CATHOLIC APOSTLE CHURCH

Maida Vale, London, UK

Keller was appointed to stablise the foundations of the Catholic Apostle Church in Maida Vale, London, a Grade I listed building suffering from progressive settlement and structural cracking.

The project

The scope of works included the installation of 72 mini piles – comprising 60 Pali Radice (root) piles and 12 load-bearing mini piles – strategically positioned to support the twin towers and western end of the church. These piles were designed to transfer structural loads into competent London Clay strata, enhancing the performance of the existing foundations. The design was developed in close collaboration with Campbell Reith, with early engagement enabling a tailored solution that respected the building's architectural and heritage constraints.

The challenge

The underpinning works were complicated by restricted access, with internal headroom limited to 2.3-2.7 metres, and the presence of sensitive finishes and historic masonry. Ground investigations revealed a profile of Made Ground overlying desiccated London Clay, with groundwater strikes and aggressive soil chemistry contributing to foundation instability. Previous remedial works had failed to arrest movement and the presence of buried obstructions and legacy construction elements added further complexity. Keller's solution had to accommodate these constraints while ensuring minimal disruption to the structure and surrounding environment.

Project information

Application
Heritage Building Underpinning

Technique
Restricted access piling Pali Radice (root piles)

Sector
Heritage building (religious)

Client
Paddington Church Trust

Main contractor
Realtime Civil Engineering Ltd

Contract value
£360,000

Keller companies
Keller Geotechnique

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The solution

Keller deployed the Pali Radice system, a precision mini piling technique originally developed by Dr Fernando Lizzi and ideal for heritage-sensitive underpinning. The piles were rotary bored through existing foundations using temporary casings and high-strength grout, forming a permanent bond with the structure and surrounding soil. Reinforcement included GEWI bars and CHS sections designed to resist axial, lateral and bending loads. The grout's density and fluidity ensured excellent performance in waterlogged and chemically aggressive soils, while the system's low-vibration, compact rig setup allowed installation within confined spaces. The result was a technically robust, minimally invasive solution that restored structural stability and extended the life of the church's foundations.

Quote

A Project Manager from Realtime Civil Engineering said: "A great achievement completing the piling works at the church ahead of programme, considering the environment we all had to work in. The importance of maintaining outputs while working in a Grade I building without causing any damage is a huge credit to how you guys undertake and deliver your works."

Key achievements

Heritage-sensitive engineering excellence
Successfully designed and installed Pali Radice piles to stabalise a Grade I listed church, preserving architectural integrity while mitigating settlement to under 10mm.

Advanced Geotechnical and structural integration
Delivered a robust composite pile system, validated through rigorous checks, ensuring compliance with Eurocodes and BRE guidance.

Collaborative design and risk mitigation
Early engagement, enabling tailored solutions that addressed complex site constraints, including restricted access, desiccated clay and aggressive ground chemistry.

Contact us

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