

Appendix A: Cross-Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Open Water ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Unnamed Stream B-1	0.9685	B1_12 (SEM 2019)	5426101.62	569568.37	Open Water	Ice	99.8	100.8	100.6	100.7	100.6	100.8	100.6	100.7	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.8553	B1_11 (SEM 2019)	5425994.5	569569.56	Open Water	Ice	99.8	100.8	100.5	100.5	100.5	100.8	100.5	100.6	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.7466	B1_10 (SEM 2019)	5425896.45	569542.28	Open Water	Ice	99.8	100.8	100.4	100.5	100.4	100.8	100.5	100.5	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.5876	B1_09 (SEM 2019)	5425747.8	569507.46	Open Water	Ice	99.8	100.8	100.4	100.5	100.4	100.8	100.5	100.5	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.5714	US of Stream B1 Newfoundland T'Railway Culvert - B1_08 (SEM 2019)	5425738.99	569495.41	Open Water	Ice	99.8	100.8	100.4	100.5	100.4	100.8	100.5	100.5	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.5558	DS of Stream B1 Newfoundland T'Railway Culvert - B1_07 (SEM 2019)	5425725.25	569489.33	Ice	Ice	99.8	100.8	99.8	99.8	99.8	100.8	99.8	99.8	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.5439	B1_06 (SEM 2019)	5425713.99	569489.84	Ice	Ice	99.8	100.8	99.6	99.7	99.8	100.8	99.7	99.7	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.4387	B1_05 (SEM 2019)	5425611.95	569475.95	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.3206	B1_04 (SEM 2019)	5425524.37	569476.77	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.2384	B1_03 (SEM 2019)	5425474.47	569417.9	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.1267	B1_02 (SEM 2019)	5425388.67	569350.24	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	5.4	7.0	n/a	n/a	6.4	8.1
Unnamed Stream B-1	0.0581	B1_01 (SEM 2019)	5425332.6	569330.28	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	5.4	7.0	n/a	n/a	6.4	8.1
Badger Brook	1.9217	BB06A (SEM 2019)	5426583.69	570363.3	Open Water	Ice	99.2	100.1	99.4	99.8	99.4	100.1	99.6	99.9	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	1.7167	BB05 (SEM 2016)	5426404.45	570455.56	Open Water	Ice	99.2	100.1	99.4	99.7	99.4	100.1	99.5	99.8	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	1.4957	BB05A (SEM 2019)	5426239.79	570602.65	Open Water	Ice	99.2	100.1	99.3	99.7	99.3	100.1	99.4	99.8	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	1.3039	BB04 (SEM 2016)	5426089.4	570720.93	Open Water	Ice	99.2	100.1	99.2	99.6	99.2	100.1	99.4	99.7	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	1.2069	BB04A (SEM 2019)	5426010.14	570776.83	Ice	Ice	99.2	100.1	99.2	99.6	99.2	100.1	99.3	99.7	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	1.0769	BB04B (SEM 2019)	5425909.99	570851.7	Ice	Ice	99.2	100.1	99.1	99.5	99.2	100.1	99.3	99.6	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.9728	BB04C (SEM 2019)	5425810.88	570835.67	Ice	Ice	99.2	100.1	99.0	99.4	99.2	100.1	99.1	99.5	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.9409	US of Badger Brook Footbridge - BB03 (SEM 2016)	5425782.33	570821.78	Ice	Ice	99.2	100.1	98.9	99.3	99.2	100.1	99.1	99.5	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.9254	02YO019 Badger Brook Below Footbridge - BB03A (SEM 2019)	5425767.26	570818.38	Ice	Ice	99.2	100.1	98.9	99.3	99.2	100.1	99.0	99.4	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.8924	BB03B (SEM 2019)	5425734.87	570812.21	Ice	Ice	99.2	100.1	98.9	99.2	99.2	100.1	99.0	99.4	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.8392	BB03C (SEM 2019)	5425683.83	570800.55	Ice	Ice	99.2	100.1	98.9	99.2	99.2	100.1	99.0	99.3	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.8126	US of Badger Brook TCH Bridge - BB03D (SEM 2019)	5425662.24	570785.66	Ice	Ice	99.2	100.1	98.8	99.2	99.2	100.1	98.9	99.3	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.7753	DS of Badger Brook TCH Bridge - BB02 (SEM 2016)	5425637.51	570757.79	Ice	Ice	99.2	100.1	98.7	99.1	99.2	100.1	98.9	99.2	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.721	BB02A (SEM 2019)	5425605.87	570714.7	Ice	Ice	99.2	100.1	98.7	99.1	99.2	100.1	98.8	99.1	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.6184	BB02B (SEM 2019)	5425510.65	570684.99	Ice	Ice	99.2	100.1	98.6	99.0	99.2	100.1	98.8	99.1	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.5224	BB02C (SEM 2019)	5425417.7	570709.15	Ice	Ice	99.2	100.1	98.5	98.9	99.2	100.1	98.7	99.0	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.4442	Sunset Dr - BB02D (SEM 2019)	5425342.41	570726.22	Ice	Ice	99.2	100.1	98.4	98.8	99.2	100.1	98.6	98.9	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.3917	US of Badger Brook T'Railway Bridge - BB02E (SEM 2019)	5425292.43	570734.37	Ice	Ice	99.2	100.1	98.2	98.6	99.2	100.1	98.4	98.7	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.3658	DS of Badger Brook T'Railway Bridge - BB01 (SEM 2016)	5425266.65	570732.19	Ice	Ice	99.2	100.1	98.1	98.5	99.2	100.1	98.2	98.6	257.0	325.0	n/a	n/a	281.1	344.3
Badger Brook	0.3082	Beothuck St - BB01A (SEM 2019)	5425220.15	570761.18	Ice	Ice	99.2	100.1	98.1	98.5	99.2	100.1	98.2	98.6	257.0	325.0	n/a	n/a	281.1	344.3
Unnamed Stream BF-1	1.2199	BF1_13 (SEM 2019)	5431824.87	613625.26	n/a	n/a	n/a	n/a	13.8	13.8	13.8	13.8	13.8	13.8	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	1.2052	BF1_12 (SEM 2019)	5431830.77	613638.79	n/a	n/a	n/a	n/a	13.7	13.7	13.7	13.7	13.7	13.7	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	1.1653	BF1_11 (SEM 2019)	5431851.91	613672.54	n/a	n/a	n/a	n/a	13.2	13.2	13.2	13.2	13.2	13.2	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	1.1519	BF1_10 (SEM 2019)	5431859.28	613683.69	n/a	n/a	n/a	n/a	13.2	13.2	13.2	13.2	13.2	13.2	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	0.8154	BF1_09 (SEM 2019)	5432016.36	613977.48	n/a	n/a	n/a	n/a	12.6	12.6	12.6	12.6	12.6	12.6	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	0.6008	BF1_08 (SEM 2019)	5432137.55	614132.62	n/a	n/a	n/a	n/a	12.6	12.6	12.6	12.6	12.6	12.6	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	0.3778	BF1_07 (SEM 2019)	5432037.64	614318.67	n/a	n/a	n/a	n/a	12.6	12.6	12.6	12.6	12.6	12.6	0.0	0.0	n/a	n/a	0.0	0.0
Unnamed Stream BF-1	0.3504	BF1_06 (SEM 2019)	5432011.96	614320.36	n/a	n/a	n/a	n/a	12.5	12.5	12.5	12.5	12.5	12.5	0.3	0.4	n/a	n/a	0.3	0.4
Unnamed Stream BF-1	0.258		5431981.68	614399.28	n/a	n/a	n/a	n/a	11.0	11.0	11.0	11.0	11.0	11.0	0.3	0.4	n/a	n/a	0.3	0.4
Unnamed Stream BF-1	0.2506		5431975.18	614402.54	n/a	n/a	n/a	n/a	10.3	10.3	10.3	10.3	10.3	10.3	0.3	0.4	n/a	n/a	0.3	0.4
Unnamed Stream BF-1	0.2187		5431949.98	614421.13	n/a	n/a	n/a	n/a	9.5	9.5	9.5	9.5	9.5	9.5	0.3	0.4	n/a	n/a	0.3	0.4
Unnamed Stream BF-1	0.2082		5431945	614430.3	n/a	n/a	n/a	n/a	9.2	9.3	9.2	9.3	9.2	9.3	0.3	0.4	n/a	n/a	0.3	0.4

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)								Peak Flows (cms) ²											
					Current Climate								Climate Change ⁴				Current Climate ⁵				Climate Change ⁴			
					Governing Condition ²				Ice ^{2,3}				Open Water ³				Peak Ice/Open				Open Water			
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP		
Unnamed Stream BF-1	0.187		5431934.75	614448.91	n/a	n/a	n/a	n/a	8.5	8.6	8.5	8.6	8.5	8.6	0.3	0.4	n/a	n/a	0.3	0.4				
Unnamed Stream BF-1	0.1824		5431932.45	614452.92	n/a	n/a	n/a	n/a	8.4	8.4	8.4	8.4	8.4	8.4	0.3	0.4	n/a	n/a	0.3	0.4				
Unnamed Stream BF-1	0.164		5431921.85	614467.87	n/a	n/a	n/a	n/a	7.2	7.2	7.2	7.2	7.2	7.2	0.3	0.4	n/a	n/a	0.3	0.4				
Unnamed Stream BF-1	0.1552		5431916.84	614475.06	n/a	n/a	n/a	n/a	6.3	6.3	6.3	6.3	6.3	6.3	0.3	0.4	n/a	n/a	0.3	0.4				
Unnamed Stream BF-1	0.0907	BF1_01 (SEM 2019)	5431899.22	614536.18	n/a	n/a	n/a	n/a	3.4	4.1	3.4	4.1	3.8	4.4	0.3	0.4	n/a	n/a	0.3	0.4				
Unnamed Stream BF-2	1.249	BF2_15 (SEM 2019)	5431377.19	612039.16	n/a	n/a	n/a	n/a	26.9	27.0	26.9	27.0	27.0	27.0	3.0	3.9	n/a	n/a	3.6	4.5				
Unnamed Stream BF-2	0.8133	BF2_14 (SEM 2019)	5431033.45	611909.75	n/a	n/a	n/a	n/a	20.8	20.9	20.8	20.9	20.8	20.9	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.569		5430858.64	611759.23	n/a	n/a	n/a	n/a	18.1	18.2	18.1	18.2	18.2	18.3	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.5639	US of Kings Road Culvert	5430853.62	611758.64	n/a	n/a	n/a	n/a	18.1	18.2	18.1	18.2	18.2	18.3	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.5235	DS of Kings Road Culvert	5430813.88	611751.48	n/a	n/a	n/a	n/a	17.6	17.7	17.6	17.7	17.7	17.7	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.52		5430810.44	611751.61	n/a	n/a	n/a	n/a	17.6	17.7	17.6	17.7	17.7	17.7	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.4432	BF2_13 (SEM 2019)	5430754.96	611722.68	n/a	n/a	n/a	n/a	17.6	17.6	17.6	17.6	17.6	17.7	4.8	6.2	n/a	n/a	5.7	7.2				
		US of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_12 (SEM 2019)																						
Unnamed Stream BF-2	0.425		5430743.82	611712.62	n/a	n/a	n/a	n/a	17.6	17.6	17.6	17.6	17.6	17.7	4.8	6.2	n/a	n/a	5.7	7.2				
		DS of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_11 (SEM 2019)																						
Unnamed Stream BF-2	0.414		5430735.49	611719.73	n/a	n/a	n/a	n/a	16.5	16.5	16.5	16.5	16.5	16.5	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.4078	BF2_10 (SEM 2019)	5430730.92	611723.97	n/a	n/a	n/a	n/a	16.5	16.5	16.5	16.5	16.5	16.5	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.3773	BF2_09 (SEM 2019)	5430714.83	611748.58	n/a	n/a	n/a	n/a	16.5	16.4	16.5	16.4	16.4	16.4	4.8	6.2	n/a	n/a	5.7	7.2				
		US of BF2 Stream Main Street Culvert - BF2_08 (SEM 2019)																						
Unnamed Stream BF-2	0.3702		5430708.29	611751.35	n/a	n/a	n/a	n/a	16.5	16.4	16.5	16.4	16.4	16.4	4.8	6.2	n/a	n/a	5.7	7.2				
		DS of BF2 Stream Main Street Culvert - BF2_07 (SEM 2019)																						
Unnamed Stream BF-2	0.3551		5430693.78	611755.22	n/a	n/a	n/a	n/a	15.3	15.4	15.3	15.4	15.4	15.4	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.3453	BF2_06 (SEM 2019)	5430684.33	611757.85	n/a	n/a	n/a	n/a	15.3	15.4	15.3	15.4	15.4	15.4	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.3108	BF2_05 (SEM 2019)	5430657.58	611778.74	n/a	n/a	n/a	n/a	15.2	15.3	15.2	15.3	15.3	15.3	4.8	6.2	n/a	n/a	5.7	7.2				
		US of Culvert Under Private Home- BF2_04 (SEM 2019)																						
Unnamed Stream BF-2	0.306		5430654.72	611782.61	n/a	n/a	n/a	n/a	15.2	15.3	15.2	15.3	15.3	15.4	4.8	6.2	n/a	n/a	5.7	7.2				
		DS of Culvert Under Private Home- BF2_03 (SEM 2019)																						
Unnamed Stream BF-2	0.2516		5430643.11	611835.47	n/a	n/a	n/a	n/a	12.3	12.4	12.3	12.4	12.3	12.4	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.2403	BF2_02 (SEM 2019)	5430639.85	611846.33	n/a	n/a	n/a	n/a	12.0	12.1	12.0	12.1	12.1	12.2	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-2	0.1851	BF2_01 (SEM 2019)	5430592.05	611870.32	n/a	n/a	n/a	n/a	6.1	6.9	6.1	6.9	6.4	7.2	4.8	6.2	n/a	n/a	5.7	7.2				
Unnamed Stream BF-3	2.1832	BF3_40 (SEM 2019)	5430578.74	609749.7	n/a	n/a	n/a	n/a	42.6	42.7	42.6	42.7	42.6	42.7	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	1.7353	BF3_39 (SEM 2019)	5430282.28	609617.97	n/a	n/a	n/a	n/a	41.5	41.6	41.5	41.6	41.5	41.6	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	1.5001	BF3_38 (SEM 2019)	5430099.54	609521.47	n/a	n/a	n/a	n/a	40.4	40.5	40.4	40.5	40.4	40.5	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	1.3954	BF3_37 (SEM 2019)	5430005.25	609480.86	n/a	n/a	n/a	n/a	40.4	40.4	40.4	40.4	40.4	40.4	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	1.3364	BF3_36 (SEM 2019)	5429963.65	609439.24	n/a	n/a	n/a	n/a	40.1	40.2	40.1	40.2	40.2	40.3	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	0.9835	BF3_35 (SEM 2019)	5429724.45	609227.64	n/a	n/a	n/a	n/a	39.0	39.4	39.0	39.4	39.1	39.5	7.6	10.0	n/a	n/a	8.5	11.0				
		US of BF3 Stream TCH Culvert - BF3_34 (SEM 2019)																						
Unnamed Stream BF-3	0.9728		5429714.61	609225.57	n/a	n/a	n/a	n/a	39.0	39.4	39.0	39.4	39.1	39.5	7.6	10.0	n/a	n/a	8.5	11.0				
		DS of BF3 Stream TCH Culvert - BF3_33 (SEM 2019)																						
Unnamed Stream BF-3	0.9315		5429673.6	609230.05	n/a	n/a	n/a	n/a	36.7	36.8	36.7	36.8	36.8	36.8	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	0.9232	BF3_32 (SEM 2019)	5429666.18	609233	n/a	n/a	n/a	n/a	36.7	36.8	36.7	36.8	36.7	36.8	7.6	10.0	n/a	n/a	8.5	11.0				
Unnamed Stream BF-3	0.8646	BF3_31 (SEM 2019)	5429627.77	609221.52	n/a	n/a	n/a	n/a	35.7	35.8	35.7	35.8	35.8	35.9	7.6	10.2	n/a	n/a	8.6	11.2				
		US of Dominic Street 3 Bridge - BF3_30B (SEM 2019)																						
Unnamed Stream BF-3	0.821		5429593.13	609238.39	n/a	n/a	n/a	n/a	33.7	33.9	33.7	33.9	33.8	33.9	7.6	10.2	n/a	n/a	8.6	11.2				
		DS of Dominic Street 3 Bridge - BF3_30A (SEM 2019)																						
Unnamed Stream BF-3	0.8128		5429588.08	609244.88	n/a	n/a	n/a	n/a	33.0	33.0	33.0	33.0	33.0	33.1	7.6	10.2	n/a	n/a	8.6	11.2				
Unnamed Stream BF-3	0.7811	BF3_30 (SEM 2019)	5429565.32	609265.66	n/a	n/a	n/a	n/a	31.8	32.0	31.8	32.0	31.9	32.1	7.6	10.2	n/a	n/a	8.6	11.2				
		US of Dominic Street 2 Bridge - BF3_29 (SEM 2019)																						
Unnamed Stream BF-3	0.7753		5429559.71	609267.18	n/a	n/a	n/a	n/a	31.7	31.9	31.7	31.9	31.8	32.0	7.6	10.2	n/a	n/a	8.6	11.2				

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Open Water ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Unnamed Stream BF-3	0.7687	DS of Dominic Street 2 Bridge - BF3_28 (SEM 2019)	5429553.32	609268.84	n/a	n/a	n/a	n/a	30.9	31.0	30.9	31.0	30.9	31.1	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.7634	BF3_27 (SEM 2019)	5429548.14	609270.19	n/a	n/a	n/a	n/a	30.4	30.5	30.4	30.5	30.5	30.6	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.7448	BF3_26 (SEM 2019)	5429530.56	609275.96	n/a	n/a	n/a	n/a	28.9	29.0	28.9	29.0	29.0	29.1	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.7399	US of Dominic Street 1 Bridge - BF3_25 (SEM 2019)	5429526.51	609278.8	n/a	n/a	n/a	n/a	28.7	28.9	28.7	28.9	28.8	28.9	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.7299	DS of Dominic Street 1 Bridge - BF3_24 (SEM 2019)	5429519.98	609286.15	n/a	n/a	n/a	n/a	27.8	27.9	27.8	27.9	27.9	28.0	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.725	BF3_23 (SEM 2019)	5429517.96	609290.7	n/a	n/a	n/a	n/a	27.4	27.5	27.4	27.5	27.4	27.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.7031	BF3_22 (SEM 2019)	5429503.01	609305.48	n/a	n/a	n/a	n/a	26.2	26.3	26.2	26.3	26.2	26.4	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6956	US of Beaumont Heights 2 Bridge - BF3_21 (SEM 2019)	5429495.77	609307.63	n/a	n/a	n/a	n/a	25.8	26.0	25.8	26.0	25.9	26.1	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6889	DS of Beaumont Heights 2 Bridge - BF3_20 (SEM 2019)	5429489.52	609309.98	n/a	n/a	n/a	n/a	25.3	25.4	25.3	25.4	25.3	25.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6819	BF3_19 (SEM 2019)	5429483.09	609312.66	n/a	n/a	n/a	n/a	25.0	25.1	25.0	25.1	25.0	25.1	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6546	BF3_18 (SEM 2019)	5429455.82	609312.85	n/a	n/a	n/a	n/a	24.6	24.7	24.6	24.7	24.7	24.8	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6471	US of Beaumont Heights 1 Culvert - BF3_17 (SEM 2019)	5429448.37	609313.3	n/a	n/a	n/a	n/a	24.6	24.8	24.6	24.8	24.7	24.9	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6279	DS of Beaumont Heights 1 Culvert - BF3_16 (SEM 2019)	5429429.2	609312.16	n/a	n/a	n/a	n/a	23.3	23.4	23.3	23.4	23.3	23.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.6126	BF3_15 (SEM 2019)	5429413.92	609311.27	n/a	n/a	n/a	n/a	22.9	23.0	22.9	23.0	23.0	23.1	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.557	BF3_14 (SEM 2019)	5429366.28	609287.41	n/a	n/a	n/a	n/a	20.7	20.7	20.7	20.7	20.7	20.8	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.4815	BF3_13 (SEM 2019)	5429294.02	609295.47	n/a	n/a	n/a	n/a	18.6	18.9	18.6	18.9	18.7	18.9	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.4754	US of BF3 Stream Main St Culvert - BF3_12 (SEM 2019)	5429288.05	609296.61	n/a	n/a	n/a	n/a	18.6	18.9	18.6	18.9	18.8	18.9	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.2728	DS of BF3 Stream Main St Culvert - BF3_01B (SEM 2019)	5429129.38	609399.86	n/a	n/a	n/a	n/a	13.7	14.4	13.7	14.4	13.9	14.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.2634	BF3_01A (SEM 2019)	5429129.38	609409.31	n/a	n/a	n/a	n/a	13.7	14.4	13.7	14.4	13.9	14.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-3	0.2034	BF3_01 (SEM 2019)	5429111.73	609465.72	n/a	n/a	n/a	n/a	13.5	14.4	13.5	14.4	13.9	14.5	7.6	10.2	n/a	n/a	8.6	11.2
Unnamed Stream BF-4	0.9422	BF4_19 (SEM 2019)	5427388.21	606640.08	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.8648	BF4_18 (SEM 2019)	5427332.89	606692.98	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.8466	BF4_17 (SEM 2019)	5427327.8	606708.86	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.8268	BF4_16 (SEM 2019)	5427330.31	606726.9	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.8212	BF4_15 (SEM 2019)	5427332.12	606732.21	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.7068	BF4_14 (SEM 2019)	5427358.89	606843.02	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.1	1.4	n/a	n/a	1.3	1.6
Unnamed Stream BF-4	0.6155	BF4_13 (SEM 2019)	5427361.68	606933.08	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.6133	US of BF4 Stream Newfoundland T'Railway Culvert - BF4_12 (SEM 2019)	5427360.44	606934.91	n/a	n/a	n/a	n/a	18.5	18.7	18.5	18.7	18.6	18.7	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.602	DS of BF4 Stream Newfoundland T'Railway Culvert - BF4_11 (SEM 2019)	5427354.05	606944.27	n/a	n/a	n/a	n/a	18.3	18.5	18.3	18.5	18.4	18.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.5931	BF4_10 (SEM 2019)	5427351.84	606952.79	n/a	n/a	n/a	n/a	18.3	18.5	18.3	18.5	18.4	18.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.5102	BF4_09 (SEM 2019)	5427339.28	607033.08	n/a	n/a	n/a	n/a	18.3	18.4	18.3	18.4	18.4	18.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.5003	US of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_08 (SEM 2019)	5427334.96	607041.87	n/a	n/a	n/a	n/a	18.3	18.4	18.3	18.4	18.4	18.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.4872	DS of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_07 (SEM 2019)	5427324.69	607049.86	n/a	n/a	n/a	n/a	17.6	17.6	17.6	17.6	17.6	17.7	1.4	1.8	n/a	n/a	1.6	2.0

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{2,3}		Open Water ⁴		Peak Ice/Open		Open Water		Open Water ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Unnamed Stream BF-4	0.4744	BF4_06 (SEM 2019)	5427314.63	607057.81	n/a	n/a	n/a	n/a	17.0	17.1	17.0	17.1	17.0	17.1	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.3664	BF4_05 (SEM 2019)	5427233.28	607127.82	n/a	n/a	n/a	n/a	16.6	16.7	16.6	16.7	16.6	16.7	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.3556	US of BF4 Stream Main Street Culvert - BF4_04 (SEM 2019)	5427227.44	607136.87	n/a	n/a	n/a	n/a	16.3	16.4	16.3	16.4	16.4	16.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.3336	DS of BF4 Stream Main Street Culvert - BF4_03 (SEM 2019)	5427212.05	607151.59	n/a	n/a	n/a	n/a	15.8	15.8	15.8	15.8	15.8	15.9	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.3233	BF4_02 (SEM 2019)	5427211.77	607161.82	n/a	n/a	n/a	n/a	15.5	15.5	15.5	15.5	15.5	15.5	1.4	1.8	n/a	n/a	1.6	2.0
Unnamed Stream BF-4	0.2414	BF4_01 (SEM 2019)	5427141.94	607198.78	n/a	n/a	n/a	n/a	13.7	14.5	13.7	14.5	14.0	14.7	1.4	1.8	n/a	n/a	1.6	2.0
Corduroy Brook	3.8918	CB80 (SEM 2019)	5423571.03	599319.15	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.7	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.6717	CB79 (SEM 2019)	5423381.67	599224.31	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.7	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.5448	CB78 (SEM 2019)	5442381.85	599160.7	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.7	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.4083	CB77 (SEM 2019)	5423170.86	599092.05	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.397	CB76 (SEM 2019)	5423159.62	599091.19	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.3476	CB75 (SEM 2019)	5423151.27	599046.66	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.3174	US of Corduroy Brook Newoundland T'Railway Culvert - CB74 (SEM 2019)	5423143.52	599027.89	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.3013	DS of Corduroy Brook Newoundland T'Railway Culvert - CB71/CB73 (SEM 2019)	5423127.75	599030.69	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.2959	CB70/CB72 (SEM 2019)	5423122.45	599031.75	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.2785	CB69 (SEM 2019)	5423105.26	599034.6	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.2706	US of Princess Drive Culvert - CB68 (SEM 2019)	5423098.48	599032.82	n/a	n/a	n/a	n/a	82.4	82.8	82.4	82.8	82.6	82.8	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.2426	DS of Princess Drive Culvert - CB67 (SEM 2019)	5423079.28	599012.38	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	4.6	5.6	n/a	n/a	5.0	6.3
Corduroy Brook	3.2308	CB66 (SEM 2019)	5423071.52	599003.53	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	3.1255	CB65 (SEM 2019)	5423000.32	598934.22	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.9841	CB64 (SEM 2019)	5422919.81	598828.02	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.854	CB63 (SEM 2019)	5422806.28	598772.25	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.7942	CB62 (SEM 2019)	5422780.6	598721.04	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.7783	US of Harris Ave Culvert - CB61 (SEM 2019)	5422766.58	598713.97	n/a	n/a	n/a	n/a	81.8	82.0	81.8	82.0	82.0	82.1	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.5843	DS of Harris Ave Culvert - CB55 (SEM 2019)	5422591.3	598632.28	n/a	n/a	n/a	n/a	81.0	81.2	81.0	81.2	81.2	81.3	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.577	CB54 (SEM 2019)	5422586.35	598626.91	n/a	n/a	n/a	n/a	81.0	81.2	81.0	81.2	81.2	81.3	3.6	3.6	n/a	n/a	3.6	3.6
Corduroy Brook	2.5346	CB53 (SEM 2019)	5422556.71	598596.63	n/a	n/a	n/a	n/a	81.0	81.2	81.0	81.2	81.2	81.2	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.5024	CB52 (SEM 2019)	5422540.83	598568.93	n/a	n/a	n/a	n/a	81.0	81.2	81.0	81.2	81.2	81.2	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.4882	US of Cromer Avenue Culvert - CB51 (SEM 2019)	5422535.26	598555.9	n/a	n/a	n/a	n/a	81.0	81.2	81.0	81.2	81.2	81.2	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.3516	DS of Cromer Avenue Culvert - CB47A (SEM 2019)	5422478.52	598432.79	n/a	n/a	n/a	n/a	78.8	78.8	78.8	78.8	78.8	78.8	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.3284	CB47 (SEM 2019)	5422457.33	598434.1	n/a	n/a	n/a	n/a	78.3	78.4	78.3	78.4	78.3	78.4	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.277	CB46 (SEM 2019)	5422418.25	598404.72	n/a	n/a	n/a	n/a	76.7	76.8	76.7	76.8	76.7	76.8	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.1696	CB45 (SEM 2019)	5422425.76	598304.61	n/a	n/a	n/a	n/a	76.2	76.2	76.2	76.2	76.2	76.2	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	2.0288	CB44 (SEM 2019)	5422443.7	598167.33	n/a	n/a	n/a	n/a	75.6	75.7	75.6	75.7	75.6	75.8	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	1.921	CB43 (SEM 2019)	5422379.07	598093.51	n/a	n/a	n/a	n/a	75.4	75.6	75.4	75.6	75.5	75.6	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	1.8184	CB42 (SEM 2019)	5422447.32	598017.15	n/a	n/a	n/a	n/a	75.3	75.6	75.3	75.6	75.4	75.6	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	1.8101	US of Duggan Street 2 Culvert - CB41 (SEM 2019)	5422452.93	598011.1	n/a	n/a	n/a	n/a	75.3	75.5	75.3	75.5	75.4	75.6	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	1.7808	DS of Duggan Street 2 Culvert - CB40 (SEM 2019)	5422467.95	597985.99	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	75.0	75.1	4.0	4.9	n/a	n/a	4.3	5.6
Corduroy Brook	1.7767	CB39 (SEM 2019)	5422469.56	597982.19	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	75.0	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.7367	CB38 (SEM 2019)	5422455.21	597960.63	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	75.0	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.6622	CB37 (SEM 2019)	5422402.59	597911.24	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	75.0	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.5718	CB36 (SEM 2019)	5422324.49	597881.43	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.5636	US of Duggan Street 1 Bridge - CB35 (SEM 2019)	5422316.62	597880.06	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Open Water ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Corduroy Brook	1.5582	DS of Duggan Street 1 Bridge - CB34 (SEM 2019)	5422311.55	597878.2	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.5492	CB33 (SEM 2019)	5422303.43	597874.39	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.4747	CB32 (SEM 2019)	5422257.89	597823.79	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.4028	CB31 (SEM 2019)	5422226.86	597759.47	n/a	n/a	n/a	n/a	74.9	75.0	74.9	75.0	74.9	75.1	6.1	7.2	n/a	n/a	6.7	8.1
Corduroy Brook	1.3922	US of Corduroy Brook TCH Culvert - CB30 (SEM 2019)	5422218.68	597753.22	n/a	n/a	n/a	n/a	74.8	75.0	74.8	75.0	74.9	75.1	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.3449	DS of Corduroy Brook TCH Culvert - CB29 (SEM 2019)	5422176.54	597731.74	n/a	n/a	n/a	n/a	73.3	73.4	73.3	73.4	73.4	73.5	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.3314	CB28 (SEM 2019)	5422163.51	597729.02	n/a	n/a	n/a	n/a	73.3	73.4	73.3	73.4	73.4	73.5	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.2395	CB27 (SEM 2019)	5422078.22	597749.77	n/a	n/a	n/a	n/a	73.3	73.4	73.3	73.4	73.4	73.4	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.1315	CB26 (SEM 2019)	5421982.72	597799.74	n/a	n/a	n/a	n/a	73.3	73.4	73.3	73.4	73.4	73.4	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.1201	US of Corduroy Brook Lane Culvert - CB25 (SEM 2019)	5421972.19	597804.13	n/a	n/a	n/a	n/a	73.3	73.4	73.3	73.4	73.4	73.4	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.0982	DS of Corduroy Brook Lane Culvert - CB24 (SEM 2019)	5421951.75	597811.95	n/a	n/a	n/a	n/a	71.4	71.5	71.4	71.5	71.4	71.5	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.088	CB23 (SEM 2019)	5421942.3	597815.86	n/a	n/a	n/a	n/a	71.2	71.2	71.2	71.2	71.2	71.3	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.0141	CB22 (SEM 2019)	5421875.58	597847.7	n/a	n/a	n/a	n/a	70.8	70.9	70.8	70.9	70.8	70.9	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	1.0026	US of Squires Lane 2 Bridge - CB21 (SEM 2019)	5421865.46	597853	n/a	n/a	n/a	n/a	70.6	70.7	70.6	70.7	70.7	70.7	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.9964	DS of Squires Lane 2 Bridge - CB20 (SEM 2019)	5421859.97	597855.88	n/a	n/a	n/a	n/a	70.5	70.5	70.5	70.5	70.5	70.5	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.991	CB19 (SEM 2019)	5421855.11	597858.42	n/a	n/a	n/a	n/a	70.4	70.5	70.4	70.5	70.5	70.6	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.9421	US of Squires Lane 1 Bridge - CB18B (SEM 2019)	5421811.7	597880.76	n/a	n/a	n/a	n/a	70.3	70.4	70.3	70.4	70.3	70.5	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.9284	DS of Squires Lane 1 Bridge - CB18A (SEM 2019)	5421799.41	597886.94	n/a	n/a	n/a	n/a	70.2	70.3	70.2	70.3	70.3	70.4	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.9044	CB18 (SEM 2019)	5421777.96	597897.68	n/a	n/a	n/a	n/a	70.2	70.3	70.2	70.3	70.3	70.4	7.0	7.8	n/a	n/a	7.4	8.2
Corduroy Brook	0.7838	CB17 (SEM 2019)	5421662.19	597922.98	n/a	n/a	n/a	n/a	69.4	69.5	69.4	69.5	69.5	69.5	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.7762	US of Corduroy Brook Nature Trail 2 Bridge - CB16 (SEM 2019)	5421654.62	597922.32	n/a	n/a	n/a	n/a	69.4	69.5	69.4	69.5	69.4	69.5	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.7707	DS of Corduroy Brook Nature Trail 2 Bridge - CB15 (SEM 2019)	5421649.17	597921.84	n/a	n/a	n/a	n/a	69.2	69.3	69.2	69.3	69.3	69.4	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.7647	CB14 (SEM 2019)	5421643.09	597921.31	n/a	n/a	n/a	n/a	69.0	69.1	69.0	69.1	69.1	69.2	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.7114	CB13 (SEM 2019)	5421593.09	597905.34	n/a	n/a	n/a	n/a	68.6	68.6	68.6	68.6	68.6	68.7	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.6283	CB12 (SEM 2019)	5421525.79	597857.17	n/a	n/a	n/a	n/a	67.7	67.8	67.7	67.8	67.7	67.8	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.6201	US of Corduroy Brook Nature Trail 1 Bridge - CB11 (SEM 2019)	5421518.2	597854.08	n/a	n/a	n/a	n/a	67.7	67.7	67.7	67.7	67.7	67.8	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.61	DS of Corduroy Brook Nature Trail 1 Bridge - CB10 (SEM 2019)	5421508.68	597850.71	n/a	n/a	n/a	n/a	67.1	67.2	67.1	67.2	67.2	67.2	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.5607	CB09 (SEM 2019)	5421459.78	597846.16	n/a	n/a	n/a	n/a	66.5	66.7	66.5	66.7	66.6	66.8	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.5496	US of Lincoln Road Culvert CB08 (SEM 2019)	5421449.48	597842.3	n/a	n/a	n/a	n/a	66.5	66.7	66.5	66.7	66.6	66.8	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.4704	DS of Lincoln Road Culvert CB07 (SEM 2019)	5421400.61	597780.43	n/a	n/a	n/a	n/a	65.2	65.3	65.2	65.3	65.3	65.3	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.4657	CB06 (SEM 2019)	5421397.84	597776.75	n/a	n/a	n/a	n/a	64.9	65.0	64.9	65.0	65.0	65.1	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.4187	CB05 (SEM 2019)	5421377.45	597734.41	n/a	n/a	n/a	n/a	64.1	64.1	64.1	64.1	64.1	64.2	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.3313	CB04 (SEM 2019)	5421316.7	597680.01	n/a	n/a	n/a	n/a	63.8	63.8	63.8	63.8	63.8	63.8	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.3004	US of Corduroy Brook Unnamed Road Culvert - CB03 (SEM 2019)	5421306.67	597650.9	n/a	n/a	n/a	n/a	63.8	63.8	63.8	63.8	63.8	63.8	10.2	11.5	n/a	n/a	10.9	12.3

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²						
					Current Climate						Climate Change ⁴		Current Climate ⁵		Climate Change ⁴						
					Governing Condition ²		Ice ^{2,3}		Open Water ²		Peak Ice/Open		Open Water		Ice ²		Open Water				
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP			
Corduroy Brook	0.2751	DS of Corduroy Brook Unnamed Road Culvert - CB02 (SEM 2019)	5421301.43	597626.15	n/a				62.1	62.4		62.1	62.4	62.2	62.5	10.2	11.5	n/a	n/a	10.9	12.3
Corduroy Brook	0.256	CB01 (SEM 2019)	5421297.38	597607.55	n/a				62.1	62.4	62.1	62.4	62.2	62.5	10.2	11.5	n/a	n/a		10.9	12.3
Exploits River	127.9419	DS of Millertown Dam	5401154.78	529633.56	Ice	Ice	149.1	149.3	147.0	147.0	149.1	149.3	147.0	147.0	1,340.0	1,650.0	270.3	320.0	1,468.4	1,747.3	
Exploits River	127.7903		5401066.96	529756.98	Open Water	Open Water	149.0	149.2	151.2	151.9	151.2	151.9	151.5	152.1	1,340.0	1,650.0	275.8	315.9	1,468.4	1,747.3	
Exploits River	127.5485	E39 (SEM 2016)	5400912.53	529941.22	Open Water	Open Water	148.7	148.8	150.6	151.3	150.6	151.3	150.9	151.5	1,340.0	1,650.0	277.9	318.9	1,468.4	1,747.3	
Exploits River	127.2411		5400868.3	530236.95	Open Water	Open Water	148.5	148.7	150.6	151.4	150.6	151.4	150.9	151.6	1,340.0	1,650.0	271.4	320.2	1,468.4	1,747.3	
		O2Y0016 ER near Millertown - E38 (SEM 2016)																			
Exploits River	126.7619		5400974.58	530700.38	Open Water	Open Water	147.7	147.9	149.9	150.7	149.9	150.7	150.2	151.0	1,340.0	1,650.0	269.5	316.6	1,468.4	1,747.3	
Exploits River	126.726	US of Exploits Bridge	5400975.84	530736.26	Open Water	Open Water	147.6	147.8	149.8	150.6	149.8	150.6	150.1	150.8	1,340.0	1,650.0	278.0	315.5	1,468.4	1,747.3	
Exploits River	126.7103	DS of Exploits Bridge	5400976.39	530752.01	Open Water	Open Water	147.6	147.8	149.4	149.9	149.4	149.9	149.6	150.1	1,340.0	1,650.0	271.9	315.5	1,468.4	1,747.3	
Exploits River	126.6627		5400978.06	530799.54	Open Water	Open Water	147.6	147.8	149.4	149.9	149.4	149.9	149.6	150.1	1,340.0	1,650.0	270.6	316.9	1,468.4	1,747.3	
Exploits River	126.0472		5400891.64	531405.78	Open Water	Open Water	146.7	146.9	148.9	149.5	148.9	149.5	149.2	149.7	1,340.0	1,650.0	274.4	316.2	1,468.4	1,747.3	
Exploits River	125.7718		5400861.8	531679.44	Open Water	Open Water	146.6	146.8	148.9	149.6	148.9	149.6	149.2	149.7	1,340.0	1,650.0	274.7	318.3	1,468.4	1,747.3	
Exploits River	124.8565		5401105.32	532551.22	Open Water	Open Water	145.9	146.1	148.4	149.1	148.4	149.1	148.7	149.3	1,340.0	1,650.0	274.8	318.6	1,468.4	1,747.3	
Exploits River	124.5042		5401242.51	532872.23	Open Water	Open Water	145.8	145.9	148.3	148.9	148.3	148.9	148.5	149.1	1,340.0	1,650.0	277.5	318.6	1,468.4	1,747.3	
Exploits River	124.1023	E37 (SEM 2016)	5401487.56	533135.42	Open Water	Open Water	145.6	145.8	148.1	148.7	148.1	148.7	148.3	148.9	1,340.0	1,650.0	269.3	320.2	1,468.4	1,747.3	
Exploits River	123.5716	Harpoon Brook	5401957.63	533377.53	Open Water	Open Water	145.3	145.5	147.5	148.1	147.5	148.1	147.8	148.3	1,340.0	1,650.0	276.8	315.0	1,468.4	1,747.3	
Exploits River	123.3684		5402099.44	533519.4	Open Water	Open Water	144.8	145.1	147.5	148.1	147.5	148.1	147.8	148.3	1,340.0	1,650.0	271.9	319.6	1,468.4	1,747.3	
Exploits River	123.1617		5402077.05	533719.02	Open Water	Open Water	145.0	145.2	147.3	147.9	147.3	147.9	147.5	148.1	1,340.0	1,650.0	269.5	316.6	1,468.4	1,747.3	
Exploits River	122.8763		5402022.87	533991.04	Open Water	Open Water	144.8	145.0	147.2	147.8	147.2	147.8	147.4	147.9	1,340.0	1,650.0	274.3	315.1	1,468.4	1,747.3	
Exploits River	122.4162	E36 (SEM 2016)	5402275.79	534351.55	Open Water	Open Water	144.3	144.5	146.4	146.9	146.4	146.9	146.6	147.0	1,340.0	1,650.0	270.3	318.0	1,468.4	1,747.3	
Exploits River	121.8414		5402749.09	534675.59	Open Water	Open Water	144.2	144.3	146.2	146.7	146.2	146.7	146.4	146.9	1,340.0	1,650.0	271.4	315.3	1,468.4	1,747.3	
Exploits River	121.5145		5402990.39	534895.11	Open Water	Open Water	143.9	144.1	146.1	146.6	146.1	146.6	146.3	146.7	1,340.0	1,650.0	271.2	316.0	1,468.4	1,747.3	
Exploits River	121.0779		5403117.5	535297.37	Open Water	Open Water	143.6	143.8	145.7	146.1	145.7	146.1	145.9	146.3	1,340.0	1,650.0	272.9	315.6	1,468.4	1,747.3	
Exploits River	120.4923		5403237.25	535861.52	Open Water	Open Water	142.4	142.5	143.4	143.8	143.4	143.8	143.6	143.9	1,340.0	1,650.0	271.0	316.6	1,468.4	1,747.3	
Exploits River	119.7563	E35 (SEM 2016)	5403124.46	536585.85	Open Water	Open Water	140.1	140.2	141.9	142.4	141.9	142.4	142.1	142.6	1,340.0	1,650.0	276.1	315.2	1,468.4	1,747.3	
Exploits River	119.1564		5402761.16	537035.65	Open Water	Open Water	139.6	139.7	141.0	141.5	141.0	141.5	141.2	141.6	1,340.0	1,650.0	271.6	318.6	1,468.4	1,747.3	
Exploits River	118.3681		5402304.92	537662.68	Open Water	Open Water	137.5	137.6	139.1	139.7	139.1	139.7	139.4	139.9	1,340.0	1,650.0	277.3	315.2	1,468.4	1,747.3	
Exploits River	118.13	E34 (SEM 2016)	5402242.8	537892.12	Open Water	Open Water	137.0	137.1	139.0	139.5	139.0	139.5	139.2	139.7	1,340.0	1,650.0	275.1	319.2	1,468.4	1,747.3	
Exploits River	117.736		5402355.79	538255.01	Open Water	Open Water	136.7	136.8	138.0	138.6	138.0	138.6	138.3	138.8	1,340.0	1,650.0	271.7	317.5	1,468.4	1,747.3	
Exploits River	116.6208	E33 (SEM 2016)	5402850.39	539251.31	Open Water	Open Water	134.8	135.0	137.3	138.0	137.3	138.0	137.6	138.2	1,340.0	1,650.0	273.3	314.8	1,468.4	1,747.3	
Exploits River	115.9519		5403154.77	539846.15	Open Water	Open Water	134.3	134.5	136.8	137.5	136.8	137.5	137.1	137.7	1,340.0	1,650.0	277.2	315.8	1,468.4	1,747.3	
Exploits River	114.6285	E32 (SEM 2016)	5403886.44	540944.91	Open Water	Open Water	133.7	133.9	136.2	136.8	136.2	136.8	136.5	137.0	1,340.0	1,650.0	275.5	318.6	1,468.4	1,747.3	
Exploits River	112.8458	E31 (SEM 2016)	5405064.98	542246.69	Open Water	Open Water	133.5	133.7	135.6	136.2	135.6	136.2	135.8	136.4	1,340.0	1,650.0	274.9	317.2	1,468.4	1,747.3	
Exploits River	111.2066		5405824.15	543676.85	Open Water	Open Water	132.7	132.8	134.1	134.7	134.1	134.7	134.4	134.9	1,340.0	1,650.0	269.7	316.7	1,468.4	1,747.3	
Exploits River	110.2603	E30 (SEM 2016)	5406217.42	544515.64	Open Water	Open Water	131.3	131.5	133.6	134.2	133.6	134.2	133.9	134.4	1,340.0	1,650.0	276.0	312.3	1,468.4	1,747.3	
Exploits River	109.0847		5406798.11	545532.06	Open Water	Open Water	130.4	130.6	132.6	133.1	132.6	133.1	132.8	133.3	1,340.0	1,650.0	273.4	317.7	1,468.4	1,747.3	
Exploits River	108.0884	E29 (SEM 2016)	5407172.23	546445.73	Open Water	Open Water	129.2	129.4	131.3	131.9	131.3	131.9	131.6	132.0	1,340.0	1,650.0	276.9	315.4	1,468.4	1,747.3	
Exploits River	106.6173	E28 (SEM 2016)	5407389.38	547896.5	Open Water	Open Water	128.5	128.7	130.3	130.9	130.3	130.9	130.6	131.0	1,340.0	1,650.0	269.7	318.6	1,468.4	1,747.3	
Exploits River	104.6629	E27 (SEM 2016)	5407629.36	549832.18	Open Water	Open Water	128.2	128.4	129.7	130.2	129.7	130.2	129.9	130.3	1,340.0	1,650.0	271.4	312.0	1,468.4	1,747.3	
Exploits River	104.2797		5407691.07	550210.31	Open Water	Open Water	128.2	128.3	129.6	130.0	129.6	130.0	129.8	130.2	1,340.0	1,650.0	270.6	313.6	1,468.4	1,747.3	
Exploits River	103.945		5407776.97	550533.46	Open Water	Open Water	127.9	128.1	129.2	129.7	129.2	129.7	129.4	129.8	1,340.0	1,650.0	271.2	312.7	1,468.4	1,747.3	
Exploits River	103.583	Noel Pauls Brook - E26 (SEM 2016)	5407944.06	550851.91	Open Water	Open Water	127.7	127.9	128.8	129.2	128.8	129.2	129.0	129.4	1,340.0	1,650.0	275.2	313.3	1,468.4	1,747.3	
Exploits River	102.4539		5408714.11	551676.69	Open Water	Open Water	127.6	127.8	128.3	128.8	128.3	128.8	128.5	128.9	1,340.0	1,650.0	275.9	317.2	1,468.4	1,747.3	
Exploits River	102.0072		5409012.51	552009.08	Open Water	Open Water	127.1	127.2	128.0	128.5	128.0	128.5	128.2	128.6	1,340.0	1,650.0	270.4	317.9	1,468.4	1,747.3	
Exploits River	101.5468	E25 (SEM 2016)	5409313.36	552357.54	Open Water	Open Water	126.1	126.2	127.7	128.2	127.7	<									

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²											
					Current Climate										Climate Change ⁴				Current Climate ³				Climate Change ⁴			
					Governing Condition ²		Ice ^{2,3}		Open Water ²		Peak Ice/Open		Open Water		Open Water		Ice ²		Open Water							
1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP									
Exploits River	96.5359	E23 (SEM 2016)	5412021.72	556382.88	Open Water	Open Water	119.9	120.1	123.0	123.4	123.0	123.4	123.2	123.5	1,340.0	1,650.0	274.3	315.6	1,468.4	1,747.3						
Exploits River	96.407*		5412101.65	556484.59	Open Water	Open Water	119.2	119.3	122.9	123.3	122.9	123.3	123.0	123.4	1,340.0	1,650.0	274.7	315.7	1,468.4	1,747.3						
Exploits River	96.279*		5412213.44	556559.7	Open Water	Open Water	118.4	118.5	122.7	123.1	122.7	123.1	122.9	123.2	1,340.0	1,650.0	275.0	315.8	1,468.4	1,747.3						
Exploits River	96.150*		5412320.12	556630.4	Open Water	Open Water	117.6	117.7	122.5	122.8	122.5	122.8	122.6	122.9	1,340.0	1,650.0	275.4	316.0	1,468.4	1,747.3						
Exploits River	96.0215		5412414.5	556704.53	Open Water	Open Water	116.8	116.9	121.4	121.7	121.4	121.7	121.6	121.8	1,340.0	1,650.0	275.8	316.1	1,468.4	1,747.3						
Exploits River	95.878*		5412510.37	556786.13	Open Water	Open Water	116.0	116.2	119.7	119.9	119.7	119.9	119.8	120.0	1,340.0	1,650.0	274.6	316.5	1,468.4	1,747.3						
Exploits River	95.734*		5412648.58	556842.56	Open Water	Open Water	115.3	115.4	118.2	118.5	118.2	118.5	118.3	118.6	1,340.0	1,650.0	273.3	316.8	1,468.4	1,747.3						
Exploits River	95.590*		5412804.14	556857.41	Open Water	Open Water	114.6	114.7	116.5	116.8	116.5	116.8	116.7	116.9	1,340.0	1,650.0	272.1	317.2	1,468.4	1,747.3						
Exploits River	95.4464	Red Indian Falls	5412942.63	556846.36	Open Water	Open Water	113.8	114.0	115.1	115.4	115.1	115.4	115.2	115.5	1,340.0	1,650.0	270.8	317.6	1,468.4	1,747.3						
Exploits River	95.310*		5413050.63	556799.07	Open Water	Open Water	113.6	113.7	114.3	114.6	114.3	114.6	114.4	114.7	1,340.0	1,650.0	271.2	316.3	1,468.4	1,747.3						
Exploits River	95.175*		5413186.65	556772.12	Open Water	Open Water	113.4	113.5	114.1	114.6	114.1	114.6	114.3	114.7	1,340.0	1,650.0	271.7	315.1	1,468.4	1,747.3						
Exploits River	95.039*		5413327.85	556796.83	Open Water	Open Water	113.1	113.3	114.1	114.6	114.1	114.6	114.3	114.7	1,340.0	1,650.0	272.1	313.8	1,468.4	1,747.3						
Exploits River	94.9026	E22 (SEM 2016)	5413446.27	556867.09	Open Water	Open Water	112.9	113.1	114.1	114.6	114.1	114.6	114.3	114.7	1,340.0	1,650.0	272.6	312.5	1,468.4	1,747.3						
Exploits River	94.760*		5413547.58	556953.67	Open Water	Open Water	112.9	113.1	114.0	114.5	114.0	114.5	114.2	114.7	1,340.0	1,650.0	272.3	312.8	1,468.4	1,747.3						
Exploits River	94.618*		5413644.56	557057.76	Open Water	Open Water	112.9	113.0	114.0	114.5	114.0	114.5	114.2	114.6	1,340.0	1,650.0	272.0	313.0	1,468.4	1,747.3						
Exploits River	94.475*		5413734.86	557174.79	Open Water	Open Water	112.9	113.0	114.0	114.5	114.0	114.5	114.2	114.6	1,340.0	1,650.0	271.7	313.2	1,468.4	1,747.3						
Exploits River	94.333*		5413812.97	557307.11	Open Water	Open Water	112.8	113.0	113.9	114.4	113.9	114.4	114.1	114.6	1,340.0	1,650.0	271.4	313.5	1,468.4	1,747.3						
Exploits River	94.190*		5413863.29	557464.15	Open Water	Open Water	112.8	113.0	113.9	114.4	113.9	114.4	114.1	114.5	1,340.0	1,650.0	271.1	313.7	1,468.4	1,747.3						
Exploits River	94.048*		5413880.36	557610.27	Open Water	Open Water	112.8	113.0	113.8	114.3	113.8	114.3	114.0	114.4	1,340.0	1,650.0	270.9	313.9	1,468.4	1,747.3						
Exploits River	93.905*		5413894.24	557739.87	Open Water	Open Water	112.8	112.9	113.7	114.2	113.7	114.2	113.9	114.4	1,340.0	1,650.0	270.6	314.2	1,468.4	1,747.3						
Exploits River	93.7625	E21 (SEM 2016)	5413907.59	557858.24	Open Water	Open Water	112.8	112.9	113.6	114.1	113.6	114.1	113.8	114.2	1,340.0	1,650.0	270.3	314.4	1,468.4	1,747.3						
Exploits River	93.616*		5413926.92	557964.95	Open Water	Open Water	112.7	112.9	113.5	114.0	113.5	114.0	113.7	114.1	1,340.0	1,650.0	270.7	314.1	1,468.4	1,747.3						
Exploits River	93.469*		5413994.52	558078.31	Open Water	Open Water	112.7	112.8	113.4	113.9	113.4	113.9	113.6	114.1	1,340.0	1,650.0	271.2	313.9	1,468.4	1,747.3						
Exploits River	93.322*		5414105.22	558188.15	Open Water	Open Water	112.6	112.8	113.3	113.8	113.3	113.8	113.6	114.0	1,340.0	1,650.0	271.6	313.6	1,468.4	1,747.3						
Exploits River	93.175*		5414220.36	558295.84	Open Water	Open Water	112.6	112.7	113.3	113.8	113.3	113.8	113.5	113.9	1,340.0	1,650.0	272.0	313.4	1,468.4	1,747.3						
Exploits River	93.028*		5414330.57	558404.06	Open Water	Open Water	112.5	112.7	113.2	113.7	113.2	113.7	113.4	113.8	1,340.0	1,650.0	272.5	313.1	1,468.4	1,747.3						
Exploits River	92.881*		5414432.5	558516.05	Open Water	Open Water	112.5	112.6	113.1	113.6	113.1	113.6	113.3	113.8	1,340.0	1,650.0	272.9	312.9	1,468.4	1,747.3						
Exploits River	92.734*		5414532.43	558630.47	Open Water	Open Water	112.4	112.6	113.1	113.5	113.1	113.5	113.3	113.7	1,340.0	1,650.0	273.3	312.6	1,468.4	1,747.3						
Exploits River	92.587*		5414628.59	558749.61	Open Water	Open Water	112.4	112.5	113.0	113.5	113.0	113.5	113.2	113.6	1,340.0	1,650.0	273.7	312.4	1,468.4	1,747.3						
Exploits River	92.4404	E20 (SEM 2016)	5414728.38	558868.4	Open Water	Open Water	112.4	112.5	112.9	113.4	112.9	113.4	113.1	113.6	1,340.0	1,650.0	274.2	312.1	1,468.4	1,747.3						
Exploits River	92.316*		5414822.06	558964.01	Open Water	Open Water	112.2	112.3	112.9	113.3	112.9	113.3	113.1	113.5	1,340.0	1,650.0	274.1	312.9	1,468.4	1,747.3						
Exploits River	92.191*		5414925.7	559044.2	Open Water	Open Water	112.0	112.1	112.8	113.2	112.8	113.2	113.0	113.4	1,340.0	1,650.0	274.1	313.7	1,468.4	1,747.3						
Exploits River	92.067*		5415037.78	559103.7	Open Water	Open Water	111.8	112.0	112.6	113.1	112.6	113.1	112.8	113.2	1,340.0	1,650.0	274.0	314.5	1,468.4	1,747.3						
Exploits River	91.942*		5415150.42	559145.65	Open Water	Open Water	111.6	111.8	112.5	112.9	112.5	112.9	112.6	113.0	1,340.0	1,650.0	273.9	315.3	1,468.4	1,747.3						
Exploits River	91.8179		5415254.04	559181.33	Open Water	Open Water	111.4	111.6	112.2	112.6	112.2	112.6	112.4	112.8	1,340.0	1,650.0	273.9	316.1	1,468.4	1,747.3						
Exploits River	91.4623	E19 (SEM 2016)	5415538.85	559373.8	Open Water	Open Water	110.5	110.8	111.9	112.4	111.9	112.4	112.1	112.5	1,340.0	1,650.0	277.8	315.8	1,468.4	1,747.3						
Exploits River	91.211		5415591.17	559617.43	Open Water	Open Water	110.6	110.9	111.5	111.9	111.5	111.9	111.6	112.0	1,340.0	1,650.0	275.4	319.7	1,468.4	1,747.3						
Exploits River	90.0907		5415426.5	560707.06	Open Water	Open Water	108.3	110.0	109.9	110.4	109.9	110.4	110.1	110.6	1,340.0	1,650.0	270.0	316.6	1,468.4	1,747.3						
Exploits River	89.9651	E18 (SEM 2016)	5415416.8	560832.2	Open Water	Open Water	108.2	109.9	109.9	110.4	109.9	110.4	110.1	110.5	1,340.0	1,650.0	278.3	310.9	1,468.4	1,747.3						
Exploits River	89.8026		5415476.46	560979.92	Open Water	Ice	108.1	110.0	109.5	110.0	109.5	110.0	109.7	110.1	1,340.0	1,650.0	271.6	319.4	1,468.4	1,747.3						
Exploits River	88.6151	E17 (SEM 2016)	5416076.61	561992.78	Open Water	Open Water	107.1	109.3	108.9	109.4	108.9	109.4	109.1	109.5	1,340.0	1,650.0	270.0	311.5	1,468.4	1,747.3						
Exploits River	87.5331		5416357.01	563024	Open Water	Ice	106.8	109.1	108.1	108.5	108.1	109.1	108.3	108.7	1,340.0	1,650.0	277.8	309.0	1,468.4	1,747.3						
Exploits River	86.3148	E16 (SEM 2016)	5417073.09	563931.78	Open Water	Ice	105.6	108.6	106.9	107.3	106.9	108.6	107.1	107.4	1,340.0	1,650.0	277.2	315.9	1,468.4	1,747.3						
Exploits River	85.868*		5417318.18	564235.19	Open Water	Ice	105.3	108.3	106.5	106.9	106.5	108.3	106.7	107.1	1,340.0	1,650.0	276.9	315.7	1,468.4	1,747.3						
Exploits River	85.421*		5417651.16	564523.73	Open Water	Ice	104.9	108.0	106.2	106.6	106.2	108.0	106.3	106.7	1,340.0	1,650.0	276.6	315.6	1,468.4	1,747.3						
Exploits River	84.973*		5418034.44	564790.74	Open Water	Ice	104.6	107.8	10																	

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{2,3}		Open Water ⁴		Peak Ice/Open		Open Water		Current Climate ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Exploits River	75.6731	Badger Arena - E11 (SEM 2016)	5424934.1	570499.55	Ice	Ice	99.7	100.3	98.1	98.4	99.7	100.3	98.2	98.6	1,400.0	1,715.0	269.8	314.8	1,535.0	1,816.7
Exploits River	75.4251	02Y0013 ER at Badger - E11A (SEM 2019)	5424952.21	570746.1	Ice	Ice	99.3	99.9	97.7	98.1	99.3	99.9	97.9	98.2	1,400.0	1,715.0	272.7	311.2	1,535.0	1,816.7
Exploits River	75.2189	DS of Badger Brook - E10 (SEM 2016)	5424907.49	570945.84	Ice	Ice	99.0	99.5	97.4	97.7	99.0	99.5	97.5	97.8	1,418.0	1,730.0	275.0	308.2	1,553.8	1,832.9
Exploits River	74.992	E10A (SEM 2019)	5424784	571135.59	Ice	Ice	98.4	98.9	97.0	97.4	98.4	98.9	97.2	97.5	1,418.0	1,730.0	274.2	310.5	1,553.8	1,832.9
Exploits River	74.7436	Junction Brook - E10B (SEM 2019)	5424585.07	571281.93	Ice	Ice	97.8	98.2	96.8	97.1	97.8	98.2	96.9	97.2	1,418.0	1,730.0	273.3	312.9	1,553.8	1,832.9
Exploits River	74.5357	Beaton's Island - E10C (SEM 2019)	5424394.57	571357.05	Ice	Ice	97.7	98.1	96.6	96.9	97.7	98.1	96.7	97.0	1,418.0	1,730.0	273.8	312.1	1,553.8	1,832.9
Exploits River	74.0059	Badger Rough Waters - E09 (SEM 2016)	5423908.33	571185.93	Ice	Ice	97.3	97.7	95.2	95.5	97.3	97.7	95.3	95.6	1,418.0	1,730.0	275.0	309.9	1,553.8	1,832.9
Exploits River	73.7401	E09A (SEM 2019)	5423652.37	571257.66	Ice	Ice	96.8	97.2	94.5	94.9	96.8	97.2	94.7	95.0	1,418.0	1,730.0	273.9	310.0	1,553.8	1,832.9
Exploits River	73.0006	E09B (SEM 2019)	5422939.72	571448.78	Ice	Ice	95.5	95.8	93.2	93.6	95.5	95.8	93.4	93.8	1,418.0	1,730.0	270.9	310.3	1,553.8	1,832.9
Exploits River	71.8556	E08 (SEM 2016)	5421844.12	571710.67	Ice	Ice	93.6	93.9	91.8	92.2	93.6	93.9	91.9	92.3	1,418.0	1,730.0	273.0	305.1	1,553.8	1,832.9
Exploits River	71.6593	Big Bend	5421759.23	571884.66	Ice	Ice	92.8	93.1	91.7	92.1	92.8	93.1	91.9	92.3	1,418.0	1,730.0	272.0	307.2	1,553.8	1,832.9
Exploits River	71.3293		5421810.14	572202.23	Ice	Ice	92.4	92.6	91.4	91.8	92.4	92.6	91.6	92.0	1,418.0	1,730.0	274.6	305.9	1,553.8	1,832.9
Exploits River	70.1796	E07 (SEM 2016)	5421816.1	573310.76	Ice	Ice	90.7	90.9	90.4	90.8	90.7	90.9	90.6	91.0	1,418.0	1,730.0	270.0	308.1	1,553.8	1,832.9
Exploits River	68.919	Badger Steps	5421256.6	574417.27	Ice	Ice	88.3	88.5	88.0	88.4	88.3	88.5	88.1	88.5	1,418.0	1,730.0	273.1	303.3	1,553.8	1,832.9
Exploits River	68.3991	US of Badger Chute	5421196.57	574931.81	Ice	Ice	87.2	87.5	85.8	86.0	87.2	87.5	85.9	86.1	1,418.0	1,730.0	275.4	306.3	1,553.8	1,832.9
Exploits River	67.7449	DS of Badger Chute	5421452.26	575524.42	Ice	Ice	86.0	86.2	84.6	85.0	86.0	86.2	84.8	85.1	1,418.0	1,730.0	273.9	308.7	1,553.8	1,832.9
Exploits River	67.0945	E06 (SEM 2016)	5421566.03	576164.76	Ice	Ice	84.9	85.2	84.0	84.4	84.9	85.2	84.1	84.5	1,418.0	1,730.0	267.9	307.2	1,553.8	1,832.9
Exploits River	66.629*		5421667.1	576619.05	Ice	Ice	84.5	84.7	83.7	84.0	84.5	84.7	83.8	84.1	1,418.0	1,730.0	269.9	304.4	1,553.8	1,832.9
Exploits River	66.1636		5421747.01	577077.29	Ice	Ice	84.1	84.3	83.3	83.7	84.1	84.3	83.4	83.8	1,418.0	1,730.0	271.8	301.5	1,553.8	1,832.9
Exploits River	65.0373		5422052.75	578158.23	Ice	Ice	83.0	83.2	82.2	82.5	83.0	83.2	82.3	82.6	1,418.0	1,730.0	269.4	305.9	1,553.8	1,832.9
Exploits River	64.4733		5422157.02	578710.63	Ice	Ice	82.4	82.6	81.7	82.0	82.4	82.6	81.8	82.1	1,418.0	1,730.0	274.0	303.7	1,553.8	1,832.9
Exploits River	63.514		5422192.9	579662.17	Ice	Ice	81.5	81.8	80.0	80.3	81.5	81.8	80.1	80.4	1,418.0	1,730.0	267.4	308.8	1,553.8	1,832.9
Exploits River	63.029	Aspen Brook - E5 (SEM 2016)	5422109.78	580139	Ice	Ice	81.1	81.3	79.8	80.1	81.1	81.3	79.9	80.2	1,418.0	1,730.0	267.5	302.4	1,553.8	1,832.9
Exploits River	62.333	Eleven Mile Island	5422008.79	580827.55	Ice	Ice	80.8	81.0	79.2	79.5	80.8	81.0	79.3	79.6	1,418.0	1,730.0	272.0	302.8	1,553.8	1,832.9
Exploits River	61.0216	Birchy Island	5421880.09	582130.02	Ice	Ice	79.3	79.5	78.0	78.3	79.3	79.5	78.1	78.4	1,418.0	1,730.0	270.1	307.9	1,553.8	1,832.9
Exploits River	60.4812	Pynns Brook - R01-4 (RIS 2013)	5421873.49	582670.4	Ice	Ice	78.9	79.2	77.5	77.8	78.9	79.2	77.7	77.9	1,418.0	1,730.0	273.4	306.2	1,553.8	1,832.9
Exploits River	59.297	E03 (SEM 2016)	5421877.2	583853.71	Ice	Ice	78.0	78.2	76.3	76.6	78.0	78.2	76.4	76.6	1,418.0	1,730.0	270.4	309.9	1,553.8	1,832.9
Exploits River	58.536	Battle Island	5421770.83	584596.95	Ice	Ice	76.5	76.8	75.1	75.5	76.5	76.8	75.3	75.6	1,418.0	1,730.0	270.0	307.0	1,553.8	1,832.9
Exploits River	57.8291	Goat Island	5421509.81	585252.36	Ice	Ice	76.0	76.3	74.9	75.2	76.0	76.3	75.1	75.3	1,418.0	1,730.0	274.2	306.8	1,553.8	1,832.9
Exploits River	56.8594	Thunder Brook - E02 (SEM 2016)	5421164.25	586158.29	Ice	Ice	75.8	76.1	74.3	74.7	75.8	76.1	74.5	74.8	1,418.0	1,730.0	271.8	311.1	1,553.8	1,832.9
Exploits River	55.9504	R01-2 (RIS 2013)	5421291.41	587038.76	Ice	Ice	74.2	74.6	73.6	74.0	74.2	74.6	73.8	74.1	1,418.0	1,730.0	274.8	308.8	1,553.8	1,832.9
Exploits River	55.8662	R01-2A (SEM 2019)	5421328.06	587114.65	Ice	Ice	74.2	74.5	73.5	73.9	74.2	74.5	73.7	74.0	1,418.0	1,730.0	274.8	309.1	1,553.8	1,832.9
Exploits River	55.1908	R01-2B (SEM 2019)	5421668.02	587695.81	Ice	Ice	73.6	73.9	73.1	73.5	73.6	73.9	73.3	73.7	1,418.0	1,730.0	275.4	311.8	1,553.8	1,832.9
Exploits River	54.2773	02Y0018 ER at CE Point - R01-1A (SEM 2019)	5421724.7	588596.69	Ice	Ice	72.9	73.1	72.4	72.8	72.9	73.1	72.6	72.9	1,430.0	1,740.0	275.1	312.5	1,563.8	1,839.1
Exploits River	53.6747	R01-1B (SEM 2019)	5421630.93	589190.67	Ice	Ice	72.2	72.5	72.1	72.5	72.2	72.5	72.3	72.6	1,430.0	1,740.0	273.9	312.6	1,563.8	1,839.1
Exploits River	52.8115	R01 (RIS 2013)	5421104.44	589833.5	Open Water	Open Water	71.5	71.7	71.6	72.0	71.6	72.0	71.8	72.1	1,430.0	1,740.0	272.3	312.7	1,563.8	1,839.1
Exploits River	51.6126	Sandy Brook - R01A (SEM 2019)	5420523.42	590757.96	Open Water	Open Water	70.2	70.4	71.5	71.8	71.5	71.8	71.6	72.0	1,430.0	1,740.0	274.3	309.7	1,563.8	1,839.1
Exploits River	50.7343	R02 (RIS 2013)	5420669.16	591621.04	Open Water	Open Water	69.9	70.2	71.4	71.8	71.4	71.8	71.6	71.9	1,430.0	1,740.0	271.4	311.8	1,563.8	1,839.1
Exploits River	49.8124	R02A (SEM 2019)	5420957.66	592494.97	Open Water	Open Water	69.8	70.2	71.4	71.8	71.4	71.8	71.6	71.9	1,430.0	1,740.0	274.7	310.8	1,563.8	1,839.1
Exploits River	49.2887	Camp Island - R02A (SEM 2019)	5420885.75	592993.63	Open Water	Open Water	69.8	70.1	71.4	71.7	71.4	71.7	71.5	71.8	1,430.0	1,740.0	271.1	314.2	1,563.8	1,839.1
Exploits River	48.3493	Grand Falls Golf Club - R03 (RIS 2013)	5420234.69	593666.67	Open Water	Open Water	69.6	70.0	71.1	71.4	71.1	71.4	71.3	71.5	1,430.0	1,740.0	274.4	308.8	1,563.8	1,839.1
Exploits River	47.9482	DS of Rushy Pond Brook - R04 (RIS 2013)	5420046.54	594005.82	Open Water	Open Water	69.5	69.9	71.1	71.3	71.1	71.3	71.2	71.4	1,430.0	1,740.0	271.1	312.1	1,563.8	1,839.1
Exploits River	47.429	R04A (SEM 2019)	5420260.25	594468.06	Open Water	Open Water	69.5	69.9	71.0	71.2	71.0	71.2	71.1	71.3	1,430.0	1,740.0	273.2	308.8	1,563.8	1,839.1
Exploits River	46.8155	R05 (RIS 2013)	5420581.35	594978.99	Open Water	Open Water	69.5	69.9	70.9	71.1	70.9	71.1	71.0	71.2	1,498.0	1,818.0	278.0	310.9	1,638.7	1,922.7
Exploits River	46.7725	DS of Goodyear's Dam	5420576.23	595021.69	n/a	n/a	n/a	n/a	66.9	67.1	66.9	67.1	67.0	67.2	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	46.5339		5420457.65	595222.04	n/a	n/a	n/a	n/a	66.4	66.8	66.4	66.8	66.6	66.9	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	46.11	R07 (RIS 2013)	5420542.76	595591.56	n/a	n/a	n/a	n/a	65.8	66.2	65.8	66.2	66.0	66.3	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	45.3181	R08 (RIS 2013)	5421115.27	596136.07	n/a	n/a	n/a	n/a	65.2	65.5	65.2	65.5	65.3	65.6	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	44.7659	R09 (RIS 2013)	5421458.72	596567.68	n/a	n/a	n/a	n/a	64.9	65.2	64.9	65.2	65.0	65.3	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Current Climate ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Exploits River	44.3558	First Falls	5421551.96	596952.52	n/a	n/a	n/a	n/a	63.7	63.9	63.7	63.9	63.8	63.9	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.9551	R11 (RIS 2013)	5421345.8	597286.02	n/a	n/a	n/a	n/a	62.0	62.3	62.0	62.3	62.2	62.4	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.8591	Grand Falls Headpond	5421266.11	597338.75	n/a	n/a	n/a	n/a	62.0	62.3	62.0	62.3	62.2	62.4	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.7956	Grand Falls Headpond	5421210.68	597369.74	n/a	n/a	n/a	n/a	62.0	62.3	62.0	62.3	62.2	62.4	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.6571	Grand Falls Headpond	5421079.25	597413.51	n/a	n/a	n/a	n/a	62.0	62.3	62.0	62.3	62.1	62.4	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.5135	Grand Falls Headpond	5420940.13	597447.33	n/a	n/a	n/a	n/a	62.0	62.2	62.0	62.2	62.1	62.3	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.3884	Grand Falls Headpond	5420815.97	597461.95	n/a	n/a	n/a	n/a	61.9	62.2	61.9	62.2	62.1	62.3	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.3095	Grand Falls Headpond	5420737.28	597464.25	n/a	n/a	n/a	n/a	62.0	62.2	62.0	62.2	62.1	62.3	1,498.0	1,818.0	n/a	n/a	1,638.7	1,922.7
Exploits River	43.2587**	US of Grand Falls Main Dam	5420686.5	597461.87	n/a	n/a	n/a	n/a	62.0	62.2	62.0	62.2	62.1	62.3	962.2	1,228.2	n/a	n/a	1,075.5	1,315.1
Exploits River	43.2439**	DS of Grand Falls Main Dam	5420671.74	597461.17	n/a	n/a	n/a	n/a	55.9	56.2	55.9	56.2	56.0	56.3	962.2	1,228.2	n/a	n/a	1,075.5	1,315.1
Exploits River	43.232**		5420659.83	597460.61	n/a	n/a	n/a	n/a	55.3	55.7	55.3	55.7	55.5	55.8	962.2	1,228.2	n/a	n/a	1,075.5	1,315.1
Exploits River	43.15**		5420577.99	597456.87	n/a	n/a	n/a	n/a	53.9	54.4	53.9	54.4	54.1	54.6	1,118.6	1,400.9	n/a	n/a	1,240.4	1,491.8
Exploits River	43.097*		5420525.35	597454.01	n/a	n/a	n/a	n/a	52.5	53.0	52.5	53.0	52.7	53.2	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	43.045*		5420472.78	597450.4	n/a	n/a	n/a	n/a	50.8	51.2	50.8	51.2	51.0	51.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.9919		5420420.43	597444.89	n/a	n/a	n/a	n/a	47.0	47.4	47.0	47.4	47.1	47.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.926*		5420370.11	597404.02	n/a	n/a	n/a	n/a	42.9	43.7	42.9	43.7	43.3	44.0	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.8601		5420316.79	597377.37	n/a	n/a	n/a	n/a	39.7	40.6	39.7	40.6	40.1	40.8	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.8015		5420260.79	597392.16	n/a	n/a	n/a	n/a	39.9	40.8	39.9	40.8	40.3	41.1	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.749*		5420220.09	597410.24	n/a	n/a	n/a	n/a	39.3	40.2	39.3	40.2	39.7	40.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.697*		5420165.72	597393.97	n/a	n/a	n/a	n/a	38.6	39.5	38.6	39.5	39.0	39.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.645*		5420122.01	597404.39	n/a	n/a	n/a	n/a	37.7	38.5	37.7	38.5	38.1	38.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.593		5420092.77	597446.94	n/a	n/a	n/a	n/a	36.2	36.9	36.2	36.9	36.5	37.1	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.538*		5420053.75	597471.76	n/a	n/a	n/a	n/a	34.7	35.3	34.7	35.3	35.0	35.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.483*		5420009.35	597506.33	n/a	n/a	n/a	n/a	32.4	33.3	32.4	33.3	32.8	33.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.4277	Grand Falls Powerhouse	5419965.89	597548.39	n/a	n/a	n/a	n/a	32.6	33.5	32.6	33.5	33.0	33.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.359*		5419934.99	597607.58	n/a	n/a	n/a	n/a	32.5	33.4	32.5	33.4	32.9	33.6	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.2908		5419918.19	597674.64	n/a	n/a	n/a	n/a	32.1	33.0	32.1	33.0	32.5	33.3	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.231*		5419924.45	597734.72	n/a	n/a	n/a	n/a	31.6	32.5	31.6	32.5	32.0	32.8	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.1704		5419926.3	597794.61	n/a	n/a	n/a	n/a	30.9	31.8	30.9	31.8	31.3	32.0	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.0882	US Mill Bridge	5419903.28	597872.57	n/a	n/a	n/a	n/a	30.6	31.4	30.6	31.4	31.0	31.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	42.0481	DS Mill Bridge	5419881.35	597905.99	n/a	n/a	n/a	n/a	29.7	30.4	29.7	30.4	30.0	30.6	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.9803		5419840.4	597960.14	n/a	n/a	n/a	n/a	28.4	29.0	28.4	29.0	28.7	29.2	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.8667		5419777.15	598054.39	n/a	n/a	n/a	n/a	24.7	24.8	24.7	24.8	24.7	24.9	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.745*		5419771.85	598156.53	n/a	n/a	n/a	n/a	26.7	27.4	26.7	27.4	27.0	27.6	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.6238		5419835.33	598269.06	n/a	n/a	n/a	n/a	26.5	27.2	26.5	27.2	26.8	27.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.511*		5419890.65	598380.92	n/a	n/a	n/a	n/a	26.5	27.2	26.5	27.2	26.8	27.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.3975		5419897.94	598479.29	n/a	n/a	n/a	n/a	26.4	27.1	26.4	27.1	26.8	27.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.3149		5419866.07	598555.09	n/a	n/a	n/a	n/a	25.1	25.7	25.1	25.7	25.4	25.8	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.227*		5419831.07	598634.4	n/a	n/a	n/a	n/a	24.6	25.1	24.6	25.1	24.8	25.2	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.1382		5419781.63	598708.66	n/a	n/a	n/a	n/a	23.7	24.2	23.7	24.2	23.9	24.3	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	41.0119		5419668.29	598713.45	n/a	n/a	n/a	n/a	21.8	22.1	21.8	22.1	21.9	22.1	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	40.9173		5419654.39	598802.8	n/a	n/a	n/a	n/a	22.8	23.4	22.8	23.4	23.1	23.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	40.7927		5419724.1	598905.11	n/a	n/a	n/a	n/a	21.3	21.7	21.3	21.7	21.5	21.8	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	40.6953	R13 (RIS 2013)	5419745.03	598998.53	n/a	n/a	n/a	n/a	21.5	22.0	21.5	22.0	21.7	22.1	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	40.2875	R14 (RIS 2013)	5419760.47	599402.76	n/a	n/a	n/a	n/a	21.3	21.8	21.3	21.8	21.5	21.9	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	39.7129	Gorge Park - R15 (RIS 2013)	5419907.13	599958.27	n/a	n/a	n/a	n/a	21.2	21.6	21.2	21.6	21.4	21.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	39.0938	Grand Falls Wastewater Treatment Facility - R16 (RIS 2013)	5420134.41	600531.89	n/a	n/a	n/a	n/a	20.9	21.3	20.9	21.3	21.1	21.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	37.1991	R17 (RIS 2013)	5421536.07	601796.07	n/a	n/a	n/a	n/a	19.9	20.4	19.9	20.4	20.1	20.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	36.0648	R18 (RIS 2013)	5422219.15	602699	n/a	n/a	n/a	n/a	19.2	19.6	19.2	19.6	19.4	19.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	34.5743		5423241.06	603780.18	n/a	n/a	n/a	n/a	14.9	15.2	14.9	15.2	15.0	15.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	33.297	R20 (RIS 2013)	5424095.73	604720.05	n/a	n/a	n/a	n/a	14.1	14.9	14.1	14.9	14.5	15.1	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	31.6595	Great Rattling Brook - R21 (RIS 2013)	5425296.05	605797.93	n/a	n/a	n/a	n/a	13.9	14.7	13.9	14.7	14.2	14.9	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	30.6038	R22 (RIS 2013)	5426099.82	606467.33	n/a	n/a	n/a	n/a	13.8	14.6	13.8	14.6	14.1	14.8	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	29.6258	R23 (RIS 2013)	5426794.34	607150.8	n/a	n/a	n/a	n/a	13.7	14.5	13.7	14.5	14.0	14.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	28.6539	Hobbs Park - R24 (RIS 2013)	5427386.69	607919.06	n/a	n/a	n/a	n/a	13.6	14.5	13.6	14.5	14.0	14.7	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Current Climate ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Exploits River	27.8131	Greenridge Rd - R25 (RIS 2013)	5427762.31	608668.74	n/a	n/a	n/a	n/a	13.6	14.4	13.6	14.4	13.9	14.6	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	27.0926	Market Rd - R26 (RIS 2013)	5428279.68	609146.66	n/a	n/a	n/a	n/a	13.6	14.4	13.6	14.4	13.9	14.6	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	26.3491	Exploits Ln - R27 (RIS 2013)	5428905.12	609529.81	n/a	n/a	n/a	n/a	13.5	14.3	13.5	14.3	13.8	14.5	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	25.6408	Doves Ln - R28 (RIS 2013)	5429342.14	610072.61	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	25.3931	Cannings Ln - R28A (SEM 2019)	5429412.38	610309.94	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	25.2785	US of Bishop's Falls Trestle R29-1 (RIS 2013)	5429451.03	610417.88	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	25.2607	DS of Bishop's Falls Trestle R29-2 (RIS 2013)	5429456.84	610434.68	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	25.2424	NLENHMO003 ER at Bishop's Falls Trestle	5429462.63	610451.97	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,483.7	1,817.3	n/a	n/a	1,631.7	1,920.1
Exploits River	24.9854	Kinsmen Dr - R29-2A (SEM 2019)	5429545.54	610695.3	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	24.7007	Riverside Dr - R30 (RIS 2013)	5429642.68	610962.8	n/a	n/a	n/a	n/a	13.4	14.2	13.4	14.2	13.7	14.4	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	24.1375	Sydney St - R31 (RIS 2013)	5429934.19	611441.02	n/a	n/a	n/a	n/a	13.3	14.1	13.3	14.1	13.7	14.3	1,500.0	1,820.0	n/a	n/a	1,641.4	1,924.2
Exploits River	23.7672	US of Bishop's Falls Dam	5430149.38	611741.46	n/a	n/a	n/a	n/a	13.3	14.1	13.3	14.1	13.6	14.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.7175	DS of Bishop's Falls Dam	5430182.95	611777.75	n/a	n/a	n/a	n/a	6.1	7.0	6.1	7.0	6.5	7.2	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.646*		5430242.15	611817.13	n/a	n/a	n/a	n/a	6.0	6.8	6.0	6.8	6.3	7.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.5744	Fallsview Park - RB01 (RIS 2012)	5430298.99	611861.23	n/a	n/a	n/a	n/a	5.9	6.7	5.9	6.7	6.3	7.0	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.3904	RB02 (RIS 2012)	5430443.09	611974.36	n/a	n/a	n/a	n/a	6.0	6.8	6.0	6.8	6.3	7.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.238	RB02A (SEM 2019)	5430530.61	612098.35	n/a	n/a	n/a	n/a	5.9	6.7	5.9	6.7	6.2	6.9	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	23.0435	RB03 (RIS 2012)	5430599.54	612279.75	n/a	n/a	n/a	n/a	5.6	6.4	5.6	6.4	5.9	6.6	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	22.8885	RB03A (SEM 2019)	5430646.75	612427.01	n/a	n/a	n/a	n/a	5.3	6.1	5.3	6.1	5.7	6.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	22.7187	RB03B (SEM 2019)	5430726.67	612576.43	n/a	n/a	n/a	n/a	5.2	5.9	5.2	5.9	5.5	6.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	22.6067	RB04 (RIS 2012)	5430774.98	612677.25	n/a	n/a	n/a	n/a	5.1	5.8	5.1	5.8	5.4	6.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	22.4171	RB04A (SEM 2019)	5430832.2	612857.69	n/a	n/a	n/a	n/a	5.0	5.8	5.0	5.8	5.4	6.0	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	22.1303	RB05 (RIS 2012)	5431011.43	613077.55	n/a	n/a	n/a	n/a	4.6	5.3	4.6	5.3	4.9	5.6	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.8941	RB06 (RIS 2012)	5431103.27	613294.45	n/a	n/a	n/a	n/a	4.3	5.0	4.3	5.0	4.6	5.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.769	US of Sir Robert Bond Bridge - RB07A (SEM 2019)	5431133.76	613415.62	n/a	n/a	n/a	n/a	4.2	5.0	4.2	5.0	4.6	5.2	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.73	RB07 (RIS 2012)	5431139.73	613454.07	n/a	n/a	n/a	n/a	4.1	4.9	4.1	4.9	4.5	5.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.6512	RB08A-1 (SEM 2019 and RIS 2012)	5431145.53	613532.65	n/a	n/a	n/a	n/a	4.1	4.8	4.1	4.8	4.5	5.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.6278	RB08A-2 (SEM 2019 and RIS 2012)	5431145.36	613556.06	n/a	n/a	n/a	n/a	4.1	4.8	4.1	4.8	4.4	5.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.446	RB09 (RIS 2012)	5431186.95	613720.35	n/a	n/a	n/a	n/a	3.9	4.6	3.9	4.6	4.2	4.8	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.2084	RB10 (RIS 2012)	5431321.19	613926.53	n/a	n/a	n/a	n/a	3.7	4.4	3.7	4.4	4.1	4.7	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	21.0315	RB11 (RIS 2012)	5431423.6	614070.67	n/a	n/a	n/a	n/a	3.6	4.4	3.6	4.4	4.0	4.6	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	20.7855	RB12 (RIS 2012)	5431567.69	614270.04	n/a	n/a	n/a	n/a	3.5	4.2	3.5	4.2	3.9	4.4	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	20.2457	RB12A (SEM 2019)	5431904.2	614691.44	n/a	n/a	n/a	n/a	3.1	3.8	3.1	3.8	3.5	4.0	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	19.7893	R32 (RIS 2013)	5432042.15	615123.67	n/a	n/a	n/a	n/a	2.9	3.5	2.9	3.5	3.3	3.8	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	19.0547	R33 (RIS 2013)	5432243.88	615829.3	n/a	n/a	n/a	n/a	2.6	3.1	2.6	3.1	3.0	3.4	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	18.4827	R34 (RIS 2013)	5432270.93	616395.91	n/a	n/a	n/a	n/a	2.3	2.9	2.3	2.9	2.8	3.2	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	18.0852	Jumpers Brook - R35 (RIS 2013)	5432061.88	616711.25	n/a	n/a	n/a	n/a	2.3	2.8	2.3	2.8	2.7	3.1	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	17.4444	R36 (RIS 2013)	5432588.21	617057.58	n/a	n/a	n/a	n/a	2.2	2.7	2.2	2.7	2.6	3.0	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	16.9165	R37 (RIS 2013)	5432981.77	617408.72	n/a	n/a	n/a	n/a	2.0	2.4	2.0	2.4	2.4	2.8	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	16.063	R38 (RIS 2013)	5433801.61	617568.94	n/a	n/a	n/a	n/a	1.8	2.2	1.8	2.2	2.3	2.6	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	15.4044	R39 (RIS 2013)	5434334.25	617955.52	n/a	n/a	n/a	n/a	1.6	2.1	1.6	2.1	2.2	2.5	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	14.5403	R40 (RIS 2013)	5434883.72	618619.16	n/a	n/a	n/a	n/a	1.5	1.9	1.5	1.9	2.1	2.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	13.5957	R41 (RIS 2013)	5435357.11	619434.62	n/a	n/a	n/a	n/a	1.3	1.7	1.3	1.7	1.9	2.2	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	12.56	R42 (RIS 2013)	5436110.86	620136.64	n/a	n/a	n/a	n/a	1.1	1.4	1.1	1.4	1.8	1.9	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	11.3843	R43 (RIS 2013)	5436893.94	620964.76	n/a	n/a	n/a	n/a	0.9	1.1	0.9	1.1	1.6	1.7	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	10.3678	R43A (SEM 2019)	5437557	621726.15	n/a	n/a	n/a	n/a	0.8	0.9	0.8	0.9	1.5	1.6	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	9.399	Beatons Point - R43B (SEM 2019)	5438082.62	622483.01	n/a	n/a	n/a	n/a	0.7	0.8	0.7	0.8	1.4	1.5	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{3,5}		Open Water ⁴		Peak Ice/Open		Open Water		Current Climate ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Exploits River	8.4354	Rattling Brook - R43C (SEM 2019)	5438231.12	623426.46	n/a	n/a	n/a	n/a	0.6	0.7	0.6	0.7	1.4	1.5	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	7.8307		5438636.2	623852.6	n/a	n/a	n/a	n/a	0.6	0.6	0.6	0.6	1.4	1.4	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	7.3871	Norris Arm	5439070.41	623932.58	n/a	n/a	n/a	n/a	0.5	0.6	0.5	0.6	1.4	1.4	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	6.9559		5439497.55	623902.88	n/a	n/a	n/a	n/a	0.5	0.5	0.5	0.5	1.3	1.4	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	6.6198	Wigwam Point	5439791.39	623750.63	n/a	n/a	n/a	n/a	0.4	0.4	0.4	0.4	1.3	1.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	3.1711	Peterview	5443024.59	622652.39	n/a	n/a	n/a	n/a	0.4	0.4	0.4	0.4	1.3	1.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	2.4185	Peters Arm	5443764.01	622512.57	n/a	n/a	n/a	n/a	0.4	0.4	0.4	0.4	1.3	1.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	0.9662	Botwood	5445209.2	622503.14	n/a	n/a	n/a	n/a	0.4	0.4	0.4	0.4	1.3	1.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Exploits River	0.0989	Mill Point	5446068.77	622573.98	n/a	n/a	n/a	n/a	0.4	0.4	0.4	0.4	1.3	1.3	2,220.0	2,810.0	n/a	n/a	2,435.9	2,975.3
Unnamed Stream GF-1	3.9291		5423095.06	600982.27	n/a	n/a	n/a	n/a	101.7	101.9	101.7	101.9	101.8	102.0	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.9266	US of Hardy Avenue Culvert	5423096.47	600984.31	n/a	n/a	n/a	n/a	101.7	101.9	101.7	101.9	101.8	102.0	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.8993	DS of Hardy Avenue Culvert	5423111.96	601006.78	n/a	n/a	n/a	n/a	101.1	101.1	101.1	101.1	101.1	101.2	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.8668		5423094.24	601025.59	n/a	n/a	n/a	n/a	100.9	101.1	100.9	101.1	101.0	101.1	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.6413		5423230.65	601198.84	n/a	n/a	n/a	n/a	98.5	98.5	98.5	98.5	98.5	98.5	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.2981		5423500.21	601398.02	n/a	n/a	n/a	n/a	95.1	95.2	95.1	95.2	95.1	95.2	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.2091		5423584.4	601393.75	n/a	n/a	n/a	n/a	94.0	94.0	94.0	94.0	94.0	94.0	1.0	1.3	n/a	n/a	1.2	1.5
Unnamed Stream GF-1	3.1868	GF1_19 (SEM 2019)	5423605.84	601390.8	n/a	n/a	n/a	n/a	92.9	92.9	92.9	92.9	92.9	92.9	1.5	1.9	n/a	n/a	1.8	2.3
Unnamed Stream GF-1	2.3986	GF1_18 (SEM 2019)	5424161.03	601891.65	n/a	n/a	n/a	n/a	84.1	84.1	84.1	84.1	84.1	84.1	1.5	1.9	n/a	n/a	1.8	2.3
Unnamed Stream GF-1	2.1729		5424285.73	602062.68	n/a	n/a	n/a	n/a	83.1	83.1	83.1	83.1	83.1	83.1	1.5	1.9	n/a	n/a	1.8	2.3
Unnamed Stream GF-1	2.0095		5424399.79	602170.64	n/a	n/a	n/a	n/a	80.2	80.2	80.2	80.2	80.2	80.3	1.5	1.9	n/a	n/a	1.8	2.3
Unnamed Stream GF-1	1.9833	GF1_17 (SEM 2019)	5424425.66	602172.11	n/a	n/a	n/a	n/a	79.4	79.4	79.4	79.4	79.4	79.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.789	GF1_16 (SEM 2019)	5424607.69	602214.32	n/a	n/a	n/a	n/a	79.4	79.5	79.4	79.5	79.5	79.6	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.6366	GF1_15 (SEM 2019)	5424754.31	602250.67	n/a	n/a	n/a	n/a	79.4	79.5	79.4	79.5	79.5	79.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.5884	GF1_14 (SEM 2019)	5424799.13	602267.18	n/a	n/a	n/a	n/a	79.4	79.5	79.4	79.5	79.5	79.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.5696	GF1_13 (SEM 2019)	5424817.74	602269.84	n/a	n/a	n/a	n/a	79.4	79.5	79.4	79.5	79.5	79.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.5394	GF1_12 (SEM 2019)	5424844.66	602278.8	n/a	n/a	n/a	n/a	79.4	79.4	79.4	79.4	79.4	79.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.3701	GF1_11 (SEM 2019)	5424959.55	602283	n/a	n/a	n/a	n/a	78.5	78.5	78.5	78.5	78.5	78.5	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.2166		5425053.69	602167.29	n/a	n/a	n/a	n/a	76.9	77.0	76.9	77.0	76.9	77.0	6.0	7.7	n/a	n/a	7.1	9.0
Unnamed Stream GF-1	1.0726	GF1_10 (SEM 2019)	5425150.18	602212.01	n/a	n/a	n/a	n/a	75.7	75.8	75.7	75.8	75.8	75.9	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.9813	GF1_09 (SEM 2019)	5425174.95	602299.01	n/a	n/a	n/a	n/a	75.5	75.7	75.5	75.7	75.6	75.7	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.4813	GF1_07 (SEM 2019)	5425479.39	602555.63	n/a	n/a	n/a	n/a	74.7	74.8	74.7	74.8	74.7	74.8	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.3708	GF1_06 (SEM 2019)	5425546.72	602637.58	n/a	n/a	n/a	n/a	74.6	74.7	74.6	74.7	74.6	74.7	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.3031	GF1_05 (SEM 2019)	5425549.63	602700.03	n/a	n/a	n/a	n/a	74.2	74.3	74.2	74.3	74.2	74.3	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.072	GF1_04 (SEM 2019)	5425696.68	602808.43	n/a	n/a	n/a	n/a	70.8	70.8	70.8	70.8	70.8	70.9	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.0543	US of GF1 Stream Newfoundland T-Railway Culvert - GF1_03 (SEM 2019)	5425707.93	602794.91	n/a	n/a	n/a	n/a	70.8	70.8	70.8	70.8	70.8	70.8	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.026	DS of GF1 Stream Newfoundland T-Railway Culvert - GF1_02 (SEM 2019)	5425731.78	602796.76	n/a	n/a	n/a	n/a	70.2	70.3	70.2	70.3	70.3	70.4	13.9	17.9	n/a	n/a	15.9	20.0
Unnamed Stream GF-1	0.0107	GF1_01 (SEM 2019)	5425741.78	602808.22	n/a	n/a	n/a	n/a	70.0	70.1	70.0	70.1	70.0	70.1	13.9	17.9	n/a	n/a	15.9	20.0
Little Red Indian Brook	1.4448	LR12 (SEM 2019)	5425229.05	569245.29	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.6	77.5	101.0	n/a	n/a	85.5	107.5
Little Red Indian Brook	1.3589	LR11 (SEM 2019)	5425279.41	569314.27	Ice	Ice	99.8	100.8	99.2	99.5	99.8	100.8	99.3	99.5	77.5	101.0	n/a	n/a	85.5	107.5
Little Red Indian Brook	1.262	LR10 (SEM 2019)	5425331.86	569395.82	Ice	Ice	99.8	100.8	99.1	99.4	99.8	100.8	99.2	99.5	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	1.1451	LR09 (SEM 2019)	5425391.13	569496.38	Ice	Ice	99.8	100.8	99.0	99.3	99.8	100.8	99.1	99.4	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.9927	LR08 (SEM 2019)	5425411.03	569643.8	Ice	Ice	99.8	100.8	98.8	99.1	99.8	100.8	98.9	99.2	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.8548	LR07 (SEM 2019)	5425387.65	569779.77	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.7388	LR06 (SEM 2019)	5425359.68	569892.07	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.6948	US of Buchans Hwy Bridge - LR05 (SEM 2019)	5425345.34	569933.67	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.6682	DS of Buchans Hwy Bridge - LR04 (SEM 2019)	5425334.92	569958.13	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.6158	LR03 (SEM 2019)	5425307.18	570001.27	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.4661	School Rd - LR02 (SEM 2019)	5425193.63	570098.83	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Red Indian Brook	0.3022	LR01 (SEM 2019)	5425086.09	570221.68	Ice	Ice	99.8	100.8	98.6	99.0	99.8	100.8	98.8	99.1	82.9	108.0	n/a	n/a	91.9	115.6
Little Rushy Pond Brook	0.5608	LRP07 (SEM 2019)	5422297.15	595170.98	n/a	n/a	n/a	n/a	74.9	74.9	74.9	74.9	74.9	74.9	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.3995	LRP06 (SEM 2019)	5422287.17	595042.47	n/a	n/a	n/a	n/a	74.5	74.5	74.5	74.5	74.5	74.5	1.9	2.4	n/a	n/a	2.1	2.7

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate								Climate Change ⁴		Current Climate ⁵				Climate Change ⁶	
					Governing Condition ²		Ice ^{2,3}		Open Water ³		Peak Ice/Open		Open Water		Open Water ³		Ice ²		Open Water	
1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP			
Little Rushy Pond Brook	0.226		5422340.78	594929.8	n/a	n/a	n/a	n/a	74.1	74.1	74.1	74.1	74.1	74.1	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.1839	LRP05 (SEM 2019)	5422380.47	594926.03	n/a	n/a	n/a	n/a	73.0	73.0	73.0	73.0	73.0	73.1	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.0801	LRP04 (SEM 2019)	5422444.26	594852.1	n/a	n/a	n/a	n/a	71.3	71.6	71.3	71.6	71.4	71.7	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.066	US of Little Rushy Pond Brook Unnamed Road Culvert - LRP03 (SEM 2019)	5422446.34	594838.17	n/a	n/a	n/a	n/a	71.3	71.6	71.3	71.6	71.4	71.7	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.0394	DS of Little Rushy Pond Brook Unnamed Road Culvert - LRP02 (SEM 2019)	5422456.88	594814.01	n/a	n/a	n/a	n/a	71.3	71.6	71.3	71.6	71.4	71.7	1.9	2.4	n/a	n/a	2.1	2.7
Little Rushy Pond Brook	0.0119	LRP01 (SEM 2019)	5422457.03	594789.97	n/a	n/a	n/a	n/a	71.3	71.6	71.3	71.6	71.4	71.7	1.9	2.4	n/a	n/a	2.1	2.7
Mullens Pond	0.4097	MP06 (SEM 2019)	5423374.24	597207.24	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Mullens Pond	0.3035	MP05 (SEM 2019)	5423272	597209.02	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Mullens Pond	0.2027	MP04 (SEM 2019)	5423208.15	597177.01	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Mullens Pond	0.0741	MP03 (SEM 2019)	5423106.74	597239.95	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Mullens Pond	0.0427	MP02 (SEM 2019)	5423076.93	597249.2	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Mullens Pond	0.0039	MP01 (SEM 2019) - Upstream of Second Avenue Culvert	5423038.78	597253.97	n/a	n/a	n/a	n/a	74.0	74.1	74.0	74.1	74.0	74.1	1.7	2.1	n/a	n/a	2.0	2.5
Rushy Pond Brook	1.605	Rushy Pond - RP13 (SEM 2019)	5421874.65	594038.72	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.542	US of Rushy Pond T'Railway Bridge - RP12 (SEM 2019)	5421812.04	594037.2	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.522	DS of Rushy Pond T'Railway Bridge - RP11 (SEM 2019)	5421792.57	594036.46	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.493	RP10 (SEM 2019)	5421763.08	594034.91	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.462	RP09 (SEM 2019)	5421732.49	594033.3	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.398	RP08 (SEM 2019)	5421673.04	594010.49	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.225	RP07 (SEM 2019)	5421532.19	593911.6	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.195	US of Gold Course Bridge - RP06 (SEM 2019)	5421512.36	593888.94	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.161	DS of Golf Course Bridge - RP05 (SEM 2019)	5421489.53	593862.86	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	1.104	RP04 (SEM 2019)	5421452.51	593820.54	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	0.811	RP03 (SEM 2019)	5421246.28	593615.88	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	0.591	RP02 (SEM 2019)	5421032.49	593616.01	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Rushy Pond Brook	0.332	RP01 (SEM 2019)	5420836.82	593509.97	Open Water	Open Water	69.7	70.1	71.3	71.6	71.3	71.6	71.4	71.7	22.8	29.6	n/a	n/a	25.7	32.7
Wigwam Brook	4.6443	WB28 (SEM 2019)	5422829.19	591642	Open Water	Open Water	69.8	70.2	73.9	74.0	73.9	74.0	73.9	74.0	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	4.4546	WB27 (SEM 2019)	5422829.25	591495.1	Open Water	Open Water	69.8	70.2	73.9	74.0	73.9	74.0	73.9	74.0	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	4.4153	US of Wigwam Brook Unnamed Road 2 Culvert - WB26 (SEM 2019)	5422820.99	591457.91	Open Water	Open Water	69.8	70.2	73.6	73.8	73.6	73.8	73.5	73.8	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	4.4012	DS of Wigwam Brook Unnamed Road 2 Culvert - WB25 (SEM 2019)	5422811.75	591447.54	Open Water	Open Water	69.8	70.2	73.6	73.6	73.6	73.6	73.6	73.6	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	4.3888	WB24 (SEM 2019)	5422805.17	591437.11	Open Water	Open Water	69.8	70.2	73.6	73.7	73.6	73.7	73.7	73.8	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	4.0688	WB23 (SEM 2019)	5422696.17	591256.17	Open Water	Open Water	69.8	70.2	73.6	73.7	73.6	73.7	73.6	73.7	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.9102	WB22 (SEM 2019)	5422703.01	591112.01	Open Water	Open Water	69.8	70.2	73.6	73.7	73.6	73.7	73.6	73.7	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.7515	WB21 (SEM 2019)	5422722.27	590975.39	Open Water	Open Water	69.8	70.2	73.6	73.6	73.6	73.6	73.6	73.7	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.7288	US of Wigwam Brook Unnamed Road 1 Culvert - WB20 (SEM 2019)	5422738.19	590960.2	Open Water	Open Water	69.8	70.2	73.6	73.6	73.6	73.6	73.6	73.7	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.7128	DS of Wigwam Brook Unnamed Road 1 Culvert - WB19 (SEM 2019)	5422742.92	590944.9	Open Water	Open Water	69.8	70.2	73.1	73.5	73.1	73.5	73.3	73.6	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.6981	WB18 (SEM 2019)	5422742.68	590930.42	Open Water	Open Water	69.8	70.2	73.1	73.5	73.1	73.5	73.3	73.6	18.8	24.4	n/a	n/a	21.3	27.0
Wigwam Brook	3.5404	WB17 (SEM 2019)	5422751.36	590777.44	Open Water	Open Water	69.8	70.2	73.1	73.5	73.1	73.5	73.2	73.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	3.4136	WB16 (SEM 2019)	5422737.14	590665.45	Open Water	Open Water	69.8	70.2	73.0	73.5	73.0	73.5	73.2	73.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	3.2845	WB15 (SEM 2019)	5422685.1	590566.32	Open Water	Open Water	69.8	70.2	73.0	73.5	73.0	73.5	73.2	73.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	3.1	WB14 (SEM 2019)	5422596.32	590425.77	Open Water	Open Water	69.8	70.2	73.0	73.4	73.0	73.4	73.1	73.6	26.2	33.9	n/a	n/a	29.8	37.8

Table A-1: Cross Section Summary

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	Northing (m UTM 21)	Easting (m UTM 21)	Peak Water Surface Elevation (m)										Peak Flows (cms) ²					
					Current Climate										Climate Change ⁴					
					Governing Condition ²		Ice ^{2,3}		Open Water ⁴		Peak Ice/Open		Open Water		Open Water ⁵		Ice ²		Open Water	
					1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP	1:20 AEP	1:100 AEP
Wigwam Brook	2.9482	WB13 (SEM 2019)	5422506.76	590324.47	Open Water	Open Water	69.8	70.2	73.0	73.4	73.0	73.4	73.1	73.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.9368	US of Red Cliff Road Bridge - WB12 (SEM 2019)	5422496.11	590328.41	Open Water	Open Water	69.8	70.2	73.0	73.4	73.0	73.4	73.1	73.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.9239	DS of Red Cliff Road Bridge - WB11 (SEM 2019)	5422483.43	590330.7	Open Water	Open Water	69.8	70.2	72.7	73.0	72.7	73.0	72.8	73.3	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.9206	WB10 (SEM 2019)	5422480.11	590331.1	Open Water	Open Water	69.8	70.2	72.7	73.1	72.7	73.1	72.8	73.3	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.91	WB09 (SEM 2019)	5422469.56	590331.32	Open Water	Open Water	69.8	70.2	72.7	73.1	72.7	73.1	72.8	73.3	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.9041	US of Wigwam Brook Newfoundland T'Railway Bridge - WB08 (SEM 2019)	5422463.69	590331.23	Open Water	Open Water	69.8	70.2	72.7	73.0	72.7	73.0	72.8	73.3	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.89	DS of Wigwam Brook Newfoundland T'Railway Bridge - WB07 (SEM 2019)	5422450.15	590335.01	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.86	WB06 (SEM 2019)	5422444.03	590361.59	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.707	WB05 (SEM 2019)	5422345.77	590442.94	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.584	WB04 (SEM 2019)	5422323.5	590528.91	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.491	WB03 (SEM 2019)	5422280.29	590608.94	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.379	WB02 (SEM 2019)	5422257.53	590712.29	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	2.289	WB01 (SEM 2019)	5422174.15	590743.21	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	1.905	NA04 (SEM 2019)	5422080.71	591079.17	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	1.546	US of TCH - NA03 (SEM 2019)	5421886.92	591375.51	Open Water	Open Water	69.8	70.2	72.6	72.6	72.6	72.6	72.6	72.6	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	1.394	DS of TCH - NA02 (SEM 2019)	5421760.68	591452.06	Open Water	Open Water	69.8	70.2	71.5	71.8	71.5	71.8	71.6	71.9	26.2	33.9	n/a	n/a	29.8	37.8
Wigwam Brook	1.184	North Angle - NA01 (SEM 2019)	5421566.35	591531.88	Open Water	Open Water	69.8	70.2	71.5	71.8	71.5	71.8	71.6	71.9	26.2	33.9	n/a	n/a	29.8	37.8

Notes:

1. * Denotes interpolated cross-section
2. n/a indicates cross section not in ice model; Rushy Pond, Wigwam Brook, Badger Brook and Little Red Indian Brook are not in the ice model but backflooded ice levels from the Exploits River have been shown at these streams.
3. Bold italicized text indicates backflooded section. Flows in backflooded sections are representative of peak flows through the reach and do not correlate with peak water levels. Where backflooding due to ice cover on Badger Brook, Little Rushy Pond Brook, Wigwam Brook and Rushy Pond Brook, no flows provided for ice cover
4. No ice cover in climate change condition
5. Open water flows greater than ice flows in all cases.
6. ** Flows in main river channel reduced due to diversion through Grand Falls Power Canal before being returned to river.

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)													
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%			
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)		
Unnamed Stream B-1	0.9685	B1_12 (SEM 2019)	7.0	100.7	100.7	0.0	100.7	0.0	100.8	0.1	100.6	-0.1	100.6	-0.1	100.6	-0.1		
Unnamed Stream B-1	0.8553	B1_11 (SEM 2019)	7.0	100.5	100.6	0.1	100.6	0.1	100.6	0.1	100.5	0.0	100.5	0.0	100.5	0.0		
Unnamed Stream B-1	0.7466	B1_10 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.4	-0.1		
Unnamed Stream B-1	0.5876	B1_09 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.4	-0.1	100.4	-0.1		
Unnamed Stream B-1	0.5714	US of Stream B1 Newfoundland T'Railway Culvert - B1_08 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.4	-0.1	100.4	-0.1		
Unnamed Stream B-1	0.5558	DS of Stream B1 Newfoundland T'Railway Culvert - B1_07 (SEM 2019)	7.0	99.8	99.8	0.0	99.8	0.0	99.9	0.1	99.8	0.0	99.8	0.0	99.8	0.0		
Unnamed Stream B-1	0.5439	B1_06 (SEM 2019)	7.0	99.7	99.7	0.0	99.8	0.1	99.9	0.2	99.7	0.0	99.6	-0.1	99.6	-0.1		
Unnamed Stream B-1	0.4387	B1_05 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.1	-0.4		
Unnamed Stream B-1	0.3206	B1_04 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.1	-0.4		
Unnamed Stream B-1	0.2384	B1_03 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.2	-0.3	99.1	-0.4		
Unnamed Stream B-1	0.1267	B1_02 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.2	-0.3	99.1	-0.4		
Unnamed Stream B-1	0.0581	B1_01 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.2	-0.3	99.1	-0.4		
Badger Brook	1.9217	BB06A (SEM 2019)	325.0	99.8	100.0	0.2	100.1	0.3	100.3	0.5	99.6	-0.2	99.4	-0.4	99.2	-0.6		
Badger Brook	1.7167	BB05 (SEM 2016)	325.0	99.7	99.9	0.2	100.1	0.4	100.2	0.5	99.6	-0.1	99.4	-0.3	99.2	-0.5		
Badger Brook	1.4957	BB05A (SEM 2019)	325.0	99.7	99.9	0.2	100.0	0.3	100.2	0.5	99.5	-0.2	99.3	-0.4	99.1	-0.6		
Badger Brook	1.3039	BB04 (SEM 2016)	325.0	99.6	99.8	0.2	100.0	0.4	100.1	0.5	99.4	-0.2	99.2	-0.4	99.0	-0.6		
Badger Brook	1.2069	BB04A (SEM 2019)	325.0	99.6	99.8	0.2	99.9	0.3	100.1	0.5	99.4	-0.2	99.2	-0.4	99.0	-0.6		
Badger Brook	1.0769	BB04B (SEM 2019)	325.0	99.5	99.7	0.2	99.9	0.4	100.1	0.6	99.3	-0.2	99.1	-0.4	98.9	-0.6		
Badger Brook	0.9728	BB04C (SEM 2019)	325.0	99.4	99.6	0.2	99.8	0.4	99.9	0.5	99.2	-0.2	99.0	-0.4	98.8	-0.6		
Badger Brook	0.9409	US of Badger Brook Footbridge - BB03 (SEM 2016)	325.0	99.3	99.5	0.2	99.7	0.4	99.9	0.6	99.2	-0.1	99.0	-0.3	98.8	-0.5		
Badger Brook	0.9254	02Y0019 Badger Brook Below Footbridge - BB03A (SEM 2019)	325.0	99.3	99.5	0.2	99.6	0.3	99.8	0.5	99.1	-0.2	98.9	-0.4	98.7	-0.6		
Badger Brook	0.8924	BB03B (SEM 2019)	325.0	99.2	99.4	0.2	99.6	0.4	99.8	0.6	99.1	-0.1	98.9	-0.3	98.7	-0.5		
Badger Brook	0.8392	BB03C (SEM 2019)	325.0	99.2	99.4	0.2	99.6	0.4	99.8	0.6	99.1	-0.1	98.9	-0.3	98.7	-0.5		
Badger Brook	0.8126	US of Badger Brook TCH Bridge - BB03D (SEM 2019)	325.0	99.2	99.4	0.2	99.6	0.4	99.7	0.5	99.0	-0.2	98.8	-0.4	98.6	-0.6		
Badger Brook	0.7753	DS of Badger Brook TCH Bridge - BB02 (SEM 2016)	325.0	99.1	99.3	0.2	99.4	0.3	99.6	0.5	98.9	-0.2	98.7	-0.4	98.6	-0.5		
Badger Brook	0.721	BB02A (SEM 2019)	325.0	99.1	99.2	0.1	99.4	0.3	99.5	0.4	98.9	-0.2	98.7	-0.4	98.5	-0.6		
Badger Brook	0.6184	BB02B (SEM 2019)	325.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.7	-0.3	98.5	-0.5		
Badger Brook	0.5224	BB02C (SEM 2019)	325.0	98.9	99.1	0.2	99.2	0.3	99.4	0.5	98.7	-0.2	98.6	-0.3	98.4	-0.5		
Badger Brook	0.4442	Sunset Dr - BB02D (SEM 2019)	325.0	98.8	98.9	0.1	99.1	0.3	99.2	0.4	98.6	-0.2	98.4	-0.4	98.3	-0.5		
Badger Brook	0.3917	US of Badger Brook T'Railway Bridge - BB02E (SEM 2019)	325.0	98.6	98.8	0.2	98.9	0.3	99.1	0.5	98.4	-0.2	98.3	-0.3	98.1	-0.5		
Badger Brook	0.3658	DS of Badger Brook T'Railway Bridge - BB01 (SEM 2016)	325.0	98.5	98.7	0.2	98.9	0.4	99.0	0.5	98.3	-0.2	98.1	-0.4	97.9	-0.6		
Badger Brook	0.3082	Beothuck St - BB01A (SEM 2019)	325.0	98.5	98.7	0.2	98.9	0.4	99.0	0.5	98.2	-0.3	98.0	-0.5	97.8	-0.7		
Unnamed Stream BF-1	1.2199	BF1_13 (SEM 2019)	0.0	13.8	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0		
Unnamed Stream BF-1	1.2052	BF1_12 (SEM 2019)	0.0	13.7	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0		
Unnamed Stream BF-1	1.1653	BF1_11 (SEM 2019)	0.0	13.2	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0		
Unnamed Stream BF-1	1.1519	BF1_10 (SEM 2019)	0.0	13.2	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0		
Unnamed Stream BF-1	0.8154	BF1_09 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0		
Unnamed Stream BF-1	0.6008	BF1_08 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0		
Unnamed Stream BF-1	0.3778	BF1_07 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0	12.6	0.0		
Unnamed Stream BF-1	0.3504	BF1_06 (SEM 2019)	0.4	12.5	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0		
Unnamed Stream BF-1	0.258		0.4	11.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0		
Unnamed Stream BF-1	0.2506		0.4	10.3	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0		

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream BF-1	0.2187		0.4	9.5	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0
Unnamed Stream BF-1	0.2082		0.4	9.3	9.3	0.0	9.3	0.0	9.3	0.0	9.2	-0.1	9.2	-0.1	9.2	-0.1
Unnamed Stream BF-1	0.187		0.4	8.6	8.6	0.0	8.6	0.0	8.6	0.0	8.6	0.0	8.5	-0.1	8.5	-0.1
Unnamed Stream BF-1	0.1824		0.4	8.4	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0
Unnamed Stream BF-1	0.164		0.4	7.2	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0
Unnamed Stream BF-1	0.1552		0.4	6.3	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0
Unnamed Stream BF-1	0.0907	BF1_01 (SEM 2019)	0.4	4.1	4.4	0.3	4.7	0.6	5.0	0.9	3.8	-0.3	3.5	-0.6	3.1	-1.0
Unnamed Stream BF-2	1.249	BF2_15 (SEM 2019)	3.9	27.0	27.0	0.0	27.0	0.0	27.1	0.1	27.0	0.0	26.9	-0.1	26.9	-0.1
Unnamed Stream BF-2	0.8133	BF2_14 (SEM 2019)	6.2	20.9	20.9	0.0	21.0	0.1	21.0	0.1	20.8	-0.1	20.8	-0.1	20.7	-0.2
Unnamed Stream BF-2	0.569		6.2	18.2	18.2	0.0	18.3	0.1	18.3	0.1	18.2	0.0	18.1	-0.1	18.1	-0.1
Unnamed Stream BF-2	0.5639	US of Kings Road Culvert	6.2	18.2	18.2	0.0	18.3	0.1	18.3	0.1	18.2	0.0	18.1	-0.1	18.1	-0.1
Unnamed Stream BF-2	0.5235	DS of Kings Road Culvert	6.2	17.7	17.7	0.0	17.8	0.1	17.8	0.1	17.7	0.0	17.6	-0.1	17.6	-0.1
Unnamed Stream BF-2	0.52		6.2	17.7	17.7	0.0	17.7	0.0	17.8	0.1	17.7	0.0	17.6	-0.1	17.6	-0.1
Unnamed Stream BF-2	0.4432	BF2_13 (SEM 2019)	6.2	17.6	17.6	0.0	17.7	0.1	17.7	0.1	17.6	0.0	17.6	0.0	17.5	-0.1
Unnamed Stream BF-2	0.425	US of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_12 (SEM 2019)	6.2	17.6	17.6	0.0	17.7	0.1	17.7	0.1	17.6	0.0	17.6	0.0	17.5	-0.1
Unnamed Stream BF-2	0.414	DS of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_11 (SEM 2019)	6.2	16.5	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0
Unnamed Stream BF-2	0.4078	BF2_10 (SEM 2019)	6.2	16.5	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0
Unnamed Stream BF-2	0.3773	BF2_09 (SEM 2019)	6.2	16.4	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.5	0.1	16.5	0.1
Unnamed Stream BF-2	0.3702	US of BF2 Stream Main Street Culvert - BF2_08 (SEM 2019)	6.2	16.4	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.5	0.1	16.5	0.1
Unnamed Stream BF-2	0.3551	DS of BF2 Stream Main Street Culvert - BF2_07 (SEM 2019)	6.2	15.4	15.4	0.0	15.4	0.0	15.4	0.0	15.3	-0.1	15.3	-0.1	15.3	-0.1
Unnamed Stream BF-2	0.3453	BF2_06 (SEM 2019)	6.2	15.4	15.4	0.0	15.4	0.0	15.5	0.1	15.3	-0.1	15.3	-0.1	15.3	-0.1
Unnamed Stream BF-2	0.3108	BF2_05 (SEM 2019)	6.2	15.3	15.3	0.0	15.3	0.0	15.4	0.1	15.3	0.0	15.2	-0.1	15.2	-0.1
Unnamed Stream BF-2	0.306	US of Culvert Under Private Home- BF2_04 (SEM 2019)	6.2	15.3	15.3	0.0	15.4	0.1	15.4	0.1	15.3	0.0	15.3	0.0	15.2	-0.1
Unnamed Stream BF-2	0.2516	DS of Culvert Under Private Home- BF2_03 (SEM 2019)	6.2	12.4	12.4	0.0	12.4	0.0	12.5	0.1	12.3	-0.1	12.3	-0.1	12.2	-0.2
Unnamed Stream BF-2	0.2403	BF2_02 (SEM 2019)	6.2	12.1	12.1	0.0	12.2	0.1	12.2	0.1	12.1	0.0	12.0	-0.1	12.0	-0.1
Unnamed Stream BF-2	0.1851	BF2_01 (SEM 2019)	6.2	6.9	7.3	0.4	7.6	0.7	8.0	1.1	6.5	-0.4	6.1	-0.8	5.7	-1.2
Unnamed Stream BF-3	2.1832	BF3_40 (SEM 2019)	10.0	42.7	42.7	0.0	42.8	0.1	42.8	0.1	42.6	-0.1	42.6	-0.1	42.5	-0.2
Unnamed Stream BF-3	1.7353	BF3_39 (SEM 2019)	10.0	41.6	41.6	0.0	41.6	0.0	41.6	0.0	41.5	-0.1	41.5	-0.1	41.5	-0.1
Unnamed Stream BF-3	1.5001	BF3_38 (SEM 2019)	10.0	40.5	40.5	0.0	40.5	0.0	40.5	0.0	40.4	-0.1	40.4	-0.1	40.4	-0.1
Unnamed Stream BF-3	1.3954	BF3_37 (SEM 2019)	10.0	40.4	40.4	0.0	40.5	0.1	40.5	0.1	40.4	0.0	40.4	0.0	40.3	-0.1
Unnamed Stream BF-3	1.3364	BF3_36 (SEM 2019)	10.0	40.2	40.3	0.1	40.3	0.1	40.3	0.1	40.2	0.0	40.2	0.0	40.0	-0.2
Unnamed Stream BF-3	0.9835	BF3_35 (SEM 2019)	10.0	39.4	39.5	0.1	39.7	0.3	39.8	0.4	39.2	-0.2	39.0	-0.4	38.9	-0.5
Unnamed Stream BF-3	0.9728	US of BF3 Stream TCH Culvert - BF3_34 (SEM 2019)	10.0	39.4	39.5	0.1	39.7	0.3	39.8	0.4	39.2	-0.2	39.0	-0.4	38.9	-0.5
Unnamed Stream BF-3	0.9315	DS of BF3 Stream TCH Culvert - BF3_33 (SEM 2019)	10.0	36.8	36.8	0.0	36.8	0.0	36.9	0.1	36.8	0.0	36.8	0.0	36.7	-0.1
Unnamed Stream BF-3	0.9232	BF3_32 (SEM 2019)	10.0	36.8	36.8	0.0	36.8	0.0	36.9	0.1	36.7	-0.1	36.7	-0.1	36.7	-0.1
Unnamed Stream BF-3	0.8646	BF3_31 (SEM 2019)	10.2	35.8	35.9	0.1	35.9	0.1	35.9	0.1	35.8	0.0	35.8	0.0	35.7	-0.1
Unnamed Stream BF-3	0.821	US of Dominic Street 3 Bridge - BF3_30B (SEM 2019)	10.2	33.9	33.9	0.0	33.9	0.0	34.0	0.1	33.8	-0.1	33.8	-0.1	33.7	-0.2
Unnamed Stream BF-3	0.8128	DS of Dominic Street 3 Bridge - BF3_30A (SEM 2019)	10.2	33.0	33.1	0.1	33.1	0.1	33.1	0.1	33.0	0.0	33.0	0.0	32.9	-0.1
Unnamed Stream BF-3	0.7811	BF3_30 (SEM 2019)	10.2	32.0	32.1	0.1	32.1	0.1	32.2	0.2	32.0	0.0	31.9	-0.1	31.8	-0.2

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream BF-3	0.7753	US of Dominic Street 2 Bridge - BF3_29 (SEM 2019)	10.2	31.9	32.0	0.1	32.0	0.1	32.1	0.2	31.8	-0.1	31.8	-0.1	31.7	-0.2
Unnamed Stream BF-3	0.7687	DS of Dominic Street 2 Bridge - BF3_28 (SEM 2019)	10.2	31.0	31.1	0.1	31.2	0.2	31.2	0.2	31.0	0.0	30.9	-0.1	30.8	-0.2
Unnamed Stream BF-3	0.7634	BF3_27 (SEM 2019)	10.2	30.5	30.6	0.1	30.6	0.1	30.6	0.1	30.5	0.0	30.4	-0.1	30.4	-0.1
Unnamed Stream BF-3	0.7448	BF3_26 (SEM 2019)	10.2	29.0	29.1	0.1	29.1	0.1	29.2	0.2	29.0	0.0	28.9	-0.1	28.9	-0.1
Unnamed Stream BF-3	0.7399	US of Dominic Street 1 Bridge - BF3_25 (SEM 2019)	10.2	28.9	28.9	0.0	29.0	0.1	29.1	0.2	28.8	-0.1	28.8	-0.1	28.7	-0.2
Unnamed Stream BF-3	0.7299	DS of Dominic Street 1 Bridge - BF3_24 (SEM 2019)	10.2	27.9	28.0	0.1	28.0	0.1	28.0	0.1	27.9	0.0	27.8	-0.1	27.8	-0.1
Unnamed Stream BF-3	0.725	BF3_23 (SEM 2019)	10.2	27.5	27.5	0.0	27.6	0.1	27.6	0.1	27.5	0.0	27.4	-0.1	27.4	-0.1
Unnamed Stream BF-3	0.7031	BF3_22 (SEM 2019)	10.2	26.3	26.4	0.1	26.4	0.1	26.4	0.1	26.3	0.0	26.2	-0.1	26.1	-0.2
Unnamed Stream BF-3	0.6956	US of Beaumont Heights 2 Bridge - BF3_21 (SEM 2019)	10.2	26.0	26.1	0.1	26.4	0.4	26.5	0.5	26.0	0.0	25.9	-0.1	25.8	-0.2
Unnamed Stream BF-3	0.6889	DS of Beaumont Heights 2 Bridge - BF3_20 (SEM 2019)	10.2	25.4	25.5	0.1	25.8	0.4	25.8	0.4	25.4	0.0	25.3	-0.1	25.3	-0.1
Unnamed Stream BF-3	0.6819	BF3_19 (SEM 2019)	10.2	25.1	25.1	0.0	25.2	0.1	25.2	0.1	25.0	-0.1	25.0	-0.1	24.9	-0.2
Unnamed Stream BF-3	0.6546	BF3_18 (SEM 2019)	10.2	24.7	24.8	0.1	24.8	0.1	24.8	0.1	24.7	0.0	24.6	-0.1	24.5	-0.2
Unnamed Stream BF-3	0.6471	US of Beaumont Heights 1 Culvert - BF3_17 (SEM 2019)	10.2	24.8	24.9	0.1	24.9	0.1	24.9	0.1	24.8	0.0	24.7	-0.1	24.5	-0.3
Unnamed Stream BF-3	0.6279	DS of Beaumont Heights 1 Culvert - BF3_16 (SEM 2019)	10.2	23.4	23.5	0.1	23.5	0.1	23.6	0.2	23.4	0.0	23.3	-0.1	23.2	-0.2
Unnamed Stream BF-3	0.6126	BF3_15 (SEM 2019)	10.2	23.0	23.1	0.1	23.1	0.1	23.2	0.2	23.0	0.0	22.9	-0.1	22.9	-0.1
Unnamed Stream BF-3	0.557	BF3_14 (SEM 2019)	10.2	20.7	20.8	0.1	20.8	0.1	20.8	0.1	20.7	0.0	20.7	0.0	20.6	-0.1
Unnamed Stream BF-3	0.4815	BF3_13 (SEM 2019)	10.2	18.9	18.9	0.0	18.9	0.0	19.0	0.1	18.7	-0.2	18.6	-0.3	18.5	-0.4
Unnamed Stream BF-3	0.4754	US of BF3 Stream Main St Culvert - BF3_12 (SEM 2019)	10.2	18.9	18.9	0.0	18.9	0.0	19.0	0.1	18.8	-0.1	18.7	-0.2	18.6	-0.3
Unnamed Stream BF-3	0.2728	DS of BF3 Stream Main St Culvert - BF3_01B (SEM 2019)	10.2	14.4	14.7	0.3	15.0	0.6	15.3	0.9	14.0	-0.4	13.8	-0.6	13.7	-0.7
Unnamed Stream BF-3	0.2634	BF3_01A (SEM 2019)	10.2	14.4	14.7	0.3	15.0	0.6	15.3	0.9	14.0	-0.4	13.7	-0.7	13.6	-0.8
Unnamed Stream BF-3	0.2034	BF3_01 (SEM 2019)	10.2	14.4	14.7	0.3	15.0	0.6	15.3	0.9	14.0	-0.4	13.6	-0.8	13.2	-1.2
Unnamed Stream BF-4	0.9422	BF4_19 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.8	0.1	18.6	-0.1	18.5	-0.2	18.5	-0.2
Unnamed Stream BF-4	0.8648	BF4_18 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.8466	BF4_17 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.8268	BF4_16 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.8212	BF4_15 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.7068	BF4_14 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.6155	BF4_13 (SEM 2019)	1.8	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.6133	US of BF4 Stream Newfoundland T'Railway Culvert - BF4_12 (SEM 2019)	1.8	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.6	-0.1	18.5	-0.2	18.4	-0.3
Unnamed Stream BF-4	0.602	DS of BF4 Stream Newfoundland T'Railway Culvert - BF4_11 (SEM 2019)	1.8	18.5	18.5	0.0	18.6	0.1	18.7	0.2	18.4	-0.1	18.3	-0.2	18.3	-0.2
Unnamed Stream BF-4	0.5931	BF4_10 (SEM 2019)	1.8	18.5	18.5	0.0	18.6	0.1	18.7	0.2	18.4	-0.1	18.3	-0.2	18.3	-0.2
Unnamed Stream BF-4	0.5102	BF4_09 (SEM 2019)	1.8	18.4	18.5	0.1	18.6	0.2	18.7	0.3	18.4	0.0	18.3	-0.1	18.3	-0.1

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream BF-4	0.5003	US of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_08 (SEM 2019)	1.8	18.4	18.5	0.1	18.6	0.2	18.7	0.3	18.4	0.0	18.3	-0.1	18.3	-0.1
Unnamed Stream BF-4	0.4872	DS of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_07 (SEM 2019)	1.8	17.6	17.7	0.1	17.7	0.1	17.7	0.1	17.6	0.0	17.6	0.0	17.6	0.0
Unnamed Stream BF-4	0.4744	BF4_06 (SEM 2019)	1.8	17.1	17.1	0.0	17.1	0.0	17.2	0.1	17.0	-0.1	17.0	-0.1	17.0	-0.1
Unnamed Stream BF-4	0.3664	BF4_05 (SEM 2019)	1.8	16.7	16.7	0.0	16.7	0.0	16.7	0.0	16.6	-0.1	16.6	-0.1	16.5	-0.2
Unnamed Stream BF-4	0.3556	US of BF4 Stream Main Street Culvert - BF4_04 (SEM 2019)	1.8	16.4	16.5	0.1	16.5	0.1	16.5	0.1	16.4	0.0	16.3	-0.1	16.3	-0.1
Unnamed Stream BF-4	0.3336	DS of BF4 Stream Main Street Culvert - BF4_03 (SEM 2019)	1.8	15.8	15.9	0.1	15.9	0.1	15.9	0.1	15.8	0.0	15.8	0.0	15.7	-0.1
Unnamed Stream BF-4	0.3233	BF4_02 (SEM 2019)	1.8	15.5	15.5	0.0	15.5	0.0	15.5	0.0	15.5	0.0	15.5	0.0	15.5	0.0
Unnamed Stream BF-4	0.2414	BF4_01 (SEM 2019)	1.8	14.5	14.9	0.4	15.2	0.7	15.5	1.0	14.2	-0.3	13.8	-0.7	13.5	-1.0
Corduroy Brook	3.8918	CB80 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.6717	CB79 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.5448	CB78 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.4083	CB77 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.397	CB76 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.3476	CB75 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.3174	US of Corduroy Brook Newoundland T'Railway Culvert - CB74 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.2	-0.6	82.1	-0.7
Corduroy Brook	3.3013	DS of Corduroy Brook Newoundland T'Railway Culvert - CB71/CB73 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.1	-0.7	82.0	-0.8
Corduroy Brook	3.2959	CB70/CB72 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.1	-0.7	82.0	-0.8
Corduroy Brook	3.2785	CB69 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.1	-0.7	82.0	-0.8
Corduroy Brook	3.2706	US of Princess Drive Culvert - CB68 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.5	-0.3	82.1	-0.7	82.0	-0.8
Corduroy Brook	3.2426	DS of Princess Drive Culvert - CB67 (SEM 2019)	5.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	3.2308	CB66 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	3.1255	CB65 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	2.9841	CB64 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	2.854	CB63 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	2.7942	CB62 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	2.7783	US of Harris Ave Culvert - CB61 (SEM 2019)	3.6	82.0	82.1	0.1	82.2	0.2	82.2	0.2	81.8	-0.2	81.5	-0.5	80.9	-1.1
Corduroy Brook	2.5843	DS of Harris Ave Culvert - CB55 (SEM 2019)	3.6	81.2	81.3	0.1	81.3	0.1	81.3	0.1	81.2	0.0	81.0	-0.2	80.5	-0.7
Corduroy Brook	2.577	CB54 (SEM 2019)	3.6	81.2	81.2	0.0	81.3	0.1	81.3	0.1	81.2	0.0	81.0	-0.2	80.5	-0.7
Corduroy Brook	2.5346	CB53 (SEM 2019)	4.9	81.2	81.2	0.0	81.3	0.1	81.3	0.1	81.2	0.0	80.9	-0.3	80.4	-0.8
Corduroy Brook	2.5024	CB52 (SEM 2019)	4.9	81.2	81.2	0.0	81.3	0.1	81.3	0.1	81.2	0.0	80.9	-0.3	80.4	-0.8
Corduroy Brook	2.4882	US of Cromer Avenue Culvert - CB51 (SEM 2019)	4.9	81.2	81.2	0.0	81.3	0.1	81.3	0.1	81.2	0.0	80.9	-0.3	80.4	-0.8
Corduroy Brook	2.3516	DS of Cromer Avenue Culvert - CB47A (SEM 2019)	4.9	78.8	78.8	0.0	78.8	0.0	78.9	0.1	78.8	0.0	78.8	0.0	78.7	-0.1
Corduroy Brook	2.3284	CB47 (SEM 2019)	4.9	78.4	78.4	0.0	78.4	0.0	78.4	0.0	78.3	-0.1	78.3	-0.1	78.3	-0.1
Corduroy Brook	2.277	CB46 (SEM 2019)	4.9	76.8	76.8	0.0	76.9	0.1	76.9	0.1	76.7	-0.1	76.7	-0.1	76.7	-0.1
Corduroy Brook	2.1696	CB45 (SEM 2019)	4.9	76.2	76.2	0.0	76.2	0.0	76.2	0.0	76.2	0.0	76.2	0.0	76.2	0.0
Corduroy Brook	2.0288	CB44 (SEM 2019)	4.9	75.7	75.8	0.1	75.8	0.1	75.9	0.2	75.6	-0.1	75.6	-0.1	75.5	-0.2
Corduroy Brook	1.921	CB43 (SEM 2019)	4.9	75.6	75.6	0.0	75.7	0.1	75.7	0.1	75.5	-0.1	75.4	-0.2	75.2	-0.4
Corduroy Brook	1.8184	CB42 (SEM 2019)	4.9	75.6	75.6	0.0	75.6	0.0	75.7	0.1	75.5	-0.1	75.3	-0.3	75.2	-0.4

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Corduroy Brook	1.8101	US of Duggan Street 2 Culvert - CB41 (SEM 2019)	4.9	75.5	75.6	0.1	75.6	0.1	75.7	0.2	75.5	0.0	75.3	-0.2	75.2	-0.3
Corduroy Brook	1.7808	DS of Duggan Street 2 Culvert - CB40 (SEM 2019)	4.9	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.3	-0.7
Corduroy Brook	1.7767	CB39 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.3	-0.7
Corduroy Brook	1.7367	CB38 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.6622	CB37 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.5718	CB36 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.5636	US of Duggan Street 1 Bridge - CB35 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.5582	DS of Duggan Street 1 Bridge - CB34 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.5492	CB33 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.4747	CB32 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.4028	CB31 (SEM 2019)	7.2	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.3922	US of Corduroy Brook TCH Culvert - CB30 (SEM 2019)	7.8	75.0	75.2	0.2	75.4	0.4	75.5	0.5	74.9	-0.1	74.6	-0.4	74.2	-0.8
Corduroy Brook	1.3449	DS of Corduroy Brook TCH Culvert - CB29 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.6	0.2	73.3	-0.1	73.1	-0.3	72.9	-0.5
Corduroy Brook	1.3314	CB28 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.6	0.2	73.3	-0.1	73.1	-0.3	72.9	-0.5
Corduroy Brook	1.2395	CB27 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.5	0.1	73.3	-0.1	73.0	-0.4	72.8	-0.6
Corduroy Brook	1.1315	CB26 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.5	0.1	73.3	-0.1	73.0	-0.4	72.8	-0.6
Corduroy Brook	1.1201	US of Corduroy Brook Lane Culvert - CB25 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.5	0.1	73.3	-0.1	73.0	-0.4	72.8	-0.6
Corduroy Brook	1.0982	DS of Corduroy Brook Lane Culvert - CB24 (SEM 2019)	7.8	71.5	71.5	0.0	71.5	0.0	71.6	0.1	71.4	-0.1	71.4	-0.1	71.3	-0.2
Corduroy Brook	1.088	CB23 (SEM 2019)	7.8	71.2	71.3	0.1	71.3	0.1	71.3	0.1	71.2	0.0	71.2	0.0	71.1	-0.1
Corduroy Brook	1.0141	CB22 (SEM 2019)	7.8	70.9	70.9	0.0	71.0	0.1	71.0	0.1	70.8	-0.1	70.8	-0.1	70.7	-0.2
Corduroy Brook	1.0026	US of Squires Lane 2 Bridge - CB21 (SEM 2019)	7.8	70.7	70.9	0.2	71.0	0.3	71.0	0.3	70.7	0.0	70.6	-0.1	70.5	-0.2
Corduroy Brook	0.9964	DS of Squires Lane 2 Bridge - CB20 (SEM 2019)	7.8	70.5	70.6	0.1	70.6	0.1	70.6	0.1	70.5	0.0	70.4	-0.1	70.3	-0.2
Corduroy Brook	0.991	CB19 (SEM 2019)	7.8	70.5	70.6	0.1	70.6	0.1	70.7	0.2	70.4	-0.1	70.3	-0.2	70.3	-0.2
Corduroy Brook	0.9421	US of Squires Lane 1 Bridge - CB18B (SEM 2019)	7.8	70.4	70.5	0.1	70.6	0.2	70.6	0.2	70.3	-0.1	70.2	-0.2	70.1	-0.3
Corduroy Brook	0.9284	DS of Squires Lane 1 Bridge - CB18A (SEM 2019)	7.8	70.3	70.4	0.1	70.5	0.2	70.6	0.3	70.2	-0.1	70.2	-0.1	70.1	-0.2
Corduroy Brook	0.9044	CB18 (SEM 2019)	7.8	70.3	70.4	0.1	70.5	0.2	70.5	0.2	70.2	-0.1	70.1	-0.2	70.1	-0.2
Corduroy Brook	0.7838	CB17 (SEM 2019)	11.5	69.5	69.5	0.0	69.6	0.1	69.6	0.1	69.4	-0.1	69.4	-0.1	69.3	-0.2
Corduroy Brook	0.7762	US of Corduroy Brook Nature Trail 2 Bridge - CB16 (SEM 2019)	11.5	69.5	69.5	0.0	69.5	0.0	69.6	0.1	69.4	-0.1	69.3	-0.2	69.3	-0.2
Corduroy Brook	0.7707	DS of Corduroy Brook Nature Trail 2 Bridge - CB15 (SEM 2019)	11.5	69.3	69.4	0.1	69.5	0.2	69.5	0.2	69.3	0.0	69.2	-0.1	69.1	-0.2
Corduroy Brook	0.7647	CB14 (SEM 2019)	11.5	69.1	69.2	0.1	69.2	0.1	69.3	0.2	69.0	-0.1	69.0	-0.1	68.9	-0.2
Corduroy Brook	0.7114	CB13 (SEM 2019)	11.5	68.6	68.7	0.1	68.8	0.2	68.8	0.2	68.6	0.0	68.5	-0.1	68.4	-0.2
Corduroy Brook	0.6283	CB12 (SEM 2019)	11.5	67.8	67.8	0.0	67.9	0.1	67.9	0.1	67.7	-0.1	67.7	-0.1	67.6	-0.2
Corduroy Brook	0.6201	US of Corduroy Brook Nature Trail 1 Bridge - CB11 (SEM 2019)	11.5	67.7	67.8	0.1	67.8	0.1	67.9	0.2	67.7	0.0	67.6	-0.1	67.5	-0.2
Corduroy Brook	0.61	DS of Corduroy Brook Nature Trail 1 Bridge - CB10 (SEM 2019)	11.5	67.2	67.2	0.0	67.3	0.1	67.3	0.1	67.1	-0.1	67.1	-0.1	67.0	-0.2
Corduroy Brook	0.5607	CB09 (SEM 2019)	11.5	66.7	66.9	0.2	67.2	0.5	67.4	0.7	66.5	-0.2	66.3	-0.4	66.2	-0.5

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Corduroy Brook	0.5496	US of Lincoln Road Culvert - CB08 (SEM 2019)	11.5	66.7	66.9	0.2	67.2	0.5	67.4	0.7	66.5	-0.2	66.3	-0.4	66.2	-0.5
Corduroy Brook	0.4704	DS of Lincoln Road Culvert - CB07 (SEM 2019)	11.5	65.3	65.3	0.0	65.4	0.1	65.4	0.1	65.2	-0.1	65.2	-0.1	65.1	-0.2
Corduroy Brook	0.4657	CB06 (SEM 2019)	11.5	65.0	65.1	0.1	65.2	0.2	65.2	0.2	64.9	-0.1	64.9	-0.1	64.8	-0.2
Corduroy Brook	0.4187	CB05 (SEM 2019)	11.5	64.1	64.2	0.1	64.2	0.1	64.3	0.2	64.1	0.0	64.0	-0.1	64.0	-0.1
Corduroy Brook	0.3313	CB04 (SEM 2019)	11.5	63.8	63.8	0.0	63.7	-0.1	63.7	-0.1	63.8	0.0	63.8	0.0	63.8	0.0
Corduroy Brook	0.3004	US of Corduroy Brook Unnamed Road Culvert - CB03 (SEM 2019)	11.5	63.8	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0
Corduroy Brook	0.2751	DS of Corduroy Brook Unnamed Road Culvert - CB02 (SEM 2019)	11.5	62.4	63.0	0.6	63.2	0.8	63.4	1.0	62.7	0.3	62.5	0.1	62.4	0.0
Corduroy Brook	0.256	CB01 (SEM 2019)	11.5	62.4	63.0	0.6	63.2	0.8	63.4	1.0	62.7	0.3	62.5	0.1	62.4	0.0
Exploits River	127.9419	DS of Millertown Dam	1,650.0	147.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0
Exploits River	127.7903		1,650.0	151.9	152.3	0.4	152.6	0.7	153.0	1.1	151.5	-0.4	151.1	-0.8	150.8	-1.1
Exploits River	127.5485	E39 (SEM 2016)	1,650.0	151.3	151.7	0.4	152.0	0.7	152.5	1.2	151.0	-0.3	150.6	-0.7	150.2	-1.1
Exploits River	127.2411		1,650.0	151.4	151.8	0.4	152.1	0.7	152.5	1.1	151.0	-0.4	150.5	-0.9	150.2	-1.2
Exploits River	126.7619	02Y0016 ER near Millertown - E38 (SEM 2016)	1,650.0	150.7	151.1	0.4	151.5	0.8	152.0	1.3	150.3	-0.4	149.8	-0.9	149.5	-1.2
Exploits River	126.726	US of Exploits Bridge	1,650.0	150.6	151.0	0.4	151.4	0.8	151.8	1.2	150.2	-0.4	149.8	-0.8	149.4	-1.2
Exploits River	126.7103	DS of Exploits Bridge	1,650.0	149.9	150.2	0.3	150.5	0.6	150.7	0.8	149.6	-0.3	149.4	-0.5	149.1	-0.8
Exploits River	126.6627		1,650.0	149.9	150.2	0.3	150.5	0.6	150.7	0.8	149.6	-0.3	149.3	-0.6	149.0	-0.9
Exploits River	126.0472		1,650.0	149.5	149.9	0.4	150.2	0.7	150.4	0.9	149.2	-0.3	148.9	-0.6	148.5	-1.0
Exploits River	125.7718		1,650.0	149.6	149.9	0.3	150.2	0.6	150.5	0.9	149.2	-0.4	148.9	-0.7	148.5	-1.1
Exploits River	124.8565		1,650.0	149.1	149.4	0.3	149.7	0.6	150.0	0.9	148.7	-0.4	148.4	-0.7	148.0	-1.1
Exploits River	124.5042		1,650.0	148.9	149.2	0.3	149.5	0.6	149.8	0.9	148.6	-0.3	148.2	-0.7	147.8	-1.1
Exploits River	124.1023	E37 (SEM 2016)	1,650.0	148.7	149.0	0.3	149.3	0.6	149.6	0.9	148.4	-0.3	148.0	-0.7	147.7	-1.0
Exploits River	123.5716	Harpoon Brook	1,650.0	148.1	148.4	0.3	148.7	0.6	149.0	0.9	147.8	-0.3	147.5	-0.6	147.1	-1.0
Exploits River	123.3684		1,650.0	148.1	148.4	0.3	148.7	0.6	149.0	0.9	147.8	-0.3	147.5	-0.6	147.1	-1.0
Exploits River	123.1617		1,650.0	147.9	148.2	0.3	148.5	0.6	148.7	0.8	147.6	-0.3	147.2	-0.7	146.9	-1.0
Exploits River	122.8763		1,650.0	147.8	148.1	0.3	148.3	0.5	148.6	0.8	147.4	-0.4	147.1	-0.7	146.8	-1.0
Exploits River	122.4162	E36 (SEM 2016)	1,650.0	146.9	147.1	0.2	147.3	0.4	147.5	0.6	146.6	-0.3	146.4	-0.5	146.1	-0.8
Exploits River	121.8414		1,650.0	146.7	147.0	0.3	147.2	0.5	147.4	0.7	146.5	-0.2	146.2	-0.5	145.9	-0.8
Exploits River	121.5145		1,650.0	146.6	146.8	0.2	147.1	0.5	147.3	0.7	146.3	-0.3	146.1	-0.5	145.8	-0.8
Exploits River	121.0779		1,650.0	146.1	146.3	0.2	146.5	0.4	146.7	0.6	145.9	-0.2	145.6	-0.5	145.4	-0.7
Exploits River	120.4923		1,650.0	143.8	144.0	0.2	144.2	0.4	144.5	0.7	143.6	-0.2	143.4	-0.4	143.2	-0.6
Exploits River	119.7563	E35 (SEM 2016)	1,650.0	142.4	142.7	0.3	142.9	0.5	143.1	0.7	142.2	-0.2	141.9	-0.5	141.6	-0.8
Exploits River	119.1564		1,650.0	141.5	141.7	0.2	141.9	0.4	142.2	0.7	141.2	-0.3	141.0	-0.5	140.7	-0.8
Exploits River	118.3681		1,650.0	139.7	140.0	0.3	140.2	0.5	140.5	0.8	139.4	-0.3	139.1	-0.6	138.8	-0.9
Exploits River	118.13	E34 (SEM 2016)	1,650.0	139.5	139.8	0.3	140.1	0.6	140.3	0.8	139.2	-0.3	138.9	-0.6	138.6	-0.9
Exploits River	117.736		1,650.0	138.6	138.9	0.3	139.2	0.6	139.5	0.9	138.3	-0.3	138.0	-0.6	137.6	-1.0
Exploits River	116.6208	E33 (SEM 2016)	1,650.0	138.0	138.3	0.3	138.6	0.6	138.9	0.9	137.6	-0.4	137.3	-0.7	136.9	-1.1
Exploits River	115.9519		1,650.0	137.5	137.8	0.3	138.1	0.6	138.4	0.9	137.1	-0.4	136.8	-0.7	136.4	-1.1
Exploits River	114.6285	E32 (SEM 2016)	1,650.0	136.8	137.2	0.4	137.5	0.7	137.8	1.0	136.5	-0.3	136.2	-0.6	135.8	-1.0
Exploits River	112.8458	E31 (SEM 2016)	1,650.0	136.2	136.5	0.3	136.8	0.6	137.0	0.8	135.9	-0.3	135.6	-0.6	135.2	-1.0
Exploits River	111.2066		1,650.0	134.7	135.0	0.3	135.3	0.6	135.6	0.9	134.4	-0.3	134.1	-0.6	133.8	-0.9
Exploits River	110.2603	E30 (SEM 2016)	1,650.0	134.2	134.5	0.3	134.8	0.6	135.1	0.9	133.9	-0.3	133.6	-0.6	133.2	-1.0
Exploits River	109.0847		1,650.0	133.1	133.4	0.3	133.7	0.6	134.0	0.9	132.8	-0.3	132.5	-0.6	132.2	-0.9
Exploits River	108.0884	E29 (SEM 2016)	1,650.0	131.9	132.1	0.2	132.4	0.5	132.7	0.8	131.6	-0.3	131.3	-0.6	130.9	-1.0
Exploits River	106.6173	E28 (SEM 2016)	1,650.0	130.9	131.1	0.2	131.4	0.5	131.6	0.7	130.6	-0.3	130.3	-0.6	130.0	-0.9
Exploits River	104.6629	E27 (SEM 2016)	1,650.0	130.2	130.4	0.2	130.6	0.4	130.8	0.6	129.9	-0.3	129.7	-0.5	129.4	-0.8
Exploits River	104.2797		1,650.0	130.0	130.3	0.3	130.5	0.5	130.7	0.7	129.8	-0.2	129.5	-0.5	129.3	-0.7
Exploits River	103.945		1,650.0	129.7	129.9	0.2	130.2	0.5	130.4	0.7	129.4	-0.3	129.2	-0.5	128.9	-0.8
Exploits River	103.583	Noel Pauls Brook - E26 (SEM 2016)	1,650.0	129.2	129.5	0.3	129.7	0.5	129.9	0.7	129.0	-0.2	128.7	-0.5	128.5	-0.7
Exploits River	102.4539		1,650.0	128.8	129.0	0.2	129.2	0.4	129.5	0.7	128.5	-0.3	128.3	-0.5	128.0	-0.8
Exploits River	102.0072		1,650.0	128.5	128.7	0.2	129.0	0.5	129.2	0.7	128.2	-0.3	128.0	-0.5	127.7	-0.8
Exploits River	101.5468	E25 (SEM 2016)	1,650.0	128.2	128.4	0.2	128.6	0.4	128.9	0.7	127.9	-0.3	127.6	-0.6	127.4	-0.8
Exploits River	100.6527		1,650.0	127.6	127.9	0.3	128.1	0.5	128.3	0.7	127.4	-0.2	127.1	-0.5	126.8	-0.8

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	98.9083	DS of 02Y0011 ER below NP Brook - E24 (SEM 2016)	1,650.0	127.1	127.3	0.2	127.6	0.5	127.8	0.7	126.8	-0.3	126.6	-0.5	126.3	-0.8
Exploits River	98.3851		1,650.0	126.5	126.7	0.2	126.9	0.4	127.1	0.6	126.3	-0.2	126.1	-0.4	125.8	-0.7
Exploits River	97.6003		1,650.0	125.2	125.4	0.2	125.6	0.4	125.8	0.6	124.9	-0.3	124.7	-0.5	124.5	-0.7
Exploits River	97.467*		1,650.0	124.9	125.1	0.2	125.3	0.4	125.5	0.6	124.6	-0.3	124.4	-0.5	124.1	-0.8
Exploits River	97.334*		1,650.0	124.6	124.8	0.2	125.1	0.5	125.3	0.7	124.4	-0.2	124.1	-0.5	123.9	-0.7
Exploits River	97.201*		1,650.0	124.4	124.6	0.2	124.8	0.4	125.0	0.6	124.1	-0.3	123.9	-0.5	123.6	-0.8
Exploits River	97.068*		1,650.0	124.1	124.4	0.3	124.6	0.5	124.8	0.7	123.9	-0.2	123.7	-0.4	123.4	-0.7
Exploits River	96.935*		1,650.0	123.9	124.2	0.3	124.4	0.5	124.6	0.7	123.7	-0.2	123.5	-0.4	123.2	-0.7
Exploits River	96.802*		1,650.0	123.7	124.0	0.3	124.2	0.5	124.4	0.7	123.5	-0.2	123.3	-0.4	123.0	-0.7
Exploits River	96.669*		1,650.0	123.6	123.8	0.2	124.0	0.4	124.2	0.6	123.4	-0.2	123.1	-0.5	122.9	-0.7
Exploits River	96.5359	E23 (SEM 2016)	1,650.0	123.4	123.6	0.2	123.8	0.4	123.9	0.5	123.2	-0.2	123.0	-0.4	122.8	-0.6
Exploits River	96.407*		1,650.0	123.3	123.4	0.1	123.6	0.3	123.8	0.5	123.1	-0.2	122.9	-0.4	122.6	-0.7
Exploits River	96.279*		1,650.0	123.1	123.3	0.2	123.4	0.3	123.6	0.5	122.9	-0.2	122.7	-0.4	122.5	-0.6
Exploits River	96.150*		1,650.0	122.8	123.0	0.2	123.2	0.4	123.3	0.5	122.7	-0.1	122.5	-0.3	122.3	-0.5
Exploits River	96.0215		1,650.0	121.7	121.8	0.1	122.0	0.3	122.1	0.4	121.6	-0.1	121.4	-0.3	121.3	-0.4
Exploits River	95.878*		1,650.0	119.9	120.0	0.1	120.2	0.3	120.3	0.4	119.8	-0.1	119.7	-0.2	119.5	-0.4
Exploits River	95.734*		1,650.0	118.5	118.6	0.1	118.8	0.3	118.9	0.4	118.3	-0.2	118.2	-0.3	118.0	-0.5
Exploits River	95.590*		1,650.0	116.8	117.0	0.2	117.1	0.3	117.2	0.4	116.7	-0.1	116.5	-0.3	116.4	-0.4
Exploits River	95.4464	Red Indian Falls	1,650.0	115.4	115.5	0.1	115.7	0.3	115.8	0.4	115.2	-0.2	115.1	-0.3	114.9	-0.5
Exploits River	95.310*		1,650.0	114.6	114.8	0.2	115.0	0.4	115.2	0.6	114.4	-0.2	114.2	-0.4	114.0	-0.6
Exploits River	95.175*		1,650.0	114.6	114.8	0.2	115.0	0.4	115.3	0.7	114.3	-0.3	114.1	-0.5	113.8	-0.8
Exploits River	95.039*		1,650.0	114.6	114.8	0.2	115.0	0.4	115.3	0.7	114.3	-0.3	114.1	-0.5	113.8	-0.8
Exploits River	94.9026	E22 (SEM 2016)	1,650.0	114.6	114.8	0.2	115.0	0.4	115.3	0.7	114.3	-0.3	114.0	-0.6	113.8	-0.8
Exploits River	94.760*		1,650.0	114.5	114.8	0.3	115.0	0.5	115.2	0.7	114.3	-0.2	114.0	-0.5	113.7	-0.8
Exploits River	94.618*		1,650.0	114.5	114.7	0.2	115.0	0.5	115.2	0.7	114.2	-0.3	114.0	-0.5	113.7	-0.8
Exploits River	94.475*		1,650.0	114.5	114.7	0.2	114.9	0.4	115.2	0.7	114.2	-0.3	113.9	-0.6	113.7	-0.8
Exploits River	94.333*		1,650.0	114.4	114.6	0.2	114.9	0.5	115.1	0.7	114.2	-0.2	113.9	-0.5	113.6	-0.8
Exploits River	94.190*		1,650.0	114.4	114.6	0.2	114.8	0.4	115.1	0.7	114.1	-0.3	113.8	-0.6	113.6	-0.8
Exploits River	94.048*		1,650.0	114.3	114.5	0.2	114.8	0.5	115.0	0.7	114.0	-0.3	113.8	-0.5	113.5	-0.8
Exploits River	93.905*		1,650.0	114.2	114.4	0.2	114.7	0.5	114.9	0.7	114.0	-0.2	113.7	-0.5	113.4	-0.8
Exploits River	93.7625	E21 (SEM 2016)	1,650.0	114.1	114.3	0.2	114.6	0.5	114.8	0.7	113.8	-0.3	113.6	-0.5	113.3	-0.8
Exploits River	93.616*		1,650.0	114.0	114.2	0.2	114.5	0.5	114.7	0.7	113.7	-0.3	113.5	-0.5	113.2	-0.8
Exploits River	93.469*		1,650.0	113.9	114.2	0.3	114.4	0.5	114.6	0.7	113.7	-0.2	113.4	-0.5	113.1	-0.8
Exploits River	93.322*		1,650.0	113.8	114.1	0.3	114.3	0.5	114.5	0.7	113.6	-0.2	113.3	-0.5	113.0	-0.8
Exploits River	93.175*		1,650.0	113.8	114.0	0.2	114.2	0.4	114.5	0.7	113.5	-0.3	113.2	-0.6	112.9	-0.9
Exploits River	93.028*		1,650.0	113.7	113.9	0.2	114.2	0.5	114.4	0.7	113.4	-0.3	113.2	-0.5	112.9	-0.8
Exploits River	92.881*		1,650.0	113.6	113.9	0.3	114.1	0.5	114.3	0.7	113.4	-0.2	113.1	-0.5	112.8	-0.8
Exploits River	92.734*		1,650.0	113.5	113.8	0.3	114.0	0.5	114.2	0.7	113.3	-0.2	113.0	-0.5	112.7	-0.8
Exploits River	92.587*		1,650.0	113.5	113.7	0.2	114.0	0.5	114.2	0.7	113.2	-0.3	113.0	-0.5	112.7	-0.8
Exploits River	92.4404	E20 (SEM 2016)	1,650.0	113.4	113.7	0.3	113.9	0.5	114.1	0.7	113.2	-0.2	112.9	-0.5	112.6	-0.8
Exploits River	92.316*		1,650.0	113.3	113.6	0.3	113.8	0.5	114.0	0.7	113.1	-0.2	112.8	-0.5	112.6	-0.7
Exploits River	92.191*		1,650.0	113.2	113.5	0.3	113.7	0.5	113.9	0.7	113.0	-0.2	112.7	-0.5	112.5	-0.7
Exploits River	92.067*		1,650.0	113.1	113.3	0.2	113.5	0.4	113.8	0.7	112.9	-0.2	112.6	-0.5	112.3	-0.8
Exploits River	91.942*		1,650.0	112.9	113.1	0.2	113.3	0.4	113.6	0.7	112.7	-0.2	112.4	-0.5	112.2	-0.7
Exploits River	91.8179		1,650.0	112.6	112.8	0.2	113.1	0.5	113.3	0.7	112.4	-0.2	112.1	-0.5	111.9	-0.7
Exploits River	91.4623	E19 (SEM 2016)	1,650.0	112.4	112.6	0.2	112.8	0.4	113.1	0.7	112.2	-0.2	111.9	-0.5	111.7	-0.7
Exploits River	91.211		1,650.0	111.9	112.1	0.2	112.3	0.4	112.5	0.6	111.7	-0.2	111.4	-0.5	111.2	-0.7
Exploits River	90.0907		1,650.0	110.4	110.7	0.3	110.9	0.5	111.2	0.8	110.2	-0.2	109.9	-0.5	109.6	-0.8
Exploits River	89.9651	E18 (SEM 2016)	1,650.0	110.4	110.6	0.2	110.9	0.5	111.1	0.7	110.1	-0.3	109.8	-0.6	109.5	-0.9
Exploits River	89.8026		1,650.0	110.0	110.2	0.2	110.4	0.4	110.7	0.7	109.7	-0.3	109.4	-0.6	109.2	-0.8
Exploits River	88.6151	E17 (SEM 2016)	1,650.0	109.4	109.6	0.2	109.9	0.5	110.1	0.7	109.1	-0.3	108.9	-0.5	108.6	-0.8
Exploits River	87.5331		1,650.0	108.5	108.8	0.3	109.0	0.5	109.2	0.7	108.3	-0.2	108.1	-0.4	107.8	-0.7
Exploits River	86.3148	E16 (SEM 2016)	1,650.0	107.3	107.5	0.2	107.7	0.4	107.9	0.6	107.1	-0.2	106.9	-0.4	106.6	-0.7
Exploits River	85.868*		1,650.0	106.9	107.2	0.3	107.3	0.4	107.5	0.6	106.7	-0.2	106.5	-0.4	106.3	-0.6
Exploits River	85.421*		1,650.0	106.6	106.8	0.2	107.0	0.4	107.1	0.5	106.4	-0.2	106.2	-0.4	105.9	-0.7
Exploits River	84.973*		1,650.0	106.2	106.4	0.2	106.5	0.3	106.7	0.5	106.0	-0.2	105.7	-0.5	105.5	-0.7
Exploits River	84.5262		1,650.0	105.6	105.8	0.2	106.0	0.4	106.2	0.6	105.4	-0.2	105.2	-0.4	105.0	-0.6
Exploits River	83.7999	E15 (SEM 2016)	1,650.0	104.9	105.1	0.2	105.3	0.4	105.5	0.6	104.7	-0.2	104.4	-0.5	104.2	-0.7
Exploits River	82.1971		1,650.0	103.1	103.3	0.2	103.5	0.4	103.8	0.7	102.9	-0.2	102.6	-0.5	102.4	-0.7

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	81.1643	E14 (SEM 2016)	1,650.0	102.2	102.5	0.3	102.7	0.5	102.9	0.7	102.0	-0.2	101.8	-0.4	101.5	-0.7
Exploits River	80.4132		1,650.0	102.0	102.2	0.2	102.4	0.4	102.7	0.7	101.7	-0.3	101.5	-0.5	101.2	-0.8
Exploits River	79.8588	Three Mile Island	1,650.0	101.7	101.9	0.2	102.2	0.5	102.4	0.7	101.4	-0.3	101.1	-0.6	100.8	-0.9
Exploits River	79.342	E14A (SEM 2019)	1,650.0	101.5	101.7	0.2	102.0	0.5	102.2	0.7	101.2	-0.3	100.9	-0.6	100.6	-0.9
Exploits River	78.5823	E13 (SEM 2016)	1,650.0	101.3	101.5	0.2	101.8	0.5	102.0	0.7	101.0	-0.3	100.7	-0.6	100.4	-0.9
Exploits River	77.8364	E13A (SEM 2019)	1,650.0	101.0	101.3	0.3	101.6	0.6	101.8	0.8	100.8	-0.2	100.5	-0.5	100.2	-0.8
Exploits River	77.1828	E12-1 (SEM 2016)	1,650.0	100.7	100.9	0.2	101.2	0.5	101.4	0.7	100.4	-0.3	100.2	-0.5	99.9	-0.8
Exploits River	76.9668	Gull Rocks - E12-2 (SEM 2016)	1,650.0	100.2	100.4	0.2	100.7	0.5	100.9	0.7	100.0	-0.2	99.7	-0.5	99.4	-0.8
Exploits River	76.6464	E12-2A (SEM 2019)	1,650.0	99.7	100.0	0.3	100.2	0.5	100.4	0.7	99.5	-0.2	99.3	-0.4	99.0	-0.7
Exploits River	76.306	E12-2B (SEM 2019)	1,650.0	99.4	99.6	0.2	99.8	0.4	100.0	0.6	99.1	-0.3	98.9	-0.5	98.7	-0.7
Exploits River	75.9221	US of Little Red Indian Brook - E12-2C (SEM 2019)	1,650.0	98.9	99.1	0.2	99.3	0.4	99.5	0.6	98.7	-0.2	98.5	-0.4	98.3	-0.6
Exploits River	75.6731	Badger Arena - E11 (SEM 2016)	1,715.0	98.4	98.6	0.2	98.8	0.4	99.0	0.6	98.2	-0.2	98.0	-0.4	97.8	-0.6
Exploits River	75.4251	02YO013 ER at Badger - E11A (SEM 2019)	1,715.0	98.1	98.3	0.2	98.4	0.3	98.6	0.5	97.9	-0.2	97.7	-0.4	97.5	-0.6
Exploits River	75.2189	DS of Badger Brook - E10 (SEM 2016)	1,730.0	97.7	97.9	0.2	98.1	0.4	98.3	0.6	97.5	-0.2	97.4	-0.3	97.1	-0.6
Exploits River	74.992	E10A (SEM 2019)	1,730.0	97.4	97.6	0.2	97.7	0.3	97.9	0.5	97.2	-0.2	97.0	-0.4	96.8	-0.6
Exploits River	74.7436	Junction Brook - E10B (SEM 2019)	1,730.0	97.1	97.3	0.2	97.5	0.4	97.6	0.5	96.9	-0.2	96.8	-0.3	96.6	-0.5
Exploits River	74.5357	Beatons Island - E10C (SEM 2019)	1,730.0	96.9	97.1	0.2	97.2	0.3	97.4	0.5	96.7	-0.2	96.5	-0.4	96.3	-0.6
Exploits River	74.0059	Badger Rough Waters - E09 (SEM 2016)	1,730.0	95.5	95.7	0.2	95.8	0.3	96.0	0.5	95.3	-0.2	95.2	-0.3	95.0	-0.5
Exploits River	73.7401	E09A (SEM 2019)	1,730.0	94.9	95.1	0.2	95.2	0.3	95.4	0.5	94.7	-0.2	94.5	-0.4	94.3	-0.6
Exploits River	73.0006	E09B (SEM 2019)	1,730.0	93.6	93.9	0.3	94.1	0.5	94.3	0.7	93.4	-0.2	93.1	-0.5	92.9	-0.7
Exploits River	71.8556	E08 (SEM 2016)	1,730.0	92.2	92.4	0.2	92.6	0.4	92.8	0.6	91.9	-0.3	91.7	-0.5	91.5	-0.7
Exploits River	71.6593	Big Bend	1,730.0	92.1	92.4	0.3	92.6	0.5	92.8	0.7	91.9	-0.2	91.6	-0.5	91.4	-0.7
Exploits River	71.3293		1,730.0	91.8	92.0	0.2	92.3	0.5	92.5	0.7	91.6	-0.2	91.3	-0.5	91.0	-0.8
Exploits River	70.1796	E07 (SEM 2016)	1,730.0	90.8	91.1	0.3	91.3	0.5	91.5	0.7	90.6	-0.2	90.4	-0.4	90.1	-0.7
Exploits River	68.919	Badger Steps	1,730.0	88.4	88.6	0.2	88.8	0.4	89.0	0.6	88.1	-0.3	87.9	-0.5	87.7	-0.7
Exploits River	68.3991	US of Badger Chute	1,730.0	86.0	86.2	0.2	86.3	0.3	86.4	0.4	85.9	-0.1	85.8	-0.2	85.6	-0.4
Exploits River	67.7449	DS of Badger Chute	1,730.0	85.0	85.2	0.2	85.4	0.4	85.6	0.6	84.8	-0.2	84.6	-0.4	84.3	-0.7
Exploits River	67.0945	E06 (SEM 2016)	1,730.0	84.4	84.6	0.2	84.8	0.4	84.9	0.5	84.1	-0.3	83.9	-0.5	83.7	-0.7
Exploits River	66.629*		1,730.0	84.0	84.2	0.2	84.4	0.4	84.6	0.6	83.8	-0.2	83.6	-0.4	83.4	-0.6
Exploits River	66.1636		1,730.0	83.7	83.9	0.2	84.0	0.3	84.2	0.5	83.4	-0.3	83.2	-0.5	83.0	-0.7
Exploits River	65.0373		1,730.0	82.5	82.7	0.2	82.9	0.4	83.0	0.5	82.3	-0.2	82.1	-0.4	81.9	-0.6
Exploits River	64.4733		1,730.0	82.0	82.2	0.2	82.4	0.4	82.5	0.5	81.8	-0.2	81.7	-0.3	81.5	-0.5
Exploits River	63.514		1,730.0	80.3	80.4	0.1	80.6	0.3	80.7	0.4	80.1	-0.2	79.9	-0.4	79.8	-0.5
Exploits River	63.029	Aspen Brook - E5 (SEM 2016)	1,730.0	80.1	80.3	0.2	80.4	0.3	80.6	0.5	79.9	-0.2	79.8	-0.3	79.6	-0.5
Exploits River	62.333	Eleven Mile Island	1,730.0	79.5	79.6	0.1	79.8	0.3	79.9	0.4	79.3	-0.2	79.1	-0.4	79.0	-0.5
Exploits River	61.0216	Birchy Island	1,730.0	78.3	78.4	0.1	78.6	0.3	78.7	0.4	78.1	-0.2	78.0	-0.3	77.8	-0.5
Exploits River	60.4812	Pynns Brook - R01-4 (RIS 2013)	1,730.0	77.8	77.9	0.1	78.1	0.3	78.2	0.4	77.7	-0.1	77.5	-0.3	77.3	-0.5
Exploits River	59.297	E03 (SEM 2016)	1,730.0	76.6	76.7	0.1	76.8	0.2	76.9	0.3	76.4	-0.2	76.3	-0.3	76.2	-0.4
Exploits River	58.536	Battle Island	1,730.0	75.5	75.6	0.1	75.8	0.3	76.0	0.5	75.3	-0.2	75.1	-0.4	74.9	-0.6
Exploits River	57.8291	Goat Island	1,730.0	75.2	75.4	0.2	75.6	0.4	75.7	0.5	75.1	-0.1	74.9	-0.3	74.7	-0.5
Exploits River	56.8594	Thunder Brook - E02 (SEM 2016)	1,730.0	74.7	74.9	0.2	75.1	0.4	75.2	0.5	74.5	-0.2	74.3	-0.4	74.0	-0.7
Exploits River	55.9504	R01-2 (RIS 2013)	1,730.0	74.0	74.2	0.2	74.4	0.4	74.6	0.6	73.8	-0.2	73.5	-0.5	73.3	-0.7
Exploits River	55.8662	R01-2A (SEM 2019)	1,730.0	73.9	74.1	0.2	74.3	0.4	74.5	0.6	73.7	-0.2	73.4	-0.5	73.2	-0.7
Exploits River	55.1908	R01-2B (SEM 2019)	1,730.0	73.5	73.7	0.2	74.0	0.5	74.1	0.6	73.3	-0.2	73.1	-0.4	72.8	-0.7
Exploits River	54.2773	02YO018 ER at CE Point - R01-1A (SEM 2019)	1,740.0	72.8	72.9	0.1	73.1	0.3	73.3	0.5	72.6	-0.2	72.4	-0.4	72.1	-0.7
Exploits River	53.6747	R01-1B (SEM 2019)	1,740.0	72.5	72.7	0.2	72.9	0.4	73.0	0.5	72.3	-0.2	72.1	-0.4	71.9	-0.6
Exploits River	52.8115	R01 (RIS 2013)	1,740.0	72.0	72.2	0.2	72.4	0.4	72.6	0.6	71.8	-0.2	71.6	-0.4	71.4	-0.6

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	51.6126	Sandy Brook - R01A (SEM 2019)	1,740.0	71.8	72.0	0.2	72.2	0.4	72.4	0.6	71.6	-0.2	71.4	-0.4	71.2	-0.6
Exploits River	50.7343	R02 (RIS 2013)	1,740.0	71.8	72.0	0.2	72.2	0.4	72.4	0.6	71.6	-0.2	71.4	-0.4	71.2	-0.6
Exploits River	49.8124	R02A (SEM 2019)	1,740.0	71.8	72.0	0.2	72.2	0.4	72.3	0.5	71.6	-0.2	71.4	-0.4	71.1	-0.7
Exploits River	49.2887	Camp Island - R02A (SEM 2019)	1,740.0	71.7	71.9	0.2	72.1	0.4	72.3	0.6	71.5	-0.2	71.3	-0.4	71.1	-0.6
Exploits River	48.3493	Grand Falls Golf Club - R03 (RIS 2013)	1,740.0	71.4	71.6	0.2	71.8	0.4	71.9	0.5	71.3	-0.1	71.1	-0.3	70.9	-0.5
Exploits River	47.9482	DS of Rushy Pond Brook - R04 (RIS 2013)	1,740.0	71.3	71.5	0.2	71.6	0.3	71.8	0.5	71.2	-0.1	71.0	-0.3	70.8	-0.5
Exploits River	47.429	R04A (SEM 2019)	1,740.0	71.2	71.4	0.2	71.5	0.3	71.6	0.4	71.1	-0.1	70.9	-0.3	70.8	-0.4
Exploits River	46.8155	R05 (RIS 2013)	1,818.0	71.1	71.3	0.2	71.4	0.3	71.5	0.4	71.0	-0.1	70.8	-0.3	70.7	-0.4
Exploits River	46.7725	DS of Goodyear's Dam	1,818.0	67.1	67.3	0.2	67.4	0.3	67.5	0.4	67.0	-0.1	66.9	-0.2	66.8	-0.3
Exploits River	46.5339		1,818.0	66.8	67.0	0.2	67.2	0.4	67.4	0.6	66.6	-0.2	66.3	-0.5	66.1	-0.7
Exploits River	46.11	R07 (RIS 2013)	1,818.0	66.2	66.4	0.2	66.6	0.4	66.8	0.6	66.0	-0.2	65.7	-0.5	65.5	-0.7
Exploits River	45.3181	R08 (RIS 2013)	1,818.0	65.5	65.7	0.2	65.9	0.4	66.1	0.6	65.3	-0.2	65.1	-0.4	64.9	-0.6
Exploits River	44.7659	R09 (RIS 2013)	1,818.0	65.2	65.3	0.1	65.5	0.3	65.6	0.4	65.0	-0.2	64.8	-0.4	64.6	-0.6
Exploits River	44.3558	First Falls	1,818.0	63.9	64.0	0.1	64.1	0.2	64.2	0.3	63.8	-0.1	63.7	-0.2	63.6	-0.3
Exploits River	43.9551	R11 (RIS 2013)	1,818.0	62.3	63.0	0.7	63.2	0.9	63.3	1.0	62.7	0.4	62.5	0.2	62.3	0.0
Exploits River	43.8591	Grand Falls Headpond	1,818.0	62.3	63.0	0.7	63.1	0.8	63.3	1.0	62.7	0.4	62.5	0.2	62.3	0.0
Exploits River	43.7956	Grand Falls Headpond	1,818.0	62.3	63.0	0.7	63.1	0.8	63.3	1.0	62.7	0.4	62.5	0.2	62.3	0.0
Exploits River	43.6571	Grand Falls Headpond	1,818.0	62.3	63.0	0.7	63.1	0.8	63.2	0.9	62.6	0.3	62.5	0.2	62.3	0.0
Exploits River	43.5135	Grand Falls Headpond	1,818.0	62.2	62.9	0.7	63.1	0.9	63.2	1.0	62.6	0.4	62.5	0.3	62.3	0.1
Exploits River	43.3884	Grand Falls Headpond	1,818.0	62.2	62.9	0.7	63.0	0.8	63.2	1.0	62.6	0.4	62.4	0.2	62.3	0.1
Exploits River	43.3095	Grand Falls Headpond	1,818.0	62.2	62.9	0.7	63.1	0.9	63.2	1.0	62.6	0.4	62.4	0.2	62.3	0.1
Exploits River	43.2587**	US of Grand Falls Main Dam	1,228.2	62.2	62.9	0.7	63.0	0.8	63.2	1.0	62.6	0.4	62.4	0.2	62.3	0.1
Exploits River	43.2439**	DS of Grand Falls Main Dam	1,228.2	56.2	56.8	0.6	57.0	0.8	57.1	0.9	56.5	0.3	56.4	0.2	56.2	0.0
Exploits River	43.232**		1,228.2	55.7	56.4	0.7	56.6	0.9	56.8	1.1	56.1	0.4	55.9	0.2	55.7	0.0
Exploits River	43.15**		1,400.9	54.4	54.8	0.4	55.0	0.6	55.2	0.8	54.3	-0.1	54.0	-0.4	53.8	-0.6
Exploits River	43.097*		1,820.0	53.0	53.3	0.3	53.5	0.5	53.8	0.8	52.7	-0.3	52.4	-0.6	52.1	-0.9
Exploits River	43.045*		1,820.0	51.2	51.5	0.3	51.7	0.5	52.0	0.8	51.0	-0.2	50.7	-0.5	50.5	-0.7
Exploits River	42.9919		1,820.0	47.4	47.5	0.1	47.7	0.3	47.8	0.4	47.1	-0.3	47.0	-0.4	46.8	-0.6
Exploits River	42.926*		1,820.0	43.7	44.2	0.5	44.6	0.9	45.0	1.3	43.3	-0.4	42.9	-0.8	42.4	-1.3
Exploits River	42.8601		1,820.0	40.6	41.0	0.4	41.5	0.9	41.9	1.3	40.1	-0.5	39.6	-1.0	39.1	-1.5
Exploits River	42.8015		1,820.0	40.8	41.3	0.5	41.8	1.0	42.2	1.4	40.3	-0.5	39.8	-1.0	39.2	-1.6
Exploits River	42.749*		1,820.0	40.2	40.7	0.5	41.1	0.9	41.5	1.3	39.8	-0.4	39.2	-1.0	38.7	-1.5
Exploits River	42.697*		1,820.0	39.5	39.9	0.4	40.3	0.8	40.7	1.2	39.0	-0.5	38.6	-0.9	38.0	-1.5
Exploits River	42.645*		1,820.0	38.5	38.9	0.4	39.3	0.8	39.7	1.2	38.1	-0.4	37.7	-0.8	37.2	-1.3
Exploits River	42.593		1,820.0	36.9	37.3	0.4	37.6	0.7	37.9	1.0	36.5	-0.4	36.1	-0.8	35.7	-1.2
Exploits River	42.538*		1,820.0	35.3	35.6	0.3	35.9	0.6	36.3	1.0	35.0	-0.3	34.6	-0.7	34.3	-1.0
Exploits River	42.483*		1,820.0	33.3	33.7	0.4	34.2	0.9	34.6	1.3	32.8	-0.5	32.3	-1.0	31.8	-1.5
Exploits River	42.4277	Grand Falls Powerhouse	1,820.0	33.5	33.9	0.4	34.3	0.8	34.7	1.2	33.0	-0.5	32.6	-0.9	32.1	-1.4
Exploits River	42.359*		1,820.0	33.4	33.8	0.4	34.2	0.8	34.7	1.3	32.9	-0.5	32.4	-1.0	31.9	-1.5
Exploits River	42.2908		1,820.0	33.0	33.5	0.5	33.9	0.9	34.3	1.3	32.5	-0.5	32.0	-1.0	31.5	-1.5
Exploits River	42.231*		1,820.0	32.5	33.0	0.5	33.4	0.9	33.8	1.3	32.0	-0.5	31.6	-0.9	31.0	-1.5
Exploits River	42.1704		1,820.0	31.8	32.2	0.4	32.7	0.9	33.1	1.3	31.3	-0.5	30.8	-1.0	30.3	-1.5
Exploits River	42.0882	US Mill Bridge	1,820.0	31.4	31.9	0.5	32.3	0.9	32.7	1.3	31.0	-0.4	30.5	-0.9	30.0	-1.4
Exploits River	42.0481	DS Mill Bridge	1,820.0	30.4	30.7	0.3	31.1	0.7	31.4	1.0	30.0	-0.4	29.6	-0.8	29.2	-1.2
Exploits River	41.9803		1,820.0	29.0	29.4	0.4	29.7	0.7	30.0	1.0	28.7	-0.3	28.3	-0.7	28.0	-1.0
Exploits River	41.8667		1,820.0	24.8	24.9	0.1	25.0	0.2	25.0	0.2	24.7	-0.1	24.6	-0.2	24.6	-0.2
Exploits River	41.745*		1,820.0	27.4	27.7	0.3	28.1	0.7	28.4	1.0	27.0	-0.4	26.7	-0.7	26.3	-1.1
Exploits River	41.6238		1,820.0	27.2	27.5	0.3	27.9	0.7	28.2	1.0	26.8	-0.4	26.4	-0.8	26.0	-1.2
Exploits River	41.511*		1,820.0	27.2	27.5	0.3	27.9	0.7	28.2	1.0	26.8	-0.4	26.4	-0.8	26.0	-1.2
Exploits River	41.3975		1,820.0	27.1	27.5	0.4	27.9	0.8	28.2	1.1	26.8	-0.3	26.4	-0.7	26.0	-1.1
Exploits River	41.3149		1,820.0	25.7	25.9	0.2	26.2	0.5	26.4	0.7	25.4	-0.3	25.1	-0.6	24.8	-0.9
Exploits River	41.227*		1,820.0	25.1	25.3	0.2	25.5	0.4	25.7	0.6	24.8	-0.3	24.6	-0.5	24.3	-0.8
Exploits River	41.1382		1,820.0	24.2	24.4	0.2	24.7	0.5	24.9	0.7	23.9	-0.3	23.7	-0.5	23.4	-0.8
Exploits River	41.0119		1,820.0	22.1	22.2	0.1	22.3	0.2	22.4	0.3	21.9	-0.2	21.8	-0.3	21.7	-0.4
Exploits River	40.9173		1,820.0	23.4	23.7	0.3	23.9	0.5	24.2	0.8	23.1	-0.3	22.8	-0.6	22.4	-1.0

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	40.7927		1,820.0	21.7	21.9	0.2	22.1	0.4	22.3	0.6	21.5	-0.2	21.2	-0.5	20.9	-0.8
Exploits River	40.6953	R13 (RIS 2013)	1,820.0	22.0	22.2	0.2	22.4	0.4	22.6	0.6	21.7	-0.3	21.5	-0.5	21.2	-0.8
Exploits River	40.2875	R14 (RIS 2013)	1,820.0	21.8	22.0	0.2	22.2	0.4	22.4	0.6	21.6	-0.2	21.3	-0.5	21.0	-0.8
Exploits River	39.7129	Gorge Park - R15 (RIS 2013)	1,820.0	21.6	21.8	0.2	22.0	0.4	22.2	0.6	21.4	-0.2	21.1	-0.5	20.9	-0.7
Exploits River	39.0938	Grand Falls Wastewater Treatment Facility - R16 (RIS 2013)	1,820.0	21.3	21.5	0.2	21.7	0.4	21.9	0.6	21.1	-0.2	20.8	-0.5	20.6	-0.7
Exploits River	37.1991	R17 (RIS 2013)	1,820.0	20.4	20.5	0.1	20.7	0.3	20.9	0.5	20.1	-0.3	19.9	-0.5	19.6	-0.8
Exploits River	36.0648	R18 (RIS 2013)	1,820.0	19.6	19.8	0.2	19.9	0.3	20.1	0.5	19.4	-0.2	19.2	-0.4	19.0	-0.6
Exploits River	34.5743		1,820.0	15.2	15.6	0.4	16.0	0.8	16.3	1.1	15.0	-0.2	14.9	-0.3	14.7	-0.5
Exploits River	33.297	R20 (RIS 2013)	1,820.0	14.9	15.3	0.4	15.6	0.7	15.9	1.0	14.6	-0.3	14.2	-0.7	13.7	-1.2
Exploits River	31.6595	Great Rattling Brook - R21 (RIS 2013)	1,820.0	14.7	15.0	0.3	15.3	0.6	15.6	0.9	14.3	-0.4	13.9	-0.8	13.5	-1.2
Exploits River	30.6038	R22 (RIS 2013)	1,820.0	14.6	14.9	0.3	15.2	0.6	15.5	0.9	14.2	-0.4	13.8	-0.8	13.4	-1.2
Exploits River	29.6258	R23 (RIS 2013)	1,820.0	14.5	14.9	0.4	15.2	0.7	15.4	0.9	14.1	-0.4	13.7	-0.8	13.3	-1.2
Exploits River	28.6539	Hobbs Park - R24 (RIS 2013)	1,820.0	14.5	14.8	0.3	15.1	0.6	15.4	0.9	14.1	-0.4	13.7	-0.8	13.3	-1.2
Exploits River	27.8131	Greenridge Rd - R25 (RIS 2013)	1,820.0	14.4	14.8	0.4	15.1	0.7	15.3	0.9	14.1	-0.3	13.7	-0.7	13.2	-1.2
Exploits River	27.0926	Market Rd - R26 (RIS 2013)	1,820.0	14.4	14.7	0.3	15.0	0.6	15.3	0.9	14.0	-0.4	13.6	-0.8	13.2	-1.2
Exploits River	26.3491	Exploits Ln - R27 (RIS 2013)	1,820.0	14.3	14.6	0.3	14.9	0.6	15.2	0.9	14.0	-0.3	13.6	-0.7	13.1	-1.2
Exploits River	25.6408	Doves Ln - R28 (RIS 2013)	1,820.0	14.2	14.6	0.4	14.9	0.7	15.1	0.9	13.9	-0.3	13.5	-0.7	13.1	-1.1
Exploits River	25.3931	Cannings Ln - R28A (SEM 2019)	1,820.0	14.2	14.6	0.4	14.9	0.7	15.1	0.9	13.9	-0.3	13.5	-0.7	13.1	-1.1
Exploits River	25.2785	US of Bishop's Falls Trestle - R29-1 (RIS 2013)	1,820.0	14.2	14.5	0.3	14.8	0.6	15.1	0.9	13.9	-0.3	13.5	-0.7	13.0	-1.2
Exploits River	25.2607	DS of Bishop's Falls Trestle - R29-2 (RIS 2013)	1,820.0	14.2	14.5	0.3	14.8	0.6	15.1	0.9	13.9	-0.3	13.5	-0.7	13.0	-1.2
Exploits River	25.2424	NLENHMO003 ER at Bishop's Falls Trestle	1,817.3	14.2	14.5	0.3	14.8	0.6	15.1	0.9	13.9	-0.3	13.5	-0.7	13.0	-1.2
Exploits River	24.9854	Kinsmen Dr - R29-2A (SEM 2019)	1,820.0	14.2	14.5	0.3	14.8	0.6	15.1	0.9	13.8	-0.4	13.5	-0.7	13.0	-1.2
Exploits River	24.7007	Riverside Dr - R30 (RIS 2013)	1,820.0	14.2	14.5	0.3	14.8	0.6	15.0	0.8	13.8	-0.4	13.4	-0.8	13.0	-1.2
Exploits River	24.1375	Sydney St - R31 (RIS 2013)	1,820.0	14.1	14.5	0.4	14.8	0.7	15.0	0.9	13.8	-0.3	13.4	-0.7	13.0	-1.1
Exploits River	23.7672	US of Bishop's Falls Dam	2,810.0	14.1	14.4	0.3	14.7	0.6	15.0	0.9	13.8	-0.3	13.4	-0.7	13.0	-1.1
Exploits River	23.7175	DS of Bishop's Falls Dam	2,810.0	7.0	7.3	0.3	7.7	0.7	8.0	1.0	6.6	-0.4	6.2	-0.8	5.8	-1.2
Exploits River	23.646*		2,810.0	6.8	7.2	0.4	7.5	0.7	7.9	1.1	6.5	-0.3	6.1	-0.7	5.6	-1.2
Exploits River	23.5744	Fallsview Park - RB01 (RIS 2012)	2,810.0	6.7	7.1	0.4	7.4	0.7	7.8	1.1	6.4	-0.3	6.0	-0.7	5.6	-1.1
Exploits River	23.3904	RB02 (RIS 2012)	2,810.0	6.8	7.2	0.4	7.5	0.7	7.9	1.1	6.5	-0.3	6.1	-0.7	5.6	-1.2
Exploits River	23.238	RB02A (SEM 2019)	2,810.0	6.7	7.0	0.3	7.4	0.7	7.7	1.0	6.3	-0.4	5.9	-0.8	5.5	-1.2
Exploits River	23.0435	RB03 (RIS 2012)	2,810.0	6.4	6.7	0.3	7.0	0.6	7.3	0.9	6.0	-0.4	5.7	-0.7	5.3	-1.1
Exploits River	22.8885	RB03A (SEM 2019)	2,810.0	6.1	6.4	0.3	6.7	0.6	7.0	0.9	5.8	-0.3	5.4	-0.7	5.0	-1.1
Exploits River	22.7187	RB03B (SEM 2019)	2,810.0	5.9	6.2	0.3	6.5	0.6	6.8	0.9	5.6	-0.3	5.2	-0.7	4.8	-1.1
Exploits River	22.6067	RB04 (RIS 2012)	2,810.0	5.8	6.2	0.4	6.5	0.7	6.8	1.0	5.5	-0.3	5.1	-0.7	4.8	-1.0
Exploits River	22.4171	RB04A (SEM 2019)	2,810.0	5.8	6.1	0.3	6.4	0.6	6.7	0.9	5.4	-0.4	5.1	-0.7	4.7	-1.1
Exploits River	22.1303	RB05 (RIS 2012)	2,810.0	5.3	5.6	0.3	6.0	0.7	6.3	1.0	5.0	-0.3	4.6	-0.7	4.2	-1.1
Exploits River	21.8941	RB06 (RIS 2012)	2,810.0	5.0	5.4	0.4	5.7	0.7	6.0	1.0	4.7	-0.3	4.3	-0.7	4.0	-1.0
Exploits River	21.769	US of Sir Robert Bond Bridge - RB07A (SEM 2019)	2,810.0	5.0	5.3	0.3	5.6	0.6	5.9	0.9	4.6	-0.4	4.3	-0.7	3.9	-1.1
Exploits River	21.73	RB07 (RIS 2012)	2,810.0	4.9	5.2	0.3	5.5	0.6	5.8	0.9	4.5	-0.4	4.2	-0.7	3.8	-1.1
Exploits River	21.6512	RB08A-1 (SEM 2019 and RIS 2012)	2,810.0	4.8	5.1	0.3	5.4	0.6	5.7	0.9	4.5	-0.3	4.2	-0.6	3.8	-1.0
Exploits River	21.6278	RB08A-2 (SEM 2019 and RIS 2012)	2,810.0	4.8	5.1	0.3	5.4	0.6	5.7	0.9	4.5	-0.3	4.1	-0.7	3.8	-1.0
Exploits River	21.446	RB09 (RIS 2012)	2,810.0	4.6	4.9	0.3	5.2	0.6	5.4	0.8	4.3	-0.3	3.9	-0.7	3.6	-1.0

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	21.2084	RB10 (RIS 2012)	2,810.0	4.4	4.7	0.3	5.0	0.6	5.3	0.9	4.1	-0.3	3.8	-0.6	3.4	-1.0
Exploits River	21.0315	RB11 (RIS 2012)	2,810.0	4.4	4.7	0.3	5.0	0.6	5.2	0.8	4.0	-0.4	3.7	-0.7	3.3	-1.1
Exploits River	20.7855	RB12 (RIS 2012)	2,810.0	4.2	4.5	0.3	4.8	0.6	5.0	0.8	3.9	-0.3	3.5	-0.7	3.2	-1.0
Exploits River	20.2457	RB12A (SEM 2019)	2,810.0	3.8	4.1	0.3	4.3	0.5	4.6	0.8	3.5	-0.3	3.2	-0.6	2.9	-0.9
Exploits River	19.7893	R32 (RIS 2013)	2,810.0	3.5	3.8	0.3	4.0	0.5	4.3	0.8	3.2	-0.3	3.0	-0.5	2.6	-0.9
Exploits River	19.0547	R33 (RIS 2013)	2,810.0	3.1	3.4	0.3	3.6	0.5	3.9	0.8	2.9	-0.2	2.6	-0.5	2.3	-0.8
Exploits River	18.4827	R34 (RIS 2013)	2,810.0	2.9	3.1	0.2	3.3	0.4	3.5	0.6	2.6	-0.3	2.4	-0.5	2.1	-0.8
Exploits River	18.0852	Jumpers Brook - R35 (RIS 2013)	2,810.0	2.8	3.1	0.3	3.3	0.5	3.5	0.7	2.6	-0.2	2.3	-0.5	2.1	-0.7
Exploits River	17.4444	R36 (RIS 2013)	2,810.0	2.7	2.9	0.2	3.1	0.4	3.3	0.6	2.4	-0.3	2.2	-0.5	2.0	-0.7
Exploits River	16.9165	R37 (RIS 2013)	2,810.0	2.4	2.6	0.2	2.8	0.4	3.0	0.6	2.2	-0.2	2.0	-0.4	1.8	-0.6
Exploits River	16.063	R38 (RIS 2013)	2,810.0	2.2	2.4	0.2	2.6	0.4	2.8	0.6	2.0	-0.2	1.8	-0.4	1.6	-0.6
Exploits River	15.4044	R39 (RIS 2013)	2,810.0	2.1	2.3	0.2	2.4	0.3	2.6	0.5	1.9	-0.2	1.7	-0.4	1.5	-0.6
Exploits River	14.5403	R40 (RIS 2013)	2,810.0	1.9	2.1	0.2	2.2	0.3	2.4	0.5	1.7	-0.2	1.5	-0.4	1.3	-0.6
Exploits River	13.5957	R41 (RIS 2013)	2,810.0	1.7	1.8	0.1	2.0	0.3	2.2	0.5	1.5	-0.2	1.3	-0.4	1.2	-0.5
Exploits River	12.56	R42 (RIS 2013)	2,810.0	1.4	1.5	0.1	1.7	0.3	1.8	0.4	1.3	-0.1	1.1	-0.3	1.0	-0.4
Exploits River	11.3843	R43 (RIS 2013)	2,810.0	1.1	1.2	0.1	1.3	0.2	1.4	0.3	1.0	-0.1	0.9	-0.2	0.8	-0.3
Exploits River	10.3678	R43A (SEM 2019)	2,810.0	0.9	1.0	0.1	1.1	0.2	1.2	0.3	0.9	0.0	0.8	-0.1	0.7	-0.2
Exploits River	9.399	Beatons Point - R43B (SEM 2019)	2,810.0	0.8	0.9	0.1	0.9	0.1	1.0	0.2	0.7	-0.1	0.7	-0.1	0.6	-0.2
Exploits River	8.4354	Rattling Brook - R43C (SEM 2019)	2,810.0	0.7	0.8	0.1	0.8	0.1	0.9	0.2	0.7	0.0	0.6	-0.1	0.6	-0.1
Exploits River	7.8307		2,810.0	0.6	0.7	0.1	0.7	0.1	0.8	0.2	0.6	0.0	0.6	0.0	0.5	-0.1
Exploits River	7.3871	Norris Arm	2,810.0	0.6	0.6	0.0	0.6	0.0	0.7	0.1	0.5	-0.1	0.5	-0.1	0.5	-0.1
Exploits River	6.9559		2,810.0	0.5	0.5	0.0	0.5	0.0	0.6	0.1	0.5	0.0	0.5	0.0	0.5	0.0
Exploits River	6.6198	Wigwam Point	2,810.0	0.4	0.5	0.1	0.5	0.1	0.5	0.1	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	3.1711	Peterview	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	2.4185	Peters Arm	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	0.9662	Botwood	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	0.0989	Mill Point	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Unnamed Stream GF-1	3.9291		1.3	101.9	102.0	0.1	102.1	0.2	102.2	0.3	101.8	-0.1	101.7	-0.2	101.6	-0.3
Unnamed Stream GF-1	3.9266	US of Hardy Avenue Culvert	1.3	101.9	102.0	0.1	102.1	0.2	102.2	0.3	101.8	-0.1	101.7	-0.2	101.6	-0.3
Unnamed Stream GF-1	3.8993	DS of Hardy Avenue Culvert	1.3	101.1	101.1	0.0	101.1	0.0	101.2	0.1	101.1	0.0	101.1	0.0	101.0	-0.1
Unnamed Stream GF-1	3.8668		1.3	101.1	101.1	0.0	101.0	-0.1	101.1	0.0	101.0	-0.1	100.9	-0.2	100.9	-0.2
Unnamed Stream GF-1	3.6413		1.3	98.5	98.5	0.0	98.6	0.1	98.5	0.0	98.5	0.0	98.5	0.0	98.5	0.0
Unnamed Stream GF-1	3.2981		1.3	95.2	95.2	0.0	95.2	0.0	95.2	0.0	95.2	0.0	95.1	-0.1	95.1	-0.1
Unnamed Stream GF-1	3.2091		1.3	94.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0
Unnamed Stream GF-1	3.1868	GF1_19 (SEM 2019)	1.9	92.9	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0
Unnamed Stream GF-1	2.3986	GF1_18 (SEM 2019)	1.9	84.1	84.1	0.0	84.1	0.0	84.2	0.1	84.1	0.0	84.0	-0.1	84.0	-0.1
Unnamed Stream GF-1	2.1729		1.9	83.1	83.1	0.0	83.1	0.0	83.1	0.0	83.1	0.0	83.1	0.0	83.1	0.0
Unnamed Stream GF-1	2.0095		1.9	80.2	80.3	0.1	80.3	0.1	80.3	0.1	80.2	0.0	80.2	0.0	80.2	0.0
Unnamed Stream GF-1	1.9833	GF1_17 (SEM 2019)	7.7	79.4	79.5	0.1	79.5	0.1	79.5	0.1	79.4	0.0	79.4	0.0	79.3	-0.1
Unnamed Stream GF-1	1.789	GF1_16 (SEM 2019)	7.7	79.5	79.5	0.0	79.6	0.1	79.6	0.1	79.5	0.0	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.6366	GF1_15 (SEM 2019)	7.7	79.5	79.5	0.0	79.5	0.0	79.6	0.1	79.5	0.0	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5884	GF1_14 (SEM 2019)	7.7	79.5	79.5	0.0	79.5	0.0	79.6	0.1	79.5	0.0	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5696	GF1_13 (SEM 2019)	7.7	79.5	79.5	0.0	79.5	0.0	79.6	0.1	79.4	-0.1	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5394	GF1_12 (SEM 2019)	7.7	79.4	79.5	0.1	79.5	0.1	79.5	0.1	79.4	0.0	79.4	0.0	79.3	-0.1
Unnamed Stream GF-1	1.3701	GF1_11 (SEM 2019)	7.7	78.5	78.5	0.0	78.5	0.0	78.6	0.1	78.5	0.0	78.5	0.0	78.5	0.0
Unnamed Stream GF-1	1.2166		7.7	77.0	77.0	0.0	77.0	0.0	77.0	0.0	76.9	-0.1	76.9	-0.1	76.9	-0.1
Unnamed Stream GF-1	1.0726	GF1_10 (SEM 2019)	17.9	75.8	75.9	0.1	75.9	0.1	76.0	0.2	75.8	0.0	75.7	-0.1	75.7	-0.1
Unnamed Stream GF-1	0.9813	GF1_09 (SEM 2019)	17.9	75.7	75.7	0.0	75.8	0.1	75.8	0.1	75.6	-0.1	75.6	-0.1	75.5	-0.2
Unnamed Stream GF-1	0.4813	GF1_07 (SEM 2019)	17.9	74.8	74.8	0.0	74.9	0.1	74.9	0.1	74.7	-0.1	74.7	-0.1	74.6	-0.2
Unnamed Stream GF-1	0.3708	GF1_06 (SEM 2019)	17.9	74.7	74.7	0.0	74.8	0.1	74.8	0.1	74.6	-0.1	74.6	-0.1	74.5	-0.2
Unnamed Stream GF-1	0.3031	GF1_05 (SEM 2019)	17.9	74.3	74.3	0.0	74.3	0.0	74.4	0.1	74.2	-0.1	74.2	-0.1	74.2	-0.1
Unnamed Stream GF-1	0.072	GF1_04 (SEM 2019)	17.9	70.8	70.8	0.0	70.9	0.1	70.9	0.1	70.8	0.0	70.8	0.0	70.7	-0.1
Unnamed Stream GF-1	0.0543	US of GF1 Stream Newfoundland T'Railway Culvert - GF1_03 (SEM 2019)	17.9	70.8	70.8	0.0	70.8	0.0	70.9	0.1	70.8	0.0	70.8	0.0	70.7	-0.1

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream GF-1	0.026	DS of GF1 Stream Newfoundland T'Railway Culvert - GF1_02 (SEM 2019)	17.9	70.3	70.4	0.1	70.4	0.1	70.4	0.1	70.3	0.0	70.2	-0.1	70.2	-0.1
Unnamed Stream GF-1	0.0107	GF1_01 (SEM 2019)	17.9	70.1	70.1	0.0	70.1	0.0	70.1	0.0	70.0	-0.1	70.0	-0.1	69.9	-0.2
Little Red Indian Brook	1.4448	LR12 (SEM 2019)	101.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.2	-0.3	99.1	-0.4
Little Red Indian Brook	1.3589	LR11 (SEM 2019)	101.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.3	-0.2	99.2	-0.3	99.1	-0.4
Little Red Indian Brook	1.262	LR10 (SEM 2019)	108.0	99.4	99.5	0.1	99.6	0.2	99.7	0.3	99.3	-0.1	99.1	-0.3	99.0	-0.4
Little Red Indian Brook	1.1451	LR09 (SEM 2019)	108.0	99.3	99.4	0.1	99.5	0.2	99.6	0.3	99.2	-0.1	99.0	-0.3	98.9	-0.4
Little Red Indian Brook	0.9927	LR08 (SEM 2019)	108.0	99.1	99.2	0.1	99.4	0.3	99.6	0.5	99.0	-0.1	98.8	-0.3	98.7	-0.4
Little Red Indian Brook	0.8548	LR07 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.7388	LR06 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Red Indian Brook	0.6948	US of Buchans Hwy Bridge - LR05 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Red Indian Brook	0.6682	DS of Buchans Hwy Bridge - LR04 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Red Indian Brook	0.6158	LR03 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Red Indian Brook	0.4661	School Rd - LR02 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Red Indian Brook	0.3022	LR01 (SEM 2019)	108.0	99.0	99.2	0.2	99.4	0.4	99.6	0.6	98.8	-0.2	98.5	-0.5	98.3	-0.7
Little Rushy Pond Brook	0.5608	LRP07 (SEM 2019)	2.4	74.9	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0
Little Rushy Pond Brook	0.3995	LRP06 (SEM 2019)	2.4	74.5	74.5	0.0	74.6	0.1	74.6	0.1	74.5	0.0	74.5	0.0	74.4	-0.1
Little Rushy Pond Brook	0.226		2.4	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Little Rushy Pond Brook	0.1839	LRP05 (SEM 2019)	2.4	73.0	73.1	0.1	73.1	0.1	73.1	0.1	73.0	0.0	73.0	0.0	73.0	0.0
Little Rushy Pond Brook	0.0801	LRP04 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.066	US of Little Rushy Pond Brook Unnamed Road Culvert - LRP03 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.0394	DS of Little Rushy Pond Brook Unnamed Road Culvert - LRP02 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.0119	LRP01 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Mullens Pond	0.4097	MP06 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Mullens Pond	0.3035	MP05 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Mullens Pond	0.2027	MP04 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Mullens Pond	0.0741	MP03 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Mullens Pond	0.0427	MP02 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Mullens Pond	0.0039	MP01 (SEM 2019) - Upstream of Second Avenue Culvert	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1	74.0	-0.1
Rushy Pond Brook	1.605	Rushy Pond - RP13 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.542	US of Rushy Pond T'Railway Bridge - RP12 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.522	DS of Rushy Pond T'Railway Bridge - RP11 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.493	RP10 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.462	RP09 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.398	RP08 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.225	RP07 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.195	US of Gold Course Bridge - RP06 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.161	DS of Golf Course Bridge - RP05 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	1.104	RP04 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	0.811	RP03 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Rushy Pond Brook	0.591	RP02 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Peak Flow (Open Water Condition)											
					Peak Flow +10%		Peak Flow +20%		Peak Flow +30%		Peak Flow -10%		Peak Flow -20%		Peak Flow -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Rushy Pond Brook	0.332	RP01 (SEM 2019)	29.6	71.6	72.1	0.5	72.3	0.7	72.5	0.9	71.7	0.1	71.5	-0.1	71.3	-0.3
Wigwam Brook	4.6443	WB28 (SEM 2019)	24.4	74.0	74.0	0.0	74.0	0.0	74.1	0.1	73.9	-0.1	73.9	-0.1	73.8	-0.2
Wigwam Brook	4.4546	WB27 (SEM 2019)	24.4	74.0	74.0	0.0	74.0	0.0	74.1	0.1	73.9	-0.1	73.9	-0.1	73.8	-0.2
Wigwam Brook	4.4153	US of Wigwam Brook Unnamed Road 2 Culvert - WB26 (SEM 2019)	24.4	73.8	73.8	0.0	73.8	0.0	74.1	0.3	73.8	0.0	73.5	-0.3	73.6	-0.2
Wigwam Brook	4.4012	DS of Wigwam Brook Unnamed Road 2 Culvert - WB25 (SEM 2019)	24.4	73.6	73.6	0.0	73.6	0.0	73.9	0.3	73.6	0.0	73.6	0.0	73.5	-0.1
Wigwam Brook	4.3888	WB24 (SEM 2019)	24.4	73.7	73.8	0.1	73.8	0.1	74.0	0.3	73.7	0.0	73.6	-0.1	73.6	-0.1
Wigwam Brook	4.0688	WB23 (SEM 2019)	24.4	73.7	73.7	0.0	73.7	0.0	74.0	0.3	73.6	-0.1	73.6	-0.1	73.5	-0.2
Wigwam Brook	3.9102	WB22 (SEM 2019)	24.4	73.7	73.7	0.0	73.7	0.0	74.0	0.3	73.6	-0.1	73.6	-0.1	73.5	-0.2
Wigwam Brook	3.7515	WB21 (SEM 2019)	24.4	73.6	73.7	0.1	73.7	0.1	73.9	0.3	73.6	0.0	73.6	0.0	73.5	-0.1
Wigwam Brook	3.7288	US of Wigwam Brook Unnamed Road 1 Culvert - WB20 (SEM 2019)	24.4	73.6	73.7	0.1	73.7	0.1	73.9	0.3	73.6	0.0	73.6	0.0	73.5	-0.1
Wigwam Brook	3.7128	DS of Wigwam Brook Unnamed Road 1 Culvert - WB19 (SEM 2019)	24.4	73.5	73.6	0.1	73.6	0.1	73.9	0.4	73.3	-0.2	73.2	-0.3	73.0	-0.5
Wigwam Brook	3.6981	WB18 (SEM 2019)	24.4	73.5	73.6	0.1	73.6	0.1	73.9	0.4	73.3	-0.2	73.2	-0.3	73.1	-0.4
Wigwam Brook	3.5404	WB17 (SEM 2019)	33.9	73.5	73.6	0.1	73.5	0.0	73.9	0.4	73.3	-0.2	73.1	-0.4	73.0	-0.5
Wigwam Brook	3.4136	WB16 (SEM 2019)	33.9	73.5	73.6	0.1	73.5	0.0	73.9	0.4	73.2	-0.3	73.1	-0.4	73.0	-0.5
Wigwam Brook	3.2845	WB15 (SEM 2019)	33.9	73.5	73.6	0.1	73.5	0.0	73.9	0.4	73.2	-0.3	73.1	-0.4	72.9	-0.6
Wigwam Brook	3.1	WB14 (SEM 2019)	33.9	73.4	73.5	0.1	73.5	0.1	73.8	0.4	73.2	-0.2	73.0	-0.4	72.9	-0.5
Wigwam Brook	2.9482	WB13 (SEM 2019)	33.9	73.4	73.5	0.1	73.5	0.1	73.8	0.4	73.2	-0.2	73.0	-0.4	72.9	-0.5
Wigwam Brook	2.9368	US of Red Cliff Road Bridge WB12 (SEM 2019)	33.9	73.4	73.5	0.1	73.5	0.1	73.8	0.4	73.2	-0.2	73.0	-0.4	72.9	-0.5
Wigwam Brook	2.9239	DS of Red Cliff Road Bridge WB11 (SEM 2019)	33.9	73.0	73.2	0.2	73.4	0.4	73.8	0.8	72.8	-0.2	72.7	-0.3	72.7	-0.3
Wigwam Brook	2.9206	WB10 (SEM 2019)	33.9	73.1	73.2	0.1	73.4	0.3	73.8	0.7	72.9	-0.2	72.8	-0.3	72.7	-0.4
Wigwam Brook	2.91	WB09 (SEM 2019)	33.9	73.1	73.2	0.1	73.4	0.3	73.8	0.7	72.9	-0.2	72.8	-0.3	72.7	-0.4
Wigwam Brook	2.9041	US of Wigwam Brook Newfoundland T'Railway Bridge - WB08 (SEM 2019)	33.9	73.0	73.2	0.2	73.4	0.4	73.8	0.8	72.9	-0.1	72.8	-0.2	72.7	-0.3
Wigwam Brook	2.89	DS of Wigwam Brook Newfoundland T'Railway Bridge - WB07 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.86	WB06 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.707	WB05 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.584	WB04 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.491	WB03 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.379	WB02 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.289	WB01 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.905	NA04 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.546	US of TCH - NA03 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.394	DS of TCH - NA02 (SEM 2019)	33.9	71.8	72.0	0.2	72.2	0.4	72.4	0.6	71.6	-0.2	71.4	-0.4	71.2	-0.6
Wigwam Brook	1.184	North Angle - NA01 (SEM 2019)	33.9	71.8	72.0	0.2	72.2	0.4	72.4	0.6	71.6	-0.2	71.4	-0.4	71.2	-0.6

Notes:

1. * Denotes interpolated cross-section
2. ** Flows in main river channel reduced due to diversion through Grand Falls Power Canal before being returned to river.

Table A-2: Sensitivity of Water Surface Elevation to Peak Flow

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream B-1	0.9685	B1_12 (SEM 2019)	7.0	100.7	100.7	0.0	100.7	0.0	100.7	0.0	100.6	-0.1	100.6	-0.1	100.6	-0.1
Unnamed Stream B-1	0.8553	B1_11 (SEM 2019)	7.0	100.5	100.6	0.1	100.6	0.1	100.6	0.1	100.5	0.0	100.5	0.0	100.5	0.0
Unnamed Stream B-1	0.7466	B1_10 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0
Unnamed Stream B-1	0.5876	B1_09 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0
Unnamed Stream B-1	0.5714	US of Stream B1 Newfoundland T'Railway Culvert - B1_08 (SEM 2019)	7.0	100.5	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0	100.5	0.0
Unnamed Stream B-1	0.5558	DS of Stream B1 Newfoundland T'Railway Culvert - B1_07 (SEM 2019)	7.0	99.8	99.8	0.0	99.8	0.0	99.9	0.1	99.8	0.0	99.8	0.0	99.8	0.0
Unnamed Stream B-1	0.5439	B1_06 (SEM 2019)	7.0	99.7	99.7	0.0	99.8	0.1	99.9	0.2	99.7	0.0	99.6	-0.1	99.6	-0.1
Unnamed Stream B-1	0.4387	B1_05 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Unnamed Stream B-1	0.3206	B1_04 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Unnamed Stream B-1	0.2384	B1_03 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Unnamed Stream B-1	0.1267	B1_02 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Unnamed Stream B-1	0.0581	B1_01 (SEM 2019)	7.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Badger Brook	1.9217	BB06A (SEM 2019)	325.0	99.8	99.9	0.1	100.1	0.3	100.2	0.4	99.7	-0.1	99.5	-0.3	99.4	-0.4
Badger Brook	1.7167	BB05 (SEM 2016)	325.0	99.7	99.9	0.2	100.0	0.3	100.1	0.4	99.6	-0.1	99.5	-0.2	99.3	-0.4
Badger Brook	1.4957	BB05A (SEM 2019)	325.0	99.7	99.8	0.1	99.9	0.2	100.0	0.3	99.6	-0.1	99.4	-0.3	99.3	-0.4
Badger Brook	1.3039	BB04 (SEM 2016)	325.0	99.6	99.7	0.1	99.9	0.3	100.0	0.4	99.5	-0.1	99.4	-0.2	99.2	-0.4
Badger Brook	1.2069	BB04A (SEM 2019)	325.0	99.6	99.7	0.1	99.8	0.2	99.9	0.3	99.4	-0.2	99.3	-0.3	99.2	-0.4
Badger Brook	1.0769	BB04B (SEM 2019)	325.0	99.5	99.7	0.2	99.8	0.3	99.9	0.4	99.4	-0.1	99.3	-0.2	99.1	-0.4
Badger Brook	0.9728	BB04C (SEM 2019)	325.0	99.4	99.5	0.1	99.7	0.3	99.8	0.4	99.2	-0.2	99.1	-0.3	99.0	-0.4
Badger Brook	0.9409	US of Badger Brook Footbridge - BB03 (SEM 2016)	325.0	99.3	99.5	0.2	99.6	0.3	99.7	0.4	99.2	-0.1	99.1	-0.2	99.0	-0.3
Badger Brook	0.9254	02Y0019 Badger Brook Below Footbridge - BB03A (SEM 2019)	325.0	99.3	99.4	0.1	99.5	0.2	99.7	0.4	99.1	-0.2	99.0	-0.3	98.9	-0.4
Badger Brook	0.8924	BB03B (SEM 2019)	325.0	99.2	99.4	0.2	99.5	0.3	99.6	0.4	99.1	-0.1	99.0	-0.2	98.9	-0.3
Badger Brook	0.8392	BB03C (SEM 2019)	325.0	99.2	99.4	0.2	99.5	0.3	99.6	0.4	99.1	-0.1	99.0	-0.2	98.9	-0.3
Badger Brook	0.8126	US of Badger Brook TCH Bridge - BB03D (SEM 2019)	325.0	99.2	99.3	0.1	99.4	0.2	99.6	0.4	99.1	-0.1	99.0	-0.2	98.8	-0.4
Badger Brook	0.7753	DS of Badger Brook TCH Bridge - BB02 (SEM 2016)	325.0	99.1	99.2	0.1	99.3	0.2	99.4	0.3	99.0	-0.1	98.9	-0.2	98.8	-0.3
Badger Brook	0.721	BB02A (SEM 2019)	325.0	99.1	99.2	0.1	99.3	0.2	99.4	0.3	99.0	-0.1	98.9	-0.2	98.8	-0.3
Badger Brook	0.6184	BB02B (SEM 2019)	325.0	99.0	99.1	0.1	99.2	0.2	99.3	0.3	98.9	-0.1	98.8	-0.2	98.7	-0.3
Badger Brook	0.5224	BB02C (SEM 2019)	325.0	98.9	99.0	0.1	99.1	0.2	99.2	0.3	98.8	-0.1	98.7	-0.2	98.7	-0.2
Badger Brook	0.4442	Sunset Dr - BB02D (SEM 2019)	325.0	98.8	98.9	0.1	99.0	0.2	99.0	0.2	98.7	-0.1	98.6	-0.2	98.6	-0.2
Badger Brook	0.3917	US of Badger Brook T'Railway Bridge - BB02E (SEM 2019)	325.0	98.6	98.7	0.1	98.8	0.2	98.9	0.3	98.5	-0.1	98.5	-0.1	98.4	-0.2
Badger Brook	0.3658	DS of Badger Brook T'Railway Bridge - BB01 (SEM 2016)	325.0	98.5	98.6	0.1	98.8	0.3	98.9	0.4	98.4	-0.1	98.3	-0.2	98.3	-0.2
Badger Brook	0.3082	Beothuck St - BB01A (SEM 2019)	325.0	98.5	98.6	0.1	98.8	0.3	98.9	0.4	98.3	-0.2	98.1	-0.4	97.9	-0.6
Unnamed Stream BF-1	1.2199	BF1_13 (SEM 2019)	0.0	13.8	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0	13.8	0.0
Unnamed Stream BF-1	1.2052	BF1_12 (SEM 2019)	0.0	13.7	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0	13.7	0.0
Unnamed Stream BF-1	1.1653	BF1_11 (SEM 2019)	0.0	13.2	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0
Unnamed Stream BF-1	1.1519	BF1_10 (SEM 2019)	0.0	13.2	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0	13.2	0.0
Unnamed Stream BF-1	0.8154	BF1_09 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.7	0.1	12.6	0.0	12.6	0.0	12.6	0.0
Unnamed Stream BF-1	0.6008	BF1_08 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.7	0.1	12.6	0.0	12.6	0.0	12.6	0.0
Unnamed Stream BF-1	0.3778	BF1_07 (SEM 2019)	0.0	12.6	12.6	0.0	12.6	0.0	12.7	0.1	12.6	0.0	12.6	0.0	12.6	0.0
Unnamed Stream BF-1	0.3504	BF1_06 (SEM 2019)	0.4	12.5	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0	12.5	0.0
Unnamed Stream BF-1	0.258		0.4	11.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0	11.0	0.0
Unnamed Stream BF-1	0.2506		0.4	10.3	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0	10.3	0.0

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)													
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%			
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)		
Unnamed Stream BF-1	0.2187		0.4	9.5	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0	9.5	0.0		
Unnamed Stream BF-1	0.2082		0.4	9.3	9.3	0.0	9.3	0.0	9.3	0.0	9.2	-0.1	9.2	-0.1	9.2	-0.1		
Unnamed Stream BF-1	0.187		0.4	8.6	8.6	0.0	8.6	0.0	8.6	0.0	8.6	0.0	8.5	-0.1	8.5	-0.1		
Unnamed Stream BF-1	0.1824		0.4	8.4	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0	8.4	0.0		
Unnamed Stream BF-1	0.164		0.4	7.2	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0	7.2	0.0		
Unnamed Stream BF-1	0.1552		0.4	6.3	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0	6.3	0.0		
Unnamed Stream BF-1	0.0907	BF1_01 (SEM 2019)	0.4	4.1	4.4	0.3	4.7	0.6	4.9	0.8	3.8	-0.3	3.5	-0.6	3.2	-0.9		
Unnamed Stream BF-2	1.249	BF2_15 (SEM 2019)	3.9	27.0	27.0	0.0	27.1	0.1	27.1	0.1	26.9	-0.1	26.9	-0.1	26.8	-0.2		
Unnamed Stream BF-2	0.8133	BF2_14 (SEM 2019)	6.2	20.9	20.9	0.0	20.9	0.0	20.9	0.0	20.9	0.0	20.9	0.0	20.8	-0.1		
Unnamed Stream BF-2	0.569		6.2	18.2	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0		
Unnamed Stream BF-2	0.5639	US of Kings Road Culvert	6.2	18.2	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0	18.2	0.0		
Unnamed Stream BF-2	0.5235	DS of Kings Road Culvert	6.2	17.7	17.7	0.0	17.7	0.0	17.7	0.0	17.7	0.0	17.7	0.0	17.6	-0.1		
Unnamed Stream BF-2	0.52		6.2	17.7	17.7	0.0	17.7	0.0	17.7	0.0	17.7	0.0	17.7	0.0	17.6	-0.1		
Unnamed Stream BF-2	0.4432	BF2_13 (SEM 2019)	6.2	17.6	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0		
		US of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_12 (SEM 2019)																
Unnamed Stream BF-2	0.425		6.2	17.6	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0		
		DS of BF2 Stream Exploits Valley and Beothuk Trail Culvert - BF2_11 (SEM 2019)																
Unnamed Stream BF-2	0.414		6.2	16.5	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.4	-0.1	16.4	-0.1		
Unnamed Stream BF-2	0.4078	BF2_10 (SEM 2019)	6.2	16.5	16.5	0.0	16.5	0.0	16.5	0.0	16.5	0.0	16.4	-0.1	16.4	-0.1		
Unnamed Stream BF-2	0.3773	BF2_09 (SEM 2019)	6.2	16.4	16.4	0.0	16.4	0.0	16.5	0.1	16.4	0.0	16.4	0.0	16.4	0.0		
		US of BF2 Stream Main Street Culvert - BF2_08 (SEM 2019)																
Unnamed Stream BF-2	0.3702		6.2	16.4	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0		
		DS of BF2 Stream Main Street Culvert - BF2_07 (SEM 2019)																
Unnamed Stream BF-2	0.3551		6.2	15.4	15.4	0.0	15.4	0.0	15.5	0.1	15.3	-0.1	15.3	-0.1	15.3	-0.1		
Unnamed Stream BF-2	0.3453	BF2_06 (SEM 2019)	6.2	15.4	15.4	0.0	15.4	0.0	15.4	0.0	15.4	0.0	15.3	-0.1	15.3	-0.1		
Unnamed Stream BF-2	0.3108	BF2_05 (SEM 2019)	6.2	15.3	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0		
		US of Culvert Under Private Home- BF2_04 (SEM 2019)																
Unnamed Stream BF-2	0.306		6.2	15.3	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0	15.3	0.0		
		DS of Culvert Under Private Home- BF2_03 (SEM 2019)																
Unnamed Stream BF-2	0.2516		6.2	12.4	12.4	0.0	12.4	0.0	12.5	0.1	12.3	-0.1	12.3	-0.1	12.2	-0.2		
Unnamed Stream BF-2	0.2403	BF2_02 (SEM 2019)	6.2	12.1	12.1	0.0	12.1	0.0	12.1	0.0	12.1	0.0	12.1	0.0	12.1	0.0		
Unnamed Stream BF-2	0.1851	BF2_01 (SEM 2019)	6.2	6.9	7.2	0.3	7.5	0.6	7.8	0.9	6.6	-0.3	6.3	-0.6	6.0	-0.9		
Unnamed Stream BF-3	2.1832	BF3_40 (SEM 2019)	10.0	42.7	42.7	0.0	42.8	0.1	42.8	0.1	42.6	-0.1	42.6	-0.1	42.5	-0.2		
Unnamed Stream BF-3	1.7353	BF3_39 (SEM 2019)	10.0	41.6	41.6	0.0	41.6	0.0	41.6	0.0	41.6	0.0	41.6	0.0	41.6	0.0		
Unnamed Stream BF-3	1.5001	BF3_38 (SEM 2019)	10.0	40.5	40.5	0.0	40.5	0.0	40.5	0.0	40.4	-0.1	40.4	-0.1	40.4	-0.1		
Unnamed Stream BF-3	1.3954	BF3_37 (SEM 2019)	10.0	40.4	40.4	0.0	40.4	0.0	40.4	0.0	40.4	0.0	40.4	0.0	40.4	0.0		
Unnamed Stream BF-3	1.3364	BF3_36 (SEM 2019)	10.0	40.2	40.2	0.0	40.2	0.0	40.2	0.0	40.2	0.0	40.2	0.0	40.2	0.0		
Unnamed Stream BF-3	0.9835	BF3_35 (SEM 2019)	10.0	39.4	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0		
		US of BF3 Stream TCH Culvert - BF3_34 (SEM 2019)																
Unnamed Stream BF-3	0.9728		10.0	39.4	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0	39.4	0.0		
		DS of BF3 Stream TCH Culvert - BF3_33 (SEM 2019)																
Unnamed Stream BF-3	0.9315		10.0	36.8	36.8	0.0	36.9	0.1	36.9	0.1	36.8	0.0	36.7	-0.1	36.7	-0.1		
Unnamed Stream BF-3	0.9232	BF3_32 (SEM 2019)	10.0	36.8	36.8	0.0	36.9	0.1	36.9	0.1	36.7	-0.1	36.7	-0.1	36.6	-0.2		
Unnamed Stream BF-3	0.8646	BF3_31 (SEM 2019)	10.2	35.8	35.8	0.0	35.8	0.0	35.8	0.0	35.8	0.0	35.8	0.0	35.8	0.0		
		US of Dominic Street 3 Bridge - BF3_30B (SEM 2019)																
Unnamed Stream BF-3	0.821		10.2	33.9	33.9	0.0	34.3	0.4	34.3	0.4	33.8	-0.1	33.7	-0.2	33.7	-0.2		
		DS of Dominic Street 3 Bridge - BF3_30A (SEM 2019)																
Unnamed Stream BF-3	0.8128		10.2	33.0	33.1	0.1	33.3	0.3	33.3	0.3	33.0	0.0	33.0	0.0	32.9	-0.1		
Unnamed Stream BF-3	0.7811	BF3_30 (SEM 2019)	10.2	32.0	32.0	0.0	32.1	0.1	32.1	0.1	32.0	0.0	31.5	-0.5	31.4	-0.6		

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream BF-3	0.7753	US of Dominic Street 2 Bridge - BF3_29 (SEM 2019)	10.2	31.9	31.9	0.0	31.9	0.0	31.9	0.0	31.9	0.0	31.9	0.0	31.6	-0.3
Unnamed Stream BF-3	0.7687	DS of Dominic Street 2 Bridge - BF3_28 (SEM 2019)	10.2	31.0	31.0	0.0	31.0	0.0	31.0	0.0	31.0	0.0	31.0	0.0	30.7	-0.3
Unnamed Stream BF-3	0.7634	BF3_27 (SEM 2019)	10.2	30.5	30.5	0.0	30.6	0.1	30.6	0.1	30.5	0.0	30.5	0.0	30.4	-0.1
Unnamed Stream BF-3	0.7448	BF3_26 (SEM 2019)	10.2	29.0	29.1	0.1	29.1	0.1	29.2	0.2	29.0	0.0	29.0	0.0	28.9	-0.1
Unnamed Stream BF-3	0.7399	US of Dominic Street 1 Bridge - BF3_25 (SEM 2019)	10.2	28.9	29.3	0.4	29.3	0.4	29.4	0.5	28.8	-0.1	28.7	-0.2	28.7	-0.2
Unnamed Stream BF-3	0.7299	DS of Dominic Street 1 Bridge - BF3_24 (SEM 2019)	10.2	27.9	28.1	0.2	28.1	0.2	28.1	0.2	27.9	0.0	27.8	-0.1	27.8	-0.1
Unnamed Stream BF-3	0.725	BF3_23 (SEM 2019)	10.2	27.5	27.5	0.0	27.5	0.0	27.5	0.0	27.5	0.0	27.4	-0.1	27.4	-0.1
Unnamed Stream BF-3	0.7031	BF3_22 (SEM 2019)	10.2	26.3	26.4	0.1	26.4	0.1	26.5	0.2	26.3	0.0	26.2	-0.1	26.1	-0.2
Unnamed Stream BF-3	0.6956	US of Beaumont Heights 2 Bridge - BF3_21 (SEM 2019)	10.2	26.0	26.3	0.3	26.3	0.3	26.3	0.3	26.0	0.0	25.9	-0.1	25.8	-0.2
Unnamed Stream BF-3	0.6889	DS of Beaumont Heights 2 Bridge - BF3_20 (SEM 2019)	10.2	25.4	25.6	0.2	25.6	0.2	25.6	0.2	25.4	0.0	25.3	-0.1	25.3	-0.1
Unnamed Stream BF-3	0.6819	BF3_19 (SEM 2019)	10.2	25.1	25.1	0.0	25.1	0.0	25.2	0.1	25.0	-0.1	25.0	-0.1	24.9	-0.2
Unnamed Stream BF-3	0.6546	BF3_18 (SEM 2019)	10.2	24.7	24.7	0.0	24.7	0.0	24.8	0.1	24.7	0.0	24.7	0.0	24.7	0.0
Unnamed Stream BF-3	0.6471	US of Beaumont Heights 1 Culvert - BF3_17 (SEM 2019)	10.2	24.8	24.8	0.0	24.8	0.0	24.8	0.0	24.8	0.0	24.8	0.0	24.8	0.0
Unnamed Stream BF-3	0.6279	DS of Beaumont Heights 1 Culvert - BF3_16 (SEM 2019)	10.2	23.4	23.5	0.1	23.5	0.1	23.5	0.1	23.4	0.0	23.3	-0.1	23.3	-0.1
Unnamed Stream BF-3	0.6126	BF3_15 (SEM 2019)	10.2	23.0	23.0	0.0	23.0	0.0	23.0	0.0	23.0	0.0	23.0	0.0	23.0	0.0
Unnamed Stream BF-3	0.557	BF3_14 (SEM 2019)	10.2	20.7	20.8	0.1	20.9	0.2	20.9	0.2	20.7	0.0	20.6	-0.1	20.6	-0.1
Unnamed Stream BF-3	0.4815	BF3_13 (SEM 2019)	10.2	18.9	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0
Unnamed Stream BF-3	0.4754	US of BF3 Stream Main St Culvert - BF3_12 (SEM 2019)	10.2	18.9	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0	18.9	0.0
Unnamed Stream BF-3	0.2728	DS of BF3 Stream Main St Culvert - BF3_01B (SEM 2019)	10.2	14.4	14.4	0.0	14.4	0.0	14.5	0.1	14.3	-0.1	14.3	-0.1	14.3	-0.1
Unnamed Stream BF-3	0.2634	BF3_01A (SEM 2019)	10.2	14.4	14.4	0.0	14.4	0.0	14.5	0.1	14.3	-0.1	14.3	-0.1	14.3	-0.1
Unnamed Stream BF-3	0.2034	BF3_01 (SEM 2019)	10.2	14.4	14.4	0.0	14.4	0.0	14.5	0.1	14.3	-0.1	14.3	-0.1	14.3	-0.1
Unnamed Stream BF-4	0.9422	BF4_19 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.8648	BF4_18 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.8466	BF4_17 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.8268	BF4_16 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.8212	BF4_15 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.7068	BF4_14 (SEM 2019)	1.4	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.6155	BF4_13 (SEM 2019)	1.8	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.6133	US of BF4 Stream Newfoundland T'Railway Culvert - BF4_12 (SEM 2019)	1.8	18.7	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0	18.7	0.0
Unnamed Stream BF-4	0.602	DS of BF4 Stream Newfoundland T'Railway Culvert - BF4_11 (SEM 2019)	1.8	18.5	18.5	0.0	18.5	0.0	18.5	0.0	18.5	0.0	18.5	0.0	18.5	0.0
Unnamed Stream BF-4	0.5931	BF4_10 (SEM 2019)	1.8	18.5	18.5	0.0	18.5	0.0	18.5	0.0	18.5	0.0	18.5	0.0	18.4	-0.1
Unnamed Stream BF-4	0.5102	BF4_09 (SEM 2019)	1.8	18.4	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream BF-4	0.5003	US of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_08 (SEM 2019)	1.8	18.4	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0	18.4	0.0
Unnamed Stream BF-4	0.4872	DS of BF4 Stream Exploits Valley and Beothuk Trail Culvert - BF4_07 (SEM 2019)	1.8	17.6	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0	17.6	0.0
Unnamed Stream BF-4	0.4744	BF4_06 (SEM 2019)	1.8	17.1	17.1	0.0	17.1	0.0	17.2	0.1	17.0	-0.1	16.6	-0.5	16.6	-0.5
Unnamed Stream BF-4	0.3664	BF4_05 (SEM 2019)	1.8	16.7	16.7	0.0	16.7	0.0	16.7	0.0	16.6	-0.1	16.6	-0.1	16.6	-0.1
Unnamed Stream BF-4	0.3556	US of BF4 Stream Main Street Culvert - BF4_04 (SEM 2019)	1.8	16.4	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0	16.4	0.0
Unnamed Stream BF-4	0.3336	DS of BF4 Stream Main Street Culvert - BF4_03 (SEM 2019)	1.8	15.8	15.8	0.0	15.9	0.1	15.9	0.1	15.8	0.0	15.8	0.0	15.8	0.0
Unnamed Stream BF-4	0.3233	BF4_02 (SEM 2019)	1.8	15.5	15.5	0.0	15.5	0.0	15.5	0.0	15.5	0.0	15.4	-0.1	15.4	-0.1
Unnamed Stream BF-4	0.2414	BF4_01 (SEM 2019)	1.8	14.5	14.6	0.1	14.7	0.2	14.7	0.2	14.5	0.0	14.4	-0.1	14.3	-0.2
Corduroy Brook	3.8918	CB80 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.6717	CB79 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.5448	CB78 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.4083	CB77 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.397	CB76 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.3476	CB75 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.3174	US of Corduroy Brook Newoundland T'Railway Culvert - CB74 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.3013	DS of Corduroy Brook Newoundland T'Railway Culvert - CB71/CB73 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.2959	CB70/CB72 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.2785	CB69 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.2706	US of Princess Drive Culvert - CB68 (SEM 2019)	5.6	82.8	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0	82.8	0.0
Corduroy Brook	3.2426	DS of Princess Drive Culvert - CB67 (SEM 2019)	5.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	3.2308	CB66 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	3.1255	CB65 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	2.9841	CB64 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	2.854	CB63 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	2.7942	CB62 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	2.7783	US of Harris Ave Culvert - CB61 (SEM 2019)	3.6	82.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0	82.0	0.0
Corduroy Brook	2.5843	DS of Harris Ave Culvert - CB55 (SEM 2019)	3.6	81.2	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0
Corduroy Brook	2.577	CB54 (SEM 2019)	3.6	81.2	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0
Corduroy Brook	2.5346	CB53 (SEM 2019)	4.9	81.2	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0
Corduroy Brook	2.5024	CB52 (SEM 2019)	4.9	81.2	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0
Corduroy Brook	2.4882	US of Cromer Avenue Culvert - CB51 (SEM 2019)	4.9	81.2	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0	81.2	0.0
Corduroy Brook	2.3516	DS of Cromer Avenue Culvert - CB47A (SEM 2019)	4.9	78.8	78.8	0.0	78.9	0.1	78.9	0.1	78.8	0.0	78.8	0.0	78.8	0.0
Corduroy Brook	2.3284	CB47 (SEM 2019)	4.9	78.4	78.4	0.0	78.4	0.0	78.4	0.0	78.4	0.0	78.3	-0.1	78.3	-0.1
Corduroy Brook	2.277	CB46 (SEM 2019)	4.9	76.8	76.8	0.0	76.8	0.0	76.9	0.1	76.8	0.0	76.7	-0.1	76.7	-0.1
Corduroy Brook	2.1696	CB45 (SEM 2019)	4.9	76.2	76.2	0.0	76.2	0.0	76.3	0.1	76.1	-0.1	76.1	-0.1	76.1	-0.1
Corduroy Brook	2.0288	CB44 (SEM 2019)	4.9	75.7	75.7	0.0	75.8	0.1	75.8	0.1	75.7	0.0	75.7	0.0	75.6	-0.1
Corduroy Brook	1.921	CB43 (SEM 2019)	4.9	75.6	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0
Corduroy Brook	1.8184	CB42 (SEM 2019)	4.9	75.6	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0	75.6	0.0

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Corduroy Brook	1.8101	US of Duggan Street 2 Culvert - CB41 (SEM 2019)	4.9	75.5	75.5	0.0	75.5	0.0	75.5	0.0	75.5	0.0	75.5	0.0	75.5	0.0
Corduroy Brook	1.7808	DS of Duggan Street 2 Culvert - CB40 (SEM 2019)	4.9	75.0	75.1	0.1	75.1	0.1	75.1	0.1	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.7767	CB39 (SEM 2019)	7.2	75.0	75.1	0.1	75.1	0.1	75.1	0.1	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.7367	CB38 (SEM 2019)	7.2	75.0	75.0	0.0	75.1	0.1	75.1	0.1	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.6622	CB37 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.1	0.1	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.5718	CB36 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.5636	US of Duggan Street 1 Bridge - CB35 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.5582	DS of Duggan Street 1 Bridge - CB34 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.5492	CB33 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.4747	CB32 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.4028	CB31 (SEM 2019)	7.2	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.3922	US of Corduroy Brook TCH Culvert - CB30 (SEM 2019)	7.8	75.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0	75.0	0.0
Corduroy Brook	1.3449	DS of Corduroy Brook TCH Culvert - CB29 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.5	0.1	73.4	0.0	73.4	0.0	73.4	0.0
Corduroy Brook	1.3314	CB28 (SEM 2019)	7.8	73.4	73.5	0.1	73.5	0.1	73.5	0.1	73.4	0.0	73.4	0.0	73.4	0.0
Corduroy Brook	1.2395	CB27 (SEM 2019)	7.8	73.4	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0
Corduroy Brook	1.1315	CB26 (SEM 2019)	7.8	73.4	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0
Corduroy Brook	1.1201	US of Corduroy Brook Lane Culvert - CB25 (SEM 2019)	7.8	73.4	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0
Corduroy Brook	1.0982	DS of Corduroy Brook Lane Culvert - CB24 (SEM 2019)	7.8	71.5	71.5	0.0	71.5	0.0	71.5	0.0	71.4	-0.1	71.4	-0.1	71.4	-0.1
Corduroy Brook	1.088	CB23 (SEM 2019)	7.8	71.2	71.2	0.0	71.3	0.1	71.3	0.1	71.2	0.0	71.2	0.0	71.2	0.0
Corduroy Brook	1.0141	CB22 (SEM 2019)	7.8	70.9	70.9	0.0	70.9	0.0	70.9	0.0	70.9	0.0	70.8	-0.1	70.8	-0.1
Corduroy Brook	1.0026	US of Squires Lane 2 Bridge - CB21 (SEM 2019)	7.8	70.7	70.7	0.0	70.8	0.1	70.8	0.1	70.7	0.0	70.7	0.0	70.6	-0.1
Corduroy Brook	0.9964	DS of Squires Lane 2 Bridge - CB20 (SEM 2019)	7.8	70.5	70.5	0.0	70.5	0.0	70.6	0.1	70.5	0.0	70.5	0.0	70.5	0.0
Corduroy Brook	0.991	CB19 (SEM 2019)	7.8	70.5	70.6	0.1	70.6	0.1	70.7	0.2	70.4	-0.1	69.9	-0.6	69.9	-0.6
Corduroy Brook	0.9421	US of Squires Lane 1 Bridge - CB18B (SEM 2019)	7.8	70.4	70.5	0.1	70.5	0.1	70.6	0.2	70.3	-0.1	70.2	-0.2	70.2	-0.2
Corduroy Brook	0.9284	DS of Squires Lane 1 Bridge - CB18A (SEM 2019)	7.8	70.3	70.4	0.1	70.4	0.1	70.5	0.2	70.3	0.0	70.2	-0.1	70.2	-0.1
Corduroy Brook	0.9044	CB18 (SEM 2019)	7.8	70.3	70.3	0.0	70.4	0.1	70.4	0.1	70.3	0.0	70.2	-0.1	70.2	-0.1
Corduroy Brook	0.7838	CB17 (SEM 2019)	11.5	69.5	69.5	0.0	69.6	0.1	69.6	0.1	69.4	-0.1	69.4	-0.1	69.4	-0.1
Corduroy Brook	0.7762	US of Corduroy Brook Nature Trail 2 Bridge - CB16 (SEM 2019)	11.5	69.5	69.5	0.0	69.5	0.0	69.5	0.0	69.4	-0.1	69.4	-0.1	69.4	-0.1
Corduroy Brook	0.7707	DS of Corduroy Brook Nature Trail 2 Bridge - CB15 (SEM 2019)	11.5	69.3	69.4	0.1	69.4	0.1	69.4	0.1	69.3	0.0	69.1	-0.2	69.1	-0.2
Corduroy Brook	0.7647	CB14 (SEM 2019)	11.5	69.1	69.1	0.0	69.1	0.0	69.2	0.1	69.1	0.0	69.1	0.0	69.1	0.0
Corduroy Brook	0.7114	CB13 (SEM 2019)	11.5	68.6	68.7	0.1	68.7	0.1	68.8	0.2	68.6	0.0	68.5	-0.1	68.2	-0.4
Corduroy Brook	0.6283	CB12 (SEM 2019)	11.5	67.8	67.8	0.0	67.8	0.0	67.9	0.1	67.7	-0.1	67.7	-0.1	67.7	-0.1
Corduroy Brook	0.6201	US of Corduroy Brook Nature Trail 1 Bridge - CB11 (SEM 2019)	11.5	67.7	67.7	0.0	67.8	0.1	67.8	0.1	67.7	0.0	67.7	0.0	67.4	-0.3
Corduroy Brook	0.61	DS of Corduroy Brook Nature Trail 1 Bridge - CB10 (SEM 2019)	11.5	67.2	67.2	0.0	67.2	0.0	67.2	0.0	67.2	0.0	67.2	0.0	67.2	0.0
Corduroy Brook	0.5607	CB09 (SEM 2019)	11.5	66.7	66.7	0.0	66.7	0.0	66.7	0.0	66.7	0.0	66.7	0.0	66.6	-0.1

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Corduroy Brook	0.5496	US of Lincoln Road Culvert - CB08 (SEM 2019)	11.5	66.7	66.7	0.0	66.7	0.0	66.7	0.0	66.7	0.0	66.7	0.0	66.7	0.0
Corduroy Brook	0.4704	DS of Lincoln Road Culvert - CB07 (SEM 2019)	11.5	65.3	65.3	0.0	65.3	0.0	65.3	0.0	65.3	0.0	65.3	0.0	65.3	0.0
Corduroy Brook	0.4657	CB06 (SEM 2019)	11.5	65.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0
Corduroy Brook	0.4187	CB05 (SEM 2019)	11.5	64.1	64.2	0.1	64.2	0.1	64.2	0.1	64.1	0.0	64.0	-0.1	63.8	-0.3
Corduroy Brook	0.3313	CB04 (SEM 2019)	11.5	63.8	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0
Corduroy Brook	0.3004	US of Corduroy Brook Unnamed Road Culvert - CB03 (SEM 2019)	11.5	63.8	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0	63.8	0.0
Corduroy Brook	0.2751	DS of Corduroy Brook Unnamed Road Culvert - CB02 (SEM 2019)	11.5	62.4	62.9	0.5	62.9	0.5	62.9	0.5	62.9	0.5	62.9	0.5	62.8	0.4
Corduroy Brook	0.256	CB01 (SEM 2019)	11.5	62.4	62.9	0.5	62.9	0.5	62.9	0.5	62.9	0.5	62.9	0.5	62.8	0.4
Exploits River	127.9419	DS of Millertown Dam	1,650.0	147.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0	147.0	0.0
Exploits River	127.7903		1,650.0	151.9	152.2	0.3	152.3	0.4	152.5	0.6	151.6	-0.3	151.5	-0.4	151.3	-0.6
Exploits River	127.5485	E39 (SEM 2016)	1,650.0	151.3	151.6	0.3	151.8	0.5	152.0	0.7	151.0	-0.3	150.9	-0.4	150.7	-0.6
Exploits River	127.2411		1,650.0	151.4	151.6	0.2	151.8	0.4	151.9	0.5	151.1	-0.3	151.0	-0.4	150.9	-0.5
Exploits River	126.7619	02Y0016 ER near Millertown - E38 (SEM 2016)	1,650.0	150.7	151.0	0.3	151.1	0.4	151.2	0.5	150.4	-0.3	150.3	-0.4	150.3	-0.4
Exploits River	126.726	US of Exploits Bridge	1,650.0	150.6	150.9	0.3	151.0	0.4	151.1	0.5	150.3	-0.3	150.2	-0.4	150.2	-0.4
Exploits River	126.7103	DS of Exploits Bridge	1,650.0	149.9	150.2	0.3	150.5	0.6	150.8	0.9	149.6	-0.3	147.7	-2.2	147.7	-2.2
Exploits River	126.6627		1,650.0	149.9	150.2	0.3	150.5	0.6	150.8	0.9	149.6	-0.3	149.2	-0.7	148.8	-1.1
Exploits River	126.0472		1,650.0	149.5	149.8	0.3	150.1	0.6	150.3	0.8	149.3	-0.2	149.0	-0.5	148.7	-0.8
Exploits River	125.7718		1,650.0	149.6	149.8	0.2	150.0	0.4	150.3	0.7	149.3	-0.3	149.0	-0.6	148.7	-0.9
Exploits River	124.8565		1,650.0	149.1	149.3	0.2	149.6	0.5	149.8	0.7	148.8	-0.3	148.5	-0.6	148.2	-0.9
Exploits River	124.5042		1,650.0	148.9	149.1	0.2	149.4	0.5	149.6	0.7	148.6	-0.3	148.4	-0.5	148.1	-0.8
Exploits River	124.1023	E37 (SEM 2016)	1,650.0	148.7	148.9	0.2	149.2	0.5	149.4	0.7	148.5	-0.2	148.2	-0.5	147.9	-0.8
Exploits River	123.5716	Harpoon Brook	1,650.0	148.1	148.4	0.3	148.6	0.5	148.8	0.7	147.9	-0.2	147.6	-0.5	147.3	-0.8
Exploits River	123.3684		1,650.0	148.1	148.3	0.2	148.6	0.5	148.8	0.7	147.9	-0.2	147.7	-0.4	147.4	-0.7
Exploits River	123.1617		1,650.0	147.9	148.1	0.2	148.3	0.4	148.5	0.6	147.6	-0.3	147.4	-0.5	147.1	-0.8
Exploits River	122.8763		1,650.0	147.8	148.0	0.2	148.2	0.4	148.4	0.6	147.5	-0.3	147.3	-0.5	147.0	-0.8
Exploits River	122.4162	E36 (SEM 2016)	1,650.0	146.9	147.1	0.2	147.3	0.4	147.5	0.6	146.6	-0.3	146.3	-0.6	146.0	-0.9
Exploits River	121.8414		1,650.0	146.7	146.9	0.2	147.0	0.3	147.2	0.5	146.5	-0.2	146.3	-0.4	146.1	-0.6
Exploits River	121.5145		1,650.0	146.6	146.7	0.1	146.9	0.3	147.0	0.4	146.4	-0.2	146.2	-0.4	146.0	-0.6
Exploits River	121.0779		1,650.0	146.1	146.2	0.1	146.3	0.2	146.5	0.4	146.0	-0.1	145.8	-0.3	145.6	-0.5
Exploits River	120.4923		1,650.0	143.8	144.1	0.3	144.4	0.6	144.6	0.8	143.8	0.0	143.8	0.0	143.8	0.0
Exploits River	119.7563	E35 (SEM 2016)	1,650.0	142.4	142.7	0.3	142.9	0.5	143.1	0.7	142.2	-0.2	141.9	-0.5	141.7	-0.7
Exploits River	119.1564		1,650.0	141.5	141.7	0.2	141.9	0.4	142.1	0.6	141.3	-0.2	141.0	-0.5	140.8	-0.7
Exploits River	118.3681		1,650.0	139.7	140.0	0.3	140.2	0.5	140.5	0.8	139.4	-0.3	139.1	-0.6	138.9	-0.8
Exploits River	118.13	E34 (SEM 2016)	1,650.0	139.5	139.8	0.3	140.0	0.5	140.3	0.8	139.3	-0.2	139.1	-0.4	139.0	-0.5
Exploits River	117.736		1,650.0	138.6	139.0	0.4	139.3	0.7	139.6	1.0	138.2	-0.4	137.8	-0.8	137.5	-1.1
Exploits River	116.6208	E33 (SEM 2016)	1,650.0	138.0	138.3	0.3	138.6	0.6	138.9	0.9	137.7	-0.3	137.3	-0.7	137.0	-1.0
Exploits River	115.9519		1,650.0	137.5	137.8	0.3	138.1	0.6	138.4	0.9	137.1	-0.4	136.8	-0.7	136.4	-1.1
Exploits River	114.6285	E32 (SEM 2016)	1,650.0	136.8	137.1	0.3	137.4	0.6	137.7	0.9	136.5	-0.3	136.2	-0.6	136.0	-0.8
Exploits River	112.8458	E31 (SEM 2016)	1,650.0	136.2	136.4	0.2	136.7	0.5	136.9	0.7	135.9	-0.3	135.7	-0.5	135.5	-0.7
Exploits River	111.2066		1,650.0	134.7	135.0	0.3	135.3	0.6	135.6	0.9	134.4	-0.3	134.1	-0.6	133.6	-1.1
Exploits River	110.2603	E30 (SEM 2016)	1,650.0	134.2	134.5	0.3	134.7	0.5	135.0	0.8	134.0	-0.2	133.7	-0.5	133.4	-0.8
Exploits River	109.0847		1,650.0	133.1	133.4	0.3	133.7	0.6	134.0	0.9	132.8	-0.3	132.5	-0.6	132.1	-1.0
Exploits River	108.0884	E29 (SEM 2016)	1,650.0	131.9	132.2	0.3	132.5	0.6	132.7	0.8	131.6	-0.3	131.2	-0.7	130.9	-1.0
Exploits River	106.6173	E28 (SEM 2016)	1,650.0	130.9	131.1	0.2	131.4	0.5	131.6	0.7	130.6	-0.3	130.3	-0.6	130.0	-0.9
Exploits River	104.6629	E27 (SEM 2016)	1,650.0	130.2	130.4	0.2	130.6	0.4	130.8	0.6	130.0	-0.2	129.7	-0.5	129.5	-0.7
Exploits River	104.2797		1,650.0	130.0	130.3	0.3	130.5	0.5	130.6	0.6	129.8	-0.2	129.6	-0.4	129.4	-0.6
Exploits River	103.945		1,650.0	129.7	129.9	0.2	130.1	0.4	130.3	0.6	129.4	-0.3	129.2	-0.5	128.9	-0.8
Exploits River	103.583	Noel Pauls Brook - E26 (SEM 2016)	1,650.0	129.2	129.5	0.3	129.7	0.5	129.9	0.7	129.0	-0.2	128.7	-0.5	128.4	-0.8
Exploits River	102.4539		1,650.0	128.8	129.0	0.2	129.2	0.4	129.4	0.6	128.6	-0.2	128.3	-0.5	128.1	-0.7
Exploits River	102.0072		1,650.0	128.5	128.7	0.2	128.9	0.4	129.1	0.6	128.2	-0.3	128.0	-0.5	127.7	-0.8
Exploits River	101.5468	E25 (SEM 2016)	1,650.0	128.2	128.4	0.2	128.6	0.4	128.8	0.6	127.9	-0.3	127.7	-0.5	127.5	-0.7
Exploits River	100.6527		1,650.0	127.6	127.9	0.3	128.1	0.5	128.3	0.7	127.4	-0.2	127.2	-0.4	126.9	-0.7

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	98.9083	DS of 02Y0011 ER below NP Brook - E24 (SEM 2016)	1,650.0	127.1	127.3	0.2	127.4	0.3	127.6	0.5	126.9	-0.2	126.7	-0.4	126.6	-0.5
Exploits River	98.3851		1,650.0	126.5	126.7	0.2	126.9	0.4	127.1	0.6	126.3	-0.2	126.1	-0.4	125.9	-0.6
Exploits River	97.6003		1,650.0	125.2	125.4	0.2	125.6	0.4	125.7	0.5	124.9	-0.3	124.7	-0.5	124.5	-0.7
Exploits River	97.467*		1,650.0	124.9	125.1	0.2	125.3	0.4	125.5	0.6	124.6	-0.3	124.4	-0.5	124.1	-0.8
Exploits River	97.334*		1,650.0	124.6	124.8	0.2	125.0	0.4	125.2	0.6	124.4	-0.2	124.1	-0.5	123.9	-0.7
Exploits River	97.201*		1,650.0	124.4	124.6	0.2	124.8	0.4	125.0	0.6	124.1	-0.3	123.9	-0.5	123.6	-0.8
Exploits River	97.068*		1,650.0	124.1	124.4	0.3	124.5	0.4	124.7	0.6	123.9	-0.2	123.7	-0.4	123.4	-0.7
Exploits River	96.935*		1,650.0	123.9	124.1	0.2	124.3	0.4	124.5	0.6	123.7	-0.2	123.5	-0.4	123.3	-0.6
Exploits River	96.802*		1,650.0	123.7	123.9	0.2	124.1	0.4	124.3	0.6	123.6	-0.1	123.4	-0.3	123.1	-0.6
Exploits River	96.669*		1,650.0	123.6	123.7	0.1	123.9	0.3	124.0	0.4	123.4	-0.2	123.2	-0.4	123.0	-0.6
Exploits River	96.5359	E23 (SEM 2016)	1,650.0	123.4	123.5	0.1	123.7	0.3	123.8	0.4	123.2	-0.2	123.1	-0.3	122.9	-0.5
Exploits River	96.407*		1,650.0	123.3	123.4	0.1	123.5	0.2	123.6	0.3	123.1	-0.2	123.0	-0.3	122.8	-0.5
Exploits River	96.279*		1,650.0	123.1	123.2	0.1	123.3	0.2	123.4	0.3	123.0	-0.1	122.9	-0.2	122.7	-0.4
Exploits River	96.150*		1,650.0	122.8	122.9	0.1	123.0	0.2	123.0	0.2	122.7	-0.1	122.6	-0.2	122.6	-0.2
Exploits River	96.0215		1,650.0	121.7	121.7	0.0	121.8	0.1	121.9	0.2	121.7	0.0	121.7	0.0	121.7	0.0
Exploits River	95.878*		1,650.0	119.9	120.2	0.3	120.3	0.4	120.4	0.5	119.8	-0.1	119.6	-0.3	119.5	-0.4
Exploits River	95.734*		1,650.0	118.5	118.5	0.0	118.6	0.1	118.7	0.2	118.4	-0.1	118.2	-0.3	118.0	-0.5
Exploits River	95.590*		1,650.0	116.8	117.1	0.3	117.3	0.5	117.4	0.6	116.7	-0.1	116.6	-0.2	116.4	-0.4
Exploits River	95.4464	Red Indian Falls	1,650.0	115.4	115.5	0.1	115.5	0.1	115.5	0.1	115.2	-0.2	115.1	-0.3	114.9	-0.5
Exploits River	95.310*		1,650.0	114.6	114.9	0.3	115.1	0.5	115.3	0.7	113.9	-0.7	113.8	-0.8	113.7	-0.9
Exploits River	95.175*		1,650.0	114.6	114.8	0.2	115.0	0.4	115.2	0.6	114.3	-0.3	114.1	-0.5	113.8	-0.8
Exploits River	95.039*		1,650.0	114.6	114.8	0.2	115.0	0.4	115.2	0.6	114.3	-0.3	114.1	-0.5	113.9	-0.7
Exploits River	94.9026	E22 (SEM 2016)	1,650.0	114.6	114.8	0.2	115.0	0.4	115.2	0.6	114.3	-0.3	114.1	-0.5	113.9	-0.7
Exploits River	94.760*		1,650.0	114.5	114.7	0.2	114.9	0.4	115.1	0.6	114.3	-0.2	114.1	-0.4	113.9	-0.6
Exploits River	94.618*		1,650.0	114.5	114.7	0.2	114.9	0.4	115.1	0.6	114.3	-0.2	114.1	-0.4	113.8	-0.7
Exploits River	94.475*		1,650.0	114.5	114.7	0.2	114.9	0.4	115.1	0.6	114.2	-0.3	114.0	-0.5	113.8	-0.7
Exploits River	94.333*		1,650.0	114.4	114.6	0.2	114.8	0.4	115.0	0.6	114.2	-0.2	114.0	-0.4	113.8	-0.6
Exploits River	94.190*		1,650.0	114.4	114.6	0.2	114.8	0.4	115.0	0.6	114.1	-0.3	113.9	-0.5	113.7	-0.7
Exploits River	94.048*		1,650.0	114.3	114.5	0.2	114.7	0.4	114.9	0.6	114.1	-0.2	113.9	-0.4	113.6	-0.7
Exploits River	93.905*		1,650.0	114.2	114.4	0.2	114.6	0.4	114.8	0.6	114.0	-0.2	113.8	-0.4	113.5	-0.7
Exploits River	93.7625	E21 (SEM 2016)	1,650.0	114.1	114.3	0.2	114.5	0.4	114.7	0.6	113.9	-0.2	113.6	-0.5	113.4	-0.7
Exploits River	93.616*		1,650.0	114.0	114.2	0.2	114.4	0.4	114.6	0.6	113.8	-0.2	113.6	-0.4	113.3	-0.7
Exploits River	93.469*		1,650.0	113.9	114.1	0.2	114.3	0.4	114.5	0.6	113.7	-0.2	113.5	-0.4	113.2	-0.7
Exploits River	93.322*		1,650.0	113.8	114.0	0.2	114.3	0.5	114.5	0.7	113.6	-0.2	113.4	-0.4	113.2	-0.6
Exploits River	93.175*		1,650.0	113.8	114.0	0.2	114.2	0.4	114.4	0.6	113.5	-0.3	113.3	-0.5	113.1	-0.7
Exploits River	93.028*		1,650.0	113.7	113.9	0.2	114.1	0.4	114.3	0.6	113.5	-0.2	113.3	-0.4	113.0	-0.7
Exploits River	92.881*		1,650.0	113.6	113.8	0.2	114.0	0.4	114.2	0.6	113.4	-0.2	113.2	-0.4	113.0	-0.6
Exploits River	92.734*		1,650.0	113.5	113.7	0.2	113.9	0.4	114.1	0.6	113.3	-0.2	113.1	-0.4	112.9	-0.6
Exploits River	92.587*		1,650.0	113.5	113.7	0.2	113.9	0.4	114.1	0.6	113.3	-0.2	113.1	-0.4	112.9	-0.6
Exploits River	92.4404	E20 (SEM 2016)	1,650.0	113.4	113.6	0.2	113.8	0.4	114.0	0.6	113.2	-0.2	113.0	-0.4	112.8	-0.6
Exploits River	92.316*		1,650.0	113.3	113.5	0.2	113.7	0.4	113.9	0.6	113.1	-0.2	112.9	-0.4	112.8	-0.5
Exploits River	92.191*		1,650.0	113.2	113.4	0.2	113.6	0.4	113.8	0.6	113.0	-0.2	112.8	-0.4	112.6	-0.6
Exploits River	92.067*		1,650.0	113.1	113.3	0.2	113.5	0.4	113.7	0.6	112.9	-0.2	112.7	-0.4	112.5	-0.6
Exploits River	91.942*		1,650.0	112.9	113.1	0.2	113.3	0.4	113.5	0.6	112.7	-0.2	112.5	-0.4	112.3	-0.6
Exploits River	91.8179		1,650.0	112.6	112.8	0.2	113.1	0.5	113.3	0.7	112.4	-0.2	112.1	-0.5	111.9	-0.7
Exploits River	91.4623	E19 (SEM 2016)	1,650.0	112.4	112.6	0.2	112.8	0.4	113.0	0.6	112.2	-0.2	112.0	-0.4	111.8	-0.6
Exploits River	91.211		1,650.0	111.9	112.1	0.2	112.3	0.4	112.5	0.6	111.6	-0.3	111.4	-0.5	111.1	-0.8
Exploits River	90.0907		1,650.0	110.4	110.7	0.3	110.9	0.5	111.1	0.7	110.2	-0.2	110.0	-0.4	109.8	-0.6
Exploits River	89.9651	E18 (SEM 2016)	1,650.0	110.4	110.6	0.2	110.8	0.4	111.0	0.6	110.2	-0.2	110.0	-0.4	109.8	-0.6
Exploits River	89.8026		1,650.0	110.0	110.2	0.2	110.5	0.5	110.7	0.7	109.7	-0.3	109.4	-0.6	109.0	-1.0
Exploits River	88.6151	E17 (SEM 2016)	1,650.0	109.4	109.6	0.2	109.8	0.4	110.0	0.6	109.2	-0.2	108.9	-0.5	108.7	-0.7
Exploits River	87.5331		1,650.0	108.5	108.8	0.3	109.0	0.5	109.2	0.7	108.3	-0.2	108.0	-0.5	107.8	-0.7
Exploits River	86.3148	E16 (SEM 2016)	1,650.0	107.3	107.5	0.2	107.7	0.4	107.9	0.6	107.1	-0.2	106.9	-0.4	106.6	-0.7
Exploits River	85.868*		1,650.0	106.9	107.1	0.2	107.3	0.4	107.5	0.6	106.7	-0.2	106.5	-0.4	106.3	-0.6
Exploits River	85.421*		1,650.0	106.6	106.8	0.2	107.0	0.4	107.1	0.5	106.4	-0.2	106.2	-0.4	106.0	-0.6
Exploits River	84.973*		1,650.0	106.2	106.3	0.1	106.5	0.3	106.7	0.5	106.0	-0.2	105.8	-0.4	105.6	-0.6
Exploits River	84.5262		1,650.0	105.6	105.8	0.2	106.0	0.4	106.2	0.6	105.4	-0.2	105.2	-0.4	105.0	-0.6
Exploits River	83.7999	E15 (SEM 2016)	1,650.0	104.9	105.1	0.2	105.3	0.4	105.5	0.6	104.7	-0.2	104.5	-0.4	104.2	-0.7
Exploits River	82.1971		1,650.0	103.1	103.3	0.2	103.6	0.5	103.8	0.7	102.9	-0.2	102.6	-0.5	102.3	-0.8

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	81.1643	E14 (SEM 2016)	1,650.0	102.2	102.5	0.3	102.7	0.5	102.9	0.7	102.0	-0.2	101.8	-0.4	101.5	-0.7
Exploits River	80.4132		1,650.0	102.0	102.2	0.2	102.4	0.4	102.6	0.6	101.7	-0.3	101.5	-0.5	101.3	-0.7
Exploits River	79.8588	Three Mile Island	1,650.0	101.7	101.9	0.2	102.1	0.4	102.4	0.7	101.4	-0.3	101.2	-0.5	100.9	-0.8
Exploits River	79.342	E14A (SEM 2019)	1,650.0	101.5	101.7	0.2	101.9	0.4	102.2	0.7	101.2	-0.3	101.0	-0.5	100.7	-0.8
Exploits River	78.5823	E13 (SEM 2016)	1,650.0	101.3	101.5	0.2	101.7	0.4	101.9	0.6	101.0	-0.3	100.8	-0.5	100.5	-0.8
Exploits River	77.8364	E13A (SEM 2019)	1,650.0	101.0	101.3	0.3	101.5	0.5	101.7	0.7	100.8	-0.2	100.6	-0.4	100.3	-0.7
Exploits River	77.1828	E12-1 (SEM 2016)	1,650.0	100.7	100.9	0.2	101.1	0.4	101.3	0.6	100.5	-0.2	100.3	-0.4	100.0	-0.7
Exploits River	76.9668	Gull Rocks - E12-2 (SEM 2016)	1,650.0	100.2	100.5	0.3	100.7	0.5	100.9	0.7	100.0	-0.2	99.7	-0.5	99.3	-0.9
Exploits River	76.6464	E12-2A (SEM 2019)	1,650.0	99.7	100.0	0.3	100.2	0.5	100.4	0.7	99.5	-0.2	99.3	-0.4	99.0	-0.7
Exploits River	76.306	E12-2B (SEM 2019)	1,650.0	99.4	99.6	0.2	99.8	0.4	100.0	0.6	99.2	-0.2	98.9	-0.5	98.7	-0.7
Exploits River	75.9221	US of Little Red Indian Brook - E12-2C (SEM 2019)	1,650.0	98.9	99.1	0.2	99.3	0.4	99.5	0.6	98.7	-0.2	98.5	-0.4	98.3	-0.6
Exploits River	75.6731	Badger Arena - E11 (SEM 2016)	1,715.0	98.4	98.6	0.2	98.8	0.4	99.0	0.6	98.2	-0.2	98.0	-0.4	97.8	-0.6
Exploits River	75.4251	02YO013 ER at Badger - E11A (SEM 2019)	1,715.0	98.1	98.3	0.2	98.4	0.3	98.6	0.5	97.9	-0.2	97.7	-0.4	97.5	-0.6
Exploits River	75.2189	DS of Badger Brook - E10 (SEM 2016)	1,730.0	97.7	97.9	0.2	98.1	0.4	98.3	0.6	97.6	-0.1	97.4	-0.3	97.2	-0.5
Exploits River	74.992	E10A (SEM 2019)	1,730.0	97.4	97.5	0.1	97.7	0.3	97.9	0.5	97.2	-0.2	97.0	-0.4	96.9	-0.5
Exploits River	74.7436	Junction Brook - E10B (SEM 2019)	1,730.0	97.1	97.3	0.2	97.4	0.3	97.6	0.5	97.0	-0.1	96.8	-0.3	96.7	-0.4
Exploits River	74.5357	Beatons Island - E10C (SEM 2019)	1,730.0	96.9	97.0	0.1	97.2	0.3	97.3	0.4	96.7	-0.2	96.6	-0.3	96.5	-0.4
Exploits River	74.0059	Badger Rough Waters - E09 (SEM 2016)	1,730.0	95.5	95.7	0.2	95.9	0.4	96.0	0.5	95.3	-0.2	95.1	-0.4	94.9	-0.6
Exploits River	73.7401	E09A (SEM 2019)	1,730.0	94.9	95.1	0.2	95.2	0.3	95.4	0.5	94.7	-0.2	94.5	-0.4	94.3	-0.6
Exploits River	73.0006	E09B (SEM 2019)	1,730.0	93.6	93.8	0.2	94.0	0.4	94.2	0.6	93.4	-0.2	93.2	-0.4	92.9	-0.7
Exploits River	71.8556	E08 (SEM 2016)	1,730.0	92.2	92.4	0.2	92.6	0.4	92.8	0.6	92.0	-0.2	91.7	-0.5	91.5	-0.7
Exploits River	71.6593	Big Bend	1,730.0	92.1	92.3	0.2	92.5	0.4	92.7	0.6	91.9	-0.2	91.7	-0.4	91.5	-0.6
Exploits River	71.3293		1,730.0	91.8	92.0	0.2	92.2	0.4	92.4	0.6	91.6	-0.2	91.4	-0.4	91.1	-0.7
Exploits River	70.1796	E07 (SEM 2016)	1,730.0	90.8	91.0	0.2	91.2	0.4	91.3	0.5	90.7	-0.1	90.5	-0.3	90.3	-0.5
Exploits River	68.919	Badger Steps	1,730.0	88.4	88.5	0.1	88.7	0.3	88.9	0.5	88.2	-0.2	88.0	-0.4	88.0	-0.4
Exploits River	68.3991	US of Badger Chute	1,730.0	86.0	86.2	0.2	86.4	0.4	86.6	0.6	85.8	-0.2	85.6	-0.4	85.4	-0.6
Exploits River	67.7449	DS of Badger Chute	1,730.0	85.0	85.2	0.2	85.4	0.4	85.6	0.6	84.8	-0.2	84.5	-0.5	84.3	-0.7
Exploits River	67.0945	E06 (SEM 2016)	1,730.0	84.4	84.6	0.2	84.7	0.3	84.9	0.5	84.1	-0.3	83.9	-0.5	83.7	-0.7
Exploits River	66.629*		1,730.0	84.0	84.2	0.2	84.4	0.4	84.6	0.6	83.8	-0.2	83.6	-0.4	83.4	-0.6
Exploits River	66.1636		1,730.0	83.7	83.8	0.1	84.0	0.3	84.2	0.5	83.5	-0.2	83.3	-0.4	83.0	-0.7
Exploits River	65.0373		1,730.0	82.5	82.7	0.2	82.9	0.4	83.0	0.5	82.3	-0.2	82.2	-0.3	82.0	-0.5
Exploits River	64.4733		1,730.0	82.0	82.2	0.2	82.3	0.3	82.4	0.4	81.9	-0.1	81.8	-0.2	81.6	-0.4
Exploits River	63.514		1,730.0	80.3	80.5	0.2	80.7	0.4	80.8	0.5	80.1	-0.2	79.8	-0.5	79.6	-0.7
Exploits River	63.029	Aspen Brook - E5 (SEM 2016)	1,730.0	80.1	80.2	0.1	80.4	0.3	80.5	0.4	80.0	-0.1	79.8	-0.3	79.7	-0.4
Exploits River	62.333	Eleven Mile Island	1,730.0	79.5	79.6	0.1	79.8	0.3	79.9	0.4	79.3	-0.2	79.1	-0.4	78.9	-0.6
Exploits River	61.0216	Birchy Island	1,730.0	78.3	78.4	0.1	78.6	0.3	78.7	0.4	78.1	-0.2	78.0	-0.3	77.8	-0.5
Exploits River	60.4812	Pynns Brook - R01-4 (RIS 2013)	1,730.0	77.8	77.9	0.1	78.1	0.3	78.2	0.4	77.7	-0.1	77.5	-0.3	77.3	-0.5
Exploits River	59.297	E03 (SEM 2016)	1,730.0	76.6	76.7	0.1	76.8	0.2	76.9	0.3	76.4	-0.2	76.3	-0.3	76.3	-0.3
Exploits River	58.536	Battle Island	1,730.0	75.5	75.6	0.1	75.8	0.3	76.0	0.5	75.3	-0.2	75.1	-0.4	74.8	-0.7
Exploits River	57.8291	Goat Island	1,730.0	75.2	75.4	0.2	75.5	0.3	75.7	0.5	75.1	-0.1	74.9	-0.3	74.8	-0.4
Exploits River	56.8594	Thunder Brook - E02 (SEM 2016)	1,730.0	74.7	74.9	0.2	75.1	0.4	75.2	0.5	74.5	-0.2	74.3	-0.4	74.0	-0.7
Exploits River	55.9504	R01-2 (RIS 2013)	1,730.0	74.0	74.2	0.2	74.4	0.4	74.5	0.5	73.8	-0.2	73.6	-0.4	73.3	-0.7
Exploits River	55.8662	R01-2A (SEM 2019)	1,730.0	73.9	74.1	0.2	74.3	0.4	74.5	0.6	73.7	-0.2	73.5	-0.4	73.2	-0.7
Exploits River	55.1908	R01-2B (SEM 2019)	1,730.0	73.5	73.7	0.2	73.9	0.4	74.1	0.6	73.3	-0.2	73.1	-0.4	72.9	-0.6
Exploits River	54.2773	02YO018 ER at CE Point - R01-1A (SEM 2019)	1,740.0	72.8	72.9	0.1	73.1	0.3	73.2	0.4	72.6	-0.2	72.4	-0.4	72.2	-0.6
Exploits River	53.6747	R01-1B (SEM 2019)	1,740.0	72.5	72.6	0.1	72.8	0.3	72.9	0.4	72.3	-0.2	72.2	-0.3	72.0	-0.5
Exploits River	52.8115	R01 (RIS 2013)	1,740.0	72.0	72.1	0.1	72.2	0.2	72.4	0.4	71.9	-0.1	71.7	-0.3	71.6	-0.4

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	51.6126	Sandy Brook - R01A (SEM 2019)	1,740.0	71.8	71.9	0.1	72.1	0.3	72.2	0.4	71.7	-0.1	71.6	-0.2	71.6	-0.2
Exploits River	50.7343	R02 (RIS 2013)	1,740.0	71.8	71.9	0.1	72.0	0.2	72.1	0.3	71.7	-0.1	71.6	-0.2	71.5	-0.3
Exploits River	49.8124	R02A (SEM 2019)	1,740.0	71.8	71.9	0.1	72.0	0.2	72.1	0.3	71.7	-0.1	71.6	-0.2	71.5	-0.3
Exploits River	49.2887	Camp Island - R02A (SEM 2019)	1,740.0	71.7	71.8	0.1	71.9	0.2	72.0	0.3	71.6	-0.1	71.6	-0.1	71.5	-0.2
Exploits River	48.3493	Grand Falls Golf Club - R03 (RIS 2013)	1,740.0	71.4	71.5	0.1	71.6	0.2	71.7	0.3	71.4	0.0	71.3	-0.1	71.2	-0.2
Exploits River	47.9482	DS of Rushy Pond Brook - R04 (RIS 2013)	1,740.0	71.3	71.4	0.1	71.4	0.1	71.5	0.2	71.3	0.0	71.3	0.0	71.2	-0.1
Exploits River	47.429	R04A (SEM 2019)	1,740.0	71.2	71.2	0.0	71.3	0.1	71.3	0.1	71.2	0.0	71.2	0.0	71.2	0.0
Exploits River	46.8155	R05 (RIS 2013)	1,818.0	71.1	71.1	0.0	71.1	0.0	71.1	0.0	71.1	0.0	71.1	0.0	71.1	0.0
Exploits River	46.7725	DS of Goodyear's Dam	1,818.0	67.1	67.4	0.3	67.6	0.5	67.8	0.7	67.1	0.0	67.1	0.0	67.1	0.0
Exploits River	46.5339		1,818.0	66.8	67.0	0.2	67.2	0.4	67.4	0.6	66.6	-0.2	66.3	-0.5	66.1	-0.7
Exploits River	46.11	R07 (RIS 2013)	1,818.0	66.2	66.4	0.2	66.6	0.4	66.8	0.6	66.0	-0.2	65.8	-0.4	65.5	-0.7
Exploits River	45.3181	R08 (RIS 2013)	1,818.0	65.5	65.7	0.2	65.8	0.3	66.0	0.5	65.4	-0.1	65.2	-0.3	65.1	-0.4
Exploits River	44.7659	R09 (RIS 2013)	1,818.0	65.2	65.3	0.1	65.4	0.2	65.5	0.3	65.1	-0.1	65.0	-0.2	64.9	-0.3
Exploits River	44.3558	First Falls	1,818.0	63.9	63.9	0.0	63.9	0.0	63.9	0.0	63.9	0.0	63.9	0.0	63.9	0.0
Exploits River	43.9551	R11 (RIS 2013)	1,818.0	62.3	62.9	0.6	62.9	0.6	62.9	0.6	62.8	0.5	62.8	0.5	62.8	0.5
Exploits River	43.8591	Grand Falls Headpond	1,818.0	62.3	62.8	0.5	62.9	0.6	62.9	0.6	62.8	0.5	62.8	0.5	62.8	0.5
Exploits River	43.7956	Grand Falls Headpond	1,818.0	62.3	62.8	0.5	62.9	0.6	62.9	0.6	62.8	0.5	62.8	0.5	62.8	0.5
Exploits River	43.6571	Grand Falls Headpond	1,818.0	62.3	62.8	0.5	62.8	0.5	62.8	0.5	62.8	0.5	62.8	0.5	62.8	0.5
Exploits River	43.5135	Grand Falls Headpond	1,818.0	62.2	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6
Exploits River	43.3884	Grand Falls Headpond	1,818.0	62.2	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.7	0.5
Exploits River	43.3095	Grand Falls Headpond	1,818.0	62.2	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6
Exploits River	43.2587**	US of Grand Falls Main Dam	1,228.2	62.2	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6	62.8	0.6
Exploits River	43.2439**	DS of Grand Falls Main Dam	1,228.2	56.2	56.9	0.7	57.0	0.8	57.2	1.0	56.5	0.3	56.3	0.1	56.3	0.1
Exploits River	43.232**		1,228.2	55.7	56.4	0.7	56.6	0.9	56.8	1.1	56.0	0.3	55.8	0.1	55.5	-0.2
Exploits River	43.15**		1,400.9	54.4	54.8	0.4	55.0	0.6	55.2	0.8	54.3	-0.1	54.0	-0.4	53.8	-0.6
Exploits River	43.097*		1,820.0	53.0	53.3	0.3	53.5	0.5	53.7	0.7	52.7	-0.3	52.5	-0.5	52.3	-0.7
Exploits River	43.045*		1,820.0	51.2	51.4	0.2	51.6	0.4	51.7	0.5	50.9	-0.3	50.5	-0.7	50.2	-1.0
Exploits River	42.9919		1,820.0	47.4	47.5	0.1	47.7	0.3	47.9	0.5	47.4	0.0	47.4	0.0	47.4	0.0
Exploits River	42.926*		1,820.0	43.7	44.1	0.4	44.4	0.7	44.8	1.1	43.4	-0.3	43.3	-0.4	42.9	-0.8
Exploits River	42.8601		1,820.0	40.6	41.1	0.5	41.6	1.0	42.1	1.5	39.9	-0.7	39.0	-1.6	39.0	-1.6
Exploits River	42.8015		1,820.0	40.8	41.2	0.4	41.6	0.8	42.0	1.2	40.4	-0.4	40.0	-0.8	39.5	-1.3
Exploits River	42.749*		1,820.0	40.2	40.6	0.4	41.0	0.8	41.4	1.2	39.8	-0.4	39.4	-0.8	39.0	-1.2
Exploits River	42.697*		1,820.0	39.5	39.9	0.4	40.2	0.7	40.6	1.1	39.1	-0.4	38.7	-0.8	38.3	-1.2
Exploits River	42.645*		1,820.0	38.5	38.9	0.4	39.2	0.7	39.5	1.0	38.2	-0.3	37.8	-0.7	37.5	-1.0
Exploits River	42.593		1,820.0	36.9	37.3	0.4	37.6	0.7	37.9	1.0	36.5	-0.4	36.1	-0.8	35.7	-1.2
Exploits River	42.538*		1,820.0	35.3	35.6	0.3	35.9	0.6	36.2	0.9	35.0	-0.3	34.7	-0.6	34.5	-0.8
Exploits River	42.483*		1,820.0	33.3	33.7	0.4	34.0	0.7	34.3	1.0	32.9	-0.4	32.4	-0.9	32.0	-1.3
Exploits River	42.4277	Grand Falls Powerhouse	1,820.0	33.5	33.8	0.3	34.0	0.5	34.3	0.8	33.2	-0.3	32.9	-0.6	32.6	-0.9
Exploits River	42.359*		1,820.0	33.4	33.6	0.2	33.9	0.5	34.1	0.7	33.1	-0.3	32.8	-0.6	32.6	-0.8
Exploits River	42.2908		1,820.0	33.0	33.2	0.2	33.4	0.4	33.7	0.7	32.8	-0.2	32.6	-0.4	32.3	-0.7
Exploits River	42.231*		1,820.0	32.5	32.7	0.2	32.9	0.4	33.1	0.6	32.3	-0.2	32.1	-0.4	31.9	-0.6
Exploits River	42.1704		1,820.0	31.8	31.9	0.1	32.0	0.2	32.1	0.3	31.7	-0.1	31.6	-0.2	31.5	-0.3
Exploits River	42.0882	US Mill Bridge	1,820.0	31.4	31.5	0.1	31.6	0.2	31.7	0.3	31.3	-0.1	31.3	-0.1	31.2	-0.2
Exploits River	42.0481	DS Mill Bridge	1,820.0	30.4	30.5	0.1	30.6	0.2	30.7	0.3	30.2	-0.2	30.1	-0.3	29.9	-0.5
Exploits River	41.9803		1,820.0	29.0	29.0	0.0	29.0	0.0	29.0	0.0	29.0	0.0	29.0	0.0	29.0	0.0
Exploits River	41.8667		1,820.0	24.8	27.8	3.0	28.0	3.2	28.1	3.3	24.8	0.0	24.7	-0.1	24.7	-0.1
Exploits River	41.745*		1,820.0	27.4	27.5	0.1	27.7	0.3	27.8	0.4	27.3	-0.1	27.1	-0.3	27.0	-0.4
Exploits River	41.6238		1,820.0	27.2	27.3	0.1	27.5	0.3	27.6	0.4	27.1	-0.1	27.0	-0.2	27.0	-0.2
Exploits River	41.511*		1,820.0	27.2	27.3	0.1	27.4	0.2	27.5	0.3	27.1	-0.1	27.1	-0.1	27.0	-0.2
Exploits River	41.3975		1,820.0	27.1	27.2	0.1	27.3	0.2	27.4	0.3	27.1	0.0	27.1	0.0	27.0	-0.1
Exploits River	41.3149		1,820.0	25.7	25.9	0.2	26.1	0.4	26.3	0.6	25.5	-0.2	25.1	-0.6	25.1	-0.6
Exploits River	41.227*		1,820.0	25.1	25.3	0.2	25.5	0.4	25.7	0.6	24.7	-0.4	24.6	-0.5	24.3	-0.8
Exploits River	41.1382		1,820.0	24.2	24.2	0.0	24.2	0.0	24.2	0.0	24.2	0.0	23.9	-0.3	23.7	-0.5
Exploits River	41.0119		1,820.0	22.1	22.2	0.1	23.3	1.2	23.4	1.3	21.9	-0.2	21.9	-0.2	21.8	-0.3
Exploits River	40.9173		1,820.0	23.4	23.4	0.0	23.5	0.1	23.5	0.1	23.3	-0.1	23.3	-0.1	23.2	-0.2

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	40.7927		1,820.0	21.7	21.7	0.0	21.7	0.0	22.0	0.3	21.7	0.0	21.7	0.0	21.7	0.0
Exploits River	40.6953	R13 (RIS 2013)	1,820.0	22.0	22.2	0.2	22.4	0.4	22.6	0.6	21.7	-0.3	21.5	-0.5	21.2	-0.8
Exploits River	40.2875	R14 (RIS 2013)	1,820.0	21.8	22.0	0.2	22.2	0.4	22.4	0.6	21.6	-0.2	21.3	-0.5	21.1	-0.7
Exploits River	39.7129	Gorge Park - R15 (RIS 2013)	1,820.0	21.6	21.8	0.2	22.0	0.4	22.2	0.6	21.4	-0.2	21.2	-0.4	20.9	-0.7
Exploits River	39.0938	Grand Falls Wastewater Treatment Facility - R16 (RIS 2013)	1,820.0	21.3	21.5	0.2	21.7	0.4	21.9	0.6	21.1	-0.2	20.8	-0.5	20.5	-0.8
Exploits River	37.1991	R17 (RIS 2013)	1,820.0	20.4	20.5	0.1	20.7	0.3	20.8	0.4	20.1	-0.3	19.9	-0.5	19.7	-0.7
Exploits River	36.0648	R18 (RIS 2013)	1,820.0	19.6	19.7	0.1	19.9	0.3	20.0	0.4	19.4	-0.2	19.2	-0.4	19.0	-0.6
Exploits River	34.5743		1,820.0	15.2	15.6	0.4	15.9	0.7	16.1	0.9	15.2	0.0	15.2	0.0	15.2	0.0
Exploits River	33.297	R20 (RIS 2013)	1,820.0	14.9	15.1	0.2	15.2	0.3	15.3	0.4	14.8	-0.1	14.7	-0.2	14.6	-0.3
Exploits River	31.6595	Great Rattling Brook - R21 (RIS 2013)	1,820.0	14.7	14.8	0.1	14.9	0.2	15.0	0.3	14.6	-0.1	14.5	-0.2	14.4	-0.3
Exploits River	30.6038	R22 (RIS 2013)	1,820.0	14.6	14.7	0.1	14.8	0.2	14.8	0.2	14.5	-0.1	14.4	-0.2	14.4	-0.2
Exploits River	29.6258	R23 (RIS 2013)	1,820.0	14.5	14.6	0.1	14.7	0.2	14.7	0.2	14.4	-0.1	14.4	-0.1	14.3	-0.2
Exploits River	28.6539	Hobbs Park - R24 (RIS 2013)	1,820.0	14.5	14.5	0.0	14.6	0.1	14.7	0.2	14.4	-0.1	14.4	-0.1	14.3	-0.2
Exploits River	27.8131	Greenridge Rd - R25 (RIS 2013)	1,820.0	14.4	14.5	0.1	14.5	0.1	14.6	0.2	14.4	0.0	14.3	-0.1	14.3	-0.1
Exploits River	27.0926	Market Rd - R26 (RIS 2013)	1,820.0	14.4	14.4	0.0	14.5	0.1	14.5	0.1	14.3	-0.1	14.3	-0.1	14.3	-0.1
Exploits River	26.3491	Exploits Ln - R27 (RIS 2013)	1,820.0	14.3	14.3	0.0	14.4	0.1	14.4	0.1	14.3	0.0	14.2	-0.1	14.2	-0.1
Exploits River	25.6408	Doves Ln - R28 (RIS 2013)	1,820.0	14.2	14.3	0.1	14.3	0.1	14.3	0.1	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	25.3931	Cannings Ln - R28A (SEM 2019)	1,820.0	14.2	14.2	0.0	14.3	0.1	14.3	0.1	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	25.2785	US of Bishop's Falls Trestle - R29-1 (RIS 2013)	1,820.0	14.2	14.2	0.0	14.3	0.1	14.3	0.1	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	25.2607	DS of Bishop's Falls Trestle - R29-2 (RIS 2013)	1,820.0	14.2	14.2	0.0	14.2	0.0	14.3	0.1	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	25.2424	NLENHM0003 ER at Bishop's Falls Trestle	1,817.3	14.2	14.2	0.0	14.2	0.0	14.3	0.1	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	24.9854	Kinsmen Dr - R29-2A (SEM 2019)	1,820.0	14.2	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	24.7007	Riverside Dr - R30 (RIS 2013)	1,820.0	14.2	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0	14.2	0.0
Exploits River	24.1375	Sydney St - R31 (RIS 2013)	1,820.0	14.1	14.1	0.0	14.1	0.0	14.2	0.1	14.1	0.0	14.1	0.0	14.1	0.0
Exploits River	23.7672	US of Bishop's Falls Dam	2,810.0	14.1	14.1	0.0	14.1	0.0	14.1	0.0	14.1	0.0	14.1	0.0	14.1	0.0
Exploits River	23.7175	DS of Bishop's Falls Dam	2,810.0	7.0	7.3	0.3	7.6	0.6	7.8	0.8	6.7	-0.3	6.4	-0.6	6.0	-1.0
Exploits River	23.646*		2,810.0	6.8	7.1	0.3	7.4	0.6	7.7	0.9	6.5	-0.3	6.2	-0.6	5.8	-1.0
Exploits River	23.5744	Fallsview Park - RB01 (RIS 2012)	2,810.0	6.7	7.1	0.4	7.4	0.7	7.7	1.0	6.4	-0.3	6.1	-0.6	5.8	-0.9
Exploits River	23.3904	RB02 (RIS 2012)	2,810.0	6.8	7.1	0.3	7.4	0.6	7.7	0.9	6.5	-0.3	6.2	-0.6	5.9	-0.9
Exploits River	23.238	RB02A (SEM 2019)	2,810.0	6.7	7.0	0.3	7.3	0.6	7.6	0.9	6.4	-0.3	6.1	-0.6	5.8	-0.9
Exploits River	23.0435	RB03 (RIS 2012)	2,810.0	6.4	6.7	0.3	7.0	0.6	7.3	0.9	6.0	-0.4	5.7	-0.7	5.3	-1.1
Exploits River	22.8885	RB03A (SEM 2019)	2,810.0	6.1	6.4	0.3	6.7	0.6	7.0	0.9	5.8	-0.3	5.4	-0.7	5.0	-1.1
Exploits River	22.7187	RB03B (SEM 2019)	2,810.0	5.9	6.2	0.3	6.5	0.6	6.8	0.9	5.6	-0.3	5.2	-0.7	4.9	-1.0
Exploits River	22.6067	RB04 (RIS 2012)	2,810.0	5.8	6.1	0.3	6.4	0.6	6.7	0.9	5.5	-0.3	5.2	-0.6	4.9	-0.9
Exploits River	22.4171	RB04A (SEM 2019)	2,810.0	5.8	6.1	0.3	6.4	0.6	6.6	0.8	5.5	-0.3	5.2	-0.6	4.9	-0.9
Exploits River	22.1303	RB05 (RIS 2012)	2,810.0	5.3	5.7	0.4	6.0	0.7	6.3	1.0	5.0	-0.3	4.6	-0.7	4.2	-1.1
Exploits River	21.8941	RB06 (RIS 2012)	2,810.0	5.0	5.4	0.4	5.7	0.7	6.0	1.0	4.7	-0.3	4.3	-0.7	3.9	-1.1
Exploits River	21.769	US of Sir Robert Bond Bridge - RB07A (SEM 2019)	2,810.0	5.0	5.3	0.3	5.6	0.6	5.9	0.9	4.6	-0.4	4.3	-0.7	3.9	-1.1
Exploits River	21.73	RB07 (RIS 2012)	2,810.0	4.9	5.2	0.3	5.5	0.6	5.8	0.9	4.5	-0.4	4.2	-0.7	3.8	-1.1
Exploits River	21.6512	RB08A-1 (SEM 2019 and RIS 2012)	2,810.0	4.8	5.1	0.3	5.4	0.6	5.7	0.9	4.5	-0.3	4.2	-0.6	3.8	-1.0
Exploits River	21.6278	RB08A-2 (SEM 2019 and RIS 2012)	2,810.0	4.8	5.1	0.3	5.4	0.6	5.7	0.9	4.5	-0.3	4.2	-0.6	3.8	-1.0
Exploits River	21.446	RB09 (RIS 2012)	2,810.0	4.6	4.9	0.3	5.2	0.6	5.5	0.9	4.2	-0.4	3.9	-0.7	3.5	-1.1

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Exploits River	21.2084	RB10 (RIS 2012)	2,810.0	4.4	4.7	0.3	5.0	0.6	5.3	0.9	4.1	-0.3	3.7	-0.7	3.4	-1.0
Exploits River	21.0315	RB11 (RIS 2012)	2,810.0	4.4	4.7	0.3	4.9	0.5	5.2	0.8	4.0	-0.4	3.7	-0.7	3.4	-1.0
Exploits River	20.7855	RB12 (RIS 2012)	2,810.0	4.2	4.5	0.3	4.8	0.6	5.0	0.8	3.9	-0.3	3.5	-0.7	3.1	-1.1
Exploits River	20.2457	RB12A (SEM 2019)	2,810.0	3.8	4.1	0.3	4.3	0.5	4.6	0.8	3.5	-0.3	3.2	-0.6	2.8	-1.0
Exploits River	19.7893	R32 (RIS 2013)	2,810.0	3.5	3.8	0.3	4.0	0.5	4.3	0.8	3.2	-0.3	2.9	-0.6	2.6	-0.9
Exploits River	19.0547	R33 (RIS 2013)	2,810.0	3.1	3.4	0.3	3.6	0.5	3.9	0.8	2.9	-0.2	2.6	-0.5	2.3	-0.8
Exploits River	18.4827	R34 (RIS 2013)	2,810.0	2.9	3.1	0.2	3.3	0.4	3.5	0.6	2.6	-0.3	2.4	-0.5	2.1	-0.8
Exploits River	18.0852	Jumpers Brook - R35 (RIS 2013)	2,810.0	2.8	3.0	0.2	3.3	0.5	3.5	0.7	2.6	-0.2	2.3	-0.5	2.1	-0.7
Exploits River	17.4444	R36 (RIS 2013)	2,810.0	2.7	2.9	0.2	3.1	0.4	3.3	0.6	2.4	-0.3	2.2	-0.5	2.0	-0.7
Exploits River	16.9165	R37 (RIS 2013)	2,810.0	2.4	2.6	0.2	2.8	0.4	3.0	0.6	2.2	-0.2	2.0	-0.4	1.7	-0.7
Exploits River	16.063	R38 (RIS 2013)	2,810.0	2.2	2.4	0.2	2.6	0.4	2.8	0.6	2.0	-0.2	1.8	-0.4	1.6	-0.6
Exploits River	15.4044	R39 (RIS 2013)	2,810.0	2.1	2.3	0.2	2.4	0.3	2.6	0.5	1.9	-0.2	1.7	-0.4	1.5	-0.6
Exploits River	14.5403	R40 (RIS 2013)	2,810.0	1.9	2.1	0.2	2.2	0.3	2.4	0.5	1.7	-0.2	1.5	-0.4	1.3	-0.6
Exploits River	13.5957	R41 (RIS 2013)	2,810.0	1.7	1.8	0.1	2.0	0.3	2.2	0.5	1.5	-0.2	1.3	-0.4	1.1	-0.6
Exploits River	12.56	R42 (RIS 2013)	2,810.0	1.4	1.5	0.1	1.7	0.3	1.8	0.4	1.2	-0.2	1.1	-0.3	1.0	-0.4
Exploits River	11.3843	R43 (RIS 2013)	2,810.0	1.1	1.2	0.1	1.3	0.2	1.5	0.4	1.0	-0.1	0.9	-0.2	0.8	-0.3
Exploits River	10.3678	R43A (SEM 2019)	2,810.0	0.9	1.0	0.1	1.1	0.2	1.2	0.3	0.9	0.0	0.8	-0.1	0.7	-0.2
Exploits River	9.399	Beatons Point - R43B (SEM 2019)	2,810.0	0.8	0.9	0.1	0.9	0.1	1.0	0.2	0.7	-0.1	0.7	-0.1	0.6	-0.2
Exploits River	8.4354	Rattling Brook - R43C (SEM 2019)	2,810.0	0.7	0.8	0.1	0.8	0.1	0.9	0.2	0.7	0.0	0.6	-0.1	0.6	-0.1
Exploits River	7.8307		2,810.0	0.6	0.7	0.1	0.7	0.1	0.8	0.2	0.6	0.0	0.6	0.0	0.5	-0.1
Exploits River	7.3871	Norris Arm	2,810.0	0.6	0.6	0.0	0.6	0.0	0.7	0.1	0.5	-0.1	0.5	-0.1	0.5	-0.1
Exploits River	6.9559		2,810.0	0.5	0.5	0.0	0.5	0.0	0.6	0.1	0.5	0.0	0.5	0.0	0.5	0.0
Exploits River	6.6198	Wigwam Point	2,810.0	0.4	0.5	0.1	0.5	0.1	0.5	0.1	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	3.1711	Peterview	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	2.4185	Peters Arm	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	0.9662	Botwood	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Exploits River	0.0989	Mill Point	2,810.0	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0
Unnamed Stream GF-1	3.9291		1.3	101.9	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0
Unnamed Stream GF-1	3.9266	US of Hardy Avenue Culvert	1.3	101.9	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0	101.9	0.0
Unnamed Stream GF-1	3.8993	DS of Hardy Avenue Culvert	1.3	101.1	101.1	0.0	101.1	0.0	101.1	0.0	101.1	0.0	101.1	0.0	101.1	0.0
Unnamed Stream GF-1	3.8668		1.3	101.1	101.1	0.0	101.1	0.0	101.1	0.0	101.0	-0.1	101.0	-0.1	101.0	-0.1
Unnamed Stream GF-1	3.6413		1.3	98.5	98.5	0.0	98.5	0.0	98.5	0.0	98.5	0.0	98.5	0.0	98.5	0.0
Unnamed Stream GF-1	3.2981		1.3	95.2	95.2	0.0	95.2	0.0	95.2	0.0	95.2	0.0	95.1	-0.1	95.2	0.0
Unnamed Stream GF-1	3.2091		1.3	94.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0	94.0	0.0
Unnamed Stream GF-1	3.1868	GF1_19 (SEM 2019)	1.9	92.9	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0	92.9	0.0
Unnamed Stream GF-1	2.3986	GF1_18 (SEM 2019)	1.9	84.1	84.1	0.0	84.1	0.0	84.1	0.0	84.1	0.0	84.0	-0.1	84.0	-0.1
Unnamed Stream GF-1	2.1729		1.9	83.1	83.2	0.1	83.2	0.1	83.2	0.1	83.1	0.0	83.1	0.0	83.1	0.0
Unnamed Stream GF-1	2.0095		1.9	80.2	80.2	0.0	80.2	0.0	80.2	0.0	80.2	0.0	80.2	0.0	80.2	0.0
Unnamed Stream GF-1	1.9833	GF1_17 (SEM 2019)	7.7	79.4	79.5	0.1	79.5	0.1	79.6	0.2	79.4	0.0	79.4	0.0	79.4	0.0
Unnamed Stream GF-1	1.789	GF1_16 (SEM 2019)	7.7	79.5	79.5	0.0	79.6	0.1	79.6	0.1	79.5	0.0	79.5	0.0	79.4	-0.1
Unnamed Stream GF-1	1.6366	GF1_15 (SEM 2019)	7.7	79.5	79.5	0.0	79.6	0.1	79.6	0.1	79.5	0.0	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5884	GF1_14 (SEM 2019)	7.7	79.5	79.5	0.0	79.5	0.0	79.6	0.1	79.5	0.0	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5696	GF1_13 (SEM 2019)	7.7	79.5	79.5	0.0	79.5	0.0	79.6	0.1	79.4	-0.1	79.4	-0.1	79.4	-0.1
Unnamed Stream GF-1	1.5394	GF1_12 (SEM 2019)	7.7	79.4	79.5	0.1	79.5	0.1	79.5	0.1	79.4	0.0	79.4	0.0	79.3	-0.1
Unnamed Stream GF-1	1.3701	GF1_11 (SEM 2019)	7.7	78.5	78.5	0.0	78.5	0.0	78.5	0.0	78.5	0.0	78.5	0.0	78.5	0.0
Unnamed Stream GF-1	1.2166		7.7	77.0	77.0	0.0	77.0	0.0	77.0	0.0	76.9	-0.1	76.9	-0.1	76.9	-0.1
Unnamed Stream GF-1	1.0726	GF1_10 (SEM 2019)	17.9	75.8	75.9	0.1	76.0	0.2	76.0	0.2	75.8	0.0	75.8	0.0	75.8	0.0
Unnamed Stream GF-1	0.9813	GF1_09 (SEM 2019)	17.9	75.7	75.7	0.0	75.8	0.1	75.8	0.1	75.6	-0.1	75.5	-0.2	75.5	-0.2
Unnamed Stream GF-1	0.4813	GF1_07 (SEM 2019)	17.9	74.8	74.8	0.0	74.8	0.0	74.9	0.1	74.7	-0.1	74.7	-0.1	74.7	-0.1
Unnamed Stream GF-1	0.3708	GF1_06 (SEM 2019)	17.9	74.7	74.7	0.0	74.7	0.0	74.7	0.0	74.7	0.0	74.6	-0.1	74.6	-0.1
Unnamed Stream GF-1	0.3031	GF1_05 (SEM 2019)	17.9	74.3	74.3	0.0	74.3	0.0	74.3	0.0	74.3	0.0	74.3	0.0	74.3	0.0
Unnamed Stream GF-1	0.072	GF1_04 (SEM 2019)	17.9	70.8	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0
Unnamed Stream GF-1	0.0543	US of GF1 Stream Newfoundland T'Railway Culvert - GF1_03 (SEM 2019)	17.9	70.8	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0	70.8	0.0

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Unnamed Stream GF-1	0.026	DS of GF1 Stream Newfoundland T'Railway Culvert - GF1_02 (SEM 2019)	17.9	70.3	70.3	0.0	70.3	0.0	70.4	0.1	70.3	0.0	70.3	0.0	70.3	0.0
Unnamed Stream GF-1	0.0107	GF1_01 (SEM 2019)	17.9	70.1	70.1	0.0	70.1	0.0	70.1	0.0	70.0	-0.1	70.0	-0.1	70.0	-0.1
Little Red Indian Brook	1.4448	LR12 (SEM 2019)	101.0	99.5	99.6	0.1	99.7	0.2	99.8	0.3	99.4	-0.1	99.3	-0.2	99.2	-0.3
Little Red Indian Brook	1.3589	LR11 (SEM 2019)	101.0	99.5	99.6	0.1	99.6	0.1	99.7	0.2	99.4	-0.1	99.3	-0.2	99.1	-0.4
Little Red Indian Brook	1.262	LR10 (SEM 2019)	108.0	99.4	99.5	0.1	99.6	0.2	99.7	0.3	99.3	-0.1	99.2	-0.2	99.1	-0.3
Little Red Indian Brook	1.1451	LR09 (SEM 2019)	108.0	99.3	99.4	0.1	99.5	0.2	99.6	0.3	99.2	-0.1	99.1	-0.2	99.0	-0.3
Little Red Indian Brook	0.9927	LR08 (SEM 2019)	108.0	99.1	99.2	0.1	99.3	0.2	99.5	0.4	99.0	-0.1	98.9	-0.2	98.8	-0.3
Little Red Indian Brook	0.8548	LR07 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.7	-0.3	98.6	-0.4
Little Red Indian Brook	0.7388	LR06 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.6948	US of Buchans Hwy Bridge - LR05 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.6682	DS of Buchans Hwy Bridge - LR04 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.6158	LR03 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.4661	School Rd - LR02 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Red Indian Brook	0.3022	LR01 (SEM 2019)	108.0	99.0	99.2	0.2	99.3	0.3	99.5	0.5	98.8	-0.2	98.6	-0.4	98.5	-0.5
Little Rushy Pond Brook	0.5608	LRP07 (SEM 2019)	2.4	74.9	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0	74.9	0.0
Little Rushy Pond Brook	0.3995	LRP06 (SEM 2019)	2.4	74.5	74.5	0.0	74.5	0.0	74.6	0.1	74.5	0.0	74.5	0.0	74.5	0.0
Little Rushy Pond Brook	0.226		2.4	74.1	74.1	0.0	74.1	0.0	74.2	0.1	74.1	0.0	74.1	0.0	74.1	0.0
Little Rushy Pond Brook	0.1839	LRP05 (SEM 2019)	2.4	73.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0
Little Rushy Pond Brook	0.0801	LRP04 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.066	US of Little Rushy Pond Brook Unnamed Road Culvert - LRP03 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.0394	DS of Little Rushy Pond Brook Unnamed Road Culvert - LRP02 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Little Rushy Pond Brook	0.0119	LRP01 (SEM 2019)	2.4	71.6	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0	71.6	0.0
Mullens Pond	0.4097	MP06 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.0	-0.1	74.0	-0.1
Mullens Pond	0.3035	MP05 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Mullens Pond	0.2027	MP04 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Mullens Pond	0.0741	MP03 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Mullens Pond	0.0427	MP02 (SEM 2019)	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Mullens Pond	0.0039	MP01 (SEM 2019) - Upstream of Second Avenue Culvert	2.1	74.1	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0	74.1	0.0
Rushy Pond Brook	1.605	Rushy Pond - RP13 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.542	US of Rushy Pond T'Railway Bridge - RP12 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.522	DS of Rushy Pond T'Railway Bridge - RP11 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.493	RP10 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.462	RP09 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.398	RP08 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.225	RP07 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.195	US of Gold Course Bridge - RP06 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.161	DS of Golf Course Bridge - RP05 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	1.104	RP04 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	0.811	RP03 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Rushy Pond Brook	0.591	RP02 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0

Table A-3: Sensitivity of Water Surface Elevation to Manning's n

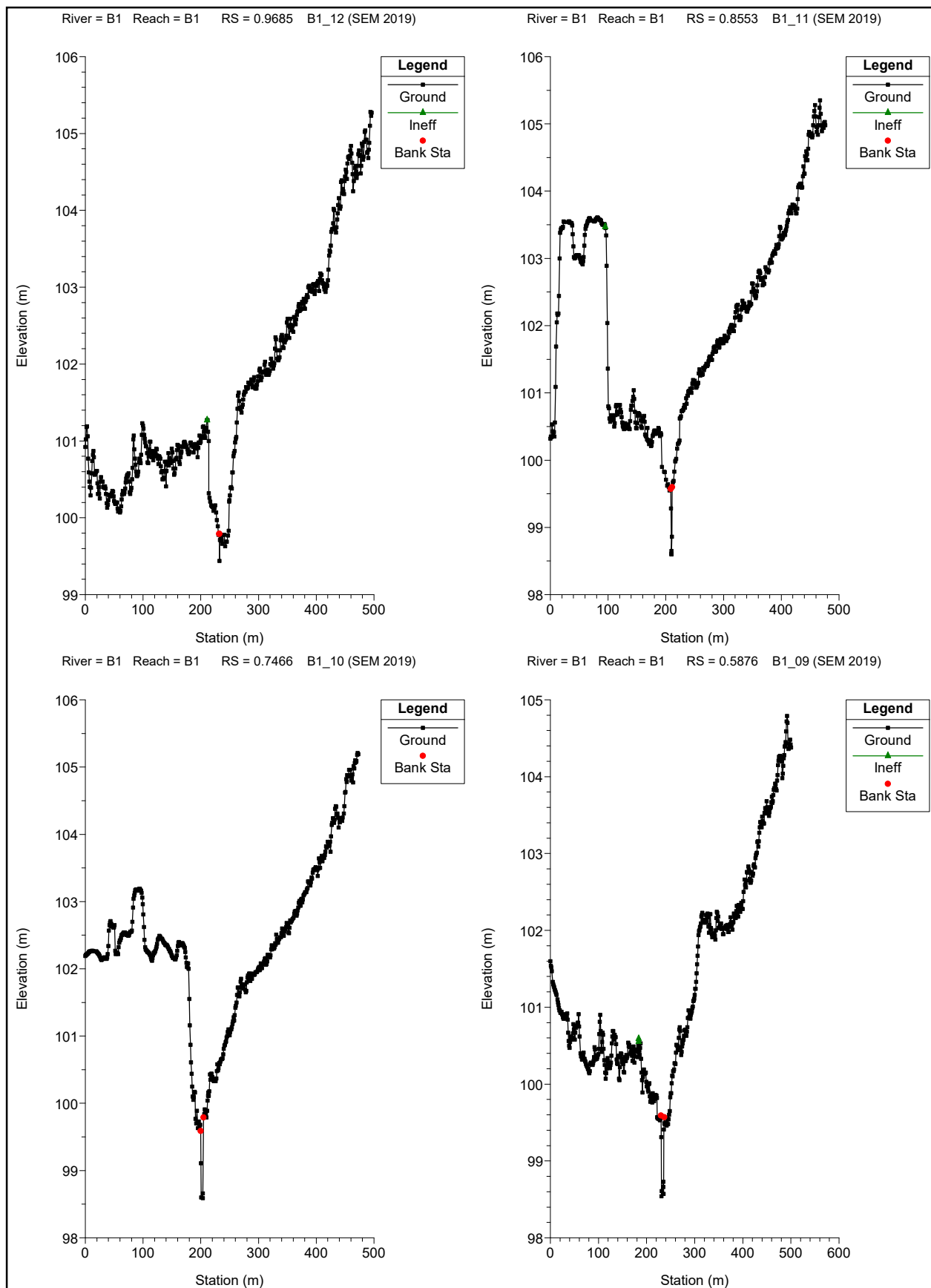
River	River Station (km) ¹	Descriptor - XS Name (Survey Program)	1:100 AEP Peak Flow (cms)	WSE (m)	Sensitivity of Water Surface Elevation (WSE) to Manning's n (Open Water Condition)											
					Manning's n +10%		Manning's n +20%		Manning's n +30%		Manning's n -10%		Manning's n -20%		Manning's n -30%	
					WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)	WSE (m)	Diff (m)
Rushy Pond Brook	0.332	RP01 (SEM 2019)	29.6	71.6	72.0	0.4	72.1	0.5	72.3	0.7	71.8	0.2	71.7	0.1	71.6	0.0
Wigwam Brook	4.6443	WB28 (SEM 2019)	24.4	74.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0
Wigwam Brook	4.4546	WB27 (SEM 2019)	24.4	74.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0	74.0	0.0
Wigwam Brook	4.4153	US of Wigwam Brook Unnamed Road 2 Culvert - WB26 (SEM 2019)	24.4	73.8	73.8	0.0	73.8	0.0	73.8	0.0	73.8	0.0	73.8	0.0	73.8	0.0
Wigwam Brook	4.4012	DS of Wigwam Brook Unnamed Road 2 Culvert - WB25 (SEM 2019)	24.4	73.6	73.7	0.1	73.7	0.1	73.7	0.1	73.6	0.0	73.6	0.0	73.5	-0.1
Wigwam Brook	4.3888	WB24 (SEM 2019)	24.4	73.7	73.8	0.1	73.8	0.1	73.8	0.1	73.7	0.0	73.7	0.0	73.7	0.0
Wigwam Brook	4.0688	WB23 (SEM 2019)	24.4	73.7	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0
Wigwam Brook	3.9102	WB22 (SEM 2019)	24.4	73.7	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0	73.7	0.0
Wigwam Brook	3.7515	WB21 (SEM 2019)	24.4	73.6	73.7	0.1	73.7	0.1	73.7	0.1	73.7	0.1	73.6	0.0	73.6	0.0
Wigwam Brook	3.7288	US of Wigwam Brook Unnamed Road 1 Culvert - WB20 (SEM 2019)	24.4	73.6	73.7	0.1	73.7	0.1	73.7	0.1	73.6	0.0	73.6	0.0	73.6	0.0
Wigwam Brook	3.7128	DS of Wigwam Brook Unnamed Road 1 Culvert - WB19 (SEM 2019)	24.4	73.5	73.6	0.1	73.5	0.0	73.6	0.1	73.5	0.0	73.4	-0.1	73.4	-0.1
Wigwam Brook	3.6981	WB18 (SEM 2019)	24.4	73.5	73.6	0.1	73.5	0.0	73.6	0.1	73.5	0.0	73.4	-0.1	73.4	-0.1
Wigwam Brook	3.5404	WB17 (SEM 2019)	33.9	73.5	73.5	0.0	73.5	0.0	73.5	0.0	73.4	-0.1	73.4	-0.1	73.4	-0.1
Wigwam Brook	3.4136	WB16 (SEM 2019)	33.9	73.5	73.5	0.0	73.5	0.0	73.5	0.0	73.4	-0.1	73.4	-0.1	73.4	-0.1
Wigwam Brook	3.2845	WB15 (SEM 2019)	33.9	73.5	73.5	0.0	73.4	-0.1	73.5	0.0	73.4	-0.1	73.4	-0.1	73.4	-0.1
Wigwam Brook	3.1	WB14 (SEM 2019)	33.9	73.4	73.5	0.1	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.3	-0.1
Wigwam Brook	2.9482	WB13 (SEM 2019)	33.9	73.4	73.5	0.1	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.3	-0.1
Wigwam Brook	2.9368	US of Red Cliff Road Bridge WB12 (SEM 2019)	33.9	73.4	73.5	0.1	73.4	0.0	73.4	0.0	73.4	0.0	73.4	0.0	73.3	-0.1
Wigwam Brook	2.9239	DS of Red Cliff Road Bridge WB11 (SEM 2019)	33.9	73.0	73.1	0.1	73.1	0.1	73.1	0.1	73.0	0.0	73.0	0.0	73.0	0.0
Wigwam Brook	2.9206	WB10 (SEM 2019)	33.9	73.1	73.1	0.0	73.1	0.0	73.1	0.0	73.0	-0.1	73.0	-0.1	73.0	-0.1
Wigwam Brook	2.91	WB09 (SEM 2019)	33.9	73.1	73.1	0.0	73.1	0.0	73.1	0.0	73.0	-0.1	73.0	-0.1	73.0	-0.1
Wigwam Brook	2.9041	US of Wigwam Brook Newfoundland T'Railway Bridge - WB08 (SEM 2019)	33.9	73.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0	73.0	0.0
Wigwam Brook	2.89	DS of Wigwam Brook Newfoundland T'Railway Bridge - WB07 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.86	WB06 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.707	WB05 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.584	WB04 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.491	WB03 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.379	WB02 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	2.289	WB01 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.905	NA04 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.546	US of TCH - NA03 (SEM 2019)	33.9	72.6	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0	72.6	0.0
Wigwam Brook	1.394	DS of TCH - NA02 (SEM 2019)	33.9	71.8	71.9	0.1	72.0	0.2	72.1	0.3	71.7	-0.1	71.6	-0.2	71.6	-0.2
Wigwam Brook	1.184	North Angle - NA01 (SEM 2019)	33.9	71.8	71.9	0.1	72.0	0.2	72.1	0.3	71.7	-0.1	71.6	-0.2	71.6	-0.2

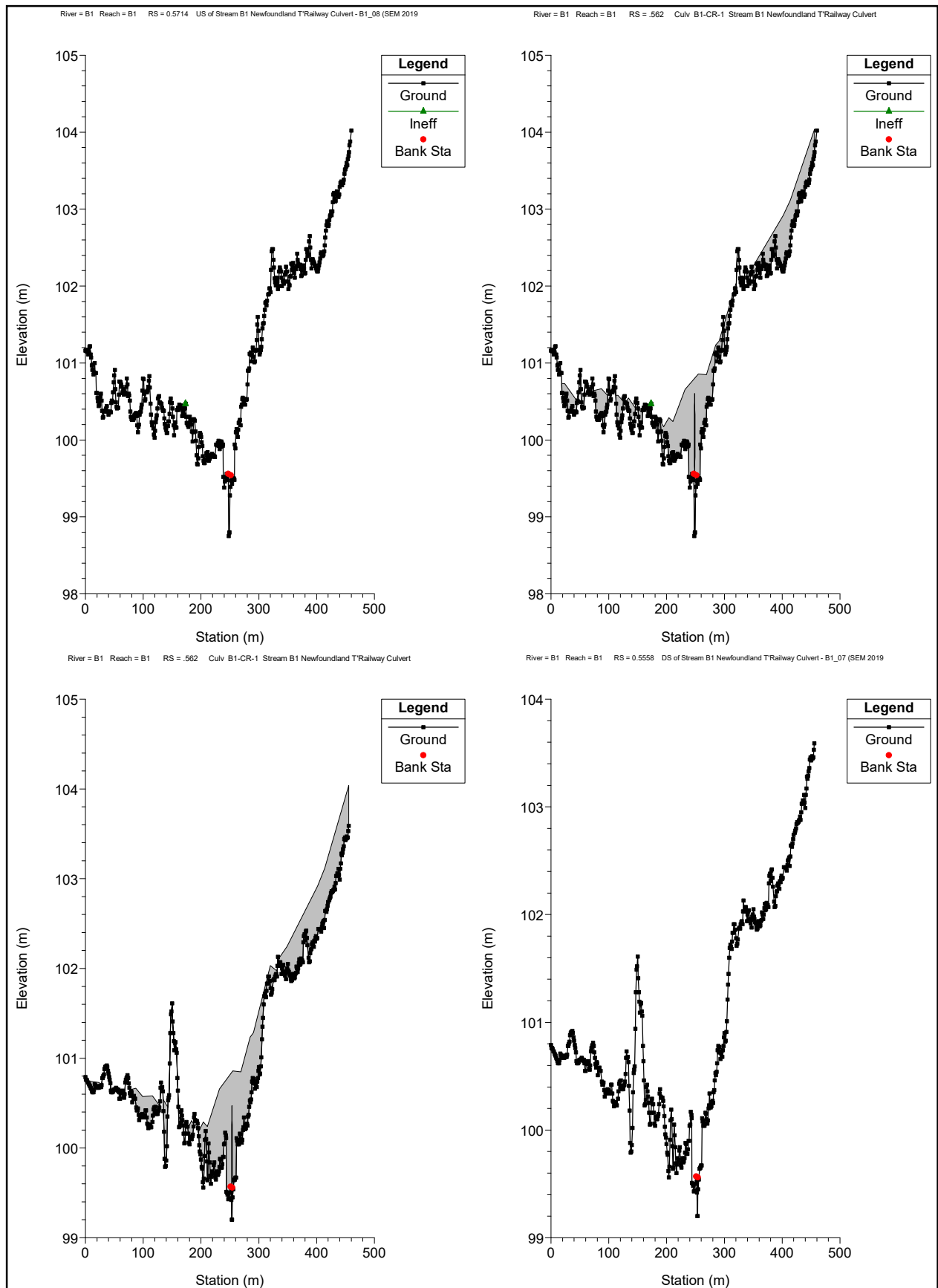
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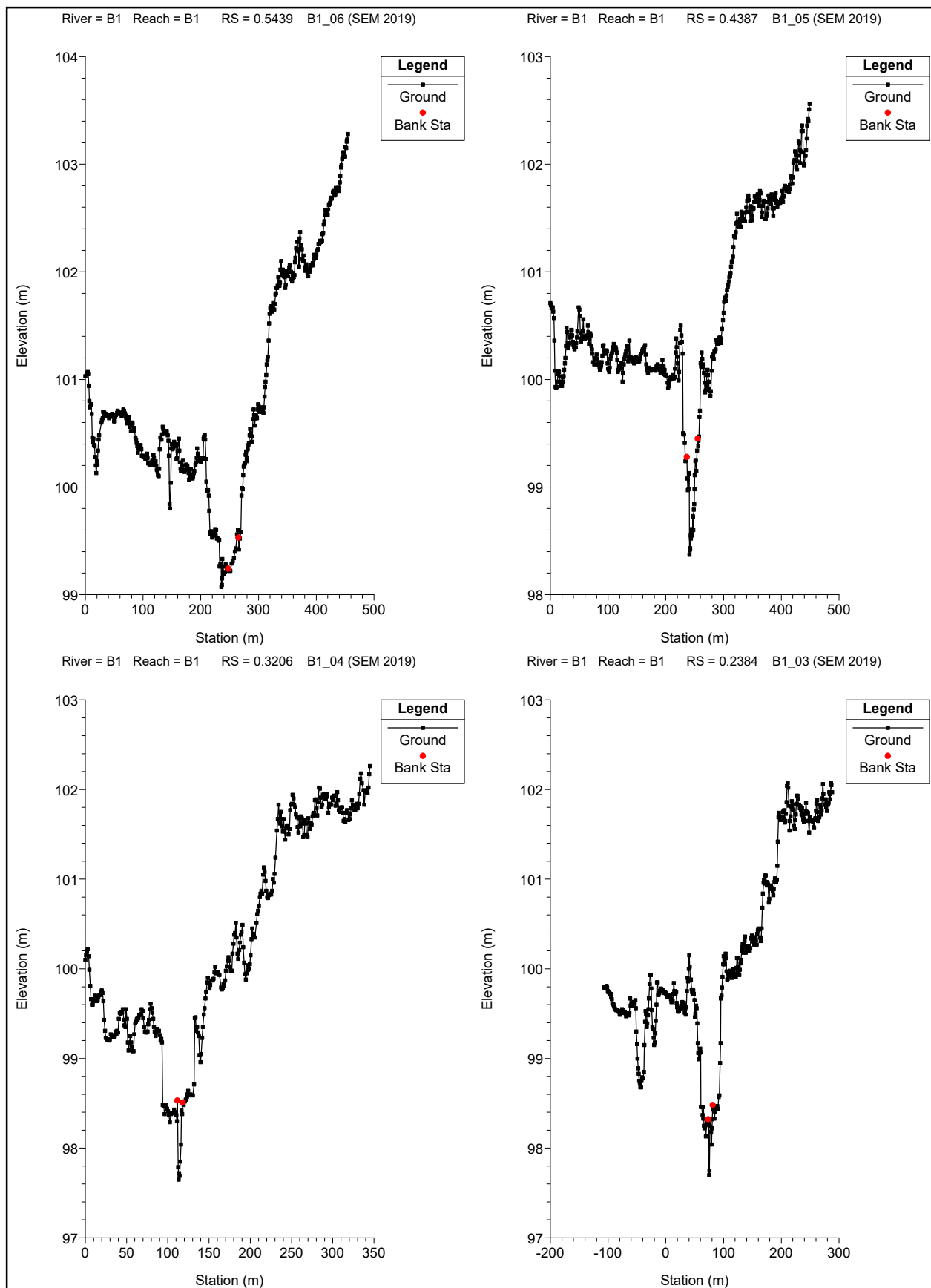
1. * Denotes interpolated cross-section
2. ** Flows in main river channel reduced due to diversion through Grand Falls Power Canal before being returned to river.

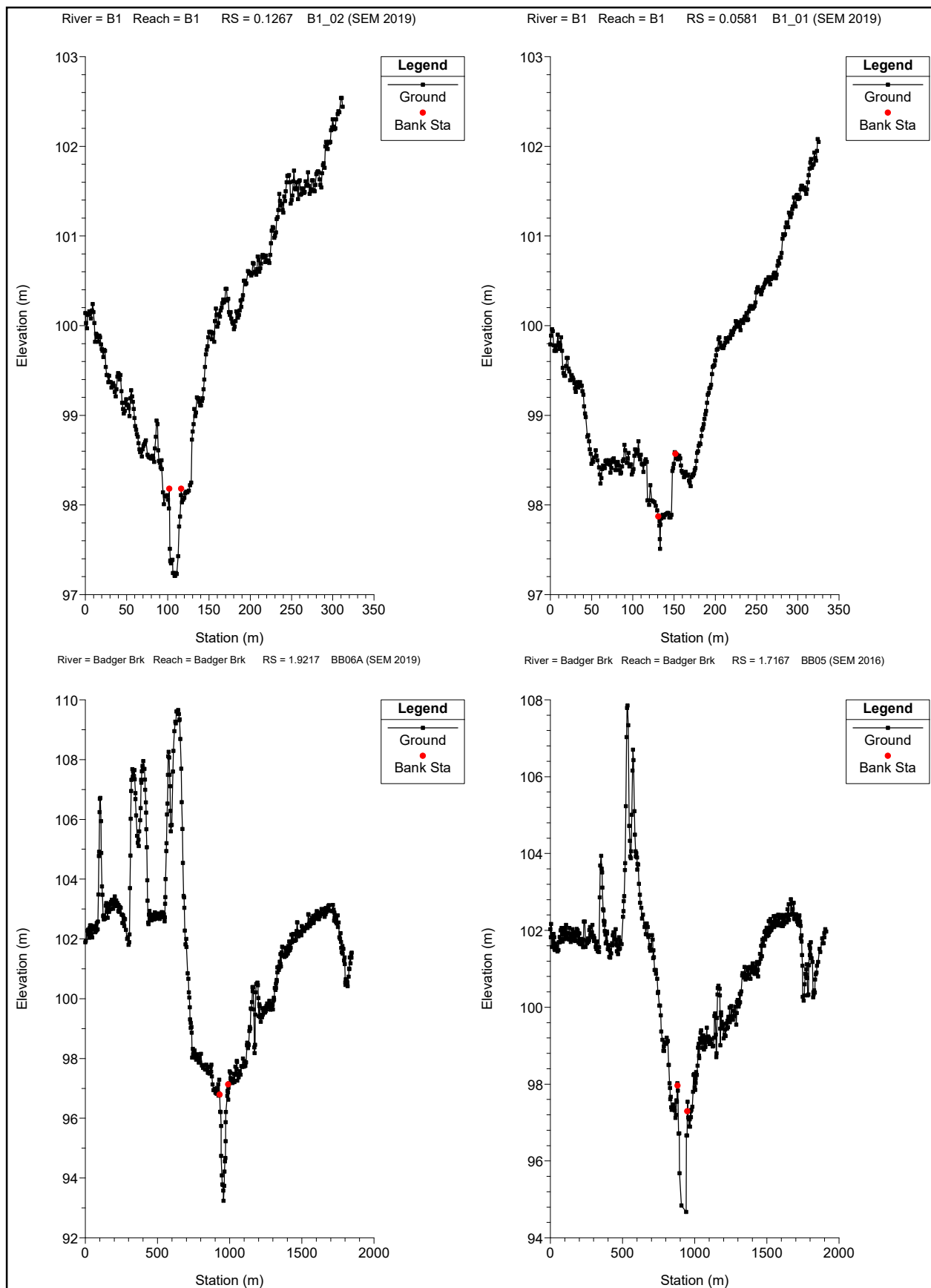
Table A-3: Sensitivity of Water Surface Elevation to Manning's n

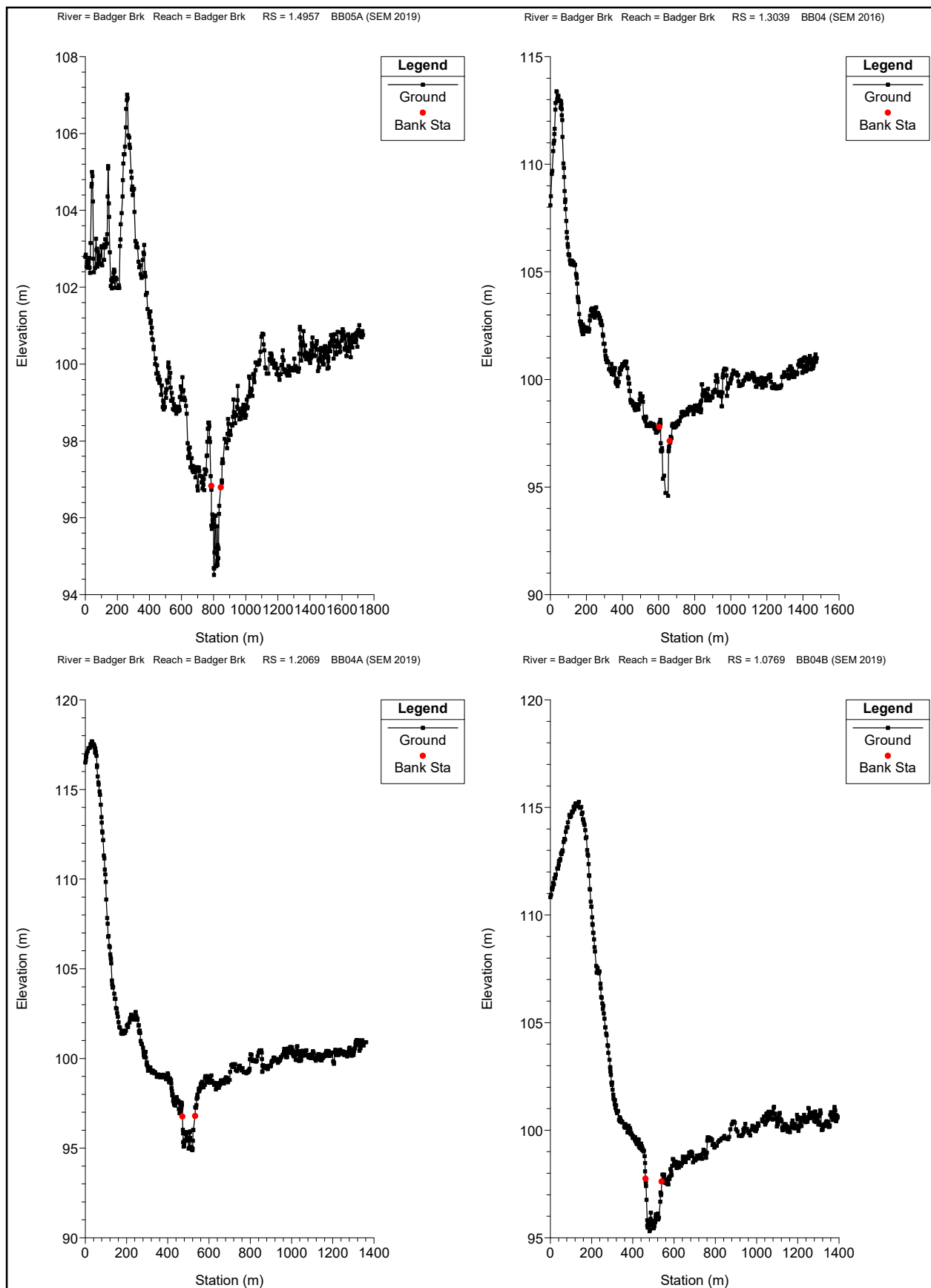
Appendix B: Cross-Section Plots

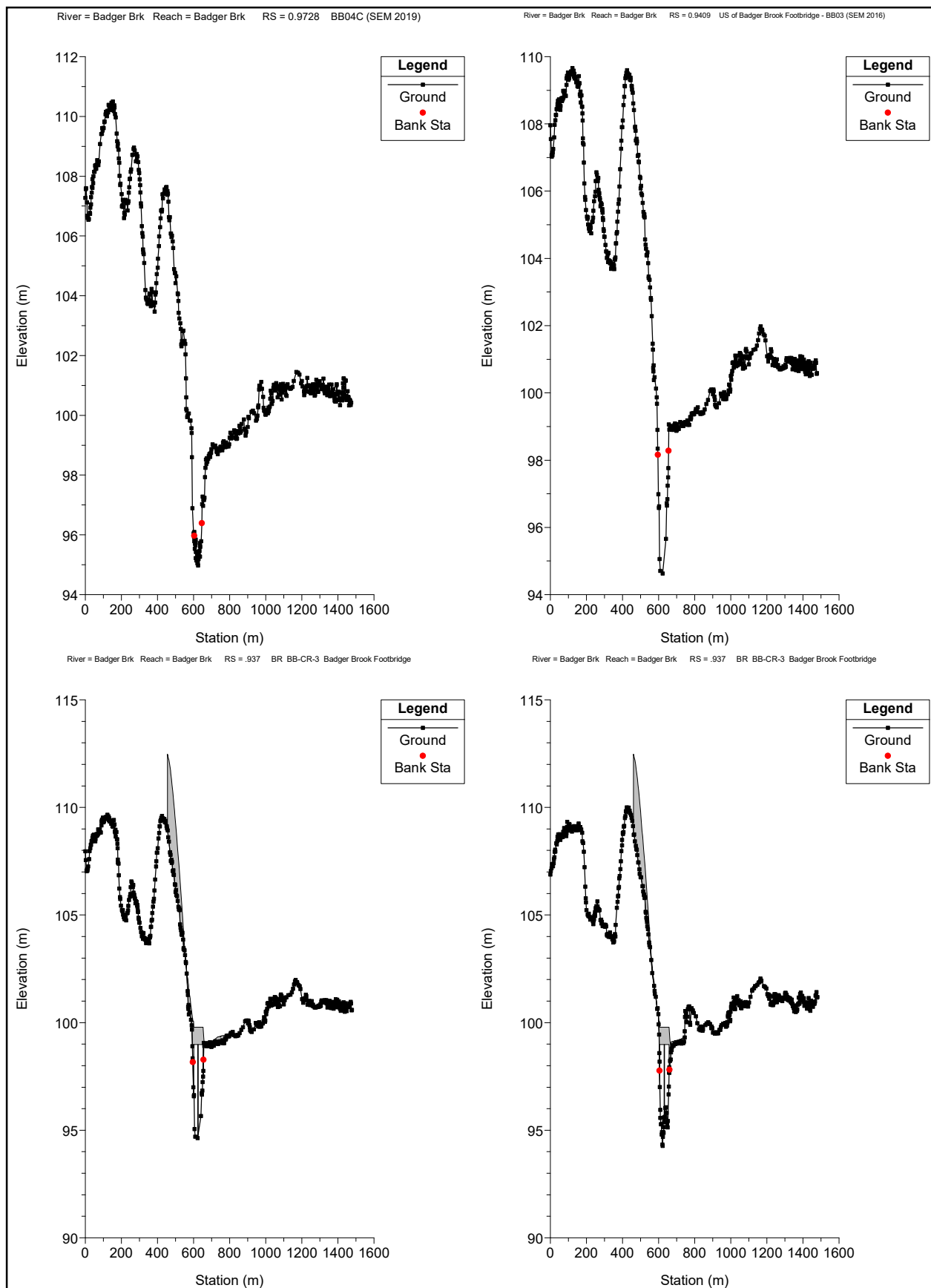


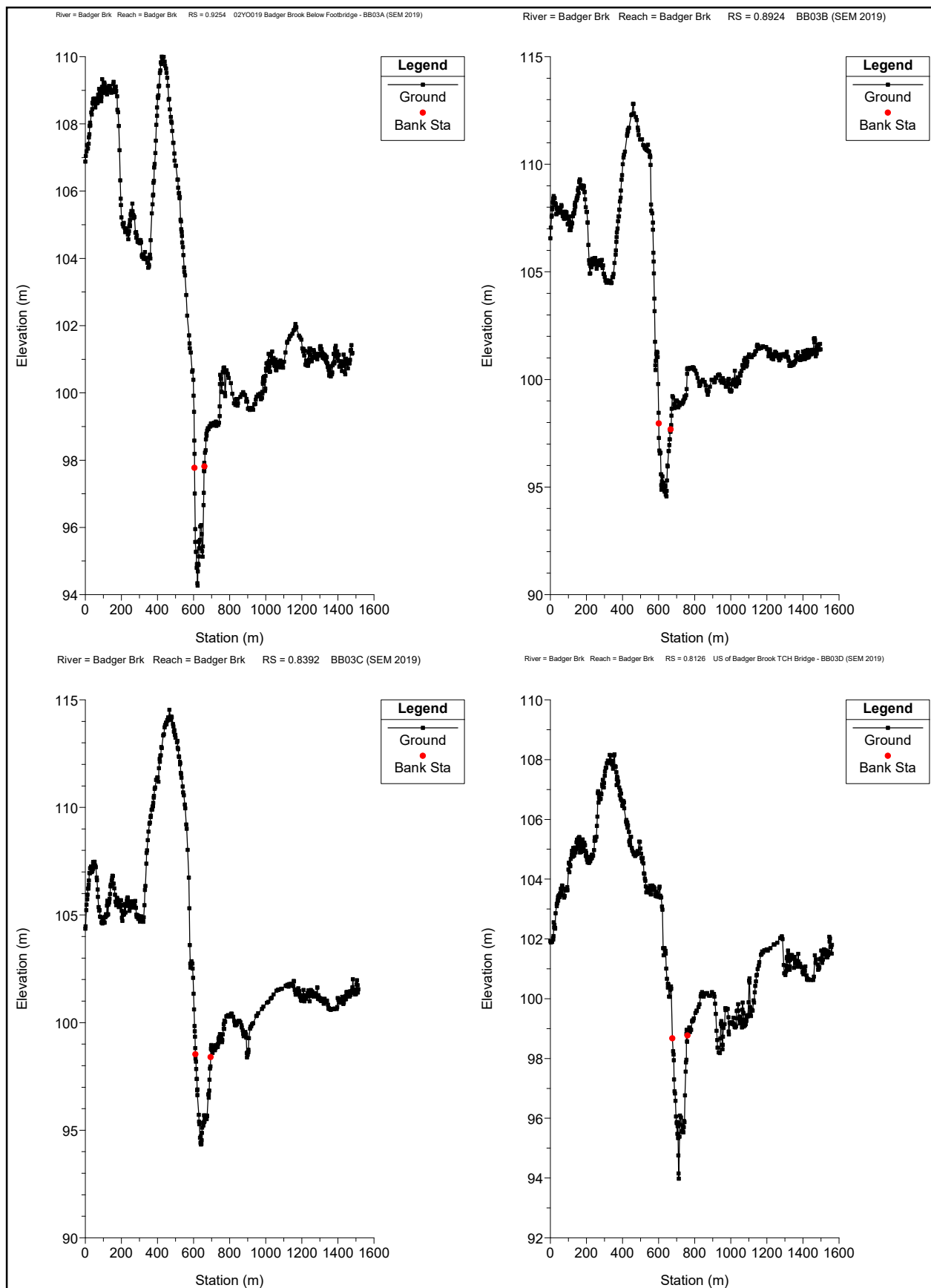


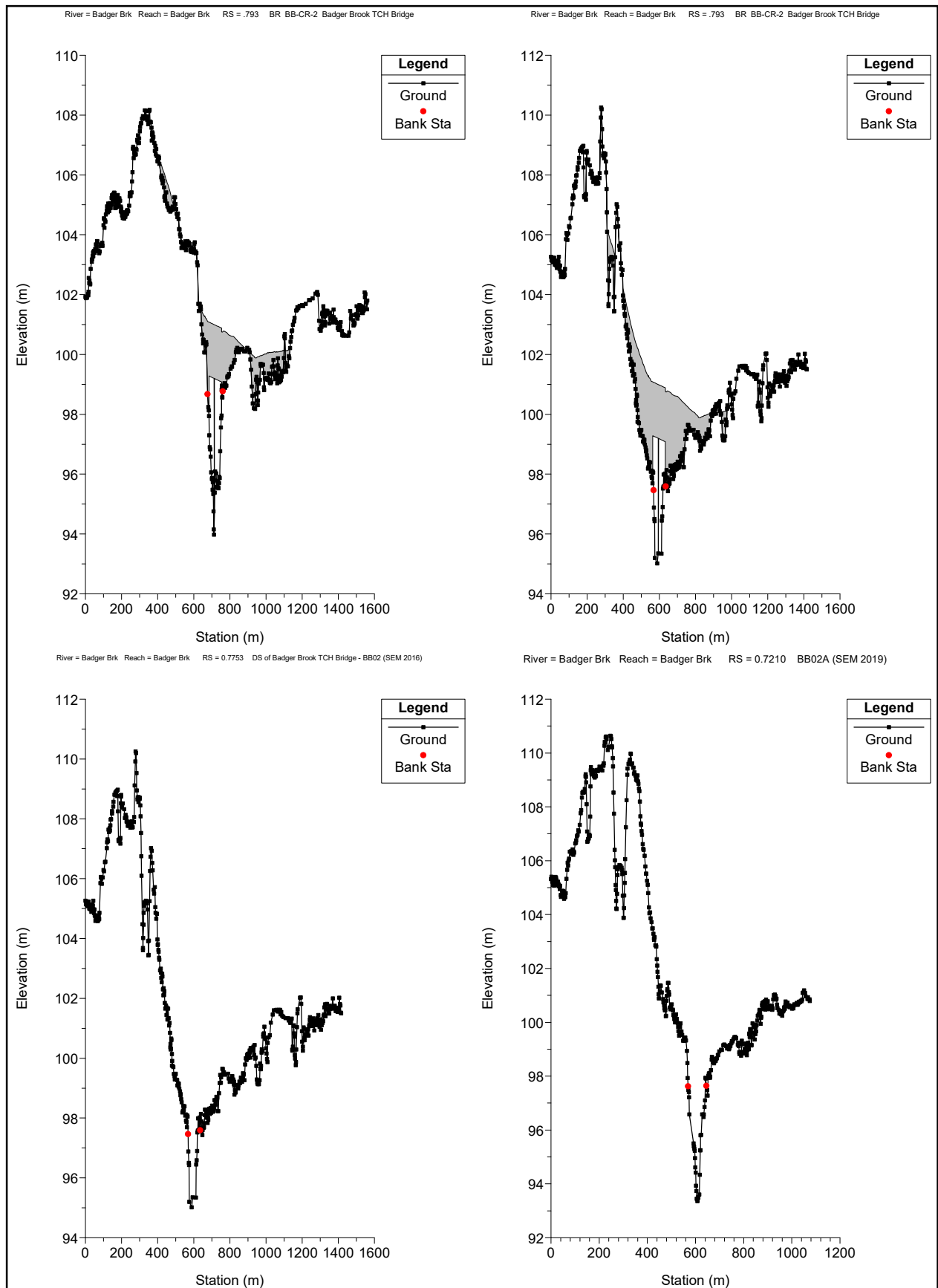


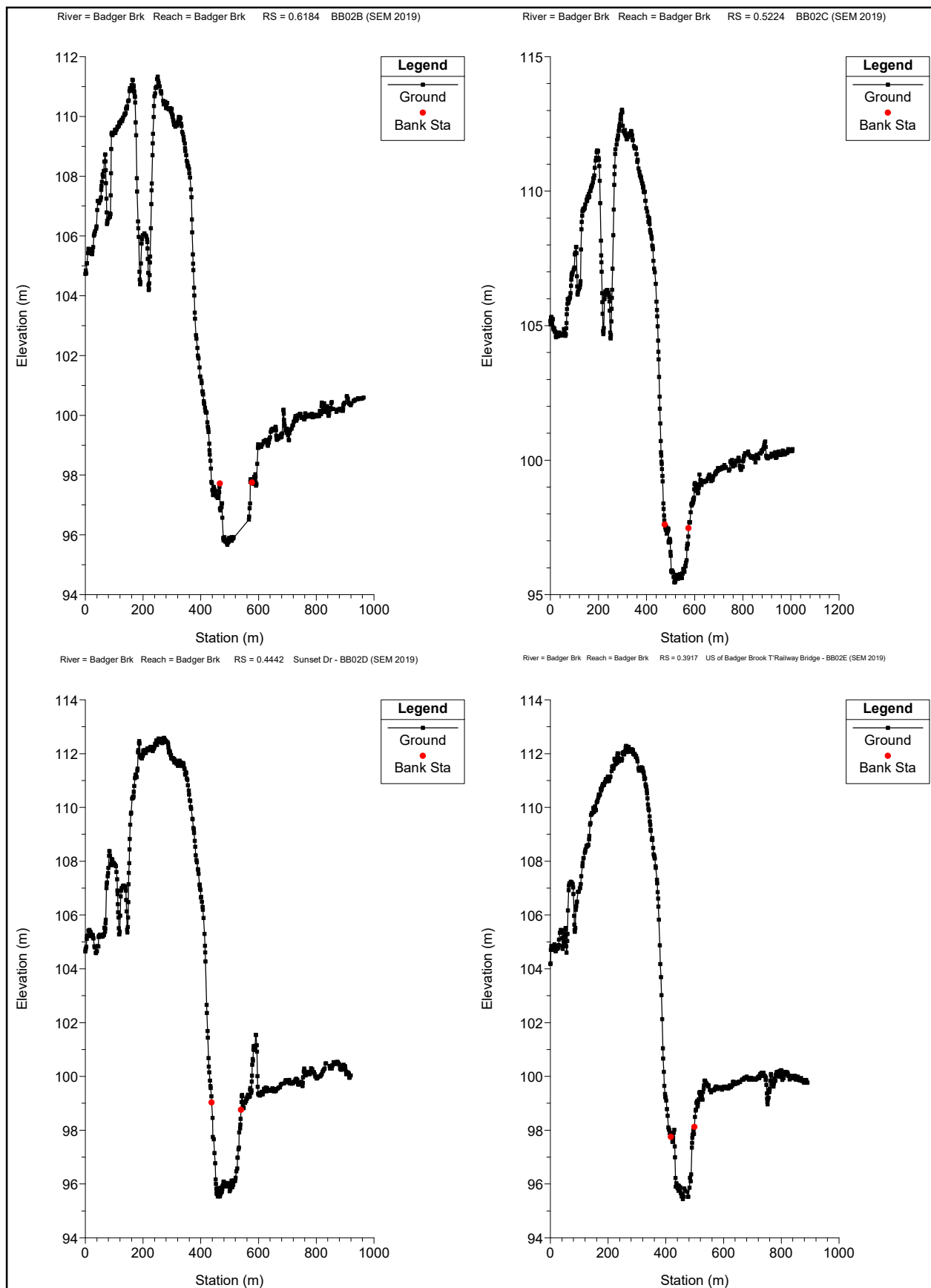


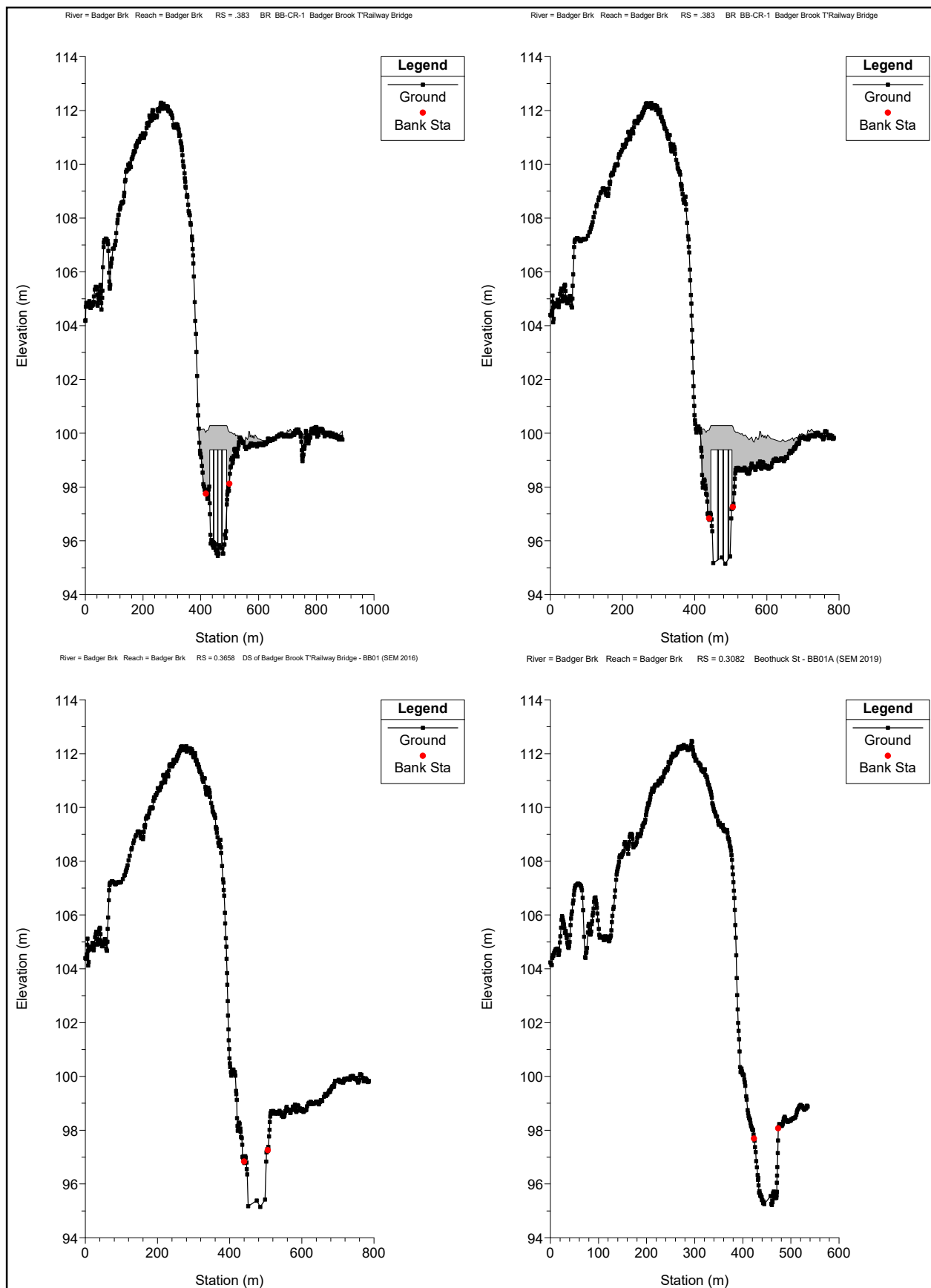


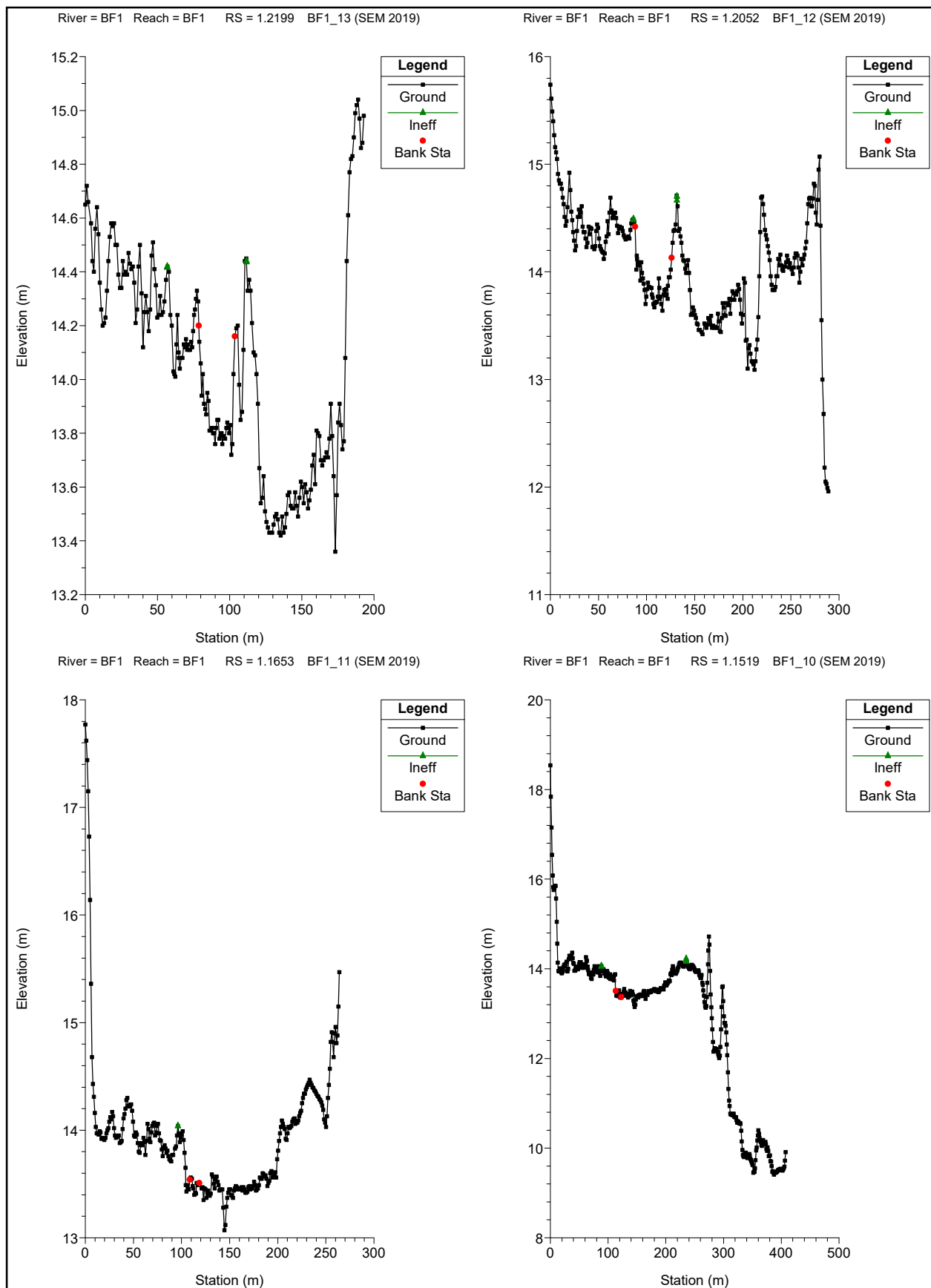


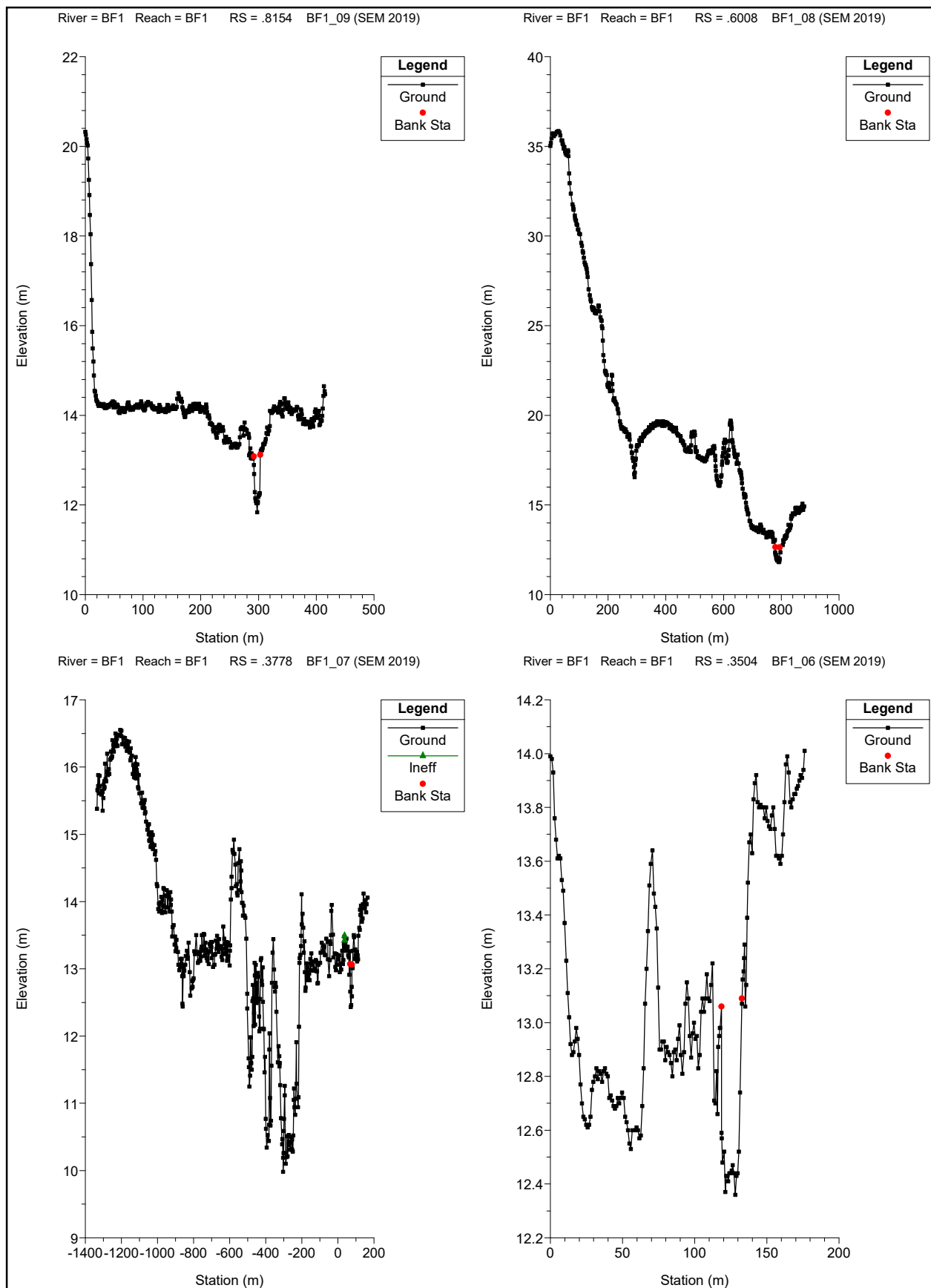


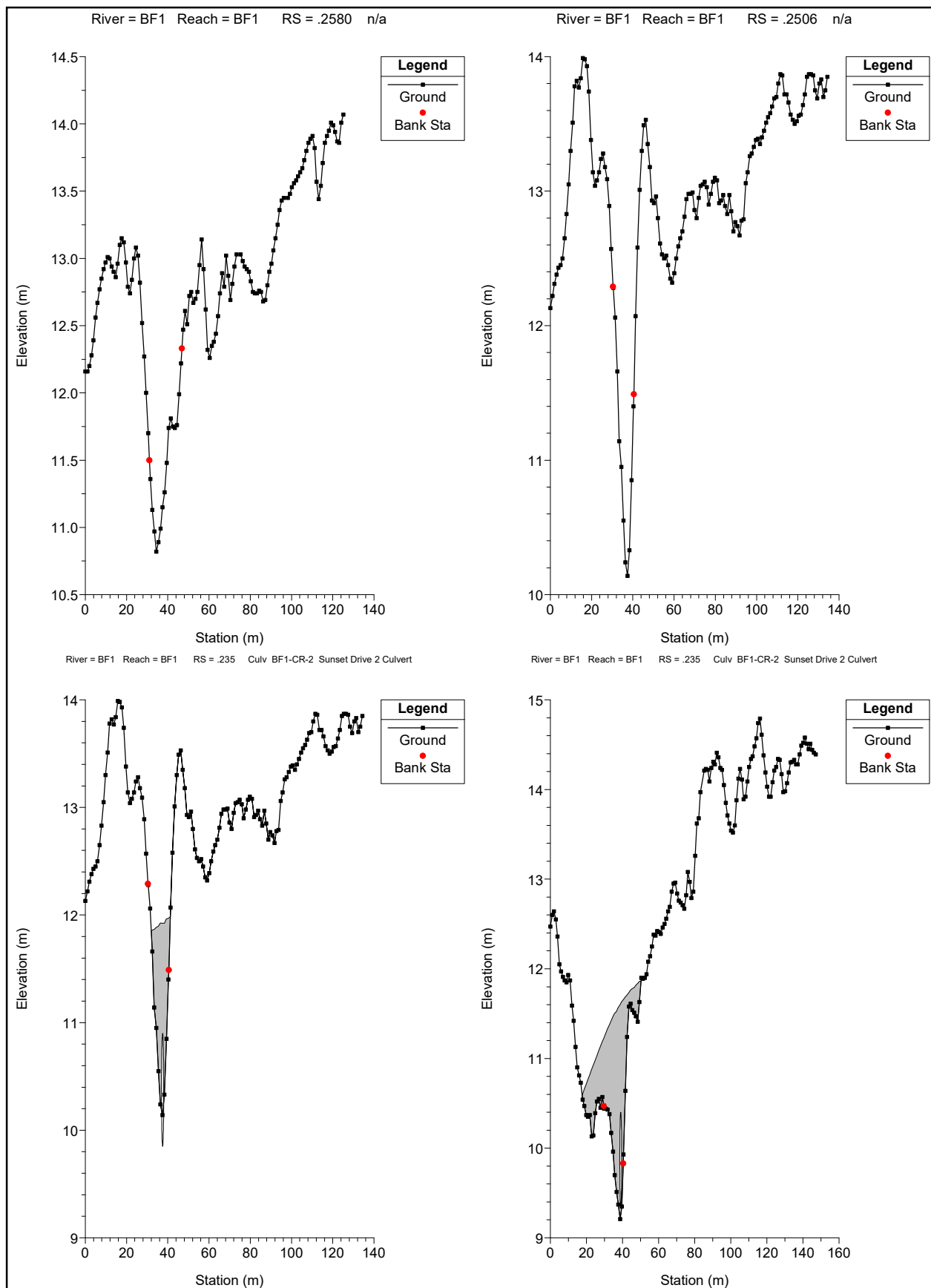


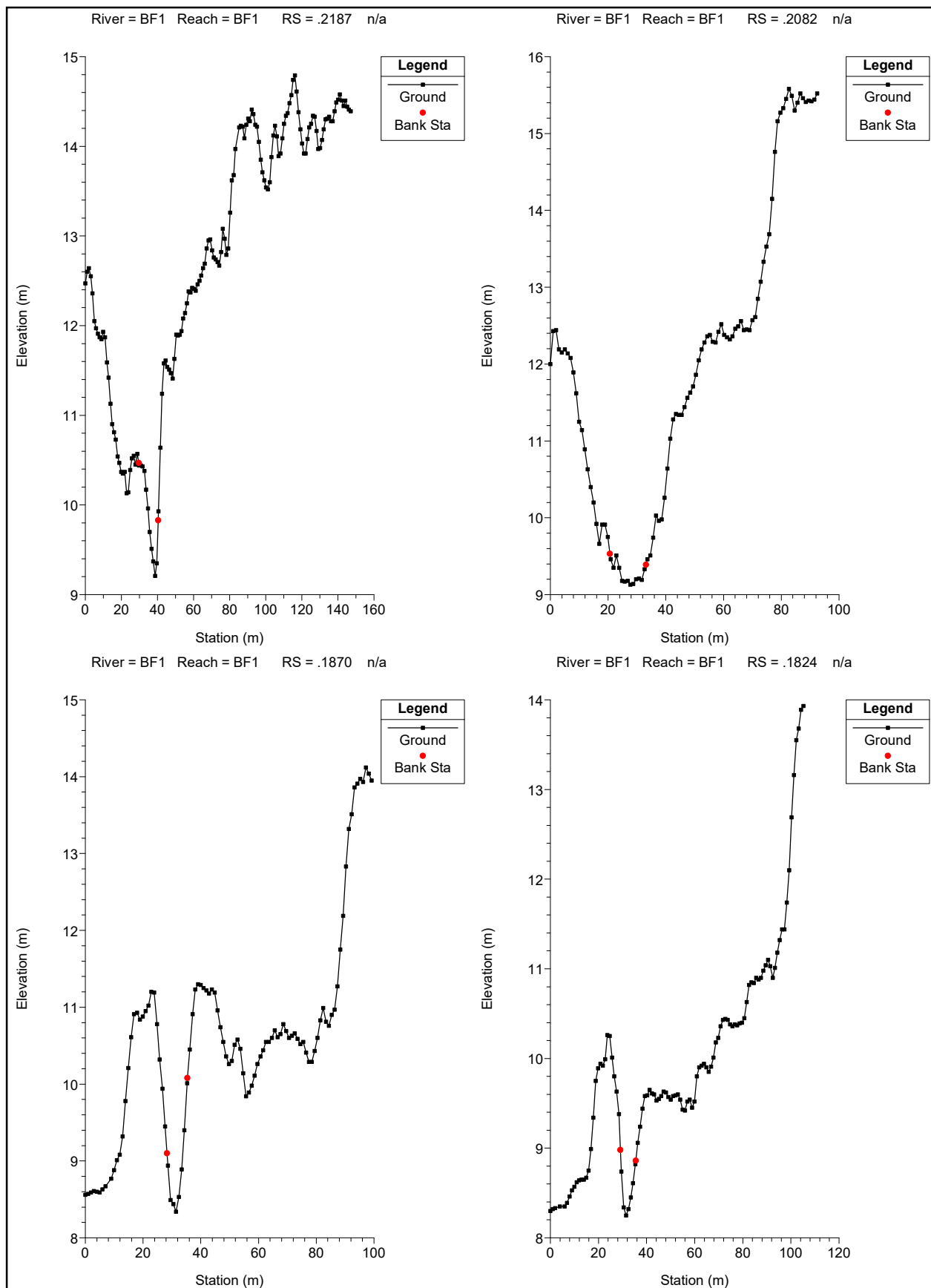


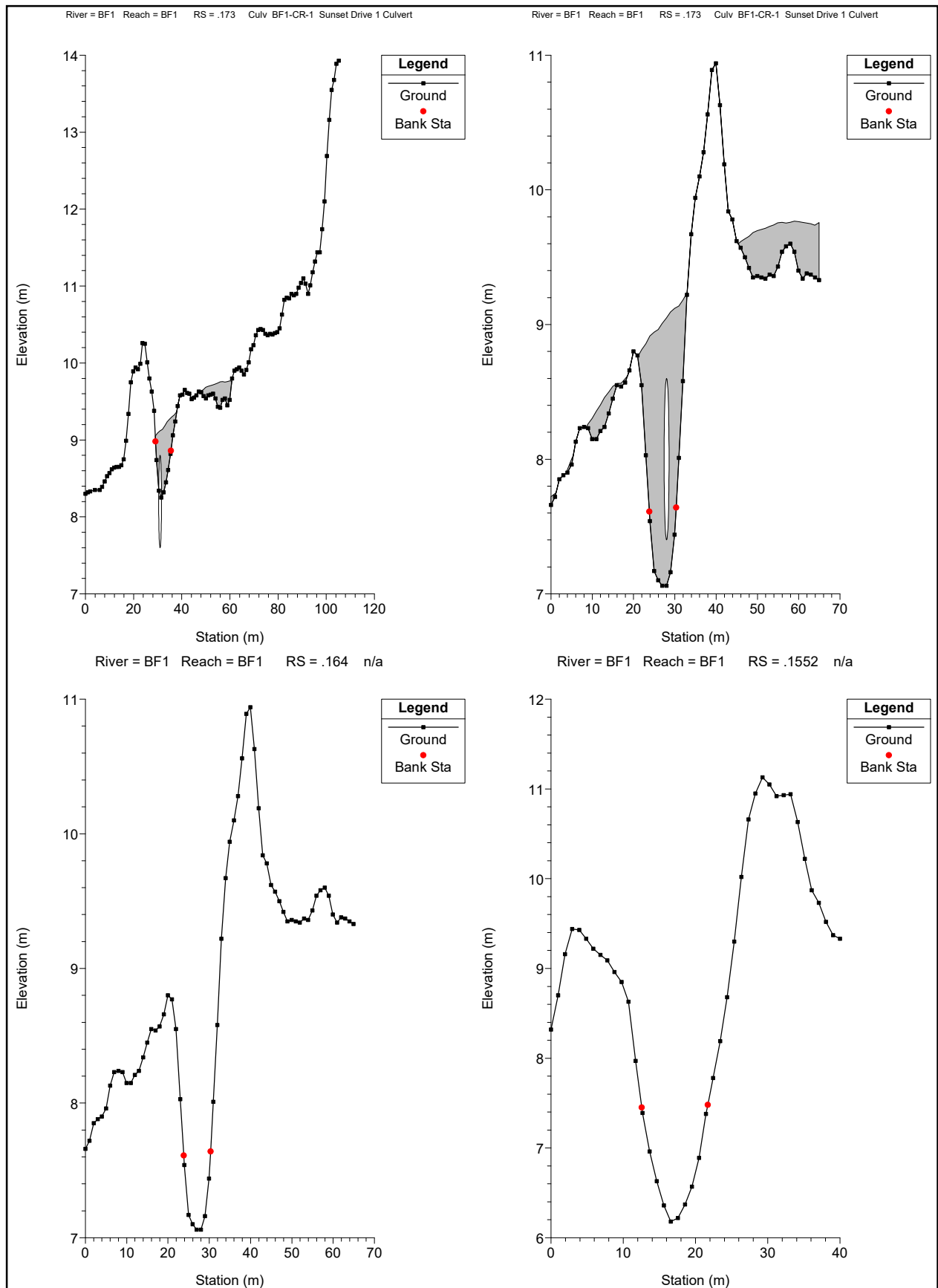


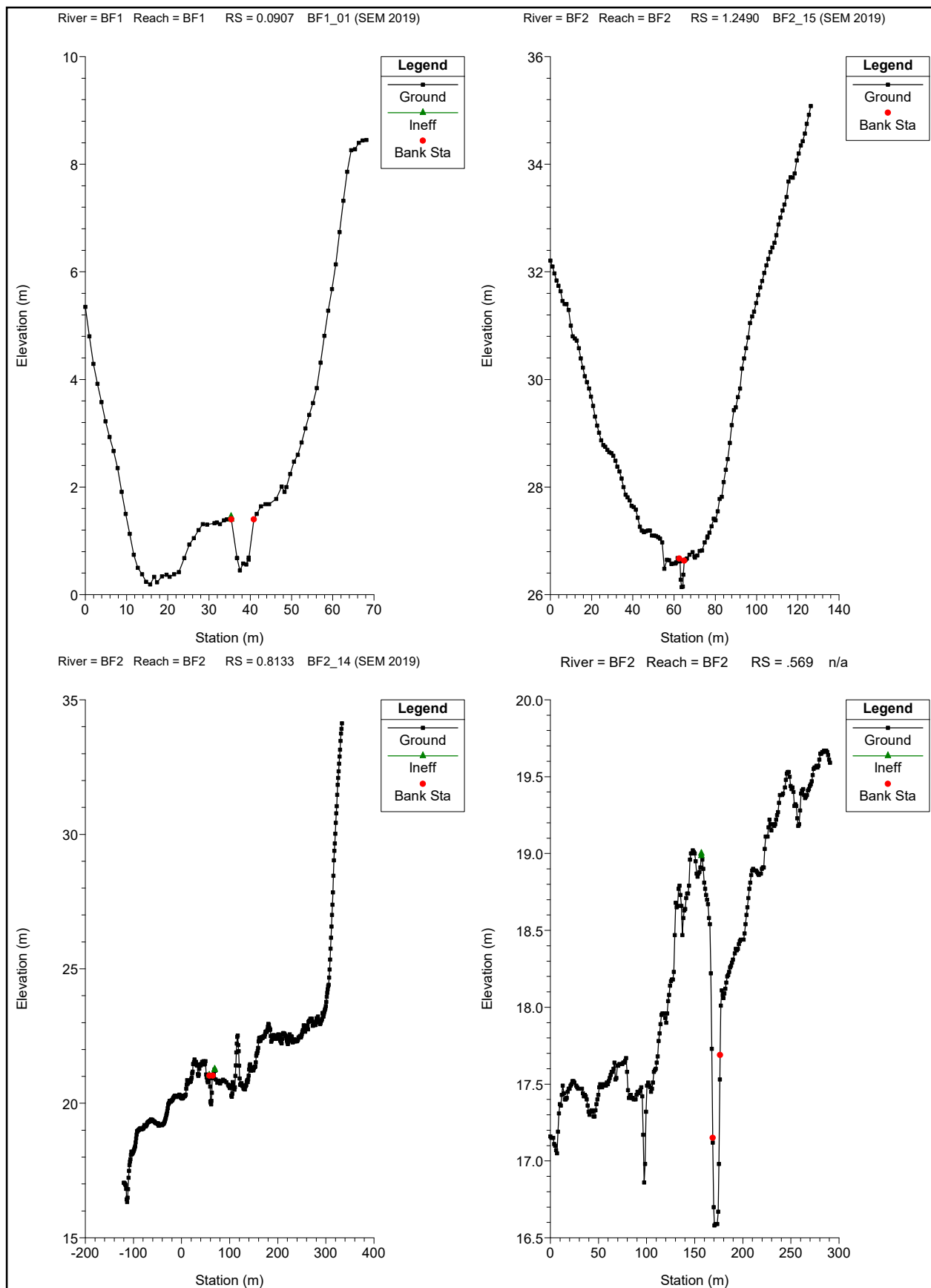


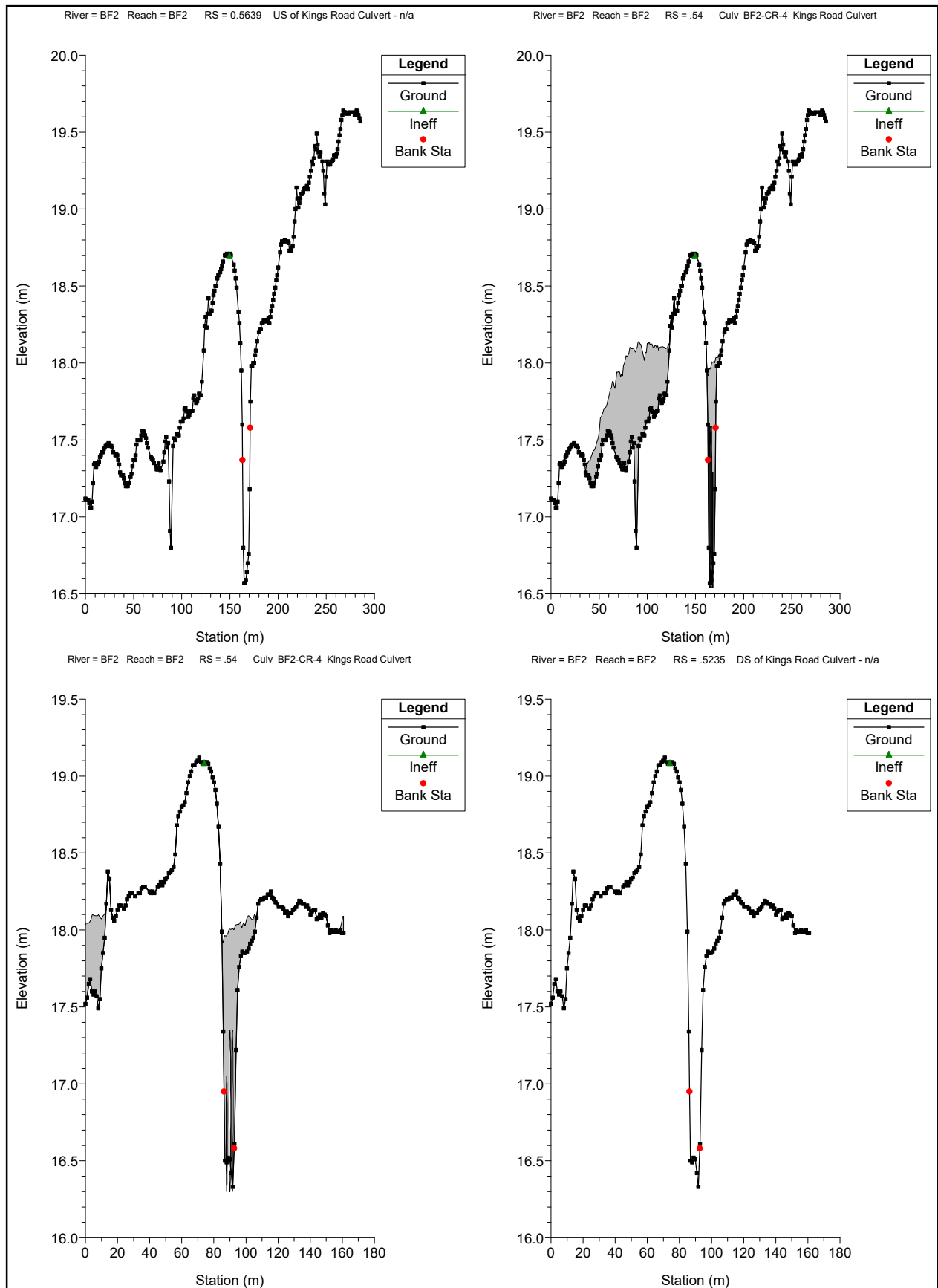


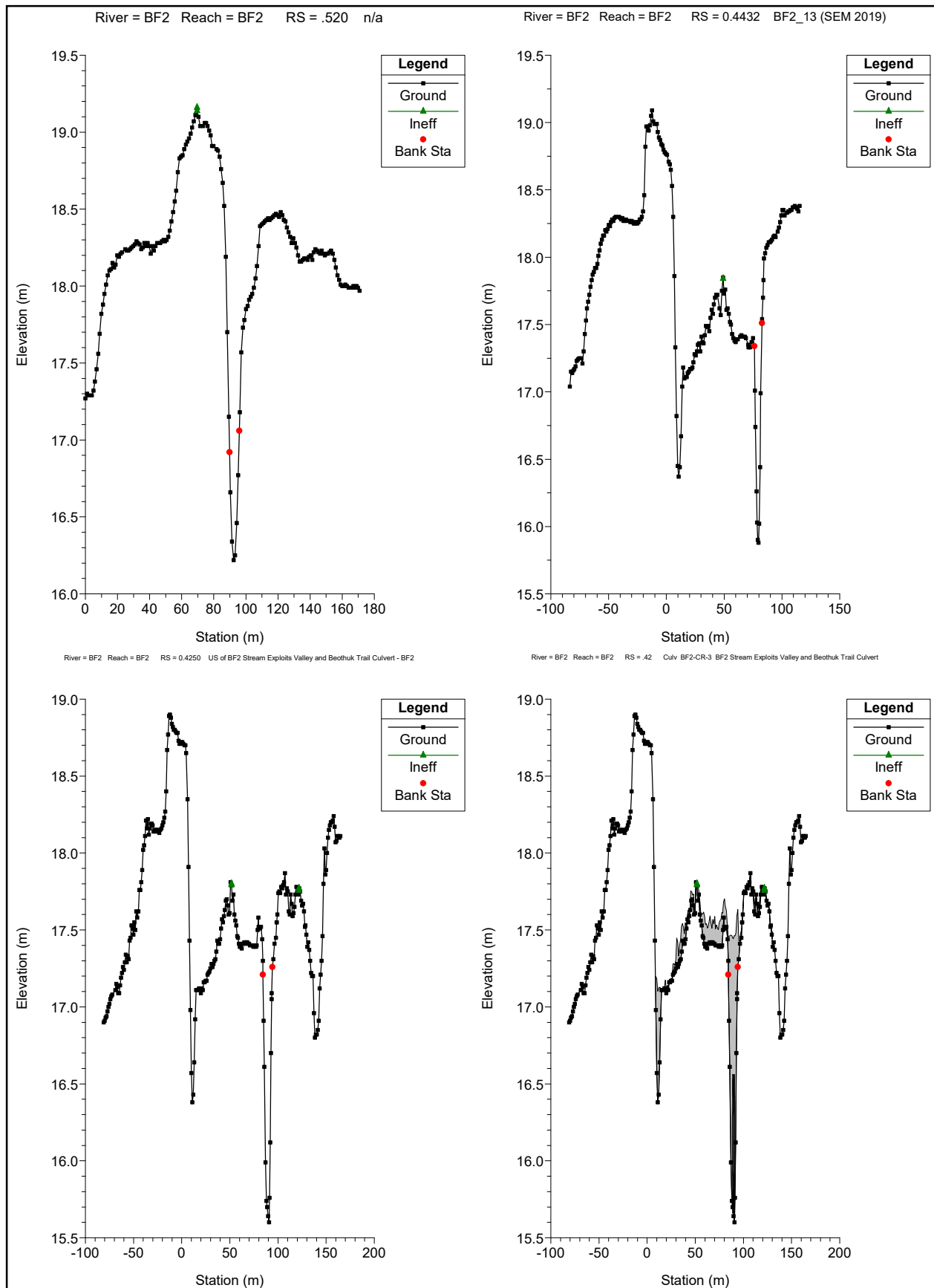


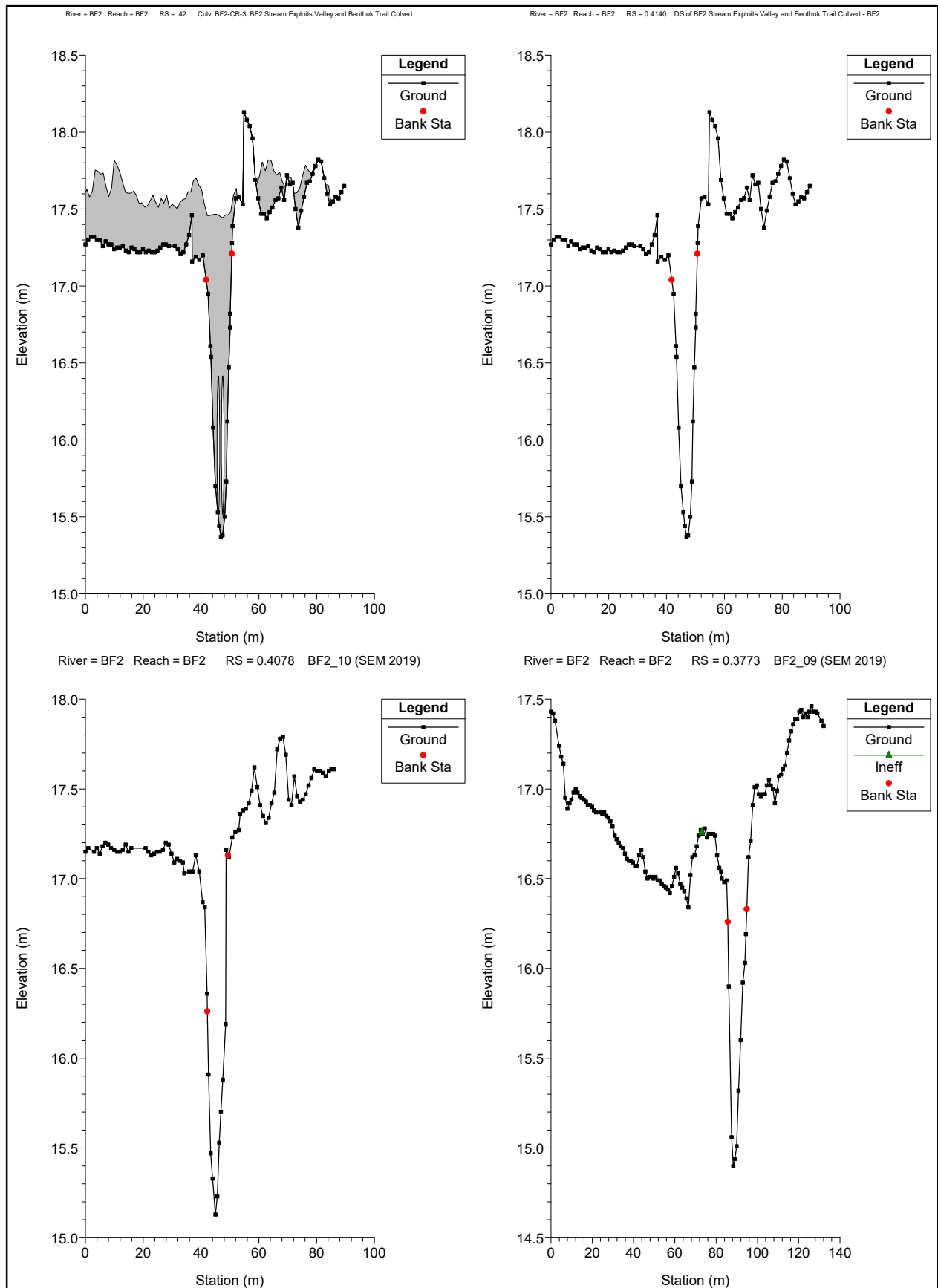


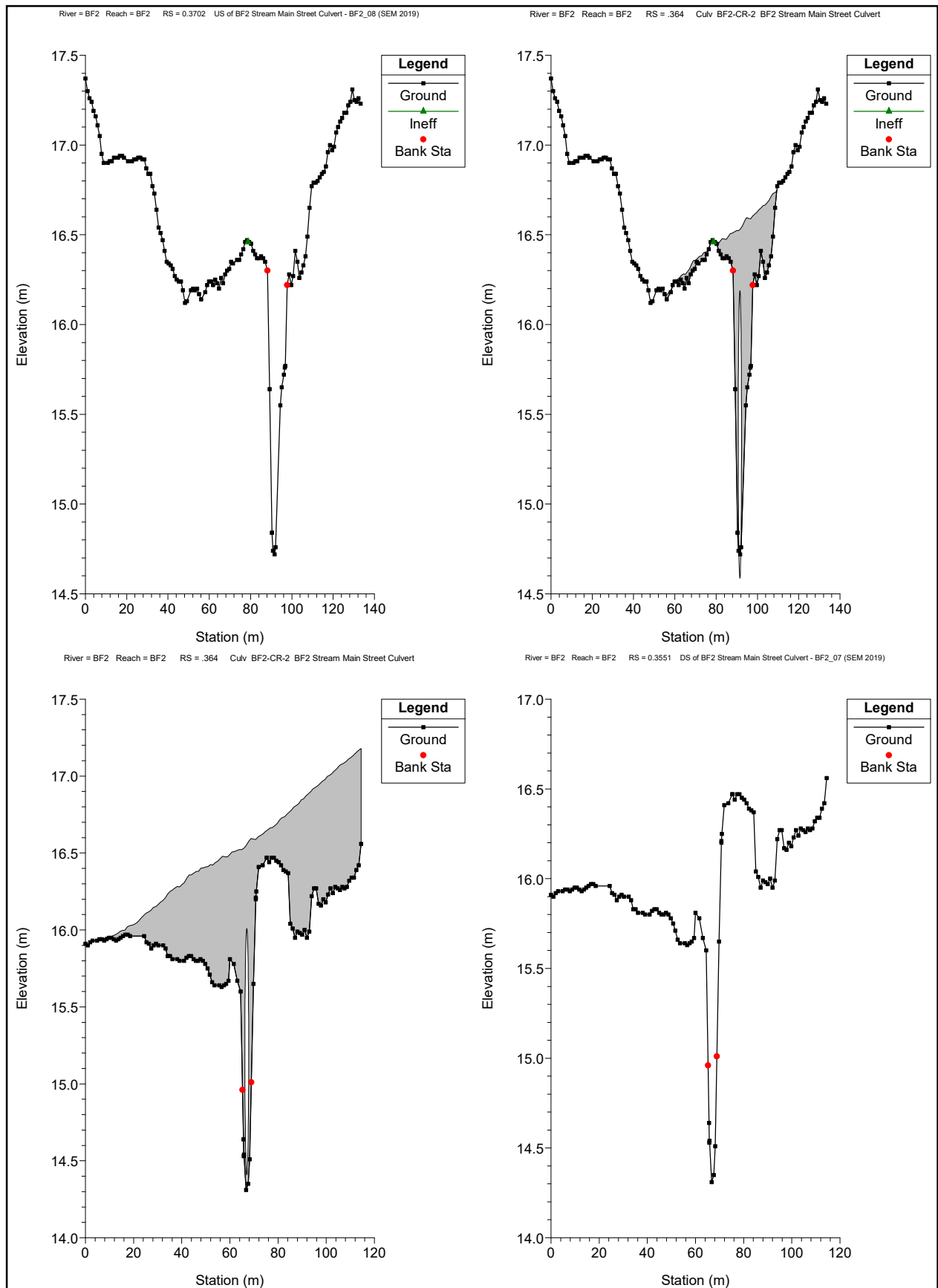


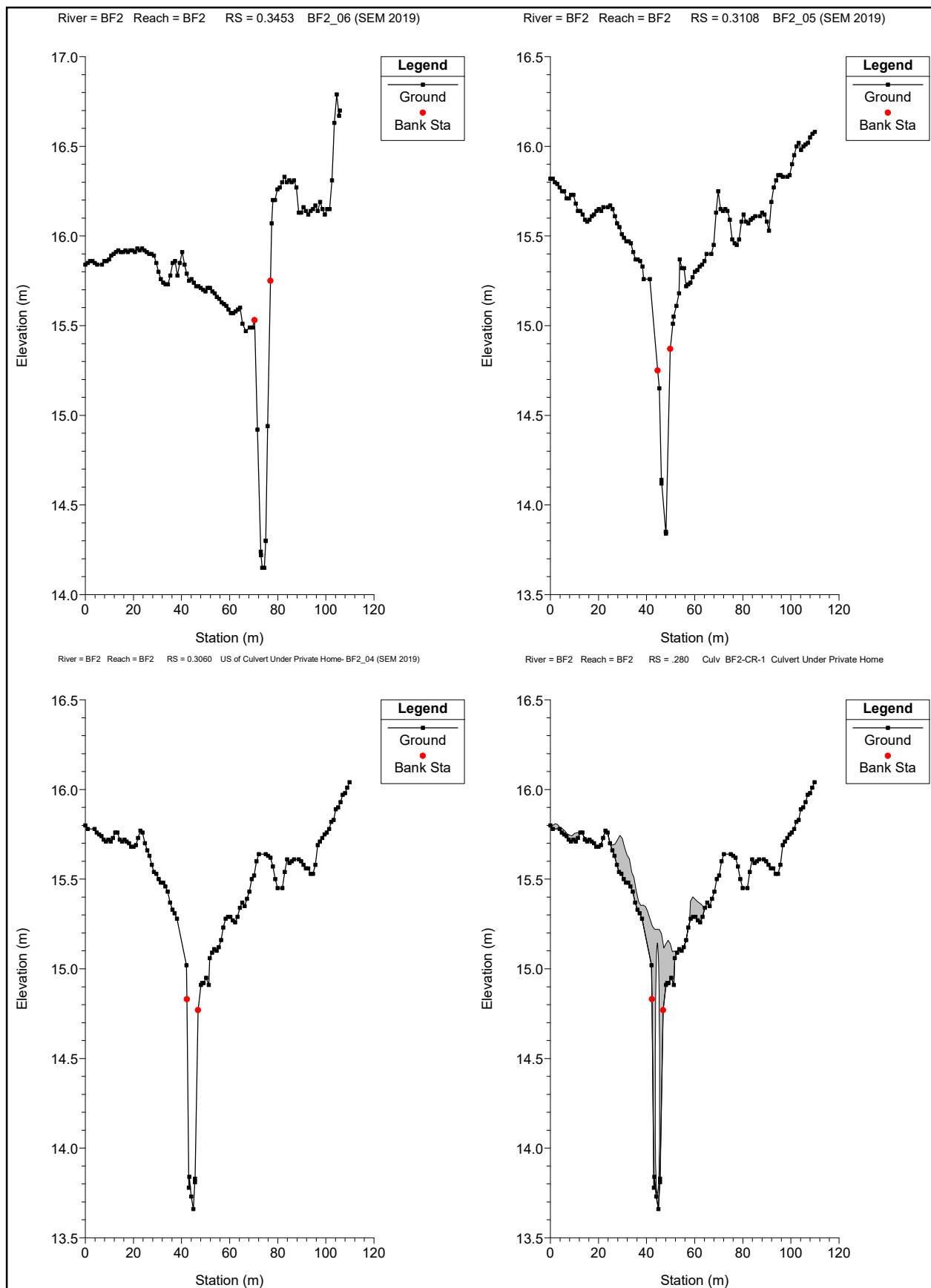


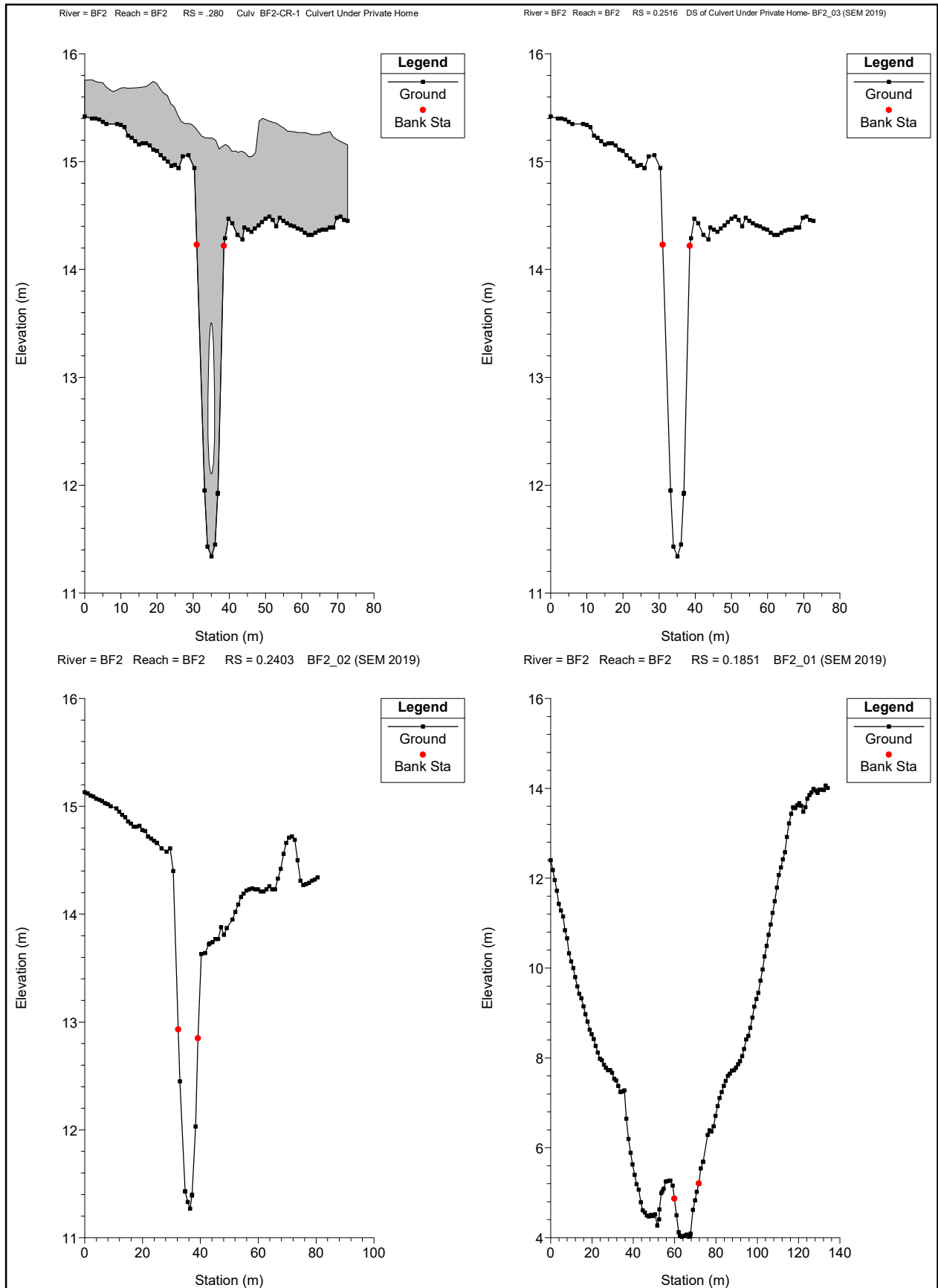


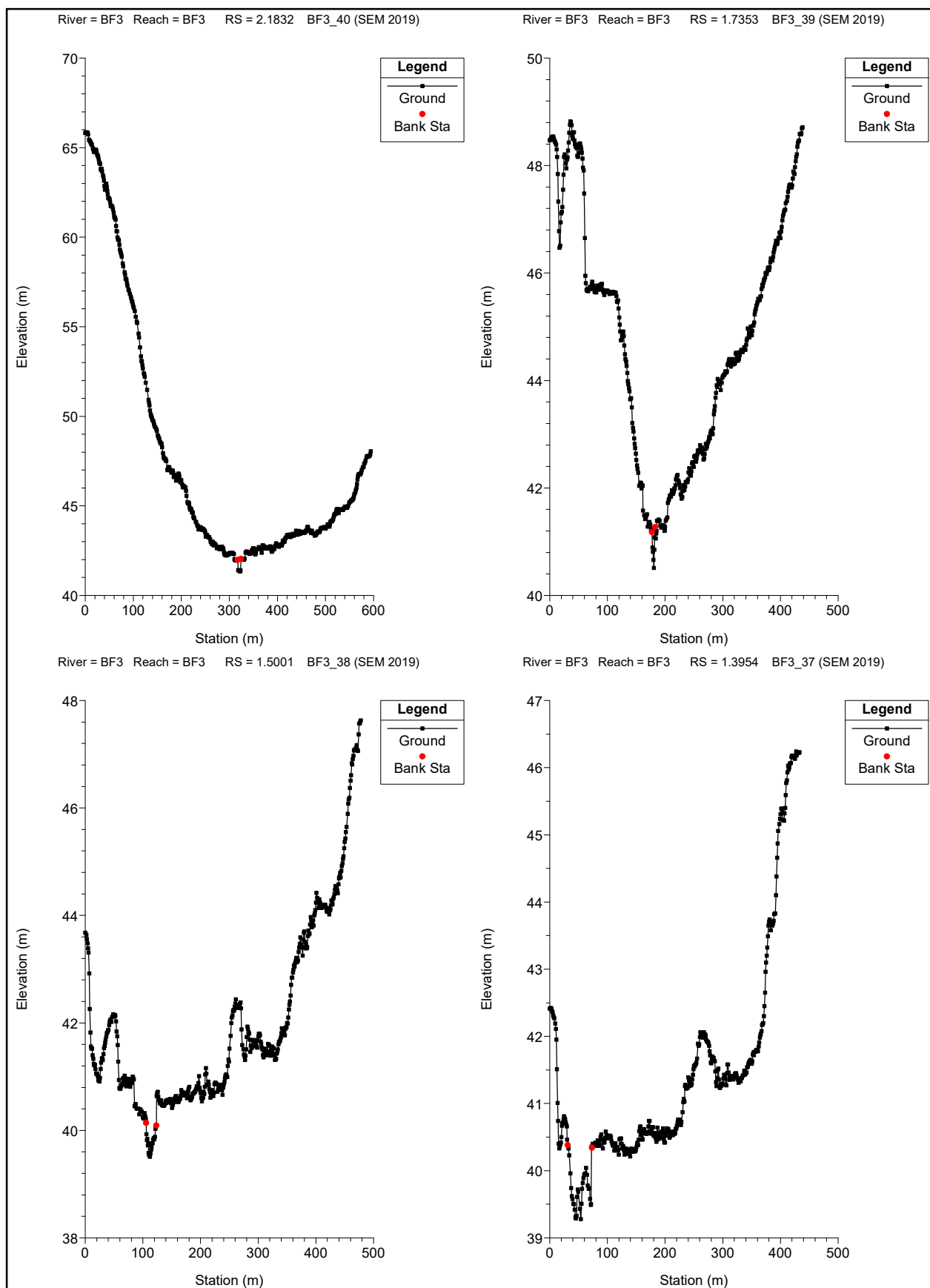


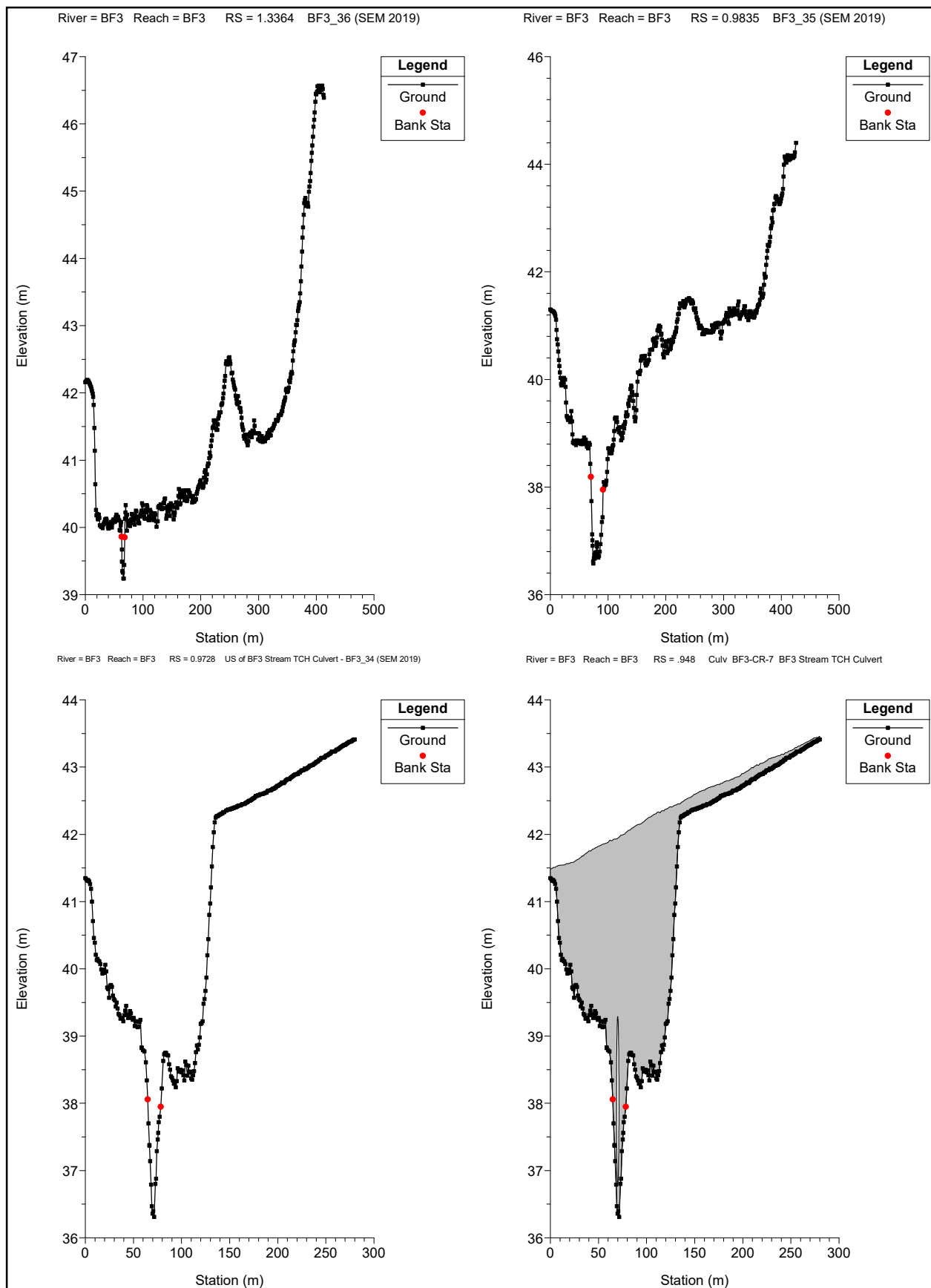


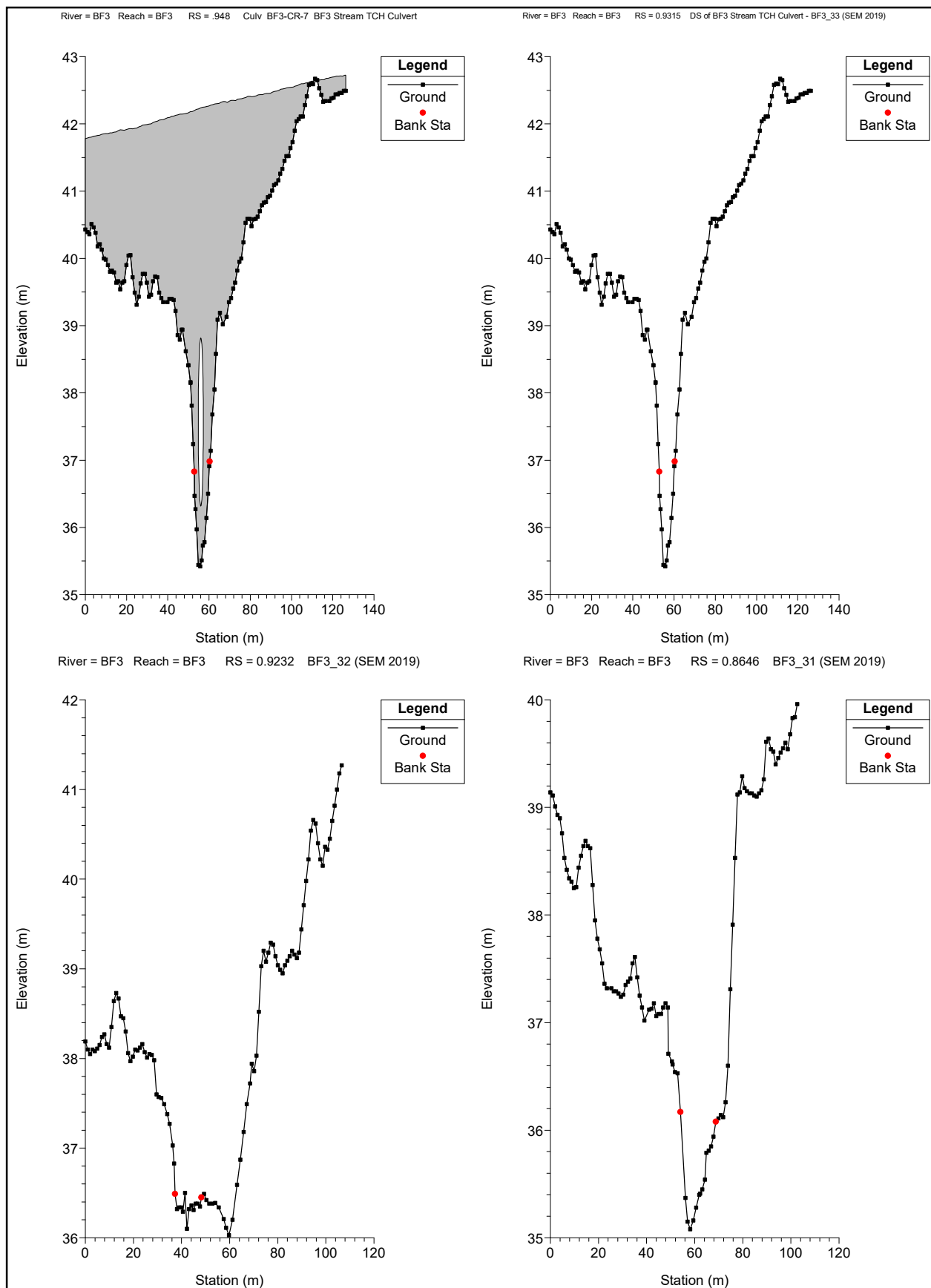


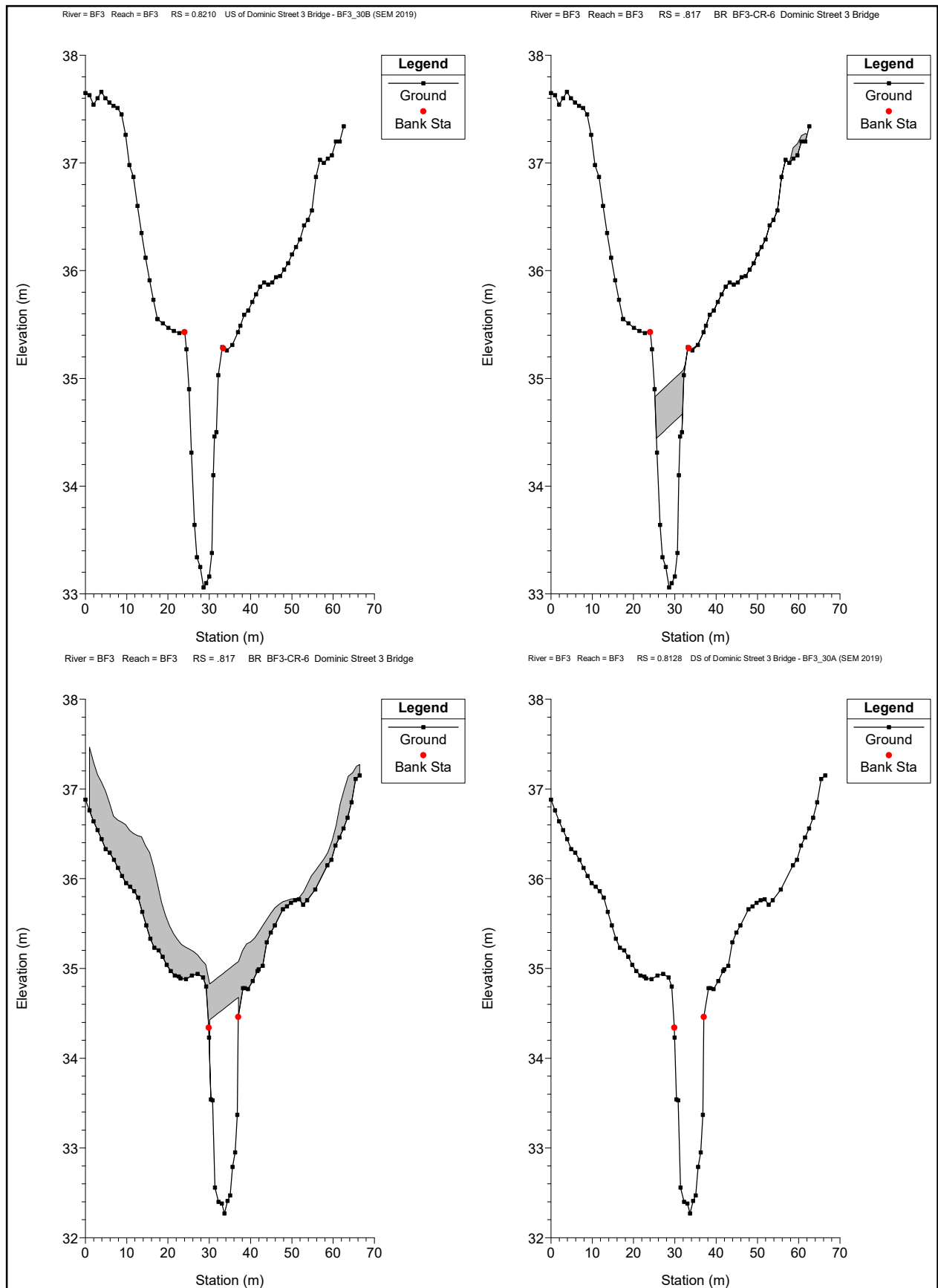


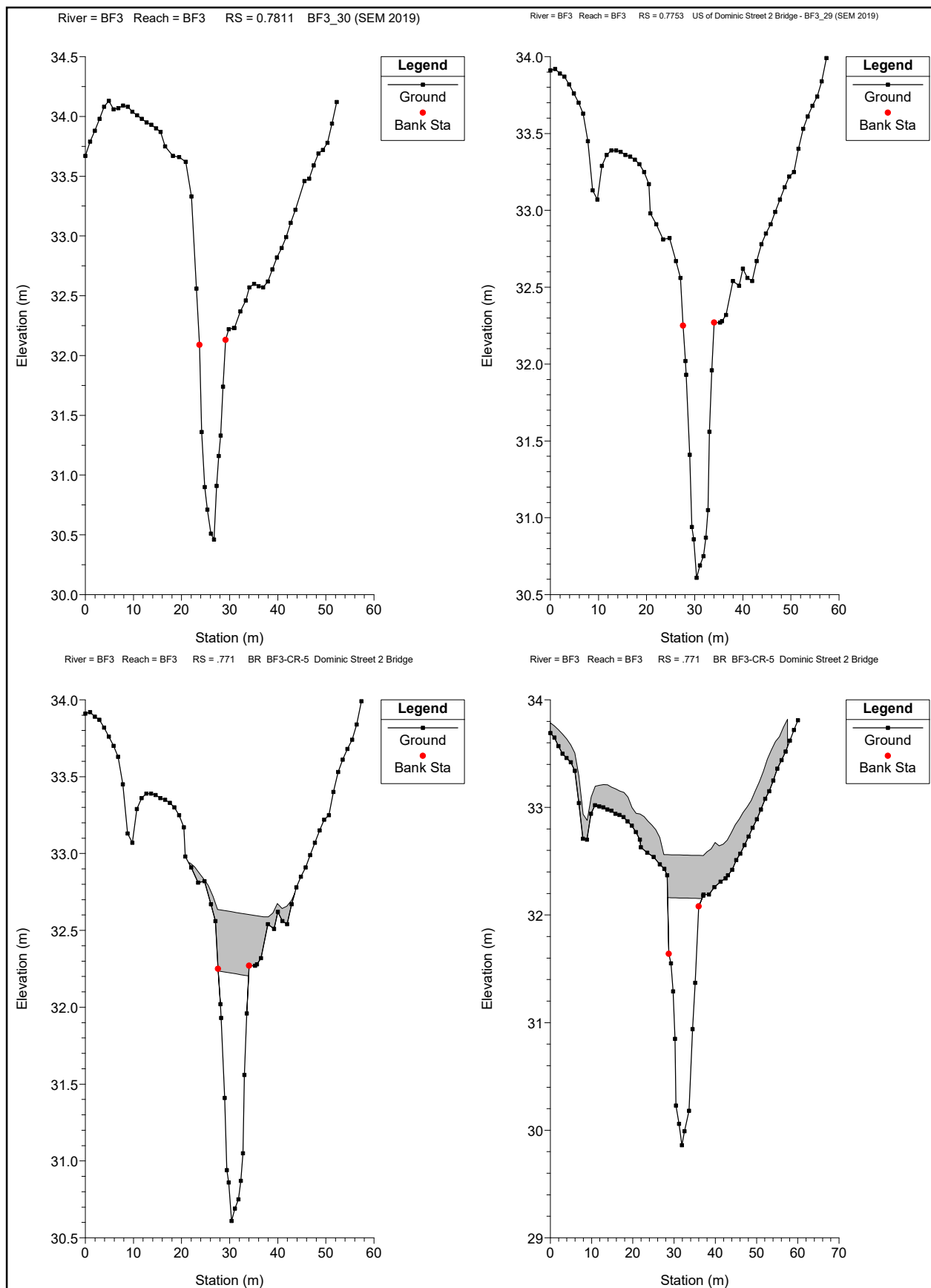


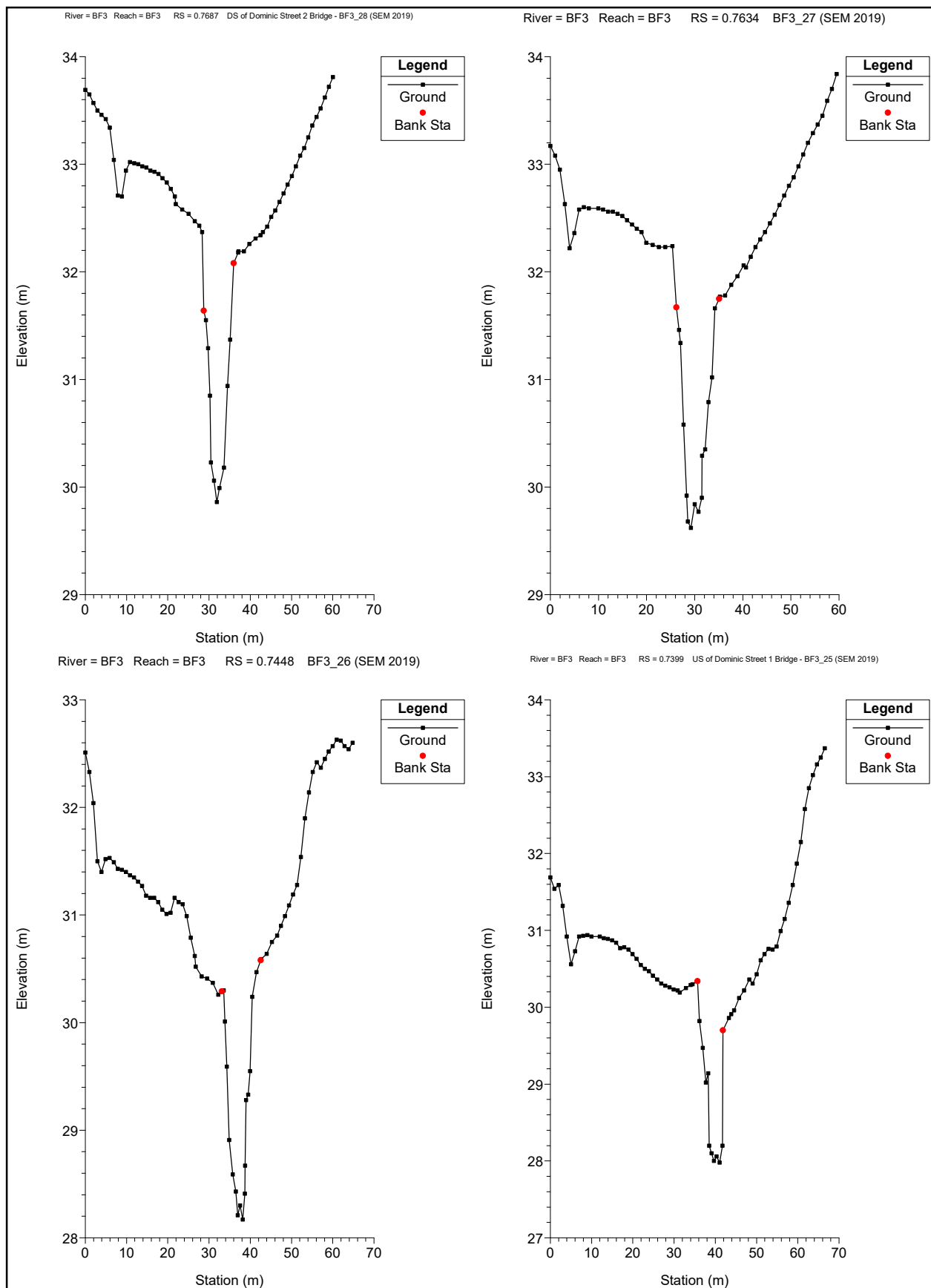


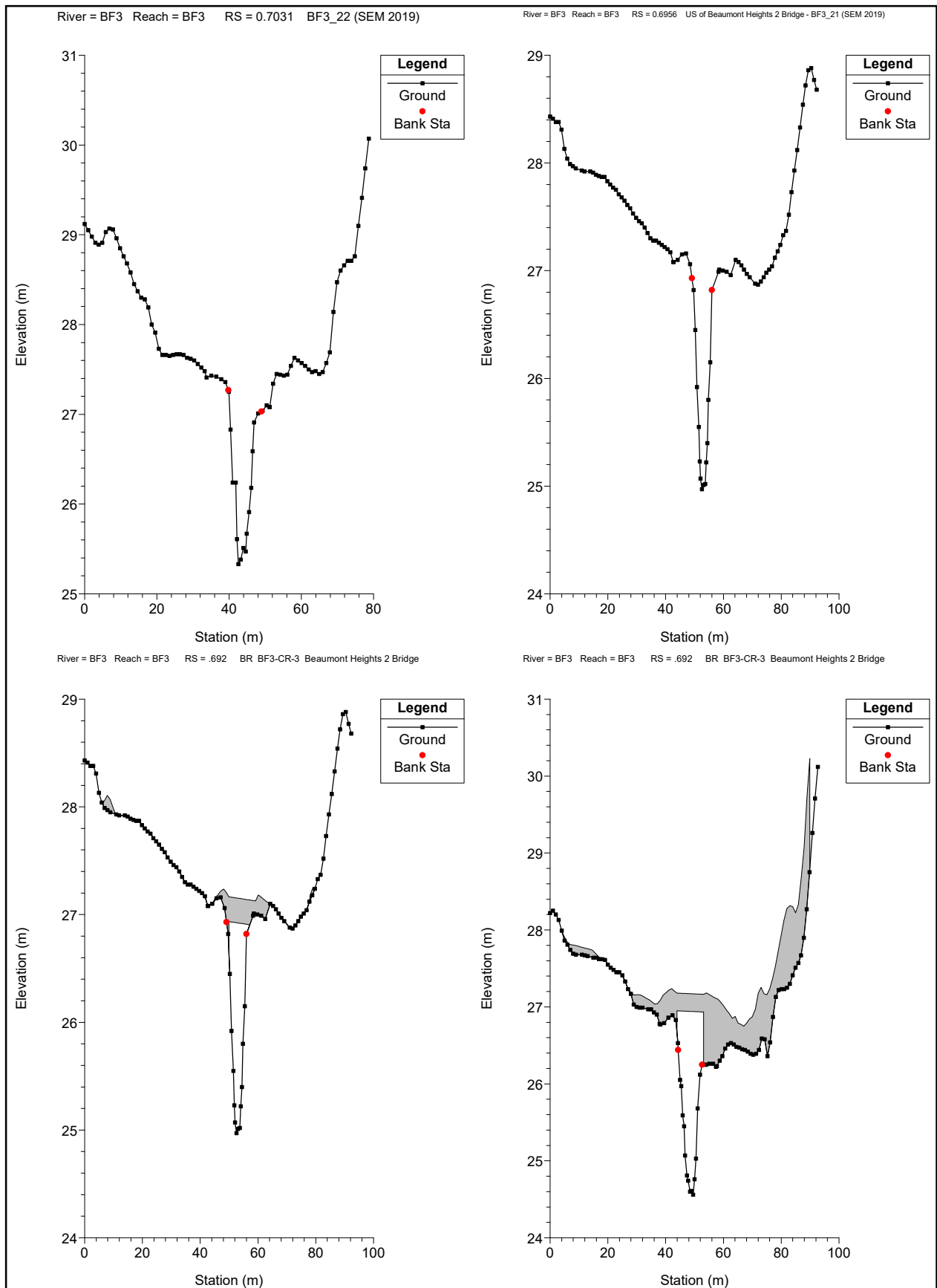


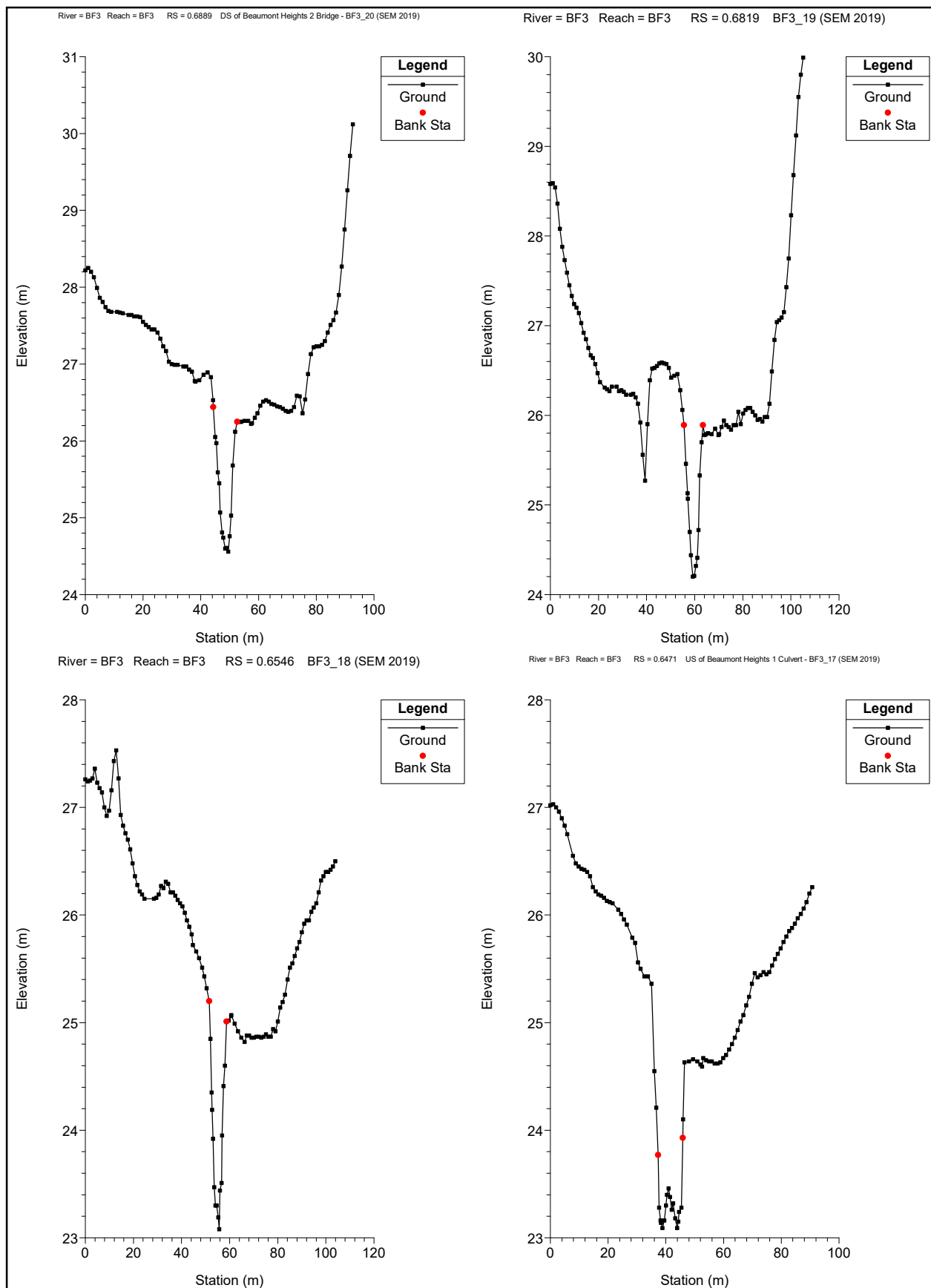


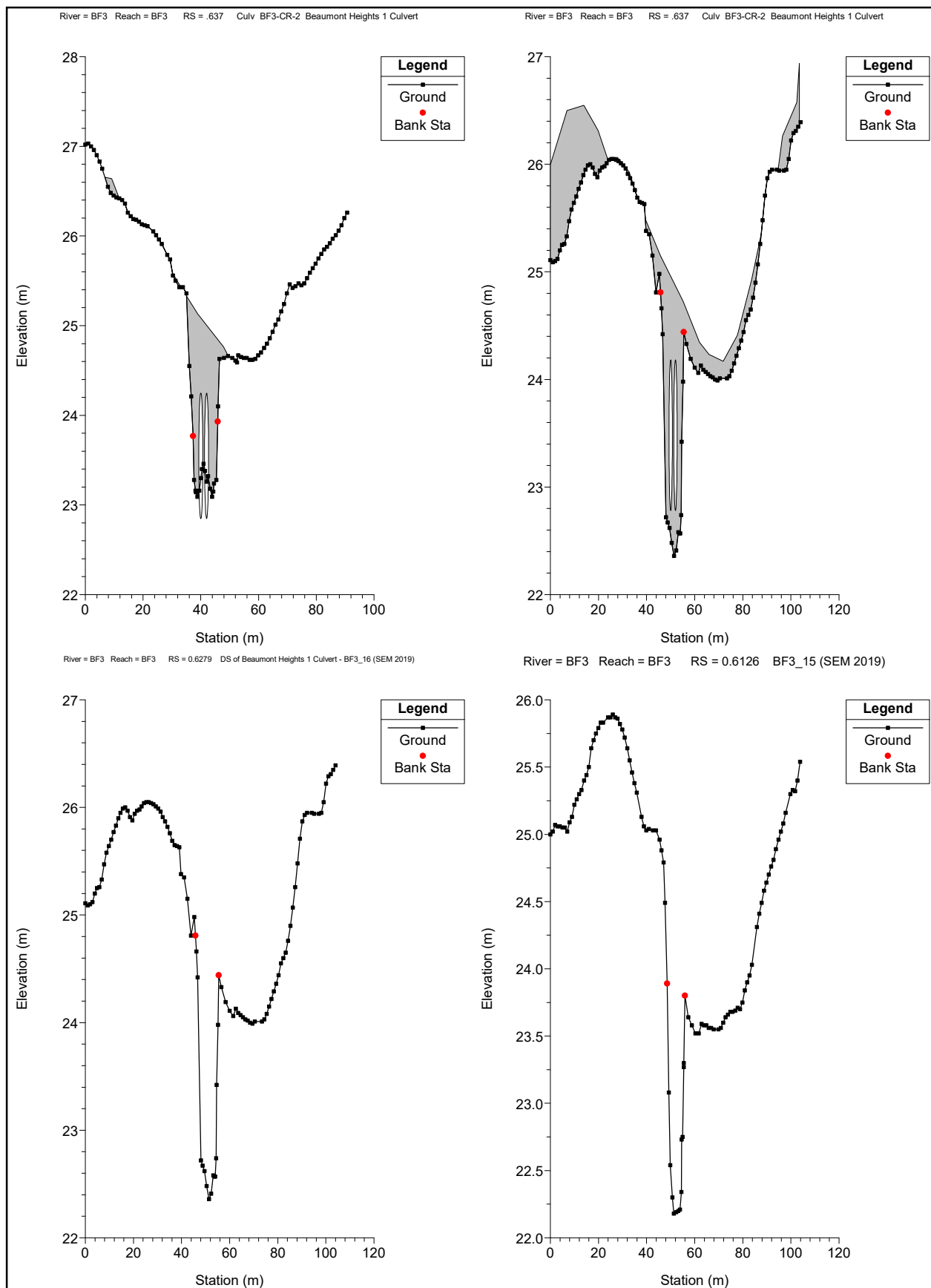


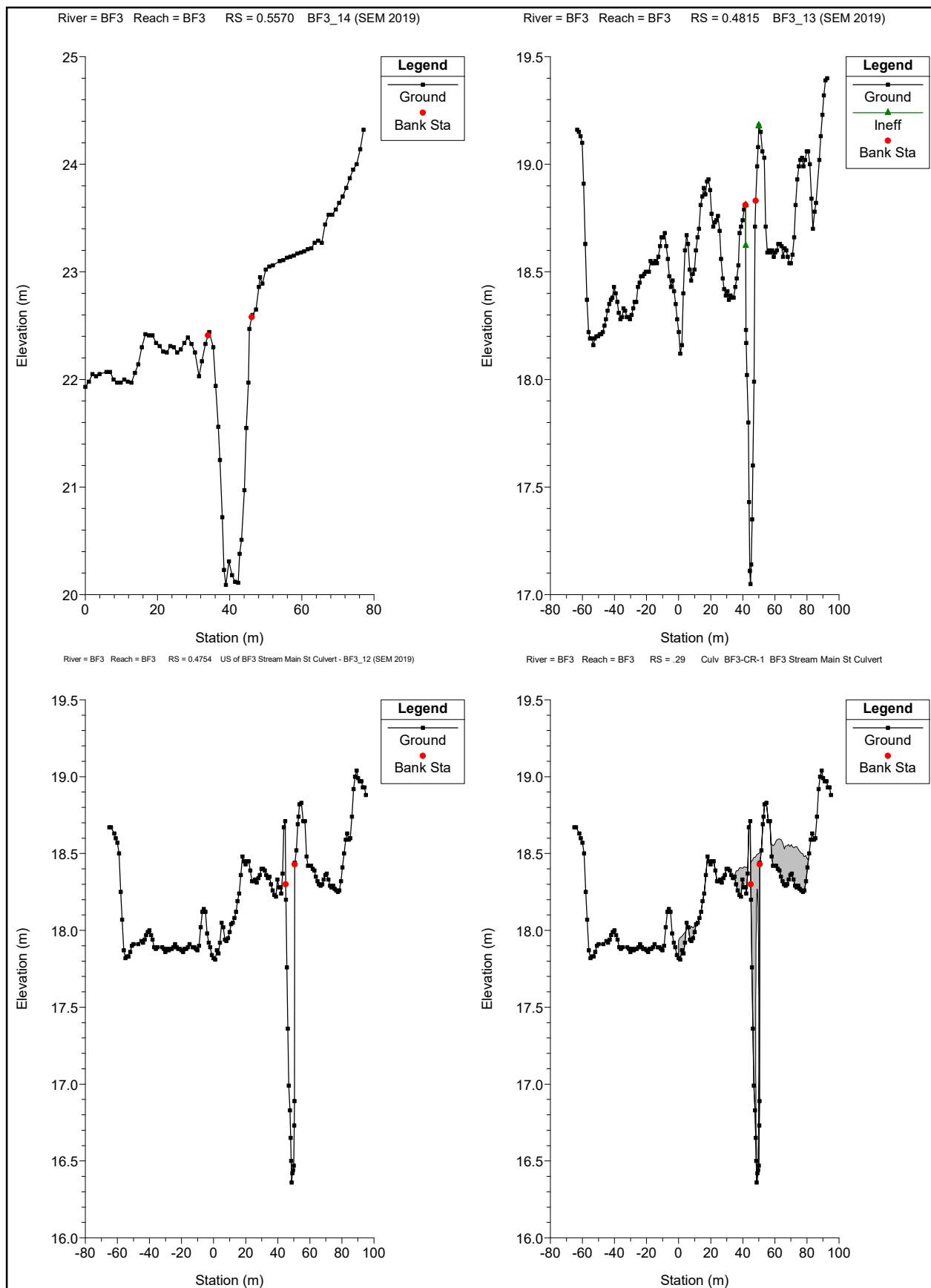


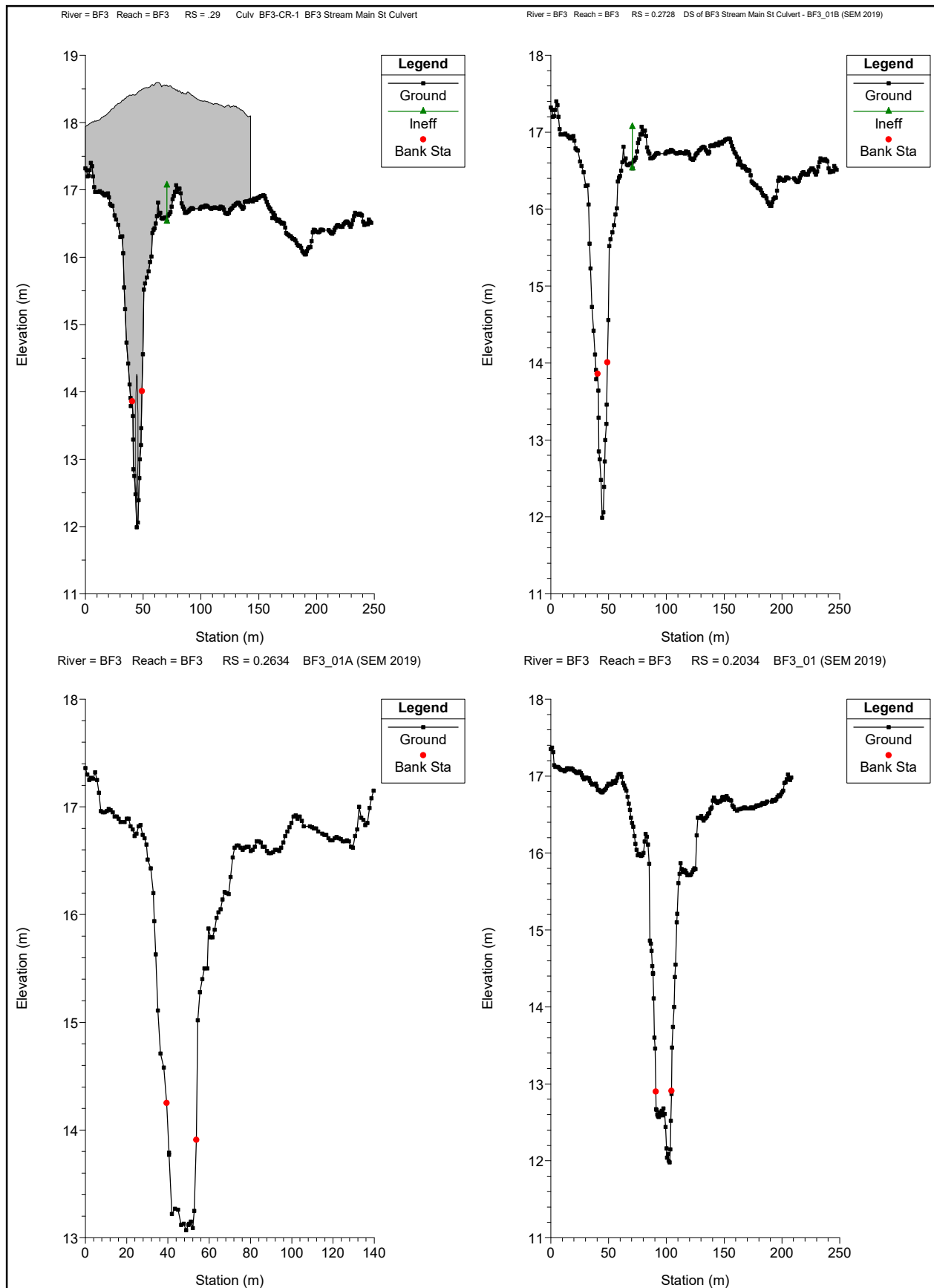


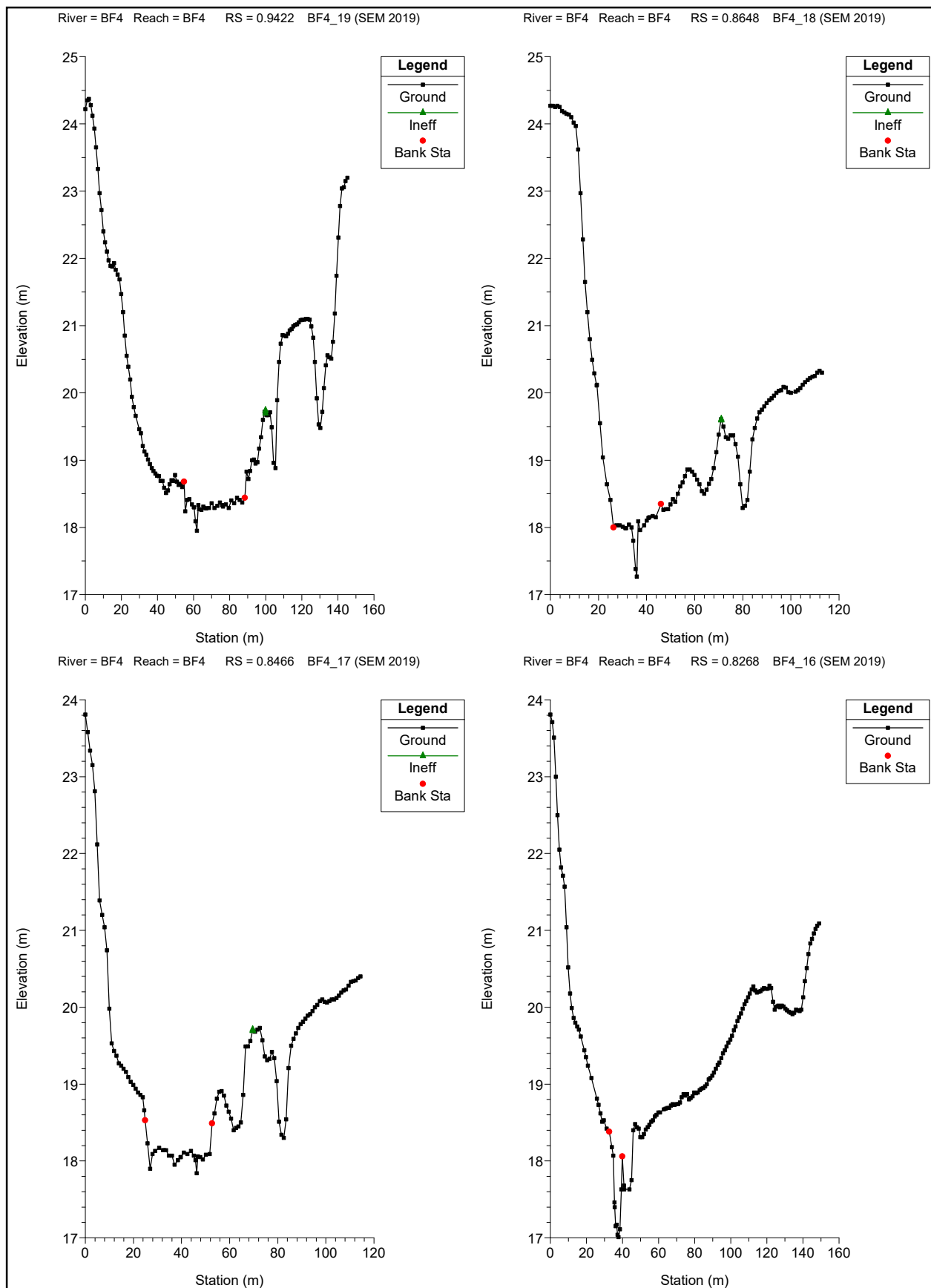


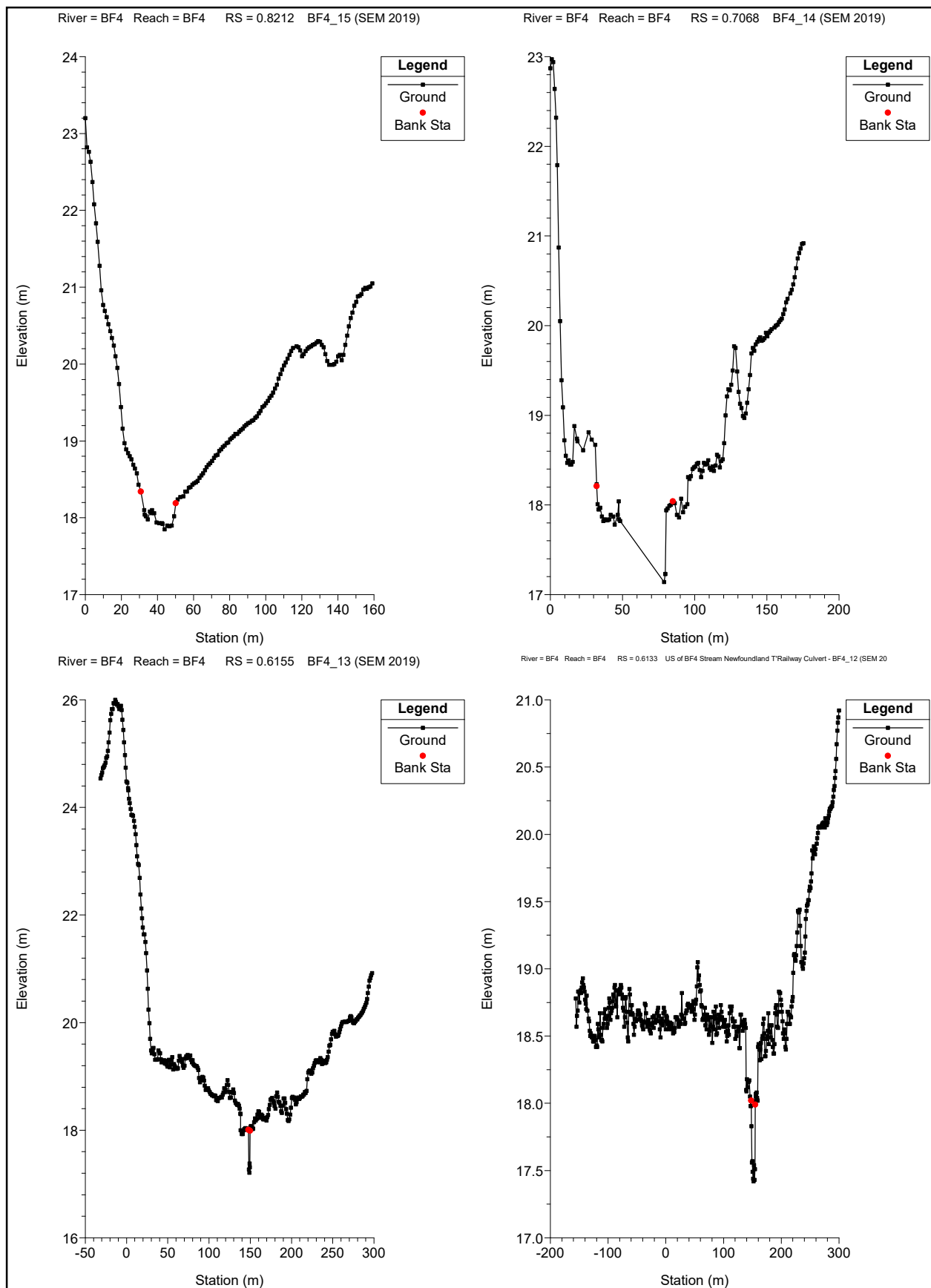


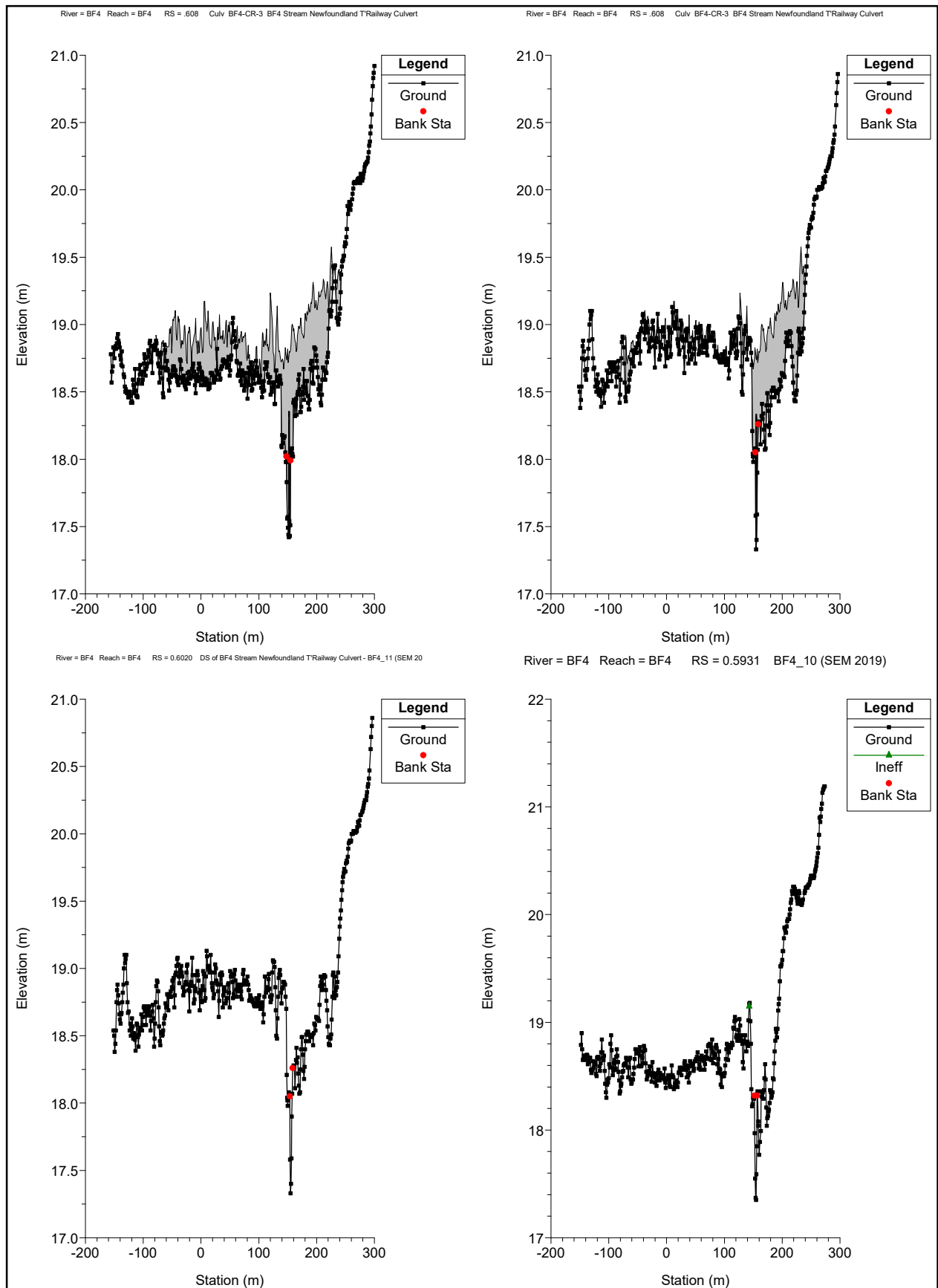


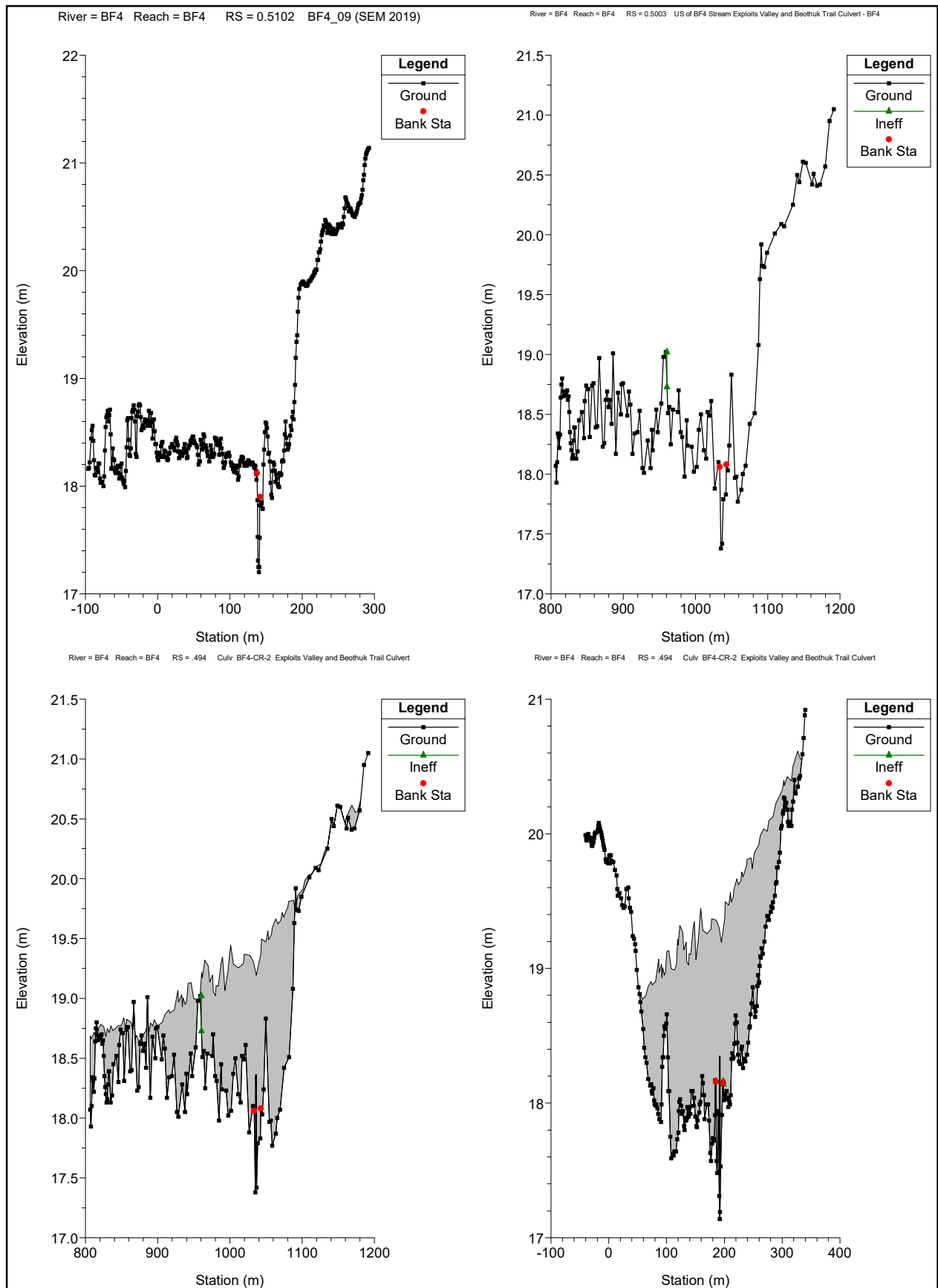


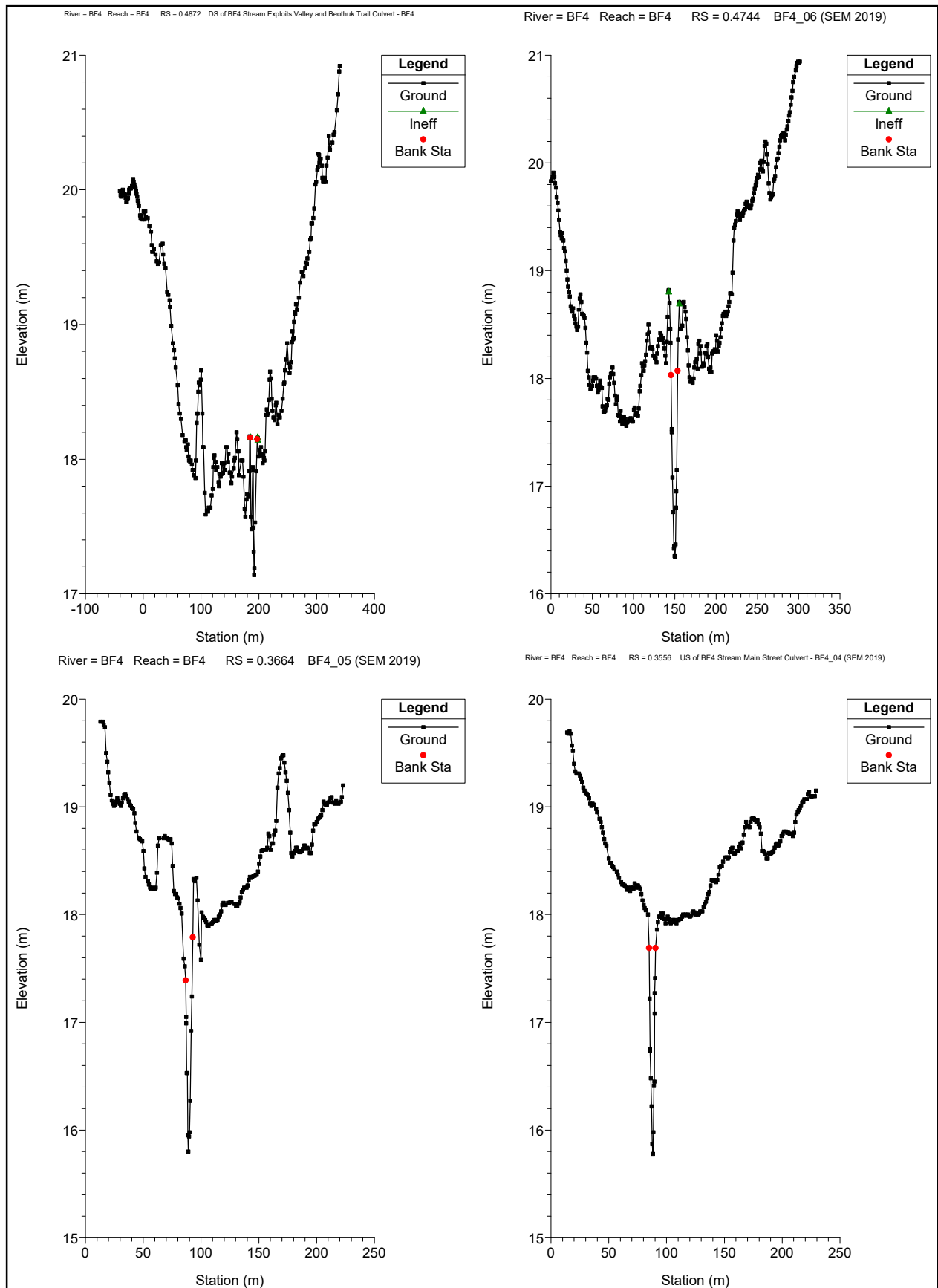


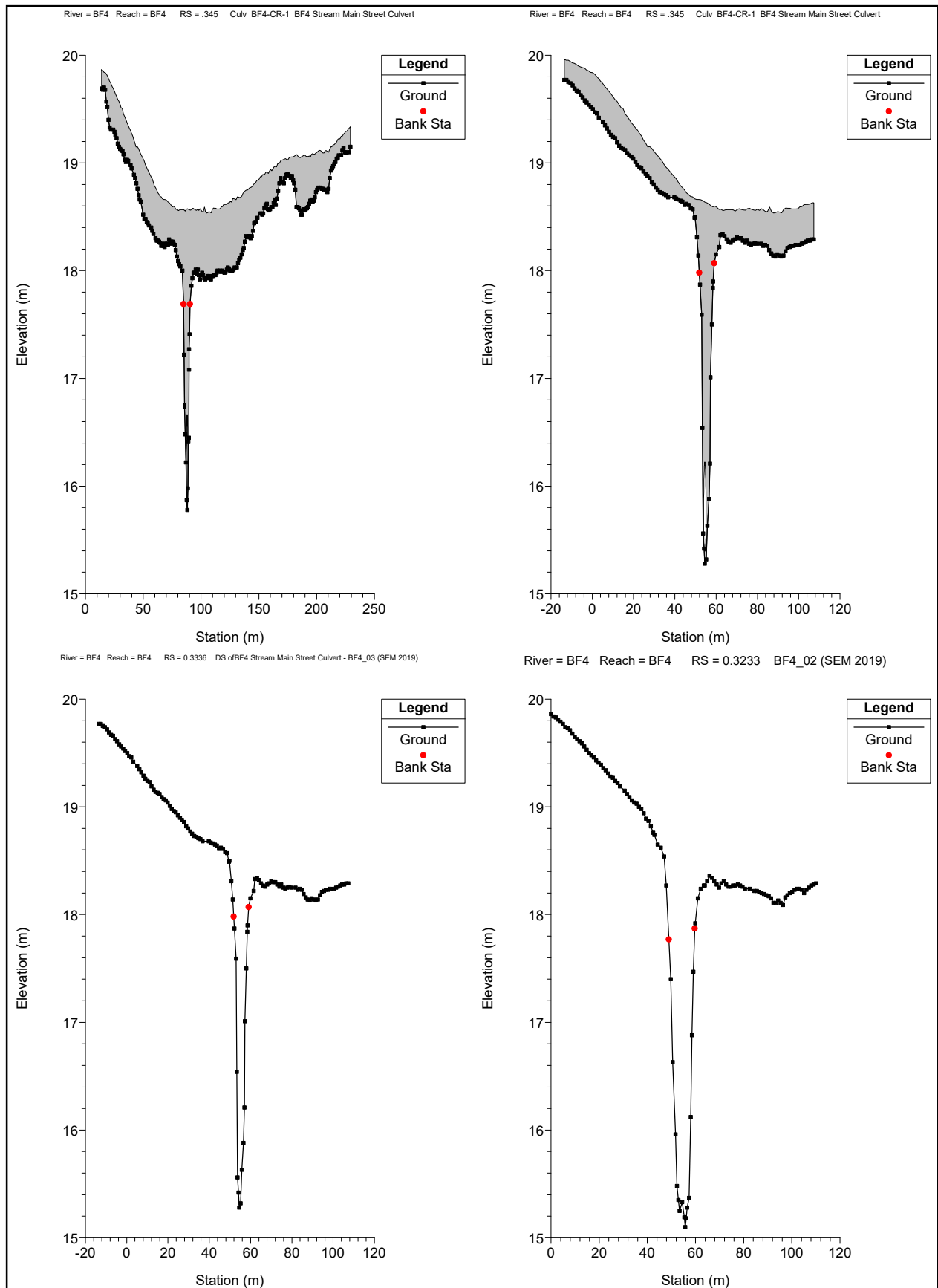


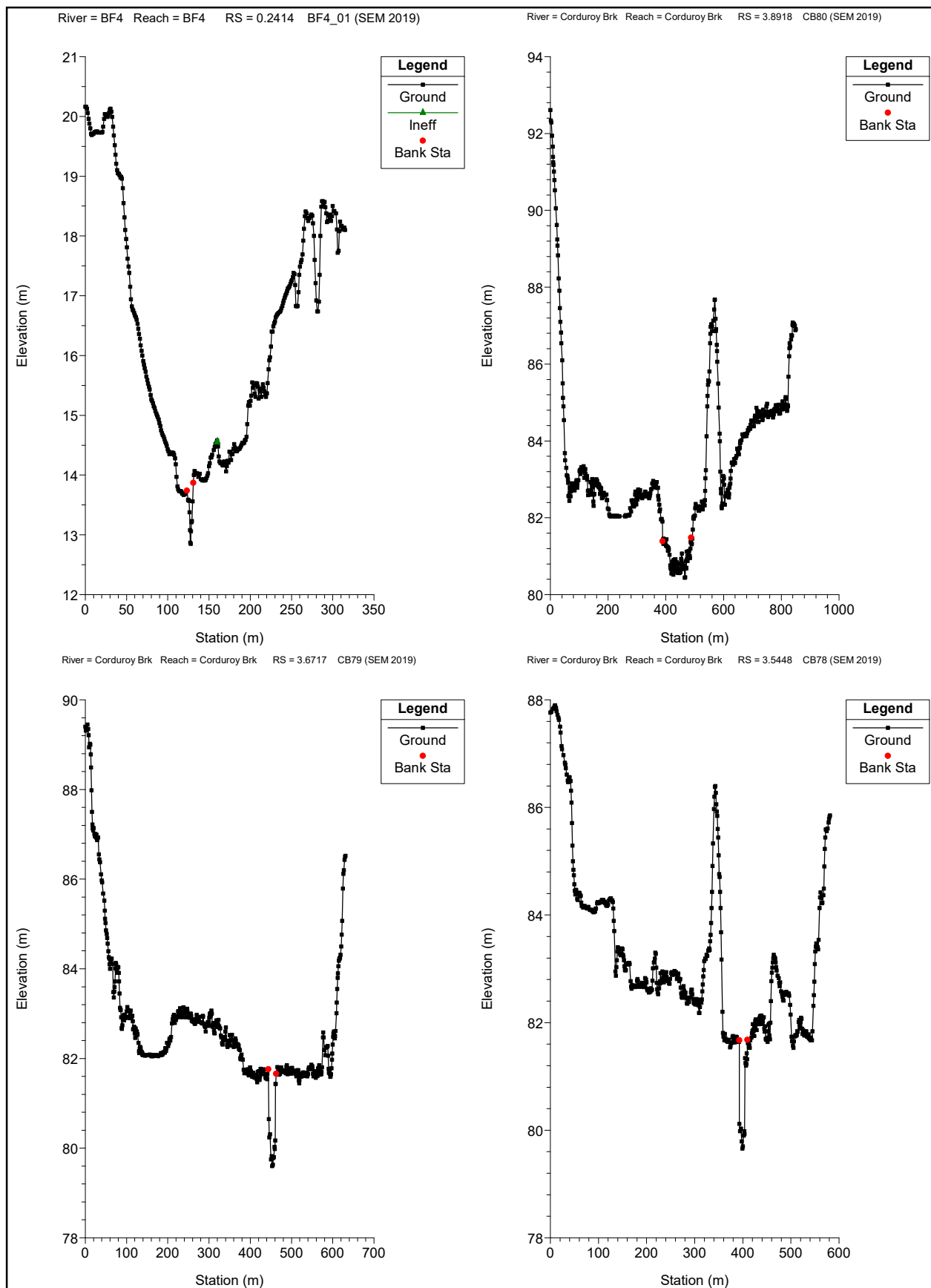


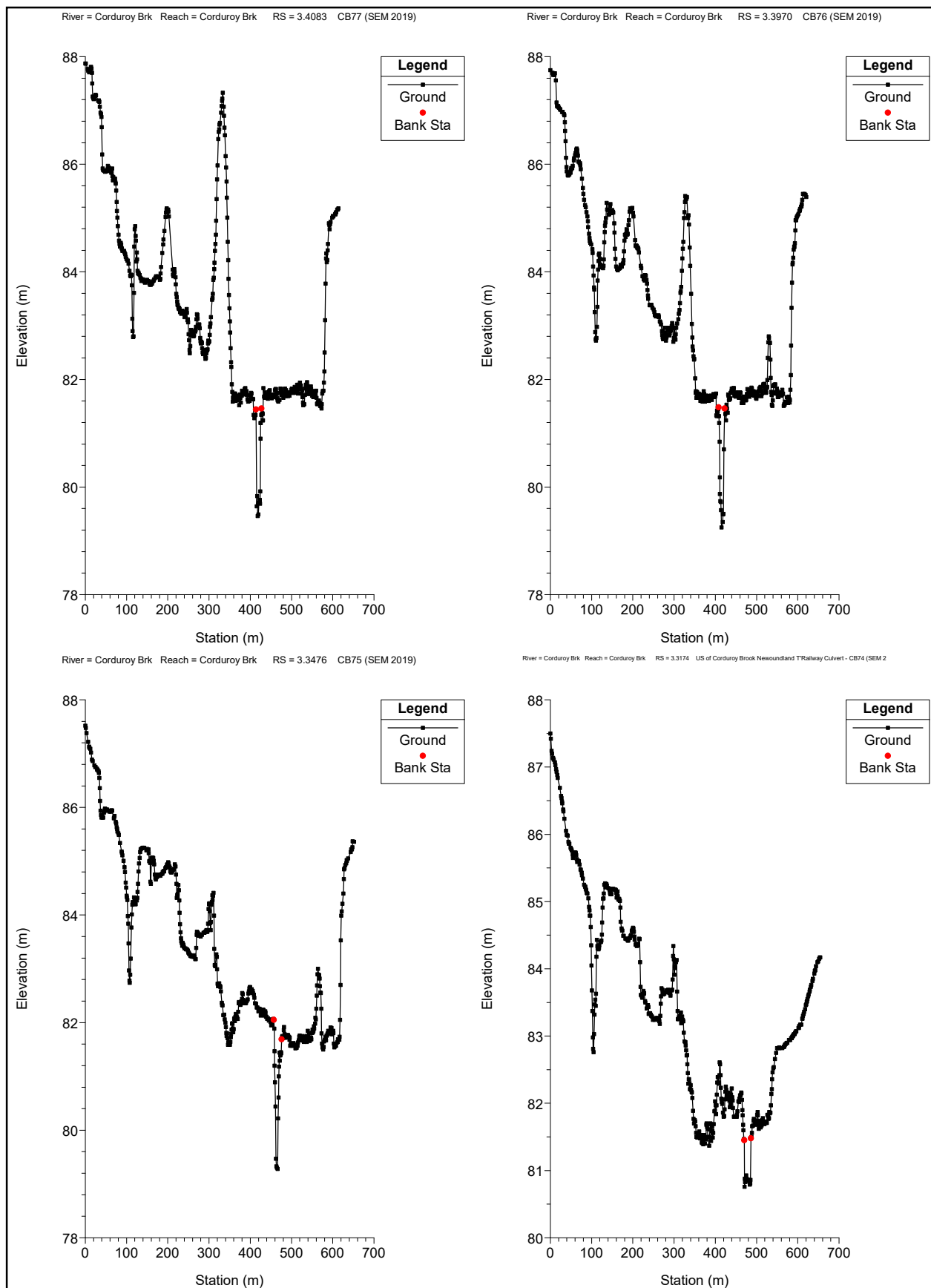


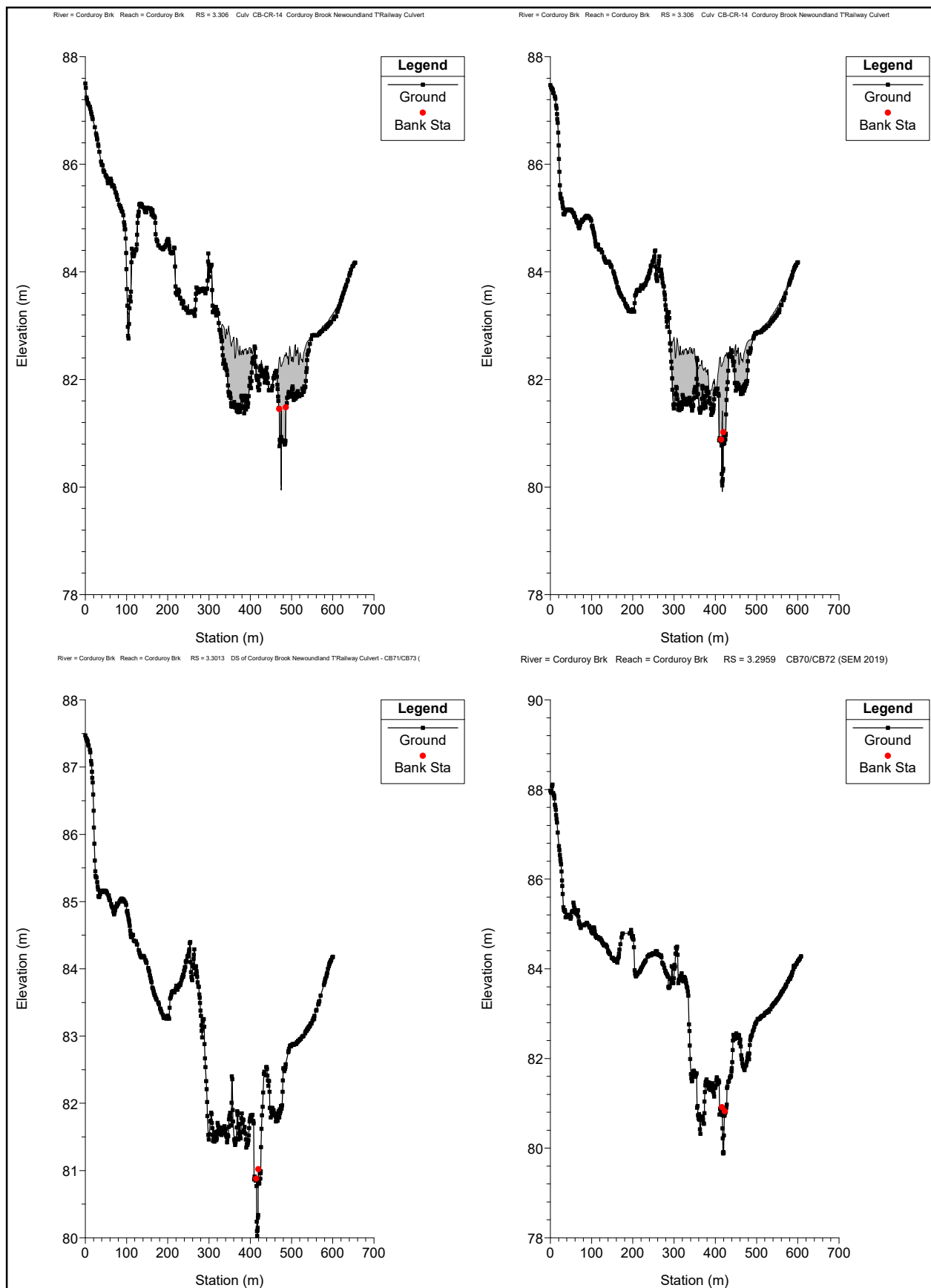


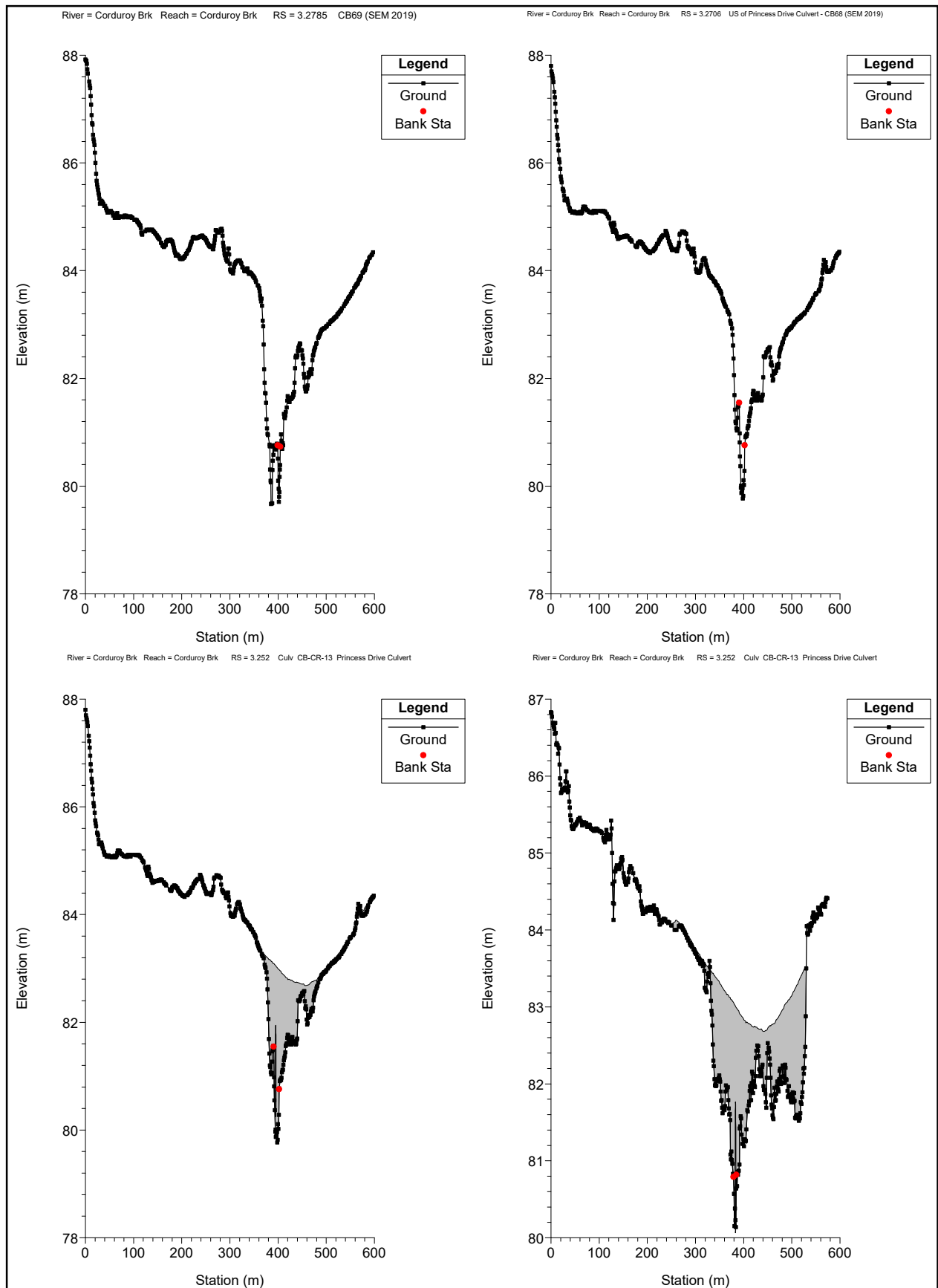


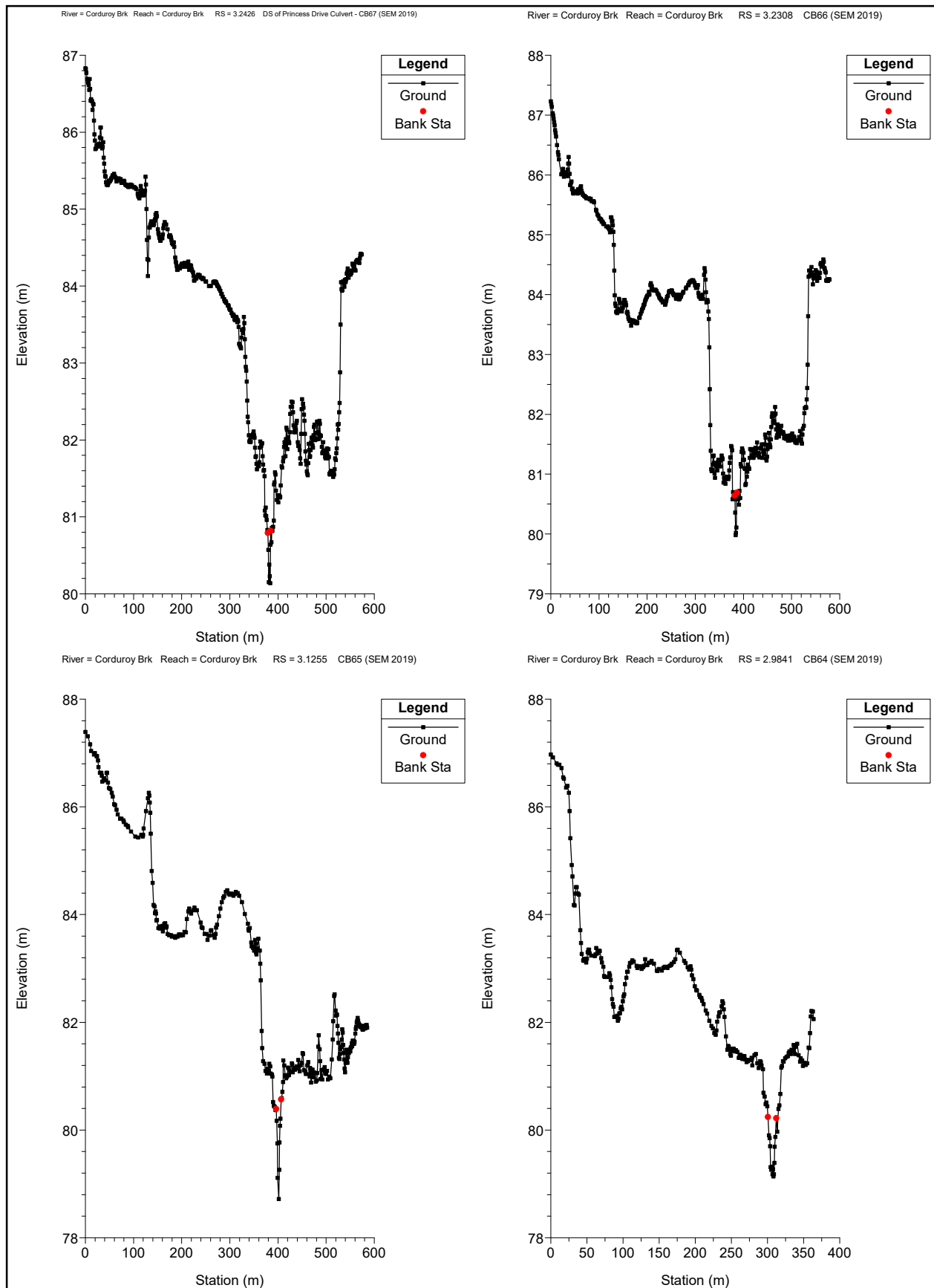


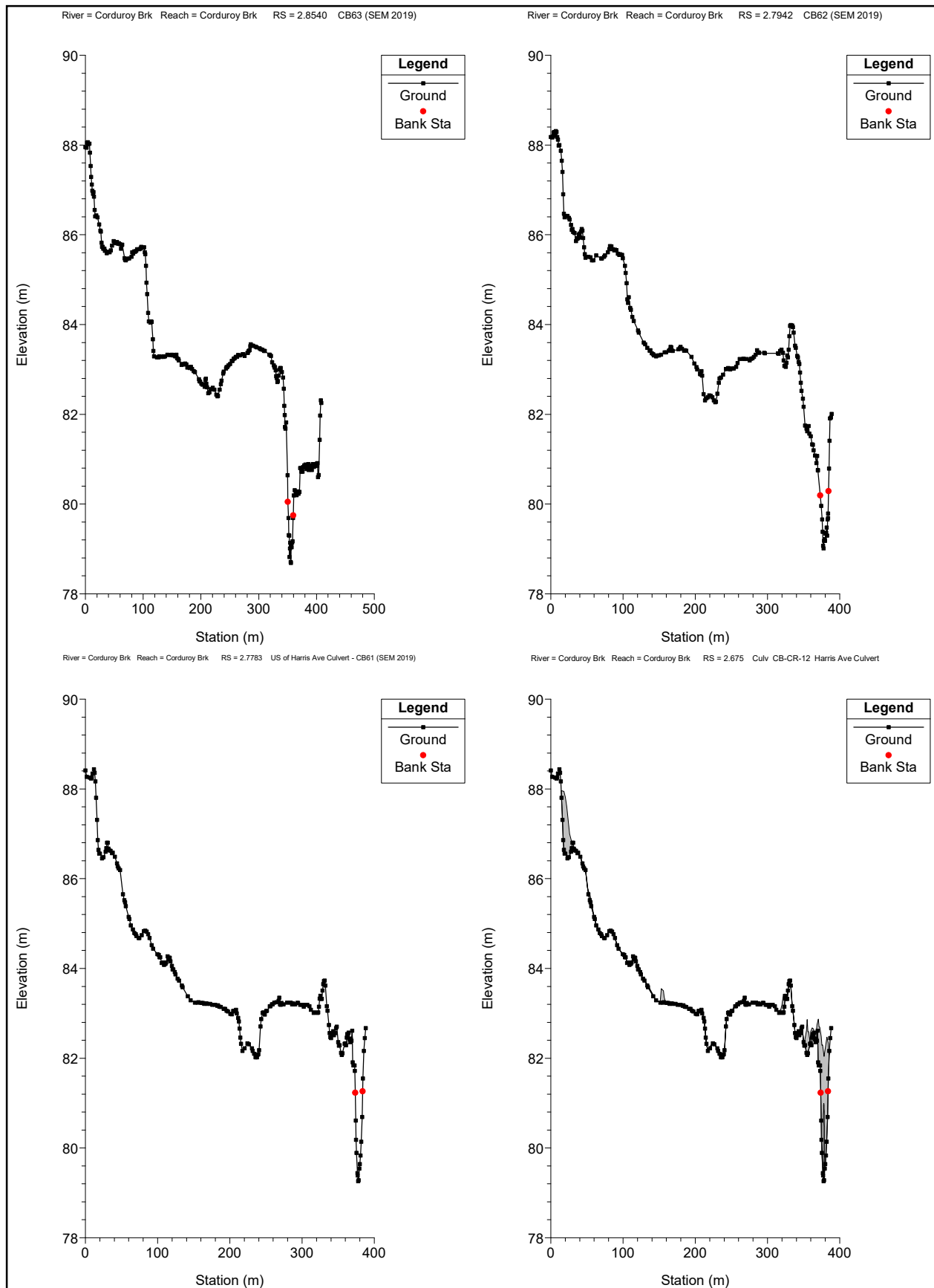


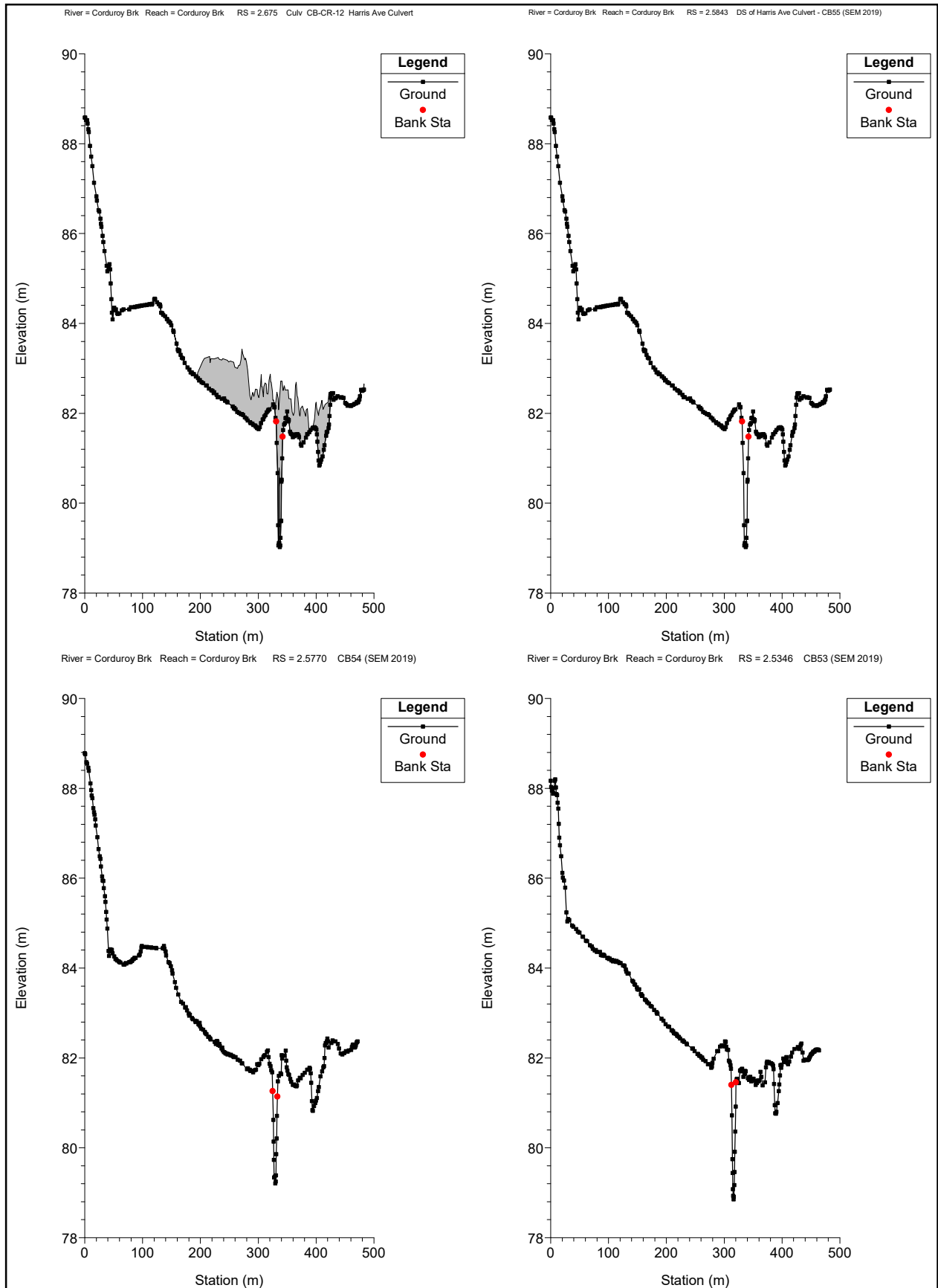


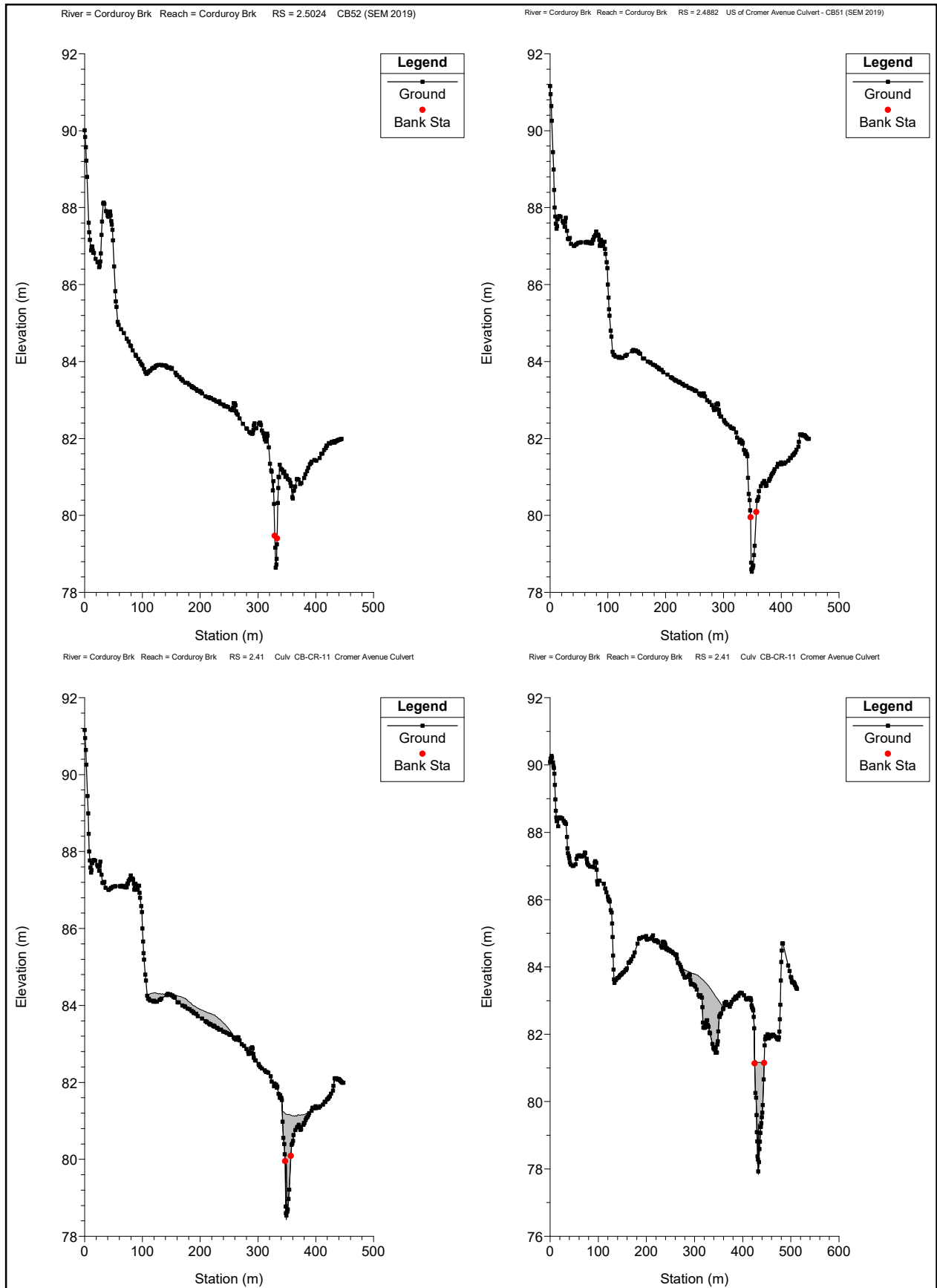


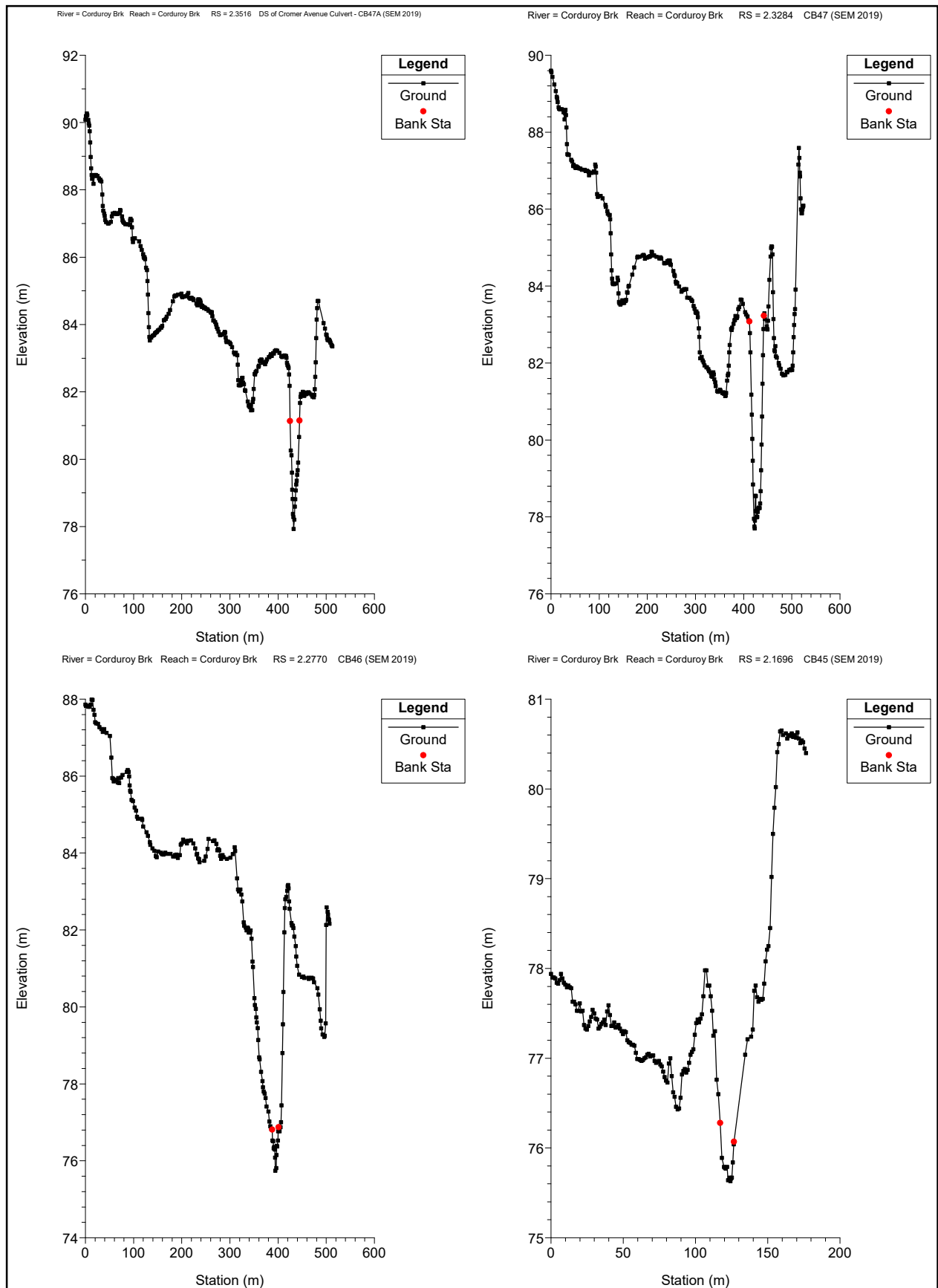


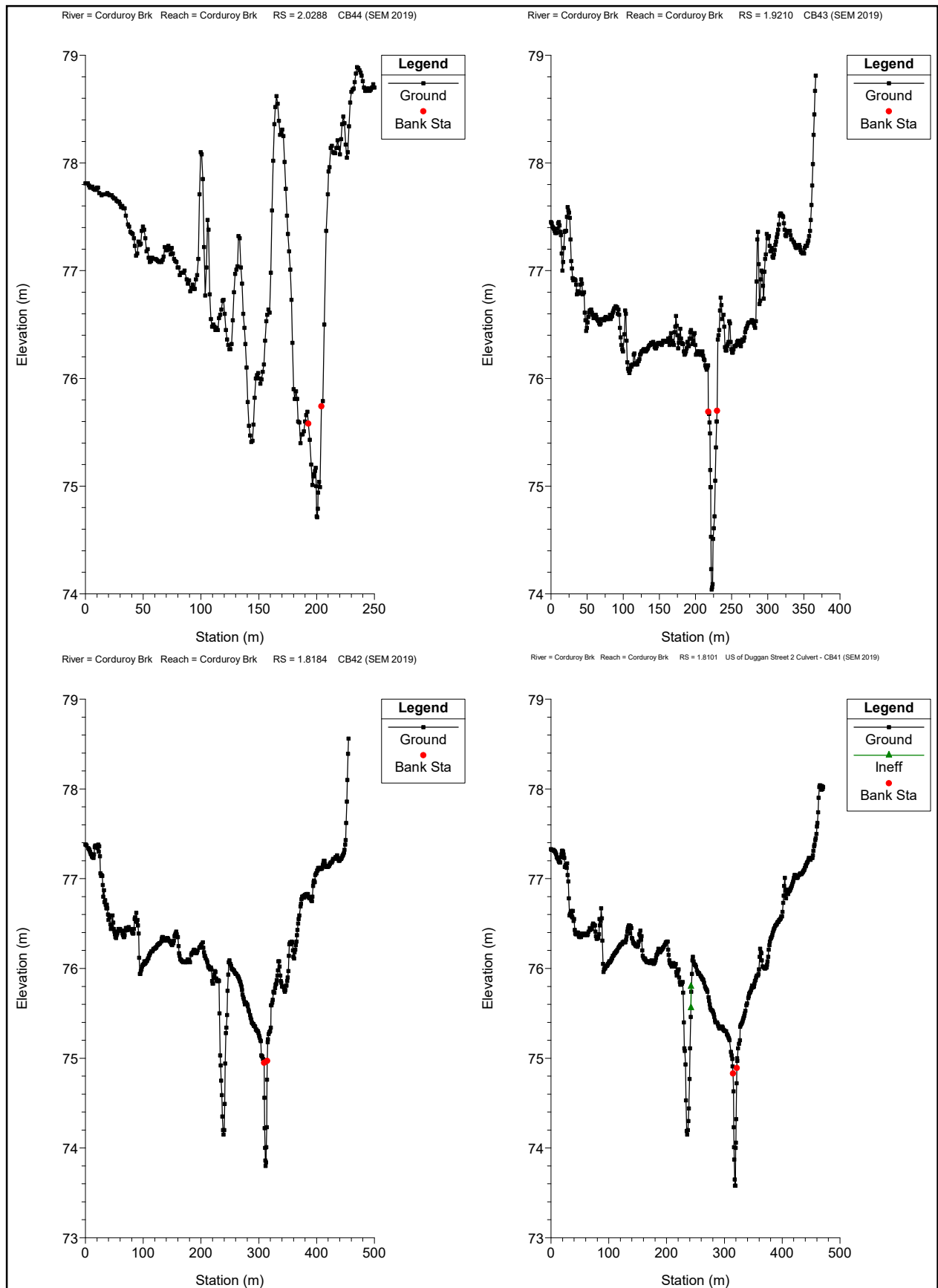


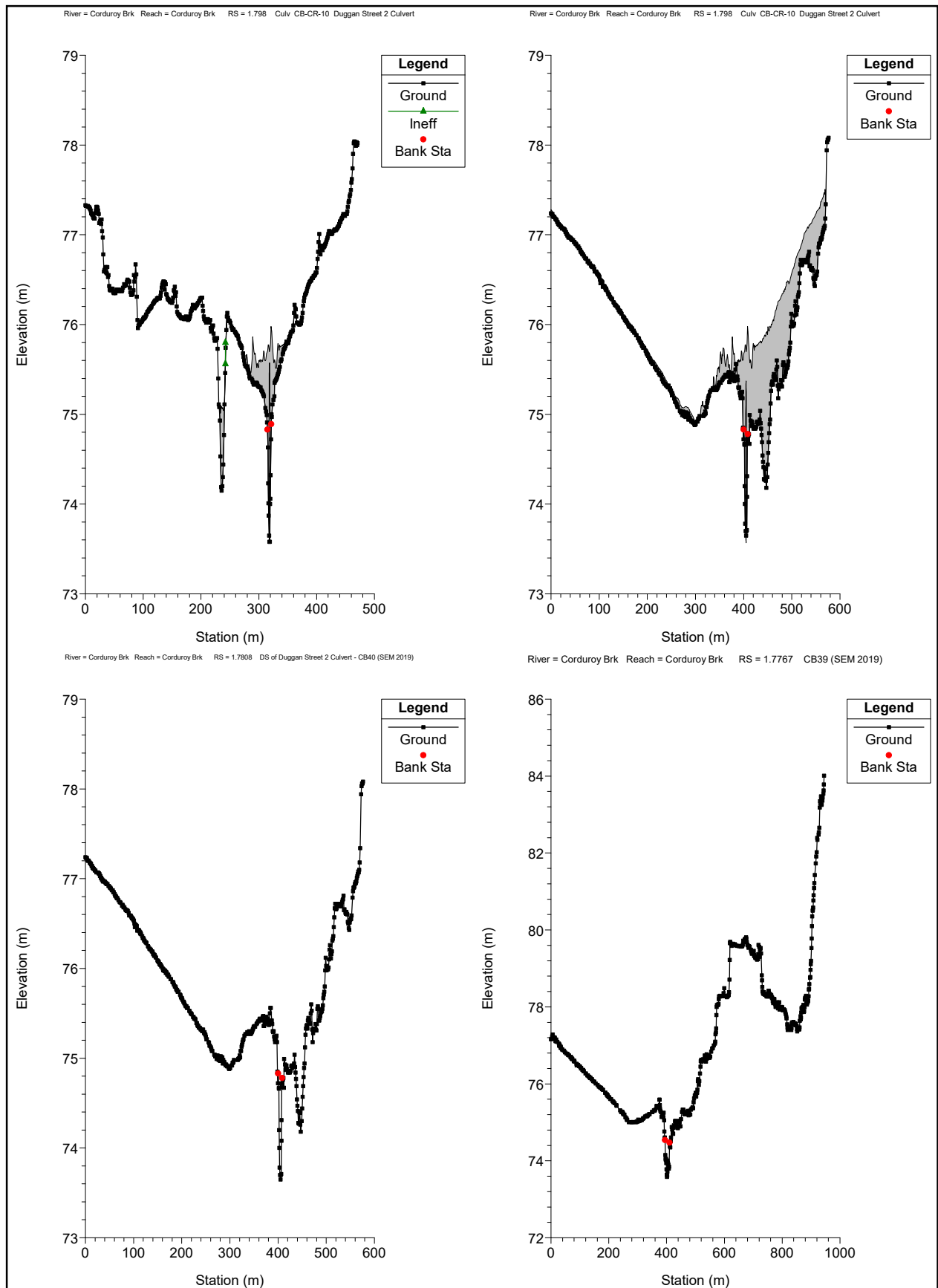


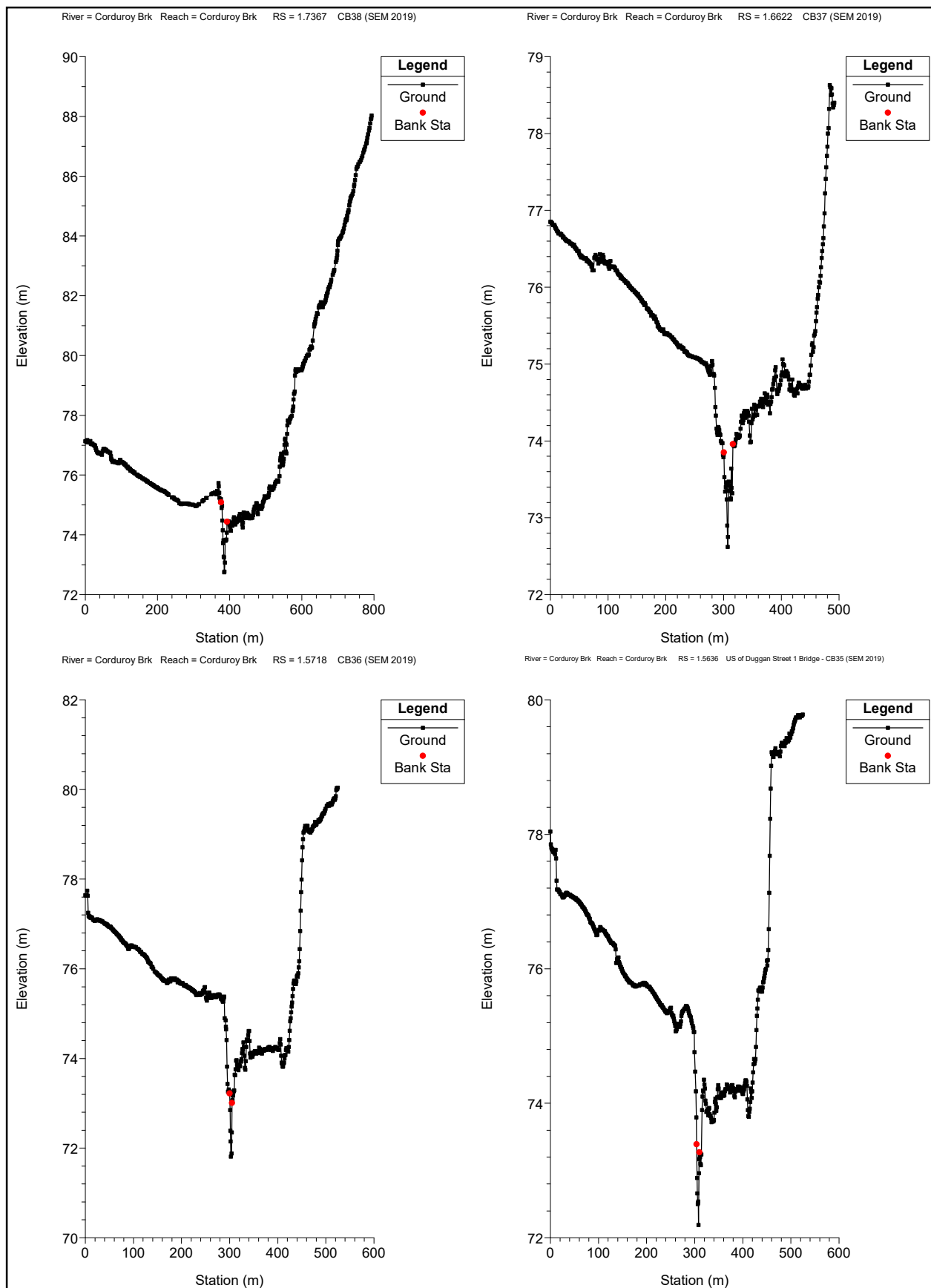


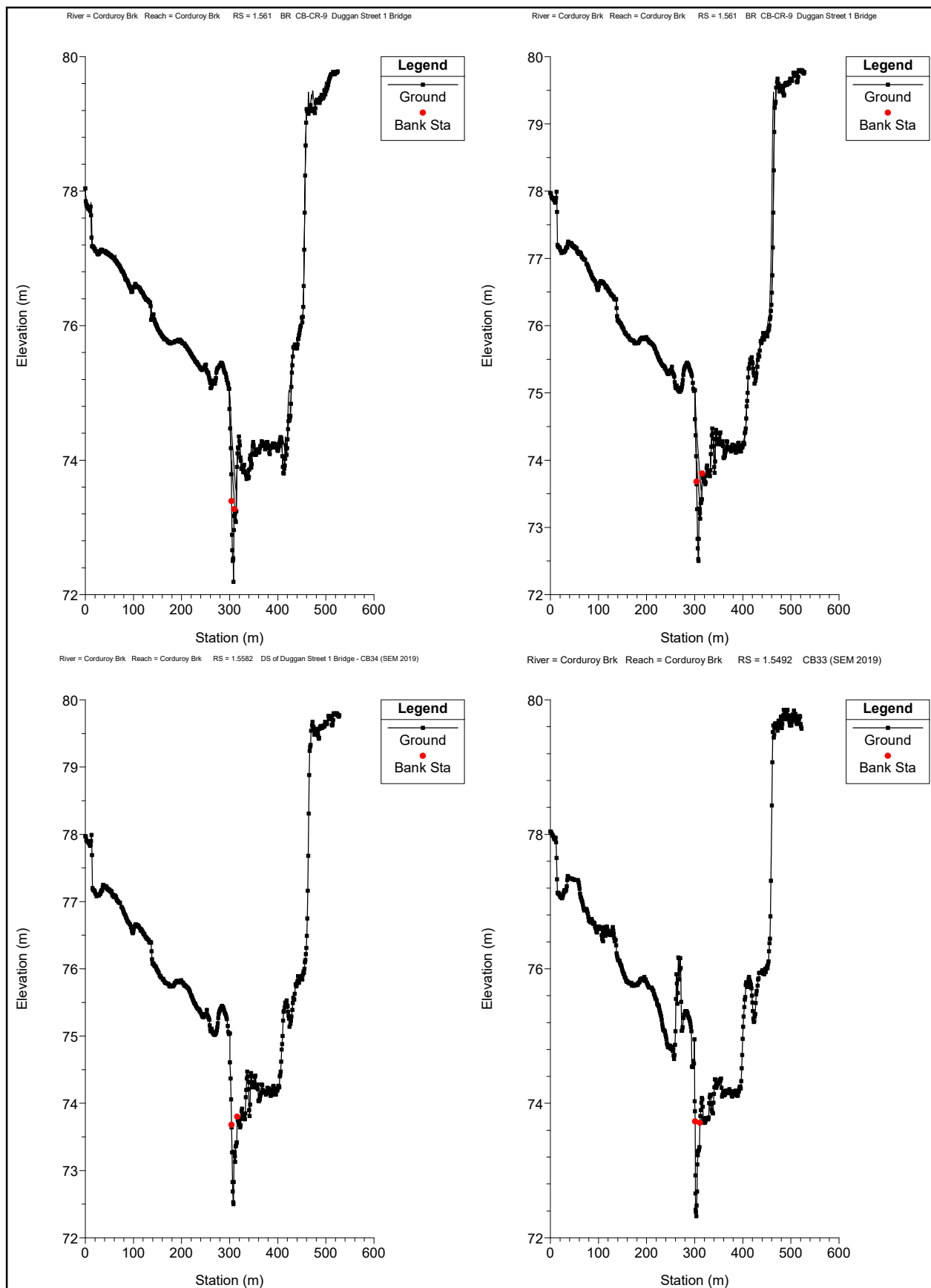


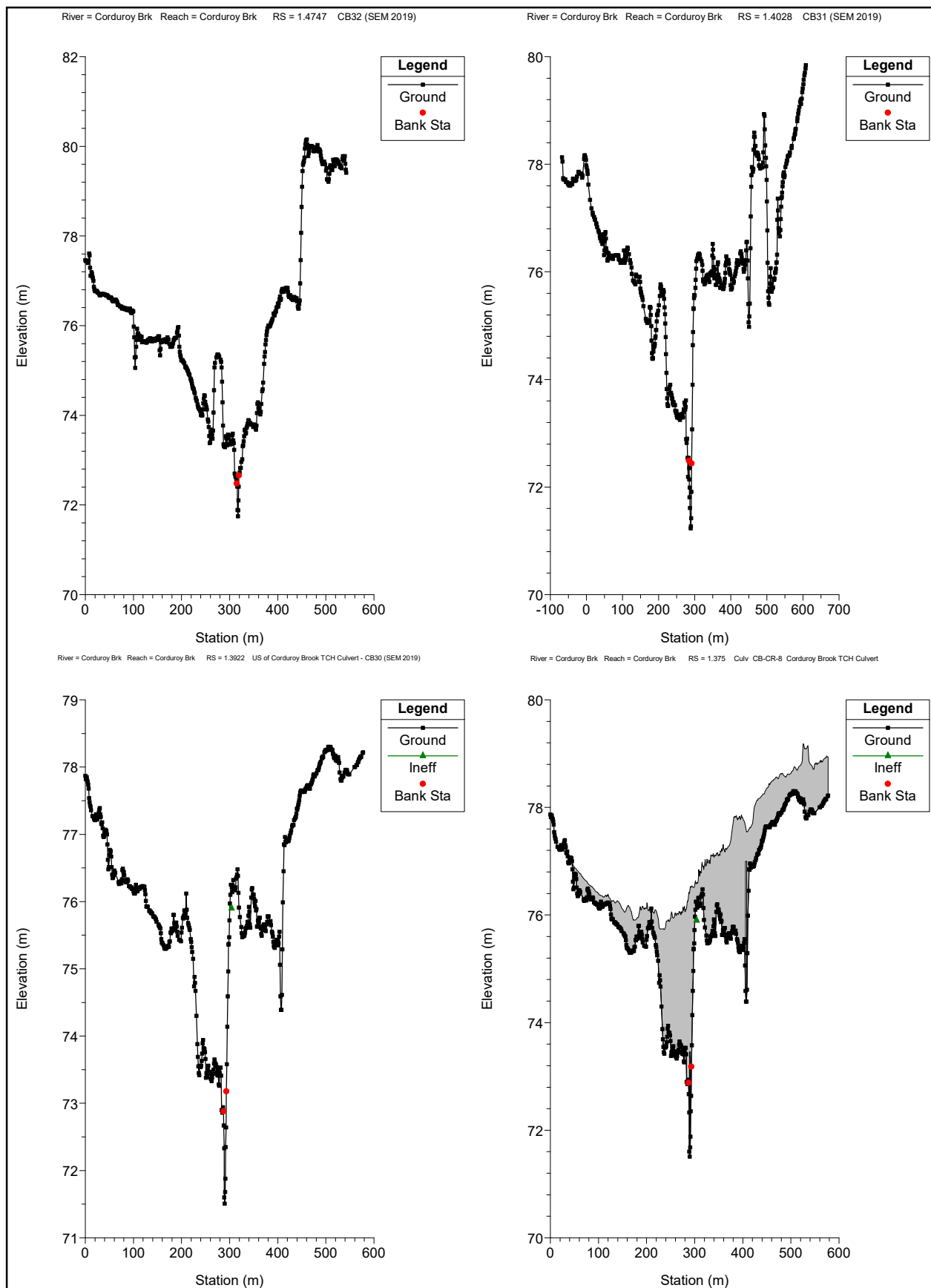


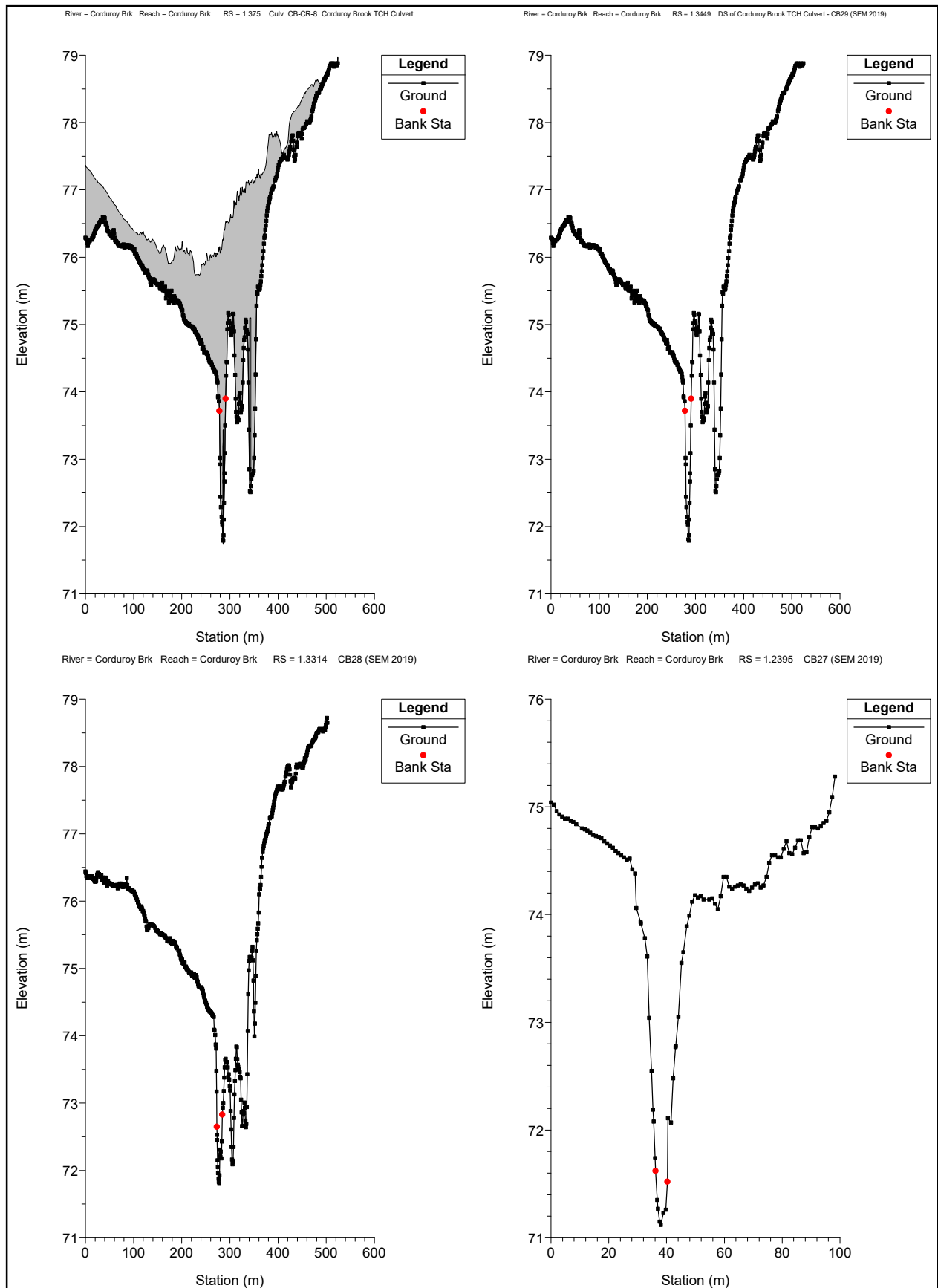


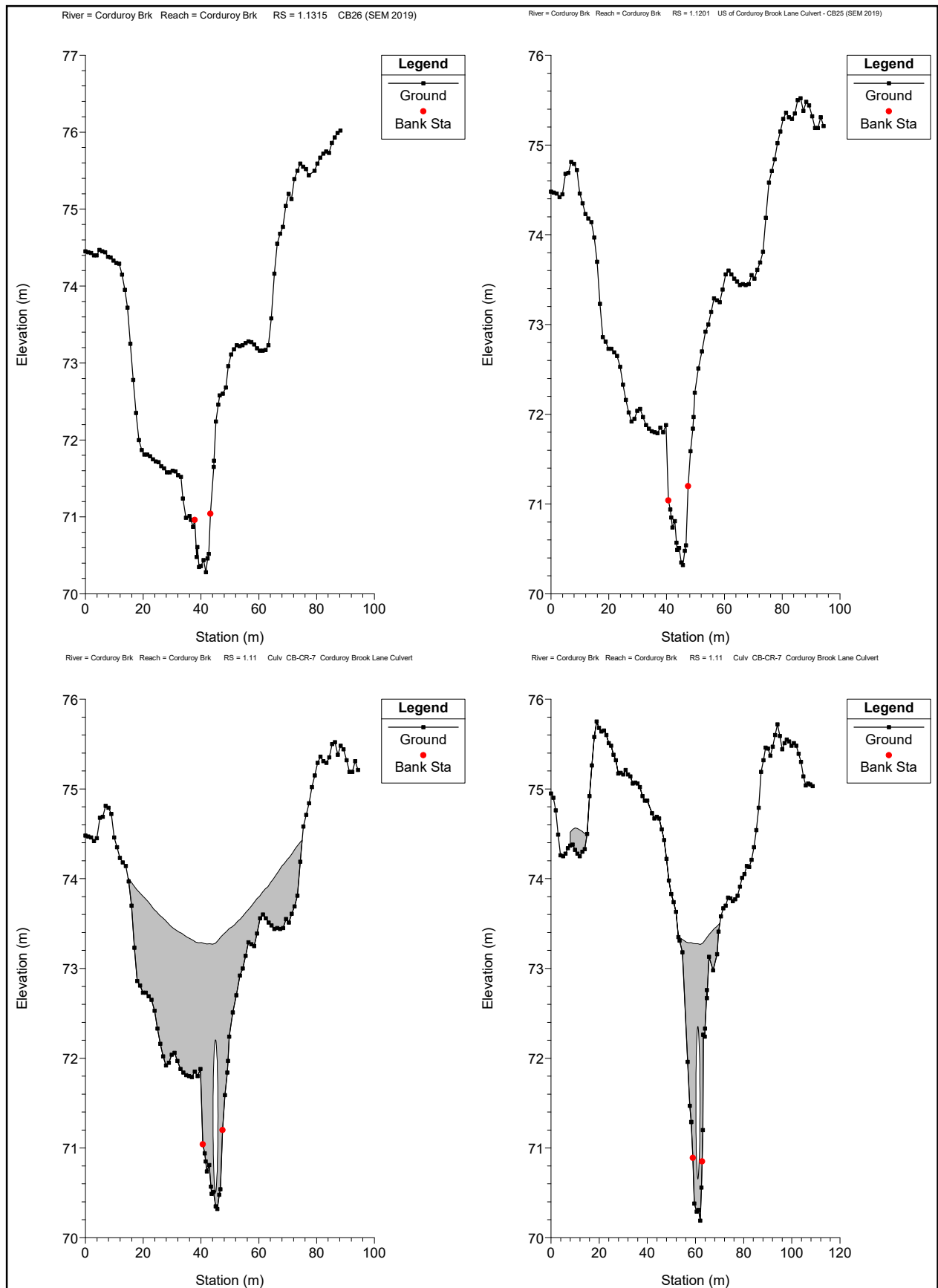


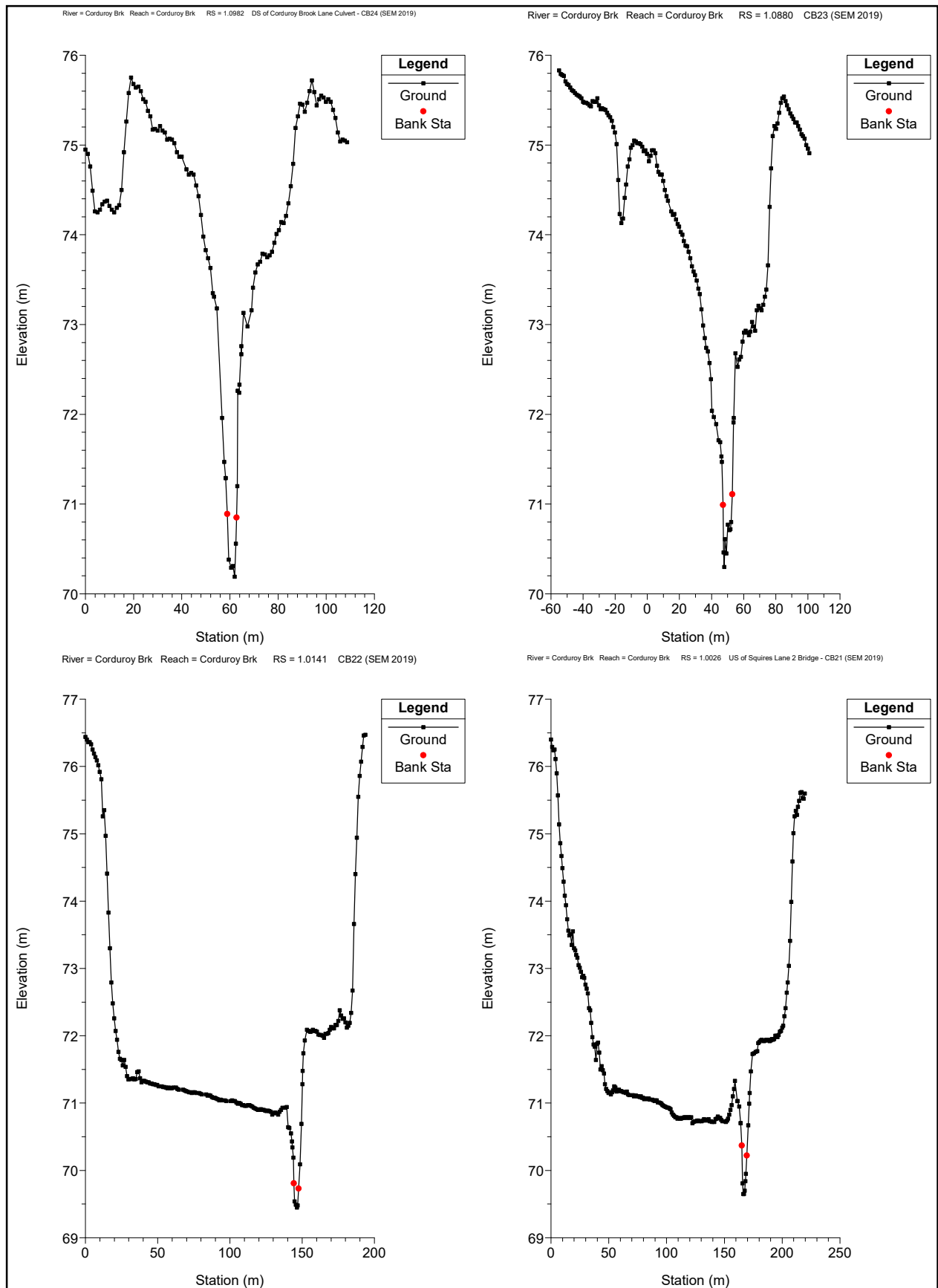


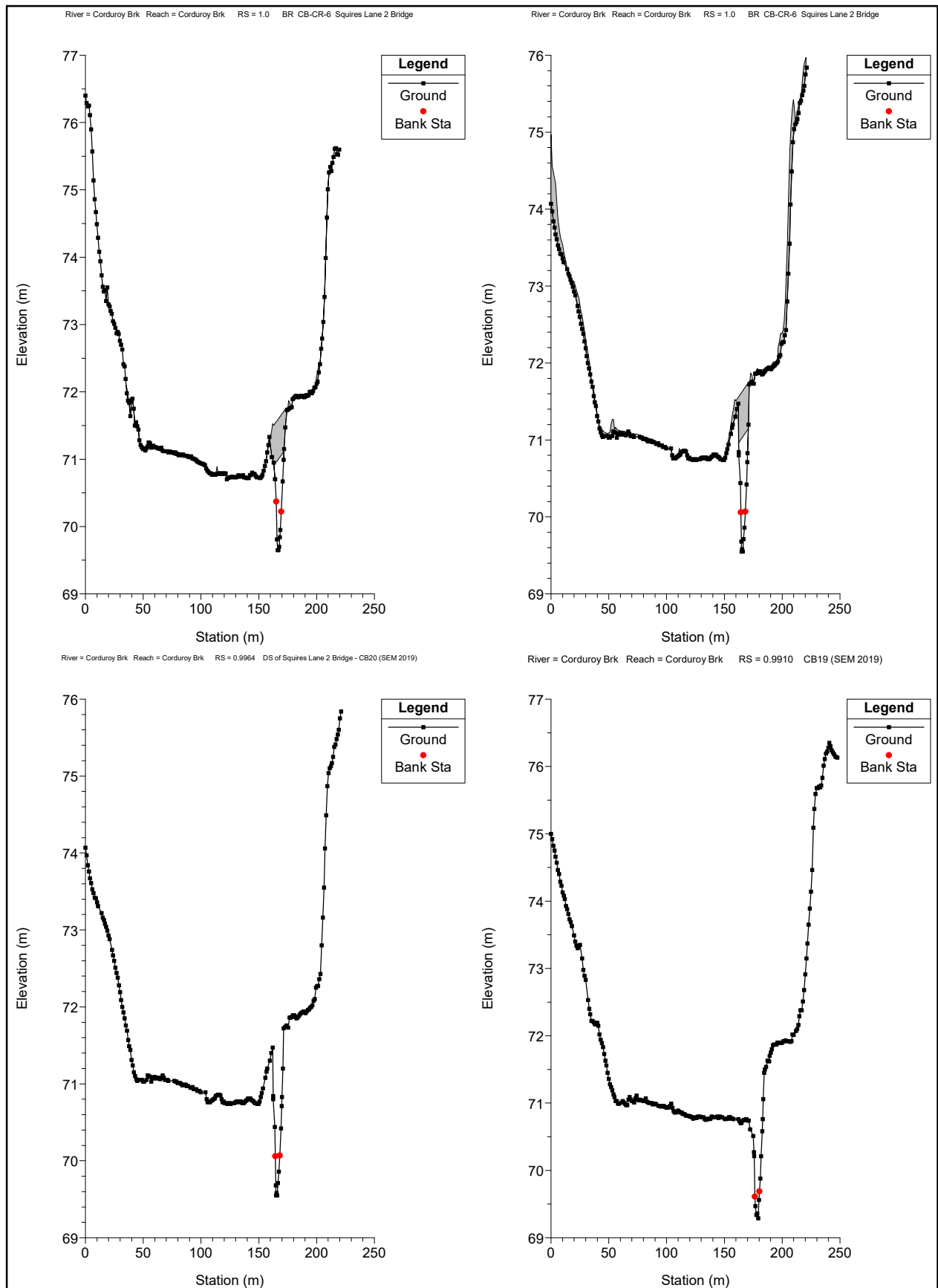


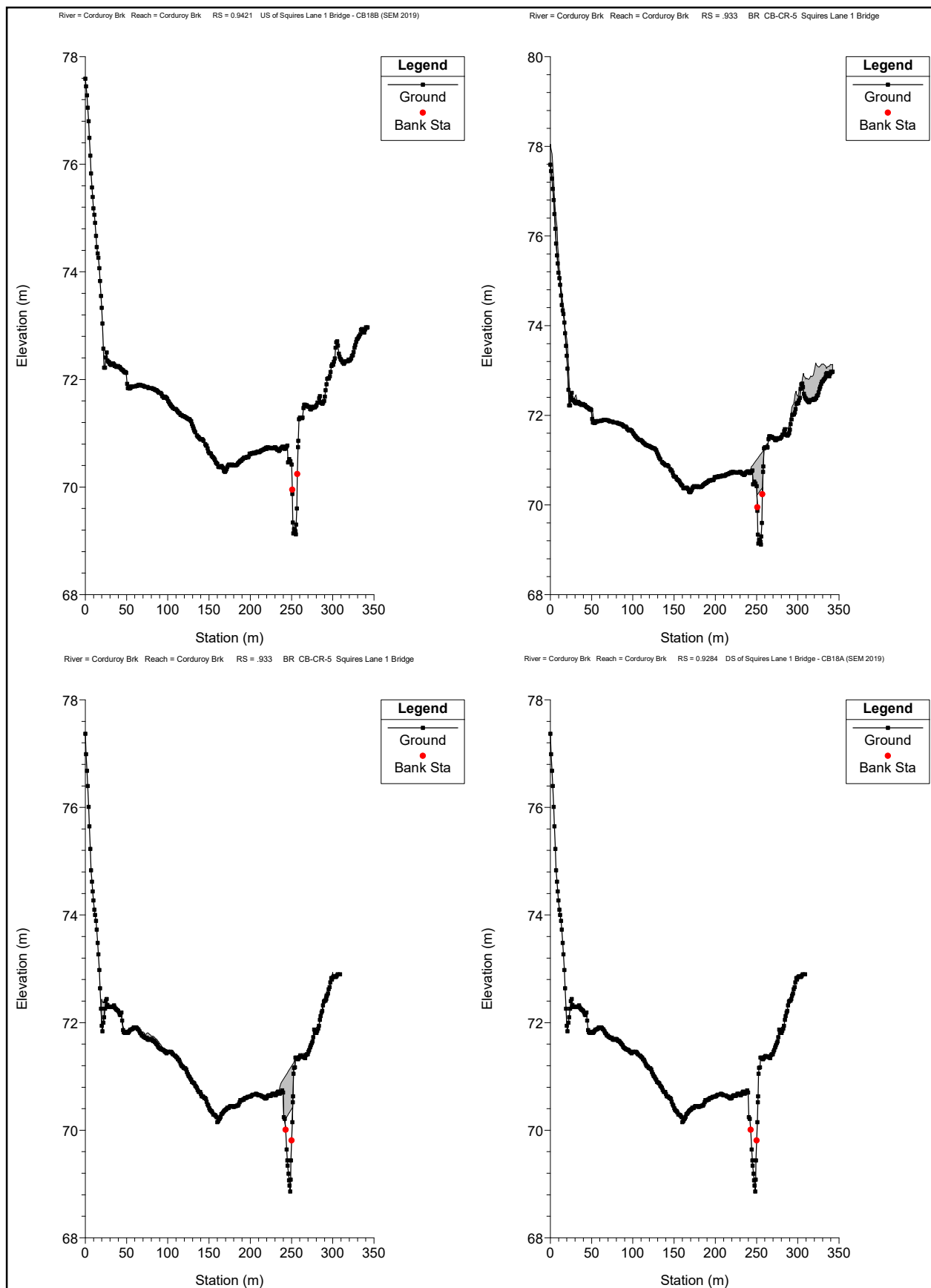


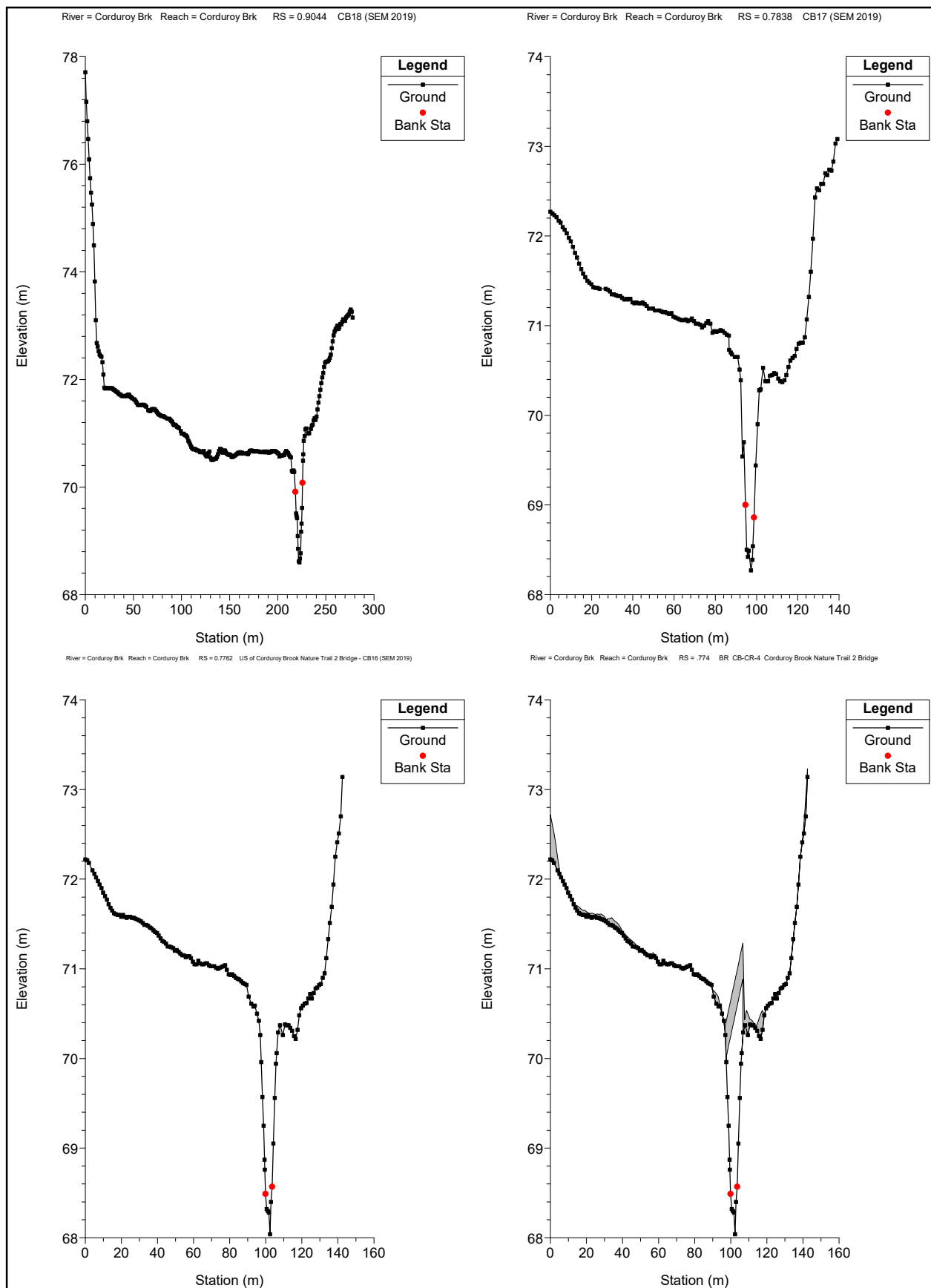


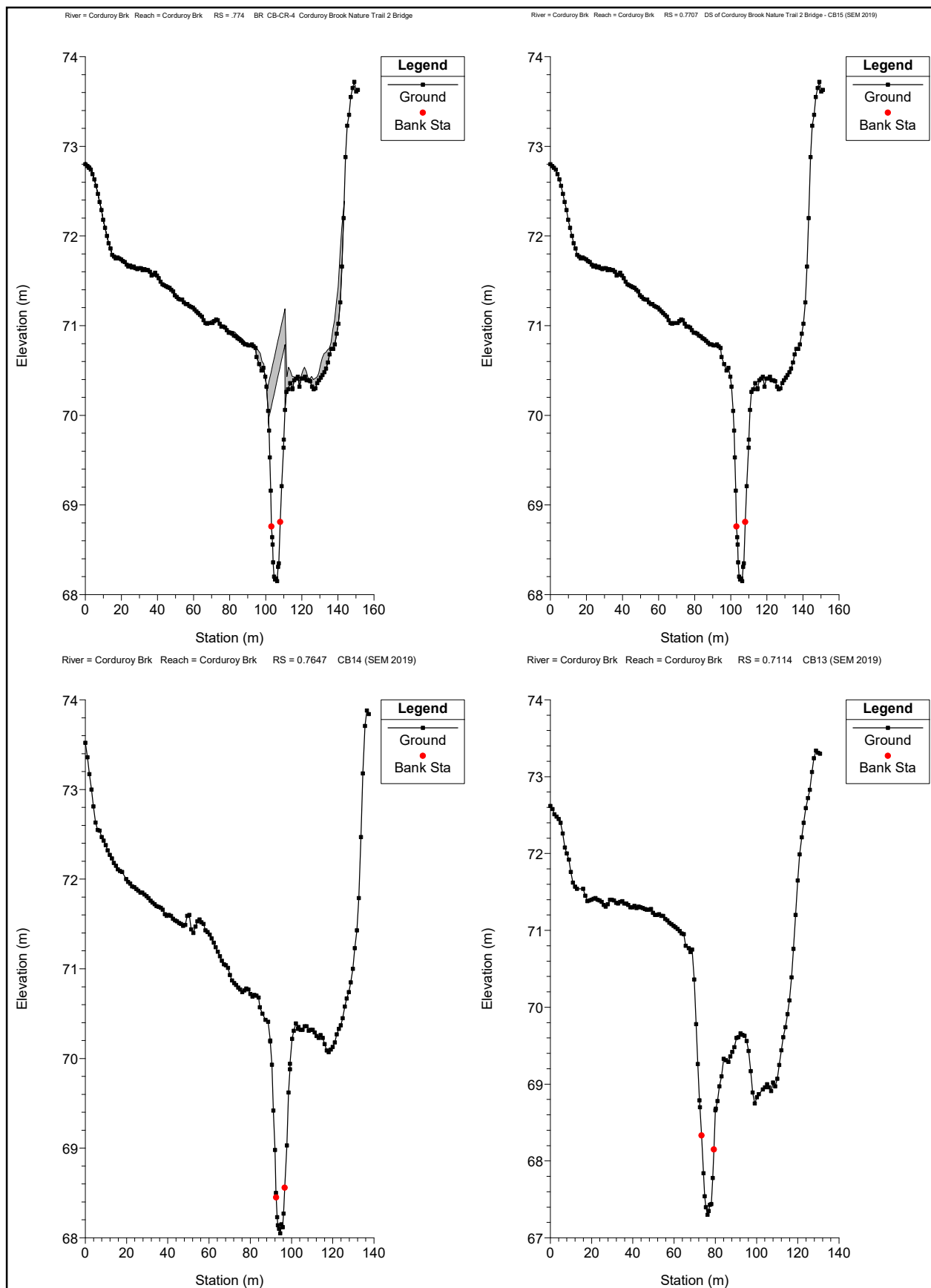


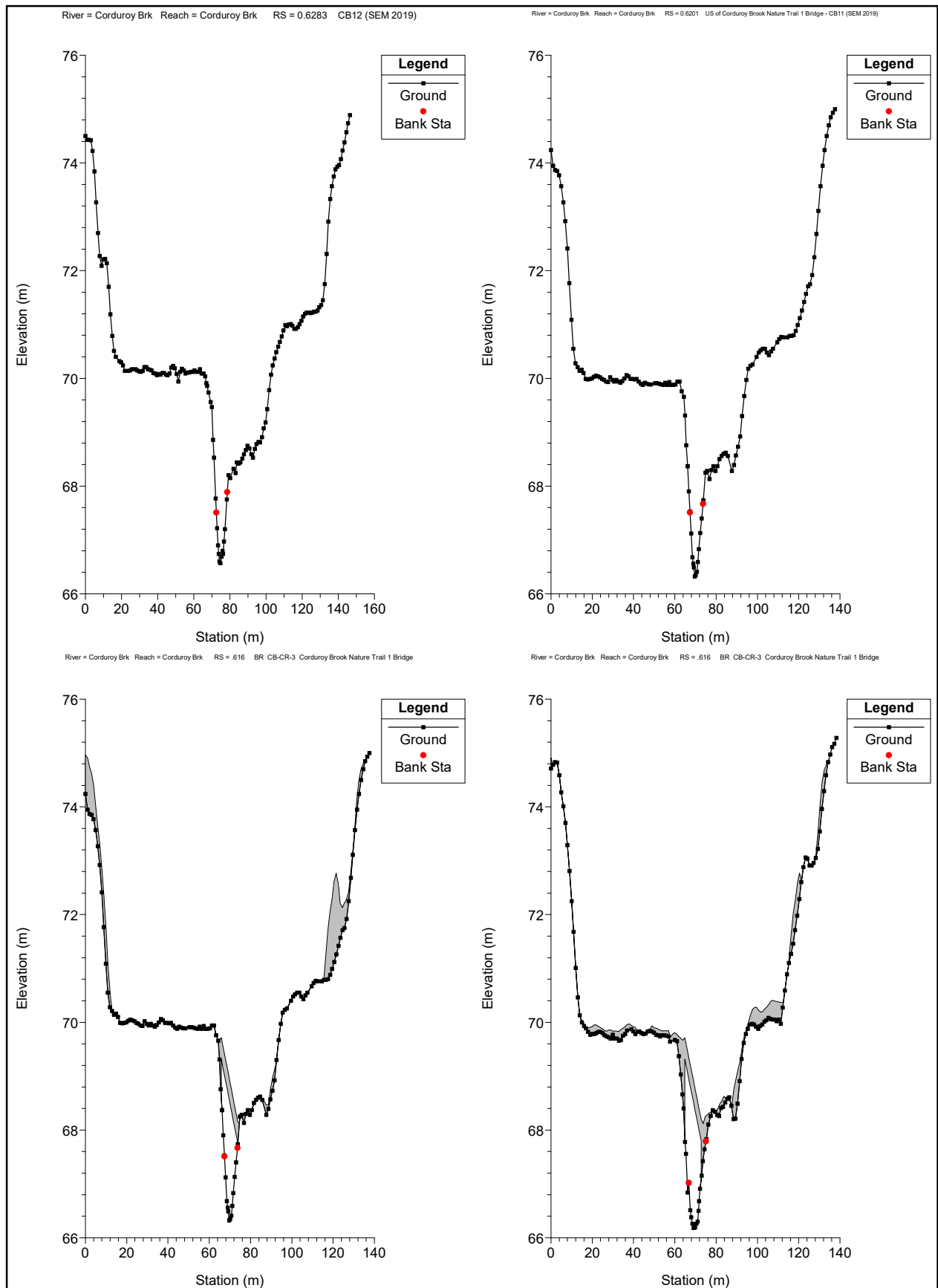


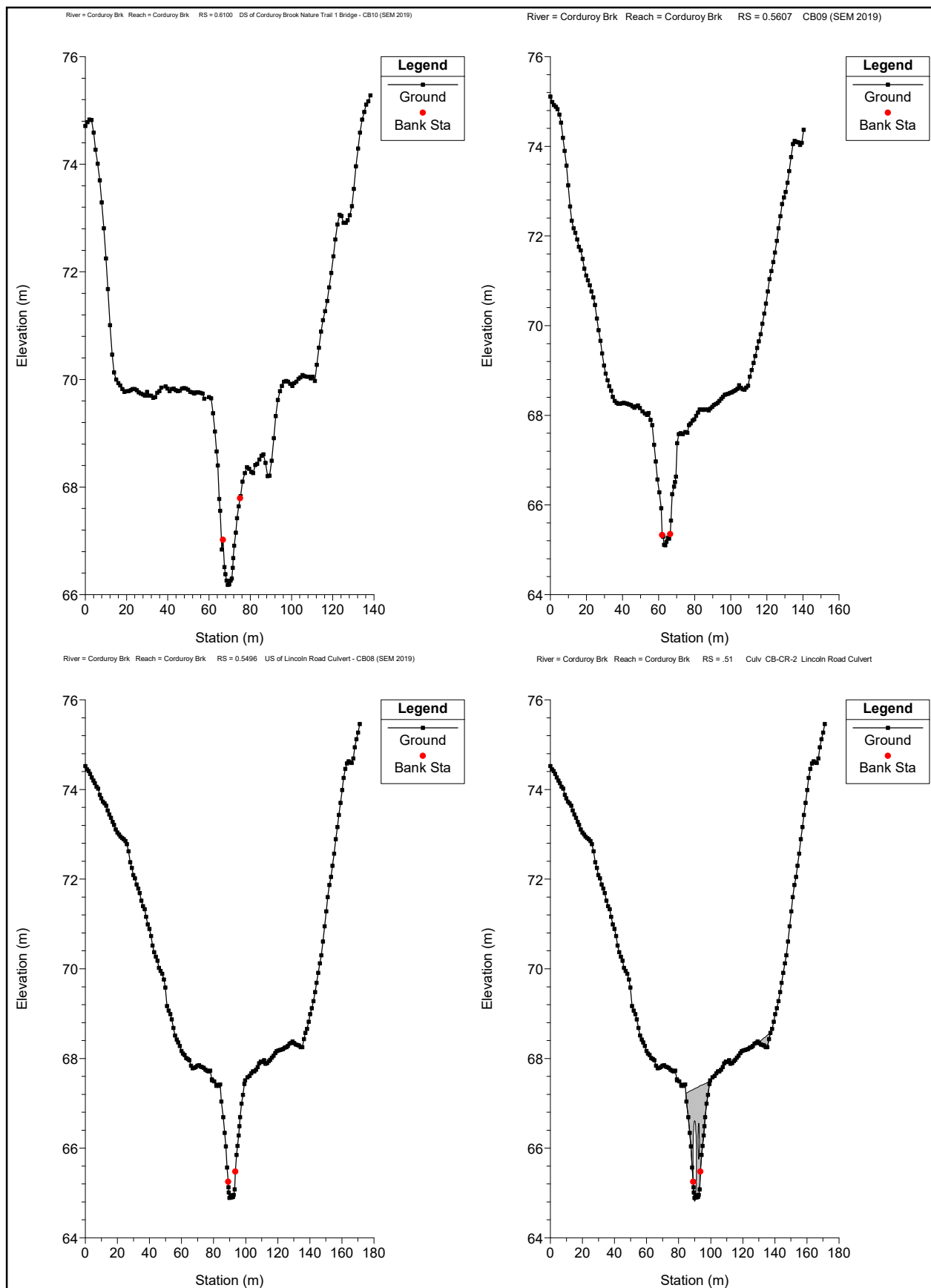


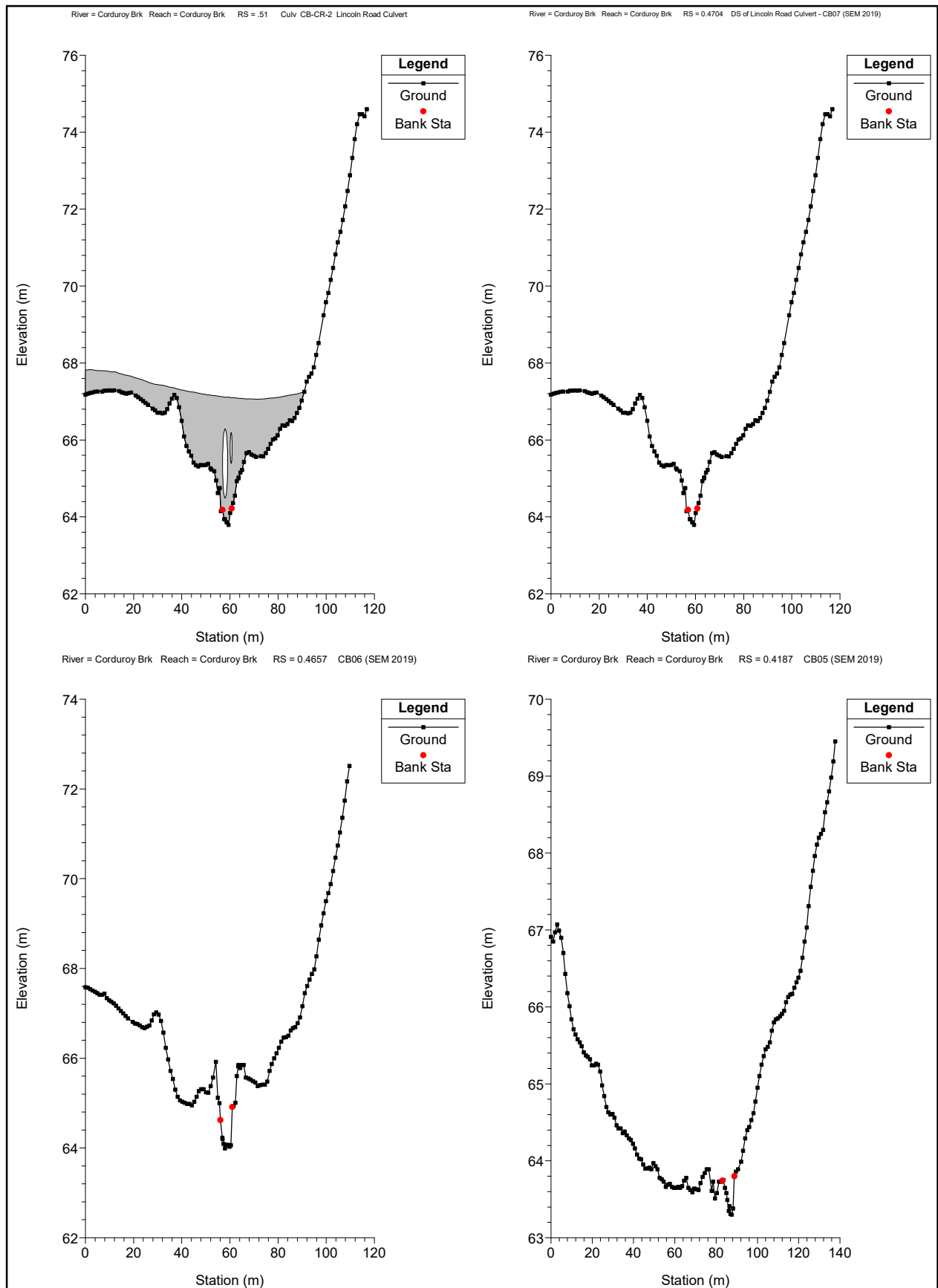


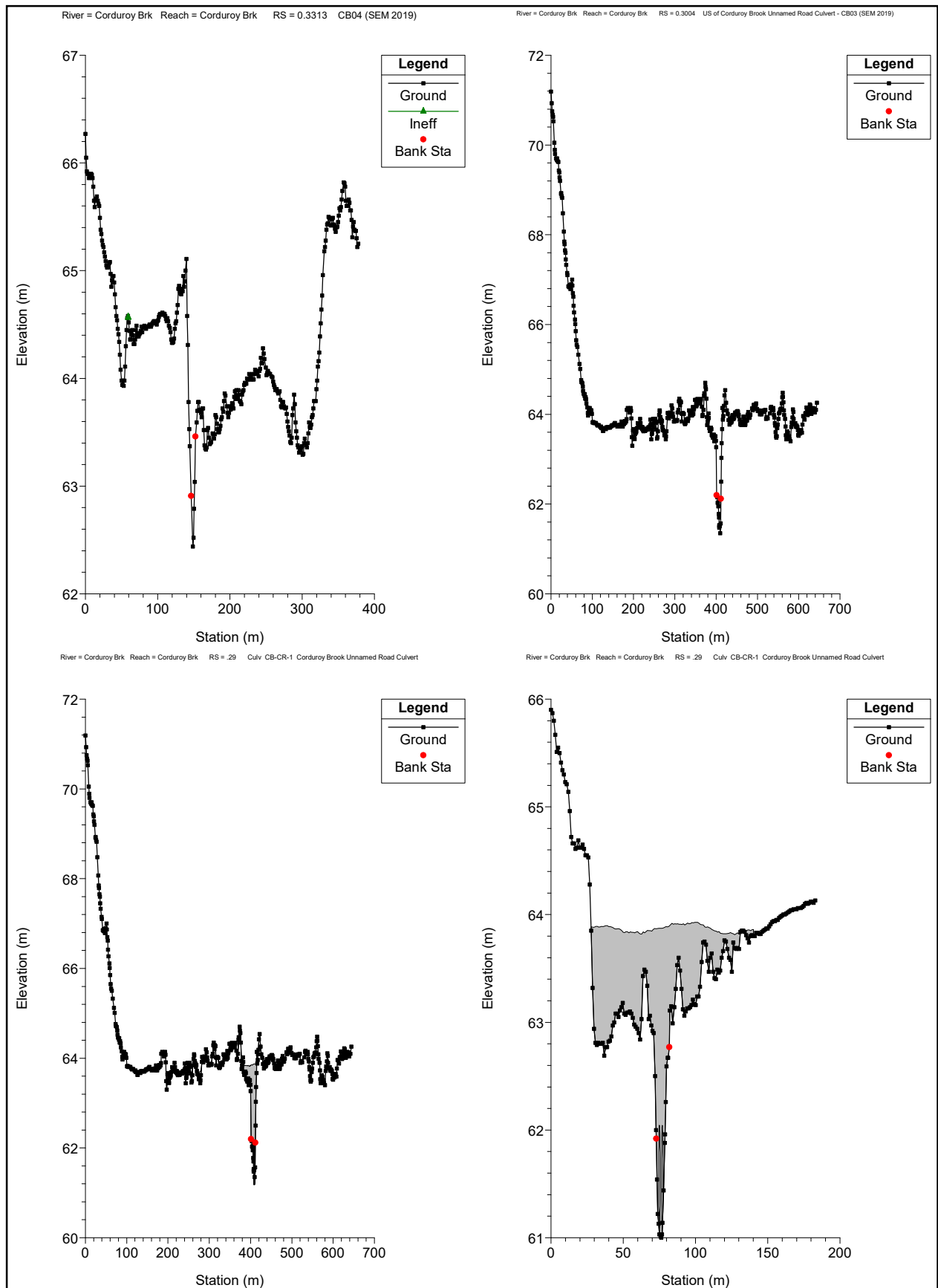


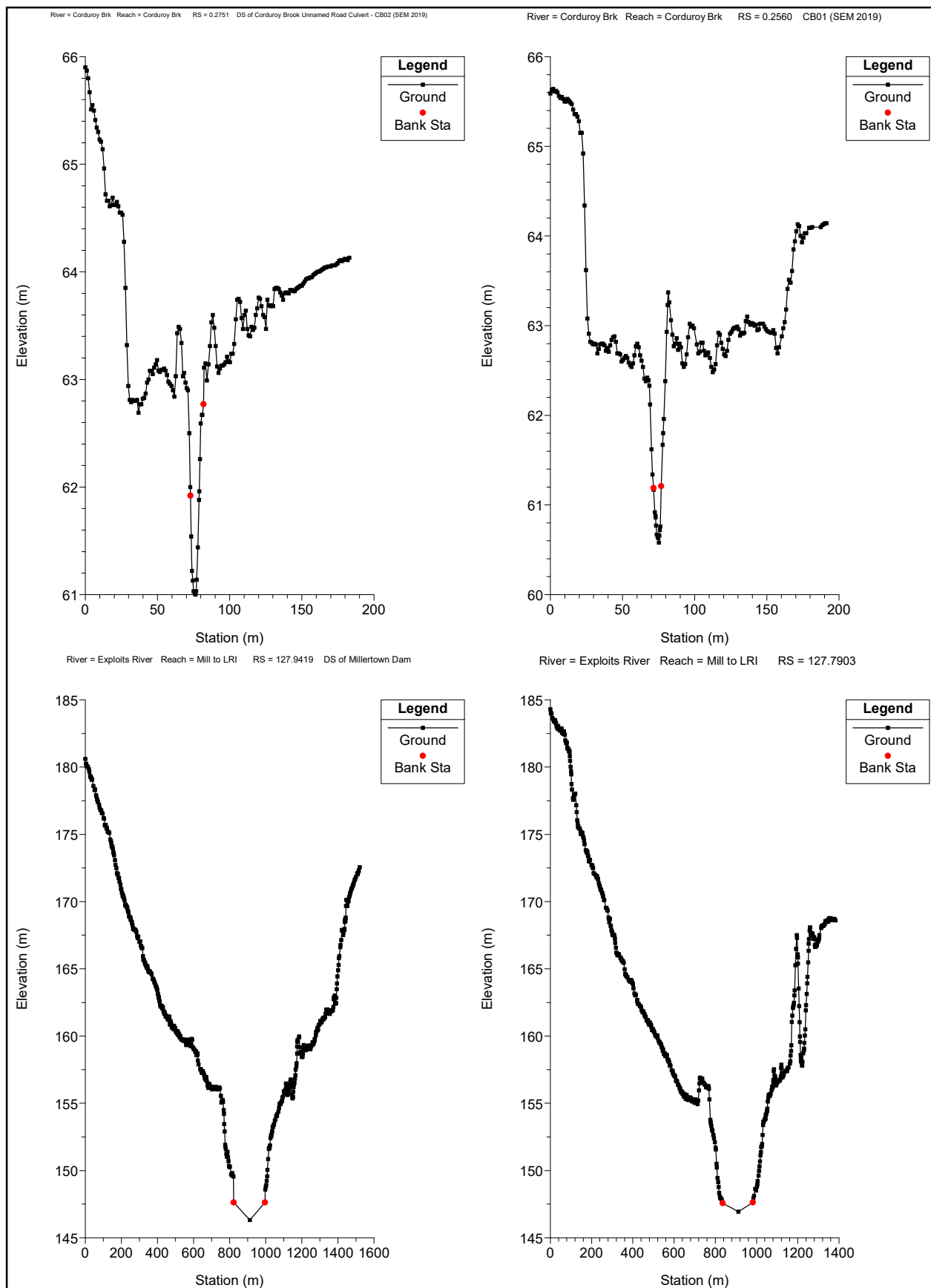


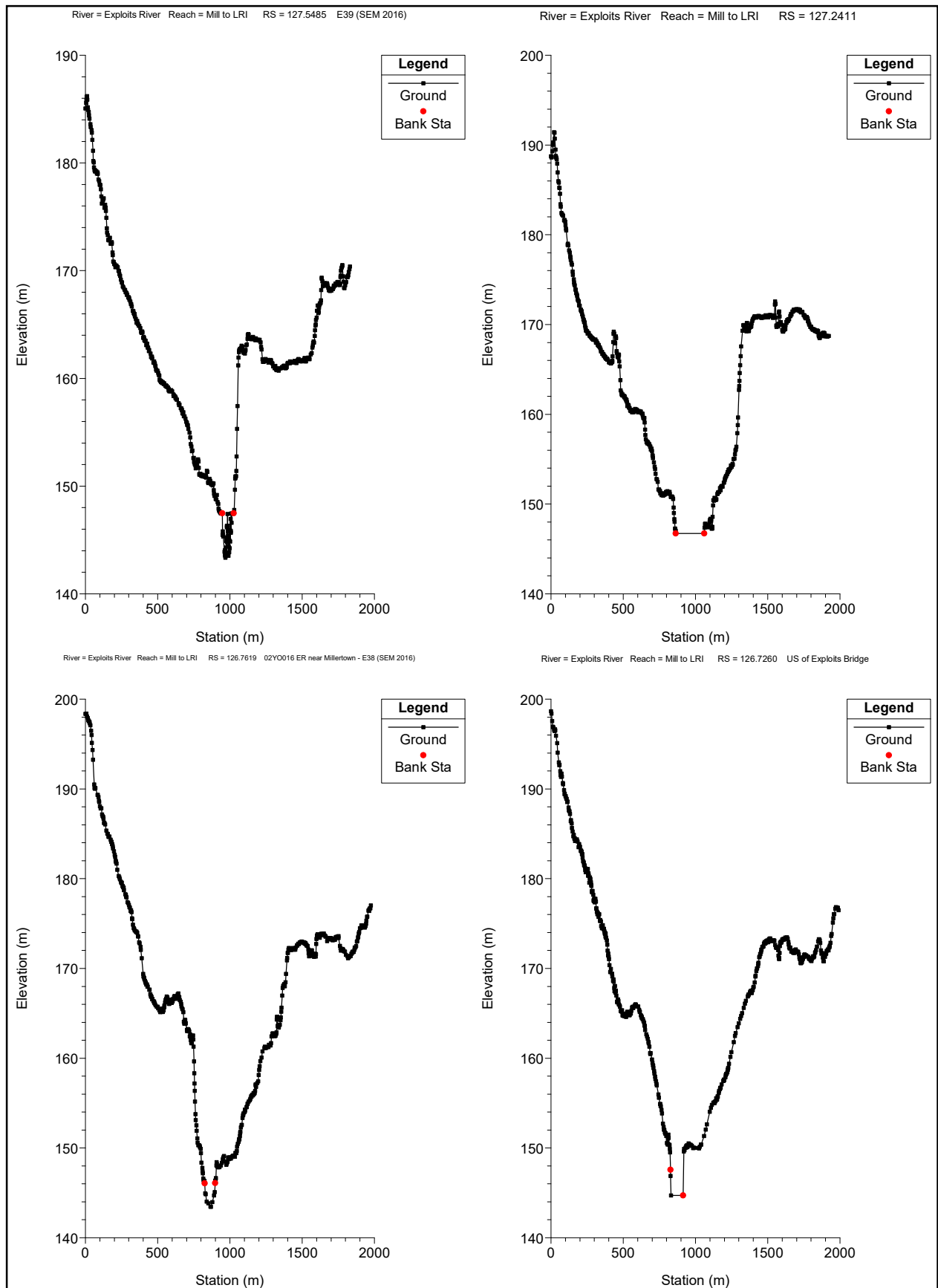


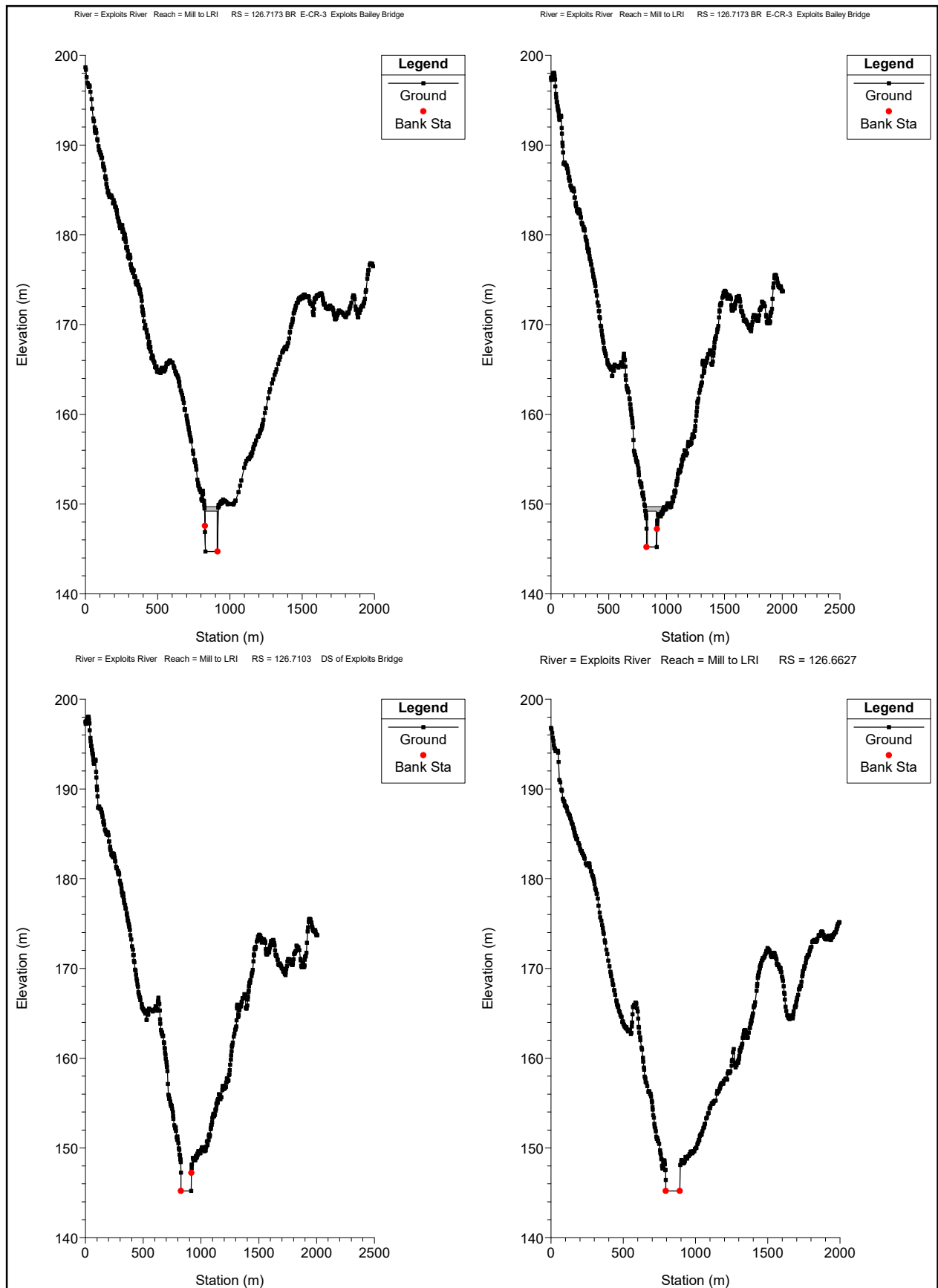


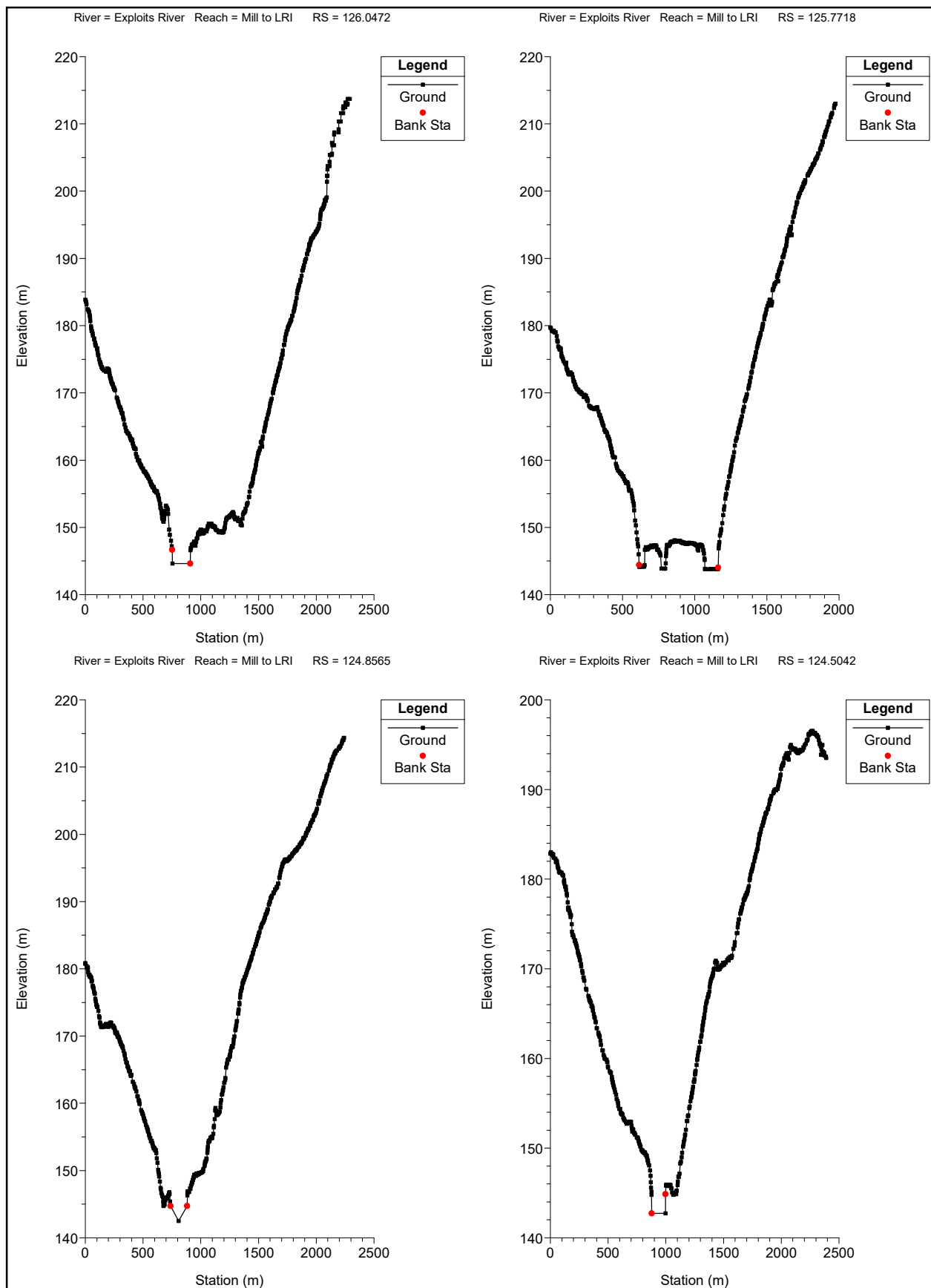


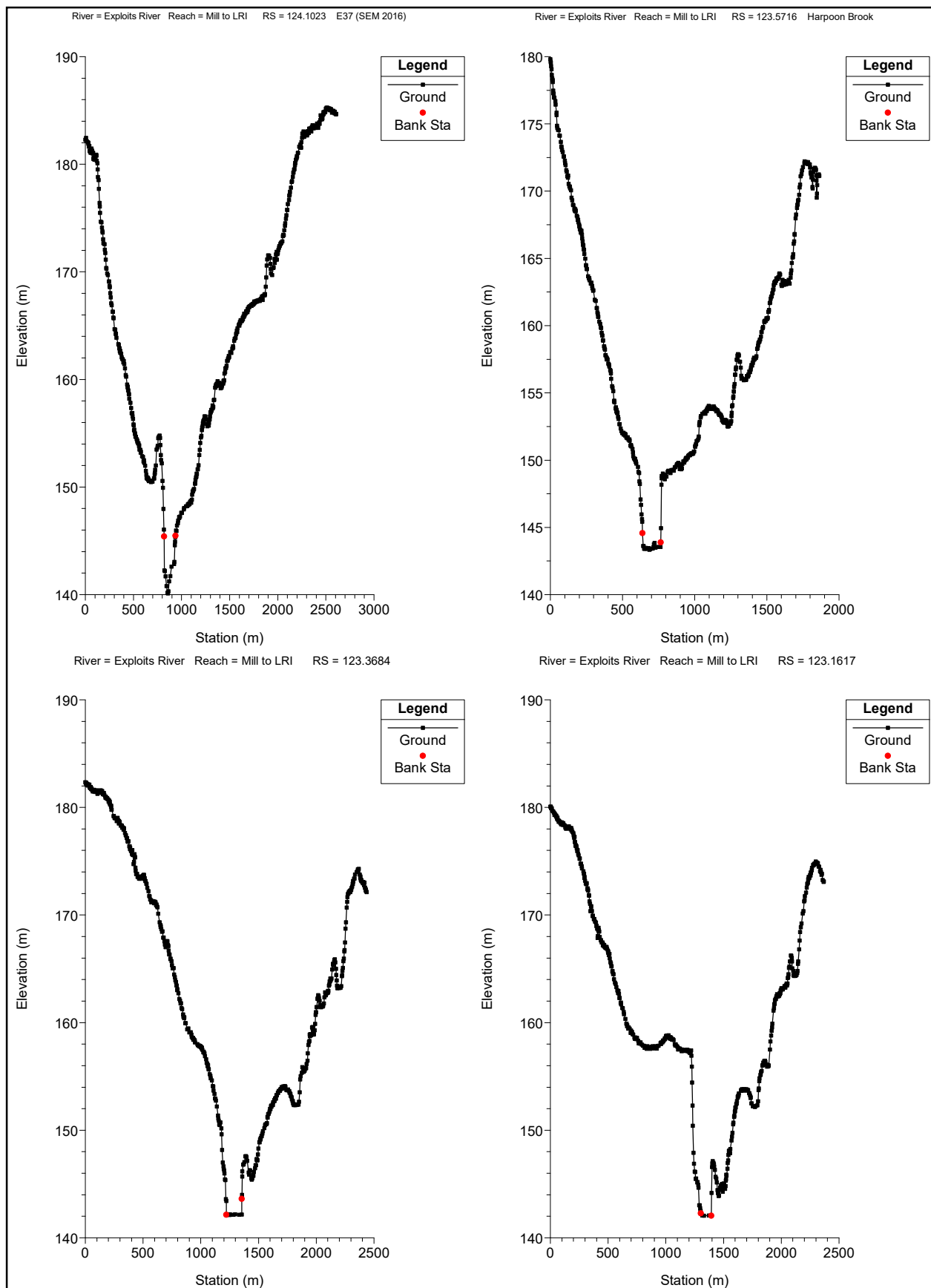


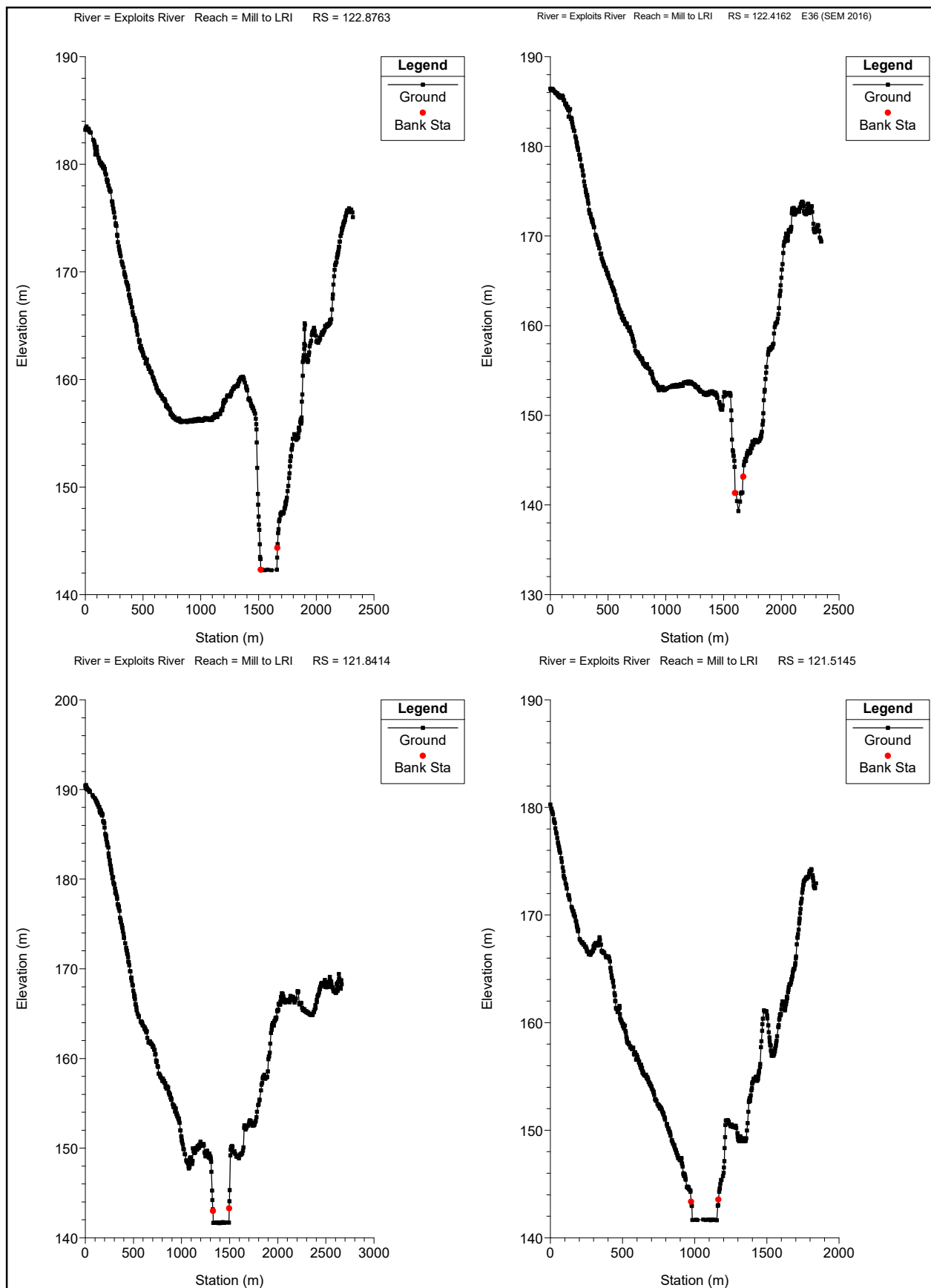


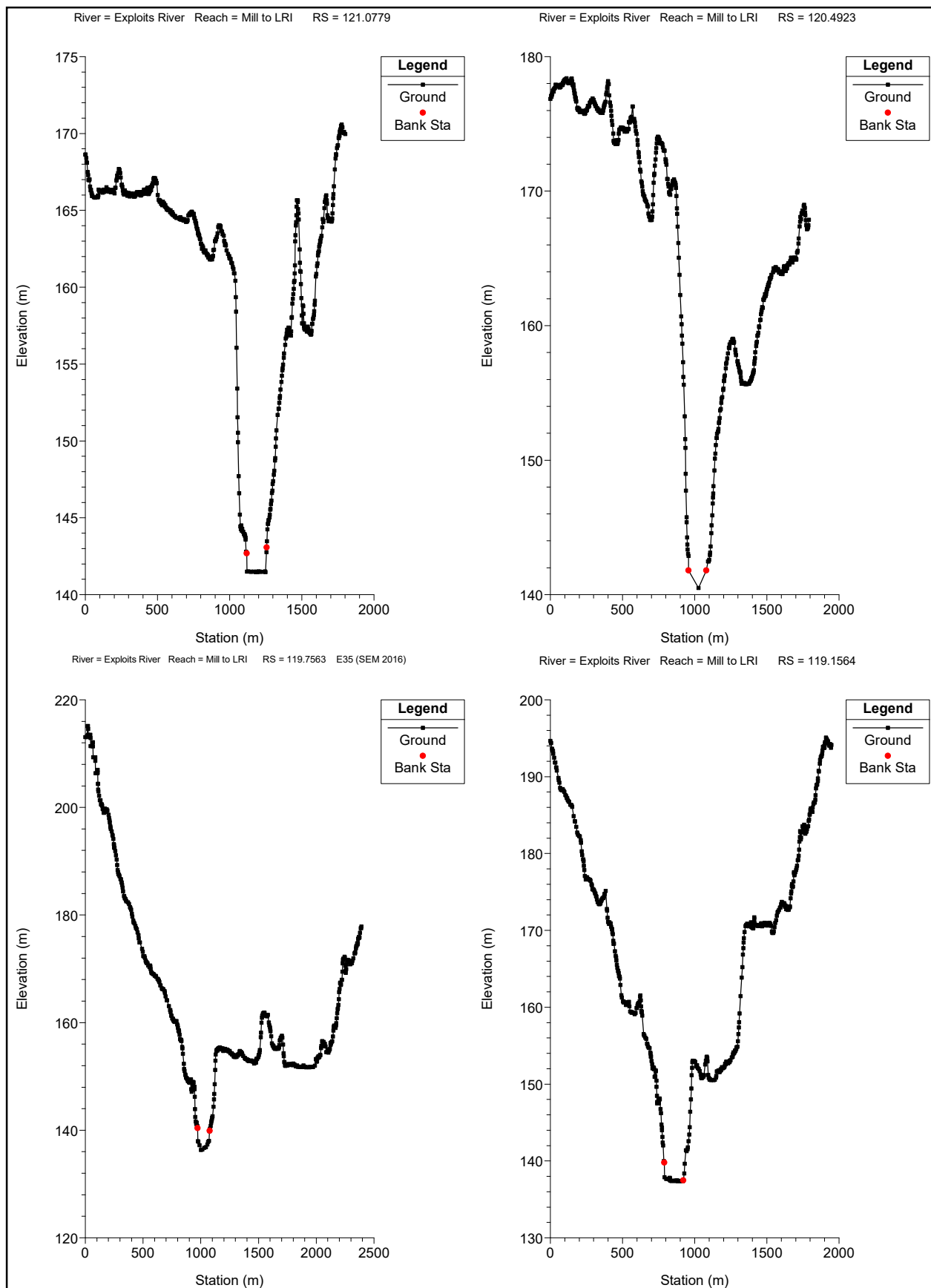


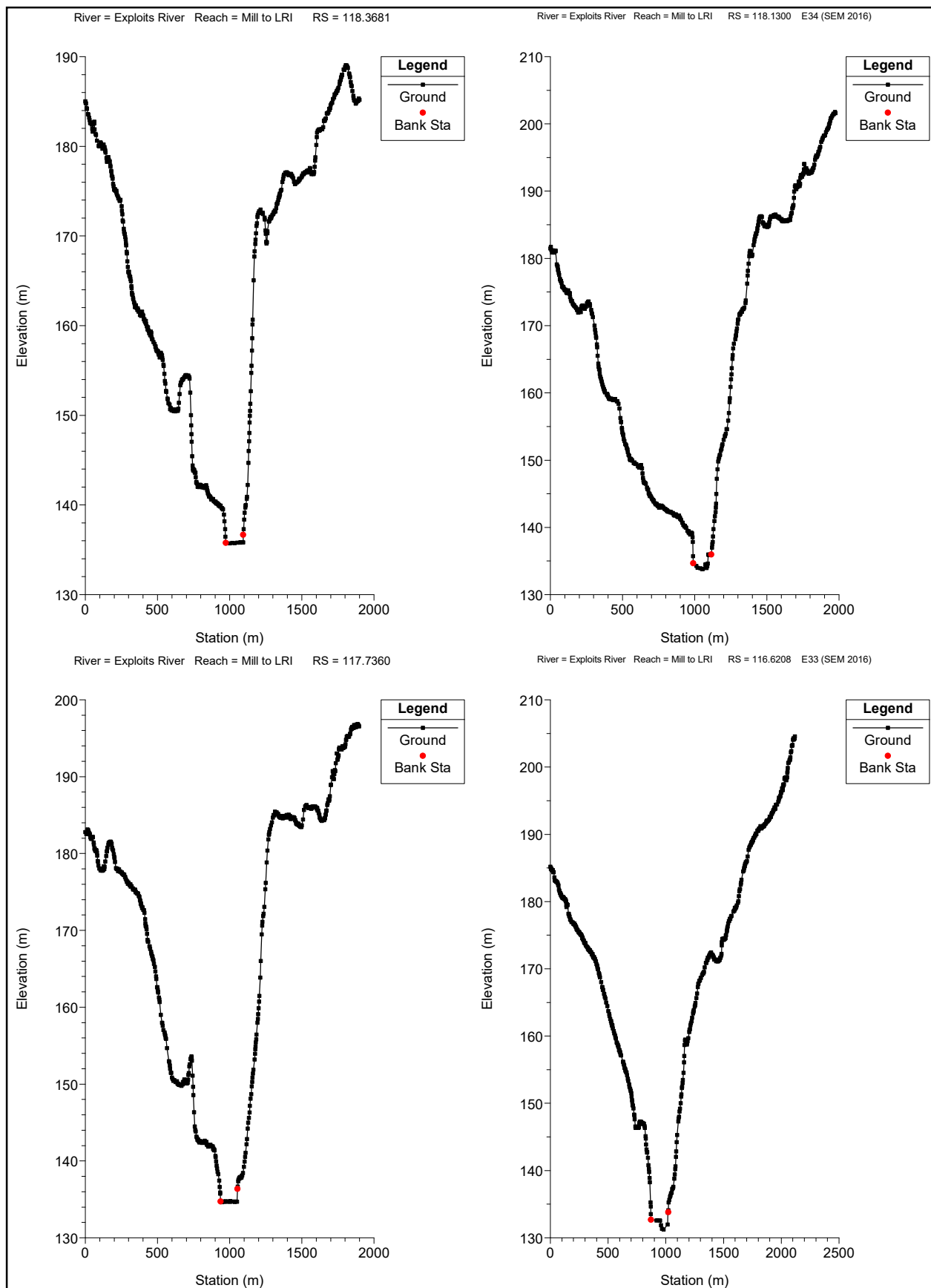


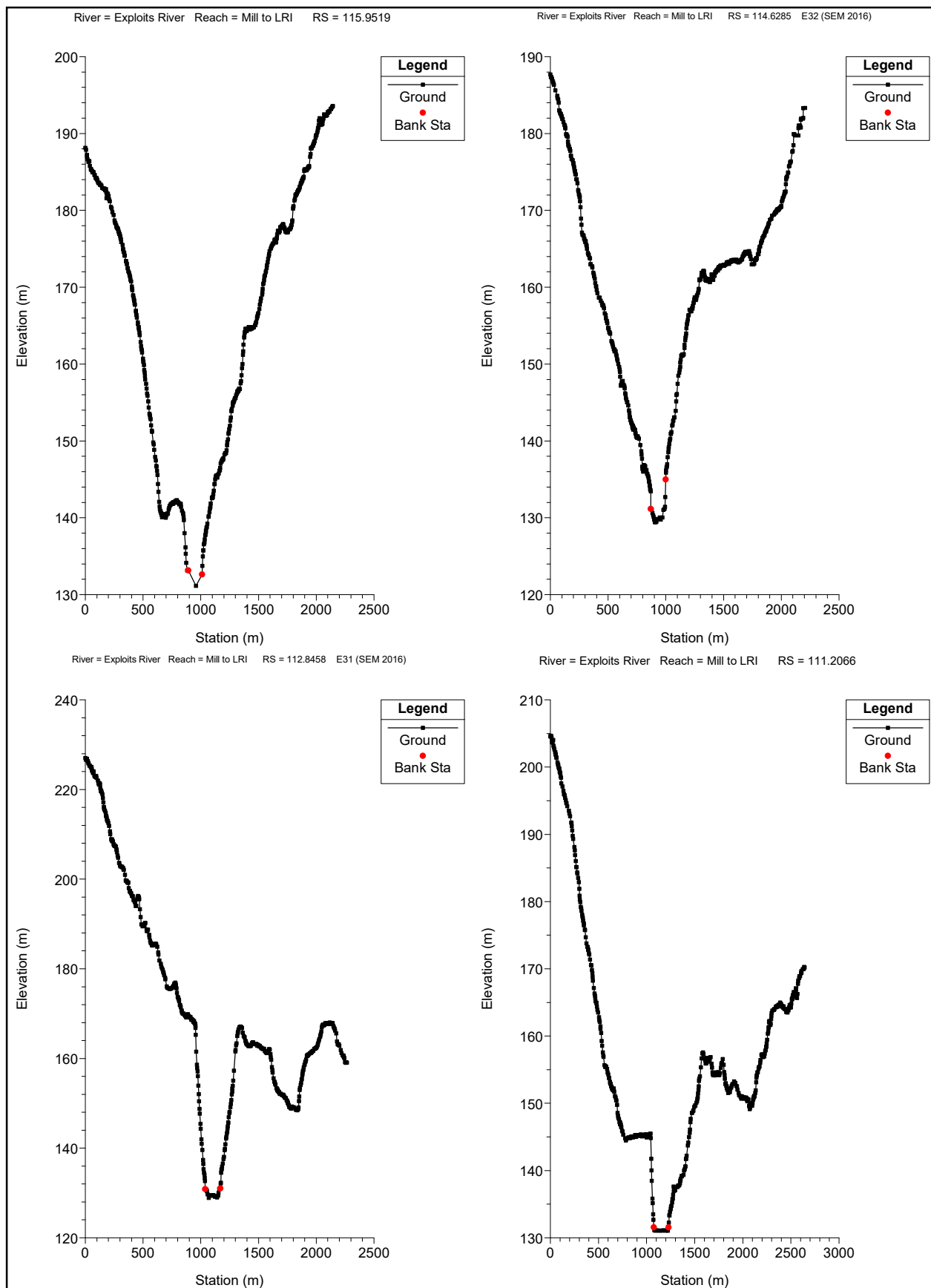


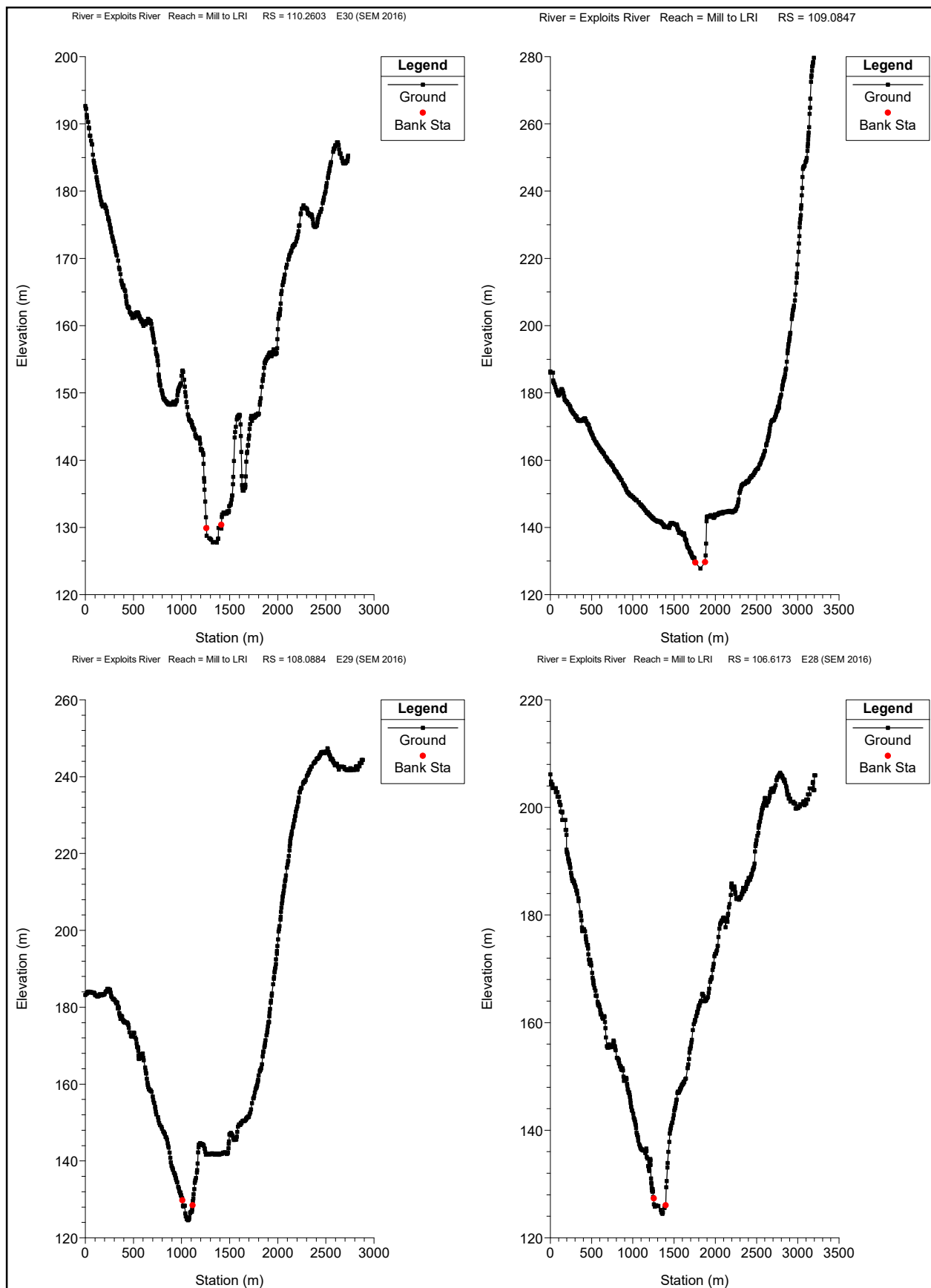


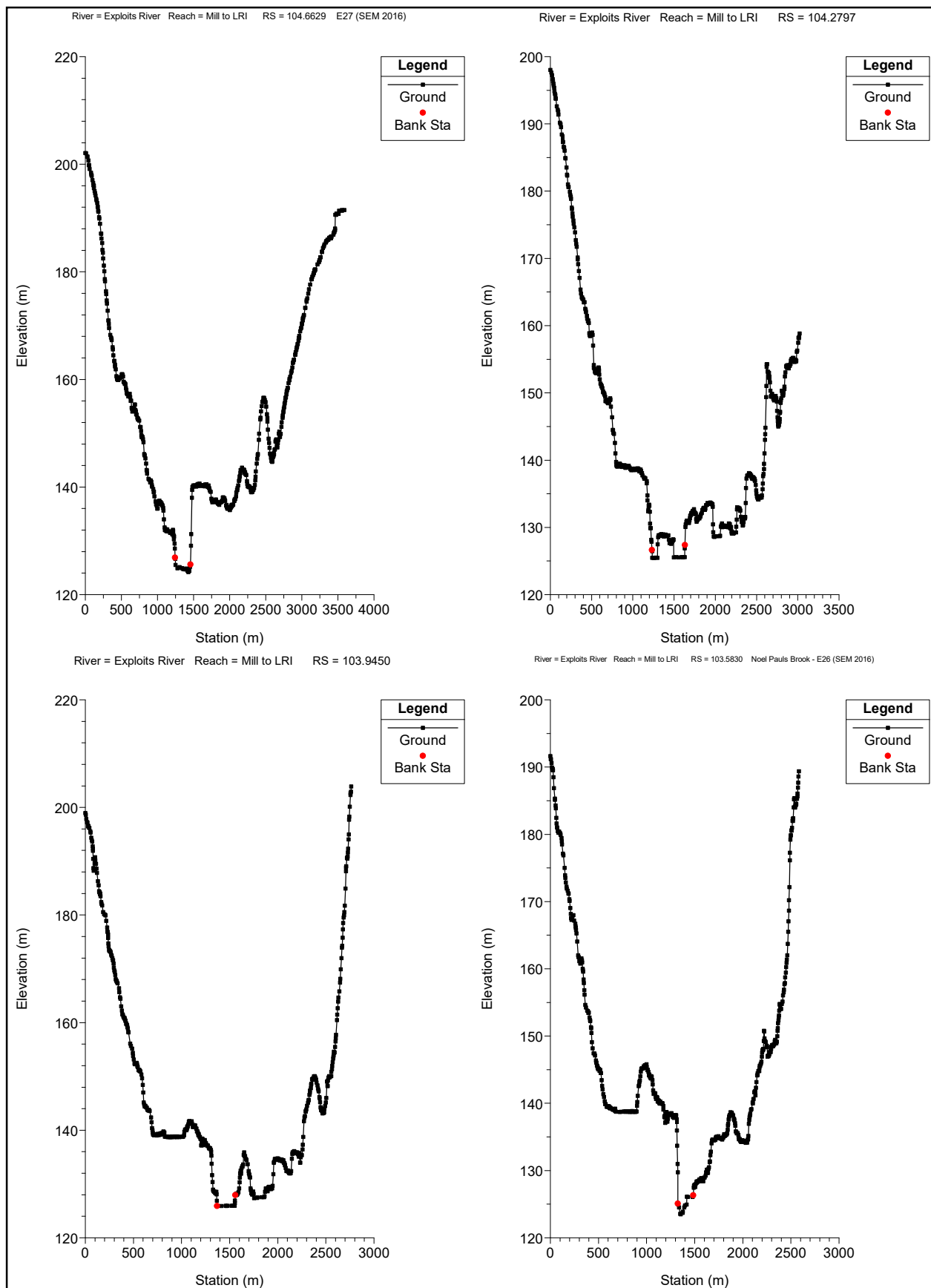


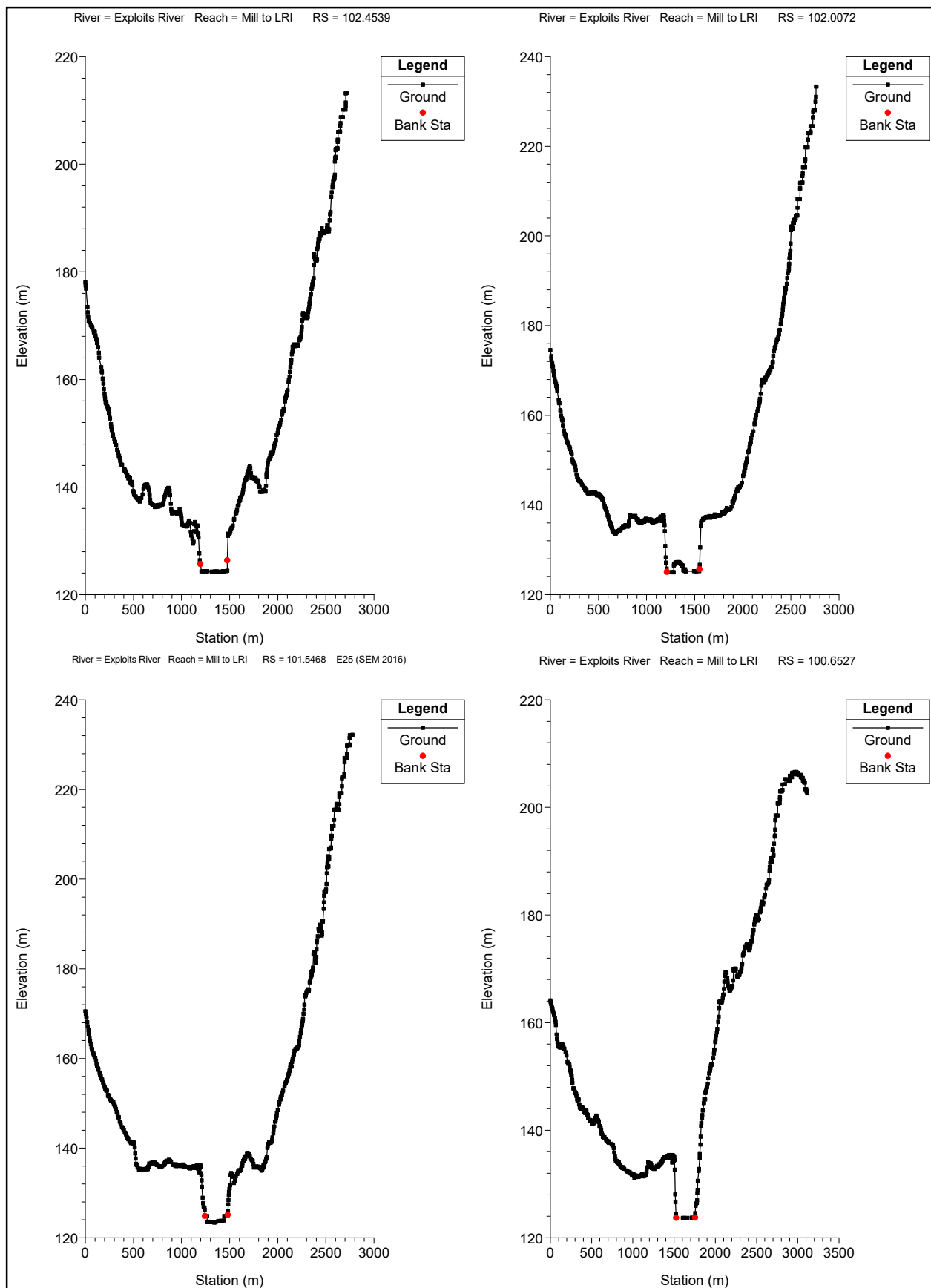


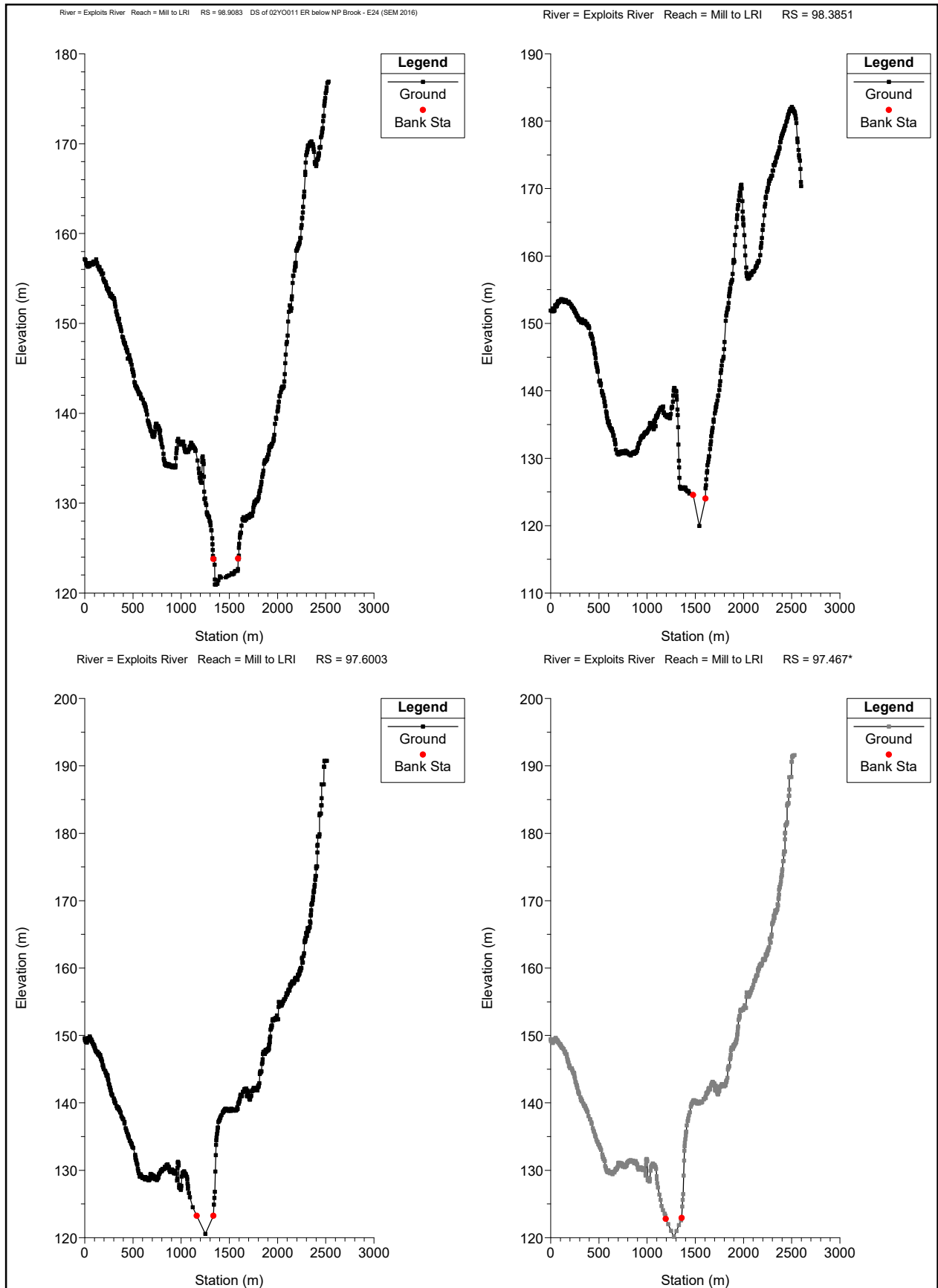


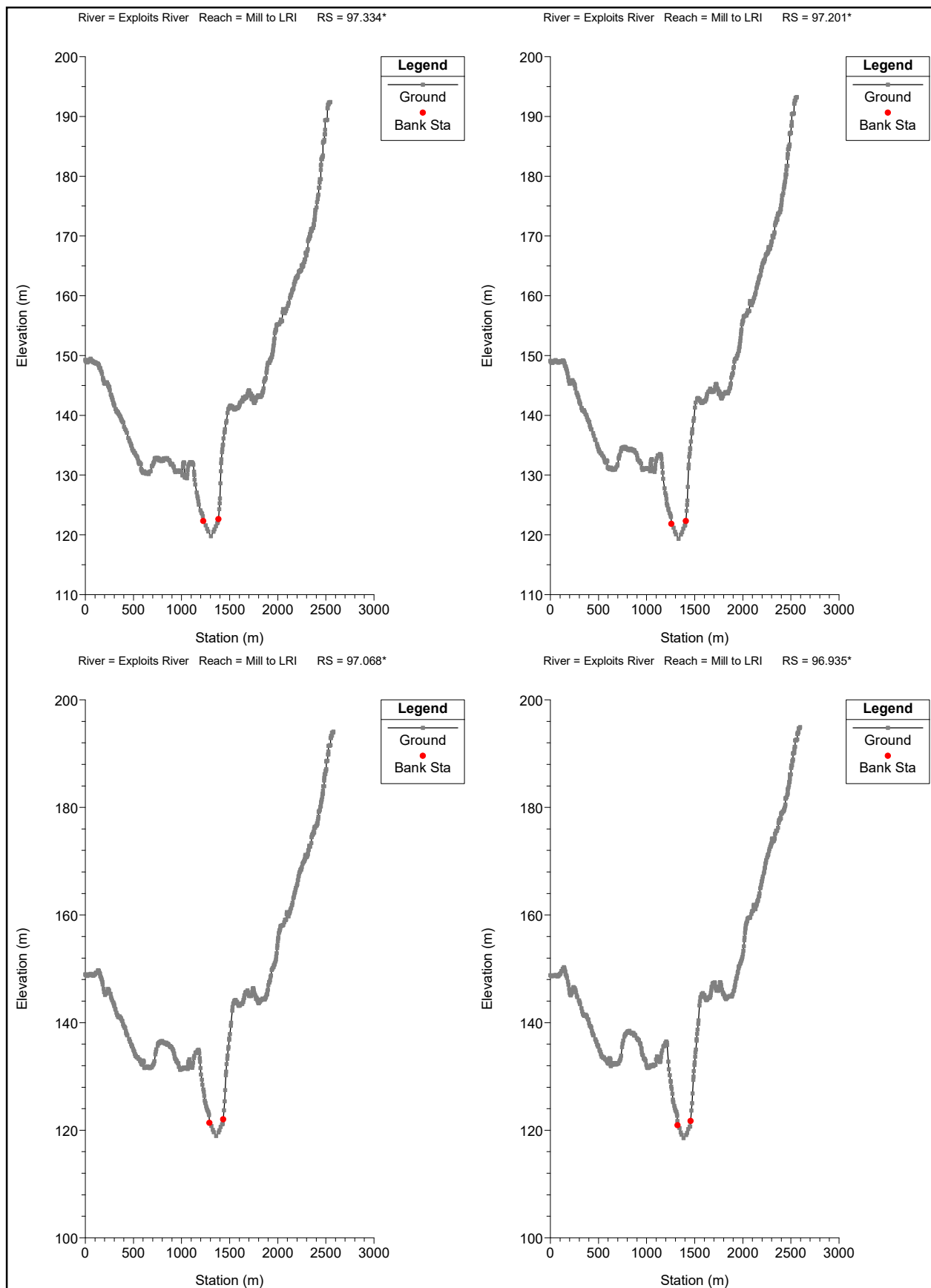


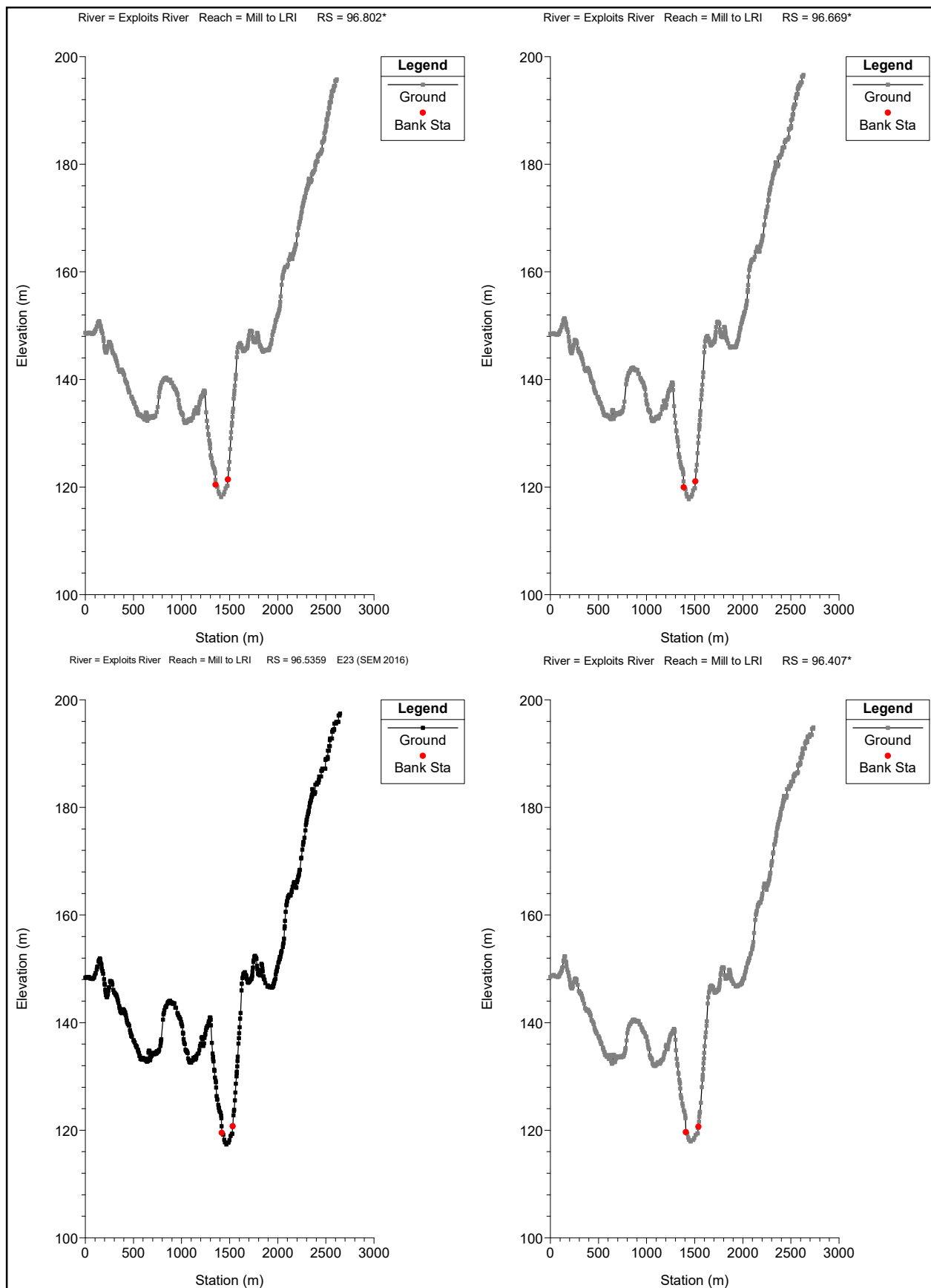


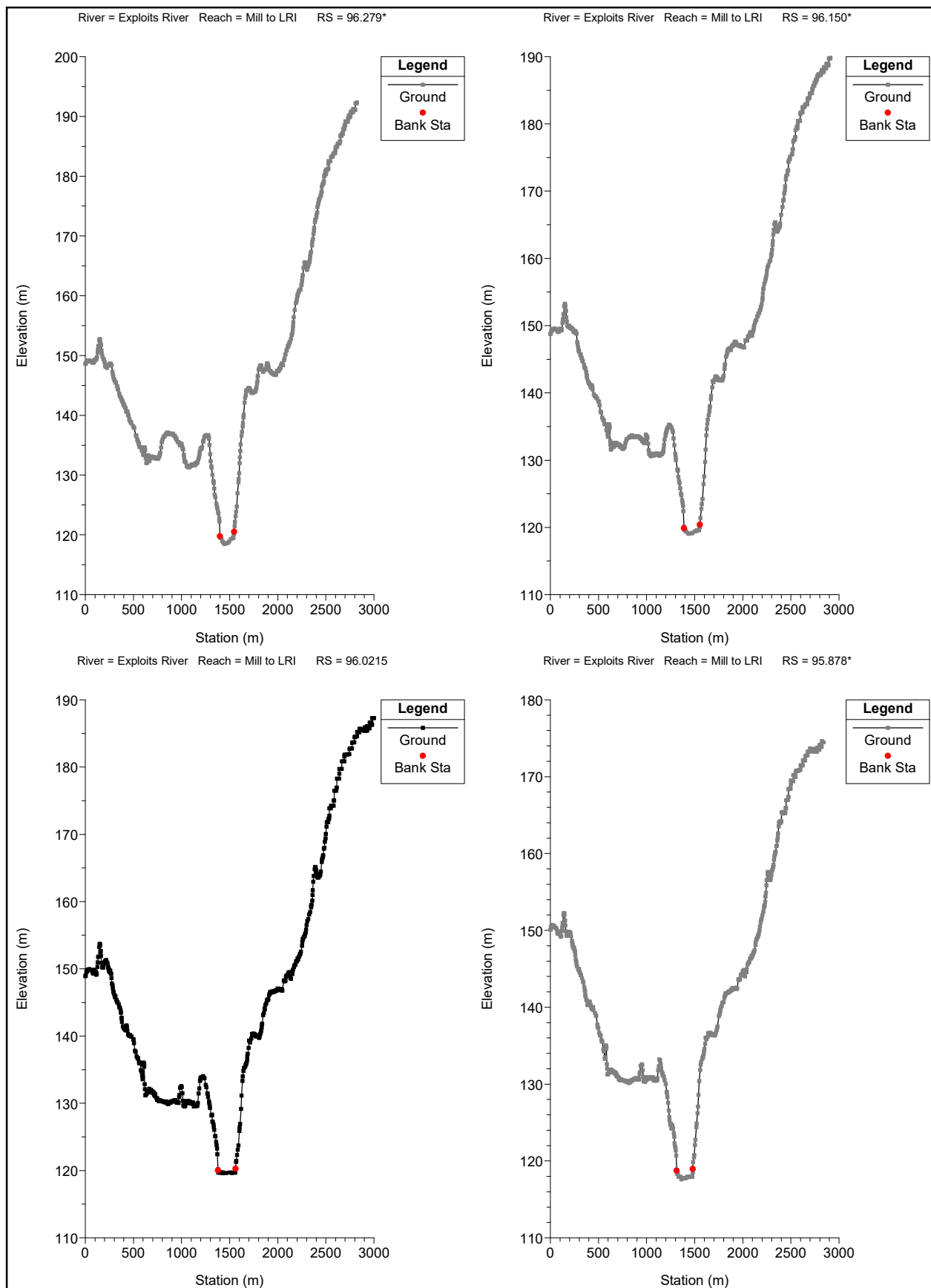


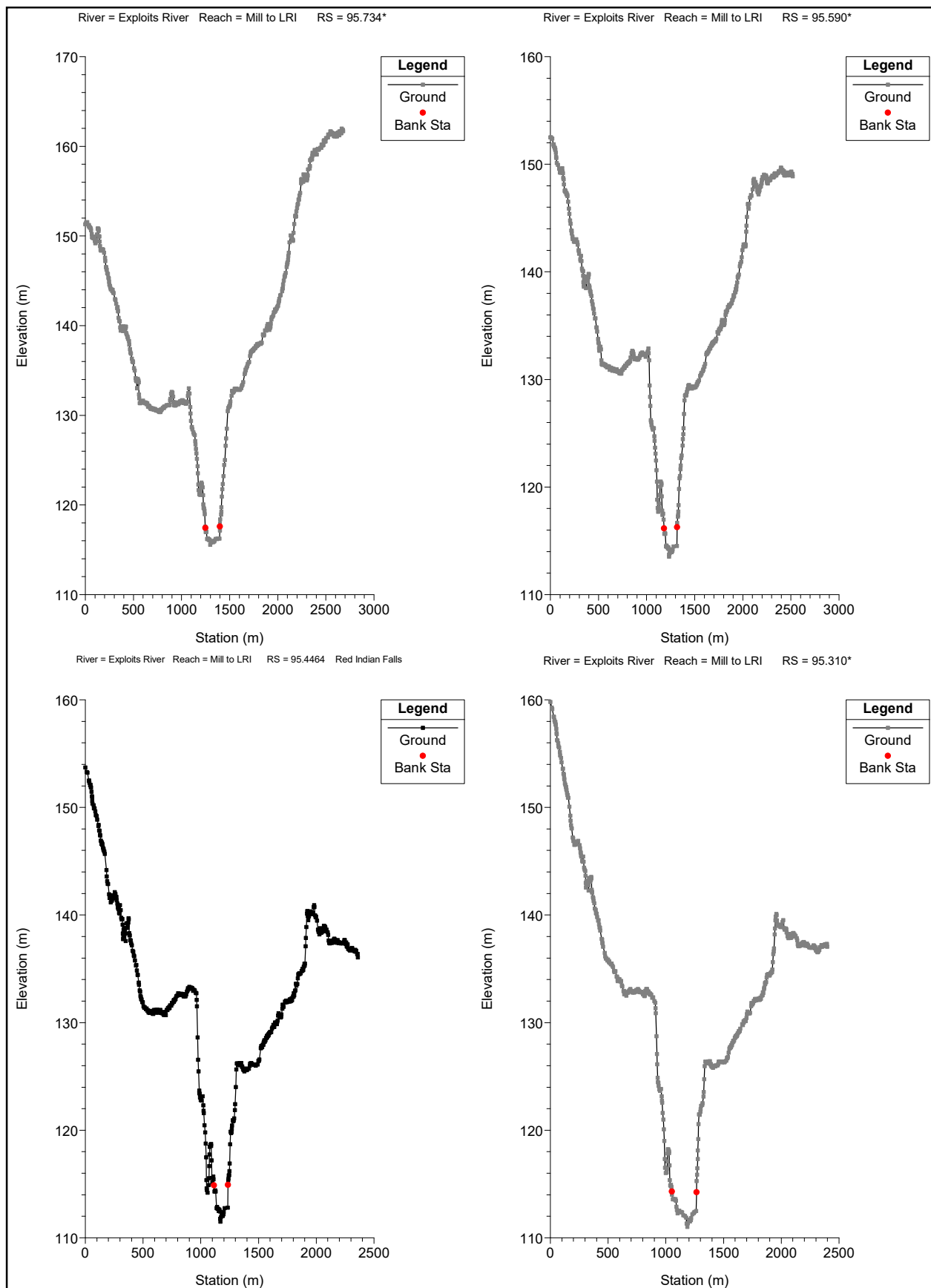


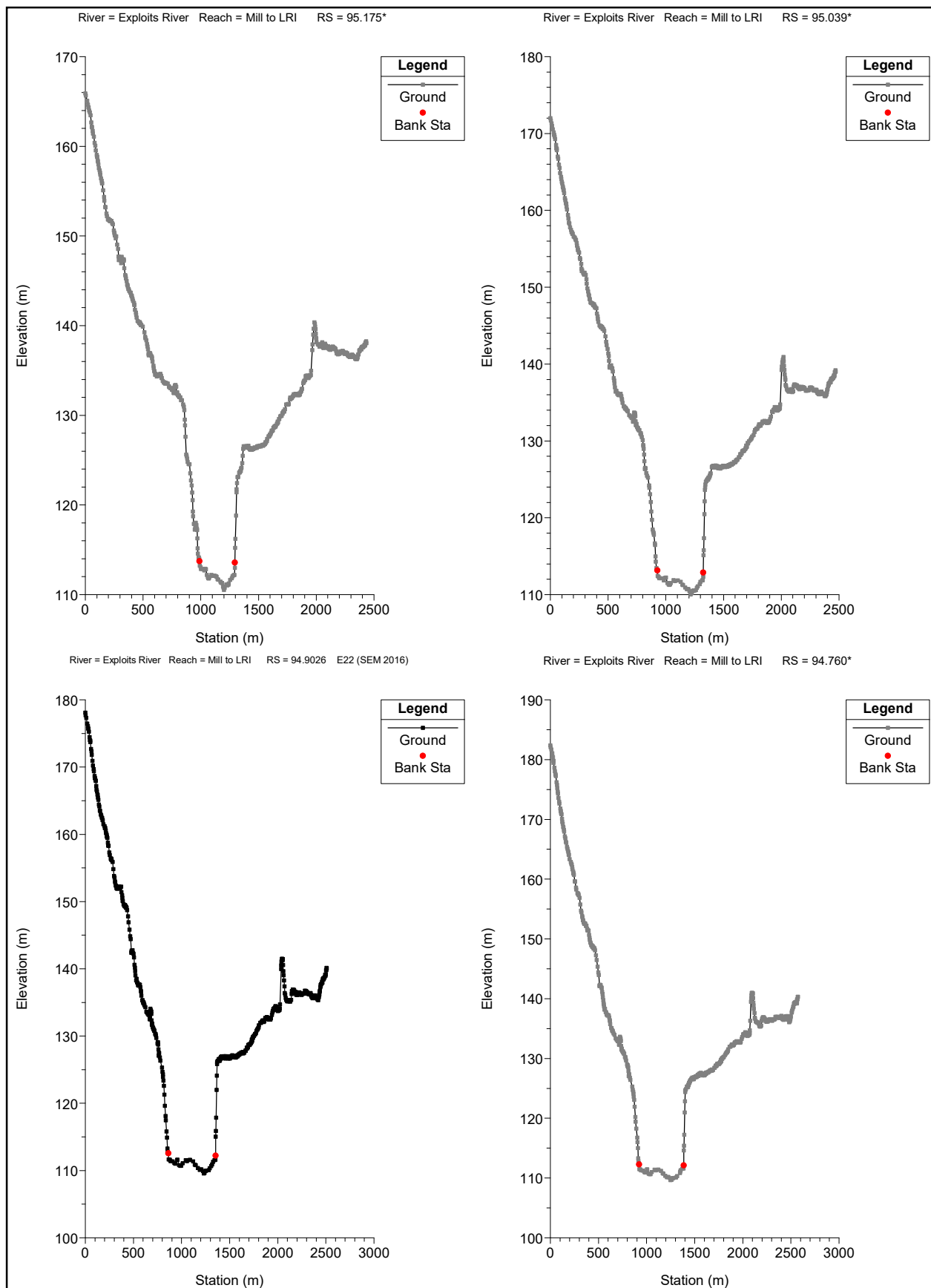


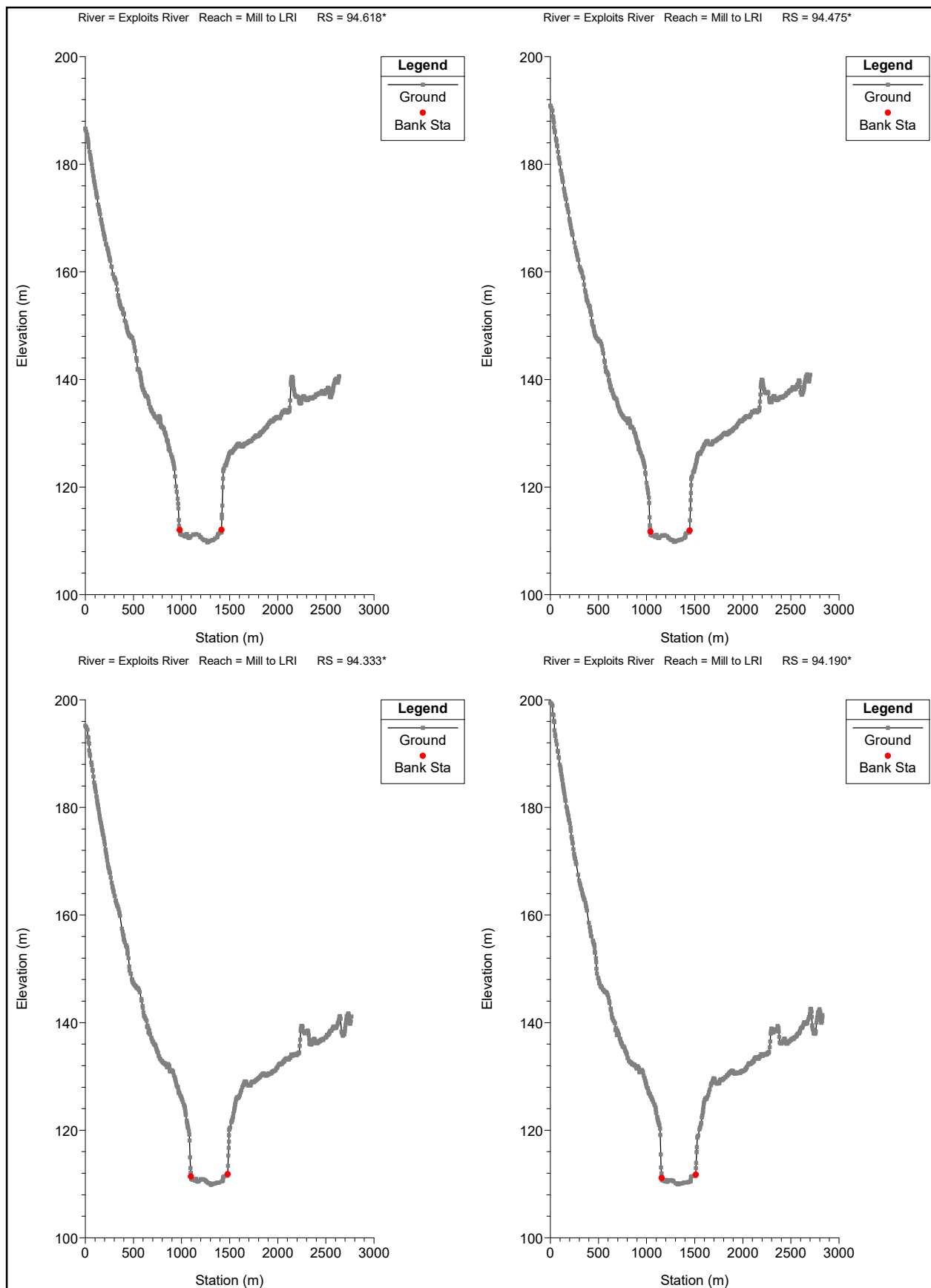


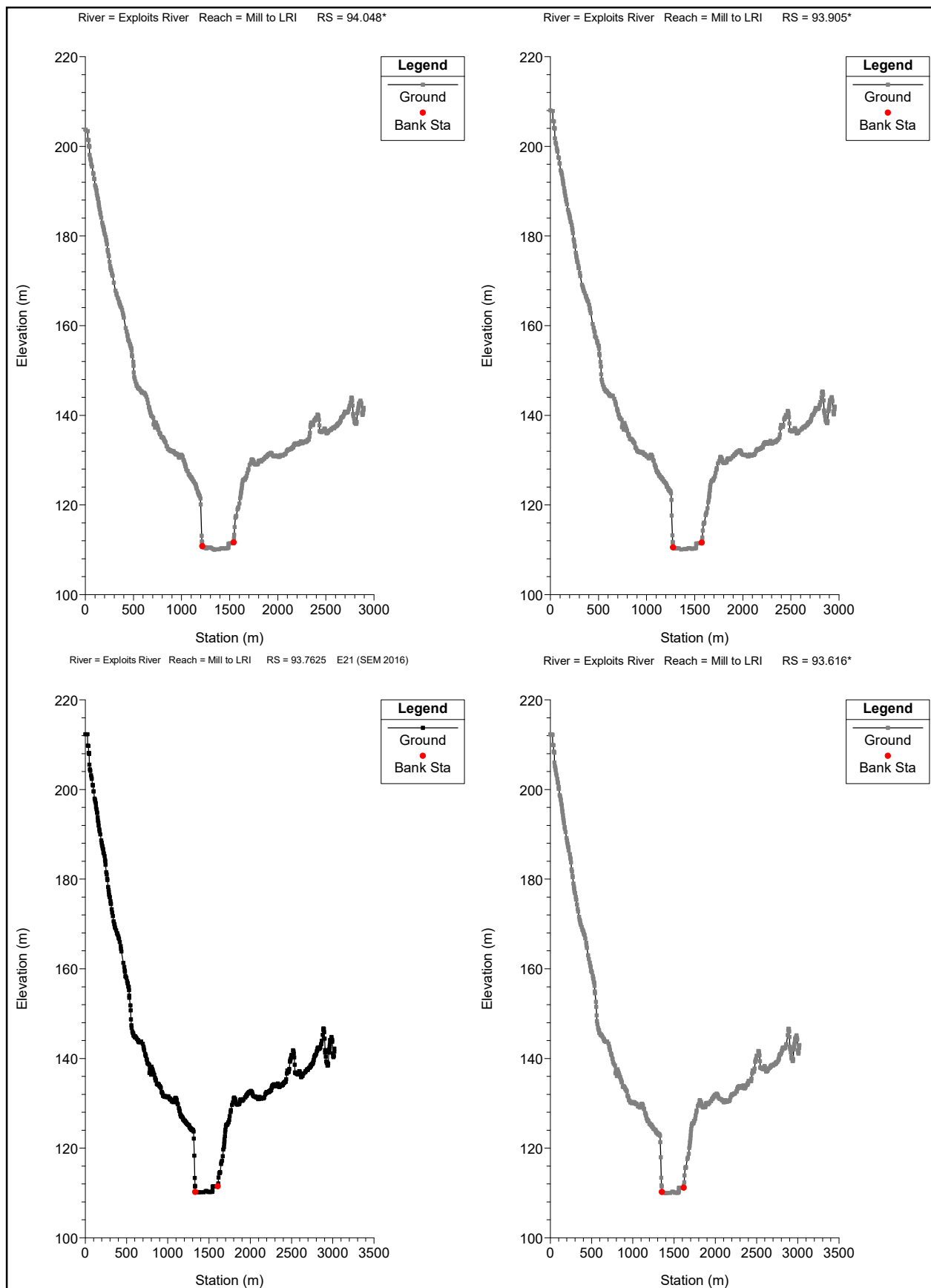


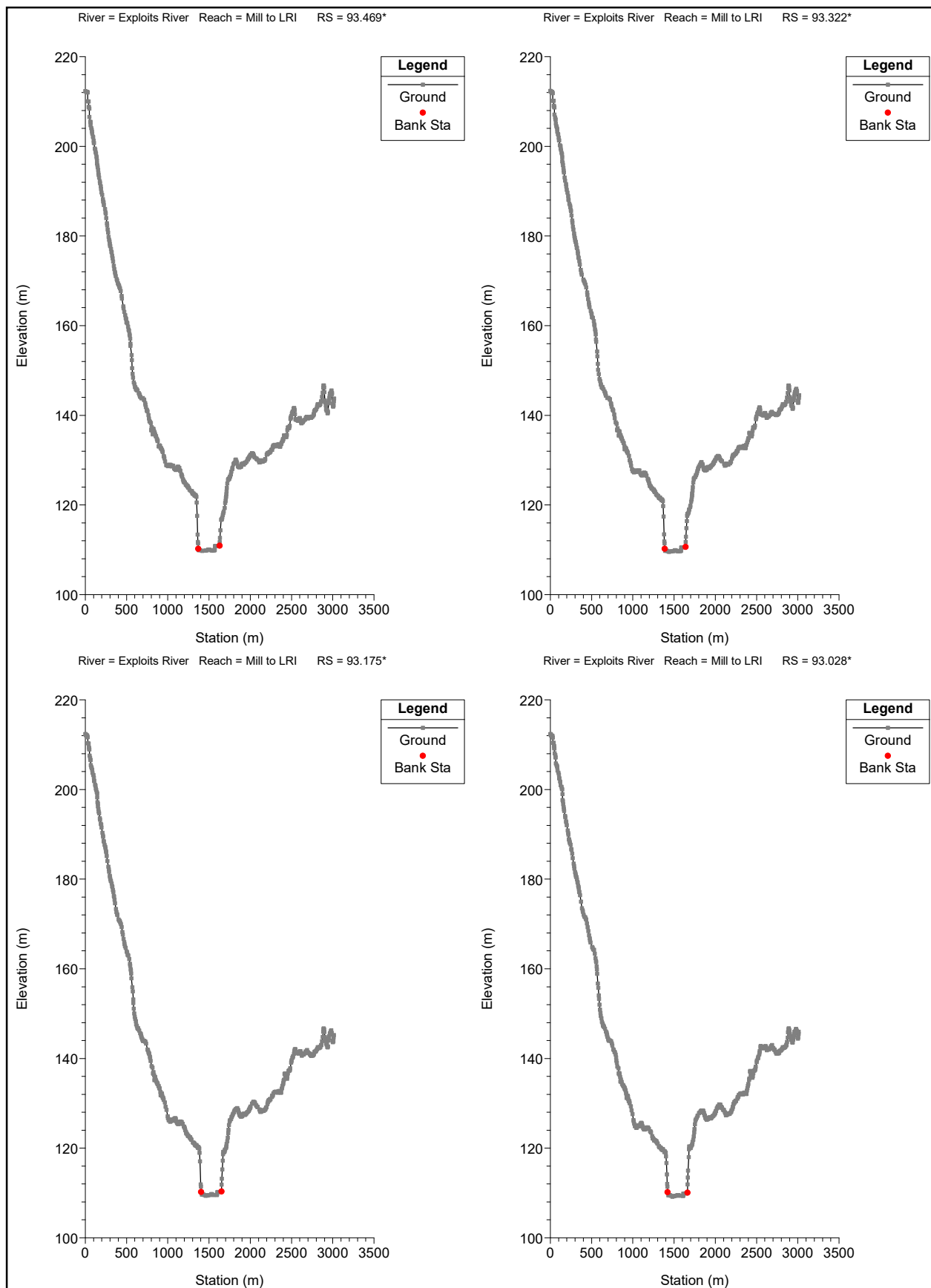


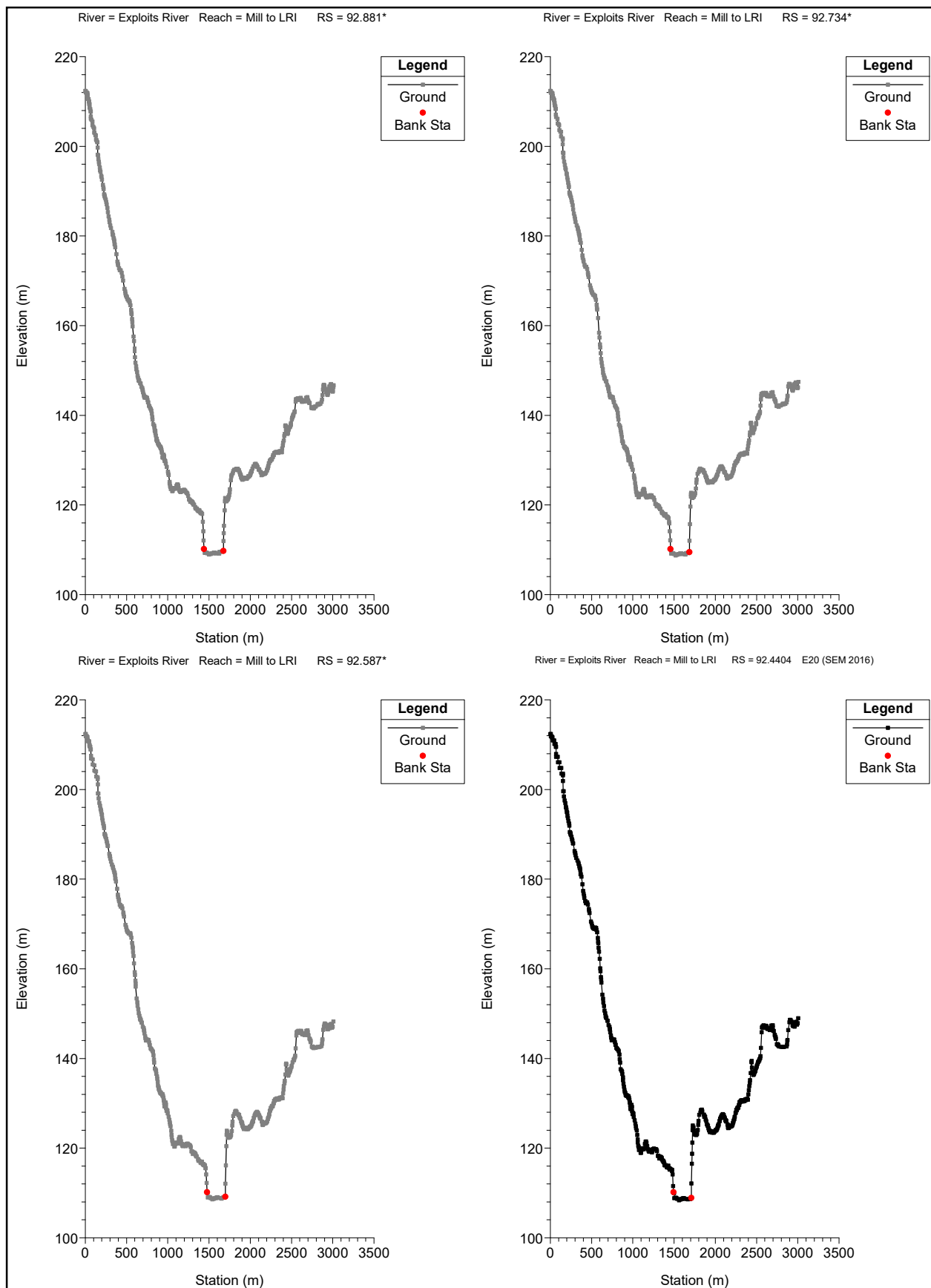


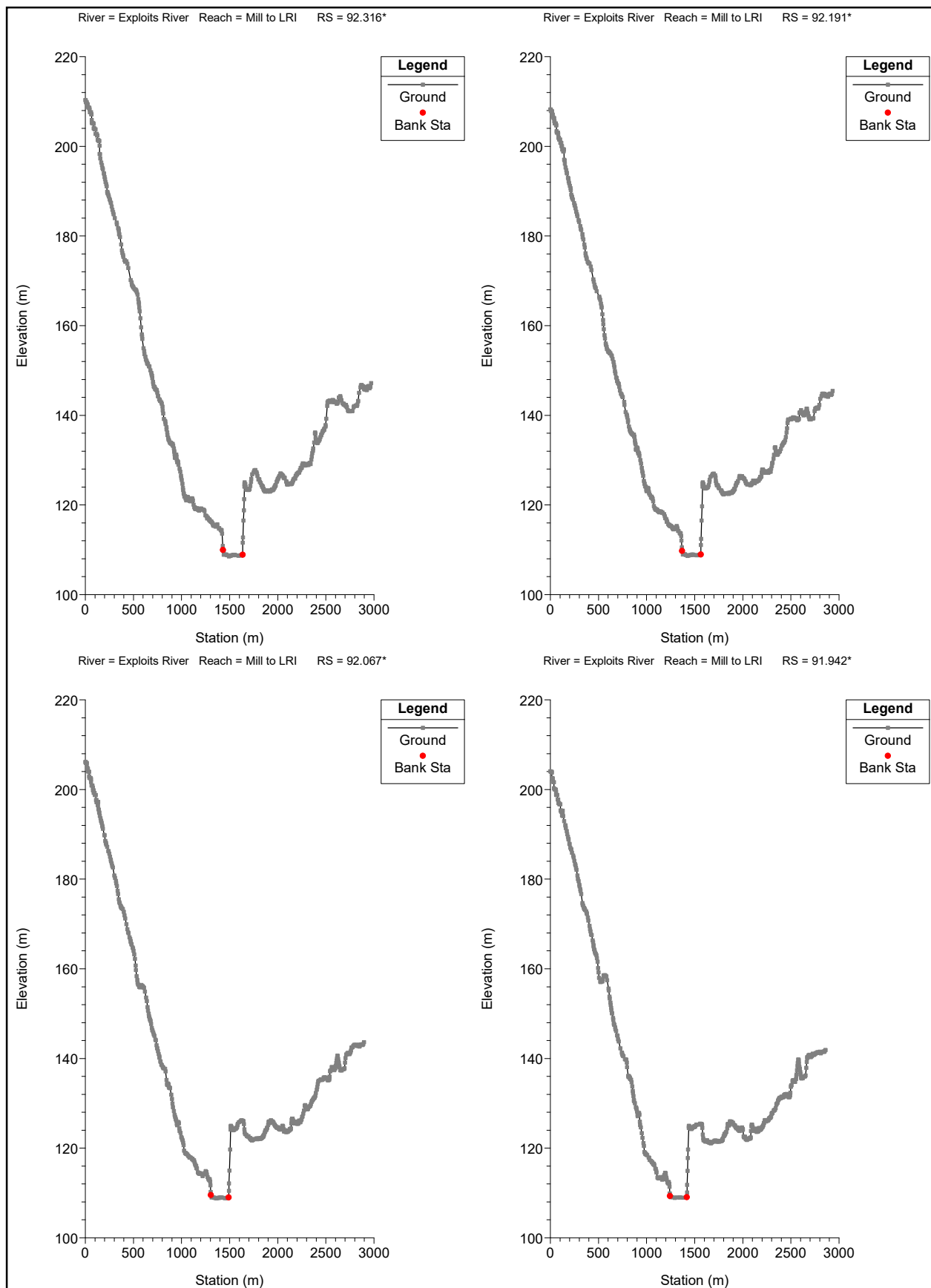


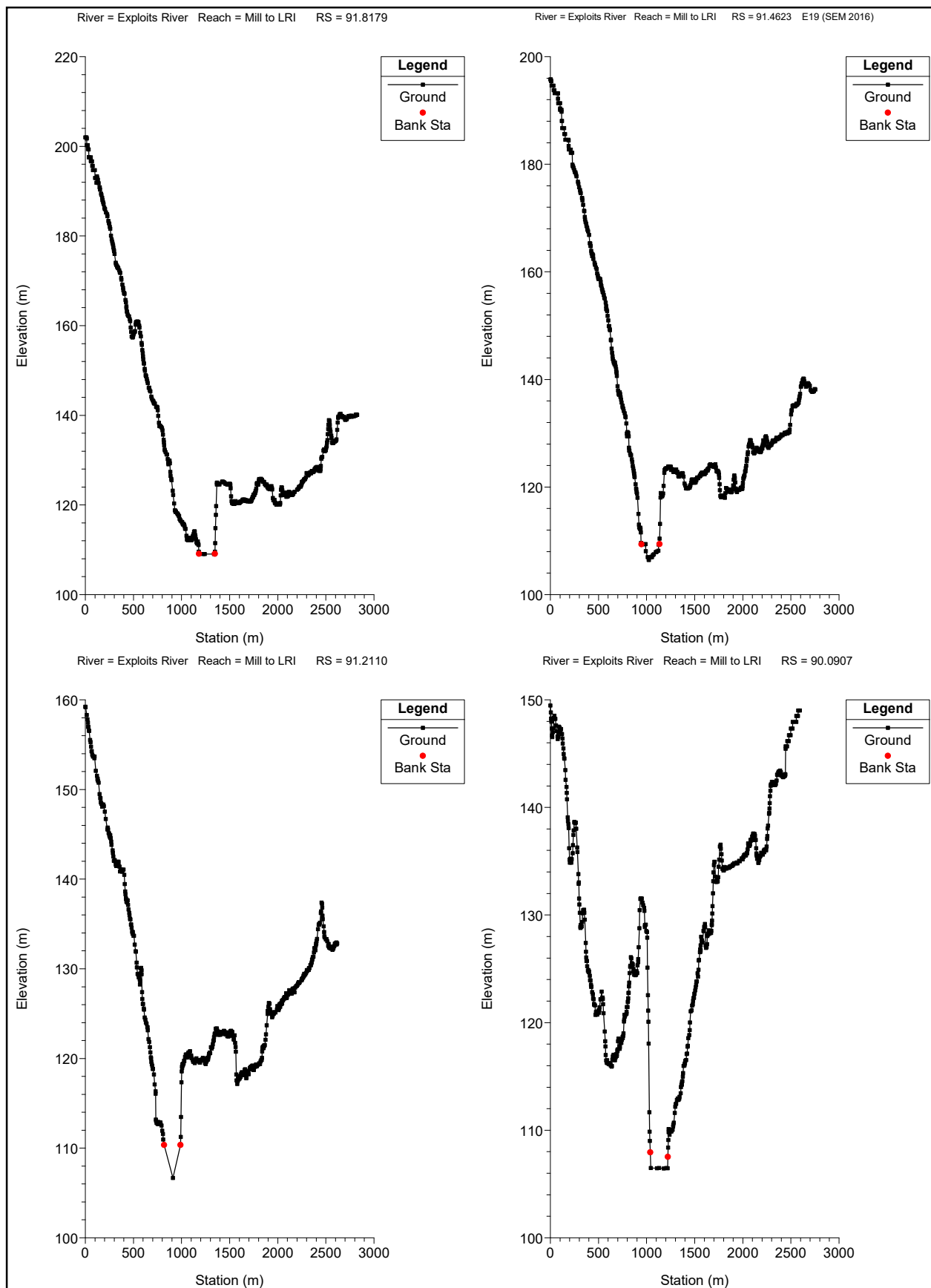


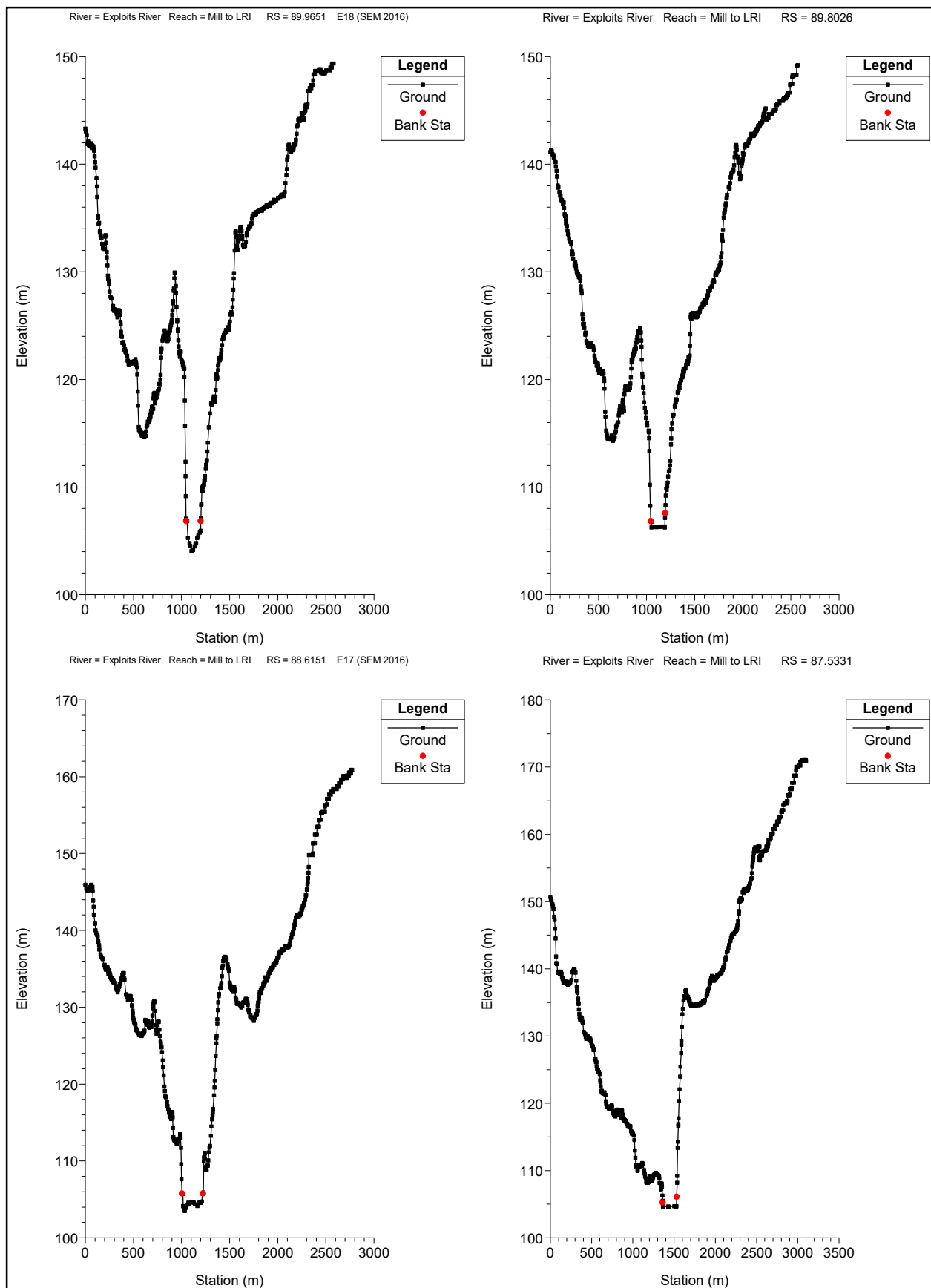


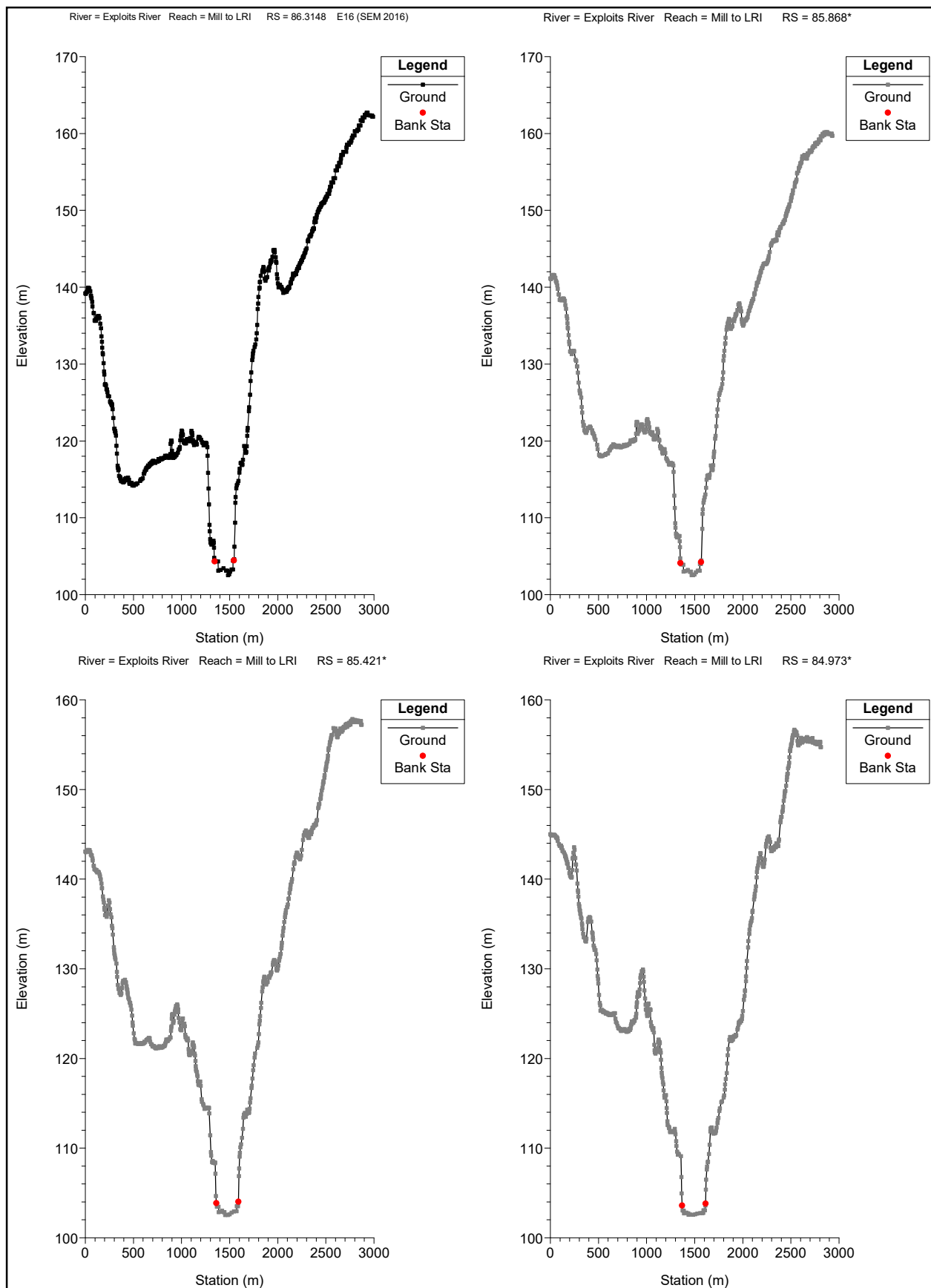


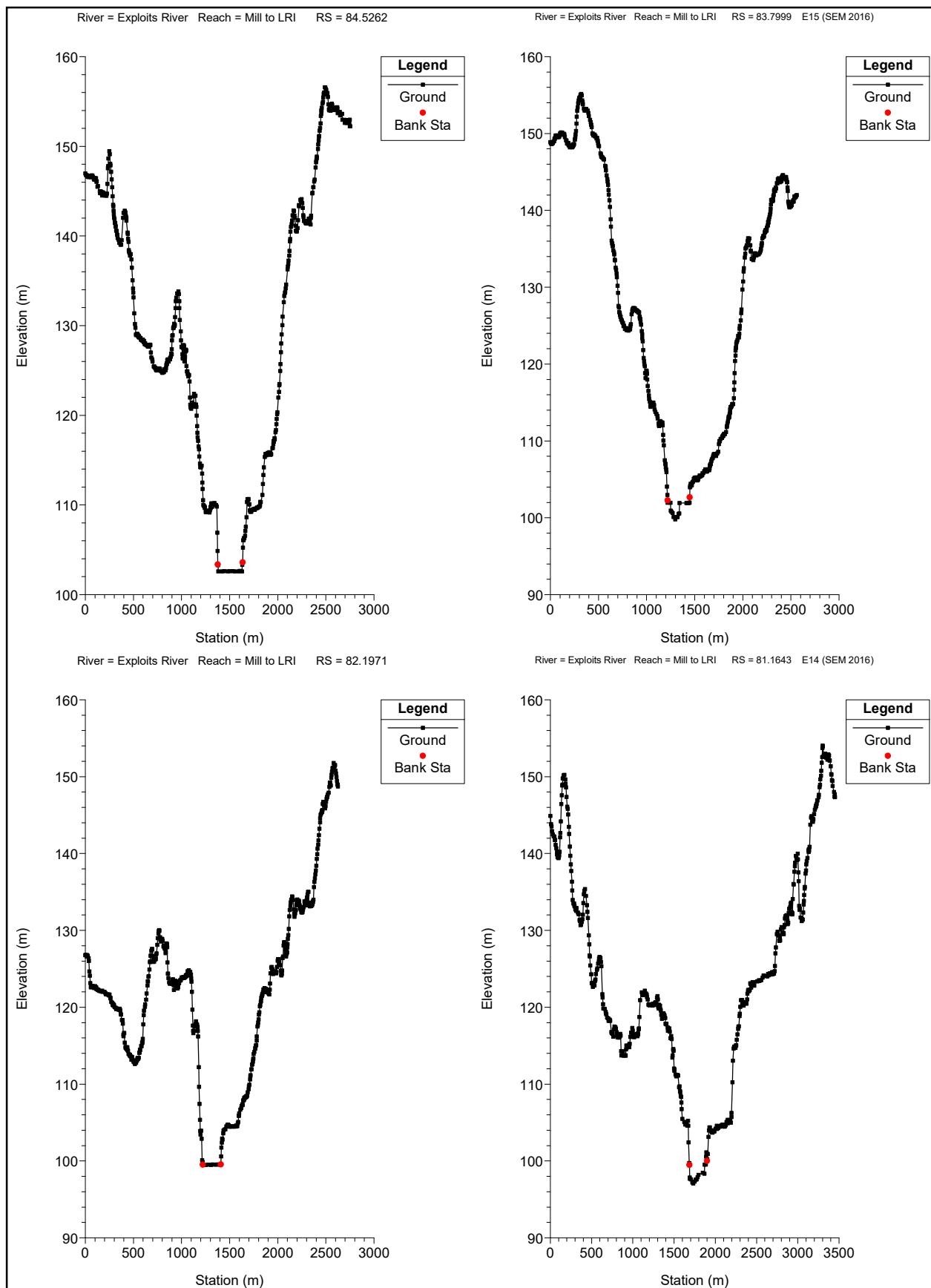


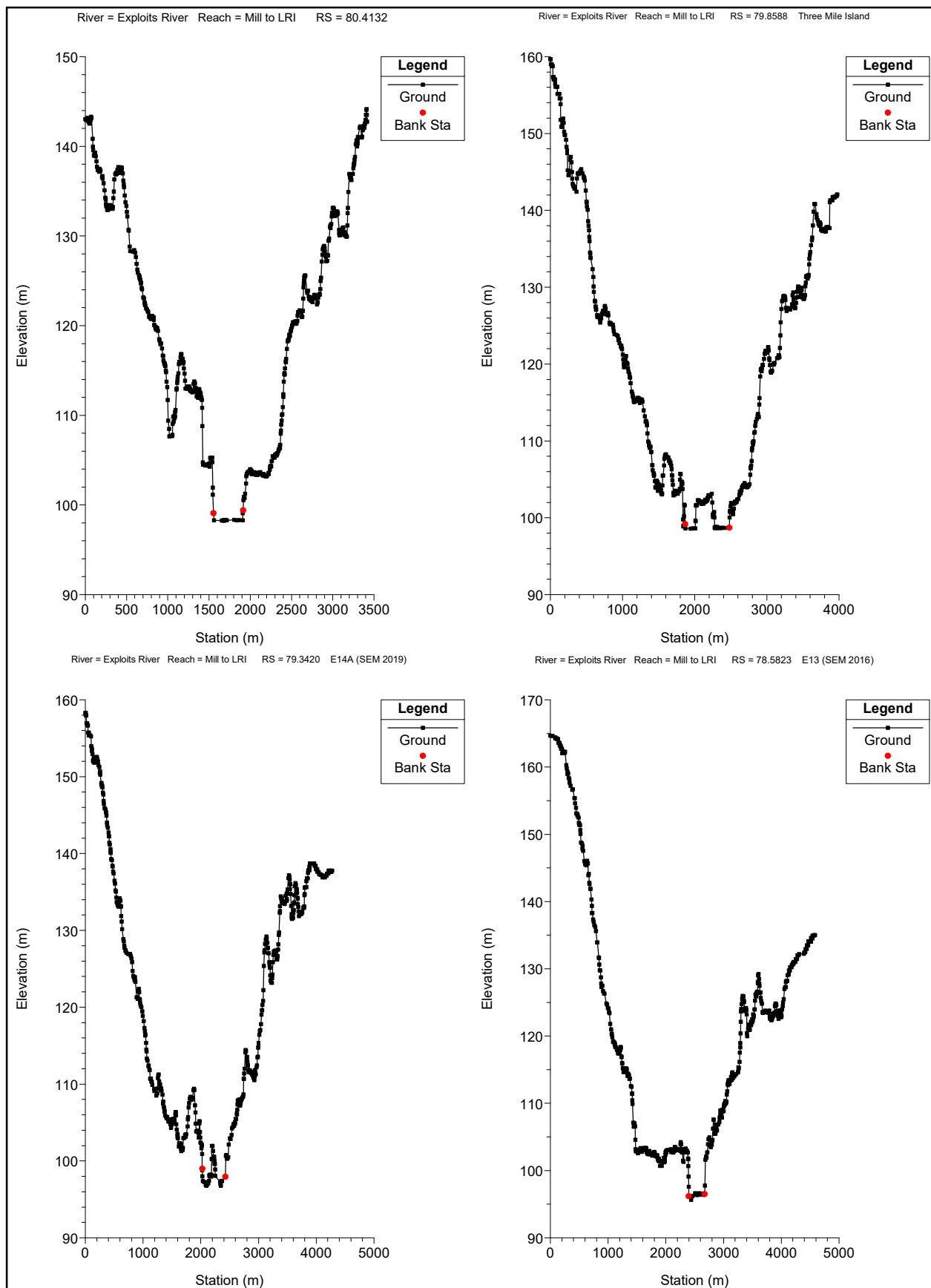


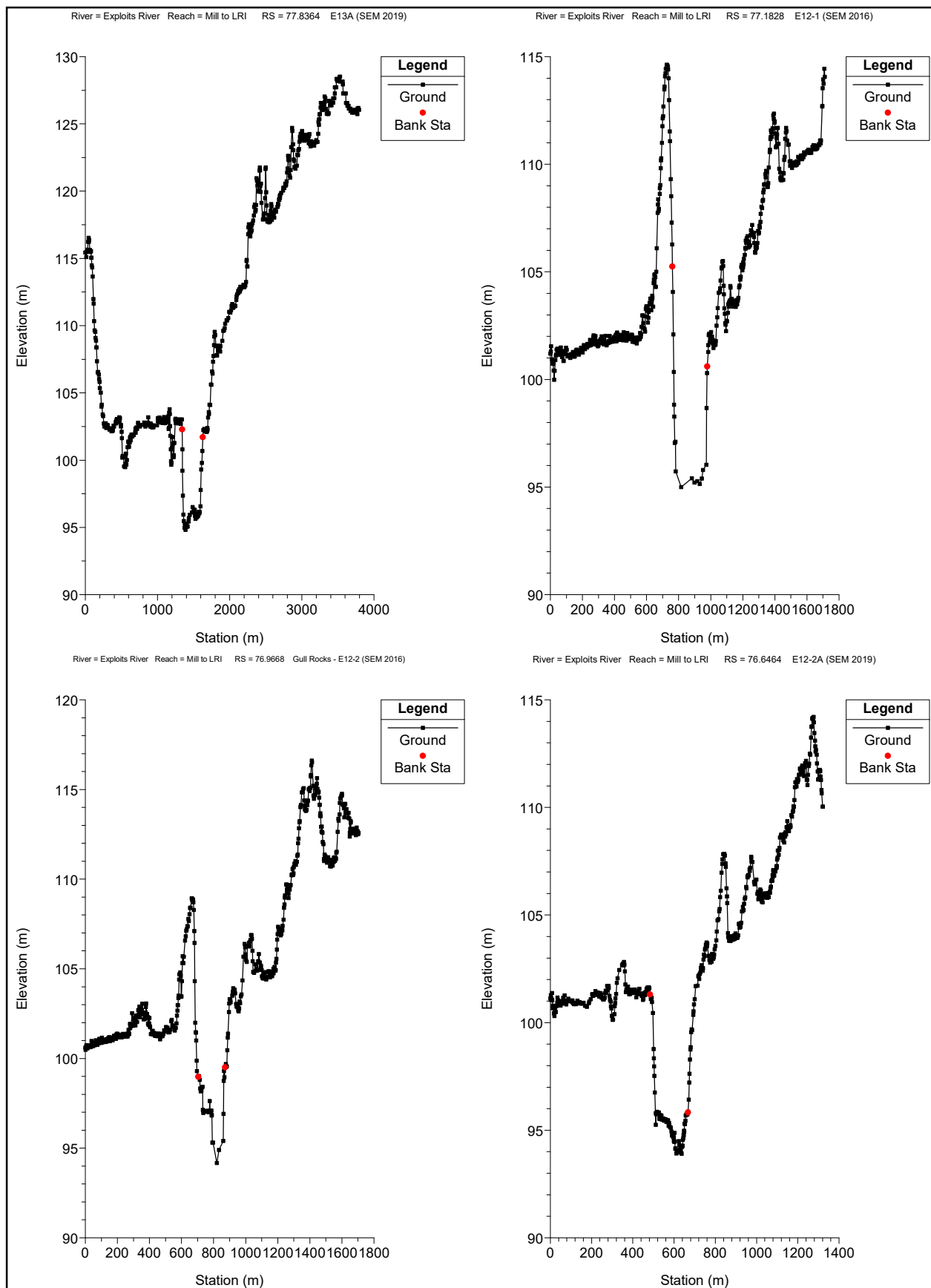


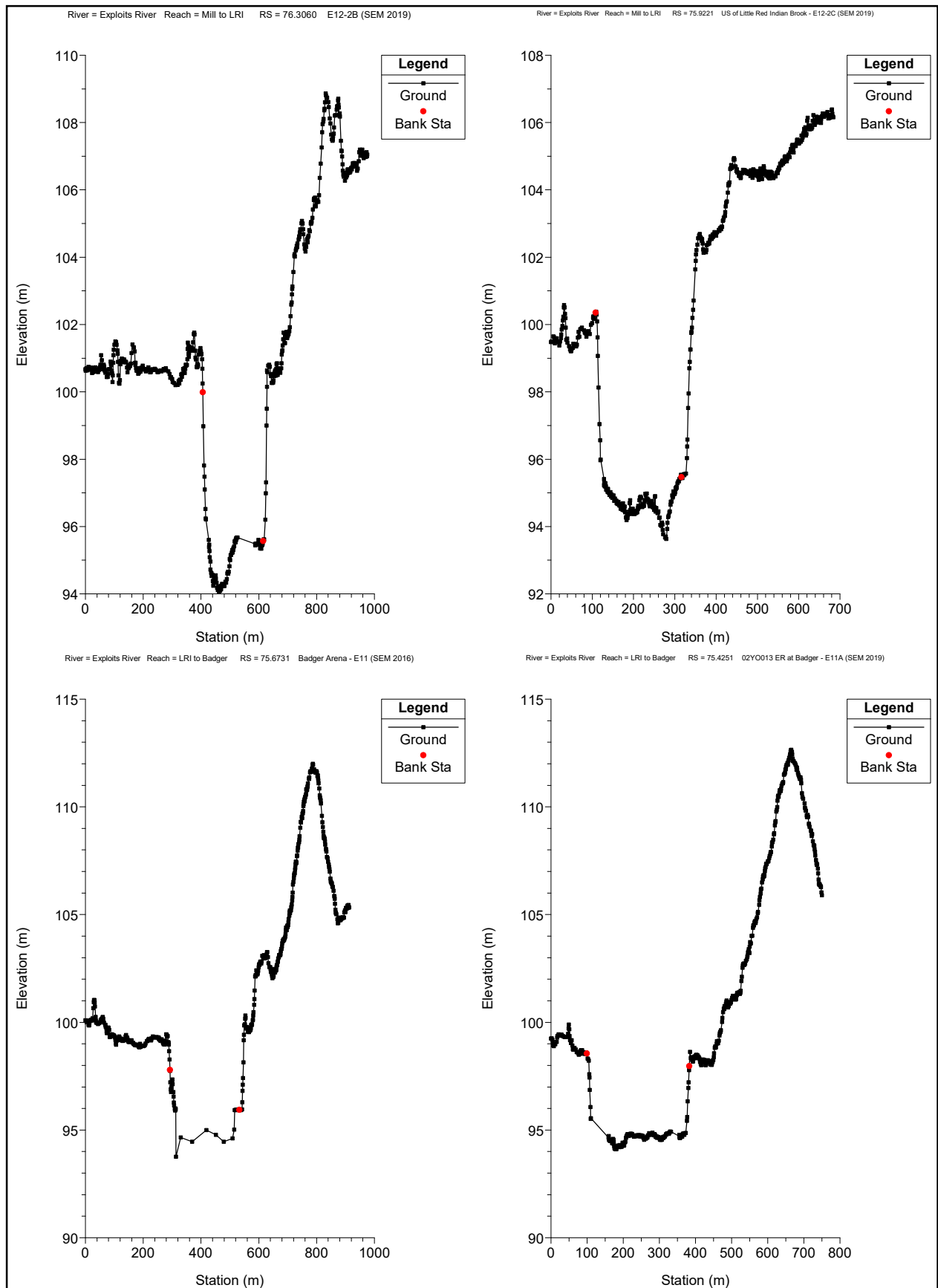


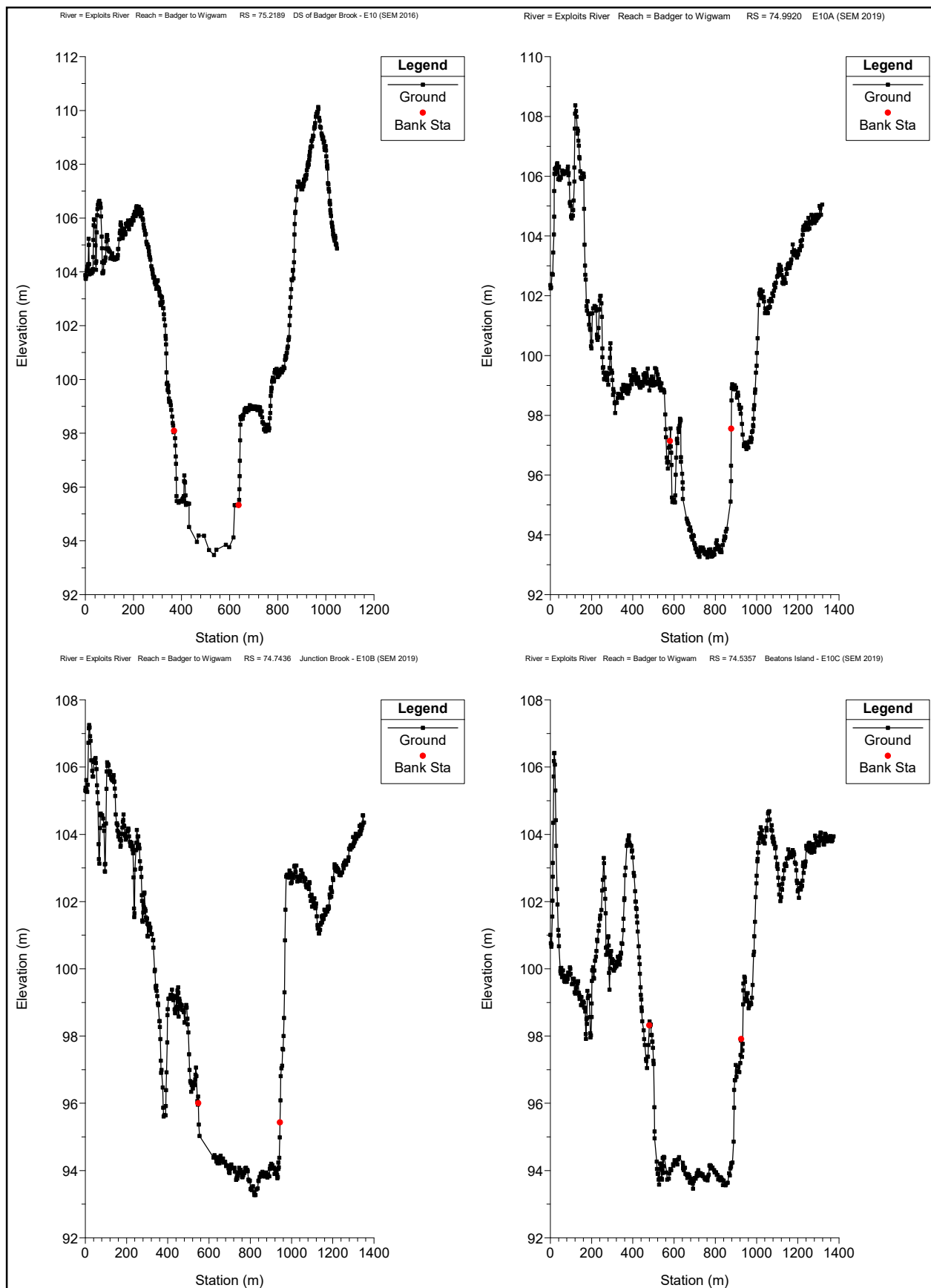


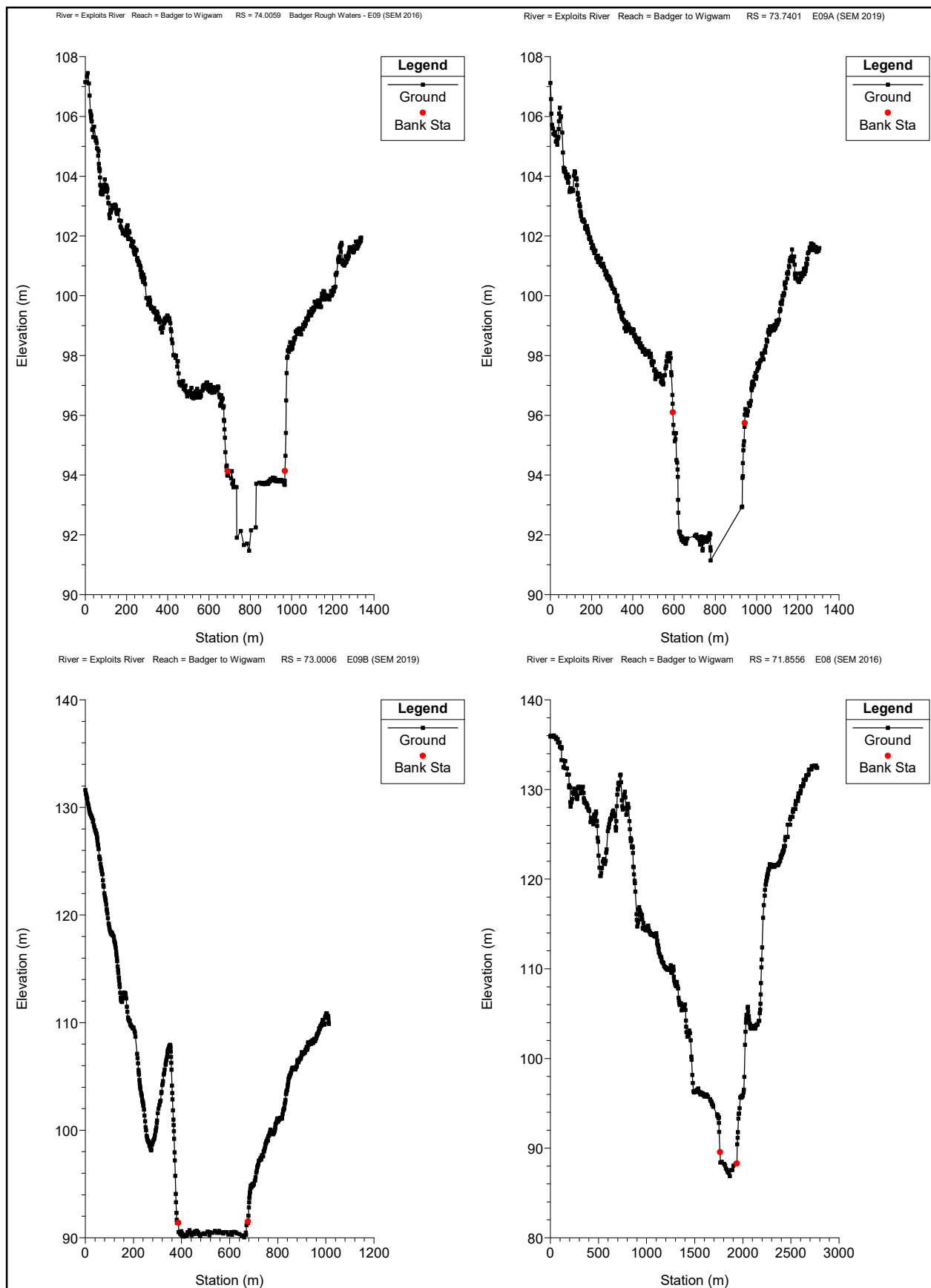


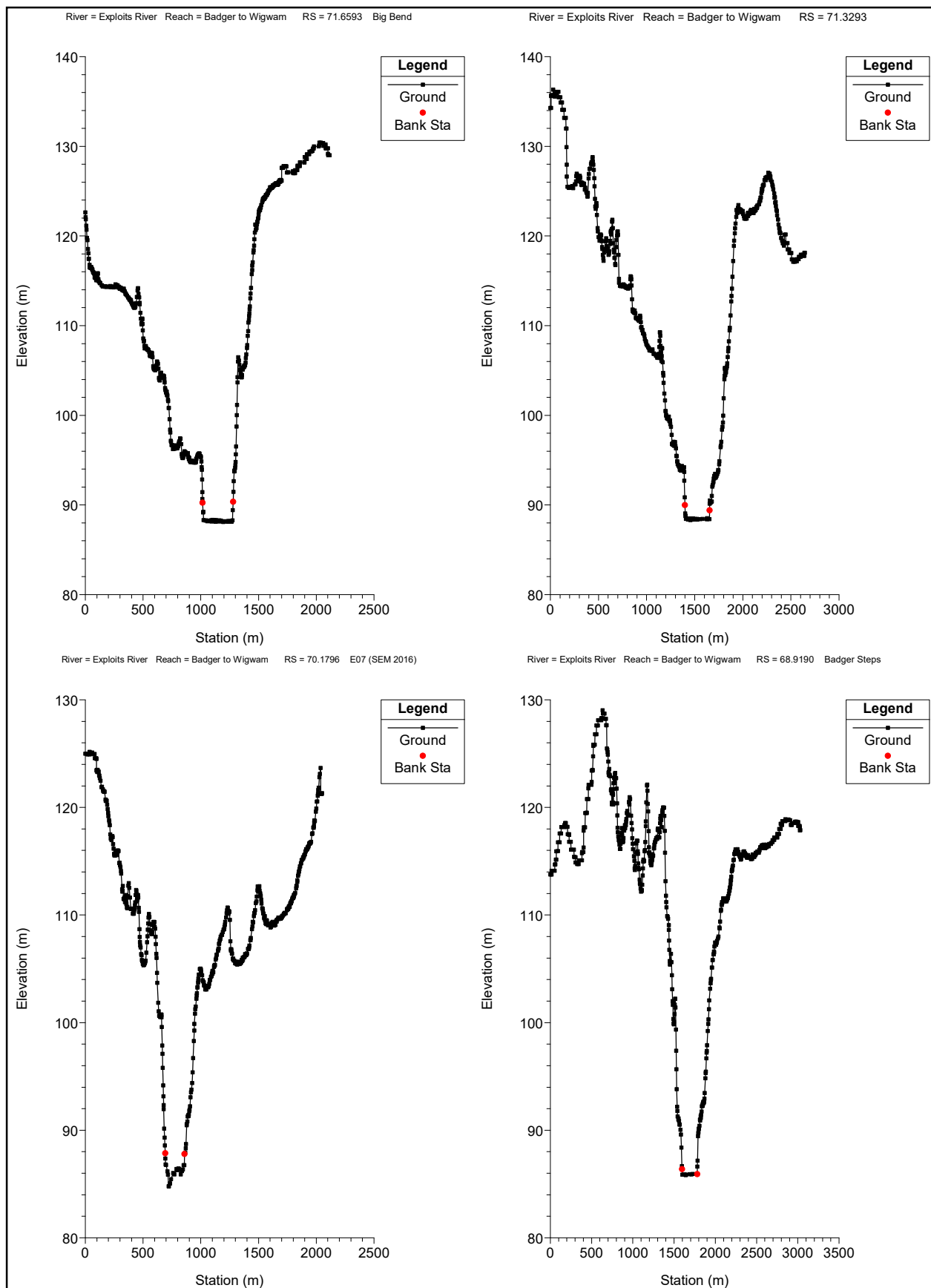


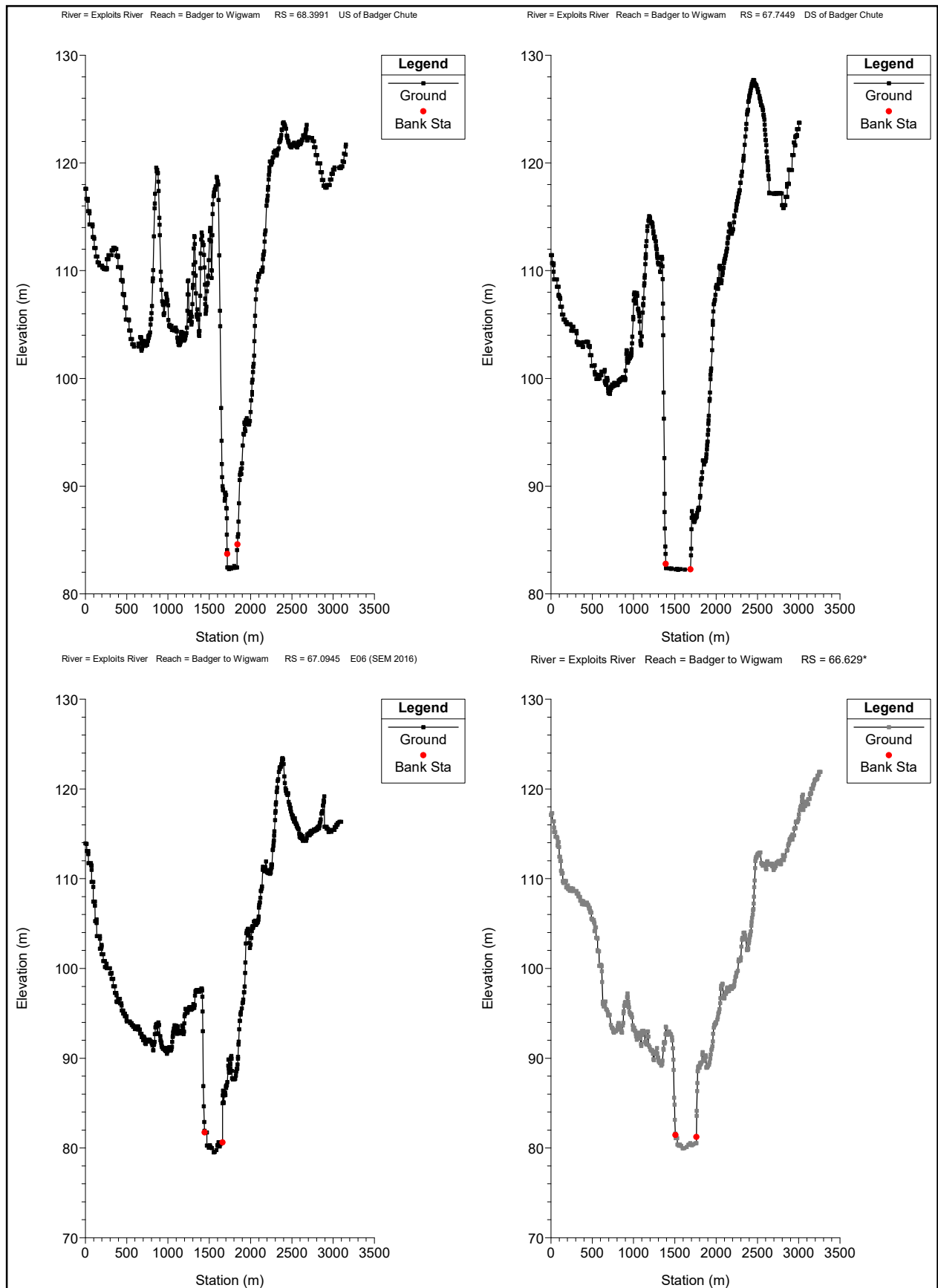


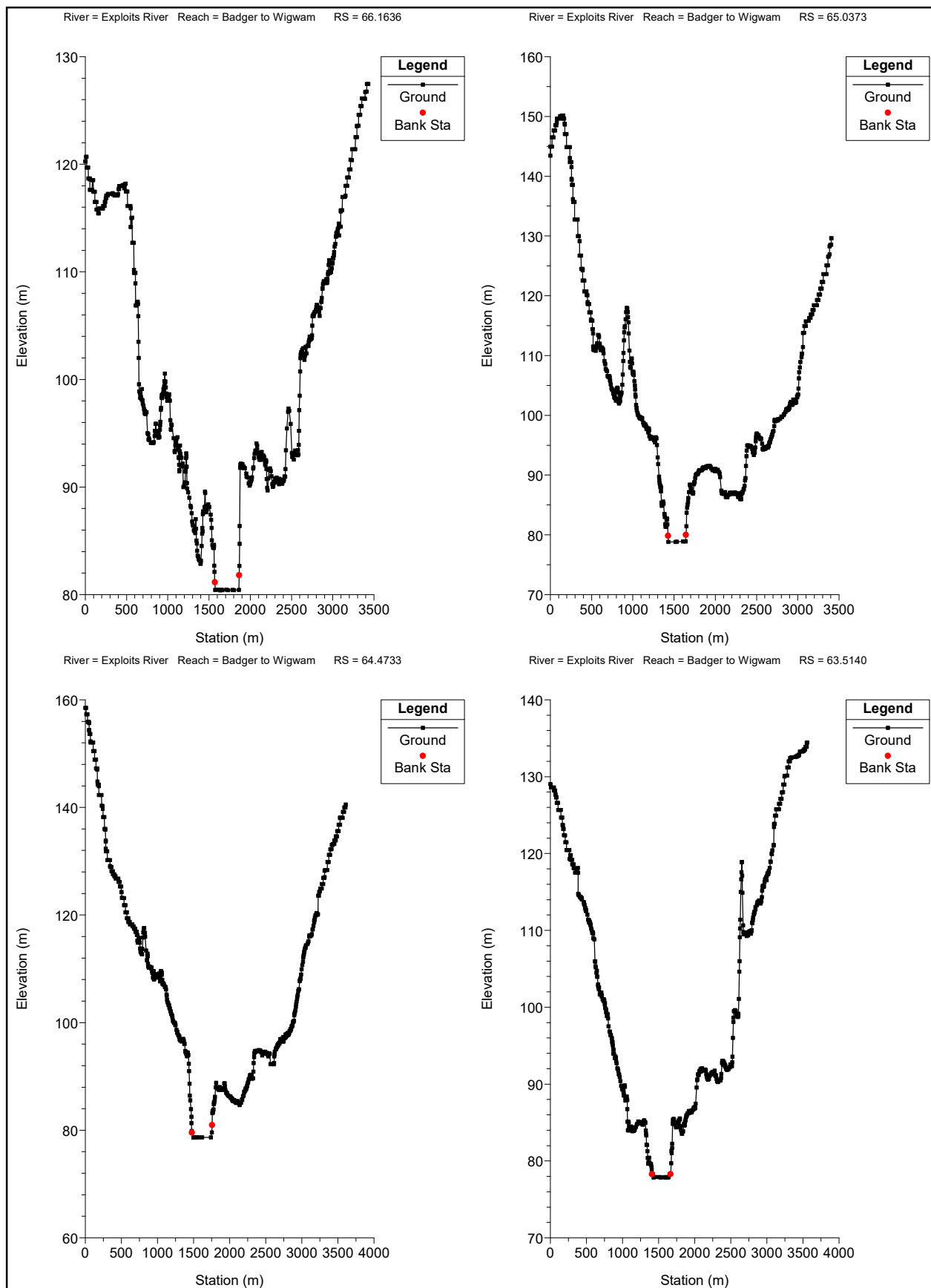


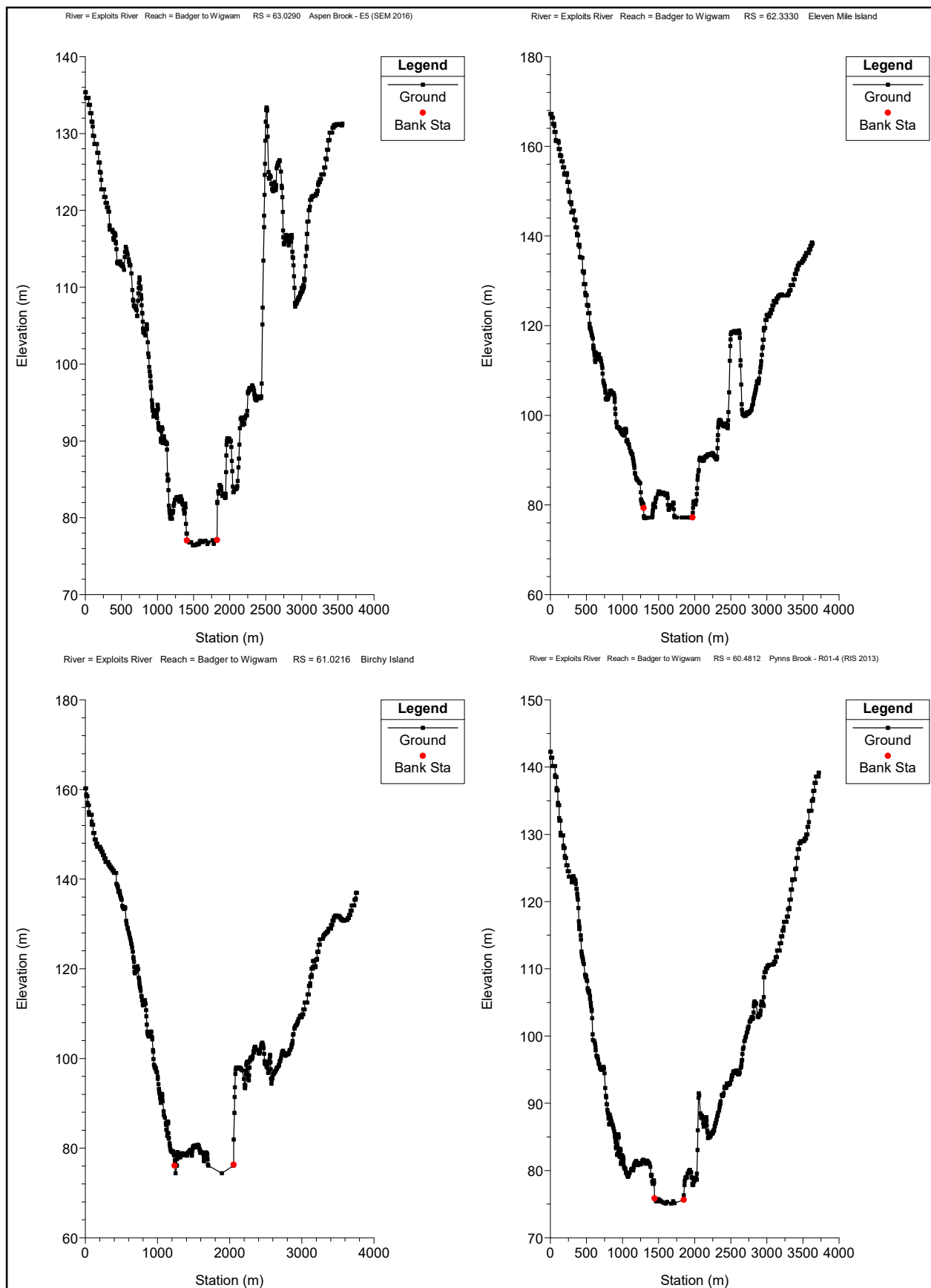


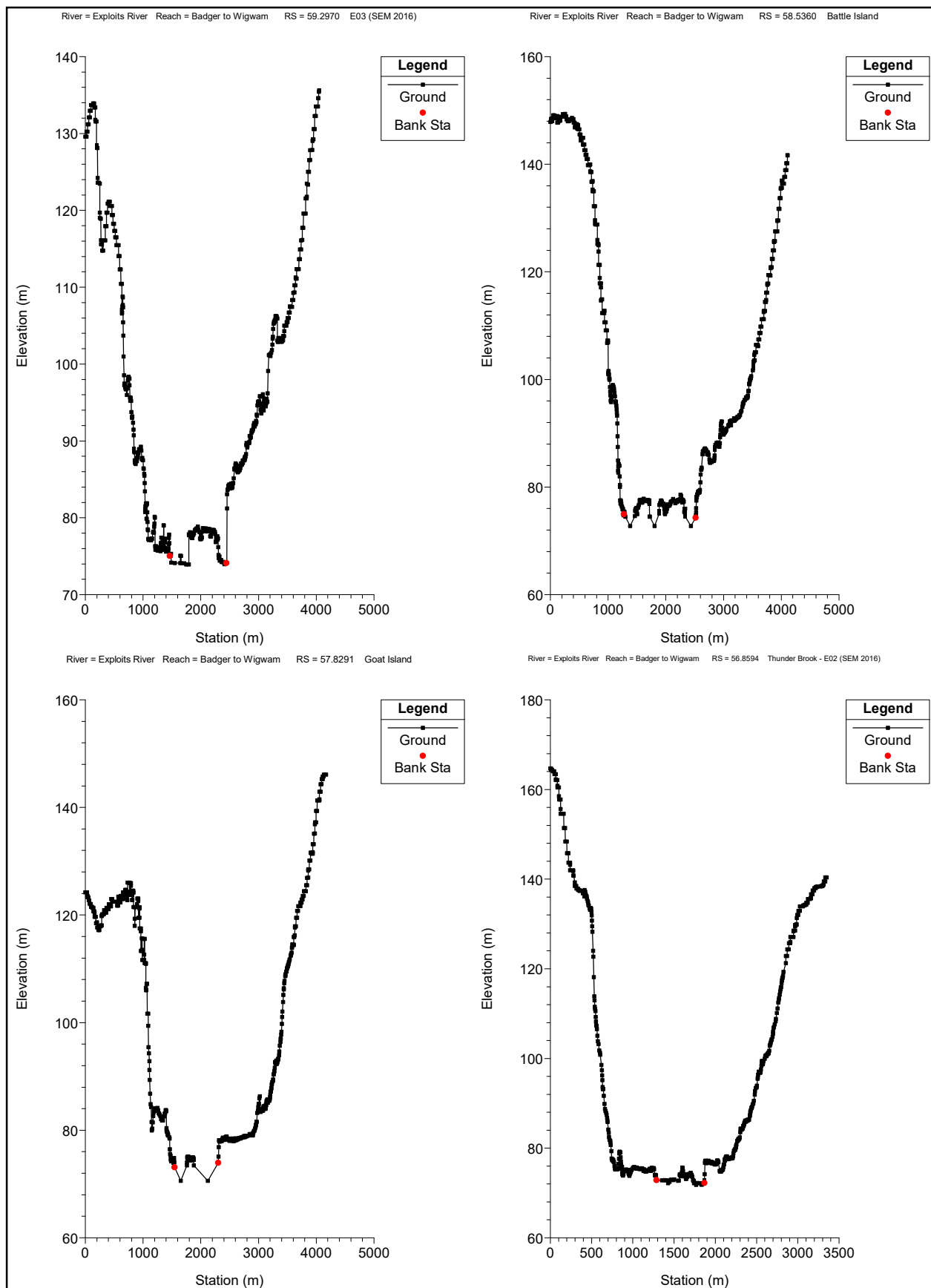


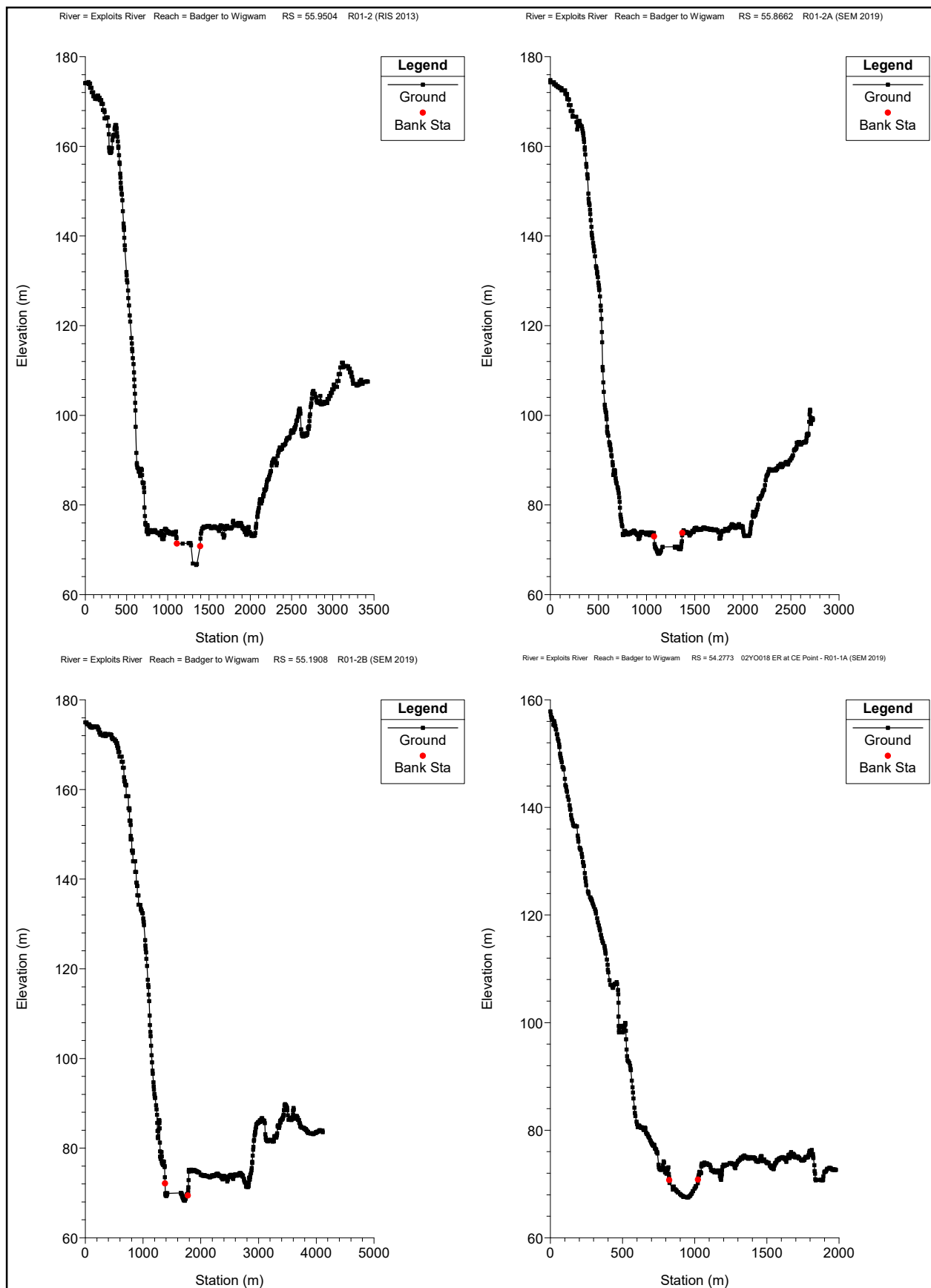


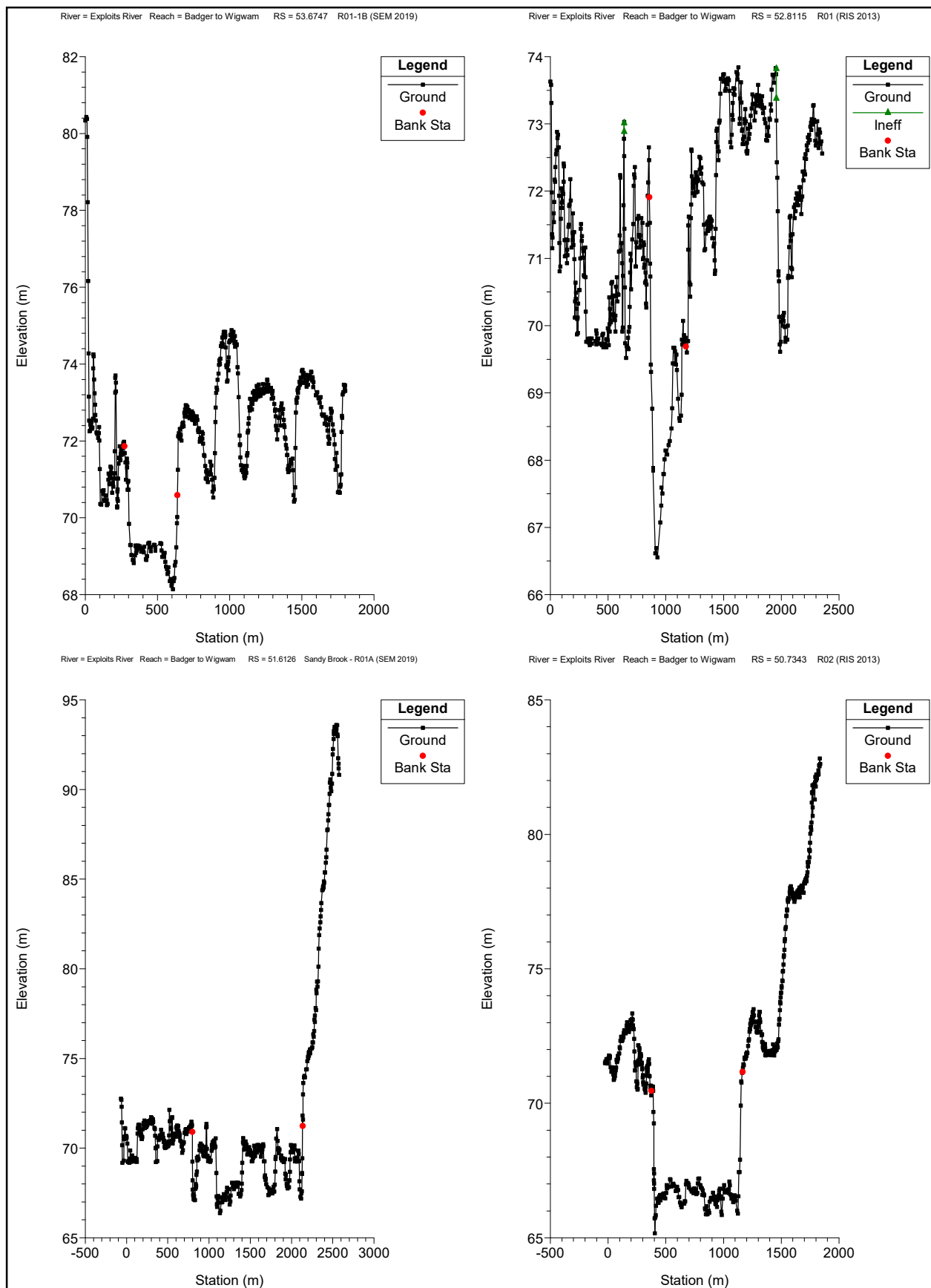


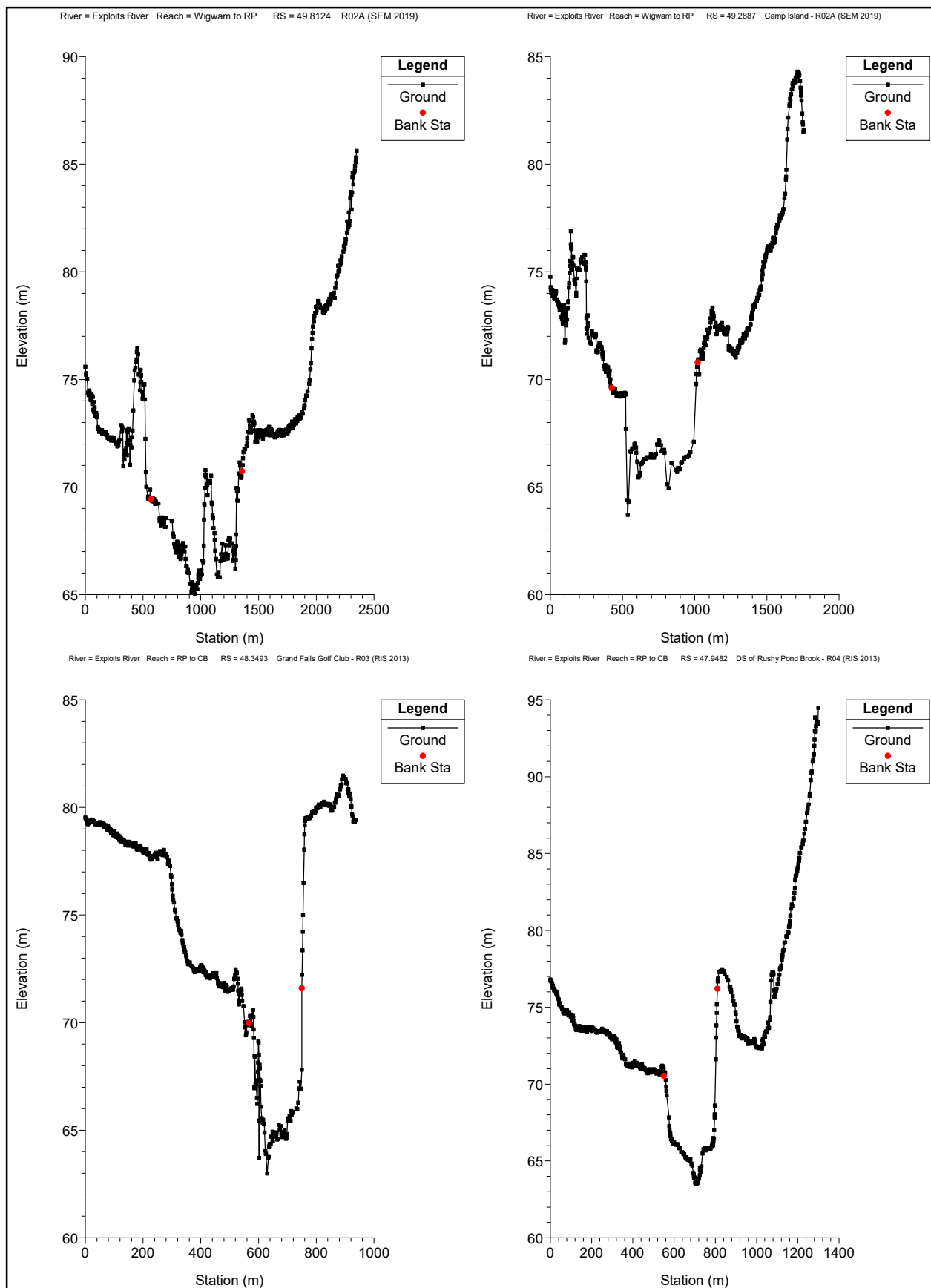


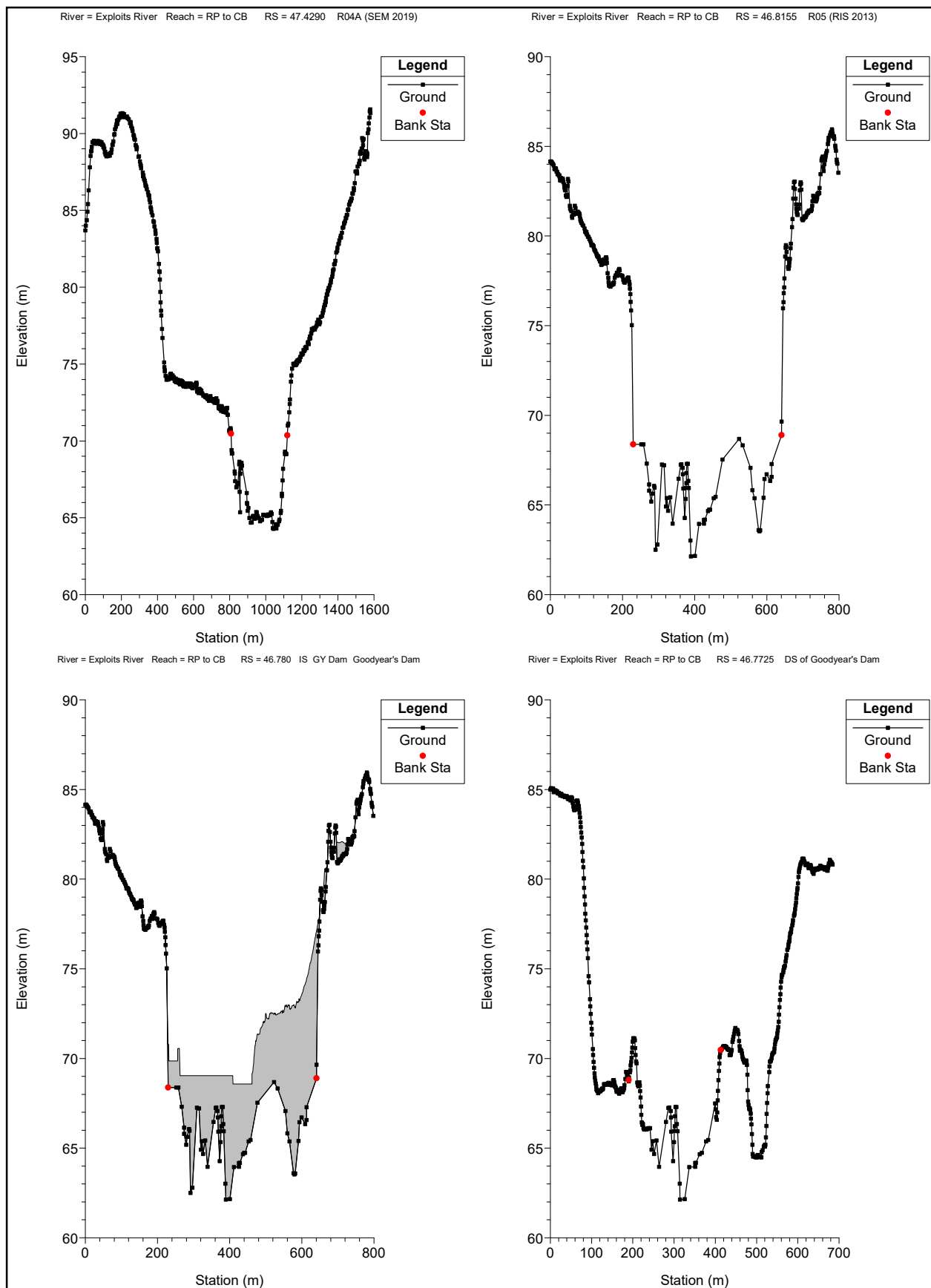


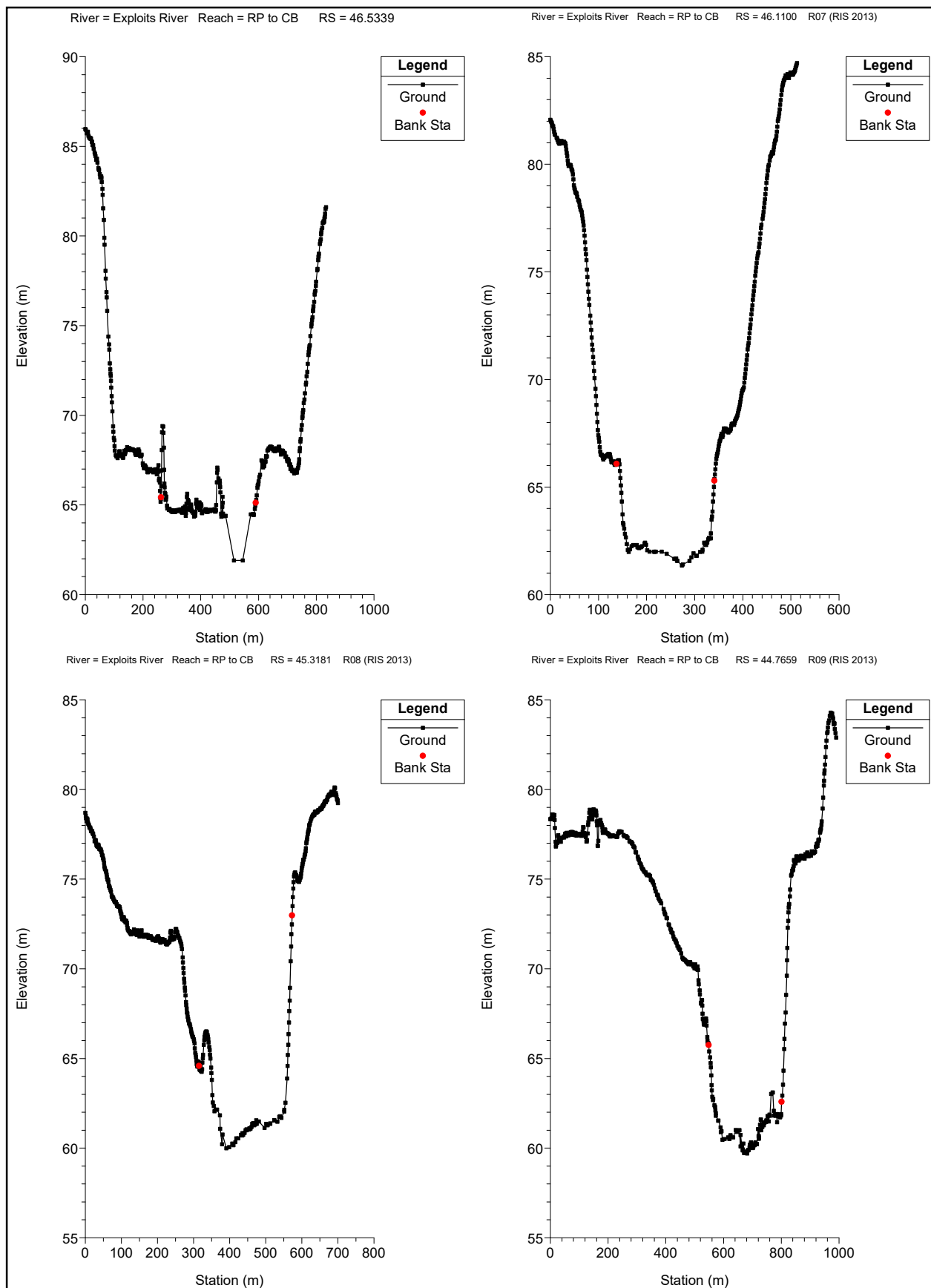


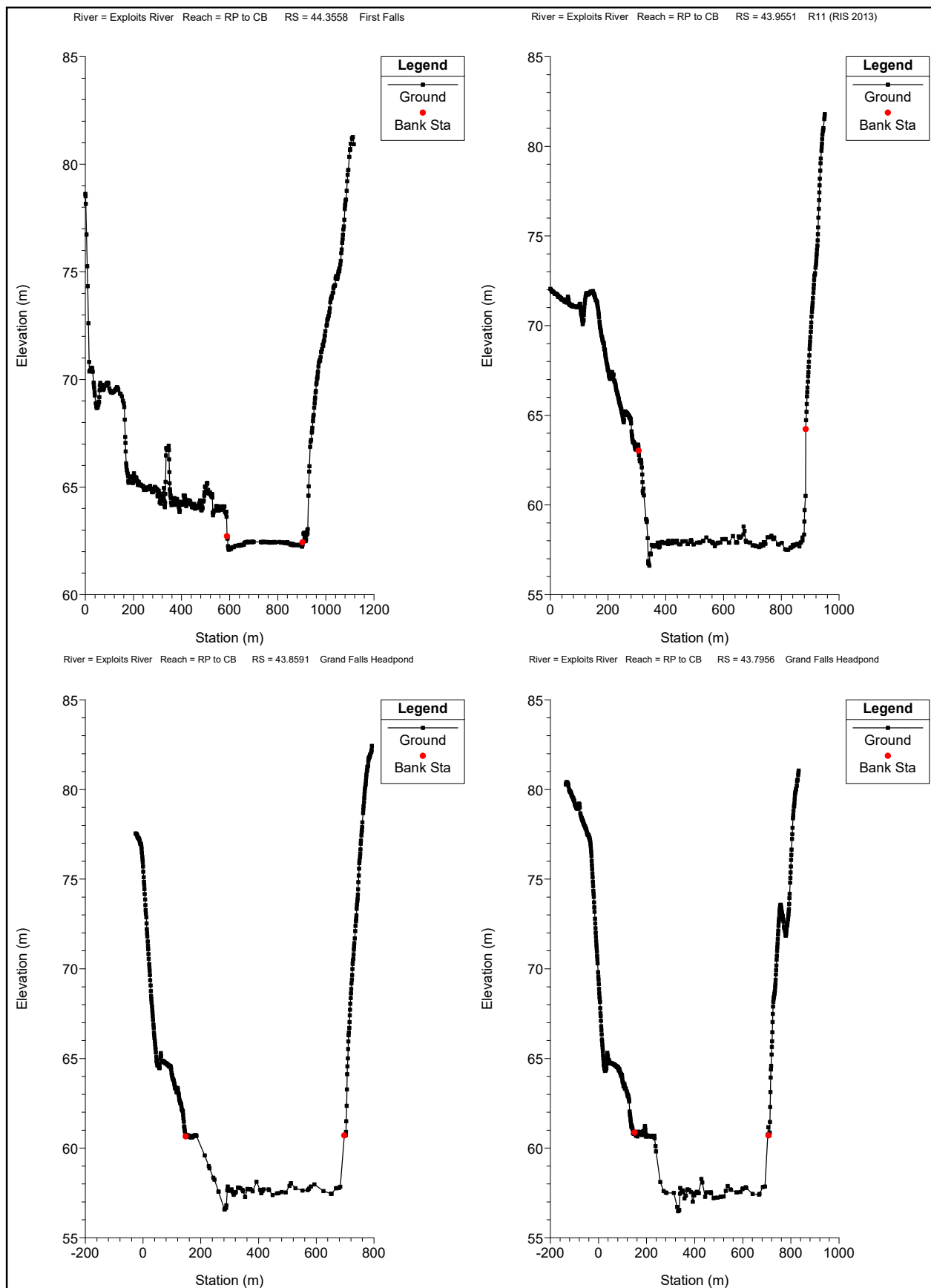


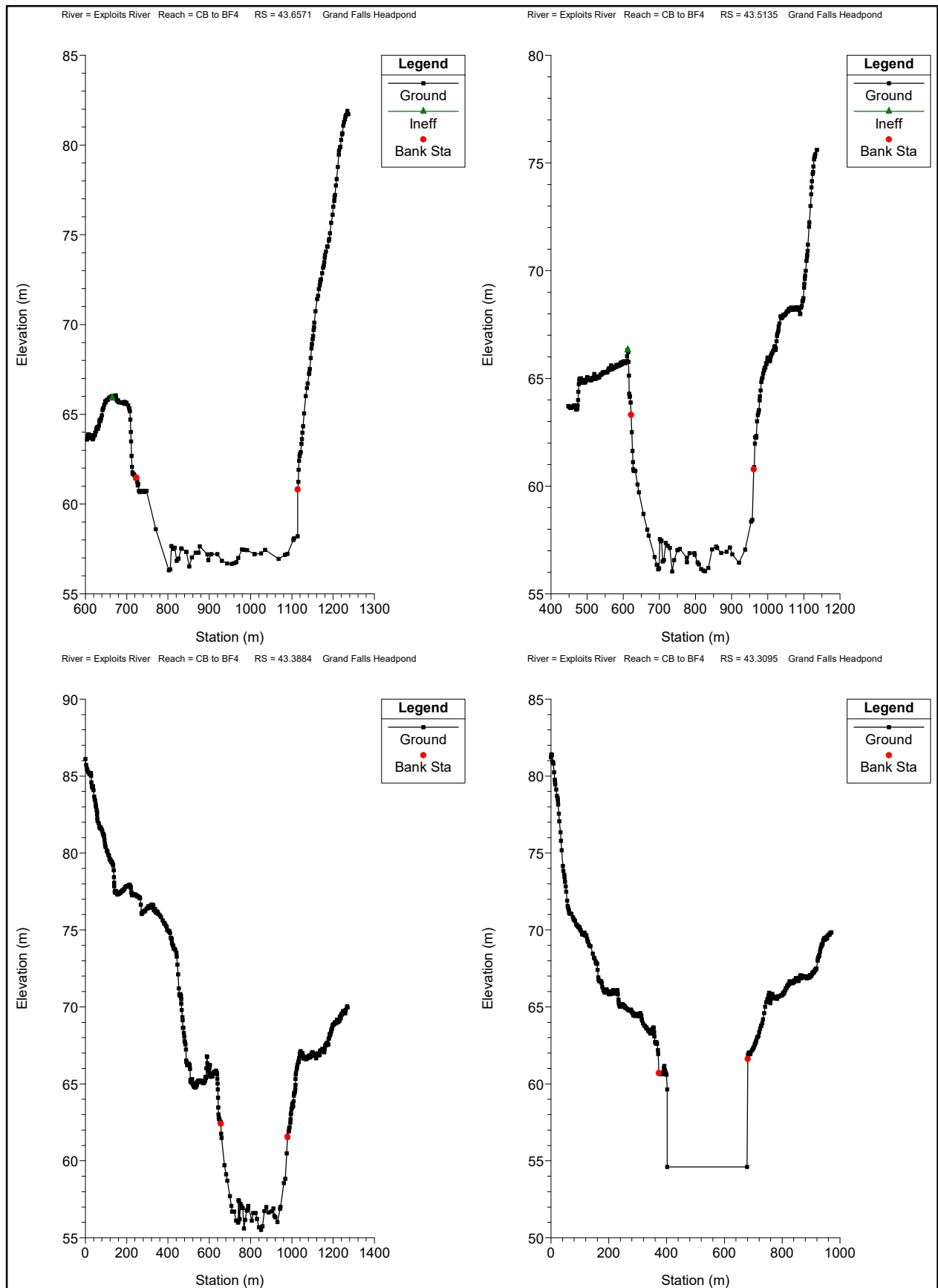


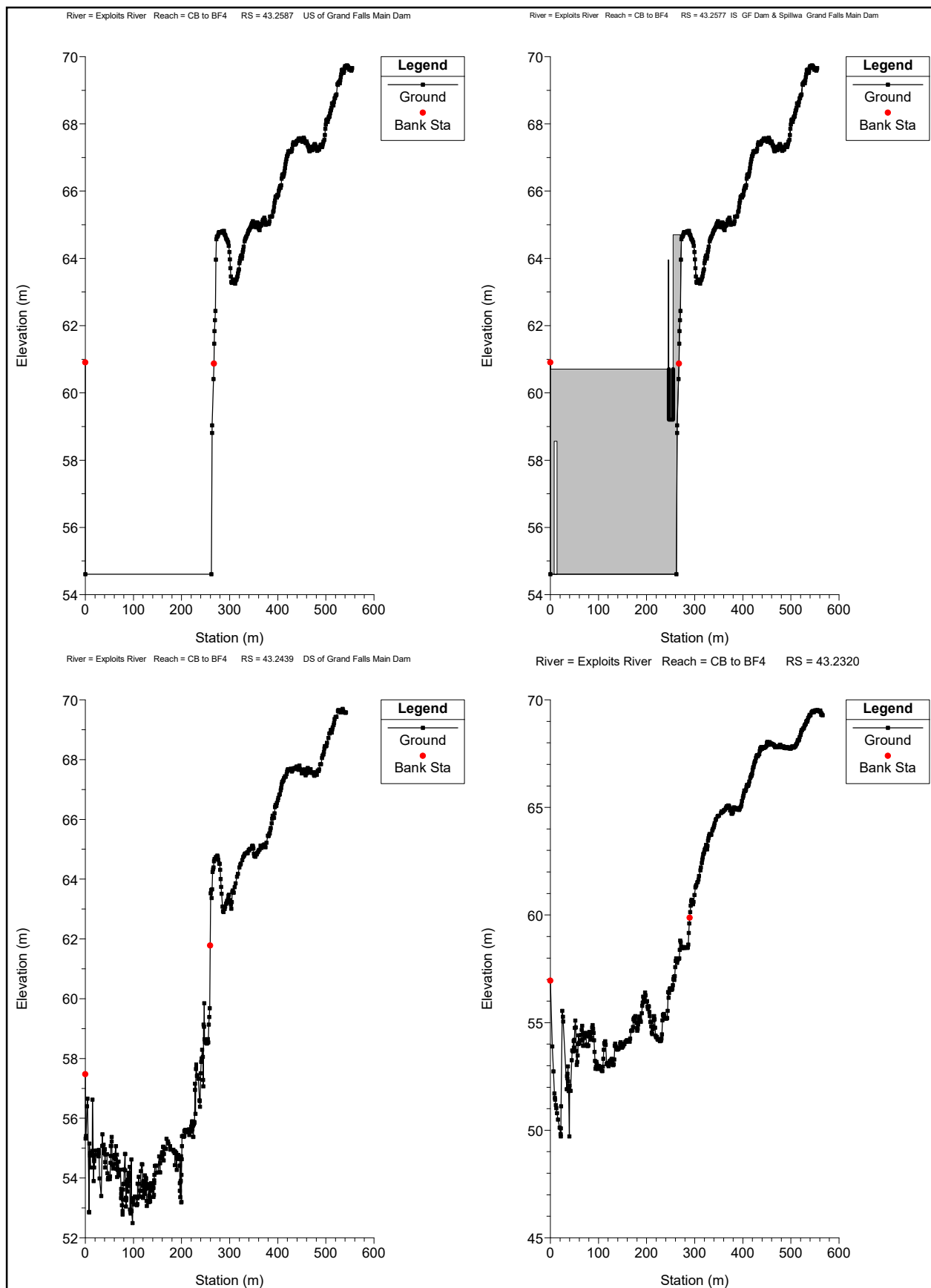


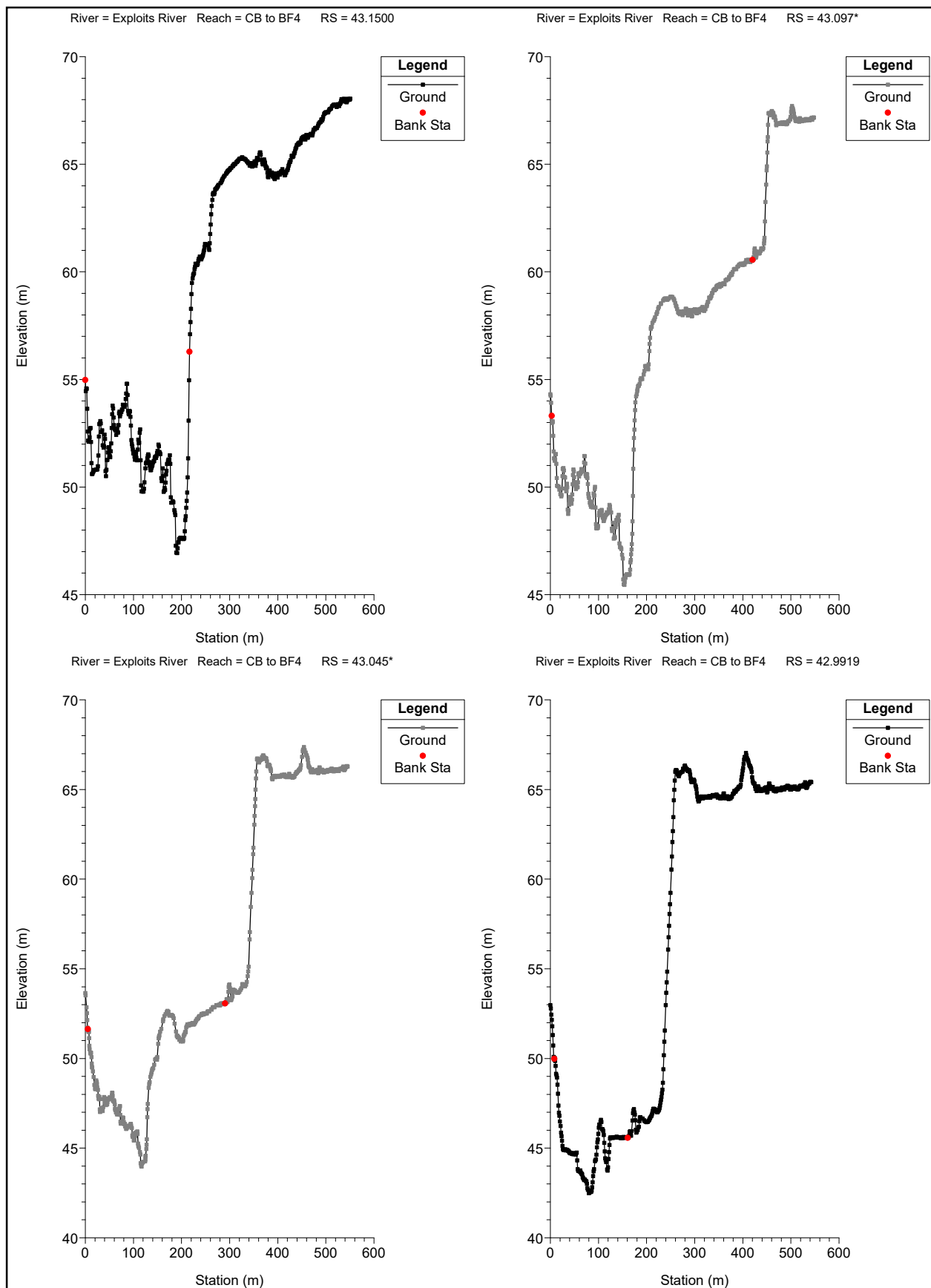


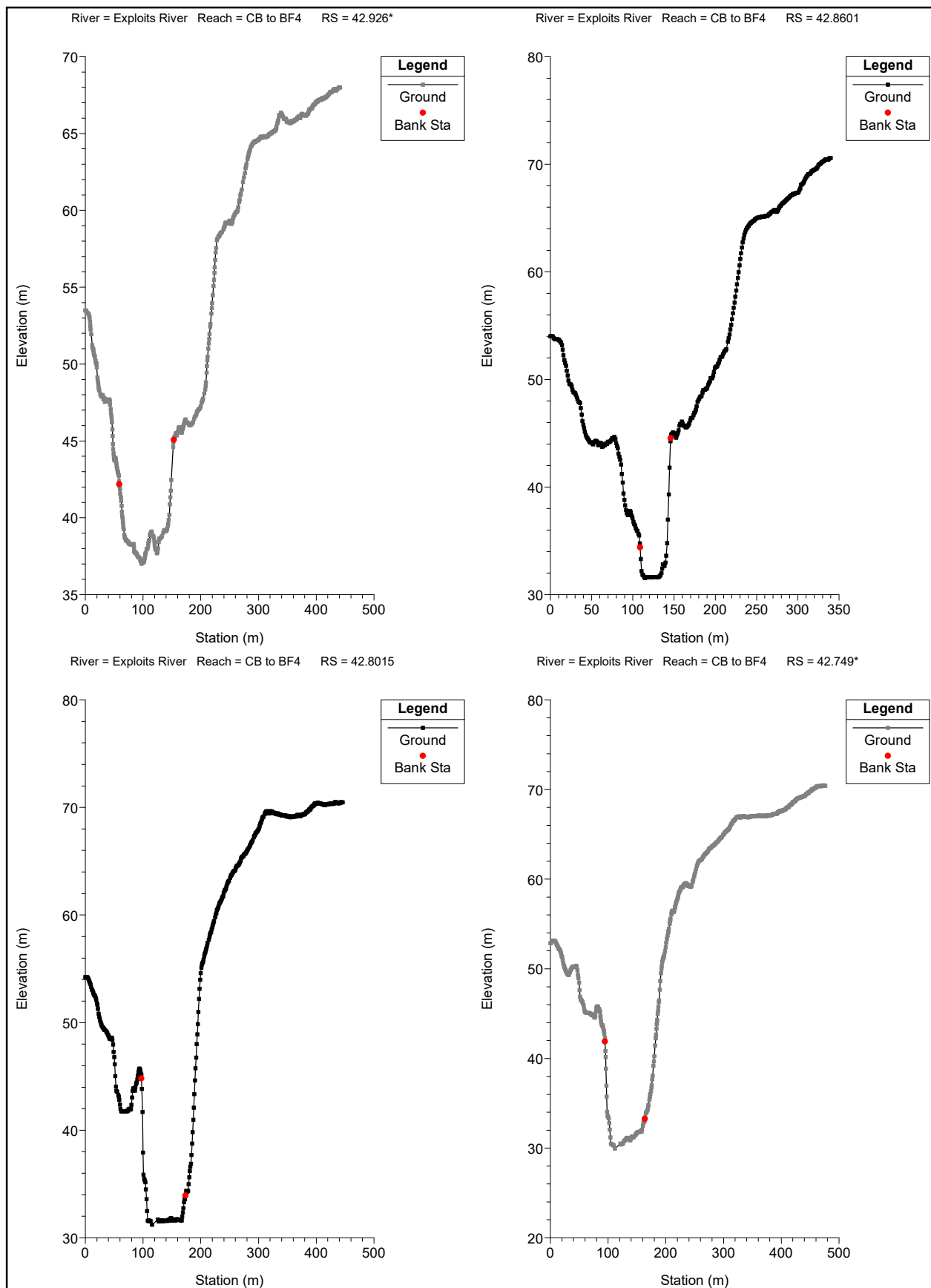


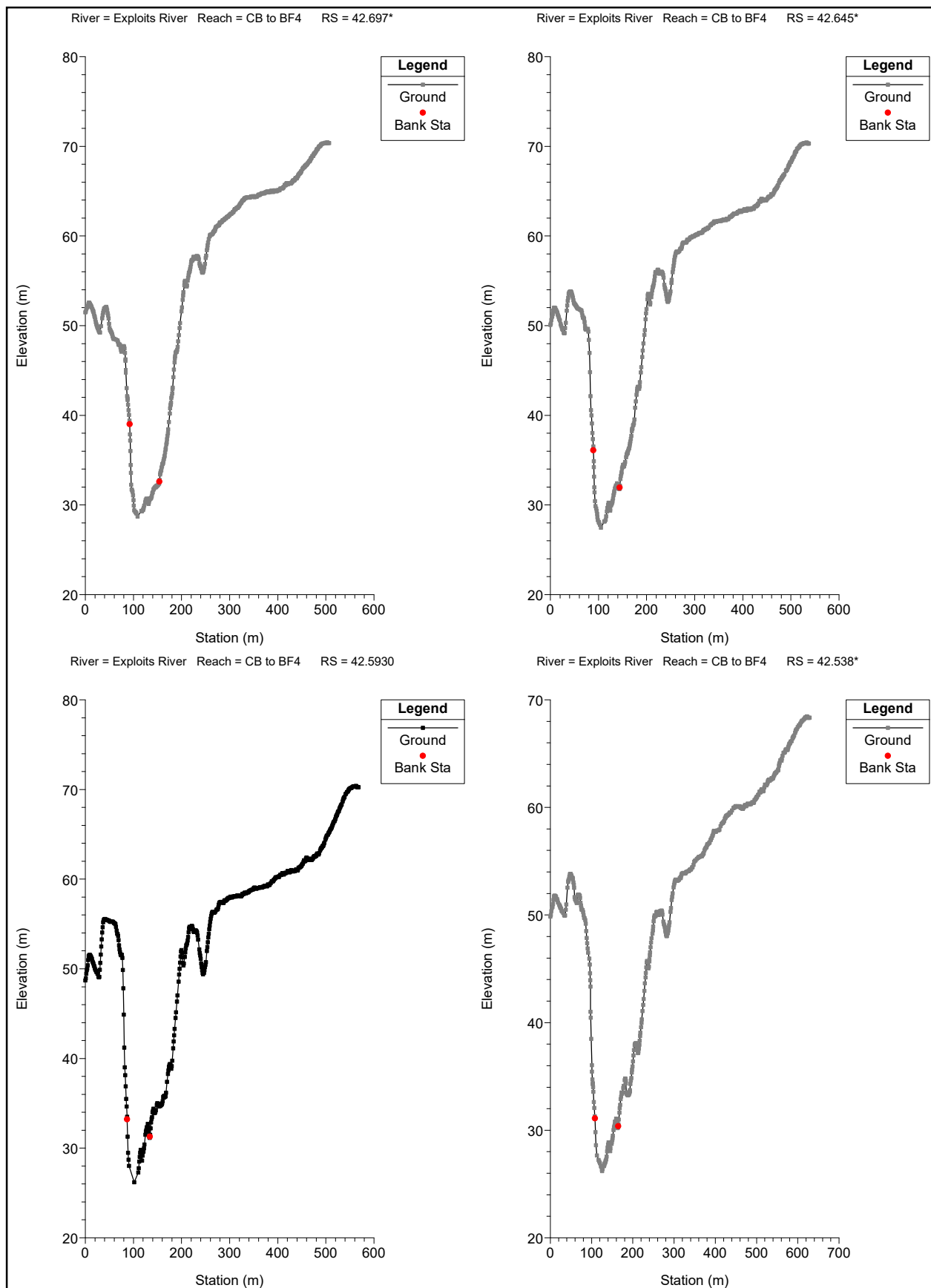


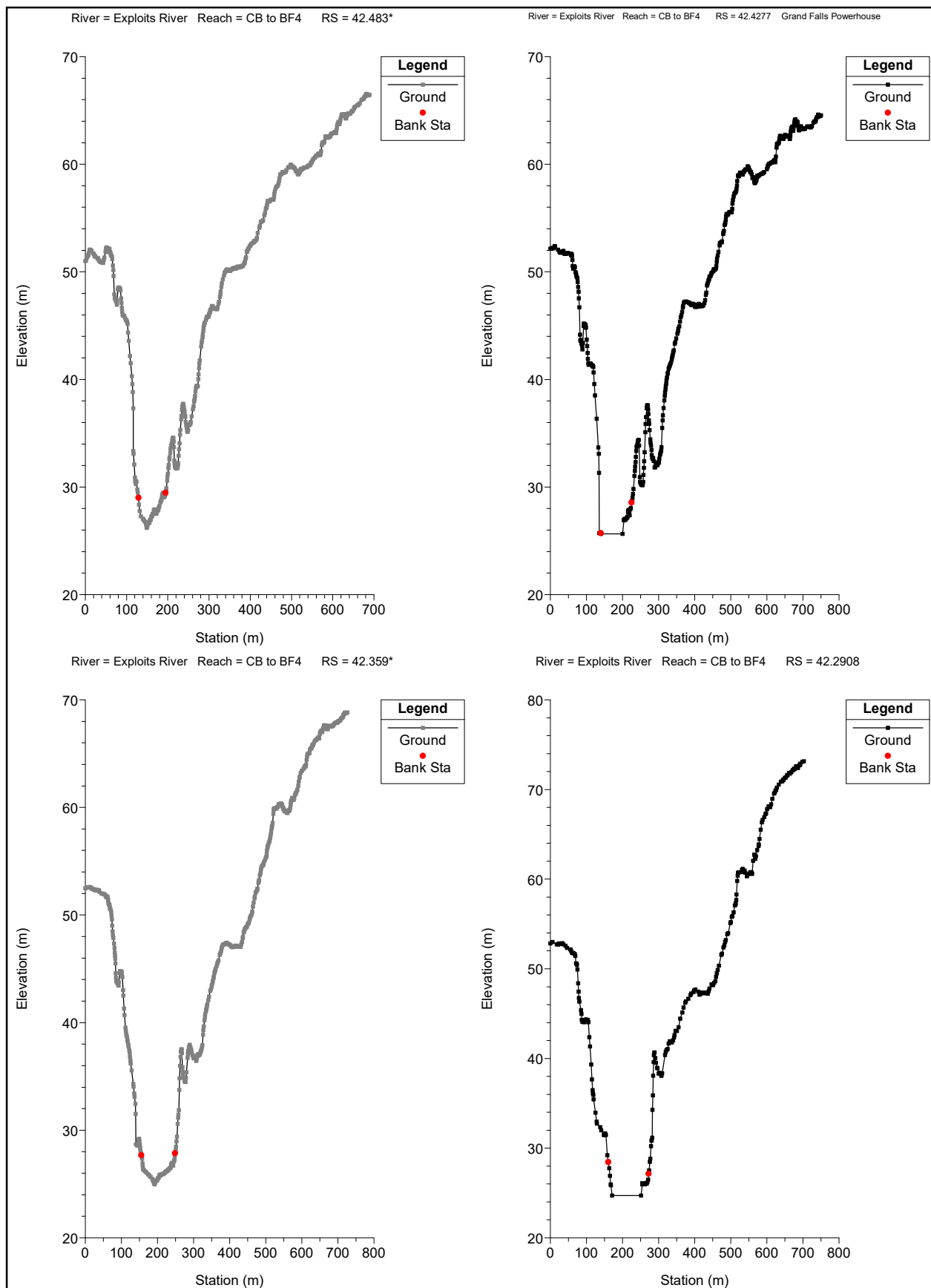


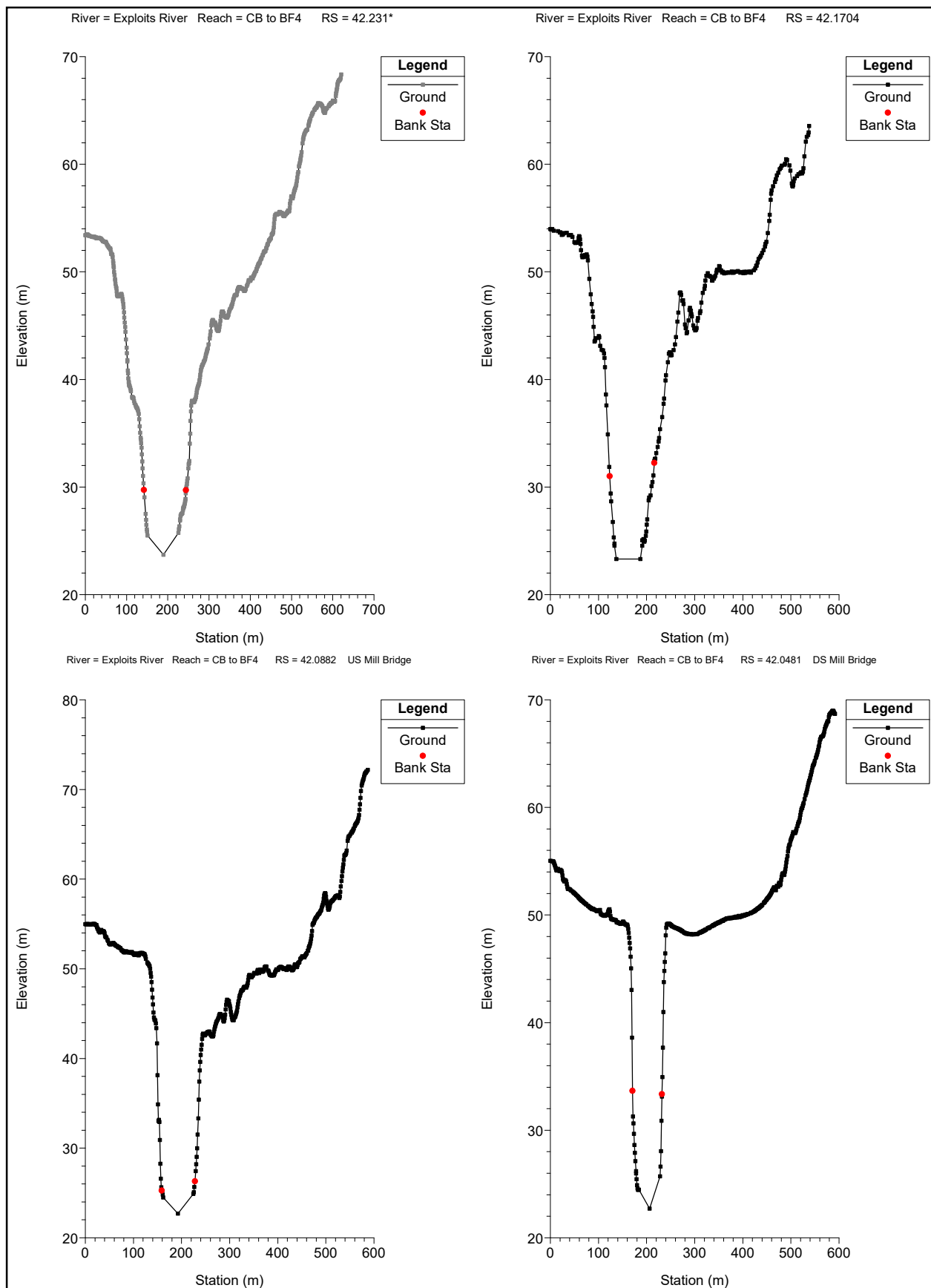


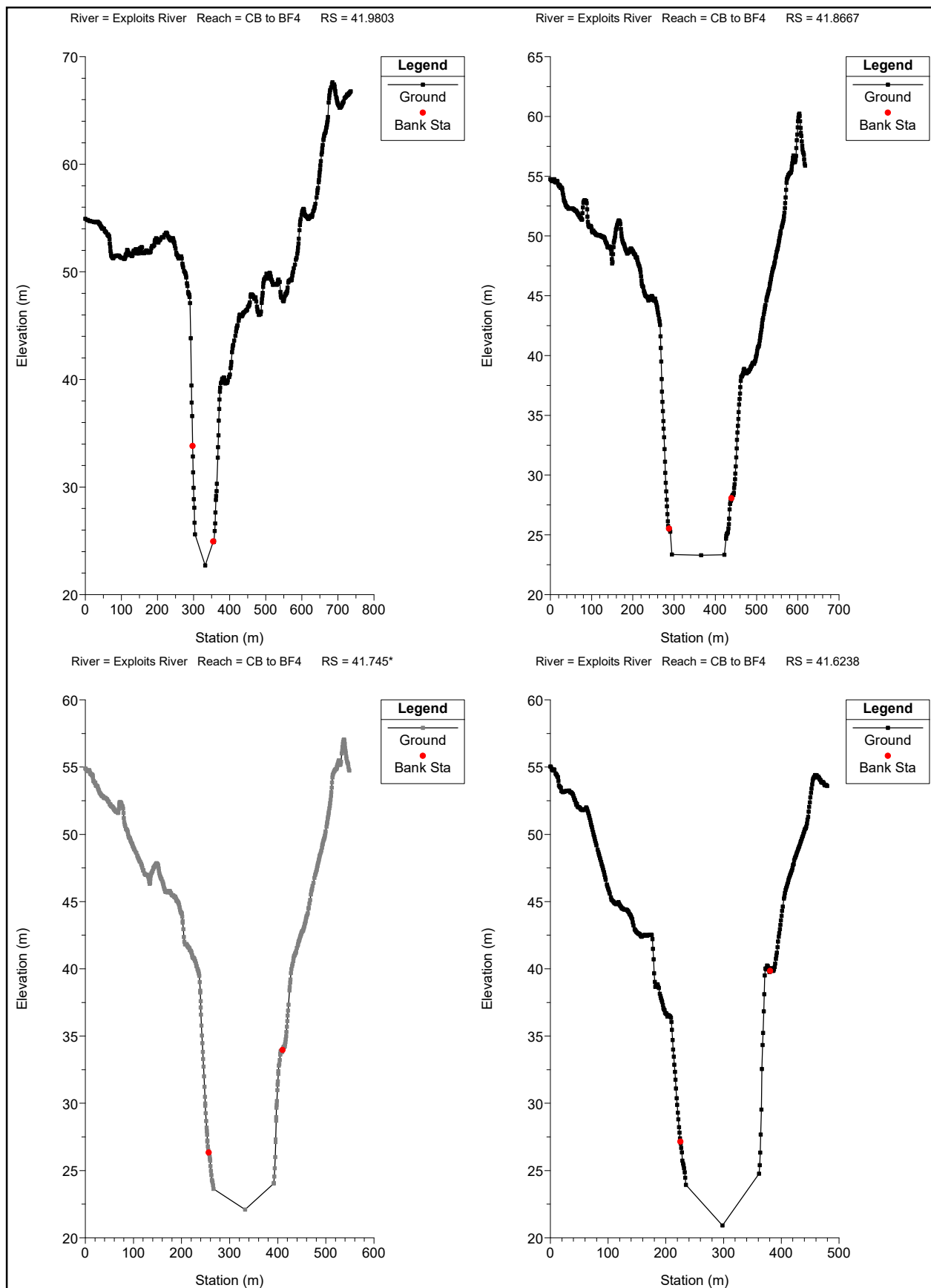


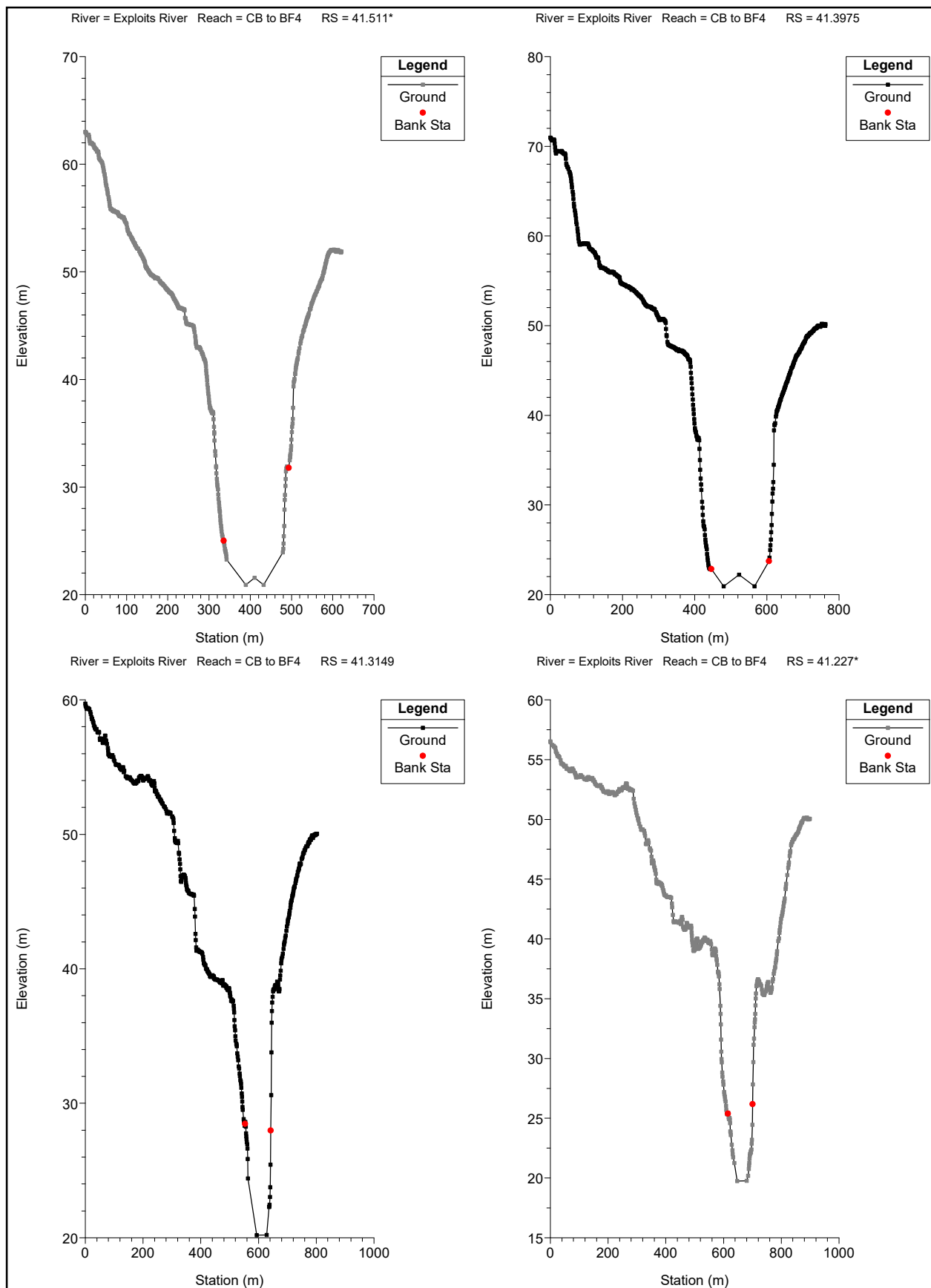


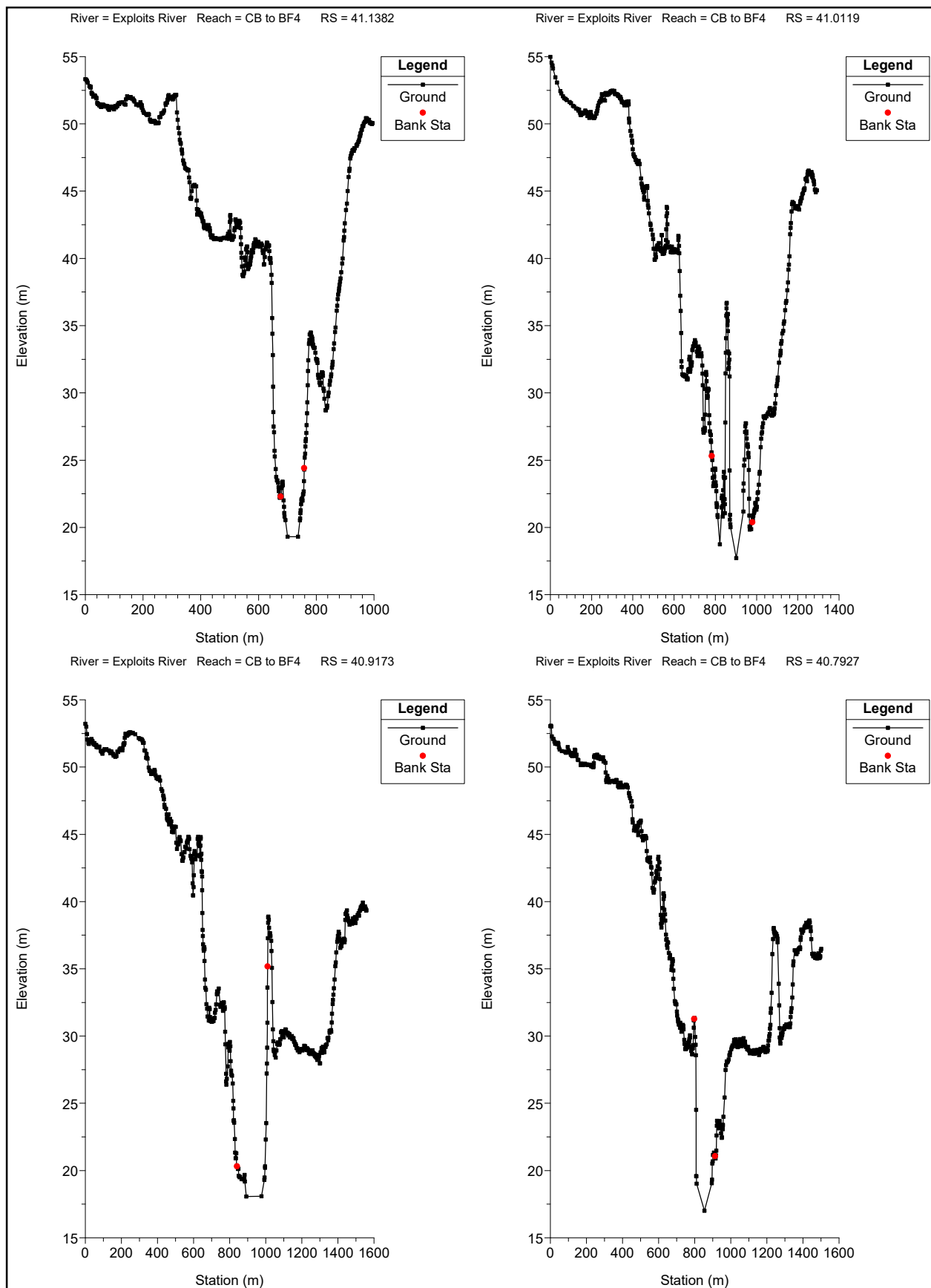


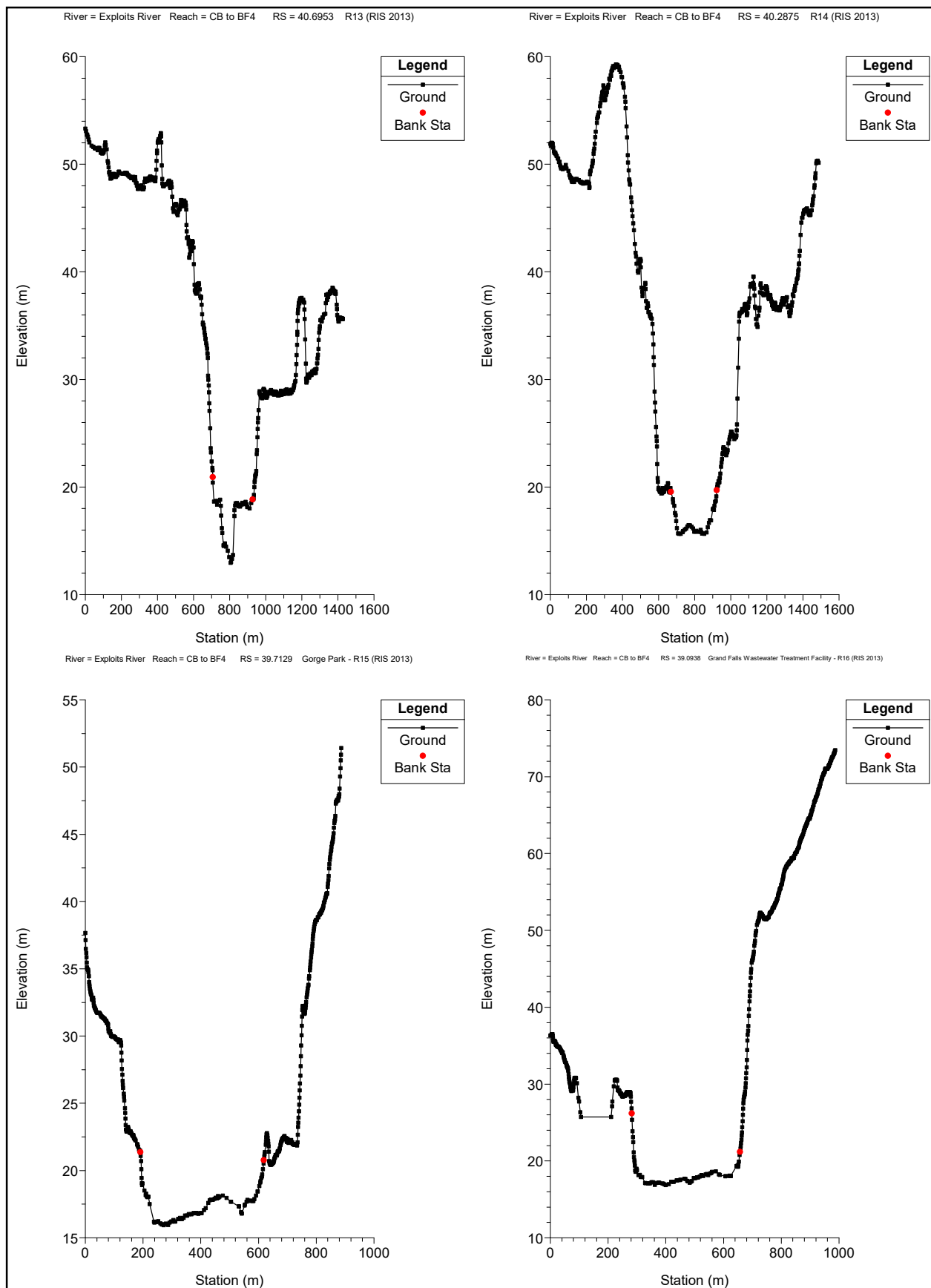


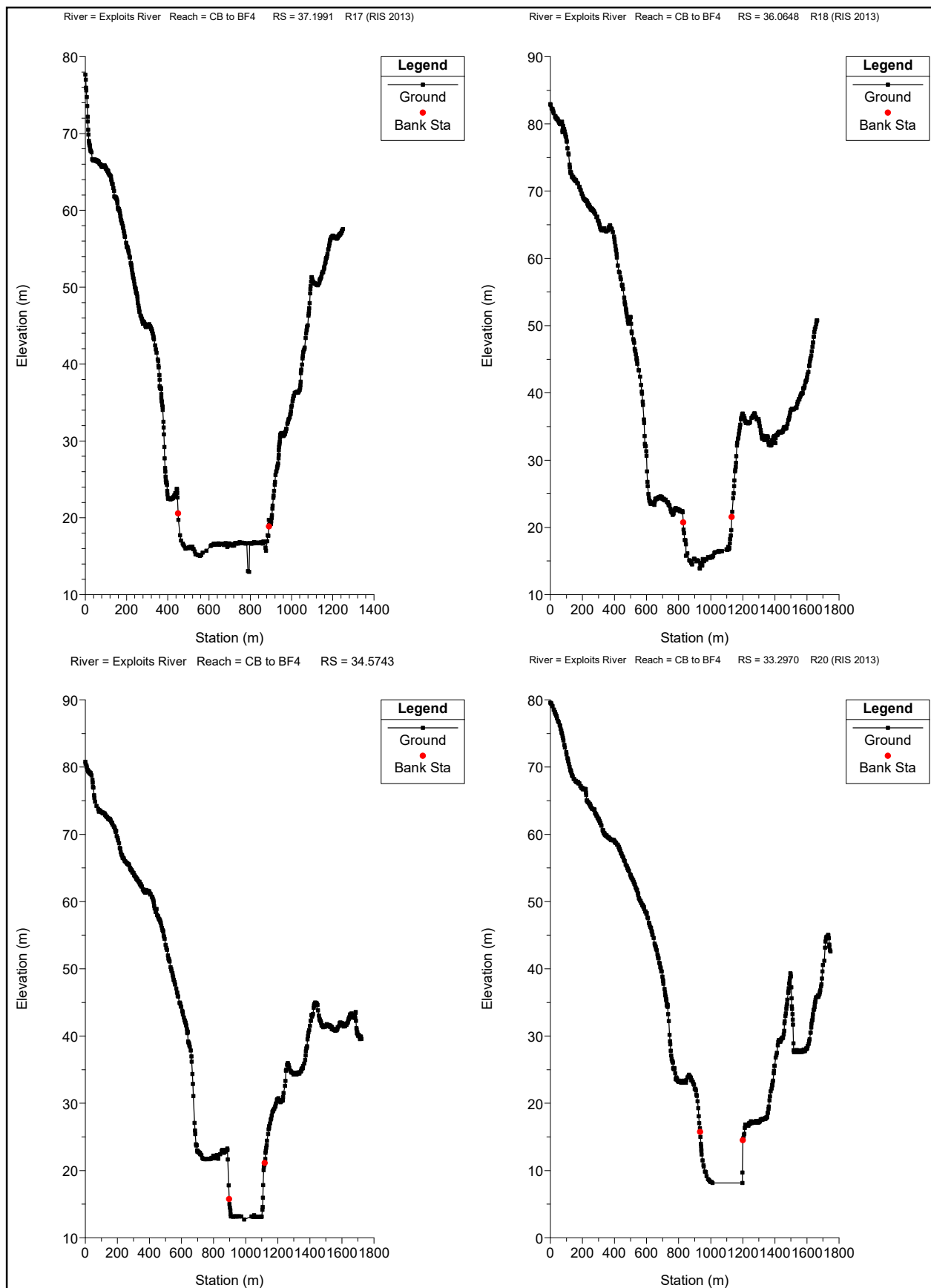


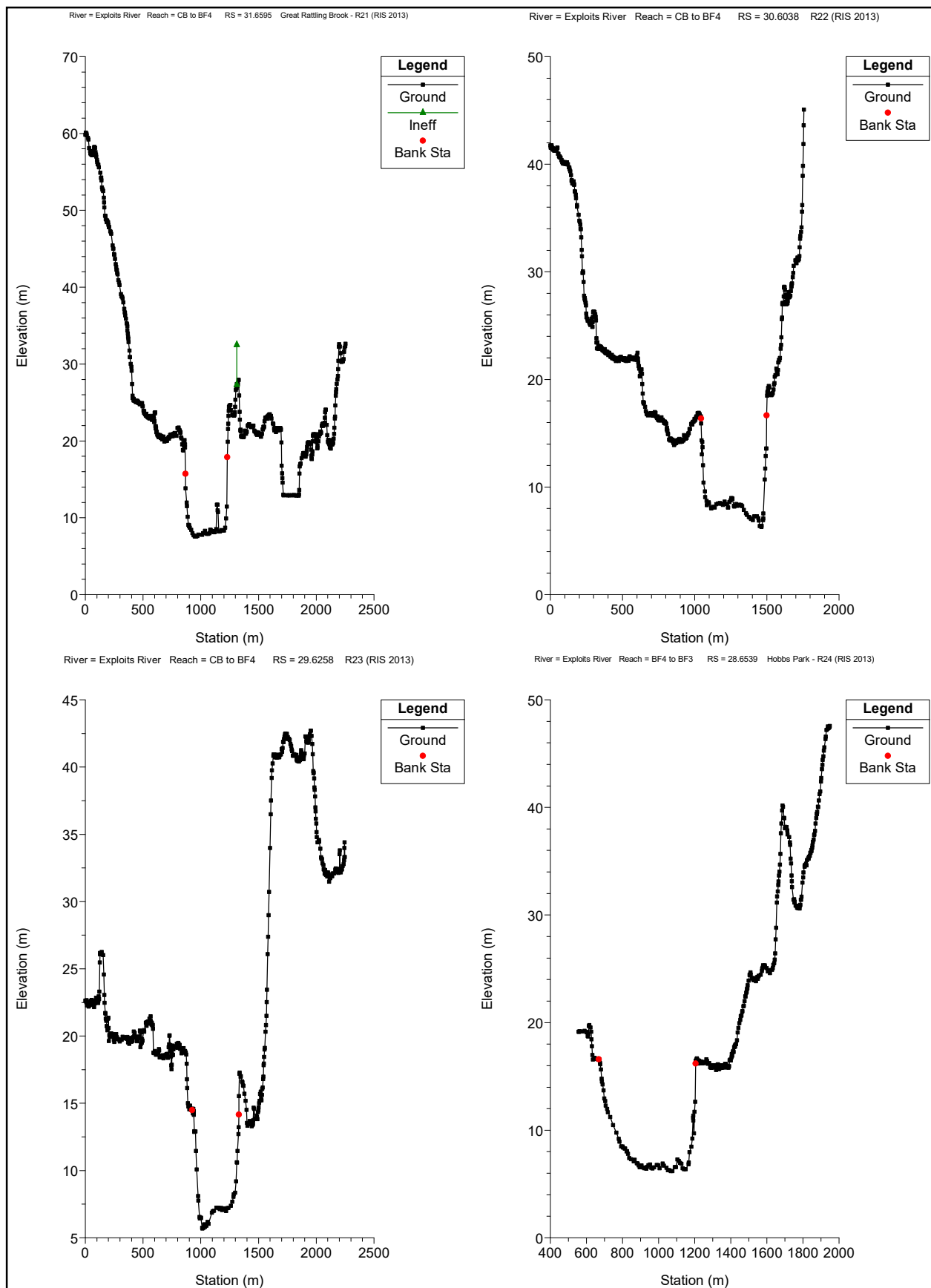


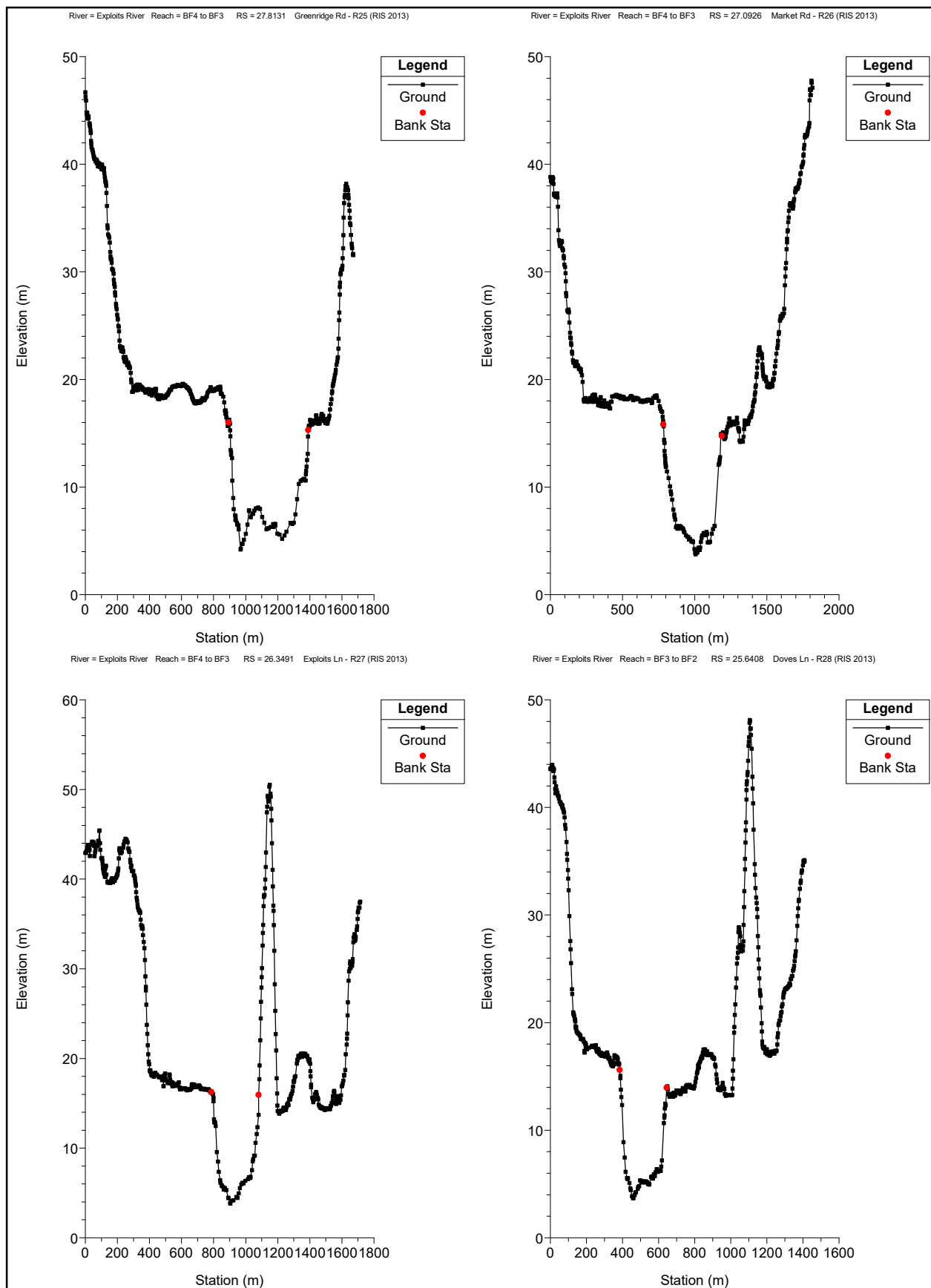


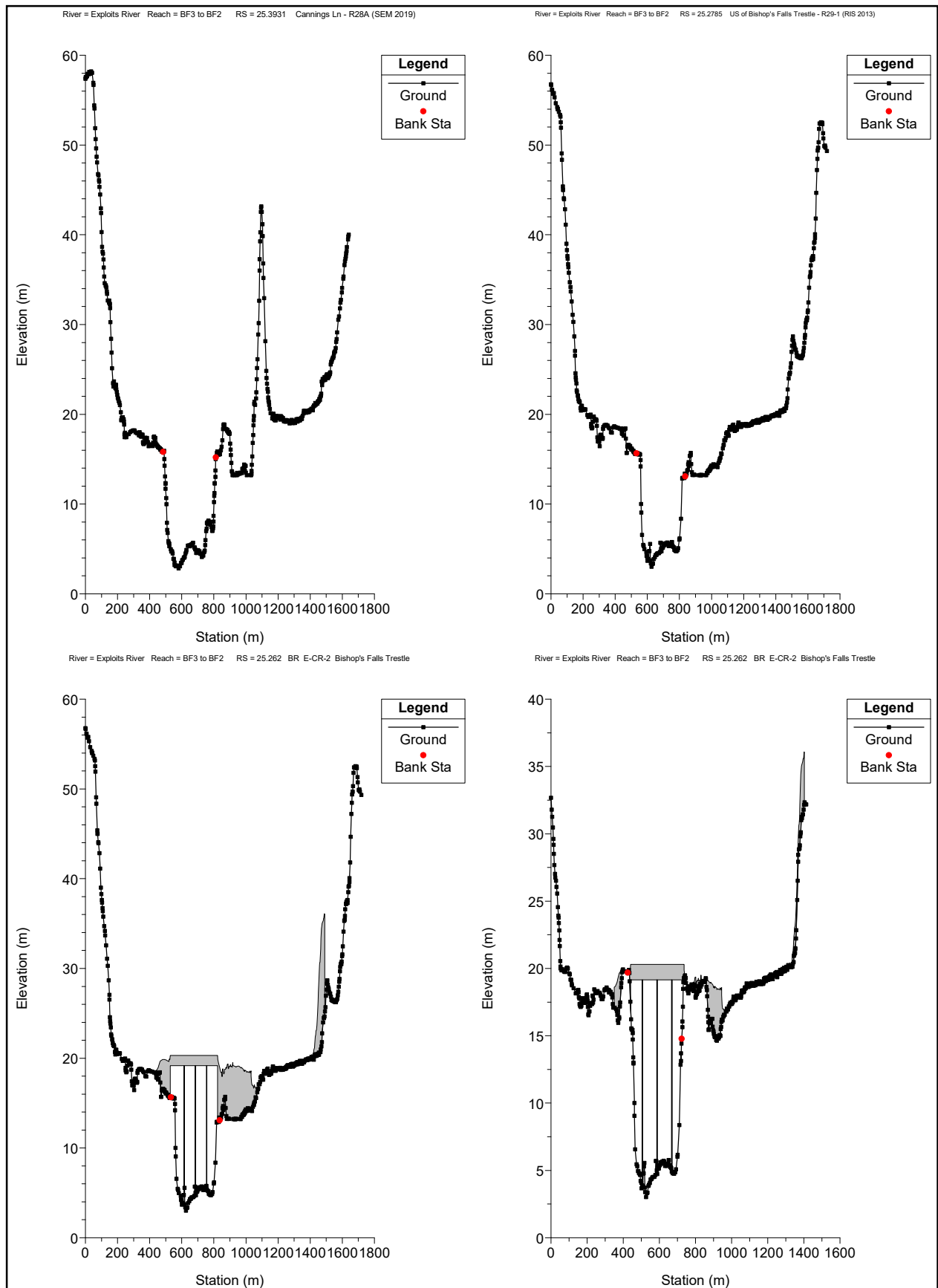


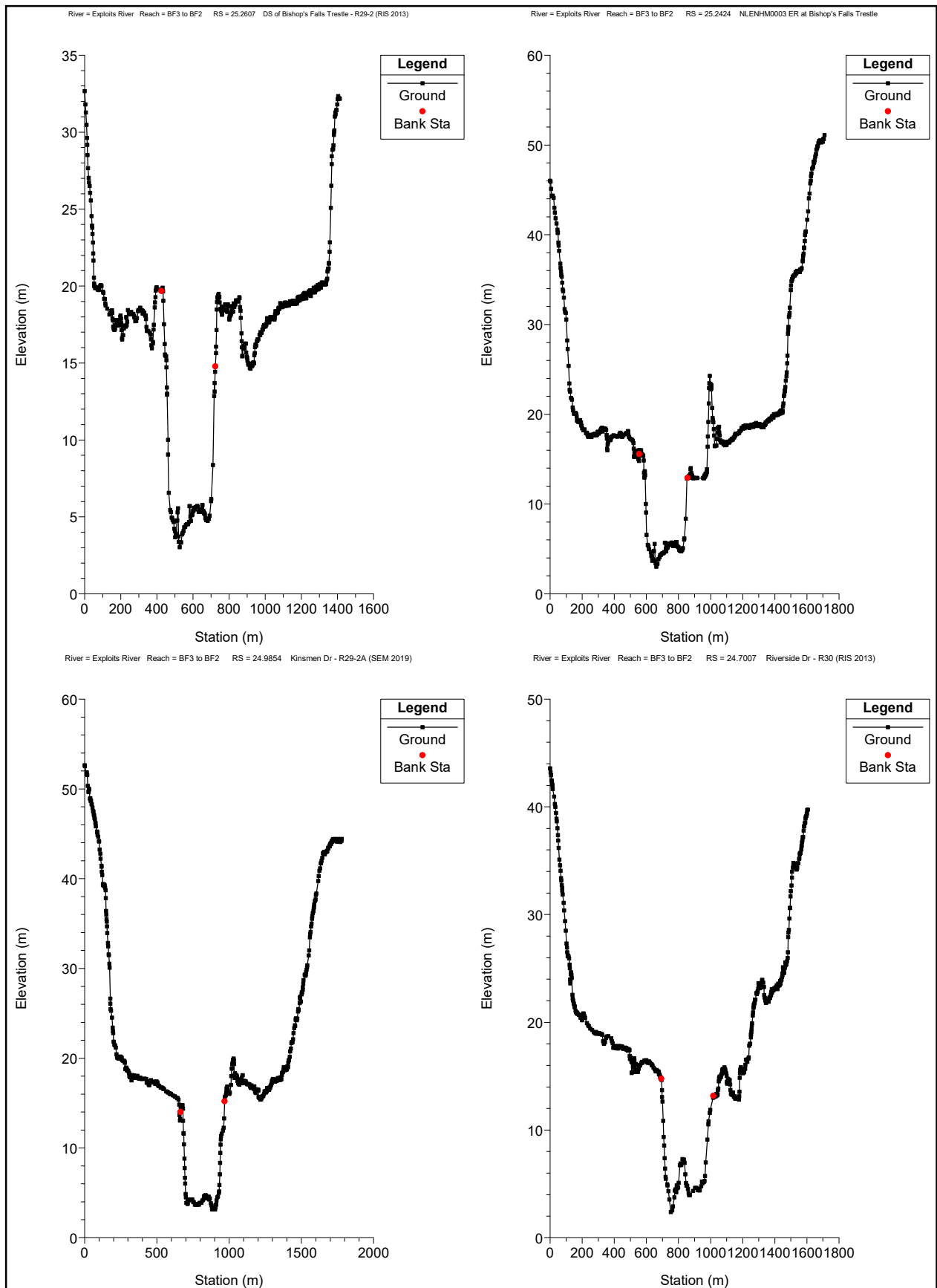


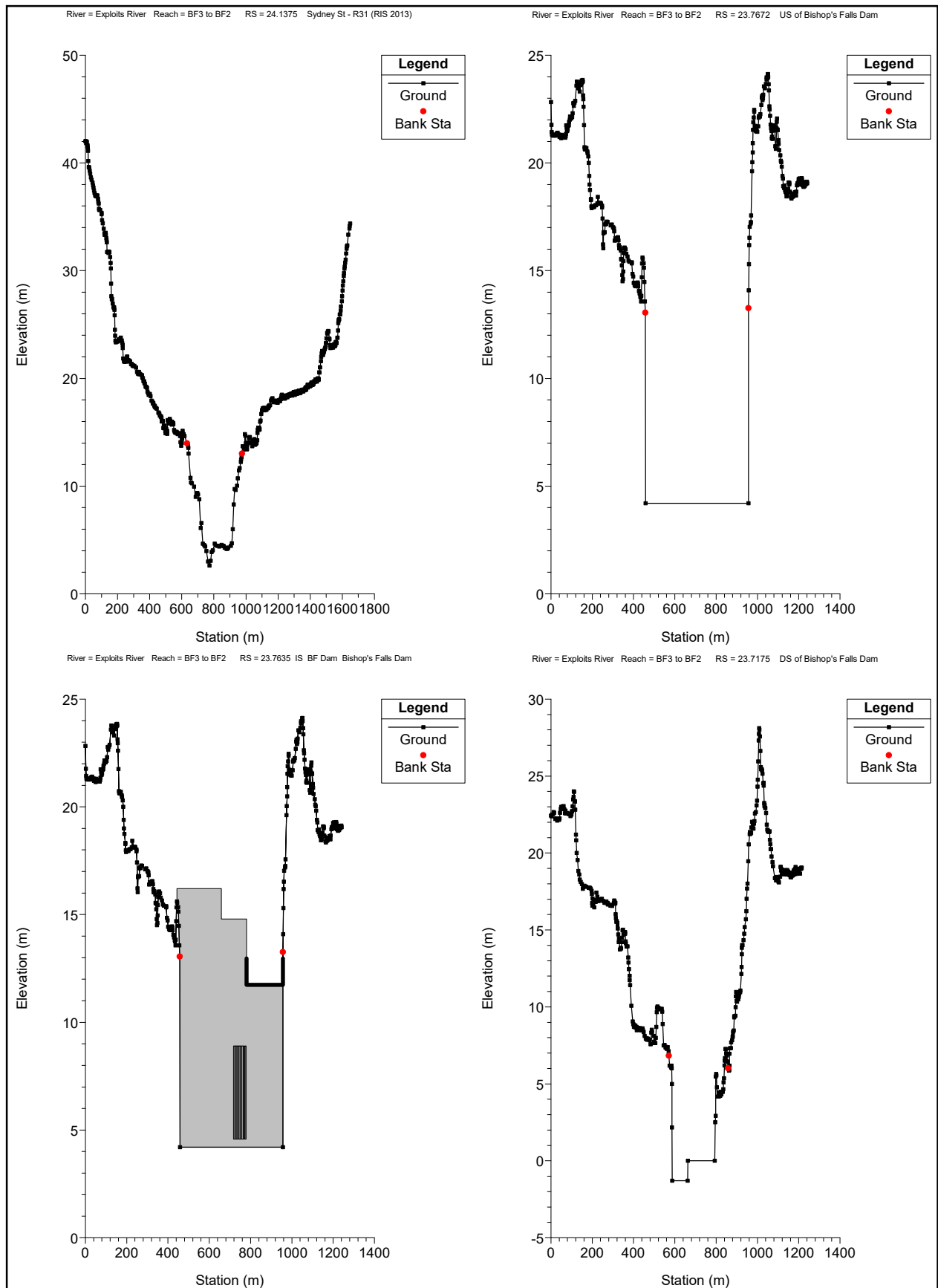


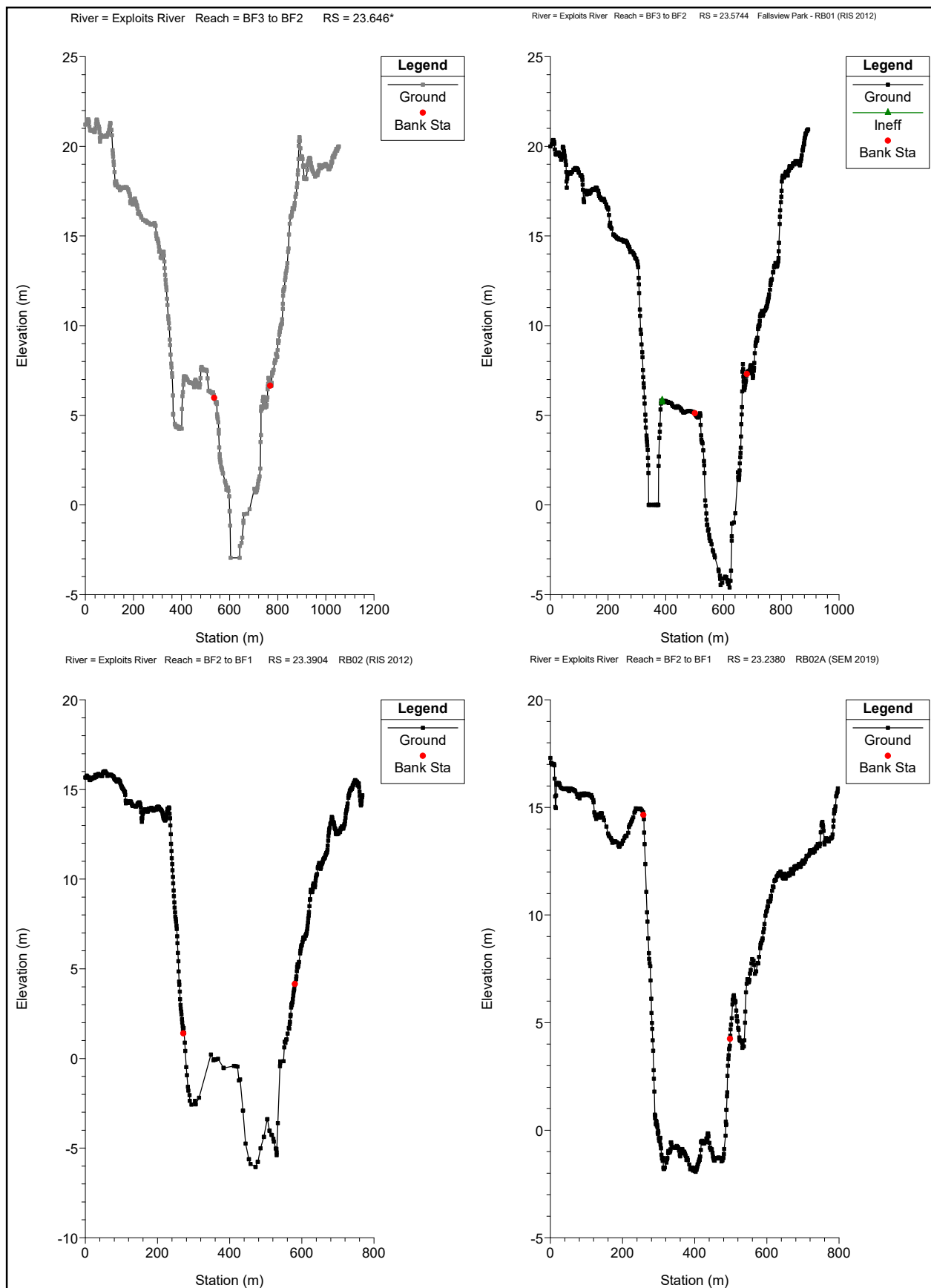


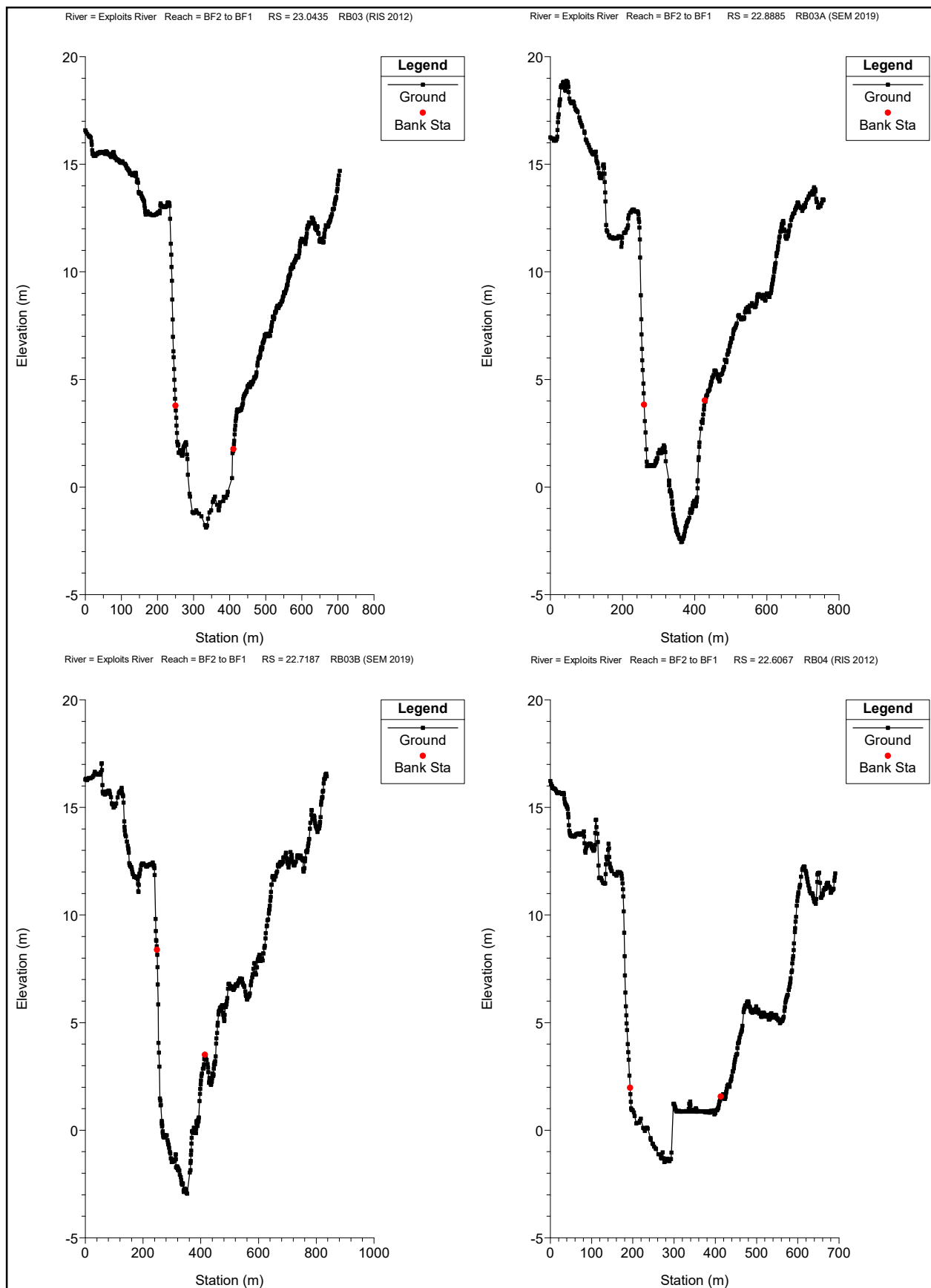


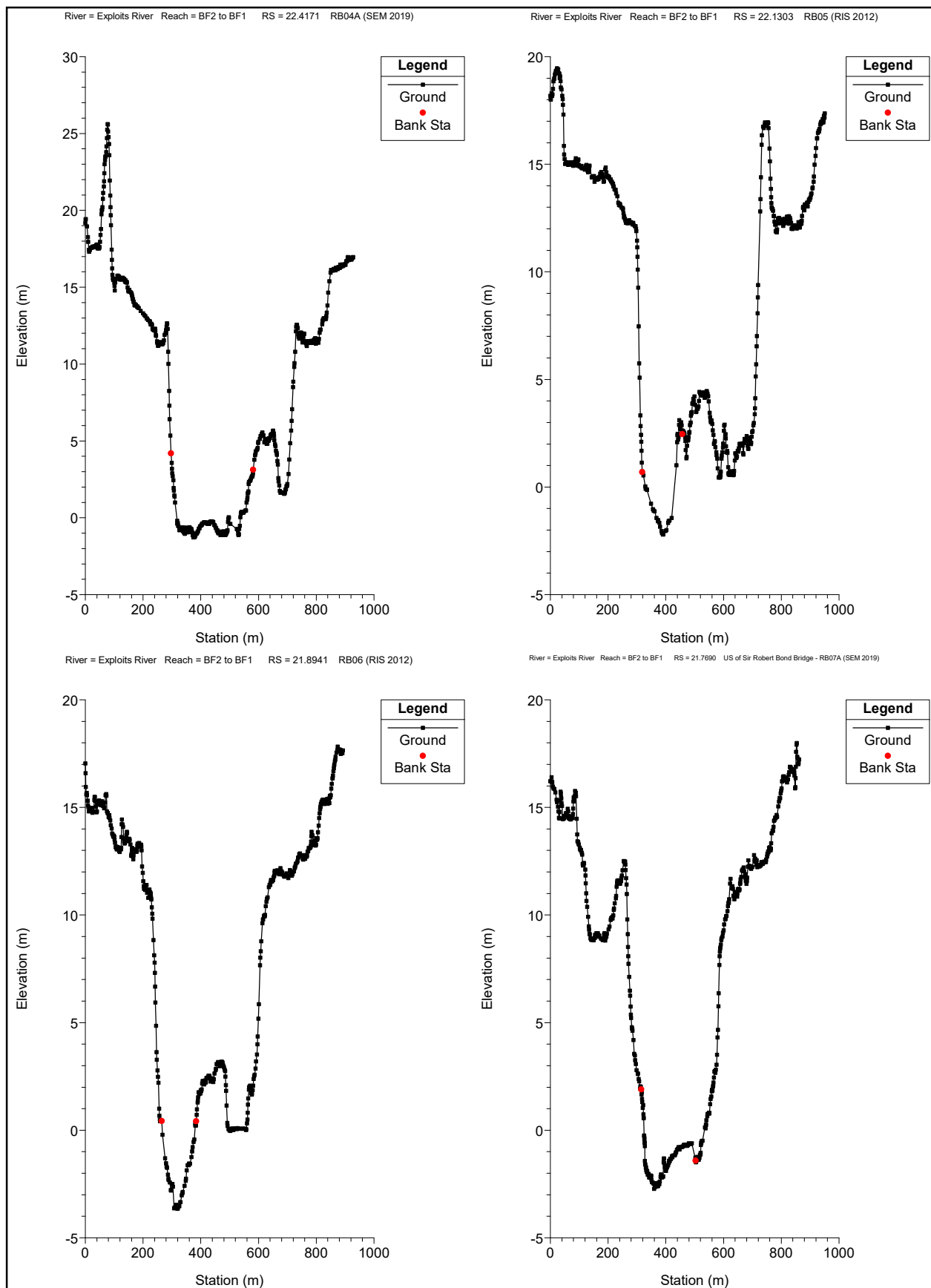


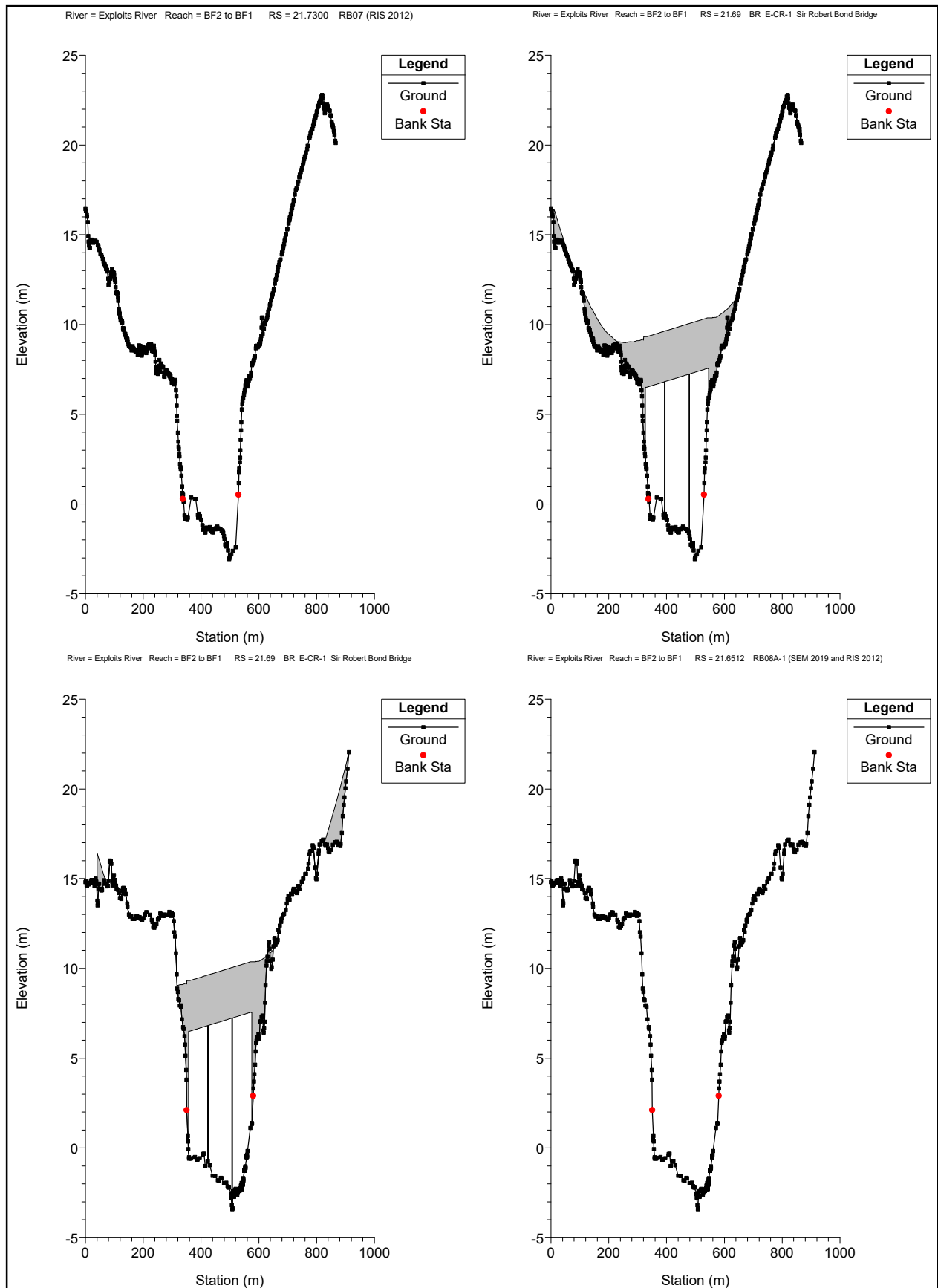


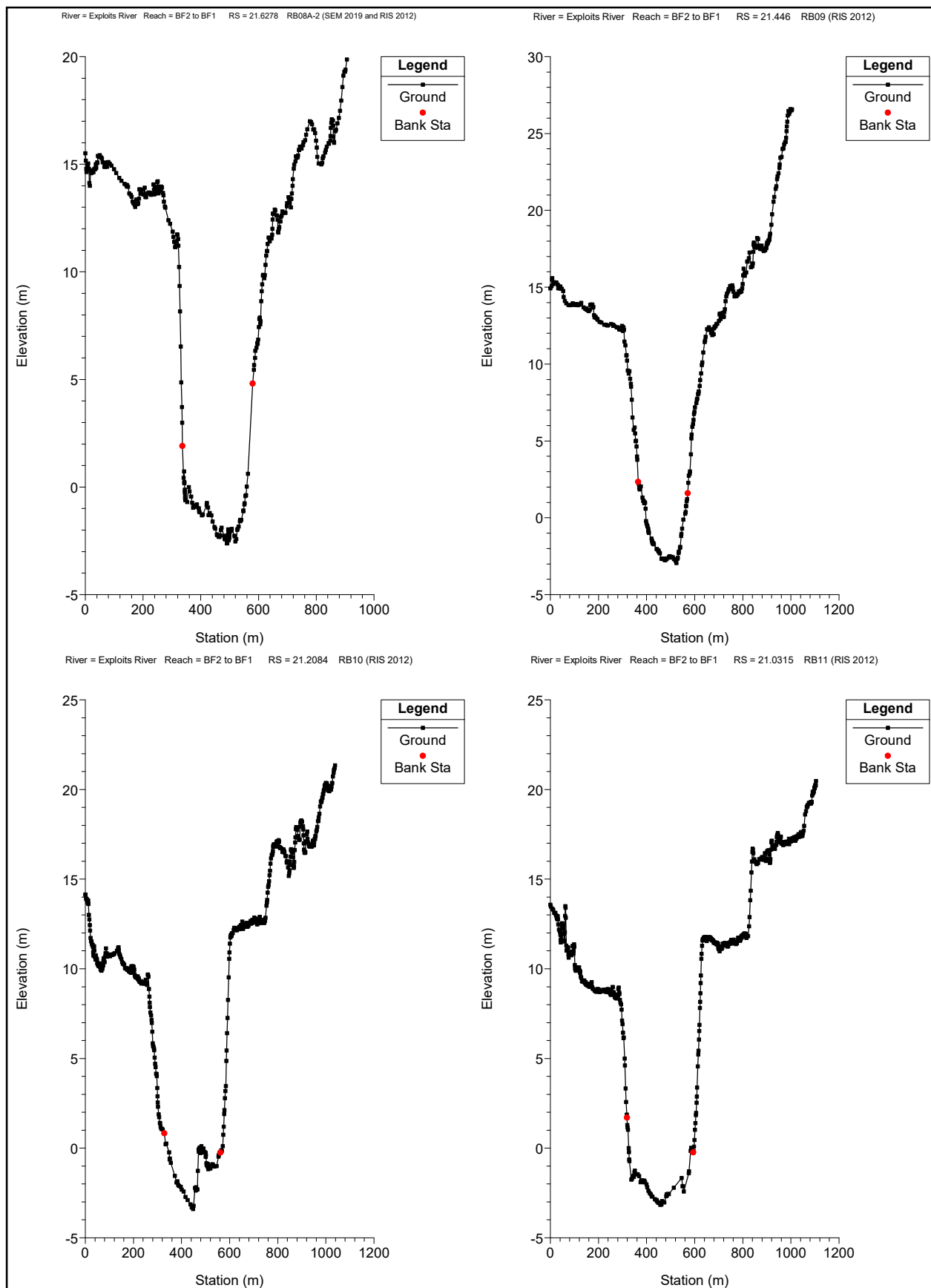


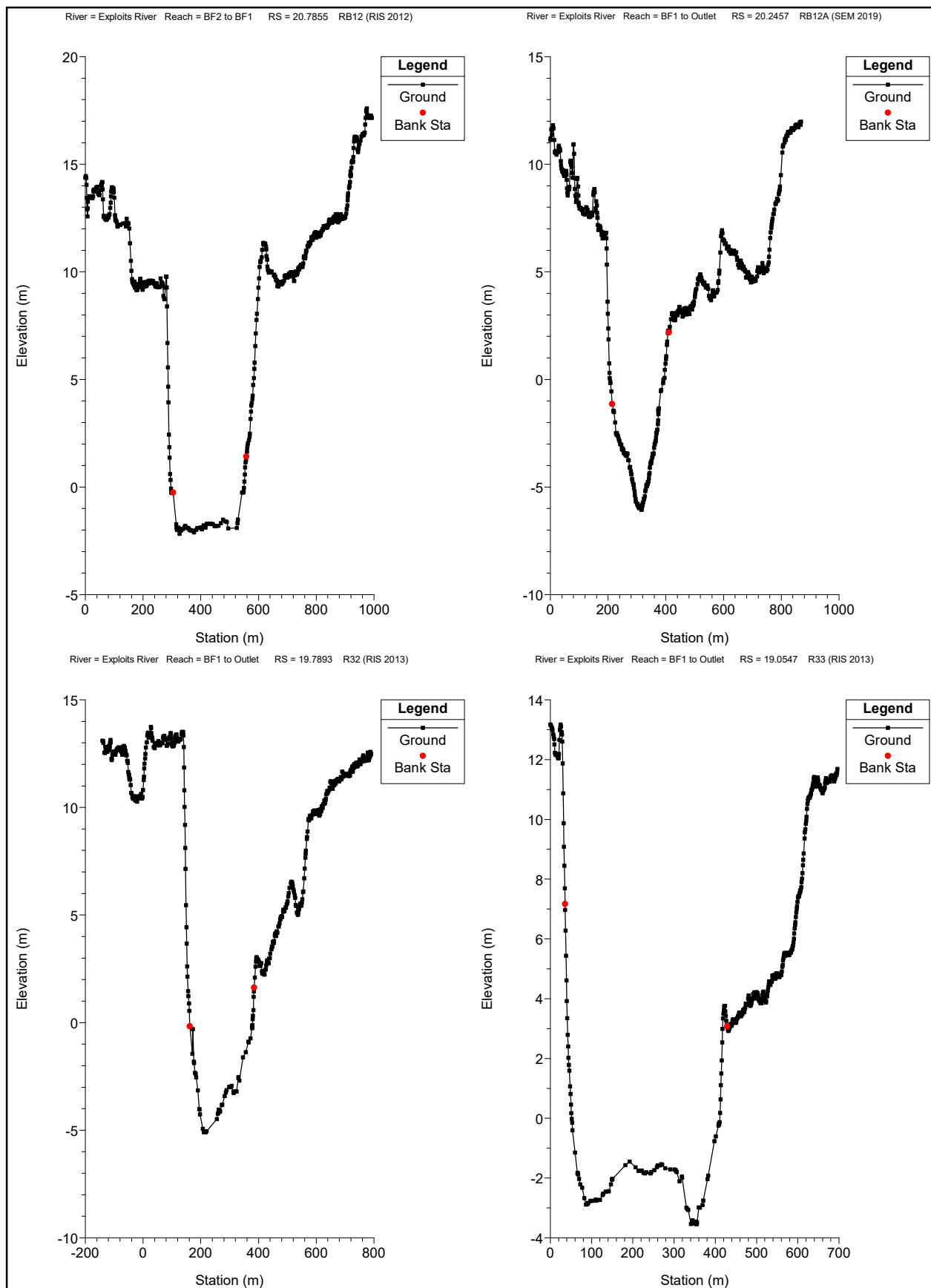


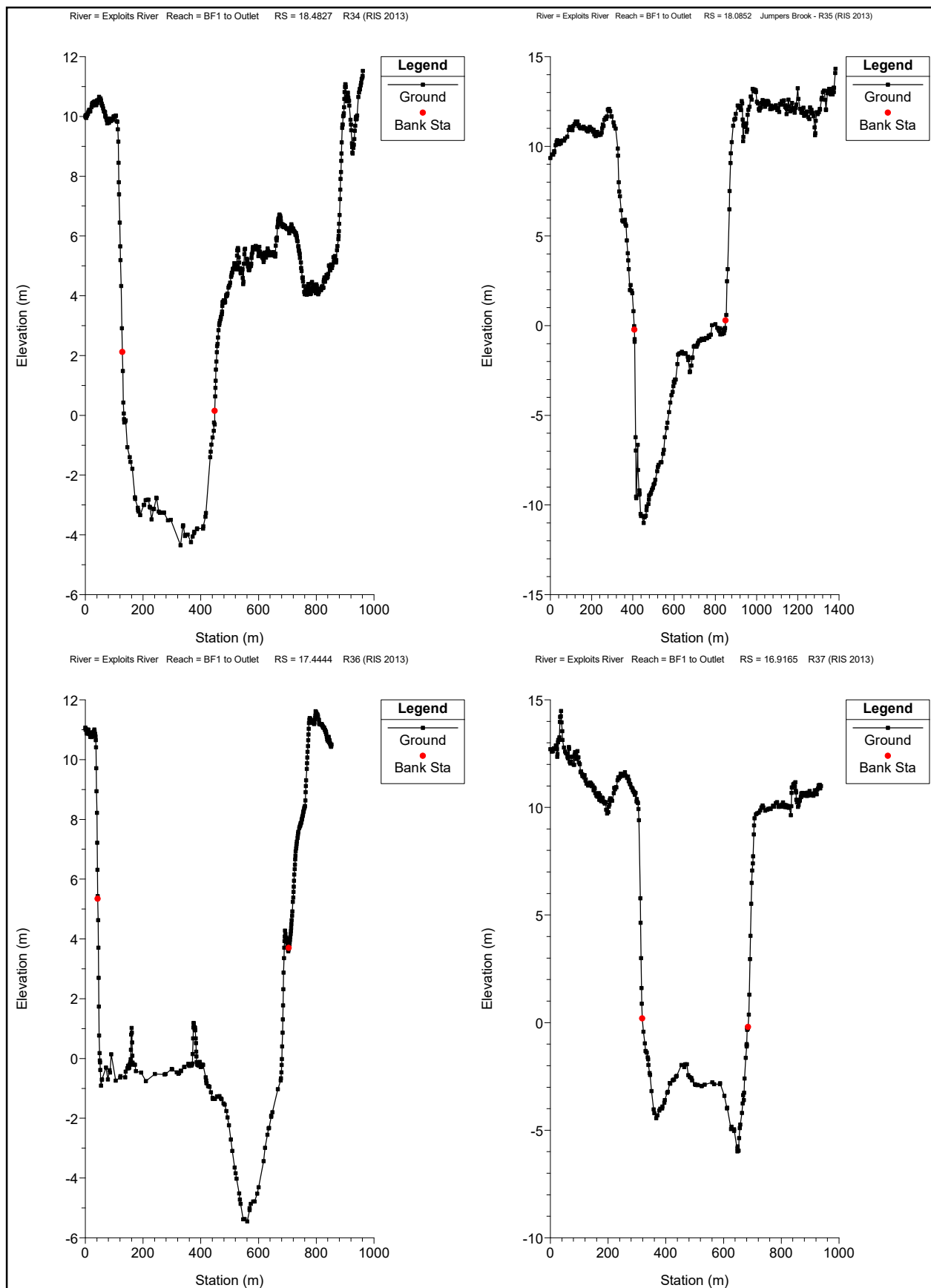


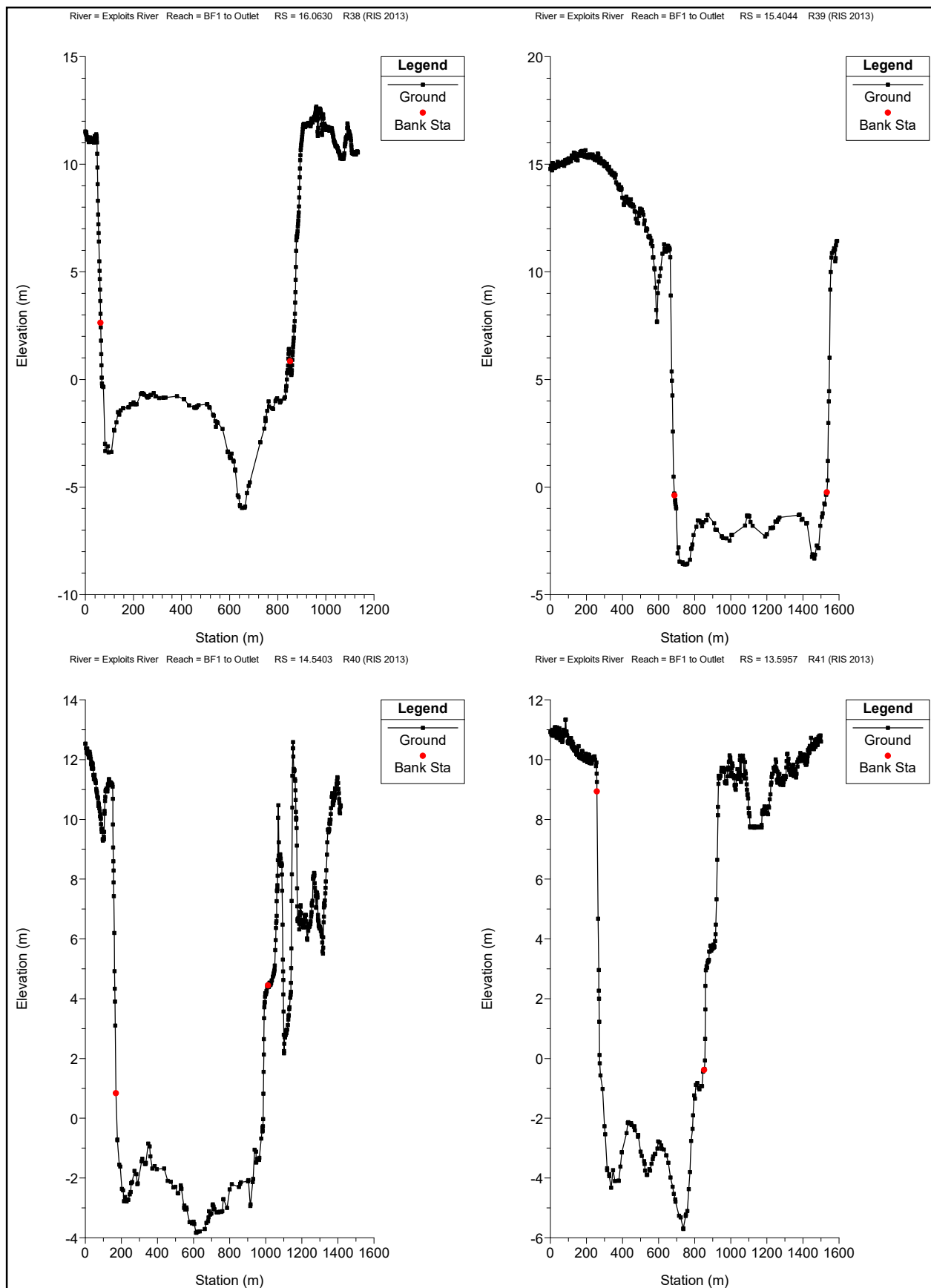


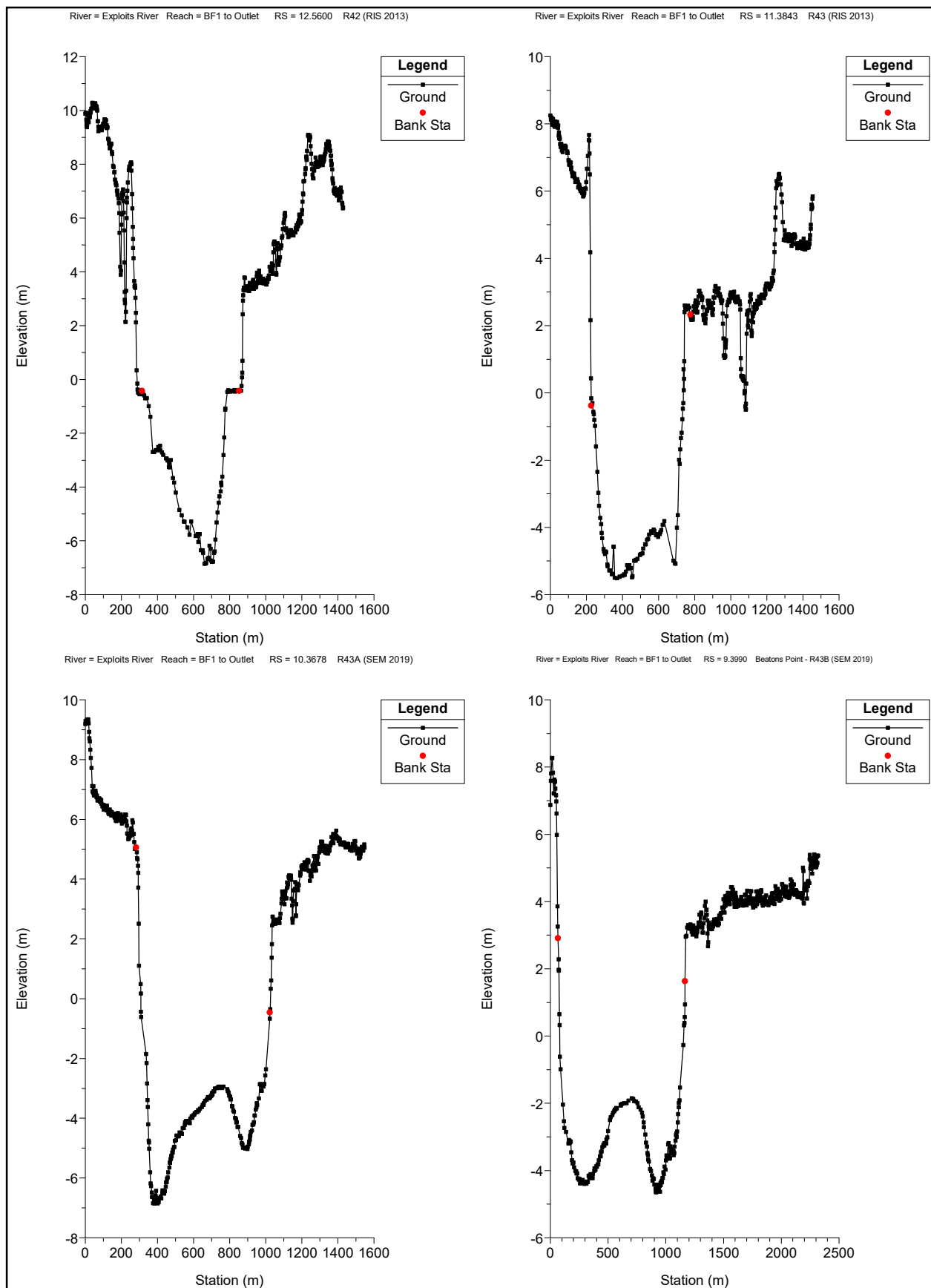


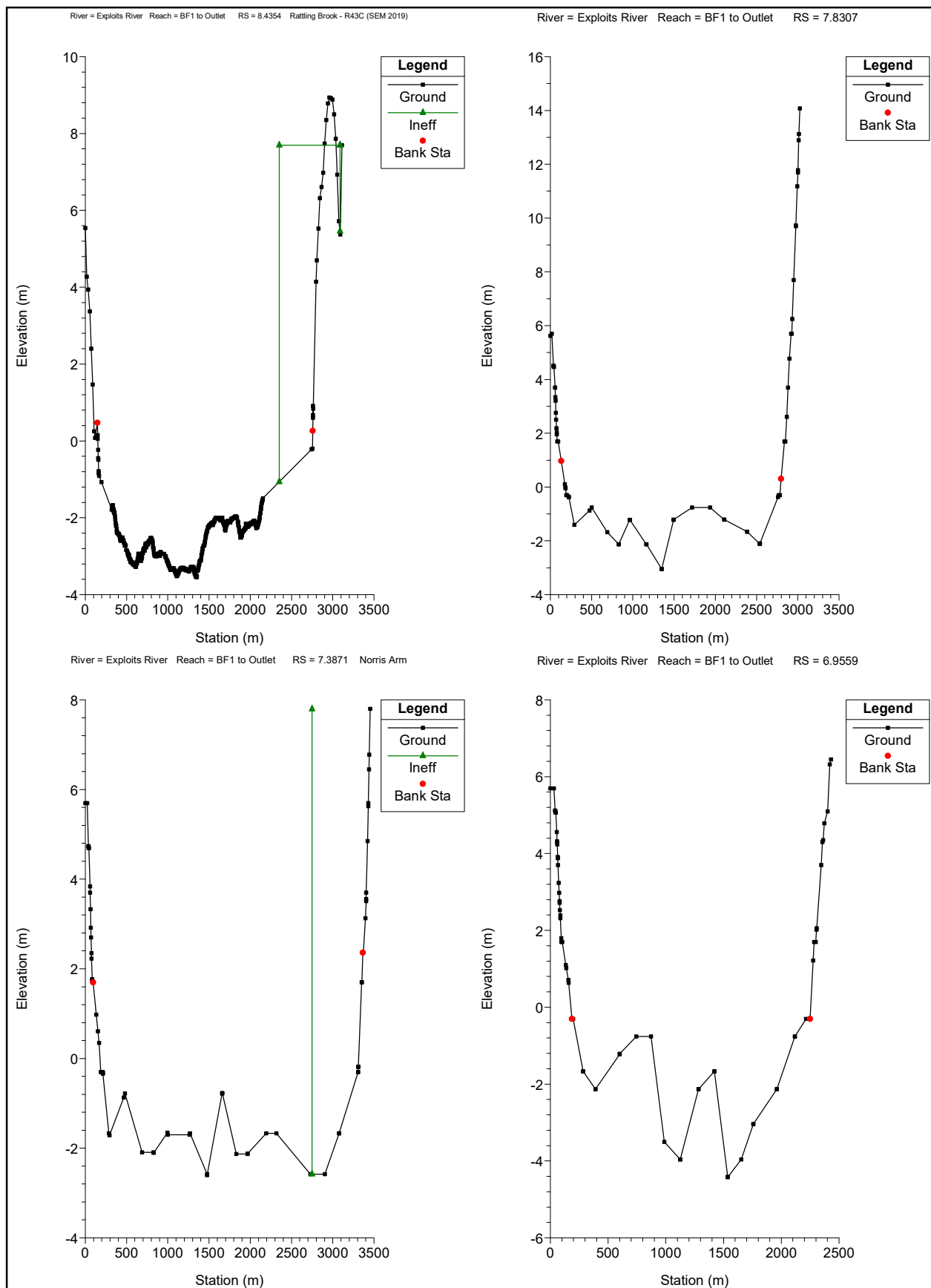


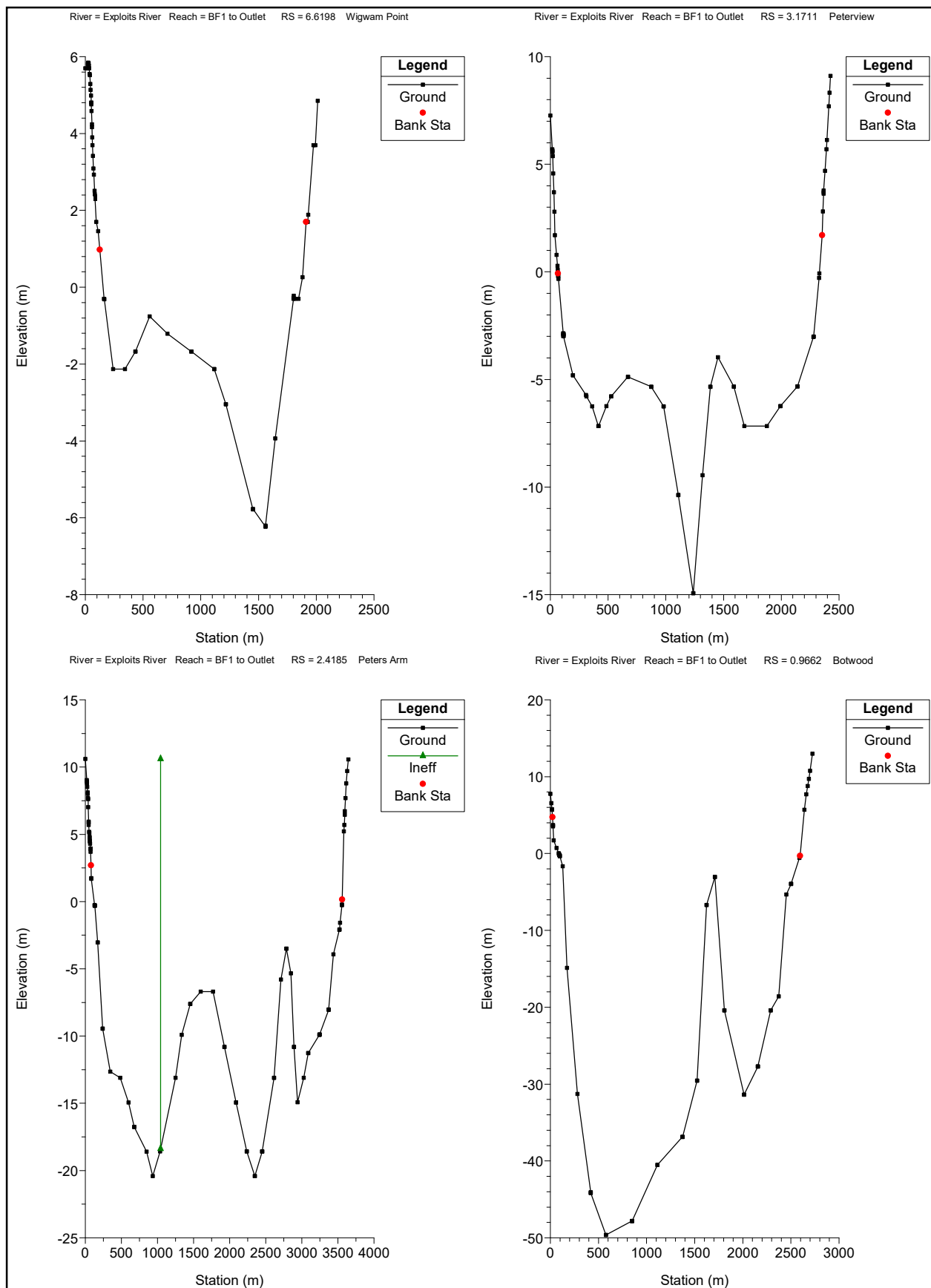


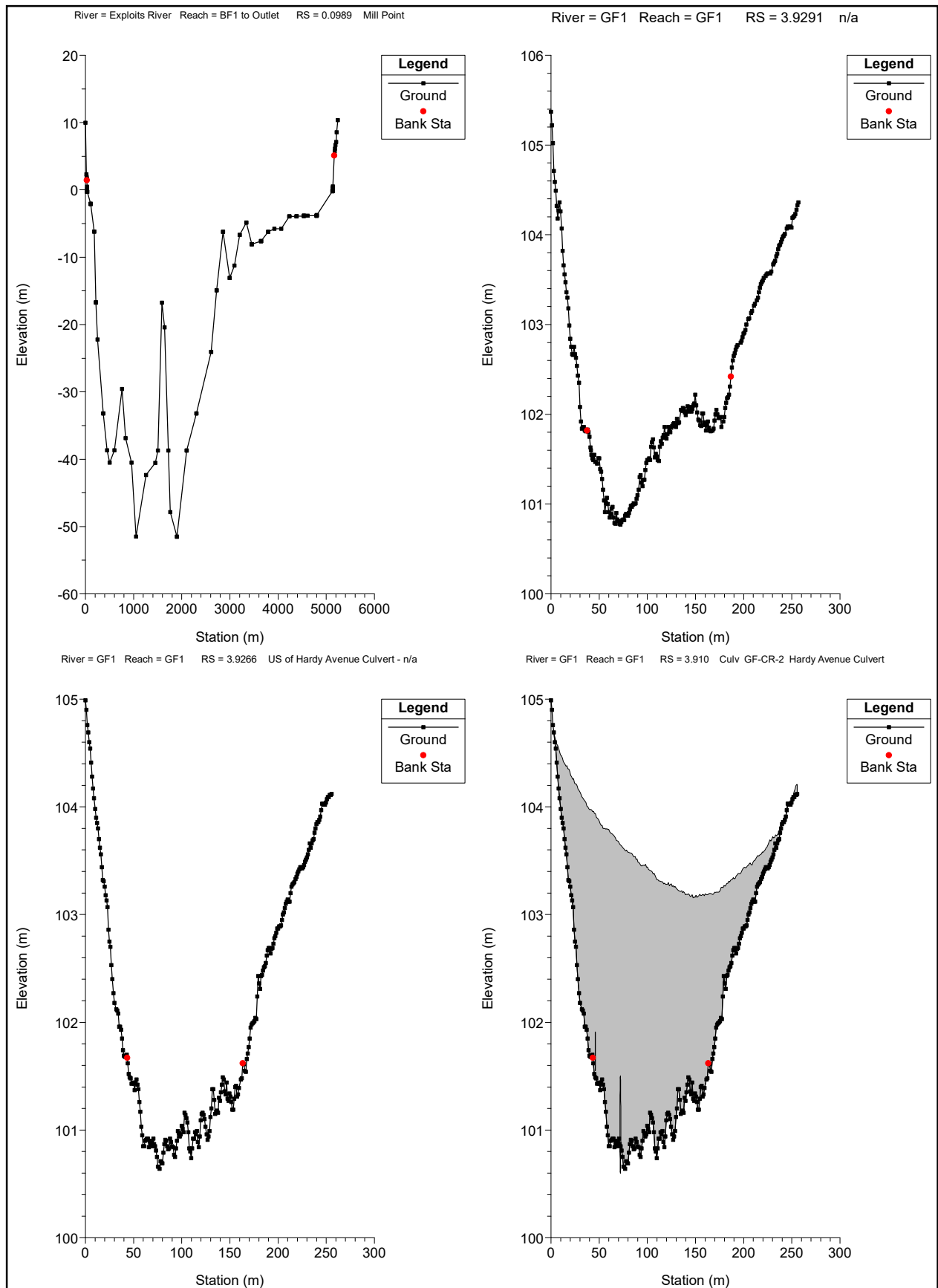


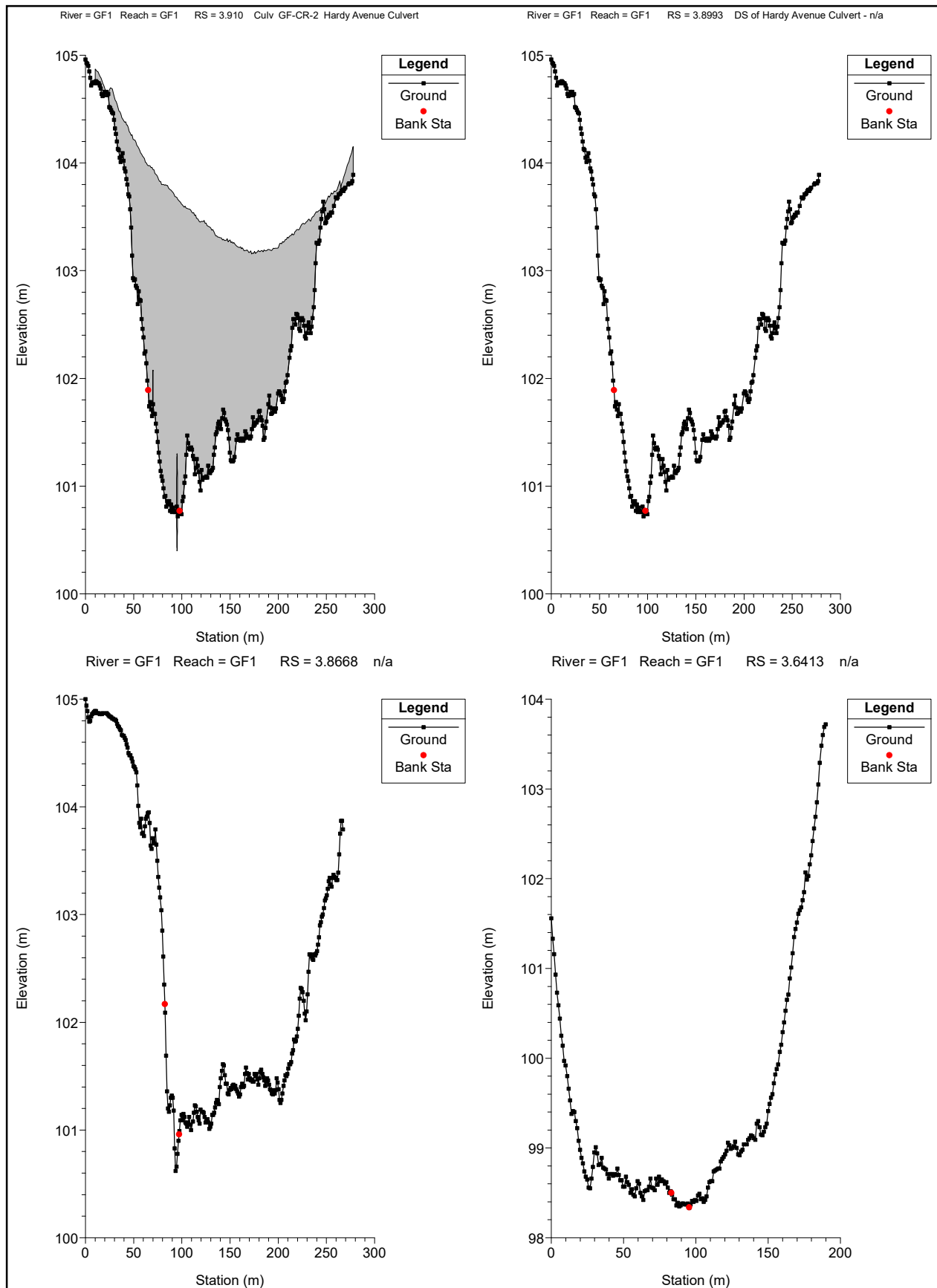


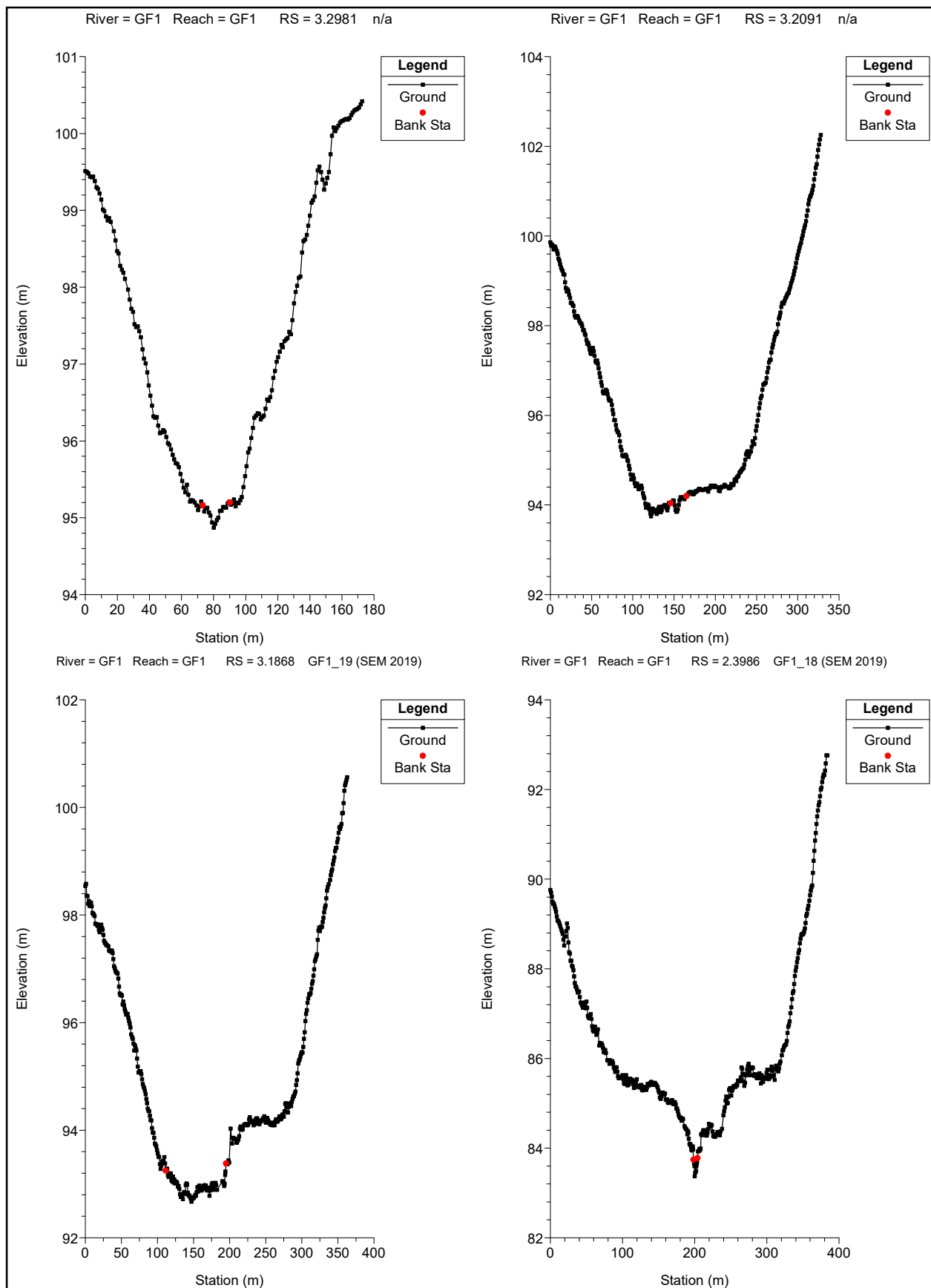


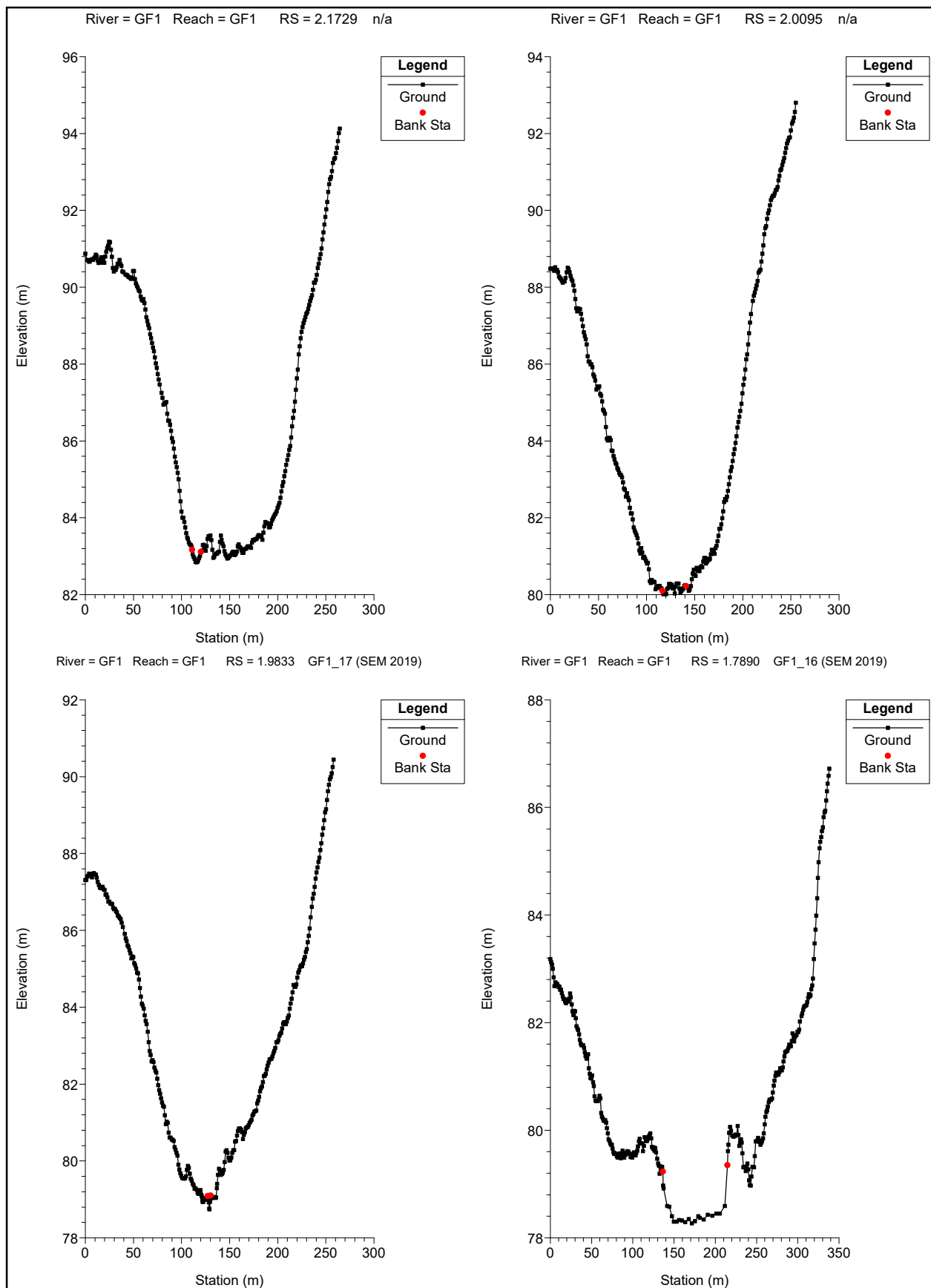


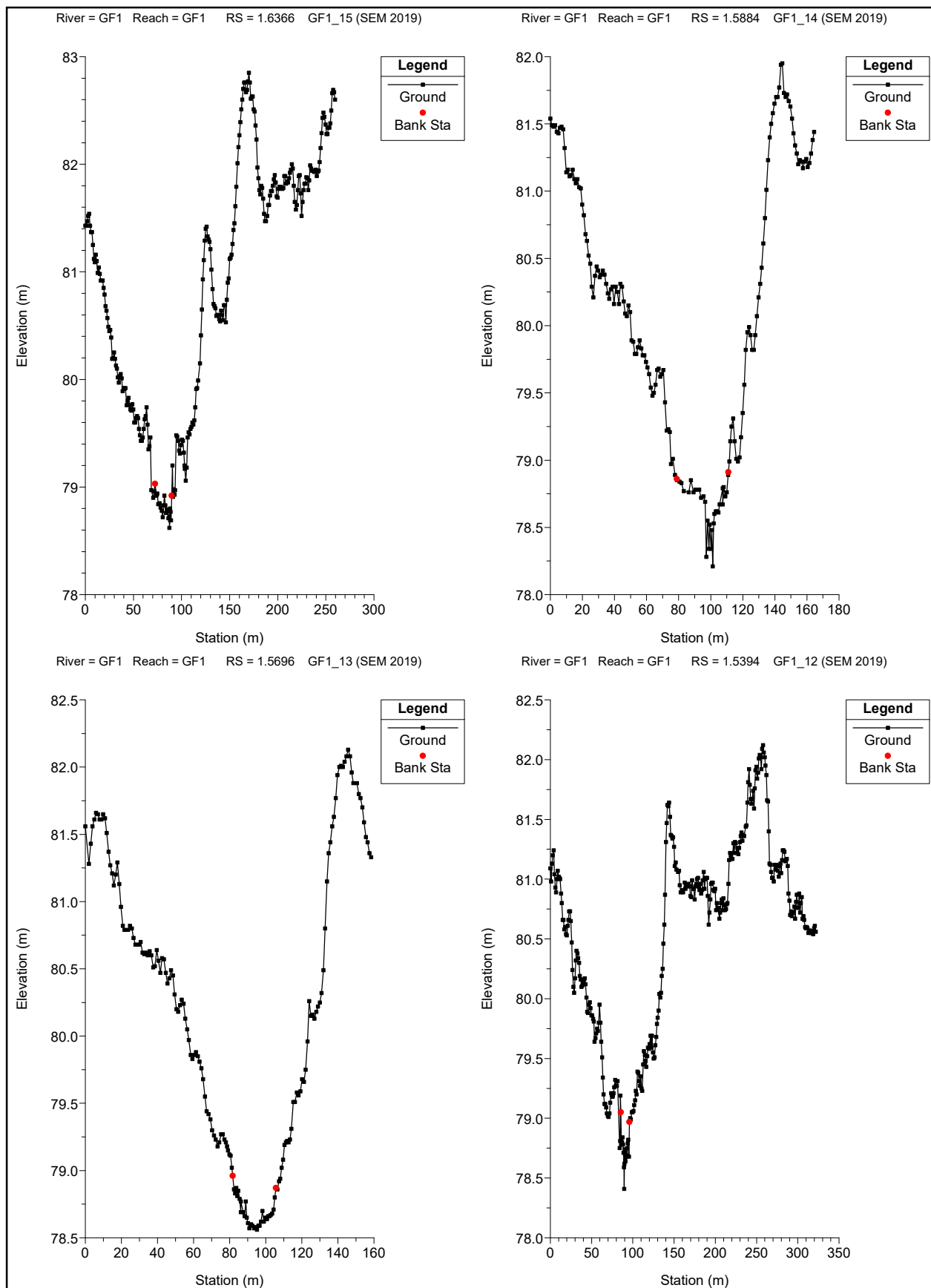


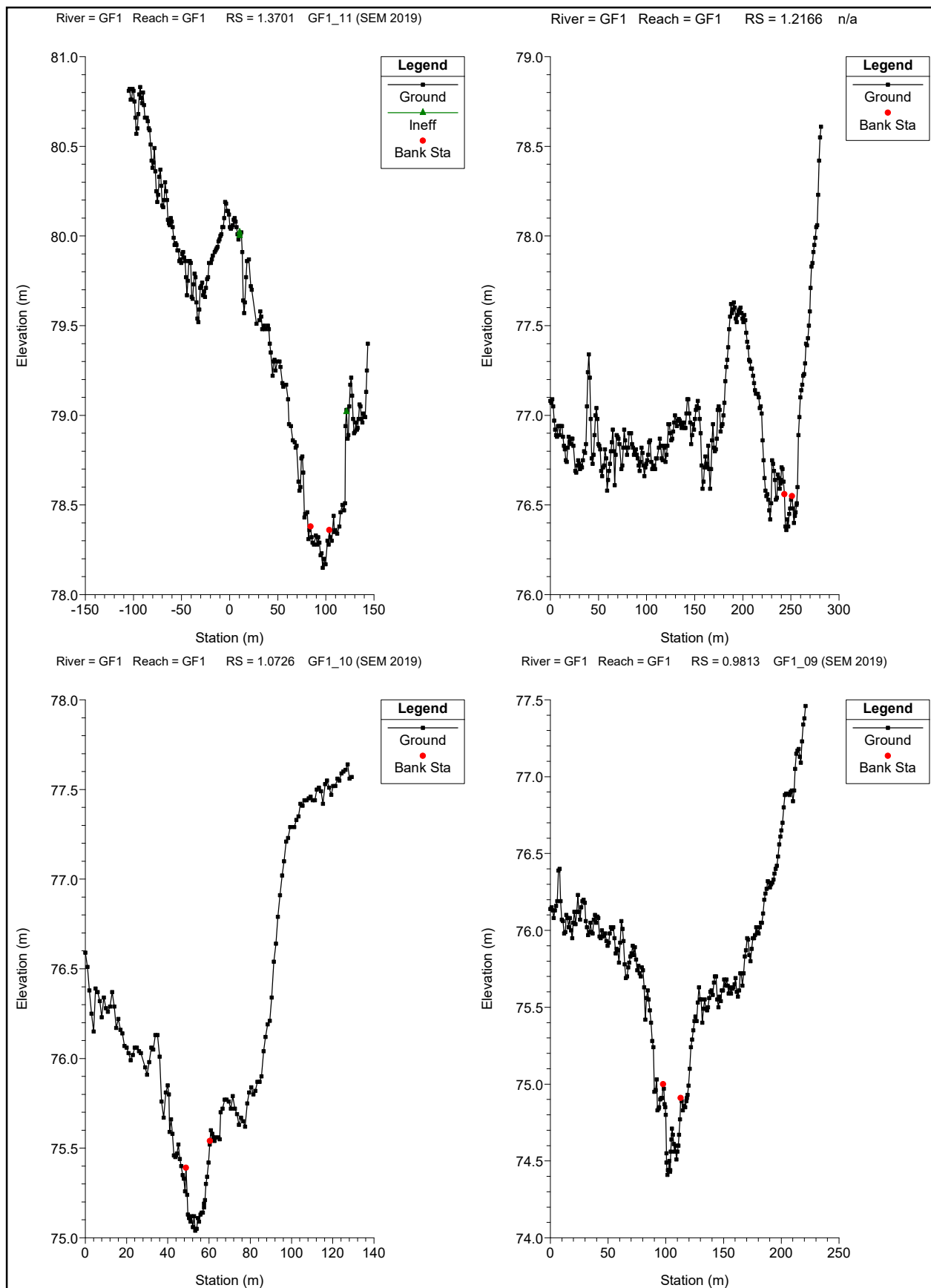


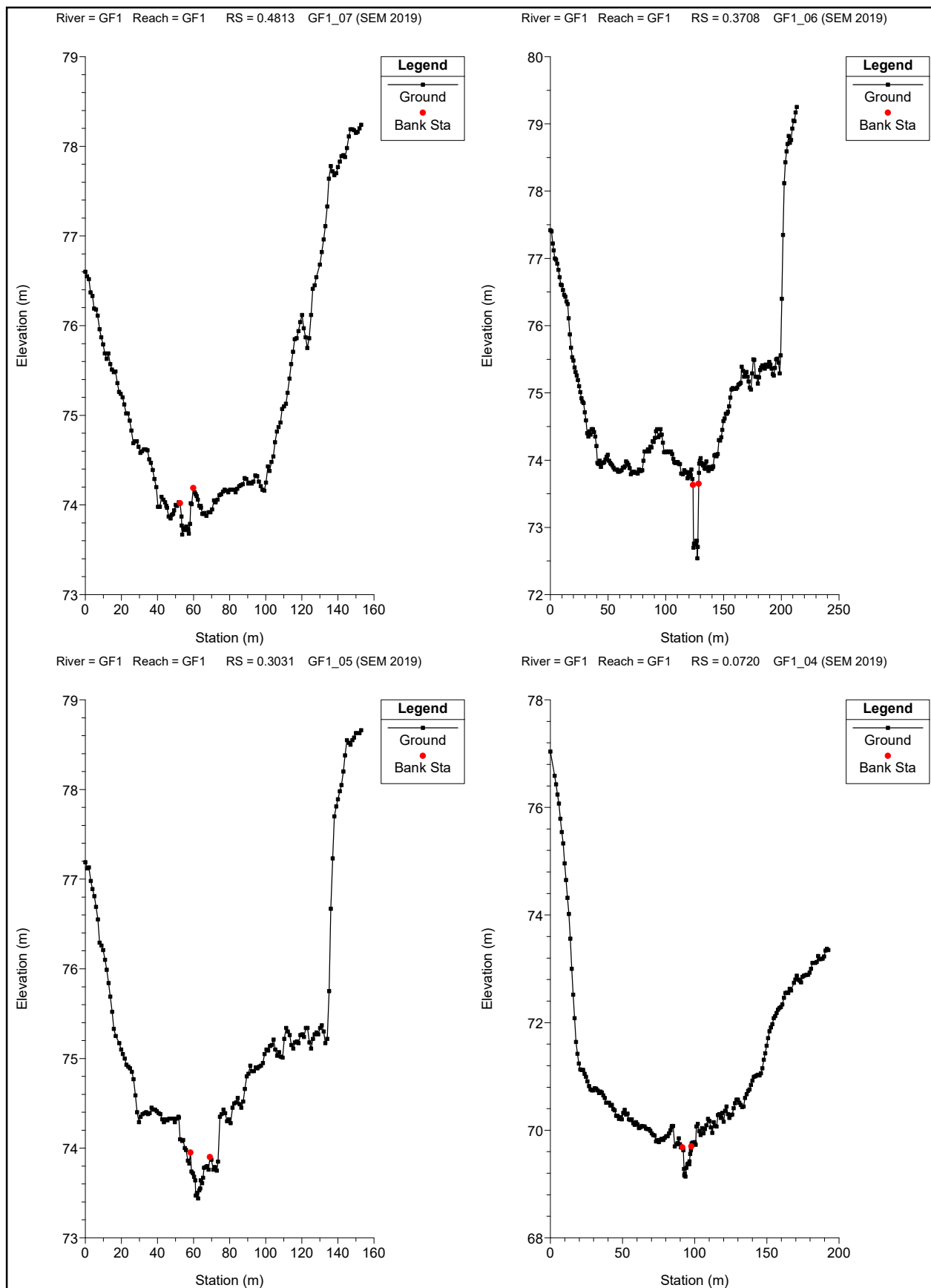


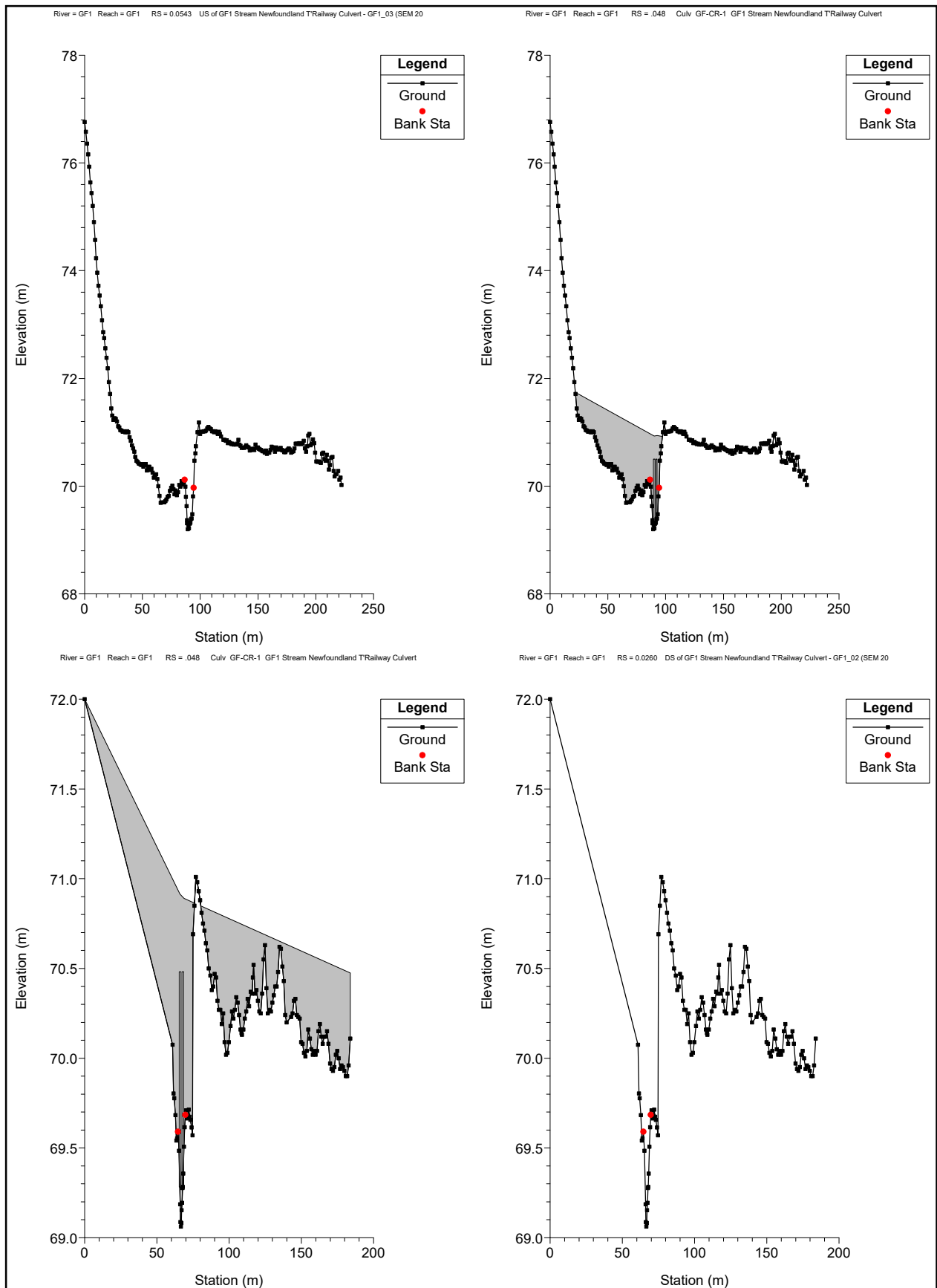


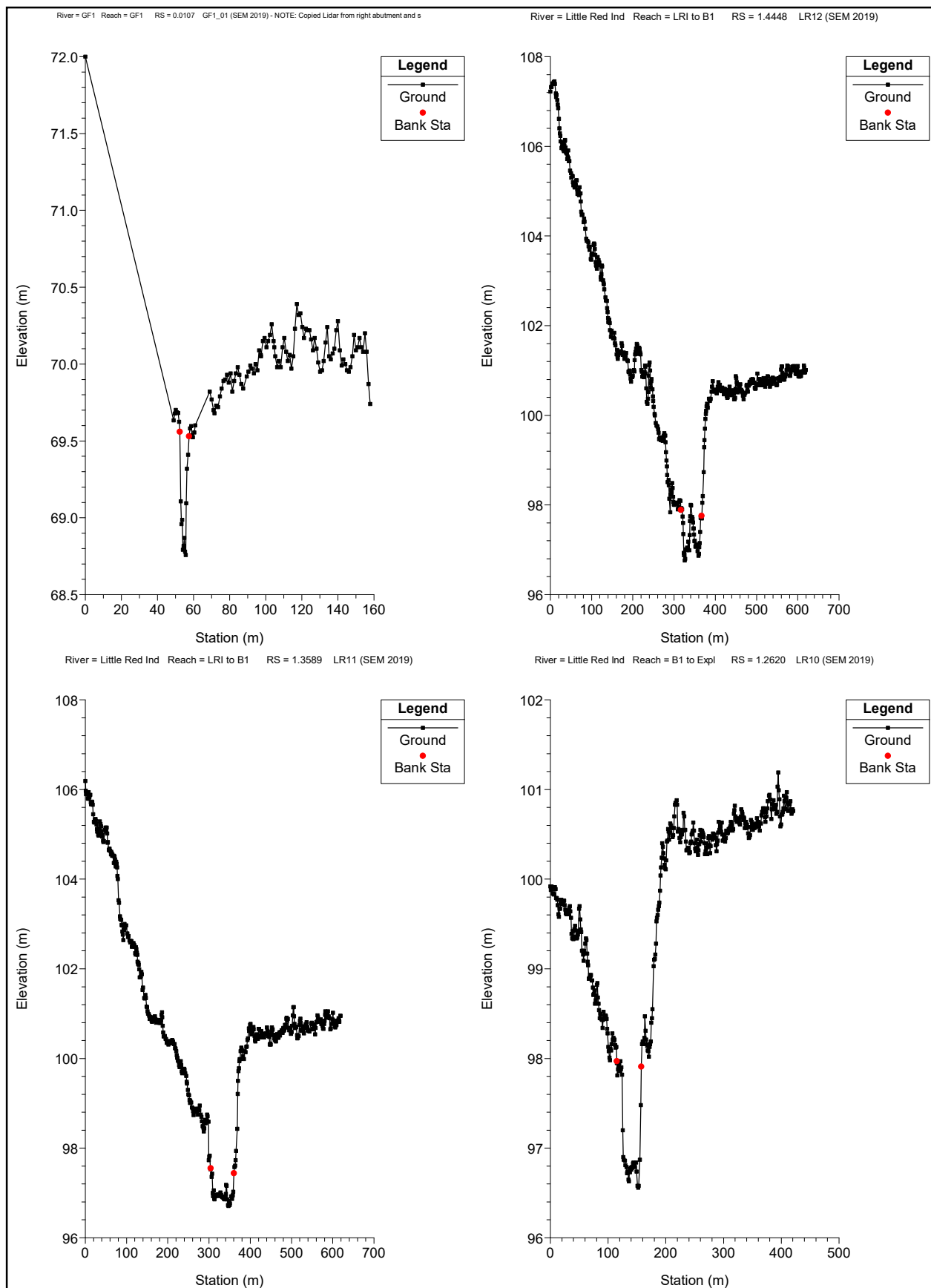


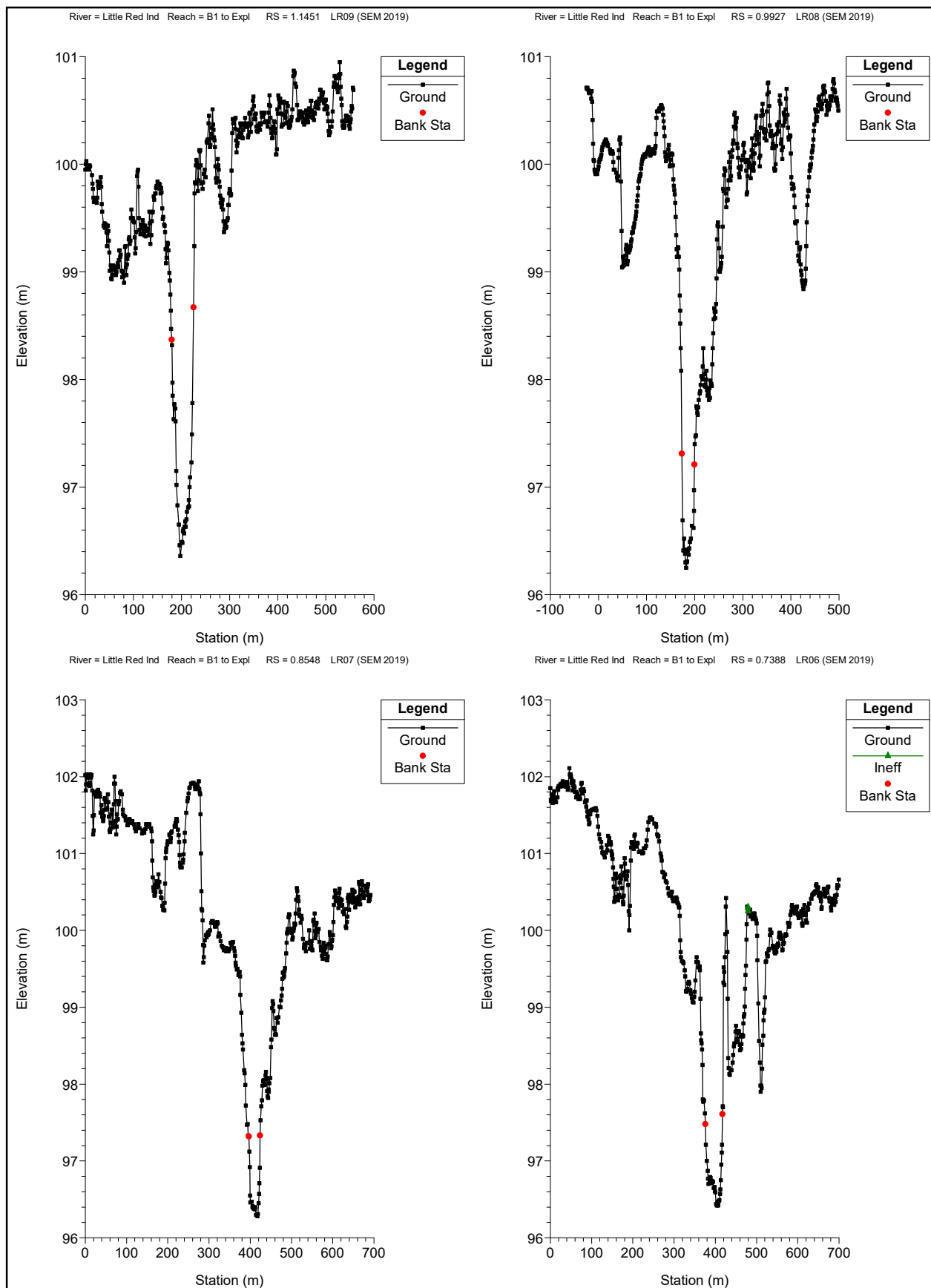


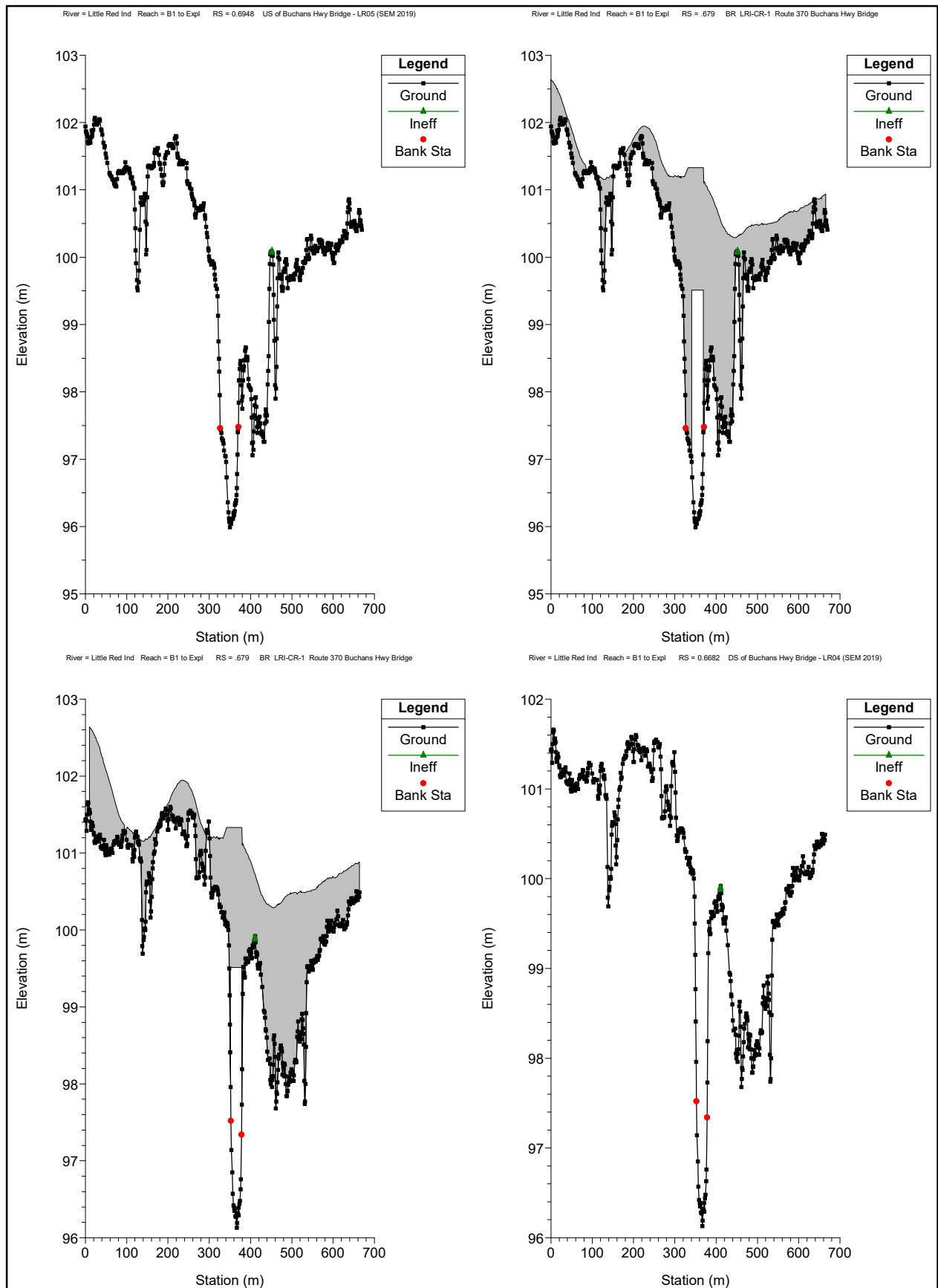


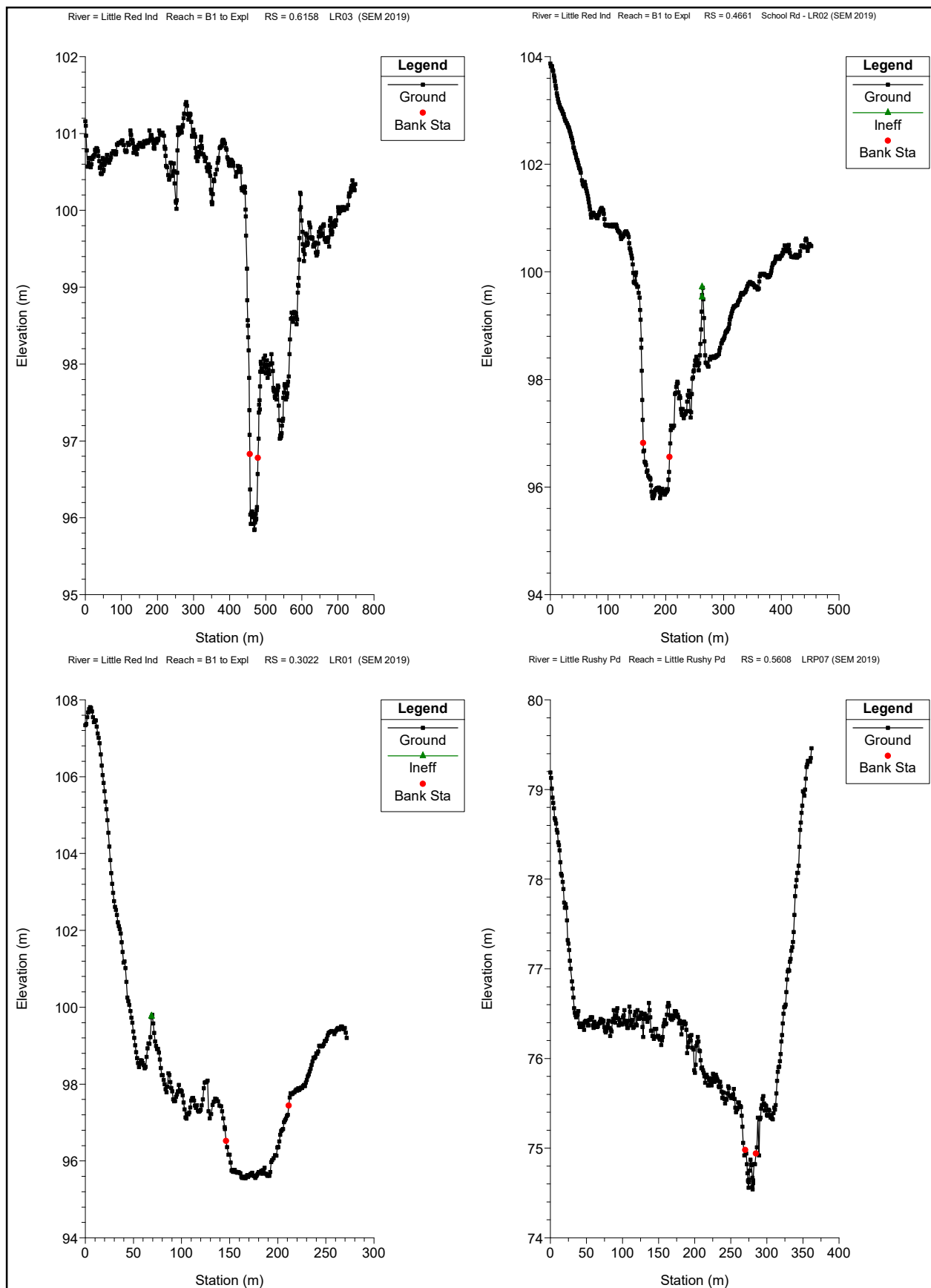


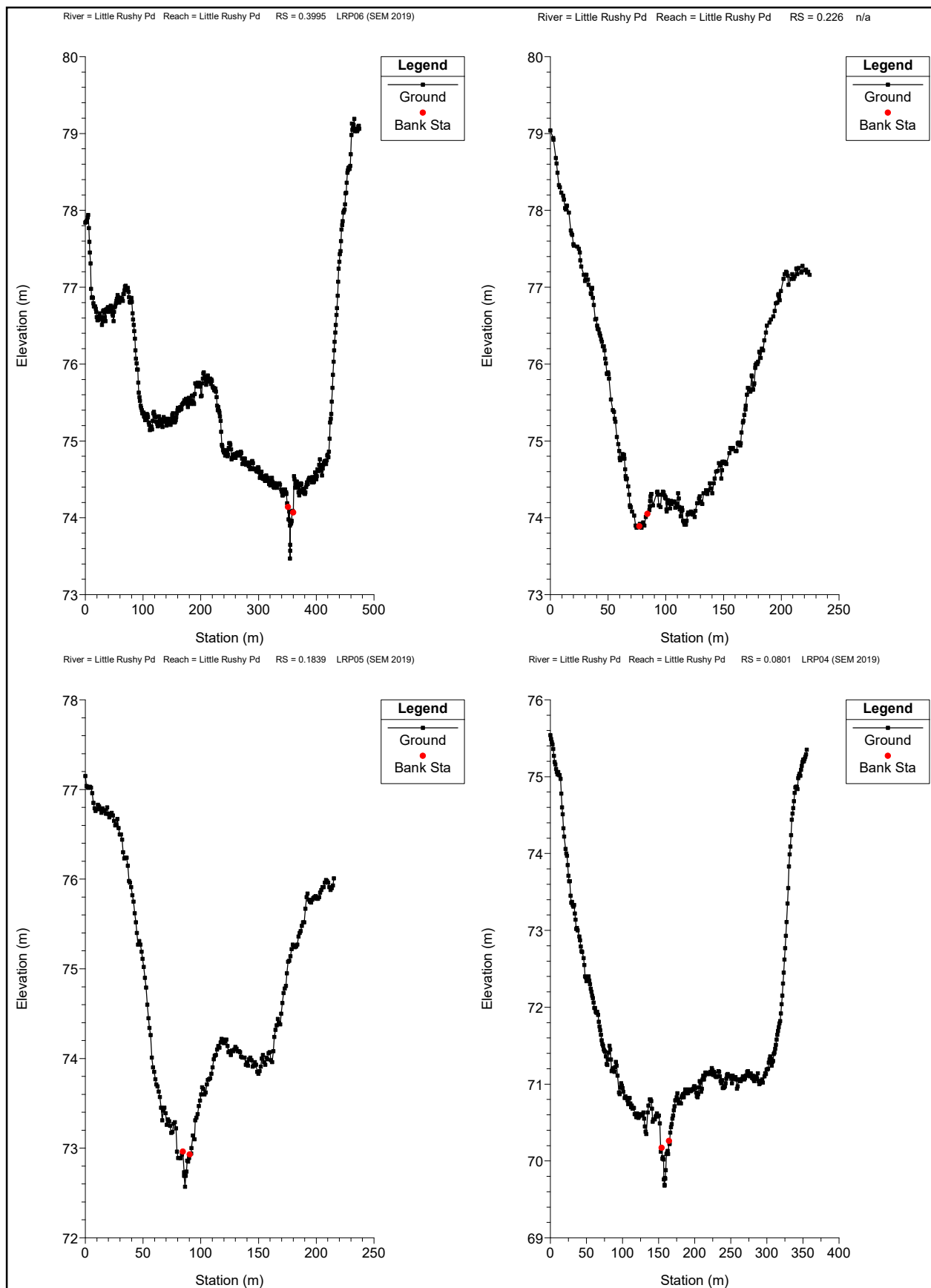


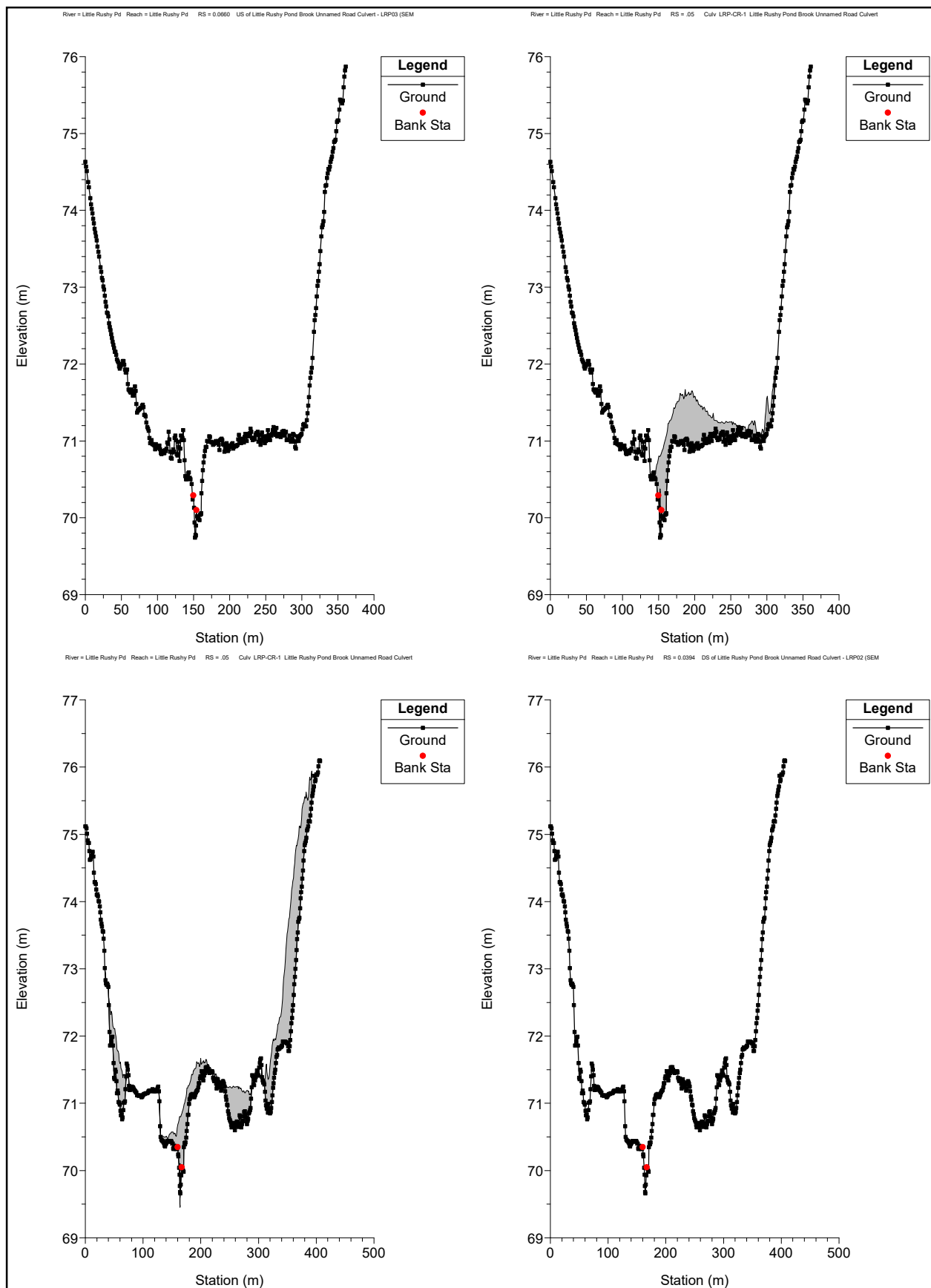


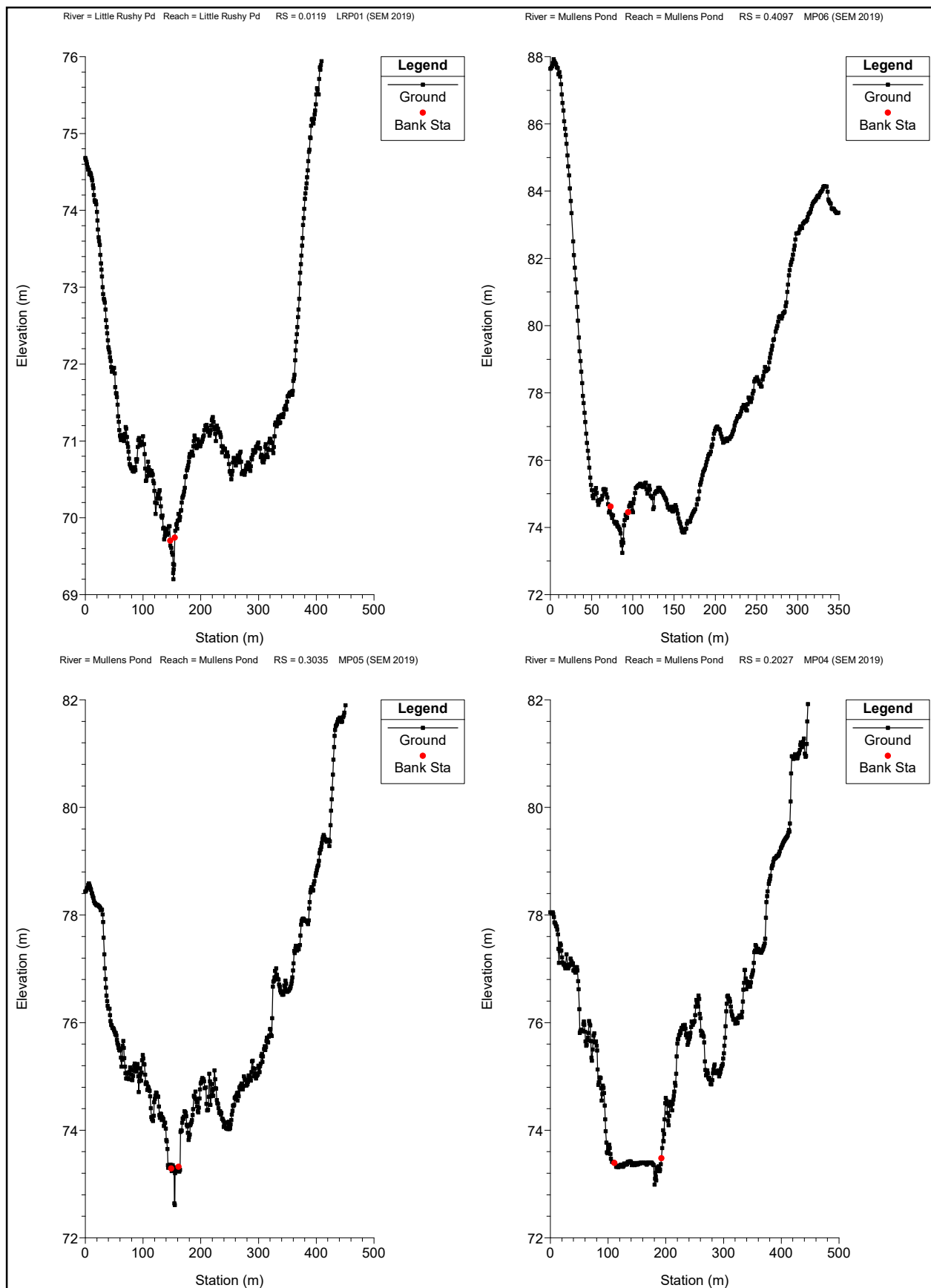


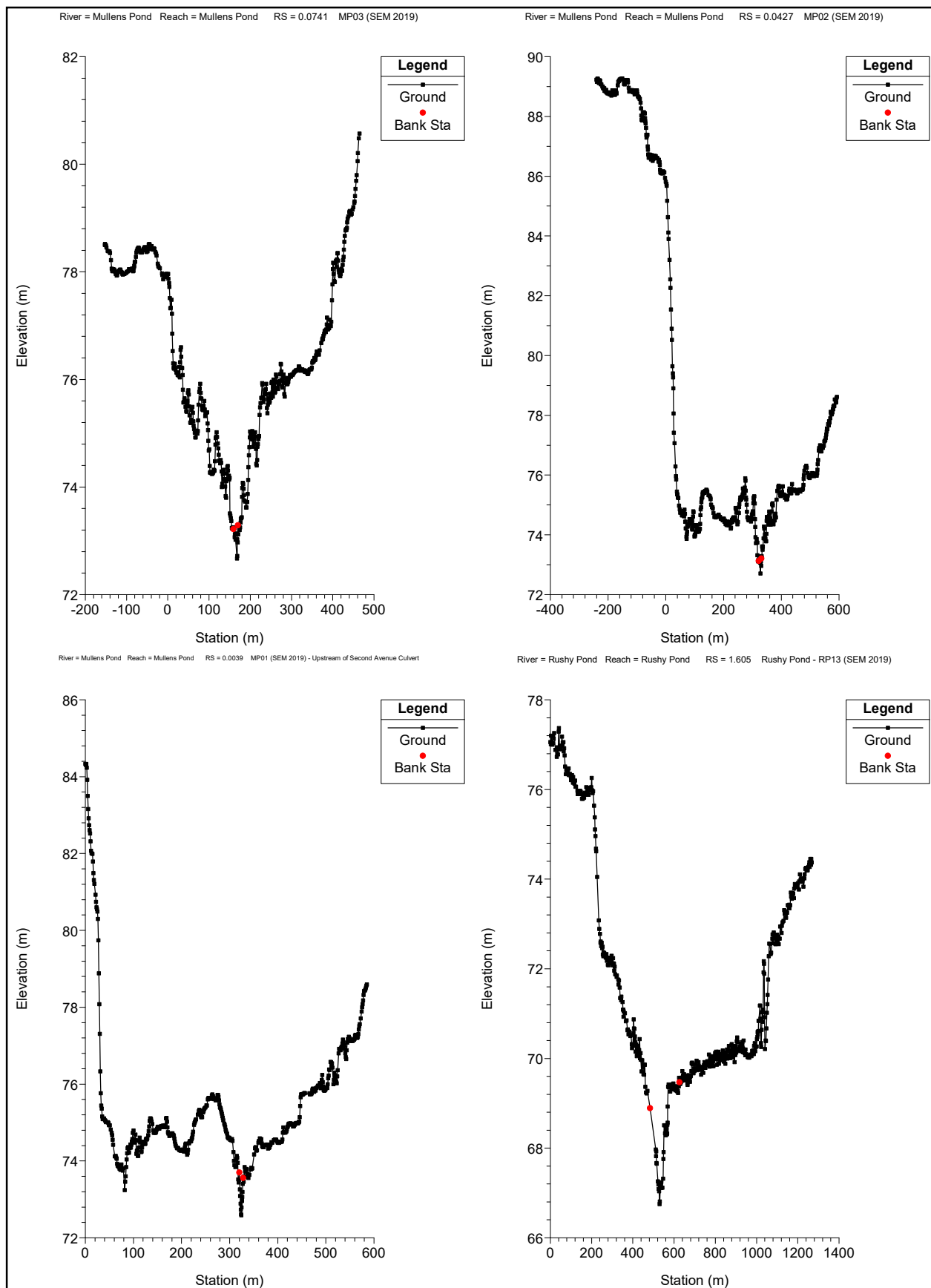


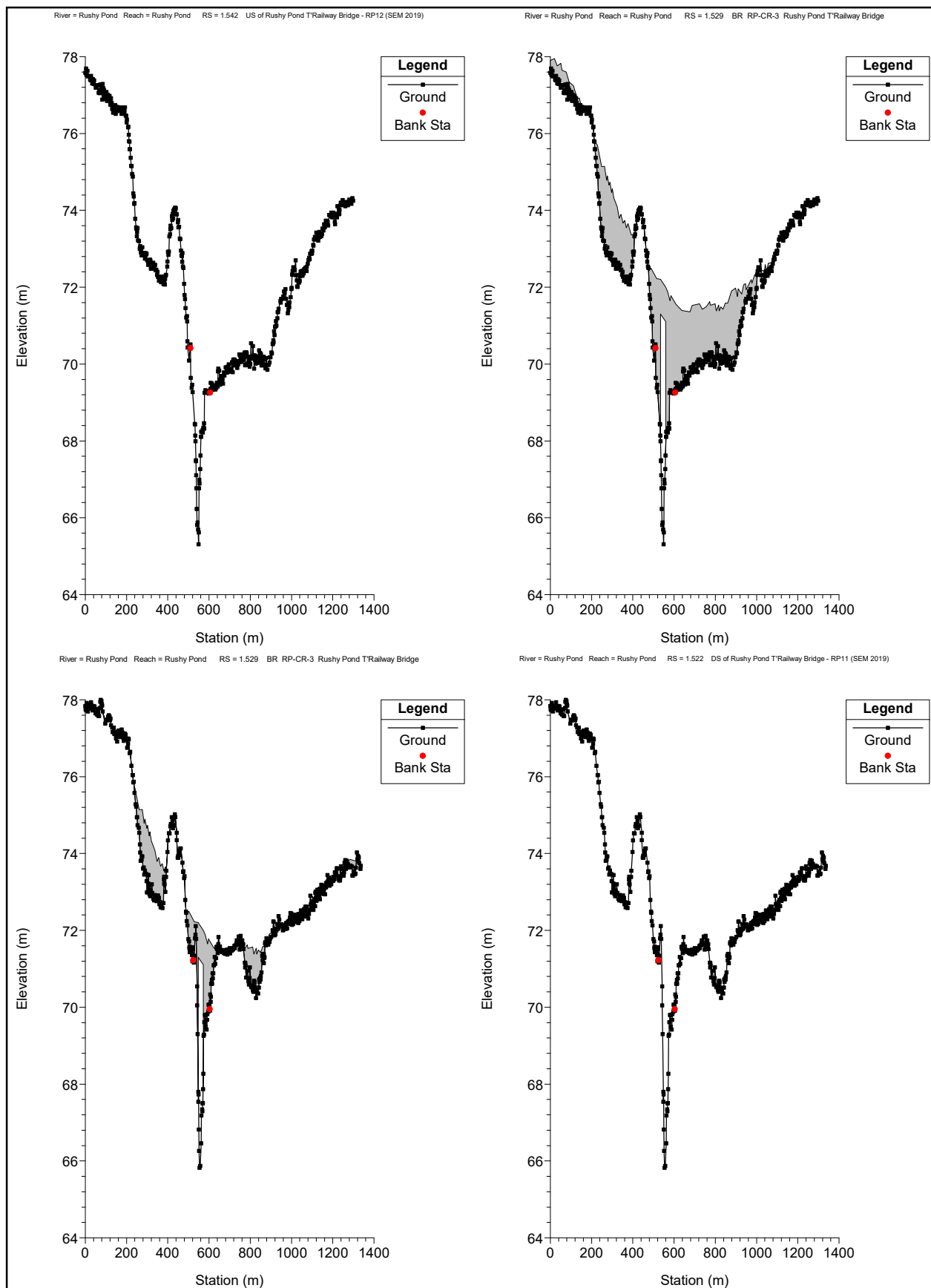


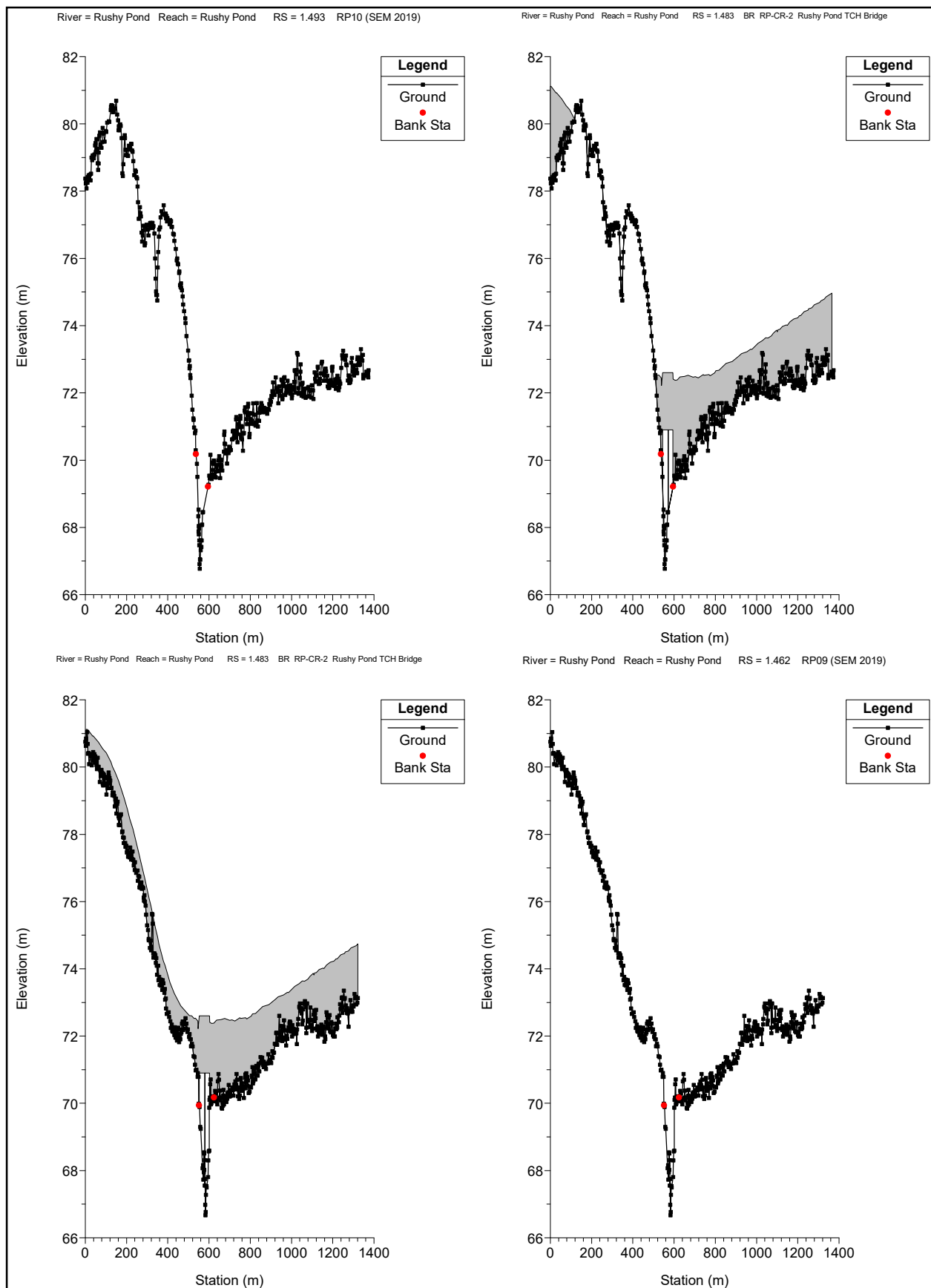


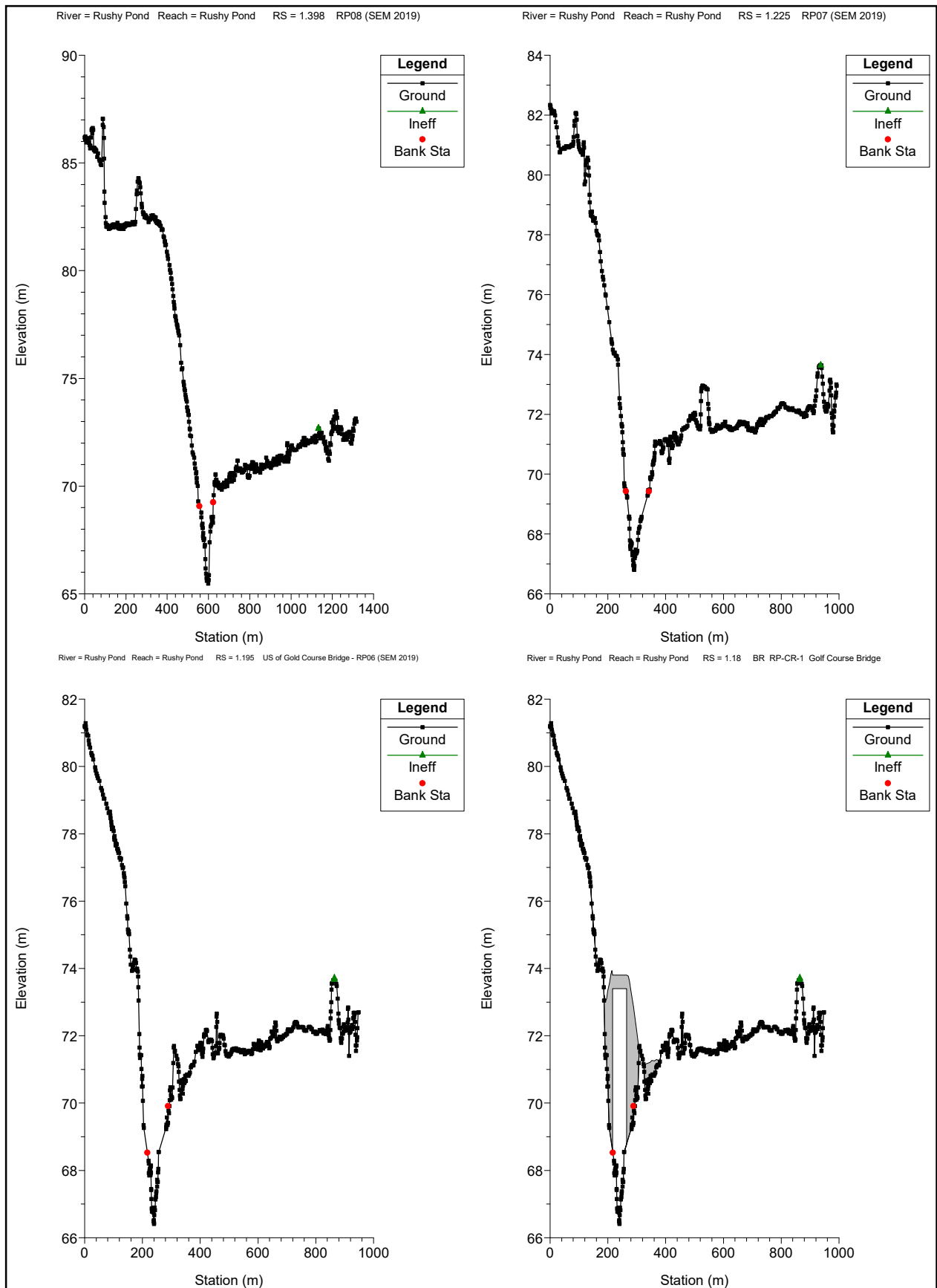


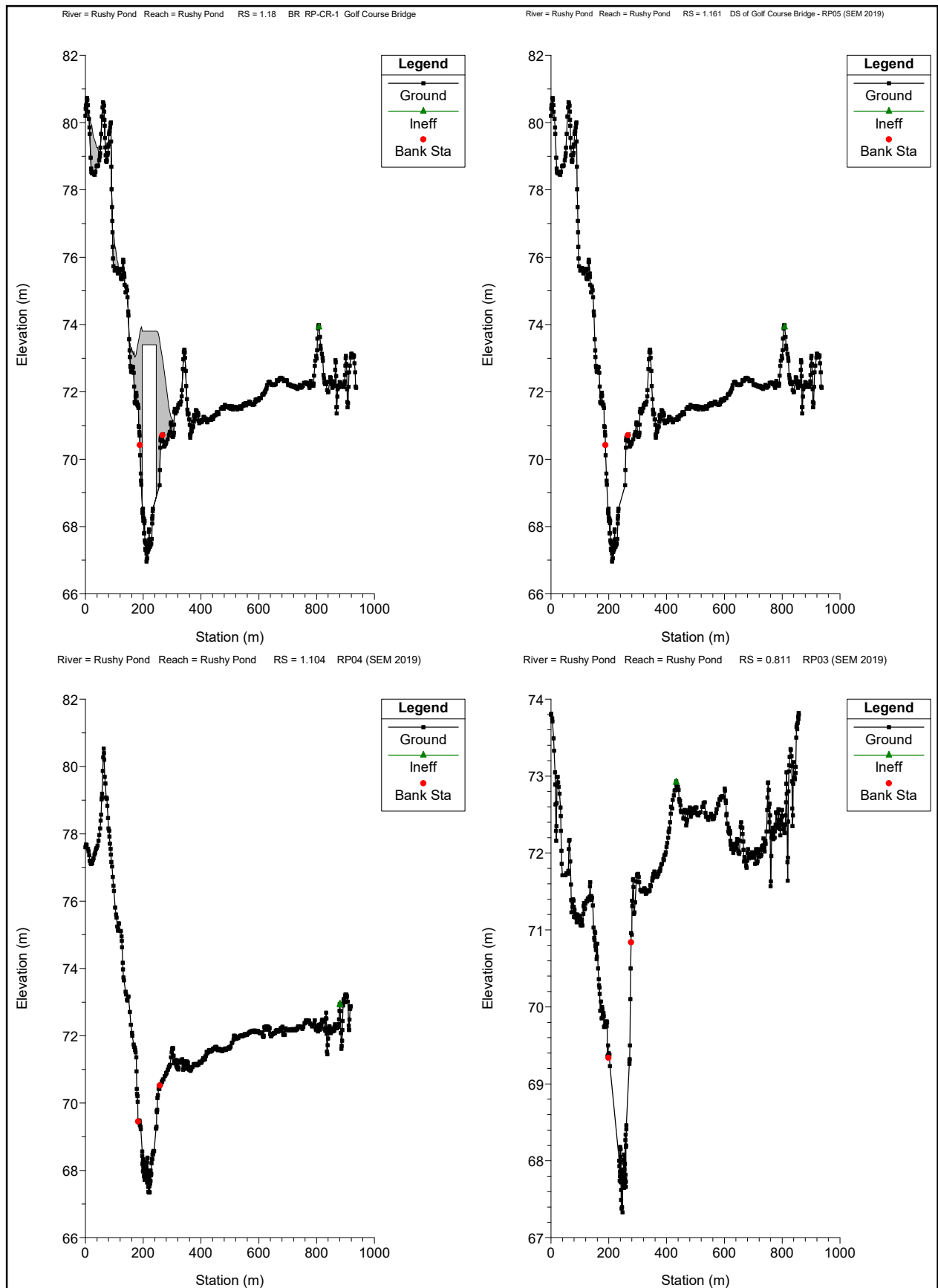


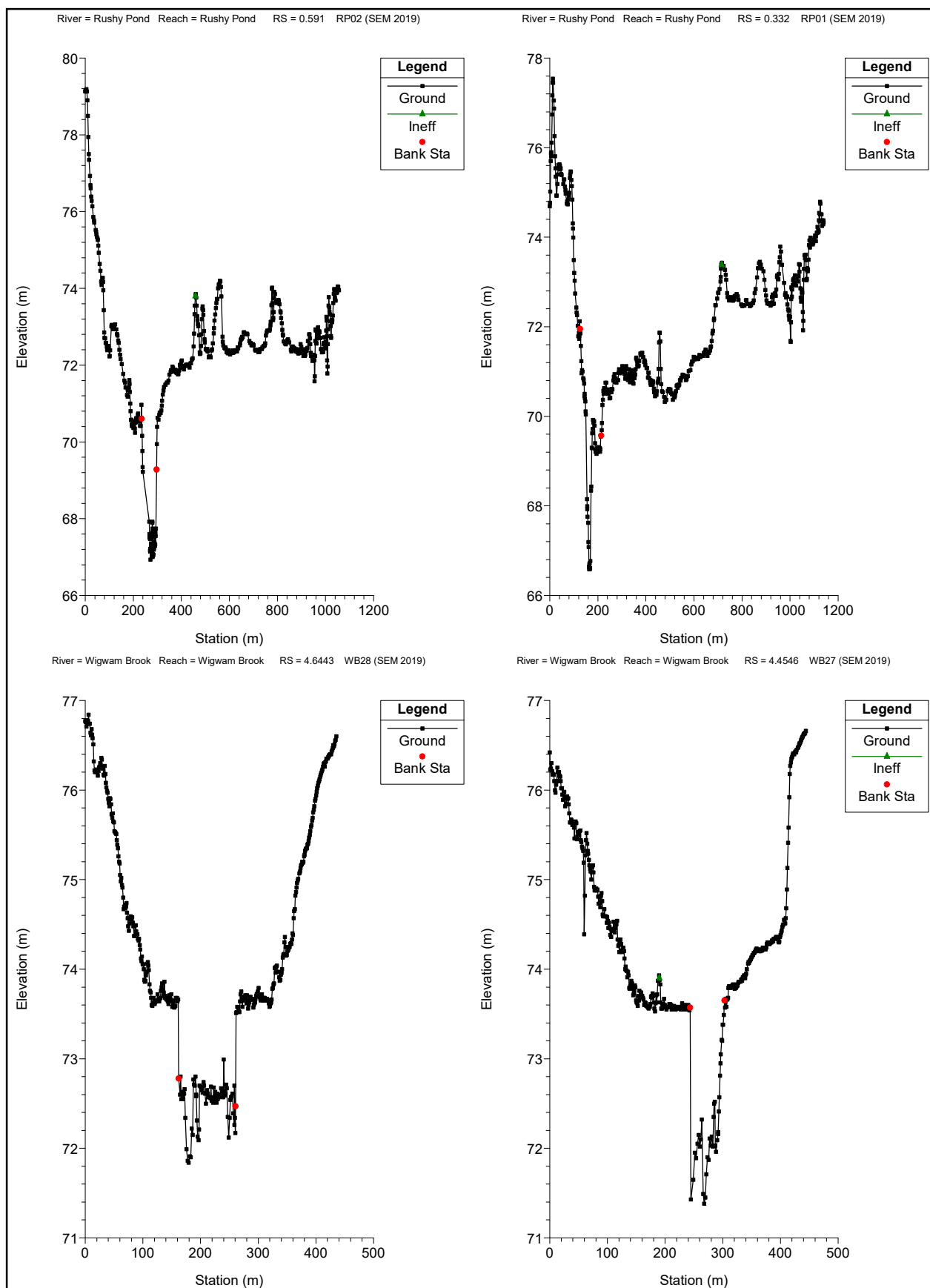


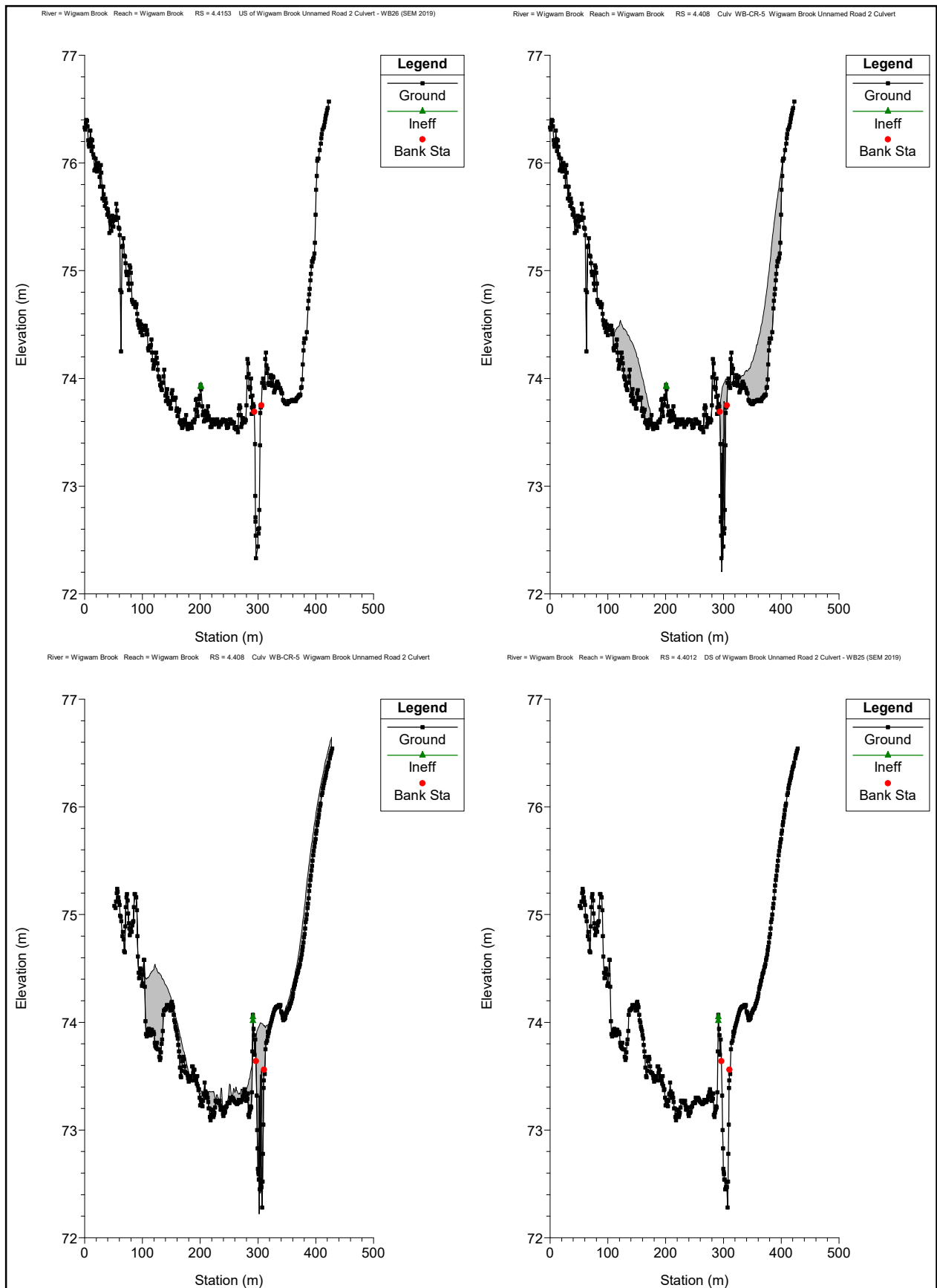


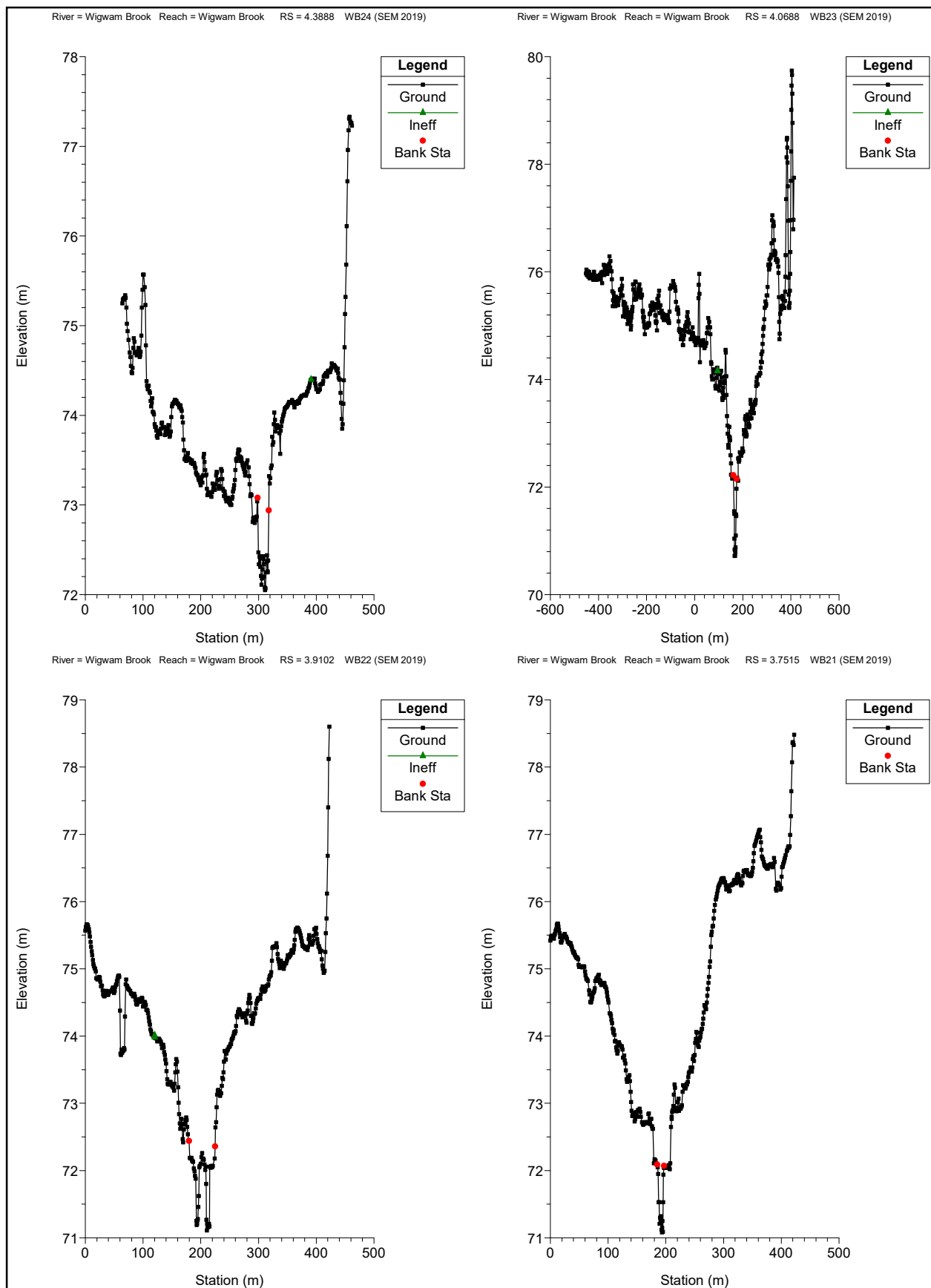


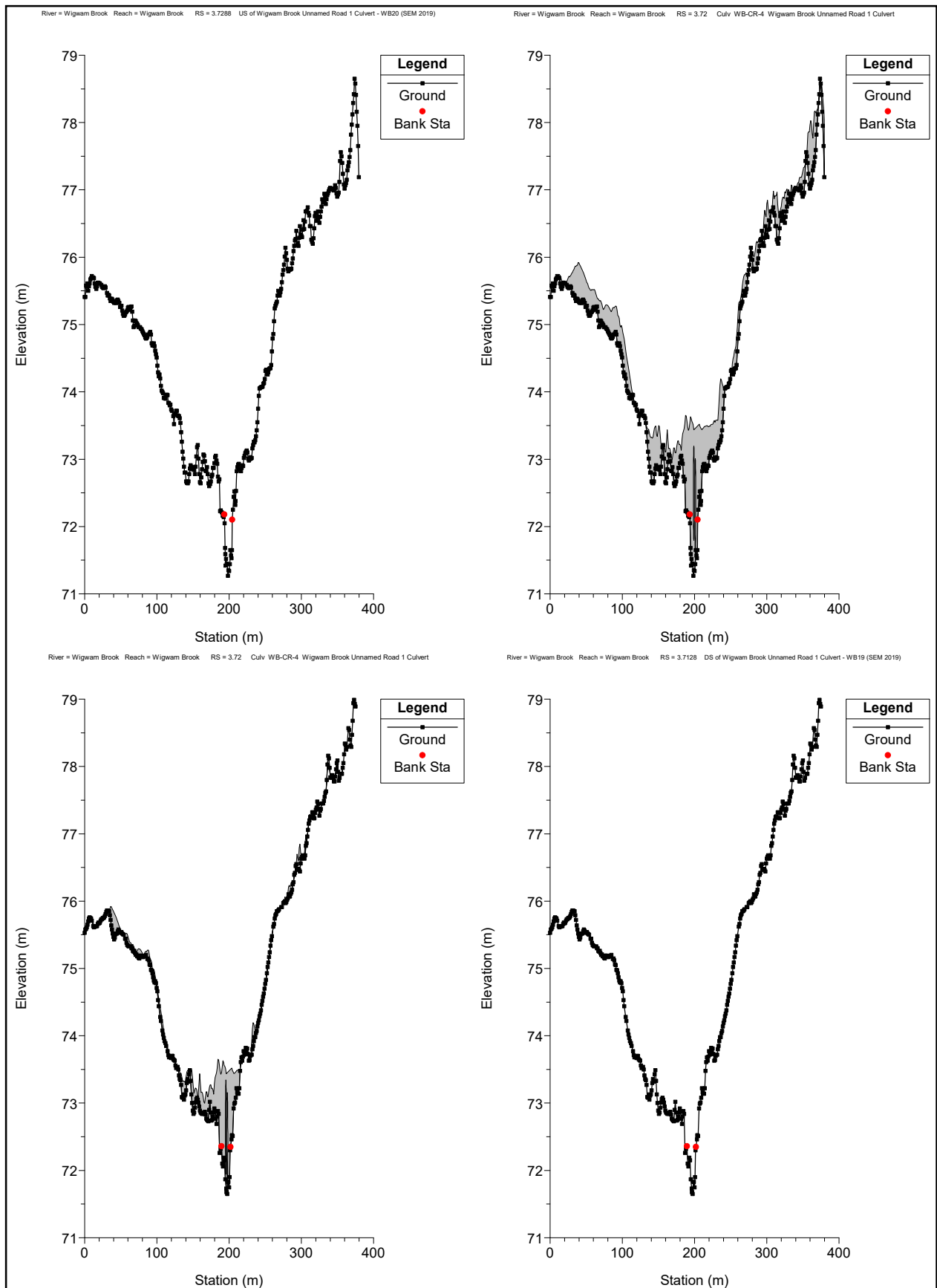


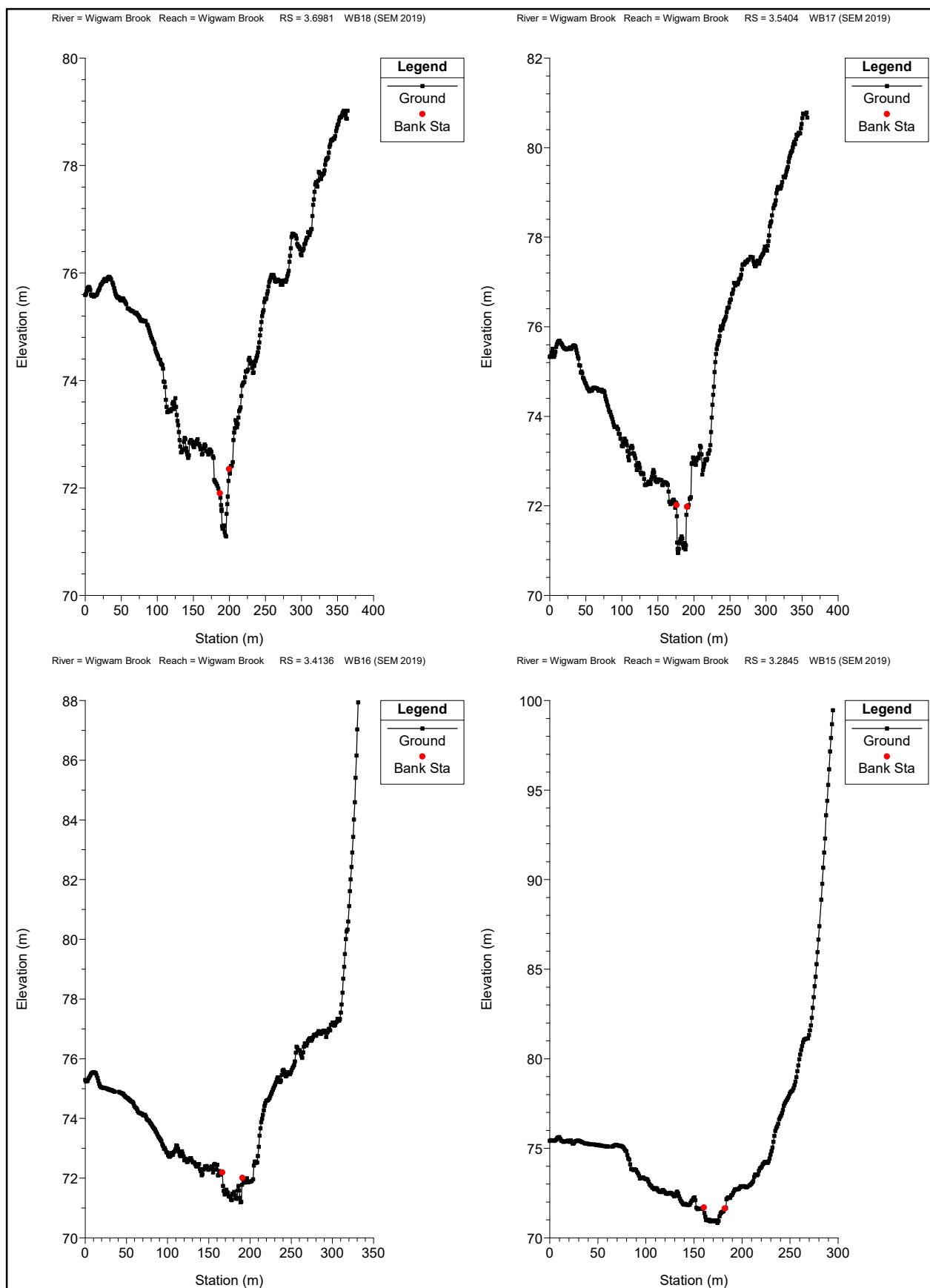


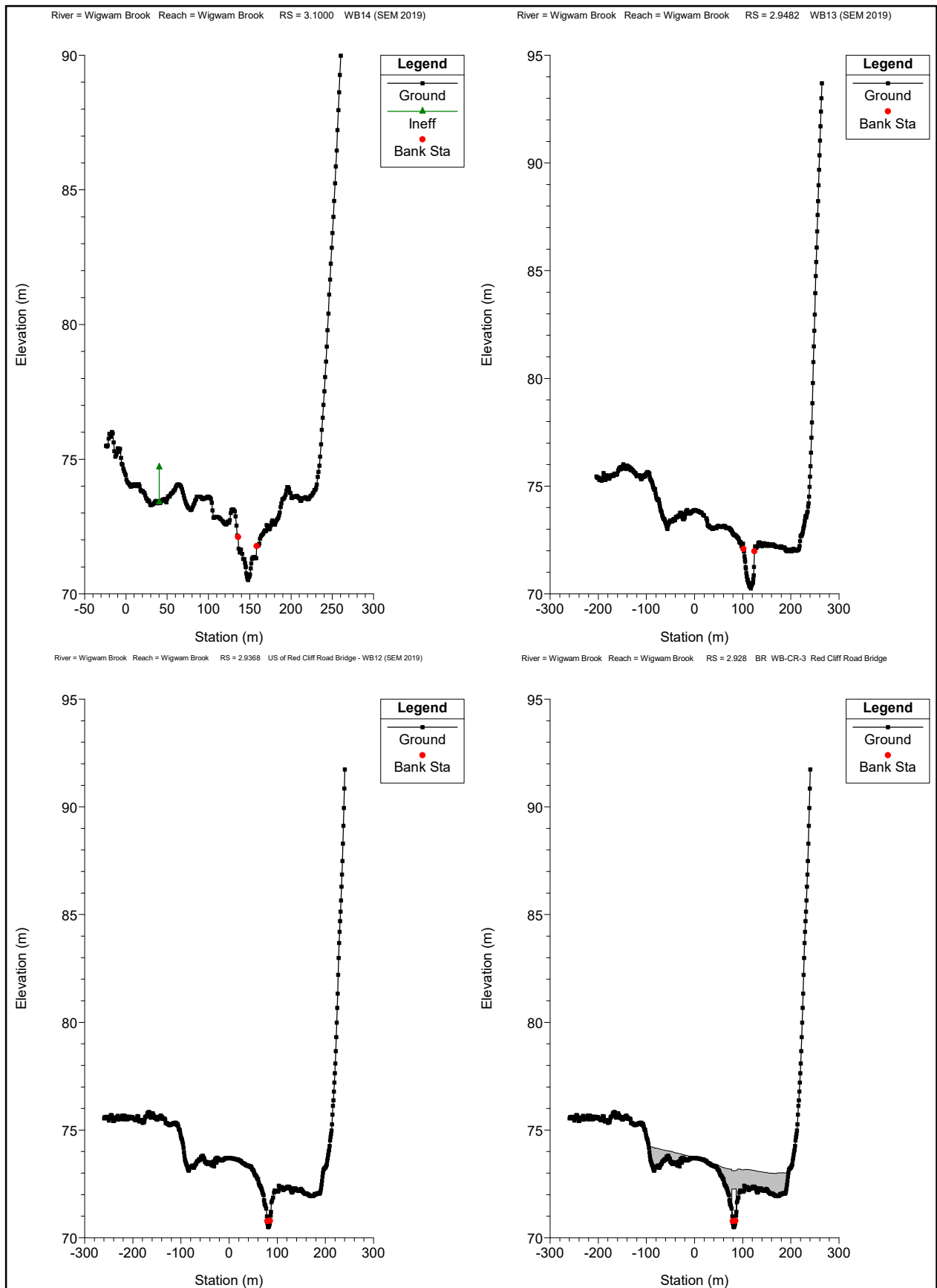


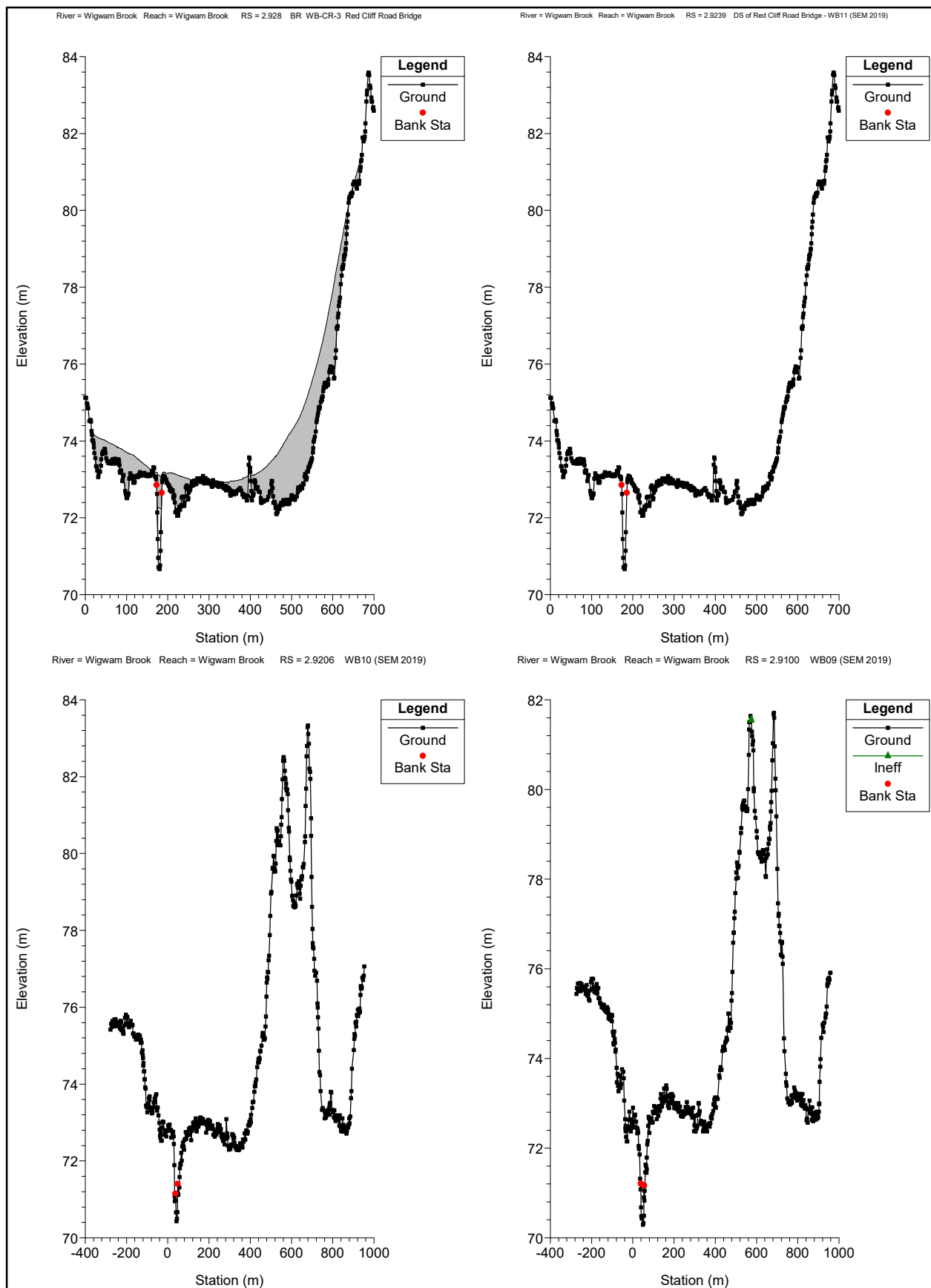


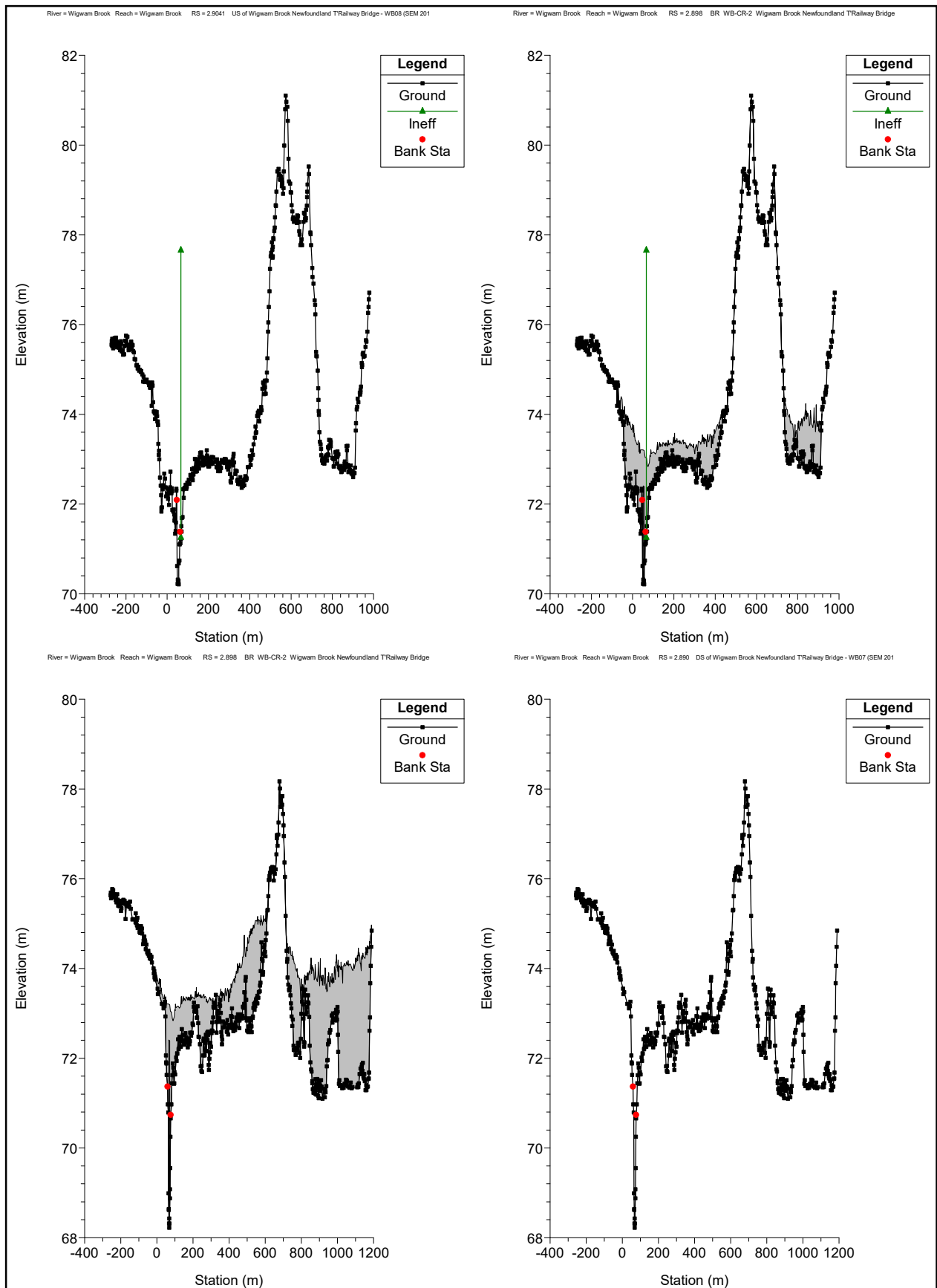


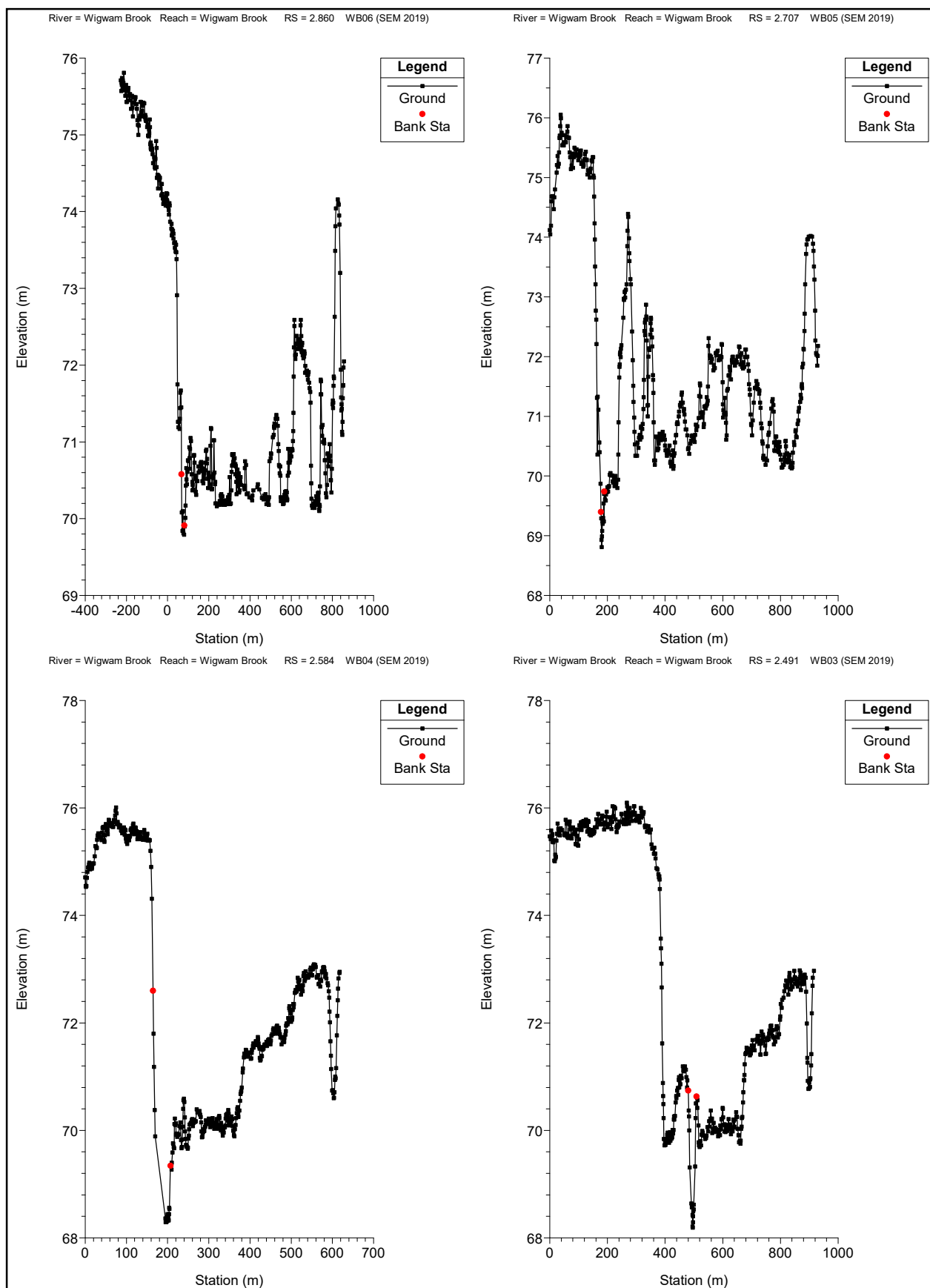


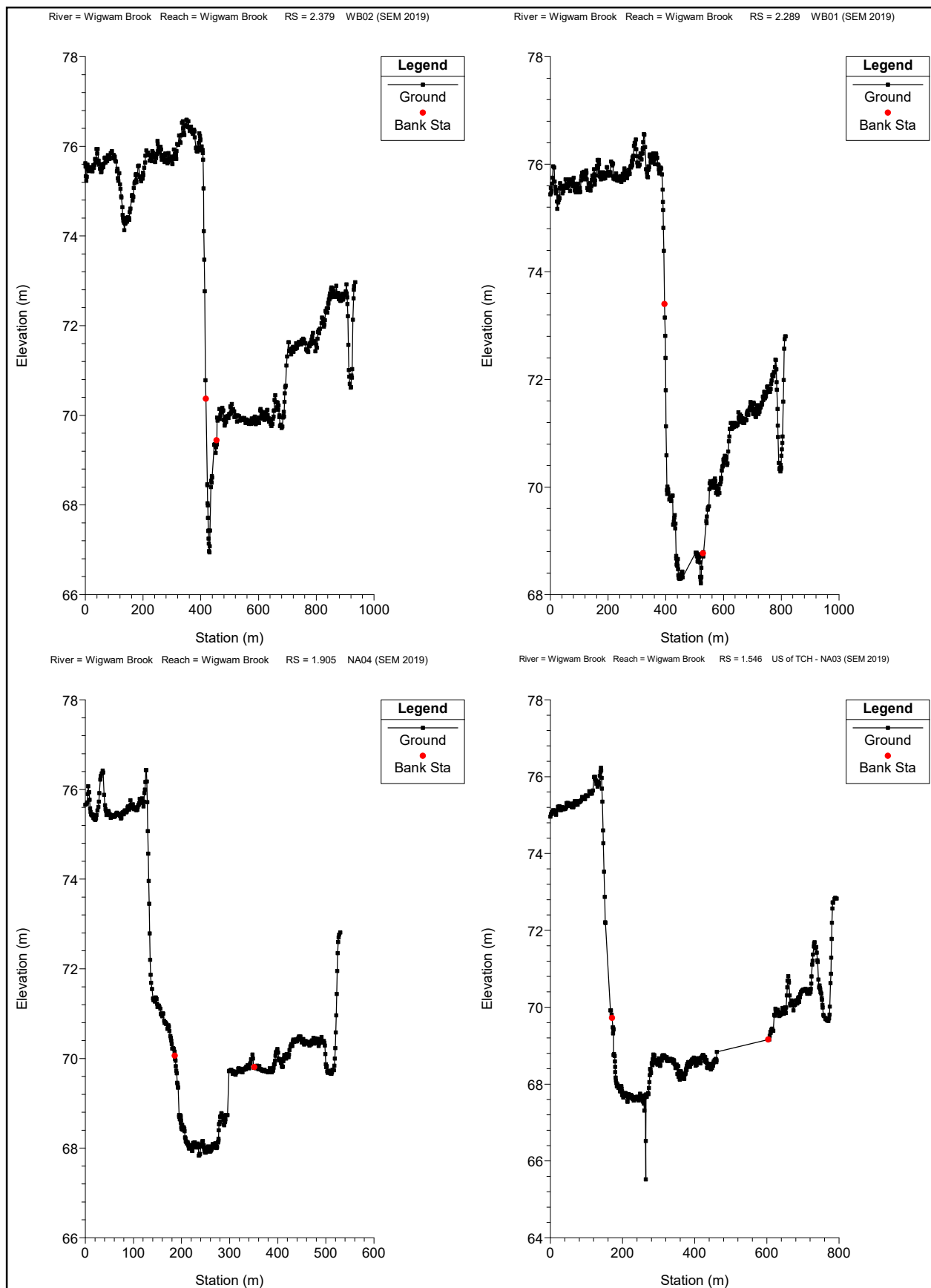


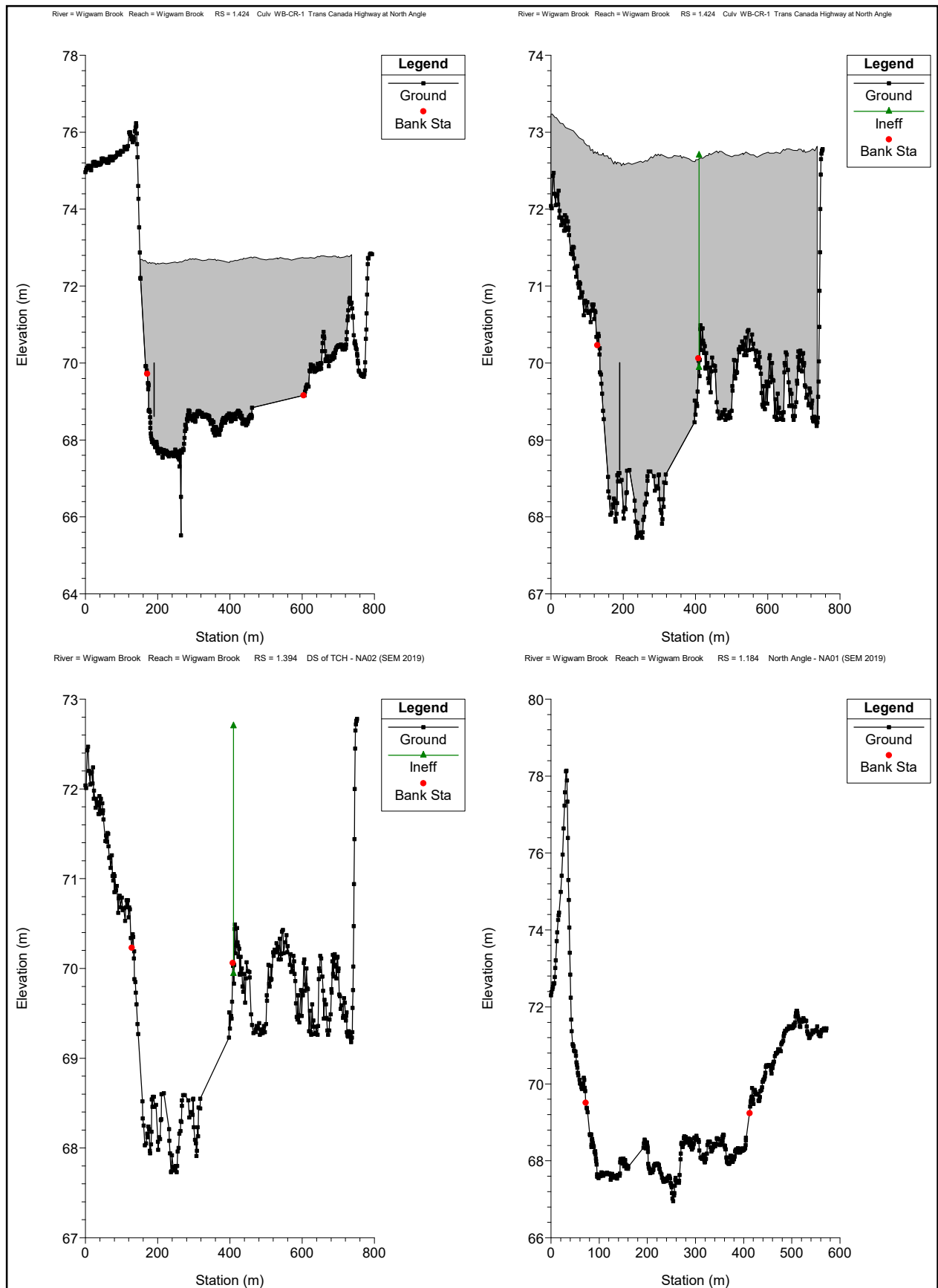












Appendix C: Bridge Data Sheets

Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jun-19
Bridge Location:	LR04 to LR05	Underside of Deck Elevation:	99.73
GPS Northing:	5426536.6	Top of Deck Elevation:	101.55
GPS Easting:	301581.5	Water Level:	97.07
Span:	28.2	No of piers:	N/A
Length (parallel to river):	8.8	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Concrete Road Bridge at intersection of Buchans Highway and LR04-05

Channel Conditions

U/S	Alignment:	Fairly regular, straight, slow flow	Substrate:	Small rocks/cobble, gravel
	Left bank:	Grass, bushes, loose rock close to bridge	Right Bank:	Medium bush and grass
	Left floodplain:	Light grass and bush	Right floodplain:	Medium bush and grass
D/S	Alignment:	Fairly straight, slight turn to right bank	Substrate:	Small rocks/cobble, gravel
	Left bank:	Gravel, loose rock, some grass	Right Bank:	Grass, light bush
	Left floodplain:	Gravel, medium bush	Right floodplain:	Medium bush and grass

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jun-19
Bridge Location:	BF3-20 to BF3-21	Underside of Deck Elevation:	27.24
GPS Northing:	5430160.9	Top of Deck Elevation:	27.47
GPS Easting:	340989	Water Level:	25.1 (D/S) 25.5 (U/S)
Span:	9.1	No of piers:	N/A
Length (parallel to river):	3.6	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Wooden bridge for driveway vehicles

Channel Conditions

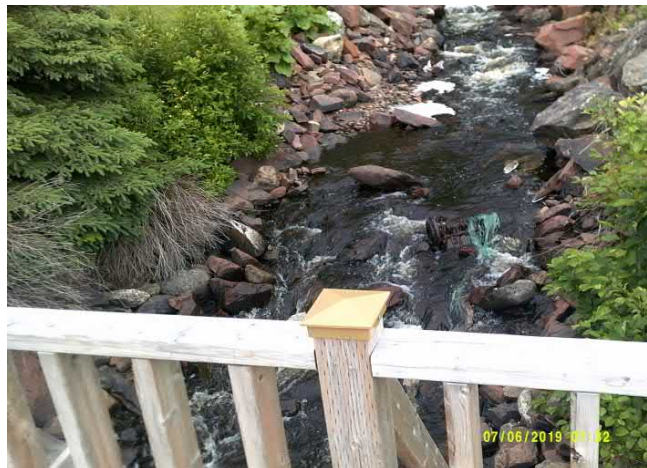
U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass then gravel shoulder of road	Right floodplain:	Grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocks, bush	Right Bank:	Rock wall
	Left floodplain:	Grass then gravel shoulder of road	Right floodplain:	Grass, trees

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jun-19
Bridge Location:	BF3-24 to BF3-25	Underside of Deck Elevation:	29.8
GPS Northing:	5430199.1	Top of Deck Elevation:	30.2
GPS Easting:	340966.6	Water Level:	28.1 (D/S)
Span:	6.2	No of piers:	N/A
Length (parallel to river):	3.6	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Wooden bridge for driveway vehicles

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass then gravel shoulder of road	Right floodplain:	Grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocks, bush	Right Bank:	Rocky slope
	Left floodplain:	Bush/trees then gravel shoulder of road	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jun-19
Bridge Location:	BF3-28 to BF3-29	Underside of Deck Elevation:	32.5
GPS Northing:	5430229.133	Top of Deck Elevation:	32.9
GPS Easting:	340947.63	Water Level:	30.5 (D/S), 31.2 (U/S)
Span:	9.2	No of piers:	N/A
Length (parallel to river):	3.3	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Wooden bridge for driveway vehicles

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope with concrete poured over	Right Bank:	Rocky slope with concrete poured over
	Left floodplain:	Gravel shoulder of road	Right floodplain:	Grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Gravel shoulder of road	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jun-19
Bridge Location:	BF3-30A to BF3-30B	Underside of Deck Elevation:	34.65
GPS Northing:	5430261.3	Top of Deck Elevation:	35.2
GPS Easting:	340922.2	Water Level:	32.8 (D/S), 33.6 (U/S)
Span:	7	No of piers:	N/A
Length (parallel to river):	3.3	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Wooden bridge for driveway vehicles

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass and gravel shoulder of road	Right floodplain:	Grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass/bush then gravel shoulder of road	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jun-19
Bridge Location:	BB03A to BB04C	Underside of Deck Elevation:	99.2
GPS Northing:	5426955.9	Top of Deck Elevation:	100
GPS Easting:	302420.9	Water Level:	96.9(D/S)
Span:	48.5	No of piers:	1
Length (parallel to river):	1.3	Width of piers:	N/A

Comments

Condition:	No deficiencies noted
Other:	Wooden foot bridge

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Grass, trees, bush	Right Bank:	Bush, trees
	Left floodplain:	Gravel driveway	Right floodplain:	Trees (medium)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush, small trees	Right Bank:	Gravel, bush
	Left floodplain:	Trees, gravel road	Right floodplain:	Small tress, grass

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jun-19
Bridge Location:	BB02A to BB03D	Underside of Deck Elevation:	99.3(RB), 99.5 (LB)
GPS Northing:	5426851.3	Top of Deck Elevation:	101.1(RB), 101.3 (LB)
GPS Easting:	302371.2	Water Level:	96.83
Span:	68.9	No of piers:	1
Length (parallel to river):	8.9	Width of piers:	N/A

Comments

Condition:	Lots of pot holes/patches in the road over the bridge (see additional photo in deliverables)
Other:	Concrete road bridge

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Gravel/Rock	Right Bank:	Grass and gravel
	Left floodplain:	Bush (lightly vegetated)	Right floodplain:	Bush (lightly vegetated)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush (lightly vegetated)	Right Bank:	Bush, alders
	Left floodplain:	Small trees	Right floodplain:	Bush, alders

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jun-19
Bridge Location:	BB01A to BB02E	Underside of Deck Elevation:	99.6
GPS Northing:	5426469.8	Top of Deck Elevation:	100.5
GPS Easting:	302322.7	Water Level:	96.45
Span:	58	No of piers:	3
Length (parallel to river):	3.3	Width of piers:	N/A

Comments

Condition:	Some of the rails are broken off, but mostly in good condition
Other:	(See additional photo of bridge in deliverables)

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush, alders	Right Bank:	Bush, alders
	Left floodplain:	Trees (medium vegetation)	Right floodplain:	Trees (medium vegetation)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush, alders	Right Bank:	Bush, grass
	Left floodplain:	Trees (medium vegetation)	Right floodplain:	Grass, trees (light vegetation)

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jun-19
Bridge Location:	CB10 to CB11	Underside of Deck Elevation:	69.6 (LB), 68.1 (RB)
GPS Northing:	5422335.2	Top of Deck Elevation:	70.0 (LB), 68.5 (RB)
GPS Easting:	329426.8	Water Level:	66.8 (U/S)
Span:	8	No of piers:	N/A
Length (parallel to river):	1.7	Width of piers:	N/A

Comments

Condition:	In good condition
Other:	Wooden foot bridge

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Rocks, grass	Right Bank:	Rocks, trees
	Left floodplain:	Grass	Right floodplain:	Grass, gravel trail
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Trees, rocks (medium vegetation)	Right Bank:	Rocks, trees
	Left floodplain:	Grass, trees (medium)	Right floodplain:	Medium trees/gravel trail

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jun-19
Bridge Location:	CB15 to CB16	Underside of Deck Elevation:	70.1 (LB), 71.1 (RB)
GPS Northing:	5422471.8	Top of Deck Elevation:	70.5 (LB), 71.5 (RB)
GPS Easting:	329496.1	Water Level:	68.65
Span:	10.8	No of piers:	N/A
Length (parallel to river):	1.6	Width of piers:	N/A

Comments

Condition:	Half of wooden railing missing on D/S side, looks sunken on U/S side
Other:	On the bottom of the bridge wooden pieces are cracking off

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Gravel, grass	Right Bank:	Gravel, small trees
	Left floodplain:	Bush, grass	Right floodplain:	Gravel Trail
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Gravel, grass	Right Bank:	Gravel, small trees
	Left floodplain:	Bush, grass	Right floodplain:	Gravel Trail

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jun-19
Bridge Location:	CB18A to CB18B	Underside of Deck Elevation:	70.4 (LB), 70.7 (RB)
GPS Northing:	5422627.2	Top of Deck Elevation:	71.2 (LB), 71.5 (RB)
GPS Easting:	329457.6	Water Level:	69.5
Span:	15.3	No of piers:	N/A
Length (parallel to river):	10.2	Width of piers:	N/A

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular, wider	Substrate:	Rocks, cobble
	Left bank:	Gravel/bush	Right Bank:	Rocks
	Left floodplain:	Bush, trees	Right floodplain:	Gravel Trail
D/S	Alignment:	Fairly straight and regular, narrower	Substrate:	Rocks, cobble
	Left bank:	Reeds, grass	Right Bank:	Rocks
	Left floodplain:	Bush, trees	Right floodplain:	Gravel Trail

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jun-19
Bridge Location:	CB20 to CB21	Underside of Deck Elevation:	71.2 (LB), 71.4 (RB)
GPS Northing:	5422683	Top of Deck Elevation:	71.8 (LB), 72 (RB)
GPS Easting:	329429.2	Water Level:	70
Span:	11.2	No of piers:	N/A
Length (parallel to river):	4.3	Width of piers:	N/A

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Gravel/rocks	Right Bank:	Gravel, rocks
	Left floodplain:	Gravel/grass	Right floodplain:	Gravel Trail
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, cobble
	Left bank:	Rocks	Right Bank:	Rocks
	Left floodplain:	Grass	Right floodplain:	Gravel Trail

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	14-Aug-19
Bridge Location:	RP05 to RP06	Underside of Deck Elevation:	73.7
GPS Northing:	5422384.8	Top of Deck Elevation:	74.1
GPS Easting:	325441.8	Water Level:	69.5
Span:	45.8	No of piers:	N/A
Length (parallel to river):	3	Width of piers:	N/A

Comments

Condition:	In good condition
Other:	Flow here is variable (according to water level could flow one way or another) Spoke to golfers in the area, the golf course around this bridge is prone to flooding (happened two years ago)

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Gravel, concrete wall	Right Bank:	Gravel, concrete wall
	Left floodplain:	Bush (medium)	Right floodplain:	Bush (medium)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Rocks, concrete wall	Right Bank:	Gravel, concrete wall
	Left floodplain:	Rocks, bush (light)	Right floodplain:	Bush, trees (medium)

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jun-19
Bridge Location:	CB34 to CB35	Underside of Deck Elevation:	74.3(LB), 73.4 (RB)
GPS Northing:	5423136.5	Top of Deck Elevation:	74.8 (LB), 73.9 (RB)
GPS Easting:	329464.1	Water Level:	73.15
Span:	8.4	No of piers:	N/A
Length (parallel to river):	1.7	Width of piers:	N/A

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Gravel, bush	Right Bank:	Grass, bush
	Left floodplain:	Bush, road	Right floodplain:	Bush, alders
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Grass, bush	Right Bank:	Bush, alders
	Left floodplain:	Grass, road	Right floodplain:	Bush, trees

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	14-Aug-19
Bridge Location:	RP09 to RP10	Underside of Deck Elevation:	71.2
GPS Northing:	5422626.8	Top of Deck Elevation:	72.9
GPS Easting:	325642.8	Water Level:	69.6 (D/S)
Span:	47.5	No of piers:	1
Length (parallel to river):	8.6	Width of piers:	N/A

Comments

Condition:	Some pot holes in asphalt road, some crumbling concrete in abutments
Other:	Flow here is variable (according to water level could flow one way or another)
	Concrete Road bridge at TCH

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Boulders, gravel	Right Bank:	Gravel, grass
	Left floodplain:	Grass, gravel, bush	Right floodplain:	Bush, grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Boulders, bush, grassy marsh area	Right Bank:	Boulders, bush, grass
	Left floodplain:	Bush, fir trees	Right floodplain:	Gravel, bush

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	14-Aug-19
Bridge Location:	RP11 to RP12	Underside of Deck Elevation:	71.4 (RB), 71.6 (LB)
GPS Northing:	5422671.1	Top of Deck Elevation:	72.3 (RB), 72.5 (LB)
GPS Easting:	325610.6	Water Level:	69.5
Span:	24.6	No of piers:	N/A
Length (parallel to river):	4.2	Width of piers:	N/A

Comments

Condition:	In good condition, some wood chipped on bridge surface
Other:	Flow here is variable (according to water level could flow one way or another)

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Boulders, gravel	Right Bank:	Boulders, gravel
	Left floodplain:	Boulders, gravel, bush	Right floodplain:	Boulders, gravel, bush
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks, gravel
	Left bank:	Rocks, bush	Right Bank:	Rocks, grass
	Left floodplain:	Bush (medium)	Right floodplain:	Bush (medium)

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	9-Jun-19
Bridge Location:	WB7 to WB8	Underside of Deck Elevation:	72.7
GPS Northing:	5423377.3	Top of Deck Elevation:	73.5
GPS Easting:	321916	Water Level:	70.6
Span:	4.5	No of piers:	N/A
Length (parallel to river):	3.4	Width of piers:	N/A

Comments

Condition:	Wooden bridge has some pieces splintering off, some crumbling concrete on bottom of bridge
Other:	Wooden road bridge on gravel road

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble (medium to large)
	Left bank:	Small trees, bush, boulders	Right Bank:	Bush, deciduous trees (medium to large)
	Left floodplain:	Deciduous trees (medium-large)	Right floodplain:	Deciduous trees (large)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble (medium to large)
	Left bank:	Boulders, bush and small trees	Right Bank:	Boulders, deciduous tress (medium)
	Left floodplain:	Deciduous trees (medium)	Right floodplain:	Deciduous trees (medium)

Photos

Downstream:



Upstream:



Bridge Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	9-Jun-19
Bridge Location:	WB11 to WB12	Underside of Deck Elevation:	72.55
GPS Northing:	5423411.4	Top of Deck Elevation:	73.4
GPS Easting:	321922.6	Water Level:	70.95
Span:	8.6	No of piers:	N/A
Length (parallel to river):	6.6	Width of piers:	N/A

Comments

Condition:	Concrete on underside of bridge is crumbling, asphalt on top of bridge has cracks in it.
Other:	Concrete road bridge

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Deciduous trees (medium)	Right Bank:	Bush, trees (medium)
	Left floodplain:	Deciduous trees (medium)	Right floodplain:	Deciduous trees (medium)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Bush, alders (light)	Right Bank:	Alders, trees (medium)
	Left floodplain:	Deciduous trees (medium)	Right floodplain:	Deciduous trees (medium)

Photos

Downstream:



Upstream:



Appendix D: Culvert Data Sheets

Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jul-19
Location:	B1-07 to B1-08	Inlet Configuration:	Projecting from fill
GPS Northing:	5426922	Top Elevation:	100.65 (D/S), 100.75 (U/S)
GPS Easting:	301118.3	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.1m	Upstream Invert Elevation:	99.72
Material:	CMP	Downstream Invert elevation:	99.59
No. of barrels:	1	Length:	9.2

Comments

Condition:	In good condition but area around is overgrown with vegetation
Other:	

Channel Conditions

U/S	Alignment:	Goes into a marsh area (widens)	Substrate:	Mud (marsh)
	Left bank:	Grass, bush	Right Bank:	Grass
	Left floodplain:	Grass, bush, small trees	Right floodplain:	Grass, bush, small trees
D/S	Alignment:	Goes into a marsh area (widens)	Substrate:	Mud (marsh)
	Left bank:	Grass, bush	Right Bank:	Grass, bush
	Left floodplain:	Bush, small trees	Right floodplain:	Bush, small trees

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	4-Jul-19
Location:	BF1-03 to BF1-04	Inlet Configuration:	Projecting from boulders/fill
GPS Northing:	5432561.226	Top Elevation:	6.88 (U/S), 6.55 (D/S)
GPS Easting:	346208.835	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size	0.5m	Upstream Invert Elevation:	6.38
Material:	PVC	Downstream Invert elevation:	6.05
No. of barrels:	1	Length:	14.3m

Comments

Condition:	No deficiencies noted
Other:	

Channel Conditions

U/S	Alignment:	Ditch aligned with road that turns for culvert	Substrate:	Small rocks/cobble, gravel
	Left bank:	Sand, boulders, gravel, rocks	Right Bank:	Boulders, gravel, rocks
	Left floodplain:	Grass, bush	Right floodplain:	Gravel Road
D/S	Alignment:	Fairly straight, slight turn to right bank	Substrate:	Small rocks/cobble, gravel
	Left bank:	Boulders, gravel, rocks	Right Bank:	Boulders, gravel, rocks
	Left floodplain:	Grass, bush	Right floodplain:	Gravel

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	5-Jul-19
Location:	BF2-11 to BF2-12	Inlet Configuration:	Projecting from rock fill
GPS Northing:	5431382.2	Top Elevation:	16.97 (U/S), 16.78 (D/S)
GPS Easting:	343412.3	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.9m	Upstream Invert Elevation:	15.92(RB), 16.0 (LB)
Material:	PVC	Downstream Invert elevation:	15.85(RB), 15.78 (LB)
No. of barrels:	2	Length:	8.9m

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Ditch aligned with road turns at culvert	Substrate:	Small rocks/cobble, gravel
	Left bank:	Gravel, rock	Right Bank:	Gravel, rock
	Left floodplain:	Bush, trees	Right floodplain:	Bush, trees
D/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Bush, grass	Right Bank:	Grass
	Left floodplain:	Bush, trees	Right floodplain:	Bush, trees

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	5-Jul-19
Location:	BF2-03 to BF2-04	Inlet Configuration:	Projecting from boulders/fill
GPS Northing:	5431292.8	Top Elevation:	15.38 (U/S), 13.74 (D/S)
GPS Easting:	343484.73	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size	1.8m wide and 1.4m high	Upstream Invert Elevation:	14.04
Material:	CMP	Downstream Invert elevation:	12.4
No. of barrels:	1	Length:	46.0m

Comments

Condition:	Culvert is squished down and a little rusted
Other:	Stream has debris in (headstone, branches, garbage)

Channel Conditions

U/S	Alignment:	Ditch aligned with road that turns for culvert	Substrate:	Small rocks/cobble, gravel
	Left bank:	Grass	Right Bank:	Grass
	Left floodplain:	Bush, trees, grass	Right floodplain:	Grass (backyard)
D/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Grass, bush, rocks	Right Bank:	Grass, bush, rocks
	Left floodplain:	Grass, bush	Right floodplain:	Grass, bush

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	5-Jul-19
Location:	BF2-07 to BF2-08	Inlet Configuration:	Projecting from rock wall
GPS Northing:	5431346.8	Top Elevation:	16.44 (U/S), 16.32 (D/S)
GPS Easting:	343452	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size	1.6m	Upstream Invert Elevation:	14.89
Material:	CMP	Downstream Invert elevation:	14.71
No. of barrels:	1	Length:	13.4m

Comments

Condition:	In good condition
Other:	

Channel Conditions

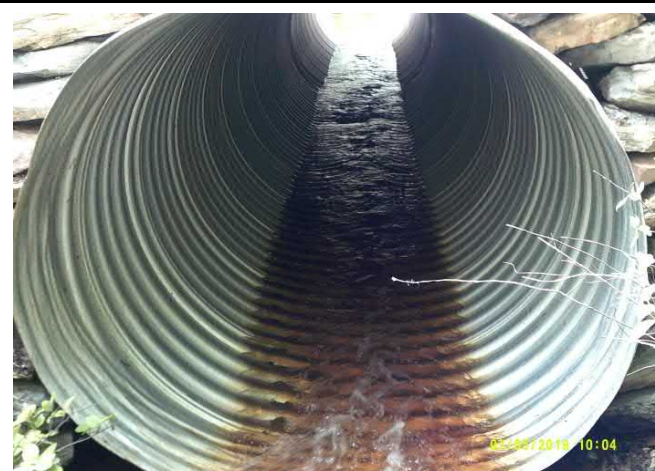
U/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Bush, grass	Right Bank:	Bush, grass
	Left floodplain:	Bush and trees	Right floodplain:	Bush and trees
D/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Bush, grass	Right Bank:	Grass
	Left floodplain:	Grass, bush	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	5-Jul-19
Location:	BF3-01B to BF3-12	Inlet Configuration:	Projecting from concrete headwall
GPS Northing:	5429800.8	Top Elevation:	18.56 (U/S), 14.37 (D/S)
GPS Easting:	341073.1	Headwall material:	Concrete
Shape:	Circular	Wingwall angle:	Varies
Size	1.9m	Upstream Invert Elevation:	16.66
Material:	CMP	Downstream Invert elevation:	12.65
No. of barrels:	1	Length:	Unable to measure (long)

Comments

Condition:	In good condition
Other:	Long underground culvert
	The culvert pictured on top is an old culvert that goes to an old dried up stream

Channel Conditions

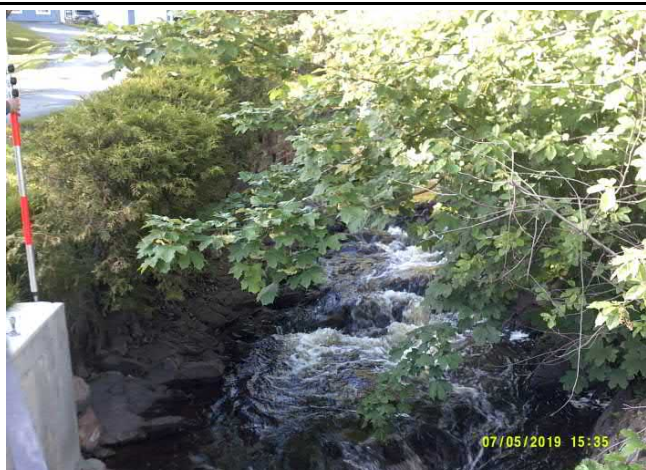
U/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Rock bush	Right Bank:	Grass
	Left floodplain:	Bush, grass	Right floodplain:	Asphalt driveway
D/S	Alignment:	Fairly straight and regular	Substrate:	Small rocks/cobble, gravel
	Left bank:	Conc wall, grass	Right Bank:	Gabion wall, grass
	Left floodplain:	Grass, bush	Right floodplain:	Grass, bush

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jul-19
Location:	BF3-16 to BF3-17	Inlet Configuration:	Projecting from concrete headwall
GPS Northing:	5430103.6	Top Elevation:	24.66 (U/S), 24.59 (D/S)
GPS Easting:	340993.6	Headwall material:	Concrete
Shape:	Circular	Wingwall angle:	45
Size:	1.4m	Upstream Invert Elevation:	23.14(RB), 23.14 (LB)
Material:	CMP	Downstream Invert elevation:	23.06(RB), 23.08 (LB)
No. of barrels:	2	Length:	12.2m

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass then gravel road	Right floodplain:	Grass
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocks, bush	Right Bank:	Rock wall
	Left floodplain:	Trees, medium vegetation	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	6-Jul-19
Location:	BF3-33 to BF3-34	Inlet Configuration:	Projecting from fill (rocks)
GPS Northing:	5430347.6	Top Elevation:	39.1 (U/S), 38.3 (D/S)
GPS Easting:	340914.6	Headwall material:	N/A
Shape:	Rectangular (D/S), Circular (U/S)	No. of barrels:	1
Size:	1.7m high 2.6m wide (D/S)	Upstream Invert Elevation:	36.6(approx, missing shot)
Size:	2.5m (U/S)	Downstream Invert elevation:	36.6
Material:	Concrete (D/S), CMP (U/S)	Length:	N/A

Comments

Condition:	In good condition
Other:	These are two culverts joined together

Channel Conditions

U/S	Alignment:	Turns towards left bank	Substrate:	Rocks/cobble, gravel
	Left bank:	Rocky slope	Right Bank:	Rocks, grass
	Left floodplain:	Rocks, grass	Right floodplain:	Grass, bush
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Grass	Right Bank:	Gravel, Rock
	Left floodplain:	Bush, small trees	Right floodplain:	Gravel, Rock

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	7-Jul-19
Location:	BF4-11 to BF4-12	Inlet Configuration:	Projecting from fill
GPS Northing:	5428056.1	Top Elevation:	18.6RB 18.5LB (U/S), 18.6(D/S)
GPS Easting:	338597	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.8m	Upstream Invert Elevation:	17.9(RB), 17.8(LB)
Material:	PVC	Downstream Invert elevation:	17.9(RB), 17.75 (LB)
No. of barrels:	2	Length:	7.6m

Comments

Condition:	In good condition
Other:	Water level on downstream side is almost to the top of the culverts

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Mud, some gravel around culvert
	Left bank:	Marsh	Right Bank:	Marsh
	Left floodplain:	Marsh	Right floodplain:	Gravel Road (T'railway)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush, marsh	Right Bank:	Bush, marsh
	Left floodplain:	Marsh	Right floodplain:	Marsh

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	7-Jul-19
Location:	BF4-3 to BF4-4	Inlet Configuration:	Projecting from fill
GPS Northing:	5427911.7	Top Elevation:	16.8 (U/S), 16.5 (D/S)
GPS Easting:	338803.3	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.83m high, 1.2m wide	Upstream Invert Elevation:	16.1
Material:	CMP	Downstream Invert elevation:	15.7
No. of barrels:	1	Length:	21.6

Comments

Condition:	In good condition
Other:	Culvert is squished

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Grass, light vegetation	Right Bank:	Grass, light vegetation
	Left floodplain:	Bush, trees	Right floodplain:	Bush, trees
D/S	Alignment:	Turns towards left bank	Substrate:	Rocks/cobble, gravel
	Left bank:	Gabion retaining wall	Right Bank:	Gabion Retaining Wall
	Left floodplain:	Grass	Right floodplain:	Grass and trees (sparse)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	7-Jul-19
Location:	BF4-7 to BF4-8	Inlet Configuration:	Projecting from fill
GPS Northing:	5428033.5	Top Elevation:	18.6 (U/S), 18.6(D/S)
GPS Easting:	338698.4	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.9m	Upstream Invert Elevation:	17.78(RB), 17.73 (LB)
Material:	CMP	Downstream Invert elevation:	17.75(RB), 17.73 (LB)
No. of barrels:	2	Length:	9.2

Comments

Condition:	Bottoms are rusted out on downstream side
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Grass, light vegetation	Right Bank:	Grass, light vegetation
	Left floodplain:	Bush, trees (medium density)	Right floodplain:	Bush, trees (medium density)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Grass	Right Bank:	Small trees, bush
	Left floodplain:	Bush, trees (medium density)	Right floodplain:	Bush, trees (medium density)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	13-Aug-19
Location:	CB2 to CB3	Inlet Configuration:	Projecting from fill
GPS Northing:	5422129	Top Elevation:	62.3(D/S), 62.4 (U/S)
GPS Easting:	329222	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1m	Upstream Invert Elevation:	61.4 (LB), 61.5 (RB)
Material:	CMP	Downstream Invert elevation:	61.3 (LB), 61.4 (RB)
No. of barrels:	2	Length:	15.1

Comments

Condition:	Some corrosion
Other:	Tree fall upstream

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Gravel, rock	Right Bank:	Gravel, rock
	Left floodplain:	Bush (medium)	Right floodplain:	Bush (medium)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Gravel, rock	Right Bank:	Gravel, rock
	Left floodplain:	Bush, trees (medium)	Right floodplain:	Bush, trees (medium)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jul-19
Location:	CB24 to CB25	Inlet Configuration:	Projecting from gabion retaining wall
GPS Northing:	5422775.7	Top Elevation:	72.5 (U/S)
GPS Easting:	329393.9	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.7	Upstream Invert Elevation:	70.9
Material:	CMP	Downstream Invert elevation:	70.5
No. of barrels:	1	Length:	13

Comments

Condition:	Bottom has been corroded off
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Gabion retaining wall	Right Bank:	Gabion retaining wall
	Left floodplain:	Tall trees (medium)	Right floodplain:	Bush, trees, gravel trail
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Gabion retaining wall	Right Bank:	Gabion retaining wall
	Left floodplain:	Tall trees (medium)	Right floodplain:	Bush, trees, gravel trail

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jul-19
Location:	CB29 to CB30	Inlet Configuration:	Procecting from rock fill
GPS Northing:	5423001.3	Top Elevation:	73.6 (D/S), 73.9 (U/S)
GPS Easting:	329315.8	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.7	Upstream Invert Elevation:	72.05
Material:	CMP	Downstream Invert elevation:	72.02
No. of barrels:	1	Length:	45.2

Comments

Condition:	Downstream culvert missing top piece, corrosion observed
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Bush	Right Bank:	Gravel, grass
	Left floodplain:	Bush, road	Right floodplain:	Bush, road
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Boulders, grass	Right Bank:	Boulders, grass
	Left floodplain:	Gravel	Right floodplain:	Gravel

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jul-19
Location:	CB40 to CB41	Inlet Configuration:	Projecting from fill
GPS Northing:	5423285.5	Top Elevation:	75.2 (D/S) 75.2 (U/S)
GPS Easting:	329578	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.8	Upstream Invert Elevation:	74.1
Material:	CMP	Downstream Invert elevation:	73.9
No. of barrels:	1	Length:	23.8

Comments

Condition:	Culvert is squished
Other:	D/S invert had tree debris inside so invert is approximate

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Gravel/bush	Right Bank:	Gravel, bush
	Left floodplain:	Gravel/bush	Right floodplain:	Bush, gravel
D/S	Alignment:	Deep water, widens to a marsh	Substrate:	Rocks/gravel
	Left bank:	Bush, trees	Right Bank:	Bush, trees
	Left floodplain:	Bush, trees, gravel trail	Right floodplain:	Bush, marsh area

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	11-Jul-19
Location:	CB47A to CB51	Inlet Configuration:	Projecting from fill
GPS Northing:	5423293.2	Top Elevation:	80.1 (U/S), 79.7 (D/S)
GPS Easting:	330022.37	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.5m	Upstream Invert Elevation:	78.7
Material:	CMP	Downstream Invert elevation:	78.1
No. of barrels:	1	Length:	134m

Comments

Condition:	In good condition
Other:	This culvert is a long underground culvert so actual length may be longer. Length given above is the 'straight line' length

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Boulder, rock wall	Right Bank:	Boulder, rock wall
	Left floodplain:	Gravel, bush	Right floodplain:	Gravel, bush
D/S	Alignment:	Turns towards left bank	Substrate:	Rocks/gravel
	Left bank:	Bush, tress (medium)	Right Bank:	Bush, trees (medium)
	Left floodplain:	Bush, tress (heavy)	Right floodplain:	Bush, trees (heavy)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	11-Jul-19
Location:	CB55 to CB61	Inlet Configuration:	Projecting from concrete wall
GPS Northing:	5423570.4	Top Elevation:	80.9 (D/S), 81.1 (U/S)
GPS Easting:	330307.2	Headwall material:	Concrete
Shape:	Circular	Wingwall angle:	N/A
Size:	1.7	Upstream Invert Elevation:	79.5
Material:	CMP	Downstream Invert elevation:	79.4
No. of barrels:	1	Length:	Unknown (long underground culvert)

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Grass, bush	Right Bank:	Grass, bush
	Left floodplain:	Marsh	Right floodplain:	Marsh
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/gravel
	Left bank:	Concrete, bush	Right Bank:	Concrete, grass
	Left floodplain:	Bush (light)	Right floodplain:	Grass

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	11-Jul-19
Location:	CB67 to CB68	Inlet Configuration:	Projecting from rock wall
GPS Northing:	5423887.5	Top Elevation:	82.1 (D/S), 82.3 (U/S)
GPS Easting:	330612.4	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.7	Upstream Invert Elevation:	80.5
Material:	CMP	Downstream Invert elevation:	80.4
No. of barrels:	1	Length:	22.2

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Turns towards right bank	Substrate:	Gravel, rock
	Left bank:	Boulders	Right Bank:	Boulders, gravel
	Left floodplain:	Bush (light)	Right floodplain:	Bush (light)
D/S	Alignment:	Widens into a marsh area	Substrate:	Gravel, rock
	Left bank:	Boulders, bush	Right Bank:	Boulders, gravel
	Left floodplain:	Bush, small trees	Right floodplain:	Bush, gravel

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	10-Jul-19
Location:	CB7 to CB8	Inlet Configuration:	Projecting from fill (rocks)
GPS Northing:	5422268.9	Downstream Top Elevation:	66.5(RB), 66.5(LB)
GPS Easting:	329415	Upstream Top Elevation:	66.9(RB), 66.9 (LB)
Shape:	Circular	No. of barrels:	2
Size:	0.8m (RB)	Upstream Invert Elevation:	66.0 (RB), 65.1 (LB)
Size:	2.1m wide, 1.8m high (LB)	Downstream Invert elevation:	65.7 (RB), 64.8 (LB)
Material:	CMP	Length:	75

Comments

Condition:	Larger (LB) culvert is a squished but in good condition
Other:	

Channel Conditions

U/S	Alignment:	Turns towards the RB U/S	Substrate:	Rocks/cobble
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Grass, asphalt Road	Right floodplain:	Grass, asphalt road
D/S	Alignment:	Wide around culvert, narrows D/S	Substrate:	Rocks/cobble
	Left bank:	Rocky slope	Right Bank:	Rocky slope
	Left floodplain:	Bush, trees (Medium to heavy)	Right floodplain:	Bush, trees (medium to heavy)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	11-Jul-19
Location:	CB71 to CB74	Inlet Configuration:	Projecting from rock wall (D/S) and concrete head wall (U/S)
GPS Northing:	5423887.5	Top Elevation:	81.7
GPS Easting:	330612.4	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	1.5	Upstream Invert Elevation:	80.2
Material:	CMP	Downstream Invert elevation:	80.2
No. of barrels:	1	Length:	12.5

Comments

Condition:	Fish ladder upstream, in good condition but fencing around it is falling over
Other:	

Channel Conditions

U/S	Alignment:	Turns towards left bank	Substrate:	Gravel, rock
	Left bank:	Bush, gravel	Right Bank:	Marsh grass, very wet (floating island)
	Left floodplain:	Marsh, gravel T'railway road	Right floodplain:	Marsh, Wetland
D/S	Alignment:	Fairly straight and regular	Substrate:	Gravel, rock
	Left bank:	Marsh, bush	Right Bank:	Bush
	Left floodplain:	Marsh, gravel T'railway road	Right floodplain:	Gravel trail

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	13-Aug-19
Location:	GF1-21 to GF1-22	Inlet Configuration:	Projecting from fill
GPS Northing:	5423878.4	Top Elevation:	102.2 (D/S), 102.4 (U/S)
GPS Easting:	332585.1	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.36m	Upstream Invert Elevation:	102
Material:	PVC	Downstream Invert elevation:	101.8
No. of barrels:	1	Length:	23.8

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Aligned with road (ditch)	Substrate:	Rocks/cobble
	Left bank:	Bush (light)	Right Bank:	Gravel slope with some grass
	Left floodplain:	Bush, trees (light to medium)	Right floodplain:	Asphalt road
D/S	Alignment:	Turns to left bank (aligned with road)	Substrate:	Rocks/cobble
	Left bank:	Gravel slope	Right Bank:	Bush (medium)
	Left floodplain:	Asphalt road	Right floodplain:	Bush, trees (medium to heavy vegetation)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	13-Aug-19
Location:	GF1-02 to GF1-03	Inlet Configuration:	Projecting from concrete
GPS Northing:	5426466.4	Top Elevation:	70.8 (Top Culvert), 71.2 (Top Concrete)
GPS Easting:	334425.7	Headwall material:	Concrete
Shape:	Square	Wingwall angle:	N/A
Size:	1.2m wide, 1.2m high	Upstream Invert Elevation:	69.6
Material:	Concrete	Downstream Invert elevation:	69.58
No. of barrels:	2	Length:	5.8

Comments

Condition:	In good condition
Other:	Right bank culvert had no water flowing through it

Channel Conditions

U/S	Alignment:	Turns towards right bank	Substrate:	Rocks/cobble
	Left bank:	Marsh (light bush)	Right Bank:	Marsh (light bush)
	Left floodplain:	Marsh (light bush)	Right floodplain:	Marsh (light bush)
D/S	Alignment:	Turns towards right bank	Substrate:	Rocks/cobble
	Left bank:	Bush (medium)	Right Bank:	Bush (medium)
	Left floodplain:	Bush, trees (medium)	Right floodplain:	Bush, trees, marshy area (light to medium)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	9-Jul-19
Location:	LRP02 to LRP03	Inlet Configuration:	Projecting from fill
GPS Northing:	5423316.5	Top Elevation:	70.4 (D/S), 70.7 (U/S)
GPS Easting:	3296404.5	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.65	Upstream Invert Elevation:	70
Material:	CMP	Downstream Invert elevation:	69.7
No. of barrels:	1	Length:	21.8

Comments

Condition:	Culvert is collapsing
Other:	Stream has vegetation growing in on both sides

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Alders, bush (medium)	Right Bank:	Alders/bush (medium)
	Left floodplain:	Bush then gravel area (road)	Right floodplain:	Alders, bush, trees (medium to heavy)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Alders, bush (medium)	Right Bank:	Alders/bush (medium)
	Left floodplain:	Bush then gravel/grass area	Right floodplain:	Alders, bush, trees (medium to heavy)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	13-Aug-19
Location:	MP01	Inlet Configuration:	Projecting from fill
GPS Northing:	5423867.3	Top Elevation:	73.8 (U/S)
GPS Easting:	328850.5	Headwall material:	N/A
Shape:	Circular	Wingwall angle:	N/A
Size:	0.75	Upstream Invert Elevation:	73
Material:	PVC	Downstream Invert elevation:	N/A
No. of barrels:	1	Length:	N/A

Comments

Condition:	In good condition
Other:	

Channel Conditions

U/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble
	Left bank:	Bush (light)	Right Bank:	Bush (light to medium)
	Left floodplain:	Bush, trees (light to medium)	Right floodplain:	Bush, trees (medium)
D/S	Alignment:	N/A	Substrate:	N/A
	Left bank:	N/A	Right Bank:	N/A
	Left floodplain:	N/A	Right floodplain:	N/A

Photos

Downstream:



Right Bank:



Upstream:



Left Bank:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	13-Aug-19
Location:	NA02 to NA03	Inlet Configuration:	Projecting from fill
GPS Northing:	5422688.1	Top Elevation:	70.2 (U/S), 70.3 (D/S)
GPS Easting:	323123.7	Headwall material:	N/A
Shape:	Square	Wingwall angle:	N/A
Size:	1.6	Upstream Invert Elevation:	69.7 (estimate, filled with wood)
Material:	Wood	Downstream Invert elevation:	68.9
No. of barrels:	1	Length:	24.4

Comments

Condition:	Culvert filled with tree debris (beavers have dammed), wood in culvert is rotting
Other:	There is only one small culvert for a very big area which does not seem sufficient
	Upstream invert is an estimate as it's too full of wood to get

Channel Conditions

U/S	Alignment:	Turns towards the left bank	Substrate:	Rocks/cobble
	Left bank:	Water, then grass	Right Bank:	Open water
	Left floodplain:	Trees	Right floodplain:	Open water
D/S	Alignment:	Turns towards the right bank	Substrate:	Rocks/cobble
	Left bank:	Open water	Right Bank:	Open water
	Left floodplain:	Open water	Right floodplain:	Open water

Photos

Downstream:



Right Bank:



Upstream:



Left Bank:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jul-19
Location:	WB19 to WB20	Inlet Configuration:	Projecting from fill
GPS Northing:	5423651.6	Upstream Top Elevation:	73.3 (RB)
GPS Easting:	322540.9	Downstream Top Elevation:	73.2 (RB), 73.7 (LB)
Shape:	Circular	Wingwall angle:	N/A
Size:	1.4m	Upstream Invert Elevation:	71.9 (RB)
Material:	CMP	Downstream Invert elevation:	72.05 (RB), 72.2 (LB)
No. of barrels:	2	Length:	

Comments

Condition:	Bottom of culverts have corroded away on downstream side and on RB of upstream side
Other:	Large rocks and gravel are on top of culverts then 5cm of metal then a gravel road (D/S)
	Large rocks and woof are on top of culverts, then a log then gravel (U/S)

Channel Conditions

U/S	Alignment:	Widens into a marsh/bog area	Substrate:	Rocks/cobble (medium)
	Left bank:	Concrete and rocks	Right Bank:	Concrete and rocks
	Left floodplain:	Bushes, alders (light-medium)	Right floodplain:	Bushes, trees (light)
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble (medium)
	Left bank:	Gravel, rock	Right Bank:	Rock, bushes
	Left floodplain:	Bushes, alders (light-medium)	Right floodplain:	Bushes, alders (light-medium)

Photos

Downstream:



Upstream:



Culvert Data Sheet

Project:	HATCH EXPLOITS RIVER	Date:	8-Jul-19
Location:	WB25 to WB26	Inlet Configuration:	Projecting from fill
GPS Northing:	5423719.3	Downstream Top Elevation:	73.7(RB), 73.7 (MID), 73.6 (LB)
GPS Easting:	323044.4	Upstream Top Elevation:	73.7(RB), 73.5 (MID), 73.8 (LB)
Shape:	Circular	No. of barrels:	3
Size:	1.1m high, 1.46m wide (RB)	Upstream Invert Elevation:	72.98 (RB), 72.6 (MID), 72.5 (LB)
Size:	1.1m high, 1.15m wide (MID & LB)	Downstream Invert elevation:	72.75 (RB), 72.7 (MID), 72.5 (LB)
Material:	CMP	Length:	8.2

Comments

Condition:	These culverts have been dammed off (filled with branches) by beavers
Other:	Upstream is now very deep, the road is in danger of being washed out if these culverts aren't fixed
	Could not see the bottom of the upstream culvert so inverts for upstream are estimated

Channel Conditions

U/S	Alignment:	Goes into a marsh area (widens)	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush (light)	Right Bank:	Grass, marsh
	Left floodplain:	Bush (medium)	Right floodplain:	Marsh
D/S	Alignment:	Fairly straight and regular	Substrate:	Rocks/cobble, gravel
	Left bank:	Bush (light)	Right Bank:	Bush (light)
	Left floodplain:	Bush (medium)	Right floodplain:	Bush, trees (medium)

Photos

Downstream:



Upstream:



Culvert Data Sheet (not surveyed by SEM)			
Project:	HATCH EXPLOITS RIVER	Photo Date:	27-Apr-20
Location:	Stream BF-2; Station 0.54	Inlet Configuration:	Concrete headwall
GPS Northing:	5,430,835 (UTM Zone 21)	Top Elevation:	17.6 m (CGVD 2013)
GPS Easting:	611,755 (UTM Zone 21)	Headwall material:	Concrete
Shape:	Circular	Wingwall angle:	45 degrees
Size:	1.05 m (CMP), 0.75 m (HDP)	Upstream Invert Elevation:	16.54 m (CGVD 2013) - estimated from LiDAR
Material:	2 CMP, 1 HDP	Downstream Invert Elevation:	16.3 m (CGVD 2013) - estimated from LiDAR
No. of barrels:	3	Length:	34 m

Comments			
Condition:	Not observed		
Other:			

Channel Conditions			
Not Observed			

Photos

Downstream



Upstream



Culvert Data Sheet (not surveyed by SEM)			
Project:	HATCH EXPLOITS RIVER	Photo Date:	27-Apr-20
Location:	Stream BF-1; Station 0.173	Inlet Configuration:	Protruding from fill
GPS Northing:	5,431,928 (UTM Zone 21)	Top Elevation:	8.8 m (CGVD 2013)
GPS Easting:	614,461 (UTM Zone 21)	Headwall material:	none
Shape:	Circular	Wingwall angle:	none
Size:	1.2 m	Upstream Invert Elevation:	7.6 m (CGVD 2013) - estimated from LiDAR
Material:	CMP	Downstream Invert Elevation:	7.4 m (CGVD 2013) - estimated from LiDAR
No. of barrels:	1	Length:	9 m

Comments			
Condition:	Not observed		
Other:			

Channel Conditions			
Not Observed			

Photos

Downstream



Upstream



Culvert Data Sheet (not surveyed by SEM)			
Project:	HATCH EXPLOITS RIVER	Photo Date:	27-Apr-20
Location:	Stream BF-1; Station 0.235	Inlet Configuration:	Concrete headwall
GPS Northing:	5,431,961 (UTM Zone 21)	Top Elevation:	10.9 m (CGVD 2013)
GPS Easting:	614,410 (UTM Zone 21)	Headwall material:	Concrete
Shape:	Circular	Wingwall angle:	45 degrees
Size:	1.05	Upstream Invert Elevation:	9.85 m (CGVD 2013) - estimated from LiDAR
Material:	PVC	Downstream Invert Elevation:	9.35 m (CGVD 2013) - estimated from LiDAR
No. of barrels:	1	Length:	20 m

Comments			
Condition:	Not observed		
Other:			

Channel Conditions			
Not Observed			

Photos

Downstream



Upstream



Appendix E: LiDAR and Aerial Photography Report

Exploits River Communities Flood Mapping Final Report

Original Report Date: 2020-03-11
Revised Report Date: 2020-12-04

SUBMITTED BY:

Leading Edge Geomatics
2398 Route 102 Hwy Unit A2
Lincoln, NB, E3B 7G1
506.446.4403

Date	Revision	Notes
2020-03-11	Original Report	
2020-12-03	Revised Report	Added discussion of horizontal error check (section 1.9) Changed figures 6 & 8 to include scale bars (section 1.11)

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Executive Summary:

Leading Edge Geomatics collected LiDAR and aerial imagery data covering Exploits River, Newfoundland and Labrador, with a LiDAR point density of 6.39 points per metre. This data was collected to create high accuracy three-dimensional elevation products for the purpose of flood risk mapping.

Collection Specifications:

1.1. Project Boundary

The project area addressed by this report comprises several communities along the Exploits River, including Badger, Grand Falls-Windsor, Bishop's Falls, and Rushy Pond located in the central island portion of Newfoundland and Labrador approximately 170 kilometres east of Corner Brook. The total size of this project is approximately 208 square kilometers.

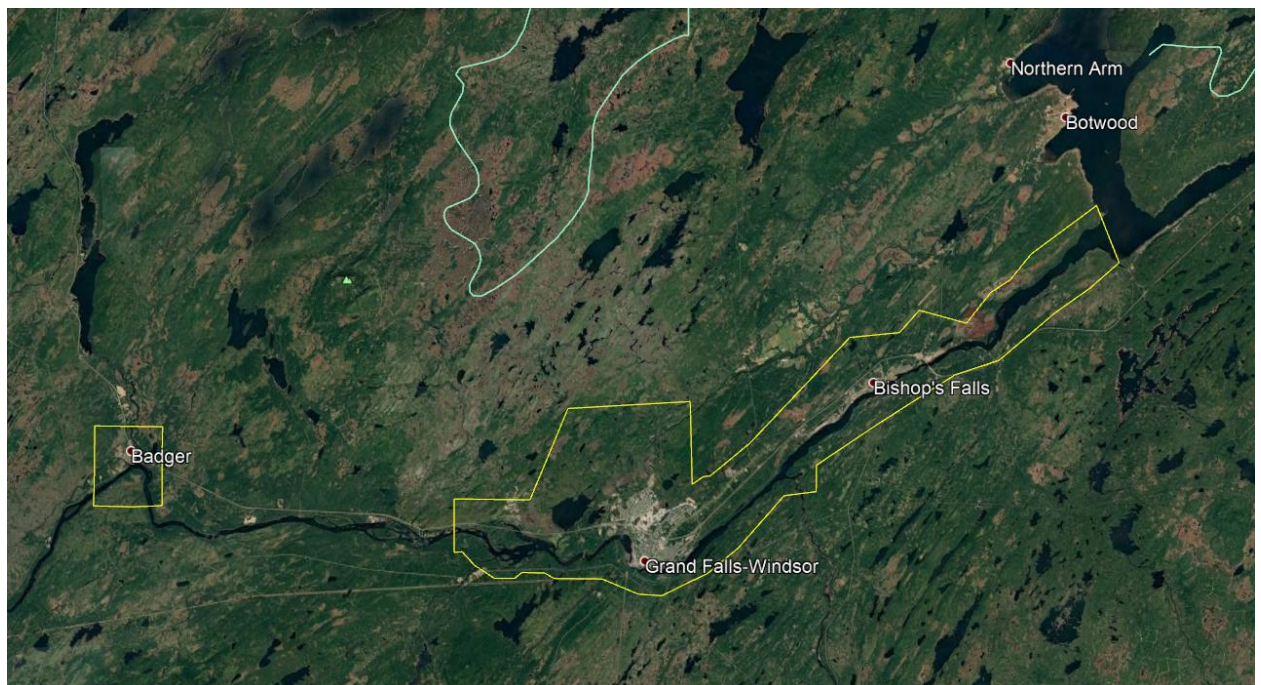


Figure 1. Area of Interest (AOI).

1.2. Acquisition Dates

Aerial imagery was collected over two flights performed July 25 and 26, 2019, while LiDAR data was acquired over August 15 and 16, 2019 with two collection flights achieved on each of these days.

1.3. System Parameters

Leading Edge Geomatics operated a Cessna 172S (Tail number C-FMNB) outfitted with a Riegl LMSQ780 laser system for LiDAR acquisition on this project, and a Cessna 172S (Tail number C-FCAU) equipped with a Phase One camera for aerial imagery collection.

1.4. Datum Reference

Data produced for this project are in the following reference system.

Horizontal Datum: North American Datum of 1983 (Canadian Spatial Reference System) [NAD 83 (CSRS)]

Ellipsoid: Geodetic Reference System 1980 (GRS80)

Semi-Major Axis: 6378137.0

Denominator of Flattening Ratio: 298.257222101

Grid Coordinate System: Universal Transverse Mercator (UTM 21N)

Scale Factor at Central Meridian: 0.999600

Longitude of Central Meridian: -57.0

Latitude of Projection Origin: 0.000000

False Easting: 500000.000000

False Northing: 0.000000

Vertical Datum: Canadian Geodetic Vertical Datum 2013 (CGVD2013)

Geoid Model: The geoid model utilized for this project was the Canadian Gravimetric Geoid Model of 2013/CGG2013 (version A)

Units: Horizontal units are metres, Vertical units are metres

1.5. Base Stations

A LEG-operated base station was set up over the Canadian Base Network station 96G7003 (GFAL GRAND FALLS) each day the planes were in the air by which each flight was spatially positioned.

1.6. Acquisition and Flightlines

Forty-three lines and two cross strips were planned and flown for full LiDAR coverage of the AOI. Seven lines were flown to achieve photo coverage.

During flight operations, the flight crew monitored weather and atmospheric conditions. Lidar and photo missions were flown only when no condition existed below the sensor that would affect the collection of data. The pilot constantly monitored the aircraft course, position, pitch, roll, and yaw of the aircraft. The sensor operator monitored the sensor, the status of PDOPs, and performed the first Q/C review during acquisition. The flight crew constantly reviewed weather and cloud locations. Any flight lines impacted by unfavorable conditions were marked as invalid and re-flown immediately or at an optimal time.

1.7. LiDAR Processing

Acquisition flight trajectories were processed in Applanix PosPAC utilizing LEG-established base stations for data positioning.

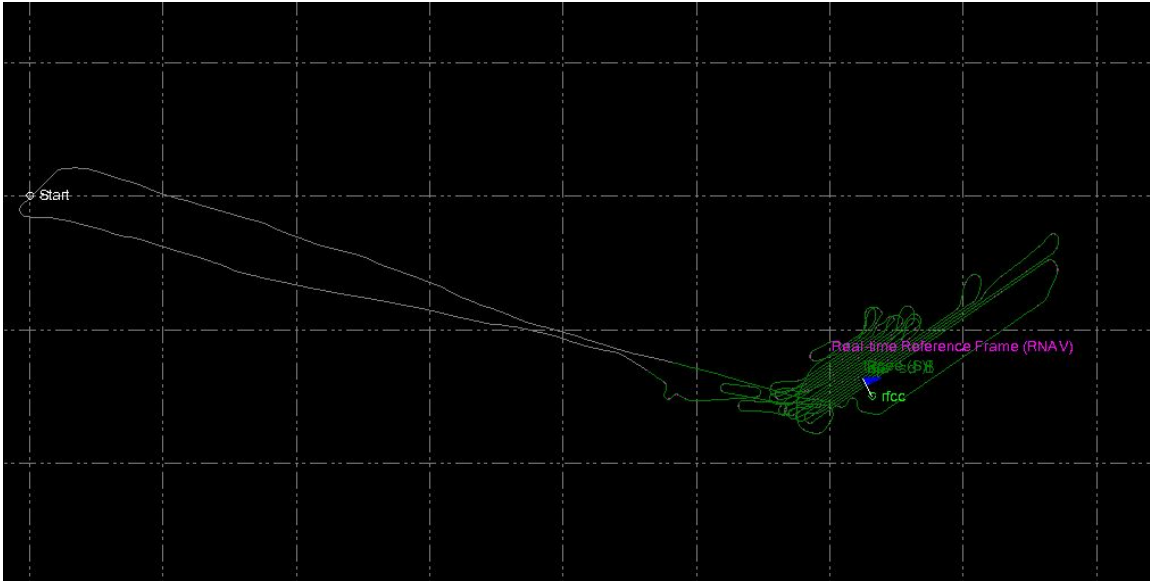


Figure 2. Flight 227A trajectory as flown by Leading Edge Geomatics

The raw LiDAR data was processed and positioned in RIEGL's RiProcess suite of softwares before being exported in LAS format 1.4 where UTM 21N grid position, Adjusted GPS timestamp, scan angle, and flight line attributes are maintained. Data was reviewed for completeness, acceptable density, and to ensure no export errors or corruption.

The unclassified LAS strips were subjected to a further quality control workflow that verifies point density, relative elevation, intensity, and the range in elevation. This process ensures that data is within relative and absolute accuracy specifications, meets the project density requirements, and is complete within the area of interest.

The LAS strips were tiled to 1-kilometer squared tiles and clipped to the area of interest. These tiles were then classified to the ASPRS specification defined by the statement of work and rigorously checked for misclassification and spatial issues using LAsTools and various proprietary software (classification scheme shown in the table below). The data are checked to ensure complete data integrity. These data were further utilized to produce a digital elevation model (DEM) and 25cm contours.

Table 1. Classifications utilized for this project.

Classification	Description
2	Ground
3	Low Vegetation
4	Medium Vegetation
5	High Vegetation
7	Noise
9	Water
17	Bridge

1.8. Aerial Photography Processing

After the aerial acquisition missions were complete an External Orientation (EO) file was generated from the mission trajectory. Captured photos were then developed, triangulated and ortho-rectified against the best available elevation model (LiDAR or photo generated DTM). The images were then correctly seamed, color balanced and tiled into individual photo mosaic tiles measuring 1000 metres squared.

1.9. Accuracy Validation

Imagery

Tested RMSE (E,N) 0.1390 m

Orthophoto horizontal accuracy tested using a combination of Real Time Kinematic and / or Fast Static GPS survey points, and LiDAR derived check points

LiDAR

The dataset was tested to meet the Canadian Federal Airborne LiDAR Acquisition Guideline, version 2.0, Flood Risk Category High.

NVA

The Absolute Vertical Accuracy (Non-Vegetated) was tested using 101 lidar control points collected by RTK (shown in Table 4 below). The Absolute Horizontal Accuracy (Non-Vegetated) was tested using 22 photo control points collected by RTK (shown in Table 5, below). The positional accuracy values were obtained using the Leading Edge Geomatics accuracy testing workflow.

The actual NVA vertical accuracy was found to be $RMSE_z = 6.28$ cm, equating to ± 12.31 cm at the 95% confidence level. The actual NVA horizontal accuracy was found to be $RMSE_x = 10.1$ cm, $RMSE_y = 8.5$ cm, equating to $RMSE_r = 13.2$ cm, or ± 22.8 cm at the 95% confidence level.

When compared with 2018 RTK Survey data collected by LEG, a 10 cm systematic bias was removed from the post processed LiDAR. Adjoining LiDAR flights already post-processed with final position were also reviewed in conjunction with the data described in this report, to further confirm positional accuracy.

Table 2. Vertical Accuracy Results

Vertical Accuracy (open, level, hard surfaces)	
Non-vegetated Vertical Accuracy (NVA) – Vertical Root Mean Square Error ($RMSE_z$)	6.28 cm
Non-vegetated Vertical Accuracy (NVA) – 95% confidence level ($\approx 1.96 * RMSE_z$)	12.31 cm

Table 3. Horizontal Accuracy Results

Horizontal Accuracy (open, level, hard surfaces)	
Horizontal Root Mean Square Error ($RMSE_r$)	13.2 cm
Horizontal Accuracy - 95% confidence level ($\approx 1.7308 * RMSE_r$)	22.8 cm

VVA

All control points were collected on non-vegetated surfaces, no VVA available.

Table 4. RTK- derived control coordinates utilized to establish vertical accuracy validation.

Control_ID	E	N	Control_Z	LiDAR_Z	Difference	DifferenceSqr
101	570506.5	5425320	99.6718	99.568	0.103762	0.010766553
102	570514	5425341	99.8699	99.745	0.12494	0.015610004
103	570522.6	5425365	99.9743	99.873	0.101308	0.010263311
104	570531.7	5425391	99.8282	99.724	0.104183	0.010854097
105	570542.1	5425417	99.7457	99.631	0.114713	0.013159072
106	570554.7	5425447	99.7287	99.616	0.112665	0.012693402
107	570566.4	5425473	99.628	99.562	0.0659604	0.004350774
108	570578.8	5425501	99.4886	99.401	0.0875895	0.007671921
109	570587.4	5425527	99.2189	99.129	0.0899222	0.008086002
110	570592.5	5425558	99.0062	98.929	0.0771632	0.005954159
111	570593.1	5425586	98.9965	98.917	0.0795244	0.00632413
112	570592.3	5425608	99.0627	98.952	0.110656	0.01224475
113	570590.8	5425636	99.0322	98.964	0.0681986	0.004651049
114	570587.2	5425668	99.089	99.01	0.0789852	0.006238662
115	570578.4	5425704	99.1996	99.111	0.0886327	0.007855756
116	570573.9	5425717	99.2472	99.189	0.0581681	0.003383528
117	570567.5	5425735	99.3744	99.314	0.0604323	0.003652063
118	570562.5	5425748	99.5411	99.446	0.0951136	0.009046597
119	570559.9	5425758	99.5933	99.537	0.0563419	0.00317441
120	570558.9	5425765	99.6124	99.543	0.0693854	0.004814334
121	570558.1	5425771	99.6952	99.66	0.0352255	0.001240836
201	591465.2	5422650	74.4121	74.413	-0.0008662	7.50E-07
202	591445.9	5422639	74.4601	74.442	0.0180761	0.000326745
203	591426.2	5422629	74.6507	74.629	0.0216573	0.000469039
204	591400.7	5422615	74.8814	74.899	-0.0175981	0.000309693
205	591387.6	5422607	74.9971	74.988	0.00907462	8.23E-05
206	591372.7	5422599	75.0189	75.002	0.0169142	0.00028609
207	591362.1	5422593	74.9848	74.977	0.00782509	6.12E-05
208	591349	5422587	74.9506	74.903	0.0475722	0.002263114
209	591334.6	5422580	74.8028	74.784	0.018827	0.000354456
210	591321.9	5422574	74.7533	74.7	0.0532523	0.002835807
211	591309.6	5422569	74.7183	74.691	0.0273072	0.000745683
212	591295.8	5422563	74.7123	74.688	0.0243386	0.000592367
213	591282.9	5422557	74.7197	74.714	0.00573989	3.29E-05
214	591270.9	5422550	74.7243	74.682	0.0422998	0.001789273
215	591258	5422542	74.6834	74.673	0.0103575	0.000107278

Control_ID	E	N	Control_Z	LiDAR_Z	Difference	DifferenceSqr
216	591245.1	5422531	74.6942	74.67	0.0242029	0.00058578
217	591235.4	5422520	74.7321	74.699	0.0330618	0.001093083
218	591227.4	5422508	74.8123	74.74	0.0722761	0.005223835
219	591223	5422499	74.9142	74.794	0.120168	0.014440348
220	591219.5	5422487	75.215	75.151	0.0639935	0.004095168
221	591217.3	5422476	75.6554	75.657	-0.0016121	2.60E-06
301	600081.3	5422249	113.892	113.877	0.0147838	0.000218561
302	600059.8	5422274	113.548	113.516	0.0315804	0.000997322
303	600037.5	5422301	113.39	113.356	0.0339994	0.001155959
304	600016.8	5422326	113.751	113.745	0.00570211	3.25E-05
305	599990.7	5422356	114.424	114.37	0.0543957	0.002958892
306	599969.5	5422381	115.01	114.987	0.0229973	0.000528876
307	599943.9	5422410	115.736	115.694	0.0423621	0.001794548
308	599917.4	5422441	116.419	116.386	0.0325766	0.001061235
309	599888.1	5422475	117.017	116.976	0.041193	0.001696863
310	599861.9	5422502	117.27	117.227	0.0430001	0.001849009
311	599841.7	5422523	117.05	117.019	0.0313082	0.000980203
312	599814.2	5422550	116.607	116.608	-0.0009468	8.96E-07
313	599788.2	5422575	116.148	116.119	0.0285129	0.000812985
314	599756.3	5422602	115.257	115.233	0.0240831	0.000579996
315	599745.1	5422612	114.952	114.923	0.02935	0.000861423
316	599724.7	5422629	113.966	113.954	0.0117177	0.000137304
317	599706.6	5422645	112.872	112.838	0.0336705	0.001133703
318	599685	5422664	111.284	111.261	0.0232579	0.00054093
319	599662.8	5422683	109.584	109.571	0.0128998	0.000166405
320	599634.5	5422707	107.432	107.407	0.0249365	0.000621829
321	599609.5	5422732	105.265	105.243	0.0222912	0.000496898
401	603982.2	5425828	86.3679	86.409	-0.0411191	0.00169078
402	604004.7	5425800	86.9362	86.957	-0.020848	0.000434639
403	604029.7	5425776	87.1816	87.216	-0.0344457	0.001186506
404	604052.7	5425754	87.0999	87.131	-0.0311297	0.000969058
405	604076.1	5425731	86.5999	86.64	-0.0400927	0.001607425
406	604101.7	5425707	86.0709	86.122	-0.0511481	0.002616128
407	604124.5	5425686	85.4954	85.54	-0.044566	0.001986128
408	604151	5425661	84.7243	84.806	-0.0817277	0.006679417
409	604174.6	5425640	83.9925	84.034	-0.0414964	0.001721951
410	604195.3	5425620	83.3738	83.414	-0.0401596	0.001612793
411	604219.2	5425598	82.7042	82.787	-0.0827637	0.00684983
412	604236.8	5425581	82.2544	82.304	-0.049603	0.002460458
413	604262.5	5425557	81.4504	81.527	-0.076551	0.005860056

Control_ID	E	N	Control_Z	LiDAR_Z	Difference	DifferenceSqr
414	604287.9	5425534	80.5907	80.627	-0.0363485	0.001321213
415	604308.3	5425515	79.7805	79.782	-0.0015120	2.29E-06
416	604330.5	5425494	78.6995	78.712	-0.0124743	0.000155608
417	604360.1	5425467	77.1736	77.196	-0.0223878	0.000501214
418	604367.8	5425460	76.6945	76.746	-0.0515231	0.00265463
419	604376.8	5425451	76.2029	76.228	-0.0251438	0.000632211
420	604390.8	5425438	75.4283	75.48	-0.0516975	0.002672632
421	604405.8	5425424	74.7528	74.759	-0.0062066	3.85E-05
436	608347.5	5426178	55.294	55.393	-0.0989876	0.009798545
437	608298.3	5426189	51.1175	51.205	-0.0874879	0.007654133
438	608254.9	5426213	47.3181	47.393	-0.0748727	0.005605921
439	608213.7	5426242	44.5068	44.611	-0.10415	0.010847223
440	608176.2	5426268	39.6394	39.735	-0.0955743	0.009134447
441	608135.1	5426298	34.9453	35.043	-0.0976587	0.009537222
442	608095.5	5426323	30.2238	30.323	-0.0992294	0.009846474
443	608054.2	5426345	27.6139	27.667	-0.0530852	0.002818038
444	608016.1	5426365	27.4423	27.502	-0.0596638	0.003559769
445	607970.4	5426388	30.1328	30.237	-0.104153	0.010847847
446	607944.2	5426402	33.1084	33.222	-0.113608	0.012906778
447	607904.3	5426425	36.436	36.537	-0.10103	0.010207061
448	607873.5	5426445	38.2589	38.372	-0.113119	0.012795908
449	607855.1	5426458	39.1789	39.278	-0.0991358	0.009827907
450	607837.1	5426471	40.2408	40.292	-0.0511704	0.00261841
451	607832.8	5426474	40.5245	40.586	-0.0615092	0.003783382
452	607823.4	5426481	41.2051	41.288	-0.0828632	0.00686631

Table 5. RTK- derived control coordinates utilized to establish horizontal accuracy validation.

Number	Lidar_E	Lidar_N	Control_E	Control_N	Diff_E	Diff_N
129	570574.272	5425791.371	570574.188	5425791.394	0.084	-0.023
130	570590.111	5425776.581	570590.290	5425776.457	-0.179	0.124
224	592052.443	5421704.594	592052.549	5421704.544	-0.106	0.050
227	591466.894	5422606.385	591466.853	5422606.394	0.041	-0.009
228	591456.962	5422599.407	591456.957	5422599.221	0.005	0.186
229	591468.036	5422584.134	591467.901	5422584.135	0.135	-0.001
230	591477.920	5422591.266	591477.819	5422591.348	0.101	-0.082
322	598080.478	5422783.668	598080.524	5422783.540	-0.046	0.128
324	598267.446	5423437.529	598267.608	5423437.520	-0.162	0.009

Number	Lidar_E	Lidar_N	Control_E	Control_N	Diff_E	Diff_N
326	598801.665	5421147.854	598801.805	5421147.897	-0.140	-0.043
327	599343.076	5420767.792	599343.151	5420767.685	-0.075	0.107
328	600009.147	5422350.632	600009.219	5422350.545	-0.072	0.087
330	600233.032	5423129.203	600233.142	5423129.328	-0.110	-0.125
331	599540.165	5422647.434	599540.151	5422647.513	0.014	-0.079
425	604379.486	5425461.615	604379.473	5425461.744	0.013	-0.129
426	604097.787	5425713.837	604097.792	5425713.788	-0.005	0.049
427	604081.472	5425728.807	604081.556	5425728.862	-0.084	-0.055
429	603760.018	5425340.944	603760.188	5425340.910	-0.170	0.034
525	611226.944	5430394.882	611226.900	5430394.946	0.044	-0.064
528	610505.345	5430013.024	610505.497	5430013.089	-0.152	-0.065
531	612542.920	5431009.330	612542.926	5431009.249	-0.006	0.081
532	611929.716	5430736.518	611929.614	5430736.559	0.102	-0.041

1.10. Collection Swath Overlap

LiDAR collection achieved 55% overlap between adjacent swaths.



Figure 3. LiDAR collection swaths displayed with transparency, overlaid by project AOI.

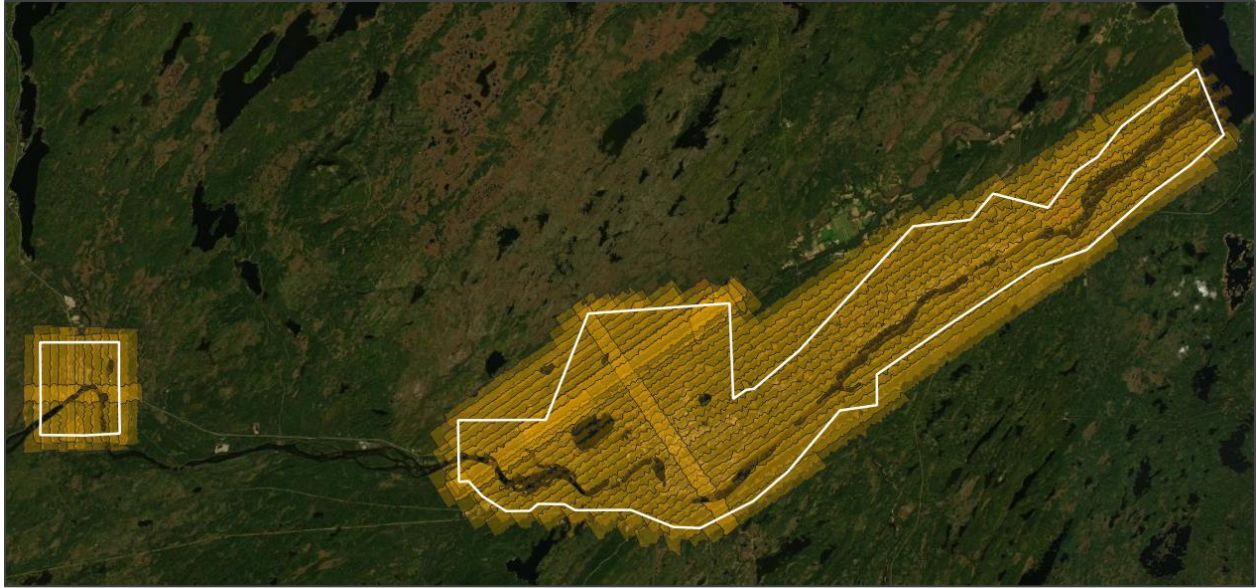


Figure 4. LiDAR collection swaths displayed with transparency and satellite imagery, overlaid by project AOI.

1.11. DEM Ground Point Density

Existing road network used to roughly delineate non-vegetated and vegetated areas; additional non-vegetated areas digitized using aerial imagery. Areas with significant water features removed from analysis; these areas contain few ground points and would affect the final density values achieved. Density grids denoting ground point density within 1 metre pixels generated for the entire project area, before being clipped to respectively to the non-vegetated and vegetated sections of the project AOI.

Non-Vegetated Surface

A histogram of ground point density in non-vegetated areas is included below. The highest frequency of ground point density in non-vegetated areas occurs at approximately 10.4 ppm.

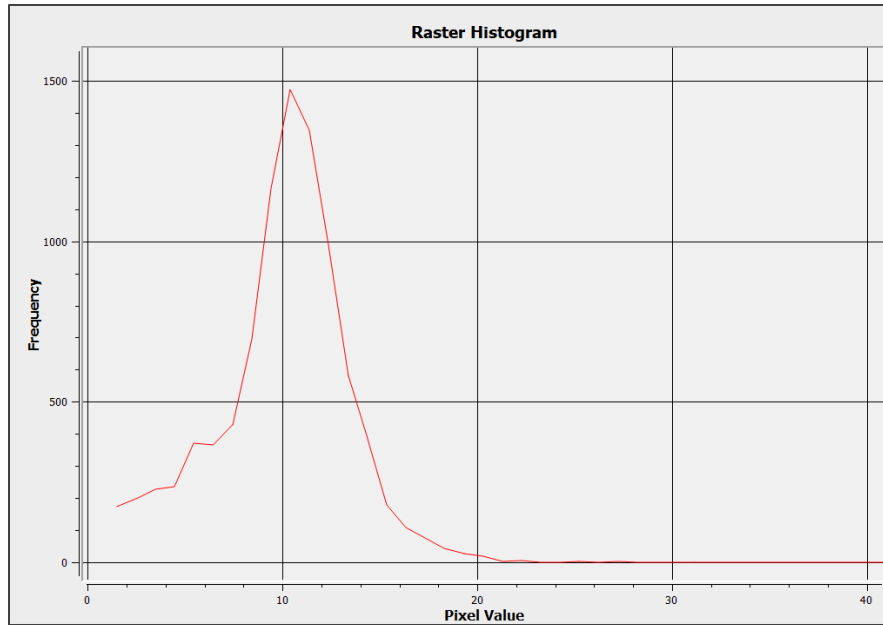


Figure 5. Histogram of ground point density within non-vegetated areas, showing ground point density (ppm) on the X axis and the number of raster cells within the analysis area on the Y.



Figure 6. Sample view of density grid of ground points in non-vegetated areas, overlaying satellite imagery of the area.

Vegetated Surface

A histogram of ground point density within vegetated areas is included below. The highest frequency of ground point density in vegetated areas occurs at approximately 3.5 ppm.

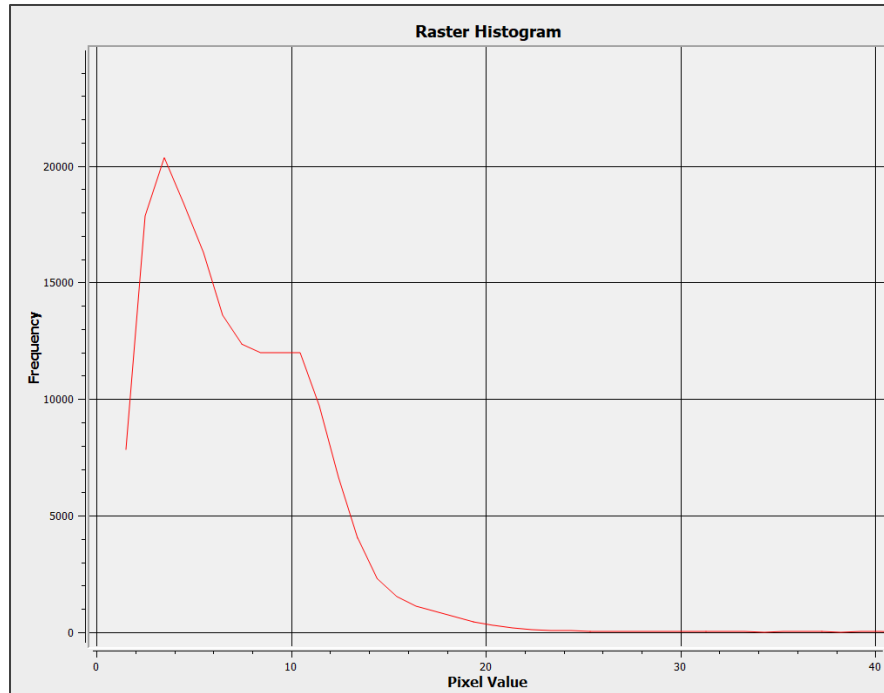


Figure 7. Histogram of ground point density within vegetated areas, showing ground point density (ppm) on the X axis and the number of raster cells within the analysis area on the Y.

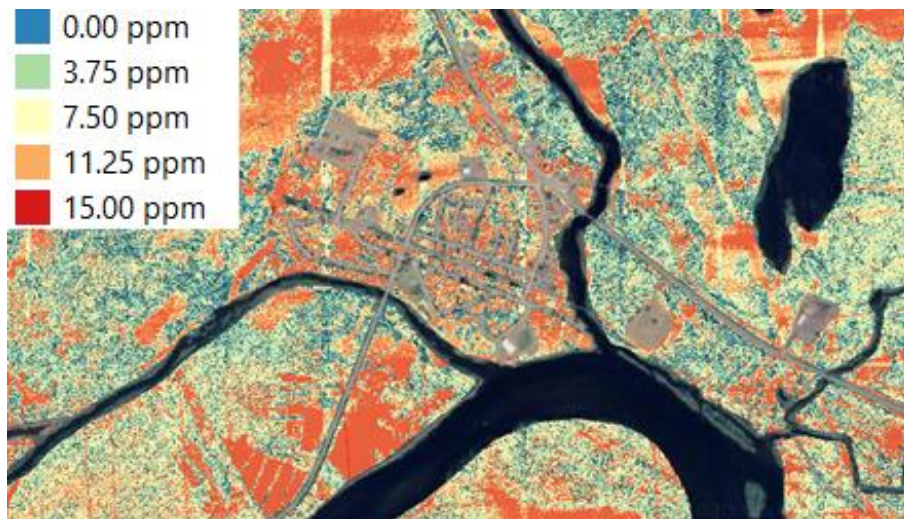


Figure 8. Sample view of density grid of ground points in vegetated areas, displayed alongside satellite imagery of the area.