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MOUNTCASTLE QUARRY, LETHAM, FIFE Results of an Archaeologically Monitored Topsoil Strip (Second Phase)

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PROJECT SUMMARY SHEET

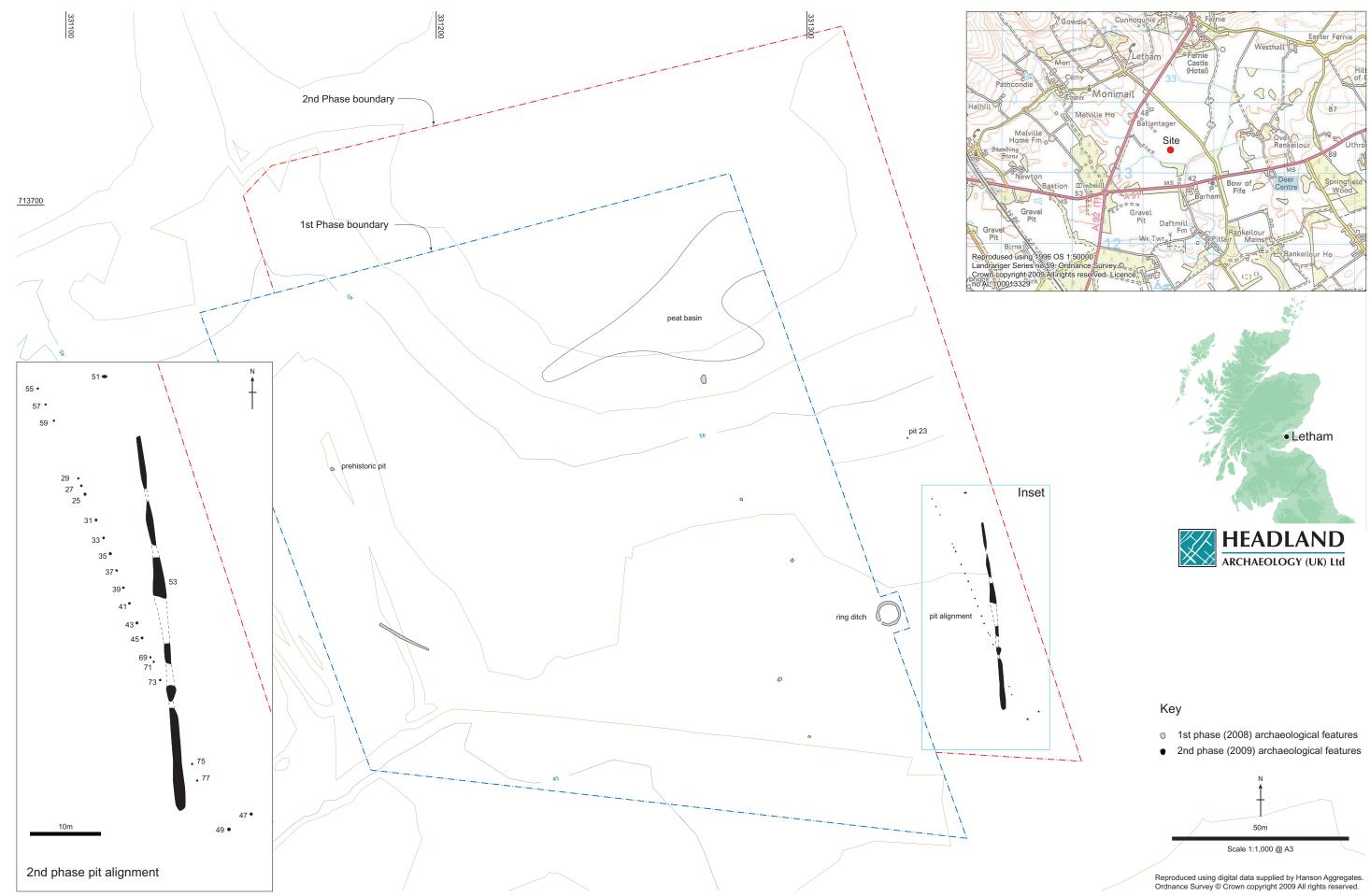
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MOUNTCASTLE QUARRY, LETHAM, FIFE

Results of an Archaeologically Monitored Topsoil Strip (Second Phase)

by Jamie Humble

Archaeological monitoring of the topsoil strip for an extension to Mountcastle sand and gravel quarry located a number of features. Most of these features were pits or postholes that formed an alignment of 20 pits. Also discovered were three isolated pits or postholes along with a linear feature interpreted as an old hedge line or field boundary.

1 INTRODUCTION

Headland Archaeology Ltd were commissioned to monitor topsoil stripping for an extension to Mountcastle sand and gravel quarry, on behalf of Hanson PLC (Planning Reference 07/03961/EFULL). The work was the result of a planning condition set by Fife Council in relation to the extension, which required a scheme of archaeological work be submitted to and approved by Fife Council, and implemented by Hanson PLC. A Written Scheme of Investigation (Headland Archaeology Ltd 2008) was submitted to Douglas Speirs (archaeological advisor to Fife Council) and formed the basis of the works.

A monitored topsoil strip of most of the application area was undertaken in September/October 2008, and a DSR report on the results of the monitoring has been produced and submitted to Fife Council (Kimber 2008). Hanson PLC subsequently wished to strip two areas within the application area that were previously unavailable due to the presence of topsoil bunds.

1.1 Archaeological Background

The quarry extension lies in the vicinity of the Howe of Fife Archaeological Area of Regional Importance, as defined in the Local Plan for Cupar and the Howe of Fife (Fife Council 2003: 28). This comprises an area in which many cropmarks of disparate type and date have been recorded. The majority are interpreted as prehistoric in date and include settlement and burial sites.

Several cropmark sites have been recorded around 500m to the west, beyond the A92 and around Ballantagar farm (RCAHMS site nos: NO31 SW 161, 162 & 163). These comprise cropmarks interpreted as representing prehistoric settlement and later cultivation remains (rig and furrow).

During the previous watching brief, numerous archaeological features were located. The most significant of which were a small pit containing a largely complete (although fragmented) Grooved Ware vessel, and a small ring-ditch from which a fragment of shale bangle was recovered.

2 METHOD

The additional areas stripped in 2009 comprised an area of 7,750m2. This consisted of two strips of land the first approximately 25m wide and 150m long running along the northern edge of the previously stripped area and the second approximately 20m wide and 200m long lying along its eastern edge.

The topsoil strip was carried out by a tracked backacting excavator using a toothless bucket monitored by a single archaeologist. Spoil was removed by dump-trucks running over the previously stripped areas of the site. Machine excavation continued until either significant archaeological deposits or undisturbed drift deposits were exposed.

When significant features were located, machine excavation in that area was stopped. The area around the feature(s) was hand-cleaned where necessary in order to check for the presence of further features.

All recording followed Headland Archaeology Ltd standard procedures and the codes of practice of the Institute for Archaeologists. All trenches, contexts and environmental samples were given unique numbers and all recording was undertaken on pro forma record cards. Colour transparencies and print photographs were taken to record archaeological contexts and to illustrate the general nature of the work.

Significant archaeological features were recorded relative to the National Grid, using a total station linked to a tablet PC using TheoLT and AutoCAD LT software. Where appropriate sections through individual features were



Illus 2 General view of topsoil stripping

drawn by hand at a scale or 1:10, and hand drawn plans of contexts and features were completed where required. Archaeological deposits were sampled systematically in accordance with Headland Archaeology Ltd environmental sampling practice. Bulk samples, up to 30 litres where possible, were taken for wet sieving and flotation.

3 RESULTS

An area of high ground, forming a level plateau at approximately 48m OD, occupied the western and southern parts of the extension area. North and east of this area, the ground sloped gently downwards, with the lowest lying part of the site being in its north-east corner at approximately 41m OD. The high ground appeared to be part of a large ridge of sand and gravel running approximately east-west. The existing quarry is located to the south and west of the extension area, while to the north and east lie undisturbed fields. Almost all of the features located during the monitoring were found on the area of high ground. The low lying area was sufficiently boggy for peat deposits to have formed at one time, although prior to the start of stripping the entire area was rough pasture. Modern pottery and glass were recovered from the peaty deposits during the previous phase of monitoring, suggesting that this area was only fully improved within the recent past.

The underlying geological deposits – partially sorted sands and gravels – were uneven and in places distinct hollows in surface of these deposits were present, possibly formed in periglacial conditions. These hollows were filled with fine silty clay, generally leached pale from waterlogging. There were common indications across the entire area of natural disturbance in the form of tree-throw pits and animal burrows. These features were clearly distinguishable by their irregular edges and fills containing fine organic material.

3.1 Archaeological features

The following presents a summary of the results, full records can be found in the appendices.

The most significant finding of this phase of archaeological monitoring was a pit or posthole alignment (Illus 1). This consisted of 20 cut features arranged in a linear formation, running north-west to south-east. These features were roughly equally spaced arranged 2-3m apart from each other and were of similar size and shape, being circular to sub-circular in plan and around 0.3m in diameter and 0.1m in depth. All were filled with a similar homogenous dark brown sand and gravel fill. All of the pits were heavily truncated but became more so further down-slope of the area of high ground.

A linear feature (context 53) running north to south on the high ground and crossing the pit alignment was also revealed. This measured 50m long and varied in width between 0.2m and 1.0m up to 0.1m deep and was filled with a single homogenous fill (context 54). Three slots were excavated across the feature and its depth was revealed to be less than 0.1m. This feature is interpreted as the remains of a hedge line.

Three isolated and undated cut features were discovered (contexts 47, 49, 51), all located in the vicinity of the pit alignment, although their fills were different, containing far less gravel. These features were also slightly larger than those forming the pit alignment, measuring from 0.4 to 0.6m in diameter.

4 PALAEOENVIRONMENTAL SAMPLES ASSESSMENT

D. Masson

4.1 Introduction

A total of twenty four samples were collected, for the recovery of ecofactual and artefactual remains from a series of features including a pit alignment, isolated pits and a linear feature excavated during the monitored topsoil strip of the site.



Illus 3 A typical feature within the pit/posthole alignment (Context 25, half sectioned)

4.2 Method

All samples were processed in laboratory conditions using a standard floatation method (cf. Kenward et al, 1980). All plant macrofossil samples were analysed using a stereomicroscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers et al (2006).

4.3 Results

The results for individual features or contexts are presented in appendices 2.1 (flotation samples) and 2.2 (retent samples). The concentration of archaeological finds recovered from these samples was extremely low. The samples consisted mainly of modern root/weed seeds and insect debris.

Charred plant remains

Charred cereal grain is present in one sample (sample 25), which contained one poorly preserved grain of oat (Avena sp.). Wood charcoal fragments were recovered in the majority of the samples processed. In most cases, the concentrations of charcoal were low and found to be either rare or occasional with only three samples (19, 29 and 36) found to contain fragments of a size suitable for identification and/or Accelerated Mass Spectrometry (AMS) dating (see appendices 2.1 and 2.2).

Other finds

Finds such as lithics and metallic waste were recovered from the retent samples (See appendix 2.2). For more information on these, please refer to the finds report by Julie Franklin. Coal and cinders were found mostly in small amounts in a limited number of samples. Fragments of burnt bone (<1cm) were also recovered from twelve samples while unburnt bone was recovered in two samples (Appendix 2.2).

4.4 Discussion

The concentration of environmental remains from these samples was extremely low. The collective assemblage from the samples is indicative of the re-working and re-depositing of industrial/domestic material. The primary value of the charcoal fragments recovered from the samples will be as a source of dating evidence. The plant remains in themselves offer little scope for detailed interpretation.

5 FINDS ASSESSMENT

Julie Franklin

No finds were found during the excavation though a handful of finds were later found in sample retents. These amounted to some fragments of industrial waste, probably iron slag, totalling 4g, from features 23, 25, 27, 53 and 59

of the pit alignment. There was also one chip of flint from feature 41 of the pit alignment. They are of uncertain date, though the industrial waste can be assumed to postdate the beginning of the Iron Age.

6 DISCUSSION

Pit alignments in Scotland range in date from the Neolithic to the Iron Age period – the features at Mountcastle quarry are likely to date to the Iron Age or later, based on the presence of iron slag within some of the pits. This could mean that the features are contemporary with the ringditch found during the earlier phase of works (Kimber 2008), as the shale bangle found in this feature is also likely to be Iron Age in date.

The interpretation of pit alignments is debated. Burgess's excavation of a pit alignment at Meldon Bridge, Peebles showed that this had formed an interrupted palisade cutting off a promontory of land, possibly for the control of cattle or stock (Barber 1985: 162). An alternative view of these pit alignments is that they constituted quarry-pits supplying material for a subsequently levelled linear earthwork (e.g. by ploughing). Barber's excavations at Eskbank Nurseries showed that the pits forming the Iron Age alignment had never held timber posts but that the pits acted as quarries supplying material for a linear earthwork. Similarly, a pit alignment at Marygoldhill plantation), Berwickshire (Strong 1988) also seems to have acted as a quarry for a continuous upstanding bank on the same alignment, forming a land division.

At Mountcastle, there was no evidence in the form of packing stones that any of the heavily truncated features had held wooden posts, so it seems likely that the pit alignment could have been similarly dug for the purpose of creating a linear earthwork. The low quantities of anthropogenic material recovered from sample processing suggest that the features were not closely related to intense human activity, although the iron slag does suggest industrial activity somewhere nearby.

The development of land boundaries reflects division and management of the landscape. In addition to their practical purpose in controlling movements of stock or people, land boundaries play a role in demonstrating ownership of land by social units such as families or communities. Other types of feature may be related to these boundaries – for example, funerary monuments such as the ring-ditch discovered in the earlier phase of monitoring can also be associated with the edges of group territories or particular zones of settlement.

The features located at Mountcastle Quarry give an indication of the level of prehistoric activity towards the periphery of settled areas – comprising land boundaries and occasional 'ritual' type features such as the ring-ditch or the buried Grooved Ware vessel. They demonstrate that the survival of these low density archaeological sites is possible in areas that have been under modern cultivation, but also suggest that this type of site is unlikely to be detected other than by archaeological monitoring of large area topsoil strips.

ACKNOWLEDGEMENTS

Thanks are due to all those involved in enabling the works – Andy Josephs Ltd, who acted as project consultants, Hanson PLC who sponsored the works, the site staff at Mountcastle Quarry who were very helpful in all respects, and Douglas Speirs who curated the works for Fife Council.

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APPENDIX 1.1: CONTEXT REGISTER

Context no	Description	Context no	Description						
	1 to 21 used in previous phase	47	Cut of pit/posthole. Sub-circular 0.40m by 0.35m						
2	Fill of 023. Dark brown homogenous silty sand and		0.13m deep. Isolated feature.						
	gravel. Cut of pit/posthole. Circular 0.33m by 0.33m,	48	Fill of 049. Dark brown sandy silt. Cut of pit/posthole. Sub-oval 0.55m by 0.42m,						
3	0.14m deep. Element of pit/posthole alignment.	49	0.12m deep. Isolated feature.						
4	Fill of 025. Dark brown homogenous silty sand and gravel.	50	Fill of 051Dark grey-brown sandy silt.						
5	Cut of pit/posthole. Circular 0.31m by 0.31m, 0.12m deep. Element of pit/posthole alignment.	51	Cut of pit/posthole. Sub-circular 0.63m by 0.50m 0.27m deep. Isolated pit/posthole.						
	Fill of 027. Dark brown homogenous silty sand and	52	Fill of 053. Dark grey-brown clay sand.						
5	gravel.	53	Cut of former field boundary. Linear Over 60m long 0.2m to 1.0m wide, less than 0.1m deep.						
7	Cut of pit/posthole. Sub-circular 0.29m by 0.28m, 0.07m deep. Element of pit/posthole alignment.	54	Fill of 055. Dark brown homogenous silty sand and gravel.						
3	Fill of 029. Dark brown homogenous silty sand and gravel.	55	Cut of pit/posthole. Circular 0.27m by 0.27m, 0.10m deep. Element of pit/posthole alignment.						
9	Cut of pit/posthole. Sub-circular 0.20m by 0.19m, 0.04m deep. Element of pit/posthole alignment.	56	Fill of 057. Dark brown homogenous silty sand and gravel.						
0	Fill of 031. Dark brown homogenous silty sand and gravel.	57	Cut of pit/posthole. Circular 0.19m by 0.19m, 0.11m deep. Element of pit/posthole alignment.						
1	Cut of pit/posthole. Sub-circular 0.27m by 0.25m, 0.09m deep. Element of pit/posthole alignment.	58	Fill of 059. Dark brown homogenous silty sand and gravel.						
2	Fill of 033. Dark brown homogenous silty sand and gravel.	59	Cut of pit/posthole. Sub-circular 0.26m by 0.23n 0.09m deep. Element of pit/posthole alignment.						
3	Cut of pit/posthole. Sub-circular 0.34m by 0.33m, 0.15m deep. Element of pit/posthole alignment.	60-67	VOID						
ł	Fill of 035. Dark brown homogenous silty sand and gravel.	68	Fill of 069. Dark brown homogenous silty sand and gravel.						
5	Cut of pit/posthole. Circular 0.32m by 0.32m, 0.20m deep. Element of pit/posthole alignment.	69	Cut of pit/posthole. Sub-circular 0.25m by 0.23n 0.11m deep. Element of pit/posthole alignment.						
6	Fill of 037. Dark brown homogenous silty sand and gravel.	70	Fill of 071. Dark brown homogenous silty sand and gravel.						
7	Cut of pit/posthole. Circular 0.31m by 0.31m, 0.12m deep. Element of pit/posthole alignment.	71	Cut of pit/posthole. Sub-circular 0.24m by 0.22n 0.12m deep. Element of pit/posthole alignment.						
8	Fill of 039. Dark brown homogenous silty sand and gravel.	72	Fill of 073. Dark brown homogenous silty sand and gravel.						
9	Cut of pit/posthole. Circular 0.32m by 0.32m, 0.10m deep. Element of pit/posthole alignment.	73	Cut of pit/posthole. Sub-circular 0.31m by 0.27n 0.14m deep. Element of pit/posthole alignment.						
0	Fill of 041. Dark brown homogenous silty sand and gravel.	74	Fill of 075. Dark brown homogenous silty sand and gravel.						
1	Cut of pit/posthole. Sub-circular 0.31m by 0.30m, 0.10m deep. Element of pit/posthole alignment.	75	Cut of pit/posthole. Circular 0.24m by 0.24m, 0.07m deep. Element of pit/posthole alignment.						
2	Fill of 043. Dark brown homogenous silty sand and gravel.	76	Fill of 077. Dark brown homogenous silty sand and gravel.						
3	Cut of pit/posthole. Circular 0.38m by 0.38m, 0.11m deep. Element of pit/posthole alignment.	77	Cut of pit/posthole. Circular 0.23m by 0.23m, 0.06m deep. Element of pit/posthole alignment.						
4	Fill of 045. Dark brown homogenous silty sand and	78-79	VOID						
	gravel.	80	Fill of 081. Light grey-brown silty gravel						
5	Cut of pit/posthole. Sub-circular 0.33m by 0.32m, 0.13m deep. Element of pit/posthole alignment.	81	Cut of possible pit. Sub-circular 0.80m by 0.76m 0.20m deep. Isolated pit.						
6	Fill of 047. Dark brown sandy silt.								

APPENDIX 1.2: DRAWING REGISTER

Drawing no	Scale	Description	Drawing no	Scale	Description				
		1 to 3 used in previous phase	31	1:10	053 Slot 3 NW facing section				
1	1:10	023 W facing section	32	1:10	047 NE facing section				
5	1:10	023 post-excavation	33	1:10	047 post-excavation				
5	1:10	025 SW facing section	34	1:10	049 NE facing section				
7	1:10	025 post-excavation	35	1:10	049 post-excavation				
3	1:10	029 S facing section	36	1:10	051 NW facing section				
)	1:10	027 S facing section	37	1:10	051 post-excavation				
10	1:10	027 post-excavation	38	1:10	055 SW facing section				
11	1:10	029 post-excavation	39	1:10	055 post-excavation				
12	1:10	031 N facing section	40	1:10	057 SW facing section				
13	1:10	033 S facing section	41	1:10	057 post-excavation				
14	1:10	031 post-excavation	42	1:10	059 SW facing section				
5	1:10	033 post-excavation	43	1:10	059 post-excavation				
16	1:10	035 NW facing section	44	1:10	045 S facing section				
17	1:10	035 post-excavation	45	1:10	045 post-excavation				
8	1:10	037 NW facing section	46	1:10	069 S facing section				
19	1:10	037 post-excavation	47	1:10	069 post-excavation				
20	1:10	039 SW facing section	48	1:10	071 S facing section				
21	1:10	039 post-excavation	49	1:10	071 post-excavation				
22	1:10	041 S facing section	50	1:10	073 SW facing section				
23	1:10	041 post-excavation	51	1:10	073 post-excavation				
24	1:10	043 S facing section	52	1:10	077 S facing section				
25	1:10	043 post-excavation	53	1:10	077 post-excavation				
26	1:10	053 Slot 1 post-excavation	54	1:10	075 S facing section				
27	1:10	053 Slot 2 post-excavation	55	1:10	075 post-excavation				
28	1:10	053 Slot 3 post-excavation	56	1:10	081 S facing section				
29	1:10	053 Slot 1 NE facing section	57	1:10	081 post-excavation				
0	1:10	053 Slot 2 SW facing section							

Photo no Direction Description Photo no Direction Description 1 to 38 taken during previous 80 Ν 033 S facing section phase 81 SE 035 NW facing section 39 ID shot SE 037 NW facing section 82 40 S General view 83 S 037 post-excavation 41 SW General view NE 039 SW facing section 84 42 SE General view 85 NE 039 post-excavation Ν General view 43 86 Е Tree bole SW General view 44 Tree bole 87 S S General view of stripped area 45 Tree bole 88 Е SW General view of stripped area 46 89 Ν 041 S facing section 47 S Working shot NE 90 041 post-excavation 48 S General view 91 Ν 043 S facing section 49 S Working shot 92 NE 043 post-excavation 50SW General view 045 S facing section 93 Ν 51 W General view 94 SW 047 NE facing section 52 NW General view 95 Е 052 & 053 NE 53 General view 96 SW 049 NE facing section 54 SE General view 97 SE 051 NW facing section 55 S Working shot NE 055 SW facing section 98 56 W Working shot 99 NE 057 SW facing section S Working shot 57 100 NE 059 SW facing section S 58 Working shot 101 NE 055 post-excavation 59 W General view of stripped area 102 NE 057 post-excavation S Working shot 60 103 NE 059 post-excavation 61 SW General view Ν 104 067 S facing section Ν General view of stripped area 62 105Ν 069 S facing section 63 NW General view 106 Ν 071 S facing section SW General view 64 107 Ν 073 S facing section General view of stripped area 65 Ν 108 Ν 075 S facing section Ν General view of stripped area 66 NW 109 077 SE facing section S 67 General view of stripped area 110Ν 045 post-excavation S Working shot 68 111 Ν 067 post-excavation S Working shot 69 112 Ν 071 post-excavation 70Е 023 W facing section 113 Ν 073 post-excavation 71 Е 023 post-excavation 114 Ν 075 post-excavation 72 NW 025 SE facing section 115 Ν 077 post-excavation 73 Ν 027 S facing section Pre-excavation of area to be NE 116 74 Ν 029 S facing section stripped on 5/10/09 75 NE 025 post-excavation 117 SW Working shot 76 NE 027 post-excavation 118 SW Working shot 77 NE 029 post-excavation 119 Ν 081 S facing section 025, 027, 029 post-excavation SW 78 Post-excavation area stripped on 110 W 79 S 031 N facing section 5/10/09

APPENDIX 1.3: PHOTO REGISTER

APPENDIX 1.4: SAMPLE REGISTER

Sample no	mple no Context no Description		Sample no	Context no	Description					
		1 to 12 taken in previous phase	25	048	Fill of pit/posthole					
3	022	Fill of pit/posthole	26	052	Fill of former field boundary					
4	024	Fill of pit/posthole	27	050	Fill of pit/posthole					
5	026	Fill of pit/posthole	28	054	Fill of pit/posthole					
6	030	Fill of pit/posthole	29	056	Fill of pit/posthole					
7	032	Fill of pit/posthole	30	058	Fill of pit/posthole					
8	034	Fill of pit/posthole	31	068	Fill of pit/posthole					
9	036	Fill of pit/posthole	32	070	Fill of pit/posthole					
)	038	Fill of pit/posthole	33	072	Fill of pit/posthole					
1	040	Fill of pit/posthole	34	074	Fill of pit/posthole					
2	042	Fill of pit/posthole	35	076	Fill of pit/posthole					
3	044	Fill of pit/posthole	36	080	Fill of pit/posthole					
1	046	Fill of pit/posthole								

Sample No	Total flot Vol (ml)	Cereal Grain: Avena sp.	Charcoal Quantity	Charcoal Max Size (cm)	Material available for AMS	Comments
13	5		++	<1cm		Sample contained cinders
14	8		++	<1cm		
15	12					Sample contained cinders
16	15					Sample contained coal and cinders
17	25					Sample contained modern plant debris, cinders and coal
18	25		+++	<1cm		Sample contained cinders and modern plant debris
19	5		++	<1cm		Sample contained cinders and modern plant debris
20	20					Sample contained modern plant debris and cinders
21	15					Sample contained coal and cinders
22	5		++	<1cm		Sample contained modern plant debris and cinders
23	50					Sample contained modern plant debris and cinders
24	10		+	<1cm		Sample contained cinders and modern plant debris
25	25	+				Sample contained coal and cinders
26	20		+			Sample contained cinders
27	75		++++			Sample contained coal and cinders
28	15					Sample contained modern plant debris and cinders
29	12					Sample contained cinders and modern plant debris
30	50		+	<1cm		Sample contained modern plant debris and cinders
31	5		++	<1cm		Sample contained cinders and modern plant debris
32	5		+++	<1cm		Sample contained cinders and modern plant debris
33	15		++	<1cm		Sample contained cinders and modern plant debris
34	10					Sample contained coal and cinders
35	8					Sample contained coal.
36	125		++++	2cm	Charcoal	

APPENDIX 2.1: FLOT SAMPLE RESULTS

Key: + = rare, + + = occasional, + + + = common and + + + + = abundant. **NB** charcoal over 1cm is suitable for identification and AMS dating

				S																				
Comments	Sample contained coal and cinders	Sample contained coal and cinders	Sample contained coal and cinders	Sample contained a small sherd of glass	Sample contained coal and cinders	Archaeologicaly sterile	Sample contained coal and cinders		Sample contained coal and cinders															
Material available for AMS							Charcoal							Charcoal			Charcoal							
Charcoal max size (cm)			<1cm				2		<1cm				<1cm	1.5	<1cm		7					<1cm		Ţ
Charcoal Quantity			+				+		+				+	+	+++++		+					+		-
Unburnt Bone		+												+										
Burnt Bone	+	+	+			+			+		+	+	++++	+++++			+				+		+	
MWD	+	+	++++										+	+				+						
Lithics									+													+		
Retent Vol (l)	7	IJ	IJ	D.	5	5	5	7	8	7	10	5	8	30	7	5	7	10	51	5	8	5	8	×
Sample	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Context Number	22	24	26	30	32	34	36	38	40	42	44	46	48	52	50	54	56	58	68	70	72	74	76	60

Key: + = rare, + + = occasional, + + + = common and + + + + = abundant. NB charcoal over 1cm is suitable for identification and AMS dating

APPENDIX 2.2: RETENT SAMPLE RESULTS