

LOCAL GEOLOGICAL SITES

UTTLESFORD DISTRICT



UfdG25 Newport Chalk Quarry

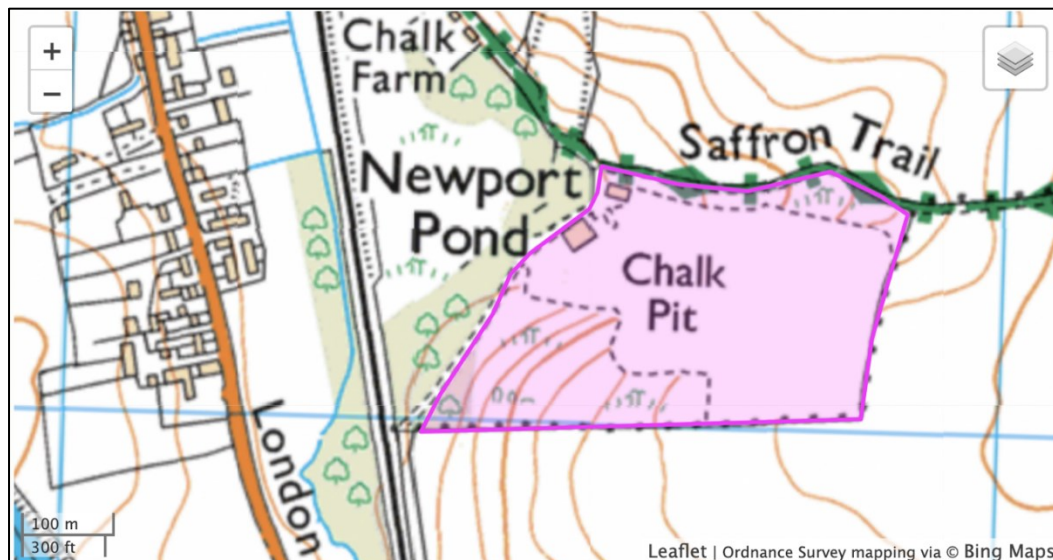
Site location: A large chalk quarry off London Road, south of Newport.

Grid Reference: TL 525 331

Status: Working quarry (private land).

Summary of the geological interest:

Newport Chalk Quarry (also known as Chalk Farm Quarry or Newport Limeworks) is the only working chalk quarry in Essex, supplying chalk for agricultural lime. It is coming to the end of its life, with plans for landfill. There are currently fine exposures of Upper Chalk and excellent sections through numerous gravel-filled solution pipes. It is hoped that some geological sections can be retained in any future restoration scheme.



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

Scientific interest and site importance

Newport Limeworks is the only working chalk quarry in Essex and clearly visible when travelling on the train or on the M11 motorway. The pit was first referred to by Whitaker (Whitaker et al. 1878) as a chalk pit with flints east of Newport Station containing 'a very persistent horizontal layer of tabular flint thrown down 18 inches by a fault, and two large pipes of gravel stop at this layer.' Whitaker also lists fossils found in this pit (fragments of *Inoceramus* bivalve shell and the sponge *Ventriculites*). Lake and Wilson (1990) describe the quarry as providing an exposure of 20 metres of fractured white Upper Chalk and states that the persistent layer of tabular flint occurs about 6 metres below the top of the face. Fossils are, unfortunately, very rare in this quarry.

The solution pipes

The pit is most well-known, however, for the remarkable 'solution pipes,' and is one of only two places in Essex where such features can be seen; the other being at Chafford Gorges Nature Park in Thurrock. Although pipes like this were once a common sight in many chalk quarries there are very few left which makes these examples of great importance. Chalk solution pipes are a geological curiosity with no scientific agreement on their exact origin. In places the sides of the pipes are almost vertical. Here at Newport they are typically 1 to 2 metres wide and 2 to 3 metres deep, lined with derived dark brown sandy clay and infilled with reworked Kesgrave Sands and Gravels from the pre-diversion Thames. The best explanation for the formation of these pipes is groundwater percolating down through the deposits originally overlying the Chalk, probably in the hot climate of the Palaeocene (about 55 million years ago), that has very slowly dissolved the chalk along joints. As the chalk has been removed millimetre by millimetre the overlying deposit has sagged down into each pipe. But this explanation is too simplistic and does not explain all the features seen.

Photographs of these pipes were taken by the British Geological Survey in 1980, including a probably unique photo of a newly-scraped chalk surface showing the frequency of these pipes from above. Further photographs were taken during a GeoEssex visit in 2011 when the exposure of solution pipes was just as impressive.

Other information

It is hoped that in the forthcoming restoration scheme for Newport Chalk Pit, sections through the solution pipes can be preserved in some form for future scientific study. Chalk cliffs are resistant to weathering so there will not be any need for future maintenance. Newport Chalk Quarry is a working quarry and permission to visit must be obtained from the quarry operators.



Solution pipes at Newport Chalk Quarry. Photo: G. Lucy

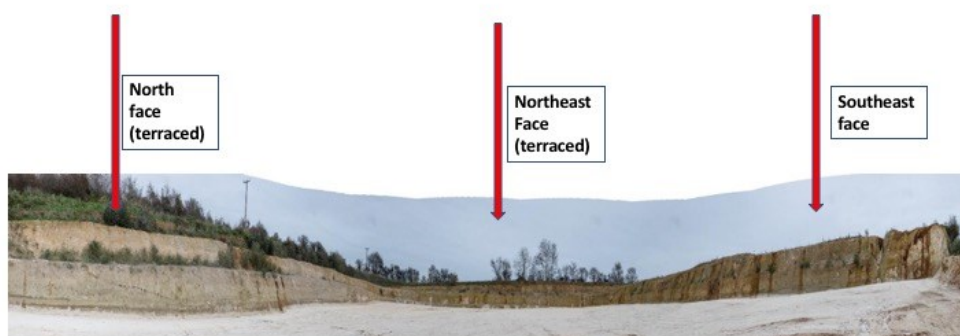
Quarry map



Proposed development



East section of quarry



Restoration plan following landfill 2022