

## **Appendix 1 - Site Assessment**

The Knutsford and Sandbach Basin area stretches some significant length through the Cheshire East Local Authority area and beyond. The BGS surveys and additional subsequent work identifies that two locations have the most potential for geothermal energy. To the North there is a particularly deep area of the trench under Sandbach where the underlying valley is up to 4400m deep, and in the South Crewe reaches around 3800m deep (averaging 3300m), with the potential for slightly deeper pockets.

In understanding the potential for geothermal energy and drilling requirements, a site of approximately 1 ha is required, that is some distance from surrounding houses to minimise disruption, but is also close to major heat loads such as industrial premises or hospitals that require continual energy and heat.

The nature of geothermal energy means that the water supply is continual, and therefore, so is the heat and electricity that result. This means that in order to maximise the use of this energy, the end user needs to have a stable and ongoing requirement for the energy to be commercially viable. Therefore, geothermal energy companies look to establish arrangements with manufacturers, public buildings and similar premises that have a continual need for heat and for significant amounts of it.

Whilst geothermal energy can provide heating to residential properties, this is considered ancillary to the main operation as people tend to heat their homes only for short periods (before work and after work), and only during winter months, and so in comparison to somewhere like a hospital, which has a continual 24/7 365 day need for a stable temperature, any supply arrangements for less than 800 homes tend not to be viable or of enough commercial interest to companies to invest in.

In order to look at potential sites, the Council undertook a screening and assessment of potential sites. A long list of Strategic Development Sites was taken from the emerging Local Plan, on the basis that these sites are identified as being major growth and development areas, and were assessed against the criteria set out below. This does not exclude other sites from being considered for geothermal energy production, but allows the Council to focus on key sites where deliverability is expected following the testing through the Local Plan process.

Therefore, in looking across Cheshire East at opportunities for geothermal energy, prime sites are areas that meet the following criteria;

1. Are within the Cheshire Basin and particularly in Crewe or Sandbach where sufficient heat to generate electricity exists,
2. Is within the Councils ownership in order to keep sufficient control over the sensitivities of the scheme,
3. Have 1ha or more of land that can be used to develop the site,
4. That any such site is sufficiently away from residential properties to minimise any perceived issues,
5. Have 1 to 3 existing nearby users who require significant levels of heat and / or electricity on a constant basis around which a business model can be constructed,
6. Is sufficiently close to new residential development (planned or underway) to allow use of the residual heat, but also noting point 3 above,
7. Has sufficient room for expansion should the initial boreholes be successful,
8. Be in line with existing and forthcoming Planning Policies, therefore excluding areas such as Green Belt, Conservation Areas and adjacent to Listed Buildings.

SITE	MEETS CRITERIA	DOES NOT MEET CRITERIA	NOTES
Crewe Town Centre	1, 3, 5, 6, 7	2, 4, 8	Too close to residential properties, and limited room to expand.
West Street/ Dunwoody Way	1, 3, 4, 6, 7, 8	2, 5	Not significant users in the area.
Basford East	1, 3, 4, 6, 7, 8	2, 5	Potential for geothermal energy once development commences and need is established.
Basford West	1, 3, 4, 6, 7, 8	2, 5	Potential for geothermal energy once development commences and need is established.
Leighton West	1, 2, 3, 4, 5, 6, 7, 8		Fits all criteria.
The Triangle (Crewe)	1, 3, 4, 6, 7, 8	2, 5	Potential for geothermal energy once development commences and need is established.
East Shavington	1, 3, 4, 6, 7	2, 5, 8	Disturbance from drilling may impact sensitive areas.
Crewe Rail Exchange	1, 2, 3, 4, 5, 6	7, 8	Not sufficient land for expansion and potential impact on railway from drilling.
Macclesfield Town Centre	3, 5, 6, 7	1, 2, 4, 8	Too close to residential properties, and limited room to expand.
South Macclesfield Development Area	2, 3, 4, 5, 6, 7, 8	1	Is not within sufficiently hot area.
Land between Congleton Road and Chelford Road	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Land East of Fence Avenue	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Twyfords	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Former MMU Campus	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Radway Green	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Back Lane and Radnor Park	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Congleton Business Park Extension	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Giantswood Lane to	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently

Manchester Road			hot area.
Manchester Road to Macclesfield Road	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Handforth	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Parkgate Extension	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
North West Knutsford	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Brooks Lane	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Glebe Farm	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Mid Point 18 Extension	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Kingsley Fields	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Snow Hill	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Stapley Water Gardens	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Land Adjacent to Junction 17 of the M6, South East of Congleton Road	3, 4, 5, 6, 7, 8	1, 2	Is not within sufficiently hot area.
Former Albion Chemicals	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Adlington Road	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Land at Royal London	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Wardle Employment Improvement Area	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Handforth East	2, 3, 4, 5, 6, 7, 8	1	Is not within sufficiently hot area.
South East Crewe	1, 3, 4, 5, 6, 7, 8	2	Potential for geothermal energy once development commences and need is established.
Coppenhall East and Maw Green	1, 3, 4, 6, 7, 8	2, 5	Council owns substantial areas at Maw Green, but less than 50% of the site
Parkers Road	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Warmingham Lane	3, 4, 5, 7, 8	1, 2, 6	Is not within sufficiently hot area.
Midpoint 18 (Phase 3)	1, 3, 4, 5, 7, 8	2, 6	Potential for geothermal energy once development

			commences and need is established.
Sandbach South West	1, 3, 7, 8	2, 4, 5, 6	Is too close to existing residents and does not have sufficiently high heat loads to be viable.
Former Fisons	3, 7, 8	1, 2, 4, 5, 6	Is not within sufficiently hot area, nor has end users or heat loads.

Within the Councils strategic development sites and asset portfolio the site that best meets all of these requirements would be Leighton in Crewe. This site is within the Council's ownership in the prime location for heat and potentially electricity; is over 20ha in size with much of the site over 200m from nearby residential properties; is adjacent to major industrial users with other industry nearby (all of whom consume significant amounts of energy and heat); is part of plans to deliver significant levels of new housing and is identified as a strategic development site in the emerging Local Plan. Therefore, of the available sites, Leighton West is the prime candidate to take forward for geothermal energy production.