

Water Damaged Holy Trinity Church Re-levelled with JOG



INDUSTRY

Heritage

STRUCTURE

Church

PROBLEM

Subsidence

LOCATION

Woking, England

DURATION / YEAR

2 days / September 2018

TECHNOLOGY

JOG Computer-
Controlled Grouting

BUSINESS UNIT

Mainmark UK

Summary

Public and historic buildings like churches, halls and castles can often suffer from foundation ground settlement or instability. This can be due to alterations in groundwater flow as was the case for Holy Trinity church in Woking, Surrey.

The Anglican Church's annex had subsided by up to 26mm causing it to separate from the main building, with internal and external cracking appearing. Prior to any cosmetic works taking place essential ground repairs were urgently required.

The substratum was noted to be silty sands that had washed away, leaving the shallow foundation exposed to subsidence. Traditional underpinning was the suggested remedy method, but the client sourced a viable non-invasive alternative to avoid excessive intrusion to the grounds.

Objectives

When subsidence occurs to public buildings, preservation, rather than rebuilding is a priority, and it is extremely important that the remedial work is done with minimal intrusion. The main objective was to treat the ground, re-level the annex and achieve crack closure with minimal disruption to the surrounding grounds. Given the silty sand subgrade it was important to find a solution which could not only bind the sand, but also generate the required lift.

Safety was also a key concern and a primary reason why Tom Moss, the church warden from Holy Trinity Church, selected the Mainmark solution as it meant no site operatives had to work in trenches below the surface of the ground.

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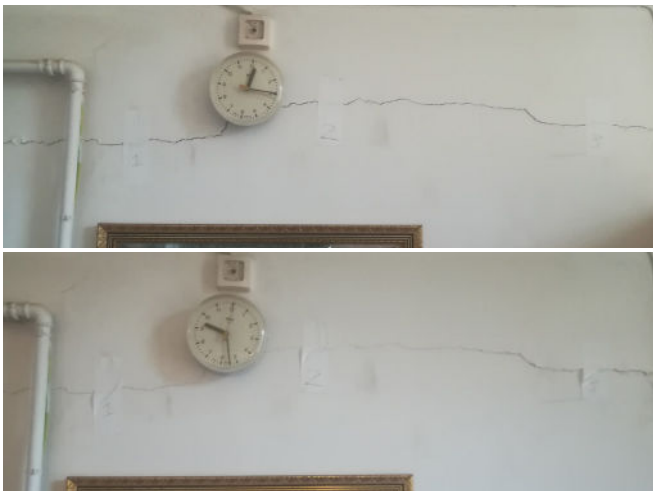
Additionally, due to the adjoining graveyard, the Mainmark team were unable to place the equipment adjacent to the work area, instead situating it over 30 metres from the injection points.

Solution

Mainmark's non-invasive, cost effective and time efficient JOG Computer-Controlled Grouting technology (JOG) can raise and re-support public and historic buildings of any size. Not only does it allow for a more controlled and precise lifting, which is imperative for delicate buildings, but crucially for this project, the grout material was located away from the injection area and was delivered to the injection points via a sequence of hoses. This meant the speed, precision and ease of the work being carried out was not affected.

The restoration of the church's annex was an outstanding success, as both internal and external cracks were closed up on the exterior wall. A total of 5 injection points were used to lift the structure at its lowest point by 26mm, closing the cracks and improving ground conditions. Unlike traditional methods like excavating, concrete underpinning or rebuilding, the award-winning grouting technology meant works were completed within a two-day period and ensured the church and adjoining graveyard remained perfectly intact.

Tom Moss commented: *"The site operatives were not working in trenches meaning that safety was assured and I was able to observe directly the effectiveness of the work in real time as the cracks could be seen to diminish. The work carried out by the Mainmark team created very pleasing results that exceeded my expectation. Not only was the work up to a high level of standard, they practiced good site safety and care of the public – well done!"*



Before/after remediation with JOG Computer-Controlled Grouting