

## **Appendix H. Data Used in the Soil Erodibility and Critical Shear Stress Analysis**

Table H1. Individual jet test data with soil physical data.

Site	Location on Bank	Test #	Jet Test Date	T <sub>o</sub> (Pa)	K <sub>d</sub> (cm <sup>3</sup> /N-s)	T <sub>c</sub> (Pa)	Aggregate Stability	Bulk Density (g/cm <sup>3</sup> )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Organic Carbon (%)
EL1	L	1	7/9/2003	164	2.03	0.089	0.96	0.92	2.56	0.58	NP*	NP*	1.99
EL1	L	2	7/9/2003	237	1.172	1.128	0.83	0.85	2.55	0.65	0.523	0.400	1.43
EL1	L	3	7/10/2003	250	5.7	0.203	0.66	1.05	2.7	0.50	NP	NP	0.95
EL1	U	1	7/9/2003	81	4.714	0.009	0.75	0.92	2.65	0.30	NP	NP	1.43
EL1	U	2	7/10/2003	80	2.038	0.204	0.66	1.22	2.61	0.20	NP	NP	0.65
EL2	L	1	6/11/2003	241	3.668	12.234	0.86	1.04	2.6	0.52	0.542	0.345	1.25
EL2	L	2	6/25/2003	204	4.737	0.035	0.87	1.11	2.59	0.40	NP	NP	0.95
EL2	L	3	7/7/2003	195	1.987	3.58	0.88	0.99	2.62	0.45	NP	NP	1.32
EL2	U	1	6/25/2003	107	5.51	4.441	0.87	1.20	2.63	0.25	NP	NP	1.21
EL2	U	2	7/7/2003	157	3.487	0.021	0.96	0.88	2.7	0.33	NP	NP	0.87
EL2	U	3	7/7/2003	155	1.653	1.718	0.90	1.36	2.55	0.23	NP	NP	1.45
EL3	L	1	6/30/2003	128	8.362	0.244	0.80	1.02	2.66	0.28	0.399	0.283	1.49
EL3	L	2	6/30/2003	71	1.287	0.285	0.91	1.06	2.64	0.25	NP	NP	1.2
EL3	L	3	7/4/2003	144	4.781	1.462	0.63	1.14	2.5	0.32	NP	NP	1.38
EL3	U	1	6/30/2003	42	42.235	0	0.87	0.85	2.63	0.21	NP	NP	0.99
EL3	U	2	7/4/2003	148	1.987	0.083	0.96	1.13	2.7	0.21	NP	NP	1.67
EL3	U	3	7/4/2003	85	3.051	3.114	0.90	1.05	2.61	0.25	NP	NP	3.08
EL4	L	1	6/9/2003	119	4.597	2.925	0.88	1.02	2.59	0.37	NP	NP	1.95
EL4	L	2	6/10/2003	182	4.217	0.924	0.81	1.00	2.64	0.35	NP	NP	0.93
EL4	L	3	6/10/2003	166	4.369	0.397	0.84	1.09	2.59	0.26	NP	NP	1.1
EL4	U	1	6/9/2003	118	7.168	0.274	0.78	1.03	2.67	0.37	NP	NP	1.69
EL4	U	2	6/11/2003	101	7.902	1.056	0.96	0.93	2.55	0.33	NP	NP	2.6
EL4	U	3	6/11/2003	121	2.695	0.222	0.92	1.08	2.6	0.45	NP	NP	2.01
NR1	L	1	7/8/2003	166	1.429	12.841	0.80	1.22	2.57	0.40	NP	NP	1.02
NR1	L	2	7/8/2003	215	0.879	2.513	0.75	1.29	2.49	0.34	0.336	0.213	1.02
NR1	L	3	7/17/2003	228	0.781	2.799	0.97	1.49	2.48	0.31	0.271	0.183	0.58
NR1	U	1	7/8/2003	141	1.184	5.414	0.87	1.26	2.57	0.32	NP	NP	1.81
NR1	U	2	7/17/2003	200	1.103	0.224	0.86	1.29	2.43	0.30	0.363	0.256	2.23
NR1	U	3	7/17/2003	223	0.97	6.2	0.84	1.43	2.46	0.30	0.333	0.229	1.32
NR2	L	1	6/27/2003	225	1.032	1.192	0.52	1.54	2.6	0.29	0.421	0.211	1.13
NR2	L	2	6/27/2003	154	2.987	7.754	0.74	1.55	2.47	0.29	0.384	0.204	1.04
NR2	L	3	7/8/2003	204	2.903	1.565	0.73	1.01	2.51	0.59	0.396	0.223	1.49

Table H1, cont. Individual jet test data with soil physical data.

Site	Location on Bank	Test #	Jet Test Date	T <sub>o</sub> (Pa)	K <sub>d</sub> (cm <sup>3</sup> /N-s)	T <sub>c</sub> (Pa)	Aggregate Stability	Bulk Density (g/cm <sup>3</sup> )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Organic Carbon (%)
NR2	U	1	6/18/2003	183	0.69	10.437	0.71	1.43	2.52	0.26	0.348	0.204	1.15
NR2	U	2	6/18/2003	212	1.558	3.571	0.59	1.56	2.5	0.25	0.297	0.173	0.93
NR2	U	3	6/18/2003	251	2.291	3.889	0.58	1.45	2.65	0.28	0.376	0.217	1.38
SC1	L	1	7/11/2003	178	2.003	0.263	0.82	1.53	2.52	0.27	0.372	0.244	2.65
SC1	L	2	7/11/2003	223	4.35	0.934	0.32	1.31	2.48	0.41	0.343	0.209	1.38
SC1	L	3	7/14/2003	195	1.083	10.92	0.54	0.82	2.45	0.82	0.539	0.326	2.61
SC1	U	1	7/11/2003	163	3.714	2.222	0.36	1.41	2.5	0.29	0.300	0.198	1.34
SC1	U	2	7/14/2003	137	0.572	6.14	0.89	1.11	2.47	0.23	0.416	0.243	2.68
SC1	U	3	7/14/2003	194	0.826	4.205	0.73	0.80	2.39	0.36	NP	NP	3.07
SC2	L	1	7/1/2003	213	2.067	1.012	0.85	1.11	2.43	0.47	0.534	0.292	3.14
SC2	L	2	7/1/2003	230	1.117	1.529	0.88	1.25	2.46	0.38	0.420	0.240	1.58
SC2	L	3	7/1/2003	235	1.095	13.185	0.71	1.14	2.52	0.53	0.421	0.251	1.92
SC2	U	1	6/23/2003	181	0.742	0.683	0.89	1.25	2.53	0.39	0.429	0.239	1.95
SC2	U	2	6/23/2003	206	3.664	0.262	0.83	1.36	2.44	0.32	0.358	0.212	1.32
SC2	U	3	6/23/2003	222	1.338	4.439	0.80	1.47	2.44	0.30	0.315	0.192	0.95
SC3	L	1	8/4/2003	243	0.829	21.91	0.63	1.45	2.57	0.19	0.313	0.207	0.73
SC3	L	2	8/4/2003	246	1.093	1.169	0.82	1.40	2.52	0.21	0.254	0.194	1.25
SC3	L	3	8/5/2003	249	1.383	1.713	0.41	1.19	2.54	0.24	0.343	0.228	1.25
SC3	U	1	8/4/2003	165	7.266	3.457	0.61	1.15	2.5	0.23	0.254	0.192	1.19
SC3	U	2	8/4/2003	178	0.604	2.441	0.98	1.24	2.46	0.22	0.258	0.212	1.22
SC3	U	4	8/5/2003	213	1.172	1.469	0.71	1.37	2.52	0.24	0.321	0.211	0.85
SC4	L	1	7/22/2003	238	0.448	3.807	0.72	1.28	2.54	0.41	0.306	0.219	1.83
SC4	L	2	7/22/2003	235	1.65	17.1	0.75	1.31	2.41	0.38	0.414	0.280	2.77
SC4	L	3	7/23/2003	273	1.384	5.905	0.78	1.07	2.57	0.57	0.362	0.263	1.6
SC4	U	1	7/22/2003	197	0.877	5.631	0.91	1.45	2.55	0.19	NP	NP	0.88
SC4	U	2	7/23/2003	235	2.067	1.045	0.94	1.27	2.43	0.24	NP	NP	1.23
SC4	U	3	7/23/2003	207	1.284	10.22	0.93	1.28	2.51	0.27	NP	NP	1.79
SC5	L	1	7/24/2003	195	2.208	10.05	0.69	1.24	2.56	0.43	0.312	0.209	1.23
SC5	L	2	7/24/2003	251	3.179	0.001	0.88	1.24	2.51	0.42	0.394	0.253	2.96
SC5	L	3	7/25/2003	190	0.809	3.125	0.88	1.23	2.58	0.43	0.308	0.235	2.59
SC5	U	1	7/24/2003	196	1.35	9.909	0.92	1.17	2.46	0.39	NP	NP	2.7
SC5	U	2	7/24/2003	213	2.266	0.104	0.91	1.17	2.5	0.45	NP	NP	3.48
SC5	U	3	7/25/2003	165	2.645	0	0.95	1.14	2.43	0.48	0.358	0.253	3.11
SC5	U	4	7/25/2003	226	0.579	4.539	0.90	1.16	2.48	0.43	NP	NP	1.41

Table H1, cont. Individual jet test data with soil physical data.

Site	Location on Bank	Test #	Jet Test Date	T <sub>o</sub> (Pa)	K <sub>d</sub> (cm <sup>3</sup> /N-s)	T <sub>c</sub> (Pa)	Aggregate Stability	Bulk Density (g/cm <sup>3</sup> )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Organic Carbon (%)
SC6	L	1	5/8/2003	106	4.222	3.734	0.46	1.17	2.47	0.40	NP	NP	1.87
SC6	L	2	5/20/2003	83	4.052	1.841	0.78	0.92	2.5	0.65	0.358	0.230	2.17
SC6	L	3	5/20/2003	66	8.543	0	0.83	1.20	2.41	0.41	NP	NP	5.39
SC6	U	1	5/8/2003	70	3.37	0.011	0.90	1.08	2.54	0.32	0.366	0.261	2.51
SC6	U	2	5/20/2003	49	3.576	0.436	0.93	1.07	2.43	0.31	0.349	0.250	2.1
SC6	U	3	5/22/2003	70	3.309	2.8	0.93	0.99	2.44	0.42	NP	NP	4.74
SC7	L	1	8/11/2003	220	1.12	1.055	0.97	1.20	2.5	0.41	NP	NP	2.46
SC7	L	2	8/11/2003	183	1.94	0.363	0.80	1.29	2.53	0.30	0.324	0.187	1.16
SC7	L	3	8/13/2003	250	3.398	9.551	0.96	1.45	2.69	0.26	0.305	0.194	0.89
SC7	U	1	8/11/2003	200	5.184	7.96	0.96	1.17	2.64	0.32	0.343	0.248	1.97
SC7	U	2	8/13/2003	171	1.075	0.331	0.87	1.27	2.69	0.28	0.308	0.197	1.19
SC7	U	3	8/13/2003	189	0.673	4.388	0.97	1.37	2.59	0.28	0.300	0.210	1.19
SR1	L	1	7/15/2003	178	1.058	2.366	0.97	1.36	2.56	0.37	0.345	0.242	0.75
SR1	L	2	7/15/2003	191	5.948	3.217	0.97	1.15	2.62	0.44	NP	NP	1.34
SR1	L	3	7/15/2003	190	1.045	7.892	0.86	1.29	2.62	0.39	NP	NP	0.78
SR1	U	1	7/16/2003	212	5.204	6.044	0.85	1.08	2.58	0.35	NP	NP	1.9
SR1	U	2	7/16/2003	231	1.212	5.041	1.00	1.11	2.6	0.29	NP	NP	1.6
SR1	U	3	7/16/2003	214	3.825	0	0.87	1.03	2.45	0.29	NP	NP	0.81
SR3	L	1	6/24/2003	161	9.225	0.409	0.95	0.58	2.5	1.38	NP	NP	2.21
SR3	L	2	6/24/2003	111	13.077	0.01	0.95	0.49	2.44	1.56	NP	NP	1.83
SR3	L	3	6/27/2003	84	2.752	0.032	0.94	0.38	2.43	2.15	NP	NP	6.61
SR3	U	1	5/30/2003	106	1.906	0.425	0.98	1.07	2.68	0.44	NP	NP	3.83
SR3	U	2	5/30/2003	151	3.194	1.05	0.90	0.87	2.58	0.60	NP	NP	4.29
SR3	U	3	5/30/2003	195	2.109	8.514	0.96	1.12	2.67	0.37	0.513	0.385	3.87
SR4	L	1	6/12/2003	179	1.122	0.008	0.54	1.50	2.53	0.26	0.284	0.189	1.19
SR4	L	2	6/12/2003	201	6.17	3.955	0.57	1.18	2.6	0.35	0.344	0.219	1.21
SR4	L	3	6/13/2003	130	0.556	1.234	0.88	1.01	2.52	0.36	0.480	0.316	3.21
SR4	U	1	6/12/2003	143	2.174	0.384	0.74	1.27	2.61	0.27	0.344	0.215	1.66
SR4	U	2	6/13/2003	155	0.915	1.441	0.75	1.10	2.49	0.41	0.360	0.253	1.95
SR4	U	3	6/13/2003	146	1.296	6.45	0.80	1.12	2.67	0.37	0.450	0.306	2.55
ST1	L	1	6/19/2003	171	1.644	1.096	0.59	1.42	2.56	0.33	0.377	0.157	0.28
ST1	L	2	6/20/2003	221	0.842	19.844	0.32	1.51	2.66	0.29	0.378	0.161	0.13
ST1	L	3	6/20/2003	233	1.58	2.095	0.67	1.56	2.57	0.28	0.341	0.152	1.33
ST1	U	1	6/19/2003	131	3.234	5.771	0.90	1.26	2.59	0.34	0.521	0.221	1.8

Table H1, cont. Individual jet test data with soil physical data.

Site	Location on Bank	Test #	Jet Test Date	T <sub>o</sub> (Pa)	K <sub>d</sub> (cm <sup>3</sup> /N-s)	T <sub>c</sub> (Pa)	Aggregate Stability	Bulk Density (g/cm <sup>3</sup> )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Organic Carbon (%)
ST1	U	2	6/20/2003	184	1.889	1.444	0.89	1.32	2.54	0.33	0.573	0.225	1.8
ST1	U	3	6/20/2003	210	2.418	2.237	0.75	1.12	2.52	0.31	0.396	0.205	2.11
ST2	U	1	7/3/2003	222	0.944	2.224	0.68	1.21	2.49	0.41	0.330	0.237	1.69
ST2	U	2	7/3/2003	239	1.793	0.251	0.77	1.09	2.62	0.47	0.344	0.198	2.04
ST2	U	3	7/3/2003	240	0.496	3.357	0.91	1.15	2.57	0.42	0.365	0.224	1.95
ST3	L	1	5/23/2003	74	1.034	4.266	0.57	1.31	2.55	0.41	NP	NP	0.45
ST3	L	2	5/23/2003	149	0.177	16.073	0.53	1.30	2.59	0.43	0.441	0.211	1.2
ST3	L	3	5/23/2003	188	0.368	21.1	0.69	1.37	2.59	0.38	0.468	0.209	1.13
ST3	U	1	5/28/2003	55	5.972	0.315	0.97	1.40	2.6	0.29	0.410	0.206	1.32
ST3	U	2	5/28/2003	108	2.487	0.076	0.92	1.52	2.64	0.26	0.280	0.159	0.83
ST3	U	3	5/28/2003	177	1.077	15.57	0.67	1.59	2.56	0.23	0.338	0.181	0.94
ST4	L	1	6/26/2003	150	7.702	0.004	0.71	1.06	2.56	0.65	0.417	0.266	2.19
ST4	L	2	6/26/2003	126	2.15	0.004	0.77	0.89	2.52	0.74	0.417	0.254	1.48
ST4	L	3	6/26/2003	129	5.913	2.625	0.83	1.08	2.55	0.54	NP	NP	2.72
ST4	U	1	6/5/2003	188	0.915	0.44	0.89	1.21	2.48	0.42	0.387	0.232	2.38
ST4	U	2	6/5/2003	196	1.528	1.403	0.87	1.21	2.67	0.45	0.426	0.249	1.7
ST4	U	3	6/5/2003	138	0.984	1.182	0.78	1.22	2.62	0.40	NP	NP	2.27
TC1	L	1	7/18/2003	207	0.583	2.508	0.84	1.42	2.6	0.32	0.256	0.197	0.57
TC1	L	2	7/18/2003	244	0.758	2.526	0.95	1.50	2.5	0.28	0.304	0.206	0.68
TC1	L	3	7/21/2003	256	0.483	7.884	0.58	1.34	2.56	0.39	0.360	0.247	1.74
TC1	U	1	7/18/2003	183	1.227	10.7	0.97	1.26	2.67	0.25	0.368	0.222	0.74
TC1	U	2	7/18/2003	205	3.42	0.159	0.93	1.07	2.5	0.31	0.393	0.297	2.11
TC1	U	3	7/21/2003	221	1.527	1.769	0.91	1.27	2.54	0.39	0.387	0.260	1.89
TC2	L	1	7/28/2003	236	0.465	3.727	0.99	1.30	2.48	0.37	0.337	0.206	1.31
TC2	L	2	7/28/2003	273	1.656	0.724	0.76	1.50	2.39	0.23	0.258	0.194	1.05
TC2	L	3	7/29/2003	230	0.93	3.138	0.87	1.25	2.19	0.34	0.308	0.255	1.46
TC2	U	1	7/28/2003	232	1.219	0.256	0.83	1.17	2.38	0.32	0.347	0.221	2.14
TC2	U	2	7/29/2003	201	1.869	0.03	0.73	1.22	2.37	0.27	0.343	0.231	1.72
TC2	U	3	7/29/2003	218	2.152	0.243	0.86	1.18	2.42	0.32	0.307	0.240	1.8
TC4	L	1	8/6/2003	230	0.385	5.677	0.65	1.23	2.48	0.38	0.251	0.203	1.24
TC4	L	2	8/8/2003	240	0.73	0.933	0.77	1.43	2.57	0.34	0.265	0.184	0.82
TC4	L	3	8/8/2009	223	1.925	4.048	0.80	1.34	2.61	0.36	0.273	0.171	0.45
TC4	U	1	8/6/2003	141	2.019	0.415	0.98	1.28	2.22	0.24	0.345	0.245	1.54
TC4	U	2	8/6/2003	204	0.639	2.868	0.97	1.44	2.53	0.23	0.320	0.216	1.74

Table H1, cont. Individual jet test data with soil physical data.

Site	Location on Bank	Test #	Jet Test Date	T <sub>o</sub> (Pa)	K <sub>d</sub> (cm <sup>3</sup> /N-s)	T <sub>c</sub> (Pa)	Aggregate Stability	Bulk Density (g/cm <sup>3</sup> )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Organic Carbon (%)
TC4	U	3	8/8/2003	206	1.475	2.572	0.83	1.46	2.52	0.15	0.229	0.186	0.56
TC6	L	1	6/4/2003	147	2.454	0.17	0.80	1.29	2.59	0.31	0.275	0.196	1.04
TC6	L	2	6/6/2003	228	1.225	0.389	0.90	1.11	2.51	0.27	0.291	0.205	1.37
TC7	L	1	5/27/2003	92	3.879	0.019	0.61	1.50	2.55	0.22	0.268	0.187	0.7
TC7	L	2	6/2/2003	108	2.086	9.941	0.68	1.52	2.67	0.19	0.280	0.170	0.73
TC7	L	3	6/3/2003	198	0.592	7.793	0.78	1.43	2.6	0.30	0.281	0.168	0.74
TC7	U	1	5/27/2003	54	6.146	0.442	0.39	1.28	2.48	0.29	0.334	0.217	0.93
TC7	U	2	6/3/2003	156	3.334	4.072	0.77	1.42	2.52	0.23	0.280	0.186	0.78

\* Nonplastic

Table H2. Stream chemistry data for individual jet tests.

Site	Location on Bank	Test Number	Water Temperature (°C)	Water Conductivity (µS/cm)	Water pH	Total Suspended Solids (mg/l)
EL1	L	1	20.90	80	7.80	16.25
EL1	L	2	20.90	80	7.80	16.25
EL1	L	3	20.60	110	7.80	13.43
EL1	U	1	20.90	80	7.80	16.25
EL1	U	2	20.60	110	7.80	13.43
EL2	L	1	-*	-	7.50	19.44
EL2	L	2	17.90	80	7.80	14.00
EL2	L	3	19.60	70	7.70	27.17
EL2	U	1	17.90	80	7.80	14.00
EL2	U	2	19.60	70	7.70	27.17
EL2	U	3	19.60	70	7.70	27.17
EL3	L	1	19.30	80	8.00	22.00
EL3	L	2	19.30	80	8.00	22.00
EL3	L	3	17.60	80	7.90	24.83
EL3	U	1	19.30	80	8.00	22.00
EL3	U	2	17.60	80	7.90	24.83
EL3	U	3	17.60	80	7.90	24.83
EL4	L	1	18.00	62	7.60	29.44
EL4	L	2	-	-	7.60	16.83
EL4	L	3	-	-	7.60	16.83
EL4	U	1	18.00	62	7.60	29.44
EL4	U	2	-	-	7.50	19.44
EL4	U	3	-	-	7.50	19.44
NR1	L	1	17.10	380	8.10	37.50
NR1	L	2	17.10	380	8.10	37.50
NR1	L	3	17.80	430	7.70	2.44
NR1	U	1	17.10	380	8.10	37.50
NR1	U	2	17.80	430	7.70	2.44
NR1	U	3	17.80	430	7.70	2.44
NR2	L	1	17.80	440	8.40	4.44
NR2	L	2	17.80	440	8.40	4.44
NR2	L	3	17.10	380	8.10	37.50
NR2	U	1	-	360	8.00	25.67
NR2	U	2	-	360	8.00	25.67
NR2	U	3	-	360	8.00	25.67
SC1	L	1	16.80	210	7.90	2.00
SC1	L	2	16.80	210	7.90	2.00
SC1	L	3	16.30	220	7.90	1.89
SC1	U	1	16.80	210	7.90	2.00
SC1	U	2	16.30	220	7.90	1.89
SC1	U	3	16.30	220	7.90	1.89
SC2	L	1	16.40	220	8.10	5.67

Table H2, cont. Stream chemistry data for individual jet tests.

Site	Location on Bank	Test Number	Water Temperature (°C)	Water Conductivity (µS/cm)	Water pH	Total Suspended Solids (mg/l)
SC2	L	2	16.40	220	8.10	5.67
SC2	L	3	16.40	220	8.10	5.67
SC2	U	1	-	190	8.00	4.33
SC2	U	2	-	190	8.00	4.33
SC2	U	3	-	190	8.00	4.33
SC3	L	1	18.80	250	8.10	2.56
SC3	L	2	18.80	250	8.10	2.56
SC3	L	3	18.50	240	8.10	6.33
SC3	U	1	18.80	250	8.10	2.56
SC3	U	2	18.80	250	8.10	2.56
SC3	U	4	18.50	240	8.10	6.33
SC4	L	1	18.90	250	8.20	2.11
SC4	L	2	18.90	250	8.20	2.11
SC4	L	3	18.40	260	8.30	1.22
SC4	U	1	18.90	250	8.20	2.11
SC4	U	2	18.40	260	8.30	1.22
SC4	U	3	18.40	260	8.30	1.22
SC5	L	1	17.20	260	8.30	0.78
SC5	L	2	17.20	260	8.30	0.78
SC5	L	3	16.90	260	8.40	2.00
SC5	U	1	17.20	260	8.30	0.78
SC5	U	2	17.20	260	8.30	0.78
SC5	U	3	16.90	260	8.40	2.00
SC5	U	4	16.90	260	8.40	2.00
SC6	L	1	14.40	134	8.40	3.92
SC6	L	2	-	155	8.10	15.33
SC6	L	3	-	155	8.10	15.33
SC6	U	1	14.40	134	8.40	3.92
SC6	U	2	-	155	8.10	15.33
SC6	U	3	12.50	185	8.30	7.31
SC7	L	1	19.10	240	8.30	3.33
SC7	L	2	19.10	240	8.30	3.33
SC7	L	3	18.50	260	8.10	0.44
SC7	U	1	19.10	240	8.30	3.33
SC7	U	2	18.50	260	8.10	0.44
SC7	U	3	18.50	260	8.10	0.44
SR1	L	1	18.60	250	8.00	1.89
SR1	L	2	18.60	250	8.00	1.89
SR1	L	3	18.60	250	8.00	1.89
SR1	U	1	19.10	250	8.00	3.78
SR1	U	2	19.10	250	8.00	3.78
SR1	U	3	19.10	250	8.00	3.78
SR3	L	1	-	280	8.20	4.89



Table H2, cont. Stream chemistry data for individual jet tests.

Site	Location on Bank	Test Number	Water Temperature (°C)	Water Conductivity (µS/cm)	Water pH	Total Suspended Solids (mg/l)
SR3	L	2	-	280	8.20	4.89
SR3	L	3	18.70	290	8.30	4.44
SR3	U	1	17.00	159	8.40	6.56
SR3	U	2	17.00	159	8.40	6.56
SR3	U	3	17.00	159	8.40	6.56
SR4	L	1	-	210	8.10	19.22
SR4	L	2	-	210	8.10	19.22
SR4	L	3	-	240	8.20	5.11
SR4	U	1	-	210	8.10	19.22
SR4	U	2	-	240	8.20	5.11
SR4	U	3	-	240	8.20	5.11
ST1	L	1	-	540	7.70	13.67
ST1	L	2	-	650	7.70	10.78
ST1	L	3	-	650	7.70	10.78
ST1	U	1	-	540	7.70	13.67
ST1	U	2	-	650	7.70	10.78
ST1	U	3	-	650	7.70	10.78
ST2	U	1	18.30	380	7.60	26.60
ST2	U	2	18.30	380	7.60	26.60
ST2	U	3	18.30	380	7.60	26.60
ST3	L	1	16.00	595	8.10	8.56
ST3	L	2	16.00	595	8.10	8.56
ST3	L	3	16.00	595	8.10	8.56
ST3	U	1	18.00	545	8.30	4.22
ST3	U	2	18.00	545	8.30	4.22
ST3	U	3	18.00	545	8.30	4.22
ST4	L	1	20.60	640	8.40	2.33
ST4	L	2	20.60	640	8.40	2.33
ST4	L	3	20.60	640	8.40	2.33
ST4	U	1	22.00	450	8.10	2.56
ST4	U	2	22.00	450	8.10	2.56
ST4	U	3	22.00	450	8.10	2.56
TC1	L	1	18.80	470	8.20	5.44
TC1	L	2	18.80	470	8.20	5.44
TC1	L	3	20.50	480	8.10	22.78
TC1	U	1	18.80	470	8.20	5.44
TC1	U	2	18.80	470	8.20	5.44
TC1	U	3	20.50	480	8.10	22.78
TC2	L	1	21.40	510	8.10	4.89
TC2	L	2	21.40	510	8.10	4.89
TC2	L	3	20.90	490	8.10	15.56

Table H2, cont. Stream chemistry data for individual jet tests.

Site	Location on Bank	Test Number	Water Temperature (°C)	Water Conductivity (µS/cm)	Water pH	Total Suspended Solids (mg/l)
TC2	U	1	21.40	510	8.10	4.89
TC2	U	2	20.90	490	8.10	15.56
TC2	U	3	20.90	490	8.10	15.56
TC4	L	1	19.10	360	8.20	17.56
TC4	L	2	19.80	390	8.20	5.78
TC4	L	3	19.80	390	8.20	5.78
TC4	U	1	19.10	360	8.20	17.56
TC4	U	2	19.10	360	8.20	17.56
TC4	U	3	19.80	390	8.20	5.78
TC6	L	1	15.00	212	8.20	23.11
TC6	L	2	17.00	223	8.40	5.00
TC7	L	1	17.00	280	8.50	12.29
TC7	L	2	18.00	195	8.50	4.56
TC7	L	3	14.00	226	8.30	2.78
TC7	U	1	17.00	280	8.50	12.29
TC7	U	2	14.00	226	8.30	2.78

\* Data not available due to equipment malfunction.

Table H3. Root density for individual jet tests.

Site	Location on Bank	Test #	Very Fine RLD (cm/cm <sup>3</sup> )	Fine RLD (cm/cm <sup>3</sup> )	Small RLD (cm/cm <sup>3</sup> )	Medium RLD (cm/cm <sup>3</sup> )	Large RLD (cm/cm <sup>3</sup> )	Very Fine RVR (%)	Fine RVR (%)	Small RVR (%)	Medium RVR (%)	Large RVR (%)
EL1	L	1	1.6700	1.0100	0.0600	0.0000	0.0000	0.1052	0.6230	0.4229	0.0000	0.0000
EL1	L	2	3.0200	1.7200	0.0500	0.0000	0.0000	0.2452	0.8790	0.2820	0.0027	0.0000
EL1	L	3	0.9400	0.6500	0.0500	0.0000	0.0000	0.0742	0.4012	0.2654	0.0041	0.0000
EL1	U	1	8.2000	3.6300	0.1000	0.0100	0.0000	0.5600	1.7668	0.6859	0.2558	0.0000
EL1	U	2	2.2700	0.8000	0.0200	0.0000	0.0000	0.1747	0.3391	0.0976	0.0000	0.0000
EL2	L	1	0.8000	0.8500	0.0500	0.0000	0.0000	0.0642	0.5078	0.3732	0.0000	0.0000
EL2	L	2	0.8100	0.7400	0.0400	0.0000	0.0000	0.0601	0.4754	0.2241	0.0013	0.0000
EL2	L	3	5.2900	2.3400	0.0700	0.0000	0.0000	0.4276	1.1334	0.3950	0.0185	0.0000
EL2	U	1	0.7400	0.3800	0.0000	0.0000	0.0000	0.0604	0.1601	0.0264	0.0000	0.0000
EL2	U	2	5.3600	2.0900	0.0500	0.0000	0.0000	0.4203	0.9757	0.2505	0.0038	0.0000
EL2	U	3	1.1300	0.4900	0.0000	0.0000	0.0000	0.0924	0.1689	0.0054	0.0000	0.0000
EL3	L	1	0.8100	0.9300	0.0900	0.0000	0.0000	0.0622	0.5434	0.5709	0.0060	0.0000
EL3	L	2	1.1800	1.6200	0.1800	0.0100	0.0000	0.0968	0.6641	0.5014	0.0583	0.0000
EL3	L	3	1.1200	1.2300	0.0700	0.0000	0.0000	0.0828	0.7135	0.4665	0.0929	0.0000
EL3	U	1	0.8300	0.7800	0.0600	0.0100	0.0000	0.0414	0.2287	0.1541	0.4314	0.0000
EL3	U	2	2.8800	1.8400	0.1200	0.0000	0.0000	0.1957	0.6160	0.1687	0.0000	0.0000
EL3	U	3	3.0000	1.9400	0.1100	0.0100	0.0000	0.2277	1.0727	0.7275	0.3527	0.0000
EL4	L	1	2.4900	1.2500	0.0700	0.0000	0.0000	0.1687	0.6595	0.3989	0.0681	0.0000
EL4	L	2	3.0800	1.0400	0.0100	0.0000	0.0000	0.2380	0.5081	0.0627	0.0000	0.0000
EL4	L	3	6.6100	2.5200	0.0800	0.0000	0.0000	0.4641	1.4256	0.3985	0.0029	0.0000
EL4	U	1	2.4100	0.7800	0.0700	0.0000	0.0000	0.1697	0.3374	0.4453	0.0045	0.0000
EL4	U	2	0.9900	0.7800	0.0000	0.0000	0.0000	0.0785	0.3168	0.0273	0.0103	0.0000
EL4	U	3	1.9200	0.8800	0.0600	0.0000	0.0000	0.1579	0.3917	0.2795	0.0000	0.0000
NR1	L	1	1.4400	0.9500	0.0900	0.0400	0.0000	0.1133	0.6436	0.8107	1.4685	0.0000
NR1	L	2	0.3800	0.8400	0.0900	0.0300	0.0000	0.0329	0.5163	0.8680	1.1724	0.0954
NR1	L	3	0.1800	0.9500	0.1300	0.0200	0.0000	0.0152	0.6623	1.0628	0.6117	0.9387
NR1	U	1	0.8800	1.6700	0.0600	0.0000	0.0000	0.0726	0.8556	0.3911	0.0084	0.0000
NR1	U	2	0.8900	1.3000	0.0300	0.0000	0.0000	0.0791	0.6441	0.1483	0.0330	0.0000
NR1	U	3	1.2200	1.4300	0.1500	0.0200	0.0000	0.0977	0.7857	1.4287	0.5857	0.0000

Table H3, cont. Root density for individual jet tests.

Site	Location on Bank	Test #	Very Fine RLD (cm/cm <sup>3</sup> )	Fine RLD (cm/cm <sup>3</sup> )	Small RLD (cm/cm <sup>3</sup> )	Medium RLD (cm/cm <sup>3</sup> )	Large RLD (cm/cm <sup>3</sup> )	Very Fine RVR (%)	Fine RVR (%)	Small RVR (%)	Medium RVR (%)	Large RVR (%)
NR2	L	1	0.1300	0.1200	0.0100	0.0000	0.0000	0.0121	0.0403	0.0506	0.0000	0.0000
NR2	L	2	0.8600	1.6300	0.0600	0.0000	0.0000	0.0747	0.9074	0.3970	0.0509	0.0081
NR2	L	3	2.1900	2.0400	0.1100	0.0000	0.0000	0.1780	1.1302	0.7279	0.0065	0.0000
NR2	U	1	0.1500	0.2800	0.0100	0.0000	0.0000	0.0130	0.1331	0.0264	0.0000	0.0000
NR2	U	2	0.3000	0.5700	0.0200	0.0000	0.0000	0.0276	0.3627	0.0628	0.0000	0.0000
NR2	U	3	0.5300	0.4000	0.0200	0.0100	0.0000	0.0402	0.2224	0.1430	0.6453	0.2222
SC1	L	1	1.4000	1.3900	0.0200	0.0000	0.0000	0.1270	0.6050	0.1382	0.0013	0.0000
SC1	L	2	0.4800	0.2300	0.0100	0.0000	0.0000	0.0363	0.1273	0.1029	0.0047	0.0000
SC1	L	3	0.9000	1.6500	0.0300	0.0000	0.0000	0.0827	0.5813	0.1811	0.0019	0.0000
SC1	U	1	1.5500	1.7200	0.0100	0.0000	0.0000	0.1361	0.7288	0.0421	0.0000	0.0000
SC1	U	2	11.7800	4.5200	0.1600	0.0200	0.0000	0.7683	2.3437	1.1347	0.7878	0.6453
SC1	U	3	4.4700	3.0800	0.0900	0.0300	0.0000	0.3430	1.5825	0.5006	0.9222	0.2204
SC2	L	1	9.4000	5.2800	0.2900	0.0700	0.0300	0.6397	3.1414	2.0412	2.7010	4.3489
SC2	L	2	2.3900	1.1900	0.0400	0.0000	0.0000	0.1801	0.6181	0.2158	0.0169	0.0000
SC2	L	3	6.6500	3.4500	0.2200	0.0100	0.0000	0.4608	1.9616	1.3729	0.4106	0.2147
SC2	U	1	5.4100	2.6200	0.1200	0.0000	0.0000	0.3648	1.5290	0.6309	0.0147	0.0000
SC2	U	2	4.0600	2.4000	0.0500	0.0000	0.0000	0.3356	1.2345	0.2488	0.0035	0.0000
SC2	U	3	1.6900	0.9900	0.0500	0.0000	0.0000	0.1179	0.5972	0.2728	0.0031	0.0000
SC3	L	1	0.4200	0.9700	0.0200	0.0000	0.0000	0.0404	0.4807	0.1651	0.0000	0.0000
SC3	L	2	0.4200	1.2700	0.0500	0.0000	0.0000	0.0348	0.6640	0.3204	0.0146	0.0000
SC3	L	3	0.0800	0.5000	0.0300	0.0000	0.0000	0.0073	0.3128	0.1520	0.0059	0.0000
SC3	U	1	0.5000	0.6800	0.0300	0.0100	0.0100	0.0430	0.2837	0.2785	0.2983	0.7295
SC3	U	2	0.3400	0.9000	0.0800	0.0000	0.0000	0.0286	0.6160	0.3919	0.0233	0.0000
SC3	U	4	0.1000	0.1800	0.0000	0.0000	0.0000	0.0093	0.0781	0.0047	0.0000	0.0000
SC4	L	1	16.6800	5.7900	0.1600	0.0000	0.0000	1.2581	3.0485	0.7738	0.0060	0.0000
SC4	L	2	0.9800	0.5200	0.0100	0.0000	0.0000	0.0800	0.2729	0.0480	0.0000	0.0000
SC4	L	3	1.1000	1.2000	0.0200	0.0000	0.0000	0.1009	0.6166	0.1607	0.0969	0.0000
SC4	U	1	0.4000	1.3700	0.1300	0.0000	0.0000	0.0377	0.9882	0.7867	0.0503	0.0000
SC4	U	2	0.6600	1.2100	0.1200	0.0000	0.0000	0.0593	0.6421	1.0622	0.0062	0.0000

Table H3, cont. Root density for individual jet tests.

Site	Location on Bank	Test #	Very Fine RLD (cm/cm <sup>3</sup> )	Fine RLD (cm/cm <sup>3</sup> )	Small RLD (cm/cm <sup>3</sup> )	Medium RLD (cm/cm <sup>3</sup> )	Large RLD (cm/cm <sup>3</sup> )	Very Fine RVR (%)	Fine RVR (%)	Small RVR (%)	Medium RVR (%)	Large RVR (%)
SC4	U	3	1.4100	0.9900	0.0500	0.0000	0.0000	0.1177	0.5095	0.2569	0.0000	0.0000
SC5	L	1	0.4900	1.7400	0.1100	0.0300	0.0200	0.0452	1.0751	0.6512	1.7280	2.2399
SC5	L	2	0.1500	0.7700	0.1300	0.0100	0.0000	0.0324	0.7808	0.3873	0.2604	0.0000
SC5	L	3	0.7900	2.0700	0.1500	0.0000	0.0000	0.0724	1.2726	0.9413	0.0109	0.0000
SC5	U	1	0.9000	1.7100	0.1100	0.0400	0.0000	0.0730	1.1223	0.7961	1.3963	0.0000
SC5	U	2	0.4700	1.3100	0.0700	0.0200	0.0100	0.0409	0.7821	0.4331	1.1317	1.7081
SC5	U	3	1.6400	2.1600	0.0800	0.0200	0.0000	0.1474	1.0210	0.4755	0.6316	0.0000
SC5	U	4	0.7800	1.2300	0.0900	0.0000	0.0000	0.0657	0.5345	0.4614	0.1009	0.0000
SC6	L	1	1.0200	0.4400	0.0200	0.0000	0.0000	0.0750	0.2002	0.1074	0.0000	0.0000
SC6	L	2	2.4800	1.3300	0.0400	0.0000	0.0000	0.1701	0.7252	0.2247	0.0133	0.0000
SC6	L	3	0.7100	0.3500	0.0100	0.0000	0.0000	0.0588	0.1812	0.0526	0.0000	0.0000
SC6	U	1	2.5800	0.9400	0.0200	0.0000	0.0000	0.2020	0.5456	0.0917	0.0000	0.0000
SC6	U	2	0.4200	0.4400	0.0600	0.0000	0.0000	0.0332	0.4033	0.2697	0.0000	0.0000
SC6	U	3	1.0000	0.8200	0.0400	0.0000	0.0000	0.0794	0.4771	0.2079	0.0031	0.0000
SC7	L	1	0.7000	2.3700	0.1600	0.0200	0.0100	0.0579	1.1912	1.0681	0.6726	0.5647
SC7	L	2	0.0900	0.6700	0.0400	0.0000	0.0000	0.0066	0.4930	0.2913	0.0466	0.0000
SC7	L	3	0.0600	0.2600	0.0400	0.0100	0.0000	0.0048	0.2259	0.2837	0.2999	0.0000
SC7	U	1	0.3700	1.1100	0.0500	0.0100	0.0100	0.0353	0.4789	0.3762	0.4338	0.8008
SC7	U	2	0.0700	0.2800	0.0900	0.0200	0.0200	0.0040	0.2562	0.5598	0.8747	1.9879
SC7	U	3	0.0600	0.2200	0.0400	0.0000	0.0000	0.0058	0.2044	0.5011	0.0308	0.0000
SR1	L	1	0.3600	0.7400	0.0400	0.0000	0.0000	0.0335	0.3808	0.3073	0.1639	0.0000
SR1	L	2	0.1200	1.3000	0.0800	0.0000	0.0000	0.0094	0.8897	0.4918	0.0058	0.0000
SR1	L	3	0.5300	1.9700	0.1500	0.0100	0.0000	0.0479	1.3216	0.9020	0.2573	0.0000
SR1	U	1	0.4200	1.9000	0.0700	0.0000	0.0000	0.0382	1.0701	0.3846	0.0018	0.0000
SR1	U	2	0.7600	1.8400	0.0900	0.0000	0.0000	0.0676	0.9725	0.4941	0.0083	0.0000
SR1	U	3	0.1100	0.7500	0.0400	0.0000	0.0000	0.0099	0.5334	0.2017	0.0097	0.0000
SR3	L	1	0.6600	1.6700	0.0400	0.0000	0.0000	0.0570	0.9179	0.1456	0.0007	0.0000
SR3	L	2	1.5200	3.2700	0.0900	0.0000	0.0000	0.1440	1.5795	0.5006	0.0000	0.0000
SR3	L	3	1.1900	1.6900	0.0400	0.0000	0.0000	0.1054	0.7103	0.2676	0.0000	0.0000

Table H3, cont. Root density for individual jet tests.

Site	Location on Bank	Test #	Very Fine RLD (cm/cm <sup>3</sup> )	Fine RLD (cm/cm <sup>3</sup> )	Small RLD (cm/cm <sup>3</sup> )	Medium RLD (cm/cm <sup>3</sup> )	Large RLD (cm/cm <sup>3</sup> )	Very Fine RVR (%)	Fine RVR (%)	Small RVR (%)	Medium RVR (%)	Large RVR (%)
SR3	U	1	1.5300	2.1700	0.0800	0.0000	0.0000	0.1426	1.2505	0.5129	0.0043	0.0000
SR3	U	2	0.9200	1.9900	0.1200	0.0100	0.0000	0.0795	1.2759	0.7869	0.1480	0.0000
SR3	U	3	1.0900	2.8400	0.1100	0.0100	0.0000	0.0962	1.4967	0.6718	0.1347	0.0000
SR4	L	1	1.0700	1.3300	0.0700	0.0000	0.0000	0.0876	0.6785	0.4628	0.0054	0.0000
SR4	L	2	1.9100	1.9600	0.1000	0.0100	0.0000	0.1603	0.9991	0.7418	0.4857	0.0130
SR4	L	3	2.4000	1.8400	0.1100	0.0000	0.0000	0.1970	1.0165	0.8748	0.1682	0.0000
SR4	U	1	0.9700	0.7100	0.0600	0.0100	0.0000	0.0758	0.3919	0.5540	0.4814	0.0130
SR4	U	2	2.4600	2.4000	0.0700	0.0000	0.0000	0.2037	1.2914	0.3622	0.0179	0.0000
SR4	U	3	1.2900	1.4100	0.0500	0.0000	0.0000	0.1092	0.7051	0.2539	0.0020	0.0000
ST1	L	1	2.1500	2.0100	0.0400	0.0200	0.0000	0.1669	1.0066	0.3222	0.9116	0.1270
ST1	L	2	0.0100	0.0100	0.0000	0.0000	0.0000	0.0008	0.0031	0.0000	0.0000	0.0000
ST1	L	3	2.3400	2.3600	0.1000	0.0200	0.0000	0.2159	1.2375	0.6675	0.7810	0.0262
ST1	U	1	0.4200	0.5200	0.0100	0.0000	0.0000	0.0390	0.2116	0.0251	0.0000	0.0000
ST1	U	2	0.0600	0.1900	0.0000	0.0000	0.0000	0.0063	0.1034	0.0063	0.0000	0.0000
ST1	U	3	0.3600	0.6300	0.0300	0.0000	0.0000	0.0341	0.2802	0.3616	0.0016	0.0000
ST2	U	1	1.9300	4.1500	0.3400	0.0700	0.0000	0.1936	2.3490	2.0642	2.1190	0.1606
ST2	U	2	1.0100	2.2600	0.0700	0.0000	0.0000	0.0896	1.1542	0.5293	0.0013	0.0000
ST2	U	3	2.7500	5.3800	0.3500	0.0000	0.0000	0.2550	3.3255	2.0647	0.1276	0.0000
ST3	L	1	0.1700	0.1700	0.0200	0.0000	0.0000	0.0150	0.0781	0.1485	0.0139	0.0000
ST3	L	2	0.0400	0.0700	0.0100	0.0000	0.0000	0.0043	0.0479	0.0274	0.0000	0.0000
ST3	L	3	1.4600	0.8500	0.0800	0.0100	0.0000	0.1177	0.4343	0.5925	0.4781	0.2285
ST3	U	1	0.9500	0.5600	0.0000	0.0000	0.0000	0.0848	0.2049	0.0020	0.0000	0.0000
ST3	U	2	1.4700	0.7400	0.0000	0.0000	0.0000	0.1267	0.2746	0.0018	0.0000	0.0000
ST3	U	3	1.4200	0.7400	0.0200	0.0000	0.0000	0.1270	0.2859	0.0763	0.0000	0.0000
ST4	L	1	7.7900	4.1800	0.4200	0.0500	0.0100	0.4580	2.8241	2.9447	1.7369	0.9633
ST4	L	2	3.2800	1.8800	0.1100	0.0100	0.0000	0.1271	0.5248	0.4568	0.3173	0.0819
ST4	L	3	7.7600	6.4100	0.4900	0.0600	0.0100	0.4928	4.2968	3.7649	2.3212	1.0064
ST4	U	1	5.2400	1.9300	0.0800	0.0000	0.0000	0.3872	1.0269	0.4326	0.0470	0.0000
ST4	U	2	6.6400	2.4800	0.1200	0.0200	0.0000	0.4587	1.3355	0.9483	0.5568	0.0557

Table H3, cont. Root density for individual jet tests.

Site	Location on Bank	Test #	Very Fine RLD (cm/cm <sup>3</sup> )	Fine RLD (cm/cm <sup>3</sup> )	Small RLD (cm/cm <sup>3</sup> )	Medium RLD (cm/cm <sup>3</sup> )	Large RLD (cm/cm <sup>3</sup> )	Very Fine RVR (%)	Fine RVR (%)	Small RVR (%)	Medium RVR (%)	Large RVR (%)
ST4	U	3	6.4800	3.3000	0.1700	0.0100	0.0000	0.3549	1.5066	1.2360	0.5527	0.1809
TC1	L	1	0.0200	0.0500	0.0000	0.0000	0.0000	0.0013	0.0303	0.0112	0.0000	0.0000
TC1	L	2	0.9100	0.4800	0.0100	0.0000	0.0000	0.0695	0.2682	0.0458	0.0000	0.0000
TC1	L	3	0.0400	0.0600	0.0000	0.0000	0.0000	0.0032	0.0466	0.0023	0.0000	0.0000
TC1	U	1	1.1000	0.5600	0.0000	0.0000	0.0000	0.0840	0.2838	0.0148	0.0000	0.0000
TC1	U	2	0.7700	0.3700	0.0100	0.0000	0.0000	0.0578	0.1811	0.0385	0.0000	0.0000
TC1	U	3	1.8100	0.7400	0.0100	0.0000	0.0000	0.1557	0.2709	0.1188	0.1192	0.0000
TC2	L	1	0.0800	0.3600	0.0100	0.0100	0.0000	0.0079	0.1793	0.0720	0.1302	0.0000
TC2	L	2	0.1000	0.3900	0.0000	0.0100	0.0000	0.0098	0.2229	0.0095	0.3845	0.0000
TC2	L	3	0.1200	0.5700	0.0600	0.0000	0.0000	0.0109	0.4567	0.4146	0.0433	0.0000
TC2	U	1	0.1200	0.3400	0.0300	0.0000	0.0000	0.0107	0.1624	0.0699	0.0000	0.0000
TC2	U	2	0.0800	0.6000	0.0400	0.0000	0.0000	0.0070	0.3599	0.3491	0.0129	0.0000
TC2	U	3	0.5100	0.9200	0.0700	0.0000	0.0000	0.0515	0.4774	0.4433	0.0864	0.0000
TC4	L	1	6.4700	3.0300	0.0900	0.0000	0.0000	0.4918	1.6327	0.4399	0.0020	0.0000
TC4	L	2	0.0100	0.0400	0.0200	0.0000	0.0000	0.0561	0.4805	0.0132	0.0000	0.0000
TC4	L	3	0.3600	1.1800	0.0900	0.0000	0.0000	0.0334	0.6414	0.4985	0.0138	0.0000
TC4	U	1	0.5700	1.0500	0.0100	0.0000	0.0000	0.0572	0.4791	0.1065	0.0000	0.0000
TC4	U	2	0.3800	0.8000	0.0500	0.0100	0.0000	0.0372	0.3465	0.3125	0.2737	0.0000
TC4	U	3	0.6400	1.0700	0.0000	0.0000	0.0000	0.0561	0.4805	0.0132	0.0000	0.0000
TC6	L	1	0.6100	0.8900	0.0200	0.0000	0.0000	0.0546	0.3341	0.0836	0.0147	0.0000
TC6	L	2	1.1600	1.4800	0.1400	0.0000	0.0000	0.0930	1.0526	0.6156	0.0000	0.0000
TC7	L	1	0.3200	0.5100	0.0100	0.0000	0.0000	0.0328	0.2429	0.0967	0.0041	0.0000
TC7	L	2	0.1000	0.3700	0.0000	0.0000	0.0000	0.0097	0.2121	0.0189	0.0000	0.0000
TC7	L	3	0.0300	0.2100	0.0000	0.0000	0.0000	0.0024	0.1363	0.0190	0.0000	0.0000
TC7	U	1	0.4400	0.7200	0.0300	0.0000	0.0000	0.0423	0.3922	0.2429	0.0072	0.0000
TC7	U	2	0.1200	0.4200	0.0300	0.0000	0.0000	0.0116	0.2909	0.2971	0.0264	0.0000

Table H4. Average jet test soil physical data.

Site	Location on Bank	Group	$K_d$ ( $\text{cm}^3/\text{N}\cdot\text{s}$ )	$T_c$ (Pa)	Aggregate Stability	Bulk Density ( $\text{g}/\text{cm}^3$ )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index	Clay Activity
EL1	L	3	2.97	0.47	0.82	0.94	2.60	0.58	NP*	NP*	NP*	NP*
EL1	U	3	3.38	0.11	0.71	1.07	2.63	0.25	NP*	NP*	NP*	NP*
EL2	L	3	3.46	5.28	0.87	1.05	2.60	0.46	NP*	NP*	NP*	NP*
EL2	U	3	3.55	2.06	0.91	1.15	2.63	0.27	NP*	NP*	NP*	NP*
EL3	L	3	4.81	0.66	0.78	1.07	2.60	0.28	NP*	NP*	NP*	NP*
EL3	U	3	2.52	1.60	0.93	1.09	2.66	0.23	NP*	NP*	NP*	NP*
EL4	L	3	4.39	1.42	0.84	1.04	2.61	0.33	NP*	NP*	NP*	NP*
EL4	U	3	5.92	0.52	0.89	1.01	2.61	0.38	NP*	NP*	NP*	NP*
NR1	L	1	1.03	6.05	0.84	1.33	2.51	0.35	0.30	0.20	0.11	0.84
NR1	U	1	1.09	3.95	0.86	1.33	2.49	0.31	0.35	0.24	0.11	0.92
NR2	L	2	2.31	3.50	0.66	1.37	2.53	0.39	0.40	0.21	0.19	1.53
NR2	U	1	1.51	5.97	0.63	1.48	2.56	0.26	0.34	0.20	0.14	1.16
SC1	L	2	2.48	4.04	0.56	1.22	2.48	0.50	0.42	0.26	0.16	0.70
SC1	U	2	1.70	4.19	0.66	1.11	2.45	0.29	0.36	0.22	0.14	1.03
SC2	L	2	1.43	5.24	0.81	1.17	2.47	0.46	0.46	0.26	0.20	1.11
SC2	U	2	1.91	1.79	0.84	1.36	2.47	0.34	0.37	0.21	0.15	1.35
SC3	L	1	1.10	8.26	0.62	1.35	2.54	0.21	0.30	0.21	0.09	1.03
SC3	U	1	3.01	2.46	0.77	1.25	2.49	0.23	0.28	0.21	0.07	0.79
SC4	L	2	1.16	8.94	0.75	1.22	2.51	0.45	0.36	0.25	0.11	1.39
SC4	U	3	1.41	5.63	0.93	1.33	2.50	0.23	NP*	NP*	NP*	NP*
SC5	L	1	2.07	4.39	0.82	1.24	2.55	0.43	0.34	0.23	0.11	1.32
SC5	U	3	1.71	3.64	0.92	1.16	2.47	0.44	NP*	NP*	NP*	NP*
SC6	L	3	5.61	1.86	0.69	1.10	2.46	0.49	NP*	NP*	NP*	NP*
SC6	U	2	3.42	1.08	0.92	1.05	2.47	0.35	0.36	0.26	0.10	1.48
SC7	L	1	2.15	3.66	0.91	1.31	2.57	0.32	0.31	0.19	0.12	1.87
SC7	U	1	2.31	4.23	0.93	1.27	2.64	0.29	0.32	0.22	0.10	1.49
SR1	L	3	2.68	4.49	0.93	1.27	2.60	0.40	NP*	NP*	NP*	NP*
SR1	U	3	3.41	3.70	0.91	1.07	2.54	0.31	NP*	NP*	NP*	NP*
SR3	L	3	8.35	0.15	0.95	0.48	2.46	1.70	NP*	NP*	NP*	NP*



Table H4, cont. Average jet test soil physical data.

Site	Location on Bank	Group	$K_d$ ( $\text{cm}^3/\text{N}\cdot\text{s}$ )	$T_c$ (Pa)	Aggregate Stability	Bulk Density ( $\text{g}/\text{cm}^3$ )	Specific Gravity	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index	Clay Activity
SR3	U	3	2.40	3.33	0.95	1.02	2.64	0.47	NP*	NP*	NP*	NP*
SR4	L	2	2.62	1.73	0.66	1.23	2.55	0.32	0.37	0.24	0.13	1.34
SR4	U	2	1.46	2.76	0.76	1.16	2.59	0.24	0.38	0.26	0.13	1.32
ST1	L	1	1.36	7.68	0.53	1.50	2.60	0.30	0.36	0.16	0.21	0.66
ST1	U	2	2.51	3.15	0.85	1.23	2.55	0.33	0.50	0.22	0.28	1.74
ST2	U	2	1.08	1.94	0.79	1.15	2.56	0.43	0.35	0.22	0.13	0.87
ST3	L	2	0.53	13.81	0.60	1.33	2.58	0.41	0.45	0.21	0.24	1.22
ST3	U	1	3.18	5.32	0.85	1.50	2.60	0.26	0.34	0.18	0.16	2.20
ST4	L	2	5.26	0.88	0.77	1.01	2.54	0.64	0.42	0.26	0.16	1.40
ST4	U	2	1.14	1.01	0.85	1.21	2.59	0.42	0.41	0.24	0.17	2.64
TC1	L	1	0.61	4.31	0.79	1.42	2.55	0.33	0.31	0.22	0.09	1.36
TC1	U	2	2.06	4.21	0.94	1.20	2.57	0.32	0.38	0.26	0.12	1.87
TC2	L	1	1.02	2.53	0.87	1.35	2.35	0.31	0.30	0.22	0.08	1.09
TC2	U	1	1.75	0.18	0.81	1.19	2.39	0.30	0.33	0.23	0.10	1.33
TC4	L	1	1.01	3.55	0.74	1.33	2.55	0.36	0.26	0.19	0.08	1.02
TC4	U	1	1.38	1.95	0.93	1.39	2.42	0.21	0.30	0.22	0.08	1.12
TC6	L	1	1.84	0.28	0.85	1.20	2.55	0.29	0.28	0.20	0.08	1.31
TC7	L	1	2.19	5.92	0.69	1.48	2.61	0.24	0.28	0.17	0.10	1.22
TC7	U	1	4.74	2.26	0.58	1.35	2.50	0.26	0.31	0.20	0.11	1.27

\*NP – nonplastic soil

Table H5. Average jet test soil and stream water chemical data.

Site	Location on Bank	Group	Water Temp. (°C)	Water EC* (µS/cm)	Water pH	Water TSS <sup>-</sup> (mg/l)	Soil pH	Soil EC* (µS/cm)	K (cmol <sub>c</sub> /kg)	Mg (cmol <sub>c</sub> /kg)	Ca (cmol <sub>c</sub> /kg)	Na (cmol <sub>c</sub> /kg)	KIF <sup>^</sup>	SAR <sup>+</sup>
EL1	L	3	20.8	90	7.8	15	6.6	600	0.0042	0.1192	0.1119	0.0457	0.054	0.83
EL1	U	3	20.8	95	7.8	15	6.6	530	0.0056	0.1176	0.1127	0.0208	0.073	0.38
EL2	L	3	18.8	75	7.7	20	6.6	370	0.0031	0.0750	0.1008	0.0287	0.042	0.55
EL2	U	3	19.0	73	7.7	23	7	705	0.0129	0.2450	0.2497	0.0332	0.118	0.4
EL3	L	3	18.7	80	8.0	23	6.4	470	0.0116	0.1454	0.1412	0.0262	0.104	0.59
EL3	U	3	17.6	80	7.9	25	6.6	600	0.0065	0.0842	0.0858	0.0261	0.197	0.4
EL4	L	3	18.0	62	7.6	21	6.5	385	0.0136	0.1087	0.1037	0.0195	0.068	0.5
EL4	U	3	18.0	62	7.5	23	6.9	640	0.0039	0.0643	0.0726	0.0212	0.148	0.33
NR1	L	1	17.3	397	8.0	26	7.6	725	0.0039	0.0676	0.0745	0.0187	0.021	0.34
NR1	U	1	17.6	413	7.8	14	7.2	1080	0.0127	0.1471	0.1472	0.0200	0.084	0.34
NR2	L	2	17.6	420	8.3	15	7.8	590	0.0015	0.0424	0.2243	0.0175	0.020	0.44
NR2	U	1		360	8.0	26	7.55	747	0.0015	0.0437	0.2322	0.0171	0.059	0.34
SC1	L	2	16.6	213	7.9	2	6.6	1150	0.0016	0.0437	0.2307	0.0179	0.052	0.52
SC1	U	2	16.5	217	7.9	2	6.5	930	0.0087	0.1067	0.3755	0.0246	0.043	0.45
SC2	L	2	16.4	220	8.1	6	7.04	1000	0.0017	0.0510	0.2332	0.0271	0.066	0.58
SC2	U	2		190	8.0	4	6.9	1160	0.0034	0.0538	0.2808	0.0190	0.036	0.38
SC3	L	1	18.7	247	8.1	4	5.75	340	0.0060	0.0689	0.2651	0.0201	0.087	0.76
SC3	U	1	18.7	247	8.1	4	5.63	350	0.0049	0.0693	0.1707	0.0201	0.176	1.22
SC4	L	2	18.7	253	8.2	2	6.91	740	0.0055	0.1496	0.3544	0.0396	0.020	0.33
SC4	U	3	18.6	257	8.3	2	7.42	1160	0.0034	0.1199	0.2040	0.0249	0.037	0.32
SC5	L	1	17.1	260	8.3	1	7.87	760	0.0073	0.1743	0.3005	0.0451	0.042	0.42
SC5	U	3	17.1	260	8.4	1	7.57	1460	0.0040	0.1367	0.3887	0.0301	0.040	0.34
SC6	L	3	14.4	148	8.2	12	7.46	1100	0.0030	0.0371	0.0531	0.0162	0.151	0.85
SC6	U	2	13.5	158	8.3	9	7.45	900	0.0031	0.0237	0.0344	0.0212	0.063	0.48
SC7	L	1	18.9	247	8.2	2	7.07	620	0.0041	0.0110	0.0178	0.0189	0.040	0.46
SC7	U	1	18.7	253	8.2	1	7.45	700	0.0034	0.0127	0.0189	0.0182	0.029	0.33
SR1	L	3	18.6	250	8.0	2	7.71	660	0.0013	0.0617	0.1800	0.0155	0.022	0.66
SR1	U	3	19.1	250	8.0	4	7.43	1060	0.0030	0.1559	0.2420	0.0186	0.044	0.43
SR3	L	3	18.7	283	8.2	5	7.3	1780	0.0033	0.0919	0.1913	0.0228	0.067	0.46
SR3	U	3	17.0	159	8.4	7	6.71	720	0.0046	0.1708	0.4351	0.0274	0.181	0.36

Table H5, cont. Average jet test soil and stream water chemical data.

Site	Location on Bank	Group	Water Temp. (°C)	Water EC* (µS/cm)	Water pH	Water TSS~ (mg/l)	Soil pH	Soil EC* (µS/cm)	K (cmol <sub>c</sub> /kg)	Mg (cmol <sub>c</sub> /kg)	Ca (cmol <sub>c</sub> /kg)	Na (cmol <sub>c</sub> /kg)	KIF <sup>^</sup>	SAR <sup>+</sup>
SR4	L	2	-	220	8.1	15	7.8	1160	0.0155	0.2392	0.2310	0.0619	0.087	0.78
SR4	U	2	-	230	8.2	10	7	1240	0.0055	0.1282	0.2512	0.0296	0.281	0.22
ST1	L	1	-	613	7.7	12	7.4	740	0.0026	0.0807	0.1280	0.0208	0.020	1.03
ST1	U	2	-	613	7.7	12	7.3	790	0.0027	0.1274	0.2069	0.0179	0.014	0.88
ST2	U	2	18.3	380	7.6	27	7.2	1310	0.0022	0.0972	0.1840	0.0198	0.083	1.24
ST3	L	2	16.0	595	8.1	9	7.3	730	0.0020	0.0993	0.1791	0.0185	0.019	1.16
ST3	U	1	18.0	545	8.3	4	8.17	690	0.0012	0.0868	0.1147	0.0266	0.093	0.83
ST4	L	2	20.6	640	8.4	2	7.36	1800	0.0037	0.1093	0.1203	0.0277	0.050	0.57
ST4	U	2	22.0	450	8.1	3	7.38	1250	0.0046	0.1284	0.2452	0.0292	0.041	0.88
TC1	L	1	19.4	473	8.2	11	7.54	700	0.0033	0.1697	0.2403	0.0224	0.031	0.66
TC1	U	2	19.4	473	8.2	11	7.78	1210	0.0034	0.2200	0.2593	0.0234	0.025	0.5
TC2	L	1	21.2	503	8.1	8	7.49	720	0.0097	0.2509	0.7150	0.0486	0.045	0.66
TC2	U	1	21.1	497	8.1	12	7.46	730	0.0097	0.2312	0.5883	0.0446	0.107	0.64
TC4	L	1	19.6	380	8.2	10	7.36	600	0.0130	0.0958	0.1673	0.0186	0.010	0.53
TC4	U	1	19.3	370	8.2	14	7.67	610	0.0094	0.1732	0.3068	0.0599	0.031	0.59
TC6	L	1	16.0	218	8.3	14	7.84	735	0.0299	0.1749	0.3196	0.0170	0.102	0.53
TC7	L	1	16.3	234	8.4	7	7.6	720	0.0021	0.1230	0.2323	0.0753	0.039	0.48
TC7	U	1	15.5	253	8.4	8	7.94	620	0.0015	0.1477	0.2473	0.0669	0.025	0.73

\* Electrical conductivity (specific)

~ Total suspended solids

^ Potassium intensity factor

+ Sodium adsorption ratio

- Denotes missing data due to equipment malfunction

Table H6. Data transformations for jet test analysis.

Parameter	Transformation
Soil erodibility (cm <sup>3</sup> /N-s)	log K <sub>d</sub>
Critical shear stress (Pa)	$\tau_c^{0.36}$
Jet test shear stress (Pa)	$\tau_o^2$
Aggregate stability	AS <sup>5</sup>
Bulk density (g/cm <sup>3</sup> )	BD <sup>2.5</sup>
Specific gravity	SG <sup>8</sup>
Moisture content	-1/MC
Organic carbon (%)	OC <sup>0.1</sup>
Water temperature (°C)	none
Water total suspended solids (mg/l)	TSS <sup>1/3</sup>
Plasticity index (%)	-1/PI
Clay activity	logCA
Very fine root length density (cm/cm <sup>3</sup> )	lnVFRLD
Fine root length density (cm/cm <sup>3</sup> )	FRLD <sup>0.25</sup>
Big root length density (cm/cm <sup>3</sup> )	(S+M+LRLD) <sup>0.2</sup>
%sand	%sand <sup>2</sup>
D <sub>50</sub> (mm)	D <sub>50</sub> <sup>0.25</sup>
$\sigma$	none
Silt+Clay	ln(Silt+Clay)
Silt:Clay	-S:C <sup>-0.4</sup>
Soil:Water EC	-SWEC <sup>-0.1</sup>
Soil:Water pH	SWpH <sup>6</sup>
Total soil salts (cmol <sub>e</sub> /kg)	TS <sup>0.5</sup>
Pore water cation concentration (N)	ln(PW)
Potassium intensity factor	ln(KIF)
Sodium adsorption ratio	lnSAR
Number of freeze-thaw cycles	FTC <sup>0.5</sup>
Total duration frozen (days)	none
Average duration frozen (hours)	-ADF <sup>0.2</sup>
Skew	none
Ratio of average duration frozen to median duration frozen	RDAM <sup>2</sup>
Very fine root volume ratio (cm <sup>3</sup> /cm <sup>3</sup> )	lnVFRVR
Fine root volume ratio (cm <sup>3</sup> /cm <sup>3</sup> )	lnFRVR
Big root volume ratio (cm <sup>3</sup> /cm <sup>3</sup> )	ln(S+M+LRVR)

Table H7. Pearson's correlation coefficients and p-values for entire averaged jet test data set (variable names listed in Table H11).

	$K_d$	$\tau_c$	AS	BD	SG	MC	OC	WT	TSS	PI	CA	VFRLD	FRLD	BRLD	Sand	$D_{50}$	$\sigma$	S+C	S:C	SWEC	SWpH	TS	PW	KIF	SAR	FTC	TDF	ADF	Skew	RDAM	VF RVR	F RVR			
$\tau_c$ p-value	-0.56 0.00																																		
AS p-value																																			
BD p-value		-0.57 0.00	0.60 0.00																																
SG p-value																																			
MC p-value				-0.52 0.00																															
OC p-value				-0.67 0.00		0.49 0.00																													
WT p-value																																			
TSS p-value																																			
PI p-value						0.45 0.01		-0.43 0.01																											
CA p-value			0.45 0.01																																
VF RLD p-value				-0.44 0.00																															
F RLD p-value				-0.48 0.00			0.43 0.00						0.75 0.00																						
B RLD p-value				-0.40 0.01									0.44 0.00	0.80 0.00																					
Sand p-value	0.46 0.00	-0.49 0.00	0.42 0.00	-0.68 0.00						-0.40 0.02			0.40 0.01																						
$D_{50}$ p-value		-0.50 0.00	0.43 0.00	-0.65 0.00			0.45 0.00	0.40 0.01		-0.43 0.01					0.93 0.00																				
$\sigma$ p-value		0.44 0.00		0.53 0.00											-0.66 0.00	-0.54 0.00																			
S+C p-value	-0.48 0.00	0.48 0.00	-0.42 0.00	0.68 0.00						0.40 0.02					-1.00 0.00	-0.91 0.00	0.67 0.00																		
S:C p-value			0.58 0.00							-0.47 0.01	0.63 0.00				0.40 0.01		-0.56 0.00	-0.43 0.00																	
SWEC p-value	0.55 0.00	-0.45 0.00		-0.69 0.00			0.52 0.00					0.50 0.00	0.41 0.00		0.64 0.00	0.54 0.00	-0.50 0.00	-0.64 0.00																	
SWpH p-value				0.41 0.00											-0.45 0.00	-0.40 0.01		0.44 0.00																	
TS p-value																																			
PW p-value																							0.94 0.00												
KIF p-value		-0.45 0.00		-0.40 0.01			0.43 0.00								0.43 0.00	0.41 0.00		-0.43 0.00		0.49 0.00															
SAR p-value															-0.40 0.01	-0.45 0.00				-0.43 0.00															
FTC p-value							-0.44 0.01																												
TDF p-value																			0.40 0.02																
ADF p-value	0.41 0.02																										-0.84 0.00								
Skew p-value																											0.54 0.00	-0.60 0.00							
RDAM p-value																												-0.40 0.02			0.57 0.00				
VF RVR p-value				-0.44 0.00								1.00 0.00	0.77 0.00	0.43 0.00							0.50 0.00														
F RVR p-value				-0.46 0.00								0.67 0.00	0.98 0.00	0.85 0.00		0.40 0.01																0.69 0.00			
B RVR p-value													0.65 0.00	0.93 0.00																			0.71 0.00		



Table H9. Pearson's correlation coefficients and p-values for Group 2 soils (variable names listed in Table H11).

	K <sub>d</sub>	τ <sub>c</sub>	AS	BD	SG	MC	OC	WT	TSS	PI	CA	VFRLD	FRLD	BRLD	Sand	D <sub>50</sub>	σ	S+C	S:C	SWEC	SWpH	TS	PW	KIF	SAR	FTC	TDF	ADF	Skew	RDAM	VF RVR	F RVR	
τ <sub>c</sub> p-value	-0.66 0.01																																
AS p-value																																	
BD p-value																																	
SG p-value																																	
MC p-value																																	
OC p-value				-0.81 0.00																													
WT p-value					0.66 0.03																												
TSS p-value																																	
PI p-value							-0.52 0.05																										
CA p-value			0.56 0.03																														
VF RLD p-value																																	
F RLD p-value												0.85 0.00																					
B RLD p-value												0.69 0.00	0.88 0.00																				
Sand p-value							0.55 0.03			-0.60 0.02		0.74 0.00	0.59 0.02																				
D <sub>50</sub> p-value							0.51 0.05			-0.59 0.02		0.75 0.00	0.61 0.02	0.53 0.04	0.99 0.00																		
σ p-value										0.59 0.02																							
S+C p-value							-0.55 0.03			0.60 0.02			-0.73 0.00	-0.58 0.02	-1.00 0.00	-0.99 0.00																	
S:C p-value			0.60 0.02			-0.53 0.05					0.75 0.00																						
SWEC p-value							0.61 0.02			-0.61 0.02																							
SWpH p-value					0.52 0.05					0.76 0.00										0.54 0.04													
TS p-value		-0.52 0.05																															
PW p-value																																	
KIF p-value																																	
SAR p-value																																	
FTC p-value							0.61 0.04			0.75 0.02																							
TDF p-value																																	
ADF p-value								-0.67 0.02																									
Skew p-value	-0.59 0.05																																
RDAM p-value							-0.66 0.02			0.59 0.04																						0.57 0.05	
VF RVR p-value													1.00 0.00	0.87 0.00	0.69 0.01	0.72 0.00	0.73 0.00																
F RVR p-value													0.86 0.00	0.99 0.00	0.90 0.00	0.66 0.01	0.68 0.01															0.87 0.00	
B RVR p-value													0.67 0.01	0.83 0.00	0.96 0.00																0.66 0.01	0.83 0.00	





Table H11. Definition of parameter variable names for Tables H7-H10.

Parameter	Parameter Name
$K_d$	soil erodibility
$T_c$	soil critical shear stress
AS	aggregate stability
BD	bulk density
SG	soil specific gravity
MC	antecedent moisture content
OC	soil organic carbon content
WT	stream water temperature
TSS	stream water total suspended solids
PI	plasticity index
CA	clay activity
VFRLD	very fine root length density
FRLD	fine root length density
BRLD	big root length density
Sand	soil sand content
$D_{50}$	median grain size
$\sigma$	soil grain size standard deviation
S+C	soil silt+clay content
S:C	ratio of soil silt to clay content
SWEC	ratio of soil to water specific electrical conductivity
SWpH	soil:water pH
TS	soil total salt content
PW	pore water cation concentration
KIF	soil potassium intensity factor
SAR	soil sodium adsorption ratio
FTC	number of freeze-thaw cycles
TDF	total duration frozen
ADF	average duration frozen
Skew	skew of distribution of freezing periods
RDAM	ratio of average to median durations frozen
VFRVR	very fine root volume ratio
FRVR	fine root volume ratio
BRVR	big root volume ratio

## **Vita**

A native of Richmond, Virginia, Tess Wynn graduated summa cum laude with a BS in Agricultural Engineering from Virginia Tech and an MS in Civil Engineering from North Carolina State University. In 1992, Ms. Wynn was named Virginia Tech Woman of the Year. Ms. Wynn worked for four years as an environmental engineer in North Carolina and Maryland. While in Maryland, she was appointed to the Upper Potomac Tributaries Strategies Team by Governor Glendenning. She has received several scholarships for her studies at Virginia Tech, including an EPA STAR Fellowship, an AAUW Selected Professions Fellowship, and a P.E.O. Scholars Award. In 2002, she was named Outstanding Graduate Student in the College of Engineering. Ms. Wynn has served as a senior design and research advisor to undergraduate students and a consultant to USAID in West Africa. Following completion of her dissertation, Ms. Wynn will stay on at Virginia Tech as an assistant professor in the Biological Systems Engineering department. Her research and teaching area is watershed management with a focus on stream and wetland restoration.