



## Appendix A Model files

Case	Sim11	Nwk11	Xns11	Bnd11	Dfs0	Hd11	Res11
Dendritic version to create results for parameter start	Kaihu2	Kaihu2	Kaihu3	Kaihu2	Init1	Kaihu2	Kaihu2
June 2002 event initialise tide level	Initjun02	Kaihu3	Kaihu3	Initjun02	Init1	Kaihu4	Initjun02
June 2002 event run	Jun02	Kaihu3	Kaihu3	Jun02	Init1, Tide-jun02, Qjun02	Kaihu4	Jun02
August 2003 event initialise tide level	Initaug03	Kaihu3	Kaihu3	Initaug03	Init1	Kaihu4	Initaug03
August 2003 event run	Aug03	Kaihu3	Kaihu3	Aug03	Init1, Tide-aug03, Qaug03	Kaihu4	Aug03
June 2000 event initialise tide level	Initjun00	Kaihu3	Kaihu3	Initjun00	Init1	Kaihu4	Initjun00
June 2000 event run	Jun00	Pre-apr01	Kaihu3	Jun00	Init1, Tide-jun00, Qjun00	Kaihu4	Jun00
2y design flood initialise tide level	Init2y	Kaihu4	Kaihu3	Init2y	Init1	Kaihu4	Init2y
2y design flood run	2y	Kaihu4	Kaihu3	2y	Init1, rptides, flood2y	Kaihu4	2y
5y design flood initialise tide level	Init5y	Kaihu4	Kaihu3	Init5y	Init1	Kaihu4	Init5y
5y design flood run	5y	Kaihu4	Kaihu3	5y	Init1, rptides, flood5y	Kaihu4	5y
10y design flood initialise tide level	Init10y	Kaihu4	Kaihu3	Init10y	Init1	Kaihu4	Init10y
10y design flood run	10y	Kaihu4	Kaihu3	10y	Init1, rptides, flood10y	Kaihu4	10y
100y design flood initialise tide level	Init100y	Kaihu4	Kaihu3	Init100y	Init1	Kaihu4	Init100y
100 design flood run	100y	Kaihu4	Kaihu3	100y	Init1, rptides, flood100y	Kaihu4	100y



## Appendix B Figures and plans

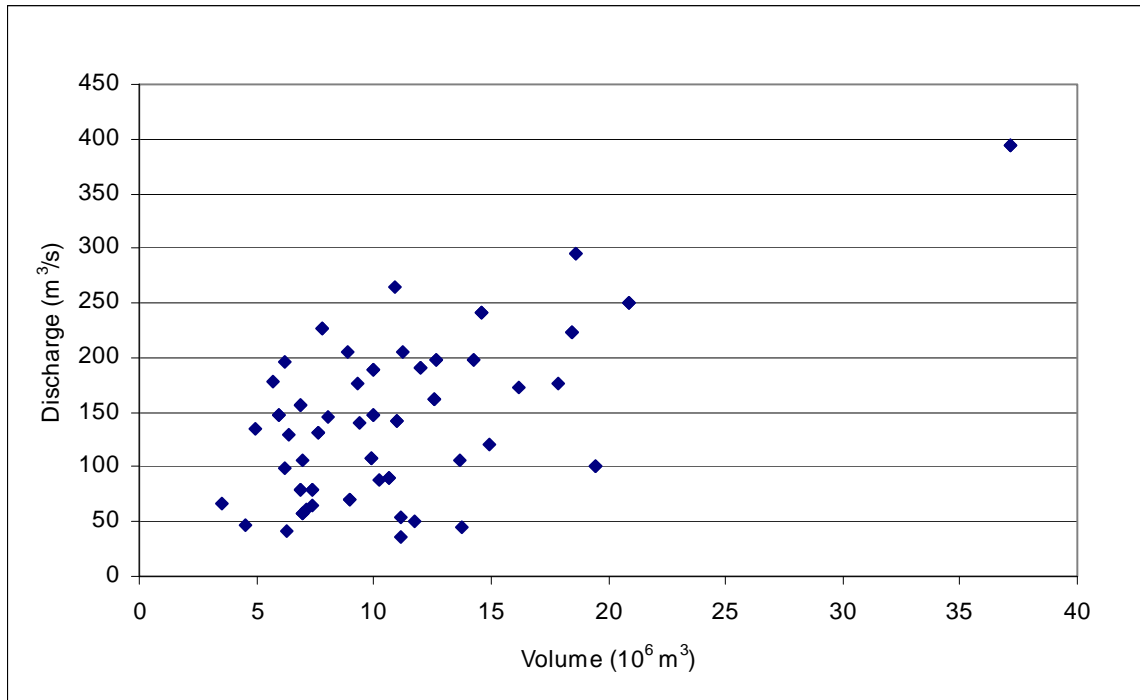


Figure 1: Peak discharge vs flood volume for Kaihu annual maxima

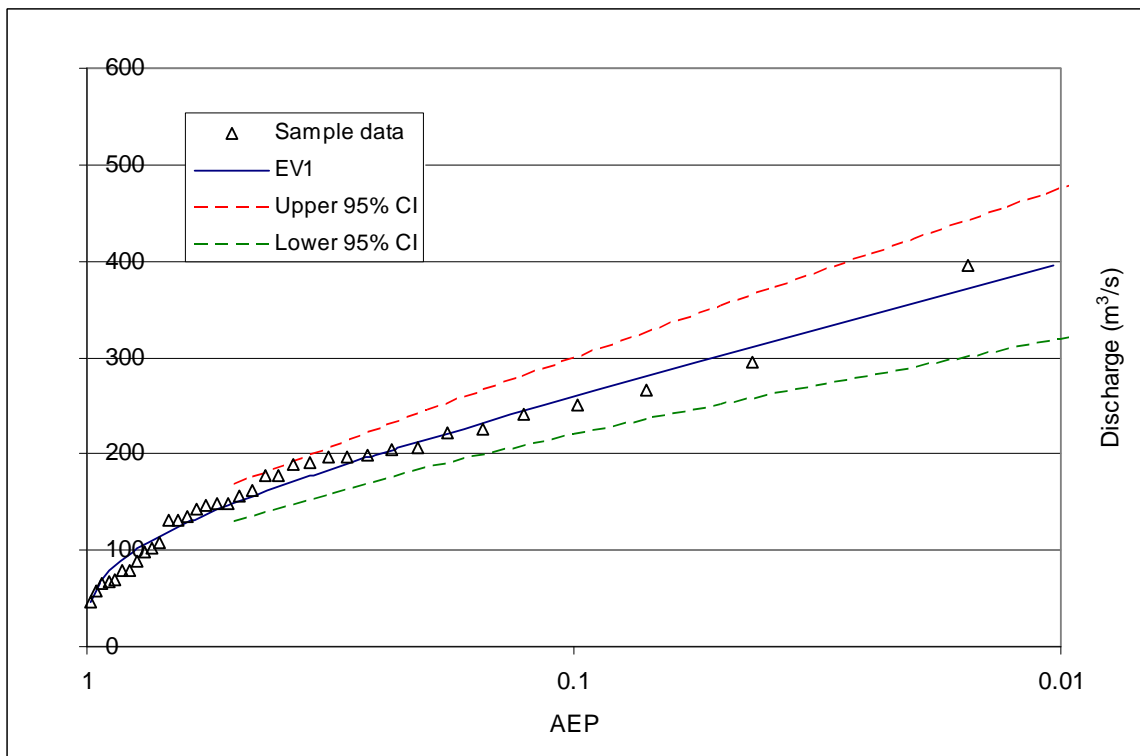


Figure 2: Annual peak flow maxima with Extreme Value type 1 distribution

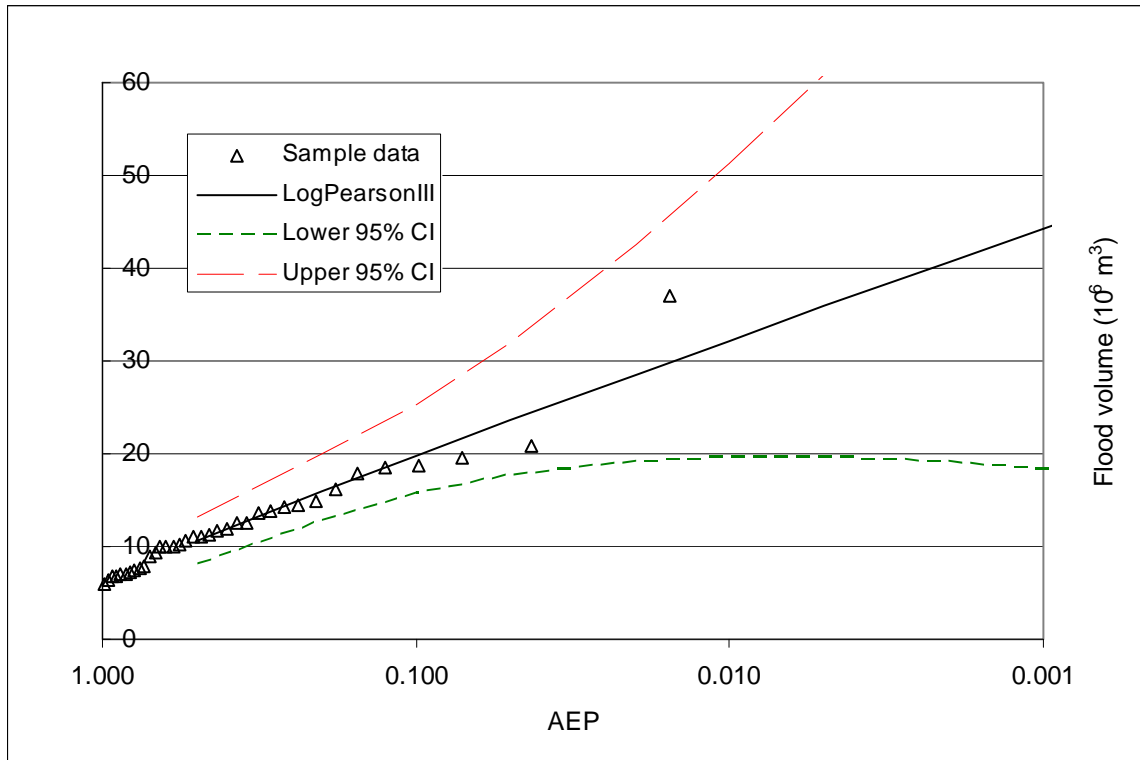


Figure 3: Annual maximum flood volume with Log Pearson III distribution

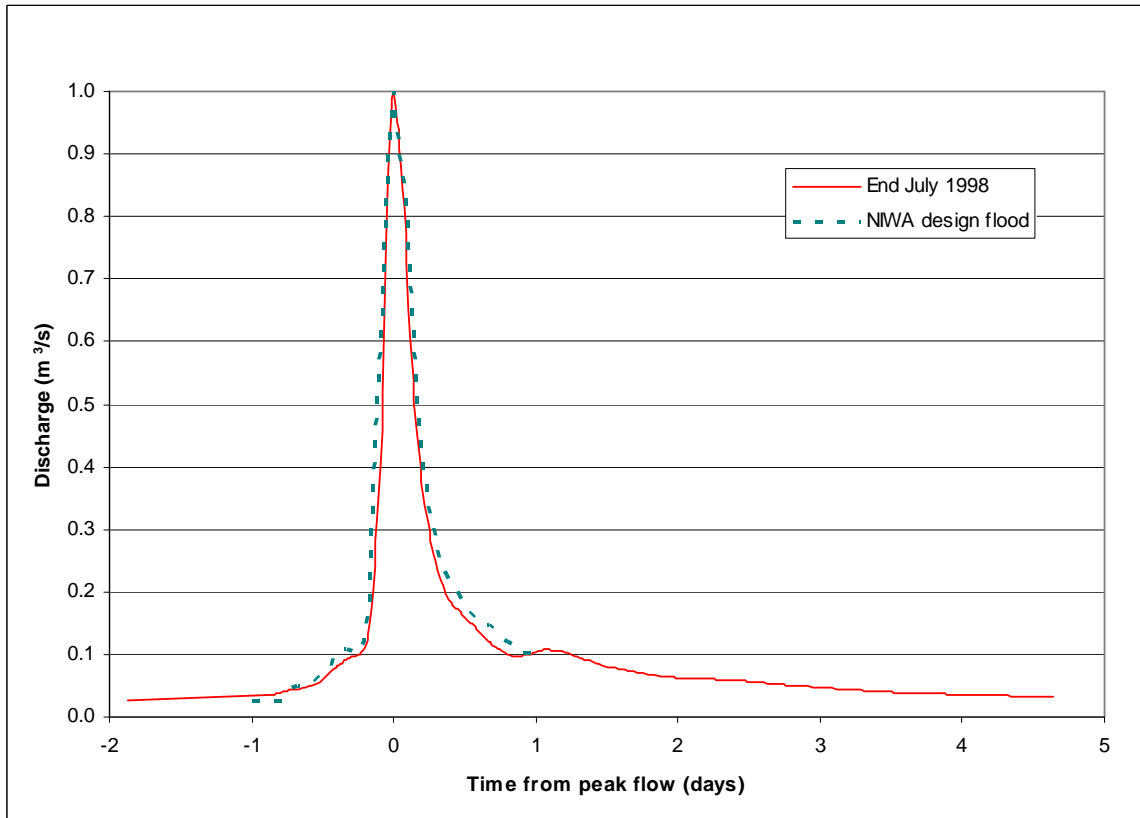


Figure 4: Index design flood comparison

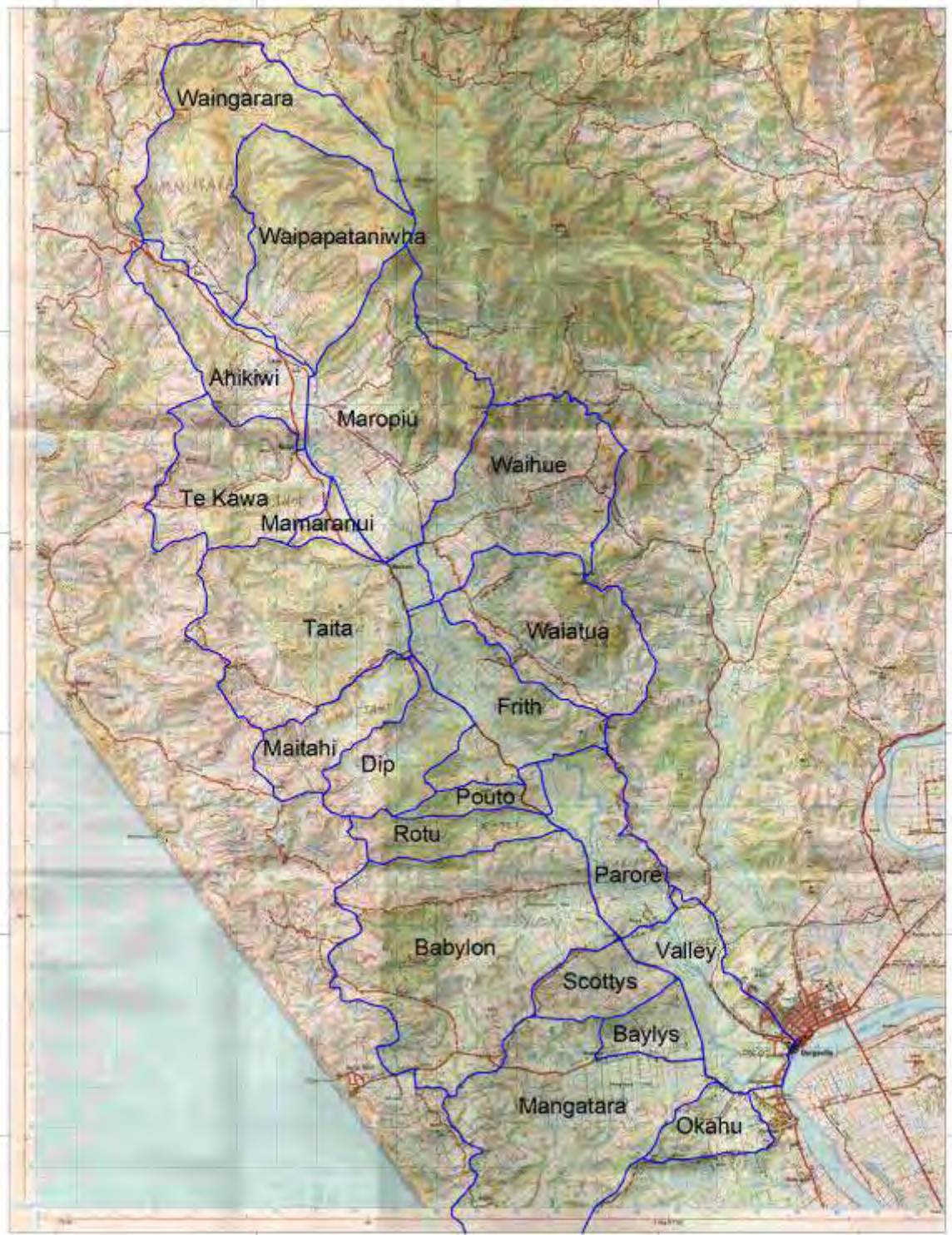


Figure 5: Kaihu subcatchment location plan



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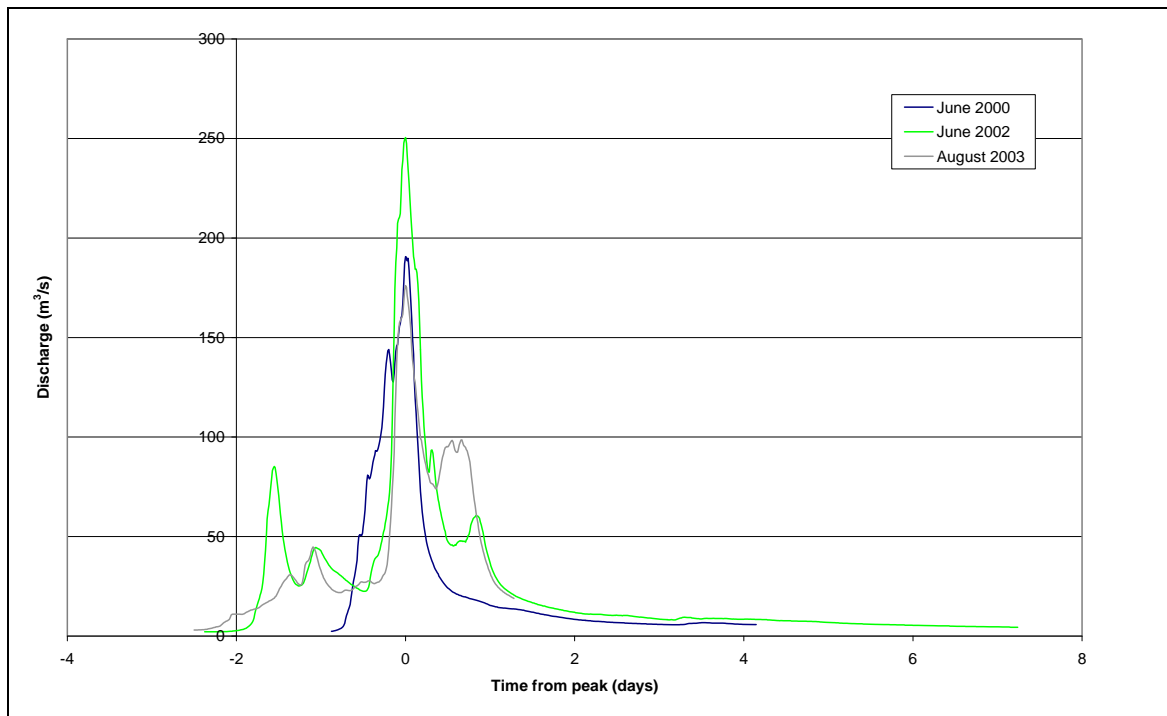


Figure 6: Historical floods selected for calibration



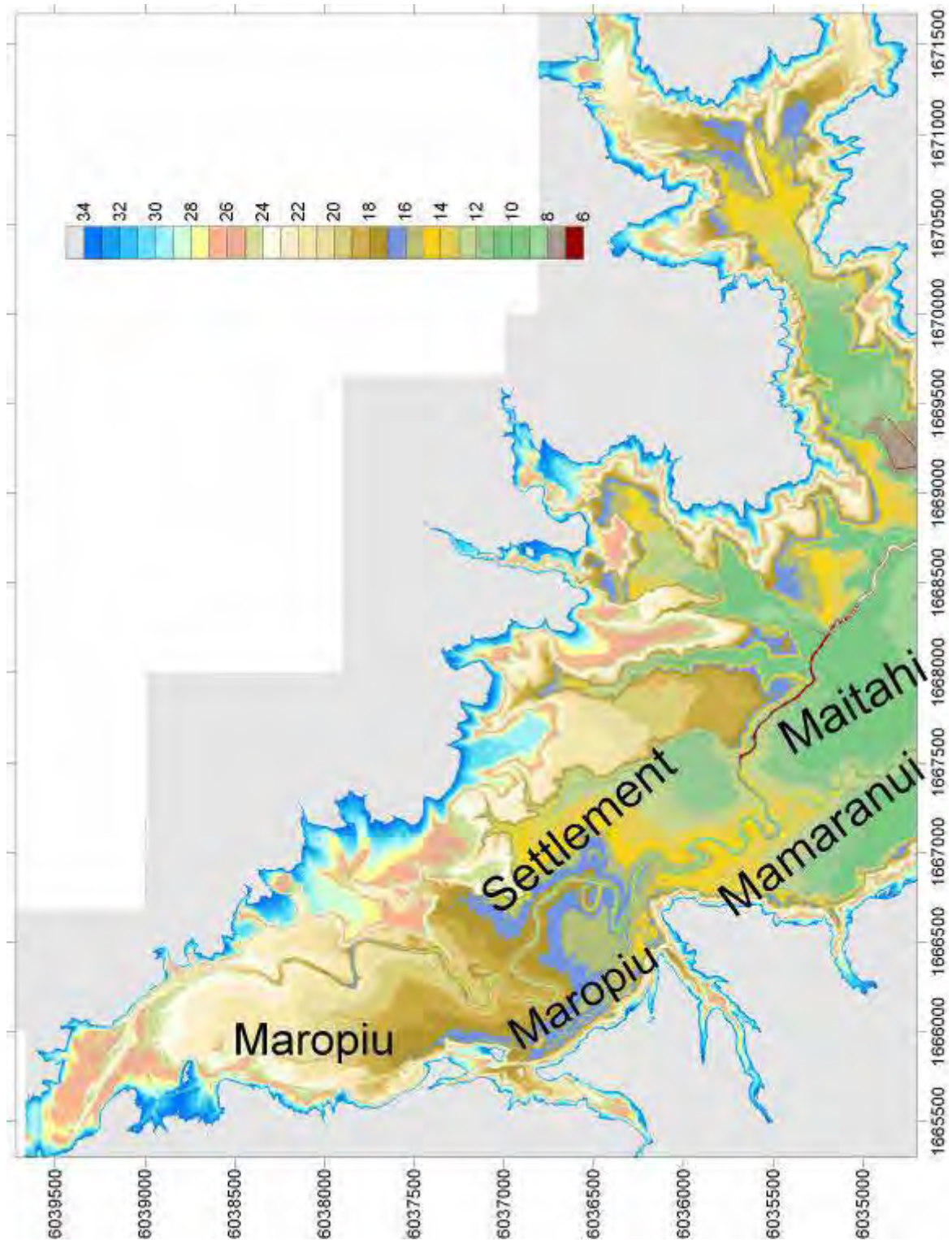


Figure 7: Floodplain branches between Ahikiwi and Waihue Road

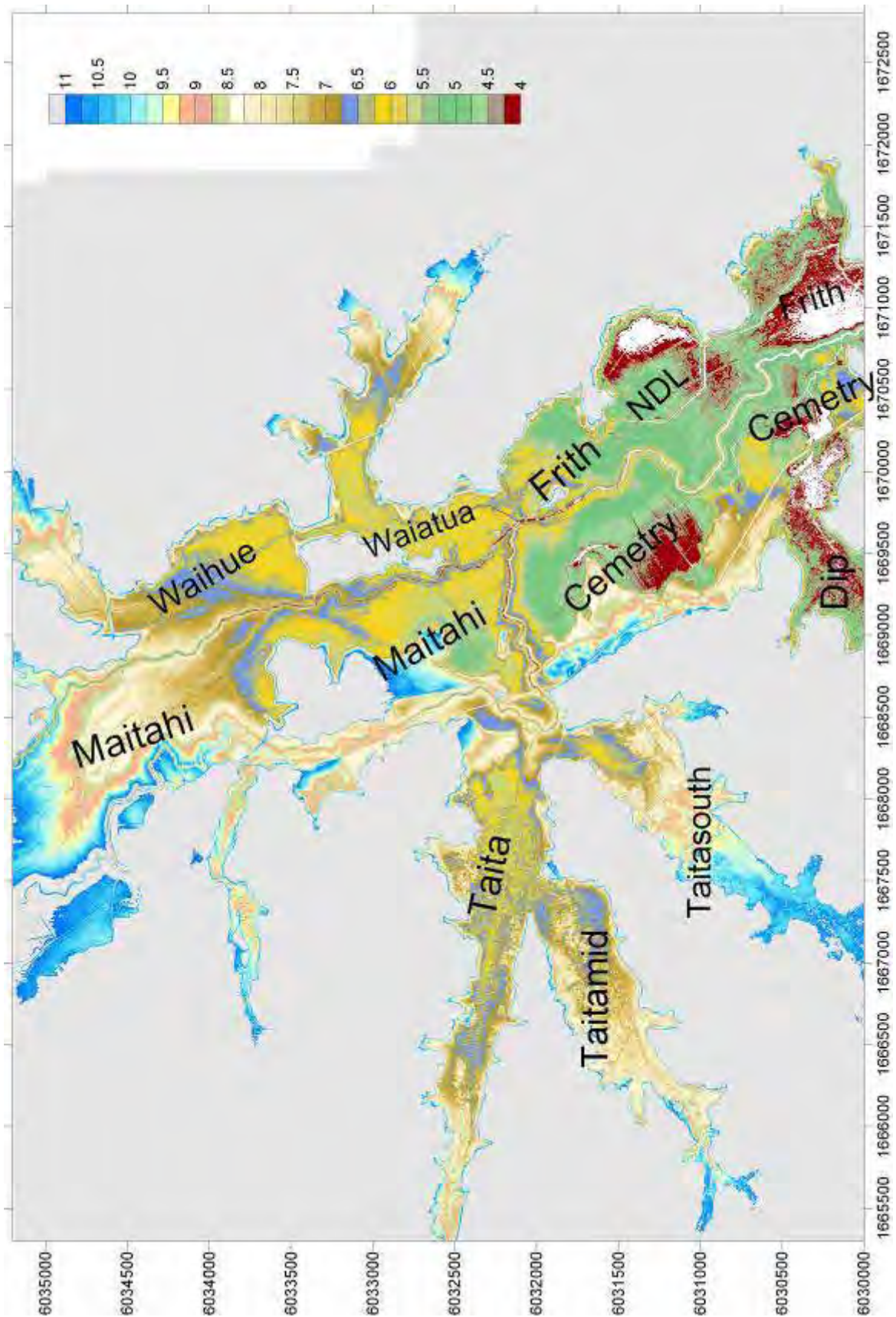


Figure 8: Floodplain branches between Waihue Road and Waitukuhuru Stream



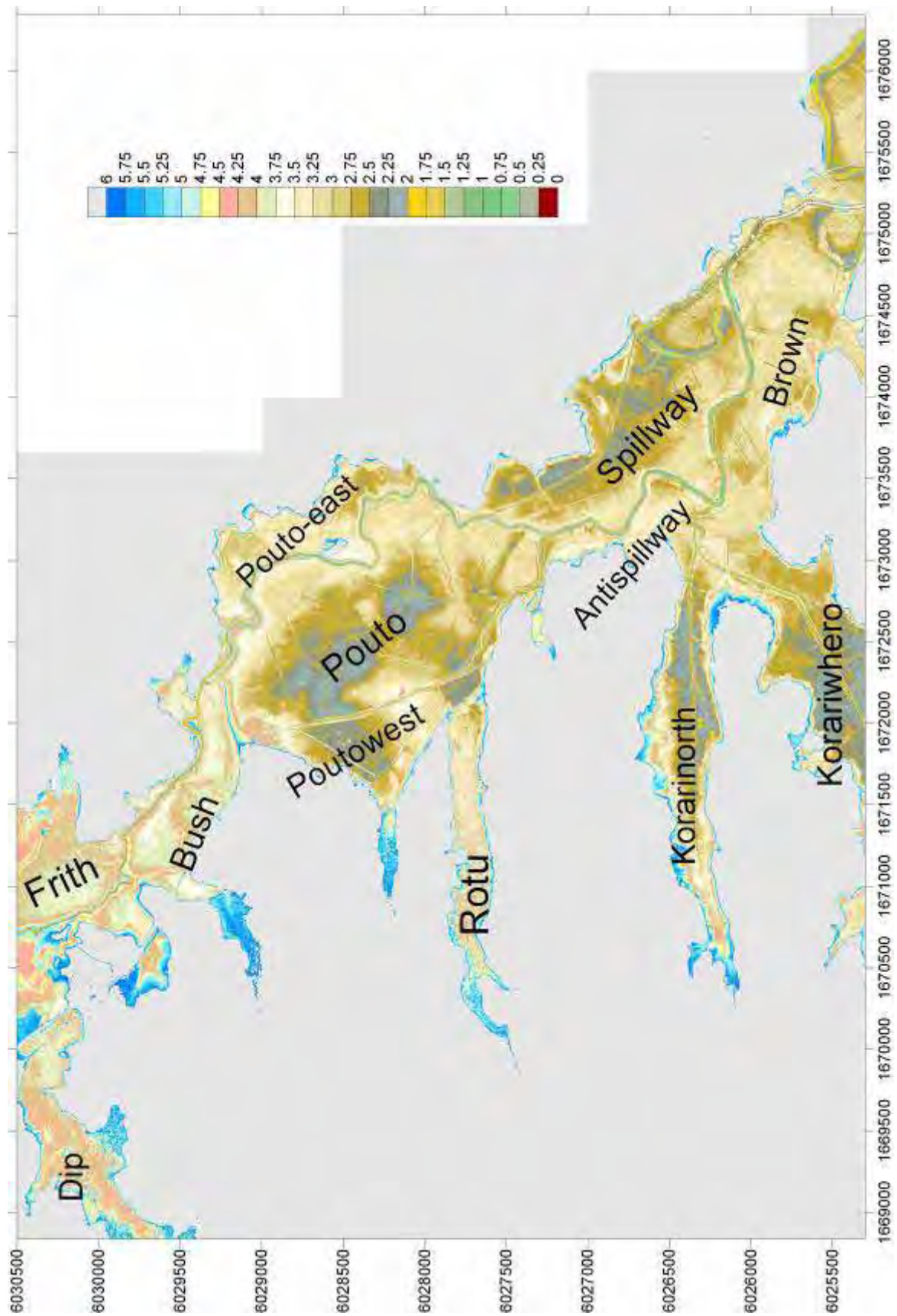


Figure 9: Floodplain branches between Waitukuhuruhuru Stream and Parore Road





Figure 10: Floodplain branches between Parore Road and Dargaville

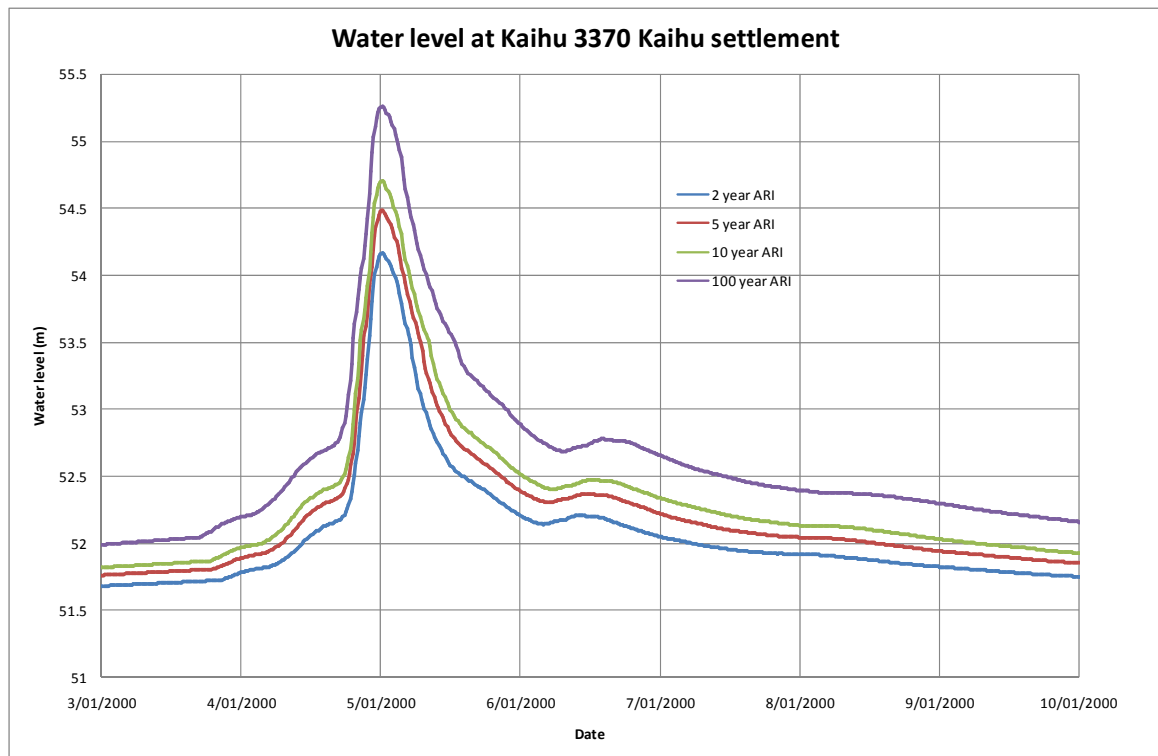


Figure 11: Design flood water level time series at upstream side of Kaihu settlement

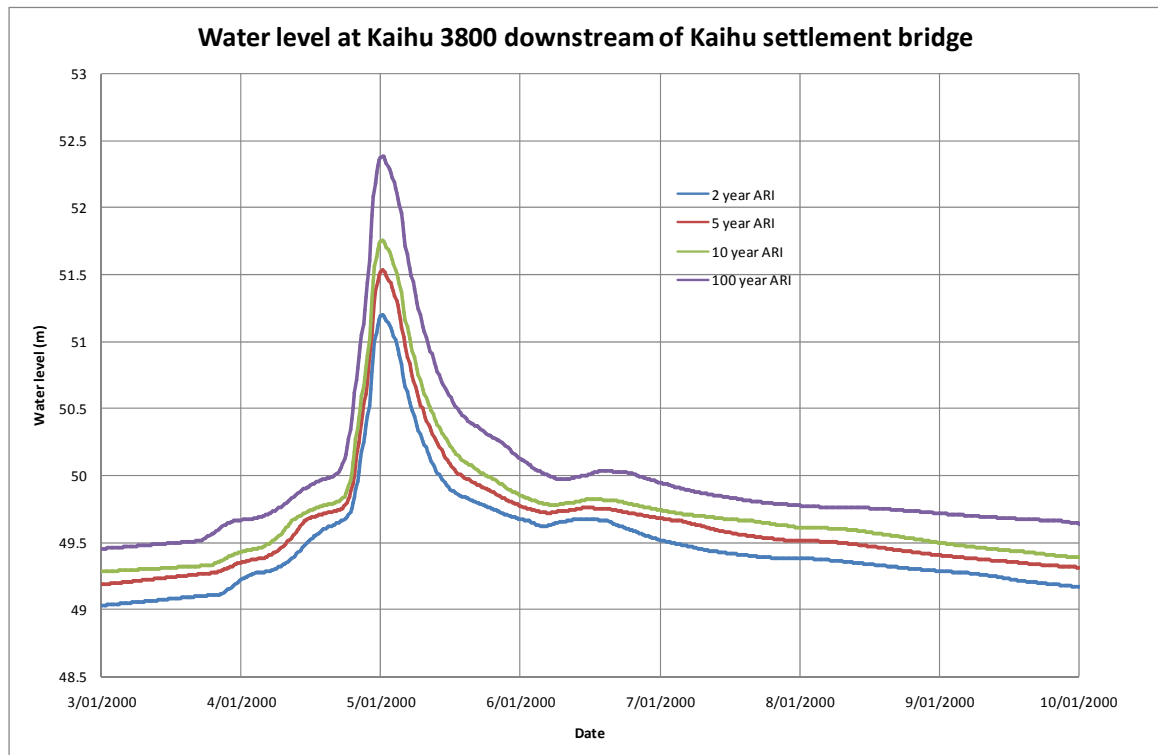


Figure 12: Design flood water level time series just downstream of the bridge at Kaihu settlement

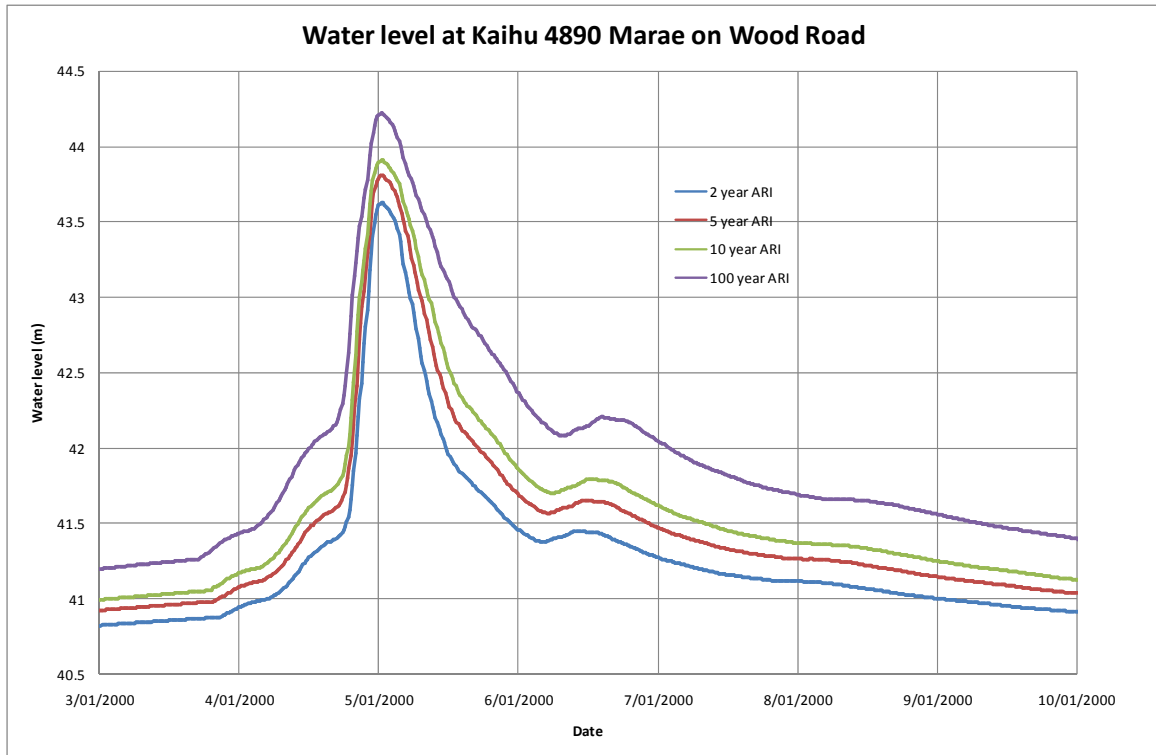


Figure 13: Design flood water level time series at Marae on Wood Road

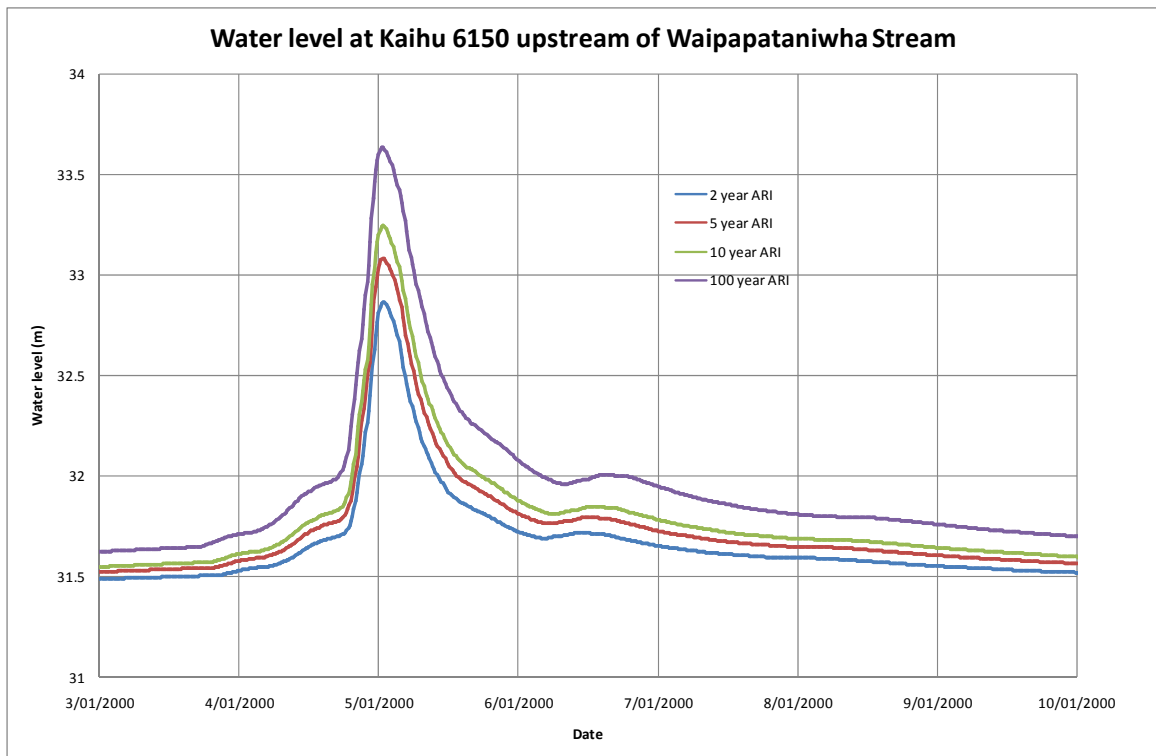


Figure 14: Design flood water level time series just upstream of Waipapataniwha Stream





Appendix C Flood Maps

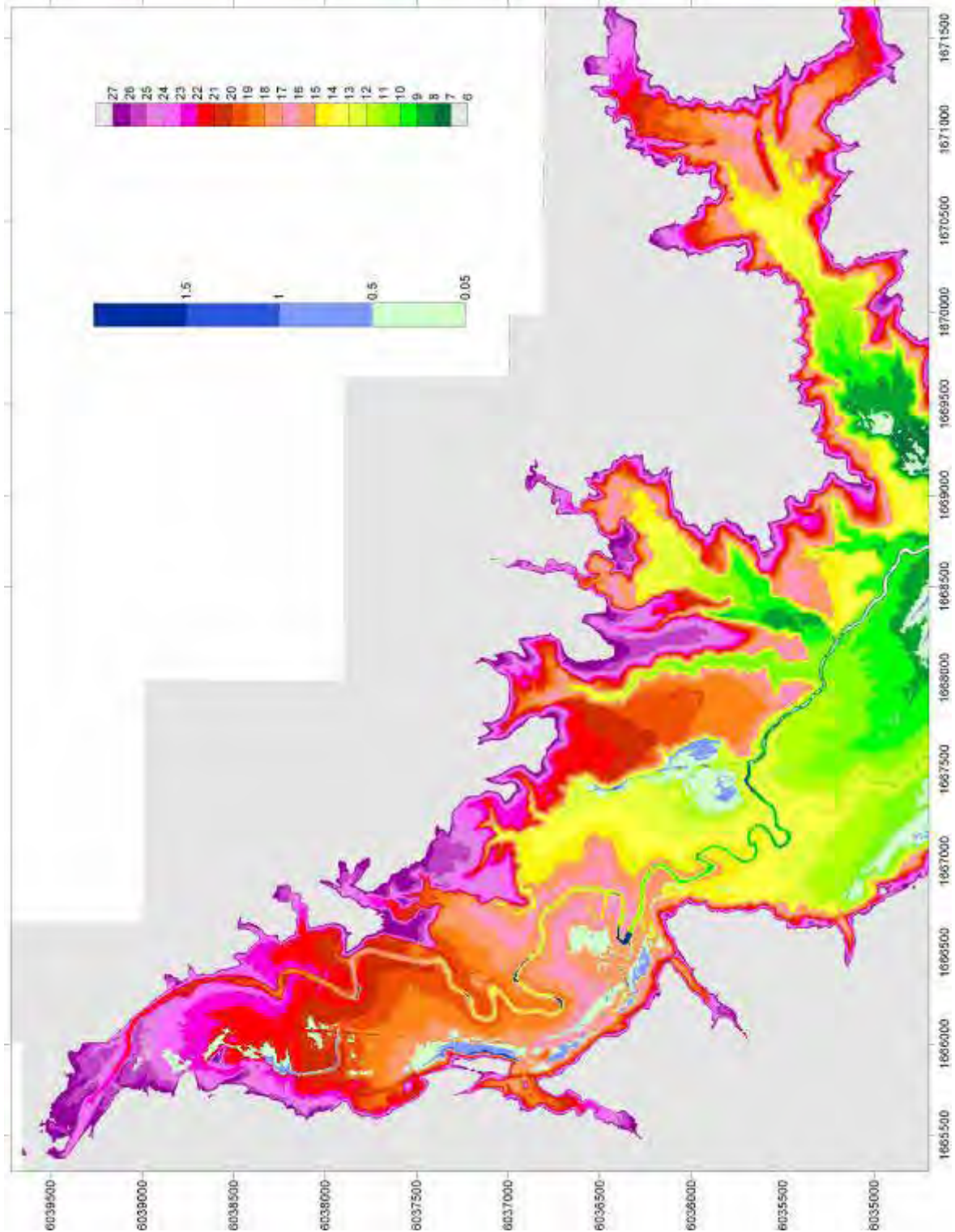


Figure 15: Maximum flood extent from Ahikiwi to Mamaranui in 2 year ARI flood (2ym4.jpg)



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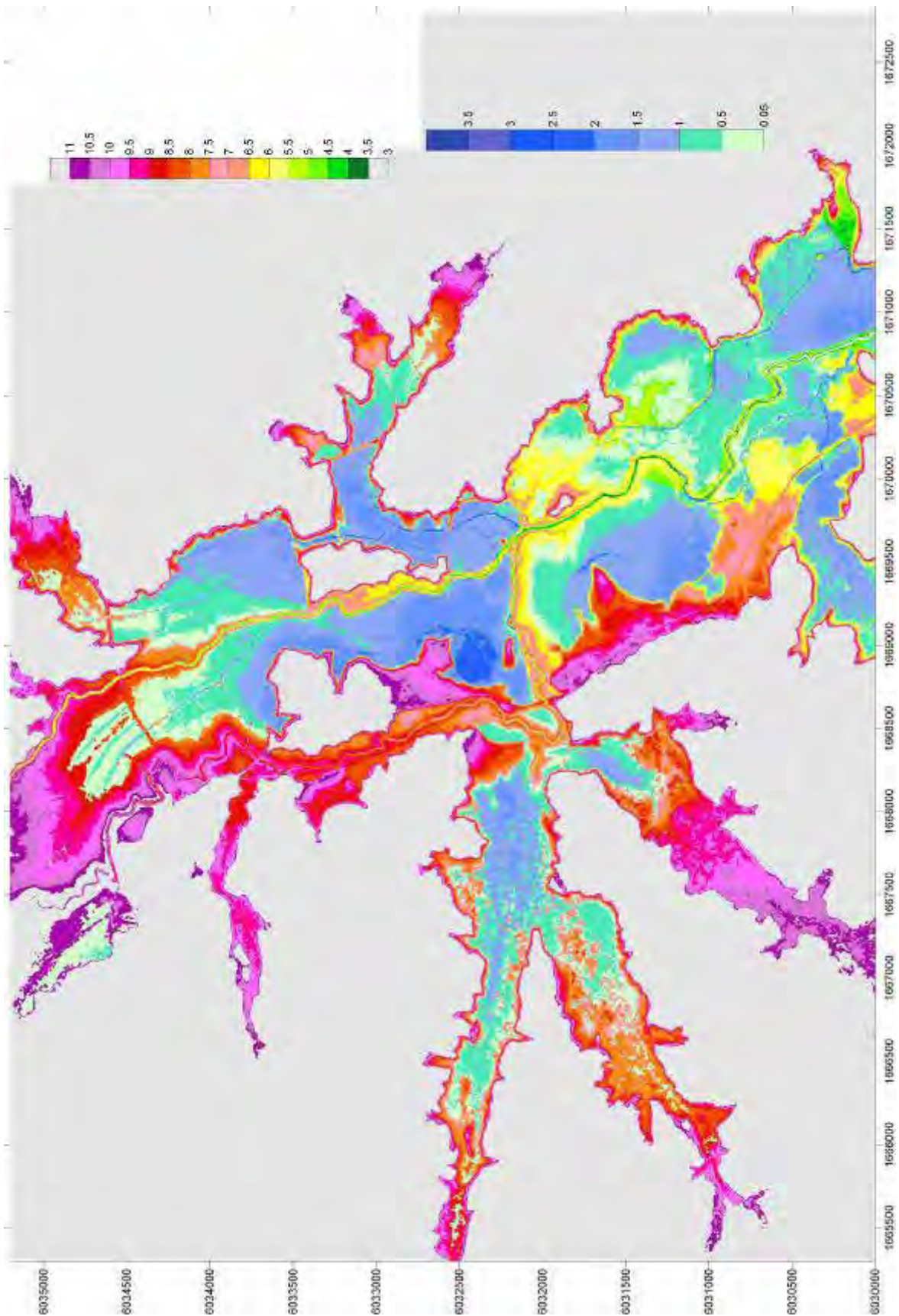


Figure 16: Maximum flood extent from Mamaranui to Waitukuhuru Stream (State Highway 12 dip) in 2 year ARI event (2ym3.jpg)



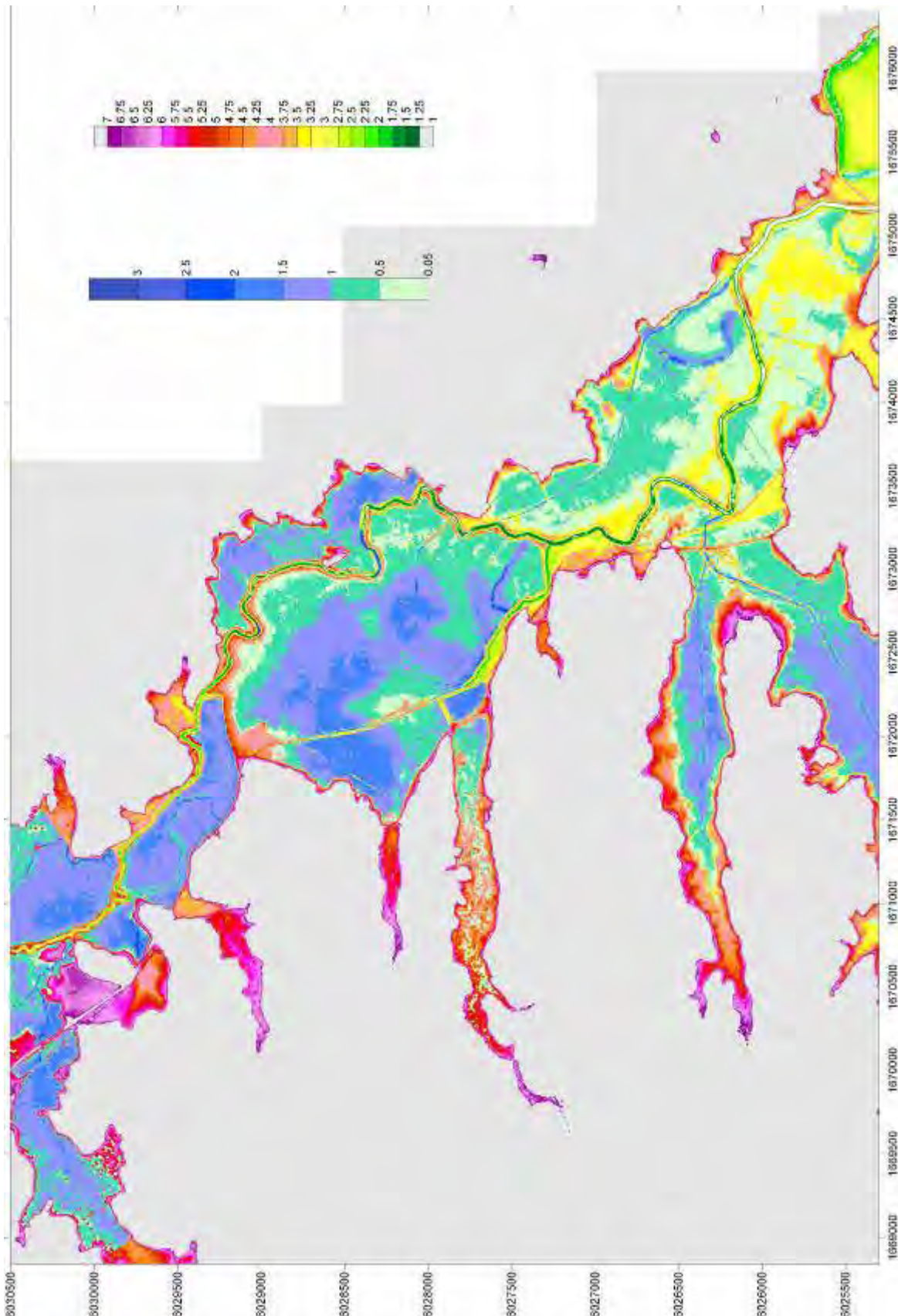


Figure 17: Maximum flood extent from Waitukuhuruhuru Stream (State Highway 12 dip) to Parore Road in 2 year ARI event (2ym2.jpg)





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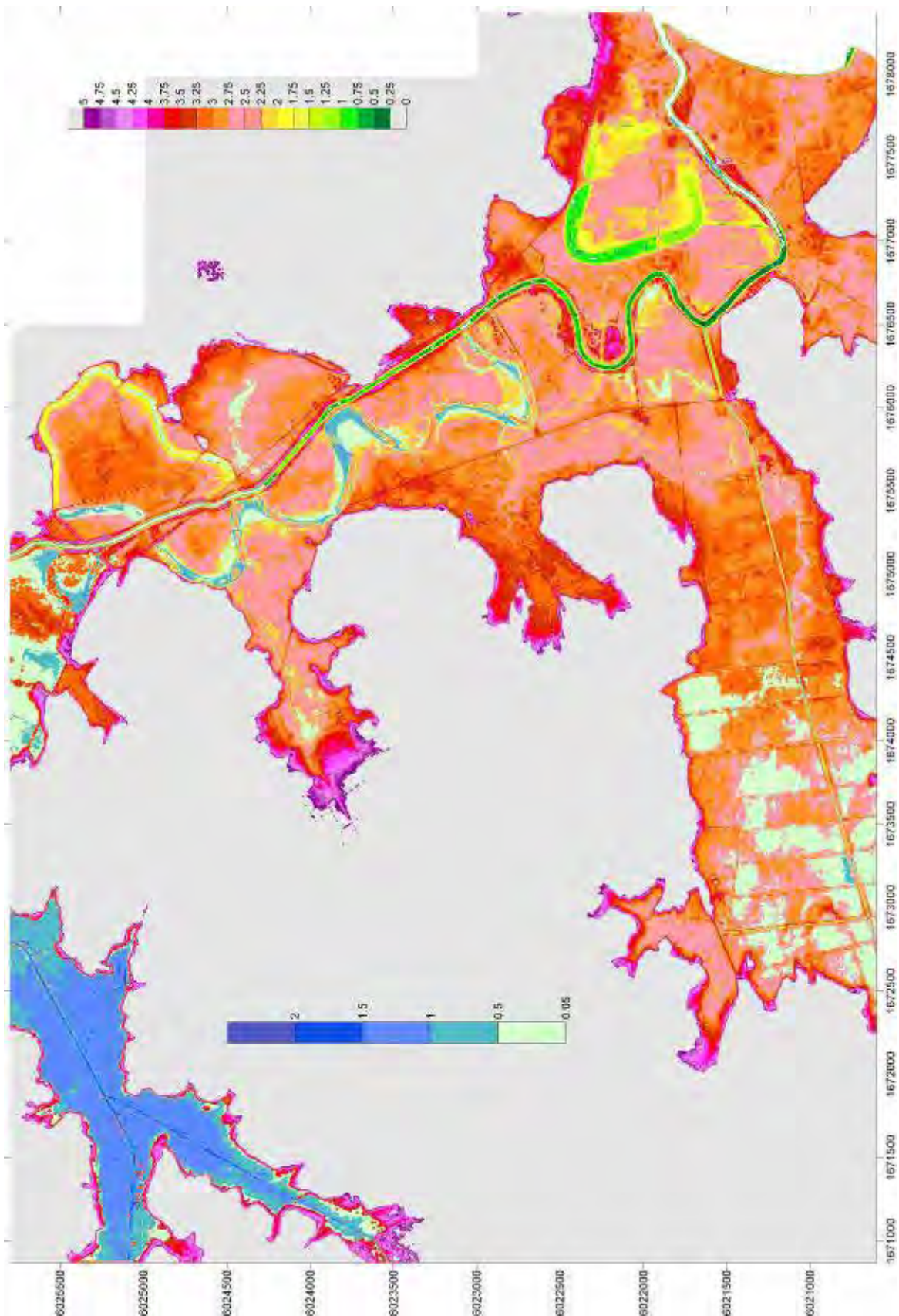


Figure 18: Maximum flood extent from Parore Road to Dargaville in 2 year ARI flood (2ym1.jpg)

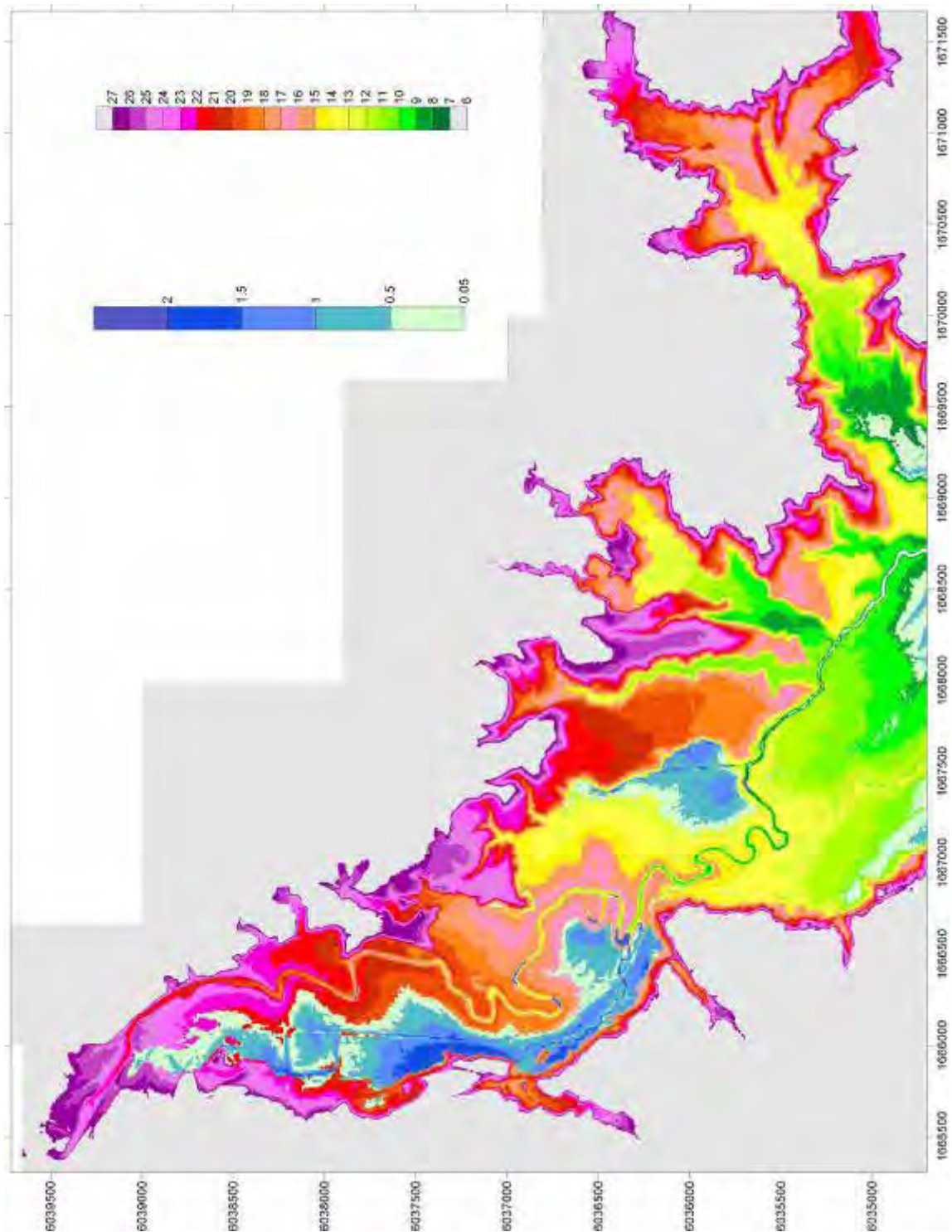


Figure 19: Maximum flood extent from Ahikiwi to Mamaranui in 5 year ARI flood (5ym4.jpg)





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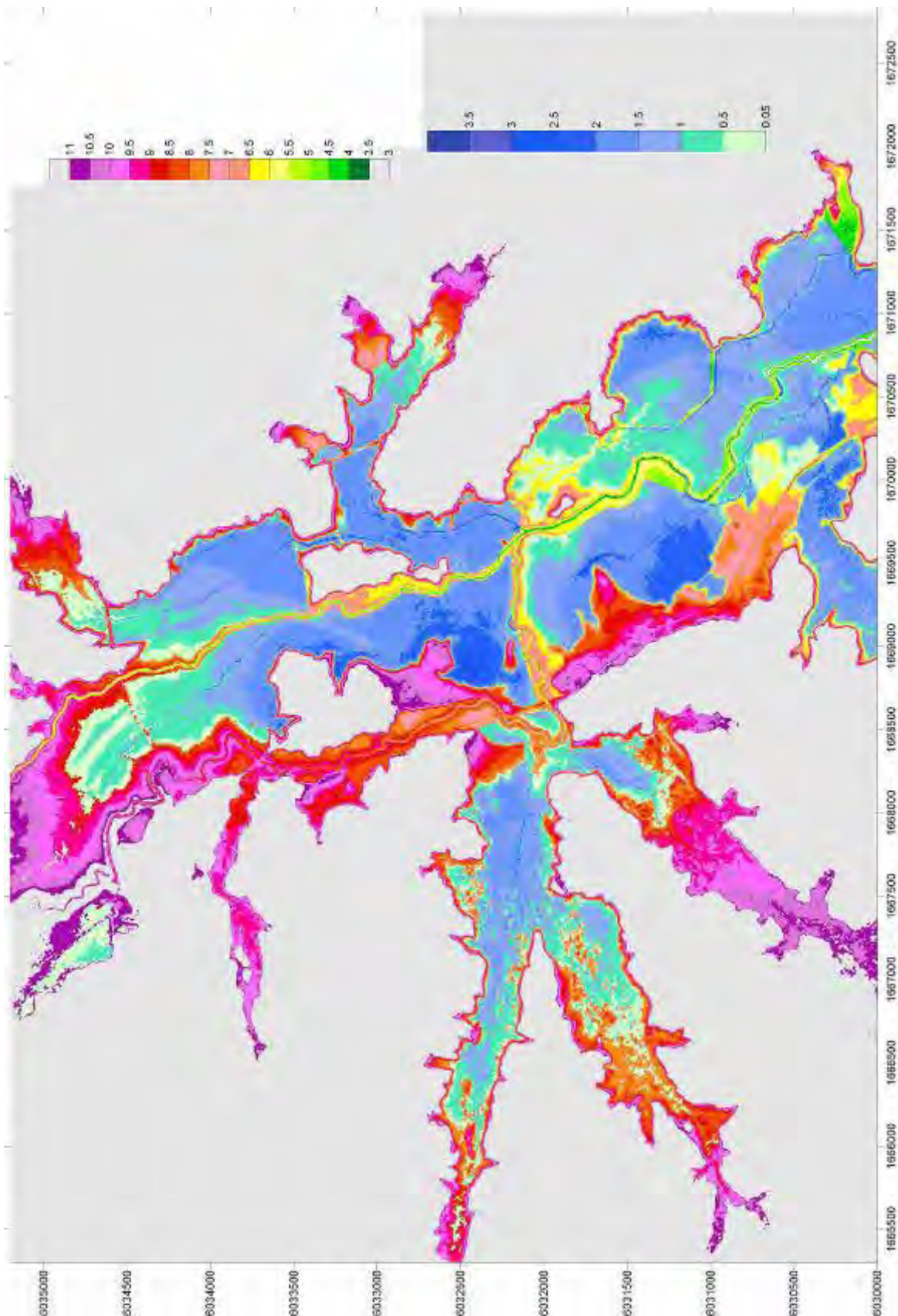


Figure 20: Maximum flood extent from Mamaranui to Waitukuhuruhuru Stream (State Highway 12 dip) in 5 year ARI event (5ym3.jpg)



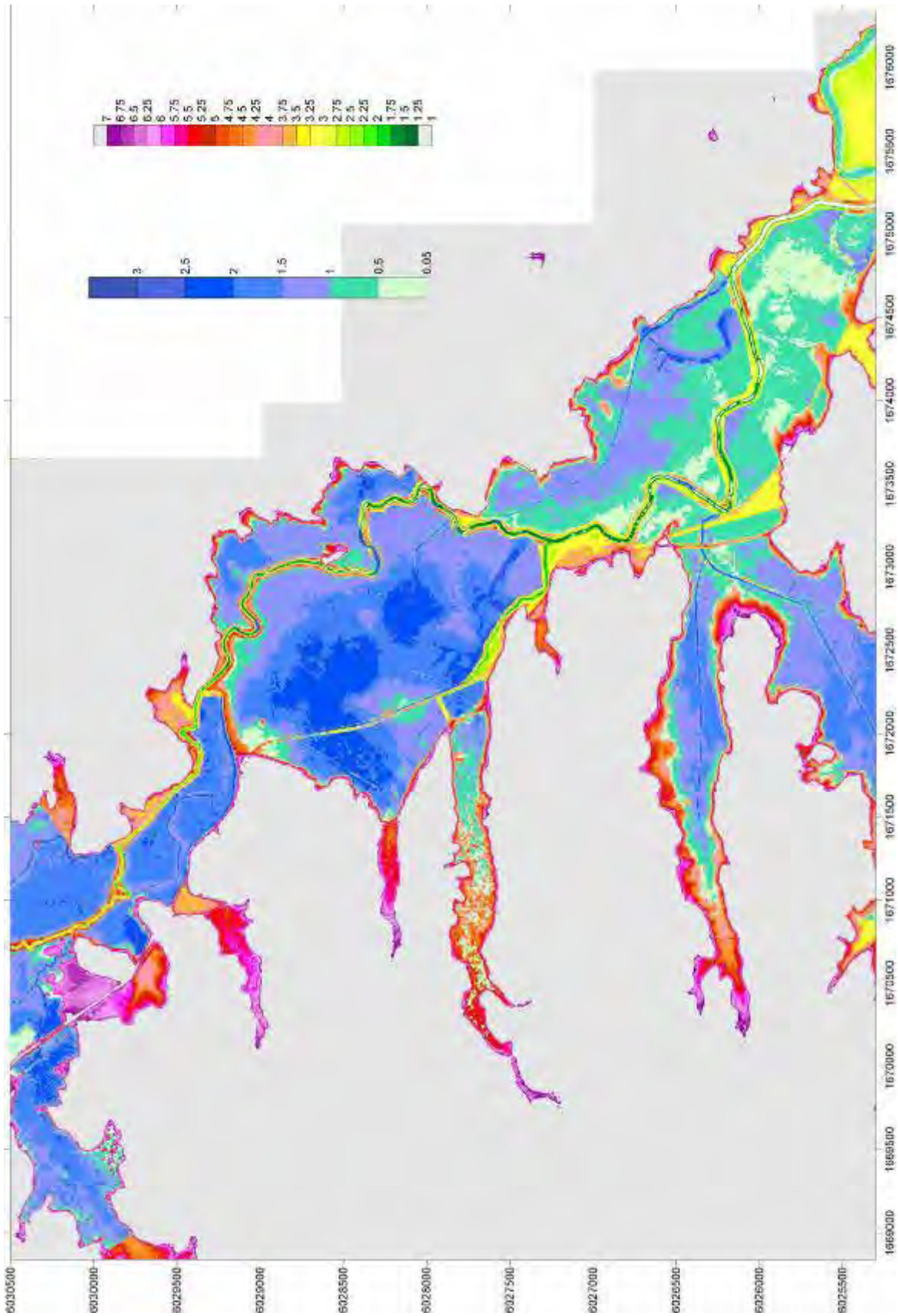


Figure 21: Maximum flood extent from Waitukuhuruhuru Stream (State Highway 12 dip) to Parore Road in 5 year ARI event (5ym2.jpg)



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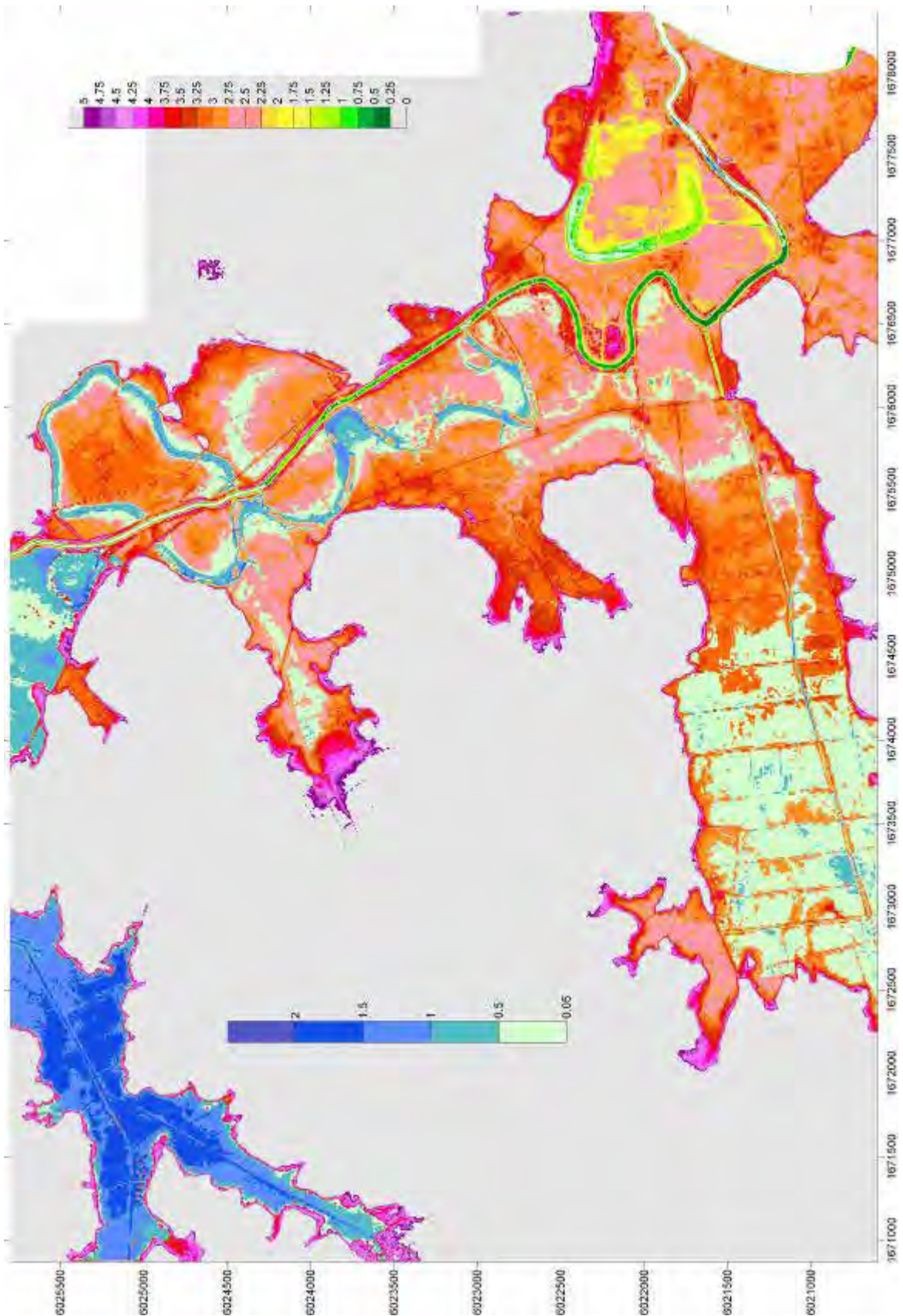


Figure 22: Maximum flood extent from Parore Road to Dargaville in 5year ARI flood (5ym1.jpg)