

# Landfill Capping

All in One Capping, Pozidrain SK[L], Waiouru, New Zealand



CASE STUDY



## Project Description

Waiouru (Māori for 'River of the West') is a central town on the North Island of New Zealand. The town enjoys spectacular views of the eastern slopes of Mount Ruapehu 25 km to the north west and has been an army training base for mountainous and alpine desert conditions since World War II. The base has a landfill site that is being decommissioned and local specialist design consultants Tonkin & Taylor Ltd reached out to ABG to assist with the capping design.

## The Challenge

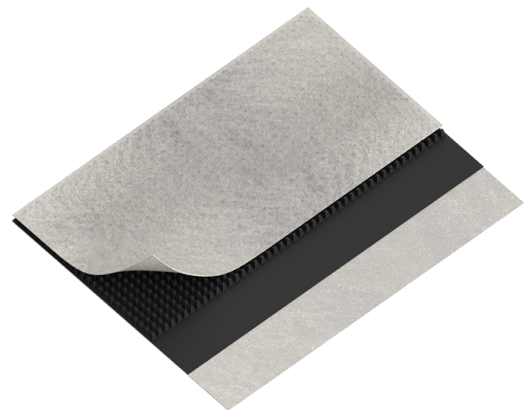
A traditional capping method would consist of a 600mm thick compacted clay liner. The large volumes of low permeability clay soil that would require quarrying and transporting to site incurs a heavy carbon footprint, with no local source available due to the geology of the area. The clay option would also require additional environmental approvals for opening the clay borrow area and would be prone to desiccation cracking that can lead to uncontrolled infiltration of water and leachate generation from the landfill. A more environmentally sympathetic option was sought by the client to meet the sustainable land management strategy in this unique ecological region.

## The Solution

The **Pozidrain 7SK250D/NW8 [L, UVAO]** cusped geocomposite, with almost 100% impermeable properties, was recommended as the best option for the capping layer, with the addition of UVAO protecting against oxidation degradation. The Pozidrain all in one drainage and capping barrier comprises a HDPE cusped drainage core with an 80mm extended flat selvedge for overlapping.

## Project Information

<b>Client</b>	New Zealand Defence Force
<b>Consultant</b>	Tonkin & Taylor Ltd
<b>Product</b>	Pozidrain 7SK250D/NW8 [L, UVAO]
<b>Quantity</b>	16,100m <sup>2</sup>
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Cost saving as a result of not importing compacted clay capping layer</li><li>• Multi directional water flow</li><li>• Estimated 50% carbon saving system</li><li>• All in one drainage and infiltration barrier with high flow capacity impermeable cusped core</li><li>• Large rolls for rapid installation</li></ul>



Pozidrain SK[L]

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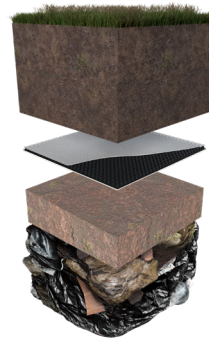
The additional overlap provides a near impermeable joint between panels when loaded with cover soil, with only a controlled amount of water ingress permitted that aids decomposition of the waste. Geotextiles are bonded on both sides, one underneath for shear friction and protection functions (with selvedge for jointing) and one on top for filtration. The assistance of a specialist local landfill engineering consultant that understood the performance capabilities of the product compared to the alternative methods, as well as the optimal timing for the installation, made this project possible.

## The ABG Service

Carbon saving calculations were submitted along with the drainage calculations, and compared to transportation of 600mm of clay borrow from 30km away to cap the 12,800m<sup>2</sup> landfill area, the combined ABG drainage and infiltration barrier system is estimated to deliver a 50% carbon footprint saving. At just 7.4mm thick the **Pozidrain 7SK250D/NW8 [L]** is around 1,500 times lighter than the mineral layer alternative and required just 3 deliveries compared to the 921 that would be required to deliver the clay material.

Application	ABG System	Traditional Method	Carbon Saving
Infiltration Barrier & Drainage Layer	<b>Pozidrain 6SK500D/NW8 [L]</b> <ul style="list-style-type: none"><li>Provides drainage and acts as a lining system</li><li>Light-weight</li><li>Quick installation</li><li>Comprises HDPE and PP materials</li></ul>	<b>Compacted Clay Liner (CCL)</b> <ul style="list-style-type: none"><li>Imported clay</li><li>Compacted on site</li></ul>	<b>50%</b>  Saves <b>3kg CO<sub>2</sub>e/m<sup>2</sup></b>

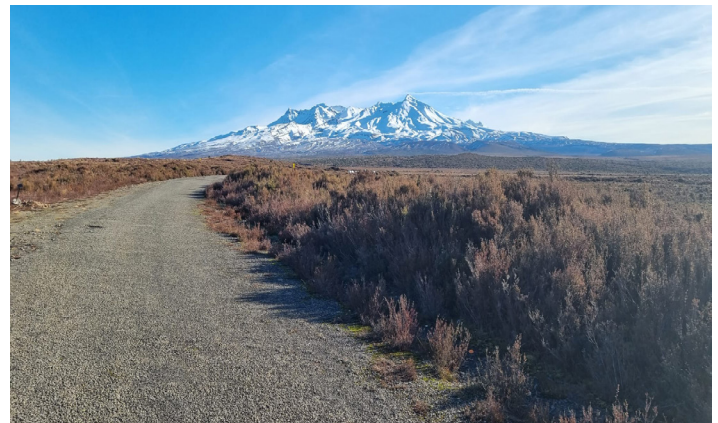
## Carbon footprint reduction solution at Waiouru landfill



## Pozidrain landfill capping application



Wide format rolls enabling fast installation rates



View of the active Mt Ruapehu volcano in the distance

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