

30-44 CROWN STREET, ACTON, LONDON BOROUGH OF EALING

Geoarchaeological Fieldwork Report

NGR: TQ 1990 8005

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Written by: Dr D.S. Young

& Dr C.P. Green

QUEST, School of Archaeology, Geography
and Environmental Science, Whiteknights,
University of Reading, RG6 6AB

Tel: 0118 378 7978 / 8941

Email: c.r.batchelor@reading.ac.uk
<http://www.reading.ac.uk/quest>



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CONTENTS

1. NON-TECHNICAL SUMMARY	2
2. INTRODUCTION	3
2.1 Site context	3
2.2 Pleistocene geoarchaeology & Palaeolithic archaeological potential.....	4
2.4 Aims and objectives	5
3. METHODS.....	5
4. RESULTS & INTERPRETATION OF THE GEOARCHAEOLOGICAL INVESTIGATIONS.....	6
5. RECOMMENDATIONS	7
6. REFERENCES	10

1. NON-TECHNICAL SUMMARY

A programme of geoarchaeological investigations were carried out at the 30-44 Crown Street, Acton site in order to carry out a suitable assessment of its palaeoenvironmental and Palaeolithic archaeological potential. Due to access restraints, only mini digger with a maximum machine arm depth of 1.4m was available during the excavations; the sequence within the test pits (TP1 and TP2) was therefore limited to Made Ground, in both pits to their maximum depth of 1.4m below ground level. The contact between the Made Ground and the natural sequence at the site was therefore not observed in the test pits, and it remains unclear if any remnant of the Lynch Hill Gravel survives below ca. 1.4m bgl. However, it is perhaps of note that in the geotechnical logs, these units are described only as 'slightly gravelly clay' or a 'sandy clay'; in addition, the London Clay, recorded as a firm brown slightly sandy clay in the geotechnical boreholes, can be fairly confidently identified in the logs below ca. 2 to 3m bgl, perhaps indicating that significant thicknesses of gravel are unlikely to survive at the site.

Depending on the likely depth of impact of the development at the site, and future access for either a larger mechanical excavator and/or boreholes, any future interventions should be put down to a minimum depth of 3.0m bgl to examine the sequence in more detail.

2. INTRODUCTION

2.1 Site context

This report summarises the findings arising out of the geoarchaeological investigations undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development of land at 30-44 Crown Street, Acton, London Borough of Ealing (National Grid Reference: TQ 1990 8005; Figures 1 & 2). The work was commissioned and carried out in collaboration with Pre-Construct Archaeology Ltd.

In the mid-19th century (OS 1:10650 Middlesex XVI 1866) Acton was a small village centred on the church of St Mary. The Crown Street site lies about 0.15 km to the SE of the church. Crown Street was laid out sometime between 1894 and 1913, linking Acton High Street to the NE with Mill Hill Road to the SW. Historically the land it crossed had been gardens and orchards. Topographically, the site is in the valley of a minor headwater tributary of the Stamford Brook, itself a small north bank tributary of the Thames, with a confluence at Hammersmith Creek. The axis of the valley cuts across Crown Street from NW to SE and on early maps can be seen to originate in a spring a short distance to the north of Acton. Ground level at the site is at about 21.0m OD, but the valley sides rise within 0.2 km to the SW and the NE to levels between 25.0m and 27.0m OD.

The British Geological Survey (BGS) (1:50,000 Sheet 270 South London 1998) shows the axis of this minor tributary valley underlain by bedrock London Clay which at the point where the valley crosses Crown Street forms an outcrop less than 0.1 km across. On either side of the London Clay outcrop, BGS maps Lynch Hill Gravel. This is part of the outcrop of this unit that underlies the extensive terrace remnant occupied by the urban areas of Acton and Ealing. However, here in the middle of Acton the narrow valley of this headwater tributary of the Stamford Brook dissects this terrace remnant and cuts through the Lynch Hill Gravel down to the bedrock London Clay. From the BGS mapping it seems possible that the Crown Street site lies across the boundary between the London Clay on the valley floor and the Lynch Hill Gravel forming the valley side. Boreholes in the vicinity of the Crown Street site show the base of the Lynch Hill Gravel at levels between 17.4m and 19.5m OD (TQ18SE383 – 17.4m OD; TQ18SE382 – 17.6m OD; TQ17NE418 – 18.8m OD; TQ17NE417 – 19.5mOD). Groundwork during development of the Crown Street site may therefore expose the lower part of the Lynch Hill Gravel and its contact with the underlying London Clay.

2.2 Pleistocene geoarchaeology & Palaeolithic archaeological potential

The Lynch Hill Gravels recorded at or nearby to the site were deposited during the Pleistocene (between 2.6 million and 11,500 years ago). In some instances Pleistocene sediments have the potential to contain artefacts, plant and animal remains. Palaeolithic remains therefore form part of the Pleistocene record and can include stone tools and the flakes produced when making them, and, much more rarely, tools of wood and bone, bones bearing marks of butchery, rudimentary structures and the remains of early humans (hominins). Such remains are important as they are the evidence that enables us to understand our earliest prehistory – how the landscape of Britain was shaped and where and how our earliest ancestors fit into it.

Even in the absence of artefact remains, the Pleistocene sediments and their contained biological remains can be significant as they enable the reconstruction of landforms, climatic conditions and environments occupied by Palaeolithic communities. In many cases we already have, in museum collections, artefacts from geological units equivalent to those being investigated (often river terrace gravels), but because of the way in which Palaeolithic artefacts were collected in the 19th and early 20th centuries, we often lack the environmental record that modern investigations of the deposits can supply. In addition, it is important to build up an understanding of the way in which the character and preservation of Pleistocene remains varies from place to place, even in the same geological unit. Recent advances in direct dating techniques, including OSL (optically stimulated luminescence), ESR (electron spin resonance), and AAR (amino acid racemization), have added further significance to Pleistocene remains, enabling us to achieve more reliable dating, relevant both to artefacts and to an understanding of landscape evolution.

The terrace deposits underlying Acton and Ealing have a long history of Palaeolithic archaeological investigation. In the late 19th century, when the urban development of these areas was taking place, the discovery of substantial numbers of Palaeolithic artefacts was recorded, chiefly by J. Allen Brown (1884, 1886, 1887, and 1889). The discoveries fall into two groups. Individual artefacts were recovered by Brown from temporary exposures in the gravels of his 'high terrace' (Lynch Hill Gravel), generally at depths ranging from 12-18 feet (ca. 3.7-5.5m) below the ground surface. Brown (1887) records find spots in roads near the Crown Street site, e.g. at Grove Road (Brown 1887, p.91-2) and Churchfield Road (Brown 1887, p.105), both about 0.25 km ENE of Crown Street. However, Wymer (1968, p.265) notes in connection with Palaeolithic discoveries in this area that 'No great number of hand-axes seem to have been found although almost every excavation produced a few.' Roe (1968) records 112 handaxes from Ealing and 51 from Acton together with 399 other Palaeolithic artefacts from these two areas. There are also occasional references to the recovery of mammalian remains from the gravels of this area, e.g. Brown (1887 pp. 60-61) records that Colonel Lane Fox recovered a tooth of *Elephas primigenius* from a pit in the vicinity of Chaucer Road, Acton, also ca. 0.25 km ENE of Crown Street.

In addition to the recovery of artefacts from the gravels of the 'high terrace', Brown recorded a site at Creffield Road in Acton about 1.0km to WNW of the Crown Street site where he 'obtained nearly 500 implements, worked flakes and waste fragments at a depth of 6 feet from the surface.' (Brown

1887, pp.56-7). These artefacts are now recognised as Levallois in origin and Roe (1968) lists 732 Levallois flakes from Creffield Road and 15 Levallois cores together with another 119 artefacts from this site, including two handaxes. Brown believed that the 'land surface' with which this Levallois material was associated could be traced more widely in the Acton and Ealing area. The Creffield Road locality was investigated on two occasions in the latter part of the last century (Burleigh 1976, Bazely, Green & McGregor 1991) but on neither occasion was Brown's Palaeolithic 'floor' recognised.

2.4 Aims and objectives

On the basis of the above, there is significant potential for the discovery of Palaeolithic archaeological or biological remains at the Crown Street site. Additional records are therefore required in order to enhance our understanding of the sub-surface stratigraphy at the site, and to carry out a suitable assessment of its palaeoenvironmental and Palaeolithic archaeological potential. Three significant research aims relevant to the geoarchaeological investigations at the site are therefore outlined here:

1. To clarify the nature of the sub-surface stratigraphy across the site;
2. To clarify the nature, depth, extent and date of any Langley Silt and Lynch Hill Gravel deposits;
3. To investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity.

In order to address these aims, the following objectives are proposed:

1. To monitor two geoarchaeological test pits at the site;
2. To examine selected horizons within the sediments encountered in the test pits for Palaeolithic artefacts;
3. To use the stratigraphic data from the new geotechnical interventions, and existing geotechnical data to produce a deposit model of the major depositional units across the site, and to characterise the depositional sequence in more detail;
4. To make recommendations for any further archaeological/palaeoenvironmental investigations at the site.
5. To publish the results of the site investigations, depending on the significance of the findings.

3. METHODS

Two test pits were put down at the site (TP1 and TP2; see Figure 1), measuring approximately 1m x 0.5m and to the maximum depth of the machine arm (1.4m). Due to limited access to the site, only a mini digger with a maximum machine arm depth of 1.4m was available during the excavations. Changes in the sediment type were noted as the machine cut the pit. Photographs were taken of representative sections from each test pit (Figures 2 and 3).

4. RESULTS & INTERPRETATION OF THE GEOARCHAEOLOGICAL INVESTIGATIONS

The sequence within the test pits (TP1 and TP2) was limited to Made Ground, in both pits to their maximum depth of 1.4m below ground level (bgl). These levels are consistent with those recorded in the previous geotechnical boreholes put down at the site (BH1, BH2 and WS1-WS4), which recorded Made Ground to levels of 3.6m bgl towards the east (in the area of TP1) and to between ca. 0.5 and 1.5m bgl towards the west, in the area of TP2.

The contact between the Made Ground and the natural sequence at the site was therefore not observed in the test pits, and it remains unclear if any remnant of the Lynch Hill Gravel survives below ca. 1.4m bgl. On the basis that the site lies at ca. 21.0m OD, the base of the test pits lies at ca. 19.6m OD. As described above, BGS Archive boreholes in the vicinity of the Crown Street site (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>) show the base of the Lynch Hill Gravel at levels between 17.4m and 19.5m OD (TQ18SE383 – 17.4m OD; TQ18SE382 – 17.6m OD; TQ17NE418 – 18.8m OD; TQ17NE417 – 19.5mOD). The nature of the sequence between ca. 1.5 and 3.0m bgl is unclear in the geotechnical boreholes from the site, where gravelly clay is recorded including rounded flints; it is possible that remnants of the Lynch Hill Gravel may therefore survive at these levels. However, it is perhaps of note that in the geotechnical logs, these units are described only as 'slightly gravelly clay' (BH2, WS2, WS3 and WS4) or a 'sandy clay' (BH1). In addition, the London Clay, recorded as a firm brown slightly sandy clay in the geotechnical boreholes, can be fairly confidently identified in the logs below ca. 2 to 3m bgl, perhaps indicating that significant thicknesses of gravel are unlikely to survive at the site.

Table 1: Lithostratigraphic description of test pit TP1, 30-44 Crown Street, Acton

Depth (m bgl)	Description	Unit
0.00 to 1.30	Made Ground of sandy silt with frequent glass, brick, concrete and pottery fragments. Diffuse contact in to:	MADE GROUND
1.30 to 1.40	Made Ground with frequent gravel, clinker and ash in a sandy silt matrix.	

Table 2: Lithostratigraphic description of test pit TP2, 30-44 Crown Street, Acton

Depth (m bgl)	Description	Unit
0.00 to 0.50	Made Ground of sandy silt with frequent glass, brick, concrete and pottery fragments. Diffuse contact in to:	MADE GROUND
0.50 to 1.10	Brick, pottery in glass in a brownish grey matrix of silty clay. Diffuse contact in to:	
1.10 to 1.40	Olive grey gravelly clay with brick, charcoal, mortar, slag and clinker.	

6. RECOMMENDATIONS

No Lynch Hill Gravel deposits were identified at the site, although the depth at which these are likely to be recorded were not reached during this investigation. Depending on the likely depth of impact of the development at the site, and future access for either a larger mechanical excavator and/or boreholes, any future interventions should be put down to a minimum depth of 3.0m bgl to examine the sequence in more detail.



Figure 1: Photograph of test pit TP1 at 30-44 Crown Street, Acton.



Figure 2: Photograph of test pit TP2 at 30-44 Crown Street, Acton.

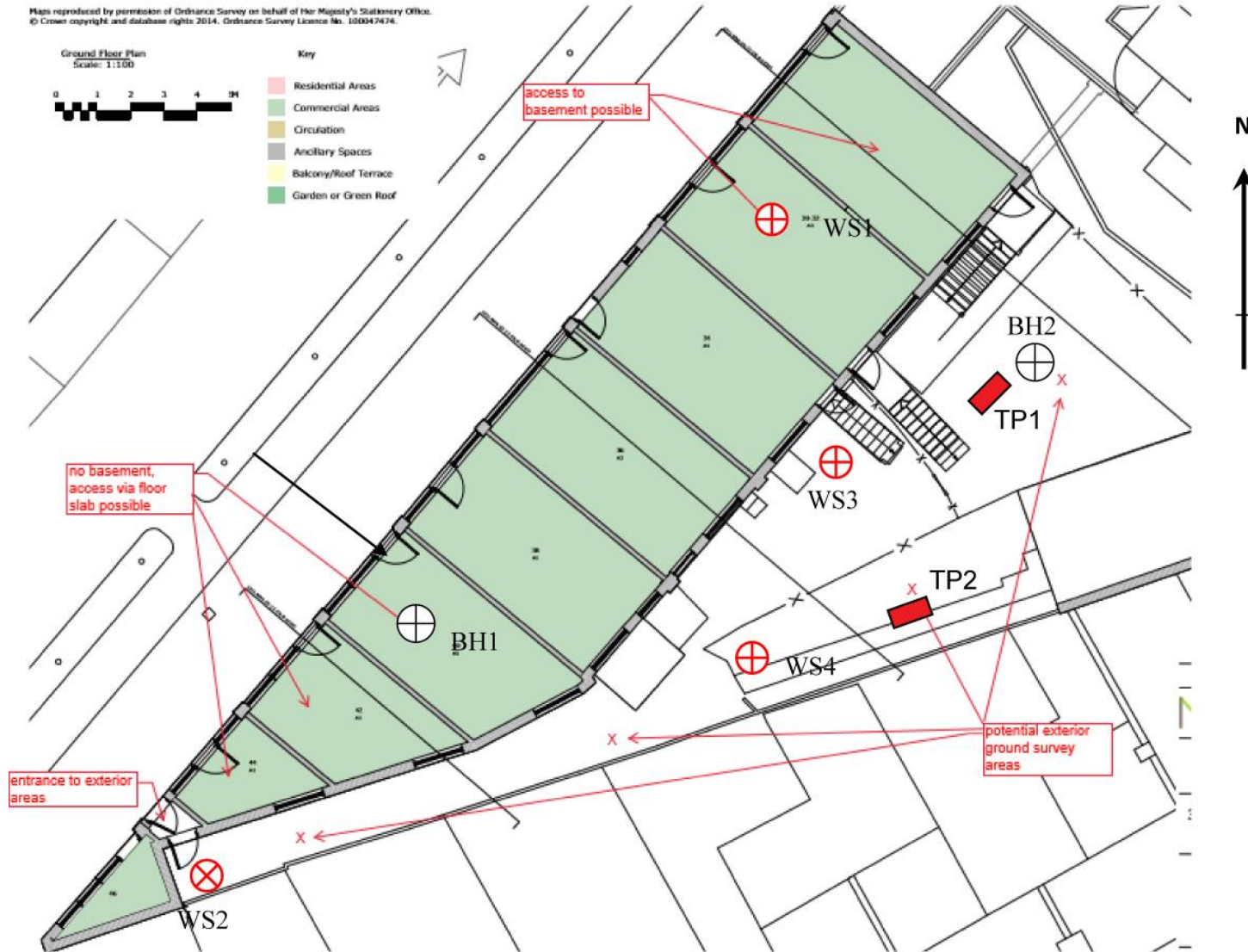


Figure 1: Location of the new test pits at 30-44 Crown Street, Acton. Previous geotechnical interventions also shown. Figure provided by Jomas Associates (2017).

7. REFERENCES

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8. OASIS FORM

OASIS ID: quaterna1-312505

Project details

Project name	30-44 Crown Street, Acton
Short description of the project	A programme of geoarchaeological investigations were carried out at the 30-44 Crown Street, Acton site in order to carry out a suitable assessment of its palaeoenvironmental and Palaeolithic archaeological potential. Due to access restraints, only mini digger with a maximum machine arm depth of 1.4m was available during the excavations; the sequence within the test pits (TP1 and TP2) was therefore limited to Made Ground, in both pits to their maximum depth of 1.4m below ground level. The contact between the Made Ground and the natural sequence at the site was therefore not observed in the test pits, and it remains unclear if any remnant of the Lynch Hill Gravel survives below ca. 1.4m bgl. However, it is perhaps of note that in the geotechnical logs, these units are described only as 'slightly gravelly clay' or a 'sandy clay'; in addition, the London Clay, recorded as a firm brown slightly sandy clay in the geotechnical boreholes, can be fairly confidently identified in the logs below ca. 2 to 3m bgl, perhaps indicating that significant thicknesses of gravel are unlikely to survive at the site. Depending on the likely depth of impact of the development at the site, and future access for either a larger mechanical excavator and/or boreholes, any future interventions should be put down to a minimum depth of 3.0m bgl to examine the sequence in more detail.
Project dates	Start: 01-11-2017 End: 22-02-2018
Previous/future work	No / Not known
Type of project	Environmental assessment
Survey techniques	Landscape

Project location

Country	England
Site location	GREATER LONDON EALING ACTON 30-44 Crown Street
Postcode	W3 8JA
Site coordinates	TQ 1900 8005 51.50634288199 -0.285156474358 51 30 22 N 000 17 06 W Point

Project creators

Name of Quaternary Scientific (QUEST)
Organisation

Project brief Pre-Construct Archaeology
originator

Project design Dr C.P. Green
originator

Project C.R. Batchelor
director/manager

Project supervisor D.S. Young

Type of Developer
sponsor/funding
body

Project archives

Physical Archive No
Exists?

Digital Archive No
Exists?

Paper Archive LAARC
recipient

Paper Contents "Environmental", "Stratigraphic"

Paper Media "Report"
available

Entered by Daniel Young (d.s.young@reading.ac.uk)

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