

# **Environmental Statement**

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Lime Down Solar Park
Cable Route Corridor
Wiltshire

Geophysical Survey
Interim Report

Report no. 4362 September 2025

Client: Lime Down Solar Park





# Lime Down Solar Park Cable Route Corridor Wiltshire

# **Geophysical Survey**

#### **Summary**

A geophysical (gradiometer) survey was undertaken within the cable route corridor and compound areas of the Lime Down Solar Park, Wiltshire. The cable route totals 462ha and as of this interim report 275ha has been surveyed. Archaeological and possible archaeological responses have been recorded. These comprise ring ditches, linear ditches, pits and rectilinear enclosures, indicative of settlement activity over a probable prehistoric to medieval timeframe. Uncertain anomalies recorded within the data generally appear to be agricultural or geological in origin. Former field boundaries have been recorded along with medieval/post-medieval ridge and furrow cultivation, modern ploughing and land drains. Magnetic disturbance within the dataset can be attributed to adjacent tracks, metal fencing within field boundaries, electricity pylons, overhead cables, and service pipes. Geological responses seen within the dataset reflect either the topography of the site, discrete pockets of natural variations, possible quarrying, or former watercourses. Based on the geophysical survey, the archaeological potential of this Site is deemed to be high where there are areas of activity and low elsewhere.



# **Report Information**

Client: Lime Down Solar Park
Report Type: Geophysical Survey
Location: Sherston to Beanacre

County: Wiltshire

Grid Reference: ST 8105 7347(north) - SP 9163 6592 (south)

Period(s) of activity: Prehistoric - post-medieval

Report Number: 4362
Project Number: XK62
Site Code: MKS23

OASIS ID: archaeol11-xxxx

Date of fieldwork: February - June 2025
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#### 1 Introduction

Archaeological Services ASWYAS has been commissioned by Lanpro Services Limited on behalf of Lime Down Solar Park to undertake a geophysical survey on land for the proposed Lime Down Cable Route Corridor, Wiltshire.

This report details the Cable Route Corridor and compounds of the project only, hereafter referred to as the 'Site'. The survey was undertaken in line with current best practice (CIfA 2020; Schmidt *et al.* 2015). Due to the crops, site visits were made as land became available. Survey occurred between February and August 2025. This report will be updated once the remaining areas totalling approximately 187ha are surveyed, although some of this includes tree cover.

#### Site location, topography and land-use

The Cable Route Corridor traverses through numerous fields totalling approximately 462ha of largely arable land (Fig. 2) and has been divided into three sections:

Section 1 – areas between Lime Down A-E to Grittleton (Fig. 3)

Section 2 – areas between Grittleton to Chippenham (Fig. 4)

Section 3 – areas between Chippenham to Whitley (Fig. 5)

#### Section 1

Section 1 of the Cable Route Corridor runs southwest from Field A11 to Fields A4 and A5 in the northeast of Lime Down A. It runs southwards from the south of Field A10 into the northwest of Field C22 within the north of Lime Down C. A section of the cable route runs east to west through Lime Down C, connecting the fields either side of the railway, while another section of the corridor runs northeast, connecting Fields C24 and C27 in the northeastern corner of Lime Down C. At this point it turns southeast running approximately 1 km from the southeast of Fields B1 and C28, into the northwest of Fields D23 and 24, crossing the railway and connecting the south-western fields of Lime Down D with the south-eastern fields of Lime Down C. The cable route then continues approximately 3.6km south towards Grittleton and the M4. To the east of Section 1, the corridor runs south-east from the southeast of Fields D14, D15 and D18 of Lime Down D into the north-western edge of Lime Down E, Fields E1, E2 and E3. The cable route connects the fields of Lime Down E either side of the railway.

#### Section 2

Section 2 of the Cable Route Corridor runs for approximately 8.6km south from the M4 to the south of Grittleton, traversing agricultural fields and roadways to the east of Yatton Keynell and the west of Chippenham to Bath Road.

#### Section 3

Section 3 of the Cable Route Corridor spans two parishes within Wiltshire. The corridor extends southeast from Bath Road to the south-west of Chippenham, travelling approximately 2.6km to the east of Corsham to the southern railway line. At this point the corridor travels approximately 4.4km southeast to Whitley, entering the northwest of the extant Melksham Substation.

### Soils and geology

#### Section 1

The bedrock geology for Section 1 mainly comprises the Forest Marble Formation - mudstone. Areas towards the far east comprise the Kellaways Clay Member – mudstone and the Cornbrash Formation - limestone. All these formations are sedimentary bedrock which formed sometime between 168.3 and 163.5 million years ago during the Jurassic period (BGS 2025).

#### Section 2

The bedrock geology for Section 2 comprises as with Section 1 with the dominate bedrock being the Cornbrash Formation. Outcrops of Forest Marble have also been recorded.

#### Section 3

The bedrock geology for Section 3 comprises a mixture of Kellaways Formation - sandstone, siltstone and mudstone; Cornbrash Formation – limestone, Oxford Clay Formation – mudstone and Forest Marble Formation - mudstone

Superficial deposits have only been recorded at the very southern end of the cable route and comprise River Terrace Deposits - Sand and gravel. A sedimentary superficial deposit that formed during the Quaternary period (BGS 2025). Alluvium following and adjacent to water courses extends into the cable route corridor.

Soils at the site comprise Shallow lime-rich soils over chalk or limestone (Soilscape 3), freely draining lime-rich loamy soils (Soilscape 5), lime-rich loamy and clayey soils with impeded drainage (Soilscape 9), and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (Soilscape 18) (LANDiS 2025).

# 2 Archaeological Background

The following information is a summary of an archaeological background provided by Lanpro Services based on a 250m study area. The reference number relates to the Monument Number as recorded on Wiltshire and Swindon's Historic Environment Record (HER), the

National Record of the Historic Environment (NRHE), Portable Antiquities Scheme (PAS) and the National Heritage List for England (NHLE).

#### **Prehistoric and Roman periods**

#### Section 1

The HER contains 1 record for prehistoric or Roman period activity within Section 1 of the Cable Route Corridor which lies within Field O48, adjacent to Lime Down C. This relates to the Fosse Way Roman Road (HER ST88NE300), which forms part of Margary's 'Route 5c' Bath – Cirencester Roman Road.

Within the 250m study area, there are four HER records that date to the prehistoric period, all of which relate to findspots of prehistoric flints. A flint knife blade dated broadly from the Upper Palaeolithic to Late Mesolithic was found through fieldwalking in woodland approximately 85m to the north of the Cable Route Corridor within Lime Down E (HER MWI64480). A Mesolithic flint (HER ST88SE052) and a Neolithic flint (HER ST88SE101) were found 250m to the north of the cable route corridor within Lime Down C. Another Neolithic flint (HER ST87NE101) was found 200m to the west of Field F109 within Grittleton.

#### Section 2

The HER contains two records of prehistoric or Roman period activity within Section 2 of the Cable Route Corridor. A possible Bronze Age round barrow (HER ST87SE611) is located within Field F71 and an Iron Age to Roman field system (HER MWI73948) within Field F70, identified as cropmarks through aerial photography to the southeast of Starveall Farm, west of Chippenham.

Within the wider study area, there are eight records relating to prehistoric or Roman period activity, including a possible Bronze Age round barrow (HER ST87SE607), to the and Iron Age/Roman enclosures (HER ST87SE605) identified as cropmarks 165m to the east of Field F68. To the north of this area, further probable Iron Age/Roman enclosures (HER ST87SE610) were also identified as cropmarks.

A possible Iron Age/Roman enclosure (HER MWI74115) was recorded as a cropmark 220m to the northwest of Field F85 in Yatton Keynell and a Bronze Age round barrow (HER MWI74108) lies 225m to the east of the Field F78. A concentration of pottery, including high status Samian, as well as non-local sandstone and stone roof tile (HER ST87NE305) was recovered 170m to the west of Field F87, which suggests the presence of a Romano-British settlement in this area (HER ST87NE309). Further Roman-British pottery (HER ST87SE303) was found during fieldwork, 195m to the west of Field F68.

A semi-circular enclosure with internal pits (HER ST87NE606) is located 180m west of Field F101, south of the M4, which, although undated, may be of prehistoric origin. Additionally, undated ring ditches (HER ST87NE609) were identified 150m west of Field F83, east of Yatton Keynell, and could also be prehistoric in date.

#### Section 3

The HER contains one record located within Section 3 of the Cable Route Corridor dating to the Roman period, comprising the Roman road from Bath to Speen (HER ST86NE304). There are two PAS records within the southern extent, a Mesolithic blade (WILT-05A52C) in Field F25 and a Roman nail cleaner (WILT-6A4303) in Field FF19.

Within the search there are two records relating to the prehistoric or Roman period, including a possible Bronze Age round barrow (HER MWI74042), identified as cropmarks through aerial photography 230m to the northeast of Field F51 at Thingley Junction and a Romano-British ring (HER ST86NE310) found 150m to the west of Field F26a at Boyd's Farm, Gastard.

#### Medieval period

The majority of villages located in the vicinity of the cable route corridor are likely to have an early medieval origin, reflected in the origin of their place names, many first documented in the Domesday Book of 1086. It is likely that villages grew and contracted during the medieval period as a result in changes in rural economies and associated agrarian administration systems.

The majority of the cable route corridor is likely to have been in agricultural use throughout the medieval period, as evidenced by ridge and furrow recorded on the HER, the majority of which is no longer extant. LiDAR has also identified extensive evidence of field systems across the cable route corridor indicating that potential buried archaeological features dating to the medieval period are likely to primarily relate to agricultural activity, such as ridge and furrow, field boundaries and drainage.

#### Section 1

There is one record within Section 1 dating to the medieval period relating to a PAS record of a medieval copper alloy chape (WILT-D693B9) in Field F122.

Within the study area there are seven records relating to the medieval period, including blocks of ridge and furrow visible as earthworks on aerial photography (HER MWI72515) within Lime Down A. Grittleton medieval settlement (HER ST88SE402), 200m to the west of Field F111 and Newlands Farm (HER ST88SE456), 245m to the east of Field F114. Surrendell medieval settlement (HER ST88SE450), lies 70m to the south of Field F122,

which formerly had a church and possibly a manor and chapel, and where a Saxon sword pommel (HER ST88SE401) and 14th century spur (HER ST88SE454) have been found. There is also a 'pillow mound' or artificial rabbit warren to the west of Field F120 which is designated as a Scheduled Monument (NHLE 1018610).

The settlements within the study area of Section 1 are known to have originated in the Anglo-Saxon period and are mentioned in the Domesday book. Sherston is first named in an Anglo-Saxon charter in AD 896 as Scorranstan, the settlement at Norton, is named as *Nort(h)un* in a charter dating to AD 931 and, while it is possible that the AD 931 charter also references Hullavington, the earliest confirmed reference is in the Domesday Book of 1086. Other settlements first mentioned in the Domesday Book include Luckington, Malmesbury and Grittleton.

#### Section 2

There is one record within Section 2 of the cable route corridor relating to the medieval period, comprising a medieval/post-medieval field boundary visible as an earthwork on air photographs (MWI73949) within Field F75.

Within the surrounding study area there are six records dating to the medieval period, of which three relate to medieval settlements. 'Sevington medieval settlement with surviving earthworks' (HER ST87NE452) lies 170m to the southeast of Field F106 and 'Fowlswick Farm medieval farmstead and settlement with earthworks of a moat' (HER ST87NE450) lies 230m to the east of Field F85. The medieval settlement of Sheldon, designated as a Scheduled Monument (NHLE 1018428; ST87SE453), is located approximately 180 metres east of Field F75. It includes earthworks such as holloways and house platforms near the surviving Manor House (NHLE 1001243) and chapel (NHLE 1022908), both situated outside the study area.

The remaining records relate to medieval agricultural features, including ridge and furrow (HER MWI74137) and field boundaries (HER MWI74116) 100m to the east of Field F85 at Fowlswick Farm.

The village of Yatton Keynell was first recorded in the Domesday Book as Getone. Its name went through several variations, and the 'Keynell' affix appears to have been added in the 13th century after Henry Caynell, who had a landholding in 1242.

Chippenham is recorded in an Anglo-Saxon charter of approximately 900 as *Cippanhamme*, probably meaning the 'river meadow of a man called Cippa'.

#### Section 3

There are 22 records located within Section 3 of the Cable Route Corridor dating to the medieval period. Three of the records relate to PAS records of a medieval coins (WILT-7F683B, WILT-7DD77D) and a medieval finger ring (WILT-DD69E5) in Field F25.

Nine of these relate to medieval settlement and agricultural activity around Thingley medieval settlement (HER ST87SE462) within Fields F38-F51, including a farmhouse (HER MWI34471), another farmstead (HER MWI66064), a barn (HER MWI34472), a pigsty (HER MWI74609), a cow house (HER MWI74610), a possible water mill (HER MWI74611), and field boundaries (HER MWI74055, HER ST87SE612). Within Easton, former field boundaries were identified in Field F55 and may be associated with medieval settlement (HER ST87SE455) and additional field boundaries (HER ST86NE603) lie to the south of Chapel Knapp in Field F25.

The remaining seven records are located within the cable route corridor at the end of Section 3. These include Westlands Farm, which has medieval origins (HER ST86NE456) and is situated in Field O5, as well as the site of the medieval settlement of Beanacre (HER ST96NW460), located within Fields W3–W4. Ridge and furrow earthworks associated with the medieval settlement near Whitley House (HER ST86NE453) are present in Field F22. Additional earthworks of medieval or post-medieval ridge and furrow, visible on aerial photographs, are located between the known medieval settlements and are also associated with them, in Fields F12, F16 and F17 (HER MWI73895) and Fields F5-7 (HER MWI73999).

The areas of ridge and furrow are extant but poorly preserved surviving as low ridges aligned broadly east—west and north-south to a maximum height of c.0.3m, but no associated features such as headlands or gores have been identified.

Within the surrounding study area, in the vicinity of Beanacre medieval settlement, there is a timber framed barn (HER MWI44441), the old manor farmstead (HER MWI68690) and the partially extant medieval farm house (HER MWI68691). Monks Farm medieval settlement (HER ST86NE463) lies 165m to the west of Field F5.

The village of Melksham is first recorded in the Domesday Book as *Melchesham*, deriving from the Old English meaning 'homestead/enclosure where milk is produced'.

The village of Corsham appears to derive its name from  $Cosa's h\bar{a}m$ , "ham" being Old English for homestead, or village, and is recorded in the Domesday Book as Cosseham.

The majority of the cable route corridor lies outside any known focus of medieval settlement and was likely used for agriculture throughout the period. HER records and LiDAR data indicate an extensive area of former and partially extant ridge and furrow. Surviving

earthwork remains are present in Fields F5– F7, F12, F16, F17, and F22, although they are poorly preserved and located in areas that have undergone previous truncation. Any subsurface evidence of medieval activity is therefore likely to relate to agricultural features such as ploughing, field boundaries, or drainage.

#### Post-medieval and modern periods

Settlements within the search area may have contracted in size from the 16th century, with areas of former settlement or associated plots transitioning to agricultural use. Earthworks associated with former medieval settlement activity survive at Surrendell, Sevington, Fowlswick Farm, Sheldon, Thingley and Easton.

The Corsham Court Registered Park and Garden (NHLE 1000470, HER ST87SE527) lies 180m to the west of the cable route corridor and was developed in the mid-18th century by Capability Brown and later refined by Humphry Repton in the 19th century. Originally part of the medieval estate of Corsham, the park was transformed with sweeping lawns, a serpentine lake, and carefully planned vistas. The eastern reaches of Castle Ashby Park border the study area and include the Grade II\* listed 'gate piers at northeast entrance to Corsham Park' (NHLE 1181798), although the estate village of Corsham itself and the majority of the park lie some distance to the west, outside of the study area.

There are 20 records within the Cable Route Corridor dating to the post-medieval to modern periods, primarily related to ongoing agricultural activity since the medieval period or heritage assets such as buildings and monuments of a well-defined extent, which do not contribute to the cable route corridor's archaeological potential. There is one PAS record within Field F12 relating to a post-medieval thimble (WILT-27AAC8).

Within the surrounding study area, there are 129 HER records for the post-medieval and modern periods. The records are similarly dominated by buildings and monuments of a well-defined extent. The cable route corridor appears to have remained primarily in agricultural use throughout the post-medieval period.

# 3 Aims, Methodology and Presentation

The aims and objectives of the programme of geophysical survey were to gather sufficient information to establish the presence/absence, character and extent, of any archaeological remains within the specific area and to inform an assessment of the archaeological potential of the site. To achieve this aim, a magnetometer survey covering all amenable parts of the Site was undertaken (see Fig. 2).

The general aims of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified:
- to therefore determine the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of the survey.

#### **Magnetometer survey**

The cart-based survey was undertaken using an eight channel SenSYS MX V3 system containing eight FGM650 sensors. Readings are taken every 20MHz (between 0.05 and 0.1m). Data were recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. DLMGPS and MAGNETO software, alongside bespoke in-house software was used to process and present the data.

For hand-held data, the Site grid was laid out using a Trimble VRS differential Global Positioning System (Trimble R6 model). The survey was undertaken using Bartington Grad601 magnetic gradiometers. These were employed taking readings at 0.25m intervals on zig-zag traverses 1.0m apart within 30m by 30m grids, so that 3600 readings were recorded in each grid. These readings were stored in the memory of the instrument and later downloaded to computer for processing and interpretation. Bespoke in-house software was used to process and present the data. Further details are given in Appendix 1.

#### Reporting

A general site location plan, incorporating the 1:50000 Ordnance Survey (OS) mapping, is shown in Figure 1. Figure 2 displays the survey areas at a scale of 1:40000 whilst Figures 3-5 shows an overview of the three sections at a scale of 1:15000. Processed greyscale and interpretation overviews of the sections are shown in Figures 6-11 at a scale of 1:15000. Processed and minimally processed data, together with interpretation of the survey results are presented in Figures 12 to 128 inclusive at a scale of 1:1500.

Technical information on the equipment used, data processing and survey methodologies are given in Appendix 1. Technical information on locating the survey area is provided in Appendix 2. Appendix 3 describes the composition and location of the archive. A copy of the completed OASIS form is included in Appendix 4.

The survey methodology, report and any recommendations comply with guidelines outlined by the European Archaeological Council (Schmidt *et al.* 2015) and by the Chartered Institute for Archaeologists (CIfA 2020). All figures reproduced from Ordnance Survey mapping are with the permission of the controller of His Majesty's Stationery Office (© Crown copyright).

The figures in this report have been produced following analysis of the data in processed formats and over a range of different display levels. All figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff.

## 4 Results and Discussion (see Figures 12 to 128)

#### Ferrous anomalies and magnetic disturbance

Ferrous anomalies, as individual 'spikes', or as large discrete areas are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris or material is common on rural sites, often being present as a consequence of manuring or tipping/infilling. There is no obvious pattern or clustering to their distribution in this survey to suggest anything other than a random background scatter of ferrous debris in the plough-soil.

An area of magnetic disturbance (**F1**) in F151 corresponds to the location of a pond depicted on historic mapping dating from 1844 (KYP 2025). A similar response in F155 (**F2**) also corresponds to a pond.

Magnetic disturbance (**F3**) in Field F11 corresponds to a small copse of trees recorded on historic mapping dating from 1889 (NLS 2025).

A former pond (**F4**) can be seen in Field F105 which has a service pipe running from it to the south.

A large area of magnetic disturbance (**F5**) in Field F66 corresponds to the location of limekilns and quarries marked on historic mapping dating from 1900 (NLS 2025).

A circular ferrous anomaly (**F6**) in Field F57 has produced a 'button' response which is typical of a former electricity pylon. The foundations of the four corners are likely to be *in situ* causing the button-like appearance.

An area of magnetic disturbance (**F7**) in Field F55 corresponds to the location of a pond depicted on historic mapping dating from 1844 (KYP 2025). A similar response (**F8**) has also been recorded in F46.

Ferrous response (**F9**) in Field F26 corresponds with the location of a '*trial shaft*' depicted on historic mapping dating from 1884 and response **F10** corresponds to a pond on the same mapping (NLS 2025).

Linear dipolar trends have been recorded within Fields 145, 134, 156, 154, 159, 160, 162, 114, 106, 105, 84, 83, 81, 75, 68, 57, 51, 27, 26, 23, 19, 14 and 7 which relate to service pipes.

Magnetic disturbance along the limits of the survey areas is due to interference from metal fencing and adjacent tracks or roads.

#### Geological anomalies

The survey has detected anomalies that have been interpreted as geological in origin throughout the survey area. It is thought that the responses have been detected because of the variation in the composition and depth of the deposits of superficial material in which they derive and the topography within the fields.

A stippling effect can be seen in the south of Fields F154 and F156 and correspond to a change in the bedrock geology from mudstone to limestone (BGS 2025). It is likely that desiccation cracks are partly represented here.

Anomalies **G1** and **G2** in Field F123 have been recorded. These are likely to be quarry pits due to similarities with known examples.

While the magnetic disturbance in Field F120 is likely to be caused by geological changes in the substrate, the potential for responses to be in part caused by burrowing animals can't not be completed discounted.

As with Fields F154 and F156 a similar response with geological responses can be seen in Fields F37 to F34 which also corresponds to a change in the bedrock geology from mudstone to limestone (BGS 2025).

#### **Agricultural anomalies**

Former field boundaries (**FB1** – **FB35**) have been recorded within Fields F145, F160, F87, F85, F68, F57, F55, F45, F43 - F41, F37 - F34, F30, F29, F27 - F24 and F16. Most of these boundaries correspond to historic mapping dating from 1884 (NLS 2025).

Identified field boundaries in F85, F42, F36, F35 and F34 correspond to the 1840's Wiltshire Tithes only (**FB7**, **FB8**, **FB20**, **FB23**, **FB24**, **FB25**, **FB27**, **FB28**) (KYP 2025).

Medieval and post-medieval ridge and furrow cultivation has been recorded within several areas on differing alignments.

Field drains have been recorded in Fields F145, F118, F105, F81 and F34. These have quite a low magnetic strength, and it is likely that their construction is of a non-fired clay material.

Other parallel linear trends can be seen within most of the areas and are associated with modern ploughing. Only a selection of these have been highlighted on the interpretation diagrams to show the direction of the plough lines.

#### **Uncertain anomalies**

A linear response (U1) in F150 may have some archaeological potential such as part of a field system. However, as this response is isolated, this interpretation is cautious and may be of an agricultural origin.

A number of negative linear responses (U2) have been recoded in Field F163 and are similar to those which were recorded in adjacent Fields E1 and E2 (Area E of the solar areas). The anomalies at U3 appear to form a series of trackways and enclosures with only one positive response (P11).

Linear trends (U3) in Field F124 are possibly a continuation of P14, however, they are much weaker in magnetic strength and may be agricultural.

The origin of large pit-like anomalies (**U4**) and linear responses (**U5**) in Field F112 is unknown. Historic mapping of this field shows a number of trees were located which may be associated in some way.

Anomalies (U6) in the southeast corner of Field F87 have been identified as having an uncertain origin. It is difficult to interpret due to the location, this may become clear once the field to the south has been surveyed.

Linear anomalies (U7) in Field F81 may indicate parts of a former field system. Due to their weak magnetic strength a cautious interpretation has been made.

A ditch-like response (U8) in Field F72 may be of some interest although an interpretation is uncertain. Once the adjacent fields have been surveyed this may become clearer.

A group of anomalies (**U9**) in Field F68 appear to form part of a small enclosure.

Circular response (**U10**) in Field F66 may represent an isolated ring ditch, measuring approximately 9m in diameter. It is magnetically weak and just visible against the background levels, hence the uncertainty.

Linear response (U11) in Field F54 is on the same alignment as the surrounding ridge and furrow. This may represent a headland, a deeper furrow or a former boundary.

Groups of *Uncertain* anomalies (**U12**) in Field F43 appear as parchmarks on some aerial imagery (GE 2025). It is possible that they represent former quarrying. Similar responses (**U13**) can be seen in F42 to the south.

A group of circular responses (**U14**) in Field F26 are pit-like in nature and may be of an archaeological nature. A geological origin is also likely.

#### Possible and definite archaeological anomalies

Anomalies of both an archaeological and possible archaeological origin have been recorded within the cable route with areas devoid of (archaeological) anomalies between and/or around them. Some of the features extend out of the Cable Route Corridor which are likely to extend further into the fields.

Sections of a possible enclosure (A1) has been recorded in Field F145 which is perhaps associated with archaeological responses in Field C20 (Area C of the solar areas) to the southwest, if so they are likely to represent field systems. Linear anomalies that have been recorded as possible archaeology include P1 and P2 which may also relate to former field systems. It has also been noted that P2 forms the eastern boundary of the ridge and furrow cultivation.

Magnetically weak trends have been recorded in F134 (**P3**) and F135 (**P4-P7**) in which the majority are likely to reflect field systems predating the 1840s Wiltshire Tithes. The anomalies at **P5** form more of a pattern, possibly indicating part of an enclosure.

In the south of Field F151 linear anomalies **P8** may indicate a trackway or further field systems. Linear anomalies have also been recorded in F154 which includes a possible historic field boundary (**P9**), and ditch-like features (**P10**) which may be associated with parts of enclosures.

A group of anomalies (A2) within F153 forms a rectilinear enclosure with several other features to its northwest suggesting multiple phases. A trackway is also visible towards the southeast of the enclosure.

A short ditch response (P11) has been recorded amongst a group of negative anomalies in Field F163 and may be of some interest.

Several archaeological anomalies have been recorded within Field F123 which include a large sub oval enclosure (A3) measuring 85m in length by 75m at its widest point. There is a possible entrance in the east and numerous magnetically strong anomalies are recoded within the enclosure. To the west of the enclosure pit-like anomalies (P12) can be seen. Whilst it is likely they are of an anthropogenic origin, it is also possible they represent pockets of natural features, hence the uncertainty with the interpretation.

Towards the northeast of the above enclosure a ring ditch (A4) has been recorded which measures 10m in diameter. A further ring ditch (A5) can be seen to the immediate east of A3 and measures approximately 13m in diameter.

Linear trend **P13** in the north of F123 is likely to be a boundary pre-dating the available historic mapping.

A possible trackway (**A6**) can be seen in Field F123 which appears to be leading from the main group of responses mentioned above into F124 to the east. These responses at **P14** are much weaker in magnetic strength and have been interpreted as *possible archaeology*.

Weak linear responses (**P15**) in Field F125 possibly represent parts of enclosures, field systems and a trackway which will continue out of the survey area to the south.

An isolated ring ditch (A7), measuring approximately 14m in diameter has been recorded in Field F116.

Possible ditch response **P16** in Field F115 may indicate part of a field system. Weak linear anomalies (**P17**) in Field 114 appear to indicate small enclosures which possibly extend beyond the area surveyed.

In Field F113 a strong magnetic response (**P18**) is indicative of a ditch-like feature which continues into the north-western corner of F112.

Anomalies (**P19**) located along the eastern edge of Field 109 possibly indicate parts of a field system. Although due to the location it is difficult to give a full interpretation.

A ring ditch (**A8**), measuring approximately 11m in diameter has been recorded in Field F106. There is the hint of a further one to the west at **P20**, but this response is weak and incomplete. Further anomalies within F106 include weak linear responses (**A10**) which form enclosures and an even weaker response (**P21**) which appears to form a double ditched feature.

Ditch-like responses (**P22**) in Field F102 may be of some interest but only form partial features.

Field F85 contains a high level of magnetic noise, most likely reflecting the geological bedrock within this area. Despite this, several archaeological features can be seen including a ring ditch (A11) measuring approximately 18m in diameter, with possibly internal features and an entrance in its south. Linear ditches (P23 and P24) likely represent field systems.

Ditch responses (**P25**) within Field F80 possibly form a trackway in part leading to a small, elongated field division. Several other anomalies of archaeological interest have also been recorded here.

Several definite and possible archaeological responses have been recorded across Fields F65 to F63 suggesting an area of settlement between two water courses. The responses include probable field boundaries **P26**, **P27** and **P35** (which are not seen on historic mapping) along with very strong ditch-like anomalies **P28 - P34** which possibly represent parts of larger

enclosures. However, **P29** and **P30** in Field F65 appear as a 'pair' approximately 36m apart which lead into Field F64 and may be part of a larger enclosure system outside of the survey area.

Straddling across Fields F64 and F63 a large double-ditched enclosure (A12) has been recorded. This measures approximately 56m by 60m from its outer ditches. A ring ditch can be seen in the southeast corner along with other possible internal features. Ditch A13 leads south from the enclosure. Anomalies P36 are weaker in magnetic strength but may also be associated.

Anomaly **P37** within Field F58 along with some *uncertain* trends may indicate elements of a former field system. Further field systems and land divisions (**A14 - A16**, **P38** and **P39**) have been recorded across Fields F55 and F54 amongst a noisy magnetic background which may indicate a difference in the farming techniques used over time.

A group of responses (**P40**) in Field 41 appears to show a series of enclosures and linear tends which continue out of the survey area.

A number of linear ditches and enclosures (A17 - A22, P41 - P44) can be seen within Fields F43 to F34 and likely to be further, former field systems. The enclosure at A22 measures approximately 30m by 30m.

Sections of possible enclosure and ditches have been recorded in Fields F28 (A23) and F25 (A24). Due to the width of the survey area it is difficult to provide a full interpretation.

Linear response (**P45**) in Field F17 is likely to be associated with a boundary ditch or enclosure. Fields to the immediate east and northeast of Melksham Substation have had Iron Age/Roman features recorded through trenching.

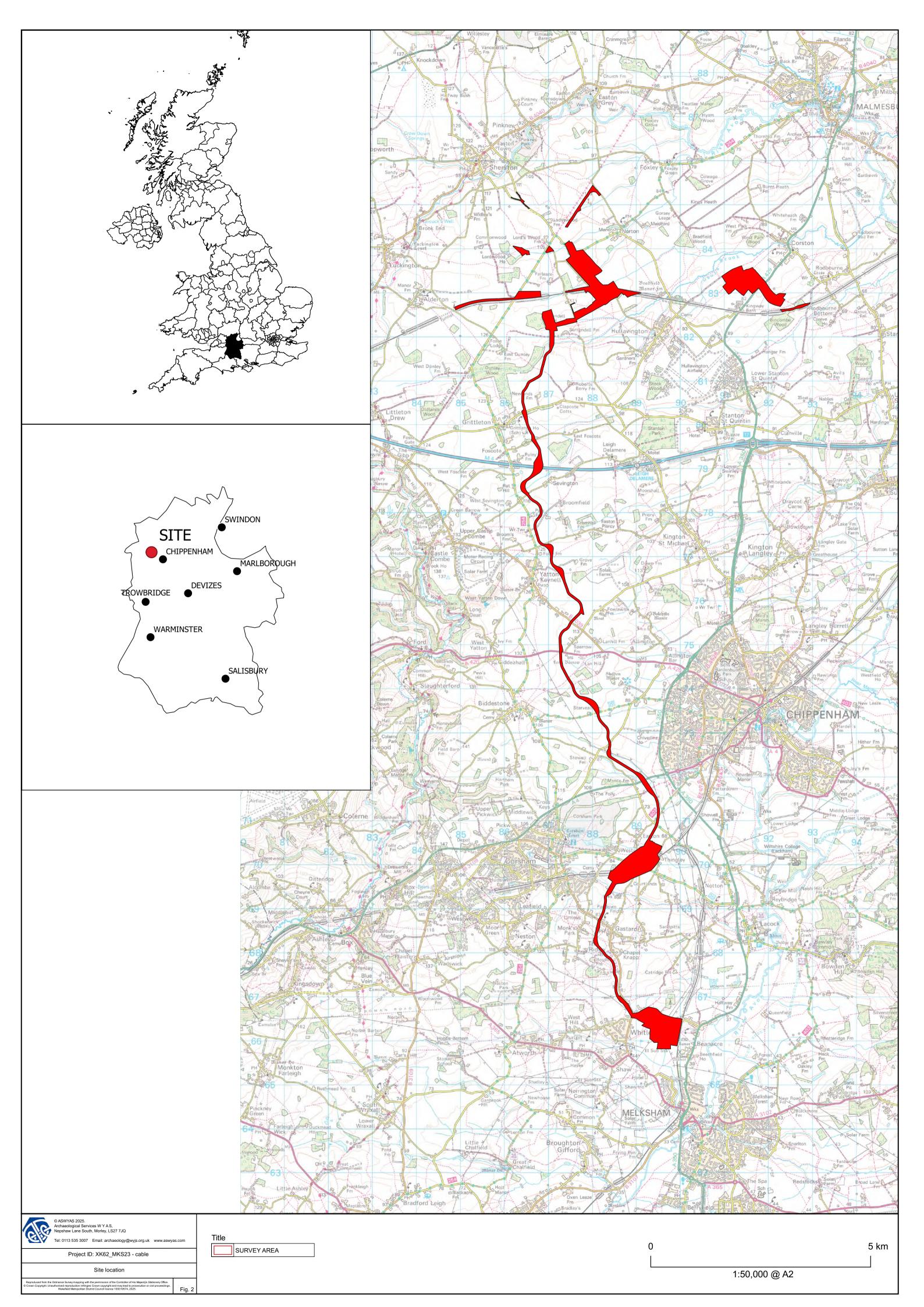
#### **5** Conclusions

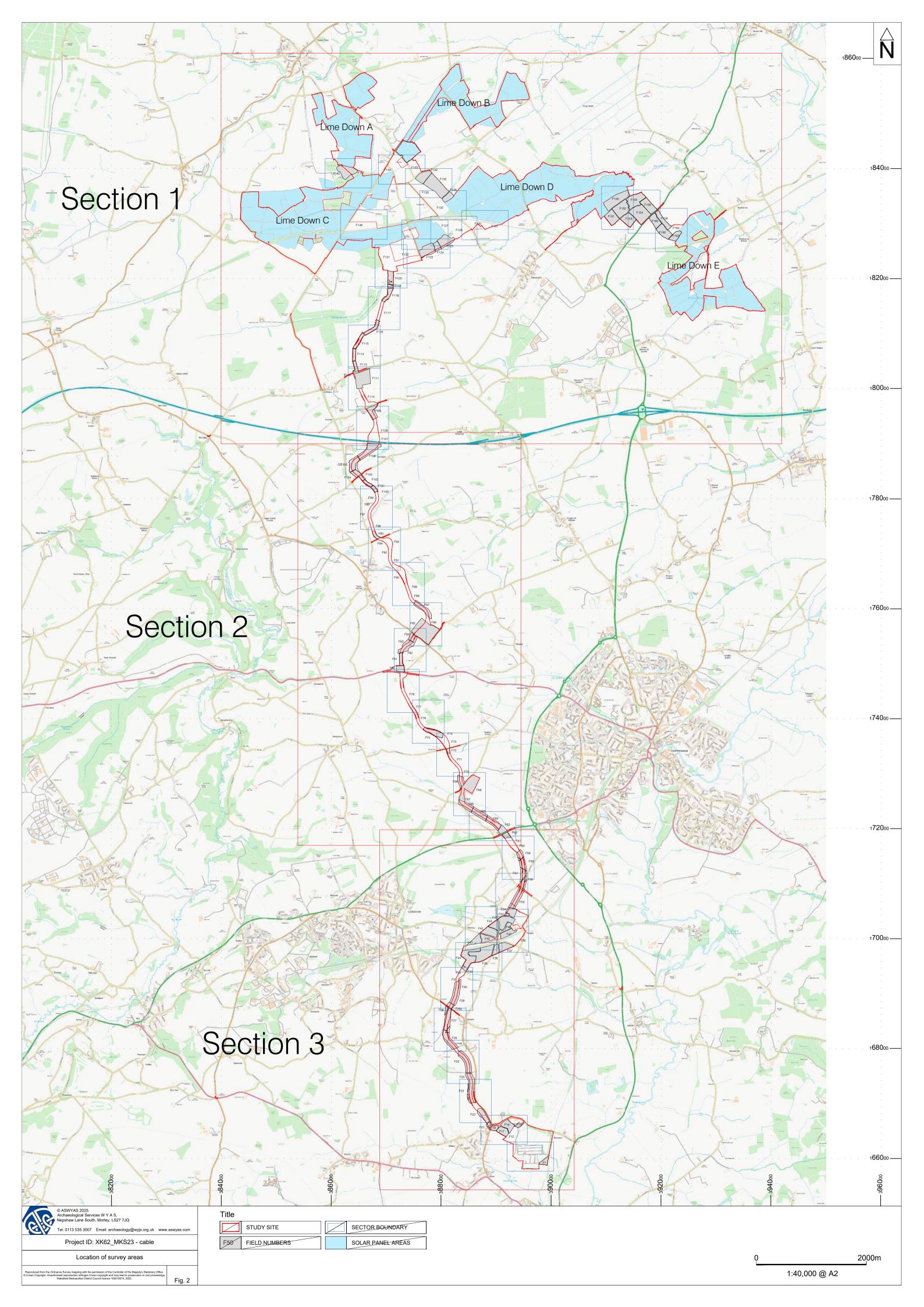
The geophysical survey has detected numerous magnetic anomalies associated with an archaeological and possible archaeological origin, comprising ring ditches, linear ditches and rectilinear enclosures, indicative of settlement activity over a probable prehistoric to medieval timeframe. Uncertain anomalies recorded are generally considered to be of an agricultural or geological origin.

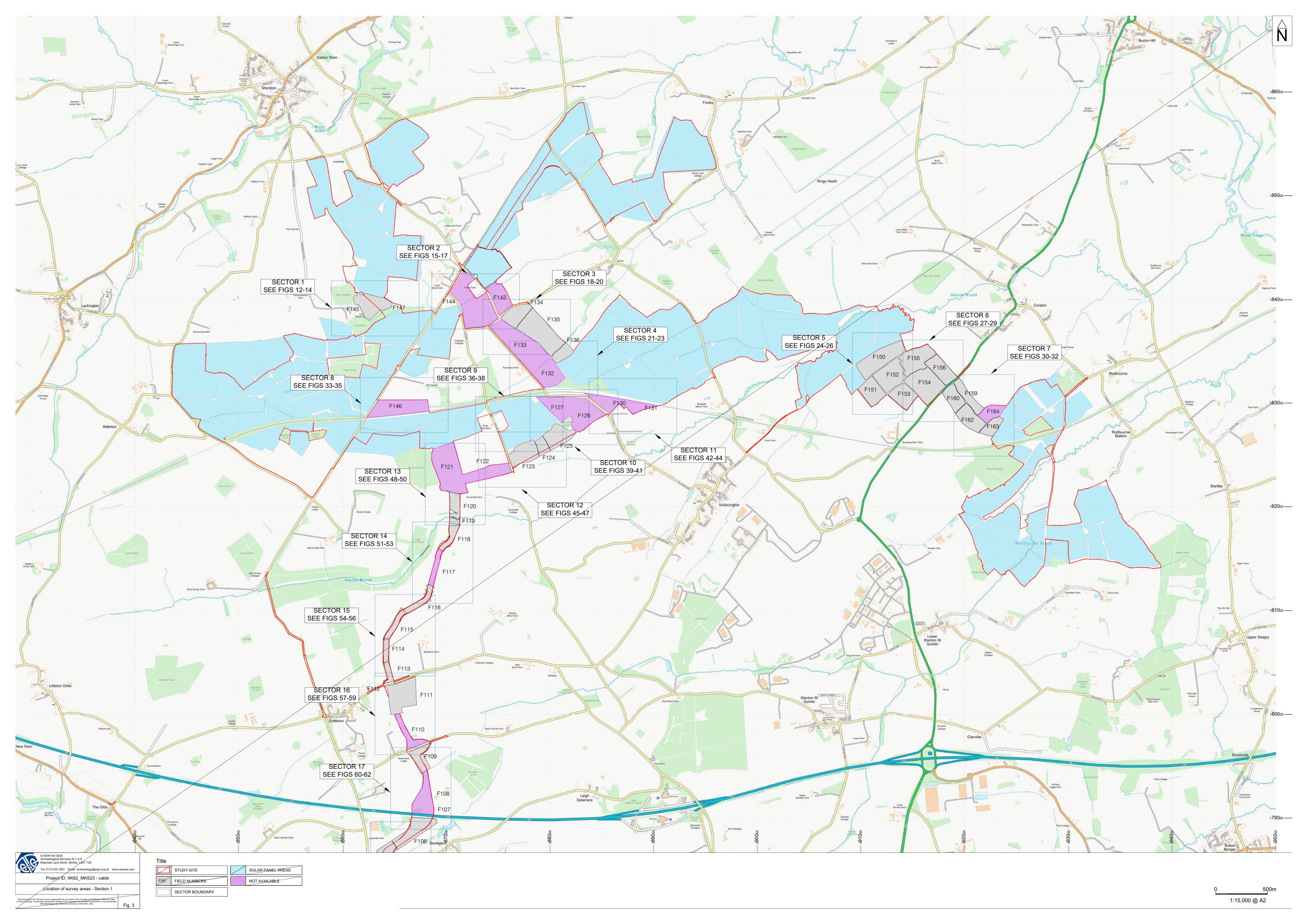
Former field boundaries have been recorded along with medieval/post-medieval ridge and furrow cultivation, modern ploughing and land drains. Magnetic disturbance within the dataset can be attributed to adjacent tracks, metal fencing within field boundaries, electricity pylons, overhead cables and service pipes along with former ponds and areas of quarrying.

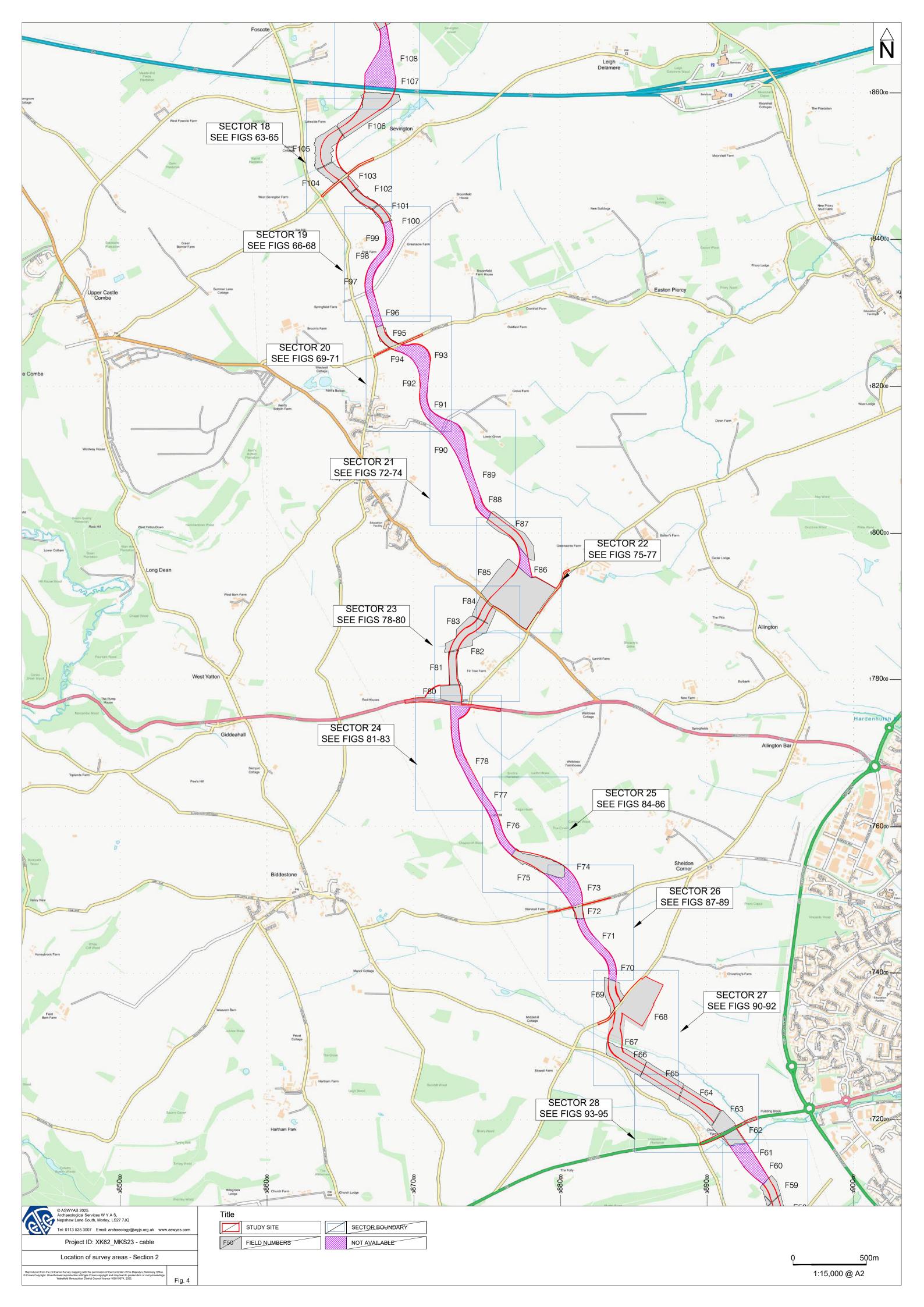
Geological responses seen within the dataset reflect either the topography of the site, discrete pockets of natural variations, possible quarrying, or former watercourses and changes within the bedrock geology.

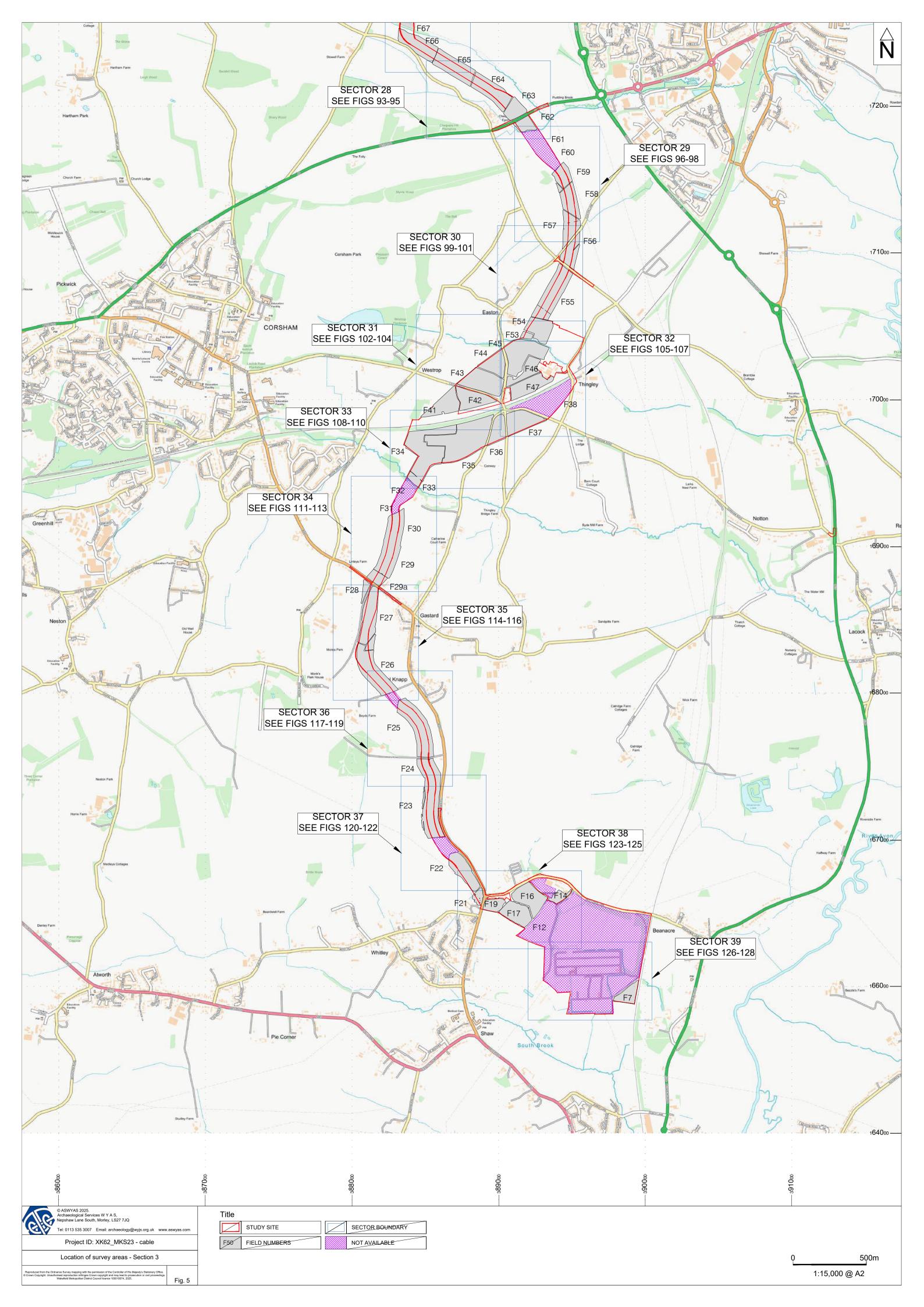
Based on the geophysical survey, the archaeological potential of this Site is deemed to be high where there are areas of activity and low elsewhere. The survey is continuing in Autumn 2025 and the report will be updated once all survey work is completed.

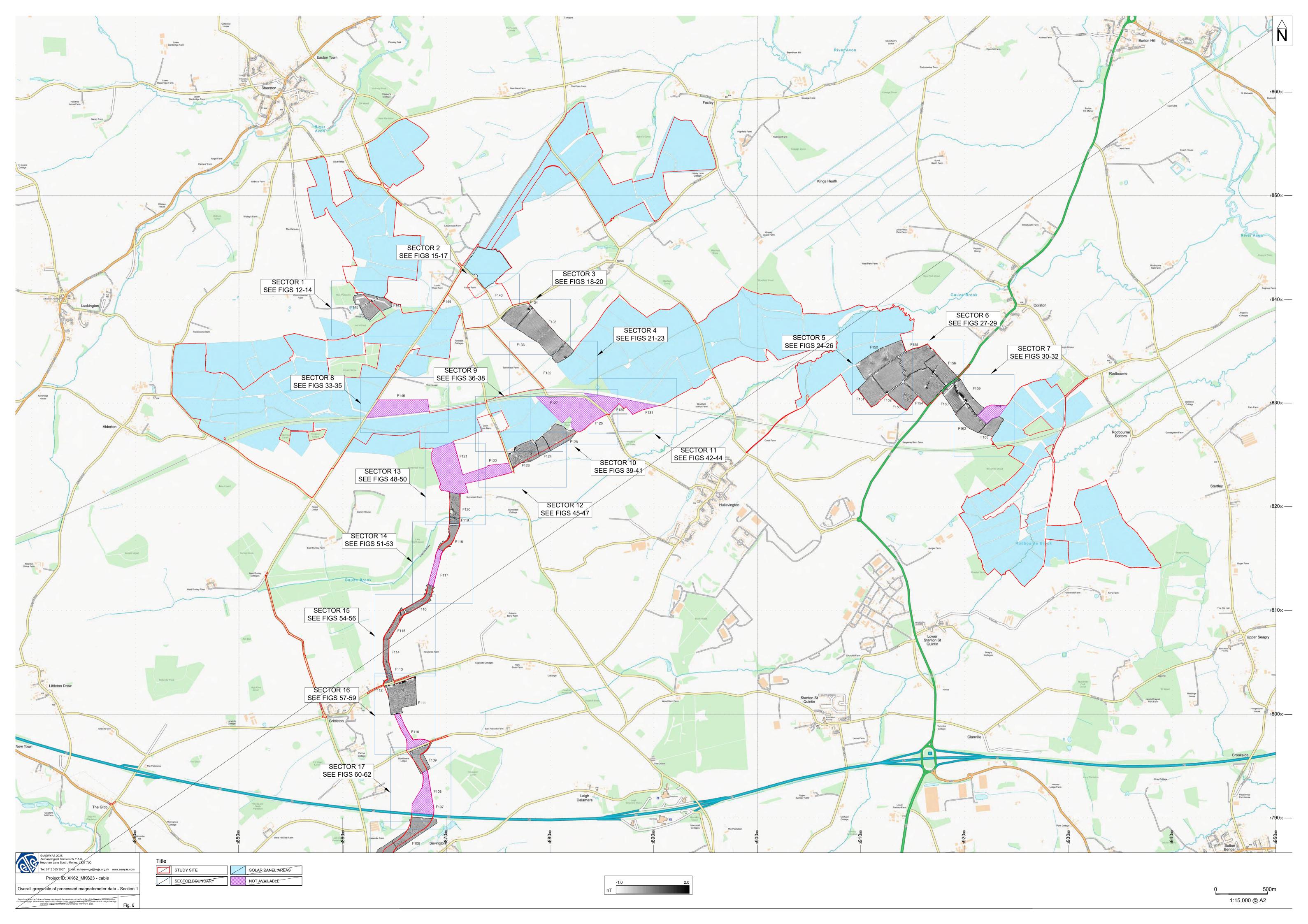


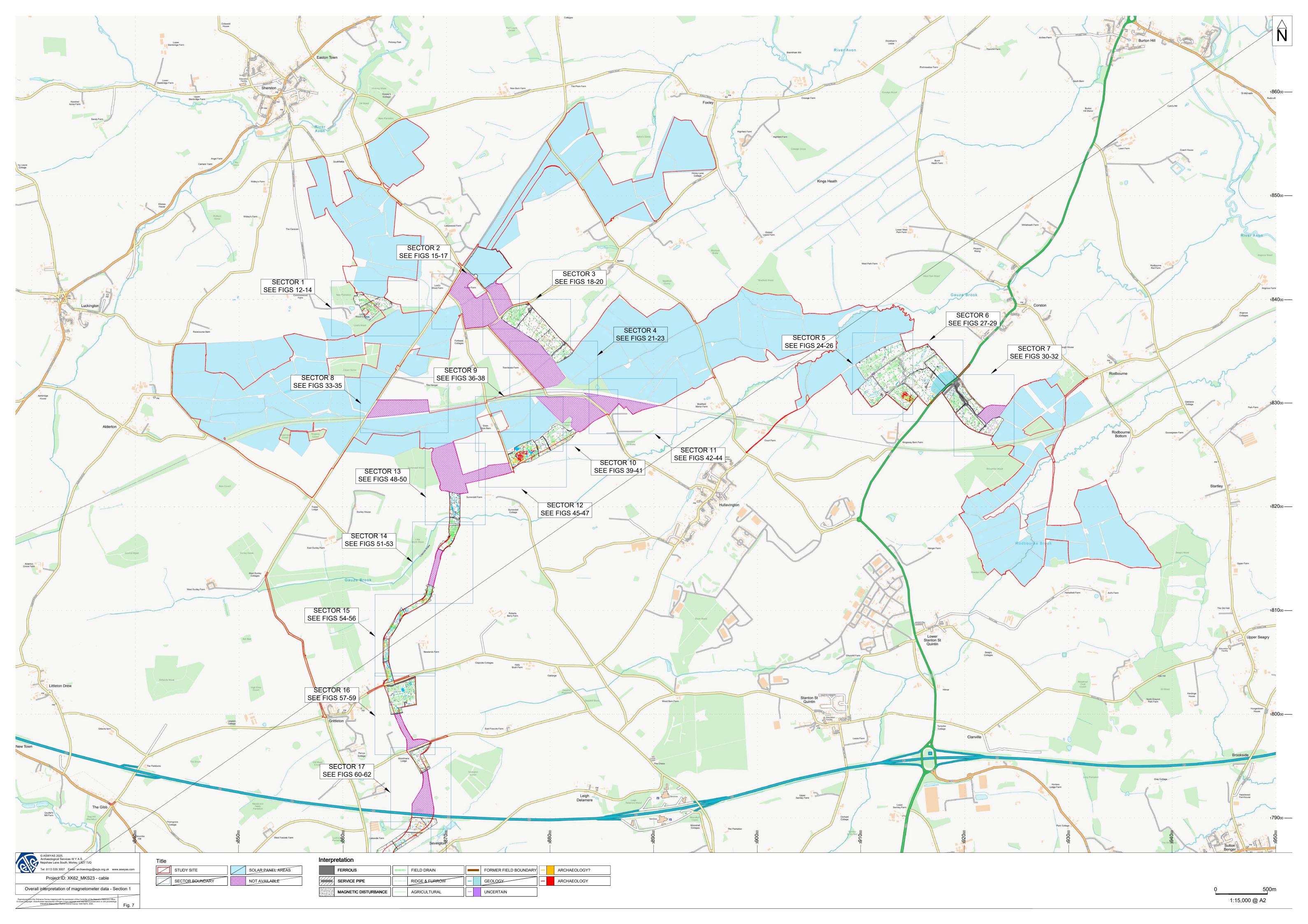


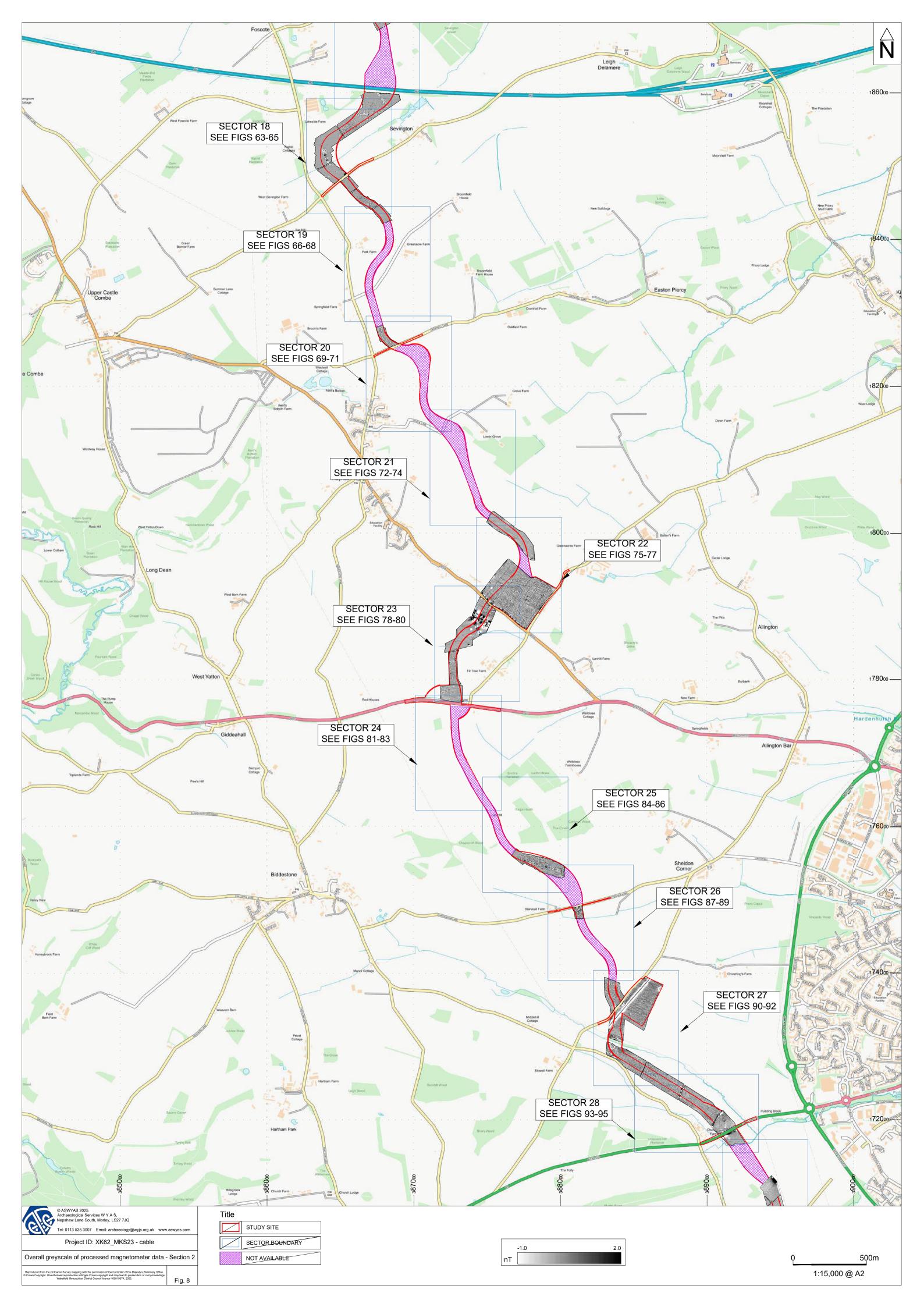


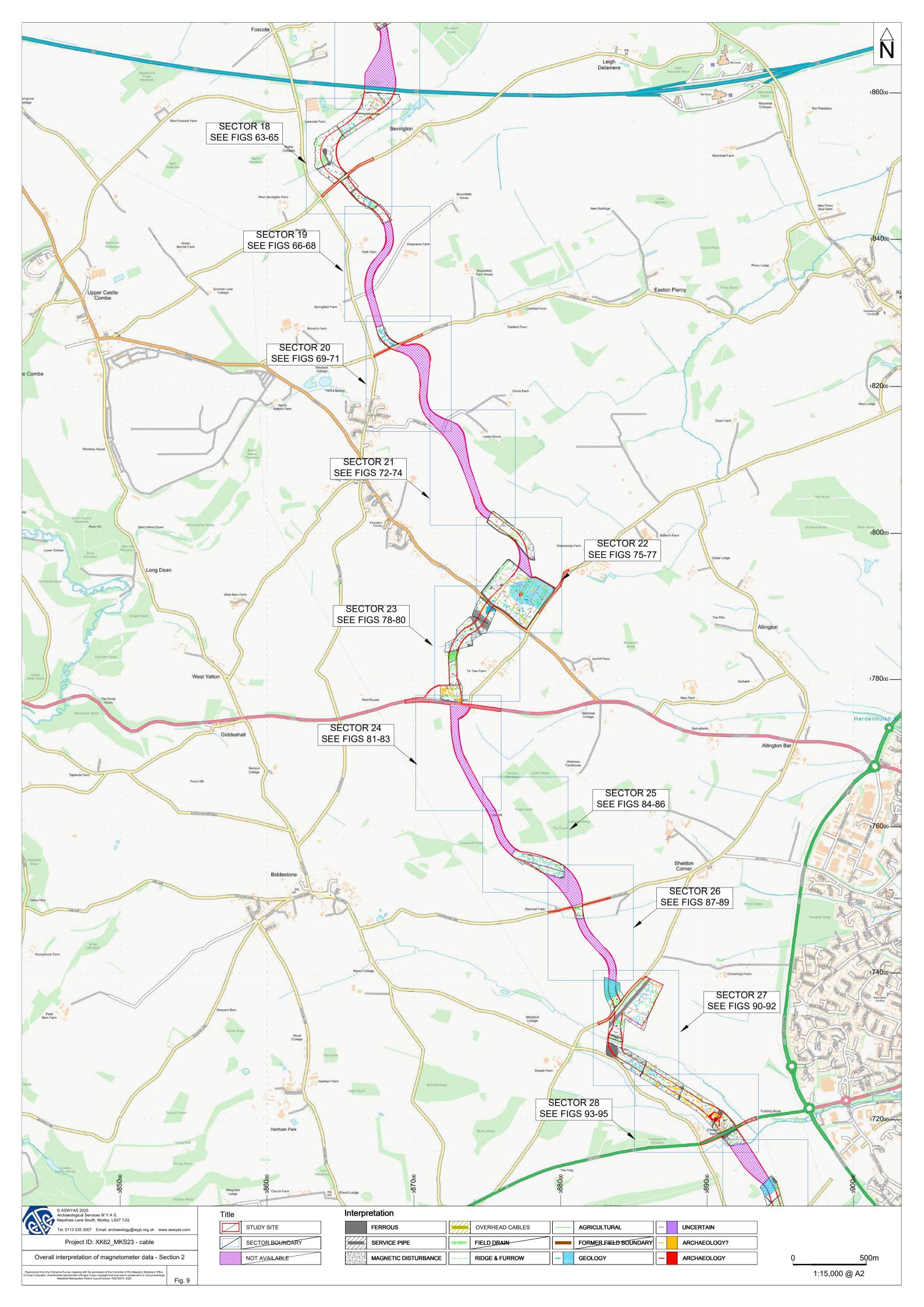


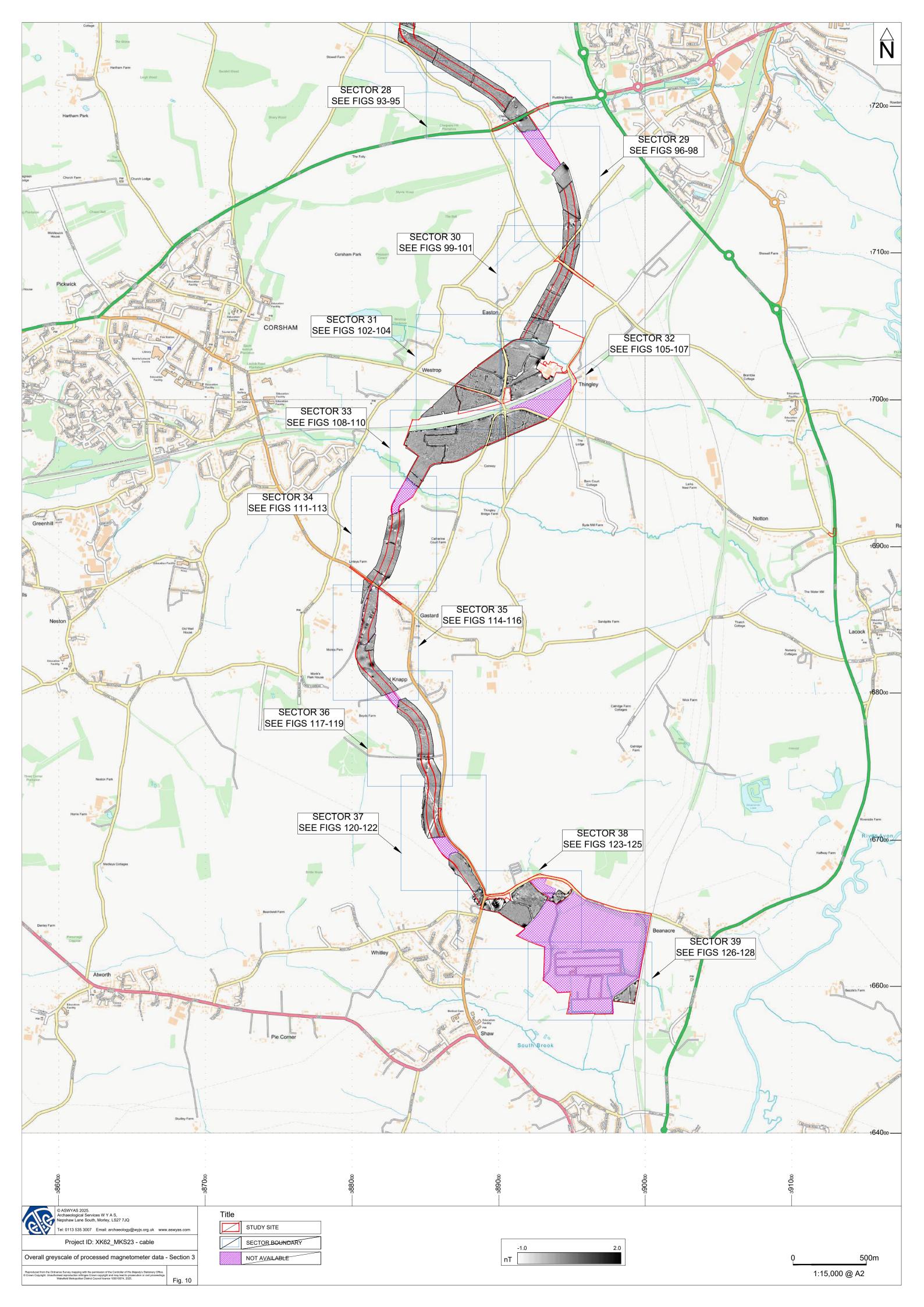


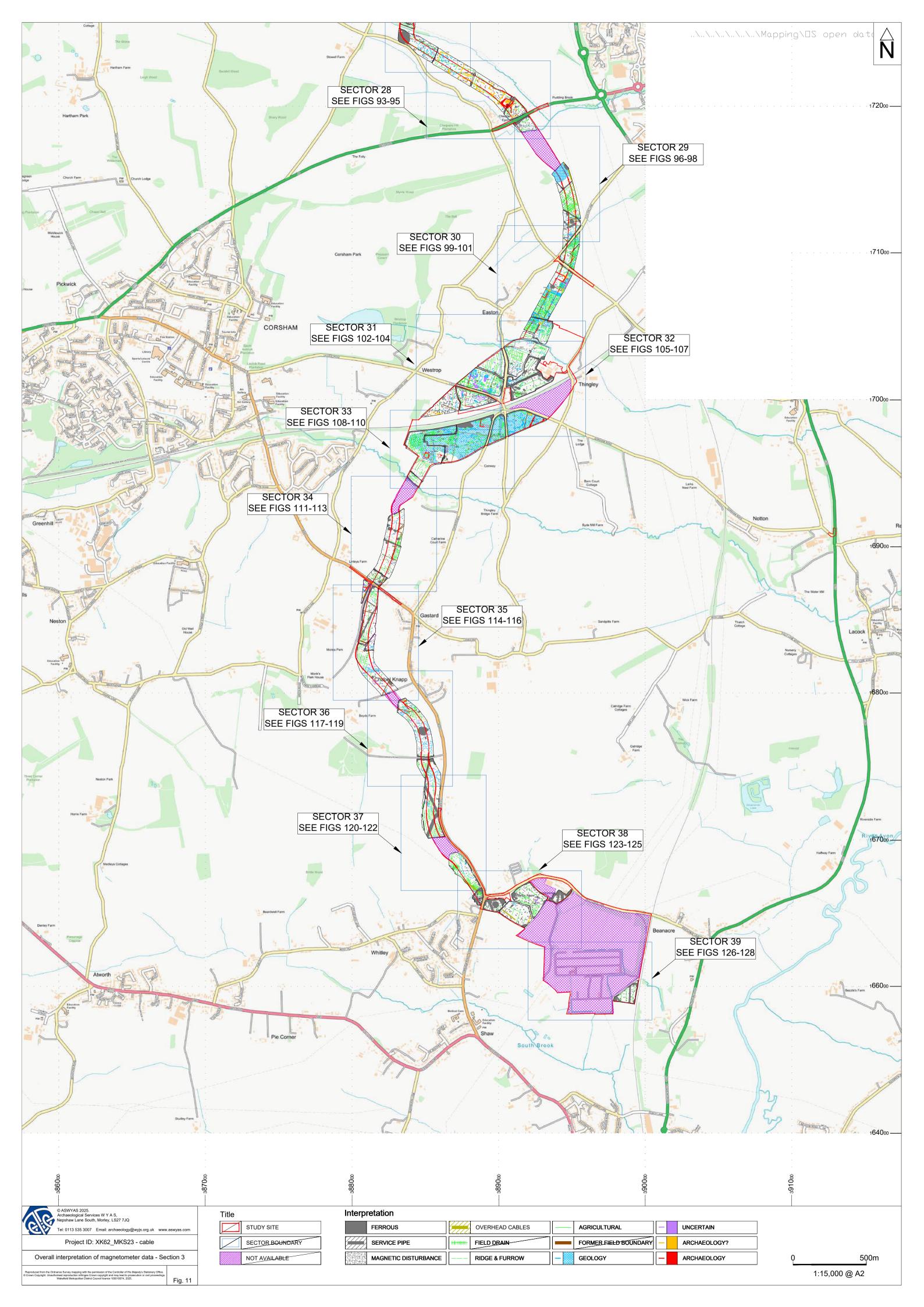




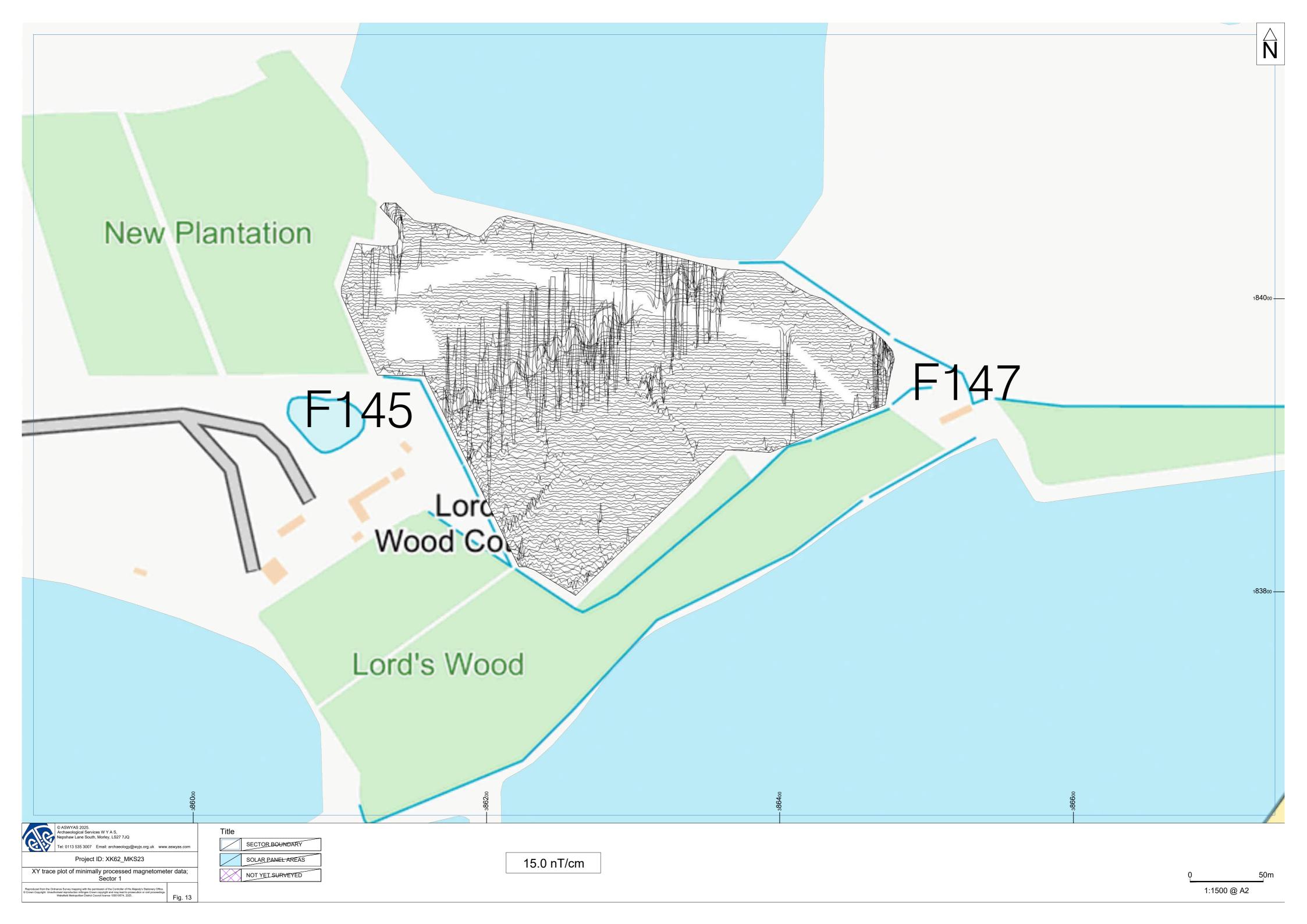




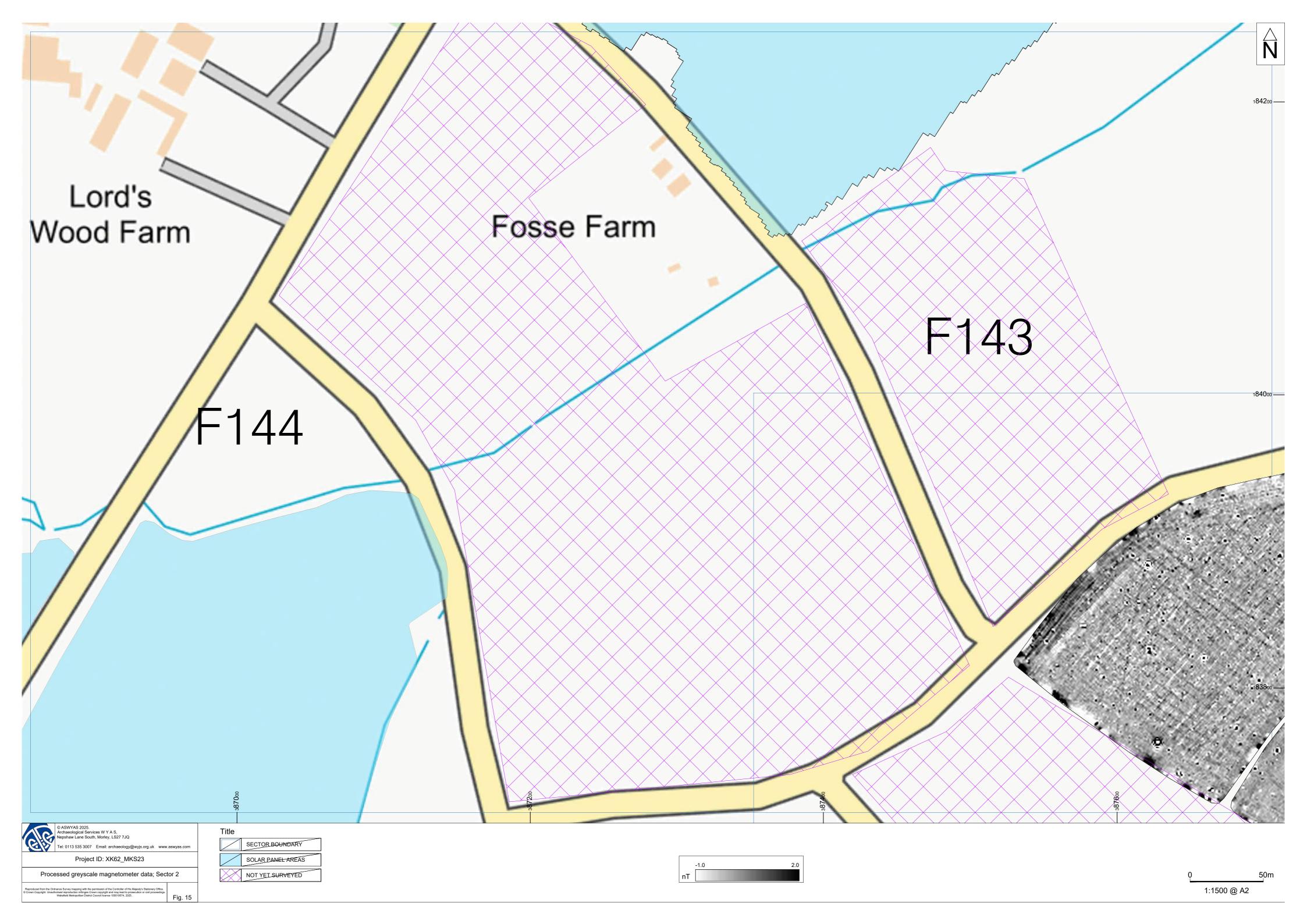


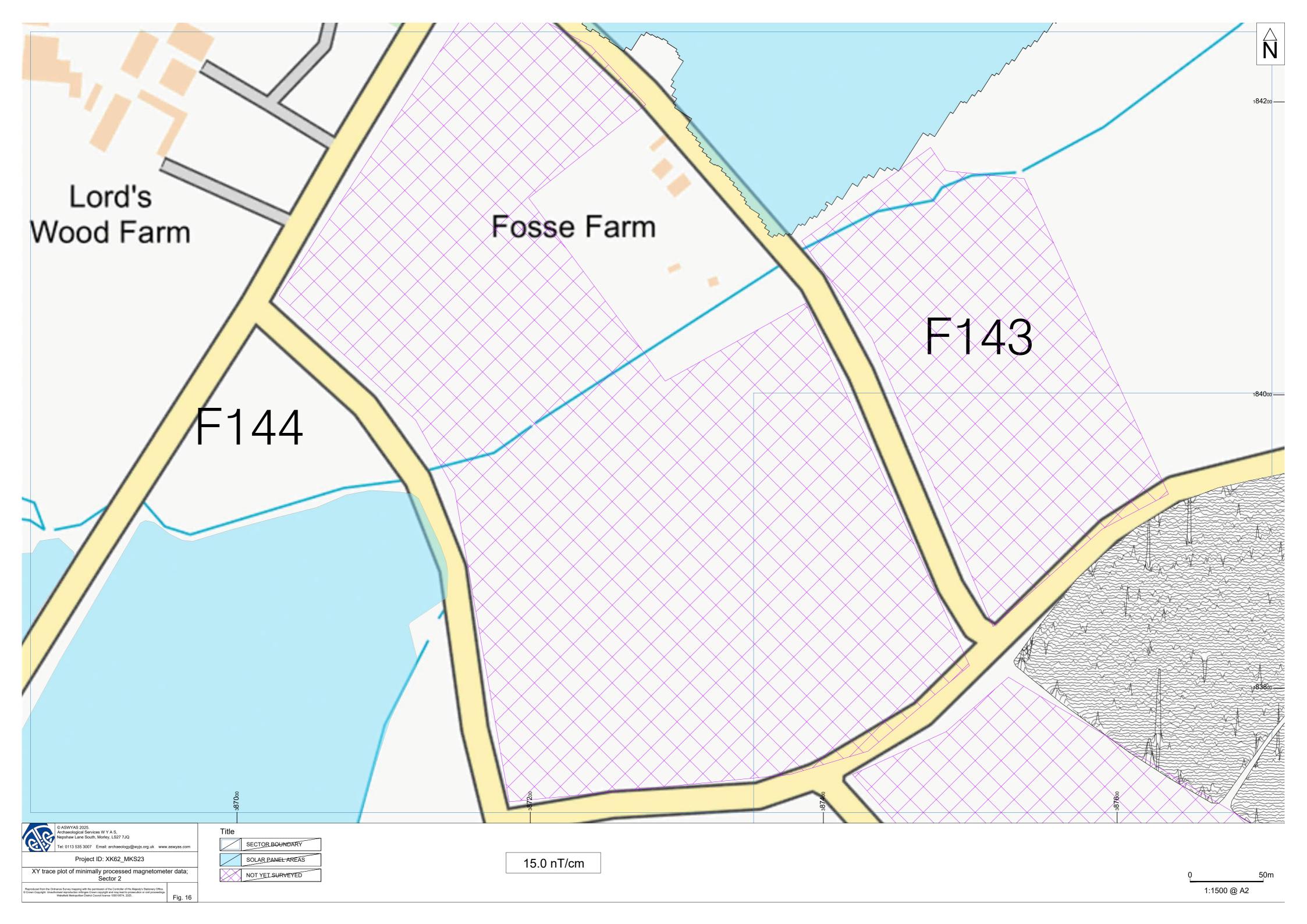


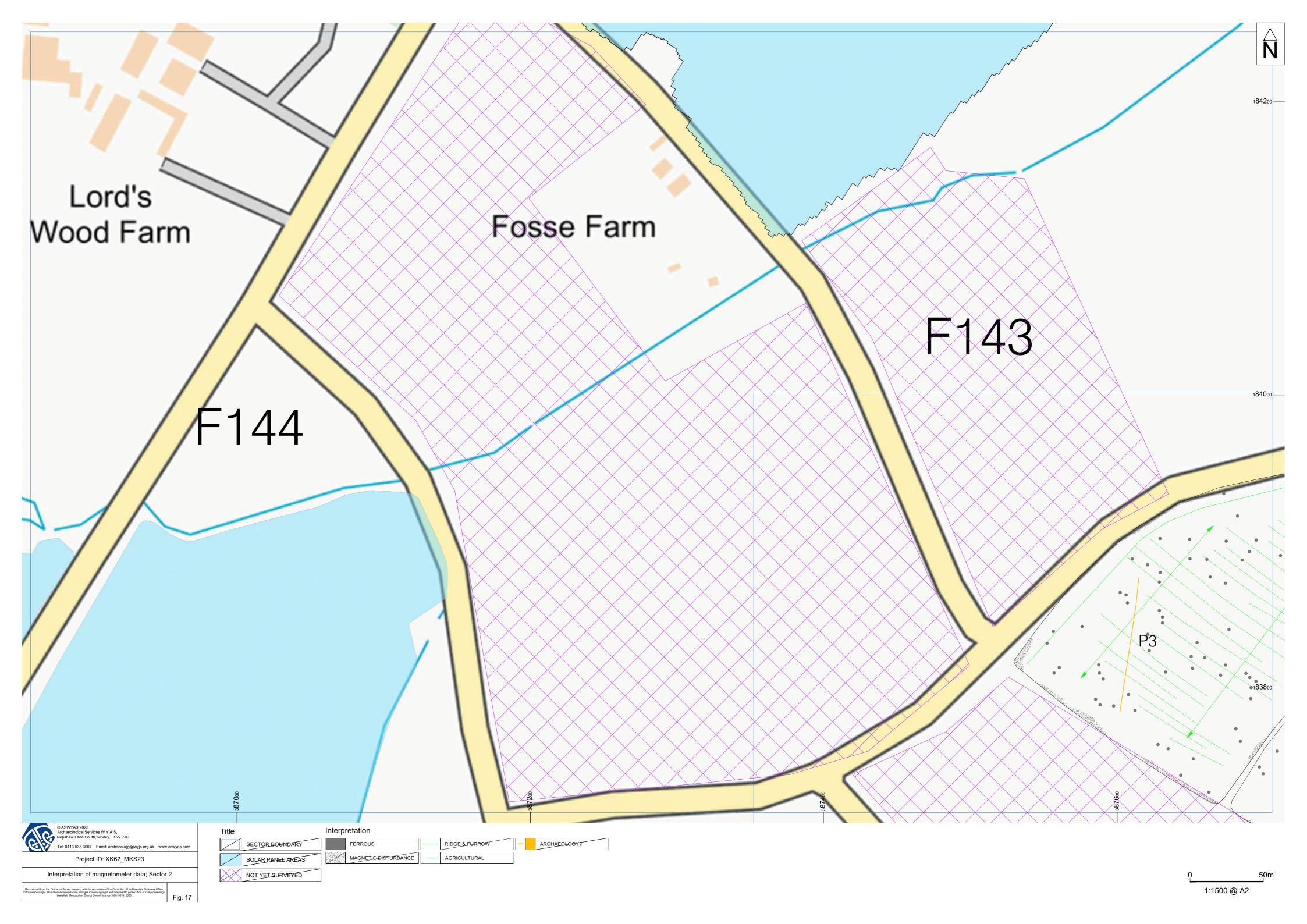


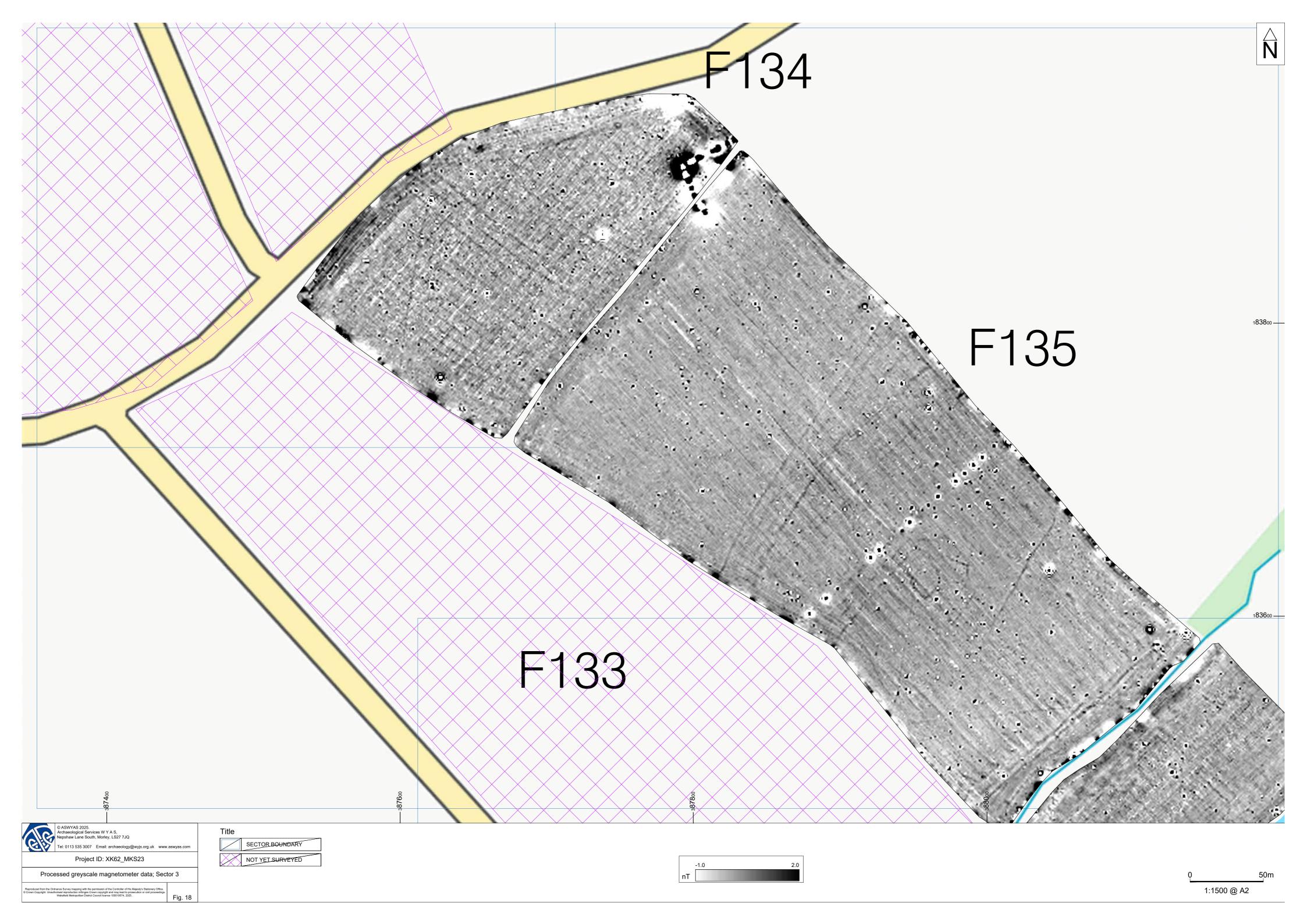


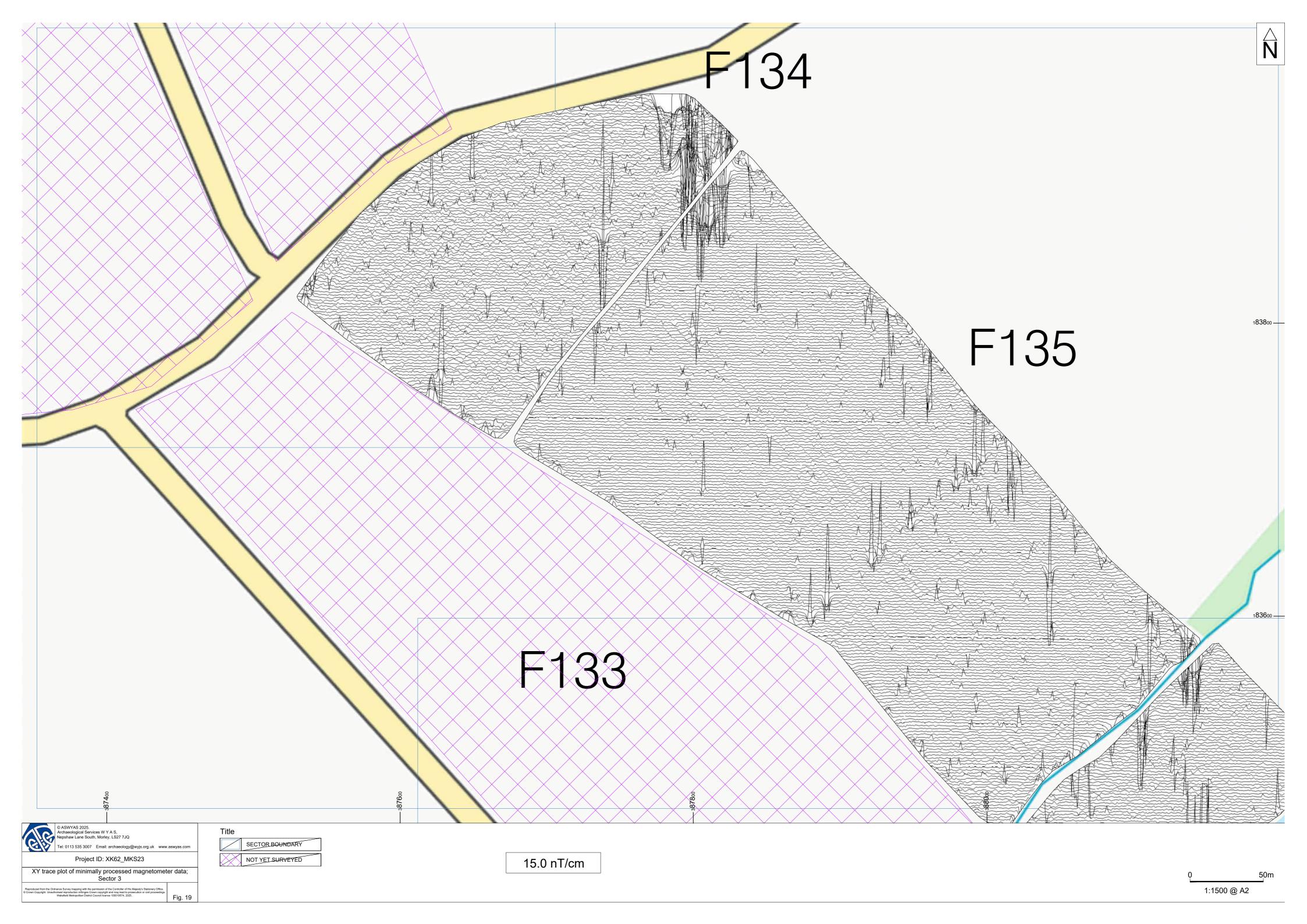


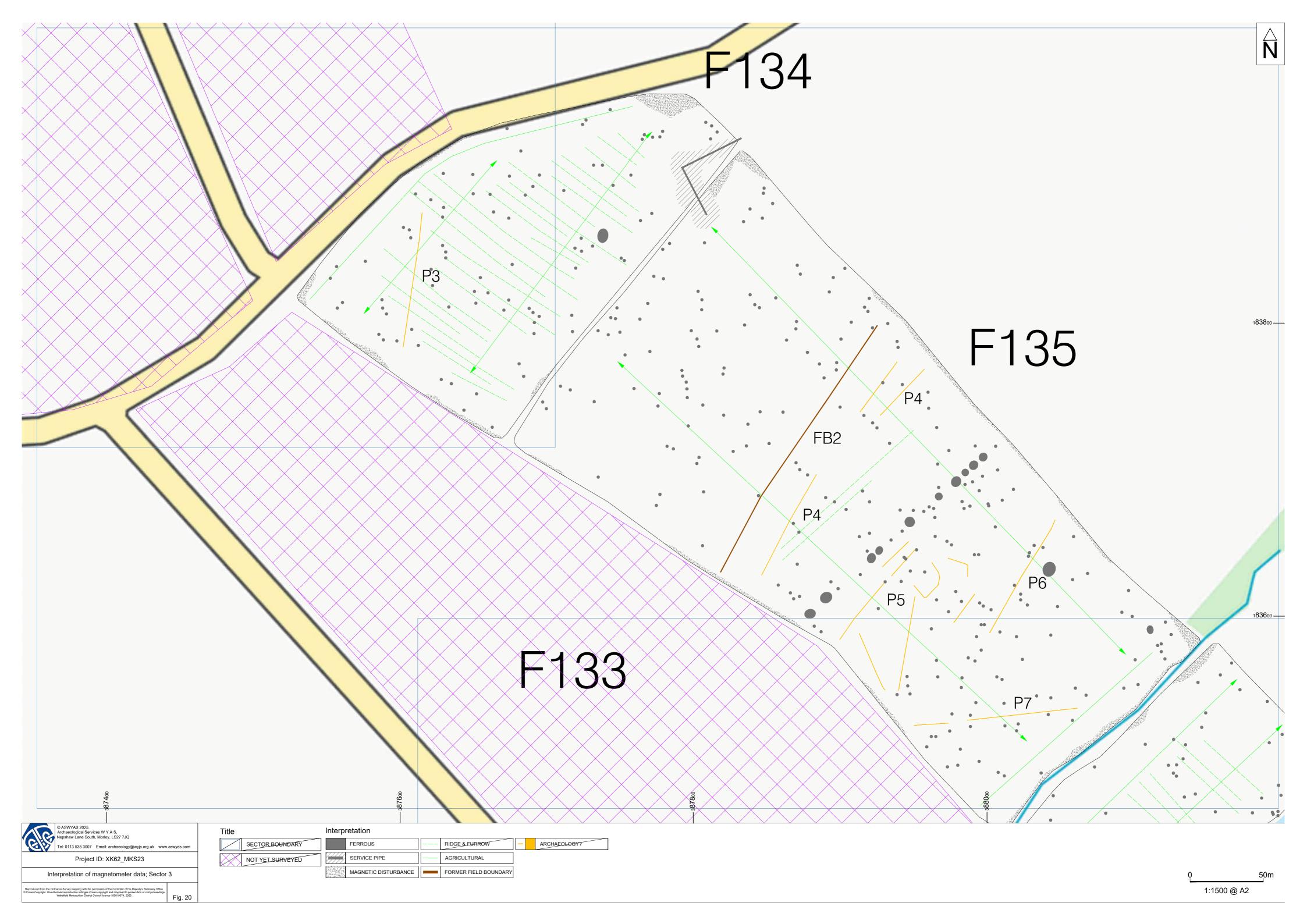


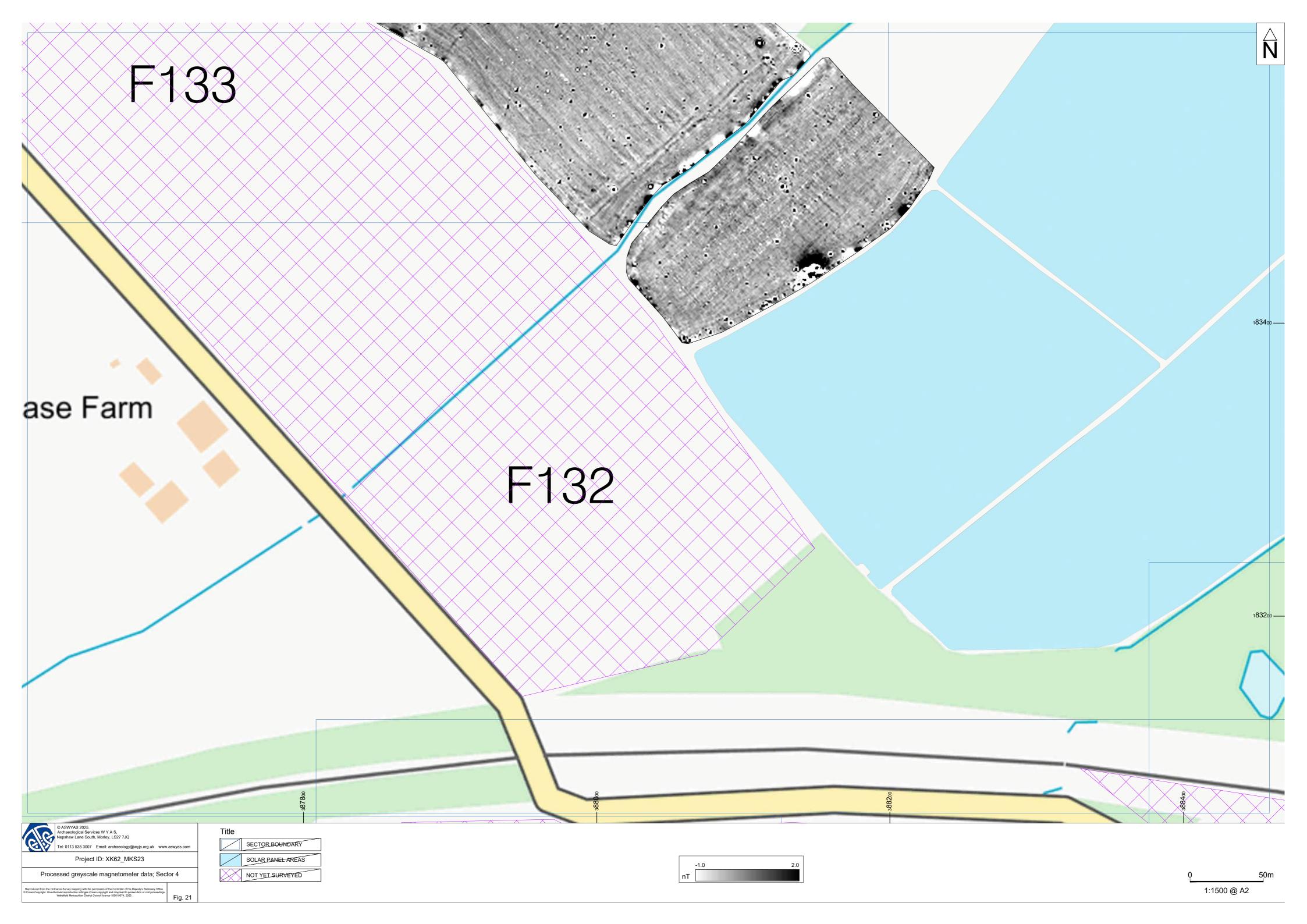


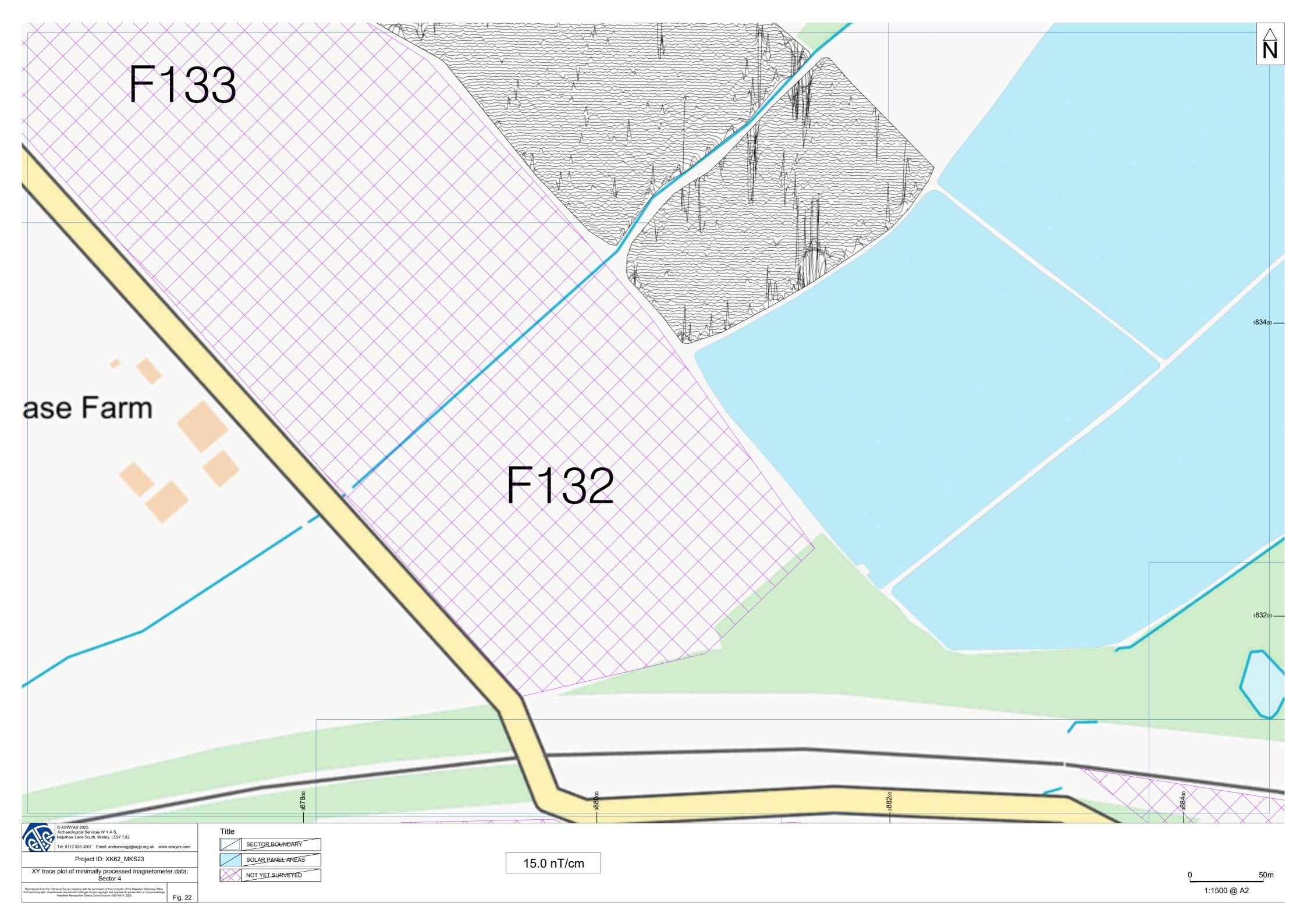


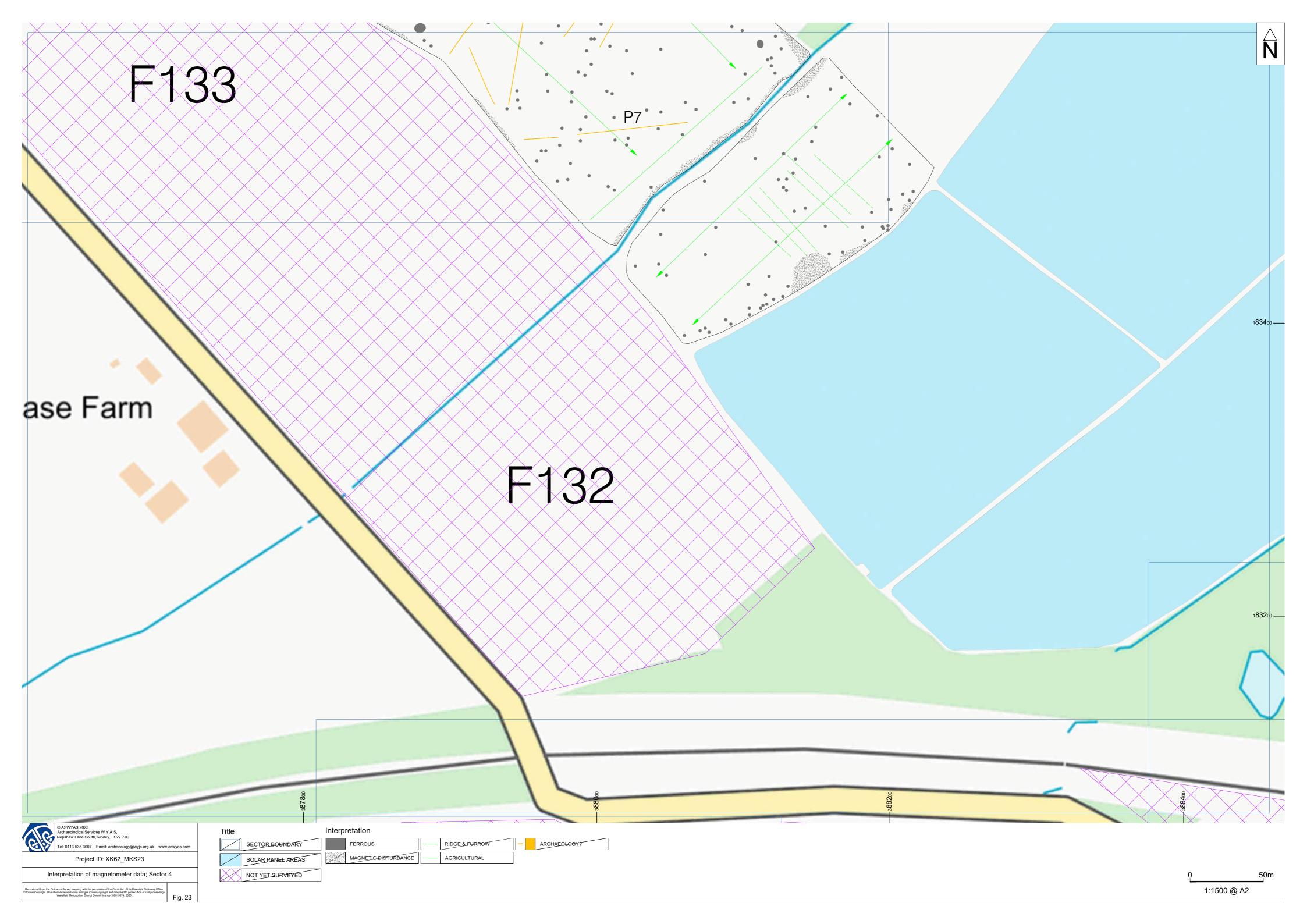


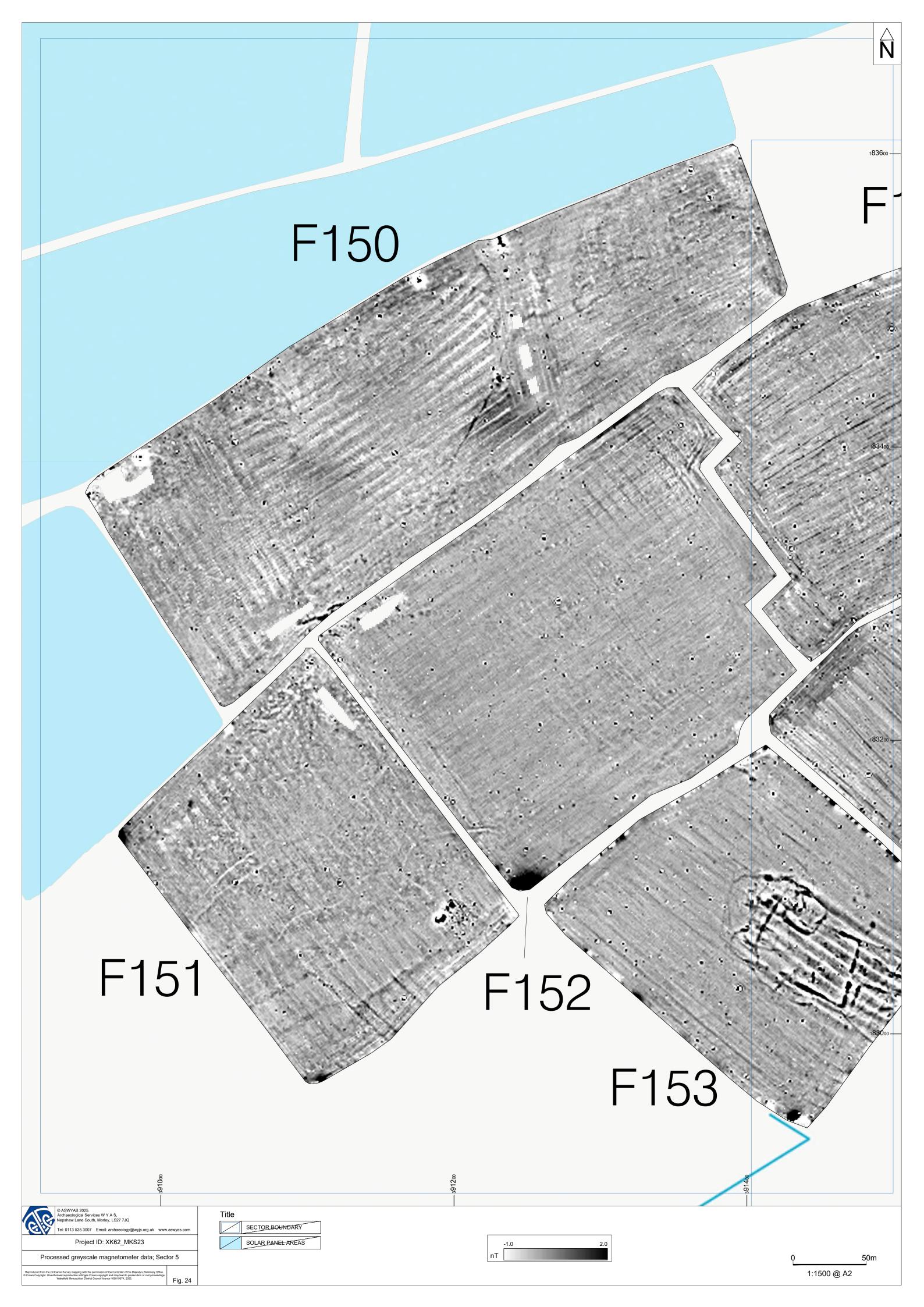


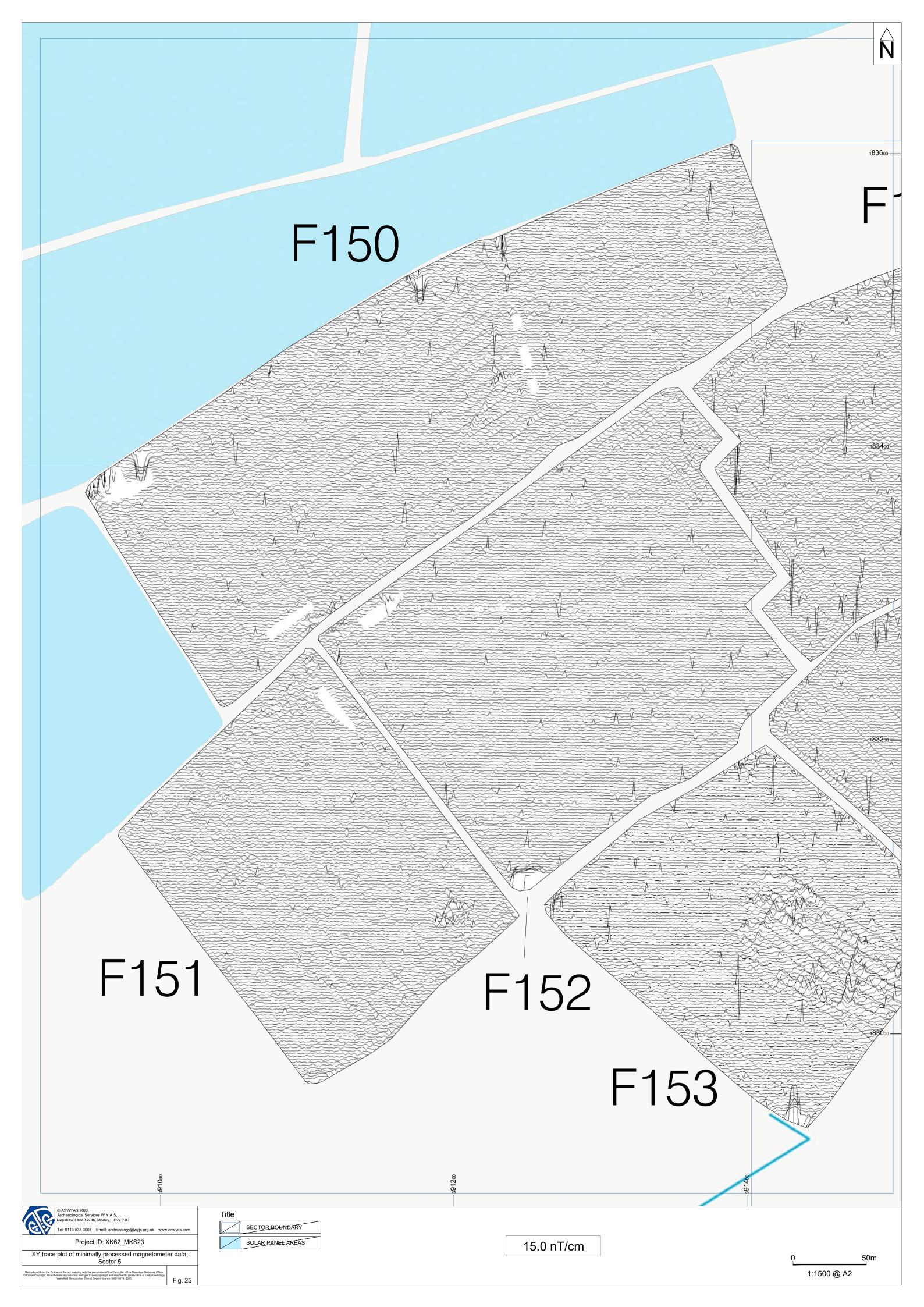


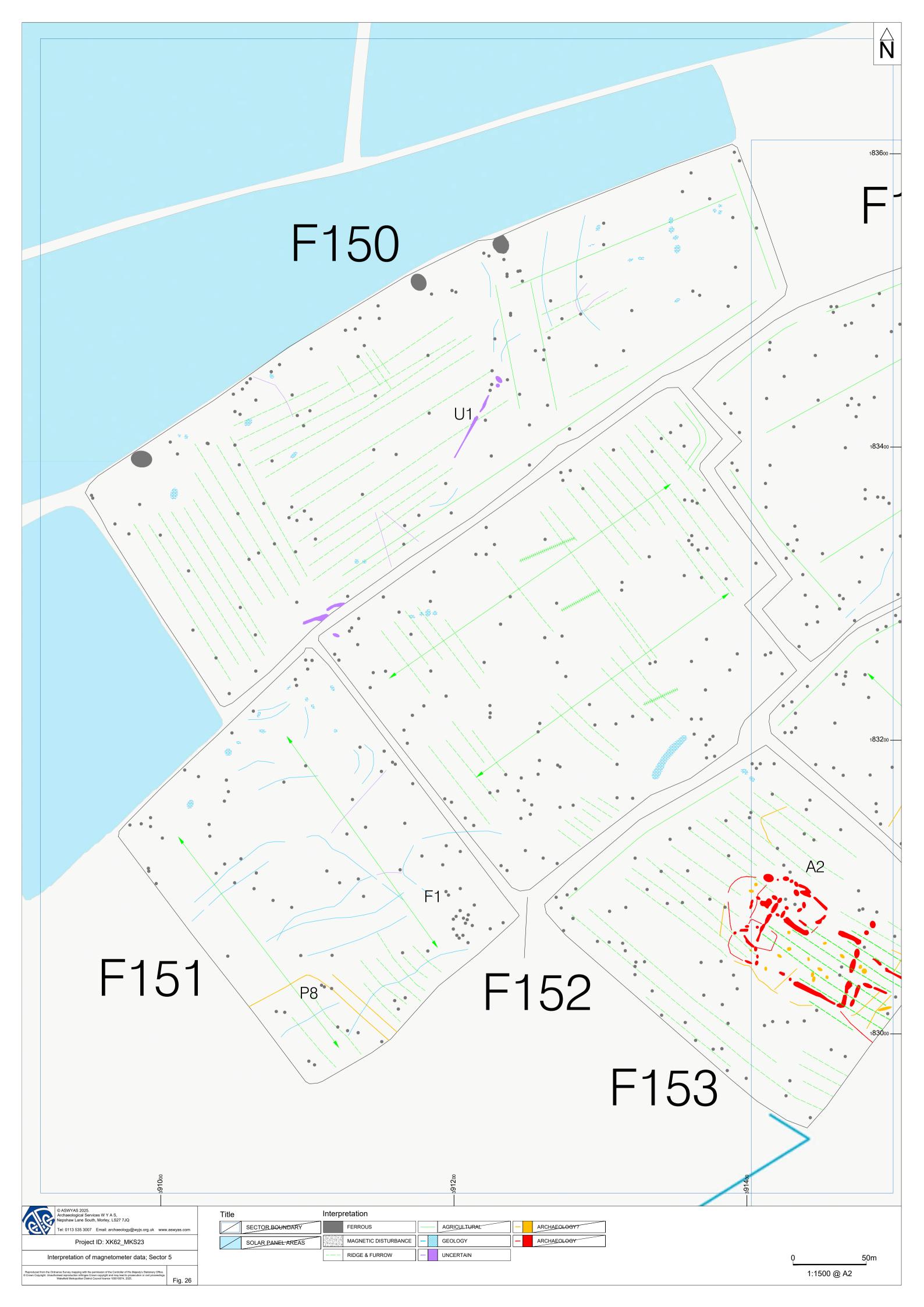




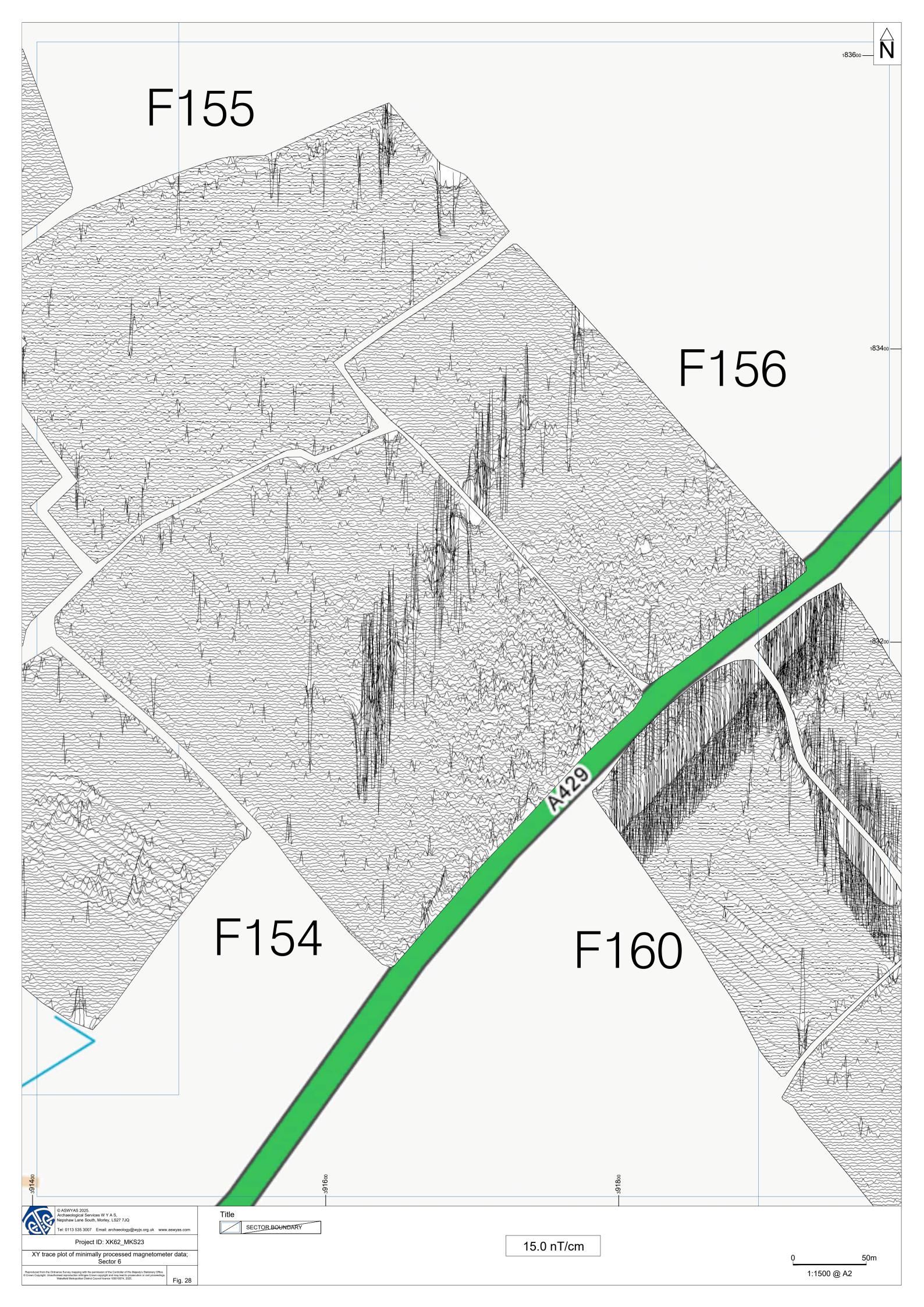


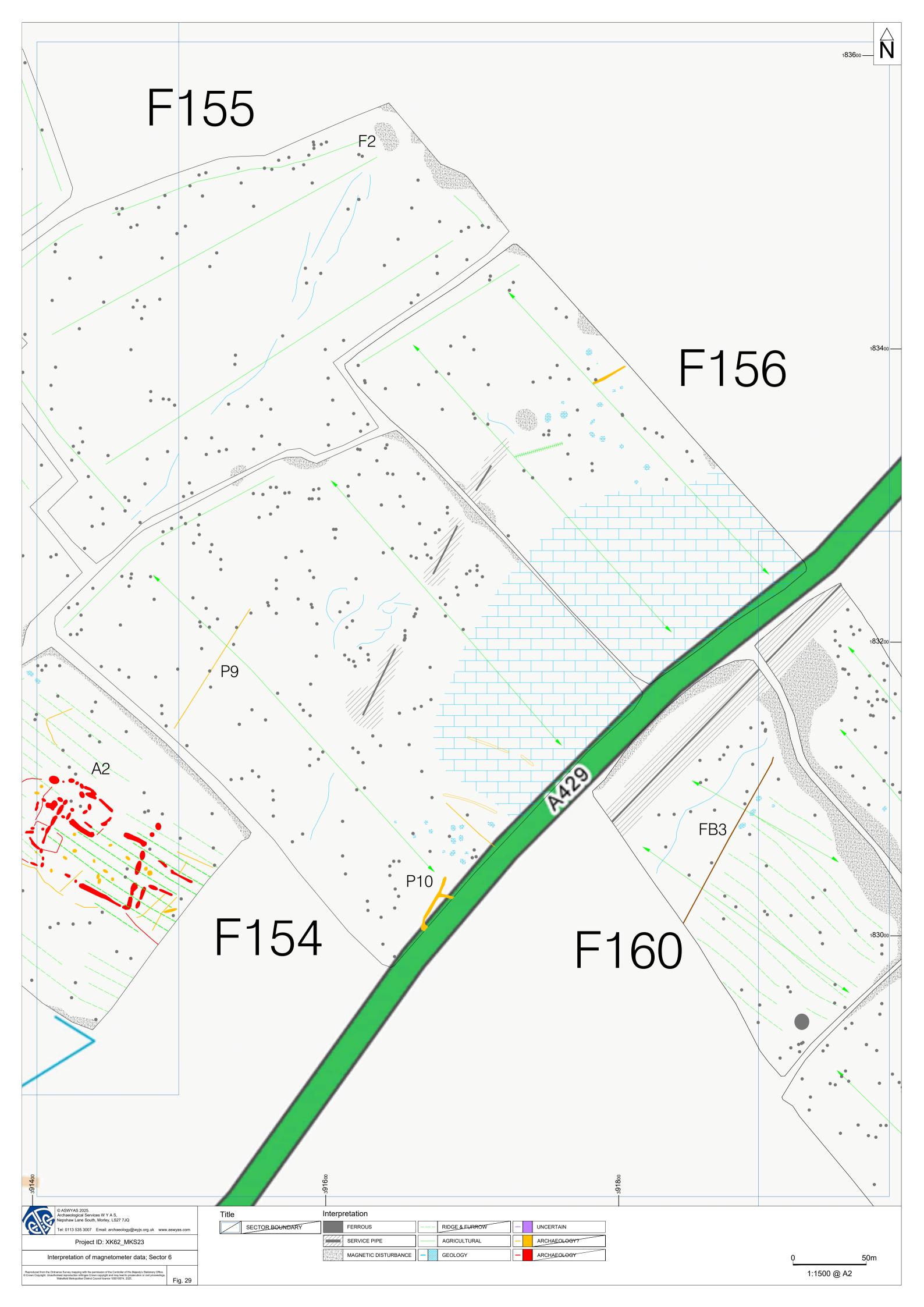


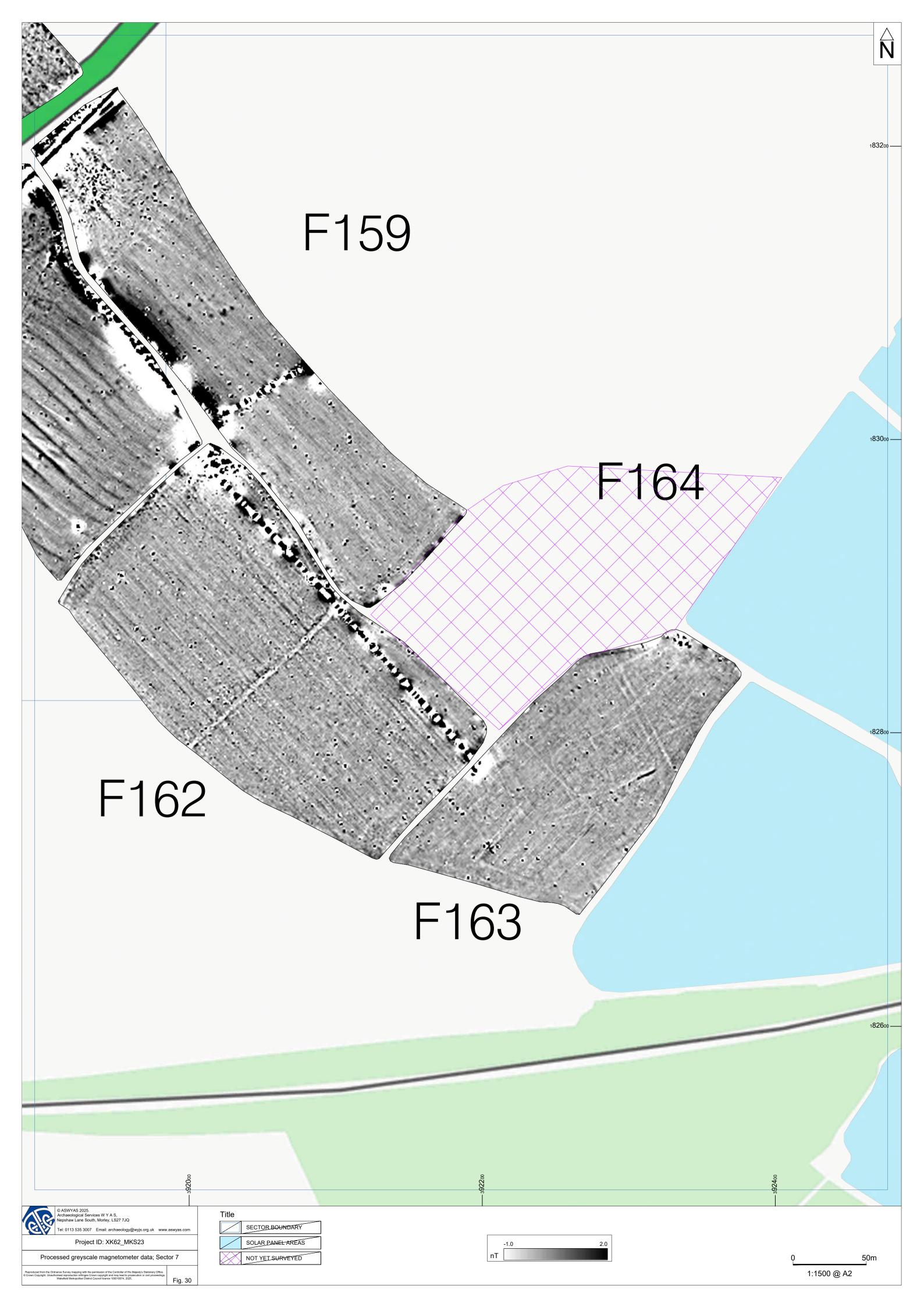


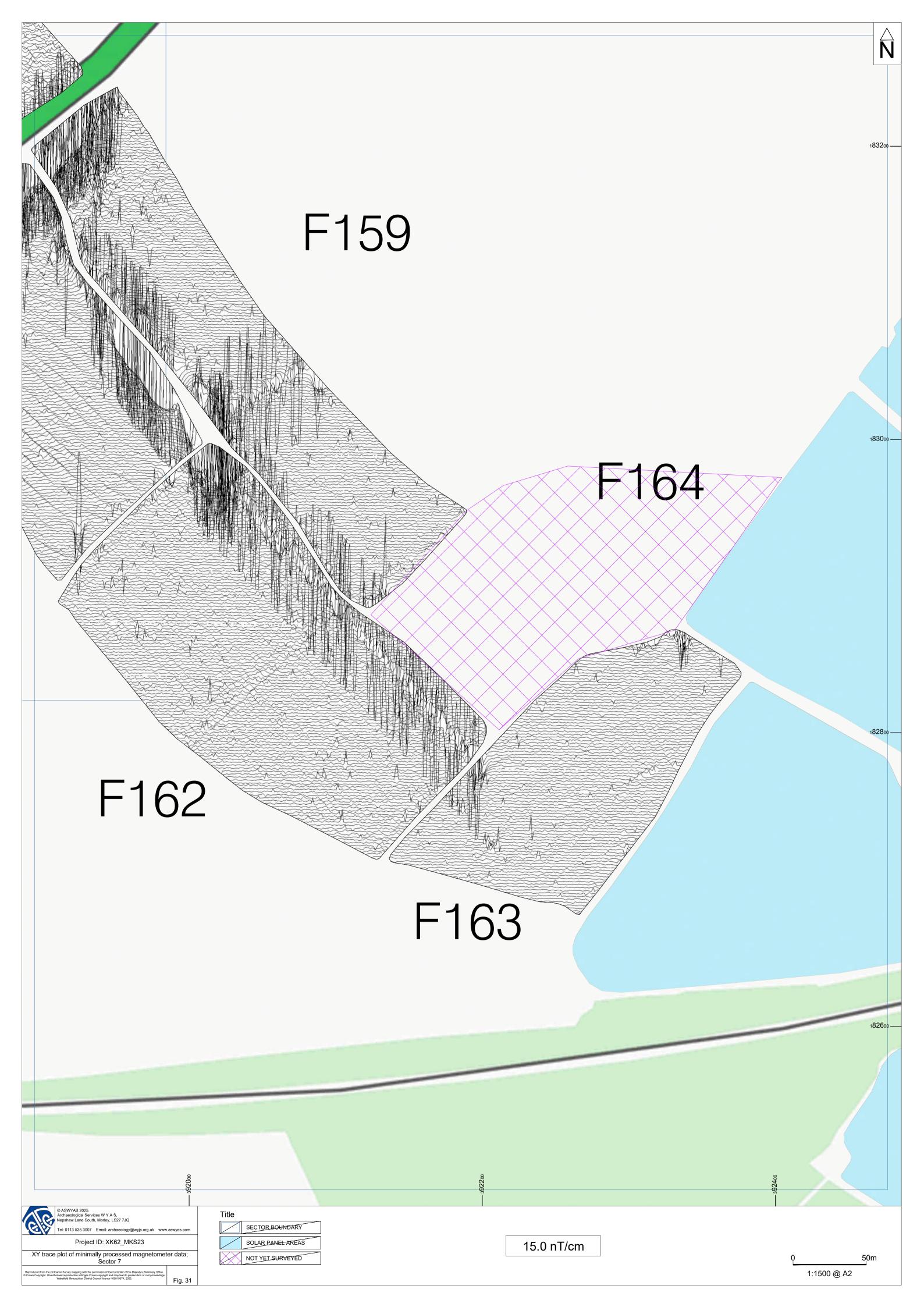


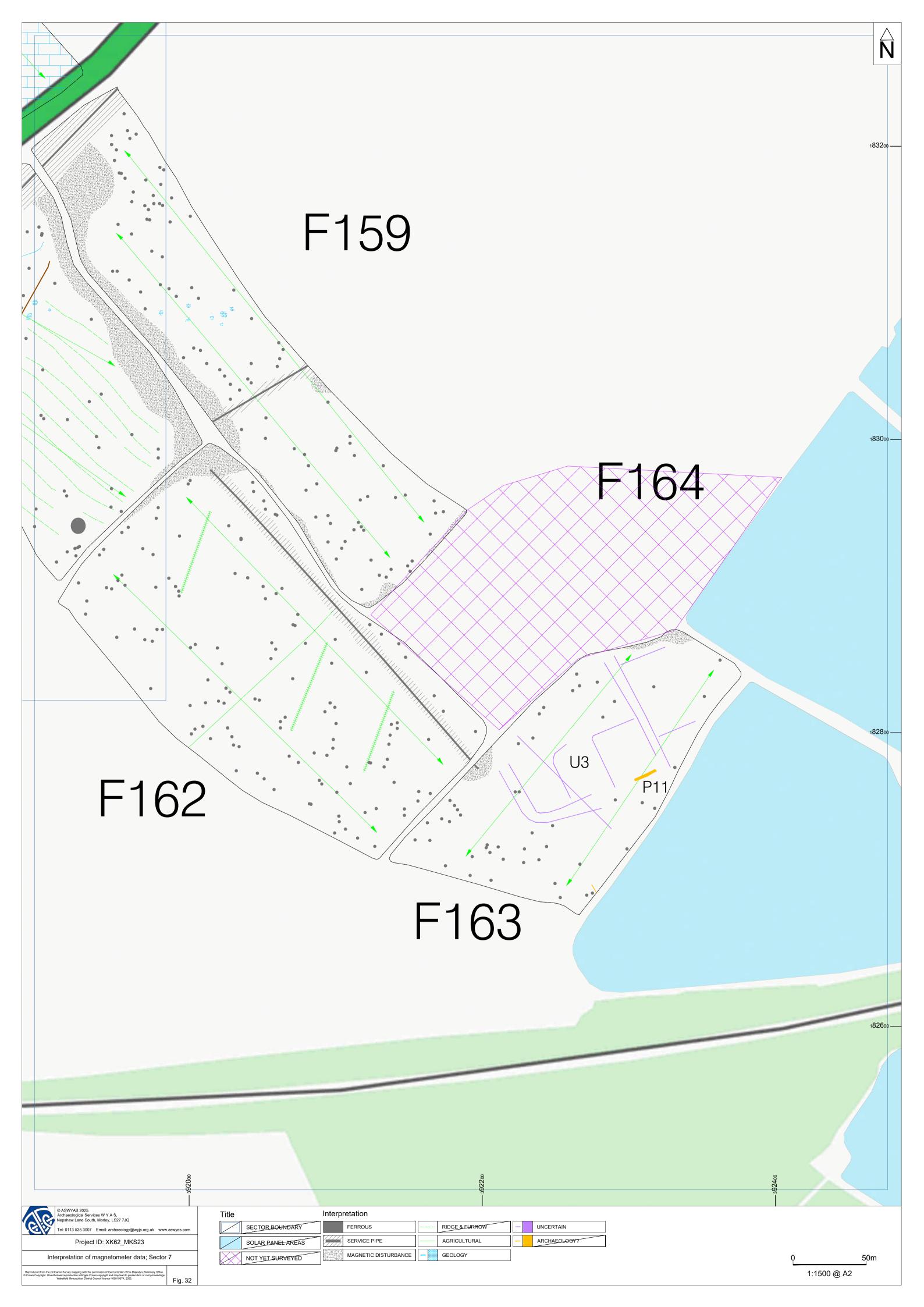


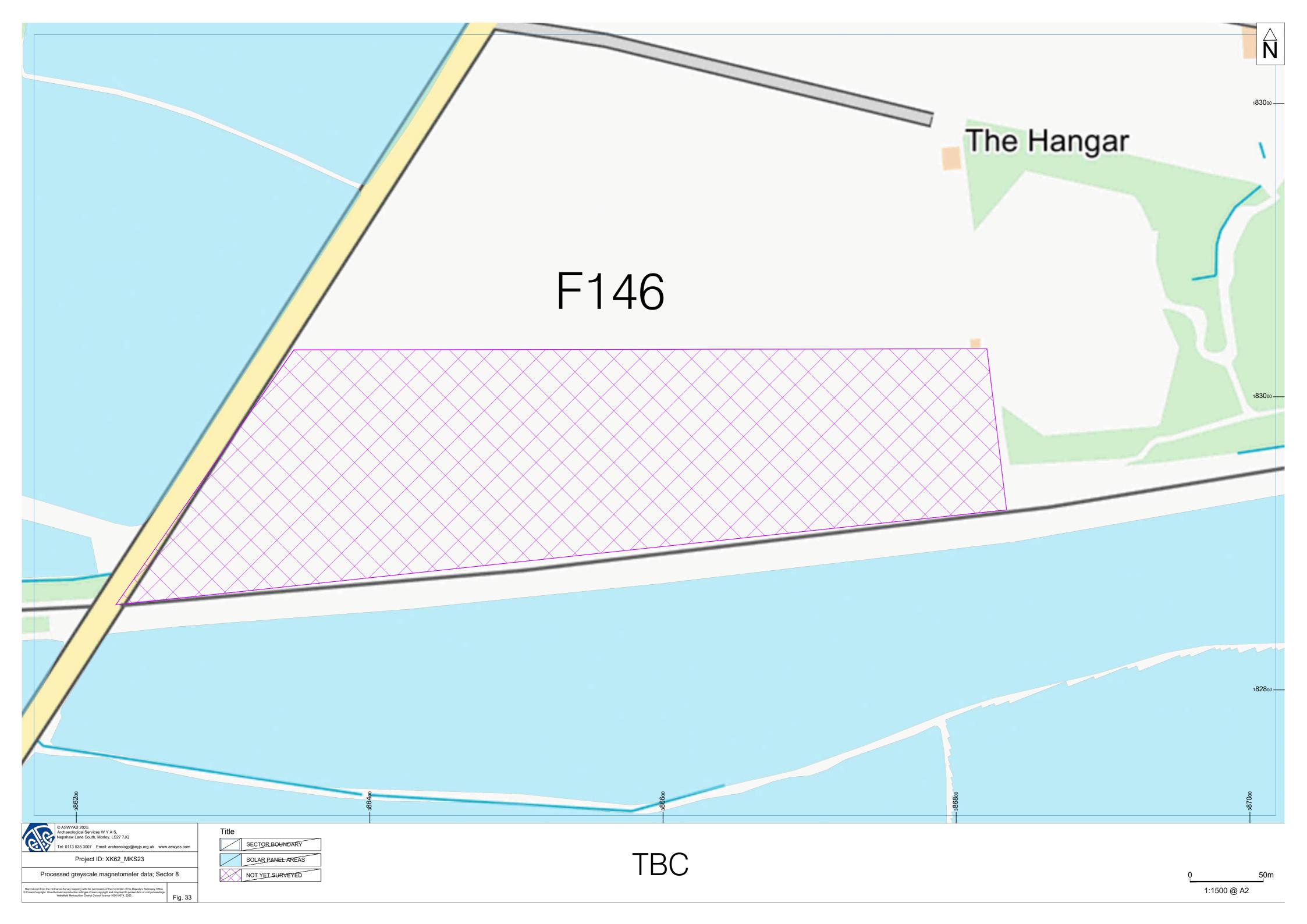


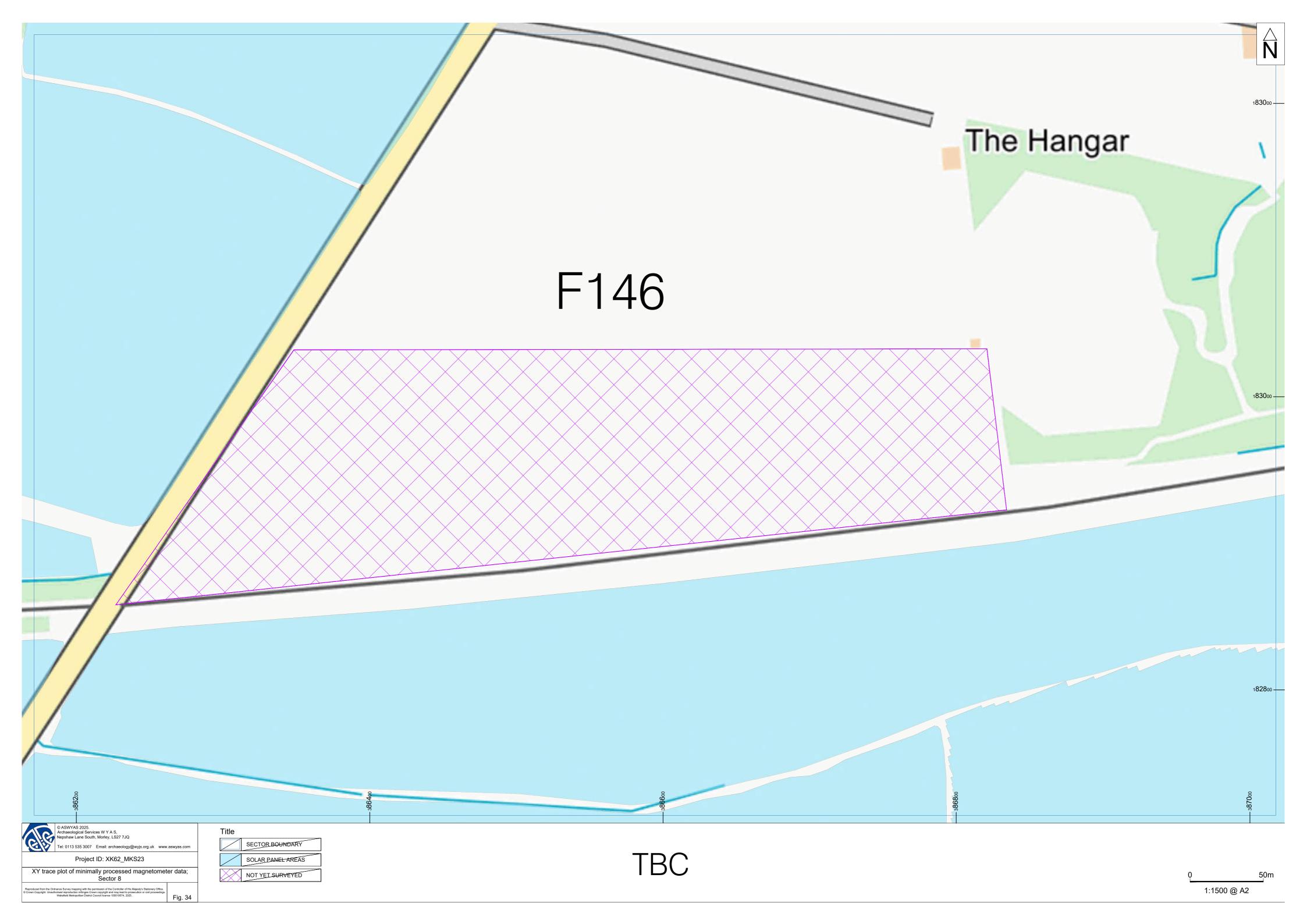


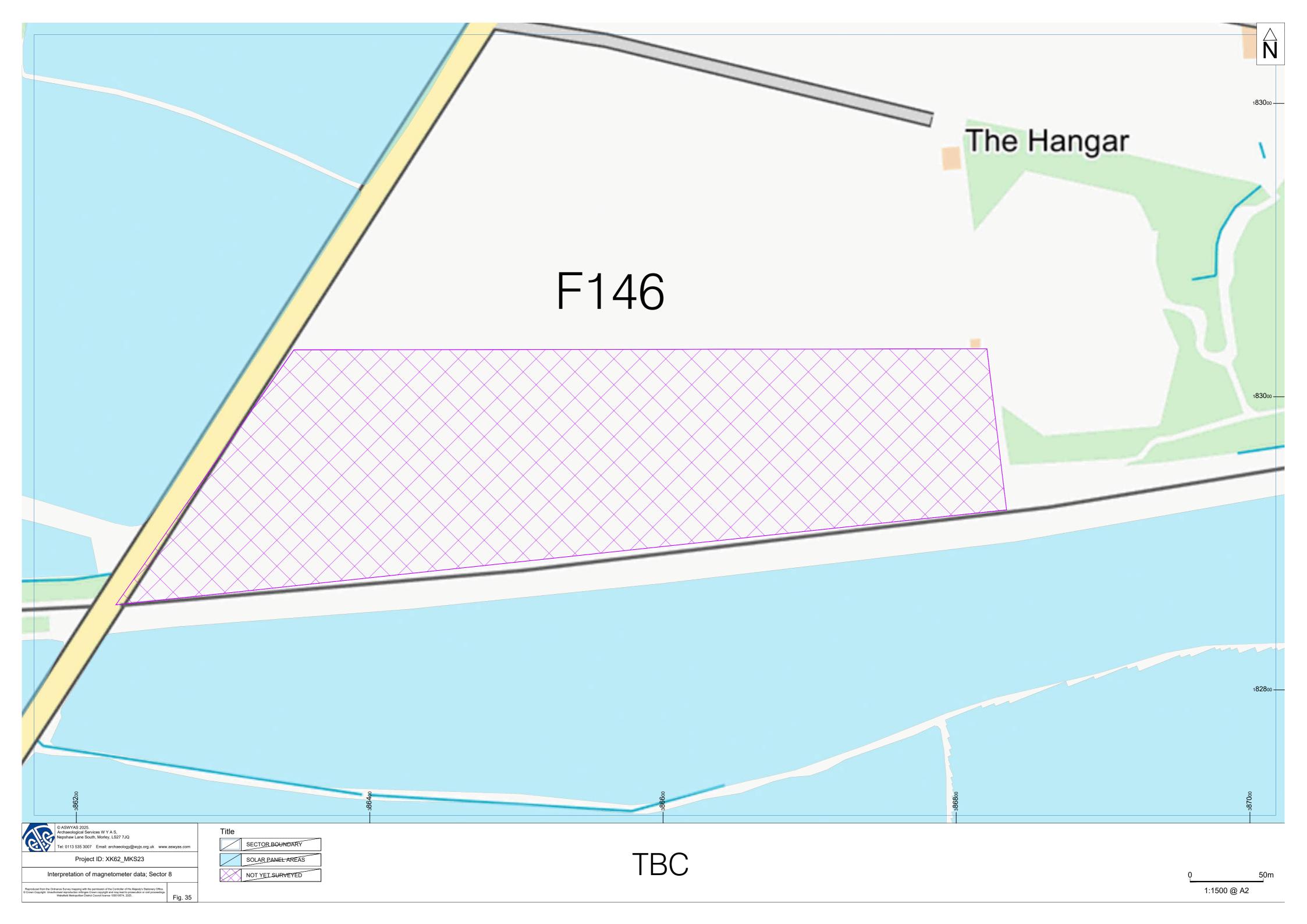


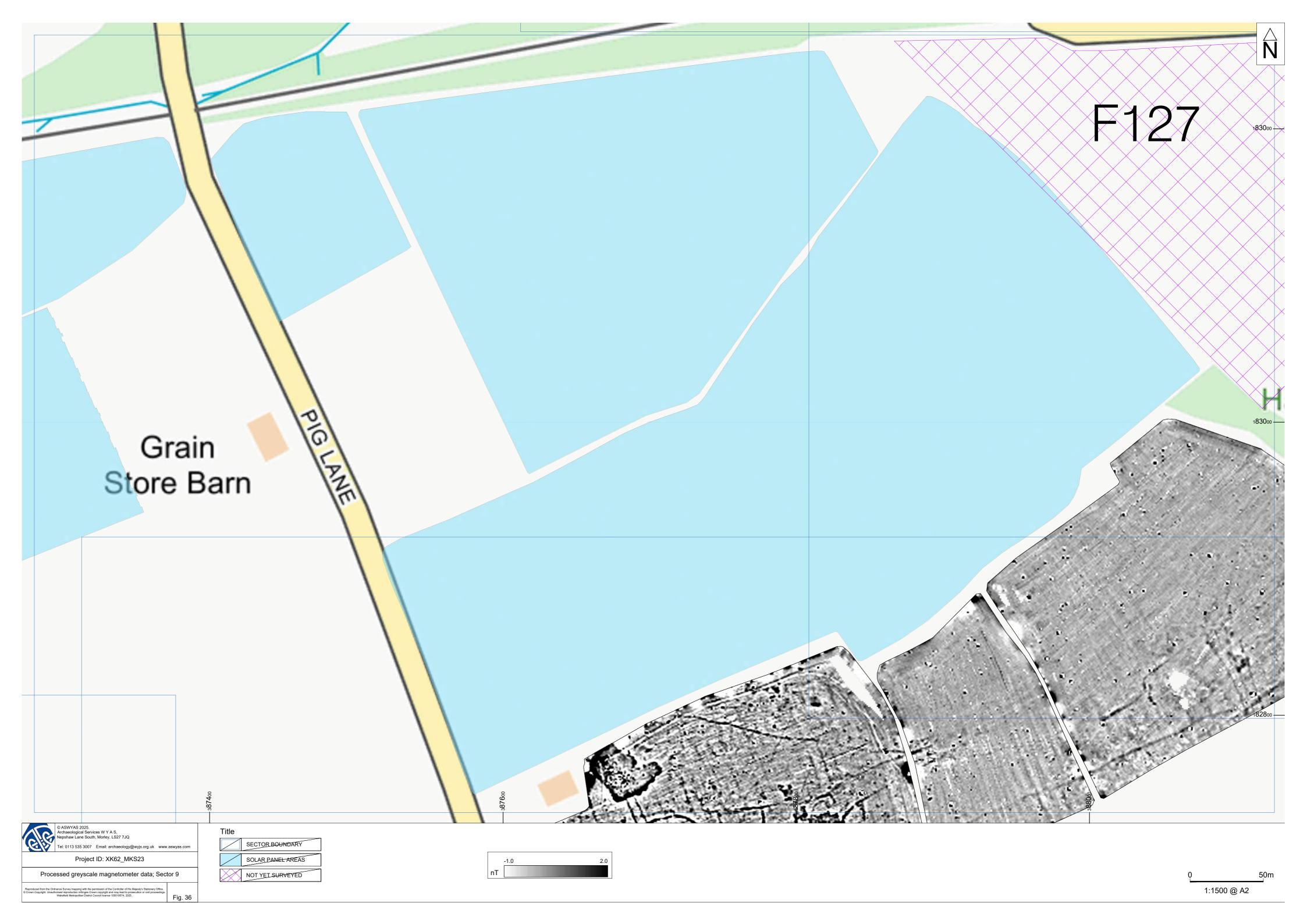


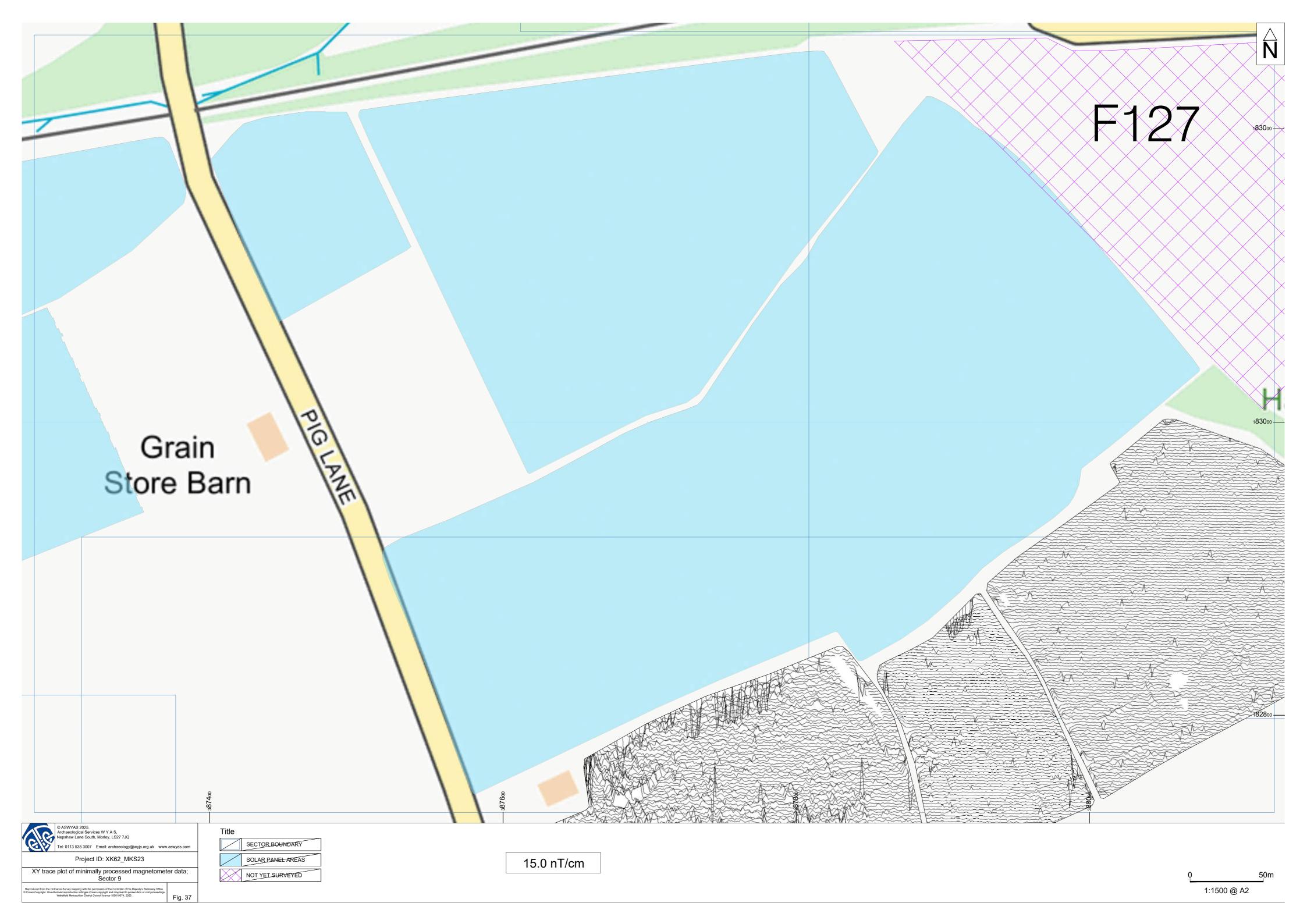




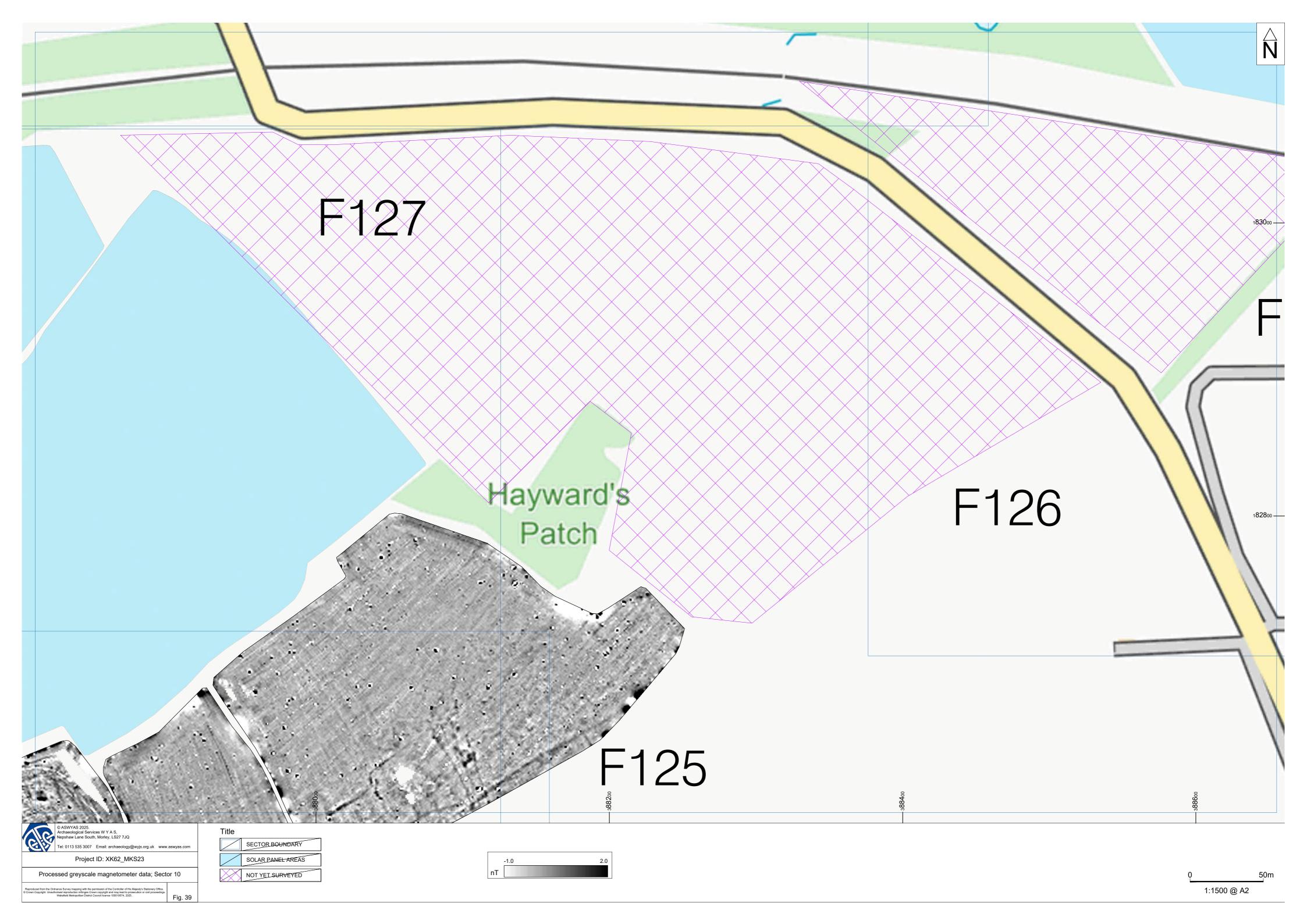


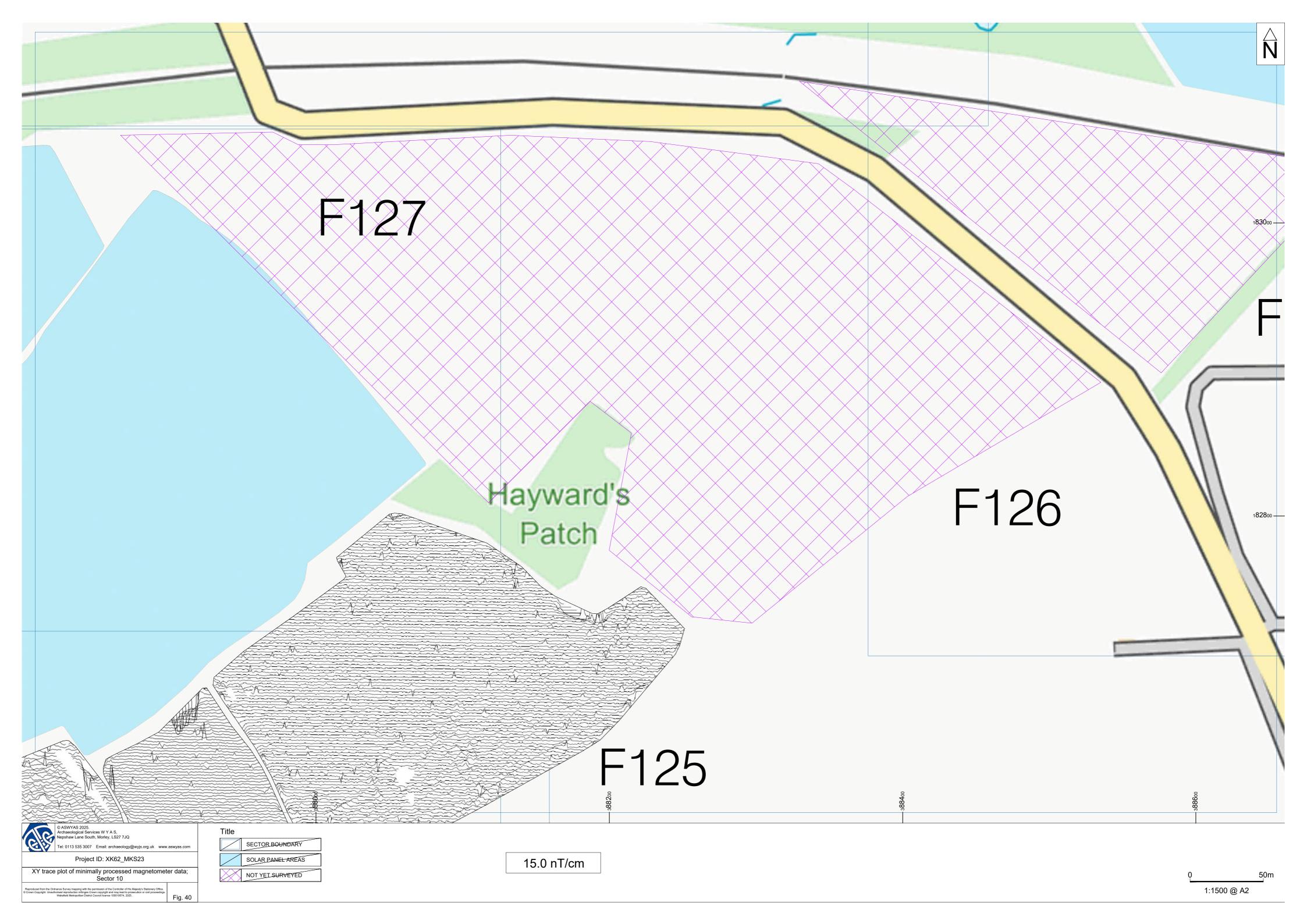


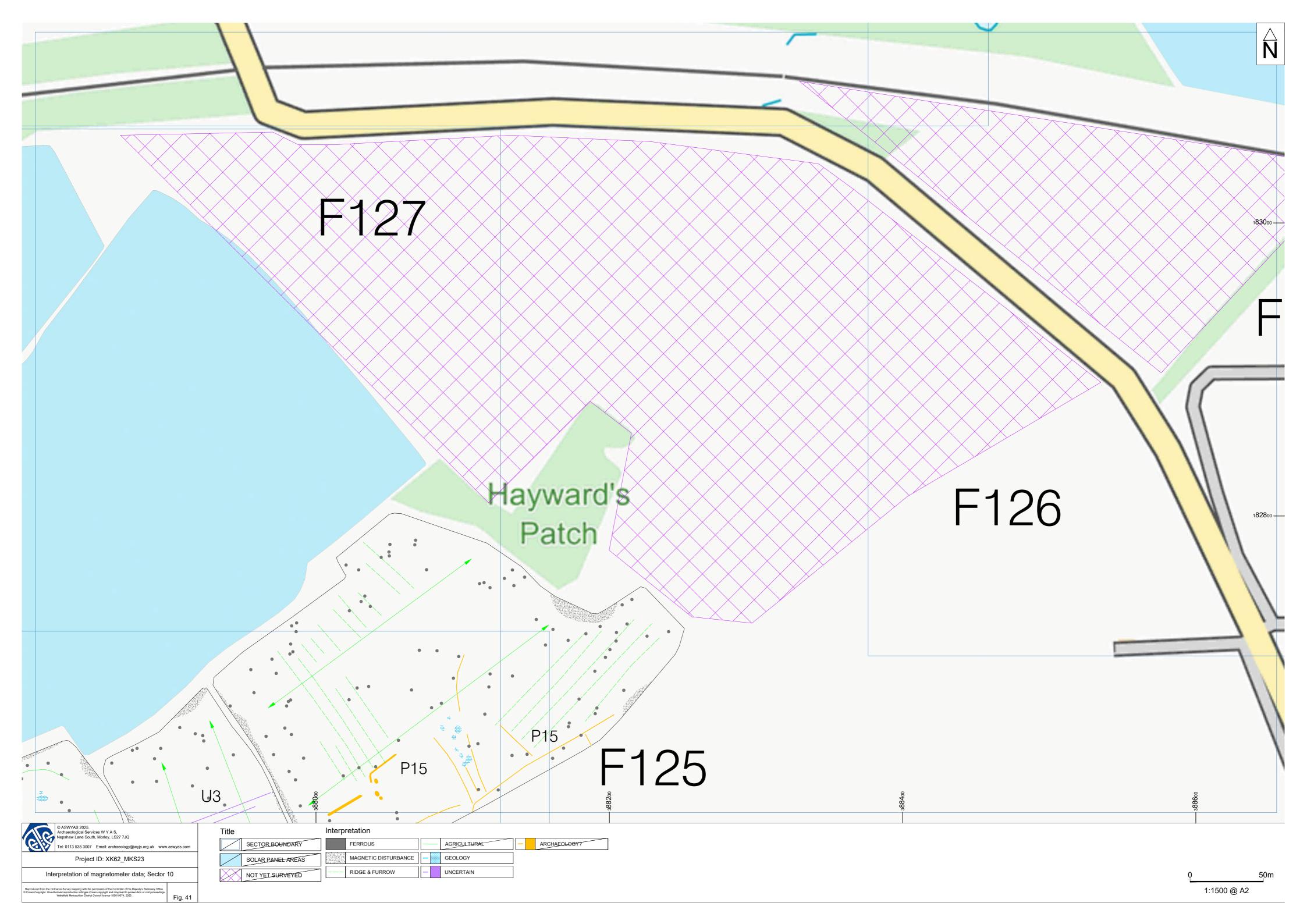


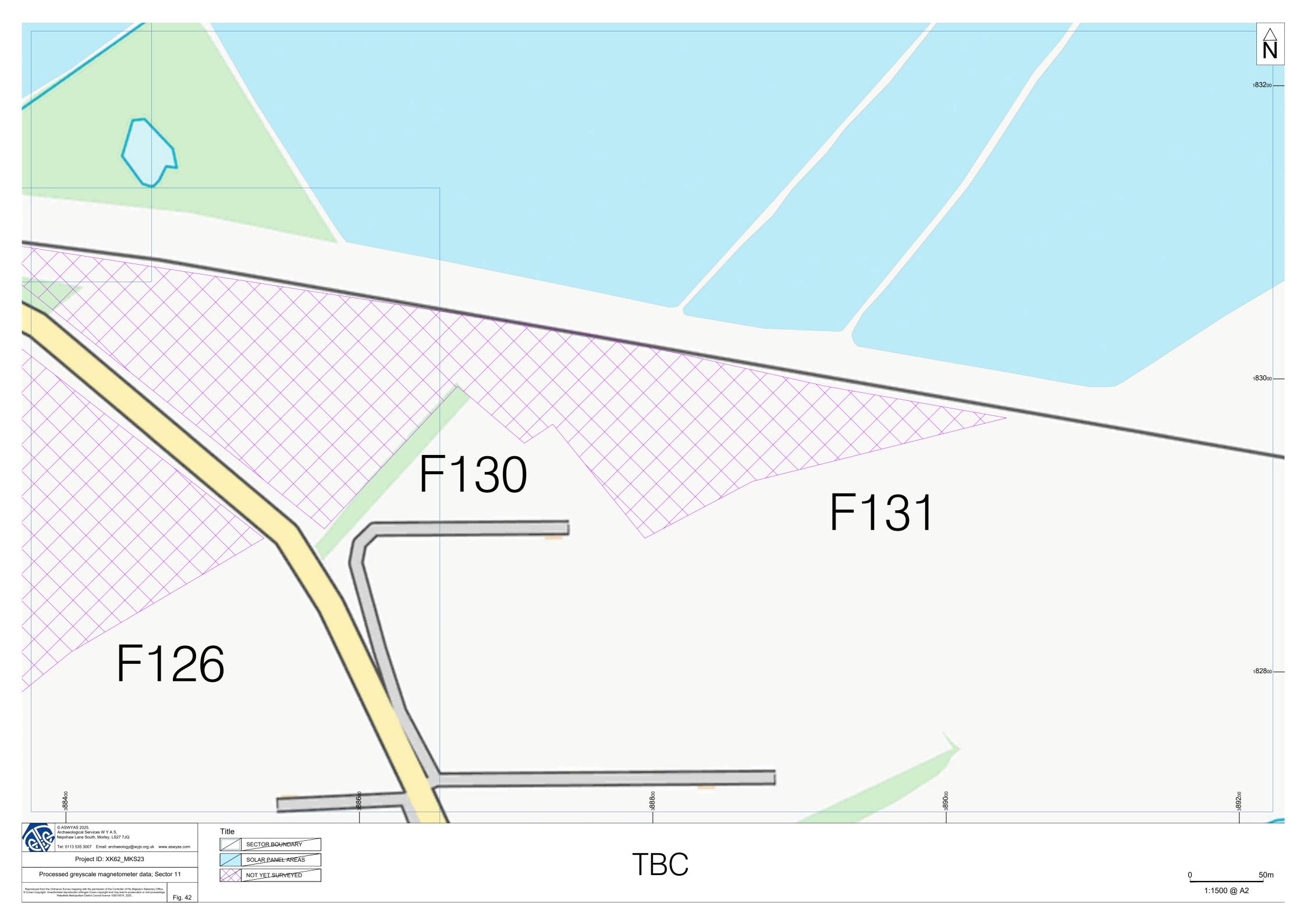


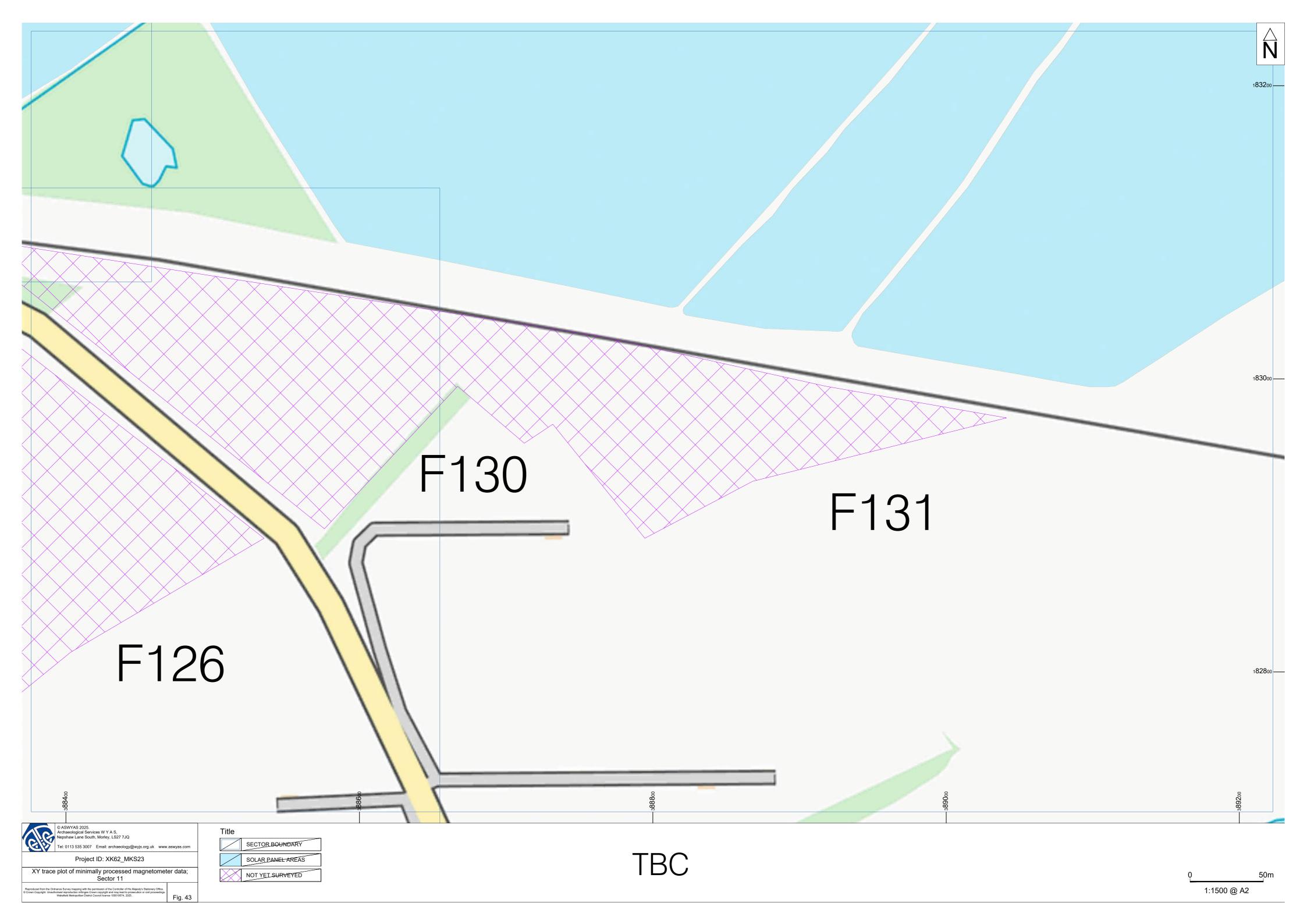


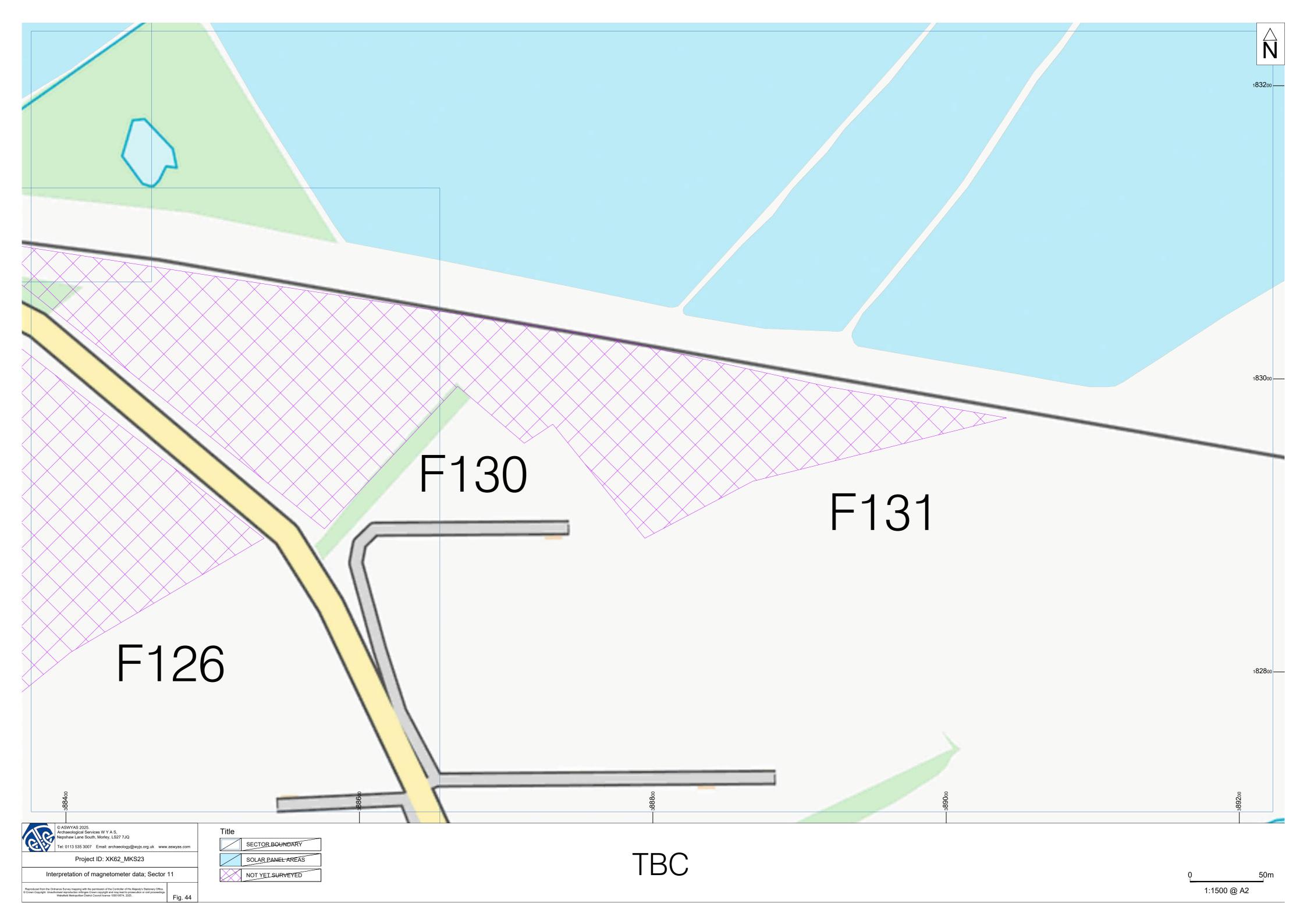




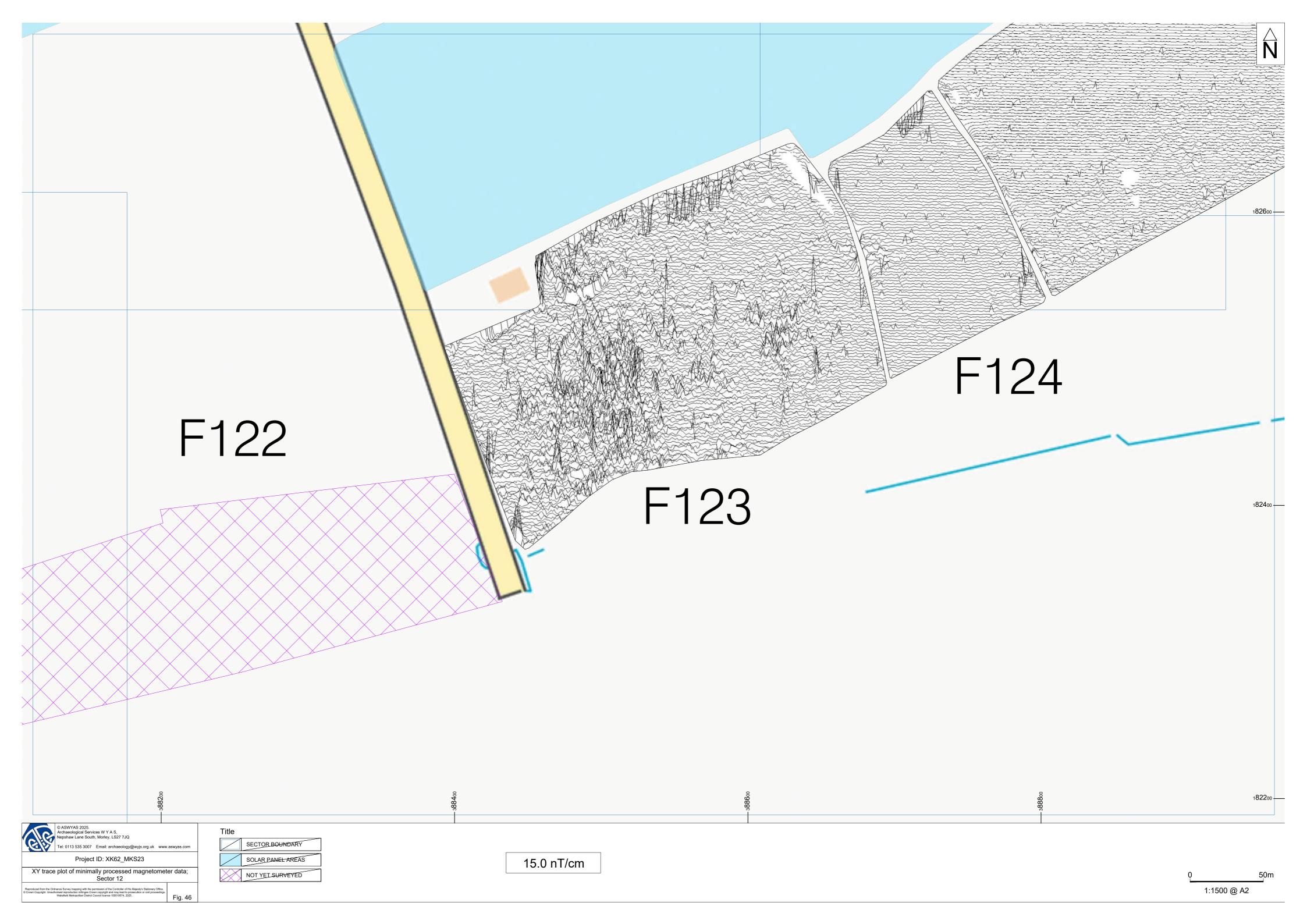


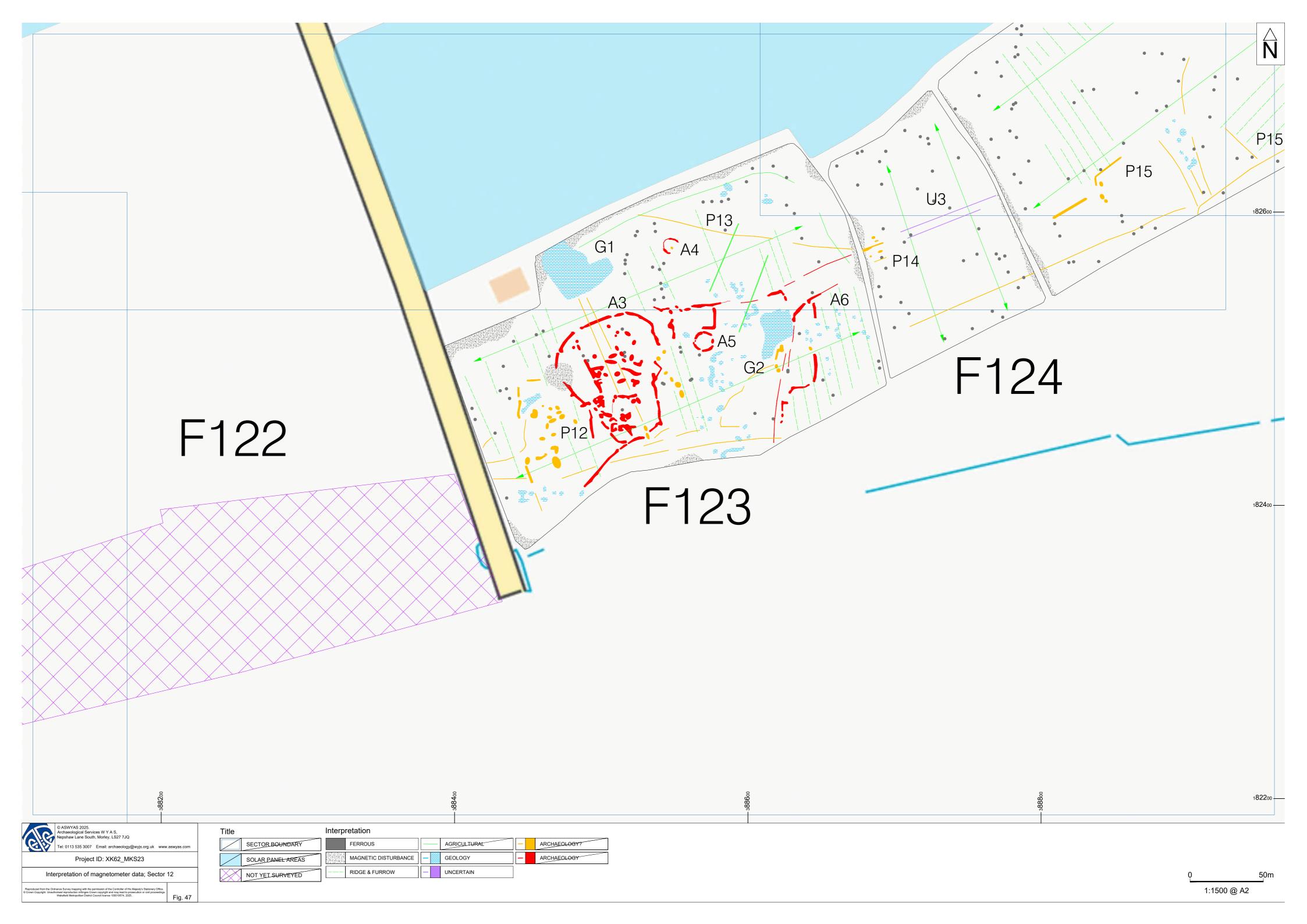


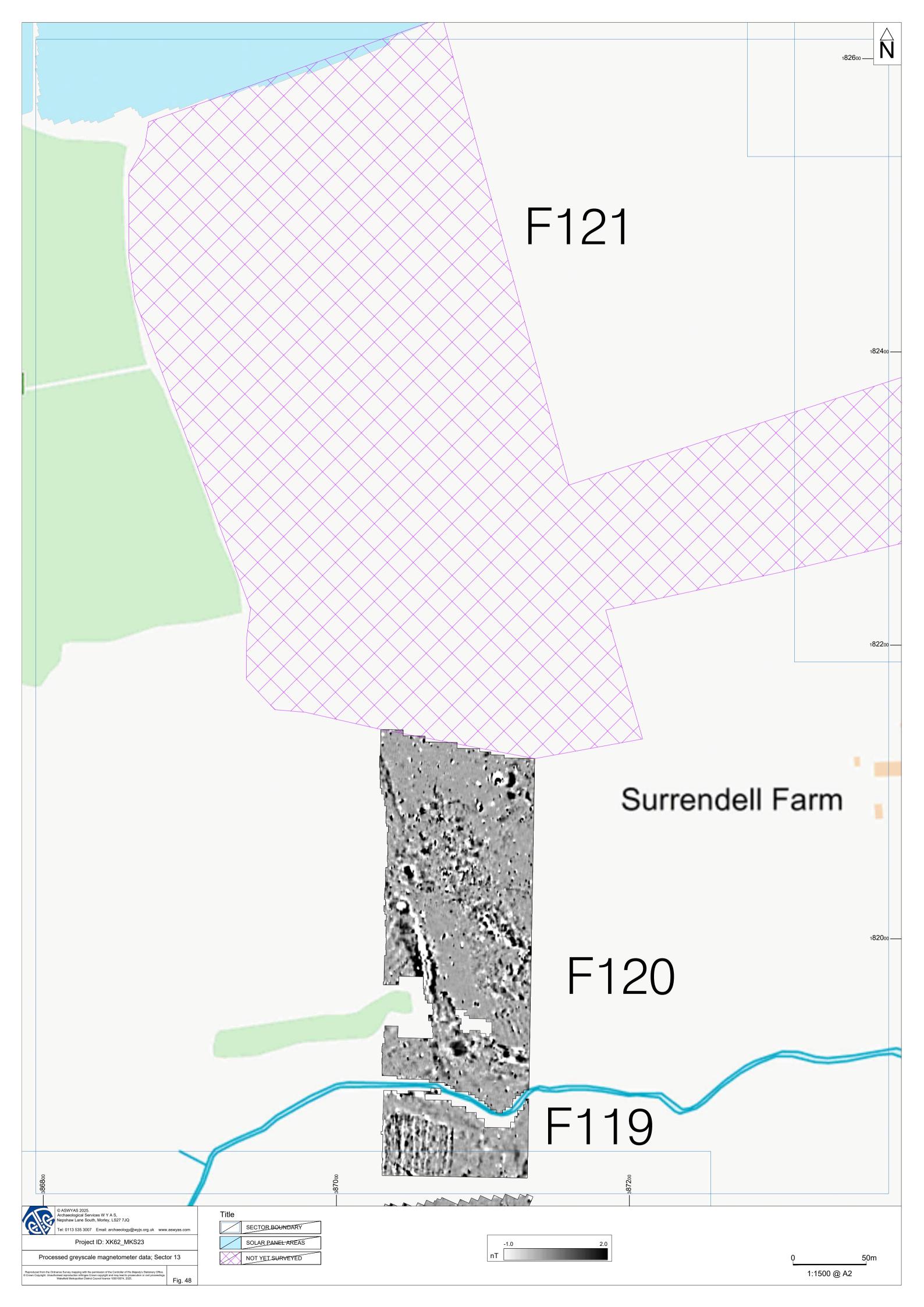


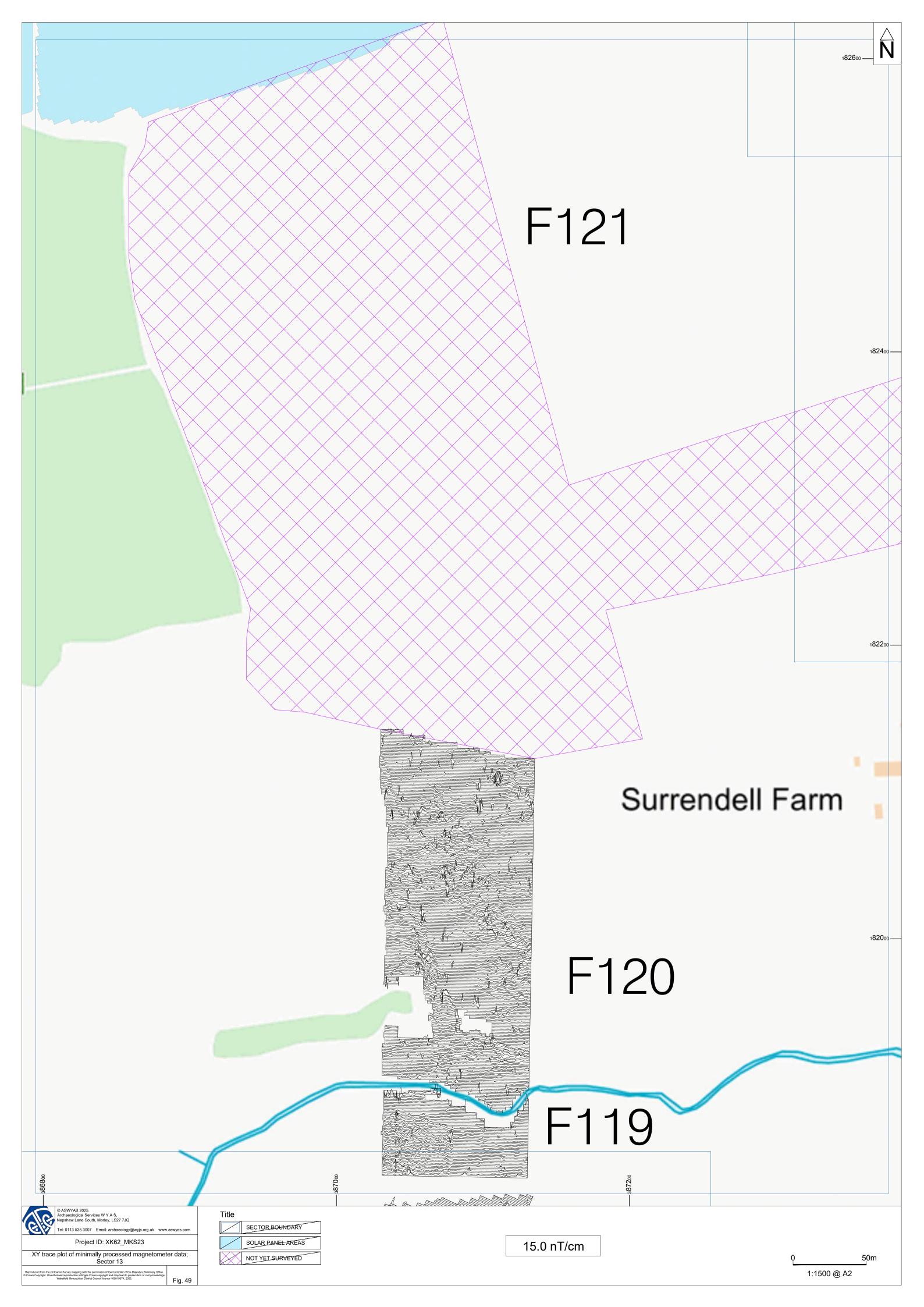


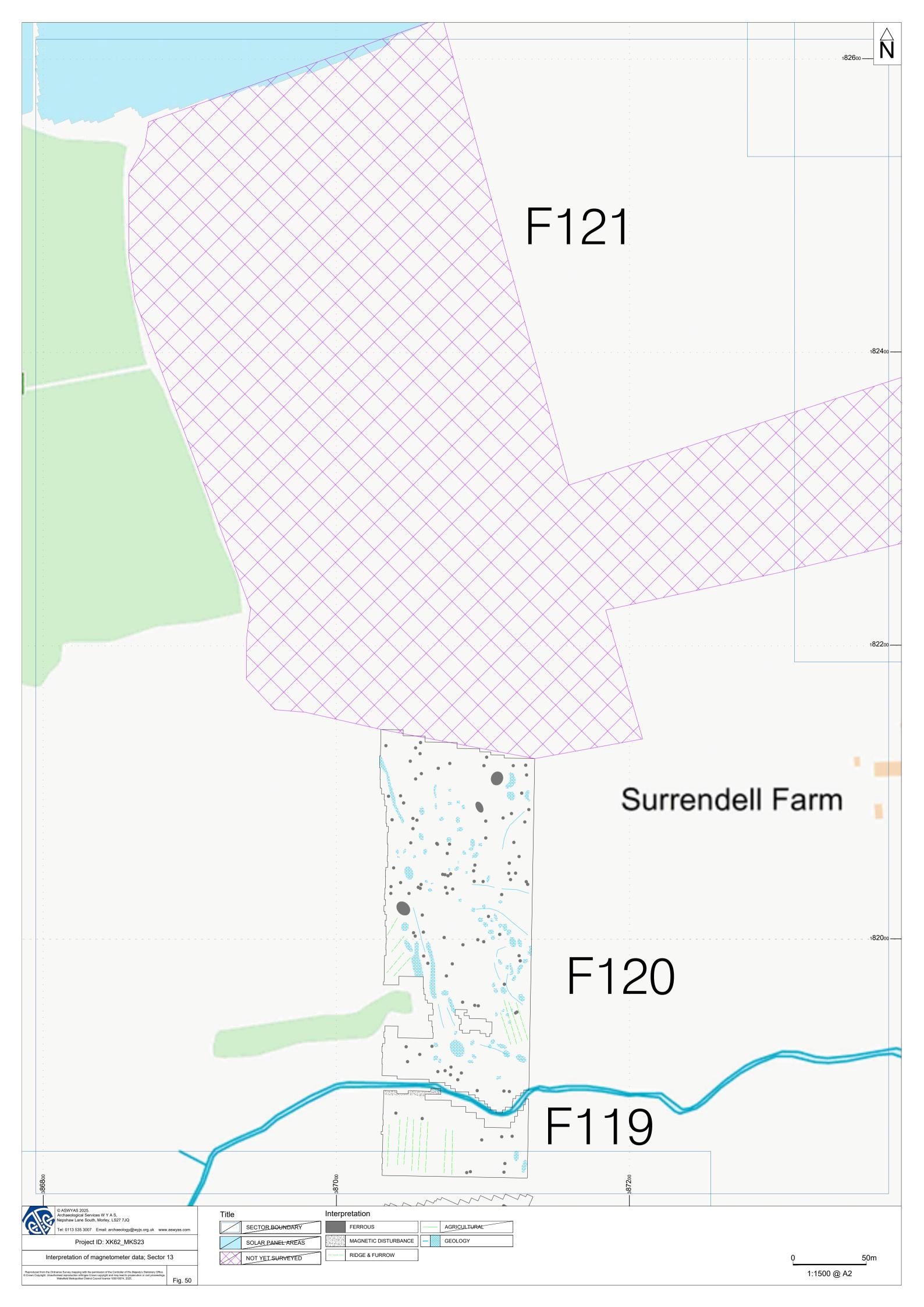


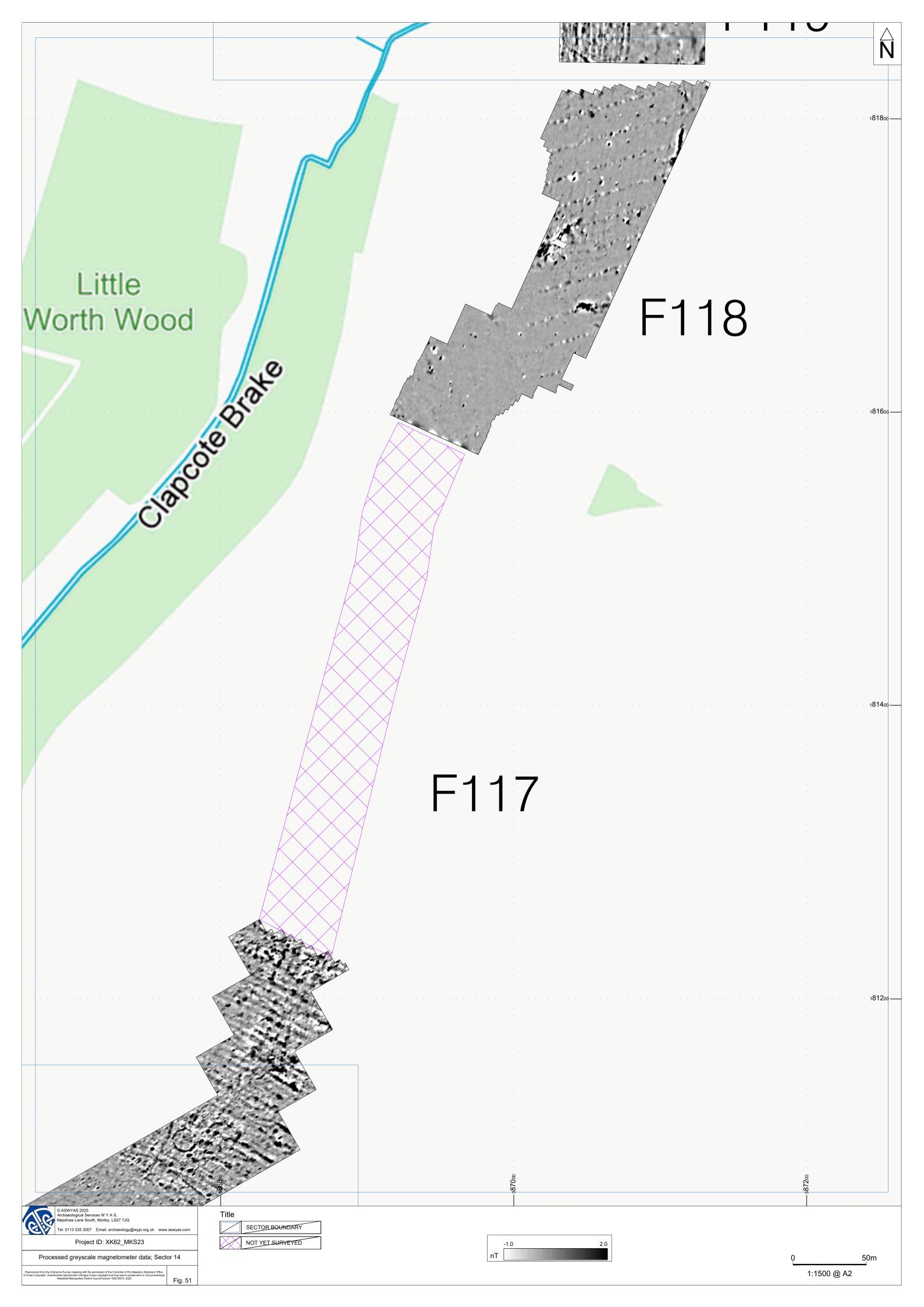


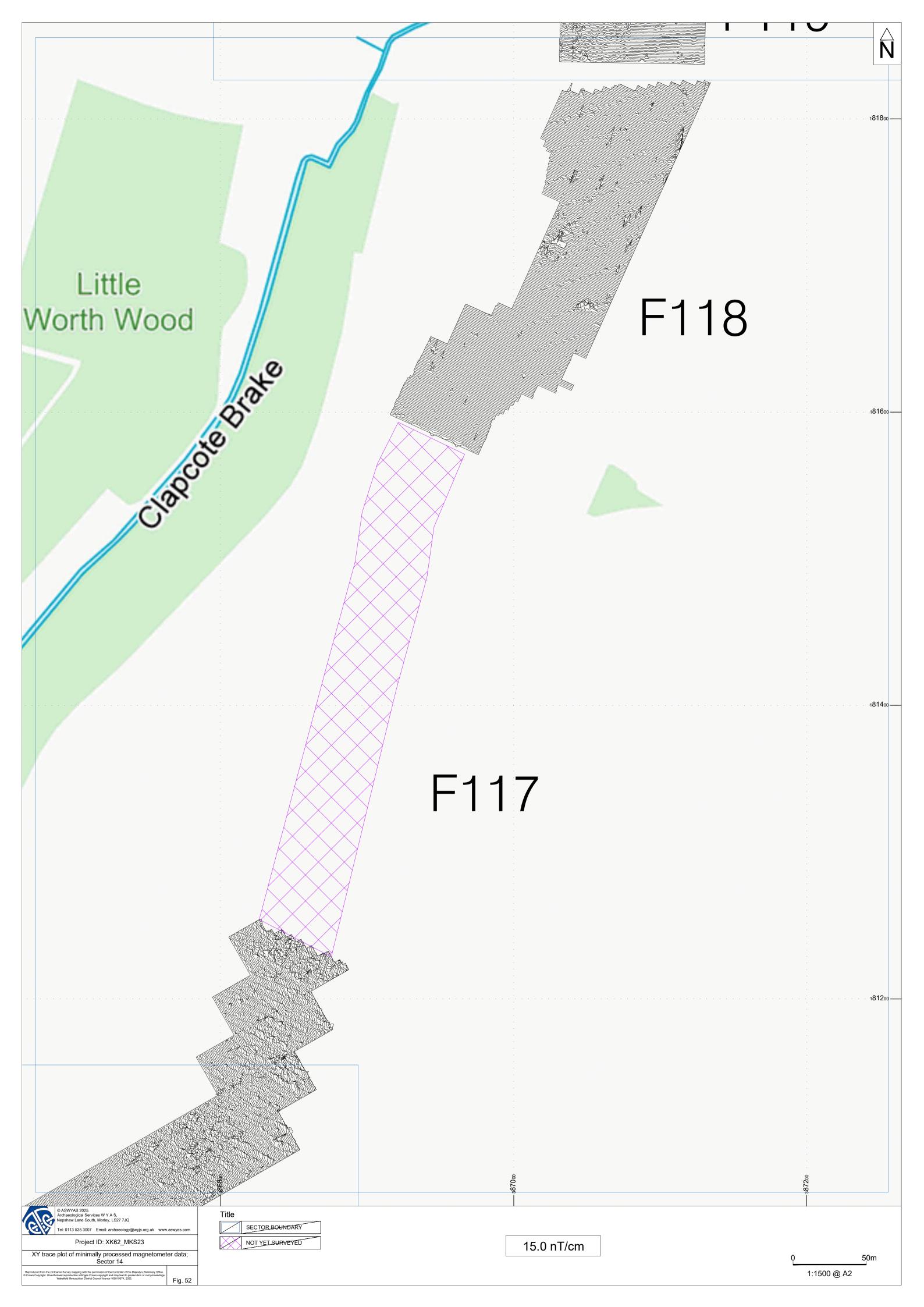


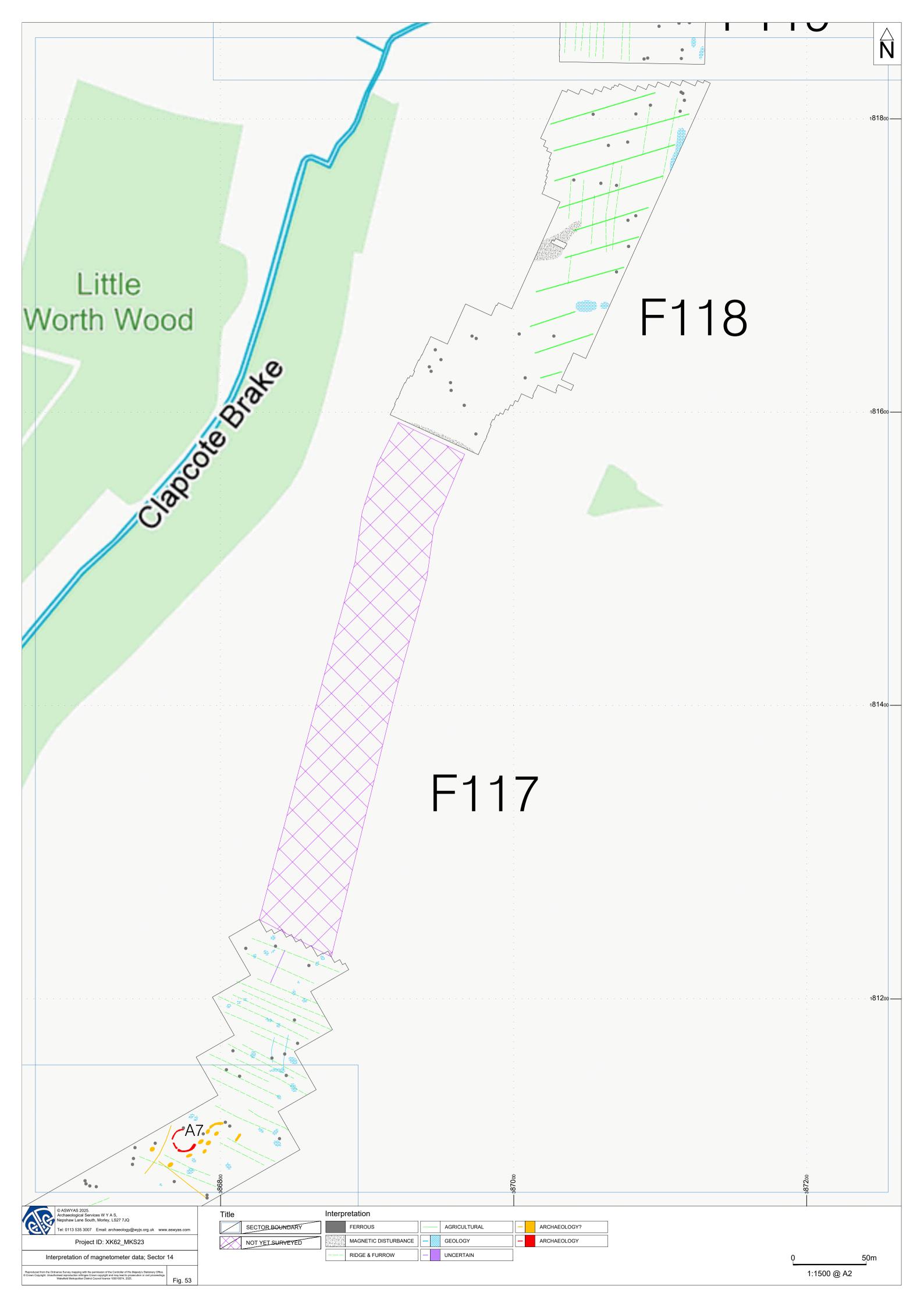


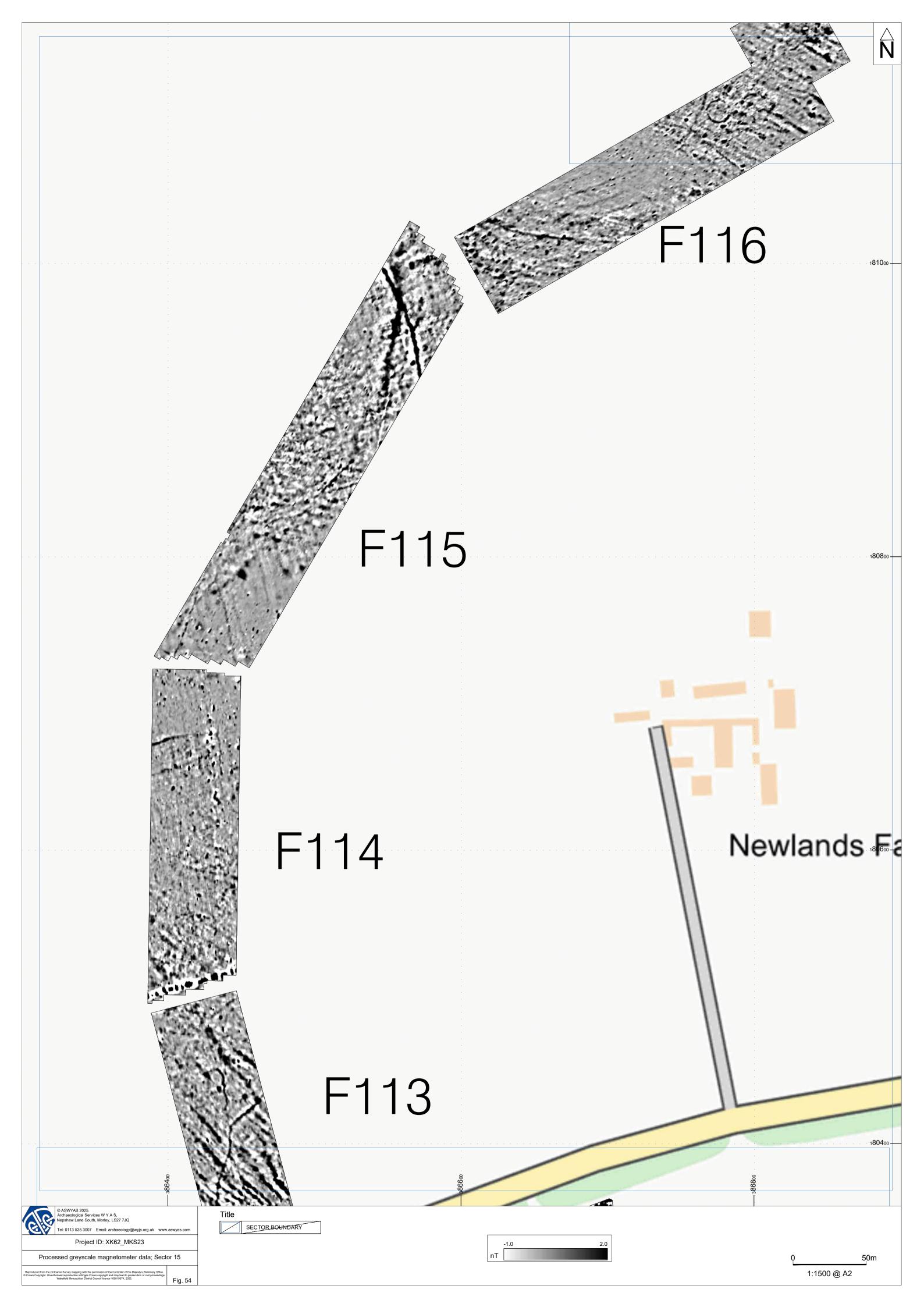


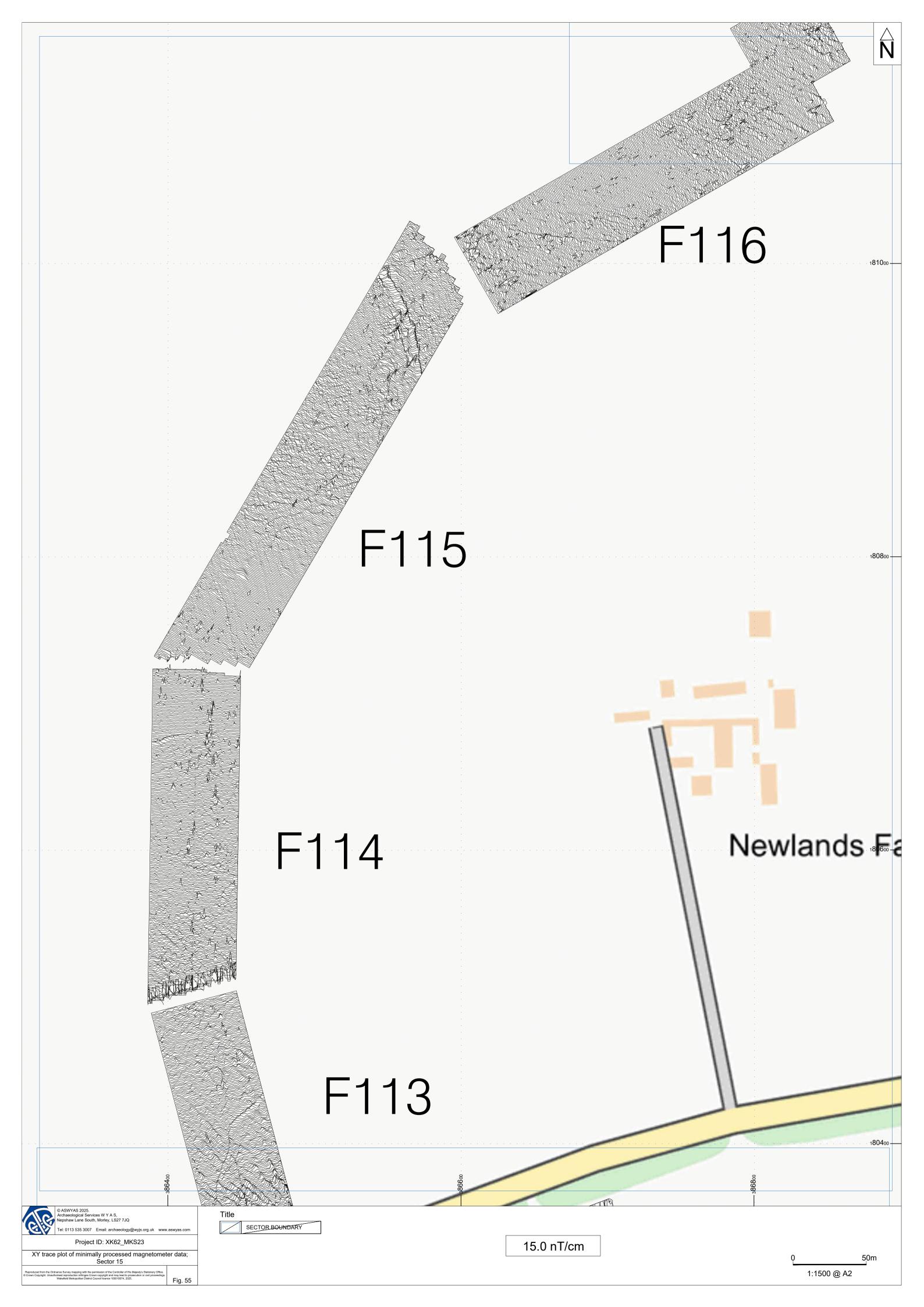


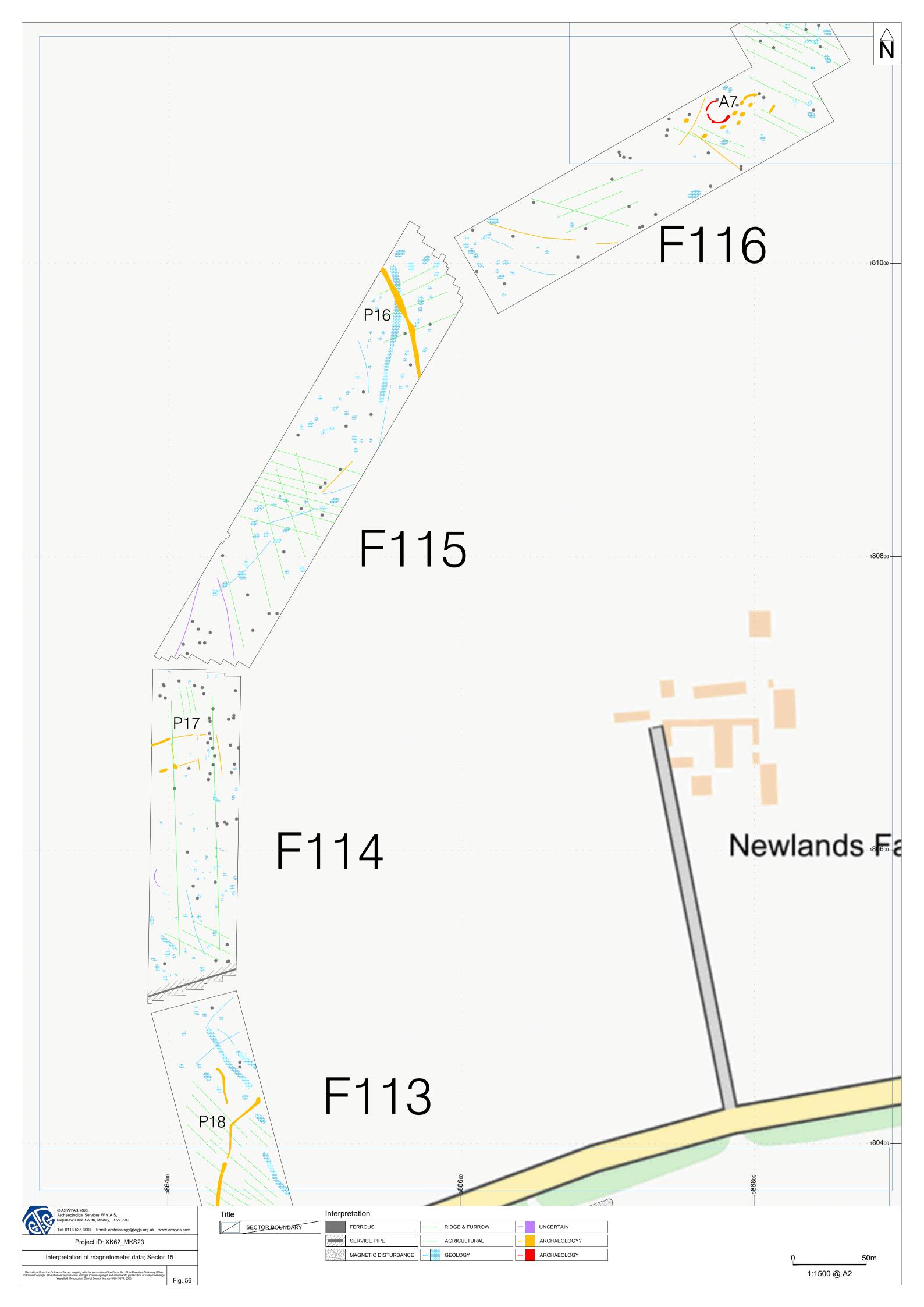


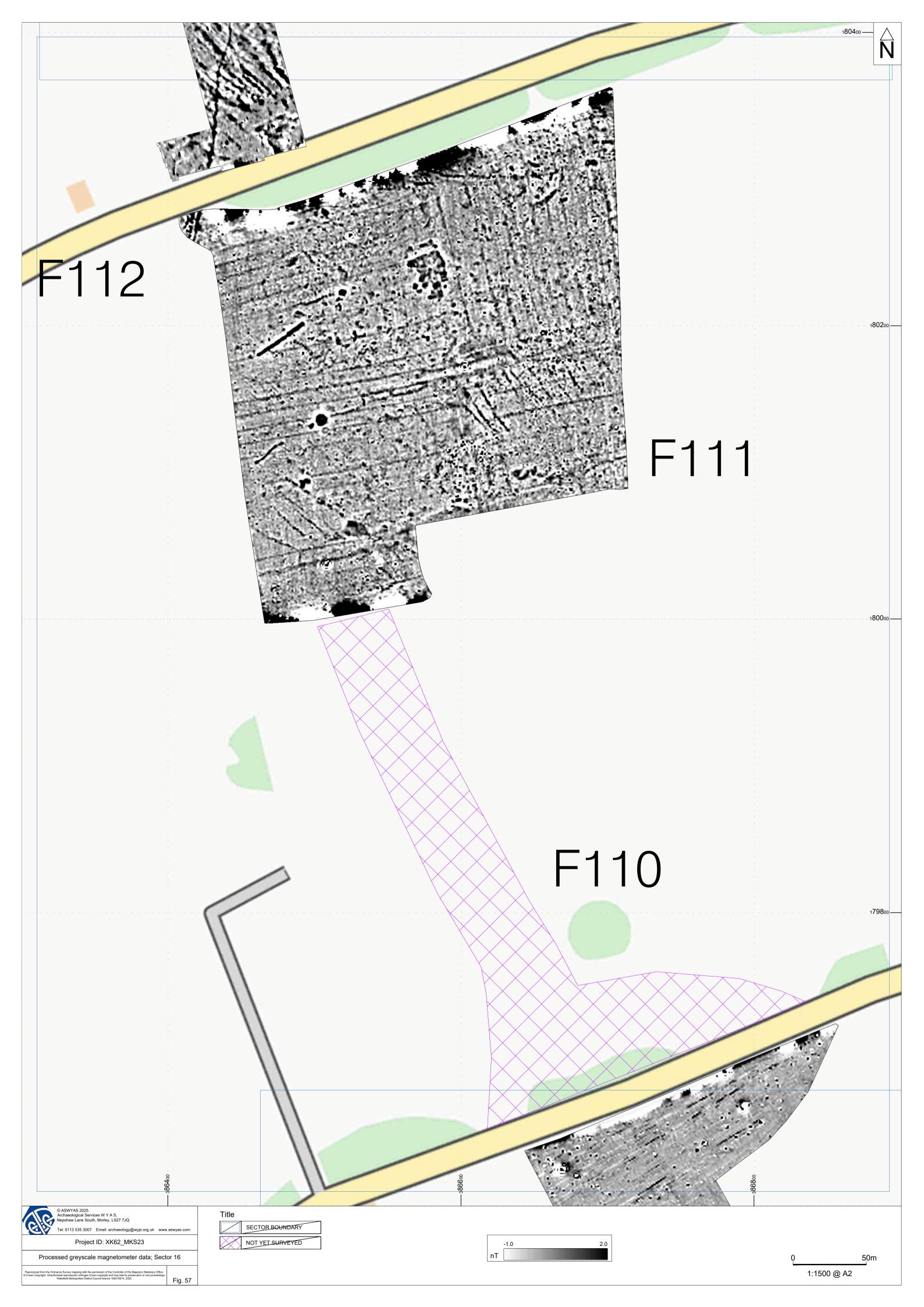




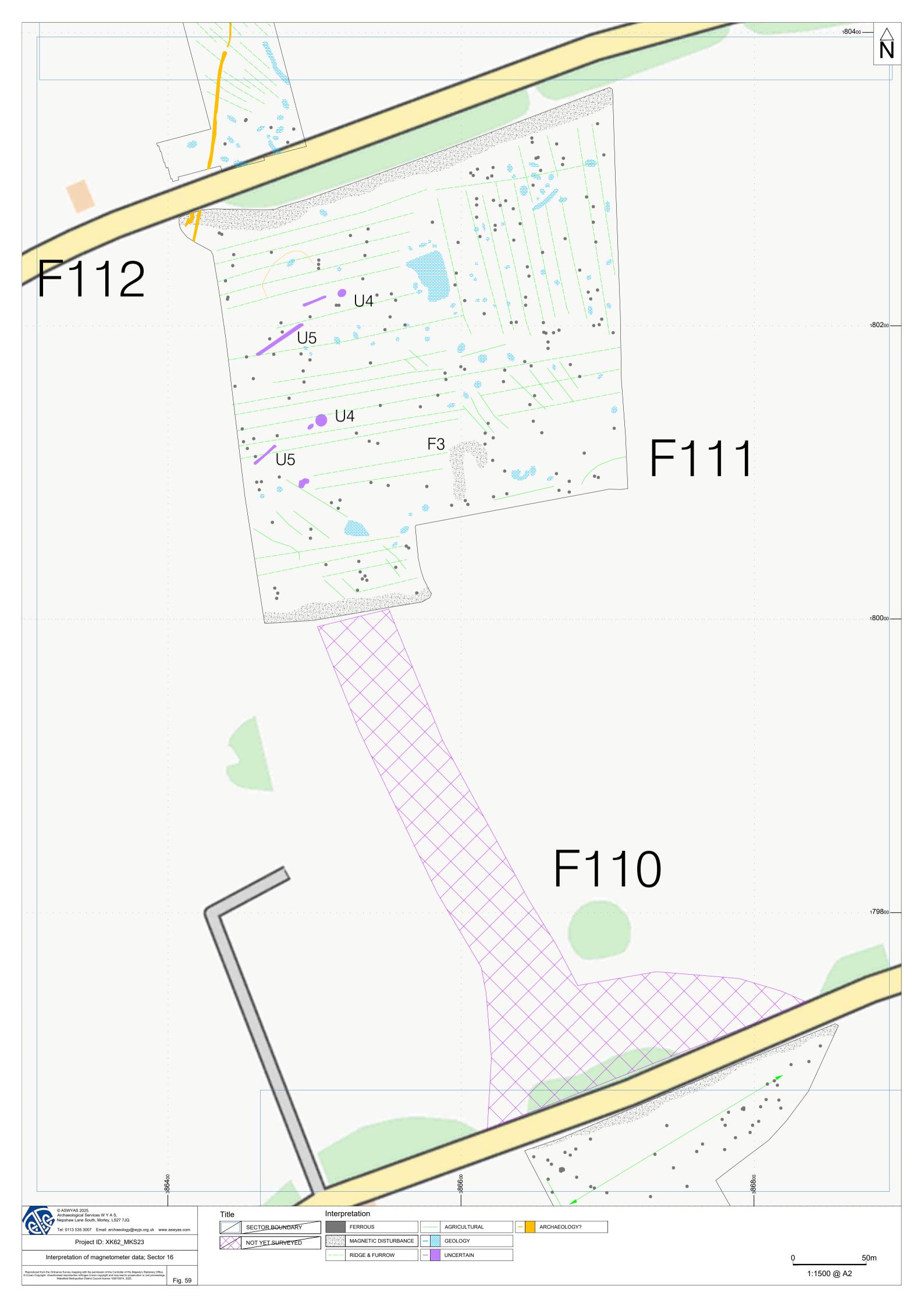


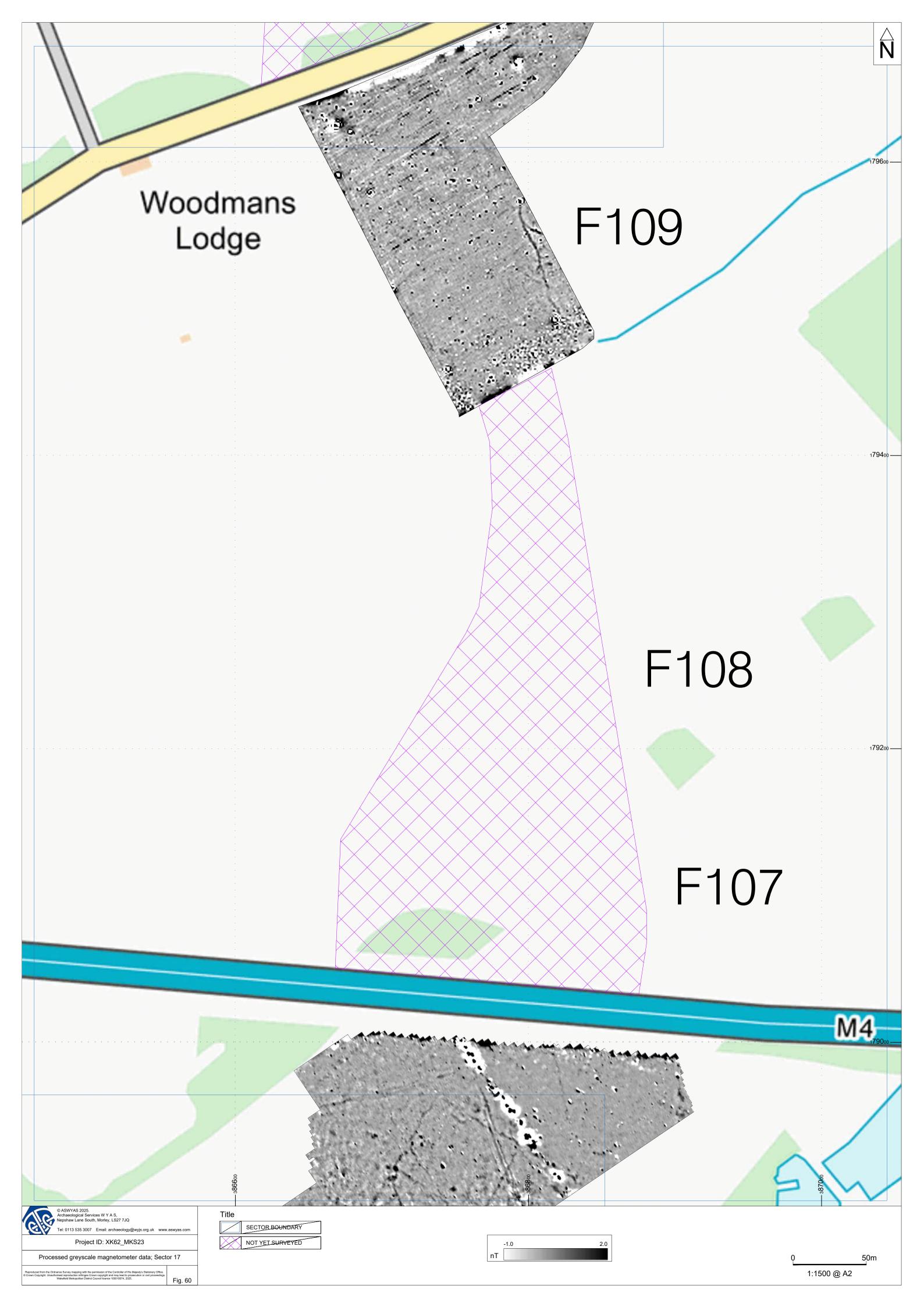


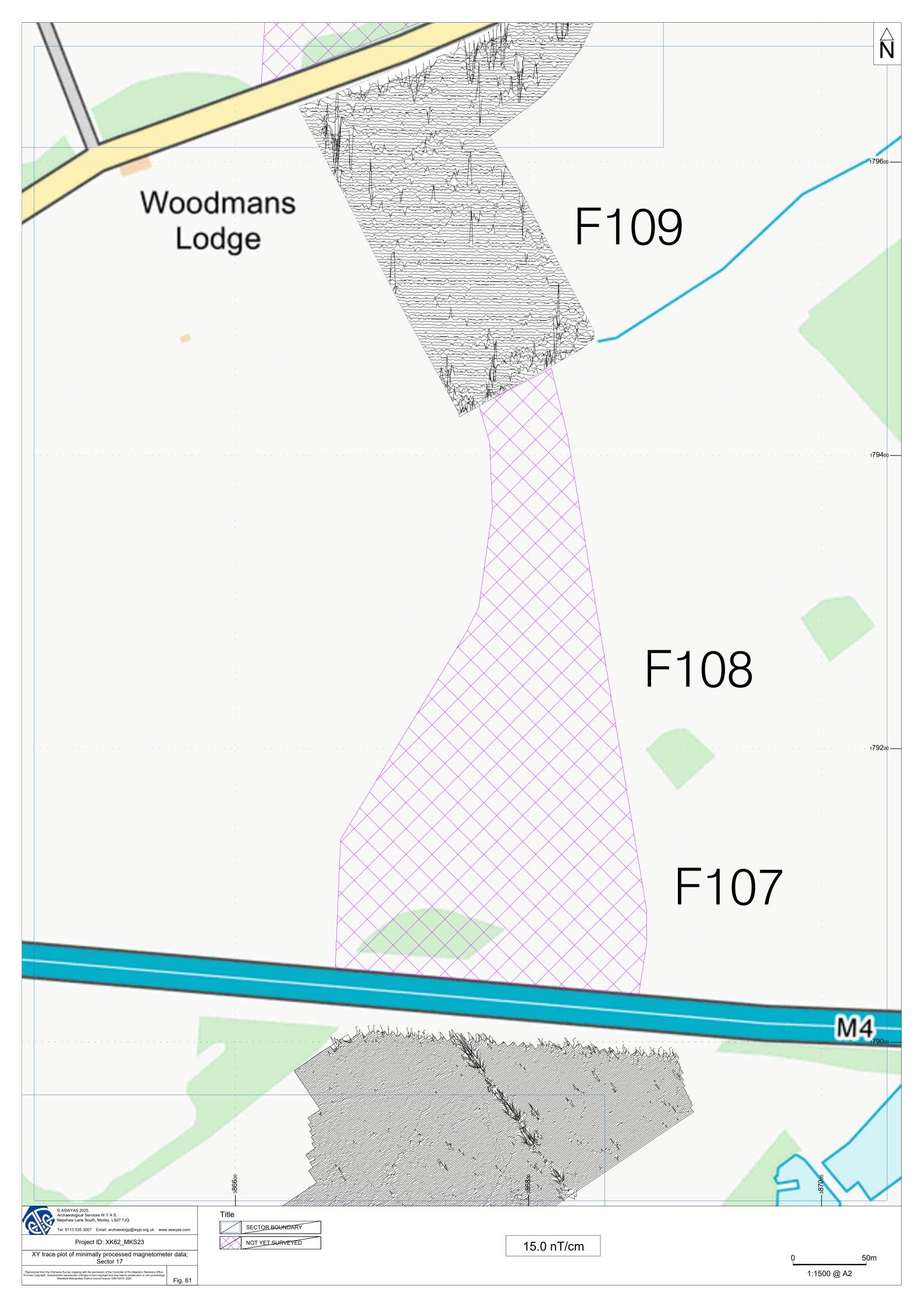


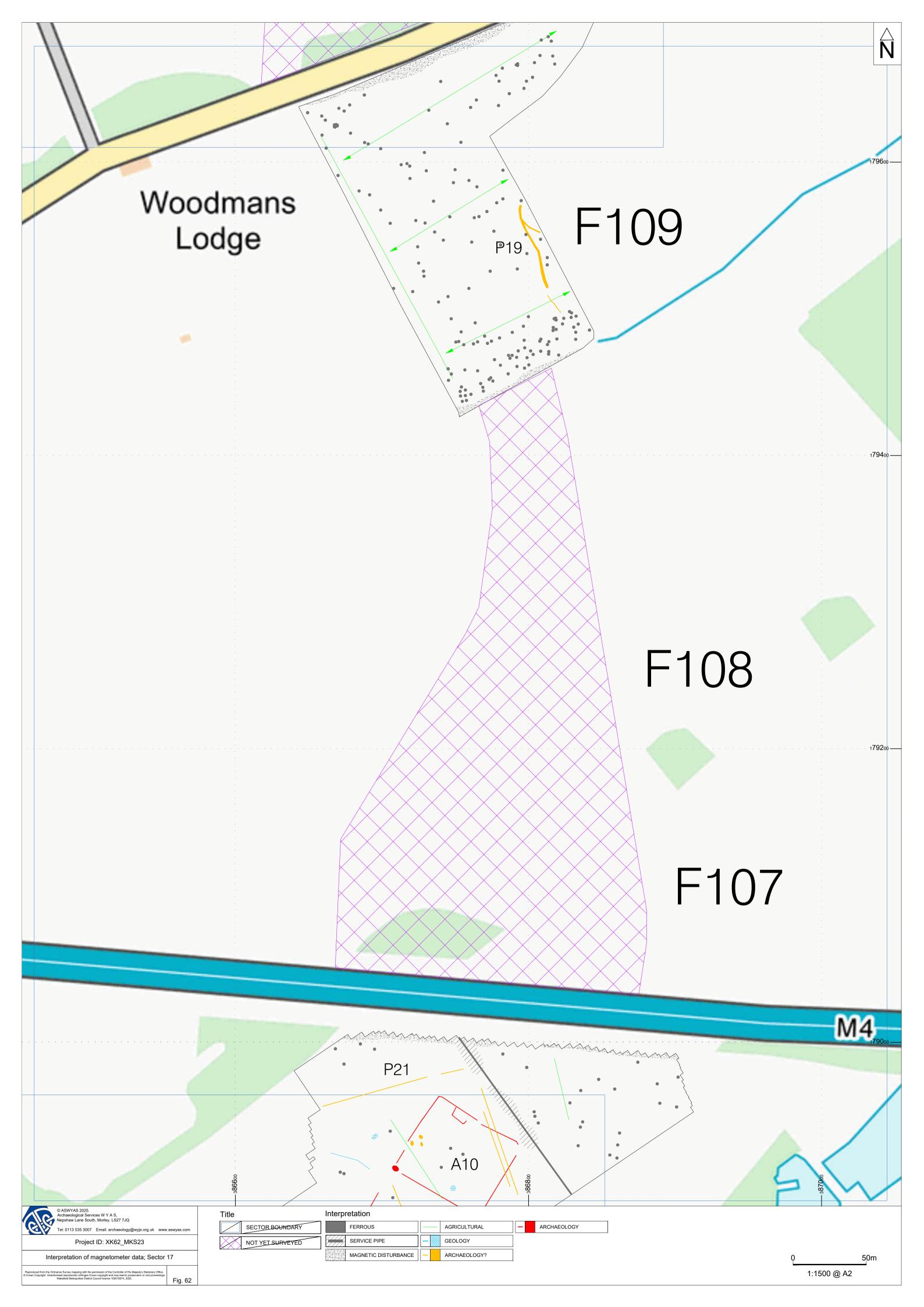


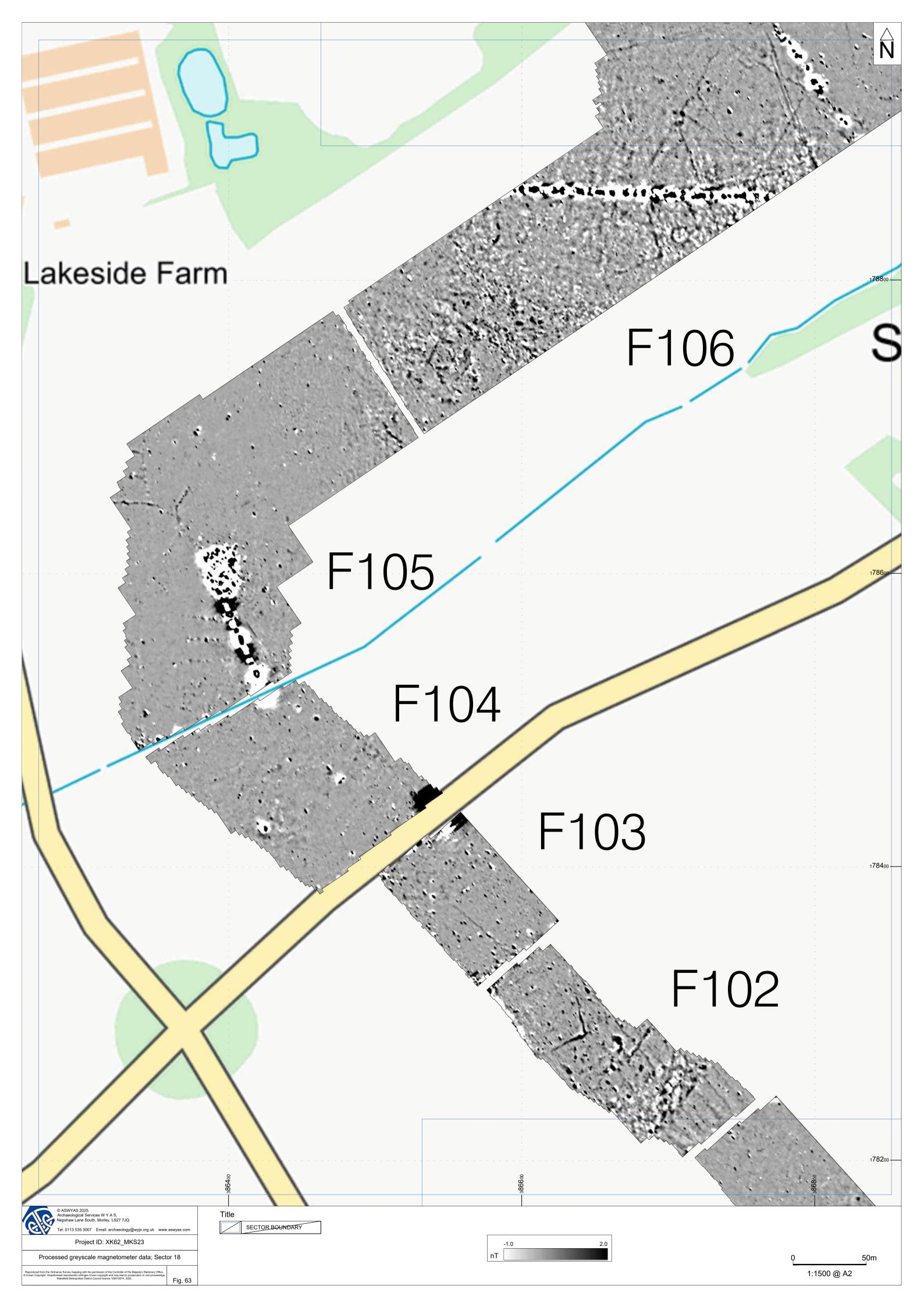


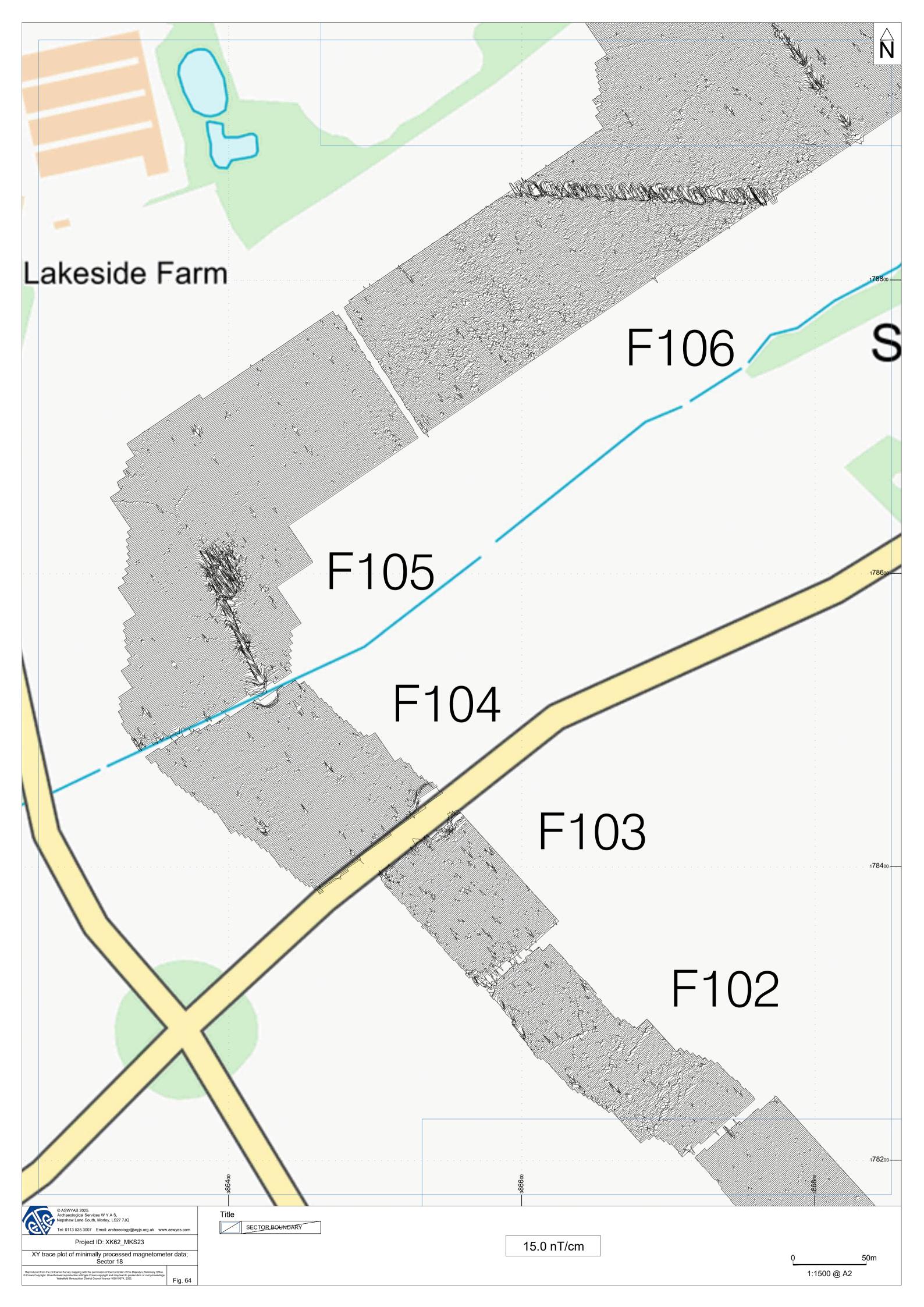


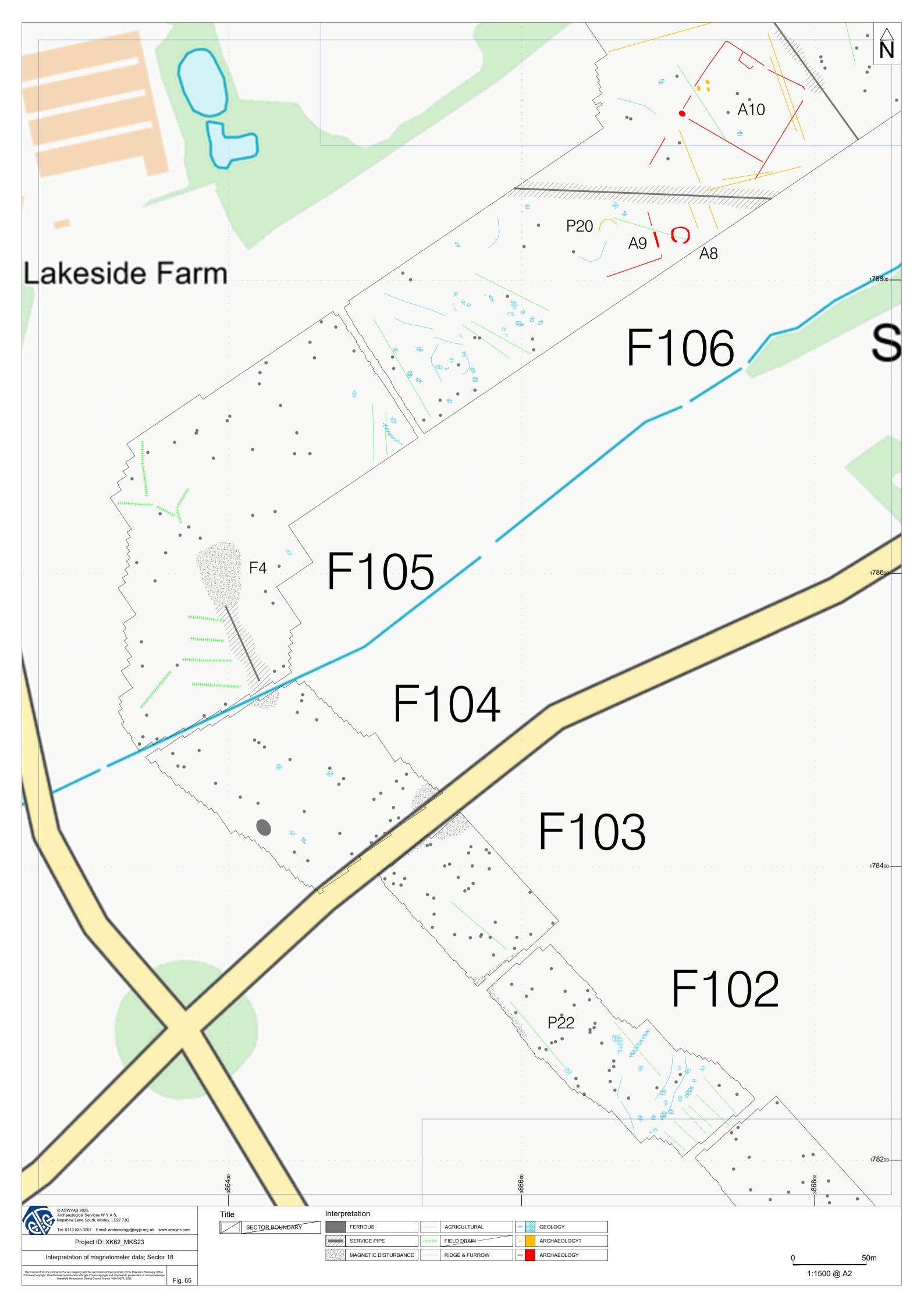






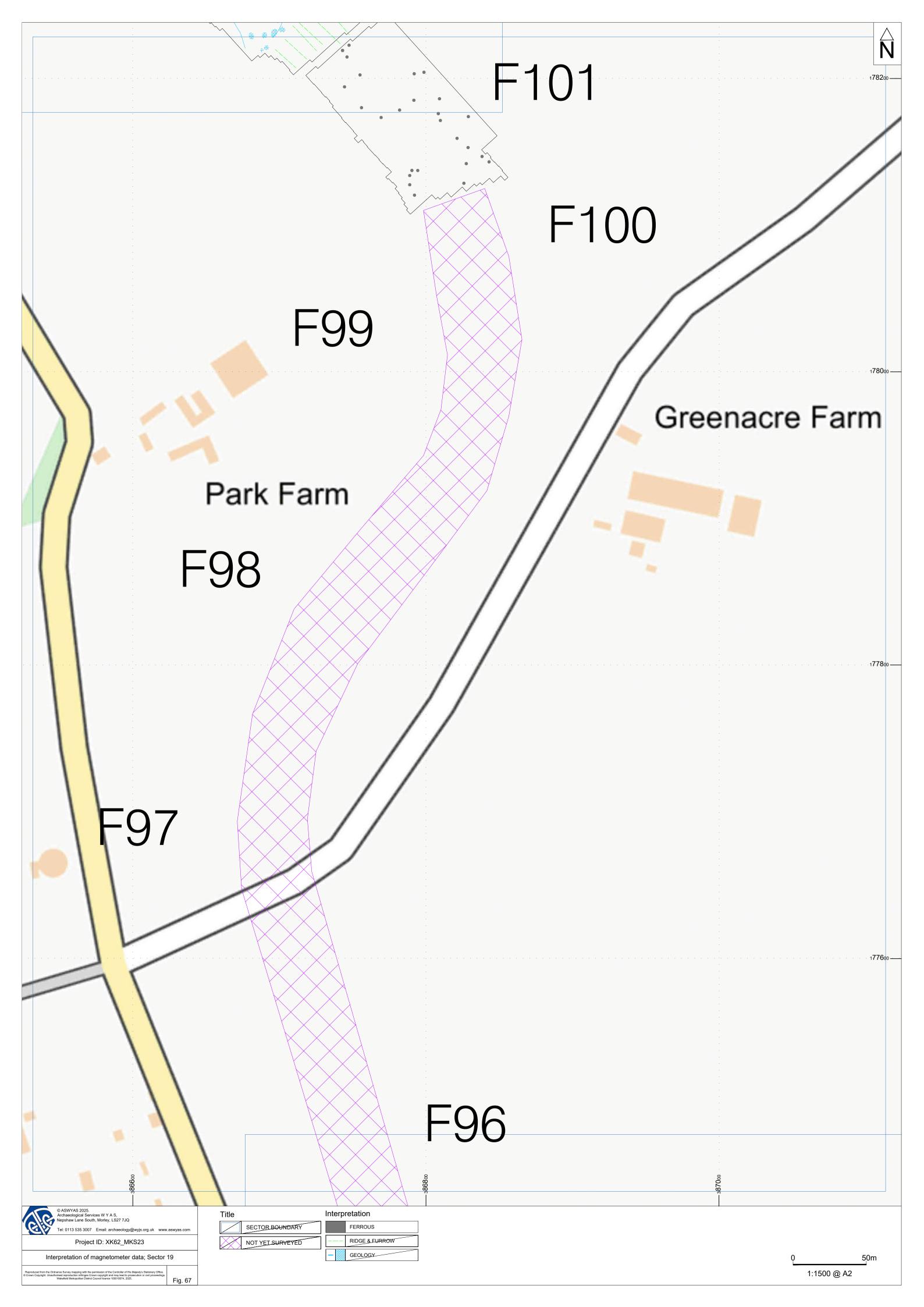


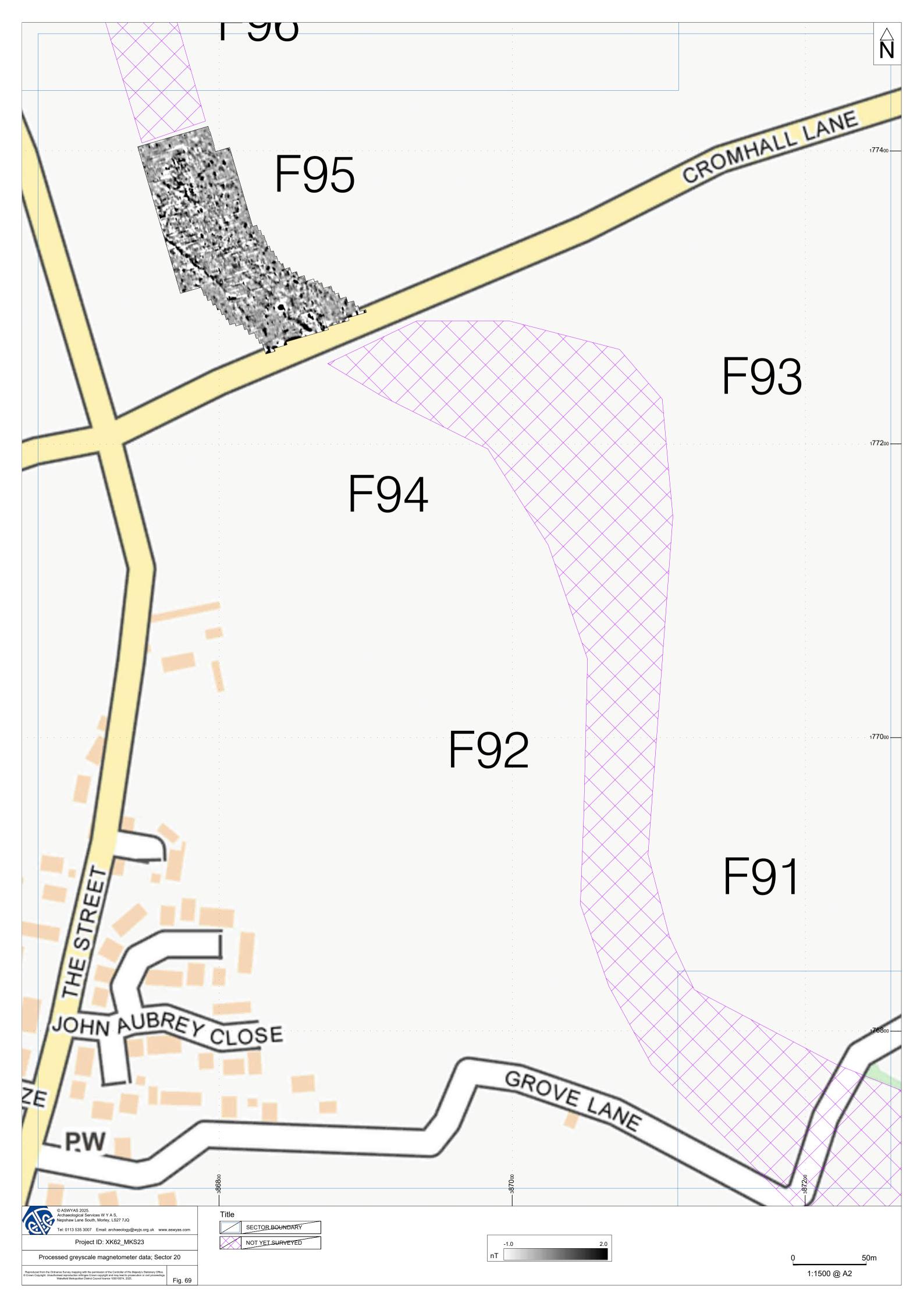


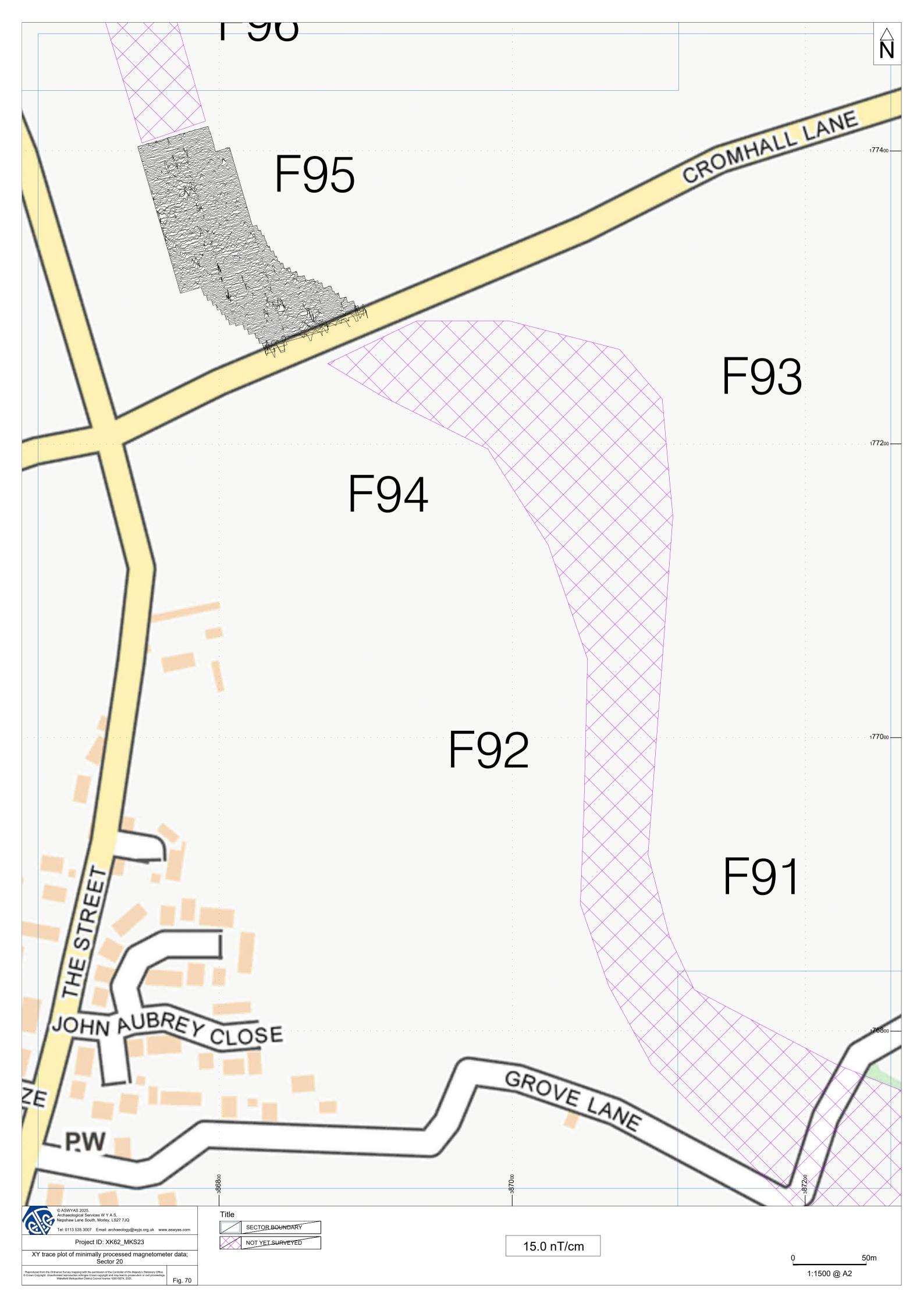


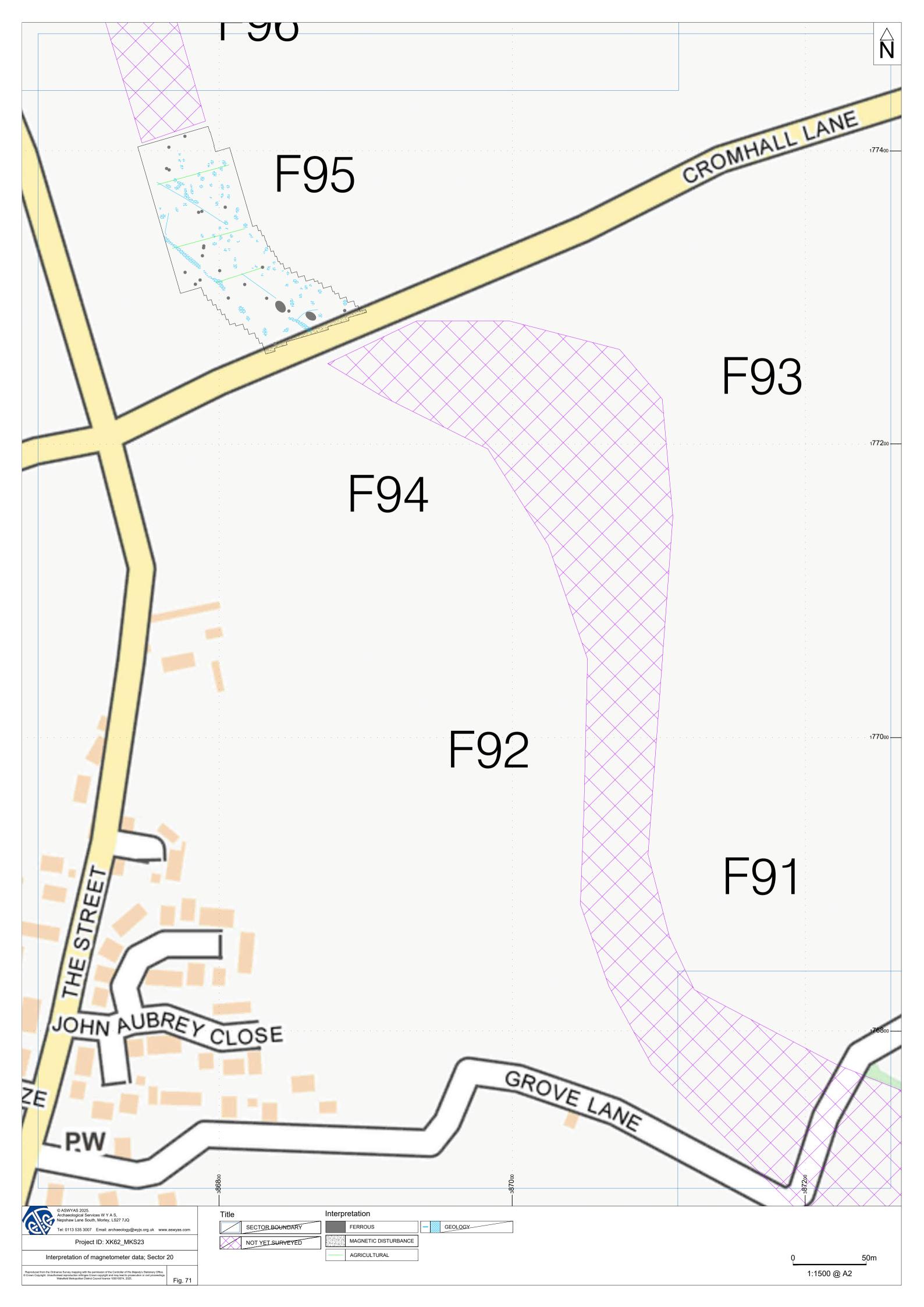


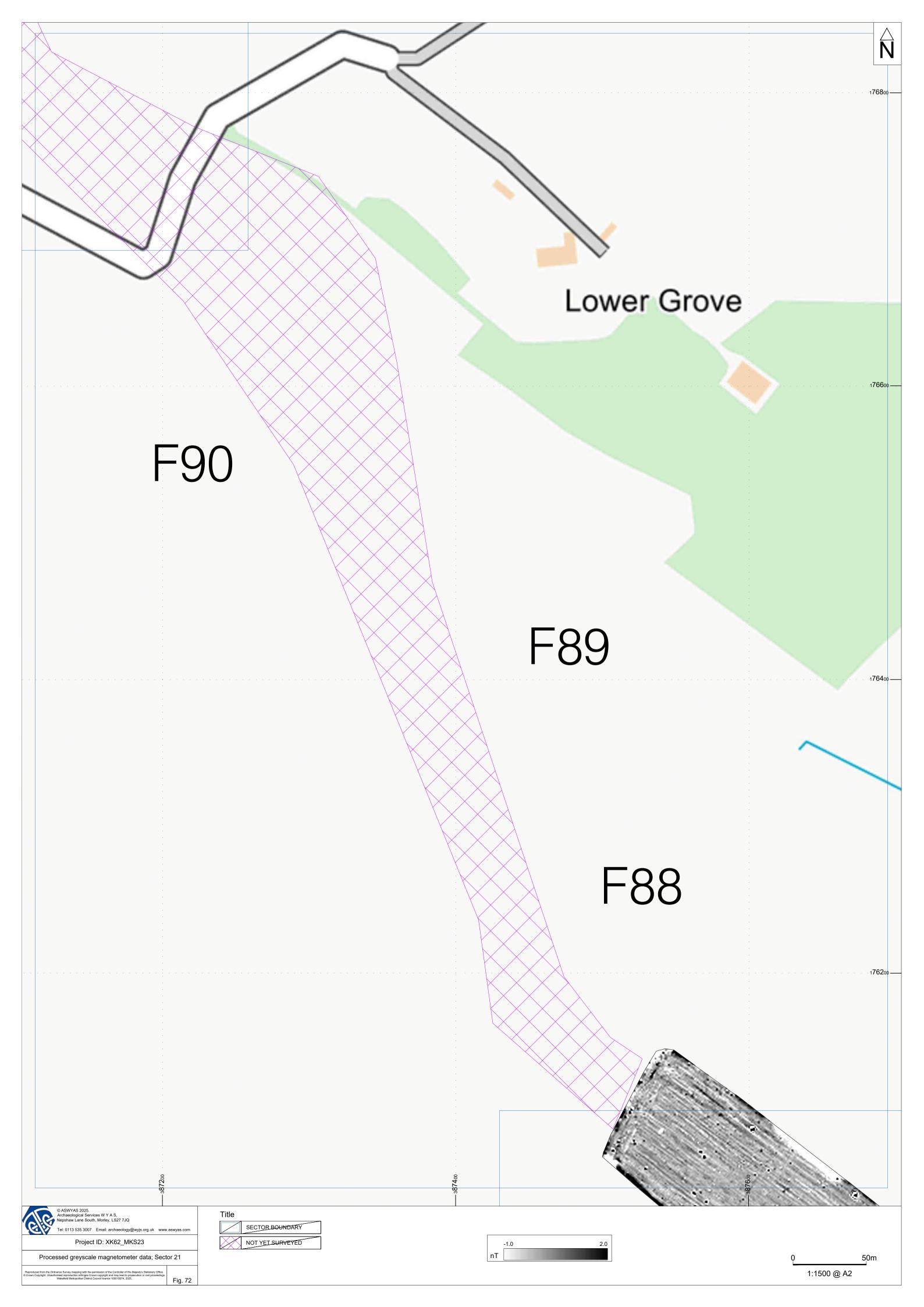


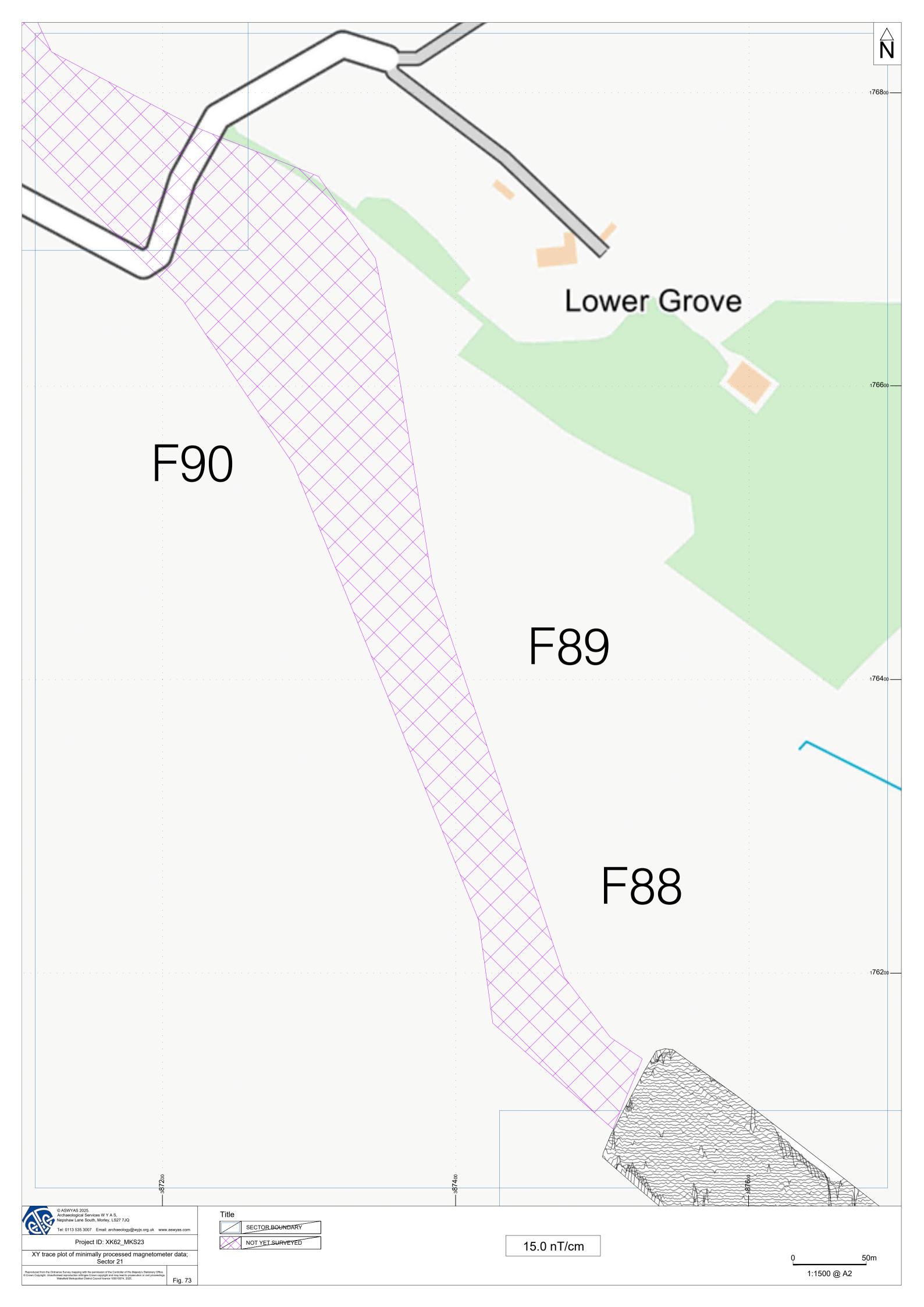


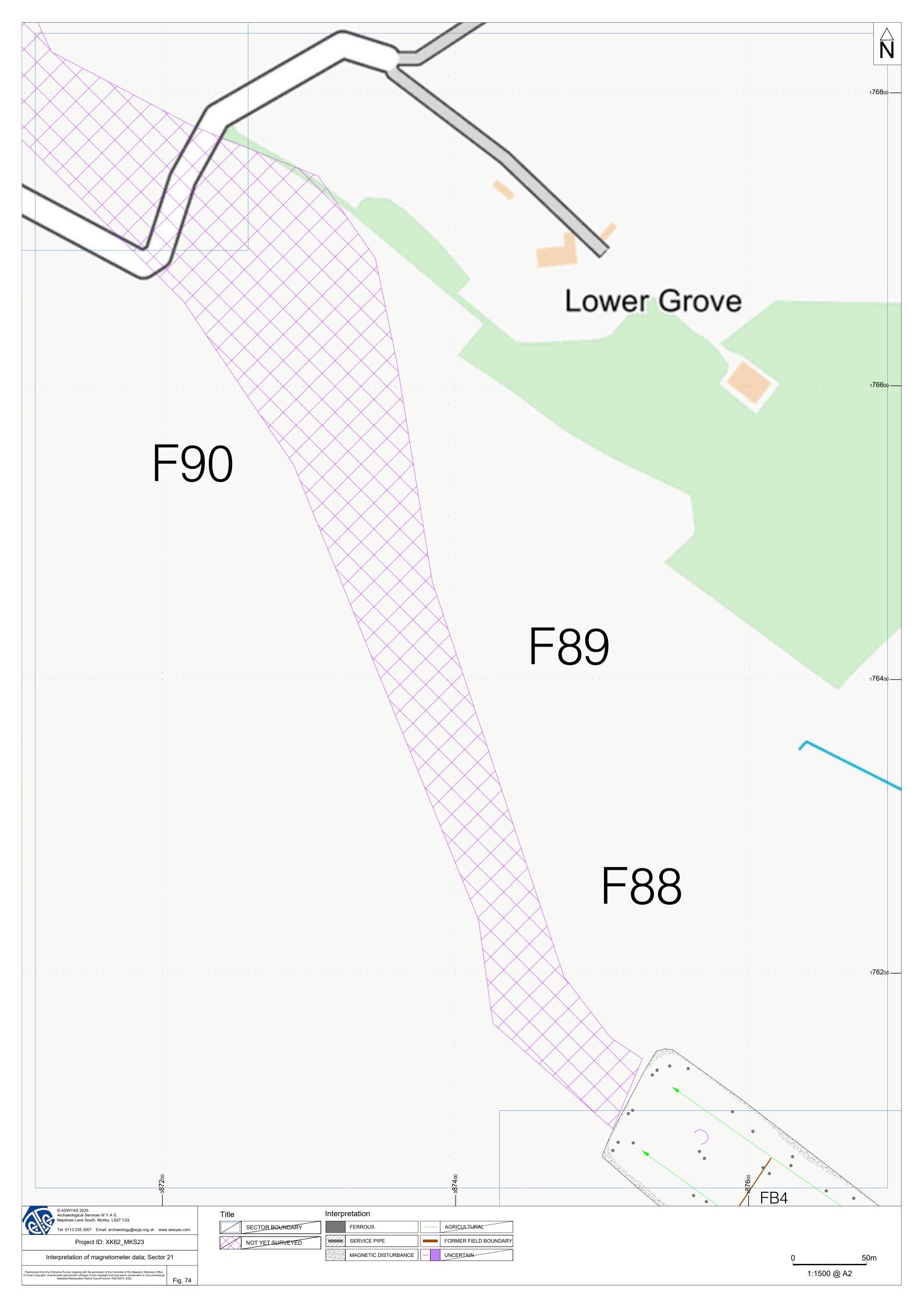


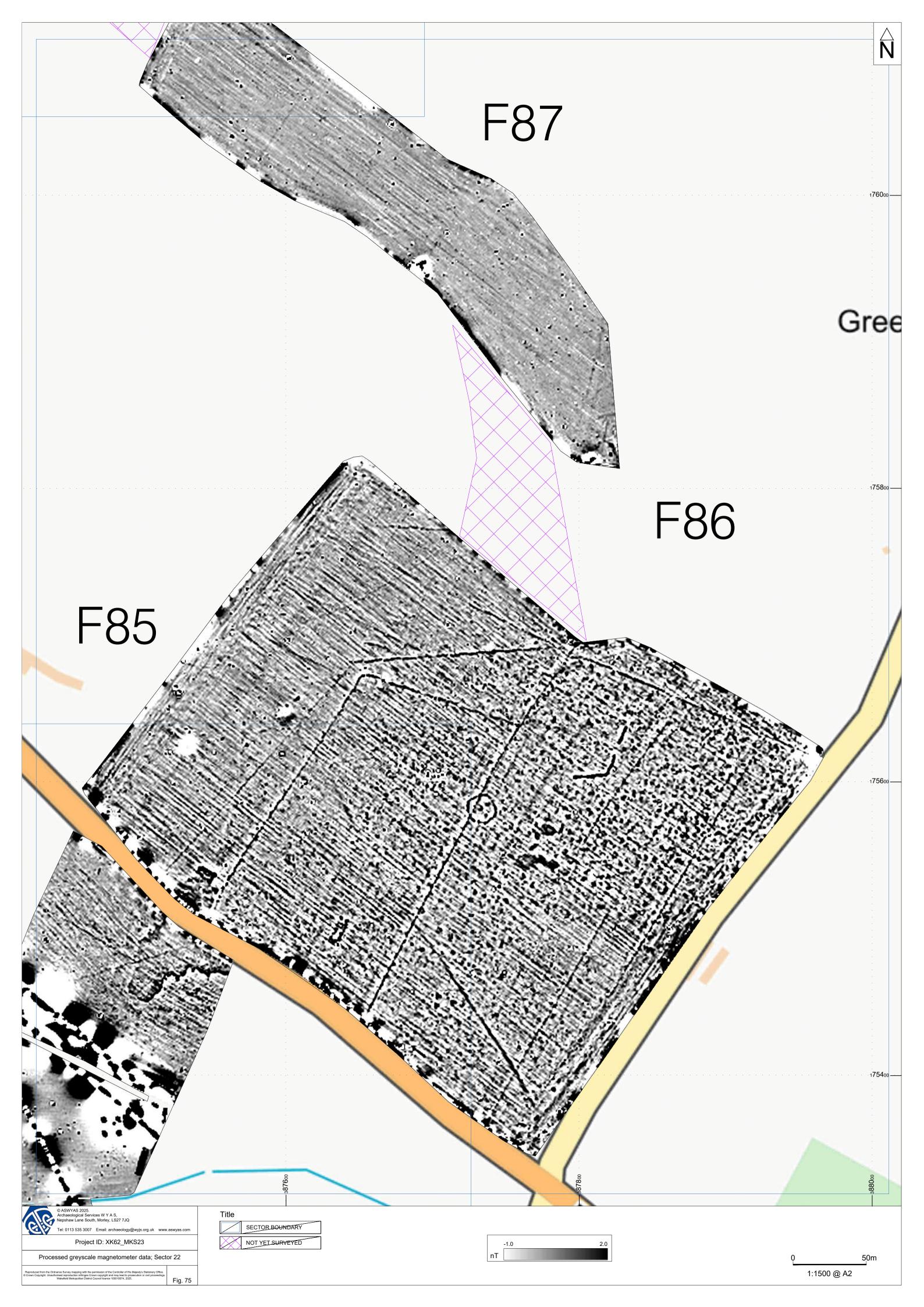


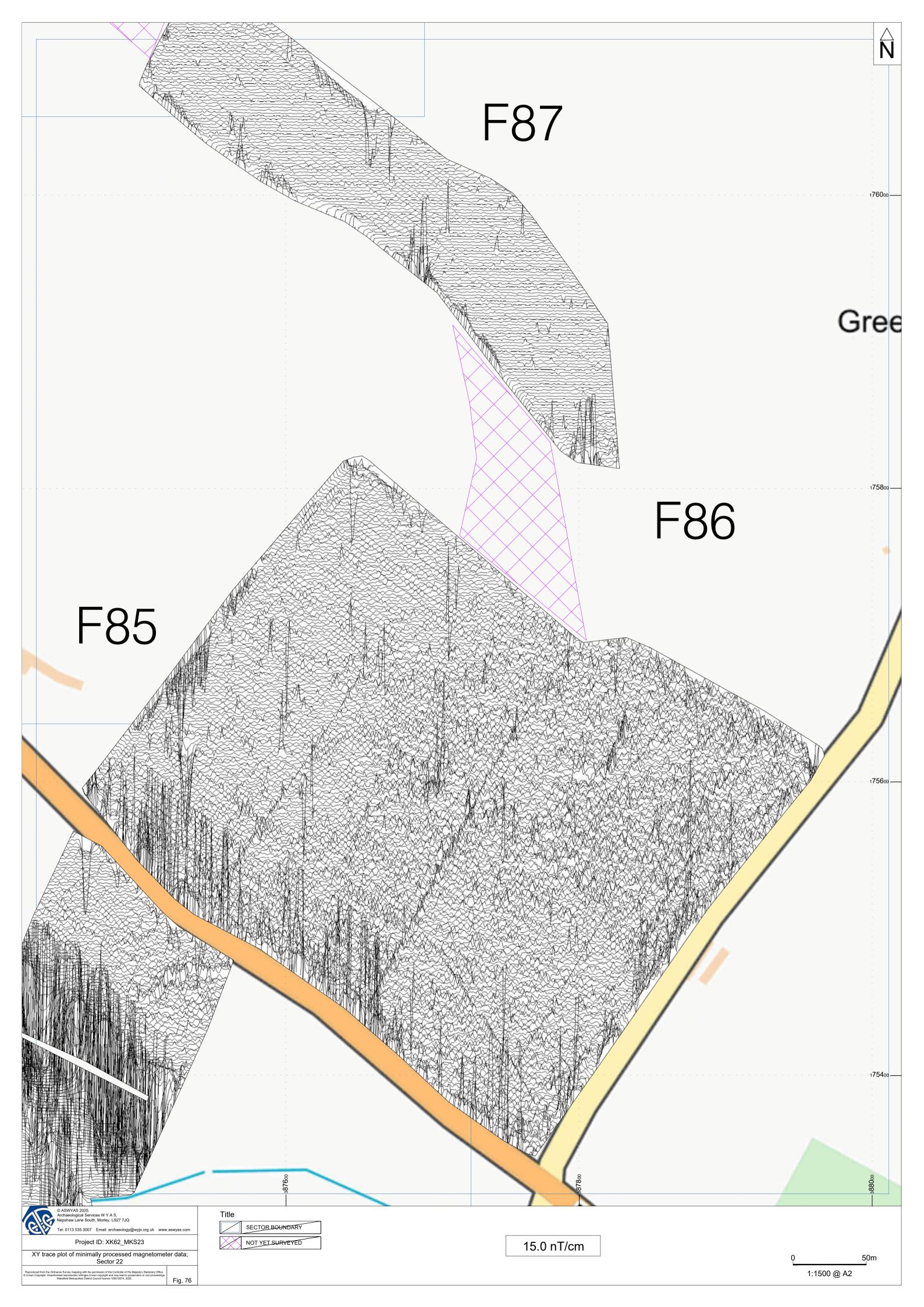


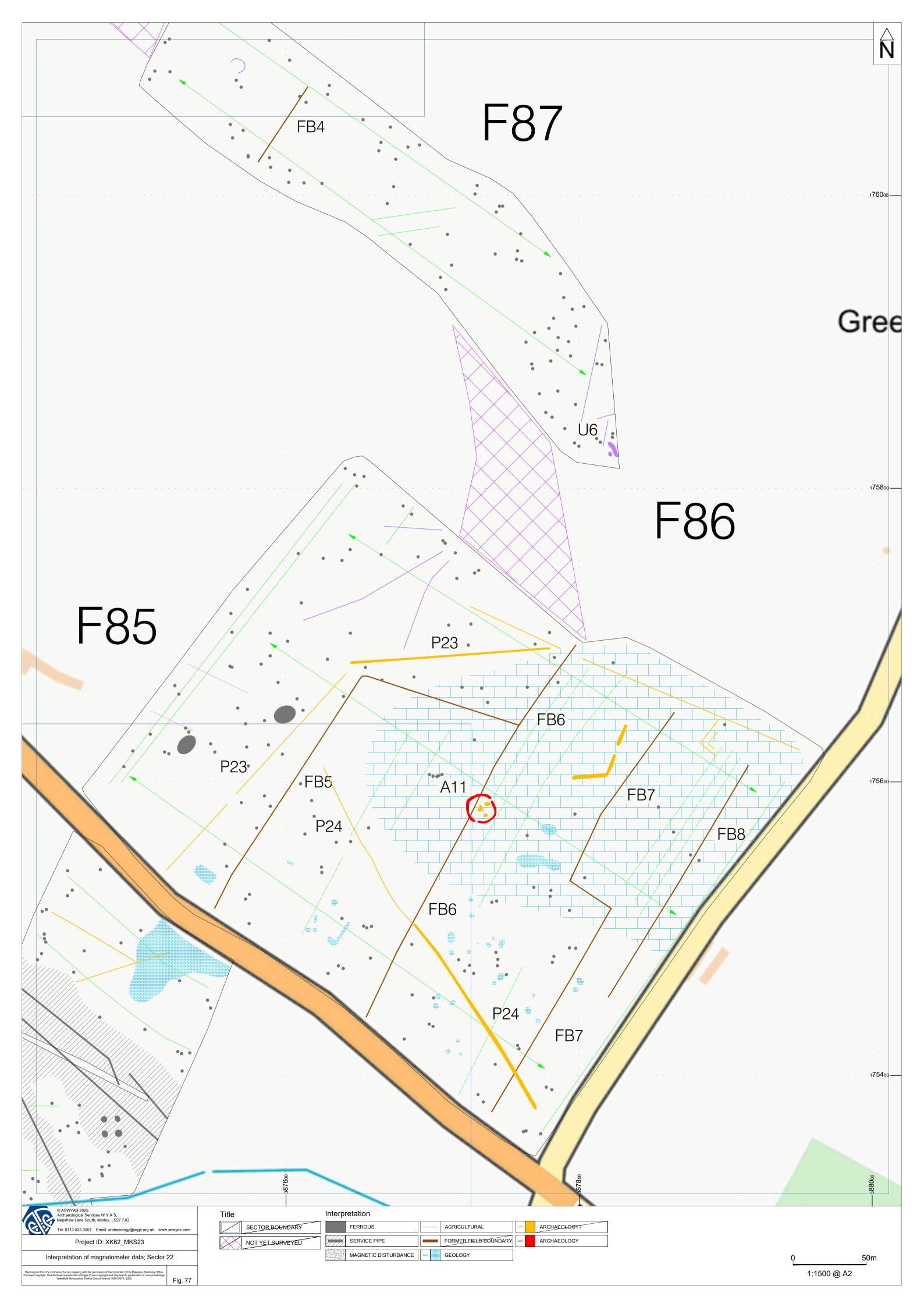


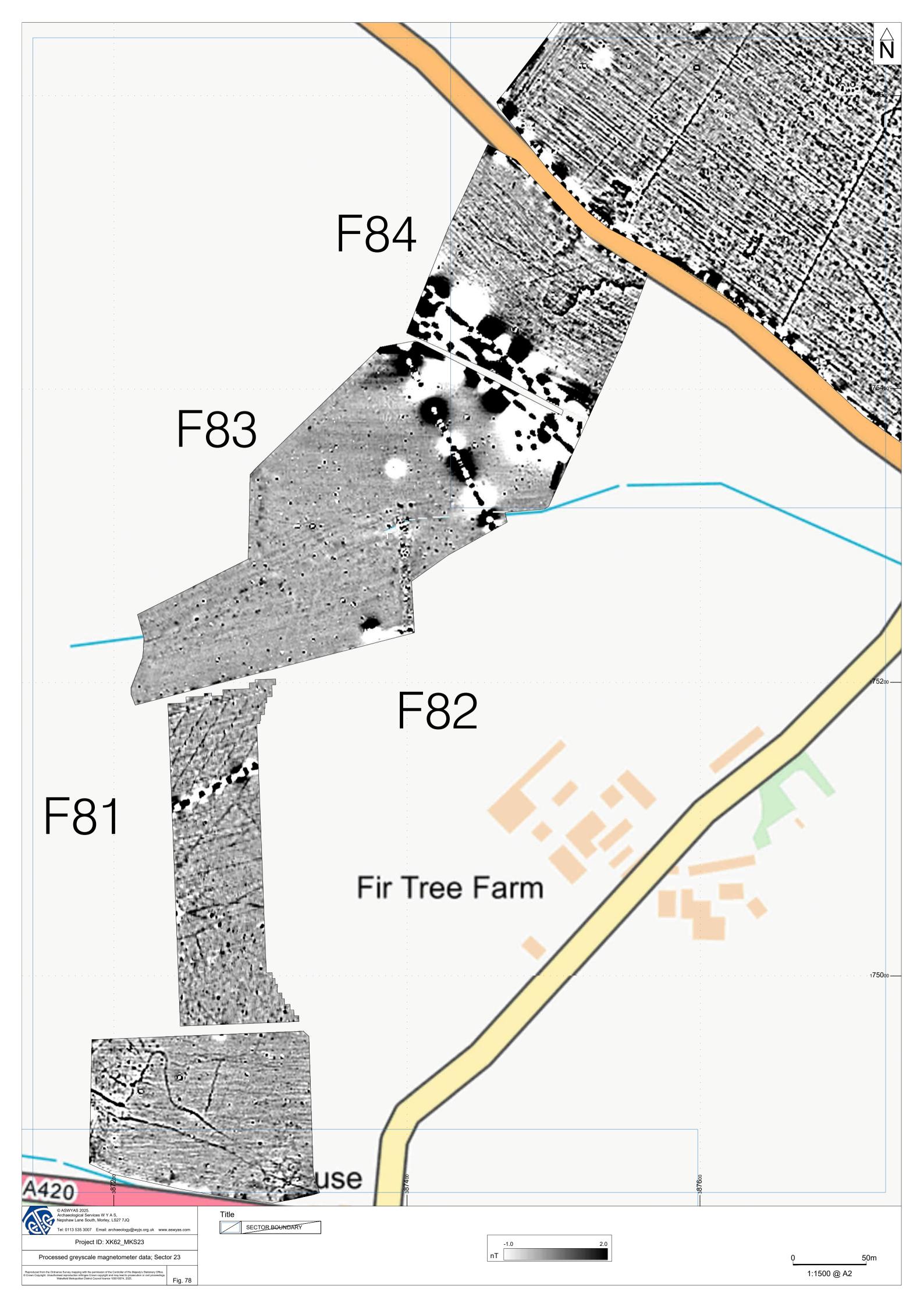


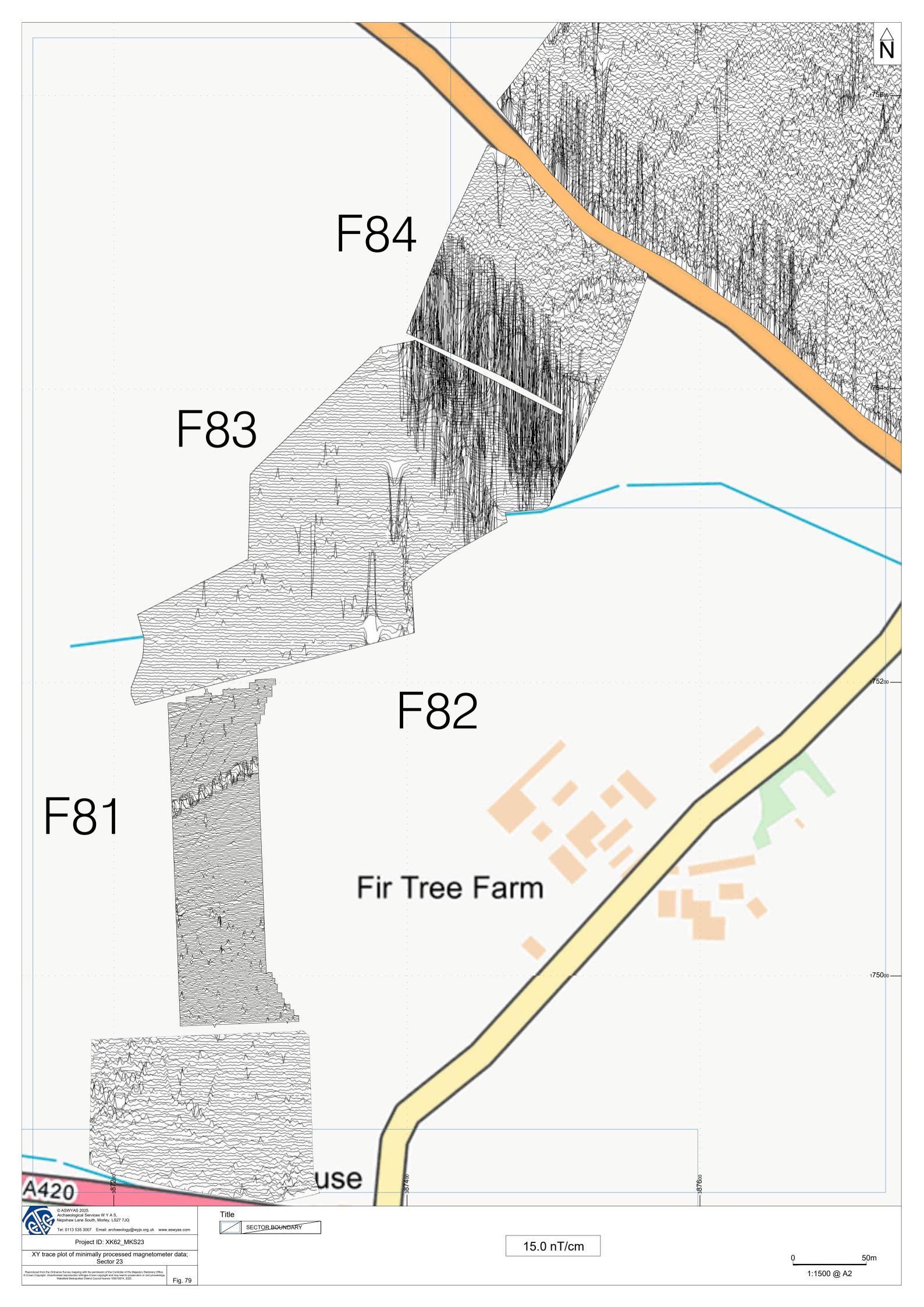


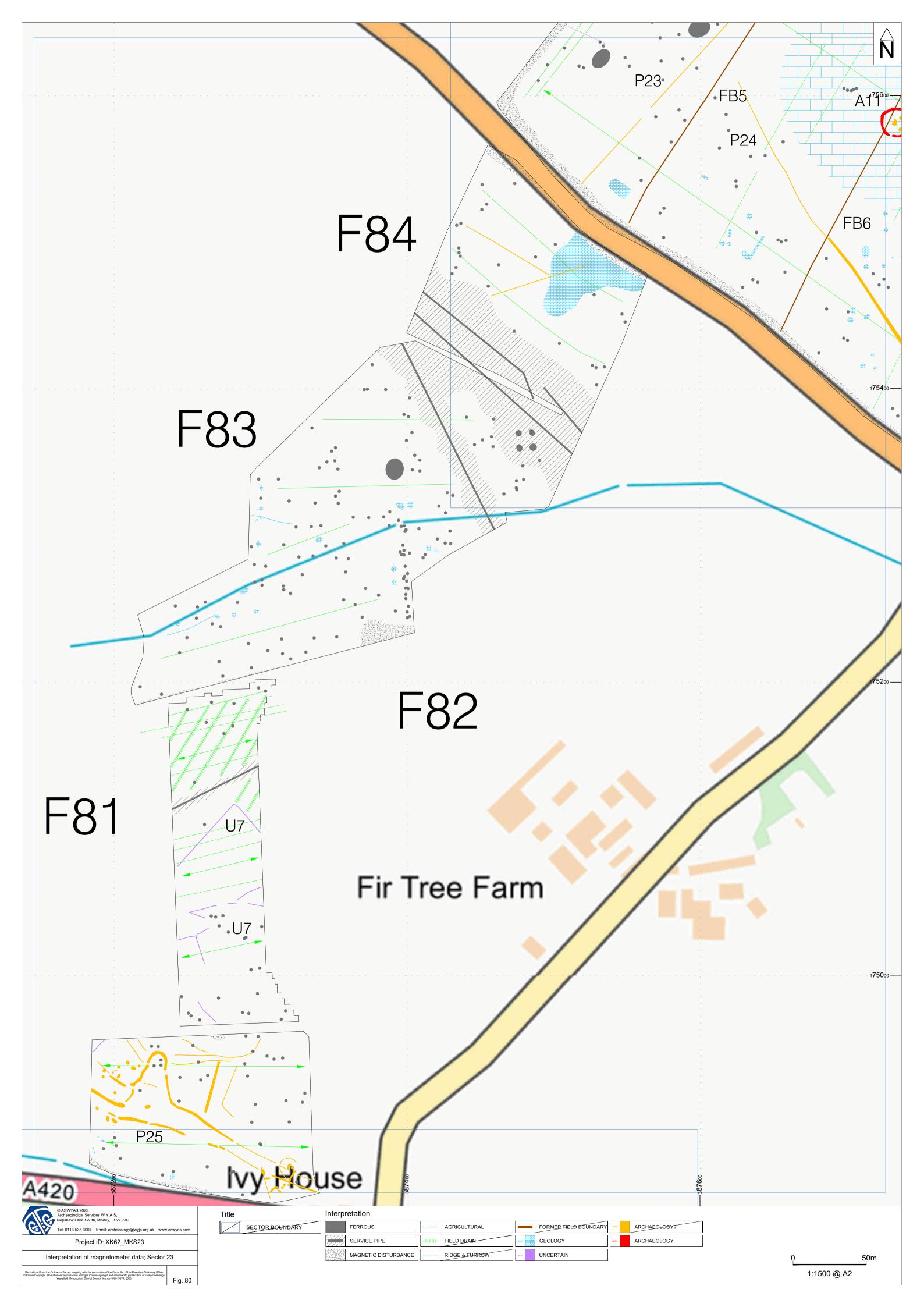


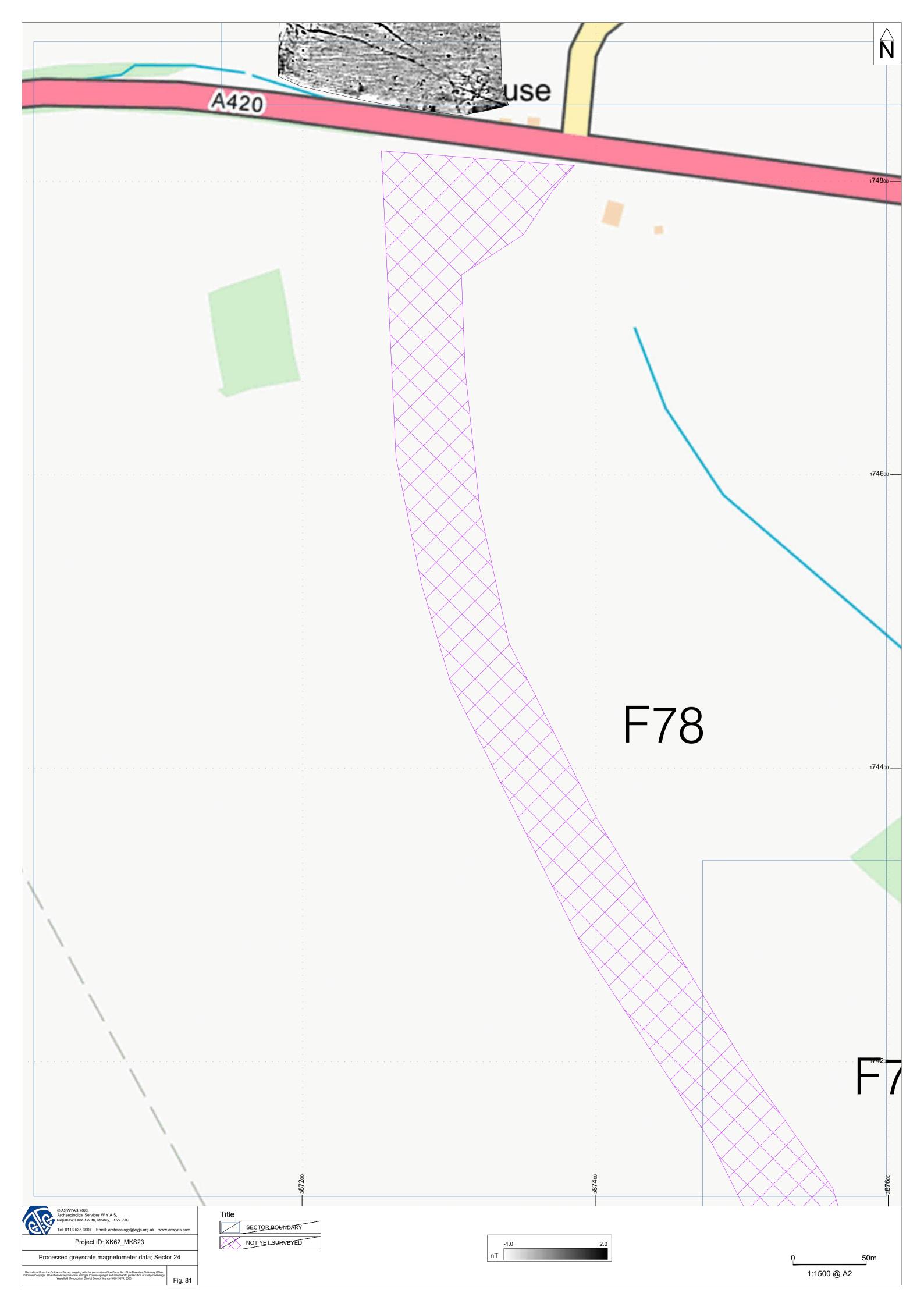


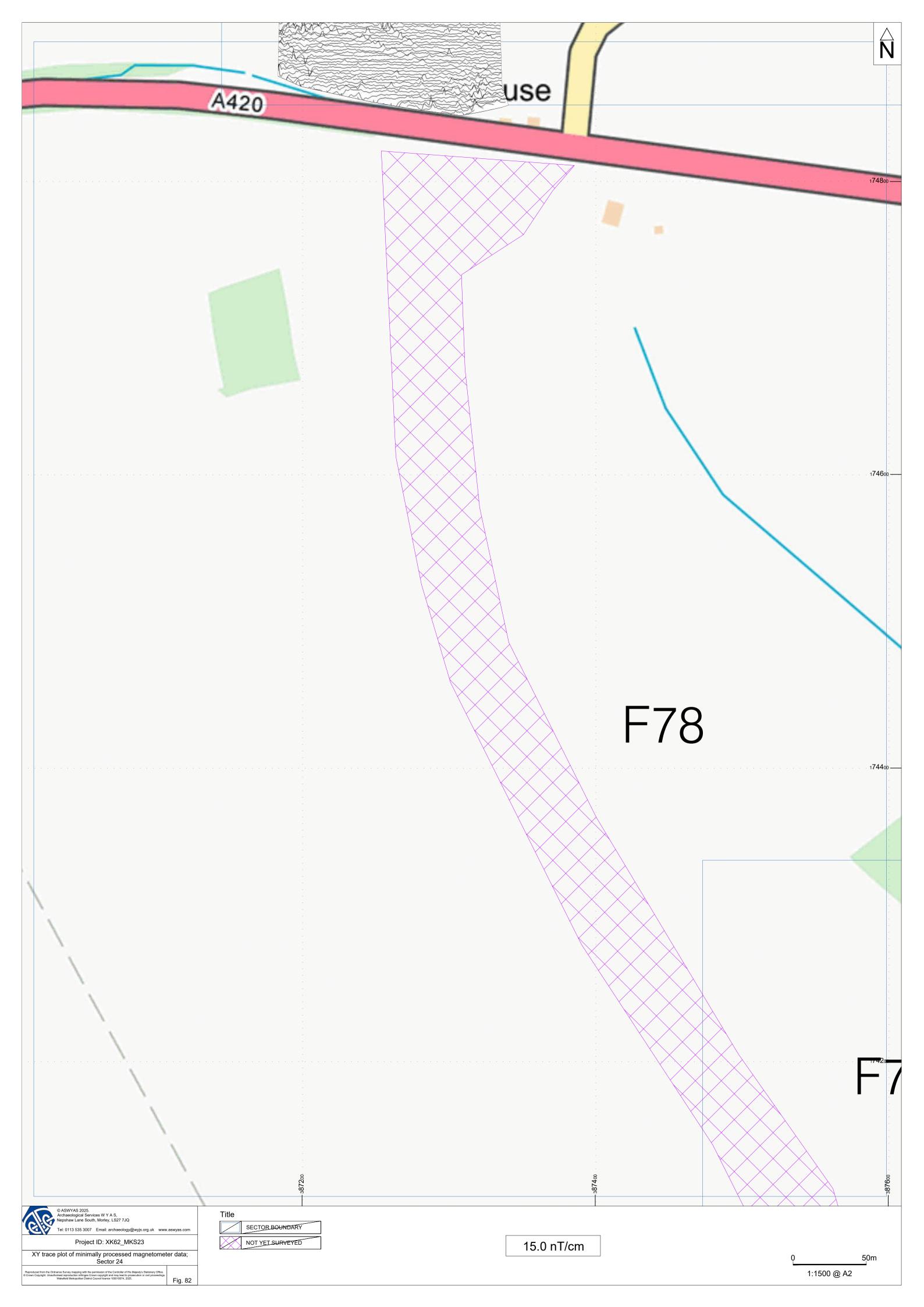


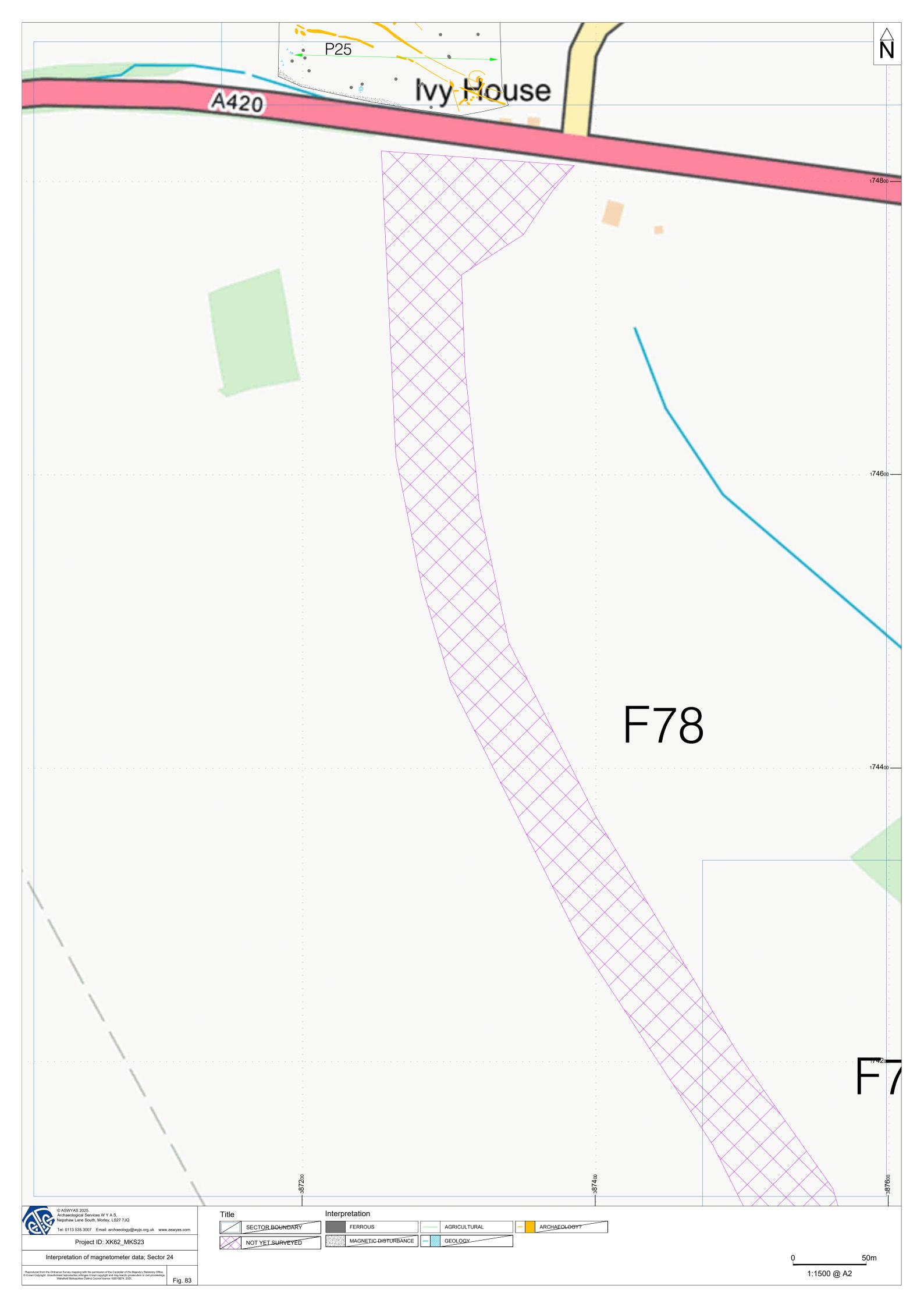


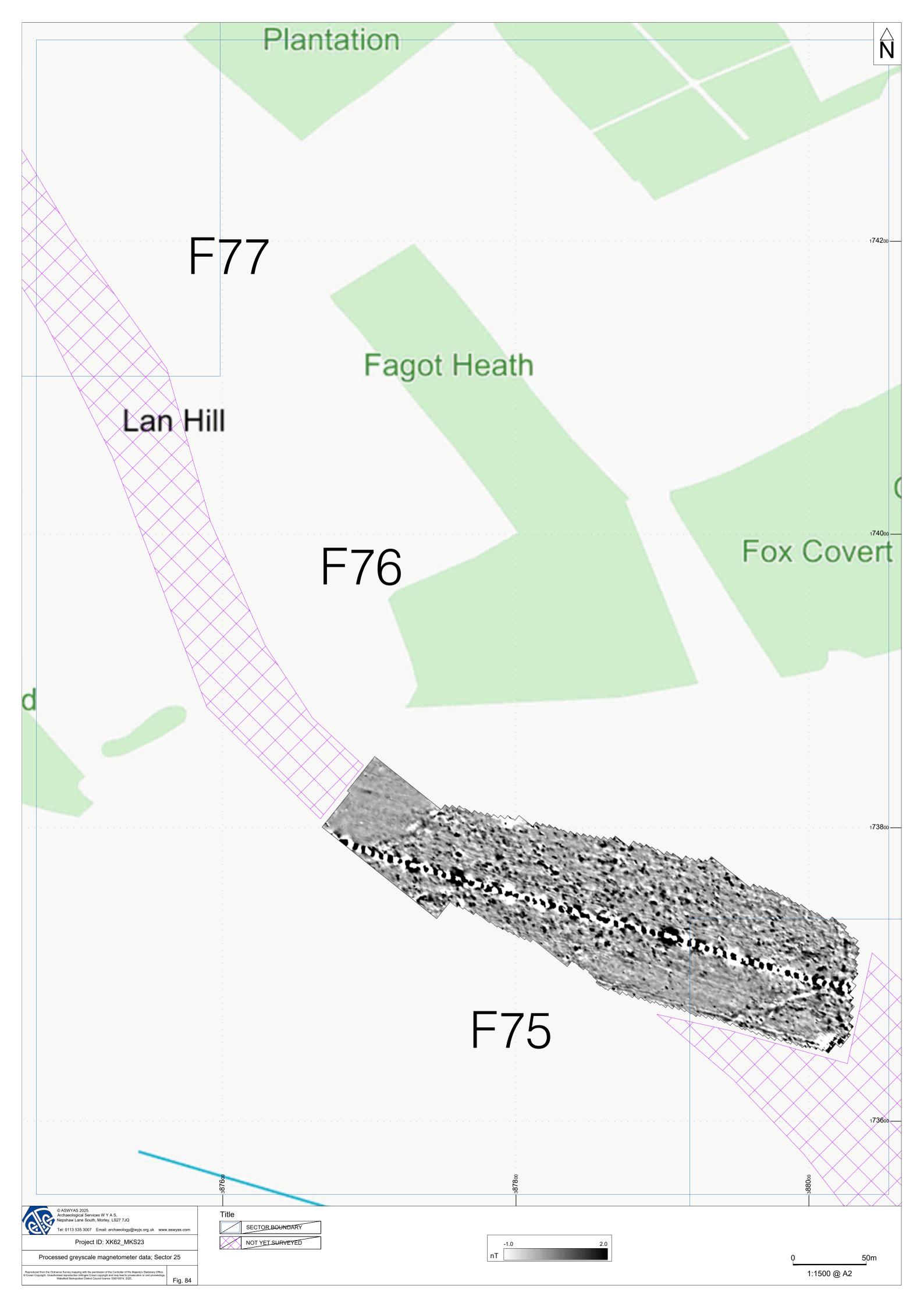


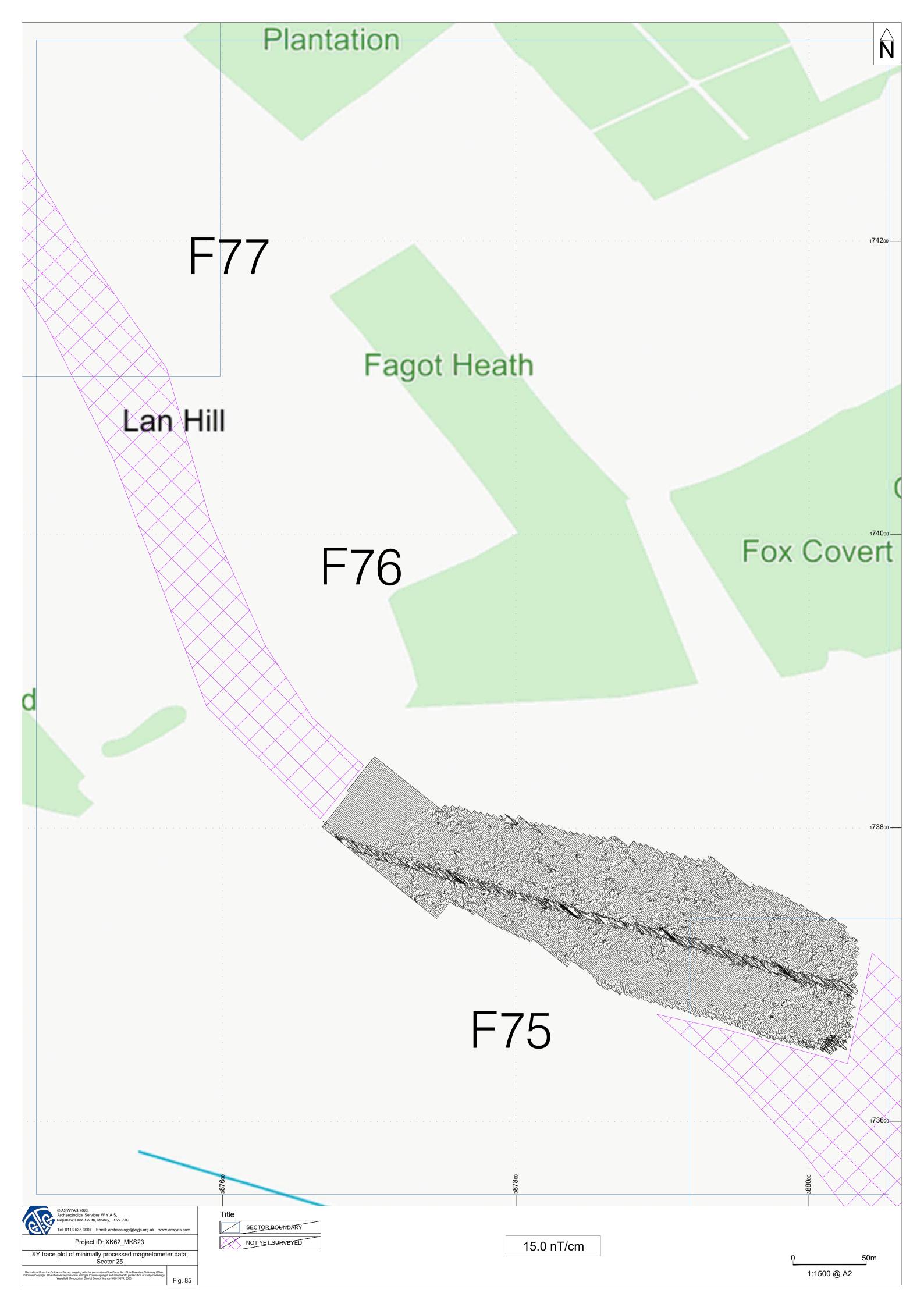


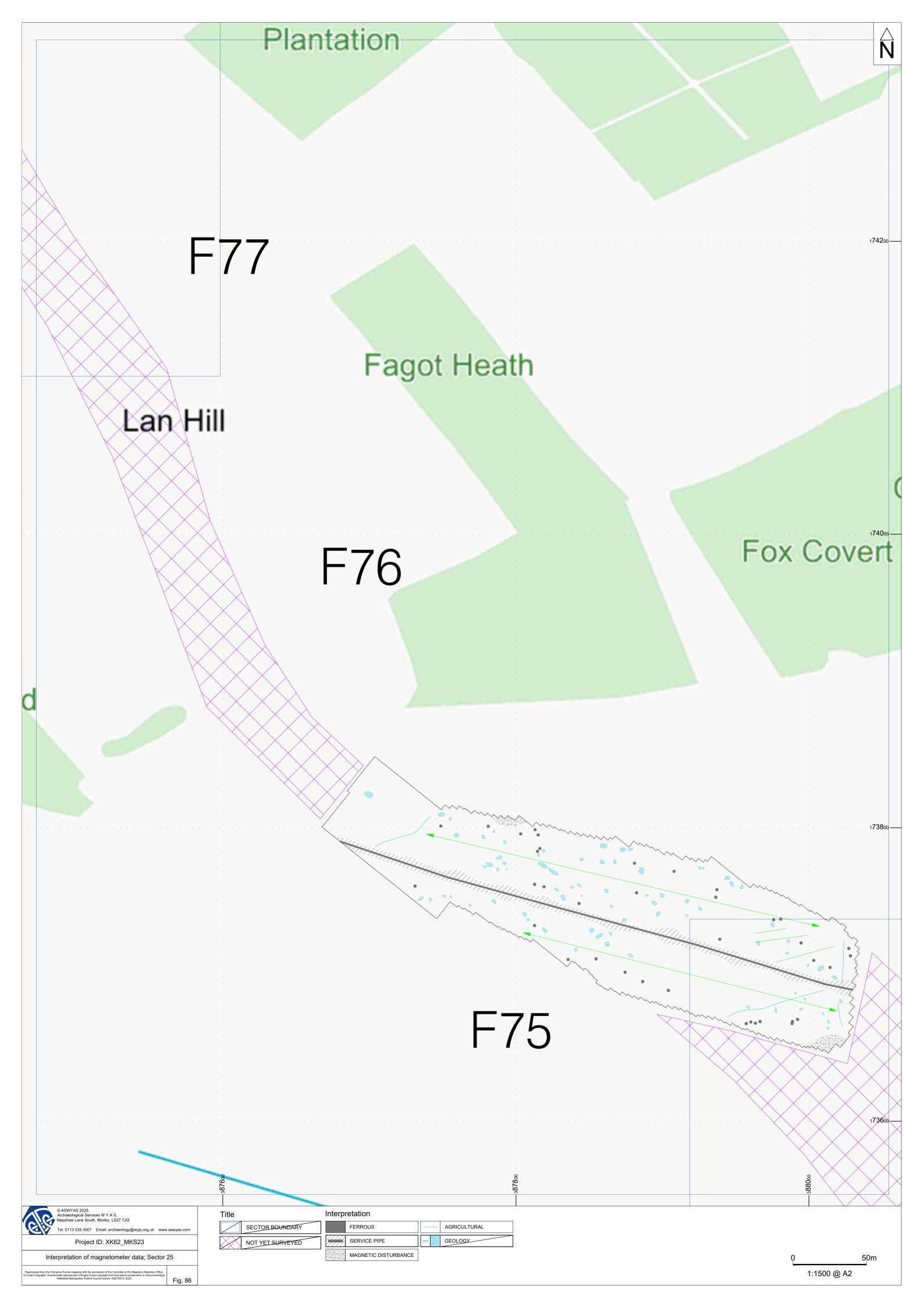


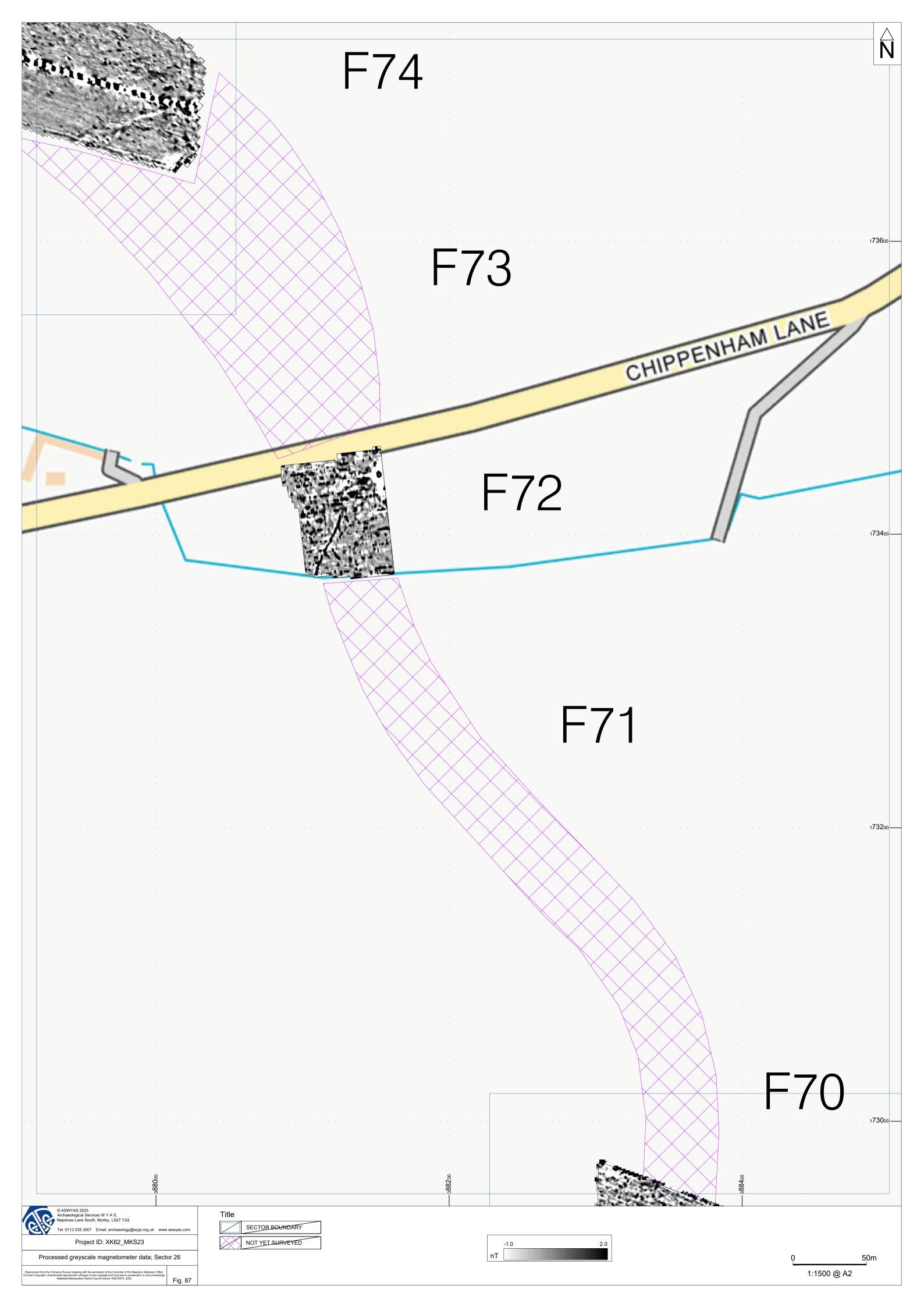


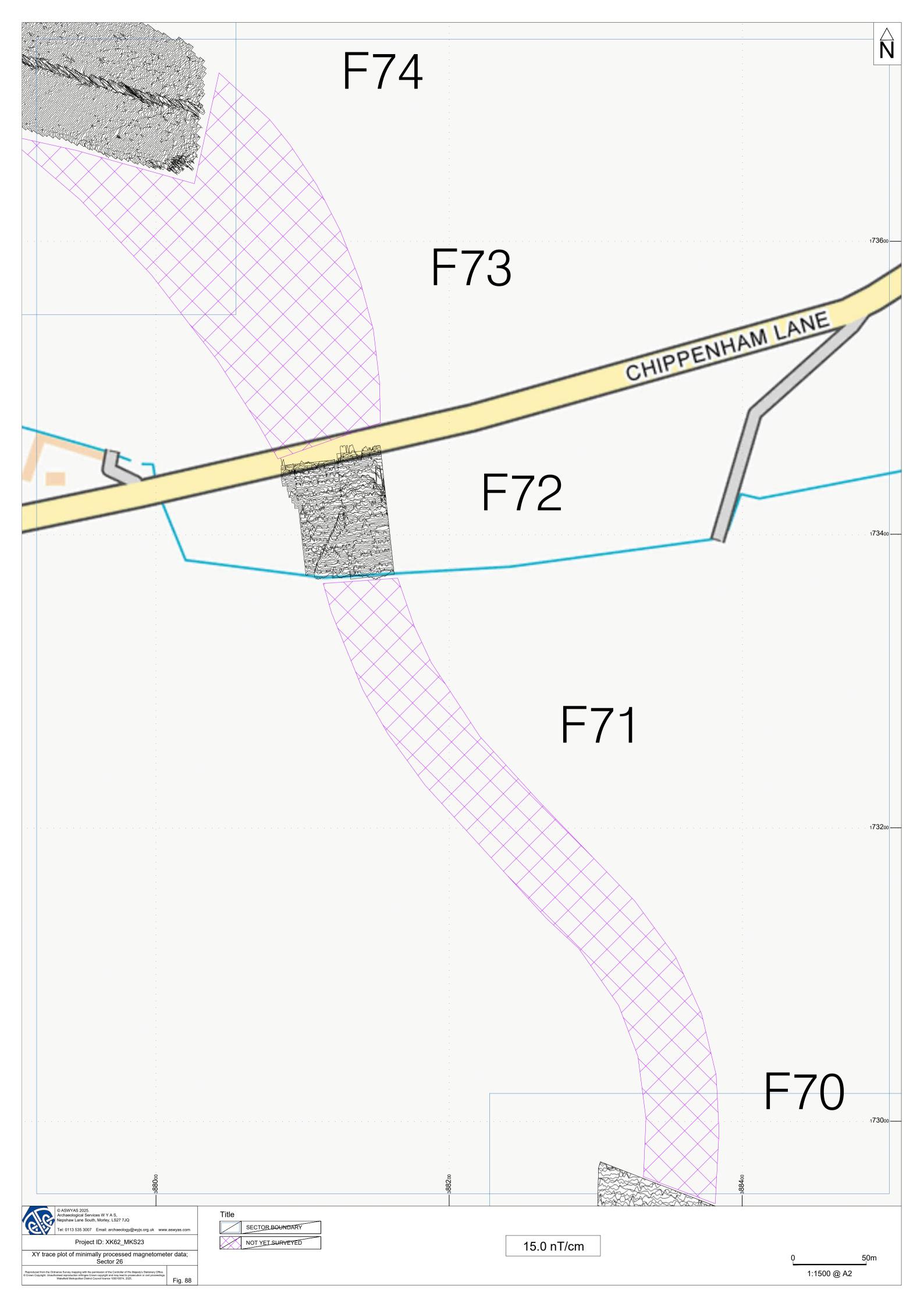


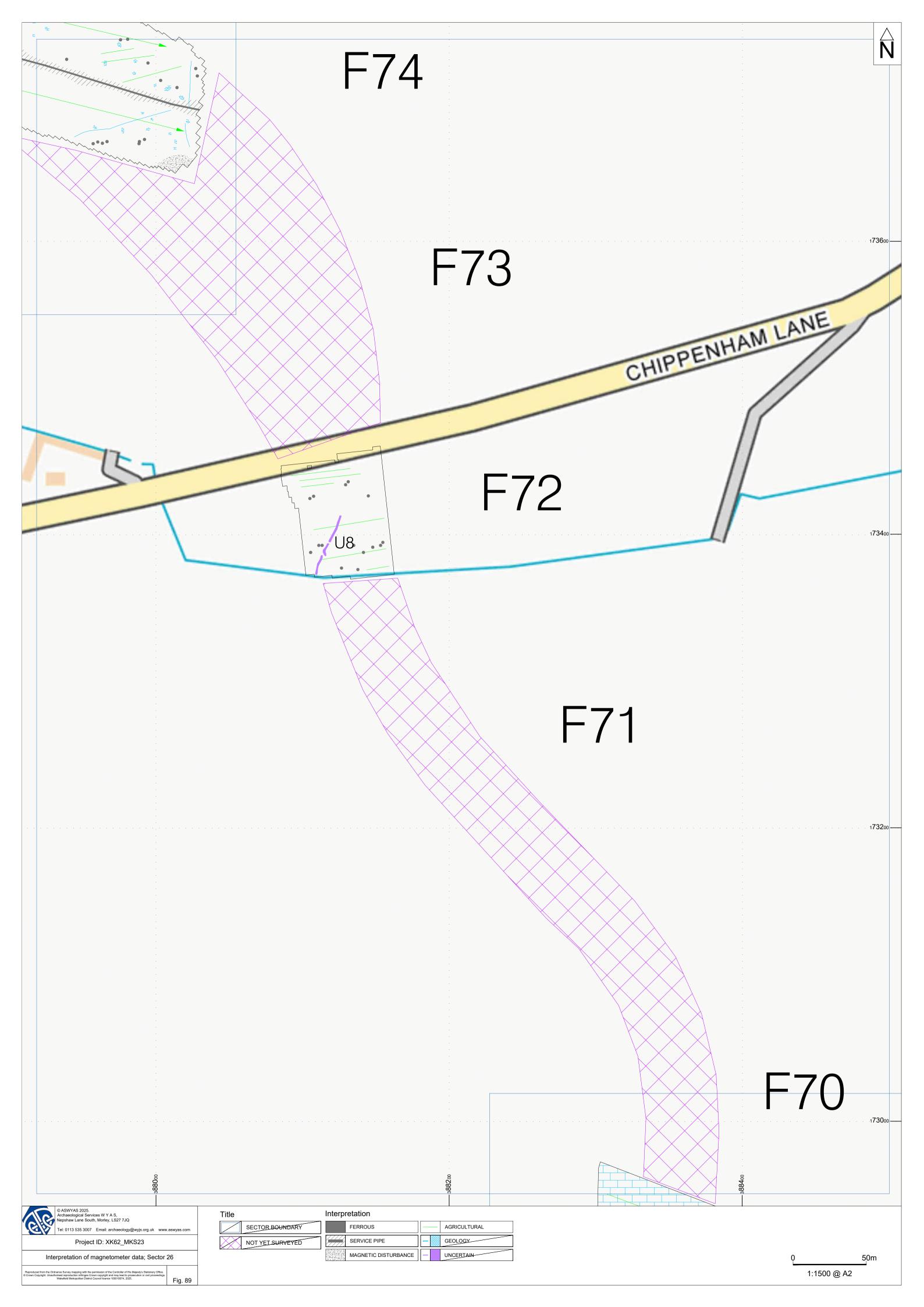




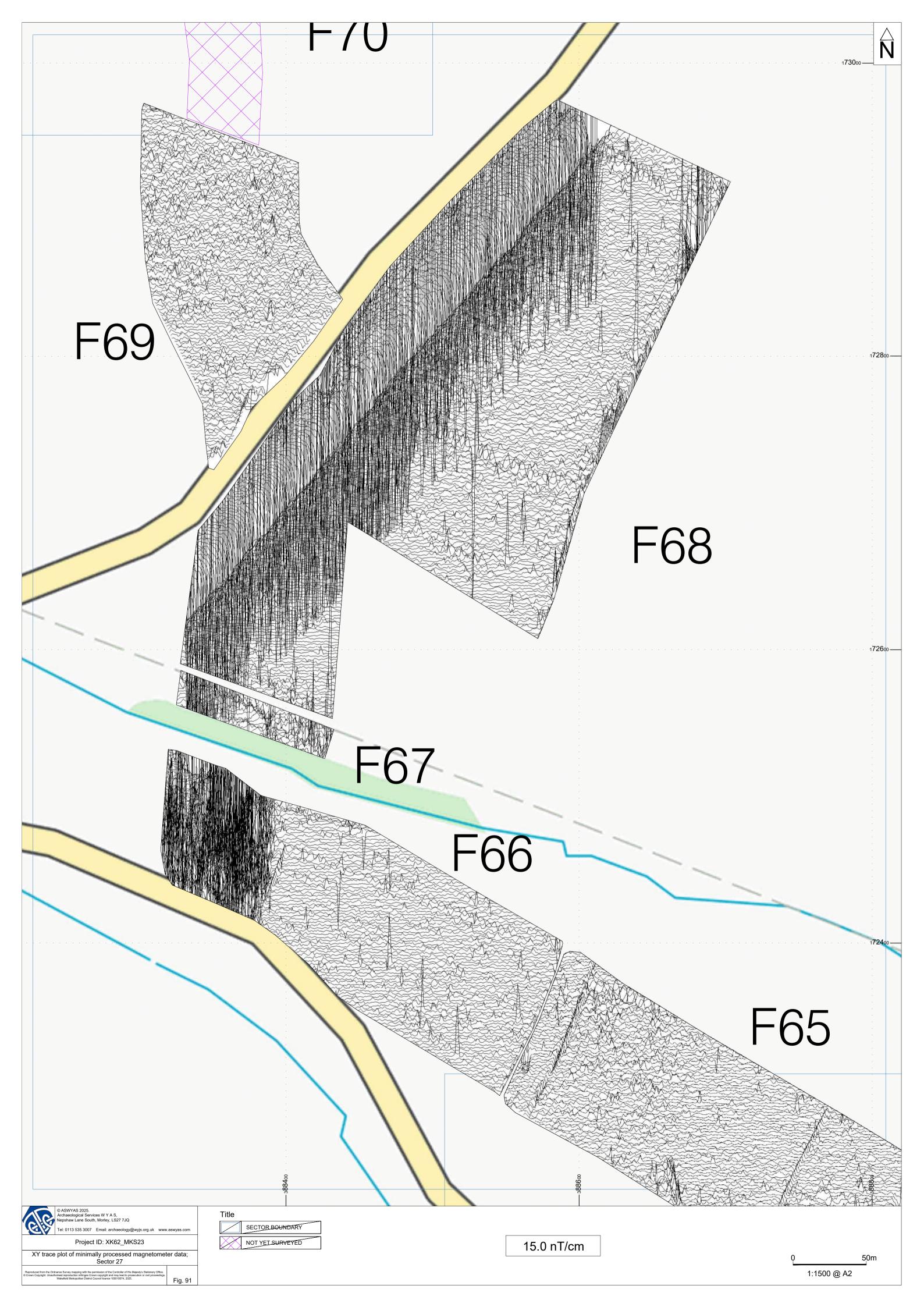


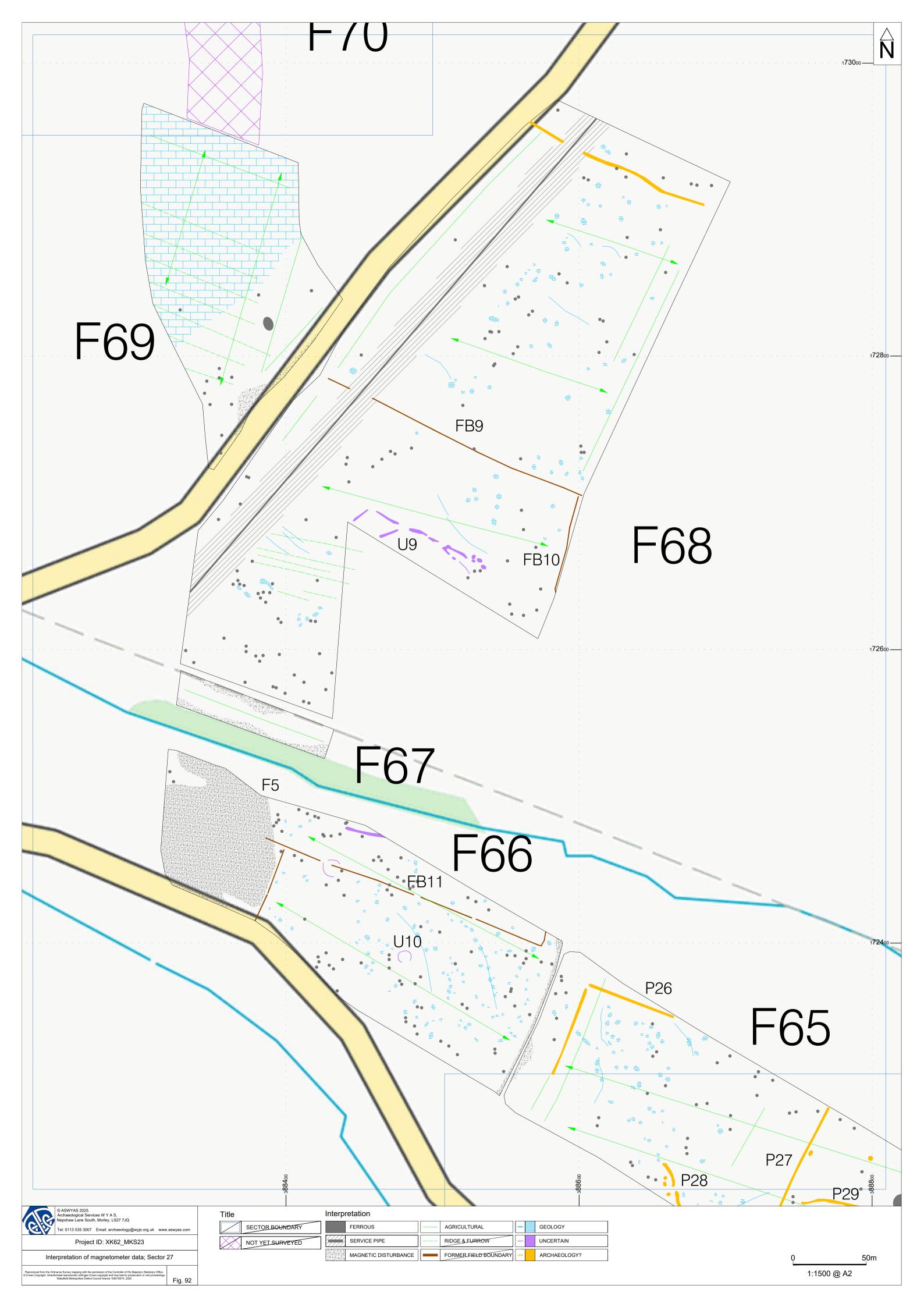


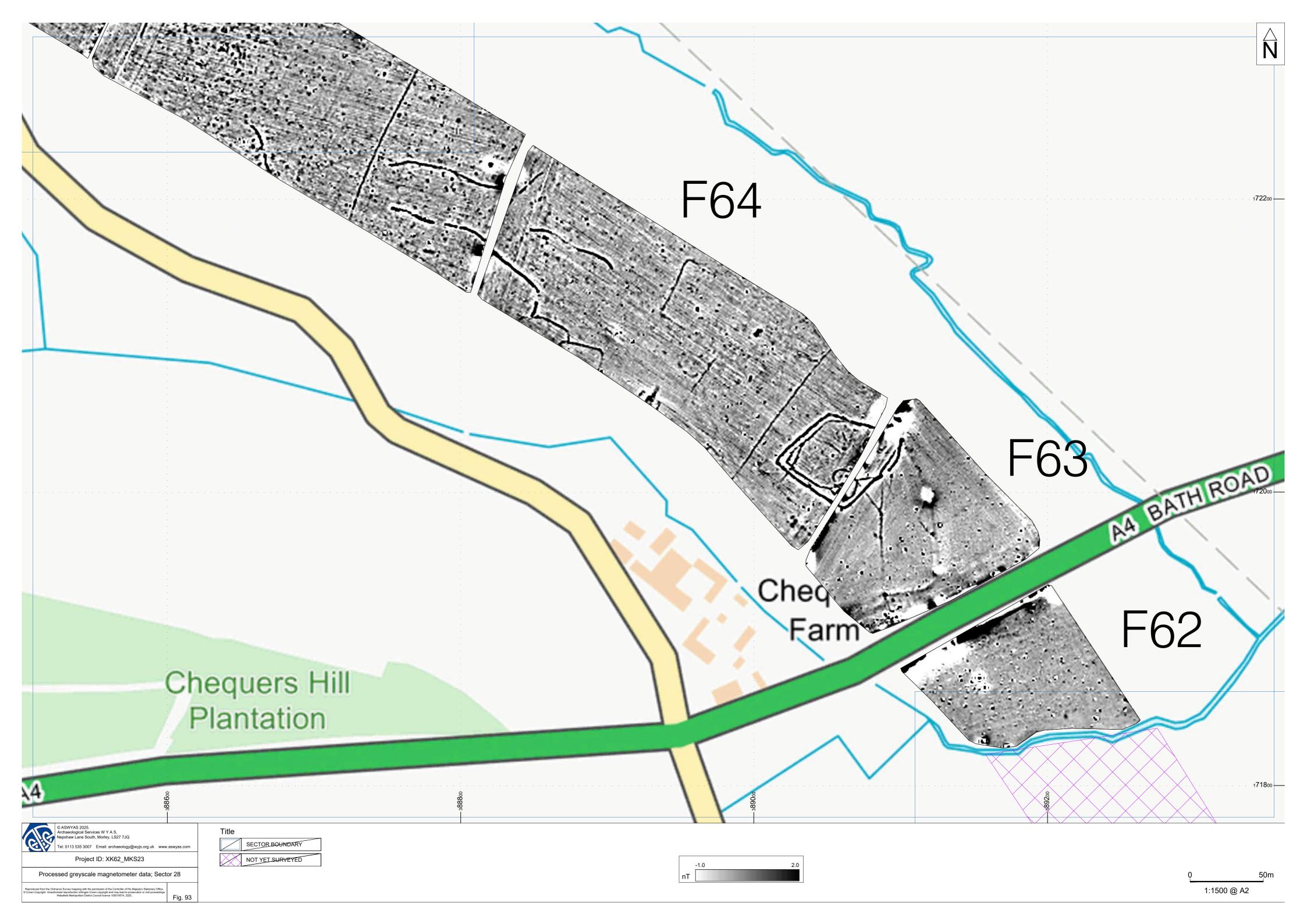


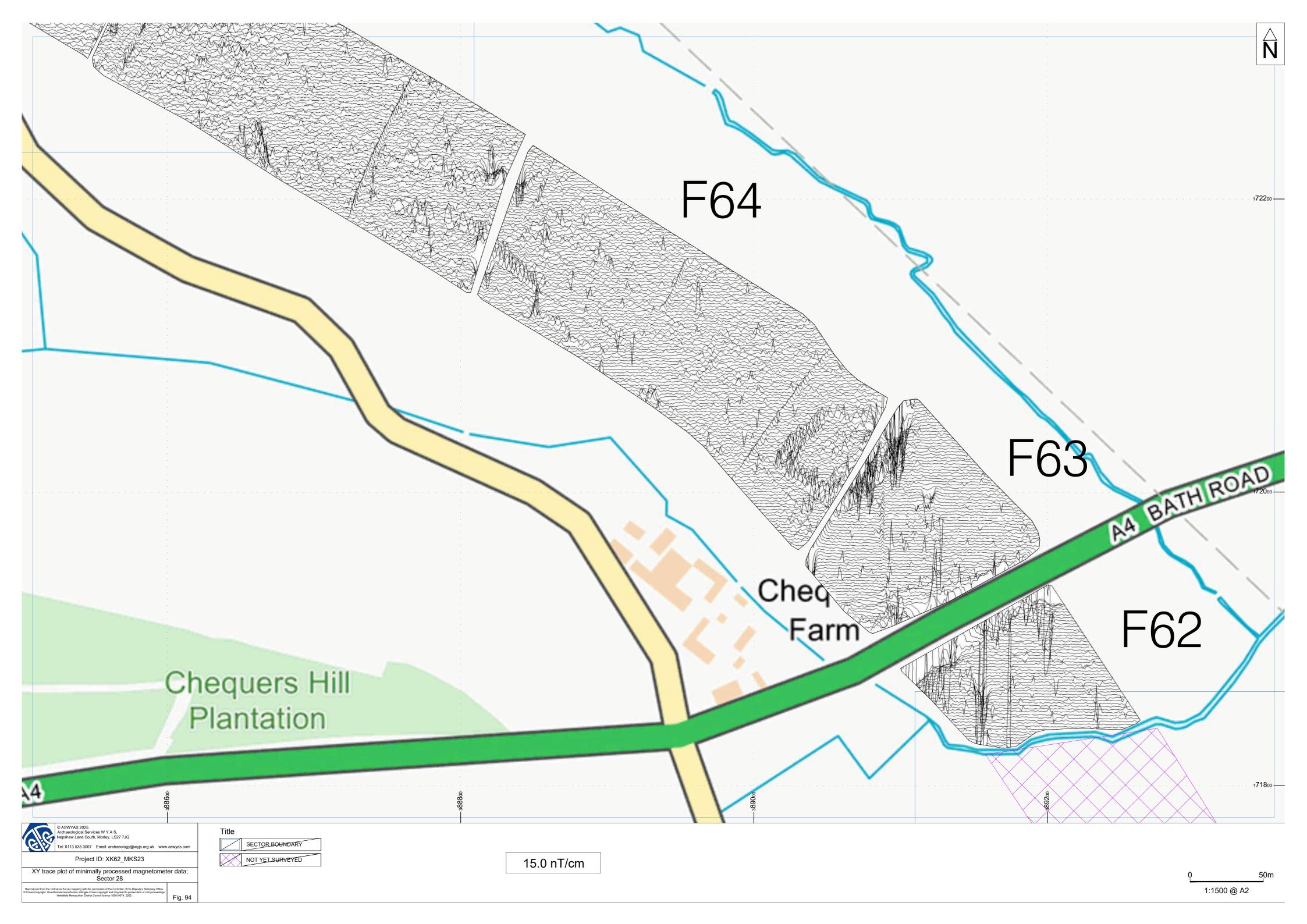


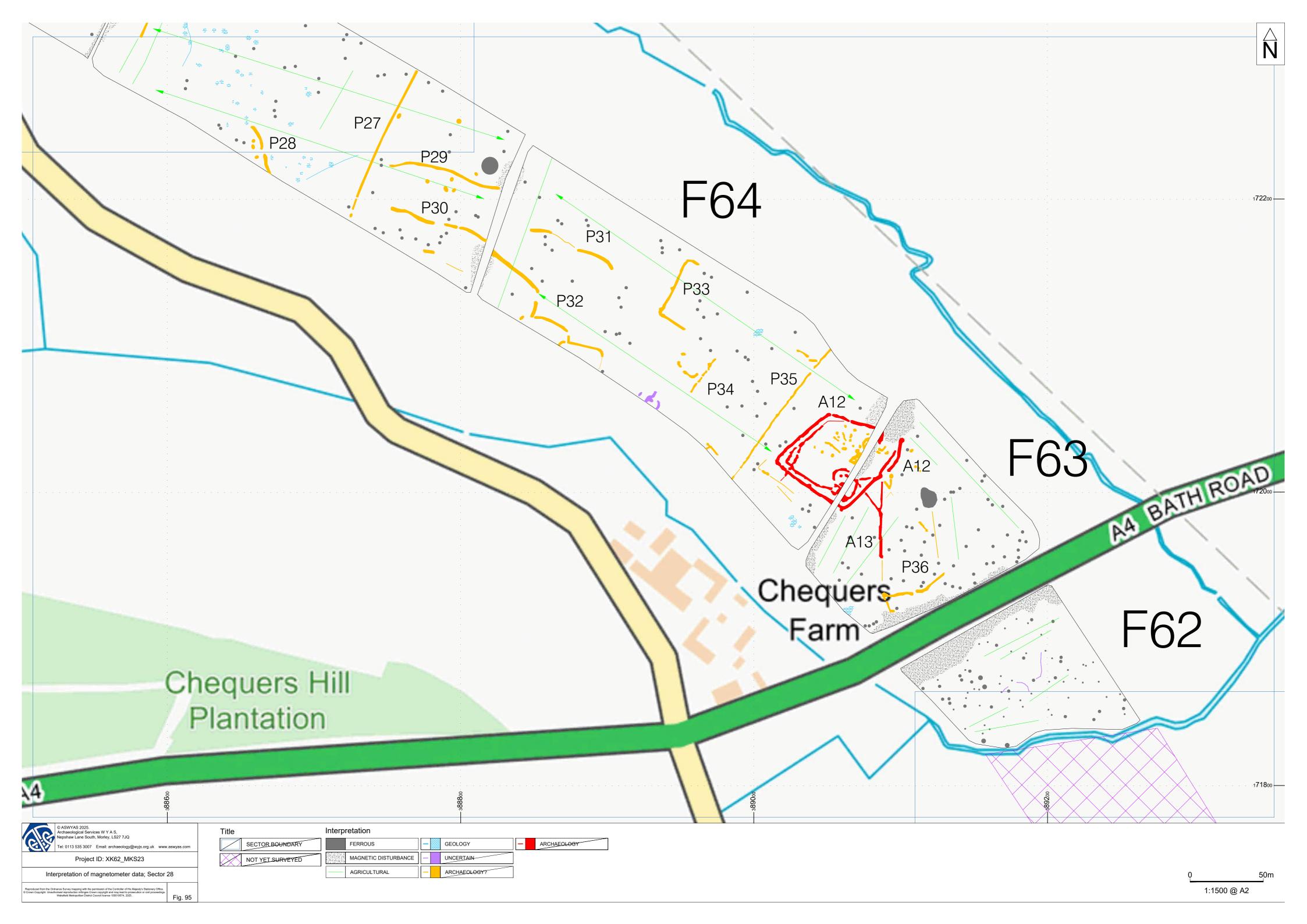






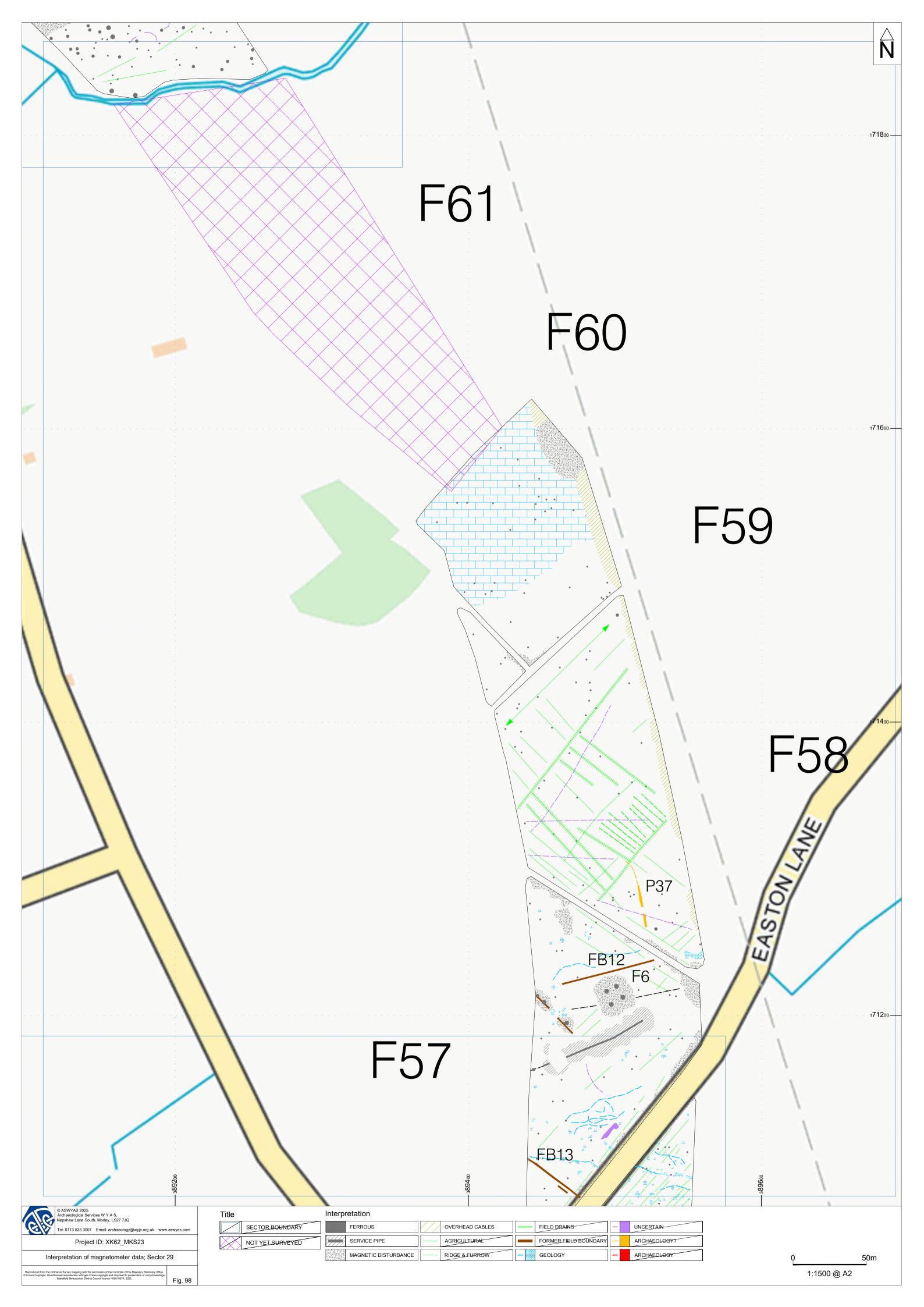


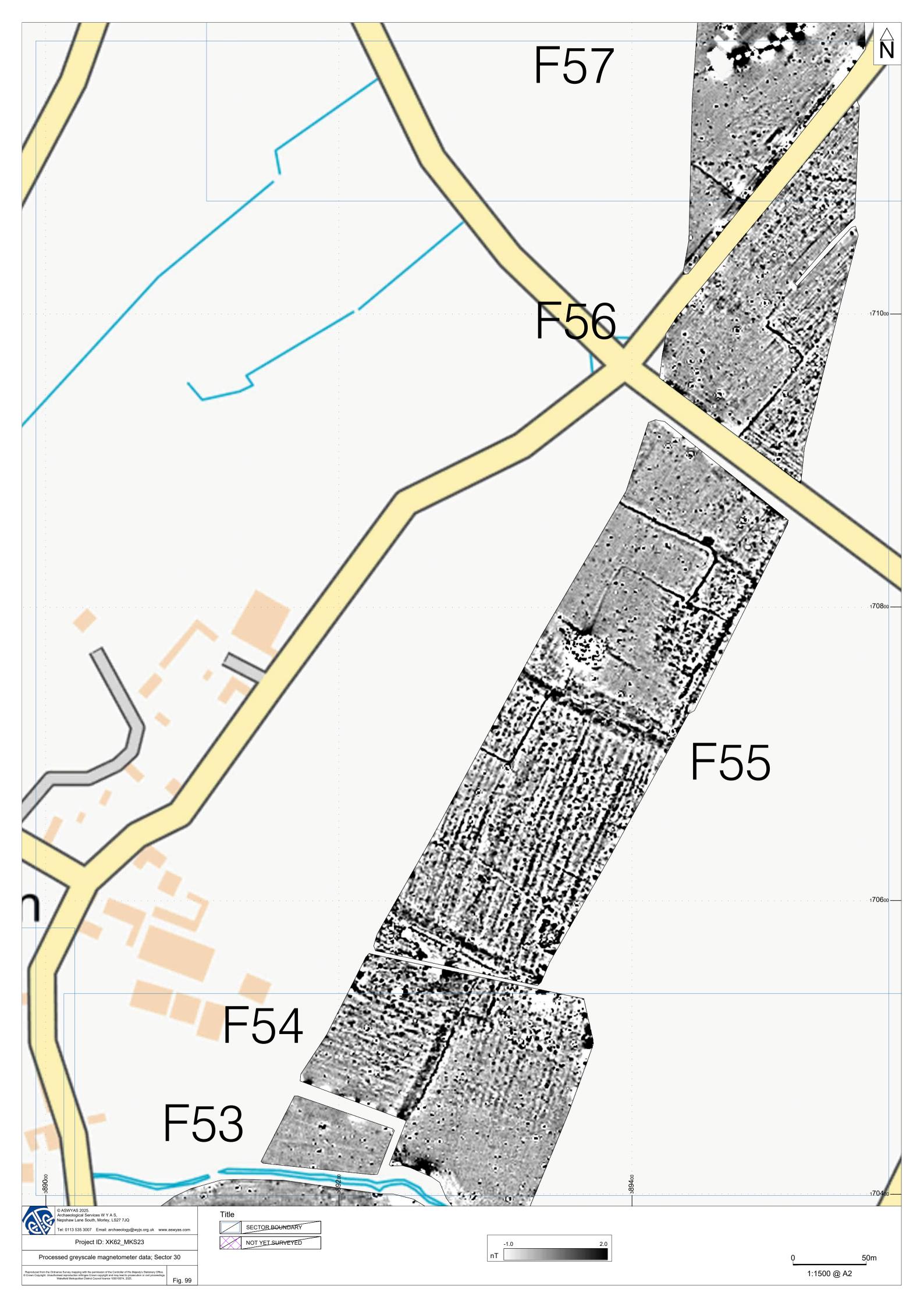


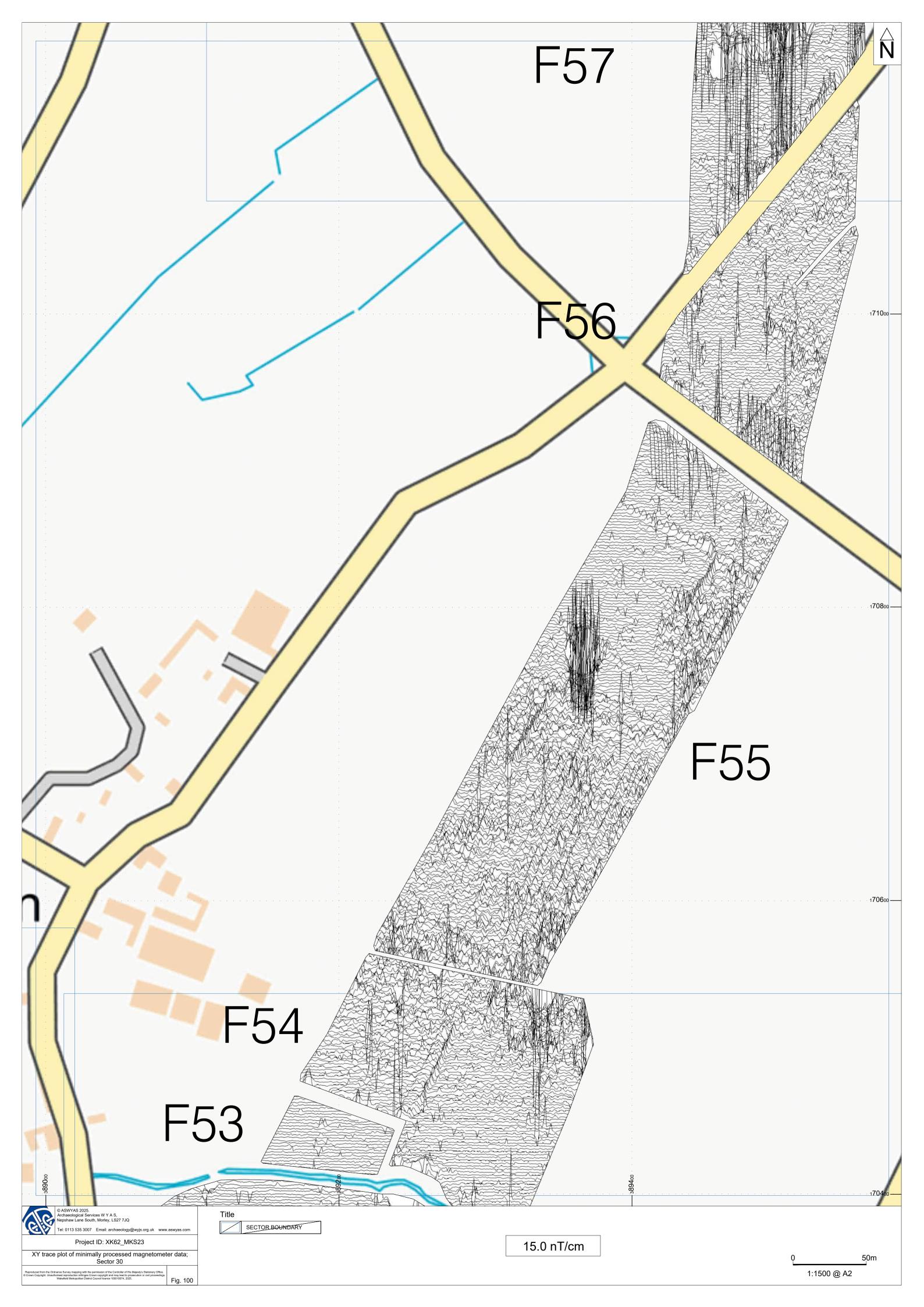


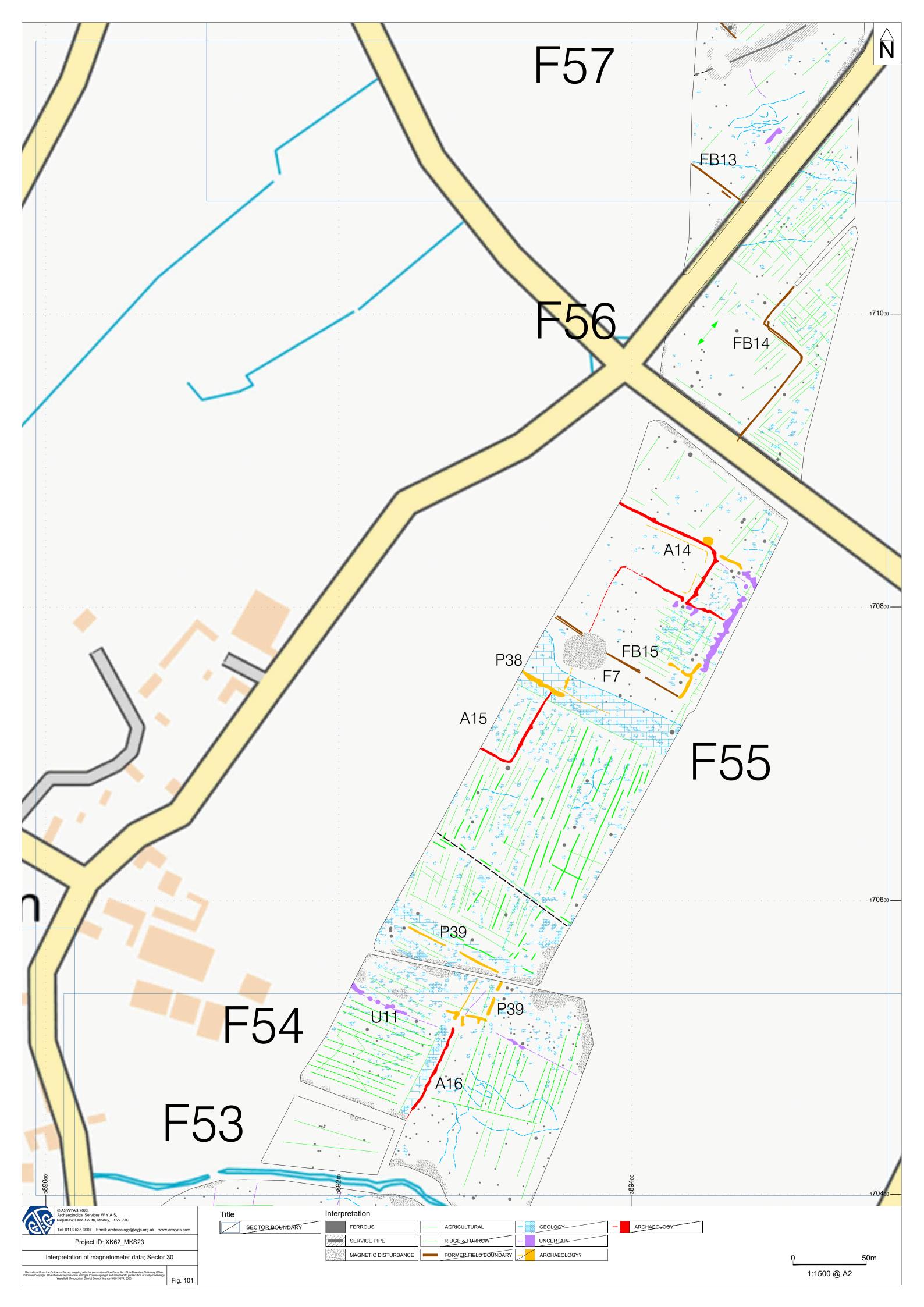








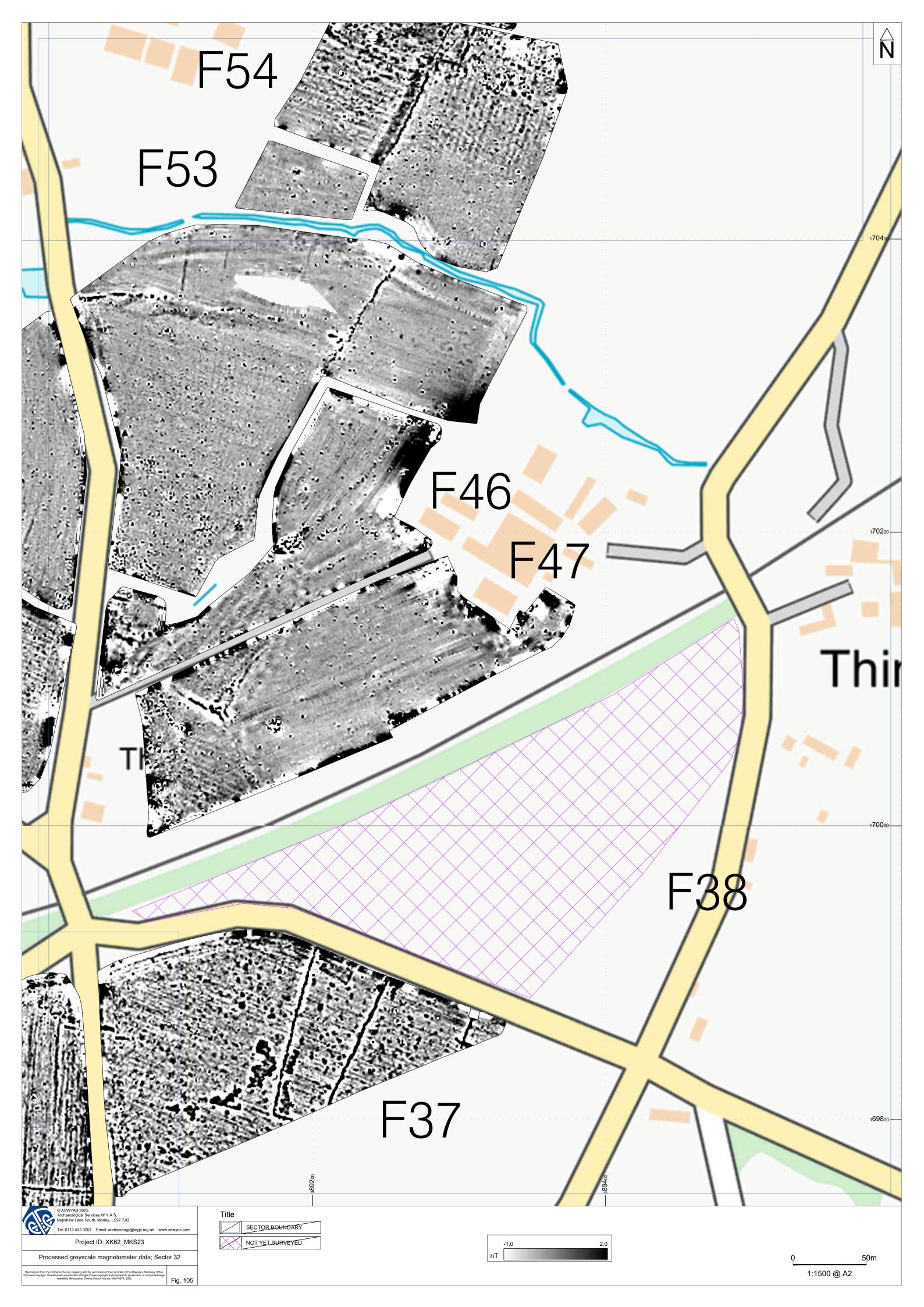


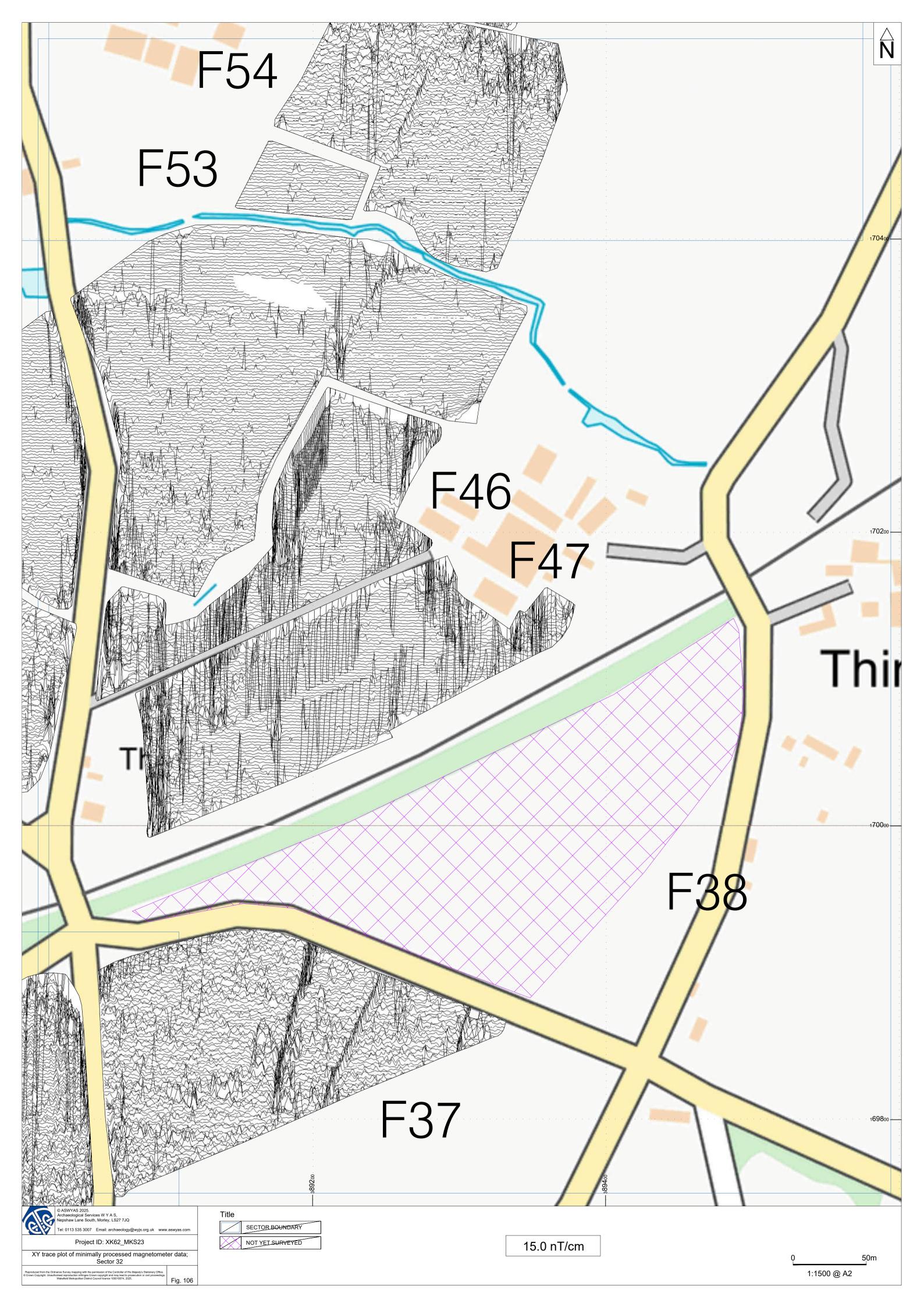


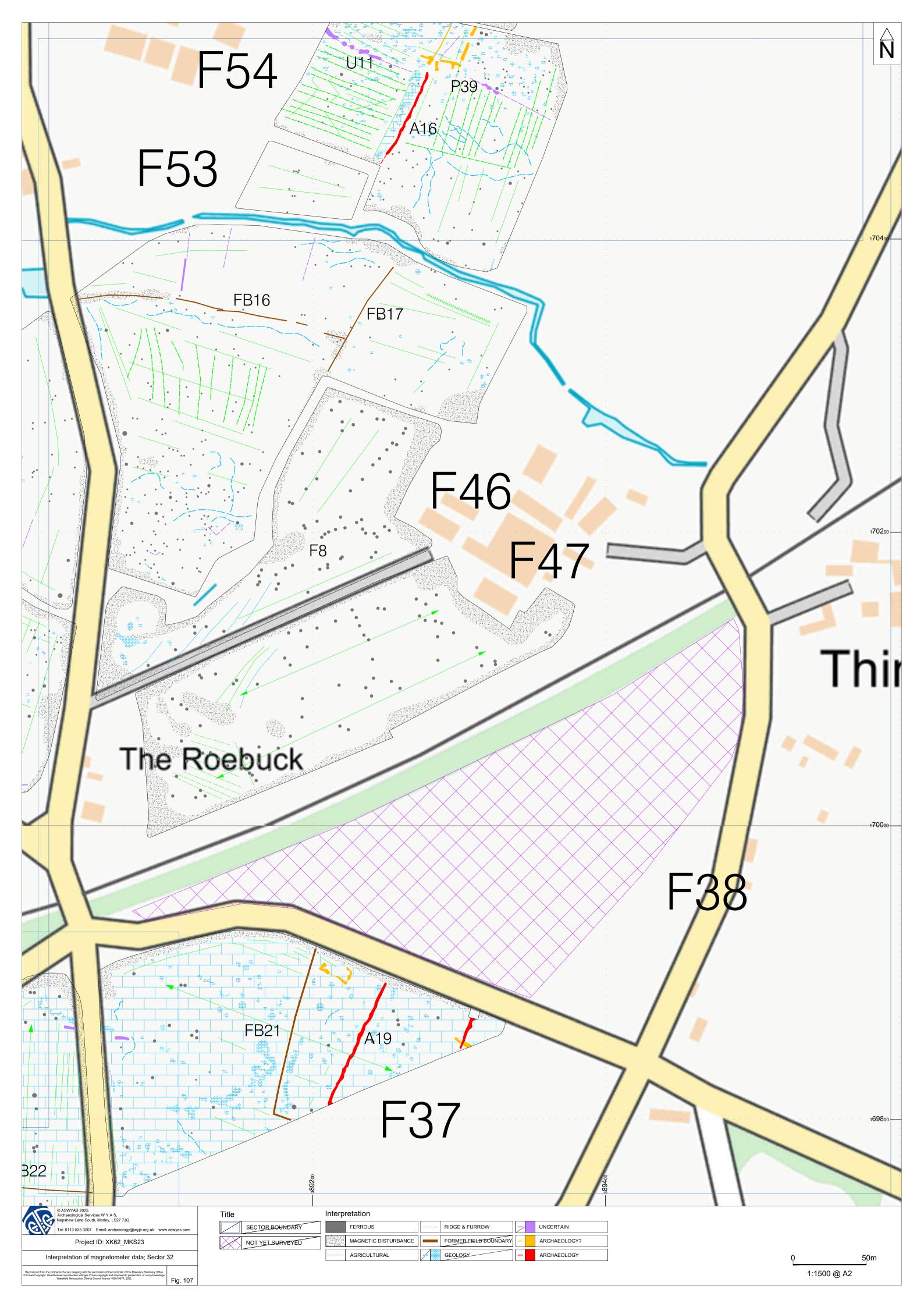




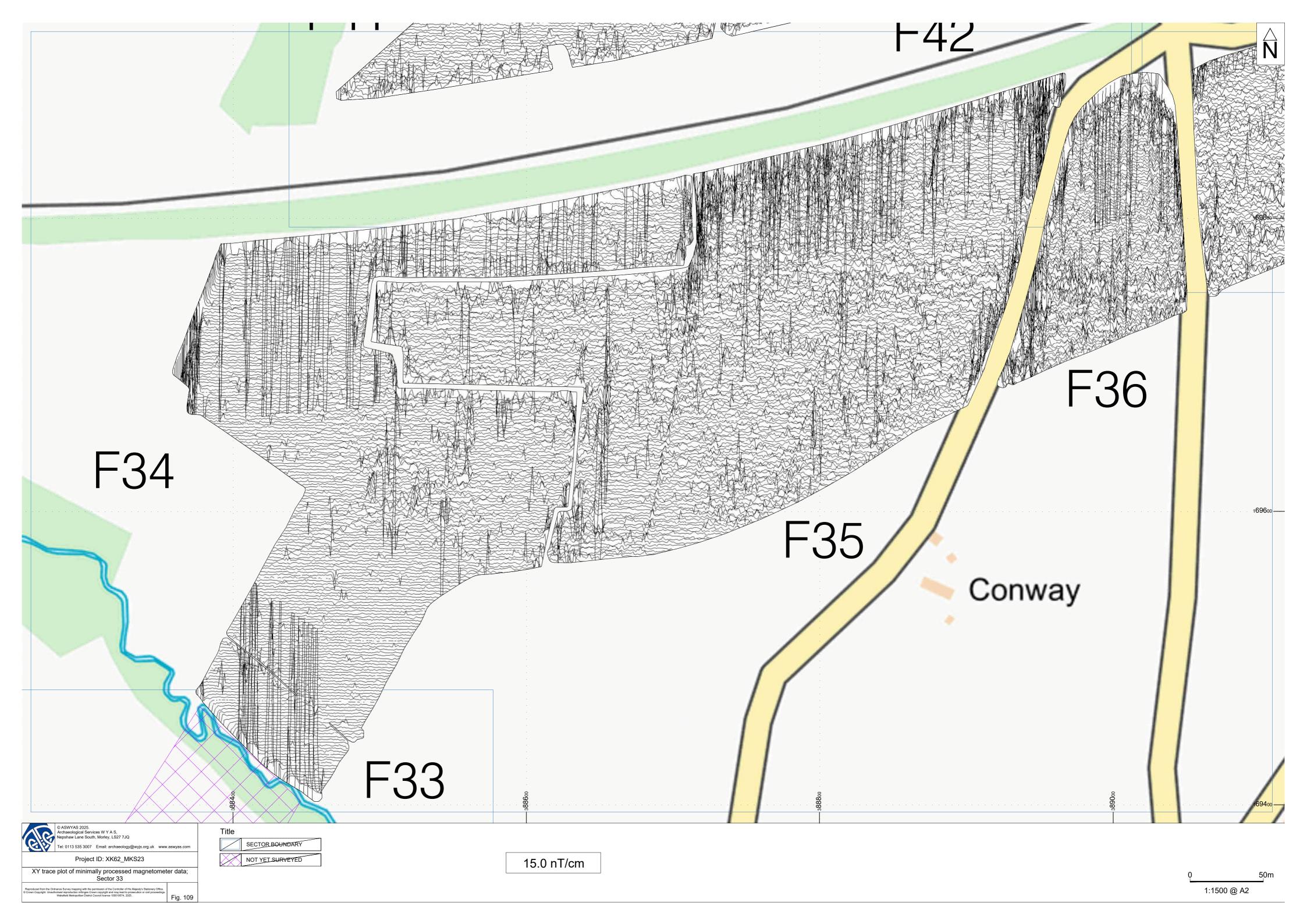


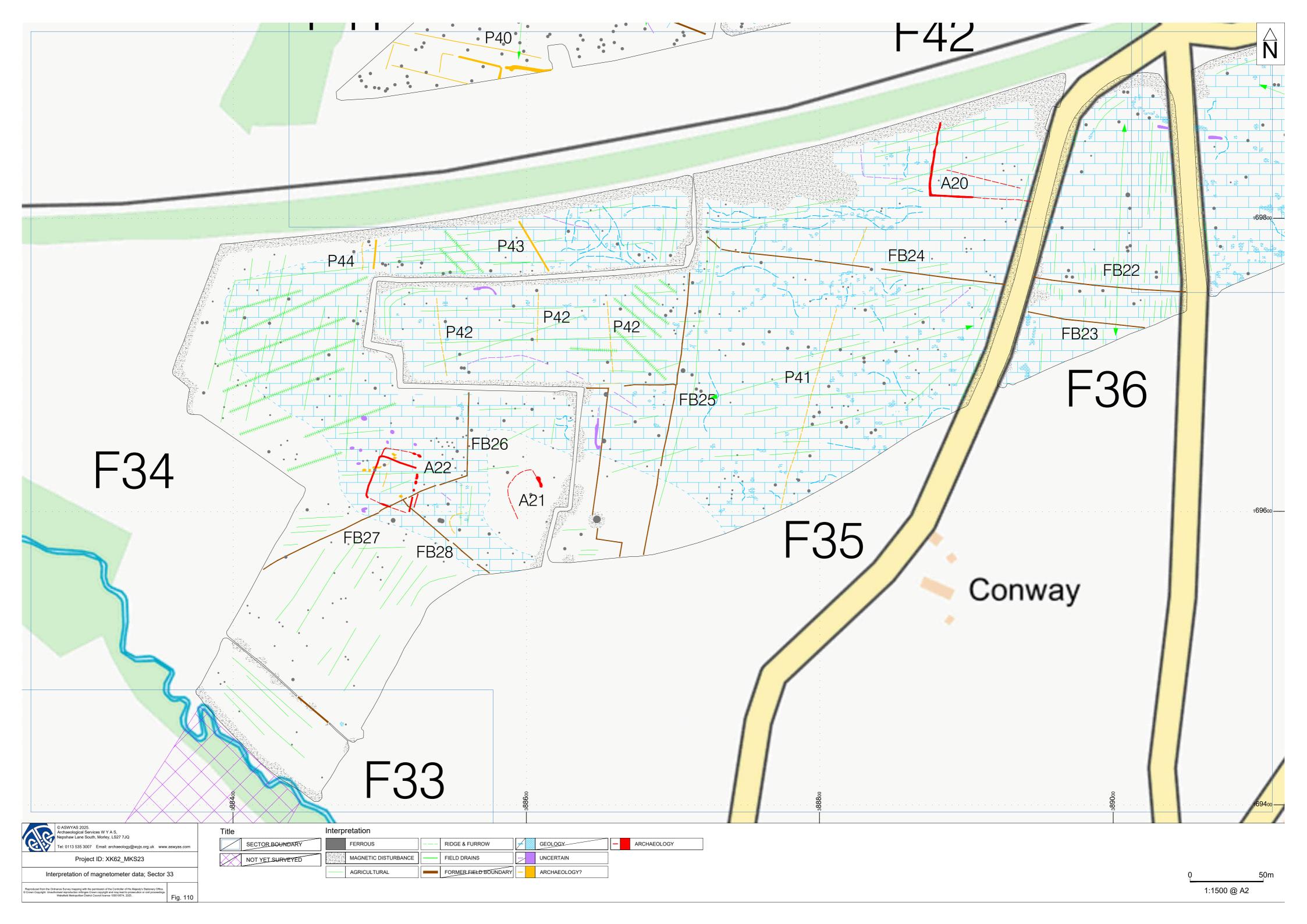


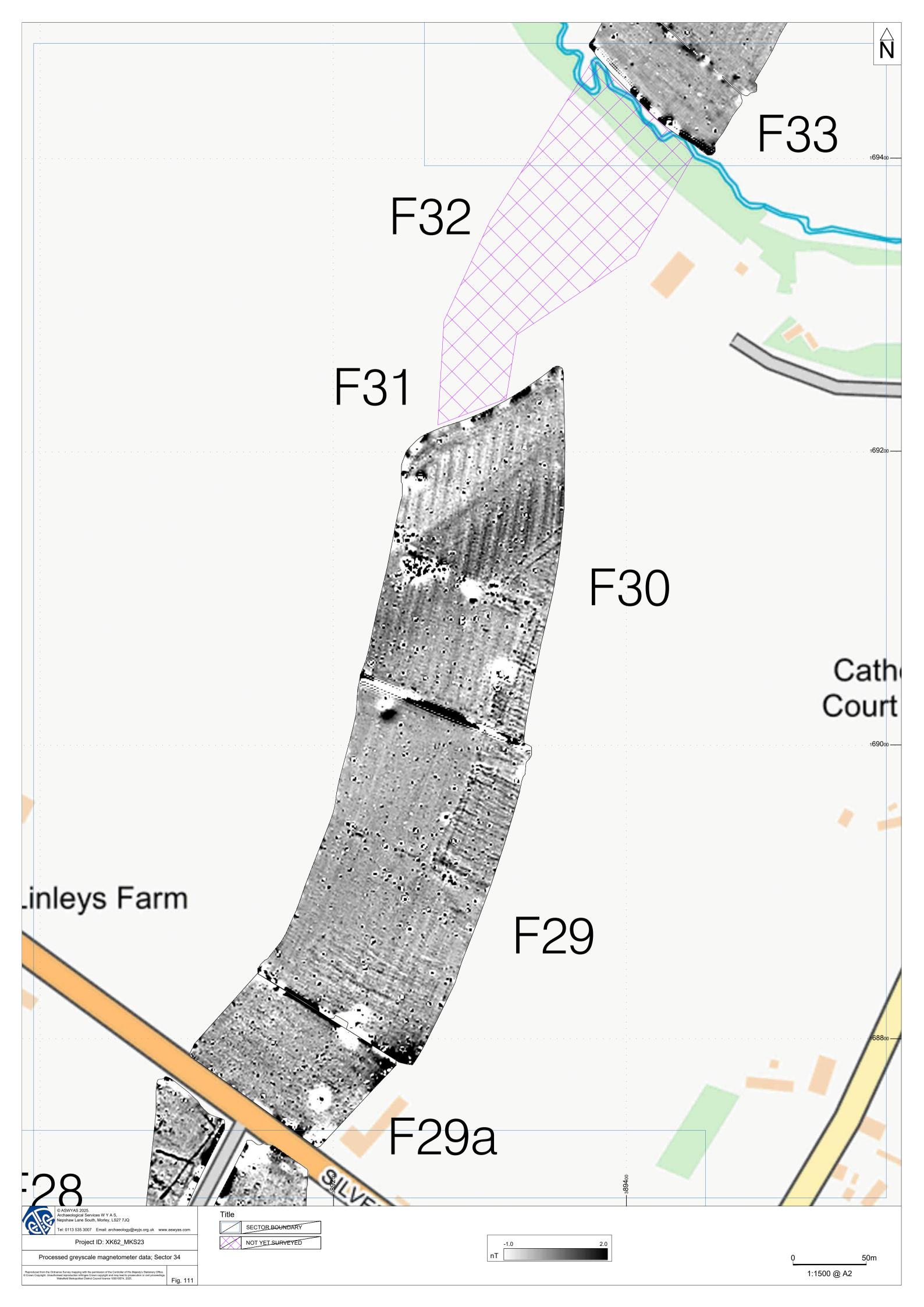


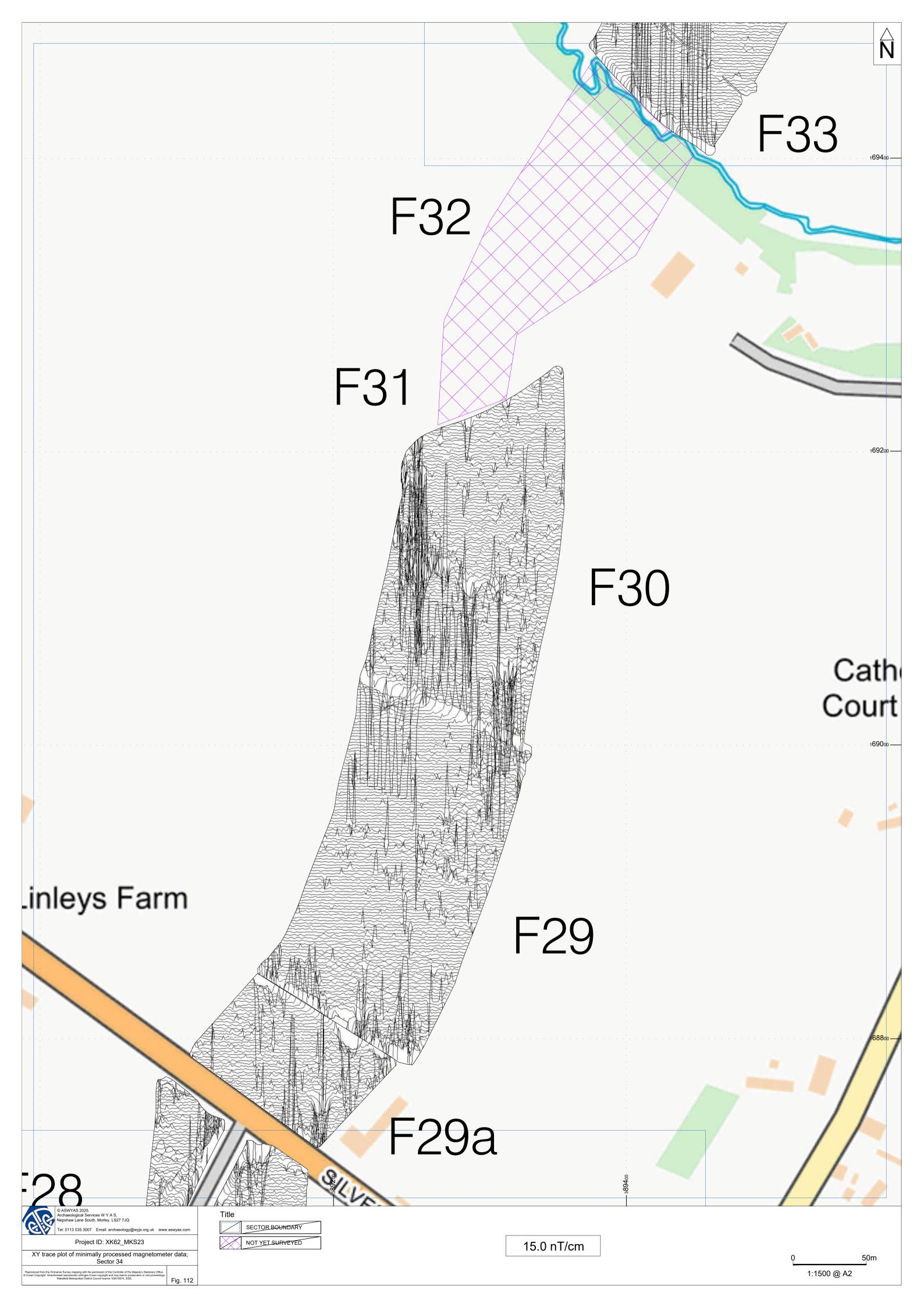


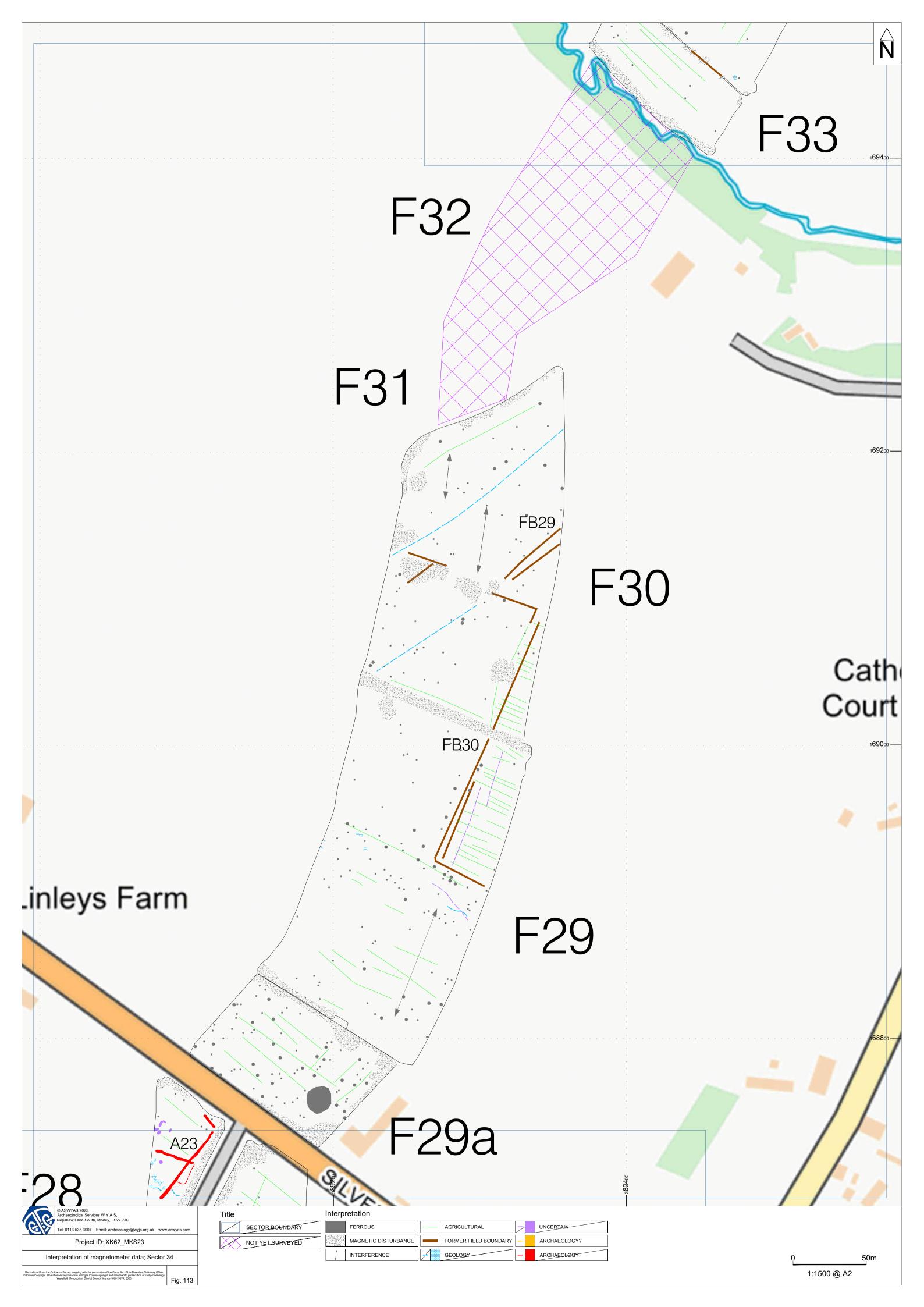


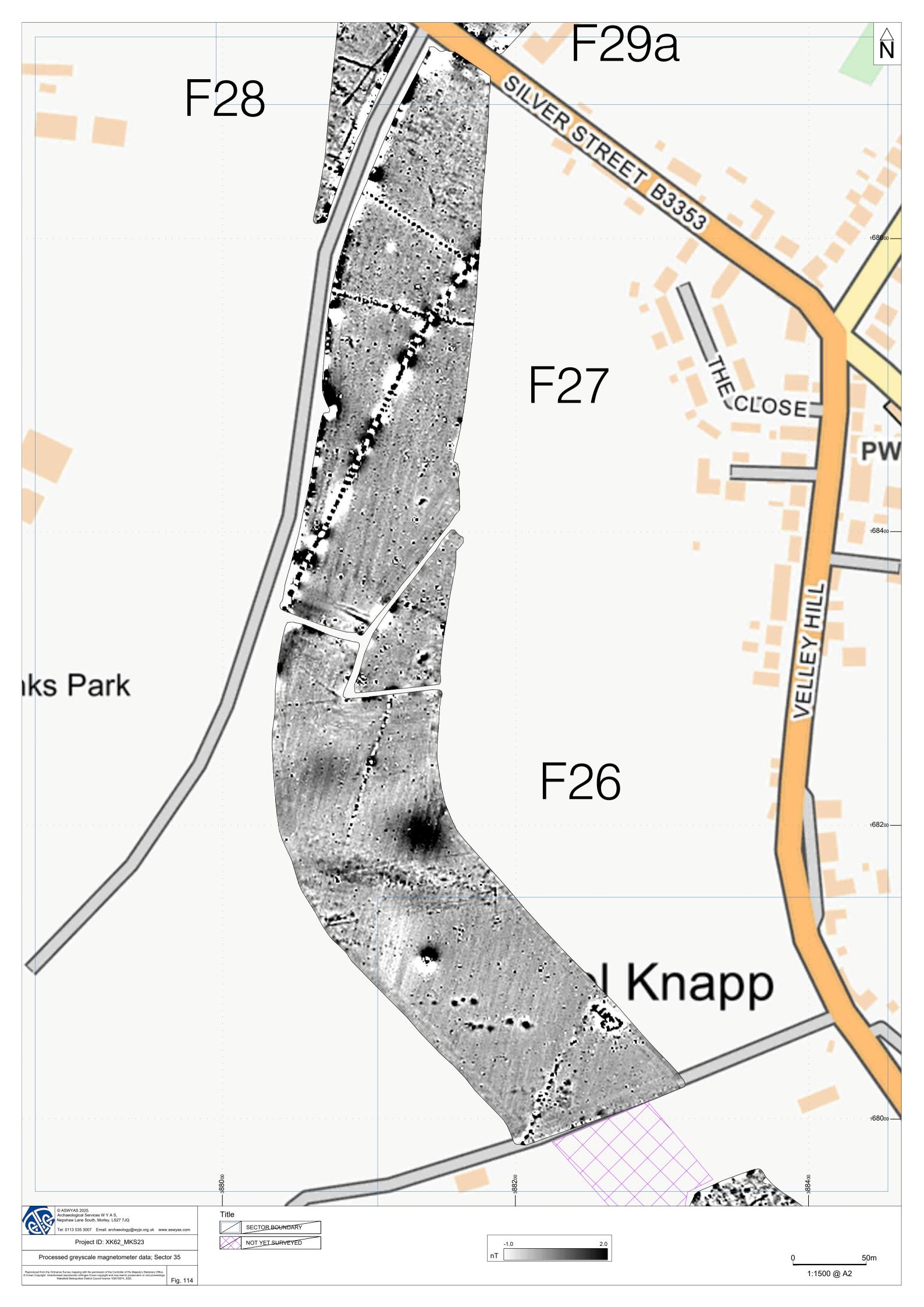


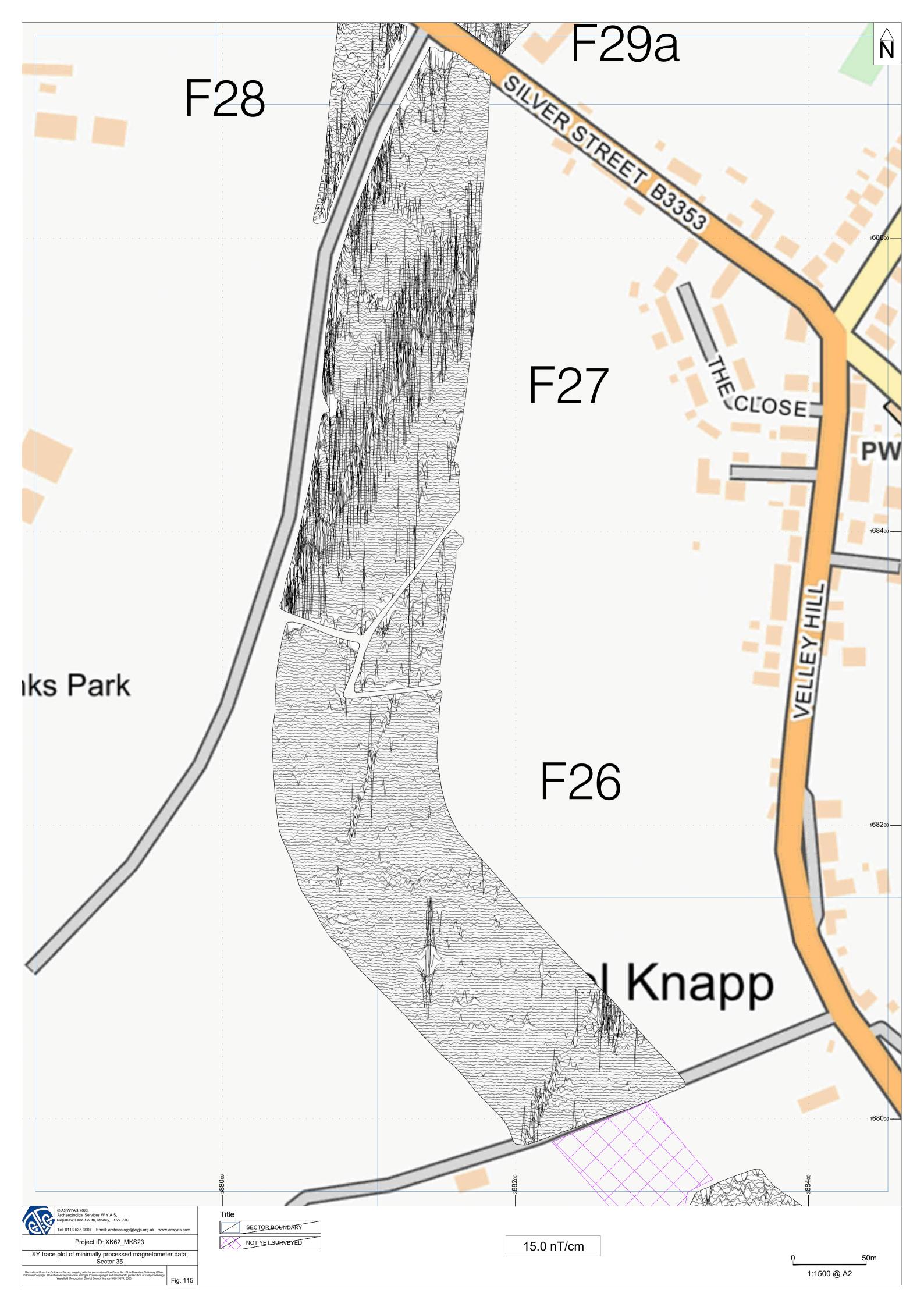






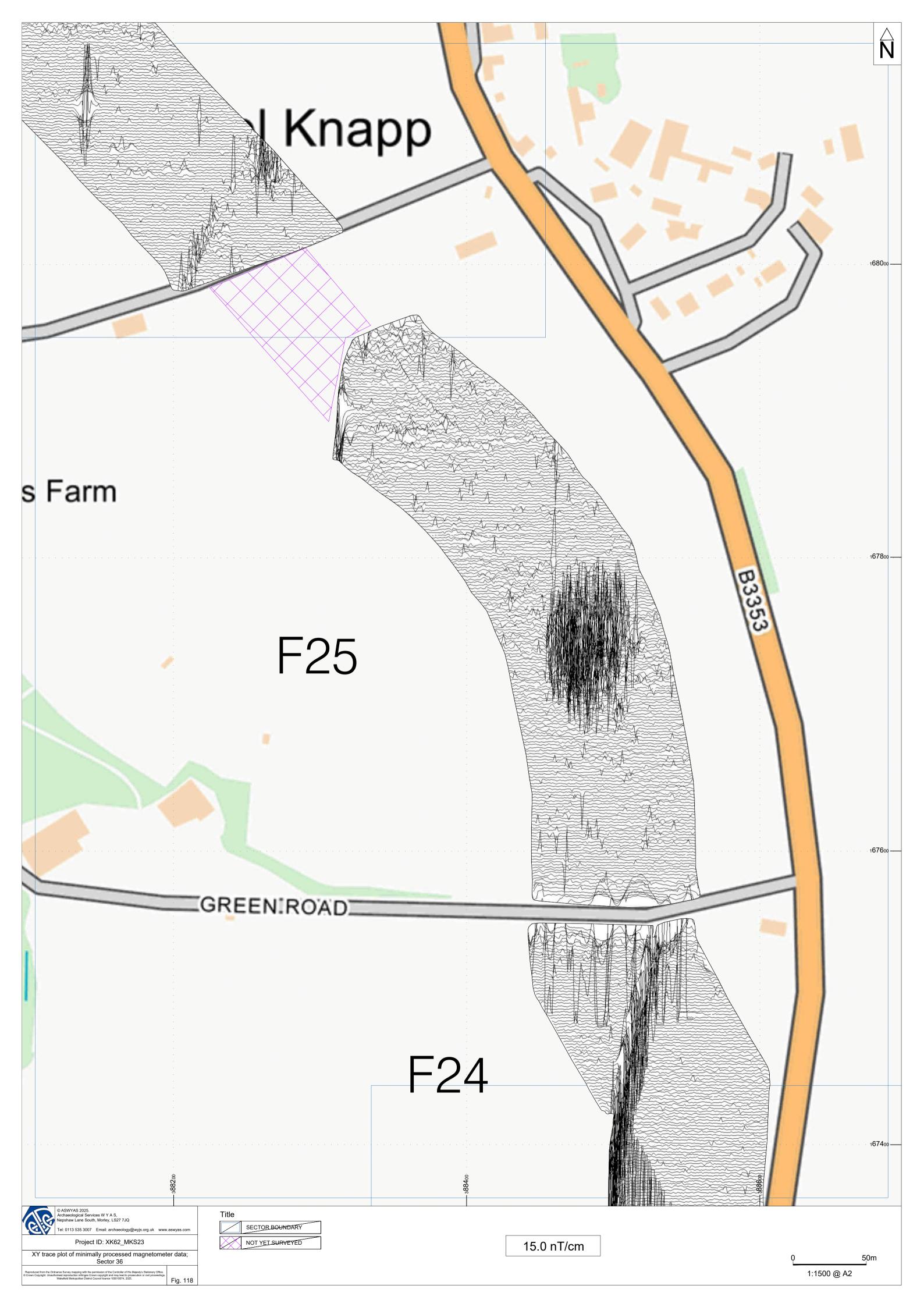


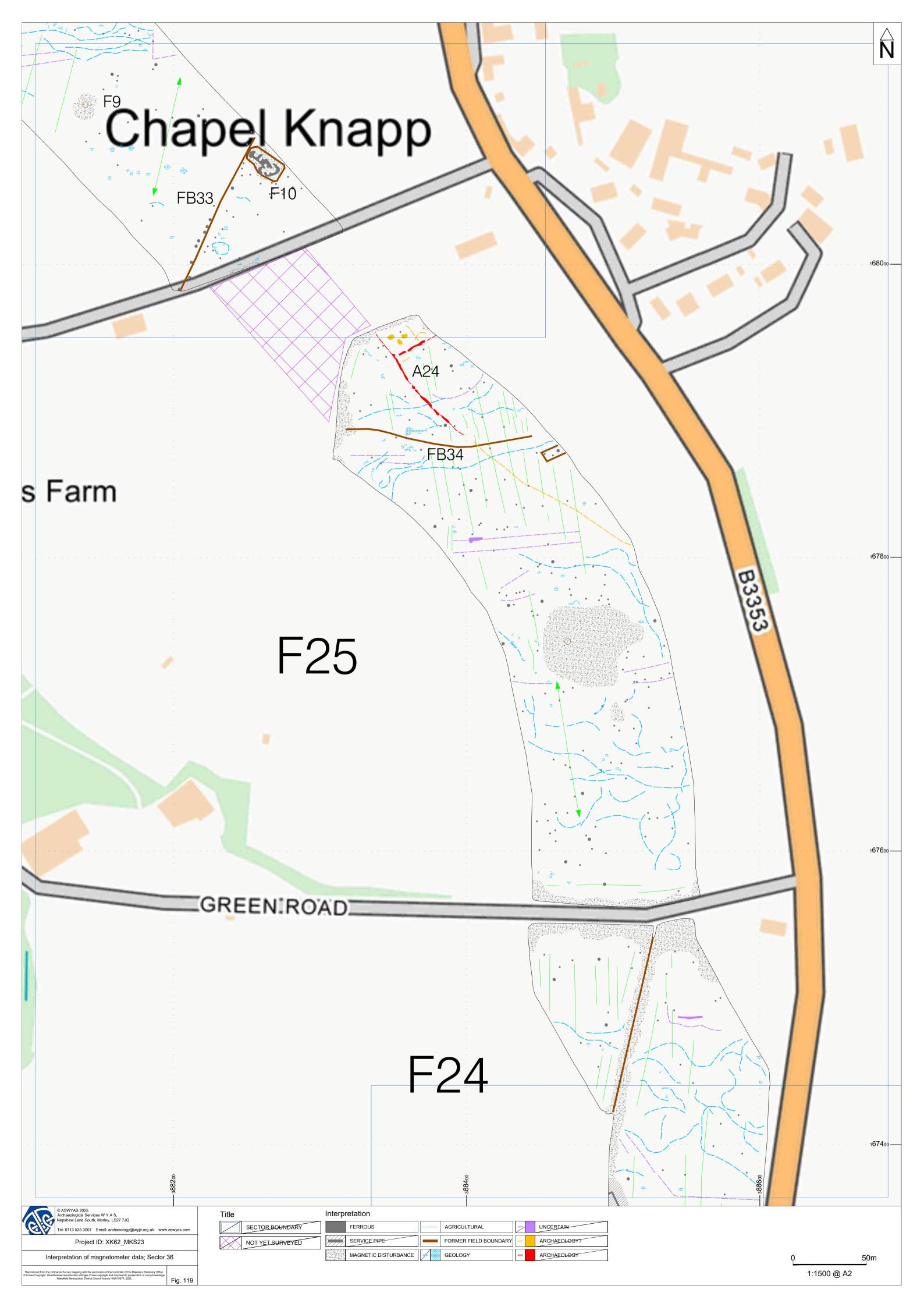




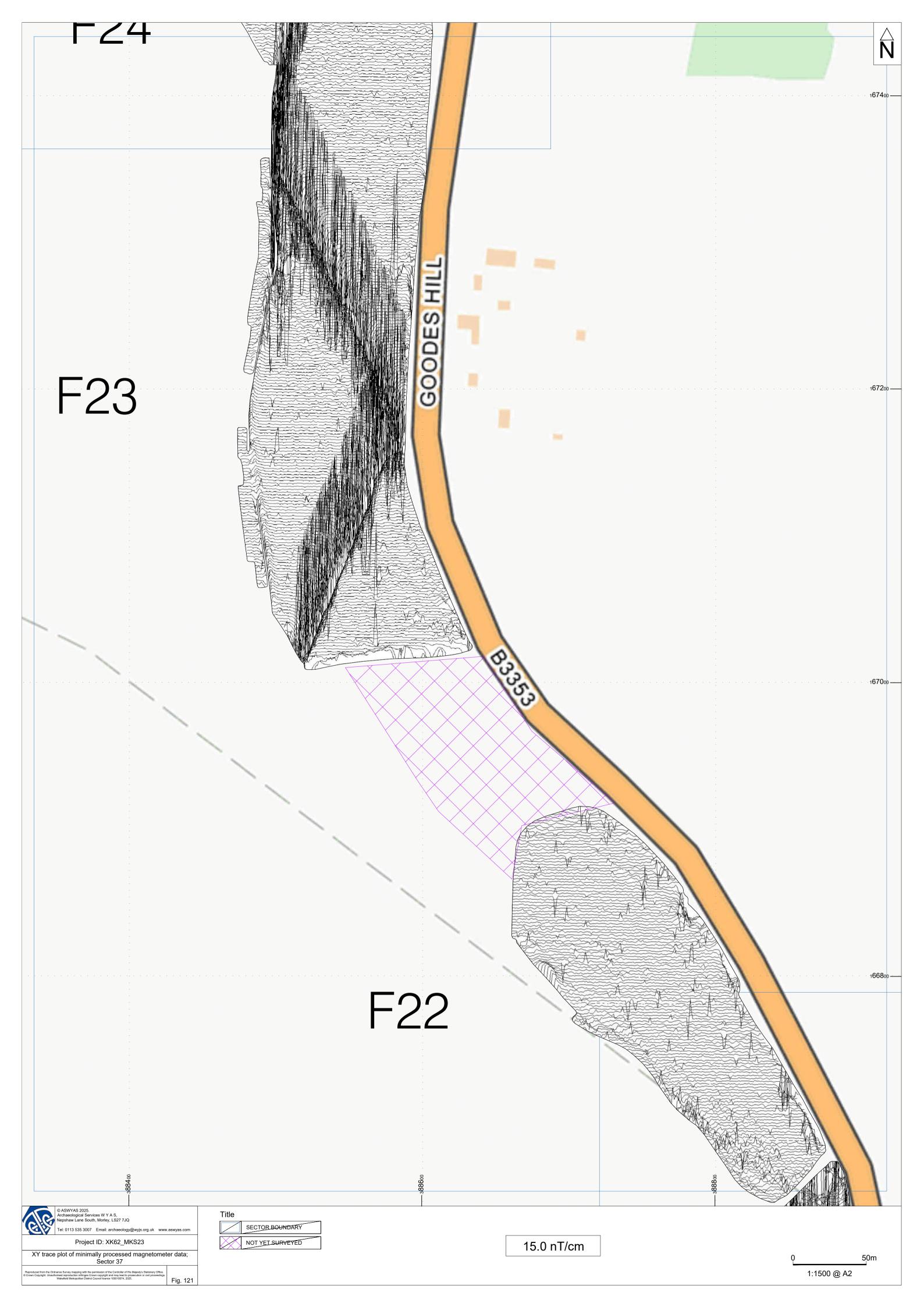


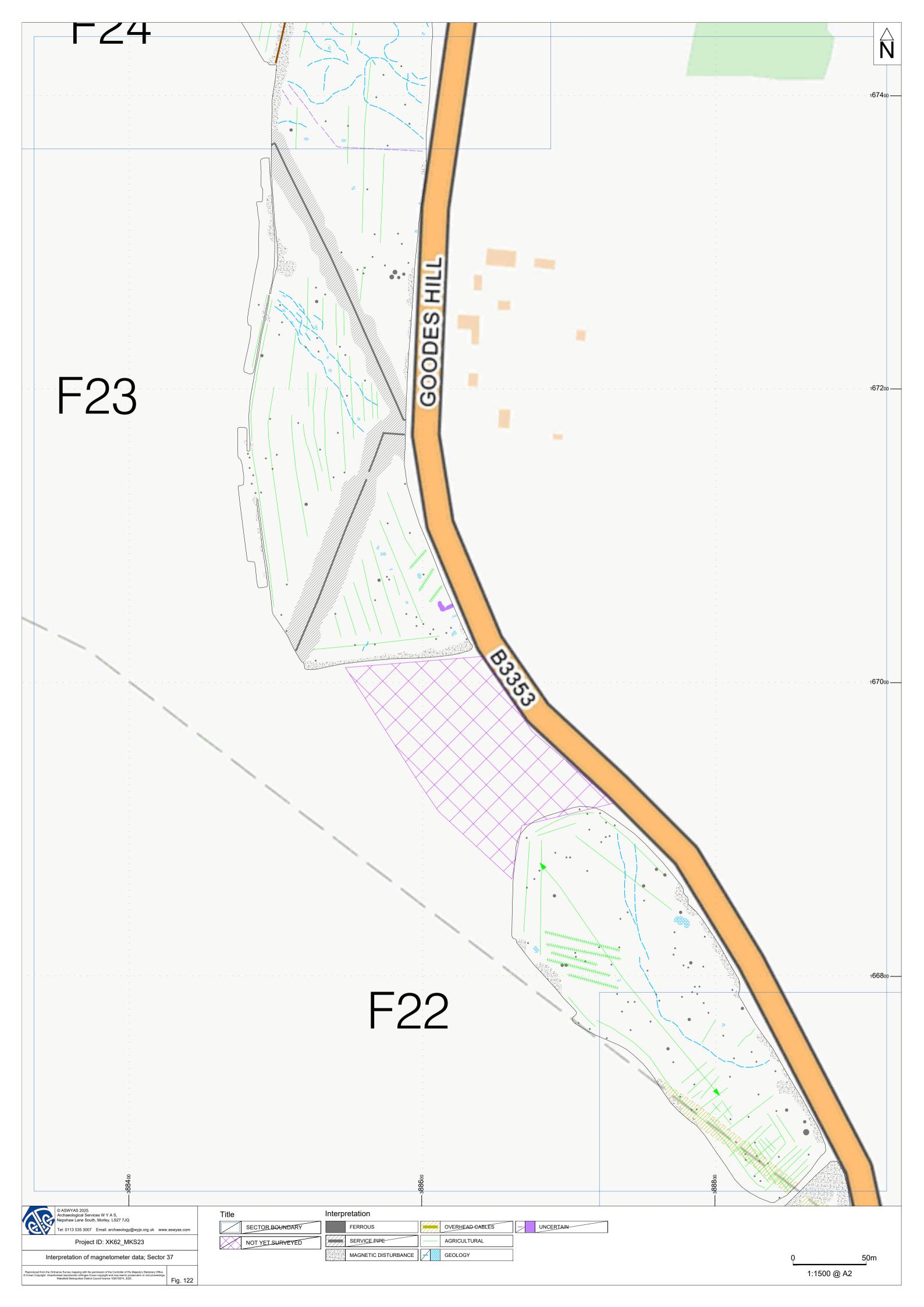


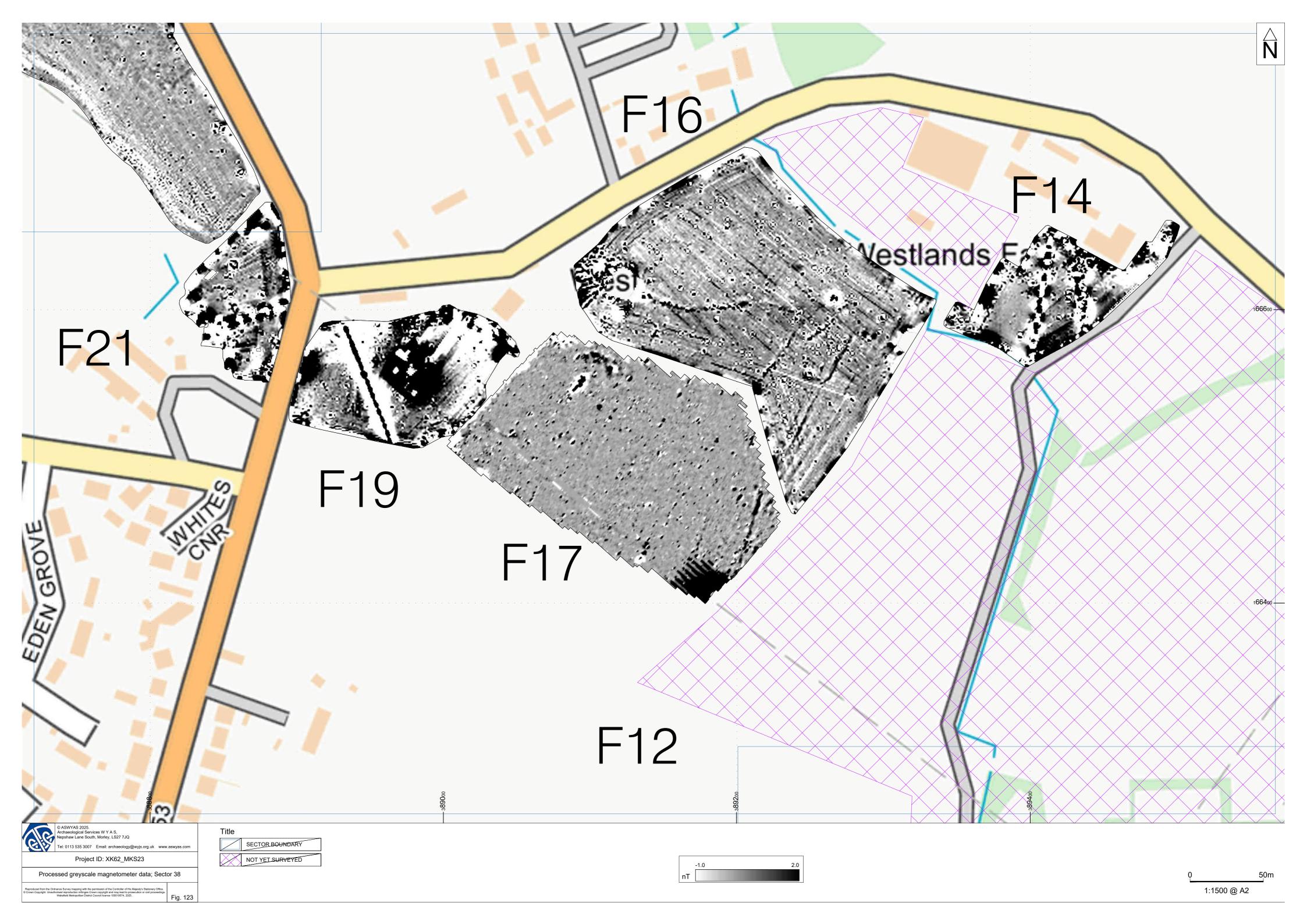




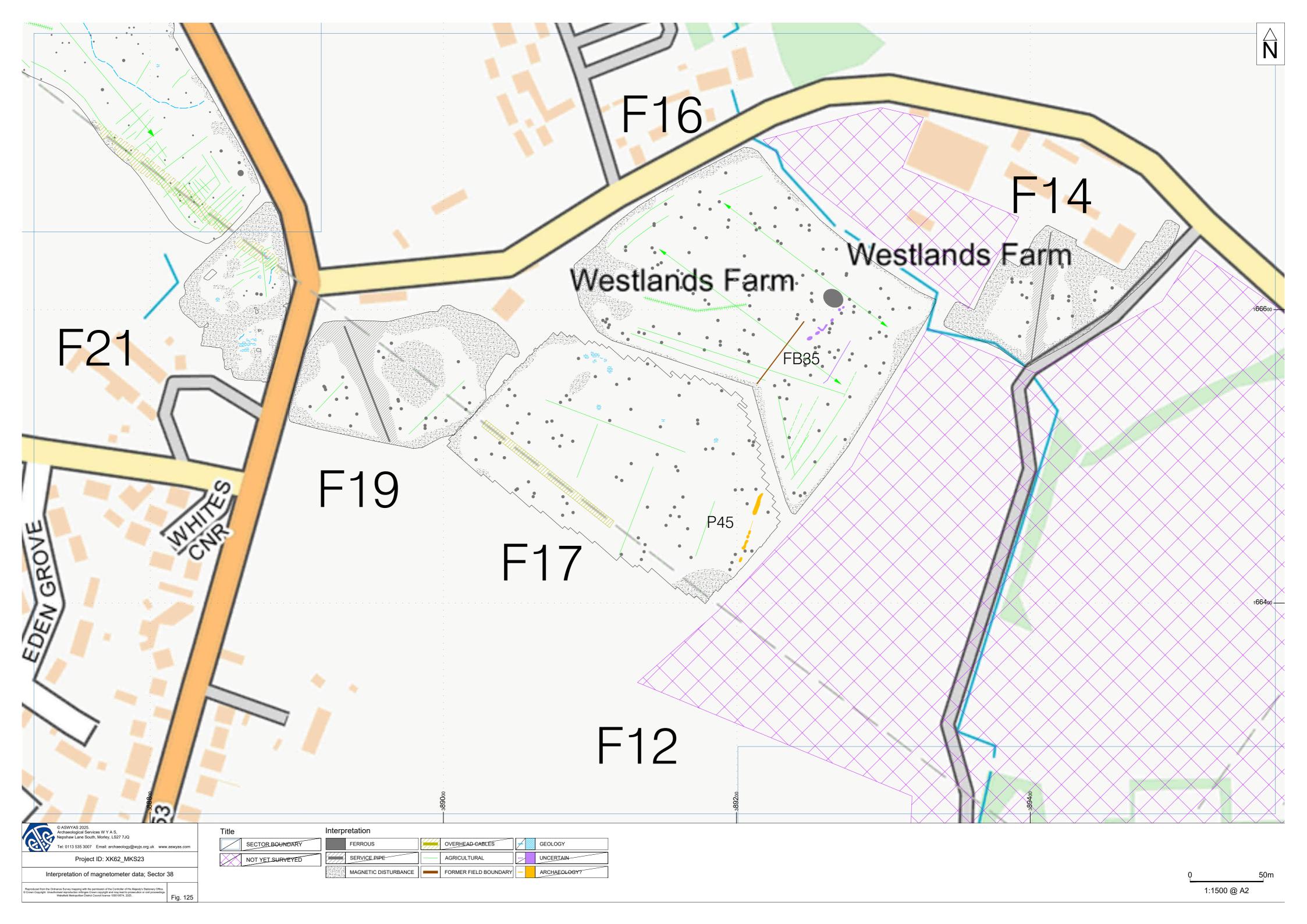


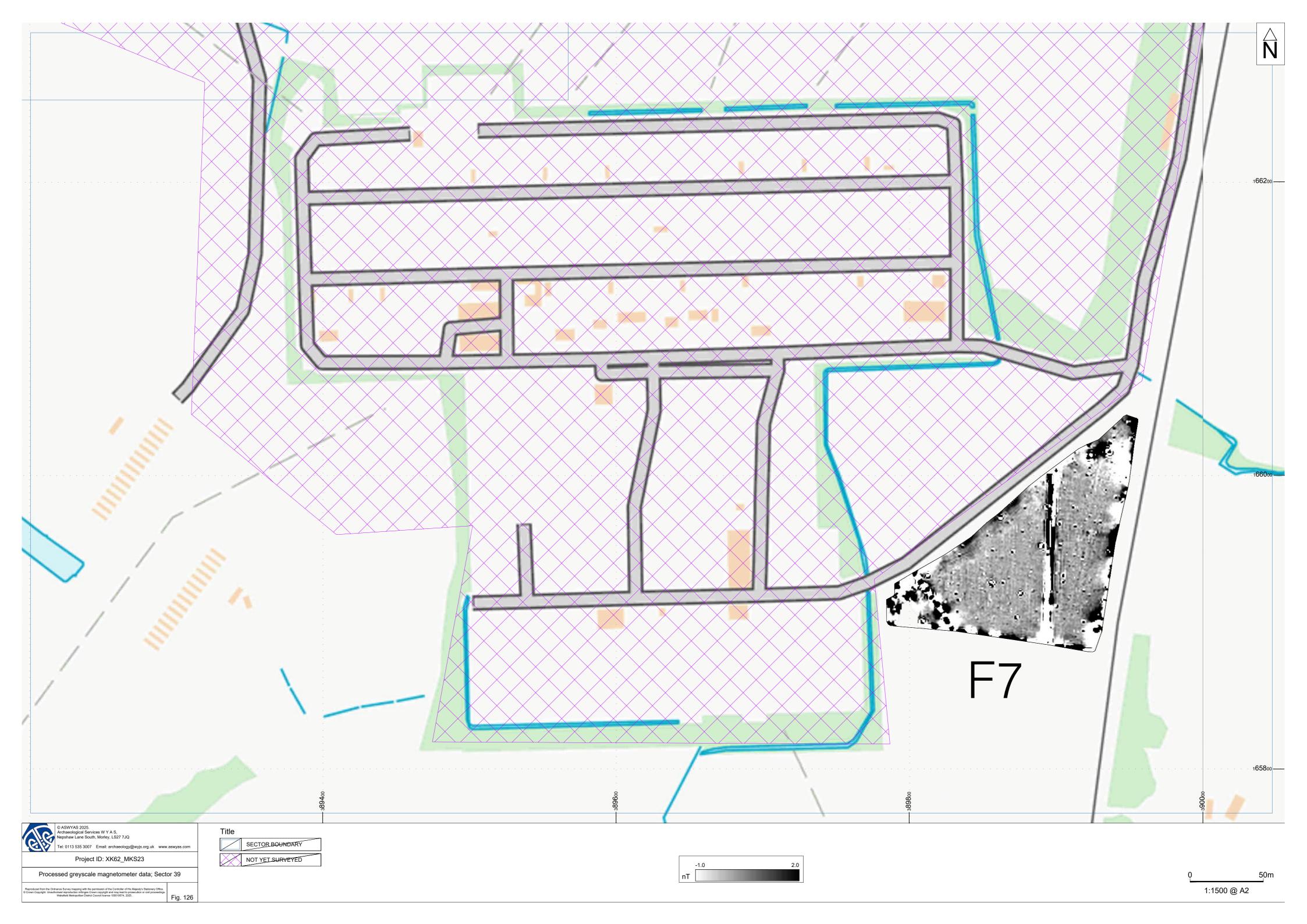


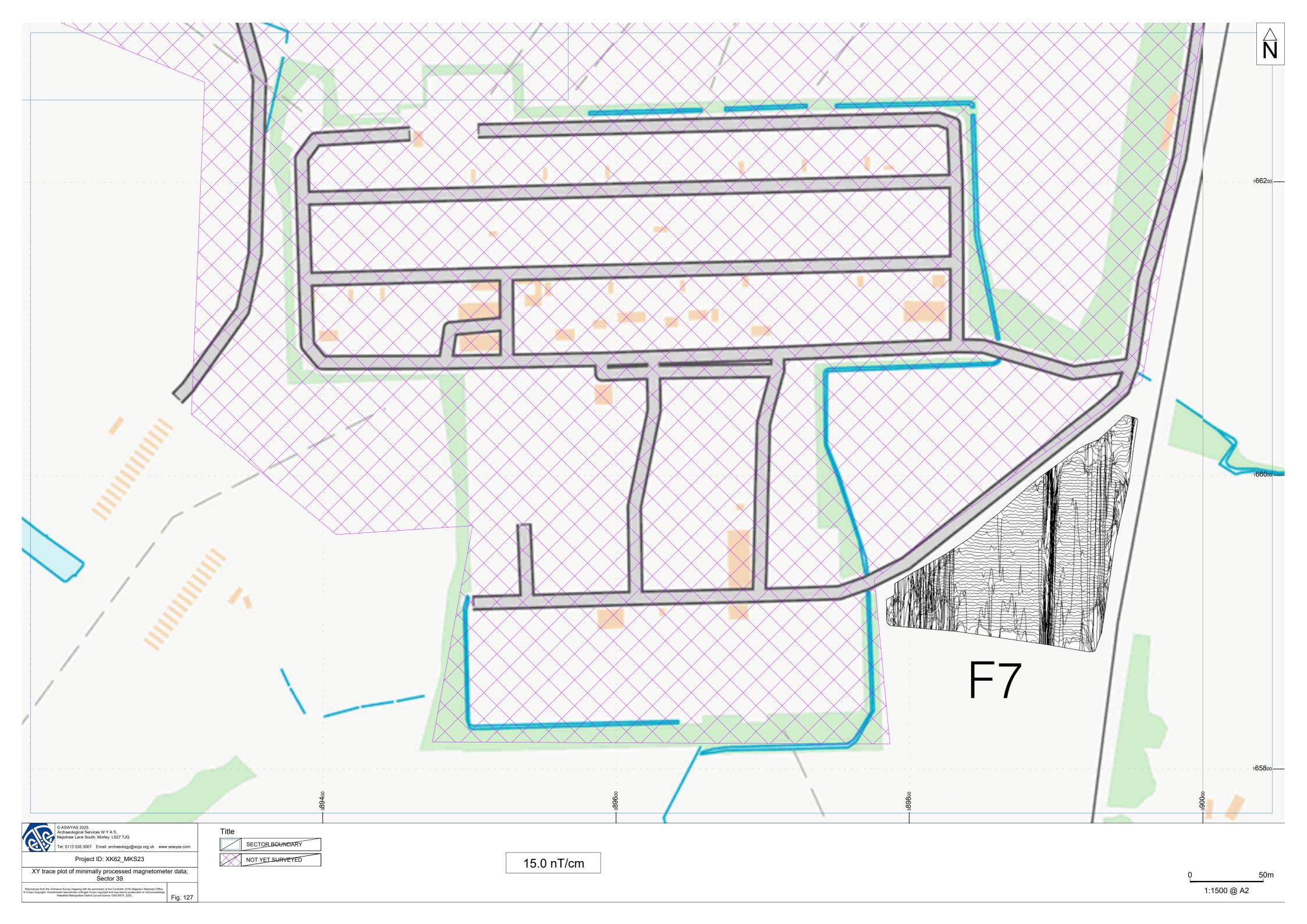


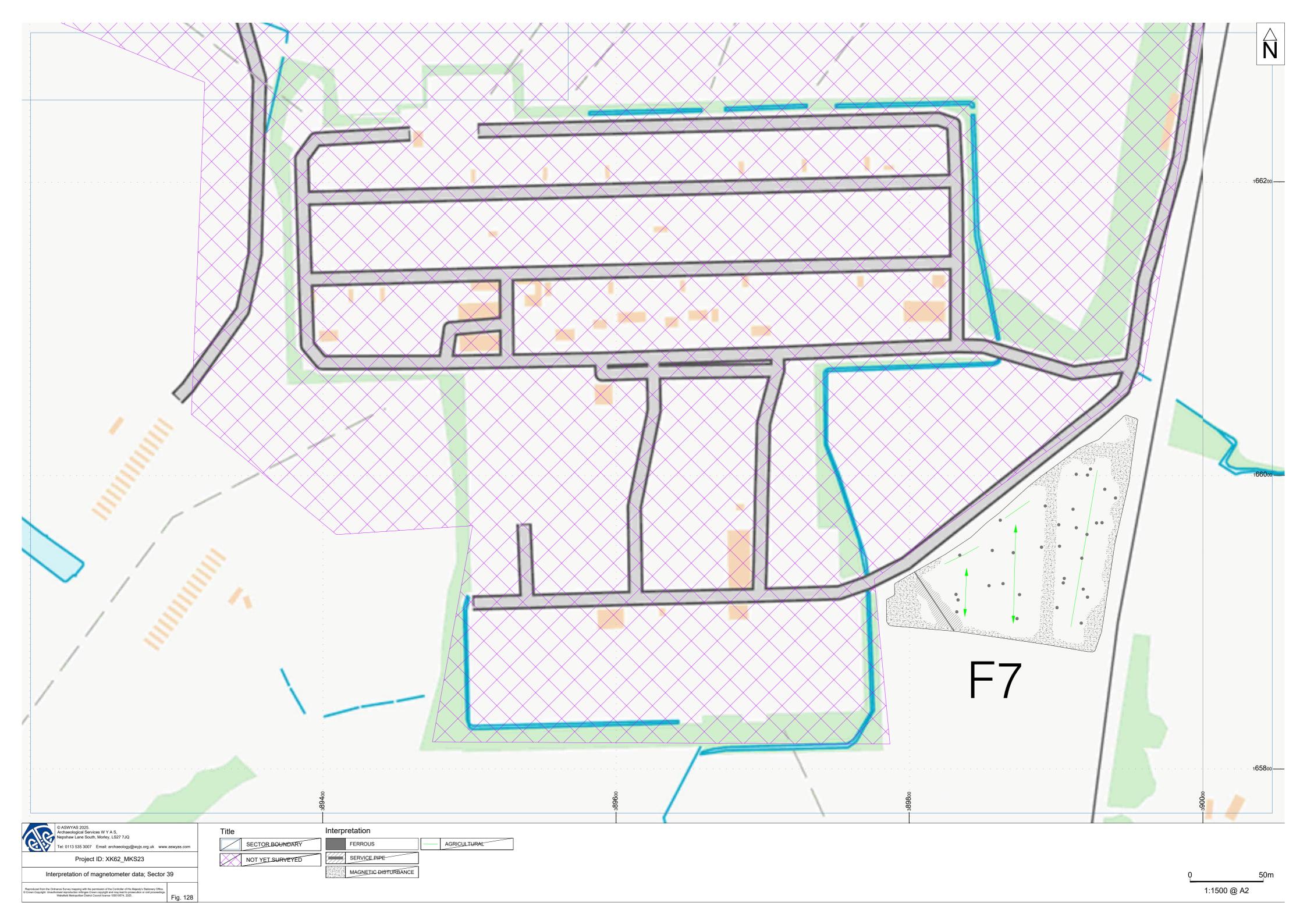












# **Appendix 1: Magnetic survey - technical information**

## **Magnetic Susceptibility and Soil Magnetism**

Iron makes up about 6% of the Earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haemetite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms. Areas of human occupation or settlement can then be identified by measuring the magnetic susceptibility of the topsoil because of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected. The magnetic susceptibility of a soil can also be enhanced by the application of heat and the fermentation and bacterial effects associated with rubbish decomposition. The area of enhancement is usually quite large, mainly due to the tendency of discard areas to extend beyond the limit of the occupation site itself and Holly2014Seb2018spreading by the plough.

## **Types of Magnetic Anomaly**

In the majority of instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

#### *Isolated dipolar anomalies (iron spikes)*

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

## Areas of magnetic disturbance

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

#### Linear trend

This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

## Areas of magnetic enhancement/positive isolated anomalies

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an 'iron spike' anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

#### Linear and curvilinear anomalies

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

## **Methodology: Gradiometer Survey**

The main method of using the fluxgate gradiometer for commercial evaluations is referred to as *detailed survey* and requires the surveyor to walk at an even pace carrying the instrument within a grid system. A sample trigger automatically takes readings at predetermined points,

typically at 0.25m intervals, on traverses 1m apart. These readings are stored in the memory of the instrument and are later dumped to computer for processing and interpretation.

During this survey an eight channel Sensys MX V3 system containing eight FGM650 sensors was also used which was towed across the area using an ATV. Readings were taken every 20MHz (between 0.05 and 0.1m). Data was be recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation.

Some of the areas were carried out using hand-held equipment. An initial survey station was established using a Trimble VRS differential Global Positioning System (Trimble R6 model). The data was geo-referenced using the geo-referenced survey station with a Trimble RTK differential Global Positioning System (Trimble R6 model). The accuracy of this equipment is better than 0.01m. The survey grids were then super-imposed onto a base map provided by the client to produce the displayed block locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

# **Appendix 2: Survey location information**

Data was recorded onto a device, using a Carlson GNSS BRx7 Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. The accuracy of the BRx7 is between 0.15cm – 0.8cm. The BRx7 has a built-in tilt sensor to correct collected point coordinates to within 2cm.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

Archaeological Services WYAS cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

# **Appendix 3: Geophysical archive**

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2003), and graphics files (Adobe Illustrator CS6 and AutoCAD 2017) files; and
- a full copy of the report.

At present the archive is held by Archaeological Services WYAS although it is anticipated that it may eventually be lodged with the Archaeology Data Service (ADS). Brief details may also be forwarded for inclusion on the English Heritage Geophysical Survey Database after the contents of the report are deemed to be in the public domain (i.e. available for consultation in the Wiltshire and Swindon Historic Environment Record).

# **Appendix 4: Oasis form**

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