

Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire: An Archaeological Fieldwalking and Geophysical Survey Report

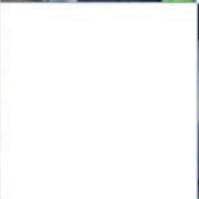
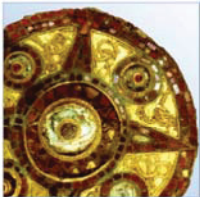
Planning Application Number: Pre-Application

National Grid Reference Number: SK 3490 1748

AOC Project No: 30969

Site Code: X.A140.2011

Date: October 2011



ARCHAEOLOGY

HERITAGE

CONSERVATION

Contents

	Page
List of illustrations	ii
Non-Technical Summary	iii
1. INTRODUCTION	1
2. PLANNING BACKGROUND	1
3. GEOLOGY AND TOPOGRAPHY	2
4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.....	3
5. AIMS OF THE INVESTIGATION.....	5
6. METHODOLOGY	5
7. FIELDWALKING RESULTS	7
8. SUMMARY OF GEOPHYSICAL RESULTS	9
8. CONCLUSIONS	9
9. BIBLIOGRAPHY	10
Appendix A – Finds Register	20
Appendix B – Geophysics Report	26
Appendix C – OASIS Form	19

List of illustrations

Figure 1 – Site Location

Figure 2 – Fieldwalking/Geophysics Location Plan

Figure 3 – Plan of Investigation Areas

Figure 4 – General Finds Location Plan

Figure 5 – Ceramic Building Material Location Plan

Figure 6 – Pottery Location Plan

Figure 7 – Proposed Evaluation Trenching Plan Superimposed over Geophysical Results

Non-Technical Summary

A programme of archaeological fieldwalking and geophysical survey was undertaken at the site of Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire, between 10th and 14th October 2011. The fieldwalking was undertaken by AOC Archaeology, with the geophysical survey conducted by Stratascan. The archaeological works were carried out on behalf of Capita Symonds.

The fieldwalking concentrated on two arable fields adjacent to the northern boundary of site. The remainder of the fields on site were under pasture. The majority of finds collected were post-medieval or modern in date and fairly evenly distributed across both fields. This scattering of finds is thought to be mainly derived from the manuring of fields as part of post-medieval agricultural practices.

The geophysical survey covered the full c.20ha area of the site and identified multiple anomalies across the site. The most significant of these anomalies were clustered in three separate groups, located in the northern, central and eastern areas of the site. These groups are believed to consist of ditches, pits, heat affected features and possible earthworks.

Based on the results of the fieldwalking and geophysical survey a proposed archaeological evaluation trenching plan has been produced which targets anomalies within the areas that will be impacted by the proposed .

1. INTRODUCTION

- 1.1 This document is a report detailing the results of a programme of archaeological fieldwalking, as well as providing a detailed summary of a geophysical survey by Stratascan (2011), undertaken at the site of Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire (Figure 1). These archaeological works were undertaken on behalf of Capita Symonds.
- 1.2 The site is located in the north-west of the historic market town of Ashby-de-la-Zouch, Leicestershire, in an area known as Annswell. The site is situated on the northern side of Burton Road and is centred on National Grid Reference (NGR) SK 3490 1748 (Figure 2). The majority of the site is currently undeveloped, comprising two arable fields with the remainder under pasture. The site is bisected by a footpath running east-west; Holywell Spring Farm is located in the south-east of the site; and a spring is situated on the eastern boundary.
- 1.3 The site is bound to the south-west by Burton Road, to the west by residential properties fronting onto Ingles Hill and by fields adjacent to Ingles Hill Farm. Most of the eastern boundary is formed by the rear of residential properties fronting onto small residential streets and cul-de-sacs, including: Knights Close, Locksley Close, Uppingham Drive, Oakham Close and Highgate and by the property limits of Holywell Spring bungalow; the northern-most stretch of the eastern boundary is formed by the boundary with a factory (Figure 2). The northern limit of the site is bounded by Ivanhoe Industrial Estate and Holywell Farm.
- 1.4 Two fields within the area of the site had been identified as being suitable for fieldwalking (Field A and B), located adjacent to the northern boundary (Figure 3). The two fields covered an area of c. 7 hectares. The geophysical survey was conducted over the full c. 20ha area of the site.

2. PLANNING BACKGROUND

- 2.1 The local planning authority is Leicestershire County Council (LCC). Archaeological advice to the Council is provided by Richard Clark, Principal Planning Archaeologist for Leicestershire County Council.
- 2.2 This report has been prepared prior to, and in support of, the submission of a planning application. The results of the fieldwalking and geophysical survey are intended to inform the requirement for archaeological evaluation, by identifying possible features to be investigated during the course of the evaluation.
- 2.3 The redevelopment of the site will create a new residential area of mixed housing types, incorporating new areas of woodland and public recreational space. The scheme may require the demolition of the Holywell Spring Farm buildings.
- 2.4 The first phase of archaeological investigation was the production of an Archaeological Desk-Based Assessment (AOC 2011a). A Written Scheme of Investigation (WSI) was produced detailing how the archaeological fieldwalking and geophysical investigation would be undertaken (AOC 2011b); this was approved by the Principal Planning Archaeologist, Richard Clark. The fieldwalking and

geophysical survey form the second phase of investigation. Further phases of archaeological investigation are planned consisting of archaeological evaluation and historic building recording.

2.5 The fieldwork was undertaken in accordance with the WSI (AOC 2011b) and Briefs issued by Leicestershire County Council (Historic and Natural Environment Team 2008, 2011). This WSI conforms to the requirements of Planning Policy Statement (PPS5): Planning for the Historic Environment. It has been designed in accordance with current best archaeological practice and local and national standards and guidelines:

- English Heritage – Management of Archaeological Projects (EH 1991).
- Institute for Archaeologists – Code of Conduct (IfA 2010).
- English Heritage – The Archaeology of the East Midlands (2006).
- Generic Brief for Archaeological Investigation by Geophysical Survey (HNET 2008).
- Generic Brief for Archaeological Evaluation by Field Walking (HNET 2011).

3. GEOLOGY AND TOPOGRAPHY

3.1 The market town of Ashby-de-la-Zouch is situated on the banks of the River Gilwiskaw in an extensive carboniferous region, which has been exploited for its coal; particularly in the collieries of Moira (to the south-west of the site), and for minerals and clay in Woodville and Gresley (to the west of the site (Lewis 1848). Riverside locations were attractive areas for settlement due to the utilisation of their natural resources of water and fertile alluvial soils, their use in trade and communication and as sites for settlement, ritual and industrial activity. The site itself has a natural spring just within the eastern boundary.

3.2 The site is surrounded by the National Forest, a government initiative to link the ancient Forests of Charnwood on its Eastern fringe with Needwood Forest to its West and to regenerate the former coalfield in this region (National Forest 2008).

3.3 The current Historic Landscape Characterisation of Leicestershire, Leicester and Rutland, characterises the site area as 'Planned enclosure', which is defined as '*either small or large enclosures with a predominantly straight boundary morphology giving a geometric, planned appearance. Laid out by surveyors these field patterns are the result of later enclosure during the 18th and 19th centuries. Included in this character type are commons enclosed by Act of Parliament*' (Historic Landscape Characterisation of Leicestershire, Leicester and Rutland Map 2008).

3.4 The superficial geology is variable across the site with some areas, including the south section and eastern limit of the site, having no superficial geology. A linear section of Head Deposits, comprising clay, silt, sand and gravels is shown in the north of the site, while Glaciofluvial Deposits, comprising sand and gravel, are indicated in the centre of the site. The bedrock geology underlying the site is shown as the Bromsgrove Sandstone Formation, comprising Sandstone and Mudstone lain down between the Anisian - Scythian Ages in the Early-Mid Triassic Period (c. 248.2 - 241.7 million years ago) (British Geological Survey 2010).

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following information is taken from the Desk Based Assessment (AOC 2011a).

Prehistoric (c.500,000 BC - c.AD 43)

- 4.1 It is difficult to determine the nature and extent of human activity within the area of modern day Ashby-de-la-Zouch during the prehistoric period. The primary source of information in this area on these periods comes from findspots and ephemeral evidence which attests to a general presence and utilisation of the wider landscape, rather than specific identified sites or features.
- 4.2 A flint scraper was recovered during fieldwalking on the line of the Ashby-de-la-Zouch Bypass, c. 550m to the north of the site. This stone tool is thought to date from sometime between the Early Neolithic period to the Late Bronze Age (4000 BC to 701 BC). Further archaeological fieldwork along the line of the bypass recovered four flint flakes and a core, which have been dated to the Late Prehistoric period (4000 BC - AD 43).
- 4.3 A number of cropmarks were identified by Richard Clark (LCC Principal Archaeologist) in March 2011 which may relate to possible Prehistoric - Romano/British activity. These cropmarks include:
- Faint linear cropmark running c. NE-SW, centered on SK 3471 1768
 - Faint linear cropmark running NW-SE, centered on SK 3487 1770

Roman (c.AD 43 – 410)

- 4.4 Nineteenth century documentary sources recall that 'a great number of Roman coins' were found in the parish of Ashby-de-la-Zouch but no further information or more accurate providence were revealed (Lewis 1848). However, such evidence may indicate that there was some level of Roman activity in the wider area.
- 4.5 Leicester Way/Long Lane is a possible route of a Roman road c. 300m to the north-east of the site; this is thought to have led through Coalville into the fields of Coleorton.
- 4.6 Additional evidence for Roman activity within the study area was recovered in 2001 when a scatter of Roman pottery was recovered, along with material dating to other periods in the vicinity of an undated ditch feature c. 400m to the north of the site.
- 4.7 A number of cropmarks were identified by Richard Clark (LCC Principal Archaeologist) in March 2011 which may relate to Romano/British activity. These cropmarks include:
- Faint linear cropmark running c. NE-SW, centered on SK 3471 1768
 - Faint linear cropmark running NW-SE, centered on SK 3487 1770

Early Medieval (c.AD 410 – 1066) and Medieval Periods (AD 1066 – AD 1536)

- 4.8 The name 'Ashby' is thought to derive from Saxon origins, constructed from the Old English words 'asc' (an ash) and 'bye' meaning a habitation (Lewis 1848).
- 4.9 The settlement of Ashby is recorded in the Domesday survey of 1086 as 'Asceb'. By 1160 the manor was owned by Alan la Zouch, who added his family name to distinguish Ashby-de-la-Zouch from other settlements in the Midlands also known as 'Ashby'. A market is recorded from the 13th century and a fair from the 15th century. The market was held in Market Street, c. 800m to the south-east of the site.

- 4.10 Ashby Castle, located 1.12km to the south-east of the site, originated as a collection of 12th century manor house buildings, most likely constructed in timber, but replaced with stone structures c. 1150 and was converted into a 'castle' in the 1470s. During the Civil War, the castle grounds were fortified, with the gardens being incorporated into the defences, but the castle was partially destroyed at this time and the 14th / 15th century remains that survive having been designated a Scheduled Monument and Grade I Listed Building. The castle continued to be partly lived in until 1724, when the castle was superseded as a residence by Ashby Place. Remains of the early post-medieval gardens and brick towers survive as earthworks to the south of the castle.
- 4.11 Other early medieval / medieval sites within the vicinity of the site include:
- A manorial complex at Tournament Field, c. 700m to the north of the site (the setting of the tournament within the Sir Walter Scott novel 'Ivanhoe').
 - Possible medieval deserted settlement of Woodcote - recorded near Smisby, c. 400m to the north-east of the site.
 - Possible medieval deer park in the area of Prestop Park, associated with Prestop Park House, c. 900m to the west of the site.
 - Possible medieval / early post- pottery kilns activity, c. 550m to the north-east of the site (based on the field names 'Lane Potter's Close, 'Nether Potter's Close' and 'Potter's Side Furlong').
- 4.12 Additionally, medieval pottery was recovered during a watching brief in 2001, during the stripping of topsoil for the new Ashby-de-la-Zouch by-pass road, approximately 400m to the north of the site. This has been interpreted as the result of manuring, reflecting the agricultural character of the area.
- 4.13 In terms of medieval activity within the site boundary, possible ridge and furrow has been identified by Aerial Photograph in the field adjacent Holywell Spring Farm, centered on SK 3482 1798 (Richard Clark, March 2011). Although there is no evidence to indicate any significant exploitation of the potential healing properties of the water from the Holy Well Spring, at the eastern boundary of the site, the place-name evidence could suggest that such beliefs may have been held at some point,. The name 'Holy Well', has since been incorporated within the names of farms and other properties in the vicinity.

Post-Medieval (c.AD 1485 - 1900) and Modern Periods (AD 1900 – Present)

- 4.14 The farm buildings at Holywell Farm and buildings and features associated with nearby Ingleshill Farm are shown on an Ordnance Survey drawing of 1821 – suggesting at least an early 19th century origin for these farms.
- 4.15 During consultation with the land owner it was stated that, historically, the Holy Well Spring within the site fed taps in the town of Ashby-de-la-Zouch, and that two of these taps remain: one at the bath grounds and one in the council yard (19th May 2010, *pers. comm.*).
- 4.16 Contemporary documentary evidence comprising a 'Report to the General Board of Health on a preliminary enquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the town of Ashby de la Zouch', written in 1849, confirms that Holy Well Spring was utilised as a water supply to Ashby-de-la-Zouch at this time.
- 4.17 The Historic Landscape Characterisation (HLC) report identifies the area of the site as 'planned enclosure', which is characterized as "*either small or large enclosures with a predominantly straight boundary morphology giving a geometric, planned appearance. Laid out by surveyors these field patterns are the result of later enclosure during the 18th and 19th centuries. Included in this*

character type are commons enclosed by Act of Parliament." (Historic Landscape Characterisation of Leicestershire, Leicester and Rutland Map, 2008).

- 4.18 One of the main industries in the parish of Ashby-de-la-Zouch was coal mining. The principal collieries were located at Moira, some 3.5km to the south-west of the site (Lewis 1848). Possible evidence of quarrying within the boundary of the site is suggested by the identification of a cropmark of a possible former quarry centred on SK 3479 1765 (Richard Clark, March 2011).
- 4.19 The market continued to be an important feature of the town throughout the post-medieval period and it has been suggested that the post-medieval infilling in Market Street may be on the site of medieval booths. In the 19th century the town became a famous spa town, with the construction of the Ivanhoe baths in 1822. By the later 19th century, the baths went into decline and were closed in the 1870s. Despite renovation in the late 1880's the baths declined in importance and were finally demolished in 1962.
- 4.20 A tramline ran past the southern boundary of the site, along what is now Burton Road, shown as 'Burton and Ashby Light Railway Line' on the Ordnance Survey map of 1925. By 1918 the line was losing money due to competition from buses and the line closed in February 1927.

Previous Archaeological Investigation

- 4.21 No previous archaeological investigations or geotechnical investigations have been undertaken within the boundary of the site.

Archaeological Watching Brief during Topsoil Stripping, 2001

- 4.22 A programme of archaeological control and supervision was undertaken during topsoil stripping for the Ashby by-pass in June 2001 (ULAS 2001) approximately 400m to the north of the site. These works were located in two fields adjacent to the by-pass; Area 1 directly to the north of the road and Area 2 south directly to the south.
- 4.23 The topsoil across the site comprised a dark grey-brown loamy clay to a depth of between 0.10m-0.15m. This overlay a dark brown clayey sand subsoil with a depth of between 0.15m-0.20m. Two flint flakes were recovered from this area. A scatter of Roman, medieval and modern pottery was recorded across the entire site. This has been interpreted as the result of manuring, reflecting the agricultural character of the area.

5. AIMS OF THE INVESTIGATION

- 5.1 The aims of the fieldwalking and geophysical survey were defined as being:
- identify likely locations for the presence of archaeological remains within the site.
 - to map potential archaeological features and anomalies.
 - to inform the trenching strategy of the archaeological evaluation.
- 5.2 The final aim was to make public the results of the investigation via the ADS online OASIS form (Appendix C).

6. METHODOLOGY

- 6.1 All work was carried out in accordance with the Written Scheme of Investigation (AOC 2011b).

- 6.2 Prior to the commencement of work a site code (**X.A140.2011**) was obtained from the Leicestershire County Museums Service and was used as the unique site identifier for all records and finds.
- 6.3 The area fieldwalked consisted of two fields, Fields A and B, in total covering an area of c. 7ha. Both fields have been under arable cultivation, but at the time of the survey they were recorded as having a low-level cover of vegetation. These fields were field walked by three archaeologists over two day period on the 12th and 13th October 2011. The fields were walked using transects set up at 10m intervals using a Trimble R6 differential GPS system (Figure 3). The location of each findspot was individually logged.
- 6.4 The survey was undertaken using both visual inspection and metal detecting. All material considered to be man-made or not local to the area was collected and recorded by the individual collection unit. The exception to this is where dense concentrations of building material were present when a representative sample was retained. The metal detector was set-up at a moderate discrimination level.
- 6.5 Pro-forma sheets were used to record details of walker, soil/crop conditions, slope/topography and lighting/weather conditions for each transect and presence/absence of finds for each collection unit.
- 6.6 All findspots were located using a GPS unit. The differential GPS system surveyed on to the Ordnance Survey Grid to an accuracy of c. 20mm and runs a datalogger customised to record archaeological information. As such, every find located during the survey was given an accurate OS position on the OS grid associated with a find number, class description and descriptive text. The resulting data can be provided in DWG and GIS formats (ESRI shapefile), as an Access database or Excel spreadsheet.
- 6.7 Finds were identified, quantified and recorded directly on to computer. The results were plotted using a CAD graphics programme (Figures 4, 5 and 6).
- 6.8 On completion of the fieldwork, the finds were washed and sorted into groups in order to facilitate identification. Finds were bagged according to artefact class within each transect. The pottery and other relevant artefacts were then scanned to assess the date range of the assemblage.
- 6.9 Upon completion of the project the landowner and the relevant museum will be contacted regarding the preparation, ownership and deposition of the archive and finds.

7. FIELDWALKING RESULTS

Collection Conditions

- 7.1 At the time the survey was undertaken, the two fields designated for fieldwalking were found to be in variable states. Both fields had not been recently ploughed. Field A was found predominately with a low level cover of grass, obscuring the majority of the ground surface. There were areas of limited grass cover which appeared to relate to the regular series of plough lines, which also coincidentally fell within several of the fieldwalking transects. Field B was in an initial state of crop with low green shots present. The condition of both fields partially impeded the identification of finds.
- 7.2 During the survey the weather conditions were dry and overcast.

Finds

- 7.3 The following types of finds were collected during the project: burnt flint, animal bone, metal objects, glass, clay tobacco pipe, kiln furniture/saggers, ceramic building material (CBM), and pottery. A table detailing each find is included in Appendix A. The distribution of finds is detailed in Figures 4, 5 and 6.

Burnt Flint

- 7.4 A single fragment of undiagnostic burnt flint was recovered from the southern half of Field A (Figure 4).

Animal Bone

- 7.5 One fragment of long bone from an immature large mammal was collected from the northeast corner of Field B (Figure 4).

Metal Objects

- 7.6 Thirteen metal objects were identified during the fieldwalking, all deriving from Field B. A range of metal types were present, consisting of iron, lead, steel, aluminium and copper alloy. The largest group was formed of iron objects represented by several undiagnostic corroded iron fixings, in addition to a pulley wheel and chain which are late post-medieval in date. The remaining metal object assemblage was made up of 19th or 20th century household and agricultural items. All metal objects collected were distributed widely throughout field B and without any discernable pattern (Figure 4).

Glass

- 7.7 The glass assemblage recovered during the investigation consisted of 15 fragments, primarily made up of small fragments, some of which exhibited signs of abrasion. The majority of the assemblage represented the remains of 19th to 20th glass vessels, incorporating diagnostic elements such as several vessel bases and fragments with partial embossed lettering and designs. Examples of earlier 18th to 19th century green bottle glass were also present. All glass fragments were collected from Field B and were distributed widely without any discernable pattern (Figure 4).

Clay Tobacco Pipe

- 7.8 During the course of the fieldwalking, eight fragments of clay tobacco pipe were collected. The entire assemblage consists of small pipe stem fragments that appear to date from the 18th or 19th century. All clay tobacco pipe fragments were collected from Field B and were distributed randomly in the northern half of the field (Figure 4).

Kiln Furniture/Saggers

- 7.9 Distinct among the finds collected were eleven fragments of glazed earthenware kiln furniture and three sagger fragments. These fragments were widely distributed throughout Field A and B (Figure 4).

Ceramic Building Material (CBM)

- 7.10 A total of 70 fragments of CBM were collected during the course of the investigation made up of small to medium sized fragments of brick and tile. Multiple fragments demonstrated signs of abrasion. The majority of fragments were undiagnostic, with a general assessment of the fabric and form indicating they all derived from the post-medieval period. Only three of the brick fragments were large enough to retain a measurable dimension implying that they were made during the 17th or 18th century. Examples of tiles with a highly fired reduced fabric and 19th to 20th century glazed wall tile were also recorded. CBM fragments were collected from both fields with their distribution across both fields being fairly even (Figure 5). The only defined concentration of CBM fragments was located adjacent to the northern boundary of Field A.

Pottery

- 7.11 Pottery sherds formed the largest single assemblage of finds collected during the course of the field working and was represented by 192 individual fragments. The assemblage was characterised by small to medium sized sherds, a small proportion of which were abraded. A single sherd of possible medieval pottery was identified, while the remaining sherds fell into three broad groups; 15th to 18th century pottery; 18th to 20th pottery; and general post-medieval pottery.
- 7.12 A small abraded sherd of possible medieval earthenware was recovered from Field B.
- 7.13 The assemblage of 15th to 18th century pottery was primarily represented by Midlands Purple ware, but also included a small number of Cistercian ware and Midlands Yellow ware fragments. A small number of diagnostic rim, base and handle sherds were identified, with several fragments representing platters or cups.
- 7.14 Pottery fragments dating to the 18th to 20th century were the most numerous type of pottery encountered. White glazed Earthenware, Transfer Print ware, Yellow glazed ware, English Stoneware, and Staffordshire Salt Glazed ware were the predominate fabrics represented. Within this assemblage the forms represented were primarily domestic forms such as plates and cups.
- 7.15 A third group of pottery sherds were encountered, which could only be generally dated to the post-medieval period. This group primarily consisted of oxidised fabrics which had been treated with a dark brown or black glaze on either one, or both surfaces, and likely to be locally produced. Diagnostic sherds within this group were limited. Further assessment of this group may provide further information.
- 7.16 The greater proportion of the pottery sherds recovered derived from Field B (Figure 6). The distribution of all three pottery groups identified is broadly similar, primarily distributed throughout Field B with a small scatter collected from Field A. One pattern that has been noted is a higher concentration of 15th to 18th century pottery present adjacent to the western boundary of the eastern field.

8. SUMMARY OF GEOPHYSICAL RESULTS

- 8.1 Between 10th and 14th October 2011 Stratascan (2011) undertook a detailed gradiometry survey over the full area of the site consisting of approximately 20 hectares of arable farmland and pasture. The full geophysical report has been included as Appendix B. The key results of the geophysical survey are summarised here.
- 8.2 The survey identified multiple anomalies that are of archaeological interest. A range of significant anomalies were detected across the full area of the site, located in Fields B, C, D, E and G. These anomalies consist of:
- In Field C, a group of anomalies made up of an enclosure formed of positive linear cut features (1a) adjacent to a series of spherical pit-like cut features (1b) enclosing a horseshoe-shaped positive anomaly (1c) and 4 discrete probable thermoremanent anomalies (1d).
 - In Field B, a widely spaced collection of positive linear cut features (2b) and pit-like features (2a).
 - In Field D, a positive linear cut feature centrally traversing northwest-southeast across the field (3).
 - In Fields B, C, D, E and G, extensive evidence for ridge and furrow cultivation. Most of the selions run south-west to north-east in line with the current field system (4a) but there is a small amount of ridge and furrow appearing to run east to west in Field C (4b).
- 8.3 Several other less significant anomalies also occur across the site consisting of:
- In Field A, a series of weak positive linear cut which appear to converge to form a partial rectilinear formation (5) and two small pit-like anomalies appearing along the southern boundary (6).
 - In Field B, two small pit-like anomalies appear in the southeast area of the field (7). These may or may not be associated with the natural geological/pedological trend in close proximity (15). This is in addition to a small circular weak negative anomaly appears towards the centre of the field (8b).
 - In Field E, a long thin weak negative anomaly running parallel to the southern boundary of the field (8a) which may potentially represent earthworks of archaeological interest. Adjacent to anomaly 8a were several possible discrete thermoremanent anomalies (9b).
 - In Fields A, B, C, D and E, further discrete thermoremanent anomalies were identified. Some may interpreted as features due to their close proximity to other anomalies marked as probable archaeology (9a-d). Others may simply be discrete areas of magnetic variation and have no archaeological value (9e).
 - A number of magnetic ferrous spikes occur across the site (14a-c). These are likely to represent modern rubbish, some may be of archaeological interest. Those found in association with other potentially archaeological anomalies may be of archaeological interest.

8. CONCLUSIONS

- 8.1 A programme of fieldwalking and geophysical survey was undertaken at the site of Holywell Spring Farm, Ashby-de-la-Zouch, both of which produced results of archaeological interest.
- 8.2 The fieldwalking collected a range of finds types primarily associated with the post-medieval and modern periods consisting of pottery, metal objects, glass, clay tobacco pipe, and ceramic building material. The only evidence for earlier activity on site is represented by a single sherd of possible medieval pottery.

- 8.3 The majority of finds were collected from Field B. This disproportionate concentration of finds between Field A and Field B is due to the differing ground conditions encountered in each field during the fieldwalking, making finds easier to identify in Field B.
- 8.4 All finds types collected were widely distributed within both Field A and B, strongly indicating that these finds derived from the manuring of fields and general dumping of waste during the post-medieval and modern periods and subsequently distributed by intensive agricultural ploughing, rather than resulting from *in-situ* activity at this time. The only exception to the widely distributed finds pattern is a small concentration of CBM material adjacent to the northern boundary of Field A, although this is believed to be associated with a focused deposition of dump material.
- 8.5 A notable group of material collected during the fieldwalking was the small assemblage of fragmentary kiln furniture found in both Field A and B. This evidence would imply that part of the material being dumped in this area of site derived from one the post-medieval pottery kilns within the local area.
- 8.6 The geophysical survey identified a range of anomalies across the full area of the site. Discrete groups of significant anomalies were identified in Fields B, C and D consisting of linear cut features, pit-like anomalies, and discrete thermoremanent anomalies. Evidence for ridge-and-furrow cultivation was identified in all fields. The group of anomalies identified in Field C lie a short distance to the south and east of the cropmarks identified by Richard Clark, LCC Principal Archaeologist, and could potentially represent related phases of activity.
- 8.7 Less significant geophysical anomalies were also noted across the site, although primarily focused in Fields A, B and E. These anomalies consisted of isolated weaker linear and circular anomalies, both positive and negative in form. Other discrete thermoremanent anomalies were also identified. Ferrous spikes were detected across the site, with one concentration located adjacent to the northern boundary of Field A. This location is similar to the concentration of CBM fragments collected during the fieldwalking which confirms the presence of a focused dump site.
- 8.8 Analysis of the fieldwalking and geophysical survey results has identified multiple locations suitable for targeted evaluation trenching (Figure 7). The fieldwalking results did not produce any suitable targets, with all targets derived from the geophysical data.

9. BIBLIOGRAPHY

British Geographical Survey Map Sheet 141 (Envirocheck Landmark, 2010)

AOC Archaeology (2011a). *Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire: An Archaeological Desk-Based Assessment*

AOC Archaeology (2011b). *Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire: A Written Scheme of Investigation for a Programme of Archaeological Fieldwalking, Geophysics, Evaluation, and Historic Building Recording*

English Heritage (1991). *Management of Archaeological Projects*.

English Heritage (2006) *The Archaeology of the East Midlands*

Institute for Archaeologists (2010). *Code of Conduct*.

Leicestershire County Council (2008), *Historic Landscape Characterisation of Leicestershire, Leicester and Rutland Map*

Lewis, S (ed.), (1848). *A Topographical Dictionary of England*. (<http://www.british-history.ac.uk/report.aspx?compid=50762#s13>). Accessed: 12th May 2010.

National Forest 2008: <http://www.nationalforest.org/> (accessed 12th May 2010)

Stratascan (2011). Geophysics Survey Report. Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire

University of Leicester Archaeological Services (ULAS) (2001). *Archaeological Control and Supervision during Topsoil Stripping for Soil Storage Ashby by-pass Stage 2, Ashby de la Zouch, Leicestershire*. Unpublished report no. 2001/98.

HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE:
AN ARCHAEOLOGICAL FIELDWALKING AND GEOPHYSICAL SURVEY REPORT

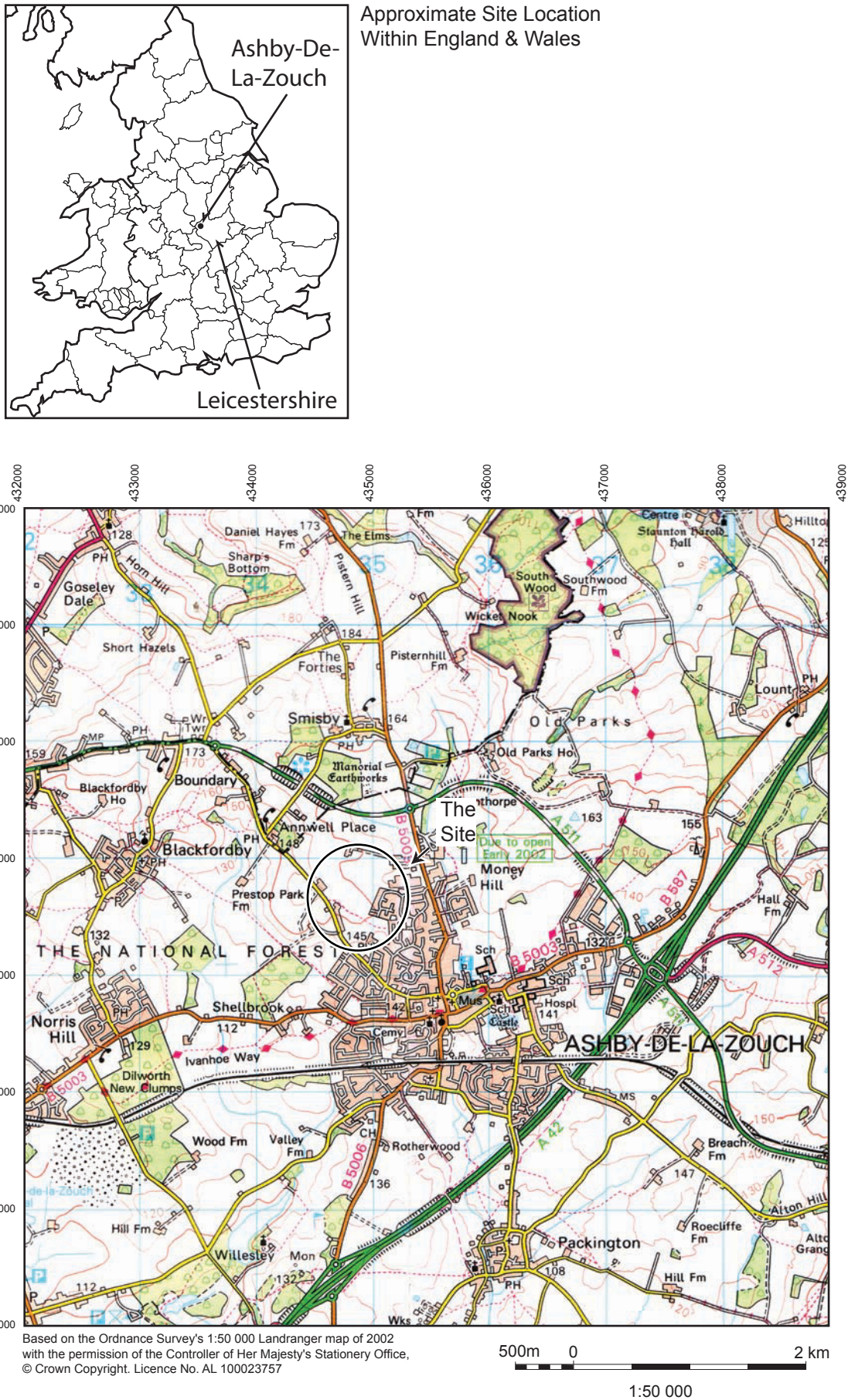
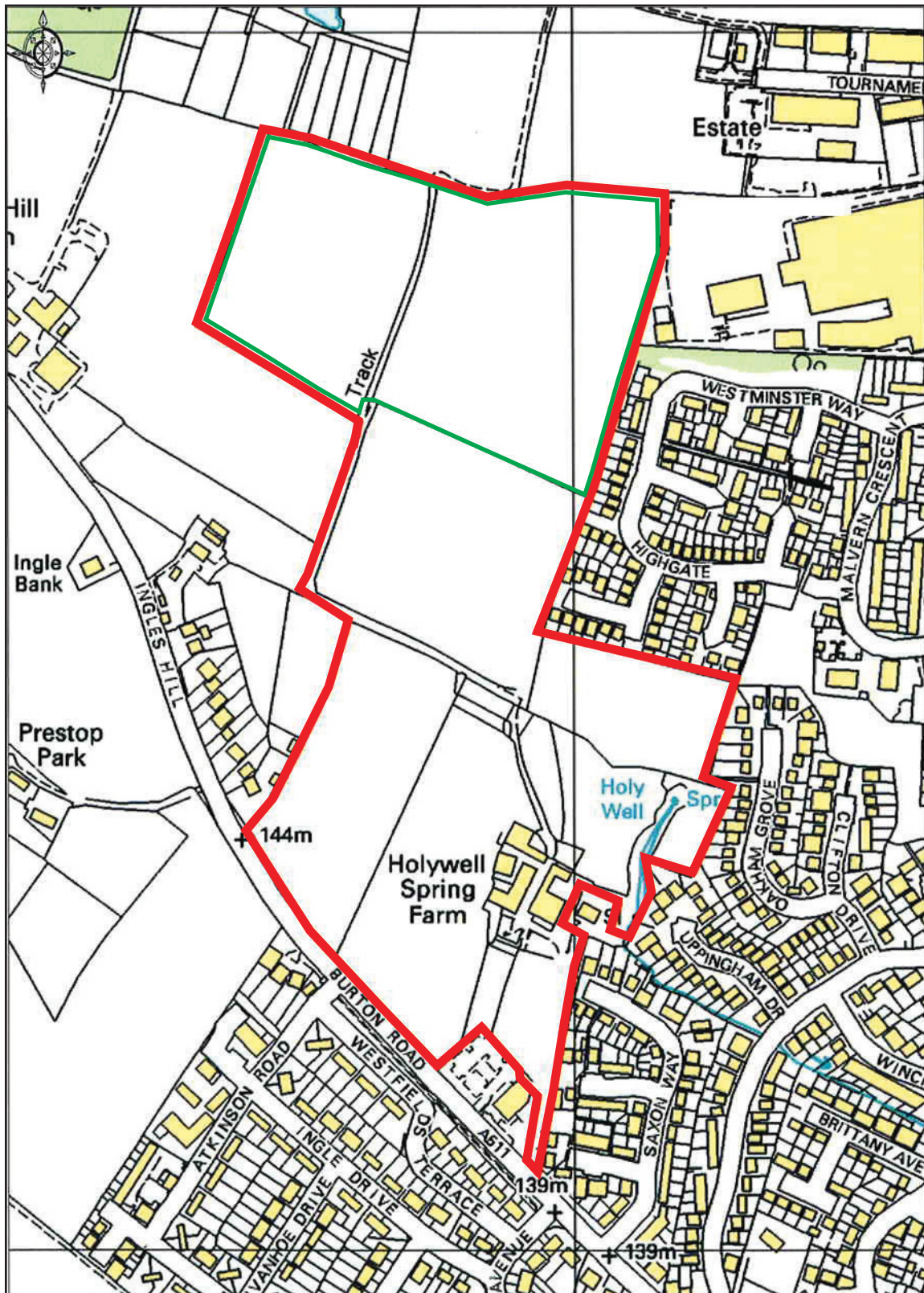


Figure 1: Site Location



Based on the Ordnance Survey's 1:5 000 Landranger map of 2008 with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Licence No. AL 100023757

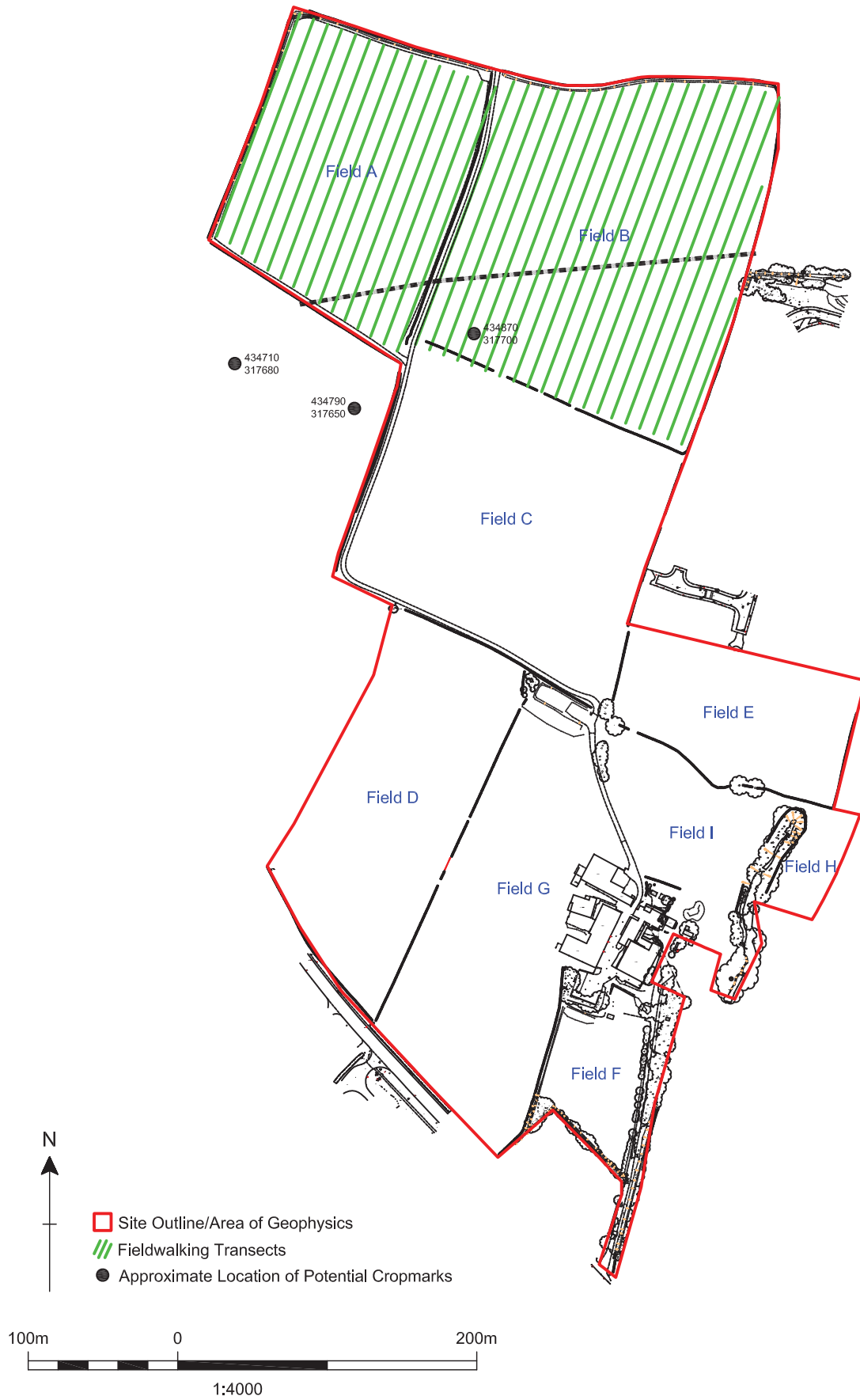
100m 0 200m

1:5000

Figure 2: Detailed Site Location

- Site Outline
- Fieldwalking Area Outline

HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE :
AN ARCHAEOLOGICAL FIELDWALKING AND GEOPHYSICAL SURVEY REPORT



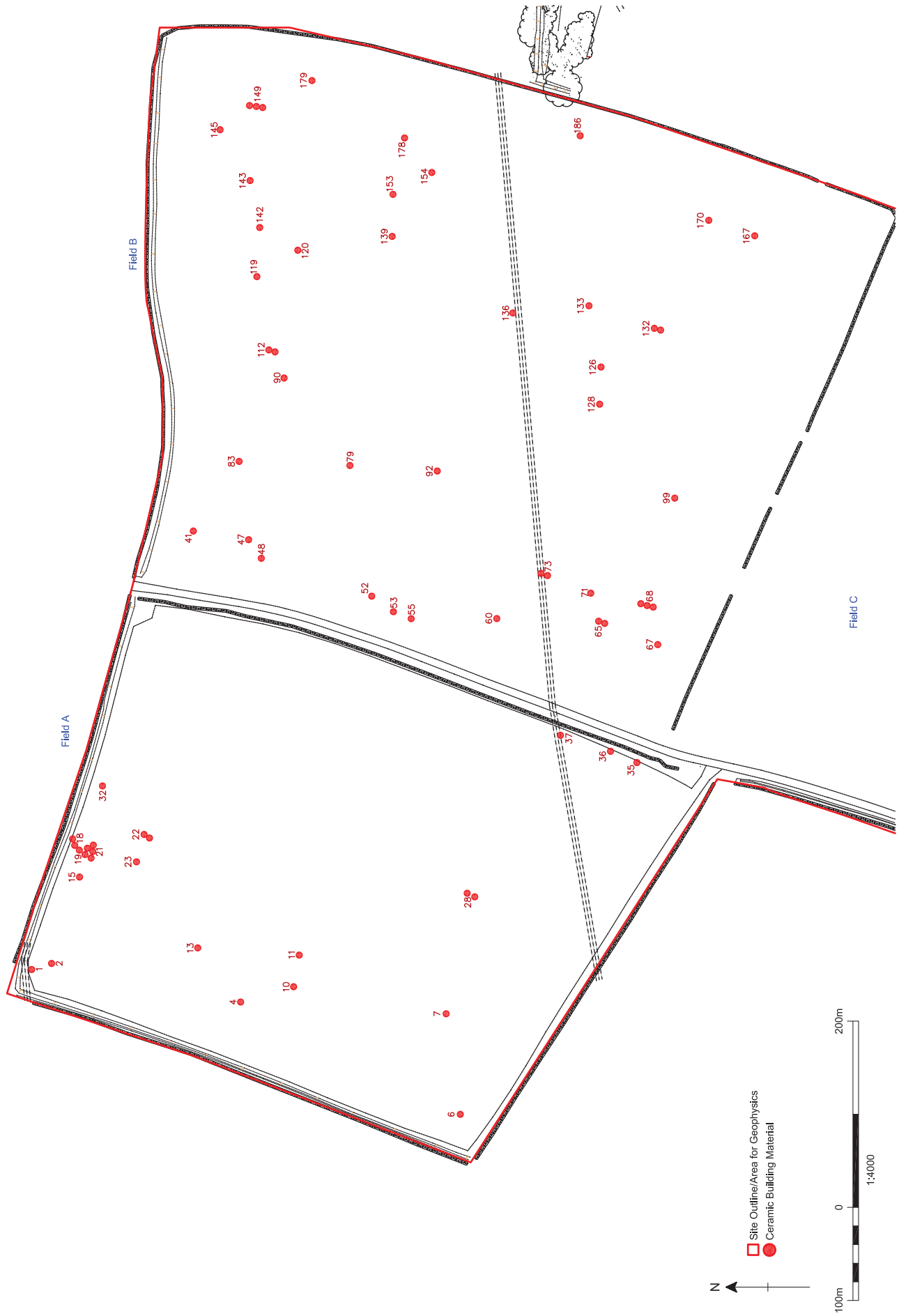
Based on the Plan Produced by Site Engineering Personnel Ltd

Figure 3: Plan of Investigation Areas



Based on the Plan Produced by Site Engineering Personnel Ltd

Figure 4: General Finds Location Plan



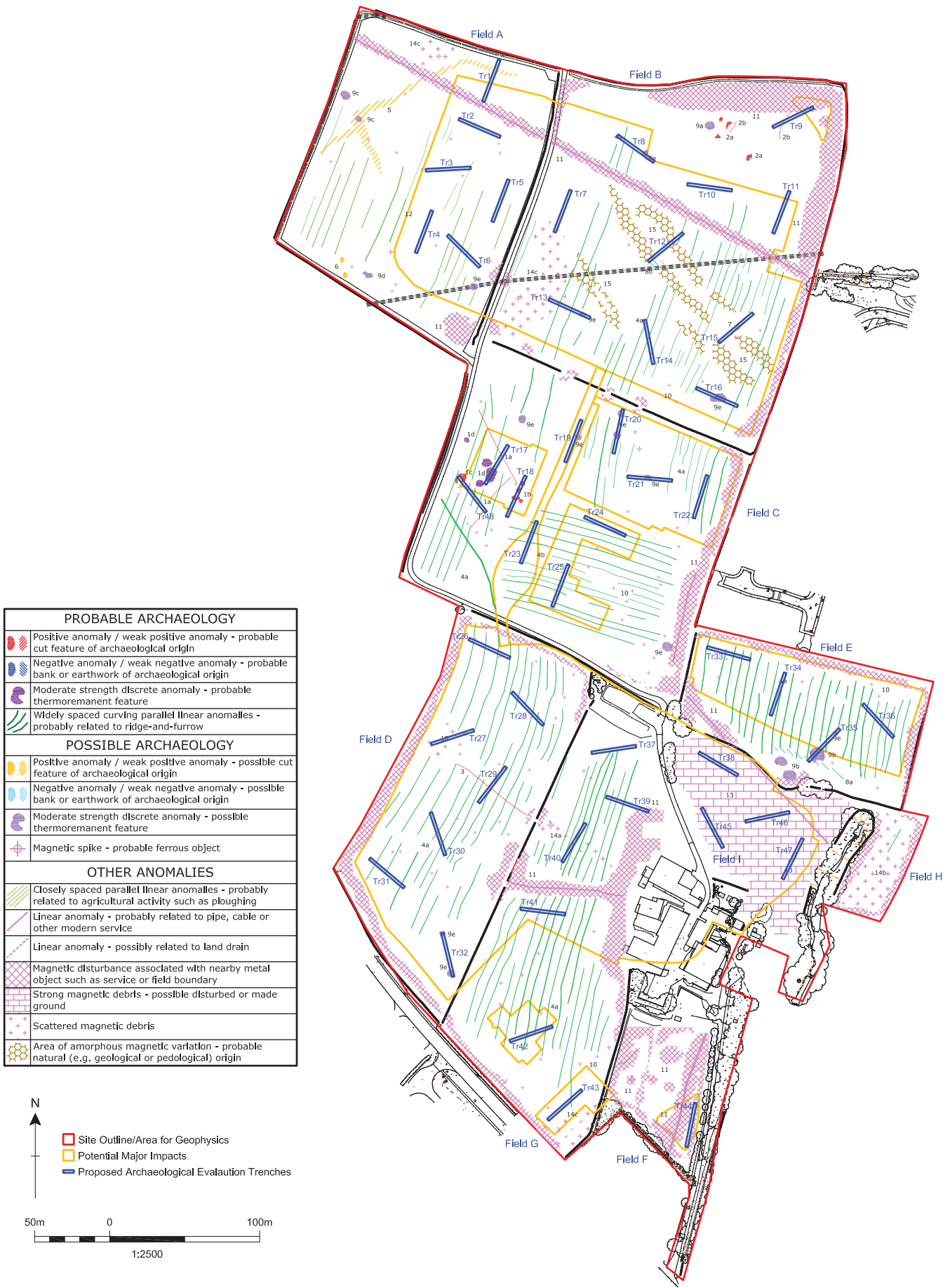
Based on the Plan Produced by Site Engineering Personnel Ltd

Figure 5: Ceramic Building Material Location Plan



Based on the Plan Produced by Site Engineering Personnel Ltd

Figure 6: Pottery Location Plan



Based on the Plan Produced by Site Engineering Personnel Ltd

Figure 7: Proposed Archaeological Evaluation Trenching Plan Super-imposed on Geophysics Results

Appendices

Appendix A – Finds Register

Type	Find Spot	Date/Period	Comments
CBM	1	Roman-Post-med	Small frag. Abraded.
CBM	2	Post-med	red brick frag. handmade.
Pottery	3	Med - Post-med	Oxidised. Grey slip. Small frag.
Pottery	3	Med - Post-med	Oxidised. Grey slip. Small frag.
CBM	4	Post-med	red brick frag.
Pottery	5	Post-med	Kiln furniture - plate spur.
CBM	6	Roman-Post-med	Small frag. Abraded.
CBM	7	Med - Post-med	Buff fabric. Tile. Handmade?
Pottery	8	Post-med	Dark brown glaze internal. Locally produced.
Pottery	9	Post-med	Dark brown glaze internal. Base. Locally produced.
CBM	10	Post-med	Tile?. Oxidised. Small frag.
CBM	11	Post-med	Oxidised. Tile.
Pottery	12	Post-med	Small frag. Abraded.
CBM	13	Post-med	Oxidised. Tile. Small frag.
Pottery	14	15th-18thC	Dark brown glaze both sides. Midlands Purple ware. Handle attachment.
Pottery	15	Post-med	Oxidised. Locally produced. Abraded.
CBM	15	Post-med	Red brick frag.
Pottery	16	Post-med	sagger
Pottery	17	17th-18thC	Pink bodied black glazed coarse earthenware.
CBM	18	Post-med	Oxidised. Tile. Small frag.
CBM	18	Post-med	Red brick frag.
CBM	18	Roman-Post-med	Red brick frag. Handmade?.
CBM	19	Post-med	Red brick frag.
CBM	19	Post-med	Red brick frag.
Pottery	20	16th-18thC	Tin glazed ware. Small frag.
Pottery	20	16th-18thC	Unglazed biscuit ware. Handle?. Small frag.
CBM	21	Post-med	Red brick frag.
CBM	21	Roman-Post-med	Red brick. Handmade?
CBM	21	17thC?	Red brick. T=52mm
CBM	22	Roman-Post-med	Oxidised. Tile?. Small frag. Abraded.
CBM	22	Post-med	Red brick frag.
CBM	23	Post-med	Red brick frag.
Pottery	24	15th-18thC	Dark brown glaze both sides. Midland purple ware. Rim.
Pottery	25	15th-18thC?	Midlands Purple ware? Rim. Platter?
Pottery	26	15th-18thC?	Dark brown internal glaze. Midlands Purple ware?
Burnt Flint	27	?	
Pottery	28	Med - Post-med	Dark brown internal glaze. Locally produced.
CBM	28	Post-med	Red brick frag.
CBM	28	Post-med	Red brick frag.
Pottery	29	19th-20thC	Sunderland ware. Mixing bowl.
Pottery	30	18th-19thC	Yellow/Mocha ware. Small frag.
Pottery	31	19thC	White glaze both sides. Transfer-print ware green.
CBM	32	17th-18thC	Red brick. T=55mm. Handmade?
Pottery	33	Post-med	Dark brown glaze internal. Base. Locally produced.
Metal Obj	34	20thC	Large agricultural object (not retained)
CBM	35	Post-med	Red brick frag
CBM	36	Post-med	Tile. Oxidised.
Pottery	37	15th-18thC?	Dark brown glaze one side. Midland Purple ware?

*HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE:
AN ARCHAEOLOGICAL FIELDWALKING AND GEOPHYSICAL SURVEY REPORT*

CBM	37	Post-med	Oxidised. Tile. Small frag.
Pottery	38	Post-med	Dark brown glaze internal.
Pottery	39	18th-20thC	English Chinaware. Small frag.
Pottery	40	19thC	Yellow/Mocha ware. Small frag. Abraded.
CBM	41	18thC	Red brick. T=65mm.
Glass	42	18th-19thC	Green vessel glass. Small frag.
Pottery	42	19th-20thC	Terracotta. Small frag.
Pottery	42	18th-19thC	White glazed earthenware. Small frag. Abraded.
Pottery	43	Post-med	Oxidised. Dark brown glaze internal.
Pottery	43	Post-med	Oxidised. Dark brown glaze internal.
Pottery	44	15th-16thC	Cistercian ware?.
Metal Obj	45	19th-20thC	Short length of iron chain and hook.
Pottery	46	19th-20thC	Sunderland ware. Mixing bowl.
Pottery	46	19th-20thC	White glazed Earthen ware.
CBM	47	Post-med	Red brick. Small frag.
Pottery	48	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
CBM	48	Post-med	Oxidised. Tile.
Pottery	49	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	49	18th-19thC	White glazed earthenware. Base.
Pottery	50	18th-19thC	Pearl ware. Rim. Plate.
Pottery	51	15th-18thC	Midlands Purple ware. Small frag.
Glass	52	19th-20thC	Clear vessel glass. Small frag.
Pottery	52	Post-med	Dark brown internal glaze. Local redware.
CBM	52	Post-med	Red brick frag.
Pottery	52	18th-19thC	Transfer print/pearl ware. Cup handle.
CBM	53	Post-med	Oxidised. Tile.
Pottery	53	19th-20thC	White glazed Earthen ware. Rim.
Metal Obj	54	20thC	Enamel toy.
Pottery	54	19th-20thC	White glazed Earthen ware.
CBM	55	Post-med	Ceramic pipe.
Pottery	55	18th-19thC	White glazed earthenware. Rim. Cup. Small frag.
Pottery	56	18th-19thC	Brown glazed earthenware. Abraded.
Pottery	56	18th-19thC	Transfer-print ware. Plate. Rim.
Pottery	56	18th-19thC	White glazed earthenware. Small frag. Abraded.
Pottery	57	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Clay Pipe	57	18th-19thC	Stem. Narrow bore.
Pottery	57	18th-19thC	White glazed earthenware. Small frag. Abraded.
Pottery	57	18th-19thC	White glazed earthenware. Small frag. Abraded.
Pottery	58	Post-med	Oxidised. Dark brown glaze internal.
Pottery	59	Post-med	Brown glaze both sides. Earthenware.
CBM	60	Post-med	Oxidised. Tile.
Pottery	61	18th-19thC	Transfer-print ware. Plate.
Pottery	62	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	62	18th-20thC	Redware. Small frag.
Pottery	62	19th-20thC	Terracotta. Small frag.
Pottery	62	18th-19thC	White glazed earthenware. Small frag. Abraded.
Pottery	63	Post-med	Oxidised. Dark brown glaze both sides.
Pottery	63	Post-med	Oxidised. Dark brown glaze internal. Rim.
Pottery	64	19th-20thC	Creamware. Small frag.
Pottery	64	18th-20thC	Transfer print ware. Small frag.
CBM	65	Post-med	Ceramic pipe.
CBM	65	Post-med	Oxidised. Tile.

HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE:
AN ARCHAEOLOGICAL FIELDWALKING AND GEOPHYSICAL SURVEY REPORT

Pottery	66	18th-20thC	English Porcelain. Base.
Pottery	66	18th-19thC	English Stoneware. Small frag.
Pottery	66	18th-19thC	Yellow glazed boarder ware.
CBM	67	Post-med	Ceramic pipe.
Pottery	68	19th-20thC	Plate. White glaze both surfaces. Earthenware.
CBM	68	Post-med	Red brick frag
CBM	68	19th-20thC	Sagger?
CBM	68	Post-med	Tile. Oxidised.
Pottery	68	19th-20thC	White glaze both surfaces. Earthenware
Pottery	69	Post-med	Oxidised. Black internal glaze. Base.
Glass	70	19th-20thC	Clear angled bottle glass.
Pottery	70	19th-20thC	White glaze both surfaces. Earthenware. Small frag.
CBM	71	Post-med	Small frag. Abraded.
Pottery	71	18th-19thC	White glazed Earthen ware.
Pottery	72	Post-med	Dark brown internal glaze.
Pottery	72	18th-19thC	Pearl ware. Plate. White glaze both surfaces
CBM	73	Roman-Post-med	Oxidised. Small frag. Abraded.
Pottery	73	19th-20thC	Rim cup. Yellow glaze both surfaces. Small frag.
CBM	73	Post-med	Tile. Oxidised.
Pottery	74	15th-18thC	Dark brown glaze internal. Midlands Purple ware.
Clay Pipe	74	18th-19thC	Stem. Narrow bore.
Glass	75	18th-19thC	Thick green bottle glass. Small frag.
Pottery	76	15th-18thC	Dark brown glaze both surfaces. Midlands Purple ware. Small frag.
Pottery	77	19th-20thC	Dark brown glaze both sides. Midland purple/teapot ware?
Pottery	78	15th-18thC	Dark brown glaze internal. Midlands Purple ware.
Pottery	78	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
CBM	79	Med - Post-med	Small frag. Abraded.
Pottery	79	18th-19thC	White glazed earthenware. Mocha design. Small frag. Abraded.
Pottery	80	15th-18thC	Dark brown glaze both surfaces. Midlands Purple ware. Small frag.
Clay Pipe	80	18th-19thC	Stem. Narrow bore.
Pottery	81	15th-18thC	Dark brown glaze internal. Midlands Purple ware. Handle attachment?.
Pottery	82	15th-18thC	Dark brown glaze internal. Midlands Purple ware.
Pottery	82	16th-17thC	Midlands Yellowware. Rim. Small frag.
Pottery	83	15th-18thC	Dark brown glaze both sides. Rim. Small frag.
CBM	83	Post-med	Grey (red outer surface) brick frag.
Pottery	84	Post-med	Black glaze internal. Local red ware.
Pottery	84	Post-med	Local red ware. Small frag.
	85		VOID
Pottery	86	19th-20thC	Yellowware. Small frag.
Pottery	87	15th-18thC	Black external glaze. Midlands Purple ware? Platter. Abraded.
Glass	88	18th-19thC	Green bottle glass. Base.
Pottery	89	19th-20thC	Sunderland ware. Small frag.
CBM	90	Post-med	Glazed opening surround.
Pottery	91	18th-20thC	White glazed earthenware/transfer print ware. Base. Plate.
CBM	92	Post-med	Reduced. Tile.
Pottery	93	15th-18thC	Dark brown glaze both sides. Midlands Purple ware.
Pottery	94	Post-med	Dark brown glaze internal. Locally produced.
Glass	95	19th-20thC	Blue square vessel glass. Base.
Metal Obj	96	19th-20thC	Copper alloy bottle stopper.
Metal Obj	97	19th-20thC	Steel? button
Glass	98	19th-20thC	Clear vessel glass. Embossed lettering.
Pottery	98	15th-18thC	Midlands Purple ware. Handle.

HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE:
AN ARCHAEOLOGICAL FIELDWALKING AND GEOPHYSICAL SURVEY REPORT

CBM	99	19th-20thC	White glazed wall tile.
Pottery	100	19th-20thC	Ironstone china. Rim.
Pottery	100	19th-20thC	Ironstone china. Rim.
Pottery	101	Post-med	Oxidised. Earthenware. Rim.
Pottery	102	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	103	Post-med	Oxidised. Dark brown glaze. Handle.
Pottery	104	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	105	Post-med	Dark brown glaze internal. Oxidised.
Pottery	105	18th-19thC	White glazed earthenware. Rim. Small frag.
Pottery	106	Post-med	Oxidised. Dark brown glaze internal.
Pottery	107	18th-19thC	English Stoneware. Jar. Rim.
Pottery	108	Post-med	Brown glazed earthenware. Small frag.
Pottery	108	Post-med	Oxidised. Dark brown glaze internal. Small frag.
Metal Obj	109	Unknown	Iron fixing with central square hole
Glass	110	19th-20thC	Clear square bottle glass. Base.
Pottery	110	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	110	Post-med	Oxidised. Black glazed both surfaces. Locally produced ware.
Pottery	110	18th-19thC	Yellow ware. Small frag.
Pottery	111	18th-20thC	Transfer print ware. Plate. Small frag.
CBM	112	Post-med	Oxidised. Tile.
CBM	112	Post-med	Oxidised. Tile.
Clay Pipe	112	18th-19thC	stem frag. Narrow bore.
Pottery	113	Post-med	Oxidised. Black glazed internally. Rim. Locally produced ware. Abraded.
Pottery	114	Post-med	Buff. Brown glazed internally.
Pottery	115	Post-med	Oxidised. Black glazed internally. Locally produced ware.
Pottery	116	15th-18thC	Midlands Purple ware. Handle and attachment.
Pottery	117	Med - Post-med	Oxidised. Orange slip. Base. Abraded.
Pottery	118	15th-18thC	Midlands Purple ware.
Pottery	118	15th-18thC	Midlands Purple ware. Small frag.
CBM	119	Post-med	Ceramic pipe.
Pottery	119	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	119	18th-19thC	White glazed earthenware. Plate. Base.
Pottery	120	15th-16thC	Cistercian ware. Base.
Pottery	121	Post-med	sagger
Clay Pipe	121	18th-19thC	stem. Moderate bore.
Clay Pipe	121	18th-19thC	Stem. Narrow bore.
Pottery	122	18th-20thC	English Stoneware.
Pottery	123	18thC	Staffordshire Slipware. Handle attachment.
Pottery	124	Post-med	Oxidised. Locally Produced course ware. Rim.
Pottery	124	18thC	Staffordshire Salt glazed stoneware.
Pottery	124	18th-19thC	White glazed earthenware. Rim.
Pottery	125	Post-med	Oxidised. Dark brown glaze internal. Base.
Pottery	126	15th-18thC	Midlands Purple ware. Base.
CBM	126	Post-med	Oxidised. Tile. Small frag.
Metal Obj	127	20thC	Aluminium bottle top
Pottery	128	15th-18thC	Midlands Purple ware. Rim. Cup. Small frag.
CBM	128	Post-med	Oxidised. Tile.
Metal Obj	129	Unknown	Undiagnostic lead?
Pottery	130	Post-med	Oxidised. Dark brown glaze internal. Jar. Base.
Pottery	131	15th-18thC	Midlands Purple ware.
Pottery	131	Post-med	Oxidised. Black glazed internally. Base.

Pottery	131	Post-med	Yellow glazed earthenware. Small frag.
CBM	132	Post-med	Small frag. Abraded.
CBM	132	Roman - Post-med	Small frag. Abraded.
CBM	133	Post-med	Reduced. Tile.
Glass	134	18th-19thC	Green vessel glass.
Pottery	134	Post-med	Oxidised. Black glaze internal.
Pottery	135	15th-18thC	Midlands Purple ware. Bowl. Rim.
CBM	136	Post-med	Oxidised. Tile.
Pottery	137	15th-18thC	Midlands Purple ware. Rim.
Pottery	137	Post-med	Oxidised. Dark brown glaze internal. Local ware. Base.
Pottery	138	15th-18thC	Midlands Purple ware. Small frag.
Pottery	138	15th-18thC	Midlands Purple ware. Small frag.
Pottery	138	Post-med	Oxidised. Black glazed internally. Locally produced ware.
CBM	139	Post-med	Oxidised. Tile.
Pottery	140	Post-med	oxidised earthenware. Small frag. Abraded.
Pottery	140	19th-20thC	Pink glaze both sides. Redware. Rim. Small frag.
Pottery	141	Post-med	Brown glaze internal. Redware. Base.
Glass	142	19th-20thC	Green vessel glass.
Pottery	142	16th-17thC	Midlands Yellowware.
CBM	142	Post-med	Small frag. Abraded.
CBM	143	Post-med	Reduced. Tile.
Pottery	144	Post-med	Oxidised. Black glaze both sides.
Pottery	145	Post-med	Black glaze internal. Oxidised. Locally produced.
CBM	145	Post-med	small frag.
Pottery	146	Post-med	Black glaze internal. Reduced.
Pottery	147	15th-18thC	Dark brown glaze internal. Midlands Purple ware.
Animal Bone	147	?	Large mammal. Unfused.
Pottery	148	15th-18thC	Midlands Purple ware. Small frag.
Pottery	148	Post-med	Oxidised. Black glaze internal.
Pottery	148	Post-med	Oxidised. earthenware.
Pottery	148	18th-19thC	White glazed earthenware. Base. Small frag.
Pottery	149	15th-18thC	Midlands Purple ware. Small frag.
Pottery	149	15th-18thC	Midlands Purple ware. Small frag.
CBM	149	Post-med	Oxidised. Tile.
CBM	149	Post-med	Oxidised. Tile.
CBM	149	Post-med	Red brick.
Pottery	150	Post-med	Oxidised. Black glaze internal.
Pottery	151	19th-20thC	Brown glaze both sides. Earthenware. Handle attachment.
Pottery	152	15th-18th	Midlands Purple ware. Rim.
Pottery	152	Post-med	Oxidised. Black glaze internal.
Clay Pipe	152	18th-19thC	Stem. Narrow bore.
Pottery	152	18th-19thC	White glazed earthenware. Base. Small frag.
Pottery	153	15th-16thC	Cistercian ware.
Pottery	153	Post-med	Oxidised. Black glaze internal.
CBM	153	Post-med	Tile. Small frag.
CBM	154	Post-med	Oxidised. small frag.
Pottery	155	Post-med	Kiln furniture - plate spur. White glazed Earthenware.
Pottery	155	Post-med	Oxidised. Earthenware. Rim.
Pottery	156	Post-med	Black glaze internal. Local red ware.
Pottery	156	Post-med	purple bodied coarse earthenware.
Pottery	157	Post-med	Brown glazed earthenware.

Pottery	157	18th-20thC	English Porcelain. Base.
Glass	158	19th-20thC	Dark blue vessel glass.
Pottery	159	18thC	Staffordshire Salt glazed stoneware.
Pottery	160	15th-18thC	Midlands Purple ware. Base.
Pottery	160	18th-19thC	White glazed earthenware. Rim.
Pottery	161	Post-med	Buff ceramic pipe?
Pottery	162	15th-18thC	Dark brown glaze. Midlands Purple ware. Handle.
Metal Obj	163	Unknown	Undiagnostic lead?
Pottery	164	15th-18thC	Dark brown glaze one side. Midlands Purple ware.
Pottery	165	Med - Post-med	Dark brown internal glaze. Locally produced.
Pottery	165	18th-19thC	Transfer print ware. Small frag.
Pottery	166	Post-med	Oxidised. Black glaze internal. Rim.
Pottery	166	Post-med	Oxidised. Earthenware.
Pottery	166	Post-med	Oxidised. Earthenware.
Glass	167	19th-20thC	Clear vessel glass. Embossed lettering.
CBM	167	Post-med	small frag.
Pottery	167	18thC	Staffordshire Salt glazed stoneware.
Glass	168	19th-20thC	Clear decorated vessel glass.
Pottery	169	Post-med	Oxidised. Dark brown glaze internal. Abraded. Local ware.
CBM	170	Post-med	Oxidised. Tile.
Pottery	171	18th-19thC	Transfer print ware. Small frag.
Glass	172	19th-20thC	Clear vessel glass. Embossed lettering.
Pottery	172	18th-19thC	English Stoneware. Rim jar.
Pottery	173	16th-17thC	Midlands Yellowware.
Pottery	173	Post-med	Oxidised. Black glaze internal. Base.
Pottery	174	Medieval	Earthenware. Small frag.
Clay Pipe	175	18th-19thC	Stem. Narrow bore.
Pottery	176	15th-18th	Dark brown glaze both sides. Midlands Purple ware.
Pottery	176	Post-med	Oxidised. Dark brown glaze internal. Abraded. Local ware.
Pottery	177	15th-18thC	Dark brown internal glaze. Midlands Purple ware.
Pottery	178	Post-med	Dark brown internal glaze. Locally produced.
Glass	178	18th-19thC	Green vessel glass. Abraded.
CBM	178	Post-med	Oxidised. Floor Tile?. Small frag.
Pottery	178	Med - Post-med	Oxidised. Locally produced. Rim. Abraded.
CBM	179	Post-med	Oxidised. Tile.
Pottery	180	Med - Post-med	Dark brown glaze both sides. Locally produced.
Pottery	180	Med - Post-med	Dark brown glaze both sides. Locally produced. Rim.
Pottery	180	Med - Post-med	Dark brown internal glaze. Locally produced.
Pottery	180	18th-19thC	Transfer-print ware.
Metal Obj	181	Post-med	Unidentified metal object
Metal Obj	182	18th-20thC	Iron pulley block Diam=110mm
Pottery	183	Post-med	Sagger
Metal Obj	184	20thC	Large agricultural object (not retained)
Metal Obj	185	20thC	Aluminium bottle top
Pottery	186	15th-18thC	Dark brown glaze internal. Midlands Purple ware. Rim.
CBM	186	Post-med	Small frag. Abraded.
Pottery	187	Med - Post-med	Dark brown internal glaze. Locally produced.
Metal Obj	188	Unknown	Partial iron bracket

Appendix B – Geophysics Report

Document Title: **Geophysical Survey Report**
Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire

Client: **AOC Archaeology**

Stratascan Job No: **J2977**

Techniques: **Detailed magnetic survey (gradiometry)**

National Grid Ref: **SK 349 172**



Plate 1: View of Holywell Farm across Field G facing south-west

Field Team: **Sean Parker BSc (Hons), Tom Desalle MSc and James Slater**

Project Manager: **Simon Haddrell B.Eng (Hons) AMBCS PIFA**

Report written by: **Melanie Biggs BSc (Hons)**

CAD illustration by: **Melanie Biggs BSc (Hons) & Bryony Marsh BA**

Checked by: **Peter Barker C.Eng MICE MCIWEM MIFA**

Stratascan Ltd.
Vineyard House
Upper Hook Road
Upton upon Severn
WR8 0SA

Tel: 01684 592266

Fax: 01684 594142

Email: ppb@stratascan.co.uk

www.stratascan.co.uk

LIST OF FIGURES	2
1 SUMMARY OF RESULTS	3
2 INTRODUCTION	3
2.1 Background synopsis	3
2.2 Site location	3
2.3 Description of site	4
2.4 Geology and soils	5
2.5 Site history and archaeological potential	5
2.6 Survey objectives	6
2.7 Survey methods	6
3 METHODOLOGY	6
3.1 Date of fieldwork	6
3.2 Grid locations	6
3.3 Survey equipment and gradiometer configuration	6
3.4 Sampling interval, depth of scan, resolution and data capture	7
3.4.1 Sampling interval	7
3.4.2 Depth of scan and resolution	7
3.4.3 Data capture	7
3.5 Processing, presentation of results and interpretation.....	7
3.5.1 Processing	7
3.5.2 Presentation of results and interpretation	8
4 RESULTS	8
5 DISCUSSION	11
7 REFERENCES	13
APPENDIX A – Basic principles of magnetic survey	13
APPENDIX B – Glossary of magnetic anomalies	14

LIST OF FIGURES

Figure 1	1:25 000	General location plan
Figure 2	1:2500	Site plan showing location of grids and referencing – overview
Figure 3	1:1250	Site plan showing location of grids and referencing – north
Figure 4	1:1250	Site plan showing location of grids and referencing – central
Figure 5	1:1250	Site plan showing location of grids and referencing – south
Figure 6	1:1250	Colour plot of minimally processed gradiometry data - north
Figure 7	1:1250	Colour plot of minimally processed gradiometry data - central
Figure 8	1:1250	Colour plot of minimally processed gradiometry data - south
Figure 9	1:1250	Plot of minimally processed gradiometry data - north
Figure 10	1:1250	Plot of minimally processed gradiometry data - central
Figure 11	1:1250	Plot of minimally processed gradiometry data - south
Figure 12	1:1250	Abstraction and interpretation of gradiometer anomalies - north
Figure 13	1:1250	Abstraction and interpretation of gradiometer anomalies - central
Figure 14	1:1250	Abstraction and interpretation of gradiometer anomalies - south
Figure 15	1:2500	Abstraction and interpretation of gradiometer anomalies - overview

SUMMARY OF RESULTS

A detailed gradiometry survey was conducted over approximately 20 hectares of arable farmland and pasture on the north-western outskirts of Ashby-de-la-Zouch, Leicestershire.

The survey has identified a number of areas which are worthy of further investigation. The most significant of these is a complex of positive linear cut features and pits which partially enclose another horseshoe shaped pit and discrete areas of magnetic variation (i.e. probable thermoremanent features).

Other areas worthy of mentioning include:

- a random assortment of positive pit-like features and linears in the north of Field B
- a set of weak positive linear anomalies with possible thermoremanent association in the north of Field A
- a weak negative linear anomaly which appears to be associated with three large possible thermoremanent features in Field E
- a long, thin linear cut feature in Field D which appears to continue across Field G toward Holywell Farm as a scattered magnetic trend.

INTRODUCTION

Background synopsis

Stratascan were commissioned to undertake a geophysical survey of an area outlined for development. This survey forms part of an archaeological investigation being undertaken by AOC Archaeology.

Site location

The site is located near Ashby-de-la-Zouch at OS ref. SK 351 170.

Description of site



Plate 2: view across Field G facing south. Cattle and farm machinery are present.



Plate 3: View across Field A facing north. A piece of farm machinery in the south-east corner.



Plate 4: View across Field I facing south. Horses and electric fences are present in this area.



Plate 5: View across Field F facing west. Horse paddocks with associated exercise equipment, electric fencing and shed. Ferrous obstructions have been identified in the data (see Figures 12-15).

The survey area is approximately 20 hectares of grazing and arable farmland adjacent to Holywell Farm, Ashby-de-la-Zouch, Leicestershire. The survey area is spread across 10 fields (labelled A-I). Fields A & B are in arable use, C & D are pasture fields and fields E-I are being used for grazing horses and cattle. Fields with livestock have metal feeders, electric fencing, farm machinery and equestrian exercise equipment in them (see *Plates 1,2,4 & 5*) which have given high magnetic readings in the gradiometry data. There is a large piece of farm machinery located in the south-eastern corner of Field A (see *Plate 3*).

Geology and soils

The site at Holywell Farm lies across a complex area of geology. The underlying bedrock geology across site is a combination of mudstone and sandstone belonging to the Bromsgrove Sandstone Formation. There is also a boundary of similar stones comprising the Pennine Lower Coal Measures Formation in the south east of site. (British Geological Survey website). There appears to be no drift geology recorded over the south of site. For the two northernmost fields, the drift geology is a mixture of Glaciofluvial sand and gravel deposits and Head clay, silt, sand and gravel (British Geological Survey website).

The overlying soils are known as Bromsgrove which are typical brown earths. These consist of well drained, reddish, coarse and loamy soils that lie mainly over soft sandstone (Soil Survey of England and Wales, Sheet 3 Midland and Western England).

Site history and archaeological potential

No specific details were available to Stratascan.

Survey objectives

The objective of the survey was to locate any features of possible archaeological significance in order that they may be assessed prior to development.

Survey methods

Detailed magnetic survey (gradiometry) was used as an efficient and effective method of locating archaeological anomalies. More information regarding this technique is included in the Methodology section below.

METHODOLOGY

Date of fieldwork

The fieldwork was carried out over 5 days from Monday 10th – Friday 14th October 2011. Weather conditions during the survey were dry and mainly overcast with some sunny spells.

Grid locations

The location of the survey grids has been plotted in Figures 2-5 together with the referencing information. Grids were set out using a Leica Smart Rover RTK GPS.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. A SmartNet RTK GPS uses Ordnance Survey's network of over 100 fixed base stations to give an accuracy of around 0.01m.

Survey equipment and gradiometer configuration

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns

or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. The instrument consists of two fluxgates very accurately aligned to nullify the effects of the Earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

Sampling interval, depth of scan, resolution and data capture

Sampling interval

Readings were taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid.

Depth of scan and resolution

The Grad 601 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.5m centres provides an optimum methodology for the task balancing cost and time with resolution.

Data capture

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each job, data is transferred to the office for processing and presentation.

Processing, presentation of results and interpretation

Processing

Processing is performed using specialist software known as *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.

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

1. *Despike* (useful for display and allows further processing functions to be carried out more effectively by removing extreme data values)

Geoplot parameters:

X radius = 1, y radius = 1, threshold = 3 std. dev.
Spike replacement = mean

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

Geoplot parameters:

Least mean square fit = off

Presentation of results and interpretation

The presentation of the data for each site involves a print-out of the minimally processed data both as a greyscale plot (Figures 9-11) and a colour plot showing extreme magnetic values (Figures 6-8). Magnetic anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the site (Figures 12-15).

RESULTS

The abstracted anomalies have been divided into varying types. The types have then been tabulated and assessed as to the level of activity in each area according to the following table.

Level of activity	
-	None
*	Minimal
**	Moderate
***	Significant

	A	B	C	D	E	F	G	H	I
Probable Archaeology	Positive anomaly / weak positive anomaly - probable cut feature of archaeological origin.	**	**	*	-	-	-	-	-
	Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin	*	-	-	-	-	-	-	-
	Moderate strength discrete anomaly - probable thermoremanent feature	-	-	-	-	-	-	-	-
	Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow.	-	**	***	***	***	-	***	*
Possible Archaeology	Positive anomaly / weak positive anomaly - possible cut feature of archaeological origin	-	-	-	-	-	-	-	-
	Negative anomaly / weak negative anomaly - possible bank or earthwork of archaeological origin	-	-	-	-	*	-	-	-
	Moderate strength discrete anomaly - possible thermoremanent feature	**	*	***	*	**	-	-	-
	Magnetic spike - probable ferrous object	**	*	**	**	*	***	**	-
Other Anomalies	Closely spaced parallel linear anomalies - probably related to agricultural activity such as ploughing	***	-	-	-	-	-	-	-
	Linear anomaly - probably related to pipe, cable or other modern service	***	***	*	-	***	*	-	*
	Linear anomaly - possibly related to land drain	-	-	-	-	-	-	-	-

Description	A	B	C	D	E	F	G	H	I
Magnetic disturbance associated with nearby metal object such as service or field boundary	*	**	*	**	*	***	**	**	-
Scattered magnetic debris	*	*	-	*	-	-	*	***	-
Area of amorphous magnetic variation - probable natural (e.g. geological or pedological) origin	-	**	-	-	-	-	-	-	-
Strong magnetic debris – possible disturbed or made ground	-	-	-	-	-	-	-	-	***

DISCUSSION

The following list of numbered anomalies refers to numerical labels on the interpretation plots (Figures 12-15).

Probable Archaeology

1. A complex area to the west in Field C. It appears to be an enclosure made up of positive linear cut features (1a) adjacent to a series of spherical pit-like cut features (1b) enclosing a horseshoe-shaped positive anomaly (1c) and 4 discrete probable thermoremanent anomalies (1d).
2. A widely spaced collection of positive linear cut features (2b) and pit-like features (2a) in the north east corner of Field B.
3. A positive linear cut feature spanning most of the way across the middle of Field D.
4. There is extensive evidence across the majority of site for ridge and furrow cultivation practise (Fields B, C, D, E and G). Most of the cultivations run south-west to north-east in line with the current field system (4a) but there is a small amount of ridge and furrow appearing to run east to west in Field C (4b).

Possible Archaeology

5. A series of weak positive linear cut features in Field A which appear to converge to form a partial rectilinear formation.
6. Two, small pit-like anomalies appearing along the southern boundary of Field A.
7. Two small pit-like anomalies appearing south east of centre in Field B. These may or may not be associated with the natural geological/pedological trend appearing alongside (Feature 15).
8. A long, thin weak negative anomaly runs parallel to the southern boundary of Field E (8a). A small circular weak negative anomaly appears towards the centre of Field B (8b). These may be banks or earthworks of possible archaeological interest.
9. Features which have the size, shape, magnetic complexity and values to be identified as possible discrete thermoremanent anomalies. Some may relate to other features because of their close proximity to other anomalies marked as probable archaeology (9a) or possible archaeology (9b, 9c and 9d). Others may simply be discrete areas of magnetic variation and have no archaeological value (9e). Only further investigation will determine their true origins.
10. A number of magnetic 'spikes' (strong focussed values with associated antipolar response) indicate ferrous metal objects. Although most of these are likely to be modern rubbish, some may be of archaeological interest. Particular attention may be paid to those found in association with other potentially archaeological anomalies.

Other Anomalies

11. Areas of magnetic disturbance are the result of substantial nearby ferrous metal objects such as fences and underground services. These effects can mask weaker archaeological anomalies.

12. Closely spaced parallel linear anomalies relating to modern ploughing techniques have been identified in Field A.
13. Strong magnetic debris as a result of disturbed or made ground is present across the whole of Field I. This will have masked any potential archaeological features.
14. A linear arrangement of scattered magnetic debris (14a) is identified in Field G. It appears to follow the same line as the positive linear found in Field D (Feature 3) and may be associated with it. Magnetic debris appears scattered across Field H (14b). Other less significant areas of magnetic debris can be found in Fields A, B and G (14c).
15. There are areas of amorphous magnetic variation appearing in the southern half of Field B which are of probable natural origin, relating to geology or pedology.

6 CONCLUSION

The detailed gradiometry survey conducted at Holywell Farm, Ashby-de-la-Zouch has identified several areas of archaeological interest. A large complex of anomalies to the west of Field C, including cut linear and pit-like features partially enclosing four moderately sized thermoremanent features, must be worthy of additional study. A smaller collection of features to the north of Field B, including several smaller pits and positive linears with the potential link to a thermoremanent feature which may also be worthy of further investigation.

Other areas worthy of a mention include a region of weak positive cut features in the north of Field A and a collection of large, possible thermoremanent features which seem to be associated with a possible linear bank or earthwork of some kind in Field E. Ridge and furrow appears across the majority of the site; in two directions in Field C.

7 REFERENCES

British Geological Survey website http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html

Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 3 Midland and Western England.*

APPENDIX A – Basic principles of magnetic survey

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

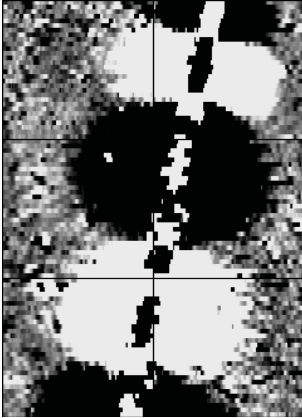
Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically either 0.5 or 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.

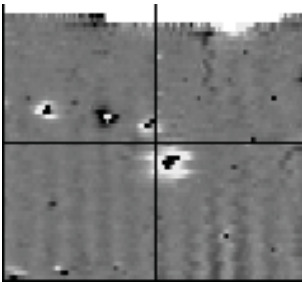
APPENDIX B – Glossary of magnetic anomalies

Bipolar



A bipolar anomaly is one that is composed of both a positive response and a negative response. It can be made up of any number of positive responses and negative responses. For example a pipeline consisting of alternating positive and negative anomalies is said to be bipolar. See also dipolar which has only one area of each polarity. The interpretation of the anomaly will depend on the magnitude of the magnetic field strength. A weak response may be caused by a clay field drain while a strong response will probably be caused by a metallic service.

Dipolar

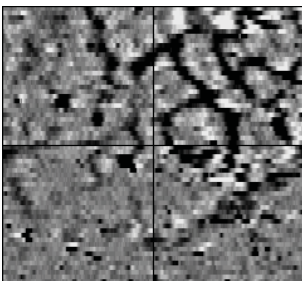


This consists of a single positive anomaly with an associated negative response. There should be no separation between the two polarities of response. These responses will be created by a single feature. The interpretation of the anomaly will depend on the magnitude of the magnetic measurements. A very strong anomaly is likely to be caused by a ferrous object.

Positive anomaly with associated negative response

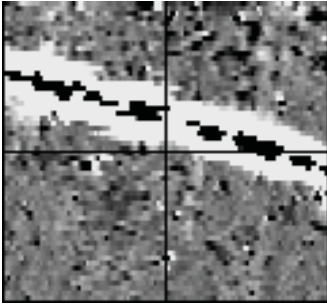
See bipolar and dipolar.

Positive linear



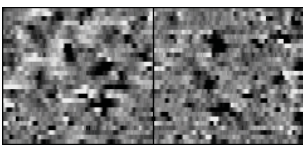
A linear response which is entirely positive in polarity. These are usually related to infilled cut features where the fill material is magnetically enhanced compared to the surrounding matrix. They can be caused by ditches of an archaeological origin, but also former field boundaries, ploughing activity and some may even have a natural origin.

Positive linear anomaly with associated negative response



A positive linear anomaly which has a negative anomaly located adjacently. This will be caused by a single feature. In the example shown this is likely to be a single length of wire/cable probably relating to a modern service. Magnetically weaker responses may relate to earthwork style features and field boundaries.

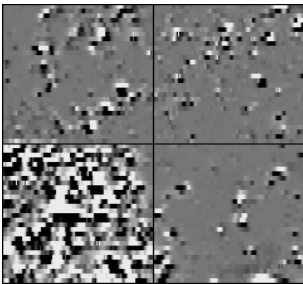
Positive point/area



ground.

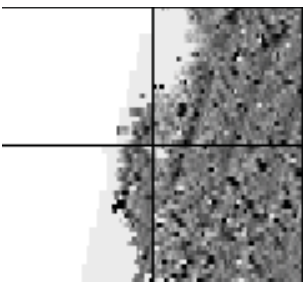
These are generally spatially small responses, perhaps covering just 3 or 4 reading nodes. They are entirely positive in polarity. Similar to positive linear anomalies they are generally caused by infilled cut features. These include pits of an archaeological origin, possible tree bowls or other naturally occurring depressions in the

Magnetic debris



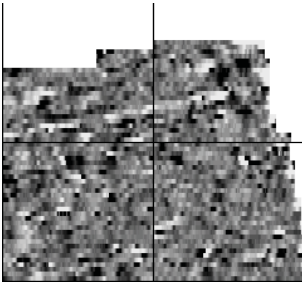
Magnetic debris consists of numerous dipolar responses spread over an area. If the amplitude of response is low ($\pm 3\text{nT}$) then the origin is likely to represent general ground disturbance with no clear cause, it may be related to something as simple as an area of dug or mixed earth. A stronger anomaly ($\pm 250\text{nT}$) is more indicative of a spread of ferrous debris. Moderately strong anomalies may be the result of a spread of thermoremanent material such as bricks or ash.

Magnetic disturbance



Magnetic disturbance is high amplitude and can be composed of either a bipolar anomaly, or a single polarity response. It is essentially associated with magnetic interference from modern ferrous structures such as fencing, vehicles or buildings, and as a result is commonly found around the perimeter of a site near to boundary fences.

Negative linear

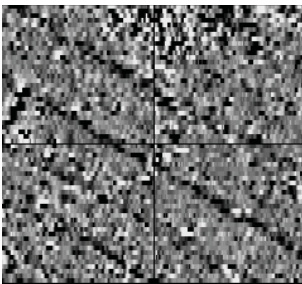


A linear response which is entirely negative in polarity. These are generally caused by earthen banks where material with a lower magnetic magnitude relative the background top soil is built up. See also ploughing activity.

Negative point/area

Opposite to positive point anomalies these responses may be caused by raised areas or earthen banks. These could be of an archaeological origin or may have a natural origin.

Ploughing activity



Ploughing activity can often be visualised by a series of parallel linear anomalies. These can be of either positive polarity or negative polarity depending on site specifics. It can be difficult to distinguish between ancient ploughing and more modern ploughing, clues such as the separation of each linear, straightness, strength of response and cross cutting relationships can be used to aid this, although none of these can be guaranteed to differentiate between different phases of activity.

Polarity

Term used to describe the measurement of the magnetic response. An anomaly can have a positive polarity (values above 0nT) and/or a negative polarity (values below 0nT).

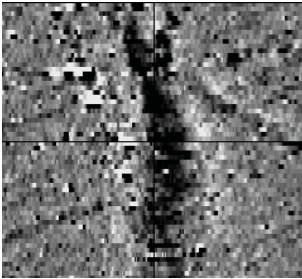
Strength of response

The amplitude of a magnetic response is an important factor in assigning an interpretation to a particular anomaly. For example a positive anomaly covering a 10m² area may have values up to around 3000nT, in which case it is likely to be caused by modern magnetic interference. However, the same size and shaped anomaly but with values up to only 4nT may have a natural origin. Trace plots are used to show the amplitude of response.

Thermoremanent response

A feature which has been subject to heat may result in it acquiring a magnetic field. This can be anything up to approximately +/-100 nT in value. These features include clay fired drains, brick, bonfires, kilns, hearths and even pottery. If the heat application has occurred insitu (e.g. a kiln) then the response is likely to be bipolar compared to if the heated objects have been disturbed and moved relative to each other, in which case they are more likely to take an irregular form and may display a debris style response (e.g. ash).

Weak background variations



Weakly magnetic wide scale variations within the data can sometimes be seen within sites. These usually have no specific structure but can often appear curvy and sinuous in form. They are likely to be the result of natural features, such as soil creep, dried up (or seasonal) streams. They can also be caused by changes in the underlying geology or soil type which may contain unpredictable distributions of magnetic minerals, and are usually apparent in several locations across a site.

Reproduced from Ordnance Survey's 1:25,000 map of 1998 with the permission of the controller of Her Majesty's Stationery Office.
 Ordnance Survey is a registered trademark of Ordnance Survey Ltd.
 Licence No: AL 50125A
 Licencee:
 Stratascan Ltd.
 Vineyard House
 Upper Hook Road
 Upton Upon Severn
 WR8 0SA
 OS 100km square = SK

20

19

18

17

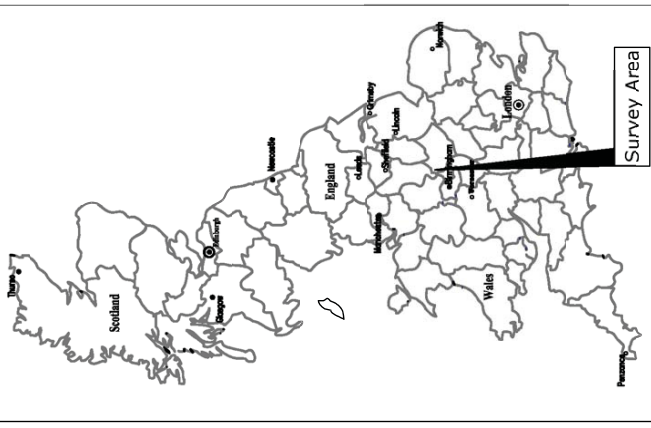
16



33 34 35 36 37



Amendments	
Issue No.	Date
-	-
-	-
© Stratascan Ltd - 2011	



Site centred on NGR SK 349 172

Client
 AOC ARCHAEOLOGY

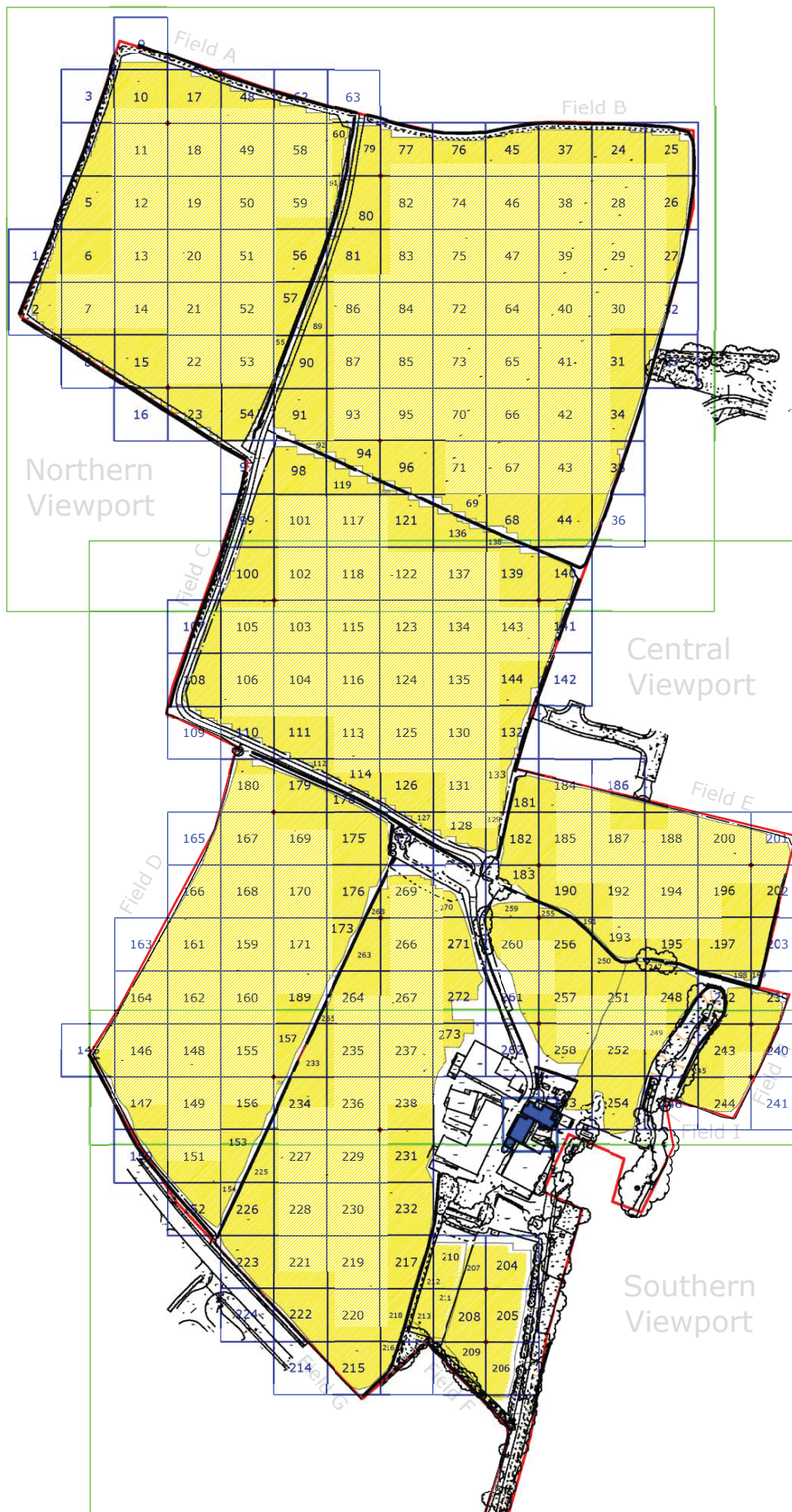
Project Title Job No. 2977
 GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH

Subject
 LOCATION PLAN OF SURVEY AREA

STRATASCANTM
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING
 VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WR8 0SA www.stratascan.co.uk

Scale 1:25000
 0m 500 1000m

Plot A3	Checked by PPB	Issue No. 01
Survey date OCT 2011	Drawn by MB	Figure No. 1



Client	AOC ARCHAEOLOGY	
Project Title	Job No. 2977	
Subject	GPS REFERENCING AND SURVEY GRID LOCATION - OVERVIEW	

STRATASCAN
GEOPHYSICS FOR ARCHAEOLOGY AND ENGINEERING

VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA

T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk

GPR
ASSOCIATION

THE SURVEY
ASSOCIATION

UKAS
15001
certified

UKAS
14001
certified

SUMO GROUP MEMBER

Amendments		
Issue No.	Date	Description
-	-	-

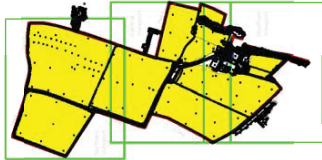
© Stratascan Ltd - 2011

Scale 1:2500

Plot	Checked by	Issue No.
A3	PPB	01
Survey date	Drawn by	Figure No.
OCT 2011	BPM/MB	2

Amendments	
Issue No.	Date
Description	

© Stratascan Ltd - 2011



OS GRID REFERENCES

A	434776.23, 317871.63
B	434776.23, 317721.63
C	434896.23, 317841.63
D	434896.23, 317691.63

KEY

1	SURVEY GRID NUMBER
	SURVEY AREA

Client

AOC ARCHAEOLOGY

Project Title
 Job No. 2977
 GEOPHYSICAL SURVEY - HOLYWELL
 SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
 LOCATION OF SURVEY GRIDS AND
 REFERENCING - NORTH

STRATASCAN
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING
 VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WIP8 0SA www.stratascan.co.uk



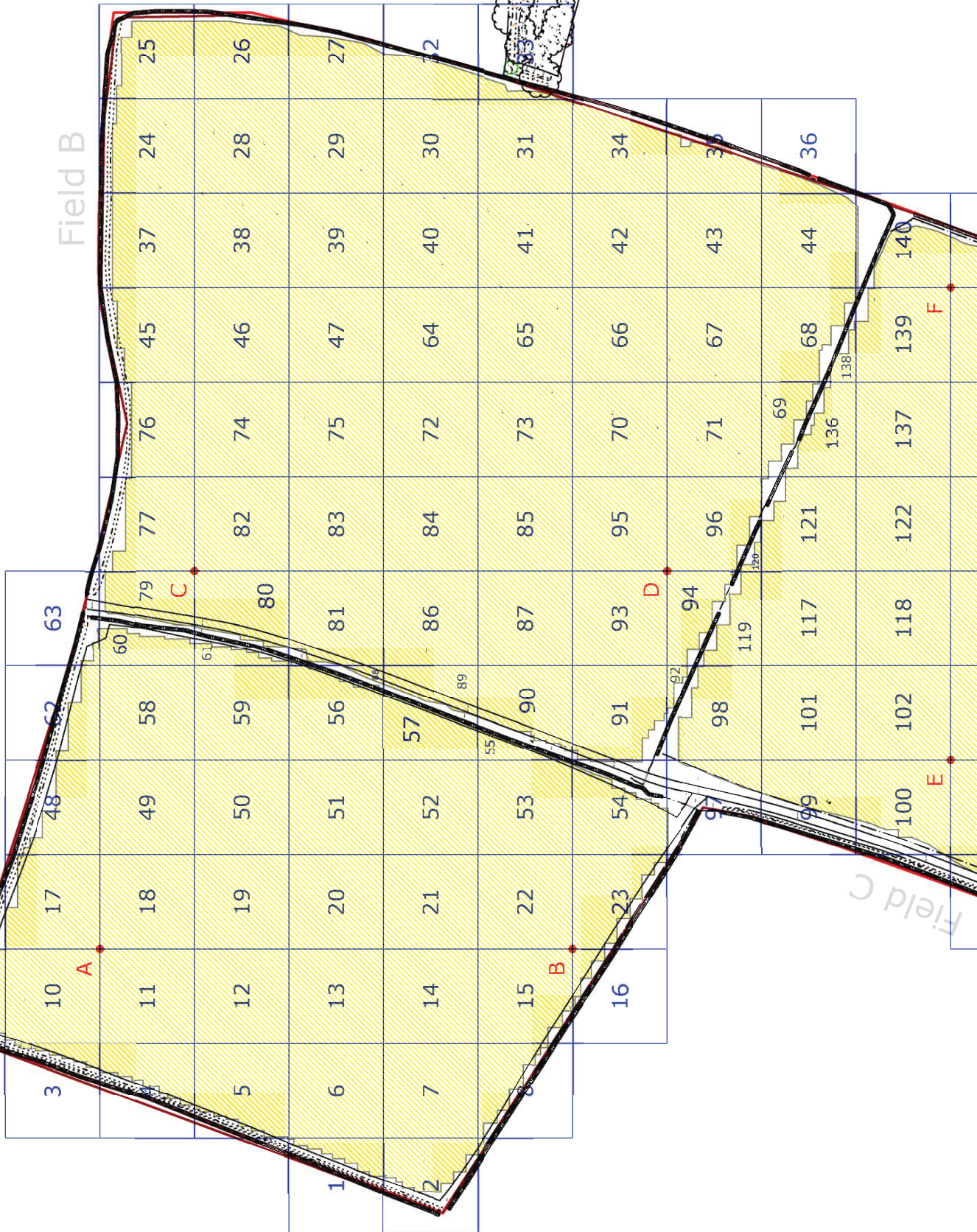
Plot	A3	Checked by	PPB	Issue No.	01
Survey date	OCT 2011	Drawn by	MB/BPM	Figure No.	3



Field B

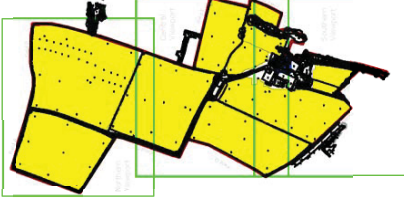
Field A

Field C



Issue No.	Date	Description

© Stratascan Ltd - 2011



OS GRID REFERENCES

Q	434956.23, 317211.63
R	434956.23, 317181.63

KEY

1	SURVEY GRID NUMBER
	SURVEY AREA

Client

AOC ARCHAEOLOGY

Project Title Job No. 2977
GEOLOGICAL SURVEY - HOLYWELL
 SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
LOCATION OF SURVEY GRIDS AND
REFERENCING - SOUTH

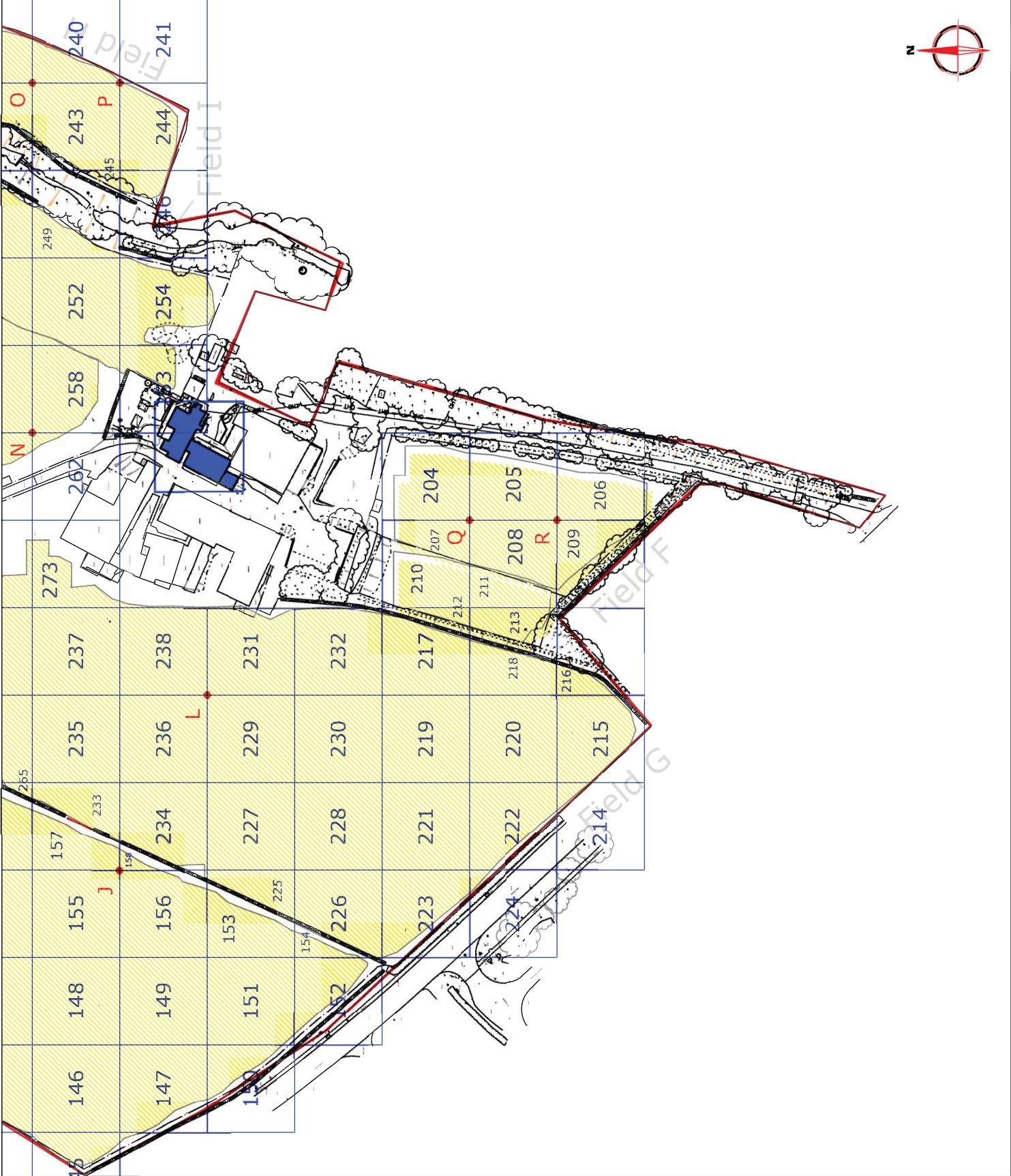
STRATASCANTM
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING

VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WR8 0SA www.stratascan.co.uk



Scale **1:1250**
 0m 10 20 30 40 50m

Plot	A3	Checked by	PPB	Issue No.	01
Survey date	OCT 2011	Drawn by	MB/BPM	Figure No.	5



Amendments	
Issue No.	Date

© Stratascan Ltd - 2011

Plot	Checked by	Issue No.
A3	PPB	01

Survey date	Drawn by	Figure No.
OCT 2011	MB	6

Scale 1:1250
0m 10 20 30 40 50m

STRATASCAN™
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING
VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA
T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk

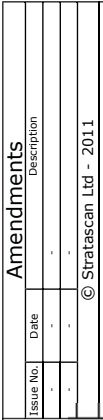
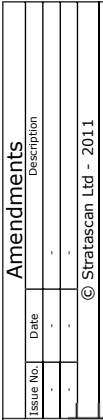
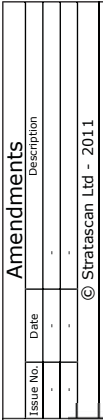
EUROPEAN GPR ASSOCIATION MEMBER
SUMO GROUP MEMBER
IIMS ISO 9001:2008 CERTIFIED
IIMS ISO 14001:2004 CERTIFIED
IIMS ISO 45001:2018 CERTIFIED
UVDB
ULTRAVIBRATION DATA BASE

Client
AOC ARCHAEOLOGY

Project Title
Job No. 2977
GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
COLOUR PLOT OF GRADIOMETER DATA SHOWING EXTREME VALUES - NORTH

Plotting parameters
Maximum +250nT (red)
Minimum -250nT (blue)



Field A

Field B

Field C

Amendments	
Issue No.	Date
© Stratascan Ltd - 2011	

Plotting parameters

Maximum +250nT (red)
Minimum -250nT (blue)

+250nT

-250nT

Client
AOC ARCHAEOLOGY

Project Title
Job No. 2977
GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCHE

Subject
COLOUR PLOT OF GRADIOMETER DATA SHOWING EXTREME VALUES - CENTRAL

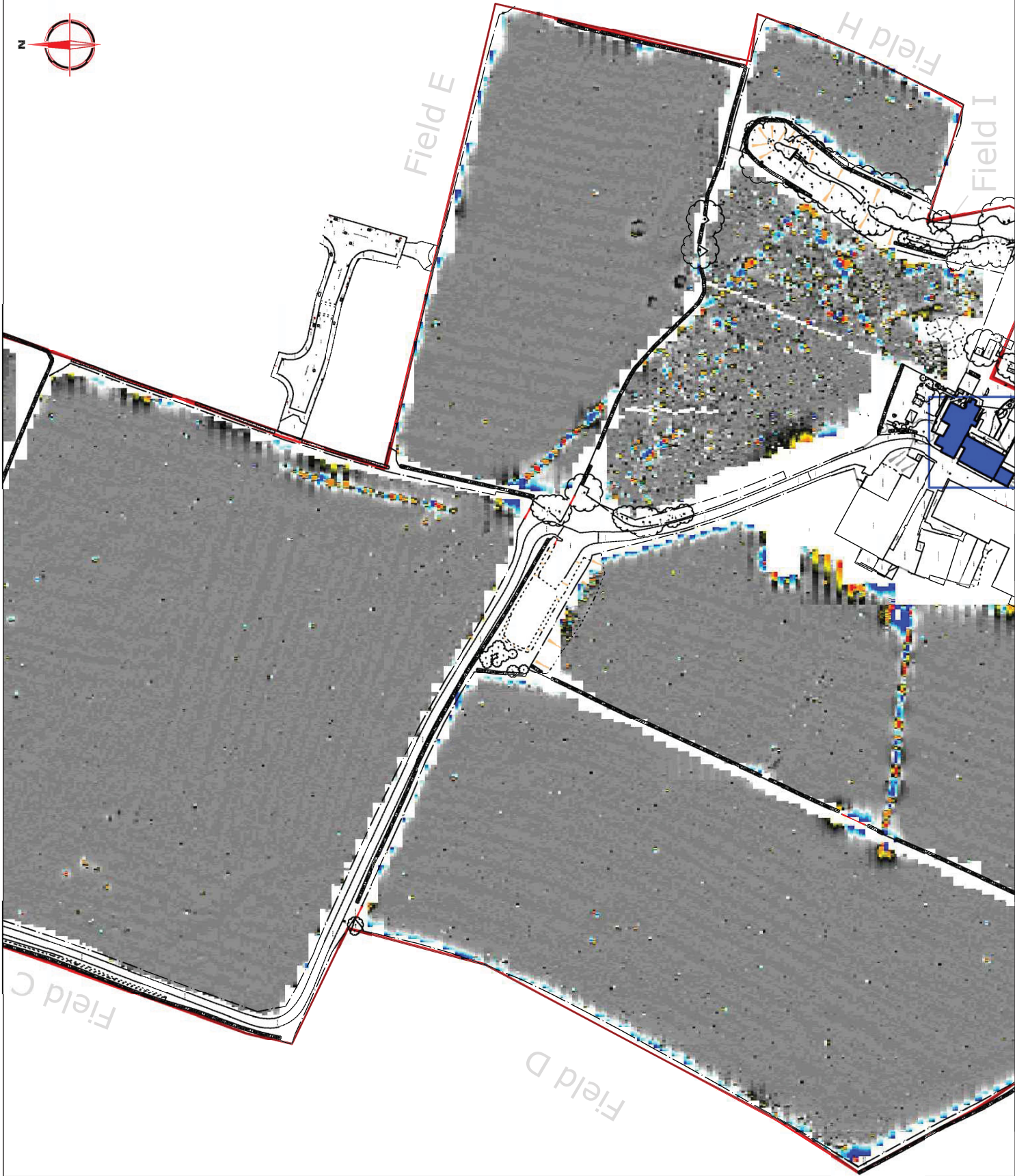
STRATASCANTM
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING

VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA
T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk



Scale 1:1250

Plot	A3	Checked by	PPB	Issue No.	01
Survey date	OCT 2011	Drawn by	MB	Figure No.	7



Amendments	
Issue No.	Date
© Stratascan Ltd - 2011	



Plotting parameters	+250nT
Maximum +250nT (red)	
Minimum -250nT (blue)	

Client
AOC ARCHAEOLOGY

Project Title
Job No. 2977
GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
COLOUR PLOT OF GRADIOMETER DATA
SHOWING EXTREME VALUES - SOUTH

STRATASCANTM
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING

VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA
T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk

GPR EUROPEAN ASSOCIATION

SUMO GROUP MEMBER

UVDB ULTRAVIOLET DETECTION BOARD

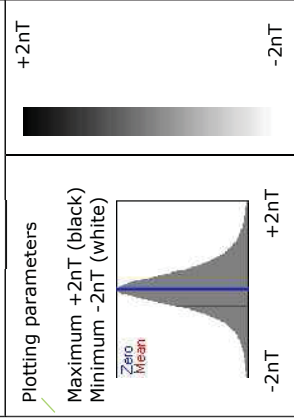
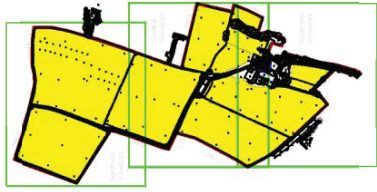
IMS ISO 9001:2008 CERTIFIED

IMS ISO 14001:2004 CERTIFIED

Scale	0m 10 20 30 40 50m
Plot	A3
Survey date	OCT 2011
Checked by	PPB
Issue No.	01
Drawn by	MB
Figure No.	8

Amendments	
Issue No.	Date

© Stratascan Ltd - 2011



Client
AOC ARCHAEOLOGY

Project Title
Job No. 2977
GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA - NORTH

STRATASCANTM
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING

VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA
T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk

GPR ASSOCIATION

EUROPEAN ASSOCIATION OF GEOPHYSICAL SURVEYORS

UVDB ULTRAVIOLET DETECTION BOARD

IMS ISO 9001 certified

IMS ISO 14001 certified

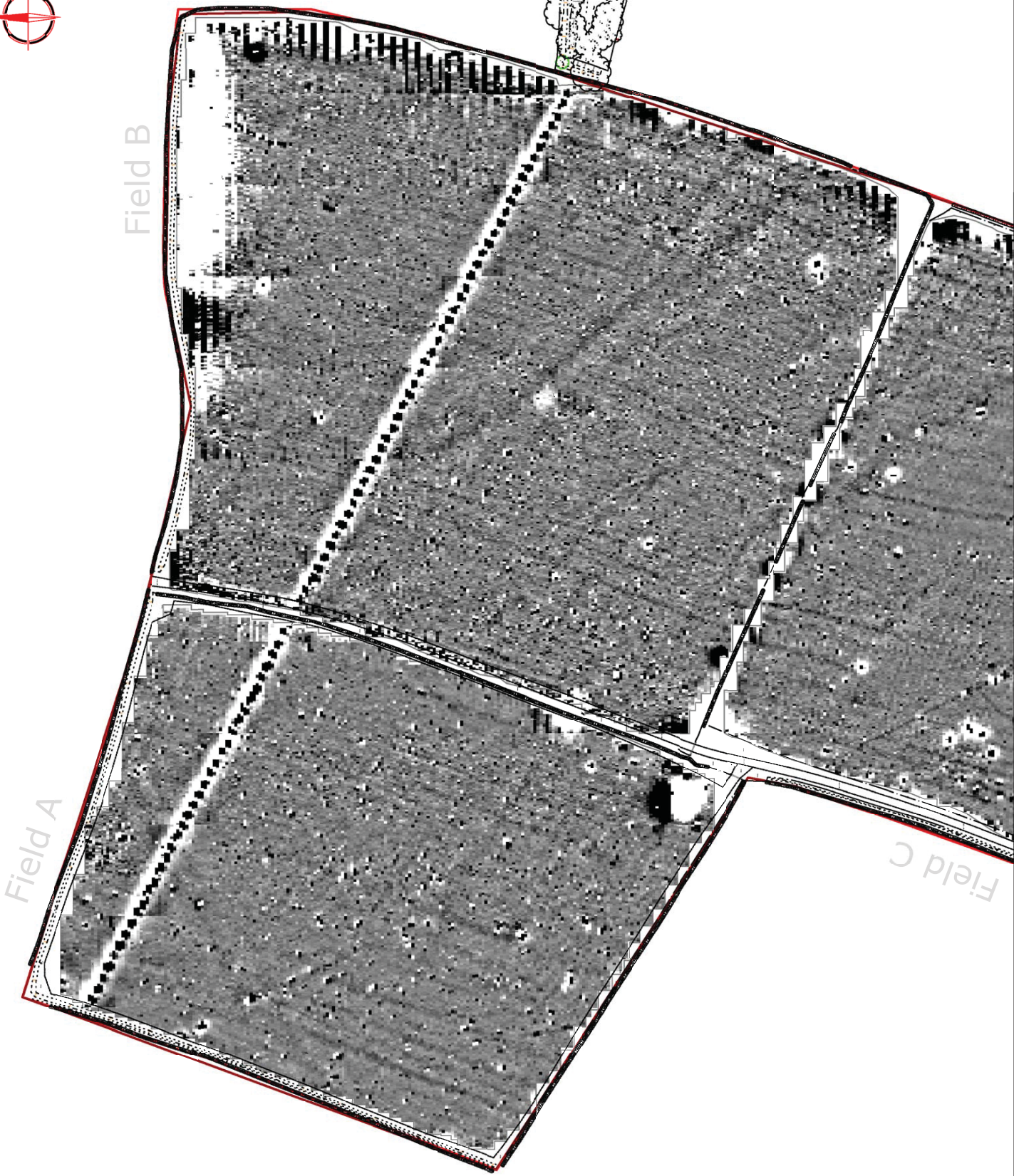
SUMMO GROUP MEMBER

Scale 1:1250

0m 10 20 30 40 50

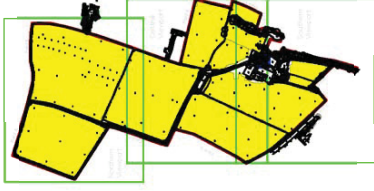
Checked by **PPB** Issue No. **01**

Survey date **OCT 2011** Drawn by **MB** Figure No. **9**



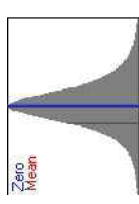
Amendments	
Issue No.	Date
Description	

© Stratascan Ltd - 2011



Plotting parameters

Maximum +2nT (black)
Minimum -2nT (white)



+2nT

-2nT

-2nT

Client

AOC ARCHAEOLOGY

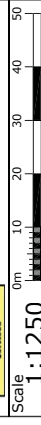
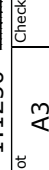
Project Title Job No. 2977
GEOLOGICAL SURVEY - HOLYWELL SPRING
FARM, ASHBY-DE-LA- ZOUCH

Subject

PLOT OF MINIMALLY PROCESSED
GRADIOMETER DATA - CENTRAL

STRATASCANTM
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING

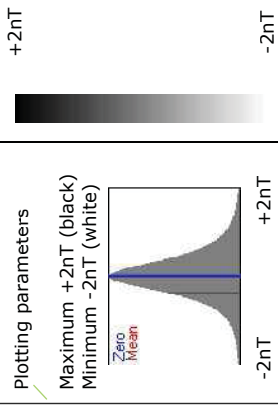
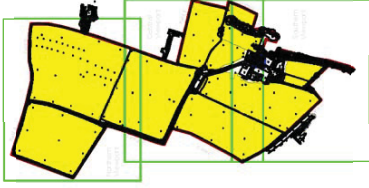
VINEYARD HOUSE T: 01684 592266
UPTON UPON SEVERN E: info@stratascan.co.uk
WR8 0SA www.stratascan.co.uk



Plot	A3	Checked by	PPB	Issue No.	01
Survey date	OCT 2011	Drawn by	MB	Figure No.	10



Amendments	
Issue No.	Date
Description	
© Stratascan Ltd - 2011	



Client
AOC ARCHAEOLOGY

Project Title
Job No. 2977
GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA - SOUTH

STRATASCANTM
GEOPHYSICS FOR ARCHAEOLOGY
AND ENGINEERING

VINEYARD HOUSE
UPTON UPON SEVERN
WR8 0SA
T: 01684 592266
E: info@stratascan.co.uk
www.stratascan.co.uk



Scale 1:1250

Checked by	Issue No.
PPB	01
Drawn by	Figure No.
MB	11
Survey date	
OCT 2011	



Issue No.	Date	Description
-	-	-
-	-	-
© Stratascan Ltd - 2011		

KEY

PROBABLE ARCHAEOLOGY

- Positive anomaly / weak positive anomaly - probable cut feature of archaeological origin
- Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin
- Moderate strength discrete anomaly - probable thermoremanant feature
- Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow

POSSIBLE ARCHAEOLOGY

- Positive anomaly / weak positive anomaly - possible cut feature of archaeological origin
- Negative anomaly / weak negative anomaly - possible bank or earthwork of archaeological origin
- Moderate strength discrete anomaly - possible thermoremanant feature
- Magnetic spike - probable ferrous object

OTHER ANOMALIES

- Closely spaced parallel linear anomalies - probably related to agricultural activity such as ploughing
- Linear anomaly - probably related to pipe, cable or other modern service
- Linear anomaly - possibly related to land drain
- Magnetic disturbance associated with nearby metal object such as service or field boundary
- Strong magnetic debris - possible disturbed or made ground
- Scattered magnetic debris
- Area of amorphous magnetic variation - probable natural (e.g. geological or pedological) origin

AOC ARCHAEOLOGY

Client
 Project Title Job No. 2977
 GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH

Subject
 ABSTRACTION AND INTERPRETATION OF GRADIOMETER ANOMALIES - NORTH

STRATASCANTM
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING
 VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WR8 0SA www.stratascan.co.uk

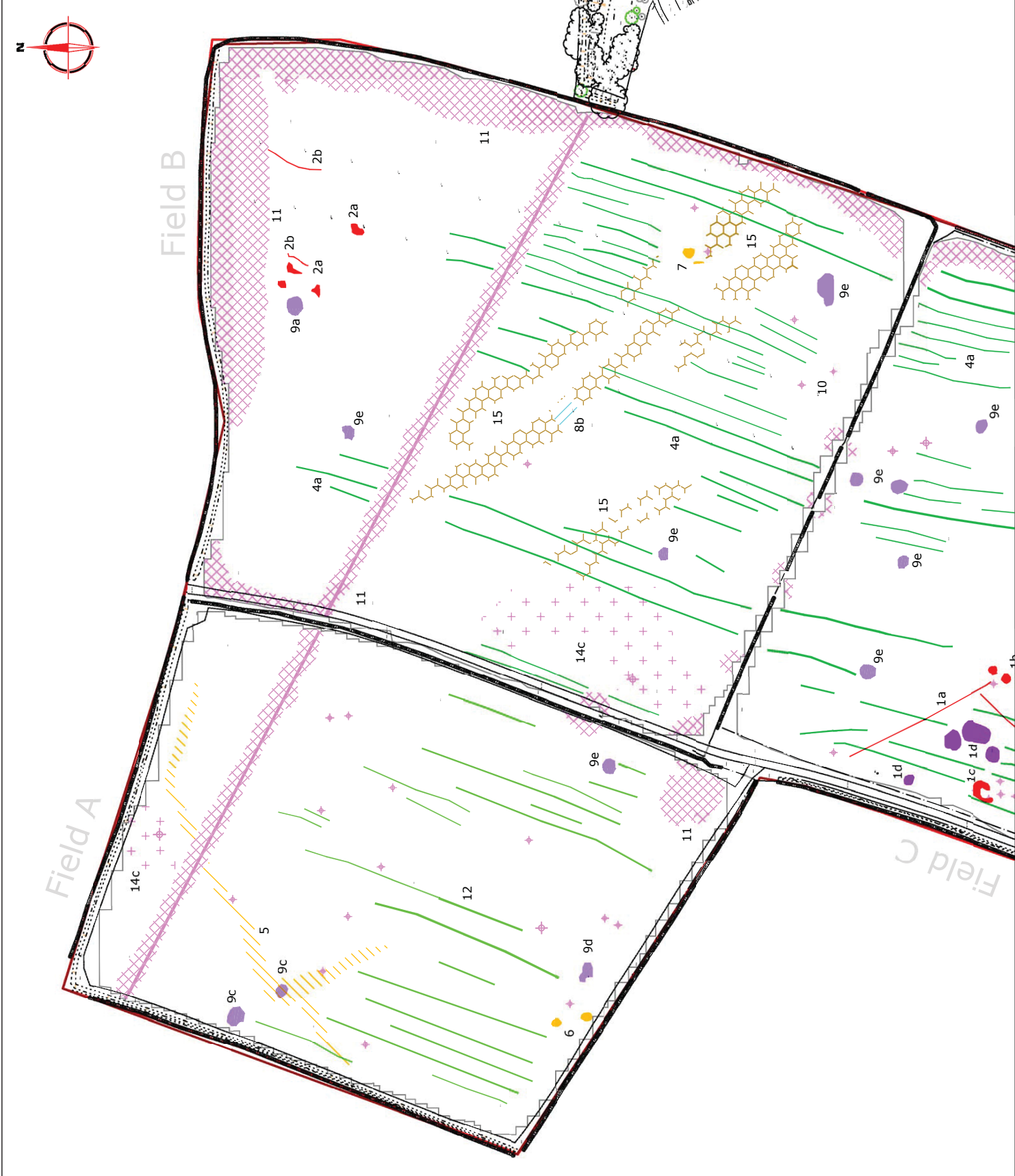


Scale 1:1250
 0m 10 20 30 40 50

Plot A3
 Survey date OCT 2011

Checked by PPB
 Drawn by MB





Issue No. 01
 Figure No. 12







Issue No.	Date	Description
-	-	-
-	-	-
© Stratascan Ltd - 2011		

KEY








PROBABLE ARCHAEOLOGY

-  Positive anomaly / weak positive anomaly - probable cut feature of archaeological origin
-  Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin
-  Moderate strength discrete anomaly - probable thermoremanent feature
-  Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow

POSSIBLE ARCHAEOLOGY

-  Positive anomaly / weak positive anomaly - possible feature of archaeological origin
-  Negative anomaly / weak negative anomaly - possible bank or earthwork of archaeological origin
-  Moderate strength discrete anomaly - possible thermoremanent feature
-  Magnetic spike - probable ferrous object

OTHER ANOMALIES

-  Closely spaced parallel linear anomalies - probably related to agricultural activity such as ploughing
-  Linear anomaly - probably related to pipe, cable or other modern service
-  Linear anomaly - possibly related to land drain
-  Magnetic disturbance associated with nearby metal object such as service or field boundary
-  Strong magnetic debris - possible disturbed or made ground
-  Scattered magnetic debris
-  Area of amorphous magnetic variation - probable natural (e.g. geological or pedological) origin

AOC ARCHAEOLOGY

Client
 Project Title Job No. 2977
 GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

Subject
 ABSTRACTION AND INTERPRETATION OF GRADIOMETER ANOMALIES - CENTRAL

STRATASCANTM
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING
 VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WR8 0SA www.stratascan.co.uk



Scale 1:1250
 0m 10 20 30 40 50





Plot	A3	Checked by	PPB	Issue No.	01
Survey date	OCT 2011	Drawn by	MB	Figure No.	13







Issue No.	Date	Description
-	-	-
-	-	-
© Stratascan Ltd - 2011		

KEY








PROBABLE ARCHAEOLOGY

-  Positive anomaly / weak positive anomaly - probable cut feature of archaeological origin
-  Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin
-  Moderate strength discrete anomaly - probable thermoremanent feature
-  Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow

POSSIBLE ARCHAEOLOGY

-  Positive anomaly / weak positive anomaly - possible cut feature of archaeological origin
-  Negative anomaly / weak negative anomaly - possible bank or earthwork of archaeological origin
-  Moderate strength discrete anomaly - possible thermoremanent feature
-  Magnetic spike - probable ferrous object

OTHER ANOMALIES

-  Closely spaced parallel linear anomalies - probably related to agricultural activity such as ploughing
-  Linear anomaly - probably related to pipe, cable or other modern service
-  Linear anomaly - possibly related to land drain
-  Magnetic disturbance associated with nearby metal object such as service or field boundary
-  Strong magnetic debris - possible disturbed or made ground
-  Scattered magnetic debris
-  Area of amorphous magnetic variation - probable natural (e.g. geological or pedological) origin

AOC ARCHAEOLOGY

Project Title Job No. 2977
 GEOPHYSICAL SURVEY - HOLYWELL SPRING FARM, ASHBY-DE-LA- ZOUCH

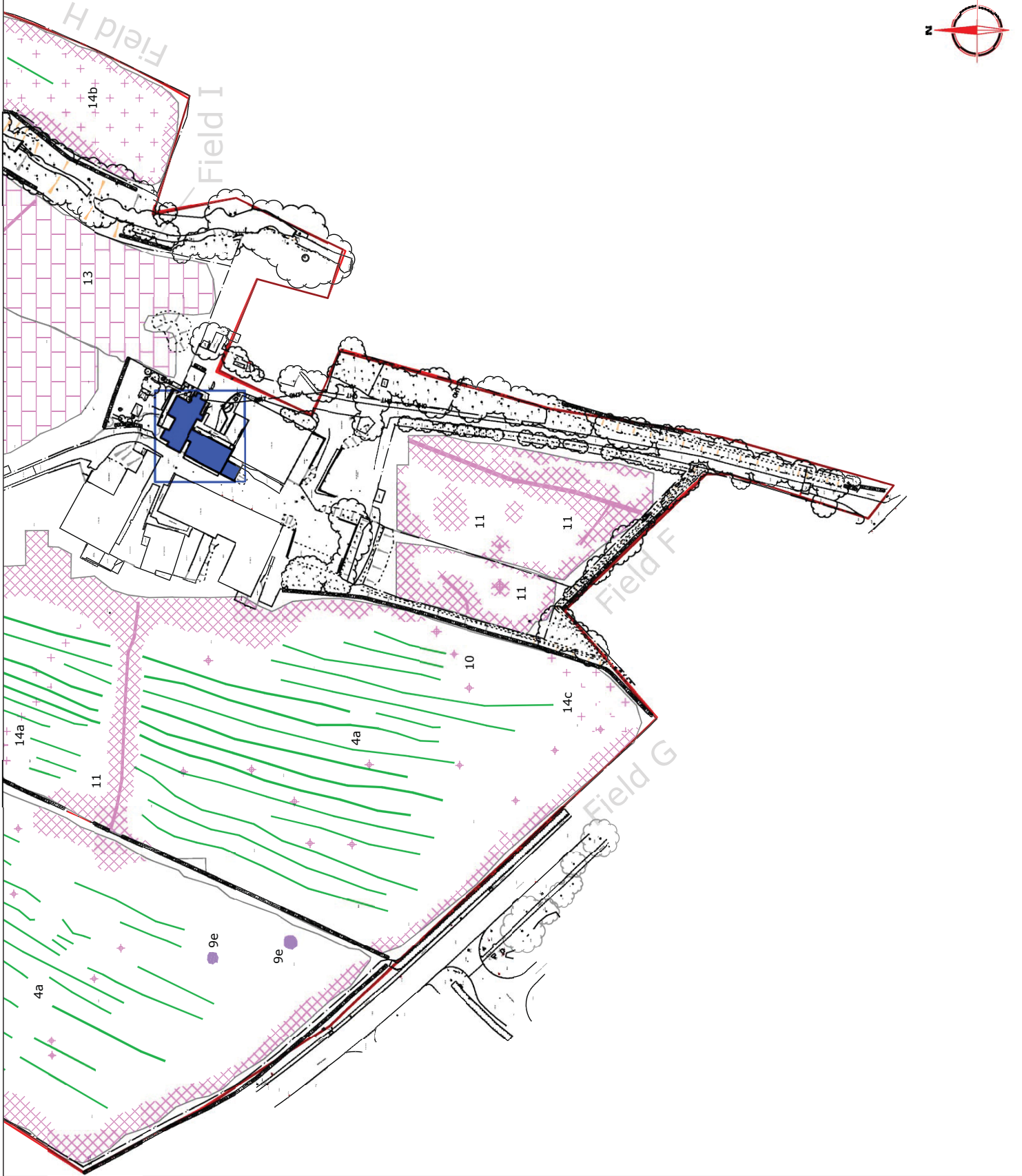
Client
 Subject
 ABSTRACTION AND INTERPRETATION OF GRADIOMETER ANOMALIES - SOUTH

STRATASCANTM
 GEOPHYSICS FOR ARCHAEOLOGY
 AND ENGINEERING
 VINEYARD HOUSE T: 01684 592266
 UPTON UPON SEVERN E: info@stratascan.co.uk
 WR8 0SA www.stratascan.co.uk



Scale 1:1250
 0m 10 20 30 40 50

Plot A3	Checked by PPB	Issue No. 01
Survey date OCT 2011	Drawn by MB	Figure No. 14



Appendix C – OASIS Form

OASIS ID: aocarcha1-111060

Project details

Project name Holywell Spring Farm

Short description of the project A programme of pre-determination works which include fieldwalking, geophysical survey, archaeological evaluation and level 2 historic building recording of 19th century farm buildings. The fieldwalking concentrated on two fields adjacent to the northern boundary of site. The majority of finds collected were post-medieval or modern in date and extensively distributed across both fields. The finds are mainly thought to be derived from the manuring of fields as part of post-medieval agricultural ploughing regime. The geophysical survey identified multiple anomalies across the full area of the site. The most significant of these anomalies are clustered in three separate groups, which are located in the northern, central and eastern areas of the site. These groups are believed to consist of ditches, pits, heat effected features and possible earthworks.

Project dates Start: 10-10-2011 End: 10-12-2011

Previous/future work No / Yes

Any associated project codes reference 30969 - Contracting Unit No.

Any associated project codes reference X.A140.2011 - Museum accession ID

Type of project Field evaluation

Site status None

Current Land use Cultivated Land 4 - Character Undetermined

Significant Finds POTTERY Post Medieval

Significant Finds CBM Post Medieval

Methods & 'Fieldwalking','Geophysical Survey','Targeted Trenches'
techniques

Development type Rural residential

Prompt Direction from Local Planning Authority - PPS

Position in the Pre-application
planning process

Solid geology (other) Bromsgrove Sandstone Formation

Drift geology (other) Head and Glaciofluvial Deposits

Techniques Magnetometry

Project location

Country England

Site location LEICESTERSHIRE NORTH WEST LEICESTERSHIRE ASHBY DE LA ZOUCH
Holywell Spring Farm, Ashby-de-la-Zouch

Postcode LE65 2LP

Study area 20.00 Hectares

Site coordinates SK 34901 17484 52.7535034543 -1.482834859990 52 45 12 N 001 28 58 W
Point

Project creators

Name of AOC Archaeology Group
Organisation

Project brief Historic and Natural Environment Team, Leicestershire County Council
originator

Project design AOC Archaeology Group
originator

Project director/manager Alan Ford

Project supervisor Chris Clarke

Type of Developer sponsor/funding body

Name of Capita Symonds sponsor/funding body

Project archives

Physical Archive recipient Leicestershire Museum

Physical Archive ID X.A140.2011

Physical Contents 'Animal Bones','Ceramics','Glass','Metal','Worked stone/lithics'

Digital Archive recipient Leicestershire Museum

Digital Archive ID X.A140.2011

Paper Archive recipient Leicestershire Museum

Paper Archive ID X.A140.2011

Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)

Title Holywell Spring Farm, Ashby-de-la-Zouch, Leicestershire: Archaeological Desk-

Based Assessment

Author(s)/Editor(s) Smith, C.

Date 2011

Issuer or publisher AOC Archaeology Group

Place of issue or publication AOC Archaeology London

Project bibliography 2

Publication type Grey literature (unpublished document/manuscript)

Title HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE: A WRITTEN SCHEME OF INVESTIGATION FOR A PROGRAMME OF ARCHAEOLOGICAL FIELDWALKING, GEOPHYSICS, EVALUATION AND HISTORIC BUILDING RECORDING

Author(s)/Editor(s) MacQuarrie, H.

Date 2011

Issuer or publisher AOC Archaeology

Place of issue or publication London

Description A4 text, 27 pages, 3 illustrations, bound between plastic covers

Project bibliography 3

Publication type Grey literature (unpublished document/manuscript)

Title HOLYWELL SPRING FARM, ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE: ARCHAEOLOGICAL FIELDWALKING AND

GEOPHYSICAL SURVEY REPORT

Author(s)/Editor(s) Clarke, C.

Date 2011

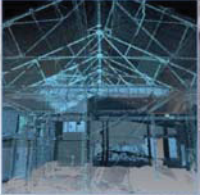
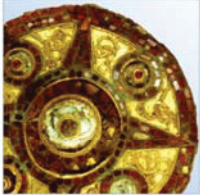
Issuer or publisher AOC Archaeology

Place of issue or London
publication

Description A4 text, 7 illustrations, 49 pages bound between plastic covers

Entered by Chris Clarke (chris.clarke@aocarchaeology.com)

Entered on 28 October 2011



AOC Archaeology Group, Unit 7, St Margarets Business Centre, Moor Mead Road, Twickenham TW1 1JS
tel: 020 8843 7380 | fax: 020 8892 0549 | e-mail: london@aocarchaeology.com

www.aocarchaeology.com