



Northamptonshire County Council

Northamptonshire Archaeology

An Archaeological Geophysical Survey

on land at

Broom Leys Farm, Coalville

Leicestershire

September 2009



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September 2009

Report 09/125

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		
Project name	An Archaeological Geophysical Survey of land at Broom Leys Farm, Coalville, Leicestershire	
Short description	Northamptonshire Archaeology was commissioned by CgMs Consulting Ltd to undertake a geophysical survey of land at Broom Leys Farm to the east of Coalville, Leicestershire. The site encompassed an area of approximately 14ha of which 7.76ha was surveyed. A number of positive anomalies were detected in the survey and mainly comprised the remains of ridge and furrow and land drains. A linear positive anomaly, probably a ditch, was recorded in field 5. The south-eastern extent of the area surveyed is likely to have been used as a dumping ground for excess material from coal extraction as indicated by the mixed readings in fields 5 and 6.	
Project type	Geophysical Survey	
Site status	None	
Previous work	Desk-based Assessment (CgMs 2008)	
Current Land use	Pasture	
Future work	Unknown	
Monument type/ period	Medieval ridge and furrow, modern made ground and field drains	
Significant finds	None	
PROJECT LOCATION		
County	Leicestershire	
Site address	Broom Leys Farm, Broom Leys Road, Coalville	
Study area	14ha study area (7.76ha surveyable)	
OS Easting & Northing	443980 314200	
Height OD	160m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator		
Project Design originator		
Director/Supervisor	Carol Simmonds	
Project Manager	Adrian Butler (Northamptonshire Archaeology); Simon Mortimer (CgMs)	
Sponsor or funding body	CgMs Consulting Ltd	
PROJECT DATE		
Start date	September 2009	
End date	September 2009	
ARCHIVES	Location	Content
Physical		
Paper		1 archive box of site survey logs
Digital		1 CD of raw data files, dxf files and digital photographs
BIBLIOGRAPHY		
Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title	An Archaeological Geophysical Survey of land at Broom Leys Farm, Coalville, Leicestershire	
Serial title & volume	09/125	
Author(s)	Carol Simmonds	
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Leicestershire
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Abstract

Northamptonshire Archaeology was commissioned by CgMs Consulting Ltd to undertake a geophysical survey of land at Broom Leys Farm to the east of Coalville, Leicestershire. The site encompassed an area of approximately 14ha of which 7.76ha was surveyed. A number of positive anomalies were detected in the survey and mainly comprised the remains of ridge and furrow and land drains. A linear positive anomaly, probably a ditch, was recorded in field 5. The south-eastern extent of the area surveyed is likely to have been used as a dumping ground for excess material from coal extraction as indicated by the mixed readings in fields 5 and 6.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by CgMs Consulting Ltd, acting under instruction from Davidsons, to undertake a detailed geophysical survey of land at Broom Leys Farm, Coalville, Leicestershire (NGR SK 43980 14200; Fig 1).

The objective of the geophysical survey was to identify the presence or absence of archaeological remains to inform a planning application on land to the east of Coalville. A detailed magnetic gradiometer survey was conducted over 7.76 hectares available from a 14 hectare block (Fig 2). Fieldwork was carried out in September 2009.

2 BACKGROUND

2.1 Topography and Geology

Broom Leys Farm is located 1.25km to the east of Coalville, Leicestershire. The site comprises 14ha of pasture across seven fields and farm buildings, including a livery stable, to the north of Broom Leys Road. The western boundary is defined by Stephenson Way and the northern and eastern boundaries by fencelines and hedges. At the time of survey, the pasture fields were grazed by horses and cattle (Figs 3 and 4) with smaller enclosures for chickens and reindeer. A public right of way follows the eastern boundary of Field 2.

The ground gently undulates from an elevation of 157m aOD to the west rising up to 164m aOD to the east. Although the survey area comprised 14ha, approximately 6ha was not surveyed due to the presence of farm buildings and livestock issues.

The underlying geology of the site comprises Triassic mudstones overlain by glacial tills (BGS GeoIndex).

2.2 Historical

A desk-based assessment conducted in 2008 (CgMs) stated that within the immediate area of the survey (c 500m) there were eight identified sites and findspots. This included two late Neolithic flint artefacts (Leicestershire Historic Environment Record (HER) refs: MLE7325, MLE7326) and the recovery of two late Roman coins (MLE8038, MLE8040). There is a probable Roman road (MLE9876) along the line of the principal street in Coalville. There are no known medieval and post-medieval sites in the area, although by 1610 there are two recorded settlements, Hugglescote and Donington. Aerial photographs indicate remnants of ridge and furrow on land to south of Broom Leys Road at SK 4429 1378 (ADS), although it is not clear which manor or settlement they were part of. The HER does not record any surviving earthworks within the survey area but ridge and furrow strips were noted during the geophysical survey. The clearly defined cultivation strips were generally aligned north to south and were visible in two areas (Fields 4 and 6) to the north and east of Broom Leys Farm (Fig 2).

The modern town of Coalville grew in the mid 19th century after the sinking of a coal mine. In 1883 the Ashby and Nuneaton Joint Railway/Charnwood Forest Railway was opened (MLE16087). It finally closed in the 1960s.

The desk-based assessment concluded that the site had low archaeological potential (CgMs 2008). However, it was stressed that no other works or surveys had been undertaken.

3 METHODOLOGY

Geophysical survey was carried out in accordance with English Heritage and the Institute for Archaeologists Guidelines (EH 2008 and Gaffney, Gater and Ovendon 2002).

The detailed magnetometer survey was undertaken using Bartington Grad601-2 fluxgate gradiometers. The Grad601-2 is constructed as a dual-sensor instrument with two vertical gradiometers separated on a yoke to enable two lines of survey to be recorded in tandem.

The gradiometer coverage was composed of a total of 104 whole and partial 30m x 30m grid-squares as well as 14 whole and partial 20m x 20m grid-squares in Fields 1 and 4. Each survey area was set-out using manual division into grid squares by tape measure and optical square. Each grid square was traversed at rapid walking pace in zigzag mode and magnetic data was recorded every 0.25m along traverses spaced at 1m intervals.

The data was analysed using Geoplot 3.00u software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greytone plots. Minimal manipulation was carried out on the data as the raw data is generally of high quality, ensuring that the data-set is uniform (EH 2008, 41-44). Thermal drift in the four fluxgate sensors may slightly alter the balanced level of the gradiometer over a survey, causing 'heading' errors visible as striping along traverses in the data. The 'Zero Mean Traverse' function was applied in order to bring the average level of each data line into a balanced mean of zero. This function retains the gradient of the magnetic field whilst reducing the mean so that each traverse is directly comparable.

The processed data was examined for weak magnetic anomalies under a variety of viewing regimes. The data is presented here in the form of a grey tone image highlighting a broad magnetic anomaly scale (-10.0nT / +10.0nT) which in turn was rectified to the Ordnance Survey base (Fig 5). Interpretative plots have been generated from the results (Fig 6). Figures have been prepared for each field and are referred to directly in the following section.

4 SURVEY RESULTS

4.1 General comments

The survey, comprising approximately 7.76ha of magnetic gradiometry, produced few major anomalies. The overall background level was relatively consistent, although numerous dipolar anomalies were identified in a random distribution over the site.

4.2 Field 1 (Figs 5 and 6)

Field 1 was a small paddock located immediately north of Broom Leys Road. Nothing of archaeological interest was detected.

4.3 Field 2 (Figs 3, 5 and 6)

Field 2 was located at the western edge of the site and was grazed by horses at the time of survey. A number of items of farming machinery were placed around the field and a mound of modern tarmac and soil was sited near the metal entrance gate. There was a modern tarmac road along the north-eastern edge of the field and this is shown in the results as a noisy magnetic signal.

Aside from the ferrous features (possibly representing buried metal farming debris) and the reflection cast from wire fencing and machinery, the only recorded 'feature' was a probable land drain aligned south-east to north-west.

4.4 Field 3 (Figs 5 and 6)

The background data levels vary in Field 3 with some of the data possibly affected by ploughing. There are a number of ferrous features and the wire fencing forming the northern and western boundaries is reflected in the data. Nothing of archaeological interest was detected.

4.5 Field 4 (Figs 5 and 6)

Field 4 had the visible remains of the ridge and furrow earthworks. It was divided into two by a modern track leading from the farmyard to Fields 5 and 3. Much of the surveyed area had been affected by the reflection cast from electric fencing on the eastern boundary and by farming machinery and a metal shed to the east and south. However, a faint positive anomaly on the same line as one of the earthwork furrows was present and it is therefore suggested that this was a furrow.

4.6 Field 5 (Figs 5 and 6)

Only the western portion of Field 5 was surveyed due to the presence of cattle in the remaining area. A strong positive (c +10nT) anomaly was aligned north-east to south-west and measured approximately 77m long. This was probably a ditch. To the east of this was an area of mixed responses, probably made ground. The general

background for the rest of the area was consistent with a few small areas of ferrous features. There were seven identified linear features, probably land drains orientated on a north-west to south-east alignment. They were regularly spaced at 8m apart.

4.7 Field 6 (Figs 5 and 6)

Field 6 was located to the east of the farm complex and comprised pasture grazed by horses. There was a small post and wire fenced chicken enclosure against the farm buildings and a large enclosure to the east which held reindeer within the field. These two areas were not surveyed. In the western part of the field there was a pond with a pipeline feeding into it. A south-west to north-east aligned pipe was located cutting across the field. An area of ridge and furrow was seen in the data to the south-east. The furrows appeared as positive anomalies (+1 to +5nT) orientated north to south and were evenly spaced at roughly 4m apart.

A substantial area of mixed data was recorded against the northern field boundary. This is similar to the data seen in Field 5 and is likely to represent made ground.

4.8 Field 7

Field 7 was not surveyed due to the presence of a cattle herd.

5 CONCLUSION

Geophysical survey at Broom Leys Farm investigated an area of approximately 7.76ha, much of which produced little anomalous magnetic activity. Evidence for likely medieval and later cultivation was recorded corresponding with surviving earthworks. A single linear ditch was located in Field 5 possibly bounding the area of made ground. The made ground to the north-east of the farm buildings probably occurred when shale was deposited from nearby extraction pits (Jarvis pers comm). It is likely that this covered much of the unsurveyed area to the north of Field 6 and predated the 1960s when the current occupiers moved to the farm.

6 BIBLIOGRAPHY

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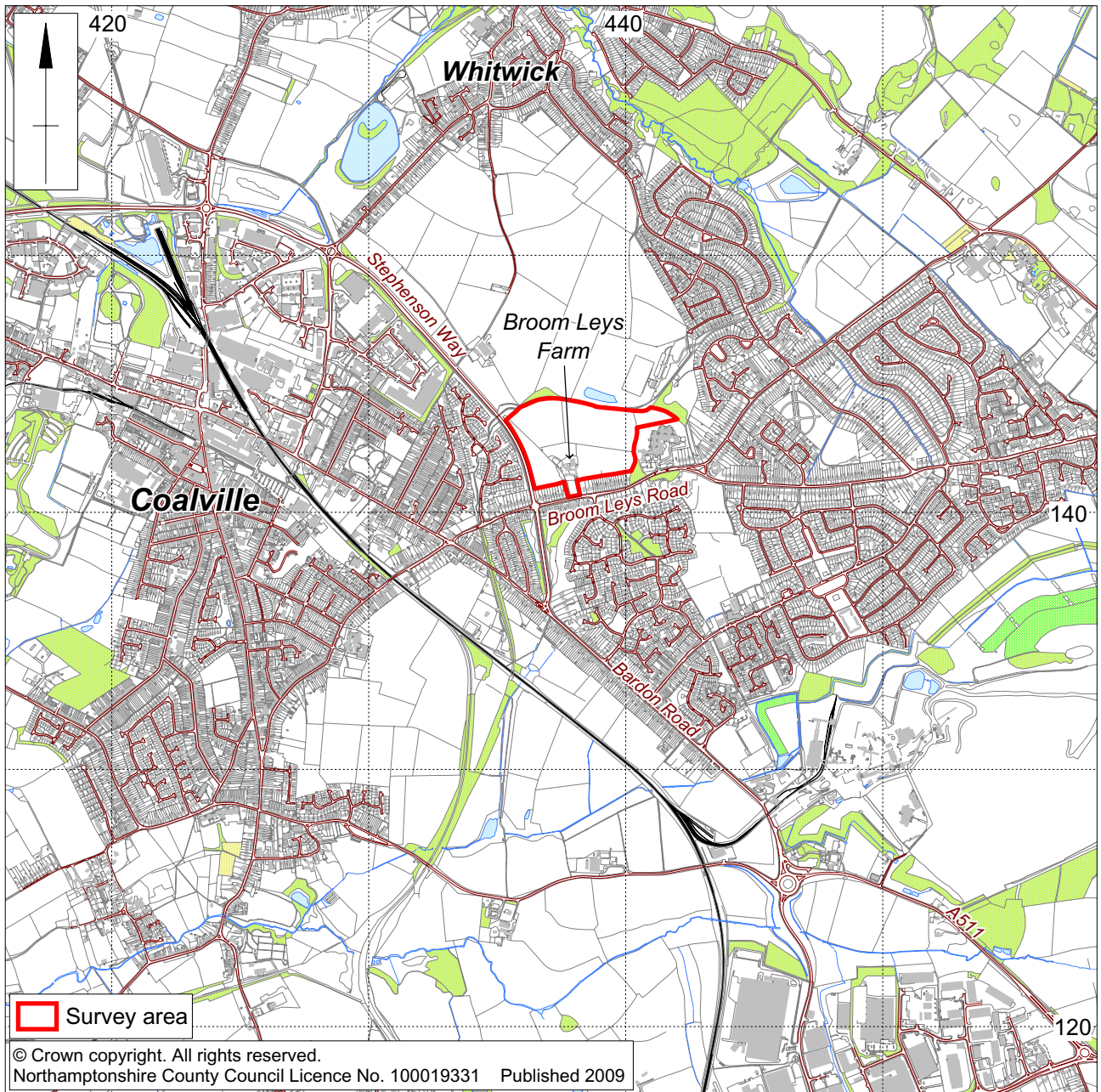
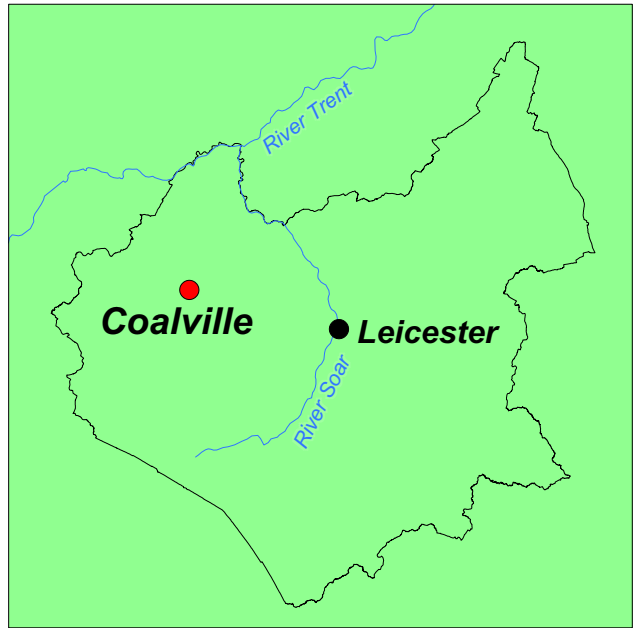
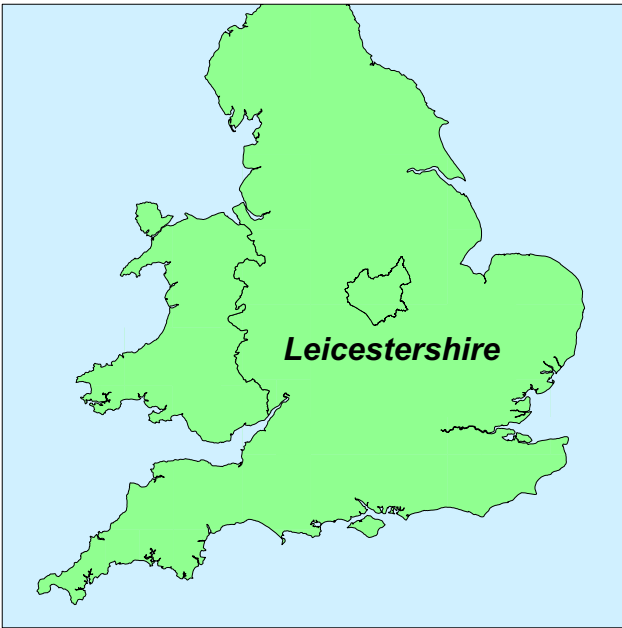
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Archaeological Data Service, <http://ads.ahds.ac.uk>, accessed 09/09



Scale 1:25,000

Survey Location Fig 1

Scale 1:2500

Fields Surveyed

Fig 2

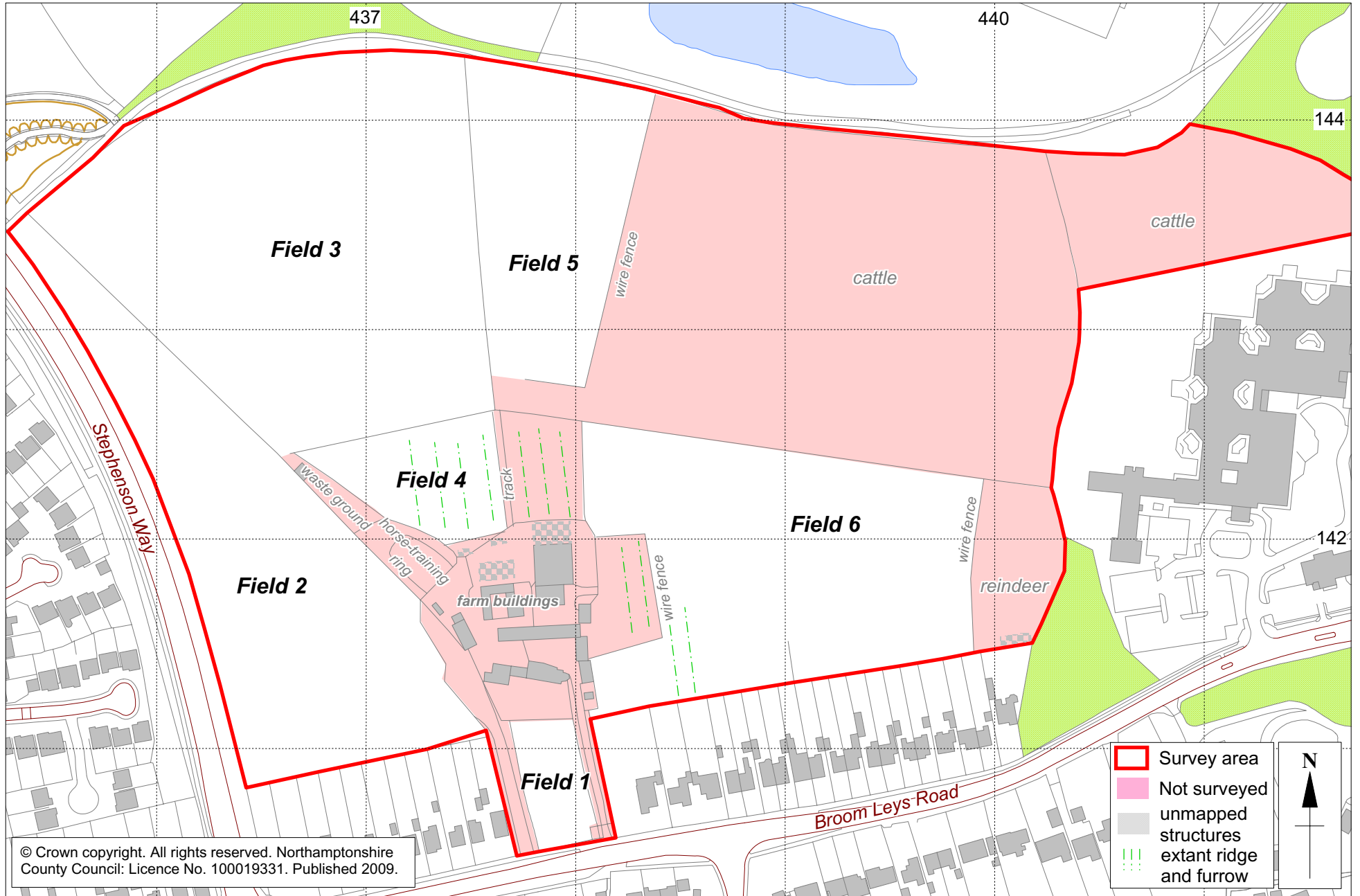




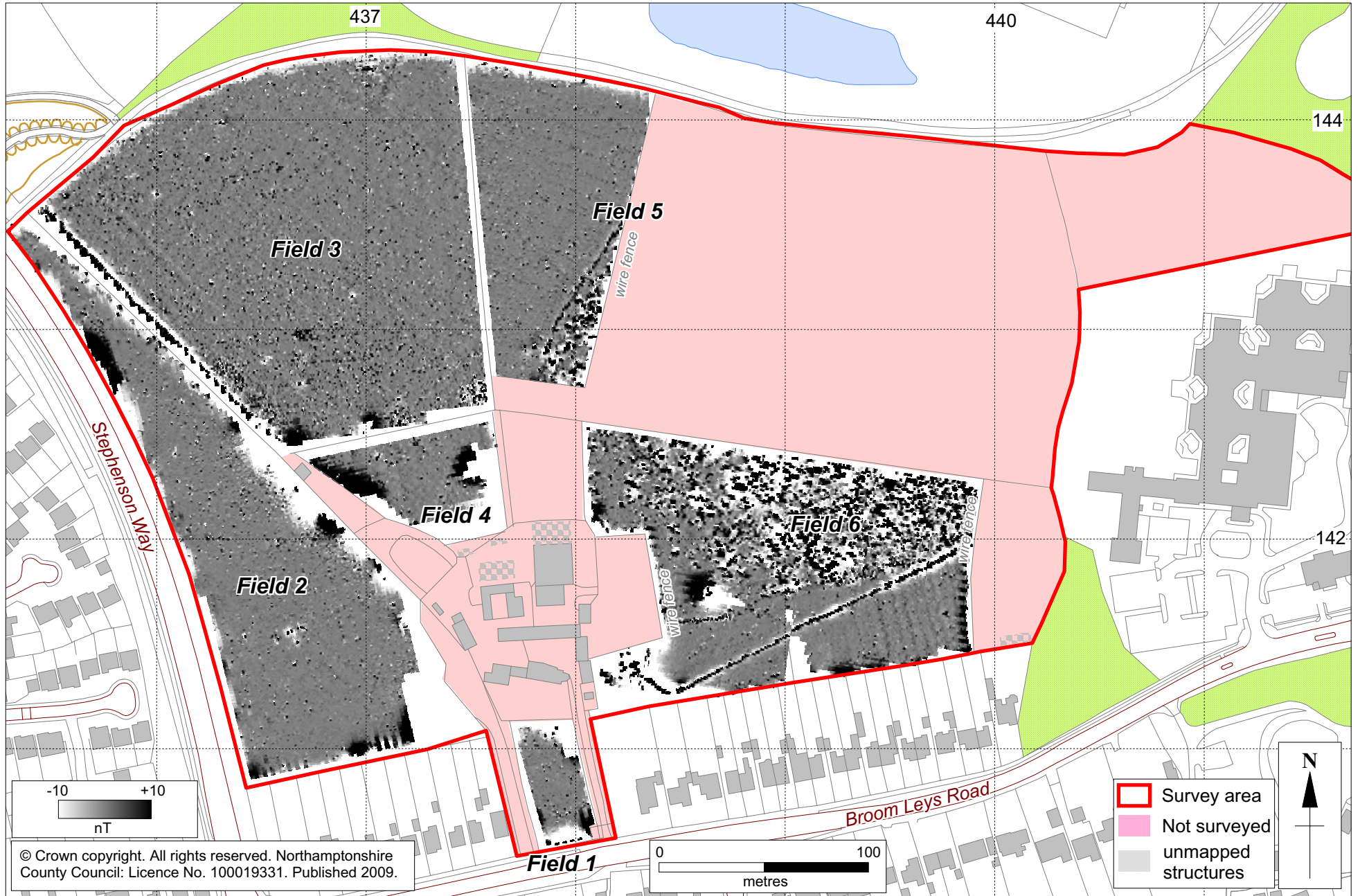
Fig 3: General view of Field 2, looking north-west



Fig 4: General view of the eastern cattle fields, looking south-west towards Broom Leys Farm

Scale 1:2500

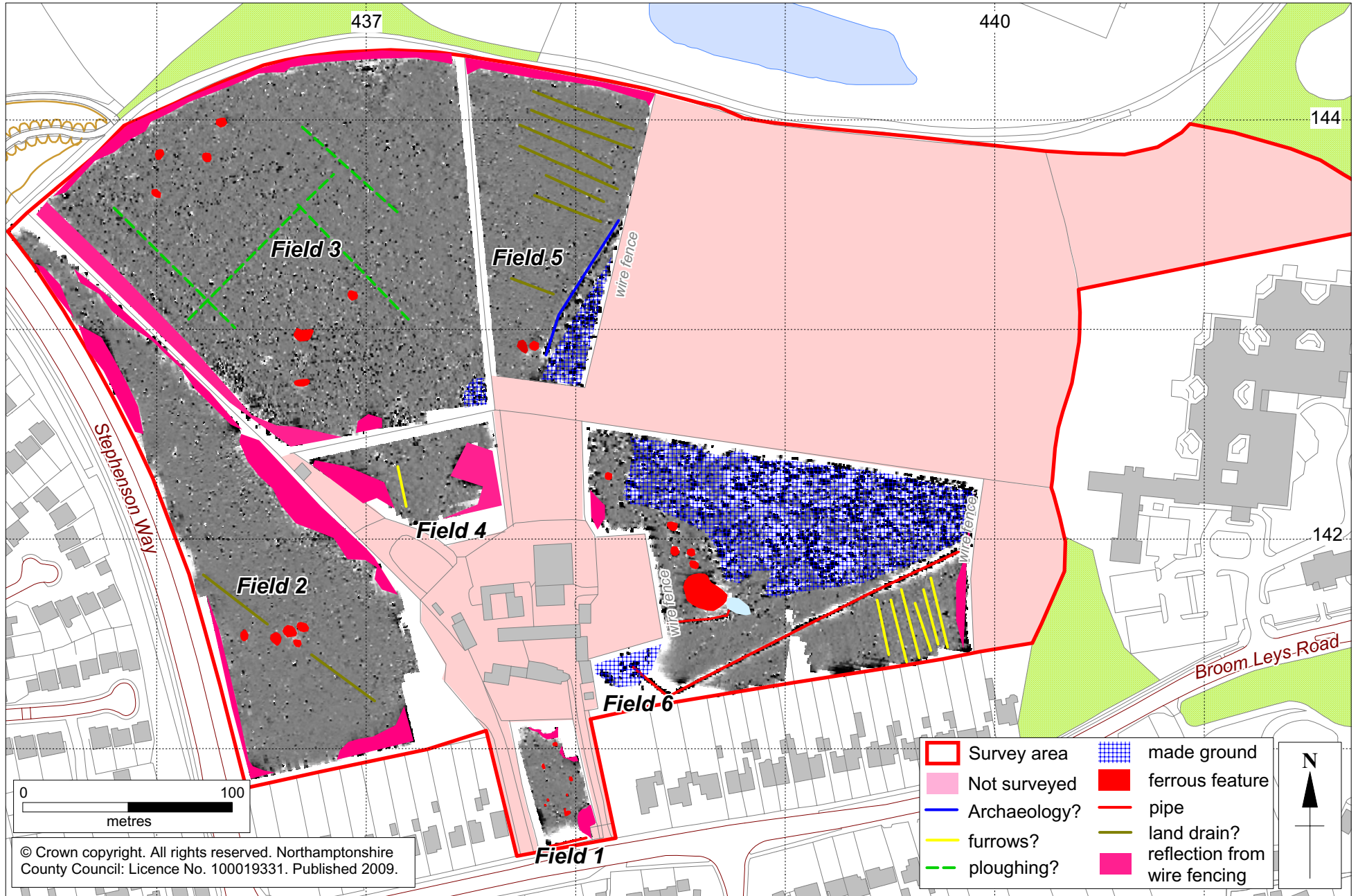
Survey Results, Fields 1 - 6
FIG 5



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Scale 1:2500

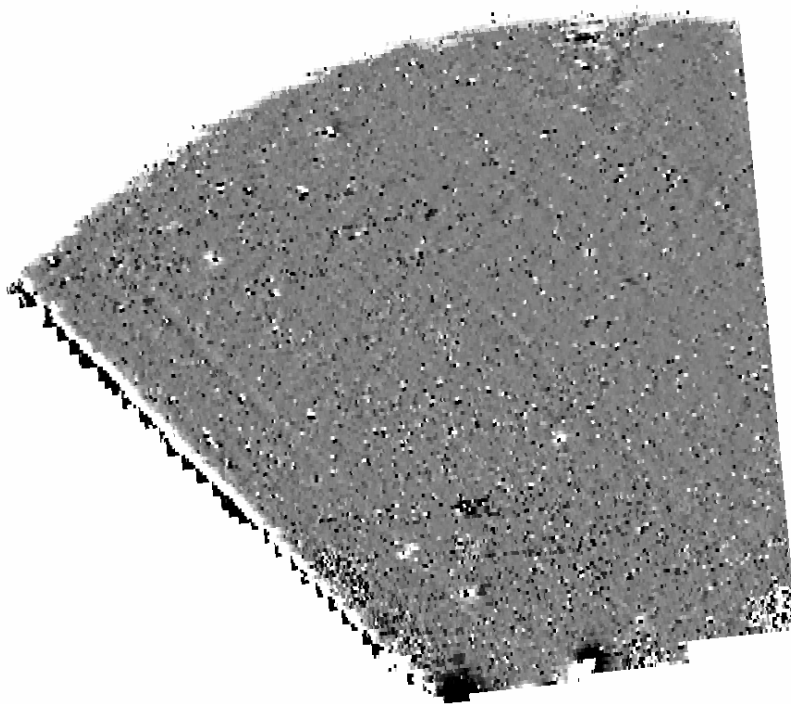
Survey Results & Interpretation, Fields 1-6 Fig 6





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Field 3 plot

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