River of Life Project
Oxfordshire

Archaeological geophysical survey

Project No. ARC/2509/974

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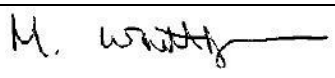
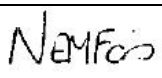
Report prepared by		Report checked by	
Name	Mark Whittingham BSc MA MCIfA	Name	Nicola Fairs BSc MSc DIC CGeol FGS
Signature		Signature	
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DRAWINGS

1. SUMMARY

Phase Site Investigations Ltd was commissioned to carry out a magnetic gradient survey as part of the River of Life Project, Oxfordshire. The survey covered several fields within three survey areas. The aim of the survey was to help establish the presence / absence, extent, character, relationships and date (as far as circumstances and the inherent limitations of the technique permits) of archaeological features within the survey area.

The survey was undertaken using a Phase Site Investigations Ltd multi-sensor array cart system. The MACS comprised 8 Foerster 4.032 Ferex CON 650 gradiometers with a control unit and data logger. The MACS data was collected on profiles spaced 0.5 m apart with readings taken at between 0.1 and 0.15 m intervals.

The survey has provided evidence for possible archaeological activity in the Clifton Meadow field, in the form of several series of positive linear / curvi-linear responses and trends. A Roman settlement is present to the south of Clifton Meadow and a trackway, of presumed Roman date, has been identified which leads towards the survey area. Some of the responses could relate to a continuation of this trackway and other, possibly related, features. No anomalies that could be clearly related to archaeological features / activity were identified at Church Farm or Overy Mead.

Most of the areas are dominated by responses relating to natural features / variations, probably including gravel / alluvial deposits and palaeochannels. These responses have created a variable magnetic background which has made it difficult to differentiate between individual responses, which could be related to infilled features or other potential archaeological activity, and responses caused by natural features variations. As such the majority of isolated responses within these areas have not been shown on the interpretation and it should be noted that if discrete archaeological features are present it is unlikely it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

The majority of the remaining anomalies identified by this survey relate to modern material / objects, agricultural activity and geological / pedological variations. There are some linear / anomalies and trends of uncertain origin but these do not form any clear patterns or relationships that would indicate an archaeological origin and they are considered more likely to be associated with agricultural or other modern activity or natural features / variations.

It should be noted that the anomalies relating to possible and probable infilled features are relatively weak (except for some anomalies that clearly relate to natural features / variations). This suggests that the magnetic susceptibility of the soils is relatively low which could mean that some infilled features could be present that only produce very weak responses, which may not be identified by the survey. The presence of alluvial deposits could also mean that some archaeological features, if present, could be relatively deeply buried and may not produce identifiable magnetic anomalies.

2. INTRODUCTION

2.1 Overview

Phase Site Investigations Ltd was commissioned by DigVentures Ltd, on behalf of Earth Trust, to carry out an archaeological geophysical survey at three sites situated along the River Thames in Oxfordshire, approximately 12.5 km to the south-east of Oxford, utilising magnetic gradiometers.

The aim of the survey was to help establish the presence / absence, extent, character, relationships and date (as far as circumstances and the inherent limitations of the technique permits) of archaeological features within the survey area.

The locations of the three sites are shown in drawings ARC_2509_974_01 and ARC_2509_974_02.

2.2 Site descriptions

The survey covered three sites, which were situated along the River Thames in Oxfordshire. The three sites are known as Clifton Meadow, Church Farm and Overy Mead and collectively covered an area of approximately 37.2 ha. Each site is described separately below.

2.2.1 Clifton Meadow

The site of Clifton Meadow is situated to the south of the River Thames in Oxfordshire (centred at approximately NGR SU 557 957), to the south-west of Burcot.

The site encompassed three pasture fields, known as Little Mead, Clifton Meadow and Thomas's Field, and covered an area of approximately 18.5 ha.

The site was relatively level. There were some areas of boggy ground and some areas of dense vegetation, but the majority of the site was accessible for survey. The ground conditions were uneven underfoot in places due to the presence of reeds and clumps / tussocks of low, but dense, vegetation. The site was bordered in the north by the River Thames and by wooden and metal wire fencing on all other sides.

The geology of the site consists of sandstone of the Lower Greensand Group overlain by alluvial deposits (British Geological Survey, 2019). The soils of the site are described as loamy and clayey floodplain soils with naturally high groundwater (Soilscapes, 2019).

2.2.2 Church Farm

The site of Church Farm is situated to the west of the River Thames in Oxfordshire (centred at NGR SU 569 943) and is approximately 1 km to the west of Dorchester on Thames.

The site encompassed three pasture fields, known as Little Town, Meadow Furlong and Great Meadow, and covered an area of approximately 15.1 ha.

The site was relatively level. The ground conditions were uneven underfoot in places due to the presence of reeds and clumps / tussocks of low, but dense, vegetation. The site was bordered in the east by the River Thames and by a combination of wooden and metal wire fencing and broken hedgerows on all other sides.

The geology of the site consists of mudstone of the Gault Formation overlain by alluvial deposits (British Geological Survey, 2019). The soils of the site are described as loamy and clayey floodplain soils with naturally high groundwater (Soilscapes, 2019).

2.2.3 Overy Mead

The site of Overy Mead is situated to the north of the River Thames, to the east of the River Thame in Oxfordshire (centred at NGR SU 580 936) and immediately to the south-east of Dorchester on Thames.

The site encompassed two meadow fields, known as Old Bridge Meadow and Overy Piece, and covered an area of approximately 3.6ha.

The site was relatively level. There were some significant areas of dense vegetation and the ground conditions were uneven underfoot in places due to the presence of reeds and clumps / tussocks of low, but dense, vegetation. The site was bordered in the south by the River Thames, in the west by the River Thame and dense vegetation, by a stone wall in the north and by wooden and metal wire fencing in the east.

The geology of the site consists of mudstone of the Gault Formation overlain by alluvial deposits (British Geological Survey, 2019). The soils of the site are described as loamy and clayey floodplain soils with naturally high groundwater (Soilscapes, 2019).

2.3 Archaeological background

2.3.1 Clifton Meadow

A detailed desk-based assessment written by Atkins Ltd (2018) indicates that,

'*Archaeological survival on the Site is expected to be generally high*'.

It furthermore states that,

'*The Site is in the River Thames floodplain, on the periphery of a multi-period prehistoric and Roman settlement, immediately to the south, which comprises the Scheduled Monument at Northfield Farm. Excavation on the Site in 2006 recorded the presence of a Bronze Age field boundary and the physical remains of the Roman trackway identified through cropmarks which extends from the Scheduled Monument in the south of the Site*'.

Historic maps (old-maps.co.uk, 2019) indicate that the site has been in agricultural use since before 1877 and they show that Clifton Meadow and Thomas's Field were formerly sub-divided.

2.3.2 Church Farm

A desk-based assessment written by Atkins Ltd (2018) indicates that,

'*Archaeological survival is expected to be high owing to the lack of development on the Site, although the tops of remains may have been truncated by ploughing. There is a generally high potential for agricultural features dating to the prehistoric and Roman periods, as the Site is located on the periphery of the settlement site at Northfield Farm, although its location within the floodplain of the River Thames would have made it unsuited to extensive occupation. There is a high potential for palaeoenvironmental remains to be contained within the alluvial deposits*'.

Historic maps (old-maps.co.uk, 2019) indicate that the site has been in agricultural use since before 1877 and they show that the Little Town field was formerly sub-divided.

2.3.3 Overy Mead

A detailed heritage desk-based assessment written by Atkins Ltd (2018) indicates that,

'*Archaeological survival is expected to be high due to the lack of development of the Site, and its current conservation status. There's generally high potential for later prehistoric remains as the site is situated between two prehistoric sites, Dyke Hills and a Neolithic to Bronze Age ritual and settlement site. Although its location within the floodplain of the rivers Thames and Thame would have made it unsuited for extensive occupation'*.

Historic maps (old-maps.co.uk, 2019) indicate that the site has been in agricultural use since before 1898 and they show that Overy Mead was formerly sub-divided.

2.4 Scope of work

The survey areas were specified by the client.

Due to the presence of dense vegetation and uneven ground the area accessible / suitable for survey was reduced to approximately 30 ha, the extents of which are shown in drawing ARC_2509_974_02.

No other problems were encountered during the survey which was carried out between 7th and 15th May 2019.

3. SURVEY METHODOLOGY

3.1 Magnetic survey

The survey was undertaken using a Phase Site Investigations Ltd multi-sensor array cart system (MACS).

The MACS comprised 8 Foerster 4.032 Ferex CON 650 gradiometers with a control unit and data logger. The Foerster gradiometers do not require balancing as each sensor is automatically 'zeroed' using the control unit software.

The MACS utilises an RTK GNSS system which means that survey grids do not have to be established. Instead an area is surveyed over a series of continuous profiles and the position of each data point is recorded using an RTK GNSS system. The sensors have a separation of 0.5 m which means that data was collected on profiles spaced at 0.5 m apart. Readings were taken at between 0.1 m and 0.15 m intervals.

Data is collected on zig-zag profiles along the full length or width of a field, although fields can be sub-divided if they are particularly large. Marker canes are set-out along field boundaries at set intervals and these are used to align the profiles. The survey profiles are usually offset from field boundaries, buildings and other metallic features by several metres to reduce the detrimental effect that these surface magnetic features have on the data. The location of the MACS data is converted direct to Ordnance Survey co-ordinates using the UK OSTN 02 projection. As the survey is referenced direct to Ordnance Survey National Grid co-ordinates temporary survey stations are not established.

3.2 Data processing and presentation

The MACS data was stored direct to a laptop using in-house software which automatically corrects for instrument drift and calculates a mean value for each profile. A positional value is assigned to each data point based on the sensor number and recorded GNSS co-ordinates. The data is gridded using in-house software and parameters are set based on the sensor spacing and mean values. No additional processing is required. The gridded data is then displayed in Surfer 9 (Golden Software) and image files of the data are created.

The data was exported as greyscale raster images (PNG files). Data is presented for each site and then plots for individual fields (or parts of fields) with accompanying interpretations are shown at a scale of 1:1500. All greyscale plots were clipped at -2 nT to 3 nT. Greyscale plots have been 'smoothed' using a visual interpolation but the data itself has not been interpolated.

The data has been displayed relative to a digital Ordnance Survey base plan provided by the client as drawing *'Ordnance_Survey_Vector_Map_Local_Lines.dwg'*. The base plan was in the National Grid co-ordinate system and as the survey grids / data were referenced directly to National Grid co-ordinates the data could be simply superimposed onto the base plan in the correct position.

X-Y trace plots were examined for all of the data and overlain onto the greyscale plot to assist in the interpretation, primarily to help identify dipolar and bipolar responses that will probably be associated with surface / near-surface iron objects. However, X-Y trace plots have not been presented here as they do not show any additional anomalies that are not visible in the greyscale data. A digital drawing showing the X-Y trace plot overlain on the greyscale plot is provided in the digital archive.

All isolated responses have been assessed using a combination of greyscale and X-Y trace plots. There are a large number of 'iron spike', isolated dipolar anomalies present in the data. There is no evidence to suggest that they are associated with archaeological features and so have not been shown in the interpretation. Within some areas where there is a variable magnetic background associated with geological variations it is not possible to differentiate between individual responses, which could be related to infilled features or other potential archaeological activity, and responses caused by natural features variations. As such the majority of isolated responses within these areas have not been shown on the interpretation

The data was examined over several different ranges during the interpretation to ensure that the maximum information possible was obtained from the data.

The anomalies have been categorised based on the type of response that they exhibit and an interpretation as to the cause(s) or possible cause(s) of each anomaly type is also provided.

A general discussion of the anomalies is provided for the entire site and then the results are discussed on a field by field basis. A discussion of the general categories of anomaly which have been identified by the survey is provided in Appendix 1.5.

The geophysical interpretation drawing must be used in conjunction with the relevant results section and appendices of this report.

4. RESULTS

4.1 General

The data quality across the majority of the survey area is very good allowing the data to be viewed at a narrow range of readings to better identify weak anomalies. There are several areas that have a more disturbed / variable magnetic background but this is due to the presence of magnetic material in the topsoil or sub-surface, rather than low data quality. There are also several areas where there are **strong linear responses** in the data that are thought to be artificial data products. These are related to a sensor movement or jolt caused by rough ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation. It is possible that some of these responses could be related to agricultural activity.

The data shows a uniform magnetic background in parts of the survey area and a more variable magnetic background in other areas. The latter will be associated with geological variations and features, including gravel / alluvial deposits and possible palaeochannels. The variable magnetic background associated with these geological variations has made it difficult to differentiate between individual responses, which could be related to infilled features or other potential archaeological activity, and responses caused by natural features variations. As such the majority of isolated responses within these areas have not been shown on the interpretation.

4.2 Little Mead (Clifton Meadow site)

Basic topography: Relatively level.

Field description: Pasture. Relatively firm but uneven underfoot in places. Bounded by the River Thames in the north and by a combination of wooden and metal wire fencing on all other sides.

Interpretation drawing(s): ARC_2509_974_05.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

There are strong linear responses that are artificial data products. These are probably related to a sensor movement or jolt caused by rough / uneven ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

Very strong responses associated with strongly magnetic modern features / material. The feature / material causing the response may be located beyond the survey area.

There is a negative linear / curvi-linear response. This type of response usually relates to agricultural or other modern activity, such as ploughing, vehicle wheelings / ruts, or a plastic pipe / drain. However, it is possible that a negative anomaly can be created if an infilled feature cuts into soils that have a high magnetic susceptibility and then becomes infilled with soil that

has a low magnetic susceptibility and so the exact cause of this response is not certain.

There are broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. The boundary of each area has been shown on the interpretation but individual responses within these areas have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Further discussion / additional information:

The north of the area contains broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits, although there is no clear evidence for former channels within the data. The southern and eastern parts of the data show a variable background with a greater number of smaller, discrete responses (compared to the north). These also probably reflect natural variations, such as gravel, alluvial deposits or other variable material. If any discrete archaeological features were present in these areas then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations. In the south-east of the field there is a group of small, discrete, positive responses (**Anomalies LM1**). Whilst it is likely that these relate to natural variations there is a suggestion that the responses form a curving alignment and there is a possibility that they relate to archaeological features / activity.

In the south of the area there is a weak trend and adjacent weak negative anomaly (**Anomalies LM2**). It is possible that these responses relate to agricultural activity but there is a possibility that they relate to infilled features and as such an archaeological origin cannot be ruled out.

The more diffuse trends in this field are suggestive of natural features / variations but the remaining trends within the survey area are all too weak and short to interpret with certainty. They do not form any patterns or relationships that would suggest they are associated with sub-surface features and it is likely that they are also caused by natural variations or are a product of agricultural activity.

4.3 Clifton Meadow (Clifton Meadow site)

Basic topography: Relatively level .

Field description: Pasture. Relatively firm but uneven underfoot in places. Bounded by the River Thames in the north and by a combination of wooden and metal wire fencing on all other sides

Interpretation drawing(s): ARC_2509_974_05 and ARC_2509_974_07.

Summary of anomalies:

Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

Areas of magnetic disturbance associated with relatively modern features / material.

There are strong linear responses that are artificial data products. These are probably related to a sensor movement or jolt caused by rough / uneven ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. The features causing the responses are located beyond the survey area.

There are negative linear / curvi-linear responses present. This type of response usually relates to agricultural or other modern activity, such as ploughing, vehicle wheelings / ruts, or a plastic pipe / drain. However, it is possible that a negative anomaly can be created if an infilled feature cuts into soils that have a high magnetic susceptibility and then becomes infilled with soil that has a low magnetic susceptibility and so the exact cause of these responses is not certain.

There are broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. The boundary of each area has been shown on the interpretation but individual responses within these areas have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Positive linear / curvi-linear responses. Some responses may be caused by infilled linear / curvi-linear features.

Further discussion / additional information:

The north of the area contains broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits, although there is no clear evidence for former channels within the data. The southern parts of the data show a variable background with a greater number of smaller, discrete responses (compared to the north). These also probably reflect natural variations, such as gravel deposits or other variable material. If any discrete archaeological features were present in these areas then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

In the south of the area there are a number of relatively weak positive linear anomalies and trends (**Anomalies CM1**). These responses are suggestive of infilled features and, given the known archaeology to the south, could be related to archaeological features. It is possible that some of these responses relate to a trackway, that is shown to enter the survey area from the Scheduled Monument to the south, but the anomalies are not well-defined enough to confirm this.

To the north of CM1 there are two negatives responses (**Anomalies CM2**). On most sites these would probably be related to agricultural or modern features but it is possible that, at this site, that negative responses could be related to infilled features. Anomalies CM2 are on a similar alignment to positive anomalies in CM1 and could relate to a continuation of infilled features. There is a weak, diffuse trend (**Anomaly CM3**) on a similar alignment that could also be related to the same feature but the trend is too weak to confirm this with any certainty.

The more diffuse trends in this field are suggestive of natural features / variations but there are other trends in the field of uncertain origin. Some of these could be related to infilled features but they could also be caused by agricultural activity or natural features / variations. **Anomalies CM4**, in the south of the field, stand out slightly and could have greater potential to be related to infilled features, although their exact cause cannot be determined with certainty.

In the east of the field there is a negative curvi-linear anomaly (**Anomaly CM5**). As discussed above this type of response is usually related to agricultural or modern features but it is possible that, at this site, that negative responses could be related to infilled features.

Two trends (**Anomalies CM6**), on the same alignment, with associated areas of magnetic disturbance broadly correspond with the location of a former field boundary and will probably be related to this former feature.

4.4 Thomas's Field (Clifton Meadow site)

Basic topography: Relatively level.

Field description: Pasture. Relatively firm but uneven underfoot in places. Bounded by the River Thames in the north and by a combination of wooden and metal wire fencing on all other sides.

Interpretation drawing(s): ARC_2509_974_07 and ARC_2509_974_09.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

There are strong linear responses that are artificial data products. These are probably related to a sensor movement or jolt caused by rough / uneven ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. The features causing the responses are located beyond the survey area.

There are negative linear / curvi-linear responses present. This type of response usually relates to agricultural or other modern

activity, such as ploughing, vehicle wheelings / ruts, or a plastic pipe / drain. However, it is possible that a negative anomaly can be created if an infilled feature cuts into soils that have a high magnetic susceptibility and then becomes infilled with soil that has a low magnetic susceptibility and so the exact cause of these responses is not certain.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Positive linear / curvi-linear responses. Some responses may be caused by infilled linear / curvi-linear features.

Further discussion / additional information:

The north of the area contains broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits, although there is no clear evidence for former channels within the data. The southern parts of the data show a variable background with a greater number of smaller, discrete responses (compared to the north). These also probably reflect natural variations, such as gravel, alluvial deposits or other variable material. If any discrete archaeological features were present in these areas then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

Anomalies TF1 are made up of a number of fragmented positive linear and negative responses which run roughly parallel to the southern edge of the survey area. These responses are relatively straight and the data to the south of them is more variable than that to the north. They may be associated with agricultural activity or a change in agricultural regime but as their cause is not certain the possibility that some of the responses may be related to infilled features cannot be completely ruled out.

A trend (**Anomaly TF2**), with an associated area of magnetic disturbance, broadly corresponds with the location of a former field boundary and will probably be related to this former feature.

Of the remaining trends in this field the more diffuse responses are suggestive of natural features / variations but there are other trends in the field of uncertain origin, although it is likely that these are related to the same features / activity as Anomalies TF1.

4.5 Little Town (Church Farm)

Basic topography: Relatively level.

Field description: Pasture. Relatively firm underfoot. Bounded by the River Thames in the east and by a combination of wooden and metal wire fencing on all other sides.

Interpretation drawing(s): ARC_2509_974_12.

Summary of anomalies:

Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

There are strong linear responses that are artificial data products. These are probably related to a sensor movement or jolt caused by rough / uneven ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

There are negative linear / curvi-linear responses present. This type of response usually relates to agricultural or other modern activity, such as ploughing, vehicle wheelings / ruts, or a plastic pipe / drain. However, it is possible that a negative anomaly can be created if an infilled feature cuts into soils that have a high magnetic susceptibility and then becomes infilled with soil that has a low magnetic susceptibility and so the exact cause of these responses is not certain.

There are broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. The boundary of each area has been shown on the interpretation but individual responses within these areas have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Further discussion / additional information:

The east of the area contains broad / diffuse positive and negative anomalies that will be related to natural features /variations, possibly including palaeochannel deposits. The western part of the data show a variable background with a greater number of smaller, discrete responses (compared to the north). These also probably reflect natural variations, such as gravel, alluvial deposits or other variable material. If any discrete archaeological features were present in these areas then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

A trend related to a natural feature has been shown over a diffuse, broad negative response in the west of the field. This response has been highlighted, where other diffuse trends related to natural features have not, as it is possible that the negative response may be related to an infilled palaeochannel (although it is also possible that it is related to other natural features / variations).

Two negative curvi-linear responses (**Anomalies LT1**) are present in the west of the area. It is probable that these responses relate to agricultural activity, or possibly non-metallic pipes / drains but there is a possibility that they relate to infilled features.

Three trends (**Anomalies LT2**), on the same alignment, correspond with a probable drainage ditch.

Two relatively large isolated positive responses (**Anomalies LT3**) are present in the north of the field and there are a number of trends in proximity to these. The cause of these is not certain and it is not certain if the trends and isolated responses are related. There is no evidence to indicate that these are related to archaeological features / activity and it is likely that they are a product of modern material / activity or natural features / variations.

The more diffuse trends in this field are suggestive of natural features / variations but there are other trends in the field of uncertain origin. Some of these could be related to infilled features but they could also be caused by agricultural activity or natural features / variations.

4.6 Meadow Furlong (Church Farm)

Basic topography: Relatively level.

Field description: Pasture. Relatively firm underfoot. Bounded by a combination of wooden and metal wire fencing on all sides.

Interpretation drawing(s): ARC_2509_974_12 and ARC_2509_974_14.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

There are strong linear responses that are artificial data products. These are probably related to a sensor movement or jolt caused by rough / uneven ground. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. The features causing the responses are located beyond the survey area.

The entire field comprises broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. Individual responses within this field have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Further discussion / additional information:

The field shows a variable background with a relatively large number of small, discrete responses. These probably reflect natural variations, such as gravel deposits or other variable material. There are also broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits. If any discrete archaeological features were present in this field then it is unlikely that it would be possible to

differentiate between responses related to discrete features and the responses related to natural features / variations.

Trends related to natural features have been shown over diffuse, broad negative responses. These responses have been highlighted, where some other diffuse trends related to natural features have not, as it is possible that the negative responses may be related to infilled palaeochannels (although it is also possible that it is related to other natural features / variations). For the sake of clarity some broad positive responses that are adjacent to negative anomalies have not been shown on the interpretation but these will also be related to natural features / variations.

In terms of the remaining trends, the more diffuse responses in this field are also suggestive of natural features / variations but there are other trends in the field of uncertain origin. Some of these could be related to infilled features but they could also be caused by agricultural activity or natural features / variations. Several trends stand out slightly as they are stronger and more coherent (**Anomalies MF1**). It is possible that these may be related to anthropogenic activity but their exact cause is not certain.

4.7 Great Meadow (Church Farm)

Basic topography: Relatively level.

Field description: Pasture. Relatively firm underfoot. Bounded by the River Thames in the east and by a combination of wooden and metal wire fencing on all other sides.

Interpretation drawing(s): ARC_2509_974_12 and ARC_2509_974_14.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. The features causing the responses are located beyond the survey area.

The entire field comprises broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. Individual responses within this field have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Further discussion / additional information:

The field shows a variable background with broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits. If any discrete archaeological features were present in this field then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

Trends related to natural features have been shown over diffuse, broad negative responses. These responses have been highlighted, where some other diffuse trends related to natural features have not, as it is possible that the negative responses may be related to infilled palaeochannels (although it is also possible that it is related to other natural features / variations). For the sake of clarity some broad positive responses that are adjacent to negative anomalies have not been shown on the interpretation but these will also be related to natural features / variations.

In terms of the remaining trends, the more diffuse responses in this field are also suggestive of natural features / variations but there are other trends in the field of uncertain origin. Some of these could be related to infilled features but they could also be caused by agricultural activity or natural features / variations.

4.8 Old Bridge Meadow (Overy Mead)

Basic topography: Relatively level with some undulations

Field description: Pasture. Relatively firm underfoot. Bounded by the River Thame in the west, by a stone wall to the north and by a combination of wooden and metal wire fencing and dense vegetation in the south and east. There were areas of dense vegetation across the field.

Interpretation drawing(s): ARC_2509_974_17.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

Two linear bipolar anomalies associated with sub-surface utility apparatus (pipes, cables or drains).

Areas of magnetic disturbance associated with relatively modern features / material.

Very strong responses associated with strongly magnetic modern features / material. The feature / material causing the response may be located beyond the survey area.

The majority of the field comprises broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. Individual responses within this field have not been shown.

Diffuse trends that are probably related to natural features / variations.

Trends of uncertain origin.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material.

Further discussion / additional information:

The field shows a variable background with broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits. If any discrete archaeological features were present in this field then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

The more diffuse trends in this field are suggestive of natural features / variations but there are other trends in the field of uncertain origin. Some of these could be related to infilled features but they could also be caused by agricultural activity or natural features / variations.

4.9 Overy Mead (Overy Mead)

Basic topography: Relatively level with some undulations.

Field description: Pasture. Relatively firm underfoot. Bounded by the River Thame in the west and north-west, by dense vegetation and a footpath in the north, by a combination of wooden and metal wire fencing in the east and south-east. a footpath, dense vegetation and fence in the south-west and by the River Thames in the south.

Interpretation drawing(s): ARC_2509_974_17 and ARC_2509_974_19.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses, that are all thought to be associated with modern material. These have not been shown on the interpretation.

Areas of magnetic disturbance associated with relatively modern features / material.

Very strong responses associated with strongly magnetic modern features / material. The feature / material causing the response may be located beyond the survey area.

The majority of the field comprises broad areas with positive / negative responses that have produced a variable magnetic background. These areas will contain responses related to natural features / variations. Individual responses within this field have not been shown.

A diffuse trend that is probably related to natural features / variations.

Trends of uncertain origin.

Further discussion / additional information:

The field shows a variable background with broad / diffuse positive and negative anomalies that will be related to natural features / variations, possibly including palaeochannel deposits. If any discrete archaeological features were present in this field then it is unlikely that it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

The more diffuse trend in this field is suggestive of a natural feature / variation. There are two trends in the west (**Anomalies OM1**) within an area of magnetic disturbance. It is likely that the trends are related to the modern material causing the magnetic disturbance but it is possible that they are caused by features underlying the disturbance.

5. DISCUSSION AND CONCLUSIONS

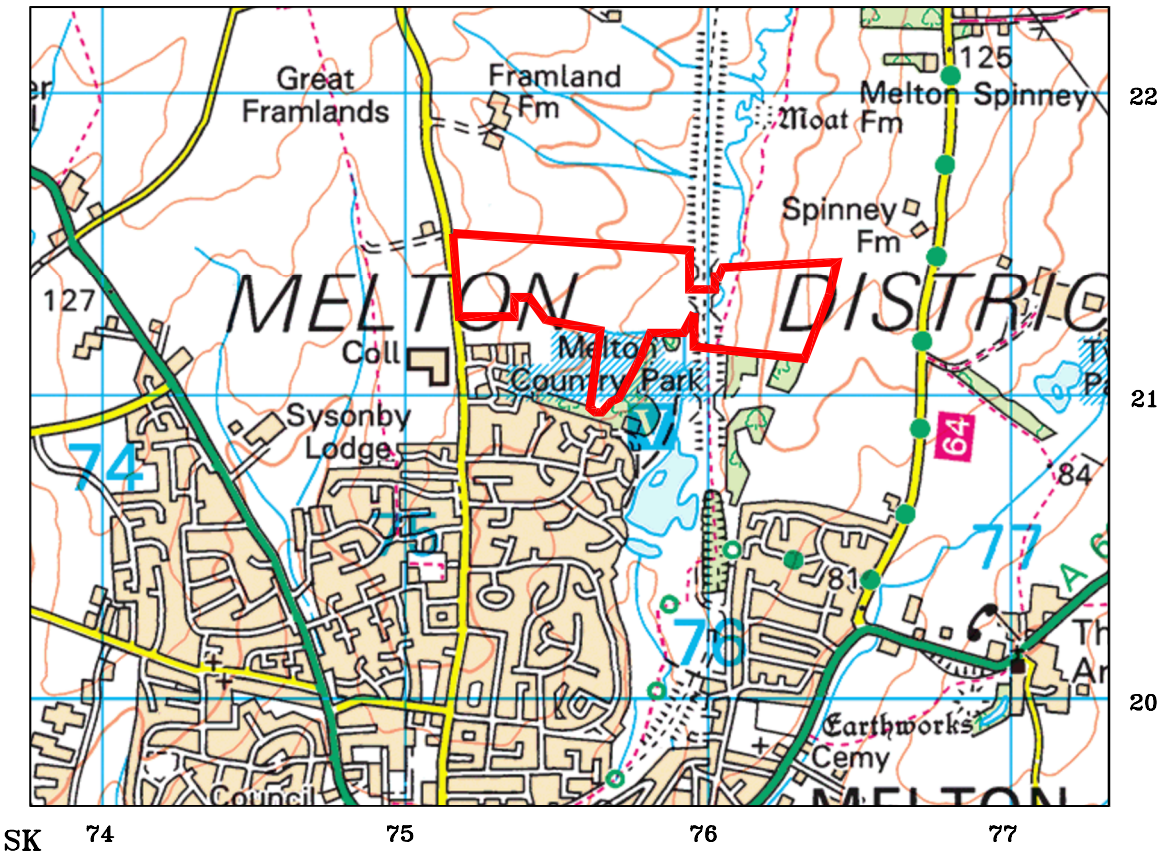
The survey has provided evidence for possible archaeological activity in the Clifton Meadow field, in the form of several series of positive linear / curvi-linear responses and trends. A Roman settlement is present to the south of Clifton Meadow and a trackway, of presumed Roman date, has been identified which leads towards the survey area. Some of the responses could relate to a continuation of this trackway and other, possibly related, features. No anomalies that could be clearly related to archaeological features / activity were identified at Church Farm or Overy Mead.

Most of the areas are dominated by responses relating to natural features / variations, probably including gravel / alluvial deposits and palaeochannels. These responses have created a variable magnetic background which has made it difficult to differentiate between individual responses, which could be related to infilled features or other potential archaeological activity, and responses caused by natural features variations. As such the majority of isolated responses within these areas have not been shown on the interpretation and it should be noted that if discrete archaeological features are present it is unlikely it would be possible to differentiate between responses related to discrete features and the responses related to natural features / variations.

The majority of the remaining anomalies identified by this survey relate to modern material / objects, agricultural activity and geological / pedological variations. There are some linear / anomalies and trends of uncertain origin but these do not form any clear patterns or relationships that would indicate an archaeological origin and they are considered more likely to be associated with agricultural or other modern activity or natural features / variations.

It should be noted that the anomalies relating to possible and probable infilled features are relatively weak (except for some anomalies that clearly relate to natural features / variations). This suggests that the magnetic susceptibility of the soils is relatively low which could mean that some infilled features could be present that only produce very weak responses, which may not be identified by the survey. The presence of alluvial deposits could also mean that some archaeological features, if present, could be relatively deeply buried and may not produce identifiable magnetic anomalies.

It should be noted that a geophysical survey does not directly locate sub-surface features - it identifies variations or anomalies in the background response caused by features. The interpretation of geophysical anomalies is often subjective and it is rarely possible to identify the cause of all such anomalies. Not all features will produce a measurable anomaly and the effectiveness of a geophysical survey is also dependant on the site-specific conditions. The main factors that may limit whether a feature can be detected are the composition of a feature, its depth and size and the surrounding material. It is not possible to guarantee that a geophysical survey will identify all sub-surface features. Confirmation on the identification of anomalies and the presence or absence of sub-surface features can only be achieved by intrusive investigation.



SITE LOCATION

SCALE

0m 500m 1000m

NOTE

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PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A4 Sheet]	Drawing	Status
AS SHOWN	ARC_2604_979_01	FINAL

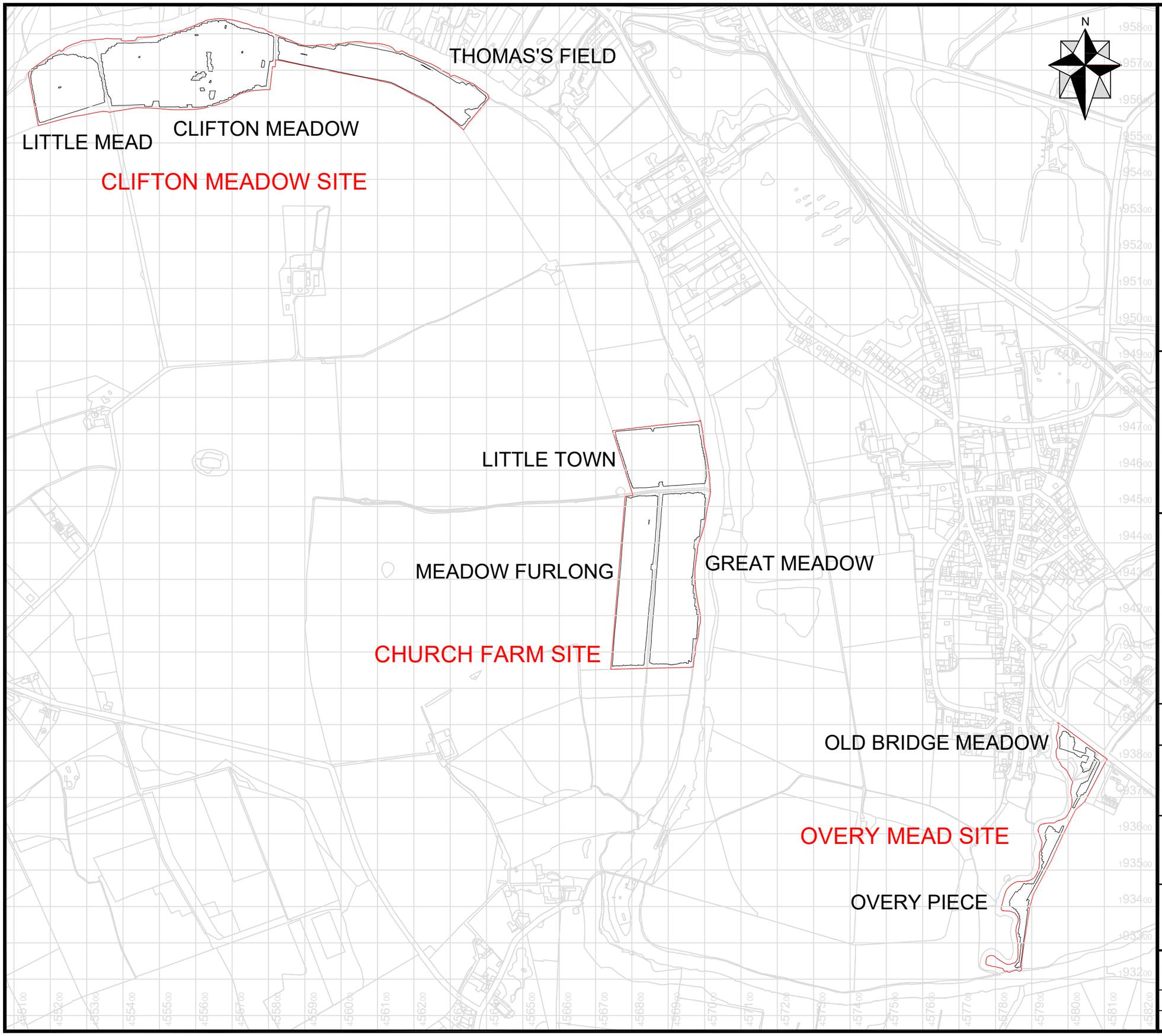
Client: BARWOOD DEVELOPMENT SECURITIES LTD EAST HADDON

Site: LAND OFF SCALFORD ROAD MELTON MOWBRAY, LEICESTERSHIRE

Title: SITE LOCATION MAP

Job No: ARC_2604_979

		Drawn	AB
Chk.	MW	Date	07/06/2019



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KEY

SITE BOUNDARY

EXTENTS OF MAGNETIC GRADIENT SURVEY

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:10000	ARC_2509_974_02	FINAL

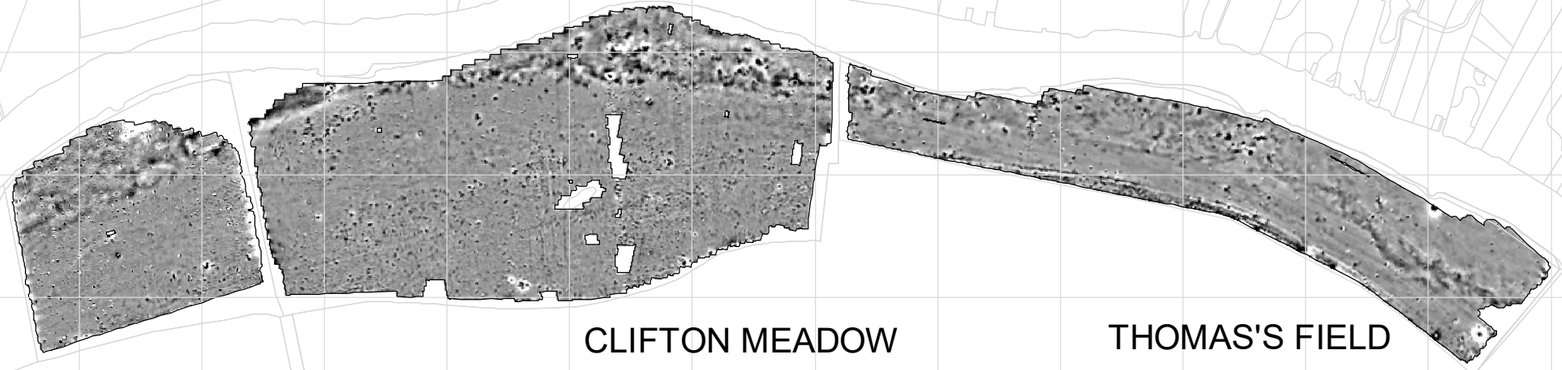
Client: EARTH TRUST, LITTLE WITTENHAM

Site: RIVER OF LIFE PROJECT, OXFORDSHIRE

Title: LOCATION OF SITES SHOWING MAGNETIC GRADIENT SURVEY AREAS

Job No: ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



LITTLE MEAD

CLIFTON MEADOW

THOMAS'S FIELD

3
-2
nT

NOTES

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:2000	ARC_2509_974_03	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
CLIFTON MEADOW SITE SHOWING MAGNETIC GRADIENT DATA

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019

CLIFTON MEADOW

LITTLE MEAD

1957 00

1956 00

1955 00

4552 00

4553 00

4554 00

4555 00

4556 00

3

-2

nT

NOTES

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_04	FINAL

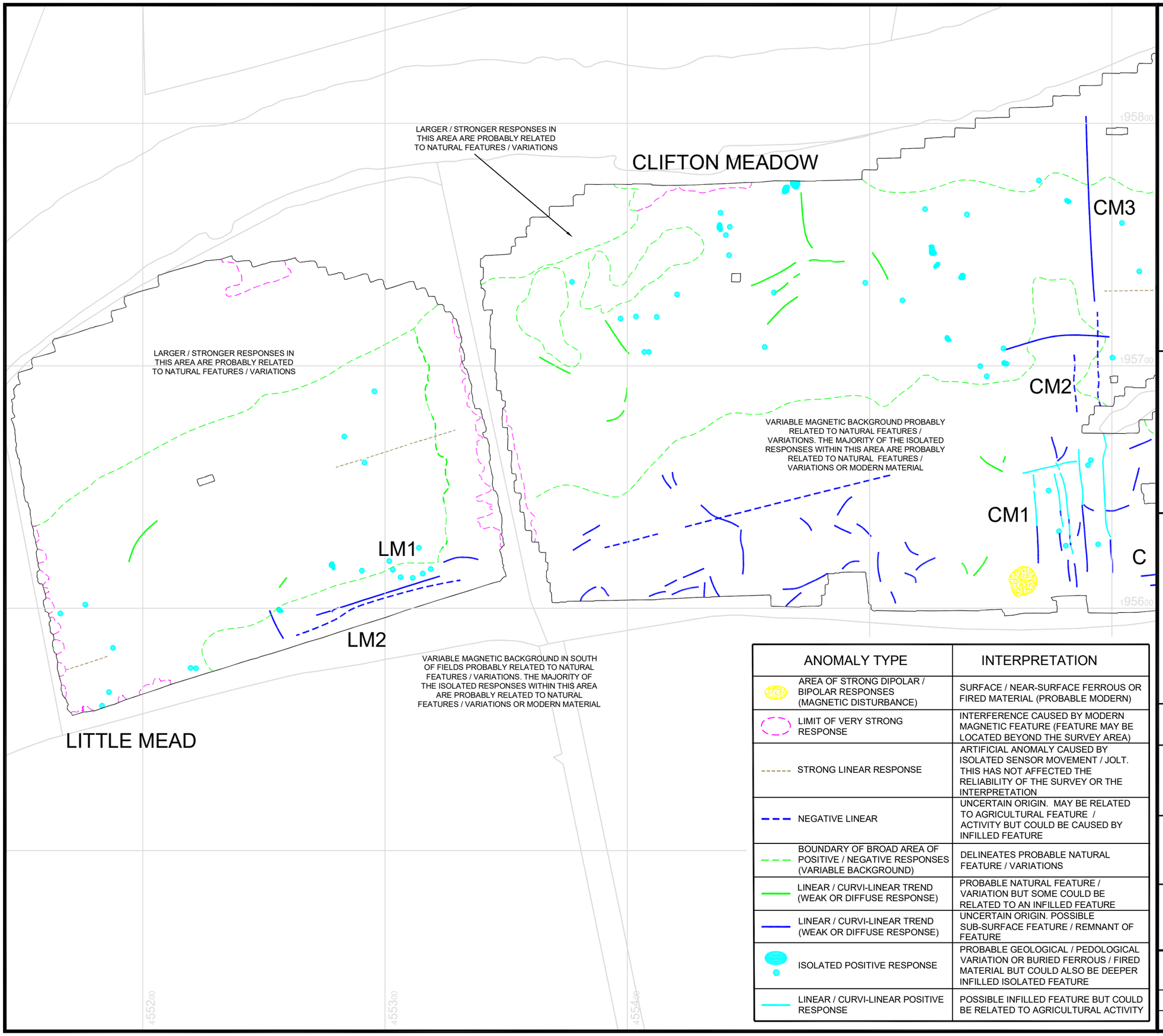
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: WESTERN PART OF CLIFTON MEADOW SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



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ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
STRONG LINEAR RESPONSE	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
NEGATIVE LINEAR	UNCERTAIN ORIGIN. MAY BE RELATED TO AGRICULTURAL FEATURE / ACTIVITY BUT COULD BE CAUSED BY INFILLED FEATURE
BOUNDARY OF BROAD AREA OF POSITIVE / NEGATIVE RESPONSES (VARIABLE BACKGROUND)	DELINEATES PROBABLE NATURAL FEATURE / VARIATIONS
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	POSSIBLE INFILLED FEATURE BUT COULD BE RELATED TO AGRICULTURAL ACTIVITY

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_05	FINAL

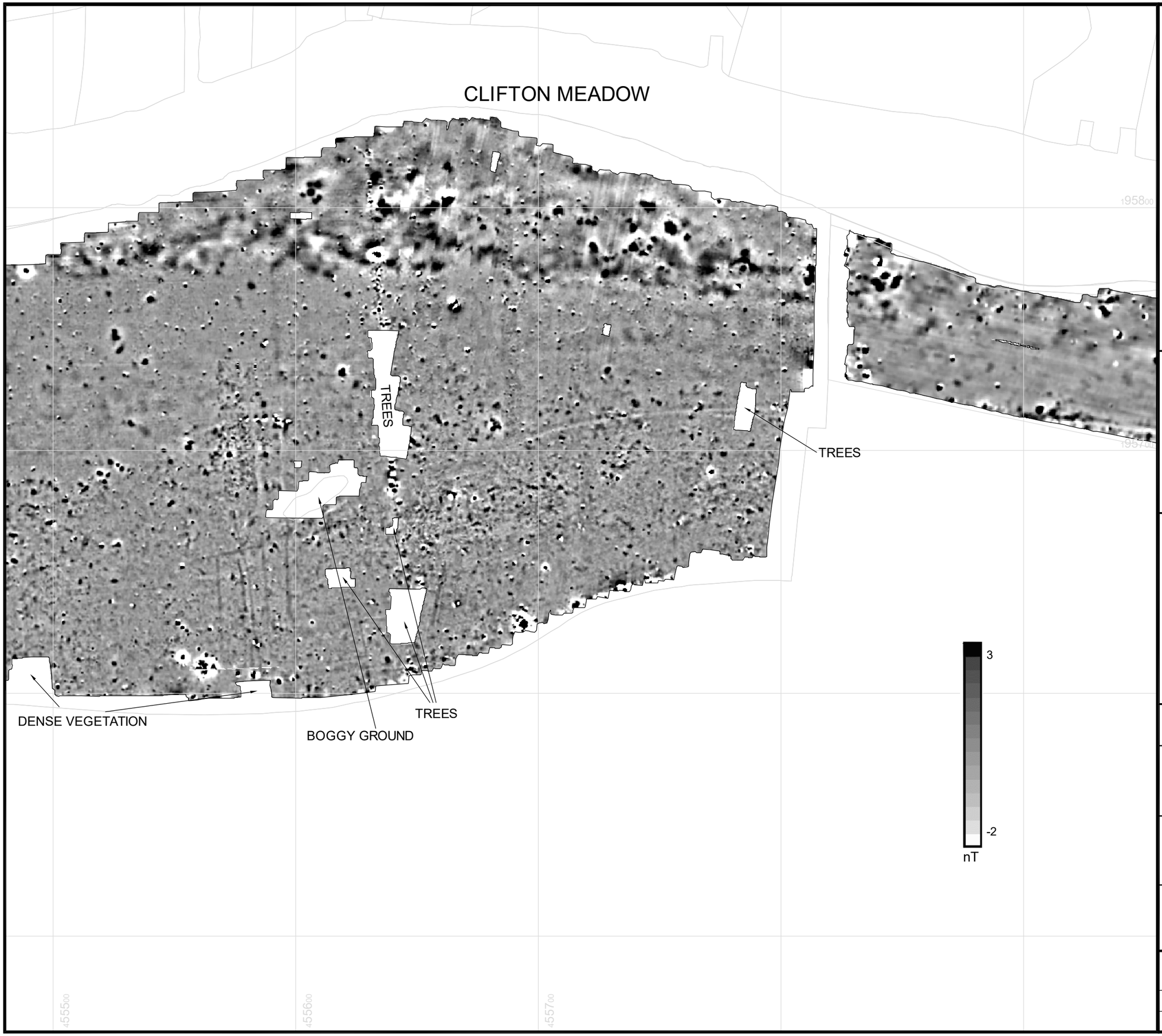
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
INTERPRETATION OF MAGNETIC GRADIENT DATA: WESTERN PART OF CLIFTON MEADOW SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019



NOTES

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T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_06	FINAL

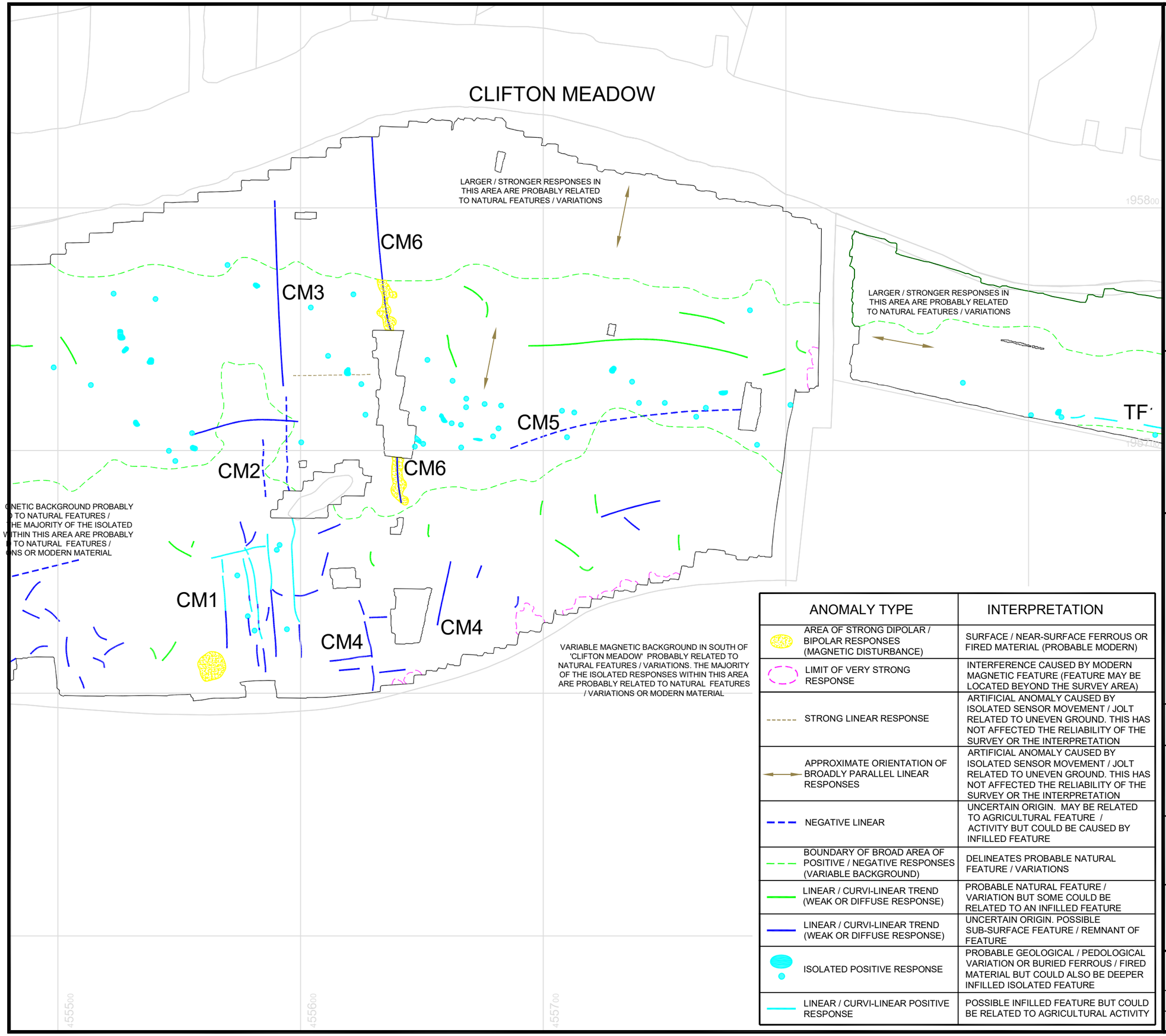
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: CENTRAL PART OF CLIFTON MEADOW SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
STRONG LINEAR RESPONSE	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT RELATED TO UNEVEN GROUND. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
APPROXIMATE ORIENTATION OF BROADLY PARALLEL LINEAR RESPONSES	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT RELATED TO UNEVEN GROUND. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
NEGATIVE LINEAR	UNCERTAIN ORIGIN. MAY BE RELATED TO AGRICULTURAL FEATURE / ACTIVITY BUT COULD BE CAUSED BY INFILLED FEATURE
BOUNDARY OF BROAD AREA OF POSITIVE / NEGATIVE RESPONSES (VARIABLE BACKGROUND)	DELINEATES PROBABLE NATURAL FEATURE / VARIATIONS
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	POSSIBLE INFILLED FEATURE BUT COULD BE RELATED TO AGRICULTURAL ACTIVITY

NOTES

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_07	FINAL

Client: EARTH TRUST
LITTLE WITTENHAM

Site: RIVER OF LIFE PROJECT
OXFORDSHIRE

Title: INTERPRETATION OF MAGNETIC GRADIENT DATA: CENTRAL PART OF CLIFTON MEADOW SITE

Job No: ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019

NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_08	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: EASTERN PART OF CLIFTON MEADOW SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019

THOMAS'S FIELD

LARGER / STRONGER RESPONSES IN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS

TF1

TF2

TF1

TF1

TF1

VARIABLE MAGNETIC BACKGROUND IN SOUTH OF 'THOMAS'S FIELD' PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS. THE ISOLATED RESPONSES WITHIN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS OR MODERN MATERIAL

1958 00

1957 00

1956 00

1955 00

4562 00

4563 00

4564 00

ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
APPROXIMATE ORIENTATION OF BROADLY PARALLEL LINEAR RESPONSES	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT RELATED TO UNEVEN GROUND. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
NEGATIVE LINEAR	UNCERTAIN ORIGIN. MAY BE RELATED TO AGRICULTURAL FEATURE / ACTIVITY BUT COULD BE CAUSED BY INFILLED FEATURE
BOUNDARY OF BROAD AREA OF POSITIVE / NEGATIVE RESPONSES (VARIABLE BACKGROUND)	DELINEATES PROBABLE NATURAL FEATURE / VARIATIONS
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	POSSIBLE INFILLED FEATURE BUT COULD BE RELATED TO AGRICULTURAL ACTIVITY

NOTES

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PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_09	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
INTERPRETATION OF MAGNETIC GRADIENT DATA: EASTERN PART OF CLIFTON MEADOW SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019

NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:2500	ARC_2509_974_10	FINAL

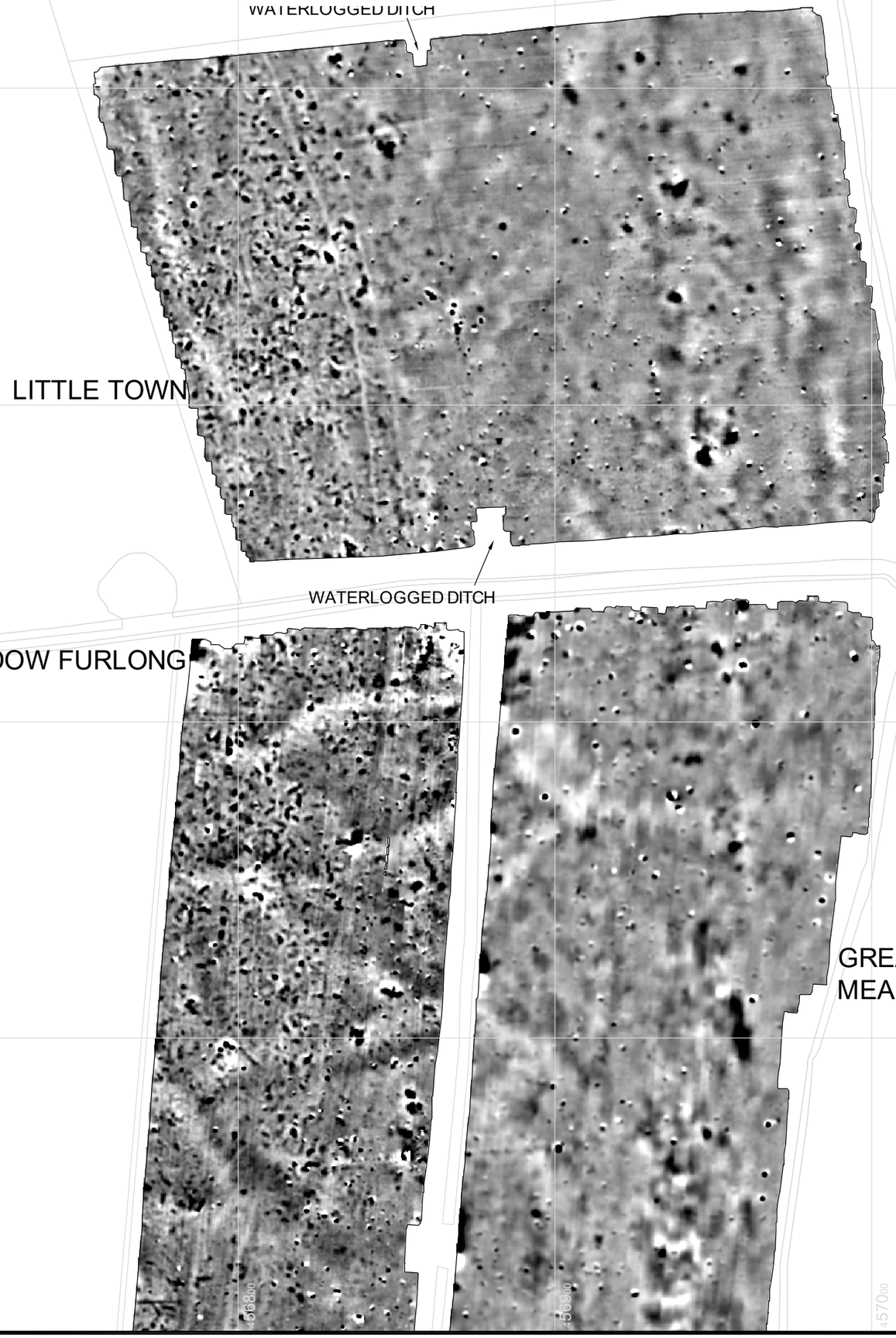
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
CHURCH FARM SITE SHOWING MAGNETIC GRADIENT DATA

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_11	FINAL

Client: EARTH TRUST
LITTLE WITTENHAM

Site: RIVER OF LIFE PROJECT
OXFORDSHIRE

Title: GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: NORTHERN PART OF CHURCH FARM SITE

Job No: ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019

WATERLOGGED DITCH

LT3

LT2

LT3

LT1

LT2

VARIABLE MAGNETIC BACKGROUND IN 'LITTLE TOWN' FIELD PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS. THE ISOLATED RESPONSES WITHIN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS OR MODERN MATERIAL

LARGER / STRONGER RESPONSES IN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS

LITTLE TOWN

LT2

LT1

WATERLOGGED DITCH

MEADOW FURLONG

VARIABLE MAGNETIC BACKGROUND IN 'MEADOW FURLONG' PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS. THE ISOLATED RESPONSES WITHIN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS OR MODERN MATERIAL

LARGER / STRONGER RESPONSES IN EAST OF 'GREAT MEADOW' FIELD ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS

GREAT MEADOW

MF1

1947 00

1946 00

1945 00

1944 00

4568 00

4569 00

4570 00

ANOMALY TYPE	INTERPRETATION
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
STRONG LINEAR RESPONSE	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT RELATED TO UNEVEN GROUND. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
NEGATIVE LINEAR	UNCERTAIN ORIGIN. MAY BE RELATED TO AGRICULTURAL FEATURE / ACTIVITY BUT COULD BE CAUSED BY INFILLED FEATURE
BROAD, DIFFUSE AREA OF POSITIVE AND / OR NEGATIVE RESPONSES	PROBABLE NATURAL FEATURE / VARIATIONS
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. PROBABLE MODERN PLOUGHING REGIME
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE

NOTES

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Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_12	FINAL

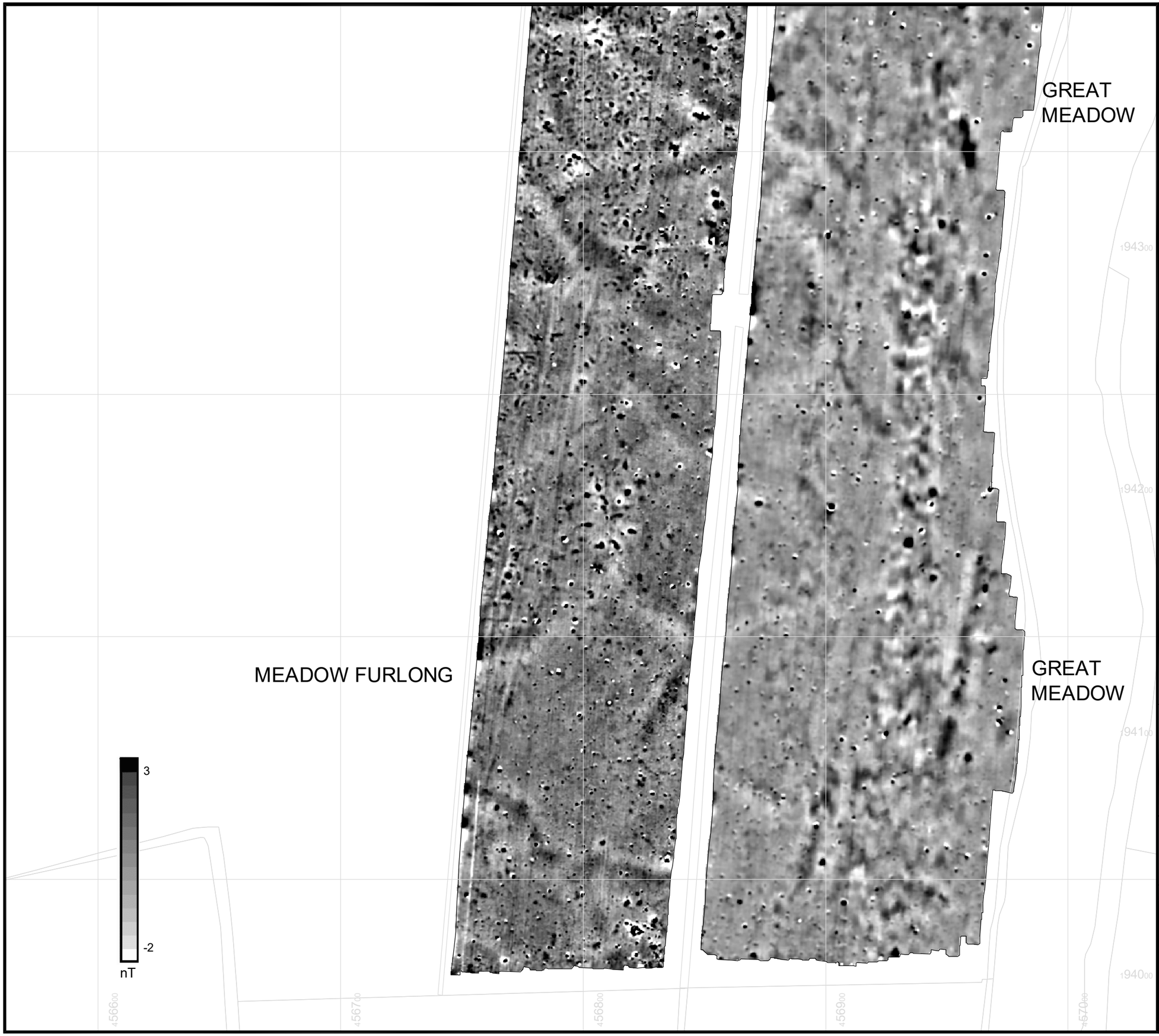
Client: EARTH TRUST
LITTLE WITTENHAM

Site: RIVER OF LIFE PROJECT
OXFORDSHIRE

Title: INTERPRETATION OF MAGNETIC GRADIENT DATA: NORTHERN PART OF CHURCH FARM SITE

Job No: ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019



NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_13	FINAL

Client: EARTH TRUST
LITTLE WITTENHAM

Site: RIVER OF LIFE PROJECT
OXFORDSHIRE

Title: GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: SOUTHERN PART OF CHURCH FARM SITE

Job No: ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019

MF1

MF1

MEADOW FURLONG

VARIABLE MAGNETIC BACKGROUND IN 'MEADOW FURLONG' PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS. THE ISOLATED RESPONSES WITHIN THIS AREA ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS OR MODERN MATERIAL

GREAT MEADOW

LARGER / STRONGER RESPONSES IN EAST OF 'GREAT MEADOW' FIELD ARE PROBABLY RELATED TO NATURAL FEATURES / VARIATIONS

1943 00

1942 00

1941 00

1940 00

4568 00

4569 00

4570 00

ANOMALY TYPE	INTERPRETATION
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
STRONG LINEAR RESPONSE	ARTIFICIAL ANOMALY CAUSED BY ISOLATED SENSOR MOVEMENT / JOLT RELATED TO UNEVEN GROUND. THIS HAS NOT AFFECTED THE RELIABILITY OF THE SURVEY OR THE INTERPRETATION
BROAD, DIFFUSE AREA OF POSITIVE AND / OR NEGATIVE RESPONSES	PROBABLE NATURAL FEATURE / VARIATIONS
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. PROBABLE MODERN PLOUGHING REGIME
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE

NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_14	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
INTERPRETATION OF MAGNETIC GRADIENT DATA: SOUTHERN PART OF CHURCH FARM SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019

NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:2500	ARC_2509_974_15	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
OVERY MEAD SITE
SHOWING MAGNETIC GRADIENT DATA

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019

NOTES

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E: enquiries@PhaseSI.com
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Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_16	FINAL

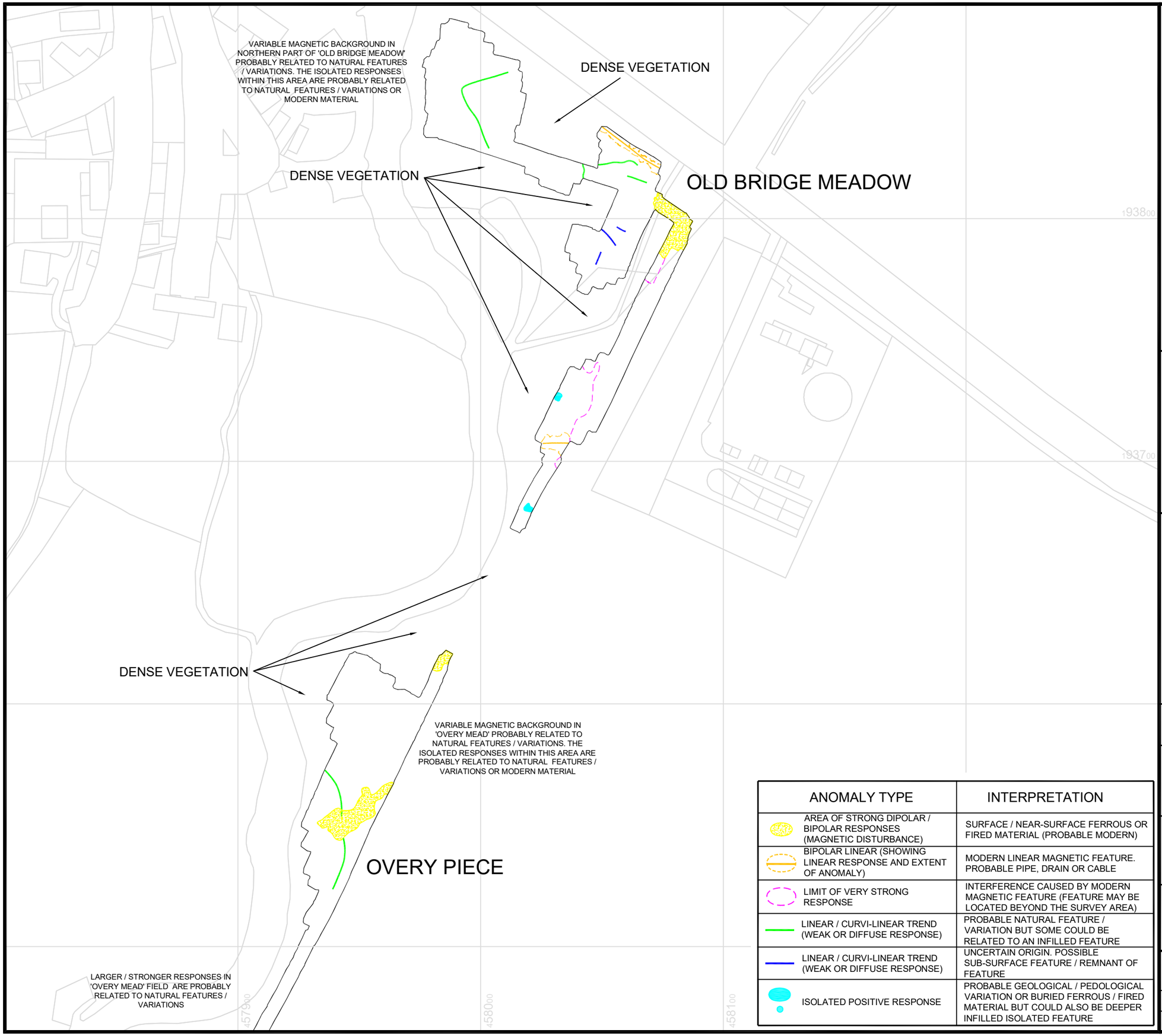
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: NORTHERN AND CENTRAL PARTS OF OVERY MEAD SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
BIPOLAR LINEAR (SHOWING LINEAR RESPONSE AND EXTENT OF ANOMALY)	MODERN LINEAR MAGNETIC FEATURE. PROBABLE PIPE, DRAIN OR CABLE
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION OR BURIED FERROUS / FIRED MATERIAL BUT COULD ALSO BE DEEPER INFILLED ISOLATED FEATURE

NOTES

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T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_17	FINAL

Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
INTERPRETATION OF MAGNETIC GRADIENT DATA: NORTHERN AND CENTRAL PARTS OF OVERY MEAD SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019

NOTES

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E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1500	ARC_2509_974_18	FINAL

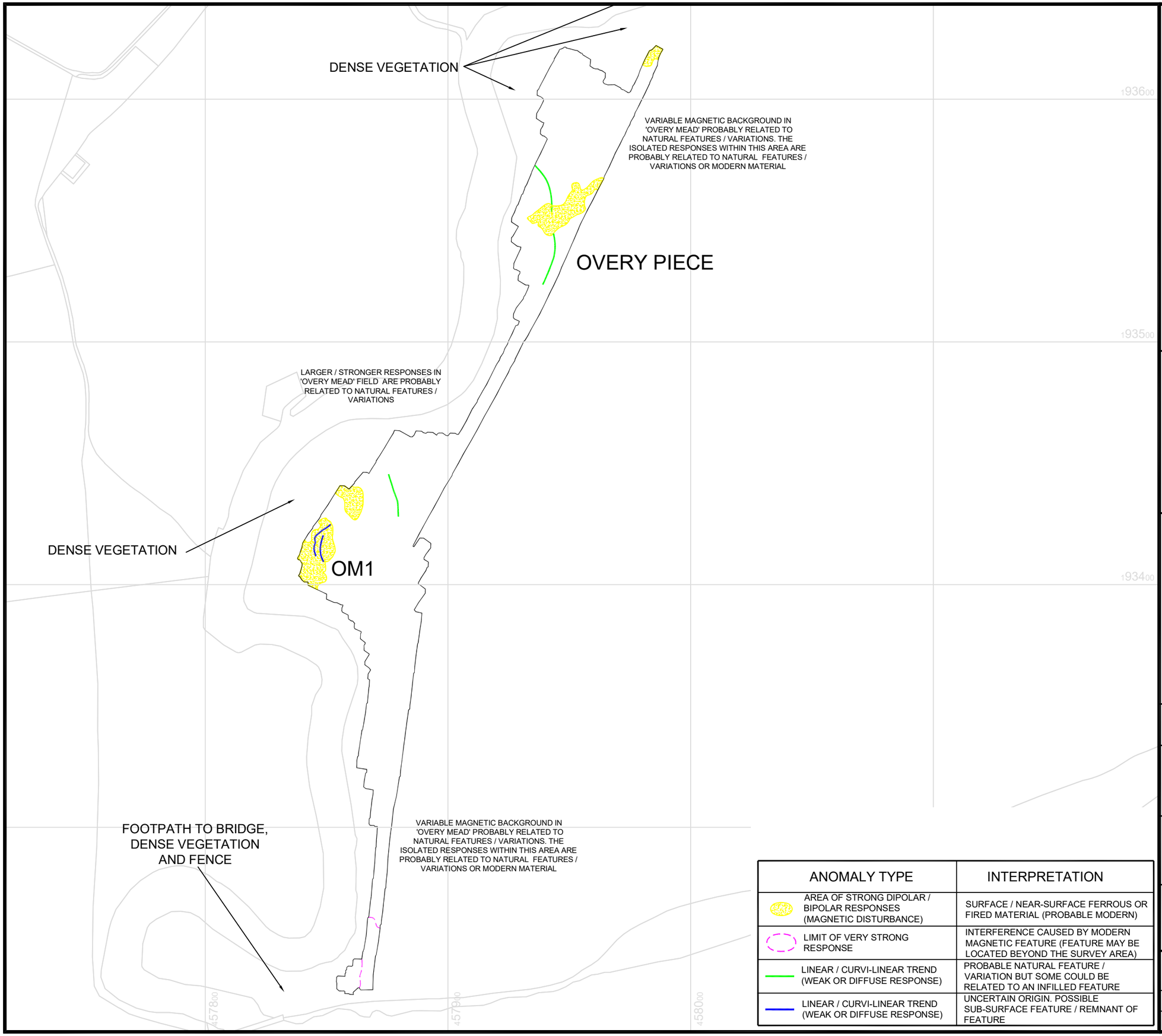
Client
EARTH TRUST
LITTLE WITTENHAM

Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: SOUTHERN AND CENTRAL PARTS OF OVERY MEAD SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB
Chk.	MW	Date	14/05/2019



ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	PROBABLE NATURAL FEATURE / VARIATION BUT SOME COULD BE RELATED TO AN INFILLED FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE

NOTES

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PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

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Client
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Site
RIVER OF LIFE PROJECT
OXFORDSHIRE

Title
INTERPRETATION OF MAGNETIC GRADIENT DATA: SOUTHERN AND CENTRAL PARTS OF OVERY MEAD SITE

Job No
ARC_2509_974

Surveyed	JW, AB, CA	Drawn	AB, MW
Chk.	NF	Date	14/05/2019

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APPENDIX 1

Magnetic survey: technical information

1.1 Theoretical background

1.1.1 Magnetic instruments measure the value of the Earth's magnetic field; the units of which are nanoTeslas (nT). The presence of surface and sub-surface features can cause variations or anomalies in this magnetic field. The strength of the anomaly is dependent on the magnetic properties of a feature and the material that surrounds it. The two magnetic properties that are of most interest are magnetic susceptibility and thermoremnant magnetism.

1.1.2 Magnetic susceptibility indicates the amount of ferrous (iron) minerals that are present. These can be redistributed or changed (enhanced) by human activity. If enhanced material subsequently fills in features such as pits or ditches then these can produce localised increases in magnetic responses (anomalies) which can be detected by a magnetic gradiometer even when the features are buried under additional soil cover.

1.1.3 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 strength of magnetic responses that a feature will produce will depend on the background magnetic susceptibility, how rapidly the feature has been infilled, the level and type of human activity in the area and the size and depth of a feature. Not all infilled features can be detected and natural variations can also produce localised positive and negative anomalies.

1.1.4 Thermoremnant magnetism indicates the amount of magnetism inherent in an object as a result of heating. Material that has been heated to a high temperature (fired), such as brick, can acquire strong magnetic properties and so although they may not appear to have a high iron content they can produce strong magnetic anomalies

1.1.5 The magnetic survey method is highly sensitive to interference from surface and near-surface magnetic 'contaminants'. Surface features such as metallic fencing, reinforced concrete, buildings or walls all have very strong magnetic signatures that can dominate readings collected adjacent to them. Identification of anomalies caused by sub-surface features is therefore more difficult, or even impossible, in the vicinity of surface magnetic features. The presence of made ground also has a detrimental effect on the magnetic data quality as this usually contains magnetic material in the form of metallic scrap and brick. Identification of features beneath made ground is still possible if the target feature is reasonably large and has a strong magnetic response but smaller features or magnetically weak features are unlikely to be identified.

1.1.6 The interpretation of magnetic anomalies is often subjective and it is rarely possible to identify the cause of all magnetic anomalies. Not all features will produce a measurable magnetic response and the effectiveness of a magnetic survey is also dependant on the site-specific conditions. The main factors that may limit whether a feature can be detected are the

composition of a feature, its depth and size and the surrounding material. It is not possible to guarantee that a magnetic survey will identify all sub-surface features.

1.1.7 Most high resolution, near surface magnetic surveys utilise a magnetic gradiometer. A gradiometer is a hand-held instrument that consists of two magnetic sensors, one positioned directly above the other, which allows measurement of the magnetic gradient component of the magnetic field. A gradiometer configuration eliminates the need for applying corrections due to natural variations in the overall field strength that occur during the course of a day but it only measures relative variations in the local magnetic field and so comparison of absolute values between sites is not possible.

1.1.8 Features that are commonly located using magnetic surveys include archaeological ditches and pits, buried structures or foundations, mineshafts, unexploded ordnance, metallic pipes and cables, buried piles and pile caps. The technique can also be used for geological mapping; particularly the location of igneous intrusions.

1.2 Instrumentation

1.2.1 A multi-sensor array cart system (MACS) utilising 8 Foerster 4.032 Ferex CON 650 gradiometers, spaced at 0.5 m intervals, with a control unit and data logger was used for the magnetic survey.

1.3 Survey methodology

1.3.1 The MACS utilises an RTK GNSS system which means that survey grids do not have to be established. Instead an area is surveyed over a series of continuous profiles and the position of each data point is recorded using an RTK GNSS system. The sensors have a separation of 0.5 m which means that data was collected on profiles spaced at 0.5 m apart. Readings were taken at between 0.1 m and 0.15 m intervals.

1.3.2 Data is collected on zig-zag profiles along the full length or width of a field, although fields can be sub-divided if they are particularly large. Marker canes are set-out along field boundaries at set intervals and these are used to align the profiles. The survey profiles are usually offset from field boundaries, buildings and other metallic features by several metres to reduce the detrimental effect that these surface magnetic features have on the data. The location of the MACS data is converted direct to Ordnance Survey co-ordinates using the UK OSTN 02 projection. As the data is related direct to Ordnance Survey National Grid co-ordinates temporary survey stations are not established.

1.3.3 The Foerster gradiometers have a resolution of 0.2 nT but the stability of the cart system significantly reduces noise caused by instrument tilt and movement when compared with a traditional hand-held gradiometer system and the increased data intervals provide a higher resolution data set. The sensors have a range of ± 10,000nT and readings are taken at 0.1 nT resolution.

1.4 Data processing and presentation

1.4.1 The MACS data is stored direct to a laptop using in-house software which automatically corrects for instrument drift and calculates a mean value for each profile. A positional value is assigned to each data point based on the sensor number and recorded GNSS co-ordinates. The data is gridded using in-house software and parameters are set based on the sensor spacing and mean values. No additional processing is required. The gridded data is then displayed in Surfer 9 (Golden Software) and image files of the data are created.

1.4.2 The data was exported as raster images (PNG files), and are presented in greyscale format at 1:1500.

1.4.3 The data has been displayed relative to a digital Ordnance Survey base plan provided by the client as drawing *'Ordnance_Survey_Vector_Map_Local_Lines.dwg'*. The base plan was in the National Grid co-ordinate system and as the survey grids were set-out directly to National Grid co-ordinates the data could be simply superimposed onto the base plan in the correct position.

1.5 Interpretation

1.5.1 The anomalies have been categorised based on the type of response that they have and an interpretation as to the cause(s) or possible cause(s) of each anomaly type is also provided. The following anomaly types may be present within the data:

Dipolar, bipolar and strong responses

Dipolar and bipolar responses are those that have a sharp variation between strongly positive and negative components.

In the majority of cases these responses are usually caused by modern ferrous features / objects, although fired material (such as brick), some ferrous or industrial archaeological features and strongly magnetic gravel could also produce dipolar and bipolar responses.

Isolated dipolar responses are those that have a single positive and negative element. They are usually caused by isolated, ferrous or fired material on or near to the surface. The objects that cause dipolar responses are usually relatively small, such as spent shotgun cartridges, iron nails and horseshoes (hence they are often referred to as 'iron spikes') or pieces of modern brick or pot. Some types of archaeological artefacts can also produce this type of response but unless there is strong supporting evidence to the contrary they are assumed not to be of archaeological significance.

Bipolar anomalies have strong positive and negative components but are not technically magnetic dipoles. The majority of **isolated bipolar responses** are caused by ferrous or fired material on or near to the surface. These responses tend to be produced from larger objects, compared to dipolar anomalies, or a concentration of smaller objects. Some archaeological features/ activity, including areas of burning or industrial activity can also produce this type of response but unless there is strong supporting evidence to the contrary they are assumed not to be of archaeological significance.

Isolated dipolar and bipolar responses have not been shown on the interpretation as there is no evidence to suggest that they may be archaeological in origin.

Bipolar linear anomalies are usually produced by buried pipes / cables that are usually metallic, although in some instances ceramic pipes can also produce popular anomalies. In some instances the anomaly can extend for a sigfncaint distance beyond the feature that produces the anomaly. Bipolar anomalies are often very strong and can potentially mask responses from other sub-surface features in the vicinity of the pipe or cable.

Areas containing numerous **strong dipolar / bipolar responses (magnetic disturbance)** are usually caused by greater concentrations of ferrous or fired material and are often found adjacent to field boundaries where such material tends to accumulate. Above ground metallic or strongly magnetic features, such as fences, gates, pylons and buildings can also produce very strong bipolar responses. If an area of magnetic disturbance is located away from existing field boundaries then it could indicate a former field boundary,

several large isolated objects in close proximity, an area where modern material has been tipped or an infilled cut feature, such as a quarry pit. Areas of dipolar / bipolar response can occasionally be caused by features / material associated with archaeological industrial activity or natural deposits that have varying magnetic properties but they are usually caused by modern activity. Responses in areas of magnetic disturbance can sometimes be so strong that archaeological features located beneath them may not be detected.

Very strong responses, notably bipolar anomalies, from modern features can dominate the data for a significant distance beyond the feature. The extent of these areas is usually shown either as part of the bipolar anomaly or as a **limit of very strong response.** It should be noted that this effect extends beyond the feature and so the limit of the response does not correspond to the actual size or location of the feature within it. In many cases where these strong responses are present at the edge of survey area the feature causing the anomaly be actually be located beyond the survey area. It should be recognised that other sub-surface features located within these areas may not be detected.

There are several **strong linear responses** that are artificial data products. These are either related to a sensor movement or jolt caused by rough ground or are a product of very strong responses caused by material adjacent to the survey area. These responses are not related to a sub-surface feature and their presence has not affected the reliability of the survey or interpretation.

Negative linear anomalies

Negative linear anomalies occur when a feature has lower magnetic readings than the surrounding material and can often be associated with ploughing regimes or plastic / concrete pipes or natural features.

They can also indicate the presence of a feature that cuts into magnetic soils or bedrock and which is infilled with less magnetic material and in certain geologies can be associated with archaeological features.

Linear / curvi-linear anomalies (probable agricultural)

In many geological / pedological conditions agricultural features / regimes can produce magnetic anomalies due to the accumulation / alignment of magnetic topsoil. In most cases these are exhibited as a series of **broadly parallel positive linear** anomalies. The majority of these responses are associated with modern ploughing regimes but in some instances, where the responses are broader and more widely spaced, they can indicate the presence of the remnants of ridge and furrow.

Field drain systems can also produce linear anomalies, usually where the drains are made from fired ceramic or infilled with magnetic gravels.

Where a series of parallel anomalies are present then the approximate orientation of the anomalies are shown on the interpretation drawing to indicate the direction of the agricultural regime but for the sake of clarity individual anomalies have not been shown.

There are no anomalies suggestive of agricultural activity / features in this data set.

Broad area of positive / negative responses

Broad areas of positive / negative responses can have a variety of causes. If the areas are generally quite large and irregular in shape then they are usually suggestive of natural features, such as lenses of sand and gravel deposits, palaeochannels or other natural

features / variations where the natural material differs from the surrounding sub-surface. In some instances anomalies of this type can be associated with anthropogenic (usually modern) activity.

Linear / curvi-linear trends

An anomaly is categorised as a **trend** if it is not certain that the response is associated with an extant sub-surface feature. Trends are usually weak, irregular, diffuse or discontinuous and it is usually not certain what their cause is, if they represent significant sub-surface features or even if they are associated with definite features.

It is possible that some of the trends are associated with geological / pedological variations. Others may be produced by artificial constructs within the data, either caused by processing or in some instances by intersecting anomalies (usually different agricultural regimes) that give the appearance of curving or regular shapes. Many trends are a product of weak, naturally occurring responses that happen to form a regular pattern but which are not associated with a sub-surface feature.

In some instances former features that have been severely truncated can still produce broad, diffuse or weak responses even if the underlying feature has been removed. This is due to the presence of magnetic soils associated with the former feature still being present along its route. In other instances the magnetic properties of the soils filling a feature may vary and so the magnetic signature of the feature can change, even if the sub-surface feature itself remains uniform. If a response from a feature becomes significantly weak or diffuse then part of the anomaly may be shown as a trend as it is uncertain if the feature is still present or has been severely truncated or removed.

Isolated positive responses

Isolated positive responses can occur if the magnetism of a feature, area or material has been enhanced or if a feature is naturally more magnetic than the surrounding material. It is often difficult to determine which of these factors causes any given responses and so the origin of this type of anomaly can be difficult to determine. They can have a variety of causes including geological variations, infilled archaeological features, areas of burning (including hearths), industrial archaeological features, such as kilns, or deeper buried ferrous material and modern fired material.

The large number of isolated responses and lack of an obvious pattern to their distribution suggests that the majority of these anomalies are probably associated with geological / pedological variations or deeper buried ferrous or fired material. Only selected responses have been shown on the interpretation. The majority, if not all of these responses, will be related to natural variations or relatively modern material but have been shown as their exact cause cannot be determined with certainty.

Positive linear / curvi-linear anomalies

Positive magnetic anomalies indicate an increase in magnetism and if the resulting anomaly is linear or curvi-linear then this can indicate the presence of a man-made feature. **Positive or enhanced linear / curvi-linear** anomalies can be associated with agricultural activity, drainage features but they can also be caused by ditches that are infilled with magnetically enhanced material and as such can indicate the presence of archaeological features. Some natural infilled features can also produce positive anomalies.

1.5.2 Several different ranges of data were used in the interpretation to ensure that the maximum information possible is obtained from the data.

1.5.3 X-Y trace plots were examined for all of the data and overlain onto the greyscale plot to assist in the interpretation, primarily to help identify dipolar / bipolar responses that will probably be associated with surface / near-surface iron objects. X-Y trace plots have not been used in the report as they do not show any additional anomalies that are not visible in the greyscale data. A digital drawing showing the X-Y trace plot overlain on the greyscale plot has been provided in the digital archive.

1.5.4 All isolated responses have been assessed using a combination of greyscale and X-Y trace plots.

1.5.5 The greyscale plots and the accompanying interpretations of the anomalies identified in the magnetic data are presented as 2D AutoCAD drawings. The interpretation is made based on the type, size, strength and morphology of the anomalies, coupled with the available information on the site conditions. Each type of anomaly is displayed in separate, easily identifiable layers annotated as appropriate.

1.6 Limitations of magnetic surveys

1.6.1 The magnetic survey method requires the operator to walk over the site at a constant walking pace whilst holding the instrument. The presence of an uneven ground surface, dense, high or mature vegetation or surface obstructions may mean that some areas cannot be surveyed.

1.6.2 The depth at which features can be detected will vary depending on their composition, size, the surrounding material and the type of magnetometer used for the survey. In good conditions large, magnetic targets, such as buried drums or tanks can be located at depths of more than 4 m. Smaller targets, such as buried foundations or archaeological features can be located at depths of between 1 m and 2 m.

1.6.3 A magnetic survey is highly sensitive to interference from surface and near-surface magnetic 'contaminants'. Surface features such as metallic fencing, reinforced concrete, buildings or walls all have very strong magnetic signatures that can dominate readings collected adjacent to them. Identification of anomalies caused by sub-surface features is therefore more difficult or even not possible in the vicinity of surface and near-surface magnetic features.

1.6.4 The presence of made ground also has a detrimental effect on the magnetic data quality as this usually contains magnetic material in the form of metallic scrap and brick. Identification of features beneath made ground is still possible if the target feature is reasonably large and has a strong magnetic response but smaller features or magnetically weak features are unlikely to be identified.

1.6.5 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.

1.6.6 A magnetic survey does not directly locate sub-surface features - it identifies variations or anomalies in the local magnetic field caused by features. It can be possible to interpret the cause of anomalies based on the size, shape and strength of response but it should be recognised that a magnetic survey produces a plan of magnetic variations and not a plan of all sub-surface features. Interpretation of the anomalies is often subjective and it is rarely possible to identify the cause of all magnetic anomalies. Geological or pedological (soil) variations or features can produce responses similar to those caused by man-made (anthropogenic) features.

1.6.7 Anomalies identified by a magnetic survey are located in plan. It is not usually possible to obtain reliable depth information on the features that cause the anomalies.

1.6.8 Not all features will produce a measurable magnetic response and the effectiveness of a magnetic survey is also dependant on the site-specific conditions. It is not possible to guarantee that a magnetic survey will identify all sub-surface features. A magnetic survey is often most-effective at identifying sub-surface features when used in conjunction with other complementary geophysical techniques.