A REPORT ON THE QUATERNARY GEOARCHAEOLOGY OF THE SITE AT 111 UXBRIDGE ROAD, EALING (SITE CODE: UXQ15)

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INTRODUCTION

This report summarises the findings arising out of the geoarchaeological investigations undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development at 111 Uxbridge Road, Ealing (Site Code: UXQ15; National Grid Reference: TQ 171 807; Figure 1). The site lies on the south side of the Uxbridge Road, about 0.5km west of the centre of Ealing. According to Ordnance Survey mapping, the site lies at between 27 and 28m OD. For much of both west and east London, the built-up area is on a sequence of terraces left as the Thames successively cut down to lower levels (see Figure 2). British Geological Survey (BGS) mapping (BGS 1:50,000, Sheet 256, North London) shows the site to lie in an area where Langley Silt overlies sands and gravels of the Lynch Hill terrace, in turn resting on London Clay bedrock (Table 1).

Table 1: Expected sequence at the 111 Uxbridge Road site, as shown by BGS mapping.

Era	Period	Stage	Unit	Age (yrs)
Quaternary	Pleistocene	Devensian	Langley Silt	? *ca*. 30,000
		Un-named MIS 10-9-8	Lynch Hill terrace sand and gravel	*ca*. 300,000
Tertiary	Palaeocene	Eocene	London Clay	*ca*. 55,000,000

Key: MIS = Marine Oxygen Isotope Stage.

GEOARCHAEOLOGICAL CONTEXT

Lynch Hill Gravel

Brown (1886; 1887; 1889) described a 'working floor' lying on a seam of black-stained gravel (= Lynch Hill Gravel) immediately beneath the brickearth (Langley Silt), which he thought to be humic staining on an extensive land surface. He also identified two further seams or surfaces at depth within the gravels associated with small numbers of unrolled flint tools. He reported (Brown, 1887) 10 or 12 flint artefacts from the Lynch Hill gravel, 8 or 10 from the upper part and 2 from the lower. In contrast, Collins (1988), working in the Yiewsley area, suggested that within the Lynch Hill terrace sequence, artefacts may be more common in the lower part of the gravels.

Bazely et al (1991) did not support the idea of an extensive stable land surface at the top of the Lynch Hill Gravel, as the humic component is more likely to be manganese staining and they noted the flints that Brown had collected were not in pristine condition, though not badly rolled.

Langley Silt

Marsden (1927) recorded flints from the vicinity of Brown's site, including some Levallois flakes, 'thrown up' from a depth of 4 to 6.5 ft in the brickearth. The occurrence of the Levallois industry is important as it indicates a MIS 8, at oldest, and follows on from the MIS 9 age ascribed to the Lynch Hill Gravel. Bazely *et al*. (1991) recovered 21 artefacts from Creffield Road, but only from the Langley Silt.

Two cable percussion boreholes and six window samples put down during geotechnical investigations within the main part of the site by MLM Environmental in July 2014 reveal a sequence of Made Ground (to between 0.40 and 0.90m bgl) overlying 'Head' (to between 1.5 and 2.0m bgl), resting on Lynch Hill Gravel. The base of the Lynch Hill Gravel was recorded only in BH1, at 4.7m bgl; the window samples did not penetrate sufficiently deep to reach the same surface. Elsewhere, very few geotechnical investigations have taken nearby to the site. However, BGS borehole TQ18SE2 (www.bgs.ac.uk/opengeoscience) put down beyond the northern margin of the site indicates up to 8 feet of gravel overlying the London Clay.

The aim of the geoarchaeological investigations was (1) to clarify the nature of the sub-surface stratigraphy across the site, and (2) to evaluate the potential of the sequences to contain evidence for Palaeolithic archaeology or biological remains.

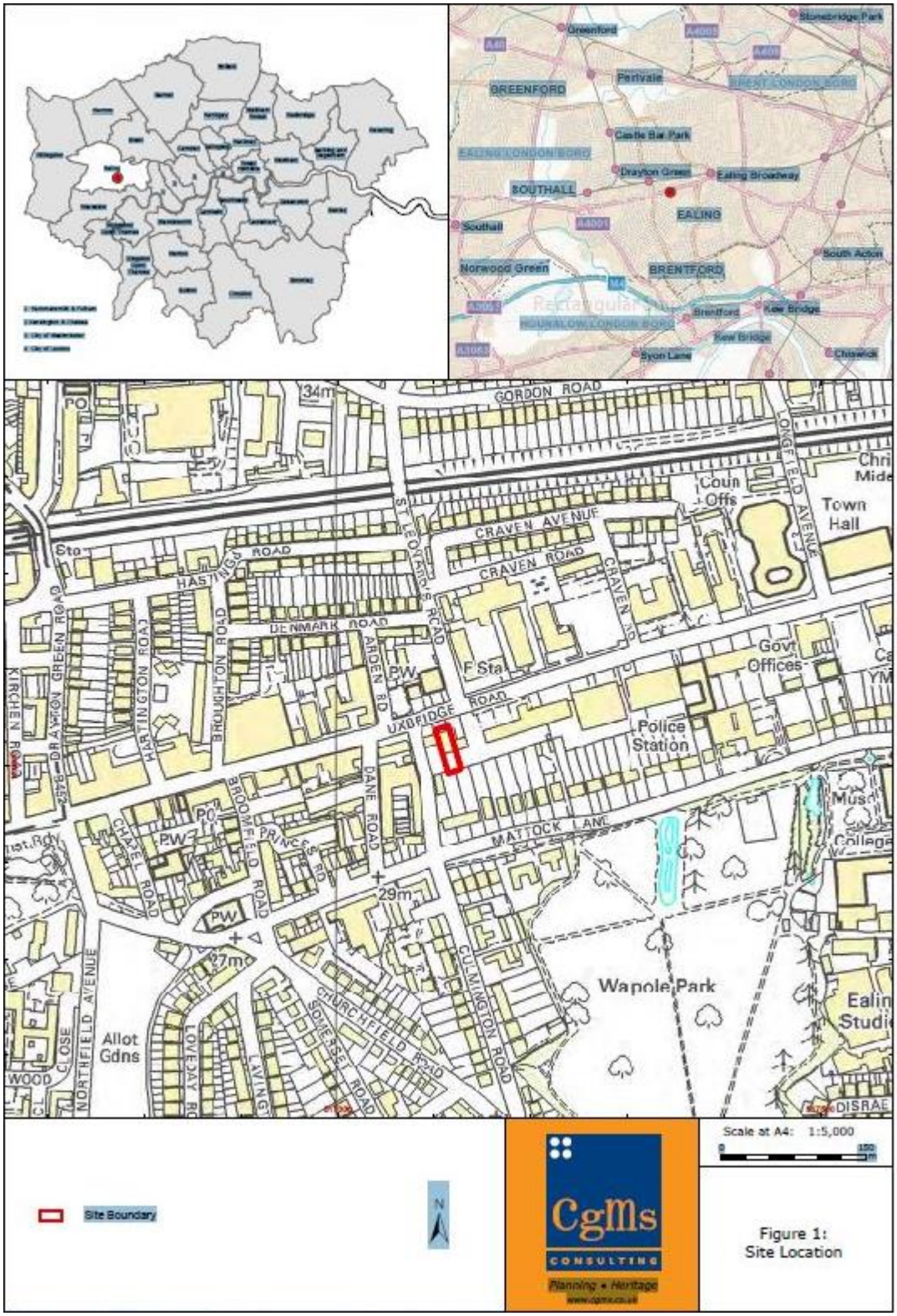

Figure 1: Site location (original figure provided by CgMs Consulting).

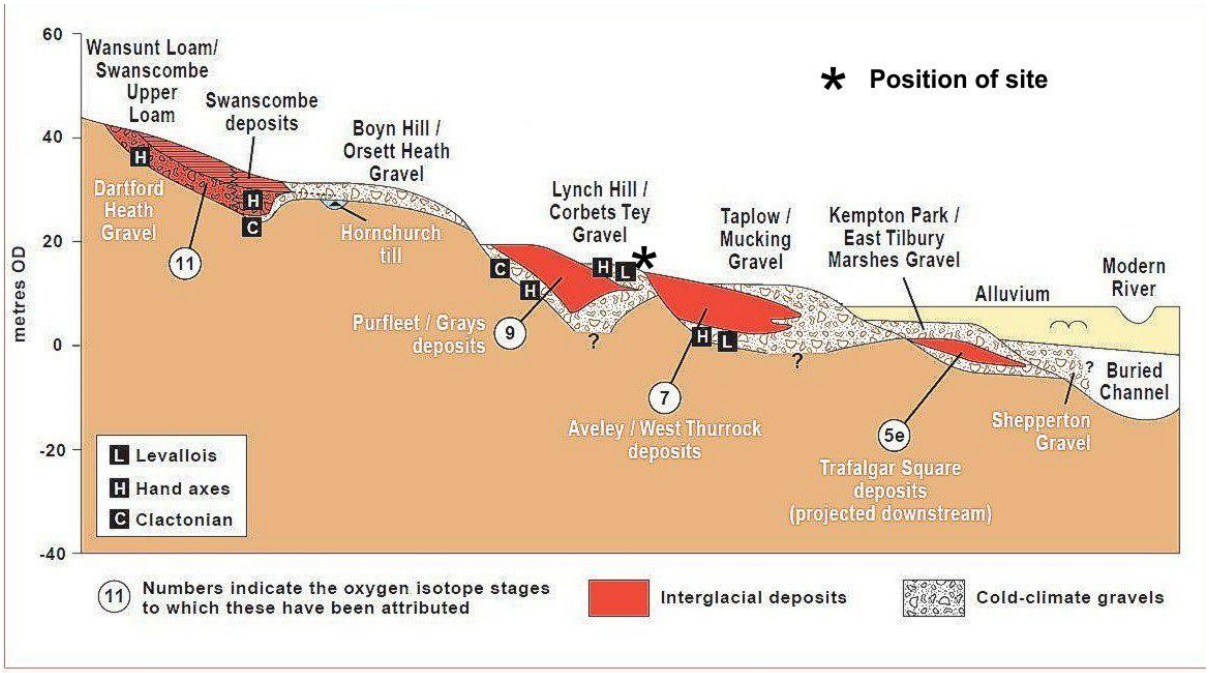

Figure 2: The Thames Terrace sequence.

METHODS

Three trial pits were sunk to depths of 4.25m (TP1), 3.25m (TP2) and 3.5m below ground level (bgl) (TP3) (Figure 3). The trial pits had a footprint of 3m x 2m. TP2 was terminated because gravel from the side walls was continually falling, compromising the safety of the TP and also making observation of clean gravel impossible. TP3 was terminated at the point where the arm of the machine was at its maximum extent; the machine was positioned on an extensive platform of rubble so that when the arm was fully extended it could reach only 3.5m below the original surface.

Due to stockpiles of demolition material and the possible position of services, none of the trial pits could be sunk exactly where proposed within the WSI (Green & Batchelor, 2014). The approximate positions of the trial pits is indicated in Figure 3. TP2 initially had a footprint of 3m x 2m, but thick concrete was encountered on the west side and a black service pipe, of uncertain status, on the east side, so the pit width had to be modified to 1.5m. For health and safety reasons no pit was entered after a depth of 1.2m was exceeded. Observations of the deeper parts of the pits were made from the ground surface, and strata thicknesses estimated from tape measurements. The geology was recorded by a field log at 1m to 4cm (1:25) and photographically. TP2 was narrow (1.5m), as noted above, and was difficult to photograph. TPs 1 and 3 were worked in rain and dull light.

The surface exposed by the machine blade was examined visually, where possible, for changes in the sedimentology of the deposits and for fossil material and the contents of the bucket for worked flint, bone and other fossil material.

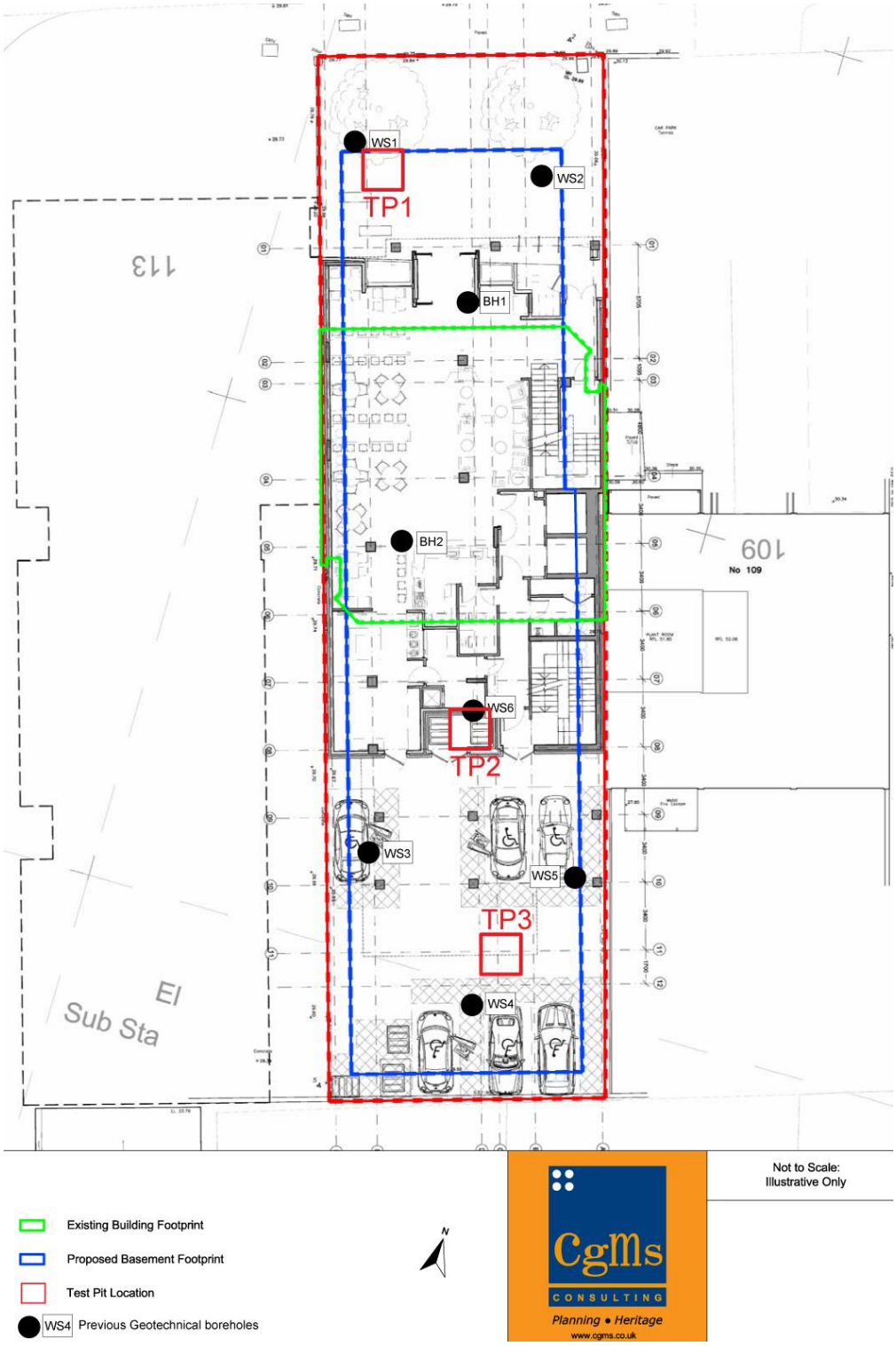

Figure 3: Approximate revised location of trial pits TP1 to TP3 showing the previous geotechnical boreholes.

RESULTS AND INTERPRETATION OF THE GEOARCHAEOLOGICAL INVESTIGATIONS

The results of the lithostratigraphic descriptions of trial pits TP1 to TP3 are displayed below. An estimated arbitrary level of 27.0m OD was assumed for the surface of the three trial pits.

Lynch Hill Gravel

The Lynch Hill Gravel was mostly sandy gravel with a maximum clast size of10+ cm, a size that might contain worked flakes, small or broken handaxes, but none were found. A sample of gravel from each trial pit was sieved through a 10mm mesh sieve. In TP2 (150 litres) one dubious flake was recovered and possibly rare debitage, but none of an acceptable standard. No artefacts were recovered from trial pits TP1 and TP3 (both 100 litres). No indications of manganese or humic (organic) staining were seen in the Lynch Hill Gravel.

Langley Silt

The Langley Silt is of variable character, ranging from sandy silt to reworked London or Reading Clay (Bromehead, 1925; Gibbard, 1985). At the site, the Langley Silt comprised reworked London Clay, brecciated and slickensided, indicating weathering and compatible with solifluction, mostly brown but with orange mottles, due to wetting and drying and again indicating weathering. Occasional flints within the deposit would have been picked up during the solifluction process as the London Clay moved off the higher ground to the north to overlie the Lynch Hill Gravel. Here, the Langley Silt had very few pebbles and they were small (*ca*. 3cm in diameter), not large enough for elaborate lithics such as struck flakes or handaxes.

Table 1: Results of the lithostratigraphic description of TP1, ground surface *ca*. 27.0m OD, excavated to a depth of 4.25m bgl (Figures 4 and 5). This pit established a stratigraphy for the site.

Unit	Depth (m bgl)	Depth (m OD)	Thickness	Description	Sample
1.1	0.0-0.3	27.0-26.7	0.3	Made ground	
1.2	0.3-1.5	26.7-25.2	1.2	Stiff, brecciated, mottled clay with occasional pebbles (c. 3 cm). Reworked London Clay (Langley Silt).	
1.3	1.5-4.25	25.2–22.45	2.75	Sandy gravel, Upper part (1.3a) clayey sandy matrix, modal size of pebbles 2.5 – 3 cm, occasionally up to 10 cm. Impersistent clay at 2.25 m bgs (1.3b) Middle Part part (1.3c): sandy matrix, with grey zones of reduced iron. Sand lens at 2.75 bgs (1.3d) Lower part (1.3e) sandy gravel with pebbles up to 10 cm more frequent. (Lynch Hill Gravel)	100 litres
				Lynch Hill Gravel not bottomed	

Table 2: Results of the lithostratigraphic description of TP2, ground surface *ca*. 27.0m OD, excavated to a depth of 3.25m bgl (Figures 6 and 7).

Unit	Depth (m bgl)	Depth (m OD)	Thickness	Description	Sample
2.1	0.00-0.40	27.00-26.60	0.20	Made ground	
2.2	0.40-1.8	26.60-25.20	1.4	Stiff, brecciated, mottled clay with occasional pebbles (c.3 cm). Reworked London Clay (Langley Silt).	
2.3	1.8–3.25	25.20-23.75	1.45	Sandy gravel. Due to sidewall collapse, unable to distinguish any changes in pebble size or matrix texture. (Lynch Hill Gravel)	150 litres
				Lynch Hill Gravel not bottomed	

Table 3: Results of the lithostratigraphic description of TP3, ground surface *ca*. 27.0m OD, excavated to a depth of 3.5 m bgs (Figures 8, 9 and 10).

Unit	Depth (m bgl)	Depth (m OD)	Thickness	Description	Sample
3.1	0.00-0.30	27.00-26.70	0.30	Made ground	
3.2	0.30-1.65	26.70-25.35	1.35	Stiff, brecciated, mottled clay with occasional pebbles (c.3 cm). Reworked London Clay (Langley Silt).	
3.3 3.3a 3.3b	1.65-3.5	25.35-23.50	1.85	Sandy gravel, Upper part (3.3a) clayey sandy matrix, modal size of pebbles 2.5 – 3 cm, occasionally up to 10 cm. Merges into Lower part (3.3b) sandy gravel with pebbles up to 10 cm more frequent. (Lynch Hill Gravel)	 100 litres
				Lynch Hill Gravel not bottomed	

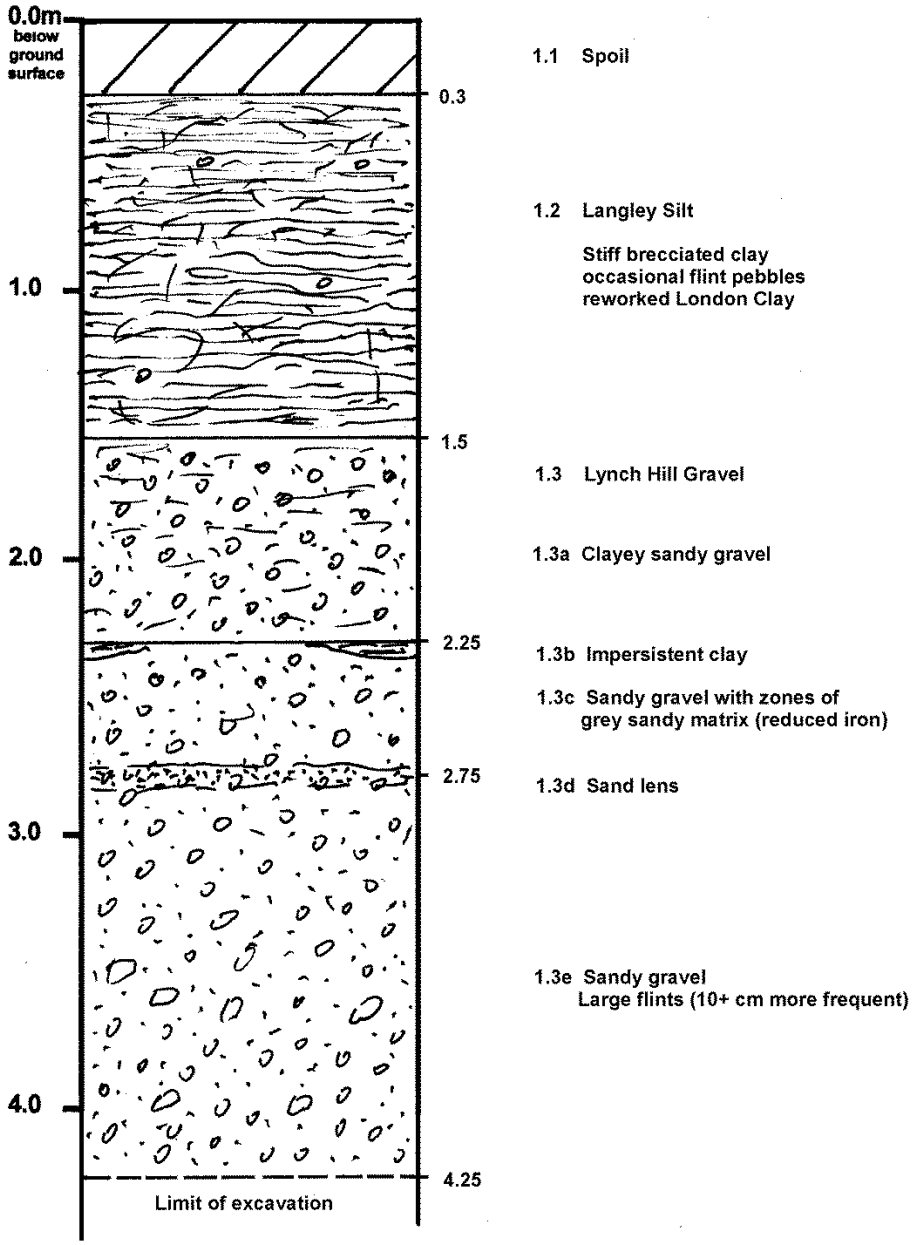

Figure 4: Trial pit TP1, log.

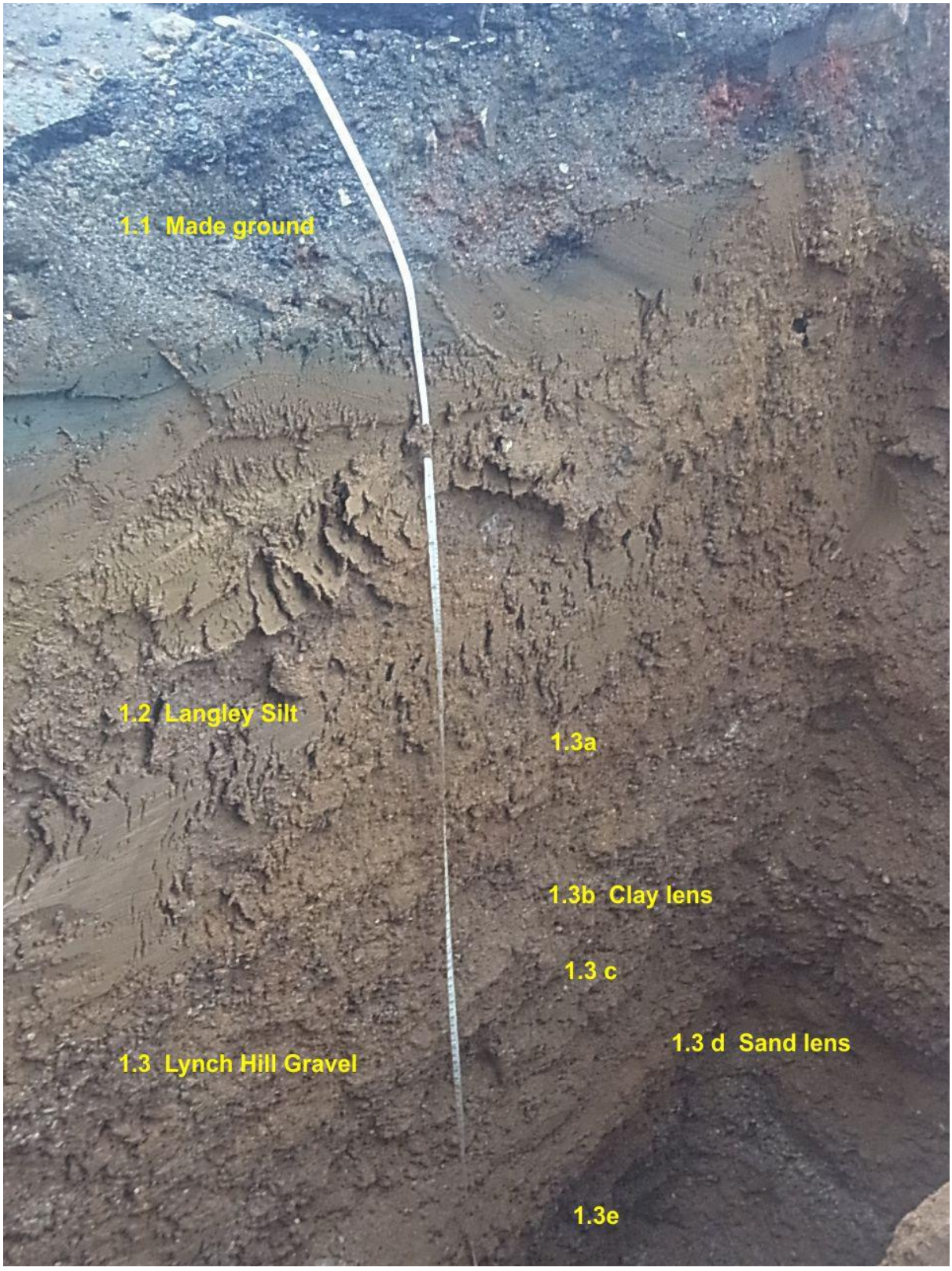

Figure 5: Trial pit TP1, photograph.

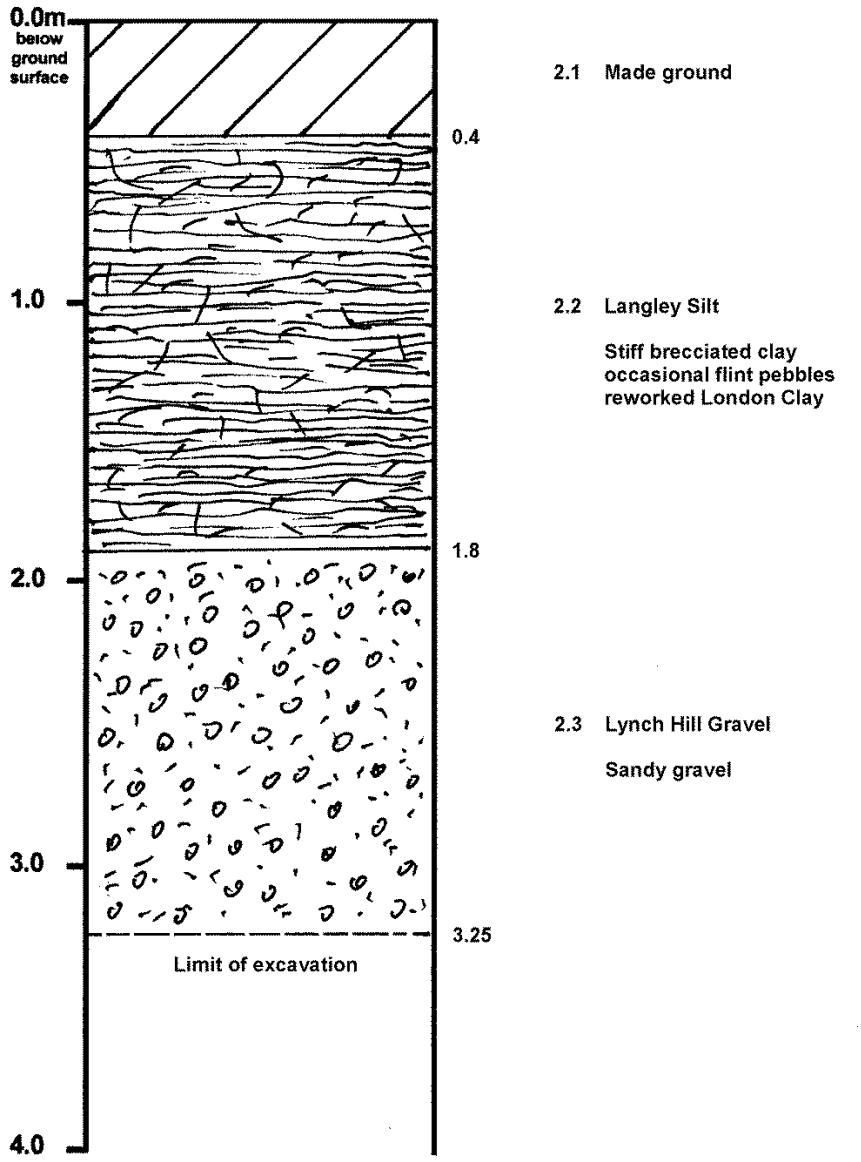

Figure 6: Trial pit TP2, log.

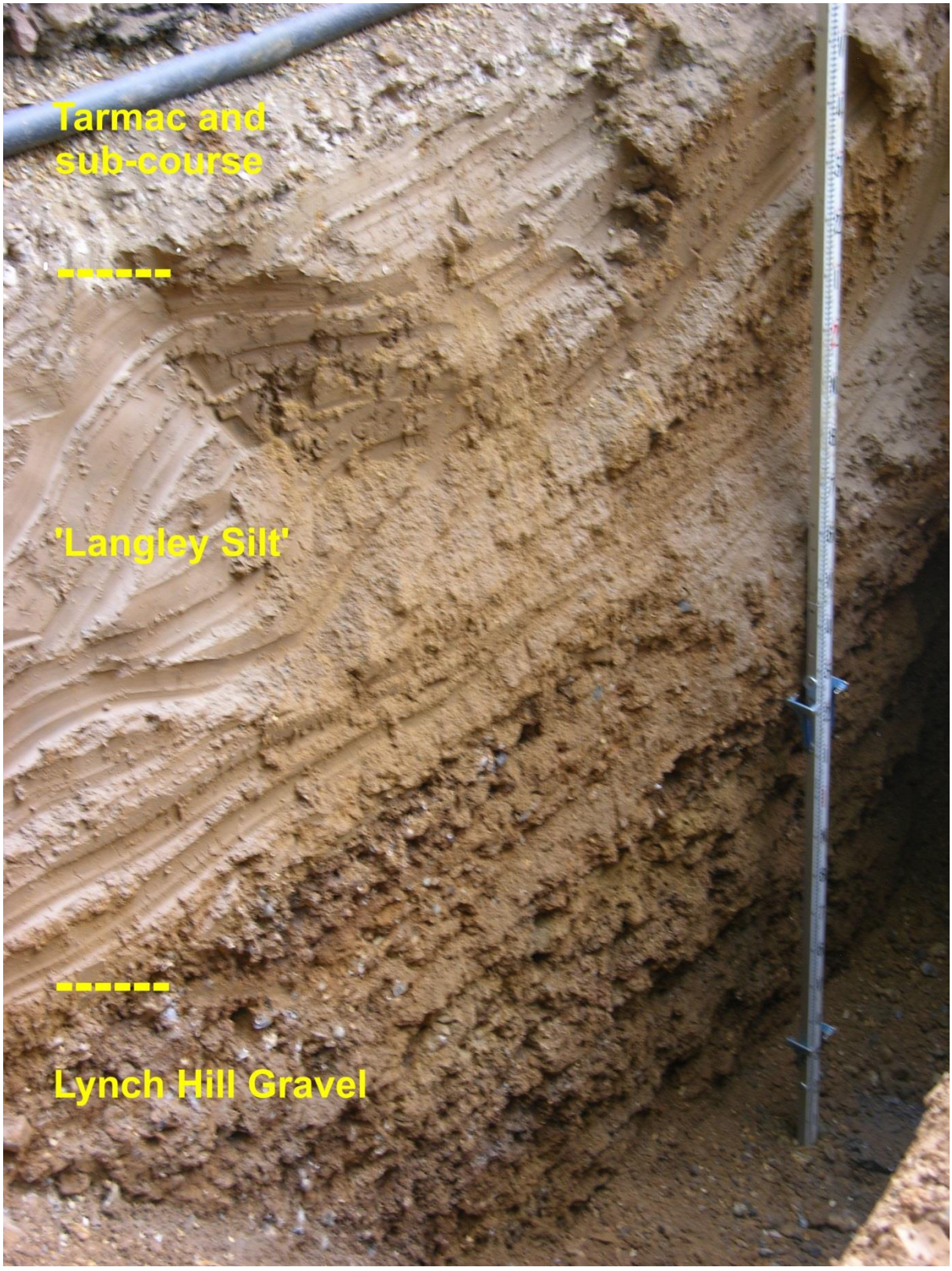

Figure 7: Trial pit TP2, photograph.

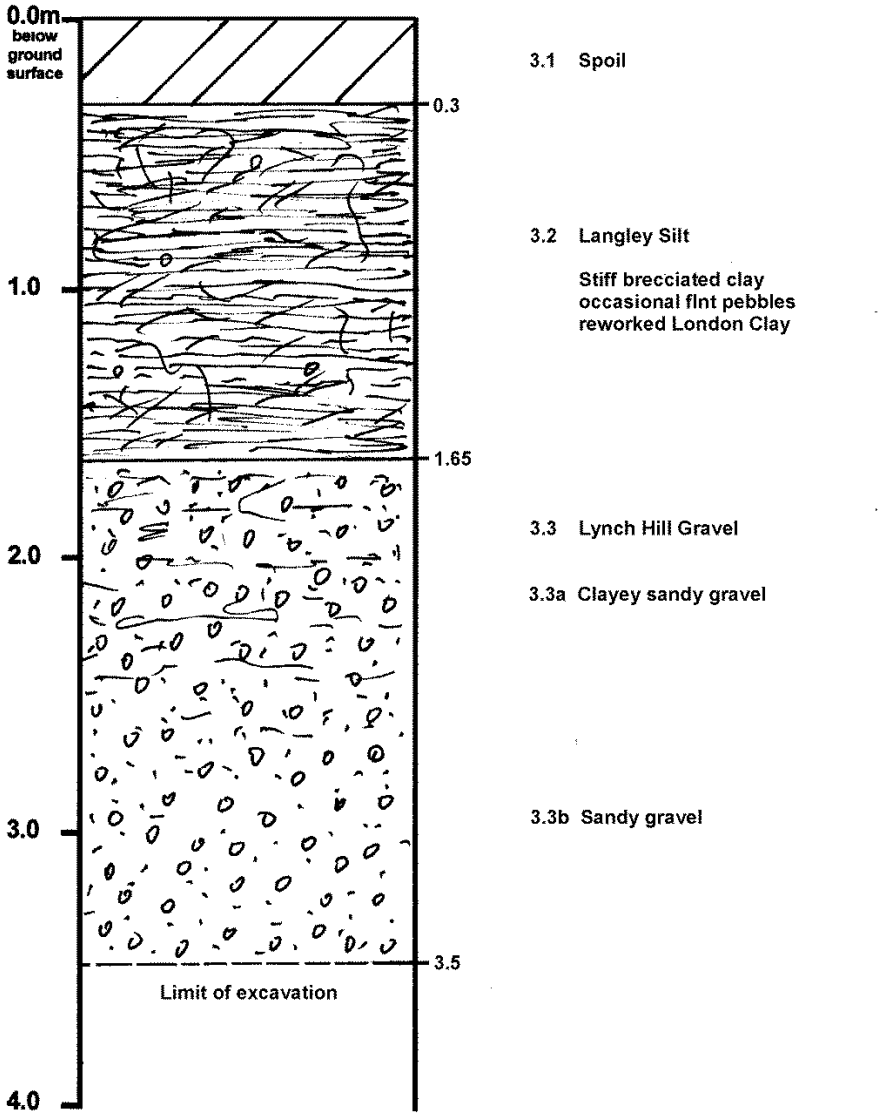

Figure 8: Trial pit TP3, log.

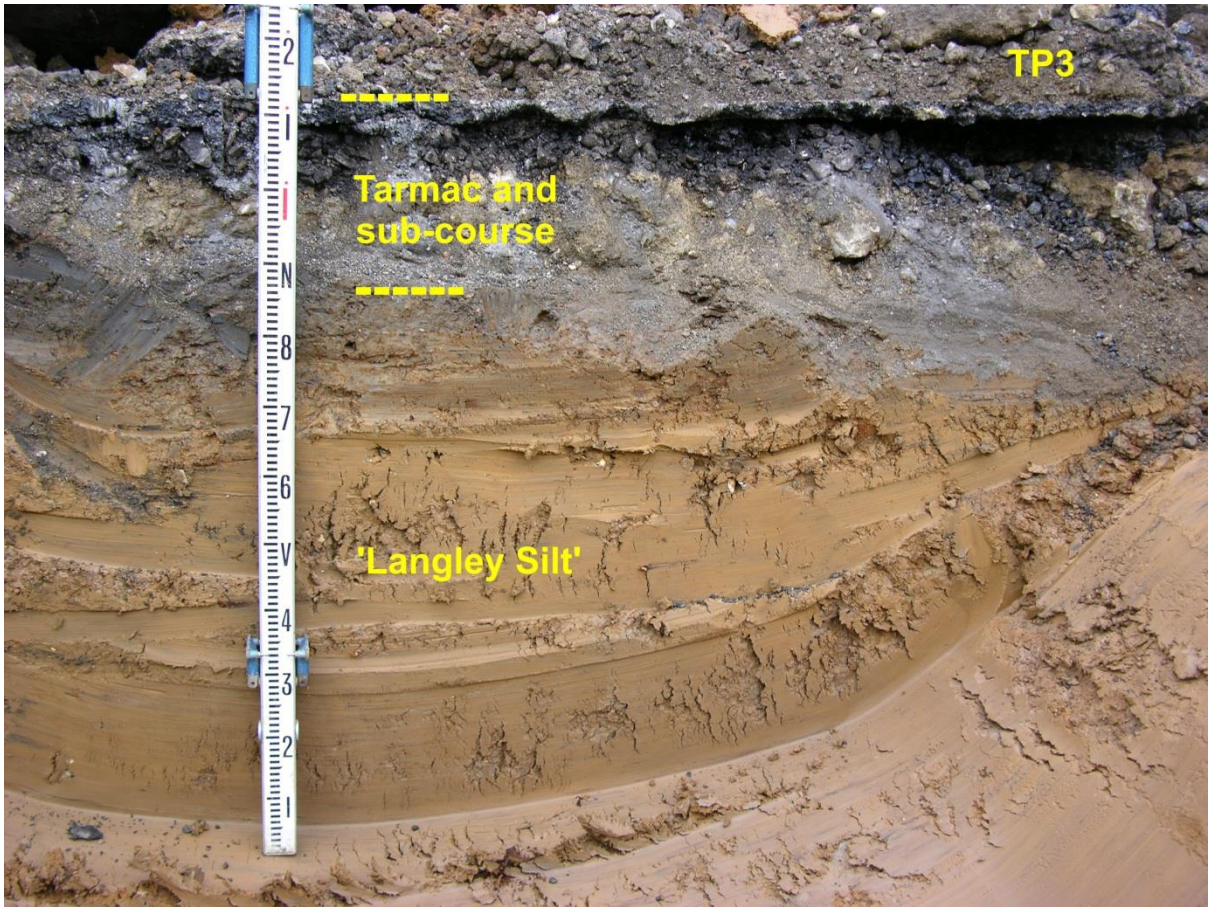

Figure 9: Trial pit TP3, Langley Silt, photograph.

Figure 10: Trial pit TP3, full sequence, photograph.

CONCLUSIONS AND RECOMMENDATIONS

The aim of the geoarchaeological investigations was (1) to clarify the nature of the sub-surface stratigraphy across the site, and (2) to evaluate the potential of the sequences to contain evidence for Palaeolithic archaeology or biological remains.

No stained (manganese or humic) horizons were noted in the Lynch Hill Gravel, and no lithics of consequence were found within the sieved samples. The Langley Silt, comprised of stiff reworked London Clay, is not a promising host material for lithics, reinforced by the small size and paucity of the pebbles. No organic horizons were identified at the site. On the basis of the findings presented here, no further geoarchaeological investigations are recommended.

ARCHIVE

An OASIS online record form (http://ads.ahds.ac.uk/projects/oasis/) has been completed for submission to the GLHER (see below). This will include an uploaded .pdf version of this report.

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