Archaeological Services & Consultancy Ltd

GEOPHYSICAL SURVEY:
LAND AT KITCHENERS FIELD
BERKHAMSTED
HERTFORDSHIRE

NGR: SP 9963 0862

for

Conceptworld Ltd

on behalf of

Berkhamsted School

Alastair Hancock BSc PgDip MIFA

November 2010

ASC: 1341/BKF/01

CORPORATE MEMBER ISAP

Letchworth House
Chesney Wold, Bleak Hall,
Milton Keynes MK6 1NE
Tel: 01908 608989 Fax: 01908 605700
Email: office@archaeological-services.co.uk
Website: www.archaeological-services.co.uk

REGISTERED IfA ORGANISATION

Site Data

ASC project code:	BKF	*ASC project no:*	1341
OASIS ref:		*Event/Accession no:*	

County:	Hertfordshire
Village/Town:	Berkhamsted
Civil Parish:	Northchurch
NGR (to 8 figs):	SP 9963 0862
Extent of site:	1.2 hectare
Present use:	Playing Field
Planning proposal:	All Weather Pitch
Planning application ref/date:	Pre-application
Local Planning Authority:	Dacorum District Council
Date of fieldwork:	26th – 27th October 2010
Commissioned by:	Conceptworld Ltd Memorial Hall The Green Barby Rugby Warwickshire CV23 8TS
Client:	Berkhamsted School
Contact name:	Gordon Innes (Conceptworld)

Internal Quality Check

Primary Author:	Alastair Hancock	*Date:*	5th November 2010
Revisions:		*Date:*	
Edited/Checked By:	Bob Zeepvat	*Date:*	5th November 2010

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Figure 1: Location of survey area *(scale: 1 to 25000)*

Summary

In October 2010 Archaeological Services and Consultancy Ltd undertook geophysical survey (detailed magnetometry and resistance) of 1.2 hectares of land located at Kitcheners Field, Berkhamsted in order to inform development proposals. The resistance survey defines areas of higher resistance, some of which could result from the presence of sub-surface structural remains although a geological or modern origin is possible. Definitive interpretation of the origin of the high resistance areas is confounded by a lack of coherent patterning and absence of correlated magnetic anomalies. The character and significance of the high resistance areas remains unclear and the potential of the proposed development to affect heritage assets is uncertain.

1. Introduction

1.1 *General*

In June 2010 *Archaeological Services and Consultancy Ltd* (ASC) was commissioned by *Conceptworld Ltd* on behalf of *Berkhamsted School* to carry out geophysical (detailed magnetometer and resistance) survey of 1.2 hectares of land located at the north of Kitcheners Field, Berkhamsted, Hertfordshire.

1.2 *Planning Background*

The geophysical survey was required to inform the planning process and as an aid to formulation of a strategy for further work, should this be required.

1.3 *Archaeological Services & Consultancy Ltd*

Archaeological Services & Consultancy Ltd (ASC) is an independent archaeological practice providing a full range of archaeological services including consultancy, field evaluation, mitigation and post-excavation studies, historic building recording and analysis. ASC is recognised as a *Registered Organisation* by the Institute for Archaeologists, in recognition of its high standards and working practices.

1.4 *The Survey Area*

1.4.1 *Previous Archaeological Work*

No previous archaeological work has been carried out at Kitcheners Field. However, a Scheduled Ancient Monument (SAM HT88; NMR 346272; HER 2716) is located immediately to the north of the western half of the survey area. The SAM is centred on structural remains discovered in the early 1970's during insertion of a gas pipe. The structural remains comprised fragments of an *opus signinum* floor and two parallel north-south orientated flint and tile walls lying approximately 9m apart (HER 2716, Neal 1977). The presence of a Roman building of some size and importance, perhaps a villa is suggested (DCMS: Schedule of Ancient Monuments 3: 1978; Page 51).

1.4.2 *Location & Description*

The survey area comprised *c.*1.2 hectares of land at the north of Kitcheners Field, which lies between the Scheduled Ancient Monument of Berkhamsted

Castle (SAM 20626) to the south, and Scheduled Ancient Monument (SAM HT88) which protects the site of a Roman building located to the north. At the time of survey the field was in use as a sports ground; part of the survey area was marked as a football pitch and part was temporarily fenced to protect a cricket square; ground cover comprised short grass. The survey area was bounded at the east, west and north by wire strand fencing but had no physical boundary at the south. The western part of the survey area was at the base of a dry valley and was relatively flat at *c.*110m AOD. The north eastern part of the survey area ascended to the northeast from *c.*110m AOD to c.115m AOD.

1.4.3 *Geology*

The soils of the site are of the Charity 2 Association (571m) which comprise *"well drained flinty fine silty soils in valley bottoms, locally very flinty, some shallow over flint gravel"* (Soil Survey 1983, Sheet 4). The solid geology of the application area comprises flinty and chalky drift overlying chalk (BGS: Sheet 156).

1.4.4 *Proposed Development*

The proposed development comprises construction of all weather pitches. Detailed development plans are not currently available.

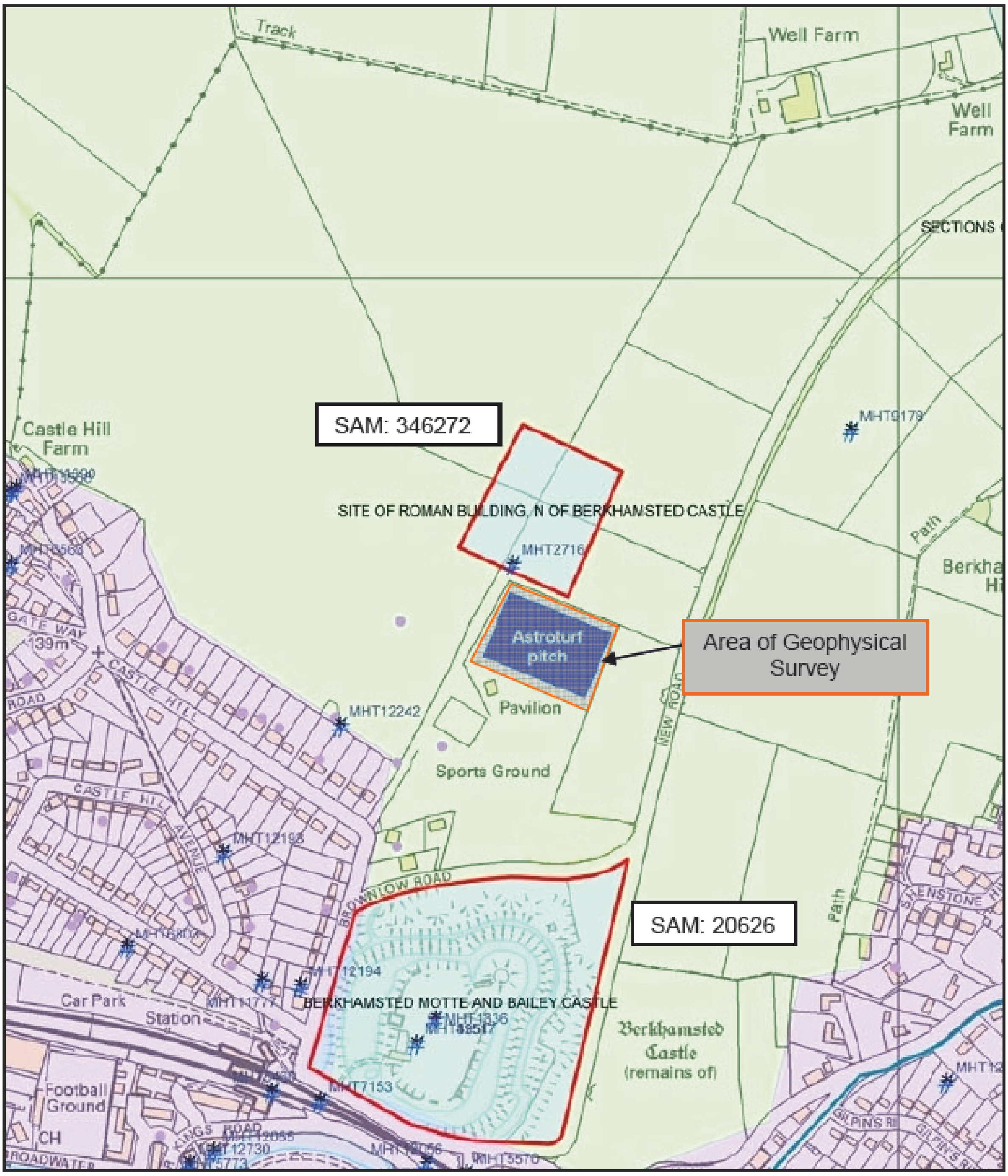

Figure 2: Survey area and nearby Scheduled Ancient Monuments *(not to scale)*

2. Aims, Methods and Report Presentation

2.1 *Aims*

The aims of the survey were:

- To determine whether Roman structural remains extended into the proposed development area from the north.
- To ascertain the character and the spatial extent of any subsurface archaeological features present.
- To aid assessment of the archaeological potential of the application site.

2.2 *Methods*

The methods adopted for the survey were:

- Detailed magnetometer survey of *c.*1.2 hectare using a Bartington Grad 601-2.
- Magnetometer data was collected along zig-zag traverses spaced 1m apart at a sample interval of 0.25m within 20m x 20m grids.
- Detailed resistance survey of *c.*1.2 hectare using a Geoscan RM15 and MPX15 multiplexer.
- Resistance data was collected along zig-zag traverses spaced 1m apart. To investigate shallow and slightly deeper deposits two readings were collected at one sample point with remote probes at 0.5m and 1.5m spacing. The sample interval was 1m within 20m x 20m grids.

2.3 *Standards*

The work conformed to the relevant sections of the Institute of Archaeologists' *Standard & Guidance Notes* (IFA 2001) and *Code of Conduct* (IFA 2006). The work also conformed to the relevant sections of ASC's own *Operations Manual,* to English Heritage geophysical survey guidelines (EH 2008) and to IFA geophysical survey guidelines (Gaffney *et al* 2002). Data from the magnetometer survey was treated and archived in accordance with Archaeology Data Service guidelines (Schmidt 2003).

2.4 *Report Presentation*

2.4.1 A general site location plan is presented in Figure 1 (1:25000). Figure 2 shows the location of the development, the geophysical survey area and nearby Scheduled Ancient Monuments; Figure 3 presents the processed greyscale gradiometer data at 1:1000, Figure 5 presents the processed greyscale resistance data collected with 0.5m remote probe spacing and Figure 7 the processed greyscale resistance data collected with 1.5m remote probe spacing, accompanying interpretations are respectively presented in Figures 4, 6 and 8; all are shown at 1:1000. An XY trace plot (1:1000) of the unprocessed gradiometer data is presented in Appendix 5.

2.4.2 Technical details on the underlying principles of magnetic and resistance survey, the equipment used and general geophysical survey methodology are given in Appendix 1. Details on data processing and display are given in

Appendix 2. Survey location information is presented in Appendix 3 and the composition of the archive described in Appendix 4.

2.4.3 The figures in this report have been produced following analysis of the data in unprocessed 'raw' and processed formats and over a range of different display levels. All figures are presented to most suitably display and interpret the collected data based on the experience and knowledge of ASC staff.

3. Results

3.1 Magnetometry

3.1.1 Isolated dipolar anomalies ("iron spikes" – Appendix 1) are widely distributed throughout the survey block. "Iron spike" anomalies are characteristic of ferrous objects incorporated into the topsoil and subsoil, and are usually caused by modern cultural debris. Only the strongest of these anomalies are identified on the interpretation plot (Fig 4). On occasion, archaeological artefacts may cause them and significant clusters associated with other substantiating evidence may be included in the following discussion.

3.1.2 Three areas of magnetic disturbance are distributed around the periphery of the survey block. The areas of disturbance have a modern origin; two at the west of the survey area result from proximity to wire strand fencing and the sports ground pavilion. The largest area of disturbance at the south is caused by proximity to metal goal posts.

3.1.3 Magnetic anomalies originating from possible subsurface archaeological features are not identified in the magnetic data.

3.2 *Resistance (0.5m Probe Separation)*

3.2.1 Background resistance varies across the survey area and is lower at the east of the survey block. The broad band of low resistance at the east has a geomorphological origin; it is located at the base of the eastern slope of a dry valley, deeper soils retaining more moisture have perhaps accumulated here.

3.2.2 A square area of lower background resistance (**A**) is present at the approximate centre of the survey area. Its size and position correlates with that of an extant cricket square temporarily fenced at the time of survey; it has a modern origin.

3.2.3 A broad zone of higher resistance runs from the northwest to the south centre of the survey area.

3.2.4 An amorphous area of higher resistance is evident at the northwest of the survey area, it contains discrete area of higher resistance but these do not resolve into a coherent pattern and the origin of the high resistance is unclear.

3.2.5 Two areas containing identifiable rectilinear higher resistance anomalies are present (Fig 6: **B** and **C**). The rectilinear higher resistance at **C** could define the location of a small rectangular building but neither area contains anomalies forming a truly coherent structural foundation plan and the origin of the rectilinear higher resistance remains unclear.

3.3 *Resistance (1.5m Probe Separation)*

3.3.1 Overall resistance readings were lower but results of the survey examining the deeper sub-surface are broadly consistent with results of the shallower survey.

3.3.2 The zone of natural low background resistance remains evident at the east of the survey block.

3.3.3 The area of low resistance caused by the extant cricket square (**A**) is still evident although less pronounced.

3.3.4 The broad band of higher resistance remains present but is less pronounced suggesting that it is largely caused by resistive material present at relatively shallow depths.

3.3.5 The amorphous area of high resistance at the northwest of the survey area is less coherent but still evident, discrete areas of higher resistance remain within it but form no coherent pattern.

3.3.6 Rectilinear higher resistance anomalies are fewer in number but still discernible at **B** (Fig 8); the area of high resistance at **C** is still pronounced but now amorphous and discernible alignments of high resistance are no longer evident.

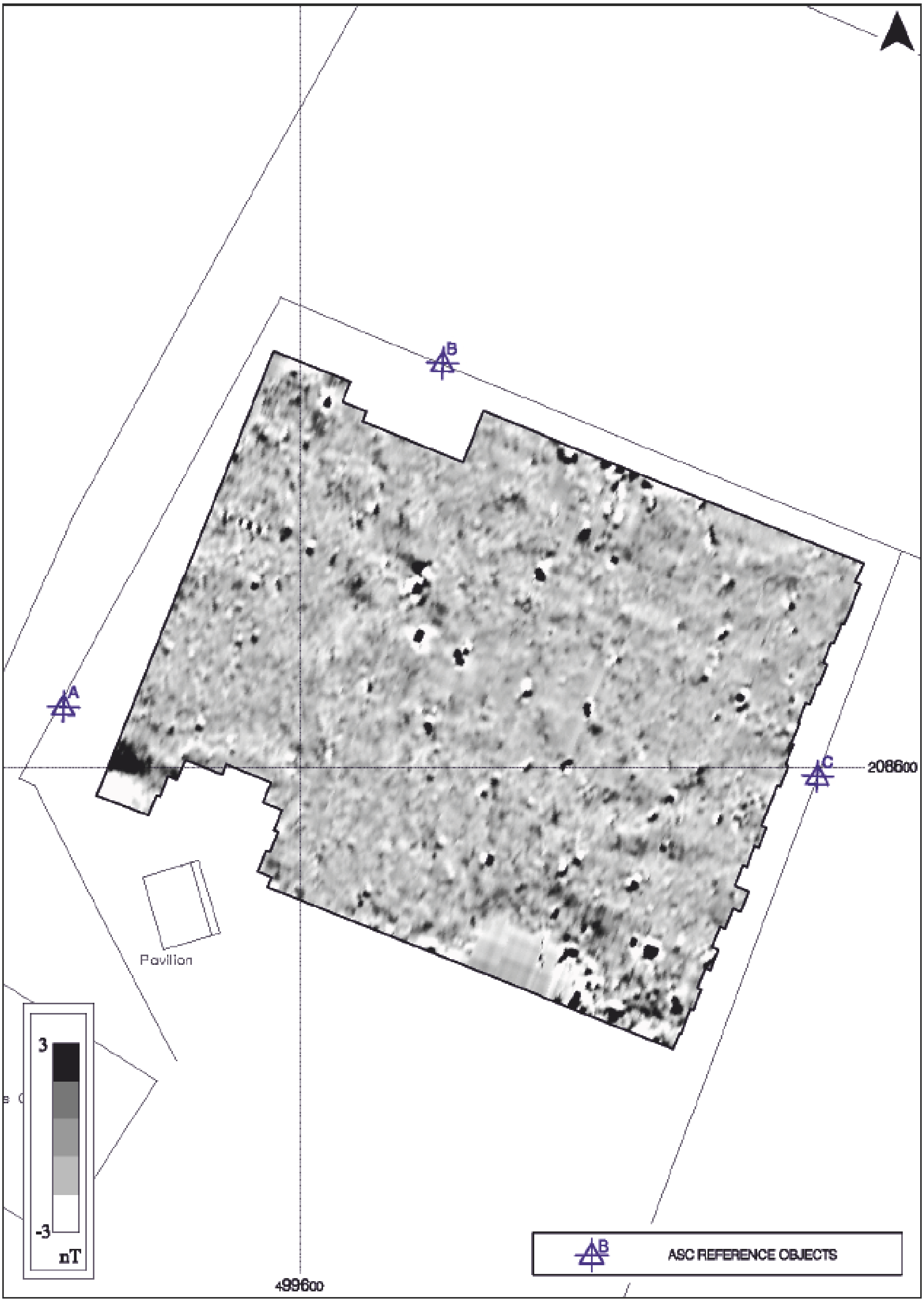

Figure 3: Greyscale plot of gradiometer data *(scale: 1: 1000)*

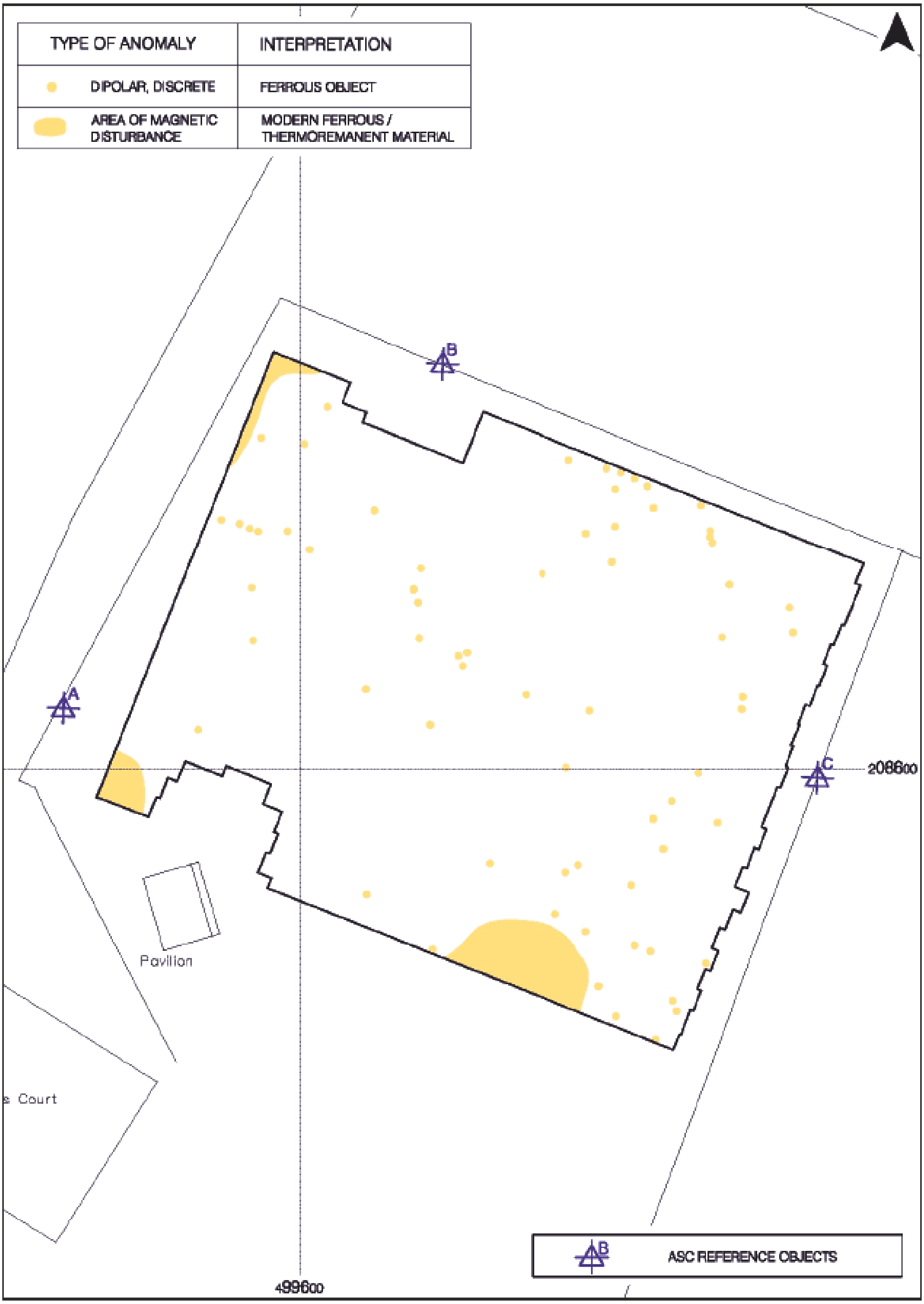

Figure 4: Interpretation of gradiometer data *(scale: 1: 1000)*

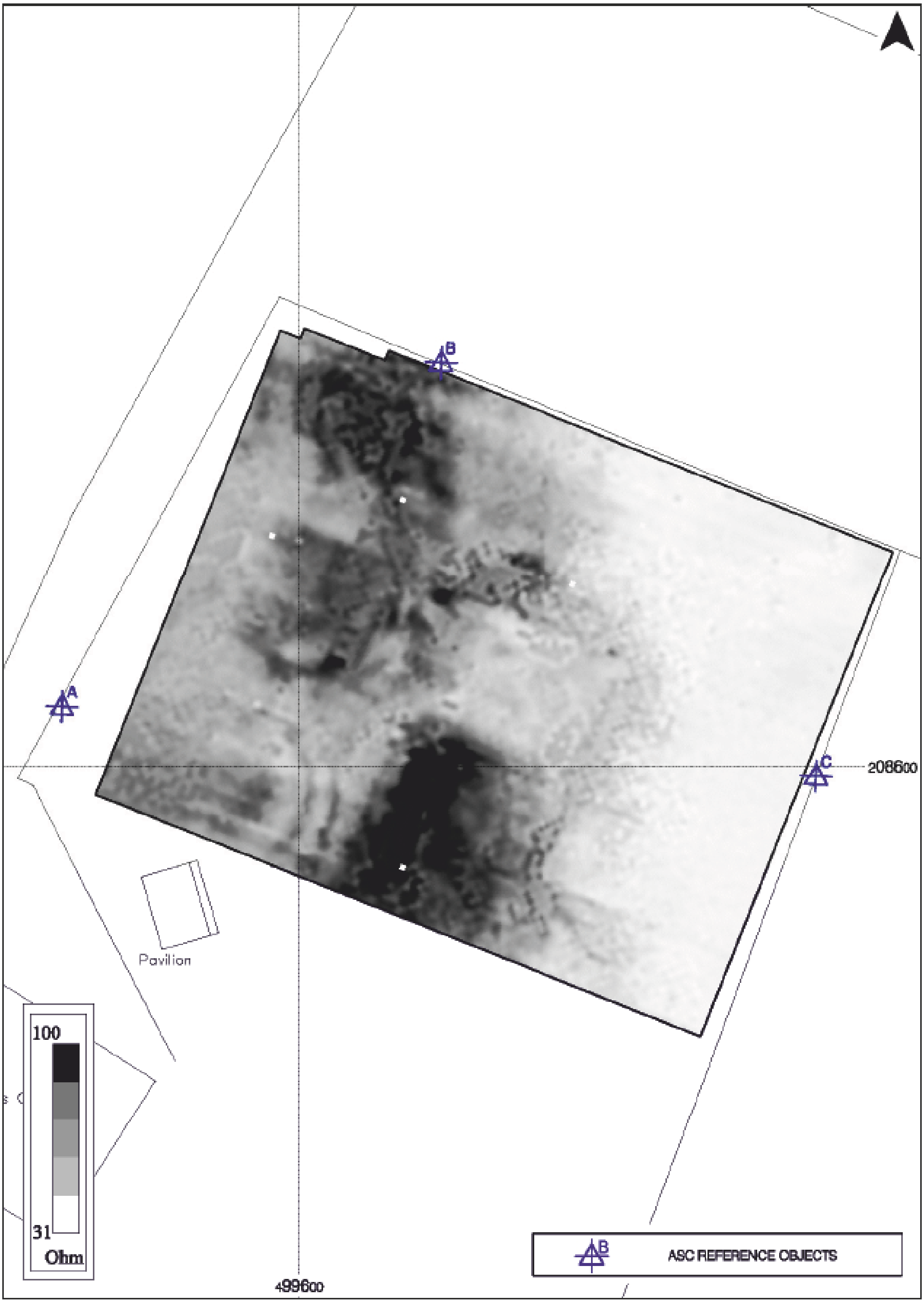

Figure 5: Greyscale plot of resistance data @ 0.5m probe separation *(scale: 1: 1000)*

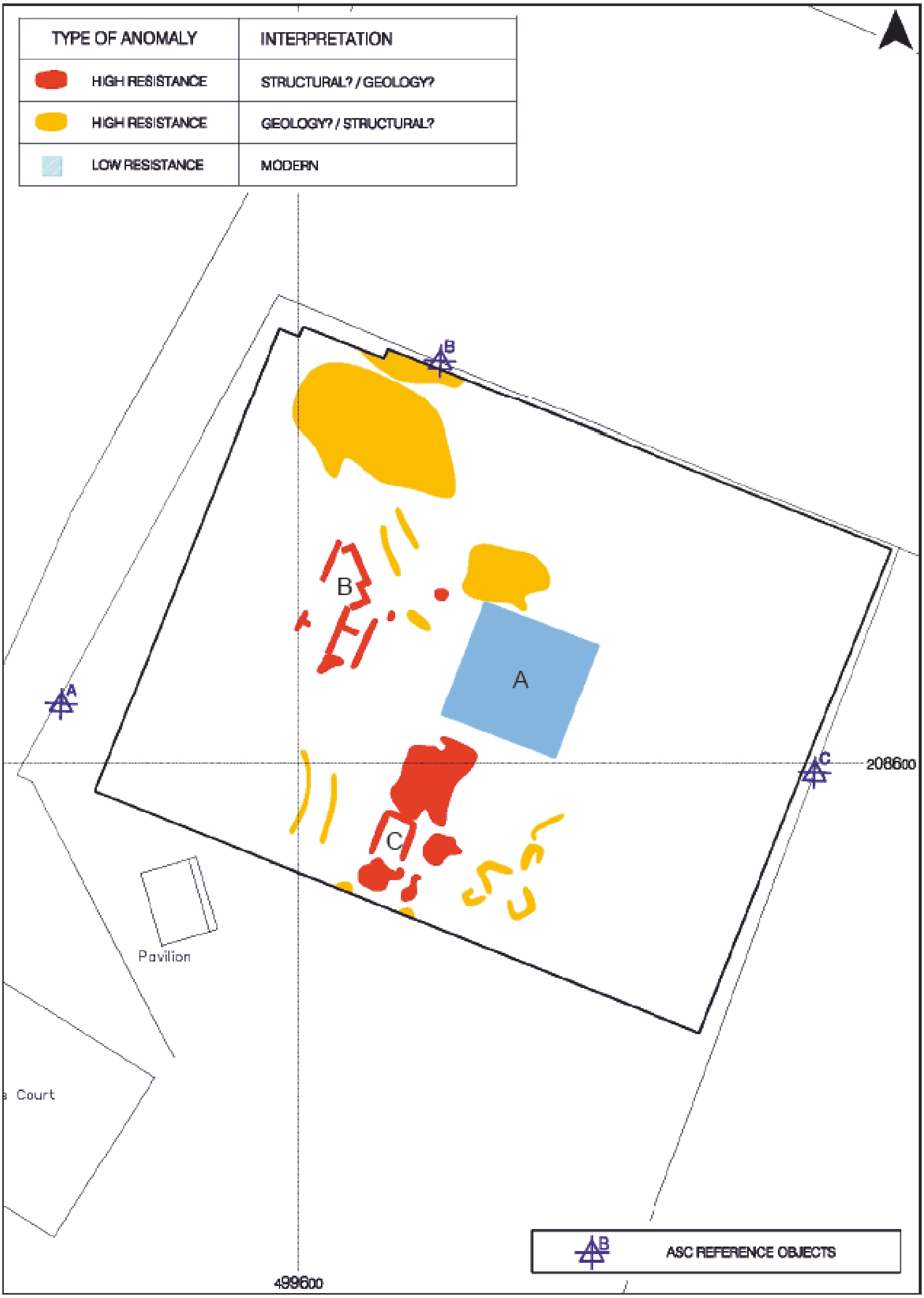

Figure 6: Interpretation of resistance data @ 0.5m probe separation *(scale: 1: 1000)*

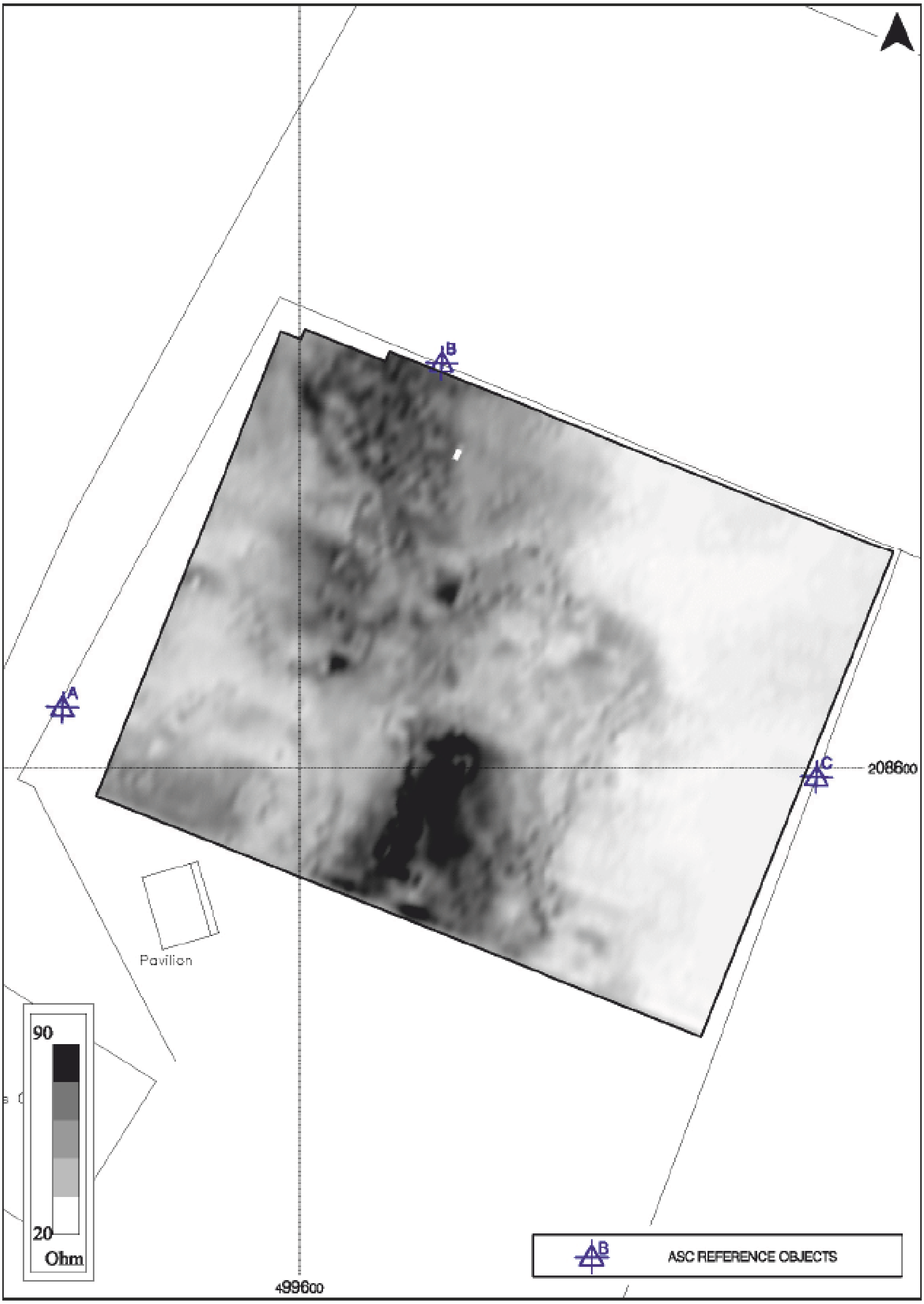

Figure 7: Greyscale plot of resistance data @ 1.5m probe separation *(scale: 1: 1000)*

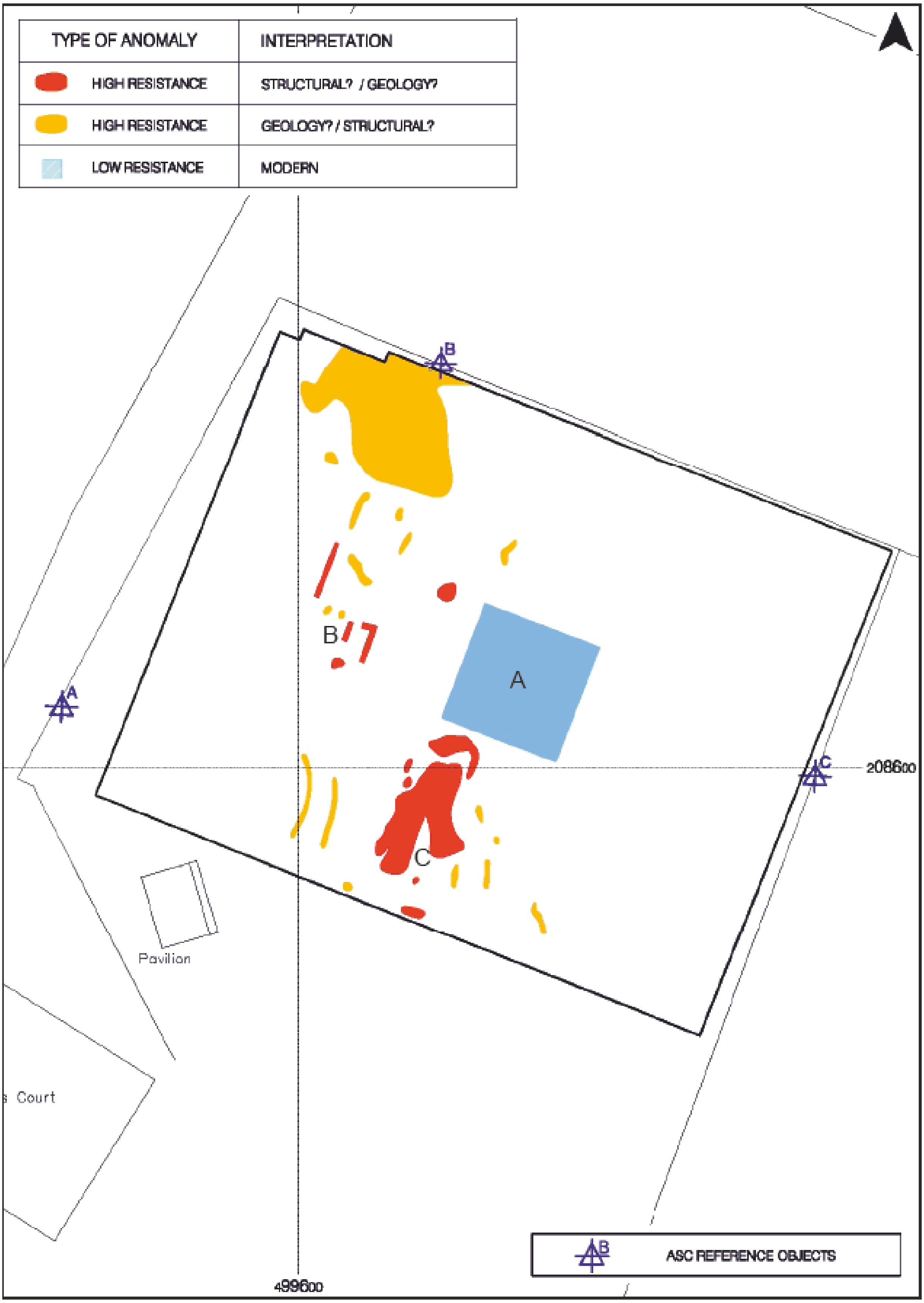

Figure 8: Interpretation of resistance data @ 1.5m probe separation *(scale: 1: 1000)*

4. Conclusions

4.1 The geophysical survey has located a broad band of high resistance running from the northwest to south centre of the survey area. The broad band includes two areas containing tentatively identified alignments of higher resistance which could be caused by the remains of sub-surface walls or foundations.

4.2 However, magnetic "noise" or other types of magnetic anomaly consistent with the presence of archaeological settlement or structural remains of the Roman period are absent.

4.3 The lack of correlation between results of the two geophysical methods suggests that the high resistance may be present as a consequence of:

- Geological variation in the sub-surface natural deposits. Areas of sands and gravels may be present.
- Presence of poorly preserved remains of buildings located at the periphery of a focus of Roman settlement.
- Activity associated with use of the site as a firing range during the Great War or as a sports ground during the later 20th century.

4.4 In summary; the resistance survey may have located structural remains of unknown date but the absence of coherent foundation / wall plans or magnetic anomalies consistent with settlement activity confounds definitive interpretation.

4.5 The character and significance of the high resistance areas is unclear and the potential of the proposed development to affect heritage assets remains uncertain.

The results of geophysical surveys and interpretation of collected data should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the origin of geophysical anomalies and the presence or absence of archaeological remains can only be achieved by direct investigation of sub-surface deposits.

5. References

Standards & Specifications

English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation.* English Heritage (London).

Gaffney C, Gater J and Ovenden S 2002 *The use of Geophysical Techniques in Archaeological Evaluations.* IFA Paper No. 6.

IFA 2006 Institute for Archaeologists' *Code of Conduct.*

IFA 2001 Institute for Archaeologists' *Standard & Guidance* documents *(Desk-Based Assessments, Watching Briefs, Evaluations, Excavations, Investigation and Recording of Standing Buildings, Finds).*

Schmidt A. 2003 *Geophysical Data in Archaeology: A Guide to Good Practice.* Archaeology Data Service.

Secondary Sources

BGS *British Geological Survey 1:50,000 Series, Solid & Drift Geology.*

Neal D.S. 1977 Northchurch, Boxmoor and Hemel Hempstead Station: the Excavation of three Roman Buildings in the Bulbourne Valley. *Hertfordshire Archaeology 4 1974-1976.* St Albans and Hertfordshire Architectural and Archaeological Society: St Albans.

Soil Survey 1983 *1:250,000 Soil Map of England and Wales, and accompanying legend* (Harpenden).

6. Acknowledgements

ASC is grateful to *Conceptworld Ltd* for commissioning this project on behalf of *Berkhamsted School*. Particular thanks to Gordon Innes of *Conceptworld* for arranging access and supply of background mapping. The report was edited by Bob Zeepvat BA MIFA.

Fieldwork

A. Hancock BSc PgDip MIFA
D. Fell MA MIFA

Report

A. Hancock

Graphics

A. Hancock

Appendix 1: Magnetic Survey: Technical Information

1. Magnetic Susceptibility and Soil Magnetism

1.1 Iron makes up about 6% of the Earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haematite. These minerals have a weak, measurable magnetic property termed ***magnetic susceptibility***. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms. These effects are often observable by measuring the magnetic susceptibility of the topsoil, which can enable identification of areas where human occupation or settlement has occurred by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently fills features, such as ditches or pits, localised isolated and linear magnetic anomalies can result and their presence can be detected by a magnetometer (fluxgate gradiometer).

1.2 In general, it is a contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of the surrounding matrix, i.e. topsoils, subsoils and rocks, into which these features have been cut that causes the most recognisable archaeological responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background levels. Discrete feature, such as pits, can also be detected. Less magnetic material such as masonry or plastic service pipes that intrude into the topsoil may give a negative magnetic response relative to the background level.

1.3 An alternative method of enhancement to the magnetic properties of soil or archaeological features is through sustained heating. This can lead to the detection of features such as hearths, kilns or burnt areas through thermoremanent magnetism.

2. Types of Magnetic Anomaly

2.1 In the majority of instances anomalies are termed ***'positive'***. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as ***'negative'*** anomalies that, conversely, exhibit a negative anomaly relative to the mean magnetic background. Such negative anomalies are often very faint and although archaeological structures can cause them they commonly originate with the presence of modern, non-ferrous, features such as plastic water pipes. Natural geomorphological features may appear as negative anomalies on some geologies.

2.2 Where the cause of an anomaly is uncertain a '?' is appended to the interpretative key.

2.3 It should be noted that some anomalies that are interpreted as modern in origin might be caused by ephemeral features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the origin of the anomaly.

2.4 The types of response mentioned above can be divided into five main categories which are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes)

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

Areas of magnetic disturbance

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. This type of anomaly is characterised by very strong, 'spiky' variations in the magnetic background. A modern origin is usually assumed unless there is other supporting information.

Linear trend

This is usually a weak or broad linear anomaly of unknown cause or date. An agricultural origin, either ploughing or land drains is a common cause.

Areas of magnetic enhancement/positive isolated anomalies

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an enhanced response (sometimes only visible on an X–Y trace plot) on two or three successive traverses. In neither instance is there the intense dipolar response characteristic of an area of magnetic disturbance or of an 'iron spike' (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post holes or by kilns, with the latter often being characterised by a strong, positive double peak response. They can also be caused by pedological variations or by natural infilled features on certain geologies. Deeply buried ferrous material can also give a similar response. It may be difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear positive anomalies

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

3. Earth Resistance

The resistance of the subsurface is almost entirely dependent upon the amount and distribution of moisture incorporated within it. Masonry or stones, for example, are usually less porous and possess higher resistance than clay subsoils or organic rich fills of archaeological ditches or pits.

In archaeological surveys the resistivity, strictly the resistance of a specific volume of a specific material, cannot be calculated although apparent resistivity may be. In practice equipment used to carry out this type of survey measures resistance and subsequent calculation of the apparent resistivity of the subsurface is rarely carried out, most archaeological surveys of this type should therefore more accurately be called "resistance" surveys

The success of resistance survey and correct interpretation of the results is dependent on a complex set of factors including the interaction of the composition and geometry of archaeological features, the geology, the electrode configuration used and climatic variations. E.g. surveys of this type are rarely at their most successful if carried out during extended periods of dry or wet weather.

4. Methodology

4.1 Gradiometer Survey

There are two main methods of using the fluxgate gradiometer for commercial evaluations. The first of these is referred to as ***scanning*** and requires the operator to visually identify anomalous responses on the instrument display panel whilst covering the site in widely spaced traverses, typically 10-15m apart. The instrument logger is not used and there is therefore no data collection. Once anomalous responses are identified they are marked in the field with bamboo canes and approximately located on a base plan. This method is usually employed as a means of selecting areas for detailed survey when only a percentage sample of the whole site is to be subject to detailed survey. In favourable circumstances scanning may be used to map out the full extent of features located during a detailed survey.

The second method is referred to as ***detailed survey*** and employs the use of a sample trigger to automatically take readings at predetermined points, typically at 0.25m intervals, on zig-zag traverses 1m apart. These readings are stored in the memory of the instrument and are later dumped to computer for processing and interpretation.

A Bartington Grad 601-2 fluxgate gradiometer was used for the detailed gradiometer survey. Readings were taken, on the 0.1nT range, at 0.25m intervals on zig-zag traverses 1m apart within 20m by 20m square grids.

4.2 Resistance Survey

For any given area resistance survey is more time consuming than the magnetic methods; the equipment is more cumbersome, climatic and site conditions are more critical, and data interpretation usually more complex. The efficacy of this technique for locating and defining building foundations and masonry features, and the previously outlined factors favour its use as a site investigation rather than prospection technique.

Although other probe configurations may be employed, usual survey procedure will utilise a Geoscan RM15 resistance meter in 0.5m twin probe configuration which will be set to take automatic readings at predetermined points, typically at (a maximum) 1m interval, 1m apart on zig-zag traverses within 20m by 20m square grids. These readings are stored in the memory of the instrument until exported to computer for processing and interpretation.

5. Data Processing and Presentation

The detailed gradiometer data has been presented in this report in X-Y trace and greyscale formats. The former option shows the 'raw' data with no processing other than grid biasing whilst in the latter the data has been selectively filtered to remove spurious errors such as striping effects and edge discontinuities caused by instrument drift and inconsistencies in survey technique caused by poor field conditions.

An X-Y plot presents the data logged on each traverse as a single line with each successive traverse incremented on the Y-axis to produce a 'stacked' plot. A hidden line algorithm has been employed to block out lines behind major 'spikes' and the data has been clipped at 5nT. The main advantage of this display option is that the full range of data can be viewed, dependent on the clip, so that the 'shape' of individual anomalies can be discerned and potentially archaeological anomalies differentiated from 'iron spikes'.

Resistance data is presented in greyscale format as both "raw" and "processed" data. Processing steps will be detailed in technical appendices of the report. Where X-Y plots can aid interpretation these will also be included in appendices.

ArchaeoSurveyor was used to process the data and produce the greyscale images and XY trace plots. The processing methods are listed in detail in Appendix 4.

Appendix 2: Data Processing and Presentation

Data processing and/or filtering has not been applied to the data sets unless otherwise stated. Data has been interpolated for presentation as greyscale plots unless otherwise stated. The processing steps employed to produce the greyscale plots are listed below.

Magnetometer Data

Despike Threshold: 1 Window size: 5x5
Search & Replace From: 20 To: 5000 With: 19.99
Search & Replace From: -5000 To: -20 With: -19.99
Clip from -3.00 to 3.00 nT
DeStripe Median Sensors: All
DeStripe Mean Traverse: Grids: All Threshold: 7 SDs (vertical)

Resistance Data: 0.5m Probe Separation

Despike Threshold: 1 Window size: 19x19
Search & Replace From: -5000 To: 0 With: 0.1
Clip from 31.00 to 100.00 Ohm
Stretch Traverse: Grids: All Mode: Downhill 10 Intervals

Resistance Data: 1.5m Probe Separation

Despike Threshold: 1 Window size: 13x13
Interpolate: Match X & Y Doubled.
Clip from 23.00 to 90.00 Ohm

Appendix 3: Survey Location Information

1. The geophysical survey blocks were established using a Pentax R-326EX total station. Survey grid points were set out with the total station at 60m intervals and points at 20m intervals were set out as required using 100m tapes.

2. The survey grids were superimposed onto a digital site survey that was co-registered with the National Grid. Overall there was a good correlation between the tie in survey and the digital map base and it is estimated that the average 'best fit' error is better than ± 1m. Potential errors in mapping or co-registration must be considered if co-ordinates are measured off for relocation from points other than those listed below or if geophysical anomalies are relocated using GPS technology.

Reference Object	Easting	Northing
A (wooden stake)	499556.42	208611.11
B (wooden stake)	499626.20	208674.48
C (wooden stake)	499695,42	208598.33

ASC Ltd cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party or for the removal of any of the survey reference points.

Appendix 4: Geophysical Archive

1. The geophysical archive comprises:-

   - an archive disk containing the raw data files, plot meshes, composites and metadata, report text (Word 2000), and graphics files (CorelDraw12 and AutoCAD 2008) files.
   - a full copy of the report

2. At present the archive is held by ASC Ltd although it is anticipated that it may eventually be lodged with the Archaeology Data Service (ADS). Brief details may also be forwarded for inclusion on the English Heritage Geophysical Survey Database after the contents of the report are deemed to be in the public domain (i.e. available for consultation in the relevant Sites and Monument Record Office*)*.

Appendix 5: XY Trace Plots of Raw Gradiometer Data

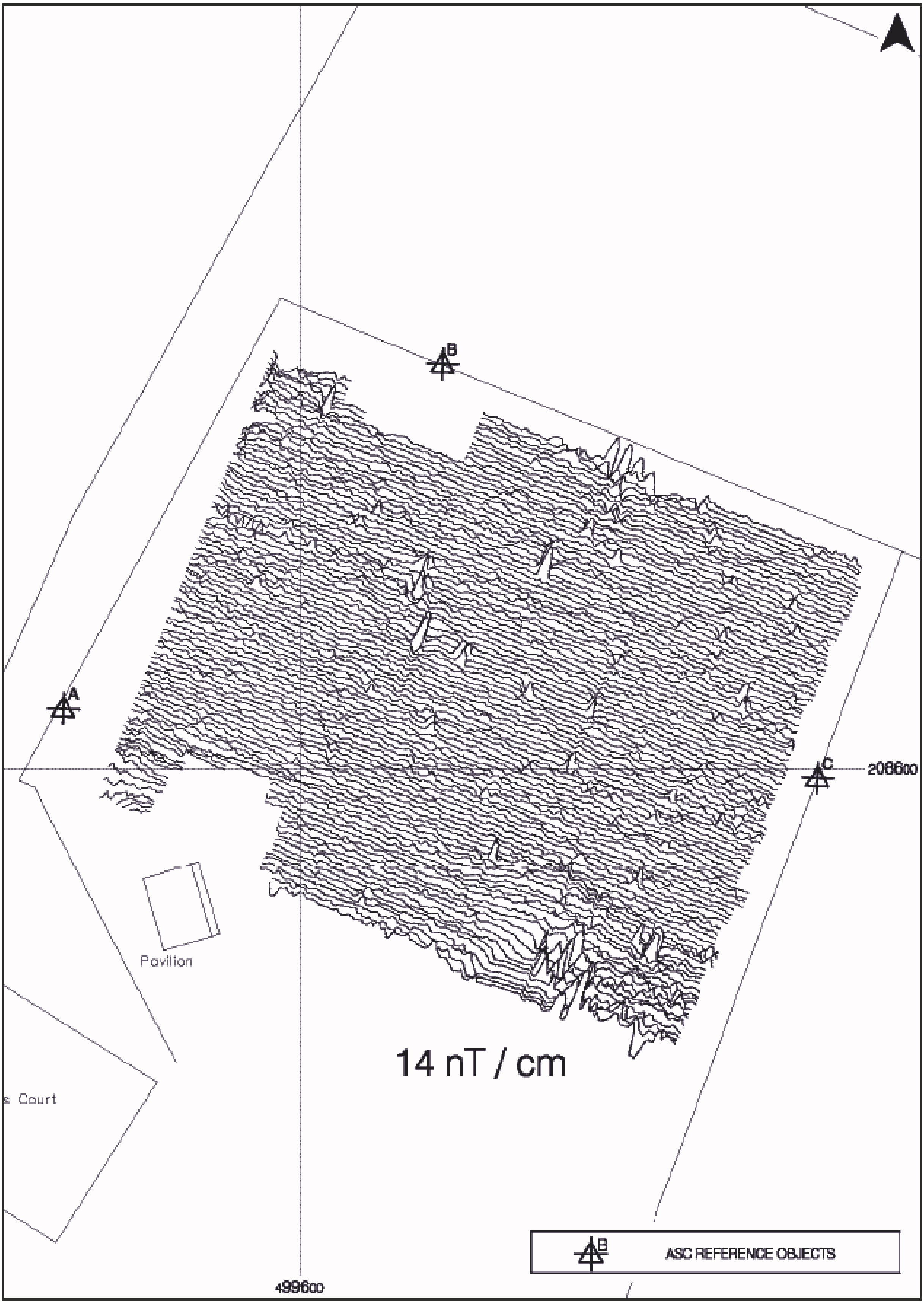

Figure 11: XY trace plot of unprocessed gradiometer data: Block 4 *(scale 1:1000)*

Appendix 6: ASC OASIS Form

PROJECT DETAILS			
Project Name:	Geophysical Survey: Land at Kitcheners Field, Berkhamsted, Hertfordshire.		
Short Description:	In October 2010 Archaeological Services and Consultancy Ltd undertook geophysical survey (detailed magnetometry and resistance) of 1.2 hectares of land located at Kitcheners Field, Berkhamsted in order to inform development proposals. The resistance survey defines areas of higher resistance, some of which could result from the presence of sub-surface structural remains although a geological or modern origin is possible. Definitive interpretation of the origin of the high resistance areas is confounded by a lack of coherent patterning and absence of correlated magnetic anomalies. The character and significance of the high resistance areas remains unclear and the potential of the proposed development to affect heritage assets is currently uncertain.		
Project Type: (indicate all that apply)	Geophysical Survey: Detailed Magnetometry and detailed resistance		
Site status: (eg. none, SAM, Listed)	None	Previous work: (eg. SMR refs)	None
Current land use:	Sports ground	Future work: (yes / no / unknown)	unknown
Monument type:	na	Monument period:	na
Significant finds: (artefact type & period)	na		
PROJECT LOCATION			
County:	Hertfordshire	OS reference: (to at least 8 figures)	SP 9963 0862
Site address: (with postcode if known)	Land at Kitcheners Field, Berkhamsted, Hertfordshire.		
Study area: (sq. m. or ha)	1.2 ha	Height OD: (metres)	110m
PROJECT CREATORS			
Organisation:	Archaeological Services & Consultancy Ltd		
Project brief originator:	-	Project design originator:	-
Project Manager:	A Hancock	Director/Supervisor:	A. Hancock
Sponsor / funding body:	Berkhamsted School		
PROJECT DATE			
Start date:	26/10/10	End date:	27/10/10
PROJECT ARCHIVES			
	Location (Accession no.)	Content (eg. pottery, animal bone, files/sheets)	
Physical:	None	None	
Paper:	ASC Ltd	Fieldwork report and Project Design	
Digital:	ASC Ltd	Report text, geophysical data, illustrations, basemap	
BIBLIOGRAPHY (Journal/monograph, published or forthcoming, or unpublished client report)			
Title:	Geophysical Survey: Land at Kitcheners Field, Berkhamsted, Hertfordshire		
Serial title & volume:	ASC Ltd Report ref. 1341/BKF/01		
Author(s):	A Hancock		
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