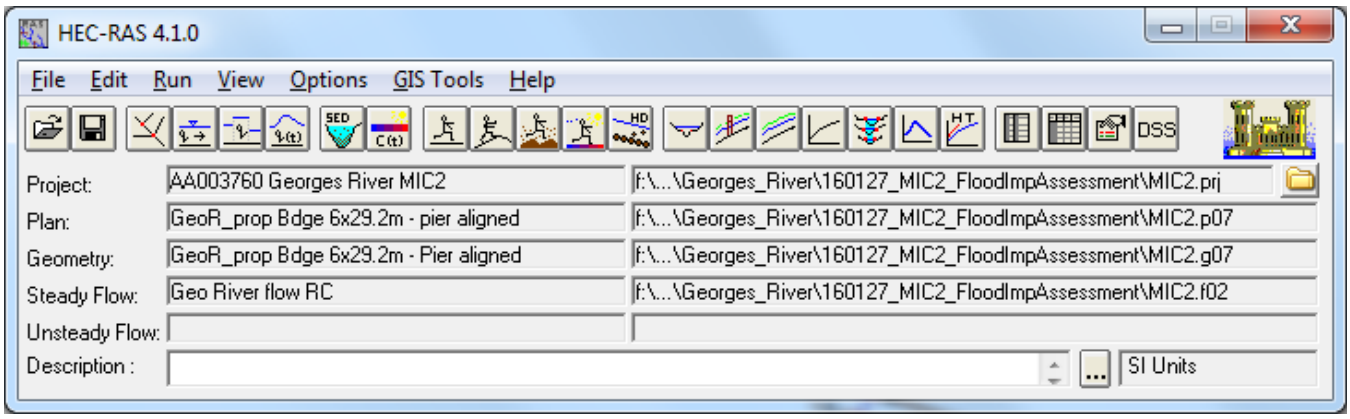
APPENDIX A

Georges River HEC-RAS Model

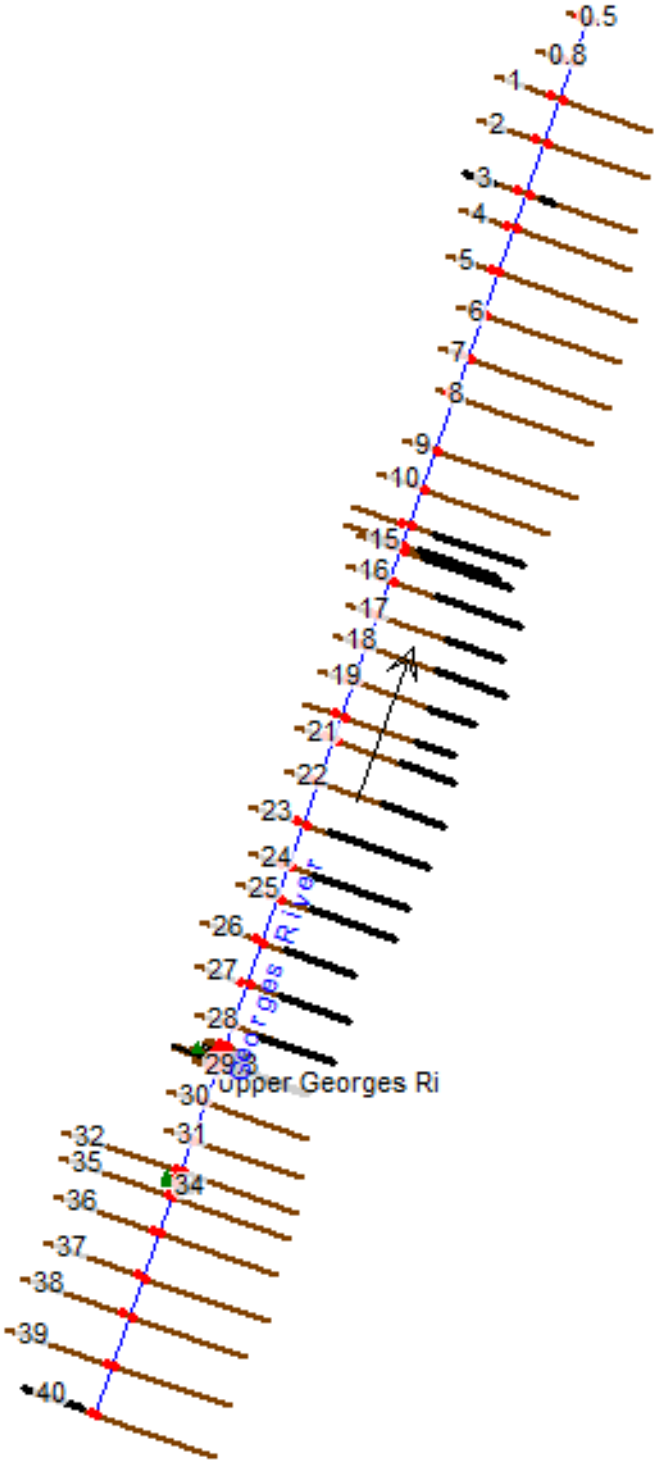
Information **Base Case (MPE Stage 1)**

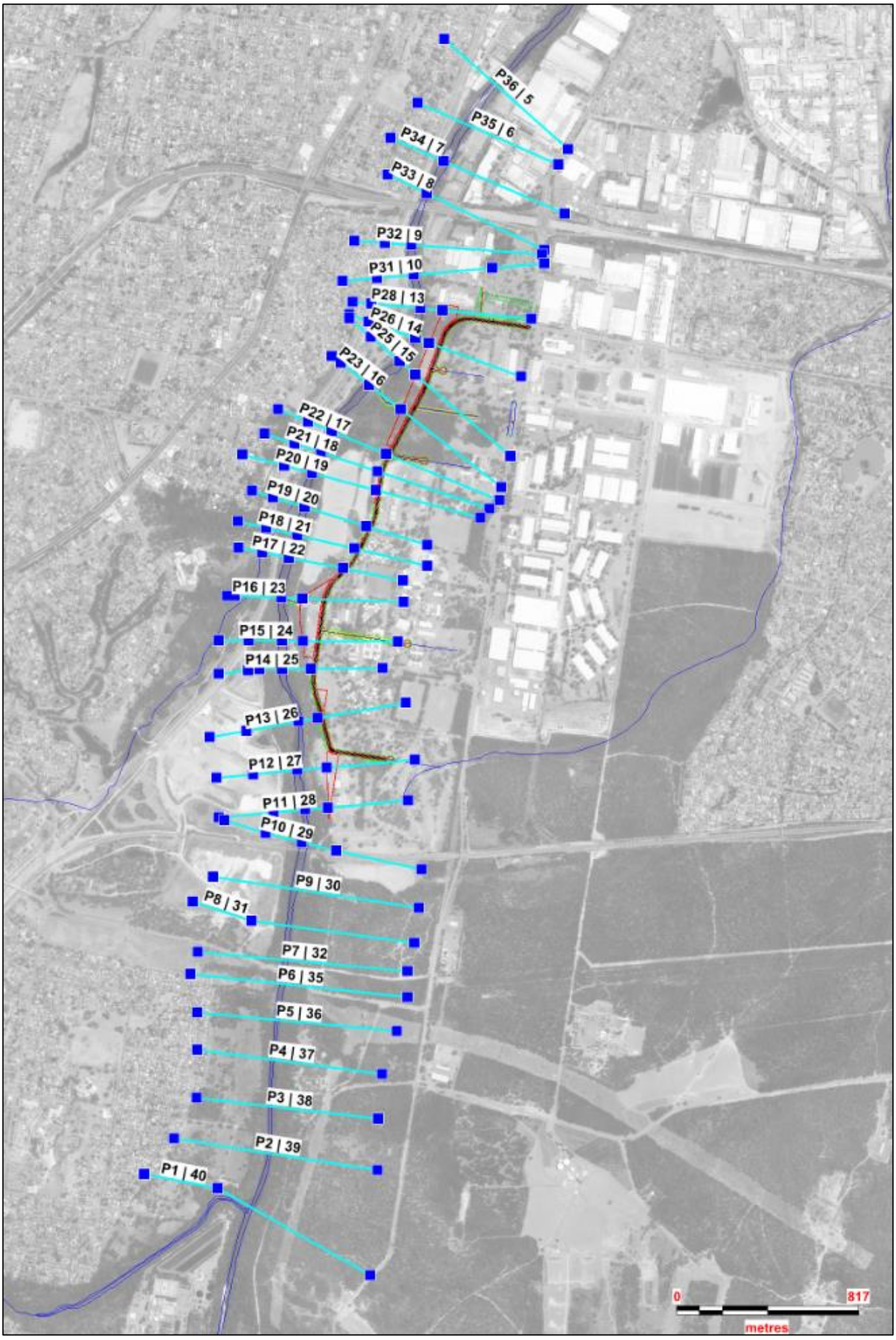
MPW Stage 2

Base Case (MPE Stage 1)



F:\AA003760\D-Calculations\Civil\A-Stormwater\B-HEC-ARAS\Georges_River\160127_MIC2_FloodImpAssessment




P36 | 5
P35 | 6
P34 | 7
P33 | 8
P32 | 9
P31 | 10
P28 | 13
P26 | 14
P25 | 15
P23 | 16
P22 | 17
P21 | 18
P20 | 19
P19 | 20
P18 | 21
P17 | 22
P16 | 23
P15 | 24
P14 | 25
P13 | 26
P12 | 27
P11 | 28
P10 | 29
P9 | 30
P8 | 31
P7 | 32
P6 | 35
P5 | 36
P4 | 37
P3 | 38
P2 | 39
P1 | 40
0
817
metres

Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: prop 6x29.2 A River: Georges River Reach: Upper Georges Ri Profile: 100 yr. ARI Floo

Reload Data

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.000	-0.65	13.23	7.50	13.48	0.00	2.83	1592.34	236.72	0.25
Upper Georges Ri	39	100 yr. ARI Floo	1877.000	-0.25	12.96		13.41	0.00	3.20	855.50	116.20	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.000	-0.25	12.96		13.28	0.00	2.71	1036.18	141.74	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.000	0.05	12.80		13.23	0.00	3.15	864.18	108.25	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.000	0.05	12.68		13.12	0.00	3.56	1080.81	225.75	0.33
Upper Georges Ri	35	100 yr. ARI Floo	1877.000	-0.85	12.68		12.93	0.00	3.11	1302.32	171.34	0.29
Upper Georges Ri	34	100 yr. ARI Floo	1877.000	0.00	12.26	6.94	12.91	0.00	3.67	635.05	135.44	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.000	0.00	12.16	7.15	12.58	0.00	3.18	936.49	135.22	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.000	0.62	12.06		12.54	0.00	3.48	1035.55	154.06	0.33
Upper Georges Ri	31	100 yr. ARI Floo	1877.000	0.65	11.99		12.40	0.00	3.18	1038.35	154.98	0.31
Upper Georges Ri	30	100 yr. ARI Floo	1877.000	1.35	11.88		12.30	0.00	3.31	1161.62	165.56	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.000	0.25	11.82		12.21	0.00	3.05	1063.28	153.35	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.000	1.00	11.76	6.89	12.20	0.00	3.24	1033.71	151.57	0.32
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.000	1.00	11.73		12.18	0.00	3.25	1029.81	151.50	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.000	0.25	11.70	6.52	12.16	0.00	3.24	946.01	166.96	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.000	0.25	11.72	6.59	12.14	0.00	3.13	1028.59	155.00	0.31
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.000	0.25	11.69		12.11	0.00	3.14	1023.71	154.79	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.000	0.25	11.49		12.09	0.00	3.71	893.98	156.41	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.000	0.35	11.35		12.01	0.00	3.89	799.92	150.60	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.000	-1.45	11.35		11.83	0.00	3.23	884.84	180.98	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.000	0.35	11.40		11.67	0.00	2.91	1298.67	194.23	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.000	-0.05	11.20		11.58	0.00	2.86	1025.72	177.26	0.29
Upper Georges Ri	24	100 yr. ARI Floo	1877.000	-0.65	11.11		11.51	0.00	2.95	898.49	206.79	0.29
Upper Georges Ri	23	100 yr. ARI Floo	1877.000	-0.65	10.92		11.42	0.00	3.24	786.51	167.64	0.32
Upper Georges Ri	22	100 yr. ARI Floo	1877.000	-0.85	10.93		11.28	0.00	3.16	1097.47	310.02	0.31
Upper Georges Ri	21	100 yr. ARI Floo	1877.000	0.05	10.99		11.17	0.00	2.25	1681.52	375.89	0.22
Upper Georges Ri	20	100 yr. ARI Floo	1877.000	-0.25	10.98		11.14	0.00	2.13	1696.93	369.38	0.21
Upper Georges Ri	19	100 yr. ARI Floo	1877.000	1.15	10.92		11.10	0.00	2.32	1418.15	299.48	0.24
Upper Georges Ri	18	100 yr. ARI Floo	1877.000	0.75	10.82		11.04	0.00	2.60	1735.62	329.80	0.27
Upper Georges Ri	17	100 yr. ARI Floo	1877.000	0.75	10.82		10.98	0.00	2.43	1914.65	314.25	0.25
Upper Georges Ri	16	100 yr. ARI Floo	1877.000	-1.65	10.80		10.93	0.00	2.03	1857.58	311.51	0.19
Upper Georges Ri	15	100 yr. ARI Floo	1877.000	-1.75	10.73		10.90	0.00	2.10	1390.54	250.11	0.20
Upper Georges Ri	14	100 yr. ARI Floo	1877.000	-1.25	10.63		10.89	0.00	2.67	1248.48	275.23	0.26
Upper Georges Ri	13	100 yr. ARI Floo	1877.000	-0.75	10.66		10.84	0.00	2.20	1397.60	257.82	0.22
Upper Georges Ri	10	100 yr. ARI Floo	1877.000	-1.45	10.50		10.78	0.00	2.73	1093.06	231.22	0.27
Upper Georges Ri	9	100 yr. ARI Floo	1877.000	-0.55	10.40		10.71	0.00	2.82	1105.52	269.89	0.28
Upper Georges Ri	8	100 yr. ARI Floo	1877.000	-1.75	10.31		10.62	0.00	2.77	1059.13	215.52	0.27
Upper Georges Ri	7	100 yr. ARI Floo	1877.000	-0.55	10.19		10.55	0.00	2.84	967.87	260.37	0.29
Upper Georges Ri	6	100 yr. ARI Floo	1877.000	-0.85	10.13		10.47	0.00	2.80	1079.20	410.48	0.28
Upper Georges Ri	5	100 yr. ARI Floo	1877.000	-1.25	9.64	5.74	10.33	0.00	3.93	667.93	157.32	0.40
Upper Georges Ri	4	100 yr. ARI Floo	1877.000	-1.85	9.75		10.13	0.00	2.88	860.61	262.52	0.28
Upper Georges Ri	3	100 yr. ARI Floo	1877.000	-2.75	9.57		10.05	0.00	3.22	774.73	167.14	0.32
Upper Georges Ri	2	100 yr. ARI Floo	1877.000	-2.15	9.47		9.92	0.00	3.15	906.52	515.25	0.32
Upper Georges Ri	1	100 yr. ARI Floo	1877.000	-1.85	9.40		9.82	0.00	3.02	1125.64	597.10	0.31
Upper Georges Ri	0.8	100 yr. ARI Floo	1877.000	-3.70	9.52		9.70	0.00	2.15	1280.19	194.54	0.20
Upper Georges Ri	0.5	100 yr. ARI Floo	1877.000	-3.70	9.25	2.86	9.63	0.00	2.80	778.26	102.00	0.27

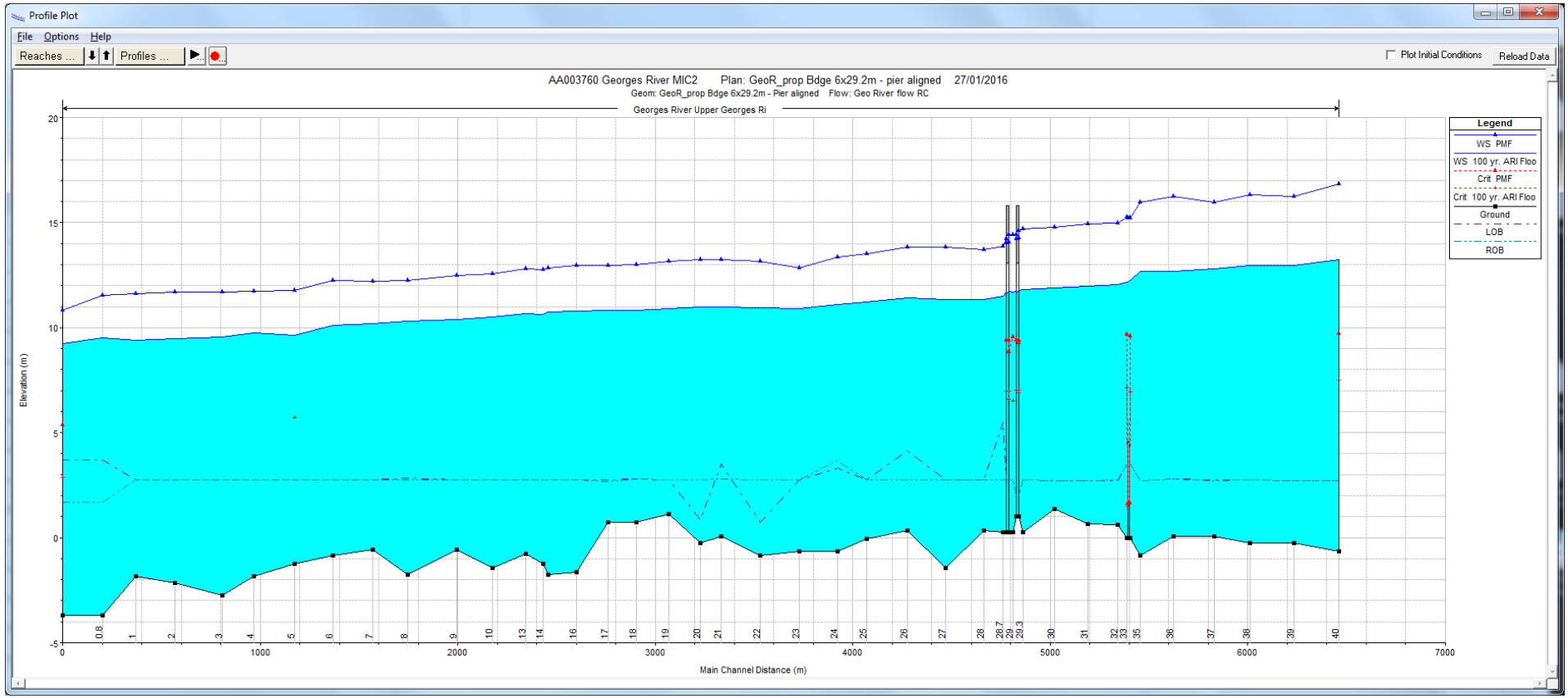
Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: prop 6x29.2 A River: Georges River Reach: Upper Georges Ri Profile: PMF

Reload Data

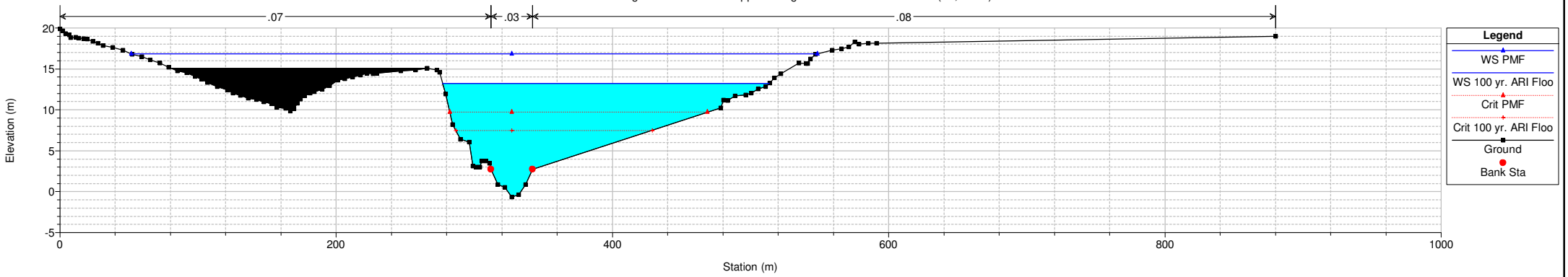
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.001	-0.65	16.84	9.70	17.16	0.00	3.48	2877.77	496.87	0.28
Upper Georges Ri	39	PMF	3407.001	-0.25	16.25		17.08	0.00	4.41	1505.16	423.43	0.35
Upper Georges Ri	38	PMF	3407.001	-0.25	16.32		16.84	0.00	3.59	1557.89	173.62	0.29
Upper Georges Ri	37	PMF	3407.001	0.05	15.96		16.78	0.00	4.42	1330.57	221.08	0.36
Upper Georges Ri	36	PMF	3407.001	0.05	16.24		16.65	0.00	3.86	2458.68	560.98	0.32
Upper Georges Ri	35	PMF	3407.001	-0.85	15.98		16.50	0.00	4.51	2330.34	601.31	0.37
Upper Georges Ri	34	PMF	3407.001	0.00	15.19	9.61	16.47	0.00	5.21	828.40	141.00	0.44
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.001	0.00	15.26	9.66	15.96	0.00	4.22	1311.76	141.00	0.36
Upper Georges Ri	32	PMF	3407.001	0.62	14.98		15.89	0.00	4.88	1556.32	241.44	0.42
Upper Georges Ri	31	PMF	3407.001	0.65	14.93		15.68	0.00	4.37	1577.80	231.57	0.38
Upper Georges Ri	30	PMF	3407.001	1.35	14.80		15.54	0.00	4.48	1685.58	208.33	0.40
Upper Georges Ri	29.3	PMF	3407.001	0.25	14.72		15.42	0.00	4.16	1551.05	185.70	0.36
Upper Georges Ri	29.2	PMF	3407.001	1.00	14.63	9.27	15.41	0.00	4.40	1513.66	186.54	0.38
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.001	1.00	14.42		15.23	0.00	4.49	1475.38	184.62	0.39
Upper Georges Ri	29	PMF	3407.001	0.25	14.43	9.56	15.21	0.00	4.34	1407.09	208.38	0.38
Upper Georges Ri	28.9	PMF	3407.001	0.25	14.43	8.84	15.20	0.00	4.30	1475.49	179.55	0.38
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	PMF	3407.001	0.25	14.22		15.01	0.00	4.39	1437.22	176.13	0.39
Upper Georges Ri	28.7	PMF	3407.001	0.25	13.89		14.97	0.00	5.15	1297.74	186.86	0.46
Upper Georges Ri	28	PMF	3407.001	0.35	13.72		14.86	0.00	5.31	1196.05	186.40	0.47
Upper Georges Ri	27	PMF	3407.001	-1.45	13.83		14.56	0.00	4.25	1676.55	386.21	0.36
Upper Georges Ri	26	PMF	3407.001	0.35	13.83		14.37	0.00	4.20	1912.56	302.47	0.38
Upper Georges Ri	25	PMF	3407.001	-0.05	13.51		14.22	0.00	4.02	1450.40	190.05	0.36
Upper Georges Ri	24	PMF	3407.001	-0.65	13.36		14.13	0.00	4.17	1403.02	268.97	0.38
Upper Georges Ri	23	PMF	3407.001	-0.65	12.86		13.95	0.00	4.84	1028.83	241.72	0.44
Upper Georges Ri	22	PMF	3407.001	-0.85	13.15		13.64	0.00	3.97	1654.39	369.70	0.35
Upper Georges Ri	21	PMF	3407.001	0.05	13.25		13.49	0.00	2.77	2596.99	449.02	0.25
Upper Georges Ri	20	PMF	3407.001	-0.25	13.25		13.45	0.00	2.61	2626.88	434.38	0.23
Upper Georges Ri	19	PMF	3407.001	1.15	13.16		13.40	0.00	2.83	2206.66	379.16	0.27
Upper Georges Ri	18	PMF	3407.001	0.75	13.00		13.33	0.00	3.37	2479.84	351.23	0.31
Upper Georges Ri	17	PMF	3407.001	0.75	12.96		13.26	0.00	3.41	2616.13	393.83	0.32
Upper Georges Ri	16	PMF	3407.001	-1.65	12.94		13.19	0.00	2.86	2561.57	394.41	0.25
Upper Georges Ri	15	PMF	3407.001	-1.75	12.85		13.14	0.00	2.82	1926.03	253.56	0.25
Upper Georges Ri	14	PMF	3407.001	-1.25	12.77		13.13	0.00	3.35	1848.19	289.34	0.30
Upper Georges Ri	13	PMF	3407.001	-0.75	12.80		13.07	0.00	2.89	2113.62	458.98	0.26
Upper Georges Ri	10	PMF	3407.001	-1.45	12.57		13.00	0.00	3.57	1892.78	525.74	0.32
Upper Georges Ri	9	PMF	3407.001	-0.55	12.50		12.91	0.00	3.52	1986.55	565.62	0.32
Upper Georges Ri	8	PMF	3407.001	-1.75	12.25		12.78	0.00	3.78	1503.31	247.63	0.34
Upper Georges Ri	7	PMF	3407.001	-0.55	12.21		12.67	0.00	3.55	2058.38	729.01	0.33
Upper Georges Ri	6	PMF	3407.001	-0.85	12.24		12.54	0.00	3.05	2477.23	729.37	0.28
Upper Georges Ri	5	PMF	3407.001	-1.25	11.78		12.42	0.00	4.35	1844.23	677.56	0.40
Upper Georges Ri	4	PMF	3407.001	-1.85	11.72		12.26	0.00	3.74	2097.71	726.26	0.33
Upper Georges Ri	3	PMF	3407.001	-2.75	11.71		12.16	0.00	3.58	2366.98	800.00	0.32
Upper Georges Ri	2	PMF	3407.001	-2.15	11.69		12.01	0.00	3.18	2452.03	741.24	0.29
Upper Georges Ri	1	PMF	3407.001	-1.85	11.61		11.93	0.00	3.17	2555.81	668.08	0.29
Upper Georges Ri	0.8	PMF	3407.001	-3.70	11.53		11.87	0.00	3.04	1690.32	206.35	0.26
Upper Georges Ri	0.5	PMF	3407.001	-3.70	10.84	5.38	11.73	0.00	4.34	961.21	122.16	0.39


Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

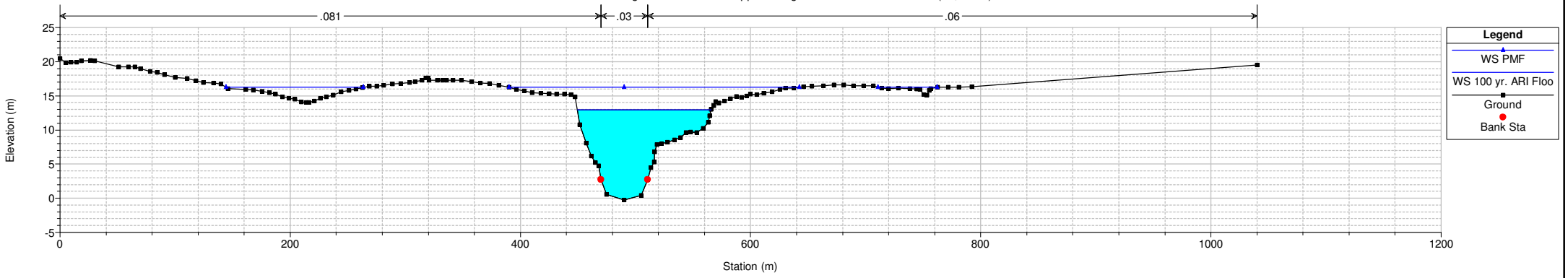
River = Georges River Reach = Upper Georges Ri RS = 40 100.000 (P1, stn40)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

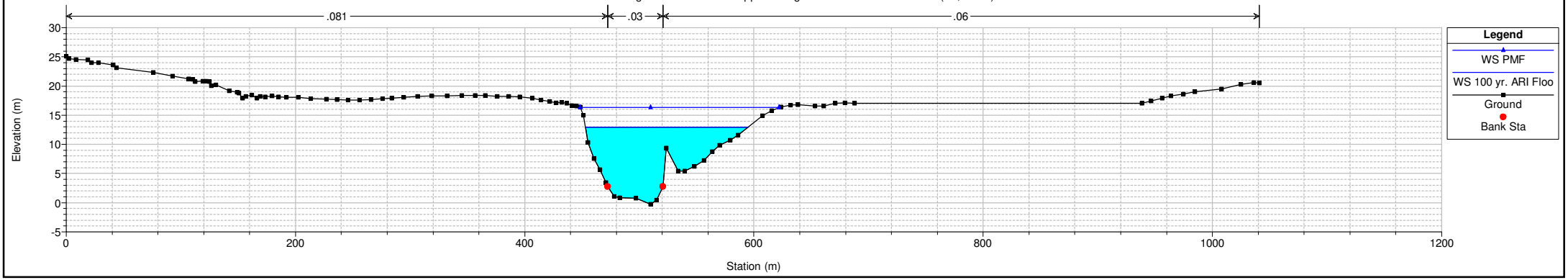
River = Georges River Reach = Upper Georges Ri RS = 39 100.225 (P2, stn39)

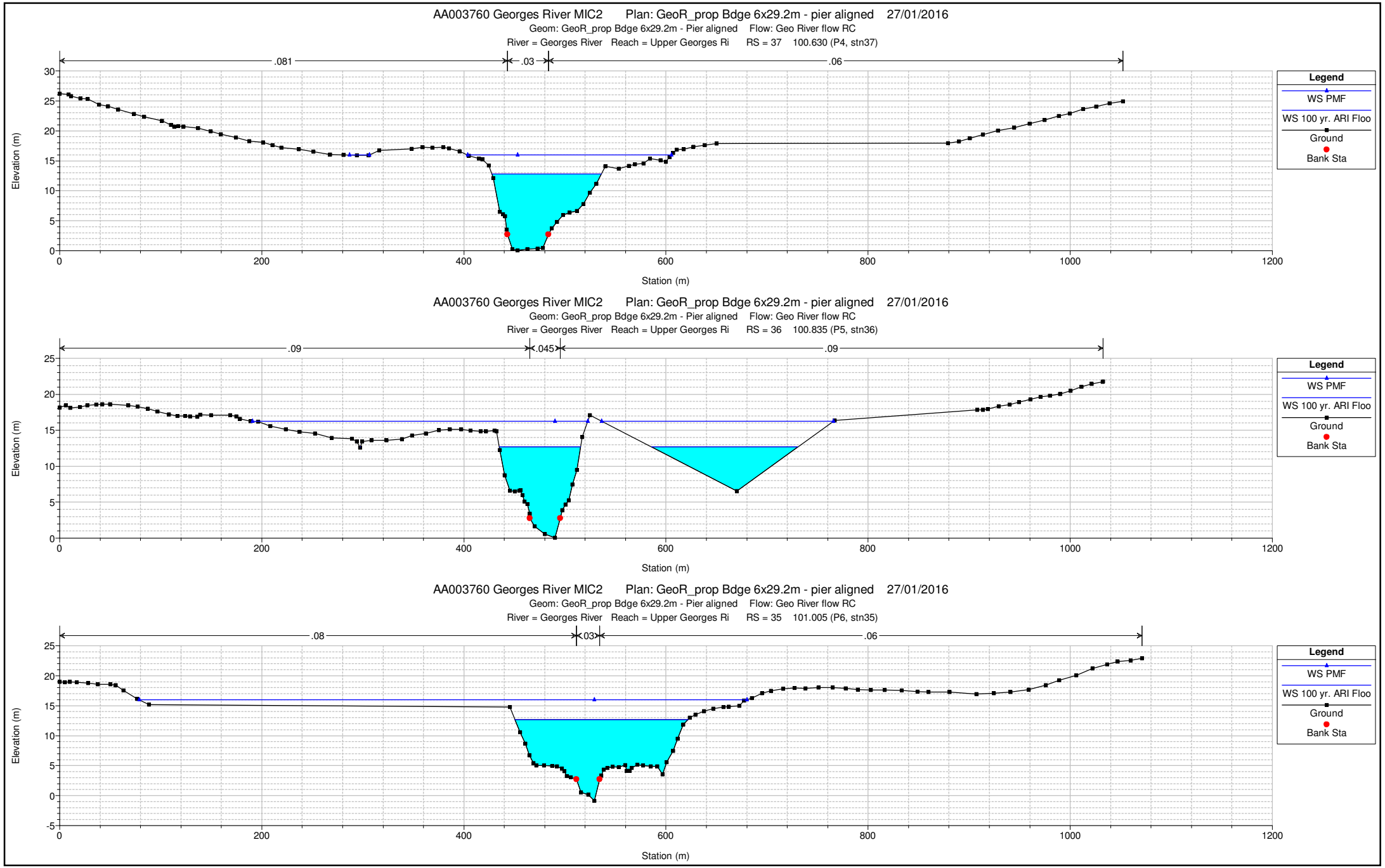


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 38 100.450 (P3, stn38)

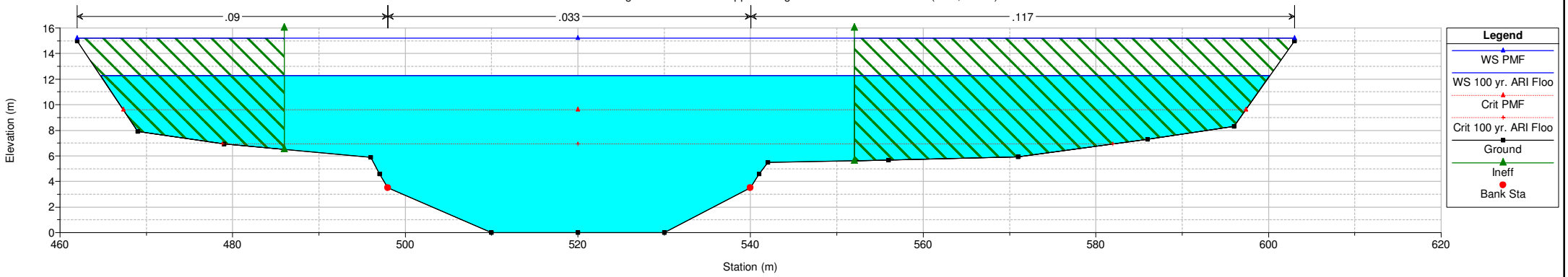



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 37 100.630 (P4, stn37)
.081
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 36 100.835 (P5, stn36)
.09
.045
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 35 101.005 (P6, stn35)
.08
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

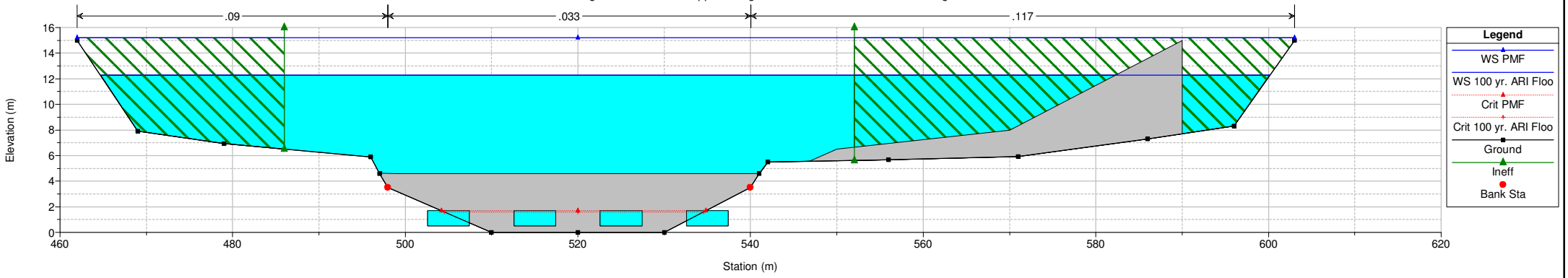
River = Georges River Reach = Upper Georges Ri RS = 34 101.057 (P6.4, stn 34)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

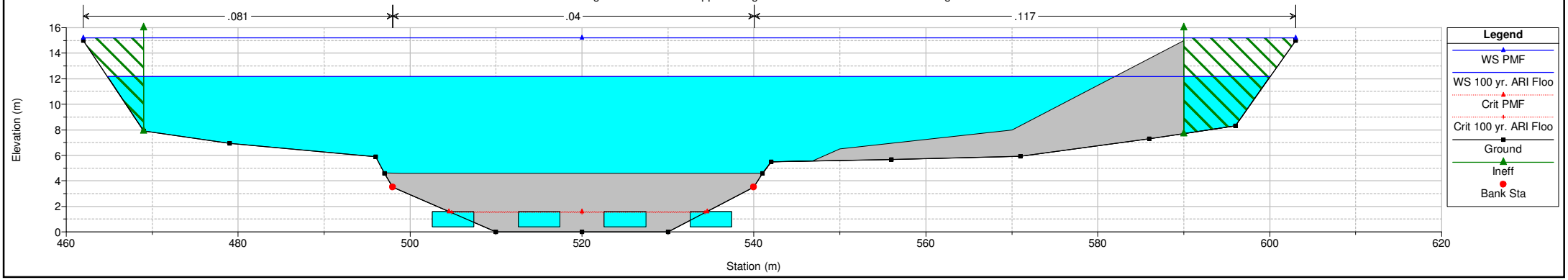
River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

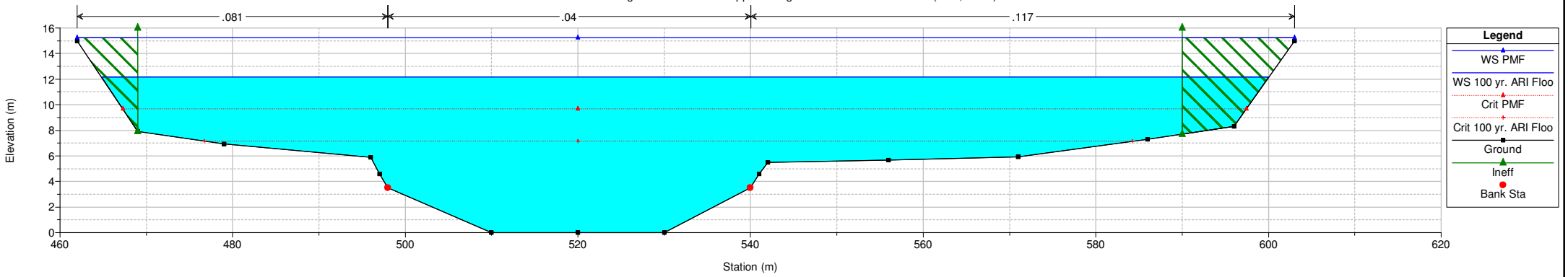
River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

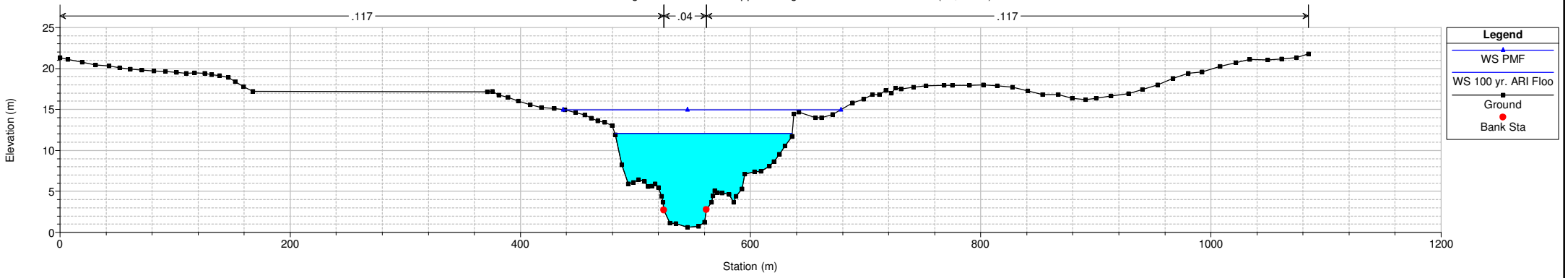
River = Georges River Reach = Upper Georges Ri RS = 33 101.072 (P6.6, stn33)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

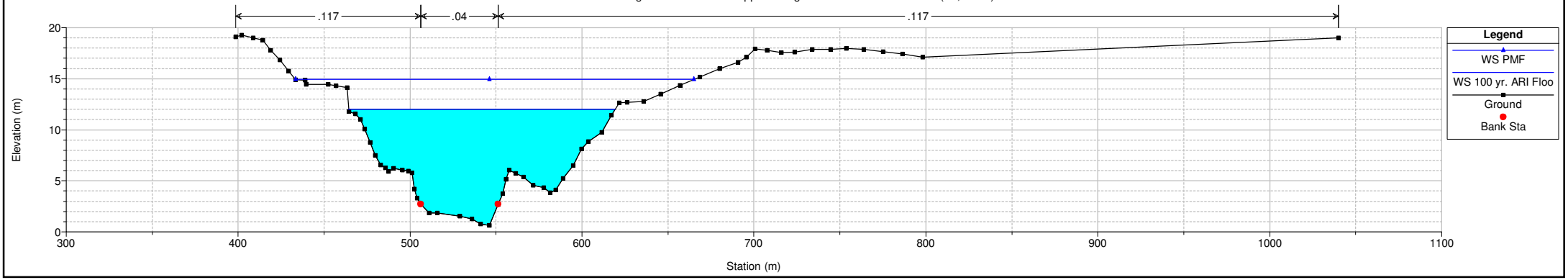
River = Georges River Reach = Upper Georges Ri RS = 32 101.120 (P7, stn32)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

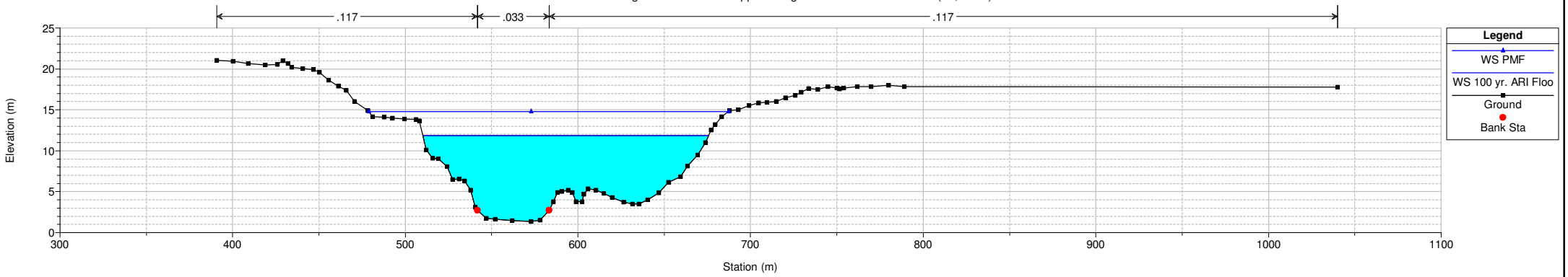
River = Georges River Reach = Upper Georges Ri RS = 31 101.270 (P8, stn31)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

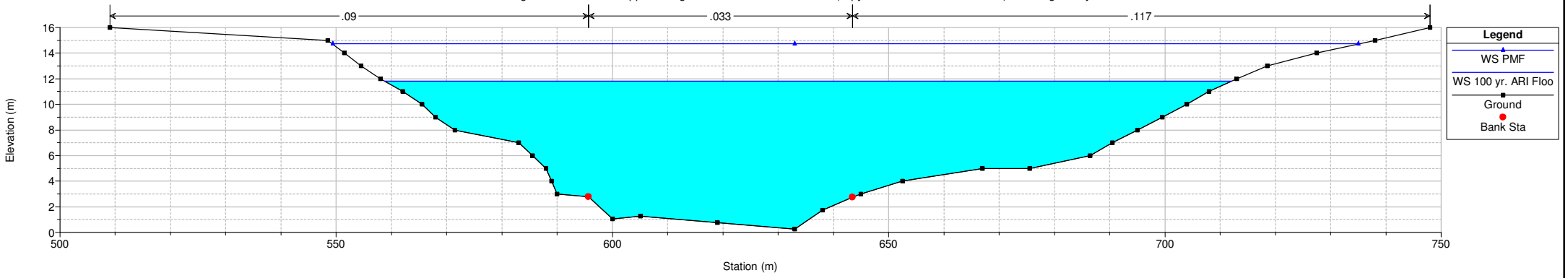
River = Georges River Reach = Upper Georges Ri RS = 30 101.440 (P9, stn30)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

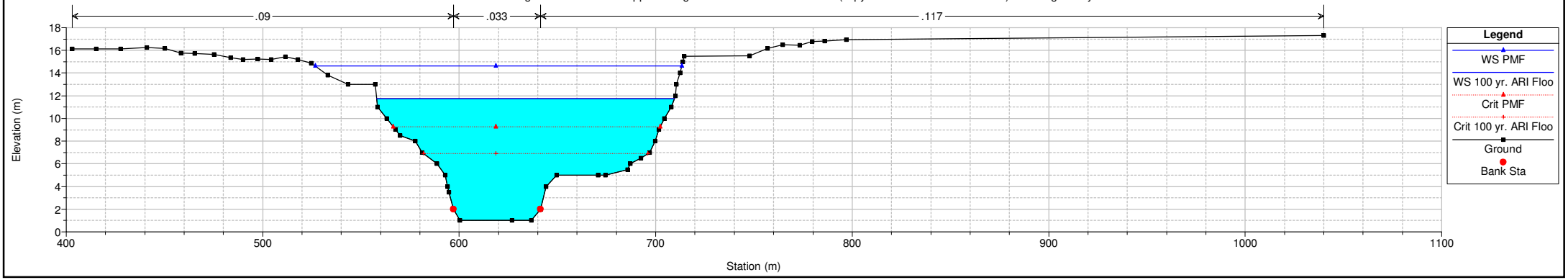
River = Georges River Reach = Upper Georges Ri RS = 29.3 stn 29.3 (copy of 101.650 stn 29 low levels) including survey in

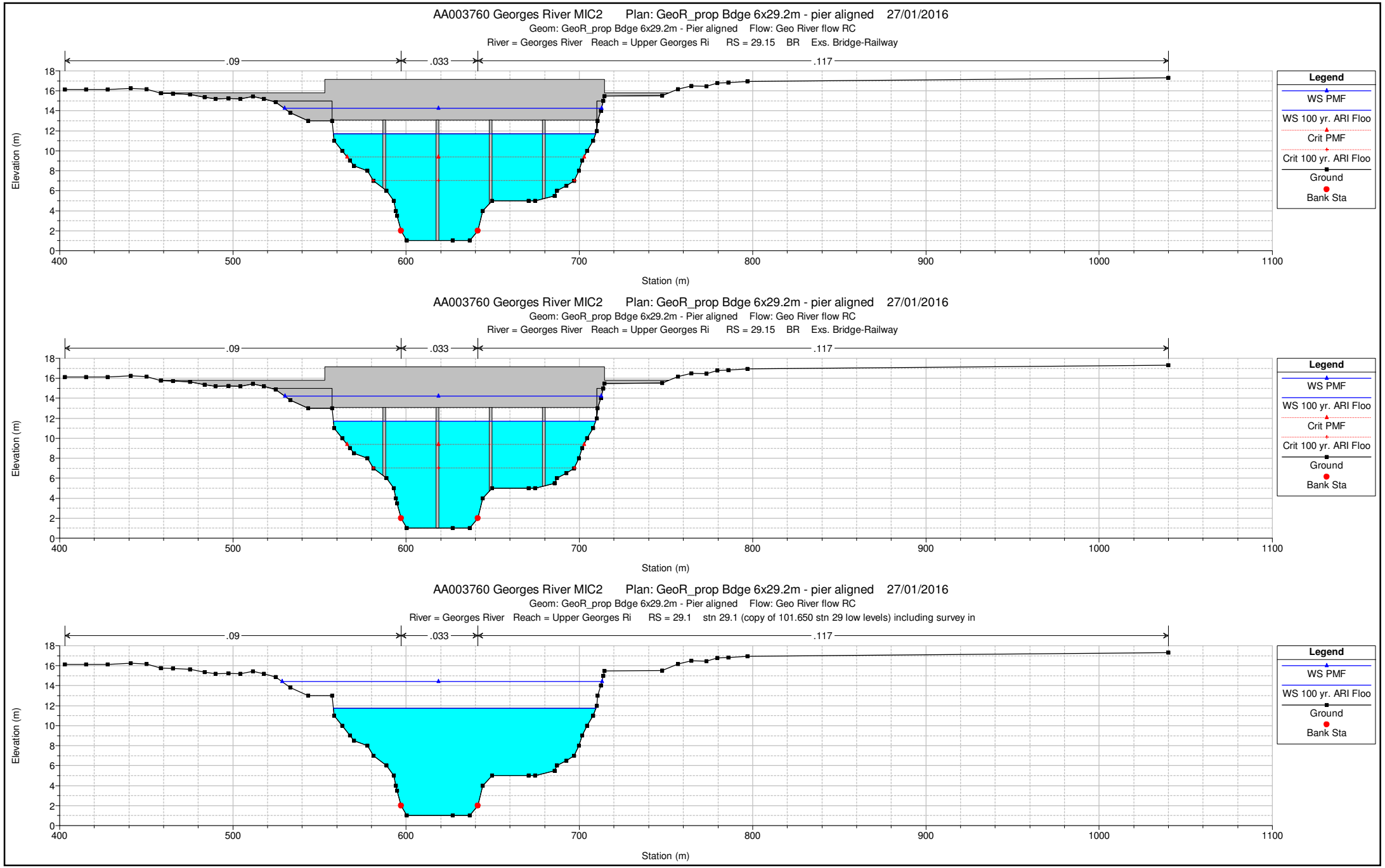


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 29.2 stn 29.2 (copy of 101.650 stn 29 low levels) including survey in

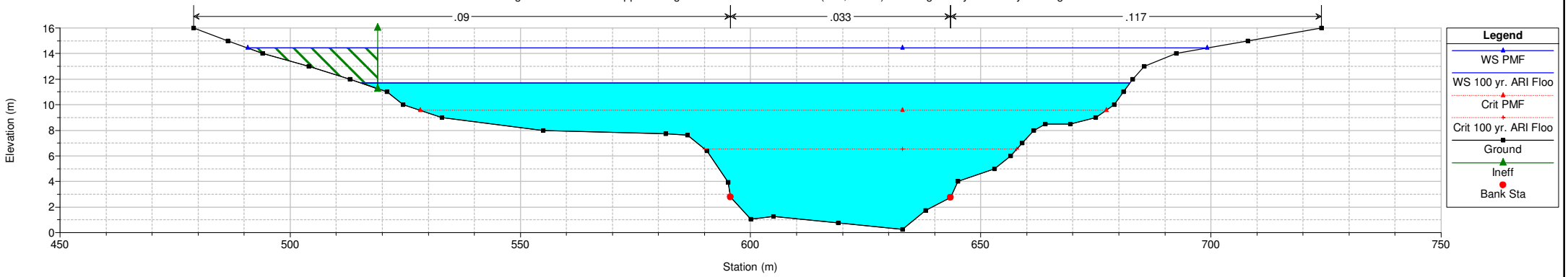



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 29.1 stn 29.1 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

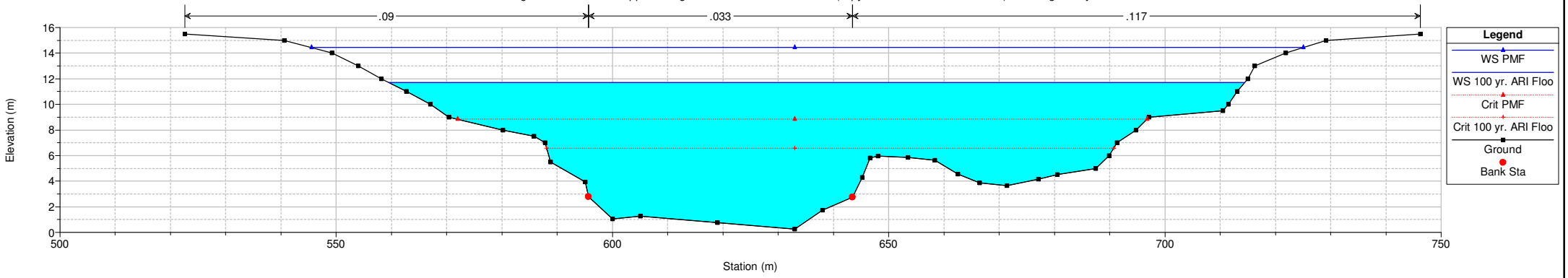
River = Georges River Reach = Upper Georges Ri RS = 29 101.650 (P10, stn 29) including survey info on Hyder Dwg aa00376



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

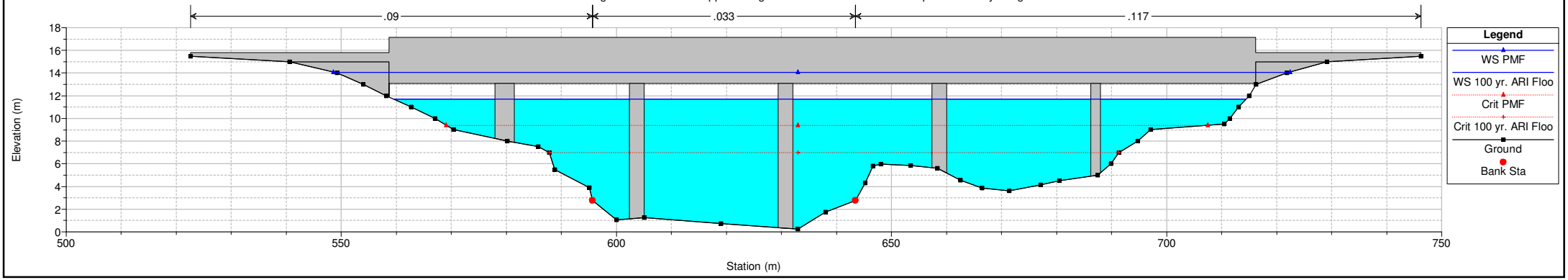
River = Georges River Reach = Upper Georges Ri RS = 28.9 stn 28.9 (copy of 101.650 stn 29 low levels) including survey in



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

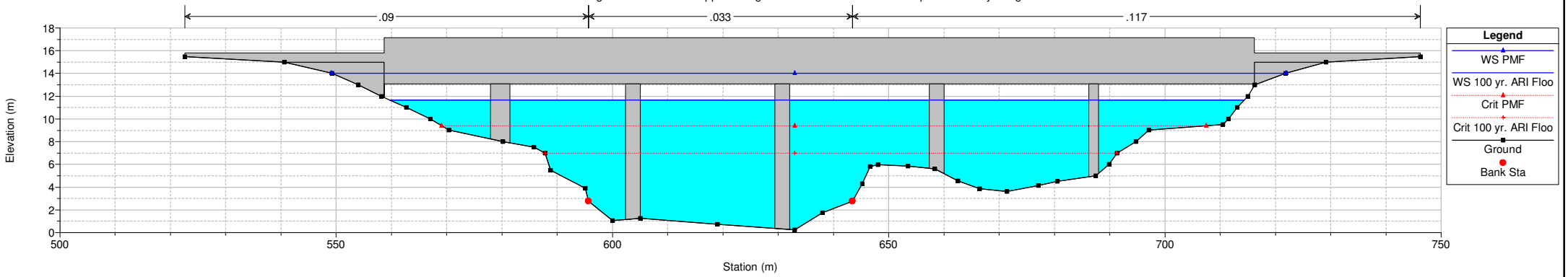
River = Georges River Reach = Upper Georges Ri RS = 28.85 BR Proposed Railway Bridge



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

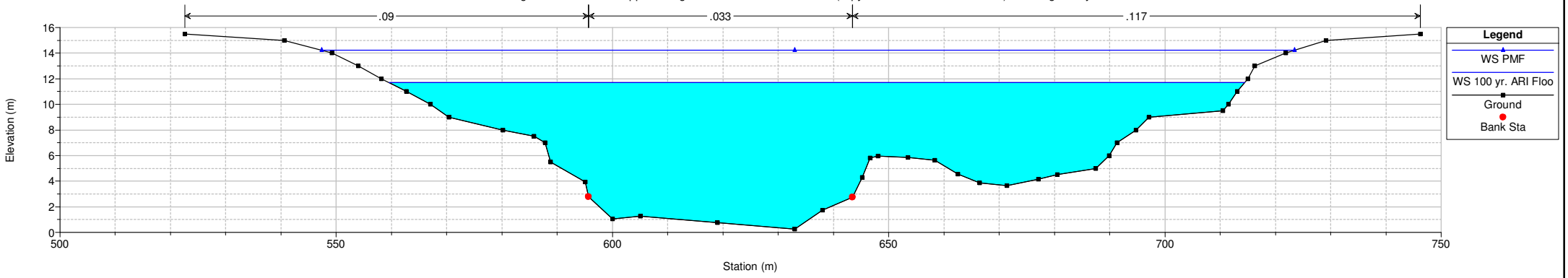
River = Georges River Reach = Upper Georges Ri RS = 28.85 BR Proposed Railway Bridge



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

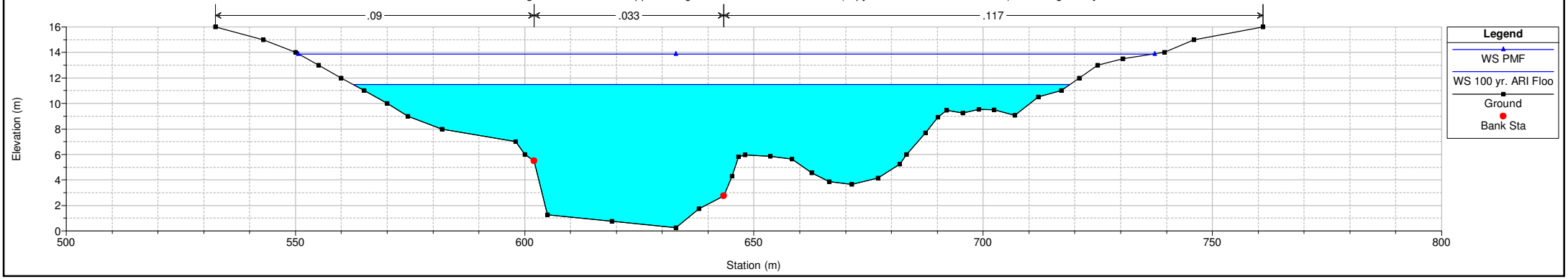
River = Georges River Reach = Upper Georges Ri RS = 28.8 stn 28.8 (copy of 101.650 stn 29 low levels) including survey in

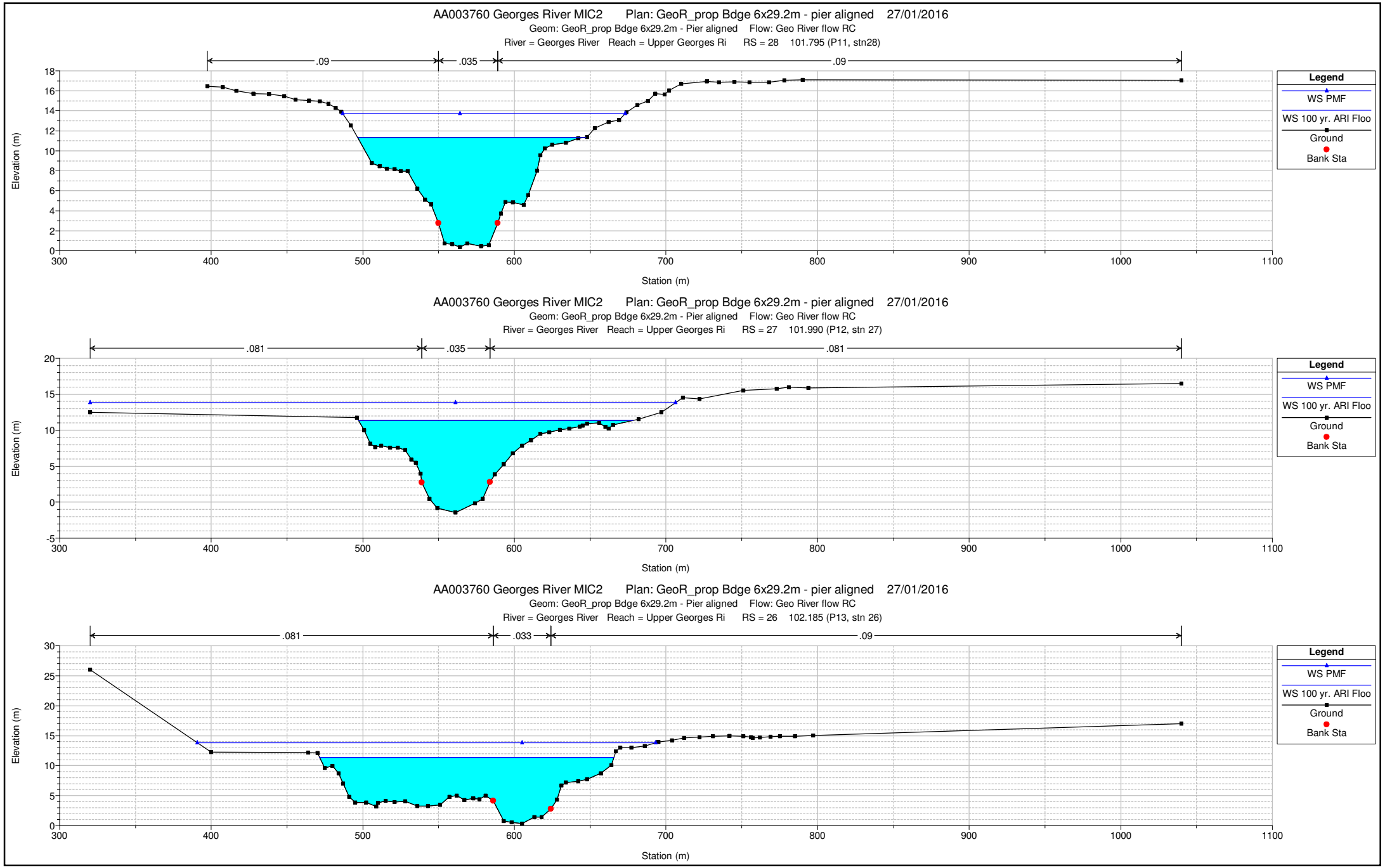


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 28.7 stn 28.7 (copy of 101.650 stn 29 low levels) including survey i

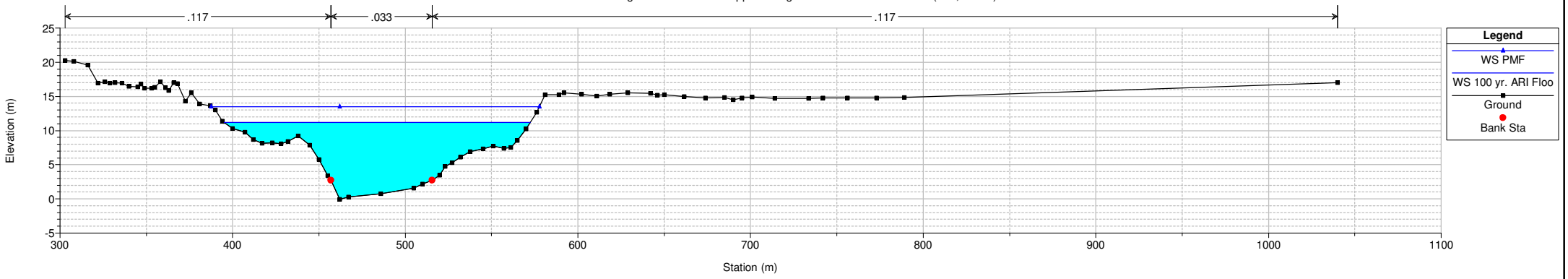



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 28 101.795 (P11, stn28)
.09
.035
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 27 101.990 (P12, stn 27)
.081
.035
.081
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 26 102.185 (P13, stn 26)
.081
.033
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

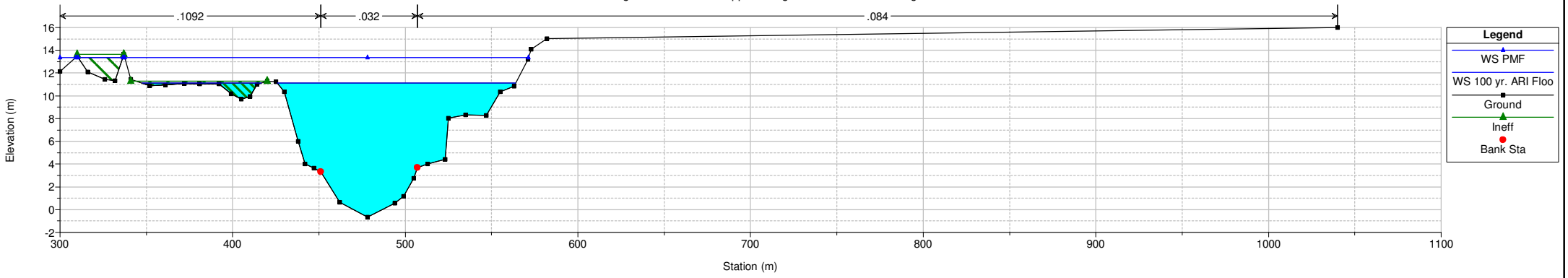
River = Georges River Reach = Upper Georges Ri RS = 25 102.390 (P14, stn 25)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

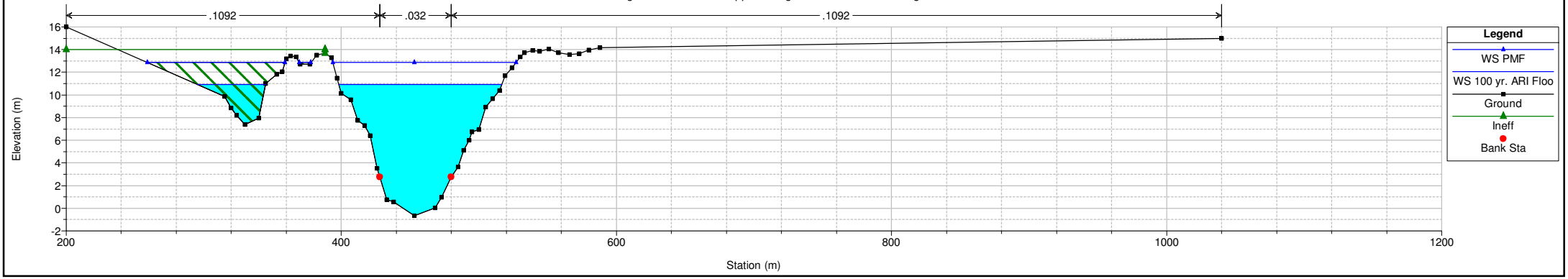
River = Georges River Reach = Upper Georges Ri RS = 24 Georges 102.535 - P15



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

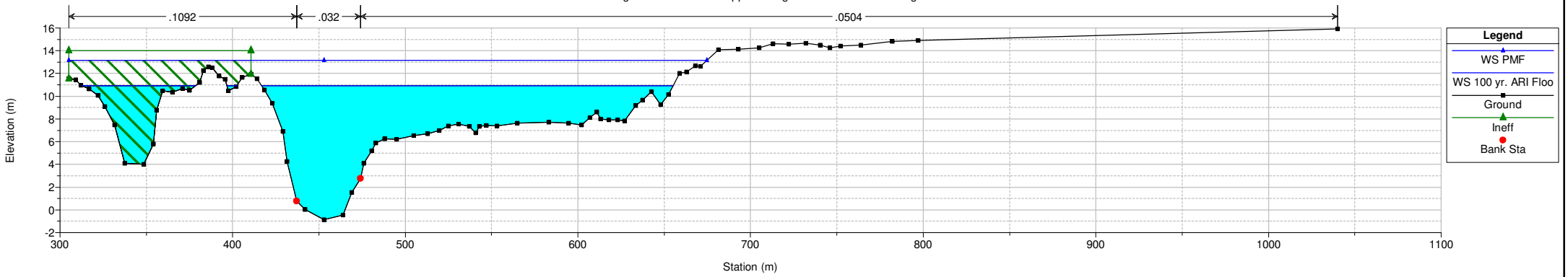
River = Georges River Reach = Upper Georges Ri RS = 23 Georges 102.730 - P16



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

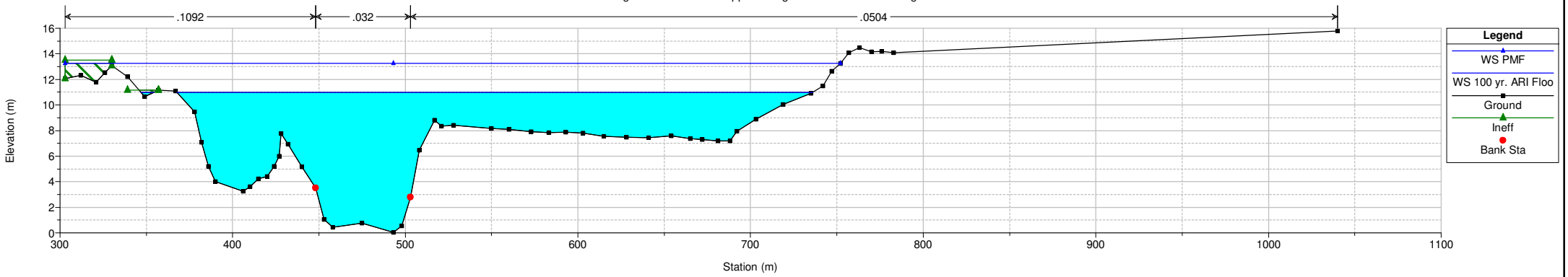
River = Georges River Reach = Upper Georges Ri RS = 22 Georges 102.930 - P17



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

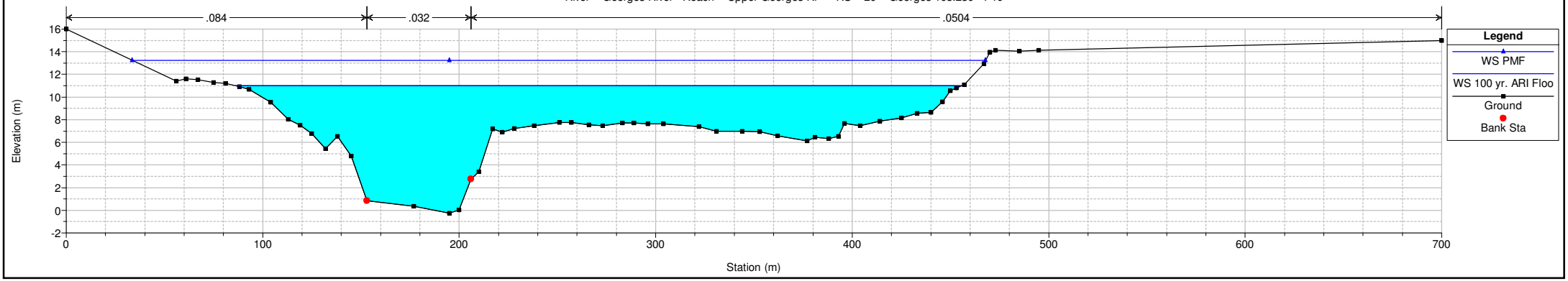
River = Georges River Reach = Upper Georges Ri RS = 21 Georges 193.125 - P18



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

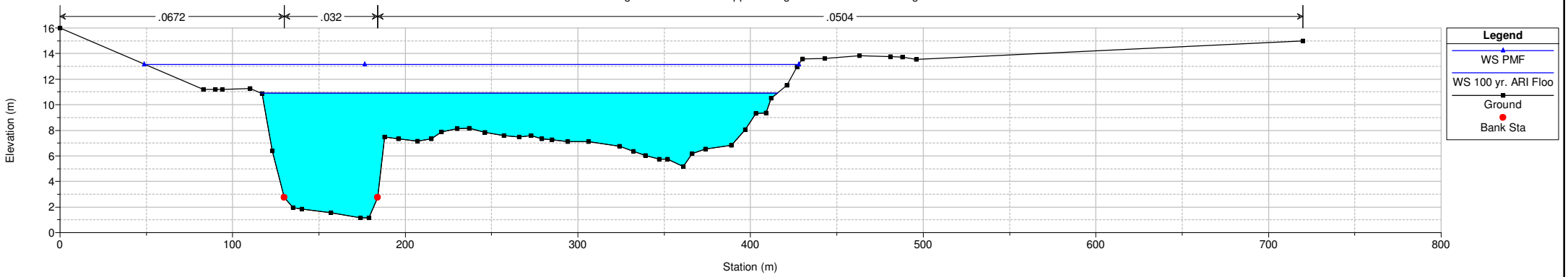
River = Georges River Reach = Upper Georges Ri RS = 20 Georges 103.230 - P19



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

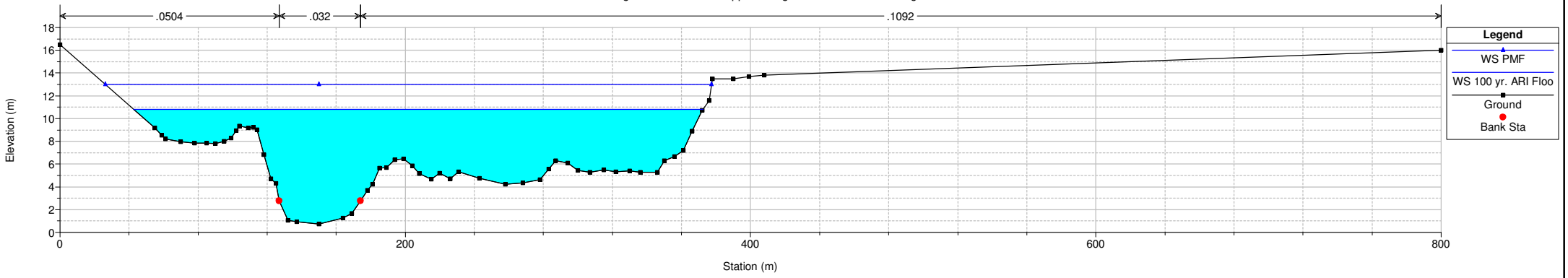
River = Georges River Reach = Upper Georges Ri RS = 19 Georges 103390 - P20



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

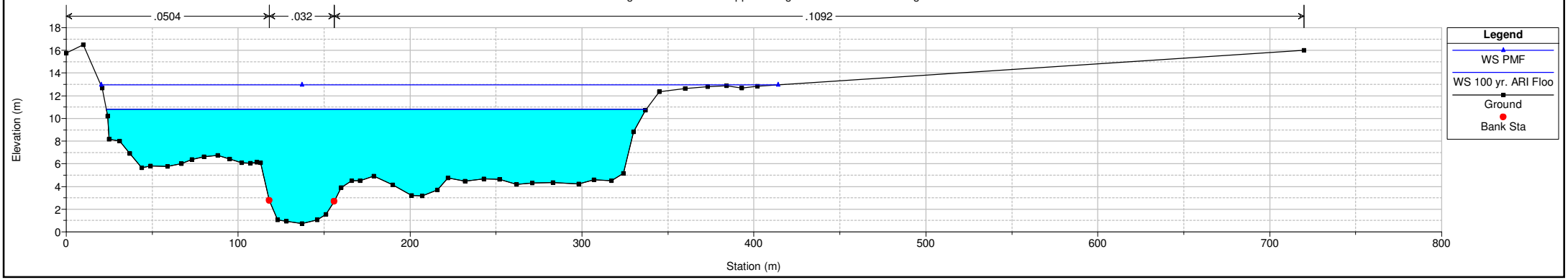
River = Georges River Reach = Upper Georges Ri RS = 18 Georges 103.555 - P21



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

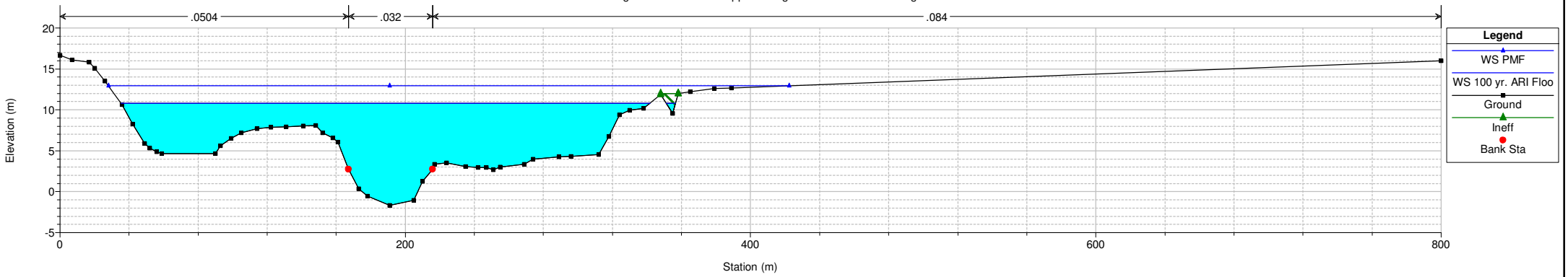
River = Georges River Reach = Upper Georges Ri RS = 17 Georges 103.700 - P22



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

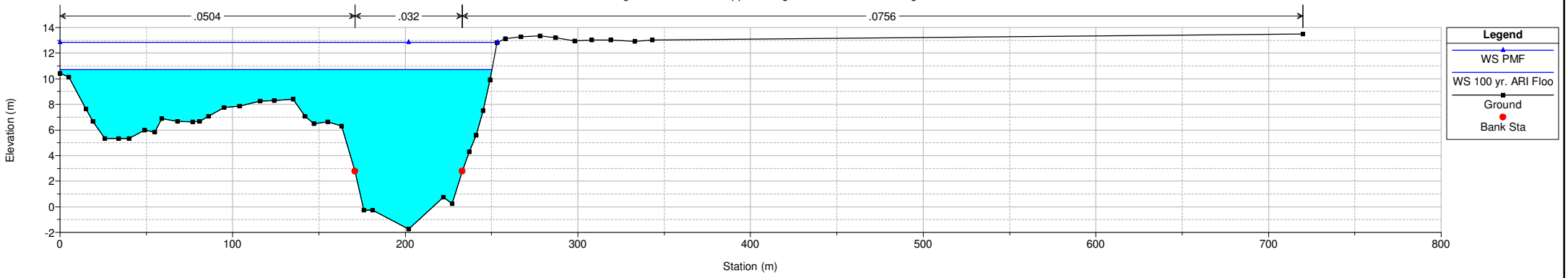
River = Georges River Reach = Upper Georges Ri RS = 16 Georges 103.860 - P23



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

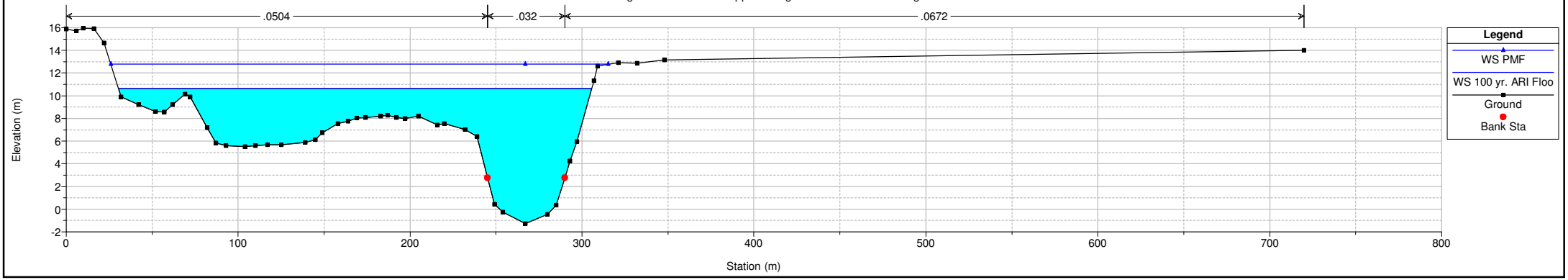
River = Georges River Reach = Upper Georges Ri RS = 15 Georges 104.000 - P25



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

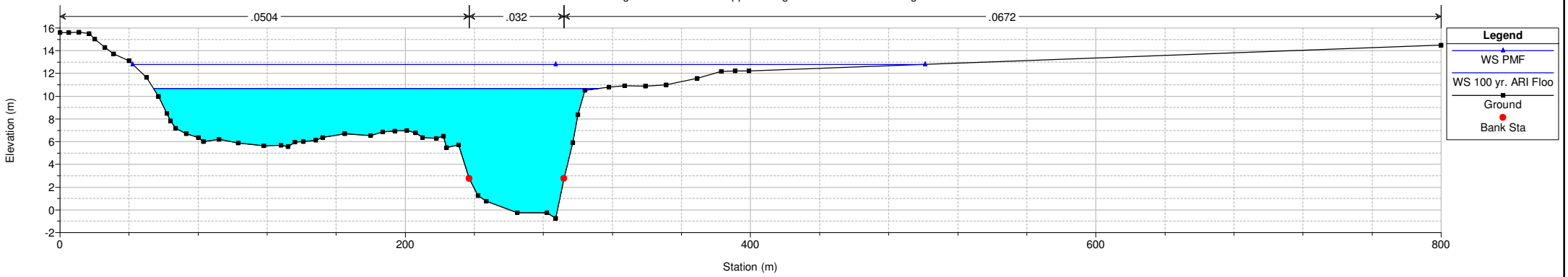
River = Georges River Reach = Upper Georges Ri RS = 14 Georges 104.095 - P26



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

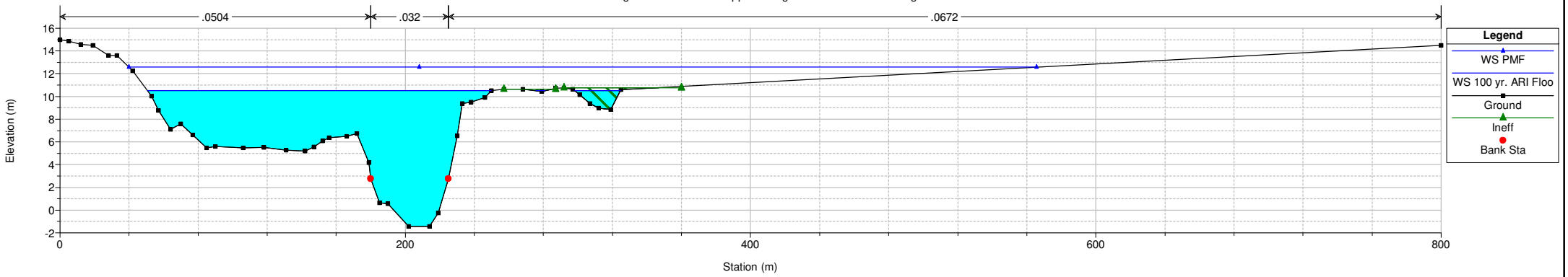
River = Georges River Reach = Upper Georges Ri RS = 13 Georges 104.185 - P28



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

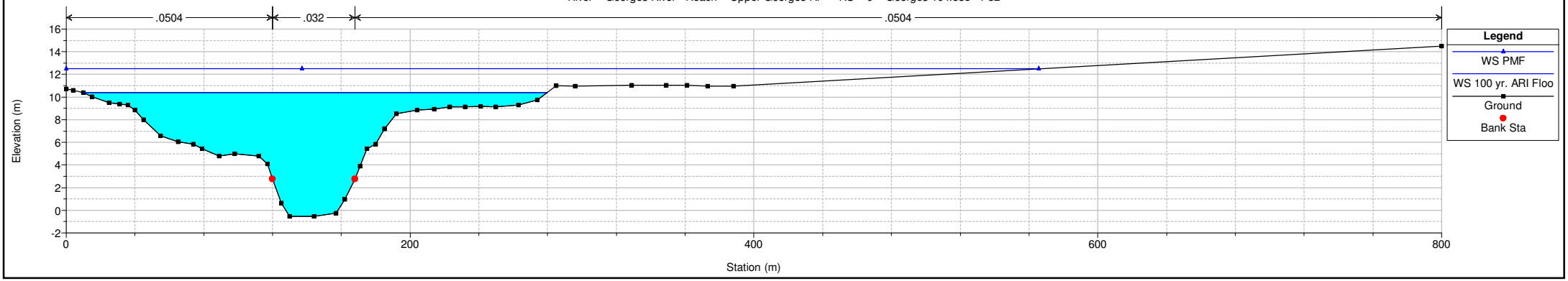
River = Georges River Reach = Upper Georges Ri RS = 10 Georges 104.355 - P31



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

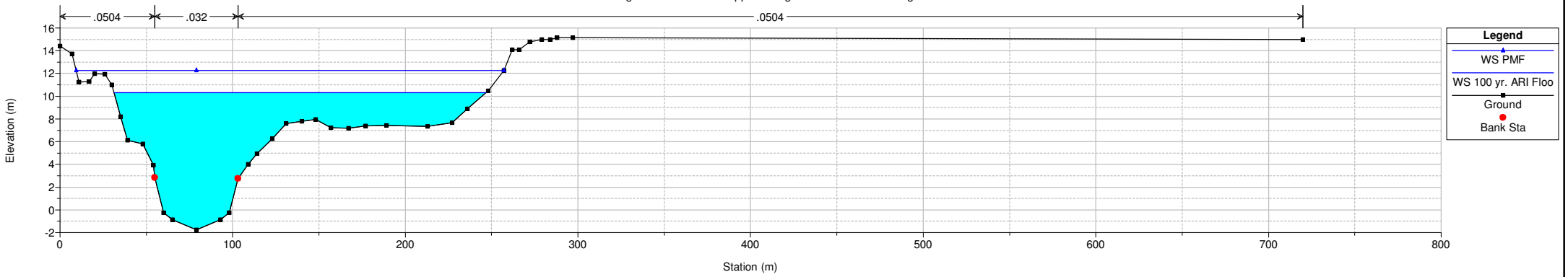
River = Georges River Reach = Upper Georges Ri RS = 9 Georges 104.535 - P32



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

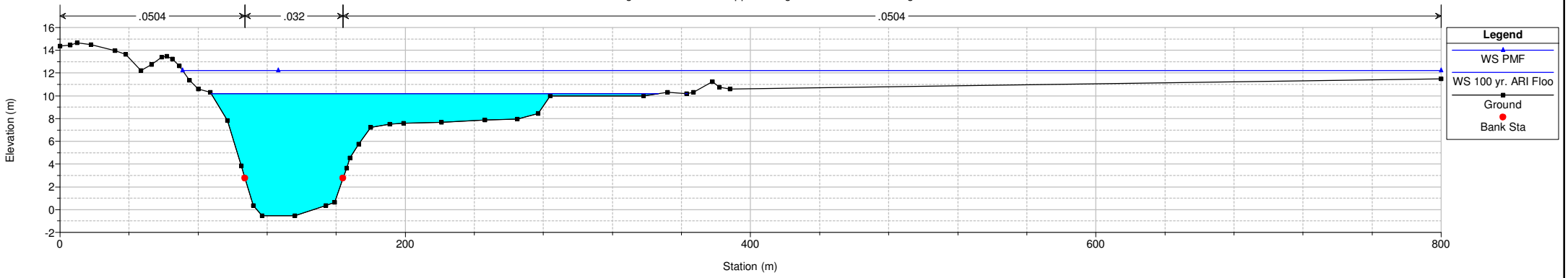
River = Georges River Reach = Upper Georges Ri RS = 8 Georges 104.785 - P33



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

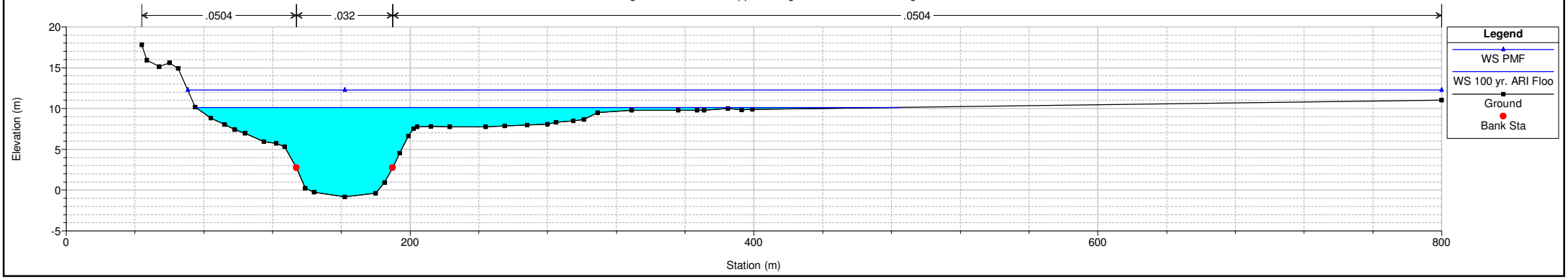
River = Georges River Reach = Upper Georges Ri RS = 7 Georges 104.960 - P34



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

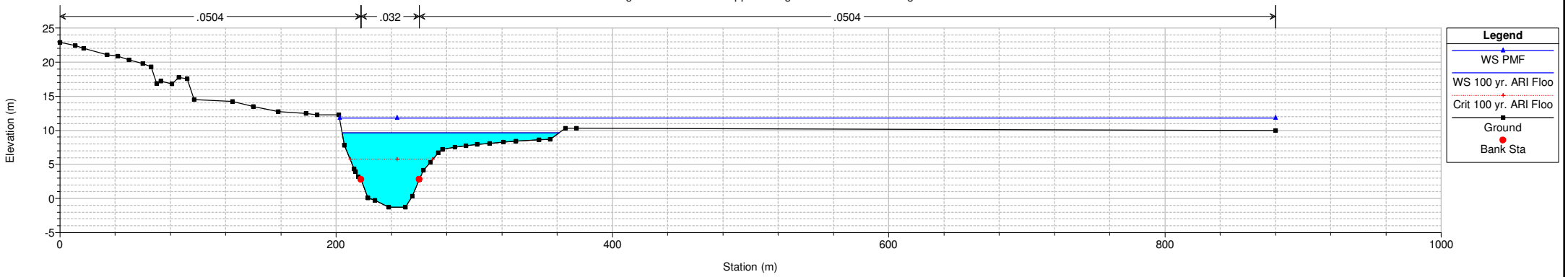
River = Georges River Reach = Upper Georges Ri RS = 6 Georges 105.160 - P35



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

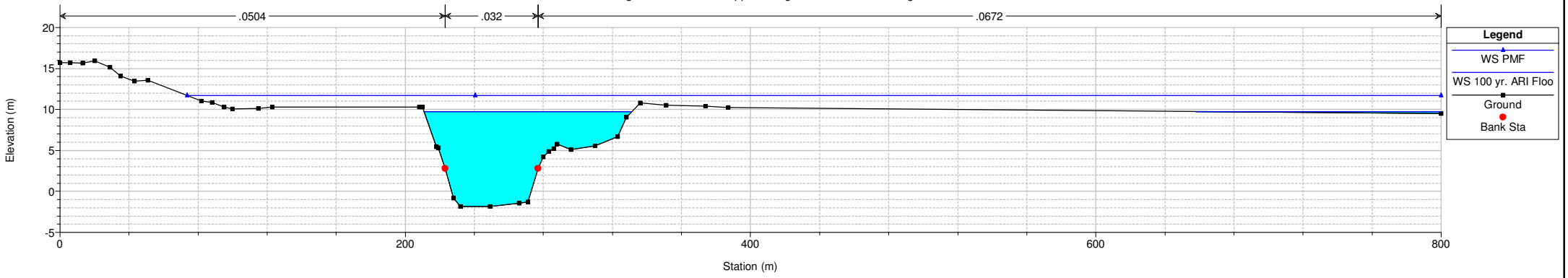
River = Georges River Reach = Upper Georges Ri RS = 5 Georges 105.355 - P36



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

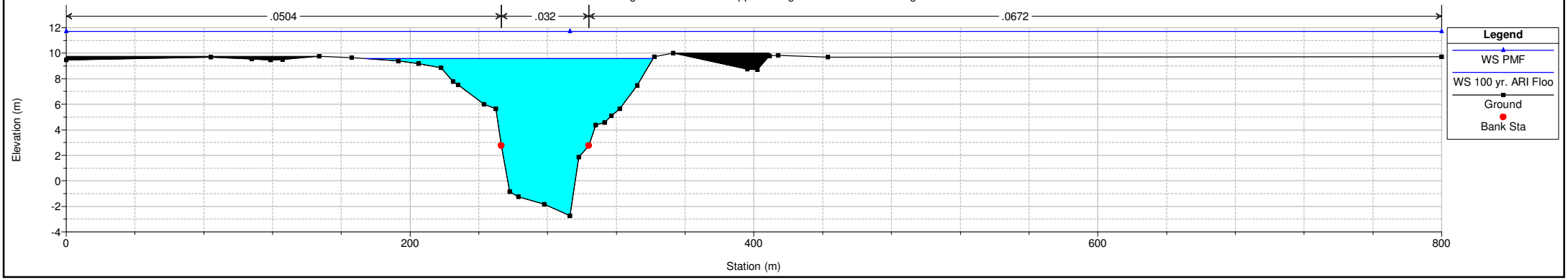
River = Georges River Reach = Upper Georges Ri RS = 4 Georges 105.560 - P37



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

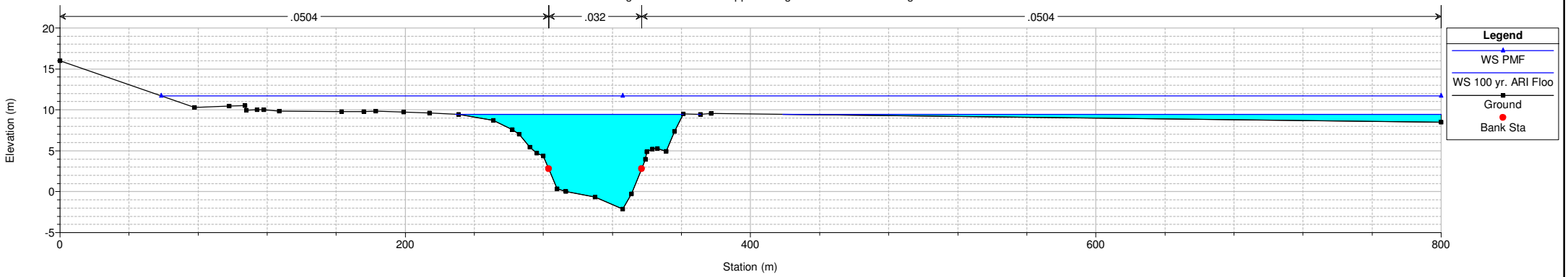
River = Georges River Reach = Upper Georges Ri RS = 3 Georges 105.720 - P38



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

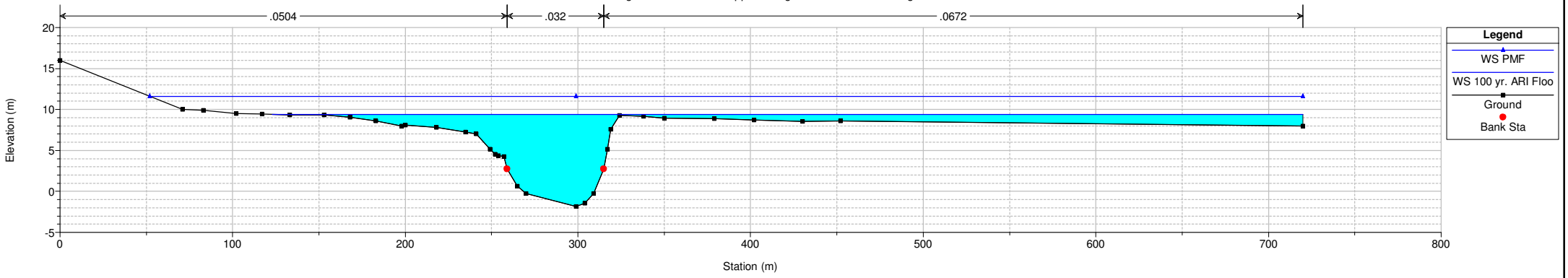
River = Georges River Reach = Upper Georges Ri RS = 2 Georges 105.960 - P39



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

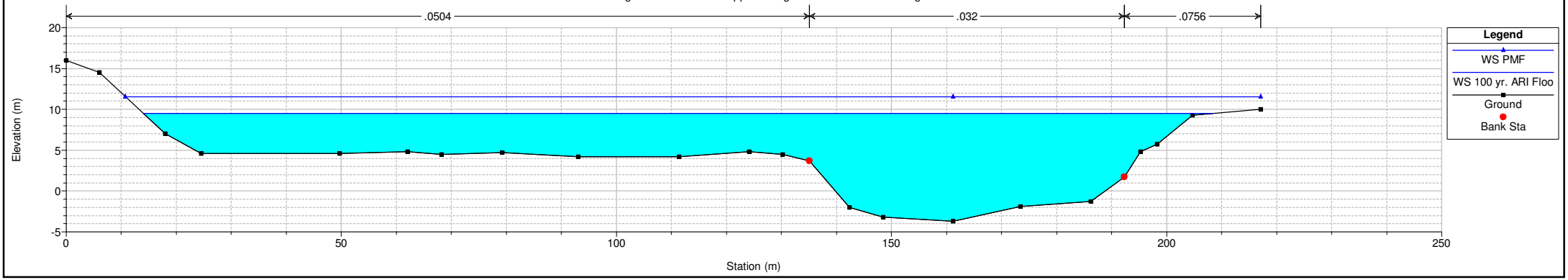
River = Georges River Reach = Upper Georges Ri RS = 1 Georges 106.160 - P40



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

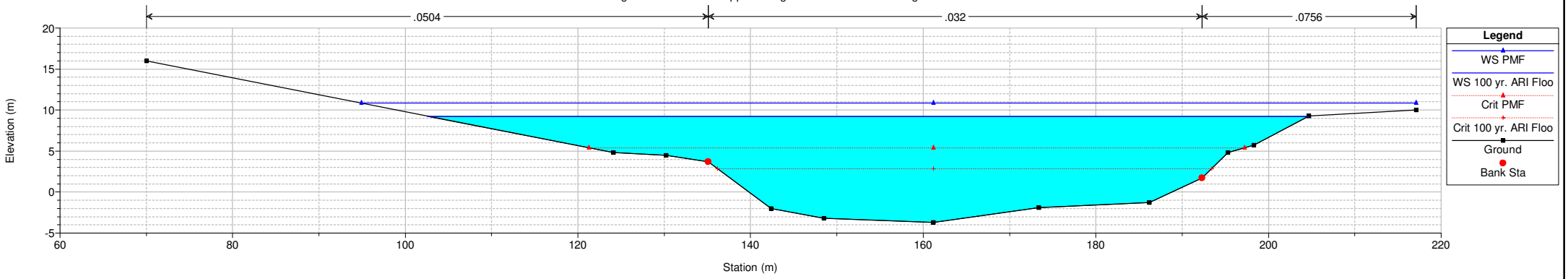
River = Georges River Reach = Upper Georges Ri RS = 0.8 Georges 106.330 - P41



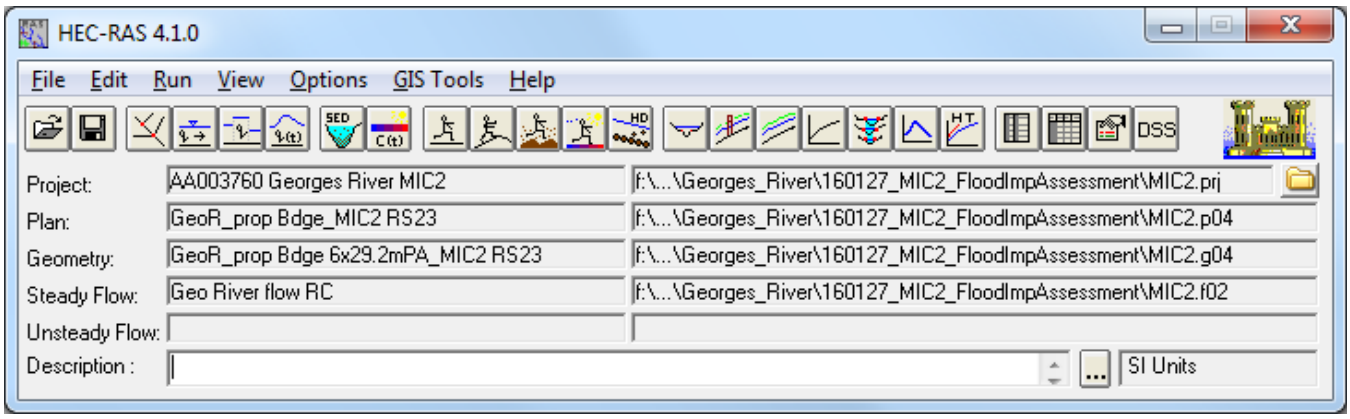
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge 6x29.2m - pier aligned 27/01/2016

Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 0.5 Georges 106.530 - P42



MPW Stage 2



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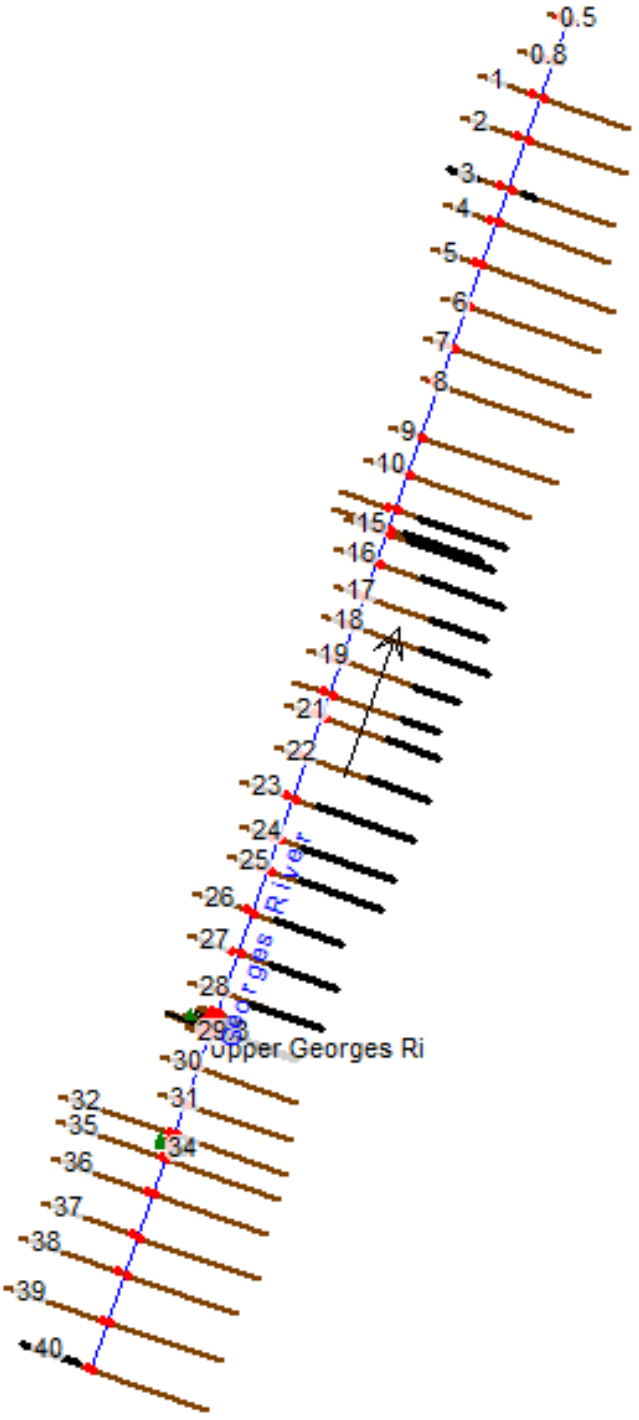
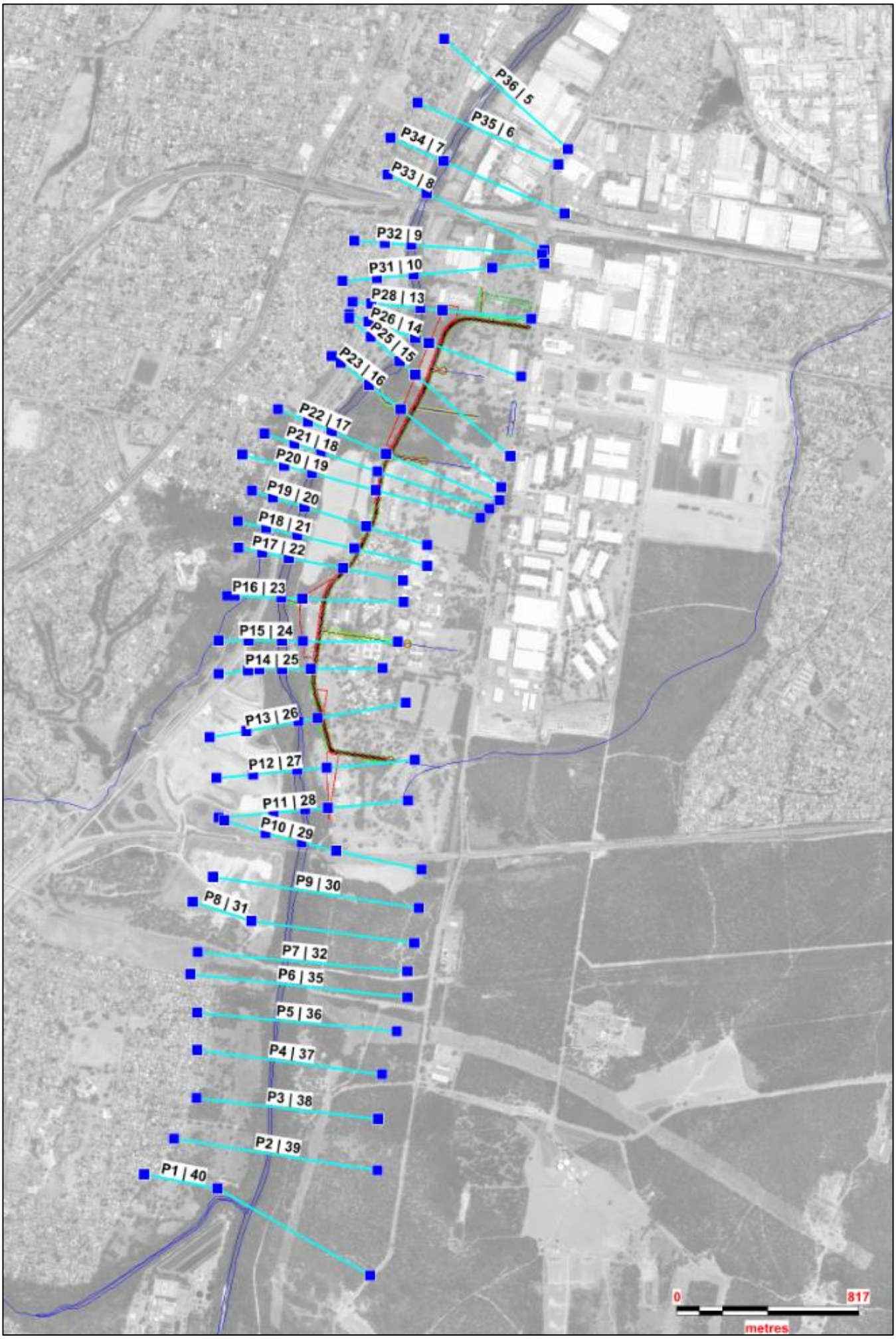



P36 | 5
P35 | 6
P34 | 7
P33 | 8
P32 | 9
P31 | 10
P28 | 13
P26 | 14
P25 | 15
P23 | 16
P22 | 17
P21 | 18
P20 | 19
P19 | 20
P18 | 21
P17 | 22
P16 | 23
P15 | 24
P14 | 25
P13 | 26
P12 | 27
P11 | 28
P10 | 29
P9 | 30
P8 | 31
P7 | 32
P6 | 35
P5 | 36
P4 | 37
P3 | 38
P2 | 39
P1 | 40
0
817
metres

Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: Dev_MIC2R23 River: Georges River Reach: Upper Georges Ri Profile: 100 yr. ARI Floo

Reload Data

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.000	-0.65	13.23	7.50	13.47	0.00	2.83	1591.22	236.68	0.26
Upper Georges Ri	39	100 yr. ARI Floo	1877.000	-0.25	12.95		13.41	0.00	3.20	854.92	116.19	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.000	-0.25	12.96		13.27	0.00	2.71	1035.46	141.71	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.000	0.05	12.80		13.22	0.00	3.15	863.61	108.23	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.000	0.05	12.67		13.11	0.00	3.57	1079.48	225.55	0.33
Upper Georges Ri	35	100 yr. ARI Floo	1877.000	-0.85	12.67		12.93	0.00	3.12	1301.32	171.29	0.29
Upper Georges Ri	34	100 yr. ARI Floo	1877.000	0.00	12.26	6.94	12.90	0.00	3.68	634.63	135.43	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.000	0.00	12.16	7.15	12.58	0.00	3.18	936.36	135.22	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.000	0.62	12.06		12.53	0.00	3.48	1035.37	154.06	0.34
Upper Georges Ri	31	100 yr. ARI Floo	1877.000	0.65	11.99		12.40	0.00	3.18	1038.17	154.97	0.31
Upper Georges Ri	30	100 yr. ARI Floo	1877.000	1.35	11.88		12.30	0.00	3.31	1161.41	165.56	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.000	0.25	11.81		12.21	0.00	3.05	1063.09	153.34	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.000	1.00	11.75	6.89	12.20	0.00	3.25	1033.51	151.56	0.32
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.000	1.00	11.73		12.17	0.00	3.26	1029.62	151.50	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.000	0.25	11.69	6.52	12.16	0.00	3.24	945.80	166.94	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.000	0.25	11.72	6.59	12.14	0.00	3.13	1028.38	154.99	0.31
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.000	0.25	11.69		12.11	0.00	3.14	1023.50	154.79	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.000	0.25	11.49		12.09	0.00	3.71	893.75	156.40	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.000	0.35	11.35		12.01	0.00	3.89	799.70	150.53	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.000	-1.45	11.35		11.83	0.00	3.23	884.56	180.94	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.000	0.35	11.40		11.67	0.00	2.91	1298.38	194.22	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.000	-0.05	11.20		11.57	0.00	2.86	1025.44	177.25	0.29
Upper Georges Ri	24	100 yr. ARI Floo	1877.000	-0.65	11.11		11.51	0.00	2.95	898.27	206.70	0.29
Upper Georges Ri	23	100 yr. ARI Floo	1877.000	-0.65	10.92		11.42	0.00	3.23	776.70	157.68	0.32
Upper Georges Ri	22	100 yr. ARI Floo	1877.000	-0.85	10.93		11.28	0.00	3.16	1097.47	310.02	0.31
Upper Georges Ri	21	100 yr. ARI Floo	1877.000	0.05	10.99		11.17	0.00	2.25	1681.52	375.89	0.22
Upper Georges Ri	20	100 yr. ARI Floo	1877.000	-0.25	10.98		11.14	0.00	2.13	1696.93	369.38	0.21
Upper Georges Ri	19	100 yr. ARI Floo	1877.000	1.15	10.92		11.10	0.00	2.32	1418.15	299.48	0.24
Upper Georges Ri	18	100 yr. ARI Floo	1877.000	0.75	10.82		11.04	0.00	2.60	1735.62	329.80	0.27
Upper Georges Ri	17	100 yr. ARI Floo	1877.000	0.75	10.82		10.98	0.00	2.43	1914.65	314.25	0.25
Upper Georges Ri	16	100 yr. ARI Floo	1877.000	-1.65	10.80		10.93	0.00	2.03	1857.58	311.51	0.19
Upper Georges Ri	15	100 yr. ARI Floo	1877.000	-1.75	10.73		10.90	0.00	2.10	1390.54	250.11	0.20
Upper Georges Ri	14	100 yr. ARI Floo	1877.000	-1.25	10.63		10.89	0.00	2.67	1248.48	275.23	0.26
Upper Georges Ri	13	100 yr. ARI Floo	1877.000	-0.75	10.66		10.84	0.00	2.20	1397.60	257.82	0.22
Upper Georges Ri	10	100 yr. ARI Floo	1877.000	-1.45	10.50		10.78	0.00	2.73	1093.06	231.22	0.27
Upper Georges Ri	9	100 yr. ARI Floo	1877.000	-0.55	10.40		10.71	0.00	2.82	1105.52	269.89	0.28
Upper Georges Ri	8	100 yr. ARI Floo	1877.000	-1.75	10.31		10.62	0.00	2.77	1059.13	215.52	0.27
Upper Georges Ri	7	100 yr. ARI Floo	1877.000	-0.55	10.19		10.55	0.00	2.84	967.87	260.37	0.29
Upper Georges Ri	6	100 yr. ARI Floo	1877.000	-0.85	10.13		10.47	0.00	2.80	1079.20	410.48	0.28
Upper Georges Ri	5	100 yr. ARI Floo	1877.000	-1.25	9.64	5.74	10.33	0.00	3.93	667.93	157.32	0.40
Upper Georges Ri	4	100 yr. ARI Floo	1877.000	-1.85	9.75		10.13	0.00	2.88	860.61	262.52	0.28
Upper Georges Ri	3	100 yr. ARI Floo	1877.000	-2.75	9.57		10.05	0.00	3.22	774.73	167.14	0.32
Upper Georges Ri	2	100 yr. ARI Floo	1877.000	-2.15	9.47		9.92	0.00	3.15	906.52	515.25	0.32
Upper Georges Ri	1	100 yr. ARI Floo	1877.000	-1.85	9.40		9.82	0.00	3.02	1125.64	597.10	0.31
Upper Georges Ri	0.8	100 yr. ARI Floo	1877.000	-3.70	9.52		9.70	0.00	2.15	1280.19	194.54	0.20
Upper Georges Ri	0.5	100 yr. ARI Floo	1877.000	-3.70	9.25	2.86	9.63	0.00	2.80	778.26	102.00	0.27

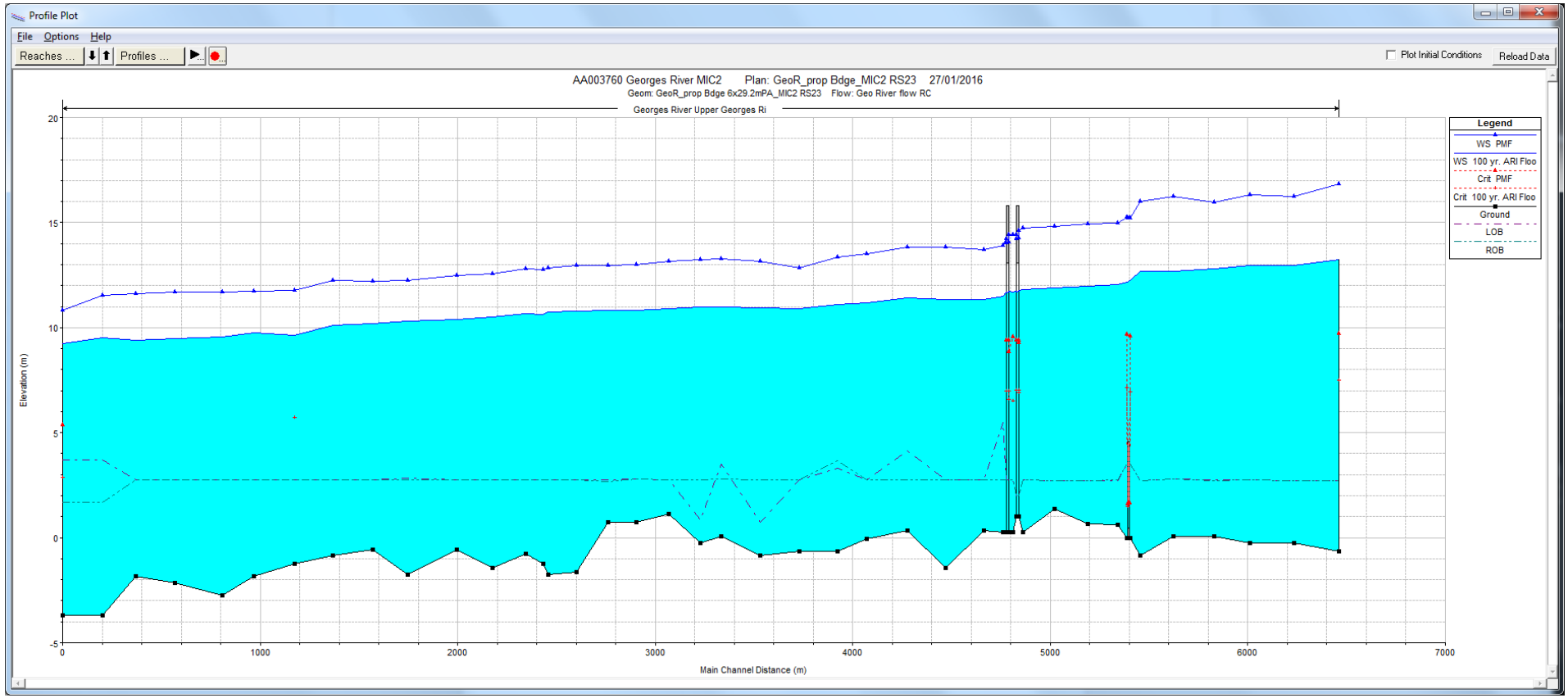
Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: Dev_MIC2R23 River: Georges River Reach: Upper Georges Ri Profile: PMF

Reload Data

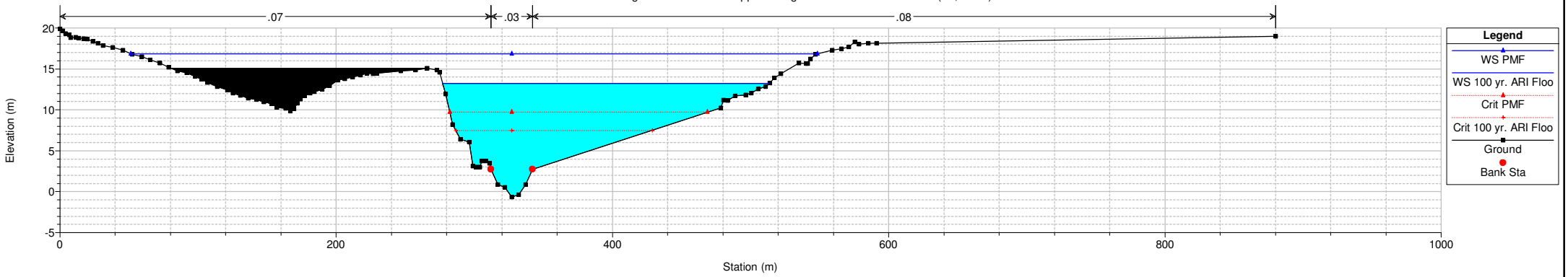
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.001	-0.65	16.84	9.70	17.16	0.00	3.48	2878.88	496.95	0.28
Upper Georges Ri	39	PMF	3407.001	-0.25	16.26		17.08	0.00	4.41	1506.26	423.87	0.35
Upper Georges Ri	38	PMF	3407.001	-0.25	16.32		16.85	0.00	3.59	1558.33	173.66	0.29
Upper Georges Ri	37	PMF	3407.001	0.05	15.96		16.78	0.00	4.42	1331.21	221.53	0.36
Upper Georges Ri	36	PMF	3407.001	0.05	16.24		16.65	0.00	3.86	2460.33	561.30	0.32
Upper Georges Ri	35	PMF	3407.001	-0.85	15.99		16.51	0.00	4.50	2332.48	601.42	0.37
Upper Georges Ri	34	PMF	3407.001	0.00	15.20	9.61	16.47	0.00	5.21	828.63	141.00	0.44
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.001	0.00	15.26	9.66	15.96	0.00	4.22	1312.14	141.00	0.36
Upper Georges Ri	32	PMF	3407.001	0.62	14.98		15.89	0.00	4.88	1557.10	241.65	0.42
Upper Georges Ri	31	PMF	3407.001	0.65	14.93		15.69	0.00	4.36	1578.60	231.64	0.38
Upper Georges Ri	30	PMF	3407.001	1.35	14.80		15.54	0.00	4.48	1686.32	208.36	0.39
Upper Georges Ri	29.3	PMF	3407.001	0.25	14.72		15.43	0.00	4.15	1551.73	185.75	0.36
Upper Georges Ri	29.2	PMF	3407.001	1.00	14.63	9.27	15.41	0.00	4.40	1514.37	186.58	0.38
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.001	1.00	14.43		15.24	0.00	4.49	1476.03	184.66	0.39
Upper Georges Ri	29	PMF	3407.001	0.25	14.43	9.56	15.22	0.00	4.33	1407.73	208.46	0.38
Upper Georges Ri	28.9	PMF	3407.001	0.25	14.43	8.84	15.20	0.00	4.30	1476.11	179.60	0.38
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	PMF	3407.001	0.25	14.22		15.02	0.00	4.38	1437.79	176.18	0.39
Upper Georges Ri	28.7	PMF	3407.001	0.25	13.89		14.97	0.00	5.15	1298.42	186.95	0.46
Upper Georges Ri	28	PMF	3407.001	0.35	13.72		14.86	0.00	5.31	1196.86	186.44	0.47
Upper Georges Ri	27	PMF	3407.001	-1.45	13.84		14.57	0.00	4.25	1678.33	386.24	0.36
Upper Georges Ri	26	PMF	3407.001	0.35	13.83		14.38	0.00	4.19	1913.91	302.55	0.38
Upper Georges Ri	25	PMF	3407.001	-0.05	13.52		14.23	0.00	4.02	1451.27	190.08	0.36
Upper Georges Ri	24	PMF	3407.001	-0.65	13.36		14.13	0.00	4.17	1404.26	269.06	0.38
Upper Georges Ri	23	PMF	3407.001	-0.65	12.86		13.96	0.00	4.84	990.88	221.30	0.44
Upper Georges Ri	22	PMF	3407.001	-0.85	13.15		13.64	0.00	3.96	1655.15	369.72	0.35
Upper Georges Ri	21	PMF	3407.001	0.05	13.26		13.49	0.00	2.77	2598.17	449.04	0.25
Upper Georges Ri	20	PMF	3407.001	-0.25	13.25		13.45	0.00	2.61	2628.09	434.43	0.23
Upper Georges Ri	19	PMF	3407.001	1.15	13.17		13.41	0.00	2.82	2207.76	379.22	0.27
Upper Georges Ri	18	PMF	3407.001	0.75	13.00		13.34	0.00	3.37	2480.91	351.26	0.31
Upper Georges Ri	17	PMF	3407.001	0.75	12.96		13.26	0.00	3.41	2617.30	394.14	0.32
Upper Georges Ri	16	PMF	3407.001	-1.65	12.95		13.19	0.00	2.83	2563.76	380.52	0.25
Upper Georges Ri	15	PMF	3407.001	-1.75	12.86		13.14	0.00	2.82	1926.38	253.59	0.25
Upper Georges Ri	14	PMF	3407.001	-1.25	12.77		13.13	0.00	3.35	1848.59	289.40	0.30
Upper Georges Ri	13	PMF	3407.001	-0.75	12.81		13.07	0.00	2.87	2078.48	344.57	0.26
Upper Georges Ri	10	PMF	3407.001	-1.45	12.57		13.00	0.00	3.57	1892.78	525.74	0.32
Upper Georges Ri	9	PMF	3407.001	-0.55	12.50		12.91	0.00	3.52	1986.55	565.62	0.32
Upper Georges Ri	8	PMF	3407.001	-1.75	12.25		12.78	0.00	3.78	1503.31	247.63	0.34
Upper Georges Ri	7	PMF	3407.001	-0.55	12.21		12.67	0.00	3.55	2058.38	729.01	0.33
Upper Georges Ri	6	PMF	3407.001	-0.85	12.24		12.54	0.00	3.05	2477.23	729.37	0.28
Upper Georges Ri	5	PMF	3407.001	-1.25	11.78		12.42	0.00	4.35	1844.23	677.56	0.40
Upper Georges Ri	4	PMF	3407.001	-1.85	11.72		12.26	0.00	3.74	2097.71	726.26	0.33
Upper Georges Ri	3	PMF	3407.001	-2.75	11.71		12.16	0.00	3.58	2366.98	800.00	0.32
Upper Georges Ri	2	PMF	3407.001	-2.15	11.69		12.01	0.00	3.18	2452.03	741.24	0.29
Upper Georges Ri	1	PMF	3407.001	-1.85	11.61		11.93	0.00	3.17	2555.81	668.08	0.29
Upper Georges Ri	0.8	PMF	3407.001	-3.70	11.53		11.87	0.00	3.04	1690.32	206.35	0.26
Upper Georges Ri	0.5	PMF	3407.001	-3.70	10.84	5.38	11.73	0.00	4.34	961.21	122.16	0.39


Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
20
15
10
5
0
-5
0
1000
2000
3000
4000
5000
6000
7000

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

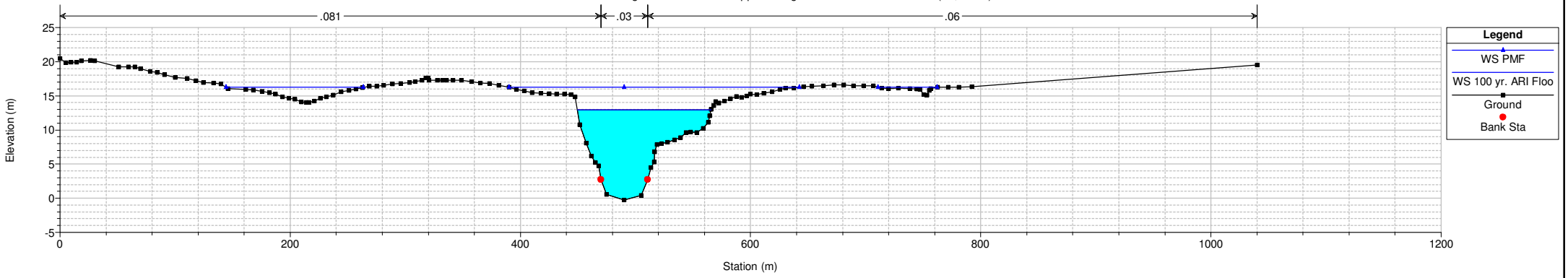
River = Georges River Reach = Upper Georges Ri RS = 40 100.000 (P1, stn40)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

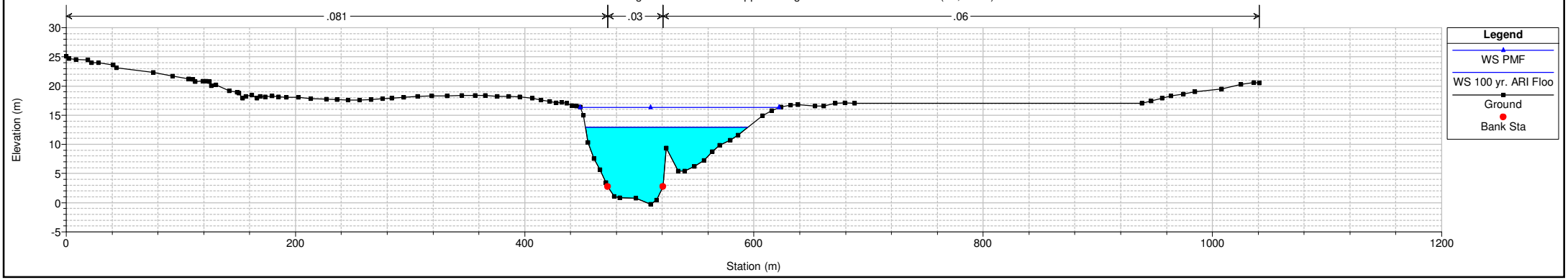
River = Georges River Reach = Upper Georges Ri RS = 39 100.225 (P2, stn39)

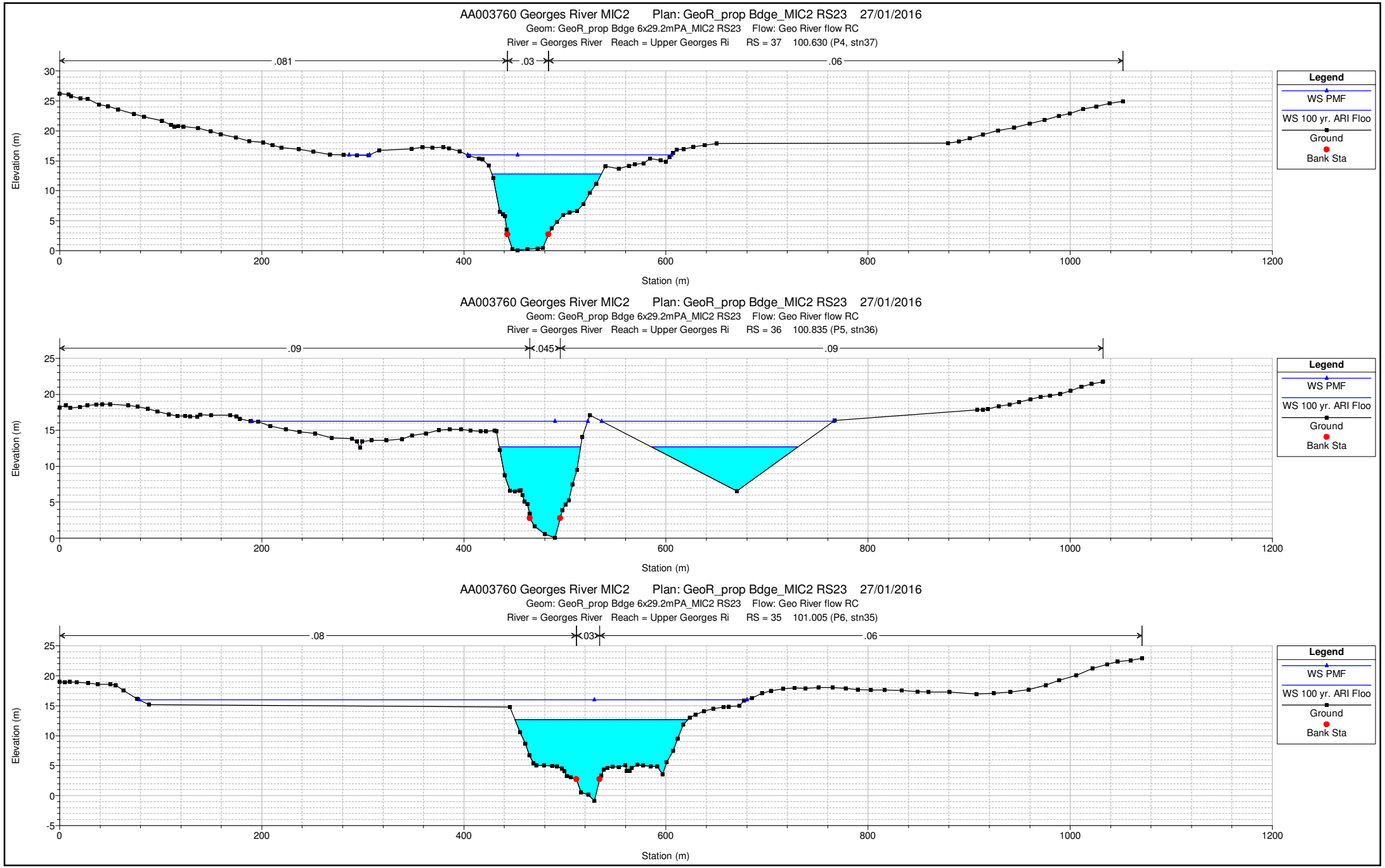


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 38 100.450 (P3, stn38)

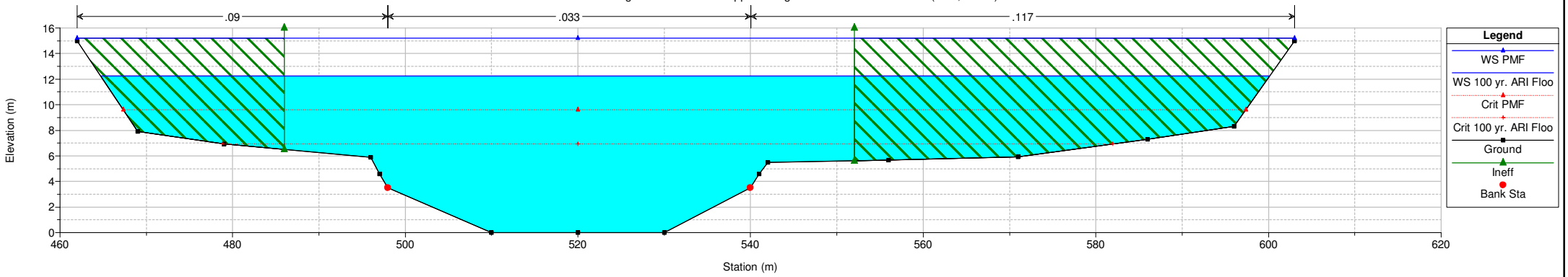



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 37 100.630 (P4, stn37)
.081
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 36 100.835 (P5, stn36)
.09
.045
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 35 101.005 (P6, stn35)
.08
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

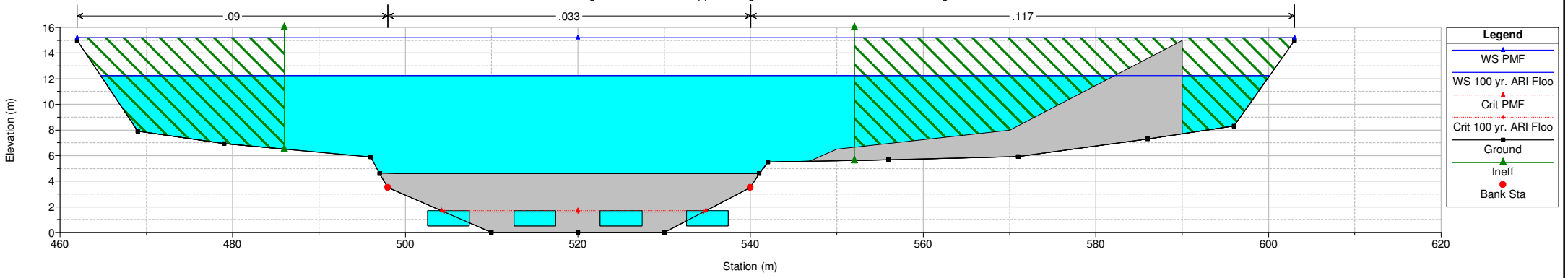
River = Georges River Reach = Upper Georges Ri RS = 34 101.057 (P6.4, stn 34)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

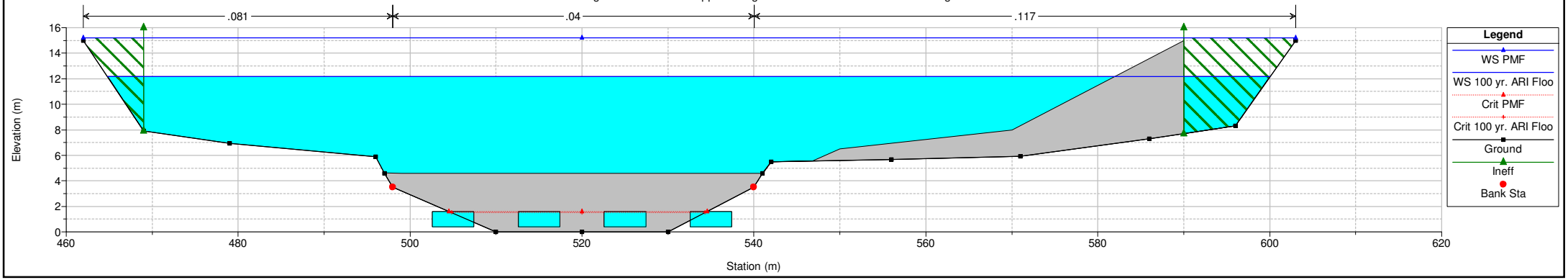
River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062

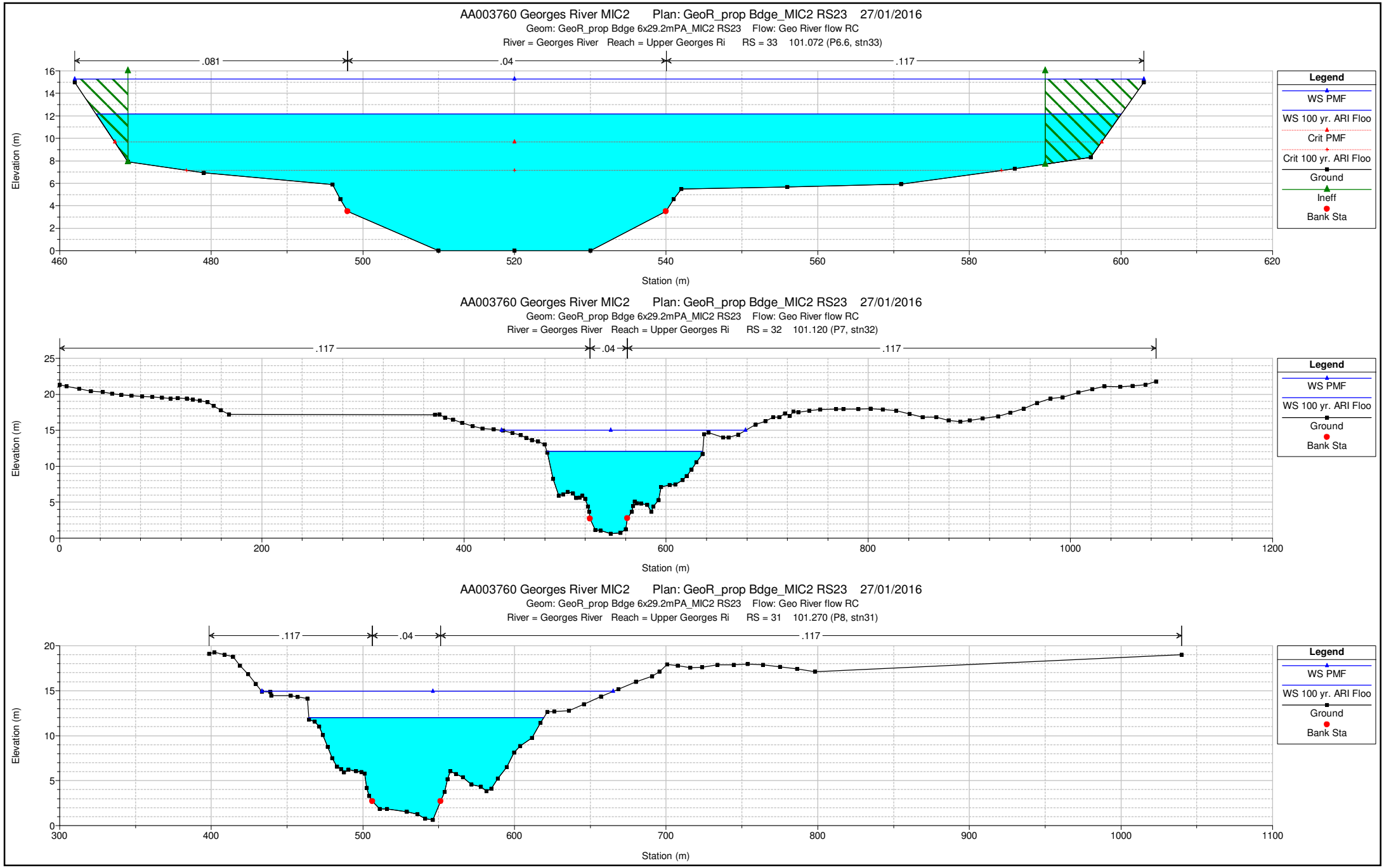


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062

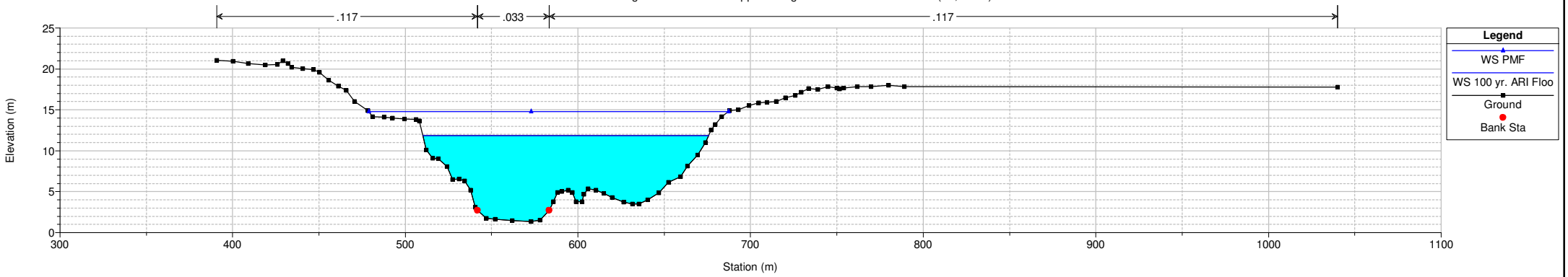



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 33 101.072 (P6.6, stn33)
.081
.04
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Ineff
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 32 101.120 (P7, stn32)
.117
.04
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 31 101.270 (P8, stn31)
.117
.04
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

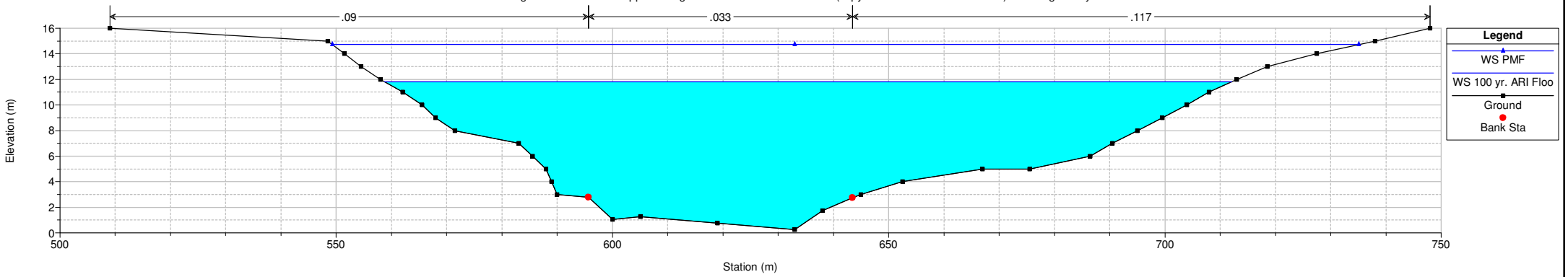
River = Georges River Reach = Upper Georges Ri RS = 30 101.440 (P9, stn30)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

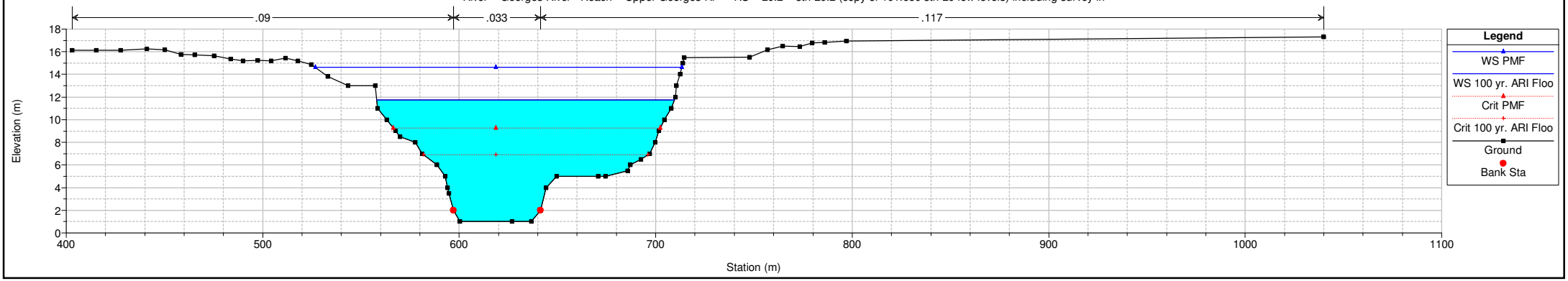
River = Georges River Reach = Upper Georges Ri RS = 29.3 stn 29.3 (copy of 101.650 stn 29 low levels) including survey in



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

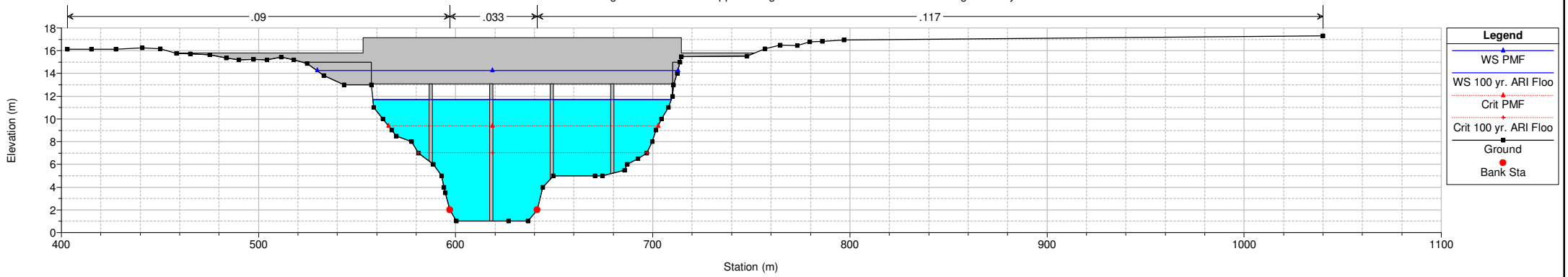
River = Georges River Reach = Upper Georges Ri RS = 29.2 stn 29.2 (copy of 101.650 stn 29 low levels) including survey in



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

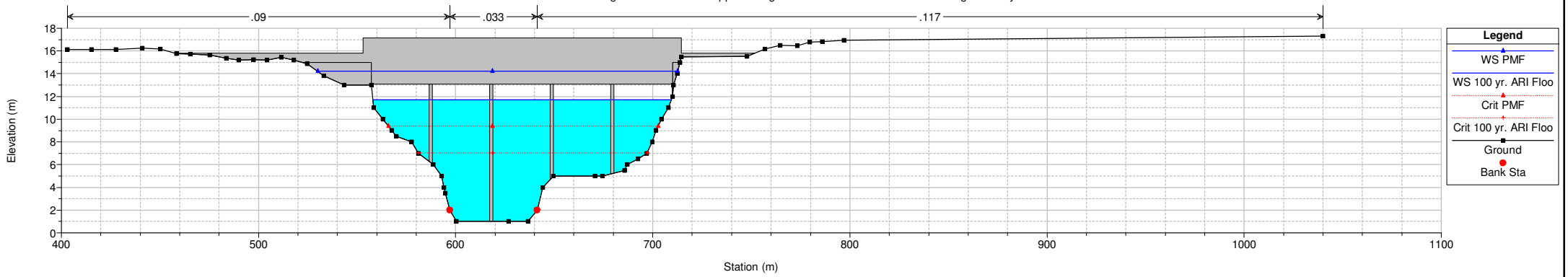
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

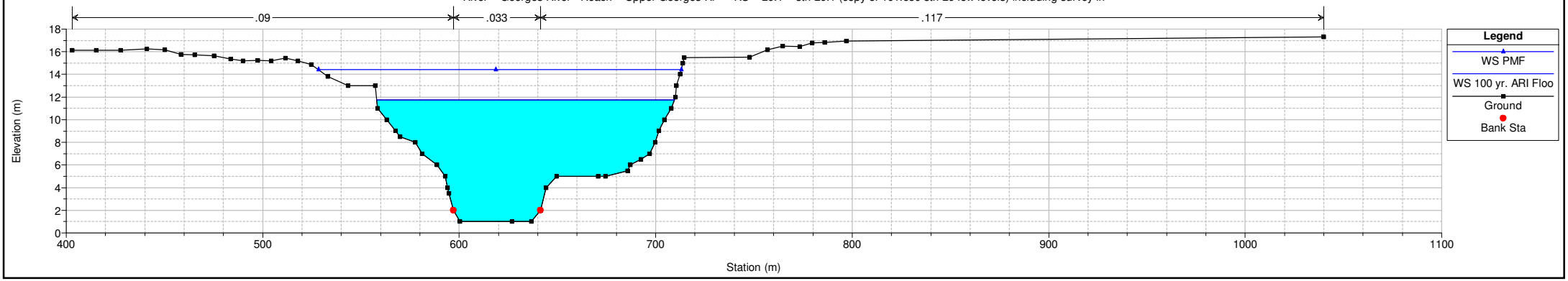
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

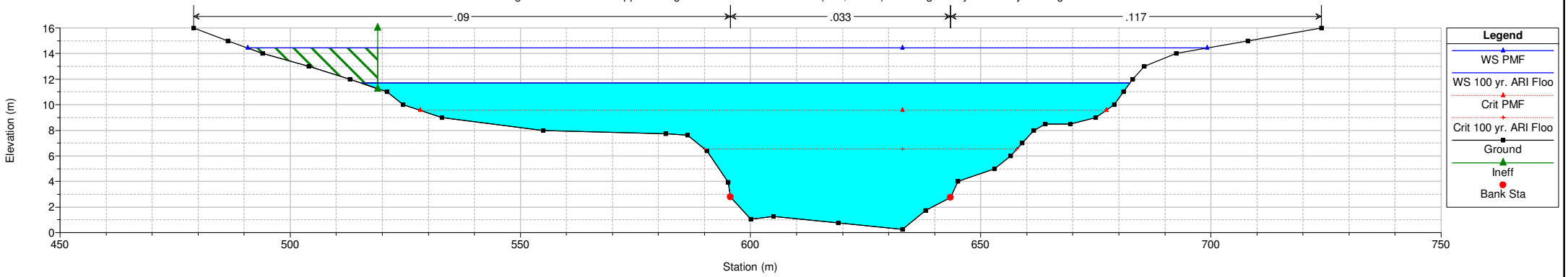
River = Georges River Reach = Upper Georges Ri RS = 29.1 stn 29.1 (copy of 101.650 stn 29 low levels) including survey in



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

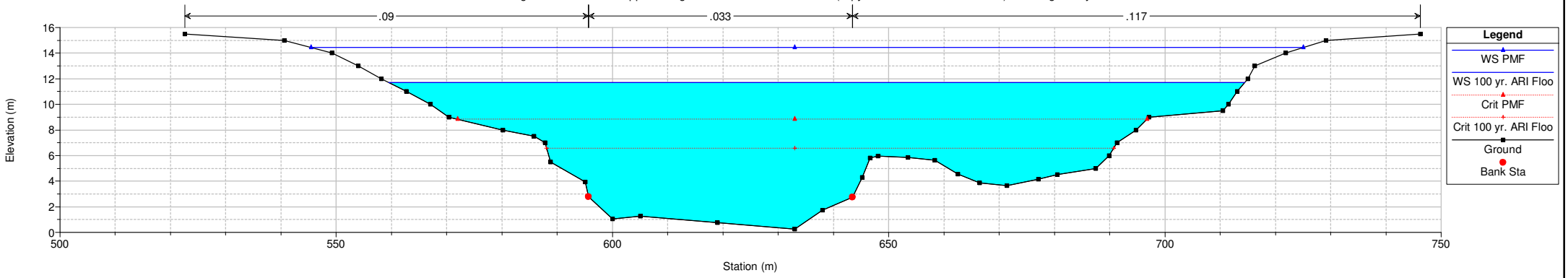
River = Georges River Reach = Upper Georges Ri RS = 29 101.650 (P10, stn 29) including survey info on Hyder Dwg aa00376



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

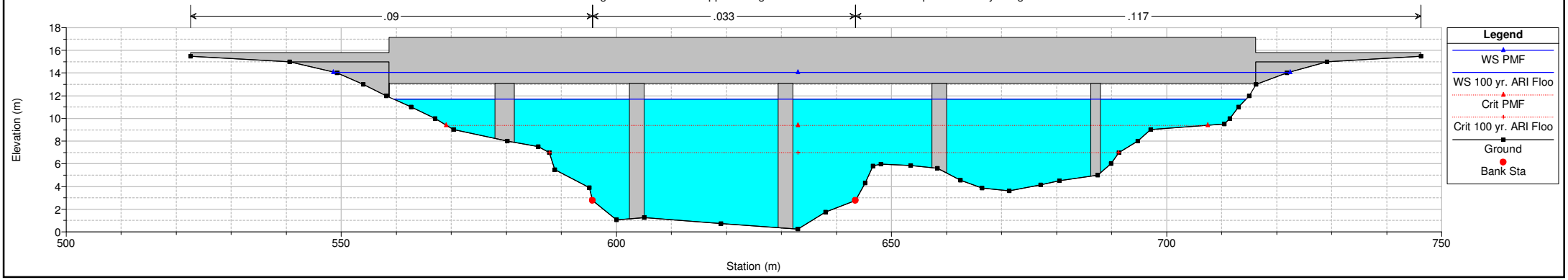
River = Georges River Reach = Upper Georges Ri RS = 28.9 stn 28.9 (copy of 101.650 stn 29 low levels) including survey in



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

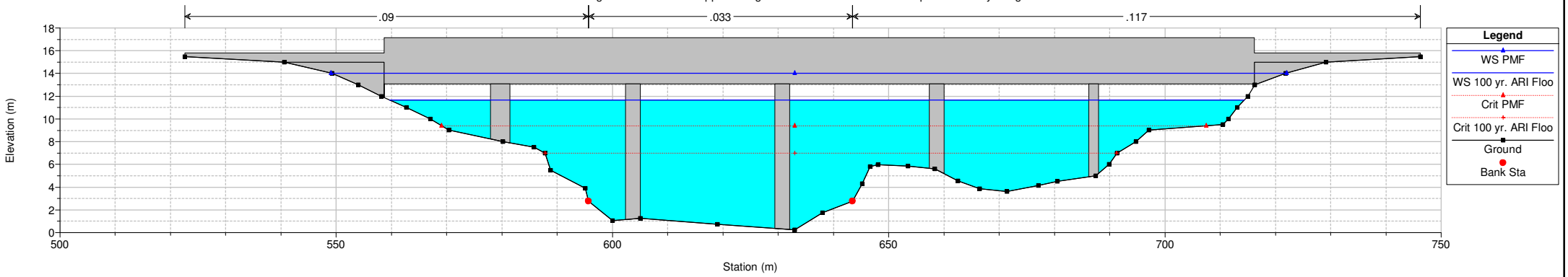
River = Georges River Reach = Upper Georges Ri RS = 28.85 BR Proposed Railway Bridge



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

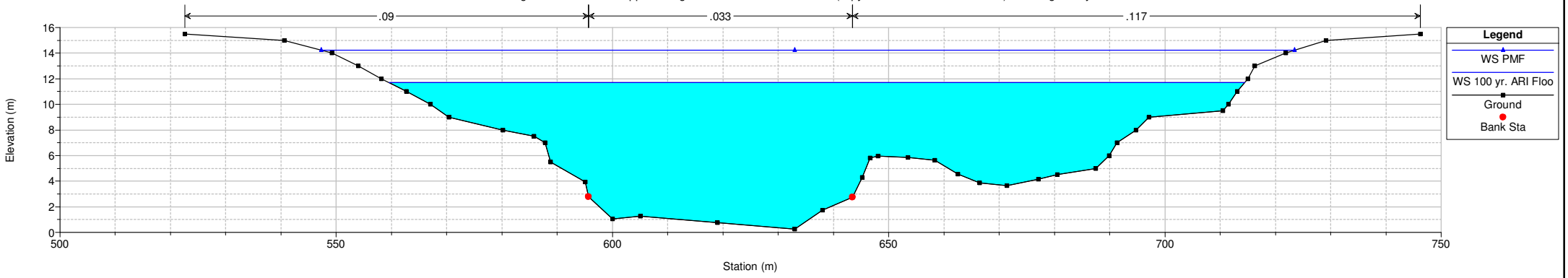
River = Georges River Reach = Upper Georges Ri RS = 28.85 BR Proposed Railway Bridge



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

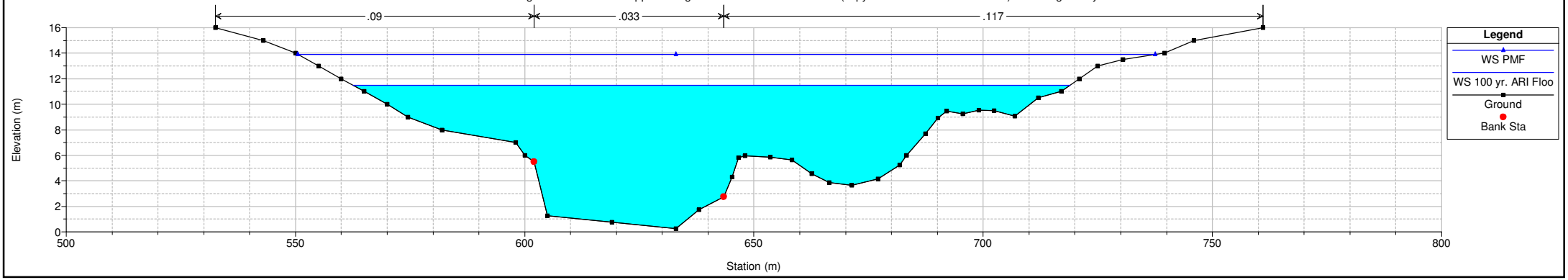
River = Georges River Reach = Upper Georges Ri RS = 28.8 stn 28.8 (copy of 101.650 stn 29 low levels) including survey in

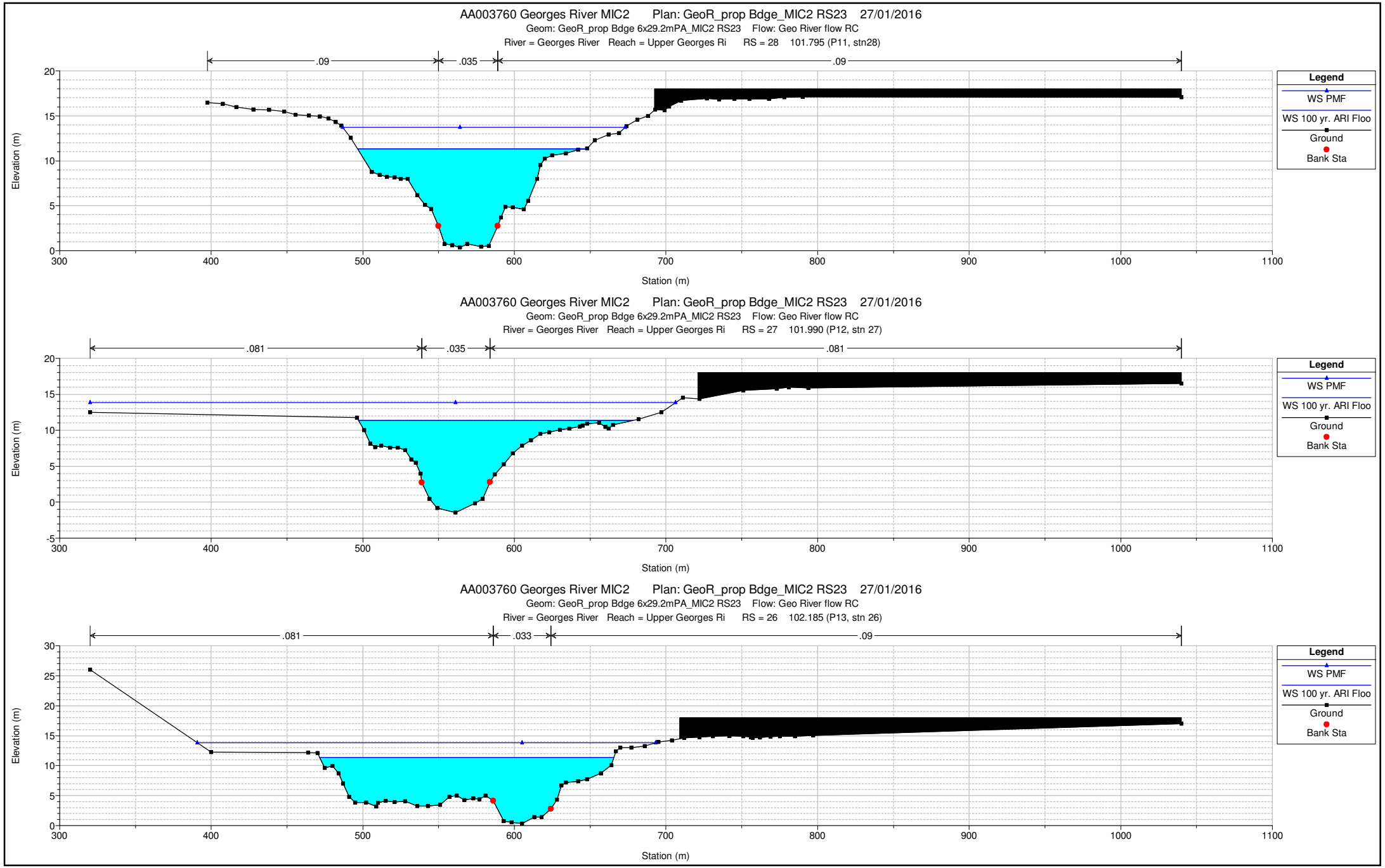


AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 28.7 stn 28.7 (copy of 101.650 stn 29 low levels) including survey i

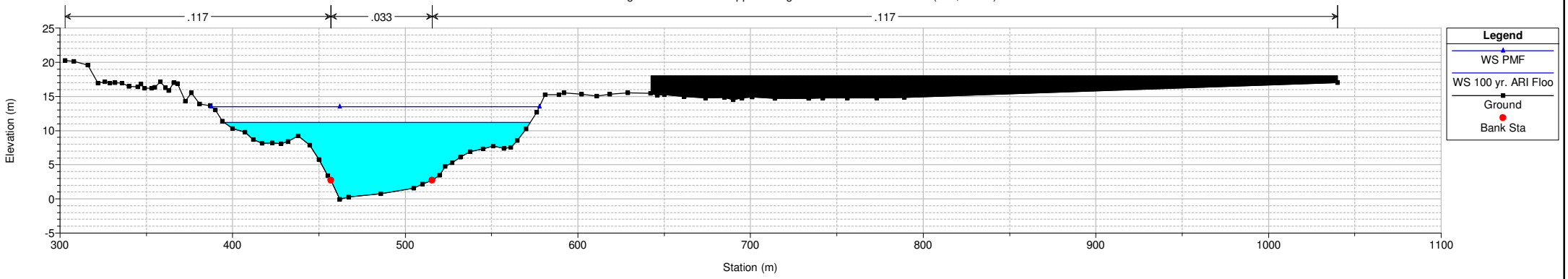



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 28 101.795 (P11, stn28)
.09
.035
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 27 101.990 (P12, stn 27)
.081
.035
.081
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016
Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC
River = Georges River Reach = Upper Georges Ri RS = 26 102.185 (P13, stn 26)
.081
.033
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

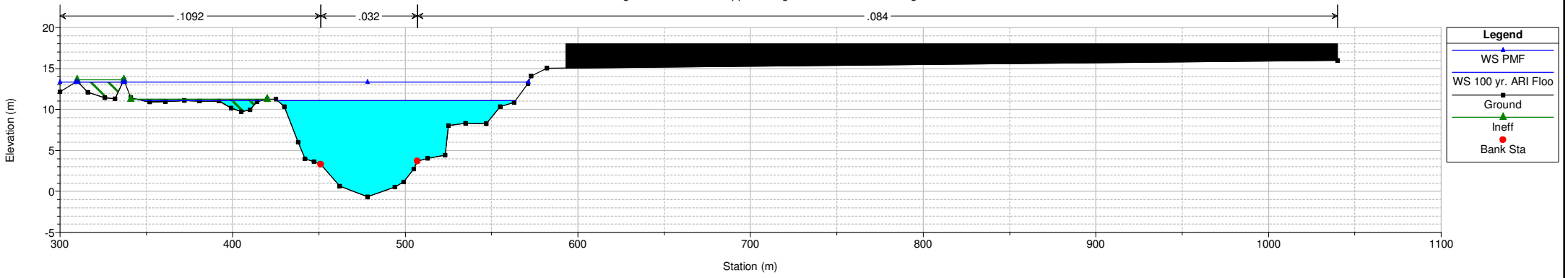
River = Georges River Reach = Upper Georges Ri RS = 25 102.390 (P14, stn 25)



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

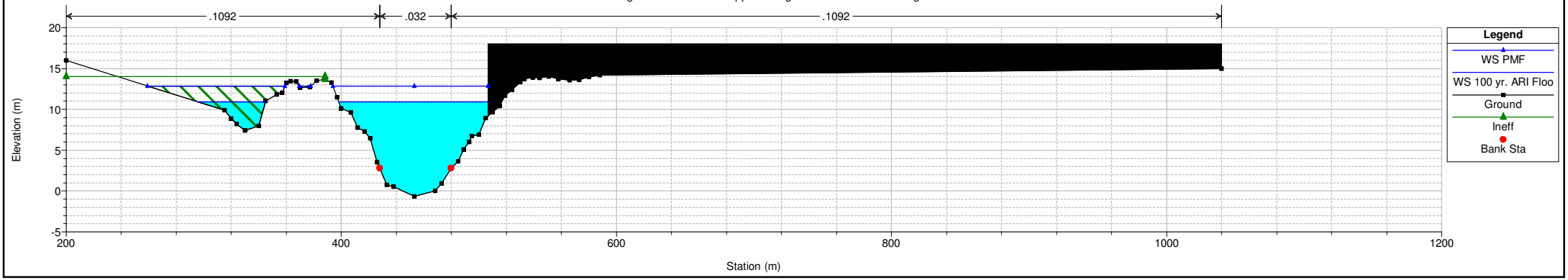
River = Georges River Reach = Upper Georges Ri RS = 24 Georges 102.535 - P15



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

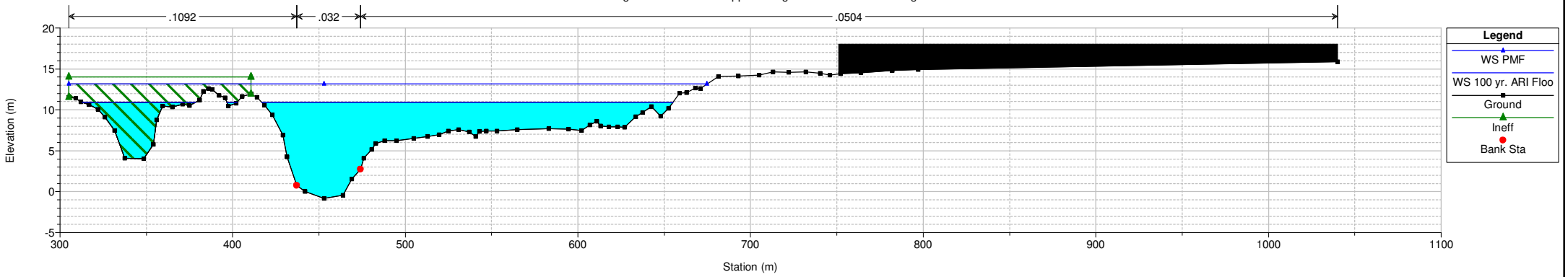
River = Georges River Reach = Upper Georges Ri RS = 23 Georges 102.730 - P16



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

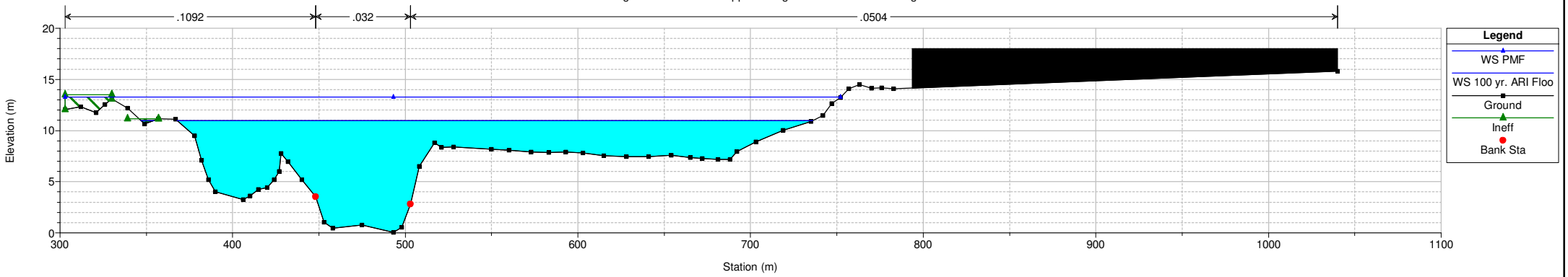
River = Georges River Reach = Upper Georges Ri RS = 22 Georges 102.930 - P17



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

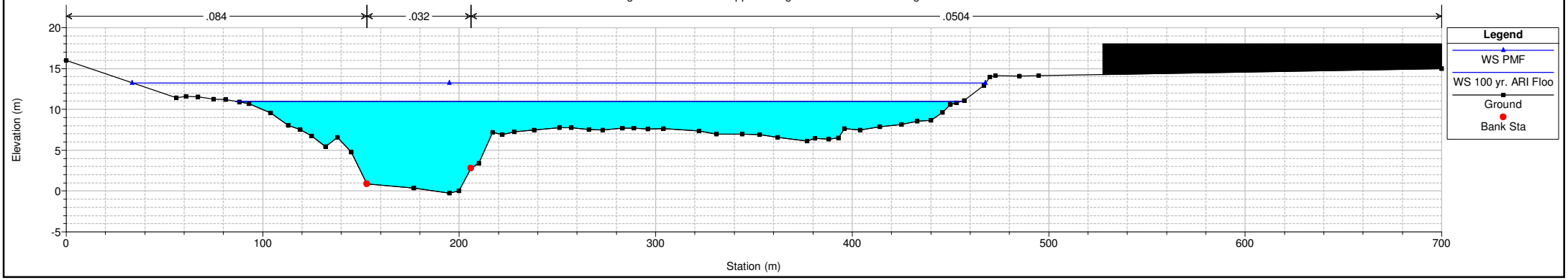
River = Georges River Reach = Upper Georges Ri RS = 21 Georges 193.125 - P18



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

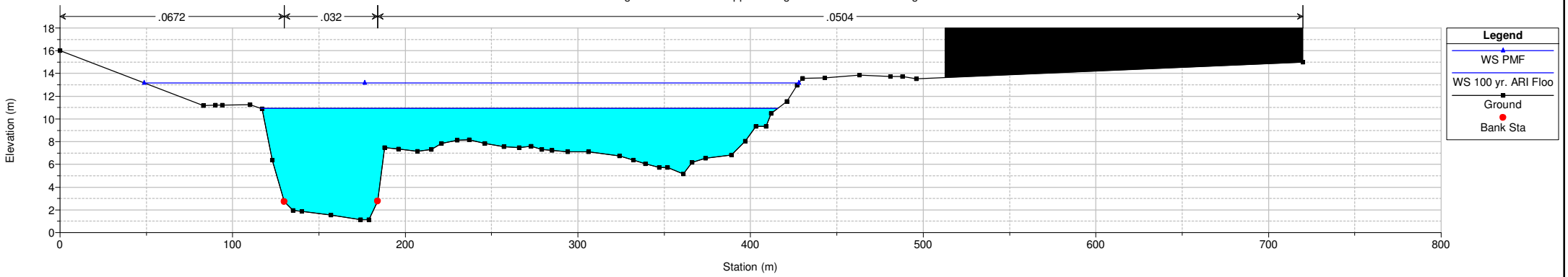
River = Georges River Reach = Upper Georges Ri RS = 20 Georges 103.230 - P19



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

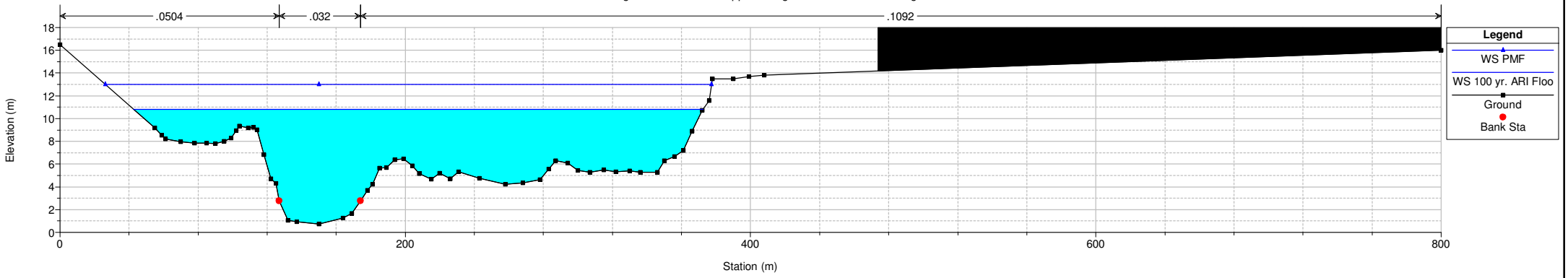
River = Georges River Reach = Upper Georges Ri RS = 19 Georges 103390 - P20



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

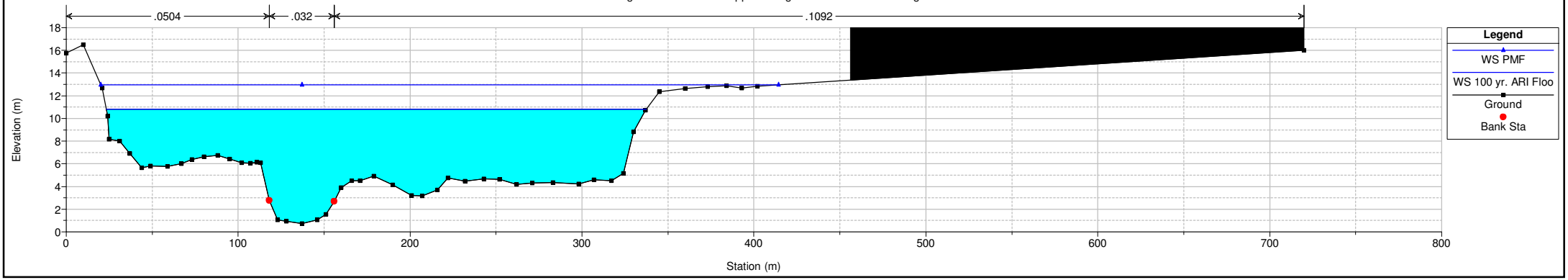
River = Georges River Reach = Upper Georges Ri RS = 18 Georges 103.555 - P21



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

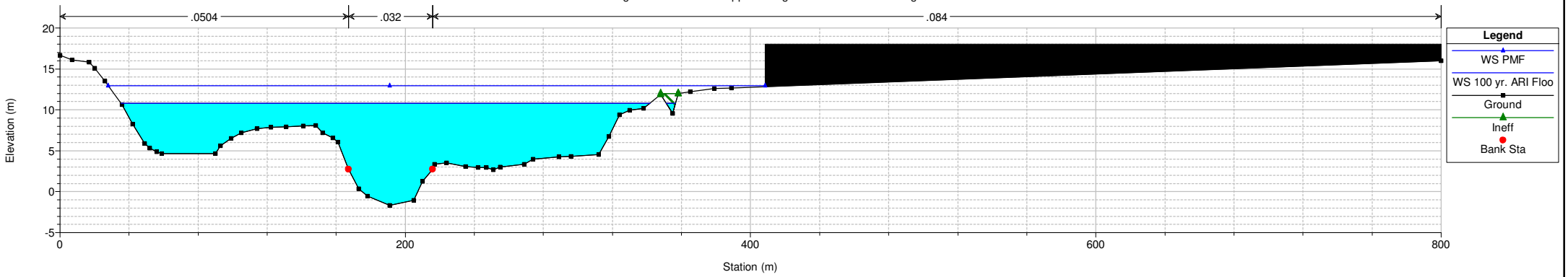
River = Georges River Reach = Upper Georges Ri RS = 17 Georges 103.700 - P22



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

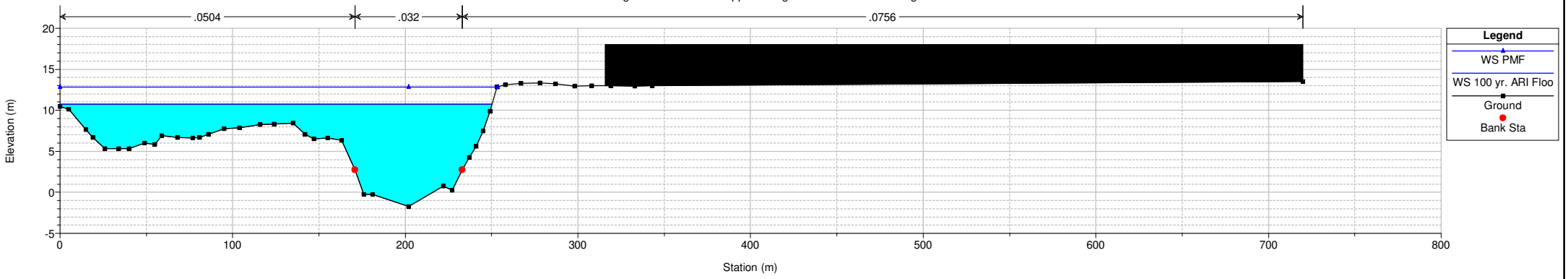
River = Georges River Reach = Upper Georges Ri RS = 16 Georges 103.860 - P23



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

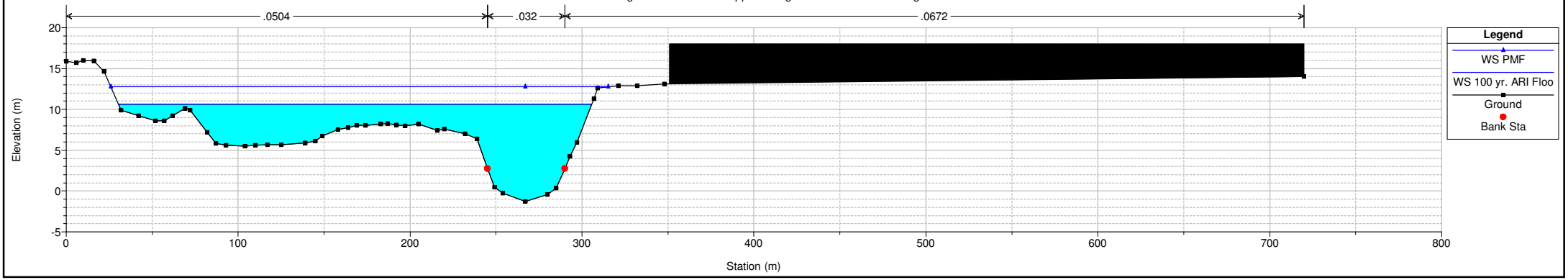
River = Georges River Reach = Upper Georges Ri RS = 15 Georges 104.000 - P25



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

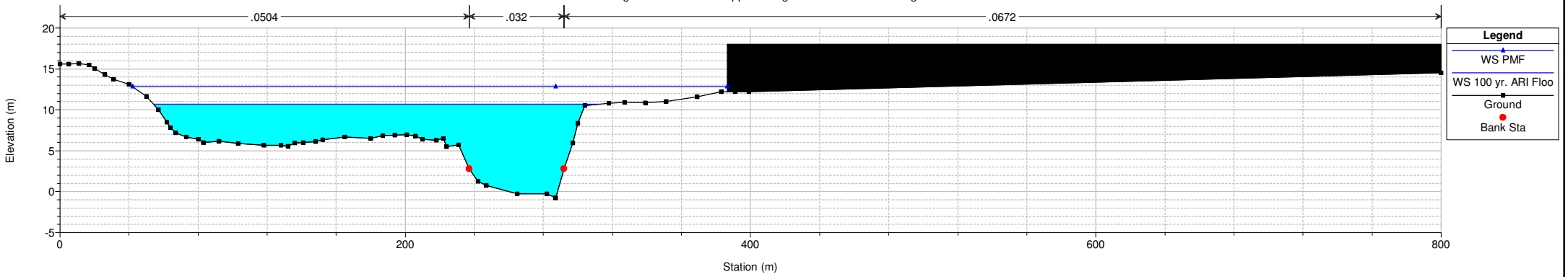
River = Georges River Reach = Upper Georges Ri RS = 14 Georges 104.095 - P26



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

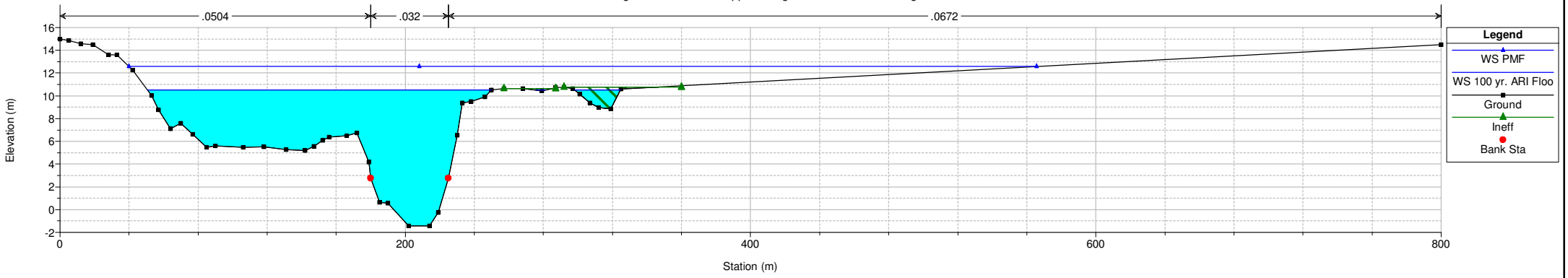
River = Georges River Reach = Upper Georges Ri RS = 13 Georges 104.185 - P28



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

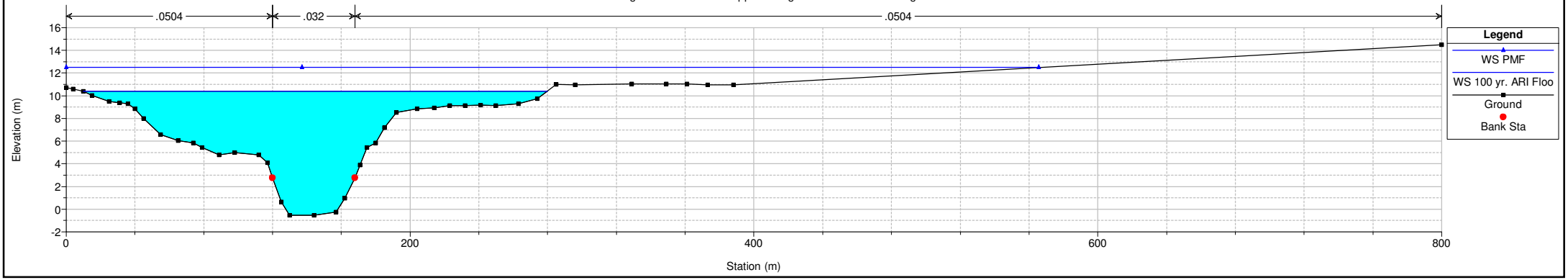
River = Georges River Reach = Upper Georges Ri RS = 10 Georges 104.355 - P31



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

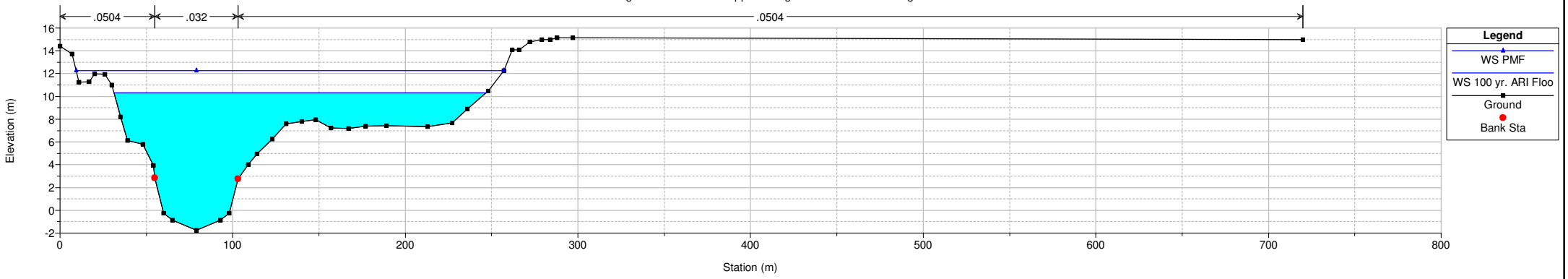
River = Georges River Reach = Upper Georges Ri RS = 9 Georges 104.535 - P32



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

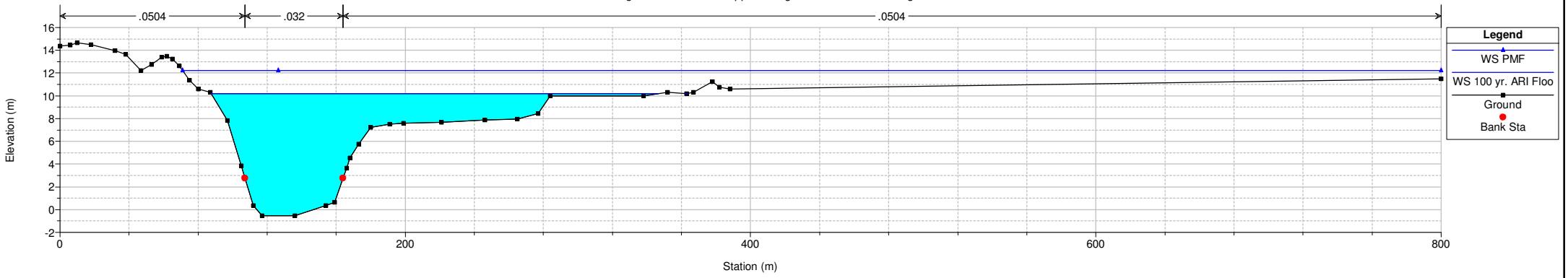
River = Georges River Reach = Upper Georges Ri RS = 8 Georges 104.785 - P33



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

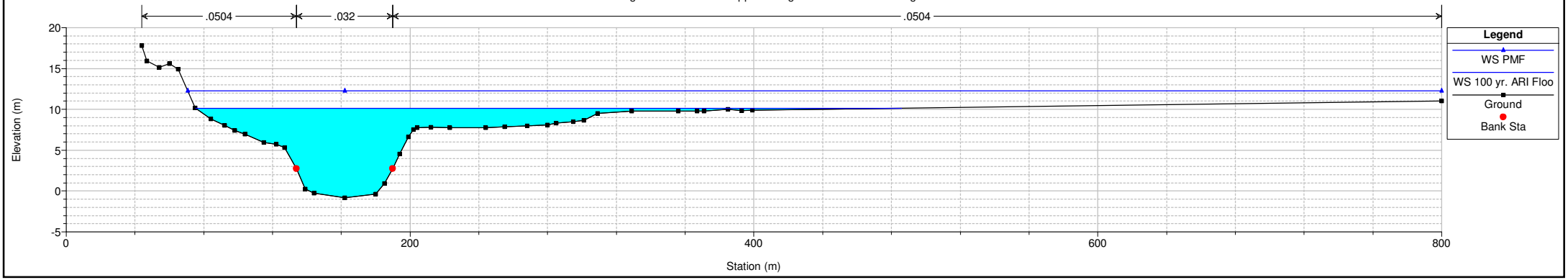
River = Georges River Reach = Upper Georges Ri RS = 7 Georges 104.960 - P34



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

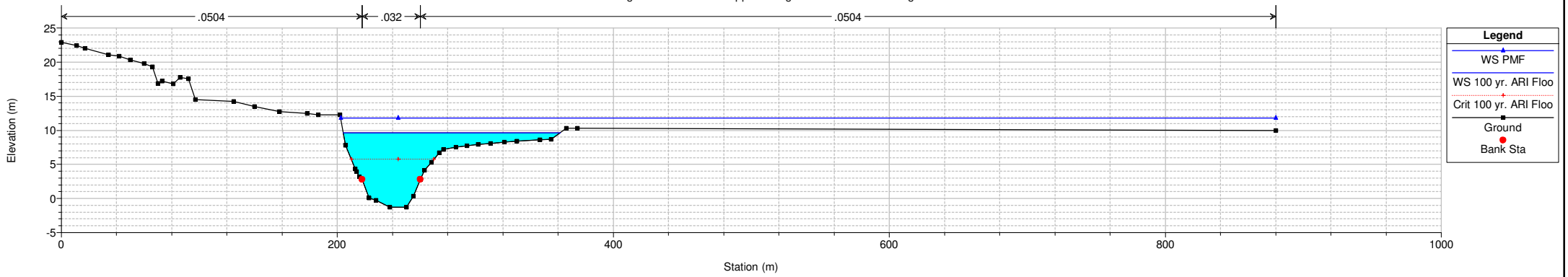
River = Georges River Reach = Upper Georges Ri RS = 6 Georges 105.160 - P35



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

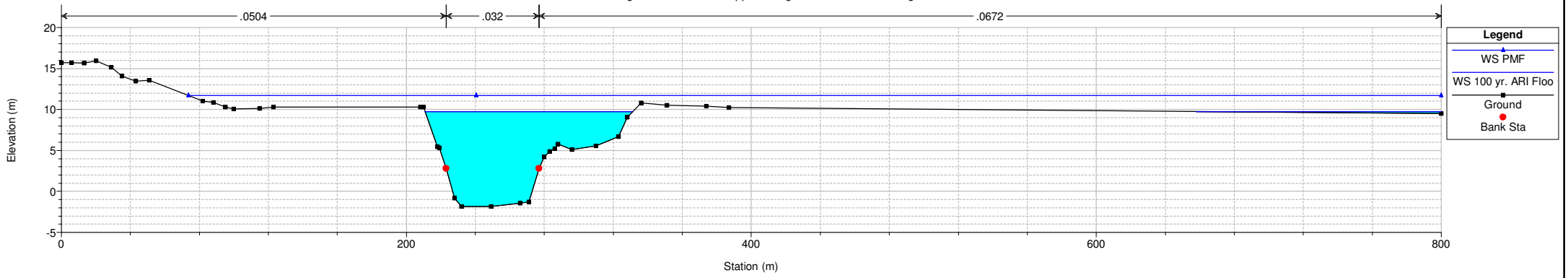
River = Georges River Reach = Upper Georges Ri RS = 5 Georges 105.355 - P36



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

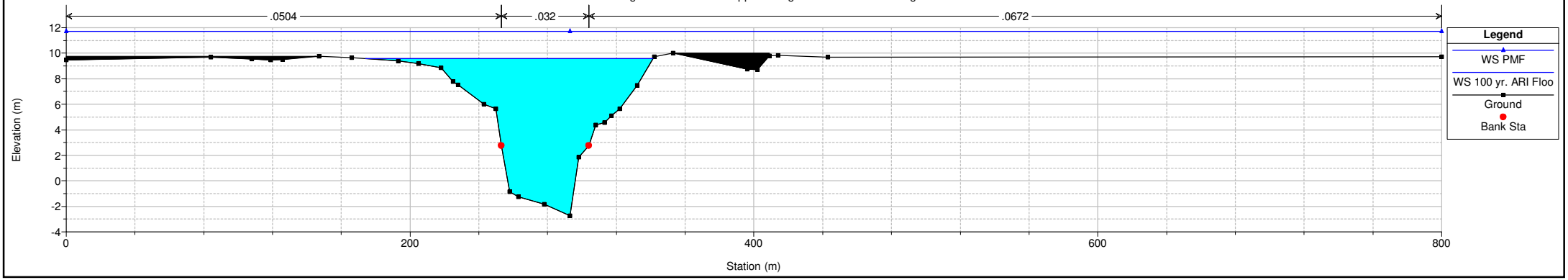
River = Georges River Reach = Upper Georges Ri RS = 4 Georges 105.560 - P37



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

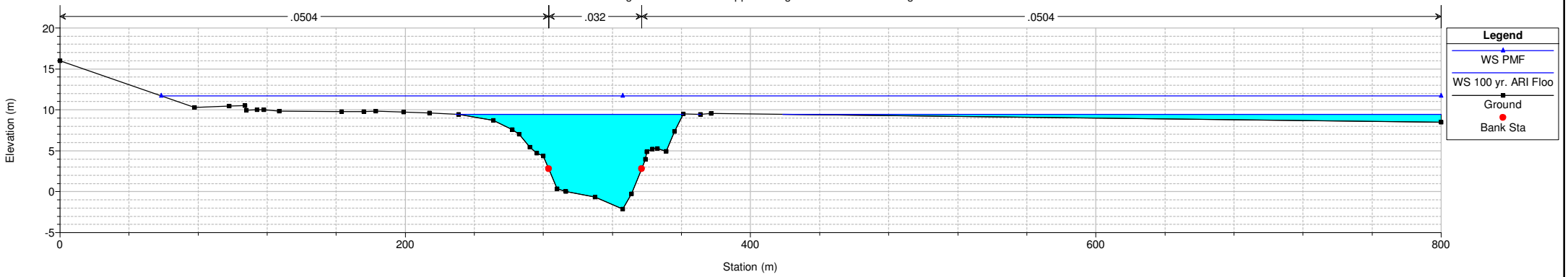
River = Georges River Reach = Upper Georges Ri RS = 3 Georges 105.720 - P38



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

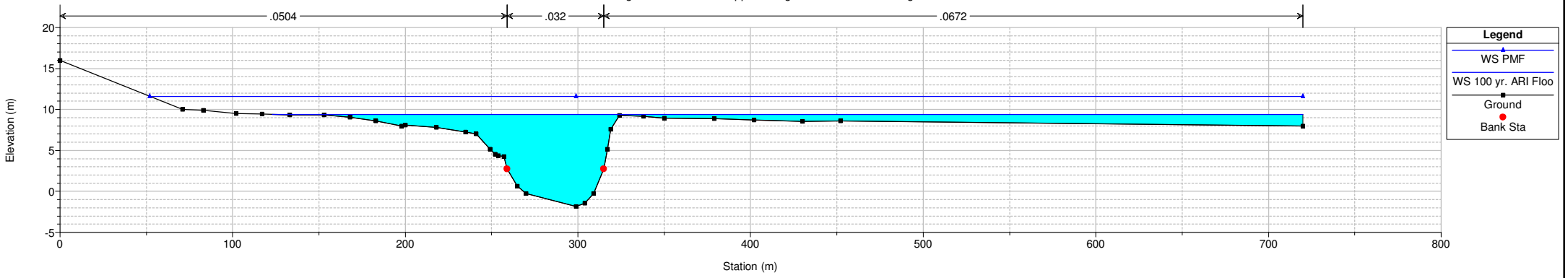
River = Georges River Reach = Upper Georges Ri RS = 2 Georges 105.960 - P39



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

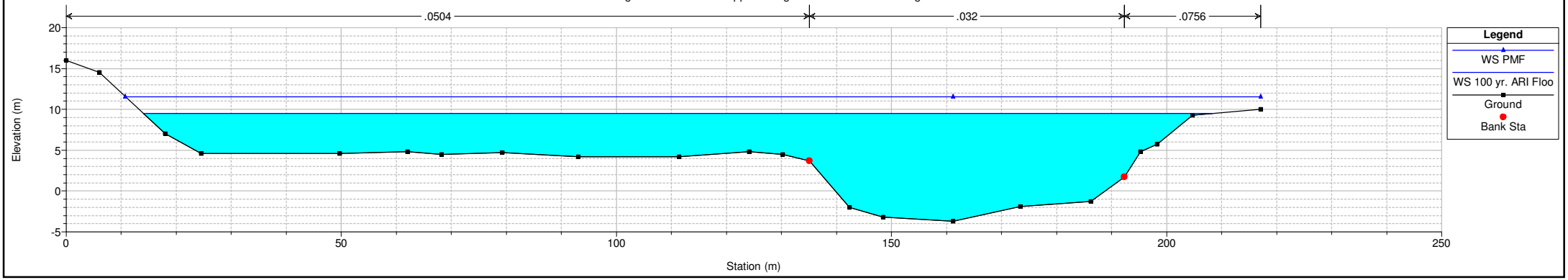
River = Georges River Reach = Upper Georges Ri RS = 1 Georges 106.160 - P40



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

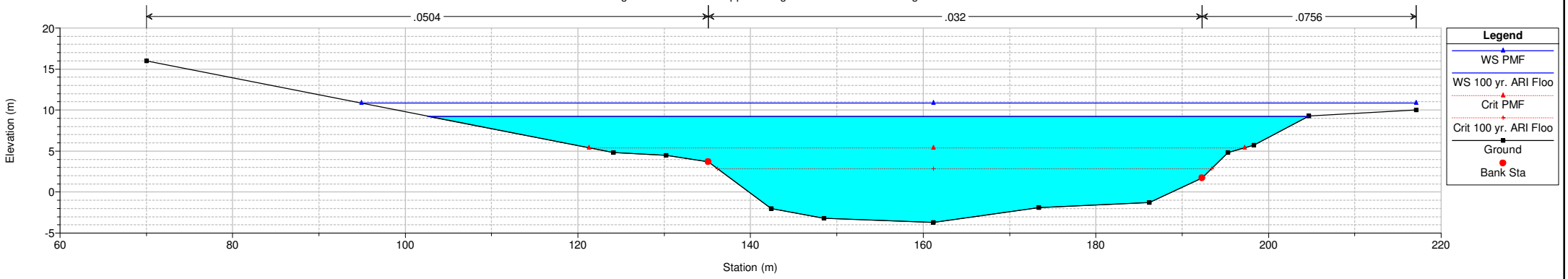
River = Georges River Reach = Upper Georges Ri RS = 0.8 Georges 106.330 - P41



AA003760 Georges River MIC2 Plan: GeoR_prop Bdge_MIC2 RS23 27/01/2016

Geom: GeoR_prop Bdge 6x29.2mPA_MIC2 RS23 Flow: Geo River flow RC

River = Georges River Reach = Upper Georges Ri RS = 0.5 Georges 106.530 - P42



APPENDIX B

Water Quantity Model information

Existing Conditions (Includes MPE Stage 1)

- DRAINS Information
  (Input & Output 5 year, 100year, 100year +10% rainfall increase, PMF
  Catchment Figure
  Existing Drains Model Screenshot (Labels and worst case 100yr)

Proposed Conditions (Includes MPE Stage 1)

- DRAINS Information
  (Input & Output 5 year, 100year, 100year +10% rainfall increase, PMF
  Stage Discharge Tables
  Outlet Details
  Stage 2 Drainage Plan
  Proposed Drains Model Screenshot (Labels and worst case 100yr)

Flow Comparisons

For each basin and each comparison point

Indicative Conduit Design

- DRAINS Information
  Model Layout Screenshot (Labels and worst case 50yr)

Moorebank Avenue Flow Depth Analyses

- Location B (Channel Sag)
- Location C (Bapaume Road)

Early Works Layout Plan

Existing Conditions (Includes MPE Stage 1)

- DRAINS Information
  (Input & Output 5 year, 100year, 100year +10% rainfall increase, PMF
  Catchment Figure
  Existing Drains Model Screenshot (Labels and worst case 100yr)

Calculation Sheet

Job		Design	
		Date	
		Checked	
		Date	
		Office	Sydney
		Job No	AA003760

MOOREBANK INTERMODAL

EXISTING STAGE 2

ARCADIS Design & Consultancy for natural and built assets

URBAN DRAINAGE

EXISTING

DRAINS OUTPUT

April 2016

ARCADIS Design & Consultancy for natural and built assets

PROJECT	MOOREBA	JOB No	AA003760		
		PREPARED	GD	DATE	6/04/2016
TITLE	EXISTING	CHECKED	BC	DATE	6/04/2016

DATA

DRAINS File Path:	F:\AA003760\D-Calculations\Civil\A-Stormwater\A-MASTERPLAN\A-DRAINS\C-Models
DRAINS Version:	DRAINS Version 2015.11 - 7 October 2015
Modeller's Name:	George Dunstan
Description:	Stage 2 Existing Model

PIT / NODE DETAILS — Version 12

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss
EX G01	Node							0		308108.6	6242439.1		65741900	
SimtaChann	Node							0		307668.8	6241764.1		65741915	
EX G05	Node							0		307678.2	6241150.6		65741926	
Small	Node							0		307442.9	6240950.4		65741934	
EX G08	Node							0		307206.2	6240875.9		65741938	
EX G09	Node							0		307402	6240799.9		65741942	
EX G10	Node							0		307324.5	6240599.7		65741946	
EX G11	Node							0		307410.8	6240475.5		65741951	
EX G12	Node							0		307339.2	6240386.3		65741955	
EX G13	Node							0		307356.7	6240120.9		65741959	
EX Carpark	Node					11		0		308046.7	6241255.9		65742025	
EX Outlet 4	Node							0		307488.9	6242135.6		65745546	
EX Outlet 5	Node							0		307275.3	6241760.3		65745547	
EX Outlet 6	Node							0		307082.4	6241198.7		65745548	
EX Outlet 7	Node							0		306994	6240655.7		65745549	
EX Outlet 8	Node							0		306994	6240100.2		65745550	
EX Georges	Node							0		307599.3	6242582.8		65745606	
EX Out	Node							0		307624.4	6242807.6		65758814	
N78290	Node							0		307554.2	6241430.6		65842530	
N78304	Node							0		307598.4	6241364.9		65842549	
EX Bypass A3	OnGrade	Special	Bypass A3		0	17		0	0	307719.9	6240162.7	No	66255034	1 x Ku
EX A3	Node					17		0		307715.1	6240057.2		65741963	
Outlet A3	Node							0		307988.2	6240052.2		66255041	
N242868	Node							0		307610.8	6240042.4		66255051	
Top Channel	Node					14.2		0		308067.3	6241737.2		66354021	
EX Bypass G06	OnGrade	Special	Bypass G06		0	17		0	0	307921.2	6240852.2	No	66372211	1 x Ku
EX G06	Node					16		0		307703	6240854		65741930	
EX Bypass G04	OnGrade	Special	Bypass G04		0	15		0	0	307919.6	6241392	No	66418785	1 x Ku
West Moore	Node							0		308061	6241636.7		66418880	
EX DNSDC	OnGrade	Special	DNSDC		0	14		0	0	308299.2	6241833.1	No	66418895	1 x Ku
EX dummy DNSDC	Node					20		0		308202.8	6241762		65741985	
Wetland BP	Node							0		307964.2	6241635.1		66418913	
EX S1	Node							0		308216.2	6241633.1		66886570	
EX G SIM	Node							0		308159.6	6241724.5		66886579	
Combined SIMTA	Node							0		308193.8	6241717.5		66886585	
EX EXTERNA	Node							0		308345.5	6242030.9		67157330	
EX RAIL	Node							0		307598.1	6239917.5		68319387	
N287177	Node							0		308042.2	6241534.5		68319395	
Moore HW 2	Headwall				0.5	13.74		0		308123.9	6242040.6		68572576	
EX G02	Node					13.74		0		308034.4	6242047.2		65741909	
Headwall	Node							0		308131.3	6241733.9		96586931	
East Moore	Node							0		308234.8	6241302.5		96958478	
Ext SIMTA	Node							0		308439.8	6241316		96958481	
EX M5	Node							0		308220.1	6242544.1		99981914	

DETENTION BASIN DETAILS

Name	Elev	Volume	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
Bridge1	11	0		None						307731.2	6241284.5	No		
	11.1	46												
	11.2	106												
	11.3	182												
	11.4	277												
	11.5	393												
	11.6	558												
	11.7	732												
	11.8	913												
	11.9	1103												
	12	1301												
	12.1	1506												
	12.2	1716												
	12.3	1929												
	12.4	2147												
	12.5	2370												
	12.6	2597												
	12.7	2829												
	12.8	3064												
	12.9	3305												
	13	3550												
	13.1	3801												
	13.2	4058												
	13.3	4323												
	13.4	4595												
	13.5	4875												
	13.6	5168												
	13.7	5472												
	13.8	5788												
	13.9	6115												
Bridge2	11	0		None						307720.2	6241403.8	No		
	11.1	29												
	11.2	66.5												
	11.3	112												
	11.4	165												
	11.5	228												
	11.6	298												
	11.7	375												
	11.8	460												
	11.9	556												
	12	662												
	12.1	778												
	12.2	902												
	12.3	1033												
	12.4	1172												
	12.5	1319												
	12.6	1473												
	12.7	1632												
	12.8	1796												
	12.9	1965												
	13	2139												
	13.1	2318												
	13.2	2502												
	13.3	2692												
	13.4	2887												
	13.5	3088												
EX Wetland	11.5	0		None						307724.1	6241659.7	No		
	11.6	978												
	11.7	1984												
	11.8	3016												
	11.9	4070												
	12	5146.5												

	12.1	6241													
	12.2	7356													
	12.3	8490													
	12.4	9644.6													
	12.5	10819.5													
Basin1	11.5	0		None						307802.5	6241431.6	No			
	11.6	9													
	11.7	38													
	11.8	93													
	11.9	179													
	12	301													
	12.1	523													
	12.2	755													
	12.3	999													
	12.4	1253													
	12.5	1519													
	12.6	1796													
	12.7	2083													
	12.8	2381													
	12.9	2689													
	13	3009													
	13.1	3343													
	13.2	3694													
	13.3	4061													
	13.4	4448													
SIMTA S1	13.5	0		None						308317	6241402.2	No			
	14.5	4386													
	15	6579													
	16	13596													
SUB-CATCHMENT DETAILS															
Name	Pit or	Total	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp	
	Node	Area	Area	Area	Area	Time	Time	Time	Length	Length	Length	Slope(%)	Slope	Slope	
		(ha)	%	%	%	(min)	(min)	(min)	(m)	(m)	(m)	%	%	%	
C EX G01	EX G01	2.8	8.9	91.1	0	5	5	0							
C EX G03	SimtaChann	13.31	11.7	88.3	0	5	5	0							
C EX G05	EX G05	5.441	52.2	47.8	0	11	8	0	0	40	0	0.1	0.3	0	
C EX G07	Small	2.522	51.9	48.1	0	6	1	0	0	100	0	0.1	0.4	0	
C EX G08	EX G08	2	6.2	93.8	0	5	5	0							
C EX G09	EX G09	6.438	23	77	0	11	8	0	0	30	0	0.1	0.7	0	
C EX G10	EX G10	4.7735	29.9	70.1	0	6	3	0	0	60	0	0.1	0.5	0	
C EX G11	EX G11	3.092	23.3	76.7	0	6	3	0	0	60	0	0.1	0.25	0	
C EX G12	EX G12	2.809	23.5	76.5	0	7	2	0	0	20	0	0.1	0.5	0	
C EX G13	EX G13	11.173	15.7	84.3	0	8	2	0	0	100	0	0.1	0.5	0	
C EX Carpark	EX Carpark	2.087	61.2	38.8	0	5	5	0							
C EX Dust Bowl	N78290	7.778	3.7	96.3	0	5	9	0							
C Ex Bridge Pond1	Bridge1	1.6024	3.1	96.9	0	4	4	0							
C EX Bridge Pond2	Bridge2	1.129	10.3	89.7	0	4	4	0							
C EX Wetland	EX Wetland	4.12	30.2	69.8	0	5	7	0	0	20	0	1	1	1	
C EX Bypass G06	EX Bypass G06	16.45	10.4	89.6	0	15	15	0	0	100	0	0.1	0.25	0	
C EX G06	EX G06	14.32	40.1	59.9	0	15	19	0							
C EX G04	Basin1	4.254	16.2	83.8	0	5	7	0							
C EX DNSDC	EX DNSDC	5.28	82	18	0	5	5	0							
C EX WetlandBypa	Wetland BP	0.55	26.5	73.5	0	4	6	0							
C EX NTH SIMTA	Combined SIMTA	12.28	60.7	39.3	0	12	15	0							
C EX EXTERNAL	EX EXTERNA	8.05	55	45	0	10	13	0							
C EX BAPAUME	Moore HW 2	3.16	16	84	0	4	6	0							
C EX G02	EX G02	14.93	16.1	83.9	0	11	9	0	0	40	0	0.1	0.4	0	
C East Moore	East Moore	2	40	60	0	10	13	0							
C EXTERNAL S1	Ext SIMTA	9.76	36.5	63.5	0	25	28	0							
C SIMTA S1	SIMTA S1	15.17	100	0	0	10	20	0							
C EX M5	EX M5	1.1	85	15	0	4	6	0							
Name	Pit or	Total	Impervious	Avg	Mannings	Time lag	Rainfall	Hydrological							
	Node	Area	Area	Slope(%)	n	(mins)	Multiplier	Model							
C EX Bypass A3	EX Bypass A3	1.78	6.6	1	0.04	0	1	Moorebank RAFTS							
C EX A3	N242868	24.819	3.2	0.3	0.05	0	1	Moorebank RAFTS							
C EX Bypass G04	EX Bypass G04	5.414	10	0.5	0.04	0	1	Moorebank RAFTS							
C EX RAIL	EX RAIL	1.48	0	0.1	0.07	0	1	Moorebank RAFTS							
PIPE DETAILS															
Name	From	To	Length	U/S IL	D/S IL	Slope	Type	Dia	I.D.	Rough	Pipe Is	No. Pipes	Chg From	At Chg	
			(m)	(m)	(m)	(%)		(mm)	(mm)						
Dummy Golf	EX Bypass A3	EX A3	10	16	15.9	1	RCP Class 2	450	450	0.3	New	1	EX Bypass	0	
P Bypass G06	EX Bypass G06	EX G06	100	14	13.8	0.2	RCP Class 2	600	600	0.3	New	1	EX Bypass	0	
Pipe35283	EX Bypass G04	Basin1	250	13.5	12	0.6	RCP Class 2	375	375	0.3	NewFixed	1	EX Bypass	0	
P EX dummy DNSI	EX DNSDC	EX dummy DNSI	10	10	9.9	1	RCP Class 2	600	600	0.3	New	1	EX DNSDC	0	
Dummy Pipe	Moore HW 2	EX G02	10	12.6	12.5	1	RCP Class 2	600	600	0.3	NewFixed	3	Moore HW	0	
DETAILS of SERVICES CROSSING PIPES															
Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc					
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc					
CHANNEL DETAILS															
Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed		
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)			
OVERFLOW ROUTE DETAILS															
Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id	
			Time	Level	Length	Coeff. C	Section	Major Storr	Minor Storr	DxV	Slope	Contributing			
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%			
F EX G01	EX G01	EX Georges	3				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65747166	
F EX G03	SimtaChann	EX Outlet 5	1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745592	
F EX G05	EX G05	EX G08	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745602	
F EX G07	Small	EX G08	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745600	
F EX G08	EX G08	EX Outlet 6	2				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745601	
F EX G09	EX G09	EX G08	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745599	
F EX G10	EX G10	EX G08	2				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745596	
F EX G11	EX G11	EX G10	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745595	
F EX G12	EX G12	EX G10	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745594	
F EX G13	EX G13	EX Outlet 8	1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745593	
F EX Carpark Bypa	EX Carpark	N287177	1				West Moore CP	0.2	0.2	0.6	0.2	0		65745604	
F Outlet 4	EX Outlet 4	EX Georges	2				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745605	
F Outlet 5	EX Outlet 5	EX Outlet 4	3				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745585	
F Outlet 6	EX Outlet 6	EX Outlet 5	3				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745586	
F Outlet 7	EX Outlet 7	EX Outlet 6	3				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745587	
F Outlet 8	EX Outlet 8	EX Outlet 7	3				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745588	
F EX Georges	EX Georges	EX Out	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65760256	
F EX Dust	N78290	SimtaChann	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65845750	
F Bridge1	Bridge1	N78304	0.1	13.9	20	1	Dummy used to model flow across r	0.3	0.3	0.6	1	0		65842551	
F Bridge2	Bridge2	N78304	0.1	13.5	20	1	Dummy used to model flow across r	0.3	0.3	0.6	1	0		65842550	
OF68951	N78304	EX G08	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65848988	
F EX Wetland	EX Wetland	SimtaChann	0.1	12.5	50	1	Dummy used to model flow across r	0.3	0.3	0.6	1	0		65847366	
F Bypass A3	EX Bypass A3	EX Bypass G06	10				West Moorebank 3	0.2	0.2	0.6	0.2	0		66269854	
F EX A3 Total	EX A3	Outlet A3	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		66255042	
F EX A3	N242868	EX A3	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		66255052	
Channel	Top Channel	SimtaChann	5				Concrete Channel	0.3	0.3	0.6	0.1	100		65745589	
F Bypass G06	EX Bypass G06	EX Carpark	14				West Moorebank 3	0.2	0.2	0.6	0.2	0		66372215	
F EX G06	EX G06	EX G08	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745598	
F Bypass G04	EX Bypass G04	N287177	0.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66418872	
F EX G04	Basin1	SimtaChann	0.1	12.4	3	1	Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745603	
F West Moore	West Moore	Top Channel	4				West Moorebank	0.15	0.2	0.6	0.2	0		66418885	
F EX DNSDC	EX DNSDC	Headwall	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65742028	

F EX dummy DNSI	EX dummy DNSD	EX G SIM	0.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66418902
F Wetland Bypass	Wetland BP	West Moore	0.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66418909
F EX S1	EX S1	Combined SIMTA	7				Dummy used to model flow across r	0.2	0.05	0.6	1	0		96958495
F EX G SIM	EX G SIM	Headwall	0.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66886581
F Combined SIMTA	Combined SIMTA	EX G SIM	0.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66886586
F EXTERNAL	EX EXTERNA	Moore HW 2	2				Dummy used to model flow across r	0.3	0.3	0.6	1	0		67157332
F West More2	N287177	West Moore	2				West Moore 2	0.2	0.2	0.6	0.2	0		68319396
F Moore HW 2	Moore HW 2	EX G02	0.1	13.74			Dummy used to model flow across r	0.2	0.05	0.6	1	0		68572581
F EX G02	EX G02	EX Outlet 4	2				Dummy used to model flow across r	0.2	0.05	0.6	1	0		65745584
F EX OVER MOOF	Headwall	EX Outlet 5	6.1				Dummy used to model flow across r	0.3	0.3	0.6	1	0		66418832
F East Moore	East Moore	EX S1	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		96958493
F Ext SIMTA	Ext SIMTA	EX S1	0.1				Dummy used to model flow across r	0.2	0.05	0.6	1	0		96958494
F SIMTA S1	SIMTA S1	EX S1	0.1	14.5			Dummy used to model flow across r	0.3	0.3	0.6	1	0		66886571

ARCADIS Design & Consultancy for natural and built assets

PROJECT	MOOREBANK INTERMODAL	JOB No	AA003760		
		PREPARED	GD	DATE	6/04/2016
TITLE	5 YEAR ARI RESULTS	CHECKED	BC	DATE	6/04/2016

DRAINS File Path:	F:\AA003760\D-Calculations\Civil\A-Stormwater\A-MASTERPLAN\A-DRAINS\C-Models
DRAINS Version:	DRAINS Version 2015.11 - 7 October 2015
Modeller's Name:	George Dunstan
Description:	Stage 2 Existing Model

RESULTS 5 YEAR ARI

DRAINS results prepared 07 April, 2016 from Version 2015.11

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m) Version 8	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
EX Bypass A3	16.21		0.156		0.79	0	None
EX A3	16.11		0.948				
EX Bypass G0	16.27		1.021		0.73	0	None
EX G06	14.38		2.59				
EX Bypass G0	14.99		0.395		0.01	0.186	Inlet Capacity
EX DNSDC	11.14		1.908		2.86	0	None
EX dummy DI	10.48		0				
Moore HW 2	13.93		2.939		-0.19	0.418	Headwall height/system capacity
EX G02	13.04		2.017				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C EX G01	0.874	0.093	0.781	5	5	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G03	4.179	0.582	3.597	5	5	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G05	1.05	0.871	0.198	11	29.36	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G07	0.575	0.466	0.12	6	22.49	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G08	0.62	0.046	0.574	5	5	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G09	1.112	0.454	0.712	11	15.21	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G10	0.92	0.508	0.449	6	16.49	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G11	0.525	0.256	0.296	6	17.89	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G12	0.752	0.227	0.53	7	8.25	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G13	1.152	0.586	0.622	8	33.76	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Carpark	0.725	0.477	0.248	5	5	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Dust Bo	1.899	0.096	1.827	5	9	0	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
C Ex Bridge P	0.495	0.019	0.477	4	4	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Bridge P	0.354	0.043	0.311	4	4	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Wetland	0.947	0.465	0.511	5	12.08	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Bypass	1.021	0.421	0.784	15	62.43	0	AR&R 5 year, 1 hour storm, average 42.6 mm/h, Zone 1
C EX G06	2.59	1.281	1.309	15	19	0	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
C EX G04	1.235	0.257	0.977	5	7	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX DNSDC	1.908	1.617	0.291	5	5	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX Wetland	0.171	0.054	0.116	4	6	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX NTH SI	2.849	2.196	0.705	12	15	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX EXTERI	1.987	1.421	0.604	10	13	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX BAPAU	0.952	0.189	0.763	4	6	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX G02	1.626	0.737	0.978	11	28.6	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C East Moore	0.459	0.226	0.238	10	13	0	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
C EXTERNAL	1.355	0.718	0.699	25	28	0	AR&R 5 year, 1 hour storm, average 42.6 mm/h, Zone 1
C SIMTA S1	4.868	4.868	0	10	20	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
C EX M5	0.397	0.349	0.047	4	6	0	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1

Name	Max Flow (cu.m/s)	Due to Storm
C EX Bypass	0.156	AR&R 5 year, 12 hours storm, average 9.0 mm/h, Zone 1
C EX A3	0.948	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
C EX Bypass	0.395	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
C EX RAIL	0.02	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1

Outflow Volumes for Total Catchment (64.4 impervious + 147 pervious = 212 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff	Impervious Ru cu.m (Runoff	Pervious Runoff cu.m (Runoff %)
AR&R 5 year,	24266.4	8368.30 (34.5	6612.35 (89.6	1755.95 (10.4%)
AR&R 5 year,	46786.62	22718.59 (48.	12907.03 (90.	9811.56 (30.1%)
AR&R 5 year,	60886.69	32459.53 (53.	15841.20 (85.	16618.33 (39.2%)
AR&R 5 year,	79847.46	44980.67 (56.	20251.94 (83.	24728.73 (44.5%)
AR&R 5 year,	90170.93	52217.03 (57.	23058.41 (84.	29158.62 (46.5%)
AR&R 5 year,	105969.5	62956.72 (59.	27885.54 (86.	35071.18 (47.6%)
AR&R 5 year,	118178.64	71291.83 (60.	31855.96 (88.	39435.88 (48.0%)
AR&R 5 year,	176171.52	107186.07 (60	50991.48 (95.	56194.59 (45.8%)
AR&R 5 year,	204519.95	122729.59 (60	59943.52 (96.	62786.07 (44.1%)
AR&R 5 year,	227910.63	136001.17 (59	66521.17 (96.	69480.00 (43.8%)
AR&R 5 year,	323358.91	172927.67 (53	94693.15 (96.	78234.52 (34.8%)
AR&R 5 year,	345520.78	176868.41 (51	95839.02 (91.	81029.40 (33.7%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Dummy Golf	0.156	2.13	16.211	16.111	AR&R 5 year, 12 hours storm, average 9.0 mm/h, Zone 1
P Bypass G06	1.021	3.64	16.272	14.383	AR&R 5 year, 1 hour storm, average 42.6 mm/h, Zone 1
Pipe35283	0.223	2.02	14.993	12.675	AR&R 5 year, 6 hours storm, average 13.9 mm/h, Zone 1
P EX dummy	1.913	6.77	11.142	10.5	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
Dummy Pipe	2.237	2.8	13.134	13.044	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	0.874	0.874	0	0.082	0.08	20.43	0.93	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G03	6.132	6.132	0	0.183	0.28	40.55	1.53	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F EX G05	1.05	1.05	0	0.088	0.09	21.69	0.98	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G07	0.575	0.575	0	0.07	0.06	17.92	0.82	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G08	8.572	8.572	0	0.209	0.35	45.76	1.67	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G09	1.112	1.112	0	0.091	0.09	22.23	0.98	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G10	2.19	2.19	0	0.12	0.14	27.98	1.18	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G11	0.525	0.525	0	0.067	0.05	17.38	0.8	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G12	0.752	0.752	0	0.078	0.07	19.54	0.88	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G13	1.152	1.152	0	0.092	0.09	22.41	1	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX Carpark	0.725	0.725	0	0.238	0.05	47.11	0.19	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Outlet 4	20.921	20.921	0	0.23	0.78	49.99	3.4	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F Outlet 5	17.351	17.351	0	0.23	0.65	49.99	2.82	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F Outlet 6	9.342	9.342	0	0.217	0.37	47.38	1.7	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Outlet 7	1.152	1.152	0	0.092	0.09	22.41	1	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Outlet 8	1.152	1.152	0	0.092	0.09	22.41	1	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX Georges	21.064	21.064	0	0.23	0.79	49.99	3.43	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F EX Dust	1.899	1.899	0	0.114	0.13	26.72	1.13	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
F Bridge1	0	0	0	0	0	0	0	
F Bridge2	0	0	0	0	0	0	0	
OF68951	0	0	0	0	0	0	0	
F EX Wetland	0	0	0	0	0	0	0	
F Bypass A3	0	0	0	0	0	0	0	
F EX A3 Total	1.006	1.006	0	0.088	0.08	21.51	0.95	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
F EX A3	0.948	0.948	0	0.085	0.08	20.97	0.95	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
Channel	0.815	4.418	0	1.075	1.65	3.7	1.54	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Bypass G06	0	0	0	0	0	0	0	
F EX G06	3.574	3.574	0	0.147	0.2	33.37	1.33	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
F Bypass G04	0.186	0.186	0	0.044	0.03	12.89	0.59	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
F EX G04	0.432	0.432	0	0.062	0.05	16.3	0.77	AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1
F West Moore	0.815	0.815	0	0.152	0.06	48.16	0.38	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX DNSDC	0	0	0	0	0	0	0	
F EX dummy	1.913	1.913	0	0.114	0.13	26.72	1.14	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Wetland By	0.171	0.171	0	0.043	0.02	12.53	0.58	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX S1	3.57	3.57	0	0.147	0.2	33.37	1.33	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
F EX G SIM	6.357	6.357	0	0.185	0.29	41.09	1.54	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F Combined S	5.469	5.469	0	0.175	0.26	38.93	1.48	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F EXTERNAL	1.987	1.987	0	0.115	0.13	27.08	1.15	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F West More2	0.725	0.725	0	0.238	0.07	24.41	0.29	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F Moore HW	0.418	0.418	0	0.061	0.05	16.12	0.76	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX G02	4.242	4.242	0	0.158	0.22	35.52	1.39	AR&R 5 year, 25 minutes storm, average 69.0 mm/h, Zone 1
F EX OVER M	6.357	6.357	0	0.185	0.29	41.09	1.54	AR&R 5 year, 1.5 hours storm, average 33.3 mm/h, Zone 1
F East Moore	0.459	0.459	0	0.063	0.05	16.66	0.77	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1
F Ext SIMTA	1.355	1.355	0	0.098	0.1	23.67	1.04	AR&R 5 year, 1 hour storm, average 42.6 mm/h, Zone 1
F SIMTA S1	1.93	1.93	0	0.115	0.13	26.9	1.13	AR&R 5 year, 2 hours storm, average 27.9 mm/h, Zone 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q	Max Q	Max Q
			Total	Low Level	High Level
Bridge1	11.73	780.6	0	0	0
Bridge2	11.98	645.1	0	0	0
EX Wetland	11.83	3306.6	0	0	0
Basin1	12.67	2010.4	0.432	0	0.432
SIMTA S1	15.12	7450	1.93	0	1.93

CONTINUITY CHECK for AR&R 5 year, 9 hours storm, average 10.7 mm/h, Zone 1

Node	Inflow	Outflow	Storage Chan	Difference
	(cu.m)	(cu.m)	(cu.m)	%
EX G01	1207.16	1207.16	0	0
SimtaChann	14994.21	14994.22	0	0
EX G05	3684.03	3684.03	0	0
Small	1704.3	1704.3	0	0
EX G08	30937.55	30937.06	0	0
EX G09	3284.59	3284.59	0	0
EX G10	5644.94	5645.01	0	0
EX G11	1579.26	1579.26	0	0
EX G12	1443.72	1443.72	0	0
EX G13	5173.57	5173.57	0	0
EX Carpark	1527.82	1527.82	0	0
EX Outlet 4	100063.33	100065.06	0	0
EX Outlet 5	85996.5	85997.05	0	0
EX Outlet 6	36110.2	36110.55	0	0
EX Outlet 7	5173.57	5173.57	0	0
EX Outlet 8	5173.57	5173.57	0	0
EX Georges	101271.98	101272.09	0	0
EX Out	101272.08	101272.08	0	0
N78290	3116.07	3116.07	0	0
Bridge1	637.61	0	637.61	0
Bridge2	496	0	496	0
N78304	0	0	0	0
EX Wetland	2275.68	0	2275.7	0
EX Bypass A3	1106.33	1106.37	0	0
EX A3	15824.1	15823.12	0	0
Outlet A3	15822.9	15822.9	0	0
N242868	14717.12	14717.12	0	0
Top Channel	2423.86	2423.86	0	0
EX Bypass G0	7061.52	7061.55	0	0
EX G06	15788.2	15788.1	0	0
EX Bypass G0	3370.23	3369.88	0	0
Basin1	4778.25	3501.56	1271.97	0.1
West Moore	2423.74	2423.86	0	0
EX DNSDC	4497.16	4497.97	0	0
EX dummy DI	4497.97	4497.97	0	0
Wetland BP	292.75	292.75	0	0
EX S1	21447.45	21447.42	0	0
EX G SIM	34892.09	34892.16	0	0
Combined SIM	30394.39	30394.17	0	0

EX EXTERNA	5601.46	5601.46	0	0								
EX RAIL	0	0	0	0								
N287177	2131.06	2131.07	0	0								
Moore HW 2	7092.48	7092.83	0	0								
EX G02	14069.47	14069.04	0	0								
Headwall	34892.16	34892.16	0	0								
East Moore	1218.69	1218.69	0	0								
Ext SIMTA	5736.98	5736.98	0	0								
SIMTA S1	14491.89	14491.7	0.04	0								
EX M5	955.85	955.85	0	0								
Run Log for Stage2Existing.drn run at 14:56:08 on 7/4/2016												
No water upwelling from any pit.												
Freeboard was less than 0.15m at EX Bypass G04												
The maximum flow exceeded the safe value in the following overflow routes: F EX S1, F Ext SIMTA, F East Moore, F Moore HW 2, F West More2, F EX A3, F EX A3 Total, F EX Dust, F E												
The following overflow routes carried water uphill (adding energy): F SIMTA S1 F Bypass G04 F EX G04												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

ARCADIS Design & Consultancy for natural and built assets

PROJECT	MOOREBANK INTERMODAL	JOB No	AA003760		
		PREPARED	GD	DATE	6/04/2016
TITLE	100 YEAR ARI RESULTS	CHECKED	BC	DATE	6/04/2016

DRAINS File Path:	F:\AA003760\D-Calculations\Civil\A-Stormwater\A-MASTERPLAN\A-DRAINS\C-Models
DRAINS Version:	DRAINS Version 2015.11 - 7 October 2015
Modeller's Name:	George Dunstan
Description:	Stage 2 Existing Model

RESULTS 100 YEAR ARI

DRAINS results prepared 07 April, 2016 from Version 2015.11

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
EX Bypass A3	16.24		0.373		0.76	0.186	Inlet Capacity
EX A3	16.14		1.947				
EX Bypass G0	16.98		2.403		0.02	1.194	Inlet Capacity
EX G06	14.38		4.478				
EX Bypass G0	15		0.802		0	0.584	Inlet Capacity
EX DNSDC	11.3		2.904		2.7	0.794	Inlet Capacity
EX dummy DI	10.48		0				
Moore HW 2	13.99		4.752		-0.25	2.071	Headwall height/system capacity
EX G02	13.05		5.281				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C EX G01	1.383	0.141	1.242	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX G03	6.602	0.878	5.724	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX G05	1.725	1.301	0.533	11	25.57	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX G07	0.955	0.684	0.327	6	18.68	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX G08	0.984	0.07	0.914	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX G09	2.198	0.678	1.606	11	13.93	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX G10	1.736	0.746	1.079	6	14.1	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX G11	1.033	0.354	0.685	6	19.31	0	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
C EX G12	1.292	0.341	0.951	7	6.66	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX G13	2.259	0.866	1.752	8	28.13	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX Carpark	1.115	0.72	0.394	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX Dust Bo	3.247	0.157	3.09	5	9	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C Ex Bridge F	0.786	0.028	0.758	4	4	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX Bridge F	0.56	0.066	0.494	4	4	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX Wetland	1.751	0.68	1.085	5	11.18	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX Bypass	2.336	0.594	2.189	15	60.94	0	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
C EX G06	4.478	1.97	2.512	15	19	0	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
C EX G04	1.946	0.389	1.558	5	7	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX DNSDC	2.904	2.441	0.463	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX Wetland	0.267	0.082	0.185	4	6	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX NTH SI	4.647	3.305	1.496	12	15	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX EXTERI	3.27	2.107	1.233	10	13	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX BAPAU	1.501	0.285	1.216	4	6	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX G02	3.398	0.928	2.958	11	28.51	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
C East Moore	0.766	0.381	0.408	10	13	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EXTERNAL	2.525	1.133	1.481	25	28	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
C SIMTA S1	7.22	7.22	0	10	20	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX M5	0.633	0.582	0.051	4	6	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1

Name	Max Flow (cu.m/s)	Due to Storm
C EX Bypass	0.373	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
C EX A3	1.947	AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1
C EX Bypass	0.802	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
C EX RAIL	0.056	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1

Outflow Volumes for Total Catchment (64.4 impervious + 147 pervious = 212 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff	Impervious Ru cu.m (Runoff	Pervious Runoff cu.m (Runoff %)
AR&R 100 ye	39563.55	20307.15 (51.	11201.34 (93.	9105.81 (33.1%)
AR&R 100 ye	76247.41	49309.73 (64.	19324.97 (83.	29984.75 (56.5%)
AR&R 100 ye	99187.84	67129.04 (67.	24562.77 (81.	42566.27 (61.7%)
AR&R 100 ye	130490.13	91821.05 (70.	32682.14 (82.	59138.91 (65.1%)
AR&R 100 ye	147771.84	106157.15 (7	37919.96 (84.	68237.19 (66.4%)
AR&R 100 ye	174473	128719.53 (7	46896.46 (88.	81823.06 (67.4%)
AR&R 100 ye	195298.23	146183.82 (7	54044.25 (91.	92139.58 (67.8%)
AR&R 100 ye	296175.75	221169.03 (7	86377.42 (95.	134791.61 (65.4%)
AR&R 100 ye	346929.66	251506.64 (7	102165.39 (9	149341.25 (61.9%)
AR&R 100 ye	389674.78	278074.77 (7	112787.25 (9	165287.52 (61.0%)
AR&R 100 ye	573579.63	374294.48 (6	163214.25 (9	211080.23 (52.9%)
AR&R 100 ye	618835.44	397839.11 (6	176343.78 (9	221495.33 (51.4%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Dummy Golf	0.188	2.24	16.237	16.135	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
P Bypass G0	1.2	4.24	16.978	14.4	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
Pipe35283	0.244	2.21	14.998	12.799	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
P EX dummy	2.124	7.51	11.299	10.5	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
Dummy Pipe	2.304	2.84	13.147	13.049	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	1.383	1.383	0	0.099	0.1	23.85	1.05	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
F EX G03	10.115	10.115	0	0.223	0.39	48.63	1.74	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F EX G05	1.725	1.725	0	0.109	0.12	25.82	1.1	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G07	0.955	0.955	0	0.086	0.08	21.15	0.94	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G08	14.804	14.804	0	0.23	0.55	49.99	2.41	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G09	2.198	2.198	0	0.121	0.14	28.16	1.17	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G10	4.019	4.019	0	0.154	0.21	34.8	1.37	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G11	1.033	1.033	0	0.088	0.08	21.69	0.96	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F EX G12	1.292	1.292	0	0.097	0.1	23.31	1.03	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
F EX G13	2.259	2.259	0	0.122	0.14	28.34	1.18	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX Carpark	1.343	1.343	0	0.283	0.06	54.07	0.22	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F Outlet 4	37.771	37.771	0	0.23	1.41	49.99	6.14	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F Outlet 5	30.634	30.634	0	0.23	1.15	49.99	4.98	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F Outlet 6	16.457	16.457	0	0.23	0.62	49.99	2.68	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F Outlet 7	2.259	2.259	0	0.122	0.14	28.34	1.18	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F Outlet 8	2.259	2.259	0	0.122	0.14	28.34	1.18	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX Georges	38.303	38.303	0	0.23	1.43	49.99	6.23	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F EX Dust	3.247	3.247	0	0.141	0.18	32.29	1.3	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F Bridge1	0	0	0	0	0	0	0	
F Bridge2	0	0	0	0	0	0	0	
OF68951	0	0	0	0	0	0	0	
F EX Wetland	0	0	0	0	0	0	0	
F Bypass A3	0.186	0.186	0	0.203	0.02	30.07	0.12	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F EX A3 Total	2.12	2.12	0	0.119	0.14	27.8	1.16	AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1
F EX A3	1.947	1.947	0	0.115	0.13	26.9	1.14	AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1
Channel	1.878	7.233	0	1.391	2.43	4.3	1.75	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F Bypass G06	1.194	1.194	0	0.24	0.11	34.11	0.44	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
F EX G06	5.678	5.678	0	0.177	0.27	39.47	1.5	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F Bypass G04	0.584	0.584	0	0.07	0.06	17.92	0.83	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F EX G04	0.756	0.756	0	0.078	0.07	19.54	0.89	AR&R 100 year, 12 hours storm, average 15.3 mm/h, Zone 1
F West Moore	1.878	1.878	0	0.182	0.09	51.73	0.51	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F EX DNSDC	0.794	0.794	0	0.079	0.07	19.9	0.89	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
F EX dummy	2.124	2.124	0	0.119	0.14	27.8	1.16	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
F Wetland By	0.267	0.267	0	0.051	0.03	14.15	0.67	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
F EX S1	5.555	5.555	0	0.176	0.26	39.11	1.49	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F EX G SIM	10.098	10.098	0	0.223	0.39	48.63	1.74	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F Combined S	8.667	8.667	0	0.21	0.35	45.94	1.67	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F EXTERNAL	3.27	3.27	0	0.141	0.18	32.29	1.3	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F West More2	1.827	1.827	0	0.24	0.17	24.52	0.71	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F Moore HW 1	2.071	2.071	0	0.117	0.14	27.44	1.16	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX G02	7.586	7.586	0	0.199	0.32	43.78	1.62	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX OVER M	10.355	10.355	0	0.226	0.39	49.17	1.74	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F East Moore	0.766	0.766	0	0.078	0.07	19.54	0.9	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F Ext SIMTA	2.525	2.525	0	0.127	0.16	29.41	1.22	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
F SIMTA S1	2.555	2.555	0	0.128	0.16	29.59	1.22	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q	Max Q	Max Q
			Total	Low Level	High Level
Bridge1	12.43	2224.1	0	0	0
Bridge2	12.74	1694.8	0	0	0
EX Wetland	12.21	7471.9	0	0	0
Basin1	12.8	2378.3	0.756	0	0.756
SIMTA S1	15.42	9557.7	2.555	0	2.555

CONTINUITY CHECK for AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1

Node	Inflow	Outflow	Storage Chan	Difference
	(cu.m)	(cu.m)	(cu.m)	%
EX G01	2828.22	2828.22	0	0
SimtaChann	36529.06	36528.47	0	0
EX G05	7084	7084	0	0
Small	3279.15	3279.15	0	0
EX G08	64084.34	64081.29	0	0
EX G09	7112.07	7112.07	0	0
EX G10	12029.45	12029.34	0	0
EX G11	3420.42	3420.42	0	0
EX G12	3113.88	3113.88	0	0
EX G13	11761.33	11761.33	0	0
EX Carpark	4545.32	4545.31	0	0
EX Outlet 4	205587.98	205592.48	0	0
EX Outlet 5	175831.88	175832.81	0	0
EX Outlet 6	75842.62	75842.55	0	0
EX Outlet 7	11761.33	11761.33	0	0
EX Outlet 8	11761.33	11761.33	0	0
EX Georges	208420.2	208419.66	0	0
EX Out	208419.64	208419.64	0	0
N78290	7579.58	7579.58	0	0
Bridge1	1555.63	0	1555.66	0
Bridge2	1151.13	0	1151.15	0
N78304	0	0	0	0
EX Wetland	4753.62	0	4753.69	0
EX Bypass A3	2253.27	2253.5	0	0
EX A3	32659.1	32661.8	0	0
Outlet A3	32661.5	32661.5	0	0
N242868	30526.13	30526.13	0	0
Top Channel	7502.15	7502.15	0	0
EX Bypass G0	16808.69	16808.58	0	0
EX G06	32592.86	32593.47	0	0
EX Bypass G0	6863.33	6861.35	0	0
Basin1	9032.6	7750.31	1276.24	0.1
West Moore	7501.89	7502.15	0	0
EX DNSDC	7948.81	7949.5	0	0
EX dummy DI	7949.5	7949.5	0	0
Wetland BP	621.11	621.11	0	0
EX S1	38801.17	38801.18	0	0
EX G SIM	63460.65	63460.78	0	0
Combined SIM	55510.68	55511.34	0	0

EX EXTERNA	10643.64	10643.64	0	0								
EX RAIL	0	0	0	0								
N287177	6881.06	6881.02	0	0								
Moore HW 2	13987.21	13987.48	0	0								
EX G02	29757.98	29758.67	0	0								
Headwall	63460.78	63460.78	0	0								
East Moore	2440.83	2440.83	0	0								
Ext SIMTA	11672.15	11672.15	0	0								
SIMTA S1	24688.97	24688.06	0.07	0								
EX M5	1678.41	1678.41	0	0								
Run Log for Stage2Existing.drn run at 14:51:46 on 7/4/2016												
No water upwelling from any pit.												
Freeboard was less than 0.15m at EX Bypass G04 EX Bypass G06												
The maximum flow exceeded the safe value in the following overflow routes: F West More2, F West Moore, F Bypass G06, F Bypass A3, F EX Georges, F Outlet 4, F EX Carpark Bypass,												
The following overflow routes carried water uphill (adding energy): F SIMTA S1 F Bypass G04 F EX G04 F EX DNSDC												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

ARCADIS Design & Consultancy for natural and built assets

PROJECT	MOOREBANK INTERMODAL	JOB No	AA003760		
		PREPARED	GD	DATE	6/04/2016
TITLE	100 YEAR ARI + 10% CC R	CHECKED	BC	DATE	6/04/2016

DRAINS File Path:	F:\AA003760\D-Calculations\Civil\A-Stormwater\A-MASTERPLAN\A-DRAINS\C-Models
DRAINS Version:	DRAINS Version 2015.11 - 7 October 2015
Modeller's Name:	George Dunstan
Description:	Stage 2 Existing Model

DRAINS results prepared 07 April, 2016 from Version 2015.11

RESULTS 100 YR ARI CC

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m) Version 8	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
EX Bypass A3	16.24		0.442		0.76	0.255	Inlet Capacity
EX A3	16.14		2.202				
EX Bypass G0	16.98		2.834		0.02	1.64	Inlet Capacity
EX G06	14.38		4.999				
EX Bypass G0	15		0.921		0	0.688	Outlet System
EX DNSDC	11.31		3.229		2.69	1.119	Inlet Capacity
EX dummy DI	10.48		0				
Moore HW 2	14		5.301		-0.26	2.576	Headwall height/system capacity
EX G02	13.05		6.273				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C EX G01	1.541	0.155	1.386	5	5	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX G03	7.353	0.966	6.387	5	5	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX G05	1.93	1.432	0.627	11	24.92	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX G07	1.074	0.753	0.379	6	18.02	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX G08	1.096	0.077	1.02	5	5	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX G09	2.513	0.746	1.838	11	13.71	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX G10	1.99	0.821	1.247	6	13.68	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX G11	1.181	0.414	0.841	6	14.79	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX G12	1.447	0.375	1.073	7	6.49	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX G13	2.61	0.952	2.087	8	27.15	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX Carpark	1.232	0.792	0.44	5	5	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX Dust Bo	3.626	0.173	3.453	5	9	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C Ex Bridge P	0.876	0.031	0.845	4	4	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX Bridge P	0.624	0.08	0.545	4	4	0	100 year +10% CC, 5 minutes storm, average 246 mm/h, Zone 1
C EX Wetland	1.981	0.748	1.234	5	11.02	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX Bypass	2.722	0.646	2.554	15	56.23	0	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
C EX G06	4.999	2.167	2.832	15	19	0	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
C EX G04	2.169	0.427	1.742	5	7	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX DNSDC	3.229	2.82	0.409	5	5	0	100 year +10% CC, 5 minutes storm, average 246 mm/h, Zone 1
C EX Wetland	0.297	0.09	0.207	4	6	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX NTH SI	5.176	3.636	1.696	12	15	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX EXTERI	3.652	2.318	1.397	10	13	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX BAPAU	1.672	0.314	1.358	4	6	0	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
C EX G02	3.936	1.02	3.423	11	27.78	0	100 year +10% CC, 1 hour storm, average 76.7 mm/h, Zone 1
C East Moore	0.861	0.419	0.463	10	13	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EXTERNAL	2.845	1.246	1.687	25	28	0	100 year +10% CC, 1 hour storm, average 76.7 mm/h, Zone 1
C SIMTA S1	7.942	7.942	0	10	20	0	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
C EX M5	0.699	0.64	0.059	4	6	0	100 year +10% CC, 5 minutes storm, average 246 mm/h, Zone 1

Name	Max Flow (cu.m/s)	Due to Storm
C EX Bypass	0.442	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
C EX A3	2.202	100 year +10% CC, 9 hours storm, average 20.0 mm/h, Zone 1
C EX Bypass	0.921	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
C EX RAIL	0.067	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1

Outflow Volumes for Total Catchment (64.4 impervious + 147 pervious = 212 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff	Impervious Ru cu.m (Runoff	Pervious Runoff cu.m (Runoff %)
100 year +10%	43520.26	23682.14 (54.	12371.93 (93.	11310.21 (37.3%)
100 year +10%	83873.03	56337.91 (67.	21081.58 (82.	35256.32 (60.4%)
100 year +10%	109108.73	76363.72 (70.	26946.80 (81.	49416.91 (65.1%)
100 year +10%	143539.7	104209.22 (72	36027.77 (82.	68181.45 (68.3%)
100 year +10%	162546.36	120361.49 (74	41898.07 (84.	78463.42 (69.4%)
100 year +10%	191925.97	145792.25 (76	51884.03 (88.	93908.22 (70.3%)
100 year +10%	214825.75	165383.85 (77	59763.35 (91.	105620.50 (70.6%)
100 year +10%	325784.88	250033.91 (76	95126.76 (96.	154907.16 (68.3%)
100 year +10%	381644.88	285135.58 (74	112456.33 (96	172679.25 (65.0%)
100 year +10%	428648.66	316471.13 (73	126064.98 (96	190406.14 (63.8%)
100yr +10% C	629301.94	430381.38 (68	185776.91 (97	244604.47 (55.9%)
100yr +10% C	678795.38	458523.11 (67	200614.53 (97	257908.58 (54.6%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Dummy Golf	0.189	2.24	16.239	16.136	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
P Bypass G06	1.2	4.24	16.978	14.4	100 year +10% CC, 45 minutes storm, average 90.3 mm/h, Zone 1
Pipe35283	0.244	2.21	14.999	12.822	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
P EX dummy	2.126	7.52	11.309	10.5	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
Dummy Pipe	2.31	2.85	13.145	13.05	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	1.541	1.541	0	0.104	0.11	24.74	1.08	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
F EX G03	11.248	11.248	0	0.23	0.42	49.99	1.83	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F EX G05	1.93	1.93	0	0.115	0.13	26.9	1.13	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G07	1.074	1.074	0	0.089	0.09	21.87	0.98	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G08	16.588	16.588	0	0.23	0.62	49.99	2.7	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G09	2.513	2.513	0	0.127	0.15	29.41	1.22	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G10	4.58	4.58	0	0.162	0.23	36.42	1.42	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G11	1.181	1.181	0	0.093	0.09	22.59	1	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G12	1.447	1.447	0	0.101	0.11	24.21	1.06	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
F EX G13	2.61	2.61	0	0.129	0.16	29.77	1.23	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX Carpark	1.781	1.781	0	0.294	0.08	55.81	0.27	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F Outlet 4	42.36	42.36	0	0.23	1.58	49.99	6.89	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F Outlet 5	34.238	34.238	0	0.23	1.28	49.99	5.57	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F Outlet 6	18.509	18.509	0	0.23	0.69	49.99	3.01	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F Outlet 7	2.61	2.61	0	0.129	0.16	29.77	1.23	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F Outlet 8	2.61	2.61	0	0.129	0.16	29.77	1.23	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX Georges	42.955	42.955	0	0.23	1.61	49.99	6.99	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F EX Dust	3.626	3.626	0	0.148	0.2	33.55	1.34	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F Bridge1	0	0	0	0	0	0	0	
F Bridge2	0	0	0	0	0	0	0	
OF68951	0	0	0	0	0	0	0	
F EX Wetland	0	0	0	0	0	0	0	
F Bypass A3	0.255	0.255	0	0.214	0.03	31.59	0.14	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F EX A3 Total	2.387	2.387	0	0.124	0.15	28.88	1.2	100 year +10% CC, 9 hours storm, average 20.0 mm/h, Zone 1
F EX A3	2.202	2.202	0	0.121	0.14	28.16	1.17	100 year +10% CC, 9 hours storm, average 20.0 mm/h, Zone 1
Channel	2.426	8.019	0	1.467	2.63	4.44	1.79	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F Bypass G06	1.64	1.64	0	0.24	0.14	34.11	0.6	100 year +10% CC, 1 hour storm, average 76.7 mm/h, Zone 1
F EX G06	6.199	6.199	0	0.184	0.28	40.73	1.53	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F Bypass G04	0.688	0.688	0	0.075	0.06	19	0.86	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F EX G04	0.822	0.822	0	0.08	0.07	20.08	0.91	100 year +10% CC, 12 hours storm, average 16.9 mm/h, Zone 1
F West Moore	2.426	2.426	0	0.194	0.11	52.56	0.56	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F EX DNSDC	1.119	1.119	0	0.091	0.09	22.23	0.99	100 year +10% CC, 5 minutes storm, average 246 mm/h, Zone 1
F EX dummy	2.126	2.126	0	0.119	0.14	27.8	1.16	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
F Wetland By	0.297	0.297	0	0.053	0.04	14.69	0.68	100 year +10% CC, 15 minutes storm, average 158 mm/h, Zone 1
F EX S1	6.082	6.082	0	0.182	0.28	40.37	1.53	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F EX G SIM	11.118	11.118	0	0.23	0.42	49.99	1.81	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1
F Combined S	9.536	9.536	0	0.219	0.37	47.73	1.7	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F EXTERNAL	3.652	3.652	0	0.149	0.2	33.73	1.33	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F West More2	2.37	2.37	0	0.24	0.22	24.52	0.92	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F Moore HW 1	2.576	2.576	0	0.129	0.16	29.77	1.22	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX G02	8.585	8.585	0	0.21	0.35	45.94	1.66	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F EX OVER M	11.423	11.423	0	0.23	0.43	49.99	1.86	100 year +10% CC, 1.5 hours storm, average 60.4 mm/h, Zone 1
F East Moore	0.861	0.861	0	0.082	0.07	20.43	0.91	100 year +10% CC, 25 minutes storm, average 124 mm/h, Zone 1
F Ext SIMTA	2.845	2.845	0	0.134	0.17	30.85	1.25	100 year +10% CC, 1 hour storm, average 76.7 mm/h, Zone 1
F SIMTA S1	2.71	2.71	0	0.132	0.16	30.31	1.23	100 year +10% CC, 2 hours storm, average 50.7 mm/h, Zone 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
Bridge1	12.61	2616	0	0	0
Bridge2	12.91	1974.1	0	0	0
EX Wetland	12.3	8524.1	0	0	0
Basin1	12.82	2448	0.822	0	0.822
SIMTA S1	15.51	10170.3	2.71	0	2.71

CONTINUITY CHECK for 100 year +10% CC, 9 hours storm, average 20.0 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Chan (cu.m)	Difference %
EX G01	3271.01	3271.01	0	0
SimtaChann	42890.03	42889.52	0	0
EX G05	7959.96	7959.96	0	0
Small	3685.1	3685.1	0	0
EX G08	72327.32	72326.24	0	0
EX G09	8136.26	8136.26	0	0
EX G10	13730.24	13730.65	0	0
EX G11	3912.53	3912.53	0	0
EX G12	3560.94	3560.94	0	0
EX G13	13536.7	13536.7	0	0
EX Carpark	5942.56	5942.53	0	0
EX Outlet 4	233347.13	233351.52	0	0
EX Outlet 5	199423.86	199424.77	0	0
EX Outlet 6	85862.09	85863.34	0	0
EX Outlet 7	13536.7	13536.7	0	0
EX Outlet 8	13536.7	13536.7	0	0
EX Georges	236622.03	236621.95	0	0
EX Out	236621.94	236621.94	0	0
N78290	8807.65	8807.65	0	0
Bridge1	1808.48	0	1808.52	0
Bridge2	1329.77	0	1329.81	0
N78304	0	0	0	0
EX Wetland	5411.05	0	5411	0
EX Bypass A3	2539.67	2539.89	0	0
EX A3	36835.27	36837.8	0	0
Outlet A3	36837.49	36837.49	0	0
N242868	34493.72	34493.72	0	0
Top Channel	9616.44	9616.44	0	0
EX Bypass G0	19497.38	19497.22	0	0
EX G06	36514.91	36515.2	0	0
EX Bypass G0	7734.86	7728.03	0	0.1
Basin1	9944.14	8661.78	1276.82	0.1
West Moore	9616.28	9616.44	0	0
EX DNSDC	8808	8809.59	0	0
EX dummy DI	8809.59	8809.59	0	0
Wetland BP	708.7	708.7	0	0
EX S1	43168.86	43168.07	0	0
EX G SIM	70673.17	70670.22	0	0
Combined SIM	61860.89	61860.48	0	0

EX EXTERNA	11940.32	11940.32	0	0								
EX RAIL	0	0	0	0								
N287177	8907.48	8907.48	0	0								
Moore HW 2	15785.24	15785.67	0	0								
EX G02	33927.74	33926.91	0	0								
Headwall	70670.22	70670.22	0	0								
East Moore	2761.14	2761.14	0	0								
Ext SIMTA	13233.44	13233.44	0	0								
SIMTA S1	27173.79	27173.6	0.08	0								
EX M5	1857.49	1857.49	0	0								
Run Log for Stage2Existing.drn run at 15:06:52 on 7/4/2016												
No water upwelling from any pit.												
Freeboard was less than 0.15m at EX Bypass G04 EX Bypass G06												
The maximum flow exceeded the safe value in the following overflow routes: F West More2, F West Moore, F Bypass G06, F Bypass A3, F EX Georges, F Outlet 4, F EX Carpark Bypass,												
The following overflow routes carried water uphill (adding energy): F SIMTA S1 F Bypass G04 F EX G04 F EX DNSDC												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

ARCADIS Design & Consultancy for natural and built assets

PROJECT	MOOREBANK INTERMODAL	JOB No	AA003760		
		PREPARED	GD	DATE	6/04/2016
TITLE	PMF RESULTS	CHECKED	BC	DATE	6/04/2016

DRAINS File Path:	F:\AA003760\D-Calculations\Civil\A-Stormwater\A-MASTERPLAN\A-DRAINS\C-Models
DRAINS Version:	DRAINS Version 2015.11 - 7 October 2015
Modeller's Name:	George Dunstan
Description:	Stage 2 Existing Model

RESULTS PMF

DRAINS results prepared 07 April, 2016 from Version 2015.11

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
EX Bypass A3	16.24		2.705		0.76	2.518	Inlet Capacity
EX A3	16.14		14.259				
EX Bypass G0	16.99		22.721		0.01	21.987	Inlet Capacity
EX G06	14.38		23.995				
EX Bypass G0	15		6.447		0	6.447	Outlet System
EX DNSDC	11.37		12.958		2.63	10.848	Inlet Capacity
EX dummy DI	10.48		0				
Moore HW 2	14.15		22.975		-0.41	19.019	Headwall height/system capacity
EX G02	12		41.448				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C EX G01	6.687	0.62	6.072	5	5	0	15min PMP
C EX G03	31.818	3.874	27.976	5	5	0	15min PMP
C EX G05	9.769	6.225	4.127	11	16.55	0	15min PMP
C EX G07	5.591	3.183	2.699	6	9.61	0	15min PMP
C EX G08	4.772	0.308	4.466	5	5	0	15min PMP
C EX G09	13.558	3.245	10.333	11	10.89	0	15min PMP
C EX G10	10.788	3.471	7.545	6	8.4	0	15min PMP
C EX G11	6.941	1.752	5.324	6	8.96	0	15min PMP
C EX G12	6.43	1.579	5.173	7	4.5	0	15min PMP
C EX G13	19.297	4.143	16.763	8	14.72	0	15min PMP
C EX Carpark	5.079	3.177	1.928	5	5	0	15min PMP
C EX Dust Bo	17.447	0.716	16.816	5	9	0	15min PMP
C Ex Bridge P	3.863	0.124	3.739	4	4	0	15min PMP
C EX Bridge P	2.729	0.29	2.439	4	4	0	15min PMP
C EX Wetland	9.172	3.095	6.451	5	9.03	0	15min PMP
C EX Bypass	20.878	2.71	18.929	15	34.1	0	45min PMP
C EX G06	23.995	10.202	14.08	15	19	0	30min PMP
C EX G04	9.78	1.714	8.174	5	7	0	15min PMP
C EX DNSDC	12.958	10.77	2.262	5	5	0	15min PMP
C EX Wetland	1.288	0.364	0.942	4	6	0	15min PMP
C EX NTH SI	23.193	15.608	8.475	12	15	0	15min PMP
C EX EXTERI	16.262	10.222	6.888	10	13	0	15min PMP
C EX BAPAU	7.383	1.261	6.182	4	6	0	15min PMP
C EX G02	24.775	4.37	20.714	11	17.87	0	30min PMP
C East Moore	3.848	1.847	2.282	10	13	0	15min PMP
C EXTERNAL	13.678	5.564	8.453	25	28	0	30min PMP
C SIMTA S1	35.025	35.025	0	10	20	0	15min PMP
C EX M5	2.64	2.332	0.384	4	6	0	15min PMP

Name	Max Flow (cu.m/s)	Due to Storm
C EX Bypass	2.705	30min PMP
C EX A3	14.259	1.5hr PMP
C EX Bypass	6.447	45min PMP
C EX RAIL	0.648	2.5hr PMP

Outflow Volumes for Total Catchment (64.4 impervious + 147 pervious = 212 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff	Impervious Ru cu.m (Runoff	Pervious Runoff cu.m (Runoff %)
15min PMP	360182.25	321941.73 (89	94789.20 (86.	227152.53 (90.6%)
30min PMP	529679.81	481527.09 (90	141295.22 (87	340231.88 (92.3%)
45min PMP	656802.94	606989.66 (92	182012.50 (91	424977.16 (93.0%)
1hr PMP	762562.31	712032.91 (93	216474.00 (93	495558.91 (93.4%)
1.5hr PMP	868498.25	817023.89 (94	252636.33 (95	564387.56 (93.4%)
2hr PMP	953423.63	900093.63 (94	280964.56 (96	619129.06 (93.3%)
2.5hr PMP	1016985.19	961281.53 (94	301888.28 (97	659393.25 (93.2%)
3hr PMP	1081076.38	1022796.47 (9	322662.91 (98	700133.56 (93.1%)
4hr PMP	1165295.5	1100801.63 (9	349846.56 (98	750955.06 (92.6%)
5hr PMP	1271231.5	1200229.50 (9	383062.94 (99	817166.56 (92.4%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Dummy Golf	0.191	2.24	16.244	16.137	15min PMP
P Bypass G06	1.211	4.28	16.99	14.4	30min PMP
Pipe35283	0.285	2.58	15	13.736	30min PMP
P EX dummy	2.179	7.71	11.375	10.5	30min PMP
Dummy Pipe	2.597	3.16	13.21	13.056	15min PMP

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	6.687	6.687	0	0.189	0.3	41.81	1.57	15min PMP

F EX G03	47.298	47.298	0	0.23	1.77	49.99	7.69	15min PMP				
F EX G05	9.769	9.769	0	0.22	0.38	48.09	1.72	15min PMP				
F EX G07	5.591	5.591	0	0.176	0.26	39.29	1.49	15min PMP				
F EX G08	76.188	76.188	0	0.23	2.85	49.99	12.39	15min PMP				
F EX G09	13.558	13.558	0	0.23	0.51	49.99	2.21	15min PMP				
F EX G10	23.602	23.602	0	0.23	0.88	49.99	3.84	15min PMP				
F EX G11	6.941	6.941	0	0.192	0.3	42.35	1.58	15min PMP				
F EX G12	6.43	6.43	0	0.186	0.29	41.27	1.55	15min PMP				
F EX G13	19.297	19.297	0	0.23	0.72	49.99	3.14	15min PMP				
F EX Carpark	22.09	22.09	0	0.294	0.97	55.81	3.3	45min PMP				
F Outlet 4	215.28	215.28	0	0.23	8.05	49.99	35.02	30min PMP				
F Outlet 5	184.424	184.424	0	0.23	6.9	49.99	30	30min PMP				
F Outlet 6	88.487	88.487	0	0.23	3.31	49.99	14.39	15min PMP				
F Outlet 7	19.297	19.297	0	0.23	0.72	49.99	3.14	15min PMP				
F Outlet 8	19.297	19.297	0	0.23	0.72	49.99	3.14	15min PMP				
F EX Georges	217.03	217.03	0	0.23	8.12	49.99	35.3	30min PMP				
F EX Dust	17.447	17.447	0	0.23	0.65	49.99	2.84	15min PMP				
F Bridge1	0.542	0.542	0	0.068	0.05	17.56	0.81	3hr PMP				
F Bridge2	0.777	0.777	0	0.079	0.07	19.72	0.89	1.5hr PMP				
OF68951	0.97	0.97	0	0.086	0.08	21.15	0.95	3hr PMP				
F EX Wetland	2.475	2.475	0	0.126	0.15	29.24	1.22	1.5hr PMP				
F Bypass A3	2.518	2.518	0	0.24	0.22	34.11	0.93	30min PMP				
F EX A3 Total	14.446	14.446	0	0.23	0.54	49.99	2.35	1.5hr PMP				
F EX A3	14.259	14.259	0	0.23	0.53	49.99	2.32	1.5hr PMP				
Channel	27.131	31.818	0	2.474	2.24	120.01	0.91	1hr PMP				
F Bypass G06	21.987	21.987	0	0.24	1.94	34.11	8.08	45min PMP				
F EX G06	25.195	25.195	0	0.23	0.94	49.99	4.1	30min PMP				
F Bypass G04	6.447	6.447	0	0.186	0.29	41.27	1.55	45min PMP				
F EX G04	4.631	4.631	0	0.163	0.23	36.6	1.43	45min PMP				
F West Moore	27.131	27.131	0	0.242	0.96	54.14	3.95	1hr PMP				
F EX DNSDC	10.848	10.848	0	0.229	0.41	49.89	1.77	15min PMP				
F EX dummy	2.179	2.179	0	0.12	0.14	27.98	1.17	30min PMP				
F Wetland By	1.288	1.288	0	0.097	0.1	23.31	1.02	15min PMP				
F EX S1	46.345	46.345	0	0.23	1.73	49.99	7.54	15min PMP				
F EX G SIM	63.862	63.862	0	0.23	2.39	49.99	10.39	15min PMP				
F Combined S	61.752	61.752	0	0.23	2.31	49.99	10.05	15min PMP				
F EXTERNAL	16.262	16.262	0	0.23	0.61	49.99	2.65	15min PMP				
F West More2	26.854	26.854	0	0.24	2.5	24.52	10.41	1hr PMP				
F Moore HW 1	19.019	19.019	0	0.23	0.71	49.99	3.09	15min PMP				
F EX G02	44.039	44.039	0	0.23	1.65	49.99	7.16	15min PMP				
F EX OVER M	67.16	67.16	0	0.23	2.51	49.99	10.92	30min PMP				
F East Moore	3.848	3.848	0	0.151	0.21	34.26	1.36	15min PMP				
F Ext SIMTA	13.678	13.678	0	0.23	0.51	49.99	2.22	30min PMP				
F SIMTA S1	34.268	34.268	0	0.23	1.28	49.99	5.57	15min PMP				

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q	Max Q	Max Q
			Total	Low Level	High Level
Bridge1	13.99	6409.9	0.542	0	0.542
Bridge2	13.61	3318.6	0.777	0	0.777
EX Wetland	12.63	12403.5	2.475	0	2.475
Basin1	13.74	5747.3	4.631	0	4.631
SIMTA S1	16.06	14015.6	34.268	0	34.268

CONTINUITY CHECK for 2.5hr PMP

Node	Inflow	Outflow	Storage Chan	Difference
	(cu.m)	(cu.m)	(cu.m)	%
EX G01	12570.1	12570.1	0	0
SimtaChann	225144.78	225144.75	0	0
EX G05	25183.49	25183.49	0	0
Small	11674.26	11674.26	0	0
EX G08	204723.27	204721.06	0	0
EX G09	29184.09	29184.09	0	0
EX G10	48513.91	48513.84	0	0
EX G11	14019.35	14019.35	0	0
EX G12	12744.69	12744.69	0	0
EX G13	50331.94	50331.94	0	0
EX Carpark	77161.11	77161.21	0	0
EX Outlet 4	807937.88	807937.63	0	0
EX Outlet 5	688652.88	688656.44	0	0
EX Outlet 6	255053.3	255053.09	0	0
EX Outlet 7	50331.94	50331.94	0	0
EX Outlet 8	50331.94	50331.94	0	0
EX Georges	820488.75	820487.56	0	0
EX Out	820486.5	820486.5	0	0
N78290	34770.7	34770.7	0	0
Bridge1	7163.73	1045.13	6118.6	0
Bridge2	5074.13	1985.21	3088.91	0
N78304	3030.34	3030.34	0	0
EX Wetland	18778.52	7934.17	10844.36	0
EX Bypass A3	8102.75	8102.87	0	0
EX A3	108774.33	108764.06	0	0
Outlet A3	108757.88	108757.88	0	0
N242868	106883.2	106883.2	0	0
Top Channel	102297.89	102297.89	0	0
EX Bypass G0	79898.25	79900.31	0	0
EX G06	78175.27	78175.38	0	0
EX Bypass G0	24648.34	25133.71	0	-2
Basin1	21694.7	20266.3	1423.41	0
West Moore	102297.98	102297.89	0	0
EX DNSDC	24977.54	24978.16	0	0
EX dummy DI	17073.94	17073.94	0	0
Wetland BP	2500.89	2500.89	0	0
EX S1	126340.5	126339.84	0	0
EX G SIM	200586.84	200589.73	0	0
Combined SIM	183516.64	183516.73	0	0
EX EXTERNA	37350.54	37350.54	0	0
EX RAIL	5972.82	5972.82	0	0

N287177	99797.02	99796.98	0	0								
Moore HW 2	51609.52	52027.37	0	-0.8								
EX G02	119309.66	119309.76	0	0								
Headwall	208494	208492.91	0	0								
East Moore	9179.53	9179.53	0	0								
Ext SIMTA	44639.7	44639.7	0	0								
SIMTA S1	72664.35	72521.85	142.83	0								
EX M5	5214.48	5214.48	0	0								
Run Log for Stage2Existing.drn run at 15:03:14 on 7/4/2016												
Upwelling occurred at EX Bypass G04												
Freeboard was less than 0.15m at EX Bypass G06												
The maximum flow exceeded the safe value in the following overflow routes: F EX S1, F Ext SIMTA, F Moore HW 2, F West More2, F Combined SIMTA, F EX G SIM, F SIMTA S1, F West												
The following overflow routes carried water uphill (adding energy): F SIMTA S1 F Bypass G04 F EX Wetland F Bridge1 F Bridge2 F EX G04 F EX DNSDC												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												