

Teretek® Resin Injection Used to Underpin Subsiding London Property

PROJECT PROFILE

2017-52UK

mainmark



INDUSTRY

Residential

STRUCTURE

House

PROBLEM

Void fill and ground improvement

LOCATION

London, England

DURATION / YEAR

2 days / February 2018

TECHNOLOGY

Teretek®

BUSINESS UNIT

Mainmark UK

Summary

Excavation work to lay new drainage pipes at a London residential property had been inadequately back-filled, resulting in a void and poor ground stability. This caused the corner of an extension at the rear of the property to subside.

Mainmark's Teretek®, state-of-the-art engineered resin injection system for increasing ground bearing capacity, was used to fill the void and improve the ground at the site. The site had limited access, restricting the use of large-scale equipment.

The Teretek resin was applied with technological precision in a regular injection grid pattern to allow full coverage of the site.

Mainmark's Teretek resin injection solution successfully remediated the ground, re-supporting the home above. It is the only solution available that would allow remediation to be completed around the existing pipework, with equipment that could be used in a tight-access location.

The work was completed in two days, at a fraction of the cost of traditional underpinning and ground engineering methods.

Objectives

The objectives of the project were to remediate the ground and fill voids, while working around the existing pipework, to underpin and provide adequate support to the extension of the house that was experiencing subsidence.

The project solution had to be suitable for a restricted access site, and able to be completed quickly and cost-effectively, with the existing pipework left intact.

Teretek® Resin Injection Used to Underpin Subsiding London Property continued

Solution

Teretek resins were injected between 1m and 4m below ground level, to fill the void which extended 1.8m long by 200mm deep, in a regular injection grid at constant centres of 50cm. This process enabled full coverage of material across the site footprint. Laser receivers positioned at every injection point, ensured the injection continued until a designed volume of material was delivered.

When the Teretek expanding polyurethane resin is injected into the ground, the components mix together and expand by chemical reaction, which strengthens the ground and also re-levels the above-ground buildings quickly, with minimal disruption.



Mainmark Technician injecting Teretek® engineered resin, using a laser level and receivers to monitor the accuracy of the house lift

Teretek is a non-invasive ground improvement solution, likened to key-hole surgery, backed up by a 20-year product warranty. It increases ground bearing capacity, fills voids, and can mitigate soil liquefaction, all at a fraction of the cost of traditional underpinning and ground engineering methods, and with no detrimental effects on the environment.

The ground improvement at the site was validated by a series of pre- and post-injection dynamic probing tests using a Dynamic Penetrometer system. Trained technicians established the average ground improvement delivered in the treatment zone by comparing pre-probing values to the post-probing values. The testing tool is a small, lightweight piece of equipment that can be used on sites that are inaccessible to other larger machinery.

CCTV was used to carry out before and after pipe surveys to check the integrity of the existing drainage pipes and confirmed they were undamaged.

The work was completed in 2 days. The client was pleased with the outcome, as well as the efficiency of the project delivery and its cost effectiveness.

The homeowner commented, *“I would like to thank you and your team for your very hard work last week, in the most atrocious weather conditions, to get the job done.”*