

**Archaeological geophysical survey
on land at Moortown Lane,
Ringwood, Hampshire
May 2021**

Report No. 21/050

Author: John Walford

Illustrator: John Walford



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Archaeological geophysical survey on land at Moortown Lane, Ringwood, Hampshire		OASIS No: molanort1-501838	
ACTIVITY TYPE			
Project/Activity type	Geophysical survey		
Reason for investigation	Planning: Pre application		
Development type	Residential development		
PROJECT LOCATION			
National grid ref	SU 158 041		
Site name	Moortown Lane, Ringwood		
REVIEWERS/ ADMIN			
HER for project	Hampshire		
National organisation	None		
WORK UNDERTAKEN			
Methodological summary	Magnetometer survey with a cart-mounted array of Bartington Grad601 fluxgate gradiometers.		
Previous work?	No	Future works?	Not known
Dates - Start date:	10th May 2021	End date:	18th May 2021
GEOPHYSICS			
Geology	Branksome Sand Formation / Boscombe Sand Formation Terrace gravel		
Land use	Arable and pasture / Playing fields		
Survey type	Magnetometer survey		
Size of survey area	30ha		
Instrumentation	Bartington Grad 601		
Configuration	Multiple		
Spatial resolution	Traverse spacing	0.5m	Sample interval 0.25m
Resolution (data values)	0.1nT		
BIBLIOGRAPHY			
Title	Archaeological geophysical survey at Moortown Lane, Ringwood, Hampshire, May 2021		
Author(s)	Walford, J.		
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Report release delay?	6 months		
PEOPLE			
Organisation	MOLA Northampton		
Project manager	John Walford		
Project supervisors	John Walford / Adam Meadows		
Funding body	EDP, on behalf of St Congar		
KEYWORDS			
Monuments found/ date	Ring ditches - Late prehistoric Ditches - Post-medieval		
RESULTS			
Description of outcomes/ summary of research framework contribution	<p>The survey identified two main areas of archaeological interest, a group of probable prehistoric ring ditches south of Moortown Lane and a rectilinear pattern of ditches and other features in the south-east of the survey area. The latter are perhaps plot boundaries, small quarry pits and other features related to the village of Crow and probably pre-date the 19th century. Minor features including isolated lengths of ditch and traces of medieval ridge and furrow cultivation were also detected by the survey.</p> <p>The results suggest that the site could contribute to research themes concerning prehistoric burials and ritual monuments and medieval to post-medieval settlement.</p>		
ARCHIVES			
Accession ID	TBC		
Paper Archive repository	None		
Digital Archive repository	TBC		
<i>No finds made during survey - no finds archive to be deposited</i>			

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Archaeological geophysical survey on land at Moortown Lane, Ringwood, Hampshire May 2021

ABSTRACT

MOLA (Museum of London Archaeology) was commissioned to undertake a geophysical survey of circa 30ha of land at Moortown Lane, Ringwood, Hampshire. The survey identified two main areas of archaeological interest, a group of probable prehistoric ring ditches south of Moortown Lane and a rectilinear pattern of ditches and other features in the south-east of the survey area. The latter are perhaps plot boundaries, small quarry pits and other features related to the village of Crow and probably pre-date the 19th century. Minor features including isolated lengths of ditch and traces of medieval ridge and furrow cultivation were also detected by the survey.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by EDP, on behalf of St Congar, to undertake an archaeological geophysical survey on c30ha of land lying north and south of Moortown Lane, Ringwood, Hampshire (NGR SU 158 041) (Fig 1). The aim of the survey was to identify and map any archaeological remains which may be affected by a proposed residential development.

The magnetometer survey took place over seven working days, between 10th and 18th May 2021. It was conducted in accordance with a Written Scheme of Investigation (Arkley 2021) and the Chartered Institute for Archaeologists and European Archaeological Council guidelines (CifA 2014 and Schmidt *et al* 2015).

The work was undertaken in anticipation of a requirement from the Hampshire County Council Planning Archaeologist. No brief was issued for the work.

2 BACKGROUND

2.1 Location, geology and topography

The survey area covers three parcels of land around Moortown Lane on the southern edge of Ringwood (Fig 1). The southern parcel (Field 1) comprises c4ha of football pitches, bounded by Long Lane to the west and Moortown Lane to the north, with a house to the east and further pitches to the south. The larger, northern parcel is c23ha in extent and comprises two adjacent arable fields (Fields 2-3) separated by a farm track. It is bounded to the west by housing fronting onto Christchurch Road, Moorland Gate and Willow Drive. Paddocks and grassland separate the site from Crow Arch Lane to the north, while commercial properties including Liberty's Owl and Reptile Centre lie to the east, along Crow Lane. The third parcel comprises c2ha of arable land (Field 4) and an adjacent hectare of pasture located almost immediately north-east of the junction of Moortown Lane and Crow Lane (Fig 1).

The largest parcel includes a small piece of uncultivated land on its eastern edge, between Field 3 and Crow Lane. This was unsuitable for survey, due to a combination of previously disturbed ground, rough vegetation, and active beehives.

The survey area as a whole lies on a river terrace along the eastern side of the Avon valley. The land surface is almost level, with a very gradual slope from c20m above Ordnance Datum (aOD) in the north and east to c17m aOD in the west. A small stream flows across the south-eastern corner of the survey area, between Fields 4 and 5.

The solid geology of the survey area comprises sands, split evenly between the Branksome Sand Formation in the west and the Boscombe Sand Formation in the east. These strata are overlain across the site by Quaternary river terrace deposits of sands and gravels (BGS 2021). The soils are freely draining, slightly acid and loamy (Landis 2021), and are rich in coarse flint gravel (*pers obs*).

2.2 Historical and archaeological background

A desk-based assessment (DBA) has been prepared for the site by EDP (Oakley 2021). The following summary is largely derived from this source, with some additions.

The site contains no designated heritage assets but the National Heritage List of England (NHLE) records four Grade II listed assets nearby. These comprise the 18th-century Crowe Farmhouse and a neighbouring barn (NHLE IDs 1157048 and 1094995) located on Crow Lane, between the northern and north-eastern survey parcels, Moortown House (1094991) c100m east of the northern parcel, alongside Christchurch Road, and a milestone (1302460) near the western edge of the survey area on Moortown Lane.

Historic England records that two conjoined circular cropmarks, perhaps indicative of Bronze Age round barrows, lie within Field 1, south of Moortown Lane (Historic England Research Records No.1504196 and No. 1504200). Another circular cropmark, which appears to be a previously unrecorded feature, occurs across the boundary of Fields 2 and 3 (Google Earth imagery, dated 7/6/2018).

A previous archaeological evaluation was undertaken at Upper Kingston Farm, c300m north-east of the survey area, beyond Crow Arch Lane. Initial geophysical survey (Stratascan 2012) detected ridge and furrow and a “*series of weak positive linear and curvilinear anomalies and clusters of pit-like features*” across the survey area but suggested these may have a geological or pedological origin (Good 2017, 6). Archaeological evaluation trenches in the same area uncovered some undated gullies, ditches, and possible pits, as well as one possible Bronze Age gully, but concluded that the geophysical anomalies were probably caused by bioturbation or geological variation (*ibid*). A small follow-up excavation was relatively uninformative, the main finding being the discovery of a Mesolithic axe (McAtominey 2017).

Fieldwalking in proximity to the survey area has yielded a surface scatter of probable Bronze Age flints (Hampshire HER No. 29438) and an isolated piece of Mesolithic flint debitage (29440). Further unstratified finds from the surrounding area include a scraper, a polished axe and Palaeolithic flints (HER Nos. 19972, 19973, 19974 and 20214). Other evidence for prehistoric activity near the survey area is chiefly sourced from aerial photos, with cropmarks depicting four possible enclosures (HER Nos. 59300, 59301, 59309, 59310). One of these, 59300, was investigated as part of the works at Upper Kingston Farm but no substantive remains were found.

Areas of medieval settlement are believed to lie at Moortown and Crow to the west and south-east of the site, likely close to the current Christchurch Road and cross-roads of Crow Lane / Moortown Lane (41187 and 28407). However, the HER records no sign of medieval occupation beyond stray surface artefacts of the period (HER Nos. 29437, 29436 and 29435).

The villages of Crow and Moortown, and their associated field systems are depicted on the enclosure map (1811) and tithe map (1834) of Ringwood (Oakley 2021, 14-15). Near the south-eastern part of the survey area, at the junction of Crow Lane with Moortown Lane, they maps show an intricate settlement pattern, with several small building plots standing as islands between branches of the roadway and other plots intruding into the edges of the road. Later, 'County Series' Ordnance Survey maps show a gradual rationalisation of this arrangement through late 19th and 20th centuries, and a similarly gradual development of new buildings along Crow Lane.

3 METHODOLOGY

The magnetometer survey was undertaken with a Bartington magnetometer cart. This is a two-wheeled, lightweight sensor platform designed to be pushed by hand. It incorporates a bank of eight vertically-mounted Bartington Grad-01-1000L magnetic sensor tubes, spaced at half-metre intervals along a bar aligned crossways to the direction of travel.

The cart incorporates a Leica Geosystems Viva GPS antenna mounted on the central axis, 1.02m astern of the sensors. The magnetic sensors each output data at a rate of eight readings per second and the GPS antenna outputs NMEA format data (GGA messages) at a rate of one position per second. These data streams are compiled into a single raw data file by MultiGrad601 logging software specifically designed for that purpose.

The cart was propelled along straight and parallel traverses across the survey area, with data logging being manually toggled on and off at the start and end of each traverse to avoid the collection of spurious data whilst turning. Traverse ends were marked with ranging poles to aid even coverage, and the evenness of coverage was further checked by monitoring the positional trace plotted in real time by the MultiGrad601 logging software. The average speed of coverage was c1.8m/s, with an effective data resolution thus approximated to better than 0.225m x 0.50m.

The raw survey data was initially processed with MLGrad601 software, which calculated an actual UTM co-ordinate for each data point by interpolating the GPS readings and applying offset corrections based on the array geometry and calculated heading direction. This produced an output file in XYZ format which could be imported into TerraSurveyor software for data visualisation and further processing.

The raw XYZ data exhibited minor striping caused by slight mis-matches in the calibration of the individual magnetic sensors (Figs 6 and 7). This was removed in TerraSurveyor by applying the median de-stripe function to runs of data from each sensor. No other processing was required.

The survey data is presented in this report as greyscale raster images which have been rotated and scaled to fit against Ordnance Survey base-mapping. The processed data are presented at a scale of $\pm 5\text{nT}$ (Figs 2 and 3), and an interpretive overlay is presented over the data at the same scale (Fig 4s and 5). Raw data plots (Figs 6 and 7) are presented at a scale of $\pm 10\text{nT}$ as a comparison to the processed data.

4 SURVEY RESULTS

4.1 Overview

The survey has identified two principal areas of archaeological interest, in the south and south-east of the survey area, as described below. It has also identified some minor archaeological features, including ridge and furrow, and modern features including pipelines. A large part of the survey area, across Fields 2 and 3, is affected by a high level of magnetic noise, reflecting a widespread scatter of metallic debris in the ploughsoil.

4.2 Archaeological features south of Moortown Lane (Field 1)

Three anomalies in Field 1 probably indicate prehistoric ring ditches (Figs 2 and 4). Two represent individual rings with diameters each approaching 20m. The third, which is '8'-shaped represents two conjoined rings of slightly smaller diameter and these presumably correspond to the cropmark feature recorded and described in this location by Historic England (HE Research Records No.1504196 & No.1504200).

Further east in the field, there are two short linear anomalies which are not certainly archaeological but perhaps represent small segments of ditch.

4.3 Archaeological features south-east of Crow (Field 5)

A rectilinear pattern of anomalies occurs in Field 5, between Moortown Lane and a small stream (Figs 3 and 5). The most southerly of these - a broad positive feature with a sharply defined northern edge - corresponds to an area which the tithe and enclosure maps of the area show as a small building plot intruding into the northern edge of the lane. A linear anomaly extending north across the field probably corresponds to a former field boundary shown on the same maps, although there is a slight discrepancy between its line and that indicated by the maps.

The remaining linear anomalies, which do not correspond to any mapped features, probably represent the boundary ditches of small plots or paddocks associated with the village of Crow. They clearly extend across the western half of the field, as far as the north-south aligned boundary, and some less distinct anomalies indicate probable continuations to the east.

A sub-rectangular zone of magnetic enhancement towards the centre of the plots is of uncertain significance but could represent a large cut feature such as a pond or quarry pit, or else a spread of midden material or other occupation debris. A small concentration of magnetic dipoles in approximately the same area indicates a concentration of metallic debris of uncertain date.

4.4 Other possible archaeology

A small number of weak linear anomalies, widely dispersed across Fields 2 and 3, may represent ditches of uncertain date and function (Figs 2 and 4).

4.5 Ridge and furrow

A set of broad, gently curving linear anomalies in Field 4 indicate the ploughed-down remnants of medieval to early post-medieval ridge and furrow cultivation (Figs 3 and 5). A few much slighter linear anomalies in the east of Field 3 may also relate to ridge and furrow, though the evidence for this is less conclusive (Figs 2 and 4).

4.6 Field boundaries

Three linear anomalies relate to former field boundaries which are known from historic map sources. One of these, in Field 5, is part of the ditch system at Crow and has been described above. Another lies in Field 4, parallel to the ridge and furrow anomalies (Figs 3 and 5). The third lies towards the middle of Field 3, on an east west alignment (Figs 2 and 4). The last of these, although archaeologically unremarkable, is represented by an interesting and distinctive magnetic anomaly with tapering ends and an abrupt polarity change at its centre. Such anomalies are generally associated with lightning strikes (Burks *et al* 2015), and it is plausible that in this case a strike caused high voltage ground currents to flow preferentially along the ditch fill, thereby modifying and enhancing its magnetic signature.

4.7 Pipes and cables

A rectangular pattern of intense magnetic anomalies occurs across Fields 2 and 3 (Figs 2 and 4). The anomalies are typical of buried pipes, and their arrangement largely mirrors that of the historic field boundaries depicted on late 19th and 20th century Ordnance Survey mapping. They most probably represent small water pipes installed for agricultural purposes (e.g., irrigation or supplying water troughs). A similar anomaly occurs in the south of Field 4 (Figs 3 and 5), and another, less distinctly, along the northern edge of Field 1 (Figs 3 and 5). The last of these probably relates to a metal pipe which was observed running above ground through the adjacent hedgeline (*pers obs*)

A weak negative linear anomaly near the north-western end of Field 3 (Figs 3 and 5) corresponds to a narrow, partially backfilled trench of evidently recent date (*pers obs*). This perhaps contains a cable, a drain or a non-ferrous pipe.

4.8 Ferrous objects

Ferrous objects of various sizes and types are abundant across the survey area. Only selected examples are highlighted on the interpretation plot; principally those which are notable due to their size, concentration, or possible association with archaeological deposits.

Fields 2 and 3 contain many hundreds of individual small ferrous anomalies which are widely though unevenly distributed, giving the data a very noisy appearance. This reflects the unusual abundance of small, relatively modern pieces metal debris (eg bolts, horseshoes, chain links, *etc*) on the field surface (*pers obs*). Conversation with the farmer suggested that much of this material derives from the former use of the land as market gardens and horse paddocks. At the north-western end of Field 3 there is a distinct band of such debris, most probably accumulated along the line of a recent track (Figs 2 and 4).

One large ferrous anomaly in the north-eastern corner of Field 3 coincides with a surface scatter of modern rubble, suggesting the site of a recent shed or other small building.

An exceptionally large ferrous anomaly at the centre of Field 4 seems unlikely to be due to a loose piece of debris and is more likely to represent a large, deliberately buried object or an in-situ piece of structural metalwork (Figs 3 and 5). Two large ferrous anomalies at the southern edge of the field are also worthy of note.

Ferrous halos are widespread around the margins of the surveyed fields, due to adjacent fences, gates and other pieces of metalwork. Several large ferrous anomalies on Field 1 can similarly be attributed to sets of goalposts (Figs 2 and 4).

4.9 Unidentified features

A number of very subtle negative linear anomalies in Field 1 cannot be confidently interpreted, although one possibility is that they represent modern service trenches (Figs 2 and 4).

A pronounced linear anomaly in the north of Field 2 bears a superficial similarity to the probable lightning strike anomaly but lacks the characteristic switch in polarity that would make such an interpretation credible. Other interpretations such as a live electricity cable or a field boundary ditch would be problematic for a variety of reasons, so no convincing conclusion can be reached.

5 CONCLUSION

The survey has detected two principal areas of archaeological interest. A rectilinear ditch system occurs at Crow (Field 5) and several ring ditches lie under the football pitches to the south of Moortown Lane (Field 1). There are minor archaeological features elsewhere, comprising possible linear ditches and a small expanse of ridge and furrow.

The ditch system at Crow lies immediately north of Moortown Lane and is bounded to the north-west by a small stream. The 19th-century tithe and enclosure maps (Oakley 2021, 14-15) demonstrate that one of the ditches corresponds to a former edge of the lane and another to a north-south aligned boundary; the other ditches, however, are not mapped. The site is therefore suggested to comprise a series of small fields, gardens or house plots which may have been medieval or post-medieval in origin and survived in part into the 19th century.

The four ring ditches detected south of Moortown Lane (Field 1) include two which are conjoined and evidently correspond to the conjoined ring ditch cropmark described and recorded by Historic England (HE Research Records No.1504196 & No. 1504200). The ditches probably mark the locations of moderately sized prehistoric round barrows, with diameters of around 15m to 20m

A cropmark (Google Earth imagery, dated 7/6/2018) indicates that a further ring ditch may lie north of Moortown Lane, straddling the boundary of Fields 2 and 3, but the survey found no evidence to confirm this. Whilst this casts some doubt over the significance of the cropmark, it should be noted that the relevant area is affected by a markedly high level of magnetic noise which might have served to mask weak anomalies of archaeological origin.

As well as archaeological features, the survey has identified a network of metal pipes to the north of Moortown Lane. These pipes, which largely follow the lines of 20th-century field boundaries, are not archaeologically significant but should be noted as minor obstacles to any trenches or other intrusive groundworks which may subsequently be required on the site. A large underground ferrous object at the centre of Field 4 should likewise be noted as a possible obstruction.

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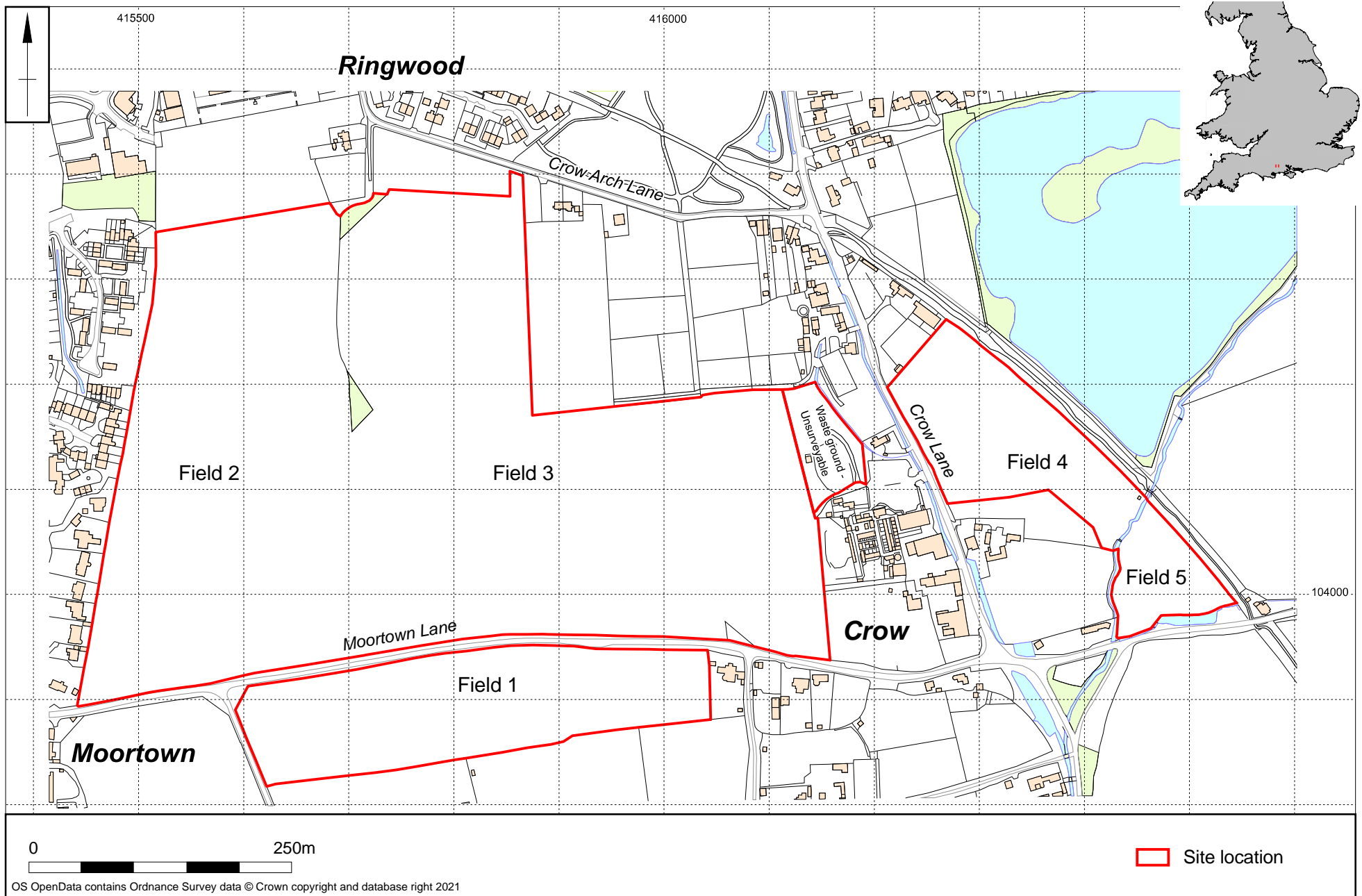
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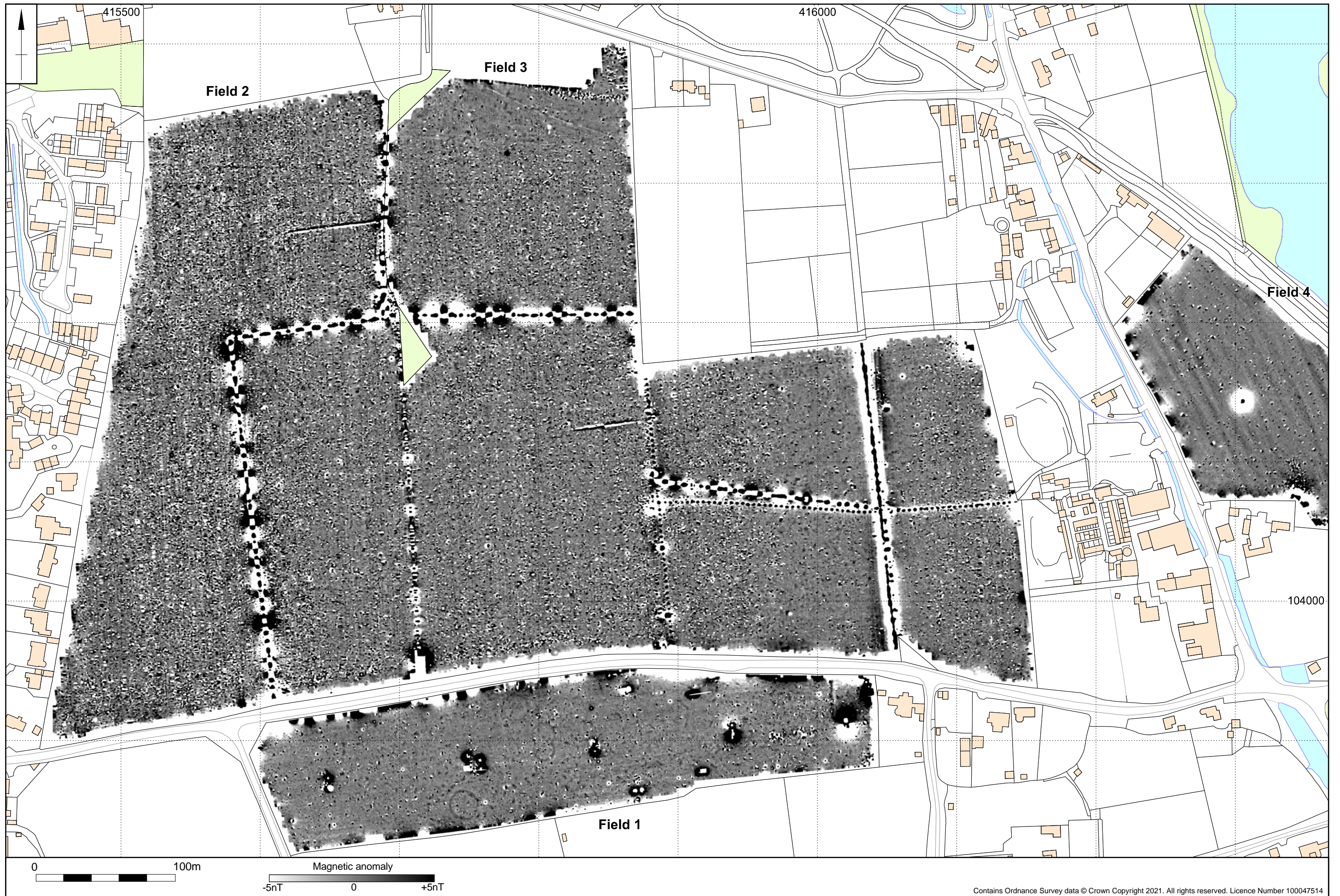
MOLA

8th June 2021



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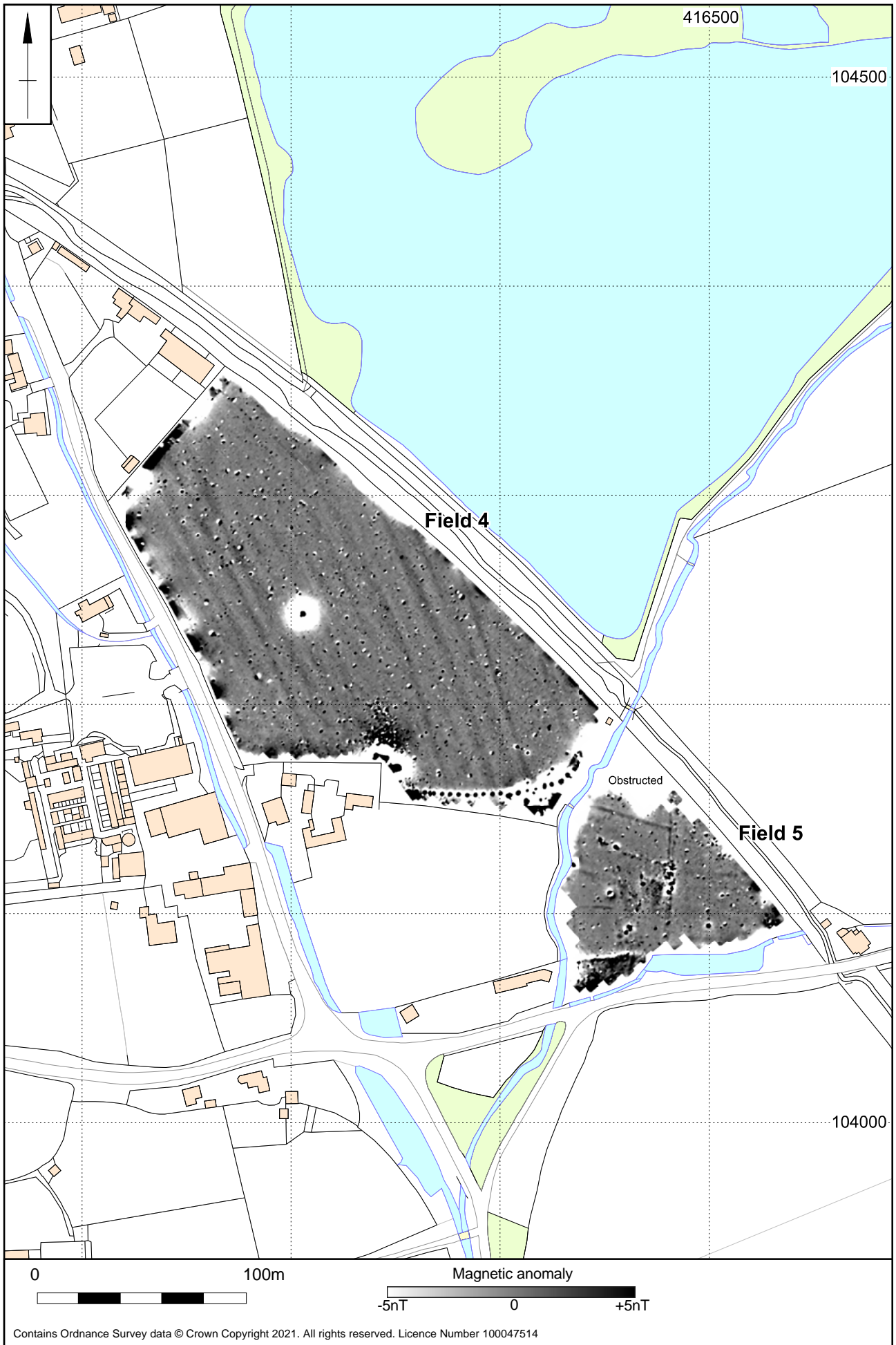
Site location Fig 1



Scale 1:2500 (A3)

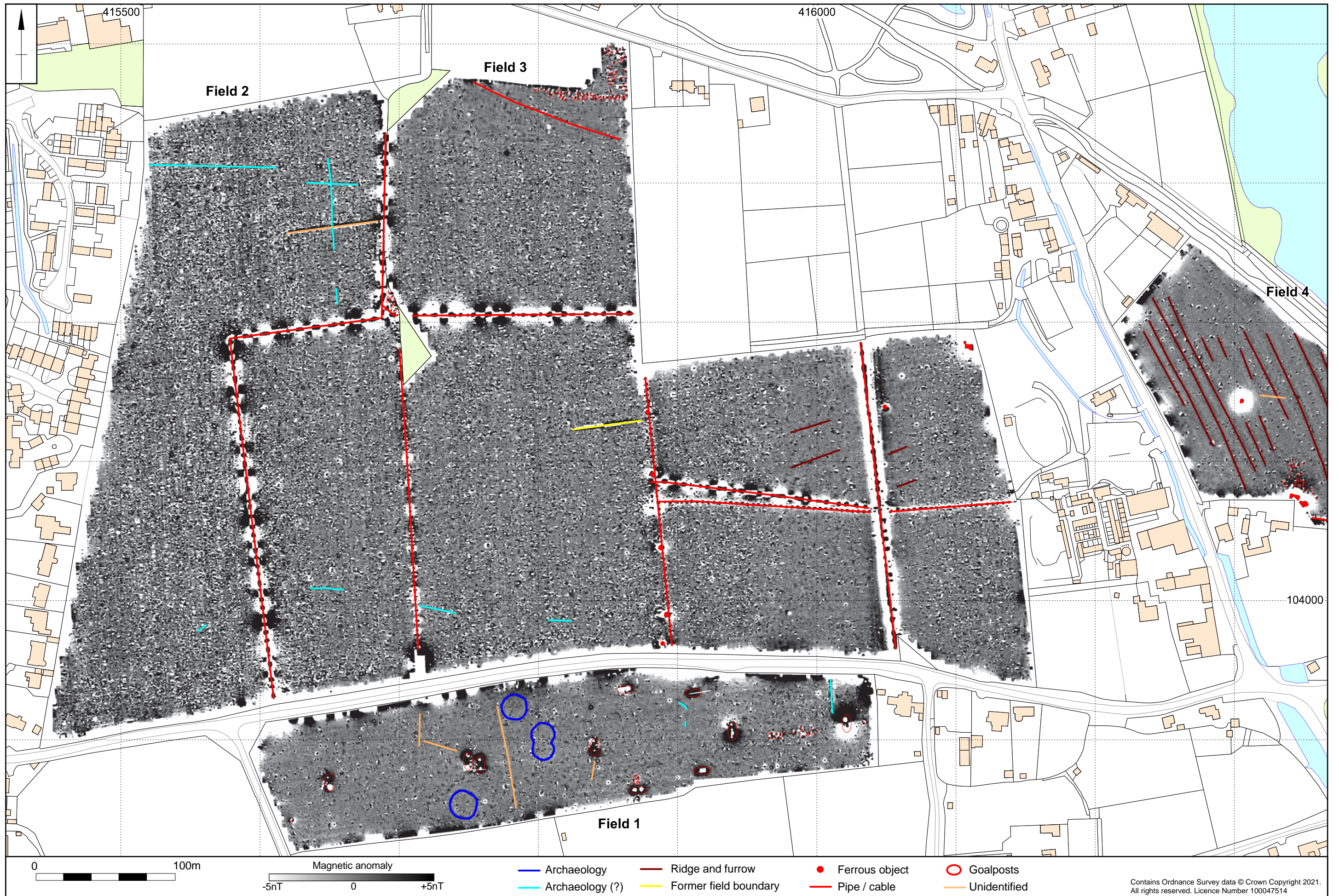
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Magnetometer survey results, Fields 1 to 3 Fig 2



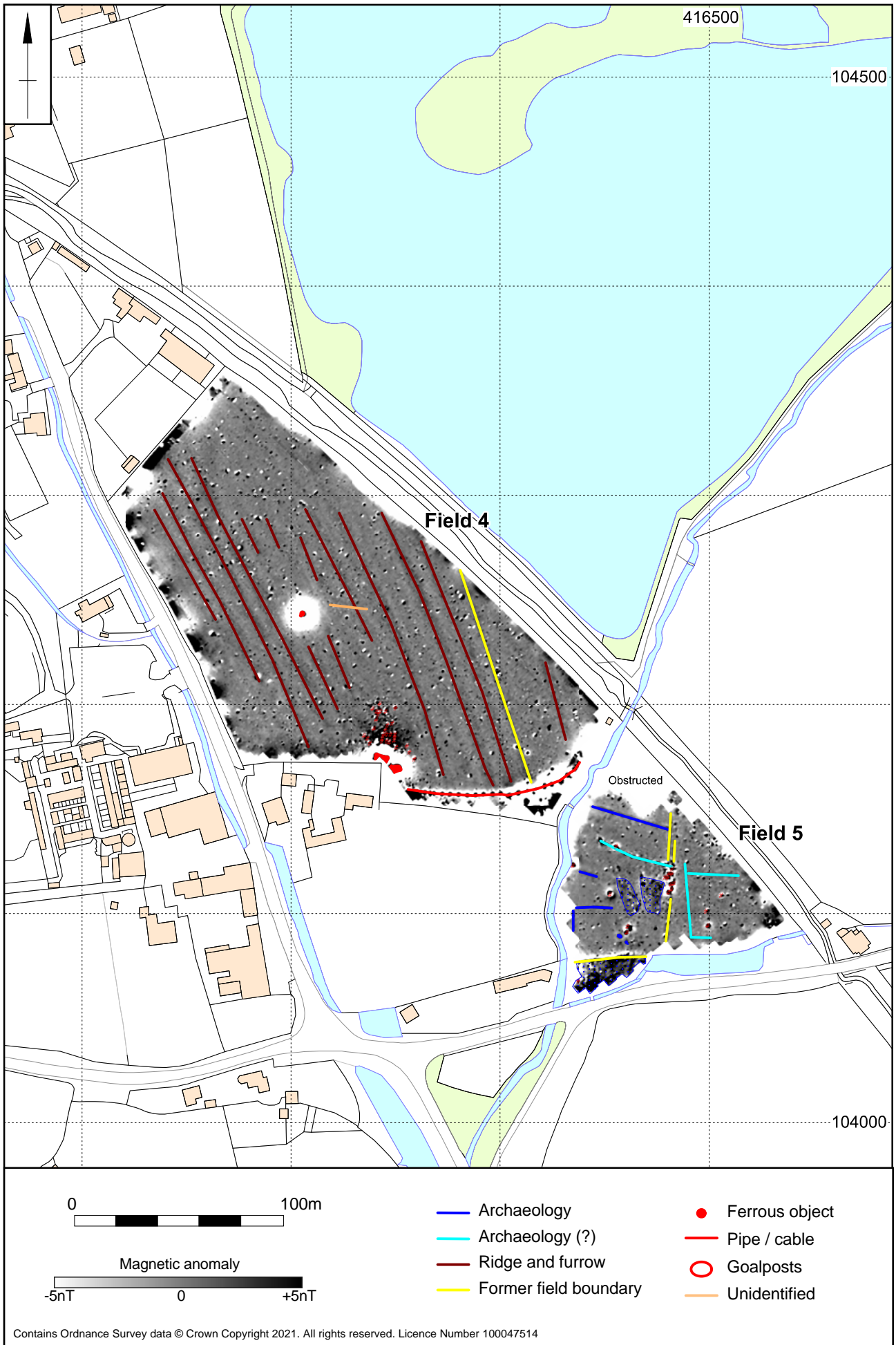
Scale 1: 2500

Magnetometer survey results, Fields 4 to 5 Fig 3



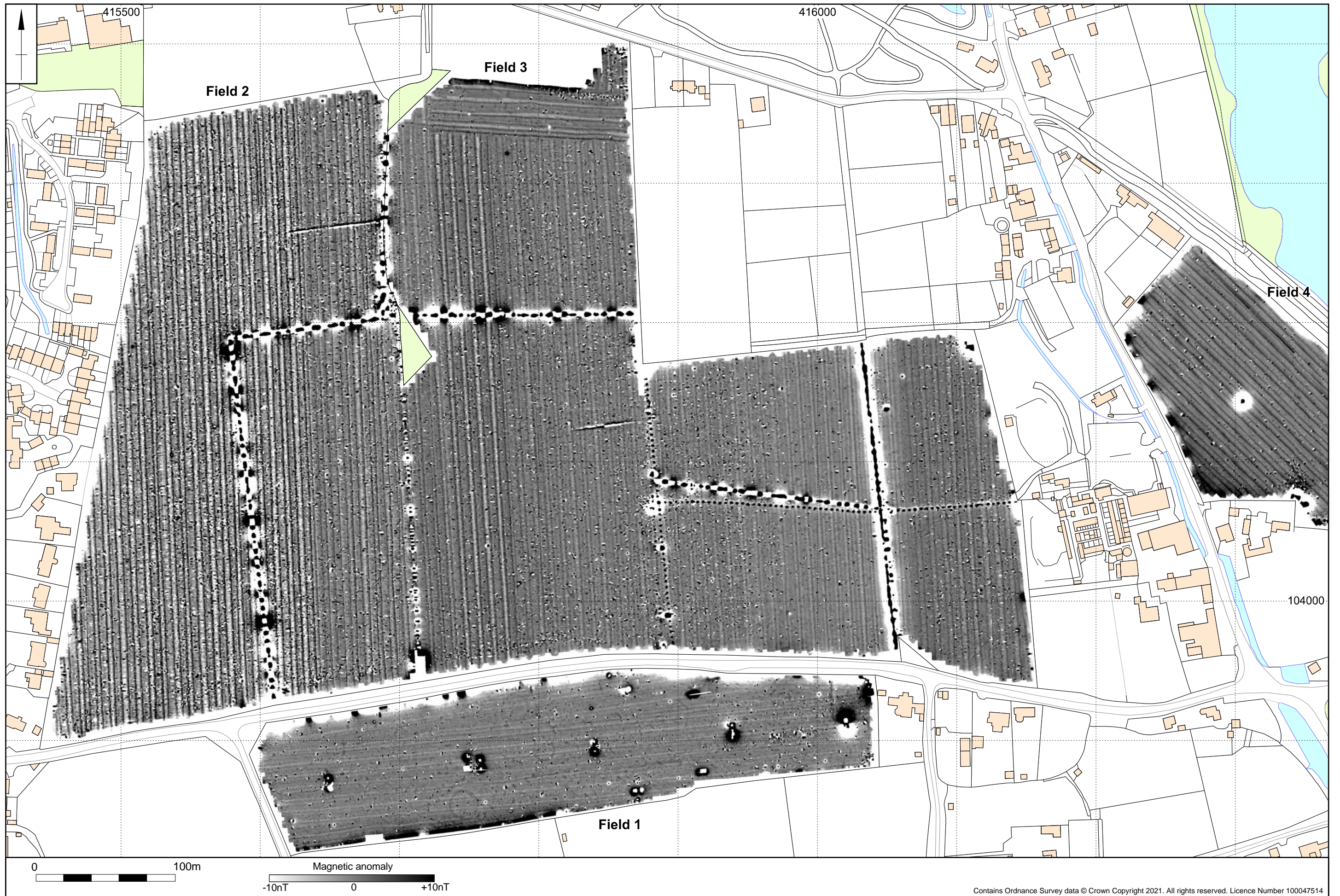
Scale 1:2500 (A3)

Magnetometer survey interpretation, Fields 1 to 3 Fig 4



Scale 1: 2500

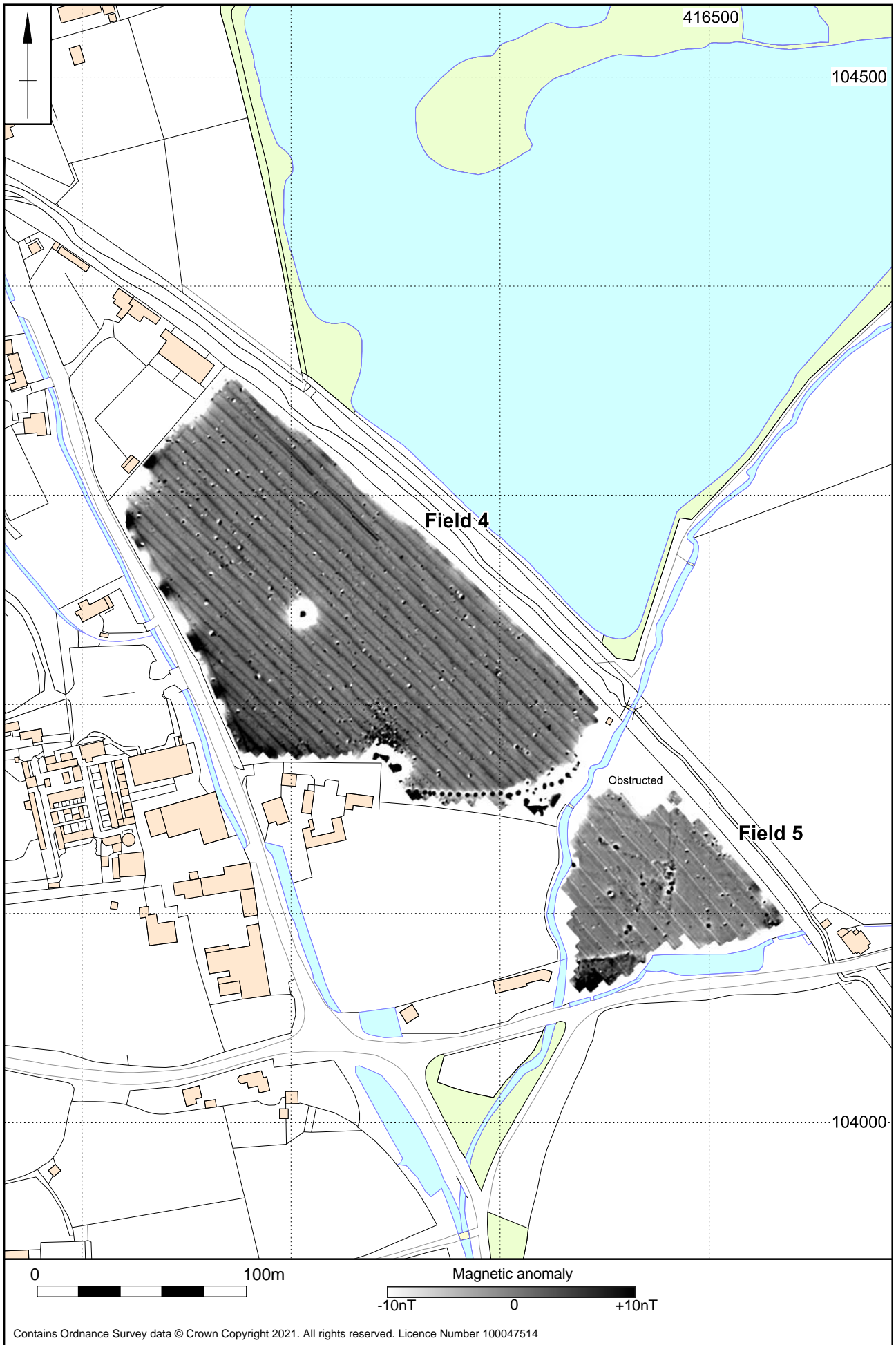
Magnetometer survey interpretation, Fields 4 to 5 Fig 5



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Scale 1:2500 (A3)

Unprocessed magnetometer data, Fields 1 to 3 Fig 6



Scale 1: 2500

Unprocessed magnetometer data, Fields 4 to 5 Fig 7



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