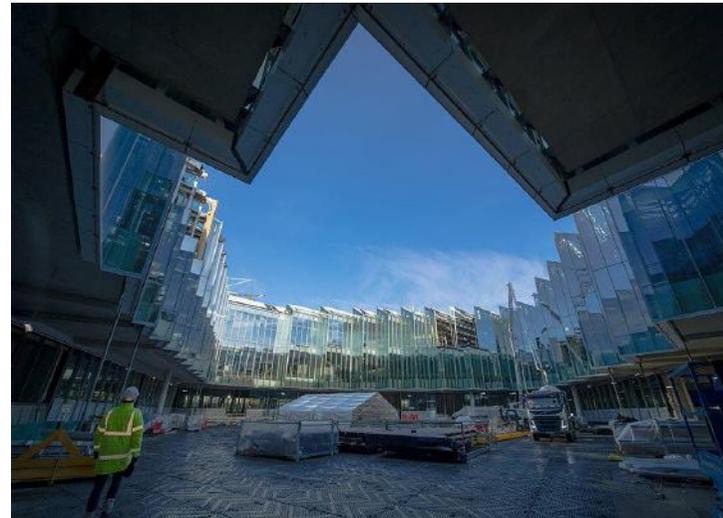
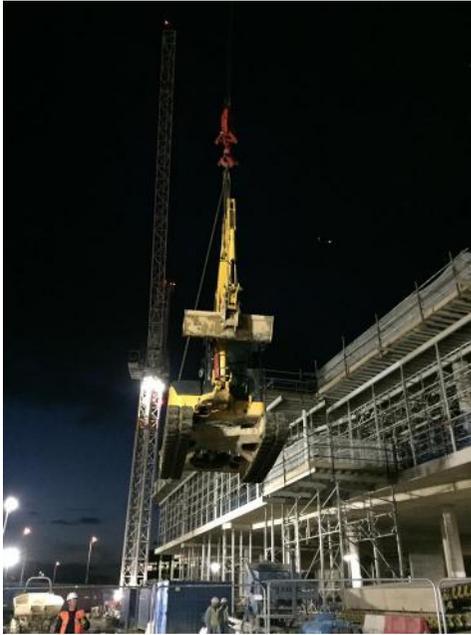


Case Study - Global Pharmaceutical Company Worldwide Headquarters



"We are proud to be involved in a prestigious, state-of-the-art project designed and built to the highest standards"
Construction Manager, Richard Tarrant.



Scope Summary

This world-class global pharmaceutical headquarters, research & development centre is located in the heart of the Cambridge Biomedical Campus.

Following a comprehensive, competitive tender process, MPH exceeded the client's expectations and provided assurance by offering a wide range of expertise to cover the **external civils works packages** and implementing proven solutions to deliver this exceptionally challenging and complex project.

- Scope Budget: £14.3m
- Duration: 30 months

The scope of work is varied and includes the following packages;

- Bulk excavations and return fillings
- External drainage
- Laying of granite kerbs and pavement, including large areas of radial paving co-ordination
- Tarmac and resin bonded surfacing
- Planters and borders
- Installation of Foul Water Pumping Station – (Value £2m)
- Installation of three rainwater harvesting tanks
- Installation of multiple attenuation tanks
- Permeable and non-permeable block paving
- Large concrete manoeuvre and delivery areas.

Once completed, laboratories visible through glass curtain walls will enable employees to connect with the stunning external views at this flagship HQ. The central courtyard will also be accessible to the public to enjoy this spectacular piece of engineering.

Our Approach

'Complex civil engineering solutions delivered within challenging site conditions'

For this project, we introduced several **bespoke solutions**. For example, we utilised our in-house industrial and deep drainage specialists to successfully install multiple rainwater Harvesting Tanks.

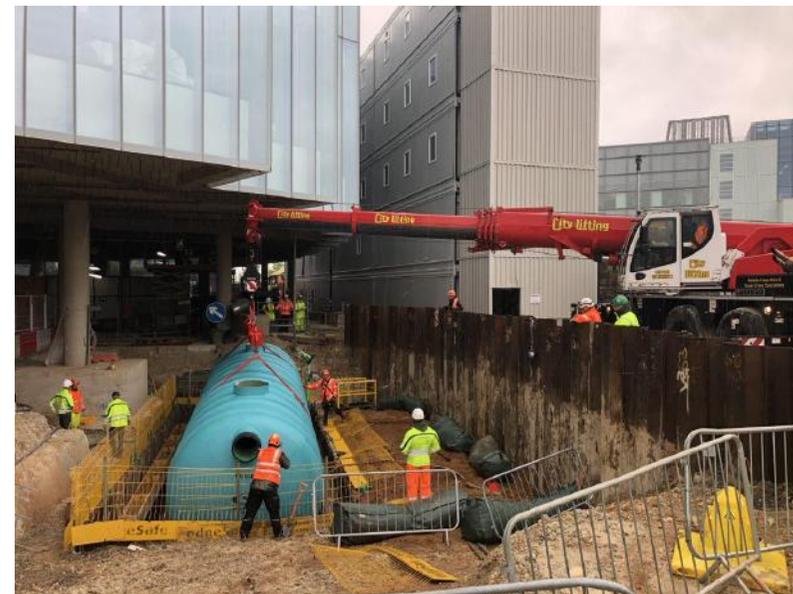
Forming part of the wider civils works packages, we successfully constructed and installed three separate **rainwater harvesting storage tanks**.

The Challenges:

- The location, geometry and restricted access, including overhanging structures, adjacent underground utilities and structural foundations, presented many challenges and required alternative methods of construction.
- Traditional piling techniques were not permitted due the proximity of the building envelope.
- Cranage required vertical access, however, the restricted headroom also presented challenges.

Our Solutions:

- From lessons learned on similar large-scale projects, we introduced phased construction methods to ensure works could be carried out safely.
- Working collaboratively with our delivery partners, we implemented a silent and vibration-free method of sheet piling installation using a Giken Press. This technique utilises auxiliary methods, including 'water jetting' and 'pre-augering' the ground, reducing resistance during the sheet pile installation.
- Using alternate side entry lifting techniques, we mitigated the restrictions and risk and ensured the cranage methods took place effectively and safely.





Challenges & Solutions

The Challenges:

The construction of a foul water storage and pumping station with associated turrets, M&E piping and pumps involved:

- The pumping station, an underground facility constructed inside a sheet piled retaining wall protecting an excavation chamber 9m deep x 10m wide x 32m long. The two GRP tanks were 26m long, each with a capacity of 250,000 litres.
- We were instrumental in working closely with the client and engineers to overcome constructability issues. We successfully maintained the integrity of the fragile GRP tanks, which are often at risk of collapse, through staged and balanced backfilling techniques. Careful backfilling also mitigated the risk of tank buoyancy. Additionally, we could not use support struts which is very uncommon on retained excavations of this size and loading profile. Groundwater management below the water table in sand was also a huge challenge.

Our Solutions:

- The geometry of the excavation and size of the tanks prevented the use of cross bracing; therefore, we utilised a Mabey Supershaft System to push the boundaries of the application – the sheet piles were continuously surveyed to record any movement. Meticulous planning to situate the excavators was needed to avoid unnecessary surcharging of the excavation perimeter.
- Due to the size of the tanks, we used 50t of steel reinforcement to strengthen and tie together phased concreting of the backfill ballast, and we expertly planned and executed the method to avoid any collapse. This mitigated significant risks to time and cost. In addition, this construction process helped to alleviate other potential issues, such as temperature gradients leading to thermal cracking.

The Challenge:

- The site was based on the border of the Fens, an area notorious for lowland flooding. A high-water table at the site required an ingenious collection, pumping and filtration process.

Our Solution:

- The excavation was undertaken in sand and gravel and considerable groundwater had to be drained 24/7. We introduced a revolutionary pumping system, in conjunction with a perimeter cut off collection regime, to filter silt laden groundwater prior to returning to the local watercourses. The system monitored water quality continuously and included pre-determined alarm parameter recycle settings.



Self-Performing and Multi-Tasking

Self-Performing

MPH have a core of dedicated and loyal multi-skilled workforce and we self-perform much of our own scope of works. We undertake roadwork, drainage, ductwork, landscaping, paving, brickwork, demolition, reinforced concrete structures and foundations. All of this is facilitated by our own technical and engineering resources. The full package is supported by our own operated construction plant, purpose-built yard, workshop facility and fleet of haulage tippers. When extra resources are required, we have maintained historical ties with several trusted construction partners who have assisted us over the years to fulfil our obligations when fast-tracking is required to maintain client deadlines.

Logistics

MPH are FORS-accredited. Effective management of transport operations throughout the construction process has kept pedestrians and site vehicles segregated and site visibility uncompromised. Elements of work have been programmed to be carried out at weekends to reduce disruption to other services and to allow us to remain on course for timely completion.

Green Initiatives

For each project delivered, we have a dedicated Sustainability Champion who encourages forward thinking mitigation methods to ensure we are leaving a positive and sustainable legacy. To provide a sustainability legacy at the HQ, rainwater was harvested to provide a recycled supply of non-potable water applications for uses such as toilet flushing and irrigation.

Client recognition

The project team are assessed on monthly KPI's which focuses on all areas of the construction process. Through the team's hard work and dedication, MPH received several "Contractor of the Month Awards" for recognition in achieving these KPI's targets.

