

YCCCART 2019/Y15

Geophysical surveys at land adjacent to Kingston railway bridge, Yatton

**YATTON, CONGRESBURY, CLAVERHAM AND CLEEVE ARCHAEOLOGICAL
RESEARCH TEAM (YCCCART)**

General Editor: Vince Russett



The former road edge at Kingston Bridge, still visible as an earthwork today

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Abstract

Gradiometry survey of this field in 2019 identified one area of particular interest. The anomalous area was subsequently subject to resistivity survey, which did not help in the understanding of their nature. After extensive air photographic, lidar and documentary study, no current interpretation of their nature can be safely made, although they may relate to local industrial activity

Acknowledgements

A Heritage Lottery Grant enabled the purchase, by YCCCART, of a Geoscan RM 15 resistivity meter and a Bartington Gradiometer 601 without which this survey could not have been undertaken.

This survey would also not have been carried out without the willing permission of the landowner, Mr Graham Burdge.

The authors are grateful for the hard work by the members of YCCCART in performing the surveys and Vince Russett for editing.

Introduction

Yatton, Congresbury, Claverham and Cleeve Archaeological Research Team (YCCCART) is one of a number of Community Archaeology teams across northern Somerset, formerly supported by the North Somerset Council Development Management Team.

Our objective is to undertake archaeological fieldwork to enable a better understanding and management of the heritage of the area while recording and publishing the activities and locations of the research carried out.

Site location



Fig 1: Location of the land, to the north-east of Kingston Bridge

The field surveyed (above) is centred on ST41616731, at North End in Yatton, North Somerset. It is bounded on its south and west sides by the B3133 Yatton to Clevedon Road.

Land use and geology

The field lies on the edge of the 'island' of Mercia Mudstones around Ham Farm, where it meets the alluvium of the Northmarsh. It is currently under pasture. There is no public access, although the site can be seen from the B3133 at Kingston Bridge.

Historical & archaeological context

The origins and history of North End are, like that of many rural hamlets, pretty obscure. Nothing is known of the prehistoric status of the area, although the ecotonal nature of the site is one often favoured for prehistoric settlement and activity. Roman activity is known within 1000m of the site (Rippon 2000; notes in NSHER; NSHER285), recent work by YCCCART to the north-east of Ham Farm is enlarging our knowledge of the period.

In the post-Roman alluviation of the Northmarsh, a now-buried ridge of Mercia Mudstones stretching from Yatton village to the gravel island at Kenn seems to have protected the back fens of Yatton and Kenn Moors, which remain low-lying peat moors today. The Mudstone around Ham Farm remains around 1.9m above the final level of the alluviation.

The lighter soils in the area mean it was always likely to be desirable arable land in the medieval period (and indeed, there are traces of aratral curves in the boundaries to the SE end of this field).

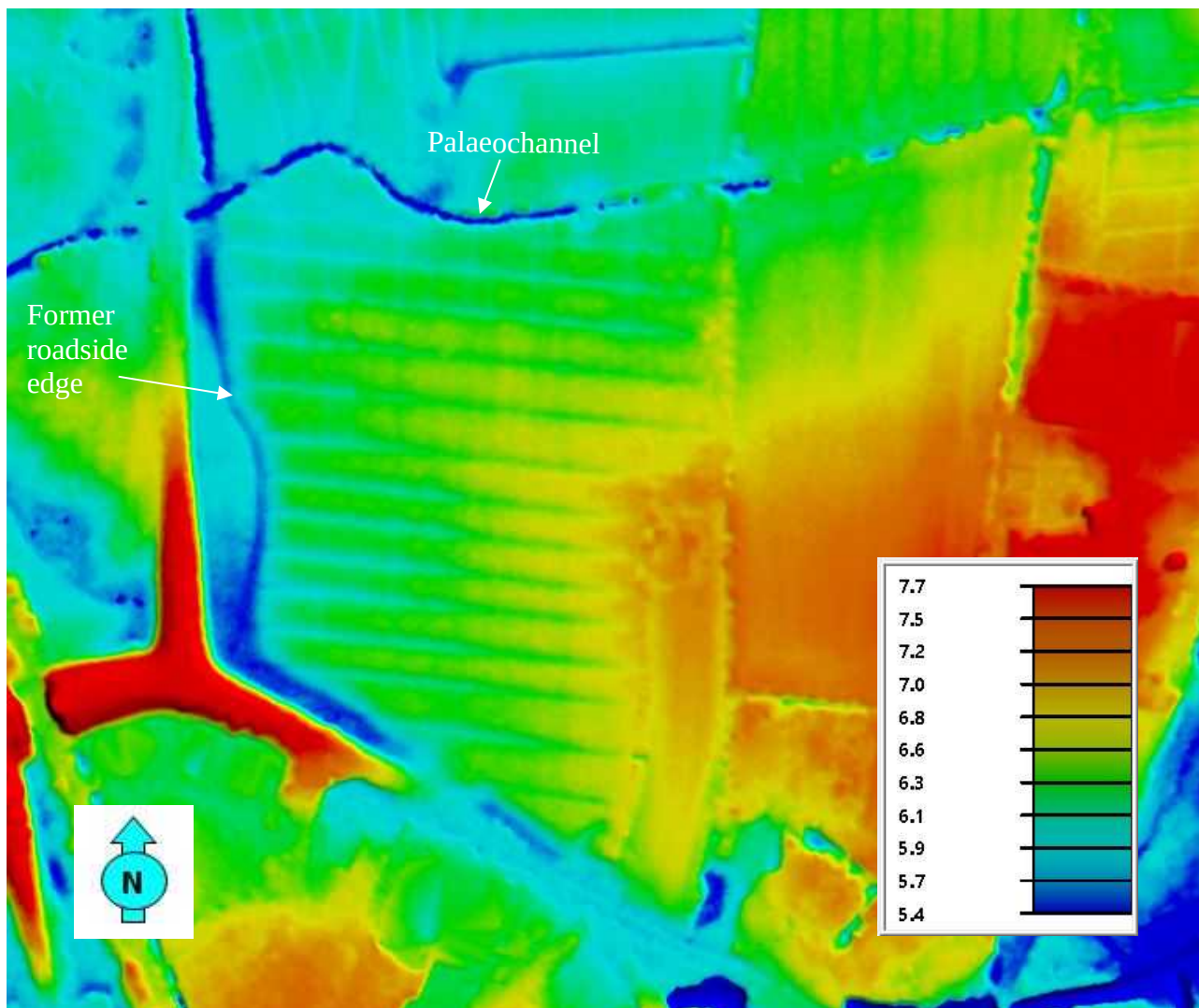


Fig 2: Lidar plot of field (scale in metres AOD)

Four local properties (Bridge Farm, Boxbush Farm and Oldeacre) possessed common rights, and so are all on sites occupied during the medieval period (NSHERs 46792; 46793; 46800; 46721), while Ham Farm (NSHER8842) is the site of a medieval manor (Barraclough 1991). The name of the settlement (which is not clearly recorded before the 17th century) is obviously derived from it's position within the parish of Yatton.

The artificial course of the Little River immediately to the south (the preferred date for such river construction is the high medieval period of 13th and early 14th centuries, but exact dating here has proved elusive so far) has 'cut off' the northern part of the hamlet. In lidar data, many abandoned palaeochannels can be seen to the north of the site: the northern boundary of the field is almost certainly another.

The lidar plot of the field (Fig 2 above) shows a series of grypes running roughly east-west across the field, and the hollow of the former roadside edge ditch (see also cover photograph).



Fig 3: 1799 map of the area (SHC DD\SAS\C212\MAP\167)

The 1799 map of the area (Fig 3 above) shows a small area enclosed from the 'waste' at the road junction (obviously this was before the 1847 opening of the Clevedon branch line that necessitated the building of Kingston Bridge). The two fields are both labelled '598' and '122' on the plan, so the new enclosure was presumably already considered part of the larger field.



Fig 4: 1821 map of the area (SHC D/P/yat/13/1/3) and details from survey book (below)

Field no.	Name	Owner	Occupier	Land use
598a	Cottles	Late W H Goldwyer	James Parsons	Not recorded
598b	Inclosure from Waste	Late W H Goldwyer	James Parsons	Not recorded
599	Two acres	John Howell	Himself	Not recorded

The 1840 Tithe map (Fig 5 below), shows the fields as still physically separate. This would, of course, alter with construction 7 years later of the Bridge, who's embankment now covers a large part of what was field 1463.

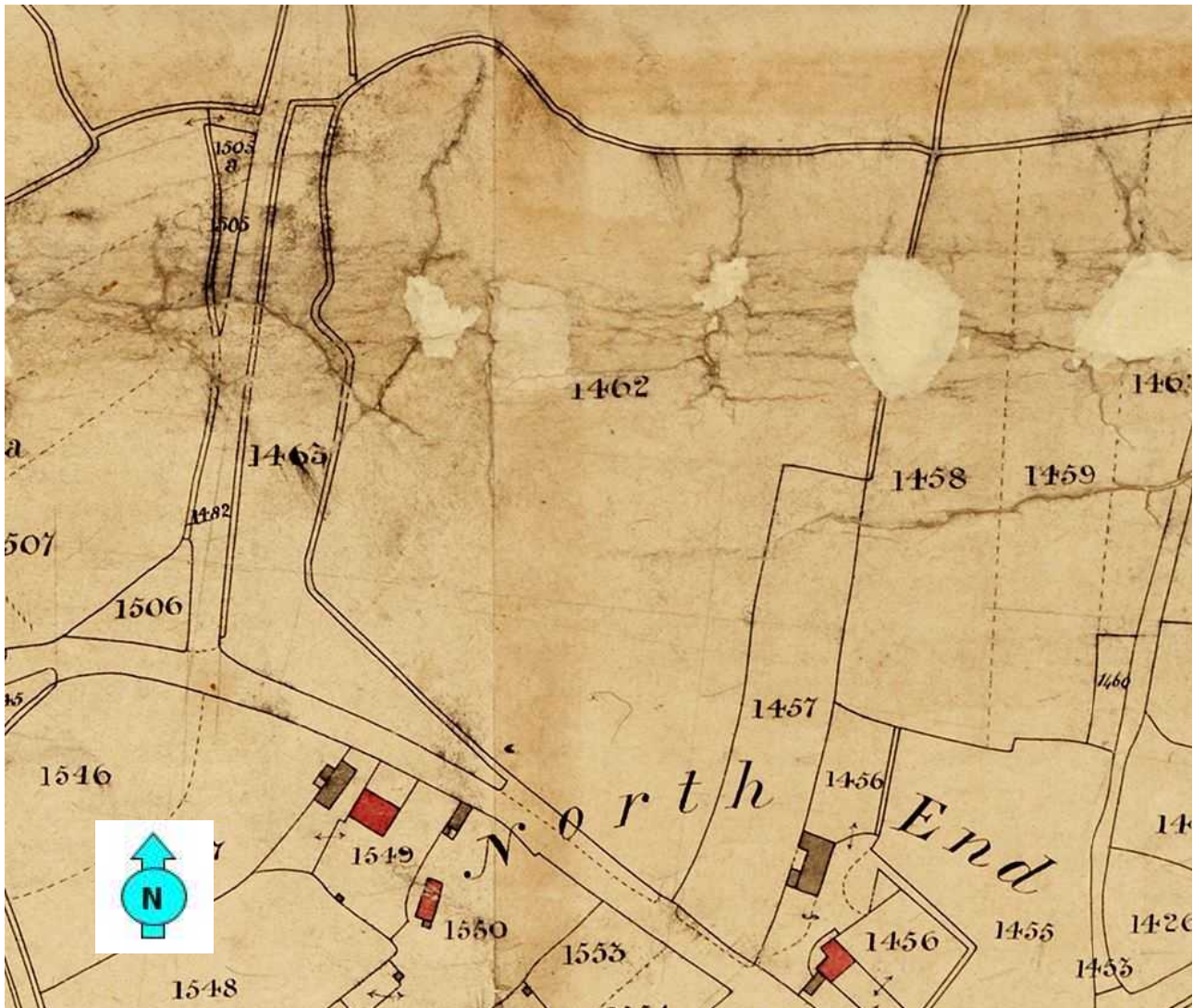


Fig 5: Site from the Yatton Tithe Map (SHC D/P/yat/3/2/9) and apportionment details below

Field no.	Name	Owner	Occupier	Land use
1457	The Paddock	James Watts	Nicholas Hellier	Arable
1462	Cottles	William Henry Golwyer	James Davis	Pasture
1463	Inclosure from Waste	William Henry Golwyer	James Davis	Arable

That field 1463 was used as arable in 1840 is surprising, but it may have been better drained before the bridge. Fields 1462 and 1463 had been thrown into one by the time of the 1885 OS plan.

Air photographs of 1971 and 1975 show that as late as this, the paddock was separated from the larger field by a small building and a milking bail, although these had gone by the time of survey in 2019.

A slightly mysterious manor of 'Ham and Wemberham', which seems to be first mentioned in the 18th century, may imply connections across the north part of Yatton with Wemberham, where clear evidence of ridge and furrow, and the field names 'Oldfield' strongly imply early cultivation (Russett, forthcoming).

Survey objectives

In light of the known 'Brickyard' names from 100m north of the site, and the potentially ecotonal nature of the field in both prehistoric and Roman times, a 100% gradiometry survey was carried out.

In response to the results of this, a limited resistivity survey was carried out over an area of interest from the gradiometer results.

The unusually dry and hot weather conditions during the survey may have affected the results (see below), but they should be broadly acceptable.

Methodology

The survey of the fields was undertaken during the period March -July 2019 by teams from YCCCART using a Bartington 601-2 gradiometer and a Geoscan RM-15 resistivity meter.

The completed survey was downloaded to TerraSurveyor software and the resultant composite adjusted using the following filters:

Resistivity

Band weight equaliser
Grad shade
Despiked
Clip SD2
High Pass filter.

Gradiometry

Colour - Red Blue Green 2
Band weight equaliser
Grad shade
Destriped
Despiked
Clip SD2

The report was written in Libre Office 5 Writer.

Photographs were taken by members of YCCCART, and remain the copyright of YCCCART.

Results

Gradiometry

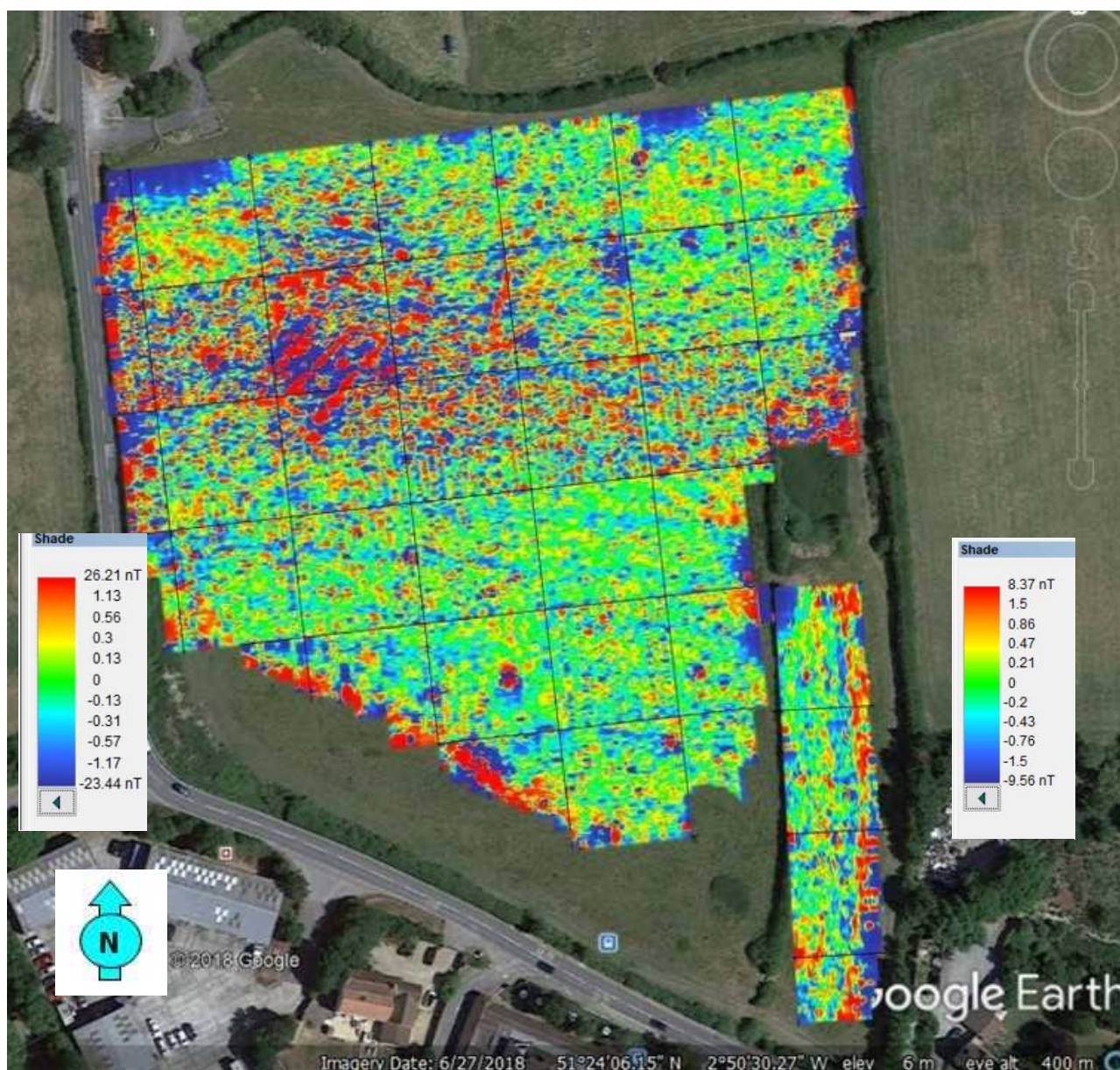


Fig 6: Gradiometry results at Kingston Bridge: shade scales for main field (left) and The Paddock (right)

The large area of the field apparently omitted to the south represents the embankment of the Yatton approaches to Kingston bridge, and a very heavily overgrown zone close to it. The upper end of The Paddock was overgrown and contained beehives, who's inhabitants were not disturbed on Health and Safety grounds.

The results are largely unspectacular, although the non-detection of the grypes in the field, which are prominent (see Fig 2, for example), is of some concern, since these often show as areas of negative enhancement, but this is presumably due to the very dry

weather at the time. Oddly, a partial series of intermittent (negative) parallel marks may indicate an earlier set of grypes at a different angle, although these are not visible on other surveys, such as air photos or lidar.

A zone of activity / occupation is evident in the upper right of the results in Fig 6, with a 'tail' of activity running away to the east.

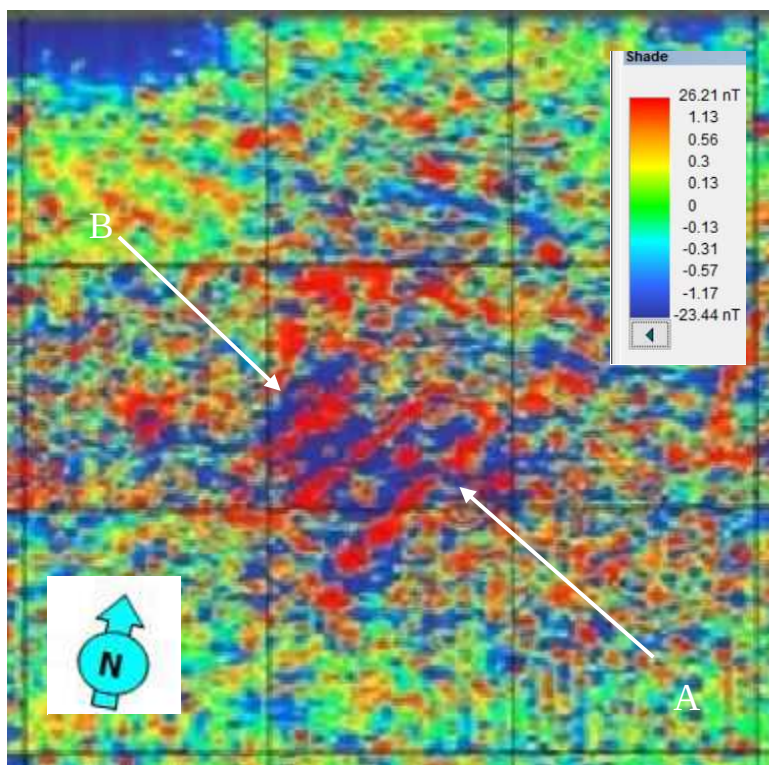


Fig 7: Gradiometry 'hot spot'. Grids are 30m

The striking results in the original area show areas of high magnetic enhancement. In and around the central grid, three parallel features, account for much of the signal.

The principle feature, A, is a rectangular anomaly, approximately 30m x 10m, apparently closed at both ends, and with two circular features on its centreline. A third parallel line of enhancement, B, lies adjacent.

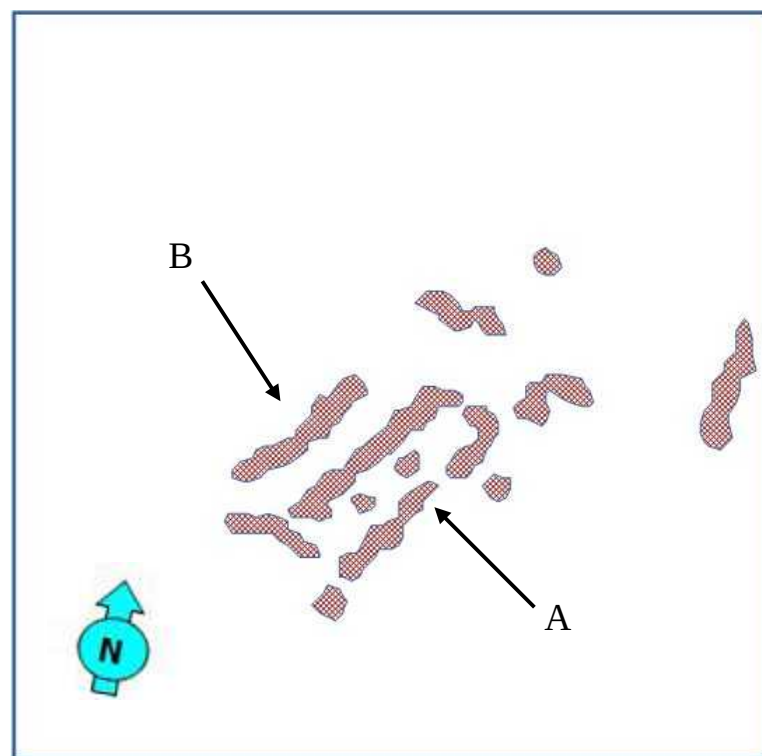


Fig 8: shows the principle enhancement features in the area.

A few other enhanced features lie adjacent to A and B, but the rest of the field is far quieter magnetically and may simply represent material ploughed at some stage from A and B.

Since this was clearly an area of possible archaeological interest, a resistivity survey was carried out over the central 60m square of the anomalies.

Resistivity

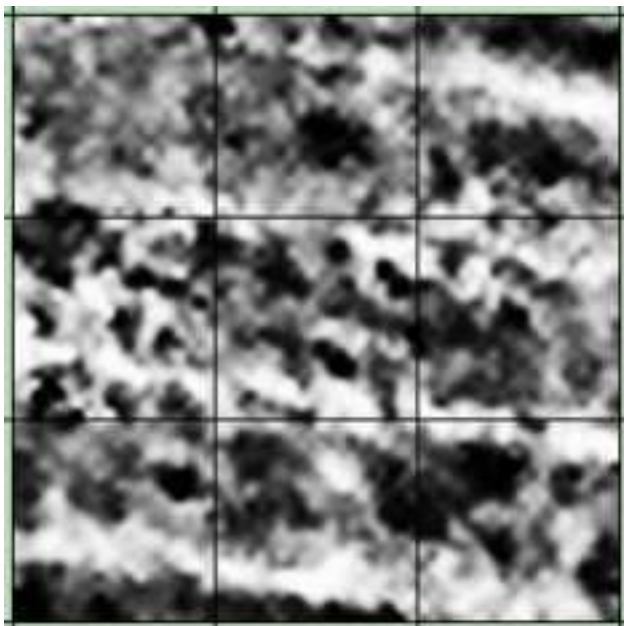


Fig 9: Resistivity results for area of anomalies A and B (above). Grids 20m. See Fig 10 for shade scale

The resistivity results show very little variation, and certainly nothing corresponding to the gradiometry results. They demonstrate a general east-west trend, which is probably related to the grypes and bends in the field, which is clearly illustrated by laying the resistivity results over the gradiometry (Fig 10 below).

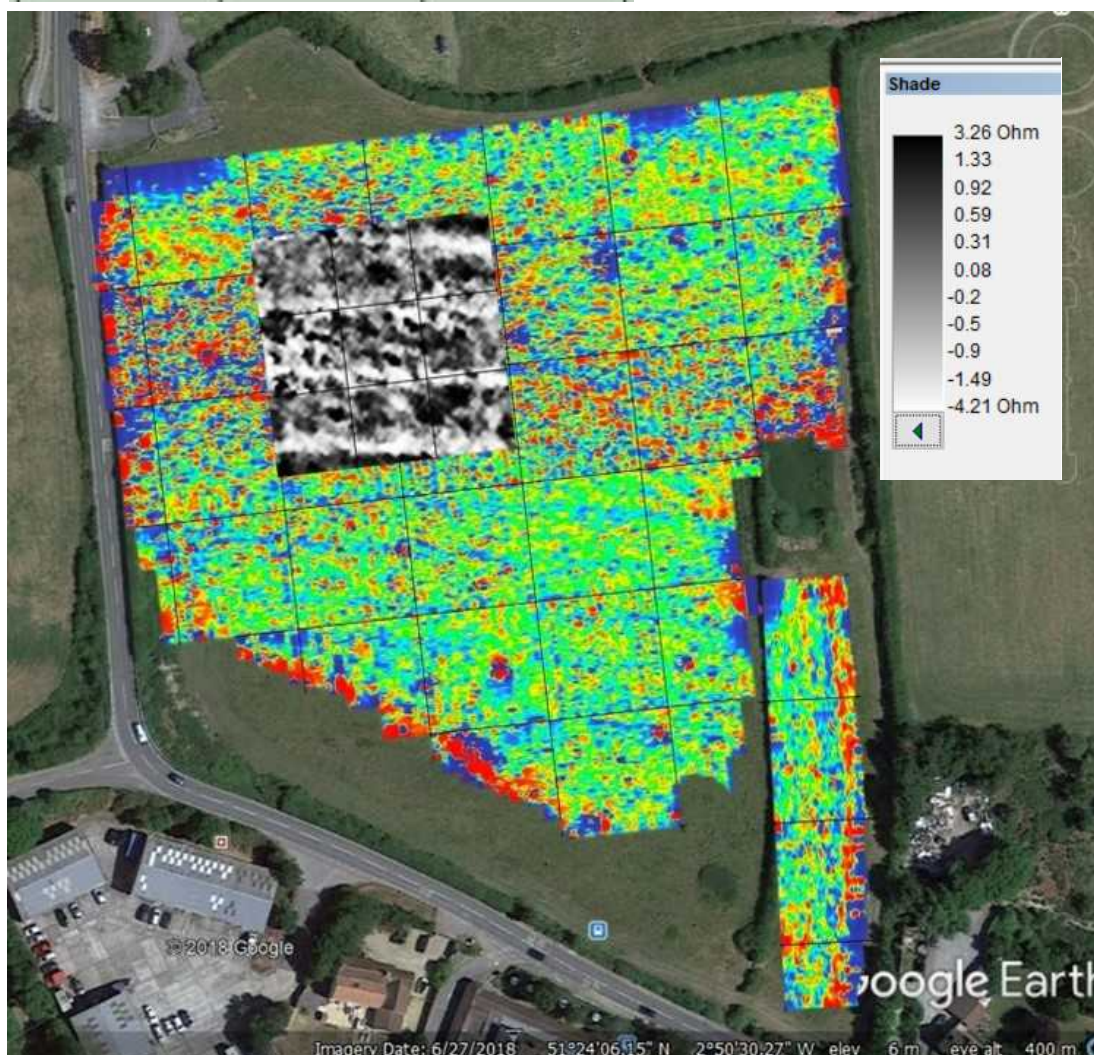


Fig 10: Resistivity results over the gradiometry results, showing no match

Discussion

The very clear anomalies in the gradiometry results (A, B and accompanying results in Figs 7 and 8 above) seem to have no parallel in the resistivity results (Figs 9 and 10 above). Nor do the gradiometric anomalies match anything seen in extensive air photographic study or lidar survey, nor on any known historic mapping.

While the OS mapping probably rules out any structures from the past 120 years, the earlier maps (1799, 1821) are 'point-in-time' surveys, which may not have recorded ephemeral structures in the fields. Unfortunately, neither is there any clue in the field or any adjacent place-names.

The negative resistivity results can almost certainly rule out major buildings or other structures, so the sole anomalies left are the set of three parallel features of highly magnetically enhanced status, along with the associated features.

In other adjacent area to the north and east of Ham Farm, North End, we have interpreted such features as Roman ditches, since there is previous archaeological work in the area that makes their existence likely.

The fact that the anomalies seen here are so limited in scope probably rules out this explanation.

So we are left with a 30m x 10m enclosure, probably of ditches containing magnetically enhanced material, with a number of other associated features.

The presence of known brickyards close by the field may be a clue: the ditches of an enclosure may have been filled with brick rubble or similar. If so, the feature is likely to be later than, say 1700AD, when brick began being made in this part of the country.

But other features cannot be ruled out altogether. A could, for example, be the site of kilns (corn drying, brick or pot-making) in a rectangular drainage enclosure, into which waste products were later dumped.

The elephant in the room, though, is the existence of Kingston Bridge. Such a large piece of engineering, carried out in the 1840s (along with the construction of the line itself) would have been entirely by hand labour, and it is just possible that the anomalies relate to a construction camp at the site for the labourers involved.

However, a survey of a PoW camp at Frost Hill, Yatton by YCCART in 2010 (www.ycccart.co.uk/index_htm_files/POW%20CAMP%20Y8.pdf) showed that resistivity survey can reveal traces of fairly ephemeral structures, so the academically honest response to these results is that they remain unexplained at present.

Recommendations for further work

Anomalous gradiometry results of this kind, with no supporting evidence from any source are very unusual. The only way to understand this site would be to carry out trial excavation.

References

Barracclough, M. (1991)	<i>A History of Yatton</i>
Rippon, S. et al (2000)	The Romano-British exploitation of coastal wetlands: Survey and excavation on the North Somerset Levels <i>Britannia</i> 31: 69-200
Russett, V. forthcoming	Wemberham in Yatton (this web site)

Authors

Vince Russett with Chris Short

Date

2019-07-29

Appendix - site records

Gradiometer

YCCCART Site Survey Project – Burdge 3		
Survey date	20 June 2019	
Report date	20 June 2019	
Type /Instrument	Grad 601	
	Pace :1.4m/s Lines/ <u>m</u> : 1 Range:100nT Volume: High Sensors:2	Grid size: 30m x30m Pattern : Zig Zag Samples/m:4 Audio: On Threshold:30nT Reject:50 Hz
Location	Yatton Moor	
Ref	none	
Site name	G Burdge 3	
Landowner	Mr G Burdge	
Tenant		
HER ref		
Site type	Grass	
Description	Open field surrounded by hedges and further open fields	
Period		
Geology		
Land use	Grazing	
Survey team and conditions		
21/03/2019	Team	Ian, Janet, Arthur, Pete W, John Evans
	Weather	Sunny intervals, wet underfoot
28/03/2019	Team	Janet, Arthur, Pete W, Philippa C, David W, Ferdie
	Weather	Warm, sunny intervals, wet underfoot
18/04/2019	Team	Janet, Arthur, Philippa, Ferdie , Liz
	Weather	Overcast, wet underfoot
25/04/2019	Team	Janet, Arthur, Philippa, Ferdie , David W, Ian
	Weather	Showery, very wet, some rain and hailstones – wet underfoot
02/05/2019	Team	Janet, Arthur, Ferdie , David W, Ian, Liz
	Weather	Overcast, wet underfoot
16/05/2019	Team	Sunny intervals, dry
	Weather	Janet, Philippa, Ferdie , David W, Ian
20/06/2019	Team	Janet, Philippa, Pete, Arthur, Peter E
	Weather	Dry, wet underfoot

Survey area		notes		readings		
Date	Grid number	size	walk direction	max	min	mean
21/03/2019	Setting out base line and 1 row of grids					
	1	30 x 30	S	+8.1	-96.4	-3.1
	2	30 x 30	S	+99.1	-100	-1.4
	3	30 x 30 Electric fence by hedge	S	+5.2	-7.7	-1.5
28/03/2019	4	30 x 30	S	+27.8	-9.8	-0.8
	5	Partial M & R 5 trav only	S	+8.3	-6.8	-1.4
	6	30 x 30 Trav 1 & 2 M&R	S	+99.5	-100	-1.5
	7	30 x 30	S	+3.7	-38.1	-2.4
	8	30 x 30	S	+95.2	-100	-4.
	9	30 x 30	S	+72.3	-100	-2.3
	10	30 x 30	S	+34.3	-15.6	-1.6
	11	30 x 30	S	+98.7	-100	-1.1
18/04/2019	1	30 x 30	S	+24.3	-28.2	-1.5
	2	30 x 30 Within 2m of 1m cylinder of metal in grass	S	+100	-100	-2.2
	3	30 x 30	S	+44.4	-100	-3.0
	4	Partial 5 trav Only	S	+21.8	-40.8	-5.4
25/05/2019	1	Partial grid - dummy data for first 4 traverses- M & R	S	+100	-100	-1.0
	2	30 x 30	S	+28.0	-26.9	-1.8
	3	30 x 30	S	+5.8	-14.0	-2.5
	4	30 x 30	S	+14.3	-16.5	-2.9
	5	30 x 30	S	+13.9	-9.4	-2.3
	6	30 x 30	S	+5.4	-9.0	-2.0
	7	Partial grid 5 traverses only	S	+31.4	-19.4	-0.4
02/05/2019	1	Partial grid - dummy data for first 3 traverses- M & R	S	+13.1	-25.8	-0.8
	2	30 x 30	S	+2.2	-5.6	-1.3
	3	30 x 30	S	+4.9	-28.3	-1.6
	4	30 x 30	S	+1.9	-9.9	-1.9
	5	30 x 30	S	+98.5	-22.1	-1.0
	6	Partial grid 2 full trav 2 M&R	S	+36.6	-40.5	+0.4

Survey area		notes		readings		
Date	Grid number	size	walk direction	max	min	mean
16/5/2019	7	Partial grid - dummy data for first 4 traverses	S	+31.0	-23.4	-4.2
	8	30 x 30	S	+3.4	-11.1	-2.2
	1	30 x 30 7 th trav deviation due to high nettles	S	+83.9	-73.7	-1.5
	2	30 x 30 M & R from traverse 7	S	+20.0	-9.6	-0.2
	3	30 x 30 M & R	S	+19.5	-39.5	-2.7
	4	Partial - dummy data for trav 1-6 M & R rest of grid tall nettles	S	+0.9	-8.1	-1.6
	5	30 x 30 M & R last trav	S	+47.5	-51.9	-1.9
20/06/2019	6	Partial M & R	S	+76.4	-42.9	-0.7
	1	Partial M & R	E	+15.0	-21.1	-0.1
	2	Partial M & R	E	+18.9	-42.6	-0.3
	3	Partial M & R	E	+31.4	-47.7	-0.8
	4	Partial M & R Surface churned up and stacks of baled hay	E	+9.9	-24.9.*	-1.1

Buridge 3 Grids



Setting out detail – main grid

Position A – 3m to north fence post and 5.6m to southern fence post

Position G – 4.7m to western fence post and 5.7m to eastern fence post (all marked with white paint)

Setting out detail – small grid

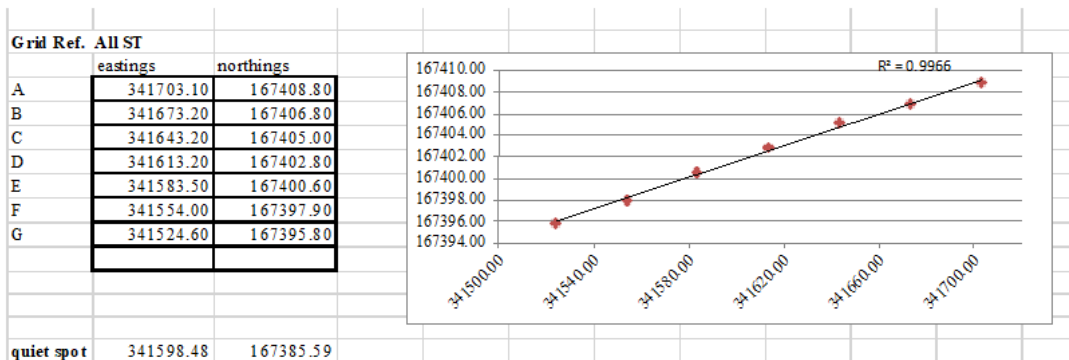
Position A – 5.6m to north post and 9.3 to southern post (all marked with white paint)

Position of quiet spot – main grid – 22.75m from pole D and 21.40m from pole E on base line.

E 341598.48

N 167385.59

Position of quiet spot – small grid



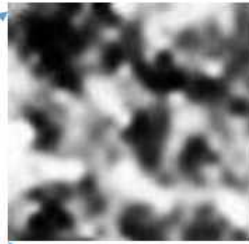
Resistivity



YCCART Site Survey Project: - Mr G Burdge 3			
Survey date		4 July 2019	
Report date		4 July 2019	
Type /Instrument		RM15	
Location		Yatton	
Landowner			
Tenant		None	
HER ref		TBC	
Site type		Grass	
Description			
Period		<u>Roman ?</u>	
Geology			
Land use			
Survey team and conditions			
6 June 2019		Vince Russett , David Long, John Wilcox, Philippa Cormack, Pete Wright, Arthur Langley, Pete English, Chris Short. <i>Weather: Sunny, grass dry</i>	
20 June 2019		David Long, John Wilcox, Chris Short, Colin Campbell, Anne Dimmock. <i>Weather: Overcast, grass damp/dry.</i>	
27 June 2019		David Long, Pete English, Ferdi, Liz Hale, Chris Short, Colin Campbell, Anne Dimmock, Vince Russett & Graham Bohannon. <i>Weather: Sunny, hot. Grass dry.</i>	
4 July 2017		David Long, Pete English, Vince Russett , Graham Bohannon. Chris Short. <i>Weather: Very hot and sunny. Grass very dry.</i>	
Survey area		Notes	
		Size	Walk direction
6 June 2019	Grids 1	20x20m	E
20 June 2019	Grids 1- 3	20x20m	E
27 June 2019	Grids 1- 3	20x20m	E
4 July 2019	Grids 1 & 2	20 x 20m	E

Grid 1 June 6 2019

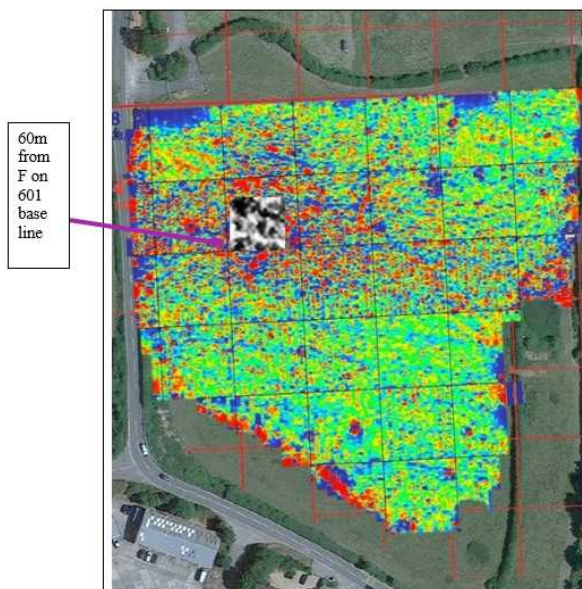
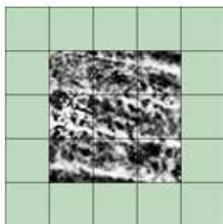
GPS – I
20m from H
341556.6
167358.0
And start
point for
RM15



GPS – H
On 601 60m point from
base line position F
341557.9
167338.4

Grid layout and location on 601 survey

G1 4/7	G2 4/7	G3 27/6
G1 6/6	G1 20/6	G2 27/6
G2 20/6	G3 20/6	G1 27/6



Grid shown on the 601 results is 6th June 2019