

# Retaining Wall Virginia House

## CLIENT

Private

## INSTALLER

Site7

## Requirement

Virginia House in Powick, Worcestershire, bounded by a listed retaining wall running alongside a public highway. Over time the wall began to lean beyond safe limits, and the risk was underlined when a similar retaining wall on a neighbouring property collapsed following a period of heavy rainfall. In response, the council put a temporary footpath closure in place for safety and instructed the homeowner to resolve the defect. Because the wall forms part of a listed structure, demolition and reconstruction were not an option, so the brief was to stabilise it in situ, preserving its historic fabric and appearance, while working within the tight confines of a wall directly bordering a live highway with very little room to manoeuvre.

## Testing

Ground conditions at the site were assessed as medium dense to dense, and we used this profile to design a tied-back anchoring scheme capable of restoring the wall to a safe factor of stability, setting a design proof load of 36kN and a lock-off load of 20kN per anchor. Every anchor was taken to its 36kN proof load and held to confirm the ground was mobilising the required resistance, before being locked off at the 20kN working load.

All 22 anchors achieved their design capacity first time, with no signs of excessive movement or distress in the surrounding masonry during testing. This anchor-by-anchor verification gave Tellus Design and the council the assurance needed to sign off the scheme and lift the temporary footpath closure, confirming the wall had been returned to a safe, stable condition without disturbing its historic fabric.

## Solution

Anchor Systems specified 22 No. AS-50 Vulcan Earth Anchors, each formed from a 4m long, 16mm threaded tendon fitted with a 400mm recessed pattress plate. Recessing the plate kept the anchor heads flush with the wall face, protecting the listed structure's appearance while still providing a secure, load-bearing fixing. With only limited working space between the wall and the adjacent highway, mechanical plant could not be brought in, so installer Site7 hand-installed every anchor, completing the full 22-anchor scheme within 10 days.

Each anchor was proof loaded to 36kN and locked off at 20kN, with all anchors achieving their required design loads on test. The wall is now stabilised to the necessary safety margin, the temporary footpath closure has been lifted, and the listed structure remains unaltered – a discreet, minimally invasive solution that met both the engineering requirement and the constraints of working on a heritage asset.

