

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

on behalf of  
Headlands to Headspace  
Morecambe Bay Partnership

Kirkhead  
Grange-over-Sands  
Cumbria  
  
geophysical surveys

report 4390  
February 2017

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## **1. Summary**

### **The project**

- 1.1 This report presents the results of geophysical surveys conducted at Kirkhead, south-west of Kents Bank, near Grange-over-Sands, Cumbria as part of Morecambe Bay Partnership's Headlands to Headspace Landscape Partnership Scheme. The works comprised undertaking archaeological geophysical surveys as a community-based participation and training project. Geomagnetic and earth electrical resistance techniques were used, followed by a data processing workshop and ground penetrating radar demonstration.
- 1.2 The works were commissioned by Morecambe Bay Partnership and conducted by Archaeological Services Durham University.

### **Results**

- 1.3 Geomagnetic and earth electrical resistance surveys have been undertaken to help investigate the history and use of Kirkhead Summer House and hilltop. The surveys were followed by a data processing workshop and GPR demonstration at Abbot Hall Hotel.
- 1.4 The vast majority of electric resistance and geomagnetic anomalies detected here almost certainly reflect the varying depth of the underlying limestone bedrock across the hilltop, which outcrops in places.
- 1.5 A single possible penannular feature has been identified, which could possibly reflect the remains of a round-house or barrow, and may be associated with prehistoric settlement or funerary activity at Kirkhead.
- 1.6 Former ploughing has been detected across the survey area.
- 1.7 The remains of a possible former track, probably associated with access to the Summer House, may be present at the north end the survey area, together with other possible stone features or surfaces, although these anomalies could also simply reflect the rockhead topography.

## 2. Project background

### Introduction

- 2.1 These archaeological geophysical surveys have been undertaken as a community-based participation and training project, as part of Morecambe Bay Partnership's (MBP) Headland to Headspace Landscape Partnership Scheme, funded by the Heritage Lottery Fund. The project at Kirkhead Summer House supports the delivery of Headlands to Headspace (H2H) Project 1 (Built Heritage and Lookouts).
- 2.2 Project 1 (Built Heritage and Lookouts) includes the development and implementation of conservation management plans to secure the long-term management of key built heritage assets within their landscape context. These assets include (i) Second World War Heritage, (ii) Headlands and Lookouts, (iii) Ritual and Religious Sites. Eight key sites were identified during the development stage of H2H to be the focus of this project namely: (i) Walney Island WWI & WWII heritage, (ii) Birkkrigg, (iii) Kirkhead Summer House, (iv) Hampsfell Hospice, (v) Jenny Brown's Point, (vi) Warton Crag, (vii) Heysham and Heysham Head and (viii) Cockersands Observation Tower.
- 2.3 Geophysical survey training and participation projects have also been undertaken at Jenny Brown's Point and Cockerham Sands in Lancashire (Archaeological Services 2016 & 2017), to further support the delivery of H2H Project 1 (above) and also Project 17 (Community Archaeology and Training).
- 2.4 The H2H Scheme will raise the profile and appreciation of Morecambe Bay's rich cultural heritage, provide better local protection of aspects of the Bay's built heritage, increase local pride and engender a sense of ownership of lookouts and heritage assets by the local community.

### Location (Figure 1)

- 2.5 The survey area was located to the immediate south of Kirkhead Summer House, just south-west of Kents Bank, near Grange-over-Sands, Cumbria (NGR centre: SD 3928 7554).

### Objective

- 2.6 Headlands to Headspace puts local people at the heart of managing and looking after the heritage assets of the Bay for the long term, especially the very features that local people value most. Headlands to Headspace offers the chance to celebrate and explore what is distinctive about the Bay and make this better connected, more accessible to all, better appreciated and better understood. The scheme will help communities to restore, enhance and celebrate the cultural and natural heritage of Morecambe Bay.
- 2.7 The specific aims of the geophysical survey projects are to:
- promote research, interpretation and capacity building, with community engagement as the primary focus
  - prepare and deliver a high quality training programme to community groups to ensure community participants acquire the necessary skills and knowledge to undertake geophysical surveys and understand the results

- provide opportunities for community members to undertake geophysical surveys within specified H2H Scheme areas as community participation and training events
- process all data and assess the nature and extent of any sub-surface features of potential archaeological interest
- produce comprehensive reports for community benefit and accession to the local Historic Environment Record (HER) and Archaeology Data Service (ADS)

2.8 The specific research aims of the present surveys were to assess the nature and extent of any sub-surface features of potential archaeological or historic significance near the Summer House, which might shed further light on the history of the building, including the possibility of it being built over the site of an earlier chapel or church. The project also focuses on the south-facing coast of the Furness peninsula, between Barrow-in-Furness and Ulverston, an area rich in prehistoric sites where the archaeological potential is known to be high but which is currently poorly understood and largely overlooked. Kirkhead hilltop is considered a viable site for prehistoric settlement or funerary activity in this context.

### Research

2.9 Research objectives are built into archaeological projects in accordance with the Historic England national policy framework and its objectives, outlined in *Exploring Our Past* (Historic England 1991), *Frameworks for our Past* (Historic England 1996), the *Research Agenda* (Historic England 1997), and the *Policy Statement on implementation* (1999). This project addresses research priorities set out in *The Archaeology of North West England: an archaeological research framework for the North West Region. Volume 2: research agenda and strategy* (Brennand et al. 2007), specifically the following ‘Themes and priorities’:

- B) Landscape analyses
- F) Collaboration and Community
- J) Buildings archaeology
- L) Field methods and standards
- Q) Coastal, marine and maritime
- R) Making information Accessible

### Methods statement

2.10 The surveys have been undertaken in accordance with a brief provided by Morecambe Bay Partnership (Appendix), a Project Design provided by Archaeological Services Durham University, and national standards and guidance (para. 5.1 below).

### Dates

2.11 The project began with an evening presentation and introduction to archaeological geophysics on 7th November 2016. Fieldwork was undertaken on 8th and 9th November 2016 and a data processing workshop and ground-penetrating radar (GPR) demonstration were held on 10th November 2016. This report was prepared for February 2017.

### Personnel

2.12 Fieldwork was conducted by H2H community members: John Armstrong, Claire Asplin, Mike Butcher, Bill Byford, Barbara Copeland, Kevin Grice, Louise Martin (H2H

Cultural Heritage Officer, MBP), Jan Nicolson, Pat Rowland, Jill Salmon (H2H Officer, MBP), Steven Shepherd, Barbara Stevens and Jill Stevens.

- 2.13 Participants were trained and supervised by Richie Villis and Mark Woolston-Houshold (Archaeological Services Durham University). Geophysical data processing was by project members, Mark Woolston-Houshold and Richie Villis. This report was prepared by Richie Villis and Duncan Hale (the Project Manager for Archaeological Services), with illustrations by Janine Watson and Dr Helen Drinkall.
- 2.14 Overall project management and coordination was provided by Louise Martin (H2H Cultural Heritage Officer, MBP).



Team photo

### Acknowledgements

- 2.15 Archaeological Services Durham University and MBP are grateful to Holker Estates (the landowners) and the tenant farmer for facilitating this scheme of works. Abbot Hall Hotel is gratefully acknowledged for providing a comfortable base for the training.

### Archive/OASIS

- 2.16 The site code is **MBK16**, for **Morecambe Bay Kirkhead 2016**. The survey archive will be retained at Archaeological Services Durham University and a copy supplied on CD to the client for deposition with the project archive in due course. Archaeological Services Durham University is registered with the **Online Access to the Index of archaeological investigations project (OASIS)**. The OASIS ID number for this project is **archaeol3-276514**.

## 3. Historical and archaeological background

- 3.1 Kirkhead Summer House is a Grade II listed building (no. 1087159; UID: 76986) in a prominent position at the top of Kirkhead, to the west of Abbot Hall. It is a small square tower built of limestone rubble, with a projecting embattled parapet. The tower is two storeys high, with windows in the west and east faces. There is an entrance on the ground floor in the east face, and a later edition of stone steps to the first floor window in the south face. The interior floor and roof are missing. A Phase 1 Conservation Statement for the Summer House has been produced on behalf of the MBP (Meny 2015).

- 3.2 The Summer House is traditionally associated with Abbot Hall, a Grade II listed building (no. 1269671) built in the late 1840s. It has been assumed that it was a mid-19th century folly in the hall's grounds. However, the Summer House is marked on Hennet's map of 1830, so a structure here must pre-date Abbot Hall by a decade or more (Meny 2015).
- 3.3 Local legend has it that the Summer House was built on the site of an ancient church, pre-dating Cartmel Priory; anecdotal evidence suggests this is how Kirkhead gets its name.
- 3.4 Kirkhead occupies a prominent position on the south of the Furness peninsula, an area rich in prehistoric sites. Mesolithic flint scatters have been recorded to the south-west. To the north-west of the Summer House prehistoric settlement evidence exists as a group of low turf-covered stone-banked enclosures and quarrying activity. The entrance to Kirkhead Cave, a Scheduled Ancient Monument (no. 1012117; UID: 13444), lies approximately 150m west of the Summer House on the western side of Kirkhead. Excavations in 1850 recovered animal and human bones, charcoal, a pottery fragment, a Roman coin of Domitian (AD 84), an iron axe, a hammer and a knife blade from the near-surface. Continued excavation revealed many more artefacts of various types and materials, and part of a human skull. Later excavations located two groups of flints suggesting possible late Neolithic/Early Bronze Age occupation (Meny 2015).
- 3.5 Several prehistoric monuments are recorded in the wider area, including late Neolithic/Early Bronze Age cremated burial sites and settlement evidence. It is not inconceivable that a prominent hill-top like Kirkhead was exploited for this purpose in the period, especially given the evidence of long-term use of Kirkhead Cave on the western slope of the hill.

#### **4. Landuse, topography and geology**

- 4.1 The survey area comprised the top of a steep wooded slope with patches of outcropping bedrock. The area was under pasture for cattle grazing, with patches of gorse and trees on the slopes to each side.
- 4.2 The survey area occupied a gentle south-facing slope at the summit of Kirkhead, with elevations between approximately 80m OD at the Summer House in the north of the area and 66m OD in the south. Kirkhead hill slopes downwards to approximately 38m OD to the north, and falls dramatically down to Morecambe Bay to the east and south. The entrance to Kirkhead Cave was approximately 150m west of the survey area, on the western flank of Kirkhead.
- 4.3 Kirkhead is an outcropping escarpment of Visean calcarenite of the Urswick Limestone Formation. The geology of the wider area is complex, with many sedimentary strata recorded: complex Visean-Namurian strata, including Park Limestone Formation, Great Scar Limestone Group, interbedded mudstones, siltstones and sandstones of the Yoredale Group and Pendel Grit Member and Alston Formation calcareous mudstones are all recorded nearby, along with Late Permian-Early Triassic Brockram breccia. No superficial deposits are recorded over Kirkhead itself, with raised marine deposits and Devensian till recorded to the north, east and west (British Geological Survey 2017).

## 5. Geophysical survey Standards

- 5.1 The surveys and reporting were conducted in accordance with Historic England guidelines, *Geophysical survey in archaeological field evaluation* (David, Linford & Linford 2008); the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for archaeological geophysical survey* (2014); the CIfA Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); and the Archaeology Data Service & Digital Antiquity *Geophysical Data in Archaeology: A Guide to Good Practice* (Schmidt 2013).

### Technique selection

- 5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.
- 5.3 In this instance it was considered possible that features, such as wall foundations, trackways and surfaces, related to the Summer House or the putative former chapel, might be present on site, and that other types of feature such as ditches, pits and fired structures (for example kilns and hearths) could also be present.
- 5.4 Given the anticipated nature and depth of targets, and the non-igneous geological environment of the study area, two complementary geophysical survey techniques were considered appropriate: geomagnetic and earth electrical resistance. GPR survey was not considered appropriate in this instance due to the relatively shallow depth of bedrock.
- 5.5 The selected geomagnetic technique, fluxgate gradiometry, involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.
- 5.6 Electrical resistance survey can be particularly useful for mapping stone features. When a small electrical current is injected through the earth it encounters resistance which can be measured. Since resistance is linked to moisture content and porosity, stone features will give relatively high resistance values while soil-filled features, which typically retain more moisture, will provide relatively low resistance values.

### Field methods

- 5.7 A 20m grid was established across the survey area and related to the Ordnance Survey (OS) National Grid using a Leica GS15 global navigation satellite system (GNSS) with real-time kinematic (RTK) corrections typically providing 10mm accuracy.
- 5.8 Measurements of vertical geomagnetic field gradient were determined using Bartington Grad601-2 dual fluxgate gradiometers. A zig-zag traverse scheme was



employed and data were logged in 20m grid units. The instrument sensitivity was effectively 0.03nT, the sample interval was 0.25m and the traverse interval was 1m, thus providing 1,600 sample measurements per 20m grid unit.



Geomagnetic survey using a Bartington Grad601-2

- 5.9 Measurements of earth electrical resistance were determined using Geoscan RM15D Advanced resistance meters with MPX15 multiplexers and a mobile twin probe separation of 0.5m. A zig-zag traverse scheme was employed and data were logged in 20m grid units. The instrument sensitivity was 1ohm and the sample and traverse intervals were 1m, thus providing 400 sample measurements per 20m grid unit.



Earth electric resistance survey using a Geoscan RM15D and MPX15

- 5.10 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

### **Data processing**

- 5.11 Geoplot v.3 software was used to process the geophysical data and to produce both continuous tone greyscale images and trace plots of the raw (minimally processed) data. The greyscale images, trace plots and geophysical interpretations are presented in Figures 2-7. In the greyscale images, positive magnetic and high resistance anomalies are displayed as dark grey, while negative magnetic and low resistance anomalies are displayed as light grey. Palette bars relate the greyscale intensities to anomaly values in nanoTesla/ohm, as appropriate.

- 5.12 The following basic processing functions have been applied to the geomagnetic data:

<i>clip</i>	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
<i>zero mean traverse</i>	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities
<i>de-stagger</i>	corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses
<i>interpolate</i>	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

- 5.13 The following basic processing functions have been applied to the resistance data:

<i>clip</i>	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
<i>add</i>	adds or subtracts a positive or negative constant value to defined blocks of data; used to reduce discontinuity at grid edges
<i>de-spike</i>	locates and suppresses spikes in data due to poor contact resistance
<i>interpolate</i>	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

- 5.14 High pass and low pass filters have been applied to the resistance data in order to remove a striping defect introduced by the instrument when collecting data using parallel twin configuration over wet ground.

**Interpretation: anomaly types**

- 5.15 Colour-coded geophysical interpretation plans are provided. Three types of geomagnetic anomaly have been distinguished in the data:

<i>positive magnetic</i>	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches
<i>negative magnetic</i>	regions of anomalously low or negative magnetic field gradient, which may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids
<i>dipolar magnetic</i>	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as kilns or hearths

- 5.16 Two types of resistance anomaly have been distinguished in the data:

<i>high resistance</i>	regions of anomalously high resistance, which may reflect foundations, tracks, paths and other concentrations of stone or brick rubble
<i>low resistance</i>	regions of anomalously low resistance, which may be associated with soil-filled features such as pits and ditches

**Interpretation: features**

- 5.17 A colour-coded archaeological interpretation plan is provided (Figure 8). For ease of reference, anomaly numbers shown bold in the text below (eg **a**, **b**, etc) are also shown on the archaeological interpretation plan.
- 5.18 The majority of anomalies detected in both the geomagnetic and resistance data almost certainly reflect the geological environment of the area. Broad bands of north-north-west/south-south-east aligned positive magnetic anomalies and corresponding high and low resistance anomalies (eg **m1** & **r1**) have been detected across the survey area. These anomalies are in the same orientation as the lines of outcropping bedrock noted in and around the survey area, and almost certainly correspond to natural terraces and shelves within the underlying limestone.
- 5.19 Despite the relatively shallow depth to bedrock across the survey area both techniques have detected several anomalies of potential archaeological interest.
- 5.20 Closely spaced parallel positive and negative magnetic striations (**m2**) have been detected in at least two distinct, broadly perpendicular, orientations in the geomagnetic data. These correspond to similar alignments of high and low electrical resistance (**r2**), and almost certainly reflect former ploughing. Very slight cultivation earthworks were noted across the area corresponding to the broadly north-east/south-west orientated anomalies.



Earth electric resistance survey around the outcropping bedrock near the Summer House

- 5.21 A very weak penannular low resistance anomaly (**r3**) has been detected in the centre of the survey area. This could possibly reflect the truncated remains of a c. 12m diameter ring-ditch, such as might be associated with a round-house or small round-barrow. No corresponding anomaly has been identified in the geomagnetic data, possibly due to low contrast between the magnetic susceptibility of any gully and the natural background; this could be particularly low if the feature is very shallow, which would presumably be the case in this instance given the apparently shallow depth of soils across the survey area. No other likely features have been identified near the possible ring-ditch.
- 5.22 High electrical resistance anomalies have been detected in the northernmost part of the survey area (**r4**), to the east and south of the Summer House. It is possible that some of these might reflect former stone features associated with the Summer House, such as a track leading to the building from the north-east, or other hard surfaces or footings, however, given their general lack of definition and the presence of outcropping limestone here, it is perhaps more likely that these anomalies reflect the rockhead topography.
- 5.23 The only other anomalies detected here are small, discrete dipolar magnetic anomalies. These usually reflect near surface items of ferrous and/or fired waste, such as horseshoes and brick fragments. In this instance, however, it is possible that some of these anomalies could reflect small concentrations of iron ore (haematite), which can occur in the limestones of the Morecambe Bay area.

## 6. Conclusions

- 6.1 Geophysical training and survey has been undertaken at Kirkhead, south-west of Kents Bank, near Grange-over-Sands, Cumbria, as part of Morecambe Bay Partnership's programme of community participation heritage projects.
- 6.2 Geomagnetic and earth electrical resistance surveys have been undertaken to help investigate the history and use of Kirkhead Summer House and hilltop. The surveys

were followed by a data processing workshop and GPR demonstration at Abbot Hall Hotel.

- 6.3 The vast majority of electric resistance and geomagnetic anomalies detected here almost certainly reflect the varying depth of the underlying limestone bedrock across the hilltop, which outcrops in places.
- 6.4 A single possible penannular feature has been identified, which could possibly reflect the remains of a round-house or barrow, and may be associated with prehistoric settlement or funerary activity at Kirkhead.
- 6.5 Former ploughing has been detected across the survey area.
- 6.6 The remains of a possible former track, probably associated with access to the Summer House, may be present at the north end the survey area, together with other possible stone features or surfaces, although these anomalies could also simply reflect the rockhead topography.

## 7. Sources

- Archaeological Services 2016 *Jenny Brown's Point, Silverdale, Lancashire: geophysical surveys*. Unpublished report **4215**, Archaeological Services Durham University
- Archaeological Services 2017 *Cockerham Sands, Cockerham, Lancashire: geophysical surveys*. Unpublished report **4392**, Archaeological Services Durham University
- Brennand, M, Chitty, G, & Nevell, M, (eds) 2007 *Research and Archaeology in North West England: an archaeological research framework for the North West Region, Volume 2: research agenda and strategy. Archaeology North West vol 9*, ALGAO, EH & CBACIfA 2014 *Standard and Guidance for archaeological geophysical survey*. Chartered Institute for Archaeologists
- David, A, Linford, N, & Linford, P, 2008 *Geophysical Survey in Archaeological Field Evaluation*. Historic England
- Gaffney, C, Gater, J, & Ovenden, S, 2002 *The use of geophysical techniques in archaeological evaluations*. ClfA Technical Paper **6**, Chartered Institute for Archaeologists
- Meny, N, 2015 *Kirkhead Summer House: phase 1 conservation statement*. Unpublished report, Purcell on behalf of Morecambe Bay Partnership
- Schmidt, A, 2013 *Geophysical Data in Archaeology: A Guide to Good Practice*. Archaeology Data Service & Digital Antiquity, Oxbow

## Websites

[www.bgs.ac.uk](http://www.bgs.ac.uk)  
[historicengland.org.uk](http://historicengland.org.uk)

## Appendix: Project brief



### Contractors brief for delivering geophysical surveys and volunteer participation/training

#### 1. Project Overview

- 1.1. As part of the Heritage Lottery Funded Headland to Headspace Landscape Partnership Scheme, Morecambe Bay Partnership wishes to appoint a contractor to undertake geophysical surveys, including a participation/training project for community participants/volunteers.
- 1.2. This training project will support the delivery of Headlands to Headspace (H2H) Project 1 (Built Heritage and Lookouts) and Project 17 (Community Archaeology and Training). Further information on the Headlands to Headspace Landscape Partnership Scheme and an overview of the projects (including outputs and outcomes) is provided in Appendix 1. This project should follow current Chartered Institute for Archaeologists (CIfA 2014) and Historic England (formally English Heritage; English Heritage 2008) guidance/best practice for undertaking geophysical surveys.

#### 2. Aim

- 2.1. The aim of this work is to:
  - Undertake geophysical surveys within the H2H Scheme area as community participation training events, record data and report results.
- 2.2. Outputs:
  - Develop a training programme to ensure community participants acquire the necessary skills and knowledge to undertake geophysical surveys and understand the results;
  - Provide community participation/training opportunities as part of all surveys undertaken;
  - Process all data and produce comprehensive reports for accession to the local Historic Environment Record and Archaeological Data Service (ADS).

#### 3. Scope of the work

- 3.1. The contractor will work in liaison the H2H Cultural Heritage Office (CHO) to:

- Develop a training programme for small groups (20 people max per group) of community participants/volunteers in the techniques and approaches to geophysical survey;
- Develop a volunteer training pack to include guidance on undertaking geophysical survey;
- Deliver on-site survey of sites (minimum of 4 sites) to include training sessions/workshops for small groups of community participants/volunteers;
- Co-ordinate and monitor data collection by project participants/volunteers;
- Ensure all data is processed and reported and results are accessioned to the Historic Environment Record and Archaeological Data Service (ADS).

#### **4. Project delivery**

- 4.1. This project will be developed and delivered from Winter 2015. The training programme/resources will be developed during winter 2015/6 with workshops/survey being delivered throughout 2016-7 (as appropriate).
- 4.2. The minimum number of training sessions and sites to be surveyed is four with a maximum of 10 sites (no greater than 40 hectares per site). It is hoped that at least one training session/survey will be held during the 2016 Festival of Archaeology (16th-31st July) and the contractor should be available to deliver a training session/survey during this time.
- 4.3. The contractor will work in liaison with the H2H Cultural Heritage Office (CHO). The H2H Cultural Heritage Group will provide strategic guidance to the programme. Other members of the H2H team will be involved as appropriate – e.g. volunteer opportunities and recruitment will be overseen by the H2H Community and Training Officer and CHO.
- 4.4. The contractor will be required to quote for:
  - Preliminary site visits (if required);
  - Production of site specific Risk Assessments;
  - Development of volunteer training programme, guide and resources;
  - Provision of survey equipment;
  - Delivery on site survey/ training sessions;
  - Processing and reporting data collected;
  - Accessioning the recording to the Historic Environment Record and ADS.

The planning and delivery of the training sessions will be supported by the CHO.

#### **5. Training content**

- 5.1. The training sessions are expected to include an overview of the principals and approaches to geophysical survey, including the techniques used for different sites, establishing site survey grids, processing data sets and reporting/archiving results.
- 5.2. A guide to accompany the training sessions should be developed and be provided to each participant/volunteer. This guide will become copyright of Morecambe Bay Partnership and is to shared as an online resource and used for future training (if required).

## 6. Responsibilities of the contractor

### 6.1. The contractor will be expected to:

- Develop relevant training materials/resources and deliver a quality community training programme to four separate groups (in liaison with the CHO);
- Produce lesson plans for the workshops in liaison with the CHO);
- Obtain landowner (and any other third party) consent for site visits (in liaison with the CHO);
- Produce Risk Assessments for each event/workshop
- Oversee the volunteers and quality/results of their work;
- Produce reports for each site surveyed.

6.2. In addition, consultants should monitor the success of the training sessions on an ongoing basis, and adjust future sessions as necessary to reflect group needs. A final short evaluation of the training sessions should be provided and a photographic record of the sessions should be provided to the client, with permission for the client to use them in digital media and print

6.3. To assist with the tendering process an *indicative* list of sites is shown, including size and current land use. This list is only indicative at this stage and may be subject to change/landowner permission. Tenders should include provision to establish the training programme/guide, a rate per hectare of undertaking site surveys and processing/reporting results for each survey undertaken.

Site	Approximate Survey Area	Current Land Use
Cockerham Sands	Up to 3.2 hectares	Private ownership. Pasture. Currently used for grazing horses
Jenny Browns Point	Up to 1.2 hectares	Land around chimney Private ownership, eroding saltmarsh  Land to north of chimney National Trust with tenant farmer. Pasture
Kirkhead	Up 4.8 hectares	Private ownership. Pasture. Currently used for grazing horses
Furness Peninsular/Barrow-in-Furness area (sites to be determined).	Up to 5 sites and c. 100 hectares	TBC



Site	Approximate Survey Area	Current Land Use
Possibly 5 separate sites		

- 6.4. Please note that the above is indicative and tenders submitted should reflect the contractor's cost for the following elements of the project:
- Fixed price for developing of training workshop/materials;
  - Day rates/price per site for delivering on site survey/training (please indicate what area is anticipated to be surveyed in a day with volunteers and price per hectare);
  - Travel expenses (per mile/day/accommodation);
  - Production of report (maximum/minimum per site );
  - Archiving.
- 6.5. Contractors will be expected to have a robust contingency plan in place to cover accident/illness, will be expected to provide such information to Morecambe Bay Partnership and will be responsible for ensuring a contingency plan is in place throughout the entirety of the project/contract. This plan is to include time/cost of project handover and delivery of sessions at short notice (if required).

## 7. Health and Safety

- 7.1. The contractor will be responsible for health and safety during all training sessions.
- 7.2. Specific and comprehensive Risk Assessments must be produced prior to the commencement of training and be provided to the CHO.

## 8. Reporting

- 8.1. The contractor will be expected to produce a report for each site surveyed and should include:
- Introduction/background to the project;
  - Brief historical background to the site;
  - Methodologies employed for data collection;
  - Overview of results of the project (including illustrations/photographs and maps, as appropriate).
- 8.2. Contractors are required to submit draft reports for comments before any report is finalised.
- 8.3. Morecambe Bay Partnership requires 1 hard copy and a digital copy (in MS Word and PDF format) of each final report, which should be fully proof-read. A copy of the report should also be produced and accessioned to the Historic Environment Record and be archived with the ADS. Costs for report production and archiving should be included in the tender.

- 8.4. The client will hold the copyright on the reports produced and its publication (including copyright on the brand and design). Permission will be granted by contractor to disseminate all data collected/produced through digital media (such as websites). Use of any of the information contained within the reports must be appropriately referenced.
- 8.5. Any information supplied by the client to the contractor during the project must be returned no later than one month after the end of the contract period.

**9. Insurance**

- 9.1. The contractor should hold £2m public liability and £1m professional indemnity insurance. Proof of insurance should be included in the tender submission.

**10. Work proposals and deadlines**

- 10.1. Interested consultants should submit a work proposal/project design and quotation to arrive by 5pm Friday 27<sup>th</sup> November 2015.
- 10.2. Submissions should be sent by email to Louise Martin [louise@morecambabay.org.uk](mailto:louise@morecambabay.org.uk) and to Sophie Cringle [h2h@morecambabay.org.uk](mailto:h2h@morecambabay.org.uk) and will be acknowledged. These should arrive by date shown on the timetable. Late submissions will not be accepted.
- 10.3. The work proposal/project design and quotation should demonstrate the following award criteria:
- Your understanding and summary of the task;
  - How you propose to work with us and help us to achieve the outcomes of the project;
  - Methodologies proposed;
  - A work plan including schedule of tasks and milestones;
  - Expertise in undertaking similar work;
  - Team structure and competencies - lead and contributors;
  - Costs including a breakdown of each consultant’s role, day rate, number of days working on the project, purchases, travel costs and other expenses;
  - Value for money;
  - What systems you have in place to ensure that you can meet the deadlines – e.g. who you will collaborate with in case of illness or other delays.
  - CVs (2 pages max) for the consultant(s) who will work on the project;
  - Two referees
- 10.4. The deadline for submission of quotations is 5pm Friday 27<sup>th</sup> November 2015. Training sessions will be planned during November/December 2015, with delivery timetabled to commence in Spring 2016. A proposed timetable is shown below. Sessions should be held to ensure that a wide variety of audiences are reached.

Deadline for quotation submission	5pm Friday 27 <sup>th</sup> November 2015
-----------------------------------	---

Production of training resources	Winter 2015
Delivery of Training	2016-2017 (as appropriate to the site/land use)

- 10.5. The successful contractors should initially discuss the scope of the work with the client to agree a detailed timetable for the work.
- 10.6. All work, is required to be accessioned with the Historic Environment Record and ADS within 3 months of the completion of the project.

## 11. Quotations and Contract

- 11.1. The quotations should include all training materials, transport and subsistence, production of fully illustrated printed and digital reports.
- 11.2. A full contract will be drawn up, following the award of the contract, by Cumbria County Council, which acts as the Lead Body for Morecambe Bay Partnership. By submitting a tender for this contract, contractors are bound to the Standard Terms and Conditions of Cumbria County Council (Appendix 2) and Morecambe Bay Partnership Procurement Policy and Delegated responsibility for financial decisions (Appendix 3). Any queries regarding this contract and the T+C's should be raised prior to submission of a tender. Payment will be made in stages on the satisfactory completion of the set milestones.

## 12. Project Management

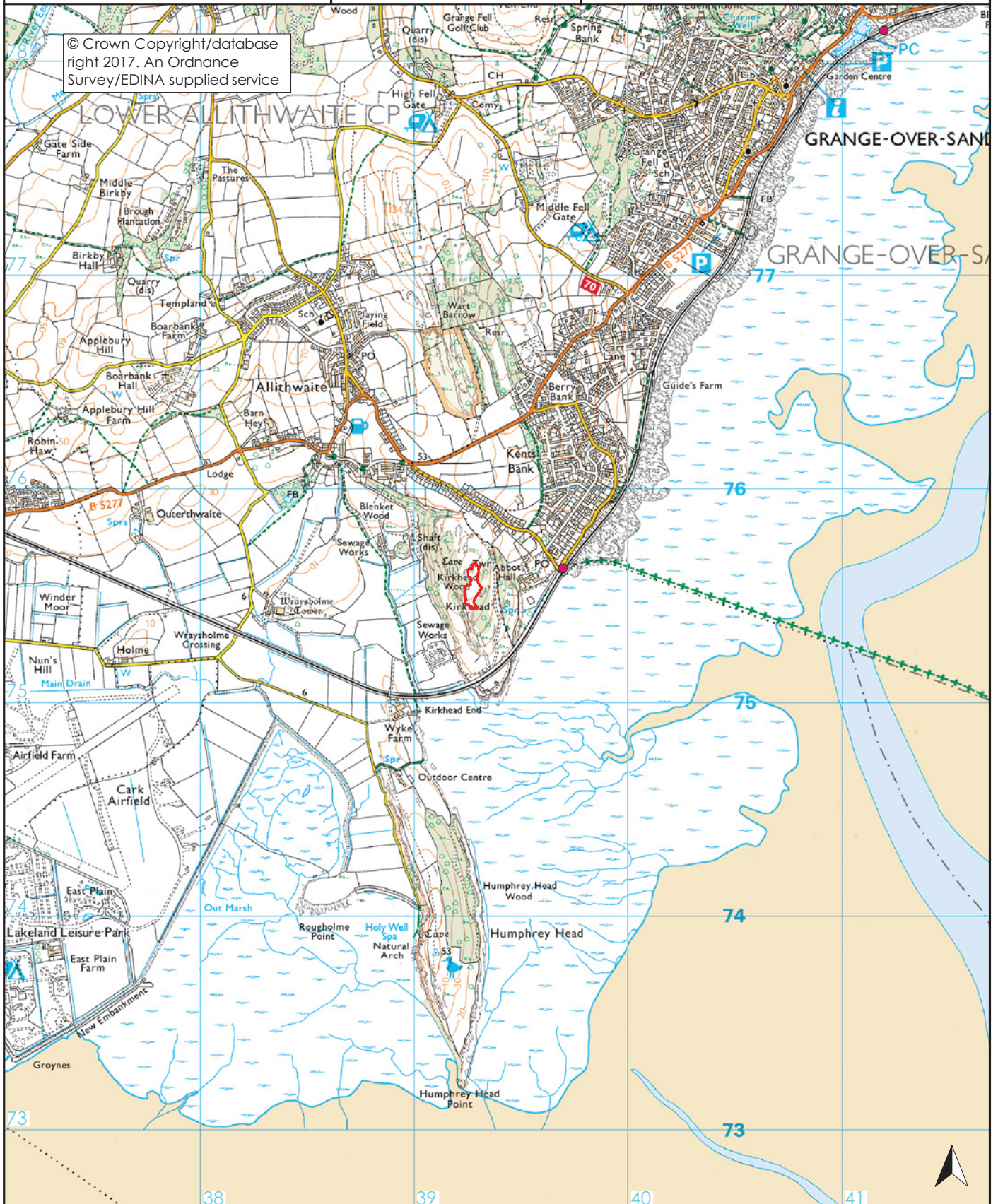
- 12.1. The project will be managed by Morecambe Bay Partnership's Cultural Heritage Officer.
- 12.2. The contractor will report to the client immediately if there are any un-foreseen delays, which may limit the ability to complete the work to schedule.
- 12.3. Training materials, workshop contents and all events should be discussed with Cultural Heritage Officer before being organised, printed or run.

## 13. Background and Essential Guidance

- 13.1. The H2H Landscape Conservation Action Plan (LCAP) will be provided on appointment along with details of the H2H Project area.
- 13.2. The H2H team has access to data and support from their partners. This will be shared when appropriate/possible.
- 13.3. Heritage Lottery issue a number of guidance documents. The consultants are expected to be familiar with and work with these, especially:
- Planning Activities in Heritage Projects
  - Thinking about Audience Development
  - Thinking about Community Participation

**14. Contract manager:**

- 14.1. The contract manager is Louise Martin, H2H Cultural Heritage Officer. Contact details are Morecambe Bay Partnership, The Factory, Castle Mills, Aynam Road, Kendal, LA9 7DE. [louise@morecambebay.org.uk](mailto:louise@morecambebay.org.uk) 01539 734888/ 07760 881581

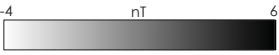


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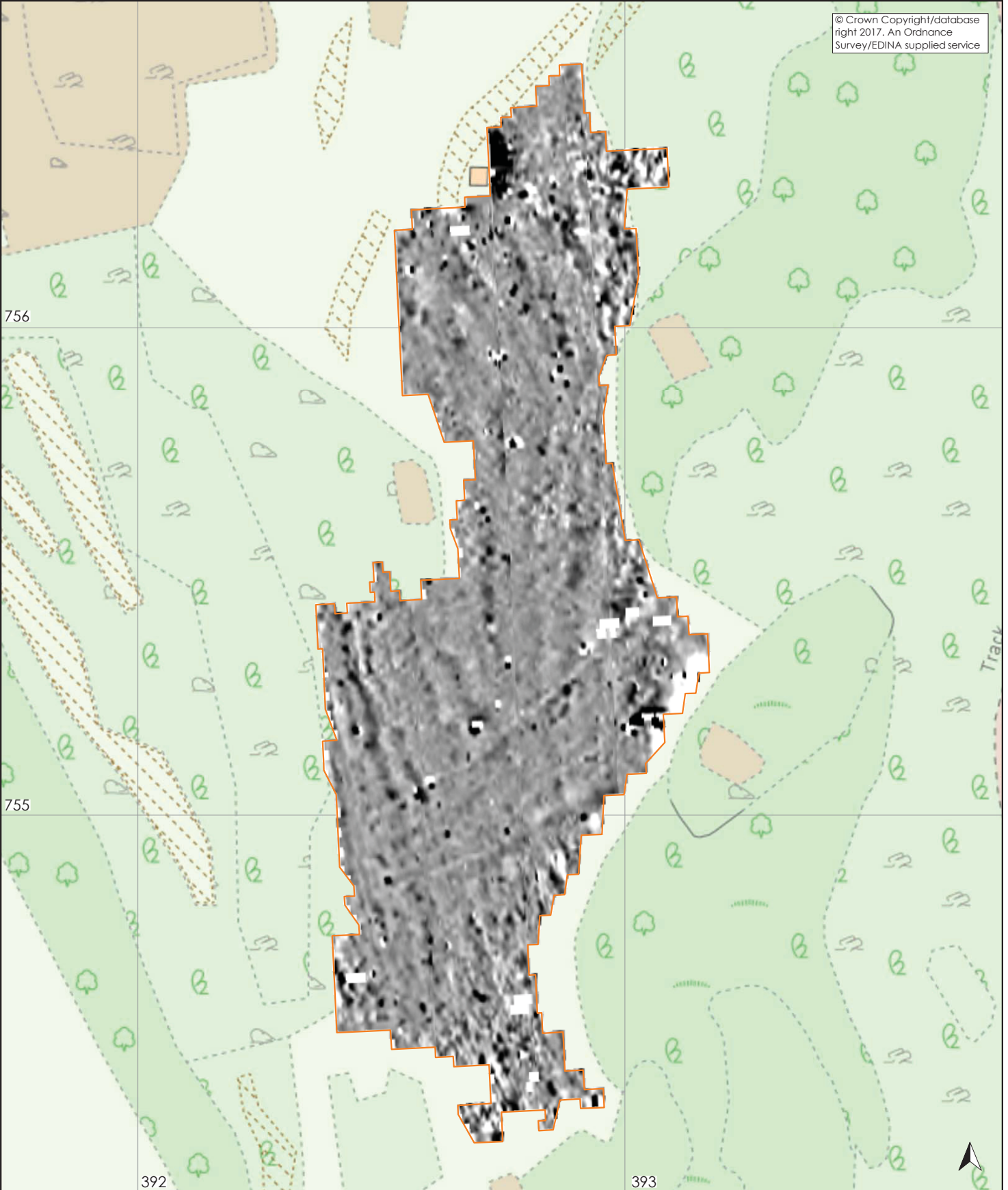
 site location

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magnetic survey



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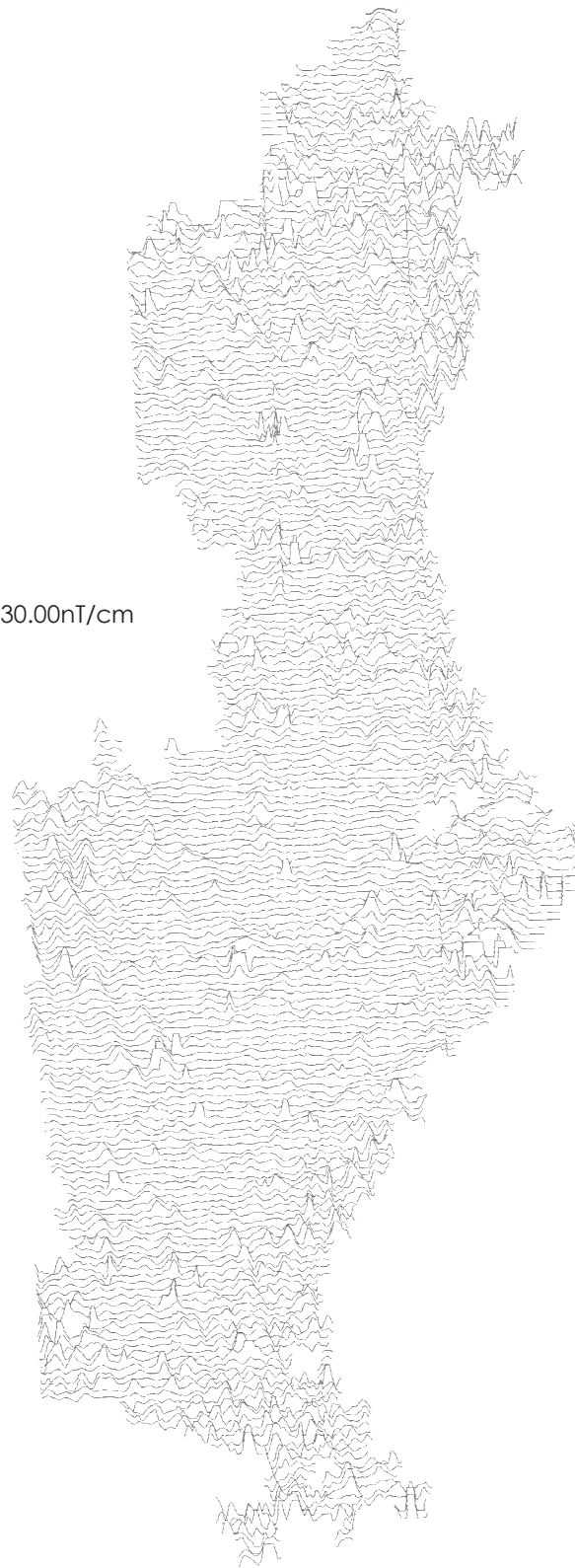
on behalf of  
Headlands to Headspace  
Morecambe Bay Partnership



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Cumbria

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Figure 2: Geomagnetic survey



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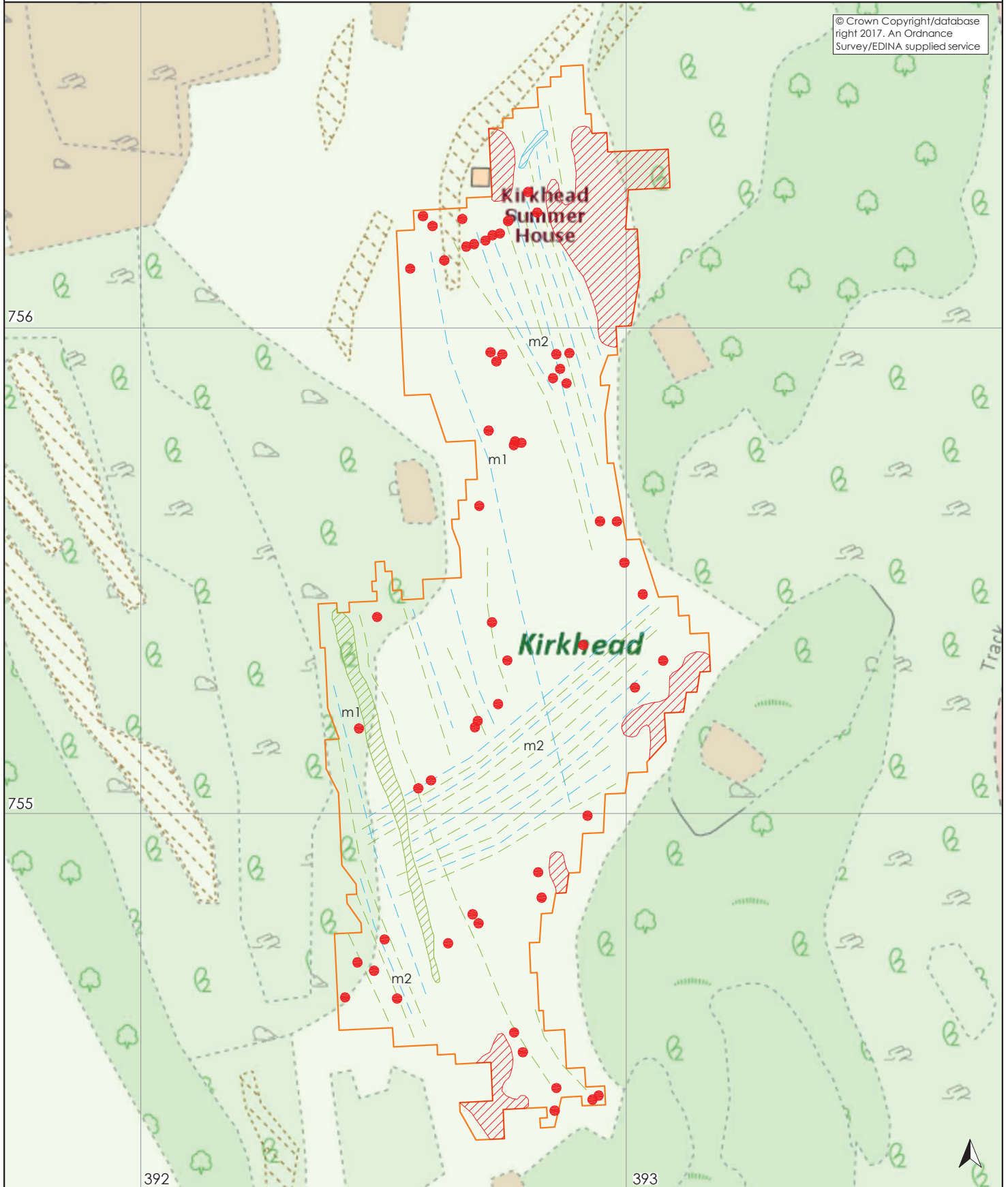
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Figure 3: Trace plot of geomagnetic data



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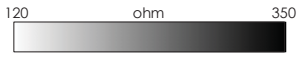
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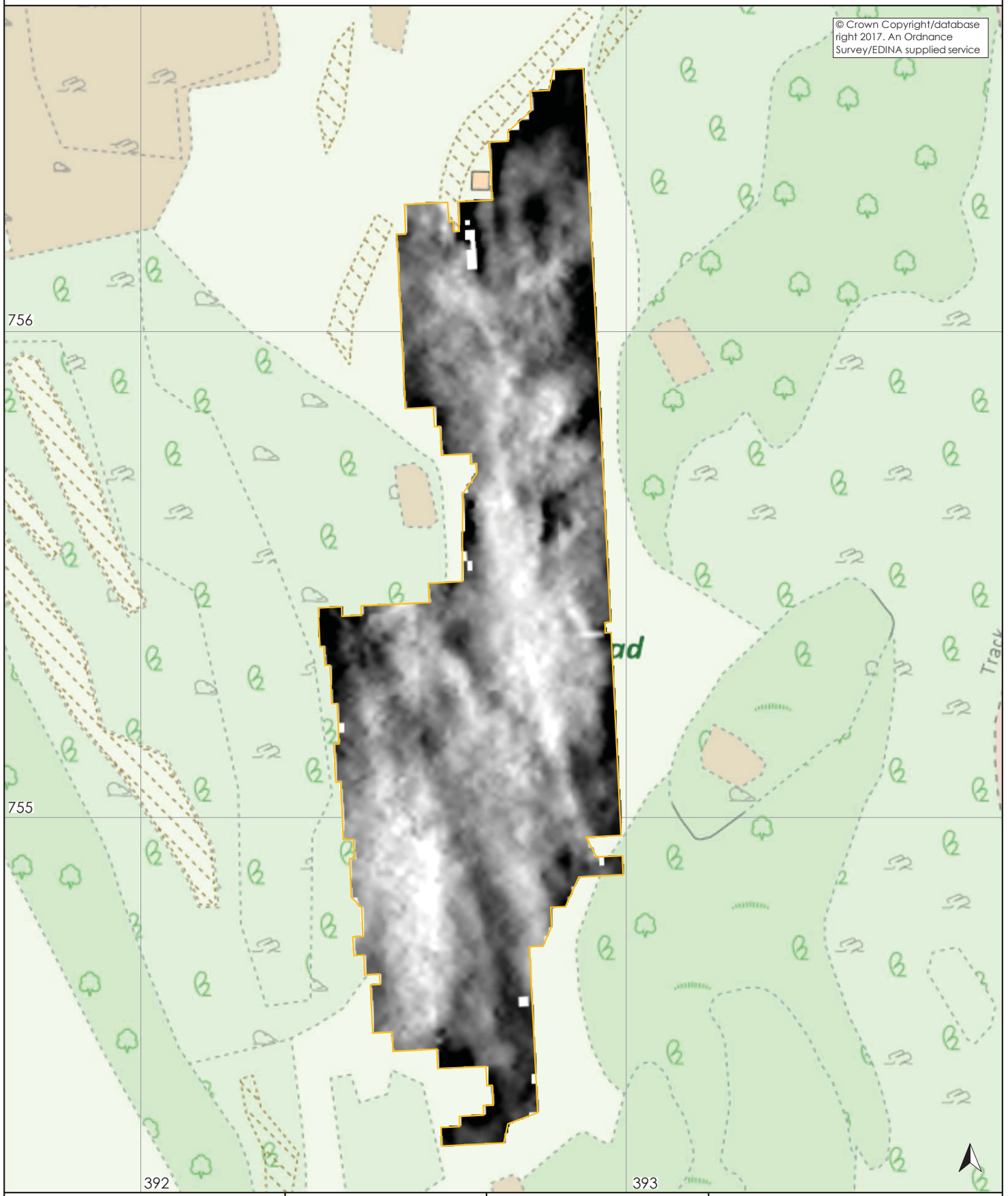
Figure 4: Geophysical interpretation of geomagnetic data



resistance survey



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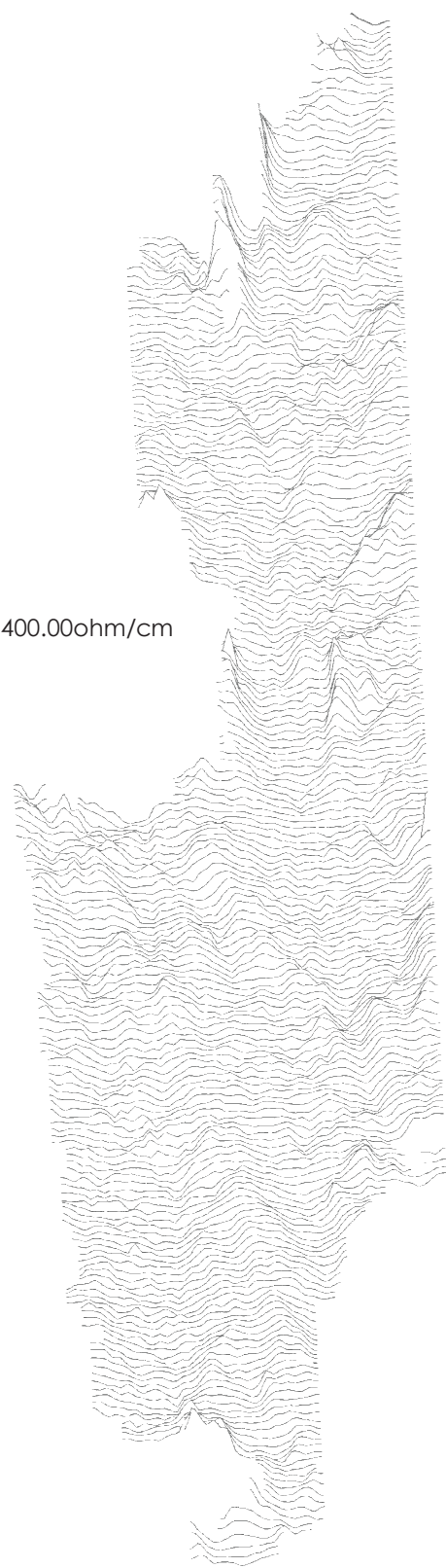
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Figure 5: Resistance survey

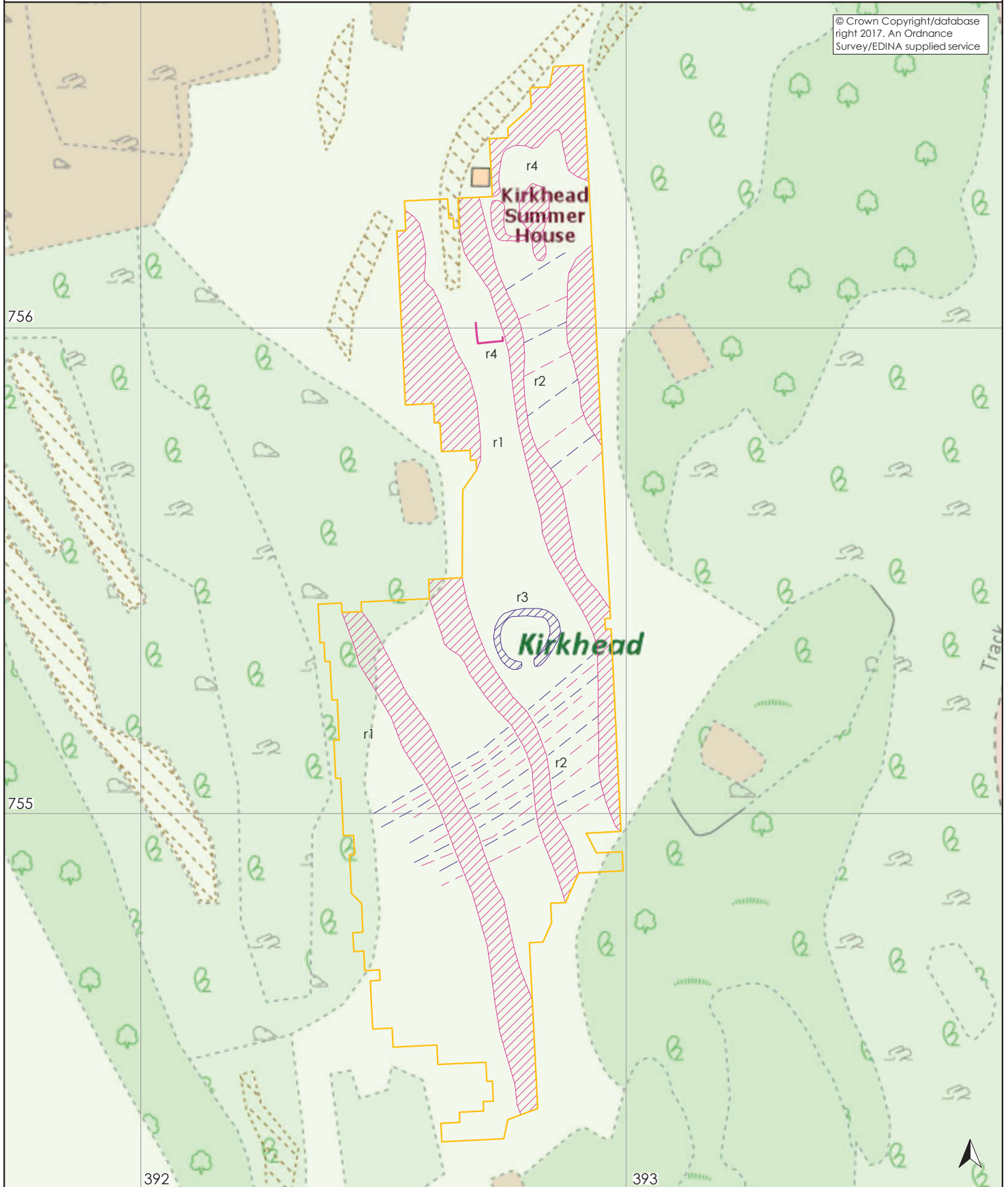


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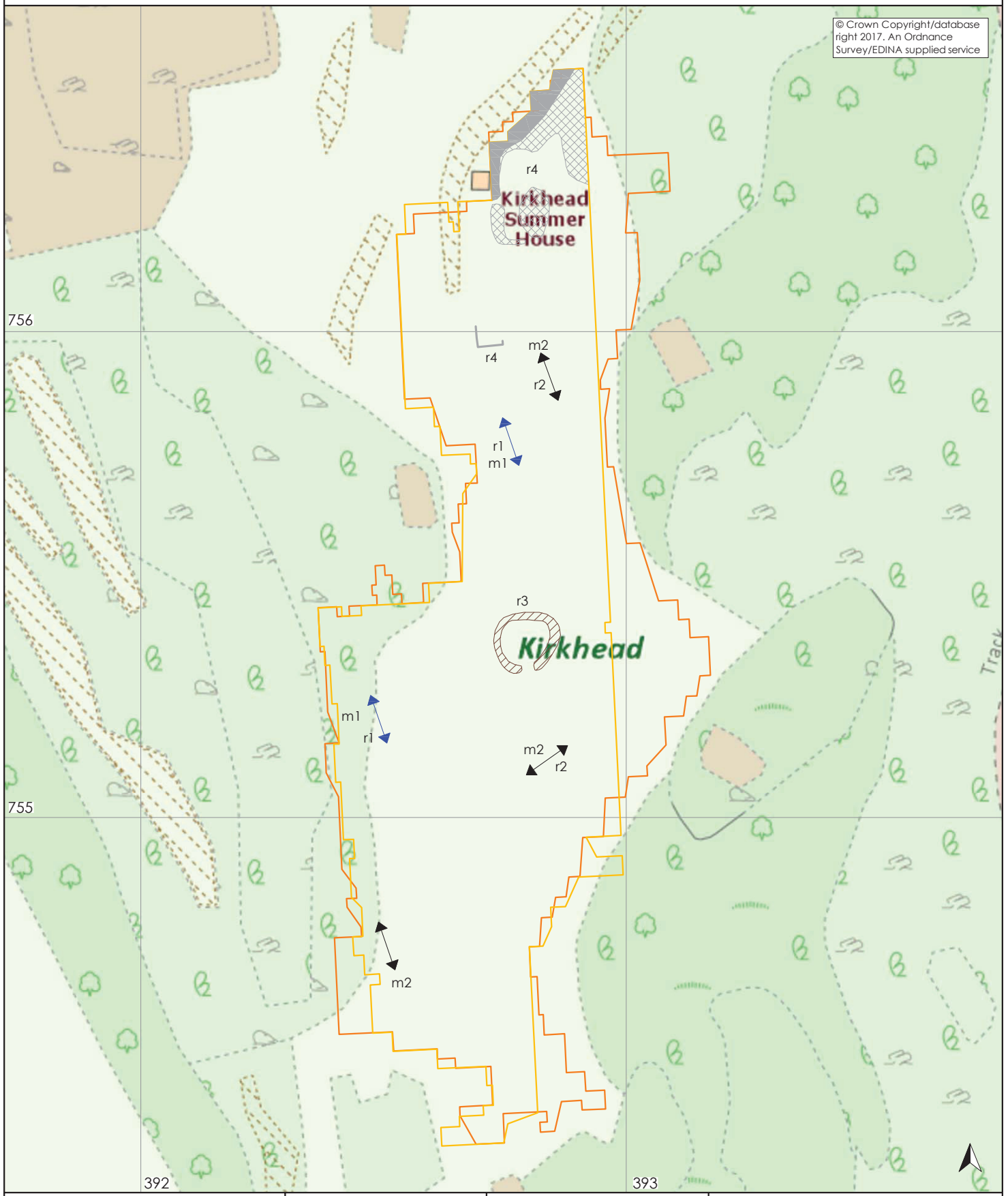
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Figure 7: Geophysical interpretation of resistance data



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Figure 8: Archaeological interpretation