Teretek® Fills Voids and Re-stabilises the Soil Under a Paraparaumu Beach Home

PROJECT PROFILE
Z18W030

mainmark

INDUSTRY
Residential

STRUCTURE
Single-storey brick veneer house

PROBLEM
Voids and subsidence

LOCATION
Paraparaumu Beach, New Zealand

DURATION / YEAR
1 day / 2017

TECHNOLOGY
Teretek®

BUSINESS UNIT
Mainmark New Zealand

Summary

A large family home in Paraparaumu Beach, near Wellington, was experiencing significant subsidence due to suspected voids beneath the concrete slab. The single-storey, brick veneer house, built in 1989, showed signs of damage that included numerous internal cracks and misalignment of doors and windows.

After the major earthquake in Christchurch and Wellington in 2011, the homeowner noticed cracks appearing around door frames and plaster detaching from the frames. Cracks were also starting to show along the ceiling joint of the passageway, running approximately 15m in length. After renovations, the homeowner discovered a 15mm crack in the concrete floor that started in one bathroom and extended across the house into another bathroom.

Being a coastal suburb, Paraparaumu Beach features weak ground with sandy silt, contaminated by peat. The unstable soil had caused the home to subside by as much as 88mm and the walls to settle by up to 60mm across the entire home.

The damage was significant. Voids under the slab were estimated to be 150mm deep. The homeowner had initially tried to fix the issue by jacking the perimeter foundation and inserting concrete piles. This caused additional dishing in the centre of the slab floor which needed to be fixed to avoid further settlement.

Objectives

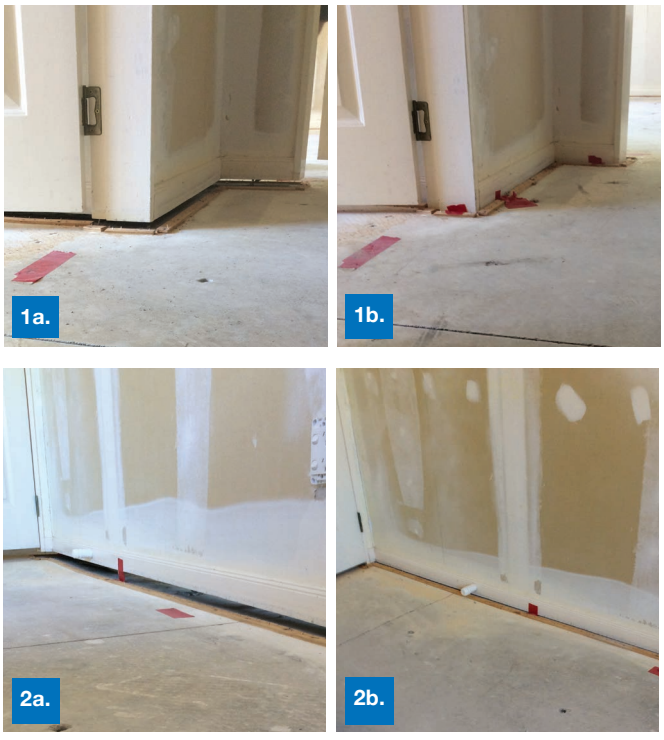
The customer contracted Mainmark to fill the voids under the concrete, raise the slab floor and strengthen the underlying ground, all with minimal disruption to the home's occupants.

Mainmark was also required to correct the deep dishing that had occurred due to subsidence underneath the home.

Solution

Mainmark used its proprietary engineered resin injection solution, Teretek®, which provides a two-in-one benefit. As well as filling voids and strengthening foundation ground, Teretek also lifts and re-supports load bearing structures.

As a fast-acting, cost-effective solution, Teretek has no detrimental effects on the environment and offers an alternative to the more invasive, traditional underpinning techniques which can damage the home's concrete slab. By using a precise application method likened to key-hole surgery, the ground under the slab was treated via injection points as narrow as 16mm and the homeowner was able to remain in the property throughout the entire process.



1a, 2a: Before and 1b, 2b: After Teretek® engineered resin being injected

The home now sits on solid ground, the cracks have closed and the doors and windows have come back into alignment. The homeowner was amazed to see how the slab came up to meet the bottom plate of the walls when the resin was injected.

According to Julian Chapman, homeowner, *"We were really impressed with Mainmark. They provided us with plans and quotes quickly and were happy to work with our builder. The technicians who did the injection were friendly and professional, keeping us fully informed throughout the process. The job was completed in a single day and the team left the site clean and tidy.*

We have a lot of confidence knowing our house is now in one piece and sitting on solid ground. We feel like we have our house back!"