
	G	graded	graded but appears to be cut into original floodplain rather than fill
	R	riprap	riprap
	N	none	no artificial material affecting current bank stability

Table C.6(b) – Bank data: right banks

		Right Bank (looking downstream)																
		Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Average Bank Angle	Representative Bank Height for MW	Representative Bank Angle for MW	Global Stability	Mass Wasting	Fluvial Significant	Consolidation	Confinement	Vegetation	Artificial	Geotechnical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-consolidated	Representative Geotechnical Stability of Cross Section (max Ng)
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
Unique ID	Site Description	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/ C/F)	(FF/NF)	(MC/PC/ UC)	(HC/BC/ UC)	(A/B/ F/T+ C/T/H)	(E/F/G/ R/N)		
Santiago_A	DS-braided	1.18	N/A	N/A	34.6	34.6	34.6	1.2	34.6	S	A	NF	PC	UC	FC	E	0.19	1.45
Santiago_B	US-pool-riffle	2.00	N/A	N/A	33.4	33.4	33.4	2.0	33.4	S	A	NF	PC	UC	TT	E	0.29	0.29
Hasley_1_A	DS-incised, CEM2	1.225	0.895	0.519	25.36	70.82	31.69	0.519	70.82	U	C	NF	PC	UC	AC	G	0.79	2.37
Hasley_1_B	US-wide, CEM3	1.117	0.641	0.476	56.15	16.91	41.7	1.117	56.15	U	C	NF	PC	UC	FH	G	0.82	1.69
Hasley_1_TRIB	TRIB-stable	1.64	N/A	N/A	28.9	N/A	N/A	1.64	28.9	S	A	NF	PC	UC	AH	F	0.15	0.15
Hasley_2_A	DS-braided	0.96	0.72	0.24	76.01	15.74	43.19	0.96	76.01	U	C	NF	PC	UC	FC	N	1.83	1.83
Hasley_2_B	US-incised	2.23	N/A	N/A	N/A	N/A	42.91	2.23	42.91	S	A	NF	PC	UC	FC	G?	0.70	3.34
Hasley_2_TRIB	TRIB-braided	1.245	0.62	0.63	8.43	54.33	17.69	0.63	54.33	U	C	NF	PC	UC	FC	N	0.42	0.51
Hicks_A_08	stable @road	1.02	0.85	0.17	19.9	20.7	16.25	0.17	20.7	S	A	NF	UC	UC	BC	E?	0.01	0.38
Hicks_B_08	incised	1.54	1.075	0.465	27.14	68.96	23.81	0.465	68.96	U	B	NF	PC	UC	BC	E?	0.65	0.65
Hicks_C_08	wide	N/A	0.51	0.31	10.48	36.87	N/A	0.31	36.87	S	A	NF	UC	UC	BC	N	0.06	0.51
Hicks_D_08	wide_LVL	0.65	0.33	0.32	34.99	57.99	46.67	0.65	57.99	U	C	FF	PC	UC	BC	N	0.53	1.08
Hicks_D_07	wide_SRVY	0.67	0.21	0.46	29.92	52.18	26.87	0.46	52.18	U	C	FF	PC	UC	TC	N	0.27	0.72
Hicks_E_08	wide_LVL	0.825	0.415	0.41	76.45	36.5	42.51	0.825	76.45	U	C	NF	PC	UC	BC	N	1.60	1.60
Hicks_E_07	wide_SRVY	0.821	0.402	0.419	48.37	29.13	36.51	0.821	48.37	U	C	NF	PC	UC	TC	N	0.38	1.36
Hicks_F_08	incise_LVL	0.58	0.27	0.31	69.68	19.01	30.11	0.58	69.68	U	C	NF	PC	UC	BC	N	0.84	0.84
Hicks_F_07	incise_SRVY	0.53	0.39	0.14	65.16	14.38	35.74	0.53	65.16	U	C	NF	PC	UC	TC	N	0.62	0.62
Agua_Hedi_A	DS, CEM 2, almost beginning to widen	2.58	0.91	1.67	15.89	52.28	27.54	1.67	52.28	U	C	NF	MC	UC	TT	N	0.98	0.98
Agua_Hedi_B	mid, CEM 3	2.271	0.972	0.875	62.54	55.31	27.88	1.419	62.54	U	C	NF	MC	UC	TT	N	1.46	1.46

Unique ID	Site Description	Right Bank (looking downstream)																
		Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Average Bank Angle	Representative Bank Height for MW	Representative Bank Angle for MW	Global Stability	Mass Wasting	Fluvial Significant	Consolid-ation	Confinement	Vegetation	Artificial	Geotechnical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-consolidated	Representative Geotechnical Stability of Cross Section (max Ng)
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/ C/F)	(FF/NF)	(MC/PC/ UC)	(HC/BC/ UC)	(A/B/ F/T+ C/T/H)	(E/F/G/ R/N)		
Agua_Hedi_C	US, CEM 2-3	3.24	1.3	1.48	58.25	60.34	43.83	1.48	60.34	U	C	NF	MC	UC	TT	N	1.36	3.92
Dry_A	DS, CEM 2-3	N/A	3.09	1.22	40.96	61.65	N/A	3.09	40.96	U	C	NF	MC	UC	SC	N	0.84	0.84
Dry_B	mid, CEM 3-4?	3.01	1.85	1.33	37.59	77.18	41.74	1.33	77.18	U	C	NF	MC	UC	SC	N	2.66	2.66
Dry_C	US, CEM 3	4.87	N/A	N/A	N/A	N/A	70.34	4.87	70.34	U	C	NF	MC	UC	SC	N	7.27	7.27
Hovnanian_A	DS-stable	N/A	1.1	N/A	16.16	N/A	N/A	1.1	16.16	S	A	NF	MC	UC	TT	N	0.02	0.34
Hovnanian_B	US-stable	1.2	0.15	1.04	24.02	34.9	30.12	1.2	34.9	S	A	NF	MC	UC	TT	N	0.20	0.20
Santimeta_A	DS, CEM 3	4.13	0.78	3.36	61.77	77.71	74.47	4.13	77.71	U	C	NF	MC	UC	ST	N	8.44	8.44
Santimeta_B	mid, CEM 3	2.88	1.991	0.889	75.05	77.71	64.38	2.88	75.05	U	C	NF	MC	UC	SC	N	5.27	5.27
Santimeta_C	US, CEM 3	1.22	0.92	0.3	74.86	16.55	43.93	1.22	74.86	U	C	NF	MC	UC	SC	N	2.22	2.22
Ltl_Cedar_A	DS, forced single	1.44	0.82	0.62	14.22	64.68	19.85	0.62	64.68	U	C	NF	PC	UC	TH	N	0.71	1.55
Ltl_Cedar_B	US, braided	N/A	0.501	0.59	31.04	28.62	N/A	0.59	28.62	S	F	NF	UC	UC	SC	N	0.05	0.05
Proctor_A	DS	N/A	0.81	0.44	16.13	43.04	N/A	0.44	43.04	S	B	NF	UC	UC	TC	N	0.14	0.14
Proctor_B	US	N/A	0.57	0.31	19.3	46	N/A	0.31	46	S	B	NF	UC	UC	TC	N	0.12	0.12
Proctor_TRIB	TRIB	N/A	0.73	0.47	14.53	34.61	N/A	0.47	34.61	S	F	NF	UC	UC	TC	N	0.08	0.08
Perris_1_A	DS, CEM 2, responded?	1.15	0.38	0.62	17.71	14.93	N/A	0.62	14.93	S	A	NF	PC	UC	SC	N	0.01	0.09
Perris_1_B	mid, CEM2, 3?, responding	1.13	0.37	0.76	21.78	38.78	31.13	1.13	38.78	U	C	FF	PC	UC	SC	N	0.26	0.26
Perris_1_C	US, CEM2, US of conc. Outfall, responded?	1.49	0.49	1	23.84	32.82	29.25	1.2	32.82	U	B	FF	PC	UC	SC	N	0.16	0.23
Perris_2_A	DS, CEM1	0.23	0.18	0.05	17.65	9.07	14.87	0.23	14.87	S	A	NF	PC	UC	SC	N	0.00	0.00
Perris_2_B	US, CEM1	0.64	0.25	0.39	3.48	38.06	N/A	0.25	38.06	S	B	NF	PC	UC	SC	N	0.05	0.05
Perris_3_A	DS, braided, stable	1.63	0.9	0.73	8.08	9.02	8.27	1.63	9.02	S	A	NF	PC	UC	SC	N	0.00	0.00

Unique ID	Site Description	Right Bank (looking downstream)																
		Bank Height Total	**Bank Height above Break**	**Bank Height below Break**	**Bank Angle above Break**	**Bank Angle below Break**	**Aver-age Bank Angle**	**Repre-sentative Bank Height for MW**	**Repre-sentative Bank Angle for MW**	**Glo-bal Sta-bility**	**Mass Wasting**	**Fluvial Signi-ficant**	**Consolid-ation**	**Confine-ment**	**Vege-tation**	**Arti-ficial**	**Geotechnical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-consolid-ated**	**Repre-sentative Geo-technical Stability of Cross Section (max Ng)**
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/ C/F)	(FF/NF)	(MC/PC/ UC)	(HC/BC/ UC)	(A/B/ F/T+ C/T/H)	(E/F/G/ R/N)		
Perris_3_B	US, braided, stable	N/A	1.43	0.39	7.87	16.01	N/A	0.39	16.01	S	A	NF	UC	UC	SC	N	0.01	0.01
AltPerris_A	DS-braided	0.3	0.15	0.15	10.62	7.13	8.53	0.3	10.62	S	A	NF	PC	UC	SC	N	0.00	0.01
AltPerris_B	mid-reach single thread	0.6	0.29	0.26	12.58	11.31	7.37	0.6	12.58	S	A	NF	PC	UC	SC	N	0.00	0.00
AltPerris_C	US-possibly slight incision	0.6	0.29	0.32	16.17	20.38	8.75	0.6	20.38	S	A	NF	PC	UC	SC	N	0.02	0.02
Dulzura_A	DS-incised or stable?	N/A	1.18	0.41	11.31	16.7	N/A	0.41	16.7	S	A	NF	UC	UC	ST	N	0.01	0.17
Dulzura_B	US-incised or stable?	1	0.65	0.35	23.43	39.52	27.28	1	39.52	S	B	NF	PC	UC	ST	N	0.24	0.24
Acton_A	DS brd	0.5	0.32	0.18	12.88	16.7	7.91	0.5	16.7	S	A	NF	PC	UC	SC	N	0.01	0.02
Acton_B	transition	0.79	0.28	0.51	54.46	41.99	23.52	0.79	54.46	S	B	NF	PC	UC	SC	N	0.53	0.90
Acton_C	widening	N/A	2.5	N/A	87.71	N/A	N/A	2.5	87.71	U	C	FF	MC	UC	SC	N	7.48	7.48
Acton_D	incised/wide	N/A	3.25	N/A	88.24	N/A	N/A	3.25	88.24	U	C	NF	MC	UC	SC	N	9.91	9.91
Acton_E	US incised	N/A	2.29	N/A	87.5	N/A	N/A	2.29	87.5	U	C	NF	MC	UC	SC	N	6.80	6.83
Acton_F	US starting to incise	0.41	0.25	0.16	14.04	17.74	15.29	0.41	17.74	S	A	NF	PC	UC	SC	G	0.01	0.01
Acton_G	US 'stable'	N/A	0.24	N/A	13.5	N/A	N/A	0.24	13.5	S	A	NF	PC	UC	SC	G	0.00	0.00
Borrego_A	DS constrct (I-C)	N/A	3	N/A	45	N/A	N/A	3	45	S	A	NF	MC	UC	SC	R	1.10	1.10
Borrego_B	braided (IV-B)	1.69	0.53	1.16	52.96	30.49	24.04	1.69	52.96	U	C	NF	MC	UC	SC	N	1.03	1.08
Borrego_C	widening	3.94	3	0.94	63.43	23.96	54.78	3.94	63.43	U	C	NF	MC	UC	TT	N	4.25	5.20
Borrego_D	incised/wide	6.35	6	0.35	72.43	41.16	70.09	6.35	72.43	U	C	NF	MC	UC	SC	N	10.40	10.40
Borrego_E	US incised	N/A	2.27	0.82	19.8	43.53	N/A	2.27	19.8	S	F	NF	MC	UC	TT	N	0.06	1.04
Topanga_A	DS incised/brd	N/A	0.8	1.46	38.66	22.78	N/A	1.46	22.78	S	A	NF	UC	UC	TH	N	0.06	0.06
Topanga_B	braided	0.68	0.25	0.43	10.89	10.81	10.16	0.68	10.81	S	A	NF	UC	UC	TH	N	0.00	0.00

Unique ID	Site Description	Right Bank (looking downstream) Bank Height Total *RBank_h_tot* (m)	Bank Height above Break *RBank_h_top* (m)	Bank Height below Break *RBank_h_btm* (m)	Bank Angle above Break *RBank_a_top* (°)	Bank Angle below Break *RBank_a_btm* (°)	Average Bank Angle *RBank_a_avg* (°)	Representative Bank Height for MW *RBank_ht*	Representative Bank Angle for MW *RBank_angl*	Global Stability (S/U)	Mass Wasting (A/B/C/F)	Fluvial Significant (FF/NF)	Consolidation (MC/PC/UC)	Confinement (HC/BC/UC)	Vegetation (A/B/F/T+C/T/H)	Artificial (E/F/G/R/N)	Geotechnical Stability of Right Bank via log-logistic of Unconfined, Moderately-/Well-consolidated *LB_Ng*	Representative Geotechnical Stability of Cross Section (max Ng) *Max_Ng*
Topanga_C	US steppool	N/A	10	2	63.43	21.8	N/A	10	63.43	S	B	NF	MC	HC	TT	N	Confined	0.00
Challengr_A	DS-stable	0.94	0.35	0.59	15.65	29.54	17.6	0.94	29.54	S	A	NF	MC	UC	TT	N	0.09	2.48
Challengr_B	mid-incised	1.34	0.58	0.76	17.57	68.96	26.4	0.76	68.96	U	C	NF	PC	UC	TT	N	1.07	1.70
Challengr_C	US-stable	0.8	0.59	0.21	36.41	27.7	33.69	0.8	36.41	S	A	NF	MC	UC	TT	N	0.15	0.23
Mcgonigle_A	vegetated	N/A	0.33	0.31	30.96	29.54	N/A	0.33	30.96	S	A	NF	UC	UC	TH	N	0.04	0.04
Sanjuan_A	DS-braided	6.3	5	1.3	78.69	29.48	62.35	6.3	78.69	U	C	NF	MC	UC	TT	N	13.39	13.39
Sanjuan_B	US-steppool	N/A	1.51	0.29	18.92	16.17	N/A	1.51	18.92	S	A	NF	MC	BC	SC	N	Confined	0.07
Pigeon_A	DS-incised/brd	0.68	0.29	0.39	15.38	44.03	29.74	0.68	44.03	U	C	NF	UC	UC	SH	N	0.23	1.64
Pigeon_B	mid-braided	0.32	0.11	0.21	12.41	7.77	6.34	0.32	12.41	S	A	NF	UC	UC	SH	N	0.00	1.23
Pigeon_C	US-pool riffle	N/A	1.45	0.49	36.87	24.7	N/A	1.45	36.87	S	B	NF	PC	UC	TT	N	0.28	0.86
Stewart_A	cascade	N/A	0.52	0.55	34.99	90	N/A	0.55	90	S	A	NF	MC	BC	TT	N	Confined	0.10
Santiagbd_A	DS-incised	N/A	2.05	0.89	34.22	64.18	N/A	0.89	64.18	U	C	NF	UC	UC	SC	N	1.00	1.00
Santiagbd_B	US-planebed	N/A	0.5	0.2	14.04	40.91	N/A	0.2	40.91	S	B	NF	UC	UC	SC	N	0.05	0.05
Santiagnl_A	DS-planebed	2.35	2.01	0.34	32.71	18.52	29.59	2.35	32.71	S	A	NF	MC	UC	TT	N	0.31	0.31
Santiagnl_B	US steppool	N/A	0.79	0.21	15.07	34.99	N/A	0.21	34.99	S	A	NF	UC	UC	SH	N	0.03	0.71
Silverado_A	DS-steppool	3.15	2.05	1.1	33.02	38.16	N/A	1.1	38.16	S	A	NF	MC	UC	TT	N	0.24	0.24
Silverado_B	US-steppool	2.4	1.07	1.33	37.39	53.06	45	2.4	53.06	S	A	NF	MC	BC	TT	N	Confined	0.05
Escondido_A	DS-steppool	N/A	29	2.15	30.4	29.9	N/A	2.15	29.9	S	A	NF	MC	BC	ST	N	Confined	0.02
Escondido_B	US-braided-veg	1.18	0.84	0.34	32.87	14.66	24.41	1.18	32.87	S	B	NF	UC	UC	TT	N	0.16	0.16
Sanantoni_A	DS-braided/incised	0.8	0.5	0.3	18.43	11.31	14.93	0.8	18.43	S	A	NF	UC	UC	SH	N	0.02	0.40
Sanantoni_B	US_braided, about to incise	N/A	3.51	0.3	63.89	11.31	N/A	3.51	63.89	U	C	NF	PC	UC	ST	N	3.87	5.74
Alt_RC2_A	incised	1.81	0.43	1.38	18.26	31.63	26.04	1.81	31.63	S	A	NF	MC	UC	ST	N	0.22	0.22

Unique ID	Site Description	Right Bank (looking downstream)																
		Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Aver-age Bank Angle	Repre-sentative Bank Height for MW	Repre-sentative Bank Angle for MW	Glo-bal Sta-bility	Mass Wasting	Fluvial Signi-ficant	Consolid-ation	Confine-ment	Vege-tation	Arti-ficial	Geotechnical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-consolid-ated	Repre-sentative Geo-technical Stability of Cross Section (max Ng)
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/ C/F)	(FF/NF)	(MC/PC/ UC)	(HC/BC/ UC)	(A/B/ F/T+ C/T/H)	(E/F/G/ R/N)		
Yucaipa_A	DS-incised/widening right at threshold - veg is holding MW back at x-sec, but MW extensive up and downstream	2.1	1.78	0.32	37.57	7.29	N/A	1.78	37.57	S	A	NF	MC	UC	AT	R	0.37	1.41
Yucaipa_B	US-braided/incised	2.5	1	1.5	24.44	78.69	45	1.5	78.69	U	C	NF	MC	UC	AT	N	3.19	10.63
Oakglenn_A	steppool	3.14	1.49	1.65	44.81	44.14	44.46	3.14	44.14	S	B	NF	MC	UC	ST	N	1.08	1.08

General abbreviations and symbol definitions (excluding units of measure):

CEM	Channel Evolution Model	MW	mass wasting
conc	concrete	N/A	not applicable
constrct	constructed	TRIB	tributary
DS	downstream	US	upstream
ID	identification	veg	vegetated
mid	middle	x-sec	cross-section

Global stability:

S	stable	although MW may be present (such as through unconsolidated media or sections of bank), x-section is generally not actively widening, particularly not widening beyond the original banks. MW may be occurring in sections but banks seem relatively stable - that is their height and angle may be near stable/unstable threshold such that any current failure should result in slopes and heights even closer or equal to that of stable. Vegetation or confinement may also be playing a significant role in the global stability.
U	unstable	MW seems more complete and the channel seems to be more actively widening. Furthermore, failure in a bank typically results in a form that remains critically unstable. That is, these banks are so far past the stability threshold that failure does not move them significantly closer to stable form.

Mass wasting:

A	absent	MW is absent from cross-section and adjacent reach in general
B	broken	MW is broken (fractured/incomplete), occuring in thin slumps across only parts of the bank (vertically and/or longitudinally). MW seems to be such that it is a local phenomenon of temporary state rather than global and more perpetual.
C	complete	MW is complete, occuring in large failure blocks, such that the post-failure geometry remains in a critically unstable state. Provided the stream does not 'fill' the channel back in and reach a new equilibrium, the banks seem destined to remain perpetually unstable
F	failed	MW has recently occured such that the geometry of the survey reflects that of the failed state rather than critically unstable.

Fluvial significant:

FF	fluvial factor	direct fluvial bank erosion is a significant factor in the cause of instability.
NF	no fluvial	fluvial erosion is not a significant factor (although it may be present)

Consolidation:

MC	moderately or well consolidated	bank appears moderately to well consolidated
PC	poorly consolidated	bank seems poorly consolidated. This includes banks that may be composed of historic channel beds; however, they show at least some consolidation (that is, they typically have had a chance to begin to consolidate such that they don't fail at the angle of repose of sand)
UC	unconsolidated	material that until recently (<10yrs) was the channel bed. Although in the form of a bank, it shows no real consolidation and fails at angles of the angle of repose of sand ~ 300.

Confinement:

HC	hillslope confined	the measured height and angle is that of a hillslope which confines the channel and restricts its overall ability to significantly wident
BC	boulder or bedrock confined	the measured height and angle is that of a boulder or exposed bedrock which is confining the channel and restricting its overall ability to widen
UC	unconfined	the measured bank height and angle being rated is not directly confined by hillslope, boulder, or bedrock

Dominant vegetation (extent + type):

extent:	A	absent	vegetation at cross-section is absent from both the tops and slopes of banks
	B	burned	vegetation was recently burned and has not recovered to pre-fire state
	F	fragmented	vegetation is present but fragmented at cross section
	T	thick	vegetation is thick and likely playing a significant role in slope stability
dominant type:	C	chaparral	stereotypical Chaparral of southern California – generally dry and shrubby
	T	temperate trees and grasses	temperate species such as grasses and trees
	H	hydrophilic	hydrophilic species that occur only in regularly moist soils
Artificial (term that best describes artificial measures affecting current bank stability)	E	embanked	embanked (although not riprap, typically more intended or permanent than fill soil)
	F	fill	fill (fill soil with little compaction or consolidation)
	G	graded	graded but appears to be cut into original floodplain rather than fill
	R	riprap	riprap
	N	none	no artificial material affecting current bank stability

Table C.6(c) – Left bank data: rationale for description of second bank height and angle

		Left Bank (looking downstream)															
Unique ID	Site Description	Bank Height Total *LBank_h_tot* (m)	Bank Height above Break *LBank_h_top* (m)	Bank Height below Break *LBank_h_btm* (m)	Bank Angle above Break *LBank_a_top* (°)	Bank Angle below Break *LBank_a_btm* (°)	Average Bank Angle *LBank_a_avg* (°)	Representative Bank Height for MW *LBank_ht*	Representative Bank Angle for MW *LBank_angl*	Global Stability (S/U)	Mass Wasting (A/B/C/F)	Fluvial Significant (FF/NF)	Consolidation (MC/PC/UC)	Confinement (HC/BC/UC)	Vegetation (A/B/F/T+C/T/H)	Artificial (E/F/G/R/N)	Geotechnical Stability of Left Bank via log-logistic of Unconfined, Moderately/ Well Consolidated *LB_Ng*
Santiago_B_2	LB_total valley wall height and RB of incised section							8	27.83	S	A	NF	MC	HC	TT	N	Confined
Hasley_2_A_DS	to account for the fact that the LB of Hasley_2A was geometry for a recently failed bank, rather than pre/during MW (geometry from next cross section DS (x-sec 1)							0.59	78.06	U	C	NF	PC	UC	AC	N	1.22
Hicks_A_2	upper banks (stable)							0.71	22.78	S	A	NF	PC	UC	AC	E?	0.03
Hicks_B_2	upper right bank historic MW (failed, but not separated from current incision height and angle)							1.09	32.74	U	F	FF	PC	UC	BC	N	0.15
Hicks_C_2	upper left bank (true bank material - more consolidated)	1.25	0.32	0.93	64.54	27.32	30.96	1.25	64.54	U	C	FF	PC	UC	BC	N	1.42
Hicks_F_2	upper (original, pre-incised, stable banks)							0.415	23.03	S	A	NF	PC	UC	BC	N	0.02
Agua_Hedi_B_2	right, incised cut-bank																
Agua_Hedi_C_2	upper portions of banks																
Dry_A_2	banks within incised section also representative							0.95	38.43	U	F	NF	MC	UC	SC	N	0.21
Dry_B_2	right upper bank also warrants inclusion (separated from incised bank by a 25º slope),							1.01	21.64	U	F	NF	MC	UC	SC	N	0.04

Unique ID	Site Description	Left Bank (looking downstream): Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Average Bank Angle	Representative Bank Height for MW	Representative Bank Angle for MW	Global Stability	Mass Wasting	Fluvial Significant	Consolidation	Confinement	Vegetation	Artificial	Geotechnical Stability of Left Bank via log-logistic of Unconfined, Moderately/ Well Consolidated
		LBank_h_tot	*LBank_h_top*	*LBank_h_btm*	*LBank_a_top*	*LBank_a_btm*	*LBank_a_avg*	*LBank_ht*	*LBank_angl*								*LB_Ng*
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/ UC)	(HC/BC/ UC)	(A/B/F/T+ C/T/H)	(E/F/ G/R/N)	
	additional left bank within channel not necessary, but included for balance																
Santimeta_A_2	LB of incised section separate and failing							1.13	66.53	U	C	NF	MC	UC	ST	N	1.42
Ltl_Cedar_B_2	far right bank (upper) warrants inclusion																
Proctor_A_2	far right bank (upper) warrants inclusion																
Proctor_B_2	outer banks							0.27	18.93	S	A	NF	PC	UC	TC	N	0.01
Proctor_B_3	left incised channel							0.2	26.24	S	F	NF	UC	UC	TC	N	0.01
Proctor_Trib_2	outer banks							0.73	14.53	S	A	NF	PC	UC	TC	N	0.01
Proctor_Trib_3	left incised channel							0.36	20.82	S	F	NF	UC	UC	TC	N	0.01
Perris_1_C_2	left upper bank							0.6	38.71	U	C	NF	PC	UC	SC	N	0.14
Perris_3_B_2	upper right bank																
Dulzura_A	upper right bank																
Acton_C_2	left, lower (incised) bank – PC (edge of old bank and old channel bed, but not UC)							0.76	59.04	U	C	FF	PC	UC	SC	N	0.65
Borrego_E_2	incised banks (although not unconsolidated - trees 20+yrs - composed of alluvia - very old bed)							1.37	67.09	U	C	NF	PC	UC	TT	N	1.76
Topanga_A_2	left main channel	N/A	1.45	1.34	41.99	21.8	N/A	1.45	41.99	S	C	NF	UC	UC	TH	N	0.43
Topanga_A_3	upper bank of right channel (consolidated)																
Topanga_B_2	lower left bank							0.43	19.29	S	A	NF	UC	UC	TH	N	0.01

		Left Bank (looking downstream)															
		Bank Height Total	**Bank Height above Break**	**Bank Height below Break**	**Bank Angle above Break**	**Bank Angle below Break**	**Aver-age Bank Angle**	**Repre-sentative Bank Height for MW**	**Repre-sentative Bank Angle for MW**	**Global Sta-bility**	**Mass Wasting**	**Fluvial Signi-ficant**	**Consoli-dation**	**Confine-ment**	**Vege-tation**	**Artifi-cial**	**Geo-technical Stability of Left Bank via log-logistic of Un-confined, Moder-ately/ Well Consolid-ated**
		LBank_h_tot	*LBank_h_top*	*LBank_h_btm*	*LBank_a_top*	*LBank_a_btm*	*LBank_a_avg*	*LBank_ht*	*LBank_angl*								*LB_Ng*
Unique ID	**Site Description**	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/F/T+C/T/H)	(E/F/G/R/N)	
Topanga_C_2	collapsed material							3	20.56	S	A	NF	UC	UC	TH	N	0.09
McGonigle_A_2	right channel (just next to main channel)	N/A		0.21		25.02	N/A	0.21	25.02	S	F	NF	UC	UC	TH	N	0.01
McGonigle_A_3	valley walls							13	14.91	S	A	NF	MC	HC	ST	N	Confined
Stewart_A_2	more confined (bedrock) heights and angles @ x-sec							0.35	68.96	S	A	NF	MC	BC	TT	N	Confined
Stewart_A_3	just upstream – unconsolidated MW right bank							2	70	U	C	NF	PC	UC	TT	N	2.94
Santiagbd_A_2	left incised and right outer bank	N/A	10	0.26	63.64	59.53	N/A	0.26	59.53	S	B	NF	UC	UC	BT	N	0.23
Santiagbd_B_2		N/A	10.47	0.1	46.32	26.57	N/A	0.1	26.57	S	A	NF	UC	UC	SC	N	0.01
Santiagnl_A_2	two unconsolidated left banks							0.39	54.46	S	C	NF	UC	UC	AH	N	0.26
Santiagnl_B_2	US steppool	1.73	0.55	1.18	34.99	52.67	16.85	0.55	34.99	S	B	NF	UC	UC	TT	N	0.09
Santiagnl_B_3	boulder on right and UC bank between x-sec (pictured)							0.25	75	S	C	NF	UC	UC	SH	N	0.46
Silverado_A_2	left valley wall (8 m @ 30 all I can see in photo), right bank to road	N/A	8	1.21	36.25	26.57	N/A	8	36.25	S	A	NF	MC	HC	TT	N	Confined
Silverado_B_2	bottom of left valley wall at x-sec (topsoil, not rock) and bedrock between A and B (photo 1268)	N/A	8	0.64	23.75	27.14	N/A	8	23.75	S	A	NF	MC	HC	TT	N	Confined
Escondido_A_2	valley walls	N/A	13	1.23	22.85	16.04	N/A	13	22.85	S	A	NF	MC	HC	TT	N	Confined
Escondido_B_2	valley walls							11	20.42	S	A	NF	MC	HC	TT	N	Confined
Escondido_B_3	banks of island							0.65	17.65	S	A	NF	UC	UC	TT	N	0.01

		Left Bank (looking downstream)															
		Bank Height Total	**Bank Height above Break**	**Bank Height below Break**	**Bank Angle above Break**	**Bank Angle below Break**	**Aver-age Bank Angle**	**Repre-sentative Bank Height for MW**	**Repre-sentative Bank Angle for MW**	**Global Sta-bility**	**Mass Wasting**	**Fluvial Signi-ficant**	**Consoli-dation**	**Confine-ment**	**Vege-tation**	**Artifi-cial**	**Geo-technical Stability of Left Bank via log-logistic of Un-confined, Moder-ately/ Well Consolid-ated**
		LBank_h_tot	*LBank_h_top*	*LBank_h_btm*	*LBank_a_top*	*LBank_a_btm*	*LBank_a_avg*	*LBank_ht*	*LBank_angl*								*LB_Ng*
Unique ID	**Site Description**	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/F/T+C/T/H)	(E/F/G/R/N)	
Sanantoni_B	inner banks (unconsolidated but stable)	N/A	2.1	0.25	85.24	18.43	N/A	0.25	18.43	S	A	NF	UC	UC	SH	N	0.01

General abbreviations and symbol definitions (excluding units of measure):

CEM	Channel Evolution Model	MW	mass wasting
conc	concrete	N/A	not applicable
constrct	constructed	TRIB	tributary
DS	downstream	US	upstream
ID	identification	veg	vegetated
mid	middle	x-sec	cross-section

Global stability:

S	stable	although MW may be present (such as through unconsolidated media or sections of bank), x-section is generally not actively widening, particularly not widening beyond the original banks. MW may be occurring in sections but banks seem relatively stable - that is their height and angle may be near stable/unstable threshold such that any current failure should result in slopes and heights even closer or equal to that of stable. Vegetation or confinement may also be playing a significant role in the global stability.
U	unstable	MW seems more complete and the channel seems to be more actively widening. Furthermore, failure in a bank typically results in a form that remains critically unstable. That is, these banks are so far past the stability threshold that failure does not move them significantly closer to stable form.

Mass wasting:

A	absent	MW is absent from cross-section and adjacent reach in general
B	broken	MW is broken (fractured/incomplete), occuring in thin slumps across only parts of the bank (vertically and/or longitudinally). MW seems to be such that it is a local phenomenon of temporary state rather than global and more perpetual.
C	complete	MW is complete, occuring in large failure blocks, such that the post-failure geometry remains in a critically unstable state. Provided the stream does not 'fill' the channel back in and reach a new equilibrium, the banks seem destined to remain perpetually unstable
F	failed	MW has recently occured such that the geometry of the survey reflects that of the failed state rather than critically unstable.

Fluvial significant:

FF	fluvial factor	direct fluvial bank erosion is a significant factor in the cause of instability.
NF	no fluvial	fluvial erosion is not a significant factor (although it may be present)

Consolidation:

MC	moderately or well consolidated	bank appears moderately to well consolidated
PC	poorly consolidated	bank seems poorly consolidated. This includes banks that may be composed of historic channel beds; however, they show at least some consolidation (that is, they typically have had a chance to begin to consolidate such that they don't fail at the angle of repose of sand)
UC	unconsolidated	material that until recently (<10yrs) was the channel bed. Although in the form of a bank, it shows no real consolidation and fails at angles of the angle of repose of sand ~ 300.

Confinement:

HC	hillslope confined	the measured height and angle is that of a hillslope which confines the channel and restricts its overall ability to significantly wident
BC	boulder or bedrock confined	the measured height and angle is that of a boulder or exposed bedrock which is confining the channel and restricting its overall ability to widen
UC	unconfined	the measured bank height and angle being rated is not directly confined by hillslope, boulder, or bedrock

Dominant vegetation (extent + type):

extent:	A	absent	vegetation at cross-section is absent from both the tops and slopes of banks
	B	burned	vegetation was recently burned and has not recovered to pre-fire state
	F	fragmented	vegetation is present but fragmented at cross section
	T	thick	vegetation is thick and likely playing a significant role in slope stability
dominant type:	C	chaparral	stereotypical Chaparral of southern California – generally dry and shrubby
	T	temperate trees and grasses	temperate species such as grasses and trees
	H	hydrophilic	hydrophilic species that occur only in regularly moist soils
Artificial (term that best describes artificial measures affecting current bank stability)	E	embanked	embanked (although not riprap, typically more intended or permanent than fill soil)
	F	fill	fill (fill soil with little compaction or consolidation)
	G	graded	graded but appears to be cut into original floodplain rather than fill
	R	riprap	riprap
	N	none	no artificial material affecting current bank stability

Table C.6(d) – Right bank data: rationale for description of second bank height and angle

Unique ID	Site Description	Right Bank (looking downstream): Bank Height Total RBank_h_tot (m)	Bank Height above Break RBank_h_top (m)	Bank Height below Break RBank_h_btm (m)	Bank Angle above Break RBank_a_top (°)	Bank Angle below Break RBank_a_btm (°)	Average Bank Angle RBank_a_avg (°)	Representative Bank Height for MW RBank_ht	Representative Bank Angle for MW RBank_angl	Global Stability (S/U)	Mass Wasting (A/B/C/F)	Fluvial Significant (FF/NF)	Consolidation (MC/PC/UC)	Confinement (HC/BC/UC)	Vegetation (A/B/ F/T +C/T/H)	Artificial (E/F/G/R/N)	Geo-technical Stability of Right Bank via log-logistic of Unconfined, Moderately-/Well-Consolidated LB_Ng	Representative Geo-technical Stability of Cross Section (max Ng) Max_Ng
Santiago_B_2	LB_total valley wall height and RB of incised section							0.74	28.88	U	C	NF	UC	UC	AH	N	0.07	
Hasley_2_A_DS	to account for the fact that the LB of Hasley_2A was geometry for a recently failed bank, rather than pre/during MW (geometry from next cross section DS (x-sec 1)							0.861	67.51439	U	C	NF	PC	UC	FC	N	1.13	
Hicks_A_2	upper banks (stable)							0.85	19.9	S	A	NF	PC	UC	BC	E?	0.02	
Hicks_B_2	upper right bank historic MW (failed, but not separated from current incision height and angle)																	
Hicks_C_2	upper left bank (true bank material – more consolidated)																	
Hicks_F_2	upper (original, pre-incised, stable banks)							0.395	15.82	S	A	NF	PC	UC	BC	N	0.01	
Agua_Hedi_B_2	right, incised cut-bank							0.875	55.31	S	B	FF	MC	UC	TT	N	0.61	
Agua_Hedi_C_2	upper portions of banks							1.3	58.25	S	B	NF	MC	UC	TT	N	1.07	
Dry_A_2	banks within incised section also representative							1.22	61.65	U	C	NF	MC	UC	SC	N	1.20	
Dry_B_2	right upper bank also warrants inclusion (separated from							1.85	37.59	S	A	NF	MC	UC	SC	N	0.38	

		Right Bank (looking downstream)																
		Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Average Bank Angle	Representative Bank Height for MW	Representative Bank Angle for MW	Global Stability	Mass Wasting	Fluvial Significant	Consolidation	Confinement	Vegetation	Artificial	Geo-technical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-Consolidated	Representative Geo-technical Stability of Cross Section (max Ng)
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
Unique ID	Site Description	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/ F/T +C/T/H)	(E/F/G/R/N)		
	incised bank by a 25º slope), additional left bank within channel not necessary, but included for balance																	
Santimeta_A_2	LB of incised section separate and failing																	
Ltl_Cedar_B_2	far right bank (upper) warrants inclusion							0.501	31.04	S	A	NF	PC	UC	SC	N	0.06	
Proctor_A_2	far right bank (upper) warrants inclusion							0.81	16.13	S	A	NF	PC	UC	TC	N	0.01	
Proctor_B_2	outer banks							0.57	19.3	S	A	NF	PC	UC	TC	N	0.01	
Proctor_B_3	left incised channel							0.3	46.12	S	B	NF	UC	UC	TC	N	0.12	
Proctor_Trib_2	outer banks							0.51	15.73	S	A	NF	PC	UC	TC	N	0.01	
Proctor_Trib_3	left incised channel							0.33	52.63	S	B	NF	UC	UC	TC	N	0.20	
Perris_1_C_2	left upper bank																	
Perris_3_B_2	upper right bank							1.43	7.87	S	A	NF	PC	UC	SC	N	0.00	
Dulzura_A	upper right bank							1.18	11.31	S	A	NF	PC	UC	ST	N	0.01	
Acton_C_2	left, lower (incised) bank - PC (edge of old bank and old channel bed, but not UC)																	
Borrego_E_2	incised banks (although not unconsolidated - trees 20+yrs - composed of alluvia - very old bed)							0.82	43.53	U	C	NF	PC	UC	TT	N	0.27	
Topanga_A_2	left main channel	N/A	0.8	1.46	38.66	22.78	N/A	0.8	38.66	S	C	NF	UC	UC	TH	N	0.18	
Topanga_A_3	upper bank of right							2	46.85	S	A	NF	MC	HC	TT	N	Confined	

Unique ID	Site Description	Right Bank (looking downstream) Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Aver-age Bank Angle	Repre-sentative Bank Height for MW	Repre-sentative Bank Angle for MW	Global Sta-bility	Mass Wasting	Fluvial Signi-ficant	Consolid-ation	Confine-ment	Vege-tation	Arti-ficial	Geo-technical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-Consolidated	Repre-sentative Geo-technical Stability of Cross Section (max Ng)
		RBank_h_tot	RBank_h_top	RBank_h_btm	RBank_a_top	RBank_a_btm	RBank_a_avg	RBank_ht	RBank_angl								LB_Ng	Max_Ng
		(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/ UC)	(A/B/ F/T +C/T/H)	(E/F/G/ R/N)		
	channel (consolidated)																	
Topanga_B_2	lower left bank																	
Topanga_C_2	collapsed material							2	21.8	S	A	NF	UC	UC	TH	N	0.07	
McGonigle_A_2	right channel (just next to main channel)	N/A		0.31		29.54	N/A	0.33	29.54	S	F	NF	UC	UC	TH	N	0.03	
McGonigle_A_3	valley walls							13	14.57	S	A	NF	MC	HC	TT	N	Confined	
Stewart_A_2	more confined (bedrock) heights and angles @ x-sec							0.52	34.99	S	A	NF	MC	BC	TT	N	Confined	
Stewart_A_3	just upstream - unconsolidated MW right bank							0.25	90	S	C	NF	UC	UC	TT	N	0.81	
Santiagbd_A_2	left incised and right outer bank	N/A	2.05	0.89	34.22	64.18	N/A	2.05	34.22	S	A	NF	MC	UC	TC	N	0.32	
Santiagbd_B_2		N/A	0.5	0.2	14.04	40.91	N/A	0.5	14.04	S	A	NF	UC	UC	SC	N	0.00	
Santiagnl_A_2	two unconsolidated left banks							0.7	23.54	S	A	NF	UC	UC	AH	N	0.03	
Santiagnl_B_2	US steppool	N/A	0.79	0.21	15.07	34.99	N/A	0.79	15.07	S	A	NF	UC	UC	AT	N	0.01	
Santiagnl_B_3	boulder on right and UC bank between x-sec (pictured)							0.41	39.09	S	A	NF	MC	BC	SH	N	Confined	
Silverado_A_2	left valley wall (8 m @ 30 all I can see in photo), right bank to road	3.15	2.05	1.1	33.02	38.16	N/A	3.15	33.02	S	A	NF	MC	UC	TT	N	0.43	
Silverado_B_2	bottom of left valley wall at x-sec (topsoil, not rock) and bedrock btwn A and B (photo 1268)							8	60	S	A	NF	MC	BC	TT	N	Confined	
Escondido_A_2	valley walls	N/A	29	2.15	30.4	29.9	N/A	29	30.4	S	A	NF	MC	HC	TT	N	Confined	
Escondido_B_2	valley walls							25	14.25	S	A	NF	MC	HC	TT	N	Confined	

		Right Bank (looking downstream)																
		Bank Height Total	Bank Height above Break	Bank Height below Break	Bank Angle above Break	Bank Angle below Break	Aver-age Bank Angle	Repre-sentative Bank Height for MW	Repre-sentative Bank Angle for MW	Global Sta-bility	Mass Wasting	Fluvial Signi-ficant	Consolid-ation	Confine-ment	Vege-tation	Arti-ficial	Geo-technical Stability of Right Bank via log-logistic of Unconfined, Moderately-/ Well-Consolidated	Repre-sentative Geo-technical Stability of Cross Section (max Ng)
		RBank_h_tot	*RBank_h_top*	*RBank_h_btm*	*RBank_a_top*	*RBank_a_btm*	*RBank_a_avg*	*RBank_ht*	*RBank_angl*								*LB_Ng*	*Max_Ng*
Unique ID	**Site Description**	(m)	(m)	(m)	(°)	(°)	(°)			(S/U)	(A/B/C/F)	(FF/NF)	(MC/PC/UC)	(HC/BC/UC)	(A/B/ F/T +C/T/H)	(E/F/G/R/N)		
Escondido_B_3	banks of island							0.6	11.73	S	A	NF	UC	UC	TT	N	0.00	
Sanantoni_B	inner banks (unconsolidated but stable)	N/A	3.51	0.3	63.89	11.31	N/A	0.3	11.31	S	A	NF	UC	UC	SH	N	0.00	

General abbreviations and symbol definitions (excluding units of measure):

CEM	Channel Evolution Model	MW	mass wasting
conc	concrete	N/A	not applicable
constrct	constructed	TRIB	tributary
DS	downstream	US	upstream
ID	identification	veg	vegetated
mid	middle	x-sec	cross-section

Global stability:

S	stable	although MW may be present (such as through unconsolidated media or sections of bank), x-section is generally not actively widening, particularly not widening beyond the original banks. MW may be occurring in sections but banks seem relatively stable - that is their height and angle may be near stable/unstable threshold such that any current failure should result in slopes and heights even closer or equal to that of stable. Vegetation or confinement may also be playing a significant role in the global stability.
U	unstable	MW seems more complete and the channel seems to be more actively widening. Furthermore, failure in a bank typically results in a form that remains critically unstable. That is, these banks are so far past the stability threshold that failure does not move them significantly closer to stable form.

Mass wasting:

A	absent	MW is absent from cross-section and adjacent reach in general
B	broken	MW is broken (fractured/incomplete), occuring in thin slumps across only parts of the bank (vertically and/or longitudinally). MW seems to be such that it is a local phenomenon of temporary state rather than global and more perpetual.
C	complete	MW is complete, occuring in large failure blocks, such that the post-failure geometry remains in a critically unstable state. Provided the stream does not 'fill' the channel back in and reach a new equilibrium, the banks seem destined to remain perpetually unstable
F	failed	MW has recently occured such that the geometry of the survey reflects that of the failed state rather than critically unstable.

Fluvial significant:

FF	fluvial factor	direct fluvial bank erosion is a significant factor in the cause of instability.
NF	no fluvial	fluvial erosion is not a significant factor (although it may be present)

Consolidation:

MC	moderately or well consolidated	bank appears moderately to well consolidated
PC	poorly consolidated	bank seems poorly consolidated. This includes banks that may be composed of historic channel beds; however, they show at least some consolidation (that is, they typically have had a chance to begin to consolidate such that they don't fail at the angle of repose of sand)
UC	unconsolidated	material that until recently (<10yrs) was the channel bed. Although in the form of a bank, it shows no real consolidation and fails at angles of the angle of repose of sand ~ 300.

Confinement:

HC	hillslope confined	the measured height and angle is that of a hillslope which confines the channel and restricts its overall ability to significantly wident
BC	boulder or bedrock confined	the measured height and angle is that of a boulder or exposed bedrock which is confining the channel and restricting its overall ability to widen
UC	unconfined	the measured bank height and angle being rated is not directly confined by hillslope, boulder, or bedrock

Dominant vegetation (extent + type):

extent:	A	absent	vegetation at cross-section is absent from both the tops and slopes of banks
	B	burned	vegetation was recently burned and has not recovered to pre-fire state
	F	fragmented	vegetation is present but fragmented at cross section
	T	thick	vegetation is thick and likely playing a significant role in slope stability
dominant type:	C	chaparral	stereotypical Chaparral of southern California – generally dry and shrubby
	T	temperate trees and grasses	temperate species such as grasses and trees
	H	hydrophilic	hydrophilic species that occur only in regularly moist soils
Artificial (term that best describes artificial measures affecting current bank stability)	E	embanked	embanked (although not riprap, typically more intended or permanent than fill soil)
	F	fill	fill (fill soil with little compaction or consolidation)
	G	graded	graded but appears to be cut into original floodplain rather than fill
	R	riprap	riprap
	N	none	no artificial material affecting current bank stability