TREVOSE HEAD TO ST. MERRYN CABLE ROUTE

ST. MERRYN

CORNWALL

Results of a Geophysical Survey

South West Archaeology Ltd. report no. 230525

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TREVOSE HEAD TO ST. MERRYN CABLE ROUTE, ST. MERRYN, CORNWALL

RESULTS OF A GEOPHYSICAL SURVEY

By P. Webb & N. Boyd
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Work undertaken by SWARCH for Cornwall Archaeological Unit (CAU)

SUMMARY

This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) along the route of the proposed Trevose Head to St. Merryn Cable Route, St. Merryn, Cornwall ahead of the laying of the cable. The geophysical survey forms part of a staged programme of archaeological investigation.

The site comprises 24 fields – of which parts of nine fields were surveyed between Trevose Farm and St Merryn. Weather and ground conditions meant that much of the rest of the route was not surveyable at the time of the survey and/or that the geology and landscaping (towans/dune sand of the golf course) meant that the survey would be unlikely to produce meaningful results.

The survey areas cover largely gently towards the summit of the coastal spur at Trevose Head. The site runs through the parish of St Merryn, from the medieval farmstead of Trevose, formerly belonging to the Robartes family.

The survey identified 24 groups of anomalies across the surveyed fields. These were predominantly linear ditch and/or bank boundary features associated phases of the existing and historic field-system. Possible pits and/or tree-throws, alongside anomalies associated with agricultural activity, metallic debris and ground disturbance were also apparent.

The degree of preservation of the identified features appears to be poor. The majority of anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features 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 disturbances.

The results of the geophysical survey would suggest that the archaeological potential for the site is mixed, with some areas low (fields F16, F19-20 and F23-24) whilst other areas appear to have moderate to high potential (fields F2-F3 and F6-F7). The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being predominantly post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out, particularly towards the north-western end of the survey area.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present) and further mitigation will likely be required, especially at the north-western end of the proposed route.

May 2023

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ACKNOWLEDGEMENTS

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1.0 INTRODUCTION

LOCATION: TREVOSE HEAD TO ST. MERRYN CABLE ROUTE
PARISH: ST. MERRYN
COUNTY: CORNWALL
NGR: CENTRED ON SW 86111 75852
PLANNING NO.: PRE-APPLICATION
SWARCH REF. MTVH23
OASIS REF: SOUTHWES1-515980

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by the Cornwall Archaeological Unit (the Client) to undertake a geophysical survey on land along the route of the proposed Trevose Head to St. Merryn Cable Route, St. Merryn, Cornwall. This work was undertaken in line with best practice and CIfA guidance (2020) and in consultation with the HEP (Arch) in order to assess the potential impact of the development.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site comprises a total of 24 sub-rectangular to irregular fields between Trevose Farm and St Merryn, of which only parts were subject to geophysical survey; the fields bounded by a combination of hedgebanks and post and wire fencing. The topography across the site is largely gently sloping down to the south-east at a height of between *c.*49 and 16m AOD. The soils of the site are the mainly deep, well drained, calcareous and non-calcareous sandy soils of the Sandwich Association (SSEW 1983) , which overlie the slate and siltstone of the Trevose Slate Formation and Rosenum Formation (BGS 2023).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The site is in the parish of St Merryn (or *St. Merran*), historically in the hundred and deanery of Pyder (Lysons 1814). The manor of Trevose had once belonged to the Robartes family, passing at some point to the Morices of Werington and, by inheritance, to Sir A. O. Molesworth, Bart., in the early 19th century. Hals (c.1730) notes that at his time of writing the barton was leased as two farms, to Gregory Peter, Esq. and Lawrence Growden. By the 19th century, Lysons records the barton as still two farms, one still leased to the Peter family and the other to Thomas Rawlings, Esq. of Padstow.

The cable route traverses areas of the landscape recorded on the Cornwall Historic Landscape Characterisation (HLC) as Coastal Rough Ground: *Unenclosed sloping ground beyond enclosed fields but above precipitous* cliffs; Modern Enclosed Land: *Mainly Anciently Enclosed Land of Post-Medieval Enclosed Land whose field systems have been substantially altered by large scale hedge removal in the 20th century. It also includes, however, 20th century intakes from rough* ground; Post-Medieval enclosed land: *Land enclosed in the 17th, 18th and 19th centuries, usually from land that was previously Upland Rough Ground and often Medieval commons*; 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*; and borders areas of Settlement C20: *Settled areas from larger farming settlements.*

This area is littered with records and assets from the Prehistoric period to the Modern era, including Mesolithic flint scatters (e.g. MCO1731, MCO240, MCO66472), barrows (e.g. MCO2548, MCO3846,

MCO3849), Iron Age or Romano-British rounds or enclosures (MCO8826, MCO300006), Early Medieval settlement evidence (MCO17975), Post Medieval assets including a mine (MCO12711), lighthouse (MCO25862), coastguard station (MCO25861) and possible quarry (MCO25865).

The Cornwall HER indicates that the area across which the cable route runs has been part of a number of wider coastal and geoarchaeological surveys, as well as a few more focussed investigations, including a watching brief during works to ground high voltage electricity cables (Fleming 2019), fieldwalking conducted in 1982 (ECO1043) and 1990 (ECO1264) at Trevose Head, Archaeological Assessment at the Trevose Golf Club (Lawson Jones 1998), and more recently, Geophysical Survey at Constantine Bay (Bampton, forthcoming).

1.4 METHODOLOGY

The geophysical (gradiometer) survey was undertaken in accordance with current best practice and CIfA guidance; and follows the guidance outlined in Geophysical Survey in Archaeological Field Evaluation (English Heritage 2008); Standard and Guidance for Archaeological Geophysical Survey (CIfA 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 (THE SITE IS INDICATED). CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. LICENCE NUMBER 100022432.

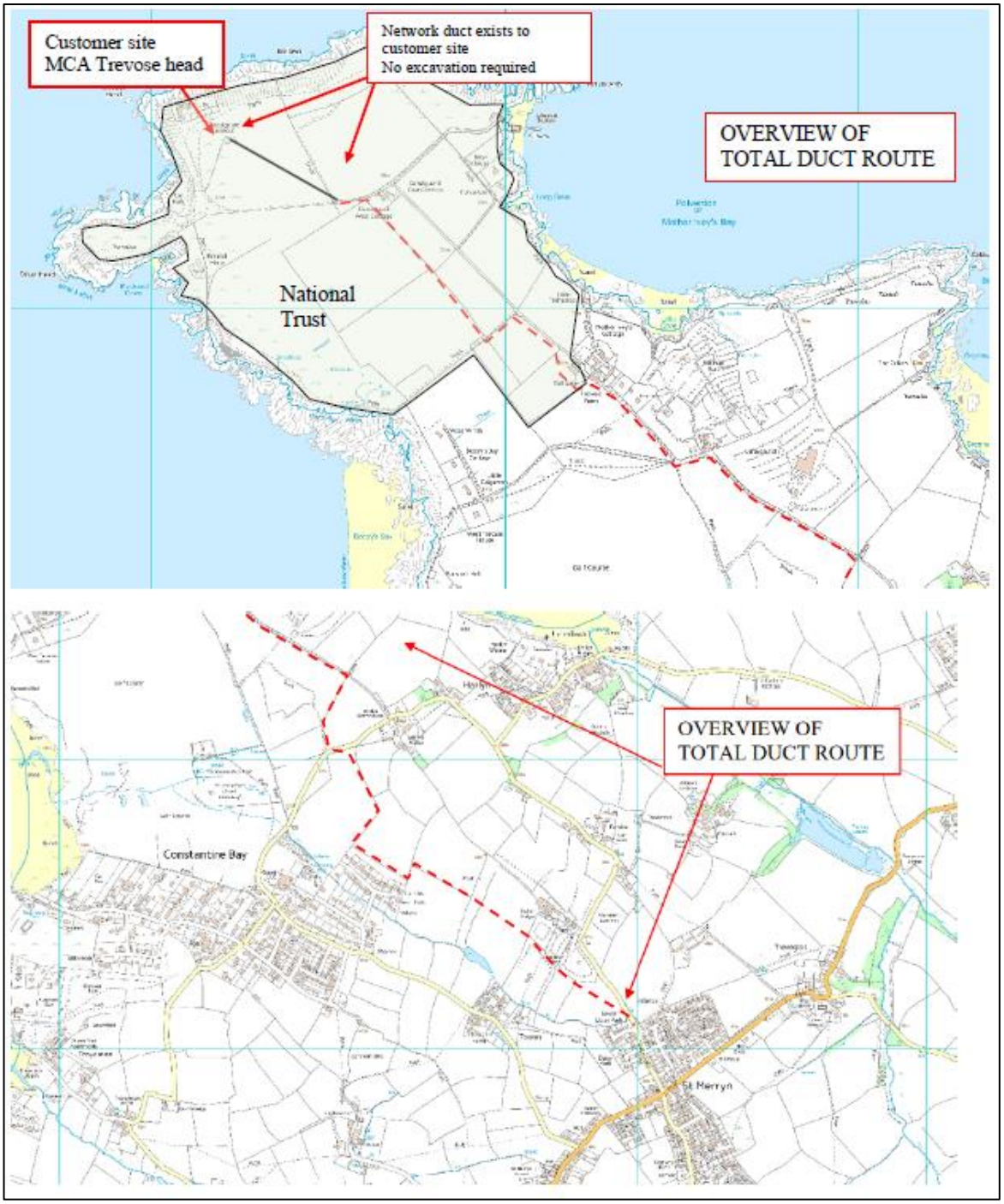

FIGURE 2: SITE LOCATION MAP SHOWING THE PROPOSED CABLE ROUTE; SUPPLIED BY THE CLIENT.

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

A magnetometry (gradiometer) survey (*c.*3.5ha surveyed) was undertaken along the proposed route of the bale. The purpose of this survey was to identify and record magnetic anomalies within the proposed site with the intention of identifying the presence and approximate line of field drains – should they be present. 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 28th March and 4th April 2023 by P. Bonvoisin; the survey data was processed by P. Webb. Detailed survey data can be found in Appendix 1; and additional graphic images of the survey data and numbered grid locations can be found in Appendix 2. Weather and ground conditions meant that many of the fields were not subject to survey, with only nine of the twenty-four possible to survey.

FIGURE 3: PHOTO DEMONSTRATING GROUND CONDITIONS AT THE TIME OF THE SURVEY.

2.2 SITE INSPECTION

The proposed cable route comprises a total of 24 sub-rectangular to irregular fields (F1-F24, 115.2ha) between Trevose Farm and St Merryn, of which only parts of nine of the fields (F2-F3, F6-F7, F16, F19-F20 and F23-F24) were subject to geophysical survey (*c.*31ha). At the time of survey the fields were largely under pasture, though some had been ploughed and others had recently planted silage crop. The topography across the site is largely gently sloping down to the south-east; the fields bounded by a combination of hedgebanks and post and wire fencing.

No clear earthworks were identified across the site.

2.3 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* (CIfA 2014b).

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 *TerraSurveyor Version 3.0.36.0*. 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, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).
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.

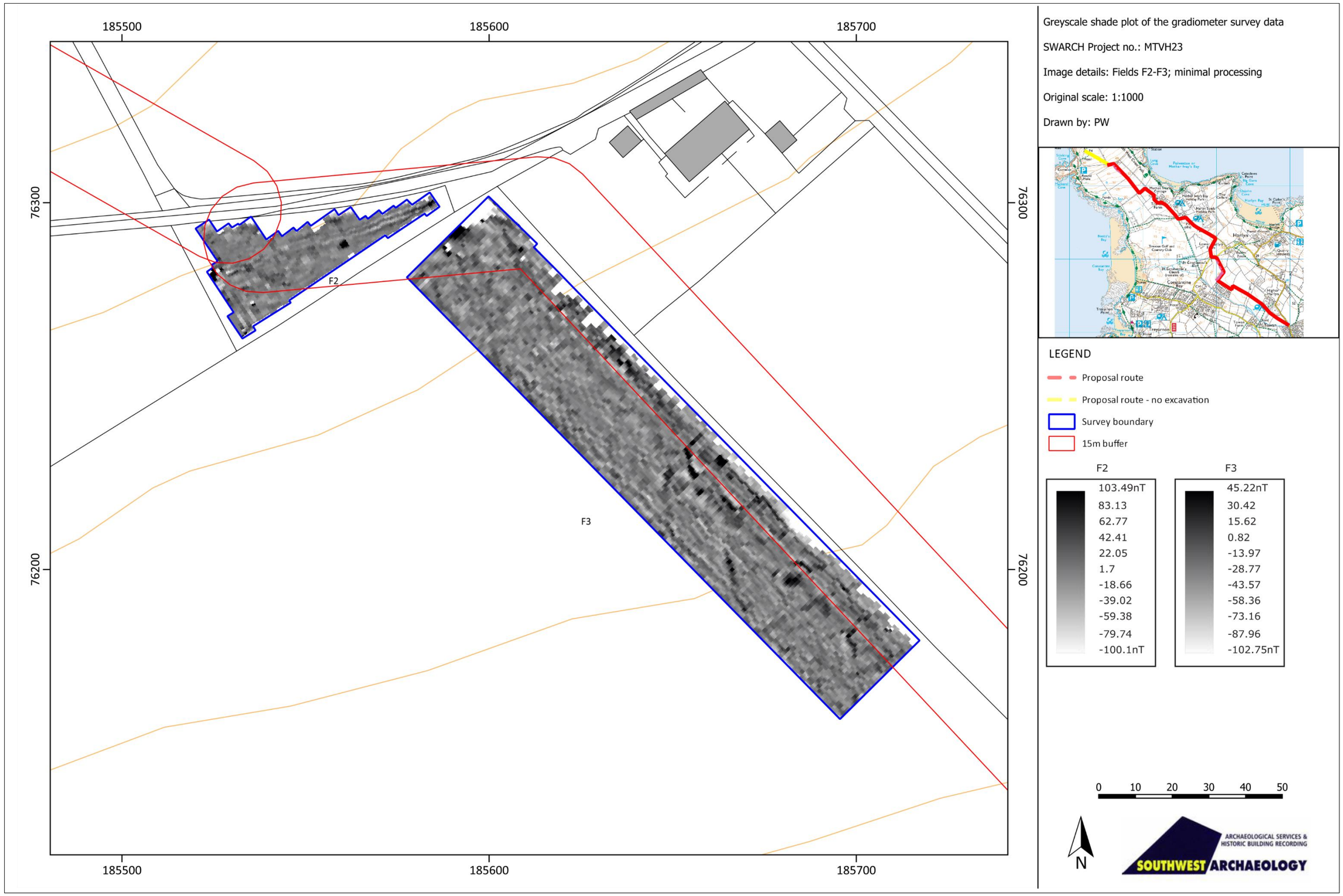

FIGURE 4: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA (FIELDS F2-F3); MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

FIGURE 5: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA (FIELDS F6-F7); MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

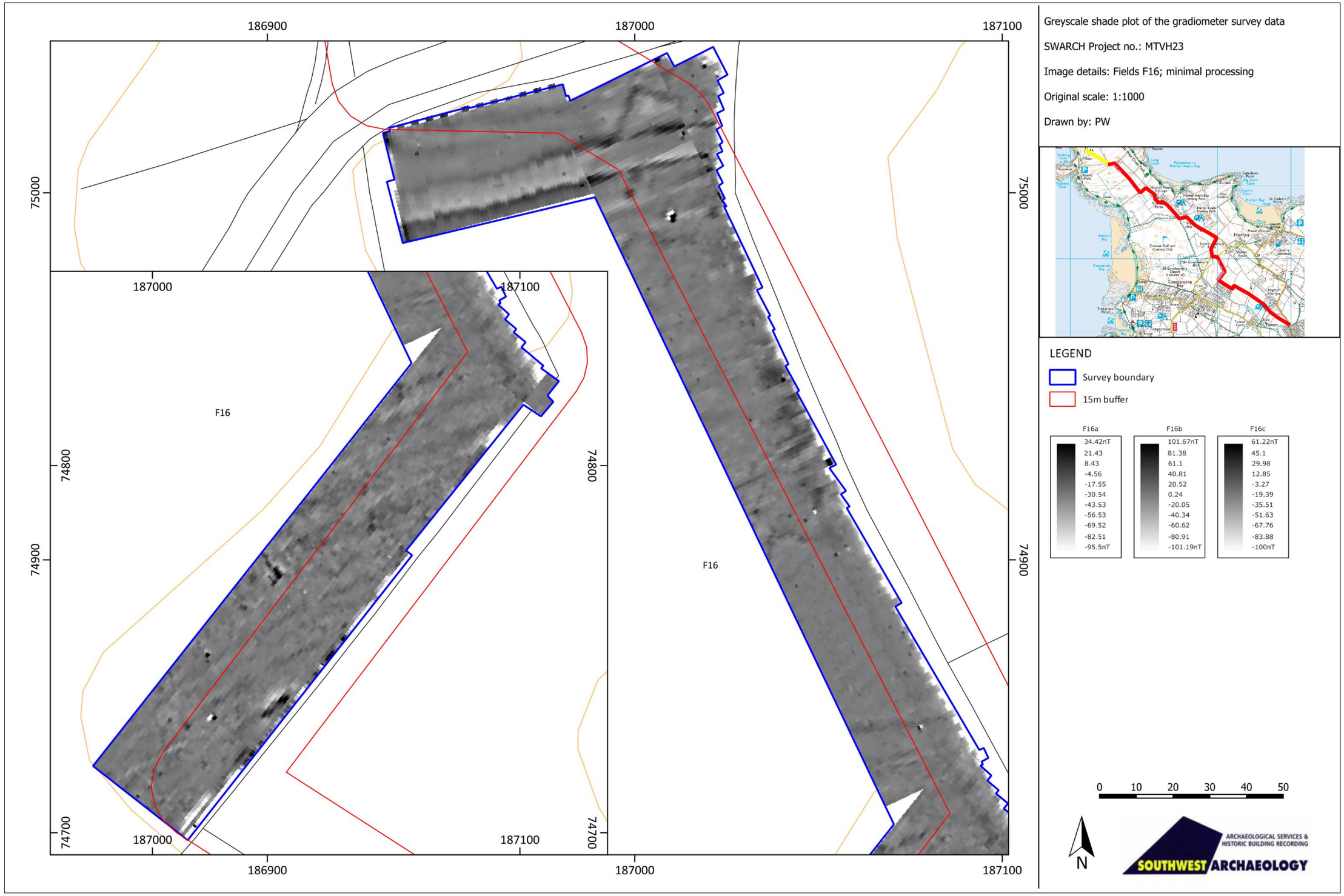

FIGURE 6: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA (FIELD F16); MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

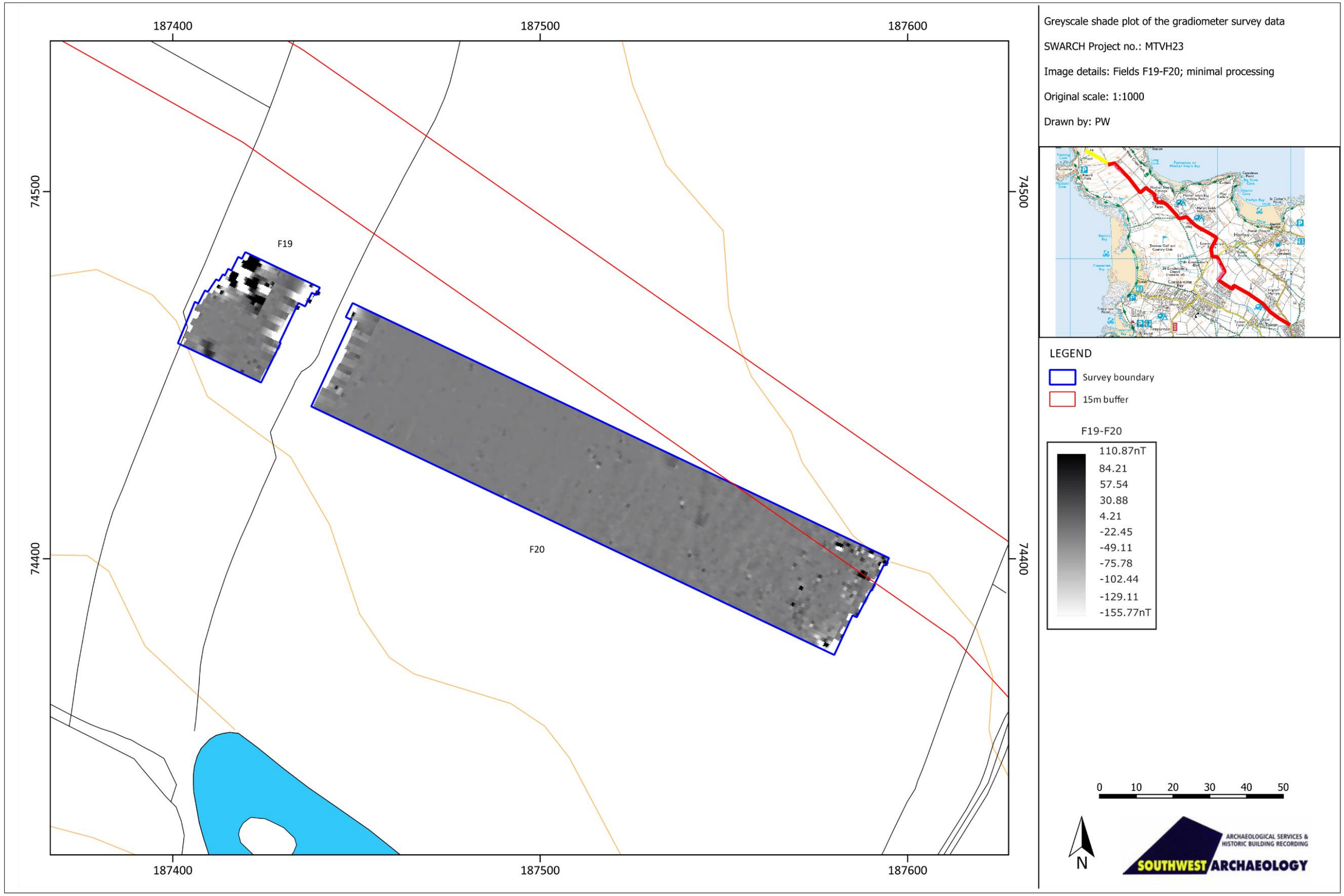

FIGURE 7: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA (FIELDS F19-F20); MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

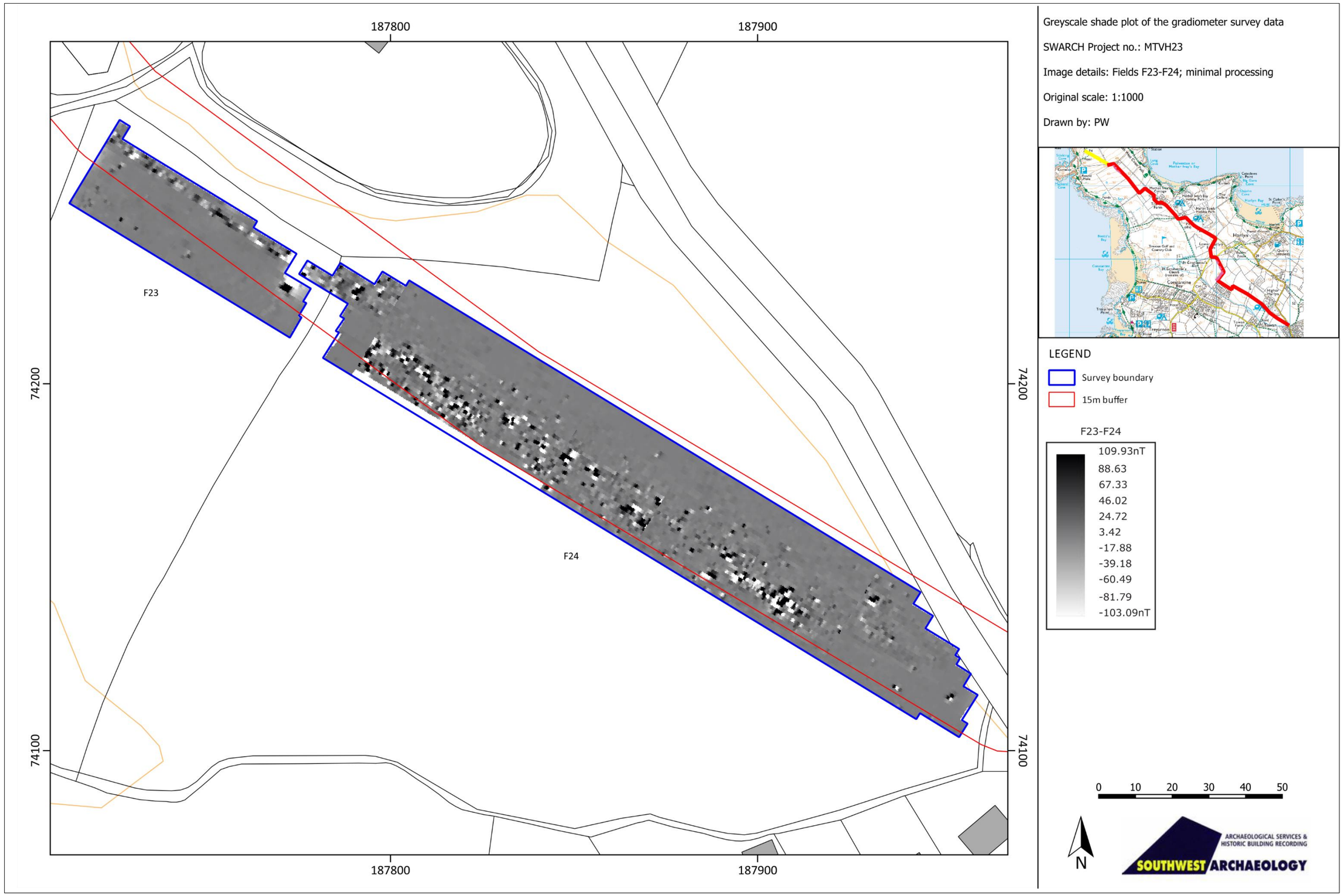

FIGURE 8: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA (FIELDS F23-F24); MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

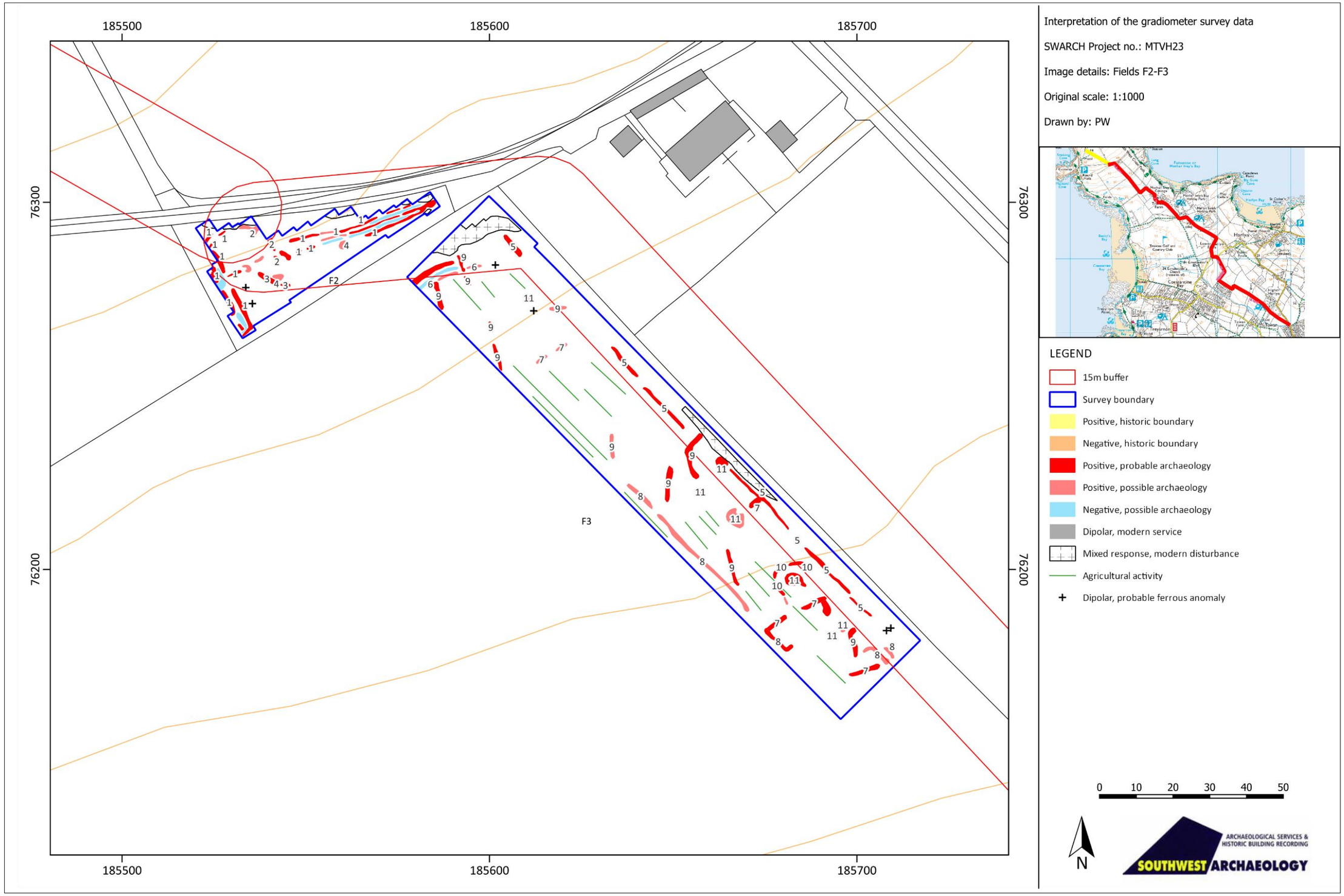

FIGURE 9: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (FIELDS F2-F3) (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

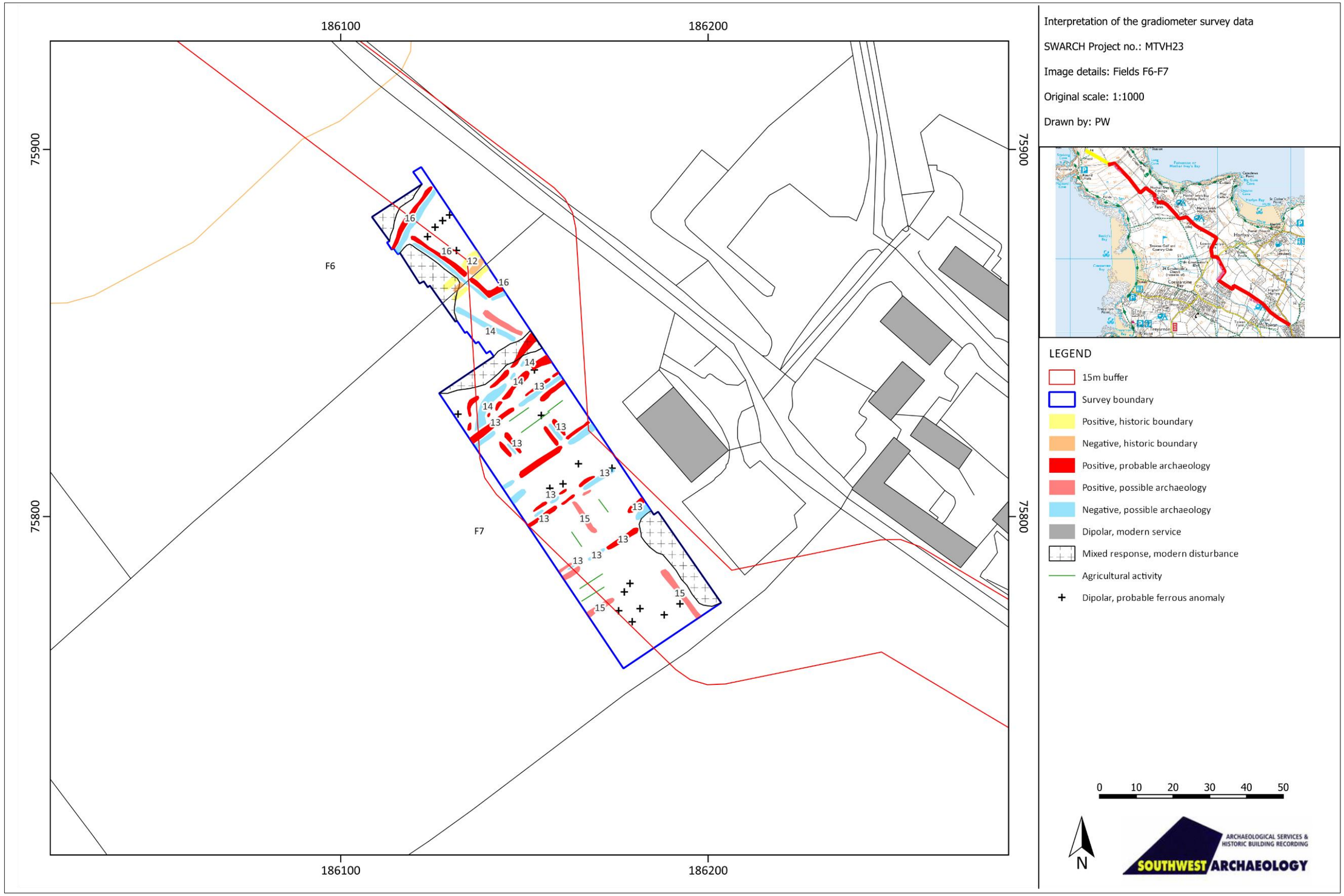

FIGURE 10: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (FIELDS F6-F7) (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

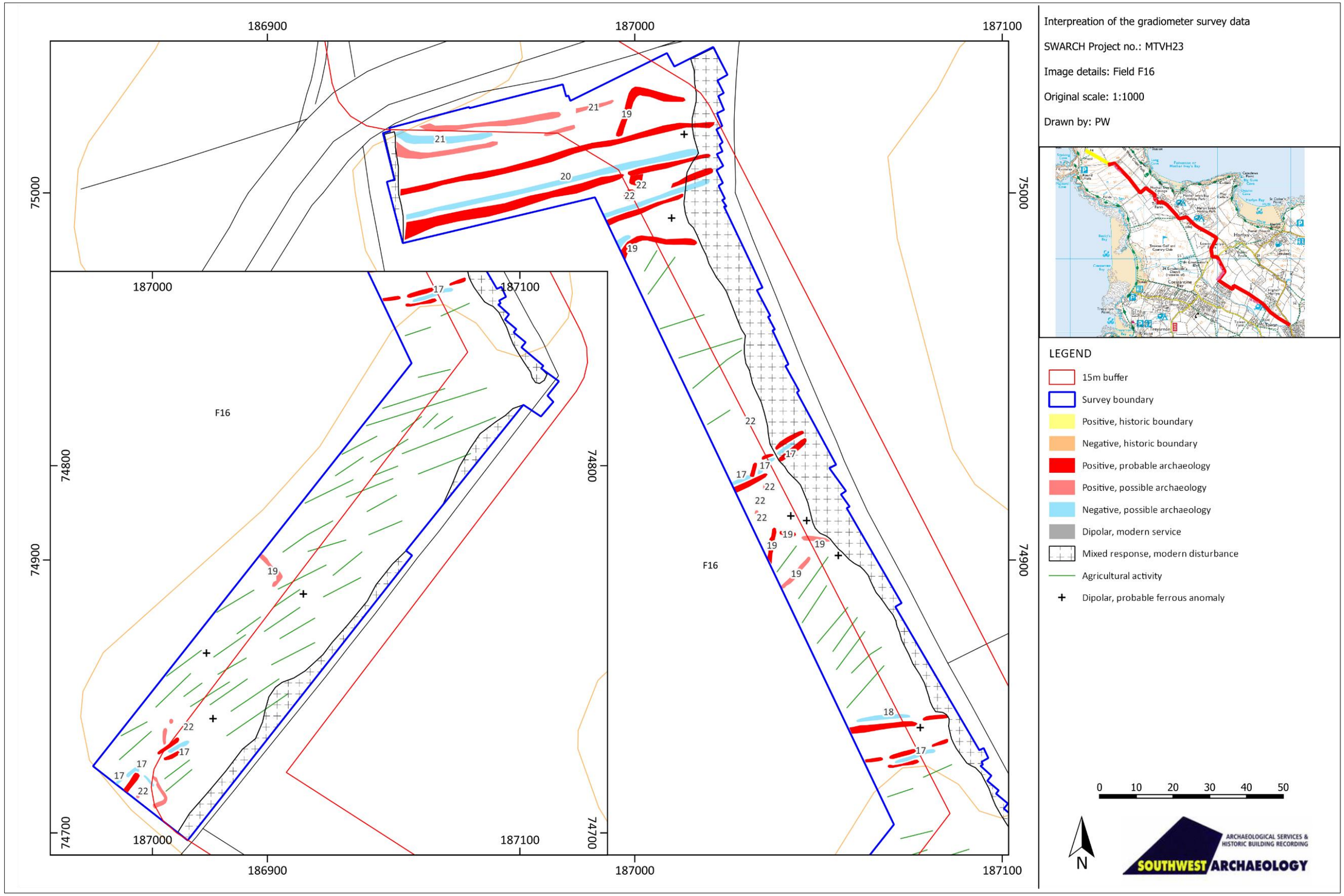

FIGURE 11: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (FIELD F16) (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

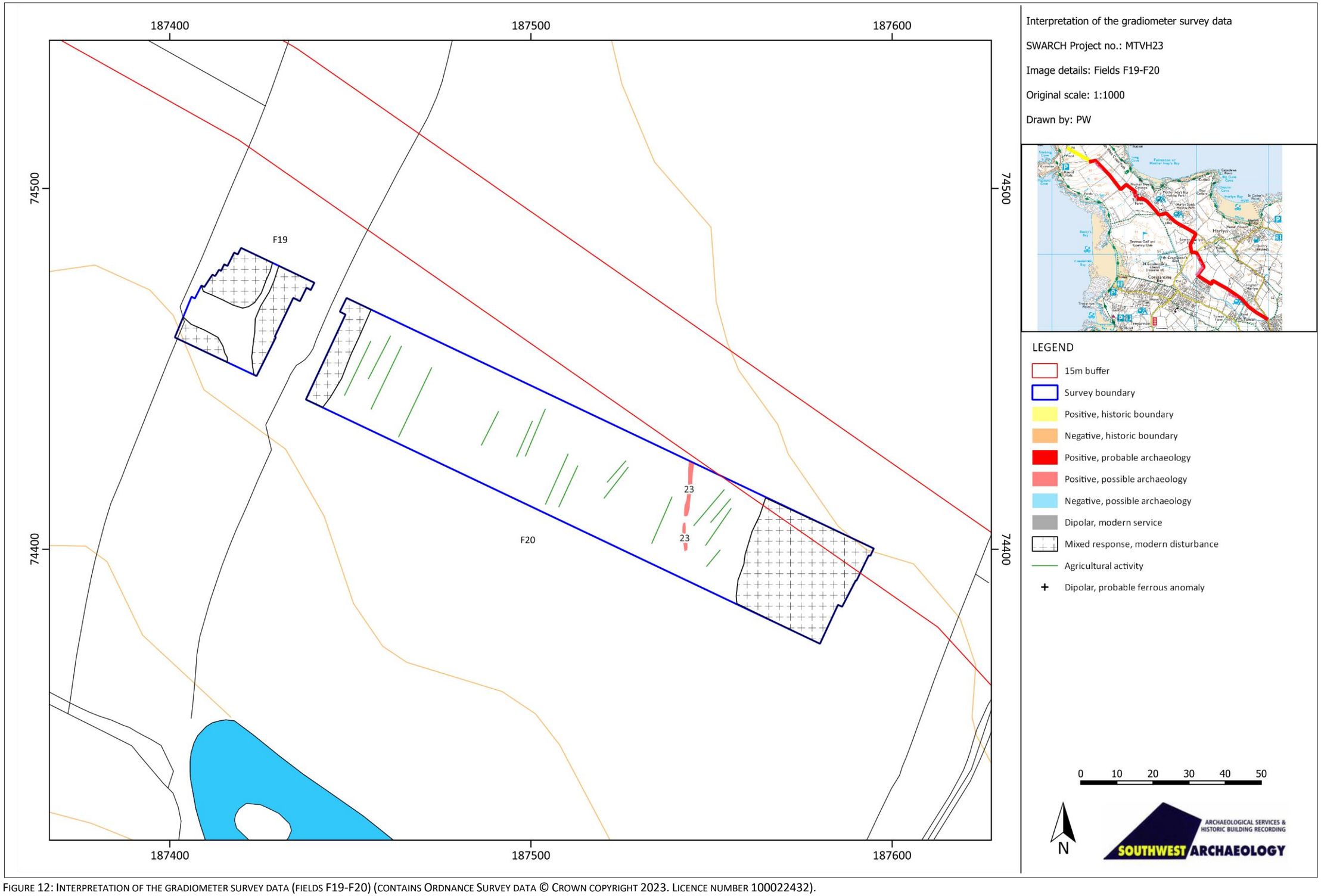

FIGURE 12: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (FIELDS F19-F20) (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

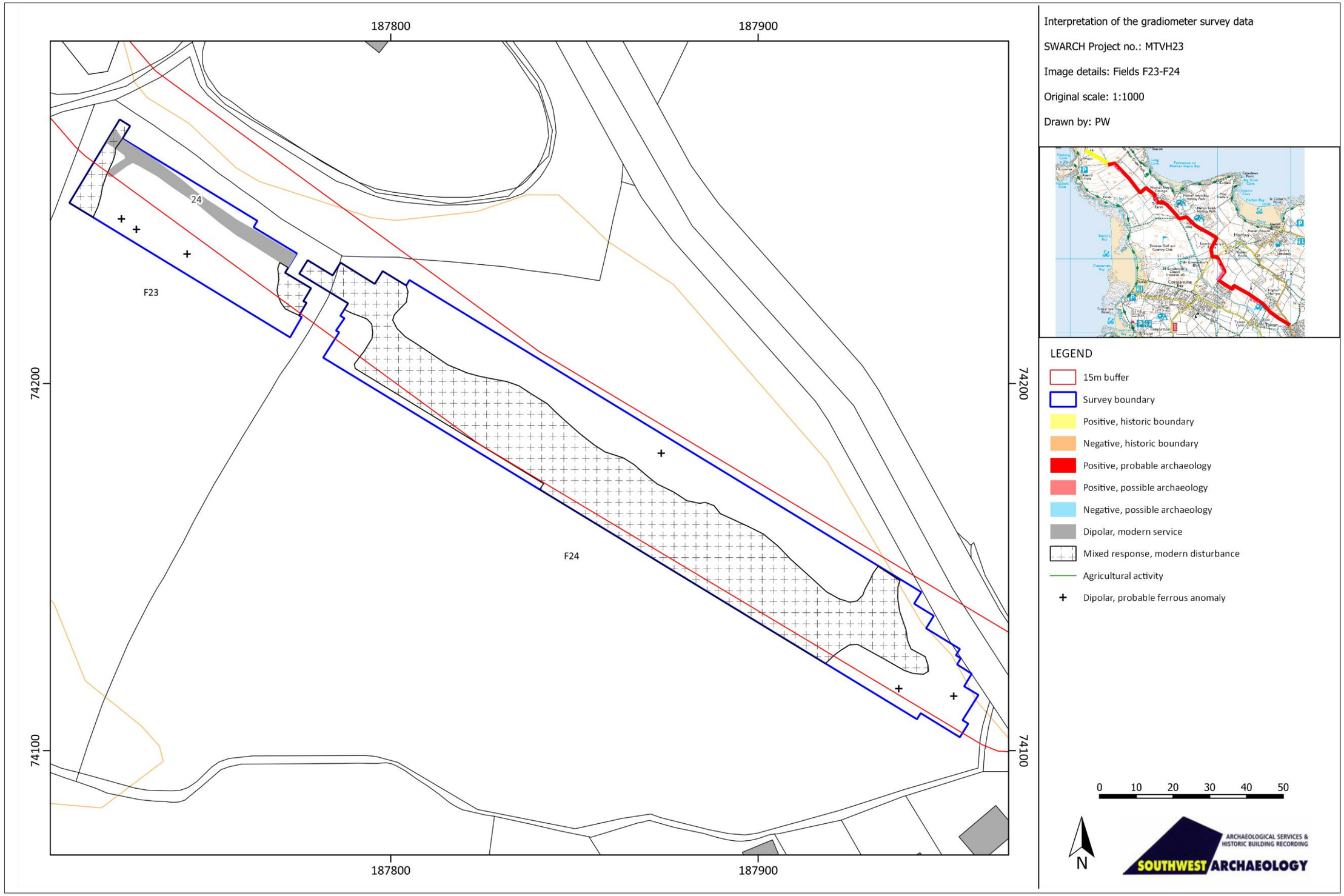

FIGURE 13: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (FIELDS F23-F24) (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

TABLE 1: SURVEY DETAILS (UN-ADJUSTED)

Field	Area Surveyed (ha)	Max (nT)	Min (nT)	Standard Deviation (nT)	Mean (nT)	Median (nT)
F1	Not surveyed					
F2	0.09125	103.49	-100.10	8.83	0.02	0.00
F3	0.48875	45.22	-102.75	3.79	0.09	0.00
F4-F5	Not surveyed					
F6-F7	0.3562	52.24	-100.00	4.12	-0.23	0.00
F8-F15	Not surveyed					
F16a	0.1661	30.43	-95.50	9.91	-0.64	0.00
F16b	0.61735	101.67	-101.19	7.25	-0.60	0.00
F16c	0.51785	61.22	-100.00	7.59	-0.78	-0.01
F17-F18	Not surveyed					
F19-F20	0.54795	110.87	-155.77	11.80	-0.27	0.00
F21-F22	Not surveyed					
F23-F24	0.7123	109.93	-103.09	15.86	0.11	0.00

2.4 RESULTS

Table 2 with the accompanying Figures 3-12 show the analyses and interpretation of the geophysical survey data.

TABLE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
Field F1				
				Not surveyed
Field F2				
1	Moderate positive & negative, probable	Linear	Double 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-east to south-west and north-west to south-east. Responses of between -15.96nT to -0.84nT and +0.12nT to +19.38nT.
2	Weak positive, probable	Linear	Ditch	Indicative of a cut and infilled feature such as a ditch. Orientated approximately north-north-west to south-south-east. Weak responses may indicate poor survival. Responses of between +0.29nT and +10.38nT.
3	Weak to moderate positive, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north-west to south-east. Responses of between +1.29nT and +15.83nT.
4	Moderate to strong positive, possible	Discrete	Pit or tree-throw	Indicative of discrete cut and infilled features such as pits. Weaker responses may indicate natural features such as tree-throws. Responses of between +0.16nT and +37.97nT
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -29.85nT and +31.84nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -102.19nT and +103.49nT.
Field F3				
5	Moderate positive, probable	Linear	Ditch	Indicative of a cut and infilled feature such as a ditch. Orientated approximately north-west to south-east. Responses of between +0.18nT and +15.48nT.
6	Weak positive & negative, possible	Curvilinear	Double 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 -8.93nT to -0.16nT and +0.35nT to +8.33nT.
7	Moderate to strong positive, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north-east to south-west. Responses of between +0.31nT and +22.78nT.
8	Weak positive, possible	Linear	Ditch or agricultural activity	Indicative of cut and infilled features such as ditches. Weaker responses may indicate agricultural activity. Orientated approximately north-west to south-east. Responses of between +0.27nT and +5.95nT.
9	Moderate positive, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated between approximately north to south and east to west. Responses of between +0.14nT and +5.94nT.
10	Weak to moderate	Curvilinear	Ditch or ring-	Indicative of cut and infilled features such as ditches. Orientated

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
	positive, probable		ditch/gully	between approximately east to west and north-west to south-east. Responses of between +0.06nT and +10.91nT.
11	Weak to moderate positive, probable	Discrete	Pit or tree-throw	Indicative of a cut and infilled feature such as a pit. Weaker responses may indicate natural features such as tree-throws. Responses of between +0.71nT and +11.73nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Indicative of ploughing. Weaker mixed positive and negative responses suggest shallow ploughing. Aligned approximately north-west to south-east. Responses of between -5.65nT and +5.37nT.
Fields F4-F5				
				Not surveyed
Fields F6-F7				
12	Weak positive & negative, probable	Linear	Historic boundary – double ditch & bank	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Orientated approximately north-east to south-west. Depicted on historic mapping. Responses of between -3.19nT to -0.20nT and +0.37nT to +8.63nT.
13	Weak positive & negative, probable	Linear	Double ditch & bank	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Orientated approximately north-east to south-west. Responses of between -5.56nT to -0.06nT and +0.06nT to +8.93nT.
14	Weak positive & negative, probable	Linear	Double 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-east to south-west and north-west to south-east. Responses of between -4.46nT to -0.05nT and +0.01nT to +10.87nT.
15	Very weak positive, possible	Linear	Ditch	Indicative of cut and infilled features such as ditches. Weak responses may indicate agricultural activity. Orientated approximately north-east to south-west and north-west to south-east. Responses of between +0.14nT and +3.16nT.
16	Weak to moderate positive & negative, probable	Linear	Ditch & bank	Indicative of cut and infilled features such as ditches with associated banked/compacted material. Orientated between approximately north-east to south-west and north-west to south-east. May contain modern service. Responses of between -17.06nT to -0.34nT and +0.26nT to +11.07nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering fields with regularity. Indicative of ploughing. Weaker mixed positive and negative responses suggest shallow ploughing. Aligned approximately north-west to south-east. Responses of between -2.17nT and +2.05nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -38.99nT and +52.24nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -100.00nT and +52.24nT.
Fields F8-F15				
				Not surveyed
Field F16				
17	Weak positive & negative, probable	Linear	Double ditch & bank	Indicative of cut and infilled features such as ditches flanking central banked/compacted material typical of traditional hedgebank construction. Weak responses may indicated deeper cut agricultural activity. Orientated between north-east to south-west and east to west. Responses of between -3.35nT to -0.16nT and +0.09nT to +4.02nT.
18	Weak positive, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately east-north-east to west-south-west. Weaker responses may indicate deeper cut agricultural activity. Responses of between +0.42nT and +6.79nT.
19	Weak positive & negative, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated between approximately north-east to south-west and north-west to south-east. Weaker responses may indicate deeper cut agricultural activity. Responses of between +0.22nT and +9.27nT.
20	Moderate positive & negative, probable	Linear	Track / hollow-way	Indicative of cut and infilled features such as ditches flanking central compacted material or raised stoned track. Orientated approximately north-east to south-west. Responses of between -14.68nT to -0.12nT and +0.18nT to +15.78nT.
21	Weak positive & negative, possible	Linear	Track	Indicative of cut and infilled features such as ditches flanking central compacted material or stoned track. Orientated

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
				approximately north-east to south-west. Responses of between -4.57nT to -0.08nT and +0.18nT to +6.12nT.
22	Weak to moderate 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 +0.33nT and +11.90nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Indicative of ploughing. Weaker mixed positive and negative responses suggest shallow ploughing. Aligned between approximately north-east to south-west and east-north-east to west-south-west. Responses of between -2.70nT and +3.04nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -101.19nT and +101.67nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -100.74nT and +67.08nT.
Fields F17-F18				
				Not surveyed
Fields F19-F20				
23	Weak positive, possible	Curvilinear	Ditch or natural feature	Indicative of cut and infilled features such as ditches. Weaker responses may indicate natural or geological origin. Orientated between approximately north-north-west to south-south-east and north-west to south-east. Responses of between +0.23nT and +8.72nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the fields with regularity. Indicative of ploughing. Weaker mixed positive and negative responses suggest shallow ploughing. Aligned approximately north-north-east to south-south-west. Responses of between -2.27nT and +2.60nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -101.86nT and +98.21nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -155.77nT and +110.87nT.
Fields F21-F22				
				Not surveyed
Fields 23-24				
24	Very strong dipolar, probable	Linear	Modern service	Indicative of a buried modern service. Orientated approximately north-west to south-east. Responses of between -0.14nT to -100.56nT and +0.44nT to +54.24nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -101.87nT and +100.97nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -103.09nT and +109.93nT.

2.5 DISCUSSION

The survey identified 24 groups of anomalies across the surveyed fields. These were predominantly linear ditch and/or bank boundary features associated phases of the existing and historic field-system. Possible pits and/or tree-throws, alongside anomalies associated with agricultural activity, metallic debris and ground disturbance were also apparent.

The general response variation across the site was between +/-3nT with occasional clear background geological variation up to +/-5nT. The response strength of probable archaeological activity was low (typically between +/-10nT). The weaker responses of some of the anomalies may indicate that these are only likely to survive to a shallow depth; the stronger responses perhaps indicating the presence of more recent disturbance.

The anomaly groups identified include: historic ditch and bank boundaries removed during the 20th or 21st centuries (Group 12); further possible ditches associated with phases of the existing and historic field boundaries (Groups 1-3, 5-9, 13-19 and 23), possible enclosure ditches (Group 10) and settlement features (Group 11), possible pits or tree-throws (Groups 4 and 22), possible tracks/hollow-ways (Groups 21-21) and modern services (Group 24).

2.6 ARCHAEOLOGICAL POTENTIAL

Whilst none of the identified features can at this stage be dated, the location of several of the anomaly groups corresponds with boundaries depicted on historic mapping, indicating that these features were in use from at least the middle of the 19th century and removed by the early 21st century (Group 12). Whilst not mapped, further ditch features are positioned running parallel to and alongside existing field boundaries (Groups 1 and 5) and reflect slight shifts in the position of existing boundaries.

The historic field-pattern of the cable route includes medieval farmland and post-medieval to modern enclosed land, much of which is likely to pre-date the 17th century and which may have medieval origins; the surviving boundaries of which are represented in the gently curving boundaries of the existing field-system. It is likely that many of the ditch and/or bank features which are clearly congruent with the broad layout of the field-system (Groups 2, 7-8, 13, 15-18 and 23) form part of these earlier field-systems, having been removed by the mid-19th century.

Other linear features, however, are offset to the existing and historic field-system (Groups 3, 14, 19 and 21), suggesting that they may have earlier origins, perhaps as part of a prehistoric landscape for which there is extensive evidence in the surrounding area. As part of this are a small number of features which appear to form small enclosures (Group 9) which surround large pit-like anomalies (Group 11) which could indicate possible prehistoric settlement features (sunken-featured round-houses).

A small number of possible pit features (Group 4 and 22) were identified across the site, though the weak nature of many of the 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 poor. The majority of the anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features 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 disturbances.

The results of the geophysical survey would suggest that the archaeological potential for the site is mixed, with some areas *low* (fields F16, F19-20 and F23-24) whilst other areas appear to have *moderate* to *high* potential (fields F2-F3 and F6-F7). The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out, particularly towards the north-western end of the survey area.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present) and further mitigation will be required.

3.0 CONCLUSION

The survey areas cover largely gently towards the summit of the coastal spur at Trevose Head. The site runs through the parish of St Merryn, from the medieval farmstead of Trevose, formerly belonging to the Robartes family.

The site comprises 24 fields, of which only small areas of nine fields were surveyed (fields F2-F3, F6-F7, F16, F19-20 and F23-F24) between Trevose Farm and St Merryn. Weather and ground conditions meant that much of the rest of the route was not surveyable at the time of the survey and/or that the geology and landscaping (towans/dune sand of the golf course) meant that the survey would be unlikely to produce meaningful results.

The cable route traverses areas of the landscape recorded on the HLC as: C*oastal Rough Ground*, *Modern Enclosed Land*, *Post-Medieval Enclosed Land* and *Farmland: Medieval.*

The survey identified 24 groups of anomalies across the surveyed fields. These were predominantly linear ditch and/or bank boundary features associated phases of the existing and historic field-system. Possible pits and/or tree-throws, alongside anomalies associated with agricultural activity, metallic debris and ground disturbance were also apparent.

The degree of preservation of the identified features appears to be poor. The majority of the anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features 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 disturbances.

The results of the geophysical survey would suggest that the archaeological potential for the site is mixed, with some areas *low* (fields F16, F19-20 and F23-24) whilst other areas appear to have *moderate* to *high* potential (fields F2-F3 and F6-F7). The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out, particularly towards the north-western end of the survey area.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present) and given the results of the geophysical survey further mitigation is recommended, even if targeted to the north-western end.

4.0 BIBLIOGRAPHY & REFERENCES

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APPENDIX 1: METADATA FOR GEOPHYSICAL SURVEY PROCESSING

GRADIOMETRY

GENERAL DATA FOR ALL FIELDS/SITE:

SITE

NAME:	MTVH23
LOCATION:	(west of) Trevose Farm to St Merryn
COLLECTION METHOD:	ZigZag
SENSORS:	2 @1m spacing
DUMMY VALUE:	32702
X&Y INTERVAL:	0.25m
INSTRUMENT TYPE:	Bartington Grad 601
UNITS:	nT
SURVEYED AREA:	3.49775ha

PROGRAM

NAME:	TerraSurveyor
VERSION:	3.0.37.30

STATISTICS ADJUSTED AFTER PROCESSING

PROCESSES USED:

DeStripe: used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).

DeStagger: reduces staggering effects within data derived from zig-zag collection method.

FIELD F2

STATS

MAX:	103.49
MIN:	-100.10
STD. DEV.:	8.83
MEAN:	0.02
MEDIAN:	0.00
COMPOSITE AREA:	0.54ha
SURVEYED AREA:	0.09125ha

PROCESSES

PROCESSES: 5

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: a1.xgd By: 0 intervals, -50.00cm
4 DeStripe Median Traverse: Grids: All
5 DeStagger: Grids: All By: 0 intervals, -25.00cm

FIELD F3

STATS

MAX:	45.22
MIN:	-102.75
STD. DEV.:	3.79
MEAN:	0.09
MEDIAN:	0.00
COMPOSITE AREA:	1.08ha
SURVEYED AREA:	0.48875ha

PROCESSES

PROCESSES: 10

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: b1.xgd By: 0 intervals, 50.00cm
4 DeStagger: Grids: b2.xgd By: 0 intervals, 50.00cm
5 DeStagger: Grids: b3.xgd b4.xgd By: 0 intervals, 50.00cm
6 DeStagger: Grids: a6.xgd a8.xgd By: 0 intervals, 50.00cm
7 DeStagger: Grids: a8.xgd b1.xgd By: 0 intervals, 100.00cm
8 DeStagger: Grids: b1.xgd By: 0 intervals, -50.00cm
9 DeStripe Median Traverse: Grids: All
10 DeStagger: Grids: All By: 0 intervals, 25.00cm

FIELD F6-F7

STATS

MAX:	52.24
MIN:	-100.00
STD. DEV.:	4.12
MEAN:	-0.23
MEDIAN:	0.00
COMPOSITE AREA:	0.9ha
SURVEYED AREA:	0.3562ha

PROCESSES

PROCESSES: 9

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: e16.xgd e15.xgd By: 0 intervals, -75.00cm
4 DeStagger: Grids: SubGrid (Area: Top 34, Left 0, Bottom 41, Right 119) By: 0 intervals, 25.00cm
5 DeStagger: Grids: SubGrid (Area: Top 36, Left 0, Bottom 39, Right 119) By: 0 intervals, -25.00cm
6 DeStagger: Grids: e13.xgd e12.xgd e11.xgd By: 0 intervals, -25.00cm
7 DeStagger: Grids: e13.xgd e12.xgd e11.xgd By: 0 intervals, -50.00cm
8 DeStagger: Grids: e13.xgd e12.xgd e11.xgd By: 0 intervals, -50.00cm
9 DeStagger: Grids: SubGrid (Area: Top 80, Left 0, Bottom 95, Right 119) By: 0 intervals, -25.00cm

FIELD F16A

STATS

MAX:	30.43
MIN:	-95.50
STD. DEV.:	9.91
MEAN:	-0.64
MEDIAN:	0.00
COMPOSITE AREA:	0.54ha
SURVEYED AREA:	0.1661ha

PROCESSES

PROCESSES: 3

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: All By: 0 intervals, 100.00cm

FIELD F16B

STATS

MAX:	101.67
MIN:	-101.19
STD. DEV.:	7.25
MEAN:	-0.60
MEDIAN:	0.00
COMPOSITE AREA:	1.26ha
SURVEYED AREA:	0.61735ha

PROCESSES

PROCESSES: 5

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: c12.xgd c13.xgd c14.xgd By: 0 intervals, 50.00cm
4 DeStagger: Grids: c6.xgd By: 0 intervals, 50.00cm
5 DeStripe Median Traverse: Grids: All

FIELD F16C

STATS

MAX:	61.22
MIN:	-100.00
STD. DEV.:	7.59
MEAN:	-0.78
MEDIAN:	-0.01
COMPOSITE AREA:	1.08ha
SURVEYED AREA:	0.517785ha

PROCESSES

PROCESSES: 2

1 Base Layer
2 DeStripe Median Traverse: Grids: All

FIELD F19-F20

STATS

MAX:	110.87
MIN:	-155.77
STD. DEV.:	11.80
MEAN:	-0.27
MEDIAN:	0.00
COMPOSITE AREA:	0.72ha
SURVEYED AREA:	0.54795ha

PROCESSES

PROCESSES: 6

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 DeStagger: Grids: All By: 0 intervals, 100.00cm
4 DeStagger: Grids: e9+e8.xgd By: 0 intervals, -100.00cm
5 DeStripe: Median Traverse: Grids: e9+e8.xgd
6 DeStripe: Median Traverse: Grids: All

FIELD F23-F24

STATS

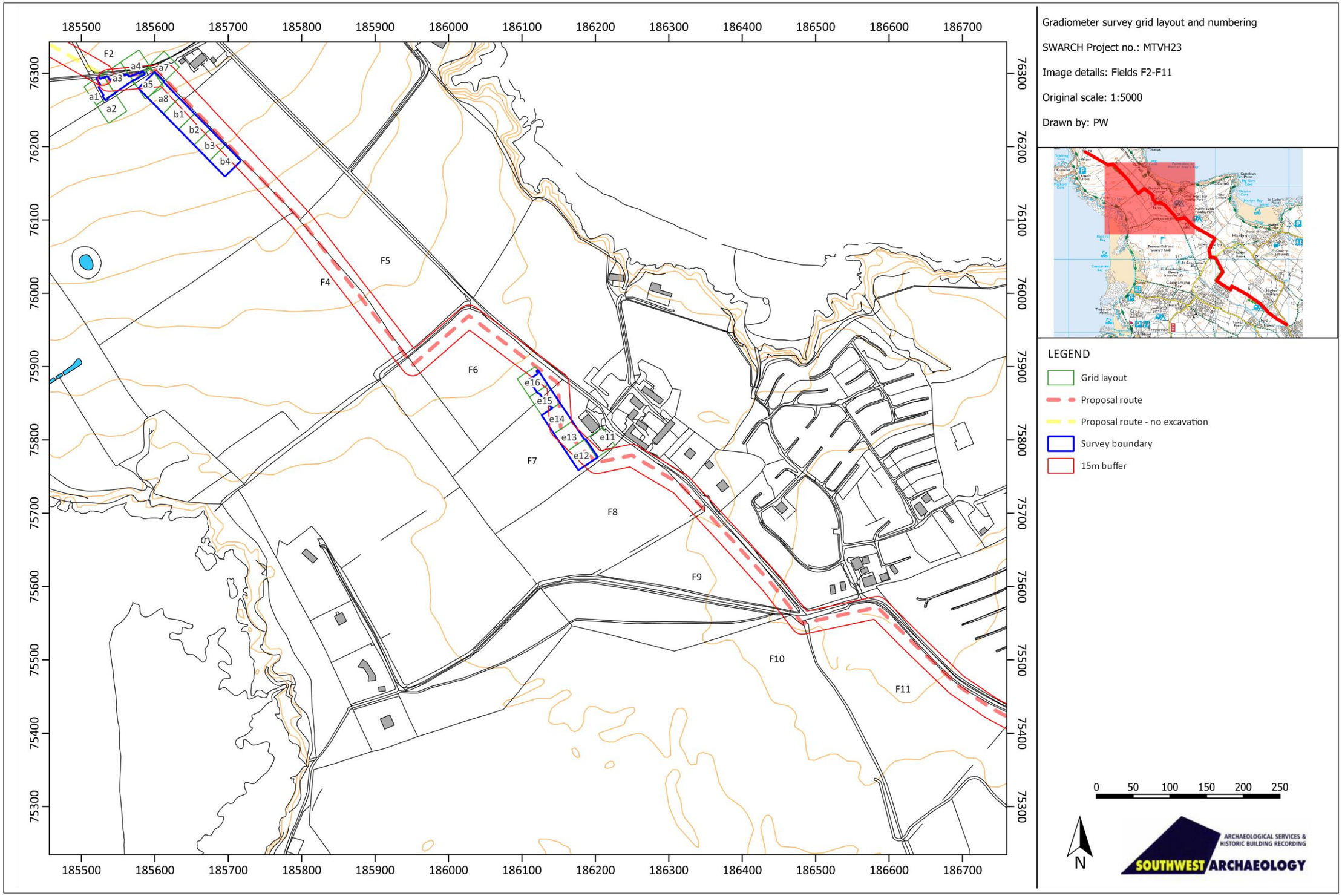
MAX:	109.93
MIN:	-103.09
STD. DEV.:	15.86
MEAN:	0.11
MEDIAN:	0.00
COMPOSITE AREA:	0.9ha
SURVEYED AREA:	0.7123ha

PROCESSES

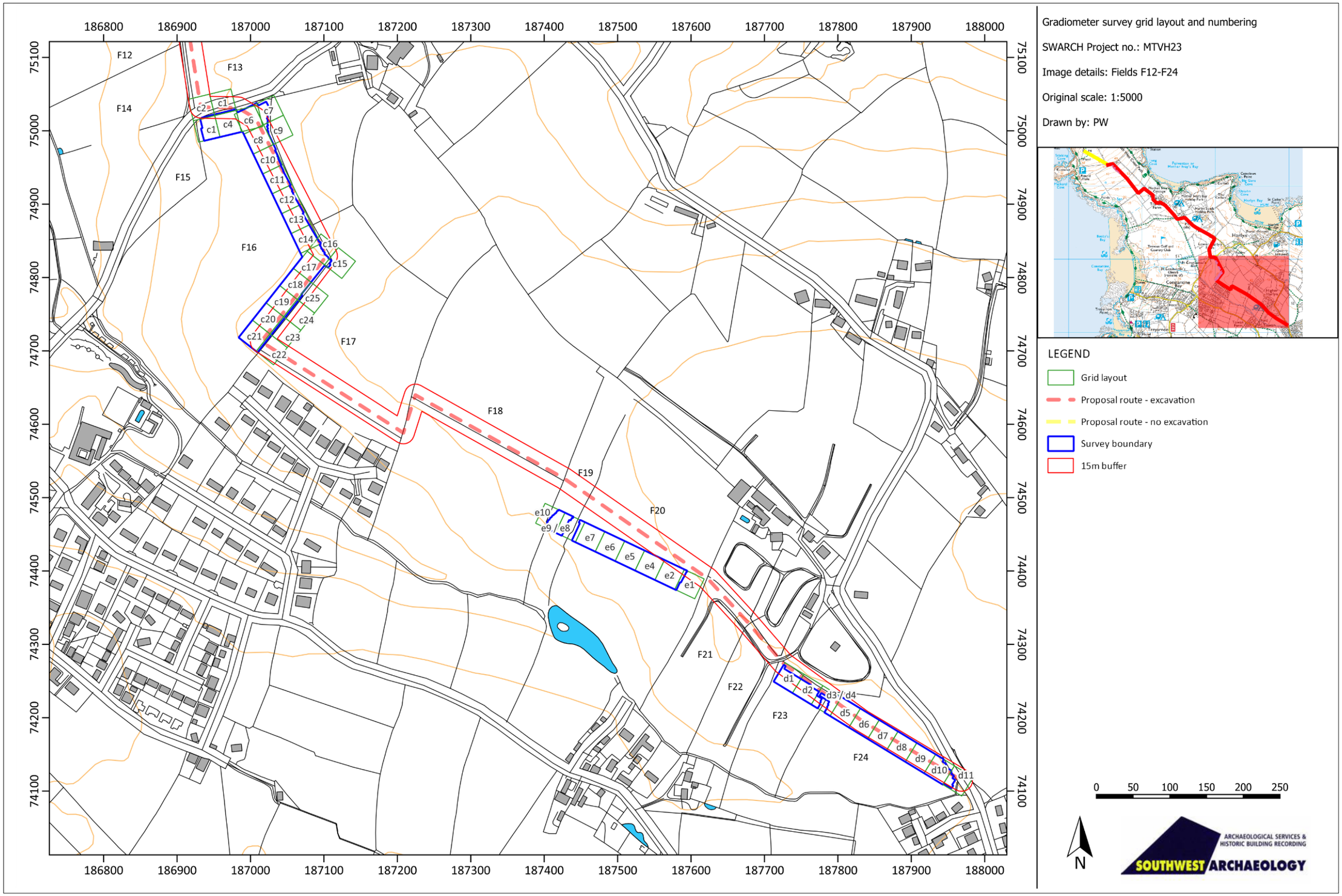
PROCESSES: 2

1 Base Layer
2 DeStripe Median Traverse: Grids: All

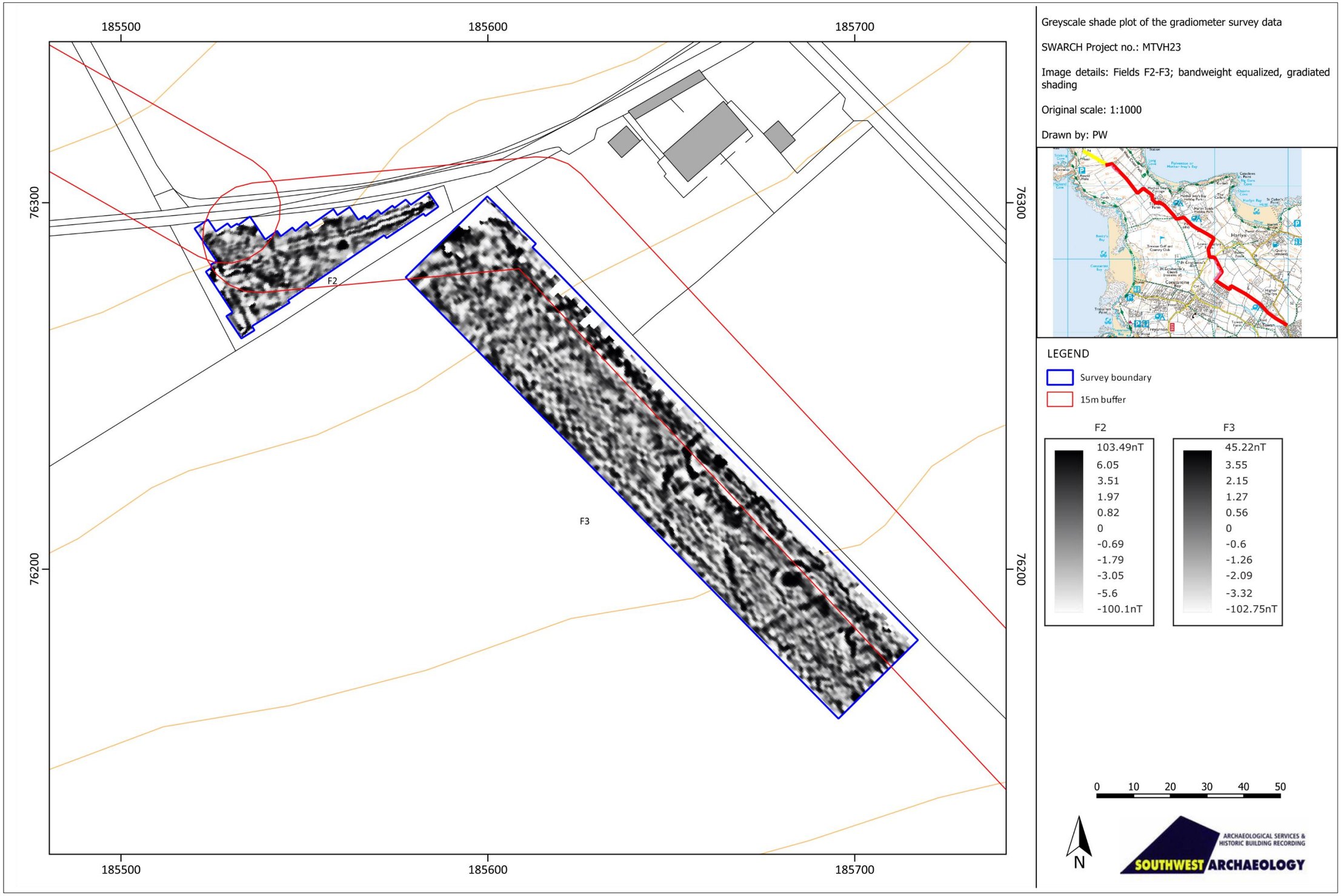
APPENDIX 2: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



1. GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING (FIELDS F2-F11). (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

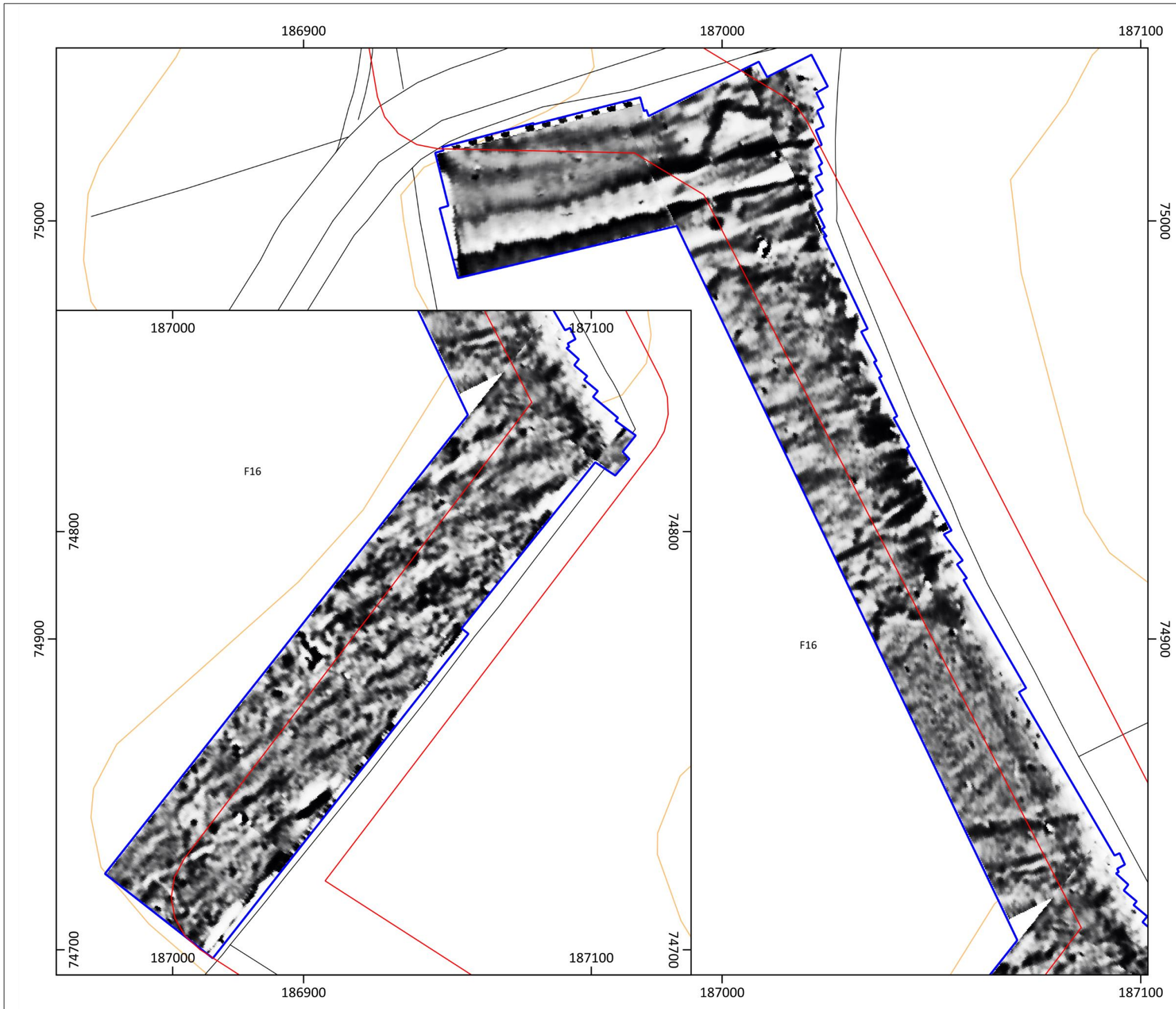


2. GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING (FIELDS F12-F24). (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



3. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F2-F3); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

4. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F6-F7); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



Greyscale shade plot of the gradiometer survey data

SWARCH Project no.: MTVH23

Image details: Field F16; bandweight equalized, gradiated shading

Original scale: 1:1000

Drawn by: PW

LEGEND

Survey boundary

15m buffer

F16a	F16b	F16c
34.42nT	101.67nT	61.22nT
6.74	2.91	3.18
3.51	1.51	1.93
1.99	0.8	1.14
0.74	0.33	0.49
-0.02	0	0
-0.79	-0.35	-0.55
-2.22	-0.82	-1.18
-4.6	-1.53	-2.01
-8.15	-3.29	-3.47
-95.5nT	-101.19nT	-100nT

0 10 20 30 40 50

N

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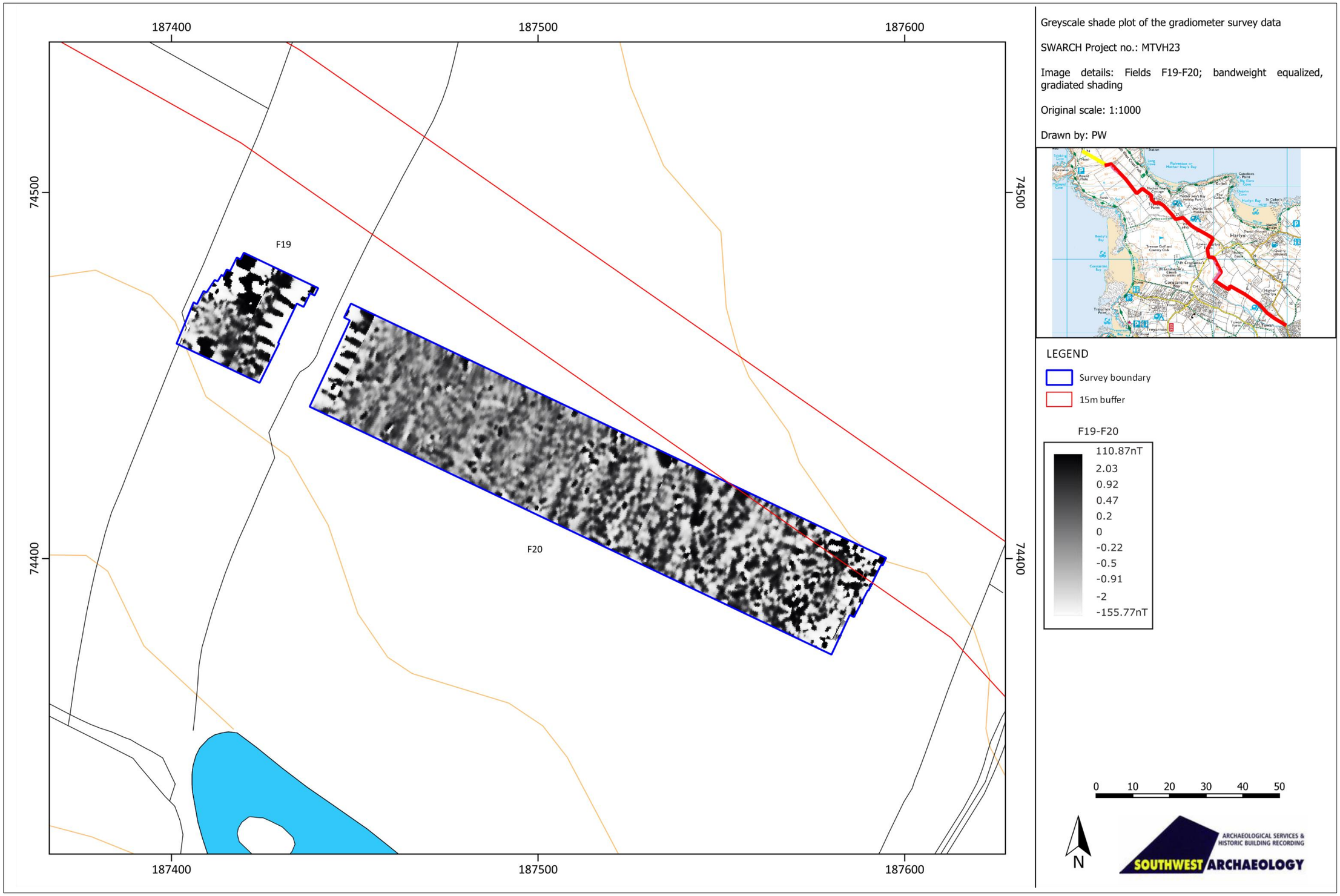
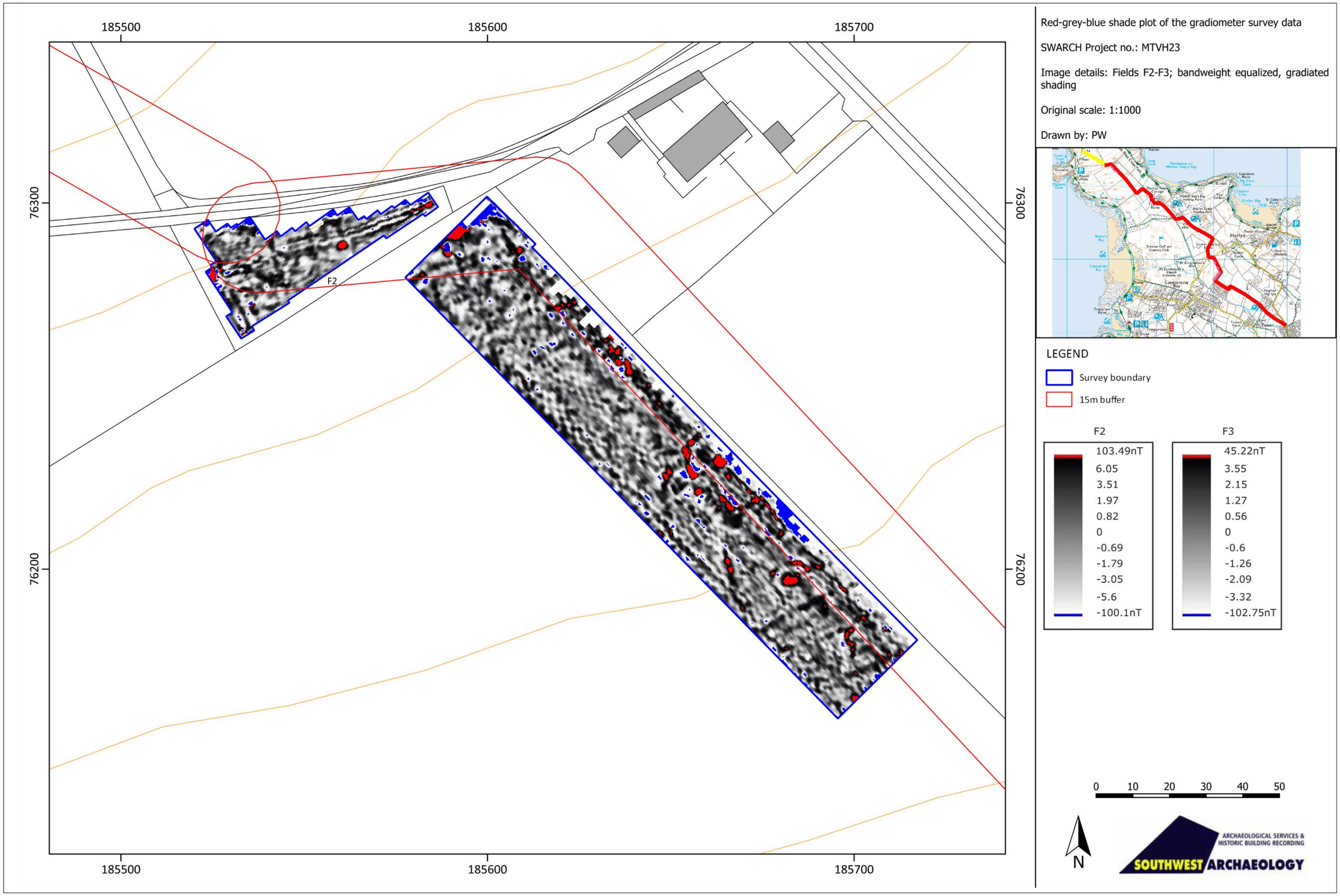
5. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELD F16); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

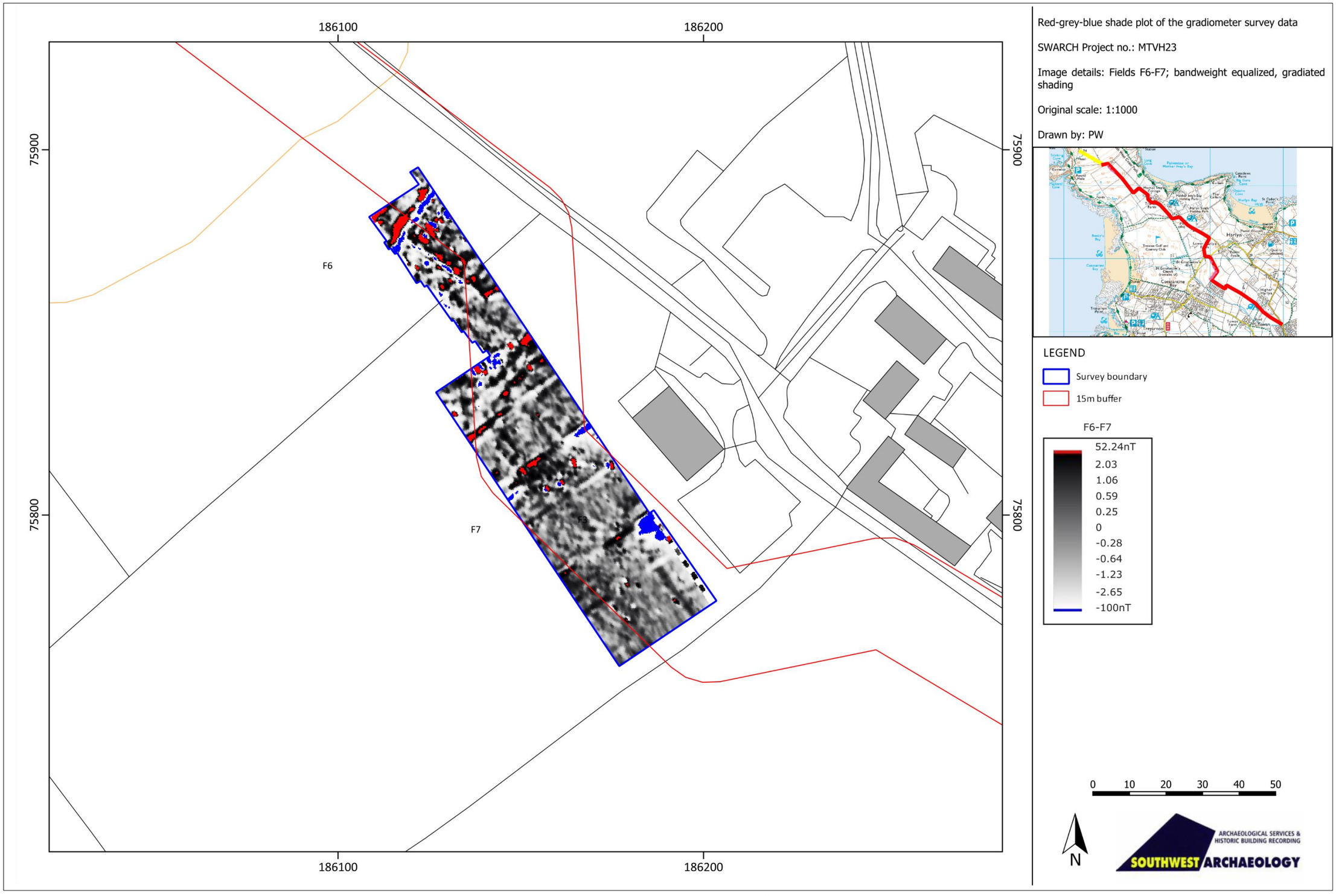


6. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F19-F20); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

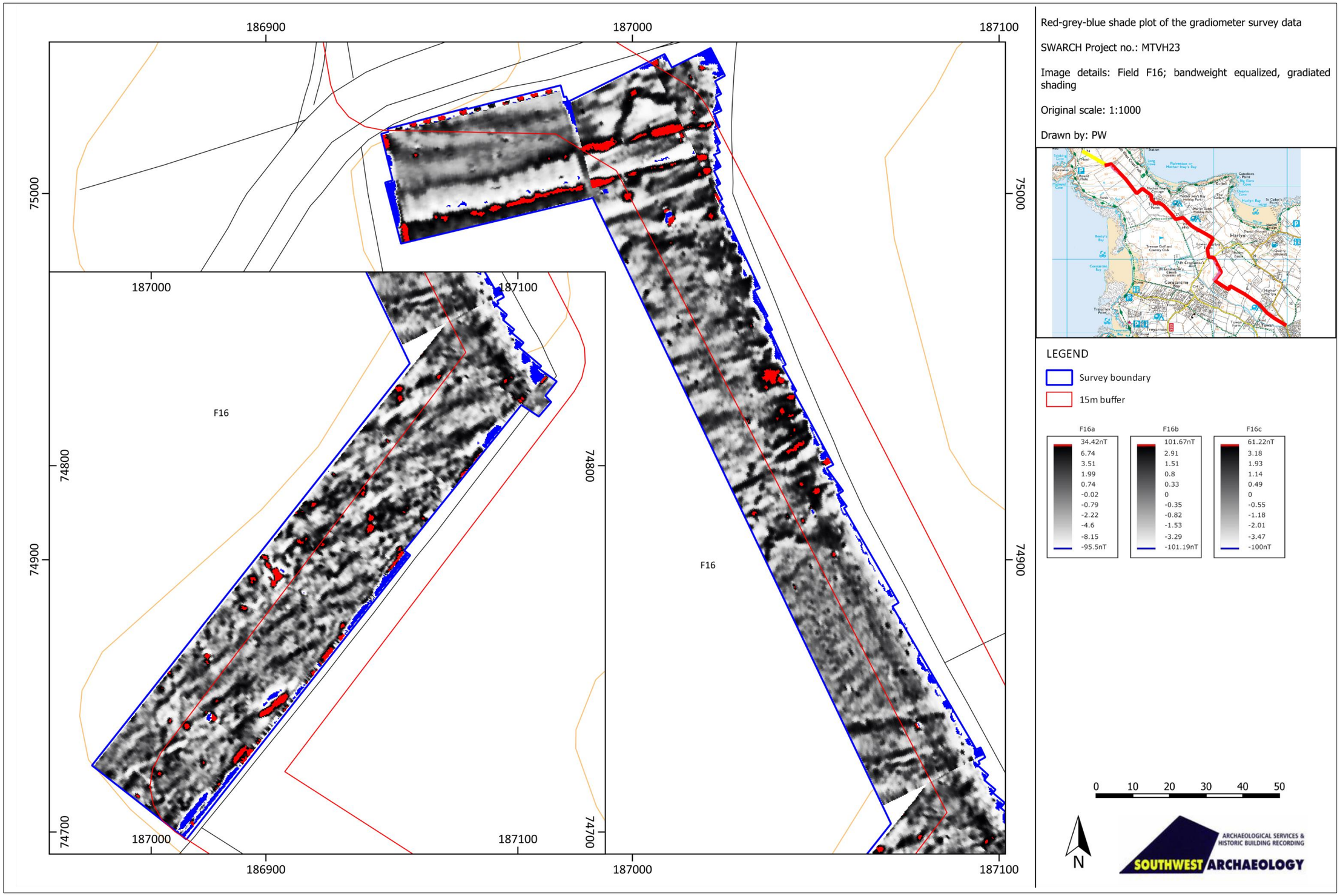
7. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F23-F24); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



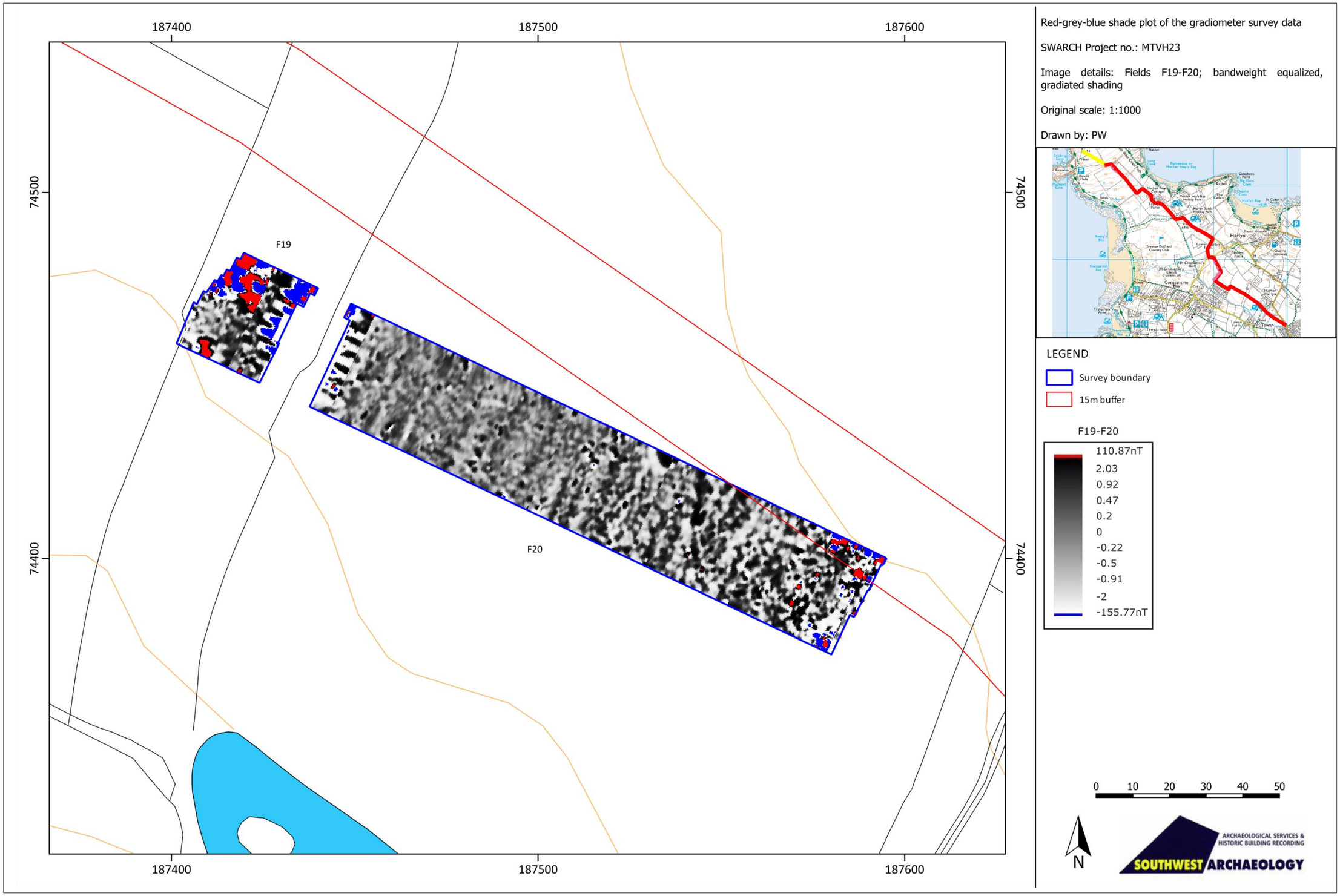
8. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F2-F3); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



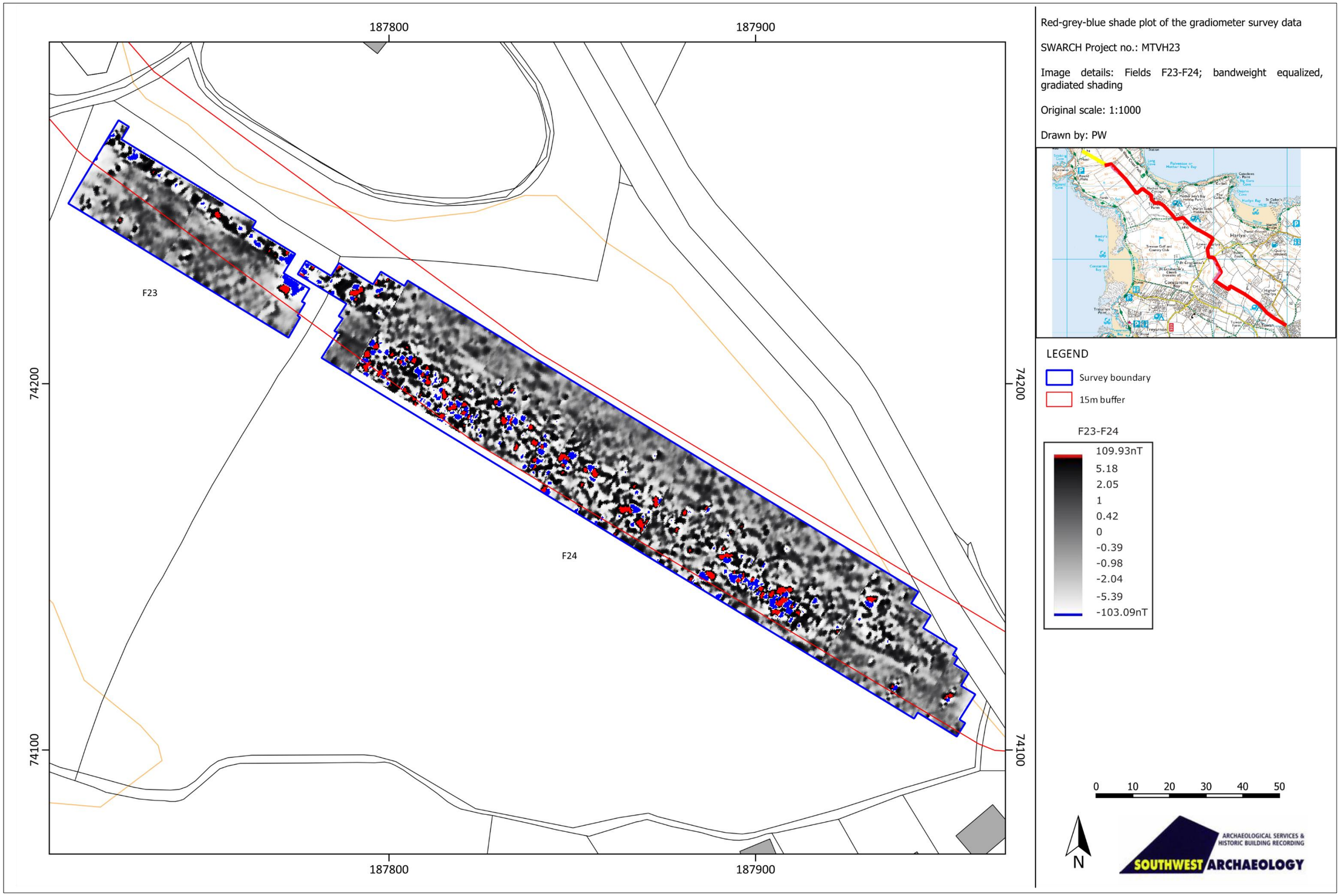
9. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F6-F7); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



10. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELD F16); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



11. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F19-F20); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



12. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA (FIELDS F23-F24); BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

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