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Our Ref: RAJS/22638

27th April 2017

Dear Mr. Baker-Adams,

This letter is in response to Historic England's letter of the 1st December 2016 which outlines their objection to the proposed residential development at Back Lane, Long Clawson, Leicestershire (16/00709/OUT).

Historic England's response describes how the Scheduled moated site formed an integral part of the administration of Long Clawson during the Medieval period, especially when conjoined with the Grade II* listed manor house and Grade II* listed Church of Remigius. Our desk-based assessment (DBA) acknowledges the significance of the Scheduled Monument and its historic association with the village. The DBA also makes it clear that the proposed development will have no direct, physical impact on the Scheduled remains; nor will it affect the relationship between the three designated assets. The DBA also acknowledges that the field containing the Scheduled Monument contains non-designated earthworks also likely to be of a Medieval origin; again, the proposed development on the application site will not impact these remains.

The significance of the Scheduled Monument is clearly described by Historic England (HE) in their "Reasons for Designation" contained in their List Entry description (https://www.historicengland.org.uk/listing/the-list/list-entry/1012560 (accessed on the 8th December 2016) which states:

"The moated site at Long Clawson has historical connections with an important Leicestershire family and is believed to be the site of the manor house. The moat island is essentially well preserved and has considerable potential for the survival of original buildings within its raised interior."

Historic England therefore describes the core significance of the Scheduled Monument as relating to:

- 1. Its association with an important local family
- 2. The good level of preservation of its earthwork remains
- 3. The potential for the survival of further archaeological remains within its raised interior.

Our desk-based assessment acknowledges these key aspects of the monument's significance and confirms that the proposed development within the application site would have no impact upon them.

The DBA goes one step further than the HE List Entry by defining and assessing the setting of the Scheduled Monument. This assessment is undertaken in accordance with the guidelines produced by HE. HE's response does not include a setting assessment; however they do mention the relationship between the Scheduled Monument and the local landscape. Our DBA establishes the setting of the Scheduled Monument as primarily relating to the open pasture field in which it is located; this field contains settlement earthworks likely to be related to the monument itself, and is also the place from where the monument can be appreciated. We also acknowledge that, as a place of administration, the monument has a wider setting comprising the local landscape. The application site therefore forms a very small part of that wider setting and makes only a very small contribution to the monument's significance.

In their letter HE state that "the height of the hedge around the development is not of particular relevance". This is incorrect as the Planning Practice Guidance makes it clear that setting is "the surroundings in which an asset is experienced" (note the use of present tense). The height of the hedge around the application site naturally affects the way the Scheduled Monument is experienced and is therefore relevant. The application site has since been

visited in March 2017 to assess later winter views. This site visit confirmed that, even during the winter when hedge growth is limited, there are no direct views of the Scheduled Monument from within the application site; furthermore the hedge around the monument had recently been cut back, and views were still screened. The site visit also confirmed that the interior of the site is screened by its hedges when viewed from land close to the Scheduled Monument, such as the church and along Sand Pit Lane/Back Lane and Church Lane. The March 2017 site visit also confirmed that the Scheduled Monument and its relationship with the church and Manor is best appreciated looking north-west from Back Lane or looking south-west from Church Lane; in both instances looking away from, and not toward, the application site (see Plates 1-6).

The main concern in HE's response relates to the loss of the Medieval ridge and furrow cultivation, present within the application site, which they say contributes to the significance of the Scheduled Monument. This ridge and furrow cultivation is assessed in our DBA against the attributes used by HE's "Turning the Plough." The DBA notes that the application site is not included in HE's areas of significant ridge and furrow and that, due to its level of preservation and isolated nature, it is not of high significance. The contribution of the application site's ridge and furrow to the monument's significance is assessed in the DBA and found to be negligible. Furthermore, it is noted that surrounding surviving agricultural activity is not mentioned in HE's own "Reasons for Designation" as described in the List Entry.

Our DBA makes it clear that the proposed development will have no impact on the core significance of the Scheduled Monument as defined by Historic England. The presence of the application site within the monument's wider setting, and the presence of Medieval ridge and furrow is acknowledged and assessed in the report. However, this wider setting and the associated ridge and furrow are considered to be of secondary significance when compared to the monument's physical earthwork remains and immediate setting. Therefore, we stand by the conclusion that the proposed development will result in no more than minor harm to the significance of the Scheduled Monument.

The DBA concludes that any archaeological remains on the application site are likely to be of no more than regional significance. This is partly related to the disturbance of such remains through the Medieval agricultural activity; however it is also noted that any settlement remains related to the monument are likely to be located beyond the site to the north of Back Lane. Back Lanes are known to commonly represent the boundary between a Medieval settlement and its agricultural hinterland, and the presence of Medieval cultivation activity on the application site, combined with cartographic evidence, strongly suggests that this is the case at Long Clawson. A geophysical survey (Stratascan 2016, included) has been carried out over the application site. The survey results show no evidence of features that can be confidently attributed as being archaeological in origin, other than the presence of the known ridge and furrow; the geophysical survey report states that "No probable archaeology has been identified within the survey area". Therefore, there is no evidence for nationally significant archaeological remains on the application site.

It is therefore our opinion that, based on current evidence, there is no archaeological reason to preclude development on the application site. Historic England's objection is not considered to be reasonable in light of the evidence provided by the DBA, geophysical survey and this letter.

Yours Sincerely

Richard Smalley BA (Hons) MCIfA

Associate Director, CgMs Consulting.



Plate 1: Looking towards the Scheduled Monument from within the Site



Plate 3: Looking east along Back Lane towards the Site



Plate 2: Looking towards the Scheduled Monument from the Site's northern boundary. Monument screened by hedgerows



Plate 4: Looking east over the Scheduled Monument towards the site from St Remigius' Churchyard. Site screened by hedgerows

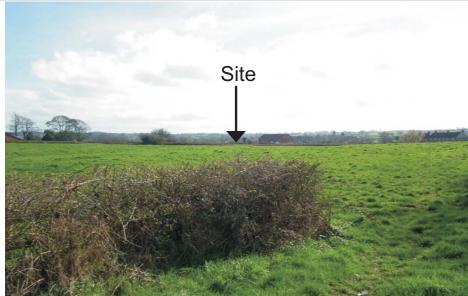


Plate 5: Looking south-east over the Scheduled Monument from Church Lane. Site screened by hedgerows



Plate 6: Photograph of the Scheduled Monument demonstrating that the earthworks are best appreciated when viewed looking to the south-west, i.e. away from the site



Project name: Land off Back Lane, Long Clawson, Leicestershire

Client: CgMs Consulting

Job ref: **J10603**

December 2016

GEOPHYSICAL SURVEY REPORT

Project name:	Job ref:	
Land off Back Lane, Long Clawson,	J10603	
Leicestershire		
Client:		
CgMs Consulting		
Survey date:	Report date:	
29 November	December 2016	
Field team:	Project Manager:	
Robert Knight BA	Simon Haddrell BEng(Hons) AMBCS PCIFA	
Olivier Vansassenbrouck MSc		
Report written by:	Report approved by:	
Dr John Gater MCIFA FSA	Simon Haddrell Beng(Hons) AMBCS PCIFA	
CAD illustrations by:	Site Director:	
Rebecca Davies BSc (Hons)	Dr John Gater MCIFA FSA	
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V1 15/12/16		

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Job ref: **J10603**

Date: December 2016

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1 **SUMMARY OF RESULTS**

Apart from recording the medieval ridge and furrow cultivation patterns, the survey has identified a few magnetic responses which, because of their close proximity to known earthworks, have been earmarked as being of possible archaeological interest.

2 **INTRODUCTION**

2.1 Background synopsis

Stratascan were commissioned to undertake a geophysical survey of an area outlined for residential development. This survey forms part of an archaeological investigation being undertaken by CgMs Consulting on behalf of Marrons Planning.

2.2 Site Details

NGR / Postcode	SK 724 272 / LE14 4PB	
NGK / POSICOGE	3N 724 272 / LE14 4FB	
Location	The site lies between Keyworth and Melton Mowbray in the centre of the village of Long Clawson. One field was investigated; it is bounded by Back Lane to the north and west, by a Village Hall to the south and agricultural fields to the east.	
HER/SMR	Leicestershire	
District	Melton Mowbray	
Parish	Clawson, Hose and Harby CP	
Topography	Undulating	
Current Land Use	Pasture	
Weather Conditions	Dry, clear	
Soils	The overlying soils are known as Denchworth which are typical pelostagnogley soils. These consist of clayey soils with similar fine loamy over clayey soils (Soil Survey of England and Wales, Sheet 3 Midland and Western England).	
Geology	The underlying geology is Brandon Sandstone Bed - sandstone. There is no drift geology on record (British Geological Survey website).	
Archaeology	The site is believed to have moderate-high potential for Saxon remains and moderate potential for Romano British archaeology. The site has extant medieval ridge and furrow cultivation (CgMs 2016).	
Survey Methods	Detailed magnetic survey (fluxgate gradiometry)	
Study Area	c. 1 hectare	

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2.3 Aims and objectives

To locate and characterise any anomalies of possible archaeological interest within the study area.

3 METHODS, PROCESSING & PRESENTATION

3.1 Standards & Guidance

This report and all fieldwork have been conducted in accordance with the latest guidance documents issued by Historic England (2008) and the Chartered Institute for Archaeologists (2002 & 2014).

Stratascan Ltd are a Registered Organisation with the CIfA and are committed to upholding its policies and standards.

3.2 Survey methods

Due to the moderate-high potential for Saxon remains, detailed magnetic survey was used as an efficient and effective method of locating archaeological anomalies.

More information regarding this technique is included in Appendix A.

3.3 Processing

The following schedule shows the basic processing carried out on the data used in this report:

- 1. De-stripe
- 2. De-stagger

3.4 Presentation of results and interpretation

The presentation of the data for each site involves a plot of the minimally processed data as a greyscale plot and a colour plot showing extreme magnetic values. Magnetic anomalies have been identified and plotted onto the 'Interpretation of Anomalies' drawing.

When interpreting the results several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to very specific known features documented in other sources, this is done (for example: Abbey Wall, Roman Road). For the generic categories levels of confidence are indicated, for example: probable, or possible archaeology. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification "possible".

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RESULTS 4

The detailed magnetic gradiometer survey conducted at Long Clawson has identified a number of anomalies that have been characterised as being of possible archaeological origin.

4.1 Probable Archaeology

No probable archaeology has been identified within the survey area.

4.2 Possible Archaeology

Several anomalies at the northern end of the field are interpreted as having archaeological potential. However, this interpretation is based largely on the location of the responses with respect to the adjacent field, where there are earthworks associated with a former moated site linked to St Remigius' Church. It is possible that some of the earthworks originally extended into the survey field and the magnetic responses mark the remnants of these features. Although the ridge and furrow cultivation ploughing (see 4.3 below) appears to stop short of these features, the magnetic responses are poorly defined; it is difficult to interpret the chronological relationship between the features and the ploughing. The magnetic responses could reflect denuded banks of magnetic material or cut features, such as ditches, or a combination of the two.

4.3 Medieval/Post-Medieval Agriculture

The major part of the field is dominated by broadly-spaced, parallel curving anomalies which clearly equate with the partially extant medieval ridge and furrow cultivation. There are no subdivisions of the field, such as former field boundaries, though (as said above) it is difficult to determine if the ploughing respects the anomalies in 4.2 or whether it post-dates the features. Given the extensive ploughing, it should be borne in mind that more ephemeral archaeological features below the cultivation levels may not have been detected.

4.4 Other Anomalies

A weak linear trend in the north of the area is of uncertain origin. It is possible that this is related to some form of agricultural activity, though a possible archaeological origin cannot be ruled out.

Areas of magnetic disturbance and ferrous-type responses at the survey edges are the result of metal fences or material spread at the field edges. Magnetic 'spikes' in the data reflect ferrous metal objects, or perhaps fragments of brick and tile. Such responses are usually modern in origin.

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5 **DATA APPRAISAL & CONFIDENCE ASSESSMENT**

Sandstones are generally classed as poor but variable for magnetic survey. In this instance the detection of the ridge and furrow and other potential archaeological responses, indicates that the magnetic survey is providing a reasonable picture of the buried features. However, the ploughing could mask deeper, more ephemeral archaeological anomalies.

CONCLUSION 6

The survey at Long Clawson has mapped the ridge and furrow cultivation patterns and has identified a few anomalies of possible archaeological interest in the north. Without the evidence of earthworks in the adjacent field, such magnetic responses would not normally have been highlighted as having archaeological potential; as such their interpretation is tentative.

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7 REFERENCES

British Geological Survey, n.d., website: (http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps) Geology of Britain viewer. [Accessed 14/12/2016]

CgMs 2016. Land off Back Lane, Long Clawson, Leicestershire, Archaeological Desk Based Assessment, RAJS/22638, CgMs Consulting Ltd, unpublished report.

Chartered Institute for Archaeologists. *Standard and Guidance for Archaeological Geophysical Survey*. (http://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics 1.pdf)

English Heritage, 2008. Geophysical Survey in Archaeological Field Evaluation.

IfA 2002. The Use of Geophysical Techniques in Archaeological Evaluations, IFA Paper No 6, C. Gaffney, J. Gater and S. Ovenden. Institute for Archaeology, Reading

Soil Survey of England and Wales, 1983. Soils of England and Wales, Sheet 3 Midland and Western England

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Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1m	0.25m

Instrumentation: Bartington Grad601-2

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted vertically, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths. The Bartington instrument can collect two lines of data per traverse with gradiometer units mounted laterally with a separation of 1.0m.

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each site survey, data is transferred to the office for processing and presentation.

Data Processing

Zero Mean Traverse **Step Correction** (Destagger)

This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set. When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/ Colourscale Plot This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

Interpretation Categories

Geophysical Survey Report

Burnt-Fired

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In certain circumstances (usually when there is corroborative evidence from desk based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall*, etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

Archaeology/Probable This term is used when the form, nature and pattern of the response are clearly or very

Archaeology probably archaeological and /or if corroborative evidence is available. These anomalies,

whilst considered anthropogenic, could be of any age.

Possible Archaeology These anomalies exhibit either weak signal strength and / or poor definition, or form

incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection

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orientation.

Industrial / Strong magnetic anomalies that, due to their shape and form or the context in which they

are found, suggest the presence of kilns, ovens, corn dryers, metal- working areas or hearths. It should be noted that in many instances modern ferrous material can produce

similar magnetic anomalies.

Former Field Boundary Anomalies that correspond to former boundaries indicated on historic mapping, or which

(probable & possible) are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly

displays all the characteristics of a field boundary.

Ridge & Furrow Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In

some cases the response may be the result of more recent agricultural activity.

Agriculture Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with

(ploughing) existing boundaries, indicating more recent cultivation regimes.

Land Drain Weakly magnetic linear anomalies, quite often appearing in series forming parallel and

herringbone patterns. Smaller drains will often lead and empty into larger diameter pipes and which in turn usually lead to local streams and ponds. These are indicative of clay fired

land drains.

Natural These responses form clear patterns in geographical zones where natural variations are

known to produce significant magnetic distortions.

Magnetic Disturbance Broad zones of strong dipolar anomalies, commonly found in places where modern

ferrous or fired materials (e.g. brick rubble) are present. They are presumed to be modern.

Service Magnetically strong anomalies usually forming linear features indicative of ferrous

pipes/cables. Sometimes other materials (e.g. pvc) cause weaker magnetic responses and

can be identified from their uniform linearity crossing large expanses.

Ferrous This type of response is associated with ferrous material and may result from small items

in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt

stones, fired bricks or igneous rocks can produce responses similar to ferrous material.

Uncertain Origin Anomalies which stand out from the background magnetic variation, yet whose form and

lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology* and *Possible Natural* or (in the case of linear responses) *Possible Archaeology* and *Possible Agriculture*;

occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

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Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTeslas (nT) in an overall field strength of 48,000nT, can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in magnetic susceptibility and permanently magnetised thermoremanent material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

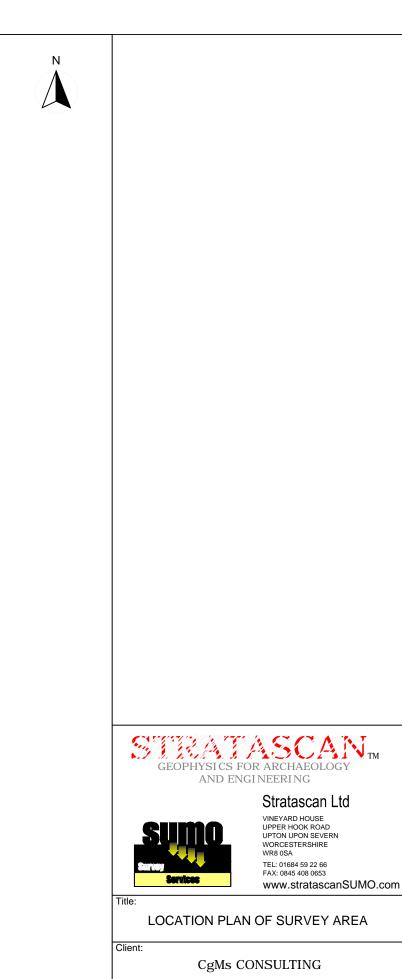
Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.

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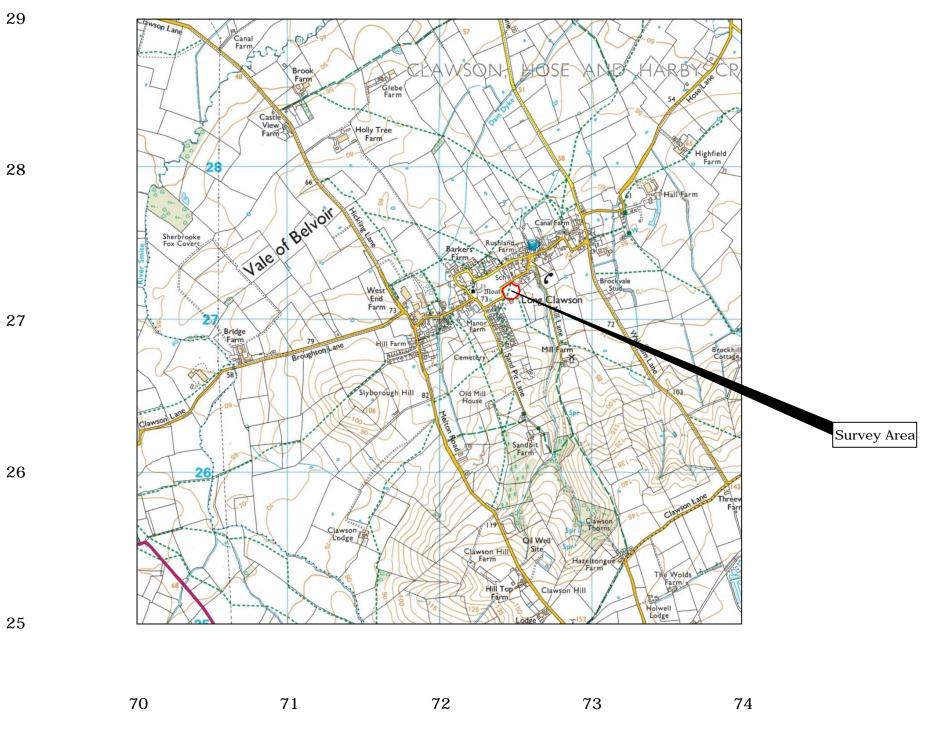
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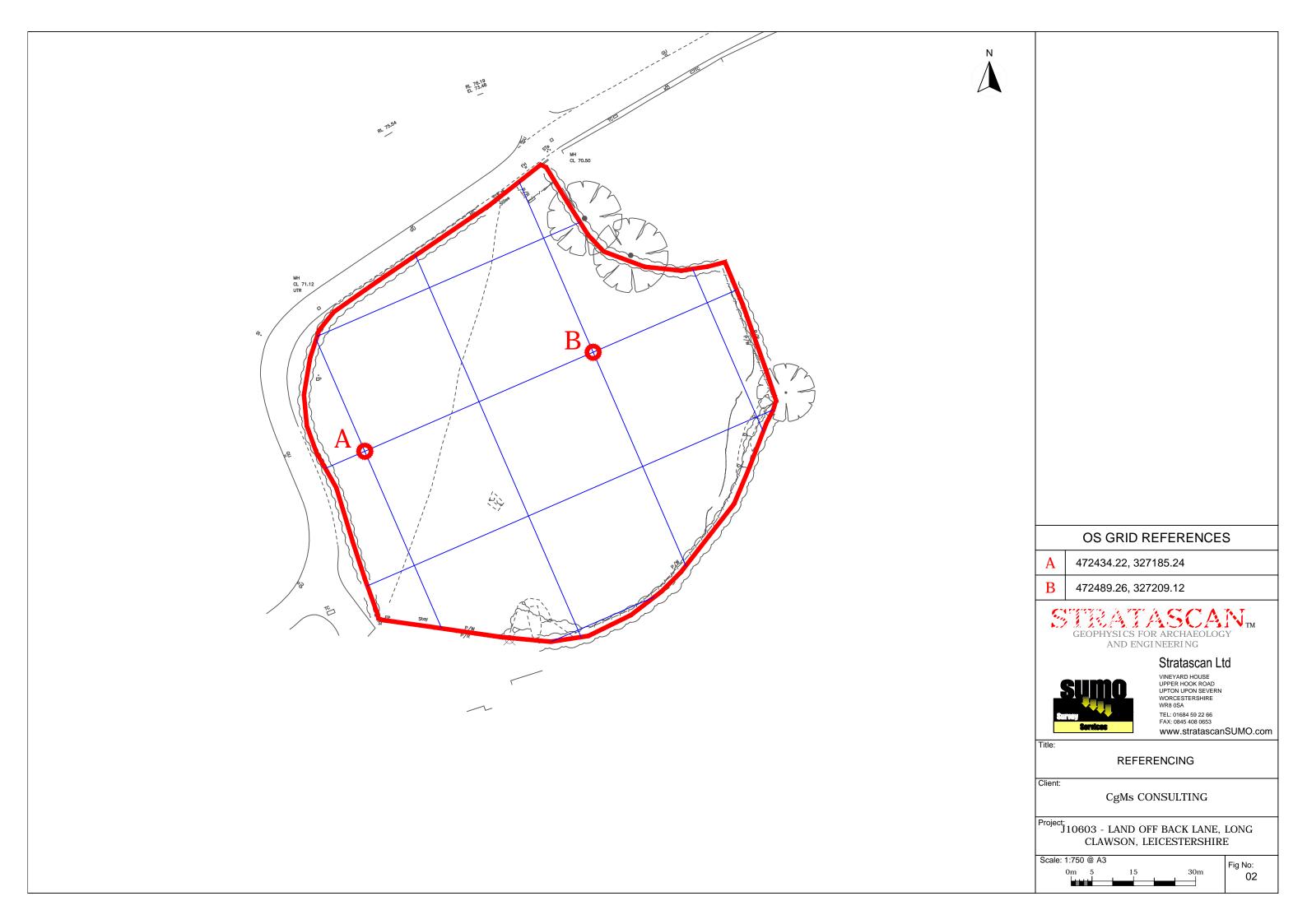
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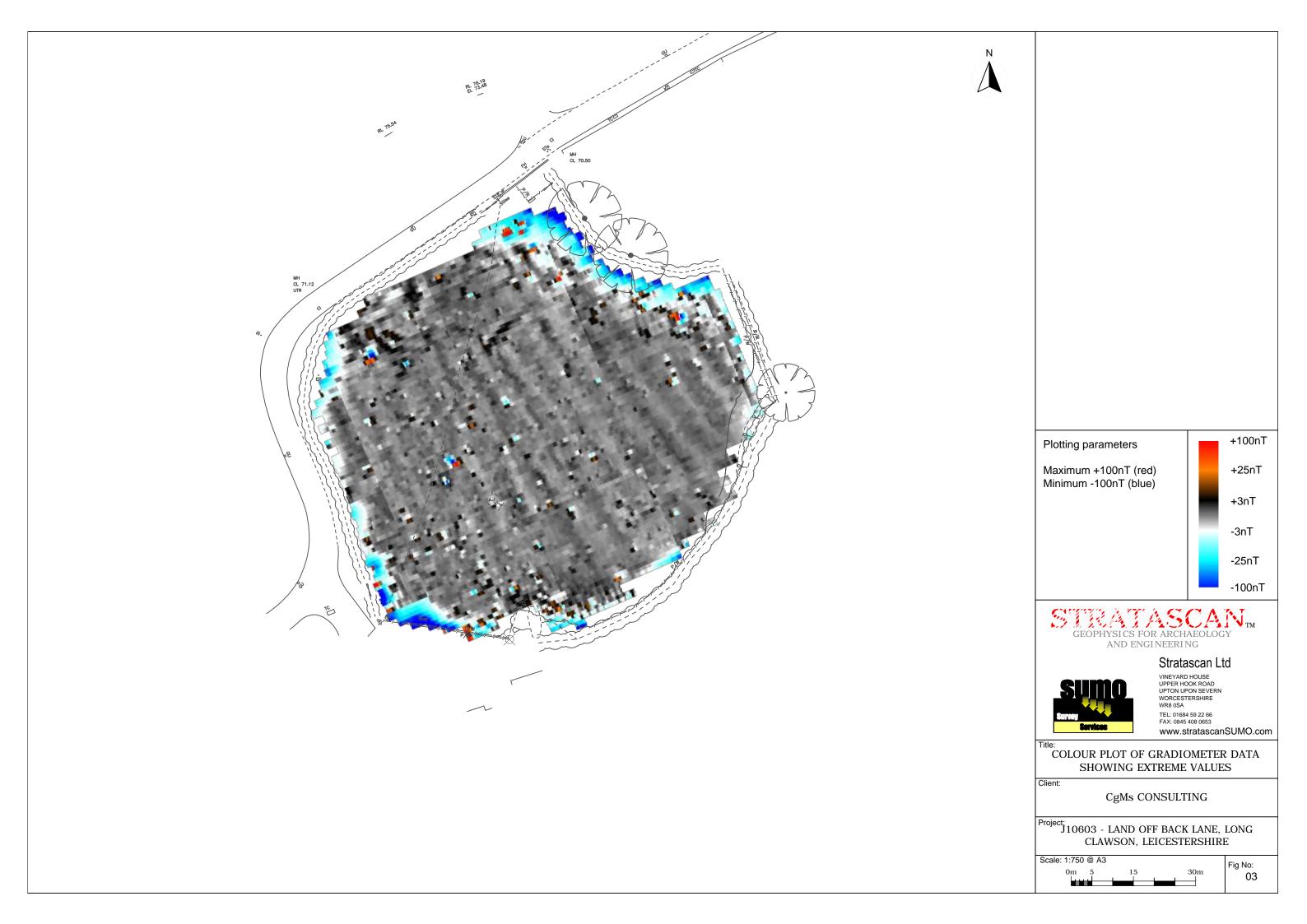
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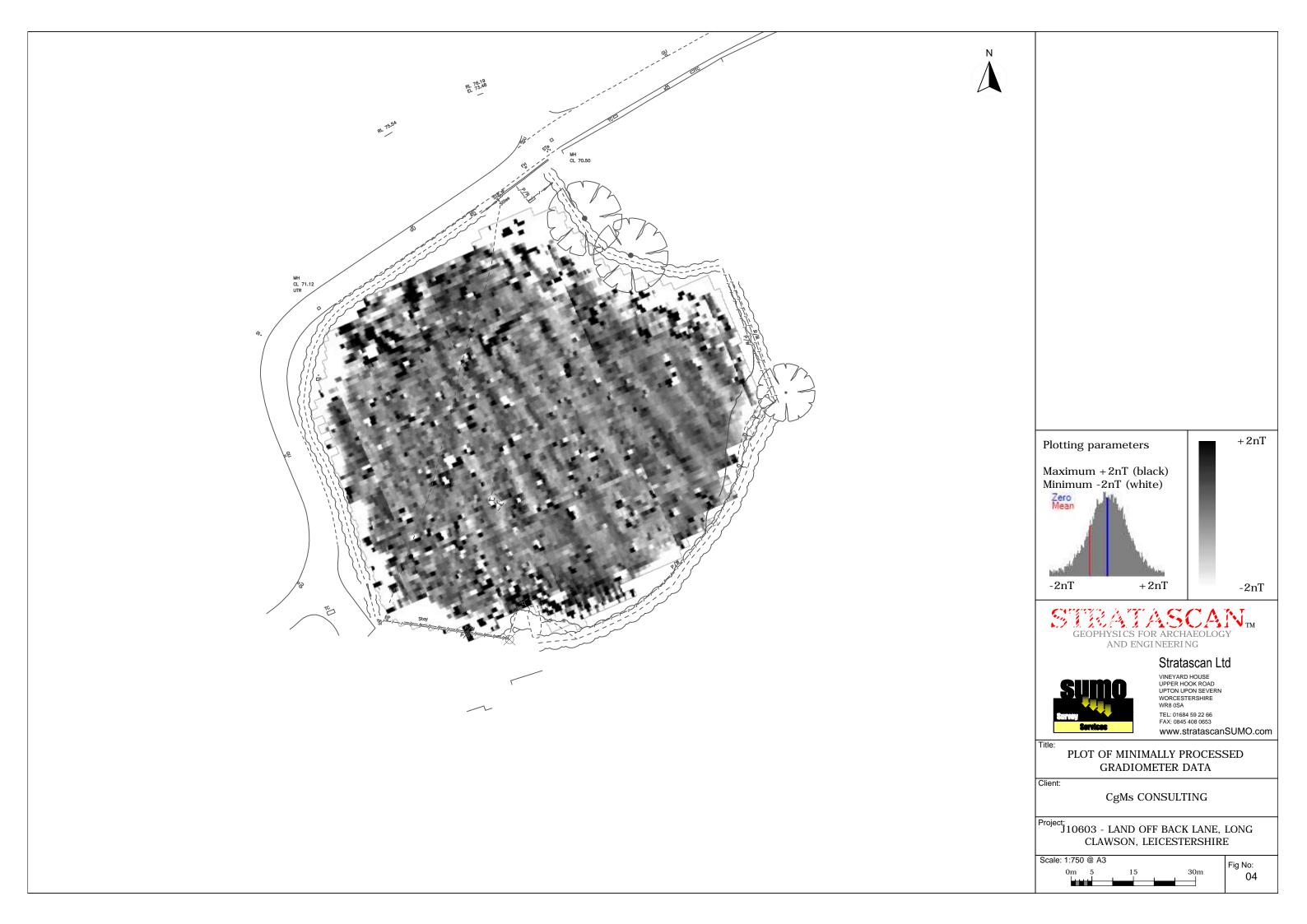
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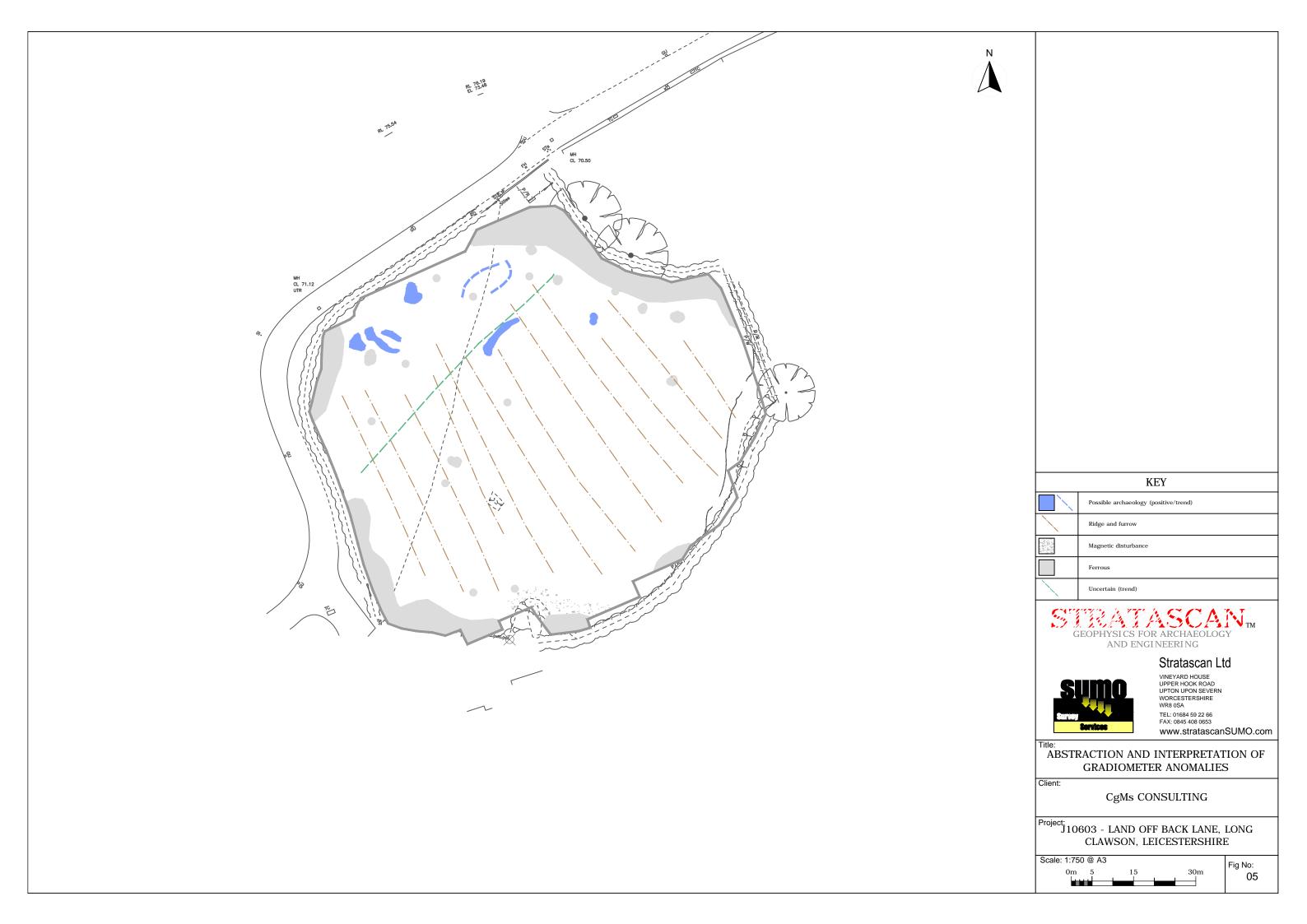
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