

PROPOSED SOLAR ARRAY
CONNONBRIDGE
EAST TAPHOUSE
CORNWALL

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 271123



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PROPOSED SOLAR ARRAY, CONNONBRIDGE, EAST TAPHOUSE, CORNWALL

RESULTS OF A GEOPHYSICAL SURVEY

By J. Bampton
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Work undertaken by SWARCH for One Planet Associates Ltd.

SUMMARY

This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) for a proposed solar array on land at Connonbridge, East Taphouse, Cornwall. This work was carried out in advance of a planning application.

The site is located at Connonbridge on a ridge line within c.500m of an extant barrow (MCO2955) at the west end of the same ridge. The HLC records the site as in Farmland: Medieval. The survey area was depicted from 1841 to 1905 as two fields, the dividing boundary of which was removed in the 20th century.

The geophysical survey identified 3 groups of anomalies comprised of c.9 anomalies, depending on where one chooses to define discrete anomalies, across the survey area. These anomalies were indicative of: a probable track/routeway beside the western boundary of the site; a number of possible modern instances of ground disturbance; and a removed field boundary associated with the extant field system. Probable geological and/or surface anomalies, such as agricultural works, were also evident in the survey data.

The survey does not indicate the presence of significant archaeological features or deposits on the site. Further archaeological works are not recommended in this instance.



November 2023

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ACKNOWLEDGEMENTS

CORNWALL COUNCIL
ONE PLANET ASSOCIATES (THE CLIENT)
THE STAFF OF KRESEN KERNOW (KK)

PROJECT CREDITS

DIRECTOR: DR. SAMUEL WALLS, MCIFA
WALKOVER: DR. SAMUEL WALLS, MCIFA
GEOPHYSICAL SURVEY: JOSEPH BAMPTON, MCIFA; ALASTAIR NOCK
REPORT: JOE BAMPTON, MCIFA
EDITING: DR. SAMUEL WALLS, MCIFA
APPROVED BY: DR. SAMUEL WALLS, MCIFA
GRAPHICS: JOE BAMPTON, MCIFA; NATALIE BOYD; ALASTAIR NOCK

1.0 INTRODUCTION

LOCATION:	CONNONBRIDGE, EAST TAPHOUSE
PARISH:	ST PINNOCK
COUNTY:	CORNWALL
NGR:	CENTRED ON SX 18225 62511
PLANNING NO.:	PRE-APPLICATION
SWARCH REF.	ETCS23
OASIS REF:	SOUTHWES1-517712

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by One Planet Associates Ltd. (the Client) to undertake a geophysical survey on land at Connonbridge, East Taphouse, St Pinnock, Cornwall as part of proposals for a solar array. This work was drawn up in consultation with the Local Planning Authority (LPA), best practice and ClfA guidance. It was informed by a previous heritage impact assessment (Boyd, Balmond & Walls 2023).

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The survey area is located c.500 south of East Taphouse, c.6km south-west of Liskeard and c.11km south-east of Bodmin, to the south of Braddock Down and immediately north of the recycling and landfill site. The site sits at the head of a river valley of a tributary of the West Looe River. The site slopes to the east, at a height of between c.149 and 165m AOD.

The soils of the area are the well-drained fine loamy soils over slate or slatestone rubble of the Denbigh 2 Association (SSEW 1983), which overlie the sedimentary slate and siltstone of the Saltash Formation (BGS 2023).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The site is located in the parish of St Pinnock, in the hundred and deanery of West (Lysons 1814); *Ye East topp House* was first recorded in 1675 as *Easter Taphouse* in 1699 (Watts 2004); although the settlement proper developed through the late 18th and 19th centuries (Bampton 2023; Boyd *et al* 2023).

Mapping of the site from c.1803 shows that the site is within an area of open land associated with *Braddock Common* and *Red Burrow*, presumably referring to the two barrows depicted on the map, c.500-775m west of the site (1004434/MCO2956; MCO2955). The c.1841 Tithe Map and Tithe Apportionment for St Pinnock show the proposed development area as spread across five plots, divided by a track (now a public path). The site/area subject to this geophysical survey cross the two northern plots on the tithe mapping (plots 203 and 232), both of which were named *North Down* and listed as under arable cultivation. The 1st Edition Ordnance Survey (OS) map, c.1881, shows general continuity with the earlier tithe map regarding the layout of the site, surrounding landscape and ground conditions alluded to in the earlier apportionment. The 2nd Edition OS map, revised in 1905 shows further continuity with the earlier mapping, although with some boundary removal and change to scrub/plantation depiction in the landscape. In more satellite- and LiDAR imagery of the site demonstrate the absence of the field boundary that once divided plots 203 and 232 by the 21st century and show the land as being subject to agricultural activity across the geophysical survey area, and ground disturbance associated with treatment works, quarrying and aggregate disposal south of the track/public path. The removed boundary is discernable on LiDAR imagery. Although probably associated with modern agricultural activity (turning circles/ring-feeders/scrub), some ring-like circular features are visible on satellite imagery of the site. Given the

wider landscape of barrows in the area, particularly the western edge of the same ridge line as the site, these could allude to prehistoric features on the site. Supporting cartographic and visual sources for this section can be seen in Appendix 2.

Beside relatively broad landscape scale assessments no previous archaeological fieldwork has taken place on the site. Geophysical surveys, archaeological assessments and an archaeological evaluation have taken place near to the site (Buck 1996; Dean 2015; WA 2014, 2014, 2015; Webb 2023). These were associated with a study of nearby barrows, developments along the A390, an assessment of the Braddock Downs, and an evaluation of the housing development c.600m north of the site. Further recent geophysical surveys for a proposed development to the west of Braddock School (Bampton 2023) and for a proposed woodland creation on land to the west of the site (Webb 2023) have added to the level of archaeological assessment works in the immediate area. These recent reports provide some archaeological background to the area and a previous Heritage Impact Assessment (HIA) for this site (Boyd *et al* 2023) includes an account of Cornwall's Historic Environment Record (HER) assets near the site. Designated assets within 1km of the site include 1 Grade II Listed Building, and 3 Scheduled bowl barrows or groups of barrows. The HIA determined a probable low/slight archaeological potential for the site, although with a possibility of unknown prehistoric assets. The Registered Battlefield of Braddock Downs extends across the landscape to the north-west of the site. The Grade II* Listed Boconnoc garden is located south-west of the site. The Cornwall and Scilly Historic Environment Record (HER) contains 81 assets within 1km of the site. Maps and summary tables of these assets and nearby designated assets can be seen in Appendix 2. The proposal site lies within an area recorded on the Historic Landscape Characterisation (HLC) as *Farmland: Medieval*.

1.4 METHODOLOGY

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

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

The geophysical (gradiometer) 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* (ClfA 2014b).

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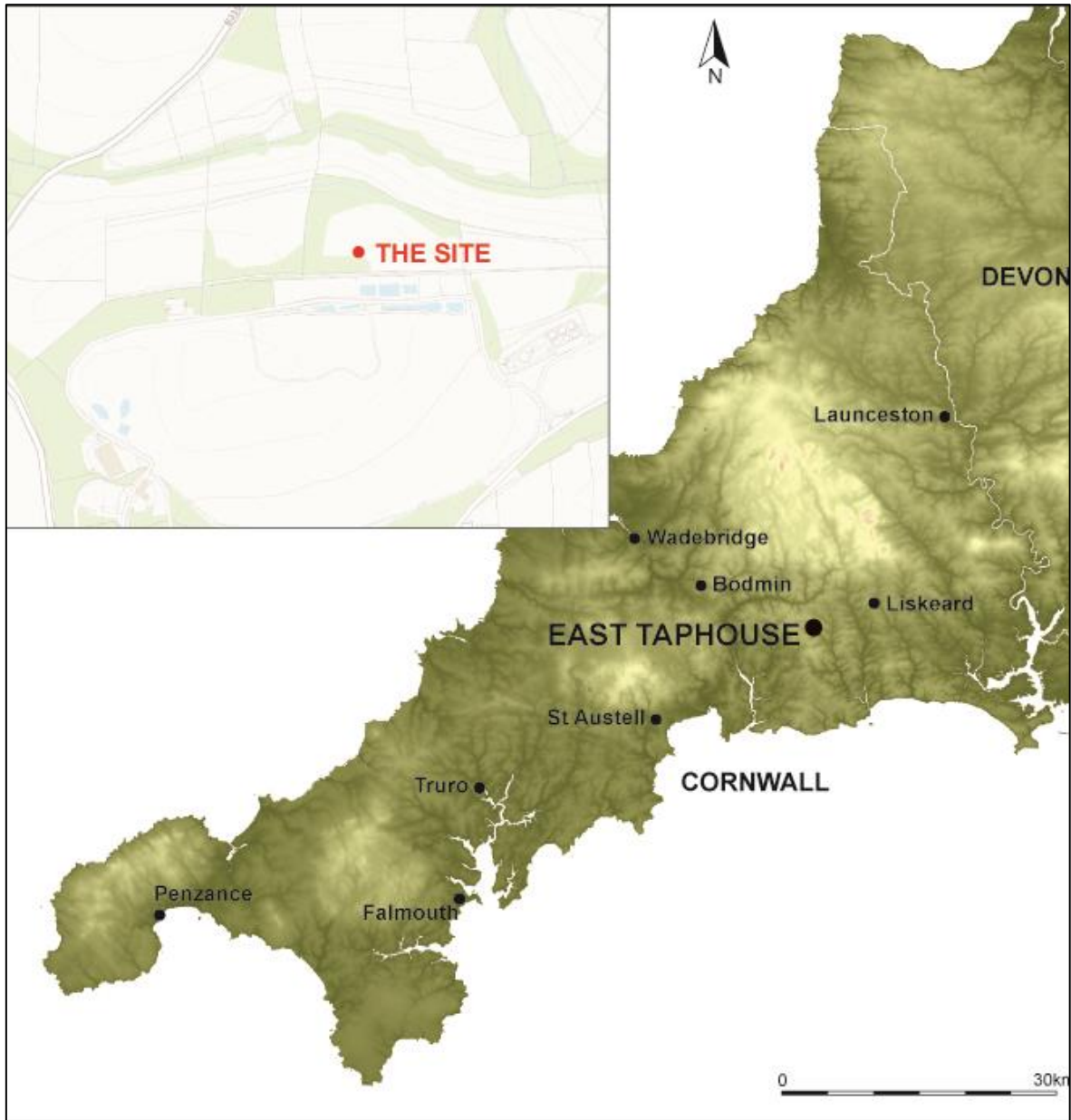


FIGURE 1: SITE LOCATION. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. LICENCE NUMBER 100022432.

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

An area c.2.6ha comprising a large field on a relatively level ridge line looking northwards at Connonbridge was subject to a magnetometry survey. The purpose of the magnetometry survey was to identify and record magnetic anomalies within the survey area. 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 over several visits from the 9th to the 13th of October 2023 by J. Bampton and A Nock of SWARCH; the survey data was processed by J. Bampton.

2.2 SITE INSPECTION

The site had recently been left to meadow and cut to facilitate the survey. Some modern debris was noted in the south-east of the site. Both young and relatively mature scrub and trees were present around the edges of the site and sporadically planted along the west and north sides of the site. The boundaries of the surveyed field/site were lined with post and wire fencing. Some kinks in the southern and northern boundaries ostensibly alluded to a removed field boundary. The meadow cutting and presumably ploughing activity ostensibly appeared to run approximately east-west across the site, perpendicular to the steeper slope of the site. There were no obvious archaeological features noted on the site at the time of the survey. Overhead cables were present in the north-west corner and eastern side of the field. Supporting photographs for the site inspection can be seen in Appendix 3.



FIGURE 2: SITE/FIELD SHOT FROM ITS SOUTH-EAST CORNER; VIEWED FROM THE EAST-SOUTH-EAST (NO SCALE).

2.3 METHODOLOGY

The magnetometry 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).

The magnetometry survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to c.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 TerraSurveyor64 Version 4.1.0.1. 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.

2.4 RESULTS

Table 1 with the accompanying Figures 3 and 4 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.

TABLE 1: INTERPRETATION OF MAGNETOMETRY SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Moderate positive and weak negative, probable	Linear	Historical boundary	Located near the middle of the survey area. Aligned approximately north-south. Equates to a removed historical boundary that was depicted on 1841, 1881 and 1905 mapping and removed in the 20 th century. Response strengths +16nT to +32nT and <-16nT
2	Weak negative and positive, possible	Linear	Track, boundary	Located along the western edge of the survey area. A single feature (although broken/intermittent) aligned approximately north-south, parallel to the western boundary. Probably equating to shallow ground disturbance associated with a track/route along this boundary edge running between gateways on this side of the site. Possibly indicative of a relict boundary ditch if the adjacent parallel western boundary had possibly been rectified/straightened in the past. More likely shallow ground disturbance associated with a modern routeway/track. Response strengths of c.+/-10nT.
3	Strong mixed, possible	Short linear segments	Disturbed ground	Located in the south-east part of the survey area. Spread of 7 possible discrete anomalies or disturbed aligned either north-south or east-west. Response strengths indicative of possibly archaeological features, but the form alludes to possible modern activity that may include modern debris. Possibly associated with intrusive ground investigations. Response Strengths of <+57nT and <-24nT. Examples: +57, -18nT; +27,-8nT; +45, -24nT; +42,-6nT; +38,-24nT; +36, -12nT.
Other Anomalies				
-	Moderate-strong dipolar, probable	Point/ ovoid	Geology/ Ferrous objects/debris	The site has occasional and sporadic dipolar responses. Black crosses in Figure 4. The strongest examples are indicative of ferrous objects that are typically presumed to be modern, such as machinery fragments. Similar and weaker responses can be indicative of geological features/anomalies. In this case these may include areas of differential weathering of the underlying natural. These are highly probable to be non-archaeological in nature. Responses of <c. +/-100nT.
-	Weak positive and negative, probable	Linear	Agricultural activity	Occasional and slight agricultural/shallow ground disturbance. These are generally regular alternating linear anomalies indicative of agricultural activity such as ploughing. Visible in shade plots of survey data. These generally run parallel to the existing southern site boundary. Interestingly along these lines are intermittent negative point responses that may be indicative of geological stone outcrops and variation, or of a particular agricultural practice. Response strengths of <c. +/-10nT.
-	Very weak negative, probable	Linear	Drain or agricultural service	Located at the east end of the site, aligned approximately north-south. Blue dashed line in Figure 4. Indicative of a stony filled (of deposited imported stone or redeposited natural rock) or a compacted deposit. Probably associated with a land drain or agricultural service, such as a water pipe. Response strength of <c.-4nT.



FIGURE 3: GREYSKALE SHADE PLOT OF MAGNETOMETRY SURVEY DATA.

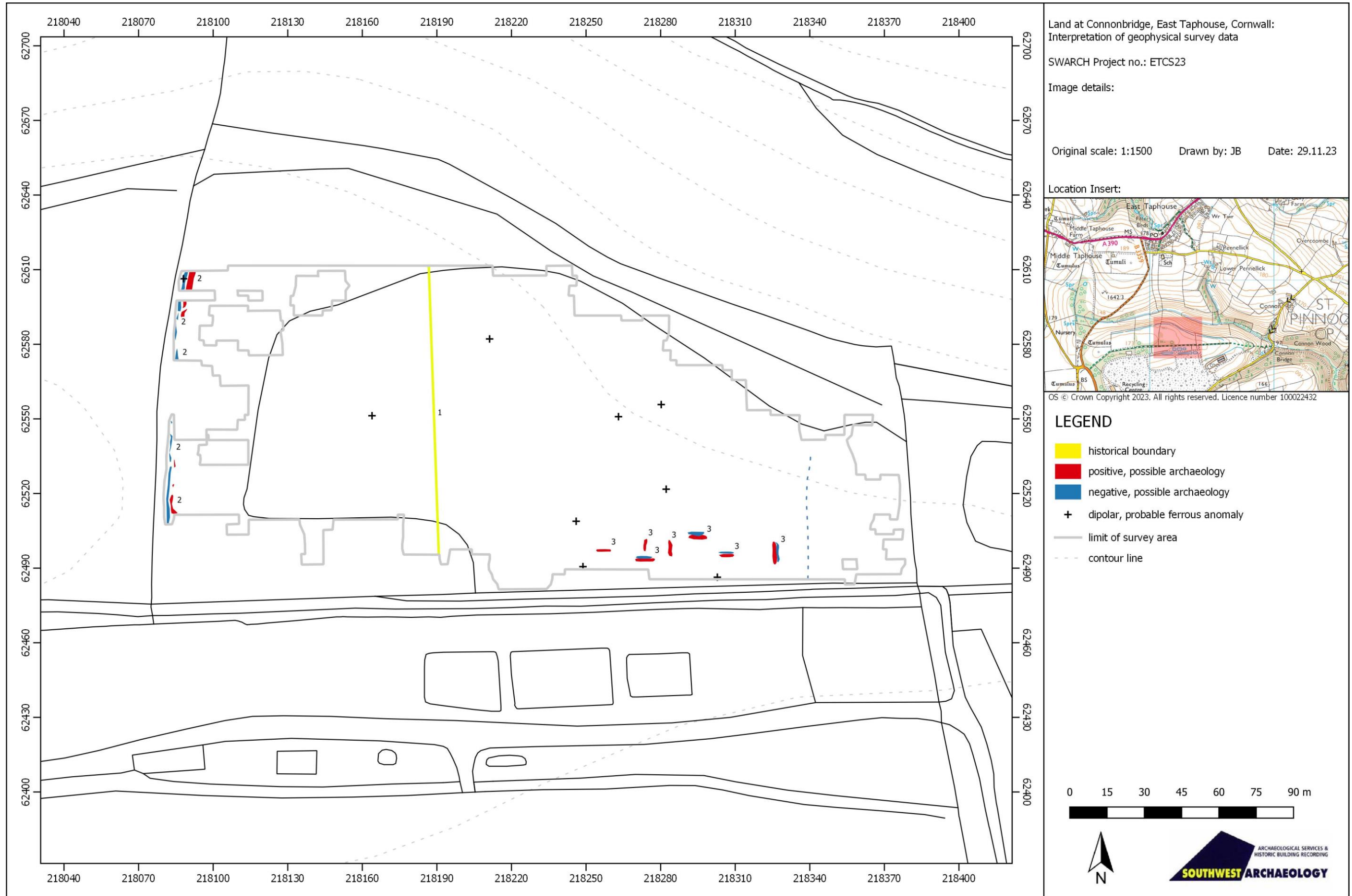


FIGURE 4: INTERPRETATION OF MAGNETOMETRY SURVEY DATA.

2.5 DISCUSSION

The geophysical survey identified 3 groups of anomalies comprised of c.9 magnetometry anomalies, depending on where one chooses to define discrete anomalies, across the survey area. These included: a linear anomaly associated with an extant track/routeway, or former boundary feature along the western boundary of the survey area (Group 2); seven short linear segments of probable modern disturbed ground (Group 3); a linear anomaly indicative of a historical field boundary (Group 1).

Probable geological variation and striations, very occasional possible ferrous dipolar anomalies, and ephemeral agricultural activity such as ploughscars and a probable drain were also discernable in the geophysical survey data. The occasional dipolar anomalies may be associated with ferrous debris or weak geological variation. The geological variation/striations ephemerally discernable in the survey data ran parallel to the slope of the site; approximately north-east by south-west. Additional visual interpretations of the data and cartographic sources supporting the discussion and comments can be seen in Appendices 1 and 2.

The general 'noise' (inherent geological variation) of the site was moderate across the site, $<c.\pm 5nT$, with occasionally higher fluctuations/spikes $<c.\pm 12nT$. Anomalies of a comparable strength are probably/possibly natural and geological in nature. The sites underlying mud- and siltstones can be effected by differential weathering that may account for some relative variation in the sites geological magnetic record.

Group 1 equated to a removed historical field boundary ostensibly comprised of a bank and flanking ditches, of which the western ditch had a more distinct magnetic signature and presumably would survive more distinctly than the eastern ditch. The relevant historical boundary was present on the c.1841 tithe map and 1st and 2nd OS mapping. It was ostensibly part of an early 19th century enclosure of the landscape, and removed in the 20th century. It is a relict part of the extant field system.

Group 2 probably represents shallow ground disturbance associated with an agricultural route along the western edge of the field. Group 3 ostensibly represents modern ground disturbance given the unusual form of the responses, their strong response, and perpendicular linear arrangement.

There was no evidence in the geophysical data indicative of a barrow or similar feature. Perhaps the general lack of probable significant archaeological anomalies on the site, which is in a relatively prominent ridge line in the landscape, is the most noteworthy aspect of this survey.

3.0 CONCLUSION

The site is located at Connonbridge on a ridge line within c.500m of an extant barrow (MCO2955), located at the west end of the same ridge. The HLC records the site as in *Farmland: Medieval*. The survey area was depicted from 1841 to 1905 as two fields, the dividing boundary of which was removed in the 20th century.

The geophysical survey identified 3 groups of anomalies comprised of c.9 anomalies, depending on where one chooses to define discrete anomalies, across the survey area. These anomalies were indicative of: a probable track/routeway beside the western boundary of the site; a number of possible modern instances of ground disturbance; and a removed field boundary associated with the extant field system. Probable geological and/or surface anomalies, such as agricultural works, were also evident in the survey data.

The survey does not indicate the presence of significant archaeological features or deposits on the site. Further archaeological works are not recommended.

4.0 BIBLIOGRAPHY & REFERENCES

Published Sources:

- Chartered Institute of Field Archaeologists** 2014a (revised 2017 and 2020): *Standard and Guidance for Historic Environment Desk-based Assessment*.
- Chartered Institute for Archaeologists** 2014b (revised 2020): *Standard and Guidance for Archaeological Geophysical Survey*.
- DW Consulting** 2016: *TerraSurveyor User Manual*.
- English Heritage** 2008: *Geophysical Survey in Archaeological Field Evaluation*.
- English Heritage** 2012: *Understanding Place: historic area assessments in a planning and development context*.
- Europae Archaeologiae Consilium** 2016: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider, EAC guidelines 2*.
- Lysons, D. & Lysons, S.** 1814: *Magna Britannia, volume 3: Cornwall*. London.
- Schmidt, A.** 2002: *Geophysical Data in Archaeology: A Guide to Good Practice*. ADS series of Guides to Good Practice. Oxbow Books, Oxford.
- Soil Survey of England and Wales** 1983: *Legend for the 1:250,000 Soil Map of England and Wales (a brief explanation of the constituent soil associations)*.
- Watts, V.** 2004: *The Cambridge Dictionary to English Place Names*. Cambridge University Press.

Unpublished Sources:

- Bampton, J.** 2023: *Land West of Braddock CofE Primary School, East Taphouse, Cornwall*. SWARCH Report Ref. 230719.
- Boyd, N., Balmond, F. & Walls, S.** 2023: *Proposed Solar Array, Connonbridge, East Taphouse, Cornwall: Results of a Heritage Impact Heritage*. SWARCH Report Ref. 230808.
- Buck, C.** 1996: *An Archaeological Assessment of Braddock Down*. CAU Report No. 1996RO23.
- Dean, R.** 2015: *Land at Middle Taphouse, Liskeard, Cornwall: An archaeological gradiometer and earth-resistance survey*. Substrata Report: 1503TAP-R-1.
- WA (Wessex Archaeology)** 2014: *Land at East Taphouse, Liskeard, Cornwall: Desk-Based Assessment*. Report Ref. 106840.01.
- WA (Wessex Archaeology)** 2014: *Land at East Taphouse, Liskeard, Cornwall: Detailed Gradiometer Survey Report*. Report Ref. 106841.01
- WA (Wessex Archaeology)** 2015: *Land at East Taphouse, Liskeard, Cornwall: Archaeological Evaluation Report*. Report Ref. 106842.01
- Webb, P** 2023: *Proposed Woodland Creation, Connonbridge, East Taphouse, Cornwall: Results of a Geophysical Survey*. SWARCH Report Ref. 230519.

Websites:

- British Geological Survey** 2023: *Geology of Britain Viewer*.
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>
- Cornwall Council Historic Environment Record (HER) and HLC** 2021: *Cornwall Council Interactive Map*.
<https://map.cornwall.gov.uk/website/ccmap/> and <http://www.heritagegateway.org.uk>
- Environment Agency** 2023: *LiDAR data*.
<https://environment.data.gov.uk/DefraDataDownload/?Mode=survey>

Kresen Kernow (KK) – Cornwall's archive centre

- Surveyors draft map for the Liskeard area, c.1803
- St Pinnock Tithe Apportionment, c.1841
- St Pinnock Tithe Map, c.1841
- Ordnance Survey 1st edition, 25 inch map, Sheet: Cornwall XXXV.15, surveyed 1881, published 1882
- Ordnance Survey 2nd edition, 25 inch map, Sheet: Cornwall XXXV.15, revised 1905, published 1907

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES FOR THE GEOPHYSICAL SURVEY

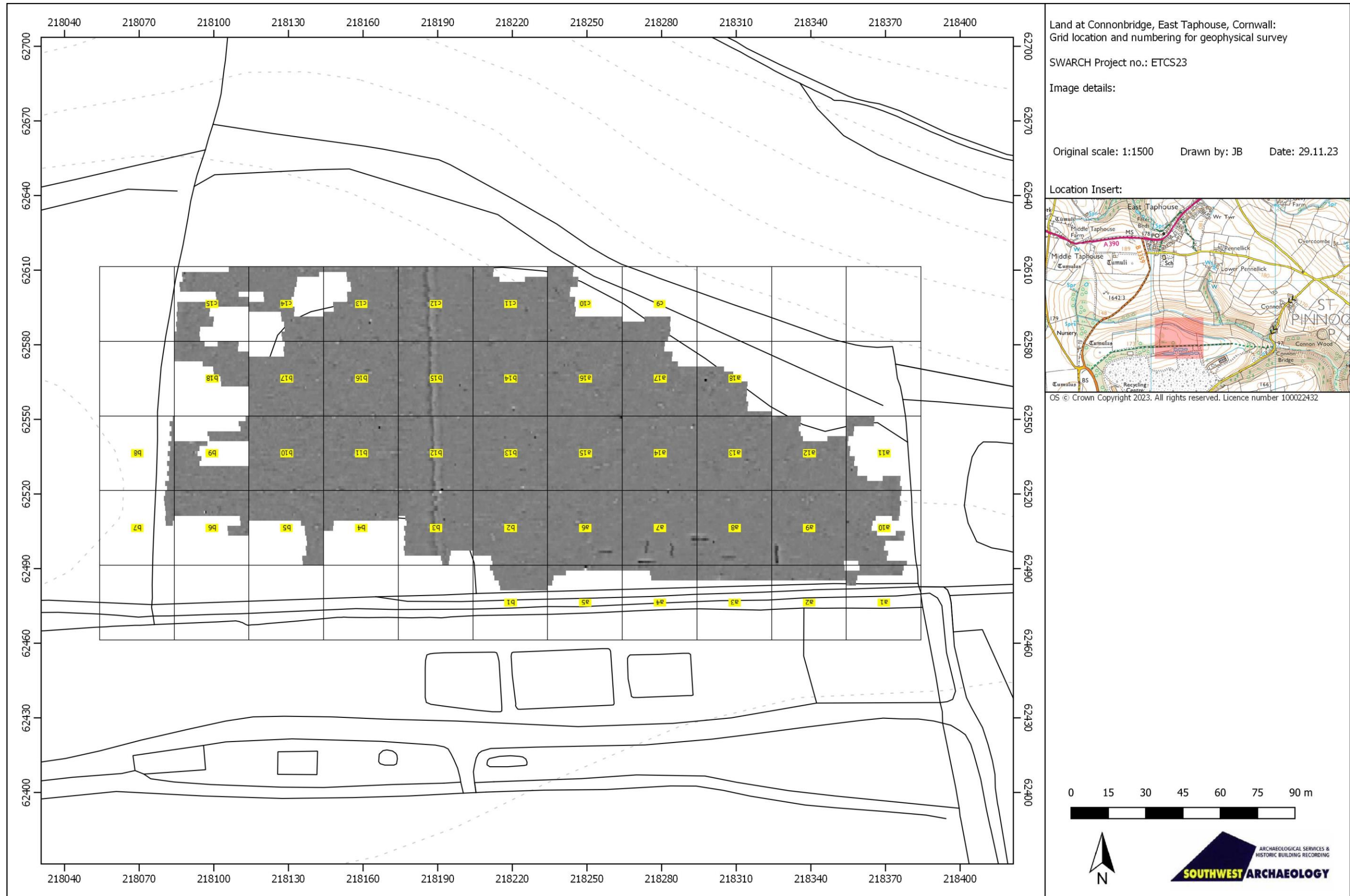


FIGURE 5: GRID LOCATION AND NUMBERING FOR GEOPHYSICAL SURVEY.



FIGURE 6: RED-GREY-BLUE SHADE PLOT OF MAGNETOMETRY SURVEY DATA; DATA CLIPPED AT 3SD, GRADIATED SHADING.

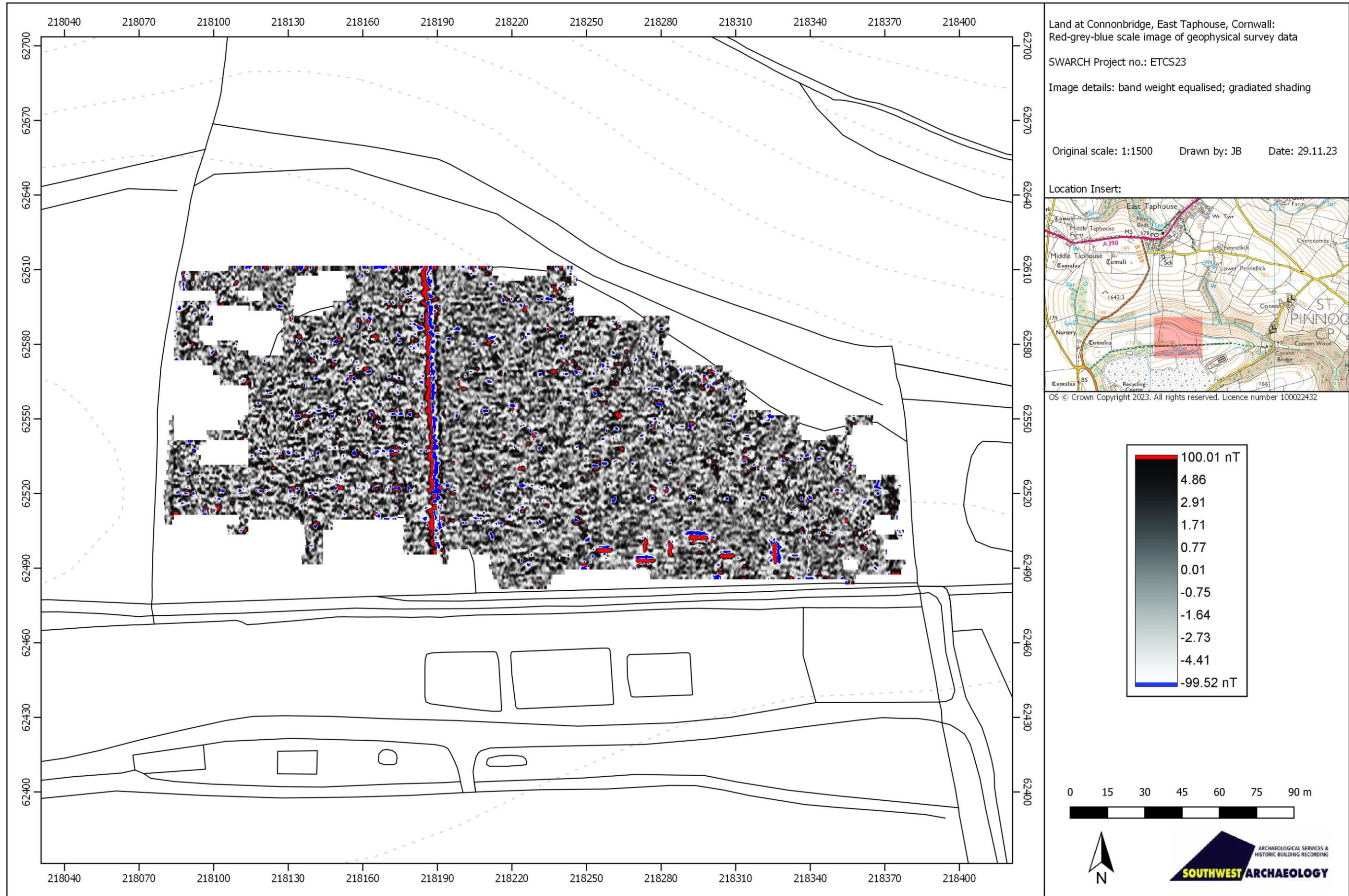


FIGURE 7: RED-GREY-BLUE SHAD PLOT OF MAGNETOMETRY SURVEY DATA; BAND WEIGHT EQUALISED, GRADIATED SHADING.

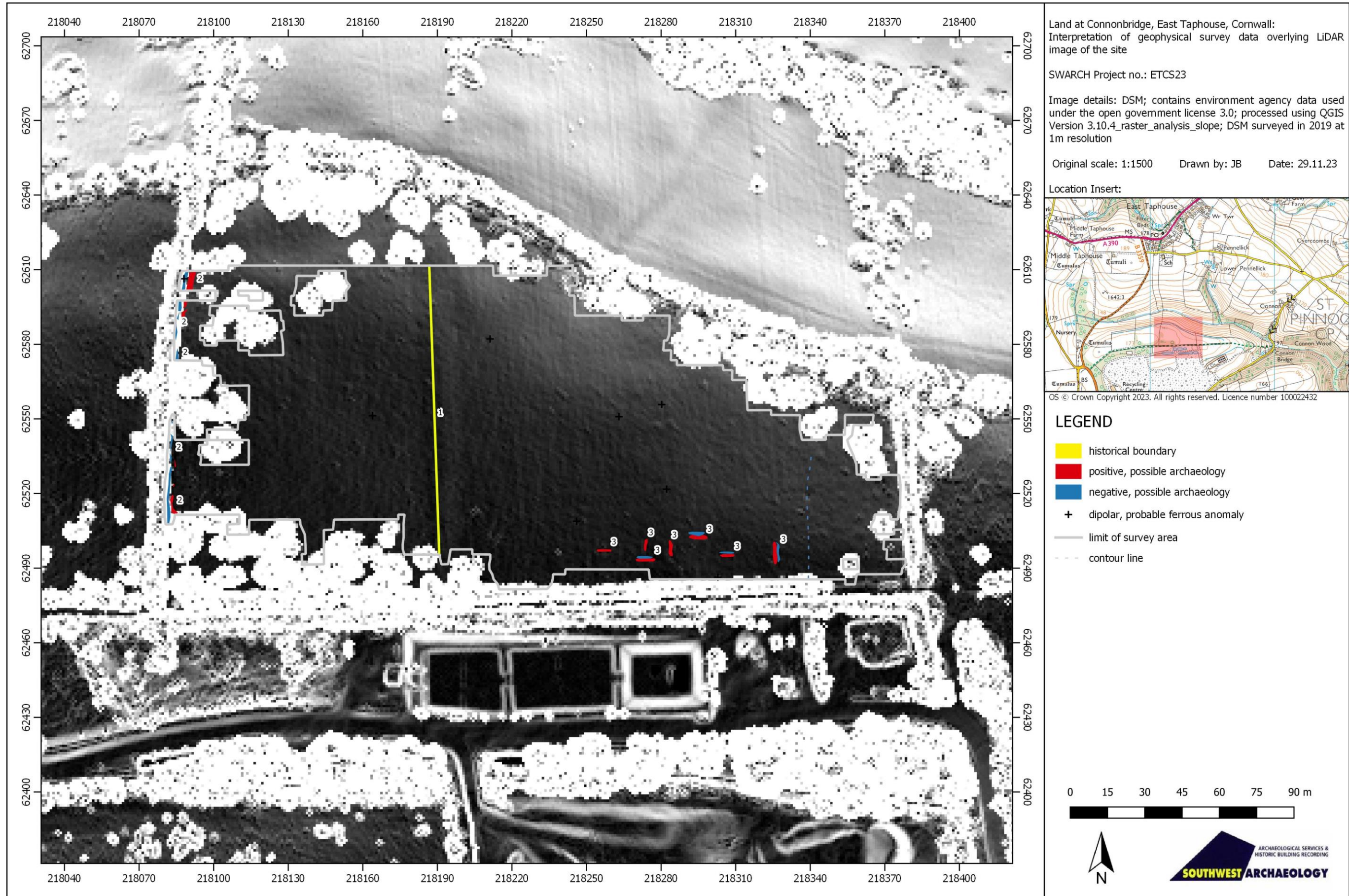


FIGURE 8: INTERPRETATION OF MAGNETOMETRY SURVEY DATA OVERLYING LiDAR IMAGE OF THE SITE.

APPENDIX 2: SUPPORTING SOURCES



FIGURE 9: EXTRACT FROM 1803 SURVEYORS DRAFT MAP (KK); THE APPROXIMATE SITE LOCATION IS INDICATED.



FIGURE 10: EXTRACT FROM THE ST. PINNOCK TITHES MAP, c.1841 (KK); THE APPROXIMATE PROPOSED SITE IS OUTLINED IN RED.

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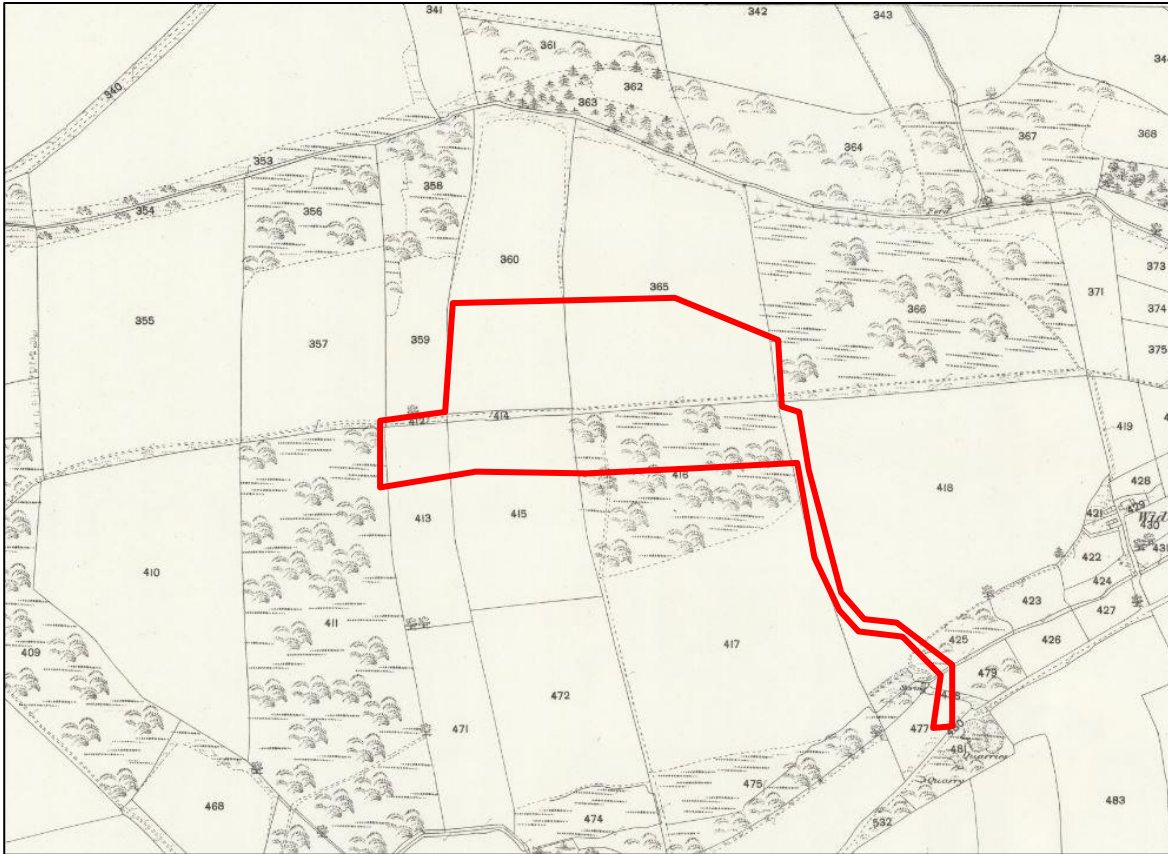


FIGURE 11: EXTRACT FROM THE ORDNANCE SURVEY 1ST EDITION 25 INCH MAP, SURVEYED 1881; SHEET XXXV.15 (KK). THE APPROXIMATE PROPOSED SITE IS OUTLINED RED.



FIGURE 12: AERIAL PHOTOGRAPH SHOWING THE SITE IN 2002 © 2023 INFOTERRA/BLUESKY; TWO CIRCULAR POSSIBLE FEATURES ARE HIGHLIGHTED IN RED.

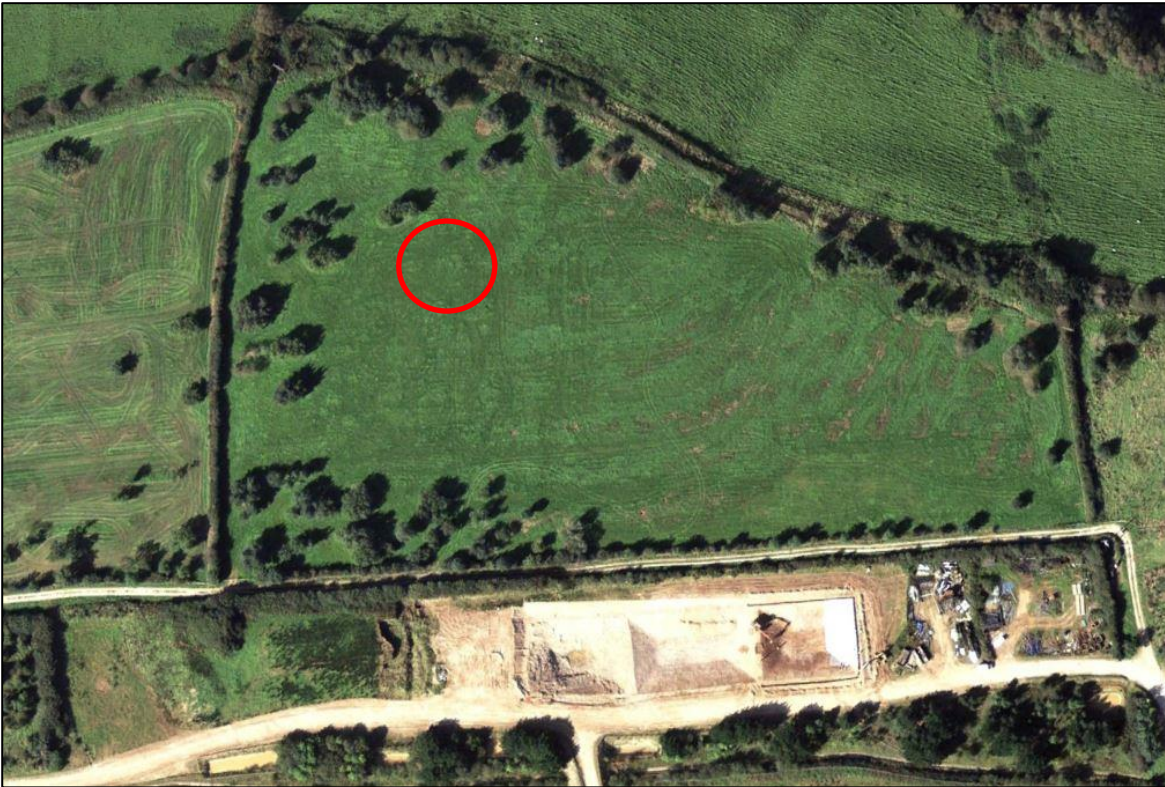


FIGURE 13: AERIAL PHOTOGRAPH SHOWING THE SITE IN 2009 © 2023 INFOTERRA/BLUESKY; A POSSIBLE CIRCULAR FEATURE (ALTHOUGH FAINT) IS OUTLINED IN RED.

PROPOSED SOLAR ARRAY, CONNONBRIDGE, EAST TAPHOUSE, CORNWALL

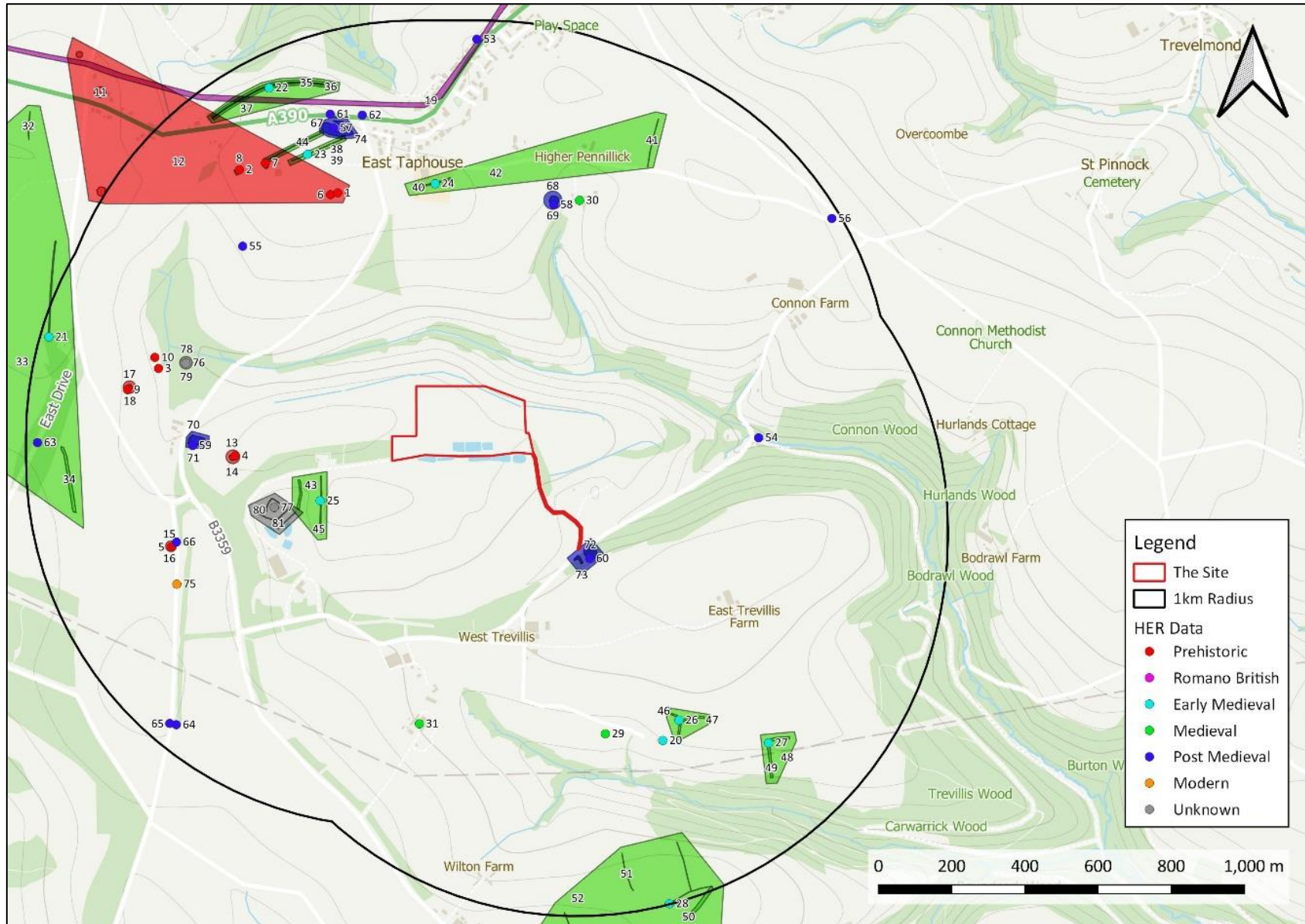


FIGURE 14: HERITAGE ASSETS WITHIN 1KM OF THE PROPOSAL AREA RECORDED IN THE CORNWALL HER CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023.

PROPOSED SOLAR ARRAY, CONNONBRIDGE, EAST TAPHOUSE, CORNWALL

TABLE 2: TABLE OF NEARBY HERITAGE ASSETS (SOURCE: CORNWALL HER).

No	MonUID	Name	Summary
1	MCO998	MIDDLE TAPHOUSE - Prehistoric findspot	A flint scatter was detected in a field which contains a barrow near Middle Taphouse.
2	MCO999	MIDDLE TAPHOUSE - Prehistoric findspot	A flint scatter was detected on the exposed surface of a barrow near Middle Taphouse.
3	MCO1145	PENVENTON - Prehistoric findspot	A Prehistoric flint scatter of mostly flakes was detected to the north of Penventon.
4	MCO2955	KILMANSAG - Bronze Age barrow	One of a pair of barrows, possibly outliers of the large barrow group at Middle Taphouse.
5	MCO2956	KILMANSAG - Bronze Age barrow	A bowl barrow in good condition, one of two forming outliers of the large barrow group at Middle Taphouse.
6	MCO3104	MIDDLE TAPHOUSE - Bronze Age barrow	A bowl barrow has been reduced by ploughing to the east of Middle Taphouse.
7	MCO3105	MIDDLE TAPHOUSE - Bronze Age barrow	A bowl barrow to the east of Middle Taphouse has been reduced through ploughing.
8	MCO3106	MIDDLE TAPHOUSE - Bronze Age barrow	A bowl barrow to the east of Middle Taphouse has been reduced through ploughing.
9	MCO42287	MIDDLE TAPHOUSE - Bronze Age barrow, Undated hollow	The possible ploughed-out remains of a barrow, visible as a sub-circular hollow on air photos.
10	MCO44050	MIDDLE TAPHOUSE - Bronze Age barrow	The remains of a possible barrow, visible as a slight earthwork on air photos.
11	MCO1958	MIDDLE TAPHOUSE - Bronze Age barrow cemetery	Seven barrows are situated on the plateau overlooking Middle Taphouse.
12	MCO1958	MIDDLE TAPHOUSE - Bronze Age barrow cemetery	Seven barrows are situated on the plateau overlooking Middle Taphouse.
13	MCO2955	KILMANSAG - Bronze Age barrow	One of a pair of barrows, possibly outliers of the large barrow group at Middle Taphouse.
14			
15	MCO2956	KILMANSAG - Bronze Age barrow	A bowl barrow in good condition, one of two forming outliers of the large barrow group at Middle Taphouse.
16			
17	MCO42287	MIDDLE TAPHOUSE - Bronze Age barrow, Undated hollow	The possible ploughed-out remains of a barrow, visible as a sub-circular hollow on air photos.
18			
19	MCO66590	TAPHOUSE - Roman road	Earthwork remains of a probable Roman road running eastwards from close to Restormel Roman fort to East Taphouse and onwards to approximately 2km north of Doublebois can be seen on Lidar
20	MCO11594	TREVILLIS - Early Medieval settlement, Medieval manor, Medieval settlement	The settlement of Trevellis is first recorded in the Domesday survey of 1086.
21	MCO42286	BRADDOCK - Early Medieval field system, Medieval field system	
22	MCO42304	MIDDLE TAPHOUSE - Early Medieval field boundary	
23	MCO42306	MIDDLE TAPHOUSE - Early Medieval field boundary	
24	MCO42309	MIDDLE TAPHOUSE - Early Medieval field boundary	
25	MCO42315	MIDDLE TAPHOUSE - Early Medieval field boundary	
26	MCO42324	EAST TREVILLIS - Early Medieval field boundary	
27	MCO42325	EAST TREVILLIS - Early Medieval field boundary	
28	MCO42326	WILTON FARM - Early Medieval field system	
29	MCO11595	TREVILLIS - Medieval manor house, Post Medieval manor house	The site of a manor house is recorded on OS maps.
30	MCO16147	PENHELLICK - Medieval settlement	The settlement of Penhellick is first recorded in 1302.
31	MCO16151	PENHOLE - Medieval settlement	The settlement of Penhole is first recorded c1250.
32	MCO42286	BRADDOCK - Early Medieval field system, Medieval field system	
33			
34			
35	MCO42304	MIDDLE TAPHOUSE - Early Medieval field boundary	
36			
37	MCO42306	MIDDLE TAPHOUSE - Early Medieval field boundary	
38			
39	MCO42309	MIDDLE TAPHOUSE - Early Medieval field boundary	
40			
41	MCO42315	MIDDLE TAPHOUSE - Early Medieval field boundary	
42			
43	MCO42324	EAST TREVILLIS - Early Medieval field boundary	
44			
45	MCO42325	EAST TREVILLIS - Early Medieval field boundary	
46			
47	MCO42325	EAST TREVILLIS - Early Medieval field boundary	
48			

PROPOSED SOLAR ARRAY, CONNONBRIDGE, EAST TAPHOUSE, CORNWALL

49			
50			
51	MCO42326	WILTON FARM - Early Medieval field system	
52			
53	MCO9052	EAST TAPHOUSE - Post Medieval blacksmiths workshop	
54	MCO9541	COMMON BRIDGE - Post Medieval bridge	
55	MCO23354	BRADDOCK DOWN - Post Medieval battlefield	Cornish Royalists, under Sir Ralph Hopton, defeated Parliamentarians at Braddock Down on 19th Jan 1643.
56	MCO32096	CONNON - Post Medieval nonconformist chapel	
57	MCO42308	MIDDLE TAPHOUSE - Post Medieval quarry	
58	MCO42310	LOWER PENNELICK - Post Medieval quarry	
59	MCO42313	MIDDLE TAPHOUSE - Post Medieval quarry	
60	MCO42316	TREVILLIS - Post Medieval quarry	
61	MCO49092	EAST TAPHOUSE - Post Medieval milepost	A cast iron milespost, approx 1760, survives approx 500m SW of East Taphouse on the north side of the A390 - Liskeard 5½ and Lostwith 6.
62	MCO58720	EAST TAPHOUSE - C19 guide post	A guide post is recorded on OS 1st Edition mapping dated 1882. The guide post survives in situ.
63	MCO63341	BOCONNOC - Post Medieval milestone	Extant milestone indicating 1 1/2 miles from Boconnoc House on the private road to East Lodge. The front face is inscribed '1 1/2', although labelled on the 1880 OS mapping as 'M.S. Boconnoc 2'
64	MCO64067	BROADOAK - C19 boundary stone	Extant C19 boundary stone marking the parish boundary between Broadoak, Lanreath and St. Pinnock parishes.
65	MCO64068	ST PINNOCK - C19 boundary stone	Extant C19 boundary stone marking the parish boundary between Broadoak and St. Pinnock parishes
66	MCO64069	ST PINNOCK - C19 boundary stone	Extant C19 boundary stone marking the parish boundary between Broadoak and St. Pinnock parishes
67	MCO42308	MIDDLE TAPHOUSE - Post Medieval quarry	
68			
69	MCO42310	LOWER PENNELICK - Post Medieval quarry	
70			
71	MCO42313	MIDDLE TAPHOUSE - Post Medieval quarry	
72			
73	MCO42316	TREVILLIS - Post Medieval quarry	
74	MCO54668	POLMASSICK - Post Medieval signpost	A cast iron fingerpost from Charlestown Foundry survives on the southern side of a crossroads in Polmassick.
75	MCO44048	BRADDOCK - Modern military camp	
76	MCO42311	MIDDLE TAPHOUSE - Undated enclosure	A sub-circular ditched enclosure, diameter approx 20m, is visible on aerial photographs.
77	MCO42314	MIDDLE TAPHOUSE - Undated enclosure	The remains of a rectilinear enclosure are visible on aerial photographs.

TABLE 3: DETAILS OF DESIGNATED HERITAGE ASSETS SHOWN IN FIGURE 9 (HE)

No	ListEntry	Name	Grade
1	1137619	Milestone At Ngr Sx1785463357	II
2	1004433	Three bowl barrows 215m south east of Beech Lawn, which form part of a larger round barrow cemetery	SM
3	1004434	Bowl barrow 780m east of Penventon	SM
4	1004435	Bowl barrow 230m south west of Middle Taphouse Farm, forming part of a round barrow cemetery	SM
5	1000005	Battle of Braddock Down 1643	Battlefield

PROPOSED SOLAR ARRAY, CONNONBRIDGE, EAST TAPHOUSE, CORNWALL

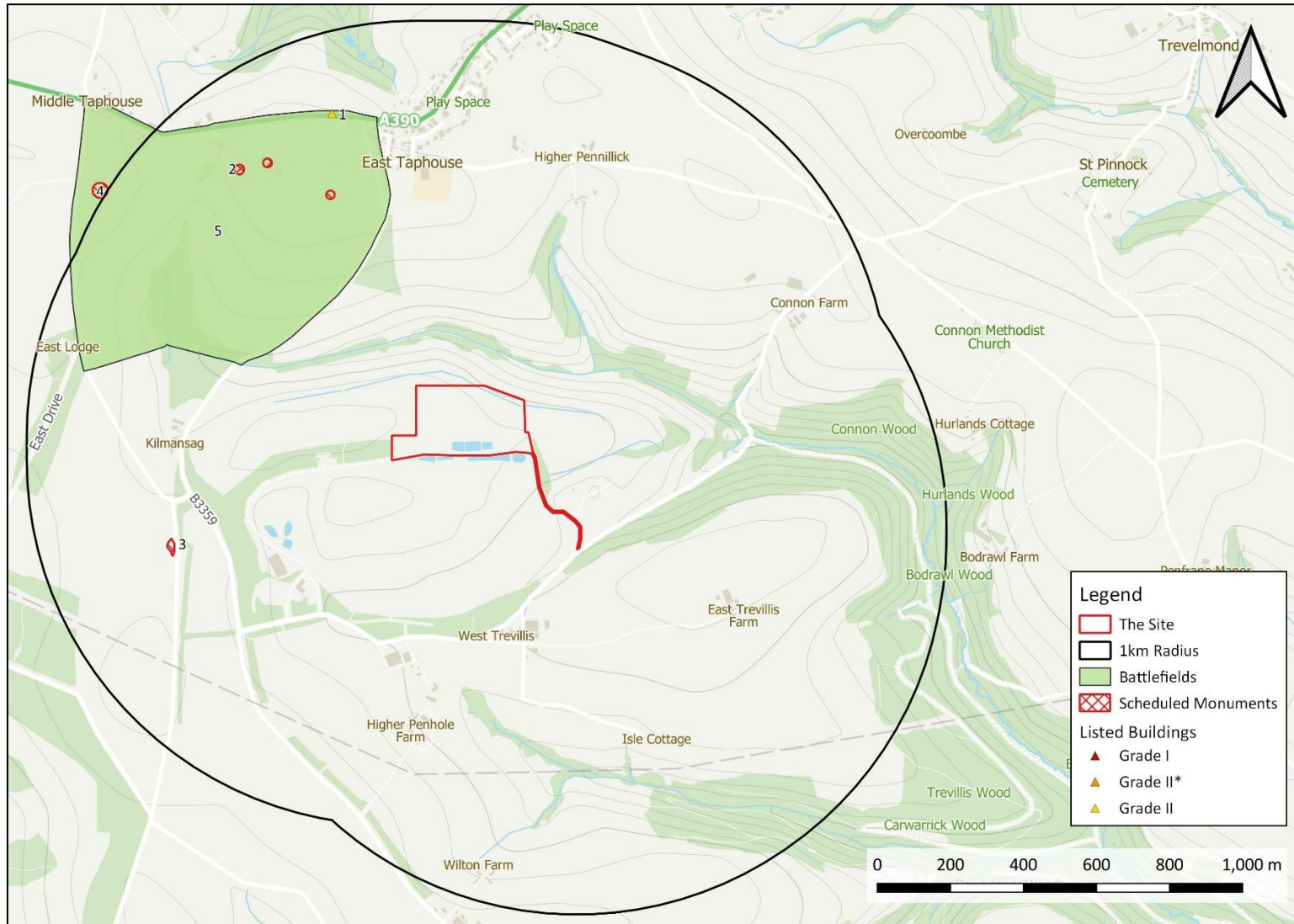


FIGURE 15: DESIGNATED HERITAGE ASSETS WITHIN 1KM OF THE PROPOSAL AREA RECORDED IN THE NATIONAL HERITAGE LIST FOR ENGLAND (NHLE) © HISTORIC ENGLAND 2023. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. THE MOST PUBLICLY AVAILABLE UP TO DATE HISTORIC ENGLAND GIS DATA CAN BE OBTAINED FROM [HTTP://HISTORICENGLAND.ORG.UK](http://HistoricEngland.org.uk).

APPENDIX 3: SUPPORTING PHOTOGRAPHS



1. EXTANT BARROW (MCO2955), c.500M WEST OF THE SITE ON THE SAME RIDGE; VIEWED FROM THE EAST-NORTH-EAST (NO SCALE).



2. FOOTPATH LEADING TO THE SITE FROM THE FIELD CONTAINING BARROW MCO2955, IN AUGUST; VIEWED FROM THE WEST (NO SCALE).



3. VIEW ALONG THE SOUTH BOUNDARY OF THE SURVEY AREA FROM ITS SOUTH-WEST CORNER; VIEWED FROM THE EAST (NO SCALE).



4. VIEW ALONG THE EAST BOUNDARY OF THE SITE FROM ITS SOUTH-EAST CORNER; VIEWED FROM THE SOUTH (NO SCALE).



5. THE EAST END OF THE SURVEY AREA; VIEWED FROM THE WEST (NO SCALE).



6. SOUTH-WEST PART OF THE PROPOSED DEVELOPMENT AREA, SHOWING MADE-GROUND/AGGREGATE BUND; VIEWED FROM THE SOUTH-EAST (NO SCALE).



7. VIEW ALONG THE SOUTHERN EDGE OF THE PROPOSED DEVELOPMENT AREA; VIEWED FROM THE WEST (NO SCALE).



8. DEEP CUTS ASSOCIATED WITH TREATMENT WORKS SOUTH OF THE SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).



9. THE NORTH-WEST CORNER OF THE SURVEY AREA FIELD; VIEWED FROM THE SOUTH-SOUTH-WEST (NO SCALE).



10. NORTH-WEST CORNER OF THE SURVEY AREA; VIEWED FROM THE WEST (NO SCALE).



11. VIEW ALONG THE WEST BOUNDARY OF THE SURVEY AREA; VIEWED FROM THE NORTH (NO SCALE).

APPENDIX 4: TECHNICAL SUMMARY TABLE OF GEOPHYSICAL SURVEY METHOD AND METADATA

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

SWARCH Ref.	Site Name	Site Type	Period
ETCS23	Connonbridge, East Taphouse, Cornwall	-	-
Survey Type:	Magnetometry		
Equipment:	Twin sensor fluxgate gradiometer (Bartington Grad601) Leica CS15 GNSS Rover GPS		
Software:	TerraSurveyor64 - Version 4.0.18.7		
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:	West / 270°	
	Adjustment frequency:	0.5-1ha	
Survey Size Metadata:	Individual Grid Size	30m x 30m	
	Composite Area:	4.95ha / 330m x 150m	
	Area Surveyed:	2.5894 ha	
Raw Response Metadata:	Max.:	98.57nT	
	Min.:	-100.00nT	
	Standard Deviation:	5.29nT	
	Mean:	-0.49nT	
	Median:	-0.76nT	
processed Response Metadata (pre-clipping):	Max.:	100.00nT	
	Min.:	-99.52nT	
	Standard Deviation:	4.94nT	
	Mean:	0.22nT	
	Median:	0.00nT	
Processes:	DeStripe all traverses, median		
	DeStagger all traverses out- and inbound by 0.50m (grids a1-a11, b1-b7), by 0.75m (grids b8-b13), by 0.25m (all other grids)		
	Clip at 3SD (Standard Deviation)		



THE OLD DAIRY
HACCHE LANE BUSINESS PARK
PATHFIELDS BUSINESS PARK
SOUTH MOLTON
DEVON
EX36 3LH

01769 573555

01872 223164

MAIL@SWARCH.NET