Doveholes Quarry, Derbyshire

Report on an Archaeological Earthwork Survey

Looking south across survey Area F and into the modern Doveholes Quarry.

ARS Ltd Report No. 2013/38
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Doveholes Quarry, Derbyshire

Report on an Archaeological Earthwork Survey

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EXECUTIVE SUMMARY

In August 2013 Archaeological Research Services Ltd (ARS Ltd) were commissioned by CEMEX (UK) Ltd to undertake an interpretive earthwork survey of the known archaeological remains of probably post-medieval quarrying and lead mining in a series of land parcels around Doveholes Quarry near Buxton, Derbyshire (centred SK08867871). This work followed a ROMP overview, during which a scheme of works for earthwork survey and monitoring of groundworks was agreed.

All the earthwork features recorded related to either small-scale quarrying or lead extraction of probably post-medieval date. The combination of limestone quarrying and ad hoc lead extraction in the same area indicates that these workings were undertaken by local landowners acting as 'farmer-miners'. Although such small-scale extraction inevitably will have taken place during medieval and earlier periods, the character of the remains observed across the survey area fits into a post-medieval context. This is particularly true of some of the quarry scoops which respect enclosure-period field boundaries. The time-depth visible within the remains, where evidence for quarrying can both underlie and cut lead mining earthworks, suggests a narrative of opportunistic exploitation of the natural resource.

The survey has achieved its stated aim of providing a metrically accurate, interpretive record of the earthwork remains within the project area. Although of local interest and significance, and given the existing watching brief condition which will allow for monitoring of groundworks in these area, it is not considered that there needs to be any further recording work beyond that already agreed.

1. INTRODUCTION

1.1 Project Background

1.1.1 In August 2013 Archaeological Research Services Ltd (ARS Ltd) were commissioned by CEMEX (UK) Ltd to undertake an interpretive earthwork survey of the known archaeological remains of probably post-medieval quarrying and lead mining in a series of land parcels around Doveholes Quarry near Buxton, Derbyshire (centred SK08867871). This work followed a ROMP overview, during which a scheme of works for earthwork survey and monitoring of groundworks was agreed. This scheme of works is attached to this report as Appendix 1.

2. LOCATION, LAND USE AND GEOLOGY

2.1 Location

2.1.1 The application area comprises three discrete parcels of land which have been further subdivided based on the earthworks present into six survey areas (Area A-F) within the existing permission of Doveholes Quarry (Fig. 1). The northern and eastern areas surround the old Beelow Quarry complex and the western area lies adjacent to a previously worked part of Doveholes Quarry. The centre points of each survey area are given in the table below and a plan of each area accompanies the results in section 6.

Survey Area	Centre point
A	SK0285878539
B	SK0885179043
C	SK0893479202
D	SK0924879332
E	SK0939979114
F	SK0944478755

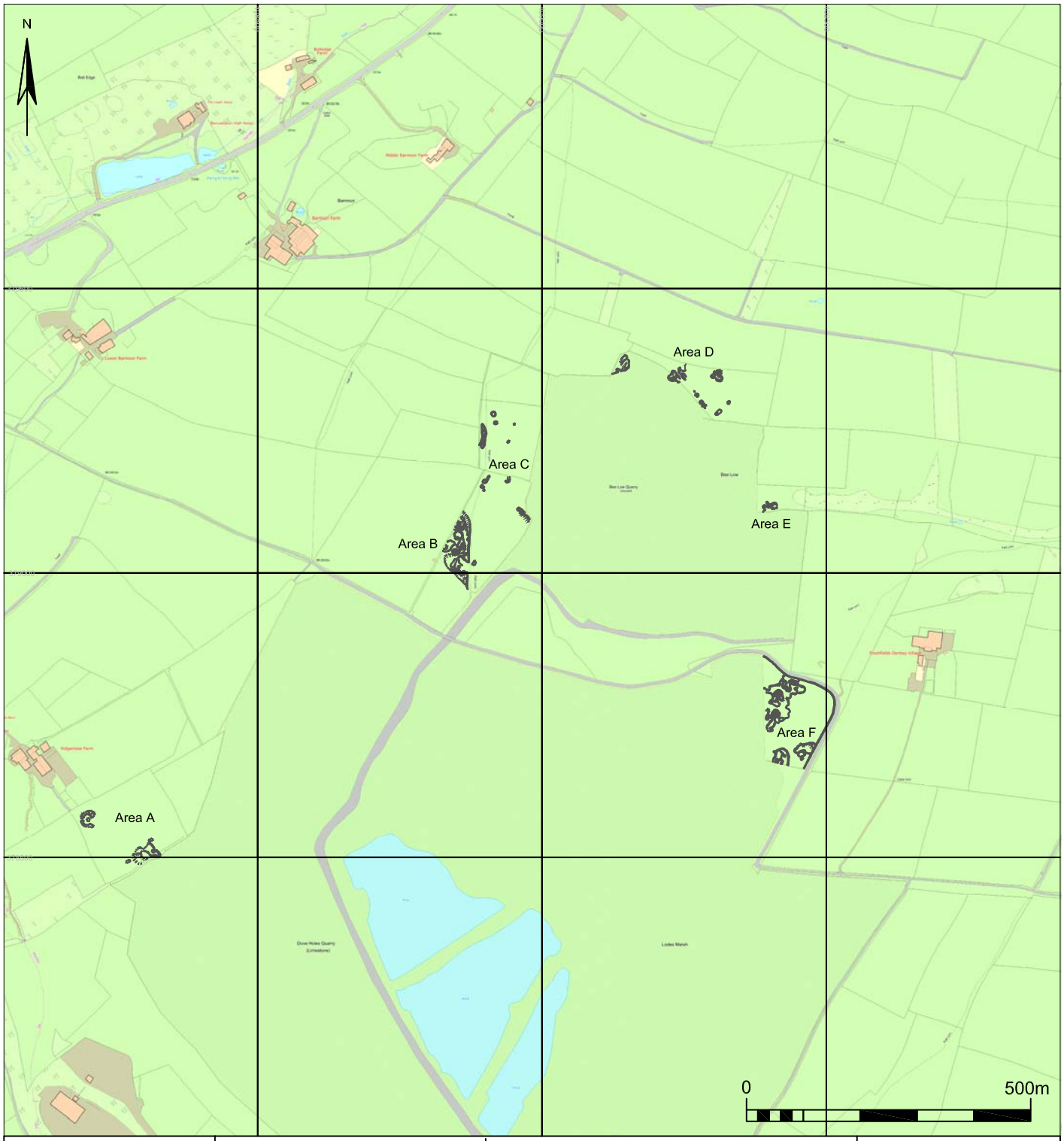
Table 1 Centre points of each survey area correct to national grid.

2.2 Land Use

2.2.1 The survey areas are all under pasture with Areas A, E, F and portions of C and D under tall grass. The extensive grass, thistle and nettle cover in some of these areas meant visibility was poor for some of the earthwork features, though all major features were identified and recorded.

2.3 Geology

2.3.1 The survey areas lie on Carboniferous Limestone, with the bedrock being the dominant geomorphological determinant rather than the superficial deposit. The upland Carboniferous Limestone of the White Peak is one of the most intensively settled, and archaeologically significant, areas within the Peak District with an approximate density of known archaeological sites of 11.68 per sq. km in comparison to the average density across Derbyshire and the Peak District of 6.54 sites per sq. km (Brightman and Waddington 2010, 4). As a permeable, free-draining and alkali base for soils, the Carboniferous Limestone of the White Peak has been an attractive and fertile locale for settlement from the earliest times. The remains of the exploitation of the natural resources of the Carboniferous Limestone are a significant association with this landform, and quarrying and lead mining are common features in this landscape.



Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 1 Site and Survey Area Locations		
Site Code: DHQ13 Drawing Ref: Surv.Rep. Date: September 2013 Drawn: JB Scale: 1:10000@A4	Notes:		Copyright/Licencing: This drawing © A.R.S. Ltd Ordnance Survey data if applicable © Crown Copyright, all rights reserved reproduced with permission. Licence No. 100045420

3. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 Previous Work

3.1.1 There have been a number of previous archaeological studies and interventions focusing on the existing portions of Doveholes Quarry. Previous archaeological work in the immediate environs of the proposed route comprises:

- Two desk-based assessments of land surrounding the old Beelow Quarry (UMAU 1999; 2000).
- Desk-based assessment to assess the former Beelow Lane which separates Beelow Quarry from the main Doveholes Quarry (Brightman 2011).
- An archaeological watching brief on a parcel of land between the Beelow Quarry workings and the main Doveholes Quarry workings which revealed no significant archaeological features (UMAU 2003).
- A topographic survey of post-medieval limestone extraction and processing within the same parcel of land (UMAU 2004).
- Desk-based assessment expanding the earlier ARS Ltd work to examine the archaeological potential of a number of parcels of land. This forms the basis and impetus for the earthwork survey reported here (Brightman 2012).

3.1.2 Walkover survey identified a number of areas of earthworks within the area of the latest desk-based assessment. These were considered to be the remains of post-medieval, small-scale quarrying with some potential to relate to lead extraction of a similar scale. The site is within a part of the Peak Forest Liberty towards the western extent of the mapped exploitation of the White Peak lead veins, and there is little documented or known about the lead mining in the immediate area of Bee Low (Heathcote 2001).

3.1.3 As is outlined in the preceding desk-based assessment (Brightman 2012), the cartographic regression for the study area demonstrated that the majority of the earthwork remains recorded during this fieldwork are marked on the 1st Edition Ordnance Survey mapping of 1882, and so pre-date the late 19th century.

4. AIMS OF THE PROJECT

4.1 Aims

4.1.1 The principal aim of the project is to ensure an adequate, metrically accurate interpretive record of the earthwork remains of the small-scale quarrying and lead extraction within the survey areas.

5. METHODOLOGY

5.1 Survey Method

5.1.1 The earthwork survey complied with English Heritage Level 3 as defined in *Understanding the Archaeology of Landscapes: A guide to good recording practices* (Ainsworth *et al.* 2007). This involved a detailed and metrically accurate survey to analyse the form, stratigraphy and condition of the earthworks and to provide a full interpretation of the individual features and overall development of the monument.

5.1.2 A geo-referenced control grid was established based on existing quarry survey control accurate to within 0.01m. Survey was undertaken using total station and traditional tape measurements, supplemented by detailed site descriptive text and photography. The digital survey equipment used is accurate to 7" for angular measurements and this is well within the tolerances required to produce outputs at 1:1000 accuracy, as required for the survey. The survey recorded topographic 'soft' detail as hachure lines using control points as a backdrop and annotating site plans produced from the metric survey in the field, using additional taped measurements as required.

5.1.3 The Written Scheme of Investigation (WSI) agreed for this survey work, and also for the subsequent agreed monitoring of groundworks, is included as an Appendix to this report.

6. RESULTS

6.1 Area A

6.1.1 Area A is situated in the south-west of the study area adjacent to the soil bunds at the western extent of the currently operational Doveholes Quarry. Area A is the closest part of the study area to Dove Holes village and the features recorded relate to small-scale quarrying.

Feature	Description
1	Feature 1 is a roughly circular, hollow mound of banked spoil with a slight depression in the centre. Overall the feature is *c.*30m in diameter and most likely represents a relatively modern dump of material.
2	A relatively large area of post-medieval quarrying in total *c.*47m x 40m. The area of depression is a roughly crescent shape around a central, unquarried area. The quarried area is relatively shallow, except in the north-east part of the feature where there is still a steeply cut quarried face. Around the main area of quarrying, there are at least two small depressions probably signifying additional small-scale extraction.

Table 2 Earthwork features within Area A

Fig. 2 North-east extent of Feature 2 showing steeply incised face

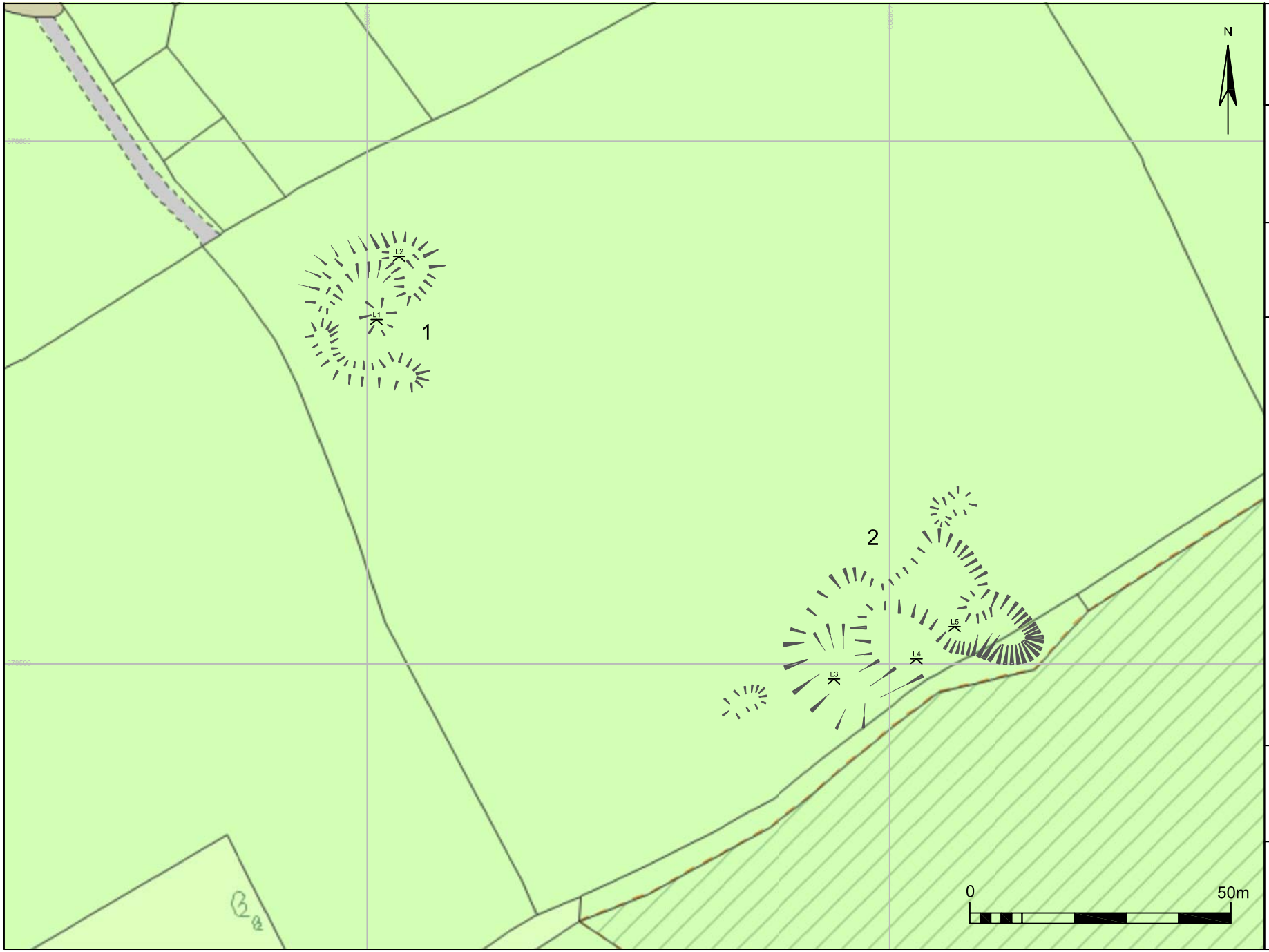


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Figure 3

Survey plan of Area A

Levels (mOD)
1. 345.30
2. 346.62
3. 352.50
4. 354.55
5. 354.24

Notes:

6.2 Area B

6.2.1 Area B is a concentrated area of earthworks to the west of the former Beelow Quarry and ranged along the west of an old trackway that crosses the field, providing access onto the higher parts of Bee Low. It comprises some quarry scoops, but also shaft mounds and water management systems associated with small-scale lead mining. The earthworks are defined within a large excavated area, and the key features within Area B are listed below:

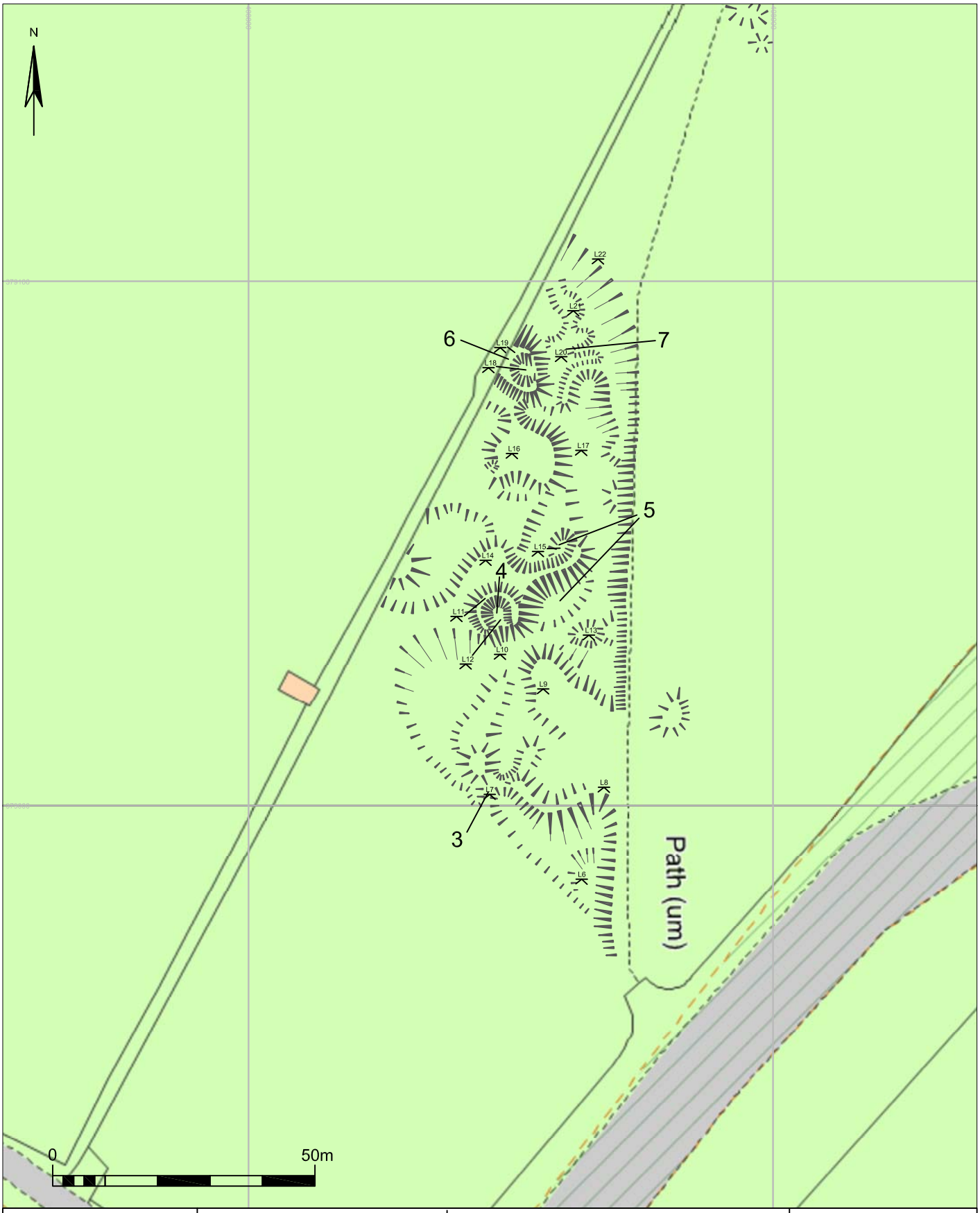
Feature	Description
3	At the southern end of Area B there is a series of sunken areas running roughly north-west to south-east. Although the microtopography is difficult to accurately discern due to the tussocky nature of the ground, it is possible that this represented some form of water storage or water control. The depressions are not large or regular enough to comfortably fit into a category of small-scale quarrying, and it is likely that this is a feature associated with the lead extraction in the area.
4	This is the southern of two large and prominent shaft mounds within Area B. The feature has a typical conical form with a depressed shaft in the centre. It is *c.*11m in diameter. Feature 4 has been noticeably truncated by both badger and rabbit action.
5	Feature 5 refers to the quarrying faces to the immediate east of shaft mound (4). The majority of the undulating features within Area B can be comfortably ascribed to either earlier stone-getting or the extraction of a shallow lead rake. These features, however, appear to be stone extraction cutting into the earthwork features associated with shaft mound (4), and thus demonstrate a time-depth to the extraction within this area.
6	Feature 6 is the second of the two shaft mounds within Area B. It is similar in form to the southern shaft mound and the line between the two demonstrates that the shallow seam of lead revealed in this area runs roughly north to south. The feature is *c.*15m in diameter.
7	Feature 7 encompasses all the microtopography at the northern end of Area B. Here there are three-four sunken areas divided by shallow earth banks which gradually get lower to the south. Although, as with Feature 3, this area is covered with some tussocky grass, the form of this feature is indicative of water control systems associated with lead extraction, particularly buddling or ore-washing. The feature covers an area of *c.*25m x 13m.

Table 3 Earthwork features within Area B

Fig. 4 Shaft mound (4) facing west.

Fig. 5 View of secondary extraction/quarrying to the north of shaft mound (4).

Fig. 6 Looking south down Area B with shaft mound (6) to the right of shot and the area of possible buddling in the foreground.



Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 7 Survey Plan of Area B	Levels (mOD) 6. 361.55 7. 363.60 8. 363.99 9. 364.33 10. 363.62 11. 365.04 12. 366.27 13. 363.00 14. 365.75 15. 364.18 16. 366.89 17. 365.00 18. 367.34 19. 368.56 20. 365.80 21. 366.49 22. 368.39	
Site Code: DHQ13 Drawing Ref: Surv.Rep. Date: September 2013 Drawn: JB Scale: 1:1000@A4	Notes:		Copyright/Licencing: This drawing © A.R.S. Ltd Ordnance Survey data if applicable © Crown Copyright, all rights reserved reproduced with permission. Licence No. 100045420

6.3 Area C

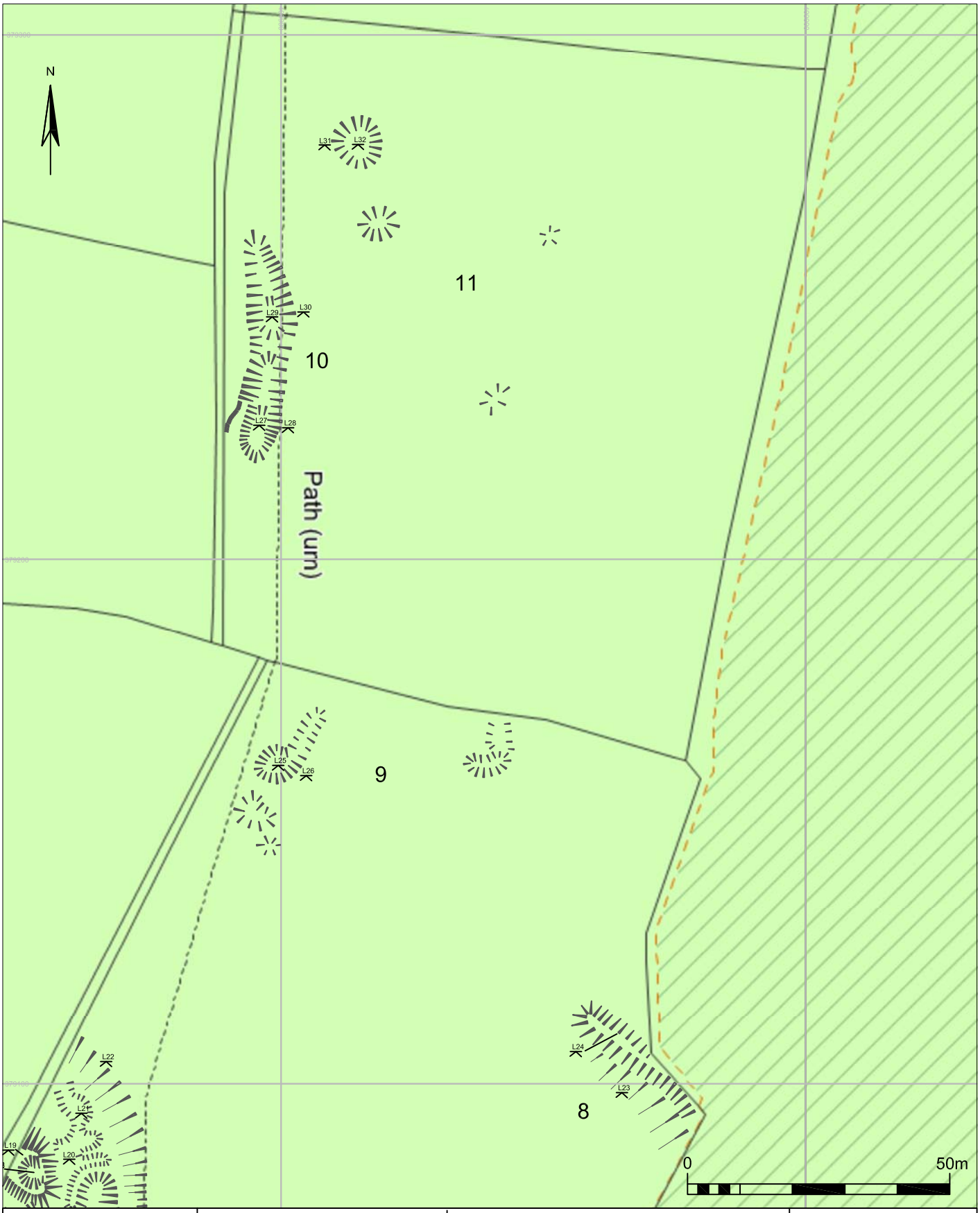
6.3.1 Area C lies immediately to the north of Area B and includes the remainder of the Area B field, and the field to its north, both still lying to the west of the former Beelow Quarry. The features in this area predominantly comprise scattered small-scale quarry scoops and scars.

Feature	Description
8	Feature 8 comprises an area of curving raised bank extending from the previously extracted section of Beelow Quarry. The bank does not have the right profile or form to be prehistoric in date, and most likely relates to a slight depression within the overall topography of the field running north-west to south-east, that is probably a former holloway providing access over the moor to Bee Low. The feature covers an area of *c.*32m x 12m.
9	Feature 9 encompasses three small depressions to the north of Area B, similar in form to the small quarry pits categorised as Feature 11. These are most likely small quarry pits.
10	Feature 10 is a substantial and deep quarry pit extending north to south along the west boundary of the field. Quarry pits following field boundaries are a common feature of the post-medieval enclosure period landscape given the ease with which the quarried limestone could be used for walling and 'sweetening' the soil. The feature covers an area of *c.*45m x 10m.
11	Feature 11 encompasses a series of small and shallow individual quarry pits in the centre of the field.

Table 4 Earthwork features within Area C

Fig. 8 Shallow section of bank (8) probably flanking the line of an old holloway.

Fig. 9 Large linear quarry pit (10) following the western boundary of the field.



Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 10 Survey Plan of Area C	Levels (mOD) 23. 369.53 24. 371.44 25. 369.33 26. 369.47 27. 370.36 28. 372.75 29. 371.11 30. 373.24 31. 374.59 32. 373.98	
Site Code: DHQ13 Drawing Ref: Surv.Rep. Date: September 2013 Drawn: JB Scale: 1:1000@A4	Notes:		

6.4 Area D

6.4.1 Area D encompasses all the features at the top of Bee Low to the north of the former Beelow Quarry. The features recorded are a mix of substantial quarry scoops, one with the remnants of a small shelter built into it, and the remains of very shallow lead workings following a north-west to south-east rake across the local high point. A beaten earth and stone path runs across the top of Bee Low which respects the presence of the small stope (15) but is respected by the southern of the two flanking quarry scoops (13). There is, therefore, a rough chronology to Features 13-15, with quarrying of the natural outcrop earlier or contemporary with the extraction of lead (15), followed by the creation or modification of a routeway and then further quarrying (14).

Feature	Description
12	Feature 12 is a large quarry scoop to the west of the Bee Low summit. There are still quarried faces of exposed limestone visible and there are multiple small spoil heaps within the floor of the quarry scoop. The feature covers an area of *c.*42m x 22m.
13	Feature 13 is one of a pair of large quarry scoops with exposed stone faces still evident which flank a small open stope (15). The feature covers an area of *c.*24m x 18m.
14	The second of the two flanking quarry scoops (with 13). This scoop has a larger section of exposed limestone face cutting back into a limestone outcrop around the summit of Bee Low. The feature covers an area of *c.*12m x 13m.
15	A small open stope aligned with two small shaft mounds to the east (see below) indicating the presence of a small lead rake. This is very shallow, but it is also notable that the apparent spoil from the stope extends across the cut of the quarry scoop (14). The feature covers an area of *c.*14m x 4m.
16	Three small and shallow shaft mounds illustrating the small-scale extraction of lead from the same rake as stope (15). The shaft mounds are on average *c.*7.5m in diameter.
17	A large quarry scoop, covering an area of *c.*16m x 8m, with a number of prominent exposed limestone faces. This is probably the deepest quarry scoop recorded as part of this survey and contains the only example within the survey area of a structure associated with the extraction. In the south-west corner of the quarry, there is the footings of small stone shelter. Constructed from rough limestone blocks, it only survives to a single course high and encloses an area only *c.*2m x 2.5m. This would have been little more than a shelter. To the north of the main quarry scoop, measuring *c.*10m x 5m, is a second trench, smaller in area but deeper and with two small channels. It is possible that it represents some kind of water gathering area, but given the location it could also be a more-recent quarry trench.
18	Feature 18 encompasses two shallow quarrying pits further to the east of the other remains in Area D.

Table 5 Earthwork features within Area D

Fig. 11 Facing south-east in quarry scoop (13) showing exposed quarried limestone face

Fig. 12 Substantial quarried limestone face cutting into natural outcrop in quarry scoop (14).

Fig. 13 Looking south-east along the line of the shallow lead extraction stope (15).

Fig. 14 The easterly of the two shallow shaft mounds (16).

Fig. 15 Exposed limestone face in large quarry scoop (17).

Fig. 16 The footings of a small shelter built into the angle of two quarried limestone faces in quarry scoop (17).

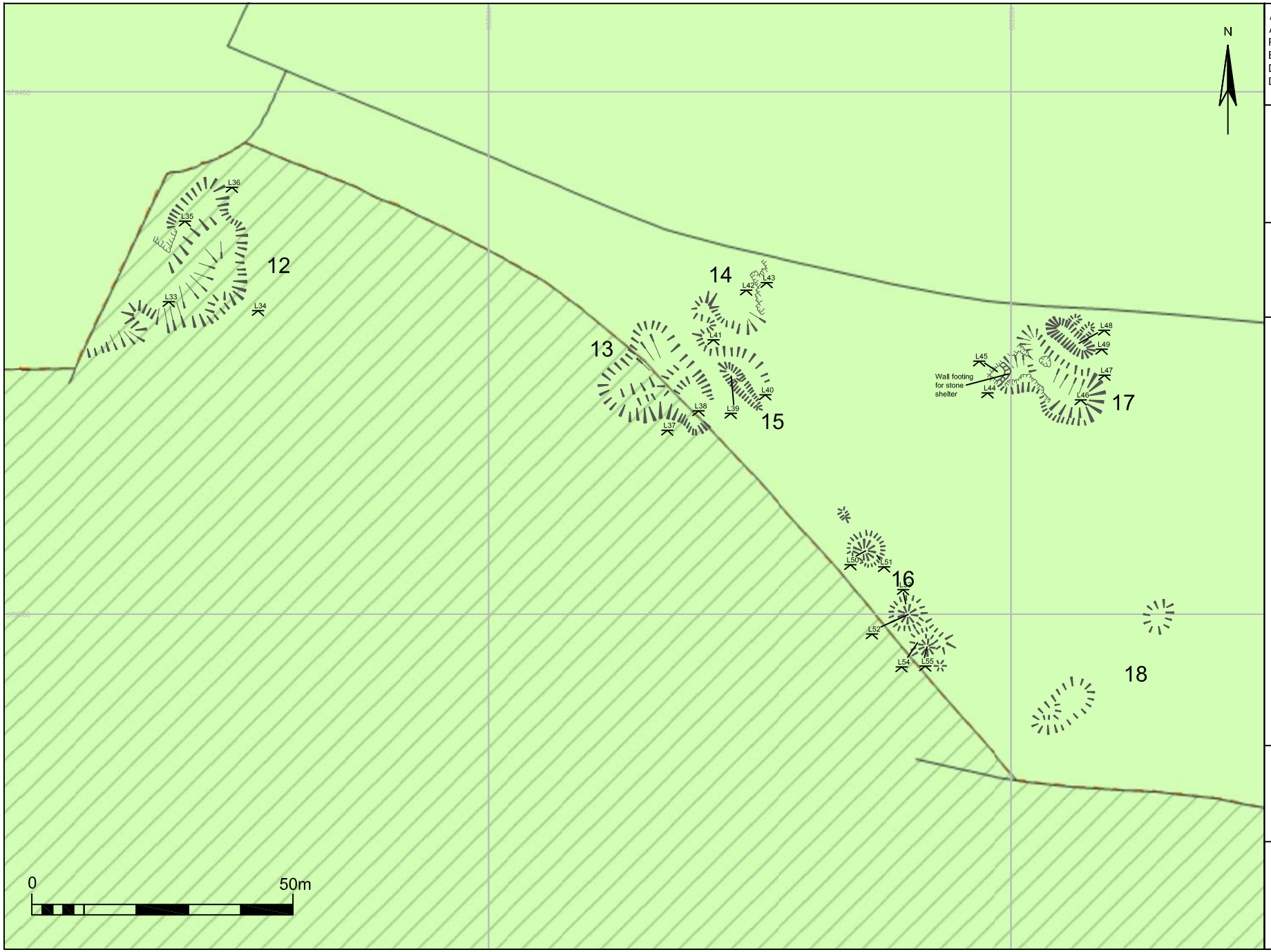


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Figure 17

Survey Plan of Area D

Levels (mOD)

33. 397.40
34. 402.18
35. 397.23
36. 399.24
37. 411.02
38. 410.39
39. 409.75
40. 411.64
41. 410.31
42. 408.98
43. 409.81
44. 411.75
45. 410.40
46. 409.30
47. 410.16
48. 409.08
49. 410.06
50. 412.70
51. 413.65
52. 412.84
53. 413.70
54. 413.55
55. 413.19

Notes:

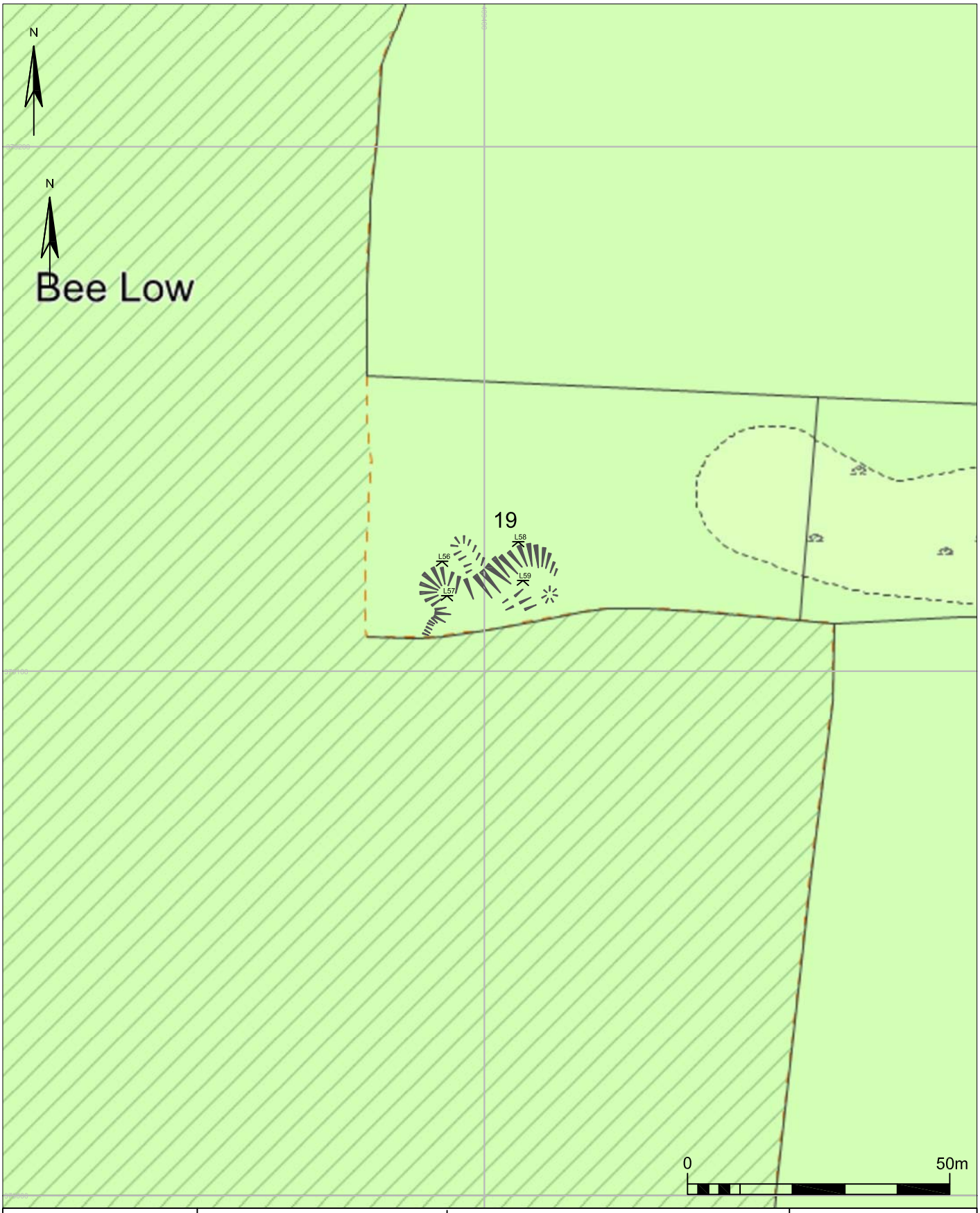
6.5 Area E

6.5.1 Area E is a small area of isolated earthwork remains cut into the hillside to the east of the former Beelow Quarry.

Feature	Description
19	Two adjacent quarry scoops cut back into the hillside above the trackway east of the old Beelow Quarry. Given the natural slope into which the quarrying is cut, there is an accumulation of loose, scree-like limestone at the base. The feature covers an area of *c.*25m x 13m.

Table 6 Earthwork features within Area E

Fig. 18 The earthworks in Area E adjacent to the north of the access track around Beelow Quarry.



Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 19 Survey Plan of Area E	Levels (mOD) 56. 402.14 57. 399.48 58. 401.00 59. 398.14	
Site Code: DHQ13 Drawing Ref: Surv.Rep. Date: September 2013 Drawn: JB Scale: 1:1000@A4	Notes:		

6.6 Area F

6.6.1 Area F is situated to the south-east of the former Beelow Quarry at the eastern edge of the survey area. It comprises a substantial concentration of earthworks representing a mix of lead extraction and limestone quarrying, and two smaller areas of quarrying. The field is delimited by a modern soil bund, surveyed and shown on the figures. As with the lead extraction remains in Area B, the group of earthworks in the north-west of Area F is defined within a depression showing the extent of post-medieval quarrying, downslope from north to south. The profile of these quarrying and lead mining remains illustrate how the limestone bedding planes have been worked, giving the appearance of a slight 'staircase' as the strata have been cut into. Key features are outlined in the table below.

Feature	Description
20	Feature 20 is a small area between the quarried edge and a raised area to the north of one of the shaft mounds which comprises a number of small depressions separated by small raised banks. Although not as clearly defined as the area of water control in Area B, it is possible that this area of small-scale earthworks represents something similar. The feature covers an area of *c.*7m x 5m.
21	Deeply cut trench within the area of quarrying. Potentially more modern given the difference in form to the other quarrying remains noted. The feature covers an area of *c.*18m x 5m.
22	Quarry scoop which has extended the area of quarrying eastwards and appears to be a later phase. There is still a limestone face exposed at the eastern part of this feature, though it is heavily overgrown. The feature covers an area of *c.*16m x 15m.
23	The northern of the two shaft mounds in this area. These are the most prominent earthwork features in Area F. This feature is a typically conical mound with the central shaft depression. There is a low side to the mound facing south along the rake which opens down to an adjacent depression. The feature covers a total area of *c.*25m x 17m.
24	An episode of quarrying to the west of shaft mound (23). This is notable as it cuts the edge of the shaft mound and demonstrates a time-depth to the activity here, also noted in other survey areas. The feature covers an area of *c.*17m x 13m.
25	The southern of the two shaft mounds in Area F. As with (23), there is a low side to the mound facing south along the rake which opens down to an adjacent depression. It is possible that this depression was also worked as a shallow slope, particularly given the exposed vertical area of limestone at one edge of the depression. The feature covers a total area of *c.*20m x 16m.
26	Large quarry scoop in the south of the Area F field, partially truncated by the soil bund at the eastern edge. A mound of dumped material overlies the southern extent of the quarry cut, probably deriving from localised quarry or lead extraction in an adjacent hollow. As with other earthworks noted in the survey areas, this displays a relative chronology and indicates a time-depth to the small-scale industry in the area. The feature covers an area of *c.*30m x 33m.
27	Large quarry scoop truncated by the southern boundary which is also the limit of current extraction in the operational Doveholes Quarry. The quarry scoop also contains small areas of mounded spoil. The central mound of spoil against the southern boundary may be of more modern origin given its regular nature and the possible impression of machine cuts to one side. The feature covers an area of *c.*30m x 26m.

Table 7 Earthwork features within Area F

Fig. 20 Area of small, linked depressions to the north of the shaft mound representing possible area of water control.

Fig. 21 Deeply cut quarry trench (21) in the foreground with wider area of post-medieval stone quarrying (22) beyond.

Fig. 22 Shaft mound (23).

Fig. 23 Detail of area of quarrying which has cut the earlier shaft mound.

Fig. 24 Shaft mound (25) with exposed limestone face just visible at the base of the ranging rod.

Fig. 25 Quarrying area (26) with later mound of spoil to the right of shot overlying the earlier quarry edge.

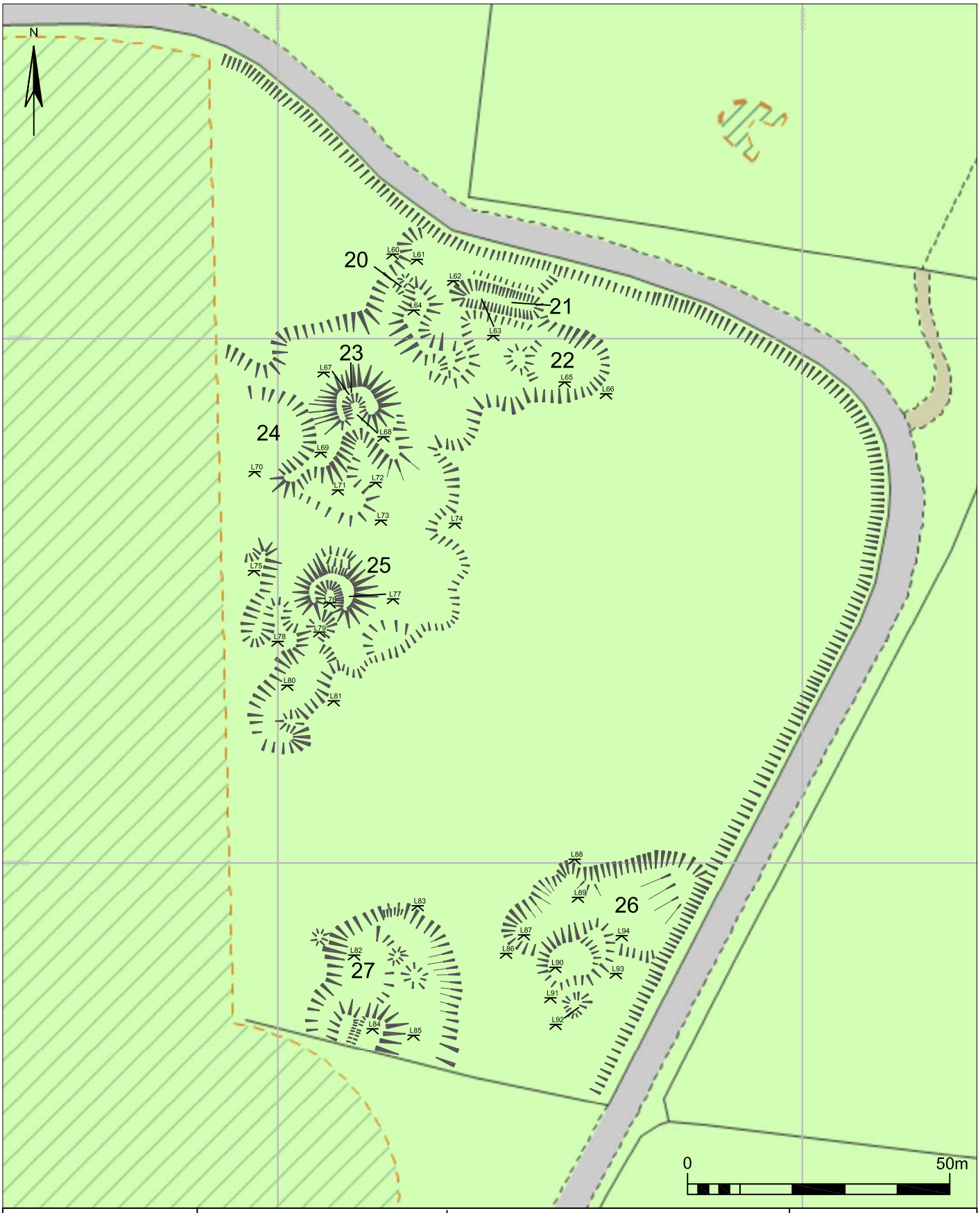


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Figure 26

Survey Plan of Area F

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Notes:

Levels (mOD)

60. 379.26	71. 375.16	82. 364.07	93. 365.69
61. 378.47	72. 374.85	83. 367.14	94. 365.71
62. 377.87	73. 374.36	84. 364.81	
63. 376.65	74. 375.51	85. 363.20	
64. 378.63	75. 373.76	86. 366.18	
65. 375.31	76. 372.40	87. 365.71	
66. 376.42	77. 373.93	88. 368.30	
67. 378.08	78. 371.56	89. 366.13	
68. 377.44	79. 370.79	90. 366.29	
69. 376.67	80. 369.58	91. 365.25	
70. 375.13	81. 370.53	92. 364,81	

7. DISCUSSION

7.1 Significance of the Earthwork Remains

7.1.1 Earthwork remains of small-scale, post-medieval industry are common within the Peak District uplands, and the remains surveyed as part of this project fit well within this category. The combination of limestone quarrying and *ad hoc* lead extraction in the same area indicates that these workings were undertaken by local landowners acting as 'farmer-miners'. Although such small-scale extraction inevitably will have taken place during medieval and earlier periods, the character of the remains observed across the survey area fits into a post-medieval context. This is particularly true of some of the quarry scoops which respect enclosure-period field boundaries. The time-depth visible within the remains, where evidence for quarrying can both underlie and cut lead mining earthworks, suggests a narrative of opportunistic exploitation of the natural resource.

7.2 Setting of the Earthwork Remains

7.2.1 The physical setting of the earthwork features, as with any exploitation of natural resources, is dictated by where that resource occurs. The exposed and remote setting of much of the quarrying and lead mining remains of the Peak District can both augment and detract from the significance of such remains. Their remoteness means there can be little opportunity to experience them directly, but can also give an accurate impression of their original setting. The specific setting of the earthworks surveyed during this project has been altered during the course of the 20th century by the presence of Beelow and Doveholes Quarry. For many of the earthworks recorded their immediate setting is dominated by the modern quarry which, whilst altering the view and the experience, nevertheless provides an almost tangible narrative of the continuation of land-use in which extraction is a common thread extending back through the preceding centuries.

7.3 Potential for Future Work

7.3.1 The survey has achieved its stated aim of providing a metrically accurate, interpretive record of the earthwork remains within the project area. Although of local interest and significance, and given the existing watching brief condition which will allow for monitoring of groundworks in these area, it is not considered that there needs to be any further recording work beyond that already agreed.

8. STATEMENTS AND ACKNOWLEDGEMENTS

8.1 Publicity, Confidentiality and Copyright

8.1.1 Any publicity will be handled by the client.

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

8.2 Statement of Indemnity

8.2.1 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.

8.3 Acknowledgements

8.3.1 The fieldwork for this project was undertaken by Jim Brightman, Richard Durkin and Joseph Tong. Archaeological Research Services Ltd would like to thank CEMEX (UK) Ltd for commissioning this work, in particular Shaun Denny and Steve Leigh, but also the rest of the quarry operators on site at Doveholes.

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APPENDIX 1 –WRITTEN SCHEME OF INVESTIGATION

Archaeological Research Services Ltd

DOVEHOLES QUARRY

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL SURVEY AND WATCHING BRIEF

1. INTRODUCTION

This document comprises a Written Scheme of Investigation for a programme of earthwork survey and archaeological monitoring at Doveholes Quarry, Derbyshire (Fig. 1). It is intended that this WSI will also cover archaeological work which is likely to be required as a condition of an application for the diversion of an existing routeway (Beelow Lane). This application is currently awaiting decision, but consultation has shown that the approach outlined within this document will be acceptable for both. The scheme set out below is based upon previous mitigation works carried out on the site (UMAU 2003; 2004) and by reference to the National Planning Policy Framework (NPPF) (CLG 2012), guidance associated with the superseded Planning Policy Statement 5, which has remained in place until further specific guidance is prepared (CLG/DCMS/EH 2010), and the guidance specific to archaeology and minerals (MHEF 2008) referred to in the PPS5 practice guide.

This document has been prepared by Archaeological Research Services Ltd (ARS Ltd) for CEMEX. Although there is no specific programme currently in place for topsoil removal, it is intended that agreement of this WSI will put in place a satisfactory working methodology for future archaeological monitoring.

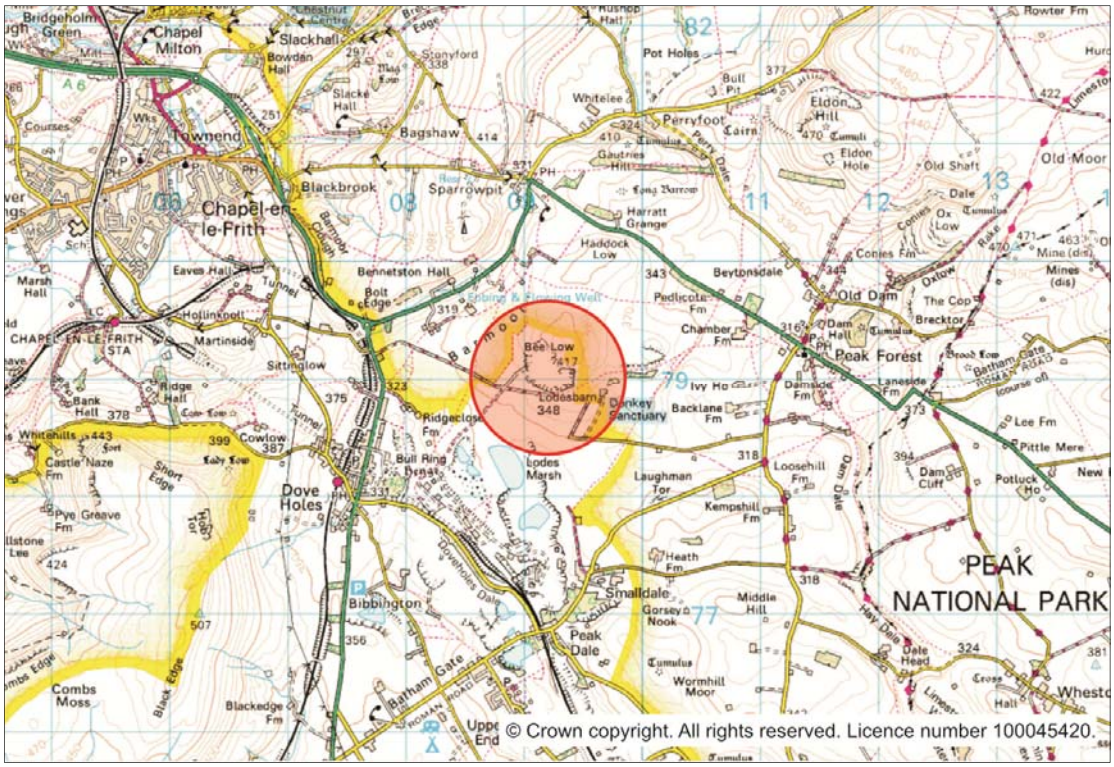

Fig. 1 Location of Doveholes Quarry.

2. EARTHWORK SURVEY

Areas of medieval/post-medieval quarrying and extraction will be surveyed at Level 3 standard (Ainsworth *et al.* 2007) to record evidence for upstanding remains associated with industrial activity.

The areas of interest for earthwork survey are shown on Fig. 2 below. The earthwork survey will comply with Level 3 as defined in *Understanding the Archaeology of Landscapes: A guide to good recording practices* (Ainsworth *et al.* 2007). This involves a detailed and metrically accurate survey to analyse the form, stratigraphy and condition of the earthworks and to provide a full interpretation of the individual features and overall development of the monument. Due to the nature of the earthwork remains to be recorded, it is envisioned that where extensive background information would normally be required for this level of survey, the context will be provided, in large part, by the previous desk-based assessment (Brightman 2011) and aerial photograph transcription (Bacilieri and Knight 2010).

Field survey will be undertaken using a GPS and Total Station and traditional tape measurements, supplemented by detailed site descriptive text and photography. The digital survey equipment is accurate to 7" for angular measurements and this is well within the tolerances required to produce outputs at 1:1000 accuracy, as required for the survey. The survey will record hard detail, such as wall lines and rock outcrops together with the soft detail such as banks, ditches and other earthworks. Topographic detail will be recorded as hachure lines using control points as a backdrop and annotating site plans produced from the metric survey in the field, using additional taped measurements as required.

Outputs from the survey will comprise:

- An interpretive hachured plan at an appropriate scale
- A digital version of the hachure plan in a format to be agreed
- A short descriptive, analytical archive report will be produced presenting the results of the survey to Level 3 standard as set out in *Understanding the Archaeology of Landscapes: A guide to good recording practice* (Ainsworth *et al.* 2007). This will include:
    - The type and period of monument being surveyed.
    - A site location (centre point) expressed as an 8 figure grid reference
    - Identification numbers for site (NMR, HER *etc*)
    - Details of the report compiler organisation and individuals
    - Details of the sources of information used to compile the report
    - An executive summary
    - A concise site description
    - A detailed site description to include full analysis, interpretation and supporting evidence
    - Consideration of the setting of the monument
    - Details on the potential for any further work
    - Relevant information from other sources (*e.g.* historic maps and excavation reports)
    - An assessment of the significance of the site at local, regional and national level
    - Illustrative material
    - Method statement as an Appendix

3. ARCHAEOLOGICAL MONITORING – WATCHING BRIEF

The following methodology for archaeological monitoring of soil removal does not relate to a specific and planned programme of topsoil removal, but represents a best practice methodology for future work of this kind which can be agreed to by all parties.

Work will be carried out in compliance with NPPF and the specific guidance devised for mineral extraction (MHEF 2008) where the emphasis is on targeting what is significant on the site and what can add to the knowledge base, answer research questions, and thereby benefit public knowledge and public appreciation of the heritage, and the Institute for Archaeologists' *Standard and Guidance for Archaeological Excavation,* in accordance with the following methodology. Topsoil stripping will be undertaken under archaeological supervision in order to allow for the recording of any previously unknown heritage assets prior to their removal.

The removal of overburden (that is vegetation, turf, loose stones, rubble, made ground, tarmac, concrete, hardcore, building debris and topsoil) will be undertaken by machine and supervised by a suitably qualified archaeologist.

Removal of overburden by machine will be undertaken using a back-acting excavator fitted with toothless or ditching bucket only. Where materials are exceptionally difficult to lift, a toothed bucket may be used temporarily. Subsoils (B horizons) or deep, uniform deposits may also be removed by back-acting excavator but only in areas specified by the archaeologist on site, and only with archaeological supervision. Bulldozers or wheeled scraper buckets will not be used to remove overburden above archaeological deposits.

Where structures, finds, soil features and layers of archaeological interest are exposed or disturbed by construction works, the archaeologist will be provided with the opportunity to observe, clean, assess, excavate by hand, and where appropriate, sample and record these features and finds. If the contractors or plant operators notice archaeological remains, they will immediately tell the archaeologist. The sampling of deposits for palaeoenvironmental evidence will be a standard consideration, and arrangements will be made to ensure that specialist advice and analysis are available if appropriate.

Heavy plant will not be operated in the vicinity of archaeological remains until they have been recorded, and the archaeologist on site has allowed operations to recommence at that location. Sterile subsoils (C horizons) and parent materials below archaeological deposits may be removed without archaeological supervision.

3.1 Artefact and Ecofact Recovery

ARS Ltd will comply fully with the provisions of the Treasure Act 1996 and the Code of Practice to which it refers.

Discovery of any human remains will be reported to the coroner and to the local authority curator. Where excavation is required this will be conducted under the relevant legislation and, if necessary, a Ministry of Justice licence.

Flint, animal bones or pottery will be collected as bulk samples by context although significant artefacts such as metalwork, arrowheads or axes will be three-dimensionally recorded prior to processing. Finds will be recorded, cleaned and bagged and submitted for post-excavation assessment. All artefacts and other finds from significant archaeological deposits will be collected, identified by stratigraphic unit, catalogued, and retained.

The following environmental sampling strategy has been based on previously agreed sampling methodologies, created in concert with local authority curators and English Heritage Regional Science Advisors.

Archaeological contexts with potential for organic remains will be sampled. Initially only 10 litres from such contexts will be assessed so that those deposits that are worth further analysis can be identified and those that are not discarded. Pit features will be initially sampled and flotated through graduated sieves. If the context has the potential to contain organic residues then further sampling will take place as appropriate. The sampling of contexts such as linear ditch fills will target the primary ditch silts as these have the potential to inform on the contemporary landscape at the time the ditch was initially cut and in use, but given the taphonomic problems associated with secondary ditch fills and their potential for intrusive and residual material, these will not be assessed in the same level of detail. Samples will be taken where, for example, they may inform about the re-use or change in use of a feature.

The field method will include putting 100% of samples through a 10mm mesh and then collecting the residue (this will remove the larger pebbles in the gravel as well as maximise finds recovery of lithics and pottery). However, where there is a possibility of human or animal remains being present, including cremated human remains, the whole sample will be flotated. Of the remaining material 10 litres (or all of the material if it is less) will then be flotated and the flots and residues collected. These will be collected in graduated brass sieves with the smallest having a minimum mesh size of 300 microns. Once the deposits have been assessed those that show good potential for further results will be flotated in full.

This strategy will ensure that all deposits with potential for containing palaeoenvironmental residues (such as botanical macrofossils, animal bone and invertebrates) are assessed while at the same time ensuring that excessive time is not wasted on sterile deposits that will add nothing to furthering understanding. Furthermore, it will mean that any further work can be targeted specifically to those deposits that have demonstrable potential.

Samples for pollen analysis will be taken from archaeological contexts that are suitable for providing an accurate indication of past environmental conditions and/or land use in the vicinity of the site. However, due to the taphonomic issues surrounding pollen samples a decision on whether to take samples will be taken on a feature by feature basis. For example, primary ditch silts, buried land surfaces and intact floor surface deposits would be considered suitable contexts to sample whilst secondary ditch deposits affected by cryoturbation or root action that will have mixed pollen from different horizons would not. Secondary ditch fills will be sampled where there is the chance that they could inform about the re-use or change in use of a feature. If waterlogged deposits are identified, for example in deep cut features, separate samples for analysis will be taken for invertebrates, vegetative plant remains *etc*, though given the local geology, waterlogged deposits are exceptionally unlikely.

3.2 Site Recording

Areas observed will be accurately tied into the National Grid and located on a 1:2500 or 1:1250 map of the area. The site will be recorded using a single context planning system in accordance with the ARS Ltd field recording manual.

A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro-forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings will be drawn at 1:100, 1:50, 1:20 and 1:10 scales as appropriate.

The stratigraphy of the site will be recorded even where no archaeological deposits have been identified.

All archaeological deposits and features will be recorded with above ordnance datum (AOD) levels.

A photographic record of all contexts will be taken in high-resolution colour digital and black and white print and will include a clearly visible, graduated metric scale. A register of all photographs will be kept. A selection of working shots will also be taken to demonstrate how the site was investigated and what the prevailing conditions were like during excavation.

A diary of the progress of the archaeological work will be kept including details of liaison and monitoring meetings, visits and record of staff on site.

3.3 Post-Fieldwork

Following completion of the watching brief ARS Ltd will produce a report which will include (as a minimum):

- Non-technical summary
- Introductory statement
- Aims and purpose of the project

- Methodology
- A location plan showing all observed 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 this specification
- A copy of the OASIS form

As an IfA Registered Organisation, ARS Ltd only use specialists who can provide the required level of expertise. The following specialists will be employed where required:

- Prehistoric finds – Dr. Clive Waddington (ARS Ltd)
- Botanical Macrofossils – Paul Flintoft (ARS Ltd)
- Human and Animal Bone – Kate Mapplethorpe (ARS Ltd)
- Pollen – Dr. Ben Gearey (Birmingham Archaeo-Environmental)
- Medieval and post-medieval pottery – Chris Cumberpatch
- Clay Pipe – Suzie White
- Glass – Dr. Hugh Willmott
- Industrial Metallurgist – Rod Mackenzie

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.

4. SITE ARCHIVE

The site archive shall contain all the data collected during the investigative work, including records, artefacts and ecofacts. It will be quantified, ordered, indexed and internally consistent.

Adequate resources shall be provided during fieldwork to ensure that records are checked and internally consistent.

The integrity of the primary field record will be preserved. Security copies in digital format will be maintained where appropriate.

Subject to the agreement of CEMEX, a copy of the site report and the full site archive will be deposited with Buxton Museum and Art Gallery. Deposition shall be in accordance with written guidelines on archive standards and procedures (Walker 1990). ARS Ltd will liase with the museum curator regarding their requirements in ordering,

boxing and labelling the site archive. Prior to commencement of work, ARS Ltd will obtain an accession number for the archive from Buxton Museum and Art Gallery.

In addition to the deposition of the archive copies of all relevant reports will also be deposited with the Derbyshire Historic Environment Record.

5. MONITORING

Reasonable notice will be given to the Derbyshire County Council County Archaeologist in advance of all phases of fieldwork on site to allow for open discussion and monitoring arrangements to be put in place. The DCC contact will be:

Dr. D. Barrett
Derbyshire County Council,
Shand House,
Dale Road South,
Matlock,
Derbyshire DE4 3RY
Tel: 01629 539774

Access to the site will be on the basis of prior notification and subject to any necessary health and safety requirements.

6. HEALTH AND SAFETY

A full health and safety risk assessment will be carried out prior to each episode of fieldwork commencing. All people working on the site will be briefed on the safety requirements whilst working on-site and given access to a copy of the risk assessment and all ARS Ltd staff working on the site will undergo a Health and Safety induction to working at each quarry site. ARS Ltd maintains a strict health and safety policy and the appointed Health and Safety Officer for the company is Chris Scott. ARS Ltd has £5m public liability insurance as well as employer's liability insurance and professional indemnity insurance.

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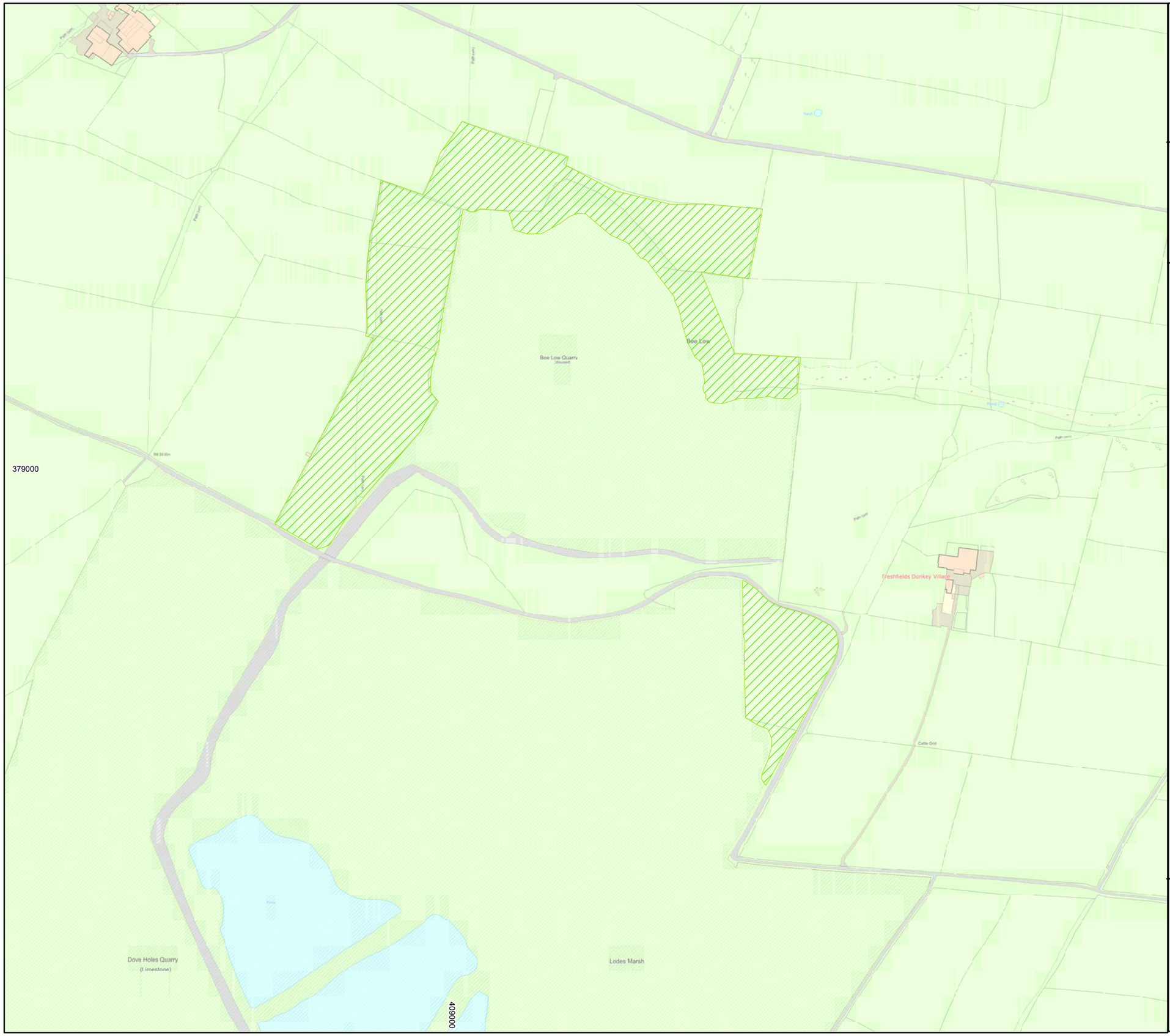

Fig. 2

Areas targeted for non-intrusive earthwork survey

Site Code: DOVE12
Date: May 2012
Drawn: JB
Scale: 1:5000 @ A3

Areas of earthwork survey

N

0 50 100 200 m