



CASE STUDY

J Reddington Ltd at Vincent Square

The Problem

In early 2005, J Reddington Ltd were beginning work on a reinforced concrete frame for Fairpoint Properties' latest project, a development of 50 luxury apartments in Vincent Square, Westminster. Reddington's biggest concerns on the project were holding up, and not causing any damage to, the fragile listed buildings adjacent to it, as well as the earth wall below the live road behind, while excavating two storeys down to provide car parking for the future residents.



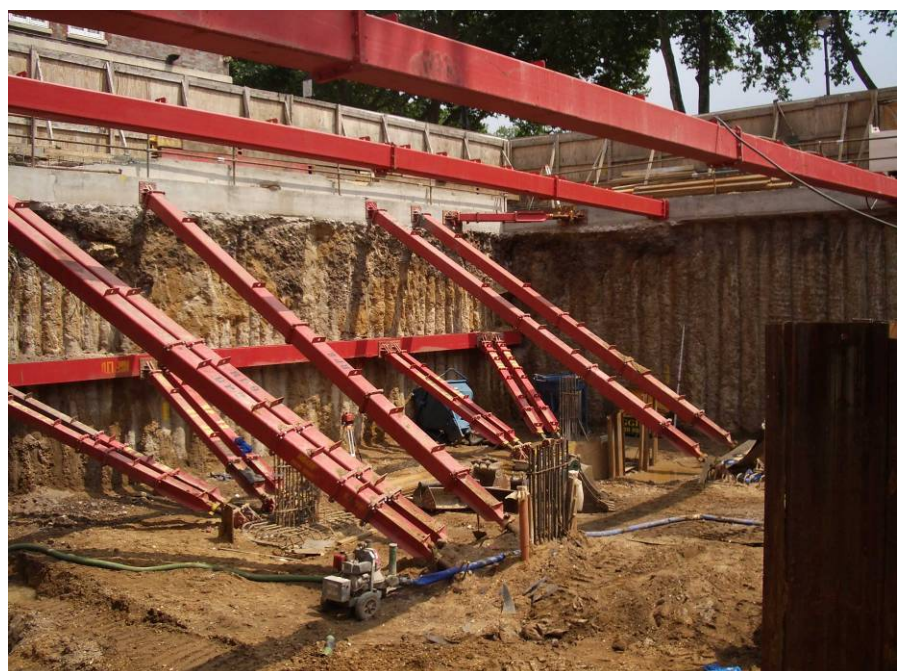
The basement area was between 23m and 30m wide, by around 74m long, and in places it had a depth of 6-8m, creating a total void of almost 15,000cu m. A contiguous piled wall was installed around the perimeter of the site which provided a retaining wall for the surrounding buildings. The problem was how to temporarily prop the contiguous piled wall whilst constructing the basement slabs and columns.

The Solution

The contiguous piled wall required propping at the capping beam level and, in some areas, at a lower level to the face of the piles. MGF designed a scheme using modular 120Te hydraulic and mechanical cross struts spanning up to 23m across the void, and 54Te Mechanical Raking Struts where the spans were too great. 54Te Knee Braces were used in the corners of the excavation in order to avoid having to prop raking struts too near to the perimeter of the dig. The areas adjacent to the building required additional propping at lower levels so MGF also designed a bespoke waling and raking strut system to suit.

The Method

- MGF helped J Reddington to devise a suitable construction sequence for the excavation and installation of props.
- The 120Te cross struts were installed first, comprising of fixed length extensions bolted together, with the hydraulic / mechanical component providing fine adjustment on the final dimension. The struts were bolted to the concrete capping beam forming a solid structure to work within. As the level of the capping beam varied across the site, special 'rocking head' adaptors were used to achieve the angle required.





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- The knee braces were installed next and were bolted to the capping beam in a similar fashion to the cross struts.
- Small excavations were locally dug out / battered back to construct the pile caps at lower levels. These pile caps would also act as thrust blocks for the raking props and later would become column bases. Excavation now progressed forming a berm from the pile caps to the contiguous piles. The raking props were installed using MGF's specially designed Swivel Plates to achieve an angle of

approximately 40° from the horizontal. Multiple drill holes were provided in all connection plates and swivel plates to allow a variety of bolt arrangements at the capping beam and pile caps.

- Excavation commenced to the next level where the lower level propping was installed. The bespoke walers were offered up to the face of the contiguous piles and special plates were used to drill and fix into the concrete. Raking props with swivel plates were installed as before, propping off pile caps with bolted connections.
- Excavation continued down to formation level and the construction of the permanent works commenced. The removal sequence of the propping was fairly complex and tied in with aspects of the permanent structure, however the high safety factors built into the design, and the straightforward bolted connections meant that struts could be relocated in some areas to assist with construction before they could be removed completely at a later stage.

The Verdict

A wide range of MGF's standard products, together with specially designed and manufactured components were utilised to provide the perfect answer to a complicated problem.

The considerable safety buffer built into the scheme allowed for the unlikely event of a strut failing or being hit by a machine on the site and, although this did not thankfully occur, the safety factors gave the customer peace of mind throughout the job.

The made to measure system was easy to install and remove and provided optimum working room. The modular system of high quality components also meant that there is scope for the equipment to be re-used for other jobs.

