LOCAL GEOLOGICAL SITES
UTTLESFORD DISTRICT

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UfdG23 Limefields Pit Nature Reserve

Site location: Off the cul-de-sac known as Limefields, one kilometre north of Saffron Walden on Little Walden Road.

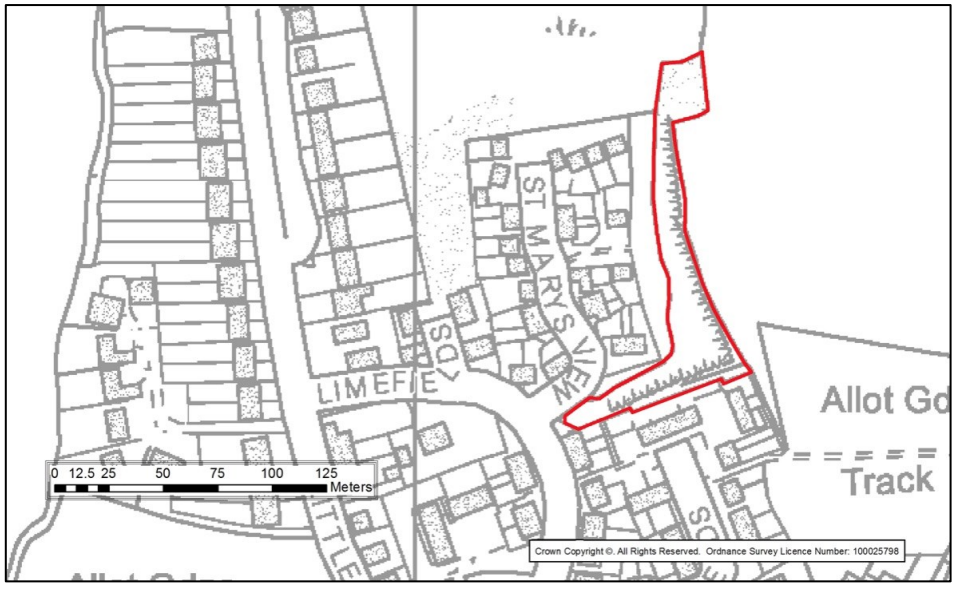
Grid reference: TL 541 396

Status: Access available by prior arrangement with the warden

Summary of the geological interest:

Limefields Pit is a disused chalk quarry, the floor of which is occupied by a housing development built in 1998. A buffer zone between the houses and the vertical chalk face is fenced off as a nature reserve managed by Essex Wildlife Trust. The face is a fine exposure of Upper Chalk. Chalk is a special type of limestone formed on the floor of a tropical sea about 80 million years ago during the Cretaceous period. The Chalk Sea is thought to have covered most of northern Europe, the purity of the chalk being evidence that coastlines were then far away and sea level was very high. At this time the European continent had not yet separated from North America. Fossils of creatures that lived in the Chalk Sea have been found in the Chalk here but they are rare.

The chalk at Limefields is soft, white, blocky chalk with a marl seam in the upper part of the face. There are widely spaced courses of nodular flint and layers and oblique veins of tabular flint. Flint is an extremely hard, black form of quartz that originates from the skeletons of organisms such as sponges that were dissolved by sea water and precipitated as mostly horizontal layers. Some fine flint nodules can often be seen on the floor of the quarry.



Site Assessment. *Local Geological Sites (LoGS) in Essex are assessed using criteria based on DEFRA guidance. An assessment form is used which asks key questions under four value categories: scientific, educational, historical and aesthetic. This site has been assessed and qualifies under these criteria.*

Date of selection/last revision: March 2020

Scientific interest and site importance

Today about 6 metres of Upper Chalk is exposed in the cliff face at Limefields which is in the lower part of the *Micraster coranguinum* zone. Fossils are now surprisingly rare but the 1932 Geological Survey memoir reports well preserved tests of the echinoids *Micraster praecursor* and *Micraster cortestudinarium*. Rarer fossils reported were the echinoids *Echinocorys scutatus* and *Cidaris serrifera*, the bryozoan *Entalophora virgula* and the bivalve *Inoceramus lamarcki.*

The top of the chalk face consists of intensely shattered chalk, which is a relic of the permafrost conditions existing over the region during the coldest periods of the Ice Age. There is also a number of vertical fissures containing what appears to be soliflucted chalk (coombe rock), the origin of which is not entirely clear.

A total of about 20 metres thickness of chalk was visible in the quarry in 1932 although this was not all in one face. In 1998, during construction of the houses on the floor of the quarry a considerable quantity of soil was unfortunately imported onto the site and the lower part of the chalk face is now buried. This may include some of the fossiliferous horizons. The Chalk is about 200 metres (over 650 feet) thick and so this cliff represents a very small part of the total thickness of Chalk beneath our feet.

The quarry is about 10 minutes walk from the centre of Saffron Walden. The proximity of the site to the town centre makes it of great educational importance. The chalk face is visible from a distance, providing added character to the landscape.

Other information

The quarry was formerly called Limekilns Quarry and it was active in 1932 when the geological survey memoir was published. It is therefore of local historical interest. The nature reserve has the potential for a diverse flora, which will develop in time. Holes in the chalk face are thought to provide homes for a number of species of birds. At the time of writing the gate to the reserve is locked to prevent vandalism. Permission for access is available from the warden.

References

OSBORNE WHITE, H.J. 1932 **The Geology of the Country near Saffron Walden**. Memoirs of the Geological Survey, England and Wales. Explanation of Sheet 205. Pages 41-42.

WHITAKER, W., PENNING, W.H., DALTON, W.H. and BENNETT, F.J. 1878. **Geology of the N.W. Part of Essex and the N.E. Part of Hertfordshire**. Memoirs of the Geological Survey. HMSO.

Limefields Chalk Pit. Photo: G. Lucy

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