WAIKATO: AWET AUTUMN 2017

Record rainfalls and flows through March and April due to back to back weather events.

All sites – except Kaimai Summit for April – recorded greater than 100% of average rainfall for both March and April 2017.

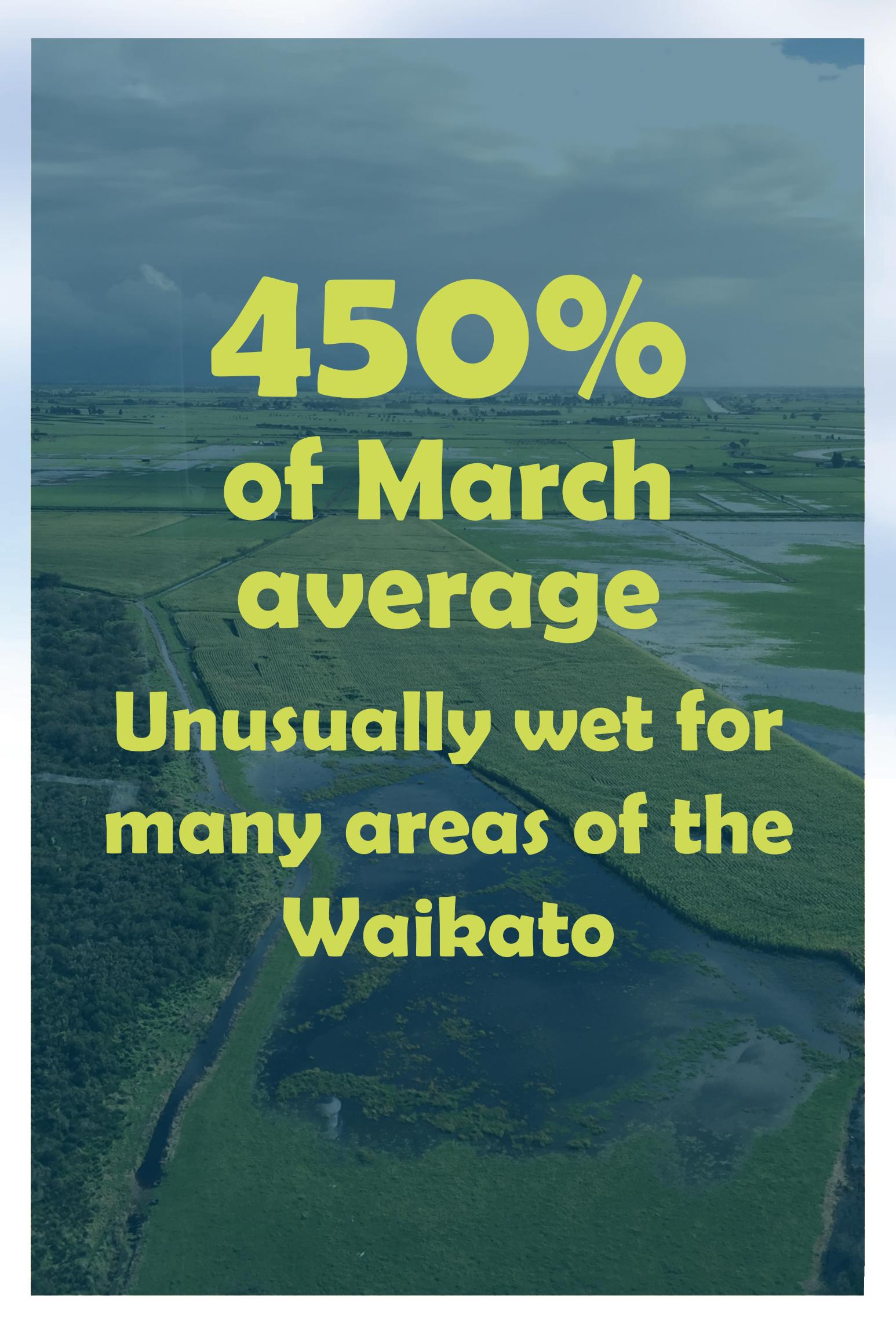
MARCH

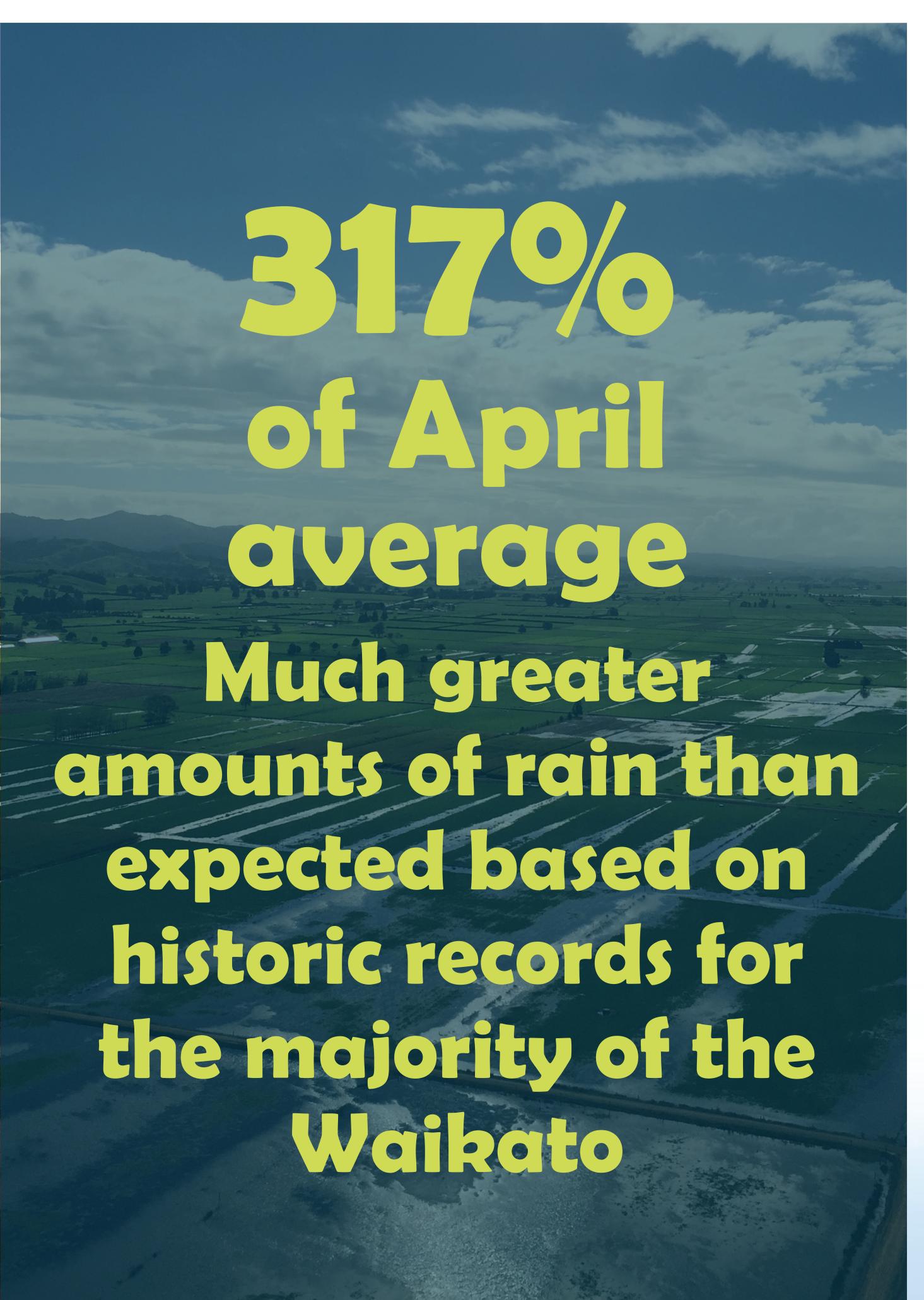
Heavy rainfall bands occurred in the region. The two most significant occurred overnight on 7/8 March and 10/11 March and were colloquially termed the 'Tasman Tempest'.

APRIL

Ex-Tropical Cyclone Debbie made landfall in New Zealand on 4 April. The non-frontal, low pressure system caused heavy rainfall across the Waikato region, but was relatively shortlived with heavy rainfall easing by the early hours of 6 April.

Ex-Tropical Cyclone Cook and another Tasman Low combined to produce 3½ days of heavy rainfall from 11-14 April.





UNDER THE PUMP

- 52 pump stations in the Waihou Plako flood schemes
- Pumps transfer water from drainage networks into rivers.
- During April, some pumps ran for 600+ hours well above normal for the time of year!

HOW MUCH RAIN FELL IN WAIHOU PIAKO?

PEAK RIVER FLOW	MAX. AEP (%)	2-1	
	MAX ARI (YEARS)	50-100	
	PLACE	Orere	
	FLOW CUMECS	189.9	
24 HOUR RAINFALL	MAX. AEP (%)	5-3	
	MAX ARI (YEARS)	20-30	
	PLACE	Maungakawa	
	RAIN (MM)	123.0	
	LITRES ON A 100M ² ROOF	12,300	

PEAK RIVER FLOW	MAX. AEP (%)	1	
	MAX ARI (YEARS)	100	
	PLACE	Okauia (Waihou)	Mellon Rd (Waitoa)
	FLOW CUMECS	329.6	139.3
24 HOUR RAINFALL	MAX. AEP (%)	5-3	
	MAX ARI (YEARS)	20-30	
	PLACE	Maukoro Landing	
	RAIN (MM)	141.9	
	LITRES ON A 100M ² ROOF	14,190	

WHAT'S AN ARI?

An annual recurrence interval is sometimes also known as 'return period'. It is the average number of years that it is predicted will pass before an event of a given magnitude occurs. For example, a 50 year ARI event would on average happen every 50 years.

WHAT'S AN AEP?

An annual exceedance probability (AEP) is the probability of an event occurring in any given year. i.e. A 1% AEP means there is a 1% chance in any given year of the event occurring. This means that on average 1 event of this size will occur every 100 years. Therefore, 1% AEP is equal to a 100 year ARI, a 2% AEP is a 50 year ARI, and a 10% AEP is a 10 year ARI.

Both ARI and AEP values are based on statistical calculations and represent the average timing of events. These may not be exact and although relatively unlikely, a number of 1% AEP or 100 year ARI events could occur within the same year.



PONDING ZONES: HOW THEY WORK

The Piako River is stopbanked along both sides to convey upper catchment floodwater to the sea and to contain floodwaters.

Within the upper reaches of the stopbank system, adjacent to the Kopuatai peat dome, there are historic ponding zones.

The ponding zones store floodwater and smooth peak flood levels through the lower reaches of the river.

THE FOUR STAGES OF PONDING

UNCONTROLLED PONDING

River water freely ponds on this area when channel flows cause a rise in water levels.

INITIAL PONDING ZONE

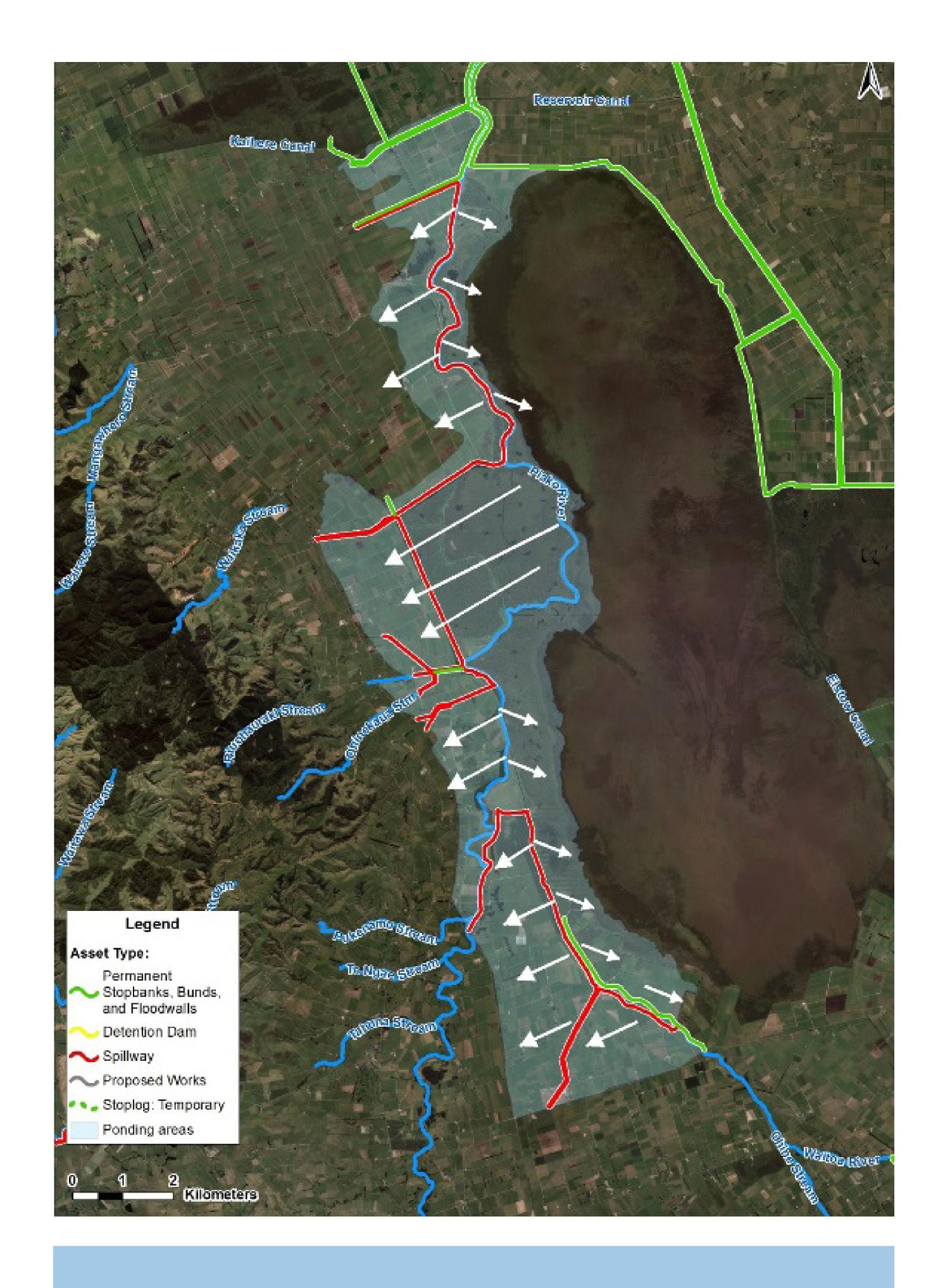
As the river continues to rise these areas will pond next.

FIRST EMERGENCY PONDING ZONE

When the Piako River is in flood and approaching the 10% (10 year) flow the first emergency ponding zone stopbanks overtop and floodwater accumulates within this zone.

SECOND EMERGENCY PONDING ZONE

When the Piako River is in flood and approaching the 5% (20 year) flow, the second emergency ponding zone stopbanks overtop and water accumulates within this zone.



PIAKO SCHEME UNDER THE MICROSCOPE

The hydraulic design of the Piako flood scheme is reviewed to make sure it's still doing what it was designed to do. The review takes two years.



Scheme reviewed every 10 years



Scheme review takes 2 years



27 rivers and tributaries surveyed



For more information call 0800 800 401

Review to be completed by December 2017



WHAT NIWA IS PREDICTING Normal or below normal winter rainfall levels predict Even with relatively moderate rainfall events, the current catchments means affected areas are at risk from further

Normal or below normal winter rainfall levels predicted for winter 2017.

Even with relatively moderate rainfall events, the current elevated river levels and saturated catchments means affected areas are at risk from further high flows and flooding issues.