

**PROPOSED SLURRY LAGOON
LAND WEST OF RILLATON TO RILLA MILL ROAD
RILLA MILL, LINKINHORNE
CORNWALL**

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 231030



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PROPOSED SLURRY LAGOON, LAND WEST OF RILLATON TO RILLA MILL ROAD, RILLA
MILL, CORNWALL
RESULTS OF A GEOPHYSICAL SURVEY

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Work undertaken by SWARCH for a Private Client (the Client).

SUMMARY

This report presents the results of a geophysical survey and archaeological assessment carried out by South West Archaeology Ltd. (SWARCH) on land to the west of the road which runs between Rillaton and Rilla Mill, Linkinhorne, Cornwall as part of a planning application for the installation of a slurry lagoon.

The site lies within a large area recorded on the Cornwall Historic Landscape Characterisation (HLC) as Farmland: Medieval: 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.

The survey identified eight groups of anomalies across the survey area. These were predominantly linear ditch and/or bank features associated with phases of the existing and historic field-system and agricultural practices. Possible pits and/or tree-throws and anomalies associated with ground disturbance and metallic debris were also apparent.

The degree of preservation of the identified features appears to be moderate. Whilst many of the anomaly responses are clear and defined, others are intermittent and barely discernible from the background geology. This suggests that whilst some features may survive to a good depth, others only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology and modern disturbance.

The results of the geophysical survey would suggest that the archaeological potential for the site is moderate. Whilst several of the identified features may relate to historic phases of field-system which are tentatively suggested as being medieval to post-medieval in date, the presence of prehistoric features in the surrounding landscape means that a prehistoric or Romano-British date cannot be ruled out for some features.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present), and further mitigation, most appropriately through an archaeological recording condition as part of any planning consent would be considered appropriate.

October 2023

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1.0 INTRODUCTION

LOCATION:	LAND TO THE WEST OF THE ROAD BETWEEN RILLATON AND RILLA MILL
PARISH:	LINKINHORNE
COUNTY:	CORNWALL
NGR:	CENTRED ON SX 29763 73604
PLANNING NO.:	PA23/04505
SWARCH REF.	LRMS23
OASIS REF:	SOUTHWES1-520038

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by a Private Client (the Client) to undertake a geophysical survey and archaeological assessment for land to the west of the road that runs between Rillaton and Rilla Mill, Rilla Mill, Linkinhorne, Cornwall as part of a planning application for the installation of a slurry lagoon. This work was undertaken in line with best practice and ClfA guidance (2020) in order to assess the potential archaeological impacts of the development.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site lies within a sub-rectangular field to the south-west of Rillaton and north of Rilla Mill, to the immediate west of the road running from Rillaton to Rilla Mill. The wider landscape is largely agricultural. The site slopes down to the north-west at a height of between c.125 and 127m AOD (Figure 1). The soils of this area are the well drained fine loamy and fine silty soils over rock of the Denbigh 1 Association (SSEW) which overlie the slate, siltstone and sandstone of the Brendon Formation (BGS 2023).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The site lies within the parish of Linkinhorne, in the deanery and north division of the historic hundred of East. The site forms part of the land historically associated with Westcott Farmhouse (Grade II*), to the north-west.

The site lies within a large area recorded on the Cornwall Historic Landscape Characterisation (HLC) as Farmland: Medieval: *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.*

A geophysical survey was carried out at Rillaton Manor, to the north-east of the site, although the results do not appear to be publicly available. No other fieldwork appears to have been carried out on or near the site.

1.4 METHODOLOGY

The geophysical (gradiometer) survey was undertaken in accordance with current best practice and ClfA guidance; and follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008); *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014 updated 2020); *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016).

'Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as reasonably possible, within a specified area or site on land, in the inter-tidal zone or underwater. Geophysical survey determines the presence of anomalies of archaeological potential through measurement of one or more physical properties of the subsurface.' (Standard and Guidance for Archaeological Geophysical Survey 2014).

The results of the survey will, as far as possible, inform on the presence or absence, character, extent and in some cases, apparent relative phasing of buried archaeology to inform a strategy to mitigate any threat to the archaeological resource.

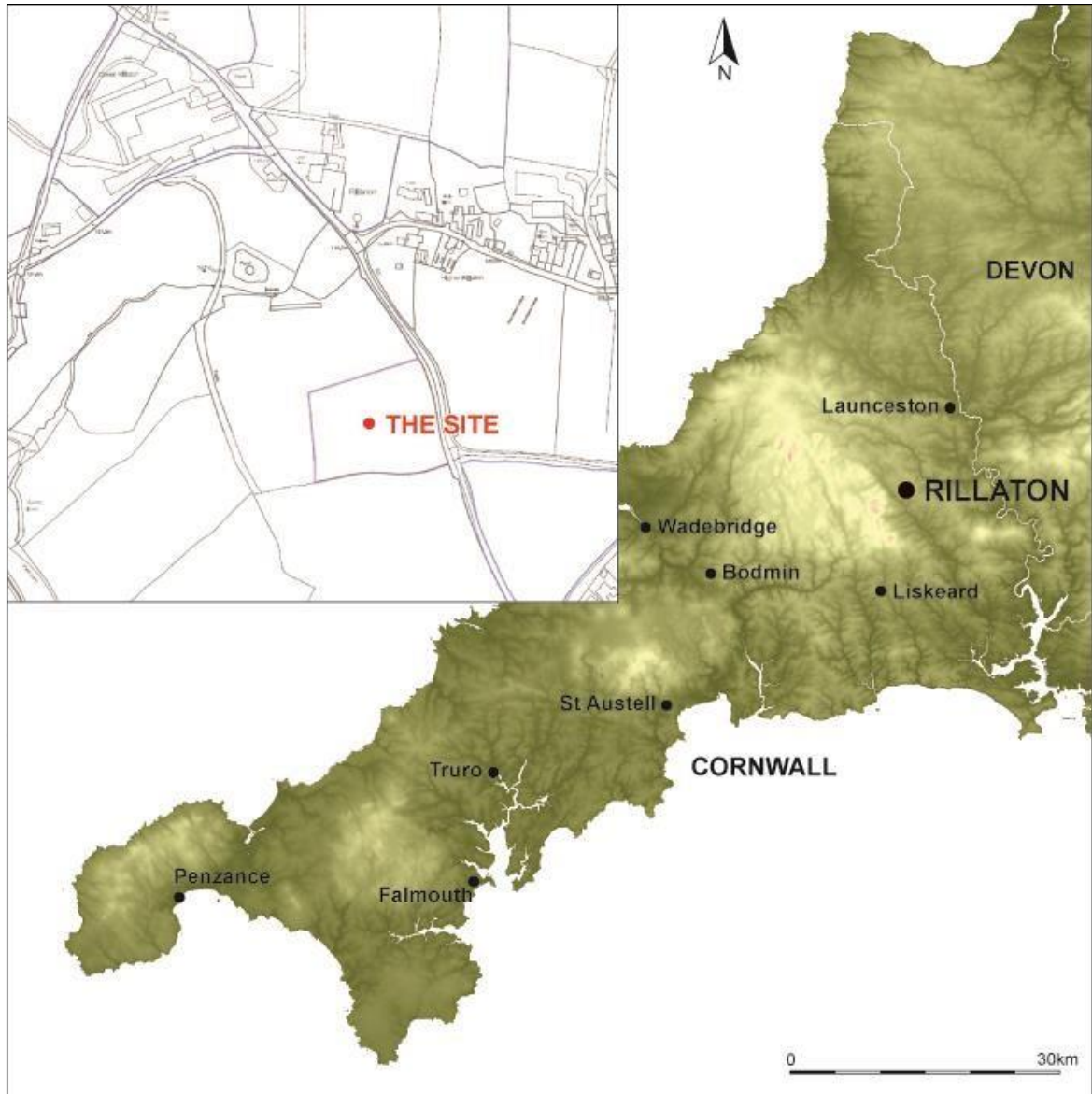


FIGURE 1: SITE LOCATION (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

2.0 DESK-BASED ASSESSMENT

2.1 DOCUMENTARY HISTORY

The site lies within the parish of Linkinhorne, in the deanery and north division of the historic hundred of East (Lysons 1814). Lysons (1814) notes that the Manors of Rillaton and Carnadon Prior were anciently known as the Manor of Linkinhorne and by the 19th century, were parcel of the Duchy of Cornwall. The Manor of Rillaton was annexed to the Duchy during the reign of Edward III (1327-1377).

The land in which the site is located once formed part of the landholding of Westcott House, to the north-west of the site, a Grade II* Listed farmhouse with late 16th or early 17th century origins and possibly representing a fragment of a larger house.

The site falls into an area that is classified in the Cornwall and Scilly Historic Landscape Characterisation as *Farmland: Medieval: 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.*

2.2 CARTOGRAPHIC DEVELOPMENT

The first map available to this study is The Martyn's Map of 1748. While not much detail is shown, the approximate location of the site can be determined. The Manor at Rillaton is depicted as a large house, with Rilla Mill 'alias Runney Mills' marked to the south. The road system between the two is recognisable.

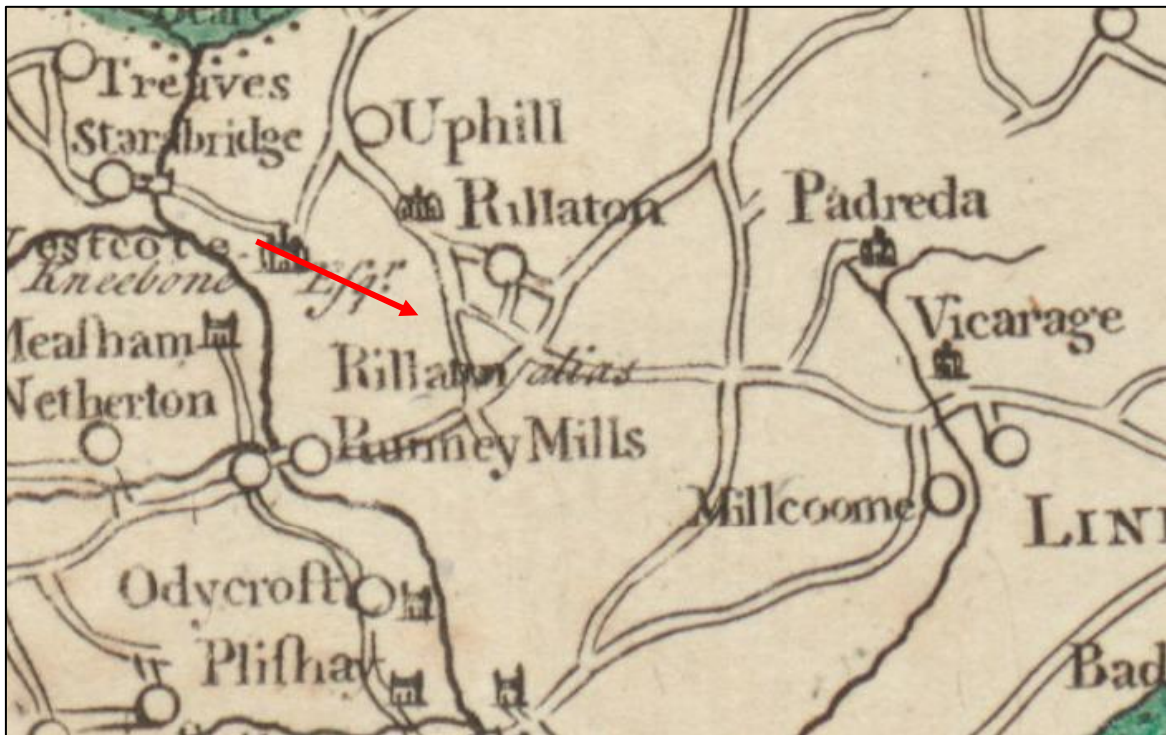


FIGURE 2: EXTRACT OF THE MARTYN'S MAP OF CORNWALL, 1748 (HARVARD UNIVERSITY MAP COLLECTION).

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The Linkinhorne (East) Tithe Map of c.1840 shows the site in much greater detail. The site forms part of a larger enclosure, to the immediate west of one of the roads leading south from Rillaton. The size and shape of the field would indicate it is likely a Post-Medieval or Barton field. The field formed part of the landholding of Westcott, owned by Thomas Short and occupied by John Bone.

The plot number 130 was called Bennywell, likely from the Cornish '*Behenna*', meaning 'little' and 'Well' coming from '*Gweal*', meaning 'field'. The land was used as a pasture at this time. There are a number of John Bones in the 1841 census but none recorded at Westcott or Rillaton, so it is difficult to ascertain which is the one occupying the site; similarly for both Thomas Short and for the 1851 census for both men.

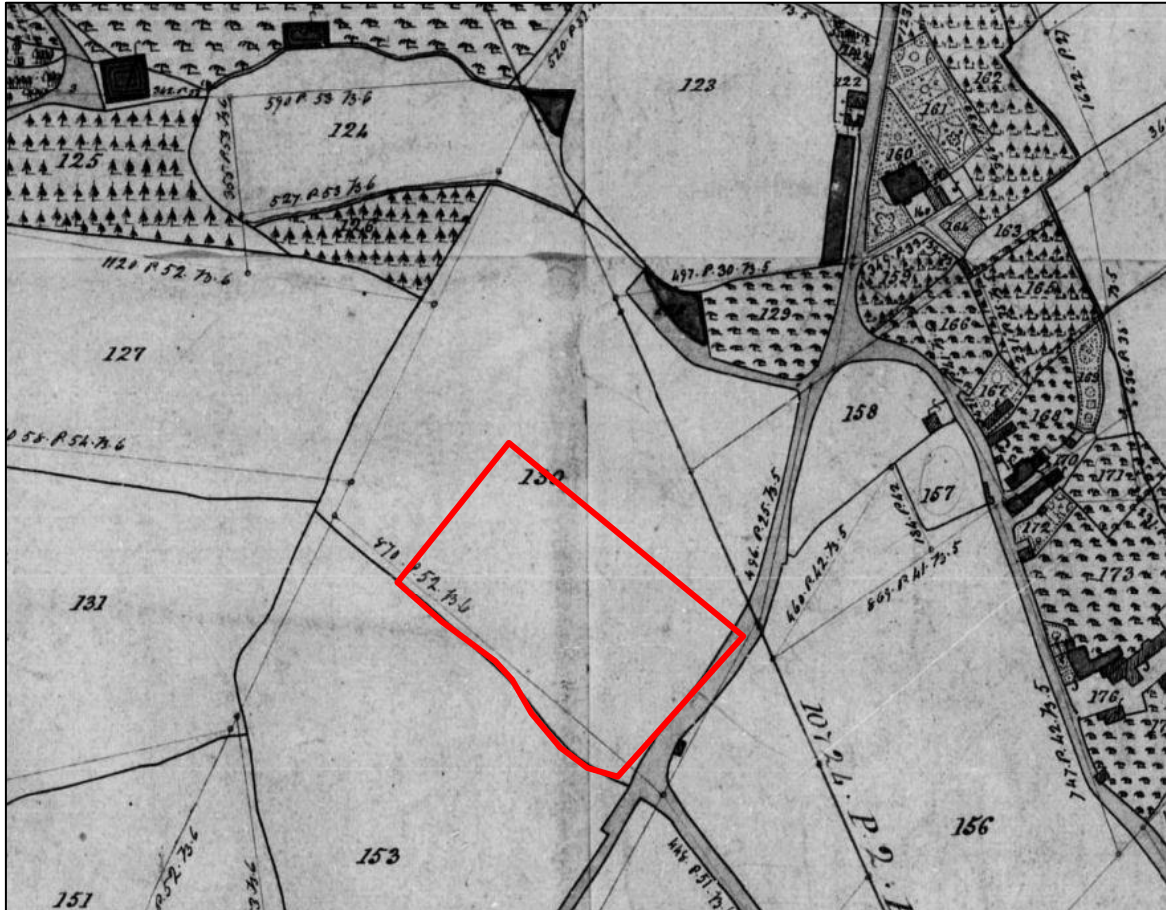


FIGURE 3: EXTRACT OF THE LINKINHORNE (EAST) TITHE MAP, c.1841. THE APPROXIMATE SITE LOCATION IS INDICATED (GENEALOGIST).

TABLE 1: EXTRACT FROM THE 1840 LINKINHORNE (EAST) TITHE APPORTIONMENT; THE SITE IS HIGHLIGHTED IN GREEN (TNA).

Plot No.	Owner	Occupier	Plot Name	Cultivation
Westcott				
123	Thomas Short	John Bone	Trout Meadow (W. and Rillaton)	Pasture
124			Rillaton Long Meadow	Pasture
126			Plantation	Wood
127			Great Down	Arable
129			Orchard	Orchard
130			Bennywell	Pasture
131			Middle Down	Arable
153			Church Park	Arable
154			Cross Park	Arable

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Higher Rillaton				
156	Moses Underwood	James Rundle and others	Front Meadow (W. & Rillaton)	Pasture
Rillaton				
158	Charles Bennett	Charles Bennett	Beake's Meadow	Pasture

The Ordnance Survey (OS) first edition map of 1883 (surveyed 1882) does not appear to show much change to either the site or the surrounding fieldscape. The site can be seen to retain its shape and size, and whilst there is some alteration in the boundaries within the wider fieldscape, those surrounding the site appear to remain unaltered. Similarly for the Second Edition OS map of 1906 (revised 1905), although the field to the south-west appears to have been divided to form two strips.

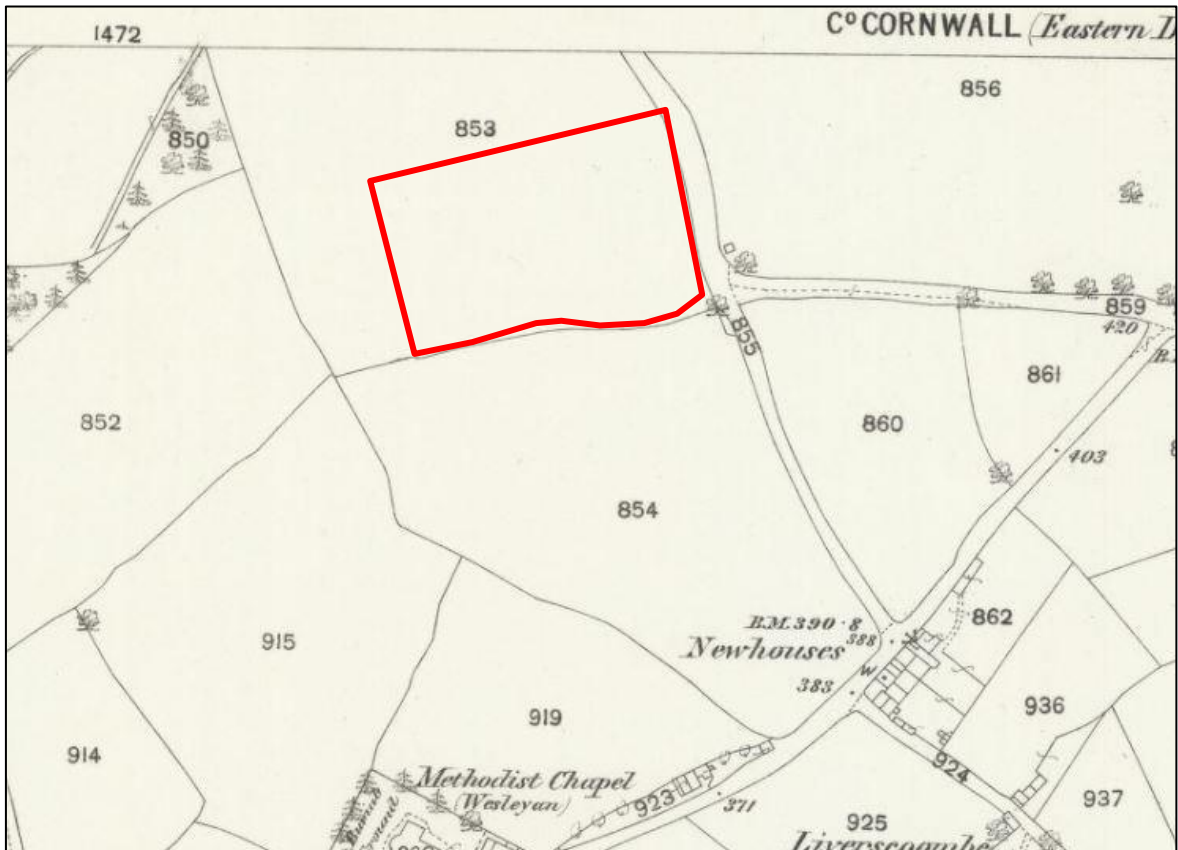


FIGURE 4: EXTRACT OF THE FIRST EDITION ORDNANCE SURVEY MAP OF 1883. THE APPROXIMATE SITE IS INDICATED (NLS).



FIGURE 5: EXTRACT OF OS 2ND EDITION MAP, 1906; THE APPROXIMATE SITE LOCATION IS INDICATED (NLS).

2.3 LIDAR

The LiDAR for the site appear to indicate a number of linear features which may indicate an earlier division of the land, a Medieval or earlier field system. To the north-west of the site there appears to be a small rectangular enclosure, which may be related to the earlier field system – a pound or similar, but could indicate an earlier structure or enclosure, which predates the historic mapping. To the west of the site appears to be a mound, which may relate to ground disturbance or possibly a barrow.

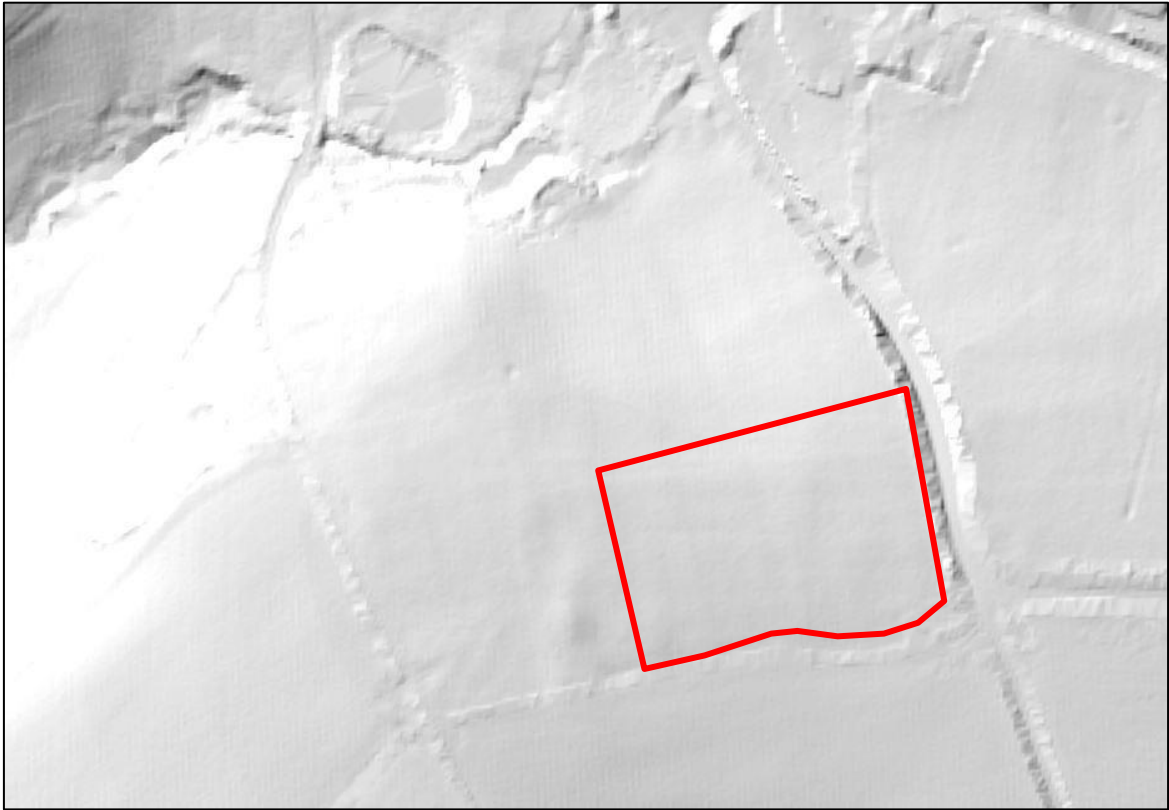


FIGURE 6: LIDAR FOR THE SITE; LIDARFINDER.COM. THE APPROXIMATE SITE IS INDICATED.

2.4 AERIAL PHOTOGRAPHY

There is not historic aerial photography readily available for the site. Modern aerial photography shows the site in use as pasture and partially mowed but no cropmarks or earthworks are visible.



FIGURE 7: AERIAL PHOTOGRAPHY FOR THE SITE IN 2010; GETMAPPING PLC. THE APPROXIMATE SITE IS INDICATED.

2.5 ARCHAEOLOGICAL BACKGROUND

The site and the surrounding area have remained largely unchanged over the last two centuries. The site falls into an area that is classified in the Cornwall and Scilly Historic Landscape Characterisation as *Farmland: Medieval: 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*. The site itself has not been subject to any archaeological investigation, and limited archaeological fieldwork has been carried out in the vicinity of the site. This consists of a single geophysical survey at Rillaton Manor (ECO3610) although the report and results do not appear to be publicly available.

A 1km search radius around the site has been considered in detail due to the open landscape surrounding the site, though reference is made to archaeological features and heritage assets within the wider landscape. There are 4 Listed Buildings (1 Grade II* and 3 Grade II), one Scheduled Monument within 1km of the site (Medieval Bridge at Starabridge) and one Conservation Area (Rilla Mill). There are, no Registered Parks and Gardens, and no Registered Battlefields within 1km of the site.

2.5.1 PREHISTORIC 4000BC - AD43

There is evidence for a Prehistoric landscape in the wider countryside surrounding the site, particularly to the west, where the concentration of assets relating to Prehistoric activity increases dramatically on the moorland. There are 3 Prehistoric assets recorded within 1km of the site, all to the east and south-east. These include circular cropmarks identified on aerial photography at Patrieda Barn which may indicate a Bronze Age barrow (MCO3221), The name 'Berry Land' which may indicate an Iron Age or Romano British Round (MCO7558) and the field name 'Hole Stone' which may indicate a Prehistoric holed stone, which no longer remains (MCO23439).

2.5.2 ROMANO-BRITISH AD43 - AD409

The possible Prehistoric round may also have Romano-British origins. There are no other features or finds recorded within the study area.

2.5.3 MEDIEVAL AD410 - AD1540

There are five Early Medieval assets recorded on the HER within 1km of the site; the settlement and Manor of Rillaton (*Rislestone*), the possible field system identified on aerial photography at Netherton (MCO38609, MCO38615), the field system identified through aerial photography at Colquite Wood (MCO38617) and the possible field system at Bearah (MCO38640). There are also a number of assets relating to the Medieval period within the study area, including the Medieval cross site at Patrieda Barn (MCO5612), the Scheduled bridge at Starabridge (MCO9722, SM 1020637), the settlement at Addicroft (*Odecroft*; MCO13250), the settlement of Measham (*Meuuesham*, MCO15642), the settlement of Rilla Mill (*Rillamylle*, MCO16591), the settlement of Uphill (*Huppehull*, MCO18178) and the field system at Halwinnick Butts (MCO21011).

2.5.4 POST MEDIEVAL AD1540 - AD1899

Many of the heritage assets that are recorded in the immediate vicinity of the site are Post Medieval in date. These include field systems (MCO21346), mills and related features (MCO24663, MCO23440, MCO29597, MCO38610), ridge and furrow (MCO29659), a blacksmiths workshop (MCO9108), the Rilla Mill bridge (MCO9697), open cast mine at Westcott (MCO29626), non-conformist chapel (MCO32041) and Sunday school (MCO32042), quarries (MCO38608, MCO38616), cemetery (MCO52371), boundary stones (MCO58238, MCO58239, MCO67182, MCO67183), dower house (MCO61355), barn (MCO61356), and stiles (MCO72385, MCO72386, MCO72390).

2.5.5 MODERN AD1900 - PRESENT AND UNKNOWN

There are no Modern assets recorded within the study area, and only one undated feature, an earthwork at Patrieda Barn (MCO29658). Further to the south-east, outside of the study area is the possible location of a demolished WW2 anti-aircraft battery (MCO39351).

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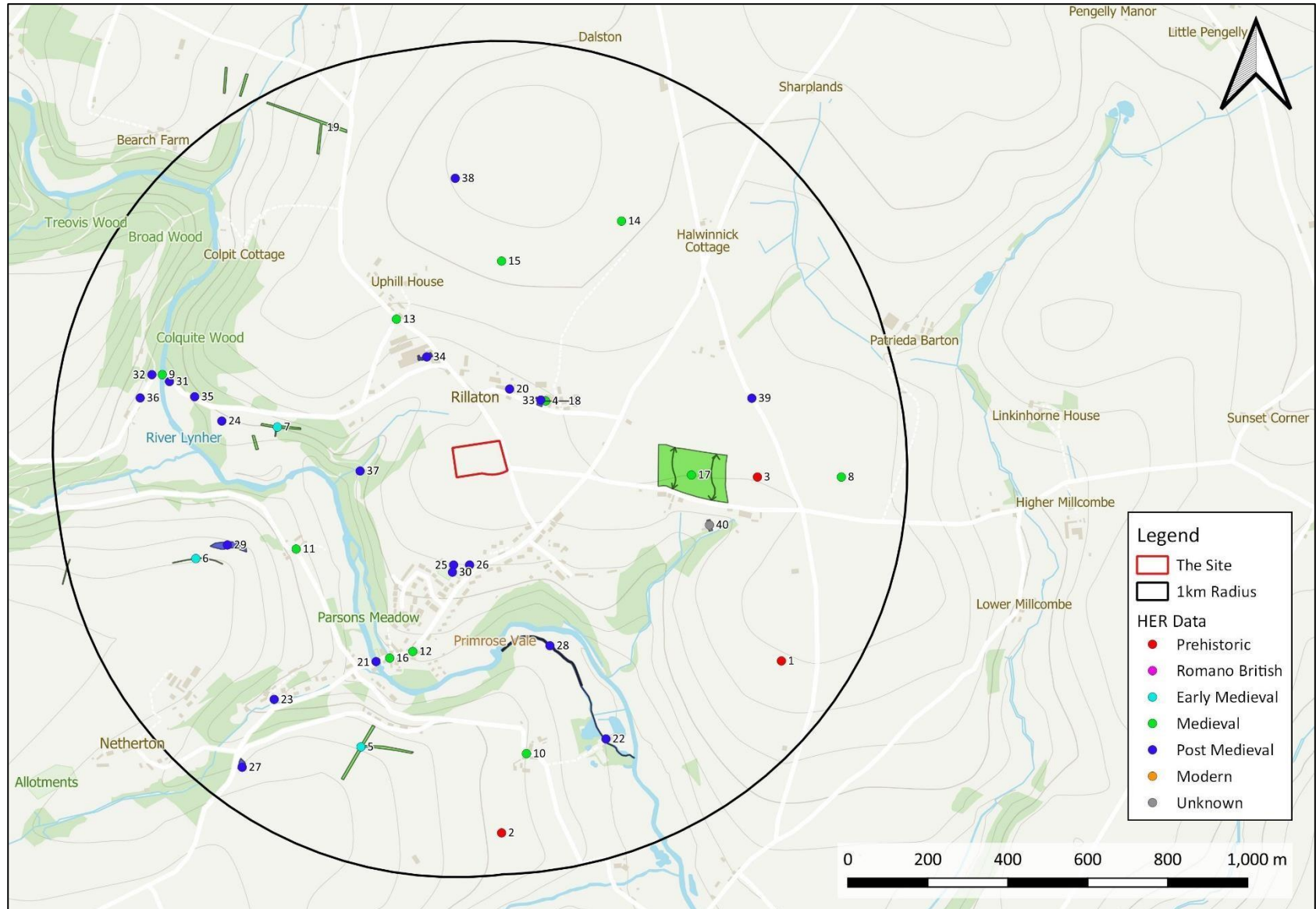


FIGURE 8: HERITAGE ASSETS WITHIN 1KM OF THE SITE AS RECORDED IN THE CORNWALL AND SCILLY HER. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023.

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TABLE 2: TABLE OF HERITAGE ASSETS AS SHOWN IN FIGURE 8 (SOURCE: CORNWALL AND SCILLY HER).

No	MonUID	Name	Summary
1	MCO3221	PATRIEDA BARN - Bronze Age barrow	Several circular dark ditch-like cropmarks are visible on aerial photographs.
2	MCO7558	ADDICROFT - Iron Age round, Romano British round	The field-name 'Berry Land' suggests the site of a round but there are no remains.
3	MCO23439	PATRIEDA BARN - Neolithic holed stone, Bronze Age holed stone	The field name "Hole Stone" possibly refers to a holed stone, gatepost or stile post.
4	MCO11299	RILLATON - Early Medieval settlement, Medieval manor, Medieval settlement	The settlement and manor of Rillaton is first recorded in the Domesday survey of 1086, when it is spelt "Rislestone".
5	MCO38609	NETHERTON - Early Medieval field system, Medieval field system	Two field boundaries are visible as crop mark banks on air photographs
6	MCO38615	NETHERTON - Early Medieval field system, Medieval field system	Two field boundaries are visible as ditches on air photographs
7	MCO38617	COLQUITE WOOD - Early Medieval field system	A series of field boundaries are visible at this location as hedges on air photographs
8	MCO5612	PATRIEDA BARN - Medieval cross	The field-name 'Cross Park' suggests the site of a cross but there are no remains.
9	MCO9722	STARABRIDGE - Medieval bridge, Post Medieval bridge	Starabridge is a clapper built of stone in three spans over the River Lynher. Possible origins in C16th.
10	MCO13250	ADDICROFT - Medieval settlement	The settlement of Addicroft is first recorded in 1175 when it is spelt "Odecroft".
11	MCO15642	MEASHAM - Medieval settlement	The settlement of Measham is first recorded c1140 when it is spelt "Meuuesham".
12	MCO16591	RILLA MILL - Medieval settlement	The settlement of Rillamill is first recorded in 1441 when it is spelt "Rillamylle".
13	MCO18178	UPHILL - Medieval settlement	The settlement of Uphill is first recorded in 1302 when it is spelt "Huppehull".
14	MCO21011	HALWINNICK BUTTS - Medieval field system	Field boundaries around the medieval settlement of Rillaton are possibly the enclosed strips of a medieval open field system.
15	MCO21346	RILLATON - Medieval field system, Post Medieval field system	
16	MCO24663	RILLA MILL - Medieval corn mill, Post Medieval corn mill	Rilla mill is mentioned in 1161.
17	MCO29659	TREGROVE - Medieval ridge and furrow, Post Medieval ridge and furrow	Curvilinear ridge and furrow cultivation, c115m long is visible on air photographs.
18	MCO48255	RILLATON - Medieval fish weir	A salmon fishery on the River Lynher is recorded in 1301.
19	MCO38640	BEARAH - Early Medieval field system	A series of field boundaries are visible as crop mark banks on air photographs
20	MCO9108	HIGHER RILLATON - Post Medieval blacksmiths workshop	
21	MCO9697	RILLA MILL - Medieval bridge, Post Medieval bridge	The present bridge at Rilla Mill is C19 and the flood channel on the E side is later.
22	MCO23440	ADDICROFT MILL - Post Medieval corn mill, Post Medieval water wheel	Addicroft Mill is a water-powered corn mill, and is a Listed Building, grade II.
23	MCO29597	MEASHAM MILL - Post Medieval mill pond, Post Medieval corn mill	Measham Mill is mentioned by Harvey in 1876.
24	MCO29626	WESTCOTT - Post Medieval open cast mine	Westcott mine lead lode was worked by opencast. The sett was granted in 1842 for the extraction of lead and copper
25	MCO32041	RILLA MILL - Post Medieval nonconformist chapel	
26	MCO32042	RILLA MILL - Post Medieval sunday school	Former Sunday schoolroom, now converted to a house. Killas rubble with granite dressings; rag slate roof. Chapel has central gabled porch; flanking windows probably enlarged.
27	MCO38608	NETHERTON - Post Medieval quarry	A quarry is marked at this location on the 1880 1st Edition OS map
28	MCO38610	ADDICROFT MILL - Post Medieval mill race	The mill race for Addicroft mill (10021) is visible on air photographs
29	MCO38616	MEASHAM - Post Medieval quarry	Two disused quarries are shown at this location on the 1880 1st Edition OS map
30	MCO52371	RILLA MILL - Post Medieval cemetery	

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31	MCO58238	STARABRIDGE - C19 boundary stone	One of a pair of granite County Bridge Stones used to define the limits of the responsibility of the Cornwall magistrates for the bridge. 0.7m high, inscribed 'C'.
32	MCO58239	STARABRIDGE - C19 boundary stone	One of a pair of granite County Bridge Stones used to define the limits of the responsibility of the Cornwall magistrates for the bridge. 0.7m high, inscribed 'C'.
33	MCO61355	RILLATON - C16 dower house	Dwelling built in 1599 for the Charke family of Rillaton Manor, to serve as a dower house for Elizabeth Charke. It has since been adapted to form two dwellings
34	MCO61356	RILLATON - C19 barn	C19 barn complex, now demolished at Lower Rillaton Farm
35	MCO67182	STARA BRIDGE - Post Medieval boundary stone	Extant Post Medieval boundary stone, one of the Cornwall County bridge stones. Inscribed with a 'C' 3 1/2" high.
36	MCO67183	STARA BRIDGE - Post Medieval boundary stone	Extant Post Medieval boundary stone, one of the Cornwall County bridge stones. Inscribed with a 'C' 4" high.
37	MCO72385	LINKINHORNE - Post-medieval stile	A post-medieval stile in the parish of Linkinhorne
38	MCO72386	LINKINHORNE - Post-medieval stile	A post-medieval stile in the parish of Linkinhorne
39	MCO72390	LINKINHORNE - Post-medieval stile	A post-medieval stile in the parish of Linkinhorne
40	MCO29658	PATRIEDA BARN - Undated earthwork	A linear bank or mound 30m long and 8m wide, is visible on air photographs

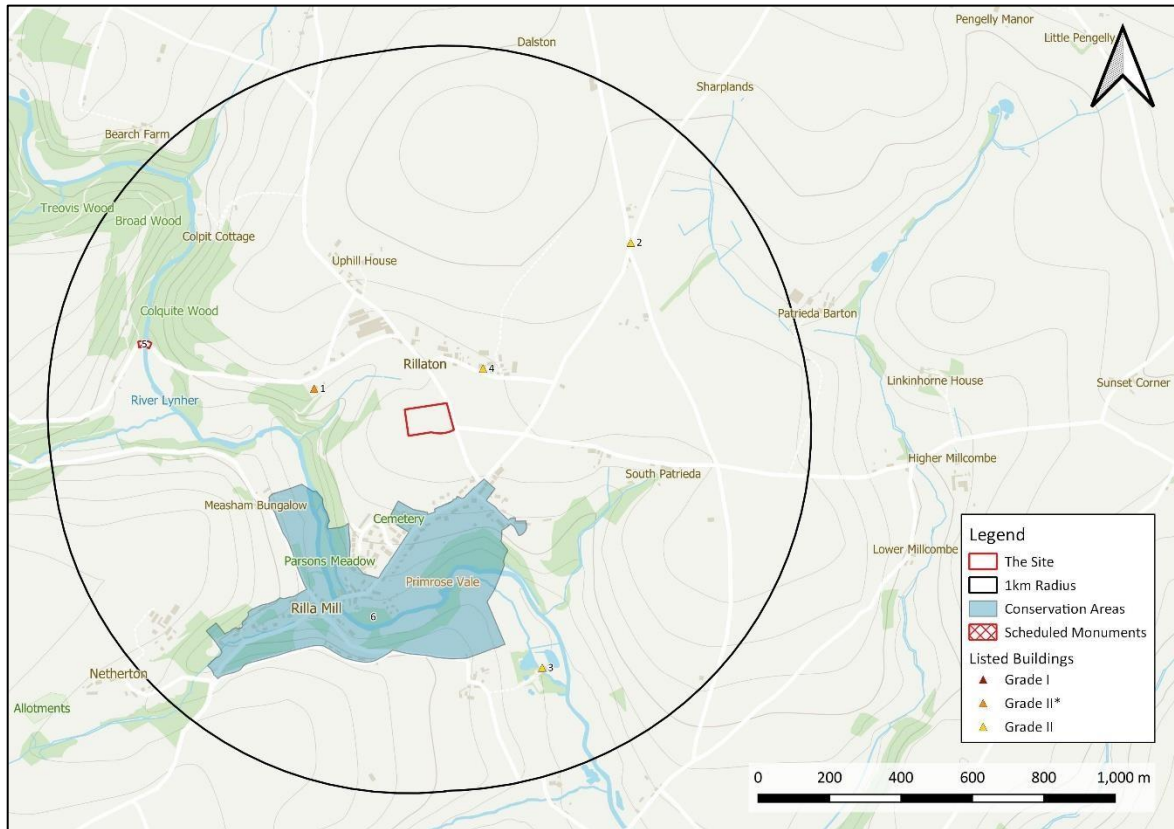


FIGURE 9: DESIGNATED HERITAGE ASSETS WITHIN 1KM OF THE SITE AS RECORDED IN THE NATIONAL HERITAGE LIST FOR ENGLAND (NHLE) © HISTORIC ENGLAND 2023. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. THE MOST PUBLICLY AVAILABLE AND UP TO DATE HISTORIC ENGLAND GIS DATA CAN BE OBTAINED FROM [HTTP://HISTORICENGLAND.ORG.UK](http://historicengland.org.uk).

TABLE 3: TABLE OF DESIGNATED HERITAGE ASSETS AS SHOWN IN FIGURE 9 (SOURCE: HISTORIC ENGLAND).

No	ListEntry	Name	Grade
1	1140496	WESTCOTT	II*
2	1159047	GUIDESTONE AT SX 302 740	II
3	1329171	ADDICROFT MILL	II
4	1414987	East Rillaton Cottage and West Rillaton Cottage	II
5	1020637	Medieval bridge at Starabridge	SAM
6	Rilla Mill		CA

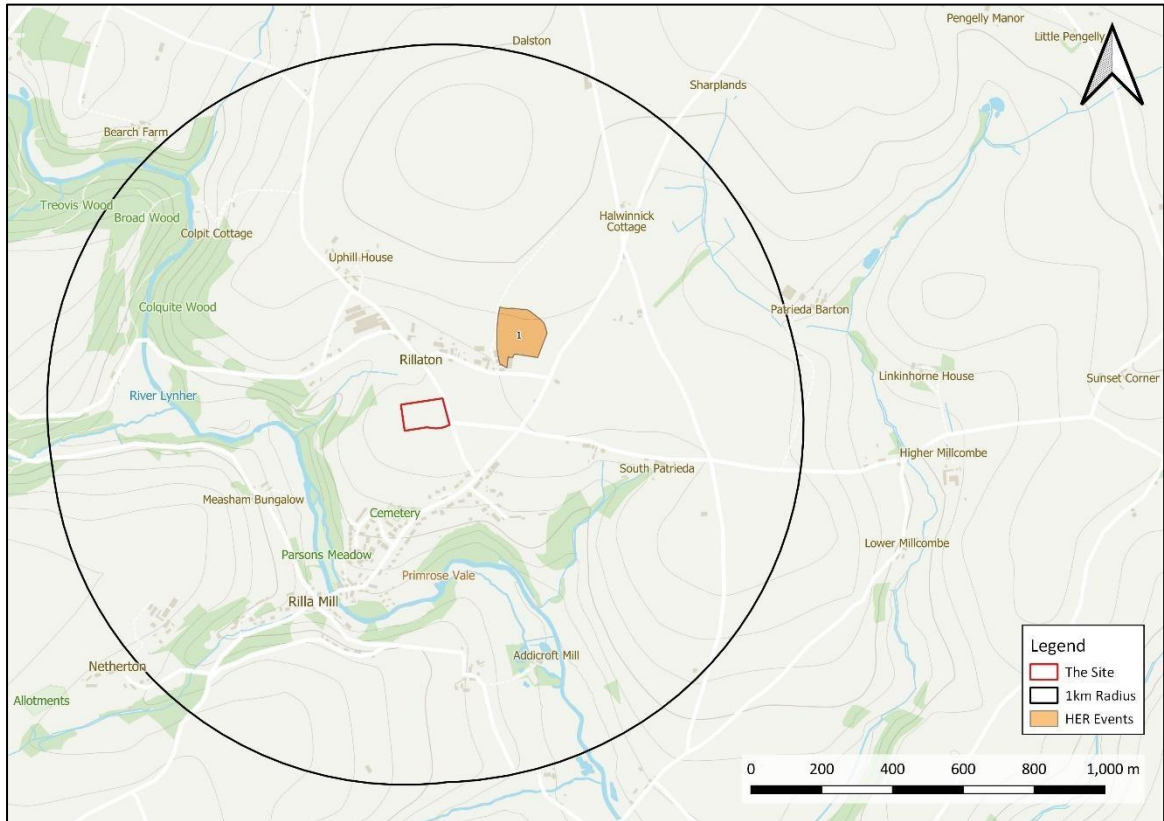


FIGURE 10: HERITAGE INTERVENTIONS WITHIN 1KM OF THE SITE AS RECORDED IN THE CORNWALL AND SCILLY HER. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023.

TABLE 4: TABLE OF DESIGNATED HERITAGE ASSETS AS SHOWN IN FIGURE 10 (SOURCE: HISTORIC ENGLAND).

No	EvUID	Name	EventTypes
1	ECO4282	Rillaton Manor: Preliminary Geophysical Survey Report	Geophysical Survey

2.6 WALKOVER SURVEY

The site comprises part of a larger agricultural field orientated approximately north-west to south-east, to the south of Lower Rillaton. At the time of survey the field was under pasture. A fence had been erected along the approximate northern boundary of the proposal area. The southern end of the field slopes gently to the north, becoming steeper towards the northern and north-eastern ends. The field is bordered to the north and north-west by woodland leading onto agricultural fields; to the east by an unnamed road; and to the south and west by agricultural fields. The field is bounded by tree-lined hedgebanks with internal post and wire fences. An access track runs along the western edge of the field.

A single earthwork was identified within the field: a sub-oval raised mound and hollow was located towards the middle of the southern boundary, this corresponds with the mound visible on the LiDAR data. A granite gate-post, now rubbing post, was also identified towards the centre of the field.



FIGURE 11: VIEW ALONG THE SOUTHERN BOUNDARY, FROM THE EAST (NO SCALE).

2.7 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY

The direct *effect* of the development would be the possible disturbance or destruction of archaeological features or deposits present within the footprint of the development; the *impact* of the development would depend on the presence and significance of archaeological features and deposits.

The site may have the potential to encounter buried archaeological remains relating to structures or boundaries previously located within the proposed development area. Historic mapping suggests the site has been utilised as a large pasture field in the past two centuries. The archaeological potential of the site is unknown but is considered likely to be medium to low, with possible field systems and other features identified on the LiDAR and during geophysical survey (see below). Damage to archaeological deposits would be considered **permanent/irreversible**. The archaeological risk can be mitigated through an appropriate programme of archaeological investigation as part of any planning conditions that may be required as part of the planning permission.

TABLE 5: SUMMARY OF DIRECT IMPACTS.

Asset	Type	Distance	Value	Magnitude of Impact	Assessment	Overall Assessment
Direct Impacts						
Unidentified archaeological features	Non-deg.	On site	Unknown but medium to low	Moderate	Neutral/slight to Slight Adverse	Negligible Adverse

3.0 GEOPHYSICAL SURVEY

3.1 INTRODUCTION

The site comprises a single agricultural field (F1, c.2.7ha) of which only the south-eastern corner forms the proposal site (c.1ha surveyed) which was the subject of a magnetometry (gradiometer) survey. The purpose of the survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of the recorded anomalies may not correspond directly with associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on 20th October 2023 and the survey data processed by P. Webb. Additional photographs of the site inspection can be found in Appendix 1; detailed survey data in Appendix 2; and additional graphic images of the survey data and numbered grid locations in Appendix 3.

3.2 SITE INSPECTION

The site comprises part of a larger agricultural field orientated approximately north-west to south-east, to the south of Lower Rillaton. At the time of survey the field was under pasture. A fence had been erected along the approximate northern boundary of the proposal area. The southern end of the field slopes gently to the north, becoming steeper towards the northern and north-eastern ends. The field is bordered to the north and north-west by woodland leading onto agricultural fields; to the east by an unnamed road; and to the south and west by agricultural fields. The field is bounded by tree-lined hedgebanks with internal post and wire fences. An access track runs along the western edge of the field.

A single earthwork was identified within the field: a sub-oval raised mound and hollow was located towards the middle of the southern boundary. A granite gate-post was also identified towards the centre of the field.

3.3 METHODOLOGY

The 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 2014).

The 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 *TerraSurveyor64 Version 4.0.18.7*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes:

Clip +/- 1SD; removes extreme data point values.

DeStripe all traverses, median; used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, or directional effects inherent in magnetic instruments).

DeStagger selected grids, all traverses out- and inbound by 0.25m to 0.50m; reduces staggering effects within data derived from zig-zag collection method.

3.4 RESULTS

Table 6 with the accompanying Figures 12-13 show the analyses and interpretation of the geophysical survey data.

TABLE 6: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
F1				
1	Moderate to strong positive & negative, probable	Linear	Ditch & bank	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Orientated between approximately north to south and east to west. Responses of between -21.80nT to -0.10nT and +0.31nT to +31.96nT.
2	Weak positive & negative, possible	Linear	Ditch & bank	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Orientated approximately east to west. Responses of between -10.78nT to -0.15nT and +0.24nT to +9.74nT.
3	Weak to moderate positive, possible	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately east to west. Responses of between +0.27nT and +11.48nT.
4	Weak to moderate positive, possible	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north to south. Responses of between +0.10nT and +18.70nT.
5	Weak to strong positive & negative, possible	Linear	Ditch & bank Agricultural activity	Indicative of cut and infilled features such as ditches with associated banked/compacted material. Regularity of responses may indicate deeper cut agricultural activity. Responses of between -13.97nT to -0.66nT and +0.42nT to +25.81nT.
6	Strong positive & negative, possible	Linear	Ditch & bank Modern utility	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Strength of responses may indicate modern utility. Orientated approximately north to south. Responses of between -27.06nT to -0.01nT and +0.18nT to +29.99nT.
7	Weak negative, possible	Curvilinear	Drain Stone structure	Indicative of a buried stone feature such as a drain or wall. Responses of between -0.15nT and 8.44nT.
8	Strong positive, possible	Discrete	Pit or tree-throw	Indicative of cut and infilled features such as pits. Weaker responses may indicate natural features such as tree-throws. Responses of between +0.13nT and +62.36nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Aligned between approximately north to south and east to west. Weak positive and negative responses suggest shallow ploughing. Responses of between -10.45nT to -0.13nT and +0.03nT to +10.03nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground. Responses of between -71.86nT to -0.07nT and +0.26nT to +80.39nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between c. +/-112nT.
	Strong to very strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -105.00nT and +97.32nT.

3.5 DISCUSSION

The survey identified eight groups of anomalies across the survey area. These were predominantly linear ditch and/or bank features associated with phases of the existing and historic field-system and agricultural practices. Possible pits and/or tree-throws and anomalies associated with ground disturbance and metallic debris were also apparent.

The general response variation across the site was between +/-5nT with occasional clear background geological variation up to +/-10nT. The response strength of probable archaeological activity was typically fairly moderate (between +/-20nT). The weaker responses of some of the anomalies may indicate that these are only likely to survive to a shallow depth.

The anomaly groups identified include: possible ditch and/or bank features associated with phases of the existing and historic field boundaries (Groups 1-4) or which may reflect possible deeper cut agricultural activity (Group 5) or modern utilities (Group 6). A possible curvilinear or section of a circular feature of a possible drain or stone structure (Group 7) and possible pits/treethrows (Group 8) were also identified.

3.6 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY

Whilst none of the identified features can at this stage be dated, the historic field-pattern of the site is characterized as *Medieval Farmland*, 'part of the Anciently Enclosed Land (AEL): the agricultural heartland, with farming settlements documented before the 17th century AD Either medieval or prehistoric origins'. The orientation and alignment of many of the identified ditch features is in congruence with the boundaries of the wider landscape and it is possible that these groups belong to this, their gently curving nature suggesting medieval origins.

A curvilinear/section of a circular feature (Group 7) is located towards the centre of the survey area, in an area suffering from significant ground disturbance which may contain modern utilities, the anomaly perhaps indicating a stone drain. However, the circular nature of the anomaly may indicate a stone-built feature, possibly a round-house of prehistoric date.

A small number of possible pit features (Group 8) were identified across the site, though the weak nature of many of these responses suggests that they may be natural in origin, the anomalies reflecting tree-throws.

The degree of preservation of the identified features appears to be moderate. Whilst many of the anomaly responses are clear and defined, others are intermittent and barely discernible from the background geology. This suggests that whilst some features may survive to a good depth, others only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology and modern disturbance.

The results of the geophysical survey would suggest that the archaeological potential for the site is *moderate*. Whilst several of the identified features may relate to historic phases of field-system which are tentatively suggested as being Medieval to Post-Medieval in date, the presence of Prehistoric features in the surrounding landscape means that a Prehistoric or Romano-British date cannot be ruled out for some features.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present), and further mitigation through an appropriately worded planning condition for a staged programme of archaeological works would validate and clarify the results of the geophysical survey.

PROPOSED SLURRY LAGOON, LAND WEST OF RILLATON TO RILLA MILL ROAD, RILLA MILL, CORNWALL

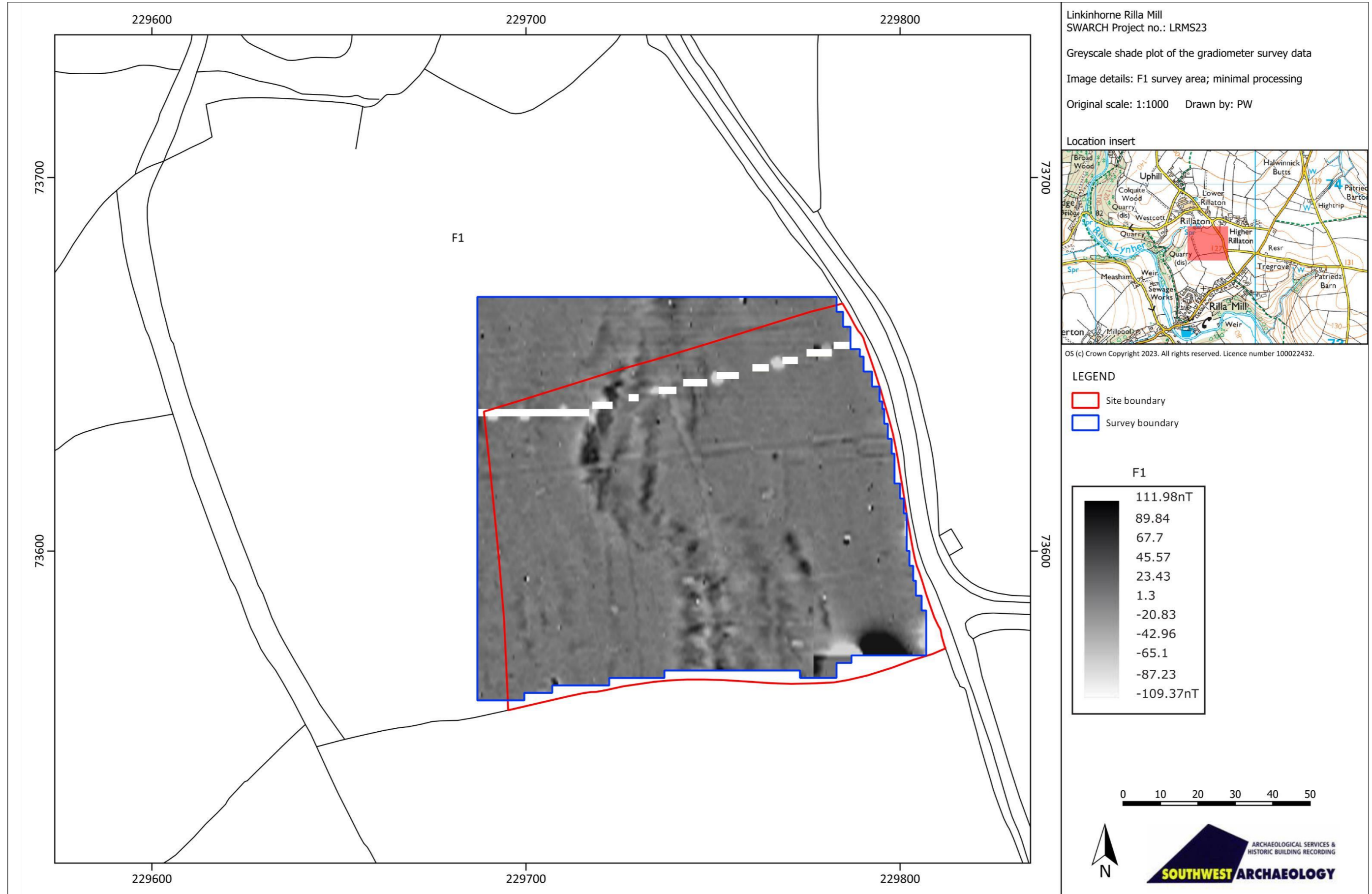


FIGURE 12: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA ; MINIMAL PROCESSING.

PROPOSED SLURRY LAGOON, LAND WEST OF RILLATON TO RILLA MILL ROAD, RILLA MILL, CORNWALL

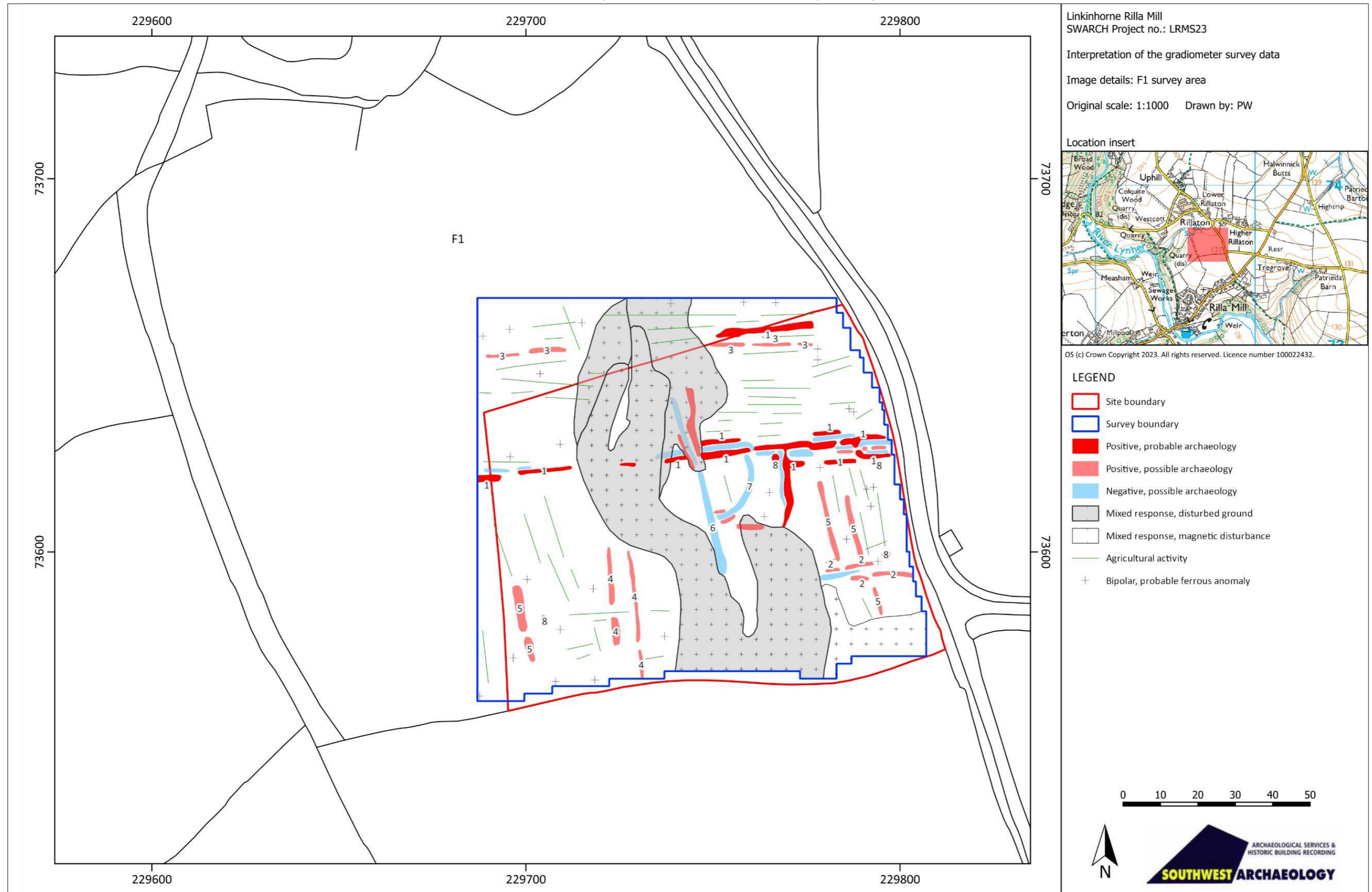


FIGURE 13: INTERPRETATION OF THE GRADIOMETER SURVEY DATA .

4.0 CONCLUSION

The site lies within the parish of Linkinhorne, in the deanery and north division of the historic hundred of East. The site forms part of the land historically associated with Westcott Farmhouse (Grade II*), to the north-west.

The site lies within a large area recorded on the Cornwall Historic Landscape Characterisation (HLC) as Farmland: Medieval: *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.*

A geophysical survey was carried out at Rillaton Manor, to the north-east of the site, although the results do not appear to be publicly available. No other fieldwork appears to have been carried out on or near the site.

The survey identified eight groups of anomalies across the survey area. These were predominantly linear ditch and/or bank features associated with phases of the existing and historic field-system and agricultural practices. Possible pits and/or tree-throws and anomalies associated with ground disturbance and metallic debris were also apparent.

The degree of preservation of the identified features appears to be moderate. Whilst many of the anomaly responses are clear and defined, others are intermittent and barely discernible from the background geology. This suggests that whilst some features may survive to a good depth, others only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology and modern disturbance.

The results of the geophysical survey would suggest that the archaeological potential for the site is *moderate*. Whilst several of the identified features may relate to historic phases of field-system which are tentatively suggested as being medieval to post-medieval in date, the presence of prehistoric features in the surrounding landscape means that a prehistoric or Romano-British date cannot be ruled out for some features.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present), and further mitigation through an appropriately worded planning condition, would validate and clarify the results of the geophysical survey.

5.0 BIBLIOGRAPHY & REFERENCES

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- Cranfield Soil and Agrifield Institute** 2023: *Soilscape Viewer*. <http://www.landis.org.uk/soilscapes/index.cfm>
- Harvard University Map Collection** 2023: *Curiosity Map Viewer*.
<https://curiosity.lib.harvard.edu/scanned-maps/catalog/44-990127200480203941>

APPENDIX 1: SUPPORTING PHOTOGRAPHS – SITE INSPECTION



1. F1, VIEW ACROSS THE SURVEY AREA; VIEWED FROM THE SOUTH-EAST (NO SCALE).



2. F1, VIEW ACROSS THE SURVEY AREA; VIEWED FROM THE SOUTH-WEST (NO SCALE).



3. F1, VIEW ALONG THE NORTHERN BOUNDARY; VIEWED FROM THE EAST-NORTH-EAST (NO SCALE).



4. F1, VIEW ALONG THE EASTERN BOUNDARY; VIEWED FROM THE SOUTH-SOUTH-WEST/ (NO SCALE).



5. F1, VIEW ALONG THE SOUTHERN BOUNDARY; VIEWED FROM THE EAST (NO SCALE).



6. F1, VIEW ALONG THE WESTERN BOUNDARY AND TRACK; VIEWED FROM THE SOUTH (NO SCALE).



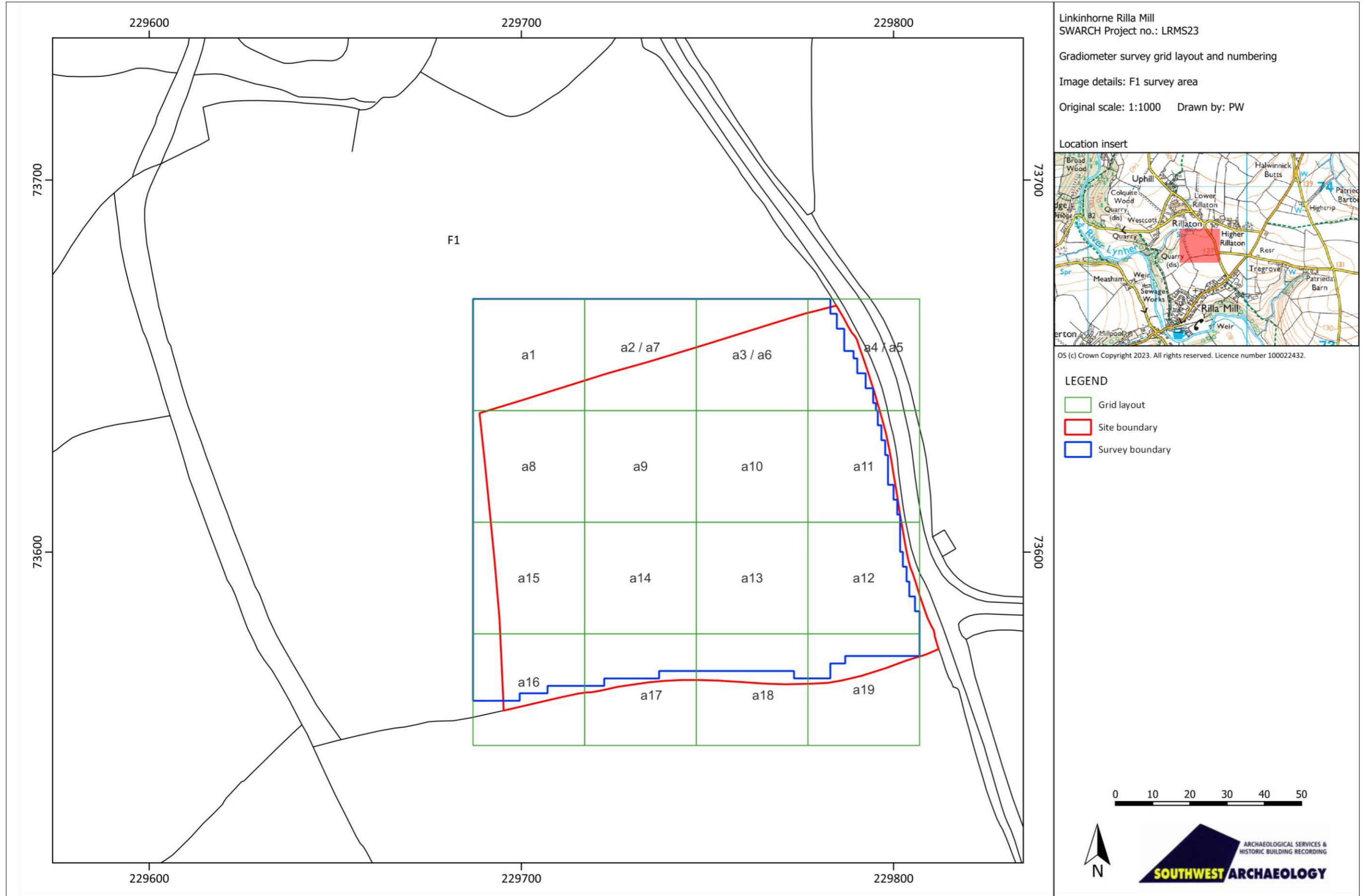
7. F1, DETAIL OF THE GRANITE GATEPOST IN THE MIDDLE OF THE FIELD; VIEWED FROM THE SOUTH-EAST (NO SCALE).

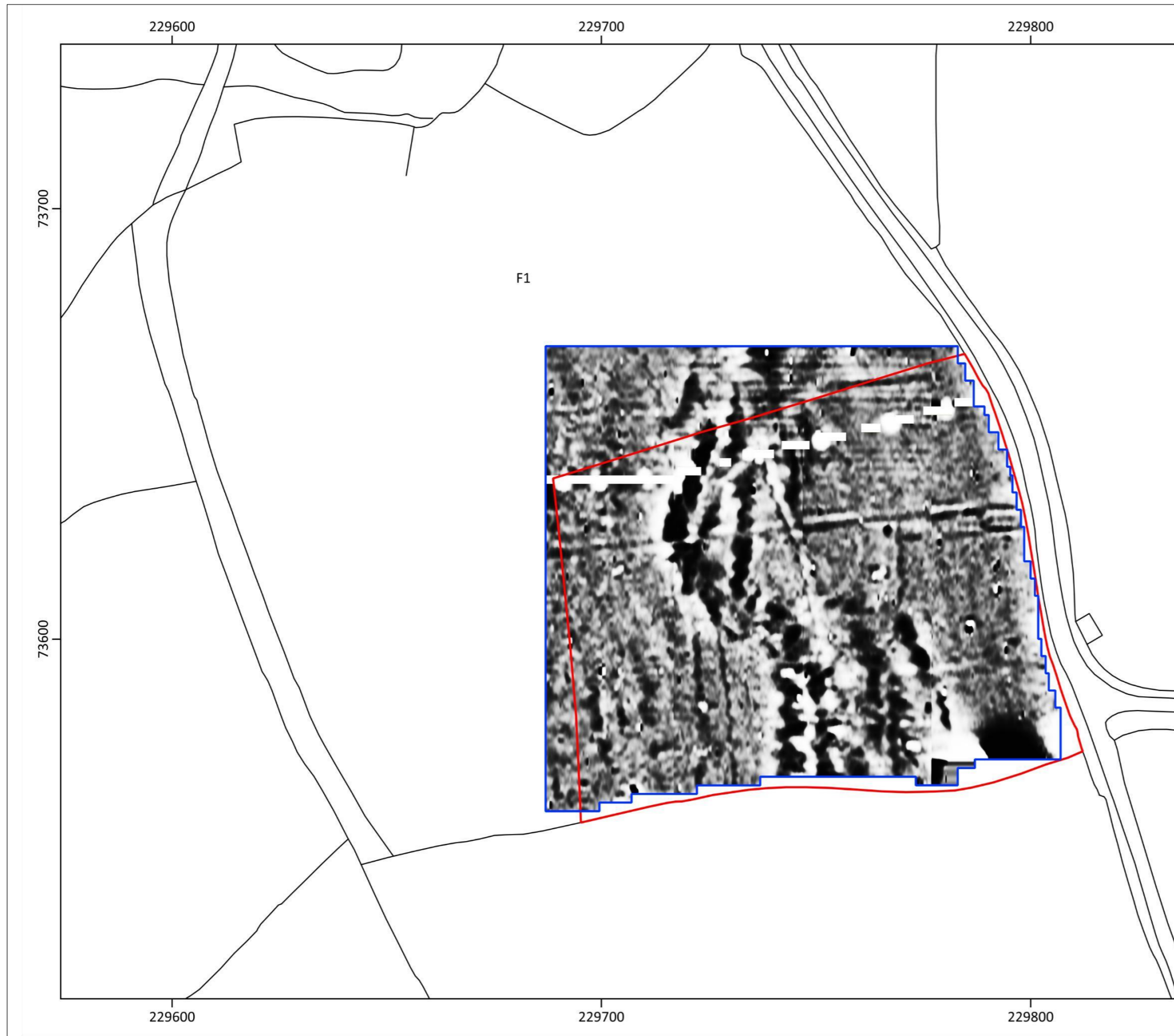
APPENDIX 2: METADATA FOR GEOPHYSICAL SURVEY PROCESSING

TECHNICAL SUMMARY OF MAGNETOMETRY SURVEY METHOD AND METADATA.

SWARCH Ref.	Site Name	Site Type	Period
LRMS23	Land at Lower Rillaton, Rilla Mill, Linkinhorne, Cornwall	-	-
Survey Type:	Magnetometry		
Equipment:	Twin sensor fluxgate gradiometer (Bartington Grad601)		
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:	East / 90°	
	Adjustment frequency:	0.5-1ha	
Survey Size Metadata:	Individual Grid Size	30m x 30m	
	Composite Area:	1.3378ha / 120m x 120m	
	Area Surveyed:	1.0340ha	
Raw Response Metadata:	Max.:	98.57nT	
	Min.:	-100.00nT	
	Standard Deviation:	16.61nT	
	Mean:	4.64nT	
	Median:	4.10nT	
Processed Response Metadata: pre-clipping	Max.:	111.98nT	
	Min.:	-109.38nT	
	Standard Deviation:	15.10nT	
	Mean:	0.78nT	
	Median:	0.00nT	
Processes:	DeStripe all traverses, median		
	DeStagger selected traverses out- and inbound by 0.50m (all grids)		
	Clip from Min -74.71nT to Max 76.26nT (5 Standard Deviation)		

APPENDIX 3: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY





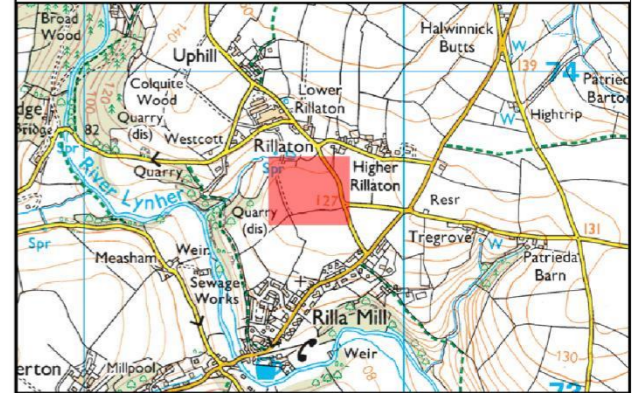
Linkinhorne Rilla Mill
SWARCH Project no.: LRMS23

Greyscale shade plot of the gradiometer survey data

Image details: F1 survey area; clip to +/-77nT, bandweight equalized, gradiated shading

Original scale: 1:1000 Drawn by: PW

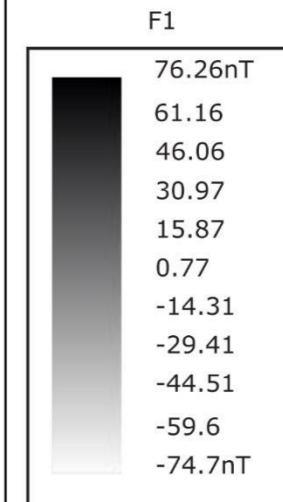
Location insert

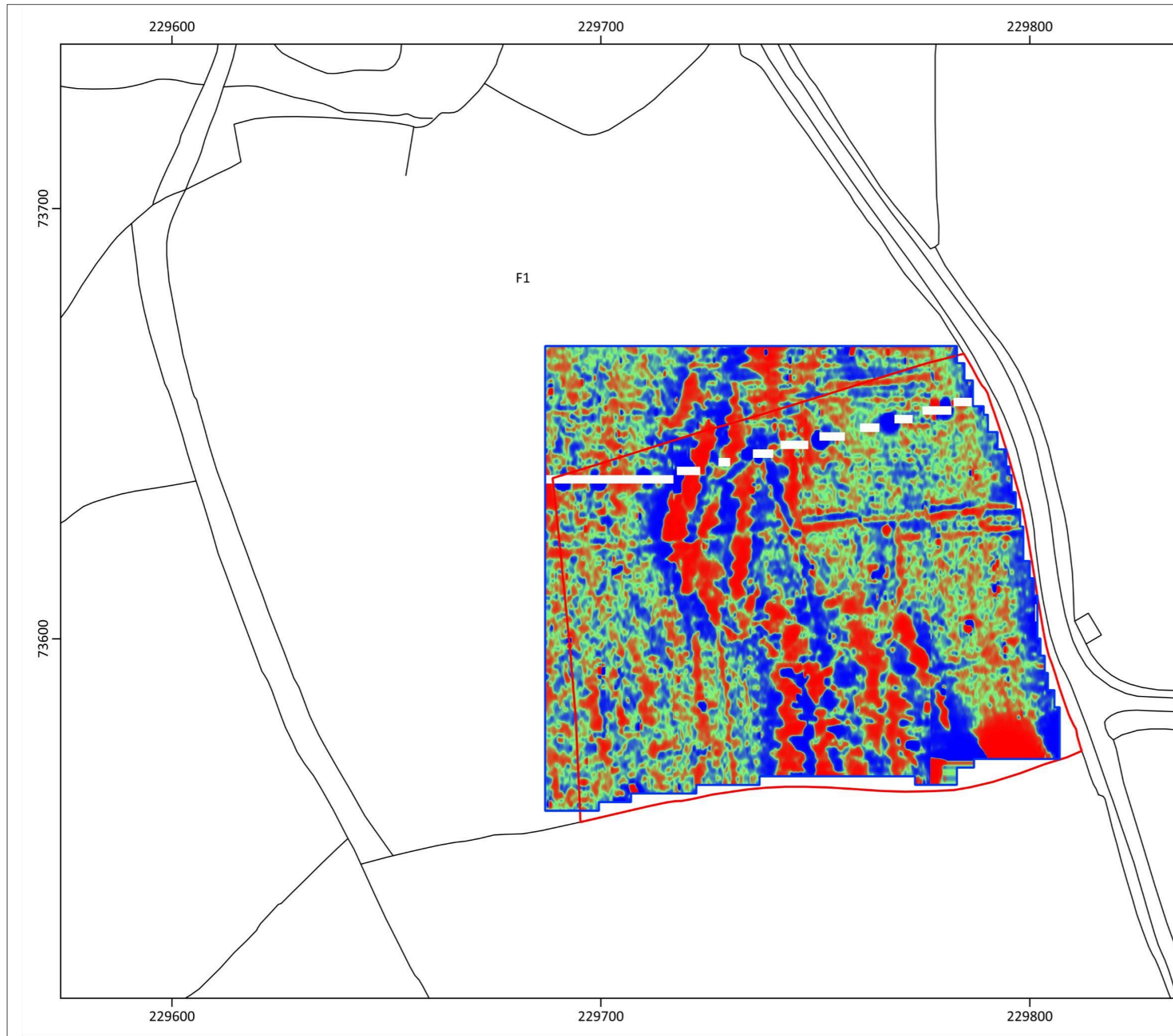


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LEGEND

- Site boundary
- Survey boundary





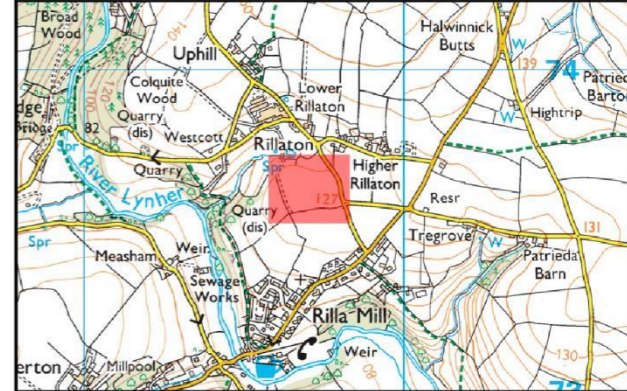
Linkinhorne Rilla Mill
SWARCH Project no.: LRMS23

Red-green-blue shade plot of the gradiometer survey data

Image details: F1 survey area; clip to +/-77nT, bandweight equalized, gradiated shading

Original scale: 1:1000 Drawn by: PW

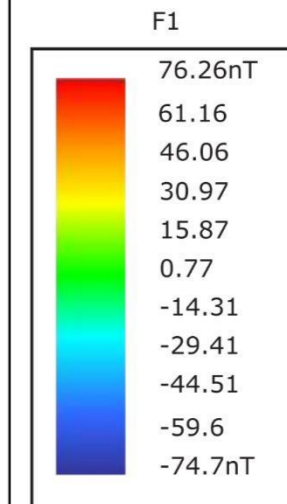
Location insert



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LEGEND

- Site boundary
- Survey boundary





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