LOCAL GEOLOGICAL SITES
CHELMSFORD DISTRICT

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ChG6 Parsons Spring Pits, Highwood

Site location: Disused sand and gravel pits in Parsons Spring, near Highwood.

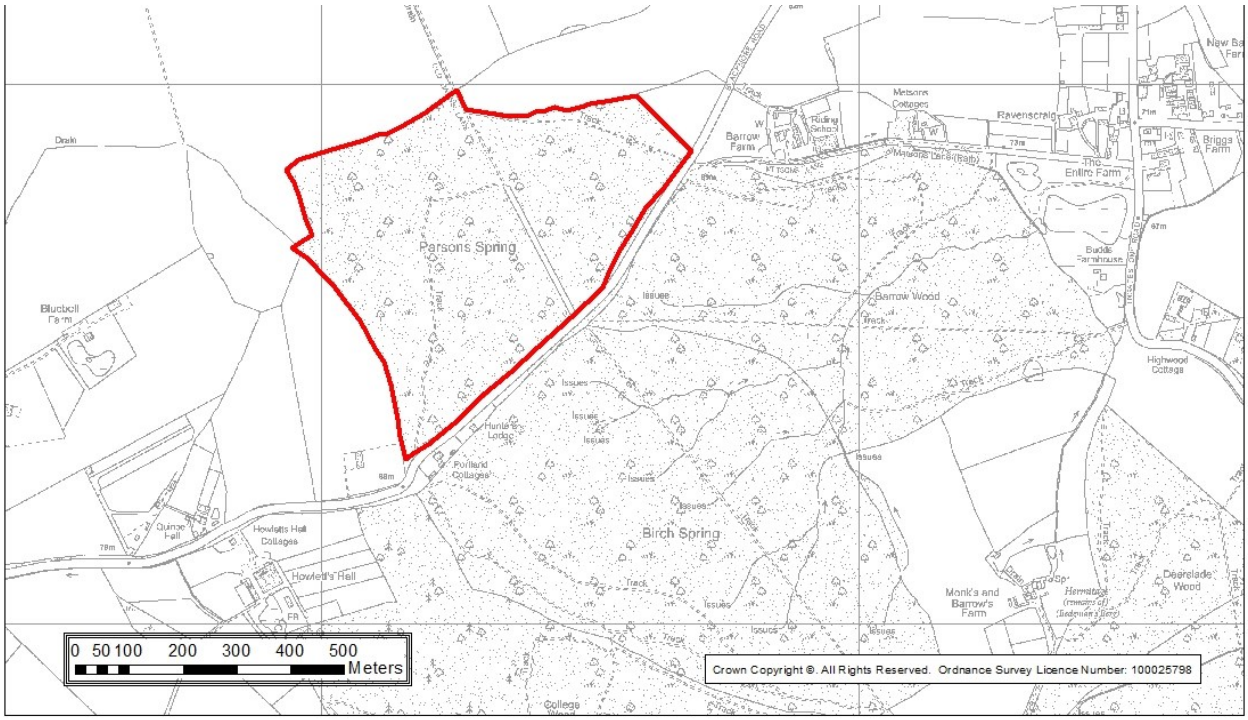
Grid Reference: TL 623 028

Status: Privately owned

Summary of the geological interest:

Parsons Spring (also known as Parsons Wood) has numerous shallow but steep-sided pits where sand and gravel was once exploited, probably for hoggin for use on the paths of Writtle Park estate. This sand and gravel is referred to on geological maps as 'Stanmore Gravel' (formerly called 'pebble gravel') and it occurs elsewhere on the high ground of the adjoining Brentwood district. How it was formed has been debated by geologists since the 19th century. Its origin is still unclear today although one theory is that it was laid down by a river, probably over one million years ago, during the early part of the Ice Age. Other geologists have suggested that it could be a marine deposit.

The pits are clearly visible as overgrown hollows either side of the public footpath that runs through the wood. Some sand and gravel can be seen in the sides of the pits and especially in the roots of fallen trees where the well-rounded pebbles are conspicuous.



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

Scientific interest and site importance

The outcrop of sand and gravel at Parsons Spring is about 300 metres in diameter and lies on top of bedrock of Claygate Beds. A 3.3 metre section through these deposits was revealed in a trial pit dug by the British Geological Survey and described in the 1987 geological survey memoir (Millward et al. 1987). The deposits are described in the memoir as 'older Head' and their origin is discussed. More recent geological mapping by the BGS has reclassified these deposits as Stanmore Gravel. The origin of Stanmore Gravel is discussed by Ellison (2004) who resurrects an old established theory that it may be an early Ice Age marine deposit.

Similar deposits (formerly called 'pebble gravel') occur on high ground elsewhere in this part of Essex (generally above 90 metres OD) but the outcrop at Parsons Spring is one of the best described. It is also one of the thickest, up to 7.2 metres having been recorded here.

The deposits are very variable both vertically and horizontally, and in places very colourful. It is mostly silty sand and sandy clay - sometimes mottled grey and bright orange - with layers of flint pebbles. There are also minor amounts of other rock types. The flint pebbles are mostly well-rounded - originally formed on an ancient beach - and probably derived from marine deposits in south Essex and Kent.

The great variation of the deposits is clear from the BGS trial pit which was dug at TL 6229 0280. It generally revealed silt, sand and clay, often mottled and with great colour variation. There are pockets and layers of gravel, both of angular and well-rounded, mainly white, patinated flints. Lateral variation may be due to cryoturbation (freezing and thawing), which has also resulted in flints with their long axes vertical. No study has yet been made of the different rock types in the deposit in Parsons Spring but in College Wood to the south, the gravel was found to contain vein quartz, quartzite and rare Lower Greensand pebbles. The gravel outcrops in Parsons Spring and College Wood are similar and are characterized by rather different pebble assemblages compared to occurrences elsewhere in the area (Millward et al 1987). Future research here may therefore be important in helping to establish an origin for this enigmatic deposit.

Other information

There are a large number of overgrown pits of varying sizes in Parsons Spring. The wood is private property but the pits are clearly visible as hollows either side of Old Barns Lane, a public footpath running through the wood north from Blackmore Road. The geology of this area is interesting with Anglian boulder clay, or till, outcropping to the north and west of the wood and Claygate Beds and Bagshot Sand outcropping in the woods to the south.

References

ELLISON, R.A. 2004. **Geology of London**. Special Memoir for 1:50,000 Geological sheets 256 (North London), 257 (Romford), 270 (South London) & 271 (Dartford). British Geological Survey. Page 52.

MILLWARD, D, ELLISON, R.A., LAKE R.D. AND MOORLOCK, B.S.P. 1987. **Geology of the country around Epping**. Memoir of the British Geological Survey, sheet 240 (England and Wales). British Geological Survey. HMSO. Pages 25, 26 and 28.