



ULSTER
ARCHÆOLOGICAL
SOCIETY

Survey Report

Reference: Geophysical Survey No. 2

Author: Harry Welsh and David Craig

Location:

Geophysical Survey

Divis Cashel

County Antrim

Excavation Licence AE/17/94G

In association with:

**The Belfast Hills Partnership
Centre for Archaeological Fieldwork
National Trust**



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Cover illustration: View of *Divis Cashel* looking south. The resistivity survey area was to the immediate left of the photograph.

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1. Summary

1.1 Location

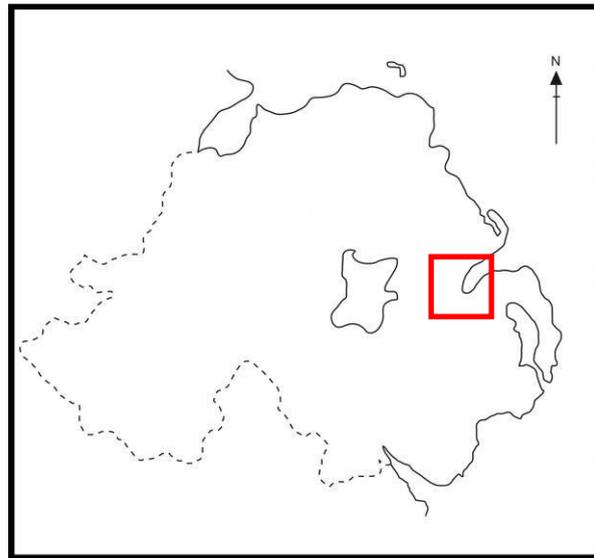


Figure 01: Location map for *Divis Cashel*

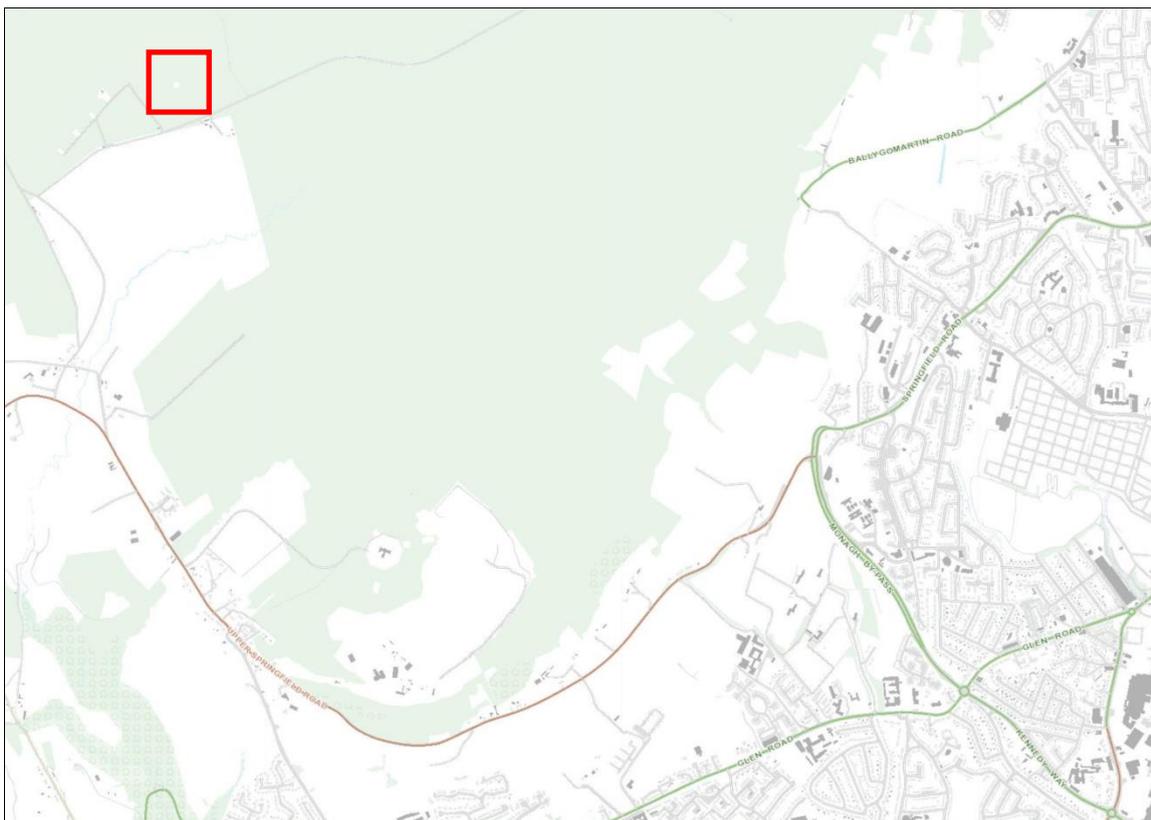


Figure 02: Site in Relation to West Belfast

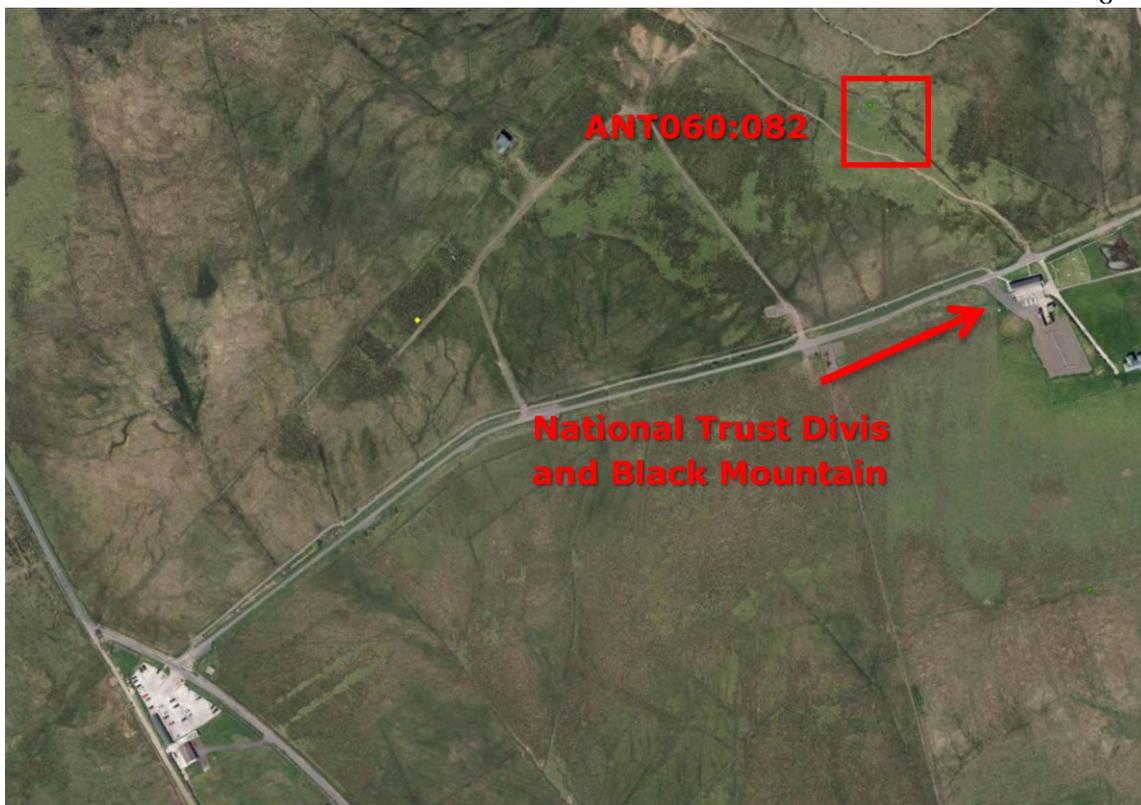


Figure 03: Site in relation to the National Trust Divis and Black Mountain property.

1.2 Background

The Ulster Archaeological Society's survey team were asked to undertake a geophysical survey (earth resistivity) of an area to the east of an archaeological monument, known locally as *Divis Cashel* at Irish Grid Reference J 27104 74550, on Saturday 17 June 2017. The monument was recorded as a stone circular enclosure on the Northern Ireland Sites and Monuments Record (SMR) as ANT 060:082. In the absence of any previous archaeological investigation, the monument was thought to be a cashel, dating to the medieval period, although it had architectural similarities with Scottish Atlantic roundhouses, usually dating to the Iron Age. This survey formed part of community archaeology project undertaken in June 2017 by Belfast Hills Partnership the National Trust, the Ulster Archaeological Society and the Centre for Archaeological Fieldwork at Queens University, Belfast. A small-scale excavation was also carried out as part of the project and is the subject of a separate report (Excavation licence AE/17/84).

1.3 Summary of Results

The geophysical survey (earth resistivity) located a number of high and low resistance anomalies that mostly relate to local geological features, which are partially visible on the surface. A low resistance diagonal anomaly at the south-west of the plot has been interpreted as being the remains of a field boundary wall and associated tumble. Other anomalies were not conclusively identified and further survey in this area is recommended.

2. Introduction

2.1 Description of site

The survey area consisted of two 20m by 20m grids on gentle sloping mountain heathland to the east of *Divis Cashel*. The survey area was chosen for investigation as it is located adjacent to the eastern entrance of the monument and partially across a stone-built field wall of unknown date, which approaches the monument from the south-west. The remains of a quarry are located 30m to the north-east and it was hoped that the geophysical survey might identify any trackway that might have connected it with *Divis Cashel*. It was also known that the Divis and Black Mountain property had been extensively used for military training purposes before, during and after the second world war, confirmed by the finding of many spent bullets in the area. Dozens of these have been handed in by members of the public to by Dermot McCann, the National Trust Warden (Pers. Comm.)

2.2 Previous Archaeological Surveys

A 3D high-definition laser scanning survey of *Divis Cashel* was carried out by Gridpoint Solutions Limited on behalf of the National Trust in March 2006 (Figure 04).

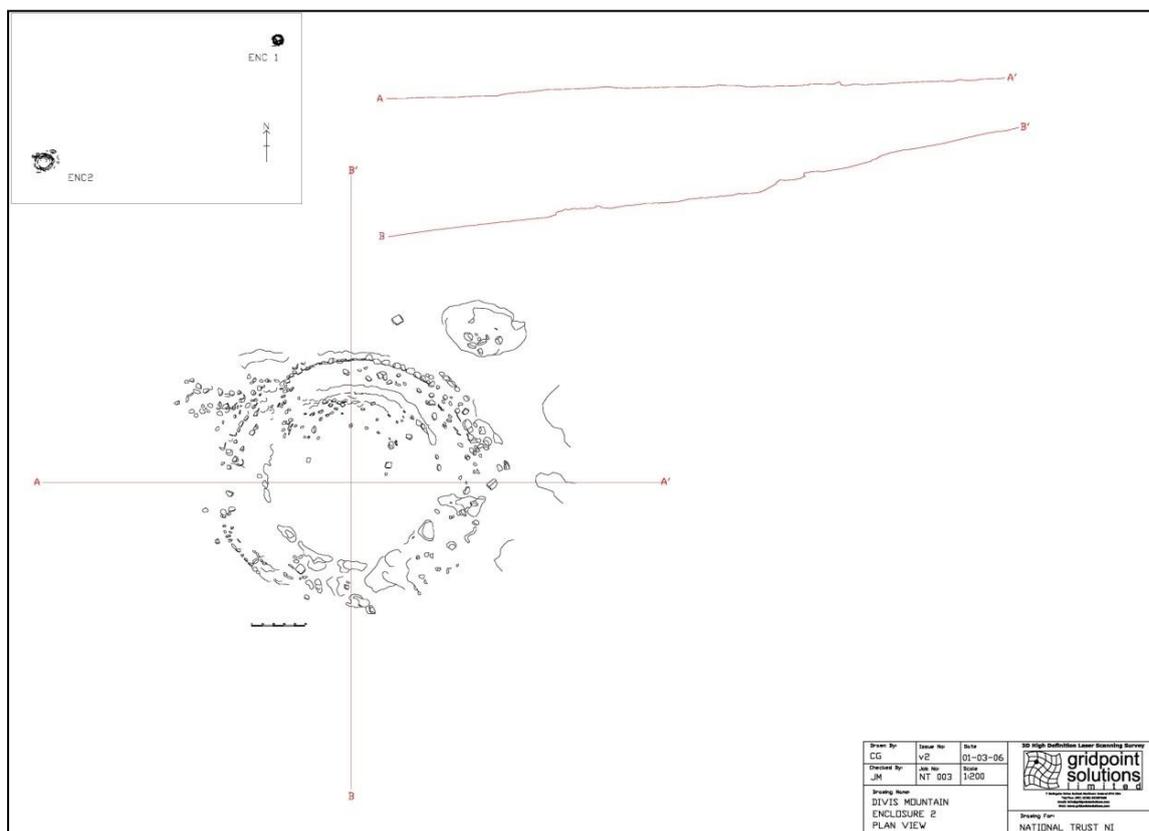


Figure 04: Laser scan and profile of Divis Cashel. *Gridpoint solutions*

A site survey of *Divis Cashel* was carried out by the Ulster Archaeological Society in 2011 (McAlister 2012).

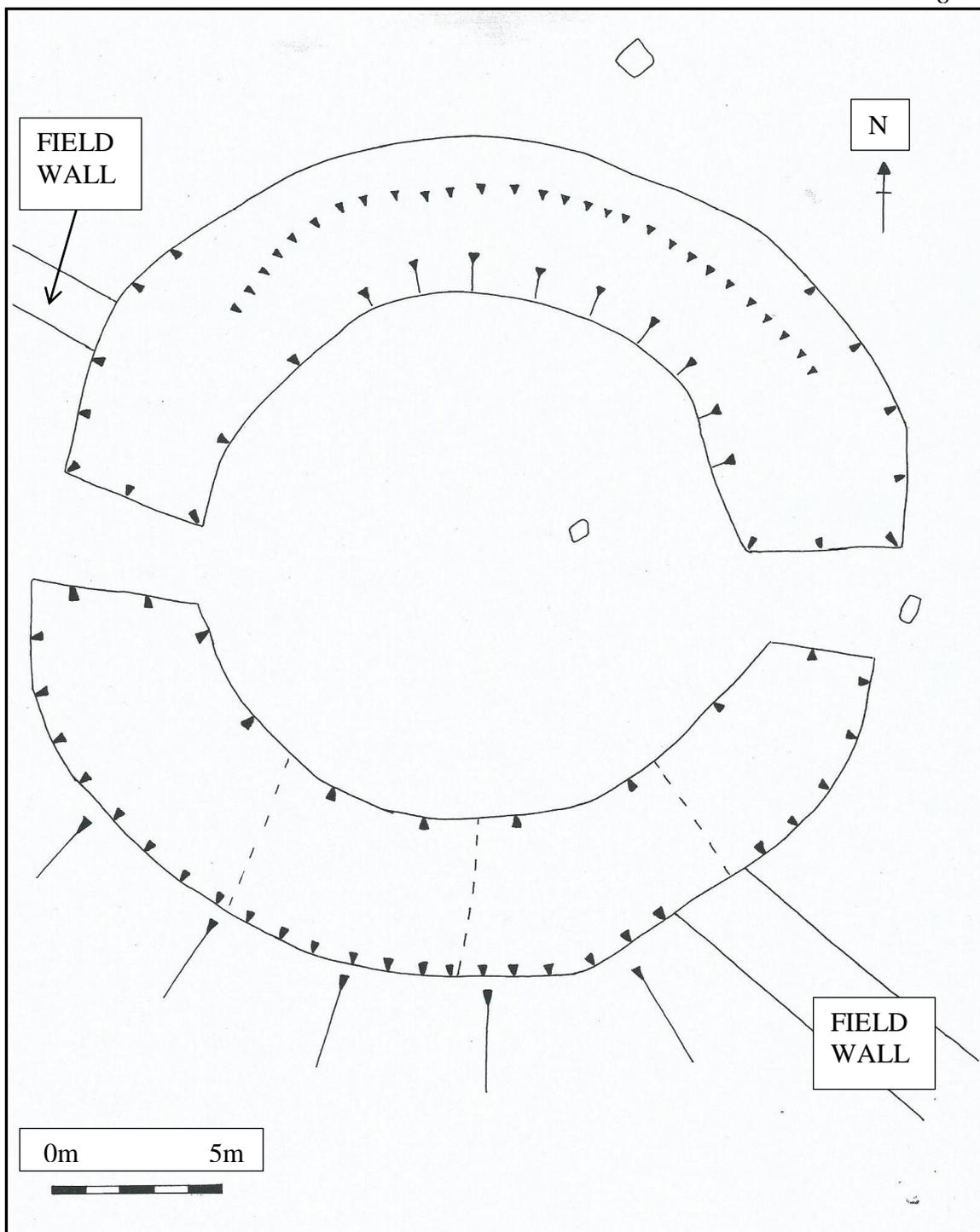


Figure 05: Plan of Divis Cashel (after McAlister 2012)

2.3 Archiving

Copies of this report have been deposited with Historic Environment Division of the Department of the Communities, the Ulster Archaeological Society, the National Trust and the Belfast Hills Partnership.

2.4 Credits and Acknowledgements

The survey was led by Harry Welsh and David Craig, and included Survey Team members Ian Gillespie, Lee Gordon, Colin Boyd and Louise Moffett. The Ulster Archaeological Society is particularly grateful to Malachy Conway and Dermot

McCann of the National Trust for allowing access to the survey site, to Lizzy Pinkerton of the Belfast Hills Partnership for including the Ulster Archaeological Society in the project and to Ken Neill of the Historic Environment Division, Department for Communities, for advising on the licence application.

3. Methodology

3.1 Date of fieldwork

The fieldwork was carried on 21 June 2017. Weather conditions were dry and fair.

3.2 Grid Locations

The location of the survey grids in relation to *Divis Cashel* is shown in Figure 06 and Figure 07 below. Survey grids were set out using 50m measuring tapes and referenced to suitable topographic features around the perimeter of the site with the UAS *Leica Sprinter* electronic distance measuring instrument.

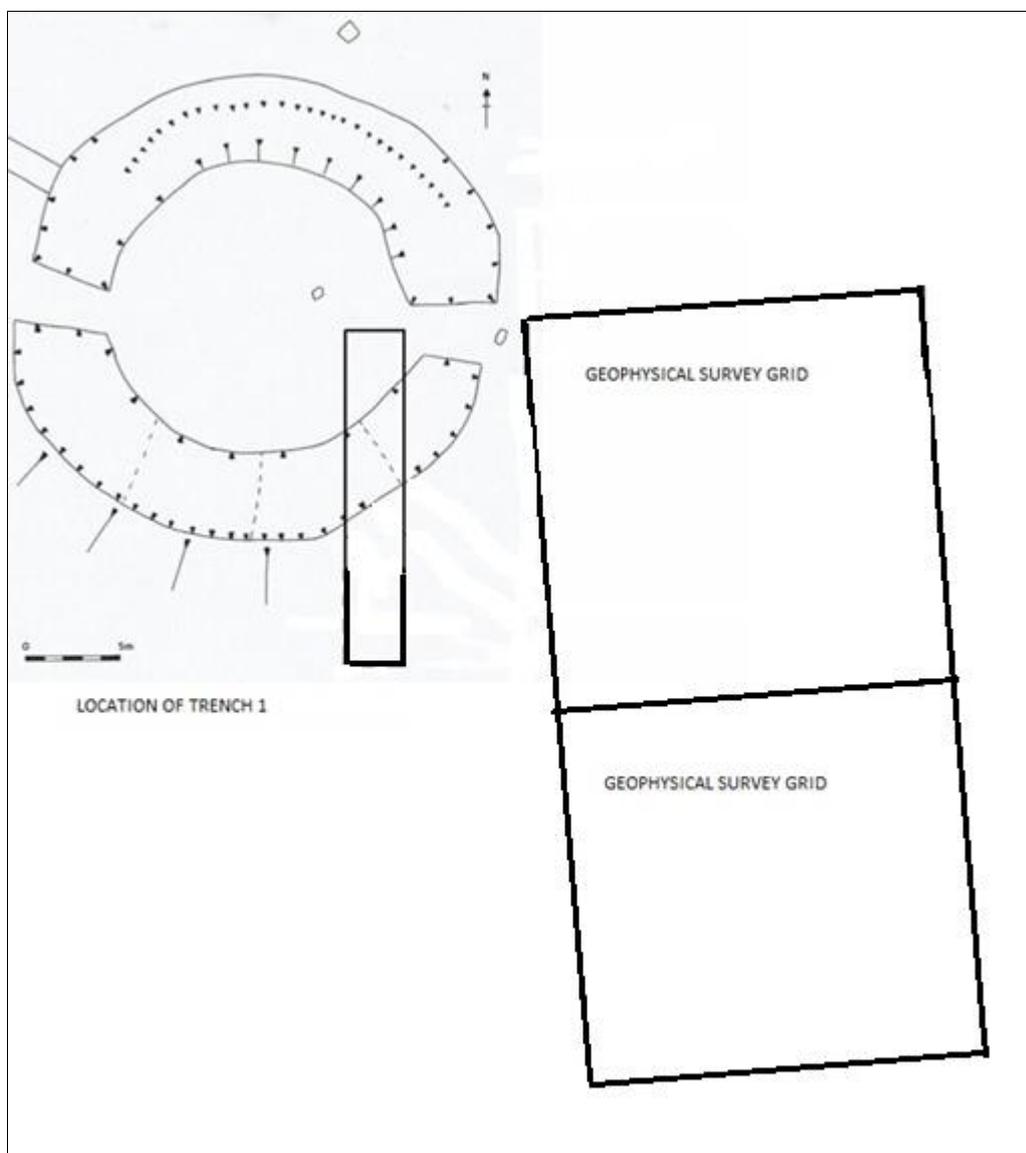


Figure 06: Site plan of survey area

3.3 Description of techniques and equipment configurations

Earth Resistivity was the method employed for this project. This method relies on the relative inability of soils (and objects within the soil) to conduct an electrical current which is passed through them. As resistivity is linked to moisture content, and therefore porosity, hard dense features such as rock will give a relatively high resistivity response (light coloured in the resistivity plot), while features such as a ditch which retains moisture give a relatively low response (dark coloured in the resistivity plot).

The resistance meter used was a *TAR-3* manufactured by RM Frobisher incorporating a twin probe array. The twin probes were separated by 0.5m and the associated remote probes were positioned approximately 15m outside the grid. The instrument used an automatic data logger which permitted the data to be recorded as the survey progressed for later downloading to a computer for processing and presentation.

Though the values being logged were actually resistances in ohms they were directly proportional to resistivity (ohm-metres) as the same probe configuration was used throughout.

3.4 Sampling Interval

Readings were taken at 1.0m centres along traverses 1.0m apart. This equated to 400 sampling points in the full 20m by 20m grid. All traverses were surveyed in a zigzag mode.

3.5 Depth of Scan and Resolution

The 0.5m probe spacing of a twin probe array had a typical depth of penetration of 0.5m to 1.0m. The collection of data at 1m centres with 0.5m probe spacing provided an optimum resolution for the task.

3.6 Data Capture

The readings were logged consecutively into the *TAR-3* on an SD card. The electronic data was later transferred to the office for processing and presentation.

3.7 Processing

The processing was carried out using specialist software known as *Snuffler* and involved the de-spiking of high contact resistance readings and the passing of the data through a *Remove Geology* filter. This had the effect of removing the larger variations in the data, which are often associated with geological features. The data was further enhanced by interpolating the data points and the application of a sharpening filter, aimed at enhancing the archaeological anomalies highlighted.

3.8 Presentation of Results and Interpretation

The presentation of the data for the site involves a print-out of the raw data as a grey scale plot (Figure 08), together with figures for filters and routines applied (Figure 09 and Figure 10). Anomalies have been identified and plotted onto the abstraction and interpretation of anomalies drawing (Figure 11). The site was also subject to a wider drone survey, data from which was stored in digital format and used to generate some of the images in this report.

4. Discussion

Most of the features showing in the plot are visible on the ground (see Figure 07).

- A field boundary and its associated tumble at bottom left of plot showing as high resistance
- A circular depression in the centre of the plot, probably due to cattle activity, showing as low resistance
- A high resistance area at the top of the plot is geological and partially visible at ground level.
- Top left represented by an area of low resistance which may indicate a pit or part of a ditch.

No other conclusive features can be identified from the plot.



Figure 07: Aerial view of survey area

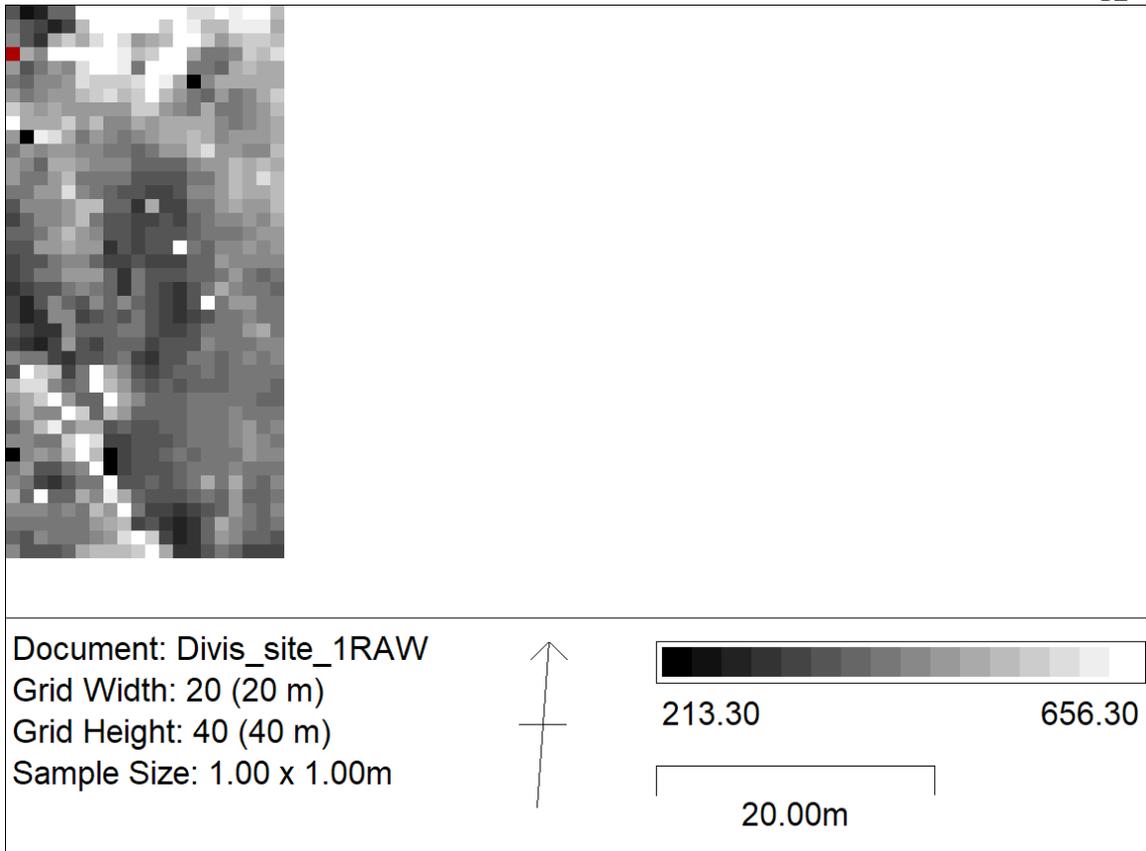


Figure 08: Raw plot data

The following figures show the named filters and routines applied accumulatively.

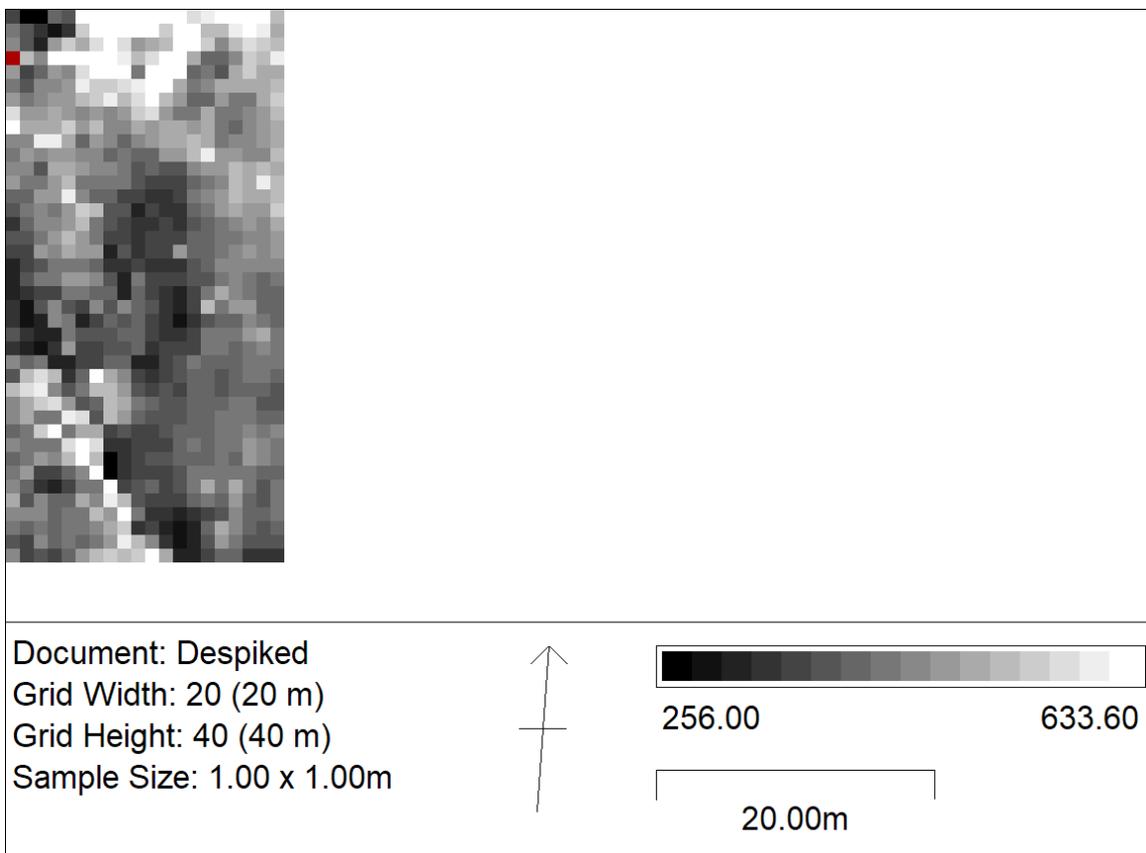


Figure 09: De-spiked plot data

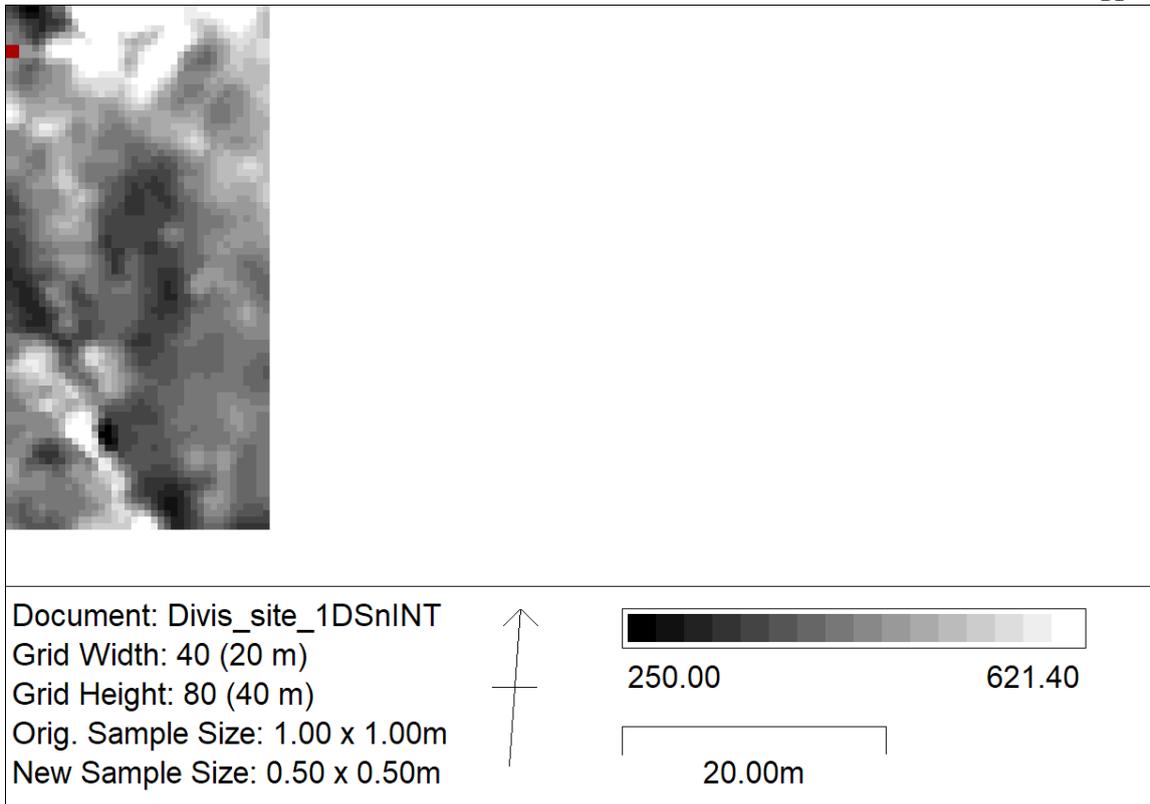


Figure 10: Interpolated routine applied to figure 09.

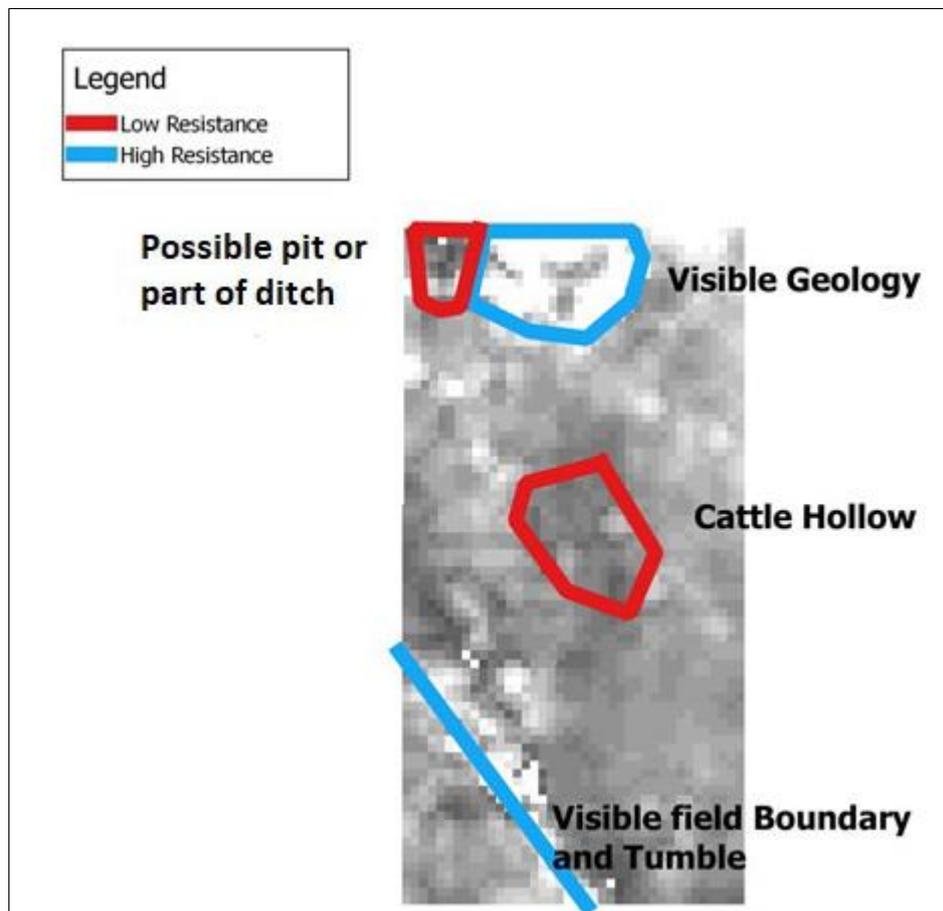


Figure 11: Abstraction and interpretation of anomalies

5. Recommendations for further work

A Resistance survey, as part of a wider archaeological investigation, of the whole of the surrounding area may give indications of approach pathways or other structures.

6. Bibliography

- McAlister, G. 2011. *Survey of Divis Cashel, County Antrim*, Survey Report No. 36, Belfast: Ulster Archaeological Society.
- Welsh, H., Ó Baoill, R., Logue, R., Conway, M. and Pinkerton, L. 2017. 'Big Questions at the Big Dig', *Archaeology Ireland*, Vol. 31, No. 4, 44-47.