YCCCART 2017/Y3

Gradiometry and resistivity surveys off Ham Lane, Yatton. (Mr Simmons 1 & 2)

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

General Editor: Vince Russett

A bit wet for surveying

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Abstract

Gradiometry and resistivity surveys in fields bordering Ham Lane. northwest of Yatton, have revealed a wealth of enigmatic features possibly resulting from a Romano - British industrial site, with potential evidence for temporary enclosure and drainage in the medieval period.

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 R Simmons.

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

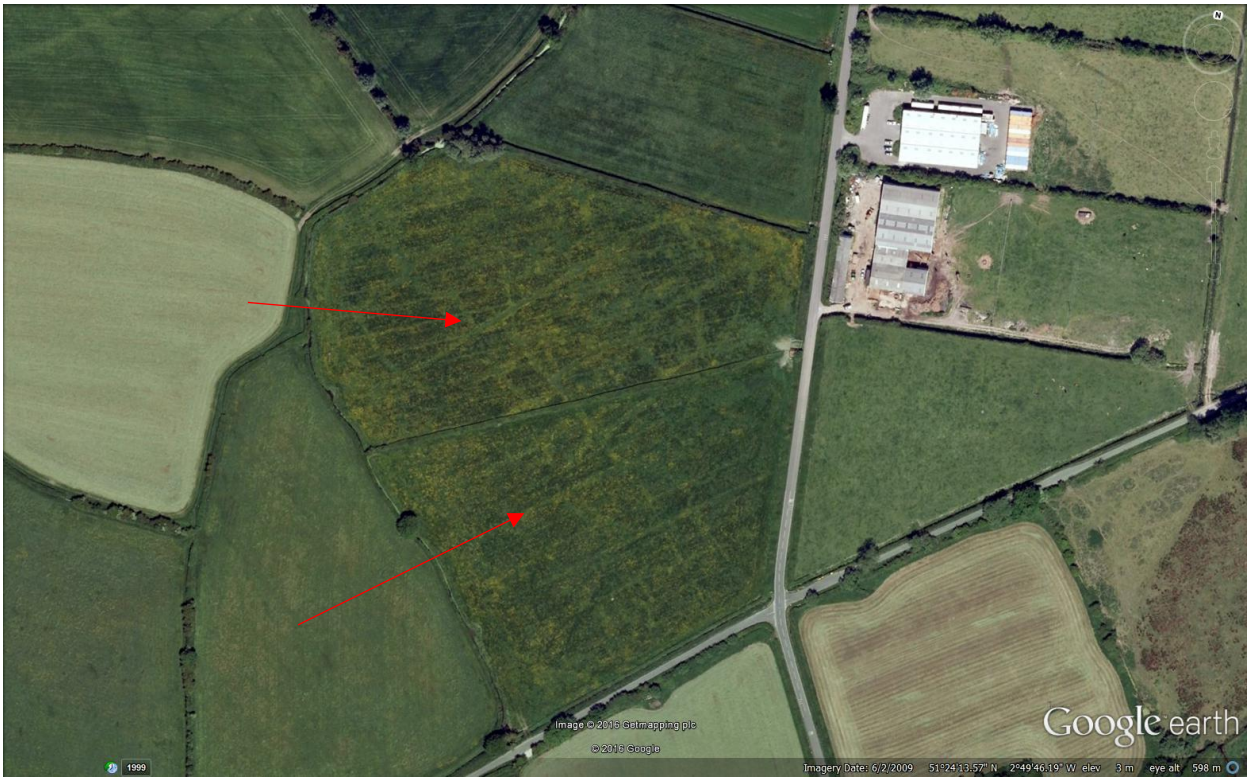

Fig 1: Site location indicated by the red arrows

The fields lie in the north-west quadrant of the staggered crossroads of Ham Lane and Kenn Moor Road, Yatton, around ST42386751. The southern field is referred to as Mr Simmons 1 and the adjacent northern field is Mr Simmons 2.

Land use and geology

The fields are under permanent pasture, in 2016 used for hay/silage.

The survey area lies at the junction of the alluvial clays and peats of the Northmarsh, resulting in very dark moisture retentive peaty topsoils. This is underlain by the Mercia Mudstone Group comprising Mudstone and Halite stone.

Historical & archaeological context

Kenn Moor has attracted archaeological interest for its well-preserved earthwork systems, clearly pre-dating the enclosure of the Moor (since Kenn Moor Road runs over the earthwork group the subject of this survey).

Fig 2: Survey area from NE, 1980s

The survey area (outlined in blue, Fig 2) has a complex of clearly visible surviving multiphase earthworks. These underlie and predate the enclosure period ditches and roads of 1815 (SHC D\RA/9/6 Kenn Moor Inclosure). They are accompanied by, and accommodate, large palaeochannels like those in the foreground of Fig 2.

While the survey site itself is flat alluvium, it lies adjacent to the solid Mercia mudstone 'island' at Ham Farm, separated from it by the partially engineered Meadmoor Rhyne. This rhyne formed the edge of the unenclosed Kenn Moor in 1799 (Fig 3).

The surveyed area (outlined in red on Fig 3) was at the edge of the unenclosed land on the Yatton map of 1799. This is very much an ecotonal position, and was probably capable of grazing or even occasional cropping in dry years. It also lies immediately adjacent to the 'neck' of Kenn Moor, which narrows down to a 'shoot' (funnel-shaped access to grazing areas used for control of stock moving on or off the moor) at Ham Farm.

Fig 3: Survey area prior to enclosure from the Yatton map of 1799 (SHC DD\SAS/C212/MAP/167)

Since Roman pottery has been found adjacent to the site, these earthworks have been claimed to be Roman in date, but the association is weak.

The site is discussed in passing by Rippon (2006), having previously been included in his air photographic transcription of the earthworks on Kenn Moor (Rippon 1994; Rippon 1995).

Lidar images also clearly show these earthworks (Fig 4), together with their continuation into adjacent fields to north, east and south. It is also clear, however, that by and large they do not cross onto the slightly higher ground east of Ham Farm.

The only structure at the site today (a heavily rebuilt stone barn by Kenn Moor Road) post-dates the Tithe Map of 1840.

Elsewhere on Kenn Moor, the connection of earthworks to Roman occupation is far more secure. A corn drier / malting kiln near to Kenn village was excavated by North Somerset Archaeological Research Group in 1959, and re-examined by Rippon in 1993 (*ibid.*) (Fig 5).

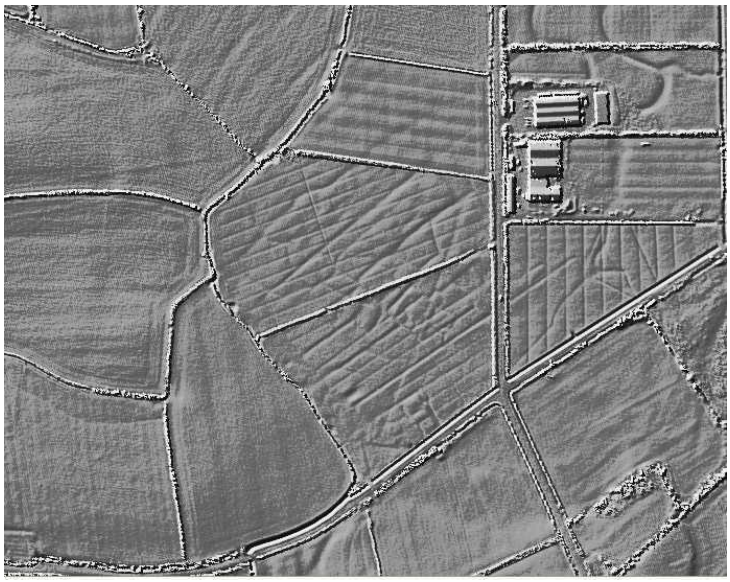

Fig 4: Survey site from lidar images (ultimately derived from https://data.gov.uk/dataset/lidarcomposite-dsm-1m1)

Note that the structure lies under a well-defined mound, and therefore lies slightly above current ground level. Clearly the Roman horizon is close to, or at, this ground level.

Fig 5: The Roman corn drier / malt kiln at Kenn Moor 1959 (picture per *Dave Long)*

Survey objectives

Methodology

The survey of the fields was undertaken during the period January to September 2016 by teams from YCCCART using a Geoscan RM 15 resistance meter and a Bartington 601-2 gradiometer

The completed survey was downloaded to a TerraSurveyor programme 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.

Results

Gradiometry – combined fields

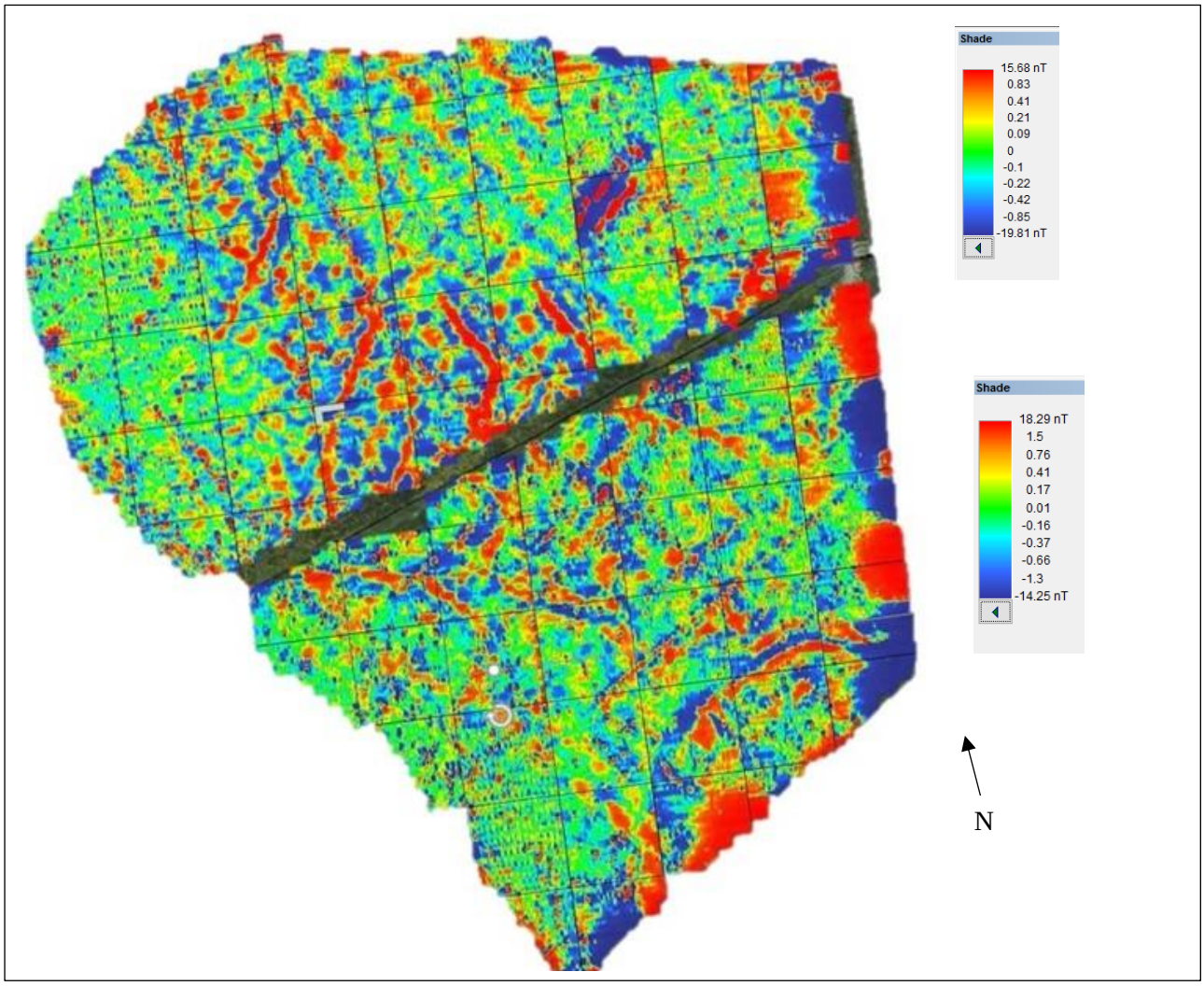

Fig 6: Gradiometry results, combined fields, colour

The responses for these two fields show a wealth of buried archaeology, especially in the northern field, where a focus of occupation / industrial activity can be seen. This protrudes slightly into the southern field. What is generally very clear is that the earthworks visible from the surface are hardly represented at all by the gradiometry results (Fig 8).

One or two modern (post-enclosure) grypes show in the results, but by and large, the two do not agree at all. On the assumption (and at present, that is all it can be) that the features identified in the gradiometry survey are Roman, then the earthworks at the field surface can at best be 'late' Roman, but are probably best seen as post-Roman or later.

This also has implications for the resistivity survey results (see below).

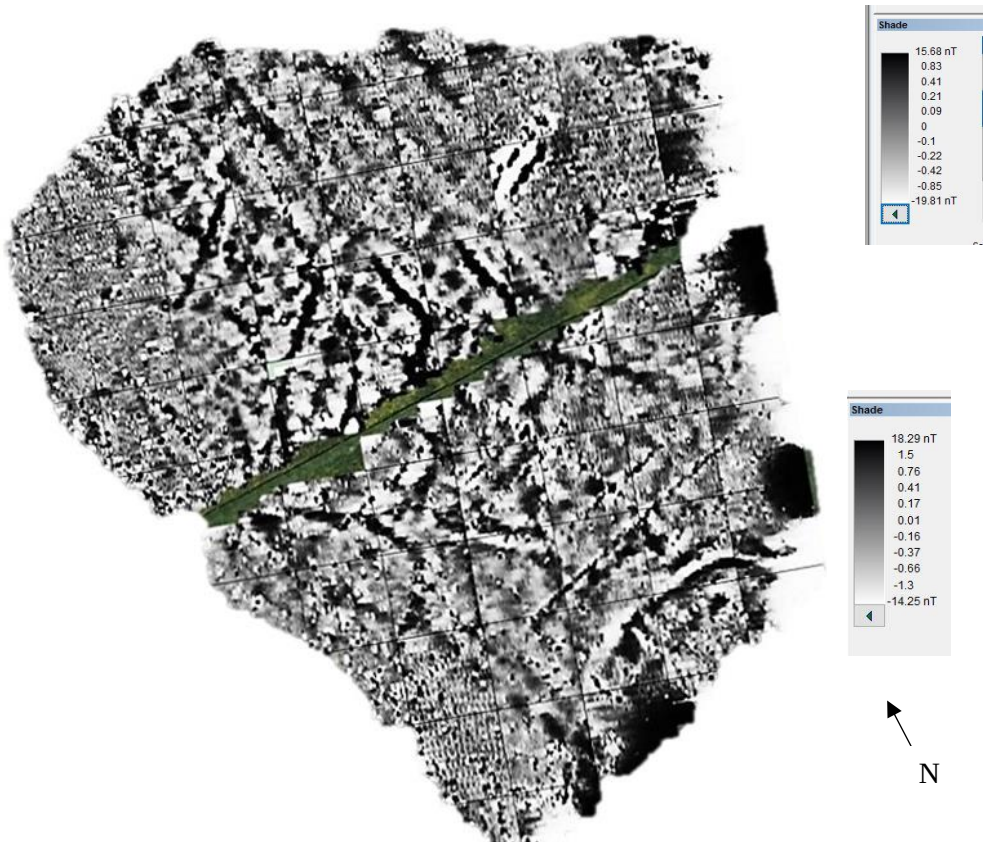

Fig 7: Gradiometry results, combined fields, greyscale

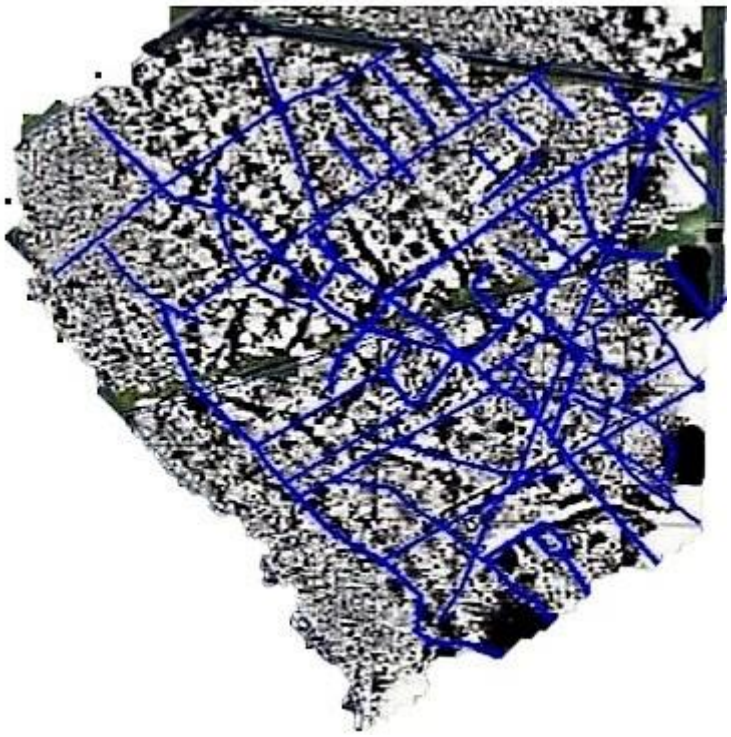

Fig 8: Comparison of gradiometry survey with sketch survey (blue) of earthworks visible at the surface

The disturbed zone in the western part of the fields is almost certainly the result of spreading material from clearance of the adjacent Meadmoor Rhyne, which forming the edge of the enclosed lands, must have been cleared many times.

It is clear, however, that the visible earthworks do not coincide with the 'busy' area in the centre of the gradiometry survey.

The gradiometry results show a number of highly magnetic linear features, on three major axes of parallel features. While it cannot be ruled out from the survey that these are later grypes, somehow backfilled with magnetically enhanced material, this seems unlikely, as the relationship with the otherwise 'busy' area on the survey points to them being related to this in some way.

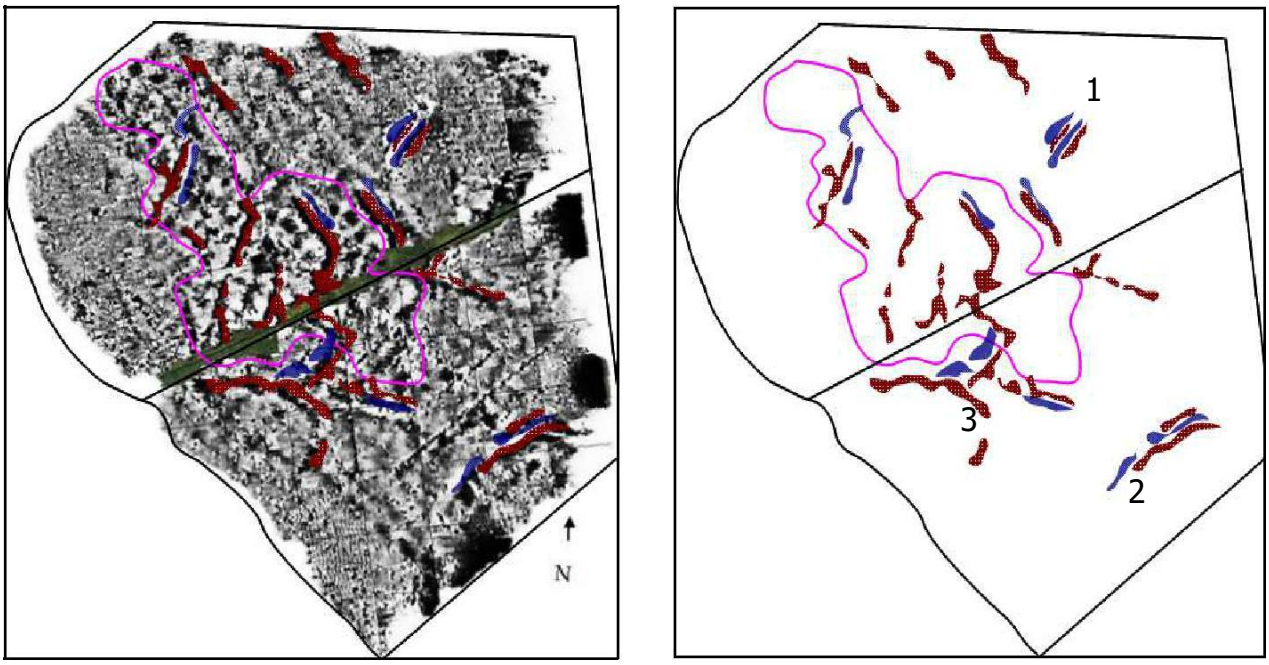

Fig 9: Left: Gradiometry results with mapping of features. Right: features alone
Dark red = Positively enhanced Dark blue = Negatively enhanced Pink outline: Domestic / industrial area

A number of peripheral features are not part of this activity area. Feature 1 is very heavily enhanced, sufficient to imply burning. It has been suggested that this may be another drier / kiln similar to that in Fig 5.

Features 2 and 3, from their position, layout and resemblance to features in other areas to the north, appear to be the remains of palaeochannels. There are similar palaeochannels visible in fields to the east of Kenn Moor Road (see Fig 4).

The central area of the survey (surrounded by the pink line in Fig 9) is clearly representing activity (domestic or industrial) over much of this site. The number of more-or-less circular maculae (blobs!) visible in this area (Fig 10) is noticeable. These presumably represent enhancement by burning, but it is also noticeable that they tend to occur in small linear groups. They are not returning strong enough signals to indicate kilns, but hearths and other domestic / industrial activity could cause this effect, as could pits containing highly magnetised backfill. The signals vary in size, but could be up to 4m across. Prolonged attempts to find parallels have met no success: this is a case where only trial excavation will elucidate what the gradiometry is showing here.

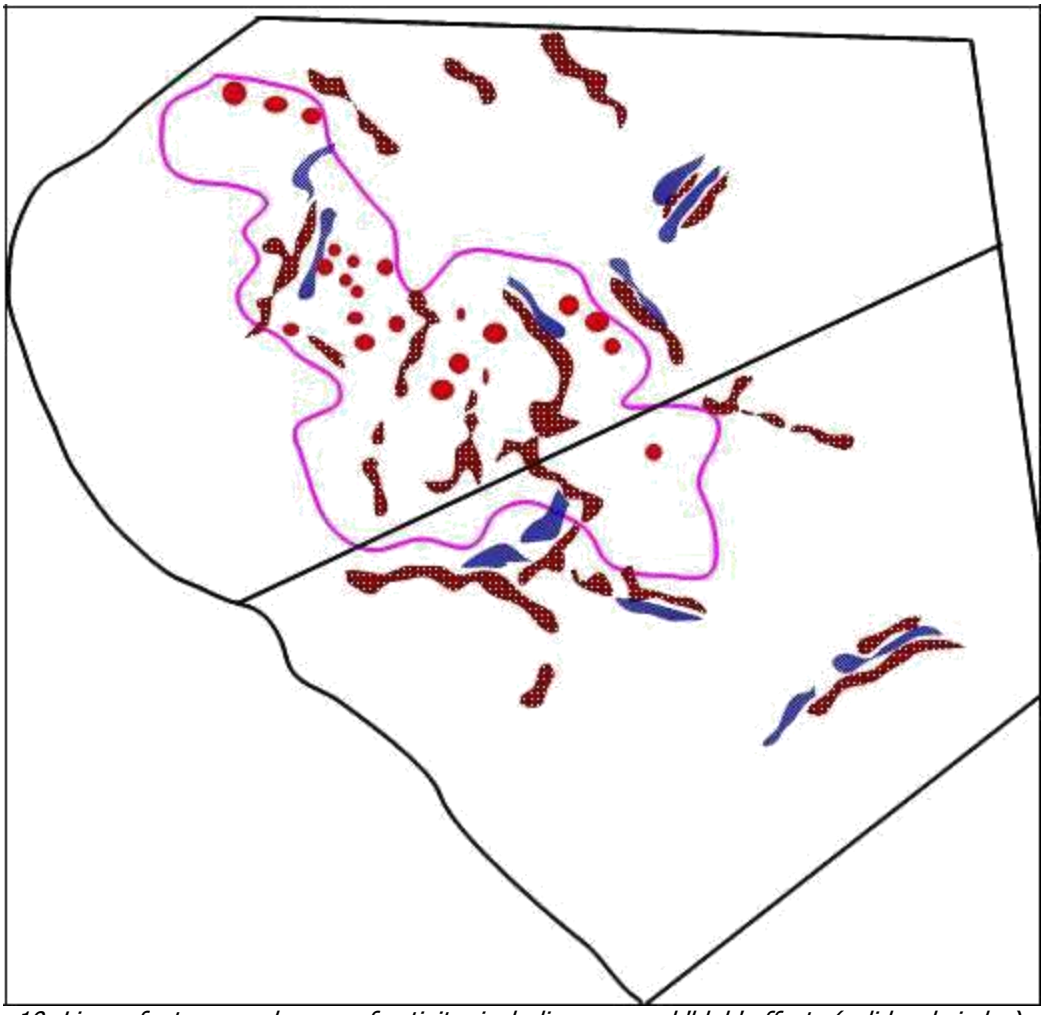

Fig 10: Linear features and areas of activity, including mapped 'blob' effects (solid red circles)

Resistivity survey

Fig 11: Resistivity results in the fields with left TerraSurveyor charts (Lower field chart on left)

The resistivity results from Simmons 1 and 2 are curiously unrevealing. The range of responses was very small, and as can be seen from Fig 11, most of the low responses in the southern field can be completely explained by the earthwork patterns there, which (see below) do not reflect the Roman landscape. In the northern field, some curious high resistance responses in the eastern end of the field may be geological: the surface of the field is slightly raised and may form an outlier of the higher ground around Ham Farm.

In the south-western end of the results in field 2, it is obvious that the pattern in the southern field, of the resistivity results reflecting the surface earthworks, is continued. It is also clear in the overlap areas that none of the gradiometry results are reflected in the resistivity results. The curious random-like results in the northern half of the survey in this field cannot be explained.

While a number of higher resistance features can be identified in both fields, the lack of any response in these areas in the gradiometry survey shows they are unlikely to be industrial or domestic in nature.

It was thus decided, in the face of the resistivity survey not producing useful new information, to close it down at this stage.

Earthwork surveys

Air photograph and lidar study

Detailed analysis of the air photographs of 1946-8 (in North Somerset HER) indicates the following:

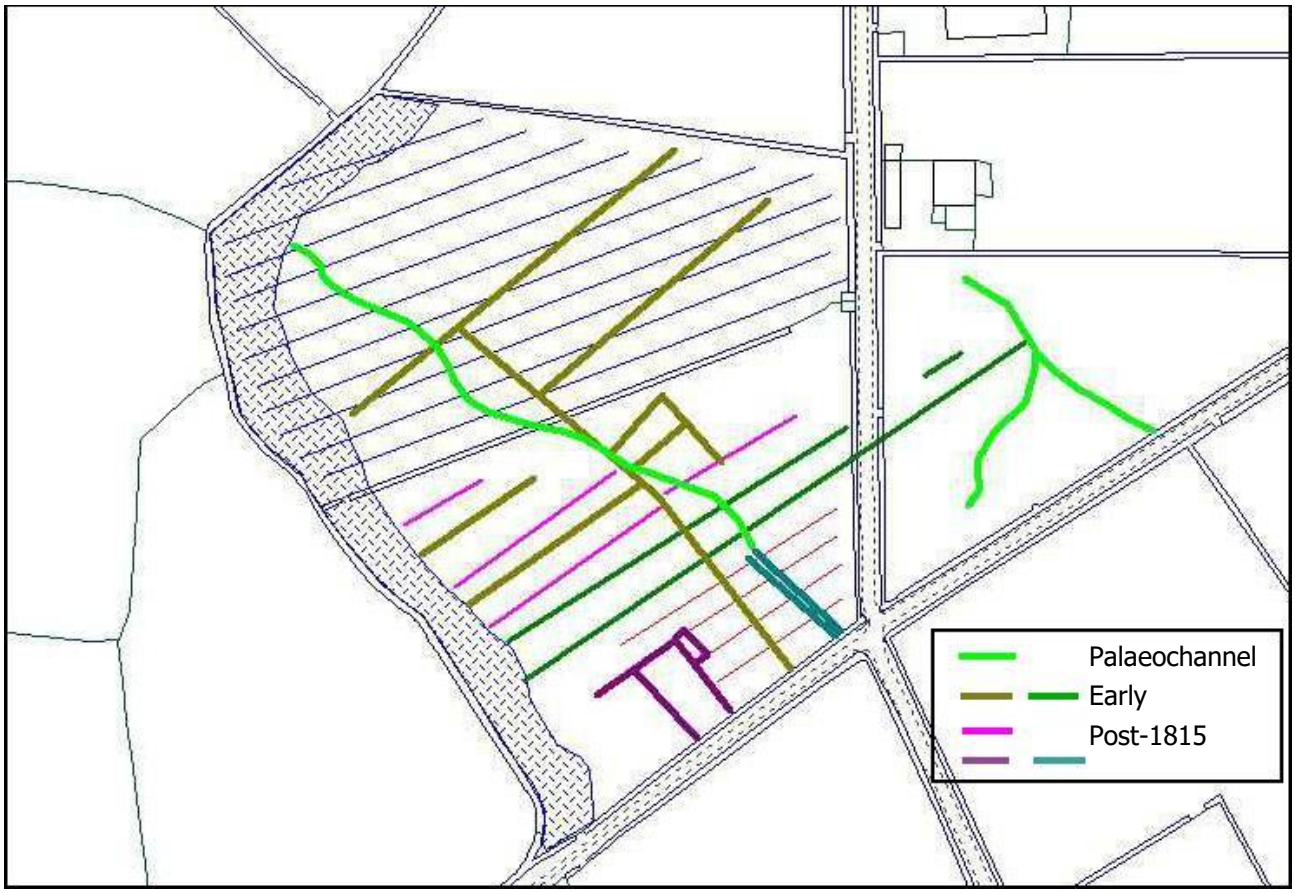

Fig 12: Air photo analysis of the fields

Apart from the disturbed area at the west edge of the field, where dredging from Meadmoor Rhyne has covered the earthworks, they survive well in the rest of the field. Aside from the grypes (parallel blue lines), which are obviously later than the 1815 enclosure of the moor, also the parallel grypes (pink) respecting the earlier features in brown, the small rectangular enclosure in the south of the field by Ham Lane (magenta), and the parallel ditches (turquoise) by the cross-roads post-date the enclosure, since they respect, and do not cross, features created in that enclosure, such as modern Ham Lane.

The earthworks which show most effectively, and clearly pre-dating the enclosure, are those in brown and dark green, which cut or terminate at, the natural palaeochannels but pre-date enclosure features.

Looking at the slightly larger area on lidar plots (Fig 13) suggests that these are part of a larger sequence of slightly radiating grypes running from the higher ground to the east of Ham Farm out to a palaeochannel. The grypes pre-date Meadmoor Rhyne, the edge of the old enclosures at the time of the 1815 inclosure, and also occur in a block of land called

Mead Moor, to the north-west of the survey area.

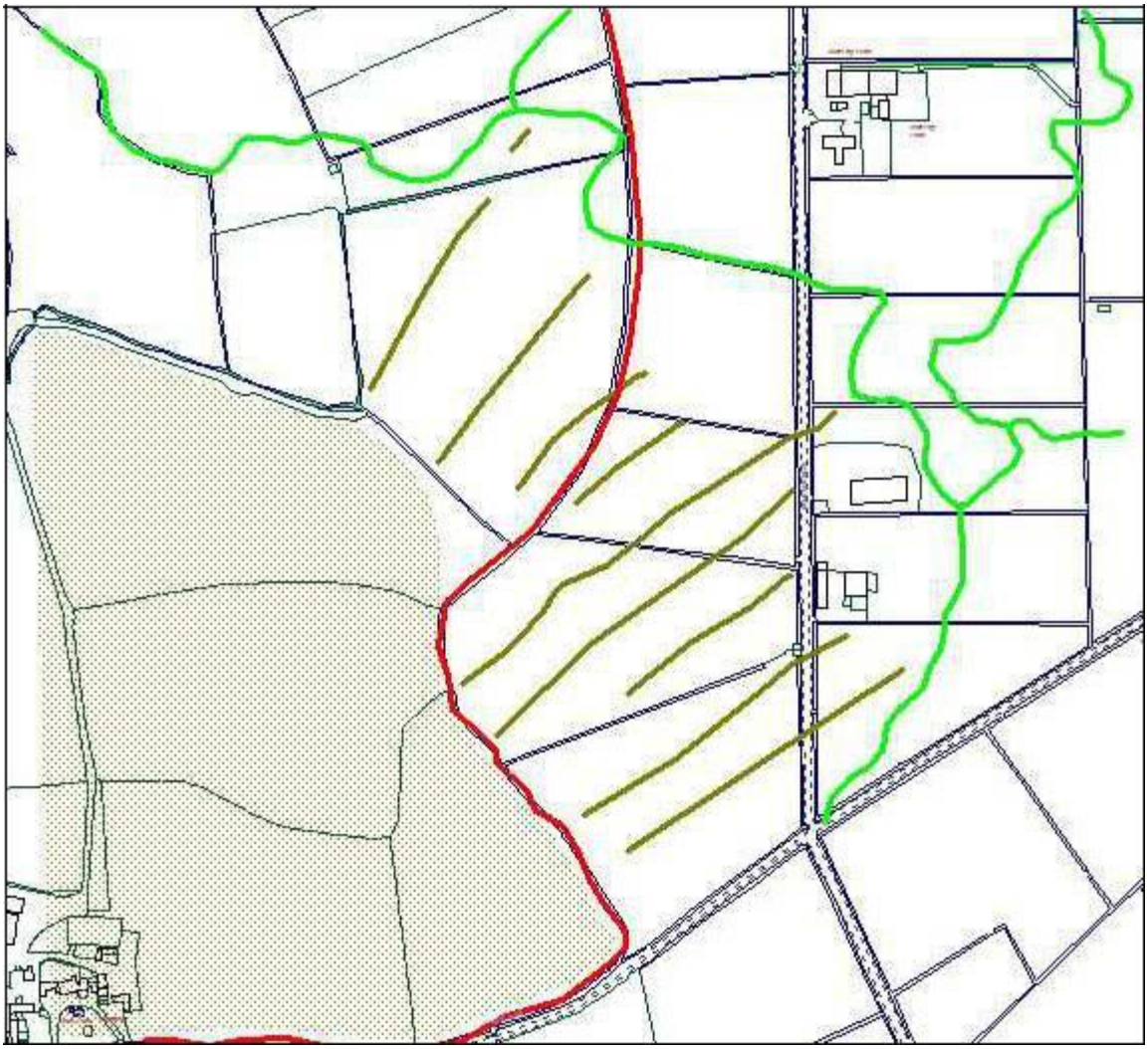

Fig 13: The early grype features from lidar (https://houseprices.io/lab/lidar/map) (higher land in stipple, palaeochannels green)

This appears to be an early attempt at drainage, using the former palaeochannel (forgotten by the time Mead Moor was enclosed, or when Meadmoor Rhyne was created) as the terminal in the moor. There seems to be no documentation for this activity, and the land was simply considered part of Kenn Moor by the time of the Yatton map of 1799.

The grypes do not tally with the gradiometry results in any way, so are later, and could conceivably be late Roman. However, such attempts at draining moor which are later abandoned, fit better with a medieval date, similar to the many upland temporary cultivation areas, such as on Exmoor (Riley & Wilson-North 2001: 98-100) or Minchinhampton Common in Gloucestershire (Russett 1991), or the poorly characterised temporarily enclosed lowland areas, such as Whitesham in Nyland in Cheddar (Russett, forthcoming). They have not so far been studied in such detail as the highland episodes.

The exact dating of this episode, however, awaits a more general study of the multiple enclosures around Yatton and Kenn, and is beyond the scope of this report.

It is therefore clear from these results that the earthworks at Ham Lane cross-roads are not themselves evidence of Roman activity. As might be expected, the picture is more complex than this, with evidence of Roman activity, especially in the northern of the two fields, that completely fails to correlate with the earthwork evidence.

Roman occupation, or at least, activity, is known elsewhere on Kenn Moor (see above), and burials are known from Ham Farm (see Fig 14), but no evidence of occupation is known.

*Fig 14: Romano-British burial at Ham Farm, found by NSARG late 1950s, after lid collapsed under farm vehicles (*per *Dave Long)*

All the evidence from this survey seems to indicate Roman industrial (or just possibly, domestic) activity. This may include iron working, as has been recently found at Arnolds Way, Yatton (North Somerset HER 2016) and Cobthorn Way, Congresbury (Archaeological Surveys 2015).

Recommendations for further work

As explained above, while the gradiometer survey provided much information, it is very difficult to interpret, given the ground conditions and geology, and the earthworks and resistivity survey provided no further useful information that might be used in the interpretation.

It is therefore recommended that trial evaluation excavation be carried out to target some of the anomalies in the northern field and to characterise and date them.

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Rippon, S. 2006	*Landscape, Community and Colonisation: the North Somerset Levels during the 1st to 2nd millennia AD* CBA Research Report 152, York
Russett, V. 1991	*The Minchinhampton Commons, Gloucestershire* Glos. County Council I: 48
Russett, V. forthcoming	*And there is another island: a landscape history of Nyland-cum-Batcombe, Somerset*

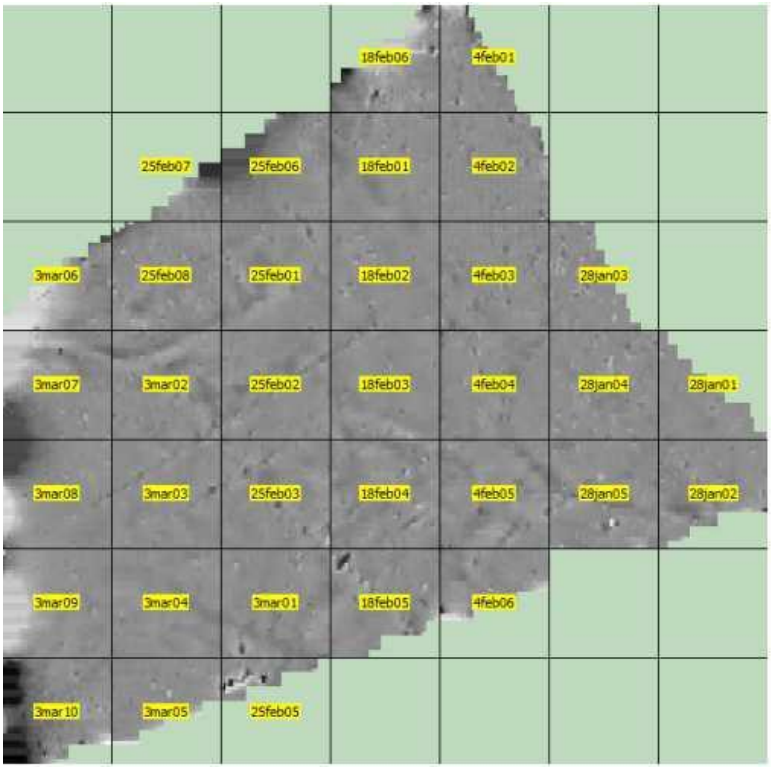
Authors

Vince Russett, Chris Short May 2017

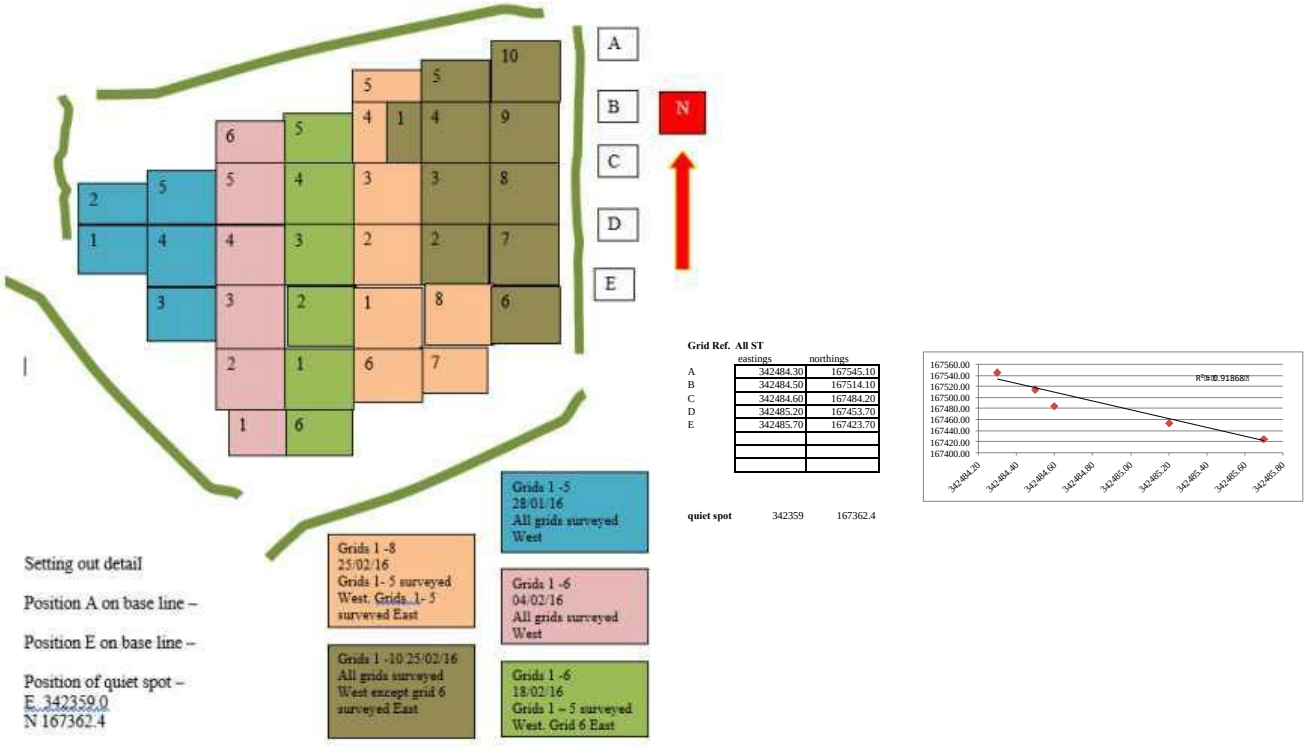
Appendix

Day sheet extracts - Full day sheets can be obtained on request)

Simmons 1 Gradiometry



TerraSurveyor grids above and grid layout below



Simmons 2 Gradiometry

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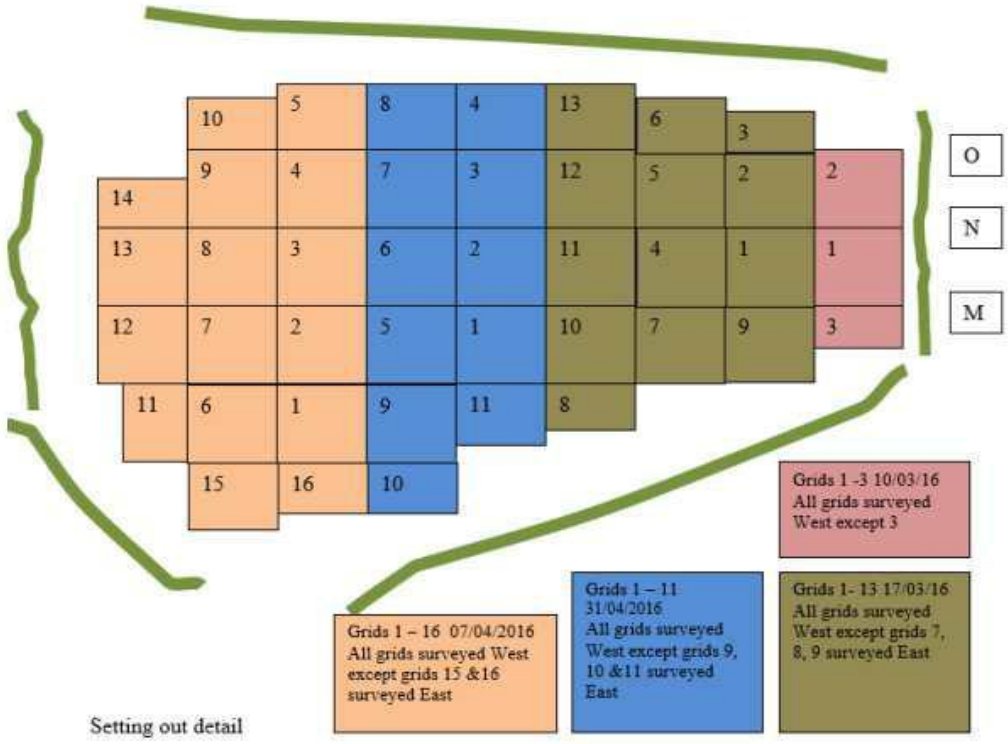

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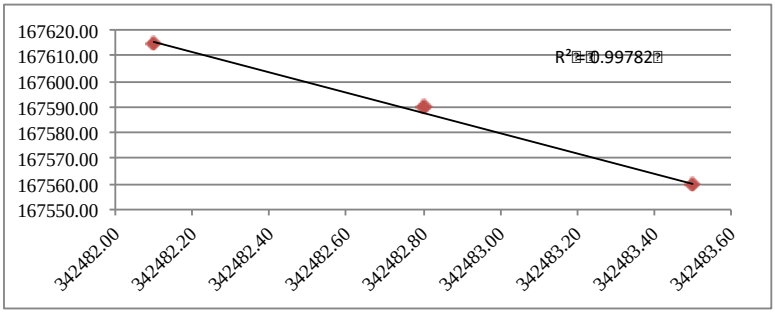
N	342482.80	167589.50
O	342482.10	167614.90



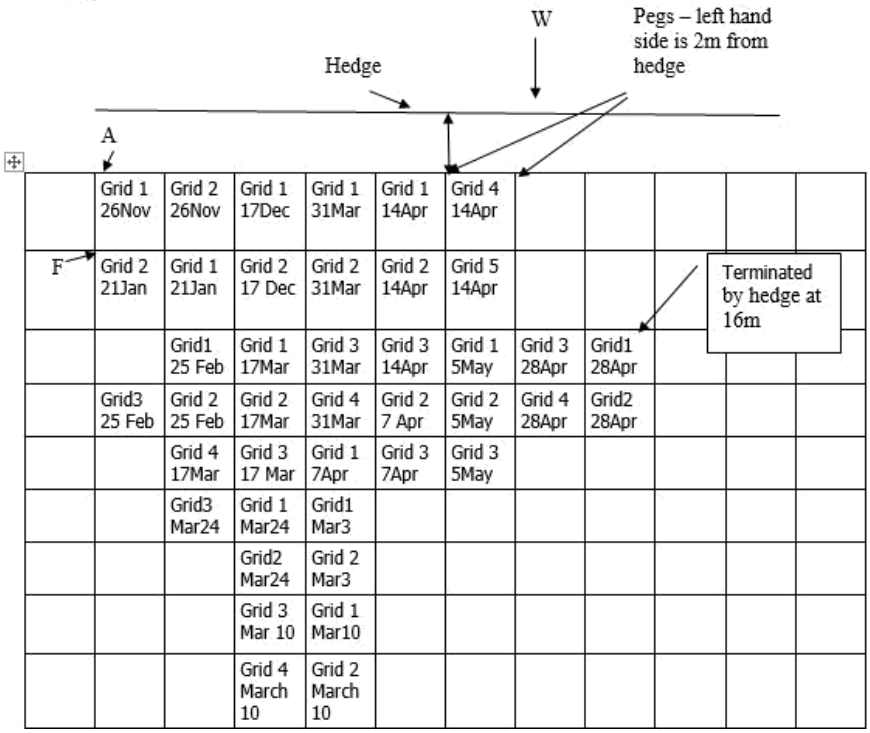
quiet spot 342470.23 167573.43

GPS

Resistivity

Simmons 1

Grid layout



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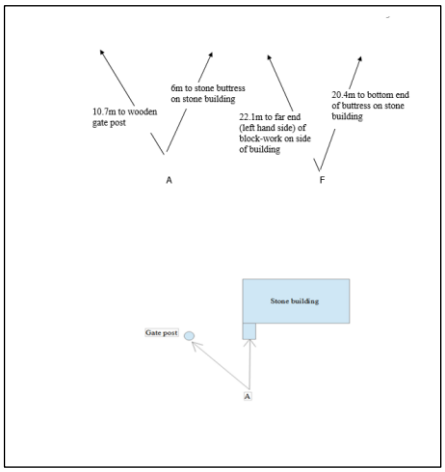
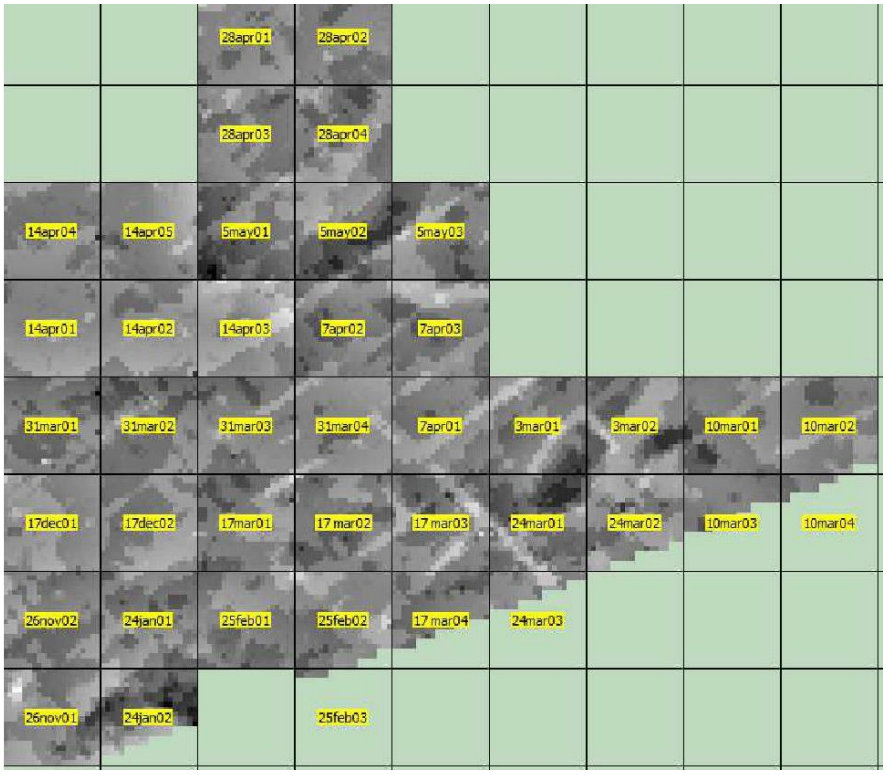
		Grid1 25 Feb	Grid 1 17Mar	Grid 3 31Mar	Grid 3 14Apr	Grid 1 5May	Grid 3 28Apr	Grid1 28Apr		
	Grid3 25 Feb	Grid 2 25 Feb	Grid 2 17Mar	Grid 4 31Mar	Grid 2 7 Apr	Grid 2 5May	Grid 4 28Apr	Grid2 28Apr		
		Grid 4 17Mar	Grid 3 17 Mar	Grid 1 7Apr	Grid 3 7Apr	Grid 3 5May				
		Grid3 Mar24	Grid 1 Mar24	Grid1 Mar3						
			Grid2 Mar24	Grid 2 Mar3						
			Grid 3 Mar 10	Grid 1 Mar10						
			Grid 4 March 10	Grid 2 March 10						

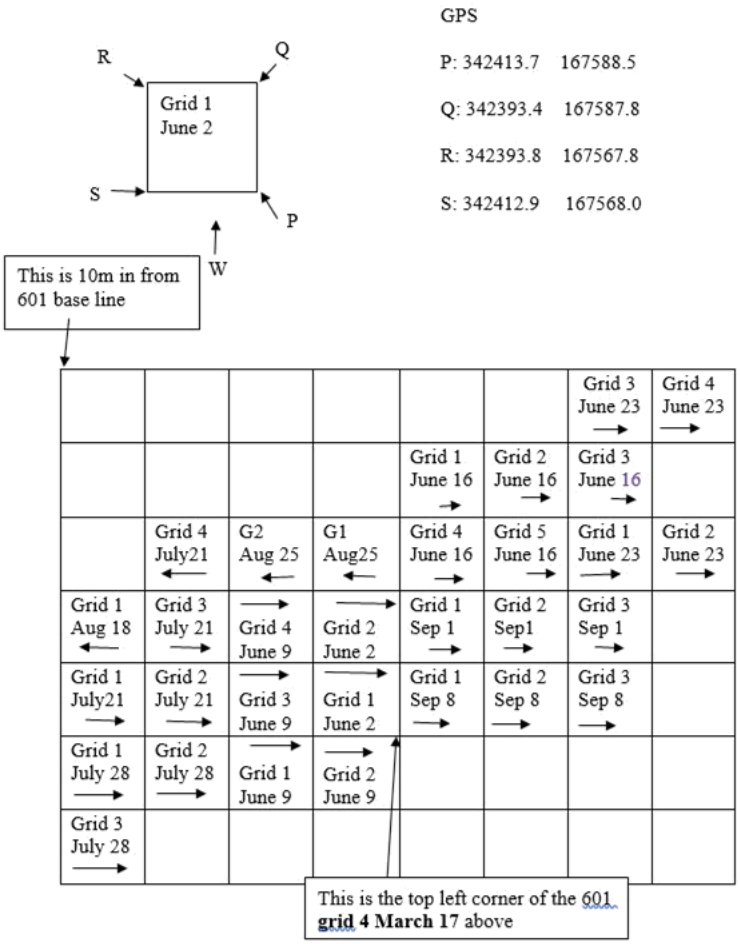
All grids walked West except Grid 1 28April which was East





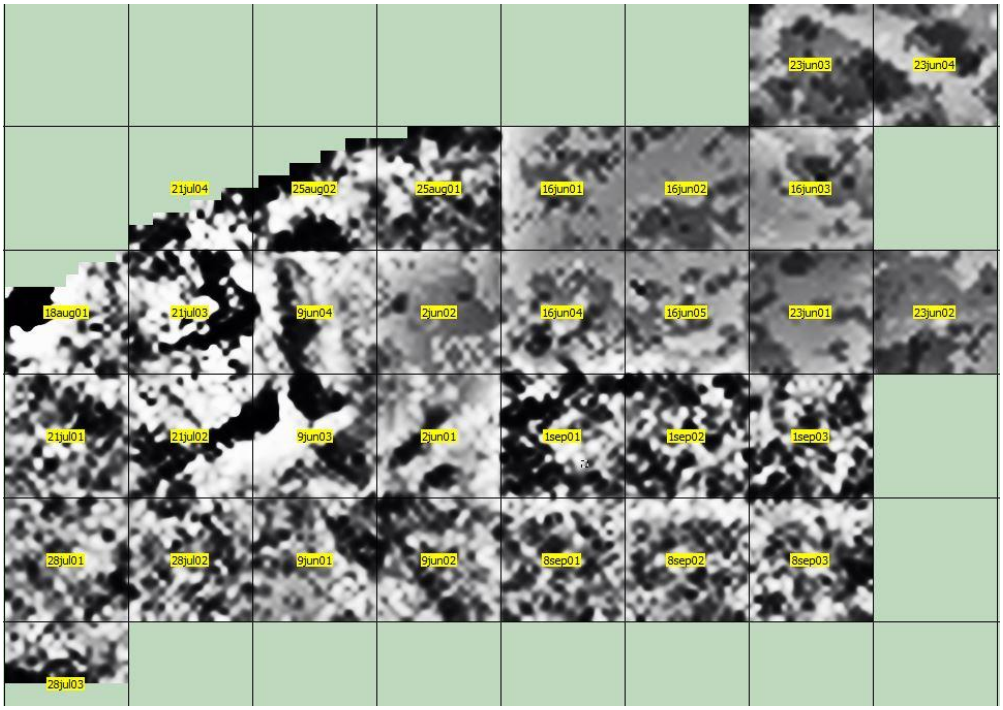
Grid layout above and TerraSurveyor grids below

Simmons 2



Grids walked in direction of arrows

Grid layout above and TerraSurveyor grids below



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