Proposed Postcombe and Lewknor Solar Farm
Oxfordshire

Archaeological Geophysical Survey

National Grid Reference: SU 71100 98927
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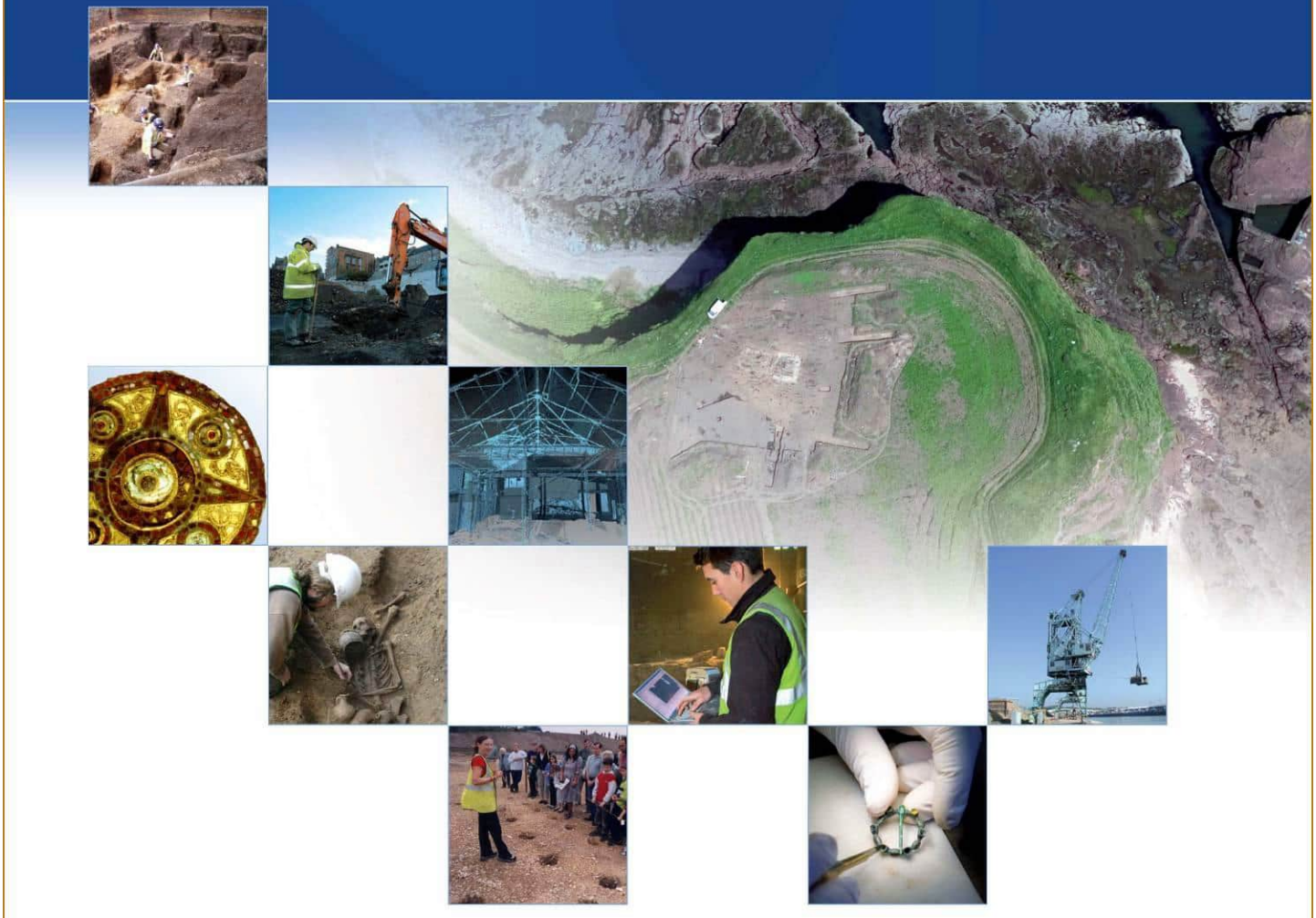

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Proposed Postcombe and Lewknor Solar Farm, Oxfordshire

Archaeological Geophysical Survey

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This document has been prepared in accordance with AOC standard operating procedures.

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Non-Technical Summary

AOC Archaeology Group was commissioned by SLR Consulting to undertake an archaeological geophysical survey, using the magnetic gradiometry method to investigate the potential for buried archaeological remains in advance of the development of a proposed solar farm development at the village of Lewknor, South Oxfordshire, centred on SU 71100 98927.

The survey area occupies c.83ha across four fields, bisected by the M40 on the southern edge of the hamlet of Postcombe and c.900m north of the village of Lewknor. It comprises four parcels of land west of the A40 and on both sides of the M40. The four fields were under arable agriculture at the time of survey. Overall c.80ha were surveyed, with the remaining 3ha consisting of unsurveyable areas occupied by fences, vegetation and other obstacles.

The underlying geology is primarily cretaceous chalk, with some sandstone bands in the northern part of the survey area. Chalk geology usually produces good magnetic contrasts between soil and archaeological features. In this instance, the survey results, particularly in the northern part of the survey area show a speckled appearance against a relatively quiet magnetic background. These speckles have been difficult to differentiate between archaeological and geological causes. In the southern quadrant of the survey area, the presence of historic boundaries and former structures has caused a noisy soil environment which may have locally impeded the recognition of more ephemeral anomalies of archaeological or historical interest. Otherwise, the site is generally free of noise related to ferrous material except where a service crosses the northern quadrant, and around pylon bases and field margins, where the usual interference from ferrous sources can be seen.

A pair of parallel anomalies likely to be caused by ditches cross the survey area from mid-way along the northeastern edge, running to the southwest. These features are consistently c.20m apart. One interpretation is that these are the flanking ditches of a Roman Road – the orientation and overall direction matches the one known as the Lower Icknield Way, but the HER has it recorded running on the same orientation along the southern boundary of the survey area. Another possibility is that these ditches relate to former field boundaries of some sort, but character and spacing is consistent with a Roman road. In the same quadrant as this possible road, but primarily to the south of it, there is a complex of curvilinear and rectilinear anomalies which form a group of what have been interpreted as enclosures, possibly enclosed in one overall triangular boundary feature. These contain discrete anomalies interpreted as pits, suggesting the enclosures may be settlement related, but their shape and character is not indicative of any particular period, and they could originate any time from later prehistory to the early medieval period. Similarly, any relationship to the possible road is unclear. Across the survey area, a large number of anomalies have been identified and categorized as possibly having archaeological origins. The majority of these are sections of fragmentary, narrow linear or curvilinear anomalies or small, discrete subcircular anomalies of varying magnitudes. Within the northern portion of the survey area, a range of indistinct anomalies have been identified that manifest as weak trends in the data or small (often 1-2m diameter) discrete features. These may be the result of natural geological variation; however, they may also have an archaeological origin and they have been highlighted as such, particularly in light of the generally limited range of enhancement seen across the survey area. Furthermore, it is noted that the HER records Anglo-Saxon burials a short distance beyond the northwestern edge of the survey area and caution has been applied to the interpretation given the potential for similar archaeology, which may not typically involve large and/or strong magnetic anomalies.

The survey has also identified historical features and former boundaries as well as those related to modern services; alongside the range and varying character of the anomalies of archaeological interest, this suggests that magnetic gradiometry has proven successful in terms of the survey aims, which were to map and characterise anomalies of potential archaeological interest. Despite the uncertainty around the nature of the small discrete anomalies in the northern part of the survey area, confidence in the overall results is high, with it being unlikely that substantial features of interest have remained undetected.

1 Introduction

1.1 AOC Archaeology Group was commissioned by SLR Consulting (on behalf of Postcombe and Lewknor Solar Farm Limited) to undertake an archaeological geophysical survey using magnetic gradiometery of an area of land north of Lewknor, Oxfordshire. The survey commenced on 3rd October 2022 and was completed on 21st October 2022, as part of a wider scheme of archaeological assessment in advance of the proposed development of the site as a Solar Farm. The planned survey area was c. 83ha, of which c. 80ha was completed, with the remaining 3ha consisting of unsurveyable areas within the redline boundary (roads, fence-lines etc).

1.2 Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as is reasonably possible (CIfA, 2014). It is therefore a common component of the process of evaluating the impact of development on the historic environment. It is also a key tool in archaeological research as it is non destructive and able to cover large areas, to allow below ground interventions to be appropriately targeted.

1.3 This survey was carried out to provide information on the presence, character and extent of potential buried archaeological remains within the proposed development site. The significance of any such remains can only be determied with reference to further information; this report may thus form part of an assessment of significance, but cannot stand alone as such.

2 Survey Area Location and Description

2.1 The proposed development site (hereafter 'the survey area') is located on the southern edge of the hamlet of Postcombe and c.900m north of the village of Lewknor. It comprises four parcels of land west of the A40 and on both sides of the M40, centred at SU 71100 98927.

2.2 The survey area encompasses c. 83ha across four fields under arable agriculture at the time of survey (Figure 2). The survey area is located at between c. 120m and 110m aOD on land sloping gently down from Adwell Cop Hill (northwest of the site). The ground east of the M40 rises from the northeast to southwest and was surveyed while under stubble, while the field west of the M40 was undulating, with a slight depression in the centre-south, and an oil seed rape crop.

2.3 The majority of the survey area lies on the West Melbury Marly Chalk Formation. Bands of glauconitic sandstone of the Glauconitic Marl Member are recorded across the northern part of the survey area and the western boundary, and the northern tip is underlain by sand- and siltstones of the Upper Greensand Formation. No superficial deposits are recorded (BGS, 2022). The soils within the survey area consist of freely draining lime-rich loamy soils across most of the area, with slightly acid loamy and clayey soils with impeded drainage in the northern quadrant (Soilscapes, 2025).

2.4 Magnetometry typically provides a good response over Cretaceous chalk. Responses over sandstones can vary, but are generally good over the Greensand (David *et. al.* 2008, 15). In this instance, the soil and geological environment of the survey area have posed no strong contraindications to magnetic gradiometer survey.

3 Archaeological Background

3.1 The archaeological background below is based on information contained in a draft version of an Environmental Impact Assessment heritage assessment chapter, produced by AOC Archaeology as part of a broader archaeological assessment (AOC, 2022). The heritage assessment considers the survey area and a surrounding 1km radius, and the information therein provides archaeological context for the geophysical survey.

Prehistoric (- AD 43)

3.2 No prehistoric remains are recorded within the survey area, however, a Neolithic macehead was found 740m to the southwest and fragments of a greenstone axe were excavated 490m to the southeast, suggesting background activity in the wider landscape.

3.3 An artificial circular mound on the top of Adwell Cop hill (230m northwest of the survey area) is thought to be the remains of a Bronze Age barrow, although documentary references suggest it may have been modified during its use as a post-medieval windmill; the HER also records that “an urn” was found here.

3.4 A Bronze Age pit with pottery fragments was also excavated 530m southeast of the survey area, in advance of construction of the M40.

Romano-British (AD 43 – AD 410)

3.5 A scatter of Roman pottery was collected from the survey area during fieldwalking by the M40 Research Group prior to construction of the motorway. Further Roman finds from the route of the M40 include pottery and a pin (recorded 360m northwest of the survey area), a dense scatter of pottery (160m southeast of the survey area) and excavated evidence for a substantial Romano-British farmstead c. 560m southeast of the survey area.

3.6 A Roman road, the Lower Icknield Way, runs along the southeastern boundary of the survey area and continues northeast towards Chinnor.

Early Medieval (AD 410 – AD 1066)

3.7 A scatter of Anglo-Saxon pottery was collected during fieldwalking by the M40 Research Group in the south of the survey area.

3.8 The HER contains records of three Anglo-Saxon inhumations close to the northwestern boundary of the survey area, although the exact location is unclear due to possible duplication of the information. It appears that the burials were discovered during drainage works in 1972, possibly relating to the construction of the M40. Workers with a mechanical digger dug through two adult skeletons (one of which was fully extended, the other with flexed legs) and exposed a pit in the side of the trench that contained the skeleton of a child, an iron knife and a bronze buckle. The graves were dated to the mid-7th century. Although the surrounding area was explored for further burials, no evidence of such was found.

3.9 The routeway running along the northeastern edge of the survey area (now the A40) is recorded as having early medieval origins as a drove road.

Medieval (AD 1066 – 1540)

3.10 Fieldwalking within the survey area by the M40 Research Group recovered a scatter of medieval pottery, primarily located within the south of the area. Additional sherds of this date have been located from sections of the M40 route to the northwest and southeast of the survey area.

3.11 The former location of Nethercote House is recorded just outside the southwestern corner of the survey area, off Nethercote Lane, and is known to have had a moat, fishponds and a dovecote. The house is shown on a late 18th-century map but burnt down in 1871. Late 19th-century OS maps indicate a small cluster of buildings (of unknown purpose), some of which appear to have been located within the survey boundary. Earthworks of a medieval (or possibly post-medieval) moat are also recorded 550m south of this at Moor Court.

3.12 The surrounding settlements at Lewknor, Aston Rowant, Postcombe and Adwell are likely to have medieval origins.

Post medieval (AD 1540 – 1901)

3.13 Late 19th-century OS maps show the survey area as fields, with a narrow belt of mixed woodland running around most of the survey area, with the exception of the northern quadrant; the tree line appears to demarcate the Nethercote boundary, and an additional small plantation and double line of trees are shown within the southeastern boundary. An additional field boundary (no longer extant) is shown running NE-SW from the buildings at Nethercote to enclose the southern tip of the survey area. A footpath runs southeast into the survey area from Postcombe, before turning south towards the centre of the area, then continuing southeast along the central field boundary (now the line of the M40).

3.14 Much of the surrounding landscape appears to have been in agricultural use, with scattered plantations and a number of small chalk extraction pits. Areas of parkland are shown associated with large houses at Aston Rowan (east of the survey area), Adwell and Wheatfield (northwest of the survey area).

Modern (1901 – present)

3.15 Aerial photographs and maps suggest there has been little change to the primary field layout and land use of the survey area over the 20th century, with the exception of the building of the M40 in the early 1970s, although aerial photographs from 1947 show additional subdivisions of the fields.

4 Aims

4.1 The aim of the geophysical survey was to identify anomalies that suggest the presence of archaeological remains, in order to enhance the current understanding of the historical environment within the survey area.

4.2 Specifically, the aims of the gradiometer survey were:

- To locate, record and characterise any potential surviving sub-surface archaeological remains within the survey area, as part of a broader archaeological evaluation
- To produce a comprehensive site archive (Appendix 1) and report

5 Methodology

5.1 The geophysical survey was undertaken between 03/10/2022 and 21/10/2022

5.2 All geophysical survey work was carried out in accordance with recommended good practice specified in the EAC guideline documents published by Historic England (Schmidt *et al.* 2016) and the Chartered Institute for Archaeologists Standard and Guidance for archaeological geophysical survey (2014).

5.3 Parameters and survey methods were selected that were suitable for the prospective aims of the survey and in accordance with recommended professional good practice (Schmidt *et al*. 2016).

5.4 Digital photographs of every survey parcel were taken before, during and after geophysical survey to show any changes to field conditions following the programme of works. The photos were downloaded and stored off site.

5.5 The gradiometer survey was carried out using a Bartington Non-Magnetic Cart. The cart system utilises six Grad-01 fluxgate gradiometer sensors mounted upon a carbon fibre frame 1m apart, along with data logging equipment and batteries (see Appendix 2). Before each session of use, the cart system was balanced around a single set up point within the Site specifically chosen for being magnetically quiet. Balancing the machine around this point produces a more uniform dataset throughout and allows all data to be plotted with ease on the same palette.

5.6 Data was collected using zig-zag traverses alongside a constant stream of GPS data collected through a Trimble R10 GPS, enabling the collected data to be spatially georeferenced without the need for a pre-determined grid system. The data was logged on a laptop mounted to the cart using Geomar MLGrad601 software.

5.7 Care was also taken to attempt to avoid metal obstacles present within the survey area, such as metal objects within and adjacent to the survey area as gradiometer survey is affected by ‘above-ground ferrous disturbance’ and avoiding these improves the overall data quality and results obtained.

5.8 The data was downloaded from MLGrad601 and converted into a .xyz file in Geomar MultiGrad601 before being processed along with the GPS data in TerraSurveyor v3.0.34.10. The details of these processes can be found in Appendices 2 and 3.

5.9 Interpretations of the data were created in ArcGIS Pro and the technical terminology used to describe the identified features can be found in Appendix 4.

6 Results and Interpretation

6.1 The magnetic gradiometer survey results have been visualised as greyscale plots and XY traces. The processed data is displayed as greyscale images plotted at -1nT to 2nT and can be seen in Figures 3.0 – 3.8. An interpretation of the data can be seen in Figures 4.0 – 4.8 and an individual characterisation of the identified anomalies of interest is given below. Archive scale plots of the minimally processed gradiometer survey results are presented as XY traces with a scale of 30nT/cm at A3 in figures 5.1-5.8.

6.2 Appendix 4 contains a guide to the interpretation categories employed and the logic used to assign anomalies to specific classes, as well as a short discussion of how past human activity results in these anomalies, however some important points are noted below:

6.3 The classes have three sub-types (generally); anomalies (typically indicated by a solid colour polygon), spreads (a stippled polygon) and trends (a line with a colour matching the polygon colour). *Anomalies* refer to distinct changes in the survey data which suggest an abrupt boundary between materials below ground, such as a cut feature with a magnetically contrasting fill. *Spreads* of enhanced material refer to diffuse areas of altered magnetic contrast which suggest a localised spread of material with a magnetic contrast within the topsoil or ploughzone. Linear *trends* are less distinct and are typically visible as linear patterning in the overall texture of the data. A common example of these is the striping effect caused by recent ploughing.

6.4 Anomalies placed in the 'uncertain' class may have an archaeological origin, but other explanations are equally likely. Where any particular interpretation is *more* likely than others, the anomaly is assigned to that class.

6.5 The definite 'Archaeology' class is only used for anomalies with no other possible explanation, either due to their diagnostic characteristics or because they are corroborated by other sources such as previous interventions within the survey area. Anomalies with magnetic characteristics or morphologies that suggest an archaeological origin will generally be assigned to the 'Possible Archaeology' class.

6.6 The anomaly type 'ferrous spike' is assigned to strong dipolar anomalies which cover a small spatial area and have a characteristic appearance in the XY traces of the survey data. These are strongly likely to be of recent origin in the form of magnetic or ferrous debris within the topsoil; 'spikes' of other origin will be assigned to their appropriate classification.

6.7 Generally, only anomalies (or groups thereof) of a likely archaeological or historical origin have been assigned an anomaly letter on the interpretation figures. However, anomalies interpreted as resulting from other processes that are integral to the discussion of the results have also been assigned anomaly numbers. The anomaly letter is prefixed with the Field number, which is indicated on Figure 2.

6.8 Overall, the survey area shows a relatively uniform magnetic background, with a degree of 'speckling' typical of this type of sedimentary geology. The increased density of this texture in the northern tip of the survey area may result from the greensand bedrock underlying this area (BGS, 2022), although these anomalies could be a consequence of differences in agricultural practices. It is noted that the geological 'speckling' can often include individual anomalies that are very similar in character to those typically produced by archaeological features such as pits; where this is the case, and given the previously-recorded archaeology in the vicinity, anomalies have been highlighted as 'possible archaeology' or 'unclear origin' according to the balance of probabilities. The anomalies considered to have archaeological origins have largely been detected as weak to moderate strength anomalies; this

is also likely to be a product of the geological conditions, but raises the possibility that additional features survive within the survey area that have insufficient magnetic contrast with their surroundings to be discernible in the survey results.

Archaeology

6.9 A range of linear and discrete anomalies have been identified in the northeastern half of the survey area that are considered to indicate archaeological features.

6.10 The most pronounced of these, [**4A**], runs on a northeast-southwest alignment across the centre of Area 4. It is very straight, appears as c.1.5 – 2m wide at the plotting range shown on Figure 3.5, and is likely to indicate a backfilled ditch or similar feature. At its northeastern end, it is not clear whether this feature terminates c.65m from the edge of the survey area, where it is crossed by a similar linear anomaly or whether it continues to the survey boundary; a very weak linear anomaly [**4B**] is just discernible on the same alignment at the edge of the data but may not be associated. The feature appears to extend southwest into Area 2 [**2A**], and possibly into Area 1 [**1A**] (fig. 4.7), however, the anomaly is considerably weaker here. At [**4C**], where the NE-SW probable ditch is joined from the southeast by a similar linear anomaly [**4D**] running roughly SE-NW, a discontinuity occurs in the original NE-SW linear, with the southwestern section appearing to continue with a c.2m offset; the two sections overlap and run adjacent for c. 7m.

6.11 A similar linear anomaly [**4E**] runs parallel to [4A], c. 20m to the northwest (Figures 4.4, 4.5 and 4.7). This is most apparent over the course of a c.75m section in the western side of Area 4, but is also discernible as a less well defined trend in the data towards the eastern edge of the dataset [**4F**] and in Area 2 [**2B**] (figure 4.7). The arrangement and magnetic form of the parallel linear anomalies are typical of those found over the roadside ditches of a Roman road and it is tentatively suggested that such a feature may run across the survey area. Although HER records suggest the Lower Icknield Way Roman road runs along the southeastern boundary of the survey area (8930 - MOX6325), this seems to be based on surmise from hedgelines and cart tracks; this section is described as “cross[ing] the A40 and run[ning] on the general line of a short lane shown on the map as Lower Icknield Way” (Morris *et al*. 1968: 14). It is noted that the geophysical anomalies are aligned closely with the presumed line of the route further northeast at Chinnor. It is, however, possible that the anomalies could be caused by unmapped field boundaries or similar.

6.12 In the centre of Area 4, predominantly south of but also overlapping with the possible Roman road (see figure 4.5), a series of anomalies have been identified that are interpreted as indicating a complex of archaeological features including probable ditched enclosures and multiple pits. Many of these anomalies are located within an approximately triangular-shaped anomaly [**4D**] that may indicate an enclosing boundary; it is not clear how this relates to [**4G**] (north of the potential road), and if the latter is a continuation of a trapezoidal enclosure that has been cut by or overlies the features aligned NE-SW. It is not possible to determine chronological stratigraphy from the magnetic results, however, overlapping anomalies on multiple alignments suggest multiple phases of use. Although the anomalies do not clearly describe many complete distinctive features, the morphology of those that can be identified is consistent with late prehistoric, Romano-British and/or early medieval settlement. The slight increase in magnitude of the linear anomalies towards the northeast of the cluster (e.g. at [**4H**]) relative to the periphery suggests this to be the focus of occupation, with greater magnetic enhancement of the topsoil (that subsequently filled the cut features). The ‘fading out’ of anomalies with distance from the core of the complex makes it difficult to identify a clear ‘edge’ (see para 6.17).

6.13 Narrow linear anomalies run out in several directions from the complex in the centre of Area 4. One of these, [**4I**], runs broadly parallel to the northeastern survey boundary. North of the archaeological

complex, its course is considerably more sinuous than to the south. The anomaly is less distinct at the point at which it appears to cross the field boundary into Area 3, however, if the apparent continuation [**3A**] (see figures 4.4, 4.2) does indeed relate to the same feature, it turns an abrupt corner c.20m north of the extant field boundary before arcing round to the northwest corner of Area 3. Its northern end is very weak and is obscured by an increase in the background 'speckling' in this area.

6.14 In the northwestern corner of Area 3 (see figure 4.1), two parallel linear slightly curved anomalies [**3B**] are aligned on a NW-SE orientation and are visible running into the survey area for a distance of c. 120m. They are likely to indicate parallel ditches but their function is unclear; while they suggest a section of trackway or road, given their location on the southern edge of Postcombe village as well as the presence of additional (but very faint) linear anomalies, it is possible that they are caused by the remains of plot boundaries or cultivation furrows. It is not possible to determine if or how they relate to [**3A**].

Possible Archaeology

6.15 Across the survey area, a large number of anomalies have been identified and categorized as possibly having archaeological origins. The majority of these are sections of fragmentary, narrow linear or curvilinear anomalies or small, discrete subcircular anomalies of varying magnitudes. Some of these, such as [**1B**] and [**1C**] (see figures 4.6, 4.8) are well-defined and likely to be caused by cut features, such as linear ditches; this category has been applied as the function of such a feature remains unclear and, while they may be archaeological, they may also be the result of later agricultural practices. [**1C**] runs approximately NNE-SSW, at a slight angle to the edge of the survey data and weak linear trends aligned parallel on its northern side may relate to agricultural tramlines or tractor ruts; however, it should be noted that, while aligned on a slightly different orientation to the anomalies interpreted as possible roadside ditches in Area 4 and at [**1A**], the anomalies at [1C] demonstrate a similar magnetic character and are also separated by c.20m.

6.16 Similarly, within and on the periphery of the complex of probable archaeology in the centre of Area 4, a collection of weak linear and curvilinear anomalies may relate to additional archaeological remains that demonstrate less clear magnetic contrasts with their surroundings (due, for example, to the properties of their fill, the depth of overburden, or poor preservation) than those at [4H]. However, the lack of distinct morphology prevents a more specific interpretation of their origin. Moreover, some of the anomalies, particularly the linear trends aligned parallel to the extant field boundaries, could also be consistent with post-medieval or modern agricultural practices; it is noted that post-WWII aerial photography (NLS) shows additional orthogonal field divisions in this area.

6.17 In other areas, such as those highlighted within the northern portion of Areas 1 and 3, a range of indistinct anomalies have been identified that manifest as weak trends in the data or small (often 1-2m diameter) discrete features (see figure 4.3). These may be the result of natural geological variation, historical or modern agriculture, or coincidental alignments within the data; however, they may also have an archaeological origin and they have been highlighted as such, particularly in light of the generally limited range of enhancement seen across the survey area. Furthermore, it is noted that the HER records Anglo-Saxon burials a short distance beyond the northwestern edge of the survey area and caution has been applied to the interpretation given the potential for similar archaeology, which may not typically involve large and/or strong magnetic anomalies.

Unclear Origins

6.18 In addition to anomalies deemed to possibly have an archaeological origin, multiple anomalies have been identified where the origin of which remains unclear. These are generally visible as sections of narrow linear trends or small discrete positive anomalies. It is likely that these relate to geological and

soil conditions, or to previous plough regimes, and it is noted that many of these are clustered in the southern corner of Area 1 (see figure 4.8), where historic mapping suggests land use may have related directly to Nethercote House (immediately west of the boundary), but an archaeological origin cannot be excluded and, without more distinctive magnetic characteristics, their explanation remains unclear.

Historical Features

6.19 In the southern corner of Area 1 (see figure 4.8), a spread of small dipolar anomalies are located along the southwestern boundary of the survey area and, running NE then SE, form an 'L-shape' within the data. This corresponds to the location of a group of (no longer extant) buildings and a former field boundary shown on the 1st Edition OS maps. The anomalies are consistent with a spread of ceramic building material, possibly demolition rubble or damaged field drains, which has perhaps been used to backfill a boundary ditch. An additional line of identical anomalies runs perpendicular to the mapped boundary and, while the map shows only a line of trees, the similarity and layout of this spread suggests it also relates to an historical boundary.

Agricultural

6.20 No definitively agricultural anomalies have been highlighted in the data. Although a faint directionality is discernible in the background 'texture' of the data (running parallel to current field boundaries), this has not been drawn for reasons of clarity and does not appear to have had any adverse impact on the interpretation of the data.

6.21 It should, however, be noted that many of the anomalies indicated as having an unclear or possible archaeological origin may be the result of historical ploughing. In the northern corner of Area 4, several indistinct linear anomalies may be indicative of the remains of ridge and furrow cultivation, although this interpretation is strongly influenced by their location and orientation in relation to land divisions at Postcombe.

Non – Archaeology

6.22 While the geological conditions within the survey area have resulted in a generally stable magnetic background, inclusions and natural variations within the bedrock and soil are likely to be responsible for many of the small anomalies that collectively create the 'speckled' texture in the data; this is noticeably denser in the northern part of Area 3 (best visualised in figure 3.0) and may be related to the presence of the sandstone in this area. Similarly, a subtle background 'mottling' effect, most apparent in the west and south of the survey area, is likely to result from the geology.

6.23 Modern sources of strong magnetic interference in the data are largely limited to ferrous material in or adjacent to the field boundaries, and to individual items of utility infrastructure. For example, a line of telegraph poles has produced a series of strong magnetic haloes across the south of the survey area, while a distinctive strong linear anomaly comprising multiple dipolar responses follows the line of a historical footpath across Area 3 and suggests a service pipe.

6.24 A light scatter of small dipolar 'spike' responses across the area probably relates to modern ferrous debris in the topsoil. A small number of stronger anomalies are likely to be associated with larger objects.

7 Conclusion

7.1 The survey has successfully identified a range of magnetic anomalies that have been interpreted as having various origins. This includes a collection of anomalies that are interpreted as relating to archaeological features. Multiple anomalies have also been identified that are considered to possibly indicate additional archaeological features, however, confidence in such an interpretation is limited by

a lack of more specific distinctive characteristics (these anomalies have therefore been categorized as 'possible archaeology' and having 'unclear origins' accordingly).

7.2 The underlying soils and geology are responsible for a generally quiet and stable magnetic background across the survey area; although this has allowed the identification of well-defined anomalies indicative of archaeological features, a large proportion of the anomalies manifest as having weak magnetic contrasts or as faint data trends, some of which are difficult to separate from anomalies caused by natural variations and consequently reduce the confidence levels in the interpretation of anomaly origins in some parts of the survey data.

7.3 The most conspicuous archaeological anomalies are located in the east of the survey area, and comprise a complex of linear and discrete anomalies that are consistent with a range of enclosures, boundary ditches and pit-type features. Although magnetic survey data does not lend itself to the identification of chronological phasing, the apparent overlapping of anomalies on various alignments seen here suggests multiple phases of occupation. The anomalies are broadly consistent with those typically collected over late prehistoric, Romano-British or early medieval archaeology, which would be consistent with the archaeological context of the area as outlined in Section 3.

7.4 It is tentatively suggested that parallel straight linear anomalies running northeast-southwest across the survey area relate to the route of a Roman road. They are typical examples of anomalies caused by such a feature and this interpretation is supported by information contained in the HER records. It is not clear how the potential road relates to the other probable archaeology. In the western half of the survey area, weak anomalies suggest the possibility that this feature continues, albeit on a slightly modified alignment, however, other plausible interpretations may explain these anomalies, which are less distinct in this part of the survey area.

7.5 Modern ferrous sources have produced strong magnetic anomalies in places. While locally significant, and sufficient to mask any potential weaker anomalies (for example, caused by archaeology) in the vicinity, this interference is generally limited to field boundaries and to individual structures including telegraph poles and a service pipe. A light scatter of ferrous 'spikes' has also been detected across the topsoil. Neither of these sources are sufficient to negatively impact the interpretation of the data.

7.6 In assessing the results of the geophysical survey against the specific aims set out in Section 4;

- The survey has succeeded in locating, recording and partially characterising surviving sub-surface remains within the Site, though additional remains may be present that are not suitable for detection using magnetometry;
- The survey will help in determining the next stage of works as it has provided evidence that remains of an uncertain origin are most likely present on site, and has provided a number of targets for further investigation;
- The survey has resulted in a comprehensive report and archive.

8 Statement of Indemnity

8.1 Although the results and interpretation detailed in this report have been produced as accurately as possible, it should be noted that the conclusions offered are a subjective assessment of collected data sets.

8.2 The success of a geophysical survey in identifying archaeological remains can be heavily influenced by several factors, including geology, seasonality, field conditions and the properties of the features being detected. Therefore, the geophysical interpretation may only reveal certain archaeological features and not produce a complete plan of all the archaeological remains within a survey area.

9 Archive Deposition

9.1 In accordance with professional standard practice an 'Online Access to the Index of archaeological investigations' ('OASIS') record will be completed for submission to the HER and Archaeological Data Service (ADS) (Appendix 2).

9.2 One digital and hard copy of the report and data will be submitted to the relevant Historic Environment Record (HER) at the Client's discretion.

9.3 A digital copy of the report and data will also be submitted to the ADS at the Client's discretion.

10 Bibliography

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*denotes a reference that occurs in Appendix 2 rather than the main body of this report.

11 Plates

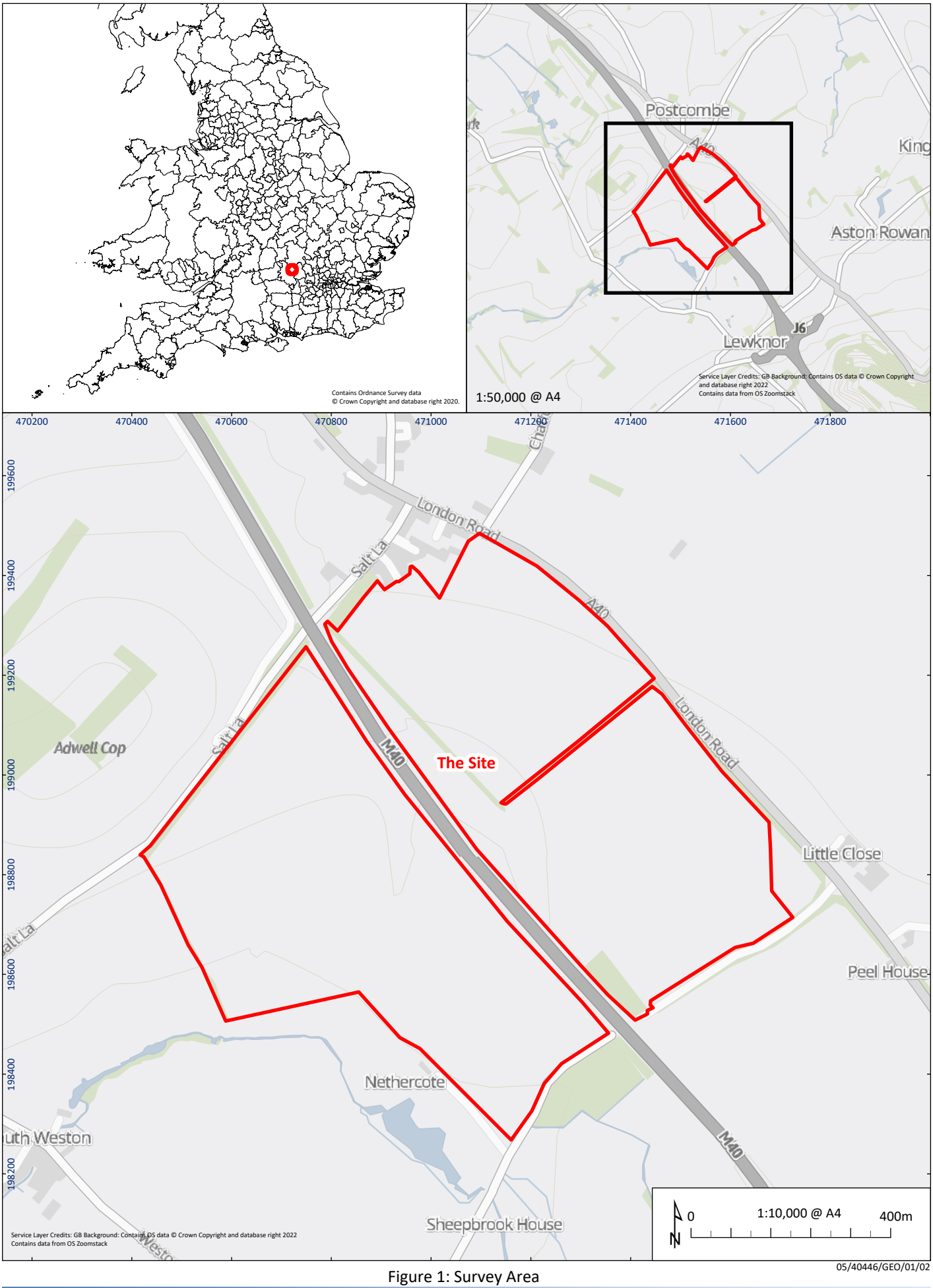
Plate 1: Area 2 prior to survey from the south facing north

Plate 2: Area 2 prior to survey from the north facing south

Plate 3: Area 1 following survey from the northwest looking southeast

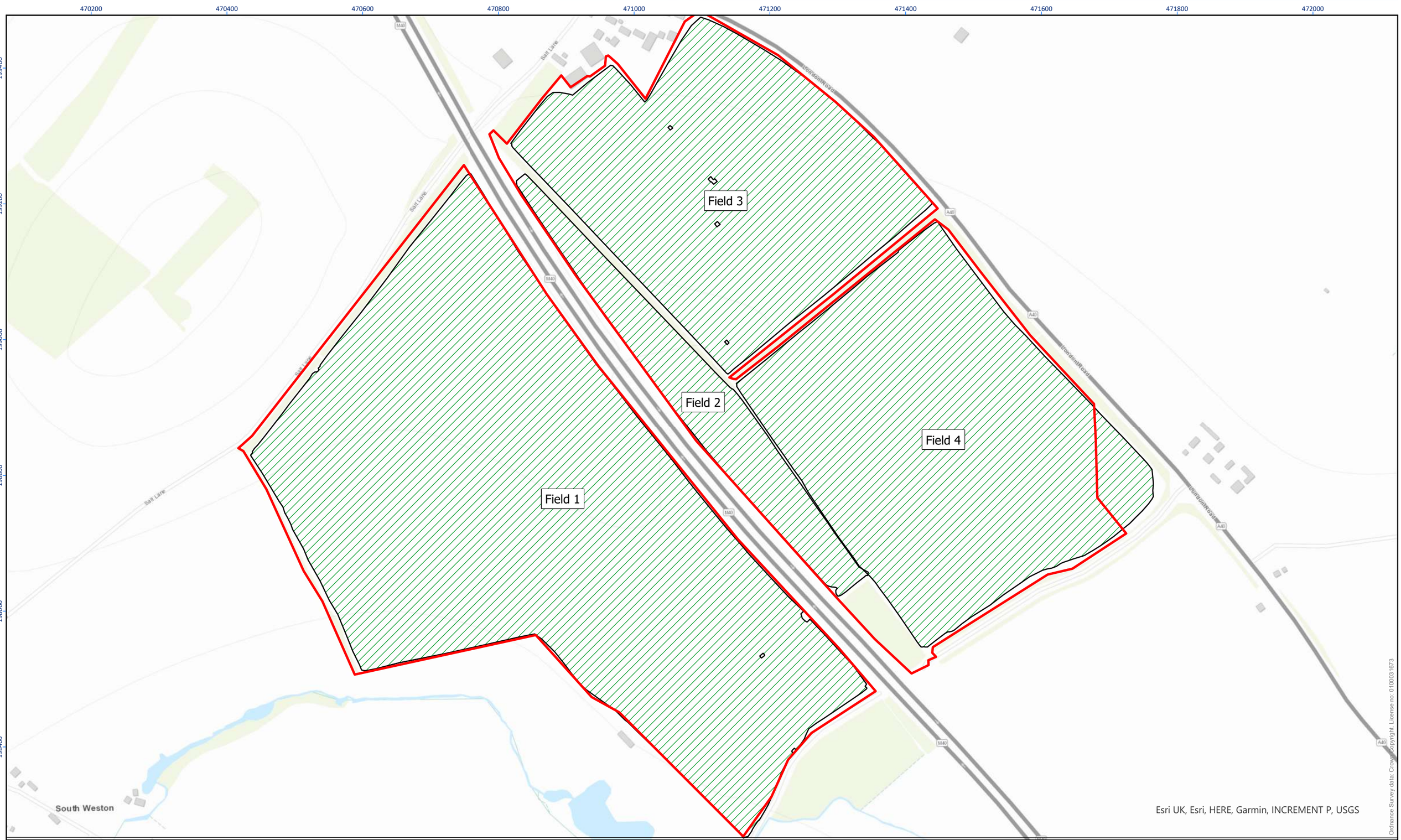
Plate 4: Area 1 following survey from the northern boundary looking southwest

12 Figures



05/40446/GEO/01/02

Figure 1: Survey Area



Survey Areas

Figure 02

Surveyed - Bartington Cart

Survey Areas

N

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Checked by: JL	Date: 03/01/2023
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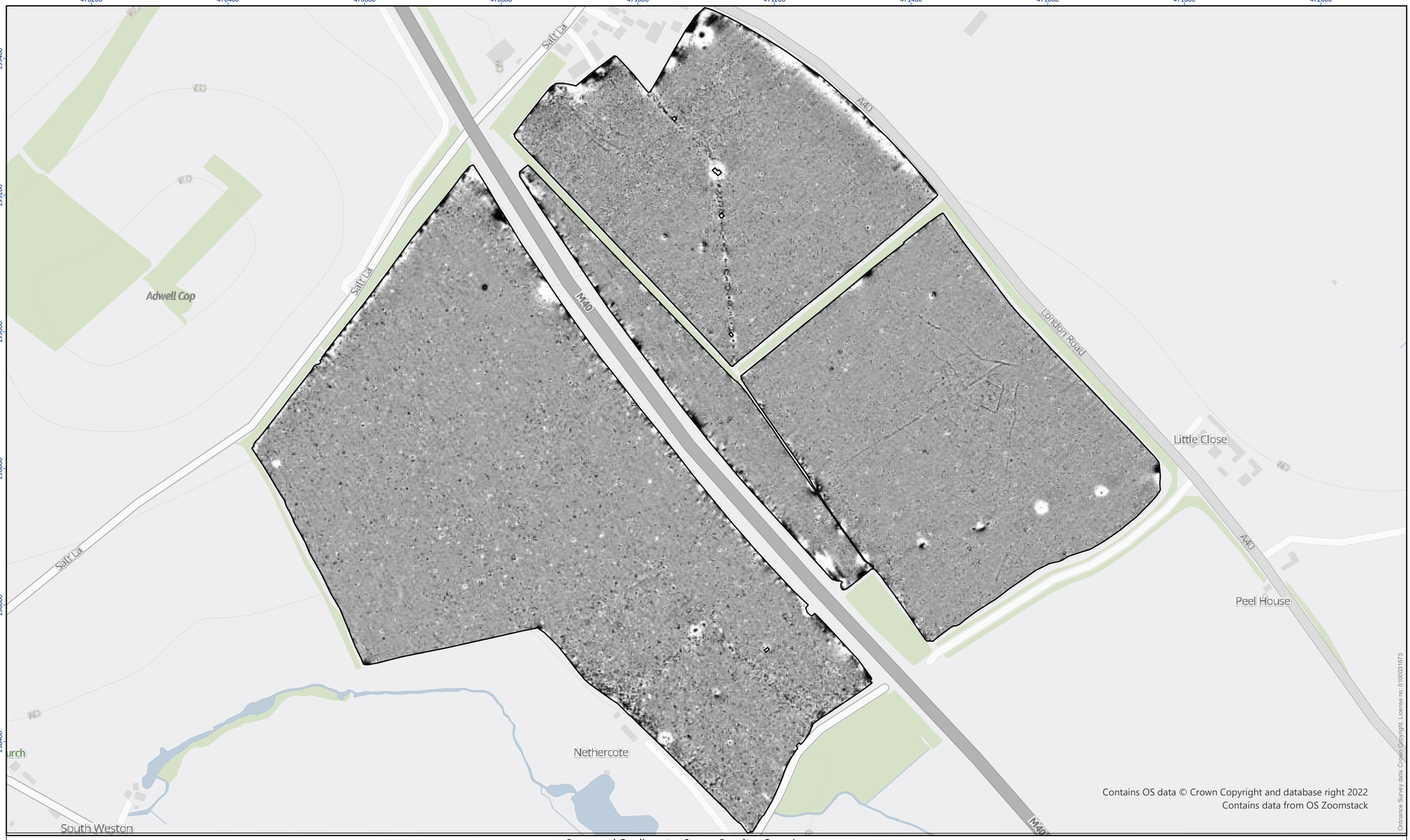
AOC Archaeology Group



Processed Gradiometer Survey Results - Overview

Figure 3.0

2nT
1-nT

N

0 90m

Scale: 1:5,000 @ A3

Drawing Number:	05/40446/GEO/3.0/01
Created by: KA	Date: 01/01/2023
Checked by: JL	Date: 01/01/2023
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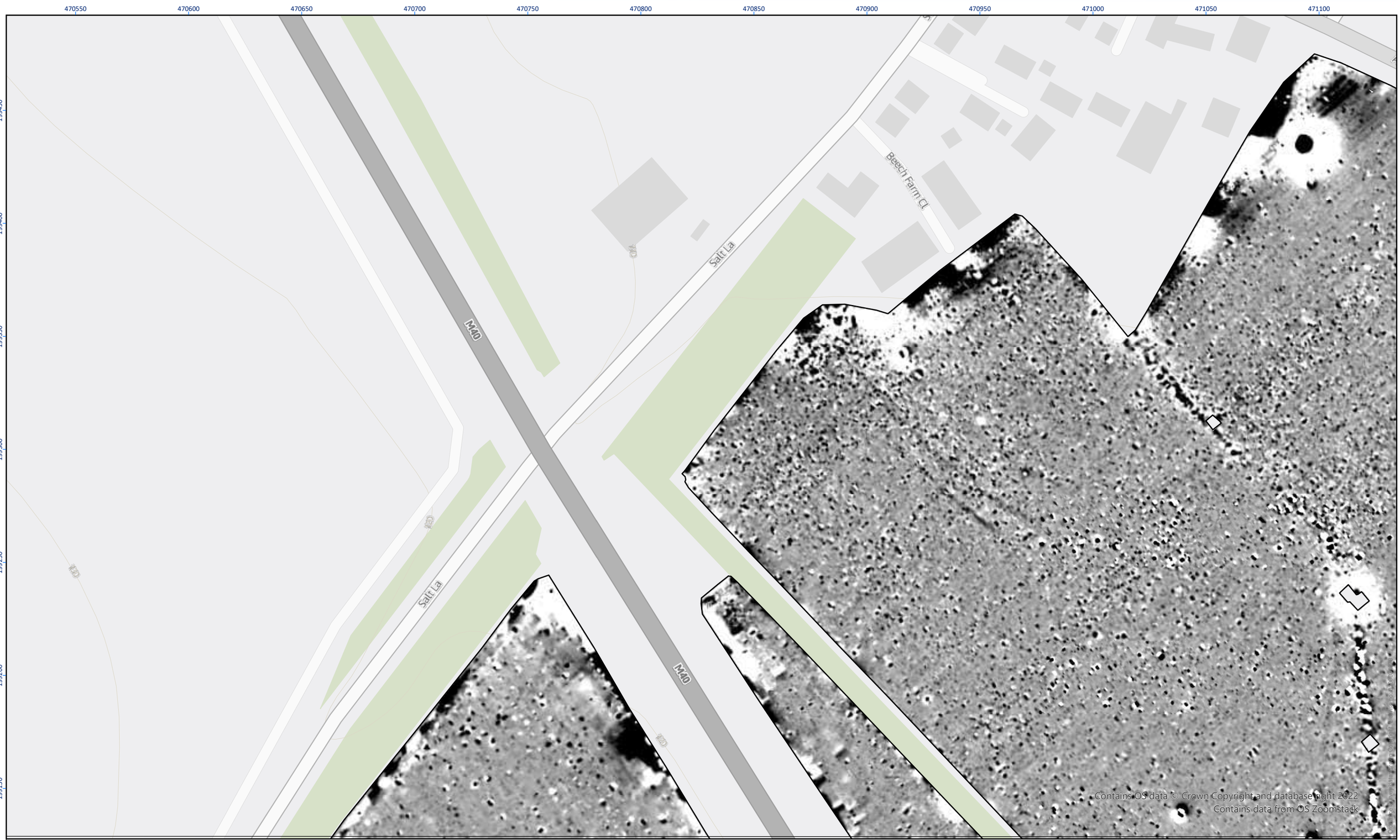

Processed Gradiometer Survey Results

Figure 3.1

2nT
-1nT

N

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Scale: 1:1,500 @ A3

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Checked by: JL	Date: 01/01/2023
Approved by: JL	Date: 01/01/2023

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471000 471050 471100 471150 471200 471250 471300 471350 471400 471450 471500 471550

199450 199400 199350 199300 199250 199200 199150

A40 London Road A40 London Road A40 London Road

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Contains data from OS Zoomstack
Ordnance Survey data: Crown Copyright. License no: 0100031673

Processed Gradiometer Survey Results

Figure 3.2

2nT
-1nT

N

0 30m

Scale: 1:1,500 @ A3

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Checked by: JL	Date: 01/01/2023
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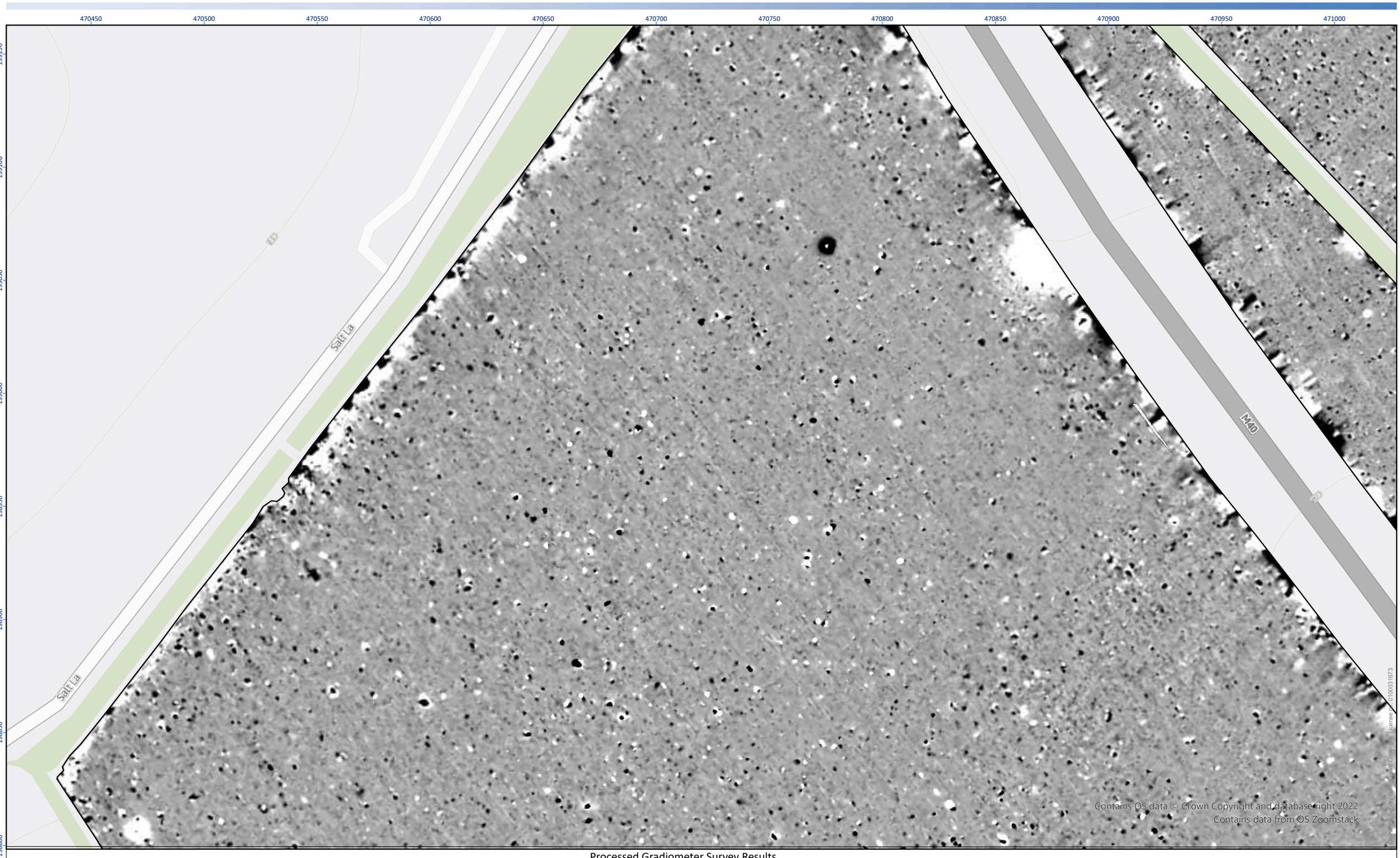

Processed Gradiometer Survey Results

Figure 3.3

2nT
-1nT

N

0 30m

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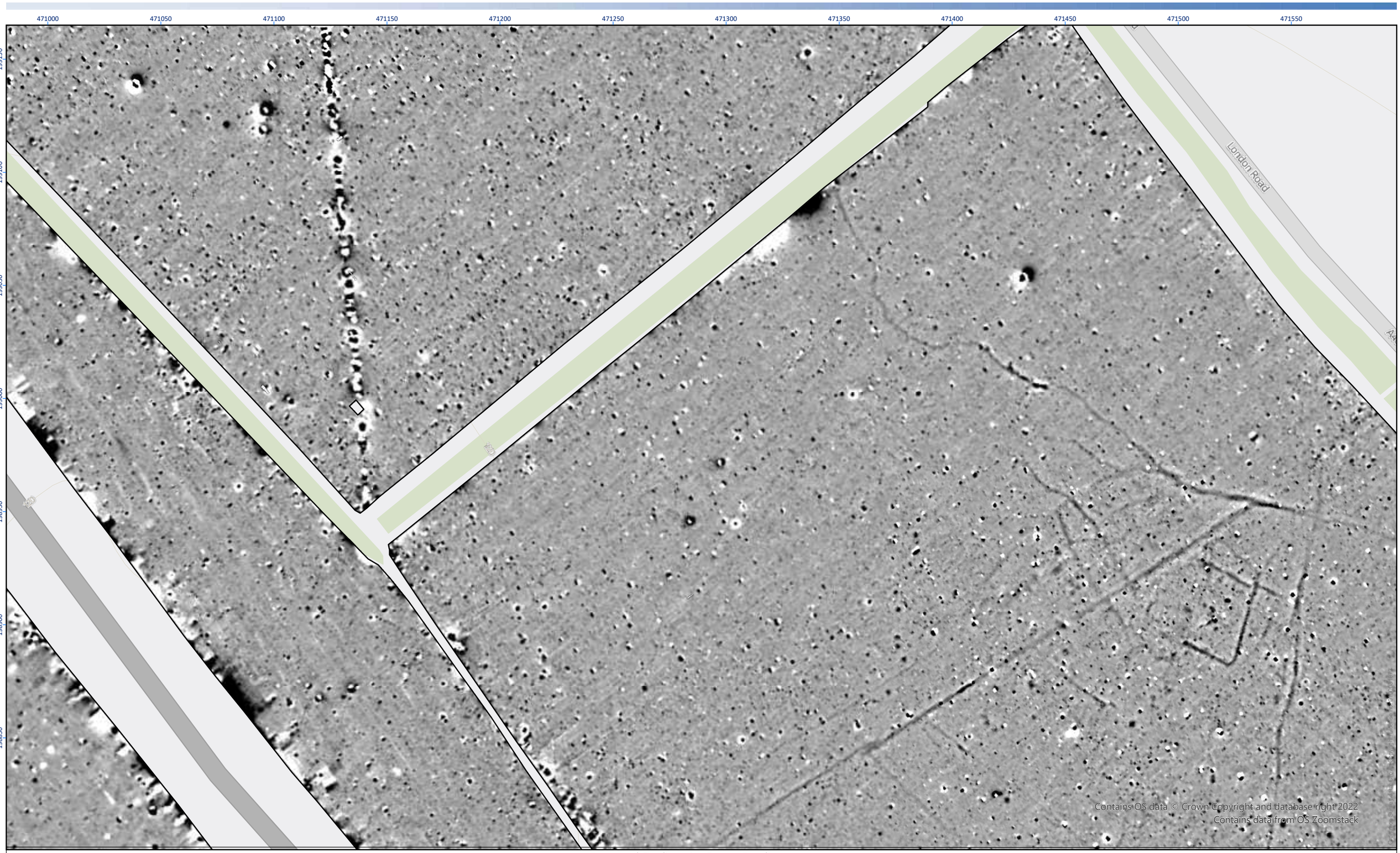
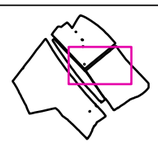


Processed Gradiometer Survey Results

Figure 3.4

2nT
-1nT



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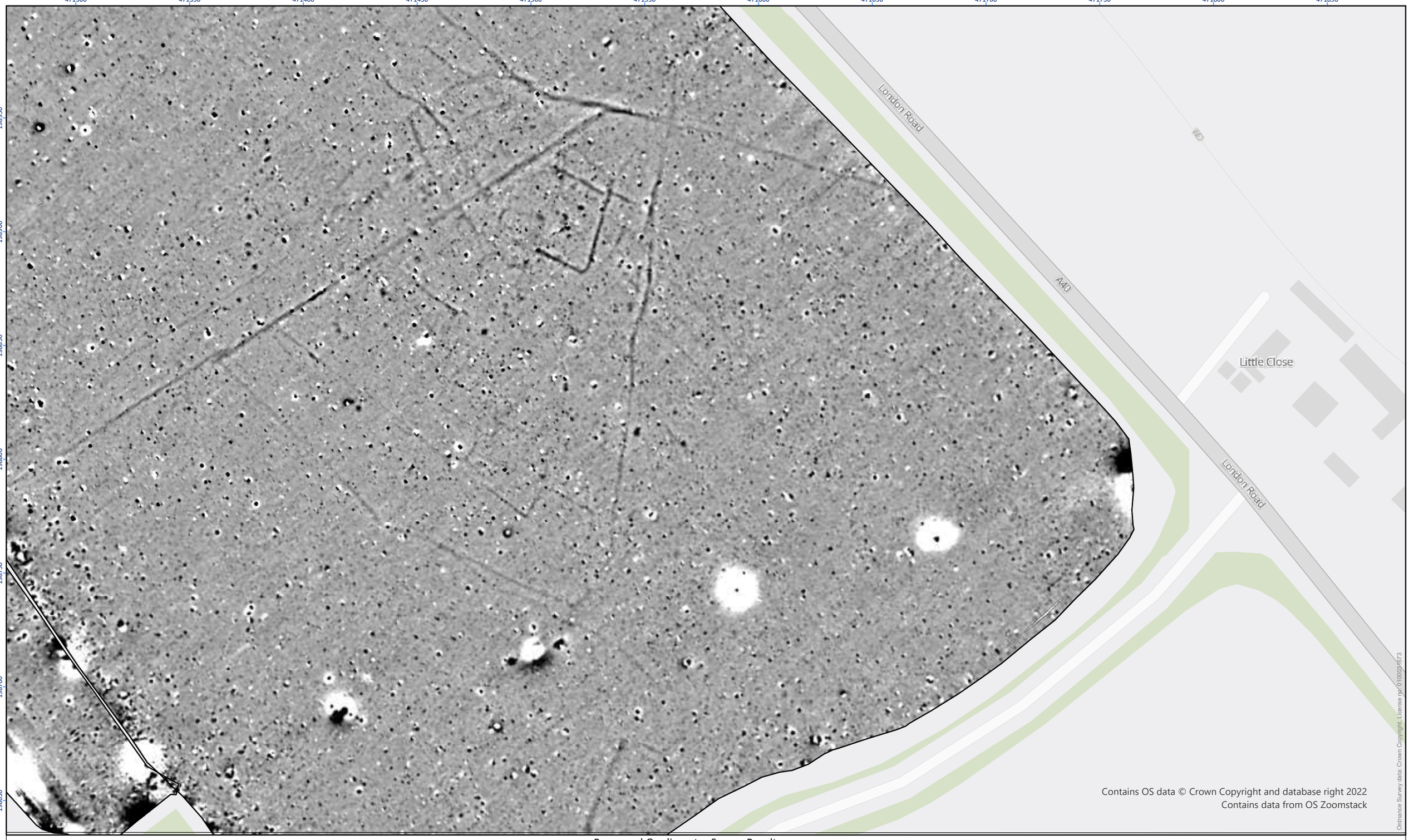

Processed Gradiometer Survey Results

Figure 3.5

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Approved by: JL	Date: 01/01/2023

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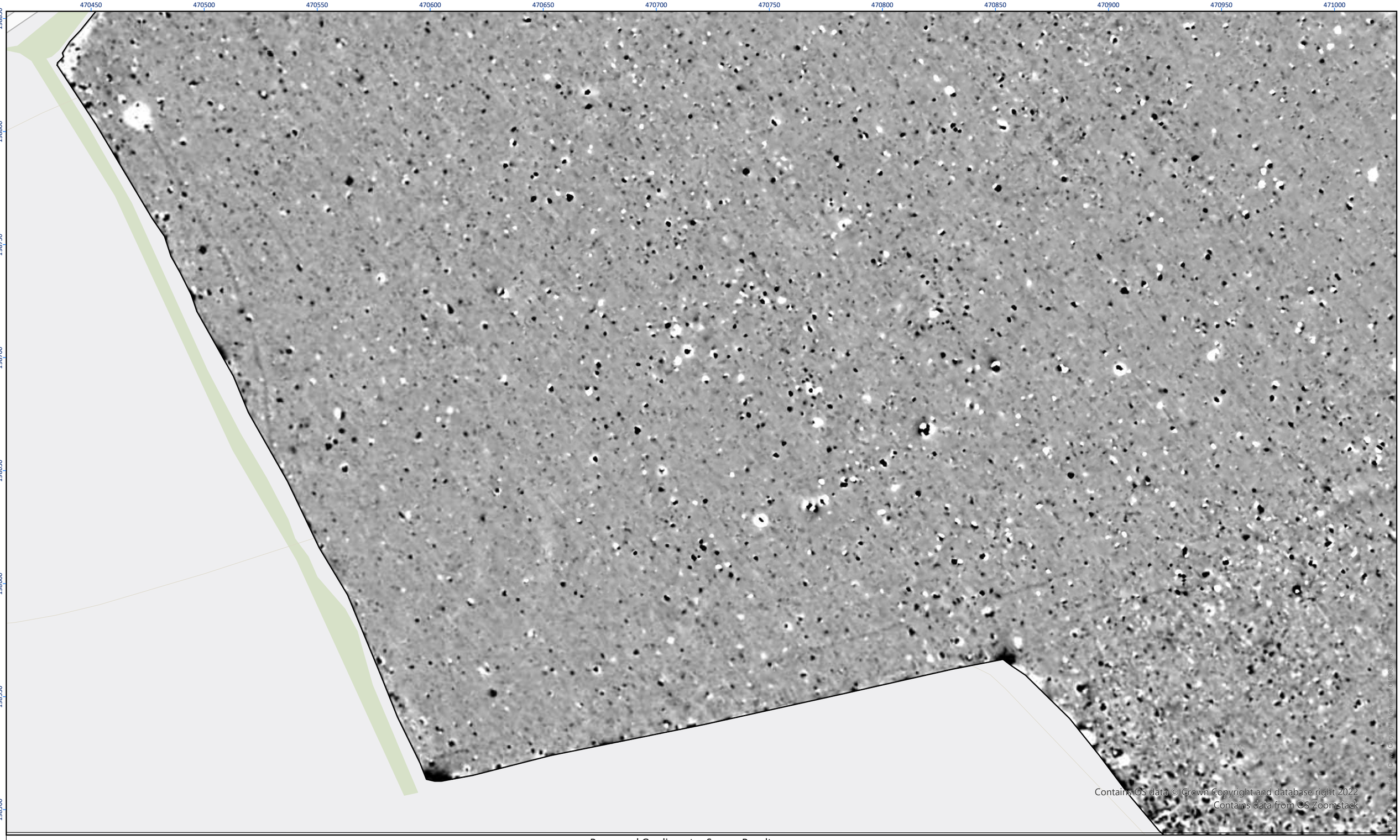

Processed Gradiometer Survey Results

Figure 3.6

2nT
-1nT

N

0 30m

Scale: 1:1,500 @ A3

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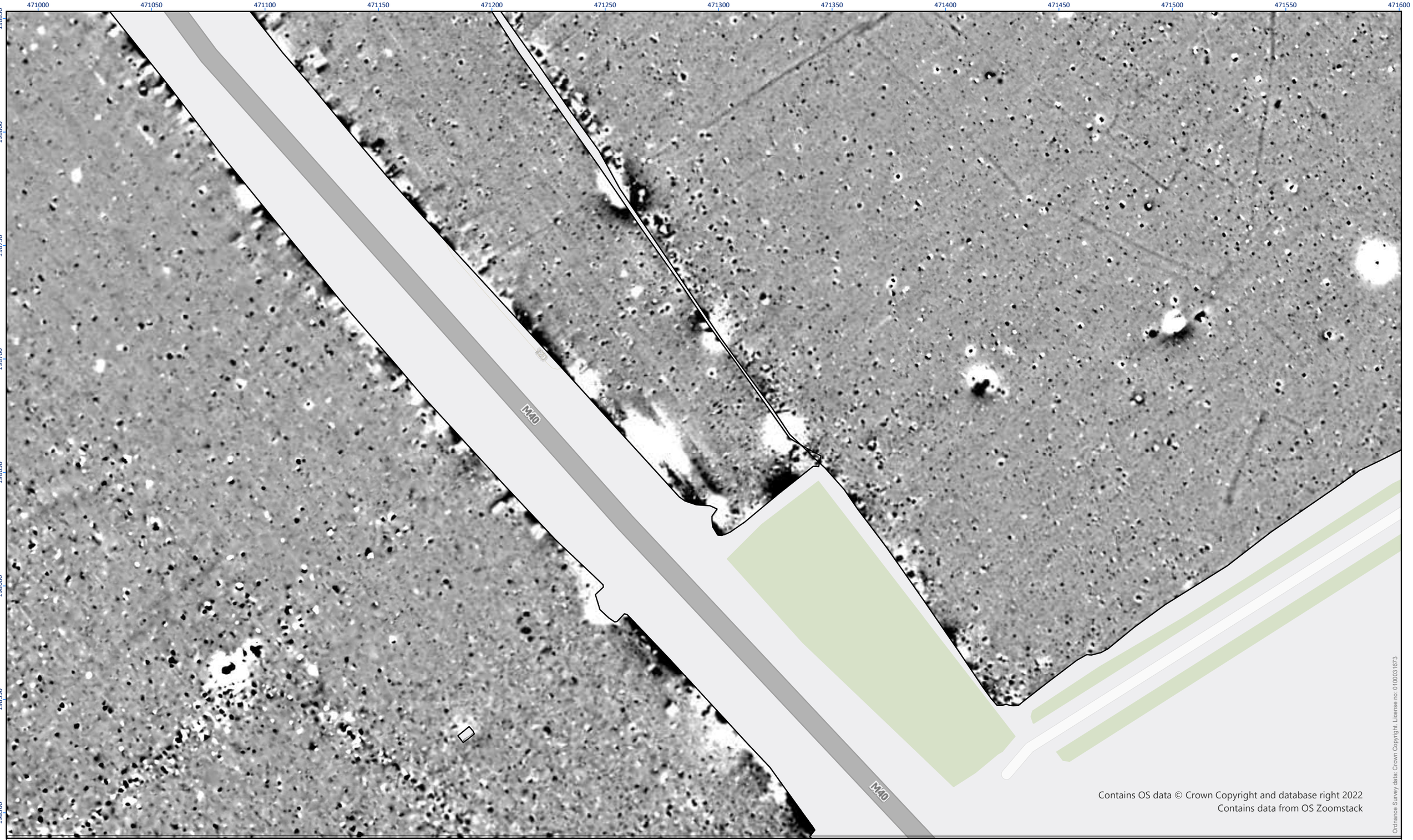

Processed Gradiometer Survey Results

Figure 3.7

2nT
-1nT

N

0 30m

Scale: 1:1,500 @ A3

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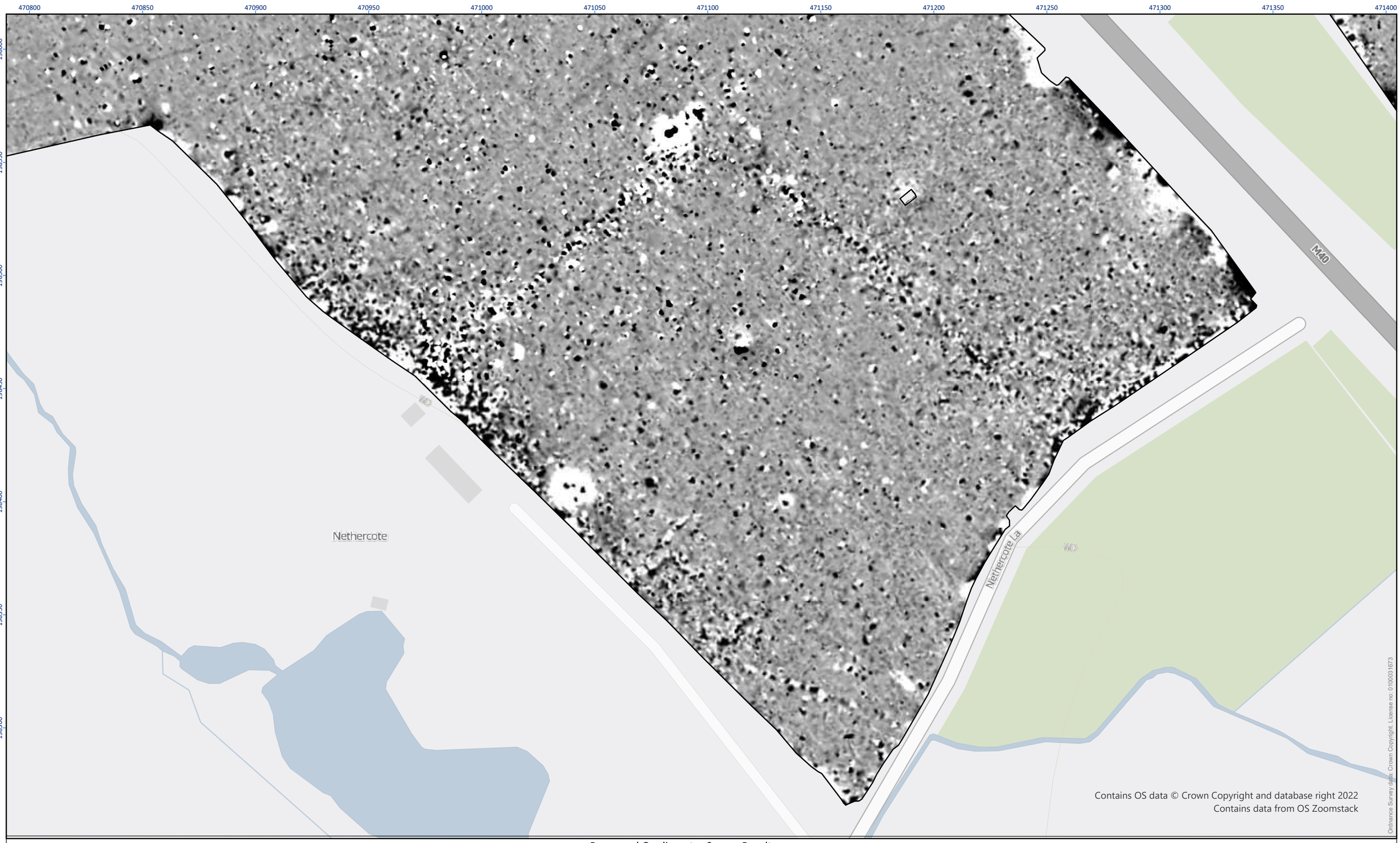

Processed Gradiometer Survey Results

Figure 3.8

2nT
-1nT

N

0 30m

Scale: 1:1,500 @ A3

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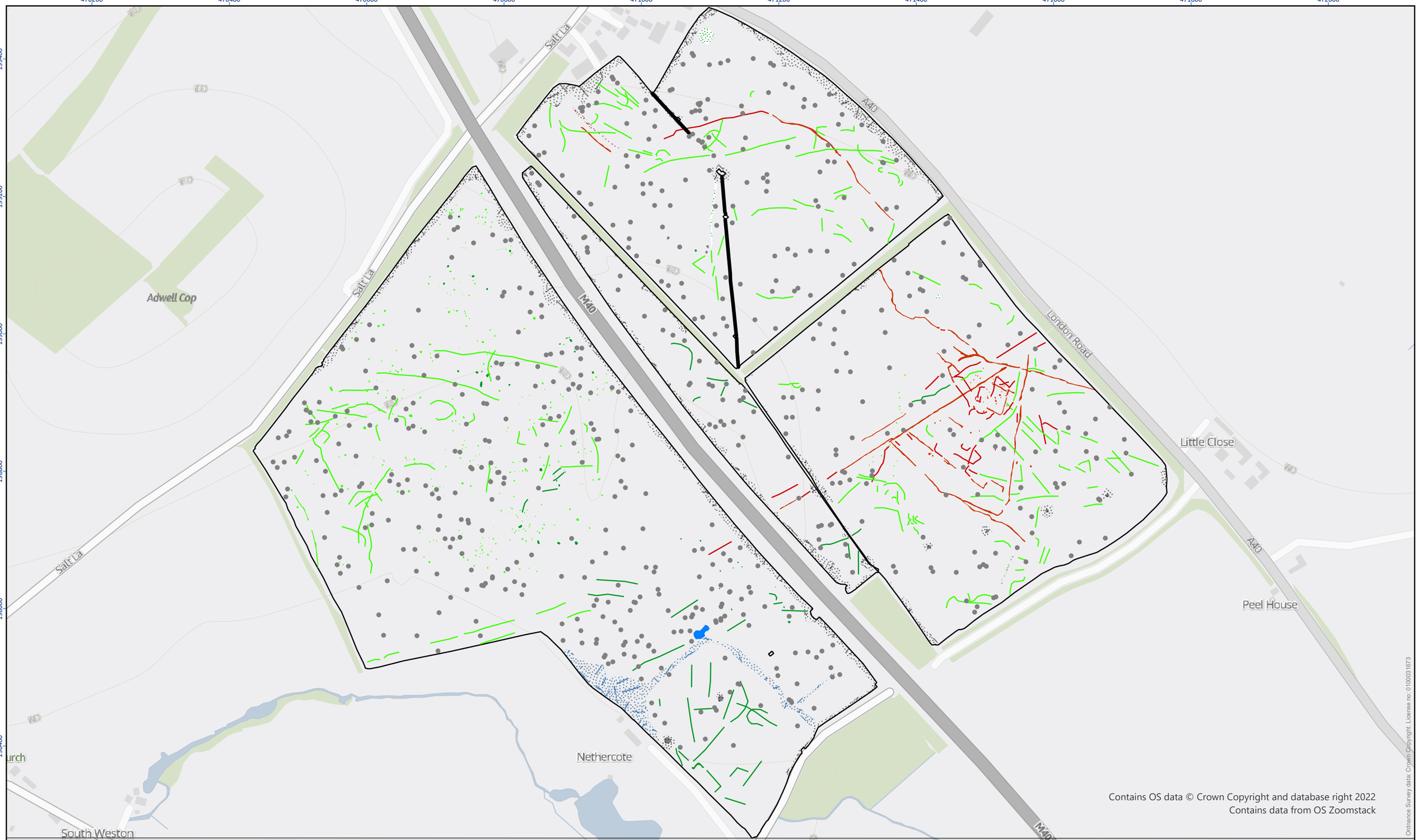
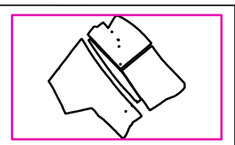


Interpretation of Gradiometer Survey Results - Overview

Figure 4.0

- Linear Trend (Archaeology)
- Enhanced Magnetism (Archaeology)
- Enhanced Magnetism (Historic Feature)
- Linear Trend (Historic Feature)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Enhanced Magnetism (Possible Archaeology)
- Ferrous/Iron Spike
- Enhanced Magnetism (Unclear Origin)
- Linear Trend (Unclear Origin)
- Enhanced Magnetism (Utility)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Linear Trend (Utility)
- Trend (Unclear Origin)



N

0 90m

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Created by: KA	Date: 01/01/2023
Checked by: JL	Date: 01/01/2023
Approved by: JL	Date: 01/01/2023

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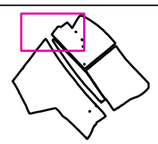
Interpretation of Gradiometer Survey Results - Overview

Figure 4.1

- Linear Trend (Archaeology)
- Enhanced Magnetism (Archaeology)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Ferrous/Iron Spike
- Enhanced Magnetism (Unclear Origin)
- Linear Trend (Unclear Origin)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Linear Trend (Utility)



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Checked by: JL	Date: 01/01/2023
Approved by: JL	Date: 01/01/2023

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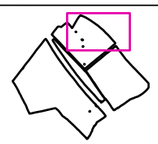
Interpretation of Gradiometer Survey Results - Overview

Figure 4.2

- Linear Trend (Archaeology)
- Enhanced Magnetism (Archaeology)
- Enhanced Magnetism (Modern)
- Ferrous/Iron Spike
- Enhanced Magnetism (Unclear Origin)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Linear Trend (Utility)



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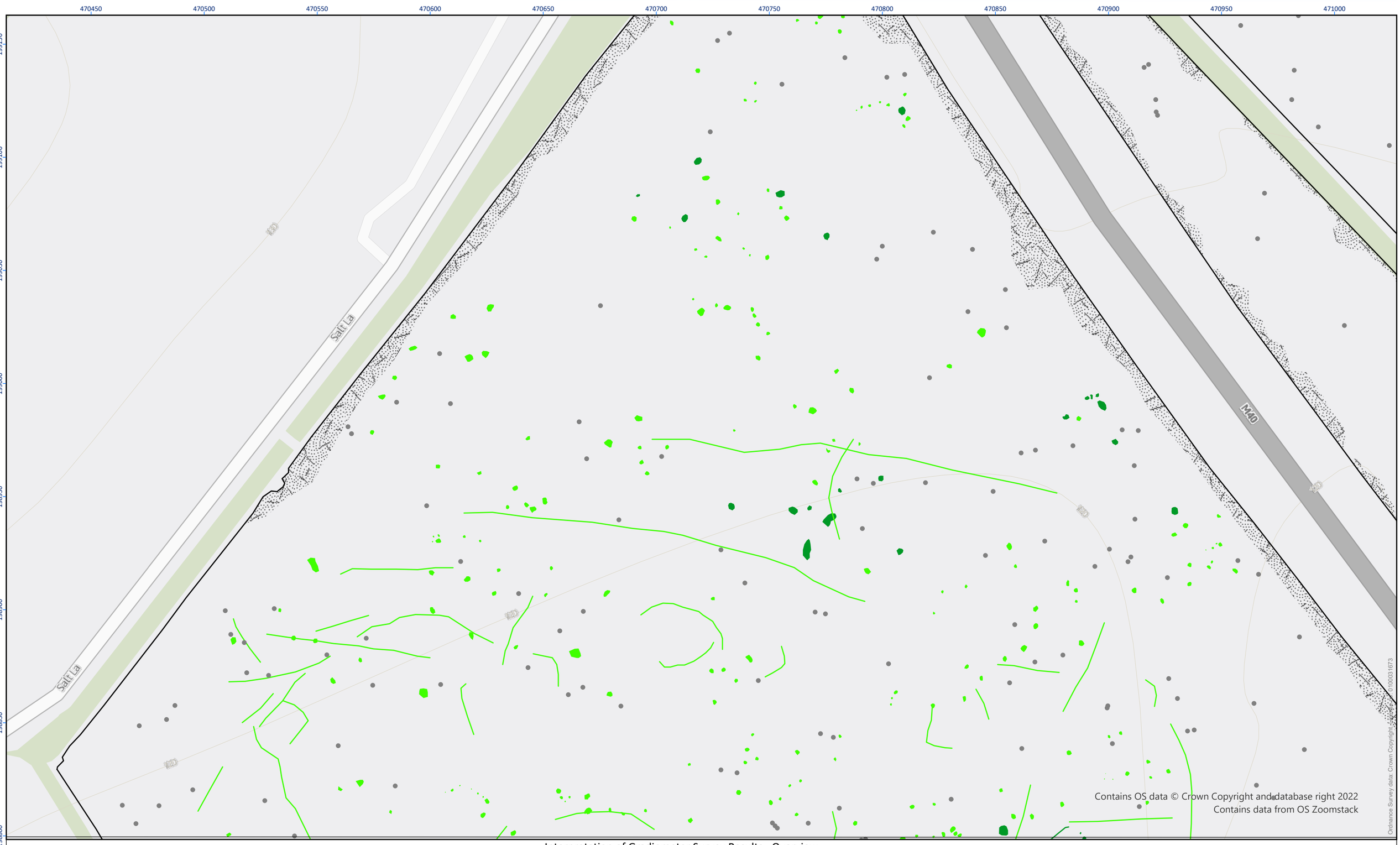

Interpretation of Gradiometer Survey Results - Overview

Figure 4.3

- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Linear Trend (Unclear Origin)
- Ferrous/Iron Spike
- Trend (Possible Archaeology)
- Trend (Unclear Origin)

N

0 30m

Scale: 1:1,500 @ A3

Drawing Number: 05/40446/GEO/4.3/01	
Created by: KA	Date: 01/01/2023
Checked by: JL	Date: 01/01/2023
Approved by: JL	Date: 01/01/2023

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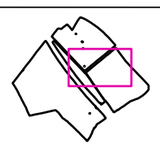
Interpretation of Gradiometer Survey Results - Overview

Figure 4.4

- Linear Trend (Archaeology)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Ferrous/Iron Spike
- Enhanced Magnetism (Unclear Origin)
- Linear Trend (Unclear Origin)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Linear Trend (Utility)
- Trend (Unclear Origin)



N

0 30m

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Checked by: JL	Date: 01/01/2023
Approved by: JL	Date: 01/01/2023

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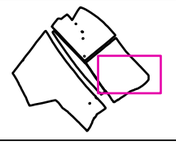
Interpretation of Gradiometer Survey Results - Overview

Figure 4.5

- Linear Trend (Archaeology)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Enhanced Magnetism (Possible Archaeology)
- Ferrous/Iron Spike
- Enhanced Magnetism (Utility)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Trend (Unclear Origin)



N

0 30m

Scale: 1:1,500 @ A3

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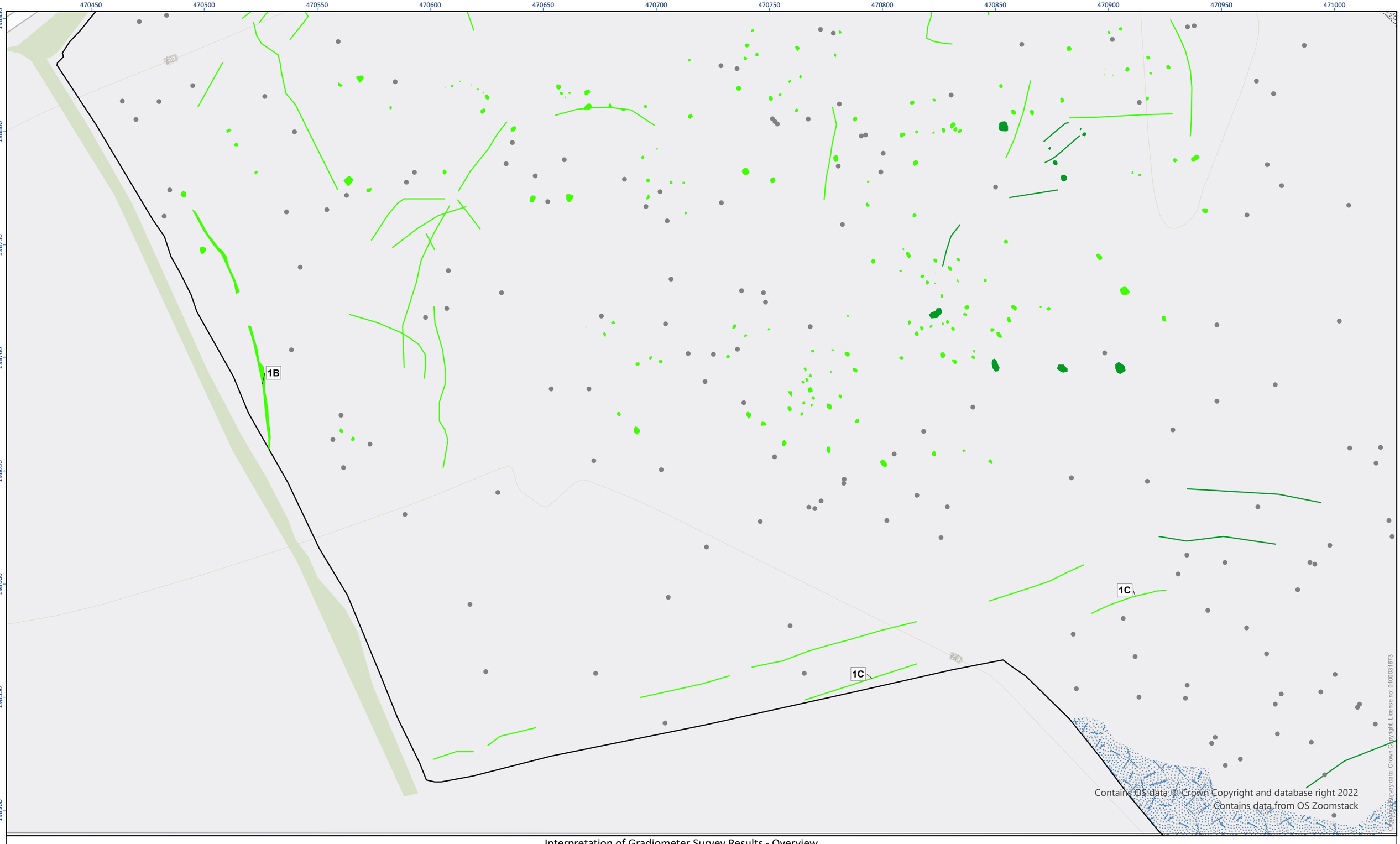

Interpretation of Gradiometer Survey Results - Overview

Figure 4.6

- Enhanced Magnetism (Historic Feature)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Linear Trend (Unclear Origin)
- Ferrous/Iron Spike
- Trend (Possible Archaeology)
- Trend (Unclear Origin)

N

0 30m

Scale: 1:1,500 @ A3

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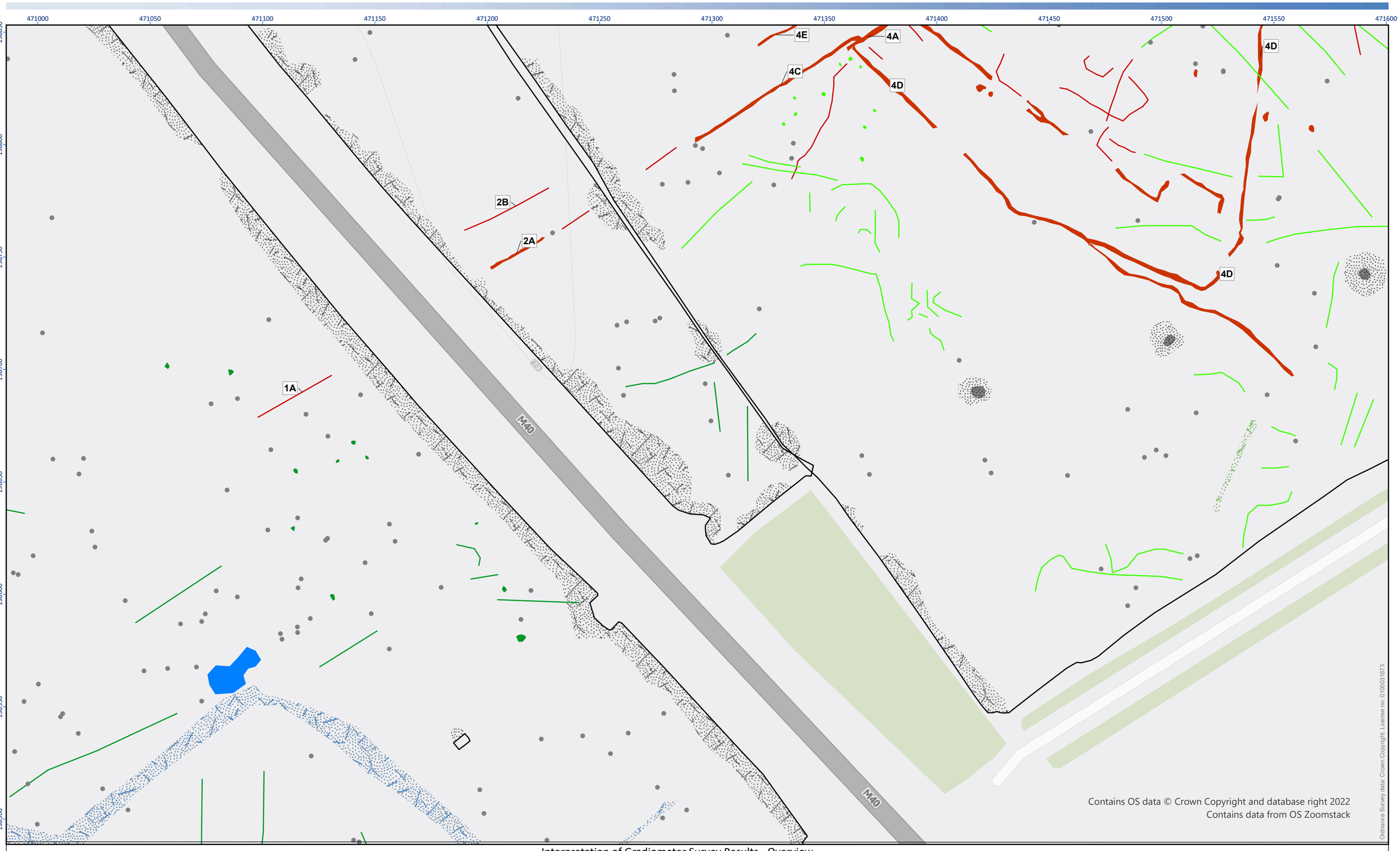
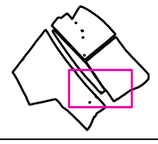
AOC Archaeology Group



Interpretation of Gradiometer Survey Results - Overview

Figure 4.7

- Linear Trend (Archaeology)
- Enhanced Magnetism (Historic Feature)
- Linear Trend (Historic Feature)
- Enhanced Magnetism (Modern)
- Linear Trend (Possible Archaeology)
- Enhanced Magnetism (Possible Archaeology)
- Ferrous/Iron Spike
- Linear Trend (Unclear Origin)
- Enhanced Magnetism (Utility)
- Ferrous/Iron Spike
- Trend (Archaeology)
- Trend (Possible Archaeology)
- Trend (Unclear Origin)



N

0 30m

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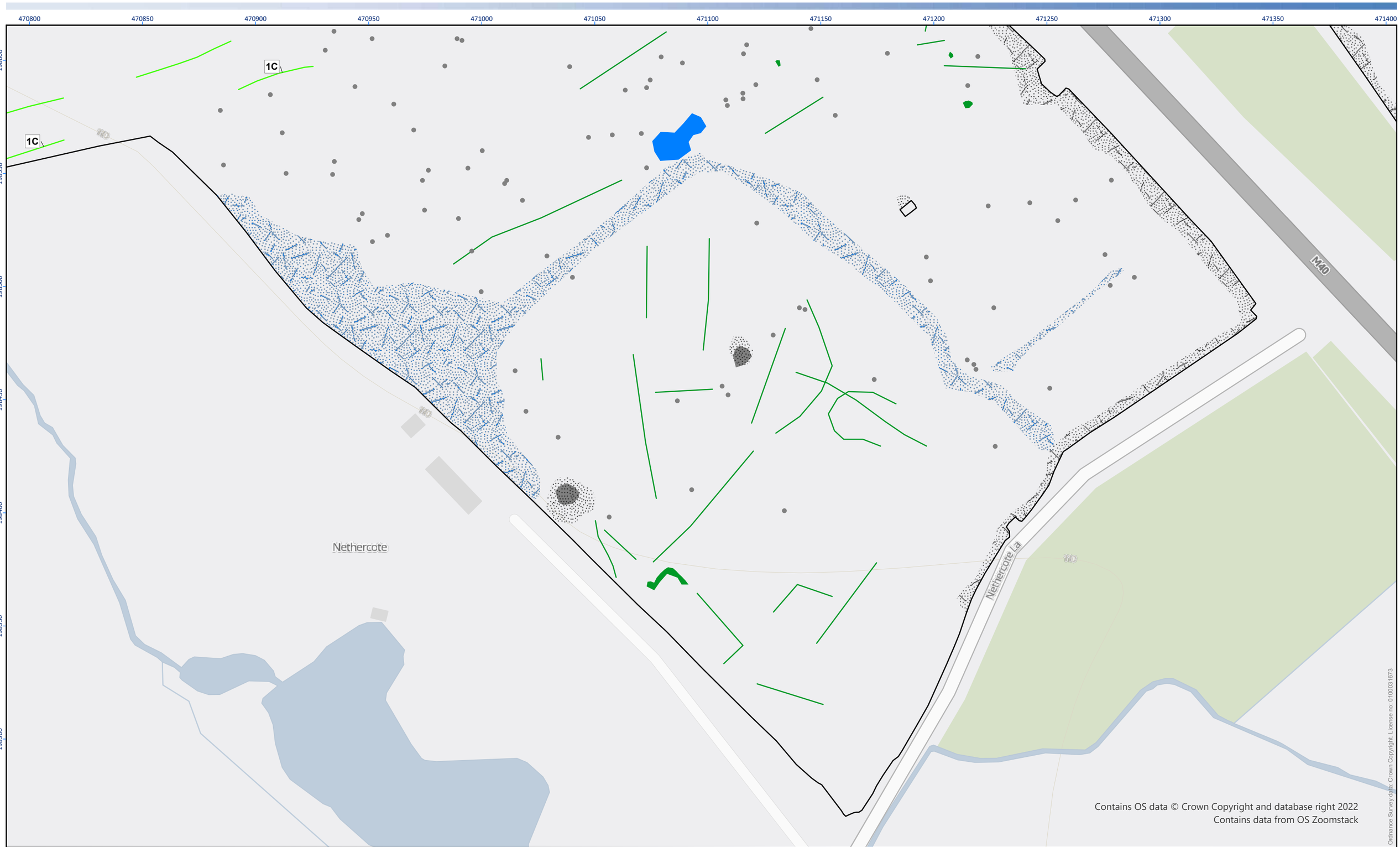
Approved by: JL	Date: 01/01/2023

AOC Archaeology Group



Interpretation of Gradiometer Survey Results - Overview

Figure 4.8

- Enhanced Magnetism (Historic Feature)
- Linear Trend (Historic Feature)
- Enhanced Magnetism (Modern)
- Ferrous/Iron Spike
- Linear Trend (Unclear Origin)
- Enhanced Magnetism (Utility)
- Ferrous/Iron Spike
- Trend (Possible Archaeology)
- Trend (Unclear Origin)

N

0 30m

Scale: 1:1,500 @ A3

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471000 471200 471400

199400

199200

A40 London Road

A40 London Road

A40 London Road

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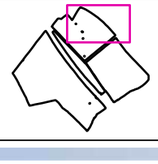
Minimally Processed Gradiometer Survey Results - XY Traces

Figure 5.2

30nT

30nT



N

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