

# LAND OFF PULLING ROAD

PINHOE

EXETER

DEVON

Results of a Geophysical Survey and Archaeological Assessment



South West Archaeology Ltd. report no. 190124



[www.swarch.net](http://www.swarch.net)

Tel. 01769 573555

Tel. 01872 223164

## LAND OFF PULLING ROAD, PINHOE, EXETER, DEVON Results of a Geophysical Survey and Archaeological Assessment

---

By J. Bampton  
Report Version: FINAL  
Draft issued: 23<sup>rd</sup> January 2019  
Finalised: 1<sup>st</sup> March 2019

Work undertaken by SWARCH for Verto Homes (The Client)

### SUMMARY

---

*This report presents the results of a geophysical survey and archaeological assessment carried out by South West Archaeology Ltd. (SWARCH) on land off Pulling Road, Pinhoe, Exeter, Devon. The site is located on the north side of Pinhoe, immediately north-east of Pulling Road.*

*A walkover survey of the site indicated that parts of the site along its north-west boundary may have been truncated and that possible ridges associated with tyre ruts may also allude to former banks associated with orchard plantations. No visible archaeological features or monuments were present on the site.*

*The geophysical survey identified two linear anomalies, a discrete sub-rectangular/ovoid anomaly and a diffuse natural anomaly. One of the linear anomalies was associated with a possible historic field boundary and modern drainage; the other with a ditch associated with the extant field-scape and south-west site boundary; the discrete anomaly was indicative of a pit, tree-throw or geotechnical pit; and the diffuse natural anomaly is probably associated with geological sediments deposited in association with a dry-valley/coombe that runs across part of the site. Also visible within the results is some geological striation across the site, which is likely representative of underlying geological variation or shallow ground responses associated with ploughing and agricultural activity.*

*The buried archaeological potential for the site is ostensibly low. Any impact by a proposed development on the site on the potential buried archaeological resource would be permanent and irreversible. The enclosed nature of the site means that the proposed development would have no significant impact on any nearby designated heritage assets, although the development will have a slight cumulative effect upon St. Michael's Church.*

---



January 2019

South West Archaeology Ltd. shall retain the copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved, excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project. Disclaimer The views and recommendations expressed in this report are those of South West Archaeology Ltd. and are presented in good faith on the basis of professional judgement and on information available at the time of production.

## CONTENTS

---

<i>SUMMARY</i>	2
<i>CONTENTS</i>	3
<i>LIST OF FIGURES</i>	3
<i>LIST OF TABLES</i>	4
<i>LIST OF APPENDICES</i>	4
<i>ACKNOWLEDGEMENTS</i>	4
<i>PROJECT CREDITS</i>	4
<b>1.0 INTRODUCTION</b>	<b>5</b>
1.1 PROJECT BACKGROUND	5
1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND	5
1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND	5
1.4 METHODOLOGY	6
<b>2.0 DESK BASED ASSESSMENT</b>	<b>8</b>
2.1 ARCHAEOLOGICAL POTENTIAL	11
<b>3.0 GEOPHYSICAL SURVEY AND WALKOVER SURVEY</b>	<b>13</b>
3.1 INTRODUCTION	13
3.2 WALKOVER SURVEY	13
3.3 METHODOLOGY	15
3.4 RESULTS	15
3.5 DISCUSSION	16
<b>4.0 CONCLUSION</b>	<b>19</b>
<b>5.0 BIBLIOGRAPHY &amp; REFERENCES</b>	<b>20</b>

## LIST OF FIGURES

---

*Cover plate: Site shot from north corner entrance of the site; viewed from the north-north-east (no scale).*

FIGURE 1: SITE LOCATION (THE SITE IS HIGHLIGHTED).	7
FIGURE 2: EXTRACT FROM THE 1801 SURVEYOR'S DRAFT MAP OF THE EXETER AREA, C.1801	8
FIGURE 3: EXTRACT FROM THE PINHOE TITHE MAP, 1839	9
FIGURE 4: EXTRACT FROM THE ORDNANCE SURVEY 1 <sup>ST</sup> EDITION, 25 INCH SERIES, PUBLISHED 1889	9
FIGURE 5: EXTRACT FROM THE ORDNANCE SURVEY 2 <sup>ND</sup> EDITION, 25 INCH SERIES, PUBLISHED 1905	10
FIGURE 6: MAP SHOWING HER DATA RECORDED WITHIN 500M OF THE SITE	11
FIGURE 7: THE NORTH CORNER OF THE SURVEY AREA, SHOWING RUTS IN THE GROUND.	14
FIGURE 8: VIEW ALONG THE DRY-VALLEY/COOMBE ON THE SITE, SHOWING A GEOTECHNICAL PIT.	14
FIGURE 9: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.	17
FIGURE 10: INTERPRETATION OF GRADIOMETER SURVEY DATA.	18
FIGURE 11: GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.	21
FIGURE 12: RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.	22
FIGURE 13: RED-BLUE-GREEN SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.	23
FIGURE 14: RED-BLUE-GREEN SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.	24

## LIST OF TABLES

---

TABLE 1: INTERPRETATION OF GRADIOMETER SURVEY DATA.	15
---	----

## LIST OF APPENDICES

---

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY	21
APPENDIX 2: SUPPORTING PHOTOGRAPHS	25

## ACKNOWLEDGEMENTS

---

### THE CLIENT

ANDY PYE OF EXETER CITY COUNCIL (ECC)

THE STAFF OF THE DEVON HERITAGE CENTRE (DHC)

## PROJECT CREDITS

---

DIRECTOR: DR. SAMUEL WALLS

DESK-BASED ASSESSMENT: JOE BAMPTON

FIELDWORK: JOE BAMPTON

REPORT: JOE BAMPTON

EDITING: DR. SAMUEL WALLS

GRAPHICS: JOE BAMPTON

## 1.0 INTRODUCTION

---

<b>LOCATION:</b>	LAND OFF PULLING ROAD
<b>PARISH:</b>	(FORMERLY) PINHOE, NOW PART OF EXETER
<b>DISTRICT:</b>	EXETER
<b>COUNTY:</b>	DEVON
<b>NGR:</b>	SX 9585 9466
<b>PLANNING NO.</b>	PRE-PLANNING
<b>OASIS NO.</b>	SOUTHWES1-337529
<b>SWARCH REF.</b>	EPP18

### 1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned on behalf of Verto Homes (The Client) to undertake a geophysical survey on land off Pulling Road, Pinhoe, Exeter, Devon, as part of the pre-application requirements for a proposed residential development. This work was undertaken in accordance with a Project Design (Balmond 2018) that was drawn up in consideration of the Exeter City Council's (ECC) requirements.

### 1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located in Pinhoe, a suburb of Exeter c.3.5km north-east of the centre of Exeter. The site is across a series of small fields c.450m south-east of the historic Pinhoe parish church, St Michael's. It is to the south-west of Church Hill Road, immediately north of a modern housing estate along Harrington Lane (which includes the Pulling Road cul-de-sac) and east of a clay pit. At the time of the survey the site was accessed from its north corner and is named as *Oakfields*. The site is across a generally moderate south facing slope with a slight coombe running south from its north corner. It has substantial drains along its southern boundaries. The site fell from a height of c.75m AOD in its north corner to c.55m AOD in its south corner (Figure 1).

The soils on the site are the well-drained sandy and coarse loamy soils over soft sandstone of the Bridgenorth Association (SSEW 1983), which overlie the mudstone and sandstone of the Crackington Formation (BGS 2018).

### 1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Prior to its amalgamation into Exeter, Pinhoe was a parish in the hundred of Wonford and deanery of Aylesbeare (Lysons 1822). In Domesday, Pinhoe (*Pinnoch*) was held by Earl Leofwine and the church with some land by Battle Abbey (Morris 1992). In the 17<sup>th</sup> century the estate was largely sold piecemeal (Lysons 1822) and by the 19<sup>th</sup> century the majority of the estate about the site was held by Lord Poltimore (the Bampfylde family) (Tithe Apportionment).

The proposed development site is located north of the main settlement in Pinhoe, to the east of a large clay pit (MDV60383). It is comprised of relatively small enclosed fields, part of the *Hill Estate*. The Devon Historic Landscape Characterisation (HLC) categorises this area as *post medieval enclosure*.

Geophysical Survey on an adjacent site in 2013 identified possible ridge and furrow and in-filled ditches (MDV105546). Geophysical Survey and Archaeological Evaluation at Pinhoe Quarry revealed possible pits, and linear- and curvi-linear features (MDV76535, MDV76537, MDV76538, MDV113055). The Bronze Age 'Pinhoe Hoard' that was discovered on land north of Park Lane,

c.400m north of the development site in 1999 (MDV61837). Subsequent excavations around the hoard did not reveal in-situ evidence of funerary or occupation activity. The Devon Historic Environment Record (HER) records 'Orchard Banks' earthworks immediately north of the. No archaeological work has taken place on the site itself.

There are Grade II listed buildings located to the east and south of the development site including; the 16<sup>th</sup> century Home Farm (MDV87155) and Jonas Pyne (MDV87498). The late 14<sup>th</sup> century Grade II\* listed church of St Michael (DDV1932) and the Grade II Listed Church House (MDV10115) lay to the north-west. There are no listed buildings located less than 200m from the proposed development site and no Scheduled Ancient Monuments are located within the vicinity of the site.

#### 1.4 METHODOLOGY

This work was undertaken in accordance with a Project Design (Balmond 2018), best practice and ClfA guidance. Any desk-based assessment aspect of this report follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (ClfA 2014a) and *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012). The geophysical (gradiometer) survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b).

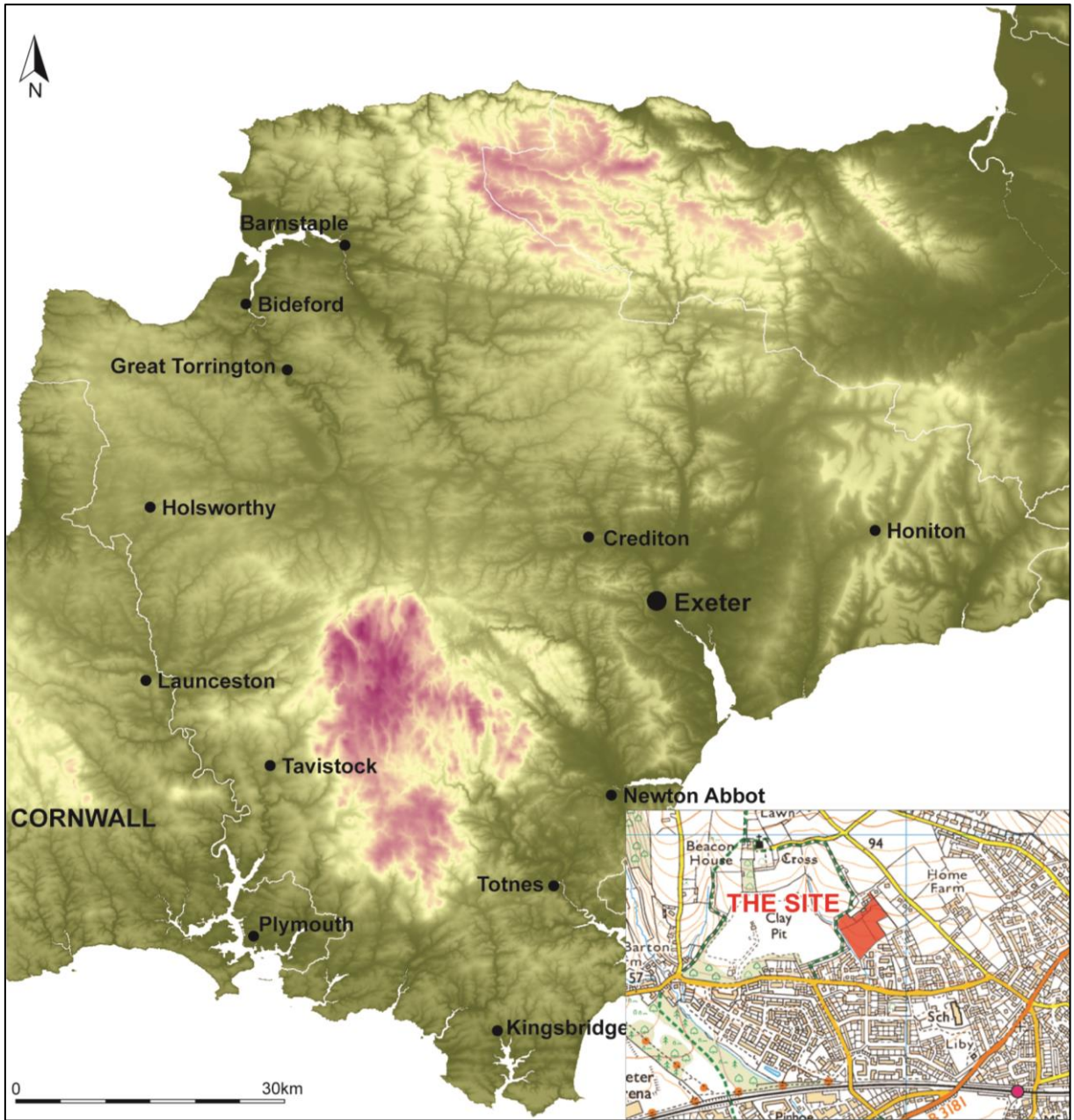


FIGURE 1: SITE LOCATION (THE SITE IS HIGHLIGHTED).



## 2.0 DESK BASED ASSESSMENT

The derivation of the place name 'Pinhoe' is uncertain. Appearing as *Peon Hó* and *Pinnoch* in the 11<sup>th</sup> century; it may be derived from the Old English *pennuc* meaning 'small penn', pin meaning 'pin or peg', a personal name, or *penn* meaning 'a hill/top/height' and *hōh* meaning 'hill spur'. Topographically, Pinhoe is on a prominent hill-spur making many of these options possible (Watts 2004).

Prior to its amalgamation into Exeter, Pinhoe was a parish in the hundred of Wonford and deanery of Aylesbeare (Lysons 1822). Lysons records a great battle between the Danes and King Ethelred's army at Pinhoe in 1001AD that resulted in the burning of Pinhoe among other villages and the slaughter of many in King Ethelred's army. In Domesday Pinhoe (*Pinnoch*) had 15 households and was worth £6 (Morris 1992). It was held by Earl Leofwine and the church with some land by Battle Abbey (Morris 1992). The parish church, the Church of St Michael is located in a relatively isolated position to the north of the settlement. In the 13<sup>th</sup> century the manor of Pinhoe belonged to Robert de Vallibus (or De Vaux) from whose heiresses and heirs it passed through the families of Multon, Strech, Cheney and Walgrave (Lysons 1822). In the 17<sup>th</sup> century the estate was largely sold piecemeal (Lysons 1822) and by the 19<sup>th</sup> century the majority of the estate about the site was held by Lord Poltimore (the Bampfylde family) (Tithe Apportionment). In the 1665 the Barton belonged to a William Kirkham, Esq. from whom it passed to the Elwills baronets and in 1822 it was owned by Mrs Freemantle (nee Elwills) (Lysons 1822). Lady Freemantle is also shown as the owner in the 1839 tithe records.



FIGURE 2: EXTRACT FROM THE 1801 SURVEYOR'S DRAFT MAP OF THE EXETER AREA, C.1801; THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (BL).

The proposed development site is located north of the main settlement in Pinhoe, to the east of a large clay pit (MDV60383). It is comprised of relatively small enclosed fields, shown on historic Ordnance Survey (OS) mapping as one large field and on the 1839 Tithe Map as three fields (plots 214, 217 and 218). These plots were part of the *Hill Estate*, which was owned by Lord Poltimore and occupied by John Turner, Esq. The field names according to the tithe apportionment for the parish are generally prosaic, denoting size, use, ownership or proximity to a landmark. The site plots were named; 'The Mead', 'Meadow' and 'Orchard' and used as pasture or an orchard. The 1801 Surveyor's Draft Map depicts the site as in a landscape of relatively large and mostly straight sided fields. The Devon Historic Landscape Characterisation (HLC) categorises this area as *post medieval enclosure*. Orchards are ostensibly depicted on 20<sup>th</sup> century OS mapping near to the site



and the subsequent enclosure on- and housing developments near to the site encroach through the 20<sup>th</sup> century.



FIGURE 3: EXTRACT FROM THE PINHOE TITHE MAP, 1839; THE APPROXIMATE LOCATION OF THE SITE IS OUTLINED (DHC).

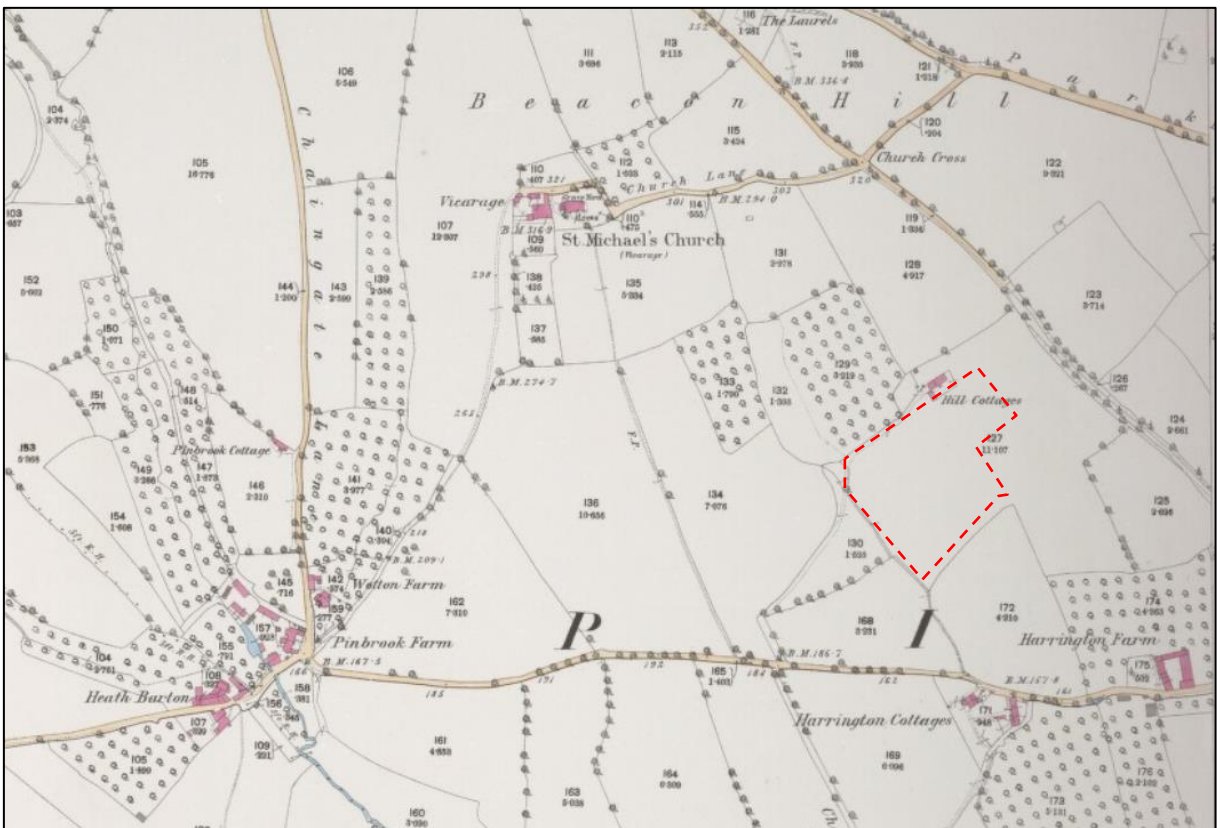


FIGURE 4: EXTRACT FROM THE ORDNANCE SURVEY 1<sup>ST</sup> EDITION, 25 INCH SERIES, PUBLISHED 1889; THE APPROXIMATE LOCATION OF THE SITE IS OUTLINED (DHC).

LAND OFF PULLING ROAD, PINHOE, EXETER, DEVON

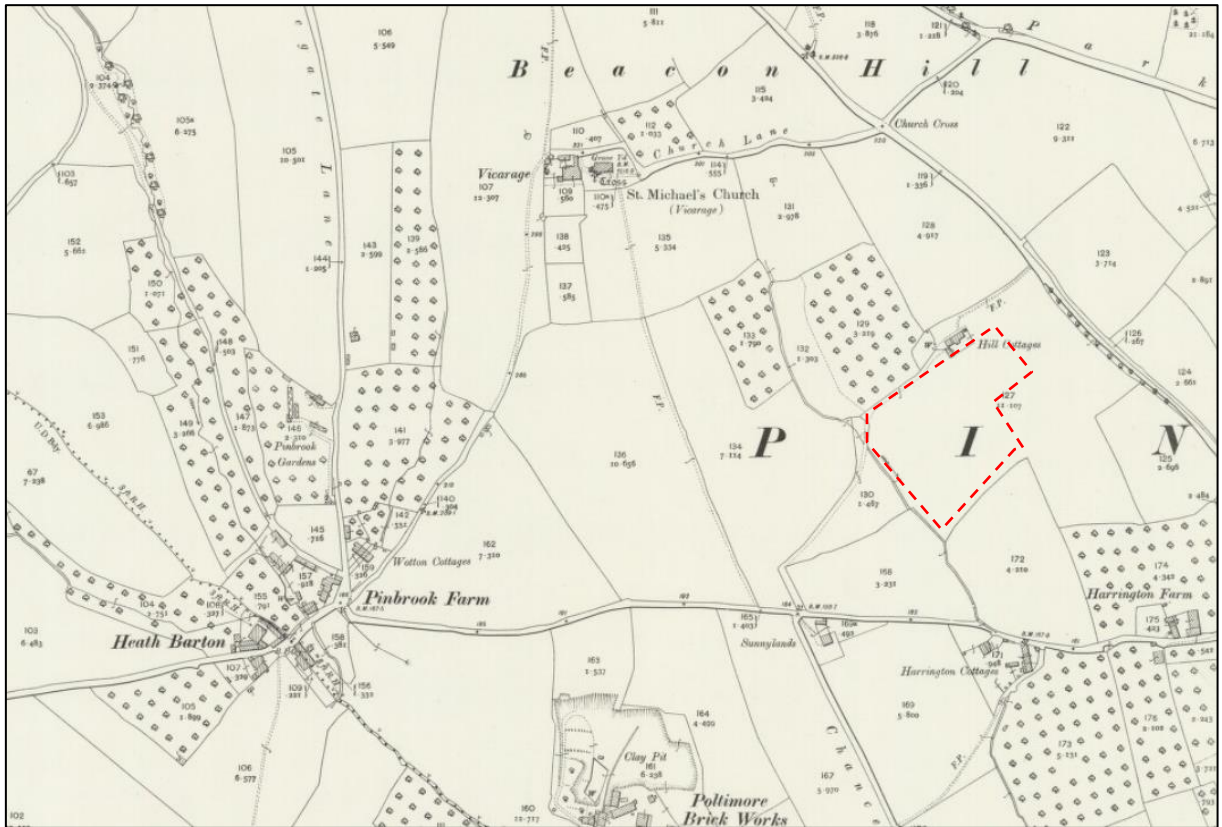


FIGURE 5: EXTRACT FROM THE ORDNANCE SURVEY 2<sup>ND</sup> EDITION, 25 INCH SERIES, PUBLISHED 1905; THE APPROXIMATE LOCATION OF THE SITE IS OUTLINED (DHC).

2.1 ARCHAEOLOGICAL POTENTIAL

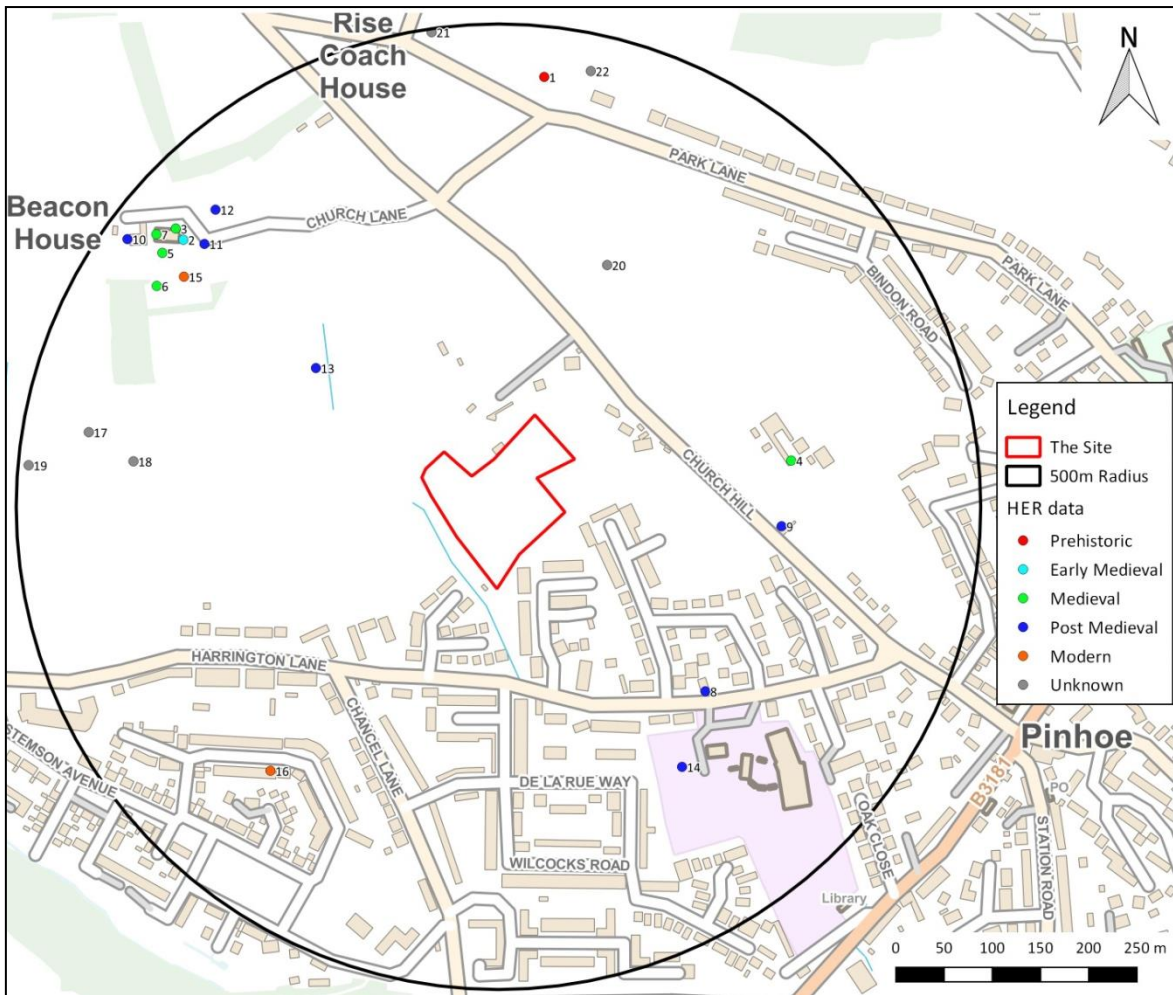


FIGURE 6: MAP SHOWING HER DATA RECORDED WITHIN 500M OF THE SITE.

No	HER No	Name	Description	Statutory Designation
1	MDV61837	Find spot in parish of Broadclyst	Bronze age hoard, comprising armrings, and fragments of armrings and palstaves. Site, discovered by metal detector in nov 1999, comprised of palstave fragments overlying 3 complete armrings in a shallow pit (2.5m below ground level)	
2	MDV10112	Font in St Michaels Church Pinhoe	There is no other font in devon constructed in this way. It consists of a bowl resting on a block, but is not a pedestal font of the regular type. It is of the same shape as the girdled tub - without the girdle.	
3	MDV10111	CHURCH OF ST MICHAEL AND ALL ANGELS	Parish church, late 14th or early 15th century, with 19th century rebuilding and restoration.	II*
4	MDV87155	HOME FARM	Home Farm, Church Hill, Pinhoe, Exeter. 16th century with 17th century alterations.	II
5	MDV87159	CHURCHYARD CROSS	CHURCH LANE 1. 1092 PINHOE Churchyard Cross (Formerly listed in the rural SX 99 SE 25/744 district of St Thomas) 30.6.61 II 2. Stone cross on C14 base.	II
6	MDV10114	Cross in churchyard	There is a cross in the churchyard at the south corner of the parish church of st michael, pinhoe. Type b-c. A socket-stone, square at the base with corner shoulders and octagonal above with a chamfered top edge, bears a shaft, square at the base.	
7	MDV10113	Rood Screen	A perpendicular rood screen spans the nave and aisle. It has eight bays, and retains its groining and cornices with their enrichments, but the top cresting is missing. There has been some restoration:	
8	MDV84256	HARRINGCOURT HOUSE	Large house now divided into two. Probably C16 or C17 core with early C18 and later alterations	II
9	MDV87498	JONAS PYNE	Early C19. Roughcast. Two storeys, three windows, sashes with glazing bars above, modern windows to ground. Hipped thatched	II

LAND OFF PULLING ROAD, PINHOE, EXETER, DEVON

			roof. Wing at rear.	
10	MDV22853; MDV10115	RECTORY AND BARN ADJOINING	Early C18 on site of older building. 2 storey with dormers. Red brick. Coved cornice. South front has two projecting wings. Left hand wing has shallow segmental bay on 1st floor. Right hand has sash windows. 3 sash windows between. Ground floor space between bays filled by glass-house. Pedimented overdoor with good ironwork lamp holder. Some tripartite casements. Hipped slate roof. At rear of house is an huge square stone chimney, obviously belonging to an older building. It shows the slopes of a former building with stone coping. Below this a redstone barn with slate roof is now attached	II
11	MDV87158	CLAPPER GATE	Old wooden clapper gate, at entrance to churchyard. Heavitree stone piers with moulded coping, thatched roof.	II
12	MDV113052	Former Orchard north of Church Lane	A former orchard of possible post-medieval to 19th century origin was located on the south-facing slopes north of Church Lane, Beacon Hill. The orchard had been cleared of trees leaving visible on aerial photographs of 1945 the distinctive remains of	
13	MDV113602	Orchard Banks	Orchard banks of probable post-medieval to modern date are visible as a series of linear earthwork banks on aerial photographs of 1946 onwards, to the southwest of Church Cross. Faint traces of the earthworks to the north appear to be visible in 1992.	
14	MDV113604	Orchard Banks off Harrington Lane	Orchard banks of probable post-medieval to modern date are visible as a series of linear earthwork banks on aerial photographs of 1946 onwards, off Harrington Lane. The earthworks to the south remain visible on Lidar-derived images of 1998 and 2005.	
15	MDV87501	Pinhoe War Memorial	Memorial cross in memory of all those of the parish who died in both world wars.	
16	MDV58716	Poltimore Brickworks	'poltimore brick works' indicated on 1938 revision of 1888 OS 6" map. Enlarged area marked 'active workings' with 'clay pit' to nw on 1972	
17	MDV22852	Earthwork	Rectangular platform, size unknown but c 20 x 40m visible in field at this ngr, with long axis parallel to n-s field bank to east. Defined by slight ditch and bank. May be modern.	
18	MDV60383	Clay Pit	Pinhoe claypit recorded from the air by f. Griffith in 1987 (aph	
19	MDV108620	Linear Feature	Shallow linear feature observed during archaeological trial trenching on land at Pinhoe Quarry.	
20	MDV105546	Archaeological Anomalies identified by Geophysical Survey, Home Farm	A number of anomalies have been characterised as being either of a probable or possible archaeological origin.	
21	MDV76537	Linear Features	A group of linear features on a north-west to south-east and north-east to south-west alignment, identified by geophysical survey in a corner of the field to the north of Park Lane.	
22	MDV76535	Three possible pits near Park Lane	A row of three possible pits were identified by geophysical survey in the field to the north of Park Lane.	

Geophysical Survey on an adjacent site to the east in 2013 identified a number of anomalies including possible ridge and furrow and in-filled ditches (MDV105546). Geophysical Survey and Archaeological Evaluation has also been carried out at Pinhoe Quarry, to the north of the proposed development site and revealed possible pits, and linear- and curvi-linear features; although, some of these may be associated with a post-medieval quarry pit and works (MDV76535, MDV76537, MDV76538, MDV113055). These investigations to the north were near the Bronze Age 'Pinhoe Hoard' that was discovered on land north of Park Lane, c.400m north of the development site in 1999 (MDV61837). Subsequent excavations around the hoard did not reveal in-situ evidence of funerary or occupation activity. The Devon Historic Environment Record (HER) records 'Orchard Banks' earthworks immediately north of the site that represent bank-type earthworks associated with orchards that were scrubbed out between 1905 and 1946 (MDV113602) (probably before 1934 based on OS mapping). No archaeological work has taken place on the site itself.

There are Grade II listed buildings located to the east and south of the development site including; the 16<sup>th</sup> century Home Farm (MDV87155) and Jonas Pyne (MDV87498). The late 14<sup>th</sup> century Grade II\* listed church of St Michael (DDV1932) and the Grade II Listed Church House (MDV10115) lay to the north-west. There are no listed buildings located less than 200m from the proposed development site and no Scheduled Ancient Monuments are located within the vicinity of the site.



### 3.0 GEOPHYSICAL SURVEY AND WALKOVER SURVEY

---

#### 3.1 INTRODUCTION

An area of c.1ha was the subject of a magnetometry (gradiometer) survey. The purpose of this geophysical survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 16<sup>th</sup> of January 2019 by J. Bampton; the survey data was processed by J. Bampton.

#### 3.2 WALKOVER SURVEY

The Site is located across three fields and an area of enclosure with a stables at 'Oakfields' immediately north-east of Pulling Road. The site was accessed from its north corner and gates were also located in the west and an east corner (the eastern gate into private property). The field was under grass pasture and had recently been cut, presumably under wet conditions due to the amount that the ground was rutted by tyre tracks. This damp ground may imply a clayey content to the topsoil hindering drainage, which should otherwise be substantial given the slope of the land. Geotechnical pits had also recently been excavated across the site and showed the natural to be a light yellow-brown, stony clay. The topography of the site alluded to a slight valley running down from the north corner of the site to the south and slightly tuning south-westward near the south-west boundary. This was in-keeping with the general slope across the site that was from north-to south, although with a much steeper aspect along the south-western side of the site before the slope broke near the site boundary, which was lined by a large/deep drain. The enclosed nature of the site means the proposed development would have no impact on any nearby designated heritage assets, although there is a cumulative impact upon St. Michael's Church, which currently stands in a largely isolated position; and should remain as such.

The north-east boundary of the site, most of the north-west boundary and internal boundaries were post and wire fencing. The original portion of the north-west boundary (at its south-west end) had an eroded earth bank and ditch still lined with some trees (mostly oak), brambles and ivy. The south-east boundary had a similarly eroded earth bank with hedge and trees (mostly oak), brambles and ivy. There is a substantial drainage ditch on the outer side of the remaining bank, which feeds into a large/deep drain that formed the south-west boundary of the site, although separated from the site by a tree-line and post and wire fence. There was a dilapidated corrugated iron shed in the south corner of the site. Beyond the west corner of the site were dry, possible ponds, probably associated with the drainage about the site. Along the north-west boundary of the site modern earth banks and fence lines had been established associated with an area landscaped for a stable, vehicle access and a small paddock on the south-west side of the stable. Cut and fill for this paddock means an area of the slope was truncated/dug-away at the north-east end- and over c.1m of ground made up at the south-west end of the paddock to form a level surface. The location of possible bonfires could be seen on the site and patches of removed scrub were also apparent.

The substantial ruts across the site, mostly clearly associated with tractor tyre tracks, may allude to some agricultural process forming ridges, possibly associated with orchards in the area. The tower of St Michaels Church, to the north could be seen from some vantage points across the middle-western part of the site. There were no visible earthworks of remains of archaeological/historical significance visible on the site.

Supporting photographs for the walkover survey can be seen in Appendix 3.



FIGURE 7: THE NORTH CORNER OF THE SURVEY AREA, SHOWING RUTS IN THE GROUND; VIEWED FROM THE NORTH-EAST (NO SCALE).



FIGURE 8: VIEW ALONG THE DRY-VALLEY/COOMBE ON THE SITE, SHOWING A GEOTECHNICAL PIT; VIEWED FROM THE NORTH (NO SCALE).



### 3.3 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median; DeStagger all traverses out- and inbound by -2 intervals.

Details: 0.93195ha surveyed; Max. 99.85nT, Min. -99.67nT; Standard Deviation 4.95nT, mean 0.15nT, median 0.00nT.

### 3.4 RESULTS

Table 1 with the accompanying Figures 2 and 3 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 1: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Weak-moderate positive, probable	Linear	Ditch (Drainage)	Indicative of an in-filled cut feature such as a ditch. Possibly associated with a boundary depicted on 1839 mapping or drainage (it crosses directly beneath a man-hole cover at the south end of the north limb of this anomaly. Responses of +3 to +9nT.
2	Weak positive, possible	Linear	Ditch	Indicative of an in-filled cut feature such as a ditch. Possibly associated with the south-west boundary of the site. Responses of <+4nT.
3	Moderate positive, probable	Sub-rectangular /Ovoid	Pit or Treethrow	Indicative of discrete in-filled cut feature such as a pit or treethrow. Geotechnical pits had been excavated across the site and this may be an example that fell opportunistically well within the survey. Responses of <+14nT.
4	Weak-moderate positive with weak negative, possible	Amorphous	Geological	Diffuse amorphous/curvi-linear indicative of geological variation such as a relict alluvium or colluvium. Its location along the dry-valley visible in the sites topography (the positive response possible on an outside edge) along with the strength and state of the response indicates that this anomaly is the result of a natural accumulation of sediment. Response of between +2 to +6nTnT and -2nT.

### 3.5 DISCUSSION

The survey identified four groups of anomalies and areas of ground/magnetic disturbance and debris. The anomaly groups included: probable ditches associated with drainage and possibly a boundary; a possible pit or treethrow; and an amorphous/curvi-linear spread associated with geological variation at the edge of a possible dry-valley/coombe. Any discrete responses across the site are either strong dipolar anomalies associated with magnetic debris and modern ground disturbance or very weak and within the limits of natural variation, indicative of natural features or geological variation. The weak 'natural' responses and apparent geological striations of positive and negative response across the site may allude to geological banding or some relict, shallow agricultural process given the presence of orchard related earthworks in the wider landscape. The post-medieval enclosure of the site and wider landscape as asserted by the HLC and possible associated of one of the anomalies with a boundary depicted in the 19<sup>th</sup> century may imply that these anomalies, although undated are probably all post-medieval in date. The possible pit, although undated may be associated with this post-medieval and later activity on the site or with a treethrow: the presence of oak trees in the boundaries and orchards in the area may account for these. Parts of the area of the site associated with the stable on the north-west boundary and its adjacent paddock has probably been subject to sever truncation. The natural variation of response across the site was predominantly +/-1nT and up to +3nT and -2nT. Cartographic and additional sources that support the following discussion and earlier interpretation can be seen in Appendix 2.

Anomaly Group 1 consists of a weak-moderate (+3 to +9nT) positive linear response aligned north-south. It probably represents a ditch feature with either a drainage function and/or denoting a boundary. It both runs beneath a modern man-hole cover on the site and roughly aligns with a boundary that is depicted on the 1839 Pinhoe Tithe Map. The wide open nature of the field-scape as implied in the OS draft map of the Exeter area for 1801 and the HLC of post-medieval enclosure for the area may be used to suggest that this potential feature is either earlier than the mid-16<sup>th</sup> century or 19<sup>th</sup> century or later. Given the relative topographic constraints of the site (moderately steep undulations and wet) it seems probable that it is part of a later attempt at drainage associated with the properties on the north side of the site.

Anomaly Group 2 consists of a weak (<+4nT) positive linear response indicative of a ditch. This is probably associated with drainage at the foot of the steeper slope to the north-east and could be associated with the south-west boundary of the site.

Anomaly Group 3 consists of a sub-rectangular/ovoid moderate (+14nT) positive response indicative of a discrete in-filled cut feature such as a pit or tree-throw. Either scenario is possible, especially considering the presence of substantial trees near to the boundaries (predominantly oak trees) and the use of much of the landscape historically as orchards. The possibility of it representing a geotechnical pit, which had been excavated across the site relatively recently, is also likely. The chance location of a geotechnical pit relative to the survey and the background geology could mean it stands out more clearly than the other examples.

Anomaly Group 4 consists of a weak-moderate (+2 to +6nT) positive diffuse curvi-linear/amorphous response indicative of a natural in-filled feature. In this instance it is probably representative of a geological deposit such as alluvium or colluvium associated with the dry-valley extant and visible in the topography of the site.



FIGURE 9: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

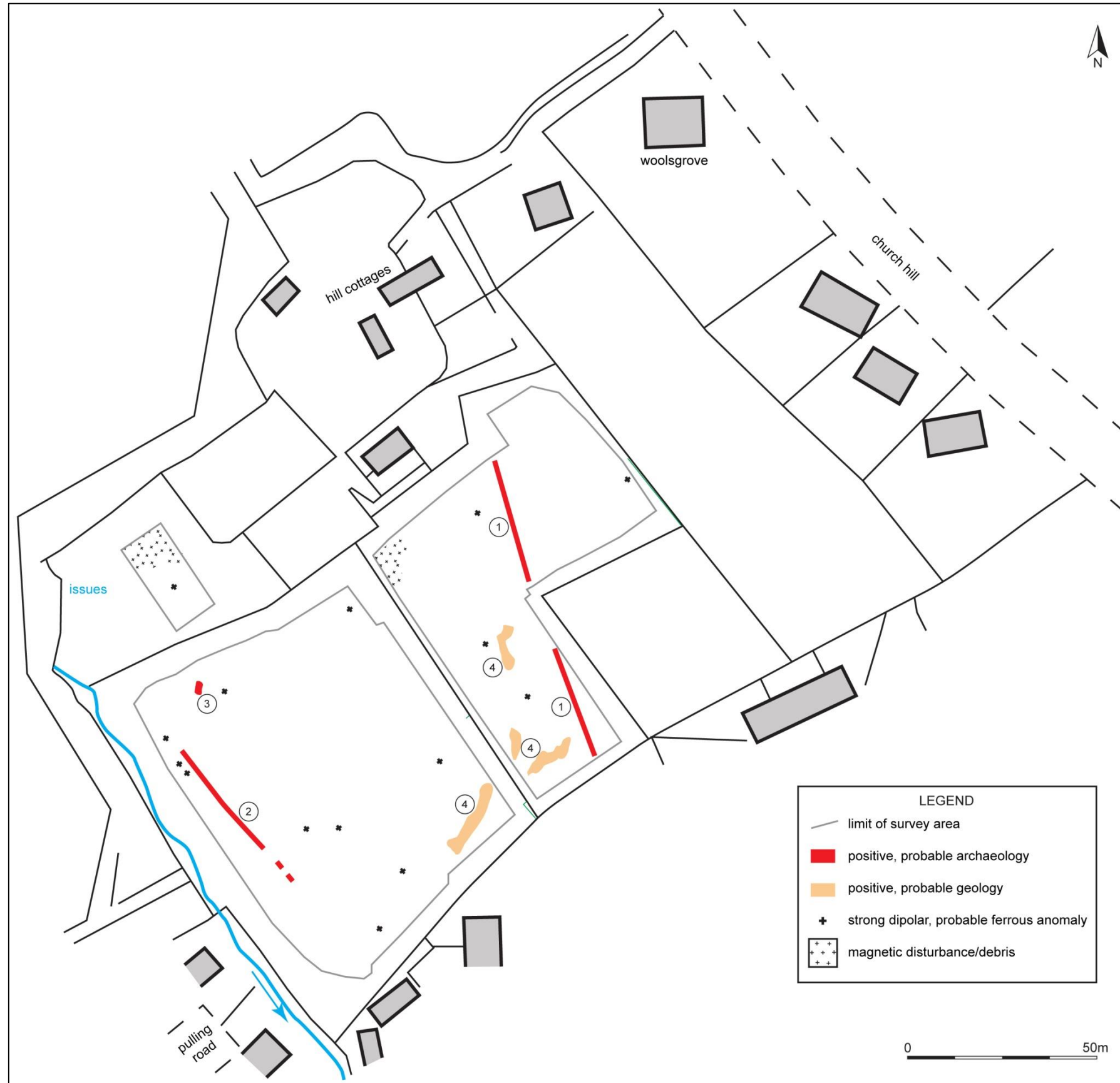


FIGURE 10: INTERPRETATION OF GRADIOMETER SURVEY DATA.

## 4.0 CONCLUSION

---

The site is located on the north-east side of the city of Exeter, on the north side of the main settlement of Pinhoe and c.450m south-west of the late 14<sup>th</sup> century, Grade II\* Listed, Church of St Michael; the former Pinhoe parish church.

A walkover survey of the site indicated that parts of the site along its north-west boundary may have been truncated and that possible ridges associated with tyre ruts may also allude to former banks associated with orchard plantations. The topography was indicative of the water worn hills and valleys of the wider landscape with a dry-valley/coombe running approximately from north to south across part of the site, which itself is on a general south-south-west facing slope. No visible archaeological features or monuments were present on the site.

The geophysical survey identified two linear anomalies, a discrete sub-rectangular/ovoid anomaly and a diffuse natural anomaly. One of the linear anomalies was associated with a possible historic field boundary and modern drainage; the other with a ditch associated with the extant field-scape and south-west site boundary; the discrete anomaly was indicative of a pit, tree-throw or geotechnical pit; and the diffuse natural anomaly is probably associated with geological sediments deposited in association with a dry-valley/coombe that runs across part of the site. Also visible within the results is some geological striation across the site, which is likely representative of underlying geological variation or shallow ground responses associated with ploughing and agricultural activity.

The buried archaeological potential for the site is ostensibly low. Any impact by a proposed development on the site on the potential buried archaeological resource would be permanent and irreversible. The enclosed nature of the site means that the proposed development would have no significant impact on any nearby designated heritage assets, although the development will have a slight cumulative effect upon St. Michael's Church.

## 5.0 BIBLIOGRAPHY & REFERENCES

---

### *Published Sources:*

**Chartered Institute of Field Archaeologists** 2014a: *Standard and Guidance for Historic Environment Desk-based Assessment*.

**Chartered Institute for Archaeologists** 2014b: *Standard and Guidance for Archaeological Geophysical Survey*.

**English Heritage** 2008: *Geophysical Survey in Archaeological Field Evaluation*.

**Lysons, D. & Lysons, S.** 1822: *Magna Britannia, volume 6: Devonshire*. London.

**Morris, J.** 1992: *Domesday Book*. Phillimore.

**Schmidt, A.** 2002: *Geophysical Data in Archaeology: A Guide to Good Practice*. ADS series of Guides to Good Practice. Oxbow Books, Oxford.

**Soil Survey of England and Wales** 1983: *Legend for the 1:250,000 Soil Map of England and Wales (a brief explanation of the constituent soil associations)*.

**Watts, V.** 2004: *The Cambridge Dictionary to English Place Names*. Cambridge University Press.

### *Unpublished Sources:*

**Balmond, F** 2018: *Land off Pulling Road, Pinhoe, Exeter, Devon: Project Design*. SWARCH PD no.EPP18.

### *Websites:*

**British Geological Survey** 2018: *Geology of Britain Viewer*.

[http://maps.bgs.ac.uk/geologyviewer\\_google/googleviewer.html](http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html)

**Devon County Council Historic Environment Record (HER) and HLC** 2018: *Devon Environment Viewer Map*

<http://map.devon.gov.uk/dccviewer> and <http://www.heritagegateway.org.uk>

### *Devon Heritage Centre (DHC)*

Pinhoe Tithe Apportionment, 1839

Pinhoe Tithe Map, 1839

Ordnance Survey 1<sup>st</sup> edition, 25 inch map, Sheet: Devon LXXX.3, surveyed 1888, published 1889

Ordnance Survey 2<sup>nd</sup> edition, 25 inch map, Sheet: Devon LXXX.3, surveyed 1904, published 1905

Ordnance Survey (Revision), 25 inch map, Sheet: Devon LXXX.3, surveyed 1932, published 1934

### *British Library (BL)*

Surveyor's Draft Map of the Exeter area, 1801



APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



FIGURE 11: GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

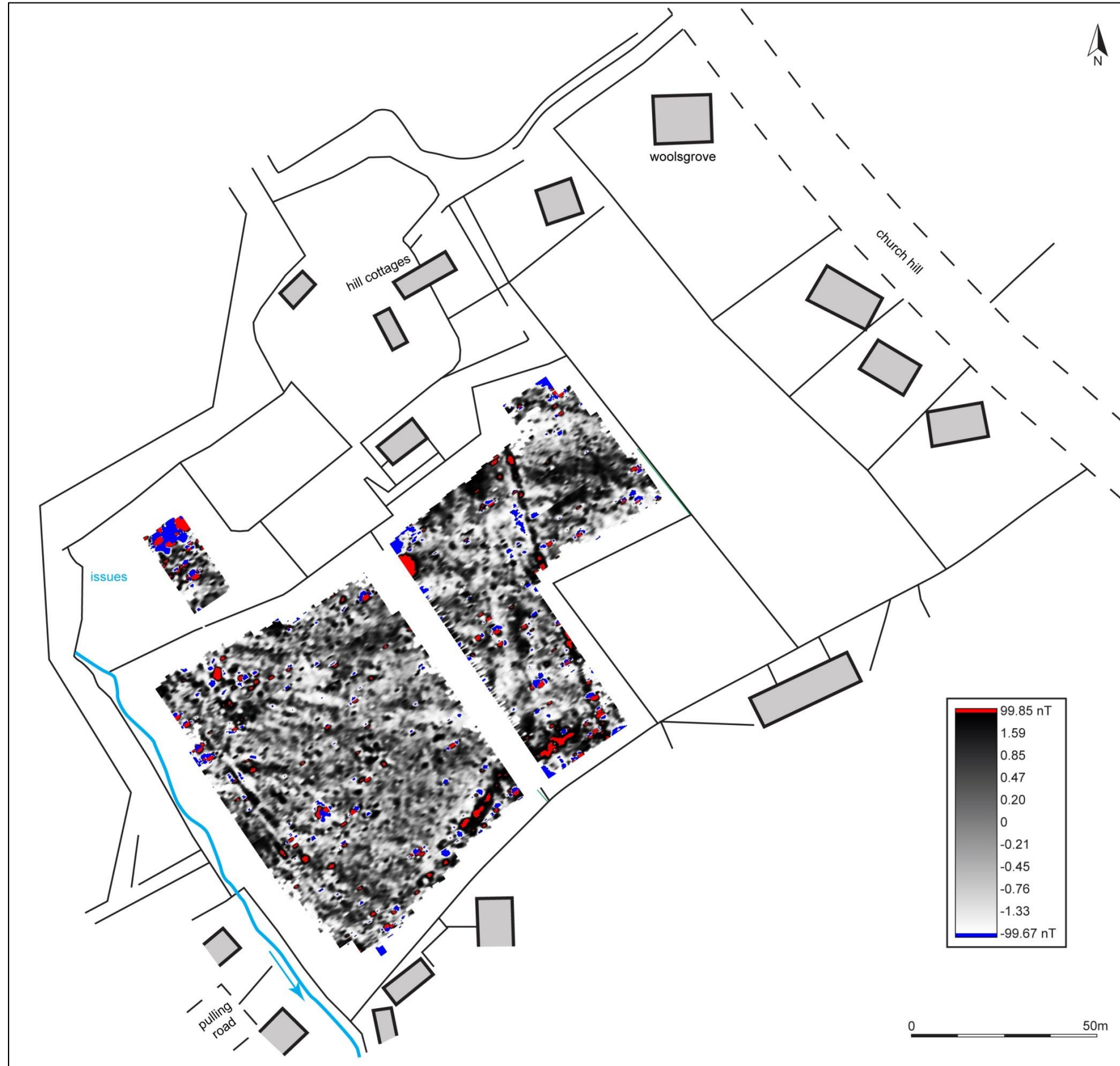


FIGURE 12: RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.



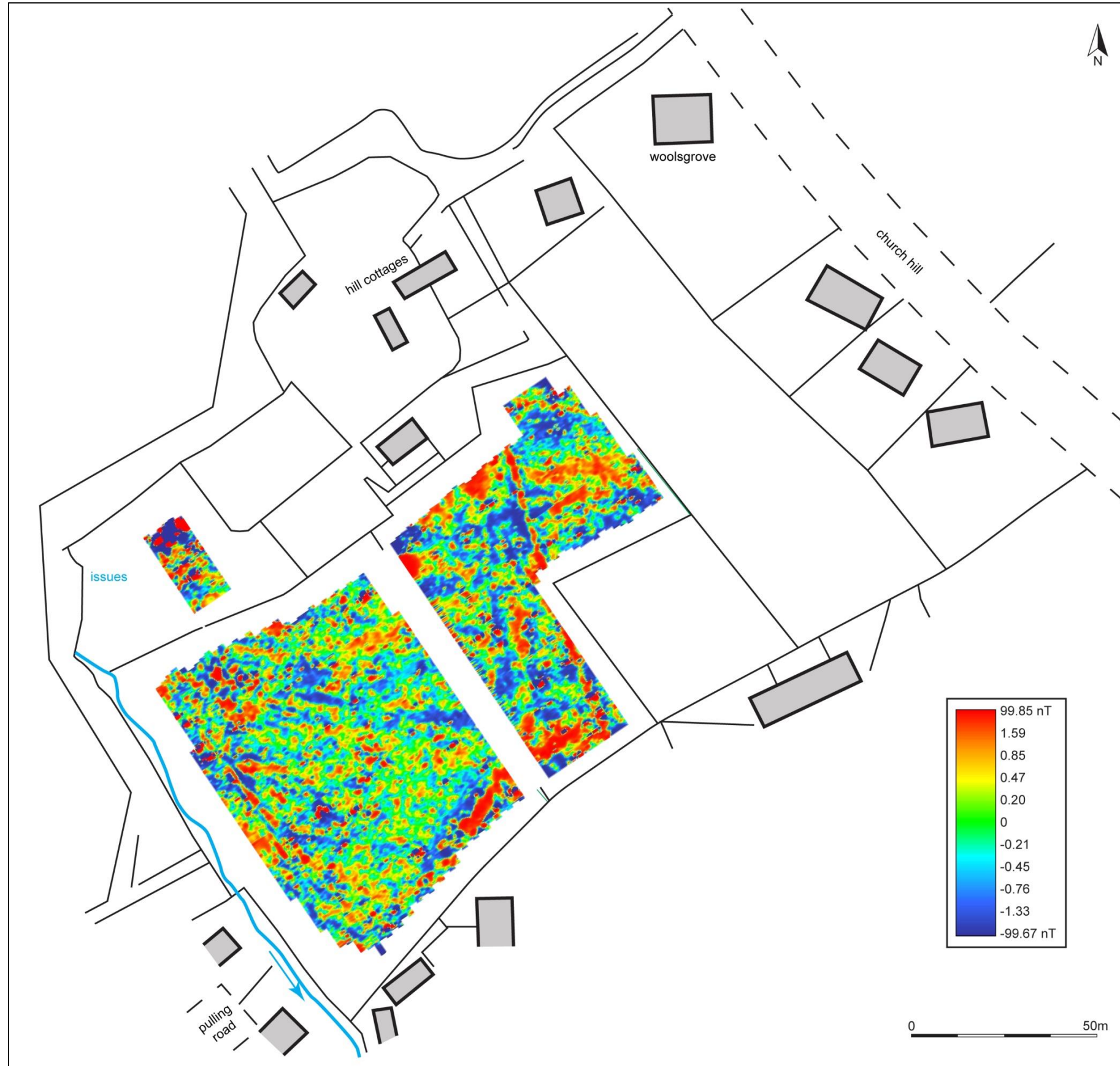


FIGURE 13: RED-BLUE-GREEN SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

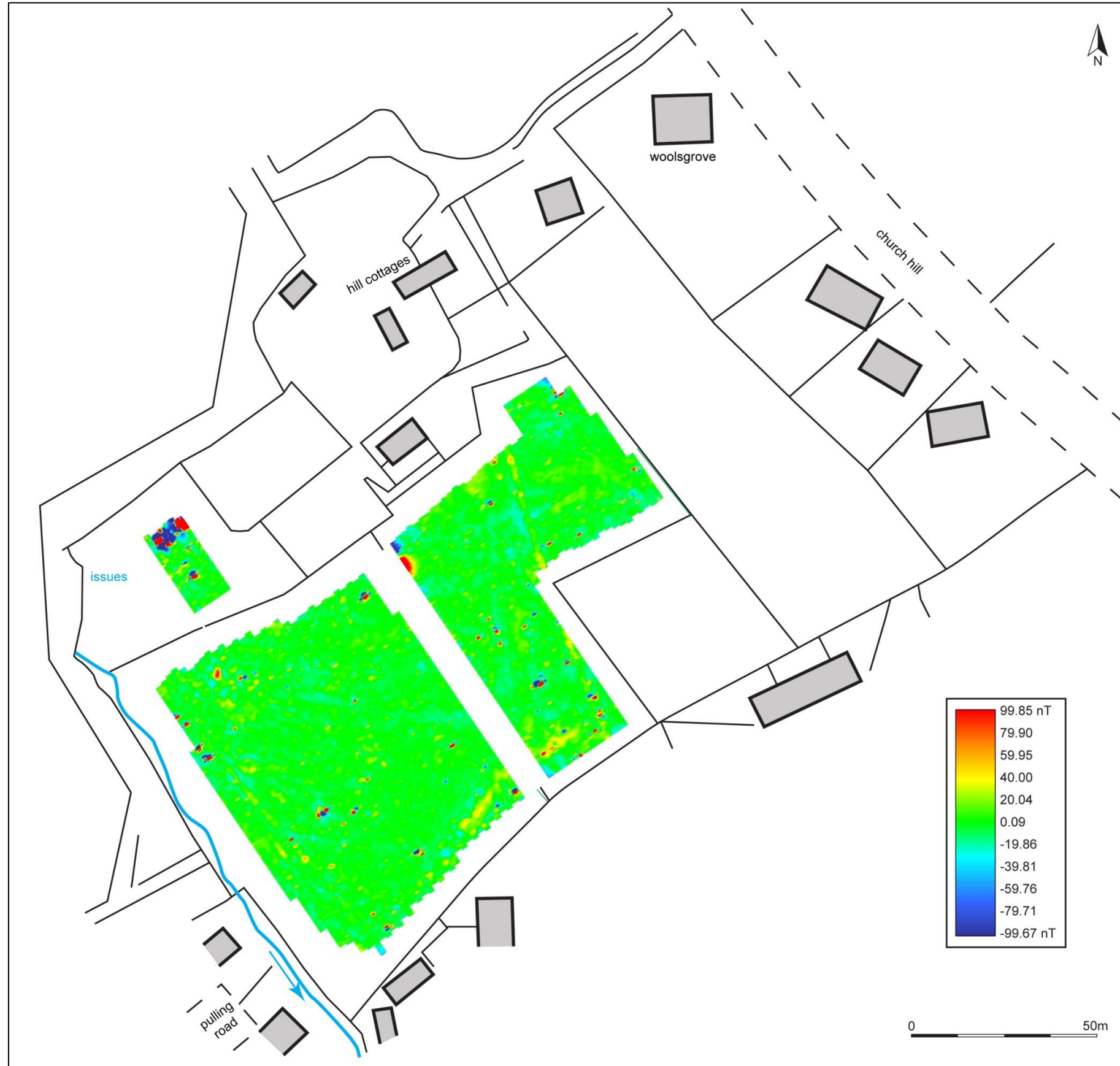


FIGURE 14: RED-BLUE-GREEN SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.



APPENDIX 2: SUPPORTING PHOTOGRAPHS



1. SITE ENTRANCE TO 'OAKFIELDS', NORTH CORNER OF THE SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).



2. SITE ENTRANCE IN THE NORTH CORNER OF THE SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).





3. SITE SHOT FROM THE NORTH CORNER OF THE SITE; VIEWED FROM THE NORTH (NO SCALE).



4. VIEW ALONG NORTH-EAST END OF THE NORTH-WEST BOUNDARY, TOWARDS THE STABLE; VIEWED FROM THE NORTH-EAST (NO SCALE).





5. VIEW ALONG PROPERTY BOUNDARY IN THE EAST CORNER OF THE SITE, SHOWING MAN-HOLE COVER; VIEWED FROM THE SOUTH-WEST (NO SCALE).



6. VIEW OF THE LEVELLED PADDOCK SOUTH-WEST OF THE STABLE; VIEWED FROM THE EAST (NO SCALE).





7. VIEW OF THE PADDOCK SOUTH-WEST OF THE STABLE, SHOWING EMBANKMENT OF RAISED GROUND; VIEWED FROM THE SOUTH (NO SCALE).



8. VIEW ALONG THE CENTRAL FENCE LINE BOUNDARY ON THE SITE; VIEWED FROM THE SOUTH-EAST (NO SCALE).





9. VIEW FROM THE SOUTH-WESTERN FIELD ON THE SITE TOWARDS ST MICHAELS CHURCH; VIEWED FROM THE SOUTH-EAST (NO SCALE).



10. VIEW OF THE HEDGE LINE AND DITCH BEYOND ALONG THE SOUTH-EAST BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-WEST (NO SCALE).





11. THE CORRUGATED SHED IN THE SOUTH CORNER OF THE SITE; VIEWED FROM THE NORTH (NO SCALE).



12. VIEW ALONG THE SOUTH-WEST BOUNDARY OF THE SITE FROM THE SOUTH CORNER; VIEWED FROM THE SOUTH-EAST (NO SCALE).





13. VIEW OF THE SITE FROM THE SOUTH CORNER; VIEWED FROM THE SOUTH (NO SCALE).



14. VIEW ALONG THE SOUTH-EAST BOUNDARY OF THE SITE FROM THE SOUTH CORNER; VIEWED FROM THE SOUTH-WEST (NO SCALE).





15. VIEW ACROSS LARGE/DEEP DRAIN ALONG THE SOUTH-WEST BOUNDARY OF THE SITE, SHOWING AN ADIT FROM THE ADJACENT CLAY PIT TO THE WEST; VIEWED FROM THE EAST (NO SCALE).



16. VIEW ALONG THE SOUTH-WEST BOUNDARY OF THE SITE, SHOWING THE LARGE DRAIN AND TREES; VIEWED FROM THE SOUTH-EAST (NO SCALE).





17. VIEW ALONG THE SOUTH-WEST EDGE OF THE SITE FROM THE WEST CORNER; VIEWED FROM THE NORTH-WEST (NO SCALE).



18. VIEW OF THE SITE FROM THE WEST CORNER; VIEWED FROM THE WEST (NO SCALE).





19. VIEW ALONG THE NORTH-WEST BOUNDARY OF THE SOUTHERN FIELD; VIEWED FROM THE SOUTH-WEST (NO SCALE).



20. VIEW ALONG THE BOUNDARY BETWEEN THE SOUTHERN FIELD AND THE SMALL FIELD IN THE WEST CORNER OF THE SITE; VIEWED FROM THE NORTH-EAST (NO SCALE).





21. VIEW ACROSS THE SMALL FIELD IN THE WEST CORNER OF THE SITE; VIEWED FROM THE EAST (NO SCALE).



22. VIEW OF THE NORTH-WEST BOUNDARY IN THE SMALL FIELD IN THE WEST OF THE SITE; VIEWED FROM THE SOUTH-WEST (NO SCALE).





23. THE SMALL FIELD IN THE WEST CORNER OF THE SITE; VIEWED FROM THE WEST (NO SCALE).



24. POSSIBLE OVER-SPILL PONDS OR EXTRACTION WORKS BEYOND THE WESTERN CORNER OF THE SITE, WEST OF THE SMALL WESTERN FIELD; VIEWED FROM THE NORTH-NORTH-EAST (NO SCALE).





25. VIEW FROM THE WEST CORNER OF THE Paddock BESIDE THE STABLE; VIEWED FROM THE SOUTH-WEST (NO SCALE).



26. THE STABLE ON THE NORTH-WEST BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-SOUTH-WEST (NO SCALE).





27. THE STABLE ALONG THE NORTH-WEST BOUNDARY OF THE SITE; VIEWED FROM THE EAST (NO SCALE).



28. VIEW OF THE GRAVELLED/STONED ACCESS TRACK FROM THE STABLE TO THE SITE ENTRANCE; VIEWED FROM THE SOUTH-WEST (NO SCALE).



THE OLD DAIRY  
HACCHE LANE BUSINESS PARK  
PATHFIELDS BUSINESS PARK  
SOUTH MOLTON  
DEVON  
EX36 3LH

DEVON: 01769 573555  
Cornwall: 01872 223164  
EMAIL: [MAIL@SWARCH.NET](mailto:MAIL@SWARCH.NET)