

**EAST THURROCK CONNECTION**  
**Report on Archaeological Geophysical Survey**  
**2011**

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**on behalf of:**

**National Grid**

**East Thurrock Connection**  
**Report on Archaeological Geophysical Survey**  
**2011**

**Summary**

This report describes a magnetometer survey carried out to test for evidence of archaeological features or remains within two evaluation areas (Options 1 and 5B), which are under consideration as sites for an electricity substation near Corringham, Essex.

The survey, in common with previous similar investigations in the area, has identified a number of archaeological findings. The most significant of these include apparent groups of previously unrecorded ditched enclosures in the Option 1 site. There are also two groups of ditched enclosures and other features suggesting ancient settlement activity in Option 5B. It is probable, given that the Option 5B findings correlate well with cropmark evidence, that no further substantial concentrations of archaeological features are present elsewhere in the evaluation areas, with the possible exception of a sparse scatter of small features towards the east of Option 5B.

Summary plots from previous surveys are included for the record in this report.

A. Bartlett

Bartlett - Clark Consultancy

25 May 2011

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## **East Thurrock Connection**

### **Report on Archaeological Geophysical Survey**

### **2011**

#### **Introduction**

The geophysical survey as described in this report was carried out as part of an archaeological evaluation of two sites (Option 1 and Option 5B) which are under consideration as locations for the construction of an electricity substation, together with an access road and connecting cabling. The two sites are immediately to the south east of Corringham and Stanford-le-Hope respectively.

The survey was commissioned from Bartlett Clark Consultancy (BCC), specialists in archaeogeophysics of Oxford by Atkins Limited on behalf of National Grid. Fieldwork for the survey was done between 1<sup>st</sup> – 11<sup>th</sup> March 2011. Summary plots of the survey data have previously been supplied to Atkins, and are now included for the record with additional plots and interpretative plans in this report.

#### **The Site**

A summary account of site conditions and known archaeological findings in the surrounding area was included in the Specification for the project, as issued by Atkins in January 2011 [1]. Much of this information was reproduced also in the Written Scheme of Investigation for the survey, as submitted to Atkins by BCC on 4 February 2011 [2]. The following notes are copied in part from these documents.

##### *Location and topography*

The two evaluation areas (Options 1 and 5B) are centred approximately at NGR TQ 716834 and 698818, and located as shown on figure 1. This plan also indicates areas covered during previous similar surveys in the immediate vicinity (as far as they are known to us). The findings from these surveys, and subsequent trenching, are helpful in assessing the reliability of the present survey.

Previous investigations included magnetometer surveys undertaken by BCC for Oxford Archaeology in connection with the proposed London Gateway development scheme in 2001 and 2003 [3, 4]. A further survey of a revised access route was then done by Oxford Archaeology, and reported on in 2010 [5]. [We reproduce material from these earlier reports with permission from Oxford Archaeology and DP World.]

Option 1 is described in the Specification as located within Mucking Flats at approximately 5m AOD and is currently a greenfield site. It lies north of the A1014 to the east of Corringham, and is in open fields on the slope between the settled areas and a strip of marshland, with the industrial area around Coryton oil refinery further south. The area to be investigated within Option 1 amounts to c. 22.47ha.



Option 5B is an irregular area of ground north of Stanhope Industrial park and the railway. [A further area of land at Stanhope Industrial Park amounting to 7.94ha and located to the south of the railway was included in the original project specification, but was brownfield land which was later excluded from the areas requiring geophysical coverage.]

The total evaluation area at Option 5B was approximately 55.2ha, but this overlaps in part with the area surveyed in 2003. The main duplicated area was not re-surveyed, and plots from the earlier survey are included in this report.

### *Geology*

The solid geology of the majority of the area is London Clay. Lambeth Group beds (Upnor or Woolwich: pebbly, shelly sand and clay), are found to the south, including under Stanford-le-Hope and beneath the oil storage depot on the riverside. There is also some Thanet Sand to the south-west, along the Mucking Flats. Drift deposits are likely to include more recent remnants of the Thames Valley terrace sequence, as well as more recent alluvial beds towards the south. Some geological information is also included in the plan (from [5]) showing aerial photographic findings (which we reproduce as figure 25). This shows areas of gravel soil (blue shading) within Option 5B.

Results from the previous surveys, which covered fields to the south of Corringham between Options 1 and 5B, indicate that site conditions should be satisfactory for magnetic investigation. Soils on London Clay are not always strongly responsive (although terrace gravels often give good results), but the surveys detected various ground disturbances, old boundaries and cultivation effects, as well as other features of potential archaeological interest. Part of the 2001 survey was on alluvial coastal marshland, where strong natural magnetic anomalies (probably representing variable depths of silting) were detected. Option 1 includes a similar alluvial area.

### *Archaeological background*

Previous archaeological findings as described in the Specification are as follows. No buried archaeological remains are known from the Option 1 site itself, but a number of find spots close to Option 1 indicate prehistoric activity including the discovery of a Palaeolithic flint flake, as well as flints from the Mesolithic and Neolithic periods [although such finds will not necessarily be associated with subsurface features detectable by geophysical survey]. Pottery and other ceramic materials from the Roman and medieval periods have also been found close to the Option 1 site, indicating building activity in the area. Post-medieval brick and tile works have also been identified east of Option 1. There are also several sites dating from World War Two.

The wider area around Option 5B, including fields where cabling, sealing ends and towers are proposed, is of high potential for significant archaeological remains. Five archaeological sites, representing prehistoric and medieval settlement, are known within 500m of the substation site. Option 5B is very close to a Deserted Medieval Village (HER 7132), and is also close to Mucking, which has revealed extensive settlement remains of prehistoric and historic periods. Prehistoric cropmark complex HER 14700 was located to the north, and similar remains might be present, although that area is likely to have been below the water

level in some periods (e.g. the Iron Age). A "possible water-logged site behind sea wall", just north of the substation site, is noted in the HER (HER 5259).

Additional archaeological findings near to Option 5B are identified in the 2010 Access Road Evaluation Report, as supplied to us by Oxford Archaeology [5]. The survey and trenching findings were limited and of mainly medieval/post-medieval date, but in reviewing earlier work (paragraph 1.4.2) the report concludes there is good correlation between geophysical methods and aerial photography. We are told by the OA Project Manager (Stuart Foreman; email) that there is correspondence between areas of gravel surface geology and evidence for settlement. The trenching results suggest this is not just a matter of poor cropmark or geophysical visibility on the surrounding sand and clay (Head) deposits. We reproduced a cropmark plan (figure 25), with selected survey findings superimposed. The correspondences are commented on below.

## **Survey Procedure**

The survey followed procedures as stated in the project specification by Atkins, and as described in the Written Scheme of Investigation for the project [2].

### *Magnetometer survey*

Readings were collected using Bartington 1m fluxgate magnetometers, and are plotted at 25cm intervals along transects 1m apart. The results of the survey are shown as grey scale plots at 1:2000 scale in figures 7-11, and as a graphical (x-y trace) plots at 1:1250 scale in figures 12-20.

The survey plots show the magnetometer readings after standard treatments, which include adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and slight linear smoothing. Additional 2D low pass filtering has been applied to the grey scale plot to reduce background noise levels.

The magnetometer responds to cut features such as ditches and pits when they are silted with topsoil, which usually has a higher magnetic susceptibility than the underlying natural subsoil. It also detects the thermoremanent magnetism of fired materials, notably baked clay structures such as kilns or hearths, and so responds preferentially to the presence of ancient settlement or industrial remains. It is also strongly affected by ferrous and other debris of recent origin.

### *Presentation*

An interpretation of the findings is shown superimposed on the graphical plots (12-20), and is reproduced separately to provide a summary of the findings in figures 4-6. Features as marked on these plans include magnetic anomalies thought to be of at least potential archaeological significance (in red), as well as other magnetic activity, much of which is likely to be of recent or natural origin. A number of larger-scale disturbances are outlined in brown, and other (probably mainly natural) background activity is shown in a lighter brown. Larger background anomalies which appear to be natural, and are characteristic of wetland sites, are in a light green. Some strong individual ferrous objects, and pipes, are in blue.

Option 1 contains clear linear magnetic disturbances probably indicating land drains. These are presumably not of archaeological interest, and are marked on the plans in brown. Some possible weak cultivation effects in Option 5B are indicated in green.

Detailed interpretative plans are included only for the 2011 survey (and the section of the 2003 survey within the Option 5B evaluation area). The extent of the overall magnetometer coverage to date is shown by a summary grey scale plan (figure 3), and larger scale copies of the same plots are also included (at 1:4000 scale) as figures 21-24. [The grey scale plot of the 2010 survey, as incorporated in figures 3 and 21-24, also shows trench locations (in blue).]

### *Survey location*

The survey in each field was located by reference to a grid of temporary markers. The survey grid was set out and tied to national grid co-ordinates by means of a differential GPS system. OS co-ordinates of map locations can be read from the AutoCAD version of the plans, which can be supplied with this report, and used to re-locate features in the field.

### *Magnetic susceptibility survey*

The 2011 magnetometer survey was supplemented by a minimal background magnetic susceptibility survey with readings taken at 30m intervals using a Bartington MS2 meter and field sensor loop. The results are presented (alongside similar plots from previous surveys) as a plot of shaded squares of density proportional to the readings in figure 26.

A susceptibility survey may sometimes provide a broad indication of previously occupied or disturbed areas in which burning associated with past human occupation has enhanced the magnetic susceptibility of the topsoil, although this cannot be relied upon, and the readings are often affected by non-archaeological factors, including geology and land use. The main purpose of a supplementary survey of the kind done here is to indicate the strength of response which is likely to be obtained as an aid to the interpretation of magnetometer survey (although in this case it has produced distinct anomalies corresponding to probable settlement sites in both Options 1 and 5B).

## **Results**

We describe results from the two evaluation areas surveyed in 2011 in turn.

### *Option 1*

The north western part of the site is on a gravel terrace, extending on to reclaimed tidal flats to the east.

The background noise level on the gravel is noticeably high (as indicated by small magnetic anomalies outlined in light brown in the interpretation), particularly on higher ground towards the north of the survey, as is not uncommon on glacial gravel soils. Only a few ferrous anomalies are recognisable, and so most of the magnetic activity is probably caused by naturally magnetic stones in the gravel. This background activity may partly restrict the

visibility of some possible linear features in the NW corner of the survey (as labelled A on figure 4), but a possibility remains that some ditched enclosures may be present in this area.

A further group of apparent ditched enclosures is more clearly visible to the west (around B). The irregular plan of these enclosures could well indicate a late prehistoric occupation site. There is also a distinct area of raised susceptibility readings corresponding to these findings (figure 26), which would be consistent with this interpretation.

Few other findings of potential archaeological interest can be identified within Option 1. A few individual magnetic anomalies which could be interpreted as silted pits have been outlined in red, but they are widely dispersed, and do not suggest the presence of significant concentrations of features.

An extensive system of ditch-like linear magnetic anomalies has been detected in both main fields (as at C, D). These could perhaps be former enclosures or field boundaries, but their branching plan and relation to watercourses suggests they are land drains. The detected linear features resemble continuous ditches, rather than the broken magnetic anomalies which are characteristic of sections of clay pipe. It is therefore possible that the drains are constructed as infilled trenches, rather than buried pipes.

Conditions in the eastern part of the site were very wet with pools of standing water at the time of the survey. The survey (as in 2001) has detected broad, weak magnetic anomalies, which are marked in a light green (as at E). Such magnetic disturbances are commonly found on wetlands, and appear to represent variations in depth or composition of silt deposits. They were seen also in low-lying parts of the 2001 survey.

There are areas of strong magnetic activity of probably recent origin near to field boundaries (to the NW and SE of the site), and near to the pylons. The immediate surroundings of the pylons appear blank in the data plots, because there are areas of out-of-range readings near to the metal towers.

### *Option 5B*

The survey here detected two main groups of findings, both of which correspond to cropmarks, and are on gravel soil (as indicated on figure 25).

The most clearly defined of these is represented by a complex group of rectilinear enclosures containing features suggesting a settlement site (F). The main focus of this activity again corresponds to a magnetic susceptibility anomaly (as with the enclosure in Option 1). It is probable, therefore, that the survey has detected the main area of occupation activity within the site. The cropmarks additionally suggest the presence of a more extensive field system. Traces of this are visible in the survey, but the detectability of the ditches diminishes (as is usual) away from the magnetically enhanced soil around the settlement site. Some of the cropmark features towards the north of the field containing site F are perhaps not clearly visible in the survey because they are close to a pipe and pylon.

The second main group of findings is centred on an apparently circular enclosure (at G). This is interpreted in the cropmark plan as a double circle with surrounding ditches and enclosures. The survey findings include a number of pit-like features suggesting occupation

activity in this area, but the remains are likely to be less concentrated than at F.

Other findings from Option 5B again include recent disturbances near pylons and boundaries, and pipes (blue). Weak linear markings of a kind usually caused by cultivation are visible in some of the fields in the grey scale plot, and are indicated in green. Such markings are usually caused by recent ploughing, but can sometimes indicate traces of ridge and furrow.

Linear disturbances suggests a possible former ditch or boundary towards the south of the survey at H, and other such features may be present nearby (e.g. at J, K), and further to the east. There is a scatter of possible pit-like features (as at L) towards the east of the survey. This is perhaps consistent with the presence nearby of limited numbers of archaeological findings, as described in the 2010 OA evaluation report.

## **Conclusions**

The main areas of archaeological activity identified by the survey are at B (and more doubtfully, A) in Option 1, and at F and G in Option 5B.

The plan of these findings suggests they represent occupation sites of perhaps late prehistoric or Roman date, although nearby surface and trenching finds suggest features of other periods could also be present. The location and extent of the survey findings relates well both to cropmarks, and to expectations based on the geological context. It is probable, therefore, that much of the eastern part of Option 1, and the northern and western areas of Option 5B are unlikely to contain substantial concentrations of archaeological features.

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Fieldwork for this survey was done by P. Cottrell, C. Oatley, F. Prince and N. Paveley.

**Acknowledgements**

We thank Stuart Foreman, Senior Project Manager at Oxford Archaeology, and DP World for permission to reproduce previous geophysical data and information from the OA 2010 evaluation report.

**References**

- [1] East Thurrock Connection. Specification for an Archaeological Geophysical Survey. Job number 5041242. Atkins; January 2011.
- [2] East Thurrock Connection. Written Scheme of Investigation for an Archaeological Geophysical Survey. Bartlett Clark Consultancy for Atkins; 4 February 2011.
- [3] Proposed Development at Shellhaven, Corringham, Essex. Report on Archaeogeophysical Survey, 2001. Bartlett Clark Consultancy for Oxford Archaeology, 29 November 2001.
- [4] Proposed Development at Shellhaven, Corringham, Essex. Report on Archaeogeophysical Survey, 2003. Bartlett Clark Consultancy for Oxford Archaeology, 27 February 2003.
- [5] London Gateway; Main Port and Park Access Road, Stanford-le-Hope, Essex. Archaeological Investigation Report. Oxford Archaeology for DP World; 20 May 2010.

## East Thurrock Connection

### Appendix : Inventory of Selected Findings

This list notes the more significant findings from the magnetometer survey of this site. The grading (1-4) given alongside each entry refers to the reliability of the geophysical evidence rather than the archaeological significance of the findings.

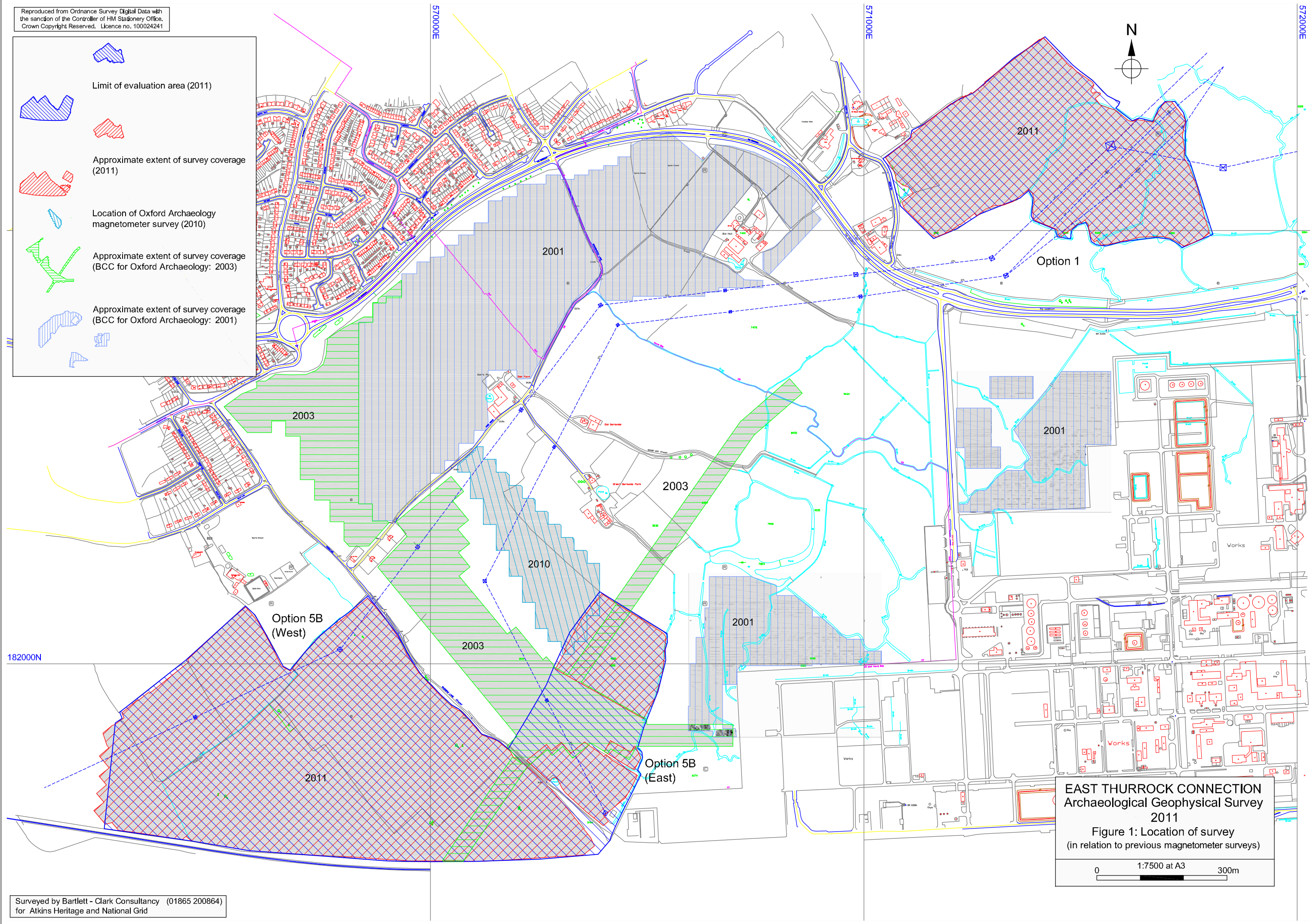
- Grade 1: Distinct magnetic anomalies of probable archaeological origin.
- Grade 2: Magnetic anomalies possibly including natural or recent disturbances, but which could in part be archaeologically significant.
- Grade 3: Weak or isolated features; not necessarily archaeologically significant.
- Grade 4: Magnetic anomalies of probably non-archaeological origin.

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This summary list includes only selected magnetic findings, particularly those which may be of potential archaeological interest, or which may require further investigation for their significance to be established.

<u>Feature</u>		<u>Grade</u>
A	Possible ditches/enclosures in area of high natural background magnetic activity.	2
B	Ditched enclosures and related features to NW of Option 1.	1
C, D	Strong ditch-like linear features: probable land drains.	4
E	Broad, weak magnetic anomalies: characteristic of alluvial deposits on wetland soils.	4
F	Group of ditches, enclosures and internal features: probable occupation site with field system.	1
G	Circular and other enclosures and related features. Site also visible as a cropmark, but less concentrated than F.	1
H, J, K	Possible former boundaries or enclosures.	2
L	Example of scattered possible pit like features in Option 5B (east). – Perhaps indicating low-intensity archaeological activity, as noted in 2010 trenching report.	1-2

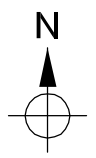




**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 1: Location of survey  
(in relation to previous magnetometer surveys)

0 1:7500 at A3 300m





Approximate extent of magnetometer surveys (2001-2010)

Approximate extent of magnetometer survey (2011)

4 Location of 1:2500 scale summary plans showing interpretation of findings from 2011 survey (figures 4-6)

7 2011 survey: 1:2000 grey scale data plots (figures 7-11)

12 2011 survey: 1:1250 graphical (xy) data plots (figures 12-20)

21 2001-2011 surveys: 1:4000 grey scale data plots (figures 21-24)

25 AP interpretation (figure 25)

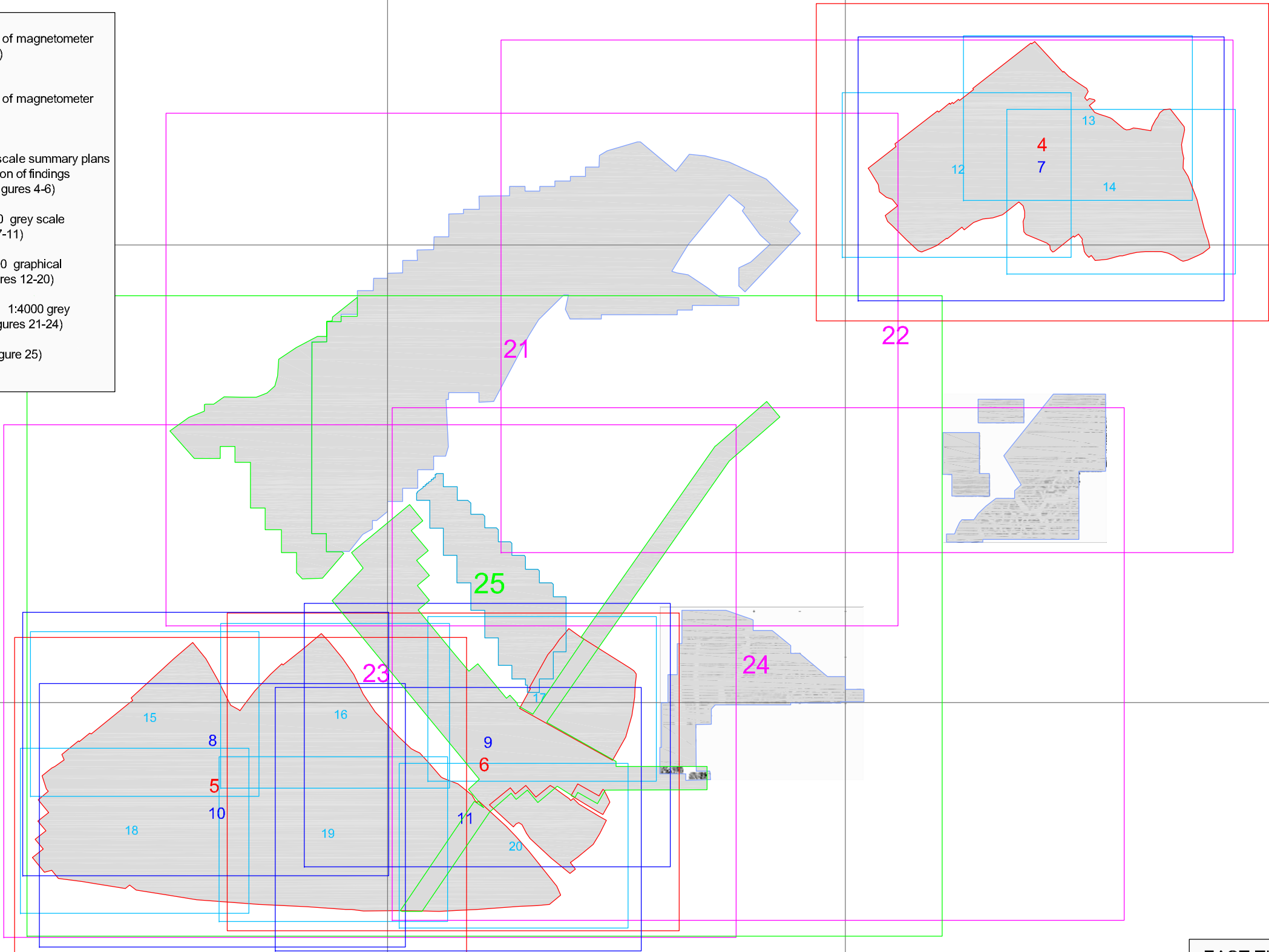
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182000N

570000E

571000E

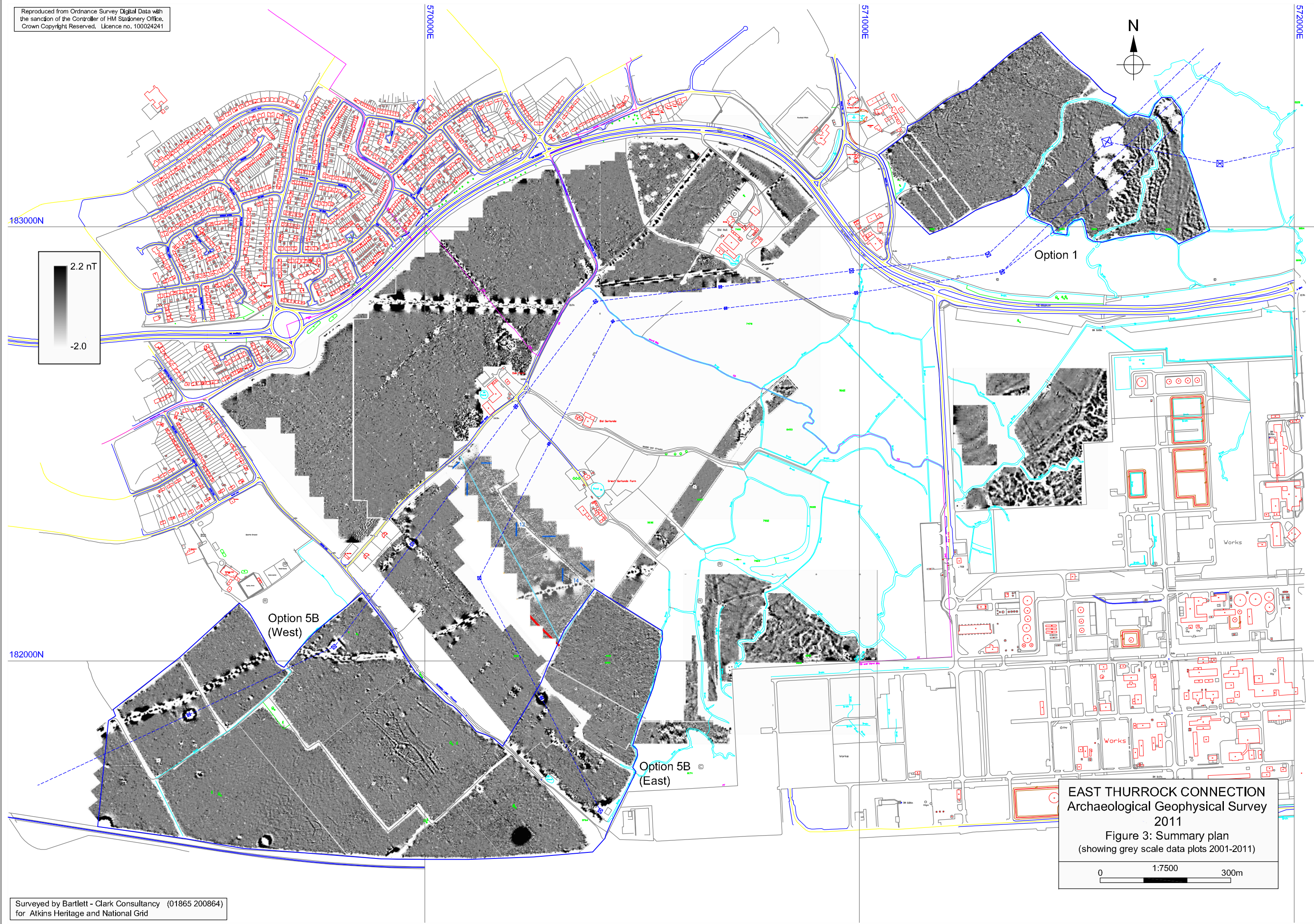
572000E



**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 2: Location of magnetometer  
survey data plots

0 1:10000 500m











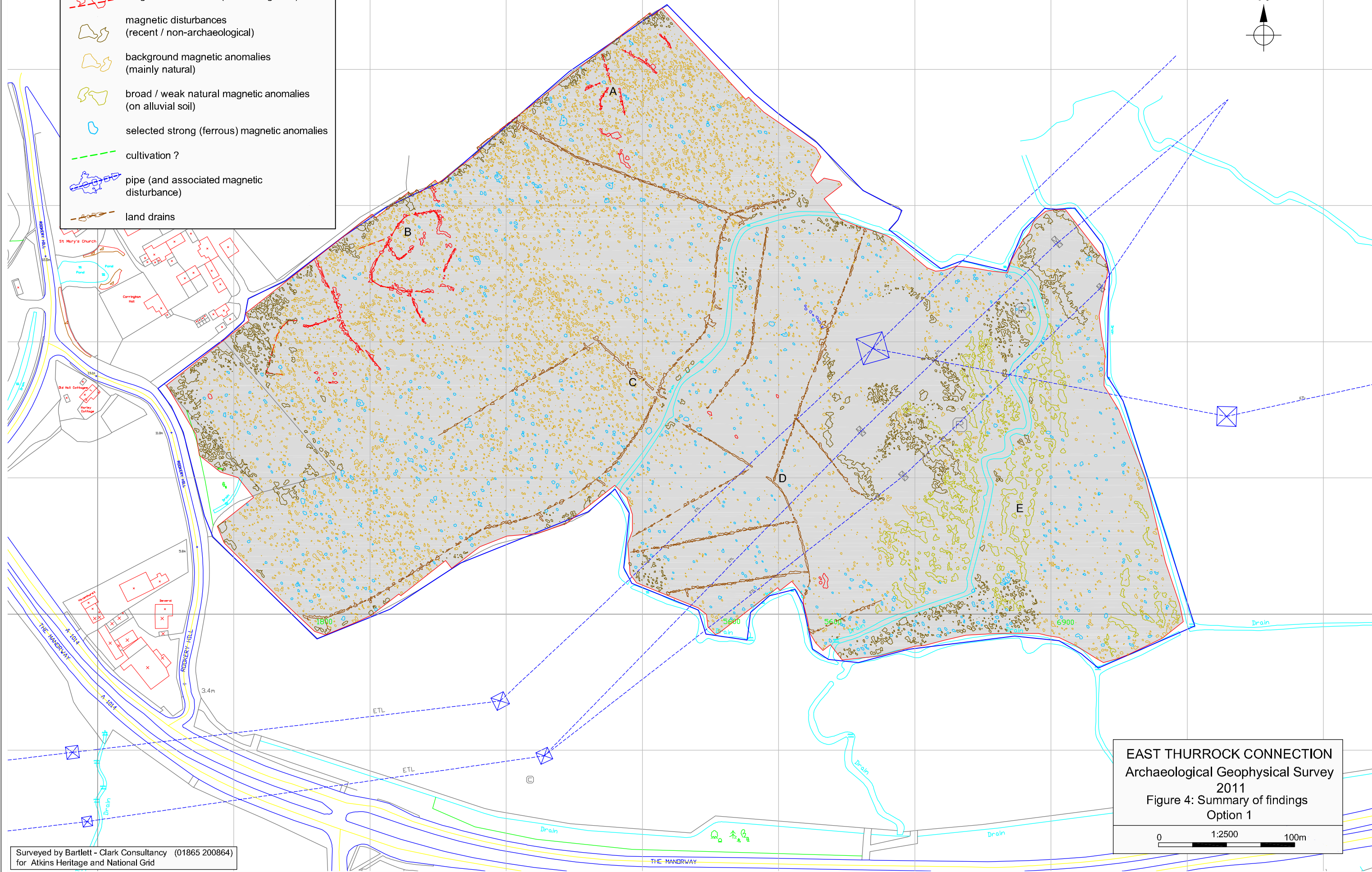


**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 3: Summary plan  
(showing grey scale data plots 2001-2011)

0 1:7500 300m











-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

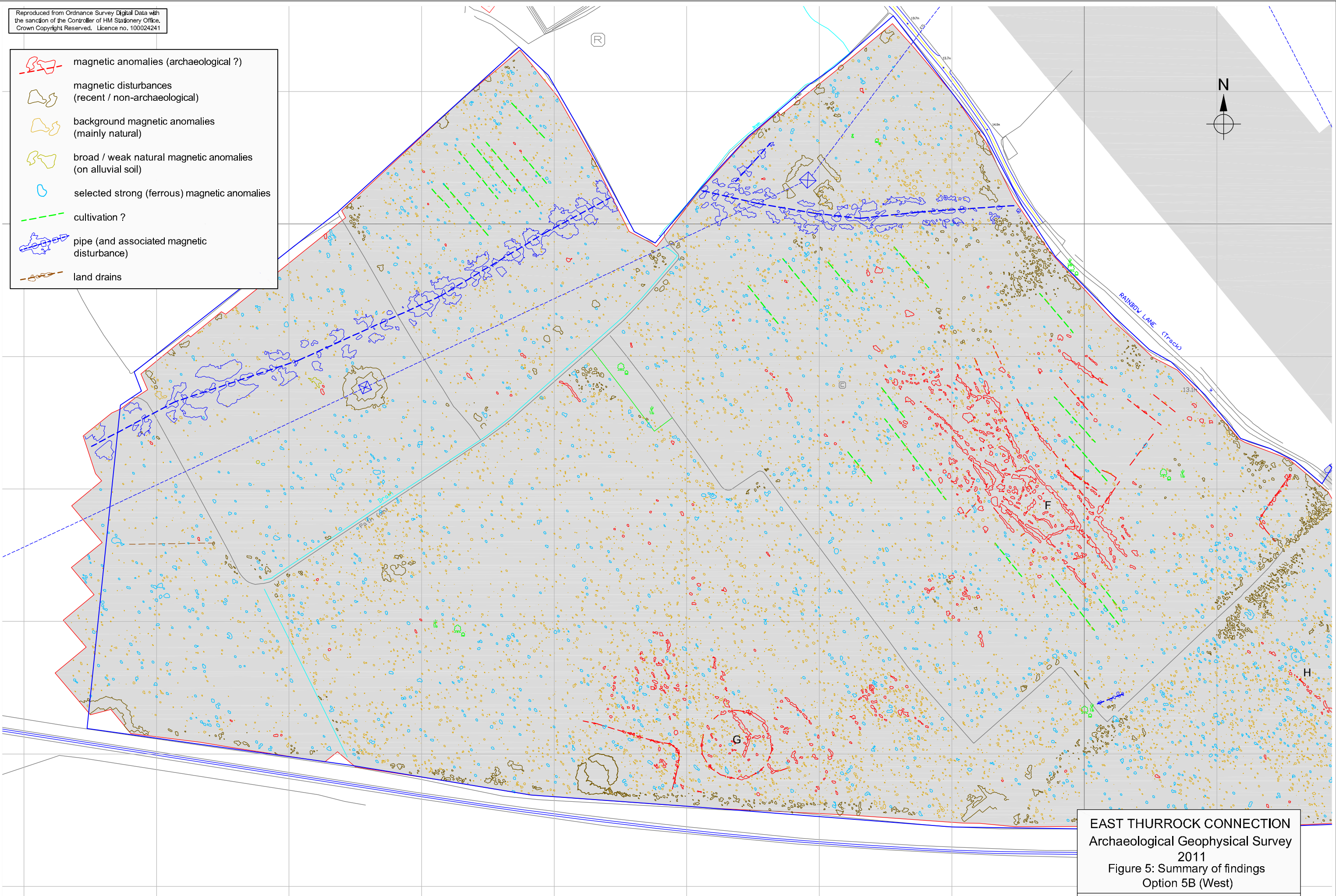


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 4: Summary of findings  
Option 1

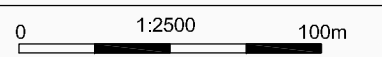
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-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

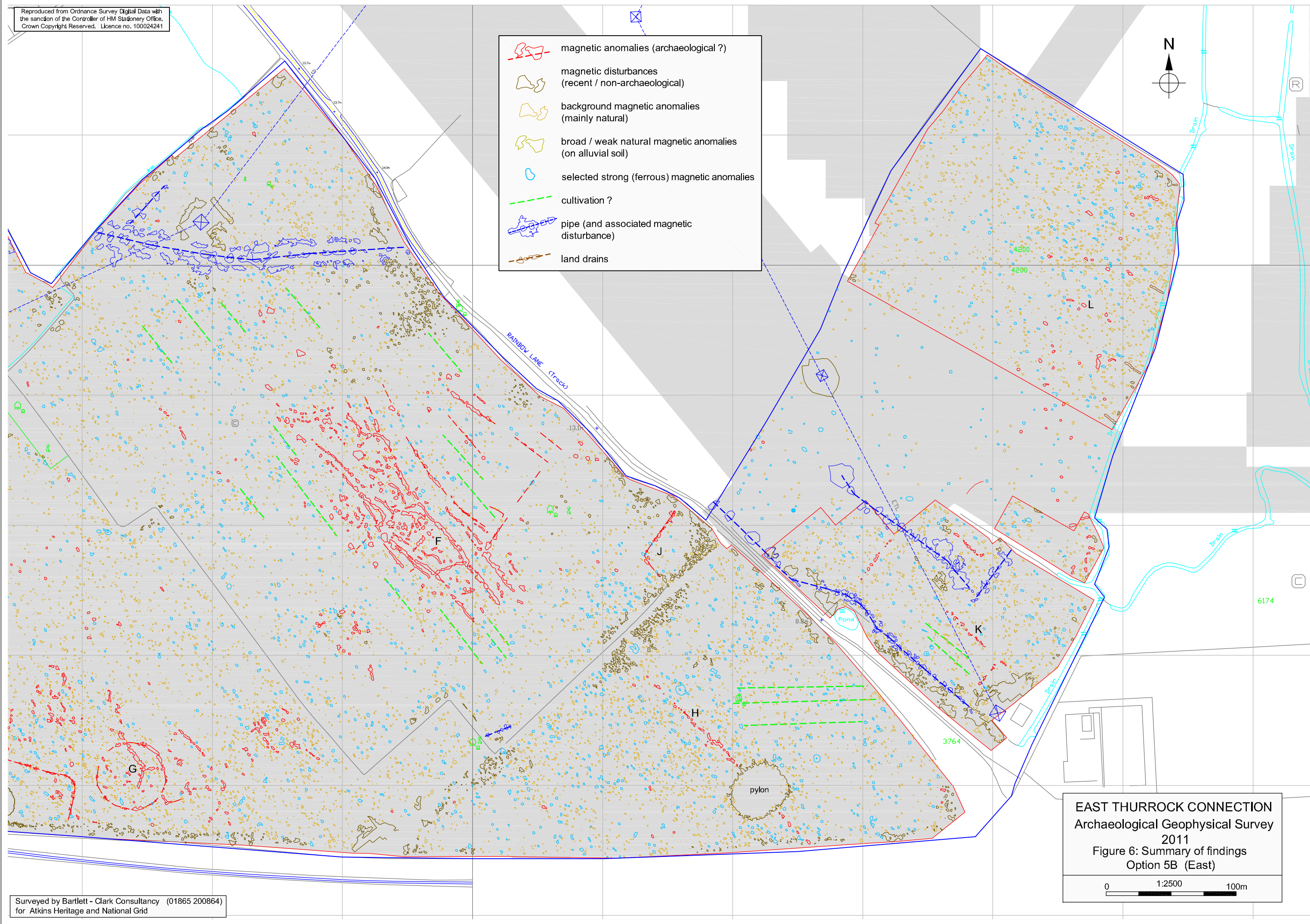
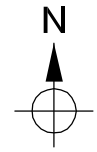


**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 5: Summary of findings  
Option 5B (West)

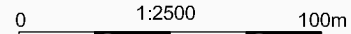




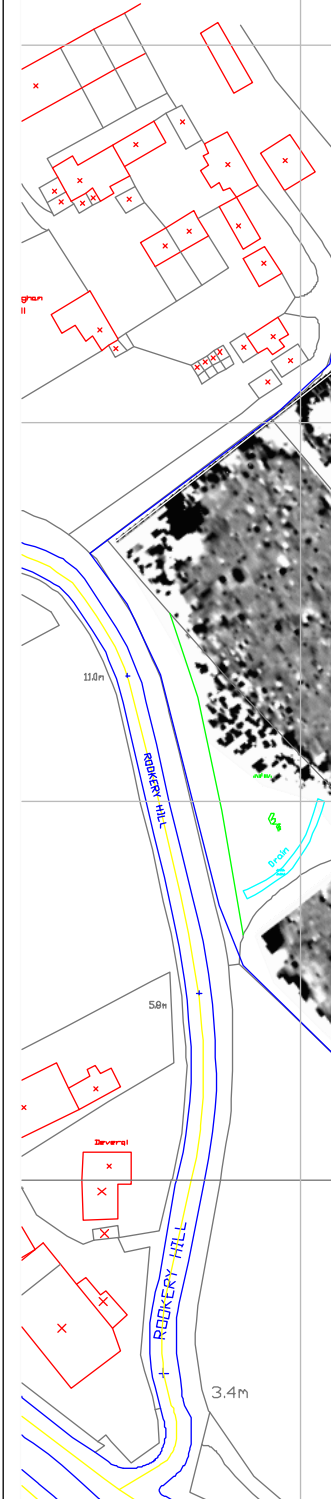
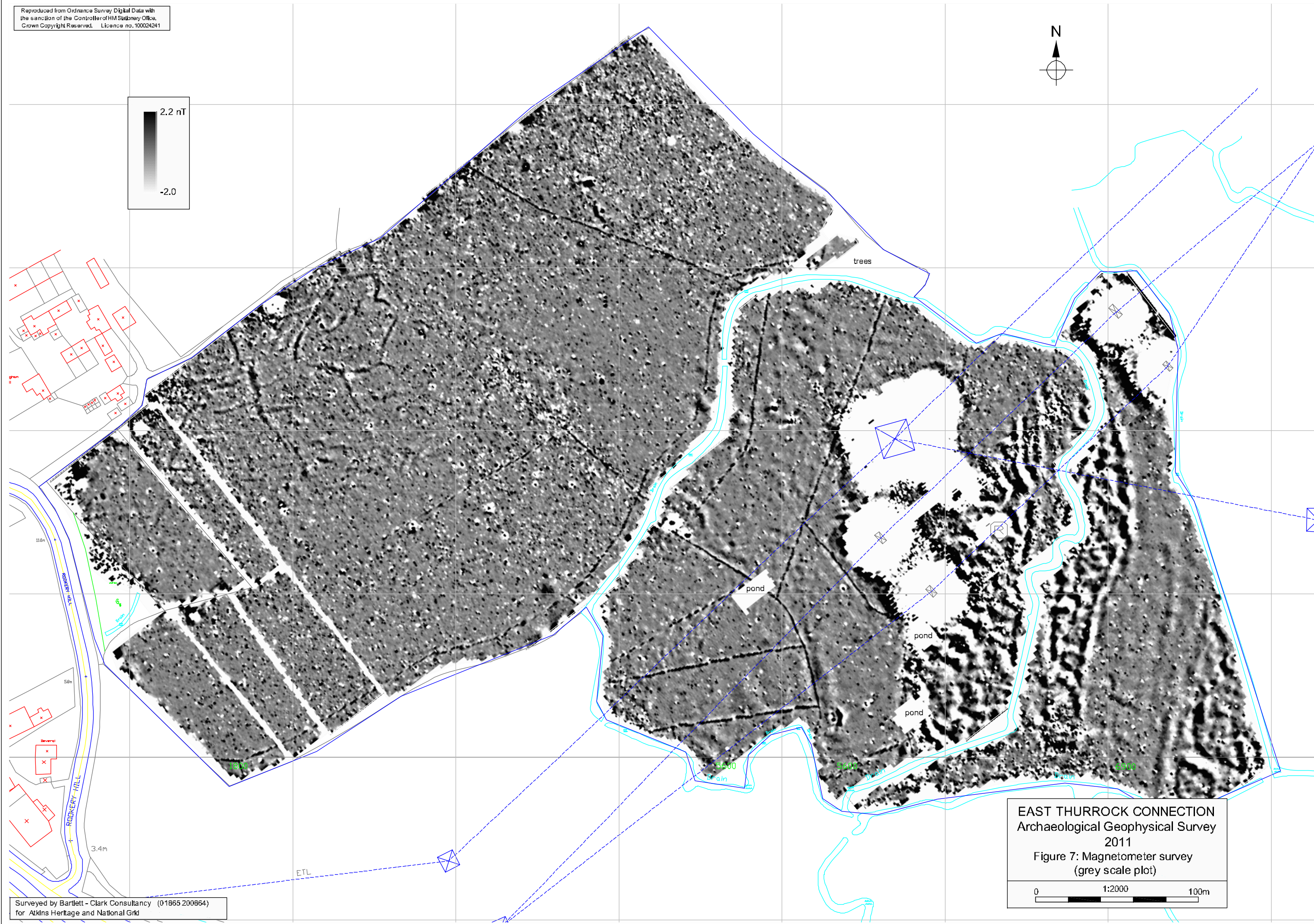
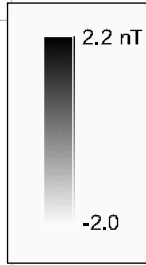
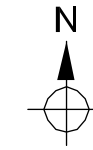
-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains



EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 6: Summary of findings  
Option 5B (East)



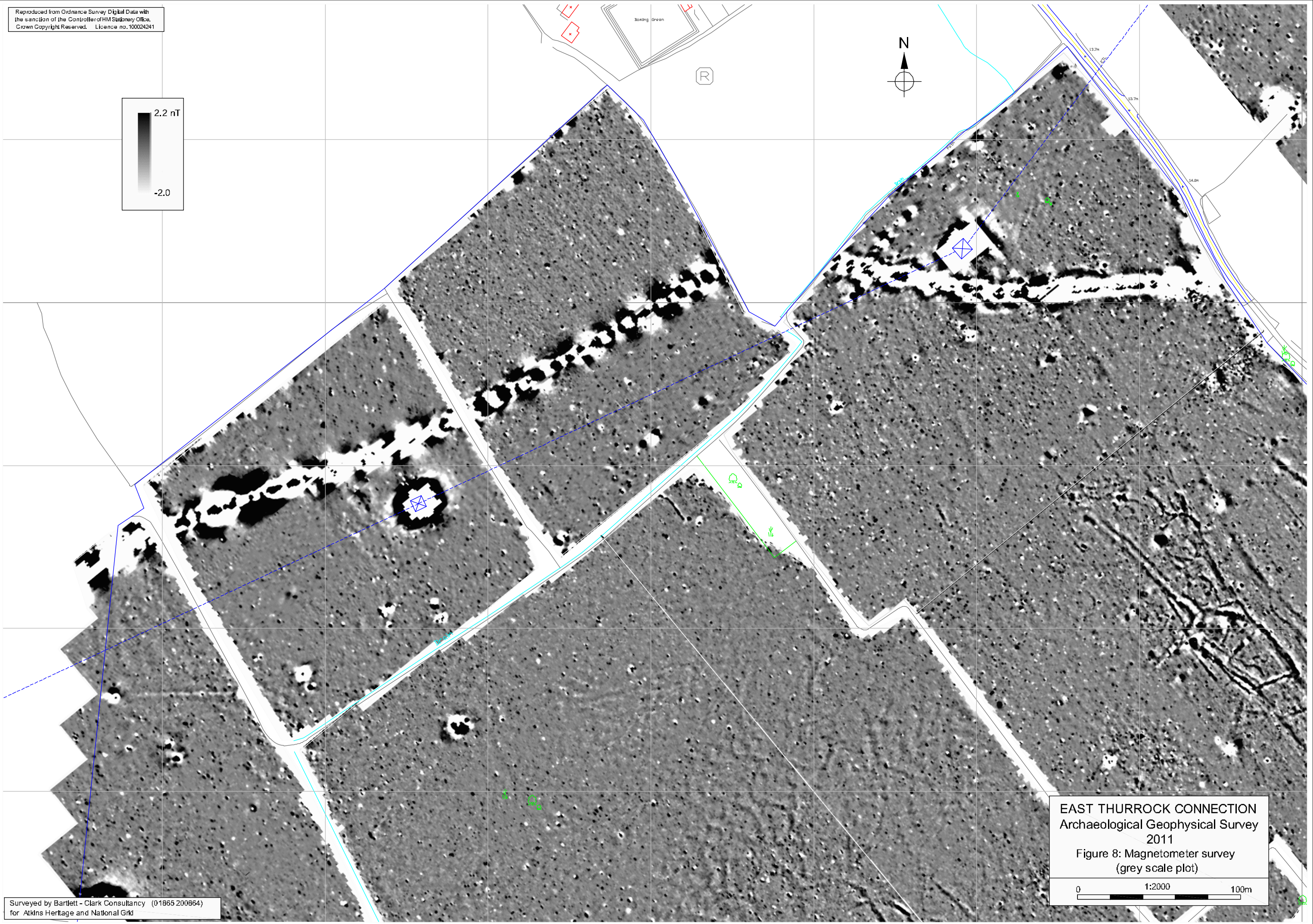
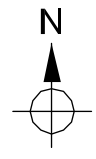
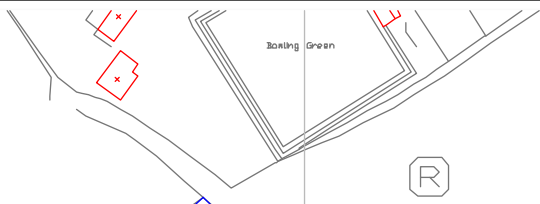
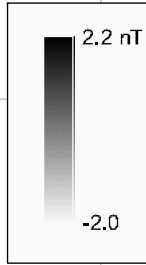




EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 7: Magnetometer survey  
(grey scale plot)



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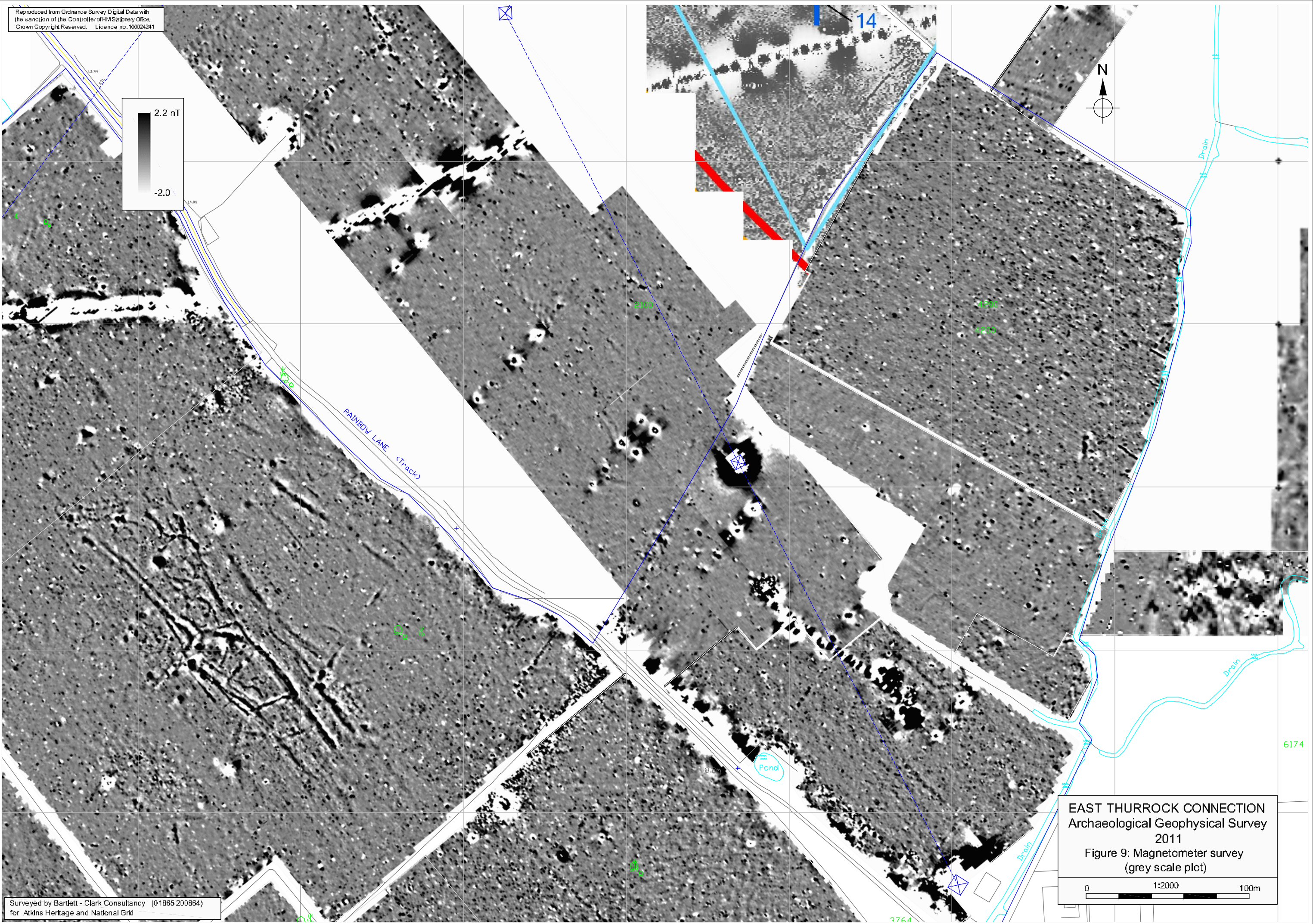
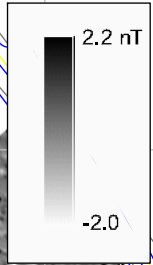
EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 8: Magnetometer survey  
(grey scale plot)

0 1:2000 100m

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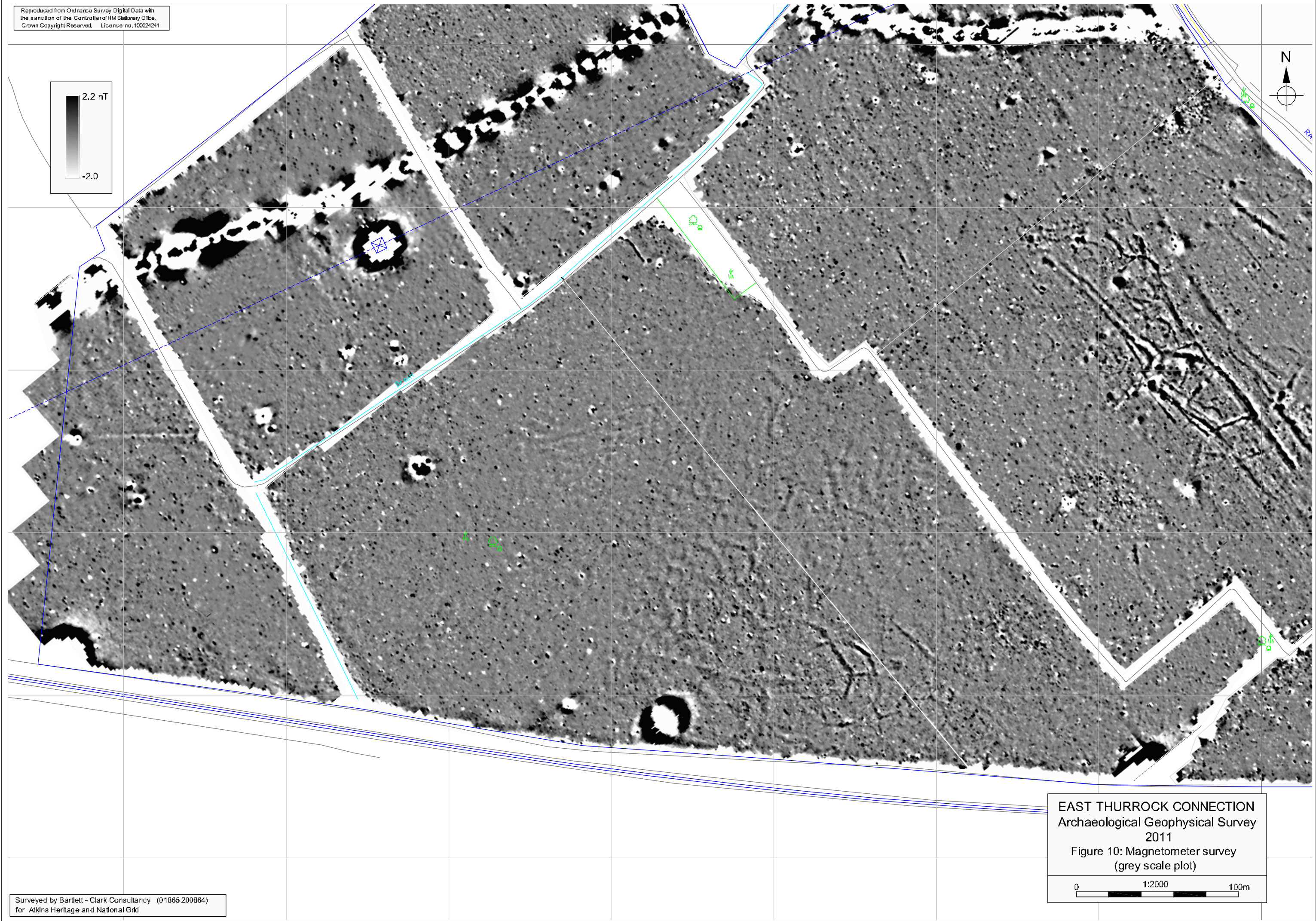
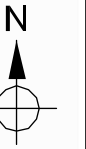
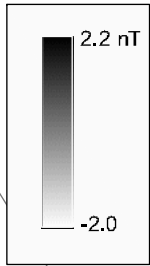


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 9: Magnetometer survey  
(grey scale plot)

0 1:2000 100m

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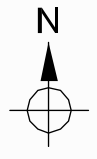
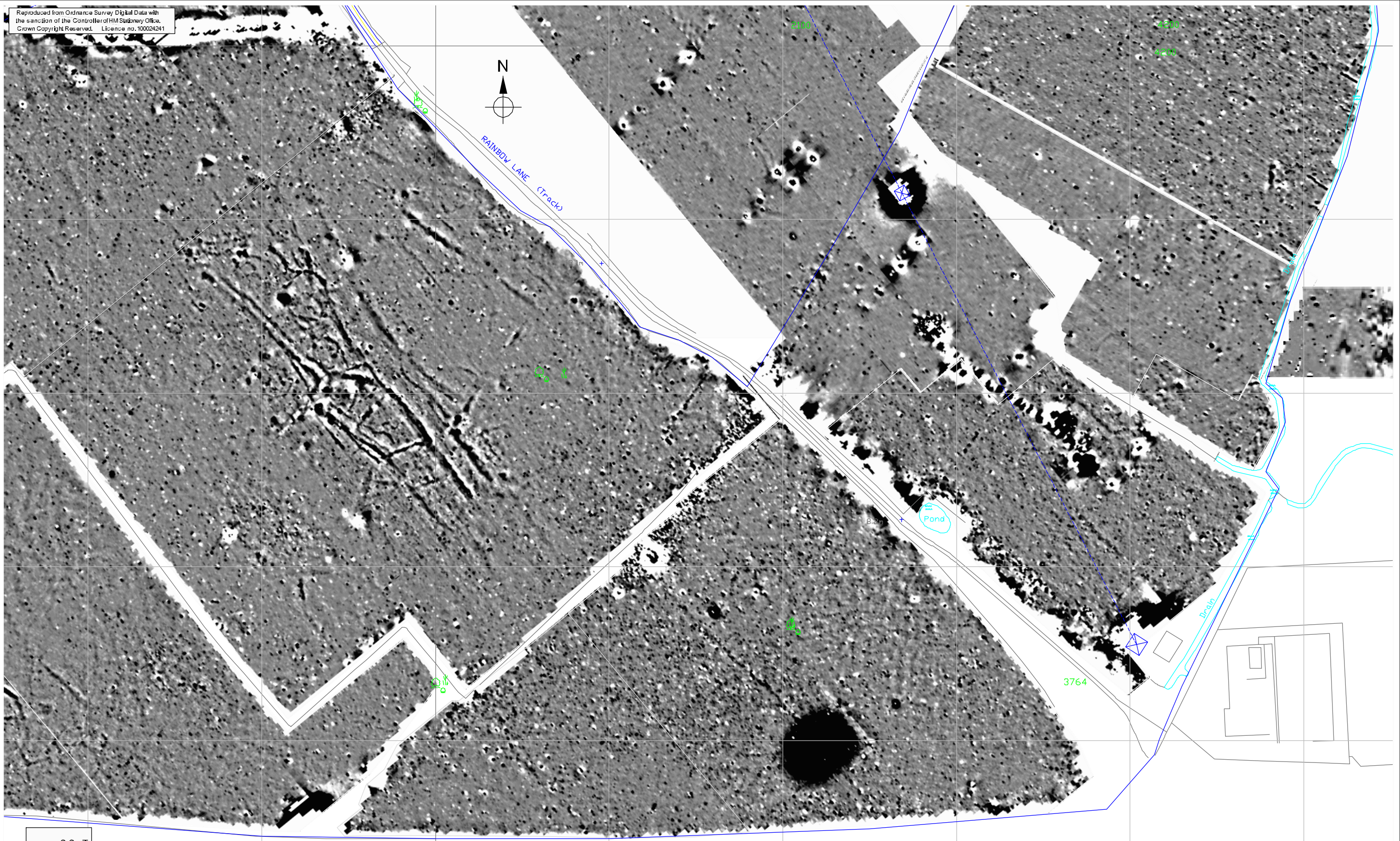


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 10: Magnetometer survey  
(grey scale plot)

0 1:2000 100m

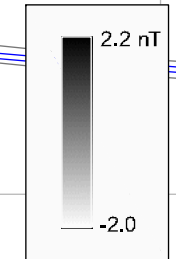


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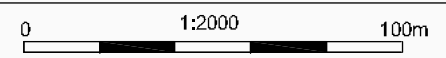


RAINBOW LANE (Track)

Pond

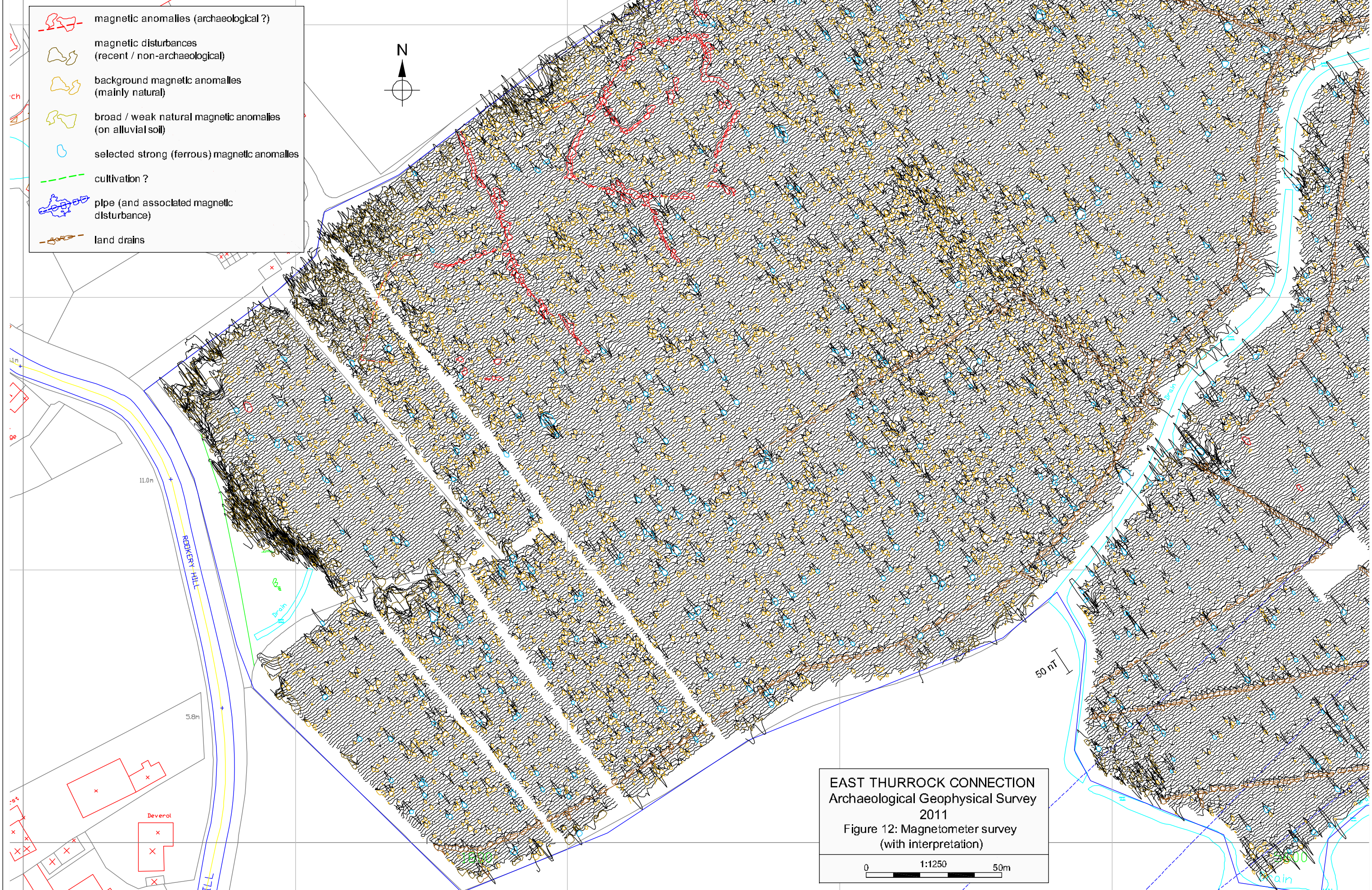


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 11: Magnetometer survey  
(grey scale plot)



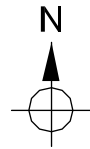
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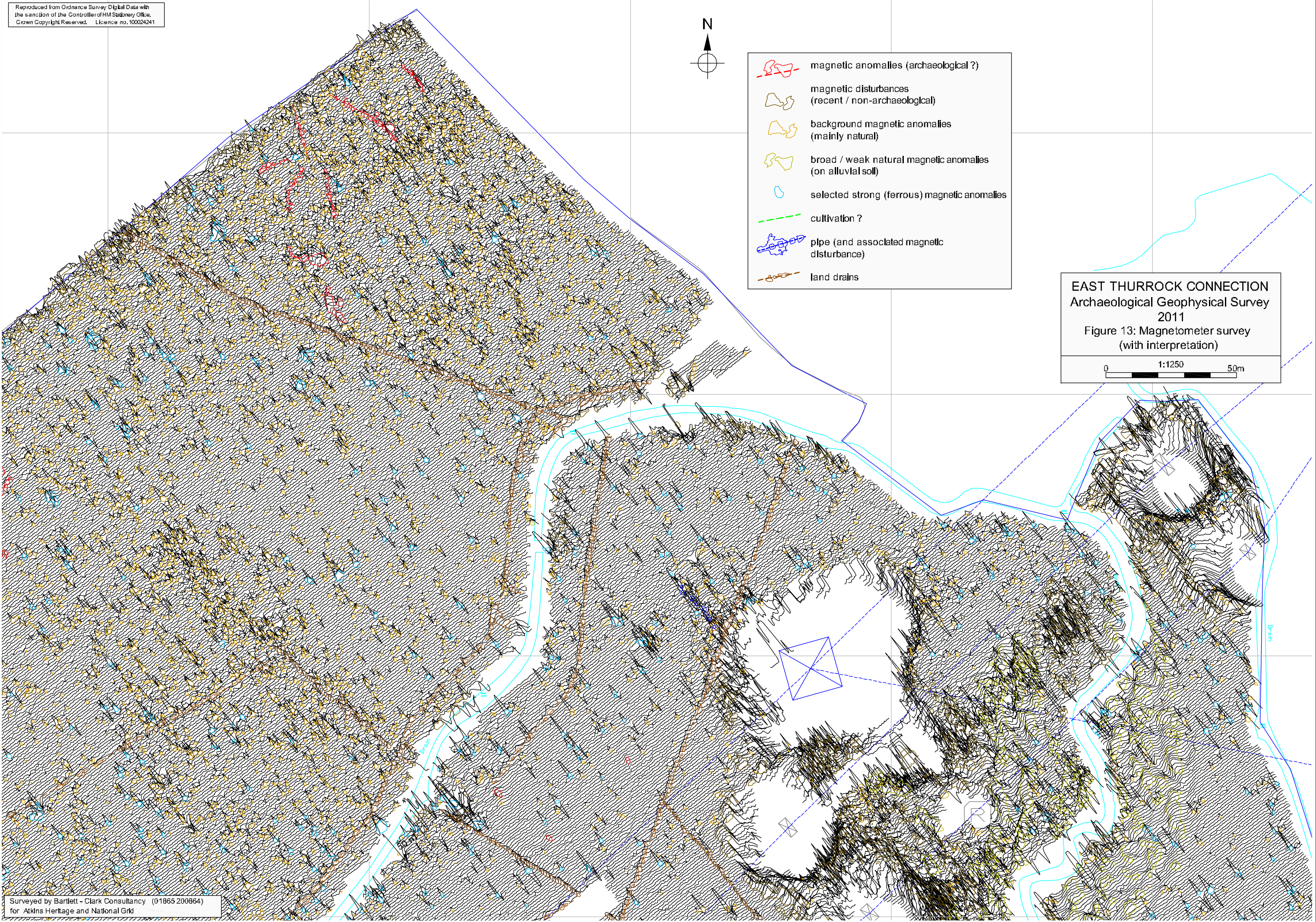
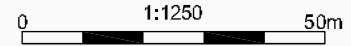
EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 12: Magnetometer survey  
(with interpretation)













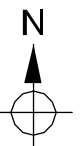
-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 13: Magnetometer survey  
(with interpretation)

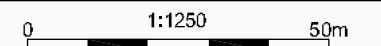




-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains



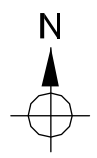
**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 14: Magnetometer survey  
(with interpretation)











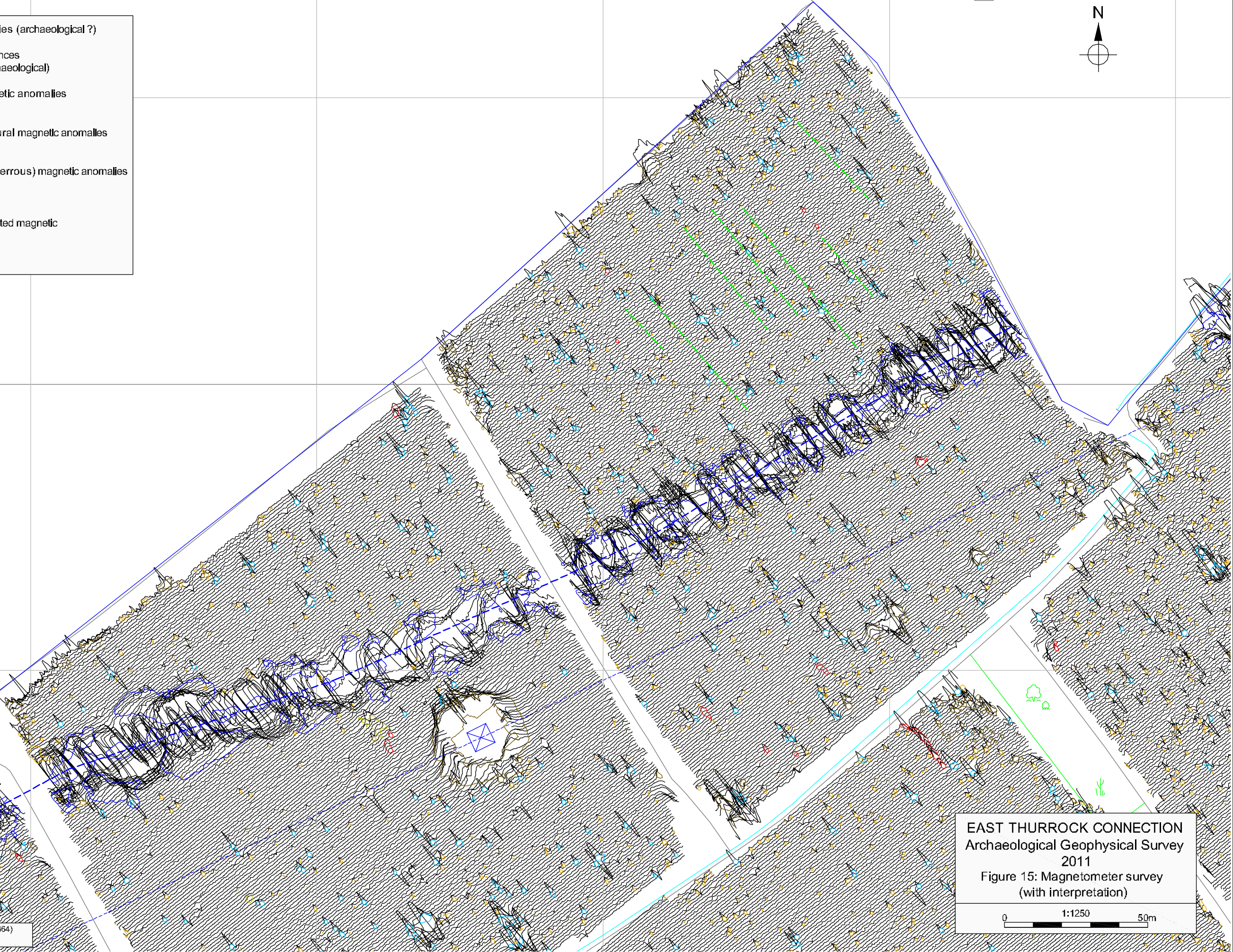
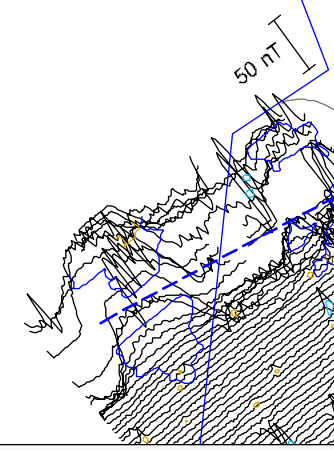
50 m



R











-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

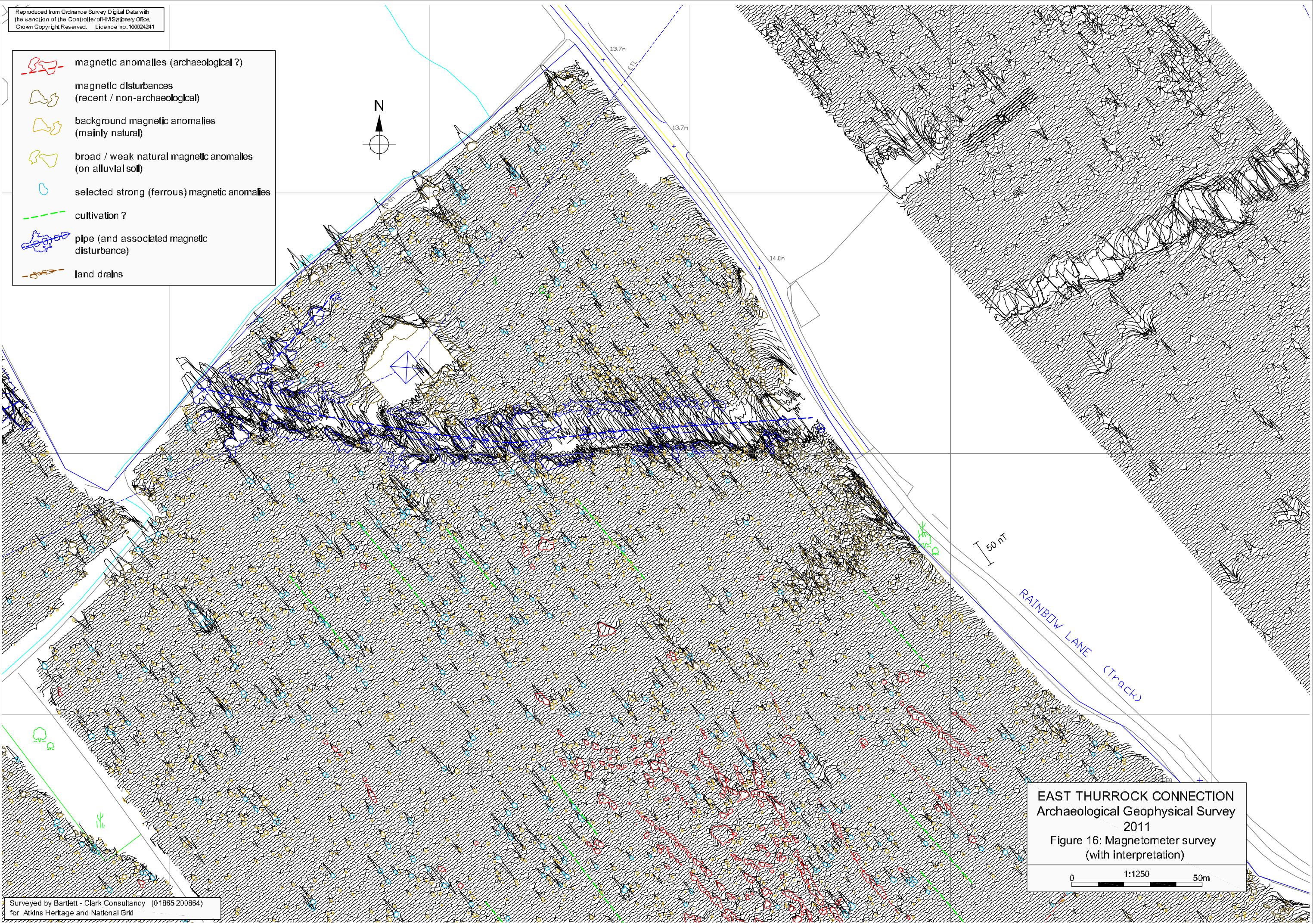
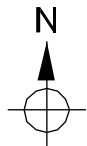


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 15: Magnetometer survey  
(with interpretation)

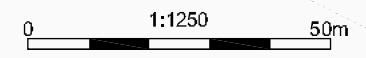
0 1:1250 50m











-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

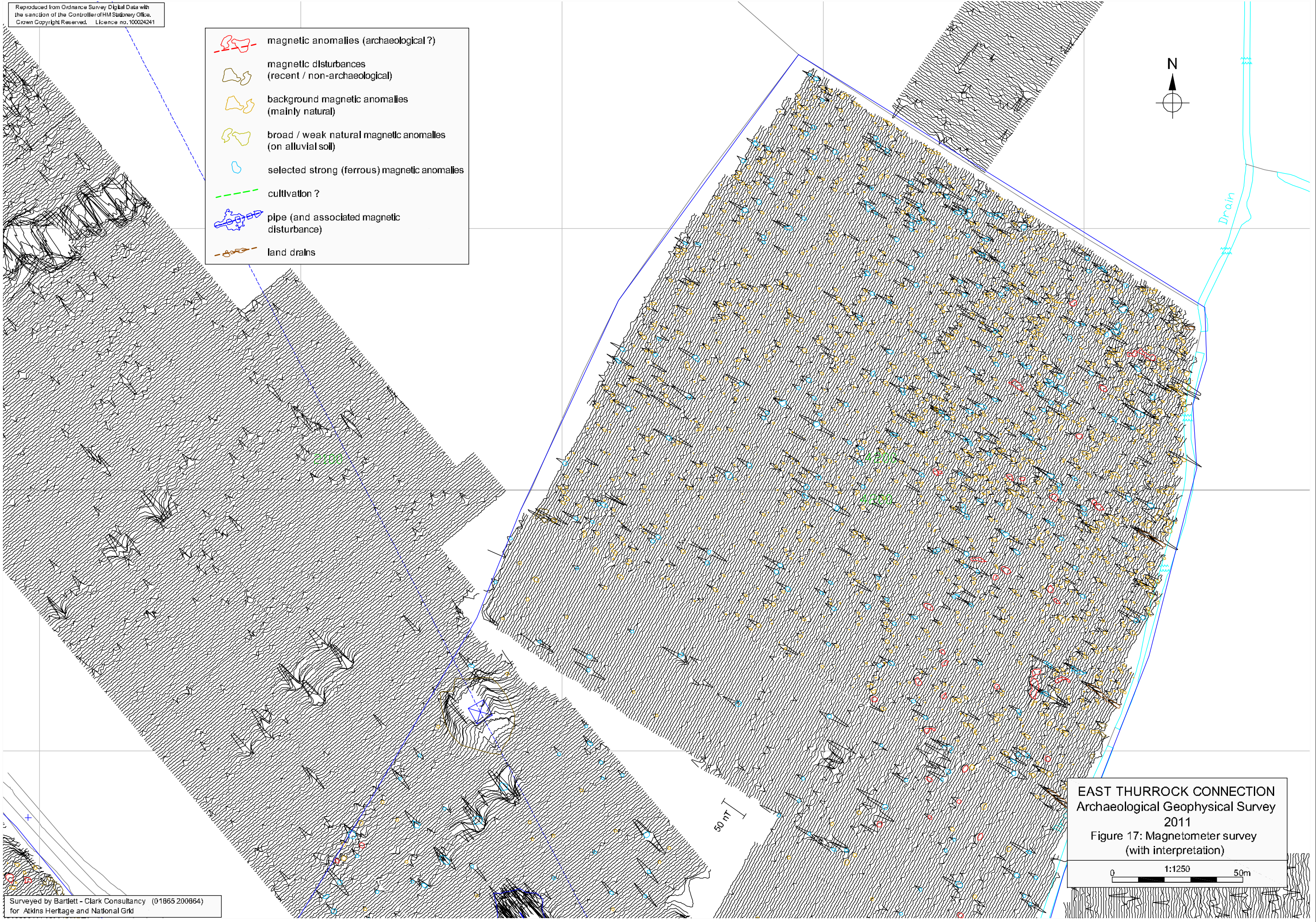
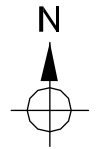


EAST THURROCK CONNECTION  
Archaeological Geophysical Survey  
2011  
Figure 16: Magnetometer survey  
(with interpretation)





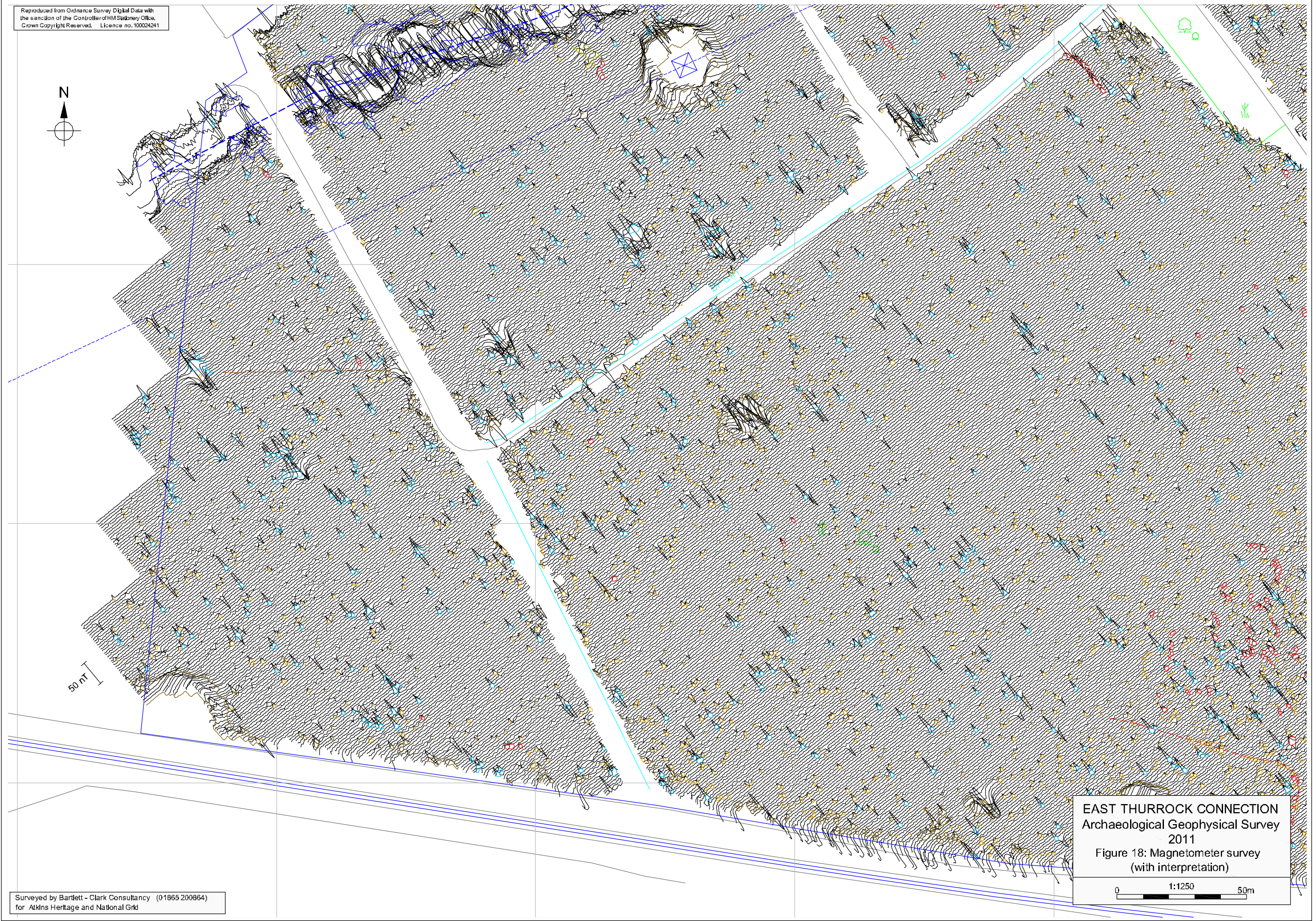
-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains



**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 17: Magnetometer survey  
(with interpretation)

0 1:1250 50m





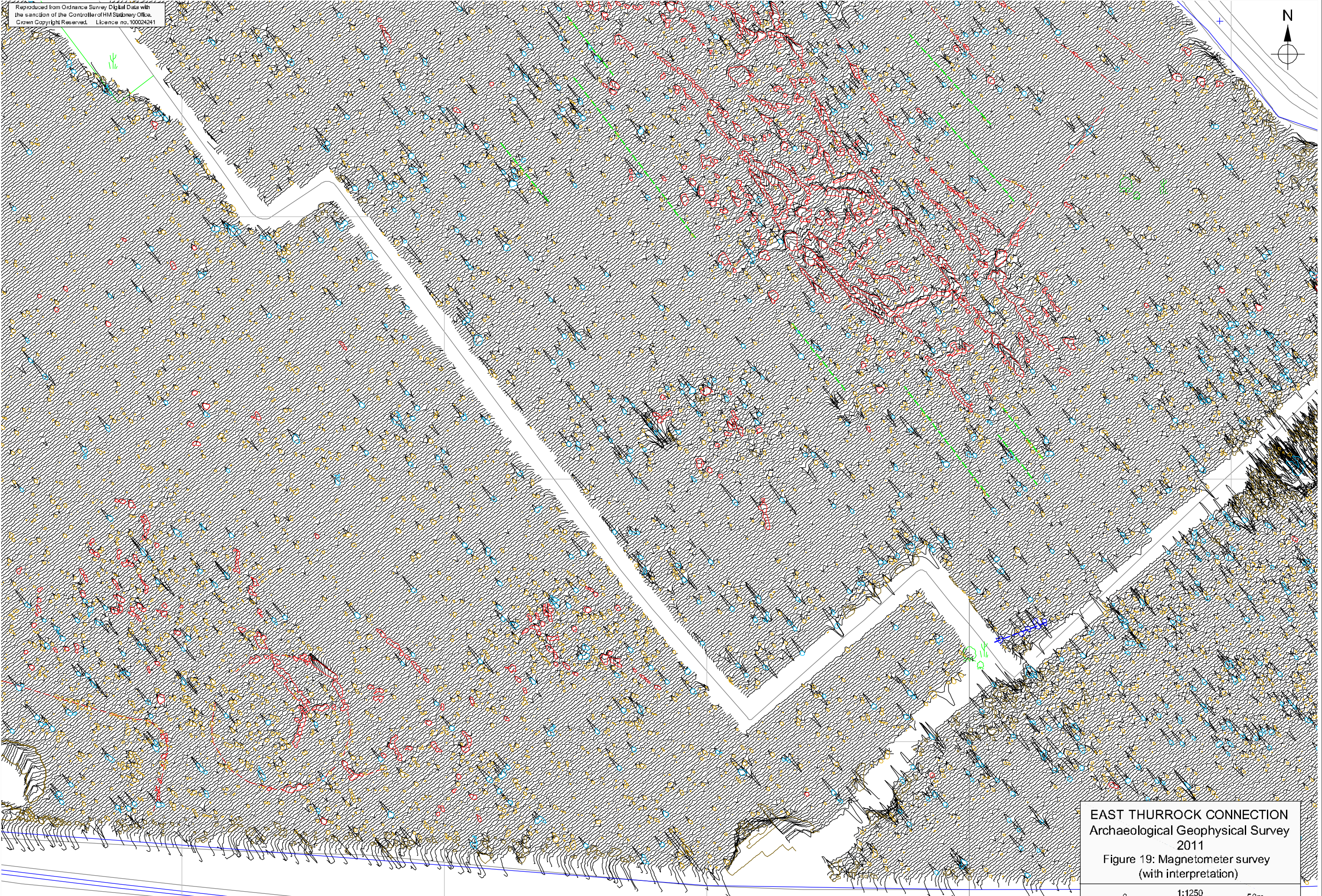
50 m

**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 18: Magnetometer survey  
(with interpretation)

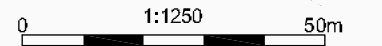
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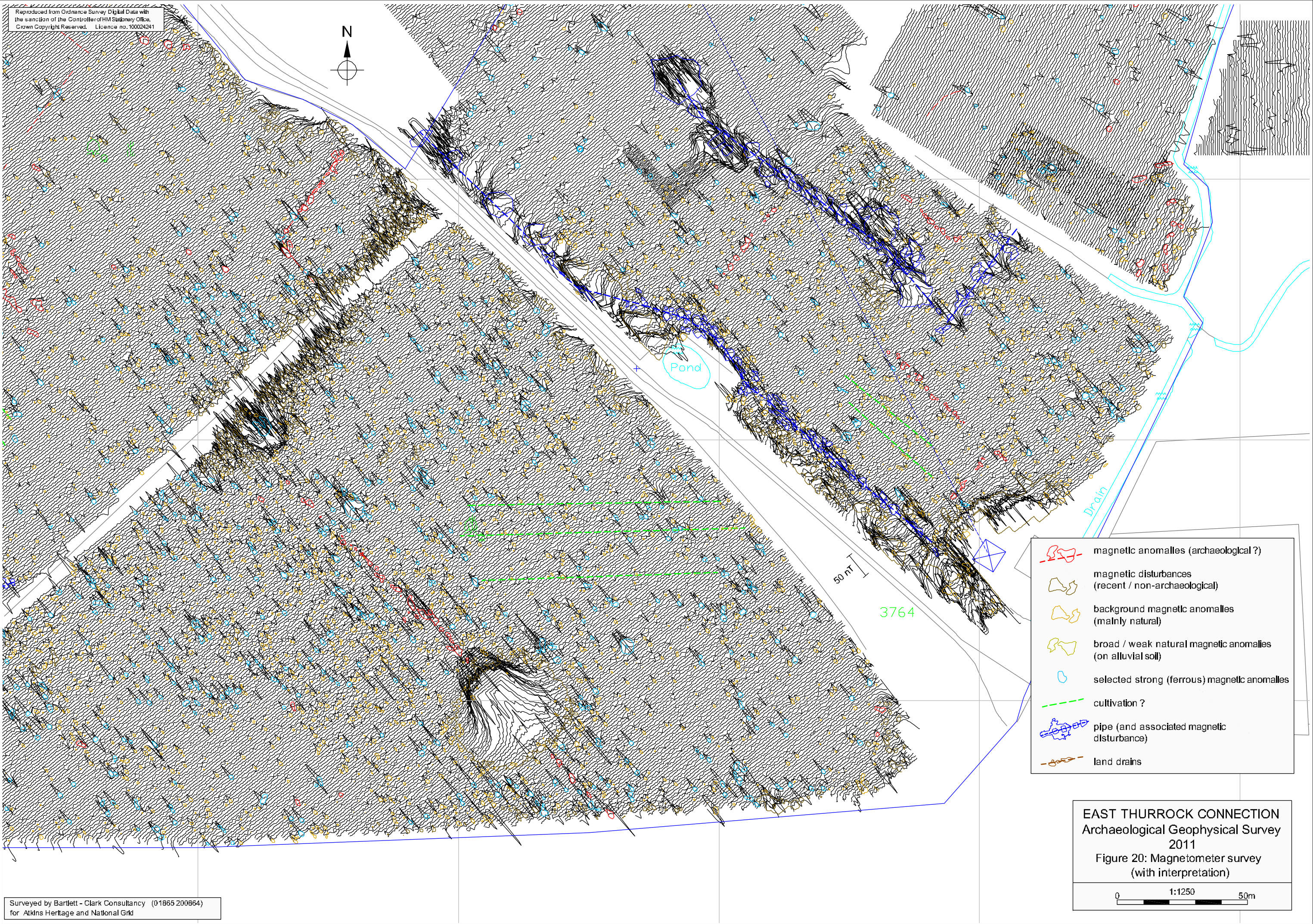
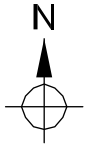
**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 19: Magnetometer survey  
(with interpretation)











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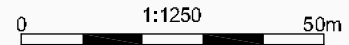


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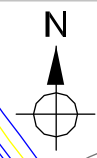
-  magnetic anomalies (archaeological ?)
-  magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural)
-  broad / weak natural magnetic anomalies (on alluvial soil)
-  selected strong (ferrous) magnetic anomalies
-  cultivation ?
-  pipe (and associated magnetic disturbance)
-  land drains

**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 20: Magnetometer survey  
(with interpretation)



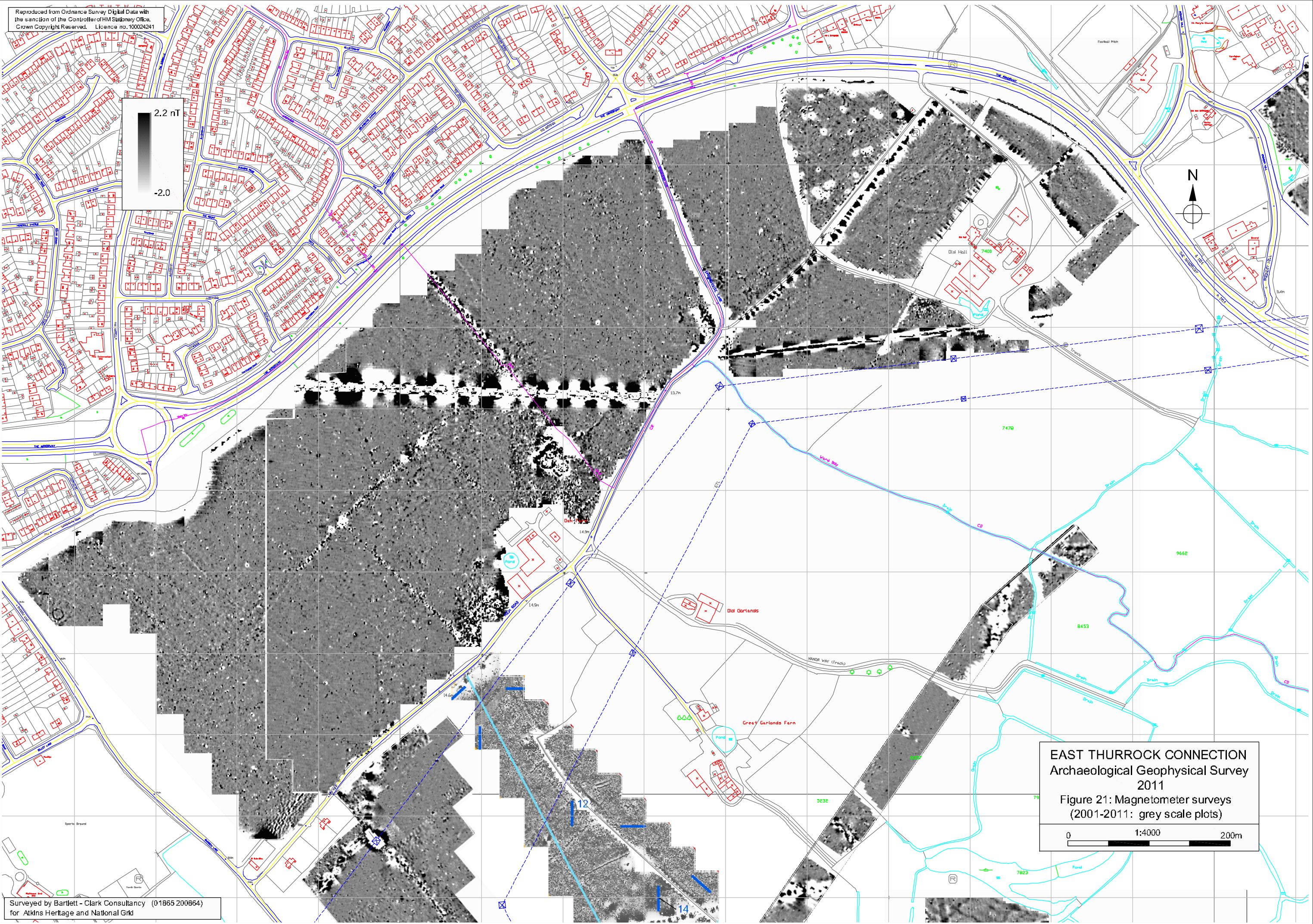


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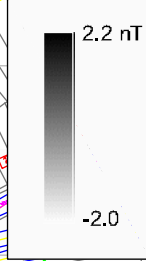
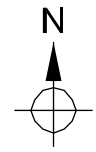


**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 21: Magnetometer surveys  
(2001-2011: grey scale plots)

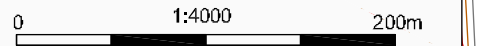
0 1:4000 200m





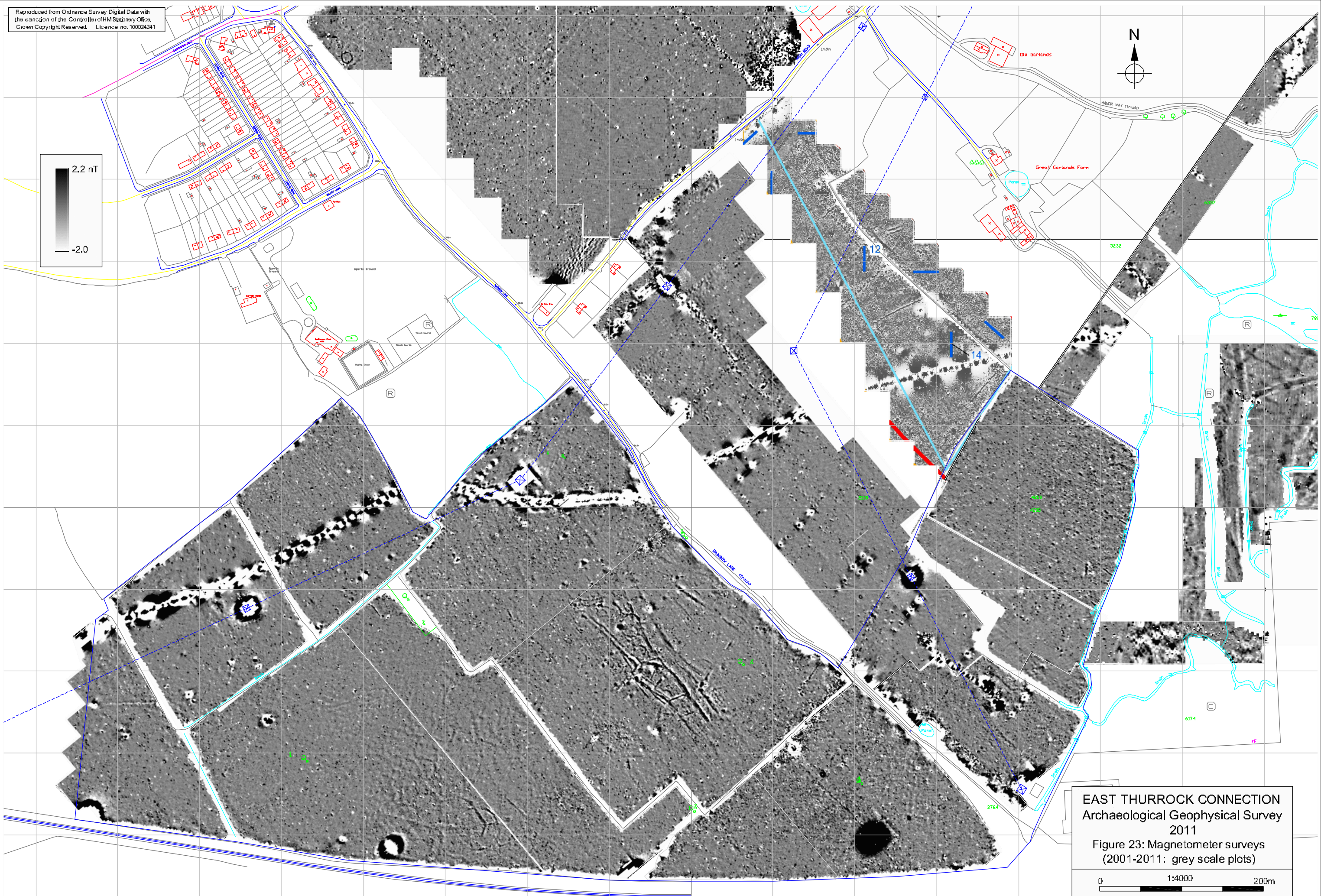
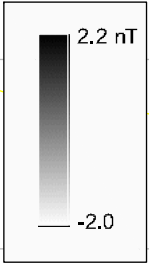
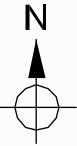


**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 22: Magnetometer surveys  
(2001-2011: grey scale plots)



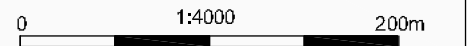


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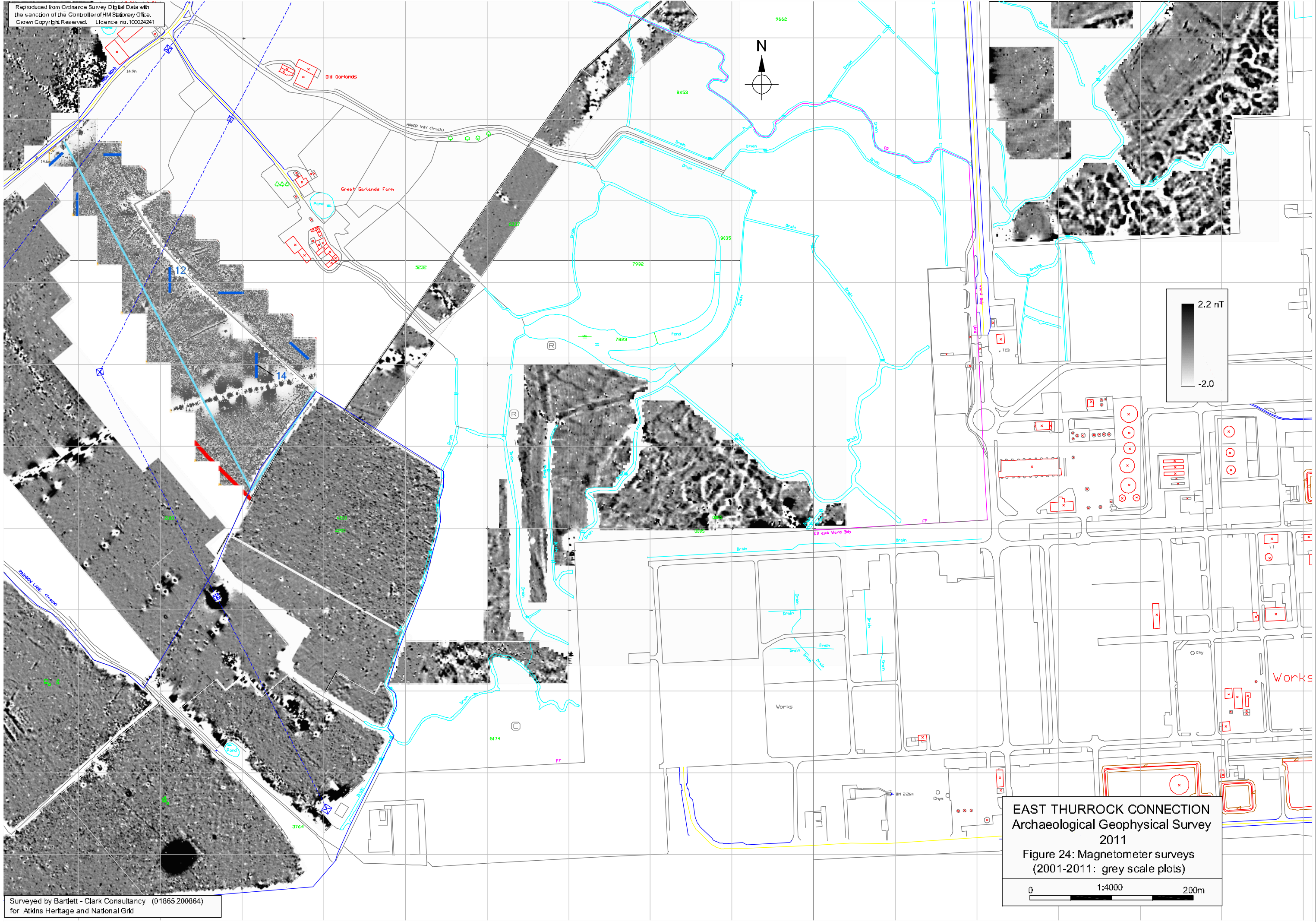
**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011

Figure 23: Magnetometer surveys  
(2001-2011: grey scale plots)





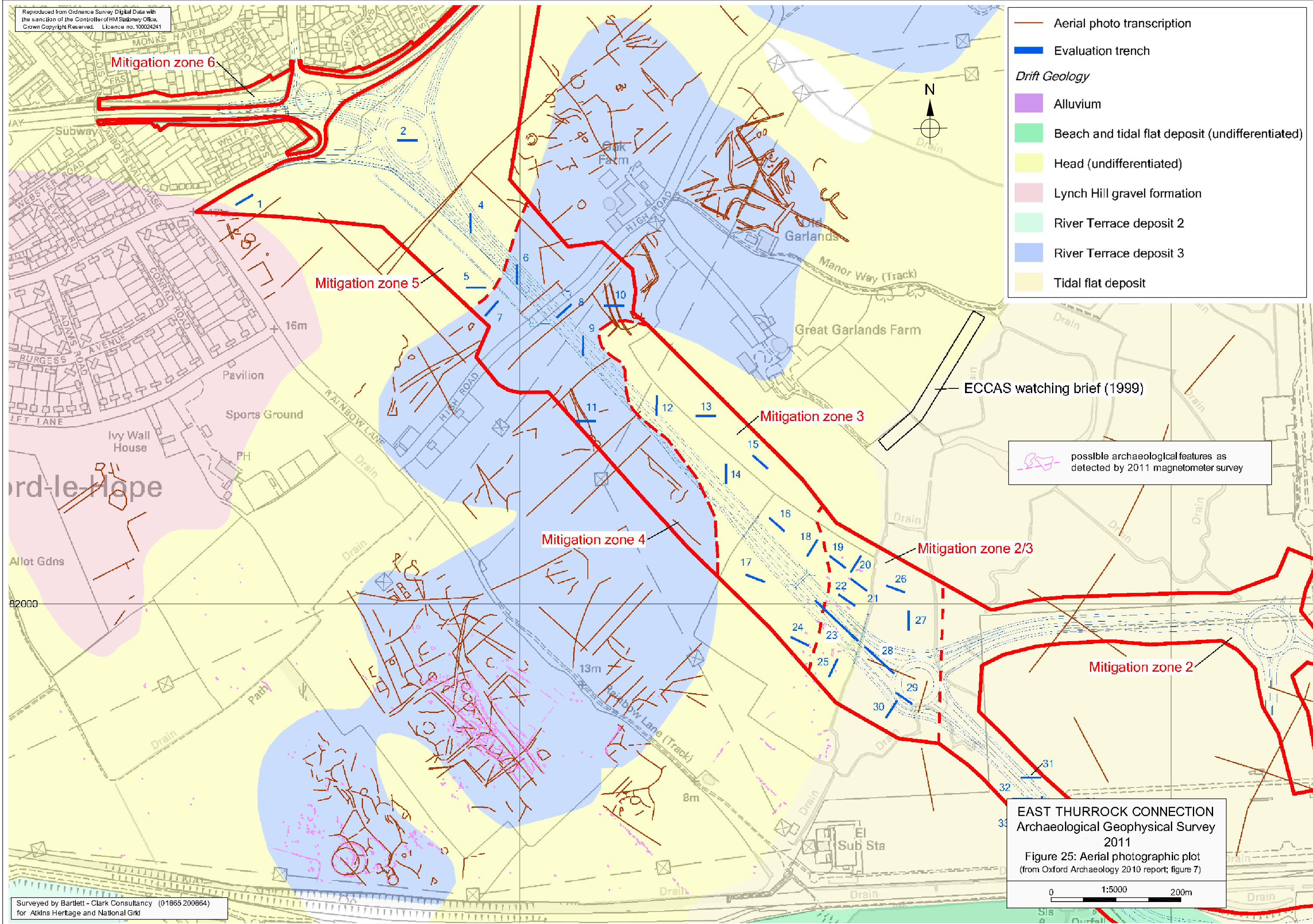
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**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 24: Magnetometer surveys  
(2001-2011: grey scale plots)  
0 1:4000 200m



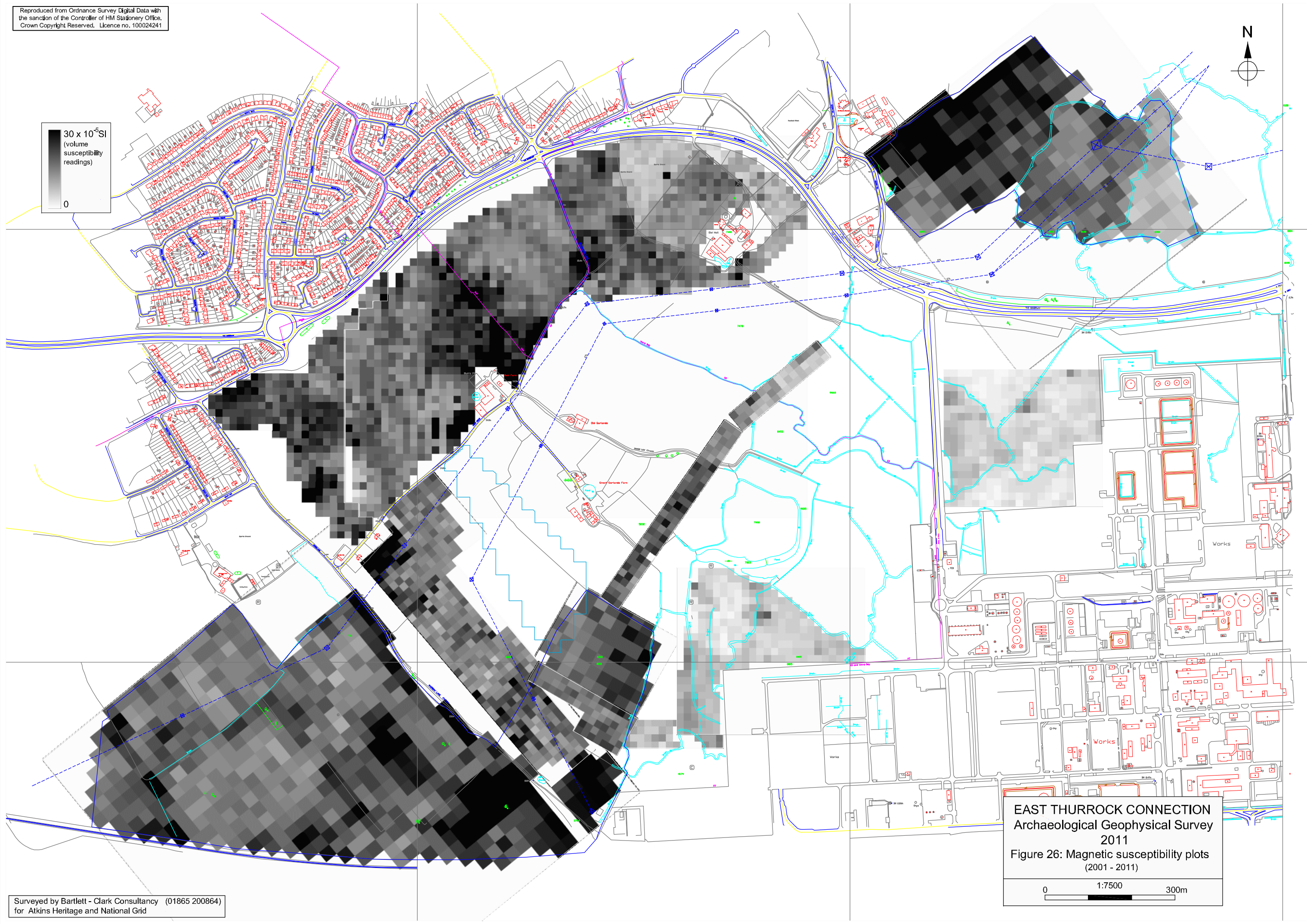
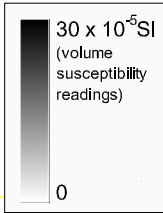


- Aerial photo transcription
- Evaluation trench
- Drift Geology**
- Alluvium
- Beach and tidal flat deposit (undifferentiated)
- Head (undifferentiated)
- Lynch Hill gravel formation
- River Terrace deposit 2
- River Terrace deposit 3
- Tidal flat deposit

possible archaeological features as detected by 2011 magnetometer survey

**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 25: Aerial photographic plot  
(from Oxford Archaeology 2010 report; figure 7)





**EAST THURROCK CONNECTION**  
Archaeological Geophysical Survey  
2011  
Figure 26: Magnetic susceptibility plots  
(2001 - 2011)

