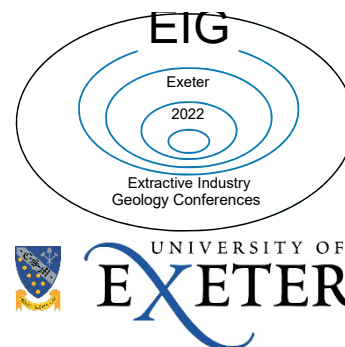
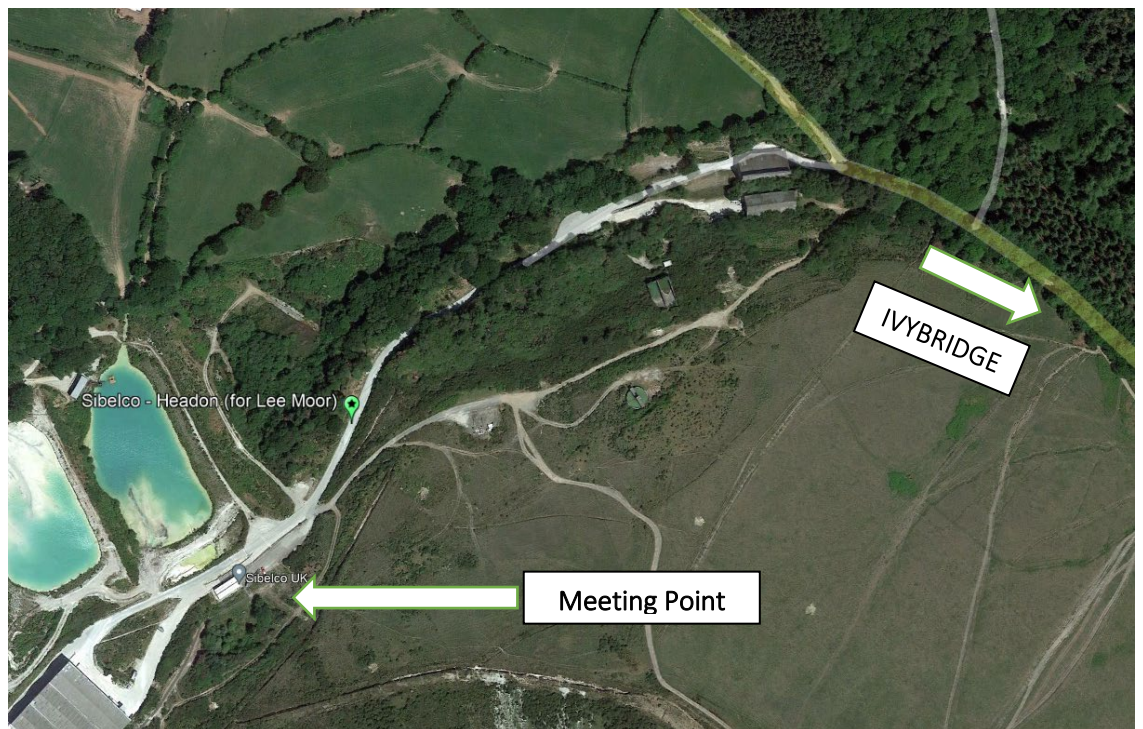


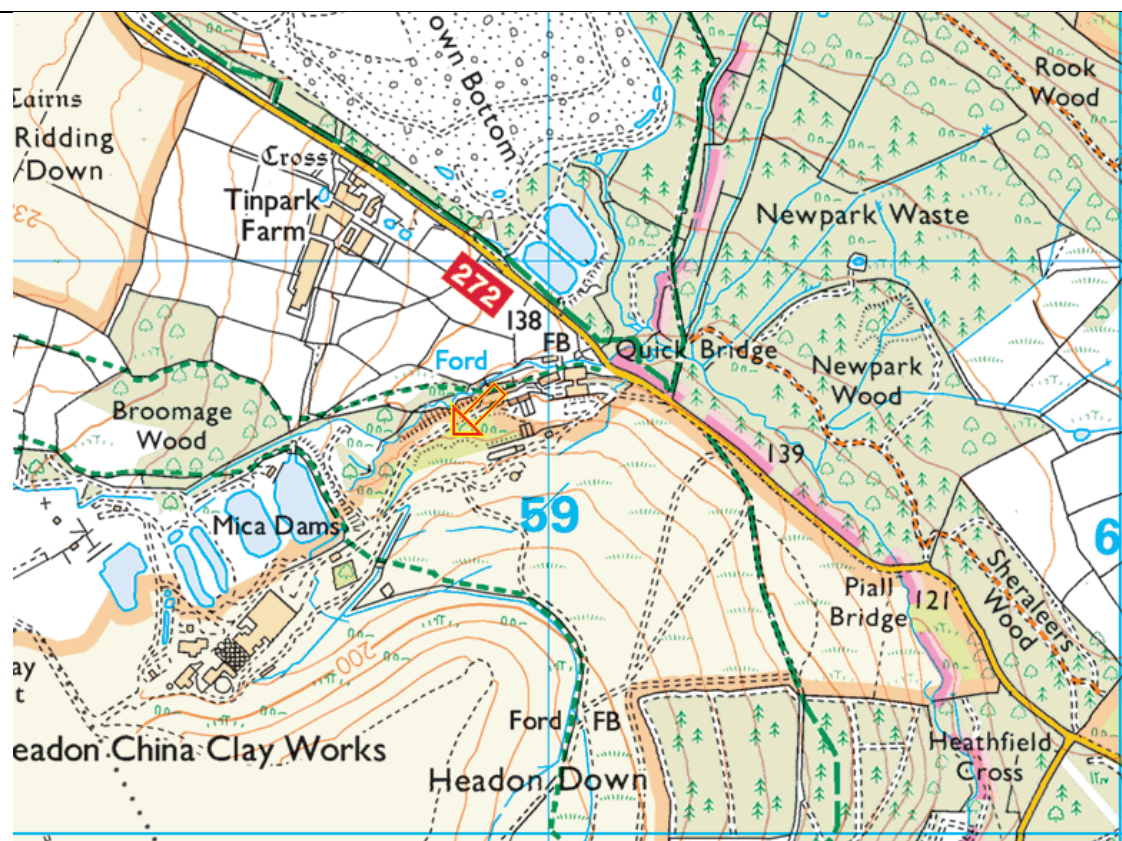
*EIG FIELD TRIP GUIDE*WEDNESDAY 7<sup>TH</sup> JULY 2022*LEE MOOR KAOLIN (Sibelco & AI)*

<b>Location</b>	Cornwood / Headon Works. Ivybridge, PL21 9PW
<b>Field Trip Leader</b>	Max Suttie, Operational Geologist – Sibelco Steven Hopkins, Geological Services Manager – Aggregate Industries
<b>Contact &amp; Meeting Point</b>	Max Suttie 07892 701254 Weighbridge at Headon Works.
<b>Website</b>	<a href="http://www.sibelco.com">www.sibelco.com</a>
<b>Objective</b>	Visit to operational Kaolin (china clay) mine and secondary aggregate processing facility
<b>Time of Arrival</b>	1:30 for 2pm start
<b>Length of Visit</b>	2 hours
<b>PPE Required</b>	Steel toe-cap boots Hard hat High visibility top (vest or jacket) AND Trousers Safety glasses Gloves
<b>Driving time to Exeter University</b>	1 hr.

**Location Map**



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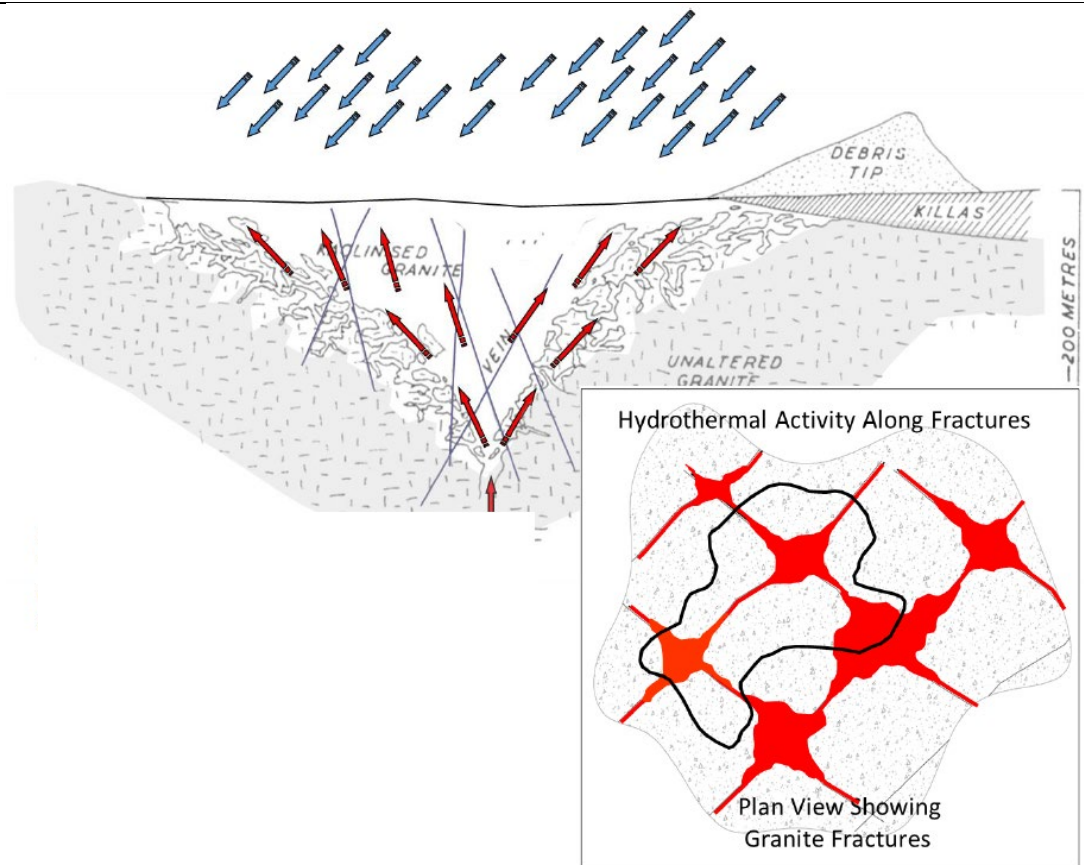
### Geology

#### **Granite**

The Dartmoor granite is one of five major granite cupolas which form the spine of southwest England, indicated to have been intruded at the culmination of the Variscan orogeny (~290 million years ago). Gravity survey measurements indicate that the southern margins of the cupola are steeper than the northern margins. The Dartmoor Granite takes the form of an asymmetric laccolith, with the magma having risen in the south from a depth of 16-20km and then spread northwards as a sheet formation. The bottom surface of the laccolith is indicated c. -10km AOD. The primary minerals in the Dartmoor granite are quartz, orthoclase feldspar, plagioclase feldspar and biotite mica. The most abundant accessory minerals are tourmaline, zircon, apatite and locally muscovite mica.

#### **Alteration of the Granite**

The kaolinisation of the southwest England granites is due to a combination of hydrothermal alteration and deep Tertiary weathering in a sub-tropical climate. The kaolinisation process alters the feldspars to kaolinite and may also result in localized occurrences of sericite and smectite clay minerals. The kaolinised granite has a soft crumbly texture and is locally known as growan. All of the granite intrusions in southwest England show varying degrees of kaolinisation with the St Austell granite being the most altered, and the kaolinisation of the Dartmoor granite being more localised. Kaolinisation in the Lee Moor area has preferentially developed along faulting and is more intense at the junction of fault systems. The kaolinised zones generally become narrower at depth and their form approximates to an inverted irregular cone.



### *Secondary Aggregates*

Extraction of kaolin generates a significant quantity of waste products – for every 1 tonne of kaolin recovered, approximate 9 tonnes of other materials are produced, comprising:

- 4 tonnes of sand
- 3 tonnes of stent (coarse rock)
- 1 tonne of overburden
- 1 tonne of micaceous residue

At Lee Moor, Aggregate Industries produce sand products from waste generated by the extraction of kaolin. This represents a sustainable source of high-quality fine aggregates for use in the regional construction industry.

For more information on the Kaolin Industry in Southwest England, see [BGS Mineral Planning Factsheet - Kaolin](#) (click link to visit)