

# PONDS

**STABILISED CLAY LINERS FOR WATER STORAGE OR CONTAINING EFFLUENT ARE A LONG LASTING AND COST EFFECTIVE SOLUTION USING FIRMA MENT ORGANIC STABILISER.**

When Victoria Lake in Hagley Park, Christchurch developed major cracks and water drained following the 2011 earthquakes, FirmaMent was selected by the City Council to provide a permanent solution to sealing the lake. The success of Victoria Lake has led to a growing number of effluent ponds being built or re-built with FirmaMent (FM).

With the new dam regulations coming into force on 1st July 2015, leakage from irrigation dams is not an option as it shows weakness in construction and a possible danger. A notice to fix may be issued. Each pond will be registered and classified according to potential impact. The biggest cost of building a pond may be having to dredge and re line it in 5, 10 or 20 years time due to leaks or poor design when a permanent solution such as FM is not used.

A FirmaMent stabilised clay liner should last for 50 years or more while the life of synthetic liners may be measured in years if damaged by flow action or torn by vermin or damaged while scraping out effluent and sludge.

A FirmaMent stabilised clay liner should withstand most earthquakes. There is a great deal of self sealing ability. If there is damage it can be repaired by mixing more treated material outside the pond and applying it to the damaged area.

FirmaMent effluent and reservoir ponds can be built deeper thus reducing the amount of land used and surface evaporation. More depth means more weight of water on the stabilised clay liner equalling more density and sealing.

Laboratory testing has shown FirmaMent treated soils exceed NZ permeability standards for pond liners. It can also be used as a base for standoff or foundation pads or in water races or in conjunction with synthetic liners to provide extra impermeability.



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