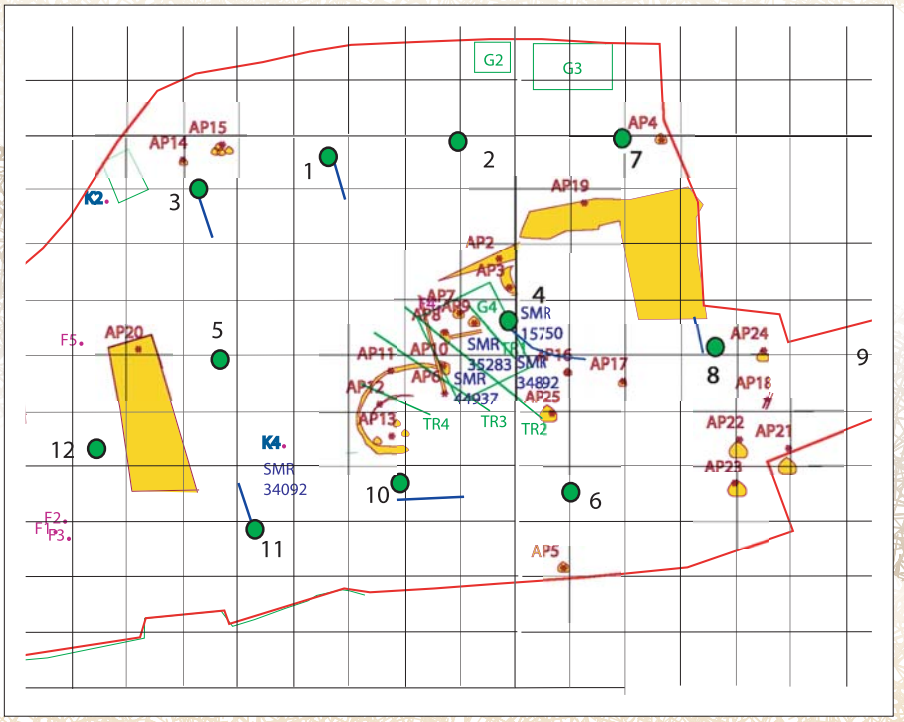
CAMBRIAN ARCHAEOLOGICAL PROJECTS LTD.

Site of Proposed Wind Farm, West Hinkley, Somerset

Archaeological Geophysical Survey



By

Charina Jones BSc (Hons)

CAP Report No. 301

ARCHAEOLOGICAL GEOPHYSICAL SURVEY

Site of Proposed Wind Farm, West Hinkley, Somerset

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Prepared for:
Dulas Ltd
Unit 1,
Dyfi Eco Park,
Machynlleth,
Powys

CAP Report No: **301**

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Cambrian Archaeological Projects Ltd
Old Chapel
Llanidloes
Montgomeryshire
SY18 6JR

Telephone: 01686 413857
e-mail: info@cambrian-archaeology.co.uk

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Non Technical Summary

This report results from a geophysical survey undertaken by Cambrian Archaeological Projects on behalf of Dulas Ltd. on the proposed site of a wind farm, near Knighton Farm, West Hinkley, Somerset. The survey undertaken was a detailed survey as laid out in the specification over turbine areas 8 and 10 given their proximity to known archaeology described in the desk-based assessment. The results of the surveys revealed some linear and curvilinear anomalies.

1 Introduction

Location and scope of the work

The proposed development consists of the erection of 12 wind turbines to the west of Hinkley Point power station (Fig.1). The following text details the findings of a detailed geophysical survey undertaken by Cambrian Archaeological Projects LTD. (CAP) on turbine areas 8 and 10 of the proposed wind farm at Knighton Farm, West Hinkley, Somerset (centered on OS NGR ST 190 450). These were highlighted through the desk-based assessment as areas most likely to contain archaeology along with area 4 (which has already been subjected to trial trenching and will be excavated fully in light of the findings (Fig.3)).

Archaeological Background

An archaeological desk-based assessment of the whole area (Fig.1) was undertaken by CAP Ltd in 2003 and revised in January 2004 following turbine layout modifications. The aerial photographs of the area yielded significant information, including location of a settlement area, various circular earthworks (that may indicate prehistoric activity) and unknown crop marks (Fig. 3).

2 Objectives

The objectives were to:

1) Detect and locate any archaeological features in areas 8 and 10 by means of a detailed geophysical survey.
2) Use the results of the survey to nominate possible turbine locations in archaeologically quiet areas.

3 Methodology

This geophysical survey was undertaken in the areas highlighted in Figure 2. The survey area around each turbine location was $100m^2$ divided into 25 grids of $20m^2$, equalling 2 hectares in total.

Fluxgate Magnetic Gradiometer Survey

A Fluxgate Gradiometer was used to undertake the survey. Previous research has shown that fired, or cut and backfilled archaeological features such as kilns and hearths, ditches and pits often have an anomalously higher magnetic susceptibility than the surrounding subsoil due to burning and biological processes. Differences in magnetic susceptibility within the subsoil and archaeological features can be detected as changing magnetic flux by an instrument such as a fluxgate gradiometer. Data from this may be mapped at closely spaced regular intervals, to produce an image that may be interpreted to located buried archaeological features (Clarke 1990).

The detailed surveys were carried out in grids (as above) along parallel traverses spaced at 1m intervals, recording data points spaced at 0.25m to a maximum instrument sensitivity of 0.1nT in accordance with English Heritage Guidelines (EH 1995). The grids were surveyed in the 'zig-zag' style (traverses walked alternately south-north/north-south).

Data Processing and Presentation

Following the completion of the survey, processing and analysis took place using Geoscan Research's Geoplot v.3.00 software. The most typical method of visualising the data is as a greyscale image. In a greyscale, each data point is represented as a shade of grey, from black to white at either extreme of the data range. A number of standard operations were carried out to process the data. The gradiometer data was mathematically adjusted to account for instrument drift over time. The mean level of each traverse of data was reduced to zero and all grids matched so that there were no differences between background levels. The data was then analysed using a variety of parameters and styles and the most useful of these were saved as a *JPEG image and manipulated using Adobe Illustrator software. The greyscale results of each survey were then overlain onto a map of the study area (Figs. 4-5). This was then used to produce the interpretation figures (Figs. 6 - 7).

4 Results of the Geophysical Survey

Area 8

The results show a thin linear feature (possibly an old field boundary, in line with the field to the south) running SSE-NNW from the SE corner of the survey area. This runs through other linear features which possibly represent an enclosure at the S edge of the survey area (Figs. 4, 6). These may represent the cluster of crop marks to the south of turbine 8 detailed in the desk-based assessment.

Area 10

The results show a number of curvilinear features to the south of the survey area these may represent archaeological features associated with area 4. A noisy linear feature runs W-E below these (Figs. 5, 7).

5 Conclusions

The geophysical survey undertaken on the proposed wind farm identified a number of features which could represent field boundaries and enclosures to the south of both survey areas. It is therefore recommended that the turbines are placed in the northern part of the survey areas to avoid risking any archaeological destruction (Figs. 8, 9).

6 Bibliography

Clarke, A J 1990, *Seeing Beneath the Soil*, Batsford.

EH (English Heritage), 1995, *geophysical Survey in Archaeological Field Evaluation*, English Heritage research and Services Guidelines No1.

7 Acknowledgements

Thanks to James Newboult for his assistance with the survey work and to Phil Evans for his help with the report.

Fig 01: Area of Proposed Wind Farm, Knighton Farm, West Hinkley

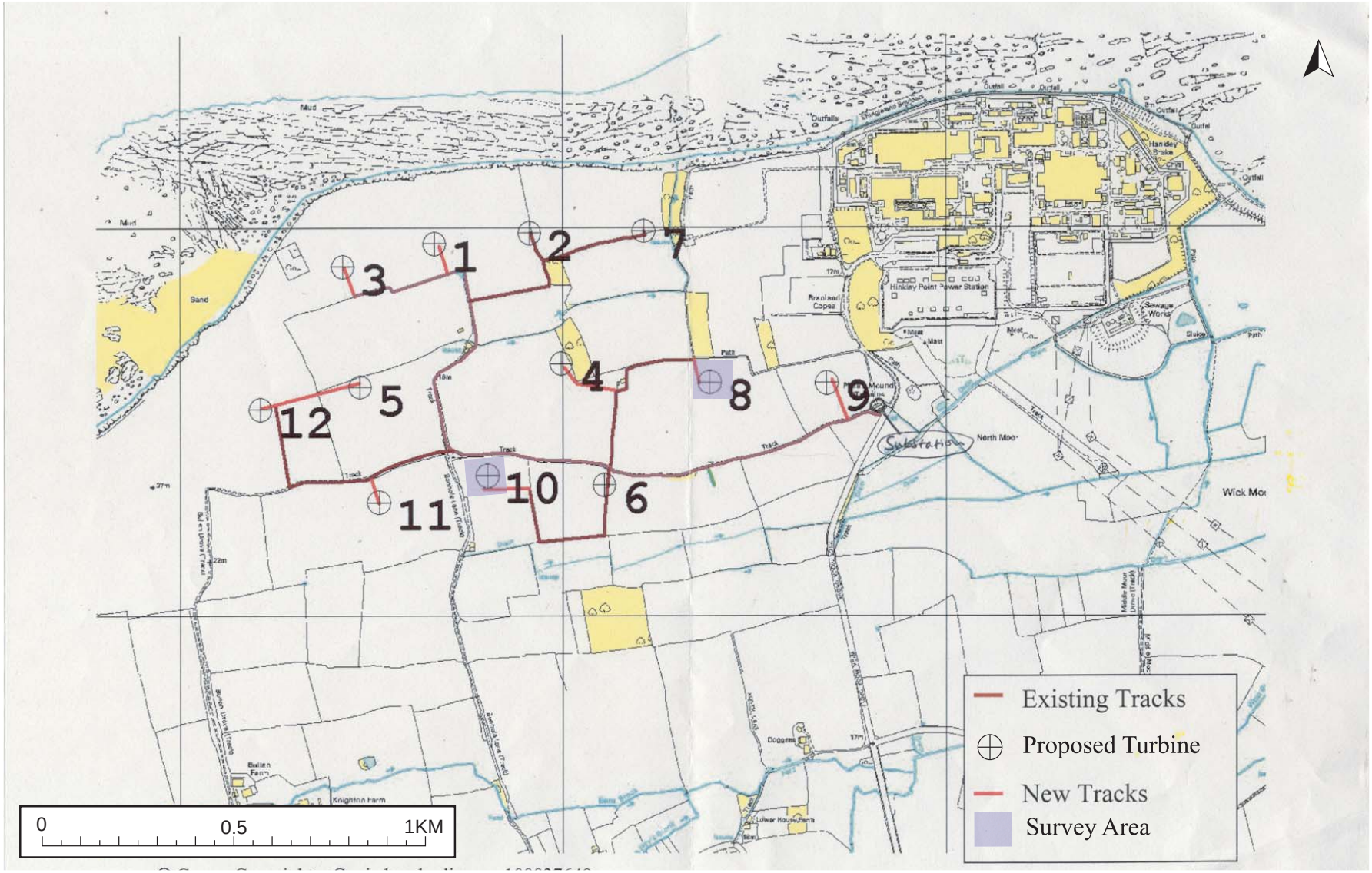
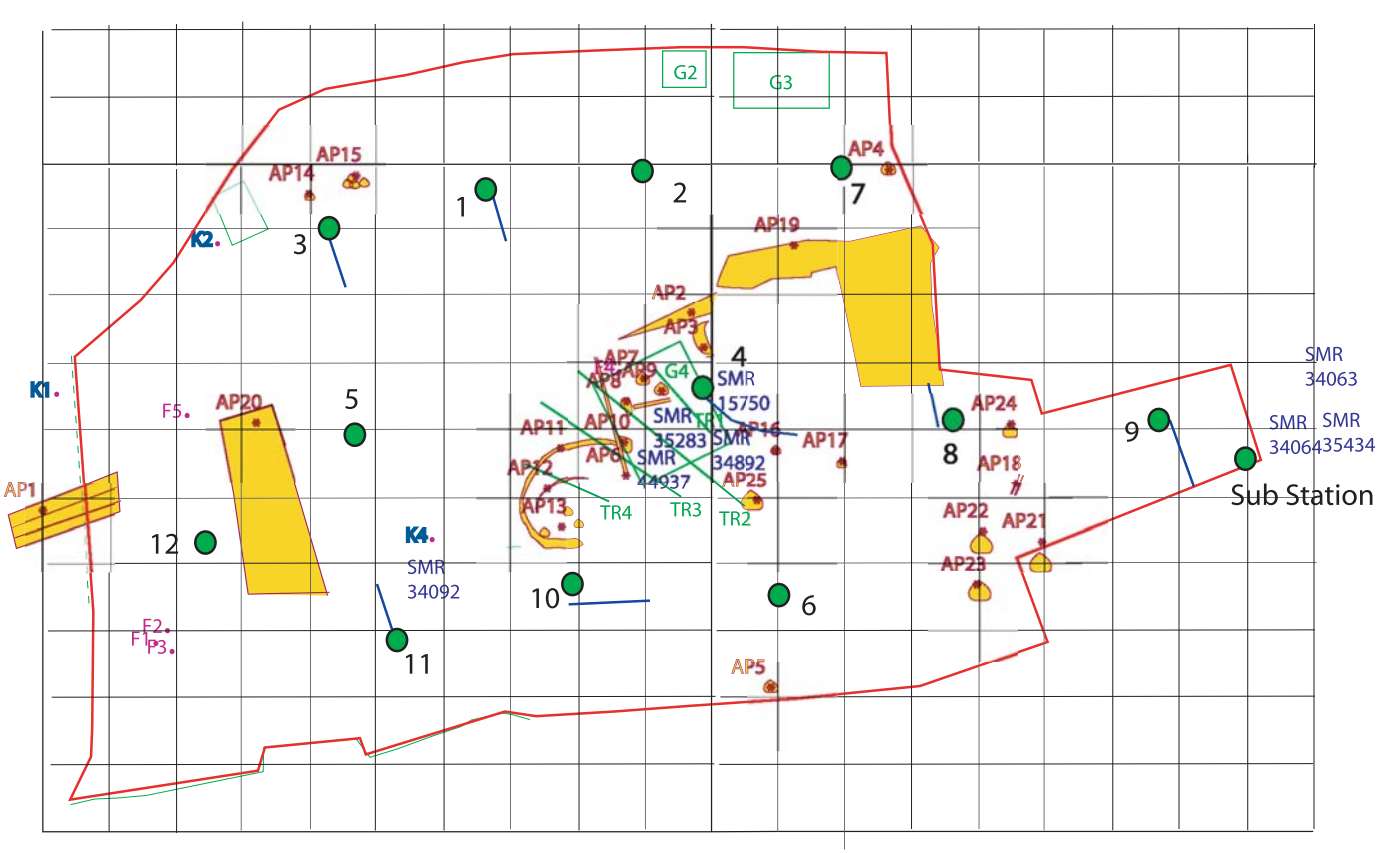


Fig 02: Location of Proposed Turbines with Survey Areas



Key *(Sites and boundary)*

AP..... Archaeological sites and features as noted during desktop assessment and field walk.

F..... Finds collected during field survey.

K..... Kiln sites.

G..... Geophysical survey. *(1993 SMR 15750).*

TR4 Excavation trenches. *(1993 SMR 15750).*

Proposed Laughton Wind Farm area boundary.

..... New access track

SMR ..... SMR locations

..... Present proposed turbine locations.

0 100 200m

Fig 03: Plan detailing areas of archaeological sensitivity

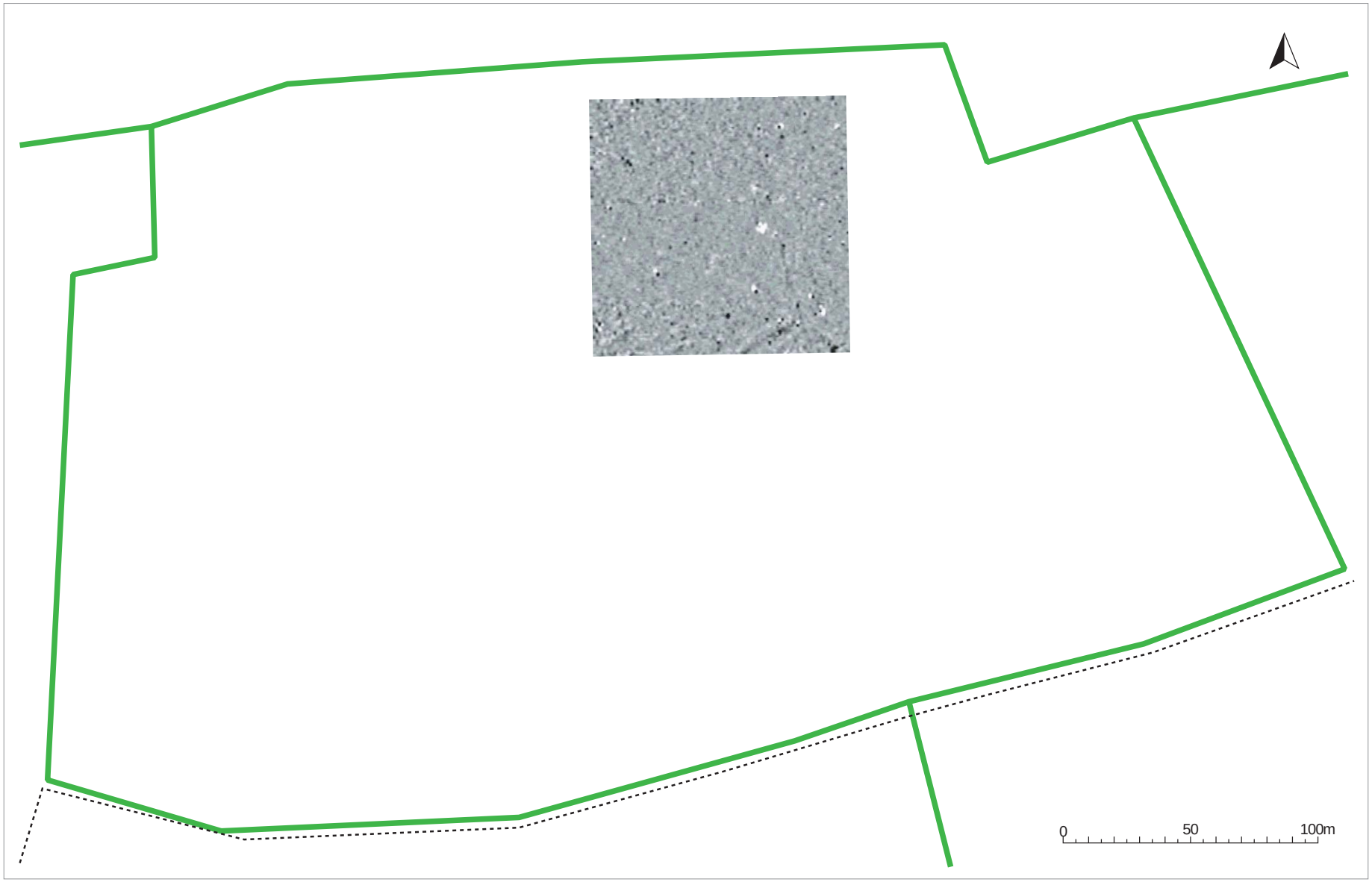


Fig 04: Survey Results Turbine Area 8

Fig 05: Survey Results Turbine Area 10

Fig.6: Archaeological Anomalies Turbine Area 8

Fig. 7: Archaeological Anomalies Turbine Area 10

FIg. 8: Suggest area for turbine 8

Fig. 9: Suggested area for turbine 10

ARCHIVE COVER SHEET

Site Name:	**West Hinkley Wind Farm**
Site Code:	**WHW/04/GEO**
Other Ref No:	**CAP Report 301**
NGR:	**ST190450**
Site Type:	**Possible Prehistoric/Roman**
Project Type:	**Archaeological Geophysical Survey**
Project Officer:	**Charina Jones**
Project Dates:	**February 2004**
Categories Present:	**N/A**
Location of Original Archive:	**RCHMW**
Location of duplicate Archives:	**N/A**
Number of Finds Boxes:	**N/A**
Location of Finds:	**N/A**
Museum Reference:	**N/A**
Copyright:	**CAP Ltd**
Restrictions to access:	**None**

Cambrian Archaeological Projects Ltd
Old Chapel
Llanidloes
Montgomeryshire
SY18 6JR

Telephone: 01686 413857
e-mail: kevin@cambarch.co.uk