Cottam Solar Project

Environmental Statement Appendix 13.2:

Archaeological Geophysical Survey Reports (Part 9 of 13)

Prepared by: Archaeological Services WYAS

January 2023

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APFP Regulation 5(2)(a)

Cottam
SOLAR PROJECT

N

FB13

A1

P4

3968$_{00}$

4872$_{00}$

4874$_{00}$

4876$_{00}$

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Project ID: XB85_CWB21 Cottam 3a

Interpretation of magnetometer data; Sector 11

Fig. 37

Interpretation

FERROUS	AGRICULTURAL	ARCHAEOLOGY
MAGNETIC DISTURBANCE	FORMER FIELD BOUNDARY	AIRFIELD
FIELD DRAIN	UNCERTAIN	
RIDGE & FURROW	ARCHAEOLOGY?	

0 50m

1:1500 @ A3

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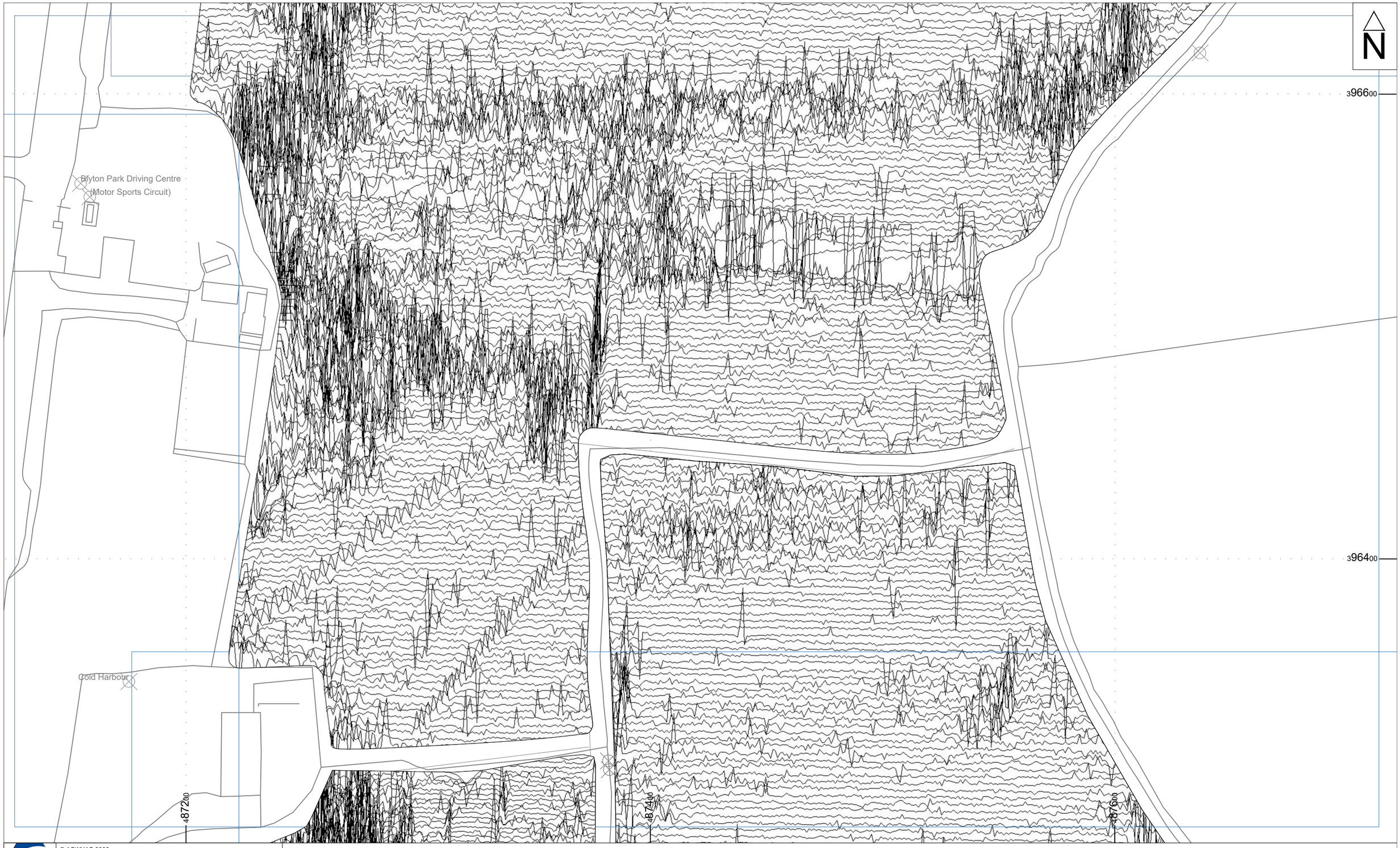
Processed greyscale magnetometer data; Sector 12

Fig. 38



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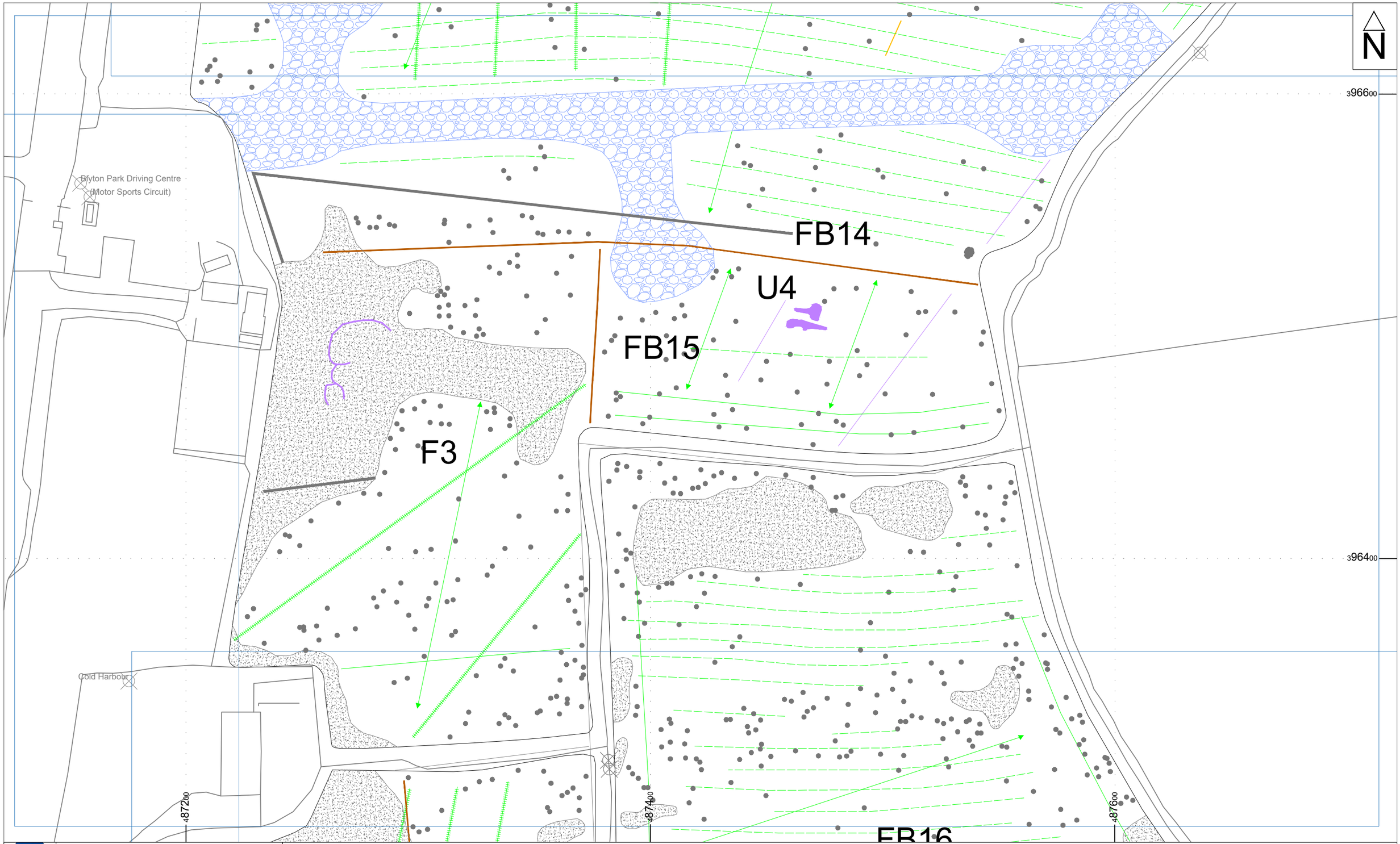
XY trace plot of minimally processed magnetometer data; Sector 12

Fig. 39

15.0 nT/cm

0 50m

1:1500 @ A3



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Interpretation of magnetometer data; Sector 12

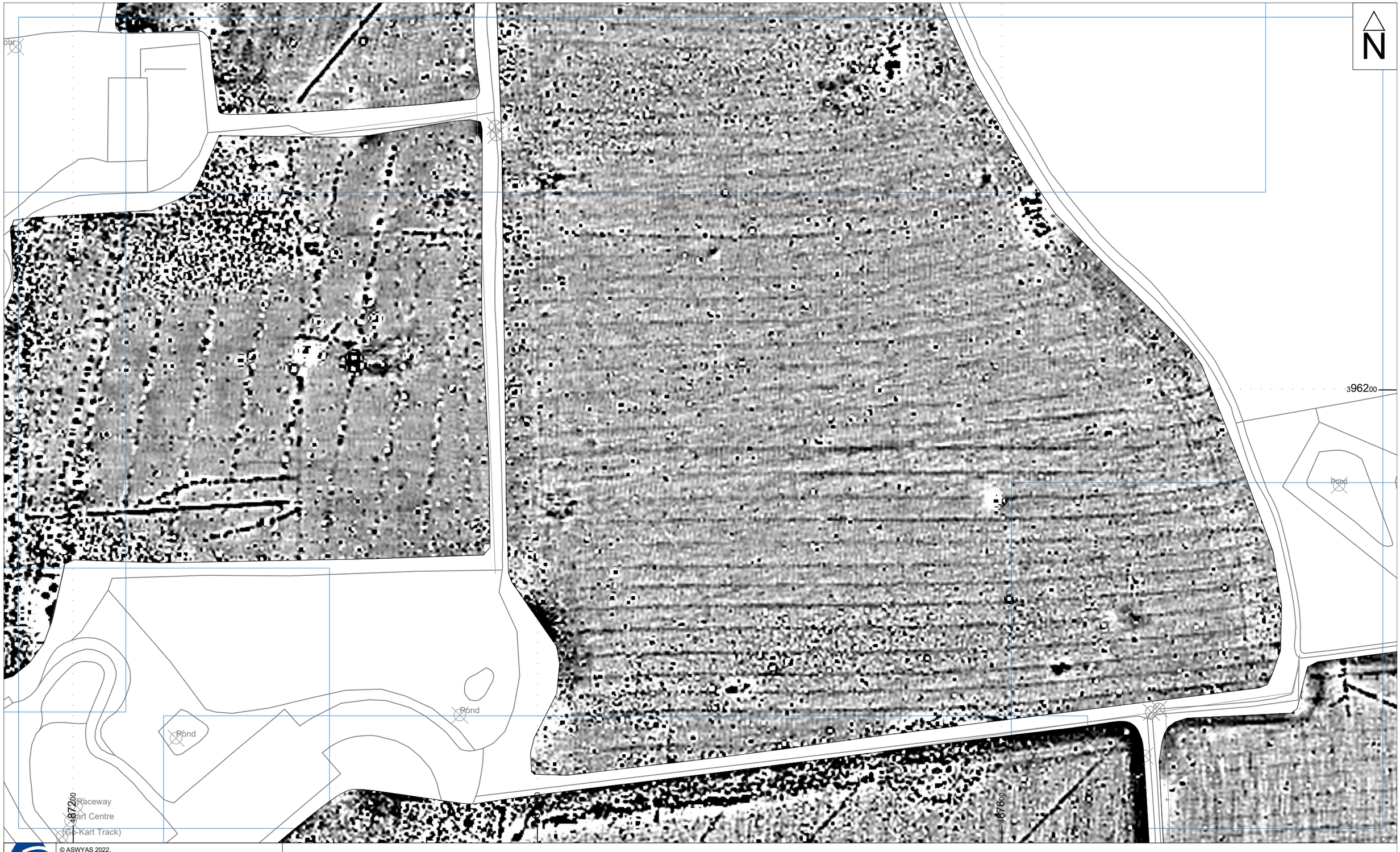
Fig. 40

Interpretation

FERROUS	AGRICULTURAL	AIRFIELD
MAGNETIC DISTURBANCE	FORMER FIELD BOUNDARY	
FIELD DRAIN	UNCERTAIN	
RIDGE & FURROW	ARCHAEOLOGY?	

0 50m

1:1500 @ A3



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Processed greyscale magnetometer data; Sector 13

Fig. 41

nT -1.0 1.0

0 50m

1:1500 @ A3

N

3962 00

Pond

Pond

Pond

4872 00

4874 00

4876 00

Raceway
art Centre
(Go-Kart Track)

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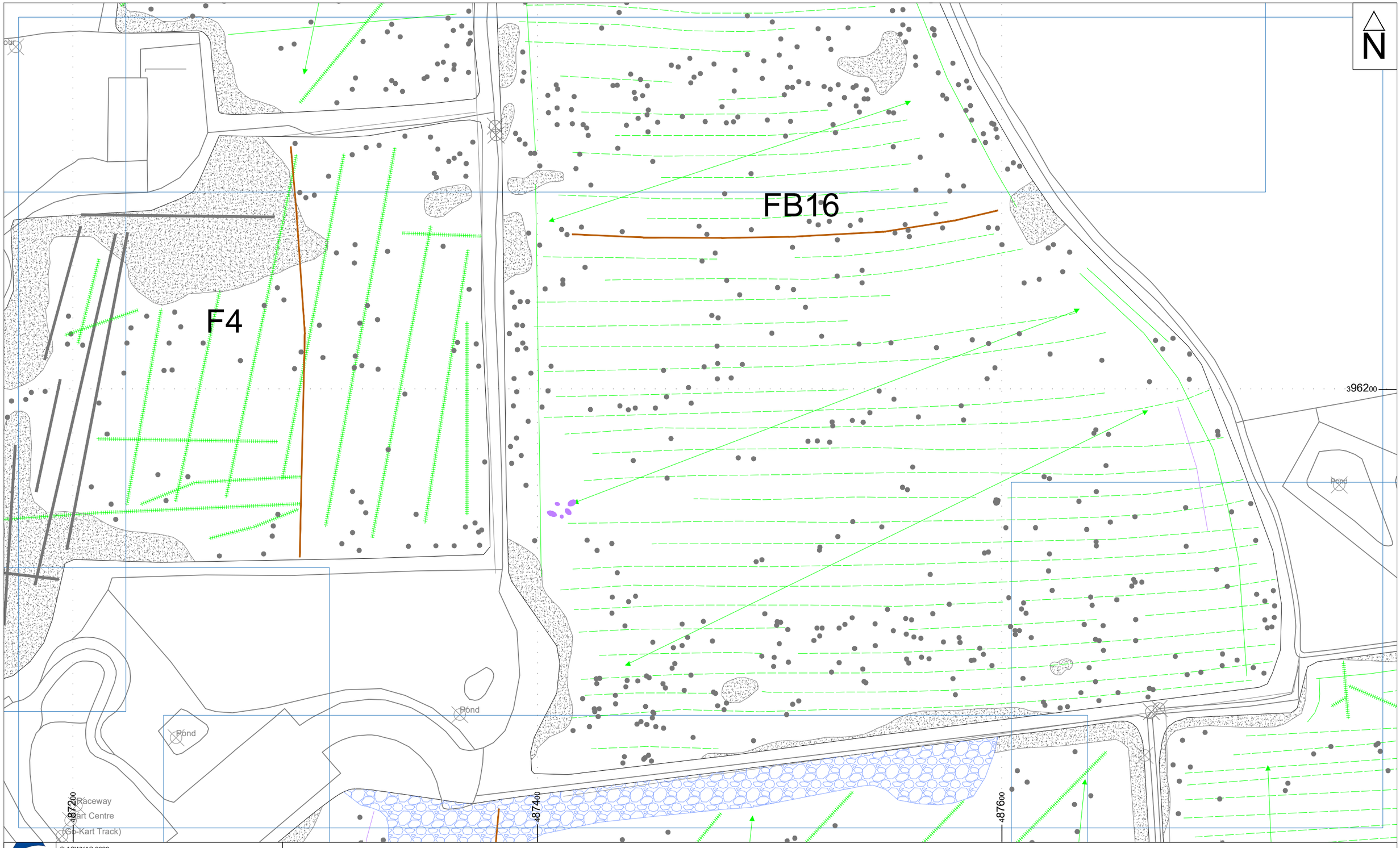
XY trace plot of minimally processed magnetometer data; Sector 13

Fig. 42

15.0 nT/cm

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3a

Interpretation of magnetometer data; Sector 13

Fig. 43

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- FORMER FIELD BOUNDARY
- UNCERTAIN
- ARCHAEOLOGY?
- AIRFIELD

0 50m

1:1500 @ A3

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Project ID: XB85_CWB21 Cottam 3a

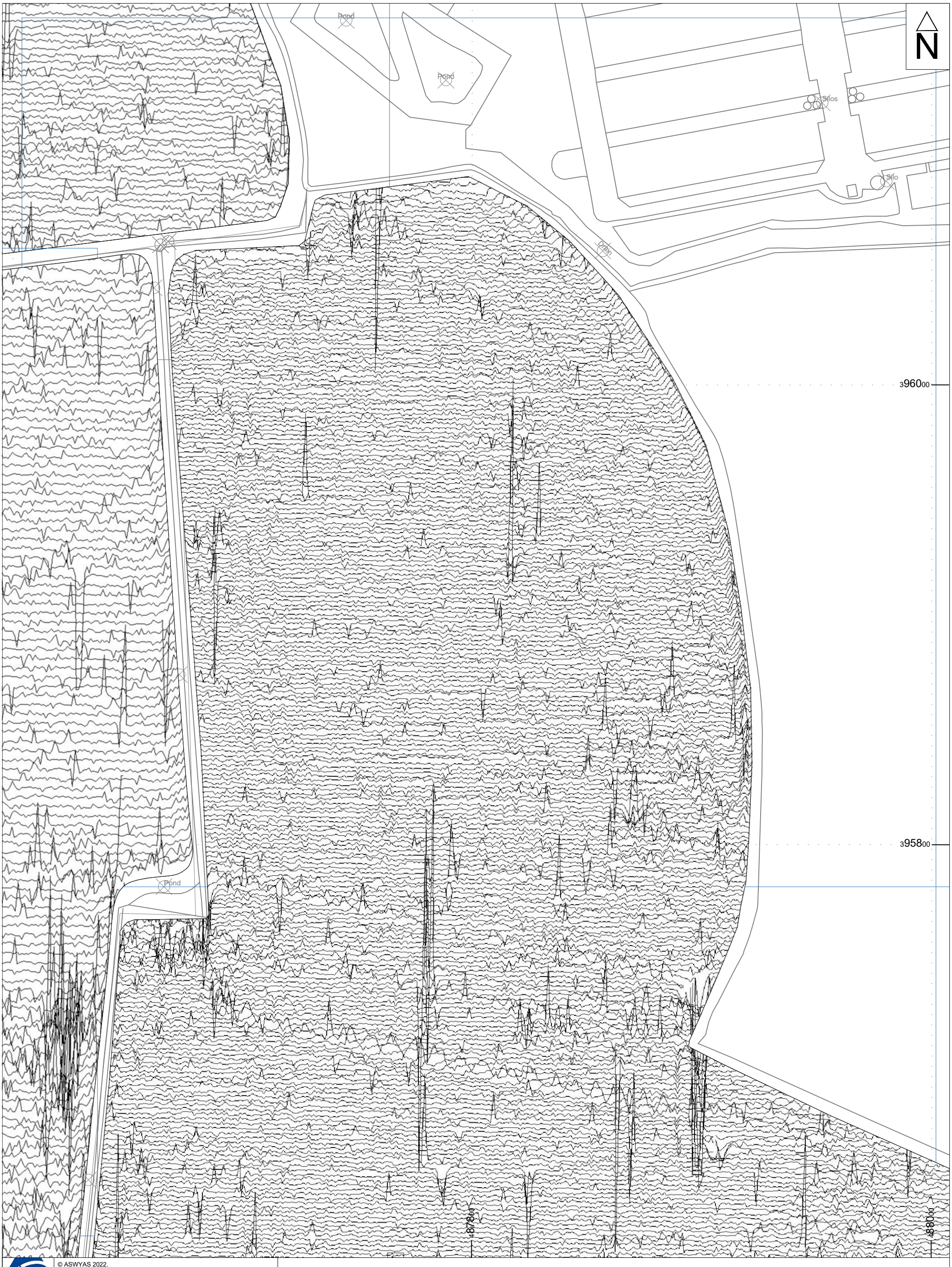
Processed greyscale magnetometer data; Sector 14

Fig. 44

-1.0 2.0
nT

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3a

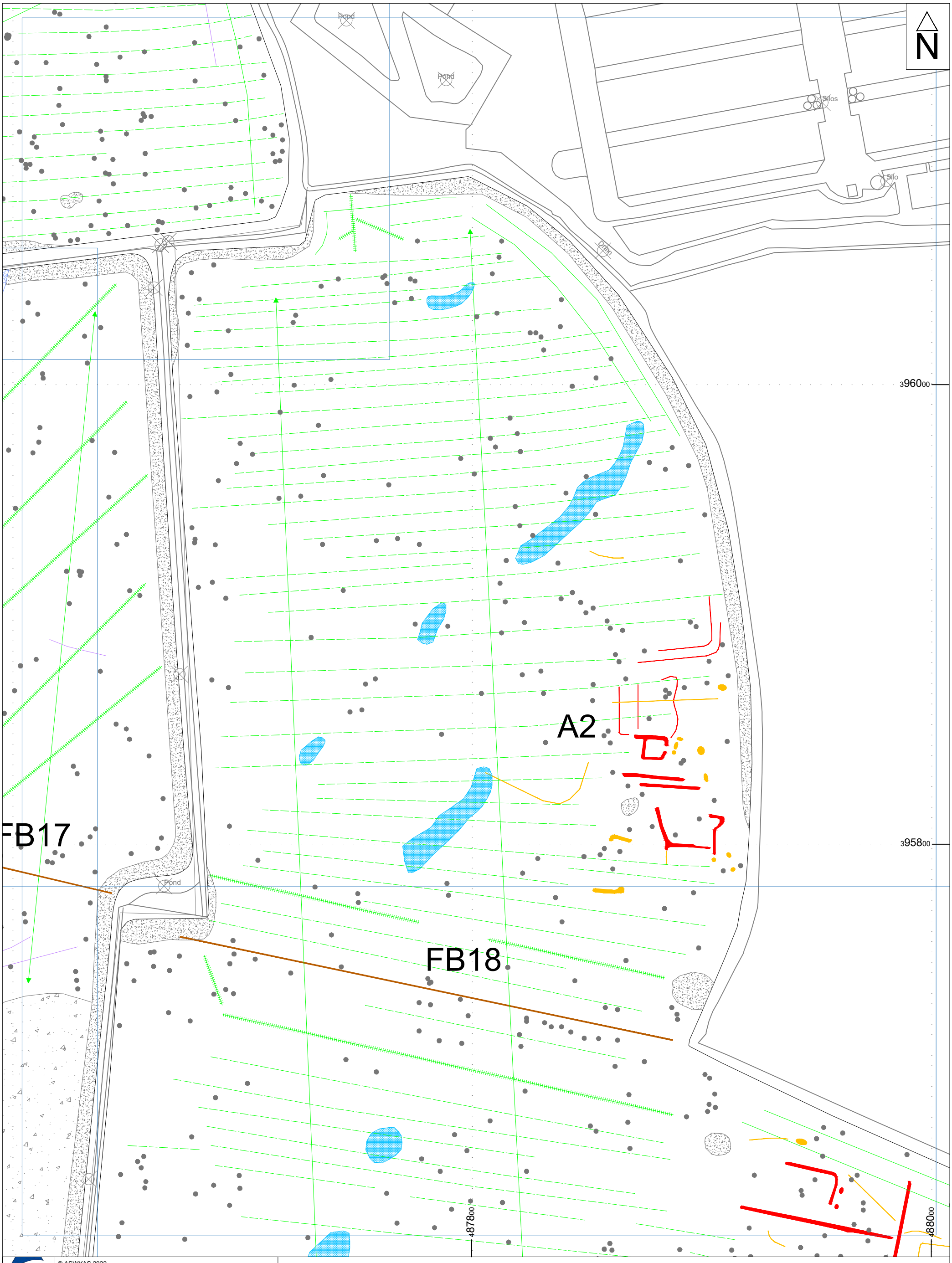
XY trace plot of minimally processed magnetometer data; Sector 14

Fig. 45

15.0 nT/cm

0 50m

1:1500 @ A3



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Interpretation of magnetometer data; Sector 14

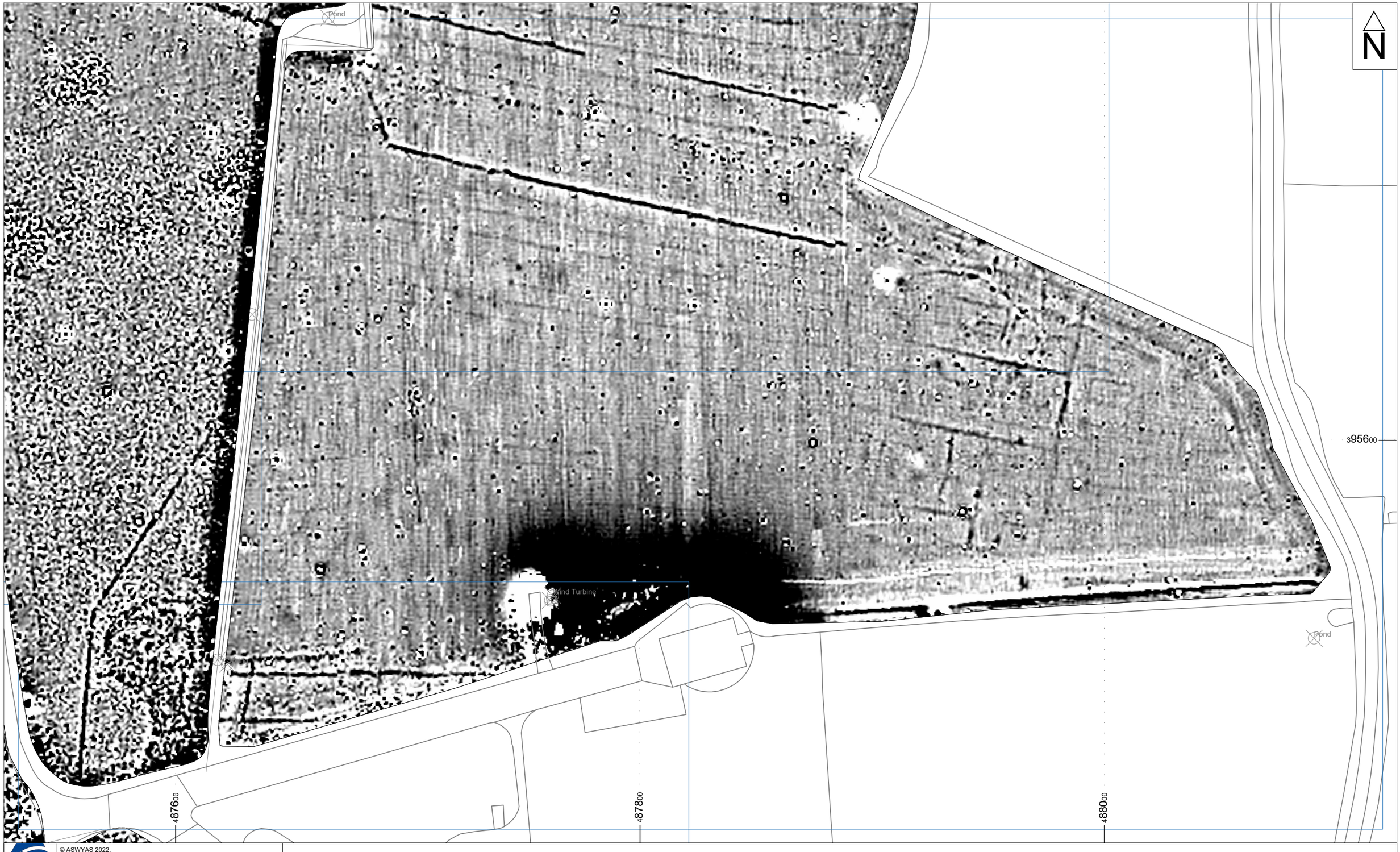
Fig. 46

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- FORMER FIELD BOUNDARY
- GEOLOGY
- UNCERTAIN
- ARCHAEOLOGY?
- ARCHAEOLOGY

0 50m

1:1500 @ A3



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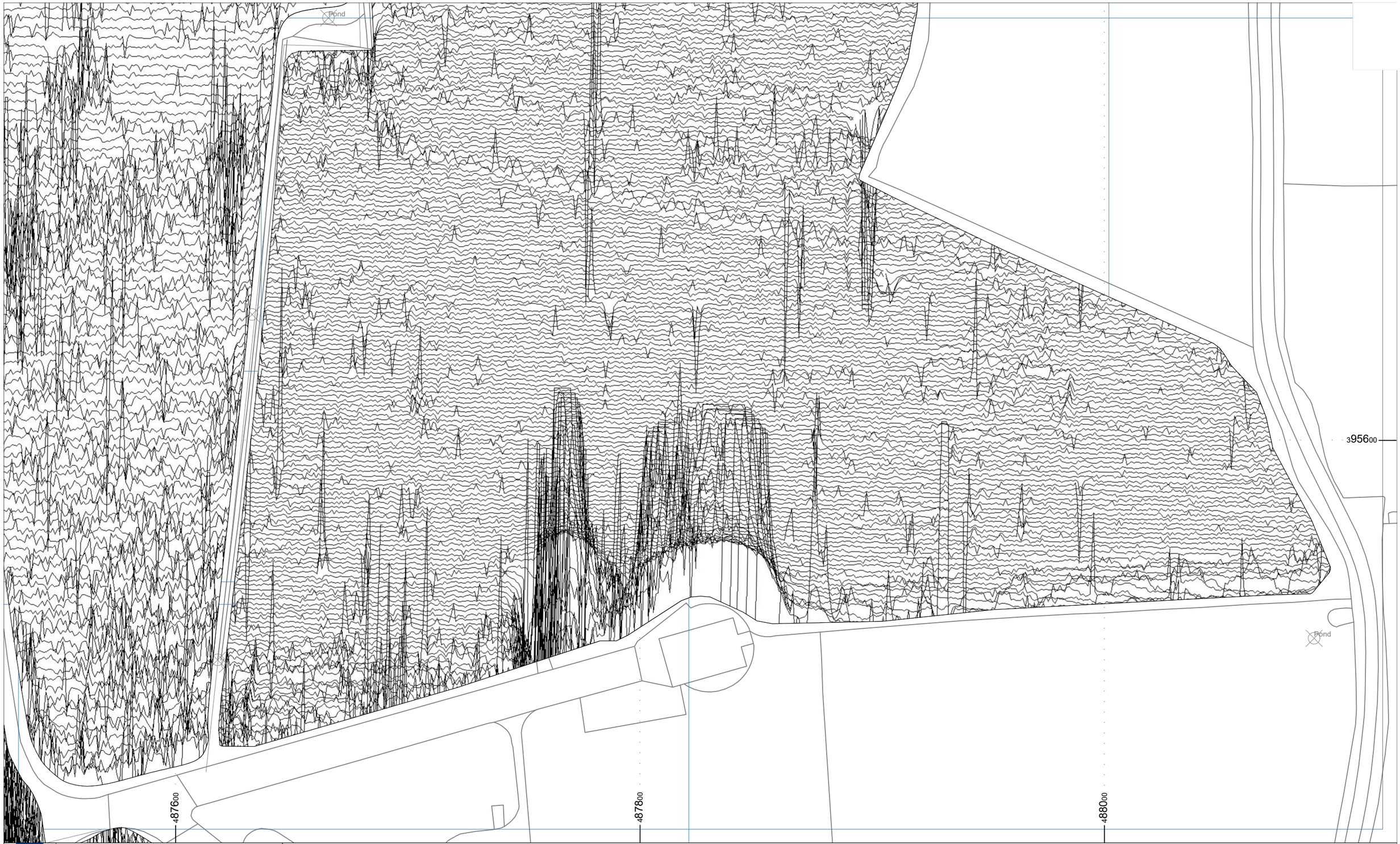
Processed greyscale magnetometer data; Sector 15

Fig. 47

nT -1.0 1.0

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3a

XY trace plot of minimally processed magnetometer data; Sector 15

Fig. 48

15.0 nT/cm

0 50m

1:1500 @ A3

FB18

F5

A3

Pond

Wind Turbine

Spring

Pond

3956$_{00}$

4876$_{00}$

4878$_{00}$

4880$_{00}$

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Project ID: XB85_CWB21 Cottam 3a

Interpretation of magnetometer data; Sector 15

Fig. 49

Interpretation

FERROUS	AGRICULTURAL	ARCHAEOLOGY?
MAGNETIC DISTURBANCE	FORMER FIELD BOUNDARY	ARCHAEOLOGY
FIELD DRAIN	GEOLOGY	AIRFIELD
RIDGE & FURROW	UNCERTAIN	

0 50m

1:1500 @ A3

SECTOR 16
SEE FIGS 52-54

SECTOR 17
SEE FIGS 55-57

SECTOR 18
SEE FIGS 58-60

SECTOR 19
SEE FIGS 61-63

SECTOR 20
SEE FIGS 64-66

SECTOR 21
SEE FIGS 67-69

N

3960 00

3940 00

4870 00

4880 00

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Project ID: XB85_CWB21 Cottam 3b

Cottam 3b location showing processed magnetomer data

Fig. 50

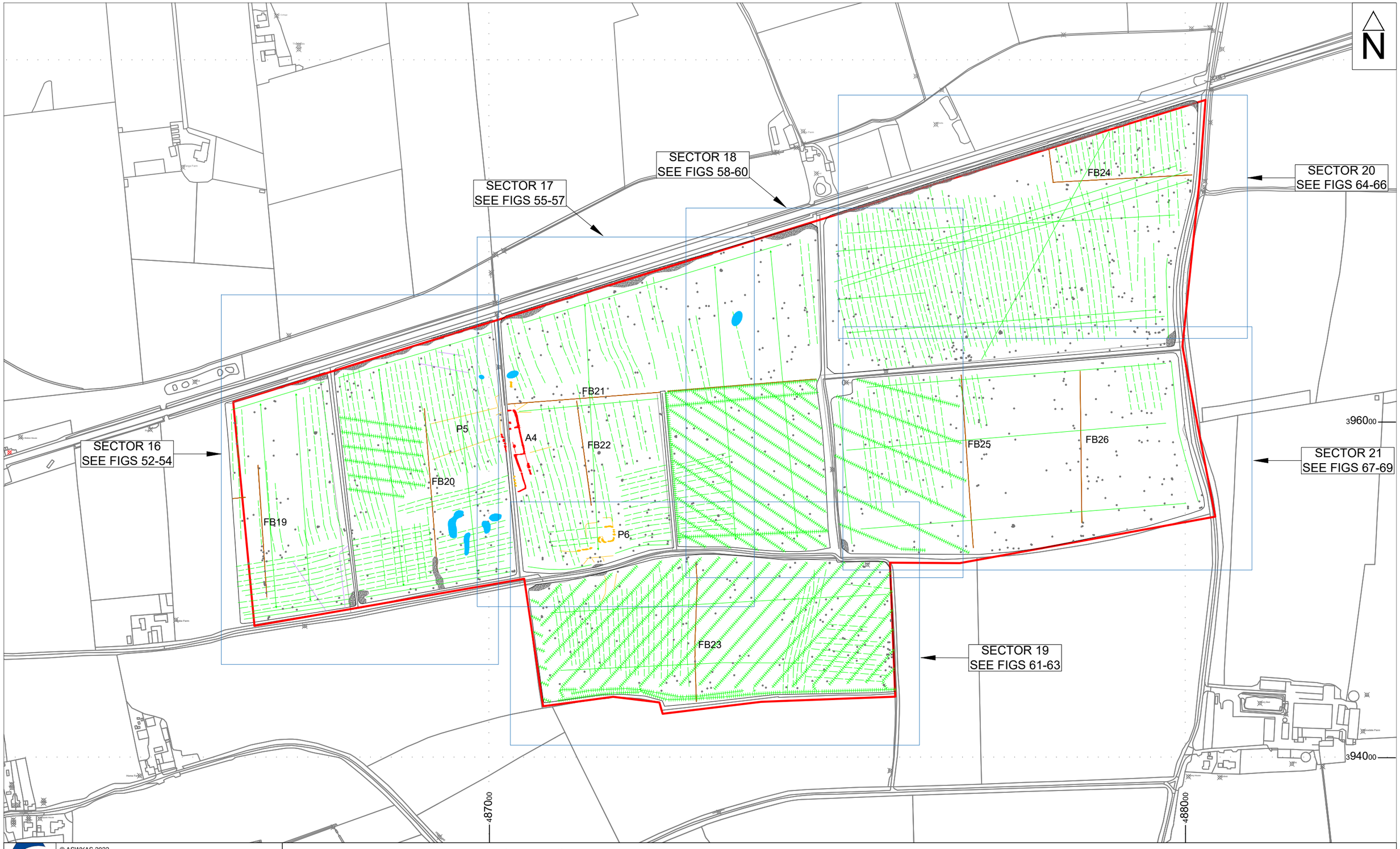
Title

SURVEY AREA

nT -1.0 1.0

0 200m

1:5000 @ A3



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Project ID: XB85_CWB21 Cottam 3b

Cottam 3b overall interpretation of magnetomer data

Fig. 51

Title

- SURVEY AREA

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- FORMER FIELD BOUNDARY
- GEOLOGY
- UNCERTAIN
- ARCHAEOLOGY?
- ARCHAEOLOGY

0 200m

1:5000 @ A3

N

3946 00

3944 00

3942 00

Track

4868 00

4870 00

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Processed greyscale magnetometer data; Sector 16

Fig. 52

nT -1.0 2.0

0 50m

1:1500 @ A3

N

3946$_{00}$

3944$_{00}$

3942$_{00}$

Track

4868$_{00}$

4870$_{00}$

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Project ID: XB85_CWB21 Cottam 3b

XY trace plot of minimally processed magnetometer data; Sector 16

Fig. 53

15.0 nT/cm

0 50m

1:1500 @ A3

N

3946 00

P5

FB20

FB19

3944 00

Track

3942 00

4868 00

4870 00

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Project ID: XB85_CWB21 Cottam 3b

Interpretation of magnetometer data; Sector 16

Fig. 54

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- FORMER FIELD BOUNDARY
- UNCERTAIN
- ARCHAEOLOGY?

0 50m

1:1500 @ A3

N

Drain

394600

394400

487000

487200

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Project ID: XB85_CWB21 Cottam 3b

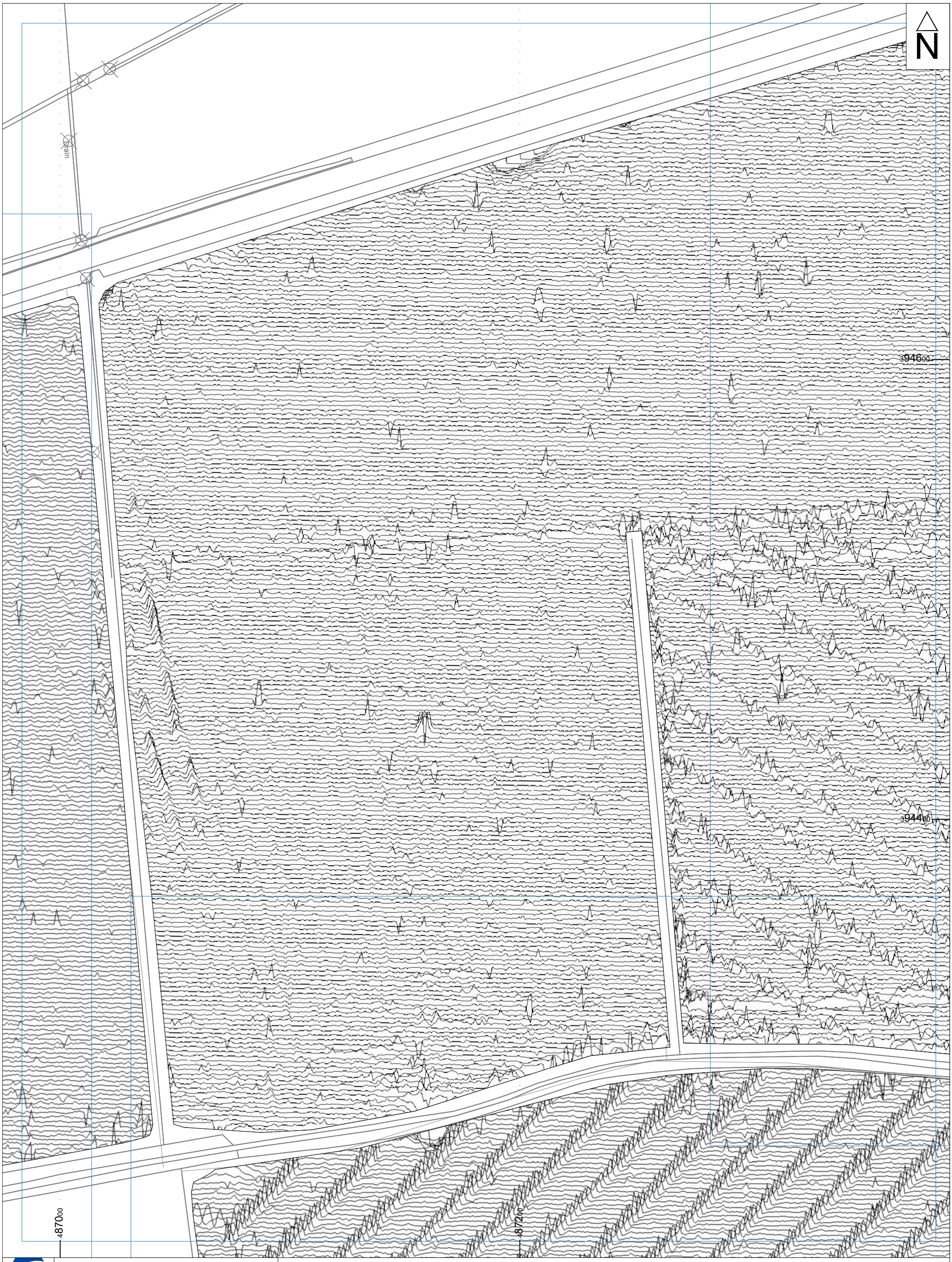
Processed greyscale magnetometer data; Sector 17

Fig. 55

nT -1.0 2.0

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3b

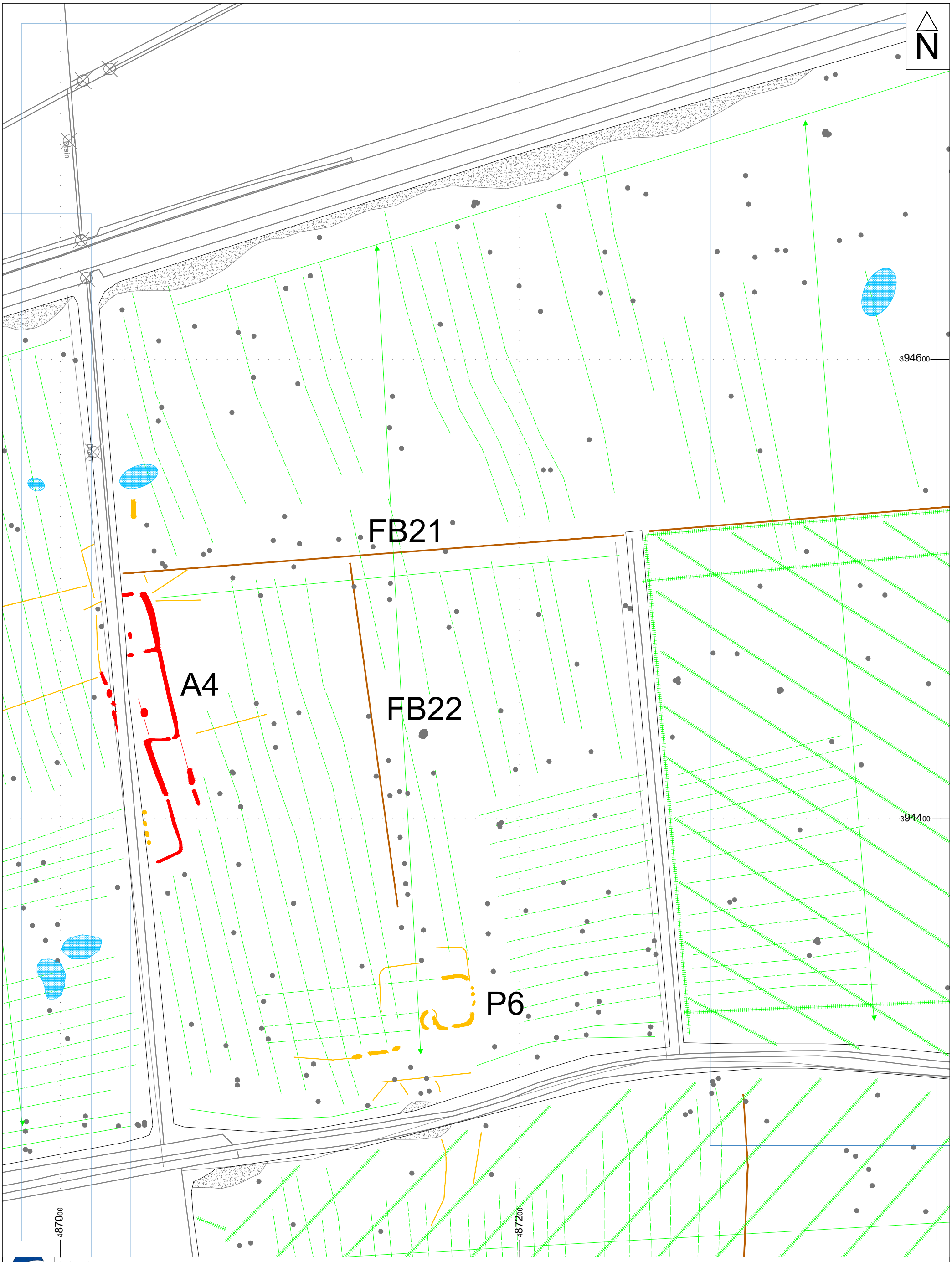
XY trace plot of minimally processed magnetometer data; Sector 17

Fig. 56

15.0 nT/cm

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3b

Interpretation of magnetometer data; Sector 17

Fig. 57

Interpretation

FERROUS	RIDGE & FURROW	GEOLOGY
MAGNETIC DISTURBANCE	AGRICULTURAL	ARCHAEOLOGY?
FIELD DRAIN	FORMER FIELD BOUNDARY	ARCHAEOLOGY

0 50m

1:1500 @ A3

N

3946 00

3944 00

4874 00

4876 00

Archaeological Services W Y A S,
Nepshaw Lane South, Morley, LS27 7JQ

Tel: 0113 535 0163 Email: archaeology@wyjs.org.uk [redacted]

Project ID: XB85_CWB21 Cottam 3b

Processed greyscale magnetometer data; Sector 18

Fig. 58

nT -1.0 2.0

0 50m

1:1500 @ A3

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Project ID: XB85_CWB21 Cottam 3b

XY trace plot of minimally processed magnetometer data; Sector 18

Fig. 59

15.0 nT/cm

0 50m

1:1500 @ A3

N

Drain

Pond

Track

3946$_{00}$

3944$_{00}$

4874$_{00}$

4876$_{00}$

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Tel: 0113 535 0163 Email: archaeology@wyjs.org.uk [redacted]

Project ID: XB85_CWB21 Cottam 3b

XY trace plot of minimally processed magnetometer data; Sector 18

Fig. 60

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- GEOLOGY

0 50m

1:1500 @ A3

N

3942 00

4872 00

4874 00

4876 00

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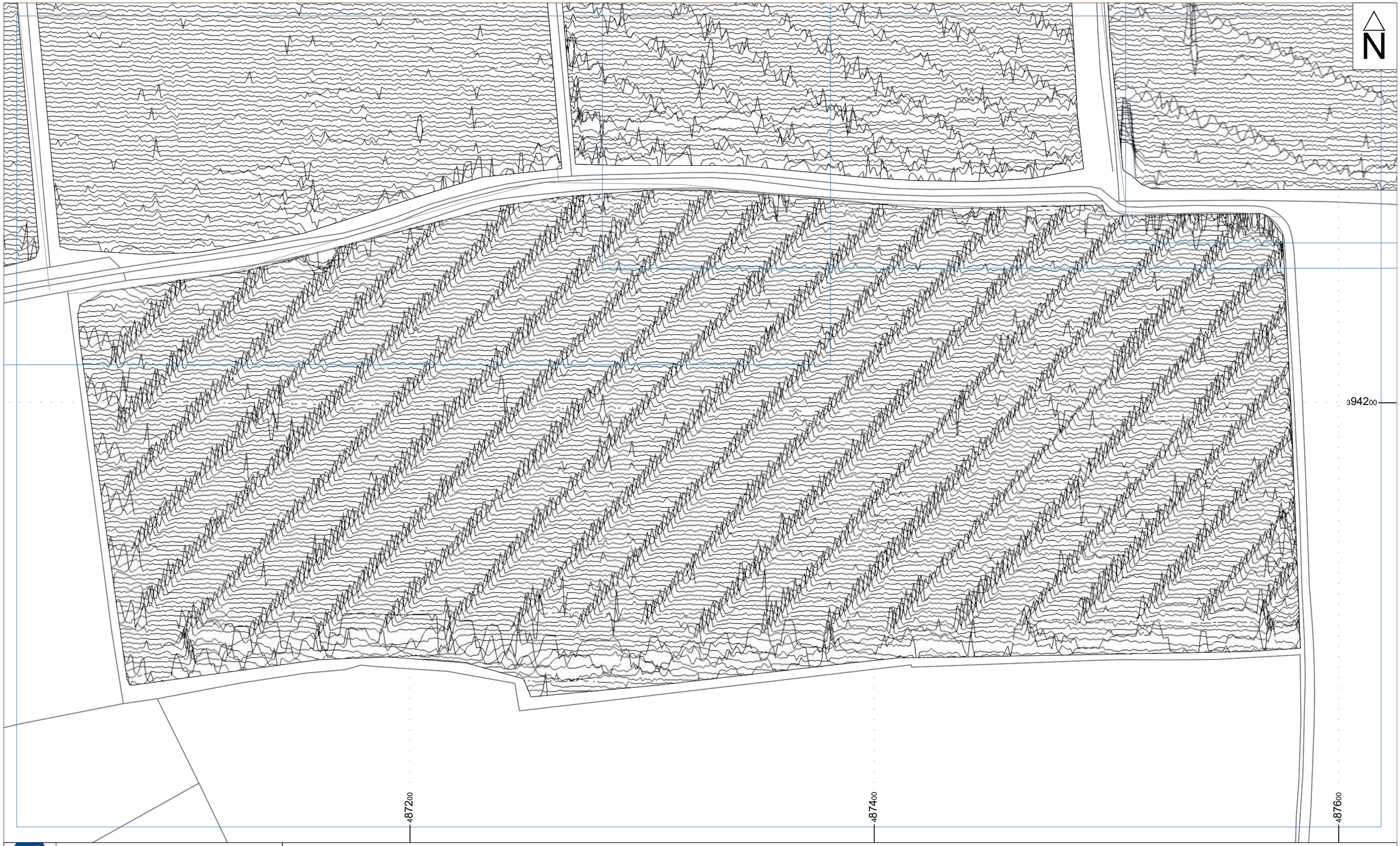
Processed greyscale magnetometer data; Sector 19

Fig. 61

nT -1.0 1.0

0 50m

1:1500 @ A3



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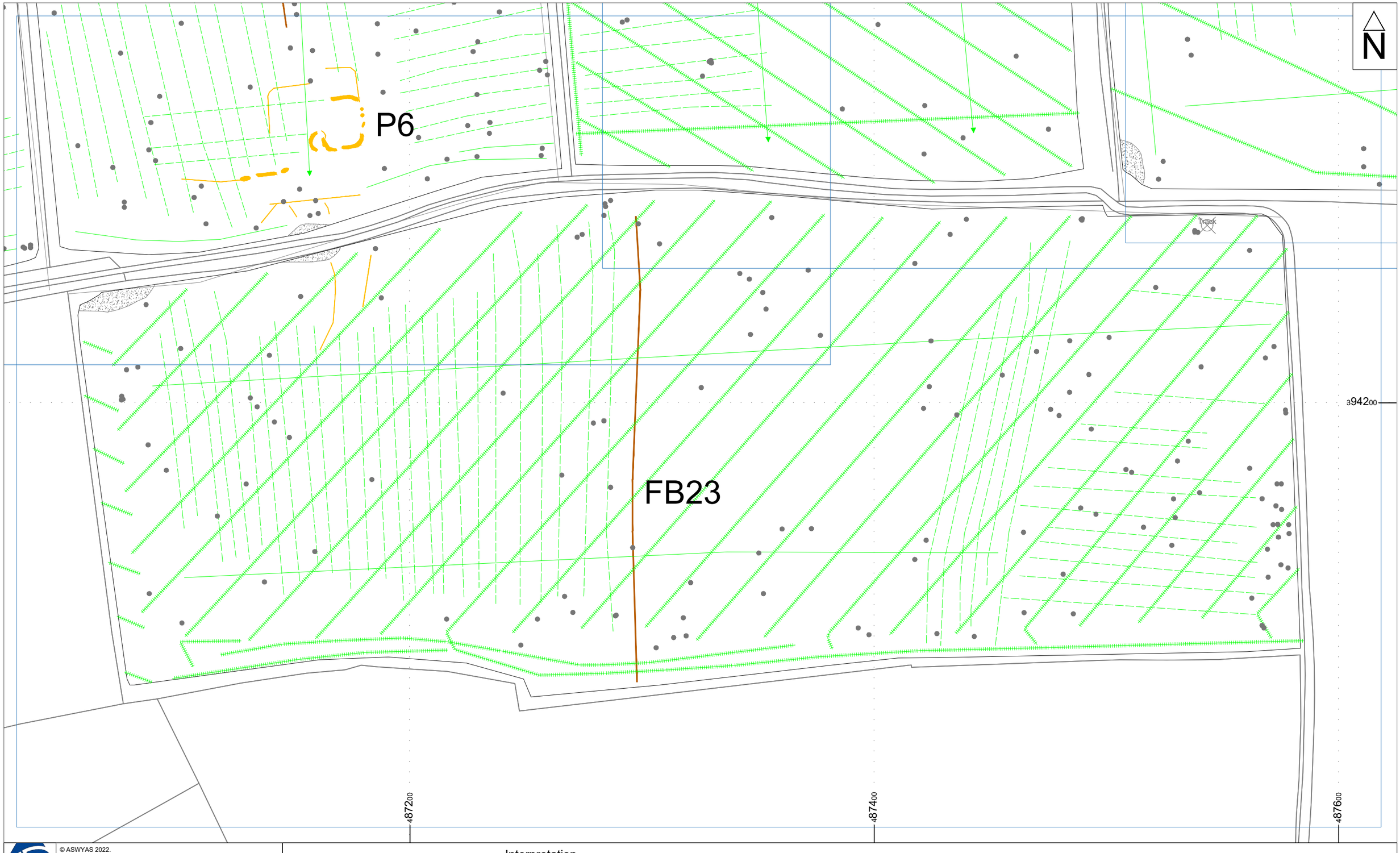
XY trace plot of minimally processed magnetometer data; Sector 19

Fig. 62

15.0 nT/cm

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3b

Interpretation of magnetometer data; Sector 19

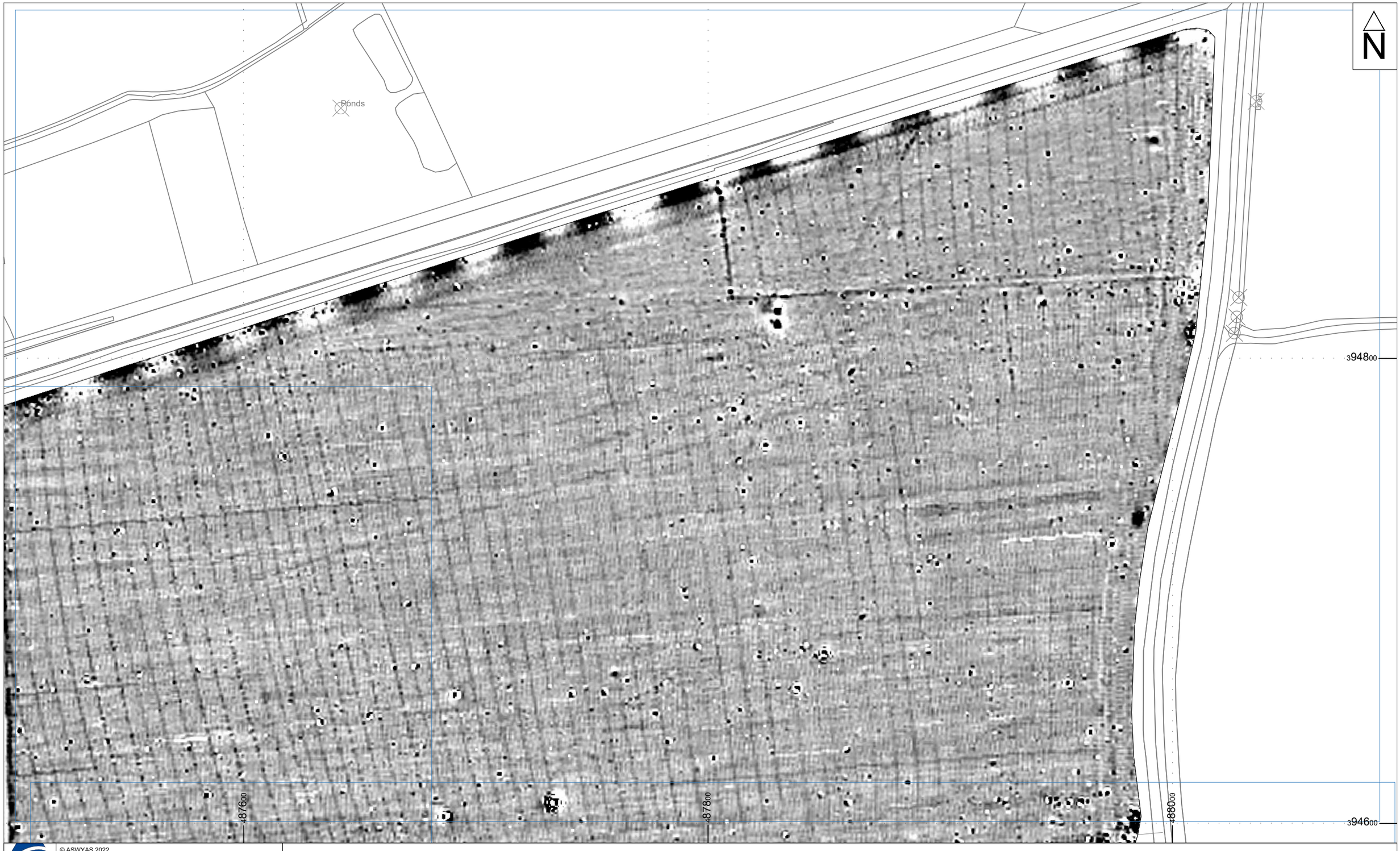
Fig. 63

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- FIELD DRAIN
- RIDGE & FURROW
- AGRICULTURAL
- ARCHAEOLOGY?

0 50m

1:1500 @ A3



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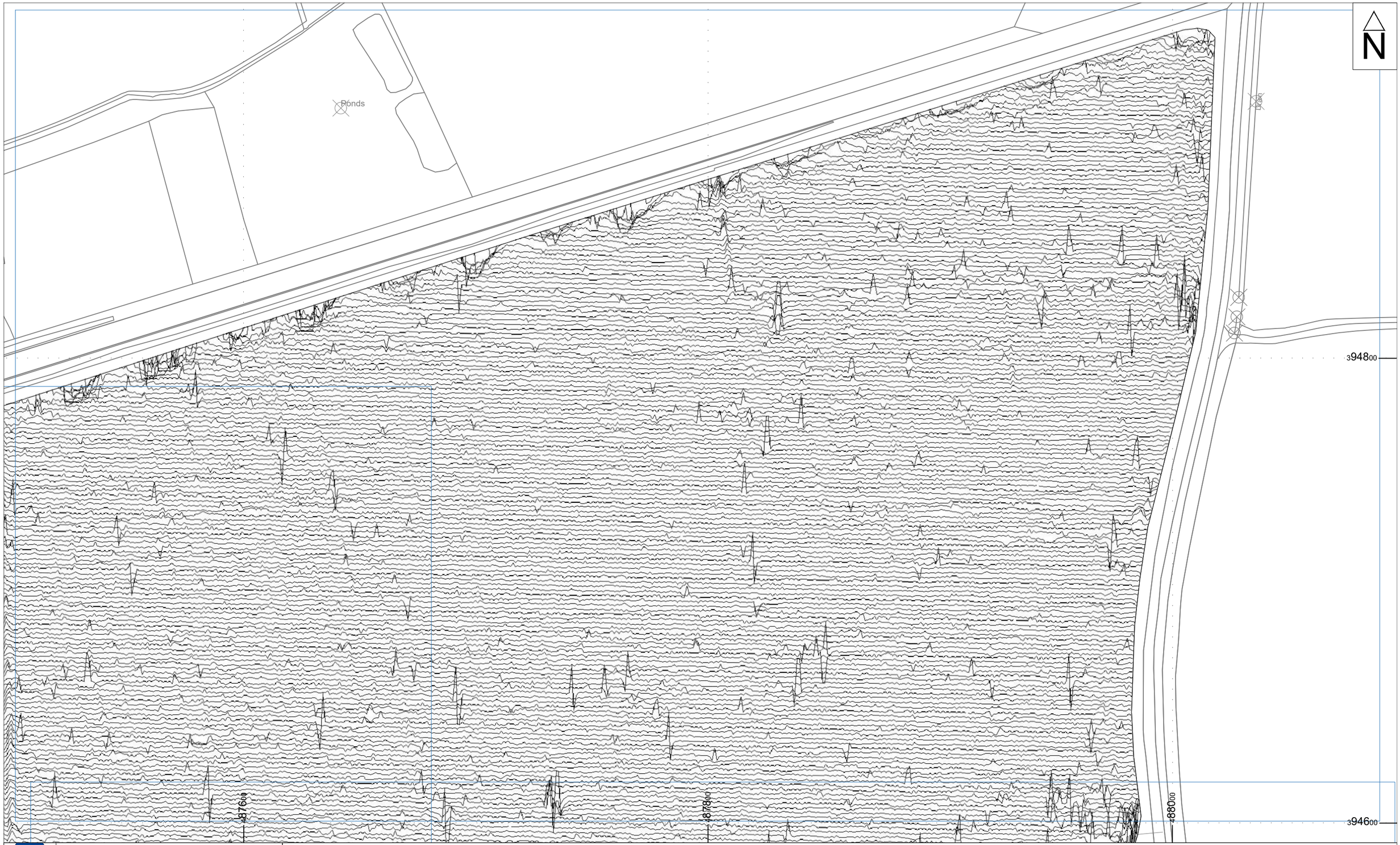
Processed greyscale magnetometer data; Sector 20

Fig. 64

nT -1.0 1.0

0 50m

1:1500 @ A3



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Project ID: XB85_CWB21 Cottam 3b

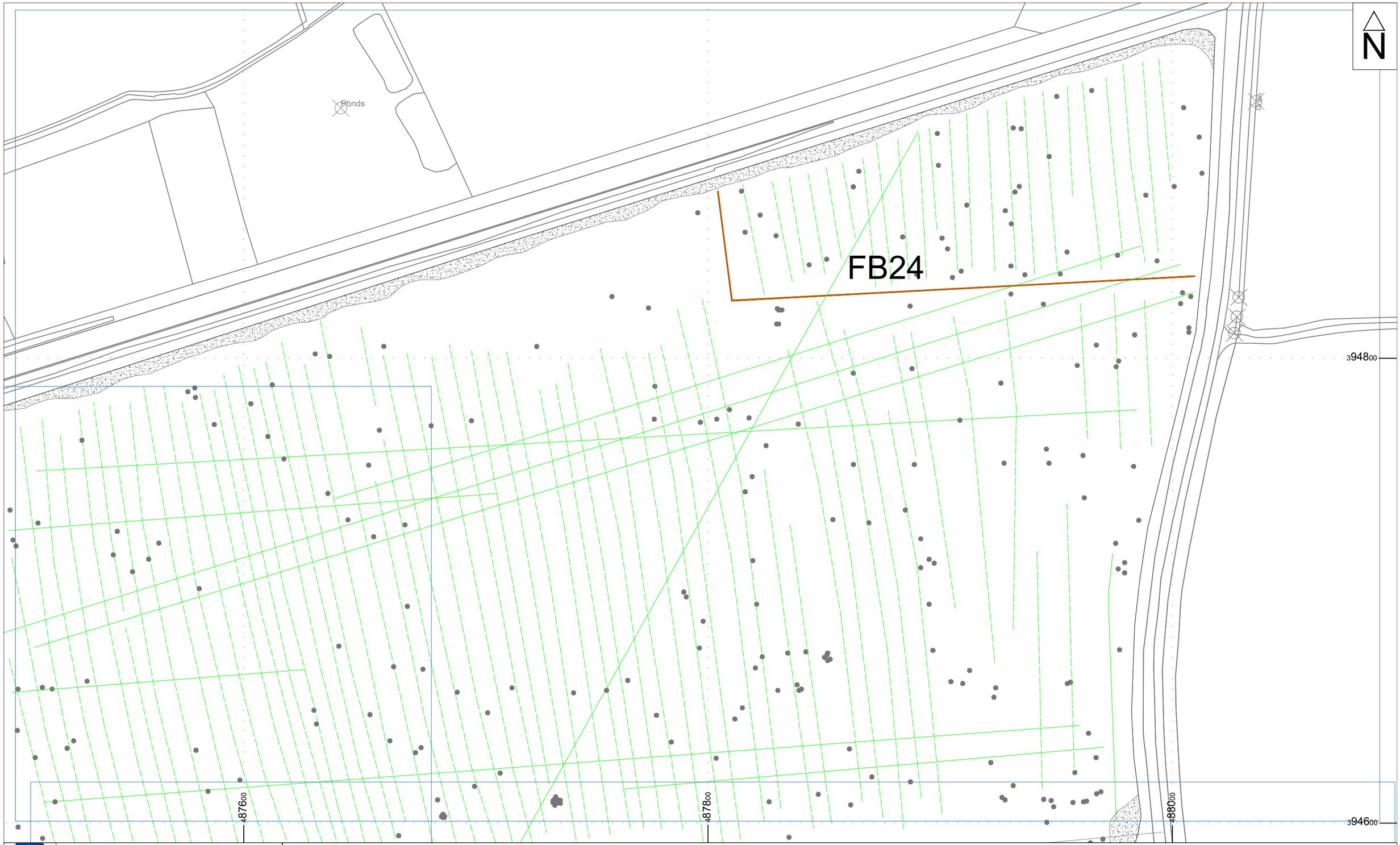
XY trace plot of minimally processed magnetometer data; Sector 20

Fig. 65

15.0 nT/cm

0 50m

1:1500 @ A3



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Interpretation of magnetometer data; Sector 20

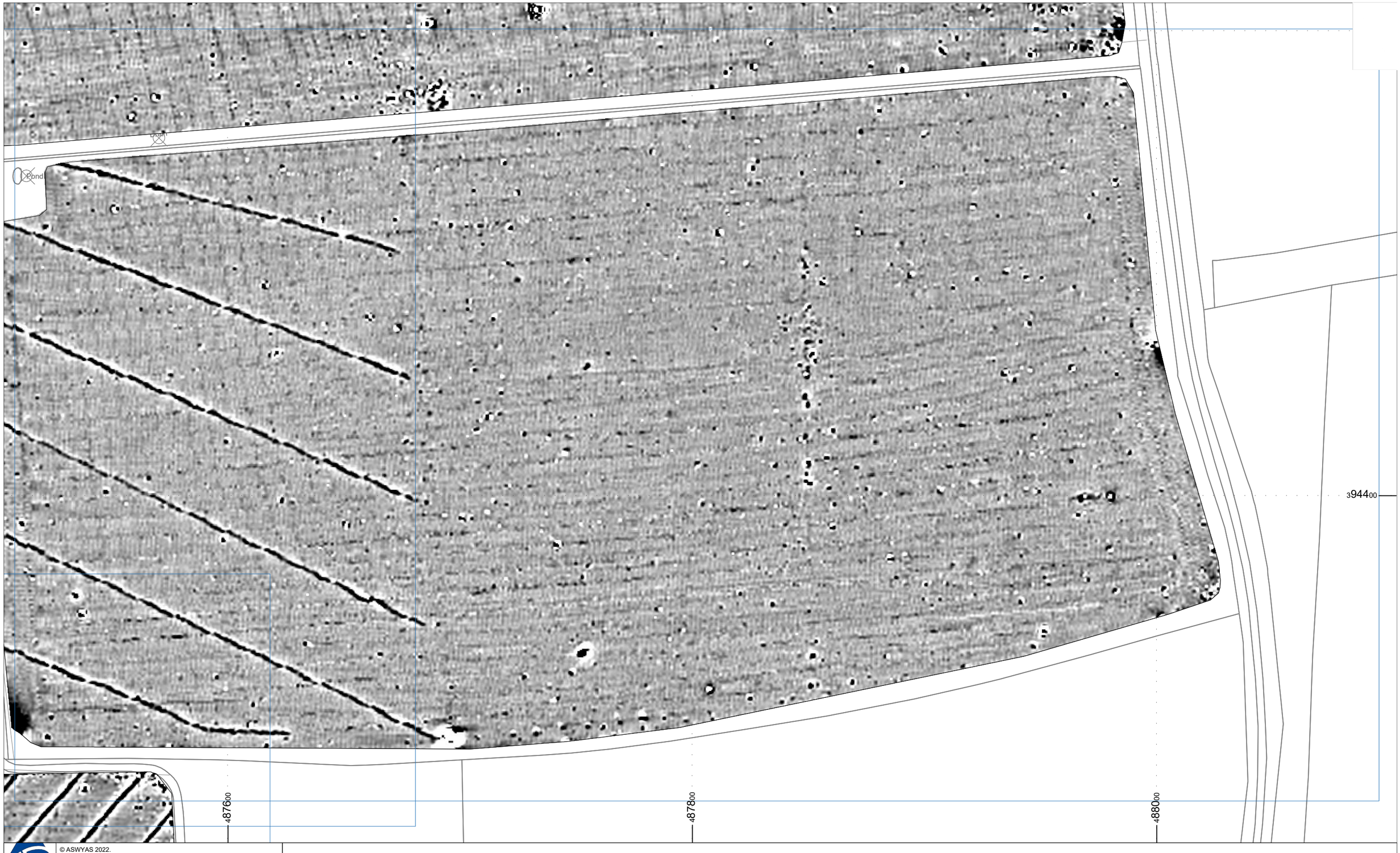
Fig. 66

Interpretation

- FERROUS
- MAGNETIC DISTURBANCE
- RIDGE & FURROW
- AGRICULTURAL
- FORMER FIELD BOUNDARY

0 50m

1:1500 @ A3



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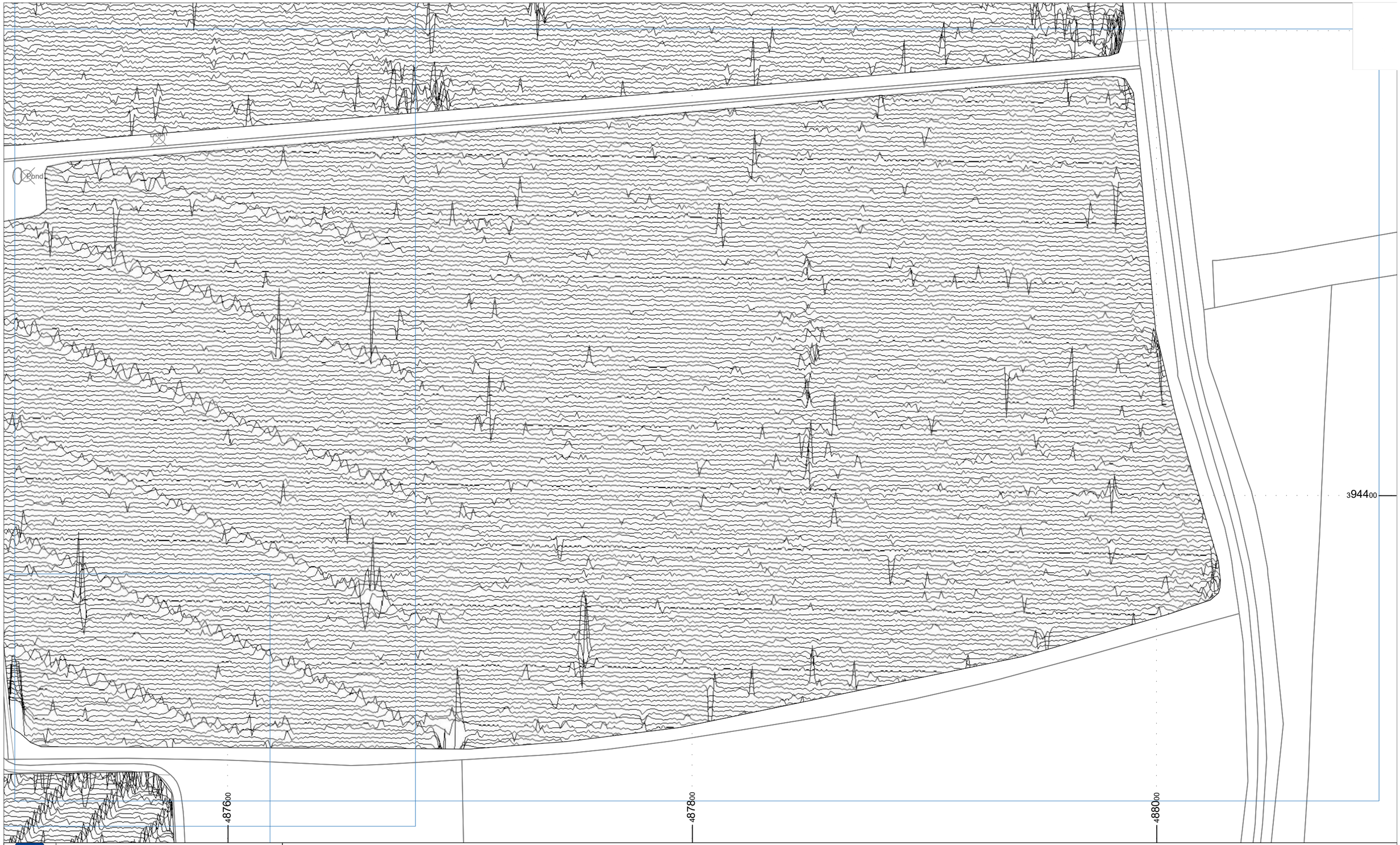
Processed greyscale magnetometer data; Sector 21

Fig. 67

nT -1.0 1.0

0 50m

1:1500 @ A3



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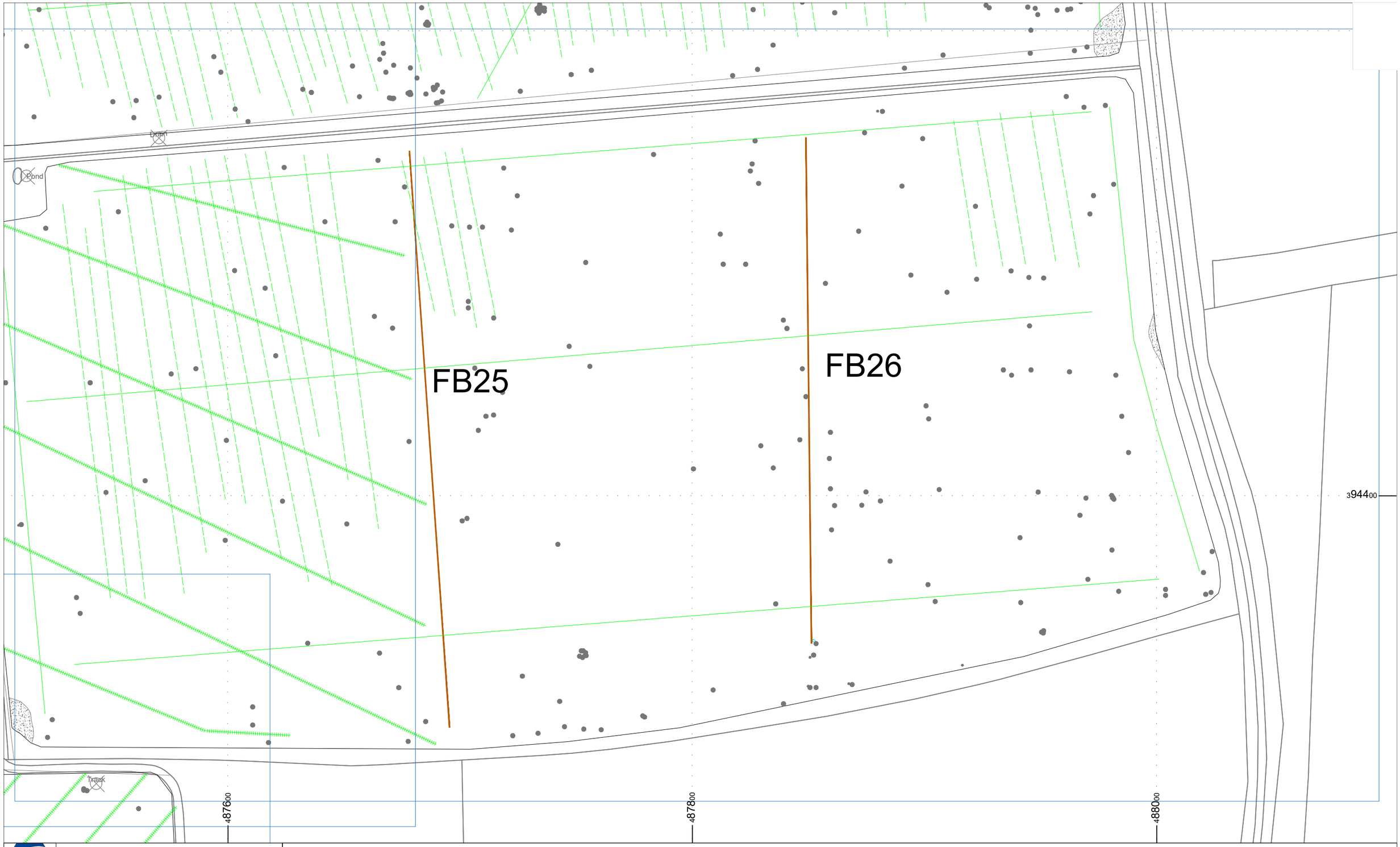
XY trace plot of minimally processed magnetometer data; Sector 21

Fig. 68

15.0 nT/cm

0 50m

1:1500 @ A3



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Interpretation of magnetometer data; Sector 21

Fig. 69

Interpretation

FERROUS	RIDGE & FURROW
MAGNETIC DISTURBANCE	AGRICULTURAL
FIELD DRAIN	FORMER FIELD BOUNDARY

0 50m

1:1500 @ A3

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 spreading 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.

The gradiometer data have been presented in this report in processed greyscale format. The data in the greyscale images have been interpolated and selectively filtered to remove the effects of drift in instrument calibration and other artificial data constructs and to maximise the clarity and interpretability of the archaeological anomalies.

Appendix 2: Survey location information

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.

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

Appendix 3: Geophysical archive and metadata

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2000), and graphics files (Adobe Illustrator CS2 and AutoCAD 2008) 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 Lincolnshire Historic Environment Record).

Area K1

filename	XB85_G1.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	485740.295, 395586.736
dummy value	2047.5
source GPS points	6548715
survey size	361 m x 412 m
x and y interval	1m
stats:	
max	1220.84
min	-519.78
std dev	19.56
mean	0.29
median	-0.03
composite area	14.873 ha
surveyed area	10.65 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K2

filename	XB85_G2.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486081.116, 395626.2084
dummy value	2047.5
source GPS points	1206686
survey size	160 m x 173 m
x and y interval	1m
stats:	
max	1435.36
min	-852.13
std dev	40.53
mean	1.20
median	0.04
composite area	2.768 ha
surveyed area	2.1671 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K3

filename	XB85_G6a.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486186.017, 395130.227
dummy value	2047.5
source GPS points	2106126
survey size	111 m x 504 m
x and y interval	1m
stats:	
max	1988.89
min	-729.03
std dev	39.98
mean	0.98
median	0.01
composite area	5.5944 ha
surveyed area	3.2409 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K4

filename	XB85_G6b.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486438.050, 395162.204
dummy value	2047.5
source GPS points	3023144
survey size	188 m x 389 m
x and y interval	1m
stats:	
max	1215.62
min	-1031.37
std dev	34.42
mean	1.17
median	-0.05
composite area	7.3132 ha
surveyed area	5.0835 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K5/6

filename	XB85_G7.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486197.555, 395569.3849
dummy value	2047.5
source GPS points	21808754
survey size	942 m x 572 m
x and y interval	1m
stats:	
max	2219.84
min	-1873.69
std dev	25.97
mean	0.33
median	-0.05
composite area	53.882 ha
surveyed area	36.404 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K7

filename	XB85_G8.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486540.013, 395173.772
dummy value	2047.5
source GPS points	14144945
survey size	658 m x 496 m
x and y interval	1m
stats:	
max	2293.70
min	-2224.71
std dev	25.25
mean	0.08
median	-0.01
composite area	32.637 ha
surveyed area	24.74 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K8

filename	XB85_G9.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486885.088, 396138.846
dummy value	2047.5
source GPS points	3812703
survey size	230 m x 410 m
x and y interval	1m
stats:	
max	363.91
min	-274.73
std dev	4.99
mean	
median	
composite area	
surveyed area	
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K9

filename	XB85_G10.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486827.584, 395677.446
dummy value	2047.5
source GPS points	7762600
survey size	626 m x 505 m
x and y interval	1m
stats:	
max	1449.77
min	-713.02
std dev	12.37
mean	0.15
median	-0.02
composite area	31.613 ha
surveyed area	11.471 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K10

filename	XB85_G11.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487146.278, 395226.433
dummy value	2047.5
source GPS points	2045112
survey size	166 m x 371 m
x and y interval	1m
stats:	
max	710.26
min	-633.26
std dev	11.28
mean	0.01
median	0.01
composite area	6.1586 ha
surveyed area	3.6641 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K11

filename	XB85_G12.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487278.426, 395238.676
dummy value	2047.5
source GPS points	3565876
survey size	275 m x 252 m
x and y interval	1m
stats:	
max	2293.70
min	-873.78
std dev	37.72
mean	0.12
median	0.00
composite area	6.93 ha
surveyed area	5.4971 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K12

filename	XB85_G13.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487545.808, 395264.568
dummy value	2047.5
source GPS points	1496716
survey size	200 m x 173 m
x and y interval	1m
stats:	
max	544.29
min	-198.41
std dev	13.68
mean	0.76
median	-0.01
composite area	3.46 ha
surveyed area	2.0104 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K13/14

filename	XB85_G18.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487195.177, 396316.9867
dummy value	2047.5
source GPS points	13327034
survey size	535 m x 644 m
x and y interval	1m
stats:	
max	1306.52
min	-1404.58
std dev	16.79
mean	0.18
median	-0.03
composite area	34.454 ha
surveyed area	20.698 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K15

filename	XB85_G17.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487104.578, 396072.365
dummy value	2047.5
source GPS points	3378894
survey size	278 m x 251 m
x and y interval	1m
stats:	
max	749.04
min	-540.55
std dev	13.31
mean	0.12
median	-0.02
composite area	6.9778 ha
surveyed area	4.5759 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K16

filename	XB85_G16.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487367.712, 396030.118
dummy value	2047.5
source GPS points	7927655
survey size	356 m x 420 m
x and y interval	1m
stats:	
max	538.37
min	-378.40
std dev	3.68
mean	0.00
median	-0.05
composite area	14.952 ha
surveyed area	10.422 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K17

filename	XB85_G15.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487233.313, 395453.757
dummy value	2047.5
source GPS points	10439291
survey size	443 m x 612 m
x and y interval	1m
stats:	
max	1982.19
min	-2153.09
std dev	17.84
mean	0.22
median	0.06
composite area	27.112 ha
surveyed area	13.235 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area K18

filename	XB85_G14.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487614.058, 395463.670
dummy value	2047.5
source GPS points	13195207
survey size	486 m x 635 m
x and y interval	1m
stats:	
max	2274.06
min	-2293.80
std dev	27.33
mean	0.64
median	-0.05
composite area	30.861 ha
surveyed area	17.031 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J1

filename	XB85_F1.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	486611.081, 394189.460
dummy value	2047.5
source GPS points	3516678
survey size	201 m x 370 m
x and y interval	1m
stats:	
max	322.96
min	-339.24
std dev	3.78
mean	-0.01
median	-0.05
composite area	7.437 ha
surveyed area	5.4293 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J2

filename	XB85_F2.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	486769.733, 394217.7037
SW	
dummy value	2047.5
source GPS points	5441163
survey size	274 m x 418 m
x and y interval	1m
stats:	
max	592.12
min	-165.62
std dev	3.32
mean	-0.01
median	-0.07
composite area	11.453 ha
surveyed area	8.5748 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J3

filename	XB85_F3.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487007.153, 394261.71
dummy value	2047.5
source GPS points	11056061
survey size	485 m x 517 m
x and y interval	1m
stats:	
max	235.90
min	-431.25
std dev	2.41
mean	-0.04
median	-0.06
composite area	25.075 ha
surveyed area	19.101 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J4

filename	XB85_F6.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487051.334, 394073.119
dummy value	2047.5
source GPS points	7506211
survey size	535 m x 226 m
x and y interval	1m
stats:	
max	146.31
min	-308.71
std dev	3.23
mean	0.27
median	0.02
composite area	12.091 ha
surveyed area	10.189 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J5

filename	XB85_F4.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	
SW	487472.645, 394547.856
dummy value	2047.5
source GPS points	8386477
survey size	542 m x 405 m
x and y interval	1m
stats:	
max	758.62
min	-1059.95
std dev	4.10
mean	0.01
median	-0.07
composite area	21.951 ha
surveyed area	15.323 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Area J6

filename	XB85_F5.xcp
instument	Sensys DLMGPS
units	nT
survey coordinates:	487484.454, 394290.448
SW	
dummy value	2047.5
source GPS points	7245665
survey size	547 m x 302 m
x and y interval	1m
stats:	
max	237.88
min	-1943.51
std dev	9.08
mean	-0.13
median	-0.08
composite area	16.519 ha
surveyed area	13.258 ha
program	TerraSurveyorPre Version:3.0.37.12
GPS based processes	Base Layer
	Interpolate: X & Y Doubled.

Appendix 4: Oasis form

Summary for archaeol11-506208

OASIS ID (UID)	archaeol11-506208
Project Name	Geophysical Survey at Cottam 3
Sitename	
Activity type	Geophysical Survey, MAGNETOMETRY SURVEY
Project Identifier(s)	
Planning Id	
Reason For Investigation	Planning: Pre application
Organisation Responsible for work	Archaeological Services WYAS
Project Dates	18-Jul-2021 - 08-Apr-2022
Location	Cottam 3a NGR : SK 86880 95700 LL : 53.4509076841546, -0.69321866155894 12 Fig : 486880,395700 Cottam 3b NGR : SK 87250 94490 LL : 53.4399734195726, -0.687983809231249 12 Fig : 487250,394490
Administrative Areas	Country : England County : Lincolnshire District : West Lindsey Parish : Blyton
Project Methodology	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.
Project Results	A geophysical (magnetometer) survey was undertaken on two parcels of land consisting of approximately 172 hectares of land associated with Cottam 3a and approximately 72 hectares of land associated with Cottam 3b located to the east of Blyton, Lincolnshire. The majority of the anomalies recorded are agricultural including field drains, ridge and furrow cultivation, modern ploughing and former field boundaries. Anomalies associated with the former airfield of RAF Blyton have been recorded in Cottam 3a. Archaeological and possible archaeological responses have been recorded in at least four separate clusters which are likely to relate to settlement activity of a possible Romano-British date. Based on the geophysical survey, the archaeological potential of this site is deemed to be high in the east of Cottam 3a and the centre of Cottam 3b and low elsewhere.
Keywords	Enclosure - UNCERTAIN - FISH Thesaurus of Monument Types Military Airfield - 20TH CENTURY - FISH Thesaurus of Monument Types
Funder	
HER	Lincolnshire HER - unRev - STANDARD

Person Responsible for work	Emma, Brunning
HER Identifiers	
Archives	

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