



#### PROJECT SUMMARY:

**CLIENT**  
Laing O'Rourke

**PROJECT**  
District Heating

**TIMESCALE:**  
June 2013 - November 2013

**CONTRACT VALUE:**  
£1.15 million

#### OVERVIEW

The transformation of the 50-year-old Heathrow Terminal 2 was one of the most exciting projects in the UK, with construction giant Laing O'Rourke

signing an £800 million agreement to deliver the project which would be built with sustainability at the heart of its design and construction.

#### THE CHALLENGE

The existing High Temperature Hot Water District Heating mains ran under a proposed new multi-storey car park and made it necessary for the pipework to be reconfigured. The 300m reconfiguration of the pipework would be made more difficult due to tight timescale and also the fact that the airport needed to maintain 24/7 access, which would see Vital engineers scheduled to work through the night to deliver the project.

With up to 6,000 people on site and 140 separate businesses involved in the project it was essential to find a district heating contractor with a strong track record of working on large developments,

outstanding communication and strong relationship building skills to ensure they could work alongside multiple utility companies, developers and sub-contractors effectively.

Overall this project would test the robustness of our supply chain, in house expertise resources, creative project implementation and logistical expertise as we delivered the project.

#### THE BENEFITS:

- > Reconfigured pipework allowing construction of multi-storey car park
- > Project delivered to challenging deadline
- > Large in-house resources deployed to meet targets
- > Seamless integration into 6,000 worker, 140 business development

▶ Heathrow Airport Terminal 2 was designed and installed with a Isoplus HTI pre-insulated pipe system which has an additional layer of mineral wool insulation and enables the pipework to operate at temperatures of up to 210 degrees.



**Key Benefits:** > Specialist pipework installed to carry high temperatures and reduce heat loss

## ▶ THE SOLUTION

Vital Energi worked closely with the clients and consultants to design and install the district heating network, specifying the highly insulated Isoplus HTI pre-insulated pipe system. This pipe has an additional layer of mineral wool insulation which allows it to operate at temperatures of up to 210 degrees, making it ideal for high temperature hot water and steam systems and reduces the overall heat losses due. The scheme saw Vital Energi utilise its supply chain to have the pipe custom made as it was not standard specification and, therefore, was not readily available “off the shelf”. Coupled with the pipe network is a specialist high performing joint system, and with its mineral wool insulation, will further reduce heat losses. Fortunately, Vital’s extensive supply network ensured we were able to procure the pipe without delay to the schedule.

The district heating installation at Heathrow proved to be different from a normal buried pipe scheme, with the client opting for a design involving chambers constructed with conventional construction materials which allowed access for maintenance. This meant that

pipework had to be hand manoeuvred into position in the 1m shaft.

Preparatory work began in April 2013 and the mains were moved during the months of August and September when BAA, which owns Heathrow, shuts down its heating. Vital Energi had just nine weeks to complete the project before BAA turned the heating back on.

Vital designed an alternative route, around the new car park, which would now go around the proposed multi-storey car park. Vital were ideally placed to meet the challenge due to their high-levels of in-house expertise, allowing us to design and specify the ideal solution and to allocate an installation team who could deliver the project on time and on budget.

Parts of the installation had to go under the main runway road, which could only be done late at night and in very small sections to ensure that it was still operational.

Our in house capability was soon called into action as HTHW pipe is thicker than the normally specified LTHW and therefore all welders had to be Class 1 certified.

## THE CONCLUSION:

Heathrow Terminal 2 was originally designed to service 1.2 million passengers per year and the new, improved terminal will comfortably cater for up to 20 million passengers. Because of this it was essential that Heathrow had the facilities to cater for this increase and the new 1,300 space car park was a major part of this plan.

Rerouting the district heating mains around the new car park’s footprint was a challenging project, but due to decades of experience of integrating into major developments at all levels we were able to reconfigure the pipework on time and on budget and, importantly on a site this busy, with no health and safety instances.

The combination of robust supply chain and in house expertise uniquely placed Vital to deliver this challenging project.