

LOCAL GEOLOGICAL SITES

EPHING FOREST DISTRICT



EpG10 Shales More Tufa Springs and Stream Meanders

Site location: Shales More, Stapleford Tawney, Essex

Grid Reference: TQ 499 985

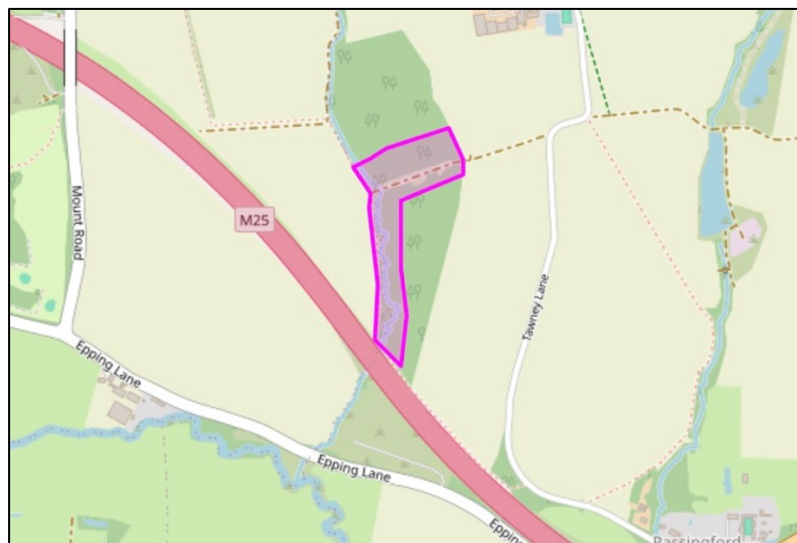
Status: Private land (no public access)

Summary of the geological interest:

Tufa springs at the junction of London Clay and overlying Anglian till. Calcium salts in solution (derived from dissolved chalk in the till) are precipitated on small twigs and leaves as a covering of calcareous tufa.

The stream that runs along the western boundary of the wood (a tributary of the River Roding) has fine incised meanders and what appears to be an abandoned meander.

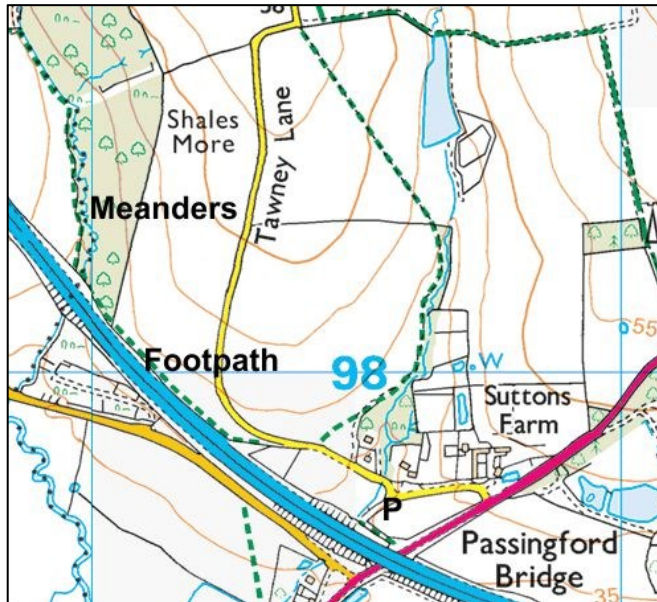
The woodland of Shales More is designated as a Local Wildlife Site.



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.*

Access

Parking is available in Tawney Lane in an abandoned triangle of road opposite Suttons Farm (TQ 5057 9777). Further along Tawney Lane at TQ 5039 9787 a footpath runs alongside the M25 to the Shales More woodland. At TQ 4997 9821 the footpath runs alongside the western side of the woodland, with the meanders just within the woodland. The tufa springs are not publicly accessible.



Scientific interest and site importance:

Hard-water **tufa springs** are rare in Essex. Dissolved carbon dioxide (CO_2) in rainwater (H_2O) soaks into the ground and has reacted with chalk (calcium carbonate - CaCO_3) in the boulder clay to form soluble calcium bicarbonate ($\text{Ca}(\text{HCO}_3)_2$). When the groundwater reaches the surface and comes into contact with the air, carbon dioxide is lost from the water and a hard deposit of cream-coloured calcium carbonate (tufa) is formed. The lime-rich water has encrusted objects in the stream bed including twigs, leaves and other organic material. The Shales More tufa deposits are largely inaccessible due to a covering of soil and vegetation, but may be seen in patches when burrowing animals have brought the travertine to the surface. They are of considerable antiquity.

Meanders are a common feature of lowland rivers but usually they are large making it difficult to appreciate them from ground level. The stream within Shales More woodland has escaped artificial realignment and channelling and a fine group of small-scale, deeply incised meanders have been preserved between TQ 5004 9850 and TQ 4999 9821.

Meanders are loop-like bends in a river, characterised by an actively eroding cliff on the outside of the curve and a gentle slope of deposited material on the inside. Usually meanders occur on the part of the river with the least gradient. The sinuous curves are the result of the balance between energy and friction when a low energy river moves fine sediments down a shallow gradient.



Incised meander at c.TQ 4997 9840

Photo: P. Allen June 2025

Condition report. 13 June 2025

The meanders are well exhibited adjacent to the footpath on the west side of the Shales More woodland. The Tufa springs are not publicly accessible.

References

DINES, H.G. and EDMUNDS, F.H. 1925. The Geology of the Country around Romford. Geological Survey Memoir. Explanation of sheet 257. HMSO. Pages 29 & 30

PENTECOST, A. 1993. British travertines: a review. Proceedings of the Geologists' Association. 104, Page 34.