

STOP/01



STOPSLEY HIGH SCHOOL, LUTON

Archaeological Trial-Trenching Evaluation

commissioned by Interserve Construction

14/00644/FUL

February 2015

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project info

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CONTENTS

1	INTRODUCTION	1
1.1	PLANNING BACKGROUND	1
1.2	SITE DESCRIPTION	1
1.3	ARCHAEOLOGICAL BACKGROUND	2
2	METHODOLOGY	2
2.1	OBJECTIVES	2
2.2	METHODOLOGY: TRIAL TRENCHING	3
2.3	METHODOLOGY: TEST-PITTING	3
3	RESULTS: TRIAL TRENCHING EVALUATION	5
3.1	INTRODUCTION	5
3.2	DITCH [605] (ILLUS 2)	5
3.3	DITCH [405] (ILLUS 2)	6
3.4	POST-HOLE [607] (ILLUS 2)	6
3.5	POST-MEDIEVAL ACTIVITY	6
3.6	FINDS	6
	Lithics	6
	Industrial Waste	7
	Modern Finds	7
	Discussion	7
3.7	ENVIRONMENTAL REPORT	7
	Wood charcoal	7
	Burnt bone	7
	Discussion	7
3.8	DESCRIPTION OF THE SIGNIFICANCE OF THE HERITAGE ASSETS	7
4	RESULTS: TEST-PITTING FOR PALAEO-LITHIC POTENTIAL	9
4.1	INTRODUCTION	9
4.2	THE CHALK SURFACE	9
4.3	UNIT 1: FLINTY CLAY	9
4.4	UNIT 2: TOPSOIL AND MADE GROUND	10
4.5	DISCUSSION	10
5	CONCLUSIONS	11
6	BIBLIOGRAPHY	11

7	APPENDICES	13
	APPENDIX 1 SITE REGISTERS	13
	Appendix 1.1 Trench register	13
	Appendix 1.2 Context register	13
	Appendix 1.3 Photographic register	13
	Appendix 1.4 Sample Register	14
	APPENDIX 2 FINDS CATALOGUE	15
	APPENDIX 3 ENVIRONMENTAL TABLES	16
	Appendix 3.1 Flotation results	16
	Appendix 3.2 Residue results	16
	APPENDIX 4 PALAEOLOGICAL TEST-PIT LOGS	17
	Appendix 4.1 Test pit 01	17
	Appendix 4.2 Test pit 02	17
	Appendix 4.3 Test pit 03	17
	Appendix 4.4 Test pit 04	18
	Appendix 4.5 Test pit 05	18
	Appendix 4.6 Test pit 06	18

LIST OF ILLUSTRATIONS

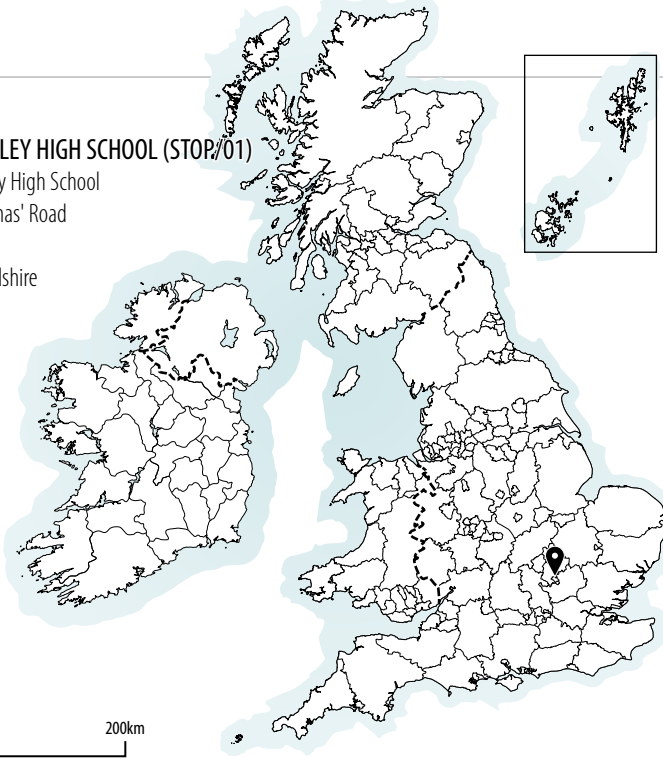
ILLUS 1	Site location	VI
ILLUS 2	Site plan	4
ILLUS 3	Trench 4, looking SE, showing the nature of the natural silty-clay drift deposit across the site	5
ILLUS 4	NW – SE strip log profiles	8
ILLUS 5	N – S strip log profiles	8
ILLUS 6	Test Pit 01: S facing section showing weathered Chalk surface and overlying Flinty Clay Plateau Drift	9
ILLUS 7	Test Pit 03: E / SE facing section showing flint pocket in Flinty Clay Plateau Drift.	10
ILLUS 8	Test Pit 05: E / SE facing section showing fragments of grey clay in Flinty Clay Plateau Drift	10

LIST OF TABLES

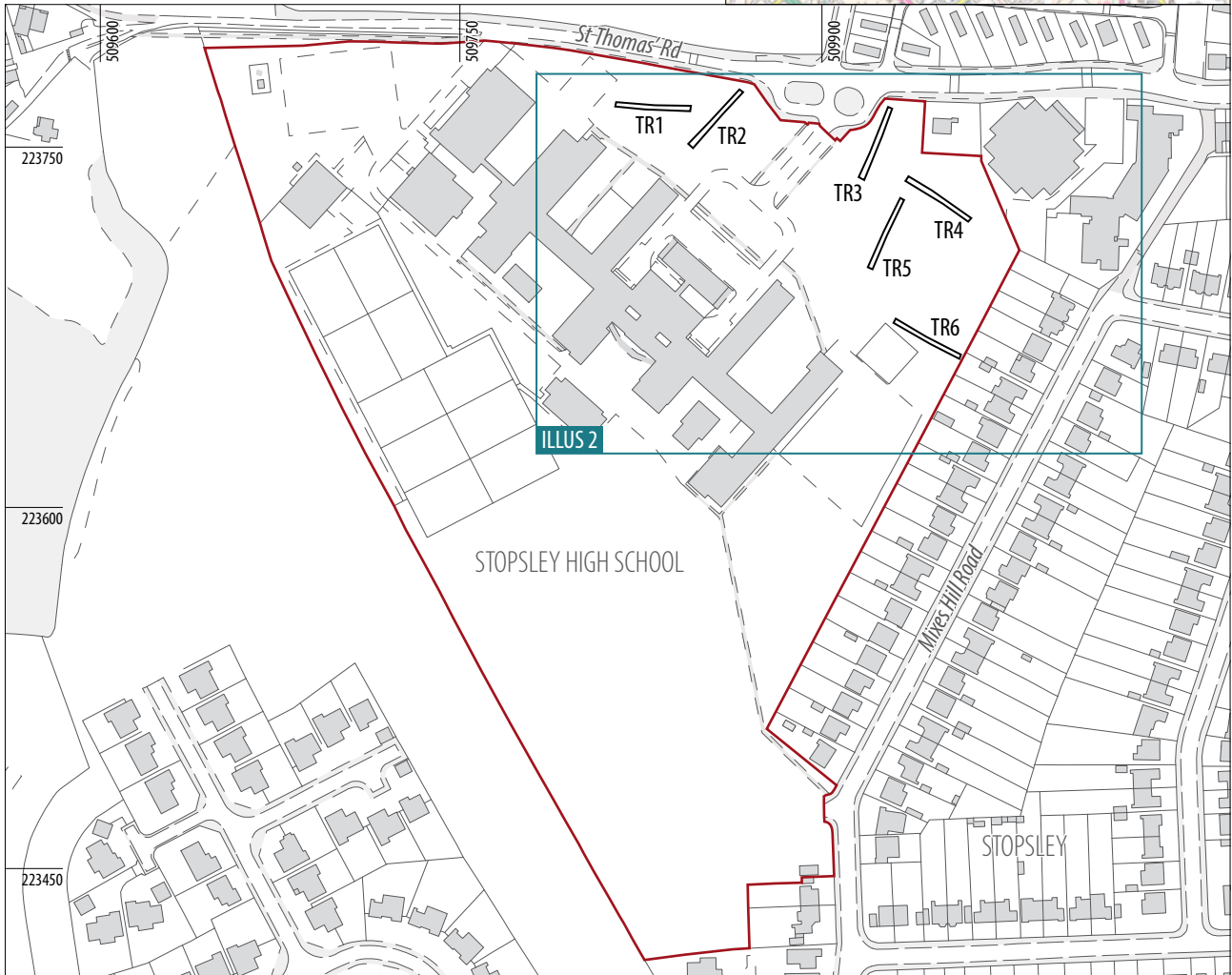
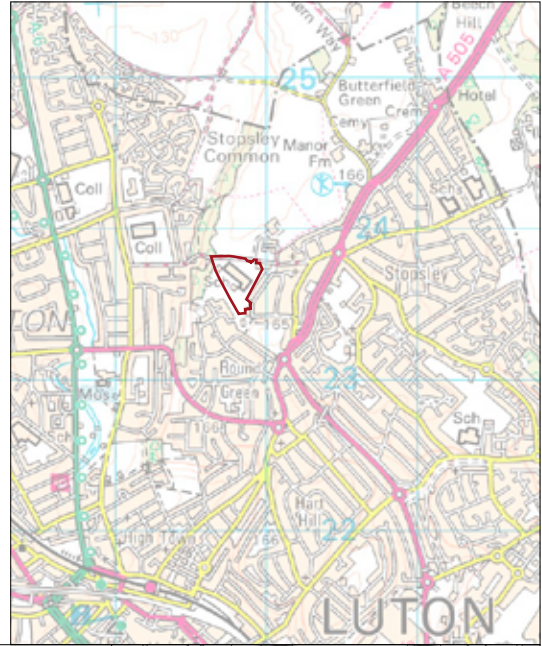
TABLE 1	Quantification of finds by trench, with spot dating	6
TABLE 2	Heritage Assets recorded during intrusive evaluation	7

STOPSLEY HIGH SCHOOL (STOP/01)

Stopsley High School
St Thomas' Road
Luton
Bedfordshire



0 200km



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KEY

- development boundary
- trench location

0 100m
N
scale 1:3,000 @ A4



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ILLUS 1

Site location

STOPSLEY HIGH SCHOOL, LUTON

Archaeological Trial-Trenching Evaluation

Headland Archaeology (UK) Ltd conducted a trial-trench archaeological evaluation and programme of test-pitting on land at Stopsley High School, Luton, in response to a condition placed on planning consent for the erection of a new school. The trial-trenching uncovered two undated ditches, an undated post-hole, and a post-medieval field boundary. The test-pitting recorded sediments comprising flinty clay plateau drift resting on Chalk bedrock and overlain by topsoil or made ground. Sediments containing in situ or reworked archaeological materials similar to those recorded at Lower Palaeolithic archaeological localities surrounding the development site were not found and no lithic artefacts were recovered. These results indicate that deposits containing or having the potential to contain Palaeolithic artefacts and other materials are not present.

1 INTRODUCTION

1.1 PLANNING BACKGROUND

1.1.1 Planning consent has been granted for the erection of a new school and associated works at Stopsley High School, Luton (Planning Ref: 14/00644/FUL). A condition has been placed on this consent (Condition 21) requiring a scheme of archaeological work. Discussion with the Central Bedfordshire Archaeological Officer (AO) determined the form this would take: a staged approach comprising, at the first stage, a trial-trenching evaluation with deeper test-pits excavated at the end of every trench to determine the presence or absence of Pleistocene sediments containing Lower Palaeolithic artefactual materials. This will be followed by an appraisal of the results from the fieldwork (this document), which may lead to a further phase of archaeological investigation and recording if necessary.

1.1.2 Interserve Construction has commissioned Headland Archaeology (UK) Ltd to carry out the trial trenching evaluation and test-pitting and produce a report on the results. Headland Archaeology commissioned William Boismier to undertake the Palaeolithic test-pitting. This work has been carried out in order to assess the extent, nature and survival of archaeological features within those parts of the site where intrusive development will take place. The results will allow the AO to determine the significance of any archaeological remains within the

site, and the impact of the proposed development on the archaeological resource. Decisions on the type and scope of mitigation measures (if required by the AO) will be based on the results of field evaluation.

1.1.3 The remit of the archaeological trial trenching programme and test-pitting programme was outlined in a 'Written Scheme of Investigation' compiled by Headland Archaeology before the fieldwork started, and was agreed with the AO (Headland Archaeology 2015). A systematic array of trenches was designed to effectively evaluate the site, with a test-pit positioned at the end of each of the trenches. All evaluative works were carried out with the agreement of the AO.

1.2 SITE DESCRIPTION

1.2.1 Stopsley is located on the northern fringes of Luton with the school occupying 6ha of land on the western side of Stopsley (NGR TL 098 236). The site is bounded to the north by St Thomas' Road and playing fields, and to the east, south and west by housing and woodland areas. The existing school buildings front onto St Thomas' Road with the playing fields to the south-west. The archaeological evaluation and test-pitting took place within the development area (henceforth known as the DA), in the fields to the north and northeast of the main school buildings (Illus 1).

1.2.2 The DA is positioned on the top of a hill, at a height of approximately 164m above Ordnance Datum. The River Lea is located c.1.5km to the west.



1.2.3 The underlying geology of the DA is recorded as Lewes Nodular and Sleaford Chalk formations of Cretaceous Age, overlain by undifferentiated Quaternary Plateau Drift composed of Clay-with-flints and Pebbly Clay and Sand deposits (Soil Survey of England and Wales 1983: 1:250,000 Series, Soils of Eastern England). Associated with these deposits are funnel- or basin-shaped depressions or dolines representing former interglacial lakes or ponds formed through dissolution and collapse of the Chalk and infilled by silty, largely stoneless, fine-grained brickearth sediments (Avery et al. 1982; Catt et al. 1978; Bridgland and Harding 1989; White 1997). Soils are stagnogleyic palaeo-argillic brown earths of the Batcombe Association (Hodge et al. 1984:111).

1.3 ARCHAEOLOGICAL BACKGROUND

1.3.1 To date, a desk-based assessment (CgMs 2014) has been undertaken. The DBA comprised a search of the Historic Environment Record (HER) for Central Bedfordshire Council (CBC) and available cartographic sources, and its findings are summarised here with those for the Palaeolithic supplemented by additional sources.

1.3.2 The DA is situated within the Chiltern Plateau where a number of Lower Palaeolithic localities have been recorded since the 19th century. Handaxes and unretouched flakes are recorded for the Stopsley brickearth pit some 750m to the east of the DA, with other localities recorded at Mixes Hill, Ramridge End, and Round Green (all within 1–2km of the DA) (Smith 1894; Roe 1968; Wymer 1999: 164, 174–175, Map 52; Scott-Jackson 2000: 43–47). Some 3–4km to the southwest is a cluster of 11 Lower Palaeolithic localities including those at Caddington and Slip End (Smith 1894, 1916; Roe 1968, 1981:191–198; Sampson 1978; Wymer 1999: 164, 174–175, Map 52).

1.3.3 Sediments enclosing archaeological materials at these localities are typically brickearth doline infill sediments and document that they and the material contained within them were deposited into interglacial lakes or ponds from hominin activity areas through erosional processes such as bank collapse and the washing-in of fines and artefacts through overland flow (Catt et al. 1978; White 1997). Stratigraphic sequences for known localities are reasonably similar to each other and can be characterized as comprising a 'contorted drift' composed of cryoturbation structures overlying a fine-grained, largely stoneless, laminated silty clay (brickearth) with weak stratification and dipping in line with the slope of doline margins (Smith 1894, 1916; Sampson 1978; White 1997). Artefacts also follow the dip of enclosing sediments (White 1997:922, Fig. 6) with extensive refitting at Caddington indicating that a reasonable degree of assemblage integrity may be preserved at these and similar localities containing Palaeolithic materials (Smith 1894: Chapter XI; Bradley and Sampson 1978: 110–113).

1.3.4 There is evidence for later prehistoric / Romano-British activity in this area. Late Iron Age ditches were recorded on the east side of Stopsley Common (HER7243), along with evidence for Iron Age occupation at Butterfield Road some 750m to the northeast of the DA (HER13417). Evidence for an agricultural landscape, in existence possibly from the Bronze Age but with definite dating evidence from the late Iron Age / early Roman periods, was uncovered during excavations at Luton Aquatic Centre, some 400m to the northeast of the DA (Albion Archaeology 2011). Evidence for early-mid Iron Age, late Iron Age, and early Roman activity, comprising ditches thought to have formed part of agricultural field systems, were also uncovered during an evaluation at Vale Cemetery c.600m north-east of the DA (Albion Archaeology 2005). Further evidence for Roman activity consists of individual findspots, such as the Roman pottery from Ashcroft Road (HER11297), along with the evidence for Roman field systems at Butterfield Road (HER13417) and two cremations found in 1926 on Richmond Hill c.700m to the southwest of the DA (HER183).

1.3.5 The medieval village of Stopsley (HER 171400, 12400) was located 250m to the east of the DA, centred on a village green. The north-eastern corner of the DA is thought to have been the location of the medieval manor (HER 10815) of Stopsley, although much of this is derived from later cartographic sources (Smith 2014).

1.3.6 The available cartographic sources indicate that the DA lay within open fields from at least 1765. In the 20th century, as the northern bounds of Luton were extended, the surrounding area was built on. As part of this expansion Stopsley Secondary Modern School was opened in 1949. Although the school has had some additional buildings since its opening, its general layout has remained the same.

2 METHODOLOGY

2.1 OBJECTIVES

2.1.1 The general aim of the trenching evaluation and test-pitting was to obtain useful information concerning the presence, character, date, status and level of preservation of surviving archaeological remains. It also allows the curatorial authority to determine the impact of the proposed development on the archaeological resource, and to discuss the necessity for the preservation by record and/or the possibilities which may exist to preserve certain areas of archaeological remains in situ if appropriate and thus determine their significance.

2.1.2 The archaeological investigations were carried out in order to:

- assess extent, layout, structure and date of features and deposits of archaeological interest;

- place, where possible, the identified features within their local and regional context;
- place the findings in the context of the results of earlier work in the surrounding area.

2.1.3 The local and regional research contexts are provided by Glazebrook (1997), Brown and Glazebrook (2000), Oake et al (2007) and Medlycott (2011). The development site is situated within an area containing a number of known Lower Palaeolithic localities of national significance and has the possibility of contributing to national research interests (Pettitt et al. 2007) into the chronology, environment, hominin behaviour and economy of the period. Some of the aims of this programme of work include:

- To determine whether any of the geological deposits present within the development area contain or have the potential to contain Palaeolithic archaeological remains. This may provide information on:
 - The location, extent, character and potential date of any geological deposits or features containing Palaeolithic archaeological remains;
 - The integrity and state of preservation of these deposits or features and any associated archaeological or palaeontological materials;
 - The recovery of a sample of any Palaeolithic artefacts or materials present.
- To establish whether there is any evidence for later prehistoric / Romano-British activity in this area.
- To help elucidate the extent and origins of the medieval and post-medieval village of Stopsley.

2.2 METHODOLOGY: TRIAL TRENCHING

2.2.1 Trial trenching was carried out between the 2nd and 6th February 2015. Six trenches were excavated across the DA, all measuring 30m in length by 1.8m in width.

2.2.2 The methodology underlying the archaeological trial trenching was outlined the Written Scheme of Investigation (Headland Archaeology 2015), and agreed with the AO. The trench layout was designed to evaluate the DA using a systematic trenching array, with the trenches spread across the DA and positioned on varying alignments to pick up any potential archaeological features. Some of the trenches had to be moved slightly from what was shown on the WSI, due to the presence of underground services.

2.2.3 A 360 degree tracked mechanical excavator equipped with a toothless bucket was used to remove topsoil under direct archaeological control, with excavation of the trial trenches continuing until clean geological sediments or archaeological deposits were encountered. Further excavation required to satisfy the objectives of the evaluation was continued by hand. A representative sample, sufficient to meet the objectives of the evaluation, of identified features was investigated by hand and all features were recorded. The stratigraphy of each trench was recorded in full.

2.2.4 All recording was in accordance with the code of practice of the Chartered Institute for Archaeologists (CIfA) and in line with the approved WSI (Headland Archaeology 2014c). All trenches and contexts were given unique numbers. All recording was undertaken on pro forma record cards that conform to accepted archaeological standards. All stratigraphic relationships were recorded.

2.2.5 An overall site plan at an appropriate scale and relative to the National Grid was recorded by digital survey using a differential GPS.

2.2.6 A full photographic record comprising colour slide and black and white print photographs was taken, supplemented with digital photography. A metric scale was clearly visible in record photographs.

2.3 METHODOLOGY: TEST-PITTING

2.3.1 Six test pits were excavated across the DA, under the supervision of William Boismier. Each test pit was placed at the end of a trial trench (**Illus 2**) and excavated in a series of 0.3m–0.4m thick spits using 14-ton tracked 360° excavator fitted with a 2m-wide toothless ditching bucket (4mx2m test pit area). All excavation was carried out under archaeological supervision (WA Boismier) and stopped when Chalk bedrock was exposed at the base of the test pit or at depths of around 4.0m in Plateau Drift sediments with no archaeological potential where no Chalk was exposed. Chalk bedrock was reached in only one of the six test pits. Test pits were backfilled on the completion of recording.

2.3.2 Sediments from individual test pits were inspected ex situ and a representative section measured, photographed and recorded on proforma test pit record sheets. The work was carried out in accordance with the Chartered Institute for Archaeologists' Standard and guidance for archaeological field evaluation (CIfA 2008) with sediment descriptions following the guidelines set out in Jones et al. (1999) for the recording of Quaternary field sections. All records have been compiled in a structured archive in accordance with the guidelines of Appendix 3 in the English Heritage procedural document Management of Archaeological Projects (EH 1991).

2.3.3 Excavated sediments were scanned for archaeological and paleontological materials prior to test pit backfilling and to assess the clast lithology for the recorded test pit sediments. Sieving was not carried out on the Plateau Drift sediments exposed in the test pits due to their lack of archaeological potential. No artefacts were found in any of the excavated sediments.

2.3.4 Post-excavation procedures included the use of the geological computer package RockWorks 2002 to generate sediment strip logs for the test pits across the area of the proposed development.



Ditch [405]



Post-hole [607]



Ditch [605]



Ditch [306]



ILLUS 3

Trench 4, looking SE, showing the nature of the natural silty-clay drift deposit across the site



3 RESULTS: TRIAL TRENCHING EVALUATION

3.1 INTRODUCTION

3.1.1 Full trench descriptions, including orientation, length, and depth are presented in Appendix 1.1. Technical details of individual contexts are presented in Appendix 1.2. Contexts are numbered by trench number: i.e. Trench 1 (101), Trench 2 (201). Cut features are shown as [101] whilst their fills are expressed as (102), for example.

3.1.2 Undisturbed natural deposits comprised an orange-brown silty-clay with flints (**ILLUS 3**). This was the natural drift deposit. It was generally observed between 0.4 and 0.5m beneath the present ground-surface, with the exception of the central part of Trench 1 where it was observed 0.9m beneath the ground-surface (because of the presence of significant quantities of made-ground deposits here).

3.1.3 The topsoil, a mid-dark brown silty deposit with pebbles, was observed in all trenches across the DA. In places this had pieces of modern brick and concrete in. This was between 0.25 and 0.35m in thickness.

3.1.4 The topsoil overlay, in the majority of trenches, the subsoil. This was a mid-light brown silty deposit, with pebbles and pieces of brick, and was between 0.1 and 0.2m in thickness. Modern made-ground deposits were observed in the place of the subsoil in certain places, most notably in the central part of Trench 1 and NE end of Trench 3. This was a mixture of brick rubble, concrete, and tarmac, within a dark brown-black silty deposit. These deposits are associated with the modern construction of the school and its playing fields in the mid-20th century, and would presumably have been used for the levelling of the ground.

3.1.5 Three of the trenches across the DA simply consisted of topsoil overlying subsoil / made-ground over the natural drift deposit. The archaeological remains uncovered comprised a modern field boundary ditch in Trench 3; a ditch in Trench 4; and a ditch and post-hole in Trench 6 (**ILLUS 2**).

3.2 DITCH [605] (**ILLUS 2**)

3.2.1 A north-south aligned ditch [605] was observed at the eastern end of Trench 6. This measured 1m in width by 0.17m in depth, had sharp irregular sides and an uneven base, and contained a single grey-brown silty-clay fill with some manganese and charcoal flecks.

3.2.2 This ditch contained some flints, including a large multi-directional platform core, four edge retouched flakes, one hard hammer flake, and associated flint debitage. These are likely to be Bronze Age in date. The presence of industrial waste including probable hammerscale and slag potentially indicates blacksmithing in this area (although it is too scanty to definitively prove this), possibly of Iron Age date. This suggests that there was some prehistoric (Bronze Age / Iron Age) activity in this area, although the quantities present are not enough to date the ditch. The lack of post-medieval / modern material, and the fact that the ditch does not appear on historic maps, demonstrates that it was infilled prior to the post-medieval period. Furthermore, the fact that the ditch is sealed by the subsoil indicates that it is of relatively early date.



3.2.3 It is likely that this ditch functioned as a field boundary. This cannot be firmly dated, although it clearly pre-dates the post-medieval period. It is possible that it is prehistoric in date, based on the prehistoric finds found within it and the fact that Bronze Age and Iron Age remains have been found in the area (e.g. Luton Aquatic Centre, Butterfield Road – see section 1.3.4), however this cannot be proven.

3.3 DITCH [405] (ILLUS 2)

3.3.1 A short stretch of curvilinear northwest – southeast aligned ditch [405] was observed in Trench 4. This ran for 3.6m in length, was 0.6m in width and 0.26m deep. Two apparent terminuses, one at either end of the ditch, were observed, although they had been heavily disturbed by bioturbation. It contained a single grey-brown silty-clay fill.

3.3.2 The only dating evidence recovered from this ditch were three large pieces of flint, a multi-directional platform core and associated chunks and frost-shattered pieces. These are thought to be prehistoric in date, although no closer date can be provided for them, and they cannot be used to definitively date the ditch. Nonetheless, the fact this ditch was sealed by the subsoil (402), the lack of post-medieval / modern finds from it, and the fact it is not shown on historic maps, demonstrates its relatively early date (certainly earlier than the post-medieval period).

3.3.3 This curving and short nature of this ditch suggests that it did not function as a field boundary or drainage ditch. Instead, it may have been an elongated pit, part of an enclosure which has been truncated, or even a natural feature such as a treebowl.

3.4 POST-HOLE [607] (ILLUS 2)

3.4.1 A single post-hole [607] was observed towards the centre of Trench 6. This was circular in plan, measured 0.29m in diameter, and had vertical sides and a flat base. It was 0.23m in depth. It contained a single dark brown-grey silty-clay fill.

3.4.2 No finds were recovered from the post-hole, aside from a fragment of sheep bone. It was, however, sealed by the subsoil demonstrating a potentially early date. No other post-holes were identified in this area, making it difficult to ascertain what it formed part of. It is possible that it functioned as part of a fence for a field boundary. The idea that it performed a function in relation to agricultural activity is arguably supported by the presence of the sheep bone.

3.5 POST-MEDIEVAL ACTIVITY

3.5.1 An east-west aligned ditch [306] was recorded at the north-eastern end of Trench 3 (ILLUS 2). This measured

1.2m in width by 0.22m in depth, had steep sides and a slightly concave base, and had a single grey-brown silty-clay fill. It was cut through the subsoil, and finds recovered from the fill of this ditch comprised glass, iron, brick and pottery. The glass and pottery were dated to the 19th century – present day, demonstrating the modern date of this ditch.

3.5.2 This ditch can be identified on historic maps as the northern field boundary of a roughly square-shaped field positioned in the north-eastern part of the DA. It is first shown on the 1881 OS Map (and is not shown on the 1842 Tithe Map), and is shown on maps up to and including the 1924 OS Map. It is not depicted on the 1962 OS Map, as would have been infilled with the construction of the school in the 1940s.

3.6 FINDS

JULIE FRANKLIN, JULIE LOCHRIE

3.6.1 The finds assemblage numbered 68 finds of flint and a small collection of modern finds. These were found in three separate trenches. The finds are quantified by trench in **Table 1** and a complete catalogue is given in Appendix 2 at the end.

Feature	Pottery (Mod)	CBM	Glass	Iron	Industrial Waste	Lithics	
	Count	Count	Count	Count	Wgt	Count	Wgt
306	1	1	1	3			Mod
405						14	1026 PH
605					<0.5g	54	1875 ?BA
Total	1	1	1	3	<0.5g	68	2901

TABLE 1

Quantification of finds by trench, with spot dating

Lithics

3.6.2 Flint weighing a total of 2.9kg was collected from two ditches, [405] (404) and [605] (604).

3.6.3 The bulk of the ditch [405] assemblage was made up of three tabular blocks of flint from a chalk flint seam. The seam itself was not found on site and thus these pieces must have been imported to this location, possibly for knapping purposes. The remainder of the context assemblage includes, a multi-directional platform core and ten chunks or frost shattered pieces.

3.6.4 The finds from ditch [604] included a large multi-directional platform core, four edge retouched flakes, a hard hammer flake and associated chunks and shattered pieces. The latter were mostly patinated and abraded.

The core, flakes and retouched pieces from this feature are likely to be Bronze Age in date.

Industrial Waste

- 3.6.5 A few fragments of industrial waste were found in ditch [605] (604). These include a small fragment of slag, undiagnostic of any particular process, and a small quantity of hammerscale indicative of blacksmithing. This might suggest Iron Age or later activity in this area, though is too scanty to suggest industry in the immediate vicinity.

Modern Finds

- 3.6.6 Finds found in ditch [306] (305) were all of recent date, most likely 19th or 20th century. These includes single sherds of pottery, glass and brick and three iron finds.

Discussion

- 3.6.7 Potentially the assemblage shows evidence for Bronze Age flint trade and industry, though it is not clear based on present evidence whether these finds were in situ or were deposited at a later date. The hammerscale found in ditch fill (604) may suggest later disturbance to this deposit.

3.7 ENVIRONMENTAL REPORT

LAURA BAILEY AND TIM HOLDEN

- 3.7.1 One 10 litre sample and a single fragment of burnt bone recovered were received for palaeoenvironmental assessment. The sample was from the fill (604) of ditch [605] and the burnt bone fragment was from the fill (606) of posthole [607]. The aims of the assessment were to assess the presence, preservation and abundance of any environmental remains in the samples. The environmental remains are quantified in Appendix 2.
- 3.7.2 The samples were subjected to flotation and wet sieving in a Siraf-style flotation machine. The floating debris (the flot) was collected in a 250 µm sieve and, once dry, scanned using a binocular microscope. Any material remaining in the flotation tank (retent) was wet-sieved through a 1mm mesh and air-dried. The samples were scanned using a stereomicroscope at magnifications of x10 and up to x100. Identifications, where provided, were confirmed using modern reference material and seed atlases including Cappers et al. (2006). Charcoal was identified as oak/non-oak wherever possible.
- 3.7.3 Results of the assessment are presented in Appendix 2 (Retent samples and Flot samples). Material suitable for AMS (Accelerated Mass Spectrometry) radiocarbon dating is shown in the tables.

Wood charcoal

- 3.7.4 A small amount of charcoal measuring up to 7mm was present in the sample.

Burnt bone

- 3.7.5 A small fragment of burnt, vertically split, sheep longbone, was recovered from the fill (606) of posthole [607].

Discussion

- 3.7.6 The environmental assemblage was restricted to a fragment of burnt sheep longbone and occasional fragments of wood charcoal, it is unlikely that the material recovered relates to the primary function of the features and the animal bone offers little insight into site activity. Overall the assemblage presents little scope for further work.

3.8 DESCRIPTION OF THE SIGNIFICANCE OF THE HERITAGE ASSETS

- 3.8.1 The local and regional research contexts are provided by Glazebrook (1997), Brown and Glazebrook (2000), Oake (2007) and Medlycott (2011). In Section 2.1 of this document we identified research aims relating to Palaeolithic remains, later prehistoric / Romano-British activity, and the medieval and post-medieval village of Stopsley. Having completed the fieldwork we have identified the following heritage assets:

Description of HA	Trench	Feature No/s	Significance of heritage asset (Low, Medium, High) and of local, regional, national, international interest
HA1: Undated ditches	4; 6	405; 605	Unclear. Possibly medium significance of local interest.
HA2: Undated post-hole	6	607	Unclear. Possibly medium significance of local interest.
HA3: Post-medieval field boundary	3	306	Low significance of local interest

TABLE 2

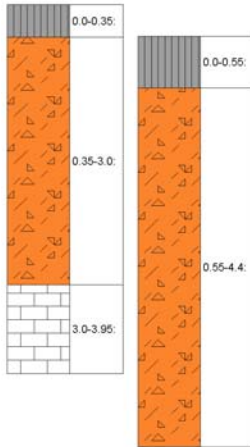
Heritage Assets recorded during intrusive evaluation

- 3.8.2 HA1 consists of the two ditches observed in this evaluation. They both contained evidence for prehistoric (Bronze Age and possible Iron Age) activity in the vicinity, although were themselves undated. Nonetheless, they are thought to be of relatively early date, certainly earlier than the post-medieval period, and are thought to have functioned as field boundaries or similar. Their significance is unclear as they cannot be dated.
- 3.8.3 HA2 consists of the undated post-hole in Trench 6. The



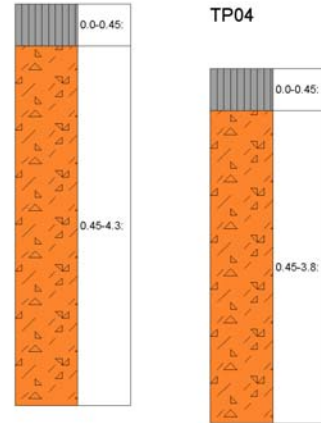
TP01

TP02



TP03

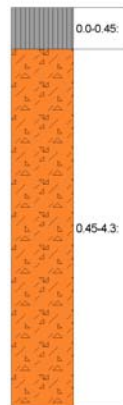
TP04



ILLUS 4

NW – SE strip log profiles

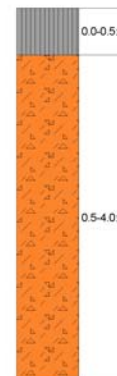
TP03



TP05



TP06



ILLUS 5

N – S strip log profiles

ILLUS 6

Test Pit 01: S facing section showing weathered Chalk surface and overlying Flinty Clay Plateau Drift



date and function of this is unclear, although it is sealed by the subsoil and so is thought to be relatively early. It seems most likely that it was used for a post-built fence (for a field boundary). Because it cannot be dated, its significance is also unclear.

- 3.8.4 HA3 comprises the remains of the post-medieval field boundary recorded in Trench 3. This has been identified on historic maps as a 19th century field boundary, which fell into disuse alongside the construction of the school in the 20th century. It reflects the agricultural use of this area during the post-medieval period, and is considered to have low local significance.

4 RESULTS: TEST-PITTING FOR PALAEO-LITHIC POTENTIAL

4.1 INTRODUCTION

- 4.1.1 Test pit data indicates that a reasonably straightforward stratigraphic sequence is present both vertically and laterally across the area of the site (Illus 5 and 6). The sequence is fairly uniform from test pit to test pit and the complete sequence was not fully observed in five of the test pits. It is, however, possible to recognise two sedimentary units within the area. These are:
 - Unit 2 Topsoil and Made Ground
 - Unit 1 Flinty Clay

- 4.1.2 This sequence is best conceptualised as provisional and subject to confirmation or revisions and amendments derived from any further geotechnical and stratigraphical work carried out at the site during construction. The exact relationship between the Flinty Clay (Unit 1) and the surface of the Chalk bedrock remains marginally problematic as the Chalk was exposed in only one test pit (TP01) and Clay-with-flints *sensu stricto* (Loveday 1962) does not appear to be present in the sediments recorded for this test pit. Further investigation during

any geotechnical work has the potential to resolve this stratigraphic problem.

4.2 THE CHALK SURFACE

- 4.2.1 Chalk bedrock was exposed in one test pit (TP01). The contact between the Chalk and the overlying deposit is sharp and extremely irregular with a surface composed of small solution hollows filled by red or reddish-brown clay and fine-medium angular flint pebbles (Illus 7). This limited exposure strongly suggests that the Chalk surface underlying the development area and its immediate surroundings is extensively weathered and covered with solution features such as subcylindrical and subconical pipes and hollows filled with clays or Clay-with-flints.

4.3 UNIT 1: FLINTY CLAY

- 4.3.1 The flinty clay of Unit 1 forms the principal sedimentary



7

ILLUS 7

Test Pit 03: E / SE facing section showing flint pocket in Flinty Clay Plateau Drift.



8

ILLUS 8

Test Pit 05: E / SE facing section showing fragments of grey clay in Flinty Clay Plateau Drift

Their absence appears to indicate that the sediments for this unit most likely correspond to a flinty or loamy clay type of Chiltern Plateau Drift (Loveday 1962; Catt and Hagen 1978). The flinty clay sediments of this unit are therefore interpreted as Plateau Drift material derived from the weathering of Tertiary deposits and Chalk bedrock. Their assignment to the particular type of drift deposit, however, is less certain as the absence of lithologies other than flint may be due more to sampling error rather than to any real absence of these materials within the deposit.

4.4 UNIT 2: TOPSOIL AND MADE GROUND

4.4.1 This unit is the modern topsoil occurring across the area. It is typically between 0.35m and 0.55m in thickness and composed of very dark grey soil, fragments of building materials and degraded tarmac. The unit is essentially an anthropogenic soil that appears to have been reworked on numerous occasions. As such it is not considered any further.

4.5 DISCUSSION

4.5.1 Recorded sediments in all six (6) test pits comprised flinty clay plateau drift lying directly on the Chalk bedrock and overlain by topsoil or made ground of variable depth. Doline brickearth sediments were not found in any of the test pits. In addition, no lithic artefacts were recovered from test pit sediments.

4.5.2 The flinty clay drift can be broadly correlated to similar facies resting on the Chalk bedrock at the Rackley and Cottages sites in Caddington (Sampson 1978:35; Campbell and Sampson 1978:79, Fig. 6–13). Elsewhere at Palaeolithic localities such as Mixes Hill, Ramridge End and Round Green, basal sediments lying on the Chalk have all been described as undifferentiated Clay-with-flints (Smith 1894, 1916; Bridgland and Harding 1989; White 1997).

unit at the site and has been recorded in all six (6) of the test pits (TPs 1–6). This deposit ranges from 3.0m to >4.30m in thickness and appears to rest directly on the underlying surface of the Chalk bedrock and fills the solution hollows exposed in the Chalk at the base of test pit TP01. Recorded sediments comprise a mottled orange-brown to dark reddish-brown or red clay with pellets, fragments and thin irregular laminae of grey clay, and pockets of unsorted fine-coarse angular flint pebbles and small cobbles (Illus 7 and 8). Small manganiferous concretions and staining are also present in the clay with the sediment typically becoming redder with increasing depth.

4.3.2 Clast lithology for Unit 1 is exclusively flint with other lithologies, such as quartz pebbles, and cobbles of sarsen and Hertfordshire Puddingstone found in some drift deposits, not present in excavated sediments.

5 CONCLUSIONS

- 5.5.1 Archaeological remains uncovered during the trial trenching evaluation at Stopsley High School comprised two undated ditches (certainly earlier than the post-medieval period), an undated post-hole, and a post-medieval / modern field boundary. The presence of prehistoric flints also demonstrates the existence of some prehistoric activity in this area.
- 5.5.2 Facies recorded in the test pits comprised flinty clay plateau drift derived from the weathering of Tertiary deposits and Chalk bedrock. Brickearth sediments containing in situ and/or reworked archaeological materials similar to those recorded at the Lower Palaeolithic localities of Caddington, Mixes Hill, Ramridge End and Round Green, were not found within the development area. Lithic artefacts were also not recovered from recorded sediments in any of the test pits. These results provide reasonably conclusive evidence that deposits with in situ and/or reworked Palaeolithic archaeological materials do not occur within the development area. Development of the site as a result, will have no impact on Palaeolithic heritage assets.

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7 APPENDICES

APPENDIX 1 SITE REGISTERS

Appendix 1.1 Trench register

Trench	Orientation	Depth	Description	L
1	E-W	0.55–1m	Topsoil (101) over subsoil (102) / modern made-ground deposits (104) over natural drift deposit (103). Made-ground deposits seen in central part of trench.	30m
2	NE-SW	0.45m	Topsoil (201) over subsoil (202) over natural (203).	30m
3	NE-SW	0.6m	Topsoil (301) over modern made-ground deposits (302) / subsoil (303), over natural (304). Made-ground deposits seen at NE end. One ditch [306].	30m
4	NW-SE	0.55m	Topsoil (401) over subsoil (402) over natural (403). One ditch [405].	30m
5	NE-SW	0.55m	Topsoil (501) over subsoil (502) over natural (503).	30m
6	NW-SE	0.6m	Topsoil (601) over subsoil (602) over natural (603). One ditch [605] and one post-hole [607].	30m

Appendix 1.2 Context register

Context	Trench	Description	Dimensions
101	1	Topsoil: mid-dark brown silty deposit with bits of modern material (brick etc).	0–0.3m
102	1	Subsoil: grey-brown silty deposit with some bits of brick. Observed at eastern and western ends of trench.	0.3–0.5m
103	1	Natural drift deposit. Orange-brown silty-clay with flints.	0.5m / 0.9m+
104	1	Made-ground deposits. Dark brown-black silty deposit with bits of brick and tarmac etc. In central part of trench.	0.3–0.9m
201	2	Topsoil: dark brown organic silty deposit with some bits of modern brick and concrete.	0–0.3m
202	2	Subsoil: mid-light brown silty deposit with some bits of brick.	0.3–0.4m
203	2	Natural drift deposit. Orange-brown silty-clay with large flints.	0.4m+
301	3	Topsoil: dark brown organic silty deposit.	0–0.3m
302	3	Made-ground deposits. Mixture of brick rubble, concrete, and tarmac. Observed at NE end of trench.	0.3–0.45m

Context	Trench	Description	Dimensions
303	3	Subsoil: mid-light brown silty deposit with occasional small pebbles.	0.3–0.5m
304	3	Natural drift deposit. Orange-brown silty-clay with occasional large flints and chalk pieces.	0.5m+
305	3	Single fill of ditch [306]. Friable dark grey-brown silty-clay with occasional medium-large subangular stones. Contains modern finds (glass, iron objects, ceramics).	2.2m+ (E-W) X 1.2m X 0.22m
306	3	Cut of E-W aligned ditch. Steep sharp sides and slightly concave base. Cuts made-ground (302).	2.2m+ (E-W) X 1.2m X 0.22m
401	4	Topsoil: dark brown organic silty deposit.	0–0.25m
402	4	Subsoil: mid-light brown silty deposit.	0.25–0.4m
403	4	Natural drift deposit. Orange-brown silty-clay with flints.	0.4m+
404	4	Single fill of ditch [405]. Friable mid grey-brown silty-clay with occasional small-large subangular stones. Substantial bioturbation within it.	3.6m (NW-SE) X 0.6m X 0.26m
405	4	Cut of NW-SE aligned ditch. Both terminuses were observed within trench. Curvilinear in plan, with steep sharp sides and a concave base. Sealed by subsoil (402).	3.6m (NW-SE) X 0.6m X 0.26m
501	5	Topsoil: mid-dark brown silty deposit.	0–0.3m
502	5	Subsoil: mid-light brown silty deposit with some bits of brick and pebbles.	0.3–0.4m
503	5	Natural drift deposit. Orange-brown silty-clay with flints.	0.4m+
601	6	Topsoil: dark brown organic silty deposit.	0–0.35m
602	6	Subsoil: grey-brown silty deposit with some pebbles.	0.35–0.45m
603	6	Natural drift deposit. Orange-brown silty-clay with flints.	0.45m+
604	6	Single fill of ditch [605]. Friable light grey-brown silty-clay with frequent small-medium subangular stone, some manganese, and some charcoal.	1.9m+ (N-S) X 1m X 0.17m
605	6	Cut of N-S aligned ditch. Sharp irregular sides with uneven base. Sealed by subsoil. Deeper at eastern side.	1.9m+ (N-S) X 1m X 0.17m
606	6	Fill of post-hole [607]. Friable dark brown-grey silty-clay with occasional small subangular stones and occasional animal bone fragments.	0.29m X 0.29m X 0.23m
607	6	Cut of probable post-hole. Circular in plan, with vertical sides and flat base. Sealed by subsoil (602).	0.29m X 0.29m X 0.23m

Appendix 1.3 Photographic register

Photo	B&W	Digital	Direction facing	Description
001	36	1	SE	Trench 6
002	35	2	SW	Trench 6 section



Photo	B&W	Digital	Direction facing	Description
003	—	3	NE	Trench 5
004	—	4	SW	Trench 5 section
005	—	5	SE	Trench 4
006	—	6	NE	Trench 4 section
007	—	7	NE	Trench 3
008	—	8	SE	Trench 3 section
009	—	9	SW	Trench 2
010	—	10	NE	Trench 2 section
011	—	11	E	Trench 1
012	—	12	NE	Trench 1 section
013	—	13	NE	Ditch [605]
014	—	14	N	South-facing section through ditch [605]
015	—	15	N	South-facing section through ditch [605]
016	—	16	NE	Post-hole [607]
017	—	17	NE	Southwest-facing section through post-hole [607]
018	—	18	NE	Southwest-facing section through post-hole [607]
019	—	19	N	South-facing section through ditch [605]

Photo	B&W	Digital	Direction facing	Description
020	—	20	NW	Ditch [405]
021	—	21	NW	Ditch [405]
022	—	22	NW	Southeast-facing section through ditch [405]
023	—	23	NW	Southeast-facing section through ditch [405]
024	—	24	W	Ditch [306]
025	—	25	W	Ditch [306]
026	—	26	W	East-facing section through ditch [306]
027	—	27	W	East-facing section through ditch [306]
028	—	28	NE	Trench 3 backfilled
029	—	29	SE	Trench 4 backfilled
030	—	30	NE	Trench 5 backfilled

Appendix 1.4 Sample Register

Sample	Context	Volume	Description
1	604	40L	Fill of ditch [605]

APPENDIX 2 FINDS CATALOGUE

Trench	Context	Sample	Qty	Weight (g)	Material	Object	Description	Spot Date
3	305	—	1	116	CBM	Brick	corner sherd, red fabric with flint inclusions	Medi-Mod
3	305	—	1	4	Glass	Bottle	pale blue thick body sherd	19th-present
3	305	—	1	5	Iron	Nail	small nail	—
3	305	—	1	64	Iron	Fitting	bar fitting with rounded ends and nail in each	—
3	305	—	1	30	Iron	Plate	small sherd of curving late, sub-triangular	—
3	305	—	1	31	Pottery (Mod)	Porcelain	teacup base, plain	19th-present
4	404	—	14	1026	Lithics	Core & shatter	Three large tabular pieces of flint from a chalk flint seam, one multi-directional platform core and associated chunks and frost shattered pieces	PH
6	604	1	—	<0.5g	Industrial Waste	Mag Res	probable hammerscale	—
6	604	1	—	<0.5g	Industrial Waste	Slag	Small vitrified fragment	—
6	604	1	10	5	Lithics	Debitage	Small flakes and chips	PH
6	604	—	44	1870	Lithics	Core, Debitage & Tools	large multi-directional platform core, four edge retouched flakes, one hard hammer flake and associated chunks and shattered pieces (much of this is patinated and may be entirely natural)	?BA



APPENDIX 3 ENVIRONMENTAL TABLES

Appendix 3.1 Flotation results

Context	Sample	Total flot Vol (ml)	Charcoal		Material available for AMS
			Qty	Max size (mm)	
604	1	5	+	<5	No

Key: + = rare (1–5), ++ = occasional (6–15), +++ = common (16–50) and ++++ = abundant (>50)

NB charcoal over 1cm is suitable for identification and AMS dating

Appendix 3.2 Residue results

Context	Sample	Sample Vol (l)	Stone			Charcoal		Material available for AMS Dating
			Lithics	Fe slag	Mag res	Qty	Max Size (cm)	
604	1	10	+++	+	++	+	0.7	No

Key: + = rare (0–5), ++ = occasional (6–15), +++ = common (15–50) and ++++ = abundant (>50)

NB charcoal over 1cm is suitable for identification and AMS dating

APPENDIX 4 PALAEOLOGIC TEST-PIT LOGS

Appendix 4.1 Test pit 01

Easting 509841.4 / Northing 223765.1 / Elevation 168.15m AOD / Total Depth 3.95m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.35	168.15	0.35	Topsoil-Made Ground Very dark grey soil, fragments of building materials, degraded tarmac
0.35–3.0	167.8–165.15	2.65	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and pockets of unsorted fine-coarse angular flint pebbles and small cobbles. Rare small manganiferous concretions present. Colour becomes redder as depth increases. Clast lithology: flint
3.0–3.95+	165.15–164.20	–	Chalk bedrock Sharp and extremely irregular contact, surface made up of small solution hollows filled with red to reddish-brown clay and fine-medium angular flint pebbles
3.95	164.20	–	End of test pit

Appendix 4.2 Test pit 02

Easting 509849.4 / Northing 223753.6 / Elevation 167.79m AOD / Total Depth 4.40m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.55	167.79–167.24	0.55	Topsoil-Made Ground Very dark grey soil
0.55–4.40+	167.24–163.39	3.85+	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and fine-coarse angular flint pebbles and small cobbles. Colour becomes slightly redder as depth increases. Clast lithology: flint
4.40	163.39	–	End of test pit Chalk bedrock not exposed

Appendix 4.3 Test pit 03

Easting 509919.5 / Northing 223741.7 / Elevation 168.05m AOD / Total Depth 4.30m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.45	168.05–167.60	0.45	Topsoil-Made Ground Very dark grey soil, occasional fragments of building materials
0.45–4.30+	167.60–163.75	3.85+	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and pockets of unsorted fine-coarse angular flint pebbles and small cobbles. Small manganiferous concretions present. Colour becomes redder as depth increases. Clast lithology: flint
4.30	163.75	–	End of test pit Chalk bedrock not exposed



Appendix 4.4 Test pit 04

Easting 509939.6 / **Northing** 223735.9 / **Elevation** 167.36m AOD / **Total Depth** 3.80m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.45	167.36–166.91	0.45	Topsoil-Made Ground Very dark grey soil
0.45–3.80+	166.91–163.56	3.35+	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and pockets of unsorted fine-coarse angular flint pebbles and small cobbles. Small manganiferous concretions and staining present. Colour becomes redder as depth increases. Clast lithology: flint
3.80	163.56	–	End of test pit Chalk bedrock not exposed

Appendix 4.5 Test pit 05

Easting 509920.7 / **Northing** 223703.9 / **Elevation** 166.68m AOD / **Total Depth** 3.70m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.45	166.68–166.23	0.45	Topsoil-Made Ground Very dark grey soil
0.45–3.70+	166.23–162.98	3.25+	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and small pockets of unsorted fine-coarse angular flint pebbles and small cobbles. Small manganiferous concretions and staining present. Colour becomes redder as depth increases. Clast lithology: flint
3.70	162.88	–	End of test pit Chalk bedrock not exposed

Appendix 4.6 Test pit 06

Easting 509933.7 / **Northing** 223674.2 / **Elevation** 165.99m AOD / **Total Depth** 4.0m

Depth (m)	OD Heights (m)	Thick. (m)	Description
0.00–0.50	165.99–165.49	0.50	Topsoil-Made Ground Very dark grey soil
0.50–4.0+	165.49–161.99	3.50+	Flinty Clay Mottled orange-brown to dark reddish-brown or red clay, pellets, fragments and thin irregular laminae of grey clay present, and pockets of unsorted fine-coarse angular flint pebbles and small cobbles. Small manganiferous concretions and staining present. Colour becomes redder as depth increases. Clast lithology: flint
4.0	161.99	–	End of test pit Chalk bedrock not exposed



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