Thing's Va
Caithness
KW14 7XU

Geophysical Survey Report

Phase 2

March 2018

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THING'S VA,

CAITHNESS

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GEOPHYSICAL SURVEY REPORT
PHASE 2

PROJECT NO: **731**

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CLIENT: Caithness Broch Project

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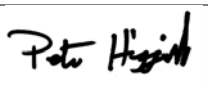
Approval:	

EXECUTIVE SUMMARY

A total 8910m^2 of fluxgate gradiometer survey was carried out on the 14th and 15th of March 2018 at the broch and nearby cairn at Thing's Va, west of Thurso. The survey formed part of the Caithness Broch Festival Archaeology Programme and was designed to supplement previous geophysical survey and trial-trenching carried out on site.

The current phase of works aimed to complete a circuit of geophysical survey around the broch in order to establish the presence/ absence of an extra-mural settlement or any other potential archaeological remains associated with the broch. While the survey provided some indication of anthropogenic activity within the immediate vicinity of the broch, the nature of this could not be fully established and it provided no evidence for the existence of an extra-mural settlement as the majority of the survey area was relatively 'quiet'.

The survey also aimed to further characterise the adjacent cairn, establish its full extent and any potential relationship with the broch. The results suggested that potential associated remains identified previously to the east of the cairn, are more extensive than was previously understood and also indicated that substantial structural remains may be present. No relationship to the broch was established, however, and further investigation would be required to understand the monument more fully.

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FIGURES

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1 Introduction

This report was commissioned by the Caithness Broch Project and forms the Data Structure Report for a geophysical survey at the broch and nearby cairn at Thing's Va, west of Thurso. The broch (Canmore ID 77788) is a Scheduled Ancient Monument (SM587), but the cairn (Canmore ID 7788) is not. A total of 8910m^2 of fluxgate gradiometer survey was carried out at the site on the 14th and 15th of March 2018.

The survey is one component of a series of events conducted in the county as part of Caithness Broch Festival archaeology programme. The current phase of works follows on from a geophysical survey and test-pitting carried out on site in August and October 2017 respectively (ORCA 2017a and b) and precedes a field-walking event to be held in April 2018.

This document forms an interim report preceding a final report, which will bring together all phases of work carried out as part of the project.

This report has been prepared in accordance with the standards and guidance specified by the Chartered Institute of Archaeologists (CIfA 2014).

2 Site Location, Topography and Geology

2.1 Site Location

Thing's Va is situated *c*. 2km west of Thurso, Caithness (NGR: ND 08079 68240) at an altitude *c*. 90m A.O.D. The broch sits on sloping ground overlooking lower cultivated fields to the south and southwest, with higher ground to the north and northwest. Immediately east of the site is a disused quarry. The cairn (Canmore ID 7788) is situated *c*. 80m to the southeast of the broch in a fairly flat arable field, which slopes down to the northeast and in which the entire current phase of works was located (see **Figure 1**). The field is under cultivation; at the time of survey, the crop had been cut but the field had not been ploughed. While this allowed full access to the monument, the remaining stubble, combined with a wet and rutted ground surface, provided challenging conditions for survey. The weather conditions were also poor with strong winds hampering data collection.

2.2 Site geology, drift geology and soils

The local bedrock is recorded as Scrabster Flagstone, which is a sedimentary rock comprised of siltstone and sandstone. The drift geology recorded is Forse

Till, comprising diamicton, clay, sand and gravel, and is associated with the Devensian period (British Geological Survey information accessed at http://digimap.edina.ac.uk/roam/geology).

The geology did not present any restrictions in the use of geophysical techniques.

3 Archaeological Background

The full archaeological background to the site has been addressed in previous phases of work on site and the reader is referred to these for further information (ORCA 2017a and b).

3.1 Previous Archaeological Investigation

3.1.1 Geophysical Survey

The previous geophysical survey conducted on site (ORCA 2017a) utilised both magnetometry and earth resistance survey and was focused on the northwest side of the broch and an area beyond, both within and outwith the Scheduled Area, **Figure 1**.

The magnetometry survey, **Figure 2**, showed the line of the extant bank of the broch as well as some indication of another extant earthwork on its southwest side. An area of strong response was visible on the northeast side, perhaps indicative of a burnt mound. Two possible structures were also identified to the northeast of the broch.

The targeted earth resistance survey focused on an area to the northeast of the broch. The results echoed those from the magnetometer survey in showing the presence of the possible burnt mound, and suggestions of other possible structural remains in the east of the survey area.

3.1.2 Trial-Trenching

A programme of trial-trenching was conducted in order to 'ground-truth' the anomalies identified in the geophysical survey (ORCA 2017b). In the trenches excavated to the northeast of the broch itself, no archaeological evidence was observed to confirm the geophysical findings. It was suggested that the geophysical anomalies may reflect the presence of clumps of iron pan in the subsoil, or may be a result of ephemeral activities undertaken at this location that only left signatures in the soil rather than archaeological remains.

In a trench placed on the cairn, the excavation revealed the top of a stone structure. The strong magnetic responses, the structural element and the presence of a small burn shown on the 1st OS map all pointed towards an interpretation of the 'cairn' as a burnt mound rather than a funerary monument, although it was considered possible that the mound may be some other kind of 'domestic' building, perhaps even related to the broch.

4 Fieldwork Aims and Objectives

The current phase of geophysical survey aimed to complete a full circuit of the area surrounding the broch (which was not previously possible due to the field being under crop at the time of the original survey) in the hope of establishing the potential presence/ absence of an extramural settlement related to the broch The survey also aimed to further characterise the adjacent cairn, establish its full extent and any potential relationship with the broch.

Magnetometry survey was selected because it is a fast and efficient method of locating archaeological features across large areas. It can identify a wide variety of archaeological features, such as in-filled ditches, pits and thermoremnant features (e.g. ovens, kilns, and hearths). Where structures are built with non-magnetic materials, magnetometry does not detect wall footings directly, but it can detect associated enhanced material (Gaffney & Gater 2003 [2004]).

5 Fieldwork Methodology

All works were carried out in accordance with the ORCA Standard operating procedures as set out in the ORCA fieldwork Manual (2013).

The tables below summarise the equipment and methodology used in the field.

Set out	
Instrument	Leica GNSS 5800/R8
Type of correction	RTK / VRS

Magnetometer survey	
Instrument	Bartington Grad601-2
Grid size	20x20m
Sampling along the traverses	25cm
Traverse intervals	1m
Collection mode	Zig-Zag

The survey was carried out on the same grid used to survey the cairn in the previous survey (ORCA 2107a). To prevent duplication, the numbering of the identified anomalies corresponds to, and follows on from, those used for the previous survey.

6 Survey Results

The results are presented in a greyscale plot of processed data (**Figure 2**). Anomalies referred to in the following text are presented in an annotated interpretation diagram (**Figure 3**). A greyscale plot of minimally processed gradiometer data (**Figure A1**) can be found in the Appendix.

Anomaly 8 is a cluster of strong positive anomalies, with accompanying negative anomalies corresponding with a notable dip in the top of the cairn. The anomaly is roughly sub-circular in shape and measures 16m in diameter. The concentration of strong responses may reflect the presence of occupation material inside a building. The strength of the response may, however, also be indicative of the presence of intense burning or heat-affected material, such as that associated with a burnt mound.

Anomaly 9 is a further series of strong responses forming a partial sub-rectangle around the southeast, northeast and part of the northwest sides of **Anomaly 8**. The anomaly appears to extend further than the conspicuous mound visible on the surface, apparently corresponding with a shallow slope leading down from the southeast edge of the mound, suggesting the remains associated with the cairn are more extensive than previously realised. The apparently well-defined outer edges of the anomaly may indicate the presence of wall-lines, which may correspond to the stony deposit revealed by the trial-trench dug through the northeast edge of the anomaly (ORCA 2017b, 11). If the cairn is a burnt mound, it is possible that these features represent structural remains associated with the mound of burnt stone. They could, however, also represent wall-lines forming the boundary of occupation deposits. Further investigation would be required to characterise the precise nature of any structural remains.

Anomaly 10 is a very strong anomaly located on top of the cairn. The anomaly is consistent with a ferrous response and is likely to represent modern debris.

Anomaly 11 is an amorphous slightly enhanced area, measuring 19m x 15m, which extends from the east side of the cairn. This may signify the presence of

enhanced soils**,** such as remnants of agricultural or anthropogenic activity. It may also represent vestiges of activity associated with the cairn.

Anomaly 12 is an amorphous spread of strong positive and negative responses located to the north of the survey area. The nature of the response makes it likely that it is of archaeological origin, perhaps associated with enhanced soils or occupation deposits. However, its poorly defined form makes it difficult to characterise. Its close proximity to the quarry may suggest that the anomaly is of more modern origin, but further investigation would be required to characterise it more fully or establish any potential relationship with the broch and/or the cairn.

Anomaly 13 is a series of 'trends' running across the survey area. These weak linear responses are of a variety of orientations and are unlikely to be of the same origin. It is likely that the burn marked on the Ordnance Survey First edition (1877) is represented by a trend running northeast-southwest. The remainder of trends are likely to be geological or related to ploughing. While some 'trends' may be of archaeological origin, the responses are too weak for any interpretation to be made with confidence.

7 Discussion

As with the previous survey carried out on site (ORCA 2017a), this phase of works has provided some indication of anthropogenic activity within the immediate vicinity of the broch, the nature of which could not be fully established. The majority of the survey area was relatively 'quiet' apparently demonstrating the lack of any extra-mural settlement associated with the broch. While one anomaly (**Anomaly 12**) is likely to be representative of an archaeological feature, it seems to be discrete and any relationship to the broch or the cairn cannot be established without further investigation. Following the previous survey conducted on site (*Ibid*), it was suggested that the area of magnetic enhancement often associated with a broch (for example at Bruan, Caithness (ORCA 2017c) and The Cairns, South Ronaldsay, Orkney (ORCA 2016)) may be found to the 'front' of the monument, in this case to the southeast. The results of the present survey would appear to suggest that this was not the case and it may be that any contemporary activity was confined to the broch mound itself.

By extending the survey around the adjacent cairn, this phase of works was able to establish the full extent of the monument and demonstrate that the associated

remains are more extensive than was previously understood. It is likely that there are archaeological remains beneath the shallower slopes to the northeast of the cairn as well as beneath the mound itself. The survey results also reinforce the indication of the presence of substantial structural remains as suggested by the previous survey and trial-trenching (ORCA 2017a and b). The survey has, however, provided no evidence that the cairn is directly related to the broch, so further investigation would be required to characterise it more fully. It remains possible that the feature represents a substantial roundhouse building of Iron Age date or a possible Bronze Age burnt mound.

8 Conclusion

The current survey aimed to complete a circuit of geophysical survey around the broch in order to establish the presence/ absence of an extra-mural settlement or any other potential archaeological remains associated with the broch. While the survey provided some indication of anthropogenic activity within the immediate vicinity of the broch, the nature of this could not be fully established and it provided no evidence for the existence of an extra-mural settlement as the majority of the survey area was relatively 'quiet'.

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ORCA 2017b Thing's Va, Caithness, Trial Trenching Data Structure Report, Unpublished report

ORCA 2017c Bruan nr Lybster, Caithness, Geophysical Survey Report, Unpublished Report

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10 Acknowledgements

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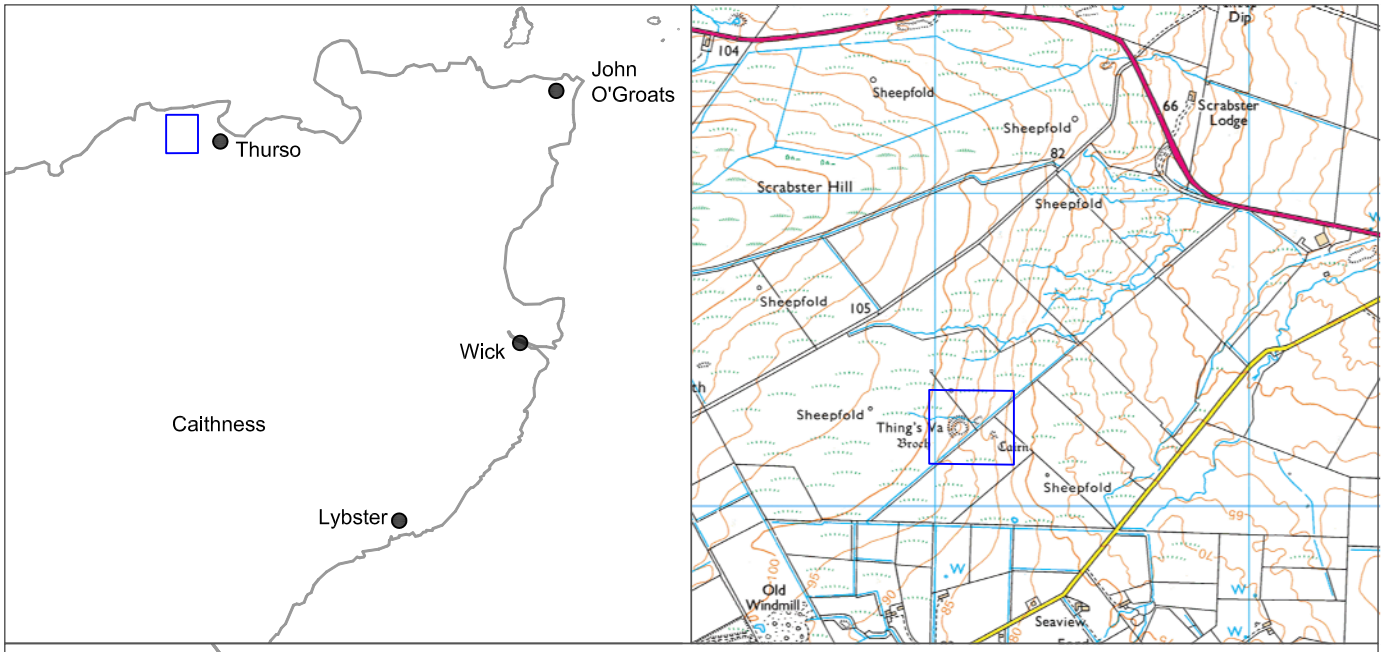

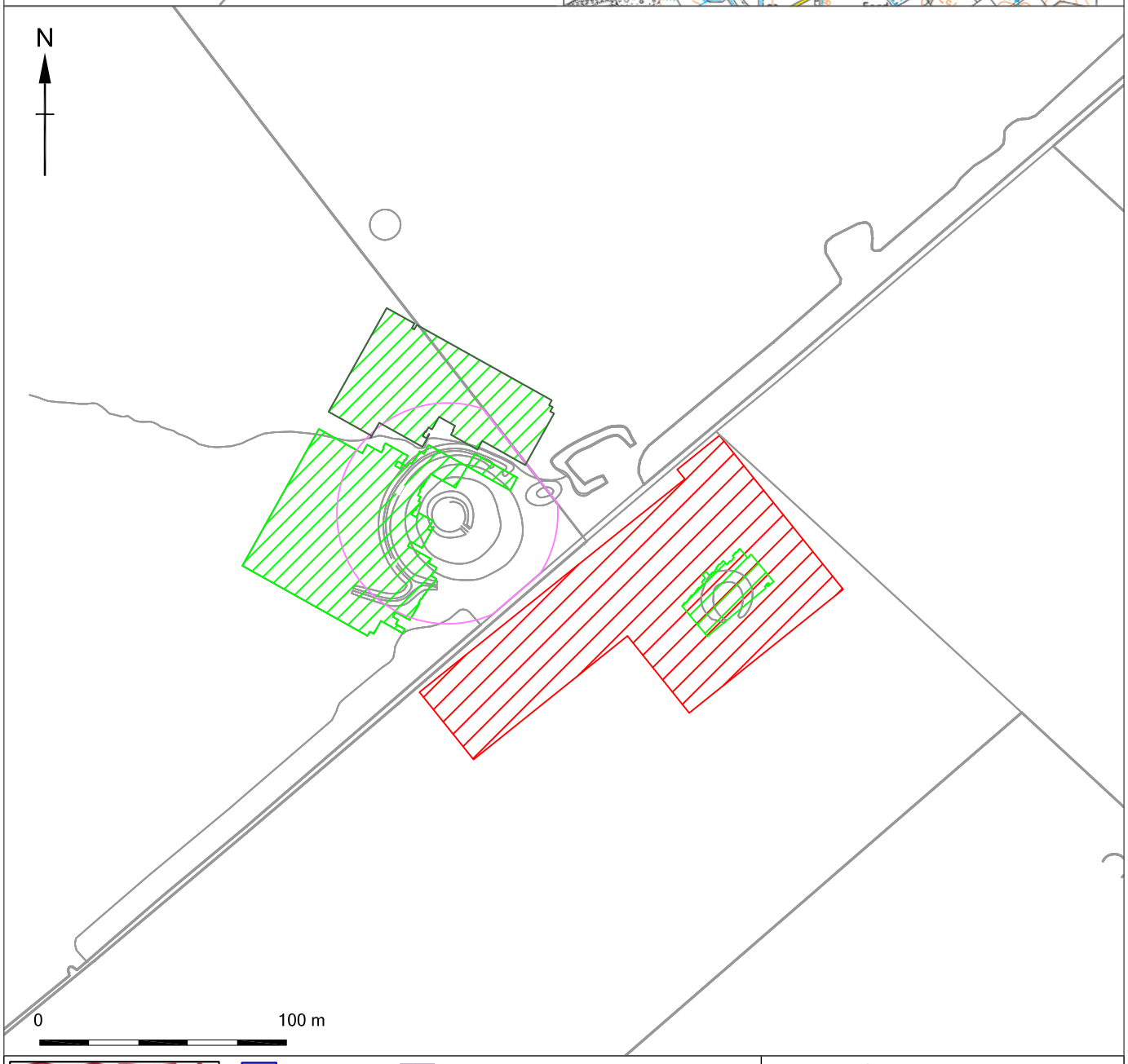

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Site Location (inset)

Scheduled Area

Location of geophysical survey 2017

Location of geophysical survey 2018

Figure 1. Site location

Project Name: Caithness Broch Project: Thing's Va

Project No: 731 **Scale:** 1:2500 @ A4

March 2018 LS Rev. No. 1

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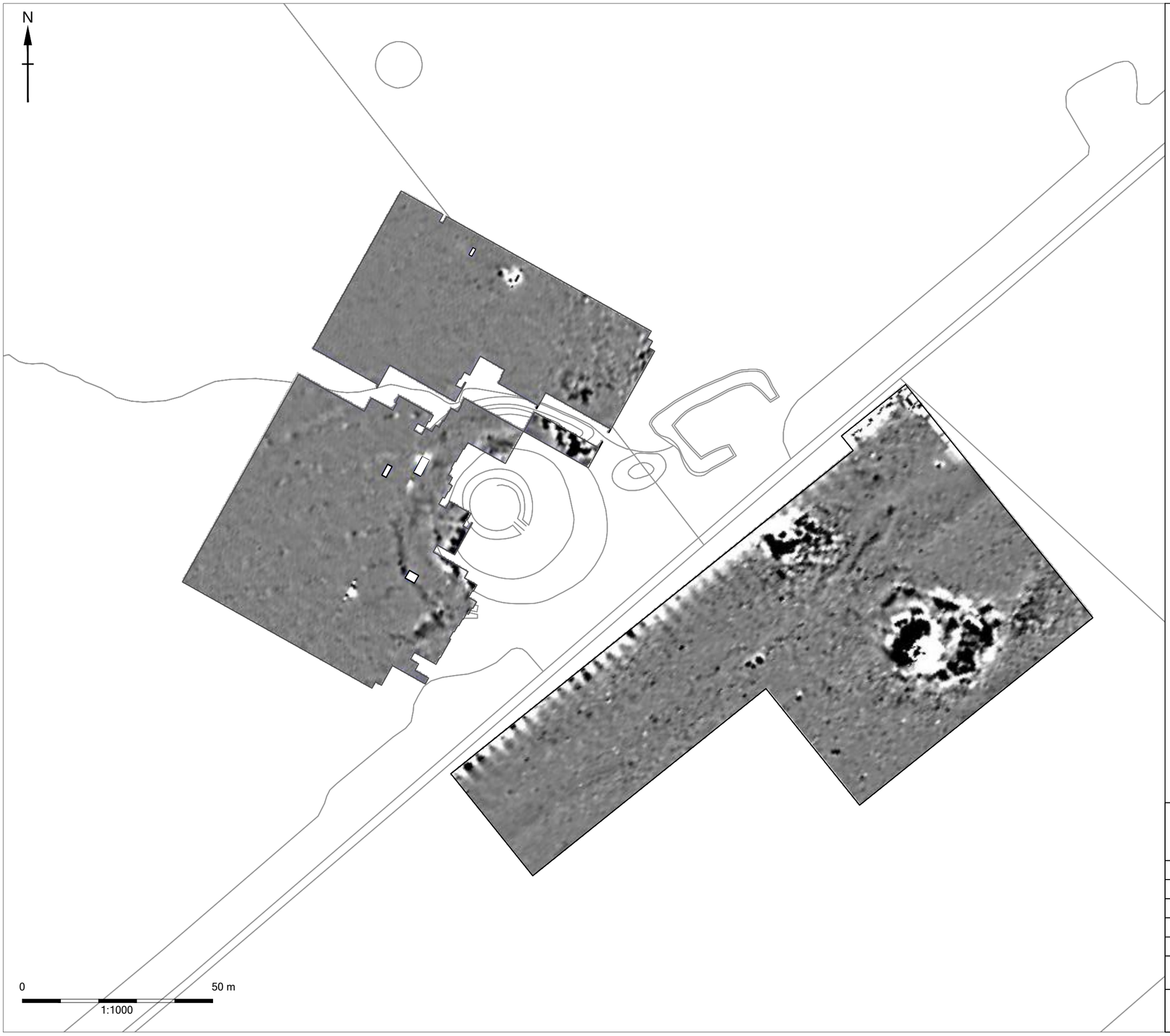

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Figure 2. Greyscale plot of processed gradiometer data

Project Name	Caithness Broch Project: Things's Va
Project No.	731
Date	March 2018
Creator	LS
Scale 1:1000 @ A3	Revision No. 1

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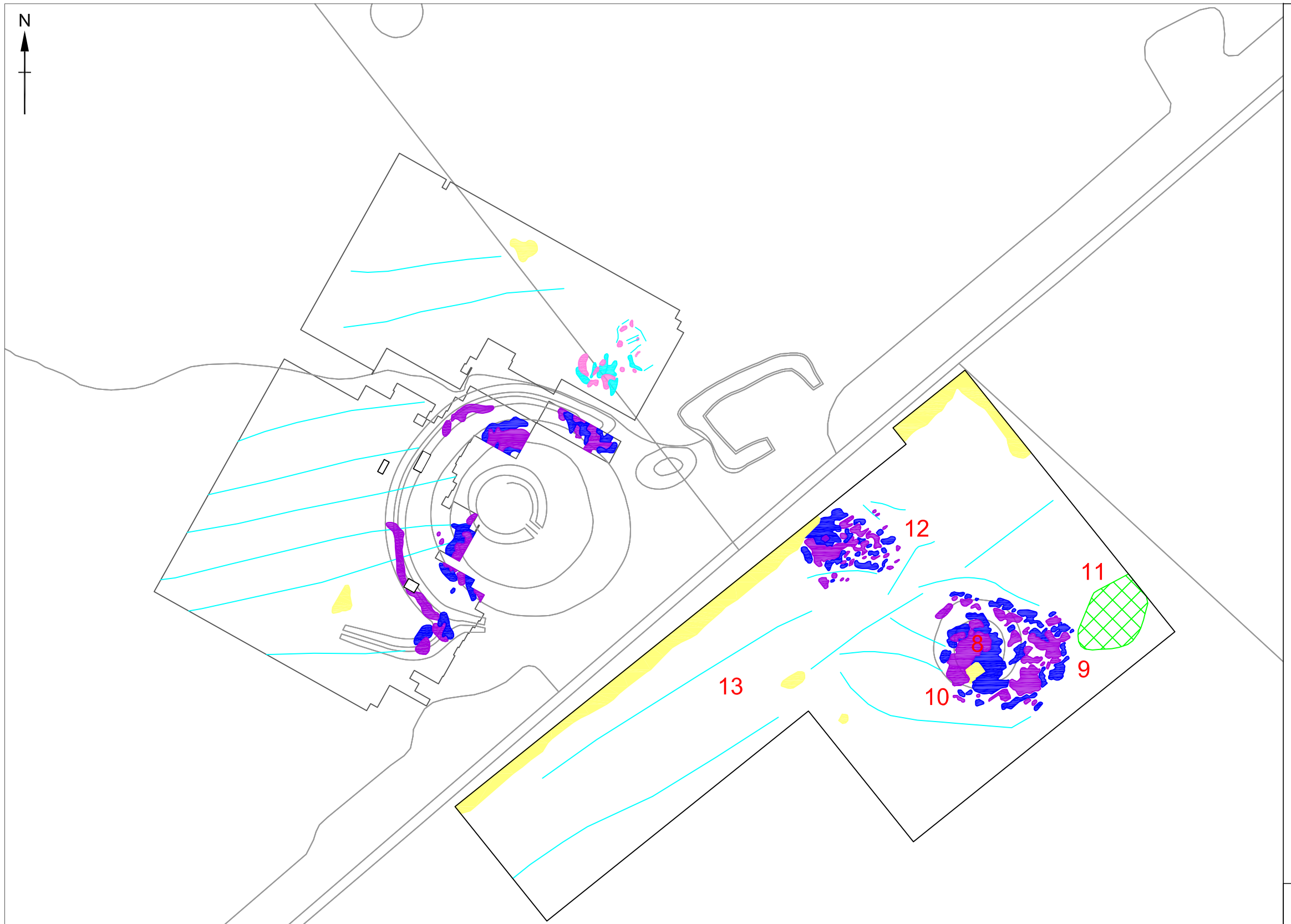

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- Basemap
- Survey Area
- Probable Archaeology - positive anomaly
- Probable Archaeology - negative anomaly
- Possible Archaeology - positive anomaly
- Possible Archaeology - negative anomaly
- Trend
- Enhanced area
- Ferrous

Figure 3. Interpretation of gradiometer data

Project Name	Caithness Broch Project: Thing's Va
Project No.	731
Date	March 2018
Creator	LS
Scale 1:1000 @ A3	Revision No. 1

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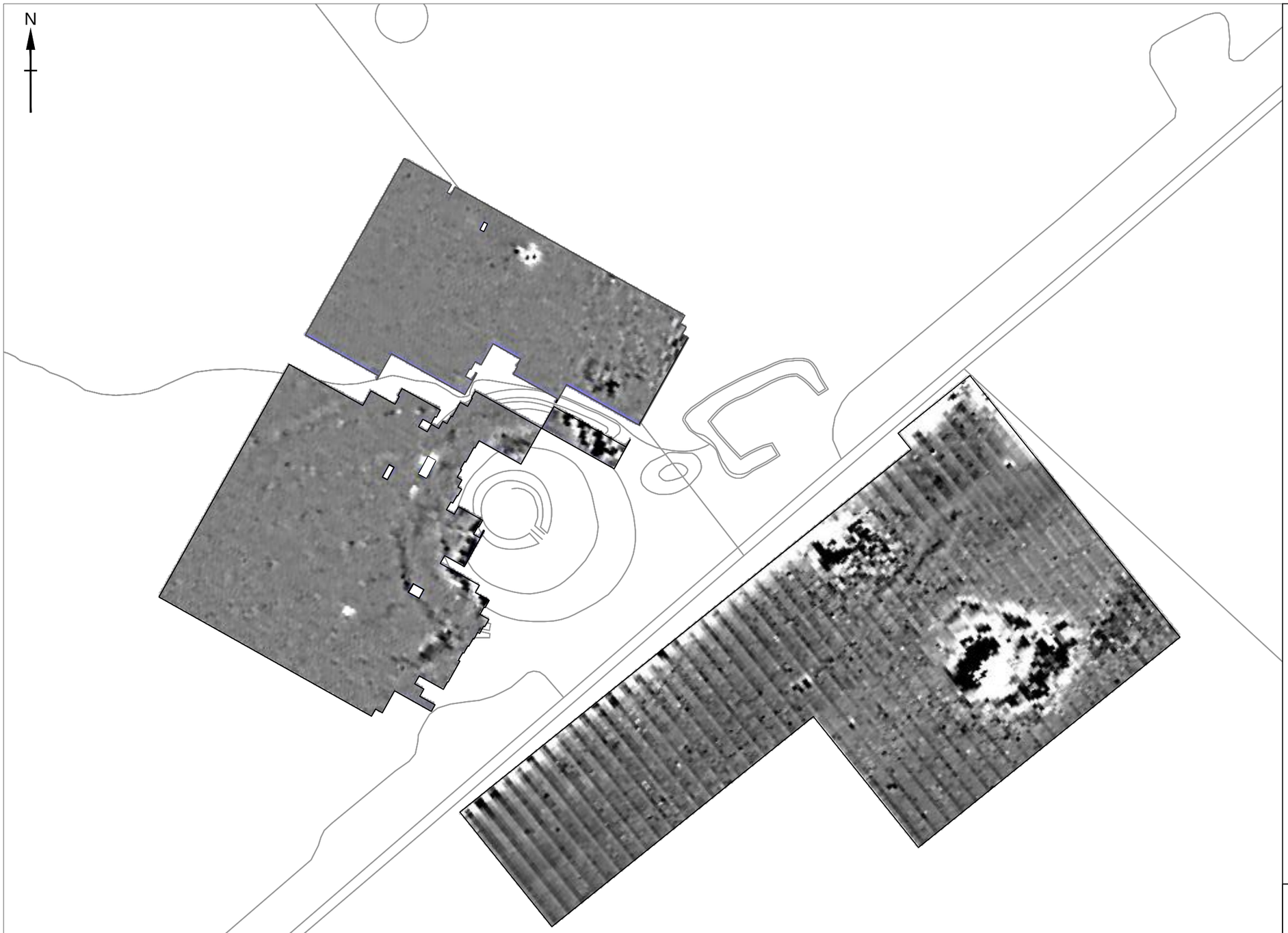

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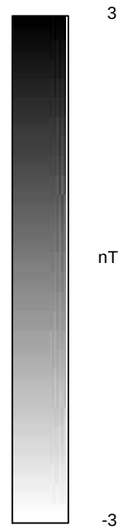

A1. Greyscale plot of raw gradiometer data (cairn)

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Project No.	731
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Scale 1:1000 @ A3	Revision No. 1

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