



Laying the foundations for West End Gate

Liam Leonard of PUDLO Waterproof Solutions looks at the waterproofing works needed for the basement of a luxury development in London.

Today, West End Gate stands as a contemporary yet sophisticated column of crafted architecture, flanked by London's prestigious Edgware Road, Church Street and Paddington Green. Apartments starting from £865,000 are complemented by world-class facilities overseen by British developer, Berkeley Group.

All this had to start somewhere. Late 2017 saw Foundation Developments Limited (FDL) take charge of an excavated site to deliver the basement B2 and B1 rafts, along with the ground-floor slabs using modified water-resistant concrete.

But even before the team got that far, there were challenges to overcome:

- construction in a built-up London area
- facilitating hundreds of tonnes of temporary works
- an enormous basement raft slab

- perched water demanding total waterproofing.

Gearing up for gridlock

The junction of Paddington Basin is a main artery for notorious London traffic. Securing a steady supply of concrete for these enormous pours was a risky proposition inside normal working hours, Monday to Friday.

With works of this size, the possibility of cold joints at key locations was an unwelcome prospect. FDL sat down with Westminster Council to discuss the possibility of delivering on Saturdays instead, when traffic was merely difficult rather than impossible to navigate.

Of the five tenders, only FDL took this approach to securing supply and it turned out to be not only viable but also a winning idea. Over 180 lorry loads every Saturday were staggered via holding areas, keeping things

moving without bringing North London to a standstill.

Temporary by the tonne

With so much concrete coming through the gates, it's no wonder that significant temporary works were required, to the tune of around 600 tonnes. These were phased, comprising bespoke structural steelwork, proprietary propping by Mabey and 610 × 305 × 238mm UB walers.

Constructing the central raft slab level by level allowed the team to remove the temporary supports as they went. The central slab itself provided the thrust that resisted the propping forces from raking props, supporting the perimeter sheet pile wall.

For temporary works of this magnitude, FDL relied on its network of trusted suppliers. PGCS Partnership designed the works, with the upper-level walers supplied and installed by specialists from Sheet Pile (UK).

Quantity with quality

Alongside simply getting the concrete on-site, the second challenge lay in the sheer enormity of the pours. More than 9000m³ of concrete was scheduled to flow across roughly half a dozen ten-hour working days – daunting for any project, let alone one in this busy spot.

FDL decided to divide and conquer. The raft slab was split into 11 areas, poured monolithically to an impressive depth. Within core areas, this ranged from 2.5m to 2.8m deep; even outside these areas it reached 1.5m.

That demanded a specialist approach to managing heat. It was expected for the core of each area to hit as much as 70–80°C, but a tweaked Portland cement mix using as much as 70% GGBS, derogation from 28-day to 56-day cube strength and a trusty limestone aggregate would handle any heat differential.

With temperature under control, the team took extra steps to anticipate any potential problems. Backup pumps, batteries, fitters and even suppliers made sure that works could continue in the most adverse circumstances. Three pumps worked simultaneously, each pouring 50m³ per hour for the entire working day.

A watertight partnership

Managing perched water made waterproofing another key priority. The original tender proposed a standard injection method but despite the segmented pour, it became clear that another solution was required... and fast.

FDL already enjoyed a 15-year working relationship with PUDLO, part of DB Group, and the company was approached to develop a new method, coming on board three months before the project began to revise designs.

The firm's engineers advised on an aspect ratio that would suit these big pours. Across the entire basement, this totalled over 5700m³ of specialist concrete.

The top 300mm of each basement slab was cast in PUDLO CWP, with the rest of the slab transitioning into standard concrete. Meanwhile, PUDLO Self-Seal was applied over the ground-floor slab. These measures secured the integrity of the waterproofing.

Coupled with over 4700m² of bentonite PUDLO BW waterproof membrane, this satisfied LABC's request for a dual-system waterproofing solution. But this relationship added more to the project than simple compliance. Waterproofing experts attended the site to monitor more than 190 individual pours, providing practical advice and consultancy along with a 20-year warranty.

Result: luxury London living

FDL's collaborative approach to the basement of West End Gate was so successful that it was subsequently awarded the contract for its 30-storey residential tower and three 11-storey mansion blocks.

Few would now guess the level of expertise, precision and foresight that went into crafting just the very lowest levels of this palatial structure. ■

Page opposite and below: Groundworks on the West End Gate project.

