

Barrcroft School, Walsall - Ground Source Heating Boreholes

Project Profile

Client: Willmott Dixon

M&E Engineer: NG Bailey

Value: £165k



The scheme involved installation of a grid of boreholes for a closed loop Ground Source Heating system to a primary school extension in Walsall. 15 nr 150mm diameter boreholes were drilled to 100m depth through 9m of overlying loose fills and then through coal measures strata including worked coal seams which were infilled and grouted as drilling progressed.

On completion of the first borehole a Thermal Response Test was carried out which allowed the designers to confirm the final number of boreholes required for the ground source heating system.

Drilling was carried out using Casgrande C6S and M9 drilling rigs fitted with a dual-head drilling system which allowed simultaneous casing of boreholes with steel casing thus ensuring that 'one-pass—clean hole' borehole construction was achieved to the full borehole depth which then allowed immediate installation of circulation loops and grout tube.

As drilling progressed, when a worked coal seam was encountered gravel was inserted in the base of the hole and the hole grouted thus filling and stabilising the remnant void or broken ground around the hole position. Drilling was then progressed to the full borehole depth.

The drilling rigs were equipped with bespoke cuttings collection systems mounted below the lower drill head allowing collection of wet or dry cuttings in sealed skips thus enabling 'clean' drilling to be carried out in the operational school environment.

On completion of the boreholes and installation of the ground loops, the header pipework from the borehole array to the plant room was completed together with the supply and installation of the heat pumps and buffer vessel together with pressure and load testing followed by final commissioning of the system

