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News

Mace wins £150m over-station job at Liverpool Street

Grant Prior 2 years ago

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Mace has been appointed principal contractor for the £150m development at 1 Liverpool Street in the City of London.



It is the second over-station project which Mace is delivering for Aviva Investors and Allianz Real Estate, following its appointment at 101 Moorgate which is currently on site.

The Liverpool Street scheme designed by Eric Parry Architects will provide 176,000 sq ft of premium office and retail space when complete, spread over the ground and upper ten floors.

The 1 Liverpool Street development has been designed to achieve significant energy and carbon savings throughout its lifespan via a range of measures including air source heat pumps, triple glazing, high-efficiency chillers and energy-efficient lighting.

Ged Simmonds, Managing Director Commercial Offices at Mace said: "We are delighted to be working once again with Aviva and Allianz Real Estate on another ambitious project.

"As a business that puts sustainability at the heart of what we do, I am particularly pleased with the high sustainability standards of one Liverpool Street, facilitating a move towards a lower-carbon future."

James Stevens, Head of Real Estate Investment at Aviva Investors: "We are pleased to extend our relationship with Mace across what is a substantial scheme at both Liverpool Street and Moorgate.

"The scale of the work and the high ambitions we have for it, both in the quality of its facilities and the sustainability credentials it incorporates requires significant expertise and capabilities. We look forward to working with Mace on those elements and delivering what we believe will be one of the City's leading developments."

Completion is expected January 2026.



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BUILDINGS

One Liverpool Street: Is this the most complex office development ever built in London?

By Thomas Lane | 15 October 2026

A District line cutting, Elizabeth line and Royal Mail tunnels and a seven-storey ventilation shaft left just 25% of the One Liverpool Street site available for new foundations. So how did the project team turn what seemed like an unviable job into a commercial success?



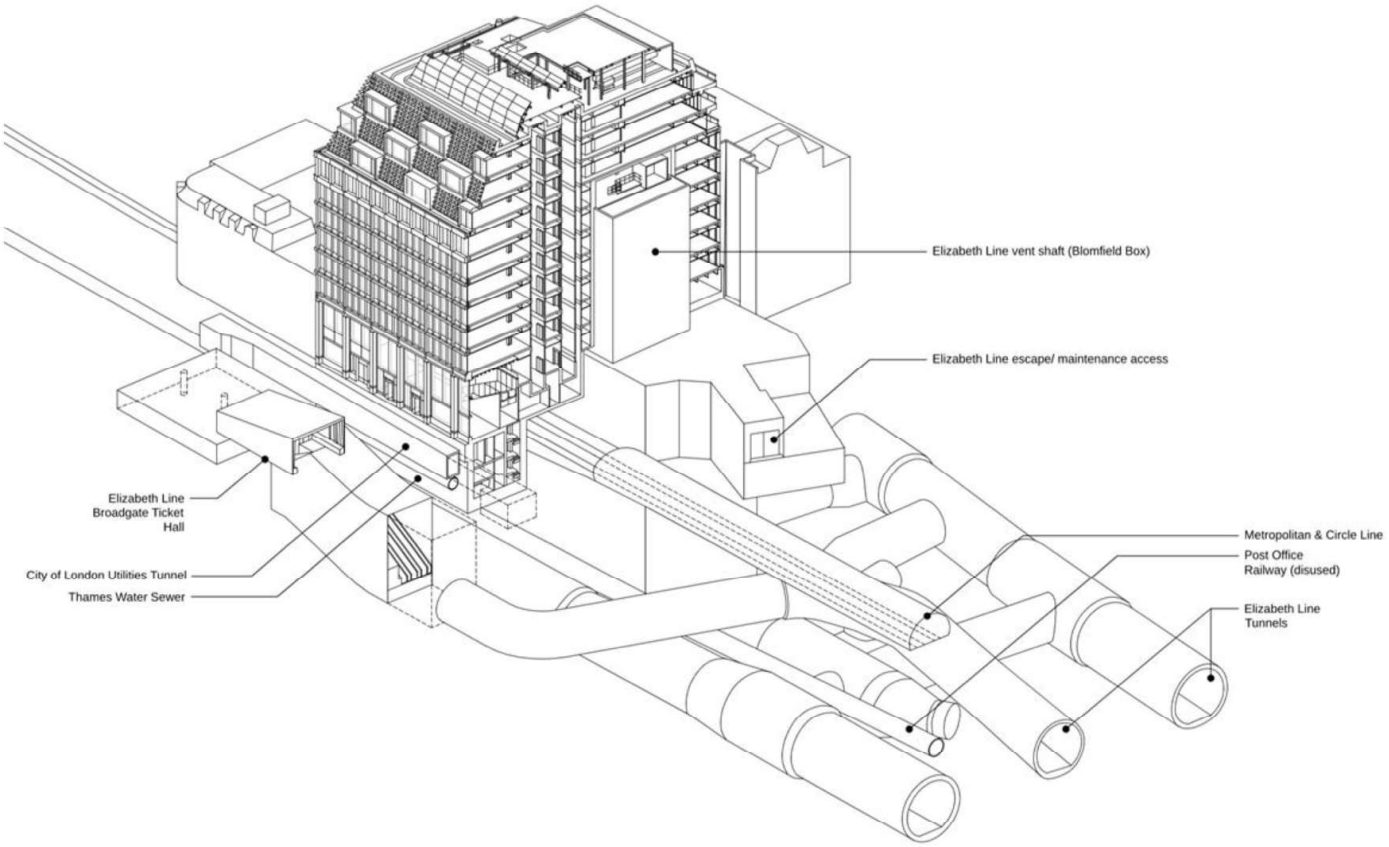


Source: Dirk Lindner

Architecturally, the building references the classical style of its older neighbours with the base framed with pilasters, central section and attic. The central section fenestration is modern and sits easily with buildings including 100 Liverpool St which is on the left side of the image

When James Stevens, the head of global real estate at Aviva Investors, said the institutional investors' latest completed project was one of the most complicated ever to be completed in the City of London, he was not exaggerating. The quest to extract ever more value from some of the most expensive development land in the world means project teams are devising ever more radical solutions. In congested cities, underground infrastructure is inevitable but the project team on One Liverpool Street were faced with an extreme situation.

The site was situated on the corner of Liverpool and Blomfield Streets, with the District line passing through an open cutting in the middle of the site, a Royal Mail tunnel below this and the Elizabeth line below that. The Elizabeth line Broadgate ticket hall is situated under the north-east corner and a seven storey-high Elizabeth line vent shaft occupies the space to the south of this. And a utility corridor filled with power and data cables passes under the pavement next to the site.



Axonometric showing the dense, complex underground infrastructure

In a normal world the site would have been developed as two buildings – as envisaged by the Crossrail team when building the new line. The space on the south side of the site between the vent shaft and Blomfield Street is occupied by the Blomfield box; what appears to be a single-storey concrete box at ground level is actually a 40m deep structure accommodating ventilation, mechanical and electrical systems equipment for the Elizabeth line station.

Crossrail envisaged a five to seven-storey building being built over this box in front of the vent shaft – and provided foundation points on the box with this in mind.

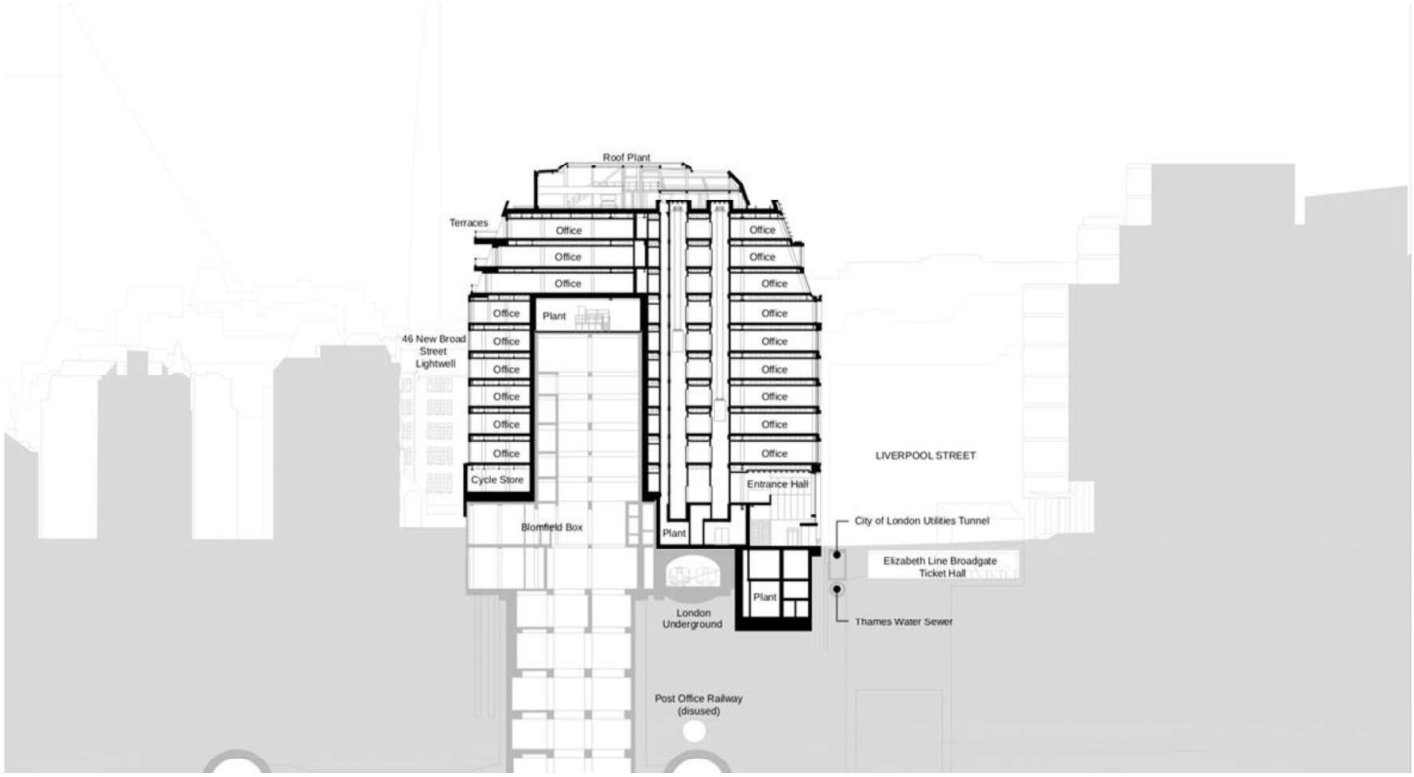
The north side of the site between Liverpool Street and the District line cutting was occupied by a 1980s building, which extended around the corner into Blomfield Street as the railway enters a tunnel at this point. But an eight-storey building on the two plots was not a viable proposition for Aviva Investors.

We went back to the drawing board and said, 'How can we push this? How can we get better net internal area?

Ben Stallwood, development manager, Aviva Investors

So they partnered with TFL to develop the site and looked at how to shoe-horn a bigger building onto the site. "The Crossrail Blomfield box was originally designed for eight storeys to go on top of it," Ben Stallwood, the Aviva Investors development manager for the project says. "We went back to the drawing board and said, 'How can we push this? How can we get better net internal area?'

"We worked with the structural engineer Mott MacDonald and they came up with a revised, lighter-weight structure, which means you can get up to 10 stories, but with the weight of eight. But what that means is a much more complex construction process – and a much more complex building."





Seotion showing the Blomfield box, which includes a 40m deep shaft housing equipment for the Liverpool Street Elizabeth line station and an above-ground vent shaft. The Crossrail team envisaged an eight-storey building being constructed over the box in front of the vent shaft

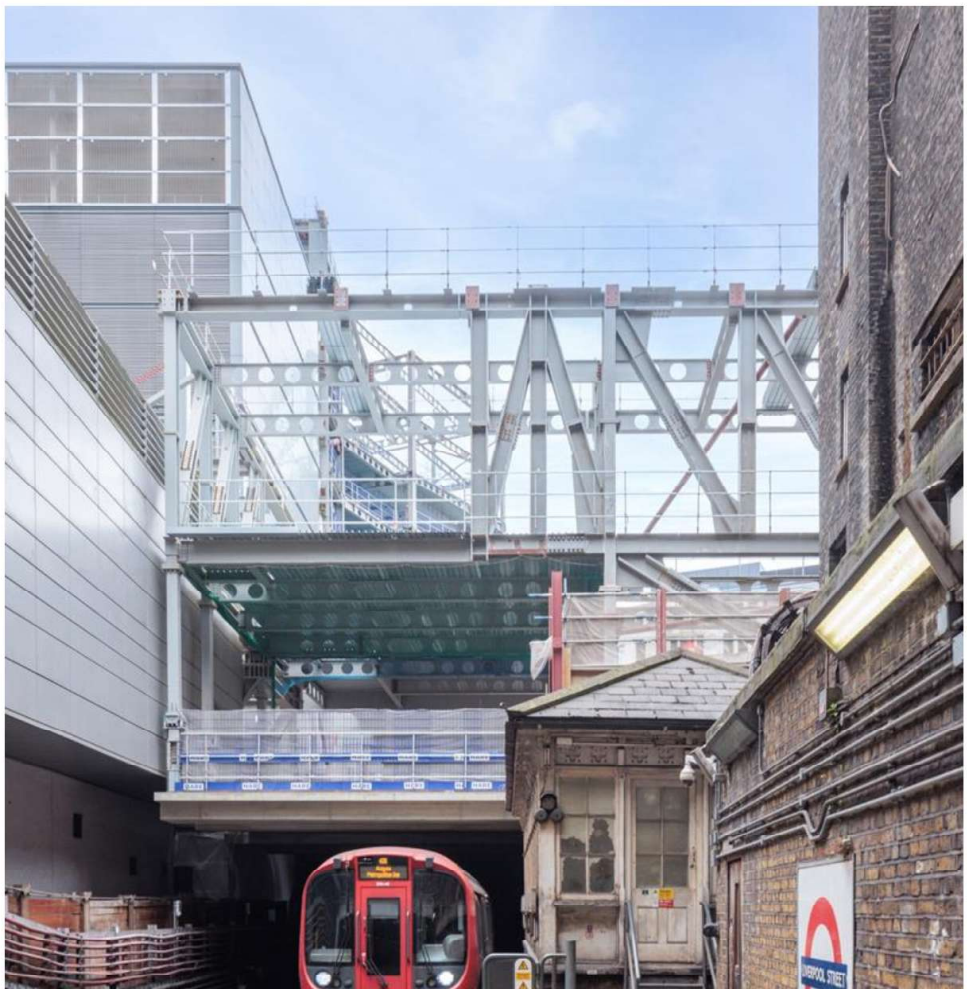
The structural puzzle

There were two strands to this ambition. The first was to build a protection deck over the District line cutting and develop the space above this. "We couldn't have looked at the scheme until we worked with TFL and were able to unlock it as a larger scheme and create that bridging structure and a larger net internal area," Stallwood says.

The second was to work out how to push the building height up by three storeys, including over the vent shaft, to substantially increase the net internal area. But this came with multiple challenges.

"It wasn't one or two things to deal with; it was a lot of things. The key thing was the substructure constraints, the huge constraints in the ground," explains Mark Thompson, Mott MacDonald's project director. "There was limited space for foundations and the fact that Crossrail had only safeguarded for a five to seven-storey building on their footprint.

"To add to that complexity, there is a live railway going underneath the building, so vibration isolation was needed. And the other thing was railway assurance: the safety of the railway is paramount, which means impact assessments of all their assets and the mitigations to ensure that we are going to protect them."





Source: Dirk Lindner

The District line bisects the site, making it difficult to achieve a viable net floor area. The solution was to build over the line and use a lightweight structure to push the height of the building up by three storeys

Stallwood says partnering with TFL was a big help as working near their assets requires multiple approvals, which can be a very long process. “Working with TFL as one of our partners on this is has been invaluable,” he says.

“We don’t get special favours, it’s not that kind of a relationship. But what it does mean is we have more direct access to their engineers for the approval process, and that has been super helpful.”

Existing assets were extensively surveyed to understand their condition, then carefully monitored throughout the construction period. Initial investigations revealed that the Crossrail works had caused the Royal Mail tunnel to move by 90mm, so it was imperative this was not impacted further.

The work was carefully planned – as Thompson explains: “What we did right at the start was produce a conceptual design statement to get an agreement in principle to the total development. It was a very thorough document done back in 2014. And what was good is that it remains current to this day.”





Source: Dirk Lindner

View over the District line to the part of the site formerly occupied by a 1980s office building. This is the only part of the project to include a basement

The structural solution

In effect, the project was three jobs in one – the construction of the basement and structure above, bridging over the railway and building the superstructure on the dedicated Blomfield box foundation points.

There was only space for new piles under the area occupied by the 1980s building, and they were compromised by needing to be beyond TFL's exclusion zone for work near their assets. This added up to just 25% of the site. There was also an area of existing piles from the 1980s building that were reused.

"Because you need to keep outside the exclusion zones, we realised that the best solution was to reuse the existing foundations," Thompson explains. "To get the capacity required extensive testing and validation of the existing piles."

Creating a useable office grid with central access to the floorplates called for some nifty engineering solutions as the only place for a conventional core was on the site of the 1980s building. This was ruled out as being too close to the building perimeter.

The fragmented nature of the foundations, and the fact that the Blomfield box foundation pads were positioned for a very different size building, called for the extensive use of large trusses at ground level to transfer the loads from an office-friendly 6m x 10.5m grid to the available foundation points. Large trusses were also used to support the protection deck over the railway line.

The lack of a core meant an alternative way of providing lateral stability was needed; bracing was provided by trusses wrapped around the vent shaft combined with a top hat bracing system – the top three floors, the so-called attic level, are braced at the perimeter with tension bars.

Crossrail had also built a large pilecap to the east of the vent shaft ready for the oversight development. This has been used to create extra space by cantilevering the building over this pile and an electricity station on the east side.

Thompson says a counterbalance arrangement was needed at attic level to ensure the loads generated by the cantilever were evenly distributed across the pile cap. This solution also helped to support the extra floors.

Catering for the extra weight of the additional floors was helped by the Crossrail's team assumption that the oversite development would have a heavy brick facade; provision was made for this at the perimeter of the Blomfield box.

A lightweight steel frame, floor slabs and facade were employed to keep the loads on the box down and the ground level trusses helped to transfer loads to the perimeter.



Source: Dirk Lindner

The main reception is located on the first floor as the lifts could n0t be centered on the floorplates and start at ground-floor level thanks to limited room for the lift pits

An unorthodox solution was adopted for the positioning of the lifts, It is believed to be the only example of such a scheme in London. Centering the lifts on the floorplates meant placing these over the railway protection deck. There was not enough space for lift pits at ground level because of the deck, so these start at first-floor level, with an escalator taking people up to first-floor level to access the lifts.

The lift shaft is not supported by the protection deck, so is suspended from the structure above. The unusual nature of this arrangement meant it was heavily scrutinised by London Underground.

"We had to look at extreme scenarios where, during construction, what would the impact be if a lift guide rail was accidentally dropped down the shaft and impacted the base? What would happen if a lift dropped a certain number of metres and impacted the lift pit?

"So we had to design for that. We also had the protection deck underneath the lift pit, so that approach satisfied LUL," Thompson says.

What is the building like?

The building is in a prime location opposite the entrance to the Elizabeth line station at

Liverpool Street and just metres from the mainline station. It is in a conservation area next to a Victorian pub, which bookends a cream-painted four-storey terrace. The grander, classically proportioned Finsbury Circus is directly visible from the first floor reception area.

Externally One Liverpool Street references this tradition as it follows the classical hierarchy with double-height, 9.5m-high ribbed pilasters terminating in a lintel. There is a regular grid of compact windows with the three-storey attic set back from the main facade. The floor below the attic features a more boldly expressed fenestration.

The attic reads as a mansard with six-metre long dormer windows interspersed with folded metal brise soleil which are suggestive of pantiles from ground level. The building is finished in a warm, sophisticated grey. Red flashes around the pilasters at ground level give the monochrome building a visual lift.



Source: Dirk Lindner

The building is located on the junction of Liverpool Street and Blomfield Street next door to Broadgate. It is book-ended by a low-rise Victorian terrace to the left, with Finsbury Circus to the right

Eric Parry Architects, who designed the building, have a long tradition of celebrating traditional craft in their architecture and this building is no exception. The pilasters are cast aluminum – steel was too heavy and are an element of which Parry is particularly proud.

“I have been waiting for so long to get these 16 pilasters up to give a sense of heft to the building, and it looked rather barren until we got those on. It’s an amazing difference,” he says.

For Parry the cast-iron elements endow the building with a solidity and weight which resonates with that of nearby Liverpool Street station, with the benefit that the cast elements are prefabricated and also allow for a subtly of finish and detail. “If it was just a coach-painted piece of flat aluminum, it would look absolutely pedestrian,” he says.

The interiors have been designed by Gensler and have Parry’s blessing. The ground-floor entrance area is principally a place where people will be directed up to the first-floor reception but has a strong presence as it faces the street.

It features precast, oversized fluted panels which reference the pilasters with textured

dark bronze panels adding to the air of sophistication as you ascend the escalator to the first-floor reception. This area includes a bar and breakout space and has great views of Finsbury Circus and Broadgate next door.

From here you ascend to the office floors. Although the spaces between the dormer windows at attic level look solid from the ground, these are fully glazed so the upper levels are flooded with light. The top three levels also feature terraces with views over London Wall and the Eastern cluster.

The building also includes what must be the best cycle store in London. The Blomfield box ruled out a basement store, so this has been located at first-floor level with a dedicated lift taking cyclists up to the showers and store.

Instead of the usual dark, subterranean space you are greeted with a light, bright space with superb views over Blomfield Street and Finsbury Circus. The building has been let to Knight Frank as its London and global headquarters. The global law firm Dentons has also taken space in the building, which is testament to its success.

The construction challenge

The construction job was taken on by Mace under a design and build contract. Under normal circumstances the 1980s building would have been demolished and the basement under this built before starting on the superstructure.

"We couldn't wait until the basement had been constructed because it would have taken 18 months to form the basement," explains Jonathan Emmines, project director for Mace. Part of the reason why it was going to take so long was because London Underground's infrastructure – notably a signal equipment room – was located under the 1980s building. This had to be moved, including all the connecting cables.

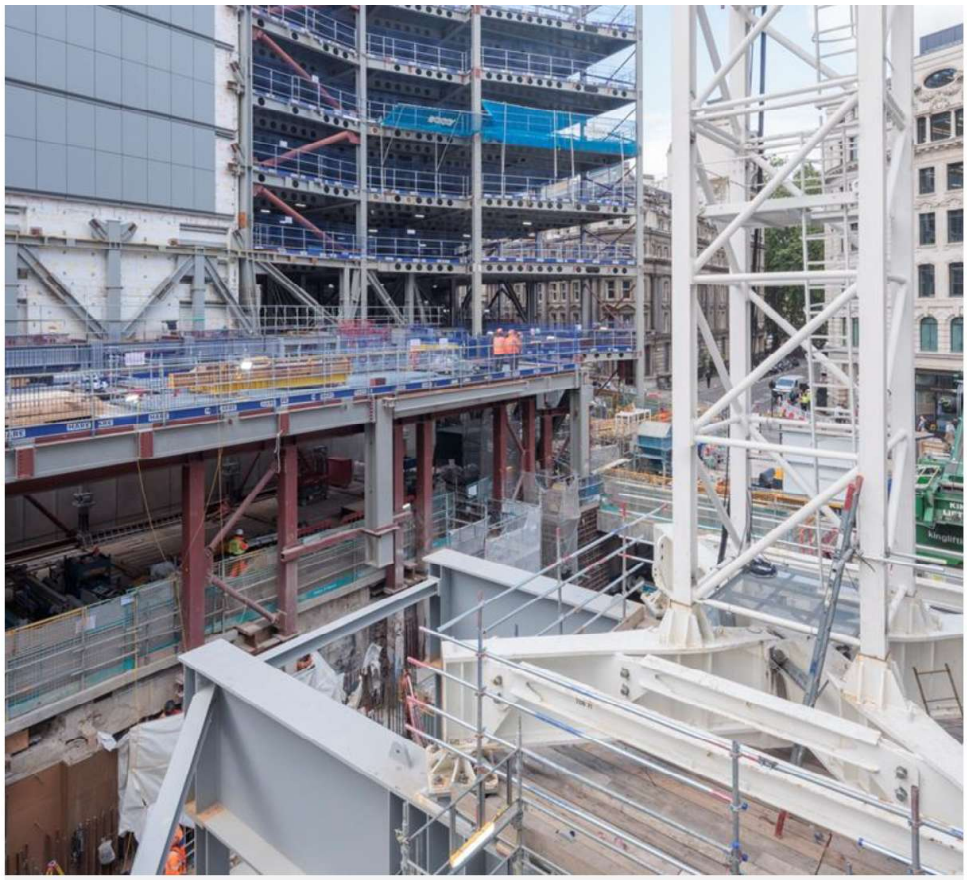
It's impossible to talk about the cabling and really convey the just extraordinary depth of work required to move it. Over 100 years, none of that cabling has been recorded

Jonathan Emmines, project director, Mace

Stallwood says that this was one of the most difficult aspects of the job. "It's impossible to talk about the cabling and really convey the just extraordinary depth of work required to move it," he says. "Over 100 years, none of that cabling has been recorded. So it was literally somebody walking along the track to see if it is signal equipment, service critical, safety related, or if it has just been snipped and never been moved. And a lot of the cables are coated in asbestos or hazardous chemicals."

Constructing a basement next to a live railway makes the job more complex and the protection deck needed to be constructed in parallel with the basement too.





Source: Dirk Lindner

To save time, the steelwork on the southern part of the building was erected at the same time as the basement and District line deck construction

Mace worked with their structural engineer, Robert Bird Group, to see how time could be shaved off the programme. As the foundations on the Blomfield box were ready to go, the contractor decided to build the steel frame over this at the same time as working on the the protection deck and basement.

"What we had to do was work out how we could build the south steelwork and how high we could go without overloading the Crossrail structure," Emmines says. "How we could hold it up, and how high we could go before we needed the north structure to balance the building." The steelwork was done by William Hare.

The 1980s building was carefully taken down by John F Hunt under an enabling works contract with Aviva Investors. Hunt also did the basement works, piling and the protection deck working under contract with Mace.

The piles were up to 45m long and two metres in diameter. A basement secant piled wall was constructed ready for the basement excavation.

The protection deck is supported by steel trusses parallel to both sides of the railway line. The north side is supported from below but there wasn't space for this on the south side.

Instead, the truss is suspended from steelwork supported by the east side pile cap and from the ground at the far end. Tension columns supporting the beams spanning over the line are hung from the trusses with the deck formed from precast Omnia slabs and topped with insitu concrete.

Most of this work had to be done during engineering hours, which in practice amounted to about three hours during the night thanks to the protocols used after the Tube network power is switched off to ensure workers are safe. Night working did not stop once the deck was finished