

Fig. 7. An extract from the OS survey of 1932, showing the proposed development site (not to scale)

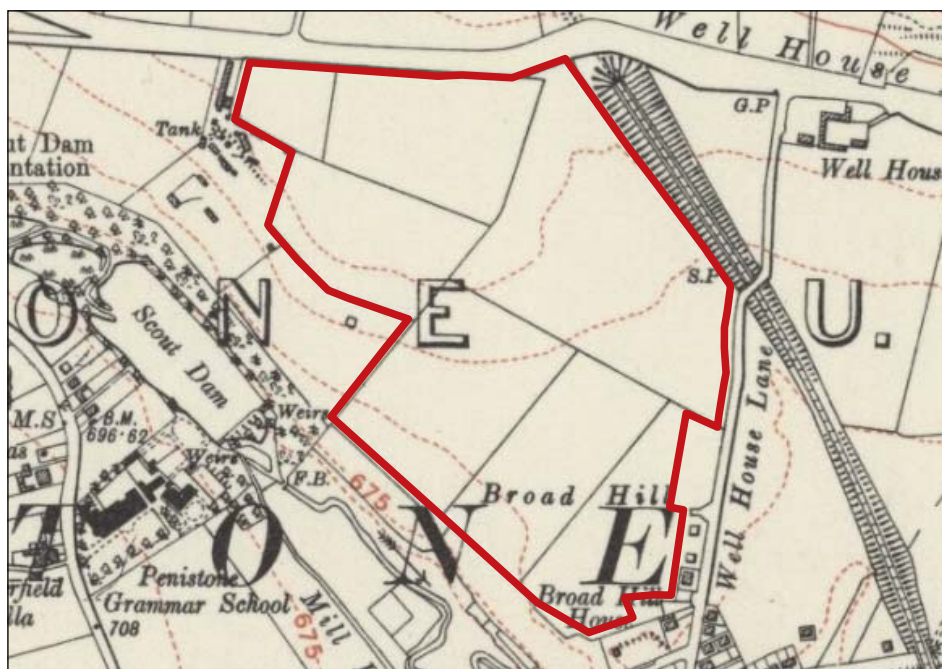


Fig. 8. An extract from the OS survey of 1948, showing the proposed development site (not to scale)

APPENDIX 2

Plates



Plate 1. General view of northern part of site, looking south



Plate 2. General view along Halifax Road, towards Westthorpe House, looking west



Plate 3. General view of eastern part of site, looking north-west



Plate 4. General view along Well House Lane, with Site on the left, looking north

APPENDIX 3:

Gazetteer of Heritage Assets

GAZETTEER OF HERITAGE ASSETS

Catalogue entries for heritage assets and listed buildings recorded on the South Yorkshire HER and those identified as part of this assessment are provided below. Each entry includes a National Grid Reference (NGR) number and, where appropriate, the relevant HER and Listed Building reference numbers. The catalogue of monument and event records held by South Yorkshire HER are provided first, followed by a catalogue of listed buildings.

Monuments

NAME	GRID REF	HER REF	LIST ENTRY NO.	SIGNIFICANCE	DESCRIPTION
Penistone Workhouse	SE 2435 0392	MSY12303	-	Low	Penistone workhouse.
Penistone Grammar School and Weirfield House	SE 2420 0417	MSY12528	-	Low	Penistone Grammar School and Weirfield House.
Nether Mill, Scout Dam and associated features, Penistone	SE 244 040	MSY12529	-	Low	Nether Mill, Scout Dam and associated features, Penistone.
Water Hall Bridge, Penistone	SE 2469 0385	MSY3986	1315074	Medium	Water Hall Bridge, Penistone (See also 1315073).
Cat Hill Farmhouse and Barn, Penistone	SE 2480 0524	MSY5281	1191721 1315074	Medium	Cat Hill Farmhouse and Barn, Penistone (See also 1191721 and 1315074).
Water hall, Penistone	SE 2464 0375	MSY5332	1151030	Medium	Water hall, Penistone (See also 1151029).
Nether Lea Farmhouse, Cat Hill, Penistone	SE 2478 0526	MSY5350	1192110	Medium	Nether Lea Farmhouse, Cat Hill, Penistone (See also 1192110)

NAME	GRID REF	HER REF	LIST ENTRY NO.	SIGNIFICANCE	DESCRIPTION
17th-Century Aisled Barn, Water Hall, Penistone	SE 2464 0376	MSY5373	-	Low	17th-century Aisled Barn, Water Hall, Penistone
Medieval Ridge and Furrow, Penistone Viaduct	SE 2507 0365	MSY6357	-	Low	Medieval Ridge and Furrow, Penistone Viaduct
Medieval Ridge and Furrow, Penistone Viaduct	SE 2507 0365	MSY6357	-	Low	Medieval Ridge and Furrow, Penistone Viaduct
St Mary's Well, Penistone	SE 2440 0359	MSY6846	-	Low	St Mary's Well, Penistone
Packhorse Road from Gunthwaite Bridge to Cathill, Penistone	SE 2485 0555	MSY6951	-	Low	Packhorse Road from Gunthwaite Bridge to Cathill, Penistone

Events

NAME	GRID REF	HER REF	SIGNIFICANCE	DESCRIPTION
Penistone Grammar School, Huddersfield Road, Penistone, Barnsley	SE 2422 0417	ESY1268	Low	Building Recording at Penistone Grammar School.
St Mary's Street, Penistone	SE 2446 0340	ESY1311	Low	Appraisal of former railway buildings, St Mary's Street, Penistone.
Penistone Grammar School, Huddersfield Road, Penistone, Barnsley	SE 24098 04055	ESY153	Low	A desk-based assessment and buildings appraisal of Penistone Grammar School identified medieval activity to the immediate south of the site and post-medieval enclosure. The buildings were dated to the 19th century.
Penistone Grammar School, Penistone	SE 24350 03905	ESY160	Low	Building recording of Netherfield Annexe, Penistone grammar school, Penistone.
Sunnymede, Penistone	SE 24380 03750	ESY192	Low	Archaeological Watching Brief at Sunnymede, Penistone.

Table 4: Listed buildings

NAME	GRID REF	HER REF	SIGNIFICANCE	LIST ENTRY NO.	DESCRIPTION
Nether Mill House	SE 24526 03876	-	Medium	1151027	Farmhouse. Dated 1636, with late 18 century and late 20th-century additions. Grade II listed.
Nether Mill Cottage and Nether Mill Farmhouse	SE 24541 03905	-	Medium	1151028	Two houses. Early 18th century with 19th-century alterations and additions. Grade II listed.
Water Hall	SE 24642 03743	-	Medium	1151029	Former Hall, now two dwellings. 17th century with late 19th-century alterations and 20th-century restoration. Grade II listed.
Penistone Bridge over River Don	SE 24360 03665	-	Medium	1151030	Road bridge. Rebuilt 1866, widened 1915. Grade II listed.
Barn approximately 20 metres west of Far Westhorpe Farmhouse	SE 24357 04839	-	Medium	1151796	Barn. Early 18th century, altered. Grade II listed.
Cat Hill Farmhouse	SE 24776 05226	-	High	1191706	Farmhouse. 1634. Grade II* listed.
Nether Lea Farmhouse and adjoining barn to north	SE 24779 05261	-	Medium	1191721	Former farmhouse and barn. 17th-century house with considerable rebuilding. 18th-century barn, altered, on earlier core. Grade II listed.
Far Westhorpe Farmhouse	SE 24388 04856	-	Medium	1192110	Farmhouse. Early 18th century. Grade II listed.
Milestone	SE 24772 03989	-	Medium	1281545	Milestone 18th-century monolithic pillar with rounded top and flat faces, the front inscribed in serified lettering: "BARNSELEY/7/Miles; MANCHESTER/29/Miles." Grade II listed.

Penistone Railway Viaduct on Penistone and Denby Dale Line	SE 25023 03606	-	Medium	1286798	Railway viaduct. 1885. Rock-faced stone. Curved on plan. Grade II listed.
Milestone built into wall and adjacent to netherfield Congregational Chapel	SE 24248 03924	-	Medium	1286895	Milestone. Probably early-mid 18th-century Monolithic. Square-headed pillar, front face inscribed with partly-obiterated serified lettering: "(LO)NDON/177 MILES/HUDERSFIELD/(1)2/PENISTONE/," Situating on what was formerly the Penistone to Marsden turnpike road in Holmfirth. Grade II listed.
8 and 10, Thurlstone Road	SE 24322 03652	-	Medium	1314675	Pair of cottages. Mid-to late 18th century. Grade II listed.
Coal drops immediately west of bridge under Penistone Woodhead Railway	SE 24443 03399	-	Medium	1314713	Coal drops. Mid-19th century (date of line 1845). Grade II listed.
Barn approximately 10 metres east of Nether Mill House	SE 24553 03890	-	Medium	1315071	Barn. Cruck frame probably 16th century, encased in 17th or 18th century, with 19th-century restoration and alterations. Grade II listed.
River bridge approximately 80 metres east of Number 1 Water Hall	SE 24712 03732	-	Medium	1315073	Bridge over River Don. Later 19th century, restored. Grade II listed.
Barn approximately 10 metres north east of Cat Hill Farmhouse	SE 24801 05240	-	Medium	1315074	Barn. Mid-18th century. Grade II listed.
Milestone approximately 100 metres north of Penistone Grammar School	SE 24144 04248	-	Medium	1315077	Milestone. Early to mid-19th century. Stone post, triangular-sectioned, with rounded top, inscribed: "To Penistone Huddersfield 1/2 12 Mile Miles" Grade II listed.

APPENDIX 4

Geophysical Survey



PHASE
SITE INVESTIGATIONS

Land south of Halifax Road Penistone, South Yorkshire

Archaeological geophysical survey

Project No. ARC/2481/918

November 2018



Land south of Halifax Road Penistone, South Yorkshire

Archaeological geophysical survey

Project No. ARC/2481/918

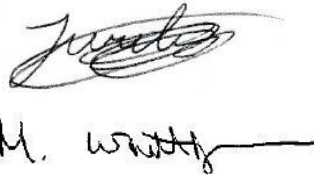

Report prepared by		Report checked by	
Name	Jelmer Wubs BA MA Mark Whittingham BSc MA MCIfA	Name	Nicola Fairs BSc MSc DIC CGeol FGS
Signature	 M. Whittingham	Signature	
Date	29/11/18	Date	30/11/18

Table of Contents

1. SUMMARY	1
2. INTRODUCTION	2
2.1 OVERVIEW	2
2.2 SITE DESCRIPTION	2
2.3 ARCHAEOLOGICAL BACKGROUND	2
2.4 SCOPE OF WORK	2
3. SURVEY METHODOLOGY	3
3.1 MAGNETIC SURVEY	3
3.2 DATA PROCESSING AND PRESENTATION	3
4. RESULTS	5
4.1 GENERAL	5
4.2 FIELD 1	5
4.3 FIELD 2	7
4.4 FIELD 3	8
5. DISCUSSION AND CONCLUSIONS	11
DRAWINGS	
ARC_2481_918_01	Site location map
ARC_2481_918_02	Location of site showing magnetic gradient data
ARC_2481_918_03	Interpretation of magnetic gradient data: full site
ARC_2481_918_04	Greyscale plots of magnetic gradient data: Field 1 and parts of Fields 2 and 3
ARC_2481_918_05	Interpretation of magnetic gradient data: Field 1 and parts of Fields 2 and 3
ARC_2481_918_06	Greyscale plots of magnetic gradient data: Field 2: parts of Fields 1 and 3
ARC_2481_918_07	Interpretation of magnetic gradient data: Field 2 and parts of Fields 1 and 3
ARC_2481_918_08	Greyscale plots of magnetic gradient data: Field 3 and: parts of Fields 1 and 2
ARC_2481_918_09	Interpretation of magnetic gradient data: Field 3 and parts of Fields 1 and 2
BIBLIOGRAPHY AND REFERENCES	12
APPENDIX 1	Magnetic survey; technical information
	13

1. SUMMARY

Phase Site Investigations Ltd was commissioned to carry out a magnetic gradient survey at land south of Halifax Road, Penistone. 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 (MACS). 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 archaeological activity in the form of parts of enclosures in the south-east of the site. There are a number of other linear anomalies and trends within the site that could also be related to archaeological features / activity, but some of these could also be caused by drainage features or agricultural activity.

There are areas of variable responses across the site that are suggestive of natural features / variations, although some of these variations could be a product of relatively modern material / activity. There are a number of relatively large, strong isolated responses some of which could be associated with mining activity, although other relatively modern material could also produce similar responses. It should be noted that if mining activity is confirmed on the site then this may not be limited to the highlighted responses.

Anomalies relating to a former watercourse or drain have been identified in the north-east of the site. An area of magnetic disturbance appears to be related to this and there is a suggestion that the remains of structures may be present. The exact cause of these responses is not certain but they are suggestive of relatively modern features / material.

Many of the remaining anomalies identified by this survey relate to other modern material / objects, agricultural activity and geological / pedological variations. However, there are numerous linear / curvi-linear anomalies of uncertain origin. Some of these are suggestive of anthropogenic activity but the exact cause and date of any underlying features is not certain.

2. INTRODUCTION

2.1 Overview

Phase Site Investigations Ltd was commissioned by Avant Homes and Yorkshire Land Ltd to carry out an archaeological geophysical survey at land south of Halifax Road, Penistone, South Yorkshire 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 location of the site is shown in drawing ARC_2481_918_01.

2.2 Site description

The site is situated at Penistone (centred at NGR SE 246 044), approximately 10 km to the west of Barnsley and covered an area of approximately 15 ha.

The site encompassed three pasture fields which were bounded by dry stone walls and post and wire fences. Each field has been given a number as shown in drawing ARC_2481_918_02. The general topography across the site sloped downwards from north to the south and from west to east.

The geology of the site consists of alternating bands of mudstone and siltstone of the Pennine Lower Coal Measures Formation and sandstone of the Penistone Flags, with no recorded superficial deposits (British Geological Survey, 2018). The majority of the soils of the site are described as slowly permeable seasonally wet acid loamy and clayey soils, with freely draining slightly acid loamy soils in the north-west (Soilscapes, 2018).

2.3 Archaeological background

A heritage assessment undertaken by BWB Consulting Ltd (2018) indicated that there is no evidence for prehistoric or Roman activity within, or in the vicinity of, the site. The village of Penistone saw development from the medieval period onwards, but there are no indications this would have extended into the site.

Historic maps (old-maps.co.uk, 2018) indicate that the site has been in use for agriculture since before 1855 and some fields were formerly sub-divided. A quarry used to be present to the east of the site.

2.4 Scope of work

The survey area was specified by the client based on a proposed development boundary.

An area of approximately 13.8 ha was covered by the magnetic survey, the location of which is shown in drawing ARC_2481_918_02. An area around the perimeter of the field boundaries was left un-surveyed to limit the effects of magnetic disturbance / interference caused by metallic fencing, adjacent buildings / structures and modern debris.

No problems were encountered during the survey which was carried out between 23rd and 25th October 2018.

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 raster images (PNG files) and are presented in greyscale format with accompanying interpretations at scales of 1:2500 and 1:1250. 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 base plan provided by the client as drawing '*4102-001 HALIFAX RD, PENISTONE, FULL SITE TOPO – 22.12.16.dwg*'. The base plan was in the Ordnance Survey National Grid co-ordinate system and as the survey 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 and isolated

bipolar anomalies present in the data. There is no evidence to suggest that they are associated with archaeological features and so the majority of these have not been shown in the interpretation. Larger / stronger isolated bipolar and positive responses have been shown as there is a possibility that some of these may be associated with mining activity.

Anomalies associated with agricultural regimes are present in the data but each individual anomaly has not been shown on the interpretation. Instead the general orientation of the regime is indicated.

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 across the majority of the site is generally quite variable with large areas containing relatively strong variations and a large number of isolated responses present across the site. The former are probably associated with geological variations and features and possibly increased noise from a spread of relatively modern material, which will also be the cause of the larger than normal amount of isolated responses. Where there is a variable background it is more difficult to identify individual responses. The large number of isolated responses from relatively modern material has meant that generally it is not possible to reliably identify any isolated responses that have potential to be related to archaeological features / activity. Only relatively large and strong isolated responses have been shown on the interpretation.

4.2 Field 1

Basic topography: Relatively steep slope downwards from north to south. More level in the north of the field.

Field description: Pasture. Firm underfoot. Bounded by dry-stone walls in the north, east and south and by a post and wire fence in the west.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses are present, a large majority, if not all, of which will be associated with relatively modern material. These have not been shown on the interpretation.

Several larger isolated bipolar responses have been shown. These will be related to concentrations of, or larger objects or features, of relatively modern ferrous or fired material. They are not thought to be archaeologically significant but have been shown to highlight areas where there may be significant relatively modern material / objects. Some responses could be associated with mine workings.

An area of magnetic disturbance associated with relatively modern features / material. This corresponds with the position of a former field boundary.

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

A broad, diffuse area of positive and negative responses and several diffuse linear trends are present that are probably associated with natural features or variations.

Positive linear responses are present associated with modern ploughing regime(s).

Linear trends are present corresponding with the position of former field boundaries. The anomalies will be related to the former field boundaries.

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. Some larger responses could be associated with mine workings.

Positive linear / curvi-linear responses of uncertain origin. Some responses may be related to agricultural or drainage activity / features but others may be caused by infilled linear / curvi-linear features.

Further discussion / additional information:

There are two alignments of positive linear anomalies and trends in the north-west of the field that may form a return (**Anomalies A**). These could be related to archaeological infilled features but could also be caused by drainage features.

Throughout the field there are several relatively large isolated bipolar and positive responses (**Anomalies B**). The bipolar responses are indicative of relatively strong magnetic (ferrous or fired) material. The positive responses could be caused by infilled features or they could be associated with deeper buried relatively strong magnetic material. In most cases anomalies of this type are caused by relatively modern features / activity, although in some cases archaeological features / material can produce similar responses. In this instance there is no pattern or relationships that would suggest that the isolated responses are related to archaeological activity. The underlying geology across parts of the site is coal measures and so the possibility that some or all of Anomalies B are related to mining activity should be considered.

In the south of the field there is a broad area of variable responses that is probably related to natural features / variations. However, it is possible that relatively modern material / activity has contributed to the variable background. Linear / curvi-linear anomalies within this area will be related to modern agricultural activity (but stand out more as the soils in this area will have a higher magnetic susceptibility).

In the centre of the field there are variations in background but these are more amorphous and it is difficult to define their extents (so an area has not been shown in this part of the field). Within this area the modern agricultural regime again stands out (due to increased magnetic susceptibility) and there are numerous trends, many of which will be related to natural features / variations, and isolated responses, the majority of which will be caused by natural features or modern material. However it is possible that some anomalies in this area could be related to infilled features and / or mine working activity. Within the centre of the field several trends have been highlighted (**Anomalies C**). As discussed above the cause of these is not certain but they may have greater potential to be related to anthropogenic features / activity.

In the south of the field there is a fragmented curvi-linear anomaly (**Anomaly D**). This anomaly is suggestive of an infilled feature and it is worth noting that the anomaly broadly follows the contour line. Some of the responses within this anomaly are relatively strong, whereas others are weaker / more diffuse and have been defined as trends. It is not certain whether these variations are due to differing amounts of truncation across the feature or to variations in the fill material caused by changes in geology / soil conditions. The anomaly is suggestive of an archaeological feature but it is possible that it is associated with a more modern infilled feature.

There are numerous other trends in this field. As discussed above these could have a variety of causes but are generally too weak to allow a definite interpretation or even ascertain if they are caused by sub-surface features.

4.3 Field 2

Basic topography: Relatively steep slope downwards from the north-west to the south-east with a generally level area in the east.

Field description: Pasture. Firm underfoot. Bounded by dry-stone walls in the west, east and south and by a post and wire fence in the north. An overhead cable pole was present in the east the field.

Summary of anomalies: Numerous isolated dipolar and small bipolar responses are present, a large majority, if not all, of which will be associated with relatively modern material. These have not been shown on the interpretation.

Several larger isolated bipolar responses have been shown. These will be related to concentrations of, or larger objects or features, of relatively modern ferrous or fired material. They are not thought to be archaeological significant but have been shown to highlight areas where there may be significant relatively modern material / objects. Some responses could be associated with mine workings.

An area of magnetic disturbance associated with relatively modern features / material.

Bipolar curvi-linear response suggestive of a field drain.

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. Feature may be / are located beyond the survey area.

A broad, diffuse area of positive and negative responses is present that is probably associated with natural features or variations.

Positive linear responses are present associated with modern ploughing regime(s).

Linear responses are present associated with a modern drainage regime(s).

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. Some larger responses could be associated with mine workings.

Positive linear / curvi-linear responses of uncertain origin. Some responses may be related to agricultural or drainage activity / features but others may be caused by infilled linear / curvi-linear features.

Further discussion / additional information:

Throughout the field there are several relatively large isolated positive responses (**Anomalies B**). The positive responses could be caused by infilled features or they could be associated with deeper buried relatively strong magnetic material. In most cases anomalies of this type are caused by relatively modern features / activity, although in some cases archaeological features / material can produce similar responses. In this instance there is no pattern or relationships that would suggest that the isolated responses are related to archaeological activity. The underlying geology across parts of the site is coal measures and so the possibility that some or all of Anomalies B are related to mining activity should be considered.

There are a number of isolated positive responses in relatively close proximity to each other (**Anomalies E**). The cause of these responses is not certain, but their apparent grouping (albeit spread over a relatively large area) is unusual. They are suggestive of infilled features and, as there are coal measures underlying parts of the site, they could indicate the presence of mining features, such as bell pits.

There are a number of positive curvi-linear responses and trends that appear to be connected (**Anomaly F**). Their position seems to correspond to a possible watercourse or drain shown on the 1855 Ordnance Survey map of Yorkshire (old-maps.co.uk, 2018) and it is likely that these anomalies are related to this former feature. Several regimes of field drains and possible drains appear to respect or connect to Anomaly F, further suggesting that the underlying feature is a former watercourse / drain. Where **Anomaly F1** is shown there is no corresponding feature on the map but the response is similar to, and appears to join, Anomaly F and so is probably related to the same feature.

Anomaly G is an area of magnetic disturbance that appears to respect Anomaly F and is likely to be related or is at least a contemporary feature. Within the disturbance there are strong responses that have relatively straight / well-defined edge, possibly indicating that remains of structures are / were present. The exact cause of Anomaly G is not certain but it appears to be related to relatively modern features / activity.

There are numerous other trends in this field. As discussed above these could have a variety of causes but are generally too weak to allow a definite interpretation or even ascertain if they are caused by sub-surface features. Several trends have been highlighted (**Anomalies H**) as these stand out because they are slightly stronger or better defined. As discussed above the cause of these is not certain but some of them will be related to sub-surface features (although the type of feature is not certain) and they may have greater potential to be related to anthropogenic features / activity.

4.4 Field 3

Basic topography:	Steep slope downwards from north-west to south-east before sloping upwards in the east.
Field description:	Pasture. Firm underfoot. Bounded by dry-stone walls in the north and west, by fences in the east and by hedges in the south. A metal trough was present in the north-west of the field.
Summary of anomalies:	Numerous isolated dipolar and small bipolar responses are present, a large majority, if not all, of which will be associated with relatively modern material. These have not been shown on the interpretation.

Several larger isolated bipolar responses have been shown. These will be related to concentrations of, or larger objects or features, of relatively modern ferrous or fired material. They are not thought to be archaeologically significant but have been shown to highlight areas where there may be significant relatively modern material / objects. Some responses could be associated with mine workings.

Bipolar linear responses suggestive of field drains

Very strong responses associated with strongly magnetic, usually above ground, modern feature / material. Feature may be / are located beyond the survey area.

Broad, diffuse areas of positive and negative responses are present that are probably associated with natural features or variations.

Positive linear responses are present associated with modern ploughing regime(s).

Linear trends are present corresponding with the position of former field boundaries. The anomalies will be related to the former field boundaries.

Several trends of uncertain origin. Some trends may indicate continuations of archaeological features.

Numerous isolated positive responses, the majority of which are probably geological / pedological in origin or related to relatively modern deeper buried ferrous / fired material. Some larger responses could be associated with mine workings.

Positive linear / curvi-linear responses of uncertain origin. Some responses may be related to agricultural or drainage activity / features but others may be caused by infilled linear / curvi-linear features.

Positive linear responses associated with parts of archaeological enclosures and additional possible archaeological features.

Further discussion / additional information:

Throughout the field there are several relatively large isolated bipolar and positive responses (**Anomalies B**). The bipolar responses are indicative of relatively strong magnetic (ferrous or fired) material. The positive responses could be caused by infilled features or they could be associated with deeper buried relatively strong magnetic material. In most cases anomalies of this type are caused by relatively modern features / activity, although in some cases archaeological features / material can produce similar responses. In this instance there is no pattern or relationships that would suggest that the isolated responses are related to archaeological activity. The underlying geology across parts of the site is coal measures and so the possibility that some or all of Anomalies B are related to mining activity should be considered.

Positive linear / curvi-linear responses associated with parts of archaeological enclosures are present (**Anomalies I**). Some of the responses are relatively strong, whereas others are

weaker / more diffuse and have been defined as trends. It is not certain whether these variations are due to differing amounts of truncation across the feature or to variations in the fill material caused by changes in geology / soil conditions.

Two relatively long linear anomalies appear to form a return (**Anomaly J**) in the west of the field. The responses are indicative of anthropogenic features and they could relate to an archaeological enclosure. However a very straight linear anomaly (**Anomaly K**), which is suggestive of a drainage feature, appears to connect to part of Anomaly J. There are a number of other broadly parallel trends (**Anomalies L**) in this area. The similarity in alignment of Anomalies L could suggest that they are related to a drainage regime. It is not certain if all of these anomalies are related or have the same cause or if they are caused by different types of feature. Anomaly J could be related to an archaeological feature and Anomalies K and L could be drainage but it is also possible that K and L are also related to archaeological features, or likewise Anomaly J could actually be caused by drains.

There are numerous other trends in this field. As discussed above these could have a variety of causes but are generally too weak to allow a definite interpretation or even ascertain if they are caused by sub-surface features. Several trends have been highlighted (**Anomalies M**) as these stand out because they are slightly stronger or better defined. As discussed above the cause of these is not certain but some of them will be related to sub-surface features (although the type of features is not certain) and they may have greater potential to be related to anthropogenic features / activity.

5. DISCUSSION AND CONCLUSIONS

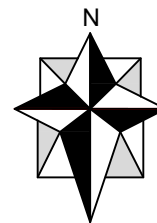
The survey has provided evidence for archaeological activity in the form of parts of enclosures in the south-east of the site. There are a number of other linear anomalies and trends within the site that could also be related to archaeological features / activity, but some of these could also be caused by drainage features or agricultural activity.

The survey has provided evidence for archaeological activity in the form of parts of enclosures in the south-east of the site. There are a number of other linear anomalies and trends within the site that could also be related to archaeological features / activity, but some of these could also be caused by drainage features or agricultural activity.

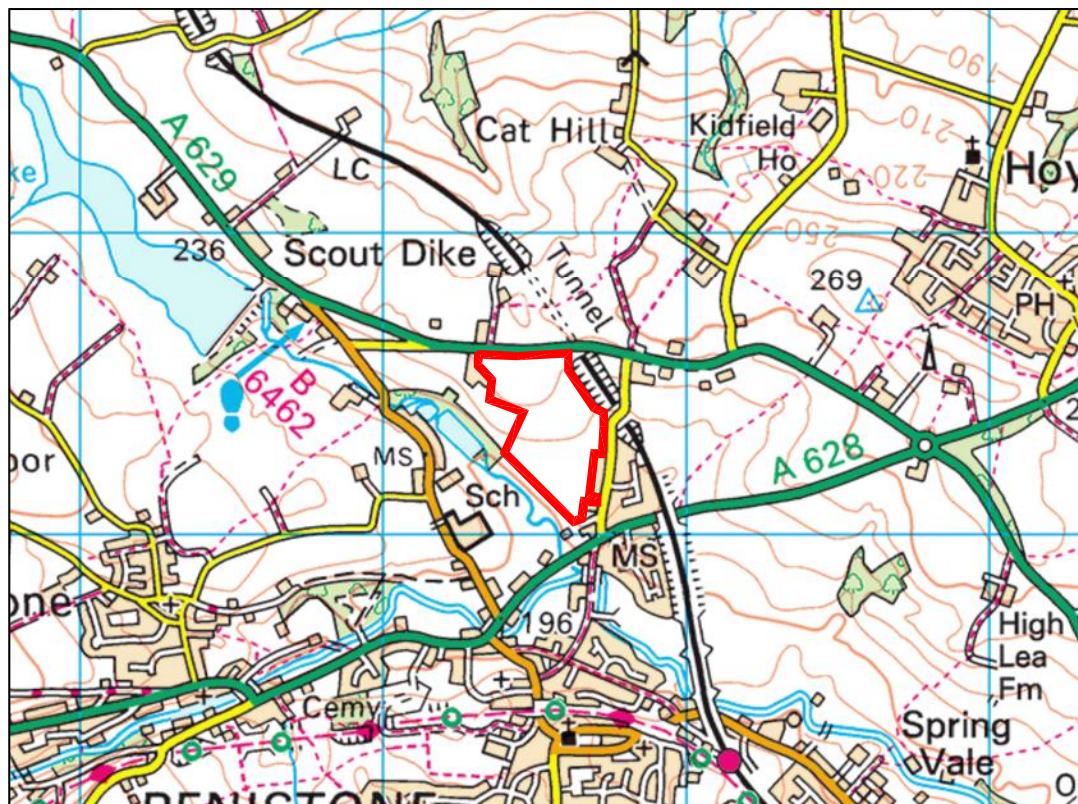
There are areas of variable responses across the site that are suggestive of natural features / variations, although some of these variations could be a product of relatively modern material / activity. There are a number of relatively large, strong isolated responses some of which could be associated with mining activity, although other relatively modern material could also produce similar responses. It should be noted that if mining activity is confirmed on the site then this may not be limited to the highlighted responses.

Anomalies relating to a former watercourse or drain have been identified in the north-east of the site. An area of magnetic disturbance appears to be related to this and there is a suggestion that the remains of structures may be present. The exact cause of these responses is not certain but they are suggestive of relatively modern features / material.

Many of the remaining anomalies identified by this survey relate to other modern material / objects, agricultural activity and geological / pedological variations. However, there are numerous linear / curvi-linear anomalies of uncertain origin. Some of these are suggestive of anthropogenic activity but the exact cause and date of any underlying features is not certain.



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SE 23

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25

26



SITE LOCATION

SCALE



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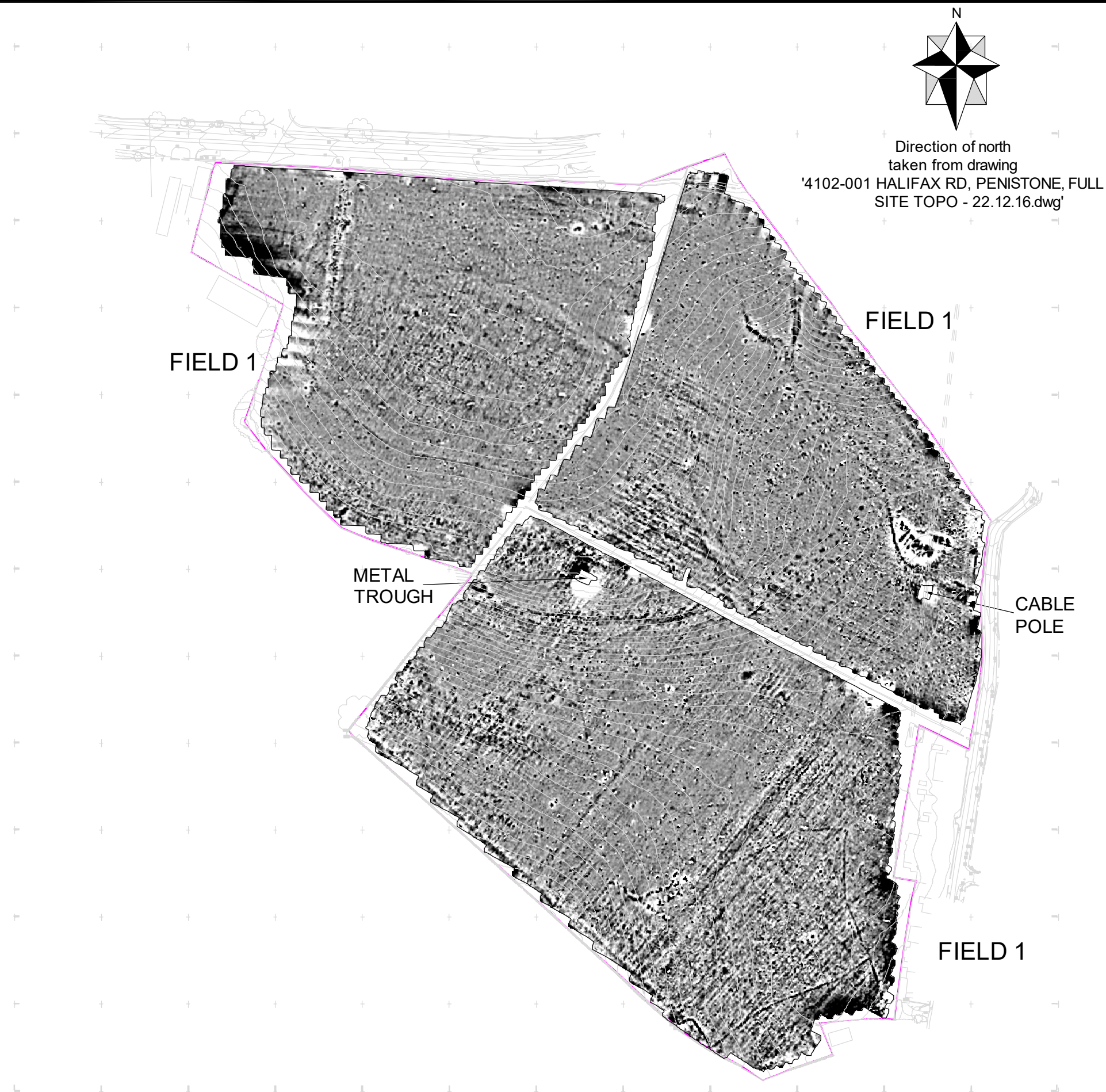
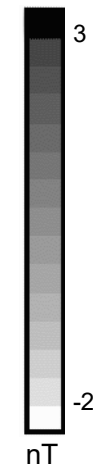


PHASE
SITE INVESTIGATIONS

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_2481_918_01	FINAL
Client AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD		
Site LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE		
Title SITE LOCATION MAP		
Job No ARC_2481_918		
Chk.	MW	CA
		Date
		26/10/2018



NOTES

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KEY

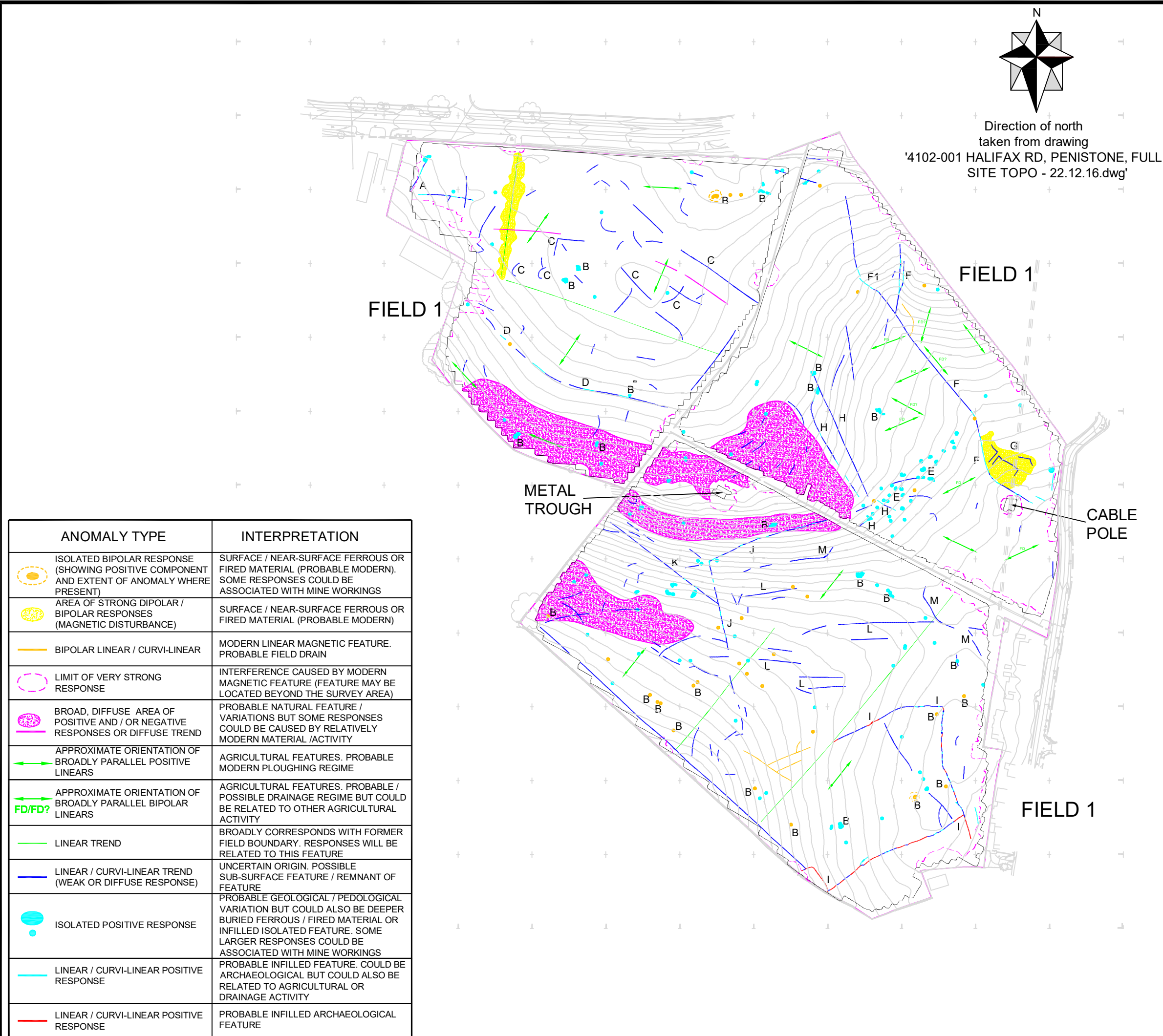
— SITE BOUNDARY



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
1:2500	ARC_2481_918_02		FINAL
Client			
AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD			
Site			
LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE			
Title			
LOCATION OF SITE SHOWING MAGNETIC GRADIENT DATA			
Job No			
ARC_2481_918			
Surveyed	JW, CA	Drawn	CA
Chk.	MW	Date	25/10/2018



NOTES

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KEY

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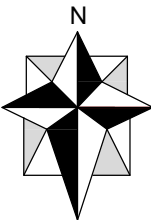
T: +44 [0] 01325 311 751
E: enquiries@PhaseSI.com
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Scale	[A3 Sheet]	Drawing	Status
1:2500		ARC_2481_918_03	FINAL
Client			
AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD			
Site			
LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE			
Title			
INTERPRETATION OF MAGNETIC GRADIENT DATA: FULL SITE			
Job No			
ARC_2481_918			
Surveyed	JW, CA	Drawn	JW, CA
Chk.	MW	Date	25/10/2018



NOTES

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Direction of north taken from drawing
'4102-001 HALIFAX RD, PENISTONE, FULL SITE
TOPO - 22.12.16.dwg'



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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
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Scale	[A3 Sheet]	Drawing	Status
1:1250		ARC_2481_918_04	FINAL

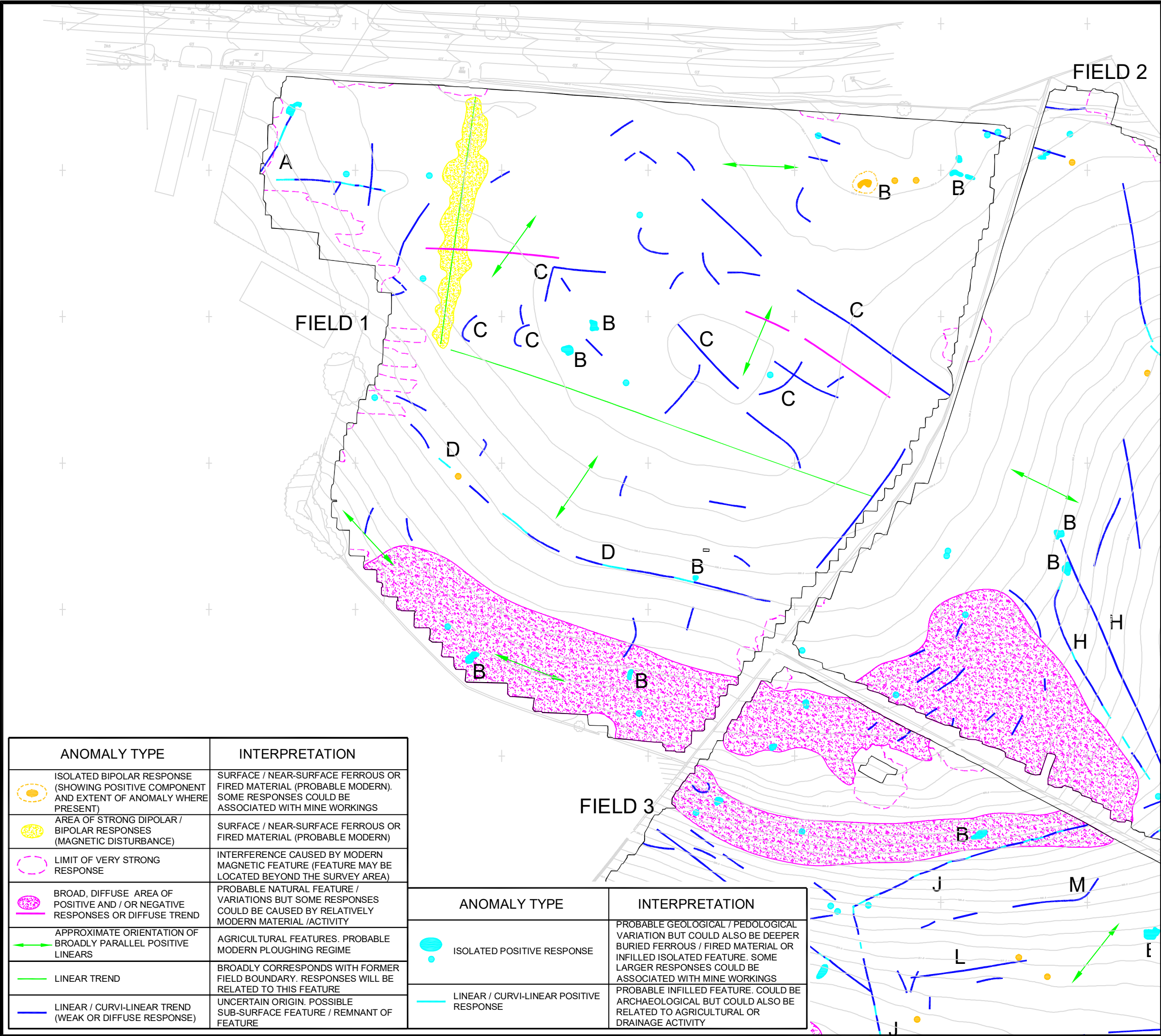
Client
AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD

Site
LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: FIELD 1 AND PARTS OF FIELDS 2 AND 3

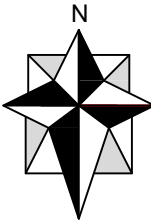
Job No
ARC_2481_918

Surveyed	JW, CA	Drawn	CA
Chk.	MW	Date	25/10/2018



NOTES

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Direction of north taken from drawing '4102-001 HALIFAX RD, PENISTONE, FULL SITE TOPO - 22.12.16.dwg'



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
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Scale	[A3 Sheet]	Drawing	Status
1:1250		ARC_2481_918_05	FINAL

Client	AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD
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Site	LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE
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Title	INTERPRETATION OF MAGNETIC GRADIENT DATA: FIELD 1 AND PARTS OF FIELDS 2 AND 3
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Job No	ARC_2481_918
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Surveyed	JW, CA	Drawn	JW, CA
Chk.	MW	Date	25/10/2018

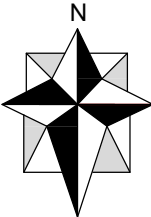
ANOMALY TYPE	INTERPRETATION
ISOLATED BIPOLAR RESPONSE (SHOWING POSITIVE COMPONENT AND EXTENT OF ANOMALY WHERE PRESENT)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN). SOME RESPONSES COULD BE ASSOCIATED WITH MINE WORKINGS
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	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)
BROAD, DIFFUSE AREA OF POSITIVE AND / OR NEGATIVE RESPONSES OR DIFFUSE TREND	PROBABLE NATURAL FEATURE / VARIATIONS BUT SOME RESPONSES COULD BE CAUSED BY RELATIVELY MODERN MATERIAL / ACTIVITY
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. PROBABLE MODERN PLOUGHING REGIME
LINEAR TREND	BROADLY CORRESPONDS WITH FORMER FIELD BOUNDARY. RESPONSES WILL BE RELATED TO THIS FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE

ANOMALY TYPE	INTERPRETATION
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION BUT COULD ALSO BE DEEPER BURIED FERROUS / FIRED MATERIAL OR INFILLED ISOLATED FEATURE. SOME LARGER RESPONSES COULD BE ASSOCIATED WITH MINE WORKINGS
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	PROBABLE INFILLED FEATURE. COULD BE ARCHAEOLOGICAL BUT COULD ALSO BE RELATED TO AGRICULTURAL OR DRAINAGE 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
1:1250		ARC_2481_918_06	FINAL

Client
AVANT HOMES & YORKSHIRE LAND LTD WAKEFIELD

Site
LAND SOUTH OF HALIFAX ROAD PENISTONE, SOUTH YORKSHIRE

Title
GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA: FIELD 2 AND PARTS OF FIELDS 1 AND 3

Job No
ARC_2481_918

Surveyed	JW, CA	Drawn	CA
Chk.	MW	Date	25/10/2018