Bower Hinton Farm
Gradiometer Survey, March 2019

South Somerset Archaeological Research Group

Report no: SSARG/GS1025

Contents

Acknowledgements

SSARG would like to thank Patrick, Duncan and Andrew Palmer for allowing us access to their fields; Greg Wales and Johnny March for metal detecting information and for their help with the survey.

Bower Hinton Farm, Bower Hinton

Summary of Metal Detecting (2015 to 2019)

Metal detecting activity is known to have taken place at Bower Hinton Farm many years ago and Roman coins are known to have been found in one field (Long Dern). The author is not aware of any finds recording having taken place.

Since 2015, two metal detectorists, Johnny March and Greg Wales, have been metal detecting at the farm. Initially, a significant number of Roman coins and brooches were found in the Long Dern, a field on the east side of the farm, extending from a roughly east/west ridge, downhill towards the Fosse Way. The same field also yielded a significant number of Roman pot sherds, two fragments of Roman roof tile and one fragment of Roman painted wall plaster, during eyes only searches.

The Roman coin finds exceed one hundred to date and are predominately Nummi from the first half of the fourth century and a smaller quantity of Radiates from the second half of the third century.

The Roman Brooches recorded thus far are from the first/second centuries.

The Roman pot sherds are predominantly Black Burnished ware (BB1), with smaller quantities of grey ware, New Forest ware, Oxfordshire Red ware and Samian ware.

Of the two fragments of Roman roof tile, one is of Upper Triassic white lias and the other is a fragment of an orange-red Tegula.

In October 2016, a single Roman coin and a number of Roman pot sherds were found in Buds Ash, a field to the west of the farm. This lead to a search of an adjacent field known as High Close and its neighbouring field known as Pit Close, both of which extend from the same east-west ridge as the Long Dern, again downhill towards the Fosse Way. To date, Buds Ash, High Close and Pit Close have yielded over one hundred Roman coins, thirteen Roman brooches, three Iron Age coins and numerous Roman pot sherds.

As with the Long Dern, the Roman coins are predominately Nummi from the first half of the fourth century and a smaller quantity of Radiates from the second half of the third century.
The Roman Brooches recorded thus far are from the first/second centuries.

The pot sherds are predominantly Black Burnish ware, together with very small quantities of grey ware and Samian ware.

All three Iron Age coins are of the local Durotriges tribe. One is a copper alloy uninscribed stator, the second is a base silver uninscribed stator and the third is a gold or gold/silver alloy 'Duro Boat Gold' type quarter stator.

These finds are gradually being recorded on the Portable Antiquities Scheme (PAS) database.

Greg Wales

Gradiometer Survey, March 2019

1.0 Introduction:

A gradiometry survey was carried out in the fields High Close and Pit Close at Bower Hinton Farm (NGR 330800 110900, figs 1 & 2) after the landowner had discovered large ham stone slabs and quern stone fragments during subsoiling. Further investigation uncovered part of a rough rubble surface including heat affected ham stone, and a burnt layer between 3 – 8 cm immediately above the rubble floor, composed of ash, carbonised material, pottery and heat affected clay.

The fields have regularly been the site of a metal detecting survey and a large variety of artefacts have been recovered (see **Summary of Metal Detecting** above). The purpose of the gradiometry survey was to detect any archaeological features which could be associated with these artefacts and to shed light upon the nature of the buried stone flooring.

High Close and Pit Close are situated on a plateau at the top of a gentle southward facing slope (figs 1 & 2). The geology of the site is Beacon Limestone Formation Limestone capped by Bridport Sand Formation Sandstone:
http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html
Accessed 23rd January 2020.

The survey was carried out by members of the South Somerset Archaeological Research Group.

1.1 Equipment

Fluxgate gradiometer – Bartington Grad 601-2

The Bartington Grad 601-2 is a dual system gradiometer, a form of magnetometer. It comprises two sensor rods carried on a rigid frame, each sensor including two fluxgates aligned at 90° to each other, one set 1m above the other. It measures variations in the magnetic field between the two fluxgates, recorded in *nanoTesla* (nT) at each sampling point within a grid. The manufacturer claims a depth range of approximately three metres. The instrument is most effective when carried at a consistent height, not exceeding 0.3m above the ground.

Magnetometers are especially effective for discovering thoroughly decayed organic materials, such as those which accumulate in ditches and pits, and matter exposed to intensive firing, including industrial areas, hearths and larger ceramics. All of these are likely to give a positive magnetic response, sometimes with a negative halo, giving a dipolar effect. Non-igneous stone features, such as walls and banks, are usually perceived as negative anomalies against a background enhanced by decayed organics.

Software – Geoscan Geoplot 3.00v

Geoplot 3.00v allows the presentation of data in four graphical forms: dot-density, grey scale, pattern and X-Y (or *trace*) plots. The latter are particularly effective when used in conjunction with other graphical modes to emphasise ferrous magnetic anomalies or other distortions which show as accentuated peaks or troughs. The programme supports statistical analysis and filtering of the data.

1.2 Field method

The survey area was divided into 20m squares on either side of the existing field boundary (fig 2) and tied into the Ordnance Survey post survey. Readings were logged at 0.25m intervals along north to south traverses set 1m apart in a zig zag pattern.

1.3 Processing method

Preliminary processing revealed a small amount of interference from modern ferrous magnetic features, characterised by sharp dipolar fluctuations ranging from approximately 30nT to over 3000nT. The first two processing sequences were carried out to mitigate the impact of modern ironwork.

1) Readings exceeding 30nT either side of 0 were replaced by null (dummy) entries.
2) Any anomalous isolated readings were similarly replaced.
3) Typical regular error due to the zig zag operation of the gradiometer was removed.
4) The mean reading for every traverse was reset to 0.
5) The asymmetric data collection pattern was mitigated by the positive interpolation of data points along the Y axis using the calculation of sin(x)/x.

2.0 The survey area *(fig 2)*

The grid comprises 55 contiguous whole and partial squares covering the northern end of High Close and Pit Close either side of the dividing field boundary. The fields are bounded by hedges with wire fencing on all sides, with a trackway running alongside the north hedge.

3.0 Results *(figs 3, 4, & 5)*

The greyscale plot (fig 3) shows a complex system of intersecting linear anomalies on varying alignments. There appears to be a dominant northwest – southeast linear trend crossing both fields, with what appears to be a major trapezoidal enclosure, possibly from a different activity phase, dominating the results for High Close. All major linears are discussed in ***3.1*** and ***3.2*** below.

There is also a general scatter of non linear anomalies across the site. Although some of these could be due to modern agricultural practice, it is possible they could also indicate archaeological features such as cut features/deposits containing thermo remanent material or occupation debris. A clipped colour plot (fig 4) shows the nature of the spread of this material, where readings higher than 5.0nT are included in the maximum red colour band. Fig 4 also highlights readings within the range for ferrous magnetic material.

Z (fig 5) is the location of the exploratory trench dug after the discovery of the ham stone slabs and quern fragments.

Fig 6 shows the results of the magnetometer survey superimposed on a scatter map of the Roman coins and brooches and the Iron Age coins. There is good correlation between the finds and the features highlighted by the gradiometry.

3.1 Positive anomalies (fig 5)

1 Linear anomaly on the periphery of the survey area. Within a range of 5 to 18nT. Within normal range for strongly thermo remanent material. Readings and alignment suggest a possible association with major linears in **12**.

2 - 4 Series of possibly intersecting linears, generally within a range of 3 to 5nT. Within normal range for ditches. Alignment of **3** suggests a possible association with major linears in **12**.

5 Intermittent linear within a range of 7 to 15nT. Within the range for a ditch containing thermo remanent deposits. Possibly intersects with **3** and **7**.

6 L-shaped linear within a range of 7 to 11nT. Within normal range for a ditch containing thermo

remanent material. Its differing alignment could possibly suggest a different activity phase to the dominant linear trends.

7 Linear anomaly running parallel with major linears in **12**. Within a range of 7 to 15nT suggesting strongly thermo remanent fills. Could possibly continue in **14** and appears to intersect with **11**. Possibly double ditched trackway associated with major enclosure composed of **12** and **13**.

8 Short parallel anomalies on the northern edge of the survey area. Within a range of 7 to 10nT. Alignment suggests a possibly association with **1**.

9 Intermittent L-shaped linear within a range of 7 to 20nT suggesting strongly thermo remanent deposits. Alignment suggests an association with **19** and major linear system to the east.

10 Three short parallel linears generally within a range of 5 to 14nT. Location and alignment suggest a possible association with major linears in **12**.

11 Linear anomaly which appears to intersect with **7** (see above). Within a range of 7 to 23nT. Within normal range for strongly thermo remanent/ferrous magnetic deposits.

12 & 13 Major intersecting and parallel linears which form a trapezoidal enclosure dominating the survey results. Readings are generally within a range of 7 to 28nT. Within the range for strongly thermo remanent/ferrous magnetic material. Appears to have been imposed over the general northwest-southeast linear trend possibly suggesting a different activity phase.

14 Weak linear within a range of 3 to 5nT. Alignment suggests a possible continuation of **7.**

15 Linear anomaly within a range of 7 to 12nT on the southern edge of the survey area. Alignment could suggest a possible association with **13** but its truncation by the survey limit makes this interpretation less secure.

16 Short linear within a range of 4 to 7nT. Appears to intersect with **12**.

17 Series of amorphous, irregular linear anomalies, generally within a range of 4 to 24nT. Appear to be enclosed by **12** and **13** suggesting an associated activity phase.

18 Ladder system of intersecting linears forming partial enclosures which appear to be bounded by **12** and **13.** Generally within a range of 5 to 10nT.

19 Intermittent linear generally within a range of 5 to 20nT. Alignment suggests a possible continuation of **9** and an association with the dominant northwest – southeast linear trend in Pit Close.

20 – 28 Major rectilinear system dominating Pit Close and the eastern part of High Close. Readings generally range from 10 to 20nT, within normal range for strongly thermo remanent fills.

29 Short linear within a range of 4 to 6nT. Within normal range for a ditch.

30 Amorphous linear trend generally within a range of 2 to 5nT. Corresponds with the limit of an area of quarrying to the east.

31 Very weak parallel linears within a range of 1 to 1.5nT. Corresponds with plough marks.

3.2 Negative anomalies *(fig 5)*

a Long linear anomaly within a range of -2 to -5nT. Possible non metallic pipeline.

b & c Weakly negative linears within a range of -1 to -3nT. Corresponds with plough marks.

4.0 Conclusion

The degree of confidence in identified anomalies is generally high. The survey has detected a series of substantial intersecting and coaxial linear anomalies suggestive of at least two major activity phases.

The major trapezoidal enclosure in High Close dominates the survey and appears to overly the northwest – southeast linear trend which is predominantly evident in Pit Close. This could possibly suggest a later activity phase. It would appear from the overlay of the metal detecting finds (fig 6) that at least one of these occupation phases is Roman and there is a particular concentration of artefacts towards the northern end of the main enclosure.

The uneven stone surface discussed in the introduction (fig 7) suggests a possible reuse of flooring material from an earlier structure which also supports the idea of more than one occupation phase. The high concentration of thermo remanent readings in the overall survey results suggests possible light industry/domestic activity, supported by the heat affected stone and carbonised material evident in the informal investigation pit (see **1.0 Introduction**).

Bibliography

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CIfA Guidance notes. Chartered Institute for Archaeologists, Reading.

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British Geological Survey website:
http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html
Accessed 23rd January 2020.

Fig 1: Location of survey

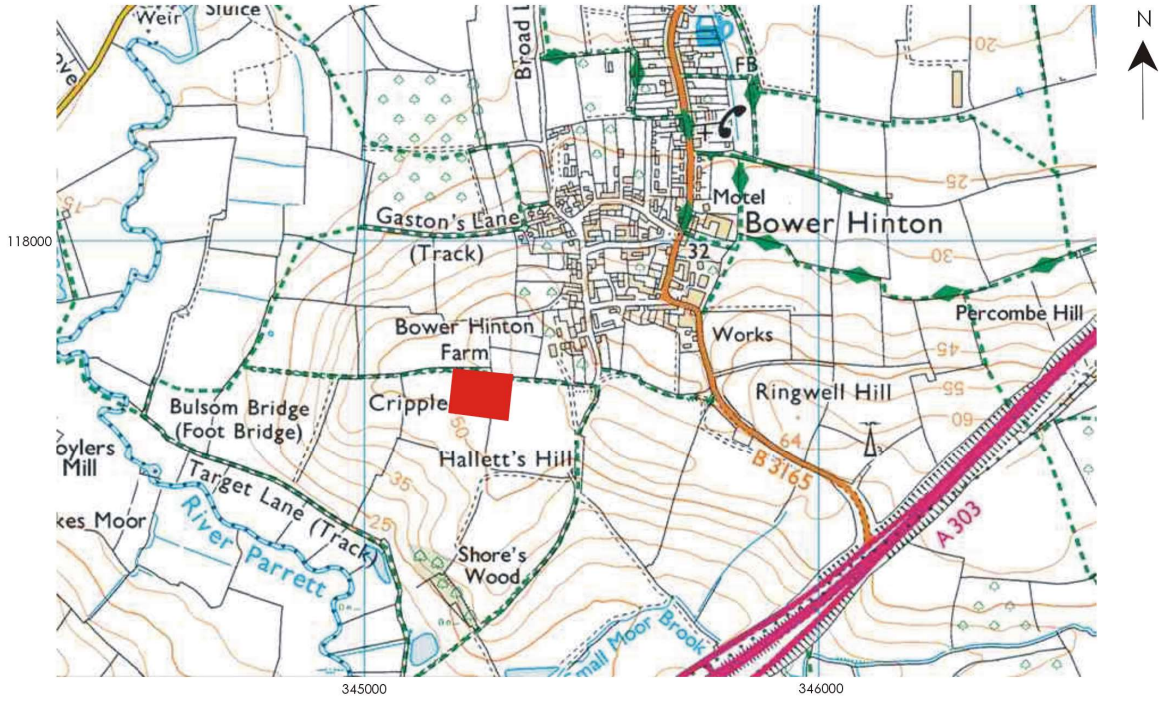

Fig 2: Location of survey - detail

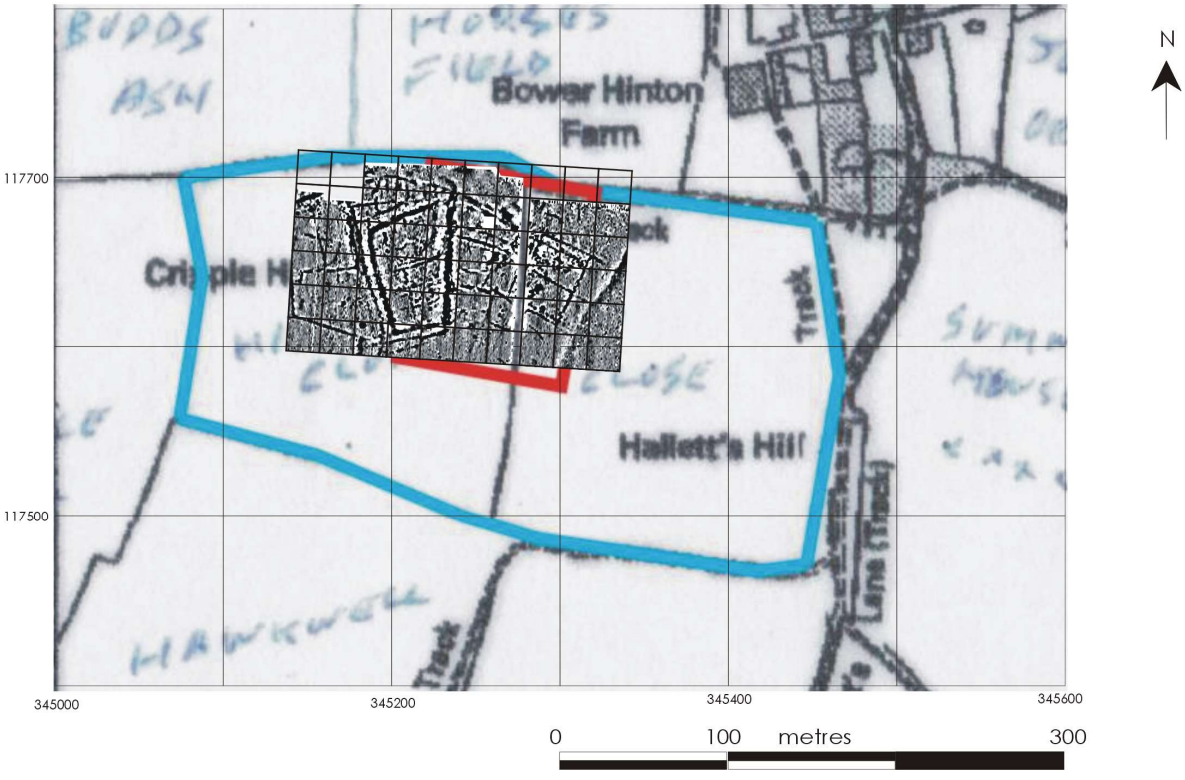

Fig 3: Survey results

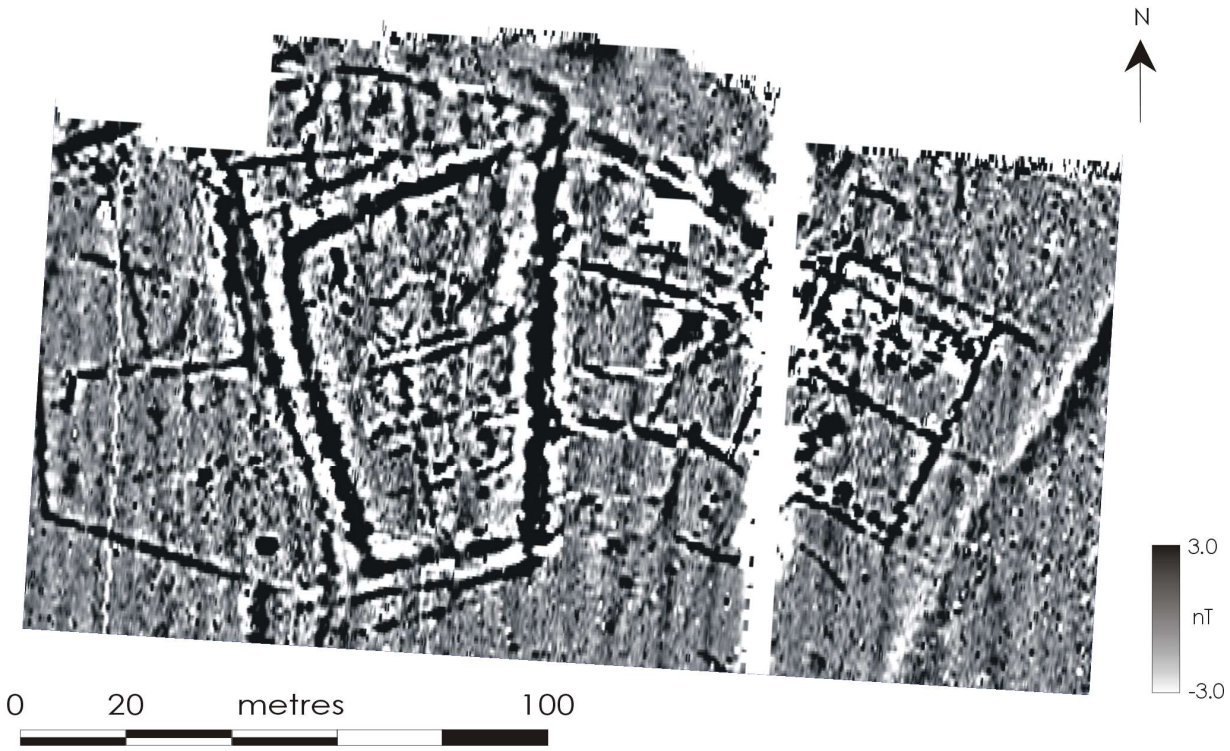

Fig 4: Highlighted survey results

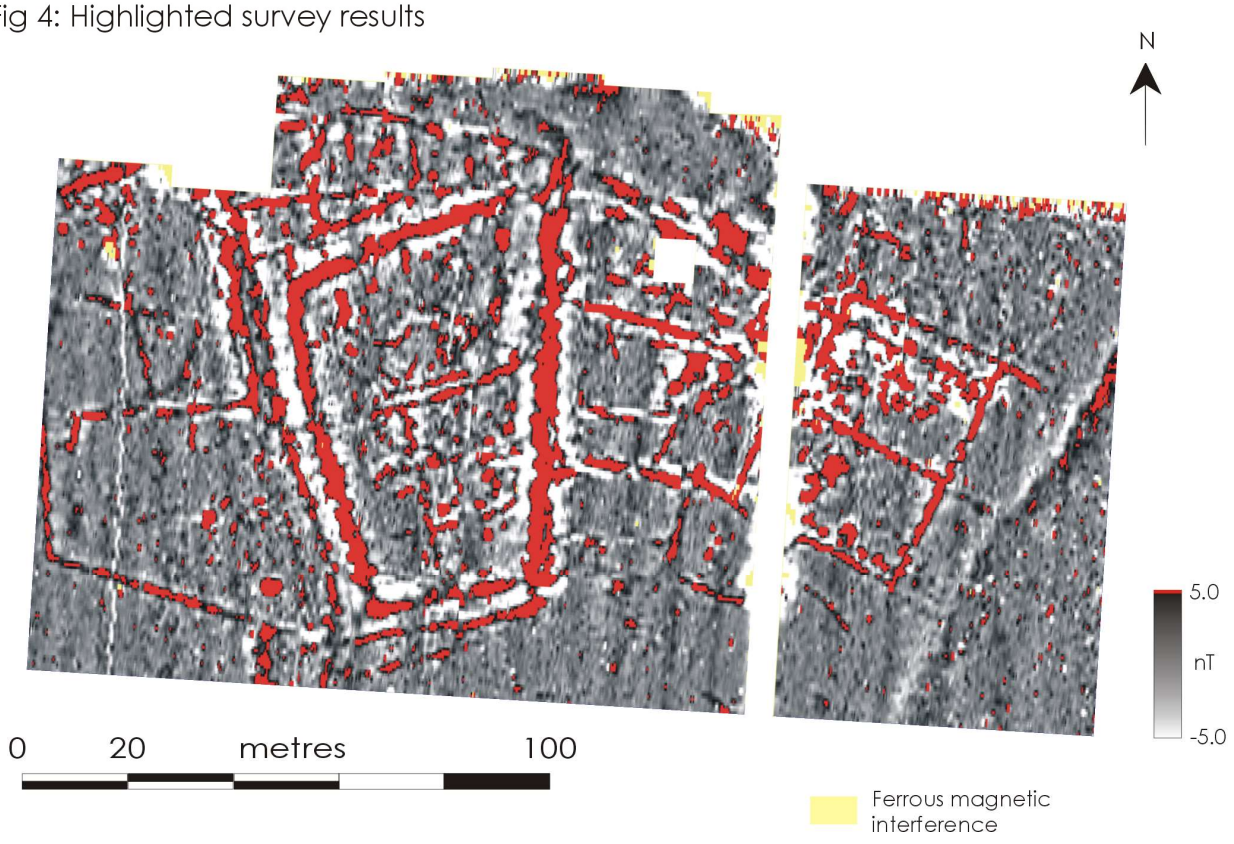

Fig 5: Interpretation

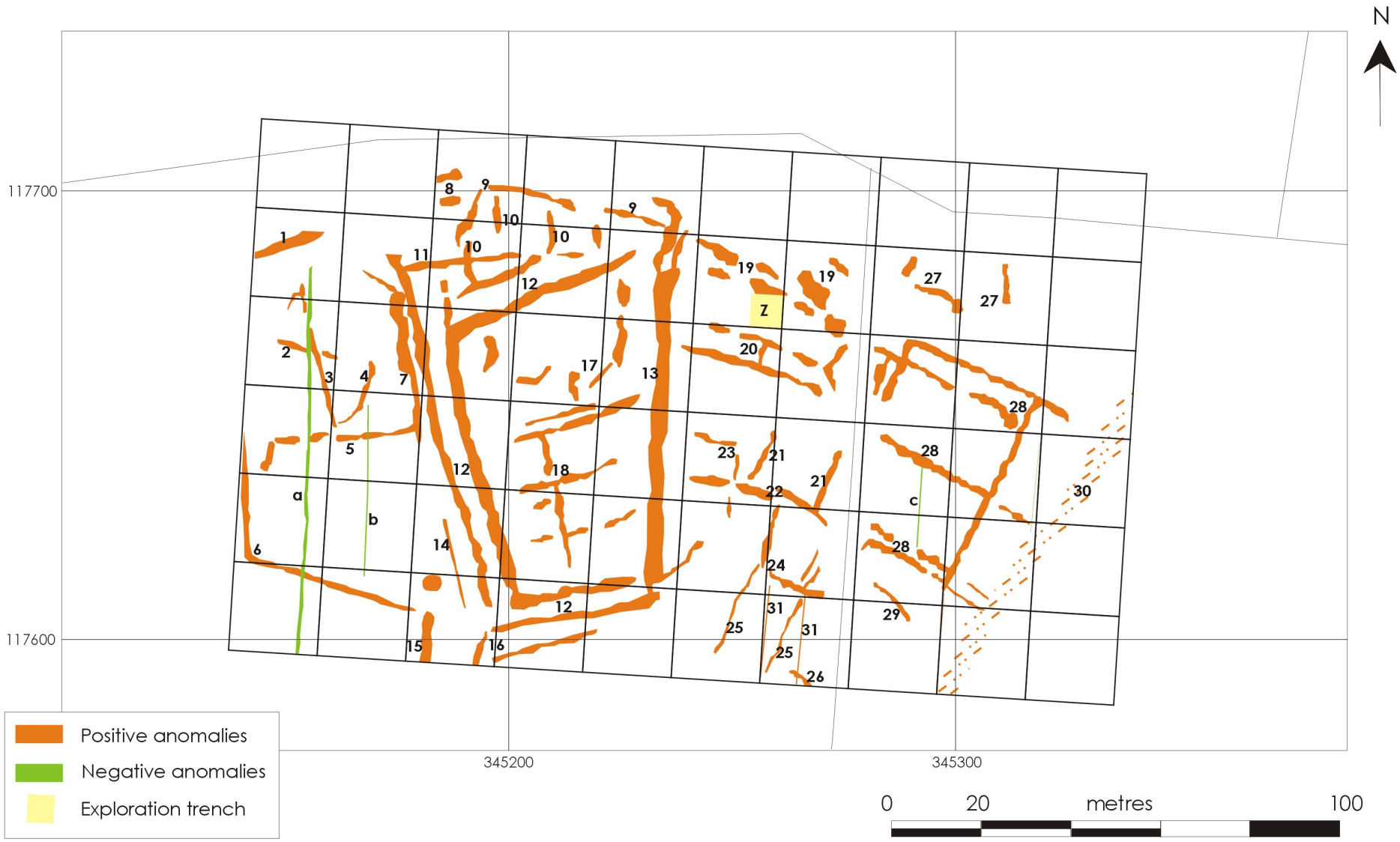

Fig 6: Bower Hinton Farm - High Close/Pit Close
Roman and Iron Age Metal Detecting Finds & Gradiometry results

Legend
Red – Roman Coins
Brown - Roman Brooches
Blue – Iron Age Coins

Graphic courtesy of Greg Wales

Fig 7: Rubble surface incorporating heat affected materail

Photo courtesy Nigel Harvey

Report prepared by Liz Caldwell for the South Somerset Archaeological Research Group.
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