

**LAND AT STANTONBURY PARK,  
MILTON KEYNES**

**NON-INTRUSIVE  
ARCHAEOLOGICAL  
FIELD EVALUATION**

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## **Preface**

*Every effort has been made in the preparation of this document to provide as complete an assessment as possible, within the terms of the Brief and Project Design. All statements and opinions in this document are offered in good faith. Neither Albion Archaeology nor Archaeological Services (WYAS) can accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document. All statements and opinions in this document are offered in good faith.*

*Research for the desk-based assessment was carried out by Caroline Clarke (Assistant Archaeological Supervisor). Geophysical Survey was undertaken by specialist sub-contractor Archaeological Services (WYAS), with fieldwork by A Hancock, T Harrison, T Schofield and A Webb. The report was prepared by Gary Edmondson and Caroline Clarke with graphics by Joan Lightning. The geophysical section summarises the report produced by A Webb and A Hancock. All Albion Archaeology projects are under the overall management of Drew Shotliff (Operations Manager).*

*Albion Archaeology would like to acknowledge the assistance of land owners Mr Randall, MK Angling, Genesis Holdings and their tenants Mr J and Mr C Gurney, the staff of Pegasus Planning and the Milton Keynes Archaeological Officer B Giggins.*

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## **Structure of the Report**

*The Non-Technical Summary provides an outline of the results and conclusions of the non-intrusive stages of the archaeological evaluation. This is followed by Section 1, an introduction, providing the planning and archaeological background to the project. The methodology and results of the desk-based assessment and geophysical survey are detailed in Sections 2 and 3 respectively. An overview of the results of the evaluation is presented in Section 4. Known archaeological sites in the vicinity of the Development Area are listed in Appendices 1-3. Technical information, location and archive details for the geophysical survey are included as Appendices 5, 6 and 7.*



## Key Terms

Throughout this report the following terms or abbreviations are used:

<i>Albion</i>	Albion Archaeology
<i>Brief</i>	Document: <i>Land at Stantonbury Park Brief for the Archaeological Field Evaluation</i>
<i>MKAO</i>	Milton Keynes Archaeological Officer
<i>Client</i>	Pegasus Planning Group on behalf of Genesis Holdings Ltd
<i>IFA</i>	Institute of Field Archaeologists
<i>Procedures Manual</i>	<i>Procedures Manual Volume 1 Fieldwork</i> , 2 <sup>nd</sup> ed.2002 Albion Archaeology
<i>Project Design</i>	Document: <i>Land at Stantonbury Park, Milton Keynes. Project Design for Archaeological Field Evaluation. Report No. 2004/84</i>
<i>Development Area / Site</i>	80 hectare area subject of the planning application
<i>'Core' development area</i>	20 hectares of land, which will form the focus of the development



## **Non-Technical Summary**

*Albion Archaeology was commissioned by Pegasus Planning Group on behalf of their client Genesis Holdings Ltd to undertake the archaeological evaluation of approximately 80 hectares of land on the northern edge of Milton Keynes. Situated north of Wolverton Road, the site is centred on National Grid Reference SP (4/2) 8370 4280. The evaluation is being undertaken in order to determine the archaeological impact of a proposed residential development and associated landscaping.*

*The Development Area comprises three blocks of land, which are under separate ownership. The largest land block is situated in the east, being referred to as the 'Core' development area, as this is the focus of the proposed development. To the west, beyond the Grand Union Canal, the site continues as a narrow strip of land comprising two land blocks adjacent to the River Great Ouse. The areas to the east and west of the river are under different ownership.*

*This report presents the results of a non-intrusive archaeological field evaluation. A desk-based assessment of the whole Development Area examined the previously recorded historical and archaeological sites in the vicinity. Following discussions with the Milton Keynes Archaeological Officer, a strategy was formulated which targeted those areas which would be affected by the proposed development. Three areas were identified comprising the 'Core' development area, adjacent to Wolverton Road, the site of a pond and an area of tree planting.*

*At the time of the non-intrusive survey the eastern area was grassland, grazed by livestock, though traces of ridge and furrow earthworks, typical of medieval cultivation, indicate former arable land. The central and western areas were also grassland, with evidence of disturbance in the latter area.*

### **Desk-Based Assessment**

*In order to determine the archaeological potential of the site, a transect across the river valley was selected, with all previously recorded sites being examined to characterise the landscape. A variety of sources held in Buckinghamshire County Record Office and the Milton Keynes Sites and Monuments Record were consulted. This indicates that the Development Area is within a landscape containing extensive Roman and medieval remains, though evidence indicates that the varied resources of the river valley were a focus of human activity for a considerably longer period, with sites of prehistoric to post-medieval date being identified in the vicinity.*

*The main focus of activity is within the 'Core' development area, with an element of the medieval village of Stantonbury extending into the northern margin of the area. The earthworks of the medieval and later manor house survive in this area, as do traces of medieval arable cultivation, particularly in the area to the south of the canal, indicated by the undulating earthworks of ridge and furrow cultivation. Interrupted by the ridge and furrow cultivation earthworks were traces of a sunken routeway or hollow-way, aligned roughly north-south. This appears intermittently on aerial photographs, though is shown on post-medieval maps of the area. It would*





*appear that in the medieval period the routeway had shifted further to the west, defining the junction of two fields.*

*Within the 'core' area south of the canal, a series of extensive depressions are visible on the western margin, which also appear on aerial photographs from the 1940s. These features are interpreted as quarries of unknown date for the extraction of the Blisworth limestone which outcrops in this area of the promontory.*

*Since the 1960s the margins of the Development Area have been affected by quarrying particularly in the west and north. In the south, development of Milton Keynes has encroached on the area, though there has been little development within the site.*

### **Geophysical Survey**

*A geophysical (fluxgate gradiometer) survey was undertaken in two episodes between late August and early September 2004, targeting the three areas of proposed development within the eastern area.*

*On the promontory in the north-western part of this area – the site of proposed tree planting – detailed survey revealed a series of well-defined anomalies adjacent to the extensive depressions interpreted as quarries. The pattern of the results indicates two possibly sequential enclosure systems, defined by ditches. Within at least one of the enclosures traces of a rectilinear building as well as possible industrial activity, was defined. This site was previously unrecorded.*

*The proposed location of the linear pond, situated on lower ground east of the trees and south of the canal was also subject to detailed survey. Only slight traces of possible human activity were defined, though the possible continuation of the sunken routeway (hollow-way) and associated activity were defined in the area immediately to the west.*

*The main 'Core' development area on the high ground in the south includes the 1991 evaluation area. This area was initially scanned, with the results being used to locate a total of seven blocks of detailed survey. Apart from identification of the sunken routeway, the main anomalies were the closely spaced roughly linear anomalies characteristic of ridge and furrow earthworks, typical of medieval arable cultivation. A small number of probably later features were also identified. It was not possible to identify the 1991 evaluation trenches or the features detected within them, especially in the west of the area, where the main concentration of features was recorded in 1991. This is probably due to a lack of magnetic contrast within the relatively shallow features.*

### **Conclusions**

*Previously recorded sites indicate that the vicinity of the Development Area was a focus of activity in the Roman and medieval periods, with evidence of activity extending from prehistoric times to the post-medieval period. The desk-based assessment suggests limited archaeological potential for the linear areas in the west*



*adjacent to the river. In the east the archaeological potential is greater though spatially variable. This area is crossed by a sunken routeway or hollow-way. In the medieval period the bulk of the area south of the Grand Union Canal – the focus of the proposed development was arable land associated with the medieval settlement of Stantonbury, which lay to the north. The geophysical survey has identified a previously unrecorded, probable settlement site, situated on the promontory overlooking the river. The combination of the results of the non-intrusive stages and previous trial excavation of a small area adjacent to Stantonbury Park Farm suggests that the ‘Core’ development area has low archaeological potential.*

*In order to determine fully the archaeological potential of those areas that will be affected by the proposed development, a programme of trial excavation, undertaken in accordance with the Project Design, will be required to characterise the features. This will assist in determining the state of preservation and significance of the archaeological remains, allowing an appropriate mitigation strategy to be formulated.*

*The site archive, which contains all records of the project (Project number ST 1026), is currently held at St Mary’s Church, Bedford. It will eventually be transferred to Buckinghamshire Museum, under Accession Number 2004.128.*

**It is essential that the above summary is read in conjunction with the main body of the report.**



## 1. INTRODUCTION

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### 1.1 Background

The Milton Keynes Archaeological Officer (MKAO) has advised that the area covered by the proposed development is archaeologically sensitive.

Consequently archaeological evaluation would be necessary to determine the impact of the proposed development. The *MKAO* has issued a Brief entitled *Land at Stantonbury Park: Brief for the Archaeological Field Evaluation (12<sup>th</sup> August 2004)*.

Albion Archaeology has been commissioned by the *client* to undertake a phased evaluation to establish the extent and condition of any archaeological sites within the proposed application area. This information will allow the impact of the proposed development to be assessed and appropriate mitigation measures to be devised.

A *Project Design* for the archaeological evaluation was prepared by Albion Archaeology, following discussion with the MKAO.

### 1.2 Site Location and Description

The site is located on the northern edges of Milton Keynes, with the ‘Core’ development area centred on Ordnance Survey grid reference SP (4/2) 8400 4220 (Figure 1). The total area of the site is approximately 80 hectares.

Approximately 20 hectares comprising the ‘Core’ development area will be significantly affected by the development proposal. The majority of the rest of the site will remain open space, largely unaffected by the proposed development and has been excluded from geophysical survey. If, however, at some future date any of the excluded areas should be incorporated in the development, they will require archaeological evaluation in order to determine the likely impact of the proposed development.

For ease of reference, the site may be broken down into three areas (Figure 1). Situated on the southern side of the meandering course of the River Great Ouse, the eastern area extends from c.60m above Ordnance Datum on the northern edge of the site to c.82m at the summit of a promontory, which extends northwards into the river valley. This area is bisected by the meandering route of the Grand Union Canal, which roughly follows the 70m contour at the base of the promontory.

The central and western areas comprise a narrow linear strip of land within the flood plain of the river. This area is generally level at c.60m above Ordnance Datum. However, part of the westernmost area, adjacent an area of former quarrying, has a distinctive though gradual slope downward away from the river, to the quarry.



The geology of the area is variable, with a complex sequence of deposits identified on the crest and slopes of the promontory. In contrast the western area, situated on the floor of the river valley, comprises alluvial deposits which overlie sands, gravels and other river terrace deposits. The summit of the promontory is capped by Boulder Clay, though the 1991 evaluation also indicated sands and gravels in this area. The western slope of the promontory comprises fine grey sands of the Kellaways Beds, above Cornbrash limestone and Blisworth Clay, with Blisworth Limestone in the area of the canal. The northern and eastern slopes of the promontory comprise sands and gravels, with a band of Blisworth limestone roughly corresponding to the 70m contour. North of the canal, sands and gravels form the main deposit with limited outcrop of variegated mudstones and silt of the Upper Estuarine Series. This outcrop contains a spring.

The adjacent area has been greatly altered by a combination of recent, extensive quarrying of sand and gravel in the flood plain (creating a series of lakes) and the encroachment of urban development on the higher ground to the south.

In late 2004 the area was grassland, grazed by livestock, though traces of ridge and furrow earthworks, typical of medieval cultivation, indicate former arable land.

### **1.3 Archaeological Background**

The Development Area is within a landscape containing extensive Roman and medieval remains, though evidence indicates that the varied resources of the river valley were a focus for human activity for a considerably longer period. Sites of prehistoric to post-medieval date have been identified in the vicinity. Immediately north of the site, adjacent to the ruins of the church was the medieval village of Stantonbury. The low earthworks of the settlement survived until the majority were destroyed by quarrying in the 1960s.

Immediately to the south-west of the church, within the site are a series of earthworks, which have been identified as the formal gardens of the medieval and later manor house. A detailed survey of these features was recently undertaken by English Heritage, though this area has been a focus of intermittent investigation for at least the previous 60 years.

Until the Second World War, the ridge and furrow earthworks of the fields associated with the medieval settlement were visible, clearly depicted on aerial photographs from the 1940s. These indicate an earlier sunken routeway or hollow-way, which may have its origins at least as early as the Roman period, linked a series of sites which continued northwards beyond the river valley. By the medieval period this routeway would appear to have shifted further to the west, defining the junction of two fields. In advance of quarrying, part of a late Iron Age to Roman settlement at Stanton Low was investigated as part of an intermittent rescue excavation.



In 1991 an archaeological evaluation of the area to the south-west of Stantonbury Park Farm was undertaken, revealing evidence of Roman and later activity. The main concentration was to the western limit of the Development Area (Figure 1).

The area has evidence of activity ranging in date from the prehistoric to post-medieval period. This evidence suggests that the main phase of activity was in the medieval period.

#### **1.4 Non-Intrusive Stages of the Archaeological Evaluation**

Two stages were undertaken: desk-based assessment and geophysical survey. As the land was under pasture, surface artefact collection – the systematic collection of artefacts from the surface of the ground, usually recently ploughed, was not possible.

Following discussion with the MKAO, it was agreed that only those areas likely to be significantly affected by the proposed development or associated activity would be evaluated. Open space, unaffected by the development would not be subject to evaluation. However, if any of the areas excluded from the initial evaluation were likely to be affected by revised proposals, any such areas would have to be evaluated in accordance with the Project Design.



## 2. DESK-BASED ASSESSMENT

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### 2.1 Introduction

By examining previously recorded sites in the vicinity, it is possible to gain an impression of the archaeological potential of the Development Area. This assessment was undertaken, in accordance with the *Archaeological Brief*, issued by the *MKAO*. A variety of sources held in Buckinghamshire County Record Office and the Milton Keynes Sites and Monuments Record (SMR) were consulted. The SMR lists all known archaeological sites in the borough of Milton Keynes. All the relevant aerial photographs held at the SMR were also examined. A visit was made to the County Record Office in order to examine the historic maps of the area.

In order to characterise the archaeological potential of the Development Area, a search of SMR sites in the adjacent segment of the valley of the River Great Ouse was undertaken. This search took note of the predominant north-south trend in the distribution of these sites. This approach was considered to provide the most appropriate means of accurately characterising the area.

### 2.2 Previous Archaeological Work

The vicinity of the Development Area has been an intermittent focus of archaeological investigation for over 60 years, ranging from small investigations of specific features to attempts to record extensive former settlements during mineral extraction (black squares on Figure 2 and Appendix 1).

#### 2.2.1 Within the Development Area

Only the eastern area has been the subject of recorded investigation, with the main concentration being in the area north of the canal.

##### 2.2.1.1 1991 Evaluation (SMR Event 160 = SMR 4399/4400)

An area immediately to the west of Stantonbury Park Farm was evaluated by the Oxford Archaeological Unit in 1991<sup>1</sup>. The area extended up to 450m along the A422 Wolverton Road by a maximum 290m wide, tapering to the south-west (Figure 1). The evaluation consisted of trial excavation with a total of 25 trenches being opened. Archaeological features were exposed at a depth of between 0.45 and 0.7m below the existing ground level. Six of the trenches contained archaeological features, predominantly ditches, with the main concentration being situated close to the western boundary of the evaluation area. Some of these ditches may have been associated with the hollow-way or sunken trackway visible further to the north as a linear depression (Figure 4).

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<sup>1</sup> Oxford Archaeological Unit 1991 Stantonbury Park Farm, Great Linford County Park, Buckinghamshire An Archaeological Evaluation of the proposed Housing Development Area Technical Appendix 4 of Environmental Statement.



This area is overlain by medieval ridge and furrow cultivation earthworks. It is possible that this routeway may have a Roman origin.

Pottery indicated evidence for Roman and medieval activity, with a single pottery sherd of possible Saxon date also being recovered.

#### **2.2.1.2 Garden earthworks survey (SMR Event 898)**

In 2003 English Heritage undertook the survey of a series of earthworks located immediately to the south-west of St Peter's church<sup>2</sup>. The earthworks extend for c.250m north-south along the eastern bank of the river, extending inland for approximately 100m, to cover an area of c.2.5 hectares. These earthworks are interpreted as the remains of an elaborate series of formal gardens associated with the manor house. As documentary records refer to gardens associated with the manor house from the early 14<sup>th</sup> century onwards, this would indicate that at least elements of the gardens were established at this date, though the surviving earthworks suggest a formal garden of later date, which was probably associated with a later form of the manor house, after 1666.

Several small scale investigations have been noted in the area of the church and garden earthworks, although details are scarce.

#### **2.2.1.3 1930s excavations (SMR Event 5)**

Mr Alfred Bullard undertook investigations in the area to the south and west of the church. He reported the discovery of a tunnel, though this may be a structure associated with the manor house. The location of this site is uncertain.

#### **2.2.1.4 Excavation in 1939**

In 1939 the Workers Education Association excavated a trench into the mound situated in the north-western area of the garden. This confirmed that the mound was an artificial structure, though no further details are available. The location of the backfilled trench is still clearly visible as a depression at the summit of the mound.

#### **2.2.1.5 Excavation in 1959**

In 1959 G K Tull opened several trenches in the vicinity of the ruined church, enhancing the understanding of the development of the building.

### **2.2.2 Adjacent Area**

Land to the north of the eastern area has been a major focus of archaeological investigation, particularly in the 1960s when mineral extraction destroyed large areas of archaeological remains.

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<sup>2</sup> English Heritage 2004 Stantonbury Manor Milton Keynes AI/10/2004



### 2.2.2.1 *Stanton Low (SMR Event 7 = SMR 831)*

Although most of the site was destroyed without record during mineral extraction, intermittent excavation and recording was undertaken between 1957 and 1960<sup>3</sup>. From this incomplete record, evidence for a sequence of activity was identified, extending from the middle Iron Age to the later Roman period. A series of boundaries were established from the late Iron Age, with associated features including buildings and kilns. By the early Roman period a series of stone buildings had been established with associated timber structures, including buildings as well as a possible bridge and wharf. This activity was associated with cemeteries. Building II was elaborate, containing an underfloor heating system and traces of mosaic floor and wall painting, indicative of a high status building. The last recorded traces of activity in this area were date to the late 4<sup>th</sup> century AD.

### 2.2.2.2 *Deserted medieval village of Stantonbury (SMR Event 53 equates to SMR 818, 819 and individual house platforms SMR 6267, 6268, 6269 and 6270)*

In March 1967, a short watching brief was permitted by the quarry company during extraction of minerals within the village site<sup>4</sup>. The partial plan of one of the buildings was recorded, indicating that at least the wall foundations were composed of the local limestone. A variety of artefacts were recovered, mostly from unstratified deposits.

### 2.2.2.3 *St Peter's Church (SMR Event 795)*

The church was the subject of a programme of survey and excavation in 2000. Following the collapse of the roof in 1956 the surviving fabric deteriorated rapidly. In response the programme of work was instigated. Two test pits were excavated within the church to assess the condition of the remains.

## 2.3 *SMR Sites*

The search of the previously recorded sites indicated a small number within the Development Area, with more considerable concentrations being identified in the areas beyond, particularly to the north and east (Figure 2). Initially the sites within the Development Area will be discussed, followed by those in the adjacent area.

In order to simplify the multitude of SMR numbers assigned to components of some of the sites, Appendices 1-3 utilise a hierarchical system. The first entry for complex sites is used to identify the site, with components such as specific artefacts listed in the descriptive section of the entry. For example the complex site **SMR 784** on page 33 of Appendix 3, contains **SMR 787**, a

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<sup>3</sup> Woodfield C with Johnson C 1989 A Roman site at Stanton Low on the Great Ouse, Buckinghamshire The Archaeological Journal

<sup>4</sup> Maynard D C 1977 Rescue excavations at the Deserted Medieval Village of Stantonbury, Bucks Records Of Buckinghamshire Volume XIX





specific artefact from the site is mentioned in the descriptive component of the entry.

### 2.3.1 Sites within the Development Area

A total of 11 sites have been identified within the limits of the Development Area, concentrated in the eastern area (Figure 2 and Appendix 2). These range in date from the Roman to the post-medieval period, with the majority being in the medieval period (Table 1 below).

Chronological period	Number of sites	Excavation	Findspot	Cropmarks	Earthwork	Structure
Roman	1	-	1	-	-	-
Medieval	5	1	1	-	1	1 dovecote 1 watermill
Post-medieval	2	-	-	-	1	1 rifle butts
Unknown	3	1 trackway with no dating evidence	-	2	-	-

Table 1 Summary of SMR sites within the Development Area.

#### 2.3.1.1 Roman

The only definite Roman site was identified in the area adjacent to Stantonbury Park Farm (**SMR 4399**) during the archaeological evaluation (**SMR event 160**). A small assemblage of artefacts was recovered. It is possible that the trackway **SMR 4400** also originated in the Roman period.

#### 2.3.1.2 Medieval

The five medieval sites range from buildings and structures associated with the former village of Stantonbury, that were recorded in historical documents but are no longer visible to features identified during an excavation (**SMR 824**; **SMR event 5**). **SMR 3145** identified the site of a watermill. Medieval and possibly Saxon artefacts were recovered from the evaluation near Stantonbury Park Farm (**SMR 4399**). The final site is earthworks of the medieval garden associated with manor house (**SMR 826**).

#### 2.3.1.3 Post-medieval

**SMR 6264** refers to post-medieval earthworks of the garden of the manor house, whilst **SMR 5909** defines the location of rifle range, which extended from the central to eastern areas of the site.

#### 2.3.1.4 Unknown

Of the three sites two are visible as cropmarks (**SMR 905** and **906**). Originally these 'ring ditches' were thought to possibly be the locations of prehistoric burial sites, though they would now appear not to be the result of human activity. The third site is the trackway (**SMR 4400**) identified during the evaluation near Stantonbury Park Farm.



### 2.3.2 Sites in the vicinity of the Development Area

A variety of previously recorded sites, range in date from prehistoric to post-medieval, with the majority belonging to the Roman or medieval periods (Figure 2, Table 2 below). The format of the records suggests that Iron Age sites are particularly underrepresented, often being masked by later settlement.

Chronological period	Number of sites	Excavation	Findspot	Earthwork	Structure
Prehistoric	3	-	2	1	-
Bronze Age	1	-	-	1	-
Iron Age	1	1	-	-	-
Roman	11	4	7	-	-
Medieval	19	2	7	5	2 watermills 1 church 1 track 1 parish
Post-medieval	6	-	2	-	2 watermill 1 farmhouse 1 stone building
Unknown	3	-	1	2	-

Table 2 Summary of SMR site adjacent to the Development Area

#### 2.3.2.1 Prehistoric and Bronze Age sites.

The prehistoric and Bronze Age sites were located to the north and north-east of the Development Area. A leaf shaped flint arrowhead findspot (**SMR 809**) was dredged up on the northern side of the River Great Ouse at Haversham Mill, along with a small collection of Roman and post-medieval artefacts (**SMR 807** and **808**). Located to the east of the findspot is **SMR 918**, described as a Bronze Age site, by the Ordnance Survey. No earthworks appear to have survived and the site is not visible on any of the available aerial photographs. However, the area of the site may be respected by the later ridge and furrow earthworks. To the east of the Bronze Age site located on the southern side of the river was a mound **SMR 1925** marked on an estate map of 1641 as “the lowe hill”. The earthwork is thought to have been a tumulus or burial mound, which was destroyed around 1958 during gravel extraction. Two skeletons were reported to have been seen beneath the mound by a workman during quarrying.

#### 2.3.2.2 Iron Age site.

Most of the excavated sites dated to the Roman period have origins in the late Iron Age (e.g. **SMR 784**). However, **SMR 831** (equating to **SMR event 7**) was an extensive settlement partly investigated between 1957 and 1960 – see Section 2.2.2.1 above. Although originating in the middle Iron Age, extensive late Iron Age settlement was identified. The settlement was located on the southern side of the river. Several buildings of uncertain date were identified, including five roundhouses, and a pottery kiln. Artefacts included coins from the Iron Age period right through to the late Roman period, a hair comb and



some Iron Age pot sherds. The site continued to be occupied into the late Roman period (SMR 834).

### 2.3.2.3 Roman sites.

The Roman sites are scattered in a vaguely north-western to south-eastern alignment, both to the north and south of the river. A total of four sites were excavated either as rescue excavations or during utilities maintenance and construction, such as pipe trenches. Most of the Roman sites appear to have origins in the late Iron Age and are all occupational in character, with elements of associated industrial and agricultural production.

The Roman settlement site **SMR 834** is a continuation of the earlier Iron Age settlement (SMR 831) and equates to **SMR event 7**. The early phase of this settlement was characterised by land management in the form of a drainage scheme, roads and a possible timber bridge. These were followed by timber storehouses, stone founded barns, and an adjoining timber wharf, all of which, were encircled by a cut river channel which enclosed an area of approximately three hectares. An outlying cemetery was also identified. During the 2<sup>nd</sup> to 3<sup>rd</sup> centuries some large high status buildings were constructed, with black and white mosaic floors, painted plaster, hypocaust systems, an associated bath house and tower granary. Towards the end of the 3<sup>rd</sup> century the settlement went through a period of decline, followed by extensive rebuilding during the beginning of the 4<sup>th</sup> century. Finally the settlement declined with slum/industrial (iron working) conditions prevailing within the site.

The Romano-British settlement site **SMR 784** had beginnings in the late Iron Age. This site was substantial in size; its focal point was probably the present Hill Farm. The most important Roman building may be located under the present granary, as floor lowering in this building revealed a wide, well faced stone wall, with associated floor which contained domestic debris including imported Samian pottery sherds. Excavations to the rear of the granary found sealed beneath the post-medieval layers, a hard packed floor associated with a quantity of 1<sup>st</sup> century AD pottery sherds. Other artefacts from the site included coins, a steelyard weight in the form of the head of a goddess, bronze fragments, bronze and bone pins and the partial remains of a spoon.

Two further sites were identified during ditch maintenance and pipe laying work. **SMR 883** was located on The Ridgeway and revealed some dressed stone, mortar and wall plaster. A concentration of Roman pottery sherds was also found together with a 4<sup>th</sup> century AD coin. The remains of a building and associated rubbish pit **SMR 799** were located within Mill Pasture Field. The rubbish pit contained pottery sherds and oyster shell; also recovered with the building was a hypocaust brick. Located a little higher up the valley to the building were the remains of what is thought to be a Roman timber bridge. The bridge had Roman pottery sherds within its structure.



Scattered between the Roman settlement sites were six artefact findspots; **SMR 807, 830, 902, 938, 4285, 5666** and **6639**. Possibly the most important findspot is **SMR 830** located at Stanton Low. It was a tiled floor, identified by a farmer during the digging of postholes. It is possible that the tiled floor may have been a mosaic. The other finds located around the area consist largely of small metal objects, coins and Roman pottery sherds.

#### **2.3.2.4 Medieval sites.**

The medieval sites were loosely concentrated within the south-western part of the area, on the site of a medieval village, but structures, artefact findspots and an excavation were present to the north and the east. Most of the medieval sites, however, were restricted to the southern side of the river.

The larger of the two excavations **SMR 818** and **819** was a very limited watching brief of part of the village during destruction associated with mineral extraction (**SMR event 53**). The site of the medieval village was deserted during the 16<sup>th</sup> century when the Lord of the Manor converted much of the area to pasture. Rectangular shaped medieval house platforms were present, associated with collections of medieval pottery sherds and some metal artefacts. The smaller of the two excavations **SMR 4286** was carried out during the digging of sluices and a dyke for the Wild Fowl Centre, and comprised two metalled trackways of medieval to post-medieval date.

Seven artefact findspots were dispersed across the area, including a bone flute, a sword handle or hilt, a woodman's axe and a fishing weight. Three of the findspots were in the area of the medieval village **SMR 853, 4259** and **4260**. **SMR 5238** was recovered during river dredging, whilst **SMR 4132** and **4140** were isolated findspots. It is possible that the grid reference for **SMR 5240** is incorrect.

Earthworks were restricted to medieval house platforms in the location of the village (**SMR 6267, 6268, 6269** and **6270**). The house platforms **SMR 6267** and **6268** were destroyed by gravel extraction; the latter two house platforms **SMR 6269** and **6270** may have been destroyed by gravel extraction, though this is not certain.

Structures were represented by two water mills, Haversham / Carrs Mill **SMR 1149** and Linford Mill **SMR 4150**. Neither structure is still standing and their locations are now uncertain, though old Ordnance Survey maps show a complex series of leats and water courses which may have served the mills. (Gravel extraction in that area has now made those features unidentifiable). **SMR 1126** represents the now defunct parish of Stantonbury, which is now split between Milton Keynes and Haversham cum Little Linford parish. A metalled track is defined by **SMR 4284**.

#### ***Post-Medieval Sites***



Post-medieval activity across the area is comparatively limited, with the bulk of the sites to the north of the river and the site of the medieval village.

Two artefact findspots were noted, with **SMR 808** a ceramic funnel or fish weight, recovered by dredging of the river near Haversham Mill. This artefact was recovered along with Roman and prehistoric finds (SMR 807, 6038 and 809). **SMR 4490**, situated to the east of the river, consists of a rubbish pit containing 19<sup>th</sup> century artefacts.

Four structures dating to the post-medieval period have been identified. A long stone built structure **SMR 6265** located near the medieval village, to the north-west of the church. This was probably used for shelter and or other agricultural purposes. Situated to the north of the river at Haversham is a Grade II listed 19<sup>th</sup> century farm house **SMR 5411**. Two mills are defined, comprising Haversham Mill **SMR 1148** and **SMR 4133** Helwall Mill.

## **2.4 Buildings within the Development Area**

The only buildings within the Development Area are situated in the eastern area adjacent to Wolverton Road. Stantonbury Park Farm (east of the older Stantonbury Farm) is relatively recent in date, not appearing on early editions of the Ordnance Survey map or 1940s aerial photographs, whilst the farm buildings to the rear are recent additions.

## **2.5 Historic Maps and Aerial Photographs**

A number of maps are available for the area, though the early maps only provide limited detail. For the later maps the detail is discussed in terms of the three current land holdings, 'eastern', 'central' and 'western' as shown on Figure 1.

### **2.5.1 Jefferys map of the 1760s**

The earliest map of the area is the Jefferys map of the 1760s. The only buildings depicted on the map are the church and a house situated a short distance to the south. The eastern area is crossed by several routeways, comprising a roughly north-south route extending from a crossing point on the River Great Ouse, passing east of the church and extending to a crossroads immediately south of the site. The second route extends south-eastwards from the vicinity of the church.

The north-south routeway appears to correspond to the junction of two fields visible on aerial photographs, rather than the sunken routeway. The second routeway survives to the present as a metalled track.

Although generally the Jeffreys map shows little detail, a rectilinear land parcel is depicted to the east of the church, bisected by the north-south routeway. This corresponds to a distinctive area on aerial photographs which unlike the adjacent area only contains slight traces of ridge and furrow cultivation. The significance of this feature is uncertain.



## **2.5.2 Ordnance Survey draft of c.1815**

The next available map is an Ordnance Survey draft of c.1815 held by the County Record Office. This map has more detail than the previous map, defining land divisions (Figure 3). The main change is in the eastern area, with the constructing of the canal and associated developments such as the wharf. The routeways are still present though a bridge has been erected to cross over the canal.

### **2.5.2.1 Eastern area**

South of the canal two land parcels of contrasting size are defined, with a small area of trees adjacent to the road. North of the canal four land parcels are defined, the central pair being bisected by the oblique routeway. The central-eastern land parcel corresponds to the enclosure depicted on the previous map. The only building shown is the church with possible indications of the garden adjacent to the river.

Although generally fairly accurate, the depiction of the route of the canal diverges significantly from the actual route in the area of the promontory.

### **2.5.2.2 Central area**

A series of small land parcels are depicted in this area.

### **2.5.2.3 Western area**

This area consists of two land parcels, of contrasting size.

## **2.5.3 Bryant 1820s**

This has less detail than the 1815 Ordnance Survey draft, depicting major features but not land divisions. A feature is indicated in the area of the gardens south-west of the church. Stantonbury Farm is shown in the area close to the road.

## **2.5.4 1<sup>st</sup> Edition Ordnance Survey 1881 25" to the mile**

The Development Area is shown on three map sheets. IX 5, 8 and 12. There are a number of changes compared to the draft map of 1815.

### **2.5.4.1 Eastern area**

South of the canal, the area had been subdivided with the creation of smaller land parcels to the north of Stantonbury Farm. The continuation of the track across this area is no longer shown. There is little change in the land parcels north of the canal. However, the pattern of trees suggests the presence of small land parcels in this area.

### **2.5.4.2 Central area**

Several of the small land parcels in this area have been amalgamated to create large units. This area is designated a rifle range for the '1<sup>st</sup> Bucks



Volunteers', which extends across this area, to the targets situated in earthworks to the south of the garden, near the canal.

#### **2.5.4.3 Western area**

The two land parcels are unchanged, though the area is identified as being liable to flood.

### **2.5.5 2<sup>nd</sup> Edition Ordnance Survey 1900**

A number of changes have occurred particularly in the eastern area.

#### **2.5.5.1 Eastern area**

The land parcel north of Stantonbury Farm had been subdivided. In the east immediately south of Wolverton Road, a quarry is depicted labelled as 'old quarry'. This did not appear on the 1881 map.

North of the canal the mound and some of the earthworks associated with the former garden are depicted.

#### **2.5.5.2 Central area**

No significant changes.

#### **2.5.5.3 Western area**

No changes, though the boundary between the two parcels is shown as draining down to the river.

This edition of the map depicts few trees, with a general absence of isolated examples. Immediately adjacent to the Development Area, only minor changes occurred at Stantonbury wharf.

### **2.5.6 Later revisions 1925 and 1938**

The whole area was revised in 1925, with the Wolverton sheet XI12 also being revised in 1938.

#### **2.5.6.1 Eastern area**

South of the canal a new land parcel east of Stantonbury Farm was defined, associated with buildings. The land parcel north of this area was also apparently modified with former land parcels being amalgamated.

North of the canal the only alterations were associated with the subdivision of some smaller land parcels.

Between 1900 and 1925 the cemetery to the south of Wolverton Road was established. There was significant reorganisation of Stantonbury wharf in the period after 1900.

#### **2.5.6.2 Central area**

No significant changes.



### 2.5.6.3 *Western area*

No changes.

## 2.6 *Aerial Photographs*

Elements of two sets of vertical black and white photographs of the site, taken in 1946 approximately four months apart were examined. Those taken in June had high angle illumination, leading to low contrast. However, those taken in October (4029 and 4030) had a lower angle of illumination, defining a variety of low earthworks (Figure 4). There is, however, no coverage of the western part of the Development Area in this photographic run.

The June images provide little detail, though image 4244 indicates a linear white band of material within the western area, parallel to the northern bank of the river. This would appear to be material scoured from the river during cleaning. Very faint features, appearing as lighter vegetation marks can be seen in the area of the garden.

In contrast the October 1946 image 4030 contains a variety of detail revealed by the low level lighting (Figure 4). Traces of the parallel closely spaced sinuous earthworks, characteristic of medieval cultivation, are clearly visible across the eastern part of the area, with elements of two fields, indicated by the perpendicular orientation of the cultivation furrows. In the north of the area adjacent to the church, traces of the garden earthworks are visible in the west, whilst in the east, a variety of earthworks which probably relate to the southern margin of the medieval settlement of Stantonbury are defined. At this time the remains of the medieval settlement still survived to the north of the Development Area.

Towards the centre of the eastern part of the Development Area, the furrows are less clearly defined – this corresponds to the rectangular enclosure on the 1760s map. In this area the linear hollow-way is clear, however, the southern continuation to Wolverton Road appears to be masked by the ridge and furrow earthworks.

In the eastern area, on the western margin of the promontory, overlooking the canal, several well-defined regular depressions are visible, the largest being in the north (Figure 4). These would appear to be a series of quarries, probably exploiting an outcrop of limestone.

## 2.7 *Summary*

The available maps and aerial photographs show little detail within the Development Area, apart from the northern margin of the eastern area and the apparent movement of the north-south routeway. The aerial photographic evidence in particular suggests that following arable cultivation from at least the medieval period, most of the area appears to have been under grass for a considerable period of time.





### 3. GEOPHYSICAL SURVEY

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#### 3.1 Introduction

Albion commissioned specialist sub-contractor Archaeological Services (WYAS) to undertake a geophysical survey of the areas likely to be affected by the proposed development. Following discussions with the *MKAO* and *client* three areas were identified for geophysical survey. Magnetic scanning was undertaken across the 'Core' development area followed by selected detailed survey. Detailed survey was carried out over the approximate location of the two discrete areas to the north comprising an area of proposed tree planting in the west and a pond site in the east (Figure 5).

The primary objective of the geophysical survey was to establish the presence, absence, extent and nature of any archaeological anomalies within the 'Core' development area. This was to be achieved by magnetic scanning of the whole area (20 hectares) followed by selected detailed survey.

Additionally detailed survey was carried out at two locations outside the 'Core' development area to the south of the canal, where it is proposed to plant a stand of trees and create a pond. Both these blocks were approximately 1.2 hectares in area, although the survey was expanded to cover approximately 2 hectares in the proposed tree-planting zone to help define the extent of the archaeological remains.

The majority of the fieldwork was undertaken between August 23<sup>rd</sup> and August 27<sup>th</sup> 2004. A second phase of survey was carried out between September 6<sup>th</sup> and September 9<sup>th</sup> once the preferred location of the pond had been determined. No problems were encountered during the survey although parts of the proposed tree-planting zone were unsuitable for survey due to the presence of quarry pits and wire-strand fencing.

The survey is reported in detail in Archaeological Services (WYAS) Report No. 1297. This report should be referred to for individual survey block greyscale and X-Y trace plots.

#### 3.1.1 Technical Details

Technical information on the equipment used, data processing and survey methodologies are given in Appendix 4. Appendix 5 details the survey location information and Appendix 6 describes the composition and location of the archive.

#### 3.1.2 Presentation of the Results

Figure 5 is a survey location plan, showing the greyscale gradiometer data superimposed onto an Ordnance Survey digital base map. Within the 'Core' development area a total of seven blocks of detailed survey were undertaken (Blocks 1 - 7). Detailed survey was also undertaken for the areas designated



for tree-planting and the pond. The data from this is displayed in greyscale format, in Figures 6, 8, 10, 12 and 14. The accompanying interpretations are shown in Figures 7, 9, 11, 13 and 15.

### **3.2 Results of Magnetic Scanning**

Only the 'Core' development area was large enough to require scanning in order to locate targets for detailed survey. The background magnetic soil noise across the whole of the 'Core' development area was extremely low with little obvious variation in any particular part of the site, even across the ridge and furrow and the sunken routeway or hollow-way. Areas were identified where there were an increased number of ferrous (iron spike) responses and where the magnetic background was observed to be particularly variable. Blocks of detailed survey were positioned to sample these areas. Other blocks were located to sample the hollow-way and a cluster of evaluation trenches containing identified archaeological features. The remainder were positioned in order to give a representative sample of all parts of the site.

### **3.3 Results and Discussion of Detailed Scanning**

#### **3.3.1 Area of proposed tree-planting (Figures 6, 7)**

Detailed survey revealed an extensive area of magnetic anomalies, covering most of the survey area, though, in the south-west corner there is little evidence of activity other than for ridge and furrow cultivation. The anomalies are likely to be caused by both infilled cut features, such as ditches or pits, as well as areas of burning and/or industrial activity. The evidence may suggest two superimposed enclosure systems, of contrasting magnetic enhancement.

A variety of features have been identified including a series of enclosures (**A-E** on Figure 7) as well as two possible buildings of apparent rectilinear form (**B** and **C**). Four relatively small and discrete anomalies of particular interest were also identified (**D, F, G** and **H**).

The survey suggests that several of the enclosures are associated, being separated by routeways defined by the enclosure ditches of **Enclosures A** and **E**, which appear as areas of strong magnetic enhancement on Figure 6. The possible rectilinear **Building B**, measuring approximately 12m north-north-west to south-south-east by 8m wide, appears to be centrally located within **Enclosure A**. Immediately north of possible **Building B** is an area of pronounced magnetic enhancement that may be the site of industrial activity. Numerous other discrete magnetic anomalies of varying extent, indicative of settlement or industrial activity, can be seen both within the enclosure and outside to the north and west. Of particular note is the small square anomaly to the west (**Anomaly D**).

A cluster of small discrete anomalies (**F, G** and **H** on Figure 7) are of particular interest, possibly defining an area of industrial activity.



In the northern and eastern parts of the survey area a series of intermittent linear features of lesser magnetic enhancement may define element of a second enclosure system, with a slightly contrasting alignment.

### **3.3.2 Area of proposed pond (Figures 8, 9)**

At the extreme western end of this survey block a cluster of enhanced magnetic anomalies were identified. It is possible that the linear anomalies define the flanking ditches of the northern continuation of the early route of the hollow-way, together with associated activity.

Further east several smaller areas of magnetic enhancement were noted. These may be variations in the geological stratum rather than archaeological features.

Traces of ridge and furrow ploughing are prominent in the field at the eastern end of this block, where they survive as low earthworks. Here, another fairly shallow quarry pit restricted survey over part of the southern extent of the proposed pond.

### **3.3.3 'Core' development area (Figure 8-15)**

#### **3.3.3.1 Block 1 (Figures 8, 9)**

This block straddled the edge of the 'Core' development area and was positioned to sample a section of the hollow-way, visible at this location as a slight earthwork. The feature is also identifiable in the magnetic data, the broad linear area of enhanced readings locating the bank to the west of the track. Other fragmentary discrete areas of enhancement are probably caused by the truncated remains of the bank to the east of the track.

Crossing the trackway at right angles is a negative linear trend. This anomaly was also manifest as a shallow, narrow, linear depression and is interpreted as a modern agricultural feature. Broad linear trends in the eastern half of the block are again due to ridge and furrow ploughing.

#### **3.3.3.2 Block 2 (Figures 8, 9)**

Block 2 was located to sample the field to the north-west of Stantonbury Park Farm. No archaeological anomalies have been identified although linear trends in the data again confirm that ridge and furrow ploughing has taken place.

#### **3.3.3.3 Blocks 3, 4, 5 and 6 (Figures 10-13)**

All four of these blocks were positioned within the 'core' area, predominantly within the area evaluated in 1991. The objective was to provide an even sample distribution across the 'Core' development area and to determine whether the location of the previous trial trenches and the archaeological features identified within them could be detected by magnetic survey.



Anomalies caused by ridge and furrow ploughing can be seen in all four blocks. In Block 3 and at the western edge of Block 4 the ridge and furrow is perpendicular to that seen in all other parts of the site, being aligned broadly from west to east.

The backfilled evaluation trenches do not manifest as magnetic anomalies and no anomalies of a probable archaeological nature have been identified in any of these blocks.

#### **3.3.3.4 Block 7 (Figures 14, 15)**

No anomalies were identified in this block which was positioned to sample an area of variable magnetic background noise. This variation is evident in the data with a distinct boundary being identifiable; the data to the north of this line being much more perturbed than that to the south. Changes in the geology or soils are considered likely to have caused the observed variation.

### **3.4 Conclusions**

The variable geology of the site appears to have influenced the results of the geophysical survey, though these results would appear to provide a reliable indication of the archaeological potential of the surveyed areas.

Within the 'Core' development area the results of the geophysical survey are variable. Little of archaeological potential was revealed during the magnetic scanning and this was borne out by the subsequent detailed survey. However, anomalies caused by ridge and furrow ploughing are present across all parts of the area and the hollow-way is also identifiable due to the areas of magnetic enhancement, where the earthwork banks are reasonably well preserved. More ephemeral magnetic anomalies and a generally more variable magnetic background can be discerned adjacent to the hollow-way although no definite archaeological features can be interpreted. It is possible that there may be archaeological features present that have not been identified by the current survey, such as those identified in the 1991 evaluation trenches. The inability to identify these features is probably due to the features themselves being fairly shallow and the fills not containing much magnetically enhanced material, combined with the masking effect caused by the undulating ridge and furrow topography. Nevertheless, any unidentified archaeological activity within the eastern 'core' area is considered to be fairly limited.

A radically different picture emerges to the north-west of the 'Core' development area, in and around the proposed tree-planting zone. Here, in a well-defined area of more than one hectare, a plethora of magnetic anomalies are indicative of intensive occupational activity. A series of enclosures and possible structures were detected, together with a host of magnetic anomalies likely to be caused by a range of archaeological features, indicative of a range of activities. The extent of the activity has been defined to the north, west and south-west although the eastern and south-eastern extents have not been



delimited by the current surveys although it clearly does not extend into the 'Core' development area. This site was previously unrecorded.

The third area, corresponding to the site of the pond, generally has few areas of magnetic enhancement. However, at the western margin of this survey block, adjacent to the proposed pond site a series of anomalies which possibly define the northern continuation of the hollow-way, were detected.



## 4. CONCLUSION

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### 4.1 Summary

The non-intrusive stages of the evaluation have allowed a better understanding of the archaeological potential of the site. Previously recorded sites in the vicinity indicate that this landscape was the focus of activity in the Roman and medieval periods, with evidence of activity extending from prehistoric times to the post-medieval period.

The desk-based assessment suggests limited archaeological potential for the Western and Central areas adjacent to the river. In the Eastern Area the archaeological potential is greater though spatially variable. This 'Core' development area is crossed by a sunken routeway or hollow-way, whilst in the medieval period the bulk of the area south of the Grand Union Canal – the focus of the proposed development was arable land associated with the medieval settlement of Stantonbury, situated at the northern margin of this area and beyond.

The non-intrusive survey has identified a previously unrecorded, probable settlement site, situated on the promontory overlooking the river. The combination of the results of the non-intrusive stages and previous trial excavation of a small area adjacent to Stantonbury Park Farm would suggest that the activity declines in intensity to the east and south-east of this area.

In order to determine fully the archaeological potential of those areas that will be affected by the proposed development, a programme of trial excavation, undertaken in accordance with the Project Design, will be required. This will assist in determining the state of preservation and significance of any archaeological remains, allowing an appropriate mitigation strategy to be formulated.



## 5. BIBLIOGRAPHY

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## **APPENDICES**





### 5.1.1 APPENDIX 1

#### 5.1.2 Summary of Archaeological Investigations in the vicinity of the Development Area (Events)

Black squares on Figure 2

MK SMR Number	EASTING	NORTHING	DESCRIPTION
5	483555	242736	West end of St Peter's church excavated and evidence for a tower and tunnel found containing human bones. One wall of the north-east chapel was discovered. Also revealed was a section of 100 feet long wall that was believed to be a wall of the manor house. Also see <b>SMR 795</b> .
7	484098	242999	Stanton Low - a significant Roman Villa site of the 1 <sup>st</sup> to 4 <sup>th</sup> century with at least four substantial buildings with cement floors and tessalated floors, painted plaster walls and hypocaust heating located in the river valley adjacent to the river. <b>Equates to SMR 831, 834</b> .
53	483635	242796	Stantonbury Deserted Medieval Village - Limited access permitted partial recording of one building. <b>Equates to SMR 818, 819</b> and individual house platforms <b>SMR 6267, 6268, 6269 and 6270</b>
160	484110	242030	Stantonbury Park Farm -evaluation of proposed housing area located several NW-SE ditches in west of area, one of which was Roman). Other ditches were on the same alignment as ridge and furrow. Several linear features/ditches probably field boundaries but may be related to conjectured Roman Road. Equates to <b>SMR 4399/4400</b>
795	483565	242736	St Peter's church is now a ruin and comprises a chancel and nave with evidence for a tower and chapels on the north and south side. It was erected circa 1170-90. The graveyard survey recorded 28 stones with a date range of 1717 to 1903. Test pits in the nave and chancel located brick paviour floors under a substantial rubble layer. Also see <b>SMR 5</b>
898	483560	242640	Training survey revealed the probable site of the late 17 <sup>th</sup> century manor house and gardens relating to that manor house and its predecessor. Amongst the garden features recorded are a raised walkway with the site of arbours or summer houses at each end, a prospect mound, and an avenue that was possibly part of the 'maze or wilderness'.



### 5.1.3 APPENDIX 2

#### SMR sites within the Development Area

Red dots on Figure 2

MK SMR number	Site Name	Parish	Description	Easting	Northing	Period
824	Stanton Barry / Bury Manor	Stantonbury	In 1086 the manor of Stanton contained 5 hides of land. <b>SMR 825</b> refers to excavation in the area adjacent to the church ( <b>SMR 814</b> ) probably located the cellar for the 17 <sup>th</sup> century manor house. It is possible that the earlier house occupied the same area. Equates to <b>SMR event 5</b> .	483540	242703	Medieval
826	Stantonbury Manor House Garden	Stantonbury	In the area to the south-west of the church ( <b>SMR 814</b> ) a roughly rectangular area of earthworks defines the site of a formal garden. In 1326 the manor included a garden. A distinctive feature in this area is a conical mound (prospect mound) which was investigated in 1939, revealing building debris within the construction layers. ( <b>SMR 827</b> ).  It is possible that a reported find of Roman pottery <b>SMR 829</b> was recovered from the mound.  See also <b>SMR 6264</b>	483544	242661	Medieval
828	Stantonbury Manor Dovecote	Stantonbury	Historic documents of 1326 indicate that the manor included a dovecote. The location is uncertain, though probably close to the medieval manor house.	483547	242618	Medieval – 14 <sup>th</sup> century



905	Circular cropmark	Stantonbury	<p>Cropmarks seen on aerial photographs may indicate the location of a ring ditch, which may define the site of a burial mound. However, no trace of the feature was visible apart from a fungus ring in the vicinity.</p> <p>Probably not an archaeological feature.</p>	483920	242220	Unknown
906	Stantonbury, adjacent canal	Stantonbury	<p>Cropmarks seen on aerial photographs may indicate the location of a ring ditch, which may define the site of a burial mound. However, no trace was visible on ground, though modern disturbance was recorded in the vicinity.</p> <p>This feature is visible above the ridge and furrow earthworks suggesting that it is not archaeological.</p>	483750	242050	Unknown
3145	Stantonbury	Stantonbury	<p>Remains of watermill/s? Fronting the river. Two sections of limestone walling, at right angles 1m below original riverbank level. Nearby is much limestone rubble. 10m E of this site, a dry channel runs parallel to present course of the river – leat of another watermill?</p> <p><b>SMR 3146</b> A mill was listed at Domesday, however, by 1324 the mill was in decay. By 1326 a broken down watermill on Manor (of Stanton) was reported. In 1695 the parish had 3 corn watermills.</p> <p><b>SMR 3147</b> refers to free fishery attached to Manor from 14<sup>th</sup> -17<sup>th</sup> centuries.</p> <p><b>SMR 3148</b> refers to pieces of lava quern from a spread of rubble situated c.70 from the possible mill site. Pieces of lava quern noted in the walls of the ruins of Stantonbury.</p>	483480	242700	Medieval



4399	Stantonbury Park Farm	Stantonbury	<p>During evaluation of area adjacent to Stantonbury Park Farm (<b>SMR event 160</b>) a variety of artefacts were recovered including:          Roman pottery          Possible Saxon pottery          Medieval pottery</p> <p><b>SMR 4400</b> A 3m wide trackway orientated NW-SE, on a slightly different alignment to the ridge and furrow. As excavated it was 0.20m deep, consisting of pitched limestone blocks (0.15-0.20m) packed with flint and sandstone pebbles and sealed and damaged by ridge and furrow. Wheel ruts visible. No ditches. No dating evidence.</p>	484100	242000	Roman
5909	Rifle Butts	Stantonbury	Associated with the butts were markers, screens etc. used by the 1 <sup>st</sup> Buckinghamshire Volunteers.	483530	242440	Post-medieval
6264	Stantonbury Manor Garden	Stantonbury	<p>Long earthwork mound orientated north-south, forming east boundary of the former manor house garden. Part of a brick facing wall revealed on west face by erosion.</p> <p>See also <b>SMR 826</b></p>	483587	242644	Post-medieval to 17 <sup>th</sup> century



## 5.1.4 APPENDIX 3

## SMR sites in the vicinity of the Development Area

Red dots on Figure 2

MK SMR Number	Site Name	Parish	Description	Easting	Northing	Period
784	Hill Farm, Haversham	Haversham	<p>Romano-British settlement; with Iron Age beginnings. Focal point is Hill Farm? Most important house site could be under present day granary. The site was originally late Belgic, much expanded later in Roman period, and substantial in area.</p> <p><b>SMR 785</b> Collection of Roman coins.</p> <p><b>SMR 786</b> Roman pottery sherds and tile.</p> <p><b>SMR 787</b> Roman steelyard weight in the form of the head of a goddess.</p> <p><b>SMR 788</b> Fragments of bronze and bone pins, partial spoon and bronze fragment.</p> <p><b>SMR 789</b>, Bone and bronze pins and Roman coins.</p> <p><b>SMR 790</b> Site of Roman 1<sup>st</sup> century house suspected under present granary. Floor lowering exposed wide well faced stone wall, house floor, and imported Samian pottery sherds. Further investigation and excavation to rear of granary found (below 17<sup>th</sup> century and later layers) hard-packed floor 6-7ft wide, with much 1<sup>st</sup> century pottery.</p> <p><b>SMR 791</b> and <b>SMR 792</b> Bronze brooches and coin of Cunobelinus with traces of a building to the rear of modern granary.</p> <p><b>SMR 793</b> Floor lowering in the modern granary revealed imported Samian pottery. Further investigation and excavation at rear of granary revealed much 2<sup>nd</sup> to late 3<sup>rd</sup> century pottery and, a hard-packed floor, with much 1<sup>st</sup> century pottery.</p>	483700	243660	Late Iron Age / Roman



799	Mill Pasture Field	Haversham	<p>Found in field during ditch cutting/clearance were the remains of a building, with adjoining rubbish pit; and the remains of a bridge. The east ditch bordering the Serpentine Meadow uncovered Roman coins and pottery etc.</p> <p><b>SMR 800</b> Collection of Roman coins.</p> <p><b>SMR 801</b> Roman pottery sherds including imported Samian pottery and a box-flue tile.</p> <p><b>SMR 802</b> Romano-British intaglio of blue paste, shallow cut, figure with 2 staffs.</p> <p><b>SMR 803</b> Part of a quernstone.</p> <p><b>SMR 804</b> Part of a building with hypocaust brick.</p> <p><b>SMR 805</b> Rubbish pit, full of Roman pottery sherds and oyster shells, adjoining the end of the building.</p> <p><b>SMR 806</b> Top slabs and buttress of a small bridge, hitherto unknown, had Roman pottery sherds and nails within the structure. Located higher up valley from building remains and rubbish pit.</p>	483800	243600	Roman
807	Mill Pasture Field	Haversham	<p><b>Pottery dredged from river at Haversham Mill.</b></p> <p>Mainly Roman and a piece of roof tile.</p> <p><b>SMR 6038</b> Roof tile.</p>	483840	243540	Roman
808	Mill Pasture Field	Haversham	<p>Part of a ceramic funnel or fish weight, 16<sup>th</sup>/17<sup>th</sup> century, dredged from River at Haversham Mill.</p>	483840	243540	Post-medieval - 16 <sup>th</sup> century
809	Mill Pasture Field	Haversham	<p>A fine leaf-shaped flint arrowhead, dredged from river at Haversham Mill.</p>	483840	243540	Prehistoric
814	<b>St Peter's Parish Church</b>	Stantonbury	<p>The church is of Norman origins with indications of much modification over time. In 1956 the roof collapsed, and the church survives as ruins. In 2001 the interior of the church was investigated.</p> <p><b>SMR 815</b> identified a carved stone from the church, now in Buckinghamshire County Museum.</p> <p><b>SMR 816</b> refers to an investigation of the area of the western nave wall, which identified the location of a former tower.</p> <p><b>SMR 817</b> refers to Roman tiles which had been reused in the fabric of the church wall.</p>	483562	242738	Medieval



818	Stantonbury Deserted Medieval Village (DMV)	Stantonbury	<b>Watching brief and rescue excavation undertaken in advance of destruction of site by gravel quarrying. Equates to SMR event 53.</b>	483634	242780	Medieval
819	Stantonbury DMV	Stantonbury	<b>Site of medieval village, which was deserted in the early 16<sup>th</sup> century when the Lord of the Manor converted much of the area to pasture.</b>	483634	242782	Medieval
820	Stantonbury DMV	Stantonbury	Medieval house platform recorded during watching brief ( <b>SMR event 53</b> ), a simple rectangular shape 30x16ft. Divided internally by thin partition wall into 2 rooms, 12x14ft and 12x11ft. External wall 2ft thick, Internal wall 1ft thick. <b>SMR 821</b> Late 13 <sup>th</sup> / early 14 <sup>th</sup> century pottery sherds. <b>SMR 822</b> Pottery sherds collected from medieval house platforms. <b>SMR 823</b> Large iron barrel padlock for heavy chain.	483700	242800	Medieval
830	Stanton Low	Stantonbury	Tile floor pointed out by farmer in digging a posthole. Roman buildings have been excavated to NE. Site now destroyed by quarrying but a tessellated / mosaic floor indicated. Find may have been to west of Stanton Low Farm.	483980	242780	Roman
831	Stantonbury	Stantonbury	Rescue excavation of Iron Age/Romano British settlement, before destruction by gravel working. Iron Age and early Roman occupation succeeded by substantial buildings 2 <sup>nd</sup> - mid 4 <sup>th</sup> century AD (with period of decline mid 3 <sup>rd</sup> century). Then slum/industrial occupation mid 4 <sup>th</sup> century. <b>SMR 832</b> A number of partly excavated buildings/building of uncertain date. <b>SMR 833</b> Extensive late Iron Age settlement, with suggestion of mid Iron Age activity. Consisted of three middle Iron Age postholes and five late Iron Age round houses. Partial remains were uncovered of a round house. Roman conquest period and a "Belgic" kiln. <b>SMR 845</b> Collection of coins - from Iron Age to late Roman. <b>SMR 846</b> Collection of Iron Age pottery sherds. <b>SMR 852</b> Comb; 3 of original 10 teeth survive, well worn and polished by use.	484100	243000	Iron Age



834	Stantonbury	Stantonbury	<p>Early Romano-British phase. Land management/drainage scheme, with roads (and timber bridge?). Followed by timber storehouse and stone founded barns adjoining timber wharf, all encircled by cut river channel, which enclosed approximately 3ha. There was also an outlying cremation cemetery.</p> <p><b>SMR 835</b> Gravel extraction exposed a burial plot. Two large urns rescued from cliff face, more probably destroyed. Many bones strewn around implying that this was extensive cemetery</p> <p><b>SMR 836</b> Small lead coffin exposed during gravel quarrying. Some damage to lid. Contained skull and bones of young person. Implied that coffin was element of later stage of use of cemetery.</p> <p><b>SMR 837</b> Hadrianic / Antonine phase. In early-mid 2<sup>nd</sup> century, at least 4, possibly 6, separate stone buildings, all apparently of main villa residence quality, build over area more than 250m across. Hints of late Antonine destruction by fire, then repairs, addition of corridors, some buildings extended, up to early 3<sup>rd</sup> century.</p> <p><b>SMR 838</b> Hadrianic / Antonine; Building ii - substantial, with black and white mosaic and wall plaster. Building ii/v - same structure as ii? Residential? Official? Antonine. Building iv - substantial, good masonry, plainer painted wall plaster, no mosaic.</p> <p><b>SMR 839</b> Late Antonine / Severan. Tower granary added to Building iv.</p> <p><b>SMR 840</b> Hadrianic / Antonine. Building iii; expensively appointed bath house - early black and white mosaic, elaborate wall plaster, probable fountain, elaborate and expensive tile rib vault of military/official type, provided heated vault as well as walls.</p> <p><b>SMR 841</b> Probable Hadrianic to Antonine structures. Building xviii magnificent house going with bath house. Painted wall plaster, tile etc., with an associated barn, stone bridge and wharf.</p>	484100	243000	Late Iron Age to Roman
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			<p><b>SMR 842</b> Decline of settlement during the mid 3<sup>rd</sup> century followed by extensive rehabilitation late 3<sup>rd</sup> / early 4<sup>th</sup> century.</p> <p><b>SMR 843</b> Late 3<sup>rd</sup> - mid 4<sup>th</sup> century. A building existed in this period; substantial in size, it included a hypocaust and possibly had tessellated floors. A malting kiln / corn-drier and barn were also present.</p> <p><b>SMR 844</b> Mid 4<sup>th</sup> century phase. Slum/industrial conditions, with iron working and smithy. Had rough flag floors and rubbish build-up in many buildings. A lime-burning trench actually within one of the buildings.</p> <p>SMR 847 - 851 <b>Are a variety of finds / artefacts.</b></p> <p>SMR 5665 <b>Square tabular bronze ingot.</b></p>			
853	Stantonbury	Stantonbury	Medieval bone flute found on site.	484100	243000	Medieval
883	Stone Hill Furlong	Haversham	<p>Dressed stone, mortar and wall plaster, with a concentration of pottery, found during pipe laying at the junction of The Ridgeway with lane going from Haversham to Linford.</p> <p><b>SMR 884</b> Late 4<sup>th</sup> century Roman bronze coin found on The Ridgeway.</p> <p><b>SMR 885</b> Collection of pottery sherds.</p>	483500	243700	Roman
902	Stone Pit Field, Haversham	Haversham	<p>Late 4<sup>th</sup> century Roman coin and an imported Samian pottery sherd.</p> <p><b>SMR 903</b> Samian pottery sherd. Also found was a 4<sup>th</sup> century coin.</p>	483300	243500	Roman
918	Ordnance Survey Antiquity site	Haversham	This site is an Ordnance Survey antiquity and was marked on old 6 inch map. Nothing visible on available aerial photographs. No trace of any earthworks on ground, but site may be respected by later ridge and furrow.	484250	243310	Bronze Age
919	South of Little Linford	Haversham	Double ring ditch noted, located on area of level flood plain. No trace of earthworks on the ground. Possible that headland of ridge and furrow respects postulated northern edge of ring ditch?	484120	243290	Unknown
920	Stantonbury	Stantonbury	Possible ring ditch with central pit; approx diameter of ditch 3. 5m. Not likely to be a barrow. Not visible on aerial photographs. No trace found on the ground in a level area under plough	484480	242700	unknown



938	Mill Ground Field	Haversham	Roman coin (AD81-96) and artefacts comprising brooch, bead, toilet implement, found in Mill Ground Field. Also, close to farmhouse, an abundance of Romano British pottery sherds and tile. <b>SMR 939</b> Copper coin of Domitian (AD 81-96). <b>SMR 940</b> Eye brooch, a fragment of blue glass bead and a small pierced bronze fragment. <b>SMR 941 and 942.</b> Collection of artefacts.	483600	243600	Roman
1126	Stantonbury Parish	Stantonbury	Part of parish in Milton Keynes new city. The part outside the new city now incorporated in Haversham-cum-Little Linford parish. Parish survey by Milton Keynes Archaeology Unit.	483500	242780	Early medieval
1148	Haversham Mill	Haversham	1788 map marks a watermill, which was derelict by the 1960s. <b>SMR 1151</b> 2 pairs of millstones, each approx. 5ft in diameter, lying in mill. Remains of a waterwheel. <b>SMR 1152</b> Leat on north side of river.	483830	243540	Post-medieval - 18 <sup>th</sup> century
1149	Haversham / Carr's Mill	Haversham	Watermill on Haversham Manor in 1086. <b>SMR 1150</b> In 1273 the Lord of the Manor had a fishery.	483830	243540	Medieval
1925	Great Linford	Great Linford	Mound marked "the lowe hill" on 1641 estate map. Thought to be a tumulus or burial mound destroyed c.1958 during gravel extraction. <b>SMR 1926</b> Two skeletons reported to have been found beneath mound; possibly associated with Roman settlement at Stanton Low.	484660	243050	Prehistoric
1970	Stantonbury	Stantonbury	Flint artefacts comprising a core and retouched flake.	484290	242010	Prehistoric
4132	ARC Quarry	Haversham	Fragment of spearhead.	483300	242600	Medieval
4133	Helwall Mill/New Mill	Haversham	Site of watermill; a second being recorded in the 15 <sup>th</sup> century. In 1619 two watergrist mills are recorded, with further reference to the site in 1764. This was apparently associated with a complex system of leats. Destroyed by quarrying in 1960s. <b>SMR 4134</b> The Prior of Bradwell held fishing rights for the site. This included Watergates, two weirs and a dam – part of the complex leat system referred to above.	483400	242700	Medieval - post-medieval
4140	Haversham Grange	Haversham	13 <sup>th</sup> century sherds of pottery, 2 of which are glazed. From ploughsoil, field between Haversham Grange and river.	483200	243100	Medieval - 13 <sup>th</sup> century



<b>4150</b>	Linford Mill	Stantonbury	Mill on Little Linford estate probably same as watermill attached to 14 <sup>th</sup> century Manor, where fishpond was also mentioned. It is now uncertain where it stood. <b>SMR 4151</b> No obvious mill leat that can be associated with the mill mentioned on Little Linford side of river. Old Ordnance Survey maps show complex system of leats and watercourses along floodplain - may have fed a mill? Area now so damaged by gravel extraction that any features are unrecognisable.	484000	243000	Medieval - 11 <sup>th</sup> century
<b>4259</b>	Stanton Low	Stantonbury	Sword handle, with wheel-pommel, long, slightly curved quillons. Type is long-lived late 13 <sup>th</sup> -early 15 <sup>th</sup> century. X-ray revealed no maker's mark but clearly showed sheath was of wood with leather over it; also possible textile remains.	483486	242828	Medieval - 13 <sup>th</sup> century
<b>4260</b>	Stanton Low	Stantonbury	Woodman's axe of medieval type (which continued into post-medieval period) and bronze ingot.	483467	242821	Medieval
<b>4261</b>	Stanton Low	Stantonbury	Square tabular bronze ingot.	483470	242839	Unknown
<b>4284</b>	ARC Wildfowl Centre	Stantonbury	Digging of dyke and sluices for wildfowl centre revealed two stone metalled medieval to post-medieval trackways, limestone layer and large oak timber with sawn end and mortise and tenon joint. Romano-British tegula in stone layer. Perhaps a small riverside structure or bridge.	483600	243220	Medieval
<b>4285</b>	ARC Wildfowl Centre	Stantonbury	Fragment of orange sandy fabric Roman tegula found in stone layer and a sub-floor tile, in association with remains of possible timber bridge ( <b>SMR 4284</b> ).	483600	243220	Roman
<b>4286</b>	ARC Wildfowl Centre	Stantonbury	Digging of dyke and sluices for wildfowl centre revealed two metalled trackways of medieval to post-medieval date.	483600	243220	Medieval
<b>4490</b>	Windmill Hill Farm	Stantonbury	19 <sup>th</sup> century rubbish pit. <b>SMR 4491</b> refers to several items recovered from the pit including coins and a finger ring.	483400	242230	Post-medieval
<b>5238</b>	Haversham Mill	Haversham	Fishing weight found in river during dredging - (same co-ordinates as <b>SMR 1148</b> ).	483830	243540	Medieval



<b>5240</b>	Stanton Low	Stantonbury	Two medieval seals, one with face head in profile. <b>SMR 5241</b> Disc (?) Brooch with catchplate. <b>SMR 5664</b> 13 <sup>th</sup> century lead personal seal matrix. Coordinates incorrect?	483470	242720	Medieval
<b>5411</b>	Hill Farmhouse. Mill Road	Haversham	Grade II. Farmhouse dated to early 19 <sup>th</sup> century.	483636	243663	Post-medieval - 19 <sup>th</sup> century
<b>5666</b>	Stanton Low	Stantonbury	Fragment of bird-headed mount.	483400	243000	Roman
<b>6039</b>	Stantonbury	Stantonbury	Four Roman coins, including a sestertius. <b>SMR 6040</b> Roman pottery (girth beaker).	484260	242980	Roman
<b>6265</b>	Stantonbury agricultural building	Stantonbury	Long narrow stone building, orientated east-west located to the north-west of the church. Appears to have been a shelter shed.	483520	242791	Post-medieval
<b>6267</b>	Stantonbury house site 3	Stantonbury	Medieval house platform. Destroyed by gravel working in 1971.	483640	242780	Medieval
<b>6268</b>	Stantonbury house site 5	Stantonbury	Medieval house platform. Destroyed by gravel working in 1971.	483660	242820	Medieval
<b>6269</b>	Stantonbury house site 4	Stantonbury	Medieval house platform. Uncertain whether it was destroyed by gravel working. <b>SMR 6270</b> Medieval house platform. Uncertain whether it was destroyed by gravel working.	483590	242820	Medieval



## APPENDIX 4:

### GEOPHYSICAL SURVEY: TECHNICAL INFORMATION

#### Magnetic Susceptibility and Soil Magnetism

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 so that by measuring the magnetic susceptibility of the topsoil, areas where human occupation or settlement has occurred can be identified by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable 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 the 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 soil levels. Discrete feature, such as pits, can also be detected. Less magnetic material such as masonry or plastic service pipes which intrude into the topsoil may give a negative magnetic response relative to the background level.

The magnetic susceptibility of the soil can also be enhanced significantly by heating. This can lead to the detection of features such as hearths, kilns or burnt areas.

#### Types of Magnetic Anomaly

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 which, conversely, means that the response is negative relative to the mean magnetic background. Such negative anomalies are often very faint and are commonly caused by modern, non-ferrous, features such as plastic water pipes. Infilled natural features may also appear as negative anomalies on some geologies.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies that are interpreted as modern in origin may be caused by 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 feature causing the anomaly.

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)** 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** 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.

A **linear trend** 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** response are characterised by a general increase in the magnetic background over a localised area whilst **positive isolated anomalies** are manifest by an increased 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. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

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

## Methodology

### Magnetic Susceptibility Survey

There are two methods of measuring the magnetic susceptibility of a soil sample. The first involves the measurement of a given volume of soil, which will include any air and moisture that lies within the sample, and is termed volume specific susceptibility. This method results in a bulk value that is not necessarily fully representative of the constituent components of the sample. The second technique overcomes this potential problem by taking into account both the volume and mass of a sample and is termed mass specific susceptibility. However, mass specific readings cannot be taken in the field where the bulk properties of a soil are usually unknown and so volume specific readings must be taken. Whilst these values are not fully representative they do allow general comparisons across a site and give a broad indication of susceptibility changes. This is usually enough to assess the susceptibility of a site and evaluate whether enhancement has occurred.

### 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 0.5m 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.

The Geoscan FM36 fluxgate gradiometer and ST1 sample trigger were 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. The instrument was checked for electronic and mechanical drift at a common point after every three grids and calibrated as necessary. The drift from zero was not logged

### **Data Processing and Presentation**

The detailed gradiometer data has been presented in this report in greyscale and XY trace plot format having been selectively processed and interpolated using Geoplot (Geoscan Research) software. Due to the variation in background magnetic noise the greyscale plots are displayed at various ranges as shown on the figures, using a linear incremental scale.

X-Y trace plot format allows the full range of data to be viewed, dependent on the clip, allowing the 'shape' of individual anomalies to be discerned and potentially archaeological anomalies differentiated from ferrous 'iron spike' responses.



## APPENDIX 5

### Geophysical Survey: Location Information

A Trimble Geodimeter 600s total station theodolite was used to set out and tie-in the survey grid. Temporary reference points (survey marker stakes) were left in place for accurate geo-referencing and the grids tied-in relative to these markers and to field boundaries. The survey grids were then superimposed onto an Ordnance Survey map base supplied by the client as a best fit to produce the grid locations and the co-ordinates listed below. Overall there was a good correlation between the local survey and the digital map base and it is estimated that the average 'best fit' error is better than  $\pm 1.5\text{m}$ . However, it should be noted that Ordnance Survey 1:2500 Superplan mapping has an error of  $\pm 1.9\text{m}$  at 95% confidence. These potential errors must be considered if distances are measured off, or if the tie in survey is used in GPS systems, for relocation purposes. The locations of the temporary reference points are shown on Figure 2 and the Ordnance Survey grid co-ordinates tabulated below.

Station	Easting	Northing
A	483592.01	242414.19
B	483813.08	242424.93
C	484076.00	241828.64
D	484089.51	242345.22
E	484194.05	242161.94
F	484252.71	242018.69
G	484224.82	242278.18
H	484383.33	242207.67
I	484473.64	242348.60

*Archaeological Services WYAS 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 6

### Geophysical Survey: Archive

The geophysical archive comprises:-

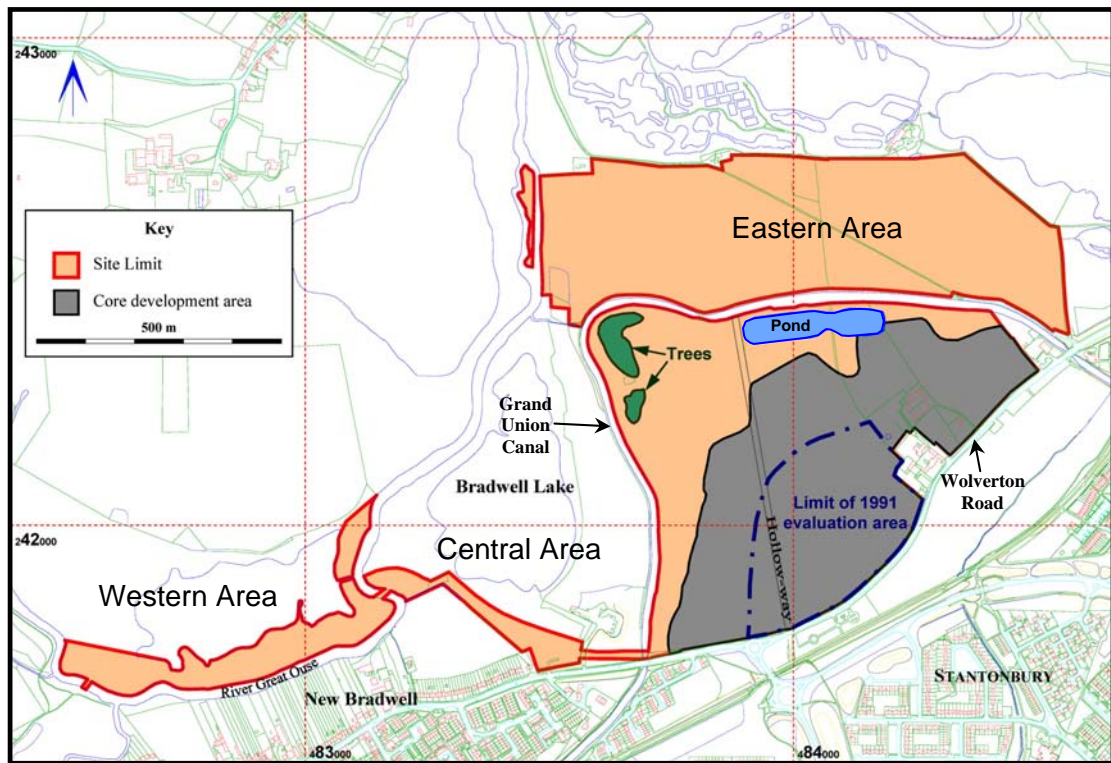
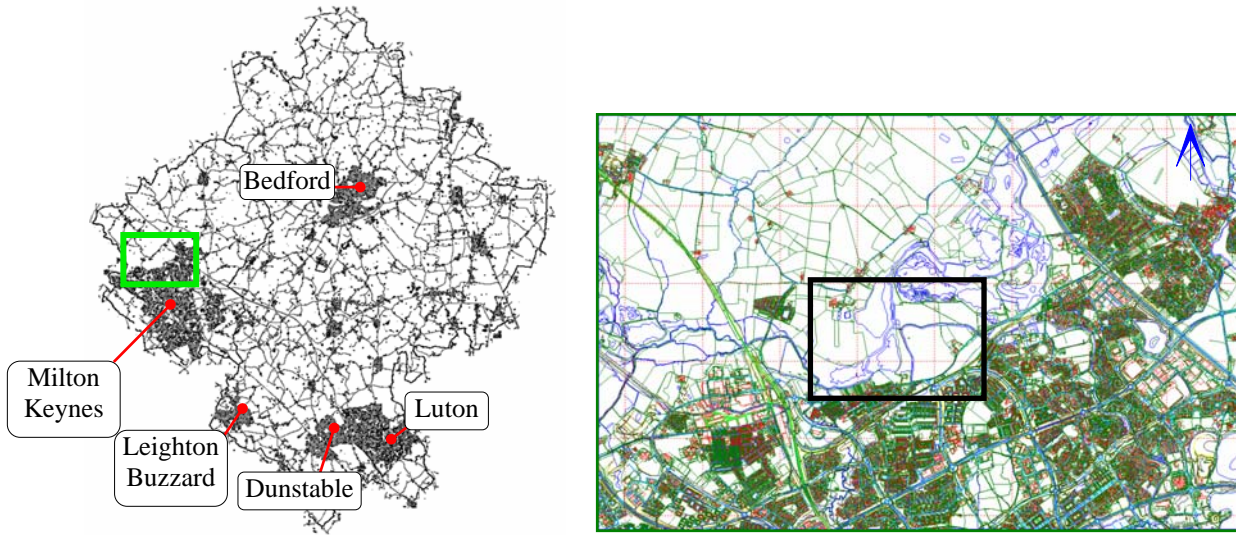
- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Word 2000), and graphics files (CorelDraw6 and AutoCAD 2000) files.
- a full copy of the report

At present the archive is held by Archaeological Services WYAS 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 Milton Keynes Sites and Monuments Record office).



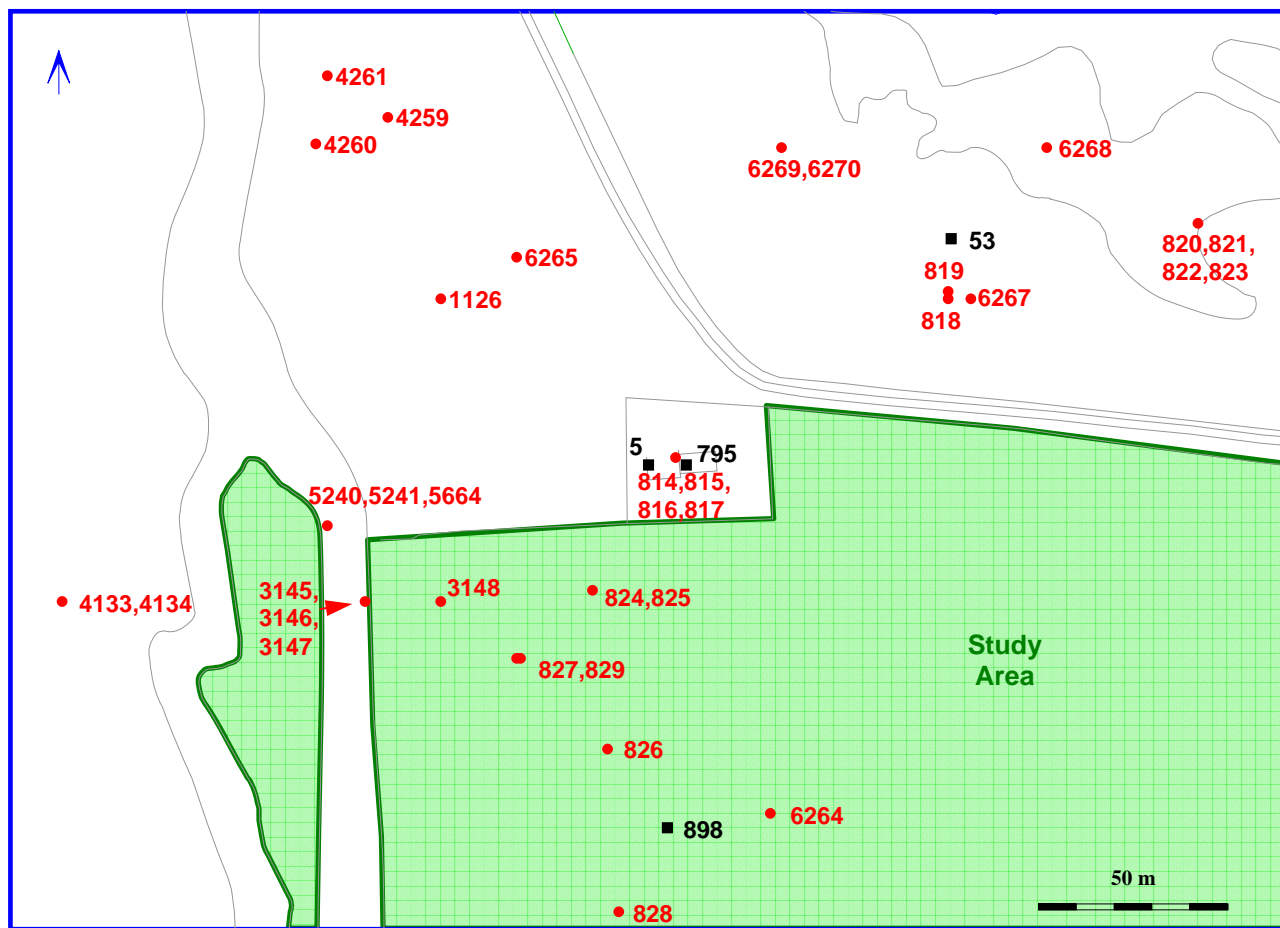
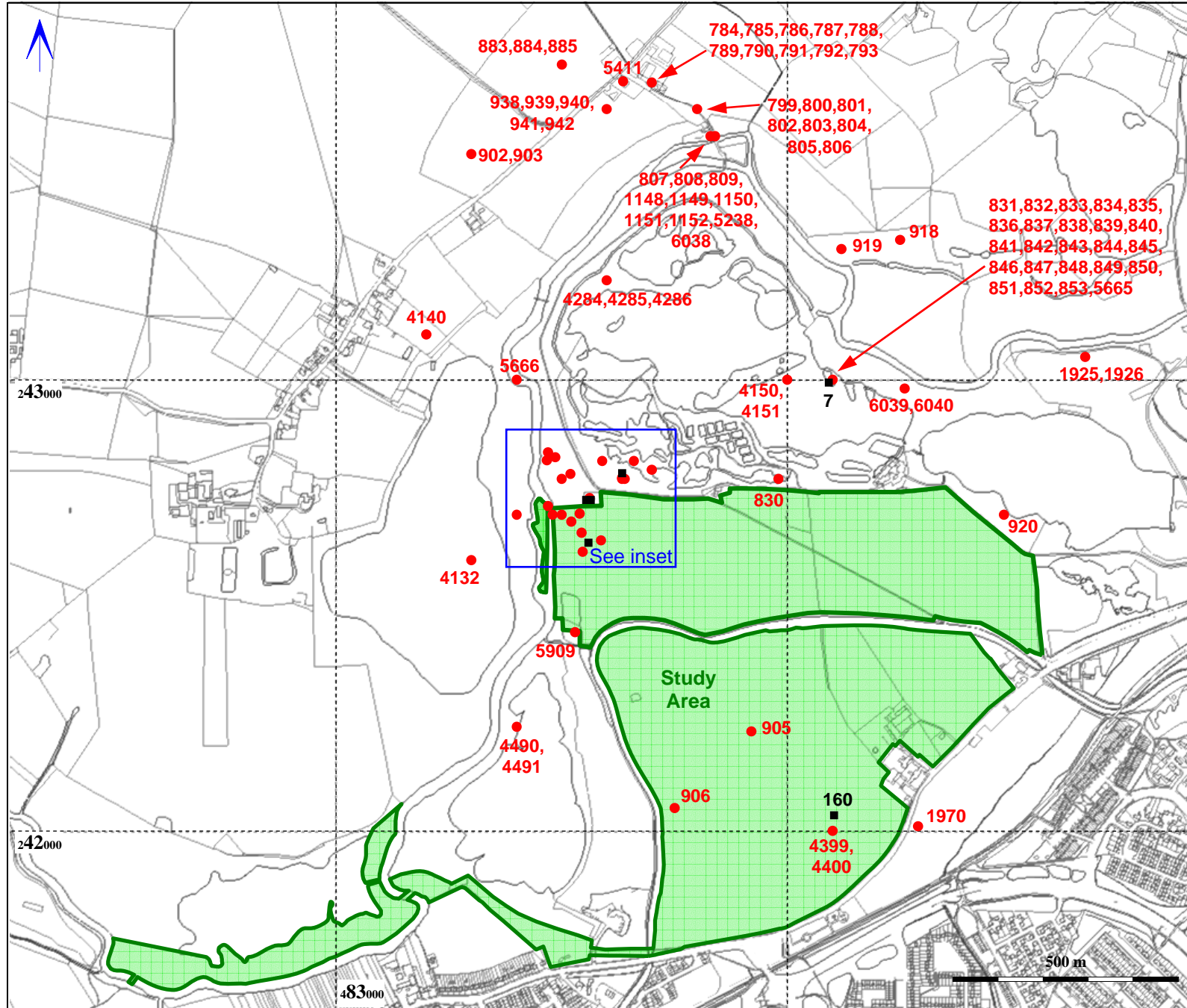


## FIGURES



**Figure 1: Development Area location plan**

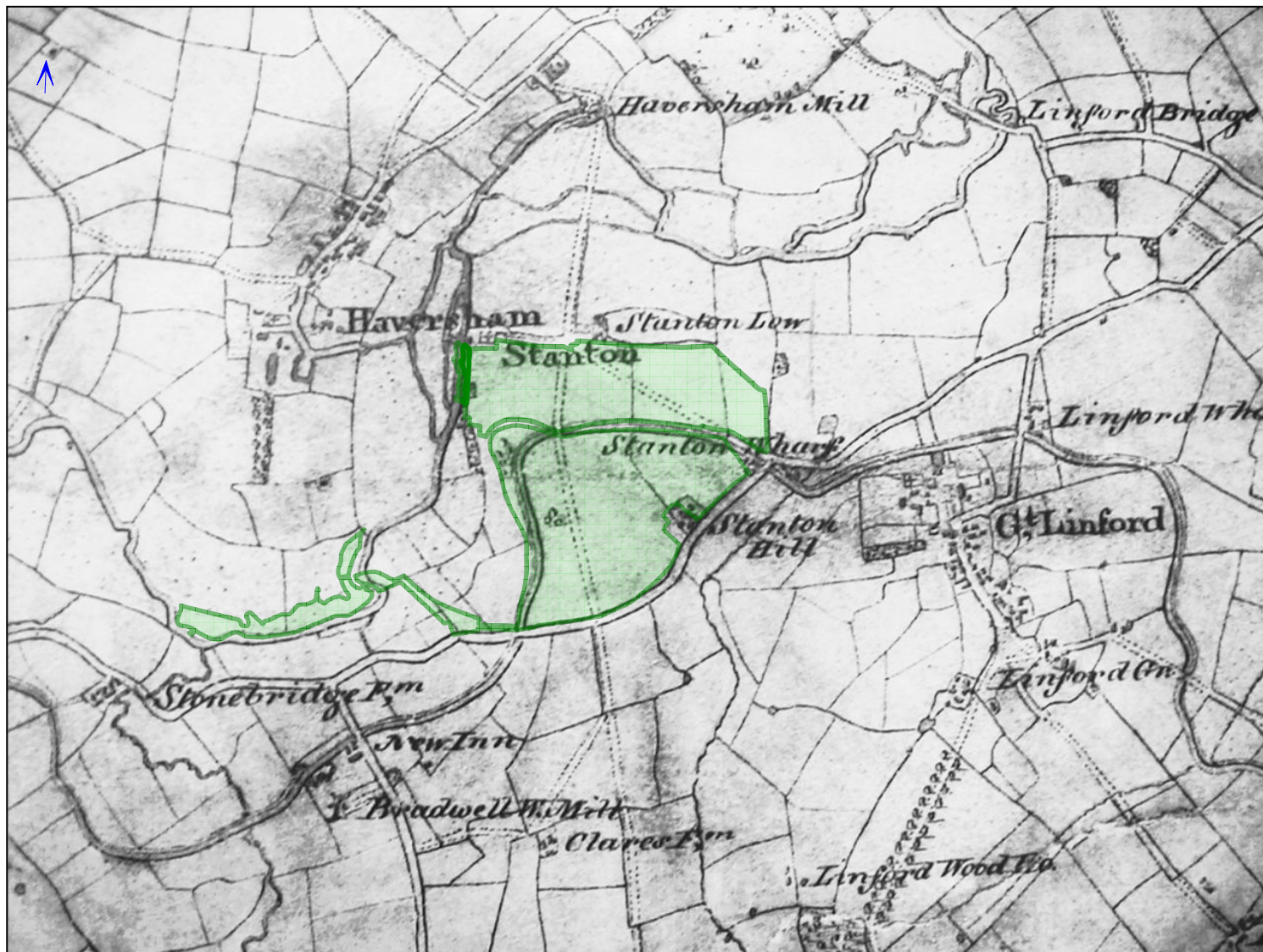
Base map reproduced from the Ordnance Survey Map with the permission of the Controller of Her Majesty's Stationery Office, by Bedfordshire County Council, County Hall, Bedford. OS Licence No. 076465(LA). © Crown Copyright.



- Key**
- SMR sites
  - Archaeological investigations

**Figure 2: Distribution of SMR sites in the vicinity**

Base map reproduced from the Ordnance Survey Map with the permission of the Controller of Her Majesty's Stationery Office, by Bedfordshire County Council, County Hall, Bedford. OS Licence No. 076465(LA). © Crown Copyright.

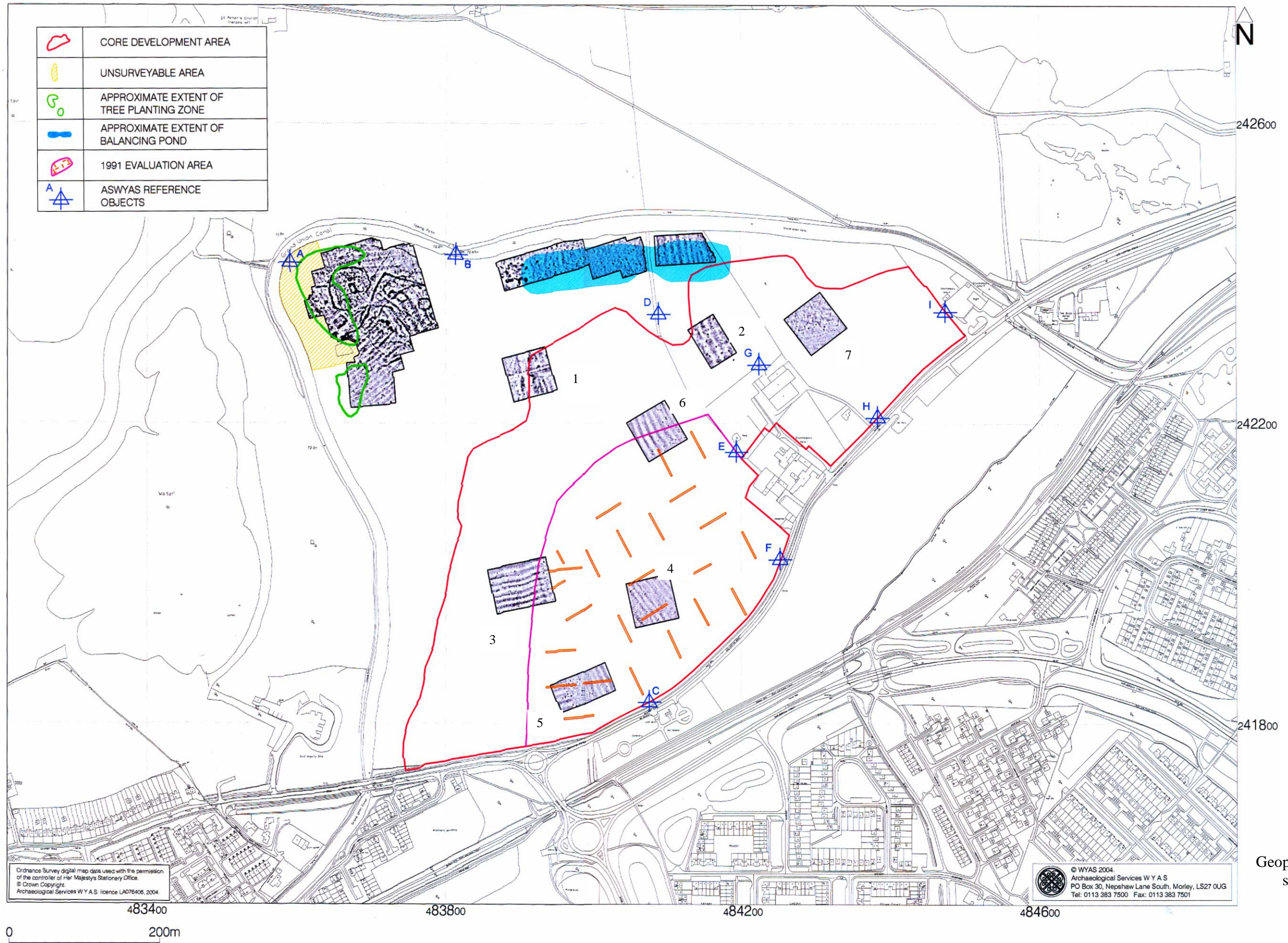


**Figure 3:** Ordnance Survey draft map 1815 showing approximate position of the Development Area

Detail from map held by Buckinghamshire County Record Office



**Figure 4:** Aerial photograph of eastern land block



**Figure 5:**  
Geophysical survey;  
site location

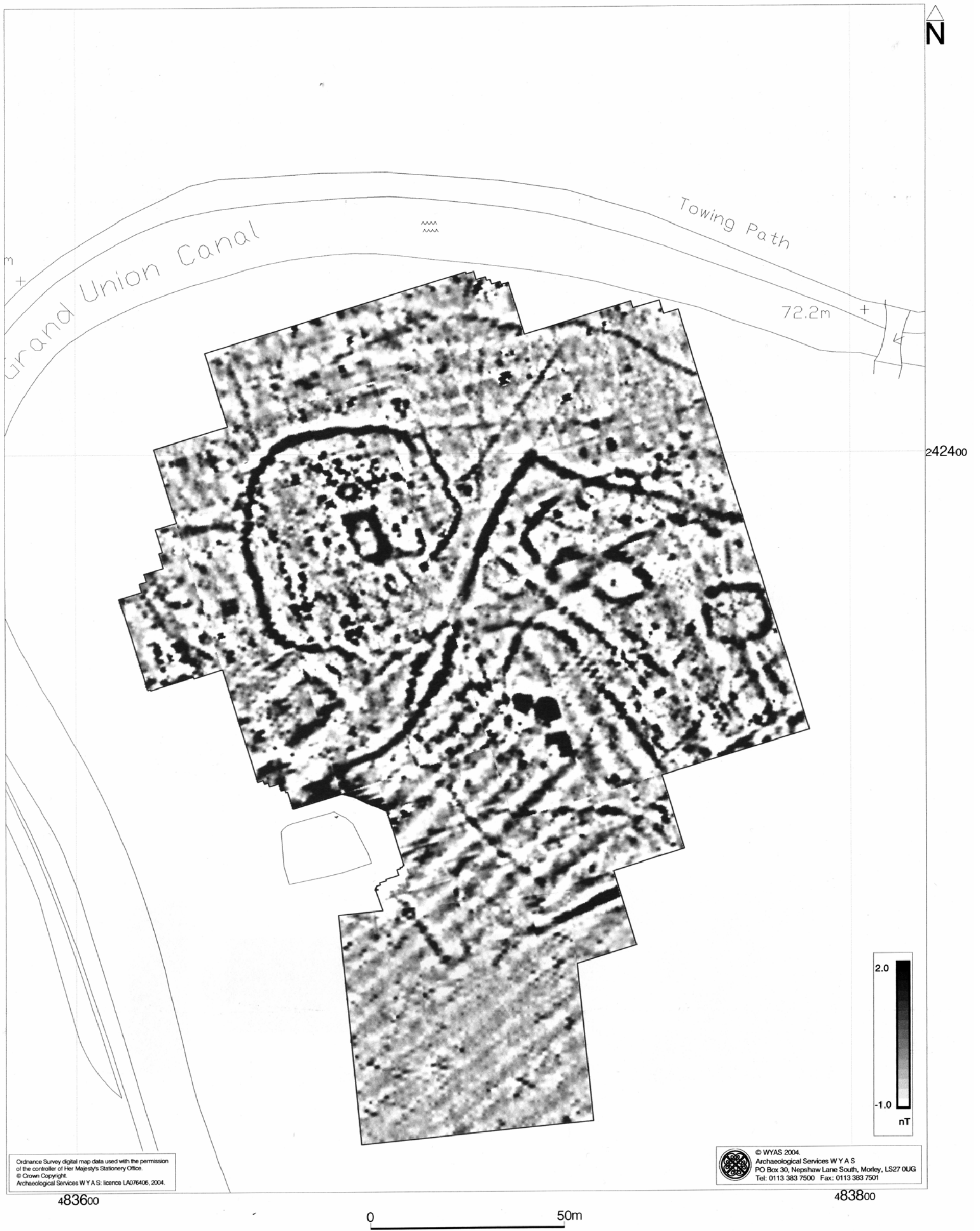


Figure 6: Greyscale plot of gradiometer data; Tree Planting Zone

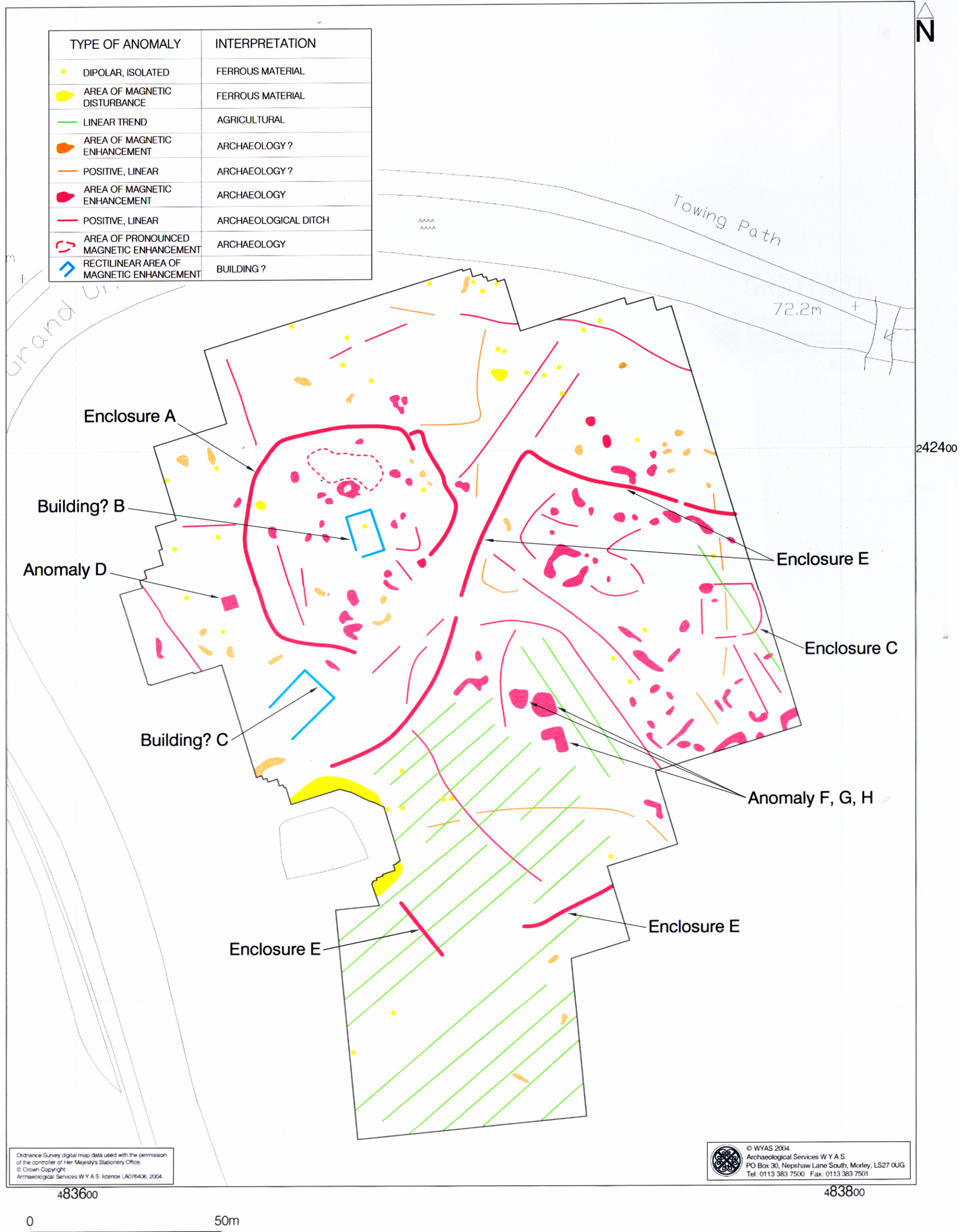


Figure 7: Interpretation of gradiometer data; Tree Planting Zone

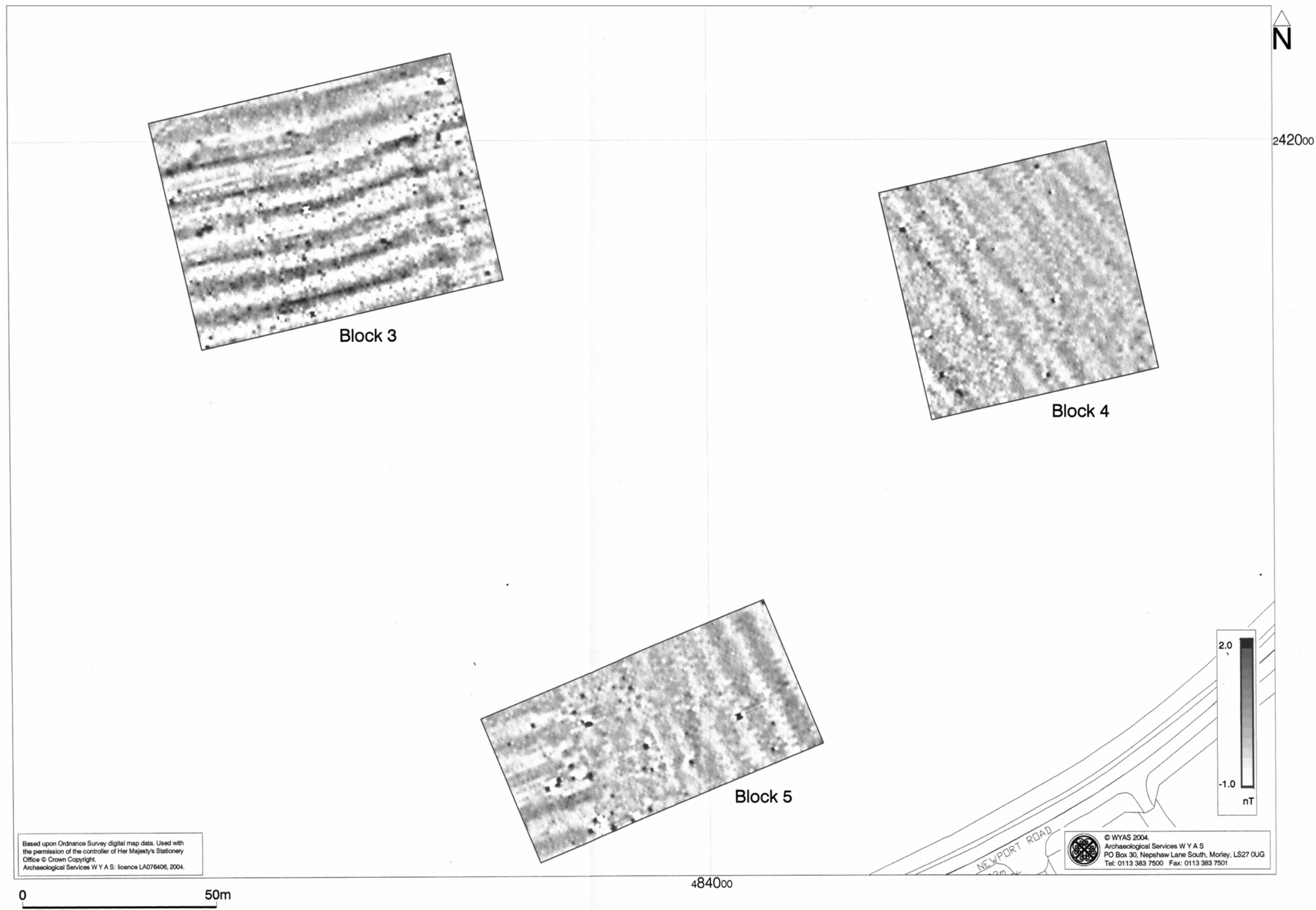




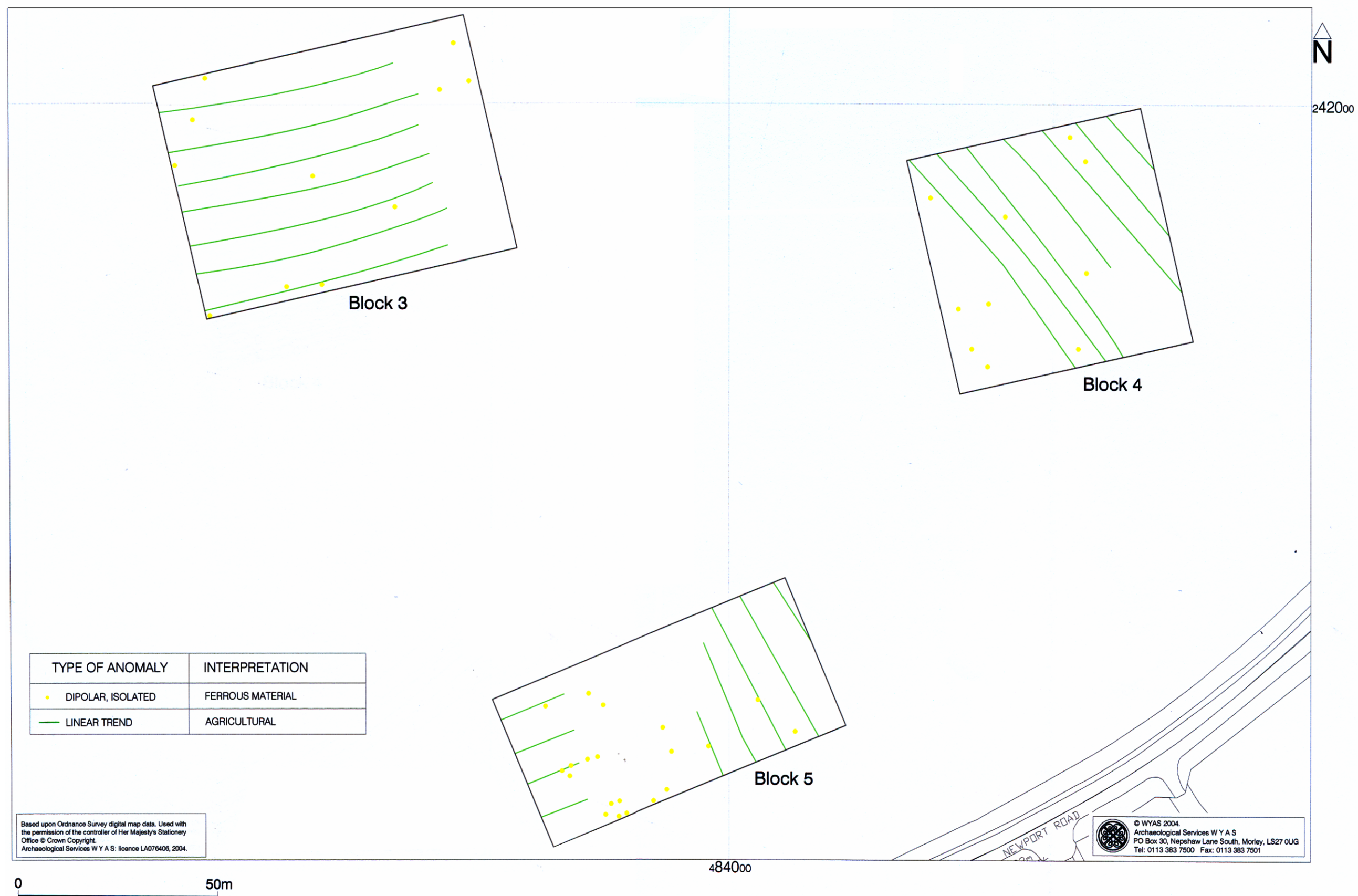
**Figure 8:** Greyscale plot of gradiometer data; Pond and Blocks 1 and 2



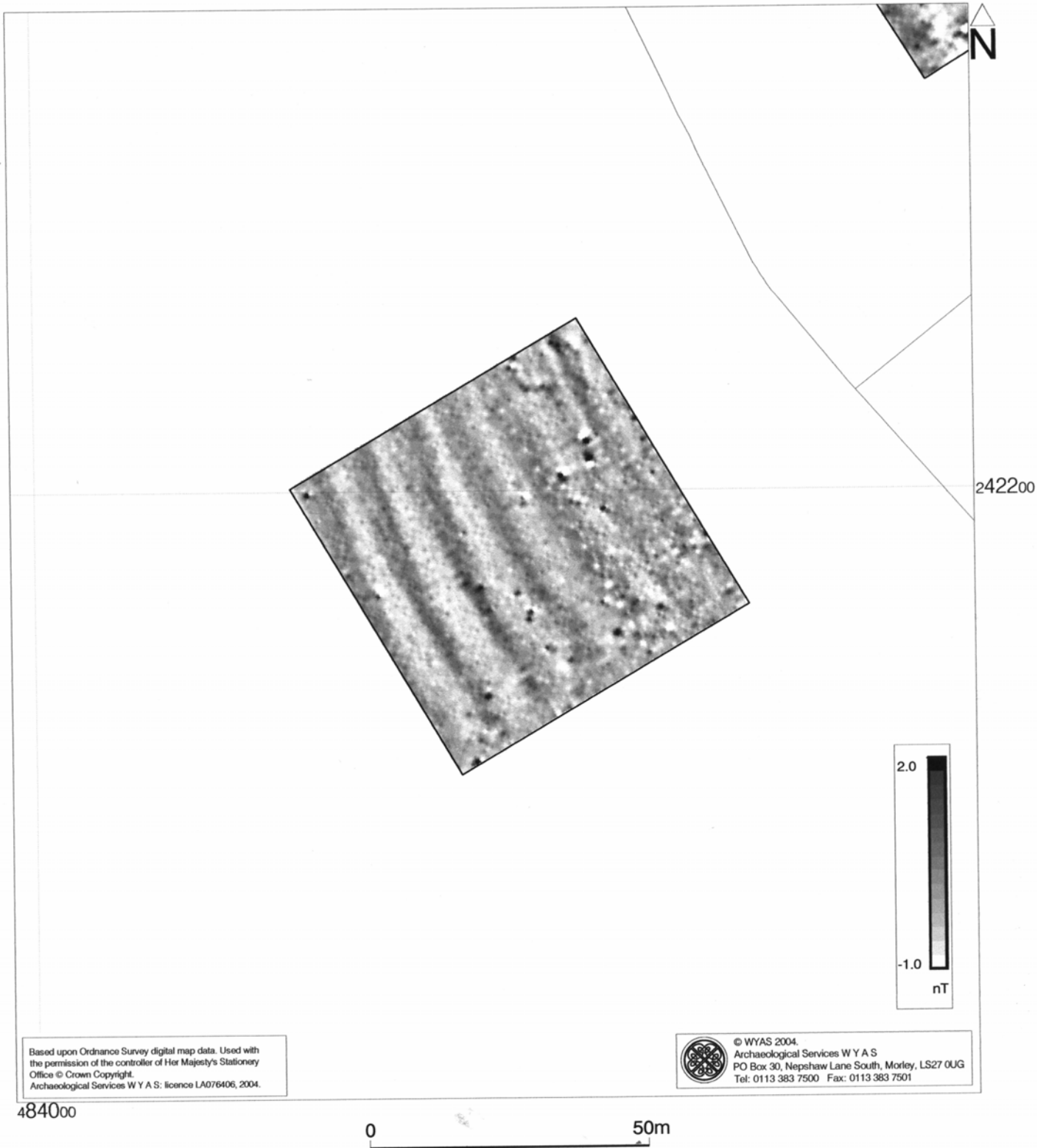
**Figure 9:** Interpretation of gradiometer data; Pond and Blocks 1 and 2



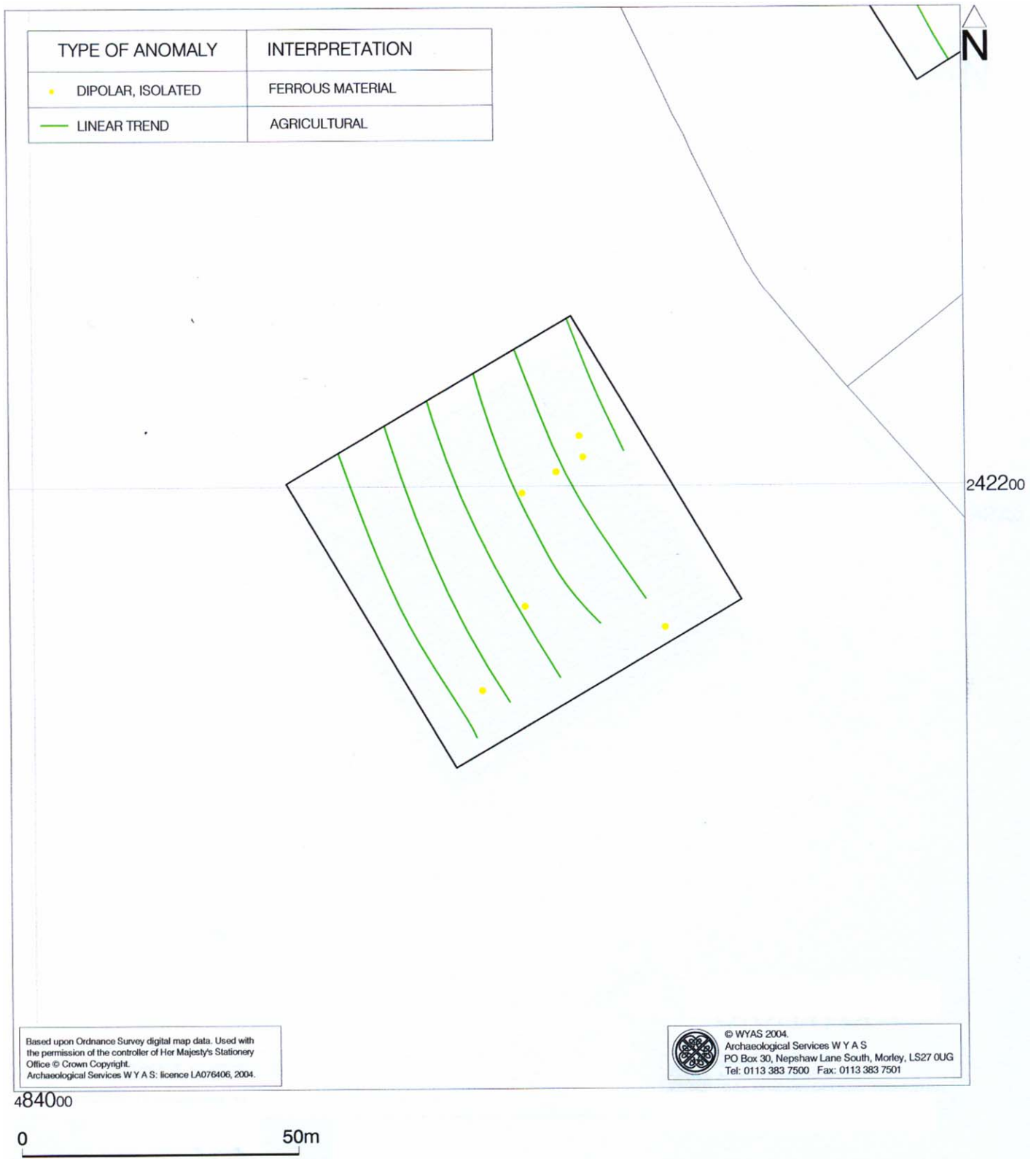
**Figure 10:** Greyscale plot of gradiometer data; Blocks 3, 4 and 5



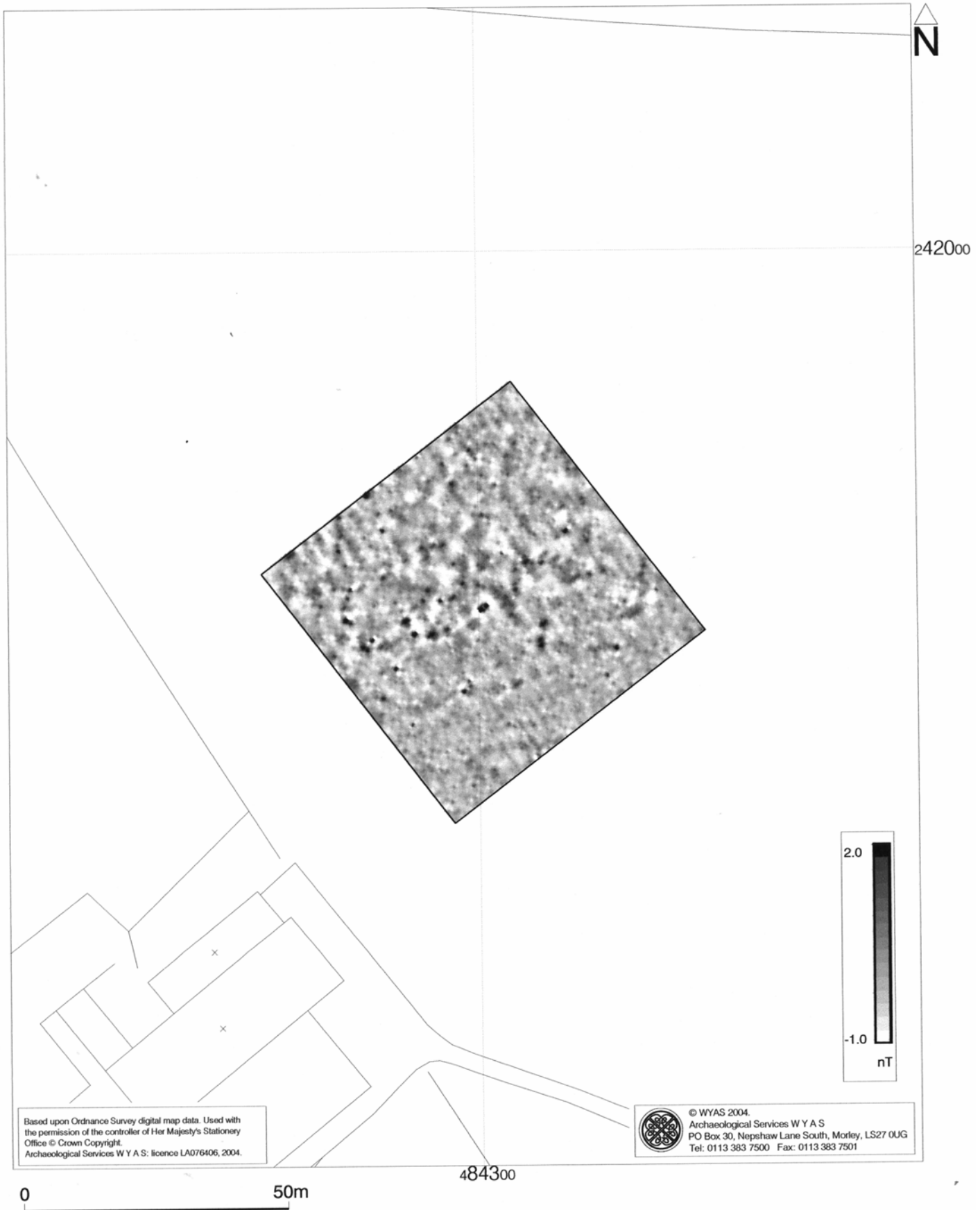
**Figure 11:** Interpretation of gradiometer data; Blocks 3, 4 and 5



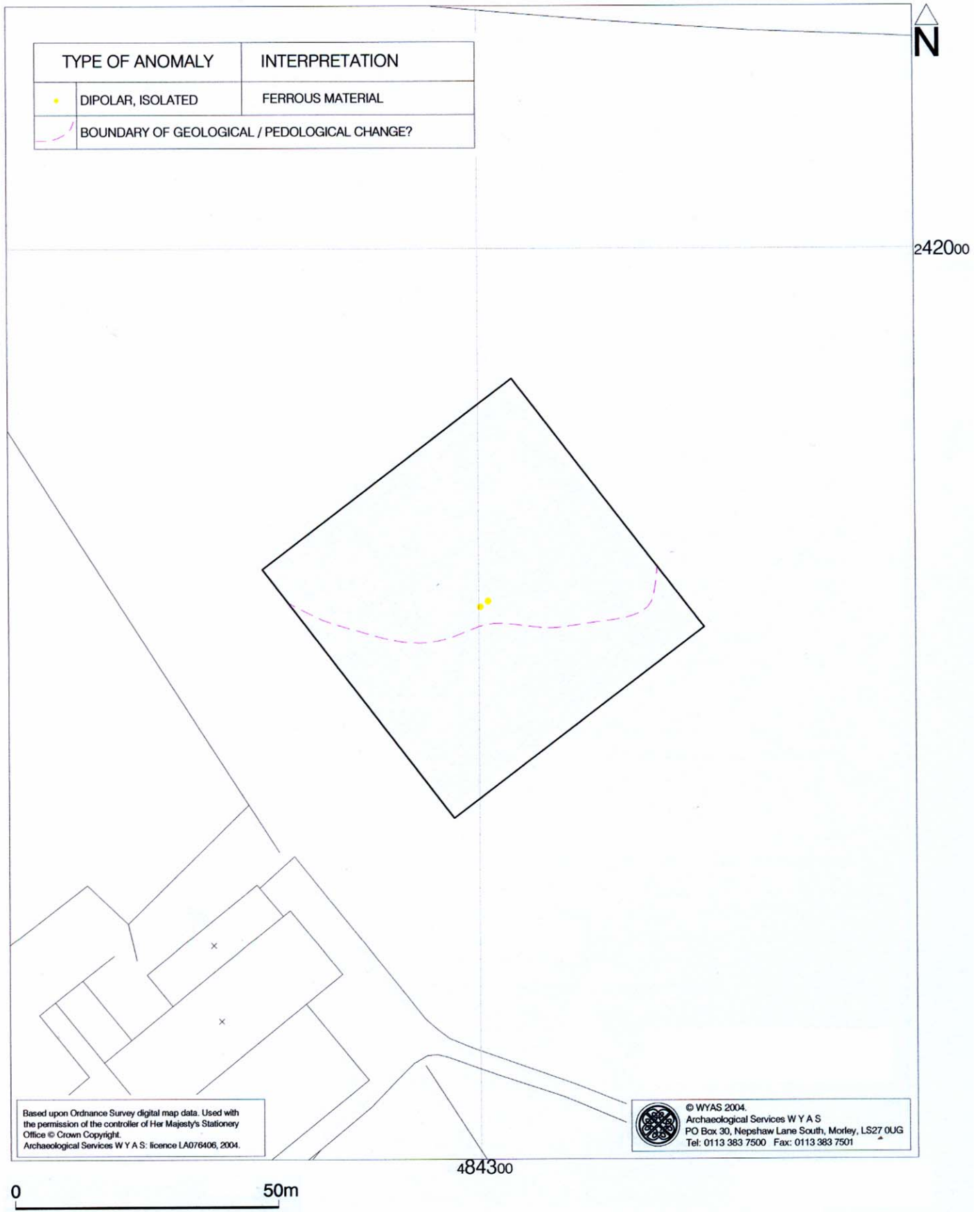
**Figure 12:** Greyscale plot of gradiometer data; Block 6



**Figure 13:** Interpretation of gradiometer data; Block 6



**Figure 14:** Greyscale plot of gradiometer data; Block 7



**Figure 15:** Interpretation of gradiometer data; Block 7