University of Leicester

Archaeological Services

An Archaeological Fieldwalking Survey At Halstead Road, Mountsorrel, Leicestershire

NGR: SK 574 145

Gavin Speed

ULAS Report No 2010-030

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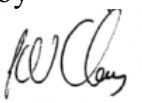
Checked by

Signed:  **Date**: 16.02.2010

Name: Patrick Clay

Approved by

Signed:  **Date**: 16.02.2010

Name: Richard Buckley

University of Leicester
Archaeological Services
University Rd., Leicester, LE1 7RH
Tel: (0116) 2522848 Fax: (0116) 2522614

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XA.6.2010

CONTENTS

FIGURES

Front cover: View of field 2 looking north-east

An Archaeological Fieldwalking Survey at Halstead Road, Mountsorrel, Leicestershire

Summary

An archaeological fieldwalking survey was carried out by the University of Leicester Archaeological Services (ULAS) on land to the north of Halstead Road, Mountsorrel, Leicestershire, on behalf of Jelson Ltd. The fieldwalking survey revealed a medium density scatter of worked flint within the eastern area of the development site, in addition to this a low level of late medieval and post-medieval pottery was identified across the entire survey area.

The site archive will be held by Leicestershire County Council Heritage Services Section, accession no. XA.6.2010.

Introduction

This report presents the results of an archaeological fieldwalking survey carried out by University of Leicester Archaeological Services (ULAS) on land to the north of Halstead Road, Mountsorrel, Leicestershire (SK 574 145). The work was undertaken as part of an archaeological impact assessment in advance of proposed development of the site as a residential development. The fieldwork was necessary to fulfil the pre-application assessment required by the Senior Planning Archaeologist for Leicestershire County Council.

Site Description, Topography and Geology

The site is located 9.8km north of Leicester city centre, 0.9km west of the village centre of Mountsorrel, in the Borough of Charnwood. The application area is *c.*15.77 ha., bounded by Halstead Road, to the south, and Bond Lane / Broad Hill to the north (see fig.1).

The site is divided by hedgerows into three large fields, and are relatively level at a height of *c.*76m aOD, rising to a height of *c.*78m in the northern part, close to the ridge of Broad Hill.

The underlying geology of the site consists of boulder clay (British Geological Survey map sheet 156).

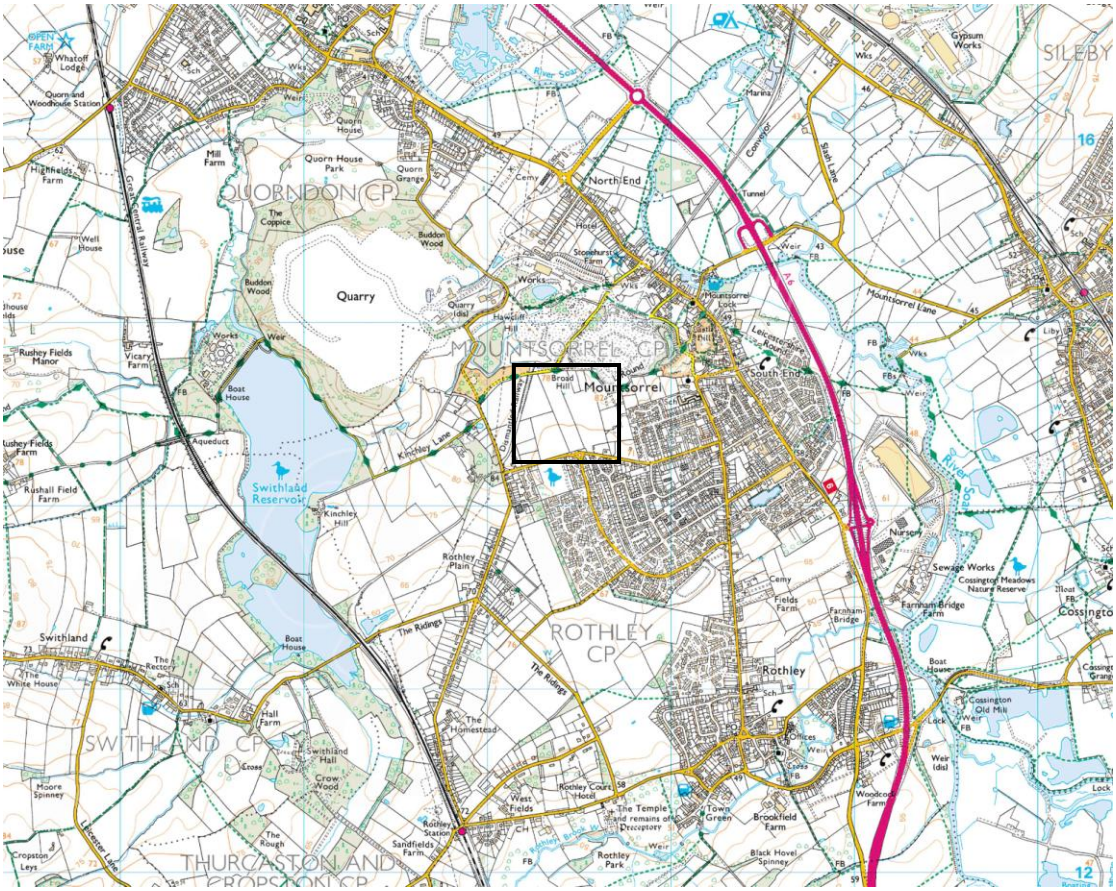

Figure 1: Site location plan. 1:20 000.

Archaeological Background

The Historic Environment Records (HERs) for Leicester and Leicestershire and Rutland shows that the site is located in close proximity to a number of known archaeological sites, ranging in date from the later Mesolithic to the Roman period (Clarke 2009, 1).

The site lies within an area of a number of prehistoric features. Immediately to the north on Broad Hill a number of Bronze Age finds and features located in the 1980s indicate a site of a Bronze Age cemetery and 500m north-west a Neolithic and Bronze Age site was located (Clarke 2009, 9). Finds of a Roman date were discovered in the quarry in the 19th century and a scatter of Roman pottery was discovered in fieldwalking 500m north-west of the site. Two finds of Anglo-Saxon date were found close to the development site in 1898 and again in the 1990s (Clarke 2009, 9). The site lies 0.9km west of the medieval village core of Mountsorrel, and presumably throughout the medieval and post-medieval periods the application area was used as open agricultural land.

Aims and Methods

The overall aim of the fieldwalking survey was to gather some information to establish the extent, condition, character and date (as far as circumstances permit) of any archaeological features and deposits within the area to target for further

archaeological evaluation. Pre-modern artefacts were collected and bagged along 20m transects. The location of the finds were plotted using hand held GPS loggers (Garmin Legend Hcx, satellite accuracy *c.*3m). Assuming a field of vision of 2 metres a 10% sample of the field's surface was examined.

The visibility during the survey was good with diffused lighting and the crop only partially obscuring the surface (Figs. 3-5). All archaeological work adhered to the Institute for Archaeologist's (IfA) *Code of Conduct* and *Standard and Guidance for Archaeological Evaluations* and the *Guidelines for Archaeological Work in Leicestershire and Rutland* (LMARS).

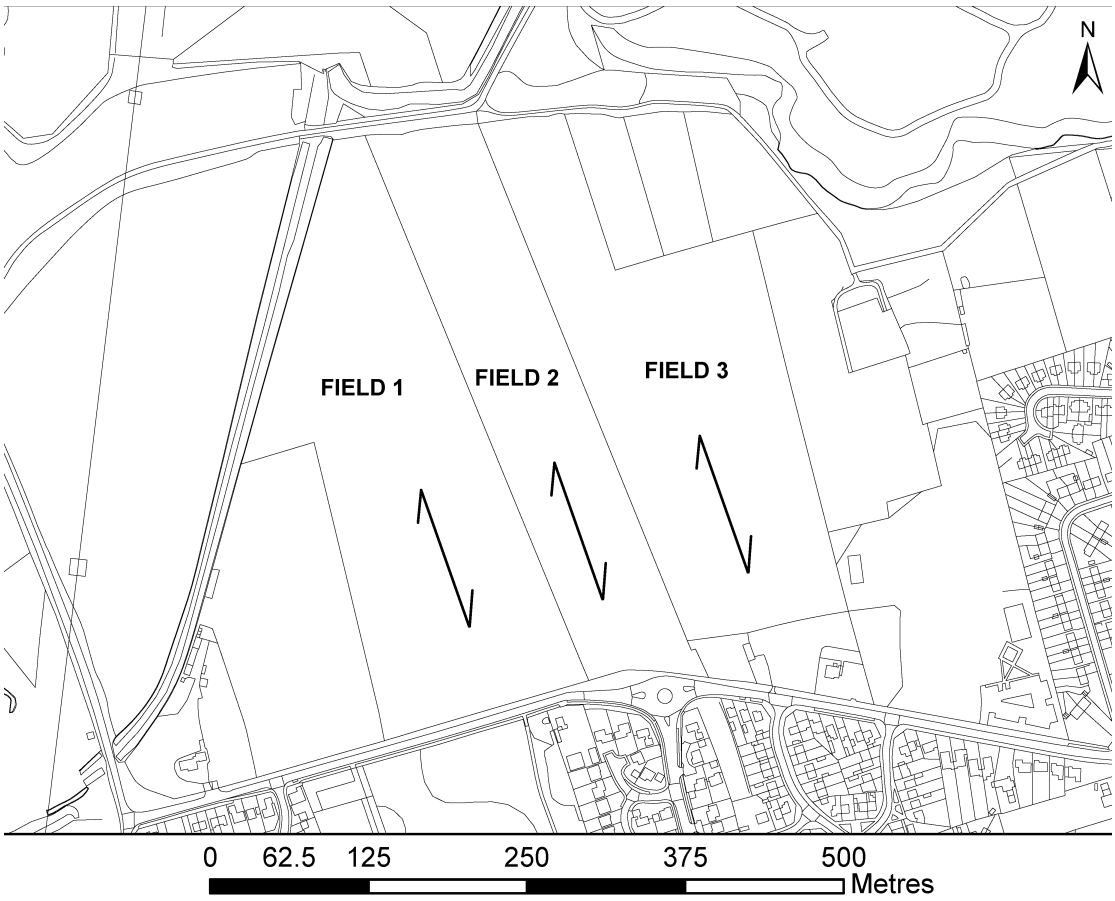

Figure 2: Field numbers and direction of fieldwalking traverses

Figure 3: View of field 1, looking north

Figure 4: View of field 2, looking north

Figure 5: View of field 3 looking south-east

Results

A total of 244 finds was recorded, consisting of 19 worked flint finds, 223 sherds of pottery, one fragment of ceramic building material and seven clay pipe fragments. The flint and pottery were examined by Lynden Cooper and Deborah Sawday, respectively, and their identifications can be found in appendix 1 with a full list of finds. Plots of the finds are shown below in figures 6 and 7.

Prehistoric

Nineteen pieces of worked flint were recovered from the fieldwalking survey. The finds appear to be Bronze Age, with tools limited to scrapers and a piercer (tools make up 26% of the flint assemblage. There is a concentration of worked flint in Field 3 (see fig.6).

Roman

No finds of Roman date were found during the fieldwalking survey.

Medieval

Thirty-eight sherds (31%) of medieval and late medieval pottery were recovered from the survey (see fig.7). The finds are likely present because of manuring practices.

Post-medieval - modern

The majority of the pottery finds recovered (69%) were post-medieval pottery sherds. These ranged from early earthenware (17th century) to later 19th century examples (see fig.7). Modern brick, tile, and pottery were observed – but not collected – during the survey. All post-medieval / modern finds were found as a general low level scatter spread across the entire area, and are likely present because of manuring practices.

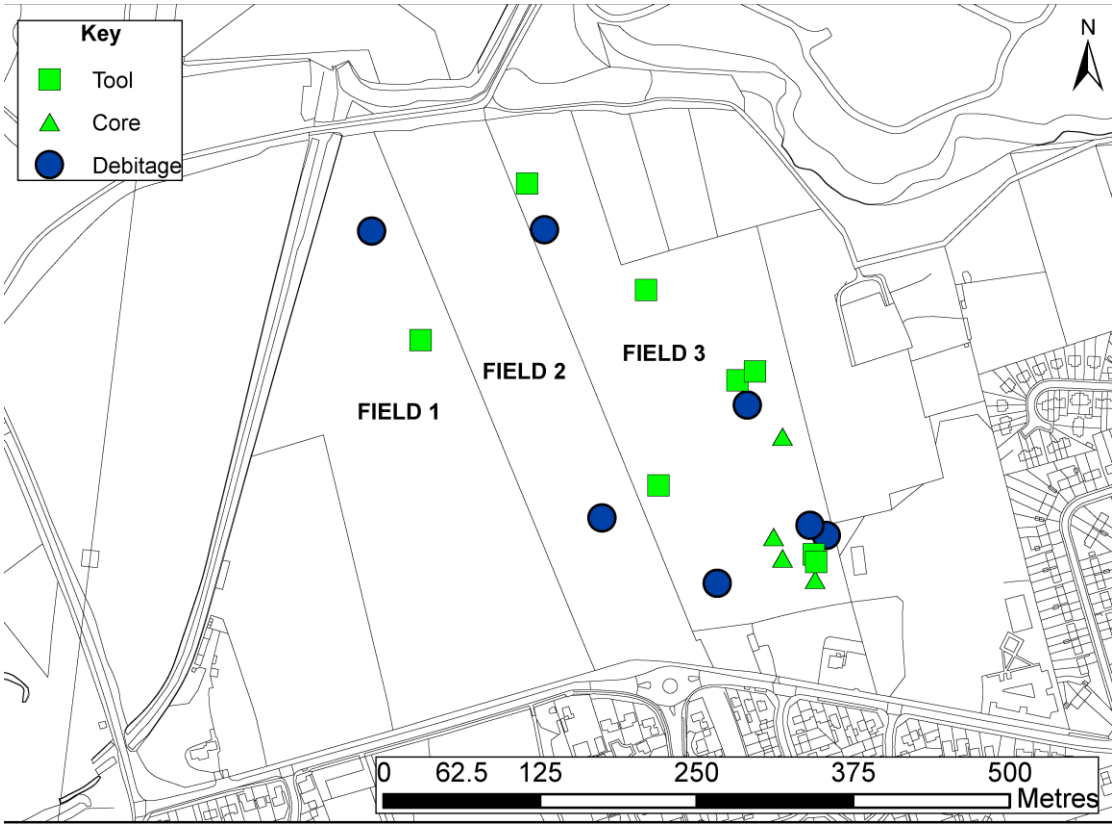

Figure 6: Distribution of worked flint

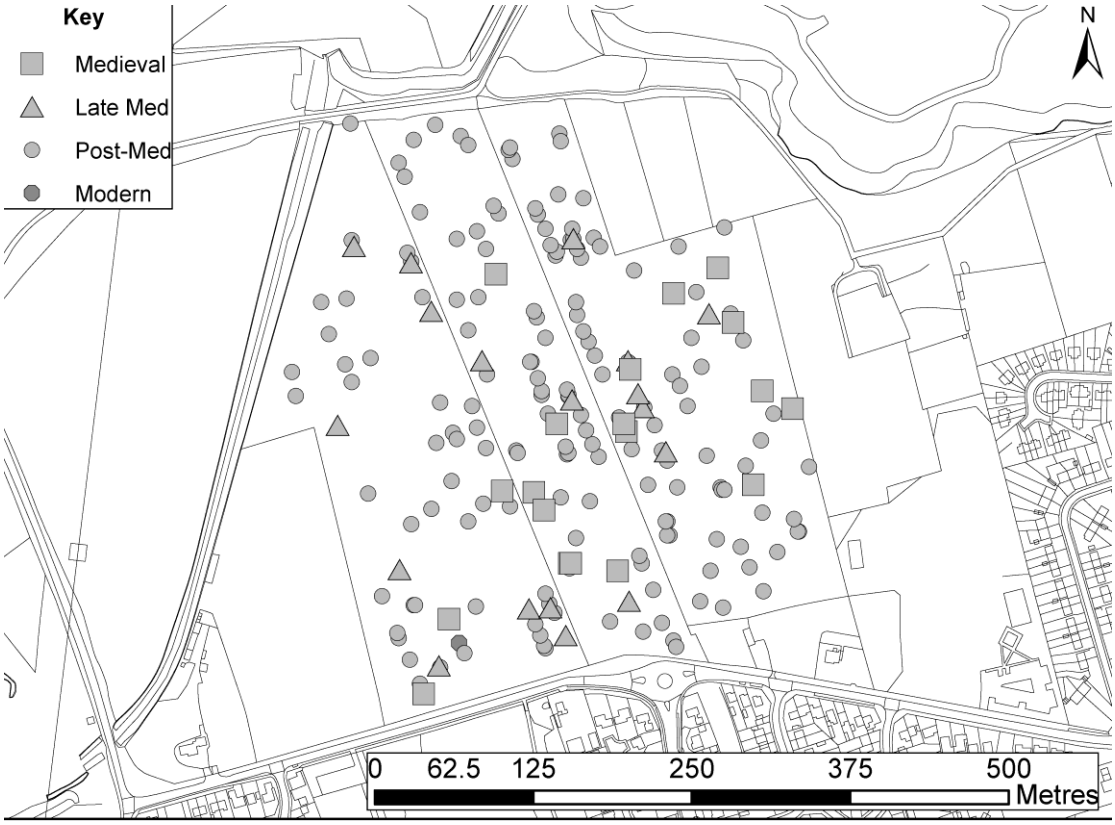

Figure 7: Distribution of pottery finds

The Finds

The Flints *Lynden Cooper*

The flints are catalogued below (Table 3). There is a coherent group from field 3. Typo-technological assessment would suggest it is mostly Bronze Age. The tools are limited to scrapers and a piercer. The former include concave and straight-edged examples that are often found in mid-late Bronze Age contexts. The thumbnail scraper might suggest early Bronze Age activity.

The Pottery and Miscellaneous finds *Deborah Sawday*

The pottery, 210 sherds, weighing 4290 grams and a fragment of late medieval ridge tile, weighing 85 gram was catalogued with reference to the ULAS fabric series (Sawday 1989; Davies and Sawday 1999). The remaining finds comprised seven post-medieval or modern clay tobacco pipe stems, four fragments of modern ceramic building material, weighing 296 grams and an undated fragment of industrial residue. The results are shown in Tables 1-3 below.

Table 1: The medieval and later pottery by fabric, sherd numbers and weight (grams).

Fabric	Common Name	Sherds	Weight	% of Total sherds nos.
Early Medieval				
PM	Potters Marston	5	39	
OS2	Oxidised Sandy ware 2	1	11	
Early Medieval Sub Totals		**6**	**50**	**2.85**
Medieval				
CC1	Chilvers Coton 1	1	94	
NO3	Nottingham 3	2	28	
MS2	Medieval Sandy ware 2	2	21	
Medieval Sub Totals		**5**	**143**	**2.38**
Later Medieval				
MS3	Medieval Sandy ware 3	6	87	
MS	Medieval Sandy ware	1	8	
MP1-3	Midland Purple 1-3	11	236	
CW2	Cistercian ware 2	4	56	
Later Medieval Sub Totals		**22**	**387**	**10.47**
Later Medieval/ Early Post Medieval				
CW2/MB	Cistercian/Midland Black	7	98	
EA1	Earthenware 1	26	662	
Later Medieval/ Early Post Med Sub Totals		**33**	**760**	**15.71**
Post Med/Modern				
EA2	Earthenware 2	122	2313	
EA3/5	Mottled wares	3	26	
EA6	Black ware	12	440	
EA	Earthenware	2	11	
SW	Stoneware	4	153	
PO	Porcelain	1	7	
Post Med/Modern Sub Totals		**144**	**2950**	**68.57**
Totals		**210**	**4290**	**99.98**

The medieval and early post-medieval pottery accounted for approximately 31% of the site totals by sherd count, and is probably associated with the manuring of the fields in medieval times. The remaining 69% is made up of post-medieval and modern material, mostly in the Earthenware EA2, predominantly a pancheon ware. This fabric and the Stoneware, unclassified Earthenware and Porcelain, fabrics SW, EA and PO in particular dates primarily from the later 18th or 19th centuries.

This pottery, the fragment of ridge tile in the late medieval fabric MP2, and the other miscellaneous finds were probably deposited in the fields as rubbish associated with night soil from Mountsorrel. The range of the medieval and early post-medieval pottery seems to be typically fairly local in terms of their original place of manufacture. Potters Marston is a major pottery production centre in the early medieval period, whilst pottery produced at Nottingham and Chilvers Coton in Warwickshire constituted major imports into the county from the mid-13th century. The most likely source of much of the Medieval Sandy wares, fabric MS2 and the later fabric MS3, and of the Midland Purple, Cistercian, Midland Black ware and

Earthenware 1 is thought to be to the west of the county, including Chilvers Coton and Ticknall in Derbyshire.

Table 2: Key to Pottery/Ceramic Building Material Fabrics and to Date ranges

Fabric	Ware	Date Code	Period	Date Range
PM	Potters Marston	EM	Early Med	c.1100-1250
OS2	Oxidised Sandy 2	EM	Early Med	Early Medieval
MS	Medieval Sandy	MED	Medieval	c.1250-1400
CC1	Chilvers Coton 1	MED	Medieval	c.1250-1400
NO3	Nottingham	MED	Medieval	c.1250-1400
MS2	Medieval Sandy 2	MED	Medieval	c.1250-1400
MS3	Medieval Sandy 3	MED/LM	Med/Late Med	c.1250-c.1500/50
MP1-3	Midland Purples	LM	Late Medieval	c.1375/1400 - 1500/50
CW2	Cistercian ware 2	LM	Late Medieval	c.1375/1400 - 1500/50
MB	Midland Black	EPM	Early Post Med	c.1500/50-c.1650
EA1	Earthenware 1	EPM/PM	Early Post Med/Post Med	c.1500/50-1750
EA2	Earthenware 2	PM/MOD	Post Med/Mod	c.1500/50-1900+
EA3/5	Mottled wares	PM/MOD	Post Med/Mod	c.1650/80-1780
EA6	Black ware	PM	Post Med	c.1500/50-1750
EA	Earthenware	MOD	Modern	c.1750-1900+
SW	Stoneware	MOD	Modern	
PO	Porcelain	MOD	Modern	

Table 3: The Finds

Find No.	Fabric	Nos	Grms	Date Range	Comments
	FIELD 1				All pot unless stated otherwise.
1	MP2	1	13	LM	
2	EA2	1	14	PM/MOD	Brown glaze
3	EA2	1	13	PM/MOD	Brown glaze
4	EA2	1	24	PM/MOD	Brown glaze – jar rim
5	EA2	1	6	PM/MOD	Black glaze
6	EA5	1	3	PM/MOD	
7	EA2	1	11	PM/MOD	Brown glaze
8	EA	1	5	MOD	Flower pot
9	EA2	1	22	PM/MOD	Brown glaze – jar rim
10	EA2	1	5	PM/MOD	Brown glaze
11	EA	1	150	MOD	?Nibbed roof tile
12	MP2	1	28	LM	
13	EA2	1	16	PM/MOD	Brown glaze
14	EA2	1	9	PM/MOD	Black glaze - thin walled
15	MP2	1	85	LM	Ridge tile
16	EA2	1	4	PM/MOD	Black glaze - thin walled
17	EA2	1	10	PM/MOD	Brown glaze
18	EA2	1	3	PM/MOD	Brown glaze
19	EA2	1	17	PM/MOD	Brown glaze
20	EA1	1	17	EPM/PM	
21	EA2	1	13	PM/MOD	Brown glaze
22	EA2	1	50	PM/MOD	Pancheon rim – stacking evidence rim top, brown glaze
23	EA2	1	17	PM/MOD	
24	MS2	1	17	MED	
25	CW2/MB	1	11	LM/EPM	

52	EA2	1	6	PM/MOD	Brown glaze
53	CW2	1	5	LM	
54	EA1	1	33	EPM/PM	oxidised
55	EA2	1	35	PM/MOD	White bodied – jar rim
56	CW2/MB	1	34	LM/EPM	Cup base
57	EA2	1	5	PM/MOD	Buff bodied
58	MP1	1	18	LM	Or very fine MP2!
59	SW	1	32	MOD	
60	EA6	1	89	PM	Massive jar rim
61	MP1	1	7	LM	Transitional into EA1
62	EA	1	48	PM	cbm
63	CW2/MB	1	13	LM/EPM	Base fragment
101	EA2	1	14	PM/MOD	Brown glaze
102	EA2	1	5	PM/MOD	Buff bodied
103	EA2	1	12	PM/MOD	Brown glaze
104	EA2	1	12	PM/MOD	Brown glaze
105	CW2/MB	1	9	LM/EPM	Rod handle
106	EA6	1	14	PM	Bowl/dish rim
107	EA2	1	10	PM/MOD	Brown glaze
108	PO	1	7	MOD	
109	SW	1	92	MOD	
110	Flint	1			Concave scraper -
111	Flint	1			Retouched flake
112	EA2	1	12	PM/MOD	Brown glaze
113	CW2	1	7	LM	Burnt
114	EA6	1	8	PM	
115	EA2	1	23	PM/MOD	Buff bodied, jar rim
116	NO3	1	20	MED	Jug base, abraded
117	SW	1	16	MOD	Modern
118	SW	1	13	MOD	Modern
119	EA	1	42	MOD	Highly fired, possibly field drain pipe
120	EA1	1	8	EPM/PM	Burnt?
121	EA2	1	17	PM/MOD	Brown glaze
122	Ind. residue	1	4		
123	EA2	1	11	PM/MOD	
124	EA2	1	16	PM/MOD	
201	MP2	1	11	LM	
	FIELD 2				
26	Flint	1			Secondary flake
27	EA	1	6	MOD	Flower pot
28	EA2	1	7	PM/MOD	Brown glaze
29	EA2	1	25	PM/MOD	
30	MS3	1	7	MED/LM	
31	EA2	1	5	PM/MOD	
32	EA2	1	15	PM/MOD	
33	MS2	1	4	MED	
34	MS3	1	6	MED/LM	
35	MS3	1	10	MED/LM	
36	MS	1	8	MED/LM	Hard fired/transitional
64	EA2	1	6	PM/MOD	Brown glaze
65	EA	1	56	MOD	Drain pipe
66	EA2	1	24	PM/MOD	
67	EA2	1	4	PM/MOD	
69	EA2	1	13	PM/MOD	
71	EA6	1	7	PM	

72	EA2	1	11	PM/MOD	
73	EA3	1	2	PM/MOD	
74	EA2	1	6	PM/MOD	
75	MP2	1	13	LM	
76	EA6	1	39	PM	Large jar rim, abraded
77	EA6	1	42	PM	Joins no. 76
78	EA2	1	54	PM/MOD	Pancheon rim, brown glaze interior
79	EA2	1	20	PM/MOD	Brown glaze
80	EA6	1	18	PM	
81	EA6	1	20	PM	
83	EA1	1	7	EPM/PM	
84	EA2	1	15	PM/MOD	
85	EA2	1	18	PM/MOD	
86	EA2	1	34	PM/MOD	Small hollow ware base, coarser but similar to EA4/5
87	EA2	1	24	PM/MOD	Brown glaze
88	EA2	1	10	PM/MOD	
89	EA6	1	106	PM	Thick walled, internally glazed
90	EA1	1	40	EPM/PM	Brown glaze, bowl rim
91	EA2	1	41	PM/MOD	
92	EA6	1	43	PM	Thick walled
93	EA2	1	18	PM/MOD	Brown glaze
94	EA1	1	25	EPM/PM	Jar rim
126	CW2/MB	1	24	LM/EPM	
127	MS3	1	18	MED/LM	
128	EA2	1	11	PM/MOD	
129	EA2	1	36	PM/MOD	
130	EA1	1	31	EPM/PM	Convex base black glaze
131	EA2	1	5	PM/MOD	Hollow ware ?dish/cup rim
133	PM	1	13	EM	Abraded
134	EA2	1	6	PM/MOD	
135	China clay	1	4	PM/MOD	Pipe stem, midland spur type
136	EA2	1	25	PM/MOD	
137	EA2	1	17	PM/MOD	
138	EA2	1	42	PM/MOD	Brown glaze, pancheon rim, with hole bored partially into inner wall post firing.
139	EA2	1	11	PM/MOD	
140	EA2	1	9	PM/MOD	Thin walled – buff body
141	EA1	1	23	EPM/PM	Black glaze internally
142	EA1	1	8	EPM/PM	Small bowl/jar rim
143	EA2	1	10	PM/MOD	
144	EA2	1	30	PM/MOD	Brown glaze
145	EA2	2	12	PM/MOD	
148	EA1	1	27	EPM/PM	Jar rim
149	MP3	1	19	LM	Cistern rim
150	EA2	1	33	PM/MOD	Brown glaze
151	EA2	1	11	PM/MOD	
152	EA2	1	20	PM/MOD	Jar rim
153	EA2	1	94	PM/MOD	Base – buff body, brown glaze
	FIELD 3				
34	China clay	1	2	PM/MOD	Stem
38	China clay	1	2	PM/MOD	Stem
39	China clay	1	3	PM/MOD	Stem
40	Flint	1			Scraper (straight)

41	CW2/MB	1	3	LM/EPM	
42	CW2/MB	1	4	LM/EPM	
43	Flint	1			Concave scraper
68	EA2	1	12	PM/MOD	Buff body
70	EA2	1	18	PM/MOD	Buff body
82	EA2	1	17	PM/MOD	
95	EA2	1	10	PM/MOD	Jar rim
96	EA2	1	13	PM/MOD	
97	Flint	1			Secondary flake
98	EA2	1	50	PM/MOD	Buff body
99	EA2	1	47	PM/MOD	Buff body, brown glaze runs internally, abraded.
100	MP2	1	75	LM	Pegged jug/cistern handle stub.
125	EA2	1	47	PM/MOD	White body
132	EA2	1	13	PM/MOD	
147	EA2	1	65	PM/MOD	Pancheon rim, buff body
154	EA1	1	21	EPM/PM	
155	EA2	1	10	PM/MOD	Buff body, brown glaze
156	EA2	1	40	PM/MOD	Buff body
157	EA2	1	26	PM/MOD	Buff body
158	EA2	1	15	PM/MOD	Buff body
159	MS3	1	17	MED/LM	Abraded
160	MS3	1	29	MED/LM	Abraded
161	EA2	1	9	PM/MOD	Buff body
162	EA2	1	16	PM/MOD	
163	EA2	1	23	PM/MOD	Brown glaze
164	EA2	1	23	PM/MOD	Pancheon rim, brown glaze
165	EA2	1	9	PM/MOD	Buff body, brown glaze
166	EA2	1	9	PM/MOD	Buff body, brown glaze
167	EA2	1	22	PM/MOD	Small hollow ware base, black glaze internally & externally, quartz + grog
168	EA2	1	22	PM/MOD	White body
169	EA2	1	57	PM/MOD	
170	EA2	1	11	PM/MOD	White body
171	EA2	1	12	PM/MOD	Brown glaze
172	Flint	1			Tertiary flake
173	EA2	1	27	PM/MOD	
174	NO3	1	8	MED	Abraded, glazed, light grey interior
175	Flint	1			Tertiary blade fragment
176	EA6	1	13	PM	
177	EA2	1	16	PM/MOD	Buff body
178	EA2	1	12	PM/MOD	White body
179	EA2	1	18	PM/MOD	White body
180	EA2	1	22	PM/MOD	Pancheon rim, brown glaze abraded
181	EA1	1	15	EPM	Cistern rim, transitional
182	EA2	1	25	PM/MOD	White body
183	EA1	1	19	EPM/PM	
184	EA2	1	50	PM/MOD	Cream body
185	EA2	1	21	PM/MOD	Brown glaze
186	CW2	1	11	LM	Abraded
187	Flint	1			Core (migrating platform)
188	EA1	1	45	EPM/PM	Hard fired, cream body
189	CC1	1	94	MED	Hard fired, flat base
190	EA3	1	21	PM/MOD	
192	EA2	1	5	PM/MOD	Brown glaze

193	EA1	1	29	EPM/PM	
195	PM	1	6	EM	
196	EA2	1	36	PM/MOD	White body
197	EA2	1	52	PM/MOD	White body
198	OS2	1	11	EM	abraded
199	EA2	1	24	PM/MOD	Buff body, hollow ware
200	PM	1	6	EM	
202	EA6	1	41	PM	Jug/jar rim & handle, abraded
203	EA2	1	4	PM/MOD	Buff body
204	EA2	1	6	PM/MOD	
205	EA2	1	33	PM/MOD	Buff body, brown glaze
206	MP2	1	7	LM	Transitional into EA1
207	EA2	1	42	PM/MOD	White body
208	EA1	1	11	EPM/PM	
209	CW2	1	33	LM	Small cup base, abraded
210	EA2	1	11	PM/MOD	
211	EA2	1	16	PM/MOD	
212	EA2	1	9	PM/MOD	
213	EA2	1	12	PM/MOD	White body
214	EA1	1	47	EPM/PM	Jar rim, transitional from MP
215	MP2	1	34	LM	Wide mouthed bowl rim, under fired
216	EA1	1	20	EPM/PM	
217	EA1	1	25	EPM/PM	
218	EA1	1	81	EPM/PM	
219	EA2	1	15	PM/MOD	
220	EA1	1	45	EPM/PM	
221	EA1	1	9	EPM/PM	Red bodied
222	EA2	1	7	PM/MOD	
223	EA2	1	4	PM/MOD	Small hollow ware ?cup rim
224	EA1	1	27	EPM/PM	
225	EA2	1	16	PM/MOD	Buff body
226	EA1	1	14	EPM/PM	
227	EA1	1	16	EPM/PM	
228	EA2	1	8	PM/MOD	Brown glaze
229	Flint	1			Core on flake
230	China clay	1	3	PM/MOD	Pipe stem
231	EA1	1	19	EPM/PM	Oxidised
232	China clay	1	4	PM/MOD	Pipe stem
233	Flint	1			Core on flake
234	China clay	1	5	PM/MOD	Pipe stem
235	Flint	1			Secondary flake (heavily pattinated)
236	Flint	1			Scraper (straight)
237	MP3	1	11	LM	
238	EA2	1	11	PM/MOD	
239	EA2	1	13	PM/MOD	
240	EA2	1	11	PM/MOD	Buff body
241	Flint	1			Natural
242	PM	1	10	EM	
243	EA2	1	12	PM/MOD	Cup/jar rim
244	EA2	1	24	PM/MOD	Pancheon rim, buff body
245	Flint	1			Secondary flake
251	EA2	1	17	PM/MOD	Buff body
252	Flint	1			Scraper (on pot lid, straight)
253	PM	1	4	EM	Abraded
254	Flint	1			Natural
255	EA2	1	4	PM/MOD	

256	Flint	1			Core (migrating platform)
257	Flint	1			Secondary flake
258	Flint	1			Piercer
259	Flint	1			Thumb nail scraper fragment

Conclusions

The fieldwalking survey has revealed evidence for a medium scatter of worked flint in the eastern-half of the development area, specifically Field 3, with a concentration in the south-east. The assemblage contained a high number of tools within a relatively small area and indicates possible prehistoric activity within this area.

The remaining finds located comprised medieval, post-medieval and modern pottery sherds which are likely to have resulted from manuring spreads being added to the fields.

Archive

Fieldwork was carried out by Gavin Speed, Roger Kipling, and Leon Hunt. The pottery was identified by Deborah Sawday and the flint by Lynden Cooper. Patrick Clay managed the project.

The archive will be deposited with Leicestershire County Council, Heritage Services, under accession number XA.6.2010.

The archive contains:

- Survey notes and plans
- Digital photos on CD
- 1 box of finds
- CD containing this report
- Unbound copy of this report

The report is listed on the Online Access to the Index of Archaeological Investigations (OASIS) held by the Archaeological Data Service at the University of York.. Available at: http://oasis.ac.uk/

ID	**OASIS entry summary**
Project Name	Halstead Road, Mountsorrel
Summary	An archaeological fieldwalking survey was carried out by the University of Leicester Archaeological Services (ULAS) on land to the north of Halstead Road, Mountsorrel, Leicestershire, on behalf of Jelson Ltd. The fieldwalking survey revealed a medium density scatter of worked flint within the eastern area of the development site, in addition to this a low level of late medieval and post-medieval pottery was identified across the entire survey area.
Project Type	Fieldwalking
Project Manager	Patrick Clay
Project Supervisor	Gavin Speed
Previous/Future work	Previous: none. / Future: uncertain.
Current Land Use (2009)	Agricultural farmland
Development Type	Commercial

Reason for Investigation	PPG16
Position in the Planning Process	as a condition
Site Co ordinates	SK 574 145
Start/end dates of field work	2101/2010 – 22/01/2010
Archive Recipient	Leicestershire County Council, Heritage Services
Study Area	16ha
Associated project reference codes	Museum accession ID: XA.6.2010 OASIS form ID:

Bibliography

Clarke, S. 2009 *An Archaeological Desk-Based Assessment of Land Adjacent to Halstead Road, Mountsorrel, Leicestershire*. University of Leicester Archaeological Services unpublished report 2009-139

Connor, A., and Buckley, R., 1999 *Roman and Medieval Occupation in Causeway Lane, Leicester*, Leicester Archaeology Mon. **5.**

Davies, S., and Sawday, D., 1999 'The Post Roman Pottery and Tile' *in* A. Connor and R. Buckley, 1999, 165-213.

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Sawday, D., 1989 'The post Roman pottery', 28-41 *in* J.N. Lucas, 'An excavation in the north east quarter of Leicester: Elbow Lane, 1977', *Trans. Leicestershire Archaeol. and Hist. Soc*. **63**, 18-47.

Gavin Speed
Senior Archaeological Supervisor
University of Leicester Archaeological Services
University Road,
Leicester, LE1 7RH

T: 0116 252 2848
F: 0116 252 2614
gs50@leicester.ac.uk

16.02.2010

Appendix 2 Design Specification

UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES

Design Specification for archaeological work

Halstead Road, Mountsorrel, Leicestershire (SK 574 145)

Written scheme of investigation for Geophysical and Fieldwalking Surveys

For: Jelson Ltd

1. Introduction

1.1 This document sets out a Written Scheme of Investigation (WSI) to evaluate potential archaeological deposits at land off Halstead Road, Mountsorrel, Leicestershire in advance of proposed residential development. An Archaeological Desk Based Assessment for the area has been prepared (Clarke 2009).
1.2 The proposed development area is located adjacent to Broad Hill and Halstead Road, Mountsorrel, Leicestershire SK 574 145 (figs.1 and 2). The site consists of approximately 15.77ha within which Jelsons are proposing a scheme of residential development, to incorporate circa 330 dwellings within a network of footpaths, access roads and landscaped garden areas.

1.3 The Historic Environment Record (HER) for Leicestershire and Rutland records that there are no archaeological sites located in the assessment area itself. However, the site is situated in an area rich in archaeological remains.

2. Geology And Topography

2.1 The Ordnance Survey Geological Survey of Great Britain, Sheet 156 indicates that the underlying geology is likely to consist of boulder clay. The site is currently divided by hedgerows into three large fields that are relatively level at a height of *c.* 76m aOD, rising to a height of *c.*78m in the northern part, close to the ridge of Broad Hill.

3. Aim Of The Survey

3.1 The overall aim of the survey is to gather sufficient information to establish the extent, condition, character and date (as far as circumstances permit) of any archaeological features and deposits within the area targeted for evaluation. A fieldwalking survey and . detailed gradiometry will be undertaken.

4. Survey Methodology

4.1 General Methodology

4.1.1 A geophysical and fieldwalking surveys are required over the area in order that an assessment can be made of the presence and extent of any archaeological deposits.

4.1.2 The geophysical survey will be sub-contracted to Northamptonshire Archaeology, a registered organisation wit the IfA. Suitable equipment will be used by a qualified archaeologist specialising in geophysical survey to cover an area as indicated in Figures 1 and 2. The results will then be interpreted and reported in a way that will give as much clarity as possible to the surveyed results enabling an informed decision on the nature of the archaeology. The specifications of the equipment and detailed methodology are outlined in Appendix 1.

4.1.3 The land for evaluation is mostly farmland. Access will be agreed with the landowner prior to access.

4.1.4 All geophysical survey work will adhere to guidance set out in English Heritage Research and Professional Services Guideline No.1: Geophysical survey in archaeological field evaluation (2008) and Geophysical Data in Archaeology: A Guide to Good Practice (Archaeology Data Service).

4.1.5 Available ploughed fields within the previously unsurveyed area to the south-east. The surveys will be committed to the standards and codes of conduct set out by the Institute of Field Archaeologists.

4.2 Setting out of survey grids

4.2.1 The survey grids will be set out using a Global Positioning Satellite receiver. Partial grids shall be avoided wherever possible. Survey pegs will be set out in field boundaries and where possible be left in place. All survey grids will be plotted onto the OS digital base map with National Grid co-ordinates to enable the accurate location of trial trenches over anomalies.

4.3 Specific Methodology: Geophysical survey

4.3.1 The equipment used for the magnetic survey will be carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartlington Instruments Ltd. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each sensor has a 1m separation between the sensing elements increasing the sensitivity to small changes in the Earth's magnetic field.

4.3.2 The equipment will be zeroed and balanced at a 'magnetically quiet' location with the use of a non-magnetic tripod. The balancing point will be accurately laid out using a compass. The gradiometer will be switched on for a period of at least 30 minutes prior to balancing and placed outside to allow stabilisation of temperature. Metal objects and compasses will be removed to at least 50m from the balancing position. Balancing with the Grad601-2 is an automated process using electronic adjustments and is only required prior to the start of each survey session (usually 2 per day).

4.4 Specific Methodology: Fieldwalking

4.4.1 A programme of fieldwalking will be undertaken over all area. The fieldwalking is to take place after the fields are ploughed, rolled and weathered for at least 3 weeks.

4.4.2 Pre-modern artefacts will be collected and bagged along 20m transects. The location of the finds will be plotted using hand held GPS loggers.

4.5 Sampling Interval

4.5.1 The fieldwalking survey will be carried out on a 20m grid with readings for the MS being taken at the node points.

4.5.2 Magnetometry Readings will be taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30x30m grid.

4.6 Depth of scan and resolution

4.6.1 Magnetometry - The Grad601-2 has a typical depth penetration of 0.5 – 1.0m. This would be increased in the presence of buried, strongly magnetic objects. The collection of data at 0.5m centres provides an appropriate methodology for balancing cost and time with resolution.

4.7 Data Capture

4.7.1 Fieldwalking readings will be logged manually on site, and then transferred to the office where they will be entered into a computer and colour surfer plots produced.

4.7.2 Magnetometry Readings will be logged consecutively into the data logger which in turn is daily downloaded into a portable computer on site. At the end of each job, data will be transferred to the office for processing and presentation. An initial assessment of the data quality will be carried out by the survey team. After each survey session a site record sheet will be completed or updated as appropriate.

4.8 Processing of data

4.8.1 Magnetometry Processing is performed using specialist software (e.g. Geoplot *3).* Details of the software used and processing techniques should be provided by the Geophysical Survey Contractor.

4.8.2 Pre-modern artefacts will be collected from the fieldwalking surveys. These will be washed marked and identified.

4.8.3 All survey results will be plotted at an appropriate scale on an OS digital base map.

4.9 Timetabling

4.9.1 It is proposed that the geophysical survey will be undertaken following the harvest of the crop in December 2009. The fieldwalking will be undertaken following weathering in January 2010

5. Liaison/Monitoring

5.1 Unlimited access to monitor the project will be available to the Leicestershire County Council, Planning Archaeologists, the client and his representatives subject to the health and safety requirements of the site.

5.2 Internal monitoring procedures will be undertaken including visits to the site by the project manager. These will ensure that project targets are met and professional standards are maintained.

6. Report

6.1 A reports on the fieldwork will be provided following analysis of the surveys. It will be distributed to

- The client
- Leicestershire County Council, Planning Archaeologist
- Leicestershire County Council, (HER)

6.2 The reports will contain sufficient detail to enable the results of the evaluation to be interpreted without recourse to the site archive.

6.3 The reports will include the following

- Non-technical summary
- Introduction (Site location and description, archaeological background, nature and location of the survey)
- Method statement detailing methods and equipment used, results and conclusions.
- Summary of results and significance
- Appendices of specialist reports

6.4 The reports will contain an accurate site plan showing the surveyed areas, raw data and interpretation of the principal features revealed. The data will be presented in map form on the OS digital map base, on A3 sheets at an appropriate scale; usually no scale smaller than 1:1000 is used. Maps will be constructed using AutoCAD and contain north arrows, scale-bar, scale, title, figure number, key and date. Adjacent areas must also be included on the plan to allow the site to be accurately located as well as the grid co-ordinates used.

7 Health and Safety

7.1 ULAS is covered by and adheres to the University of Leicester Statement of Safety Policy and uses the ULAS Health and Safety Manual (revised 2007) with appropriate risks assessments for all archaeological work. A draft Health and Safety statement for this project is in the Appendix. The relevant Health and Safety Executive guidelines will be adhered to as appropriate.

8 Insurance

8.1 All ULAS work is covered by the University of Leicester's Public Liability and Professional Indemnity Insurance. The Public Liability Insurance is with St Pauls Travellers Policy No.

UCPOP3651237 while the Professional Indemnity Insurance is with Lloyds Underwriters (50%) and Brit Insurances (50%) Policy No. FUNK3605.

9. Bibliography.

ADS	*Geophysical Data in Archaeology: A Guide to Good Practice* (Archaeology Data Service)
EH, 2008	*Geophysical survey in archaeological field evaluation* (English Heritage 2008)
Clarke, S., 2009	*An Archaeological Desk-based Assessment of land adjacent to Halstead Road, Mountsorrel, Leicestershire (SK 574 145)* ULAS report 2009-139
IFA, 2006	*Code of Conduct*

Patrick Clay
Director
ULAS
University of Leicester
University Road
Leicester LE1 7RH

Tel:0116 252 2848
Fax: 0116 252 2614
Email: pnc3@le.ac.uk

15.12.2009

Appendix 1: Geophysics-Methodology and Equipment

A detailed magnetometer survey will be carried out along the line of the new road. This measures the changes in the magnetic field resulting from differing features in the soil. Although these are usually weak, changes as small as 0.2 nano Tesla(nT) in an overall field strength of 48,000nT can be accurately detected using an appropriate instrument.

The systematic mapping of these anomalies will allow an estimate of the types of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects such as kilns or hearths. More subtle features such as pits and ditches may be visible if they contain more humic material which is normally rich in magnetic iron oxides compared to the subsoil. For example the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material accumulating in the trench. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

Setting out of survey grids
The survey grids will be set out using a Global Positioning Satellite receiver. Partial grids shall be avoided wherever possible.

Equipment
The magnetic survey will be carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartlington Instruments Ltd. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each sensor has a 1m separartion between the sensing elements increasing the sensitivity to small changes in the Earth's magnetic field.

The equipment will be zeroed and balanced at a 'magnetically quiet' location with the use of a non-magnetic tripod. The balancing point will be accurately laid out using a compass. The gradiometer will be switched on for a period of at least 30 minutes prior to balancing and placed outside to allow stabilisation of temperature. Metal objects and compasses will be removed to at least 50m from the balancing position. Balancing with the Grad601-2 is an automated process using electronic adjustments and is only required prior to the start of each survey session (usually 2 per day).

Sampling Interval
Readings will be taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30x30m grid. Traverses would be surveyed in zig-zag mode.

Depth of scan and resolution
The Grad601-2 has a typical depth penetration of 0.5 – 1.0m. This would be increased in the presence of buried, strongly magnetic objects.

Data Capture
Readings are logged consecutively into the data logger which in turn is daily downloaded into a portable computer on site. At the end of each job, data is transferred to the office for processing and presentation. An initial assessment of the data quality will be carried out by the survey team. After each survey session a site record sheet will be completed or updated as appropriate.

Grid locations for the survey will be plotted onto the British Ordnance Survey Grid.

Processing of data
Processing is performed using the specialist software *Geoplot 3*. This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies. A basic processing sequence for magnetic survey includes despike (useful for display and allows further processing functions to be carried out more effectively by removing extreme values), zero mean grid (sets the background mean for each grid to zero and is useful for removing

grid edge discontinuities) and zero mean traverse (sets the background mean of each traverse within a grid to zero and is useful for removing striping effects).

The following schedule shows the basic processing carried out on all processed magnetometer data used in this report:

Zero mean grid *Threshold = 0.25 std.dev.*
Zero mean traverse *Last mean square fit = off*
Despike *X radius = 1* *Y radius = 1*
Threshold = 3 std. Dev.
Spike replacement = mean

Presentation of data
The presentation of the data for each site involves the print out of the raw data both as grey scale and trace plots together with a grey scale plot of the processed data. Magnetic anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the site.

FIGURES

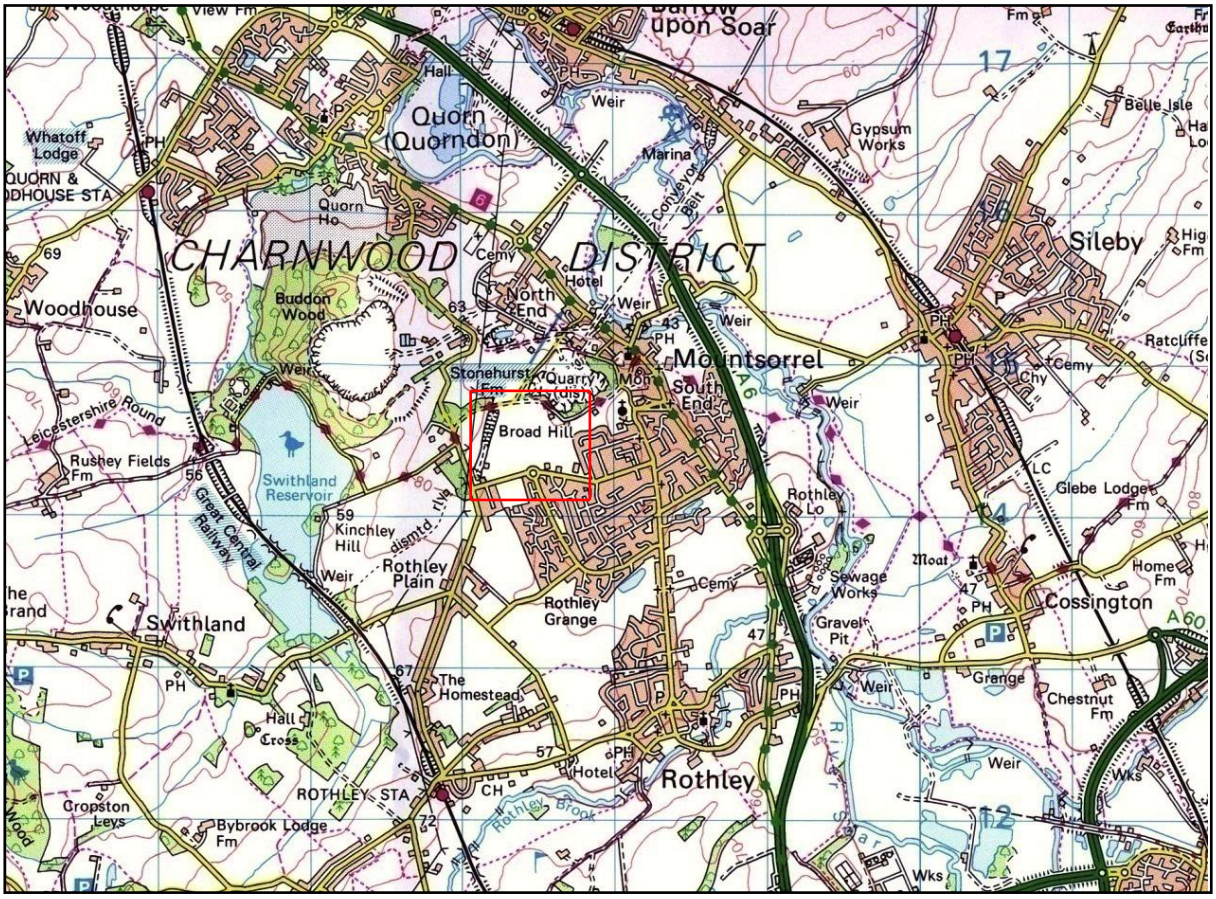

Figure 1 Location of site

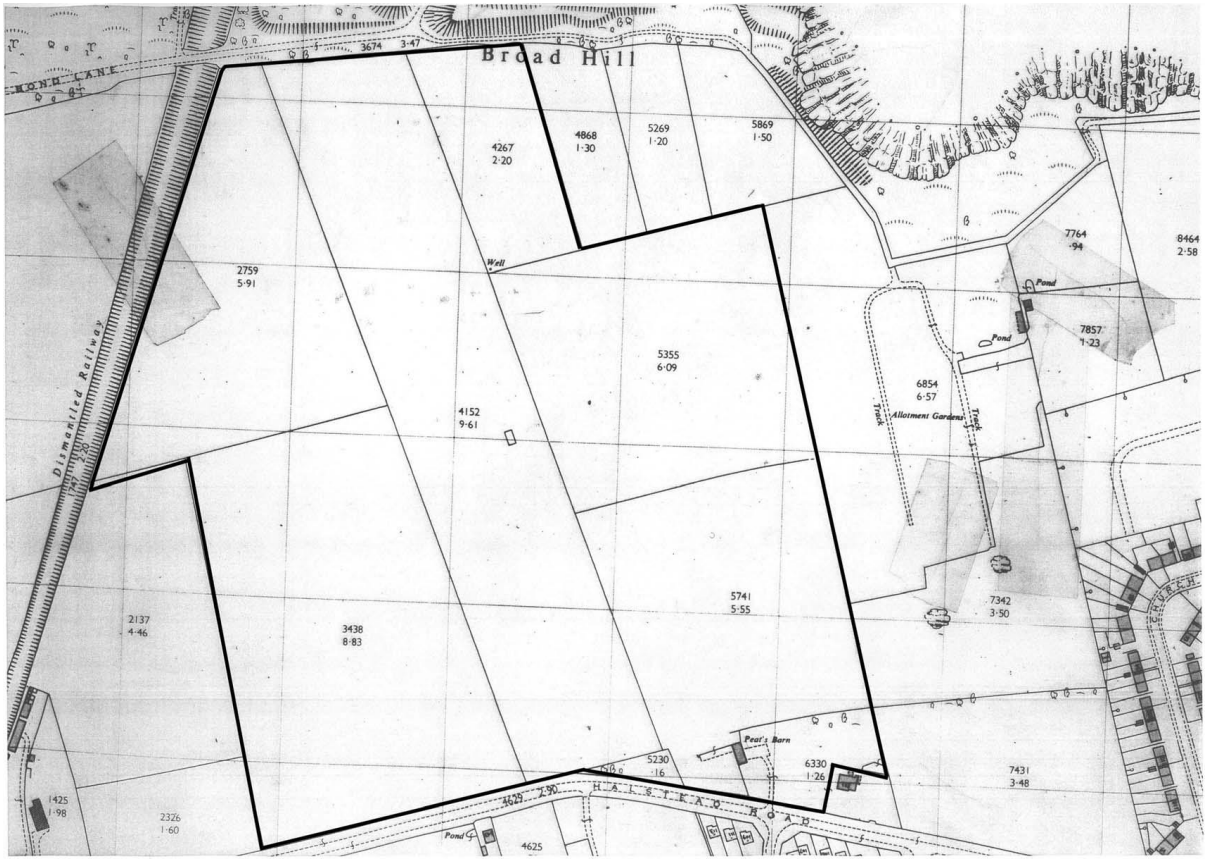

Figure 2 Area of proposed residential development

Contact Details

Richard Buckley or Patrick Clay
University of Leicester Archaeological Services (ULAS)
University of Leicester,
University Road,
Leicester LE1 7RH

T: +44 (0)116 252 2848
F: +44 (0)116 252 2614
E: ulas@le.ac.uk
w: www.le.ac.uk/ulas

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