Swaledale and Arkengarthdale Archaeology Group

The Grinton Mounds Survey Report

2022 – 2023

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CONTENTS

SUMMARY

This report presents the results of topographic and geophysical surveys conducted in 2022 and 2023 at the Grinton Mounds by the Swaledale and Arkengarthdale Archaeology Group (SWAAG).

The surveys show bank and ditch features surrounding an enclosure at the top of the eastern mound. Internal to the enclosure is a sub-circular magnetic feature and areas of high magnetism and high resistivity.

The western mound has bank and ditch features around the southern and eastern sides of the base plus small magnetic features on the eastern flank of the mound.

To the east and south-east of the eastern mound are two linear banks running north-east to south-west, and east to west respectively. The bank running north-east showed up as a high resistance suggesting it may be stone revetted.

The surviving earthworks and geophysical anomalies at the Grinton Mounds suggest the remains of a defended settlement and are consistent with the results reported by ASDU in their survey of 2011 and 2012.

INTRODUCTION AND BACKGROUND

1. Grinton Mounds (the "Site"), in the Civil Parish of Grinton in Swaledale, sit on the floodplain on the south side of the River Swale. They are centred on: NGR SE 05032 98465 at an altitude of 180m OD, approximately 300m east of Grinton Bridge, Figures 1, through 3. They lie within the Yorkshire Dales National Park and are not subject to Historic England stewardship arrangements.

2. The mounds have the appearance of two glacial moraine mounds, with a significant "saddle" in the centre, that have been modified by humans. They have been known by various names including Ox Hill, Grinton How, and Grinton Fort. The Eastern Mound has been surveyed on behalf of SWAAG by Archaeological Services Durham University (ASDU) (References 1 and 2). The mounds appear to have been fortified but little archaeological excavation has been conducted to define accurately the natures and date(s) of these features; they have been interpreted as everything from prehistoric to medieval.

3. The mounds are on private land. The site is described, and a topographic survey is available, on the SWAAG website database at record entry number 1 (swaag.org), Figure 4.

PURPOSE OF THE SURVEY

4. The Swaledale and Arkengarthdale Archaeology Group (SWAAG) conducted a survey of the mounds in the autumn of 2022 and 2023. The purpose of the surveys was to expand the extent of the survey to include areas not previously surveyed, particularly on the western mound.

GEOLOGY

5. The mounds have been formed from a larger linear glacial moraine possibly by the action of a stream which ran through the site and formed the saddle and the pond. The very flat area to the east of the site was a glacial lake. The mounds are formed of glacial debris: soil and stones.

HISTORY

6. The Grinton Mounds are identified on the present Ordnance Survey map OL30 as simply "earthwork." They are also depicted on older OS maps, that of 1846-63 suggested a camp possibly of Roman origin, Figure 5.

7. In 1937, Robin (Robert Pedley), a Phd student in the Dept of Archaeology at Durham University excavated on the western mound and dug trial trenches on the eastern mound. The western mound revealed 578 traces of human occupation but the eastern mound revealed little. Excavation on the western mound also revealed 2 "roads" leading onto the mound and the dressed stone remains (5 courses high) of a rectangular building. (Figure 6) Pedley notes that his most important find was a Jetton, an early 14th C token and suggests: "The most likely explanation of the whole is that the western hill was occupied by the chief inhabitant of the village and his personal following in troubled times - a kind of manorial stronghold; for the occupied area is too small to permit the supposition of any military troop of respectable size having used it as a base for operations. The character of the eastern hill, too, suggests that it was used as an enclosure for the cattle and other stock of the estate…"

Pedley's suggestion is that the West Mound was medieval, but he did not rule out a prehistoric past.

Pedley's findings were reported in the Journal of the Yorkshire Archaeological Society and described in more detail in his recently re-discovered 1939 PhD thesis, Reference 3.

8. In Robert White's, The Yorkshire Dales: A Landscape Through Time, p32 and Plate 20 the mounds are described as one of a group of smaller defended hilltop enclosures.

9. Andrew Fleming (1998) in his book "Swaledale: The Valley of the Wild River" characterised it as probably later prehistoric, Reference 4.

10. The Yorkshire Dales National Park Authority HER record MYD48310 describes a Royal Observer Corps Observation Post constructed within, ie. underground, the western of the two mounds and used from 1965 to 1991. The Post was constructed adjacent to a World War 2 above ground observation post demolished in about 1970, Reference 5. It is considered likely that the groundworks associated with construction and use of the Observation Posts may have destroyed any features of archaeological significance. Whilst that assumption has yet to be tested, local knowledge (Brian Robinson from Reeth Garage) confirmed that earth excavated from inside the western mound during the construction of observation post was spread along the northern slope of that mound.

11. The current land owners confirm that the site was incorporated into a nine-hole golf course from circa 1900 until the 1960s, and it is shown as such on the 1910 6" OS Map. They understand that a tee on the western mound was used to drive to a green on the eastern mound.

12. In 2011 and 2012 SWAAG commissioned geophysical surveys of the eastern mound by Archaeological Services Durham University (ASDU). Two reports of this work are available on the SWAAG website (www.swaag.org), see references 1 and 2.

13. The above referenced geophysical surveys of Grinton Mound East suggested an enclosure comprising two stone revetment walls with a large defensive ditch between them and a single entrance at the east side. Within the enclosure at least one stone-constructed circular structure was detected with the possible presence of others. External features, such as possible trackways and ditches, have also been identified.

14. The ASDU reports, references 1and 2, conclude that they considered it likely that the surviving earthworks and geophysical anomalies detected at Grinton Mound East reflect the remains of a significant, fortified, defended settlement. Sub-surface archaeology outside the earthworks, especially to the south may have been impacted upon by later landscaping activity, specifically in the use of this area as a golf course, Figure 6. ASDU suggested: "targeted trial trenching and/or excavation of some of the features identified has the potential to enhance our understanding of the surviving archaeological deposits."

SURVEY METHODOLOGY

15. The SWAAG survey was carried out over two autumn seasons. In September 2022 an initial topographical survey was followed by a geomagnetic survey of both mounds and the saddle. A soil electrical resistance survey was conducted in September 2023. This was limited to the top and east flank of the east mound due to the steep slopes constraining use of the Geoscan RM 85.

16. **Topographical Survey.** The topographical survey was conducted by laying out a grid of 20M squares over the mounds using the stakeout function of a Spectra Precision ProMark 120 GNSS receiver (Figure 7), and marking the breaks of slope across the site with coloured pin flags (Figure 8). Detailed sketches of these features (Figure 9) were drawn to indicate the direction of slope and to identify the features. The Spectra Precision ProMark 120 GNSS receiver was used to record the positions of the pin flags using both GPS and Glonass satellites using a point labelling system to correspond with the feature identities used on the sketches (Figure 10). The data recorded by the ProMark 120 were post processed with correction data from the Catterick CORS reference station using Spectra Precision Survey Office software which output the points as a .DXF format file. This file was further processed using Pointor V11 software to create a number of .DXF format files with lines drawn between the points. These files were then imported into QGIS v2.18 as layers over a LIDAR image of the mounds. This composite was exported from QGIS as a .PNG format file and imported into Inkscape drawing software (Figure 11), this provided the basis for a detailed 1:200 scale map to be produced (Figure 12).

17. **Geomagnetic Survey**. A geomagnetic survey of the accessible parts of the mounds was conducted using a Bartington Grad 601-2 gradiometer with a range of +/- 100 nT, using the same 20 metre grids as for the topographic survey. The traverses were spaced at 1 metre intervals with the instrument taking 4 readings per metre along the traverse. The data were downloaded into a computer using Terrasurveyor 3.0.38.0 software and processed to produce greyscale images in .PNG format with minimum readings as white and maximum readings as black. The images were imported into the georeferencer in QGIS and processed to locate them over a LIDAR image of the mounds. The composite was exported from QGIS as a .PNG file and imported into Inkscape for formatting (Figure 13). The results were plotted over the topographic survey, and with features highlighted, are shown in Figures 14 and 15.

18. **Soil Resistivity Survey**. 20 metre grids aligned with the northern top edge of the eastern mound were laid out and a soil electrical resistance survey was conducted using a Geoscan RM85 soil resistance meter with two pairs of mobile probes set at 0.5 metre spacing on a 1.5 metre beam. The remote probes were positioned at least 15 metres from the nearest point on the grids being surveyed (minimum 30 times the mobile probe spacing). Traverses were spaced at 1 metre intervals with readings taken every 0.5 metre. When it was necessary to move the remote probes care was taken to achieve the same reading before the RM85 was moved. The data were downloaded into a laptop computer using Terrasurveyor 3.0.38.0 software and processed to produce greyscale images in .PNG format with minimum readings as white and maximum readings as black. The images were imported into the georeferencer in QGIS and processed to locate them over a LIDAR image of the mounds. The composite was exported from QGIS as a .PNG file and imported into Inkscape for formatting The results are shown in

Figure 16. The results were plotted over the topographic survey, and with features highlighted, are shown in Figures 17 and 18.

19. A composite showing the geomagnetic and soil resistivity features over-laid upon the topographic survey of the Western and Eastern mounds are shown in Figure 19.

RESULTS AND DISCUSSION

20. **Eastern Mound**: The geomagnetic data clearly shows two concentric high magnetic features corresponding to an outer ditch with banks on either side and a smaller, inner ditch at the top forming an enclosure at the top of the mound. In places the outer ditch is completely filled with hill-wash. A single entrance to the enclosure is evident on the eastern side of the mound.
In the north-eastern quarter of the enclosure is a sub-circular magnetic feature (possibly stone) approximately 12 metres diameter and in the south eastern quarter of the enclosure is an area of high magnetic response.

The resistance data covers a more restricted area but in the area covered it shows a high resistance corresponding to the enclosure banks. Inside the enclosure there are several areas of high resistance which could represent a stone floor or even a well-drained golf green.

21. **Western Mound**: The geomagnetic data clearly shows a high magnetic feature around the base of the south and east sides of the mound. This corresponds to a ditch around the bottom of the mound. The lack of magnetic response at the south-east corner is possibly a consequence of that area being used as an access way to the top of the mound during the construction of the observation posts at the top of the mound. There is also an entrance way towards the northern end of the eastern side of the feature. Just inside this entrance there appears to be a U shaped feature together with small areas of high magnetic response.

The extent of the survey of the western mound was restricted due to the extreme steep slopes, the consequences of the construction of the observation posts during the 20th century and the metalwork associated with the construction. However Pedley's 1937 excavation referred to earlier describes sections of a building at the top of the mound. It is possible that sections of it may still exist outside the boundaries of the observation posts but there were no traces visible during the topographic survey.

22. **Banks**: To the east and south-east of the eastern mound are two linear banks running north-east to south-west, and east to west respectively. The bank running north-east to south-west showed up as a high resistance suggesting it may be stone revetted.

The results from the SWAAG surveys are consistent with the results and conclusions of the 2011 and 2012 ASDU surveys which stated: "The surviving earthworks and geophysical anomalies at Grinton Mound East reflect the remains of a significant defended settlement.".

FURTHER RESEARCH

23. Access to the complete archive of Pedley's 1937 excavation might help understand the assertions in his thesis. If records or any of his finds do exist, it is probable that these are held at Durham or Newcastle Universities.

EXPLORATORY EXCAVATION

24. **Exploratory Excavation**. In order to develop a more detailed understanding of the site it is recommended that the next stage should be exploratory excavations comprising trenches and test pits initially focusing on:

a. **East Mound**: The enclosure ditch and banks, the entrance, the sub-circular feature and the central area of high resistance. These may help date the construction of the ditches and banks and determine whether the features on the top of the mound are ancient or related to the golf course.

b. **West Mound**: The enclosure ditch and banks, the entrance area, the U shaped feature and other magnetic features. Test pits to investigate whether any traces of the building identified by Pedley may still survive adjacent to the observation post.

c. **Banks**: the two banks towards the east of the East Bank should be sectioned to look at their structure.

ACKNOWLEDGMENTS:

SWAAG wish gratefully to acknowledge support of the Allison family for permission to survey the site

SWAAG wish gratefully to acknowledge the support of Yorkshire Dales National Park Authority for providing training and advice for the survey

SWAAG wish to thank everyone who participated in the survey

FIGURES

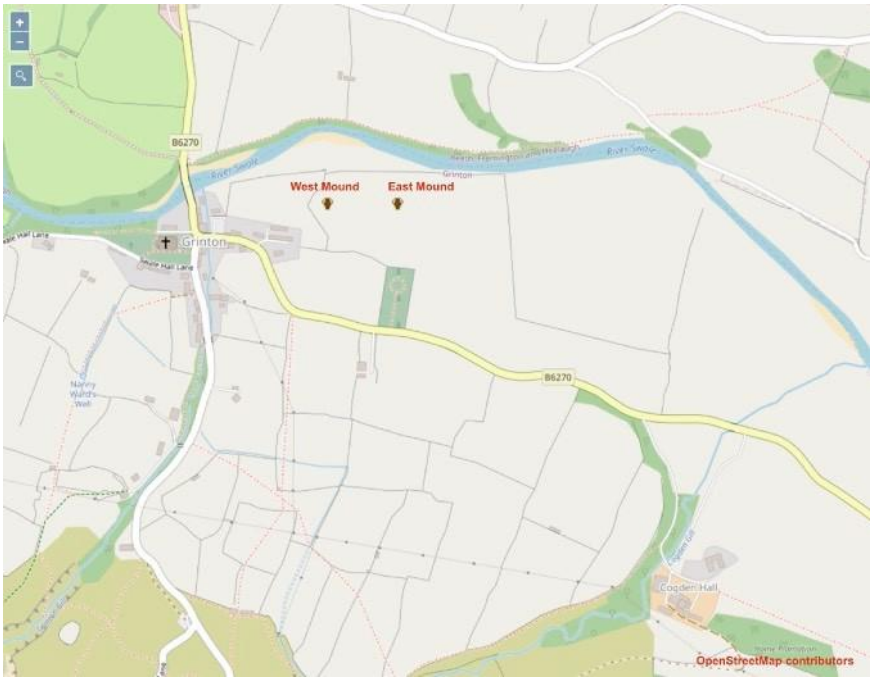

Figure 1: Location of the Grinton Mounds.

Figure 2 (top): Grinton Mound West, looking west.
Figure 3 (bottom): Grinton Mound East, looking east

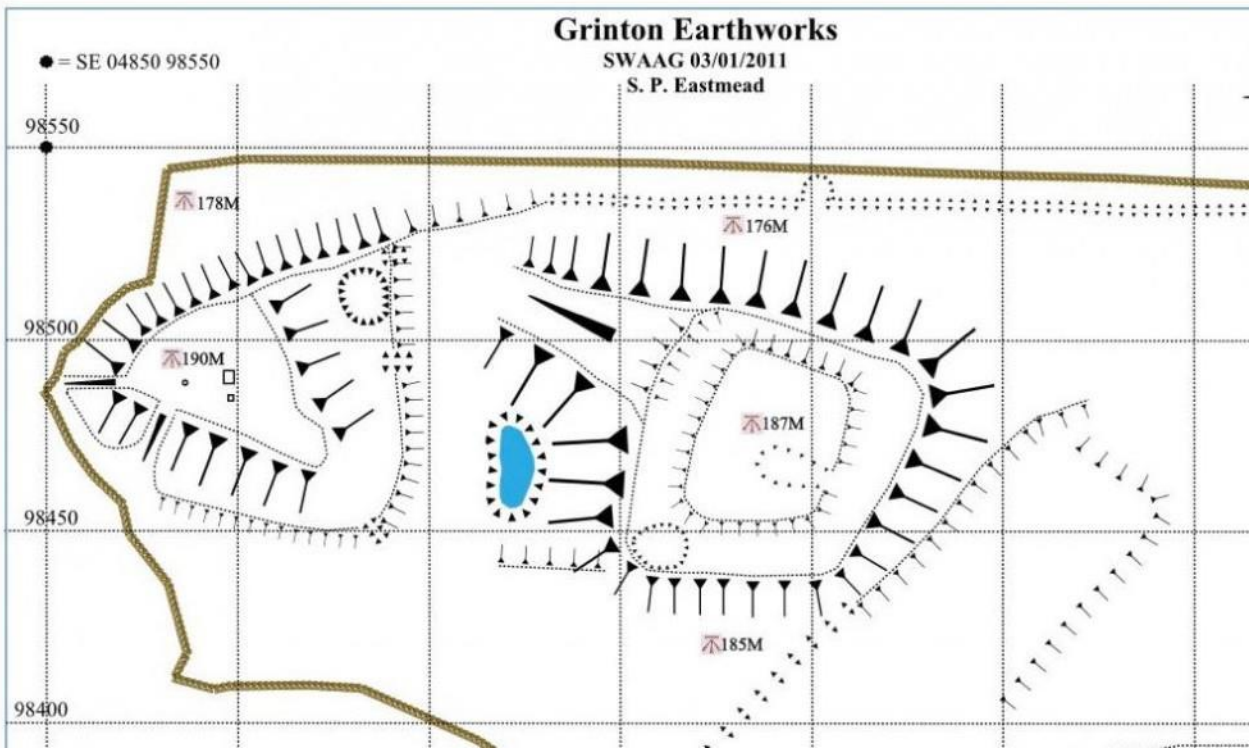

Figure 4: Grinton Mounds topographic survey. Courtesy: Stephen Eastmead.

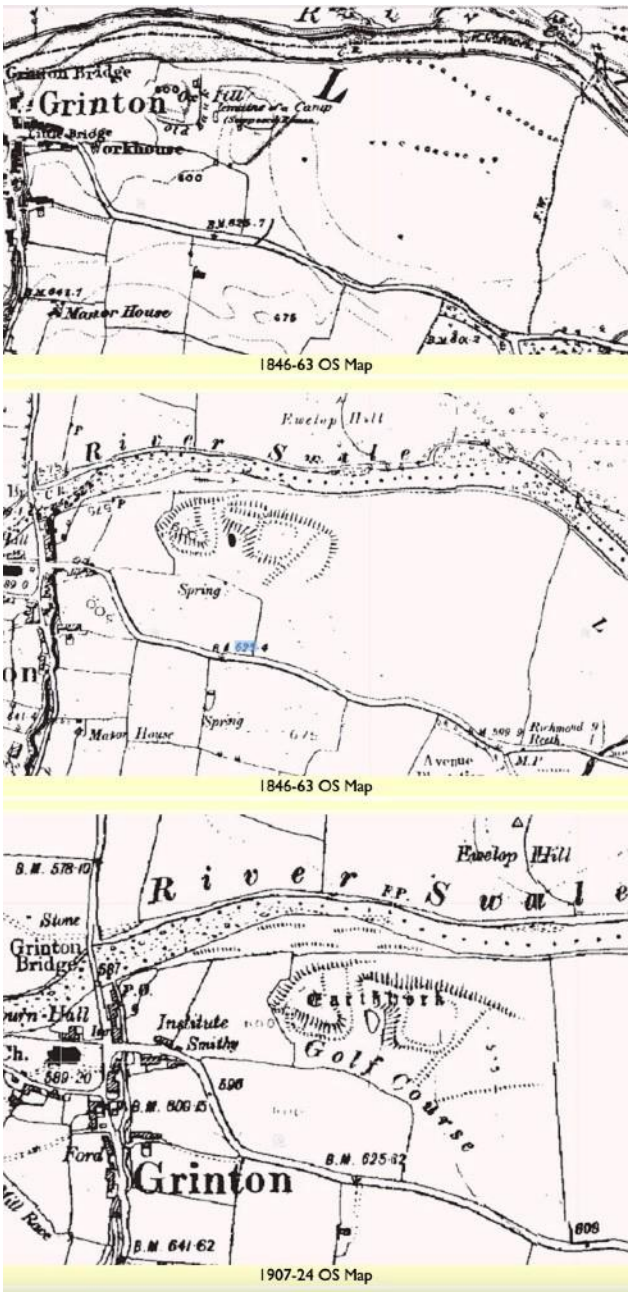

Figure 5: Old Maps of the Grinton Mounds.

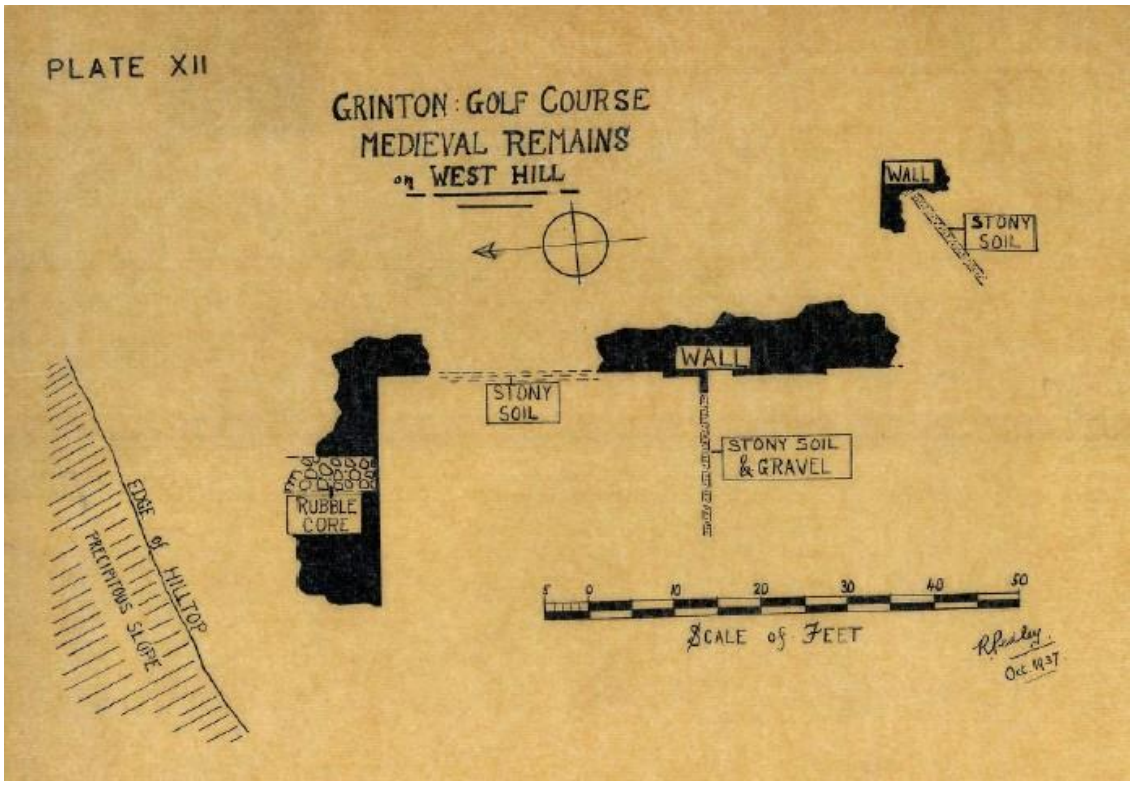

Figure 6: Pedley's 1937 excavation of the West Mound.

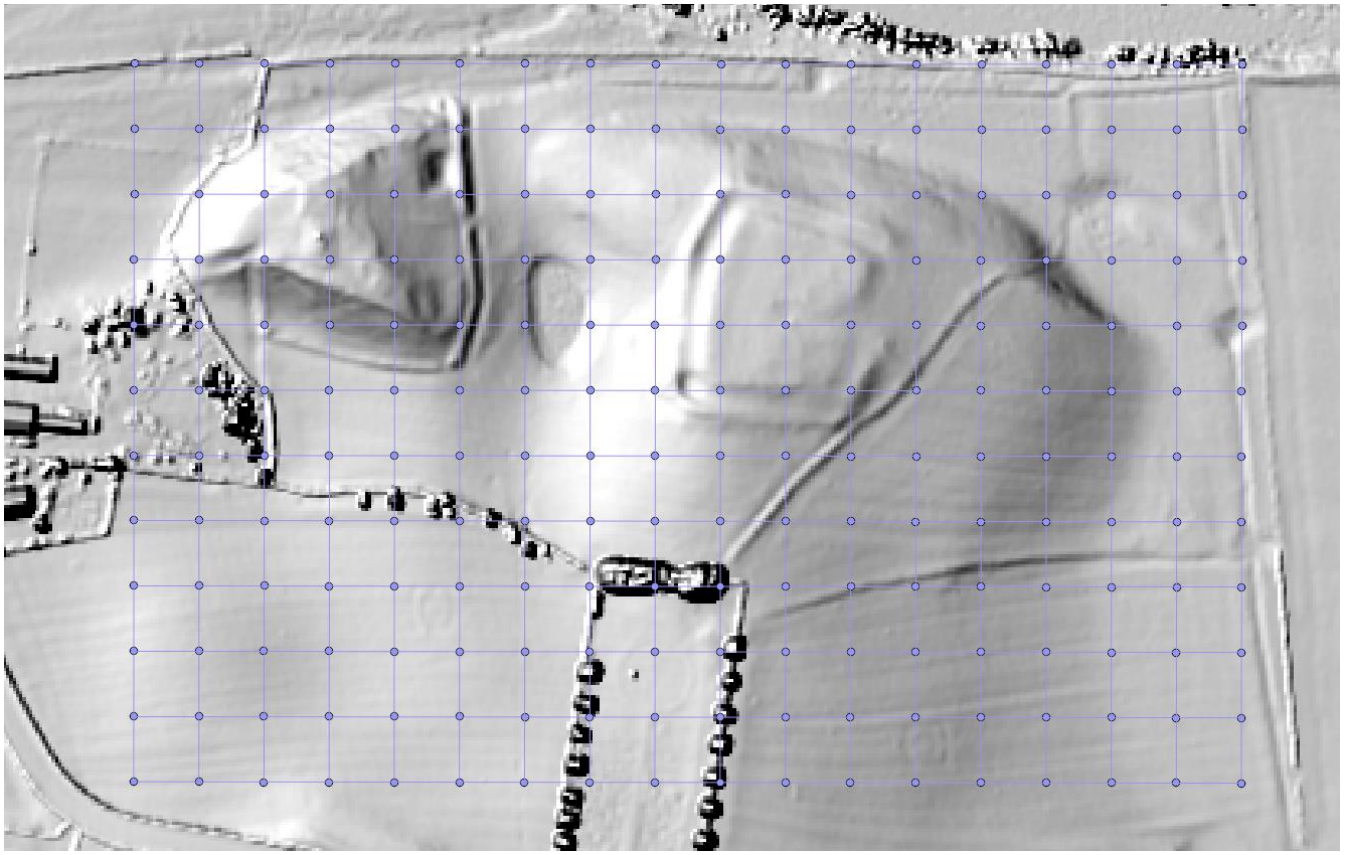

Figure 7: 20 Metre square grid over LIDAR.

Figure 8: Coloured pin-flags mark break of slope lines.

Site Code: GME 22 **Square No:** 135 **Date:** 24/9/22

Prepared by: AJ/JN/LF/RF

Please draw a sketch plan of this square showing the position of each point and number each point. Please show direction of slope. Orientation of this plan should be North upwards.

If available please enter GPS coordinates of the corners of this square

Top left: 153 **Top right:** 154

Bottom left: 135 **Bottom Right:** 136

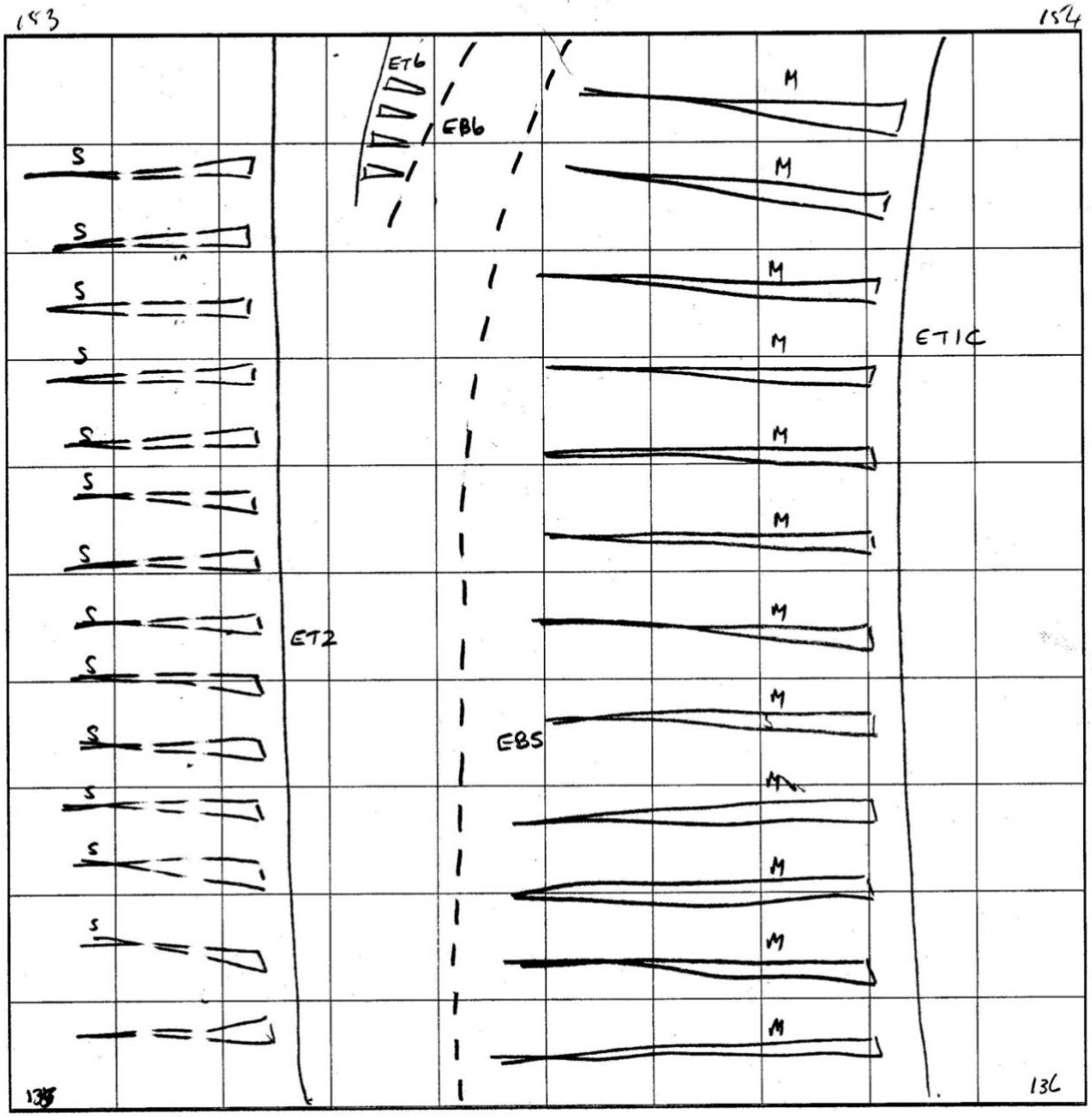

Figure 9: Sample sketch of a 20 Metre square.

Figure 10: Using GPS to record break of slope lines.

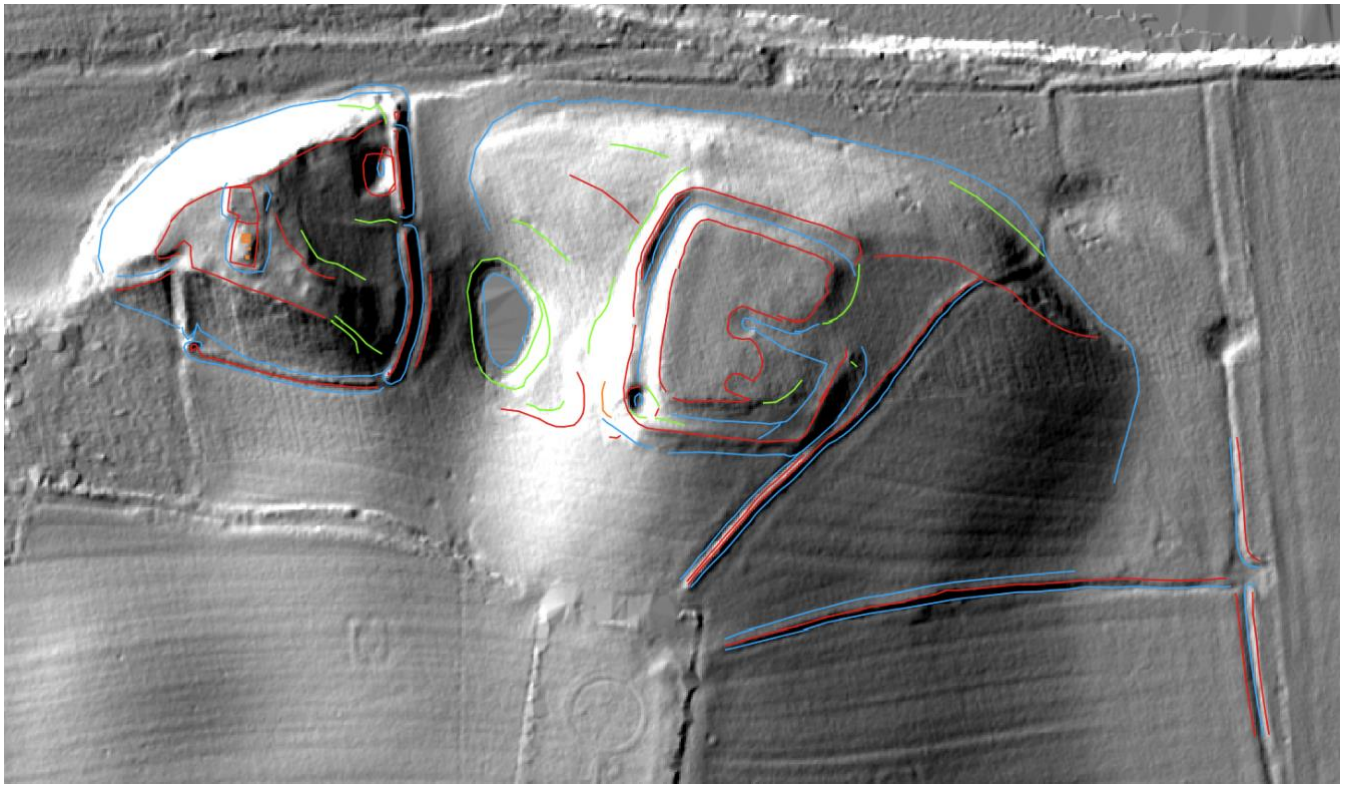

Figure 11: Break of slope lines mapped over LIDAR.

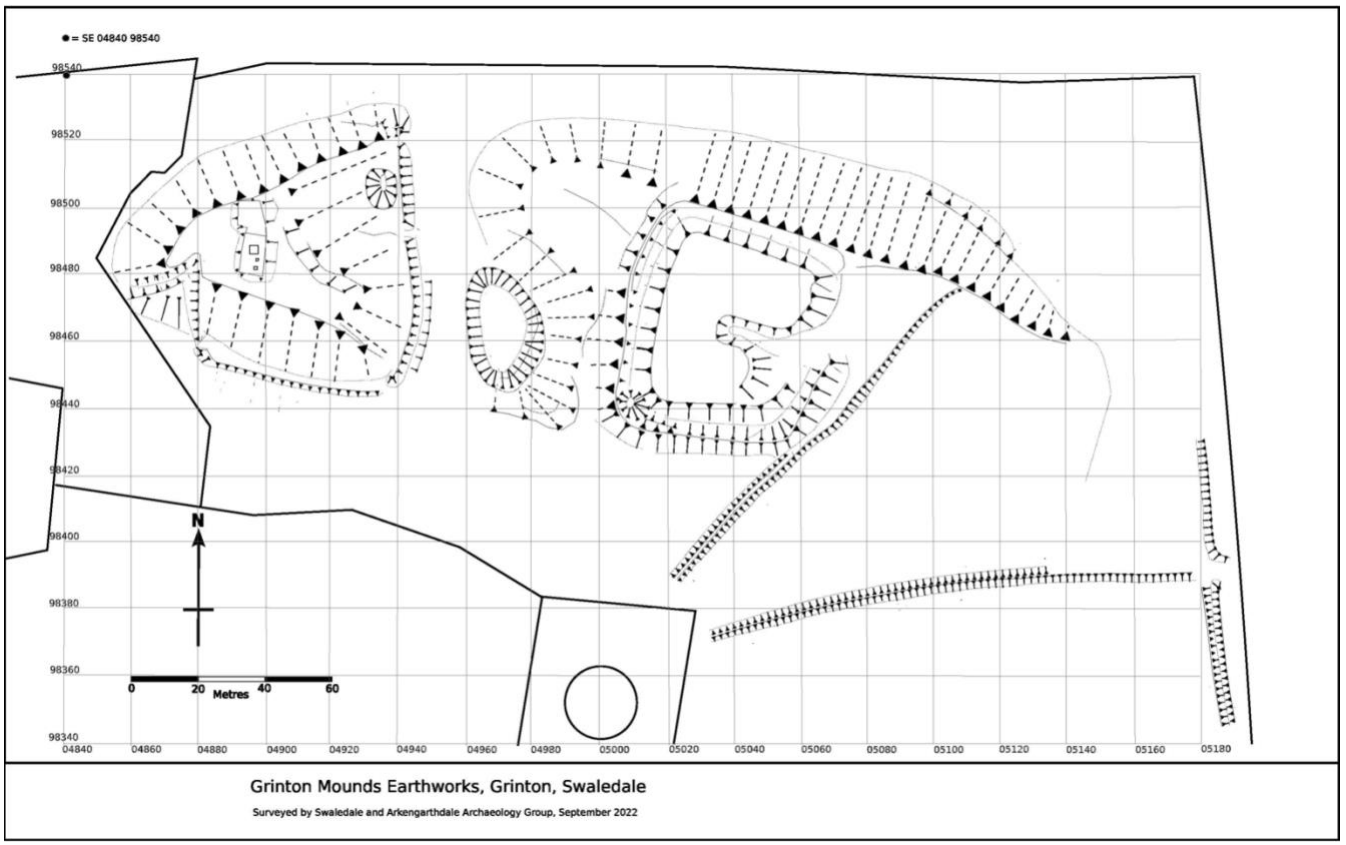

Figure 12: Grinton Mounds Topographic Survey.

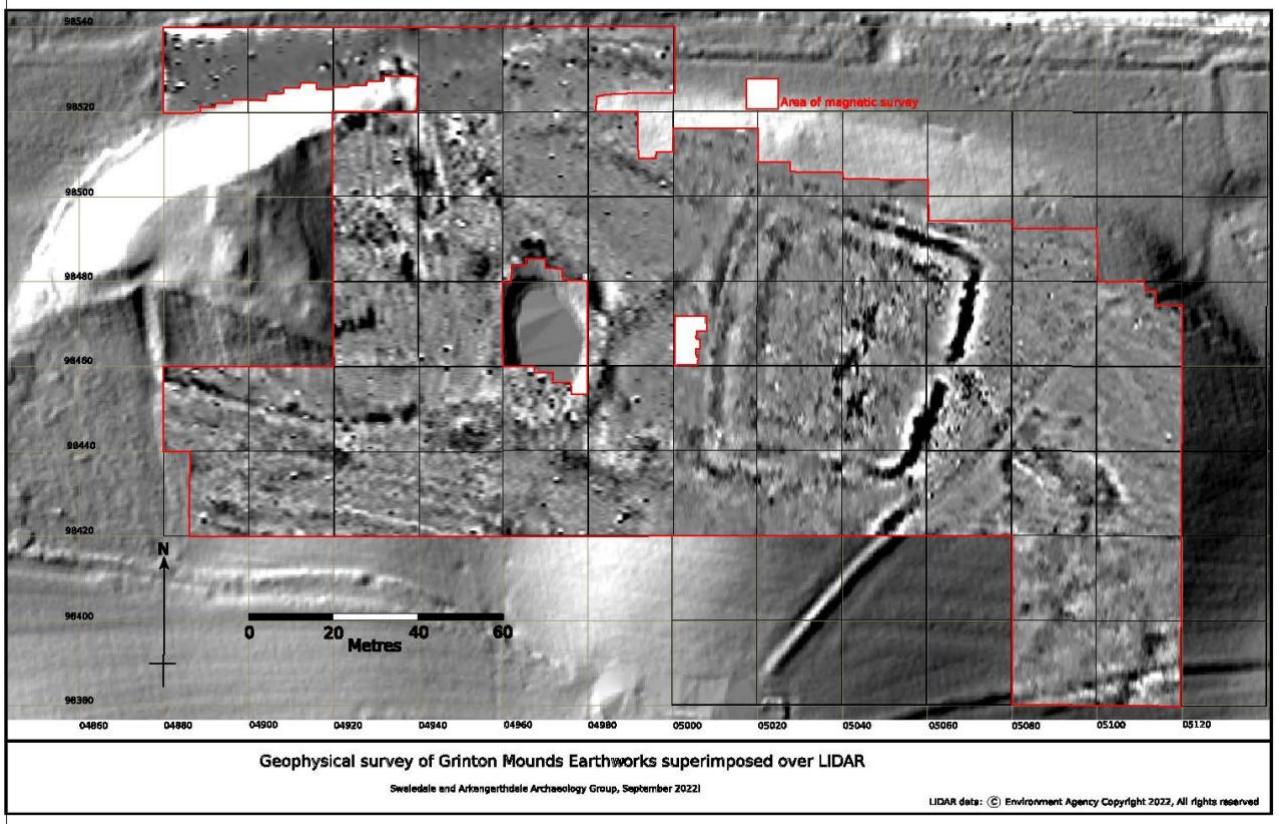

Figure 13: Geomagnetic survey of Grinton Mounds superimposed over LIDAR.

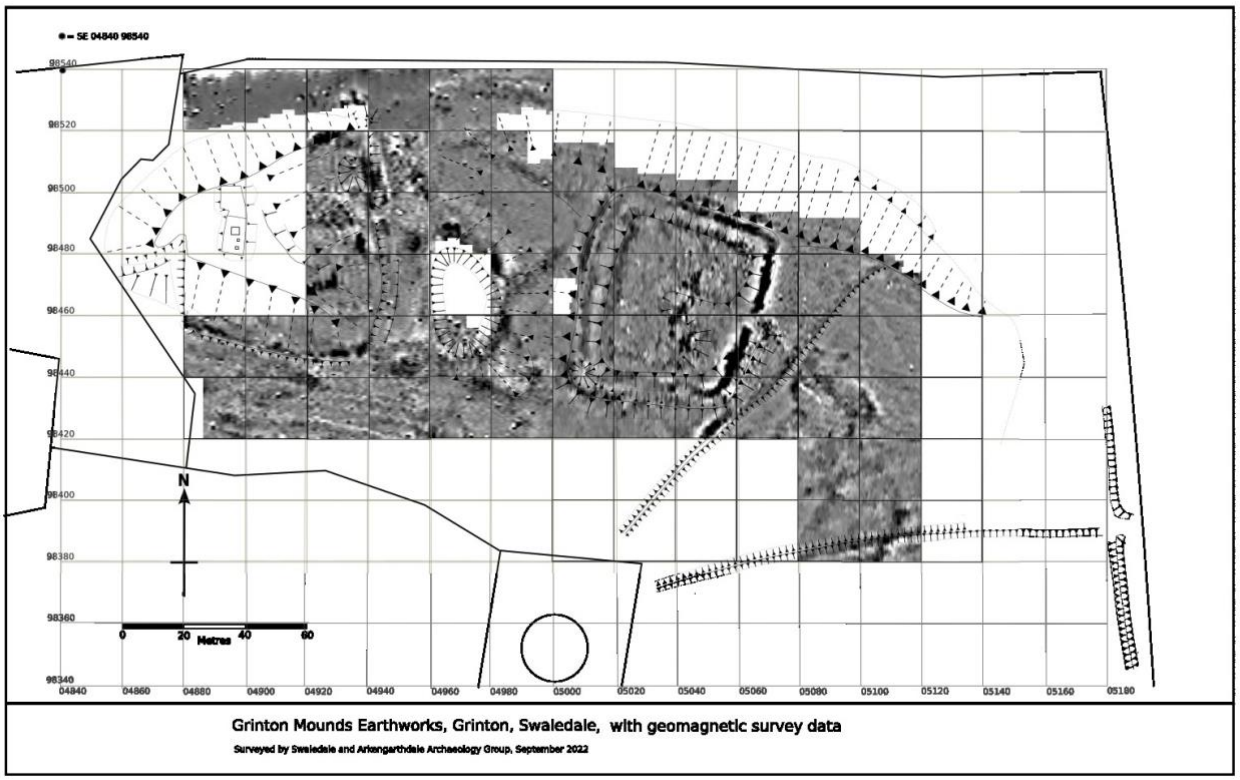

Figure 14: Geomagnetic survey of Grinton Mounds

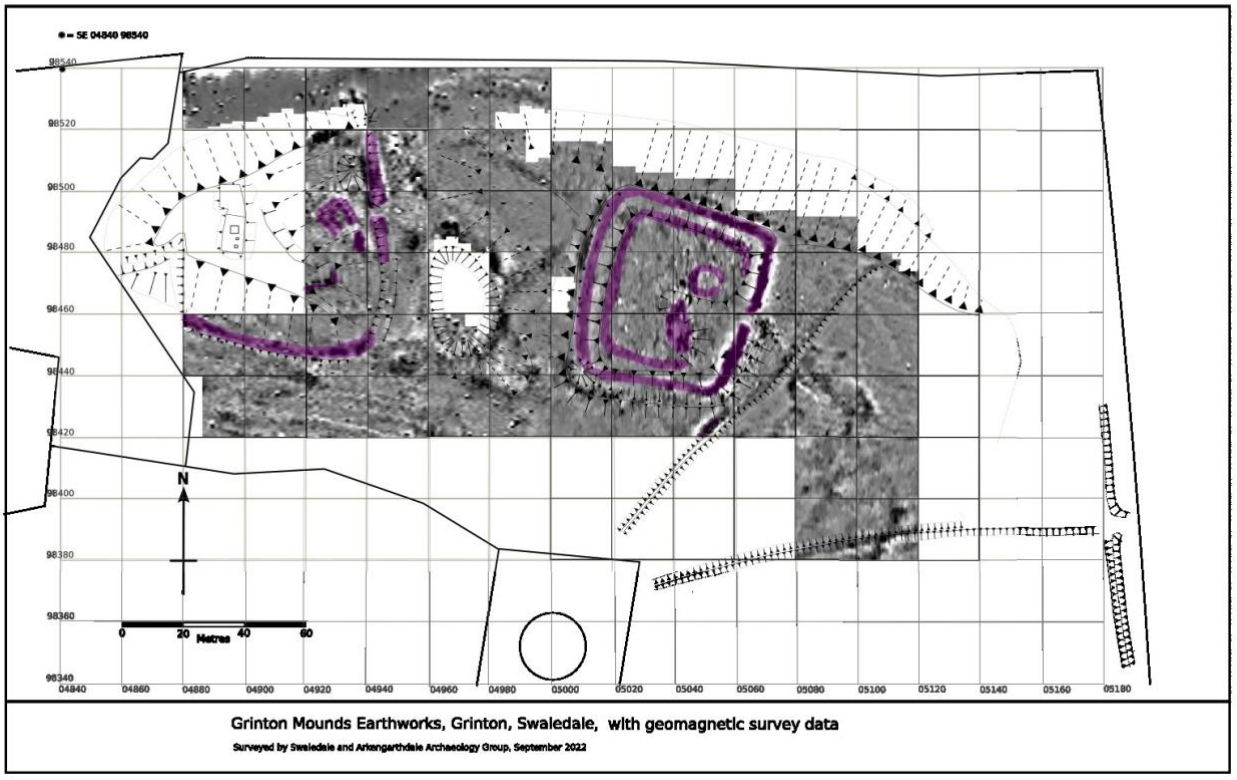

Figure 15: Geomagnetic survey of Grinton Mounds with major features highlighted

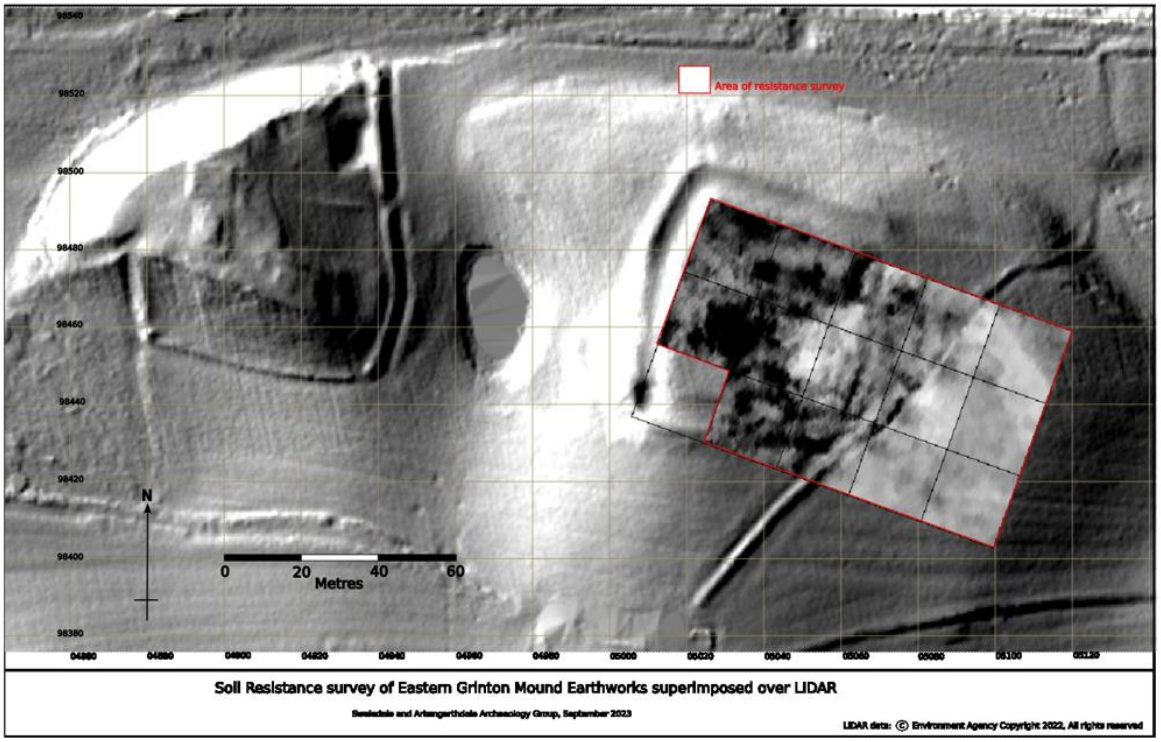

Figure 16: Soil Resistivity survey of Grinton East Mound superimposed over LIDAR.

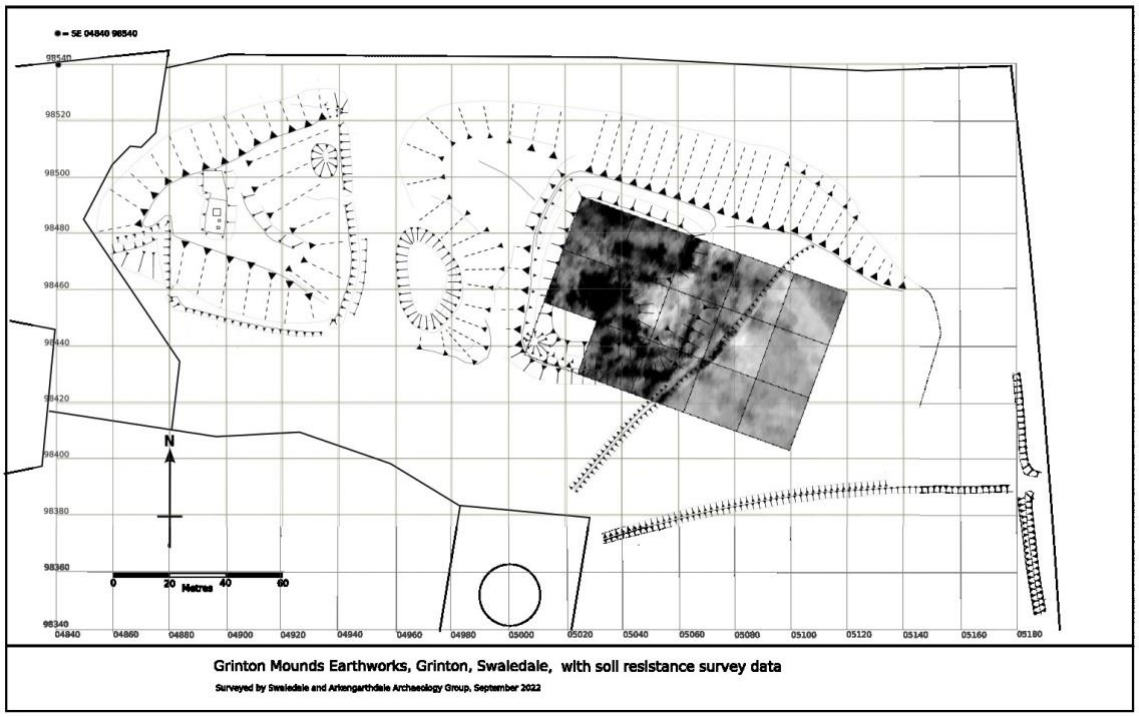

Figure 17: Soil Resistivity survey of Grinton East Mound

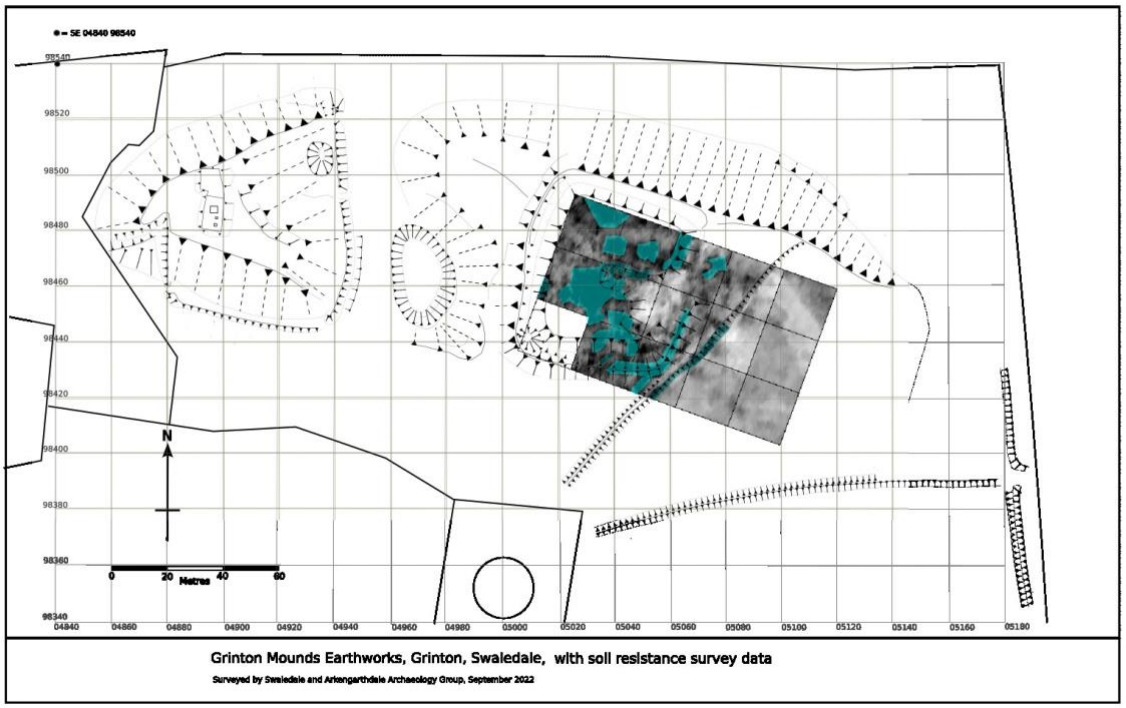

Figure 18: Soil Resistivity survey of Grinton East Mound with major features highlighted

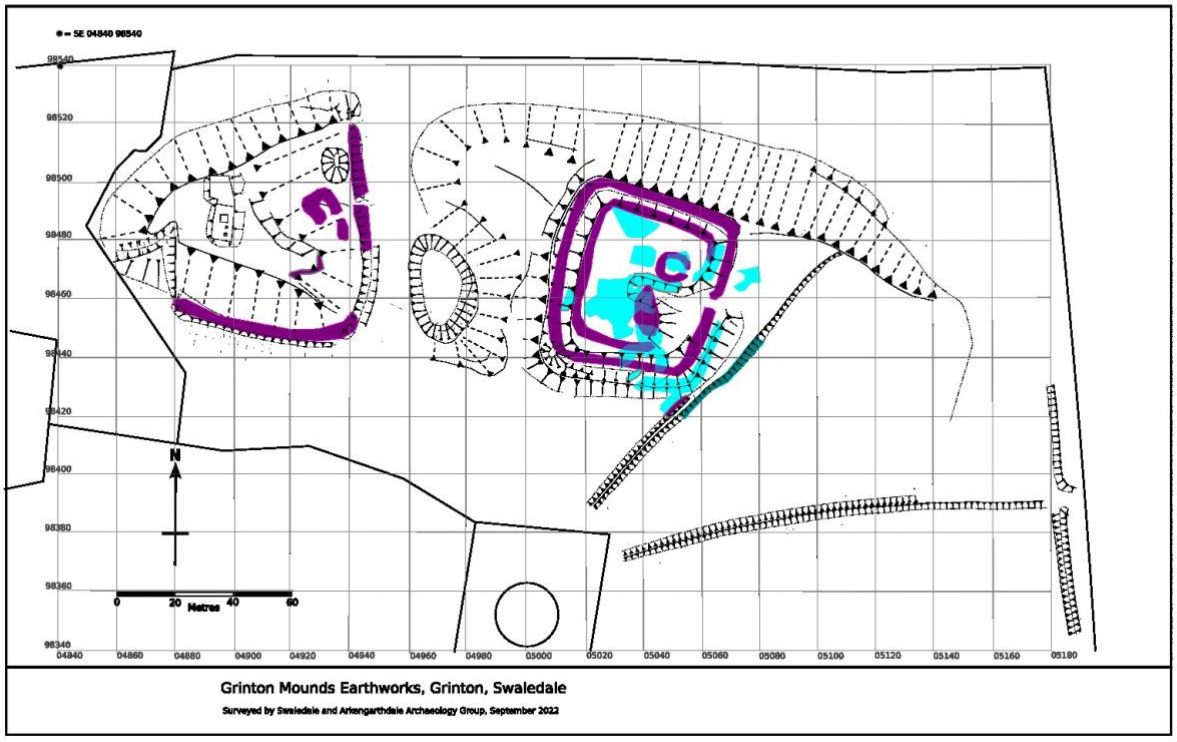

Figure 19: Combined Geomagnetic and Soil Resistivity features on Grinton Mounds

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