



PROJECT SUMMARY:



CLIENT

MMU

PROJECT

Oxford Road Crossing

TIMESCALE:

Feb 2017 - March 2017

CONTRACT VALUE:

£282,000

THE BENEFITS:

- > Futureproofing the crossing for future building connections to aid sustainability
- > Fulfilling time constraints to reduce disruption on roads and to students
- > Successful completion without compromising existing services
- > Adapting work techniques to fulfil spatial requirements
- > Providing the ability to venture into a larger district heating project

PROJECT OVERVIEW

Manchester Metropolitan University is one of four universities situated in Greater Manchester. With over 32,000 students, the University has made a commitment to create a sustainable campus which maintains energy levels, and integrates environmental sustainability into all areas of their Estate and Operations. As part of their Energy Strategy and Energy Investment Plan, they seek to reduce their greenhouse gas emissions by 50% by 2021 from a 2005/06 baseline.

Due to the planned resurfacing of the

Oxford Road Crossing, which runs through the University campus, MMU chose to install a district heating link under the road for future use as once the resurfacing work had been completed, any further work on the road would be prohibited for 5 years. Vital Energi were contracted to design, supply, install and commission this link, which would be used in the future to connect multiple buildings as part of a potentially major energy infrastructure.

VITAL'S SOLUTION

The scheme saw an existing manhole being connected to an existing culvert along Oxford Road, which would provide a district heating connection between the East and West sides of the campus.

Multiple challenges required careful planning

Due to the nature of the project, we had to plan extensively to ensure the job could be completed efficiently and successfully. We had close communication with MMU, and attended numerous coordination meetings to discuss the major planning implications due to deep trenches and the necessity to perform road closures.

As the work required trenches at substantial depths of 3m, attention was paid into the

temporary works design, with considerable systems installed to ensure the safety of all members working in and around the area.

At the planning stage, the extent of the work involved was unknown as we were all unaware as to where the existing culvert stopped, leading to the necessity to plan for all eventualities.

Utilising consultants to assist with design and time constraints

Upon designing a route for the link, we had to be mindful of not disturbing underground electrical cables, treating all apparatus as live unless certified dead by the asset owner.

We had to consider the most ideal locations for the joint positions to ensure a successful installation.

▶ The installation required careful planning due to deep trenches and the presence of existing services.



“The Oxford Road Crossing was a challenging site due to the necessity to work within extremely deep trenches, however through close co-ordination with the University and project team, we were able to perform a well-executed programme delivery. Our team worked hard to complete the project within the scheduled timescales to avoid any further road closures, and we are pleased with the result on what can be a major energy infrastructure scheme for Manchester.”

ASHLEY WALSH, OPERATIONS DIRECTOR (INFRASTRUCTURE), VITAL ENERGI

We worked with Arup, independent specialist consultants, to develop their design solution, with the final design consisting of a 36m installation of multi-utilities, including the installation of 2x 300mm Series 2 pre-insulated district heating pipe which had 12 ducts to allow for future building connections.

These designs had to be completed quickly due to a limited pre-construction period to ensure the MMU team had technical submission aligned with a February start date. We engaged with our supplier early on during the tender process to reduce the usual delivery period of pipework, fittings, and accessories to meet the restricted programme requirements.

Completing works around already scheduled road closures to minimise disruption

To reduce any further delays on the transport system, we coordinated the installation whilst the roads were closed for the Bus Priority Works, which is a scheme to change the road to prioritise buses, bikes and pedestrians with private vehicles following alternative routes, in an attempt to enhance bus journeys and make it safer for cyclists. Oxford Road was closed from Brancaster Road to Sidney Street, with Vital designing and managing the marketing and communications surrounding the barriers, with liaison with MMU, Arup, and project management consultants, Faithful and Gould. We designed bespoke signage and ensured it had clear information about pedestrian

and vehicle access and diversion routes by communicating closely with local residents, authorities and stakeholders.

The crossing resides under the busy Mancunian Way, therefore traffic and pedestrian management had to be handled well. The road was closed for vehicle access, with clear signage and adequate diversions put in place. All pavements had to be closed along the length of the compound during the trench excavation so pedestrians were diverted around the opposite side, with clear signage and instructions. We also performed monitoring and safety checks of all perimeter fencing throughout the duration of the working day to assure pedestrian safety.

Increasing working hours to reduce disturbance

Due to the critical nature of the programme, and the time constraints, we worked closely with stakeholders to increase the number of working hours and personnel we used on-site to minimise disruption and fulfil the ambitious schedule. Site hours were extended to 07.30 - 22.30 Monday - Sunday in order to achieve completion by March aligning with the Bus Priority Works, but also to reduce disruption for students who were in close proximity due to the works coinciding with the Spring term.

Additionally, major deliveries were scheduled outside of normal working hours to ease congestion around the city centre.

Careful excavation of trench and

management of equipment due to challenging site

The outline of the trench was cut with a circular saw, before a mechanical excavator was used to breakaway the tarmac. When within 500mm of existing services, operatives hand dug until they were fully exposed to avoid damage. Once the trench was excavated, pre-insulated pipework was fitted, with 11° bends pre-fabricated outside of the trench to avoid delays. Electro-welded pipework joints were installed by our in-house team to assure quality.

Due to spacing constraints, the pipework jointing plant was powered by generators that were on-board our vehicles so that there were no need for large external generators. Also, all equipment used for the excavation of the trench was restricted to a maximum reach and elevation height due to the height restrictions under the Mancunian Way.

Close communication being key to the successful project completion

It was an ambitious programme, with regular communication and engagement between all stakeholders being pivotal to the successful delivery. Working closely with the University was key to accommodate sensitive periods and reduce disruption to the student experience, allowing us to alter our work sequence to accommodate MMU's requirements, and utilise acoustic shrouds on excavation machinery to minimise disruption.