

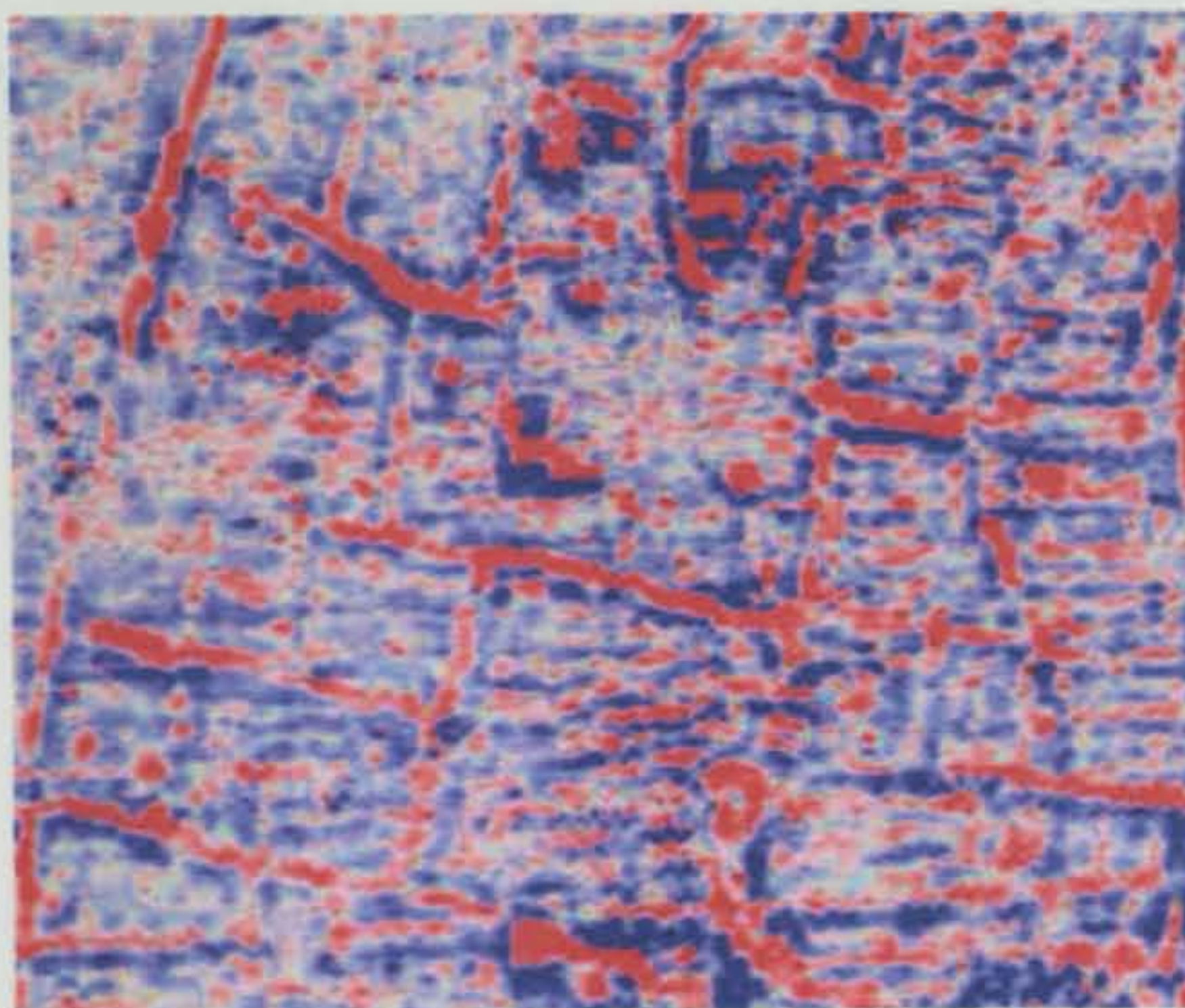
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**Northamptonshire
County Council**

Northamptonshire Archaeology

**A Geophysical Survey of Land South of
the A45, Irchester Roman Town,
Northamptonshire**



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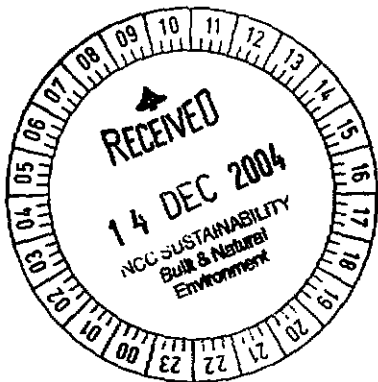
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**A GEOPHYSICAL SURVEY OF LAND SOUTH OF THE A45,
IRCHESTER ROMAN TOWN, NORTHAMPTONSHIRE
NOVEMBER 2004**

ABSTRACT

A detailed geophysical survey was undertaken by Northamptonshire Archaeology on behalf of ProLogis Developments Ltd on land with an area of approximately 8.5 hectares to the south of the A45, at Irchester Roman Town, Northamptonshire. Prospection revealed that the site was divided into two zones. The lower, western zone contained magnetic anomalies which described an apparent north-south orientated road or track, to the east of which were detected a sub-rectangular area of 1.2ha of irregularly gridded ditched enclosures interspersed with pits and four possible ovens or kilns. A putative roundhouse and rectangular building were also detected to the south of the main enclosures. The eastern up-slope zone, was dominated by shallow geological features and quarrying.

1 INTRODUCTION

Northamptonshire Archaeology conducted geophysical surveys on approximately 8.5 hectares of agricultural land to the south of the A45 at Irchester Roman Town, Northamptonshire (NGR SP 266,500; Fig 1). ProLogis Developments Ltd commissioned the work, as part of an Environmental Impact Assessment in advance of a proposal for a scheme to dump excess soil from the Victoria Business Park development. The geophysical survey met the requirements of a Written Scheme of Investigation issued by Northamptonshire Archaeology (NA 2004). The purpose of the work was to identify the extent and nature of any buried archaeological remains. The specific project aim was to determine whether there is any evidence for Iron Age and Roman settlement, associated with the extensive archaeology known to the north-west, that may be buried by the proposed soil dumping on the site.

A second stage of evaluation comprising a fieldwalking survey is planned when the field is ploughed; this work will be reported on separately.

2 TOPOGRAPHY AND GEOLOGY

The site was contained within a single arable field bounded by hedgerows to the north and east, beyond which ran the A45 and Irchester Lane respectively (Fig 1). The southern boundary of the site consisted of a partially hedged fence, the west of the field was bounded by a fenced farm track.

The study area lay on the north-facing slope of the valley of the River Nene. The north-eastern half of the field is relatively flat but there is a pronounced slope approximately 200m along the axis of

the field which falls away to the south-west and then flattens again for the south-western half of the area.

This is a zone of geological complexity. Although the overriding rock types are limestone and ironstone, the cut of valley reveals a number of different strata. Following the Geological Survey of England and Wales Sheet 186 (Wellingborough) and as revealed proceeding down-slope into the valley, the geological series for the area under investigation (working from east to west) are as follows:

Greater Oolite Limestone g7

Upper Esturine Clay g6-7

Upper Esturine Limestone g6-7

Lower Estuarine Series g5

At the time of survey, the field was fallow under crop stubble.

3 **ARCHAEOLOGICAL BACKGROUND**

An archaeological mitigation strategy for the entire Irchester Roman Town area has been undertaken by NA (2004 & 2005) in consultation with Myk Flitcroft of Northamptonshire County Council Historic Environment Team (NCCHET). Early work on the site has been summarised by the Royal Commission on Historic Monuments (RCHME 1979, 91-96: Irchester (7)). The Extensive Urban Survey takes into account more recent work on the margins of the town (Taylor 2000).

The site of the Roman town of Irchester comprises a walled area and the remains of extensive extra-mural settlement, with evidence of late Iron Age and Roman period occupation. The walled area survives largely intact. Detailed evidence of its layout has been revealed by aerial photography. It is considered to be of especial importance as a well-preserved example of a Roman town with an irregular, rather than planned, street layout. Ironstone quarrying to the east and south of the walled town and road improvements to the south have destroyed parts of the extra-mural area but large parts of it still survive. In particular an archaeological evaluation of the area to the west in 1990-1 revealed that the extra-mural settlement extended into this area which now forms one of the largest areas of surviving extra-mural occupation deposits (Dix 1991). Evaluation in this area has revealed that remains show considerable damage by ploughing (NA 2004). Limited investigations to the east and south of the town also show the presence of extra-mural occupation. This work includes a geophysical survey within part of the present study area (Masters 1997), which has now been superceded by the present wider and more detailed study.

Taylor (2000) suggests that the principal north-south Roman road passes east of the walled town

and through the study area, a hypothesis which was found to have some foundation in the present results (see below).

4 METHODOLOGY

Previous research (Clark 1996) has shown that fired, or cut and backfilled archaeological features such as kilns and hearths, ditches and pits often have an anomalously higher magnetic susceptibility than the surrounding subsoil due to burning and biological processes. Differences in magnetic susceptibility within the subsoil and archaeological features can be detected as changing magnetic flux by an instrument such as a magnetometer (fluxgate gradiometer). Data from this may be mapped at closely spaced regular intervals, to produce an image which may be interpreted to locate buried archaeological features.

The detailed survey was undertaken using Geoscan Research FM36 and FM256 Fluxgate Gradiometers. All fieldwork was in accordance with English Heritage and Institute of Field Archaeologists Guidelines (EH 1995; Gaffney, Gater et al 2002).

The site was divided into separate 30m x 30m grid-squares each of which were surveyed in detail. Each grid-square was traversed at rapid walking pace via zigzag traverses spaced at 1m intervals. An automatic sample trigger recorded readings every 0.25m along the traverse.

The data were analysed using Geoplot 3.00p software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greyscale plot. The 'Zero Mean Traverse' algorithm was used in order to 'smooth' the variation between individual grid-squares. The data were processed using an algorithm to remove magnetic spikes, thereby reducing extreme readings sometimes caused by stray iron fragments and spurious effects due to the inherent magnetism of soils. The 'raw' geophysical data is presented as a greyscale and stacked trace plot in Figure 4.

5 SURVEY RESULTS

The results of the gradiometer survey are discussed below and are presented graphically as Figures 2 and 3. The interpretative diagram has been coded in colour so that anomalies relating to likely geology are in light blue, cut and filled archaeological features (pits, ditches) in blue, fired features in orange, possible masonry in green and modern interference in red (Fig 3). To aid interpretation, a drawing of the known archaeology of Irchester Roman Town has been georeferenced and overlaid onto the modern map in both Figs 2 and 3 (RCHME 1979, fig 89, 93).

Weak positive magnetic banding, certain to reflect medieval ridge-and-furrow cultivation, was detected orientated generally north-west – south-east across the entire site. It is noticeable that the

ploughing trend shifts orientation further to the south-west the further down-slope and more westerly it becomes.

In the east of the survey area the detection of an irregular area of approximately 1ha of weak magnetic enhancement is likely to be caused by geological strata located close to the ground surface (Fig 3, A). This interpretation is further reinforced by in-the-field probing of the ground in this vicinity, where rock was apparently reached with marker canes at a depth of up to c300mm. On the south-eastern limb of the geological anomaly a series of positive curvilinear anomalies correspond with the topographic bowl in the field and may represent quarrying (B). A number of more discrete 'pit-like' positive anomalies detected in the eastern corner would also appear to be small-scale quarry pits.

A long sinuous, weakly positive anomaly (C) orientated south-west from the northern corner of the field also appears to be geological in nature, (c.f. Geological Survey (*ibid*), this may indicate the change from Upper Estuarine limestone to Lower Estuarine Series).

West of the geological anomalies were linear and 'U'-shaped positive anomalies orientated north-west, close to the change of slope where the field falls away to the west (Fig 3, D). These are thought likely to reflect a small ditched enclosure and associated length of ditch.

The majority of potentially archaeological anomalies were detected at the base of the slope. These are dominated by a pair of positive, roughly linear anomalies running parallel north-west to south-east across the site an average of 10m apart. It is postulated that these probably represent the flanking ditches of a Roman period road or trackway, and coincide with the line suggested in the Extensive Urban Survey (Taylor 2000).

To the east of the track a sub-rectangular area of complex magnetic anomalies measuring approximately 1.2ha was detected, apparently bounded to the east and south by a ditch beyond which there appears to be a paucity of activity. Although the total number of anomalies are too numerous to describe individually, the area was filled with an irregular grid pattern of positive linear anomalies reflecting ditched enclosures, which can be seen clearly in the northern half of the area (Fig 3, E). Near the northern boundary of the area a wide curving positive anomaly may represent an arm of a ditched enclosure (F). Central to the area were four intense positive anomalies (G) which may reflect buried fired remains such as ovens or kilns, suggesting perhaps some industrial activity. The nearby ditches were also of enhanced magnetic intensity, perhaps supporting this hypothesis. Within this central area of activity generally fewer ditch anomalies were detected and a greater number of more discrete pit-type features, although the general gridded trend is still visible.

At the southern tip of the enclosures, adjacent to the possible track, a circular set of positive anomalies may represent the ring gully and other internal and structural features of an Iron Age or

Roman round house (Fig 3, H). A 10m long rectangular positive anomaly was detected close to the southern boundary, outside the enclosures (I). This bears a morphological resemblance to a number of the buildings within the Roman town and could be a reflection of either local magnetic masonry, or robbed-out foundation trenches.

In the west corner of the field a north-east orientated negative magnetic linear anomaly was detected (Fig 3, J). Such anomalies frequently represent masonry that is less magnetic than the surrounding subsoil or similarly a stone-built 'French Drain' such as is common in this area (Parry, S, pers comm). Also in this area were several positive linear anomalies, reflecting similarly aligned ditches. As a group they appear to be co-axial to the major road/track feature and similarly aligned to several linear features excavated along the line of the A45 in 1962-3. (RCHME 1979, 93). A single positive linear anomaly was detected which extended from the west of the survey area for at least 420m north-east, across the entire area. This would generally be interpreted as ditch-type feature, but appears not to respect anything other than the general axis of the field and so could possibly be interpreted as the narrow trench for a small-bore pipe of no significant magnetic anomaly.

Survey closer to the north-western field boundary was constrained by both the thickness of the hedging in places and sporadic large magnetic anomalies caused by traffic passing on the A45 to the north.

6 CONCLUSION

Approximately 8.5ha of detailed gradiometer survey south of the A45 at Irchester Roman Town has revealed a site divided into two major zones. The eastern half, based higher on a plateau, is apparently dominated by shallow geological variation of the local rock strata in the valley side.

On the west side of the study area a north-south orientated road or track has been identified. It is possible that this may constitute part of the lost 'Roman Road 170, Dungee Corner to Irchester', the line of which is not visible between Irchester village and the Roman town (RCHME, 95). Co-axial to the east of the road feature was a discrete 1.2ha sub-rectangular area of irregularly gridded ditched enclosures, presumably Romano settlement activity related to the nearby town (80m north-west). Central to the enclosures were four possible oven or kiln anomalies, perhaps indicating industrial activity. Two likely buildings were identified – a roundhouse at the southern edge of the enclosures and a possible rectangular building close to the southern edge of the field. The morphology of a possible curved enclosure and the complexity of ditched and pitted features especially in the south of the area suggest that this was likely to have been a multi-phase area of occupation.

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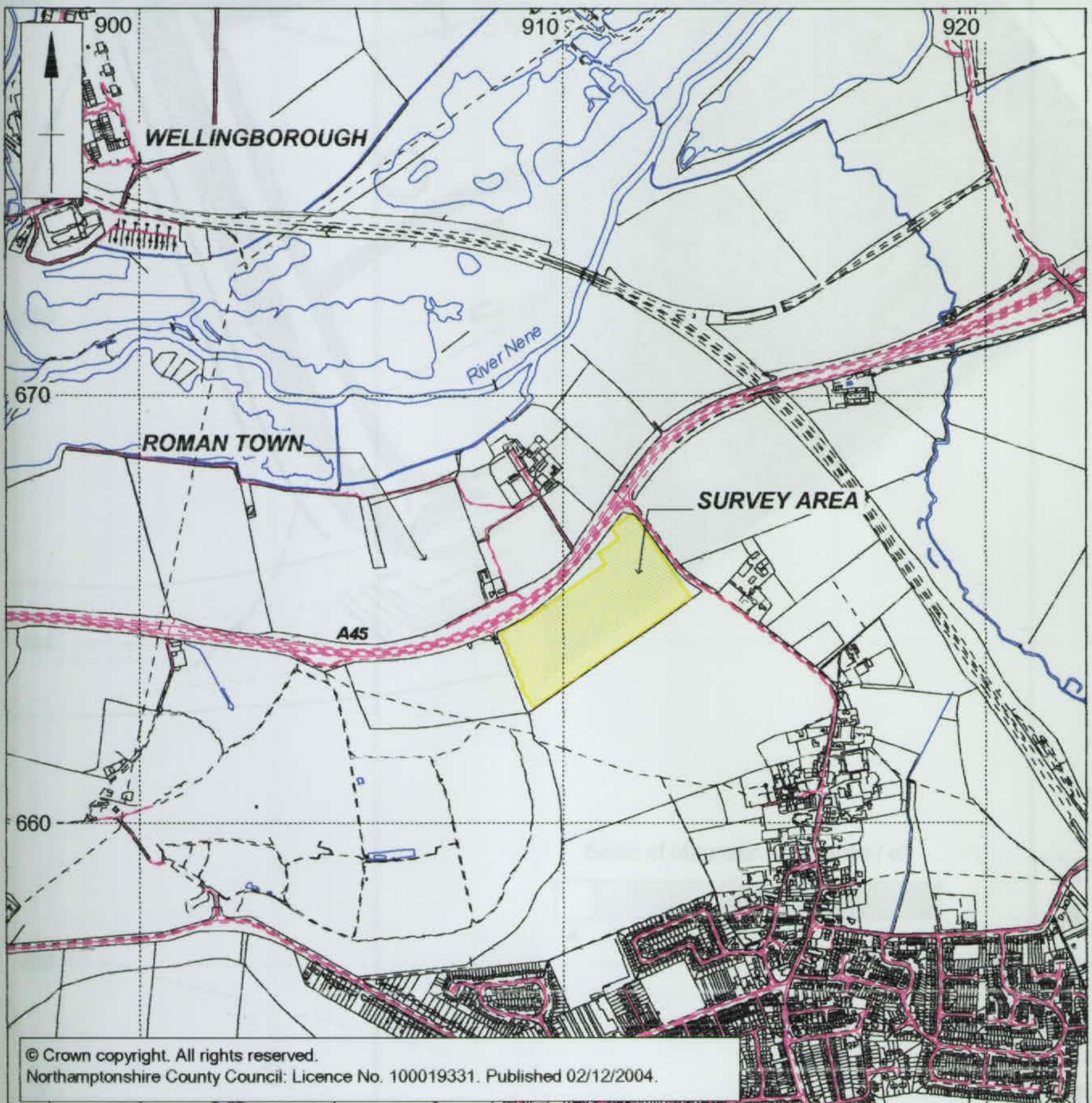
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Scale 1:15,000

Fig. 1



Figure 2: Gradiometer Survey Results



Figure 3: Gradiometer Survey Interpretation

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