



PROJECT SUMMARY:



CLIENT
Newcastle City Council

PROJECT
District Heating

TIMESCALE:
2010 - 2012

CONTRACT VALUE:
£7 million

OVERVIEW

Riverside Dene (formerly Cruddas Park) is made up of some of the North East's most iconic tower blocks, which are recognisable from TV shows including "Our Friends In The North" and "The Likely Lads". The original 1960's tower blocks had inefficient and outdated oil storage heaters which were proving to be expensive for

residents to run and difficult to control.

This meant there was scope to massively improve the estate's Heating Systems by updating to a modern biomass district heating scheme which could deliver more affordable heat, lower carbon emissions and contribute to helping people out of fuel poverty.

THE CHALLENGE

The 550 flats had previously been remodelled to achieve Decent Homes Standard, but residents were still faced with disproportionately high utility bills.

The delivery of the district heating scheme to the five multi-storey tower blocks was made extremely challenging due to several features of the terrain

which required both meticulous planning and creative thinking on behalf of the delivery team. The project also involved a tight deadline for project delivery, with a fixed date for tenants to return to their flats.

THE BENEFITS:

- > Reduction in heat loss due to installing thermally efficient Twin Pipe
- > Fusion welded jointing system reducing heat loss and enhancing design life
- > A saving of 1,054 tonnes of CO2 per annum
- > Alleviating fuel poverty by significantly reducing heat bills
- > Helping the tower blocks achieve "Decent Homes" standards

▶ Riverside Dene has a highly efficient 750kW wood-fuelled biomass community heating system which is providing heat and hot water to the entire Riverside Dene estate from one energy centre with a new 1.5MW gas fired boiler and refurbishment of 2 existing 1.2MW gas fired boilers.



“ Vital Energi has been flexible in its approach to developing a sustainable district heating system which the residents in Riverside Dene will benefit from for many years. We have developed a very strong professional relationship with Vital Energi ensuring the scheme was delivered on time and budget. The heating scheme compliments other energy efficiency measures installed in the refurbished blocks to ensure the area makes a large contribution to reducing the carbon footprint of the city. ”

CLARE WOOD, SENIOR PROJECT OFFICER, NEWCASTLE CITY COUNCIL

▶ THE SOLUTION

This project used isoplush pipework ranging from 80mm to 200mm and included Series 1 twin pipe for the mains. While twin pipe brings many benefits, including lower heat loss and the need for less civil works, it can also present installation challenges. With Twin pipe it is critical that the route is level at a 0° plain and all bends and T-joints are taken off straight from the mains. Given that the twin pipe needed to be installed completely level, the site presented a huge planning and installation problem. Vital would need to liaise closely with the contractor, Wates, to ensure that the route and depth of the district heating network did not clash with any other utilities and services and the site dropped 8m in height between the biomass energy centre and some of the buildings. The civil works themselves proved to be more problematic than on most jobs and, given the close proximity of the River Tyne, the terrain was made up of very hard ground including stone boulders around 800mm in diameter. This presented a challenge when digging the trench as it was very difficult to excavate a straight trench

side given that some of these boulders were located on the perimeters of the trench. We overcame these civil engineering challenges by utilising trench boxes which allowed for rapid shorting of the trenches, without compromising access to the pipework. Once the district heating reached the tower blocks the project brought a new host of challenges. All district heating pipework entered the multi-storey tower blocks underground, which was made up of a labyrinth of 3m x 3m x 3m rooms located across the footprints of the buildings. This saw Vital Energi liaise closely with the fire brigade, as per legislation, and utilise specialist confined space equipment. While a challenge like this may delay most companies, Vital Energi has one of the largest in-house pools of district heating engineers and designers in the UK and supports them with one of the most generous training budgets around. This meant that our staff had extensive confined space training and experience and not only met the essential deadline, but even shaved 1 week off the original 14 week schedule.

THE CONCLUSION:

The terrain of the live-construction site and the layout of the project presented many hurdles which would need creative thinking and high levels of competence to overcome.

**REDUCED CO2
EMISSIONS BY
1,054
TONNES PA**

Our commitment to installing the best, most economical pipework for a project, however, saw us implement a range of solutions which saw us beat our initial deadline, delivering a complex project which will now deliver more affordable, cleaner heat for decades to come.