

Operational petrol station re-levelled with Uretex®

INDUSTRY

Industrial

STRUCTURE

Service Station

PROBLEM

Ground Subsidence

LOCATION

Auckland, New Zealand

DURATION / YEAR

3 hours, May 2016

TECHNOLOGY

Uretex®

BUSINESS UNIT

Mainmark New Zealand

1. Gull service station
2. Drain sump sunk along with fill around leaving voids beneath the slab
3. Slab after injection



Summary

A Gull service station in Auckland had experienced significant ground subsidence, putting safety at risk.

A site inspection found voids of up to 100mm beneath the forecourt, indicating it had lost integral structural support. The sunken forecourt was at risk of collapse under the weight of regular deliveries from 50 tonne petrol tankers, which could have catastrophic consequences.

Mainmark successfully re-levelled and re-supported the forecourt in just three hours and with minimal disruption, allowing the service station to continue operations safely.

Objectives

Mainmark was appointed to bring the forecourt back to level by filling the voids and re-supporting it.

Given the risks of undertaking work in close proximity to highly flammable materials, the process had to be carefully controlled with no sudden disruptions to the ground condition. Hot work permits were required and strict safety criteria enforced.

Works were to be completed around 24/7 operations of the service station and on-site convenience store which experience heavy pedestrian and vehicular

traffic. The project also had to be completed outside petrol tanker delivery dates and times.

Solution

Mainmark used its patented structural resin injection technology, Uretex®, to fill the voids and re-support the existing slab.

Small holes were drilled into the ground below the slab and the expanding structural resins were injected. On entering the ground, the components mixed together and expanded by chemical reaction to fill voids and cavities in the soil to form a strong base.

The process was carefully supervised using laser-monitors for a controlled lift. Mainmark successfully and gradually delivered lifts of 1-3mm to re-level the forecourt.

As the Uretex® injection method does not require excavation, works were completed with minimal disruption to normal operations and in just three hours. Only one petrol pump was closed and other operations continued as normal, making Uretex® a cost-effective method for this busy service station.

"This is the second time I've worked with Mainmark and once again, it was a pleasure. The project was completed quickly, cost-effectively and without incident," said Michael Brown, the owner of the service station.