



Appendix A Hydraulic Model files

Case	Sim11	Nwk11	Xns11	Bnd11	Dfs0	Hd11	Res11
Rerun existing model							
2y design flood initialise tide level	init2y	kaihu5	kaihu4	init2y	init1	kaihu4	init2y1
2y design flood	2y1	kaihu5	kaihu4	2y	init1, rptides, flood2y	kaihu4	2y1
5y design flood initialise tide levels	init5y	kaihu5	kaihu4	init5y	init1	kaihu4	init5y1
5y design flood	5y1_long	kaihu5	kaihu4	5y	init1, rptides, flood5y_long	kaihu4	5y1
10y design flood initialise tide level	init10y	kaihu5	kaihu4	init10y	init1	kaihu4	init10y1
10y design flood	10y1_long	kaihu5	kaihu4	10y	init1, rptides, flood10y_long	kaihu4	10y1l
100y design flood initialise tide level	init100y	kaihu5	kaihu4	init100y	init1	kaihu4	init100y1
100y design flood	100y1_long	kaihu5	kaihu4	100y	init1,rptides, flood100y_long	kaihu4	100y1
No stopbank model							
2y design flood initialise tide level	init2yg	kaihu5g	kaihu4	init2yg	init1	kaihu4	init2yg
2y design flood	2yg	kaihu5g	kaihu4	2yg	init1,rptides, flood2y	kaihu4	2yg
5y design flood initialise tide levels	init5yg	kaihu5g	kaihu4	init5yg	init1	kaihu4	init5yg
5y design flood	5yg_long	kaihu5g	kaihu4	5yg	init1, rptides, flood5y_long	kaihu4	5yg
10y design flood initialise tide level	init10yg	kaihu5g	kaihu4	init10yg	init1, smallflows	kaihu4	init10yg
10y design flood	10yg_long	kaihu5g	kaihu4	10yg	init1, rptides, flood10y_long	kaihu4	10ygl
100y design flood initialise tide level	init100yg	kaihu5g	kaihu4	init100yg	init1, smallflows	kaihu4	init100yg
100y design flood	100yg_long	kaihu5g	kaihu4	100y1	init1, rptides, flood100y_long	kaihu4	100yg_long
Widened lower river							
2y design flood initialise tide level	init2yw	kaihu5w	kaihu4	init2y	init1	kaihu4	init2yw



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2y design flood	2yw	kaihu5w	kaihu4	2y	init1,rptides, flood2y	kaihu4	2yw
5y design flood initialise tide levels	init5yw	kaihu5w	kaihu4	init5y	init1	kaihu4	init5yw
5y design flood	5yw	kaihu5w	kaihu4	5y	init1, rptides, flood5y_long	kaihu4	5yw
10y design flood initialise tide level	init10yw	kaihu5w	kaihu4	init10y	init1	kaihu4	init10yw
10y design flood	10yw	kaihu5w	kaihu4	10y	init1, rptides, flood10y_long	kaihu4	10yw
100y design flood initialise tide level	init100yw	kaihu5w	kaihu4	init100y	init1	kaihu4	init100yw
100y design flood	100yw	kaihu5w	kaihu4	100y1	init1, rptides, flood100y_long	kaihu4	100yw



Appendix B Flooding durations

Location in model	2 year ARI			5 year ARI			10 year ARI			100 year ARI		
	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river
MAROPIU 1870	0	2.75	0	2.5	5.25	2.5	4.25	7	4.25	8	11	8
MAROPIU 3395	5.75	8.25	5.75	8.75	11	8.75	10	13	10	14.75	19.5	14.5
SETTLEMENT 1805	4.5	4.5	4.5	6.75	5.75	6.75	8.5	8	8.5	13.25	12.25	13
SETTLEMENT 2320	6.25	6.25	6.25	8.5	8.75	8.5	10.5	10.5	10.5	15.5	15.75	15.5
MAITAHU 830	0	3	0	0	6	0	3	7.75	3	8.25	12.25	8.25
MAITAHU 1925	9.75	9.5	10.25	13	12.5	13	15.25	14.5	15.25	22.75	23	22.75
MAITAHU 3875	36.5	23.75	37	47.5	29.25	47.25	56.5	33.75	56.25	86	64.75	85.25
MAMARANUI 1030	0	0	0	0	0	0	0	1.75	0	9.25	12.75	9.25
MAMARANUI 1860	0	0	0	8.75	0	8.75	11.25	3.75	11.25	18.75	15.5	18.75
WAIATUA 1020	60.5	60.75	60.75	83.5	83.75	83.25	106.5	106.75	105.75	169.5	170.25	168.5
WAIATUA 2015	47.75	47.5	48.75	63	63	63.25	78.5	78.25	76.75	135.5	136.75	132.25
WAIHUE 1725	38	35.5	38.25	54.75	54.25	54.75	66.25	65.5	66	119	118.5	118.75
CEMETRY 940	64.75	66.25	62.25	84.75	84.75	80	100.25	100.75	92.75	148.5	150.5	138.75
FRITH 350	18.5	21.5	18.5	27	27.5	27	32	32	31.75	51	58.75	49.5
FRITH 2530	65	66.5	60.5	89	86	81.75	105.75	102.5	97	152.25	150.25	141.75
NDL 395	83.5	83.75	82.25	109.5	95.75	108.25	118.75	104.75	116.5	153	143.25	147.75
TAITA 2435	57	55.75	56.75	73.5	72.25	73.5	90.25	89	89.75	144.75	144.75	144
BUSH 975	61.75	62	56.25	83.25	80.25	75.5	98.25	94.5	86.5	143.75	141	129.5
BUSH 1555	67.75	69	59.75	93.25	91	83	112.25	112	99	163	162.75	144.75
ROTU 1790	79	80.5	64.25	101.75	99.5	88	121.75	116.75	100.25	173	171.5	146.25



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	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river	Existing	No stopbanks	Wide lower river
POUTO 405	109.25	109.75	95	136.5	130.5	124.5	153.5	147.5	136.25	194.5	191.5	176.75
POUTO 1250	125	125.75	109.75	152.75	147.75	133.75	169	168.5	153.5	208.75	209	187
POUTO-EAST 1380	93.25	94.25	76.25	122.5	120.25	109.25	141.25	139.5	123.5	201.75	204.75	180
SPELLWAY 1180	89.5	91	60.5	116.5	118.75	82.5	137.25	134.5	91.75	199.75	202.5	137.25
BROWN 1425	42	39	4	67.5	60.25	47	83.25	74	53.5	121.25	113.75	84
MANGATARA 4820	0	0	0	2	7.25	0	33.25	44.25	5	105.5	80	61.75
PARORE-RB 365	31.25	31	19	85.5	94.5	63.5	117.25	110	84	164.25	143.75	132
PARORE-RB 2080	47.75	47	29.75	91.25	99.5	68.25	120.25	115.5	90.75	170.25	147.75	135.25
PARORELB 590	0	57.25	0	74.25	88.75	0	111	104.5	0	159	152	85.5
VALLEY 450	0	9.25	0	50.75	42	0	74.75	63.5	1	108.25	104.25	36.5
BAYLYS 1045	0	0	0	56.75	68.75	27.75	92.25	83.75	54.5	139.75	114.25	104.25
BEACH 700	0	0	0	0	0	0	0	0	0	30.5	57.75	0

Table 2: Flood durations in hours for selected locations Kaihu valley



Appendix C Figures and plots

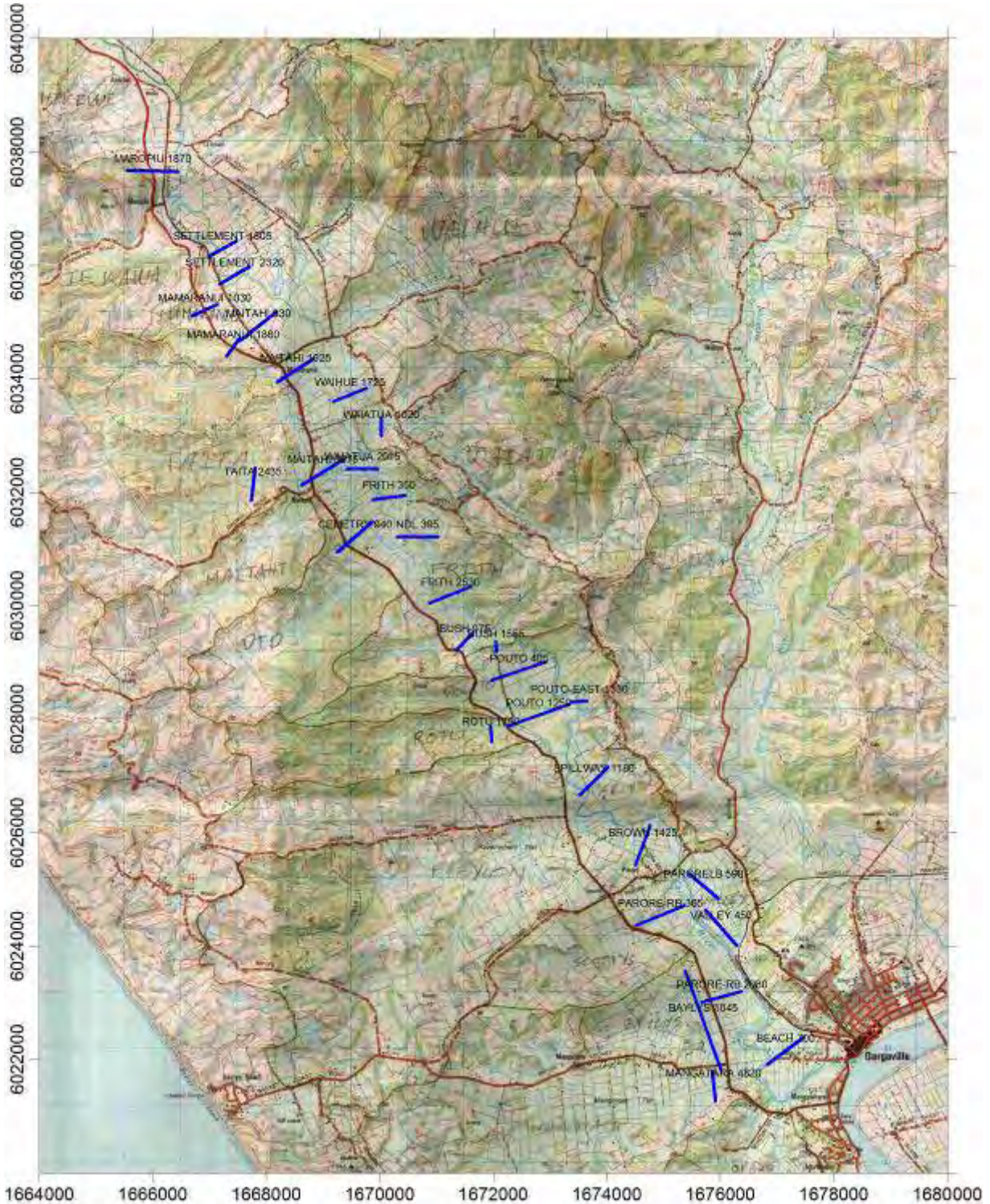


Figure 1: Locations for flood duration plots

