

# Clearwell Quarry Extension Stowe Hill Gloucestershire



## Archaeological Evaluation



**Oxford Archaeology**

6th July 2002

**Client Name:**  
**Clearwell Quarries Ltd.**

Issue N<sup>o</sup>: 2  
OA Job N<sup>o</sup>: 1265  
NGR: SO 5700 0670

**Client Name:** Clearwell Quarries Limited

**Client Ref No:** -

**Document Title:** Clearwell Quarry Extension, Stowe Hill, Gloucestershire

**Document Type:** Evaluation

**Issue Number:** 2

**National Grid Reference:** SO 570 067  
**Planning Reference:** -

**OA Job Number:** 1265  
**Site Code:** SOYDH 2001.41  
**Invoice Code:** STHQ EV2  
**Museum Accession No:** -

**Prepared by:** Andrew Holmes

**Position:** Project Officer  
**Date:** 3rd May 2002

**Checked by:** Dan Poore  
**Position:** Project Manager  
**Date:** 9th May 2002

**Approved by:** R.J Williams  
**Position:** Director: Business Development and Operations  
**Date:** 11th May 2002

**Document File Location** server5\projects\STHQ\_Stowe\_Hill\_Quarry\evalrep  
version two with slag rep

**Graphics File Location** \\Server4\oaupubs1\All drawings\Stowe Hill Quarry

**Illustrated by** Anne Dunkley

**Disclaimer:**

*This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology being obtained. Oxford Archaeology accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.*

**Oxford Archaeology**

© Oxford Archaeological Unit Ltd 2002

Janus House

Osney Mead

Oxford OX2 0ES

t: (0044) 01865 263800

f: (0044) 01865 793496

e: [info@oxfordarch.co.uk](mailto:info@oxfordarch.co.uk)

w: [www.oxfordarch.co.uk](http://www.oxfordarch.co.uk)

Oxford Archaeological Unit Limited is a Registered Charity No: 285627

**Clearwell Quarry Extension, Stowe Hill, Gloucestershire*****ARCHAEOLOGICAL EVALUATION*****CONTENTS**

Summary.....	1
1 Introduction .....	1
1.1 Location and scope of work (Fig. 1) .....	1
1.2 Geology and topography .....	1
1.3 Archaeological and historical background .....	1
1.4 Geophysical survey .....	2
2 Evaluation Aims .....	2
3 Evaluation Methodology .....	3
3.1 Scope of fieldwork (Fig. 2) .....	3
3.2 Fieldwork methods and recording.....	3
3.3 Finds .....	3
3.4 Palaeo-environmental evidence.....	3
3.5 Presentation of results .....	3
4 Results: General.....	4
4.1 Soils and ground conditions .....	4
4.2 Distribution of archaeological deposits.....	4
5 Results: Descriptions.....	4
5.1 Description of deposits.....	4
5.2 Finds .....	6
5.3 Palaeo-environmental remains .....	7
6 Discussion And Interpretation.....	9
6.1 Reliability of field investigation.....	9
6.2 Overall interpretation .....	9
Appendix 1 Archaeological Context Inventory .....	11
Appendix 2 Charred plant remains and charcoal by Elizabeth Huckerby .....	13
Appendix 3 Bibliography and references.....	14
Appendix 4 Summary of Site Details.....	15

**LIST OF FIGURES**

- Fig. 1 Site location map  
 Fig. 2 Trench location plan  
 Fig. 3 Trench 6 and 55 - Plans and sections  
 Fig. 4 Trench 56 and 70 - Plans and sections  
 Fig. 5 Trench 54 and 57 - Plans and sections

## SUMMARY

*Oxford Archaeology (OA) carried out a field evaluation at Stowe Hill on behalf of Clearwell Quarries Ltd. The evaluation revealed undated evidence of possible iron smelting activity represented by several bowl furnaces, slag pits and an associated gully. Two isolated pits of unknown date and two mounds formed from dumped materials and thought to be post-medieval were also identified.*

## 1 INTRODUCTION

### 1.1 Location and scope of work (Fig. 1)

- 1.1.1 In April 2002 OA carried out a field evaluation at Stowe Hill on behalf of Clearwell Quarries Limited in respect of the proposed extension of the quarry, designated a Preferred Area for mineral working in the Gloucestershire Local Plan. A brief was set by Charles Parry, Senior Archaeological Officer with Gloucestershire County Council; OA subsequently produced a Written Scheme of Investigation (WSI) which was approved by Mr Parry.
- 1.1.2 The development site is situated at Stowe Hill and lies about 1 km south of Clearwell and 0.4 km north east of Stowe (NGR: Centred on SO 5700 0670). The proposed extension will comprise an area of c.25.9 ha. The site is bounded to the north-east by the minor road which links the B4228 and the A466, to the east, south and west by open agricultural land. Clearwell Quarry lies to the north and west of the south-western limit of the proposed extension.

### 1.2 Geology and topography

- 1.2.1 The site is situated on an outcrop of Lower Carboniferous limestone, which runs in a band roughly north-south between Colebrook and St Briavels. Below the limestone is the Old Red Sandstone which surfaces above the Wye gorge. The site lies at 185 m aOD (above Ordnance Datum) at the north end rising to 195 m aOD towards the centre of the site and falling to 190 m aOD at the south end.
- 1.2.2 The site is predominantly arable farmland with wheat crops in Fields A, D, F and I, and pasture in Fields K, J, H and B (Fig. 2).

### 1.3 Archaeological and historical background

- 1.3.1 The archaeological background to the evaluation has been the subject of a separate desk study (OAU 2001), the results of which are summarised below. While there are several known sites with archaeological remains within the area of the development site, the site itself has produced a limited area of archaeological significance.
- 1.3.2 Throughout the Prehistoric, Roman and early medieval periods the general area of the quarry extension and its locale is likely to have been situated within woodland. Evidence of prehistoric activity recovered from within the proposal area include several flint flakes recovered during fieldwalking. These have been dated from the Mesolithic through to the Bronze Age period and clearly indicate prehistoric activity.

Though the area would have been wooded, there is no evidence of woodland clearance in the prehistoric period for settlement and other activities. The flint finds may be representative of hunting and foraging activities in the area.

- 1.3.3 Evidence for Roman activity is confined to sites and finds located outside the proposal area. The closest of these finds were sherds of pottery recovered some 250 m to the south of the site at Orles Wood. Other finds or sites include two altars located at springs (one of which was reused as a tomb stone), coins, more pottery and a possible villa at Clearwell Castle.
- 1.3.4 During the medieval period the documentary evidence indicates that the site and surrounding area is likely to have been forested and thinly populated. However, earthwork remains of Stowe Castle, a probable Norman Motte and Bailey Castle dating to the 11th century, lies just to the south-west of the site.
- 1.3.5 Later medieval archaeology within the area of proposed development is uncertain. The site lies at the side of a main thoroughfare, opposite the known medieval settlement at Stowe Green. Evidence suggests that the site lay within open fields adjacent to Stowe Green, that had been cleared of woodland for arable cultivation or for pasture.
- 1.3.6 The proposed extraction site contains a number of archaeological earthworks now believed to be post-medieval or modern in date. These are clearly visible in Field H and include two mounds, most likely formed by dumped material, at the crest of the hill related to either farming or the small quarry to the south-east (Field H). A disused lane visible in Field H and of similar date runs north-west and bounds the north-east hedge of this field. It has long since been abandoned and incorporated into the arable and pastoral land - Fields H and I.

#### 1.4 Geophysical survey

- 1.4.1 Following the completion of the desk-based assessment, the Senior Archaeological Officer recommended that a programme of geophysical survey be undertaken across the whole site, with a view to further understanding the archaeological implications of the development proposal.
- 1.4.2 The geophysical technique employed was magnetometer survey supplemented by a magnetic susceptibility survey. A report on the results was produced by the Bartlett-Clarke Consultancy for OA (Bartlett 2001); the results are summarised on Figure 2. A Roman coin dating to the 3rd century was found during the survey. The coin is an Antoninianus of Valerian (AD 253-260) - see Figure 2 for location.

## 2 EVALUATION AIMS

- 2.1.1 To establish the presence/absence of archaeological remains within the proposal area.
- 2.1.2 To determine the extent, condition, nature, character, quality and date of any archaeological remains present.
- 2.1.3 To establish the ecofactual and environmental potential of archaeological deposits

and features.

2.1.4 To make available the results of the investigation

### **3 EVALUATION METHODOLOGY**

#### **3.1 Scope of fieldwork (Fig. 2)**

3.1.1 The evaluation consisted of eighty-two trenches each measuring 30 m x 2 m wide. Trench 54 was extended by 11 m to the south in order to further evaluate one of the mounds (see Section 1.3.6). Trenches 20, 25, 41, 61 and 81 were moved several metres in order to avoid obstructions such as overhead cables, trees or hedges. Trenches 75 and 80 were repositioned to avoid the quarry bank in Field J. Trenches 42, 43 and 79 were relocated to target specific topographical features identified in Field H. Trenches 72, 73, 74 and 77 were found to be in locations unavailable for evaluation due to the presence of an earth bund (not featured on the OS Mapping) associated with the current extraction area.

3.1.2 The overburden was removed under close archaeological supervision by a 360° mechanical excavator fitted with a toothless bucket. The topsoil was separated from underlying deposits during excavation and later reinstated. A deliberate effort was made to ensure specific routes through the fields were adhered to by the tracked machine to minimise unnecessary damage to crops.

#### **3.2 Fieldwork methods and recording**

3.2.1 The trenches were cleaned by hand and the revealed features were sampled to determine their extent and nature, and to retrieve finds and environmental samples. All archaeological features were planned at 1:50 and their sections drawn at scales of 1:20. All features were photographed using colour slide and black and white print film. Recording followed procedures laid down in the *OAU Fieldwork Manual* (ed D Wilkinson, 1992).

#### **3.3 Finds**

3.3.1 Finds were recovered by hand during the course of the evaluation and bagged by context. Finds of special interest were given a unique small find number.

#### **3.4 Palaeo-environmental evidence**

3.4.1 Soil samples were taken during the evaluation from several features. These were examined for charred remains, small bones and artefacts, and metalworking residues.

#### **3.5 Presentation of results**

3.5.1 The general results are followed by descriptions of individual trenches. These are followed in turn by a brief description of the finds and a discussion of the results. A separate table giving detailed information on individual contexts is to be found in Appendix 1. A short description of trenches containing no archaeological remains has been given below; these trenches do not appear in Appendix 1.



## 4 RESULTS: GENERAL

### 4.1 Soils and ground conditions

- 4.1.1 The site is located on Lower Carboniferous Limestone which, to the north-eastern extent of the site, is overlain by glacial silts and clays. Both natural deposits were overlain by a silty clay to clay silt subsoil which was then sealed by the modern clay loam ploughsoil.

### 4.2 Distribution of archaeological deposits

- 4.2.1 Archaeological features and deposits were predominantly confined to Field H with a single isolated pit found in Trench 6 in Field A. Field H produced a scatter of small furnace pits and slag pits (Trenches 56 and 70) with an isolated though possibly contemporaneous gully in Trench 55. Two mounds were investigated in Trenches 57 and 54, with another pit in Trench 57 and a metalled trackway in Trench 43 (also in Field H).

## 5 RESULTS: DESCRIPTIONS

### 5.1 Description of deposits

#### *Trench 6 (Fig. 3)*

- 5.1.1 An isolated circular pit (603) measuring 1.2 m in diameter by 0.14 m deep was found at the centre of the trench. It cut a natural clay deposit (604) which overlaid the limestone bedrock (605), and contained a single fill (602). Deposit 602 consisted of a dark brown silty-clay containing occasional flecks of charcoal. This deposit was then overlain by a light red-brown silty-clay subsoil (601) measuring 0.14 m thick which was in turn sealed by the ploughsoil (600) up to 0.28 m thick.

#### *Trench 55 (Fig. 3)*

- 5.1.2 Trench 55 contained a single heavily truncated gully terminus (5504). This was aligned north-east by south-west with the terminus at the north-eastern end. The gully measured over 3.7 m long by 0.45 m wide and cut into a natural yellow clay deposit (5502). It contained a single mid red-brown silty-clay deposit (5503) measuring 0.11 m thick, from which a small quantity of slag was retrieved. This was then overlain by a light brown clay-silt subsoil (5501) up to 0.15 m thick which was sealed by the 0.2 m thick ploughsoil (5500).

#### *Trench 56 (Fig. 4)*

- 5.1.3 Two pits were found in Trench 56; both pits 5603 and 5605 were seen at the northern end of the trench cutting a natural clay deposit (5606) which overlaid the limestone bedrock (5607). Pit 5603 was oval in shape with concave sides and a rounded base and measured 0.4 m in diameter by 0.12 m deep. It was filled by a single mid brown silty clay deposit (5602) of which 80% was slag 'cake' (see Section 6.2.1). Pit 5605 was similar in shape measuring 0.36 m diameter by 0.04 m deep. This pit was filled by a mid brown silty clay deposit (5604) containing in situ charcoal and ash with the remains of a slag 'cake'. This overlaid a primary mid brown yellow charcoal rich

deposit (5608). Both pits had clearly been truncated and were overlain by a light red-brown silty-clay subsoil (5601) measuring 0.2 m thick. This was then sealed by a clay-loam ploughsoil (5600) up to 0.26 m thick.

#### ***Trench 70 (Fig. 4)***

- 5.1.4 In Trench 70 two oval pits were identified at the centre of the trench. Both pits 7004 and 7005 had concave sides and a flat base measuring 0.55 m x 0.42 m wide by 0.26 m deep and 0.47 m x 0.4 m wide by 0.31 m deep respectively. Pit 7004 contained a mid orange brown clay silt deposit (7007) of which 30 % was redeposited slag and 1% charcoal flecks. Pit 7005 contained a similar deposit (7008) of charcoal flecked clay silt and slag. These pits cut a red-brown silty-clay subsoil (7002) measuring 0.11 m thick which overlaid a natural brown orange silty clay deposit (7003) seen at the base of the trench. The subsoil and pits were then sealed by the ploughsoil (7001).

#### ***Trenches 43, 54 and 57 (Fig. 5)***

- 5.1.5 These trenches contained post-medieval/modern features - a gravel trackway now used as a public pathway in Trench 43, and two mounds in Trenches 54 and 57. The trackway (4305) consisted of a loose layer of limestone measuring 4.7 m wide by up to 0.25 m thick overlying a silty clay subsoil (4302). The track was then overlain by a very thin layer of turf. The mound in Trench 54 was roughly circular measuring 14.4 m in diameter by 0.33 m thick and had been formed over the contemporary topsoil, now the subsoil (5401). This subsoil consisted of a red-brown clay-silt up to 0.3 m thick which overlaid the limestone bedrock (5403). The mound (5404) was formed by the dumping of a loose pile of limestone platelets within a brown clay-loam containing frequent pieces of coal. This feature was then overlain and sealed by the ploughsoil (5400), measuring up to 0.32 m thick.
- 5.1.6 The mound in Trench 57 was roughly lozenge shaped and measured 7.9 m in length by 0.37 m thick. The charcoal flecks present in the mound deposit were also visible in the ploughsoil (5700). The mound deposit consisted of a mid red-brown silty-clay (5701). Here it overlaid the limestone bedrock (5702) which, in the eastern and western half of the trench, was directly overlain by the ploughsoil which was up to 0.24 m thick.
- 5.1.7 A semi-circular rock cut pit (5703) with stepped concave sides and a flat base was found 4 m from the eastern end of Trench 57. It measured 1.2 x 2.1 m wide by 0.48 m deep. The primary fill (5704) was a dark brown silty-clay up to 0.02 m thick by 0.8 m wide. This was overlain by a deposit (5705) of dark brown clay-silt containing occasional charcoal flecks and measuring 0.35 m thick. The ploughsoil (5700) then sealed this deposit.
- 5.1.8 Trenches 42 and 43 cut north-south and east-west across the possible water management features identified during the walk-over. These features proved to be natural in origin, most likely the result of glacial activity. A revetment seen in the small quarry in the south of Field H had been constructed to contain any further bank collapse and was thought to be modern in date.



***Trenches 1-5, 7-42, 44-53, 58-69, 71, 75, 76 and 78-86***

- 5.1.9 No archaeological features or deposits were found in these trenches. The deposits within these trenches consisted of the carboniferous limestone bedrock being either directly overlain by the clay loam ploughsoil or a silty clay subsoil, seen predominantly within Fields F, I, J and K. In the remaining fields the bedrock was overlain by natural glacial clays and silts which were in turn overlain by the subsoil and sealed by the ploughsoil.

**5.2 Finds*****Pottery***

- 5.2.1 Pottery was only recovered from the subsoil and ploughsoil. This included a single sherd of Romano-British Black Burnished ware and six sherds of glazed post-medieval pottery.

***Flint, by Hugo Lamdin-Whymark***

- 5.2.2 A total of four flints were recovered from the evaluation. The flintwork comprised two flakes (context 7601), a blade-like flake (context 4000) and a blade (context 4001). The flints were not diagnostic and only a few distinctive technological traits were present. The flints were, however, thin and two exhibited platform edge abrasion, indicating some degree of care taken during knapping. It is therefore possible these flints are either Mesolithic or Neolithic in date, although a larger number of flints is required to confirm, or refine, the suggested date range.

***Iron-working slag, by Sarah Paynter***

- 5.2.3 21.9kg of iron-working slag was recovered by during the evaluation. The majority of this material came from contexts 7008 (13kg), 7007 (0.7kg), 5602 (6.7kg) and 5604 (1kg), all in Field H. The slag in contexts 7008 and 7007 (pits 7005 and 7004 respectively) is likely to have been deposited there. The slag in contexts 5602 and 5604 (pits 5603 and 5605 respectively) may have been in situ.
- 5.2.4 The slag is all waste from smelting, falling into three main morphological types. The first type is tap slag that has solidified with flow lines on its surface and often with fired clay adhered to the base, although this tap slag is unusual as the flowed surface of the slag appears to have been flattened after forming. The second type of slag contained a large number of impressions of roughly aligned, thin, organic fibres. The third type of slag was in the form of large accumulations found in pits. These pits were probably associated with, or were part of, the furnace structure and the slag collected in them. These have been referred to as "furnace pits" in the evaluation report. Given the proximity and alignment of the pits containing the deposited slag (including the tap slag) and the furnace pits containing the slag accumulations, it is likely that the different slag morphologies were produced by the same furnaces. Some iron-rich stone (potentially ore) and an iron object were also identified.
- 5.2.5 All of the slag was recovered from Field H where the geophysical survey shows a linear anomaly, or series of aligned anomalies, in an approximately north-south

direction. Trench 56, where the furnace pits were located, was positioned across this north-south anomaly. At the southern end of the linear anomaly, a further cluster of anomalies was identified on the same alignment but some 20m distant. Trench 70, where the deposited slag was recovered, was positioned in this area. Therefore other iron-working features might be located along this anomaly. It may be possible to determine whether the linear anomaly is made up of a series of iron-working features through further examination of the raw data from the geophysical survey of field 11.

- 5.2.6 The morphology and quantity of slag recovered is not inconsistent with smelting slag from other Iron Age sites but evidence is required to firmly establish the date, and thus significance, of the activity and should be a priority of future excavation. Carbon dating of charcoal found associated with the features could be undertaken. For example concentrations of charcoal were recovered from the base of feature 5608, with in situ smelting slag.
- 5.2.7 An archaeological scientist specialising in metalworking should be appointed at the planning stage of future work, particularly excavation of the area in field H where geophysical anomalies were noted. The specialist should be available to visit the site, advise on the excavation, sampling and interpretation of metalworking features and to assess the related finds.
- 5.2.8 The identification of iron-working features and in situ slag is rare for any period or region and in this respect the features discovered at Stowe Hill are of significance, particularly if a number are located at the site. The different morphological groups of slag are likely to provide information on the technology employed, even if the survival of the furnace structures themselves is poor. If dating evidence demonstrates that the features are Iron Age, then the site would be of particular interest. Little evidence of Iron Age iron production has been identified from the Forest of Dean area, despite a reasonable scale of pre-Roman iron production in the region being thought likely (Tylecote, 1990, 130). There is more evidence concerning the exploitation of the rich iron ores (goethite) from the Forest of Dean by bloomery smelting in the Roman (Fulford and Allen, 1992) and medieval periods. However overall there have been few systematic studies into iron-working in the area relative to comparable regions, such as the Weald (Cleere and Crossley, 1985), and thus the iron-working features discovered at Stowe Hill have added importance because of the scarcity of knowledge about the Forest of Dean iron industry.

### 5.3 Palaeo-environmental remains

- 5.3.1 A summary of the palaeo-environmental evidence is given below. A copy of the full specialist report can be found in Appendix 2.
- 5.3.2 Charcoal was found in all six samples. The greatest concentrations came from Samples 2 (5602) and 5 (5608). The latter is believed to be the remains of a fired 'charge' at the base of furnace pit 5605. The remains were predominantly of diffuse porous taxa with some oak included.
- 5.3.3 Charred cereal grains were found in Samples 3 (7007) and 4 (7008). In these deposits Barley (*Hordeum*), Oats (*Avena*) and possible bread wheat (*Triticum aestivum* type)

were identified. Although unusual for Roman or earlier periods (spelt (*Triticum spelta*)) being more characteristic, the bread wheat was tentatively identified and could possibly be that of a shorter spelt grain type recorded at Iron Age sites such as Danebury and Tiddington.

- 5.3.4 Remains of charred weed seeds, a blackberry pip and burnt bone fragments were also noted in Samples 1 to 4.

## 6 DISCUSSION AND INTERPRETATION

### 6.1 Reliability of field investigation

- 6.1.1 The evaluation covered a 2% sample and appears to be a satisfactory representation of the presence or absence of any archaeological remains within the site. Although there is a potential for further evidence of metal working activity to be found within Field H there seems little possibility of any significant archaeological remains having survived within other areas, possibly due to the effects of ploughing combined with the shallow depth of overburden above the limestone bedrock.

### 6.2 Overall interpretation

- 6.2.1 Field H was the only field to produce any significant archaeological remains revealing what appears to have been the focus of low intensity iron smelting activity. The presence of two separate pairs of slag pits (7004 and 7005) and furnace pits (5603 and 5605) and a gully (5504) prove this area was producing, if only on a small scale, smelted iron and has been tentatively dated to the Iron Age or Roman period on the basis of the remains found at the base of these pits. The furnace pits, though heavily truncated, contained 'cakes' (a term used to describe the slag left at the base of a non slag-tapping bowl furnace after the bloom has been removed and prior to cleaning out) which may be indicative of this early form of smelting as seen at Chelm's Combe, Somerset (Tylcote, 2nd ed 1992).
- 6.2.2 The presence of slag within gully 5504 has been the basis for associating it with the metal working activity in Field H (represented by the pits in Trenches 56 and 70), though the slag may be residual. The quantity of slag seen throughout the ploughsoil in Fields A, D, F and I, suggest production may have been either on a much larger scale than was found or the result of small scale activity over a long period of time. If the former is true then the lack of evidence for smelting from other fields may be due to the effects of ploughing, particularly as the overburden is very shallow throughout the site. Equally it may be the result of iron smelting activity from beyond the site limits.
- 6.2.3 Whether there was metal working on site associated with the smelting is not known.
- 6.2.4 The combination of palaeo-environmental assessment results, the characteristics of the pits and their deposits and the lack of any dating evidence leaves a question mark over when these furnaces were in use. To date there is little known about pre-Roman and Roman smelting techniques, their locations and trade routes within the Forest of Dean. The fact that evidence of iron production has been found on this site, while tentatively dated by the type of furnace found, is of significance and further investigations may help answer some of these questions.
- 6.2.5 The mounds found in Field H, while appearing to be prominently positioned at the peak of a small rise, are not prehistoric features as previously thought but are most likely the result of dumping of topsoil and limestone either during farming or quarrying activities. These mounds were neither circular or bounded by a ditch or bank as would be expected if they were prehistoric features such as round barrows.

- 6.2.6 The loose limestone and topsoil mound in Trench 54 is likely to have been the result of field clearance or a dump of quarried stone. The fact that coal was present proves it to have been Roman or later in date. However it was present in the topsoil and may therefore be more recent in date. The silty clay deposit forming the mound in Trench 57 suggests a random dump of former topsoil.

## APPENDICES

## APPENDIX 1 ARCHAEOLOGICAL CONTEXT INVENTORY

<i>Trench</i>	<i>Context No</i>	<i>Type</i>	<i>Width (m)</i>	<i>Depth (m)</i>	<i>Comment</i>	<i> Finds</i>	<i>Date</i>
6							
	600	Deposit	-	0.28	Ploughsoil	Pottery	Post-medieval
	601	Deposit	-	0.14	Subsoil	-	-
	602	Fill	1.2	0.14	Fill of 603	-	-
	603	Cut	1.2	0.14	Pit	-	-
	604	Deposit	-	-	Clay	-	-
	605	Natural	-	-	Limestone bedrock	-	-
43							
	4301	Deposit	-	0.13	Ploughsoil	-	-
	4302	Deposit	-	0.13	Subsoil	-	-
	4303	Deposit	-	0.12	Subsoil	-	-
	4304	Natural	-	-	Clay natural	-	-
	4305	Deposit	4.7	0.16	Cobbled trackway	Pottery, bridle bit	Post-medieval
54							
	5400	Deposit	-	0.32	Ploughsoil	-	-
	5401	Deposit	-	0.35	Subsoil	-	-
	5402	Void	-	-	Void	-	-
	5403	Natural	-	-	Limestone bedrock	-	-
	5404	Deposit	14.4	0.33	Limestone mound	-	-
	5405	Fill	1.55	0.69	Fill of 5406	-	-
	5406	Cut	1.55	0.69	Natural solution hole	-	-
55							
	5500	Layer	-	0.2	Ploughsoil	-	-
	5501	Layer	-	0.15	Subsoil	-	-
	5502	Layer	-	-	Clay natural	-	-
	5503	Fill	>3.7 x 0.45	0.11	Fill of gully	Slag	-
	5504	Cut	>3.7 x 0.45	0.11	NE-SW Gully	-	-
56							
	5600	Layer	-	0.26	Ploughsoil	-	-



<i>Trench</i>	<i>Context No</i>	<i>Type</i>	<i>Width (m)</i>	<i>Depth (m)</i>	<i>Comment</i>	<i>Finds</i>	<i>Date</i>
<b>56</b>							
	5601	Layer	-	0.2	Subsoil	-	-
	5602	Fill	0.4	0.12	Slag fill of pit 5603	Slag cake	-
	5603	Cut	0.4	0.12	Bowl furnace pit	-	-
	5604	Fill	0.3 x 0.36	0.06	Slag fill of pit 5605	Slag cake	-
	5605	Cut	0.3 x 0.36	0.06	Bowl furnace pit	-	-
	5606	Layer	-	-	Clay natural	-	-
	5607	Natural	-	-	Limestone bedrock	-	-
	5608	Fill	0.24 x 0.22	0.06	Charcoal fill of pit 5608	-	-
<b>57</b>							
	5700	Layer	-	0.24	Ploughsoil	-	-
	5701	Layer	7.9	0.37	Silty clay mound	-	-
	5702	Natural	-	-	Limestone bedrock	-	-
	5703	Cut	1.2 x 2.1	0.37	Pit	-	-
	5704	Fill	0.8	0.02	Primary fill of pit 5703	-	-
	5705	Fill	1.2 x 2.1	0.35	Secondary fill of pit 5703	-	-
<b>70</b>							
	7001	Layer	-	0.21	Ploughsoil	-	-
	7002	Layer	-	0.11	Subsoil	-	-
	7003	Natural	-	-	Limestone bedrock	-	-
	7004	Cut	0.55 x 0.42	0.26	Slag pit	-	-
	7005	Cut	0.4 x 0.47	0.31	Slag pit	-	-
	7006	Cut	0.45 x 0.32	0.14	Tree throw hole	-	-
	7007	Fill	0.55 x 0.42	0.26	Slag fill of pit 7004	Slag	-
	7008	Fill	0.4 x 0.47	0.31	Slag fill of pit 7005	Slag	-
	7009	Fill	0.45 x 0.32	0.14	Fill of 7006	-	-

## APPENDIX 2 CHARRED PLANT REMAINS AND CHARCOAL BY ELIZABETH HUCKERBY

Six samples were taken during the evaluation for the recovery of charred plant remains. All the samples came from pits and Nos 1-4 were from smelting pits full of metal working debris, suggesting that there may have been associated with furnaces. Sample size ranged from 1 to 40 litres. The samples were processed by flotation using a modified Siraf-type machine, with the flot collected on a 250µm mesh. After air-drying the flots were scanned for material under a Leitz/Wild stereozoom binocular microscope.

The flots varied in size and all contained modern roots, which were very abundant in Samples 1, 3, 4, and 6, and most had modern seeds in them. Charcoal was present in all samples although the quantities were variable with high concentrations in sample No. 2 (context 5604) and No. 5 (context 5608). The preservation of the charcoal was good. Charcoal from diffuse porous taxa dominated the assemblages although some oak was noted. Charred twigs occurred in most samples.

Charred cereal grains were identified in two of the samples (3 and 4) from contexts 7007 and 7008. Sample 3 came from context 7007, which was the fill of a possible smelting pit. It contained at least twenty eight charred cereal grains and the majority were tentatively identified as bread wheat (*Triticum aestivum* type) with some Barley (*Hordeum*) and Oats (*Avena*). The preservation of the cereal grains was mixed and some of the wheat was partly germinated. There was no chaff or charred weed seeds recorded.

Sample 4 came from Context 7008, which was the fill of a slag pit, and contained at least twenty charred cereal grains including Oats, Barley and Wheat. The latter was recorded at lower concentrations than in the previous sample. The oat grains may be from either wild or cultivated oats as is not possible to distinguish between them without awns or floret bases. The preservation of the grain was mixed.

Occasional charred weed seeds were recorded in some of the other samples and a non carbonised Blackberry pip in Sample 4. Fragments of burnt bone were noted in samples 1 and 3. Coal was identified in all samples, except in Nos 3 and 4, together with industrial residues.

An unusual feature of this site is the recording of possible bread wheat from deposits tentatively thought to be prehistoric or Roman. Spelt (*Triticum spelta*) is more characteristic of the Late Iron age and Roman period in the south and has been identified at Birdlip Quarry, Gloucestershire (Pelling, 1999). However some shorter spelt grains with a similar shape to bread wheat have been recorded at some sites in the South eg within the Danebury Environs region (Campbell, 2000, 46) and at Tiddington (Moffet, 1986). Therefore these tentatively identified bread wheat grains at this site may in fact be short spelt ones. However the possible bread wheat does raise a question as to the age of the site.

These results demonstrate the potential for the recovery of charred remains from the site and for charcoal analysis. It is recommended that a palaeoenvironmental sampling strategy be implemented if further archaeological work is undertaken at the site. In any future palaeoenvironmental sampling care must be taken to minimise modern contamination.

## APPENDIX 3 BIBLIOGRAPHY AND REFERENCES

- Bartlett (2001), Stowe Hill Quarry extension, Clearwell, Gloucestershire: Report on Archaeogeophysical Survey
- Campbell G V (2000), *Plant utilisation: The evidence from charred plant remains* in Cunliffe, B *The Danebury Environs Programme: The Prehistory of Wessex Landscape. Vol. 1*, 45-59, OUCA Monograph
- Cleere H and Crossley D, 1985, *The Iron Industry of the Weald*, Leicester University Press.
- Fulford M G and Allen J R L, 1992, Iron-making at the Chesters Villa, Woolaston, Gloucestershire: Survey and Excavation, 1987-91, *Britannia*, **23**, 159-216.
- Moffett L (1986), *Crops and crop processing in a Romano-British village at Tiddington: The evidence from charred plant remains*. Ancient Monuments Laboratory Report 15/86
- OAU (2001), Archaeological Desk-Based Assessment for Clearwell Quarries Ltd
- Pelling R (1999), The charred and waterlogged plant remains in Mudd et al, (1999), *Excavations along Roman Ermine Street, Gloucestershire and Wiltshire: The archaeology of the A419/417 Swindon to Gloucestershire Road Scheme*, Vol. 1
- Tylecote R F, 1990, *The Prehistory of Metallurgy in the British Isles*, London: Institute of Metals.
- Tylecote R F (2<sup>nd</sup> ed 1992), *A History of Metallurgy*

#### APPENDIX 4 SUMMARY OF SITE DETAILS

**Site name:** Clearwell Quarry Extension, Stowe Hill, Gloucestershire

**Site code:** SOYDH2001.41

**Grid reference:** SO 5700 0670

**Type of evaluation:** Eighty-four trenches

**Date and duration of project:** 2<sup>nd</sup> - 17<sup>th</sup> April 2002

**Area of site:** 25.9 hectares

**Summary of results:** Field H - two bowl furnace pits and two slag pits, a gully and two modern mounds and trackway. Field A - single isolated pit.

**Location of archive:** The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with Gloucestershire County Museums Service in due course.



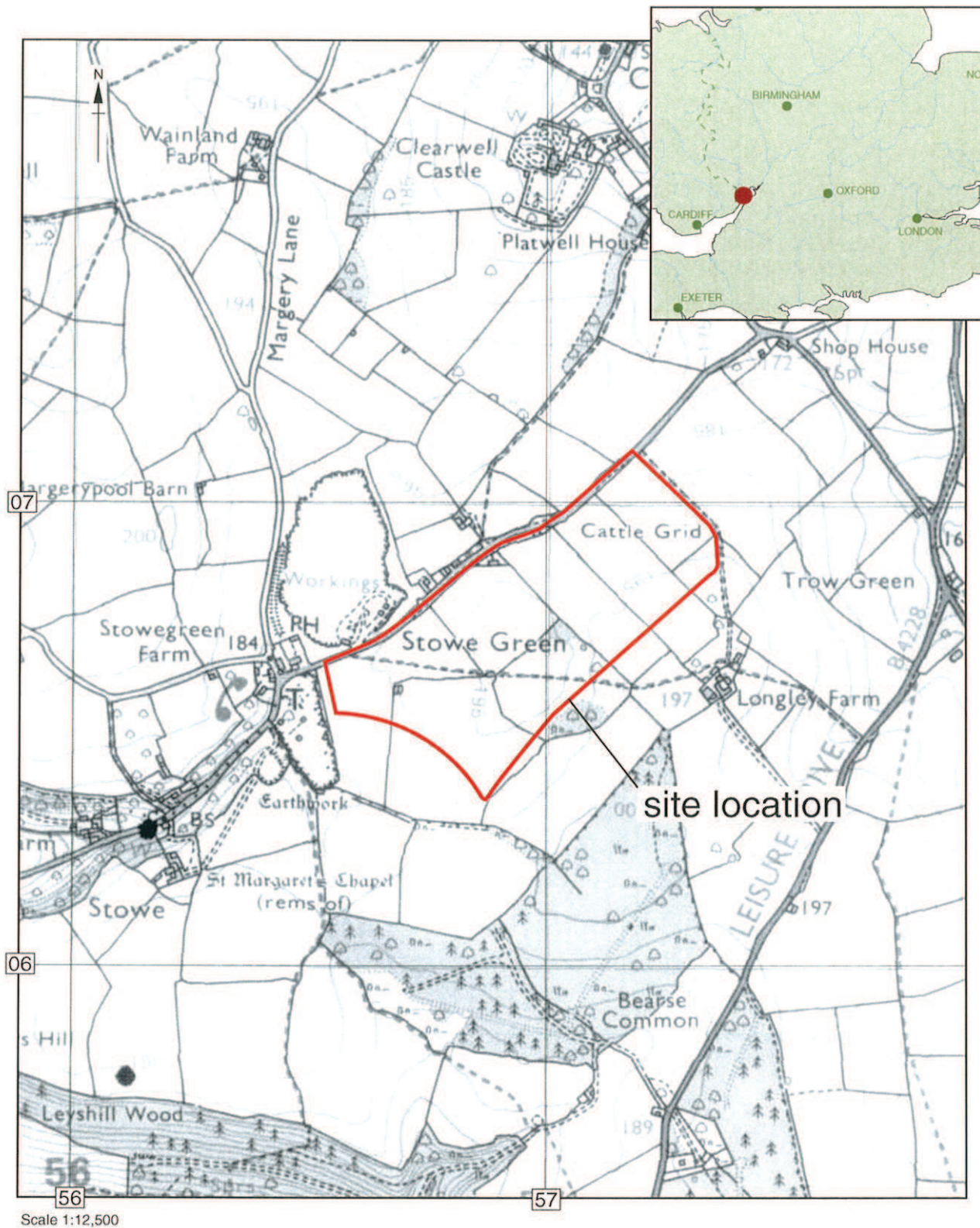
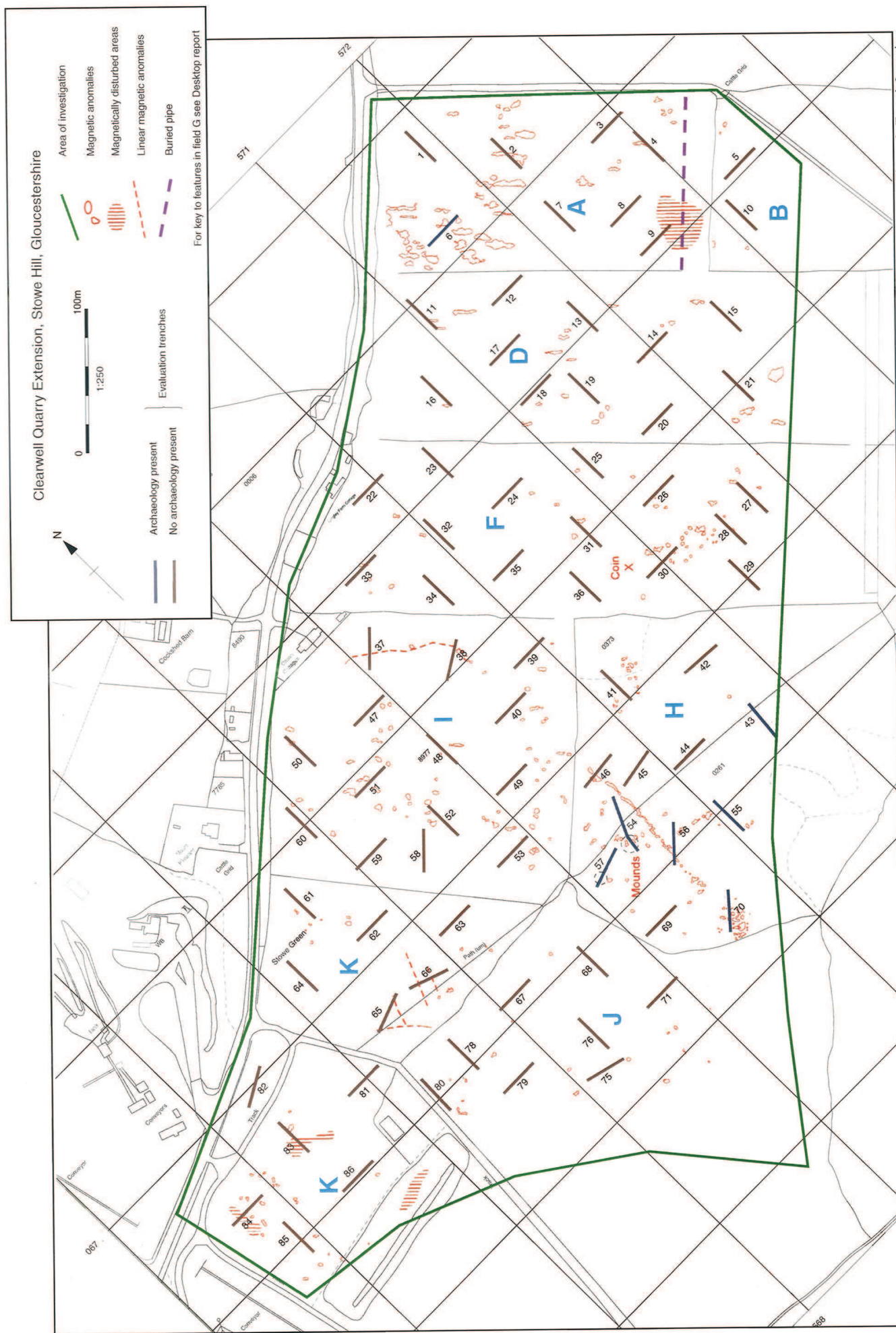


Figure 1: Site location







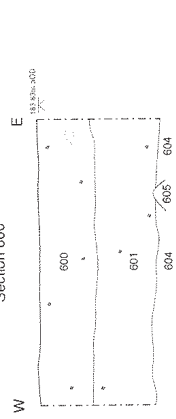
Trench 6  
Plan



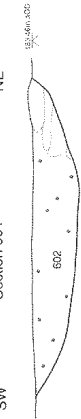
Trench 55  
Plan



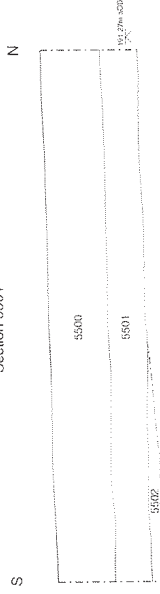
Trench 6  
Section 600



Trench 6  
Section 601



Trench 55  
Section 5501



Trench 55  
Section 5502



Figure 3: Trenches 6 and 55 - plans and sections





Figure 5: Trenches 54 and 57, plans and sections.



#### **Oxford Archaeology**

Janus House  
Osney Mead  
Oxford OX2 0ES

t: (0044) 01865 263800  
f: (0044) 01865 793496  
e: [info@oxfordarch.co.uk](mailto:info@oxfordarch.co.uk)  
w: [www.oxfordarch.co.uk](http://www.oxfordarch.co.uk)



#### **Oxford Archaeology North**

Storey Institute  
Meeting House Lane  
Lancaster LA1 1TF

t: (0044) 01524 848666  
f: (0044) 01524 848606  
e: [lancinfo@oxfordarch.co.uk](mailto:lancinfo@oxfordarch.co.uk)  
w: [www.oxfordarch.co.uk](http://www.oxfordarch.co.uk)

**Director:** David Jennings, BA MIFA FSA



Oxford Archaeological Unit is a  
Private Limited Company, N<sup>o</sup>: 1618597  
and a Registered Charity, N<sup>o</sup>: 285627

**Registered Office:**

Oxford Archaeological Unit  
Janus House, Osney Mead, Oxford OX2 0ES