

Why the Pond Overflows

Onepoto is a volcanic crater formed around 30,000 years ago and filled with silt from the estuary. It is similar to Tuff crater which is to the north, the other side of Exmouth Road. It was a mangrove swamp at the estuary end, like Tuff crater is, and wetlands at the other. The high tide would cover most of the surface.

When the Harbour Bridge was being built in the 1950s a dyke was made across the mouth of the crater that is Tarahangai Street and this stopped the tide coming into the crater. An outlet with flap valves allowed outflow of rainwater at low tide.

Some additional fill, silt from dredgings and foundation work on the bridge, was added to the floor of the crater but it remains below high tide level. The ponds are the stormwater control for the domain, the normal level of these is 2.2 metres relative to tide reference where the high tide in Auckland may go as high as 3.6 metres.

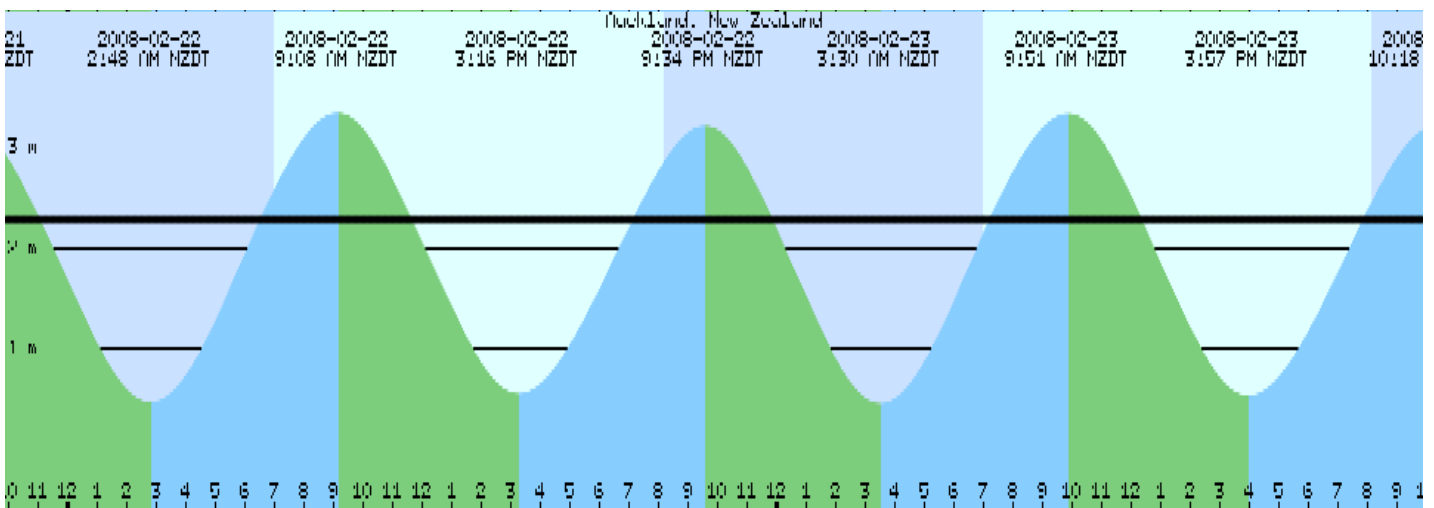
This means that a high tide can be up to 1.4 metres above the pond level. The flap valves stop the tide from flowing into the pond and the domain, but this closure also stops rainfall from flowing out when the tide is above the 2.2 metre level. Importantly this can close the flap valves for 5 hours each tide.

The catchment area of the crater is around 40 hectares. All the rainfall, after the ground has soaked up all it can take, within the rim, roughly marked by old Lake Road, Exmouth Road and Sylvan Avenue, flows into the domain and eventually into the pond. As the ponds are less than 2 hectares in total every 10 millimetre of rainfall could result in the rising of the pond level by 200 millimetres.



October 2007 - a wet spring

This additional water will flow out over the weir gates and into the estuary whenever the tide level is lower than the 2.2 metre pond level. But for the several hours that the tide is higher the rain will accumulate. With just 50 mm of rain during this time the pond could flood with an additional one metre of water. The one metre mark is approximately the top of the picnic table that we use for the course board.



Auckland tides showing pond level at 2.2 metres above reference.