Archaeological geophysical survey of land south of Asker Lane, Matlock Derbyshire April 2014

Report No. 14/91

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Site Code: None
NGR: SK 307 604

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OASIS REPORT

PROJECT DETAILS	Oasis No. Molanort1-177741	
Project name	Archaeological geophysical survey of land south of Asker Lane, Matlock, Derbyshire.	
Short description	MOLA was commissioned to carry out a detailed magnetometer survey on land south of Asker Lane, Matlock, Derbyshire. The survey detected a magnetic response from a low earthwork bank of unknown date and significance. Ridge and furrow, field drains, pipelines and unidentified linear features were also detected.	
Project type	Geophysical survey	
Site status	None	
Previous work	None known	
Current Land use	Pasture	
Future work	Unknown	
Monument type/ period	Undated earthwork bank	
Significant finds		
PROJECT LOCATION		
County	Derbyshire	
Site address	Asker Lane, Matlock	
Study area	*c* 3.6ha	
OS Easting & Northing	SK 307 604	
Height OD	*c* 170-194m AOD	
PROJECT CREATORS		
Organisation	MOLA	
Project brief originator	Richborough Estates	
Project design originator	MOLA	
Director/Supervisor	John Walford	
Project Manager	Charlotte Walker	
Sponsor or funding body	Richborough Estates	
PROJECT DATE		
Start date	08 April 2014	
End date	25 April 2014	
ARCHIVES	Location	Content
Physical	N/A	
Paper	MOLA Northampton	Site survey records
Digital		Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey of land south of Asker Lane, Matlock, Derbyshire, April 2014	
Serial title & volume	MOLA Northampton Reports 14/91	
Author(s)	John Walford	
Page numbers	3	
Date	25 April 2014	

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ABSTRACT

MOLA was commissioned to carry out a detailed magnetometer survey on land south of Asker Lane, Matlock, Derbyshire. The survey detected a magnetic response from a low earthwork bank of unknown date and significance. Ridge and furrow, field drains, pipelines and unidentified linear features were also detected.

1 INTRODUCTION

MOLA was commissioned by Richborough Estates to conduct a geophysical survey on a proposed development site lying between Asker Lane and the Presentation Convent Care Home, Matlock, Derbyshire (NGR SK 307 604; Fig 1). A detailed magnetometer survey of this site was undertaken on 8-9 April 2014.

2 BACKGROUND

2.1 Location and geology

The proposed development site comprises a block of seven fields located south of Asker Lane, east of Chesterfield Road and immediately north of the Presentation Convent Care Home. The four western fields were under short grass, but the remainder (5 to 7 on Fig 1) were overgrown and unsuitable for survey. The total surveyable area was *c* 3.6ha.

The survey area extends across a south-facing slope at an elevation of 170-194m aOD, overlooking the Derwent valley. The geology of the area is mapped as glacial till overlying Ashover Grit (BGS 2014).

2.2 Historical and archaeological background

The development area has been the subject of an archaeological desk-based assessment (Walker 2013). This noted that there has been little previous archaeological investigation in the vicinity and that no archaeological features are known either within or around the area itself. However, there are modern features in the north-western part of the development area, where a mound of spoil from the Derwent Aquaduct (known locally as Bailey's Tump) provided a site for the construction of a Second World War searchlight battery.

During the fieldwork some minor earthwork features were observed. Indistinct traces of cultivation ridges, aligned north to south, were present in several fields, and a very low bank was observed in the centre of Field 4 (Fig 4). The latter feature was approximately 5m wide, 55m long, and stood an estimated 0.2-0.3m proud of the natural slope. It was aligned approximately east to west, square to the modern field boundaries, and appeared to be cut by a slight linear hollow, believed to be the subsided fill of a modern pipe trench.

3 METHODOLOGY

The magnetometer survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanoTesla (nT).

An independent network of 30m grid squares was established within each of the fields to be surveyed. The grids were set out with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by means of a Leica Viva RTK GPS. The gradiometers were carried at a brisk but steady pace through each grid square, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per square. All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

The survey data were processed using Geoplot 3.00v software. The striping was removed using the 'Zero Mean Traverse' function and destaggering of the data was performed where necessary. The processed data is presented in this report in the form of a greyscale plot at a range of +4nT (black) to -4nT (white). This has been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Fig 2) and is shown with an interpretative overlay in Figure 3.

The earthwork feature noted in Field 4 was subject to a rapid topographic survey with the Leica Viva GPS. Spot height readings were taken at semi-regular intervals across its extent and the results were plotted as a shaded relief plot using Surfer software (Fig 4).

4 SURVEY RESULTS

The survey has identified only a few features of possible archaeological interest, comprising one bank and some traces of medieval or early post-medieval ridge and furrow. Other features to be identified include pipelines, field drains and some linear features of unknown significance.

The low bank in Field 4 has been briefly described in the archaeological background section, above. It is represented in the magnetic data by a tightly defined, lozenge shaped zone of weak magnetic noise (maximum intensity *c*15nT), with a slight negative halo. This anomaly coincides with the central section of the bank earthwork, but does not extend as far east and west as the earthwork itself does (Fig 4). Thus the impression is given that the bank may be of composite construction, with a central core containing a weakly magnetic material such as brick rubble, burnt soil or iron-bearing rock and outer extremities composed of soil or other non-magnetic material.

Parallel linear anomalies relating to medieval or post-medieval cultivation have been detected in Fields 1, 2 and 3. Those in Fields 1 and 2 are on slightly different alignments from each other, reflecting the different alignments of the fields, and this suggests that they represent ploughing which post-dates the enclosure of the fields. The other anomalies in Field 3 are less closely tied to the modern field alignment, and there is a greater chance that they might represent ridge and furrow associated with a medieval open field system.

In Fields 1 and 2, the survey has detected 'christmas tree' patterns of linear anomalies, which are diagnostic of field drains. Some other, much weaker anomalies in Field 4 may

also represent field drains, but this a much less certain interpretation. The anomalies are narrow, with weakly alternating polarity, and this would be consistent with ceramic drains. However, they cover a very limited area and are arranged in a rectilinear pattern which would not be a typical one for drains. Thus their true significance remains in doubt.

The line of the Derwent Aquaduct is clearly indicated by three intensely magnetic positive linear anomalies and an associated wide negative halo extending across the north-eastern corner of the survey area. At least two other modern pipes have also been detected, one running northwards through Fields 3 and 4 and another running along the northern edge of Field 4 and turning north-west across the corners of Fields 2 and 3. Another pipe may be present along the western edge of Field 1, and a thin negative linear anomaly in the same area may represent a service trench containing a cable or a plastic pipe. A weak and intermittent linear anomaly that runs through the south of Field 4, linking two large ferrous anomalies, may also represent the line of a non-magnetic (eg plastic or concrete) pipe.

Small dipolar anomalies are scattered at random across the whole survey area, representing generally insignificant pieces of ferrous debris within the topsoil. A few magnetic halos are present at places around the edges of the various fields, where they indicate the presence of adjacent fences, gates and other magnetic objects.

5 CONCLUSION

The survey has identified a low and residual earthwork bank of indeterminate date and function. Its alignment suggests that it may be part of a former field boundary or plough headland, but this is not a certain interpretation. Some ridge and furrow cultivation of either medieval or early post-medieval date has also been detected.

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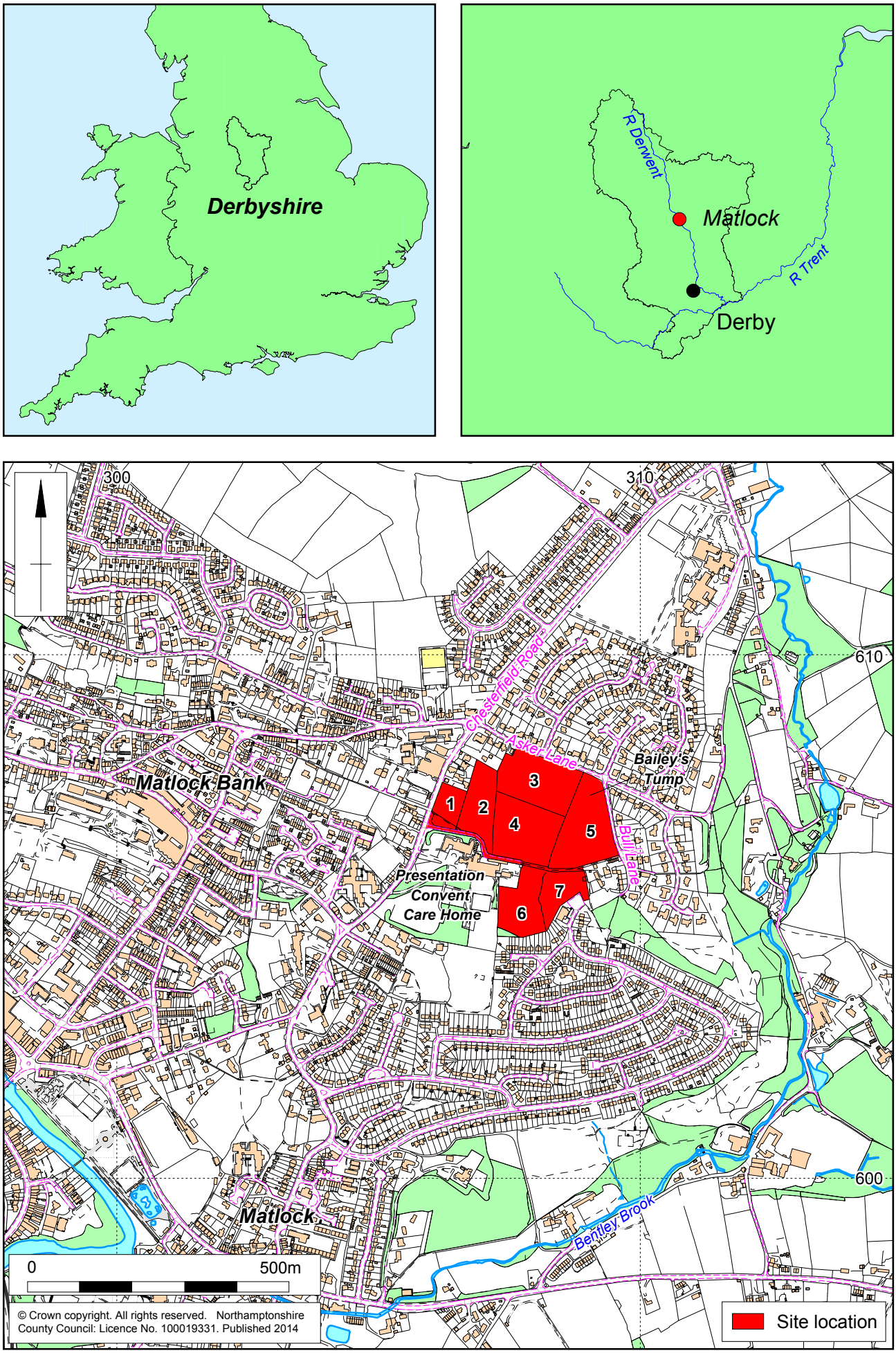
MOLA
25 April 2014

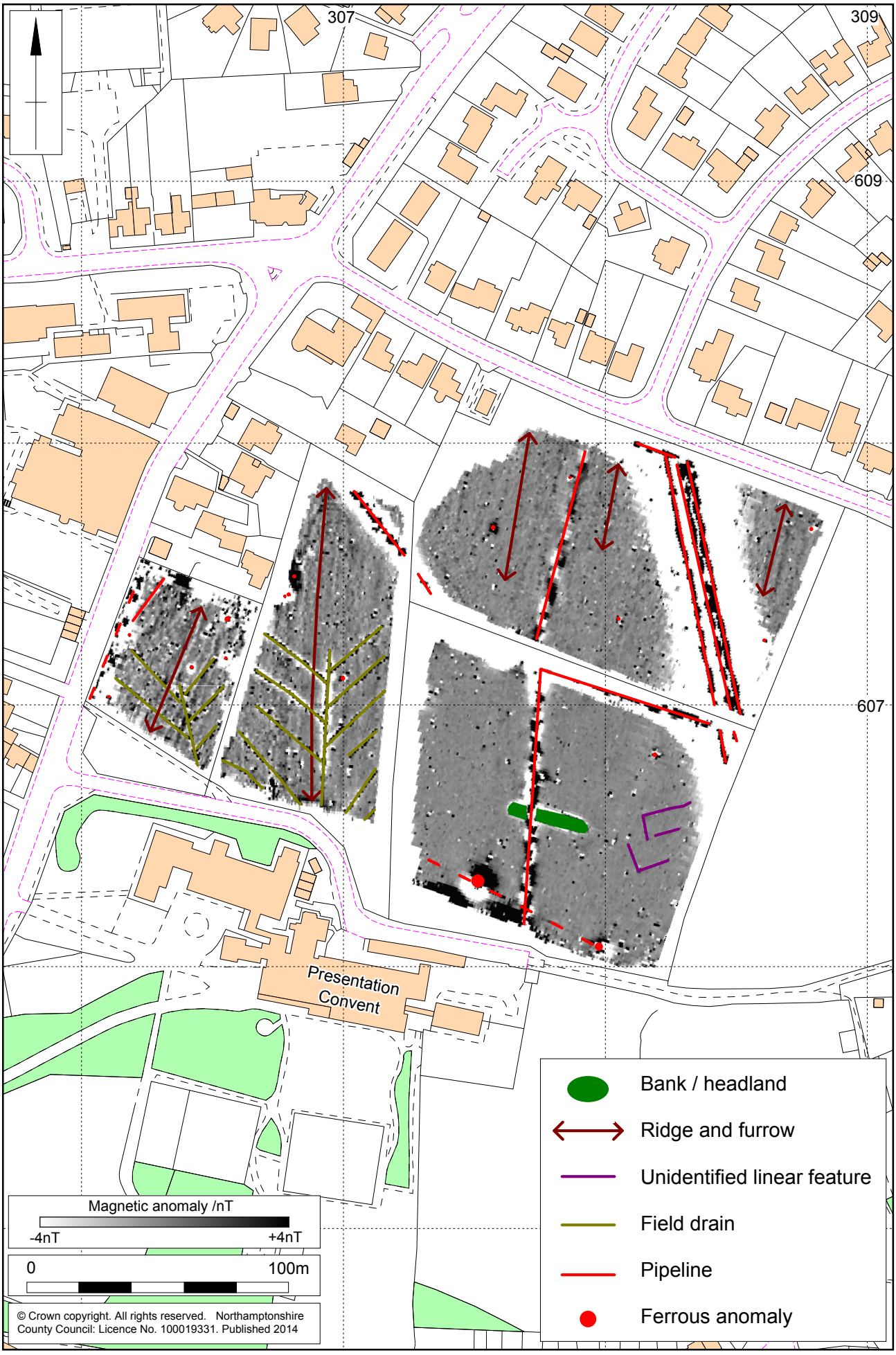


Scale 1:10,000

Site Location Fig 1

1:2000

Magnetometer survey results Fig 2



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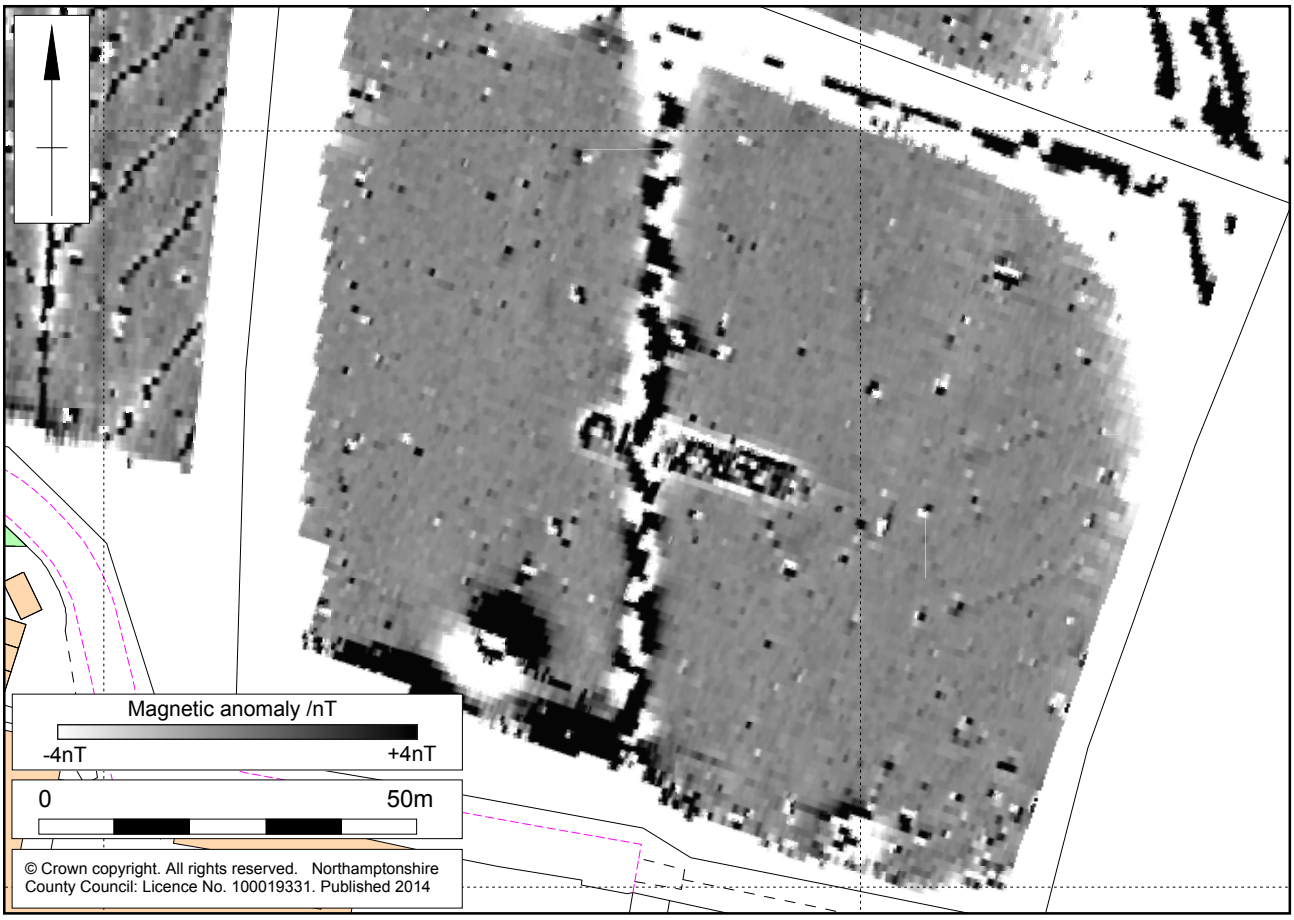
Magnetometer survey interpretation Fig 3



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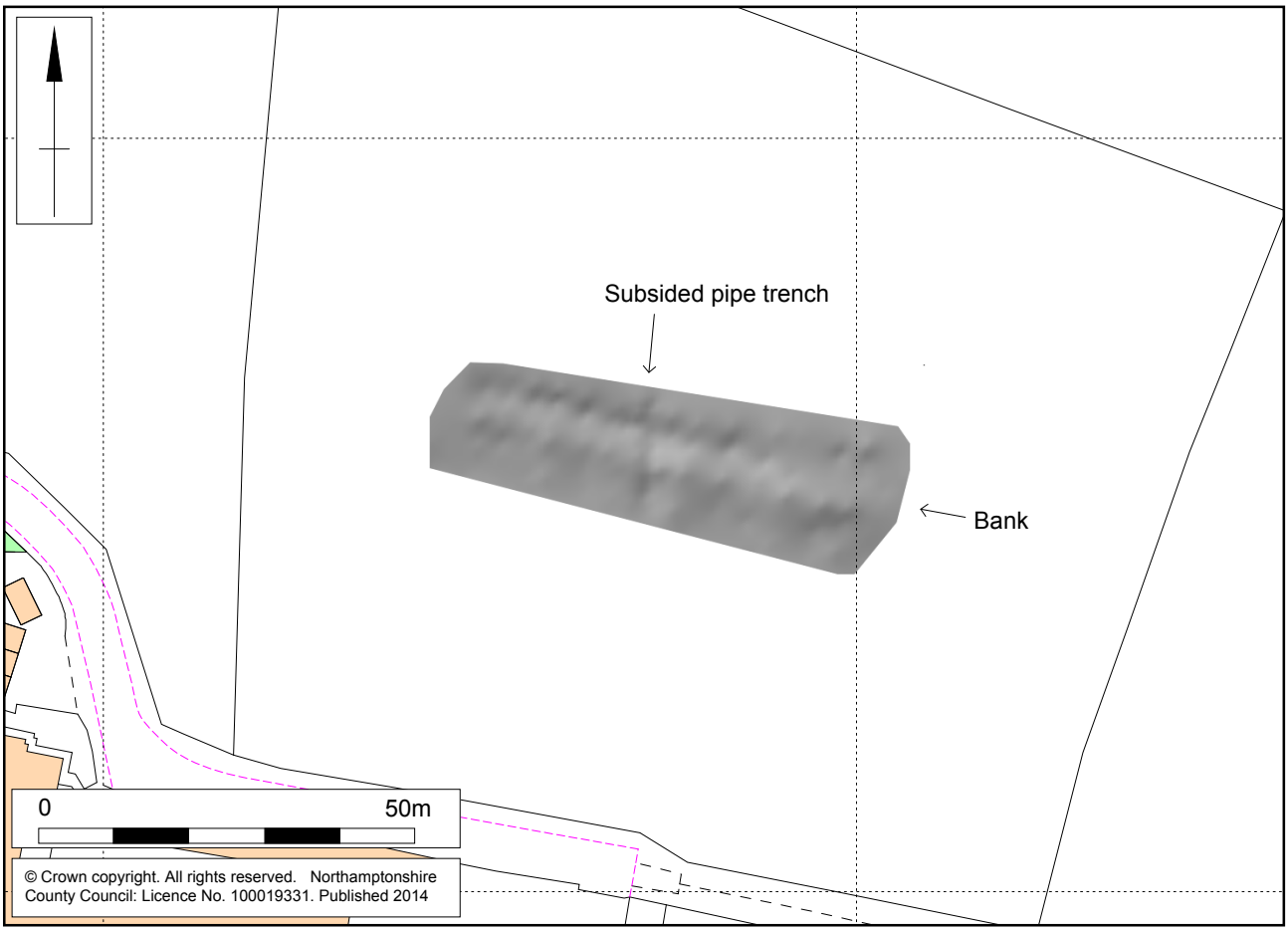

1:1000 Earthwork in Field 4 - magnetic data (top) and topographic plot (bottom) Fig 4

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