

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire



Neolithic features at Brierlow Quarry, Buxton.

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ARS Ltd Report 2016/31

March 2016

Archaeological Research Services Ltd

Contents

Executive Summary.....	3
1. Introduction.....	4
2. Location and Geology.....	4
3. Background.....	4
4. Aims and Objectives.....	6
5. Methodology.....	6
6. Results.....	6
7. Specialist Reports.....	29
8. Discussion.....	41
9. Publicity, Confidentiality, Copyright.....	41
10. Statement of Indemnity.....	41
11. Acknowledgements.....	42
12. References.....	42
Appendix I Context Register	
Appendix II Written Scheme of Investigation	
Appendix III OASIS Record	

List of Figures

Figure 1. Site Location.....	5
Figure 2. Site Location showing Features.....	7
Figure 3. Group of features in South-West Area.....	9
Figure 4. Plans and Sections of South-West Area Features.....	10
Figure 17. Group of features within Spread (140).....	18
Figure 18. Plans and Sections of features within Spread (140).....	19
Figure 24. Remaining features within Area 1.....	23

List of Tables

1. Catalogue of Pottery.....	30
2. The Flint Assemblage by Context.....	34
3. Results of Plant Macrofossil Analysis.....	36
4. Results of Charcoal Analysis.....	38

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Executive Summary

Project Name: An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

Site Code: BLQ'15

Planning Authority: High Peak

Planning Ref: Review of Old Minerals Permissions (ROMP)

Bedrock Geology: Bee Low Limestone Formation Limestone

NGR: NGR SK 08935, 69011

Date of Fieldwork: 5th May – 22nd May, 2015

Date of Report: March 2016

From 5th May to 22nd May 2015, Archaeological Research Services Ltd (ARS Ltd) undertook an archaeological watching brief at Brierlow Quarry, Buxton, Derbyshire, on behalf of Lhoist UK Ltd. This watching brief has been carried out within an area of the quarry that had been previously identified during the Review of Old Minerals Permissions (ROMP) as warranting archaeological mitigation should the quarry works be extended.

Twenty features were provisionally identified, with only six of these features containing pottery. While only six features contained pottery, the amount and its concentrations suggests that these features were associated with a multi-phase prehistoric settlement. It is difficult to interpret and form any structures from the small amount of truncated and disturbed features found. The evidence of large pieces of charred material has helped to provide important dates for this settlement activity along with the pottery. The Grooved Ware from pit (139) is associated with the date of 2893-2678 cal BC (95.4% probability) which places it in the Late Neolithic period. The type of tree cover in the area during the 3rd millennium cal BC is evidenced by the species found in the environmental sampling, being predominantly hazel and birch. The topsoil and subsoil contained 13 flints some of which are residual material from the Mesolithic whilst the rest of the assemblage is typical of Neolithic settlement sites with a range of processing tools and evidence of stone tool manufacture present.

The two possible three throws, F137 and F139, found on site contained numerous struck lithics, which are similar to finds on other ephemeral Neolithic settlement sites. Evidence has been found to suggest people were using these freshly made holes after the trees had been blown over as shelters, with flint knapping occurring there, with core debitage being found within three throw fills.

Publication of these results with those from further phases of topsoil stripping at the quarry is an important priority.

1. INTRODUCTION

1.1. In May 2015, Archaeological Research Services Ltd (ARS Ltd) was commissioned by Lhoist UK Ltd (Brierlow and Hindlow Quarries) to undertake an archaeological watching brief at Brierlow Quarry, Buxton, Derbyshire, SK17 0EL. Brierlow Quarry has previously been identified during the Review of Old Minerals Permissions (ROMP) by the Minerals Planning Authority as warranting archaeological mitigation should the quarry or associated works ever be extended. The watching brief was carried out as part of the Area 1 topsoil and subsoil stripping of the new quarry extension.

2. LOCATION AND GEOLOGY

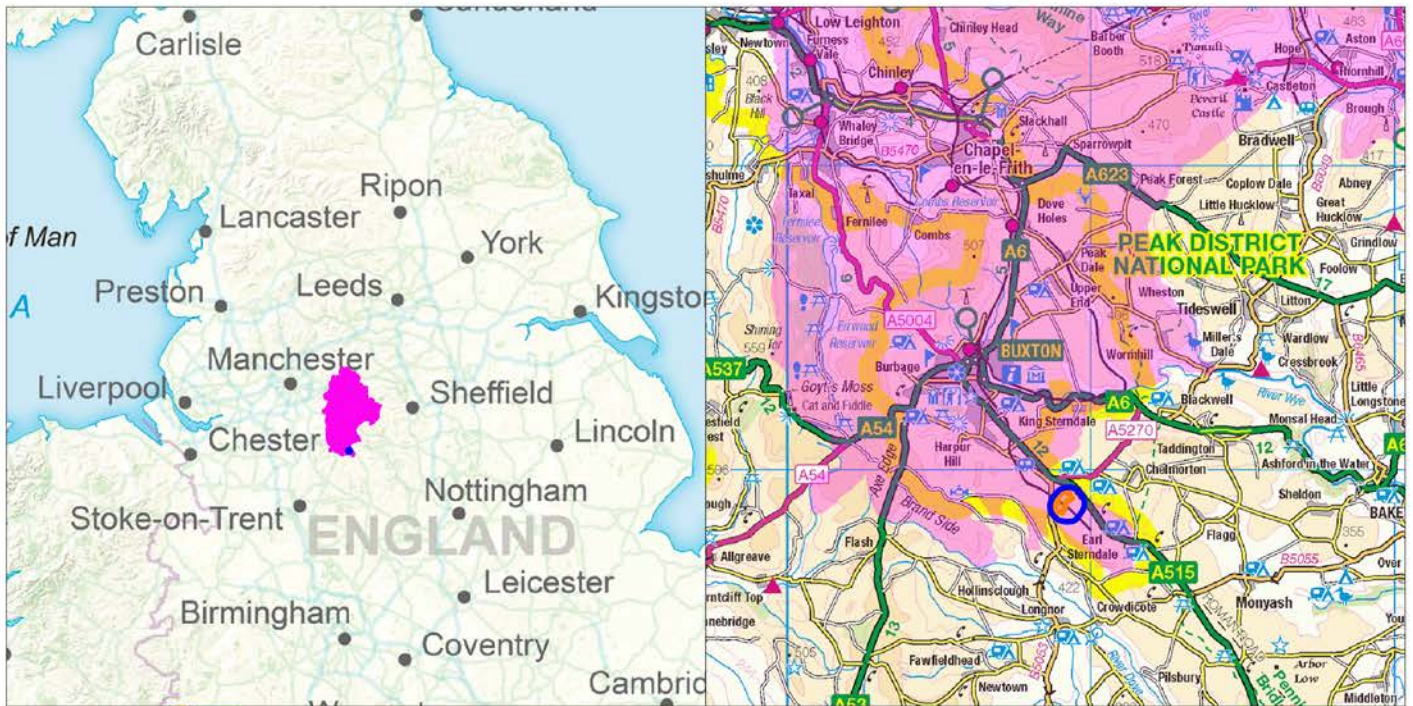
2.1 Brierlow Quarry located at SK 08935, 69011 on land approximately 6.4km south-east of Buxton (Figure 1). Area 1 is situated on a gentle hillside which rises from a height of 390 above Ordnance Datum (AOD) at the south-eastern boundary to 401m AOD at the northern boundary. The solid geology of the area is limestone bedrock of the Bee Low Limestone Formation (British Geological Survey 2015).

3. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.1 Remains of Neolithic settlement activity is rare nationally, but a cluster of Neolithic settlement sites are beginning to emerge in the Derbyshire Peak District, particularly on the limestone plateau area and in the wider hinterland of the Brierlow site. A Neolithic settlement was excavated at Lismore Fields, Buxton located approximately 5km north-west of Brierlow Quarry (Garton 1991). Two Neolithic post-built rectangular buildings and several ring-structures and lines of posts are likely of a similar date. A series of five radiocarbon dates falling between 3990-3105 cal BC were obtained from various features forming part of the two post-built buildings suggesting the presence of early farming groups from the beginning of the 4th millennium cal BC in the region.

3.2 A further Early Neolithic settlement was recently excavated north of Buxton at Waterswallows Lane. This produced a large sub-rectangular early Neolithic post-built structure of a similar character as those found at Lismore Fields. Lithics, early Neolithic pottery and several pieces of daub were recovered, in association with the post-built building (Davies 2013).

3.3 A site of a similar Neolithic and Early Bronze Age date was excavated c.17 km to the east-south-east on Stanton Moor near Matlock, Derbyshire (Brightman and Waddington 2010). Evidence for Early Neolithic activity, possibly a habitation site, was discovered in the form of flints and ceramic fragments in association with posthole and hearth features. The Neolithic pottery included Early Neolithic Carinated Bowl sherds, with small crushed sandstone inclusions. Early Bronze Age occupation was also documented as a posthole yielded two Early Bronze Age dates.



Site name: Brierlow Quarry, Buxton
 Date: June 2015
 Drawn by: MB
 Scale: Varies

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Figure 1:
Site location



- Quarry Extent
- Area 1
- High Peak District

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3.4 The dating of the advent of farming (ie. the Neolithic) in the Peak District has not yet been reliably established and neither has the sequence and dating for the first use of pottery associated with these farming communities. Although there has been sporadic investigation of some of the prominent Neolithic ceremonial monuments in the Peak District there is very little known about the settlement sites of these Neolithic people. Even the dating and cult practices that took place at the ceremonial monuments is also largely unknown. Therefore, discoveries of Neolithic remains and particularly those where artefacts and environmental residues survive that allow for dating and understanding of farming practices are of some significance and it is important that any such information is made publicly available.

4. AIMS AND OBJECTIVES

4.1 The aim of the archaeological 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 and the results made publicly available in line with the National Planning Policy Framework.

5. METHODOLOGY

5.1 The watching brief was undertaken in accordance with the Chartered Institute for Archaeologists *Code of Conduct* (2014a) and *Standards and Guidance for Archaeological Watching Briefs* (2014b).

5.2 The watching brief monitored the topsoil and subsoil stripping within Area 1 (Figures 1 and 2).

5.3 The trenches were excavated by a 360⁰ mechanical excavator using a toothless ditching bucket in level spits until the first archaeological horizon had been reached. All machine excavation was carried out under careful archaeological supervision. The watching brief followed the methodology set out in the Written Scheme of Investigation (WSI) (see Appendix III).

6. RESULTS

6.1 The stratigraphic sequence across the entire site consisted of a dark brown clay silt topsoil (101) with an average overall thickness of 0.25 m overlying a subsoil (102) composed of mid reddish-brown slightly clay silt with occasional small irregular limestone fragments. The thickness of the layer varied from 0.3m - 0.5m on the higher ground, to a maximum of 0.2m thick on the lower ground at the south-eastern end of the site. The subsoil overlay the natural substratum (103) which consisted of natural

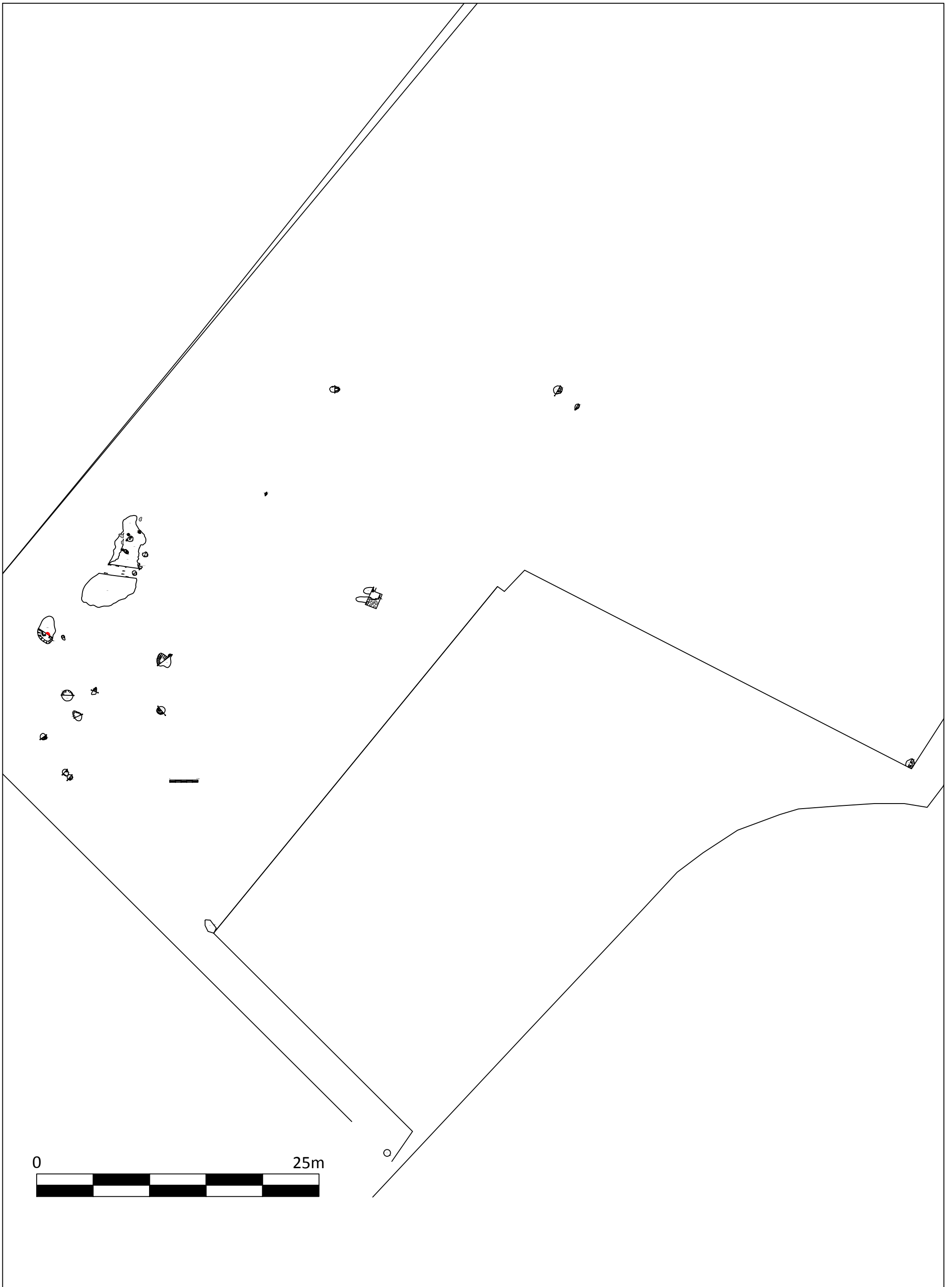


Figure 2: Site Plan of Features

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orange clayey silt, with varying patches of reddish pink clay and bright yellow beige slightly silty clay. This natural substratum (103) directly overlay the limestone bedrock.

6.2 The topsoil (101) and subsoil (102) layers within the southern and eastern areas of the site produced a small concentration of flint and pottery. Studies carried out in the 1980's and 1990 have suggested that some of the Neolithic flint scatters in the Peak District are indicative of settlement activity (Hart 1981). A watching brief carried out in 2010 by ARS Ltd to the north-west of Area 1 recovered 71 lithics within the topsoil, and it was thought that this assemblage might have originated from a settlement site within the vicinity, which would have been occupied by a small group of people in the Neolithic to Bronze Age periods (Mora-Ottomano 2010, 4).

Pit Features 104 and 106

6.3 When arriving on site, an area of approximately 4m x 55m located on the far south-eastern boundary of the site had already been stripped to allow the dumper truck access to the rest of the field. A roughly circular pit feature (F104) was noted within the south-eastern section of the stripped area. Pit F104 was clearly truncated, and the remaining basal segment measured 0.60m diameter at the start of the archaeological horizon and was up to 0.2m deep. The pit was filled with a mid-orange brown slightly clay silt fill (105). While it was not possible to excavate this feature, due to the need of the dumper truck to access the site via this location, flints were found within the topsoil around it.

6.4 Also noted within the south-eastern area of the site was pit F106, a shallow oval feature which measured 1.1m by 0.6m and was up to 0.3m deep at the start of the archaeological horizon. Pit F106 was only partially visible in the section, having a fill (107) which consisted of a mid-orange brown slightly clay silt fill.

Features 108 – 121 and 133

6.5 In the area adjacent to the south-western limit of excavation (see Figure 3 to 4), eight features were uncovered beneath subsoil (102)). These features were cut into the natural subsoil, which was stained in appearance due to bioturbation in this area. This wide area of mid-pale brown-beige clay silt was given the designation (118). A number of artefacts were found on the surface of (118) including several fragments of pottery, a flint blade, end scraper, and thumbnail scraper (see sections 7.1 and 7.2).

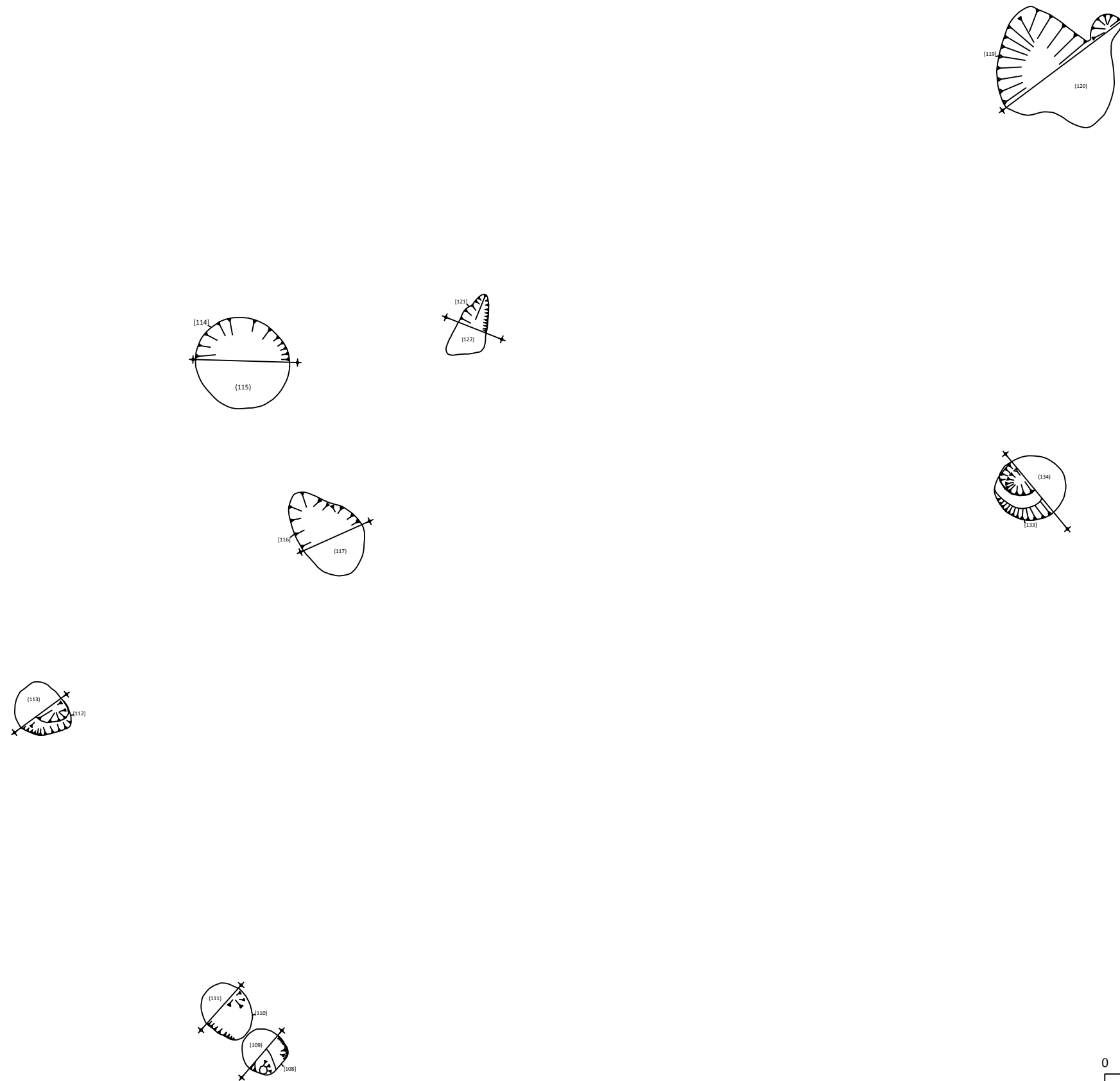
Pit Features 108 and 110

6.6 Two circular pit features (F108 and F110) were located adjacent to one another within the south-western area of the site (Figure 5). Pit F108 measured 0.47m in diameter and was up to 0.18m deep at the start of the archaeological horizon (Figure 6). The cut (108) was difficult to determine due to being heavily disturbed by animal burrowing, but appeared to be fairly shallow with steeply sloping uniform sides. The base of cut had burrowing extending down to the limestone bedrock. Fill (109) was a mid yellow-orange-brown slightly clay silt that contained charcoal flecks, fragments of charcoal and a hazelnut shell (see section 7.4). Eight fragments from a single Grooved Ware vessel were also recovered from the fill (see section 7.1).

Figure 3: Features grouped within south-west of Area 1

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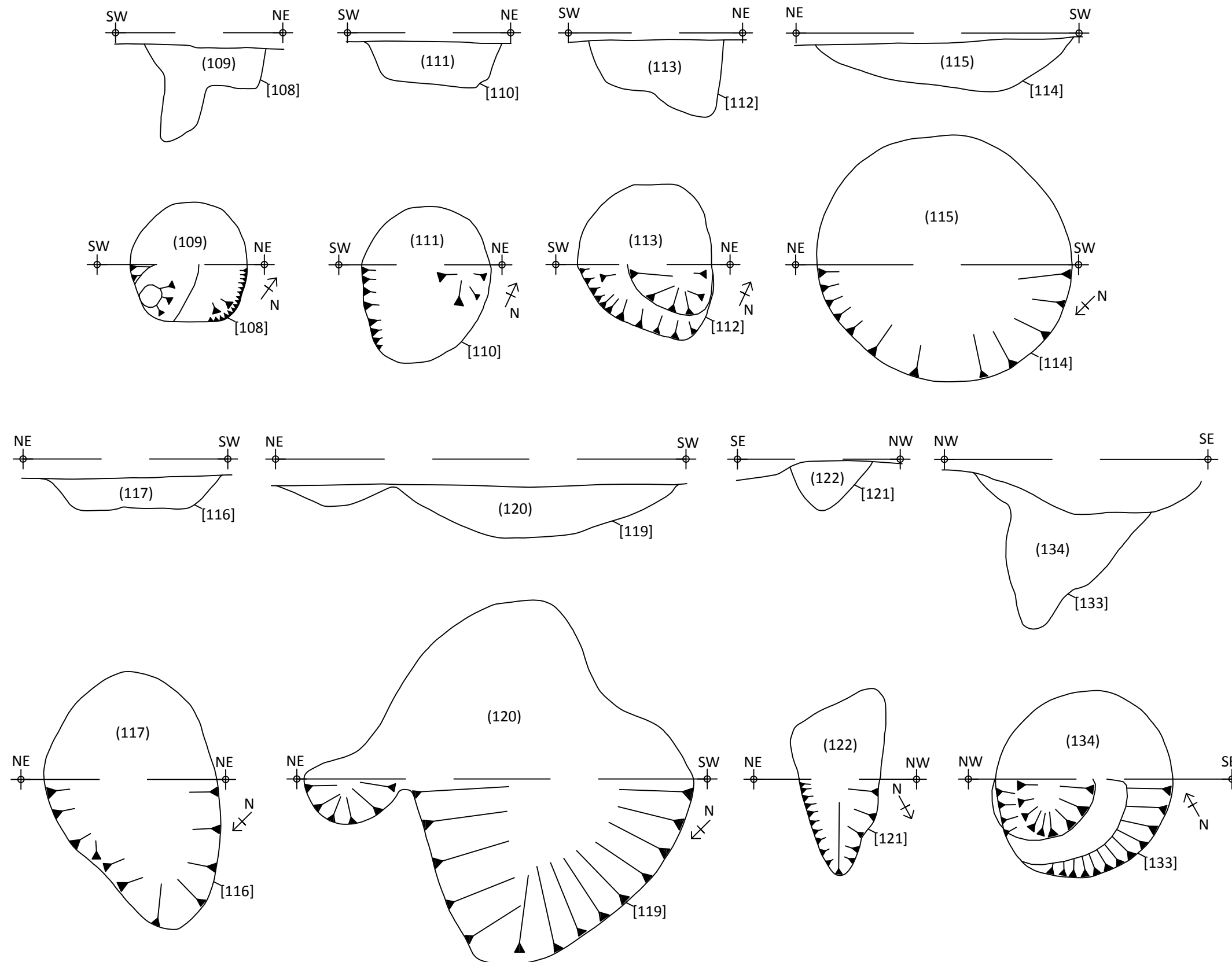


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Figure 4: Plans and Sections of south-west feature grouping

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Figure 5: South-east facing sections through F108 (front) and F110 (rear) (scale 1m x 1m and 0.25m).



Figure 6: South-east facing section through F108, pottery finds on left (scale 0.25m).

6.7 Circular pit (F110) measured 0.70m by 0.5m and was up to 0.15m deep at the start of the archaeological horizon (Figure 7). Similar to F108 the feature was heavily disturbed by animal burrowing and bioturbation but appeared to be steep-sided with an undulating, slightly sloping base. The fill (111) was a mid orange-brown slightly clay silt with occasional inclusions and contained hazelnut shell (see section 7.4).



Figure 7: South-east facing section through F110 (scale 1m x 0.25m).

Pit Feature 112

6.8 Located 3.1m to the north-west of F108 and F110 was F112, a circular small pit, measuring 0.70m by 0.50m by 0.20m deep at the start of the archaeological horizon (Figure 8). The cut [112] of this feature was steep-sided with a sloping base, although parts of the pit's sides were disturbed due to animal burrowing and bioturbation. The fill (113) of F112 consisted primarily of a mid orange-brown clay silt with upper patches of fine, slightly clay silt with frequent charcoal inclusions. Fill (113) contained one fire-fractured flint.



Figure 8: South-west facing section of F112 (scale 1m x 0.25m).

Pit Feature 114

6.9 Located 3.5m to the north of F112 was F114, a shallow circular pit measuring 1.0m by 0.86m by 0.2m deep at the start of the archaeological horizon (Figure 9). The cut (114) had gradually sloping sides and with a fairly flat base. Fill (115) comprised a pale to mid orange-brown slightly clay silt that contained charcoal flecks and fragments from oak, hazel, birch and beech trees, indicating the types of tree that were being used as firewood (see section 7.4).



Figure 9: North-west facing section of F114 (scale 1m x 0.25m).

Pit Feature 116

6.10 One metre to the south-west of F114 was a small circular feature, F116 (Figure 10). F116 measured 1.0m by 0.75m by 0.13m deep at the start of the archaeological horizon. The cut [116] of this feature is not well defined, but appears to have gradually sloping edges with an undulating base, and is very disturbed on its edges due to animal burrowing and roots. The fill (117) of F116 consisted of a pale orange brown slightly clay silt containing charcoal flecks. One flint blade was recovered from fill (117). As this feature is not as distinct as the other nearby features, it appears that this feature could be natural, and may have formed through natural processes.



Figure 10: North-west facing section of F116 (scale 1m x 0.25m).

Pit Feature 119

6.11 F119 was an irregularly shaped pit measuring 1.3m by 1.1m by 0.20m deep at the start of the archaeological horizon (Figure 11). The cut (119) of this feature was irregularly shaped, with gradually sloping sides, a u-shaped base, and a potential shallow posthole on its western edge. The fill (120) was notably different from the other features within this area, being a slightly darker mid-brown slightly clay silt containing frequent charcoal fragments, especially along the base of the southern edge. Alongside the woodland species of trees already seen within the other features in this area, a fragment of charred dogwood was also found within the pit and is the only such fragment found on the site (see section 7.4). No finds were recovered from this deposit.



Figure 11: North-west facing section of F119 (scale 1m x 0.25m).

Pit Feature 121

6.12 To the north-west of F116 was a small, irregularly shaped pit (F121) which measured 0.7m by 0.35m by 0.21m at its maximum depth from the start of the archaeological horizon (Figure 12). This pit was composed of cut (121) which had uneven, steep sides and a u-shaped base, and fill (122), a pale orange-brown slightly clay silt containing charcoal flecks and fragments. No finds were recovered from fill (122).



Figure 12: North-facing section of F121 (scale 0.25m).

Pit Feature 133

6.13 Approximately 2.5m to the south of F119 was F133, a small roughly circular pit. F133 measured 0.67m by 0.70m by up to 0.52m in depth at the start of the archaeological horizon and was composed of cut (133) and fill (134) (Figure 13). Cut (133) displayed steeply sloping sides and a sharp, v-shaped base. Fill (134) was a mid orange-brown slightly clay silt containing charcoal flecks. No finds were recovered from this deposit.



Figure 13: South-east facing section of F133 (scale 1m x 0.25m).

Spread (140) and Features 137 - 145

Pit Feature 137

6.14 Feature 137 was found in the north-western corner of the site, when further machining was carried out in this area (Figure 14). F137 appeared as a medium sized oval pit, measuring 2.54m by 1.5m by 0.18m at its maximum depth from the start of the archaeological horizon and was composed of cut (137) and fill (138). Cut (137) was roughly bowl shaped with slightly sloping edges and an uneven base, disturbed by animal burrowing. This was filled with deposit (138), a mid-pale orange-brown slightly clay silt with a small rounded burnt patch on the surface turning the silt a pale to mid red-brown colour. A number of lithics were found within fill (138) including flakes, a blade and bladelet, and a core and microlith (see section 7.2). A single fragment of pottery was found in the upper fill, close to the machined surface (see section 7.1).



Figure 14: South-west facing section through F137 (scale 1m x 0.25m).

Spread (140)

6.15 The area to the north of F137 was difficult to machine as the subsoil had fairly frequent artefacts found within it. As a result, the stripping was fairly uneven, leaving patches within the natural subsoil (103). These patches were tested to see if they were archaeological but most proved to be natural undulations and animal and tree disturbances. As this area lay on the hillslope there appeared to be a fairly reasonable depth of subsoil built up in this area (Figure 15), indicating the accumulation of colluvial material from the hill now quarried away that was once further to the north-west.



Figure 15: South-west facing section in northern area showing the build up of subsoil (scale 1m x 0.25m).

6.16 A large spread of mid to dark orange-brown slightly clay silt (140) that was very similar to the subsoil was seen spread over an area of c.8.6m by 0.3m with a with varying thicknesses throughout and a maximum depth of 0.16m at the start of the archaeological horizon (Figures 16-18). A 1m section was excavated through this to check if it was obscuring earlier features (Figure 19). This did not appear to be the case as it just overlay the bioturbated natural subsoil. This layer contained two flints and three fragments of pottery (see sections 7.1 and 7.2). Further to the north, spread (140) appeared to be partly overly several postholes.



Figure 16: Spread (140) (scale 1m x 1m x 0.25m).

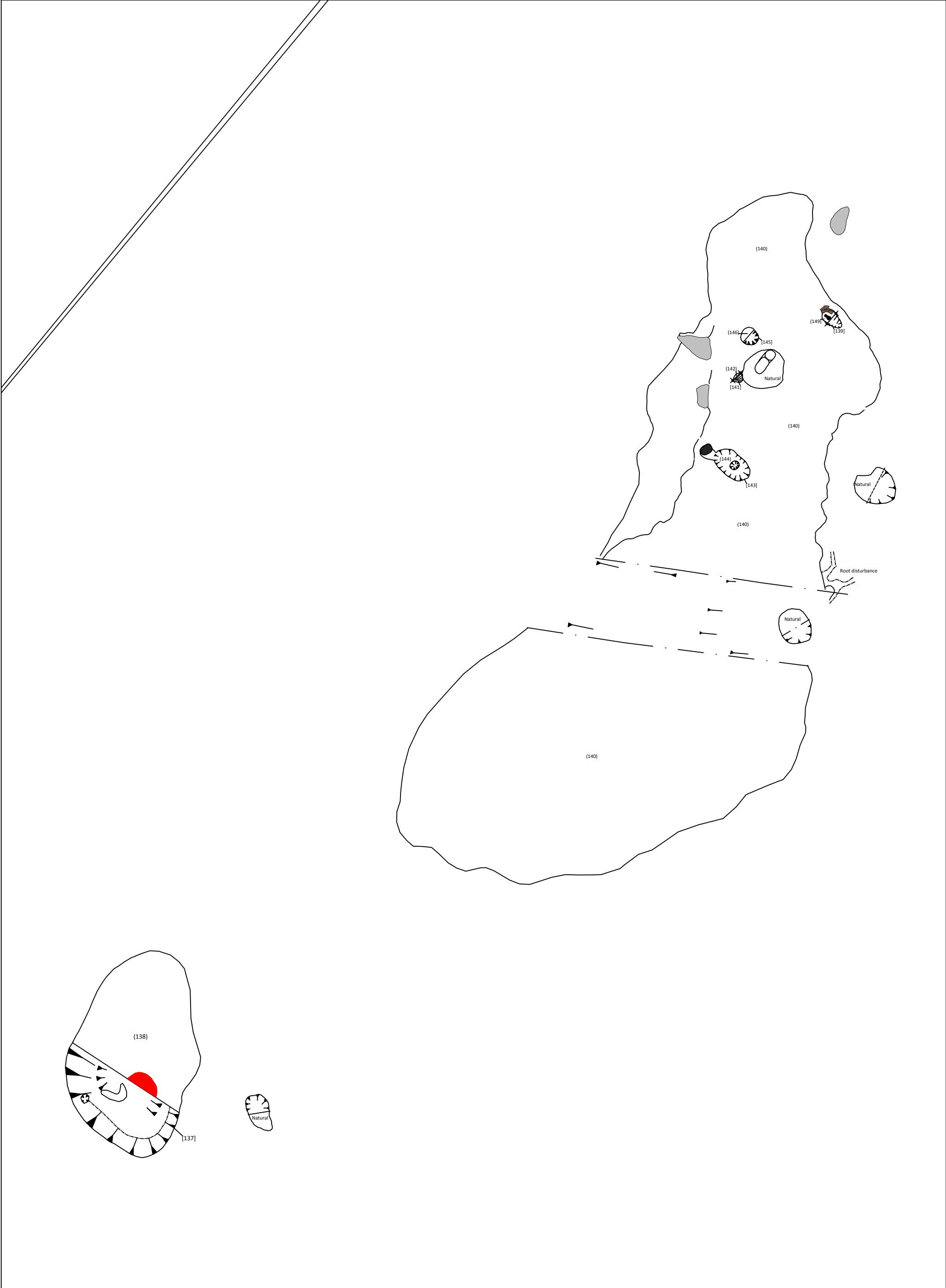






Figure 17: Plan view of Spread 140 and associated features

Scale: 1:60 @A4

Key:

- | | | | |
|---|-------------------|---|------------------|
|  | Red Staining |  | Red Staining |
|  | Charcoal Staining |  | Animal Burrowing |

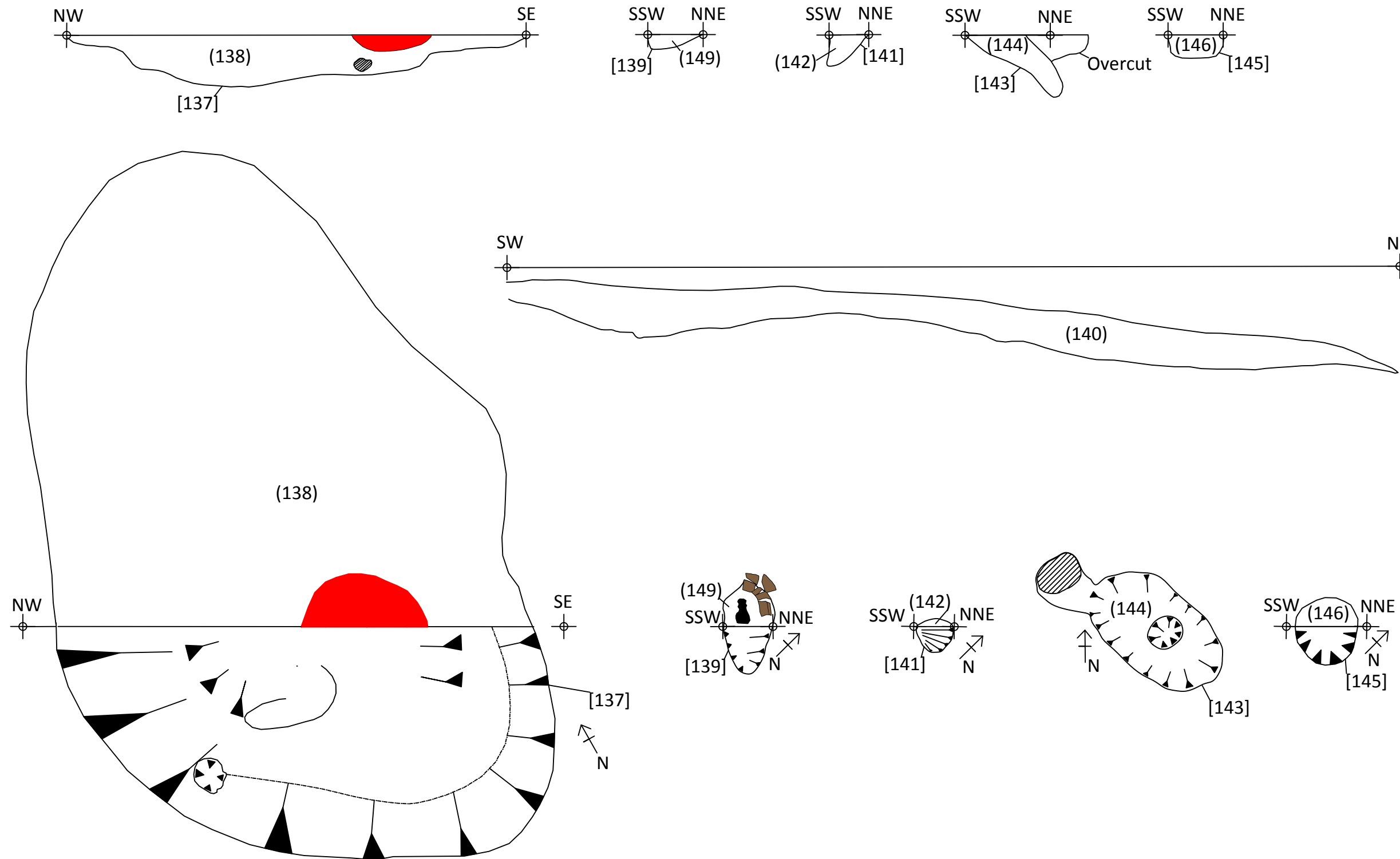


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Figure 18: Plan and Sections of Spread (140) and associated features

Scale: 1:20 @ A4



Key:

- Red Staining
- Charcoal Staining
- Red Staining
- Animal Burrowing

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Figure 19: Section through spread (140) showing F139, F141, F143 in background (scale 1m x 1m and 0.25m).

Pit Feature 139

6.17 Feature 139 was found beneath context (140) and appeared as oval in shape (Figure 20). It measured 0.3m by 0.15m by 0.08m in depth from the start of the archaeological horizon and consisted of cut (139) and fill (149). Cut [139] was very scoop-like in appearance, with a gradually sloping north-east edge and a steeper southern edge. Fill (149), a mid-brown silt, contained 15 fragments of pottery from a single vessel. It is possible that this feature may be a possible truncated posthole.



Figure 20: Spread (140) and F139 before excavation (scale 0.25m).

Posthole? Feature 141

6.18 Pit feature (141) was found within context (140) and was quite disturbed (Figure 21). F141 measured approximately 0.11m by 0.11 by 0.1m in depth at the strat of the archaeological horizon and consisted of cut (141) and fill (142). The cut was slightly bowl shaped and was very disturbed around the edges. Fill (142), a mid-brown silt with

charcoal flecking present, produced no finds. It is possible that this feature was a posthole.



Figure 21: South facing section of F141 (scale 0.25m).

Posthole? Feature 143

6.19 Feature (F143) was identified as a small potential posthole, partially disturbed by animal burrowing (Figure 22). F143 measured 0.5m by 0.26m by 0.25m in depth at the start of the archaeological horizon and was roughly oval in plan. Feature 143 consisted of cut (143) and fill (144). Animal burrowing has disturbed the cut, but brought pottery sherds to the surface of the feature fill (144). Fill (144) was a mid-brown silt with charcoal flecking throughout which produced both animal bone and pottery. Twenty-three pottery sherds from at least two vessels were recovered, one of which was identified as a Grooved Ware vessel (see section 7.1).

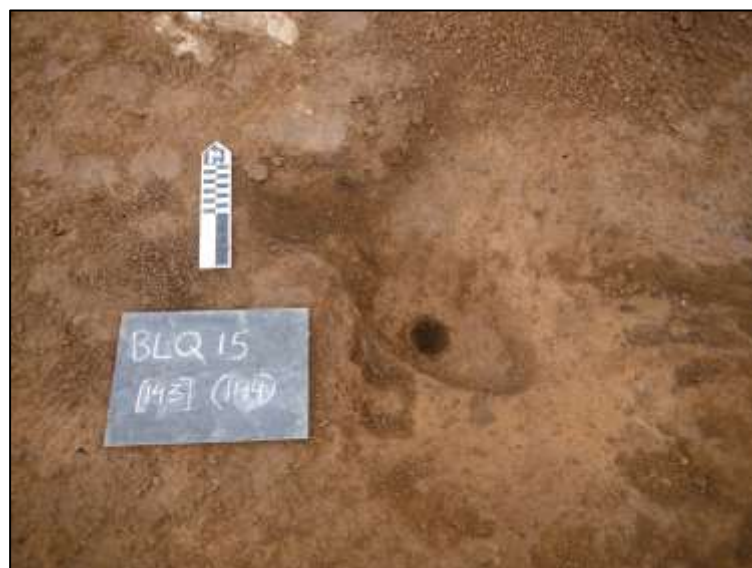


Figure 22: North facing view of F143 (scale 0.25m).

Posthole? Feature 145

6.20 Feature 145 was identified as a small possible posthole, measuring 0.2m by 0.18m by 0.07m in depth at the start of the archaeological horizon (Figure 23). This feature consisted of cut (145) and fill (146). Cut (145) appeared steep-edged with a u-shaped base. Fill (146), a mid-dark brown silt with charcoal flecking, contained no datable finds.



Figure 23: South-west facing section of F145 (scale 0.25m).

Features 123 – 131, Feature 135 and Feature 147 (Figure 24)

Posthole? Feature 123

6.21 F123 was identified as a small possible posthole, located c.11m to the north-east of the majority of the features. Potential posthole F123 measured 0.2m by 0.2m by 0.07m in depth at the start of the archaeological horizon (Figure 25). The cut (123) of this feature had gradually sloping sides with a rounded base. The fill (124) was a mid orange-brown slightly clay silt containing charcoal flecks and fragments. One of the charcoal fragments was identified as box hedge, which is native to Britain. Its presence at such an early date, if also related to the adjacent Neolithic features and as far north as Derbyshire, is highly unusual (see section 7.4). No finds were recovered from this fill.

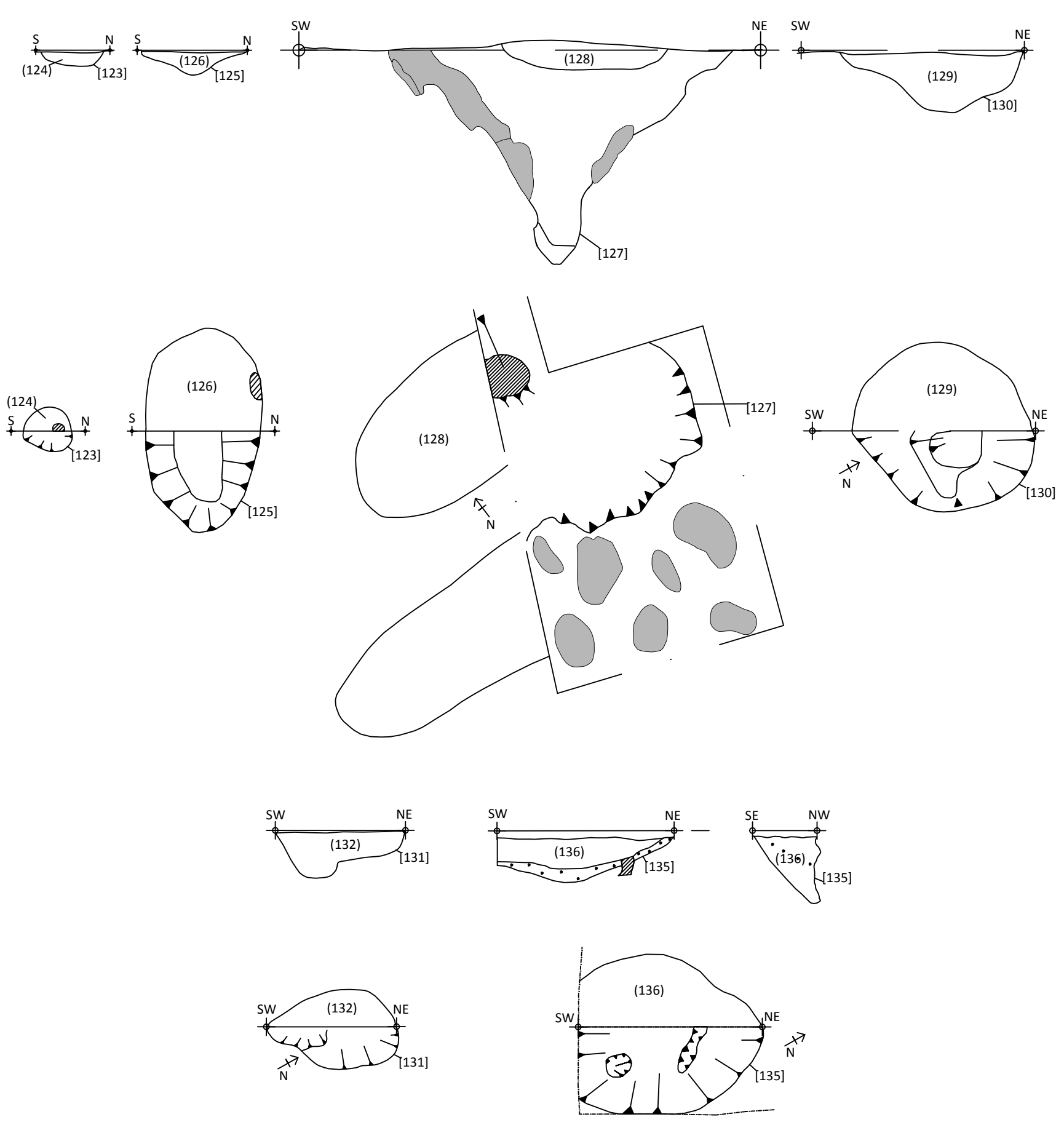


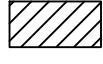


Figure 24: Remaining Features

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Key:

-  Charcoal Staining
-  Red Staining
-  Animal Burrowing



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Figure 25: North-west facing pre-excitation view of small pit (F123) (scale 1m x 0.25m).

Pit Feature 125

6.22 Feature 125 was a small oval pit feature, measuring 0.9m by 0.5m by 0.1m deep at the start of the archaeological horizon (Figure 26). The cut (125) was concave shaped, with gradually sloping sides and a rounded base. F125 was filled with deposit (126), a mid orange-brown slightly clay silt with burnt, red-brown silt patches on its edges. The fill contained flecks of alder or hazel charcoal, in addition to some highly vitrified root (see section 7.4). No finds were recovered from the fill.



Figure 26: South-east facing section of pit F11 [125], with burning visible on northern edge (scale 1m x 0.25m).

Natural Feature 127

6.23 Feature 127 measured 0.26m by 0.6m by 0.9m in depth (Figure 27). Fill (128) was composed of four separate deposits. The upper fill was a mid brown silt, lying on orange-brown colluvium, which in turn overlay a natural pink clay adhering to the natural limestone bedrock. F127 appears to be a small natural sinkhole.



Figure 25: East facing section of F127 (scale 1m x 1m and 0.25m).

Pit Features 129 and 131

6.24 Features 129 and 131 were located c.38m to the north-east of the cluster of prehistoric features (Figure 28). Feature 129 is circular in plan, measuring 0.8m by 0.74m by 0.25m in depth at the start of the archaeological horizon with cut (129) having gradually sloping sides and an irregular base that was disturbed on the edges due to animal burrowing (Figure 29). Fill (130) consisted of a pale orange-brown slightly clay silt. No finds were recovered from this deposit.



Figure 28 : South-east facing section of pit F131 in the foreground and pit F129 behind it (scale 1m x 0.25m).



Figure 29: South-east facing section of pit F129 (scale 1m x 0.25m).

6.25 Shallow pit feature 131 was located c.1.8m to the south-east of F129 and was oval in plan (Figure 30). F131 measured 0.58m by 0.34m by 0.1m in depth at the start of the archaeological horizon, and was filled with deposit (132), a pale orange-brown slightly clay silt. Animal burrowing and roots had altered the edges of the pit, giving the

feature irregularly sloping sides and base. Features (129) and (131) were less convincing as features compared to other features within the area, due in part to the lack of charcoal flecking in their fills, and it is possible they were formed by natural processes rather than man-made.



Figure 30: South-east facing section of F131 (scale 1m x 0.25m).

Pit Feature 135

6.26 Feature 135 was located in the far south-eastern corner of the site and was not completely visible as it lay along the limit of excavation (Figure 31). F135 appeared oval in plan, with the visible minimum measurements of 0.75m (l) by 0.75m (w) by 0.2m in depth at the start of the archaeological horizon. The edges of the feature were heavily disturbed by animal burrow runs, observed at both of the edge and base of the feature. The fill (136) consisted of a mid orange-brown slightly clay silt, with frequent charcoal flecks and fragments located on the base of the pit. These charcoal fragments were identified as hazel, birch and cherry species, amongst others (see section 7.4). While no finds were recovered from the fill, the charcoal content of this feature, particularly around its edge means it can be confidently interpreted as a man-made feature.



Figure 31: South-east facing section of F135 with charred material visible around its edge (scale 1m x 0.25m).

Stone-Filled Pit Feature 147

6.27 Feature 147 is a square feature measuring 2.8m (l) by 2.5m (w) with a visible depth of 1.2m and appears to be post-medieval - modern in date (Figure 32). Its fill was composed of coarse limestone blocks and a dark brown topsoil (148), and the cut (147) is quite steep-edged. The bottom of this feature was not established as it continued to some depth beyond safe excavation. No finds were recovered from within this feature.



Figure 32: South-east facing section of F147 (scale 1m).

7. SPECIALIST REPORTS

7.1 Pottery

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Introduction

7.1.1 A total of 53 potsherds, with a combined weight of 411.95g, was recovered from the subsoil (102), layers associated with the subsoil (118 and 140) and the fill of pits, post holes or tree throw hollows (109, 138, 149, 140 and 144). The majority of the assemblage comprises fragments of at least two Grooved Ware vessels and a Beaker vessel of Late Neolithic - Early Bronze Age date. The vessels are all hand-made, probably coil-built, and wall thickness averages 4mm in the case of the Beaker pottery and varies from 5mm for the rim to 12mm for the base for the Grooved Ware vessels. Surface colouration and condition is typical of the oxidising effects on the lower outer surfaces and the reducing effects on, in some cases, the rim and upper body, as well as inside the vessels, caused by the vessels being placed upside down in an open bonfire.

Method statement

7.1.2 The pottery was finger-washed or washed gently with a soft brush and left to air dry. The pottery fragments were laid out according to context and then by fabric group and individual vessels. The pottery was examined macroscopically with the aid of a x10 hand lens.

Catalogue

7.1.3 A catalogue describing the ceramic types and vessels identified is presented below.

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

Context Number	Description	Weight (grams)
102	12 tiny sherds and crumbs which probably represent one body sherd with dark brown/black outer and inner surfaces. The fabric contains crushed whitish stone inclusions averaging 1mm across. The vessel has an average wall thickness of 8mm.	4.89
102/118	A single bodysherd with orange-brown outer surface and dark brown inner surface. The fabric contains crushed whitish stone (?flint) inclusions between 3mm and less than a 1mm across. The vessel wall thickness varies between 6 and 9mm.	4.89
118	A single body sherd with dark brown outer surface and inner surface. The fabric contains crushed whitish stone inclusions averaging 1mm across.	3.28
109	Eight sherds, including two conjoining rim sherds and three conjoining body sherds, form a single Grooved Ware vessel with orange-brown/brown outer and inner surfaces. Two parallel 6mm in width and spaced 0.13mm apart have been incised around the outer body of the vessel. The fabric contains crushed whitish stone inclusions between 3mm and 1mm across, as well as grog. The vessel wall thickness varies between 7mm at the rim and 11mm, and its diameter at the rim is c.0.240mm.	112.01
138	A single bodysherd with orange outer surface and dark brown/black inner surface. The fabric contains crushed whitish stone (?flint) inclusions between 3mm and less than 1mm across. The vessel has an average wall thickness of 12mm.	15.32
140	Three bodysherds either from a single or two vessels with orange-brown or dark brown/black outer surfaces and dark brown/black inner surfaces. One sherd has a row of fingertip impressions and another vessel has an incised groove, rectangular in cross-section. The fabric contains crushed whitish stone inclusions between 2mm and 1mm across, as well as grog. The vessel(s) wall thickness varies between 7mm and 8mm.	14.07
144	A total of 23 sherds from at least two vessels. Twenty sherds, including one rim sherd, two conjoining body sherds and two conjoining base sherds probably form one Grooved Ware vessel with orange-brown/brown outer surfaces and dark grey-brown/black inner surfaces. Two sherds have three grooves, 1mm in width and depth, incised around the outer body of the vessel, along with diagonal slashes c.10mm apart in a row between two grooves, whilst one sherds as two rows of fingertip impressions. The fabric contains crushed whitish stone inclusions between 2mm and 1mm across, as well as grog. The thickness of the walls vary between 5mm as the rim and 12mm at the base and its diameter at the base is c.140mm. A further three body sherds represent a beaker vessel, two of which have dark grey brown outer and inner surfaces and decorated with a whipped cord impressions made by wrapping the cord around a fingertip on the outer surface. The fabric contains grog. The vessel wall thickness averages 4mm. The third has an orange outer surface and dark grey brown inner surface.	170.44
149	15 bodysherds from a single vessel with orange-brown/black inner surface. The fabric contains crushed stone and sand inclusions between 2mm and less than 1mm across, as well as some grog. The vessel wall thickness varies between 8mm and 9mm.	87.05

Table 1. Pottery catalogue

Fabric

7.1.4 Four fabrics are represented, all of which are friable with a mainly orange/orange-brown/brown outer surface with orange-brown/brown inner surfaces near the rim and dark brown/black cores and inner surfaces in the centre or at the base of the vessels. Tempering ranges from poorly-sorted crushed whitish stone (possibly including flint) fragments averaging 1mm across (i.e. the fragments from (102) and (118)), varying between 3mm and less than 1mm across (the fragments from (102/118) and (138)), varying between 3mm and 1mm across and also including grog (the Grooved Ware from (109), (140), (144) and (149)) and purely grog (the Beaker pottery from (144)) (Figures 33 - 36). There could be carbonised residue inside the lower section of the Grooved Ware vessel from (144).

Form

7.1.5 The Grooved Ware vessels are incomplete flat-bottomed bowls, the one from (109) being part of the upper section of the vessel with a diameter of c.240mm at the rim and the other from (144) being parts of the rim, body and base with a diameter of c.140mm at its base. Both vessels have rounded rims. The fragments from (140) and (149) could represent Beaker pottery but is too fragmentary for further comment.

Decoration

7.1.6 Decoration on the Grooved Ware vessels includes grooved lines, diagonal slashes and rows of finger-tipped impressions resembling the Durrington and Clacton sub-styles according to Longworth's scheme (Longworth 1971). The Beaker pottery has rows of 'maggot'-like impressions, each averaging 10mm in length, created by pressing whipped cord wrapped round the tip of a finger into the surface. Whilst some of the finger-tipped impressed bodysherds could be rusticated Beaker, the fabric makes a Grooved Ware attribution almost certain.

Number of vessels

7.1.7 A total of at least two, and possibly four, Grooved Ware vessels and a Beaker vessel are represented from (109), (140), (144) and (149). Single fragments of three or four other Neolithic - Early Bronze Age vessels were recovered from (102), (102/118), (118) and (138).

Discussion

7.1.8 The pottery represents types of Late Neolithic - Early Bronze Age wares that have been found elsewhere in Derbyshire, for example at Aleck Low (Hart 1981, 42-5). The remains of the vessels are too friable and fragmentary to show if they had been deliberately broken and/or selected fragments of broken vessels placed in the pit fills.



Figure 33. Several fragments of Grooved Ware pottery from (109), scale = 10cm.



Figure 34. Three fragments of Grooved Ware pottery from (140), scale = 10cm.



Figure 35. Several fragments of Grooved Ware pottery from (144), scale = 10cm.



Figure 36. Three Beaker pottery fragments from (144), scale 10cm.

7.2 Flint

Introduction

7.2.1 A total of 27 flints weighing 192.1 g was recovered (see Table 2) from the topsoil (101), subsoil (102), layers below the topsoil (118 and 140) and the fill of pits, post holes or tree throw hollows (113, 115, 117, 138 and 144) (Figure 37). Over a quarter of the assemblage dates to the Mesolithic period, whilst the remainder probably dates to the Late Neolithic -Early Bronze Age.

Type	Artefact count by Context									
	101	102	113	115	117	118	138	140	144	Total
Flake	2	1					2		1	6
Blade	2				1	1	1			5
Bladelet	2			1			1			4
Shattered piece	2									2
Core	2						1			3
End scraper						1		1		2
Thumbnail scraper	2					1				3
Misc. retouched flake								1		1
Microlith							1			1
Total	12	1	0	1	1	3	6	2	1	27
Fire-fractured flint	1		1							

Table 2. The flint assemblage by context.

Raw Material

7.2.2 The flints were mostly fashioned on brown to dark grey-brown nodular flint, sometimes with grey cherty mottles. Cortex, where present, is thin and abraded, indicating that the flint originated from glacial outwash deposits in river valleys, probably those on the eastern and western flanks of the Peak District massif, or possibly from the Trent Valley to the south. One piece, a thumbnail scraper from (118), comprises grey flint whilst a core from (101) and the blade from (118) consist of local dark grey chert.

Technology and typology

7.2.3 The nine blades had all been detached from cores using soft hammers; care was taken to prepare the platform edge of the cores by abrasion and the width of butts was minimal. The assemblage also includes a bladelet core flaked using a soft hammer in a similar way from (138) and the geometric microlith (a narrow backed rod) was fabricated on a bladelet. The flakes were struck from cores using hard, probably stone, hammers and the platform edges of the cores were not abraded before the flakes were detached. All the thumbnail scrapers, the end scraper and the miscellaneous retouched flake have been fashioned with abrupt or semi-abrupt retouch on hard-hammer detached flakes.

Discussion

7.2.4 The soft hammer-struck blades, bladelets, core and microlith probably date to the Late Mesolithic period, whilst the rest of the flints are typical of those commonly found in Late Neolithic or Early Bronze Age assemblages. The limited range of implements and the predominance of thumbnail scrapers is suggestive of specialised activities and/or selective deposition taking place at the site.



Figure 37. Flint from context (138) (left), context (140) (middle) and context (118) (right), scale = 10cm.

7.3 Worked Stone

7.3.1 An oval-shaped quartzite pebble from (138), measuring 46mm by 290mm by 220mm and weighing 48.23g, has markings at one end indicating its use as a hammerstone, probably for flaking flint.

7.4 Charcoal and Plant Macrofossil Assessment

Elise McLellan

Introduction

7.4.1 This report presents the results of charcoal and plant macrofossil analysis. The sampled material included bulk soil samples as well as some hand-collected charcoal. Palaeoenvironmental samples were taken from 16 contexts, including pit features, three possible post-hole features and two possible tree-throws. These features are of possible Neolithic origin, with many features producing pottery and evidence for burning activity. Hazelnut shell was identified in two contexts, providing evidence for wild-gathered foods. Highly vitrified charred root/rhizome fragments were identified in context (126), potentially indicating the use of turves as fuel. Suitable material for radiocarbon dating was recovered from many contexts due to the presence of hazelnut shell, charred round-wood, and an abundance of charcoal from short-lived tree species.

Methods

7.4.2 Environmental samples were processed via flotation through a 500µm sieve. Flots were allowed to air dry and 100% scanned using a low power binocular microscope (x40). All plant taxonomic nomenclature follows Stace (1997). Plant macrofossils identification was completed with plates and guides from Martin and Barkley (2000) and Cappers *et al.* (2006). The results of plant macrofossil analysis are presented in Table 3.

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

Context	109	111	113	115	117	120	122	124	126	136	138	139	140	141	144	146
Feature	Small pit	Small pit	Small pit	Pit	Small tree throw	Pit	Small pit	Small pit	Small pit	Pit	Tree throw	Pit	Silt deposit	Post hole	Post hole	Post hole
Radiocarbon Dating Potential	Good	Good	Good	Fair	None	Good	Fair	Poor	Good	Fair	Fair	Fair	Fair	Poor	Good	Fair
Charcoal*	++++	+++	+++	+	-	++++	++	+	+	+++	+	+++	++	+	+++	++
Hazel nutshell	6	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charred root/rhizome	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Burnt bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Modern seeds	2	1	-	1	2	1	-	-	-	-	-	-	-	-	-	-
Modern roots*	++++	++	+	++	+++	++++	++	-	+	++	-	+	-	-	+++	++

Table 3. Results of plant macrofossil analysis
 *+ = <10; ++ = 10-25; +++ = 26-50; ++++ = >50

7.4.3 Charcoal was fractured to obtain clean sections and identified using a high power Leica GXML3030 binocular microscope (up to x600). Charcoal identification was completed following plates and guides from Schweingruber (1990). A representative sample of ten charcoal fragments from each context was identified to species, when possible. The results of charcoal identification are presented in Table 4.

7.4.4 Material suitable for radiocarbon dating was cleaned and wrapped in aluminum foil. Material for radiocarbon dating was classified as either “good”, “fair”, “poor”, or “none” where no suitable material was present (see Table 1). Material classified as “good” comprises samples which provide the most accurate dates, in this case hazelnut shell and charred roundwood. Stemwood charcoal from short-lived tree species was classified as “fair” and may be used for radiocarbon dating. Stemwood charcoal from long-lived tree species was classified as “poor” and is not recommended for use in radiocarbon dating.

Results

7.4.5 All sampled contexts, with the exception of (117), produced evidence for burning activity. The charcoal represents a variety of predominantly short-lived species. The species listed in order of abundance included hazel, birch, Maloideae (hawthorn, whitebeam and apple), oak, poplar/aspens/willow, and the cherry family (wild and bird cherry, blackthorn). In context (111) two cherry family charcoal fragments were positively identified as wild cherry (*Prunus avium*). All four charcoal fragments identified from context (124) represent box tree. Box tree is native to Britain, however its presence at such an early date and as far north as Derbyshire is highly unusual (Preston *et al.* 2002). As box tree is found in no other contexts, and as (124) was a poorly defined feature with the charcoal located within a small patch, this material is likely intrusive and not Neolithic in origin.

7.4.6 Only three contexts yielded charred plant macrofossils. A small amount of hazelnut shell was present in contexts (109) and (111), in association with Neolithic pottery. This indicates that hazelnuts were being collected as a wild food source. Two highly vitrified root/rhizome fragments from context (126) indicate the possible use of turves as fuel, especially as vitrification indicates burning at a high temperature. Extremely small fragments of burnt bone were recovered from context (144), which also produced pottery and a large amount of charcoal. No cereal grains or charred weed seeds were identified. The well-drained nature of the soils and the presence of modern roots indicates the identified uncharred seeds (species of sedge and knotweed) are modern in origin.

7.4.7 Material suitable for radiocarbon dating was recovered from 13 contexts: 109, 111, 113, 115, 120, 122, 126, 136, 138, 140, 144, 146 and 149.

Discussion

7.4.8 The presence of charred hazelnut shells as evidence of wild gathered foods is typical of Neolithic sites (Hall and Huntley 2007). The use of turves as fuel is less firmly established; however charred roots and rhizomes have indicated the burning of turves

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

Context	109	111	113	115	117	120	122	124	126	136	138	139	140	141	144	146	
Feature	Small pit	Small pit	Small pit	Pit	Small tree throw	Pit	Small pit	Small pit	Small pit	Pit	Tree throw	Pit	Silt deposit	Post hole	Post hole	Post hole	Total
<i>Quercus</i> (oak)	5	3	4	1		1											14
<i>Corylus</i> (hazel)		3	1	2		2	6			2	2	1	5		5	8	37
<i>Betula</i> (birch)			1	1			1			6		7			3	2	21
Maloideae (hawthorn, whitebeam, apple)	2			2		4				1	2	2	1		1		15
<i>Populus/Salix</i> (popular/aspens/willow)	1		2										2	1			6
<i>Fagus</i> (beech)	2			2							1						5
<i>Prunus</i> (cherry, blackthorn)		3								1			1				5
<i>Alnus</i> (alder)		1															1
<i>Ulmus</i> (elm)			2			1											3
<i>Cornus sanguinea</i> (dogwood)						1											1
<i>Buxus sempervirens</i> (box)								4									4
<i>Fraxinus</i> (ash)													1				1
Indeterminate				1		1	3		1	1				1	1		9

Table 4. Results of charcoal analysis

at other sites in the British Neolithic (eg. Harding and Healy 2013). A wide variety of tree species were found at this site, indicating the site was situated in mixed woodland, likely of oak with an understory of hazel, birch and Maloideae species. The smaller, shorter-lived species are more common in the charcoal assemblage and were likely more commonly used as fuel. The burnt bone recovered from context (144) in association with pottery and charcoal may represent a cremation burial or a deposit of burnt bone from food waste. The bone fragments were extremely small and it was not possible to identify the element or species. There was no indication of agricultural activity occurring at the site as no cereal grains, seeds from other cultivated species, or archaeological weed seeds were identified.

7.4 Radiocarbon Dating

Scottish Universities Environmental Research Centre (SUERC)

7.4.1 Two samples (see Table 5) were submitted for radiocarbon determination to the Scottish Universities Environmental Research Centre (SUERC). The samples were measured by AMS as described by Zondervan and Sparks (1997). The laboratory maintains a continual programme of quality assurance procedures and takes part in all international inter-calibration studies. The calibrated age ranges were determined using the Oxford University Radiocarbon Accelerator Unit calibration program OxCal4.2.

Objectives

7.4.2 The scientific dating programme aimed to establish the date of the two samples in order to determine the probable date of the features from which the samples were obtained.

Results

7.4.3 The radiocarbon dating results are given in Table 5 and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977).

Context	Material	Lab Code	$\delta^{13}\text{C}$ (‰)	Radiocarbon Age (BP)	Calibrated date range 95.4%
109	Charred hazelnut shell: <i>Corylus avellana</i>	SUERC-61183 (GU37953)	-26.0	3721 ± 29	cal BC 2201 – 2032 (95.4%)
149	Charred wood: <i>Betula sp.</i>	SUERC-61187 (GU37954)	-24.6	4199 ± 29	cal BC 2893 - 2678

Table 5. Radiocarbon dates.

Calibration

7.4.4 The calibrations of the results, relating the radiocarbon measurements directly to calendar dates, are given in Table 5 and in Figures 36-37. All have been calculated using the calibration curve IntCal 13 (Reimer *et al.* 2013) and the computer program OxCal v4.2 (Bronk Ramsey 1995; 1998; 2001; Bronk Ramsey and Lee 2013). The calibrated date ranges are quoted in the form recommended by Mook (1986) with the end points rounded outwards to 1 year.

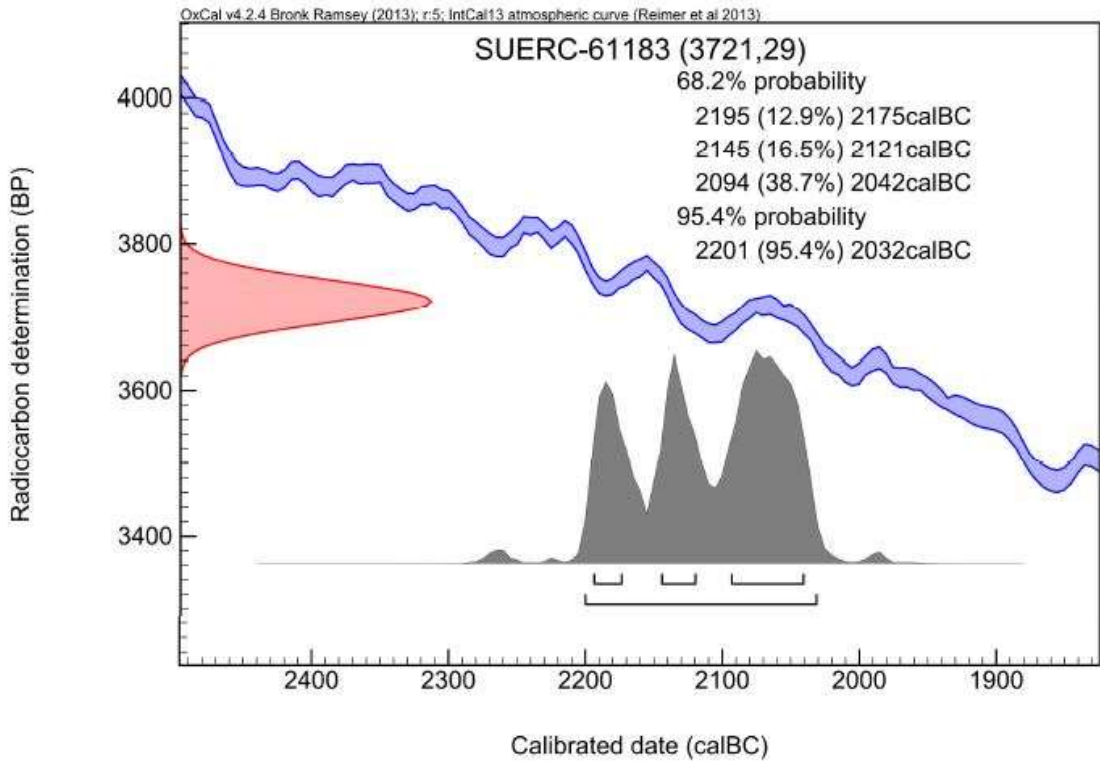


Figure 36: Calibration plot for charred hazelnut shell *corylus avellana* from context (109).

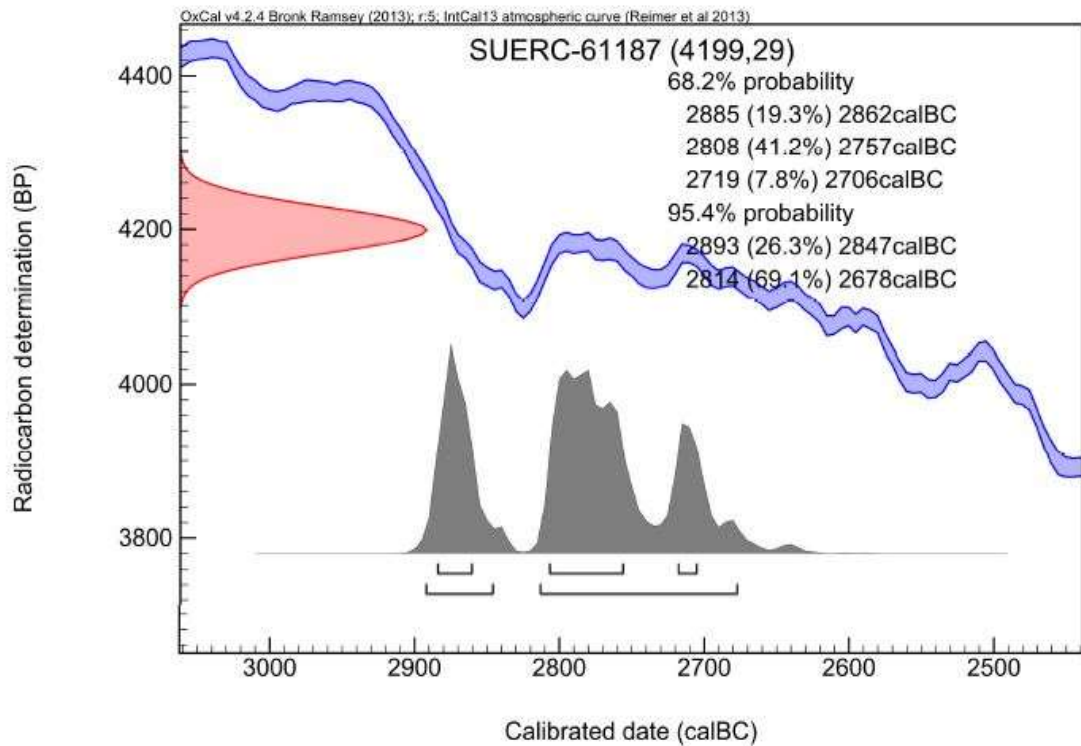


Figure 37: Calibration plot for charred wood *betula sp* from context (149).

8. DISCUSSION

8.1 Though only six features contained pottery, the amount of pottery and its concentrations suggests that these features were associated with multi-phase prehistoric settlement. It is difficult to interpret and form any structures from the small amount of truncated and disturbed postholes found. The evidence of large pieces of charred material have helped to provide important dates for this settlement activity along with the pottery. The Grooved Ware from pit (139) is associated with the date of 2893-2678 cal BC (95.4% probability) which places it in the Late Neolithic period. The type of tree cover in the area during the 3rd millennium cal BC is evidenced by the species found in the environmental sampling, being predominantly hazel and birch. The topsoil and subsoil contained 13 flints some of which are residual material from the Mesolithic whilst the rest of the assemblage is typical of Neolithic settlement sites with a range of processing tools and evidence of stone tool manufacture present.

8.2 The two possible three throws, F137 and F139, found on site contained numerous struck lithics, which are similar to finds on other ephemeral Neolithic settlement sites. Evidence has been found to suggest people were using these freshly made holes after the trees had been blown over as shelters, with flint knapping occurring there, with core debitage being found within three throw fills.

8.3 Publication of these results with those from further phases of topsoil stripping at the quarry is an important priority.

9. PUBLICITY, CONFIDENTIALITY AND COPYRIGHT

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Appendix I

Context Register

Context/ Feature No.	Context Description	Notes
(101)	Topsoil	Dark - Mid brown slightly clayey silt, occasional to rare flints, metal objects, coal and small stones.
(102)	Subsoil	Mid orange brown slightly clayey silt.
(103)	Natural	Natural orange silty clayey, some patches of reddish pink clay within this, lying on limestone bedrock.
[104]	Cut for small pit	Sub-circular pit c. 0.6m in diameter, depth of 0.2m, roughly bowl shaped.
(105)	Mid brown slightly clayey silt	Pit fill, not excavated, machined away.
[106]	Cut for small, shallow pit	Sub-circular pit c. 1.1m in length, greater than 0.6m in width, with a depth of 0.3m, bowl shaped cut with stepped sides to a flat base
(107)	Mid brown slightly clayey silt	Fill of shallow pit not excavated, recorded in section only.
[108]	Cut for small roughly circular pit	Cut for small sub-circular pit, 0.47m in diameter, 0.18m deep, U shaped cut with steep sides to a flat base that was disturbed on its SW side by animal burrowing.
(109)	Mid yellowy/orange brown slightly clayey silt.	Pit fill contained flecks, fragments of charcoal, including nutshell and 6 x pottery fragments.
[010]	Cut for small sub-circular pit	Cut for small sub-circular pit, 0.53m in length, 0.5m in width, with a depth of 0.15m; bowl shaped cut with gradually sloping SW side, steeper edge on the NE with a generally flat base that was disturbed on its edges by animal burrowing and roots.
(111)	Mid to pale orangey brown slightly clayey silt.	Pit fill contained flecks, fragments of charcoal, charred hazel nutshell fragments present.
[112]	Cut for small sub-circular pit	Cut for small sub-circular pit, 0.7m in length, 0.5m in width, with a depth of 0.20m; U shaped cut with steep edges, slight stepped SW side, going to a flat base that was disturbed on its edges by animal burrowing and roots.
(113)	Mid orangey brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal, including nutshell and rare burnt stone.
[014]	Cut for small/medium roughly circular pit	Cut for sub-circular pit, 1m in length, 0.86m in width, with a depth of 0.2m; bowl shaped cut with gradually sloping sides to a concave base.
(115)	Mid orange brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal.
[116]	Cut for possible tree-throw pit	Cut for sub-circular pit, 1m in length, 0.75m in width, with a depth of 0.13m; slight kidney shaped cut with gradually sloping sides to an undulating base, that was disturbed on its edges by animal burrowing and roots.
(117)	Pale orange brown silt	Fill of possible small tree throw, difficult to discern fill from natural subsoil, 1 x flint blade present towards the base of the pit.
(118)	Mixed dirty natural, pale brown- beige orange, slightly clayey	Layer surrounding concentration of features, assigned number due to lithics being found within it upon cleaning. Subsoil has been subjected to frequent disturbance form

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

	silt subsoil	bioturbation.
[119]	Cut for medium sub-circular pit	Cut for sub-circular/irregular shaped pit, 1.3m in length, 1.1m in width, with a depth of 0.2m; bowl shaped cut with gradually sloping sides to a concave base.
(120)	Mid brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal, a dense concentration of which was seen on the base of the south edge.
[121]	Cut for small sub-circular pit	Cut for small sub-circular/irregular shaped pit, 0.7m in length, 0.35m in width, with a depth of 0.21m; U shaped cut with steep edges.
(122)	Mid orangey brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal.
(123)	Cut for small roughly circular pit/post-hole	Sub-circular pit 0.2m in diameter, depth of 0.08m, roughly bowl shaped.
(124)	Mid orangey brown slightly clayey silt	Pit/PH fill contained flecks, fragments of charcoal. (one intrusive box hedge? EM)
(125)	Cut for small sub-circular/oval pit	Cut for small sub-circular/oval pit, 0.9m in length, 0.5m in width, with a depth of 0.1m; bowl shaped cut with gradually sloping sides to a concave base.
(126)	Mid orangey brown slightly clayey silt	Pit fill with burnt stained reddish brown silt patches on its edges, contained flecks of charcoal.
(127)	Probable sink-hole natural cut	Linear length of pinkish brown stained clay c. 2.6m in length, 0.6m in width, depth of 0.9m into the sinkhole
(128)	Mid brown silt fill on top of pinkish clay	Upper fill of mid brown silt lying upon colluvial fill on top of pinkish clay lying on the natural limestone
[129]	Cut for small roughly circular pit	Cut for small roughly circular pit, 0.8m in length, 0.74m in width, with a depth of 0.25m; bowl shaped cut with gradually sloping sides to a concave base. On base animal burrowing disturbance.
(130)	Pale orange brown silt fill	Dubious pit fill, no charcoal, rare small stones.
[131]	Cut for small sub-circular/oval pit	Cut for small sub-circular/oval pit, 0.58m in length, 0.34m in width, with a depth of 0.1m; bowl shaped cut with gradually sloping sides to a concave base. On base animal burrowing disturbance.
(132)	Pale orange brown silt fill	Dubious pit fill, no charcoal, rare small stones.
[133]	Cut for small sub-circular pit	Cut for small sub-circular/oval pit, 0.70m in length, 0.67m in width, with a depth of 0.54m; U shaped cut with steeply sloping sides to a pointed concave base. On base animal burrowing disturbance.
(134)	Mid orangey brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal.
[135]	Cut for small sub-circular/oval pit	Cut for small sub-circular/oval pit, 0.75m in length, 0.75m in width, with a depth of 0.2m; bowl shaped cut with gradually sloping sides to a concave base. On base animal burrowing disturbance.
(136)	Mid orangey brown slightly clayey silt	Pit fill contained flecks, fragments of charcoal.
[137]	Cut for medium sized sub-circular/oval pit-possible tree throw	Cut for medium sized sub-circular/oval pit, 2.54m in length, 1.5m in width, with a depth of 0.18m; irregular bowl shaped cut with stepped edges on the SE and NW sides gradually sloping to an uneven base. On base animal burrowing disturbance.
(138)	Mid - pale orangey	Pit fill contained flecks, fragments of charcoal, 1 x pottery

An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire

	brown slightly clayey silt with a small rounded burnt patch on the surface.	sherd was found on the surface of the feature, 5 x flint flakes and core, 1 x microlith SF 3 and small burnt stones, 1 x small slightly burnt pebble appears to have been used as a hammer stone.
(139)	Dark – mid brown slightly clayey silt, blackish patches of silt and charcoal present.	Fill of shallow scoop/small posthole/pit contained a large percentage of pottery and frequent charcoal fragments. 1 x flint?
(140)	Mid to dark orangey brown slightly clayey silt	Spread of material which looked very similar to subsoil above the features spread over an area of c.8.6m in length with a maximum width of c. 3m with varying thicknesses throughout, maximum depth of 0.16m.
[141]	Small Pit/posthole cut	Cut was roughly circular, 0.1m x 0.11m with a depth of 0.1m
(142)	Dark – mid brown slightly clayey silt, blackish patches of silt and charcoal present.	PH fill contained flecks, fragments of charcoal.
[143]	Small oval Pit/posthole cut	Cut was oval in shape, 0.5m x 0.26m with a depth of 0.25m, with a possible stakehole cut on the concave base 0.09m in diameter.
(144)	Dark – mid brown slightly clayey silt, blackish patches of silt and charcoal present.	PH fill contained frequent flecks, fragments of charcoal, pottery was found on the surface of the animal disturbance, lower in the fill there were more pottery inclusions and a medium sized flatish stone which covered more pottery, tiny fragments of white charred/cremated bone and charcoal and beneath this was a possible stake hole. Burnt patches of reddish silt were visible in the lower reaches of the fill.
[145]	Small oval Pit/posthole cut	Cut was oval in shape, 0.2m x 0.18m with a depth of 0.07m
(146)	Dark – mid brown slightly clayey silt, blackish patches of silt and charcoal present.	PH fill contained frequent flecks, fragments of charcoal
[147]	Cut for squared p-med/modern feature	Cut was 2.8m x 2.5m in width with a depth of over 1.2m, steep edges.
(148)	Limestone fill amidst dark brown silt	Limestone fill amidst dark brown silt with occasional burnt shale type material within the upper reaches of the fill.
[149]	Cut for shallow oval scoop/small pit/posthole	Cut for oval shallow scoop, 0.3m in length, 0.15m in width, 0.08m in depth

Appendix II

Written Scheme of Investigation



Brierlow Quarry, Buxton, Derbyshire

Written Scheme of Investigation

April 2015

1 Introduction

- 1.1 This scheme of works relates to the proposed groundworks at Brierlow Quarry, Buxton, Derbyshire, SK17 0EL. The quarry had previously been identified during the Review of Old Minerals Permissions by the Minerals Planning Authority as warranting archaeological mitigation should the quarry or associated works ever be extended. The groundworks will comprise of a topsoil and subsoil strip of two areas of land (totalling c.8000m²) for future drilling and blasting (see Figure 1: Areas 1 and 2). It is proposed to strip Area 1 in Spring 2015 and Area 2 at a later date, possibly Autumn 2015. Area 2 would be stripped up to the double trackway immediately to the north. The area of the potential Roman road will not be stripped for a good few years yet; the works required in undertaking the archaeological survey work and trenching required to mitigate the area of the Roman road in advance of soil stripping would be the subject of a separate Written Scheme of Investigation.
- 1.2 The document comprises a Written Scheme of Investigation (WSI) confirming the nature of the archaeological monitoring to be undertaken in the two areas (Areas 1 and 2) during a watching brief by Archaeological Research Services Ltd (ARS Ltd) at Brierlow Quarry, Buxton (Figure 1) in accordance with guidance received from Dr Dave Barrett, the Derbyshire County Archaeologist.
- 1.3 The aim of the programme of works is, in line with the National Planning Policy Framework (NPPF) paragraph 141 (CLG 2012), to record and enhance understanding of the significance of any heritage assets to be lost during the proposed development in a manner proportionate to their importance, and to make this evidence (and any archived generated) publically accessible.

2 Background

- 2.1 The site is centred at NGR SK 08935, 69011 (Figure 1). The underlying geology of the area to be stripped is comprised of Bee Low Limestone Formation Limestone (BGS 2015). This type of limestone is generally rich in prehistoric remains including burial mounds and remains of later periods.
- 2.2 ARS Ltd had previously been commissioned to carry out a watching brief at Brierlow Quarry in September of 2010. The watching brief, carried out to the west of Area 2, recovered 71 lithics, suggesting that the assemblage might have

originated from either a Neolithic or Bronze Age settlement site in the vicinity. Additionally, the watching brief revealed an intermittent, shallow and ephemeral linear gully, located on the putative alignment of the Roman Road known as 'The Street', running from Buxton to Derby Roman road. This feature, similar to other examples of Roman roads in Derbyshire, had no further evidence present generally associated with a Roman road, and is probably a natural feature (Mora-Ottomano 2010).

3 Objectives

- 3.1 The objective of the watching brief is to ensure that any archaeological remains encountered during the course of the ground work are not destroyed without first being recorded and interpreted.
- 3.2 The watching brief will involve continuous monitoring during ground works, to be re-assessed and potentially to take place on an intermittent basis depending upon the nature of the deposits encountered on site with visits to be agreed on site, and in discussion with the Derbyshire County Archaeologist, in order to monitor an appropriate proportion of groundwork elements or focused upon areas of identified potential.

4 Fieldwork methodology

- 4.1 Topsoil will be removed mechanically by a machine equipped with a smooth (or toothless) ditching bucket under continuous archaeological supervision to identify any possible scatters of flint artefacts within the topsoil. This will continue in successive level spits down to the first significant archaeological horizon. The exposed surface will be cleaned using appropriate hand tools for the purpose of identifying any archaeological remains. If significant archaeological features are identified, the Derbyshire County Archaeologist will be notified and a decision taken as to the best method of proceeding.
- 4.2 ARS Ltd will provide a suitably qualified archaeologist during ground works on the site to undertake a watching brief. The on-site archaeologist will be fully apprised of the archaeological potential of the site. The 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.
- 4.3 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 and the relevant Chartered Institute for Archaeologists guidance upon pro forma context sheets (this will include at a minimum context record sheets, an accurate site plan and record photography where no archaeological features are present).
- 4.4 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. All significant archaeological features will be photographed (with scale) *in situ* and their location recorded on a plan of the site.

- 4.5 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). Brick samples will be taken for structures likely to pre-date the mid-19th century.
- 4.6 Site photography will be in high resolution (7 megapixel or greater) colour DSLR photography. Photography will include general site shots, shots of the excavation area and shots of individual features and groups of features. All photographs will include a suitable photographic scale (where appropriate) and will be recorded on a photographic register with the subject and direction of each shot.
- 4.7 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. Sample representative levels will be taken to record the maximum depth of excavation and /or natural should no archaeological features be uncovered. 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.
- 4.8 The watching brief will be undertaken in accordance with the Chartered Institute for Archaeologists *Code of Conduct* (2014a) and *Standards and Guidelines for Archaeological Watching Briefs* (2014b).
- 4.9 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 and in discussion with the Derbyshire Development Control Archaeologist.
- 4.10 Finds of "treasure" will be reported to the Coroner in accordance with the Treasure Act procedures.
- 4.11 ARS 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 archaeologist on site. Regular contact will be ensured between ARS Ltd. and the site project manager to ensure that ARS Ltd. is kept up to date with site works and given the chance to respond appropriately and in line with the Derbyshire Development Control Archaeologist requirements.

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

Finds Processing and Storage

- 4.13 All finds processing, conservation work and storage of finds will be carried out in accordance with the CIFA (2014c) *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* and the UKIC (1990) *Guidelines for the Preparation of Archives for Long-Term Storage*.
- 4.14 Artefact collection and discard policies will be appropriate for the defined purpose.
- 4.15 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.
- 4.16 All small finds will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.
- 4.17 During and after the fieldwork all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.
- 4.18 The deposition and disposal of artefacts will be agreed with the legal owner and Buxton Museum and Art Gallery prior to the work taking place. All finds except treasure trove are the property of the landowner.
- 4.19 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

5 Monitoring Arrangements

- 5.1 At least one week prior notice of the commencement of the ground works will be given to the Derbyshire County Archaeologist:
Dr Dave Barrett
Derbyshire County Council
Shand House
Dale Road South
Matlock
Derbyshire
DE4 3RY
Tel: 01629 539773.

- 5.2 ARS Ltd will liaise with the Derbyshire County Archaeologist at regular intervals throughout the course of the work.
- 5.3 The client will afford reasonable access to the Derbyshire County Archaeologist, or his representative, for the purposes of monitoring the archaeological mitigation.

6 Staffing

- 6.1 The Project Manager for the watching brief will be Christ Scott BA MA MCIFA, Operations Manager at ARS Ltd. The Fieldwork Project Officer will be Paula Whittaker, Projects Officer at ARS Ltd.
- 6.2 Finds analysis will be carried out by appropriately qualified specialists as detailed subject to availability.
- | | |
|---------------------------------------|---|
| • Flint and prehistoric pottery: | Dr Clive Waddington MCIFA |
| • Romano-British pottery: | Ruth Leary |
| • Samian ware: | Gwladys Monteil |
| • Roman small finds: | Lisa Watling |
| • Medieval and post-medieval pottery: | Dr Chris Cumberpatch or
Dr Robin Holgate MCIFA |
| • Clay pipes: | Mike Wood MCIFA |
| • Industrial Remains: | Chris Scott MCIFA |
| • Plant macrofossils and charcoals: | Elise McLellan |
| • Molluscs: | Dr Andy McWilliams |
| • Human and animal bone: | Milena Grzybowska |
| • Radiocarbon dating: | SUERC |
| • Finds conservation: | Dr Jenny Jones,
Durham University |

7 Report

- 7.1 Following completion of the watching brief, ARS 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 and any archaeological features with respect to nearby fixed structures and roads
 - Illustrations of all archaeological features with appropriately scaled hachured plans and sections
 - 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 OASIS form

- 7.2 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Derbyshire Historic Environment Record (HER). A copy of the report should be uploaded as part of the OASIS record (see 8.5 below).

8 Archive Deposition

- 8.1 Should the project produce no archaeologically significant finds, then it is not necessary to deposit an archive with the repository museum, which in this case is the Buxton Museum and Art Gallery. This is in line with the Museums of Derbyshire (2003) *Procedures for the Transfer of Archaeological Archives* and its 2014 addendum.
- 8.2 If the project produces archaeologically significant finds, then the Derbyshire County Archaeologist and Museum Curator will be notified at the earliest opportunity, and an accession number will be produced for the site. In addition, a digital, paper and artefactual archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data (in a format to be agreed by the Buxton Museum and Art Gallery). The archive will be deposited in line with the CIFA (2014d) *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*, Society of Museum Archaeologists (1993) *Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland* and Museums of Derbyshire (2003) *Procedures for the Transfer of Archaeological Archives* and its 2014 addendum and will be deposited within two months of the completion of the report. The Derbyshire Development Control Archaeologist and Museum Curator will be notified in writing on completion of the fieldwork with projected dates for the completion of the report and deposition of the archive. The date for deposition of the archive will be confirmed in the report and the Derbyshire Development Control Archaeologist informed in writing on final deposition of the archive.
- 8.3 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive (see 4.13-4.19 above).
- 8.4 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be deposited with the archive as digital images on a CD ROM.
- 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 General Items

Health and Safety

- 9.1 All work will be carried out in accordance with The Health and Safety at Work Act 1974. Specific health and safety policies exist for all out workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork. ARS Ltd retains Peninsula as its expert health and safety consultants.

Insurance Cover

- 9.2 ARS Ltd has full insurance cover for employee liability public liability, professional indemnity and all-risks cover.

10 Changes to the Written Scheme of Investigation

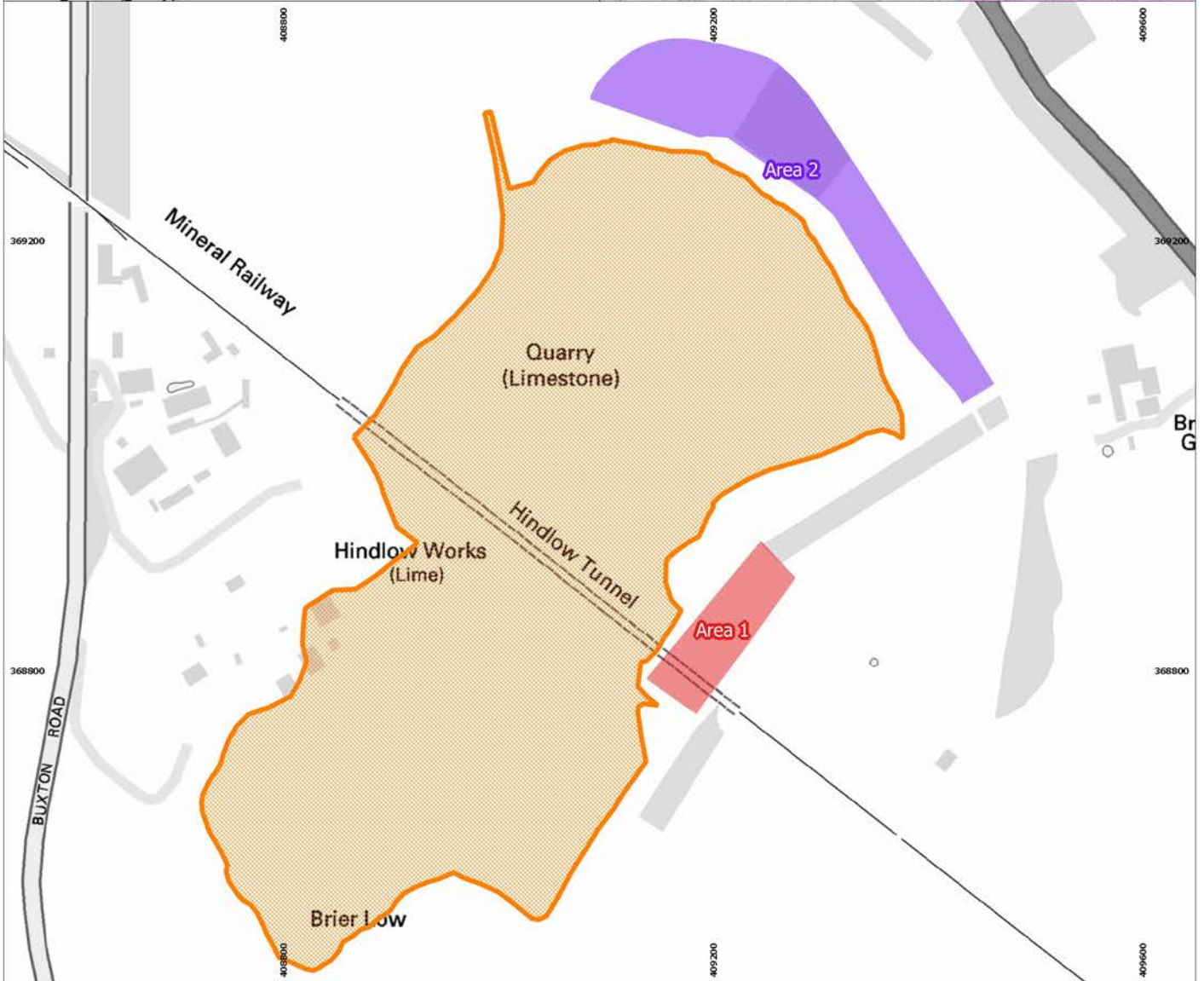
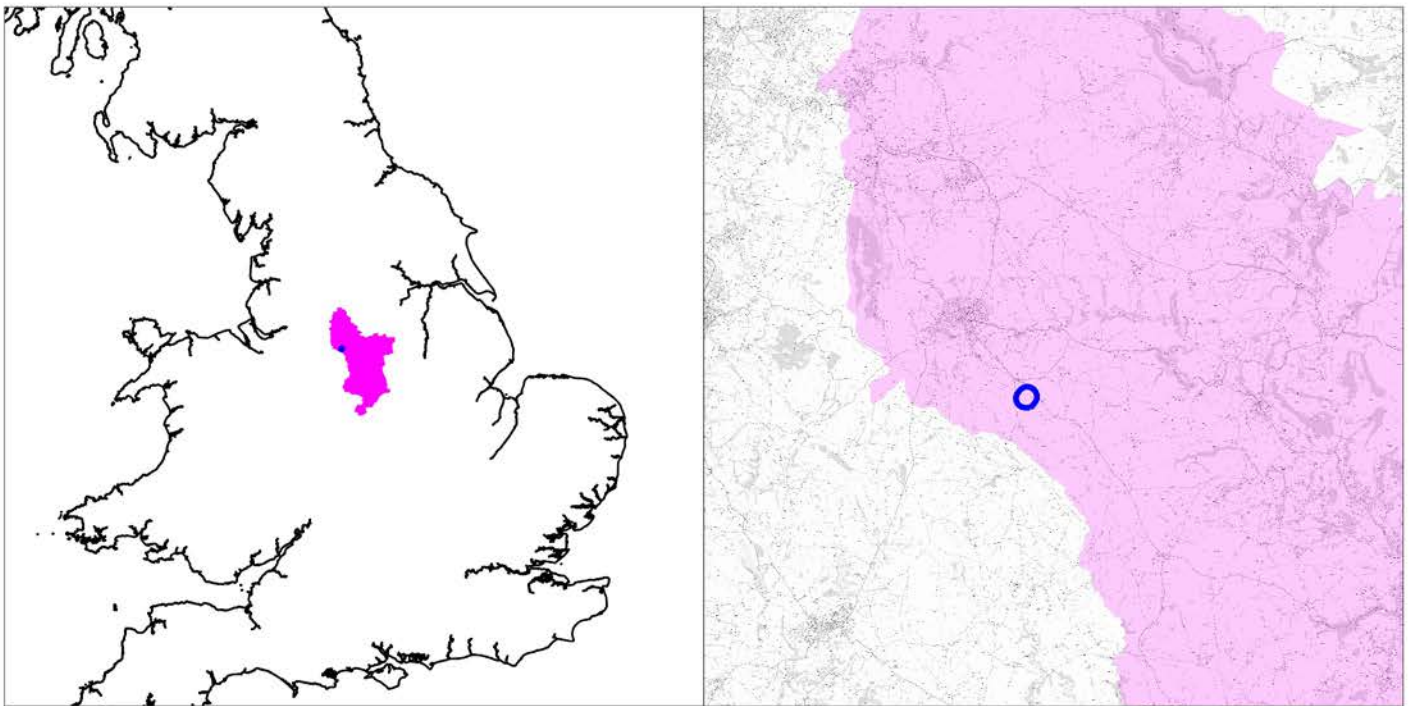
- 10.1 Changes to the approved methodology or programme of works will only be made with prior written approval of the Derbyshire County Archaeologist.

11 Publication

- 11.1 If significant archaeological remains are recorded, a summary of the project with, if appropriate, selected drawings, illustrations and photographs will be submitted within 2 years of the completion of the project to Derbyshire Archaeological Journal for publication.

12 References

- British Geological Survey 2015. Geology of Britain viewer. Available online at: <http://mapapps.bgs.ac.uk/geologyofbritain/home/html> [Accessed 14 April 2015].
- Chartered Institute for Archaeologists (CIfA) 2014a. *Code of Conduct*. Reading, Institute for Archaeologists.
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- Department for Communities and Local Government (CLG). 2010. *Planning Policy Statement 5: Planning for the Historic Environment*. London, The Stationery Office.
- English Heritage 2011. *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from sampling and recovery to post excavation (second edition)*. Centre for Archaeology Guideline).
- Mora-Ottomano, A. 2010. *An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire*. ARS Ltd Report No. 2010/52.
- Museums in Derbyshire 2003. *Procedures for the Transfer of Archaeological Archives*. Matlock, Derbyshire County Archaeological Services.
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- Society of Museum Archaeologists 1993. *Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*. London: Society of Museum Archaeologists.
- United Kingdom Institute for Conservation. 1990. *Guidelines for the Preparation of Archives for Long-Term Storage*.



Site name: LHS Hindlow Quarry
 Date: April 2015
 Drawn by: MB
 Scale: Varies

 Derbyshire
 Existing Quarry

 Watching Brief Area 1 
 Watching Brief Area 2

Archaeological Research Services Ltd

Angel House
 Portland Square
 Bakewell
 Derbyshire
 DE45 1HB



Tel: 01629 814540

www.archaeologicalresearchservices.com

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Figure 1:
Site location

Appendix III

OASIS

OASIS DATA COLLECTION FORM: England

[List of Projects](#) | [Manage Projects](#) | [Search Projects](#) | [New project](#) | [Change your details](#) | [HER coverage](#) | [Change country](#) | [Log out](#)

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OASIS ID: archaeol5-243790

Project details

Project name	An Archaeological Watching Brief at Brierlow Quarry, Buxton, Derbyshire
Short description of the project	Watching brief carried out during a topsoil strip prior to quarrying activity. Several Neolithic pit features were identified which yielded flints, pottery and charred botanical remains.
Project dates	Start: 01-06-2015 End: 30-06-2016
Previous/future work	Yes / Not known
Any associated project reference codes	archaeol5 – 81020 - OASIS form ID
Type of project	Recording project
Current Land use	Industry and Commerce 5 - Mineral extraction
Monument type	PIT Neolithic
Significant Finds	POT Neolithic
Significant Finds	LITHIC IMPLEMENT Neolithic
Investigation type	"Watching Brief"
Prompt	General structure plan/local plan/minerals plan guidance

Project location

Country	England
Site location	DERBYSHIRE HIGH PEAK BUXTON Brierlow Quarry
Study area	0 Square metres
Site coordinates	SK 08935 69011 53.217795733657 -1.866173845195 53 13 04 N 001 51 58 W Point
Height OD / Depth	Min: 390m Max: 401m

Project creators

Name of Organisation	Archaeological Research Services Ltd
----------------------	--------------------------------------

Project brief originator	Archaeological Research Services Ltd
Project design originator	Archaeological Research Services Ltd
Project director/manager	Dr. Robin Holgate
Project supervisor	Paula Whittaker
Type of sponsor/funding body	Landowner
Name of sponsor/funding body	Lhoist UK Ltd
Entered by	Elise McLellan (elise@archaeologicalresearchservices.com)
Entered on	24 February 2016

OASIS:

Please e-mail [Historic England](#) for OASIS help and advice

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Cite only: <http://www.oasis.ac.uk/form/print.cfm> for this page