An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

Linear gully on the potential course of a Roman road at Brierlow Quarry, Buxton

ARS Ltd Report 2010/52
September 2010
Oasis I.D. archaeol5 – 81020

Compiled By:
Alvaro Mora-Ottomano
Illustrations By:
Dr Gillian Eadie

Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

admin@archaeologicalresearchservices.com
www.archaeologicalresearchservices.com

Checked By:
Dr Richard Chatterton
Tel: 0161 9762544
Fax: 01629 814657

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

ARS Ltd Report 2010/52

Archaeological Research Services Ltd

Contents

List of Figures

List of Tables

Executive Summary

In September 2010 Archaeological Research Services Ltd were commissioned by Lhoist UK Ltd (Brierlow and Hindlow Quarries) to undertake a watching brief on a topsoil strip for a planned extension to the waste tip. The Review of Old Minerals Permissions by the Minerals Planning Authority had previously identified the area as warranting an archaeological watching brief should the quarry or associated works extend into it. The route of a Roman road from Buxton to Derby is postulated to run across the northern part of the site.

The archaeological watching brief revealed an intermittent, shallow and ephemeral linear gully. This feature was located on the putative alignment of a Roman road running between Buxton and Little Chester, Derby, and there are previous examples of Roman roads in Derbyshire which have a cut trench similar to this at the base of the construction sequence. No further evidence associated with a Roman road, such as an agger or embankment, metalled surface or drainage ditch was present however, and despite its alignment and length there was no definitive evidence that the gully feature was associated with a Roman Road. It is most likely that the gully is a natural feature.

During the excavation of the topsoil (101) a total of 75 artefacts were recovered. The artefacts consisted mainly of chipped stone (lithics), as well as two pieces of metal slag and two bullet cartridges. The lithic analysis established that the assemblage consisted of 52 worked pieces and 19 chunks. The worked pieces were divided into seven scrapers, one saw, one arrowhead, one borer, two blades, one bladelet, twenty-nine flakes, one spall and nine micro-debitages. It is suggested that the assemblage might have originated from a settlement site in the vicinity, probably further up the hill, which would have been occupied by small group of people in the Neolithic and Bronze Age periods.

1 Introduction

1.1 A watching brief was requested by the County Archaeologist for Derbyshire County Council during groundworks to extend the waste tip at Brierlow Quarry, Buxton. The quarry had previously been identified during the Review of Old Minerals Permissions by the Minerals Planning Authority as warranting an archaeological watching brief should the quarry or associated works ever be extended. The work comprised stripping of topsoil and subsoil layers over an area of 2.8ha.

1.2 The quarry is located at Brierlow Bar just off the B5053/A515, approximately 4 miles south-east of Buxton. The site is centred on NGR SK 0897 6950 and comprises an area of 28,000 square metres (Fig. 1). The site lies on the carboniferous Limestone of the White Peak (British Geological Survey). The site itself is situated on a gentle hillside, which rises up from the northern boundary at a height of *c.* 340 metres Above Ordnance Datum to 385 metres (AOD) to the southern end (Fig. 2).

1.3 The route of a Roman road from Buxton to Derby is postulated to run across the northern part of the site.

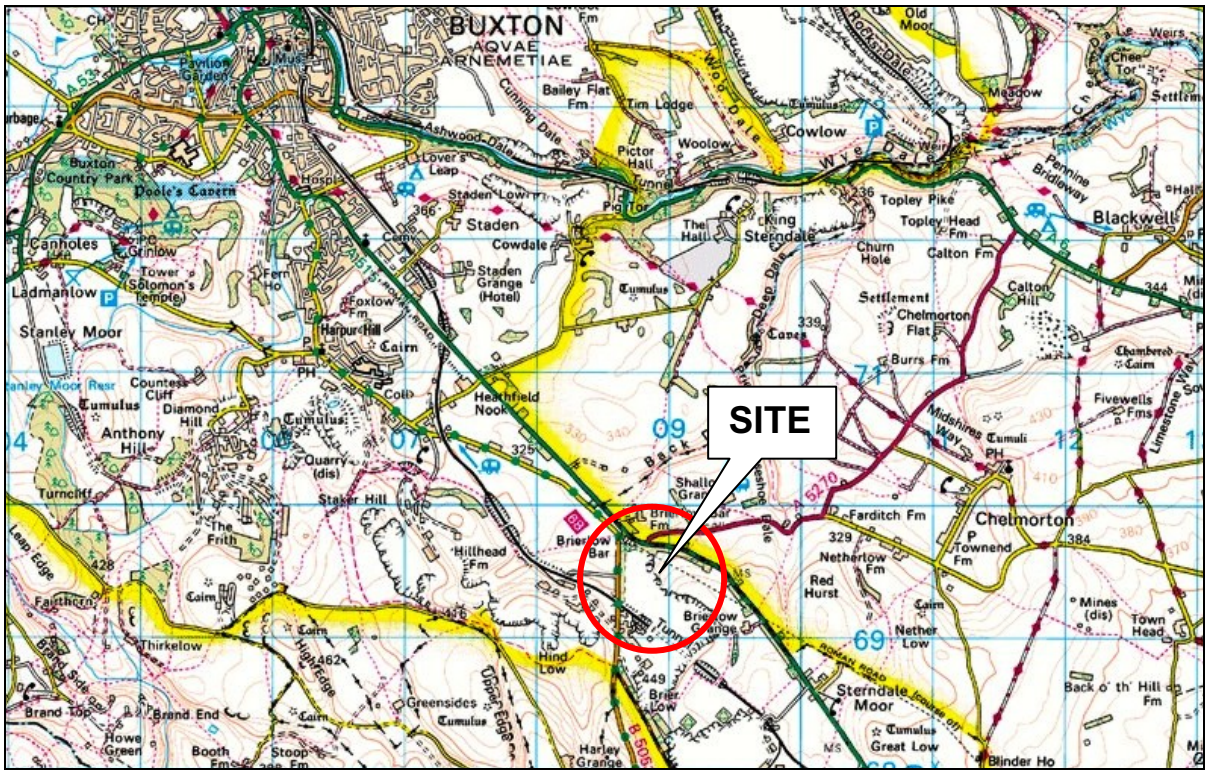
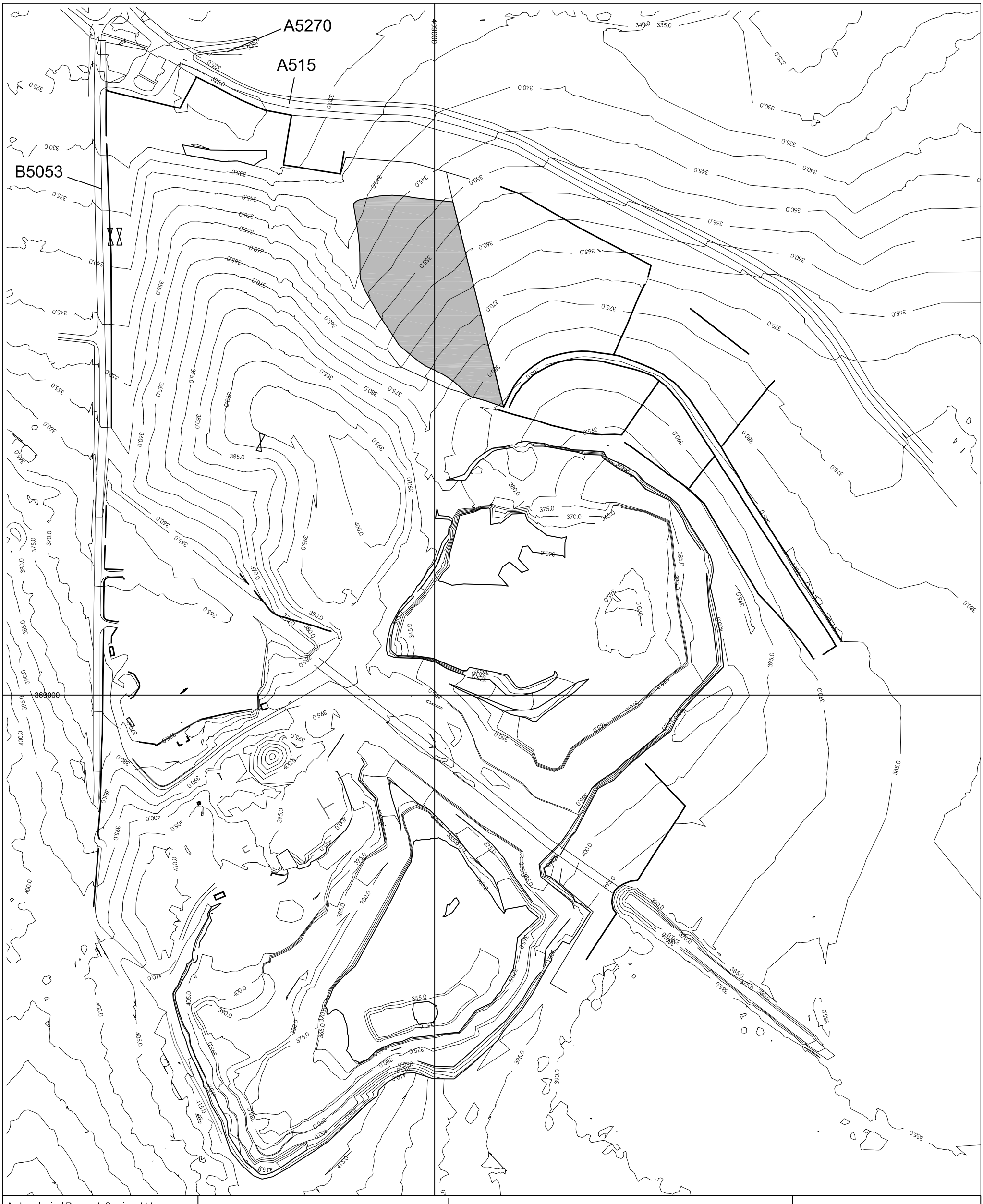


Figure 1: General site location



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Figure 2: Detailed Location Plan of the Site

Key:

N

metres 50 0 200

Site Code: B & H '10
Drawing Ref:
Date: 30-09-2010
Drawn: GE
Scale: 1:5000 @ A3

Notes:

Site

2 Aims and Objectives

2.1 The aim of the watching brief was to observe all groundworks for the presence of archaeology and ensure that any archaeological deposits, structures or features encountered during the ground-works were fully recorded and interpreted, that any remains disturbed were preserved by record and any archaeological finds or ecofacts were recovered.

3 Methodology

3.1 The watching brief comprised the observation by a competent archaeologist of the stripping of topsoil and subsoil deposits. All work followed *The Standard and Guidance for an archaeological watching brief* (IfA 2001).

3.2 All identified potential features/ layers were investigated and recorded at an appropriate scale by measured drawing and photography. The sampling of features were undertaken to satisfy the need, as relevant, to determine their nature, profile, date and function.

3.3 The archaeological watching brief was carried out by Alvaro Mora-Ottomano in September 2010. The records consisted of the following:

- Any features or structures were photographed, recorded and, where possible, fully-excavated. All the contexts were recorded on pro-forma sheets and a context register was maintained.

- Photographs were taken using a 35mm SLR camera with black and white print film, and colour transparency, as well as with a digital camera (7.1 megapixel resolution).

4 Background

4.1 A stretch of earthwork running south-east from Buxton along the A515 Buxton/Ashbourne road has been interpreted as the remains of the *agger* (or embankment) of a Roman road (Dodd and Dodd 1974, 33; Margary 1973, 312). The putative road has been known from very early times as 'The Street' (Radley and Penny 1972). 'The Street' is supposed to have run from Buxton to Carsington and thence across lower-lying land to Little Chester, Derby, linking a number of Roman forts and settlements (Dodd and Dodd 1974, 35; Guilbert and Challis 1993, 46-47).

4.2 It has been suggested that only two Roman roads of the Peak District showed evidence of engineering in the form of a raised *agger* and rigidly straight alignments which are 'Batham Gate' (Buxton to Brough-on-Noe) and 'The Street' (Wroe 1982, 49).

4.3 The earthwork south-east of Buxton is visible between Harpur Hill and the A515 (Guilbert and Challis 1993, 46). It is also partially perceptible in the field situated east south-east of Brierlow Bar of which its north-western section is located within the area of Brierlow Quarry where stripping of the topsoil and subsoil layers was undertaken.

4.4 The earliest cartographic record of 'The Street' has been identified in the 'Map of Hartington Manor' of 1614 (Guilbert and Challis 1993, 50-51). Sections of the course of this Roman road, including the area within Brierlow Quarry, have been plotted on Ordnance Survey maps from the 1st edition onwards.

4.5 However, previous excavations undertaken across the course of the supposed Roman road between Buxton and Brierlow Bar in the mid 1970s situated at NGR: SK066719 and early 1990s situated at NGR: SK07007145, SK078704, SK08656987 – l07307075, SK08287020 – 08616985, found no evidence of road, nor provided any reason to suppose that all deposits forming a road had been eroded (Guilbert and Challis 1993).

5 Results

5.1 The stratigraphic sequence of the entire site consisted of a dark greyish-brown hard clayey silt layer of topsoil (101) with an overall thickness of *c.* 200mm. The topsoil overlay a subsoil (102) composed of light reddish-brown hard clayey silt with occasional small irregular limestone cobbles. The thickness of the layer varied from 30 to 50mm in the higher ground, to a maximum of 300mm thick within the lower ground at the north-western end of the site. The subsoil overlay the natural substratum (105) which consisted of small irregular limestone boulders within a clayey silt matrix of approximately 200 to 300mm thick over solid limestone bedrock.

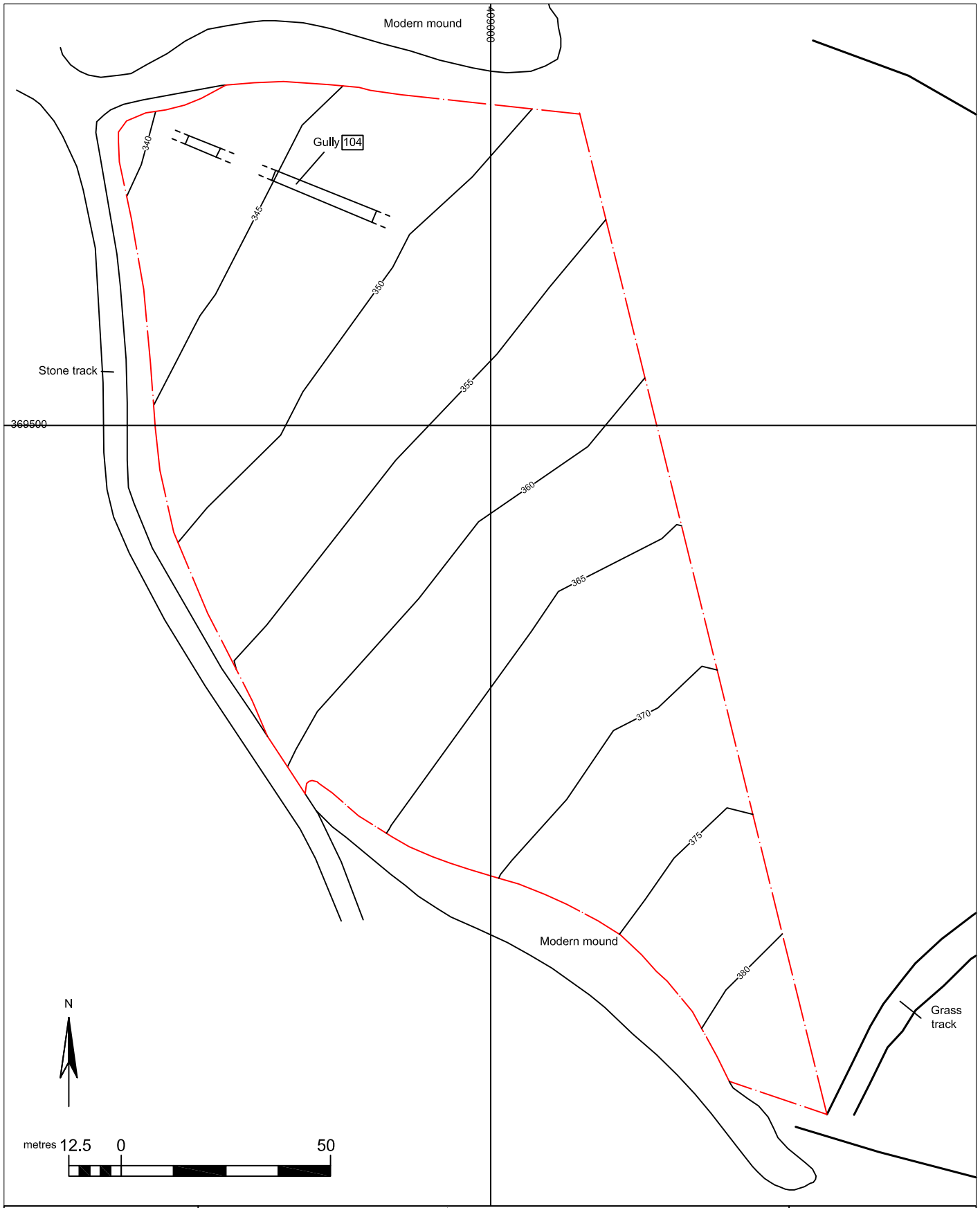
5.2 During the excavation of the topsoil (101) a total of 75 artefacts were recovered, assigned a unique small find (SF) number and plotted on plan (Fig. 11). The artefacts consisted mainly of worked stone (lithics) as well as two pieces of metal slag and two bullet cartridges. The lithics were analysed and the results are reported in section 6 below.

5.3 The excavation within the northern area, identified as the potential course of a Roman road before work commenced, exposed an intermittent, shallow and ephemeral linear gully [104]. The gully ran approximately north-west to south-east (Fig. 3), extending to *c.* 45 metres in length with an average width of 3 metres (Figs 4 – 9). Gully [104] cut subsoil (102) to a maximum depth of 100mm. The gully itself had slightly concave sides, a flat base and was predominantly filled by topsoil (101). The base of the gully exposed a band of the natural substratum (105) composed of the fractured brash of the upper layers of bedrock within a clayey silt matrix. Some areas of loosely packed small flat limestone cobbles (103) were observed overlying the natural substratum (105).

5.4 The gully feature was aligned on the proposed course of a Roman road, and extends some considerable distance into adjacent fields on a straight alignment. It

must be noted that a cut similar in form to this gully is known from the Roman road of Ryknield Street at New Tupton (Fig. 10), south of Chesterfield which revealed a possible earlier road of 2.9 metres wide consisting of small stones loosely packed together within a shallow gully (O'brien and Todd, 1976, 23). At Ryknield Street, it has been suggested that the gully could be an earlier phase of a Roman road, it also could have been a 'bottoming' or foundation for the *agger* (*ibid.*). In this case the backfill of the shallow gully would have been the *statument* or foundation of the road.

5.5 With the linear gully feature identified at Brierlow Quarry however, there is no further evidence that this represents the course of a Roman road, and it is most likely that this represents a natural feature.



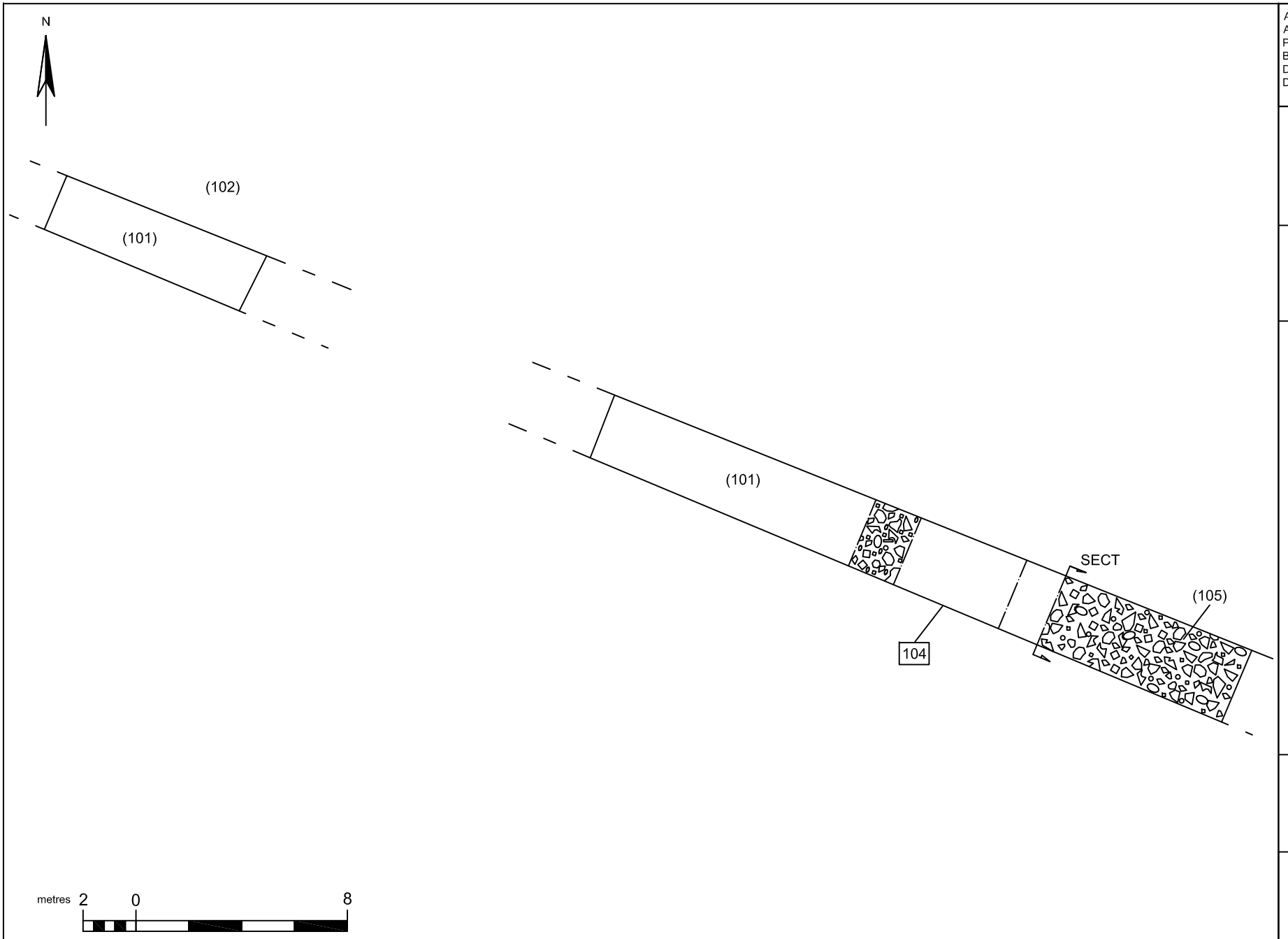
Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Figure 3: Detailed Plan of the site, showing the location of Gully 104

Key:

Site Code: B & H '10
Drawing Ref:
Date: 30-09-2010
Drawn: GE
Scale: 1: 1250 @ A4

Notes:



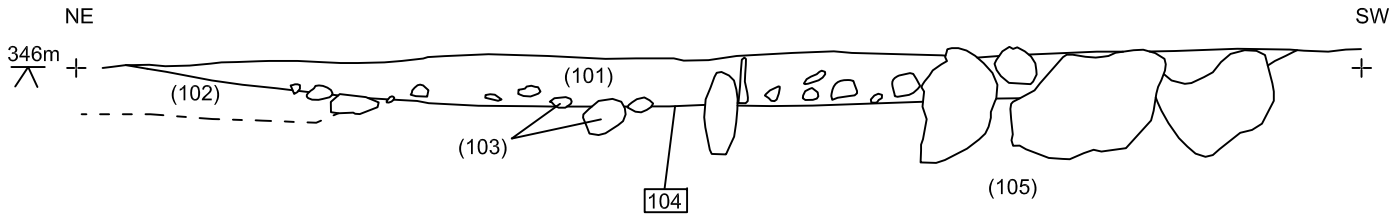
Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: B & H '10
Drawing Ref:
Date: 30-09-2010
Drawn: GE
Scale: 1:200 @ A4

Figure 4: Detailed Plan of 104

Key:

Notes:



metres 0.2 0 0.8

Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: B & H '10
Drawing Ref:
Date: 30-09-2010
Drawn: GE
Scale: 1:20 @ A4

Figure 5: North-West Facing Section Across 104

Key:

Notes:

Figure 6: Linear gully [104] on the potential course of a Roman road, facing north-west (scale 2 x 1m)

Figure 7: Linear gully [104] exposing natural limestone, looking north-east (scale 2 x 1m)

Figure 8: North-west facing section through gully [104] (scale 1m)

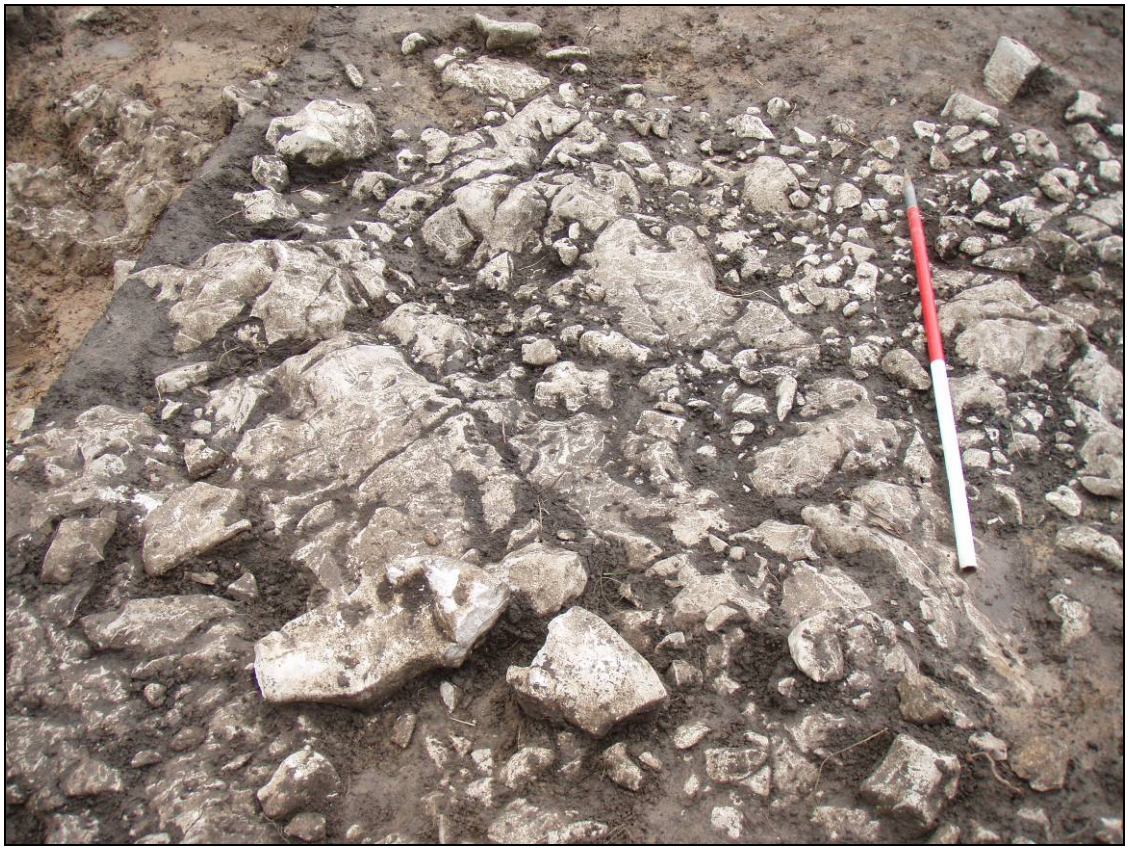


Figure 9: Detail of the natural limestone boulders and cobbles at the base of gully [104], looking south-west (scale 1m)

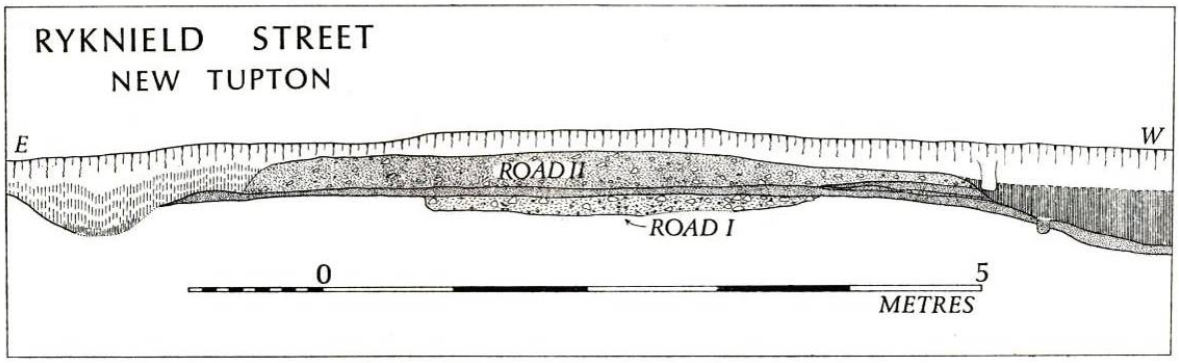


Figure 10: Section through the Roman road of Ryknield Street at New Tupton (from O'brien and Todd, 1976)

6 Lithic analysis

6.1 Introduction

6.1.1 The assemblage contains a number of diagnostic dateable lithic artefacts which exhibit manufacture characteristics associated with Neolithic and Bronze Age dates. Because the lithics were found scattered within the topsoil layer, it is assumed that they represent only a portion of some prehistoric activities. Post-depositional movement may have had an effect on its wider redistribution. The general state of the assemblage is generally moderate to good, although, there is clear sign of patination and slight weathering. This suggests that the lithic implements might not have moved very far horizontally from their original position, and thus confirms the existence of prehistoric occupation on site. The artefacts were plotted on a scaled plan showing their location and typology (Fig. 11).

6.2 Aims

6.2.1 This study attempts to establish the *chaîne opératoire* (operational sequences), concept first formulated by Leroi-Gourhan (1943). This approach examines the different stages of lithic exploitation. The sequence begins with the acquisition of raw material, followed by the reduction of nodules and cores, the removal of blanks from cores, and the manufacture and use of tools and finally, the discard of the artefacts (Bar-Yosef *et al.* 1992). An addition to these sequences is the post-depositional disturbance of the site and even excavation strategy, as these will have an effect on our understanding of the *chaîne opératoire*. This lithic analysis hopes to characterise the type of site, and to determine the lithic techno-complexes, functionality and chronology.

6.3 Method

6.3.1 The worked stones recovered during the watching brief were subject to metrical and attribute analysis. A range of attributes was recorded following standard

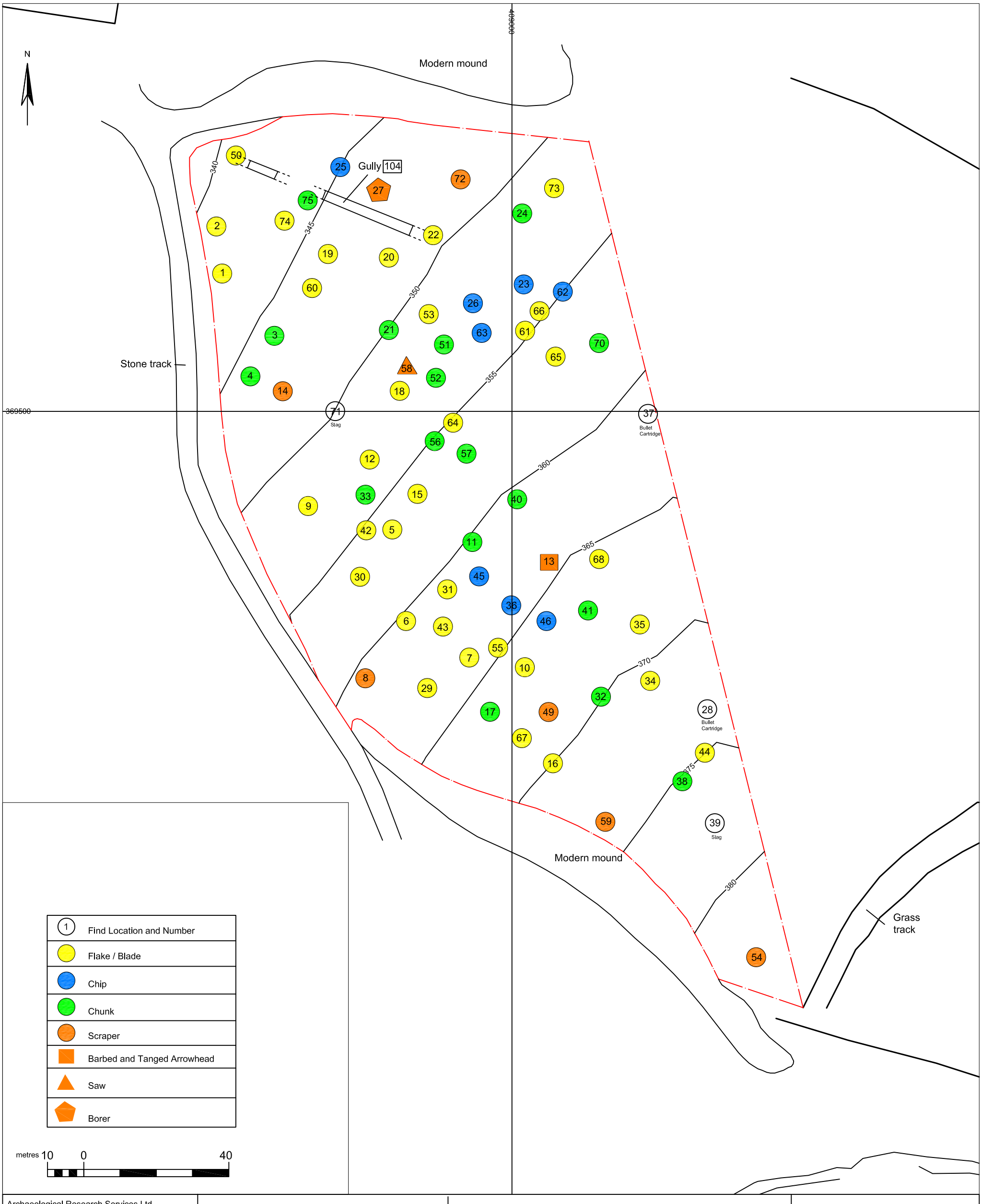
systems (e.g. Inizan, Roche and Tixier 1992) to explore knapping technology (Appendix 1). These relate to the characteristics of technological category, tool type, portion, reduction sequence, raw material, colour, condition and type of butt. The assemblage was examined under a x10 magnification hand lens. Dimensions were measured in millimetres, and were divided into L (length): the distance between the proximal and distal ends; W (width): the maximum distance between the two sides of the artefact measured perpendicular to the length; and T (thickness): the maximum thickness of the artefact perpendicular to the length. The comments category was used to record various attributes such as thermal alteration, post-depositional breakage, retouch, wear, scar direction, type of bulb, and blank termination failures i.e. non-feather termination. A limited number of attributes, regarded as significant, were recorded amongst the micro-debitage and chunk categories.

6.4 Lithic assemblage

6.4.1 The lithic assemblage consists of 52 worked stones and 19 chunks. The chunks are pieces of grey to dark grey non-cortical flint which have been severely damaged after primary post-deposition/discard. Subsequent to the damage produced, the pieces have lost apparent knapping attributes to establish a genuine anthropogenic origin thus the chunks are not included in the following analysis. Nevertheless, they may have previously been worked lithics such as cores, core-tools or large flakes brought to the site as this raw material does not occur naturally.

6.4.2 The worked stones are divided into 10 tools (19.2%), 2 blades (3.8%), 1 bladelet (1.9%), 29 flakes (55.7%), 1 spall (1.9%) and 9 general micro-debitage (small flakes removed as by-products of flaking which measure normally less than 10mm in size) or chips (17.3%) (Tables 1 – 3 and Appendix 1). Virtually all of the worked stone recovered from the site is flint. The only exceptions to this pattern are 4 fine-grained grey chert flakes.

6.4.3 The assemblage is generally in moderate to fairly good condition, although as they were found within the topsoil some damage were recognized. The assemblage includes only 16 whole pieces. The rest of them are 1 distal end, 5 proximal ends and 8 medial portions (excluding the micro-debitage). These frequencies may suggest that approximately 63% of the debitage was discarded after breakage or suffered post-depositional damage. Dorsal coverage of cortex is found amongst 15 pieces, which relates mainly to secondary reduction sequence. Artefacts of tertiary reduction sequence predominate. These frequencies indicate that most of the roughing out of flint nodules took place elsewhere.



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Figure 11: Finds Distribution Map

Key:

Site Code: B & H '10
Drawing Ref:
Date: 30-09-2010
Drawn: GE
Scale: 1:1000 @ A3

Notes:

	Tool	Blade	Bladelet	Flake	Spall	Total
Primary				1		1
Secondary	3	2		9		14
Tertiary	7		1	19	1	28
Total	10	2	1	29	1	43

Table 1: Reduction sequence (excluding micro-debitage)

	Tool	Blade	Bladelet	Flake	Spall	Total
Proximal	1		1	3		5
Medial	4	1		3		8
Distal	2			11	1	14
Whole	3	1		12		16
Total	10	2	1	29	1	43

Table 2: Portion of artefacts (excluding micro-debitage)

	Tool	Blade	Bladelet	Flake	Spall	Total
Cortical	1			2		3
Plain	3	1		8		12
Facetted				2		2
Dihedral			1	1		2
Total	4	1	1	13		19

Table 3: Type of butt (when present)

Scraper (Figs 12 – 14)

6.4.4 Seven scrapers have been identified (SF nos. 8, 14, 49, 54, 59, 72 and 73). Scrapers were probably used for working soft material such as hide, but may also have been used for woodworking (Butler 2005, 49). Artefact SF 8 is an end scraper on a broken distal flake with semi-abrupt retouch along the dorsal side. This scraper may date to the Neolithic period (*c.* 4500 – 2300 BC). Artefact SF 14 is a Late Neolithic/Early Bronze Age (*c.* 3000 – 1500 BC). thumbnail scraper with abrupt to semi-abrupt retouch produced from a gravel flint. Artefact SF 49 is a Neolithic disc scraper with semi-abrupt continuous retouch made from a high quality black flint. Artefact SF 54 is a scraper-like specimen which bears high resemblance with a thumbnail scraper although somewhat atypical and crudely executed. It is possible that the atypical appearance may be the result of abrasion through use. Artefact SF 59 is a convex end scraper with semi-abrupt retouch made from good quality nodular flint. Artefact SF 72 is also another convex end scraper of possible Neolithic date executed mainly with thin and fairly invasive retouch. Finally artefact SF 73 is an end and side scraper. The end retouch was produced using semi-abrupt retouch technique whereas the lateral edge has a thin retouch.

Saw (Fig. 15)

6.4.5 Artefact SF 58 is a saw or serrated flake which is characteristic of Neolithic techno-complexes. The saw is made from a large flake with thin retouch on the left lateral side creating a hollow serrated edge.

Arrowhead (Fig. 16)

6.4.6 Artefact SF 13 is an Early Bronze Age (Beaker period *c.* 2300 – 1700 BC) barbed-and-tanged arrowhead 'Sutton' type (after Green's classification). The arrowhead was produced from a flake using pressure flaking invasive retouch on the dorsal side and thin retouch on the ventral side. The right barb is missing as a result of breakage.

Borer (Fig. 16)

6.4.7 Artefact SF 27 is a borer or drill made from a large flake with triangular cross-section. The borer has convergent thin dorsal retouch showing wear traces of having been used in a twisting motion backwards and forwards to create a hole in tough materials.

Miscellaneous retouched

6.4.8 Two further retouched artefacts have also been identified. This classification corresponds to the debitage, which shows signs of having been deliberately retouched by percussion or pressure flaking along one or more edges or part of edges, but no specific purpose can be defined from the nature of the retouch. These are broken flakes SF 15 and SF 19. Artefact SF 15 is a small fragment of what it might have been a scraper or even a backed side of a knife. Artefact SF 19 appears to be a somewhat haphazard tool containing thin retouch along the left edge of the ventral side. It is likely that these pieces were utilised for cutting, scraping and similar activities and were manufactured for immediate tasks without the need of working the edges in a meticulous manner.

Utilised waste

6.4.9 Flint is an ideal stone for cutting or similar activities without any further retouch to the sharp edges created by knapping, and it is estimated that at least three blanks were used or damaged by utilisation. This consists of one medial portion of a blade with triangular cross-section (SF 18) and two flakes (SF 34 and SF 43). This utilisation is indicated by a series of small irregular spalls, which have flecked off the edges of the flakes/blades. Although the majority of the assemblage is in moderate to fairly good condition (despite some patination), with practically no ridge damage, some of the edge wear could have been the result of accidents, e.g. a flake being stood on. However, the wear produced by the utilisation of these artefacts is more consistent than the completely irregular unsystematic removal of a number of spalls resulting from accidents.

Debitage

6.4.10 The rest of the assemblage consists of 25 flakes, 1 blade, 1 bladelet, 1 spall and 9 chips. Amongst the flakes, there are 12 pieces which are whole portions yielding a mean of 22mm in length. The overall width of the entire flakes yielded a mean of 19.7 mm. These flakes are characteristic of later prehistoric lithic techno-complexes i.e. Neolithic/Bronze Age. The blade SF 35 is a whole specimen with 27mm in length and 12mm in width which is also of late prehistoric periods.

Bladelet SF 42 is a proximal portion with triangular cross-section and a prepared dihedral butt. This artefact may fall into the leptolithic category representative of the Mesolithic techno-complexes (Laplace 1966).

6.4.11 The majority of the flakes correspond to general trimming with fewer pieces including ridge presence. Their size is unsuitable for large tools. The majority were probably produced as by-products of flake and blade production or during core preparation, thus they can be considered as waste. Most flakes show that they have been struck from cores worked in a single direction. Butt preparation (Table 3) is scarcely represented. A small proportion of removal of overhang by abrasion, diffuse bulb of percussion and lipped butts indicate that the production of the artefacts is entirely in keeping with the Neolithic/Bronze Age lithic knapping techniques.

6.5 Raw material

6.5.1 The raw material used was almost exclusively flint. This was of moderate to good quality and light mottled grey to grey colour seems to predominate. There are also a few chert artefacts. The mottled grey flint, as well as fewer black pieces, may originate from the chalk lands of Lincolnshire (Barfield 2002: 3; Pierpoint 1981) and/or the Yorkshire Wolds (Pierpoint 1981). Dorsal coverage of cortex is found amongst 15 pieces, which relates mainly to secondary reduction sequence. Cortex type can allow sourcing of the raw material, but the nature of the cortical surfaces, with a rolled and washed appearance, suggests that this material was obtained from secondary derived sources. The precise location of the sources(s) has not been identified but may lie in the gravels of Nottinghamshire, Doncaster and/or Humberside (Gaunt and Girling 1996, 191; McEvoy *et al.* 2005). The use of flint pebbles for prehistoric artefact production would have determined the dimensions of the cores and subsequently the knapped blanks. It is possible that the chert may have been obtained more locally within the limestone uplands of the Peak District.

6.6 Knapping technology

6.6.1 The majority of the flakes/blades were removed by direct percussion. The butts are mainly plain, which indicate that the core platforms were not meticulously prepared. Deliberate retouch was probably done by direct percussion, although some implements were surely shaped by using pressure flaking technique. Hard hammers seem to have been largely employed. A low frequency of lipped butts, vague point of percussion and diffuse bulbs predominates indicating that soft hammer were also utilised in a smaller number of artefacts. Scraper edges were achieved by low angle direct percussion using probably a hard hammer stone. The majority of the scar orientations correspond to the same axis as the striking platform which suggests that single platform cores would have been largely employed. There are also 12 pieces which would have been obtained from opposed and multiple platform cores.

6.6.2 The bladelet was produced employing indirect percussion which involves striking a punch-like object, often made of antler or wood, with a hammer. This technique

requires a carefully prepared core with an even platform and regular ridges (Whittaker 1994: 33).

6.7 Discussion

6.7.1 Although post-depositional disturbance, is evident in a number of artefacts, careful inspection of the assemblage indicates that the lithic artefacts have not moved very far horizontally from their original position. However, the lithic assemblage was retrieved from a hillside and thus, it is likely that the artefacts might have partially been washed down from a higher point. Because the lithics are scattered within the topsoil, with no apparent pattern discerned from the distribution plan (see Fig. 11), little can be understood in terms of distribution of specific tools, layout of archaeological features associated with the lithics, selectivity in the disposal of the debitage, etc. Indeed, this assemblage represents a potentially very small sample of what may be an extensive area of activity. The assemblage is probably derived from small production with a domestic content.

6.7.2 Although the overall frequency of tools, retouched flakes/blades, and utilised blanks is relatively low, the assemblage contains reliable evidence for industrial activities. Most of the tools are scrapers which indicate that some specialised domestic crafts, such as engraving, cutting, etc. were carried. The repairing and re-sharpening of artefacts may have also occurred as indicated by the characteristics of the flakes and chips. In addition to this, some of the general debitage shows signs of having been extensively utilised. These blanks might have been employed in several occasions for the execution of some particular tasks. No cores were identified within the assemblage. Furthermore, due to the low frequency of flakes from primary reduction sequence, it is believed that the roughing-out of the cores took place elsewhere.

6.7.3 The information discussed in the preceding sections may indicate that the assemblage originated from a settlement site in the vicinity which would have been occupied by small group of people in the Neolithic and Bronze Age periods. The occupation might have only been sporadic, but some of the activities employed may be connected with domestic specialised activities. The frequency of tool variability is low, thus it is problematic to establish site functionality. However, scrapers are the predominant tool type which would have been used for working soft material such as hide, but may also have been used for woodworking. These activities can be associated with domestic practices carried out in a settlement. The interpretation of such a limited collection is indeed difficult, but the date of at least most of the artefacts is in keeping with Neolithic (*c.* 4500 – 2300 BC) and Bronze Age (*c.* 2300 – 700 BC) periods.

6.7.4 The assemblage may contain an artefact which may fall in the leptolithic category representative of the Mesolithic techno-complexes (Laplace 1966). Furthermore, the presence of chert amongst the artefacts is often associated with the Mesolithic, and allows us to differentiate the Mesolithic from later lithic industries (Barfield 2002: 3).

6.7.5 It is assumed that this assemblage only constitutes a small fraction of the tools and debitage used and discarded by prehistoric people in and around the present Brierlow Quarry. The majority of the assemblage may represent residual material from a settlement in the vicinity which might have formed part of a wider landscape. This may be confirmed as late prehistoric monuments and finds are well attested within the close vicinity of the site, including a Late Neolithic/Early Bronze Age burial cairn at Hindlow (Cooper 2006, 80) and two Bronze Age bowl barrows on Chelmorton Low (English Heritage, Scheduled Monuments no: 13348) at approximately 2km east of Brierlow Bar.

Figure 12: End scrapers SF 72 (left) and SF 73 (right)

Figure 13: Disc scraper SF 49 (left) and thumbnail scraper SF 14 (right)

Figure 14: End scrapers SF 8 (left) and SF 59 (right)

Figure 15: Saw/serrated flake SF 58

Figure 16: Barbed-and-tanged arrowhead SF 13 (left) and borer SF 27 (right)

7 Conclusion

7.1 The archaeological watching brief revealed an intermittent, shallow and ephemeral linear gully. This feature was located on the putative alignment of a Roman road running between Buxton and Little Chester, Derby, and there are previous examples of Roman roads in Derbyshire which have a cut gully similar to this at the base of the construction sequence. No further evidence associated with a Roman road, such as an *agger* or embankment, metalled surface or drainage ditch was present however, and despite its alignment and length, there was no definitive evidence that the gully feature was associated with a Roman Road. It is most likely that the gully is a natural feature.

7.2 During the excavation of the topsoil (101) a total of 75 artefacts were recovered. The artefacts consisted mainly of flint worked stones (lithics) as well as two pieces of metal slag and two bullet cartridges. The lithic analysis established that the assemblage consisted of 52 worked stones and 19 chunks. The worked stones were divided into seven scrapers, one saw, one arrowhead, one borer, two blades, one bladelet, twenty nine flakes, one spall and nine micro-debitage. It is suggested that the assemblage might have originated from a settlement site in the vicinity, probably further up the hill, which would have been occupied by small group of people in the Neolithic and Bronze Age periods.

8 Publicity, Confidentiality and Copyright

8.1 Any publicity will be handled by the client.

8.2 Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

9 Statement of Indemnity

9.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

10 Archive Deposition

10.1 A digital and paper archive will be prepared by Archaeological Research Services Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, which will be deposited at Buxton Museum and Art Gallery, Terrace Road, Buxton, Derbyshire (accession number: DERSB 2010.32) in October 2010.

11 Acknowledgements

11.1 Archaeological Research Services Ltd would like to thank all those involved with the archaeological fieldwork, especially Emma Travis of Lhoist UK Ltd, David Walter and Graeme Gilbert (formerly of Trent & Peak Archaeological Trust) for providing useful comments and information, Malcolm Todd for allowing the reproduction of figure 10, and Dave Barrett of Derbyshire County Council.

12 References

Barfield, L. 2002. Later Lithics in the West Midlands Counties. *www.iaa.bham.ac.uk/wmrfa/sem1.htm*

Bar-Yosef, O. *et al.* 1992. The Excavations in Kebara Cave, Mt. Carmel. *Current Anthropology* 33 (5): 497-550.

Butler, C. 2005. *Prehistoric Flintwork.* Stroud, Tempus.

Cooper, N. J. 2006. *The Archaeology of the East Midlands.* Leicester Archaeology Monographs No. 13.

Dodd, A. E. and Dodd, E. M. 1974. *Peakland Roads and Trackways.* Buxton, Moorland Publishing Company.

Gaunt, G. and Girling, M. 1996. southerly-derived fluvioglacial deposits near Scrooby, Nottinghamshire, U.K., containing a coleopteran fauna. *Circae, The Journal of the Association for Environmental Archaeology* 12 (2): 191 – 194.

Green, H. S. 1980. *The Flint Arrowheads of the British Isles.* Oxford, BAR British series 75.

Guilbert, G. and Challis, K. 1993. Excavation across the supposed line of 'The Street' Roman road, south-east of Buxton, 1991. *The Derbyshire Archaeological Journal* 93**:** 45 – 60.

Inizan, M-L., Roche, H. & Tixier, J. 1992. *Technology of Knapped Stone.* Meudon: C.N.R.S.

Institute for Archaeologist 2001. *Standards and Guidelines for Archaeological Watching Briefs.*

Laplace, G. 1966. Recherches sur l'origine et l'évolution des complexes leptolithiques. *Ecole Française de Rome, Mélanges d'archéologie et d'histoire, supplement no. 4.* Paris: E. de Boccard.

Leroi-Gourhan, A. 1943. *L'Homme et la Matiere.* Paris: Albin Michel.

Margary, I. D. 1973. *Roman Roads in Britain.* London, John Baker.

McEvoy, F. M. *et al.* 2005. Yorkshire and the Humber Region: Sand and gravel resources and environmental assets. *British Geological Survey.*

O'Brien, C. F. and Todd, M. 1976. A section across Ryknield Street at New Tupton. *The Derbyshire Archaeological Journal* 96**:** 23 – 25.

Pierpoint, S. 1981. *Prehistoric Flintwork in Britain.* Highworth: Vorda Publications.

Radley, J. and Penny, S. R. 1972. The turnpike roads of the Peak District. *The Derbyshire Archaeological Journal* 92**:** 93 – 109.

Whittaker, J.C. 1994. *Flint knapping: making and understanding stone tools.* Austin: University of Texas Press.

Wroe, P. and Mellor, P. 1971. A Roman Road between Buxton and Melandra Castle, Glossop. *The Derbyshire Archaeological Journal* 91**:** 40 – 57.

Wroe, P. 1982. Roman roads in the Peak District. *The Derbyshire Archaeological Journal* 102**:** 49 – 73.

APPENDIX I: LITHIC RECORD

Lithic record of Brierlow Quarry

No.	Tech. Category	Tool type	Portion	Reduction sequence	Raw material	Colour	State	Butt	Dimensions (mm) L	W	T	Comments
1	Flake		Distal	Tertiary	Flint	Dark grey	Poor		14	19	3	Burnt
2	Chunk			Tertiary	Flint	Dark grey						
3	Chunk			Tertiary	Flint	Dark grey						
4	Chunk			Tertiary	Flint	Dark grey						
5	Flake		Distal	Tertiary	Flint	Dark grey	Patina		12	16	3	Hinge terminal
6	Flake		Whole	Secondary	Flint	Dark grey	Good	Absent	18	17	3	Hinge terminal, orangey gravel cortex
7	Flake		Distal	Tertiary	Flint	Dark grey	Good		18	12	3	Multiple scars dorsal side
8	Flake	Scraper	Distal	Tertiary	Flint	Light mottled whiteish grey	Abraded		26	33	14	End scraper with semi-abrupt retouch dorsal side
9	Flake		Whole	Secondary	Flint	Light grey	Moderate	Plain	26	21	9	Multiple scars dorsal side
10	Flake		Proximal	Tertiary	Flint	Grey	Patina	Plain	18	17	3	Lip, opposed scars
11	Chunk			Tertiary	Flint	Grey						
12	Flake		Whole	Tertiary	Flint	Mottled grey	Good	Plain	16	36	10	
13	Flake	Arrowhead	Medial	Tertiary	Flint	Grey	Good		18	13	2.5	E.B.A. barbed-and-tanged arrowhead 'Sutton' type, invasive pressure flaking and thin retouch
14	Flake	Scraper	Proximal	Secondary	Flint	Light mottled grey	Moderate	Cortical	19	21	8	B.A. thumbnail scraper abrupt and semi-abrupt retouch dorsal side, gravel flint
15	Flake		Medial	Primary	Flint	Grey	Moderate		26	18	3	Broken fragment semi-abrupt lateral edge dorsal retouch, possible scraper or knife, gravel flint
16	Flake		Whole	Tertiary	Flint	Light grey	Good	Dihedral	23	19	4	Lip, multiple scars dorsal side
17	Chunk			Tertiary	Chert	Grey						
18	Blade		Medial	Secondary	Flint	Brownish grey	Moderate		24	14	6	Triangular cross-section, utilised knife-like edge wear
19	Flake		Distal	Secondary	Flint	Brownish grey	Moderate		22	23	5	Left ventral thin retouch, gravel, multiple dorsal scars
20	Flake		Distal	Secondary	Flint	Grey	Good		22	23	9	Gravel

No.	Tech. Category	Tool type	Portion	Reduction sequence	Raw material	Colour	State	Butt	Dimensions (mm) L	W	T	Comments
21	Chunk			Tertiary	Flint	Light grey						
22	Spall		Distal	Tertiary	Flint	Light grey	Patina		20	13	5	Burnt
23	Chip		Whole	Tertiary	Flint	Whiteish	Moderate					
24	Chunk			Tertiary	Flint	Grey						
25	Chip		Whole	Tertiary	Flint	Light brownish grey						
26	Chip		Whole	Tertiary	Flint	Light brownish grey						
27	Flake	Borer	Distal	Tertiary	Flint	Grey	Patina		26	20	7	Convergent thin dorsal retouch, wear trace, triangular cross-section, opposed dorsal scars
28	—————											Non-lithic: bullet cartridge
29	Flake		Proximal	Secondary	Flint	Dark grey	Good	Cortical	19	26	7	Gravel flint, multiple dorsal scars
30	Flake		Distal	Secondary	Flint	Grey	Moderate		19	21	5	Gravel flint
31	Flake		Distal	Tertiary	Chert	Grey	Moderate		18	13	4	
32	Chunk			Tertiary	Flint	White						
33	Chunk			Tertiary	Flint	Dark grey						
34	Flake		Whole	Tertiary	Flint	Grey	Moderate	Plain	23	19	7	Utilised edge wear
35	Blade		Whole	Secondary	Flint	Grey	Good	Plain	27	12	3	
36	Flake		Distal	Secondary	Flint	Beige	Moderate		13	14	2	Gravel
37	—————											Non-lithic: bullet cartridge
38	Chunk			Tertiary	Flint	Light grey						
39	—————											Non-lithic: metal slag
40	Chunk			Tertiary	Chert	Light grey						

No.	Tech. Category	Tool type	Portion	Reduction sequence	Raw material	Colour	State	Butt	Dimensions (mm) L	W	T	Comments
41	Chunk			Tertiary	Flint	Grey						
42	Bladelet		Proximal	Tertiary	Flint	Dark grey	Good	Dihedral	16	8	3	Triangular cross-section broken bladelet opposed scars
43	Flake		Distal	Tertiary	Flint	Light grey	Moderate		18	14	5	Haphazard ventral thin retouch, multiple dorsal scars
44	Flake		Whole	Tertiary	Flint	Light grey	Patina	Plain	16	16	3	Hinge terminal
45	Chip		Proximal	Tertiary	Flint	Grey		Plain				
46	Chip		Distal	Secondary	Flint	Grey						
47	Chip		Distal	Tertiary	Flint	Light grey						
48	Chunk			Tertiary	Flint	Grey						
49	Flake	Scraper	Medial	Tertiary	Flint	Grey	Good		32	34	7	Neolithic disc scraper, semi-abrupt continuous retouch
50	Flake		Proximal	Tertiary	Flint	Light grey	moderate	Plain	26	30	6	
51	Chunk			Tertiary	Flint	Light grey						
52	Chunk			Tertiary	Flint	Grey						
53	Flake		Medial	Tertiary	Flint	Brownish grey	Moderate		12	12	3	Triangular cross-section
54	Flake	Scraper?	Medial	Tertiary	Flint	Light grey	Moderate		22	23	4	Scraper-like utilised chunky flake similar to thumbnail scraper
55	Flake		Whole	Tertiary	Chert	Dark grey	Good	Plain	24	21	4	
56	Chunk			Tertiary	Flint	Light grey						
57	Chunk			Tertiary	Flint	Brownish grey						
58	Flake	Saw	Whole	Tertiary	Flint	Light grey	Good	Plain	65	46	12	Ventral thin retouch creating hollow serrated edge, multiple dorsal scars, step terminal
59	Flake	Scraper	Whole	Secondary	Flint	Dark grey	Good	Plain	30	23	12	End scraper, semi-abrupt dorsal retouch, nodular piece
60	Flake		Whole	Secondary	Flint	Dark grey	Good	Plain	34	29	5	Gravel flint

No.	Tech. Category	Tool type	Portion	Reduction sequence	Raw material	Colour	State	Butt	Dimensions (mm) L	W	T	Comments
61	Flake		Whole	Tertiary	Flint	Light grey	Patina		17	12	2	Lip
62	Chip		Medial	Tertiary	Flint	Grey	Moderate					
63	Chip		Whole	Secondary	Flint	Light grey						
64	Flake		Distal	Tertiary	Flint	Light grey	Moderate		24	25	6	Hinge terminal
65	Chip		Whole	Tertiary	Flint	Light beige	Moderate	Dihedral				
66	Flake		Distal	Tertiary	Flint	Mottled grey	Poor		25	23	10	Multiple dorsal scars
67	Flake		Whole	Tertiary	Flint	Brownish grey	Good	Facetted	22	21	2	Multiple dorsal scars
68	Flake		Medial	Tertiary	Flint	Black	Poor		15	16	3	Multiple dorsal scars
69	Flake		Whole	Tertiary	Flint	Light beige	Good	Facetted	19	11	2	
70	Chunk			Secondary	Flint	Grey						
71	————											Non-lithic: metal slag
72	Flake	Scraper	Whole	Secondary	Flint	Black	Good	Plain	52	37	8	End scraper, thin to semi-abrupt retouch convex edge, nodular flint
73	Flake	Scraper	Medial	Tertiary	Flint	Grey	Moderate		39	25	11	End scraper, abrupt end retouch, thin left lateral edge, multiple dorsal scars
74	Flake		Whole	Secondary	Flint	Grey	Moderate	Cortical	29	29	4	Multiple dorsal scars
75	Chunk			Tertiary	Flint	Grey						

APPENDIX II: SPECIFICATIONS

Brierlow Quarry, Sterndale Moor, Buxton.

Written Scheme of Investigation for an Archaeological Watching Brief.

Archaeological Research Services Ltd

1.0 Introduction

1.1 A watching brief has been requested by the County Archaeologist for Derbyshire County Council during groundworks to extend the waste tip at Brierlow Quarry, Buxton. The quarry had previously been identified during the Review of Old Minerals Permissions by the Minerals Planning Authority as warranting an archaeological watching brief should the quarry or associated works ever be extended. The work will comprise of a topsoil and subsoil strip, centered on NGR SK08976950 over an area of 28,000square meters.

2.0 Objective

2.1 The objective of the watching brief is to ensure that any archaeological features encountered during the ground works in the specified area are recorded and interpreted and, if at all possible protected.

3.0 Background

3.1 The site lies on the carboniferous Limestone of the White Peak which is generally rich in prehistoric remains including burial mounds and remains of later periods. The route of the Roman road from Buxton to Derby is postulated to run across the northern part of the site.

4.0 Fieldwork Methodology

4.1 The watching brief will comprise of the observation by a competent archaeologist of the stripping of topsoil and subsoil deposits. Archaeological Research Services Ltd will provide an archaeological officer at all times during the strip. A mechanical excavator will be used for the strip and the archaeologist on site will ensure that a toothless ditching bucket will be used. The on site archaeologist will be given the opportunity to stop site work in order to investigate potential archaeological features and adequate time will be allowed for recording any such features.

4.2 A written, drawn and photographic record will be maintained during the watching brief plus all significant archaeological remains will be recorded and/or retrieved. All excavations will be recorded in accordance with normal principles of archaeological evaluation upon pro forma context sheets. All significant architectural features will be photographed (with scale) *in situ* and their location recorded on a plan of the site.

4.3 Where archaeological features and/or deposits are identified during the watching brief, then a sufficient quantity of the said features will be investigated by hand to allow their date, nature and degree of survival to be ascribed. All features thus investigated will be recorded in plan and section and significant archaeological finds recovered will be retained for analysis. Any archaeological features identified will be photographed and drawn in plan at a scale of 1:20 and in section at a scale of 1:10. The stratigraphy, where relevant and apparent, will be recorded within the area of the excavation.

4.4 For brick structures, the record will include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins).

4.5 A plan of the excavated areas will be maintained, features noted and section lines recorded. All drawings will be carried out at an appropriate scale and all contexts will be recorded using a single context recording system. The site archive will include plans and sections at an appropriate scale, a scale photographic record, and full stratigraphic records on recording forms/context sheets or their electronic equivalent. Should archaeological features be present then the locations and height AOD of the features will be accurately fixed, surveying in either the planning baselines or the features themselves.

4.6 The watching brief will be undertaken in accordance with the Institute of Field Archaeologists *Standards and Guidelines for Archaeological Watching Briefs.*(2001).

4.7 Any human remains discovered will initially be left *in-situ* and, if removal is deemed necessary, this will be undertaken in accordance with the relevant Ministry of Justice regulations.

4.8 Archaeological Research Services Ltd will ensure that heavy plant or machinery will not be operated in the immediate vicinity of archaeological remains until the remains have been recorded. Contractors and plant operators will be notified that any observations of archaeological remains must be reported immediately to the archaeological officer on site.

4.9 A risk assessment will be undertaken before commencement of the work and health and safety regulations will be adhered to at all times.

5.0 Artefact and Ecofact collection and recording

5.1 Artefact collection policy will be concerned with the provision of adequate samples for meeting the objectives of the work. Discarded artefactual materials will be described and quantified through assignment to broad categories in the field. Analysis of finds will be undertaken, as necessary, by suitably qualified specialists. Retained finds will be cleaned, marked, catalogued and packed in materials, as appropriate, for long term storage (see 8. Archive Deposition below).

5.2 Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest. Finds of "treasure" will be reported to the Coroner in accordance with the Treasure Act (1996).

5.3 Collection policies for structural remains and industrial residues have been set out by the Society of Museum Archaeologists (SMA, 1993). The presence of such materials within a context will be recorded even where comprehensive retention is not considered appropriate.

5.4 It is not considered likely that waterlogged, palaeoenvironmental or human remains will be encountered at any stage of this project. However, should such remains be identified work will cease and a meeting arranged between Archaeological Research Services Ltd, the client and the County Archaeologist to discuss further procedures.

6.0 Monitoring Arrangements

6.1 Reasonable prior notice of the commencement of the project is to be given to the Derbyshire County Council County Archaeologist. The DCA contact will be:

Dave Barrett,
County Archaeologist,
Derbyshire County Council,
Shand House,
Dale Road South,
Matlock,
Derbyshire DE4 3RY

Dave.Barrett.@derbyshire.gov.uk
Tel: 01629 539774

6.2 Archaeological Research Services Ltd will liaise with the County Archaeologist for Derbyshire County Council at regular intervals throughout the course of the work.

7.0 Report

7.1 Following completion of the watching brief Archaeological Research Services Ltd will produce a report which will include,

- Non-technical summary
- Introductory statement
- Aims and purpose of the project
- Methodology
- A location plan showing all excavated areas with respect to nearby fixed structures and roads
- Illustrations of all archaeological features with appropriately scaled hachured plans and sections (illustrating height AOD)
- An objective summary statement of results
- Conclusions
- Supporting data – tabulated or in appendices
- Index to archive and details of archive location
- References
- Statement of intent regarding publication
- Confirmation of archive transfer arrangements
- A copy of the DCA brief
- A copy of the OASIS form

7.2 Copies of the final report will be deposited with the Derbyshire Historic Environment Record.

8.0 Archive Deposition

8.1 A digital, paper and artefactual archive will be prepared by Archaeological Research Services Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data (in a format to be agreed by the repository museum which in this case will be Buxton Museum and Art Gallery). Contact will be made with the Museum and an accession number obtained prior to the commencement of fieldwork.

8.2 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive (see above).

8.3 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be supplied to the HER and deposited with the archive as digital images on a CD ROM along that will be attached with the report.

8.4 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

8.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

9.0 Changes to Methodology or Work Programme

9.1 Changes to the approved methodology or programme of works will only be made with the prior written approval of the County Archaeologist for Derbyshire.

10.0 Publication

10.1 A summary of the project, with selected drawings, illustrations and photographs, will be submitted within 2 years of the completion of the project to Derbyshire Archaeological Journal for publication. The results of the work will be published at least in summary form in Derbyshire Archaeological Journal.