University of Leicester

Archaeological Services

An Archaeological Test Pit Evaluation at Bradgate Park, Newtown Linford, Leicestershire (SK 5280 1010)

Lynden Cooper and James Harvey

ULAS Report No 2014-090

An archaeological Test Pit Evaluation at Bradgate Park, Newtown Linford, Leicestershire (SK 5280 1010)

DRAFT

Lynden Cooper and James Harvey

for:

Cookson and Tickner on behalf of Bradgate Park Trust

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Introduction

Bradgate Park Trust is currently seeking to enter into Higher Level Stewardship. Cookson and Tickner have been appointed to produce a Parkland Management Plan, as defined in the 'Brief for the Bradgate Park Parkland Plan' (Tyldesley 2013, hereinafter 'Brief') and ULAS (University of Leicester Archaeological Services) have been commissioned to carry out a series of archaeological surveys in order to facilitate management of heritage assets located within the park.

This report presents the results of an evaluation of the nationally significant Late Upper Palaeolithic lithic scatter located within Bradgate Park, Newtown Linford, Leicestershire (SK 5280 1010). This fieldwork was undertaken between the 24th February and 11th March 2014.

A strategy for the work was set out in the 'Design specification for evaluation of lithic scatter (NGR SK 528 1010)' (Beamish 2014, hereinafter 'Specification'; Appendix).

The site finds and archive will be deposited with Leicestershire Museums, Accession X.A32.2014.

Background

From 2001 onwards, large groups of worked flints have been recovered from an eroding footpath within the park (NGR 45280 31010). The material was recovered from a thin horizon immediately beneath the eroding turf in a restricted location. Material has been catalogued and quantified: of a total of 2,063 hand-recovered pieces there are 50 tools, 5 tool by-products, 668 pieces of larger débitage and 1,395 pieces of micro-débitage. The finds have been identified as Later Upper Palaeolithic of Creswellian character, probably representing a clean, uncontaminated assemblage arguably of national if not international significance (Cooper 2002, 2004 & 2012; Barton et al. 2003). Another group of flints collected in 2013 demonstrates active erosion at the site. This group has not been quantified but an estimated 100 larger fragments and numerous chips were retrieved.

The site is located on a strip of land where the northern ridge of Little Matlock falls away to the Lin floodplain. The flints appear to cluster around a small outcropping stone, but

flints have been recovered along the footpath 5m or so either side. It is uncertain if this wider spread indicates the size of scatter or modern transport from human/animal traffic. The land is effectively a bottle neck between the rock outcrops of the steep gorge edge and an area of dense bracken. It is a well-trodden path for those descending the gorge ridge top to the open floodplain in front of Bradgate House.

The site is listed on the Leicestershire HER as MONUID **MLE9435**, Creswellian site at Bradgate Park (Appendix, Figure 1).

Aims and Objectives

The 'Brief' required:

- *Survey of the Palaeolithic site to determine its condition and extent and to provide a 3D location plan of finds.*

In order to fulfil the requirement of the 'Brief', the 'Specification' stated that some intrusive survey would need to be undertaken.

The principal aims of this evaluative work were to assess the current state of erosion around the immediate locus of the previous finds recovery and to establish the extent of the buried site in 3 dimensions.

Methodology

The 'Specification' stated that a local 20m x 15m study grid should be established along the ridge, centrally focussed on the locus of previous finds. Within the grid area a vegetation cover survey was required in order to map the current state of erosion on the ridge and to identify the deposits within the study area. Subsequently twelve 500 x 500mm test pits at notional 5m intervals were excavated within the grid system (adjusted if outcrop of rock/heavily deflated soils are located). The test pits would extend from the known locus in three directions i.e. the flatter ground of the ridge (the other southern side being the rock face down to the bottom of the gorge).

The initial work involved setting up a local study grid centred on the finds locus. A 20m baseline was established along the ridge, approximately on the line of the eroded footpath, with the mid-point positioned over the finds locus. The 20m x 15m grid was then set up using a Topcon Hiper Pro GPS+ System attached to a Topcon FC-200 controller running TopSurv 7 field software.

Vegetation Survey

The vegetation cover survey was undertaken by survey mapping areas designated under the following categories:

- Ground with rich vegetation
- Ground with sparse vegetation
- Exposed topsoil
- Exposed subsoil
- Exposed bedrock / with redeposited topsoil

This survey was also was undertaken using the Topcon Hiper Pro GPS+ System attached to a Topcon FC-200 controller running TopSurv 7 field software.

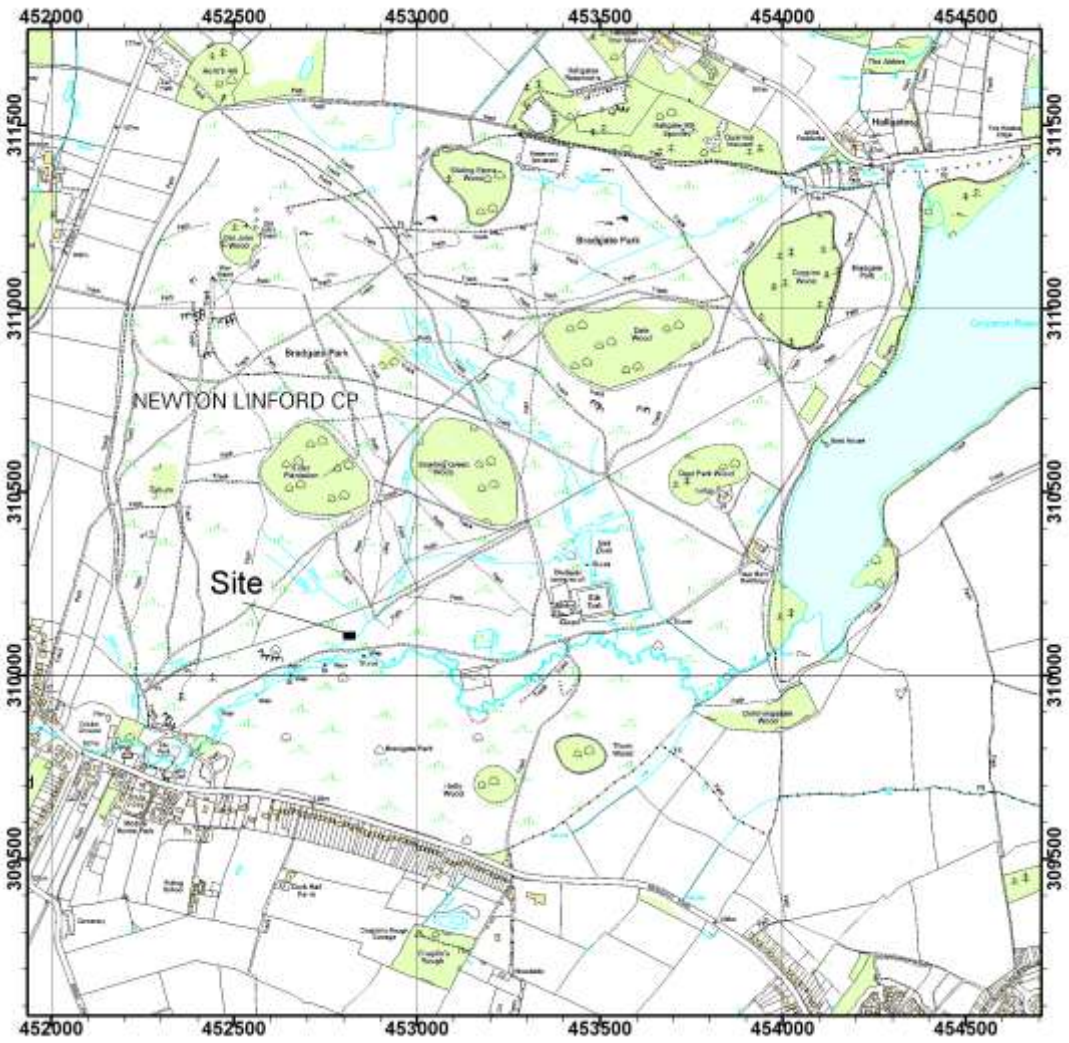


Figure 1: Location of site within Bradgate Park

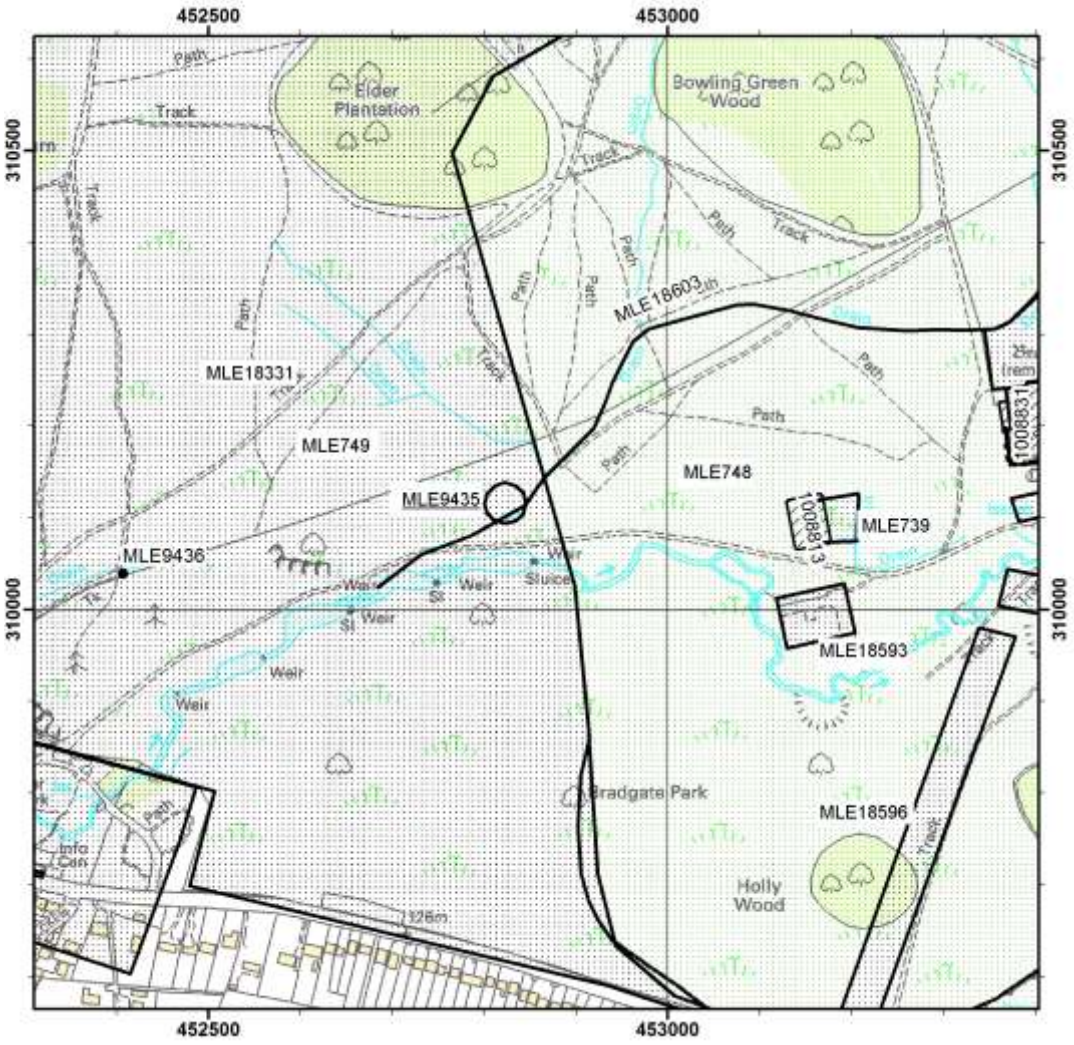
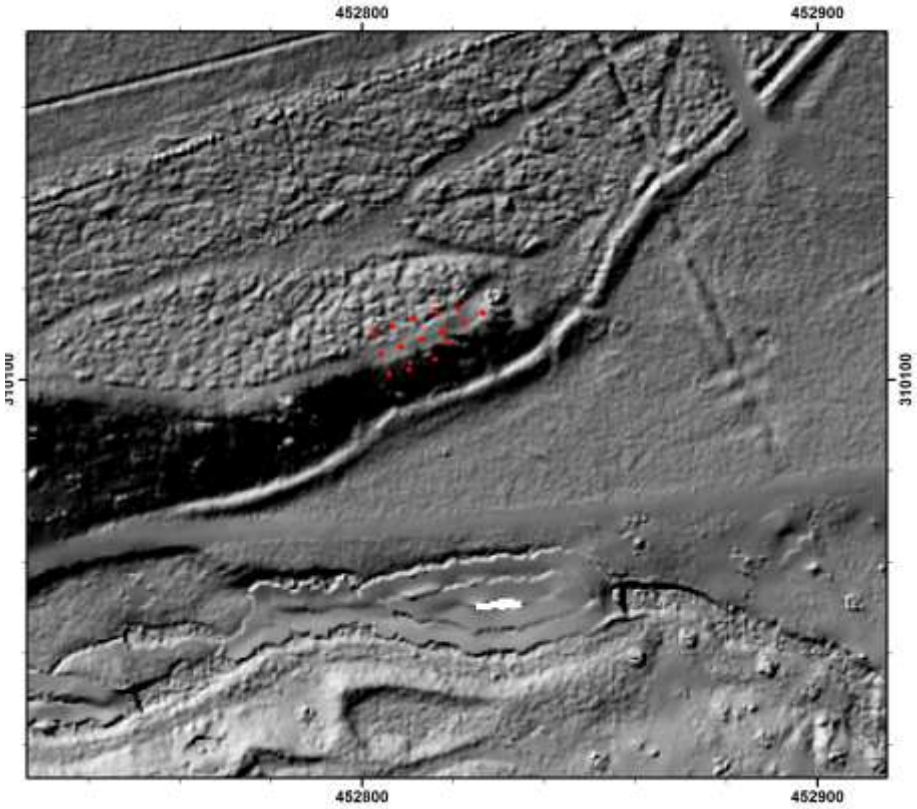


Figure 2: Site (MLE9435) in relation to other known sites in the immediate vicinity. See Appendix 1 for Site listing.

Test Pit Survey

The test pit survey constituted the main element fieldwork during this phase of investigation. The test pits were laid out at 5m intervals along the baseline and 5m either side of the baseline as areas suitable for test pitting were established on the south sloping rock face. Initially a total of twelve test pits were laid out as suggested by the specification (Appendix, Figure 2). The test pitting was extended eastwards where a further three test pits were excavated on the basis of results from the initial test pits.

Each test pit was initially split into four 25cm quadrants and levelled to AOD. Hand excavation was undertaken within individual quadrants with the soil removed in spits. All lithics recovered through hand excavation were individually located using Topcon Hiper Pro GPS+ System attached to a Topcon FC-200 controller running TopSurv 7 field software. The soil from the quadrant spits was then dry sieved using 10mm and subsequent 4mm meshes in order to recover missed flints and micro-débitage. The base of each spit when then levelled in order to approximately locate the sieved material back into the test pit sequence.



LiDAR source Environment Agency 2014

Figure 3: Location of test pits with Hillshade plot of LiDAR

The initial aim was to excavate the test pits down to solid bedrock. However this was not possible for all the pits due to the unexpected depths encountered within a number of them. The pits were usually stopped at a depth of 0.5m unless it was feasible and worthwhile to continue deeper on the basis of what had been recovered from the upper levels. Two measured sections of each axis within each individual test pit were drawn at 1:10 scale and the test pit information was recorded ULAS Test Pit Recording Sheets.

General Methodology and Standards

All GPS survey work was post-processed using Magnet Tools 1.2.1 in order to tie the evaluation into Ordnance Survey National Grid. Final plan were completed with the aid of TurboCad v.19 design software.

All work will follow the Institute for Archaeologists (IfA) *Code of Conduct* (2010) and adhere to their *Standard and Guidance for Archaeological Field Evaluation* (2008).

Internal monitoring procedures were undertaken that included visits to the site by the project manager and lithics specialist. These ensured that project targets were met and professional standards are maintained. Provision was made to allow external monitoring meetings with the Planning Authority, the Client and local research groups.

Results

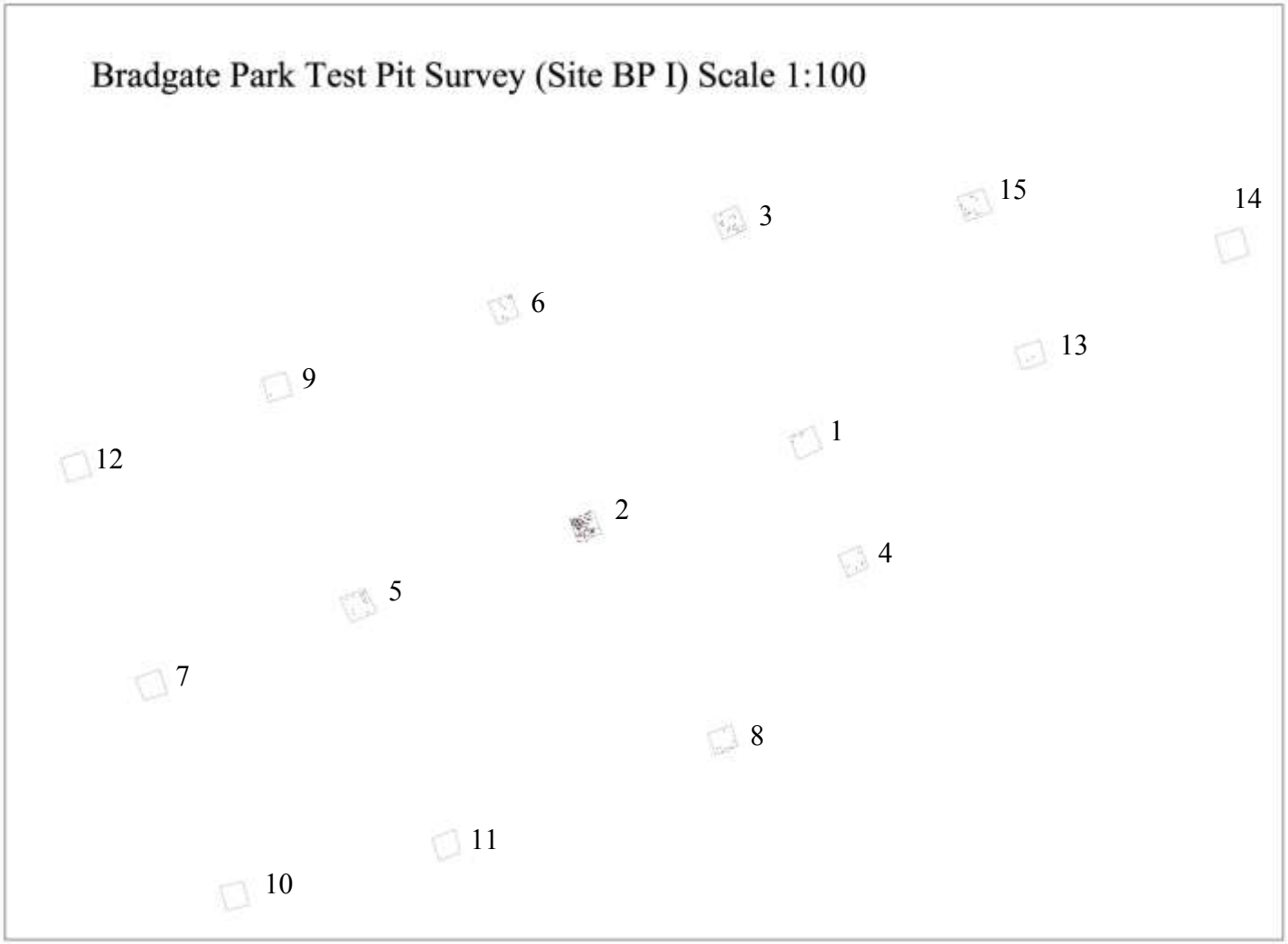


Figure 4: Lithic plots

Test Pit 1

Top of Pit: 103.71-103.81m aOD
Base of Pit: 103.39-103.57 aOD
Depth: 0.15-0.40m
Total number of lithics recovered: 18

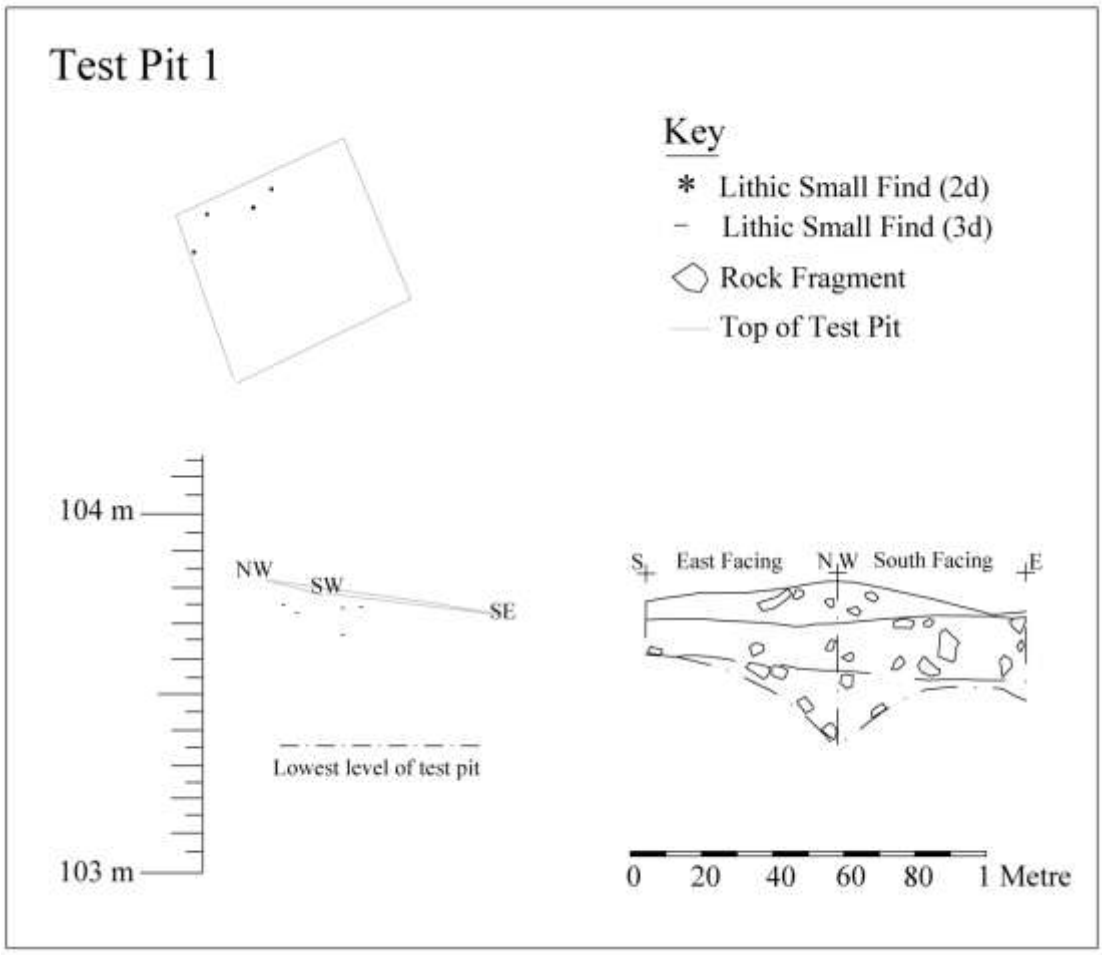


Figure 5: Test Pit 1 Plan and Section

The surface of the test pit was made up of a thin turf that overlaid topsoil consisting of a dark reddish brown sandy loam deposit containing abundant small to medium sized rock fragments. The topsoil varied in thickness between 0.02-0.12m and overlaid a subsoil consisting of a mid orangey brown sandy silt deposit that also contained abundant small to medium sized rock fragments. This deposit varied in thickness between 0.1-0.18m and overlaid a lower subsoil consisting of a lighter orangey brown sandy silt deposit that contained abundant rock fragments that become increasingly larger with depth. This deposit was excavated to a minimum of 0.03m and a maximum of 0.2m within areas between the larger rock fragments. The test pit was excavated to a depth of 0.4m but the bedrock was not reached. Finds were located towards the top of the profile. Bedrock was not located but large intractable stones, together with a lack of finds, prompted a decision to cease excavation.

Figure 6: Test Pit 1.

Test Pit 2

Top of Pit: 103.88-104.00m aOD
Base of Pit: 103.08-103.17m a OD
Depth: 0.7-0.95m
Total number of lithics recovered: 235

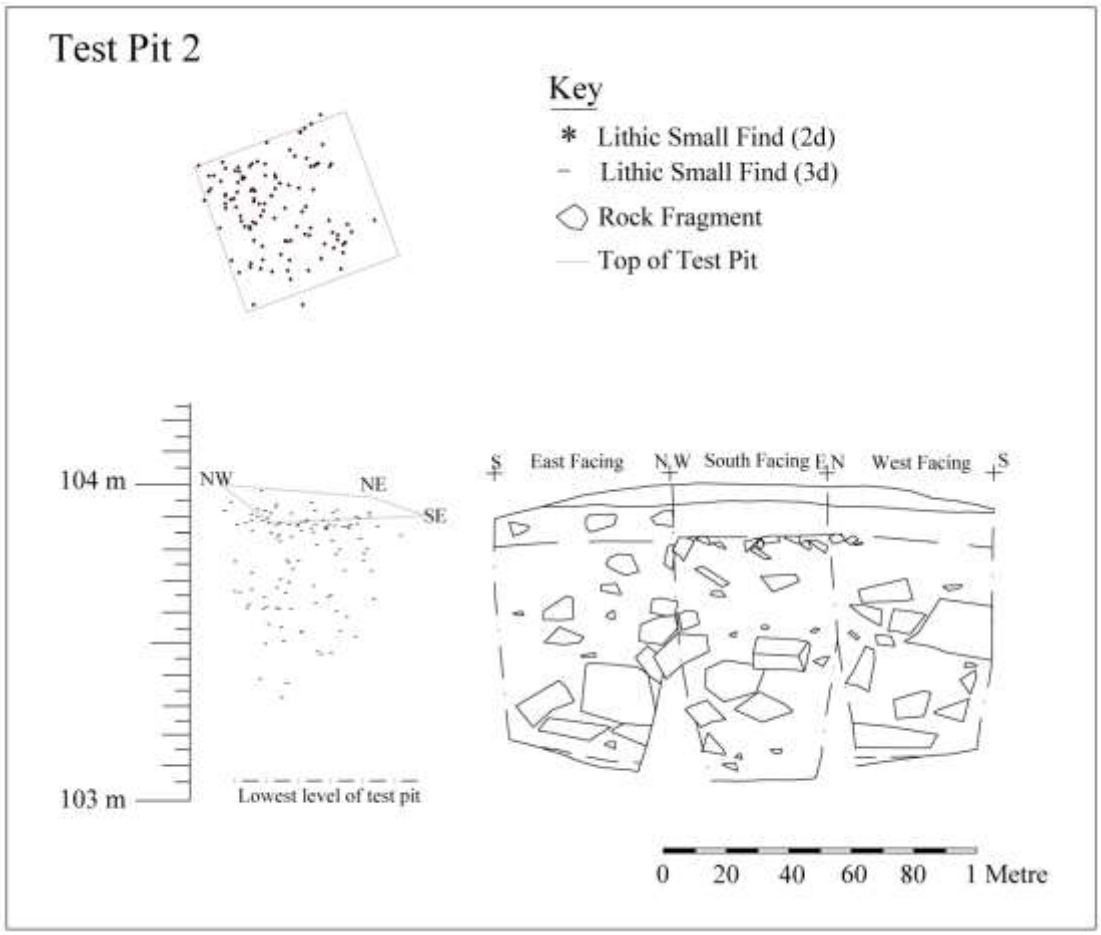


Figure 7: Test Pit 2, Plan and Section

The surface of the test pit was made up of a thin turf that had been eroded away in the southern part of the test pit where subsoil was exposed. The remaining topsoil consisting of a dark reddish brown sandy loam deposit containing occasional small to medium-sized rock fragments. The topsoil varied in thickness between 0-0.06m and overlaid a subsoil consisting of a mid orangey brown sandy silt deposit that contained common small to medium-sized rock fragments. This deposit varied in thickness between 0.09-0.11m and overlaid a lower subsoil consisting of a lighter orangey brown sandy silt deposit that contained abundant rock fragments that become increasingly larger with depth. This deposit varied in thickness between 0.61-0.76m and overlaid a thin buried soil that was located directly on top of the bedrock. This deposit consisted of a dark orangey brown sandy silt that varied in thickness between 0-0.03m across the base of the test pit. The top bedrock was a smooth, weathered surface that sloped down towards the north.

Figure 8: Test Pit 2

Test Pit 3

Top of Pit: 103.49-103.51m aOD
Base of Pit: 102.97-103.00m a OD
Depth: 0.45-0.51m
Total number of lithics recovered: 22

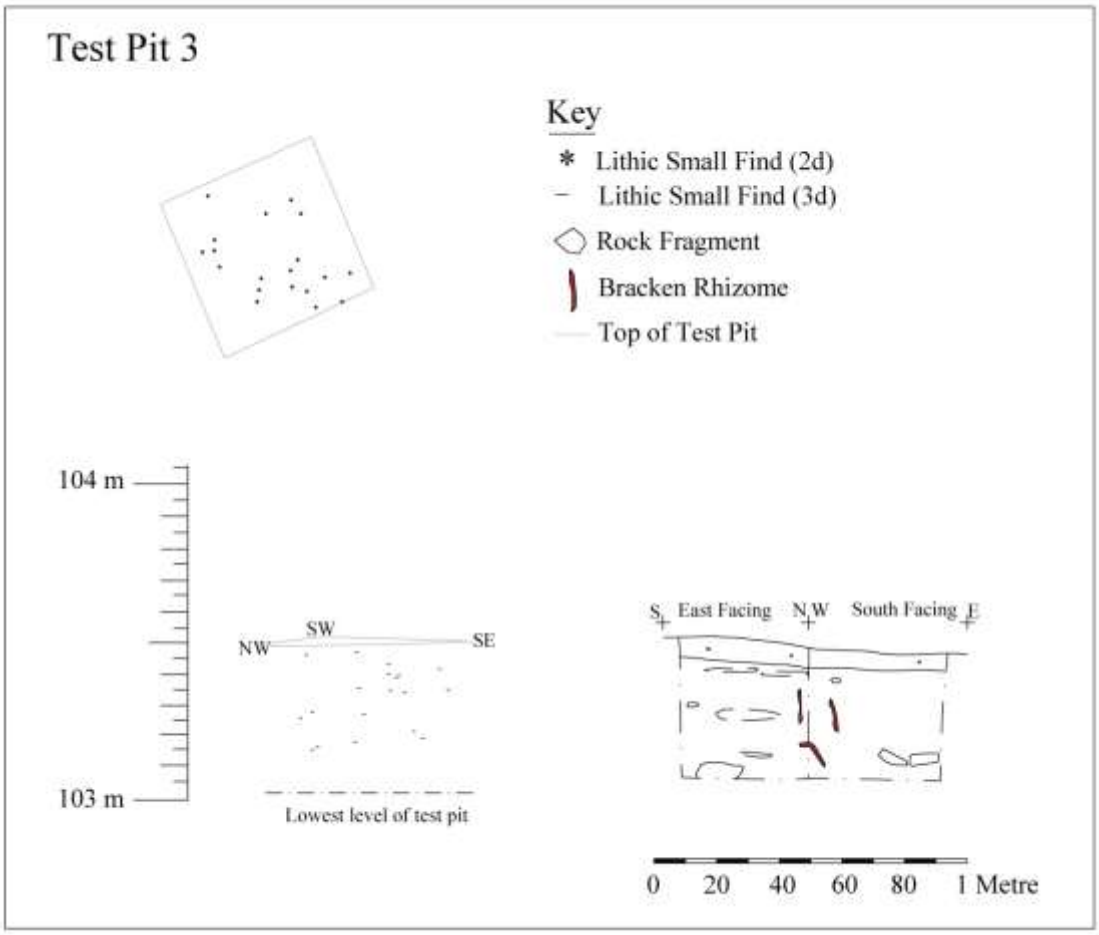


Figure 9: Test Pit 3, Plan and Section

The surface of the test pit consisted of dead bracken. The underlying topsoil consisted of a dark brown sandy loam deposit containing rare small rock fragments. The topsoil varied in thickness between 0.06-0.09m and overlaid a subsoil consisting of a mid yellowish brown sandy silt deposit that contained rare small to medium sized rock fragments becoming larger in size and more common towards the base of the test pit. This deposit was >0.43m thick, extending beyond the base of the test pit. It was clear the deposit had suffered significant bioturbation from both the bracken rhizomes as well as animal burrowing. The test pit was excavated to a depth of 0.5m but the bedrock was not reached.

Figure 10: Test Pit 3

Test Pit 4

Top of Pit: 103.58-103.64m aOD
Base of Pit: 103.42-103.48m a OD
Depth: 0.09-0.15m
Total number of lithics recovered: 14

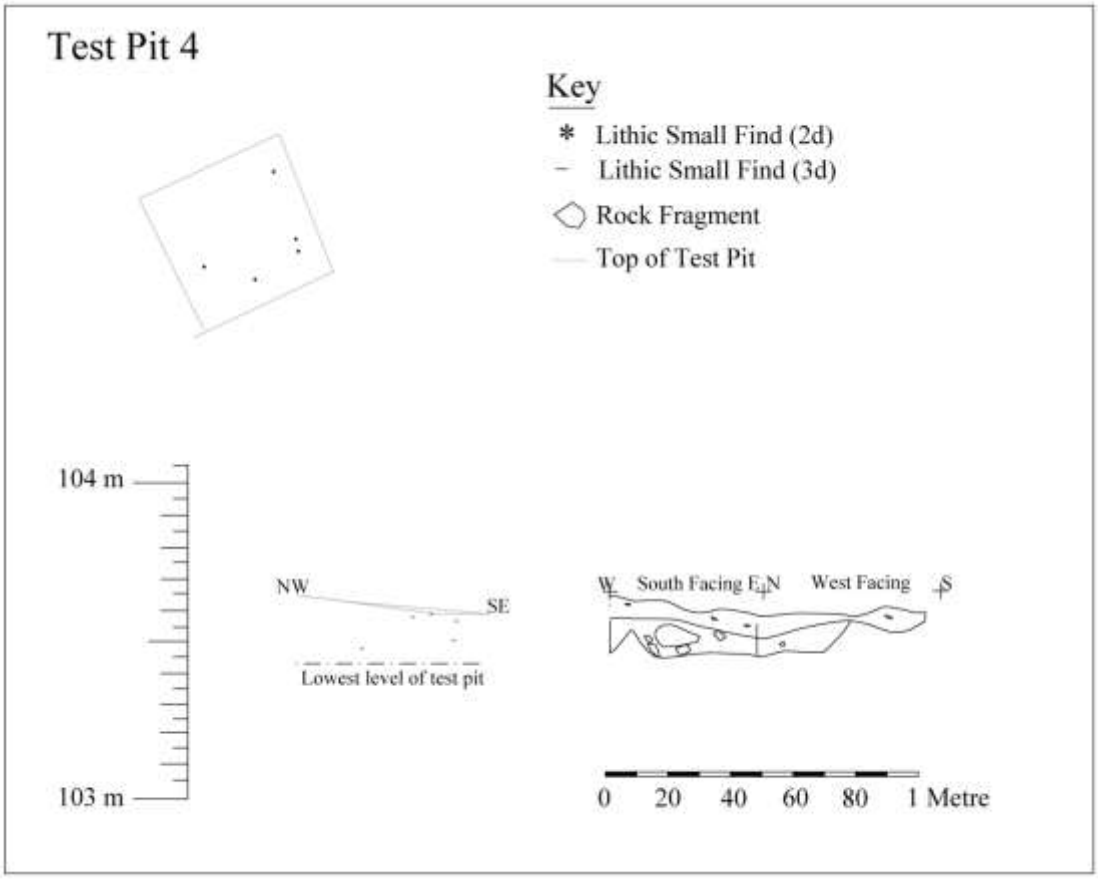


Figure 11: Test Pit 4, Plan and Section.

The surface of the test pit was made up of a thin turf that overlaid topsoil consisting of a dark reddish brown sandy loam deposit containing abundant small to large sized rock fragments. The topsoil varied in thickness between 0.04-0.07m and overlaid a subsoil consisting of a mid orangey brown sandy silt deposit that also contained abundant small to large-sized rock fragments. This deposit varied in thickness between 0-0.09m and directly overlaid the bedrock that consisted of fractured, embedded rock surface.

Figure 12: Test Pit 4

Test Pit 5

Top of Pit: 104.11-104.14m aOD
Base of Pit: 103.47-103.63m a OD
Depth: 0.5-0.6m
Total number of lithics recovered: 35

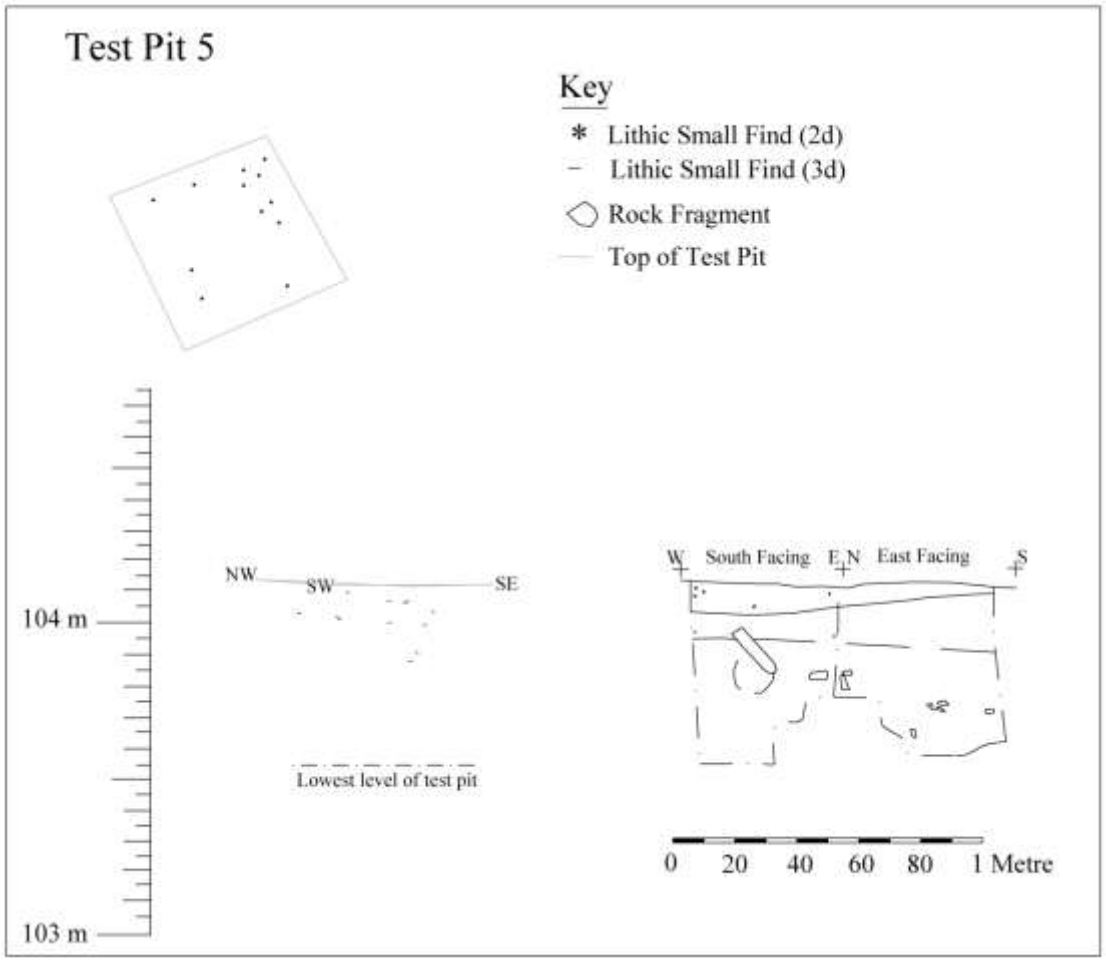


Figure 13: Test Pit 5, Plan and Section

The surface of the test pit was made up of exposed topsoil consisting of a dark reddish brown sandy loam deposit that contained rare small to medium sized rock fragments. The topsoil varied in thickness between 0.02-0.10m and overlaid a subsoil consisting of a mid orangey brown sandy silt deposit that also contained occasional small to large sized rock fragments that became larger and more abundant towards the base of the test pit. This deposit varied in thickness between 0.08-0.18m and overlaid a lower subsoil consisting of a lighter orangey brown sandy silt deposit that contained abundant rock fragments that become increasingly larger with depth. This deposit was excavated to a minimum of 0.17m and a maximum of 0.41m, within areas between the larger rock fragments. Although no definite bedrock was seen within the test pit it was suggested a portion of bedrock have been exposed within the southern section.

Figure 14: Test Pit 5.

Test Pit 6

Top of Pit: 103.69-103.70m aOD
Base of Pit: 102.95-102.99m a OD
Depth: 0.69-0.75m
Total number of lithics recovered: 11

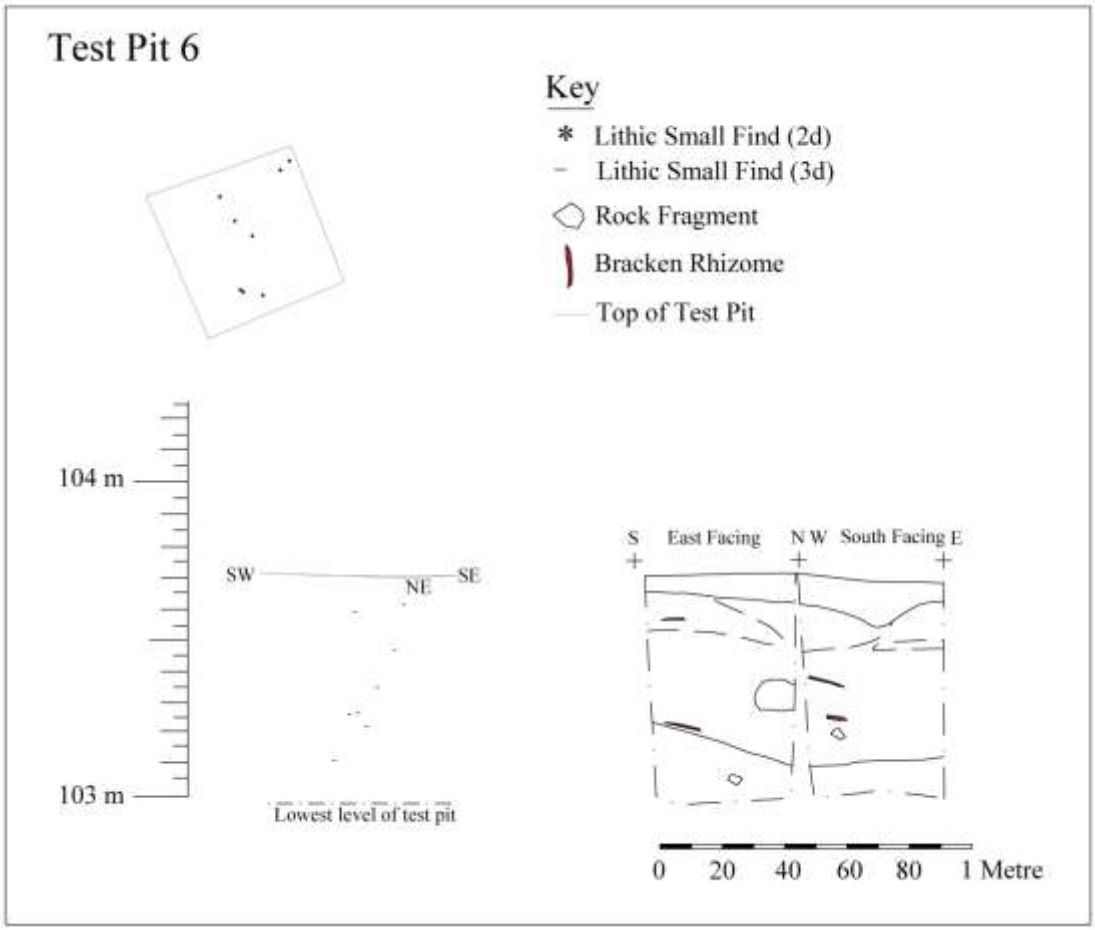


Figure 15: Test Pit 6, Plan and Section

The surface of the test pit consisted of dead bracken. The underlying topsoil consisted of a dark brown sandy loam deposit that was very organic. The topsoil varied in thickness between 0.05-0.14m and overlaid subsoil consisting of a mid yellowish brown sandy silt deposit that contained rare small to medium sized rock fragments. The subsoil varied in thickness between 0.41-0.5 and overlaid a lower subsoil that consisted of a compacted mid pinkish brown slightly clayey sandy silt deposit. This deposit was >0.27m deep, extending below the base of the test pit. It was clear the deposits within this test pit had also suffered significant bioturbation from both the bracken rhizomes as well as animal burrowing. The test pit was excavated to a depth of 0.73m but bedrock was not reached.

Figure 16: Test Pit 6.

Test Pit 7

Top of Pit: 104.27-104.27m aOD
Base of Pit: 103.85-103.90m a OD
Depth: 0.28-0.35m
Total number of lithics recovered: 0

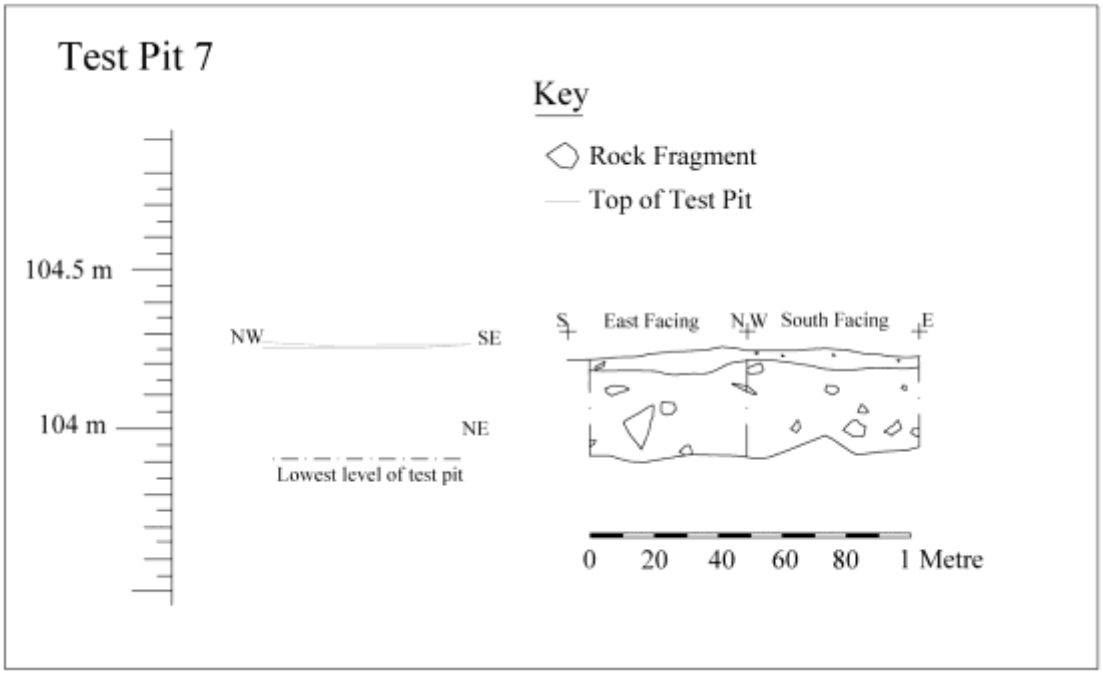


Figure 17: Test Pit 7, Plan and Section.

The surface of the test pit was made up of bare topsoil that consisted of a dark reddish brown sandy loam deposit containing rare small to large sized rock fragments. The topsoil varied in thickness between 0.03-0.07m and overlaid a subsoil consisting of a mid orangey brown sandy silt deposit that also contained abundant small to large sized rock fragments. This deposit varied in thickness between 0.2-0.31m and directly overlaid the bedrock that consisted of fractured, embedded rock surface.

Figure 18: Test Pit 7.

Test Pit 8

Top of Pit: 102.52-102.63m aOD
Base of Pit: 102.28-102.40m a OD
Depth: 0.11-0.36m
Total number of lithics recovered: 14

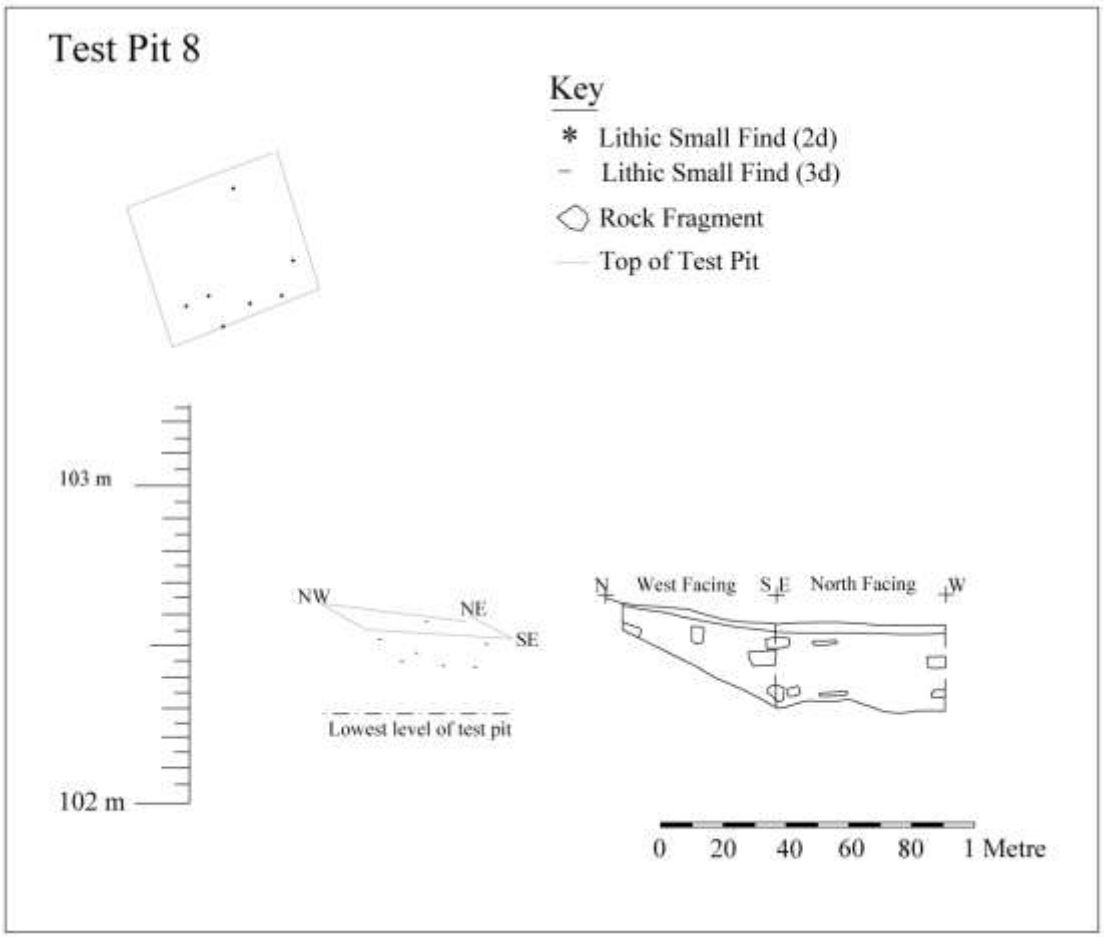


Figure 19: Test Pit 8, Plan and Section.

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark reddish brown sandy loam deposit containing rare small to large sized rock fragments. The topsoil varied in thickness between 0.01-0.04m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained abundant small to large sized rock fragments. This deposit varied in thickness between 0.08-0.25m and directly overlaid the bedrock that consisted of a smooth, weathered surface that sloped down towards the north.

Figure 20: Test Pit 8.

Test Pit 9

Top of Pit: 103.92-104.01m aOD
Base of Pit: 103.47-103.50m a OD
Depth: 0.38-0.55m
Total number of lithics recovered: 6

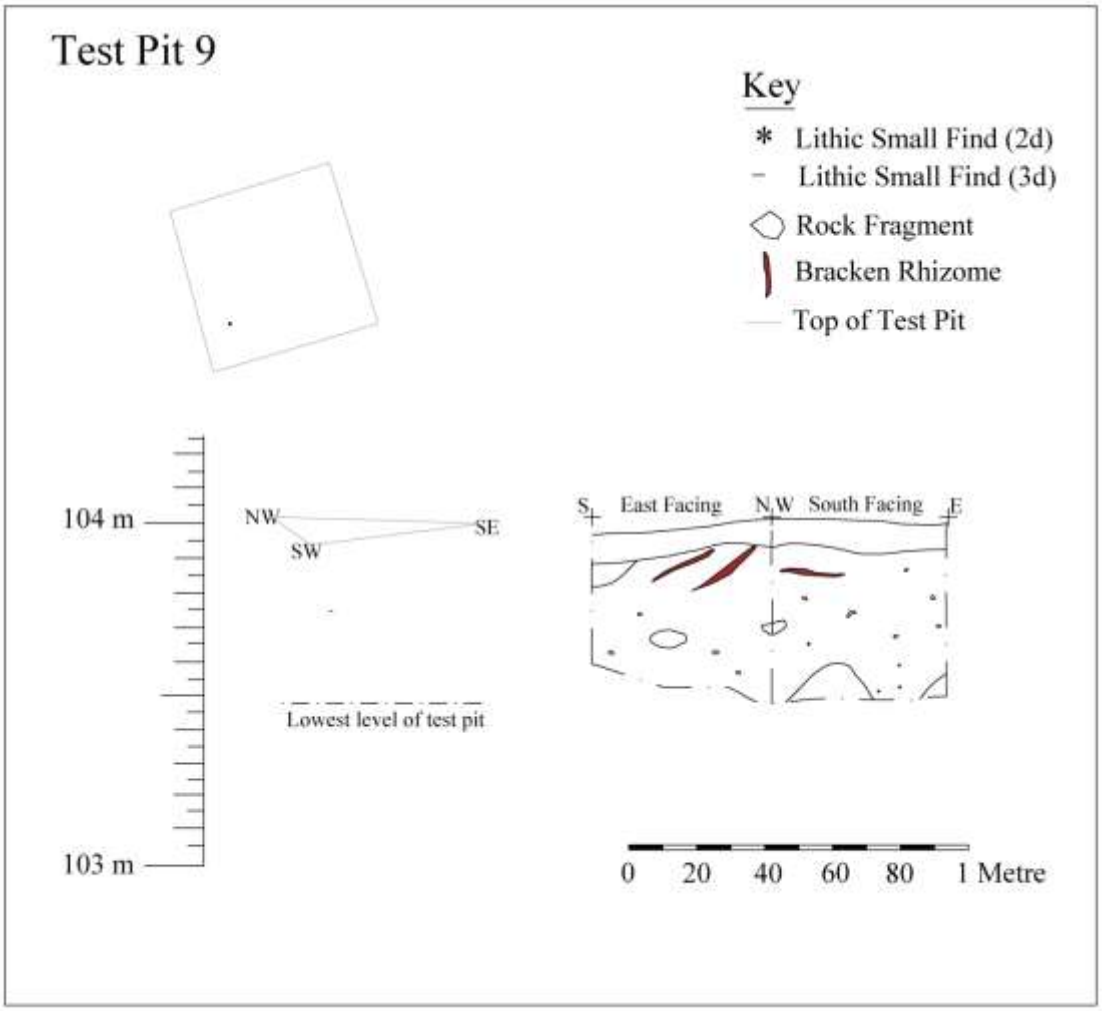


Figure 21: Test Pit 9, Plan and Section.

The surface of the test pit consisted of dead bracken. The underlying topsoil consisted of a dark brown sandy loam deposit containing occasional small sized rock fragments. The topsoil varied in thickness between 0.07-0.1m and overlaid a subsoil consisting of a light-mid yellowish brown sandy silt deposit that contained occasional small to medium sized rock fragments. This deposit was >0.44m thick, extending beyond the base of the test pit. It was clear the deposit had suffered significant bioturbation from both the bracken rhizomes as well as animal burrowing. The test pit was excavated to a depth of 0.54m but bedrock was not reached.

Figure 22: Test Pit 9.

Test Pit 10

Top of Pit: 103.48-103.70m aOD
Base of Pit: 103.32-103.45m a OD
Depth: 0.01-0.43m
Total number of lithics recovered: 0

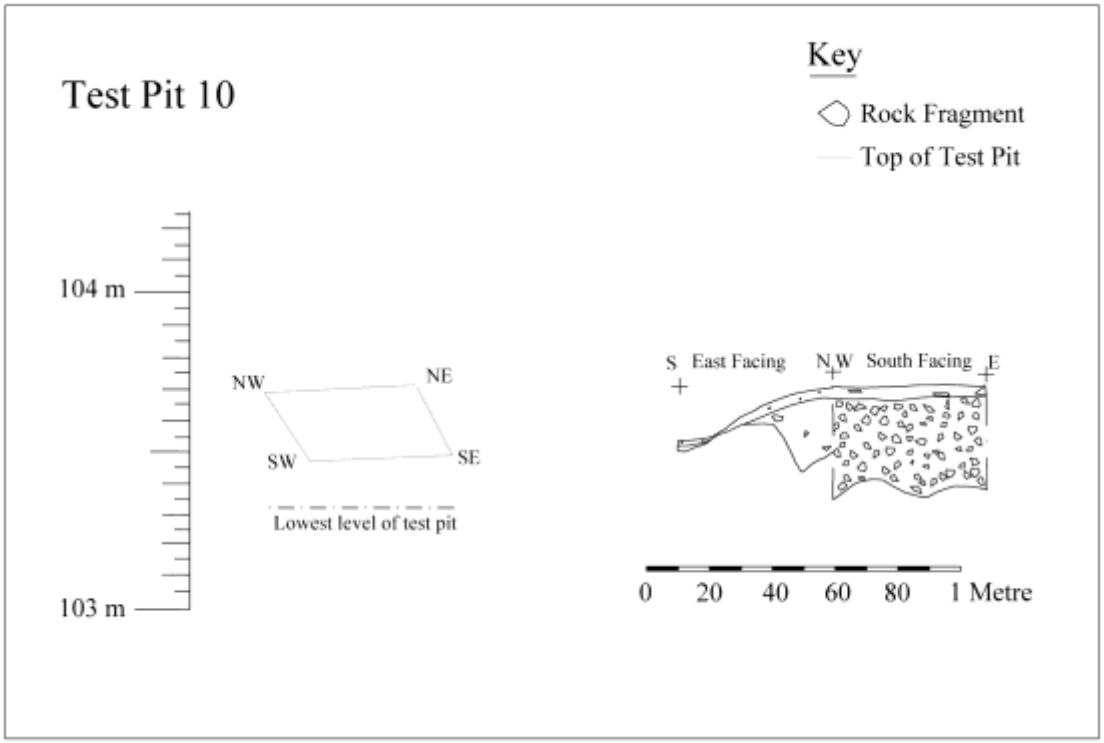


Figure 23: Test Pit 10, Plan and Section.

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark brown sandy loam deposit containing occasional small to large-sized rock fragments. The topsoil varied in thickness between 0.01-0.04m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained abundant (80%) small to large sized rock fragments. This deposit varied in thickness between 0-0.31m, dipping into a deep fracture within the bedrock. The underlying bedrock consisted of fractured rock.

Figure 24: Test Pit 10.

Test Pit 11

Top of Pit: 103.25-103.45m aOD
Base of Pit: 103.08-103.20m a OD
Depth: 0.12-0.22m
Total number of lithics recovered: 0

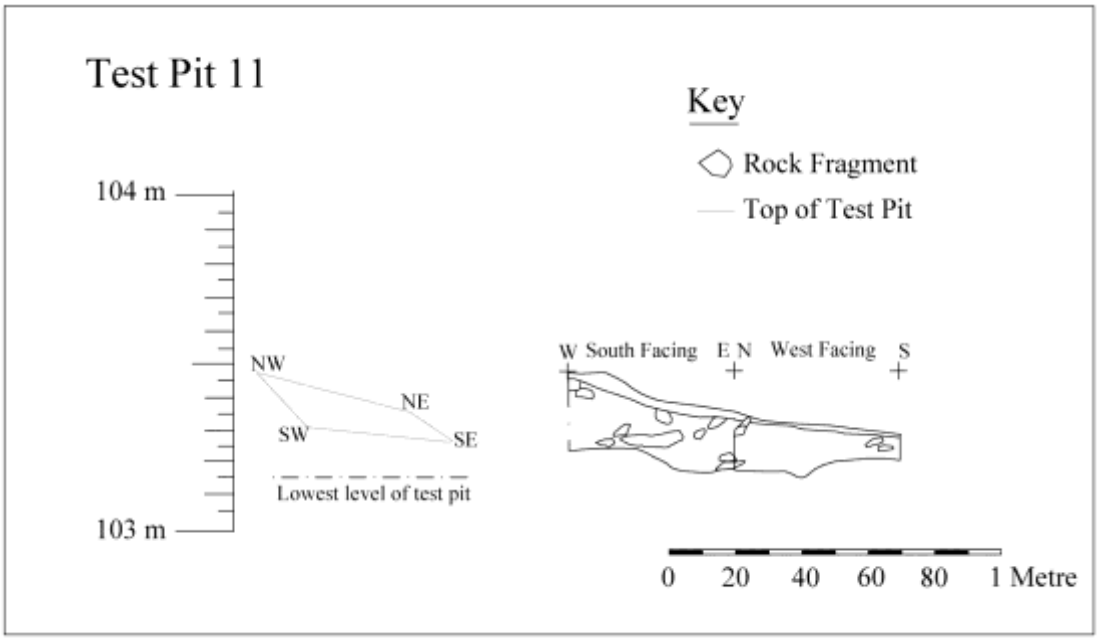


Figure 25: Test Pit 11, Plan and Section.

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark reddish brown sandy loam deposit with occasional rare small rock fragments. The topsoil varied in thickness between 0.01-0.05m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained abundant small to large sized rock fragments. This deposit varied in thickness between 0.07-0.22m and directly overlaid the bedrock that consisted of a smooth, weathered surface that was relatively flat.

Figure 26: Test Pit 11.

Test Pit 12

Top of Pit: 104.22-104.26m aOD
Base of Pit: 103.64-103.69m a OD
Depth: 0.52-0.60m
Total number of lithics recovered: 1

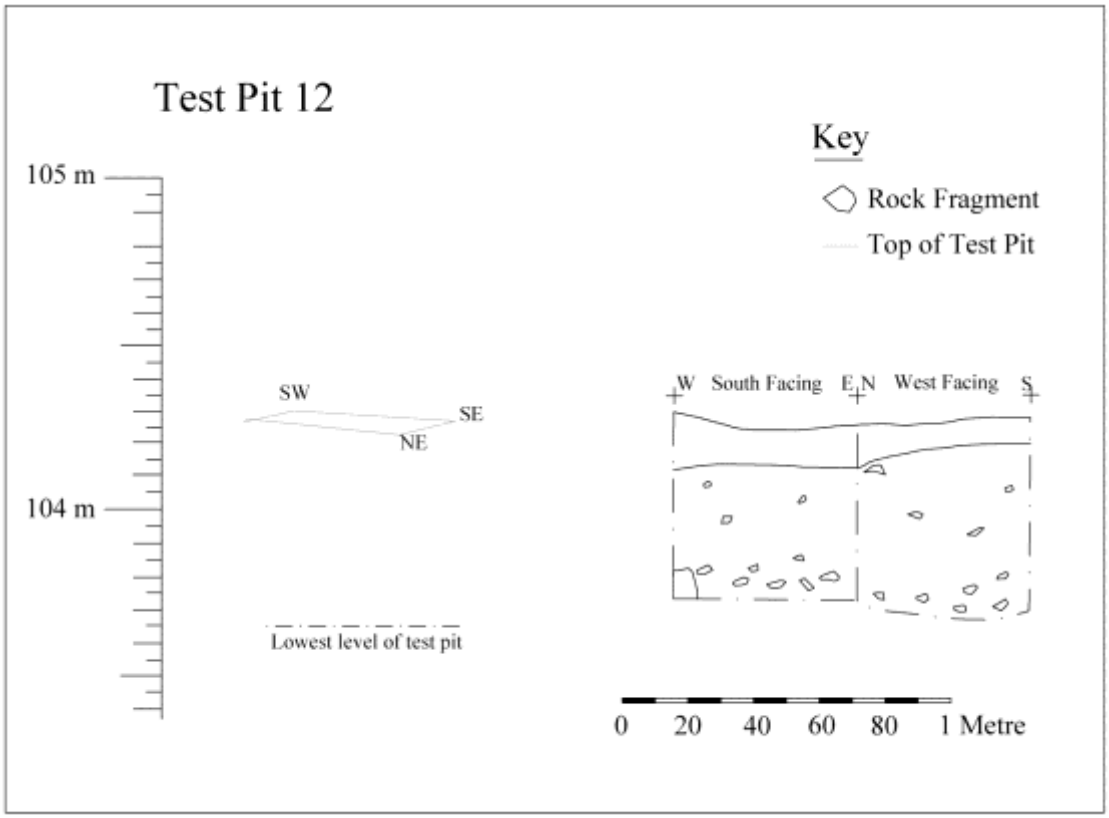


Figure 27: Test Pit 12, Plan and Section.

The surface of the test pit consisted of dead bracken. The underlying topsoil consisted of a dark brown sandy loam deposit containing occasional small to medium sized rock fragments. The topsoil varied in thickness between 0.07-0.18m and overlaid a subsoil consisting of a mid yellowish brown sandy silt deposit that contained occasional small to medium sized rock fragments. This deposit was >0.52m thick, extending beyond the base of the test pit. It was clear the deposit had suffered significant bioturbation from both the bracken rhizomes as well as animal burrowing. The test pit was excavated to a depth of 0.61m but the bedrock was not reached.

Figure 28: Test Pit 12

Test Pit 13

Top of Pit: 102.99-103.04m aOD
Base of Pit: 102.74-102.76m aOD
Depth: 0.25-0.29m
Total number of lithics recovered: 18

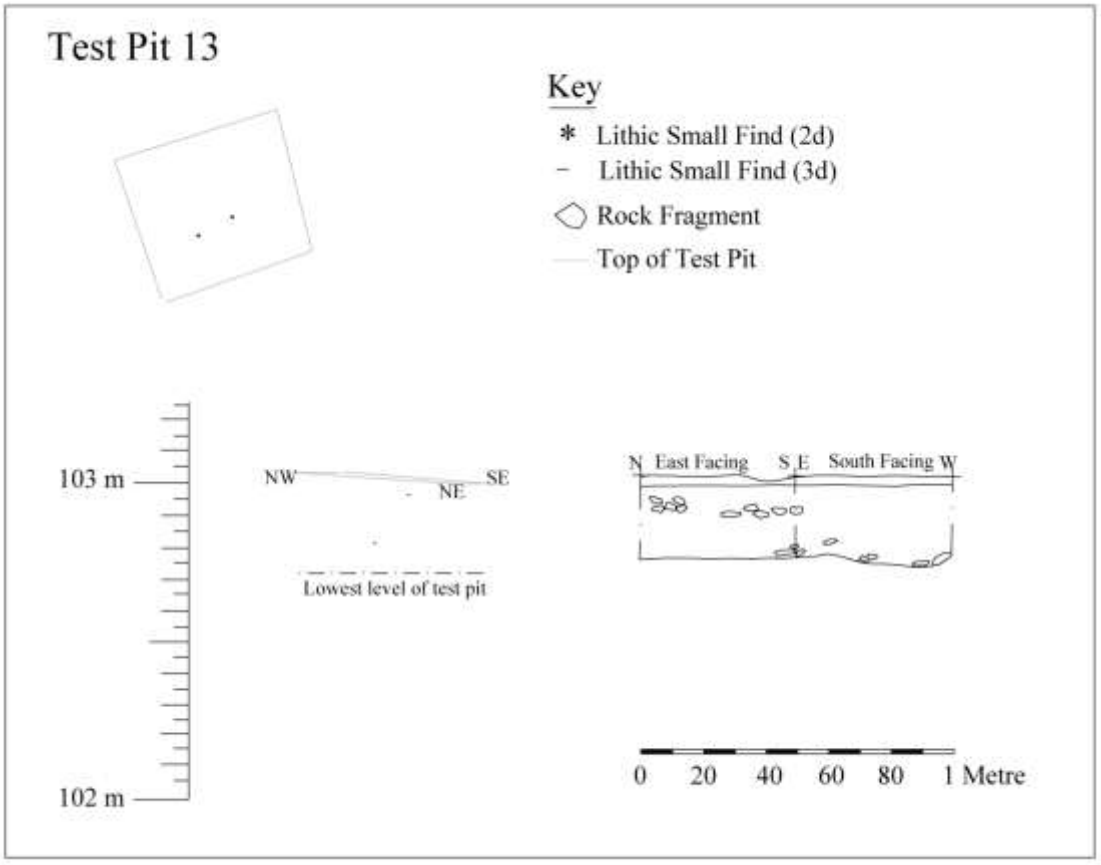


Figure 29: Test Pit 13, Plan and Section.

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark reddish brown sandy loam deposit containing rare small sized rock fragments. The topsoil varied in thickness between 0.01-0.03m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained occasional small to large-sized rock fragments. This deposit varied in thickness between 0.23-0.25m and directly overlaid the bedrock that consisted of a smooth, weathered surface that was relatively flat.

Figure 30: Test Pit 14.

Test Pit 14

Top of Pit: 102.79-102.83m aOD
Base of Pit: 102.61-102.70m a OD
Depth: 0.08-0.25m
Total number of lithics recovered: 3

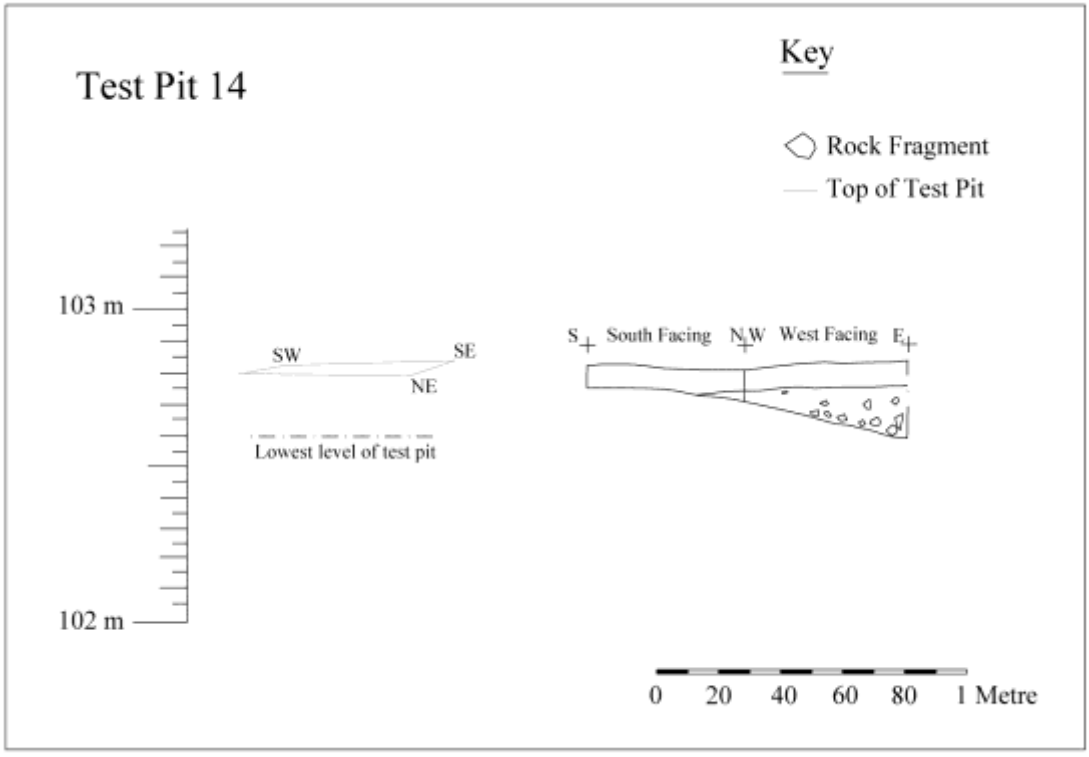


Figure 31: Test Pit 14, Plan and Section.

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark brown sandy loam deposit containing rare small sized rock fragments. The topsoil varied in thickness between 0.07-0.08m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained abundant small to large-sized rock fragments. This deposit varied in thickness between 0.23-0.25m and directly overlaid the bedrock that consisted of fractured, embedded rock surface.

Figure 32: Test Pit 14

Test Pit 15

Top of Pit: 102.98-103.06m aOD
Base of Pit: 102.71-102.75m a OD
Depth: 0.22-0.32m
Total number of lithics recovered: 20

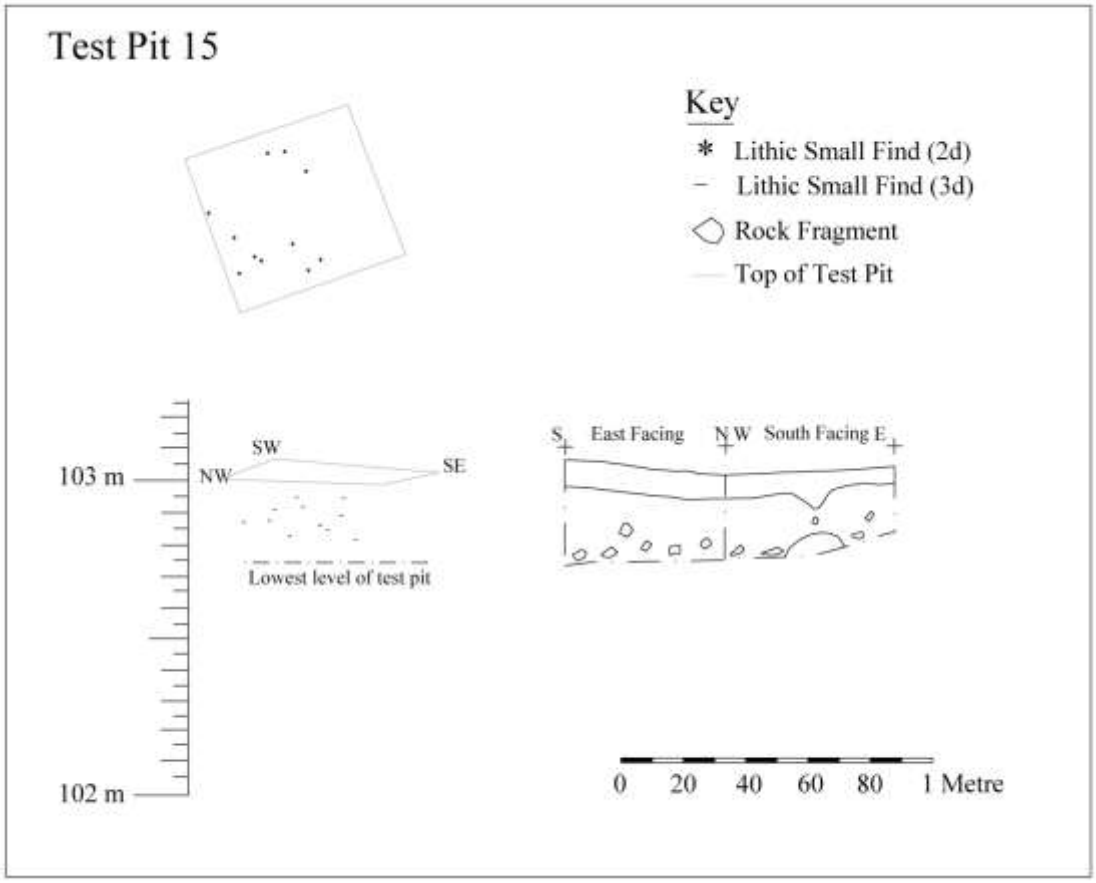


Figure 33: Test Pit 15, Plan and Section

The surface of the test pit was made up of thin turf that overlaid topsoil that consisted of a dark reddish brown sandy loam deposit containing abundant small sized rock fragments. The topsoil varied in thickness between 0.08-0.12m and overlaid subsoil consisting of a dark orangey brown sandy silt deposit that contained abundant small to medium sized rock fragments. This deposit was >0.26m thick, extending beyond the base of the test pit. It was clear the deposit had suffered some bioturbation from both the bracken rhizomes as well as animal burrowing. The test pit was excavated to a depth of 0.35m but the bedrock was not reached.

Figure 34: Test Pit 15

The lithics

Some 408 flints were recovered from the evaluation test pits, of which 194 were 3d located, 213 were recovered from sieving while one flint could only be located to a pit location. The raw material is a non-local flint predominantly semi-translucent and grey brown sometimes grading to an opaque grey flint with cherty inclusions. It is of exceptional knapping quality. The débitage assemblage comprised 204 flakes (inc. fragments), nine blades, 16 bladelets and 163 chips. A majority of the flakes were very small (10-20mm across). There were 13 tools and three by-products of tool manufacture.

The lithic assemblage from the test pits mirrored that found in recent years albeit lacking the higher proportion of larger pieces. While much of the débitage is classified as flakes, most is fragmented and probably resulted from blade and bladelet production. The majority of pieces were micro-débitage comprising knapping chips (i.e. small flakes) and fragmented pieces.

Tools included end-of-blade scrapers, burins, piercers, a Cheddar point and other abruptly modified pieces. Test pit 2 yielded several end-of-blade scrapers, a tool type conspicuously absent in the 2001-2013 collection. Their localised position within a 500 x 500mm box is a good indication that the scatter has preserved latent structure from the original occupation. Tool by-products include a retouch chip from the sharpening of a scraper, a Krukowski microburin from the manufacture of Cheddar/Creswell points (or similar) and two microburins. The latter might be regarded as a Mesolithic intrusion but there is no other indication of a Mesolithic presence. There is a strong likelihood that the microburins are LUP: one was also located at the Farndon site (Garton & Jacobi 2009) and they are recognised in contemporary Hamburgian contexts, forming an initial stage in the production of shouldered points (Weber 2008).

Figure 35: Abruptly Modified Pieces: Cheddar points (1-3) and fragments of angle-backed pieces (4-5). Finds 2, 4 & 5 from test pit survey. No. 5 displays a burination at the tip which may be a result of impact damage from use.

Table 1: Breakdown of lithic assemblage

Test Pit. Spit	Flake	Blade	Bladelet	Micro-débitage	Tools	Comment
Unstrat	11	1*	1	14		En éperon butt
Test pit 1 sieved						
TP1.2	4			4		
TP1.3	1*			1		
TP1.4	1			3		
TP1.5	3			2		
TP1.6	1			1		
TP1.7	1					
Test Pit 2 3d located						
TP2 u/s	5*		1	1	Retouched fake	
TP2.1				1		2x nat
TP2.2				1		2x nat
TP2.3	4					nat
TP2.4	4**	2	1	7		
TP2.5	1		1	9*		
TP2.6	9			3		
TP2.7	1			6*	Knife?	
TP2.8	3			1		
TP2.9	3			1	Burin	
TP2.10	1				Scraper	
TP2.11	5*					
TP2.12					Cheddar point	
TP2.13	5	1*				
TP2.14	5*	1			Blade segment	
TP2.15	1			2 (inc. retouch chip)	Piercer	retouch chip
TP2.16		1				
TP2.17	2				Utilised blade End scraper	
TP2.18	1					
TP2.19	1				End scraper Burin	
Test pit 2 sieved						
TP2.1				1		
TP2.2				1		
TP2.3	2			1		
TP2.4	1			5		
TP2.5	6			8*		
TP2.6	4			4		
TP2.7	4			5**		
TP2.8	2			2		Crested piece
TP2.9	1			5		
TP2.10	2*			6		
TP2.11	1*			3		
TP2.12	9		2	2	Microburin	
TP2.13	5**		3			
TP2.14	3				Microburin	
TP2.15	1					
TP2.16	4		2	3**		

TP2.17	3		1	1		
TP2.18	2	1	1			
TP2.19	2					
TP2.20	3			2		
TP2.21	1			1		
Test Pit 3 3d located						
TP3.2	2			1		
TP3.3	4			2		
TP3.4	1			1		
TP3.5	1				End scraper	
TP3.7	2					
TP3.8				1		
TP3.10	2				Utilised blade frag	
TP3.12	2					
Test pit 3 sieved						
TP3.3	1					
TP3.6						2 quartz chips – nat?
TP3.13	1			1		
Test Pit 4 3d located						
TP4.2	1			1*		
TP4.3	1					
TP4.4	1					
TP4.6	1					
Test pit 4 sieved						
TP4.1				1		
TP4.3	2			2		
TP4.4	3			2*		
Test Pit 5 3d located						
TP5.2	1					
TP5.3	1			2		
TP5.4		1			Krukowski microburin	
TP5.5	1			1		
TP5.6	1					1 x nat
TP5.8	1			1		
Test pit 5 sieved						
TP5.1				2		
TP5.4	1			1		
TP5.5				1		
TP5.6	2			2		
TP5.7				1		
TP5.8	3*			3		
TP5.10	1	1				
TP5.11	3					
Test Pit 6 3d located						
TP6.1	1					
TP6.3	1					
TP6.8	1					
TP6.11	1					
TP6.12	1			1		
TP6.13	1					
TP6.14	1					
Test pit 6 sieved						
TP6.15	1					
Test Pit 8 3d located						
TP8.2	2					

TP8.3				1		
TP8.5			1	2		
Test pit 8 sieved						
TP8.1				1		
TP8.2				2		retouch chip
Test Pit 9 3d located						
TP9.1						natural
Test pit 9 sieved						
TP9.5				2		
TP9.11						
TP9.15	1		1			En éperon
Test Pit 13 3d located						
TP13.2	1					
TP13.9	1					
Test pit 13 sieved						
TP13.1				3		
TP13.2	1			4		
TP13.3				3		
TP13.5	1					
TP13.7	7*					
TP13.8			1			
TP13.10	1*					
Test Pit 14 sieved						
TP14.2	1			1		
TP14.3				1		
Test Pit 15 3d located						
TP15.2	2					Nat piece
TP15.3	1					
TP15.4				1		
TP15.5	1			3		
Test Pit 15 sieved						
TP15.2				2		
TP15.3	1					Beer chert?
TP15.6	1*					
TP15.7	1			3		
TP16 unstrat						
	4					
* = burnt/calcined piece						

Discussion

The evaluation has demonstrated that the Later Upper Palaeolithic scatter has not been completely obliterated but partly survives *within* the survey area as a central cluster (TP2) with a marked, but incomplete fall-off at 5m distance. Of some surprise was the depth of soil deposit in some areas. Where there was a considerable depth of soil the lithics were spread throughout the profile. However, we would suggest that the lithics were deposited originally at approximately the level of modern ground level and that some artefacts have been 'pulled' down the profile by bioturbation. The mechanics of such displacement would involve bracken root growth and die-back, as well as invertebrate movement. Trampling of the site during the Late Upper Palaeolithic occupation may have initiated the deeper movement of lithics: c.f. the Rekem *Federmesser* site in Belgium (Caspar and De Bie 2000, 221, fig 86). As at Rekem there is an apparent greater vertical displacement of smaller pieces, contra the oft-quoted Hengistbury Head model where it has been suggested that heavier, larger pieces were subject to increased downward movement (Collcutt 1992). Further support for the Rekem model at Bradgate Park is the composition of the flint recovered from the surface erosion from 2001 onwards: numerous larger pieces including cores were recovered from the surface, but such large pieces were rare further down the profiles.

With the Rekem model in mind we can make some assessment of the likely survival of the scatter. The ground cover survey records four levels of erosion:

- Ground with sparse vegetation
- Exposed topsoil
- Exposed subsoil
- Exposed bedrock

It is assumed that ground with sparse vegetation and exposed topsoil may have some survival of both micro-débitage and larger pieces, but some erosion may have occurred. Ground with exposed subsoil has probably lost most if not all of the larger pieces, but some micro-débitage may survive. Where there is exposed bedrock there are no flints. The erosion from foot traffic is a linear swathe that appears to have passed through the central locus of the scatter.

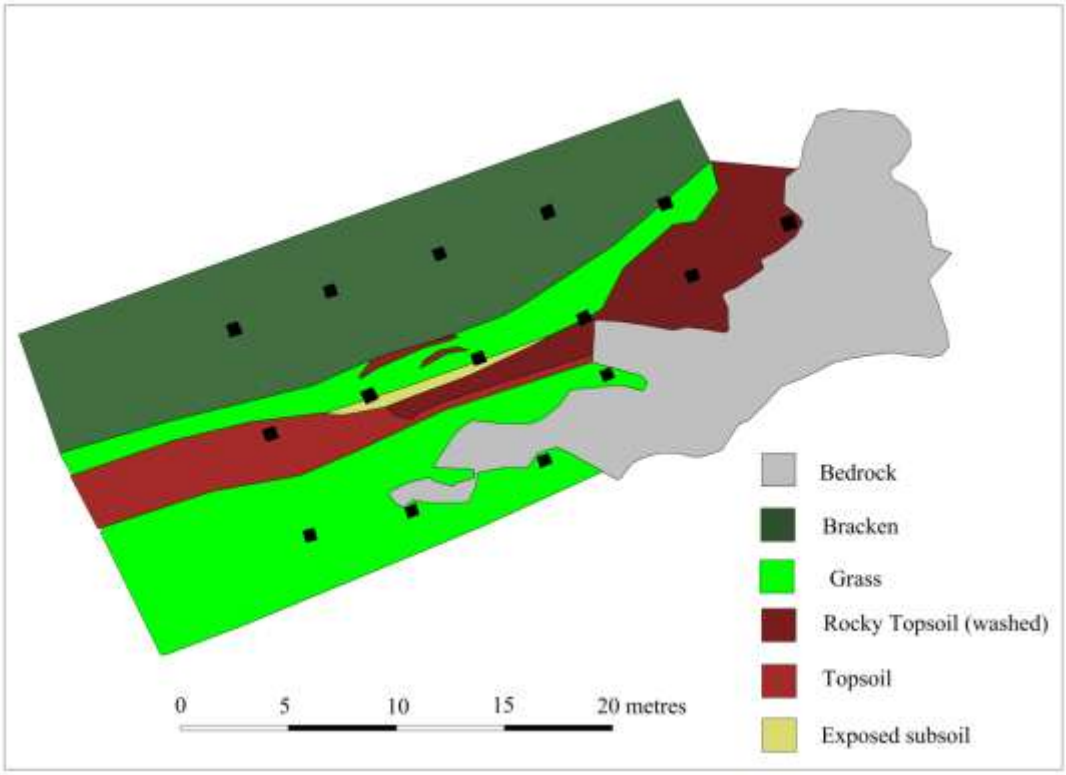


Figure 36: Results of ground level vegetation/erosion survey

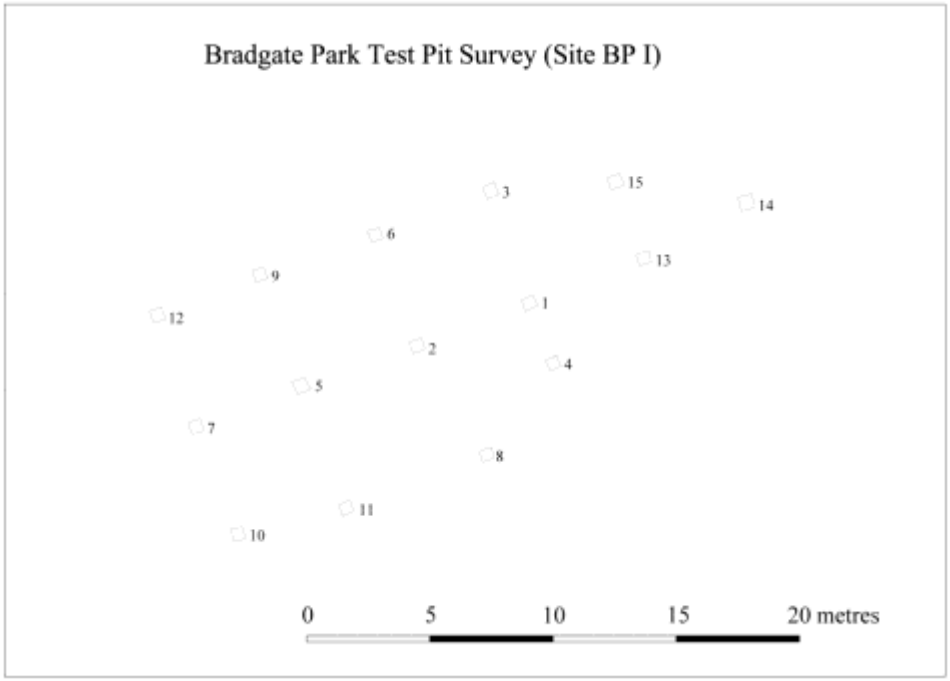


Figure 37: Layout of test pits at the locus of Late Upper Palaeolithic site BPI

The recent excavations have produced further finds that fit with a Creswellian identity. The Cheddar Point from TP2 is the most diagnostic of the artefacts but the other tools also fit a Later Upper Palaeolithic designation. Some evidence for the Magdalenian en éperon technique in core platform preparation was recorded: in the UK this only occurs with Creswellian technology.

The inferred activities at the site have been discussed by Cooper (2013) where it was suggested that the place was a small resource provisioning site, probably a hunting stand. Small and medium-sized blades were produced at the site and some of these were converted to Cheddar points (or similar), evident from several Krukowski microburins. Point fragments, including one with a clear impact trace, suggest re-tooling of armatures. Large piercers/borers include several pieces that can be classified as becs. Distinctive breakage fractures suggest the working of a hard material such as antler. Several burins may also indicate antler working. However, the addition of the group of scrapers from the test pit evaluation adds another inferred activity. This would imply hide working at the site, probably the processing of fresh hides from the hunting of horse and deer.

Statement of Significance

The site has archaeological significance as a lithic scatter, but there is potential for associated structures (hearths, tent rings). The buried lithic assemblage has positive attributes including:

- It is preserved in a primary context and has good indications of being *in situ* based upon the assemblage composition and situation (abundant smaller fractions and larger pieces lying horizontal)
- The lithics are abundant and in very good condition. Even where pieces are fragmented the flint margins and arrises show minimal attrition: they have excellent use wear potential
- It appears to represent limited occupation where defined activities may be identified
- There is no contamination from residual or intrusive elements as might occur with a palimpsest
- It has spatial integrity with its overall clustering but also intra-site differentiation with zones of structure e.g. the occurrence of the recently discovered group of scrapers from a single location
- Preliminary assessment of lithic raw material source by Paul Pettitt and Marcy Rockman suggest sources in Salisbury Plain and East Anglia (or just off the eastern coast), while this author speculates that a single piece may be Beer chert from the Devon coast
- The assemblage has good potential for a *chaîne opératoire* approach to analysis
- The site has great potential for a greater understanding of the existing Creswellian collections. For instance, the majority of finds from cave sites do not provide microwear potential, whereas the Bradgate Park assemblage has excellent potential for such study.

There are approximately 35 sites of Creswellian (Late Magdalenian) identity, mostly from England, but including a few sites in the Netherlands and Belgium. Barton *et al* (2003) suggest that only five of the British cave sites contain undiluted Creswellian assemblages. There are only three 'clean' open air sites at Guildford Fire Station and Wey Manor Farm, both in Surrey and the Bradgate Park site (incorrectly labelled Bradgate Farm on the map in Barton *et al* 2003). A large scatter at Farndon Fields certainly includes Creswellian material, but probably also some traces of Final Upper Palaeolithic (Federmesser) and Terminal Upper Palaeolithic (Epi-ahrensburgian) activity (Phil Harding pers comm & pers obs by LPC). Pettitt has suggested that the Farndon assemblage includes an Hamburgian element based upon a shouldered point in

the collection (Pettitt 2008; Pettitt & White 2012). He suggests that there is a British Hamburgian tradition, probably indicating an eastwards expansion of human groups into the north-western peninsula of Europe with the climatic downturn at the end of the Lake Windermere Interstadial (the Older Dryas Stadial on the continent).

The Bradgate Park recovered/excavated assemblage and the surviving *in situ* site can be described as of national, arguably international, significance. In terms of Cultural Heritage the site is of *Very High Value* in that it can contribute significantly to acknowledged international research objectives, such as those outlined in the Ancient Human Occupation of Britain project (international phase 3): *Dispersals of Early Humans: Adaptations, frontiers and new territories.* In terms of English Heritage designation criteria the site is a significant *place* with high evidential, historical and aesthetic value.

Mitigation possibilities

If the situation remains the same the majority of the known site will be lost to footfall erosion over a matter of a few years. A significant proportion of the site has been destroyed in the last 13 years.

Preservation *in situ* would make provision for the remaining buried remains at the site to be protected. Such measures might include footpath closure, diverting the footpath to the north, or buffering the site with a protective barrier. These measures should be explored in the short term to provide emergency protection, and possibly in the longer term if *in situ* preservation is the desired action.

Preservation by record is another option and the one preferred by the authors. The full excavation of the site could provide a significant increase in knowledge for the Late Glacial of the UK and north-west Europe. This would effectively unlock the hidden evidential value of the site and allow a reading of the primary archive, the site itself (English Heritage 2008a, sections 122-125). This would provide not only greater understanding of what has already been disturbed but a more complete reading of the evidence. The following English Heritage Conservation Policy and Guidelines document advises on the case for 'Intervention to Increase Knowledge of the Past' (EH 2008) that can be applied to research excavation of significant places:

> *Intervention in significant places primarily to increase knowledge of the past involving material loss of evidential values, should normally be acceptable if:*
> *a. preservation in situ is not reasonably practicable; or*
> *b. it is demonstrated that the potential increase in knowledge*
> *. cannot be achieved using non-destructive techniques; and*
> *. is unlikely to be achieved at another place whose destruction is inevitable; and*
> *. is predicted decisively to outweigh the loss of the primary resource.*

Such intervention would require a skilled team with resources to implement a Project Design based upon explicit research objectives. There would need to be funded arrangements for conservation, analysis, archive deposition and dissemination of results within a set timetable (EH 2008, section 122).

Some caution is required in that future methodological advances can be anticipated. However, there is ample justification when the potential gain in knowledge is considered. To paraphrase EH 2008, section 124: the evidential value of the Creswellian site is the place itself, its reading giving the potential to significantly increase knowledge, to help protect the place *and other similar places*, by an improved understanding of its significance, to stimulate research, to encourage development of techniques in extracting data, and to train successive generations of archaeologists.

Excavation of the site could also present non-academic positive benefits in terms of community involvement in the process of discovery, understanding and dissemination. The recent test pit evaluation involved professional archaeologists successfully working alongside a Bradgate Park field ranger and Graham Coombs, the local amateur archaeologist who helped to locate the site. The archaeological work attracted much local interest, including local and national media coverage. Elements of further work at the site could be undertaken as part of the proposed University of Leicester Archaeology and Ancient History field school at Bradgate Park (2015-2019). Should excavation of the site be forthcoming it is envisaged that there will be involvement of ULAS staff, academic staff, students and community archaeologists (the original finders, part of the Leicestershire Fieldworkers network and perhaps the recently formed Groby Fieldworkers group).

Other Upper Palaeolithic sites in the park

It is highly likely that other Upper Palaeolithic archaeological remains are preserved at Bradgate Park. Two find-spots from the park are likely to be LUP. A single blade was recovered from an eroded 'path' on the northern slope of Little Matlock Gorge by the Coombs some time before the discovery of the Creswellian site. This area has been monitored but no further finds have been made. In 2001 there was the discovery of a Magdalenian blade to the south of the Bradgate House site (long thick blade with shallow invasive retouch to re-sharpen, likely to have functioned as a curated knife). The find was recovered from an area of disturbed ground (mole hill or rabbit scrape) next to the large stone outcrops in this area. Monitoring of the area has not produced any further material. An unconfirmed find of a blade, possibly a scraper, has recently been made by the Coombs on the northern ridge of the gorge.

Late Magdalenian/Creswellian occupation of upland and peripheral areas is well documented (Barton *et al* 2003). In Britain the cave sites with Upper Palaeolithic occupations are often found in landscapes similar to that seen at Bradgate Park. The sites of Creswell Crags (Notts/Derbs) and Cheddar Gorge have similar settings. The 'hard' geology at Little Matlock Gorge and the other stone outcrop sites at Bradgate Park does not present caves, but the potential for rock shelter occupations preserved by slope-base colluvium are very good. As well as the gorge there are other stone outcrops that present preservation potential.

Upper Palaeolithic (and later) remains might also be preserved on the Lin floodplain. The two Surrey sites and the Farndon sites mentioned above were also floodplain sites with preservation beneath alluvial cover. The Lin floodplain is mapped as glacial terrace with overlying alluvium and the LiDAR imaging suggests that palaeochannels exist. The burial environment of the floodplain also presents potential for survival of faunal remains, organic artefacts and palaeo-environmental ecofacts.

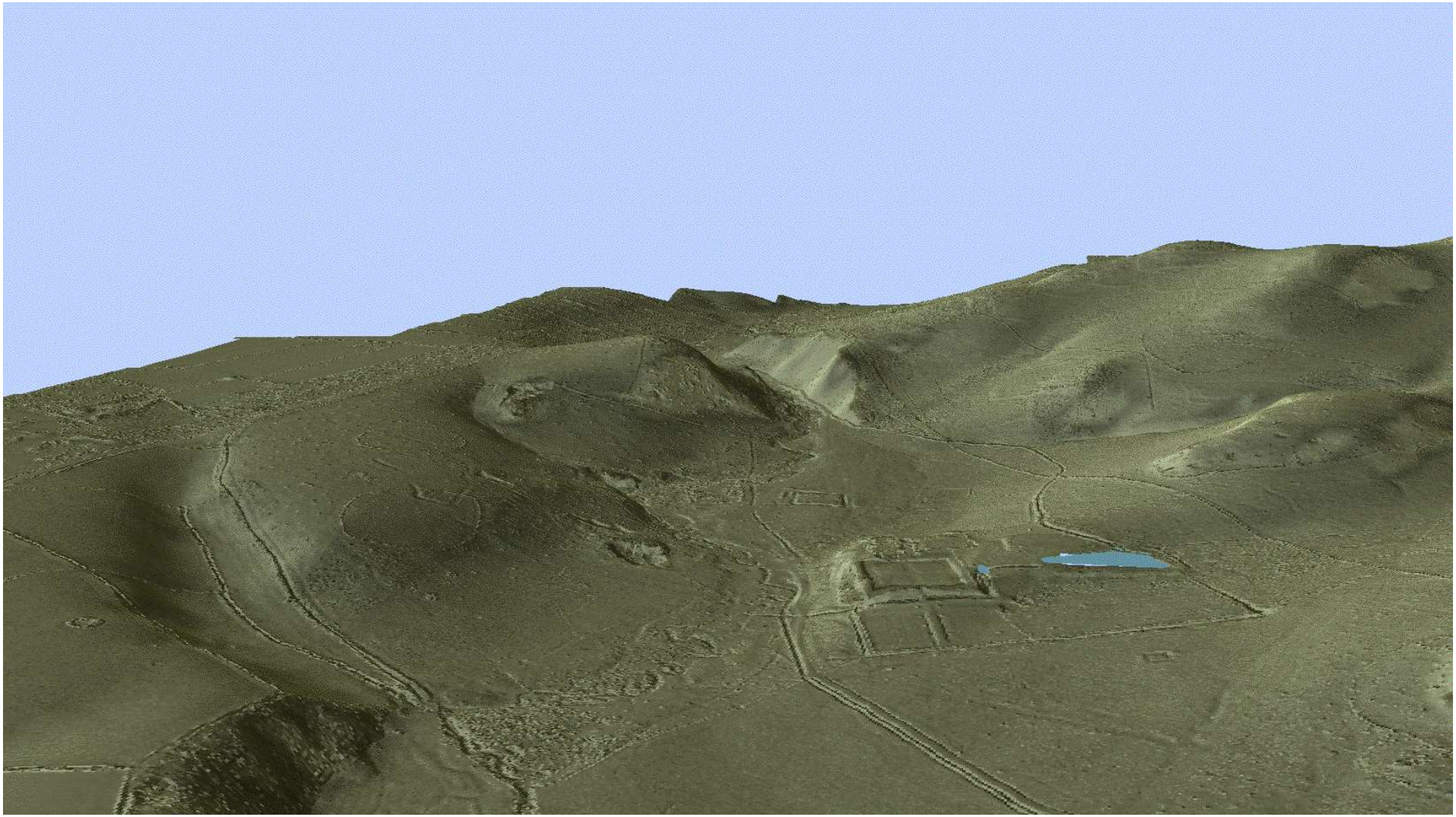


Figure 38: Visualisation of Little Matlock gorge and surrounding area from east using aerial LiDAR data. Vertical exaggeration 2.5

LiDAR source: Environment Agency 2014

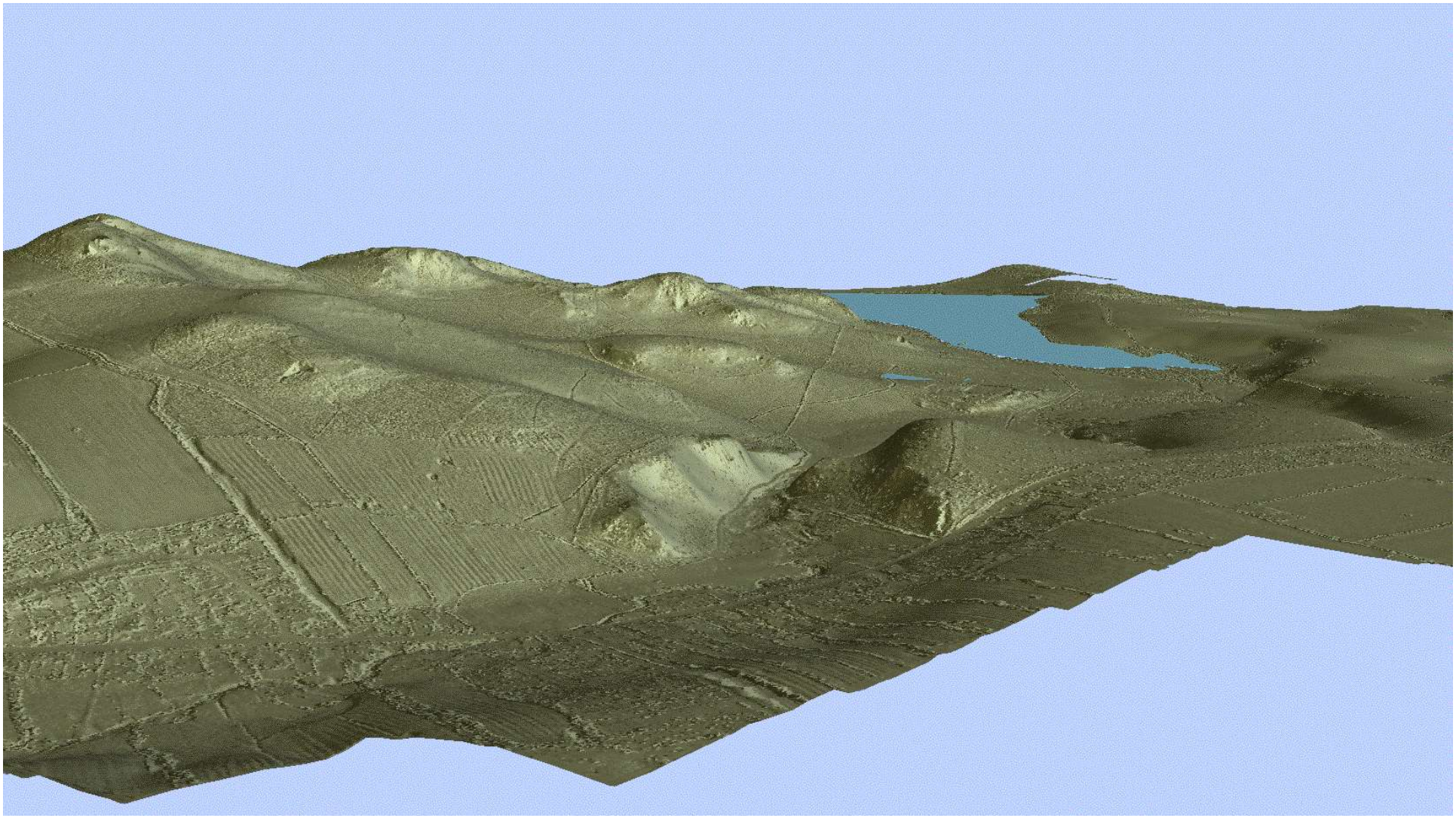


Figure 39: Visualisation of Little Matlock gorge and surrounding area from west using aerial LiDAR data. Vertical exaggeration 2.5

LiDAR source: Environment Agency 2014

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Appendix 1:

Scheduled sites and Historic Environment Records in the immediate vicinity :

PRN	Name/Description	Period
1008813	*Moated lodge 200m west of ruins of Bradgate House (Scheduled Monument)*	Medieval
1008831	*Bradgate: house, chapel, garden and watermill (Scheduled Monument)*	Late Medieval to Late Post-medieval
MLE18331	*Deer Park: Post-medieval/modern extent of Bradgate Park*	Late Post-medieval to Modern
MLE18593	*Pheasantry: Pheasantry south-west of Bradgate House*	Late Medieval to Late Post-medieval
MLE18596	*Avenue: Avenue of trees to the south-west of Bradgate House*	Late Post-medieval - 1701 AD? to 1899 AD?
MLE18603	Leat, Dam: Leat from the Lyn to Bradgate House	Late Medieval to Late Post-medieval
MLE739	*Moat, Lodge?: Site of possible medieval lodge, west of Bradgate House*	Medieval
MLE748	*Deer Park: Early medieval extent of Bradgate Park*	Early Medieval to Late Medieval
MLE749	*Deer Park: Later medieval extent of Bradgate Park*	Late Medieval to Early Post-medieval
MLE9435	*Site: Creswellian site at Bradgate Park*	Upper Palaeolithic
MLE9436	*Site: Mesolithic flints from Bradgate Park*	Mesolithic

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