Howley Energy & Water Limited

CASE STUDY – LINCOLNSHIRE HERBS LTD 2014-15

Lincolnshire Herbs Ltd are one of the UK's premier flower and herb growers. Their ever-expanding operation resulted in an increasing demand for heat and for their 8 acre glass house and the cost of fuelling oil-fired boilers and a worsening carbon impact meant a change in approach was needed.

Iain Howley completed a feasibility investigation towards the use of an open loop borehole system providing energy to heat pumps.

The geological / hydrogeological conditions were found to be favourable towards the development of an open loop borehole system. Of particular note was that the water held within the target aquifer (Lincolnshire Limestones) was expected to present fully artesian conditions (natural overflow at surface) and this was a characteristic that needed to be carefully managed.

The system was designed to abstract groundwater at a flow rate of 135 l/sec to service the 3.4MW peak heating demand.

Three boreholes (two abstraction and one recharge) were installed to a depth of 60m. Unusually, each borehole had to be equipped with large gate valves at the well head which could be closed when shifts were finished to prevent uncontrolled overflow. During initial flow testing, the boreholes presented overflow at a rate of approximately 1000 litres per second. This flow was controlled and capped with head-plates and control valves to allow all pump testing to the Environment Agency test standards to take place.

The system was installed in 2014 and became operational in January 2015. Howley regularly takes new clients to see the system

Client	Lincolnshire Herbs Ltd
Location	Bourne, Lincolnshire
Peak Heating	3.4MW
Peak Cooling	0
Groundwater Flow Rate	135 l/sec
Borehole configuration	2 abs / 1 rchg
Borehole distance	480m
Year Installed	2015