

CASTLE DORE IRON AGE HILLFORT

CASTLE DORE

ST SAMPSON

CORNWALL

Results of a Geophysical Survey



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CASTLE DORE IRON AGE HILLFORT, CASTLE DORE,
ST SAMPSON, CORNWALL
RESULTS OF A GEOPHYSICAL SURVEY

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Work undertaken by SWARCH for the Cornwall AONB

SUMMARY

This report presents the results of a magnetometry survey and resistivity survey carried out by South West Archaeology Ltd. (SWARCH) on land at Castle Dore Iron Age Hillfort (HER no.26690), St Sampson, Cornwall. The site is located on a ridge of land near crossroads on the B3269 between Lostwithiel, Fowey, Golant and Tywardreath. It is in a modified Medieval landscape and location of a Civil War battlefield (MCO26703). 1930s excavation at the site revealed internal structures and 4th century BC to 1st century AD finds and civil war finds (MCO48; MCO417; MCO418; MCO419; MCO19317; MCO26665; MCO26666). This phase of geophysical survey was requested as part of the AONBs Monumental Improvement project.

The geophysical survey identified 51 groups of anomalies (1-38 on the magnetometry survey; and A-M on the resistivity survey) comprised of c.159-170 anomalies, depending on how one differentiates the responses, across the survey area as a whole. The most significant anomalies in broadening the understanding of this monument are: probable outer earthworks forming two or more additional areas on the east side of the extant fort; potential Prehistoric structures outside the extant fort; a relict, probable Medieval field system on the south side of the fort; and potentially corroborating evidence regarding the presence of post-structures and rampart modifications within the inner ramparts as identified in the 1930s. Of additional interest are: the mysterious, but probable Modern, large spreads or deposits in the south-east of the site; and the spread of pits or tree-throws across the wider area. Additional ditch features and areas of Modern ground disturbance were also present in the data set. Instances of magnetic debris associated with ferrous debris or weak geological variations were also evident in the survey data as were a large number of striations typically indicative of agricultural works such as ploughing, including within the inner earthwork. Single points of magnetic debris are commonly attributed to Modern activity but in this case may (wishfully) include civil war artefacts. Agricultural activity across the site and previous archaeological excavations within the earthworks may have truncated or obfuscated any buried archaeological resource.

Although the surveys have ostensibly succeeded in identifying probable archaeological resources, the nature of known features within the inner earthwork; being relatively small discrete features; does not lend itself typically to being easily identified in these forms of survey. However, in this case we have attempted to identify the most probable corresponding anomalies. Intrusive archaeological works would test the efficacy and validity of the results of the geophysical survey and aid to confirm the presence or absence of any archaeology resource on the site.



May 2023

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1.0 INTRODUCTION

LOCATION:	CASTLE DORE IRON AGE HILLFORT, CASTLE DORE, OFF THE B3269
PARISH:	ST SAMPSON
COUNTY:	CORNWALL
NGR:	SX 10352 54831
SWARCH REF.	CANB22 (CASTLE DORE)

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by the Cornwall Area of Outstanding Natural Beauty (AONB) to undertake a geophysical survey on land at Castle Dore Iron Age Hillfort, Castle Dore, St Sampson, Cornwall. This work was requested as part of the Cornwall AONB's Monumental Improvement project which is seeking to ensure that 40 scheduled monuments in the protected landscape, currently on the Heritage at Risk Register or vulnerable to loss, are better identified, supported and enjoyed by a wider range of people by 2024. The geophysical surveys are part of the projects archaeological programme to help understand more about the sites and the risks they face and will help to inform future management with the aim of improving their condition. This work was undertaken in accordance with best practice and ClfA guidance.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

Castle Dore is a farmstead at a cross-roads on the B3269, which follows an approximate topographic ridge and route way running north-south between Lostwithiel and Fowey. It is approximately halfway between Golant to the east and Tywardreath to the west, c.1.8km from each; and c.3km north of Fowey. The cross-roads and farmstead are near to the heads of a watercourse that feed the River Fowey and define valleys running to the north- and south-east. The site is on the north side of the cross-roads and farmstead in an agricultural landscape; bounded by the B3269 along its west side (which also forms the boundary with the neighbouring parish of Tywardreath and Par), and a lane leading to Lawhibbet Farm along its north boundary. This site occupies a high point along the north-south aligned ridge followed by the B3269, with moderately steep slopes to its east and west leading to broad valleys and affording views to St Austell Bay to the south-west, and along the afore mentioned Fowey tributary valleys to the north-and south-east. The site is at a height of between c.105m and 120m AOD.

The soils of the site are the shallow well drained fine loamy and fine silty soils over rock of the Denbigh 1 Association (SSEW 1983), which overlie slate, siltstone and sandstone of the Dartmouth Group (BGS 2023).

1.3 DOCUMENTARY HISTORY & BROAD HISTORICAL CONTEXT

The site is on the western edge of the parish of St Sampson (formerly Glant or Golant); a parish in the deanery and west division of the hundred of Powder (Lysons 1814). It had been a chapelry of Tywardreath until presumably c.1507, when a cemetery was planned at 'the chapel of St. Sampson at *Gullant*' (Lysons 1814). Tywardreath was a larger Domesday manor (*Tiwardrai*) of 33 households worth 4 pounds prior to 1086 and 2 pounds in 1086 (Morris 1992). It was Held from Count Robert of Mortain by Richard, son or Turolf in 1086 and had been held by Cola of Hele prior to the Conquest (Morris 1992). In the mid-late 15th century, Castle Dore, which belonged to the Earls of Salisbury, was described as a dilapidated castle and named Dirford, near Golant (Lysons 1814). The principal landowners of the St Sampson parish manor were the Montacutes, Earls of Salisbury until the beheading of Margaret Countess of Salisbury in 1541, when it passed to the crown. The Rashleigh family had obtained the manor by 1620 (Lysons 1814) and were the landowners of the site in 1839

(St Sampson tithe apportionment). 17th to 18th century leases from the Rashleigh family to tenants for land at Castle Dore are held at Kresen Kernow, Cornwall's archive centre (R/2679/1,2; R/2680; R2681).

1.4 PLACE-NAME ASSESSMENT

The place-name of Tywardreath means 'the house/settlement on the strand' and is derived from the Old Cornish *ti* and Cornish *Tre* meaning 'farmstead/settlement' and *war + trait*. Castle Dore could be derived from a personal/place name, Old English *dor* meaning 'door/narrow pass', or British *duro* meaning 'fort' (using Watts 2004). These meanings for Castle Dore fit perfectly as both a fort and it being in a commanding position along- and at the cross-roads of two route ways. The parish of St Sampson was recorded in the 13th century as *Sanctii Sampsonis* and was named for the patron saint. Also in the 13th century, the other name for the parish of Golant (*Gulnant*) meaning 'fair in a valley' was derived from the Cornish *gol* and *nans* respectively (Watts 2004).

1.5 CARTOGRAPHIC DEVELOPMENT

The c.1805 Surveyor's draft map that covers the site is particularly detailed (Figure 22). It depicts the roads, tracks and field boundaries around the site and structures on the south and west of the site's adjacent cross-roads at *Castle Dôr*. It depicts the 'round' of the fort with outer ramparts on its east side and the wider area of the site/survey area across three or four fields in a roughly triangular parcel of land defined by the roads and tracks.

The c.1839 Golant/St Sampson tithe map (Figure 23) depicts the site location as comprising a large field with an 'Earth work' within it (all plot 150), and a smaller north-eastern field (plot 149). *Castle Door* is labelled near the cross-roads south of the site. The tithe apportionment lists the site and its immediate surrounding fields as part of *Lawhibbett*, the farm immediately north-east of the site. This property was listed as belonging to William Rashford Esq. And the executors of William Slade Gully, lessees and it was occupied by a William Kirken. Plot 149 was called *Castle Meadow* and was under arable cultivation; and plot 150 was called *Great Castle, alias Rounds* and was under arable and pasture cultivation. The tithe map does not depict fine detail for the fort's earthworks.

A sketch plan of the hillfort by McLauchlan from 1849 was published by Evelyn W. Rashleigh in c.1885 (MCO48; Figure 24). It depicts multiple ramparts; but most notably it shows outer works extending from the east of the 'round' earthworks and includes the south and west boundaries of *Castle Meadow* (c.1839 plot 149) as possible parts of the fort. These, presumably topographic features are not included on the earlier or later OS mapping and were noted at the time as being barely visible.

The c.1880 Ordnance Survey (OS) mapping (Figure 25) shows continuity with the c.1839 tithe map, but with much greater detail of the *Castle Dore* fort earthworks, showing the inner- and outer ramparts and breaches across the ramparts. A smithy is labelled at *Castledore* immediately south of the site/survey area. Continuity in the site layout and OS mapping is evident across the subsequent OS mapping, c.1905 and c.1933 (Figures 26 and 27).

LiDAR imagery from 2018 and 2022 shows the site with areas of possible erosion and worn access across the ramparts of the 'round'. Some probable modification to the western side of the outer ramparts is also visible, as is agricultural activity associated with ploughing across the fields on and around the site and tracks between field gates. A probable relict boundary in the field east of the site would arguably put a stream within the curtilage of a larger enclosure about the Scheduled Monument. More ephemeral but comparable variations in the topography on the site appear to be geological or topographical in nature and associated with the topography of the site. Some possible

divots and linear trends within the inner earthwork/'round' are also visible on the LiDAR imagery, not including ostensible ploughing activity (Figures 17 and 18).

The Aerial Investigation and Mapping project for the area conducted from 1994-2006 with continuing additions/amendments based on LiDAR and satellite imagery identifies an enclosure a little over 200m south of the site that equates to Trenyhton round (MCO8712) and outer earthworks/enclosures to the site/monument itself. Supporting cartographic sources and LiDAR imagery for this section can be seen in Appendices 1 and 2.

1.6 SITE AND WIDER DESIGNATIONS AND LISTED ASSETS

The site at Castle Dore is a Scheduled Monument (List entry no. 1006691). A probable 6th century BC to AD 1st century multivallate hillfort. The details of the monument in the Listing text are:

'The monument includes a small multivallate hillfort, situated on a prominent ridge overlooking at least two tributaries to the River Fowey. The hillfort survives as a roughly circular central area defined by a well-constructed inner rampart and ditch with a further, mainly concentric, outer rampart and partially buried outer ditch which diverge from the inner rampart only on the east to form a more complex entrance annexe.

The interior was partially excavated between 1936 and 1937 by CA Raleigh-Radford and more recent re-interpretation of the results indicates the hillfort was constructed during the 5th - 4th centuries BC based on ceramic evidence. A later phase followed a period of abandonment when the entrance area was remodelled probably in the 4th - 3rd centuries BC. The interior contained a number of four- to six-post structures and the remains of some round houses, defined by stake holes indicating a complex building sequence with frequent replacements of structures over a prolonged period. Two oval structures may also represent Romano-British or later occupation, although the pottery assemblage seems to indicate abandonment before the Roman period. Other finds included Iron Age imported glass bracelets and a glass bead. Castle Dore was first mentioned by William Worcester in 1470. It was reputedly linked to 'Lancien', the palace of King Mark (Mark Cynawr or Marcus Cunomorus) who appears in Arthurian tales and whose son Drustans (Tristan) is commemorated on a nearby pillar. The district is also associated with the romance of Tristan and Iseult. Excavated evidence also revealed the presence of finds relating to the skirmish between Charles I and the Earl of Essex, fought at Castle Dore during the Civil War when in 1644 Parliamentary forces retreated into the earthworks and held the position until dark'.

It is considered in the Listing that *'Despite partial excavation and the cultivation of the interior...Castle Dore survives comparatively well and will contain further archaeological and environmental evidence'*. Additional Listed and Scheduled assets near to the site include: a cross in the grounds of Trenyhton (MCO6054; DCO1204; 1004646), and the Grade II Listed 19th century country house at Trenyhton (MCO57023; DCO14181; 1328878). The site is also within the curtilage of the Registered Battlefield of the battle of Lostwithiel, which took place on the 31st of August and 1st of September 1644 (MCO57203; DCO16495; 1413762). The ridge now followed by the B3269 provided the route for Parliamentarians escaping the besieged Lostwithiel and Castle Dore provided one of their lines of defence during the retreat. 17th century battlefield finds have been recovered from the Castle Dore ridge by metal detectorists and at Castle Dore during the 1930s excavations of the site.

1.7 ARCHAEOLOGICAL BACKGROUND OF THE SITE

The fort of the site itself was subject to an excavation in the summers of 1936 and 1937. Kresen Kernow retains a proposal for this excavation (P 204/2/13) and an exercise book from 1937 containing newspaper clippings and associated information (X 415/45). Dr C.A. Raleigh Radford

published the 'Report on the Excavation at Castle Dore' in the Journal of the Royal Institution of Cornwall, New Series, vol. 1, 1951, appendix 1-199, which is presumably also held at the local archives. The site itself has been considered as having potential increased public access or historic interpretation within a general assessment of the China Clay area (ECO49; Ratcliffe 1997). Site specific assessments based on the 1930s excavations were published in the Cornish Archaeology journal in 1971 (Rahtz 1971) and 1985 (Quinnell and Harris 1985). These Cornish Archaeology articles attempted to reappraise the site: the former, made extremely tentative and speculative assertions and interpretations that were subsequently discredited in the latter, which attempted to identify approximately 10 Iron Age roundhouses and discuss finds from the site that included probable local Iron Age wares and Roman imported material. Of interest in the earlier article is descriptions of: c.11 postholes over 3 feet in diameter, 1 under 2 feet in diameter, c.61 2-3 feet in diameter, and of these; c.55 postholes 2-3 feet below the turf and c.4 postholes over 3 feet below the turf, as well as 5 assumed postholes and a possible hearth.

Cornwall's Historic Environment Record (HER) includes a summary of the site and its associated archaeological works (MCO48). This record asserts that Radford's excavation in 1936-7 indicated that the fort was originally built as a multivalate fort and that the inner rampart was raised and revetted with stone, that the entrance to the fort was remodelled during its occupation, and c.20 Iron Age structures including 'granaries'/four post structures were present within the interior. The outer entrance was not excavated, but a ditched and banked road connected the two entrances with entrances to enclosures between the ramparts on either side. Some evidence originally interpreted as Roman has subsequently been re-interpreted as Iron Age.

Nine additional HER assets on the Scheduled Monument are included in the HER that duplicate or clarify/expand on other assets described or present on the site. These are: the civil war battlefield (MCO26703); the earthworks of the Iron Age hillfort itself (MCO49); finds from the 1930s excavations including south-west decorated and cordoned wares from the 4th century BC to 1st century AD, Late Iron Age amphora and/or Roman Flagon sherds and a glass bead (MCO417; MCO418; MCO419); c.20 Iron Age hut circles within the interior of the fort (MCO19317); and rectilinear alignments of stone-packed postholes indicative of Iron Age granaries (MCO26665; MCO26666).

The National Mapping Programme (NMP) depicts lines identified on aerial photography across the site. These mostly show the extant earthworks and possible cropmarks of buried features defining an outer enclosure to the east of the fort and a linear feature on the south side of the fort that approximately aligns with this possible eastern enclosure.

Cornwall's Historic Landscape Characterisation (HLC) describes the site as an area of Medieval farmland (HCO4) – *'The agricultural heartland, with farming settlements documented before the 17th century AD and whose field patterns are morphologically distinct from the generally straight-sided fields of later enclosure. Either medieval or prehistoric origins'*.

1.8 ARCHAEOLOGICAL BACKGROUND OF THE WIDER AREA

Additional HER assets near to the site are listed below:

1.8.1 PREHISTORIC

Eight Prehistoric assets within 0.5km of the site, Bronze Age findspots of an axe and vessel to the east at Penquite (MCO1122-3); to the south of the site, a possible Iron Age round at Carharles, based on place-name evidence (although it may refer to Castle Dore or Trenyhton round) and some slight earthworks visible on LiDAR imagery (MCO13764), one of two documented possible barrows at Toynes (MCO3589), an extant 'round' at Trenyhton (MCO8712), a possible Iron Age trackway

leading from Trenyhton round (MCO26667), possible Neolithic flints (MCO50298, MCO51868) and Iron Age pottery (MCO51869) recovered during field-walking in 2006 at Trenyhton.

1.8.2 ROMANO-BRITISH

Apart from those found at the site, the nearest Romano-British assets to the site are shown over 1km south-east of the site; Roman and Medieval coin finds at Lescrow (MCO43402) and cropmarks of a possible Late Iron Age/Romano-British field system and settlement at Penventinue (MCO40423).

1.8.3 MEDIEVAL

Eleven Early Medieval and Medieval HER assets are listed within 1km of the site, eight of which are documented settlements or farmsteads recorded in the 13th, 14th and early 15th centuries; Trevenna (MCO17892), Trebathevy (MCO17073) and Wringford (MCO18415) to the north, Lawhibbet (MCO15349) to the east, and Leyonne (MCO15416), Kilwarrick (MCO15168) and Trenyhton (MCO17645) to the south-east and south-west. A Listed Medieval cross that had been at Four Turnings (MCO5271 and MCO6054; 1004646) is also in the grounds of Trenyhton. As well as these settlements some cropmarks and boundaries associated with this Medieval agricultural landscape are also listed in the HER near the site (MCO23123; MCO41736).

1.8.4 POST-MEDIEVAL

As well as the Civil War Registered Battlefield (MCO57023) that incorporates the site, the HER includes five Post-Medieval to Modern assets within c.0.5km of the site: cropmarks of a rectangular enclosure at Trevenna (MCO27086), an extant ROC observation post north of the site (MCO42688), a smithy labelled on OS mapping at Castle Dore (MCO9012), and the 19th century Trenyhton manor chapel (MCO56437) and 'The Gate House' on Castledore Road (MCO56421) both designed by Silvanus Trevail.

1.8.5 HER EVENTS

Building recording and assessments have been conducted to the south-west of the site, at Trenyhton Manor (ECO4105, ECO5802, ECO5955).

1.9 ARCHAEOLOGICAL POTENTIAL AND GEOPHYSICAL RELEVANCE

The site has an obviously high and proven archaeological potential. Excavations that have taken place on the site (MCO48) may obfuscate underlying features or be evident in the geophysical data. But these excavations inform us that: remodelling of the ramparts and entrance may have occurred, including the use of stone revetments; a ditch and banked track/road ran between the entrances to the earthworks, with entrances accessing the outer/middle earthwork; a large number of post-built hut circles (MCO19317) were present within the inner earthwork/'round', including stone packed postholes to four-post structures (MCO26665; MCO26666); and that these postholes were generally rather large, up to c.1m in diameter. Small discrete features are typically difficult or impossible to define in the geophysical record (technique dependant), but knowledge of their location, size and possible stony content may allow for degrees of speculation or identification of comparable features.

1.10 METHODOLOGY

This work was undertaken in accordance with current best practice and CifA guidance.

Any desk-based assessment aspect of this report follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (CifA 2014a) and *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012).

The geophysical survey follows the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016) and *Standard and Guidance for Archaeological Geophysical Survey* (CifA 2014b).



FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

An area c.3.73ha, comprising the interior of the Scheduled hillfort and fields in which it sits were subject to a magnetometry survey; c.0.62ha that comprised the interior of the round earthwork of the hillfort and across its entrance, between its ramparts was also subject to a resistivity survey. The purpose of the magnetometry survey was to identify and record magnetic anomalies within the survey: and the purpose of the resistivity survey was to identify and record anomalies of relative resistance within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken between the 1st and 6th of February 2023 by J. Bampton, P. Bonvoisin, and P. Webb from SWARCH; Linus Firth from the AONB; and volunteers. The survey data was processed by J. Bampton.

2.2 SITE INSPECTION

The entire site was under relatively short grass, particularly across the 'round' part of the monument and its ramparts. Relatively small amounts of gorse and shrubs were located on the monument. The site was across three fields: a large southern field, a north-eastern field and a north-western field. The north-western field contained the standing earthworks of the 'round'/Iron Age hillfort. It was separated from the southern field by a metal post and wire fence that followed the line of the extant outer ramparts with hedge topped, stone lined earth banks along its north and west boundaries. It was separated from the north-eastern field by part of the outer ramparts and stretch of Cornish Hedgebank. The north-eastern field had a mostly post and wire fence along its north boundary, which was defined by a lane to Lawhibbet Farm. Its south boundary was a Cornish Hedgebank and its east boundary was defined by a post and wire fence alongside scrub and bushes beside a narrow irregular linear hollow/holloway or dried stream/watercourse. The southern field was lined by hedging and Cornish hedge banks along its west and south boundaries, with its east boundary being defined by a hedge beside the same former Holloway or drain as the north-eastern field. All of the hedge and banked boundaries were lined with post and wire fencing. The north-eastern field could be accessed from: the lane along its northern edge in its north-east and north-west corners; from the southern field in its south-east corner; and from the north-western field in its south-west corner. The north-western field could be accessed from: the main road to its west via a pedestrian access in the south-west corner of the field; from the southern field in its south-west corner and eastern edge; and the land along its north boundary, near the middle of the boundary. Other access points to the southern field were present in the south-east corner of the field and approximately halfway along its south boundary. Water troughs were present near the north-east corners of the southern field and north-eastern field. The majority of the 'round' and stretch of the southern field immediately south of it occupied a relative level and flat plateau with the ground beginning to slope down gently, becoming steeper to the east side of the site. The 'round' afforded views along the approximate north-south ridge on which it sat, as well as to along valleys to its north-east and south-west, towards the Fowey River mouth. It also afforded views to its west towards Tywardreath, and particularly south-west, towards St Austell Bay and Carlyon Bay. Black Head, another site subject to this phase of the AONB's MI project is visible from the 'round', across Carlyon Bay. Some erosion to the monument from livestock and pathways was visible across the 'round' as well as animal sets in its ramparts. On the north side of the ramparts was a stone with an information plaque dedicated by Tywardreath Old Cornwall

Society in 1964 and south of this a stretch of ridges and furrows across a section of the outer rampart. Supporting photographs for the site inspection can be seen in Appendix 3.



FIGURE 2: VIEW ALONG THE SOUTH-WEST SEGMENT OF THE INNER RAMPART OF THE 'ROUND'; VIEWED FROM THE NORTH-NORTH-WEST (NO SCALE).

2.3 METHODOLOGY

The magnetometry and resistivity survey follow the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b).

2.3.1 MAGNETOMETRY METHODOLOGY

The magnetometry survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid- and set out using a Leica CS15 GNSS Rover GPS. The data was downloaded onto Grad601 Version 3.16 and processed using TerraSurveyor Version 3.0.36.0. The primary data plots and analytical tools used in this analysis were Shade and Metadata. A technical summary of the survey method, and data details and processing can be seen in Appendix 4.

2.3.2 RESISTIVITY METHODOLOGY

The resistivity survey was carried out using a RM15-D Resistivity Meter with an MPX15 Multiplexer module allowing for four terminal sensing using a PA20 multiprobe array with parallel twin log mode 2. These machines are sensitive to depths of up to c.1m. The survey parameters were: sample intervals of 1m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The survey grid was tied into the Ordnance Survey National Grid- and set out using a Leica CS15 GNSS Rover GPS. The data was downloaded onto- and processed using TerraSurveyor Version 3.0.36.0. The primary data plots and analytical tools used in this analysis were Shade and Metadata. A technical summary of the survey method, and data details and processing can be seen in Appendix 4.

2.3.3 ASSESSMENT OF METHODOLOGY

Both types of geophysical survey produced a usable range of results, demonstrating the potential for them to work and provide meaningful results. The magnetometry and resistivity surveys provided data that corresponded to discernable potential archaeological features. Archaeological evaluation/excavation would test the efficacy and validity of the results of the geophysical survey and aid to confirm the presence or absence of any buried archaeology resource on the site. Anecdotally more intensive magnetometry or resistivity surveying may not yield clear or accurate results if targeting- and aiming to define the extent of damage by animals, such as badger sets; although experimentation in this could be of interest. However, targeted GPR survey, focused purely on this objective might yield meaningful results.

2.4 RESULTS

Tables 1 and 2 with the accompanying Figures 3-6 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

*note on 'Class' when interpreting the resistivity survey data:

- High responses refer to readings of higher relative resistance and represent built/compact stony features or relatively hard deposits. Simplistically, these are comparable to negative responses in the magnetometry data, and both are represented in the interpretive Figures 4 and 6 in shades of blue.
- Low responses refer to readings of lower relative resistance and represent in-filled cut features or relatively soft deposits. Simplistically, these are comparable to positive responses in the magnetometry data, and both are represented in the interpretive Figures 4 and 6 in shades of red.

In this instance readings of above 255 Ohm are considered high responses and readings below 255 Ohm are considered low responses. Readings above c.320 ohm are considered strong high; and readings below c.190 Ohm are considered strong low. Responses ranging between c.235 and 270 Ohm could be considered as probable natural variation.

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TABLE 1: INTERPRETATION OF MAGNETOMETRY SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Moderate-strong positive (occasional moderate negative), probable	Curvi-linear	Ditch to outer rampart	Located around the edge of the western half of the extant ramparts to the 'round' aspect of the fort. Indicative of cut and in-filled feature such as a ditch. A parallel negative response on the north aspect of this group may be a relative response but is ostensibly an area of compacted or stony ground. This is indicative of an in-filled outer ditch to the fort ramparts with low surviving banks on the north-west side of the fort. These responses may indicate possible modifications such as a wall or in-fill material. (Prehistoric or civil war(?) modifications (MCO48; MCO57203)). Associated with Groups 2. Response strength of between +20nT and +64nT across south and west sides of the 'round'; between +13nT and +45nT with -17nT to -30nT on the north side of the 'round'.
2	Weak positive, possible	Curvi-linear	Ditch to outer rampart	Located on the south-east edge of the extant ramparts to the 'round' aspect of the fort. Indicative of a cut and in-filled feature such as a ditch. Associated with Group 1. Response strength of <+15nT.
3	Moderate positive and weak-moderate negative, probable	Linear	Ditch and bank	Located east of the 'round' aspect of the fort. Two lines of anomalies indicative of cut and in-filled features such as ditches with parallel negative responses indicative of banks or relative readings. Defines an outer earthwork east of the 'round'. Equates to a faint topographic feature visible on LiDAR imagery and the southern example corresponds to a feature depicted on a sketch plan of the site from c.1849. Response strengths of c.+15nT to +28nT, and c.-5nT to -20nT.
4	Moderate-strong positive and weak-moderate negative, probable	Curvi-linear	Ditch, possible banks	Located in the north-east part of the site. Indicative of a cut and in-filled feature such as a ditch with possible associated stony or compacted material. Slightly unusual shape may be indicative of a natural feature such as a watercourse, although this may jibe with the topography of the site and may have been modified accounting for negative responses. Defensively the negative responses might be on the wrong side of the ditch; however, these responses may be relative rather than intrinsic. Possibly associated with a Holloway(?). Response strengths of between +24nT to +84nT (ave. c.+50nT) and -10nT on the south side of the positive response and between -17nT to -46nT (ave. c.-20nT) on the north side of the positive response.
5	Moderate positive and moderate-strong negative, probable	Linear	Boundary (bank and ditches), track	Located on the east side of the site, aligned east-west. Indicative of a bank or compacted material flanked by cut and in-filled features, such as ditches. Typical of a Cornish hedgebank. However, these responses are not typically as even as typical examples (anecdotal) and the northern 'ditch'/positive response may be associated or contiguous with the extant boundary in this part of the site. Ostensibly turns at its east end and may be contiguous or associated with Group 3. Depicted as contiguous on a sketch plan of the site from c.1849. Given its location it may indicate a track leading to the entrance to the forts inner/middle earthwork and 'round'. Response strengths of c.+15nT to +30nT and -15nT to -54nT.
6	Moderate positive, probable	Linear	Ditch	Located in the south-west corner of the sites north-east field and following the line of its boundary. Indicative of a cut and in-filled feature such as a ditch associated with the site's extant boundaries and possibly part of an outer ditch to a rampart to the middle/inner earthwork. Associated with Groups 1, 2 and 5. Response strength of between <+15nT and +46nT.
7	Moderate positive, probable	Linear	Ditch	Located in the north-west corner of the site. Aligned north-east by south west with a right-angle at its north-east end running south-east. Indicative of a cut and in-filled feature such as a ditch. Possibly associated with rectification or modification to the curving boundaries afforded by the monument. Associated with Groups 8 and 28. Response strength of c.+15nT to +31nT.
8	Weak-moderate positive, possible	Intermittent linear	Hedgeline, ditch, ground disturbance	Line of intermittent responses located in the north-west of the site, parallel to Group 7. Indicative of cut an in-filled features such as a ditch or possibly hedge-row plantation or

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				ground disturbance. Associated with Groups 7 and 28. Response strength of c.+20nT.
9	Moderate positive, possible	Linear	Ditch	Located in the north-west corner of the site, parallel and adjacent to the north end of the site's west boundary. Indicative of a cut and in-filled feature such as a ditch. In this case probably associated with an in-filled boundary ditch to the extant site boundary; but due to being at the edge of the surveyable area a possible characterisation/ interpretation is a more cautious assignment. Response strength of c.+41nT.
10	Moderate positive, probable	Linear	Ditches	Located in the south-west part of the site, aligned approximately NNE-SSW. Indicative of a cut and in-filled feature, such as a ditch. Two parts with a possible gap or gateway between them. Ostensibly respecting the fort and possibly predating the existing field-system and adjacent main road. Possibly associated with Groups 11 and 12. Response strength of c.+14nT to +41nT.
11	Weak-moderate positive, probable	Linear	Ditches	Approximately three anomalies (intermittent), located in the southern half of the site, aligned approximately north-east by south-west. Indicative of cut and in-filled features such as ditches associated with a relict field-system that may be earlier phases of the extant field system. Occasionally intermittent responses may indicate gaps/gateways and/or poor survival/truncation. Associated with Group 12, which ostensibly respected the fort. Response strength of between +12nT and +23nT.
12	Weak-moderate positive and negative, probable	Linear	Ditch, boundary	Located in the south-east corner of the site, aligned approximately north-south/ NNW-SSE. Two sets of parallel positive linear anomalies flanking a negative response. Indicative of a typical Cornish hedgebank boundary: ditches flanking a bank. Occasionally intermittent responses may indicate gaps/gateways and/or poor survival/truncation. Ostensibly respects Group 3/the fort and probably related to Group 11 and possibly 10. Probably part of a relict field system that post-dates the fort. Response strengths of between +10nT to +27nT and -8nT to -22nT.
13	Weak positive, possible	Linear to Curvi-linear	Ditch, boundary	Intermittent response in the south-east corner of the site, comparable to an adjacent Group 12 anomaly. Indicative of a cut and in-filled feature such as a ditch. Intermittence and weaker relative response indicative of possible poor survival and/or truncation. Possibly associated with a relict boundary based on a parallel aspect at its southern end. Ostensibly respects Group 3/ the fort and possibly a phase in the same relict field systems as Groups 11 and 12. Response strength of <+15nT.
14	Weak positive, possible	Linear	Ditches, boundary	Two ephemeral parallel linear responses in the far north-east corner of the site. Aligned approximately east-west. Indicative of cut and in-filled features, such as ditches. Possibly associated with the extant northern site boundary and parallel agricultural activity or drainage, or an earlier alignment of this northern boundary. Weak response may indicate a shallow or poorly surviving nature. Response strength of c.+10nT.
15	Weak positive and negative, possible	Linear	Agricultural activity, drainage, disturbed ground	Located in the north-west corner of the north-eastern field. Approximately eight linear and diffuse linear anomalies indicative of both ground disturbance such as possible ditches and also stone-lined drains or drainage pipes running south-east from an access in the north boundary. These may appear to align with part of Group 3, but also with the extant access to the same field in its south-east corner and is possibly associated with Modern agricultural activity. Response strengths of <+15nT and <-8nT.
16	Weak positive, possible	Curvi-linear	Ditch	Located around most of the edge of the interior of the 'round' earthwork of the fort. Indicative of a cut and in-filled feature, such as a ditch. Weak and ephemeral response indicative of a shallow or poorly surviving nature. Possibly a simple non-defensive ditch aiding drainage from within the 'round'. A break on the north side of the 'round' currently may serve as a worn path but appears to align with a 1930s trench line (MCO48). Associated with Group 17. Associated with Resistivity Group M. Response of c.+10nT.

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17	Very weak positive and negative, possible	Linear	Bank, drain, natural striation, ploughing	Located across the inside edge of the entrance to the 'round'. Aligned along the internal bottom edge of the rampart and possibly contiguous to Group 16. Associated negative responses may equate to bank material and possible stony or compacted debris. Possibly associated with entrance remodelling or initial construction (MCO48). Also indicative of parallel compacted/stony material and possible cut and in-filled linear feature, such as a drain or plough scar or natural striation based on response strength. In the location of 'disturbed ground' according to 1930s excavation. Possibly associated with Resistivity Groups A, E and F. Response strengths of between -14nT and +10nT.
18	Weak-moderate positive, probable	Linear	Ditches, trenches	Two examples located within the 'round' aspect of the fort, aligned approximately north south and north-west by south-east. Indicative of a cut and in-filled features, such as ditches. possibly associated with 20 th century excavations (MCO48) on the site or areas of division aligned with worn access points to the ramparts/'round' located to the north and south of these anomalies. Response strength of between +8nT and +29nT.
19	Moderate negative and weak positive, probable	Curvi-linear	Bank material to ramparts	Located on the inside edge of the extant outer rampart (north and south of its extant entrance). On the north side: indicative of stony or compacted material and equating to areas of the ramparts or spread parts of the ramparts that were surveyed. On the south side equivalent parts of the rampart bank that was surveyed and shown to have a less stony/compact composition typical of presumably largely earth banks. Excavation (MCO48). Associated with Resistivity Group A. Response of c.-24nT.
20	Weak positive and negative, possible	Linear	Bank material and ditches	Located in the area between the 'round' and inner/middle earthwork entrances. Indicative of cut and in-filled features such as ditches and adjacent/accompanying possible compacted or stony material. Associated with Groups 21 and 22. Road/track side ditch and bank between earthwork entrances as excavated in the 1930s (MCO48). Associated with Resistivity Group B. Response strengths of c.+18nT and between -8nT and -17nT.
21	Moderate positive, possible	Linear spread	Ditch or hollow	Located near the entrance of the extant outer rampart, east of the 'round'. Indicative of a cut and in-filled feature, such as a ditch or levelled-up/in-filled hollow or depression. Associated with Groups 5, 20, 22. Road/track side ditch or Holloway between earthwork entrances as excavated in the 1930s (MCO48). Response strength of between +20nT and +30nT.
22	Weak positive, possible	Linear	Ditch	Located at the entrance to the 'round', between the rampart ditches. Indicative of a cut and in-filled feature, such as a ditch. Comparable to groups 20 and 21 but on a perpendicular alignment to them. Possibly associated with disturbed or made ground between the extant rampart entrances along with Groups 20 and 21 and possible excavated road/track (MCO48). Associated with Resistivity Group C. Response strength of c.+18nT.
23	Weak-moderate positive, possible	Circular	Ring-ditch, shallow-ground disturbance	Two examples located in the south-western part of the north-eastern field. Indicative of cut and in-filled features, such as ring-ditches indicative of Prehistoric structures. Broken and 'incomplete' responses may indicate poor or partial survival. These weak and intermittent responses could be examples of shallow ground disturbance; this group is in an area of evident ground disturbance visible on 21 st century satellite imagery. Response strengths of between c.+10nT and +22nT.
24	Weak positive, possible	Oval	Hollow, sunken featured building, shallow ground disturbance	Two examples in the southern part of the site indicative of hollows/depressions that could indicate Prehistoric structures. These weak and ephemeral responses could be natural or examples of shallow ground disturbance. Response strengths of <+17nT.
25	Very weak positive, possible	Curvi-linear	Natural variation, ditch fragments	Three discrete anomalies in the north-east part of the southern field. Ephemeral and fragmented responses that may typically be indicative of natural features or geological variation or shallow ground disturbance, but due to the significance of the site and location and comparable, though more discernable Group 23 responses these examples are

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				highlighted as a cautionary diligence. Response strengths of <+10nT.
26	Moderate-strong positive and moderate negative	Amorphous to sub-rectangular spread	Spread, made ground within hollows(?)	Two relatively large areas on the west side of the southern field indicative of in-filled features that may contain thermoremanent material or mixed debris. May include areas of burning or levelled and buried structures or indicate large hollows or pits in-filled with agricultural waste. Responses of between +24nT and +82nT and <-33nT across the southern example; and between +37nT and -31nT across the northern example.
27	Weak-moderate positive and very weak negative, possible	Rectangular defined by linear and oval responses	Agricultural activity, structure, pits, geological variation	Located in the north-west corner of the southern field. A roughly rectangular area of probable natural geology represented by a very weak negative response, possibly associated with shallow or compacted topsoil defined on three sides by weak positive linear responses and along one side by weak-moderate discrete anomalies indicative of pits. Possibly associated with a former storage area of open fronted barn/linhay. The apparent shape of the anomaly may be coincidental and the weak responses indicative of natural/geological variation. Response strengths of: +10nT to +17nT for linear responses; <+27nT for discrete anomalies; -4nT to -17nT for negative response.
28	Weak-moderate positive, possible	Oval	Pits, tree-throws	23 examples of discrete anomalies indicative of cut and in-filled features, such as pits or tree-throws. Some weaker examples may be associated with natural/geological variation or features. These are on a site which is peppered with ostensibly naturally occurring spikes in responses and these examples are the more convincing in respect of the sites significance and a desire to inform on the best possible potential archaeological targets. Examples in the north-west of the site may be associated with Group 8 and the planting or felling of a former hedge/tree-line boundary. Some examples ostensibly run in approximate lines and may be associated with ploughing activity. Associated with Groups 30-35. Responses of between +12nT and +44nT, typically c.+23nT.
29	Very weak-weak mixed response, possible	Amorphous spread	Shallow ground disturbance, Modern agricultural activity	Located in the south-west corner of the north-eastern field. A spread of weak dipolar anomalies indicative of a shallow spread of green waste and/or disturbed ground. This example is in the approximate location of ground disturbance evident on 20 th century satellite imagery. Response strengths between -5nT and +17nT.
30	Strong positive, probable	Oval	Pit, tree-throw	Located in the north-east part of the southern field. Indicative of a cut and in-filled feature such as a pit or tree-throw; similar and comparable to Group 28, but much stronger response. Response strength of <+67nT.
31	Strong positive, weak negative, possible	Oval	Pit, tree-throw, thermoremanent material	Located in the middle north part of the southern field. Comparable to Group 30, but with an associated negative response. This anomaly may be an instance of ferrous debris or a thermoremanent material. Not atypical in form of a burning event but represented in the interest of identifying potential anomalies of relative interest on a site of significance. Potential ferrous anomalies on the site could have civil war associations(?) (MCO48; MCO57203). Response strength of <+64nT and <-15nT.
32	Very weak negative, possible	Linear	Drains, pipelines, agricultural activity	Four linear anomalies located in the north-eastern field associated with possible agricultural activity including ploughing, drainage, pipelines and tracks between access points to the field. Very weak negative responses indicative of natural geology and shallow ground disturbance. Also aligned, probably by chance, to possible Prehistoric anomaly Group 3 and associated with Group 15. If associated with Modern ground disturbance/activity it may account for some truncation of a potential feature represented by Group 23. Response strengths of -5nT to -10nT.
33	Moderate positive, possible	Oval	Pits, postholes	Approximately nine discrete anomalies located within the 'round' of the fort. Indicative of cut and in-filled features such as pits or postholes. Similar natural/geological responses occur on the site and may account for some of these. Small discrete features, such as postholes, are often not discernable this level of survey; however, excavations on the site record posthole features of c.3m in diameter (MCO48,

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				MCO19317, MCO26665; MCO26666). Associated with Groups 34, 35. Associated with Resistivity Groups J and possibly L. Response strengths of +18nT to +34nT (typically c.+22nT).
34	Weak-moderate positive, possible	Oval	Pits, postholes	Approximately eight discrete anomalies located within the 'round' of the fort. Comparable to Group 33, although generally on the weaker side of response strength. These examples are in the general location of- and may equate to excavated features on the site (MCO48, MCO19317, MCO26665; MCO26666). Associated with Resistivity Groups H and possibly K. Response strengths of +13nT to +22nT
35	Weak-moderate positive, possible	Oval	Pits, postholes	Four examples of discrete anomalies comparable to Group 33 but within an approximately square pattern; within the north half of the 'round' part of the fort. Two of these examples have a response strength of +18nT while two are weaker and might typically be discounted as probable natural anomalies; however the presence of known features/four-post structures in this part of the site (MCO48, MCO19317, MCO26665; MCO26666) and lack of typically definitive associable responses to features means the possibility of these responses representing a group of features should be considered. At the north-west end of Resistivity Group I Response strengths of +12nT/15nT to +18nT.
36	Moderate negative, possible	Oval	Compacted or stone deposit, bank material, Modern excavation	Located on the north-east edge of the interior of the 'round'. Indicative of a stone/stony or compacted deposit approximately adjacent to- or within the limits of excavations in the 1930s (MCO48). Stone was identified as possible revetment of rampart construction in this part of the earlier excavation. Possibly associated with Resistivity Group A. Response strength of c.-27nT.
37	Moderate-strong positive, probable	Sub-oval/ amorphous	Bank and postholes, disturbed ground/ excavation	Located on the inside of the 'round' and south side of its entrance. Indicative of possible cut and in-filled feature. Although it has no clear pattern, it is in the location of postholes and stonework identified in 1930s excavations associated with bank and entrance remodelling or construction (MCO48). Possibly indicative of structures including gateway structure. Possibly associated with ground disturbance and backfill from the 1930s excavation. Associated with Resistivity Groups E and F. Response strengths of <+43nT.
38	Moderate-strong positive and negative, probable	Oval/ amorphous	Bank and postholes, disturbed ground/ excavation	Located on the inside of the 'round' and south side of its entrance. Indicative of possible cut and in-filled feature and stony or compacted material. Although it has no clear pattern, it is in the location of postholes and stonework identified in 1930s excavations (MCO48). Possibly indicative of structures, bank structure, and/or gateway structure. Possible associated with ground disturbance and backfill from the 1930s excavation. Associated with Resistivity Groups E and F. Response strengths of between +20nT to +54nT and -22nT to -34nT.
Other Anomalies				
-	Moderate-strong dipolar, probable	Point/ ovoid	Geology/ Ferrous objects/debris	The site has a handful of dipolar responses. Black crosses in Figure 4. The strongest examples are indicative of ferrous objects that are typically presumed to be Modern, such as farm machinery fragments. Potential ferrous anomalies on the site could have civil war associations(?) (MCO48; MCO57203). Similar and weaker responses can be indicative of geological features/anomalies. These are highly probable to be non-archaeological in nature. Responses of < +/-100nT.
-	Magnetic disturbance, probable	Linear/ amorphous spread	Magnetic disturbance	Typically, these types of response are near the edges of sites and fields due to the magnetic disturbance from fence lines (as at many of the edges of this survey area) as well as areas of debris and farm equipment. In this instance a water trough was present near the boundary in the north-east of the site. Represented by hatched areas in Figure 10. Responses of < +/-100nT.
-	Weak-moderate, positive and negative, probable	Alternating linears	Agricultural- or landscaping activity	Across the site, particularly noticeable in the southern field; also evident but less obviously across all parts of the survey area to varying degrees. These are regular alternating linear anomalies indicative of agricultural activity such as ploughing. Visible in shade plots of survey data. These

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				generally run parallel to the existing site boundaries. Response strengths of c.+/-6nT and into the mid-teens, +/-.
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TABLE 2: INTERPRETATION OF RESISTIVITY SURVEY DATA.

Anomaly Group	Class of resistance and Certainty	Form	Archaeological Characterisation	Comments
A	Strong high, probable	Curvi-linear	Rampart, bank	Located on the edges of the survey area. Mostly equates to bank material associated with extant ramparts and in some areas associated with shallow soil/near surface natural geology/rock within- and at the edges of extant rampart ditches. Associated with Magnetometry Group 19, and possible Groups 17 and 36. Response strength of between c.300 Ohm to 376 Ohm.
B	High, possible	Curvi-linear	Bank, rampart	Located near the entrance of the 'round' in the outer/middle earthwork. Possibly associated with remnant bank material that may have partially lined a route across the earthwork (MCO48), between its entrances. May also be associated natural variation in the geology given the wider comparative responses across the site. Associated with Magnetometry Group 20. Response strength of c.290 Ohm to 360 Ohm.
C	Low, probable	Amorphous	Ditch fill	Located at the terminus of the 'rounds' rampart ditch. Equates to probable in-fill within the ditch and possibly a feature at its edge, possibly associated with an excavated ditch/banked track (MCO48). Associated with Magnetometry Group 22. Response strength of c.230 Ohm.
D	Strong low, possible	Amorphous spread	Made-ground, hollow, deeper soil	Located in the north-east of the survey area. Indicative of a probable natural variation but equates to the area of a possible posthole structure according to excavations in the 1930s (MCO48). This area may represent a location of deeper surviving soil that could be natural (in keeping with wider relative responses) or associated with a surviving soil or in-fill within a possible Prehistoric structure. Response strength of c.180 Ohm.
E	Strong high, probable	Oval	Stony deposit or bank material	Located in the entrance to the 'round'. Indicative of a boulder or compact/stony deposit. Possibly stone fill to a posthole. Postholes were identified lining this entrance during excavations in the 1930s. Possibly associated with Magnetometry Groups 17, 37 and 38. Response strength of c.370 Ohm.
F	Weak high, possible	Sub-oval to linear	Stony/compact material, natural	Located on the east side of the interior of the 'round', just north of its entrance. Possibly natural variation or stony/compacted material. In the approximate location of a possible phase of bank/rampart material that turned into the monument. Possibly associated with Magnetometry Groups 17, 37 and 38. Response strength of c.250 Ohm.
G	High, possible	oval	Hollow, disturbed ground	Located in the east part of the 'round' part of the fort. Indicative of a spread or platform of possible stony material. In the approximate location of a post-ring structure identified in the 1930s (MCO48, MCO19317, MCO26665; MCO26666). Response strength of between c.260 Ohm to 280 Ohm.
H	Strong high, possible	Amorphous spread	Ground disturbance	Located on the south side of the 'round' part of the fort. Similar to Group G; indicative of a spread of possible stony material, but also across an area largely excavated in the 1930s (MCO48) and possibly associated with reinstated debris. Associated with Magnetometry Group 34. Response strength of between c.300 Ohm to 376 Ohm.
I	Strong high, possible	Oval	Postholes, pits, boulders, geology	Five anomalies in an approximate north-west by south-east line in the north half of the 'round' of the fort and a single comparative example on the southern edge of the inside of the 'round'. Possibly indicative of natural variation and stony deposits or stone filled pits or postholes. Similar to Group J. may be associated with features excavated in the 1930s (MCO48, MCO19317, MCO26665; MCO26666). Magnetometry Group 35 was located at the north-west end of this group. Response strength of between c.280 Ohm to 360 Ohm.
J	High, possible	Oval	Postholes, pits, boulders, geology	Located within the 'round' of the fort. Possibly indicative of natural variation and stony deposits or stone filled pits or postholes. Similar to Group I. Examples in the south-east of the 'round' may correspond with features excavated in the

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				1930s (MCO48, MCO19317, MCO26665; MCO26666). Associated with Magnetometry Group 33. Response strength of between c.270 Ohm to 338 Ohm.
K	Weak low, possible	Amorphous	Geology, ground disturbance, pits	Located on the south side of the 'round' part of the fort. Indicative of possible cut and in-filled features or deposits. Largely within an area excavated in the 1930s (MCO48) and possible associated with excavated features or deposits when backfilling of the excavation occurred. Tentatively associated with Magnetometry Group 34. Response strength of c.230 Ohm.
L	Weak low, possible	Oval	Geology, postholes, pits	Five examples of discrete anomalies near the middle of the 'round' part of the fort. Indicative of cut and in-filled features, such as pits or postholes. Possibly associated with comparable known features on the site (MCO48). Could be associated with geological variation. Possibly associated with Magnetometry Group 33. Response strength of c.230 Ohm.
M	Weak low, possible	Intermittent curvi-linear	Natural variation, ground disturbance or soil accumulation	Located along the north-west edge of the interior of the 'round'. Indicative of a series of intermittent irregular discrete anomalies that could be natural/geological or be associated with a poorly surviving feature or ground disturbance in this part of the site and near the foot of the ramparts. Associated with Magnetometry Group 22. Response strength of between c.225 Ohm to 240 Ohm.

2.5 DISCUSSION

2.5.1 OVERVIEW

The geophysical survey identified 51 groups of anomalies (1-38 on the magnetometry survey; and A-M on the resistivity survey) comprised of c.159-170 anomalies (c.101 magnetic anomalies and c.69 resistivity anomalies, some of which equate to one-another), depending on how one differentiates the responses, across the survey area as a whole. These included: three or four linear anomalies indicative of outer earthworks and features to the fort (Groups 3, 5 and possibly 6); seven linear anomalies associated with a relict field system and agricultural activity that ostensibly respected the fort (Groups 10, 11, 12 and 13); thirteen of fourteen linear ditches associated with the extant boundaries, agricultural activity and field system (Groups 6, 9, 14, 15 and 32); a curvi-linear anomaly that could be associated with further outer ramparts/ditches or a modified topographic feature (Group 4); two other linear anomalies indicative of post-Iron Age ditches or boundaries (Groups 7 and 8); approximately six magnetic linear- and spread anomalies and three high resistance anomalies associated with a possible ditch and banked track between the entrances of the extant earthworks (Groups 20, 21 and 22; and B); approximately six circular and curvi-linear magnetic anomalies and nine high and low resistance anomalies associated with extant ramparts (Groups 1, 2, 16, 17 and 19; and A, B, C, E, F and M); two linear anomalies within the interior of the inner earthwork (Group 18); three spreads associated with possible Modern activity (Groups 26 and 29); four anomalies that could be associated with possible 'roundhouses', two ring-ditches and two hollows (Groups 23 and 24); three resistance anomalies of spreads within the earthworks associated with previous excavations and possible locations of structures (Groups D, G and H); discrete anomalies and a spread associated with ground disturbance or a structure (Group 27); twenty-four discrete magnetic anomalies associated with possible pits, tree-throws or deposits outside the inner earthwork (Groups 28, 30 and 31); and approximately twenty-eight discrete magnetic anomalies and approximately fifty-four discrete resistance anomalies within the inner earthwork associated with possible pits, postholes or tree-throws (Groups 25, 33, 34, 35, 36, 37, 38, I, J, K and L). Additional visual interpretations of the data and cartographic sources supporting the discussion and comments can be seen in Appendices 1 and 2.

Instances of magnetic debris associated with ferrous debris or weak geological variations were also evident in the survey data as were a large number of striations typically indicative of agricultural works such as ploughing. Single points of magnetic debris are commonly attributed to fragments of farm machinery, however, 17th century battlefield finds have been recovered from the Castle Dore

ridge by metal detectorists and at Castle Dore during the 1930s excavations of the site and artefacts could still account for such responses. Agricultural activity across the entire site, including within the inner earthwork, as evident in the survey data and on satellite imagery may have truncated any buried archaeological resource. Previous archaeological excavations within the earthworks may have truncated some of the buried archaeological resource and may obfuscate the geophysical responses of underlying archaeological anomalies.

Regarding the magnetometry survey, the general 'noise' (inherent geological variation) of the site was relatively moderate across the site, $<c.\pm 6nT$, with occasionally higher fluctuations $<\pm 20nT$. Anomalies of a comparable strength are probably/possibly natural and geological in nature. Typically, responses in the teens and above would be discussed as potential archaeological features; in this case parts of the site have been subject to previous excavation that may have affected the geophysical record. In terms of the resistivity survey, responses of between $c.235 \text{ Ohm}$ and $c.270 \text{ Ohm}$ are of possible natural/geological origins or variation; although, as in a magnetometry survey, the potentially ephemeral and subtle nature of archaeological deposits or features could be visible or not within this data set/range.

The significant results from this survey will be discussed in relation to: the inner earthwork/'round'; the outer/middle earthwork; relict earthworks beyond the ramparts and their internal anomalies; and additional anomalies across the wider survey area.

2.5.2 THE INNER EARTHWORK/'ROUND'

Due to the archaeological significance of the site and the proven potential for this part of it to contain postholes (MCO48) anomalies that could arguably be discounted have been identified as the best examples to potentially equate to- or be comparable to the known archaeological resource. These anomalies constitute $c.82$ discrete anomalies (Groups 25, 33, 34, 35, 36, 37, 38, I, J, K and L) that could represent pits or postholes or tree-throws or similar geological or natural anomalies that could account for these responses. Some of these responses are discernable in the resistivity survey as possible stone deposits. The 1930s excavations revealed stone packed postholes that were up to $c.1m$ in diameter (MCO48). Some of these anomalies may form patterns that correspond to hut circles (some of Groups J and 34) and four-post structures (e.g. Group 25). Depending on the source between $c.10$ and $c.20$ hut circles are probably present in the interior of the fort as well as recti-linear alignments of stone-packed postholes (MCO19317; MCO26665; MCO26666).

Within the resistivity survey some of the Group J anomalies that form an approximate circular pattern surround a spread of higher relative resistance (Group G). This spread could represent a buried interior surface to a structure; however, it is in an area that was subject to excavation in the 1930s and the impact of ground disturbance could be responsible for this or similar responses. An adjacent and comparable spread of relatively high resistance (Group H) is larger and corresponds more broadly to an area of 1930s excavation and is possibly indicative of reinstated ground with a relatively higher stone content or shallower soil over a compact or stony natural. A line of relatively large discrete anomalies of relatively higher resistance (Group I) is of interest and may denote/relate to an internal boundary or division to the earthwork.

The 1930s excavations significantly identified probable changes to the ramparts, particularly the entrance, including internal returns to the ramparts, added stone revetments, and postholes. Anomalies that possibly correspond to these features or related features include Groups 17, 37-9, F and E. Group 17 was an ephemeral anomaly that could be associated with ground disturbance and corresponds to an area described as disturbance in the 1930s excavation reports. The possibility of the rampart bank once turning into the fort to form an entrance was indicated in the excavations and may be alluded to by a general weak variation in the data set at the entrance of the inner earthwork. Group A directly corresponded to the extant rampart, while Groups 16 and M

ostensibly relate to an internal feature around the inside edge of the rampart, such as a ditch; however, they may be indicative of a relative response to the distinct rampart readings or associated with shallow ground disturbance around the edge of the interior. A gap in the Group 16 anomaly on the northern side of the inner earthwork ostensibly defines a path, but also corresponds to the location of an excavated trench (MCO48). The possible feature may have been truncated, or in-filled in a way that obscures its geophysical signature.

Finally, two possible ditches (Group 18) may represent shallow ground disturbance that is post the 1930s excavation. The southern example runs across a largely excavated part of the site but no corresponding feature seems to have been recorded in that location. The northern example ostensibly extends south from an excavated trench. These anomalies may represent ground disturbance associated with or subsequent to the 1930s excavations. A possible, though unproven, source of some features within the inner earthwork could be Medieval to Modern uses, such as a traditional 'playing place' or venue; particularly given its prominent and nodal location.

2.5.3 THE OUTER/MIDDLE EARTHWORK

The outer extant earthworks survived well on the ground and a number of anomalies directly relate to these: Groups 1, 2, 19/A. Parts of these indicate an earth bank, a stony bank and probable in-filled ditches. Stone revetment of the ramparts during a remodelling of the Iron Age fort may account for aspects on the north-west examples of Group 1. Although previous excavations date known remodelling phases to the Iron Age and Romano-British period, it is possible that repairs and remodelling could have taken place during impromptu defences during the civil war battle of Lostwithiel (MCO57203). Group C represents a possible in-fill within and at the edge of a rampart ditch; however, it is also adjacent to an area of magnetic disturbance that is indicative of probable Modern of ferrous debris or waste.

The identified anomalies between the entrances between the ramparts (Groups 20, 21, 22 and B) loosely correspond to archaeological features identified during the 1930s excavations. These included a road or track, which may be represented by a spread of material (Group 21). This road was apparently lined by banks and ditches, which would correspond to Groups 20 and B. These anomalies also define possible gaps that were identified and speculated upon to provide access to the areas between the two extant ramparts. A possible aspect of this road, but also possibly a ditch feature may have run across this track or the entrance to the inner earthwork at some point (Group 22).

A possible spread of material of in-filled hollow (Group D) was located to the north of the road/track in the middle/outer earthwork. It may indicate possible natural variation in the geology, but also possible depth variations of soil or a hollow. The 1930s excavations recorded a variation in depths of feature below the turf that may be accounted for by natural or man-made hollows or simply variation in depths of the natural. This spread is also in the location of a possible identified structure, represented by postholes in the 1930s. This spread could be associated with this identified structure, natural variation, or soil accumulation at the foot of the rampart bank.

2.5.4 RELICT EARTHWORKS BEYOND THE RAMPARTS AND THEIR INTERNAL ANOMALIES

A relict outer earthwork to the fort was represented by anomalies indicative of probable ditches with banks (Group 3), to the east of the extant earthworks. These generally appear to of had internal banks and external ditches, although with a possible outer bank and small additional outer ditch to the example of this group in the north-eastern field. That the northern example doesn't extend westward, beyond the west boundary of the north-east field indicates that this may have turned southwards to be contiguous with the southern part of the west boundary and adjoined the extant rampart. An anomaly indicative of a boundary ditch (Group 6) in the south-west of the north-

east field may be associated with the current field system and boundaries but may relate to the Iron Age and/or later earthworks; both the extant outer rampart and Group 5. A possible division to this outer earthwork enclosure appears to run along the line of the boundary between the southern and north-east field (Group 5). Part of this division may also represent a track leading into the extant earthwork. A c.1849 sketch plan of the site depicts an earthwork that follows the alignment of Group 5 and the southern example of Group 3. This outer earthwork is divided into a northern and southern enclosure. The NMP depicts earthworks or cropmarks that could approximately correspond to these outer earthworks. The southern NMP lines depict an internal line to the Group 3 anomaly and may indicate differential soil depths accounting for cropmarks adjacent to a former boundary (Group 3) or the angle of a shadow accounting for the NMP lines. The NMP lines in the north-eastern field appear to fall between Groups 3 and 4, and may be more associated with Group 4, but as surface evidence these features may be difficult or impossible to differentiate.

In the northern enclosure were anomalies indicative of two possible partial ring-ditches (Group 23). Such features could be indicative of Prehistoric structures; however, they have relatively low response strengths and could be indicative of shallow ground disturbance associated with agricultural activity, such as ring-feeders or wheel ruts. Magnetic anomalies indicative of possible stony drains or ploughing ran approximately east from the entrance in the west boundary to the field (Group 36). The activity responsible for these anomalies may account for the ostensible partial truncation of the Group 23 anomalies/ring-ditches. A spread of mixed magnetic responses (Group 29) indicative of shallow ground disturbance ostensibly equates to an area of Modern ground disturbance that is visible on satellite imagery.

In the southern enclosure a series of small, slightly irregular anomalies (Group 25) have been identified as possible remnants of a severely truncated archaeological resource. The magnetic responses across the site include a large number of weak irregular variation that is ostensibly natural variation. However, given the significance of the site and possibility for geophysical survey to not clearly identify all potential features these more distinct examples have been identified. They may represent settlement or agricultural activity, or natural/geological features.

Three discrete anomalies indicative of pit, tree-throw type features will be grouped into the discussion in section 2.5.5.

2.5.5 ADDITIONAL ANOMALIES ACROSS THE WIDER SURVEY AREA

The most prominent anomaly beyond the fort and its ostensible outer earthwork (Group 3) is the broad anomaly in the north-east corner of the site (Group 4). This may allude to an additional ditch to the fort with possible bank material flanking either side. It runs from the lane on the site's north boundary, which may utilise a Holloway or defensive feature, and an ostensibly natural dry valley/stream that was possibly utilised as a Holloway along the east boundary of the site.

The southern field is dominated by a relict field system (Groups 11, 12 and 13) and a probable ditch (group 10) that ostensibly respects, and therefore post-dates the fort, including its outer earthwork (Group 3). These anomalies approximately run parallel and perpendicular to the extant field-system and their slightly curving form in plan may indicate that they are a relict part of the wider Medieval fieldscape as described in Cornwall's HLC. The Group 12 anomalies may be indicative of Cornish hedgebanks, with a central bank flanked by ditches. These may have been severely truncated by Modern ploughing based on the intermittence and strength of the responses. If these do represent more typical Cornish Hedgebank boundaries, it may highlight the large nature of the anomalies associated with and possibly contemporary to the Iron Age fort.

Probable boundary ditches associated with the extant field boundaries are represented by Groups 9 and 14. Group 9 is ostensibly a silted-up of in-filled bank-side boundary ditch at the north end of

the site's west boundary. In the north-east corner of the site, the parallel Group 14 anomalies may indicate an earlier or original route to the lane along the north side of the site. This route or boundary may have been modified for some reason. The northern example may have serviced the existing boundary and the southern may merely be an off-set ditch or some other activity. These are both relatively weak responses and may not survive in a substantial condition.

The linear anomalies in the north-west corner of the site (Groups 7 and 8) seem to run along the edge of the forts outer earthwork and presumably respect this. They may indicate an attempt to rectify- and form a straight working route around the monument for farming purposes. An approximate right angle in Group 7 may allude to a divided-off area. Group 8 runs parallel to Group 7 and is comprised of a line of intermittent 'blobs'. These may be indicative of an irregular form of shallow ground disturbance, but planted hedging can leave intermittent linear pit-like features.

Spreads in the southern quarter of the site (Groups 26 and 27) could represent Modern agricultural activity or former demolished agricultural buildings. The two Group 26 anomalies have strong responses of a mixed nature that seems to indicate that something has been buried or filled in in these locations. The responses are predominantly positive and therefore not atypical of thermoremanent debris, indicating that if they had been the locations of structures that they would not have had much ceramic building material. Furthermore, although large, these spreads are relatively well defined that may indicate that a structure has not been spread particularly wide. These responses may indicate hollows that have been levelled-up with agricultural waste or large pits or dumps typical of Modern farming practices, particularly near the edges of fields. Group 27 is the north-west entrance to the site and has a relatively rectangular form in plan. It's very weak negative response may indicate shallow ground disturbance or compaction across the area, with positive anomalies indicating possible structural features such as posts, pits or beam slots that defined a storage area of lincay. This is an unusually forward interpretation of an otherwise modest geophysical anomaly that could simply be regarded as possible ground disturbance with associated discrete possible pit-like anomalies.

Two 'hollows' in the southern part of the site (Group 24) are identified as a precaution. These are the most evident potential hollows that could equate to Prehistoric structures, such as roundhouses. These anomalies are extremely ephemeral, and ploughing can evidently be seen to transect them. Although tentative, it would be remiss not to highlight the most likely potential areas of significance at such a potentially significant monument.

A broad spread of possible pits or tree-throws or similar type features extends across the site (Groups 28, 30, 31). The broad spread of these anomalies may be indicative of a formerly wooded area and given the potentially high magnetic spikes in geological variation on the site it is probable that the majority of these anomalies represent natural or geological features. One could discern an approximate line of these anomalies around the south-east edge of the extant ramparts, perhaps indicative of activity respecting the line of the earthworks. The two examples in the north-west corner of the site may be associated with Group 8; and if Group 8 were a hedge-line feature then these pit-like anomalies may represent more substantial plantations or tree-throws. Two responses associated with these anomalies, Groups 30 and 31, are more distinctive and convincing as potential features that may be of a more substantial nature or contain more responsive material or debris.

Finally, a series of linear anomalies in the north-east of the site (Group 15) ostensibly relate to agricultural activity, including ploughing activity or shallow ground disturbance from farm machinery, and drainage and possible pipelines. These anomalies run between gateways into the north-eastern field, along its north boundary and in its south-east corner. They approximately align with part of the Group 3 banked ditch anomaly, which as the predominant geophysical response possibly obscures these more ephemeral and possibly shallow Group 15 anomalies.

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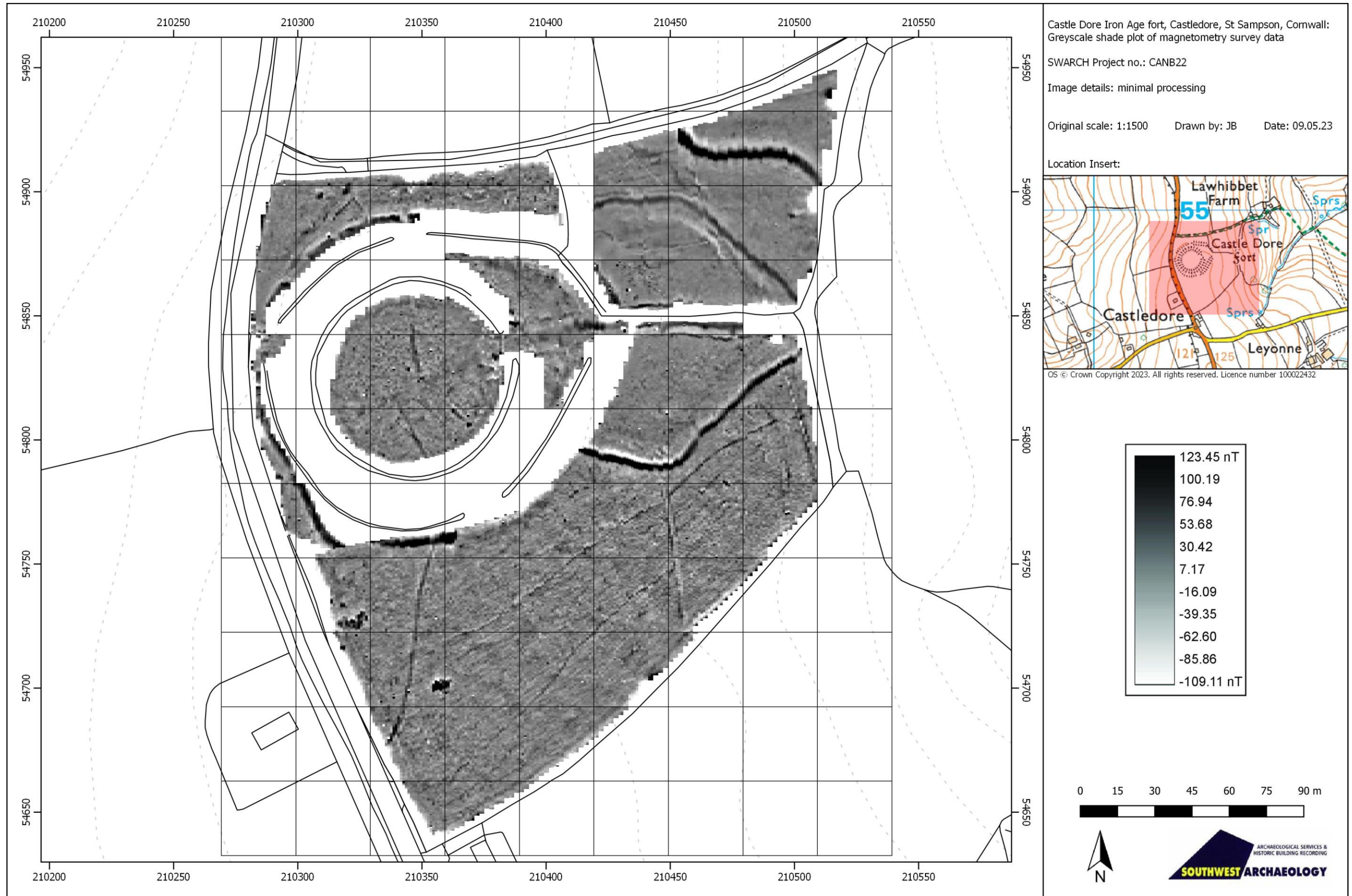


FIGURE 3: GREYSCALE SHADE PLOT OF MAGNETOMETRY SURVEY DATA; MINIMAL PROCESSING.

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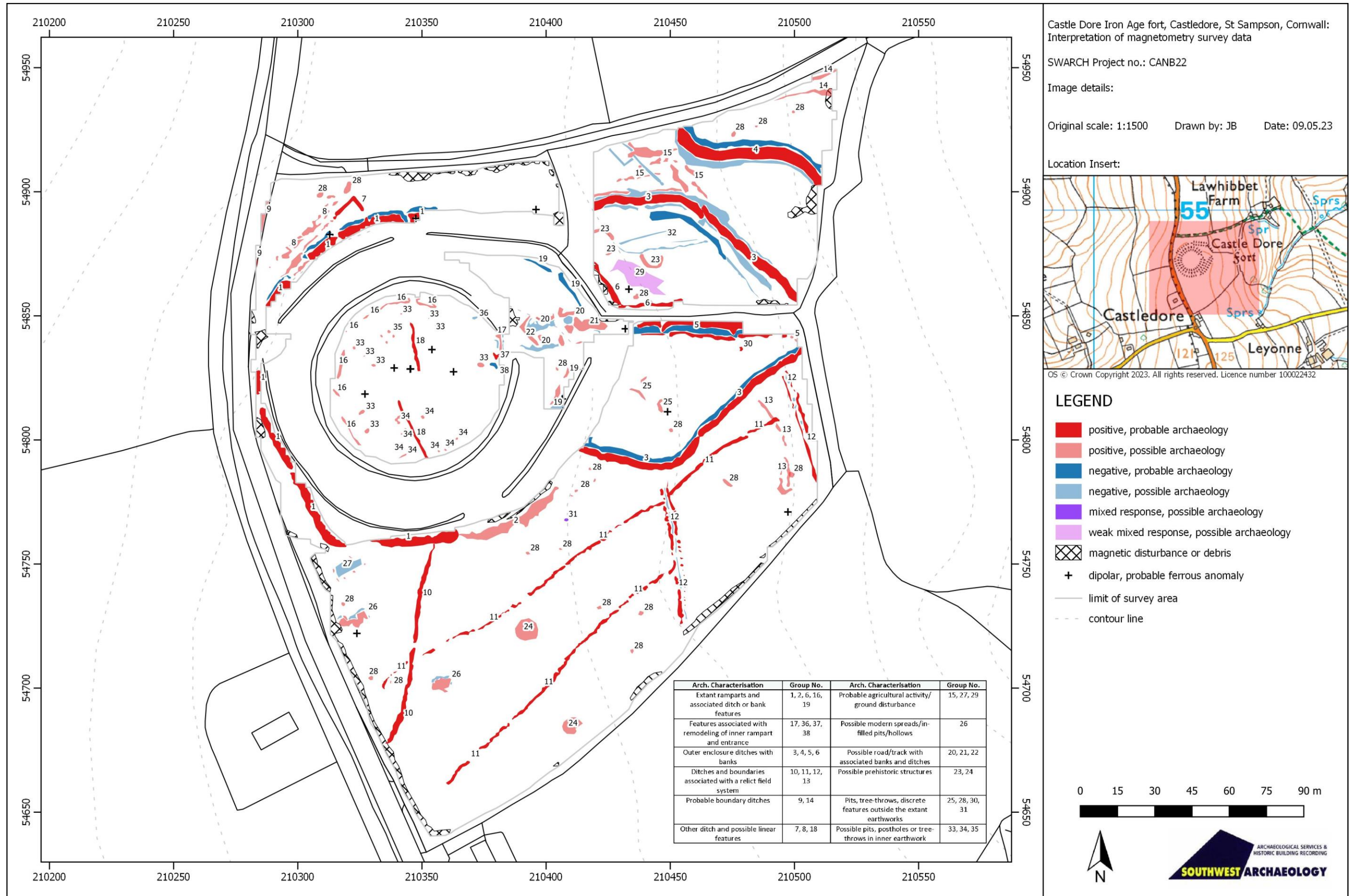


FIGURE 4: INTERPRETATION OF MAGNETOMETRY SURVEY DATA.

CASTLE DORE IRON AGE HILLFORT, CASTLEDORE, ST SAMPSON, CORNWALL

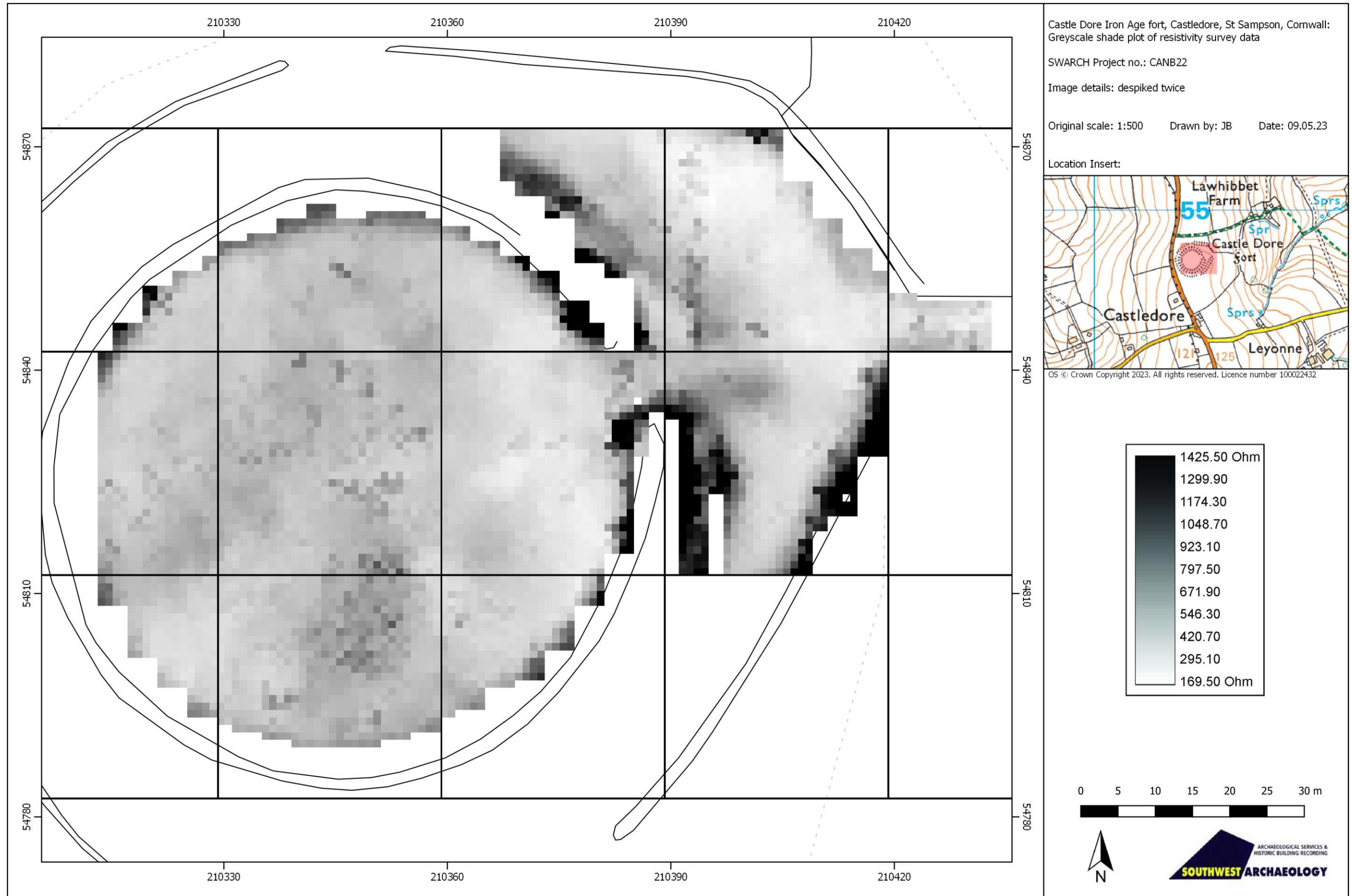


FIGURE 5: GREYSCALE SHADE PLOT OF RESISTIVITY SURVEY DATA; MINIMAL PROCESSING.

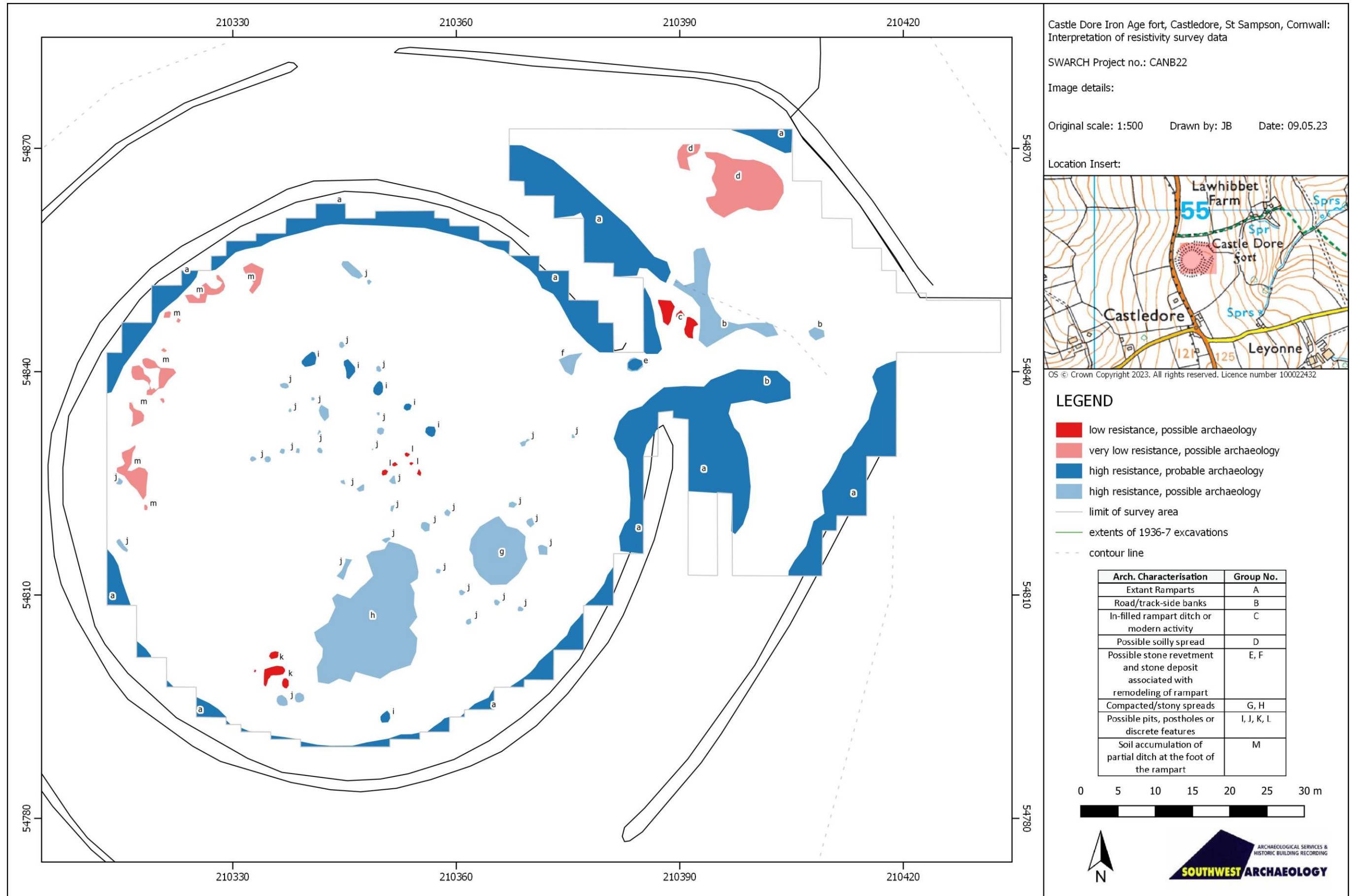


FIGURE 6: INTERPRETATION OF RESISTIVITY SURVEY DATA.

3.0 CONCLUSION

The site is located at the Scheduled Iron Age Castle Dore Hillfort (HER no.26690), near crossroads on the B3269 between Lostwithiel, Fowey, Golant and Tywardreath. The hillfort is on an approximate north-south ridge, in farmland recorded as Medieval; and is within a Cornwall area of the AONB. It is accessed via a public footpath off of the B3269. The site is within the boundary of a registered Civil War battlefield and troops are recorded as taking refuge there during the battle (MCO26703). 4th century BC to 1st century AD finds were recovered from the site and numerous posthole structures and rampart modifications identified during excavations in 1936 and 1937 (MCO417; MCO418; MCO419; MCO19317; MCO26665; MCO26666). This phase of geophysical survey was requested as part of the AONBs Monumental Improvement project.

The geophysical survey identified 51 groups of anomalies (1-38 on the magnetometry survey; and A-M on the resistivity survey) comprised of c.159-170 anomalies, depending on how one differentiates the responses, across the survey area as a whole. These included: three or four linear anomalies indicative of buried outer earthworks and features to the fort; seven linear anomalies associated with a relict field system and agricultural activity that ostensibly respected the fort; thirteen of fourteen linear ditches associated with the extant boundaries, agricultural activity and field system; a curvi-linear anomaly that could be associated with further outer ramparts/ditches or a large modified topographic feature; two other linear anomalies indicative of post-Iron Age ditches or boundaries; approximately six magnetic linear- and spread anomalies, and three high resistance anomalies associated with a possible ditch and banked track between the entrances of the extant earthworks; approximately six circular and curvi-linear magnetic anomalies and nine high and low resistance anomalies associated with extant ramparts; two linear anomalies within the inner earthwork; three spreads associated with possible Modern activity; two possible ring-ditches and two hollows that could be associated with possible 'roundhouses'; three resistance anomalies of spreads within the earthworks associated with previous excavations and possible locations of structures; discrete anomalies and a spread associated with ground disturbance or a structure; twenty-four discrete magnetic anomalies associated with possible pits, tree-throws or deposits outside the inner earthwork; and approximately twenty-eight discrete magnetic anomalies and approximately fifty-four discrete resistance anomalies within the inner earthwork associated with possible pits, postholes or tree-throws.

The most significant anomalies in broadening the understanding of this monument are: probable outer earthworks forming two or more additional areas on the east side of the extant fort; potential Prehistoric structures outside the extant fort; a relict, probable Medieval field system on the south side of the fort; and potentially corroborating evidence regarding the presence of post-structures and rampart modifications within the inner ramparts. Of additional interest are: the mysterious, but probable Modern large spreads or deposits in the south-east of the site; and the spread of pits or tree-throws across the wider area.

Instances of magnetic debris associated with ferrous debris or weak geological variations were also evident in the survey data as were a large number of striations typically indicative of agricultural works such as ploughing, including within the inner earthwork. Single points of magnetic debris are commonly attributed to fragments of farm machinery; however, as the site of a 17th century battlefield finds have been recovered from the site and similar historically significant artefacts could still account for such responses. Agricultural activity across the site may have truncated any buried archaeological resource. Previous archaeological excavations within the earthworks may have truncated some of the buried archaeological resource and may obfuscate the geophysical responses of underlying archaeological anomalies.

Although the surveys have ostensibly succeeded in identifying probable archaeological resources, the nature of known features within the inner earthwork; being relatively small discrete features; does not typically lend itself to being easily identified in these forms of survey. However, in this case we have attempted to identify the most probable corresponding anomalies. Intrusive archaeological works would test the efficacy and validity of the results of the geophysical survey and aid to confirm the presence or absence of any archaeology resource on the site.

3.1 RECOMMENDATIONS ON MONUMENT MANAGEMENT AND FURTHER WORKS

Other than the confusion in geophysical signature terms between possible man-made pits and similar natural/geological features, the survey shows that probable significant archaeological activity has survived in the geophysical record despite agricultural activity. However, this significant activity is in the form of potentially relatively large features; while the condition of potential smaller/less deep archaeological resources may have suffered a relatively substantial level of truncation. For this reason, a monitoring process of depths of ploughing or soil turn-over on land beyond the extant ramparts may be prudent. Similar to COSMIC – the Conservation Of Scheduled Monuments in Conservation projects framework (Oxford Archaeology 2014) as used by Historic England, but preferably modified to be more pragmatic and useful/informative. Alternatively, and in addition, an extension of the Scheduled area to encompass the western outer enclosure ditches/banks/ramparts could be established; and or excavation or evaluation trenching, in agreement with the landowner, could be conducted across the southern field and perhaps the north-eastern field. This work could be a community based endeavour.

Further geophysical survey designed to specifically measure or assess bioturbation on the Scheduled Monument, in particular its ramparts, could be attempted via GPR survey. Anecdotally more intensive magnetometry or resistivity surveying may not yield clear or accurate results in targeting- and aiming to define the extent of damage by animals, such as badger sets; but as an experimental and publishable experiment methods could be designed to attempt this. Such experiments would target very small areas and potentially be rather time-consuming for little gain, while GPR might be adequate to the task as standard.

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APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY

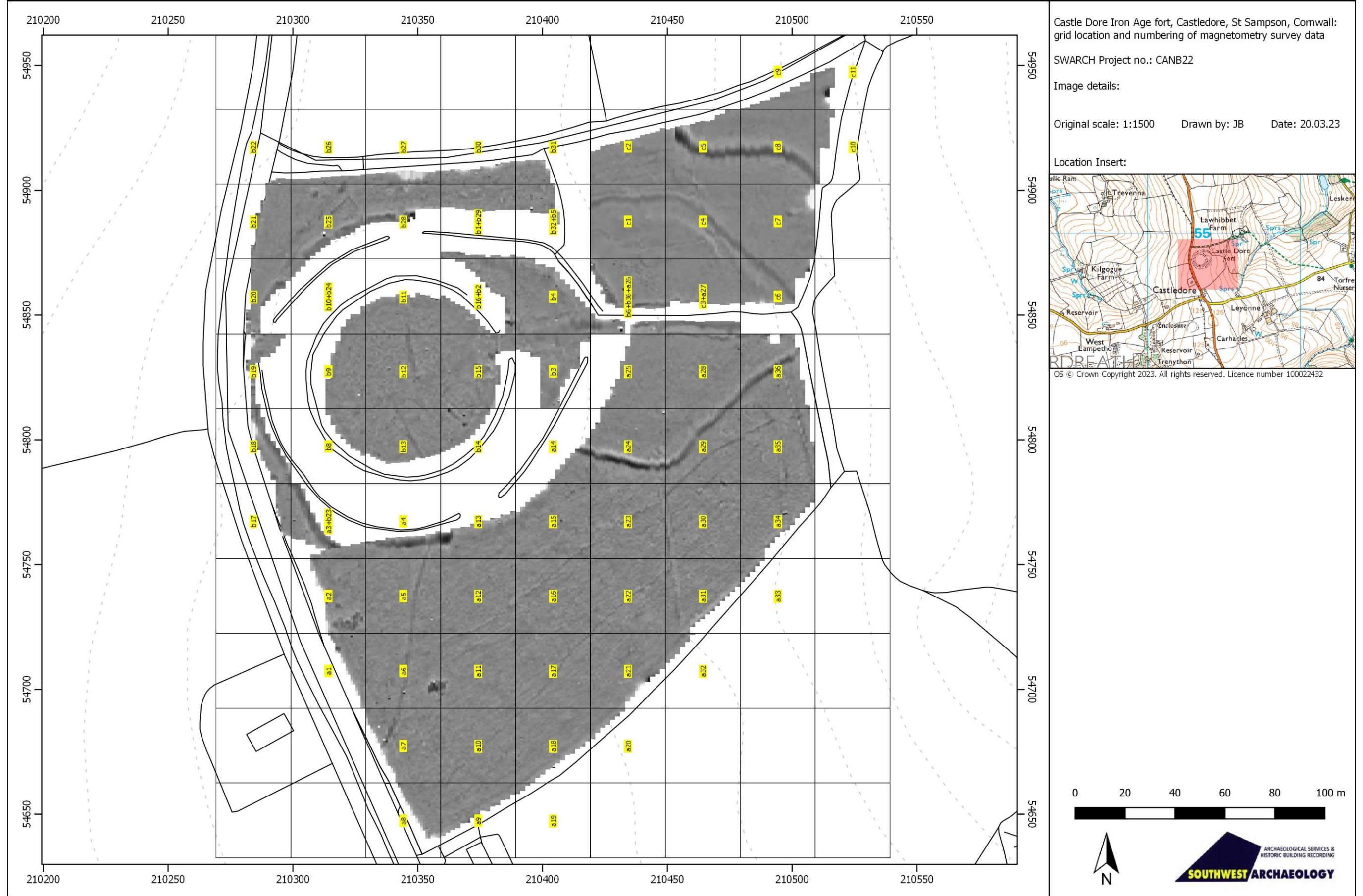


FIGURE 7: MAGNETOMETRY SURVEY GRID LOCATION AND NUMBERING.

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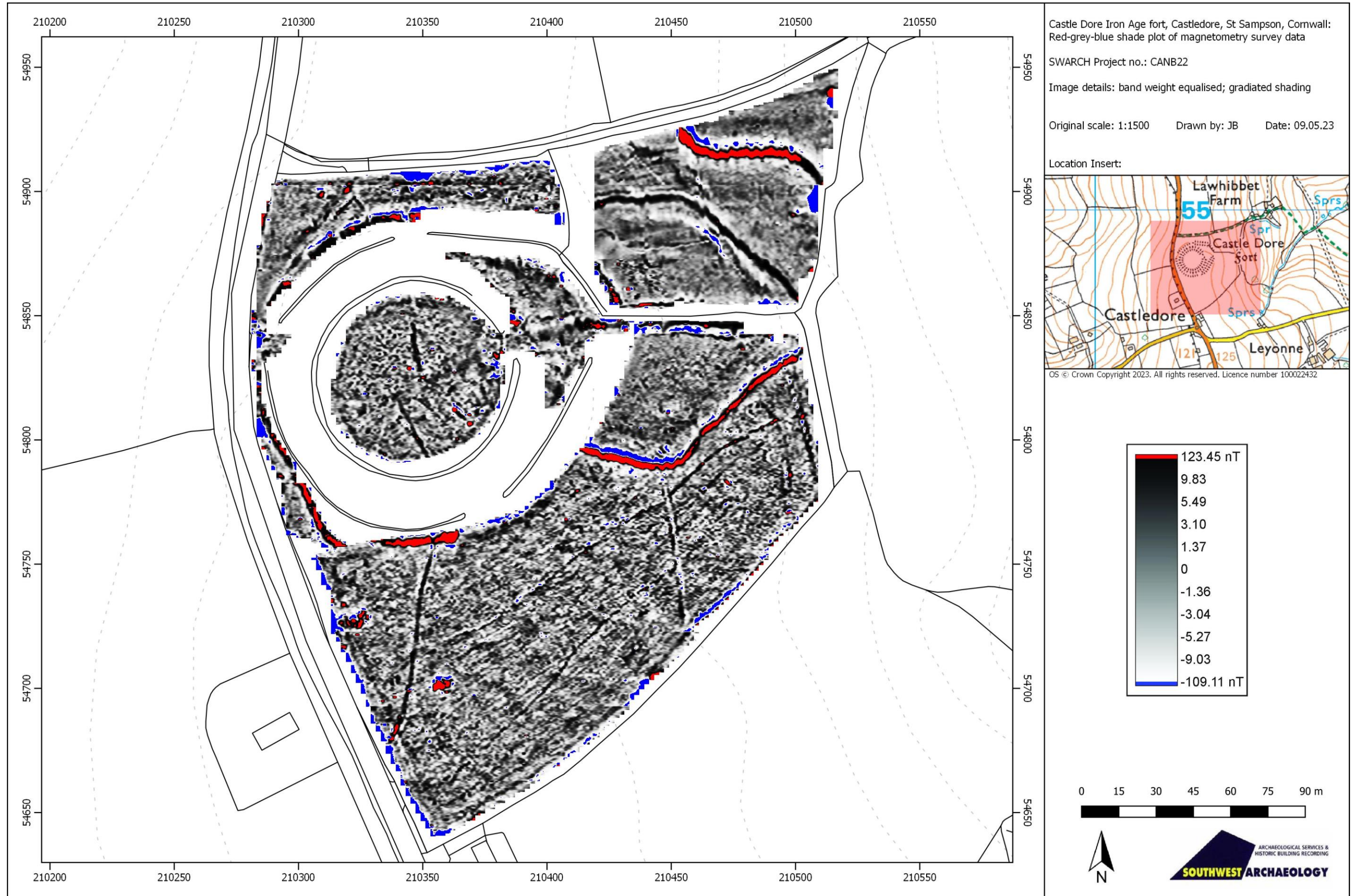


FIGURE 8: RED-GREY-BLUE SHADE PLOT OF MAGNETOMETRY SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

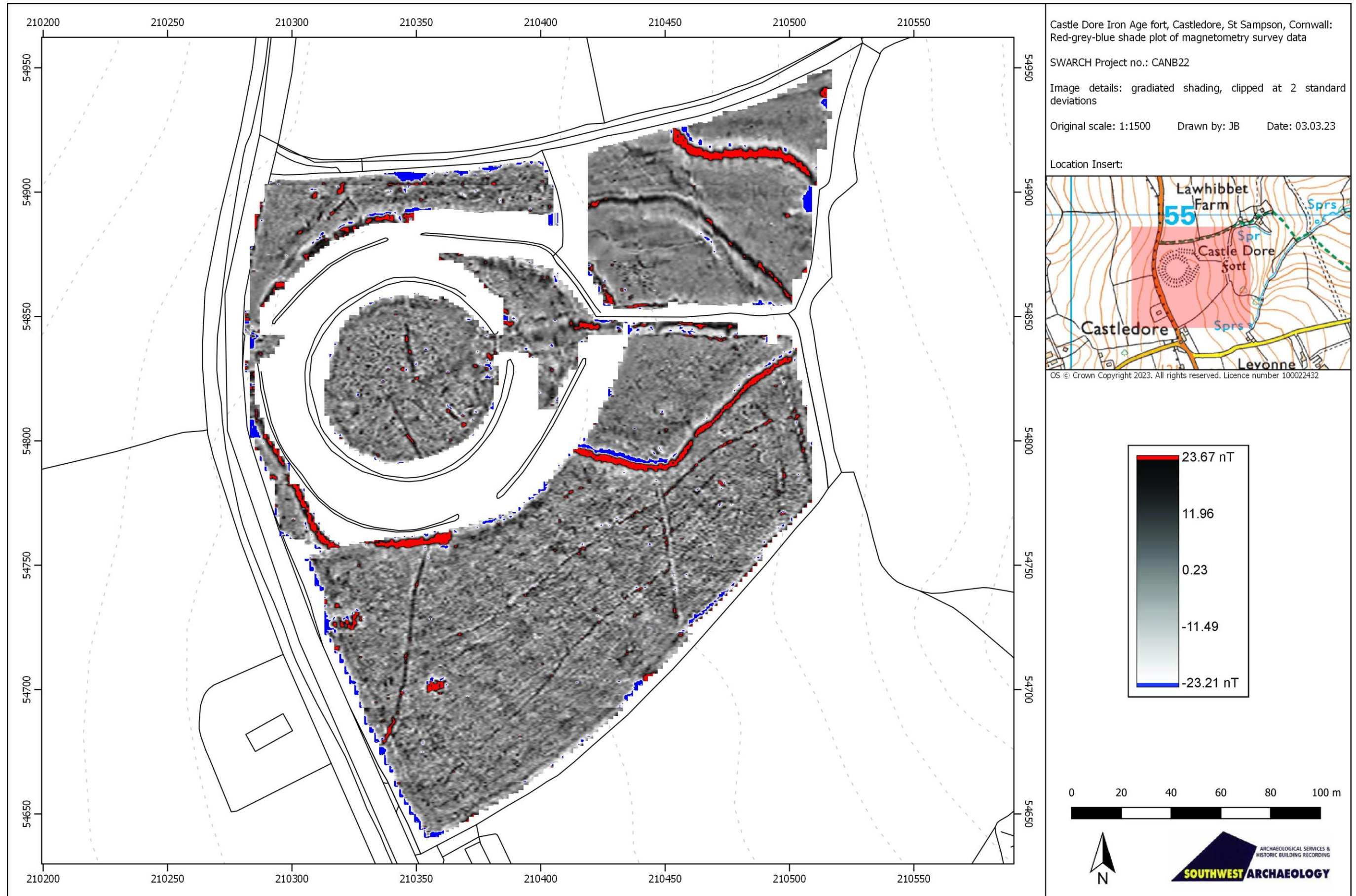


FIGURE 9: RED-GREY-BLUE SHADE PLOT OF MAGNETOMETRY SURVEY DATA; CLIPPED AT 2 STANDARD DEVIATIONS (SD).

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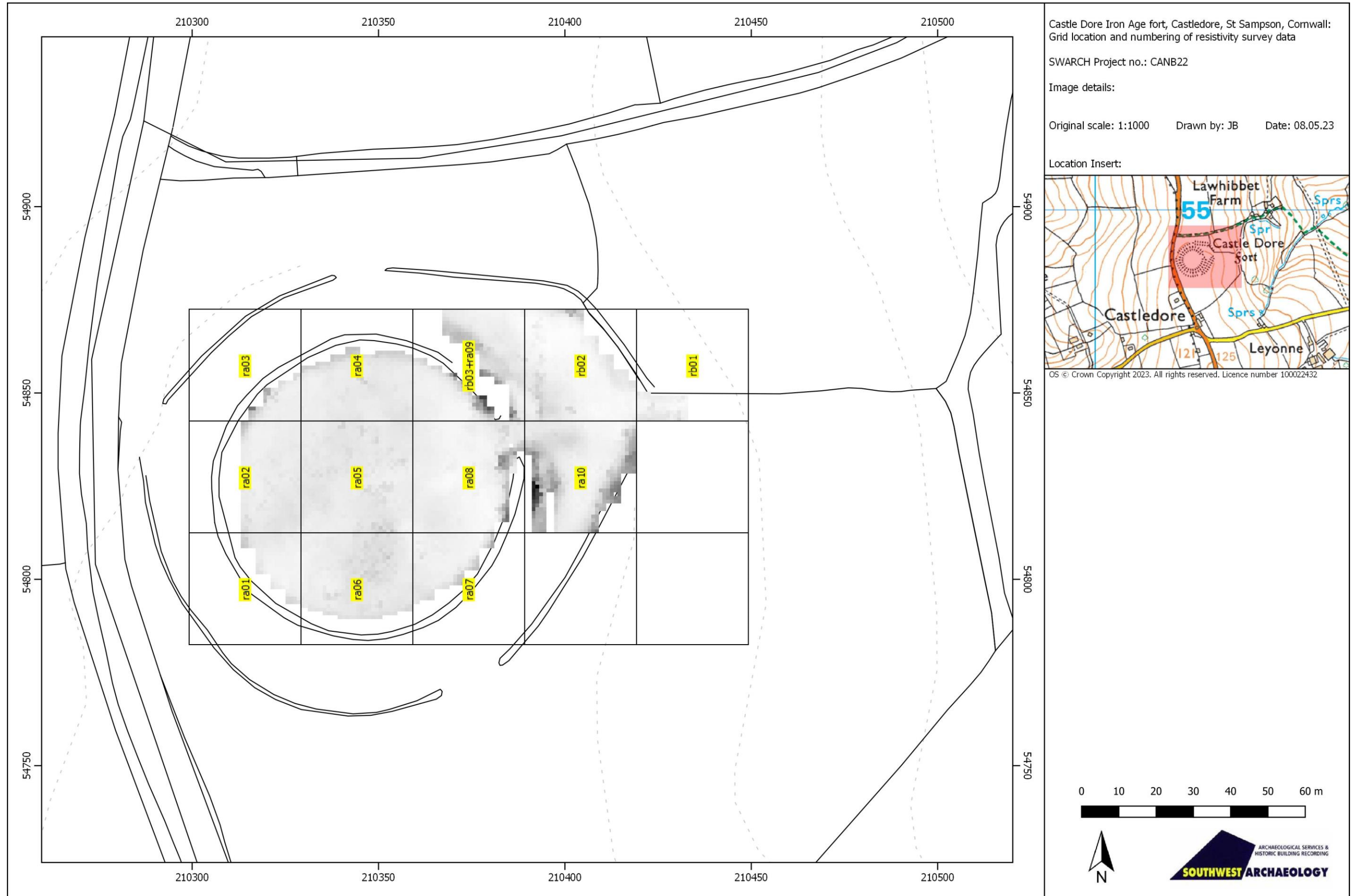


FIGURE 10: RESISTIVITY SURVEY GRID LOCATION AND NUMBERING.

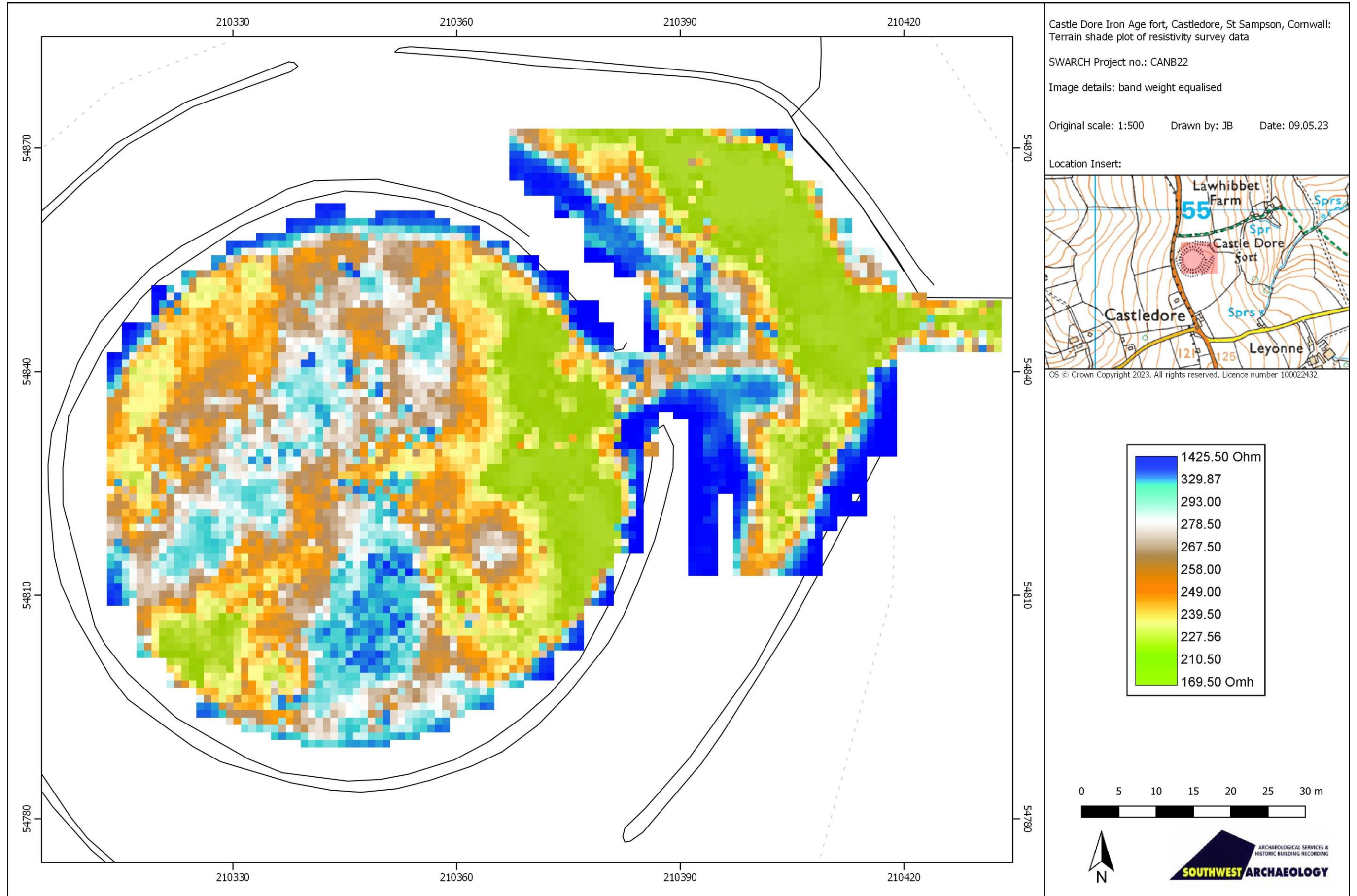


FIGURE 11: TERRAIN SHADE PLOT OF RESISTIVITY SURVEY DATA; BAND WEIGHT EQUALISED.

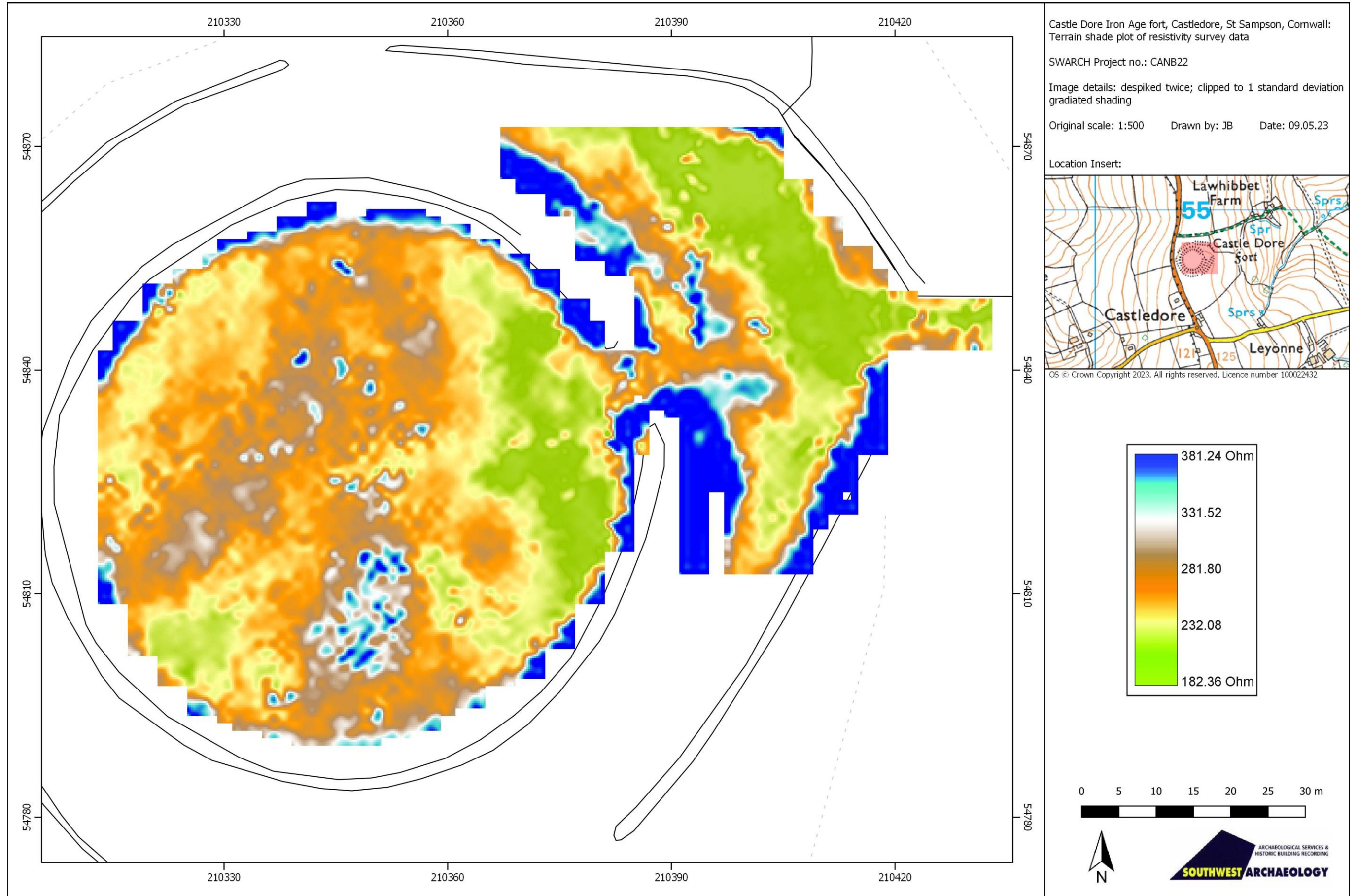


FIGURE 12: TERRAIN SHADE PLOT OF RESISTIVITY SURVEY DATA; CLIPPED TO 1 STANDARD DEVIATION.

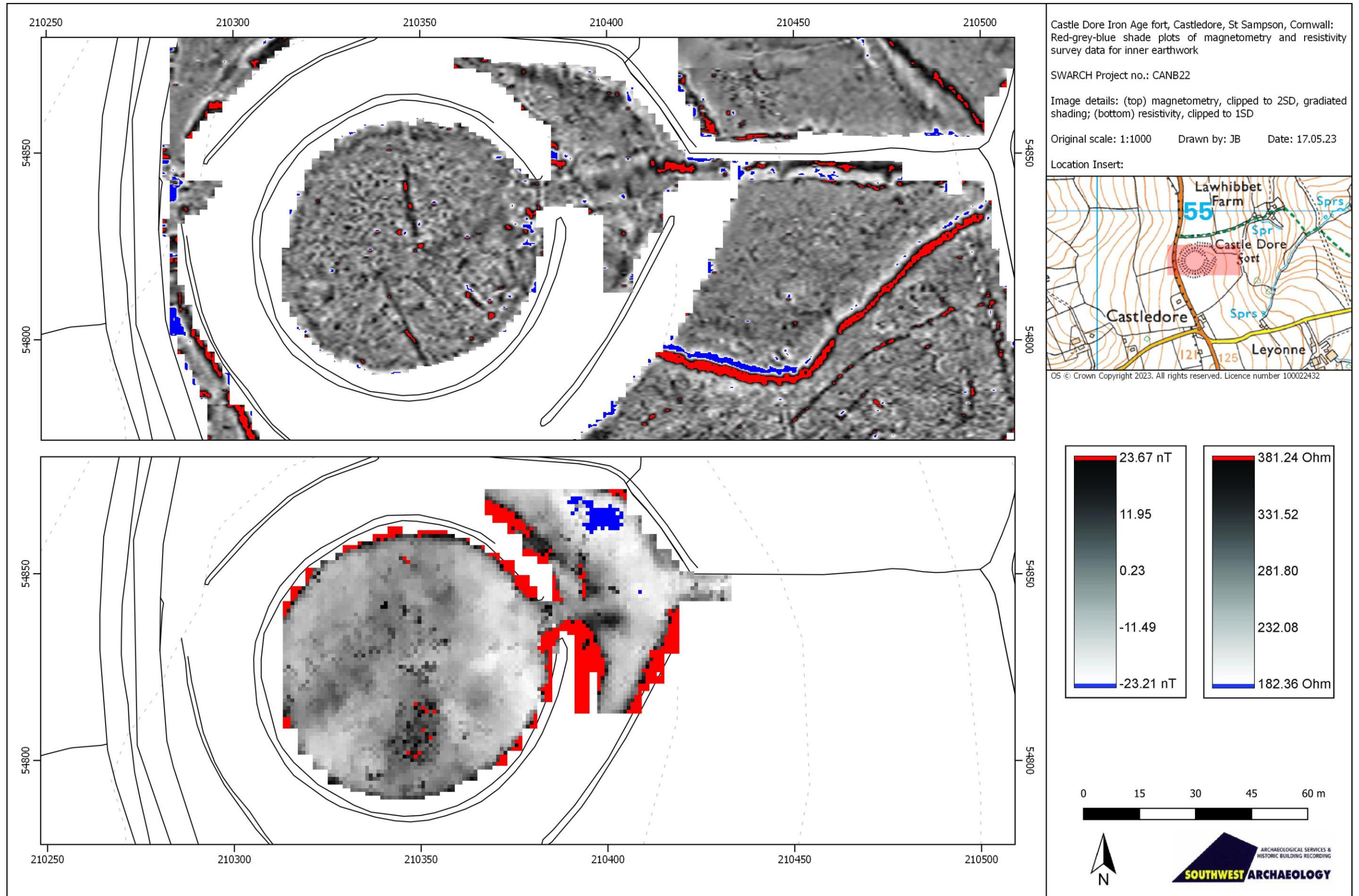


FIGURE 13: SHADE PLOTS OF MAGNETOMETRY- AND RESISTIVITY SURVEY DATA.

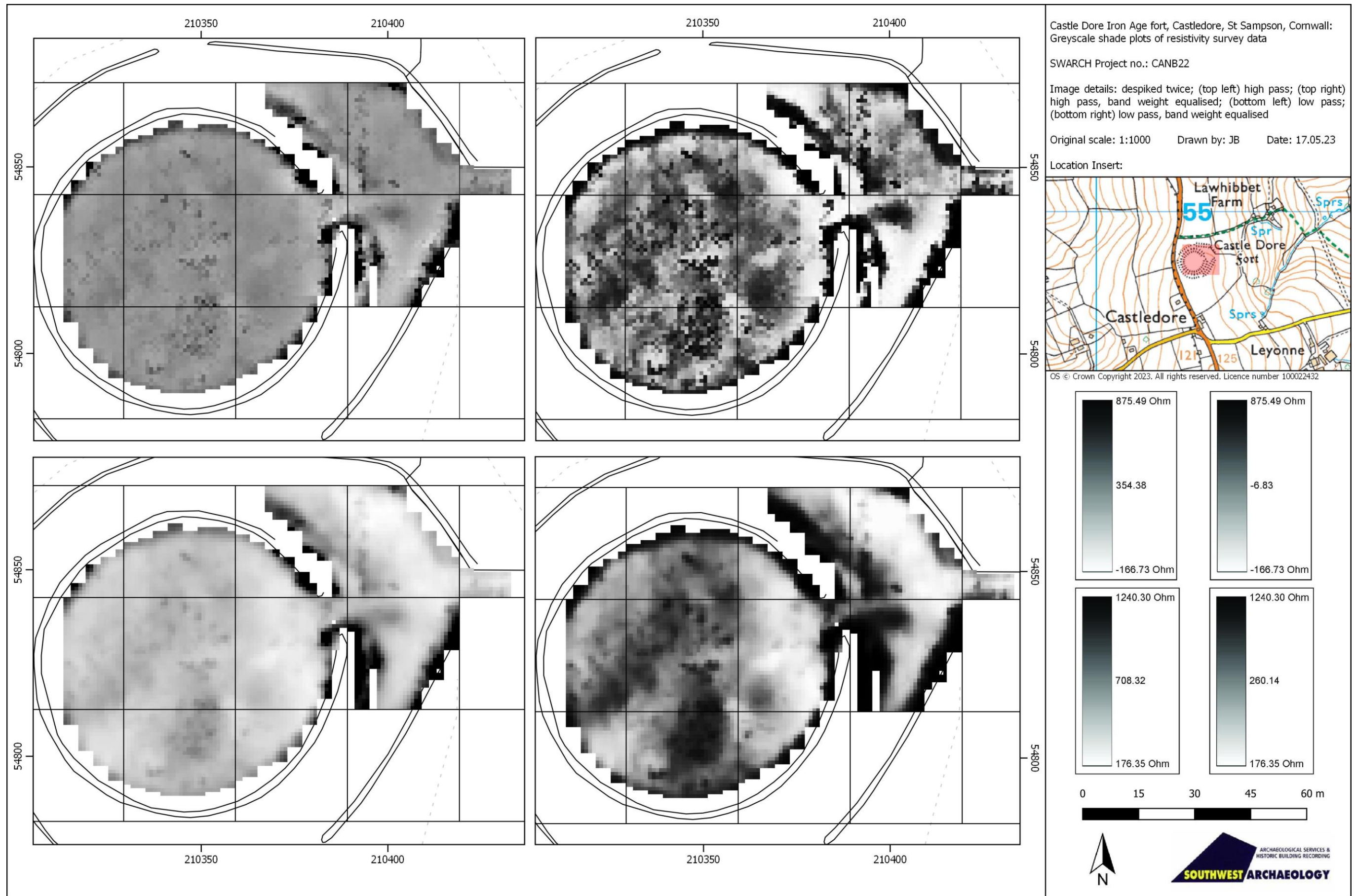


FIGURE 14: GREYSCALE SHADE PLOTS OF RESISTIVITY SURVEY DATA; HIGH- AND LOW PASS FILTER IMAGES INCLUDING BAND WEIGHT EQUALISED VERSIONS.

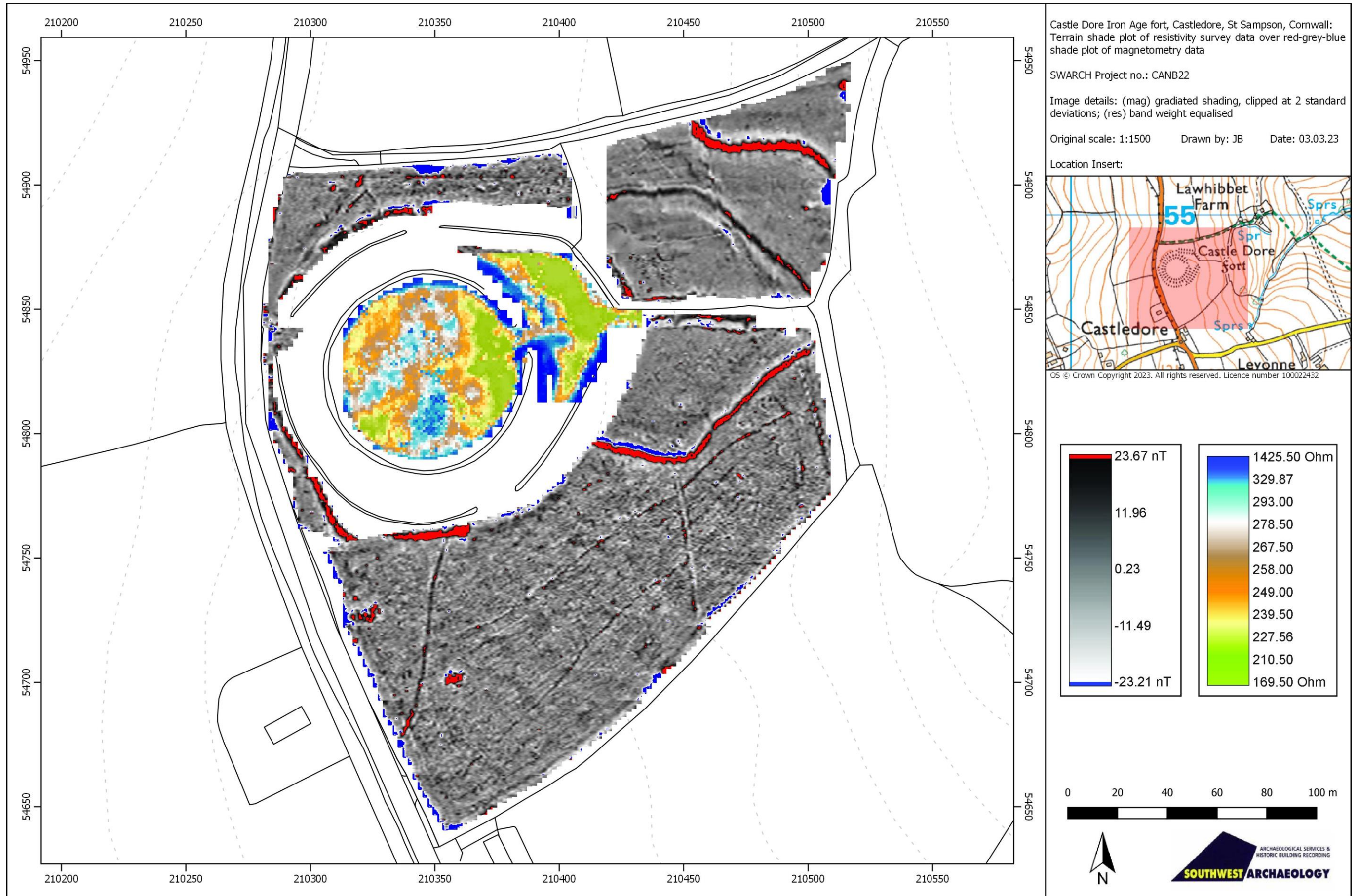


FIGURE 15: RED-GREY-BLUE SHADE PLOT OF MAGNETOMETRY SURVEY DATA AND TERRAIN SHADE PLOT OF RESISTIVITY SURVEY DATA.

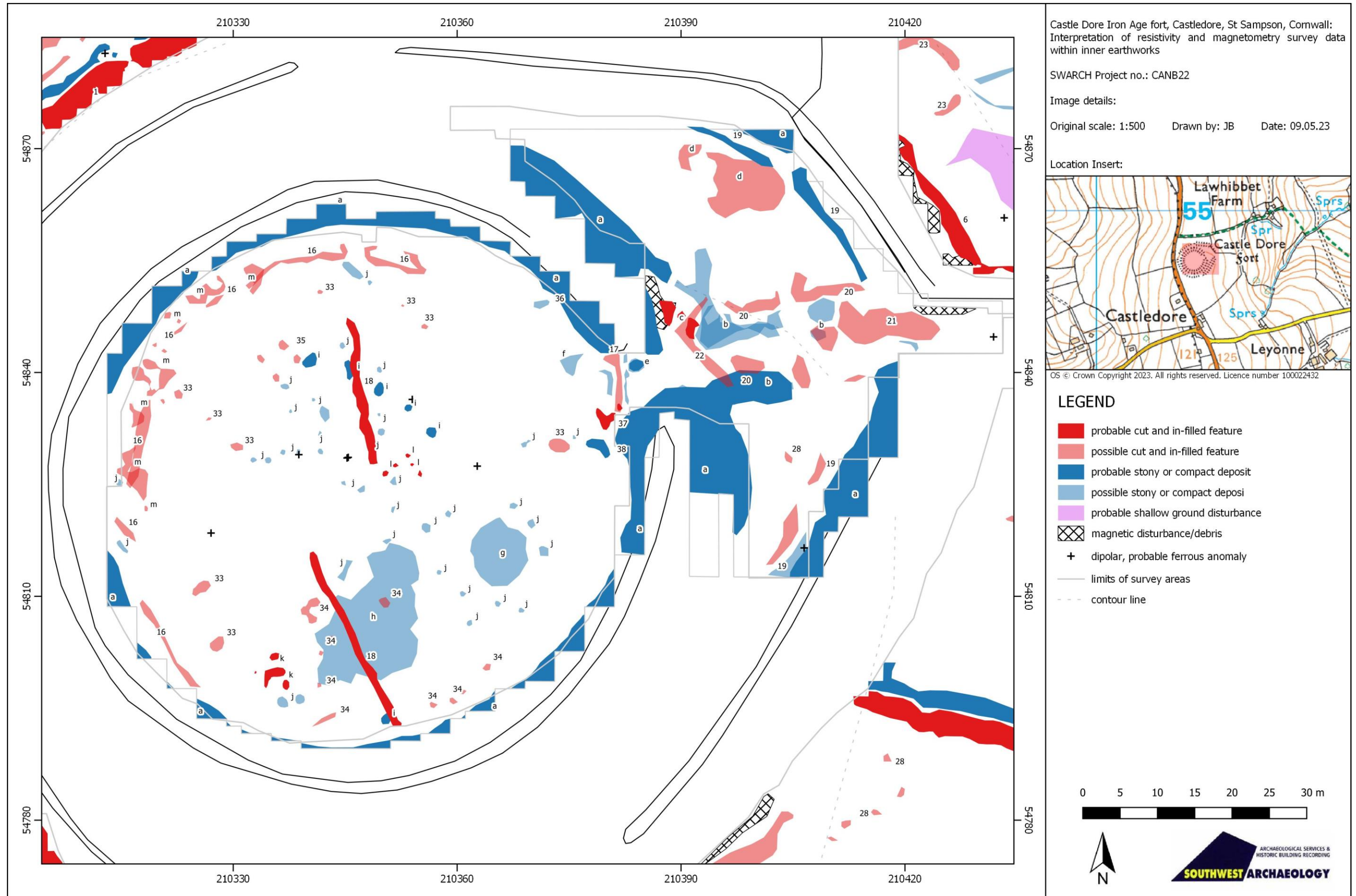


FIGURE 16: INTERPRETATION OF MAGNETOMETRY AND RESISTIVITY SURVEY DATA WITHIN THE INNER EARTHWORK/'ROUND'.

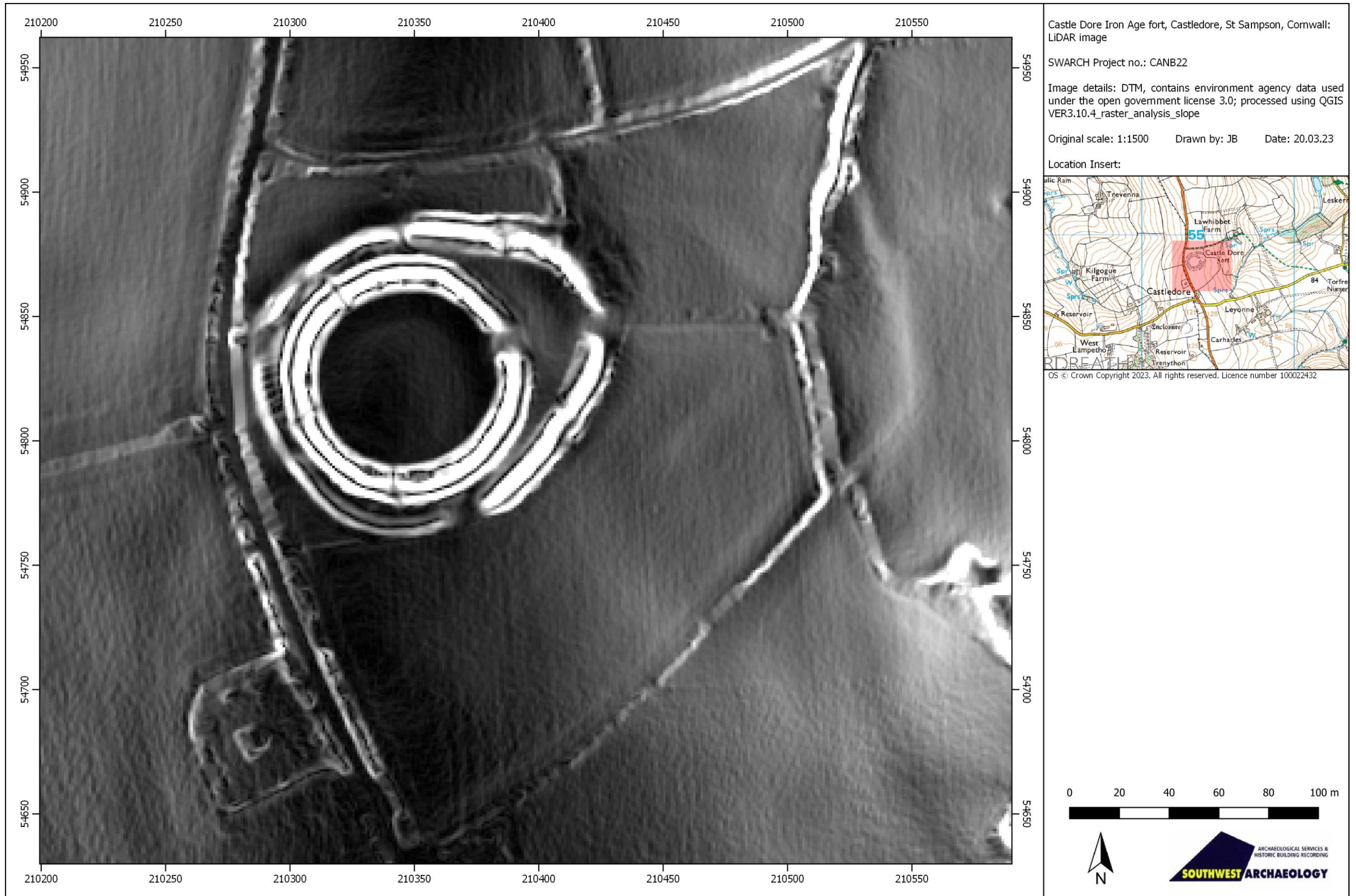


FIGURE 17: IMAGE DERIVED FROM LiDAR DATA; DTM SURVEYED 2022.

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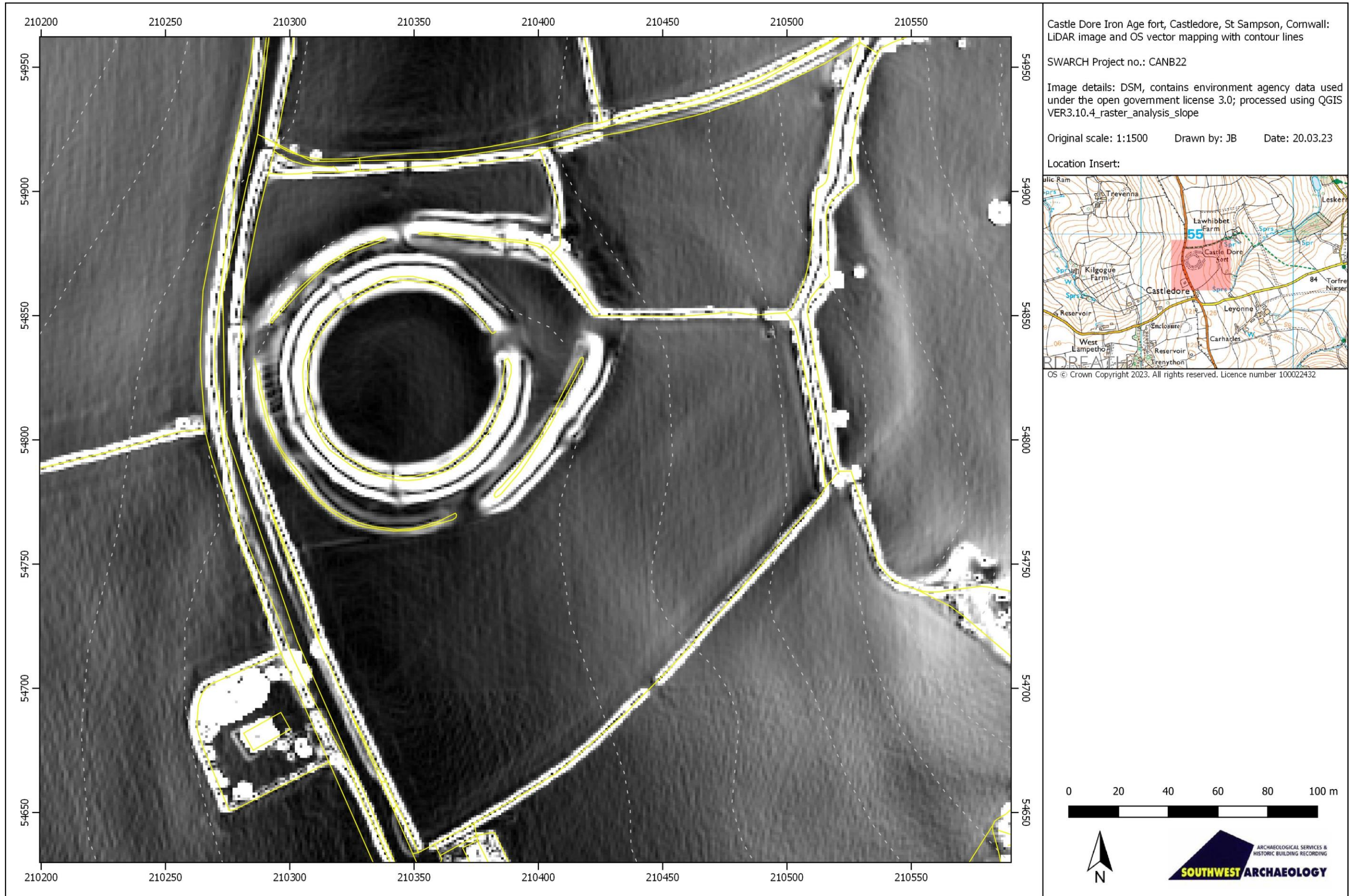


FIGURE 18: OS VECTOR MAPPING OVERLYING LIDAR IMAGE; DSM SURVEYED 2018.

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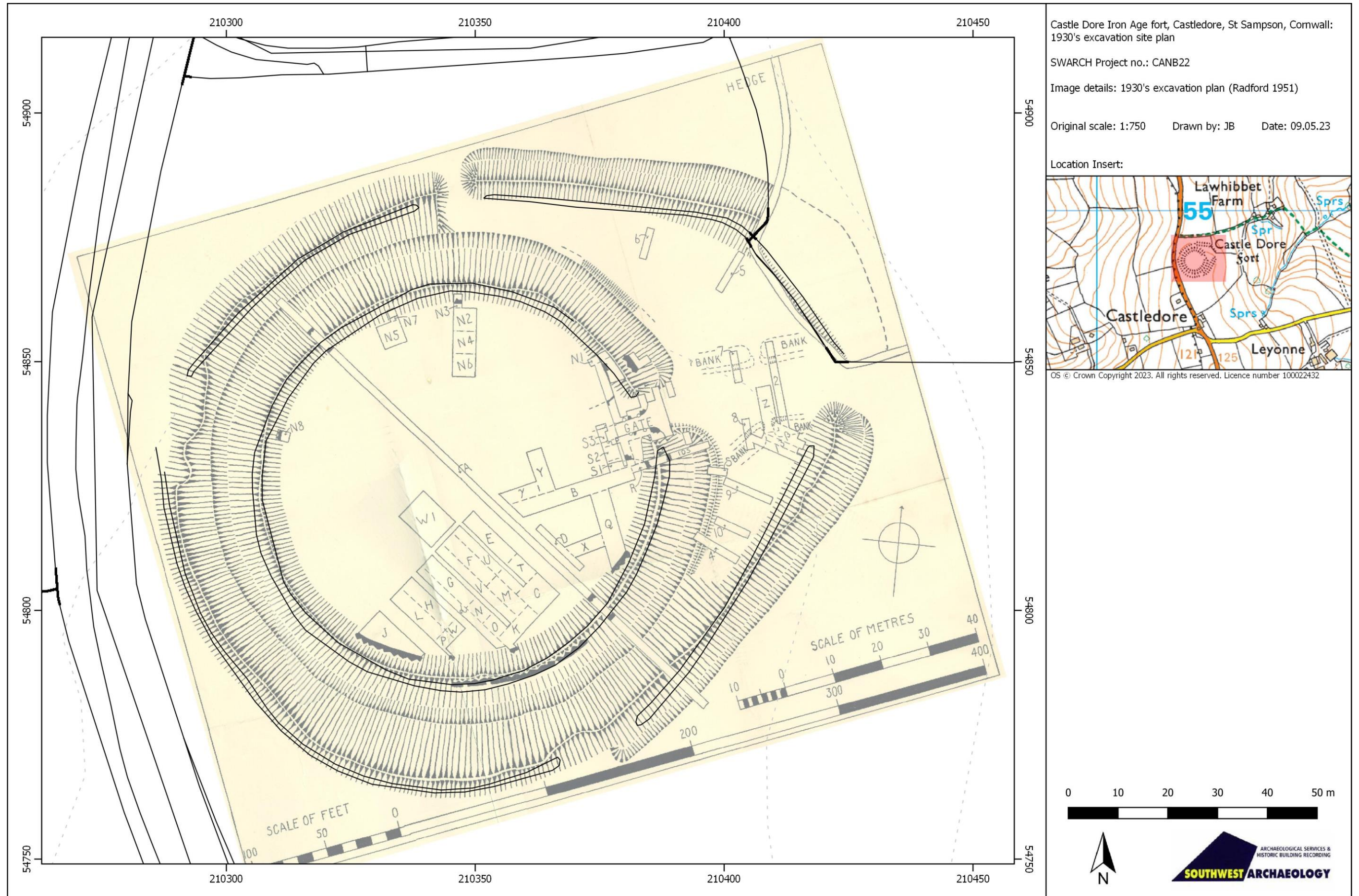


FIGURE 19: OS VECTOR MAPPING OVERLAYING SITE SURVEY FROM 1930S EXCAVATIONS (SOURCE: RADFORD 1951).

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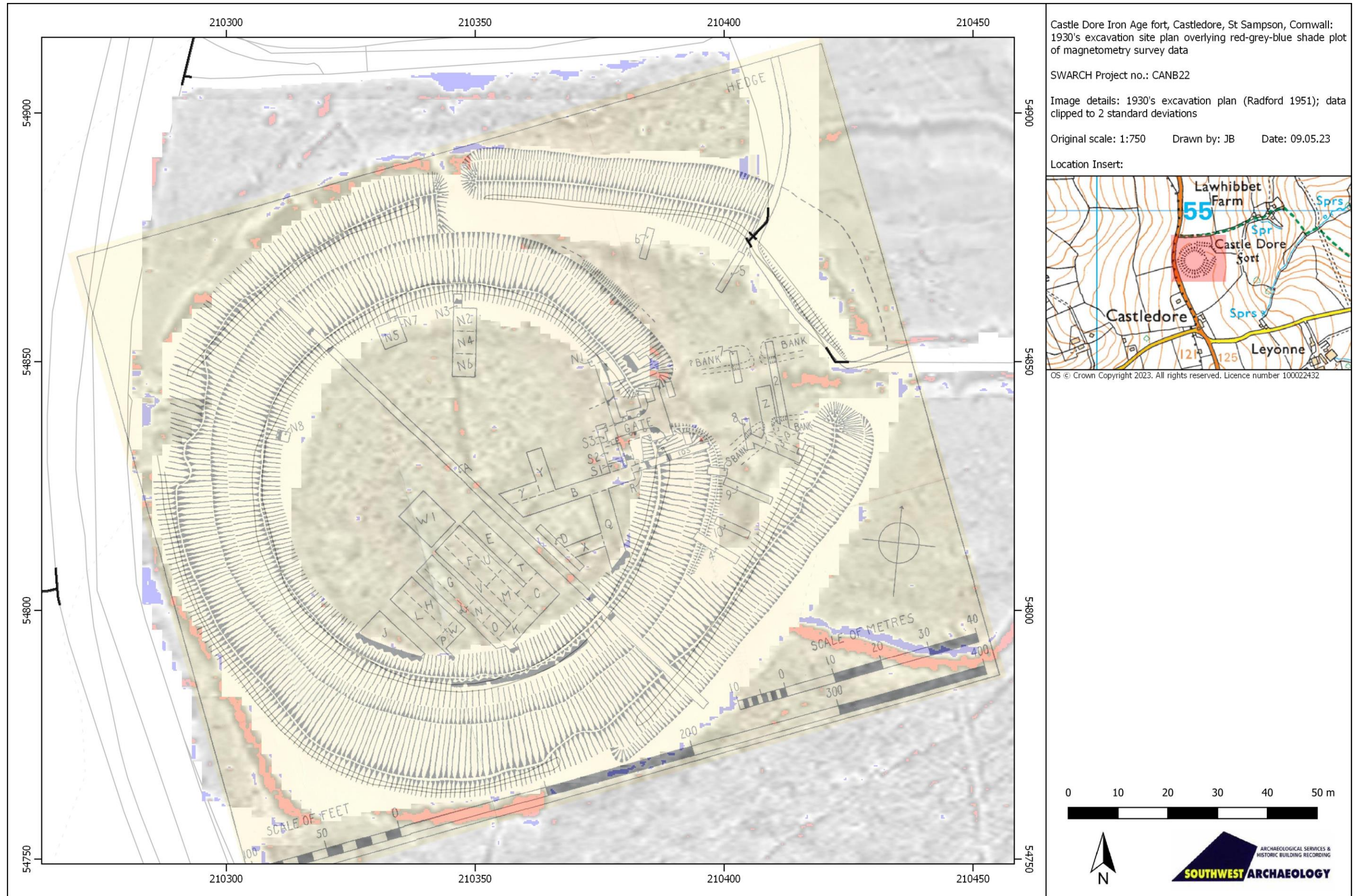


FIGURE 20: 1930S EXCAVATION SITE PLAN (SOURCE: RADFORD 1951) OVERLAYING A RED-GREY-BLUE SHADE PLOT OF THE MAGNETOMETRY SURVEY DATA.

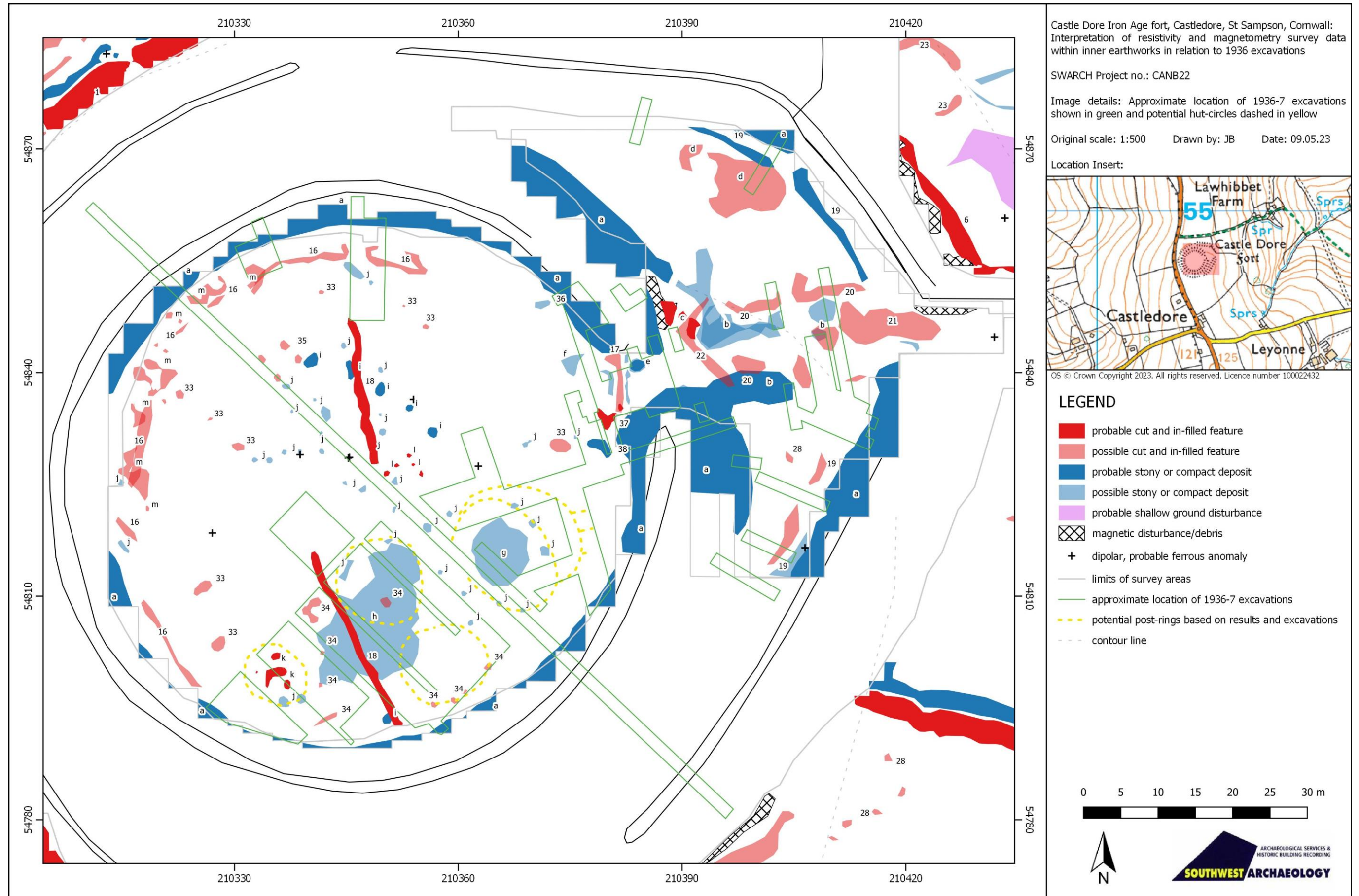


FIGURE 21: INTERPRETATION OF MAGNETOMETRY AND RESISTIVITY SURVEY DATA OVERLAIN BY OUTLINE OF 1930S EXCAVATION AND INDICATING POTENTIAL 'HUT-CIRCLES' OR STRUCTURAL AREAS.

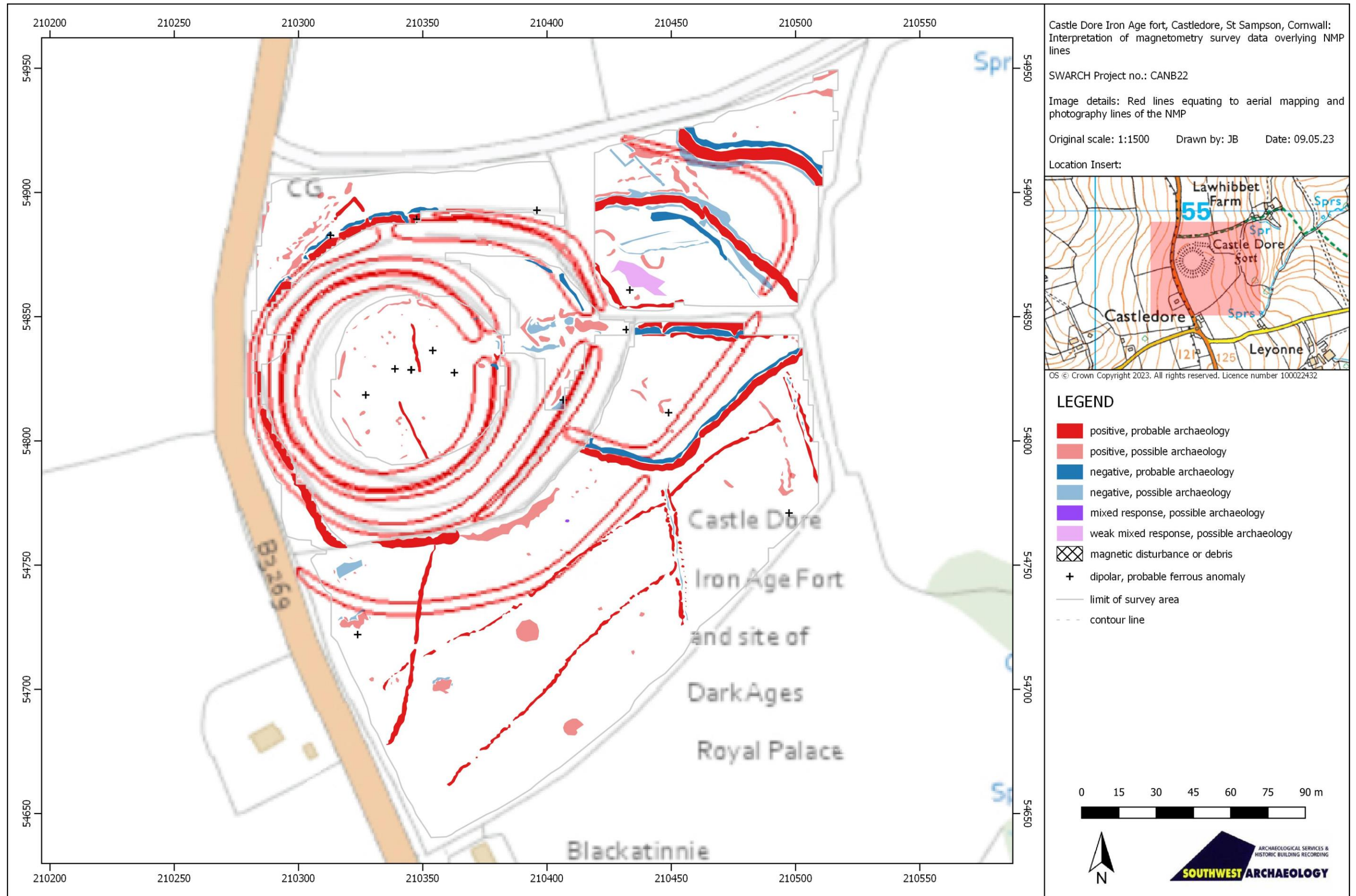


FIGURE 22: INTERPRETATION OF MAGNETOMETRY SURVEY DATA OVERLYING NMP LINES BASED ON AERIAL PHOTOGRAPHY.

APPENDIX 2: SUPPORTING SOURCES



FIGURE 23: EXTRACT FROM THE SURVEYOR'S DRAFT MAP, c.1805; THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (KK).

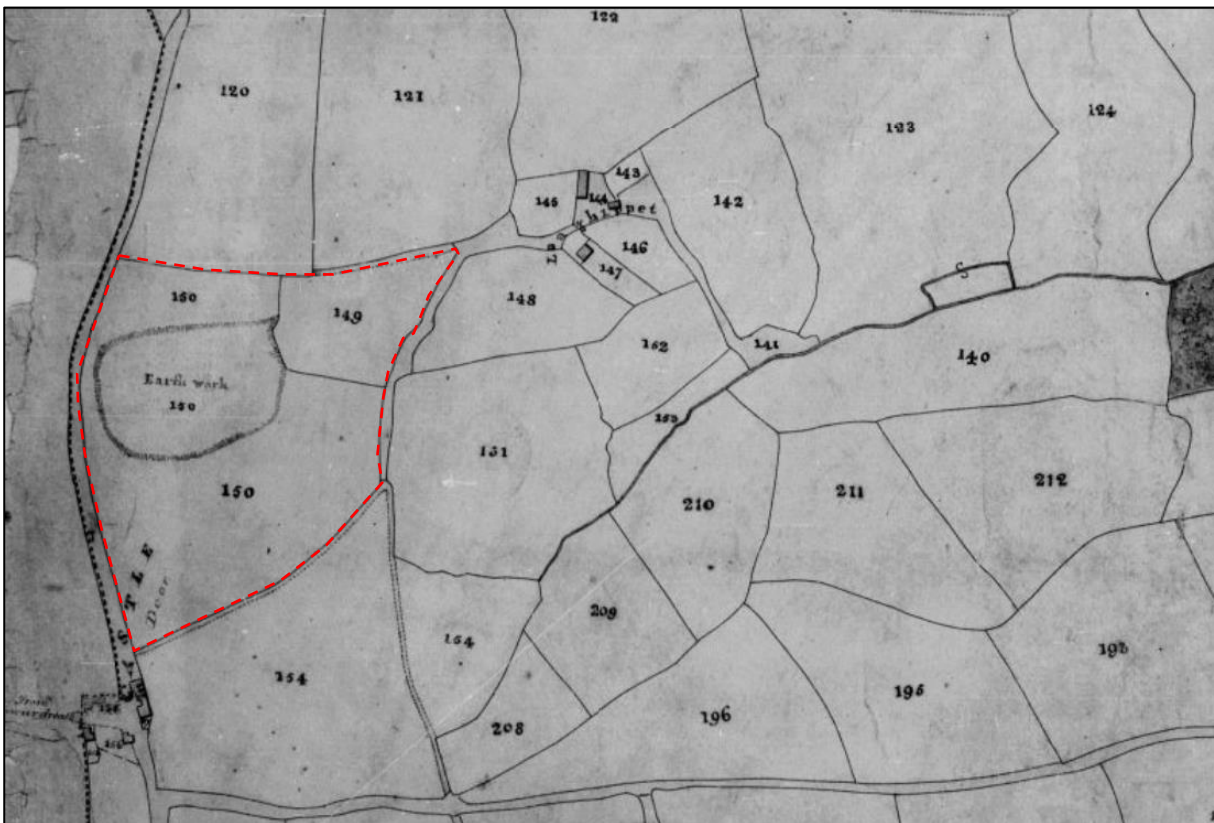


FIGURE 24: EXTRACT FROM THE c.1839 GOLANT/ST SAMPSON PARISH TITHE MAP; THE FIELDS CORRESPONDING TO THE SITE ARE OUTLINED IN RED (KK).

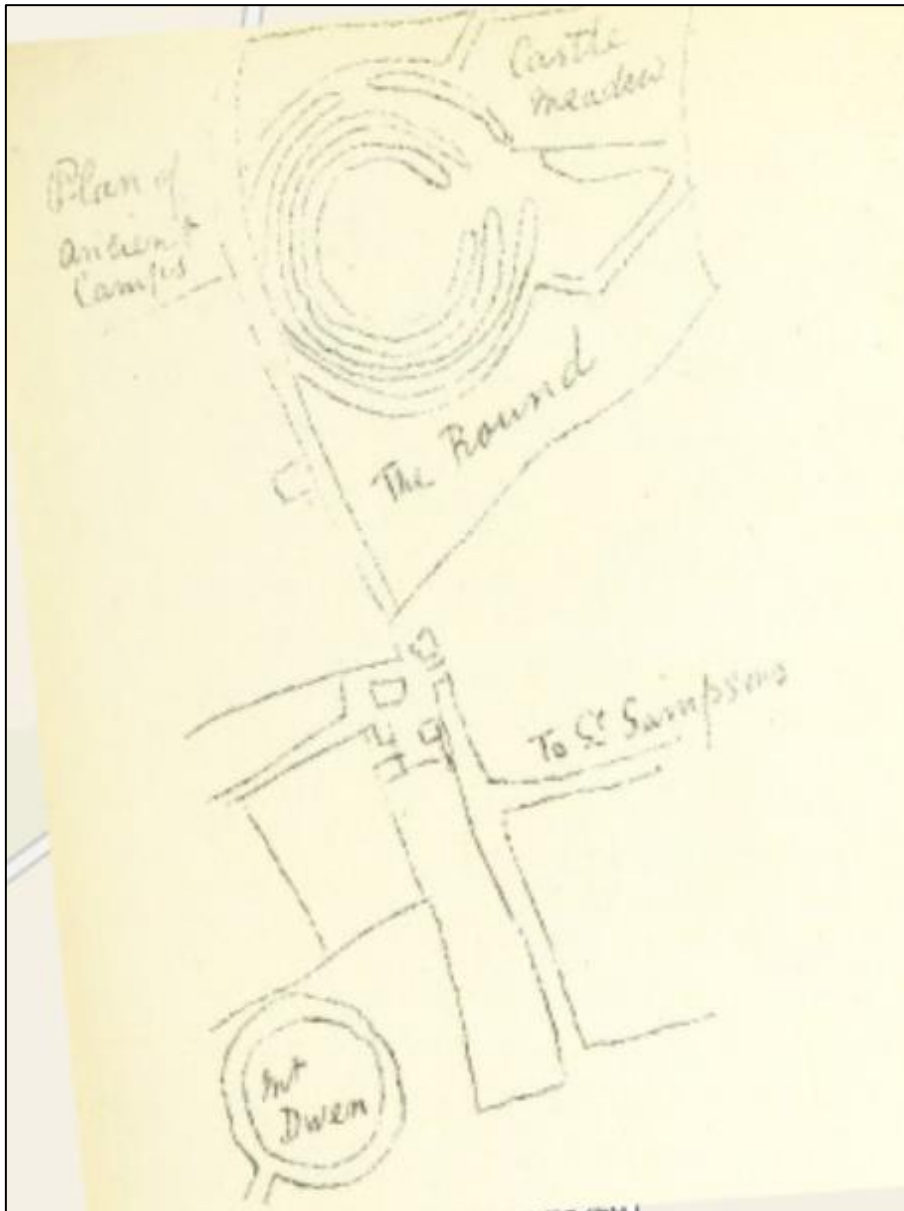


FIGURE 25: SKETCH PLAN OF THE FORT DRAWN IN C.1849, PUBLISHED 1885.

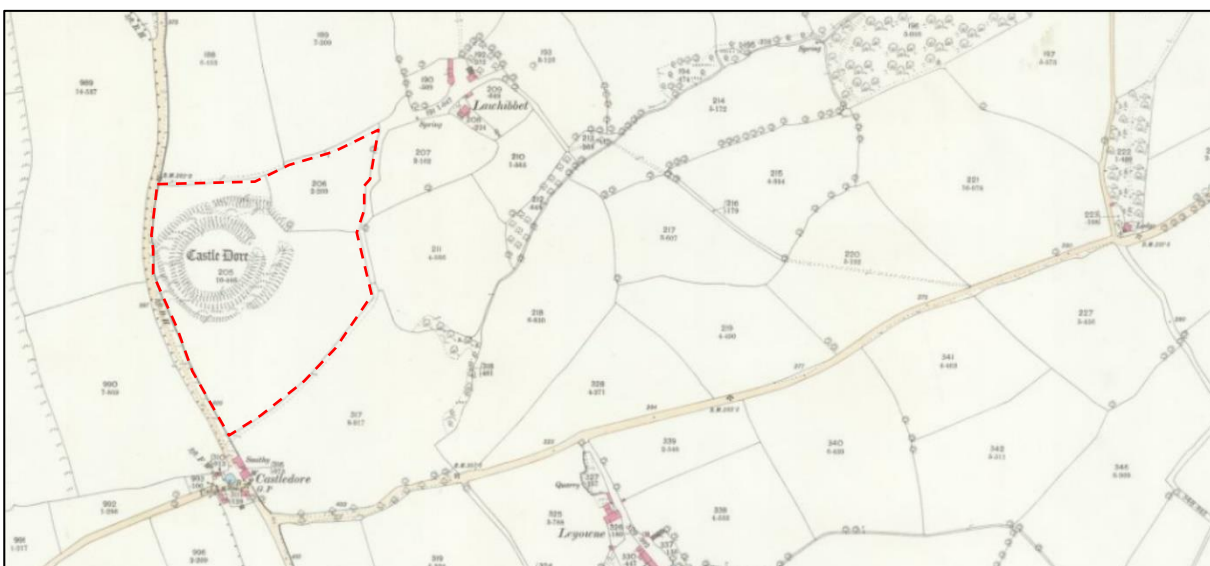


FIGURE 26: EXTRACT FROM THE ORDNANCE SURVEY 1ST EDITION, 25 INCH SERIES, PUBLISHED 1882; THE SITE IS OUTLINED IN RED (NLS).

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FIGURE 27: EXTRACT FROM THE ORDNANCE SURVEY 2ND EDITION, 25 INCH SERIES, PUBLISHED 1907; THE SITE IS OUTLINED IN RED (NLS).

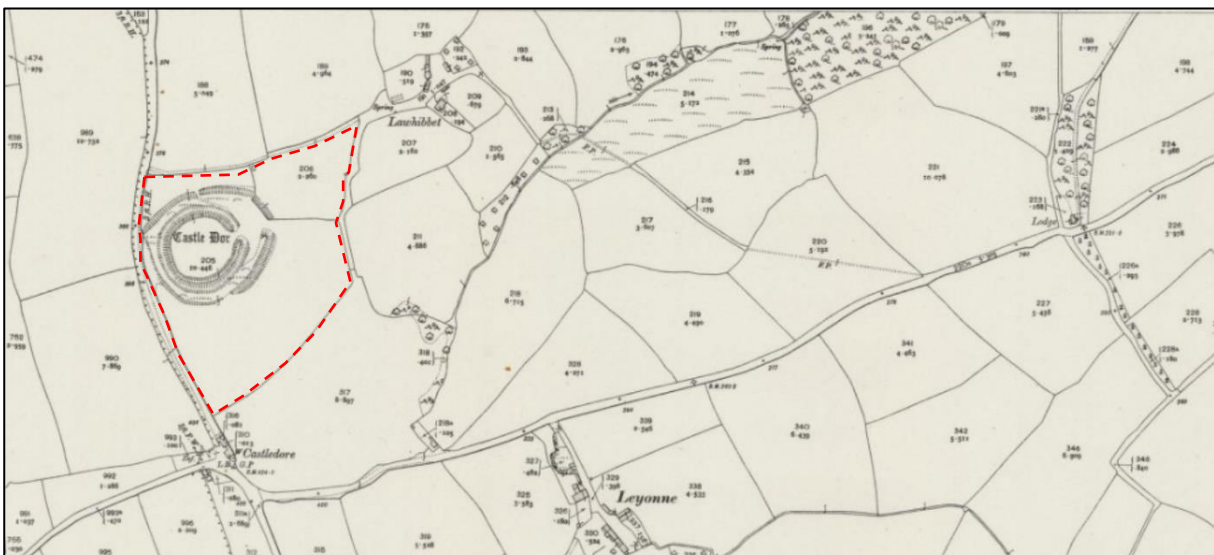


FIGURE 28: EXTRACT FROM THE ORDNANCE SURVEY 1933 REVISION, 25 INCH SERIES, PUBLISHED 1935; THE SITE IS OUTLINED IN RED (NLS).

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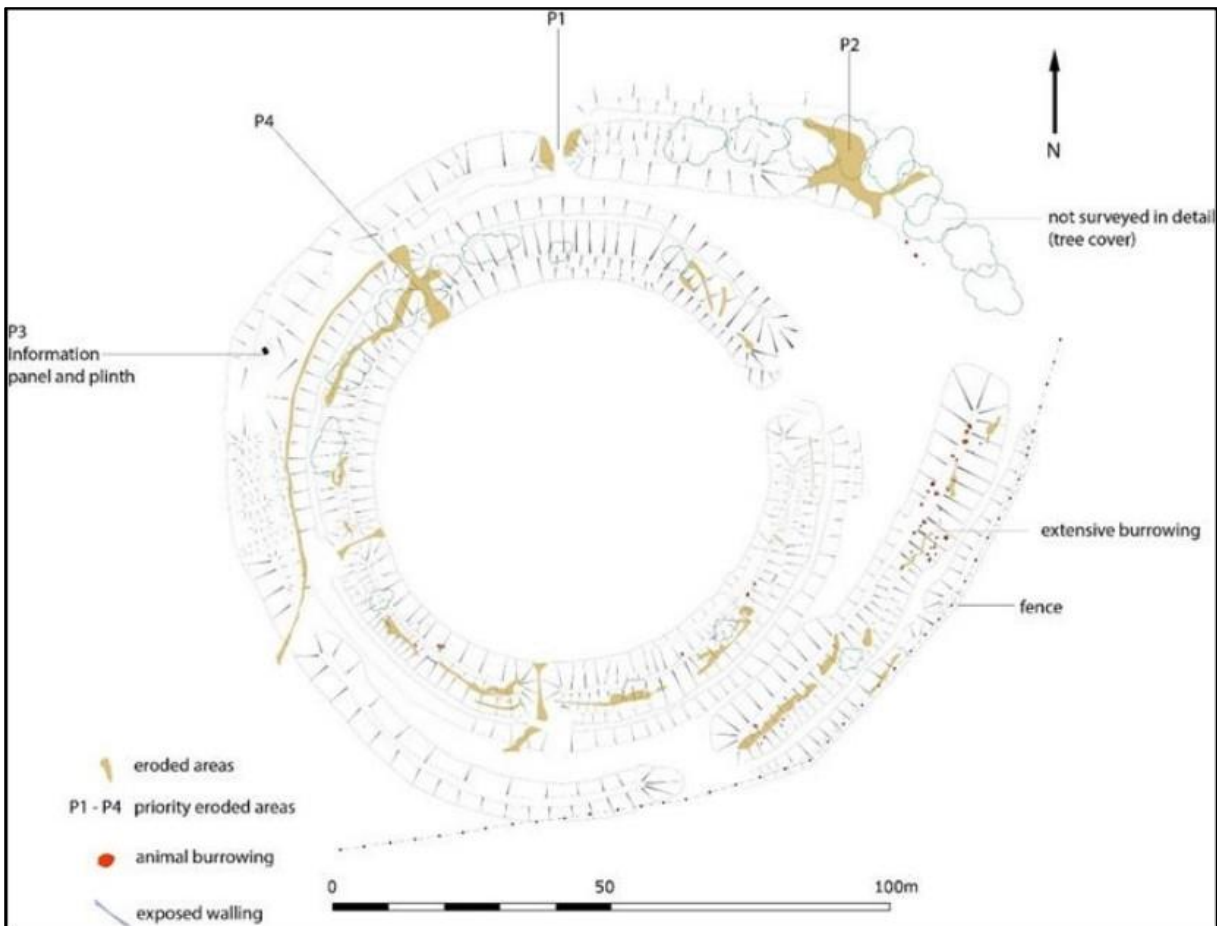


FIGURE 29: 2021 SURVEY PLAN SHOWING SURVIVING EARTHWORKS AND PRINCIPAL THREATS (SOURCE: THE CLIENT).

Appendix 3: Supporting Photographs



1. VIEW FROM THE NORTH-EAST CORNER OF THE AREA NORTH OF THE RAMPARTS; VIEWED FROM THE NORTH (NO SCALE).



2. VIEW ALONG THE WEST HALF OF THE NORTH SITE BOUNDARY; VIEWED FROM THE EAST (NO SCALE).



3. VIEW ACROSS THE RIDGE NORTH OF THE FORT, THROUGH THE GATE IN THE MIDDLE OF THE WEST HALF OF THE NORTH BOUNDARY; VIEWED FROM THE SOUTH (NO SCALE).



4. NORTHERN ACCESS THROUGH RAMPARTS; VIEWED FROM THE NORTH (NO SCALE).



5. RAMPART WEST OF THE NORTHERN ENTRANCE INTO THE RAMPARTS; VIEWED FROM THE EAST (NO SCALE).



6. RAMPART EAST OF THE NORTHERN ENTRANCE INTO THE RAMPARTS; VIEWED FROM THE WEST (NO SCALE).

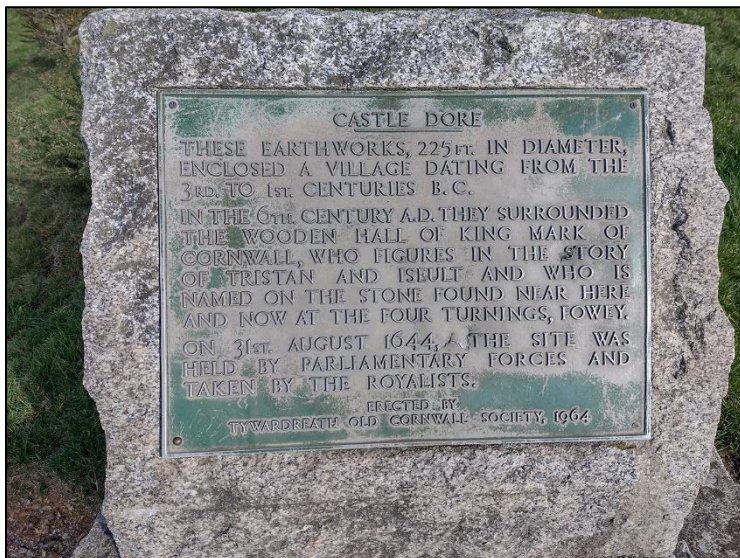
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7. VIEW ALONG THE OUTER RAMPART IN THE NORTH-WEST CORNER OF THE SITE; VIEWED FROM THE SOUTH-WEST (NO SCALE).



8. VIEW ALONG THE NORTH-WEST QUADRANT OF THE OUTER RAMPART; VIEWED FROM THE NORTH-EAST (NO SCALE).



9. COMMEMORATIVE STONE ON THE WEST SIDE OF THE OUTER RAMPARTS; VIEWED FROM THE SOUTH-WEST (NO SCALE).



10. VIEW ALONG THE B3269 FROM THE WEST SIDE OF THE OUTER RAMPARTS; VIEWED FROM THE SOUTH (NO SCALE).



11. VIEW FROM THE WEST SIDE OF THE OUTER RAMPARTS LOOKING NORTH-WEST; VIEWED FROM THE SOUTH-EAST (NO SCALE).



12. VIEW FROM THE WEST SIDE OF THE OUTER RAMPARTS LOOKING TOWARDS TYWARDREATH; VIEWED FROM THE EAST (NO SCALE).



13. VIEW ALONG THE WESTERN SIDE OF THE OUTER RAMPARTS; VIEWED FROM THE NORTH (NO SCALE).



14. VIEW ALONG THE WESTERN SIDE OF THE OUTER RAMPARTS; VIEWED FROM THE NORTH (NO SCALE).



15. VIEW FROM THE OUTER RAMPARTS TOWARDS ST AUSTELL BAY AND BLACKHEAD; VIEWED FROM THE NORTH-EAST (NO SCALE).



16. BLACKHEAD VIEWED FROM CASTLE DORE HILLFORT; VIEWED FROM THE NORTH-EAST (NO SCALE).



17. WORN ACCESS ACROSS THE WESTERN SIDE OF THE INNER RAMPARTS; VIEWED FROM THE WEST (NO SCALE).



18. VIEW ALONG THE WESTERN SIDE OF THE SITE FROM THE OUTER RAMPARTS OF THE FORT; VIEWED FROM THE NORTH (NO SCALE).



19. THE WESTERN SIDE OF THE INNER RAMPART; VIEWED FROM THE SOUTH (NO SCALE).



20. THE INTERIOR OF THE INNER EARTHWORK; VIEWED FROM THE SOUTH-WEST (NO SCALE).



21. VIEW OF THE WORN ACCESS ACROSS THE SOUTH SIDE OF THE INNER RAMPART; VIEWED FROM THE NORTH-WEST (NO SCALE).



22. INSIDE THE INNER EARTHWORK; VIEWED FROM THE SOUTH (NO SCALE).



23. RAMPARTS ON THE NORTH SIDE OF THE ENTRANCE TO THE INNER EARTHWORK; VIEWED FROM THE SOUTH-EAST (NO SCALE).



24. RAMPARTS ON THE SOUTH SIDE OF THE ENTRANCE TO THE INNER EARTHWORK; VIEWED FROM THE NORTH (NO SCALE).



25. ENTRANCE TO THE INNER EARTHWORK; VIEWED FROM THE EAST (NO SCALE).



26. THE EASTERN ENTRANCE TO THE MIDDLE/EXTANT OUTER EARTHWORK; VIEWED FROM THE WEST (NO SCALE).



27. THE SOUTH-EASTERN SECTION OF THE MIDDLE/EXTANT OUTER EARTHWORK; VIEWED FROM THE NORTH-EAST (NO SCALE).



28. THE NORTH-EASTERN PART OF THE MIDDLE/EXTANT OUTER EARTHWORK; VIEWED FROM THE SOUTH-EAST (NO SCALE).



29. THE SOUTHERN FIELD FROM THE EASTERN OUTER RAMPARTS; VIEWED FROM THE NORTH-NORTH-EAST (NO SCALE).



30. SOUTH-EAST PART OF THE SOUTHERN FIELD FROM THE EASTERN OUTER RAMPARTS; VIEWED FROM THE NORTH-WEST (NO SCALE).



31. NORTH-EAST SIDE OF SOUTHERN FIELD; VIEWED FROM THE WEST (NO SCALE).



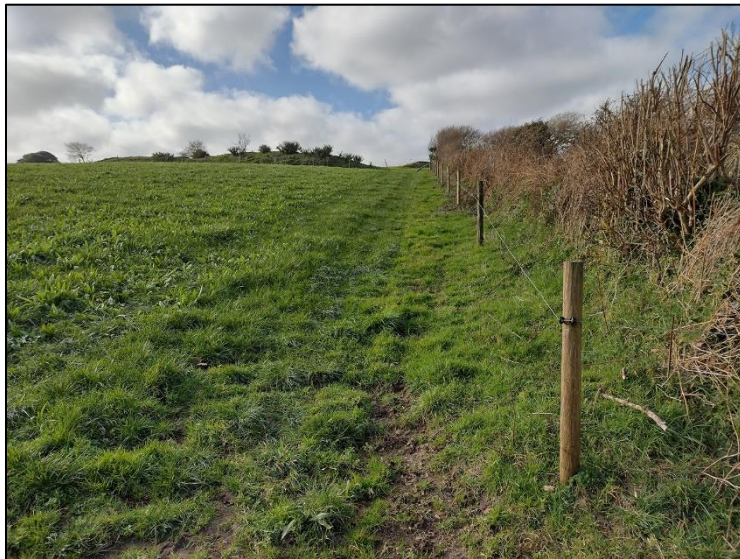
32. VIEW LOOKING NORTH-EAST FROM THE EASTERN OUTER RAMPARTS, ACROSS THE EASTERN EARTHWORK ENTRANCE; VIEWED FROM THE SOUTH-WEST (NO SCALE).



33. EASTERN SIDE OF THE SOUTHERN FIELD; VIEWED FROM THE NORTH (NO SCALE).



34. THE SOUTHERN FIELD FROM ITS NORTH-EAST CORNER; VIEWED FROM THE NORTH-EAST (NO SCALE).



35. VIEW ALONG THE SOUTHERN FIELDS NORTH BOUNDARY, LOOKING TOWARDS THE FORT; VIEWED FROM THE EAST (NO SCALE).



36. BOUNDARY BETWEEN THE SOUTHERN FIELD AND THE NORTH-EASTERN FIELD; VIEWED FROM THE EAST (NO SCALE).



37. THE NORTH-EASTERN FIELD; VIEWED FROM THE EAST (NO SCALE).



38. SOUTH SIDE OF THE NORTH-EASTERN FIELD; VIEWED FROM THE WEST (NO SCALE).



39. THE NORTH-EASTERN FIELD; VIEWED FROM THE SOUTH-WEST (NO SCALE).



40. WEST SIDE OF THE NORTH-EASTERN FIELD; VIEWED FROM THE SOUTH-EAST (NO SCALE).



41. EXTANT OUTER RAMPARTS IN THE SOUTH-WEST CORNER OF THE NORTH-EASTERN FIELD; VIEWED FROM THE NORTH-EAST (NO SCALE).



42. GATEWAY BESIDE THE RAMPARTS IN THE BOUNDARY BETWEEN THE NORTH-EASTERN FIELD AND NORTH SIDE OF THE FORT; VIEWED FROM THE EAST (NO SCALE).



43. CHANNEL ALONG THE EAST SIDE OF THE NORTH-EASTERN FIELD; VIEWED FROM THE NORTH-WEST (NO SCALE).



44. VIEW FROM THE GATE IN THE NORTH-EAST CORNER OF THE NORTH-EASTERN FIELD; VIEWED FROM THE WEST (NO SCALE).



45. VIEW ALONG THE NORTH BOUNDARY OF THE NORTH-EASTERN FIELD; VIEWED FROM THE EAST (NO SCALE).



46. THE NORTH-EASTERN FIELD; VIEWED FROM THE NORTH-EAST (NO SCALE).



47. EAST SIDE OF THE NORTH-EASTERN FIELD; VIEWED FROM THE NORTH (NO SCALE).

APPENDIX 4: TECHNICAL SUMMARY TABLES OF SURVEY METHOD AND METADATA

TABLE 3: TECHNICAL SUMMARY OF MAGNETOMETRY SURVEY METHOD AND METADATA.

Site no.	Site Name	Site Type	Period	AONB Section
37	Castle Dore	Hillfort	Iron Age	10. South Coast - Eastern
Survey Type:	Magnetometry			
Equipment:	Twin sensor fluxgate gradiometer (Bartington Grad601) Leica CS15 GNSS Rover GPS			
Software:	Grad 601 - Version 3.16 TerraSurveyor - Version 3.0.36.0			
Instrument Settings / Parameters:	Survey Mode:	Grid Mode		
	Range:	100nT		
	Threshold:	2nT		
	Sensors:	2		
	Reject:	50 Hz		
Collection parameters:	Sample Intervals:	0.25m		
	Traverse Intervals:	1m		
	Traverse Pattern:	Zigzag		
	Traverse Direction:	North / Grid North / 0°		
	Adjustment frequency:	0.5-1ha		
Survey Size Metadata:	Individual Grid Size	30m x 30m		
	Composite Area:	8.91ha / 330m x 270m		
	Area Surveyed:	3.7288ha		
Raw Response Metadata:	Max.:	98.45nT		
	Min.:	-100.00nT		
	Standard Deviation:	13.36nT		
	Mean:	0.14nT		
	Median:	0.00nT		
Processed Response Metadata: pre-clipping	Max.:	123.45nT		
	Min.:	-109.114nT		
	Standard Deviation:	11.72nT		
	Mean:	0.23nT		
	Median:	0.00nT		
Processes:	DeStripe all traverses, median			
	DeStagger all traverses out- and inbound by 0.-50m (grid a24), by -0.25m (grids a22, a29), by 0.25m (grids c1, c7-c11), by 0.50m (grids c2, c4, c5)			
	Clip at +/- 2SD (Standard Deviation)			

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TABLE 4: TECHNICAL SUMMARY OF RESISTIVITY SURVEY METHOD AND METADATA.

Site no.	Site Name	Site Type	Period	AONB Section
37	Castle Dore	Hillfort	Iron Age	10. South Coast - Eastern
Survey Type:	Resistivity			
Equipment:	Geoscan Research RM15-D Resistivity Meter with MPX15 multiplexer module Four sensor PA20 multprobe array system at 0.5m probe spacing. Leica CS15 GNSS Rover GPS			
Software:	TerraSurveyor - Version 3.0.36.0			
Instrument Settings:	Survey / Log Mode:	Parallel Twin Log Mode 2		
	Gain:	x1		
	Current:	1 mA		
	Frequency:	137 Hz		
	Output Voltage:	40 V		
	Auto-log Speed:	Medium		
	High Pass Filter:	13 Hz		
	Mains Frequency:	50 Hz		
	Hardware:	PA5		
	Interface:	MPX15		
	Log Mode:	Parallel Twin		
	# Parallel Reads:	2 (4P)		
Baud Rate:	9600			
Collection parameters:	Sample Intervals:	1m		
	Traverse Intervals:	1m		
	Traverse Pattern:	Zigzag		
	Traverse Direction:	North / Grid North / 0°		
	Remote Probe Spacing:	Between 0.5m and c.1.5m		
Survey Size Metadata:	Individual Grid Size	30m x 30m		
	Composite Area:	1.35ha / 90m x 150m		
	Area Surveyed:	0.6203ha		
Response Metadata: raw data	Max.:	2047.00 Ohm		
	Min.:	-2047.50 Ohm		
	Standard Deviation:	217.04 Ohm		
	Mean:	305.14 Ohm		
	Median:	262.00 Ohm		
Processed Response Metadata: processed	Max.:	1425.50 Ohm		
	Min.:	169.50 Ohm		
	Standard Deviation:	99.44 Ohm		
	Mean:	281.80 Ohm		
	Median:	259.50 Ohm		
Processed Response Metadata: post-clipping	Max.:	381.24 Ohm		
	Min.:	182.36 Ohm		
	Standard Deviation:	49.67 Ohm		
	Mean:	268.35 Ohm		
	Median:	259.50 Ohm		
Processes:	Search and Replace -2047.5 and 2047.5 with Dummy			
	DeSpike threshold 1 window size 3x3, twice			
	Clip at 1 standard deviation (SD)			
	High Pass filter with Gaussian weighted window 21x21 intervals			
	Low Pass filter with Gaussian weighted window 3x3 intervals			



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