



Archaeological Services
University of Durham

Lowland House, Brandon, County Durham

geophysical survey and archaeological evaluation

on behalf of

Barratt Newcastle

ASUD Report 1210

February 2005

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Barratt House, Airport Industrial Estate, Kenton, Newcastle upon Tyne, NE3 2EQ

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1. Summary

The project

- 1.1 This report presents the results of a scheme of works conducted in advance of a proposed development at Lowland House, Brandon, County Durham. The evaluation comprised a geophysical survey and the excavation of ten trial trenches across the site.
- 1.2 The works were commissioned by Barratt Newcastle, and conducted by Archaeological Services University of Durham.

Results

- 1.3 The geophysical survey detected a number of anomalies, most of which are almost certainly recent in origin.
- 1.4 Ten trenches were then excavated based on the results of the geophysical survey. No deposits of archaeological significance were recorded in any of these trenches.

Recommendations

- 1.5 There is no recommendation for further archaeological work.

2. Project background

Location (Figure 1)

- 2.1 The site is located at Lowland House, Brandon, County Durham (NGR: NZ 2385 3980). The development area is *c.*1.9 hectares in size, and is bounded by housing to the north, east and west, and by a supermarket to the south. Parts of the site have been landscaped in the recent past.

Development proposal

- 2.2 The proposal is to construct a residential development, along with associated access roads and services.

Objective

- 2.3 The objective of the scheme of works was to assess the nature, extent and potential significance of any surviving archaeological features within the proposed development area, so that an informed decision may be made regarding the nature, and scope of, any further scheme of archaeological works that may be required in advance of development.

Methods statement

- 2.4 The works have been undertaken in accordance with a Written Scheme of Investigation prepared by Archaeological Services (ASUD PC04.240) and approved by Durham County Council Archaeology Section.

Dates

- 2.5 The geophysical survey was undertaken on 20th December 2004. The trial trench evaluation was undertaken between 20th and 21st January 2005. This report was prepared between 2nd and 10th February 2005.

Personnel

- 2.6 The geophysical survey was conducted by Ed Blinkhorn and Janet Beveridge. The evaluation was conducted by Jamie Armstrong, Matt Claydon, and Andy Willis. This report was prepared by Jamie Armstrong and Duncan Hale, with illustrations by David Graham. The Project Manager was Peter Carne.

Archive/OASIS

- 2.7 The site code is LHB05, for **Lowland House, Brandon 2005**. The site archive will be deposited with the Old Fulling Mill Museum, Durham, after completion. Archaeological Services University of Durham is registered with the **Online AccesS to the Index of archaeological investigationS** project (OASIS). An OASIS form will be submitted for this project.

3. Landuse, topography and geology

- 3.1 At the time of the survey the proposed development area comprised a grassed area used for recreation. The north-western edge of the area had been landscaped using a cut-and-fill operation to provide a level playing surface for a football pitch. The site is at a mean elevation of *c.*131m AOD.

- 3.2 The underlying solid geology of the area comprises Carboniferous coal measures. The overlying drift deposits are made up of boulder clays (Smith and Francis, 1967, plate V).
- 3.3 The recent landscaping of the site meant that there were areas where any potential archaeology was either buried beneath re-deposited material or else had been truncated. This necessarily dictated where trial trenches could be placed.

4. Historical and archaeological background

The prehistoric period (up to AD 70)

- 4.1 A Bronze Age cist burial (D1303) was found to the north-west of Brandon in 1904. Also dating to the Bronze Age was a socketed axe found 1200m from the site (D996). Two rectilinear enclosures of an Iron Age/Romano-British settlement are known to exist to the west of Brandon (Pevsner, 1985, p.93). These are situated close together, and are known as West Brandon 1 and 2 (D363 and D364). They were excavated in 1960-1. The cropmark of an undated enclosure (D1306) is situated 800m to the north-west of the site.

The Roman period (70AD to 5th century AD)

- 4.2 Dere Street is situated to the west of Brandon, and a road (D3130, D5769 and D577) leading north-east from Dere Street is known to pass through Brandon. No evidence of Roman settlement in Brandon has been found, although a glass bottle (D1302) was discovered to the north-east of Brandon.

The medieval and post-medieval periods (5th century AD to 19th century AD)

- 4.3 The study area is situated away from the core of medieval and post-medieval settlement in Brandon. A cruck-framed barn (D903) is situated 800m to the north-west of the site, while a post-medieval moated enclosure (D3288) is located to the east of Brandon. The first pit in Brandon is recorded in 1836, and the colliery was expanded heavily in the 1850s. However, historic maps and a walkover survey suggest that the site was probably relatively undeveloped into the modern period.

Previous archaeological works

- 4.4 No previous excavations have taken place on the intended development area itself. Excavations on the Roman road (D3130) took place 1100m south-west of the site in 1937, and found that it was well-preserved. The road was also examined at Red Barns, 750m south-west of the study area, and again in 1937, 150m south (D5777), indicating that there was a slight change in its course.

5. The geophysical survey

Introduction

- 5.1 The proposed development area was geophysically surveyed in order to determine the location and nature of sub-surface anomalies of potential archaeological interest (Figure 2).

Technique selection

- 5.2 In this instance, given the non-igneous geological environment of the study area, a geomagnetic technique, fluxgate gradiometry, was considered appropriate for detecting any cut and built archaeological features which might be present. This technique involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the earth's magnetic field; such anomalies can reflect archaeological features.

Field methods

- 5.3 A 30m grid was established across the survey area and tied-in to known Ordnance Survey points.
- 5.4 Measurements of vertical geomagnetic field gradient were determined using a Bartington Grad601 dual fluxgate gradiometer. A zig-zag traverse scheme was employed and data were logged in 30m grid units. The instrument sensitivity was set to 0.1nT, the sample interval to 0.25m and the traverse interval to 1.0m, thus providing 3600 sample measurements per 30m grid unit.
- 5.5 Data were downloaded on-site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

Data processing

- 5.6 Geoplot v3(p) software was used to process the geophysical data and to produce a continuous tone 'greyscale' image of the raw data. The greyscale image has been imported directly into a digital basemap supplied by the client (Figure 2). Positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. A palette bar relates the greyscale intensities to anomaly values in nanoTesla.
- 5.7 The following basic processing functions have been applied to the gradiometer dataset:

Zero mean traverse – sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities.

Despike – to locate and suppress random iron spikes in gradiometer data.

Interpolate – to increase the number of data points in a survey; to match sample and traverse intervals. In this instance the gradiometer data have been interpolated from 1.0 x 0.25m intervals to 0.5 x 0.25m intervals.

Interpretation: anomaly types

- 5.8 A colour-coded geophysical interpretation plan is provided in Figure 3 and an archaeological interpretation plan in Figure 4. The following types of geophysical anomaly have been distinguished in the data:

positive magnetic regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic

susceptibility soil-filled structures such as pits and ditches.

dipolar magnetic paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials and/or fired structures such as kilns or hearths.

Interpretation: features

- 5.9 The survey data are characterised by a high concentrations of small dipolar magnetic anomalies. These almost certainly reflect items of near-surface ferrous and fired litter, which are present throughout the survey area. Three chains of intense dipolar magnetic anomalies in this area probably reflect the presence of utilities.
- 5.10 Three parallel, weak positive magnetic anomalies were detected in the eastern part of the survey area; one of these corresponds to the location of an existing footpath. Increased soil density along the path could account for this anomaly, although, as a group, the anomalies are more likely to reflect land drains.
- 5.11 No features of likely archaeological significance were detected.

6. The evaluation trenches

Introduction

- 6.1 Ten trenches were opened across the site (Figure 5). A JCB fitted with a toothless ditching bucket was used to remove the topsoil and modern overburden under close archaeological supervision. The trenches were cleaned by hand, and written and photographic records were made.

Trench 1

- 6.2 This trench was 20m by 2m in size, and was orientated north-west/south-east. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.36m. Immediately above this was [3], a brown clay loam, 0.06m thick. Covering this was topsoil [2], a dark brown silty clay 0.3m in thickness, which contained rubble waste. No archaeological deposits were identified, and no artefacts recovered.

Trench 2

- 6.3 This trench was 20m by 2m in size, and was orientated north-west/south-east. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.65m. Immediately above the natural was subsoil [3], a brown clay loam, 0.05m thick. This was overlain by a deposit of tarmac [4], which proved to be the foundation for a playground. This was overlain by topsoil [2], a dark brown silty clay varying between 0.05 and 0.3m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 3

- 6.4 This trench was 20m by 2m in size, and was orientated north-east/south-west. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.25m.

Covering this was topsoil [2], a dark brown silty clay 0.25m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 4

- 6.5 This trench was 20m by 2m in size, and was orientated north-east/south-west. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.25m. Covering this was topsoil [2], a dark brown silty clay 0.25m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 5

- 6.6 This trench was 20m by 2m in size, and was orientated north-west/south-east. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.6-0.7m. Immediately above the natural was subsoil [3], a brown clay loam, 0.35-0.45m thick. Covering this was topsoil [2], a dark brown silty clay 0.3-0.35m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 6

- 6.7 This trench was 20m by 2m in size, and was orientated north-east/south-west. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.8m. Immediately above the natural was subsoil [3], a brown clay loam, 0.35-0.45m thick. Covering this was topsoil [2], a dark brown silty clay 0.35m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 7

- 6.8 This trench was 20m by 2m in size, and was orientated north-east/south-west. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.6-0.7m. Immediately above the natural was subsoil [3], a brown clay loam, 0.35-0.45m thick. Covering this was topsoil [2], a dark brown silty clay 0.3-0.35m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 8

- 6.9 This trench was 20m by 2m in size, and was orientated north/south. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.4m. Immediately above the natural was subsoil [3], a brown clay loam, 0.1m thick. Covering this was topsoil [2], a dark brown silty clay 0.3m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 9

- 6.10 This trench was 20m by 2m in size, and was orientated north-east/south-west. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.5m. Immediately above the natural was subsoil [3], a brown clay loam, 0.2m thick. Covering this was topsoil [2], a dark brown silty clay 0.3m in thickness. No archaeological deposits were identified, and no artefacts recovered.

Trench 10

- 6.11 This trench was 20m by 2m in size, and was orientated north-west/south-east. Natural subsoil, a yellow boulder clay [1], was reached at a depth of 0.5m. Immediately above the natural was subsoil [3], a brown clay loam, 0.2m thick. Covering this was topsoil [2], a dark brown silty-clay 0.3m in thickness. No archaeological deposits were identified, and no artefacts recovered.

7. Conclusions and recommendations

- 7.1 No features of likely archaeological significance were detected in the geophysical survey and none was recorded in any of the trenches excavated at Lowland House, Brandon.
- 7.2 There are no recommendations for further archaeological works prior to the development of the site.

8. References

- Pevsner, N, 1982, *The Buildings of England: County Durham*, London: Yale University Press
- Smith, DB, and Francis, EA, 1967, *Geology of the Country between Durham and West Hartlepool*, London: HMSO



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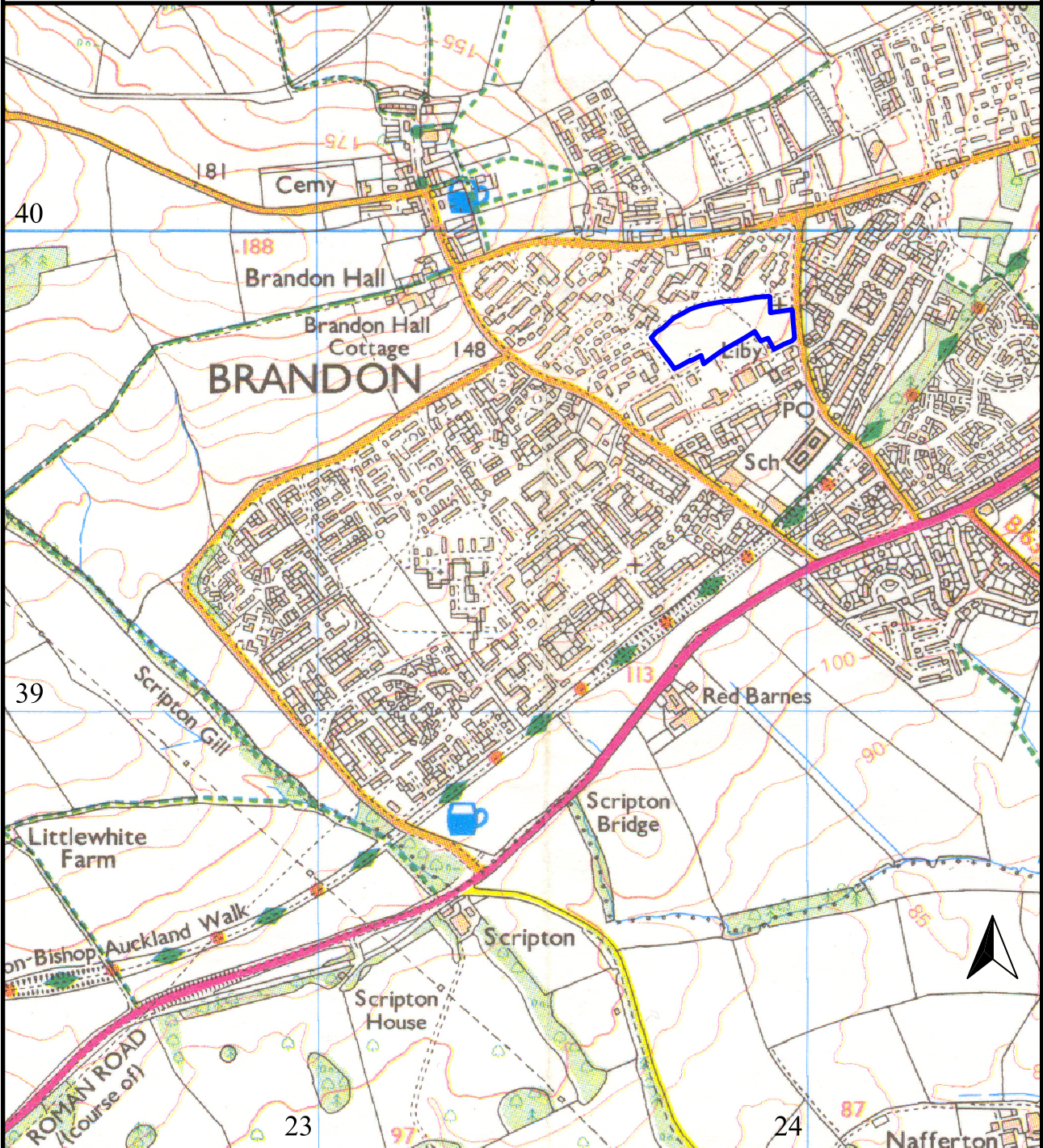
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Figure 1

Location of the proposed development area

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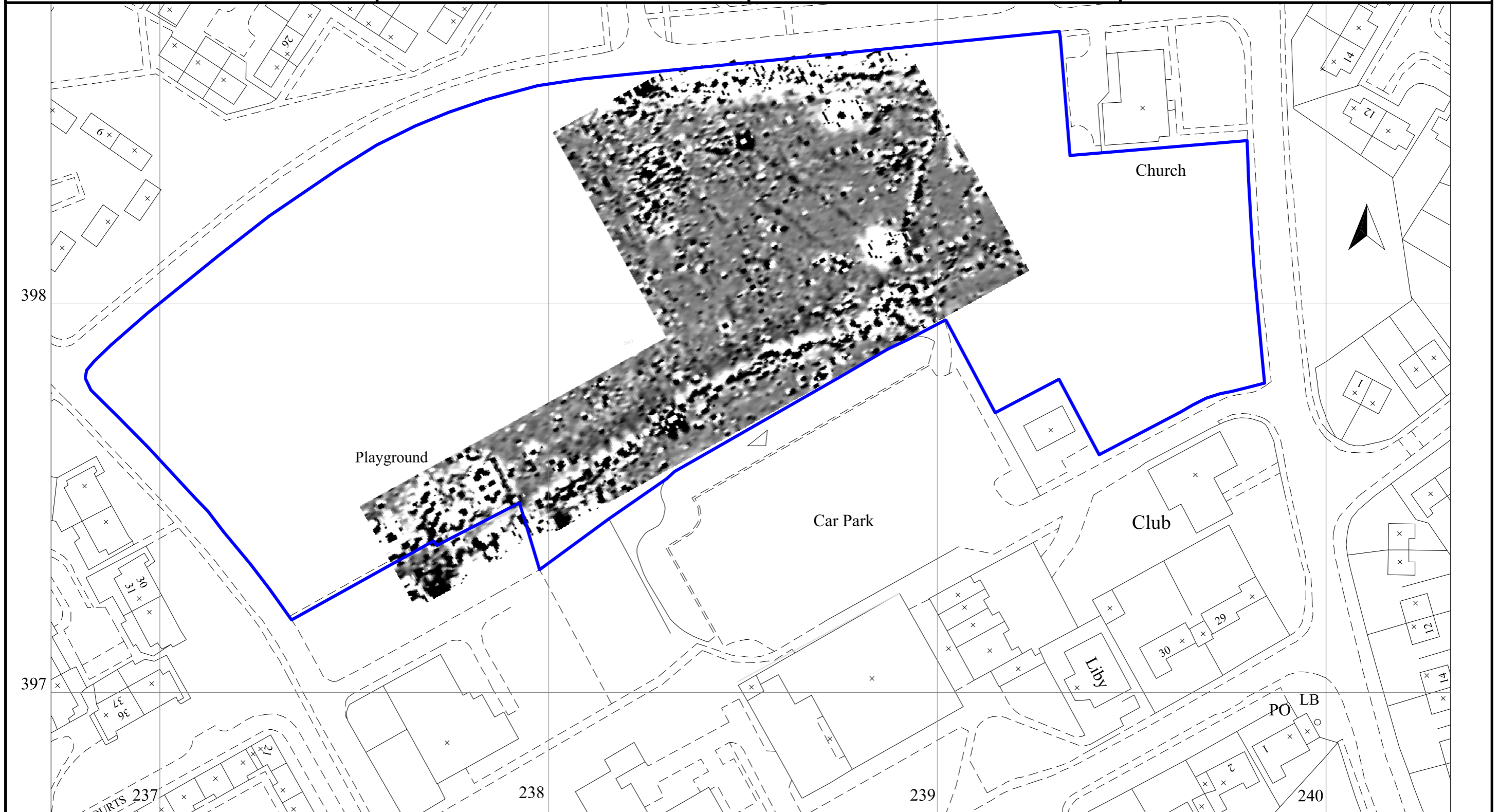
*Reproduced from Explorer 1:25 000 by
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proposed development area



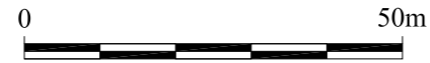
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





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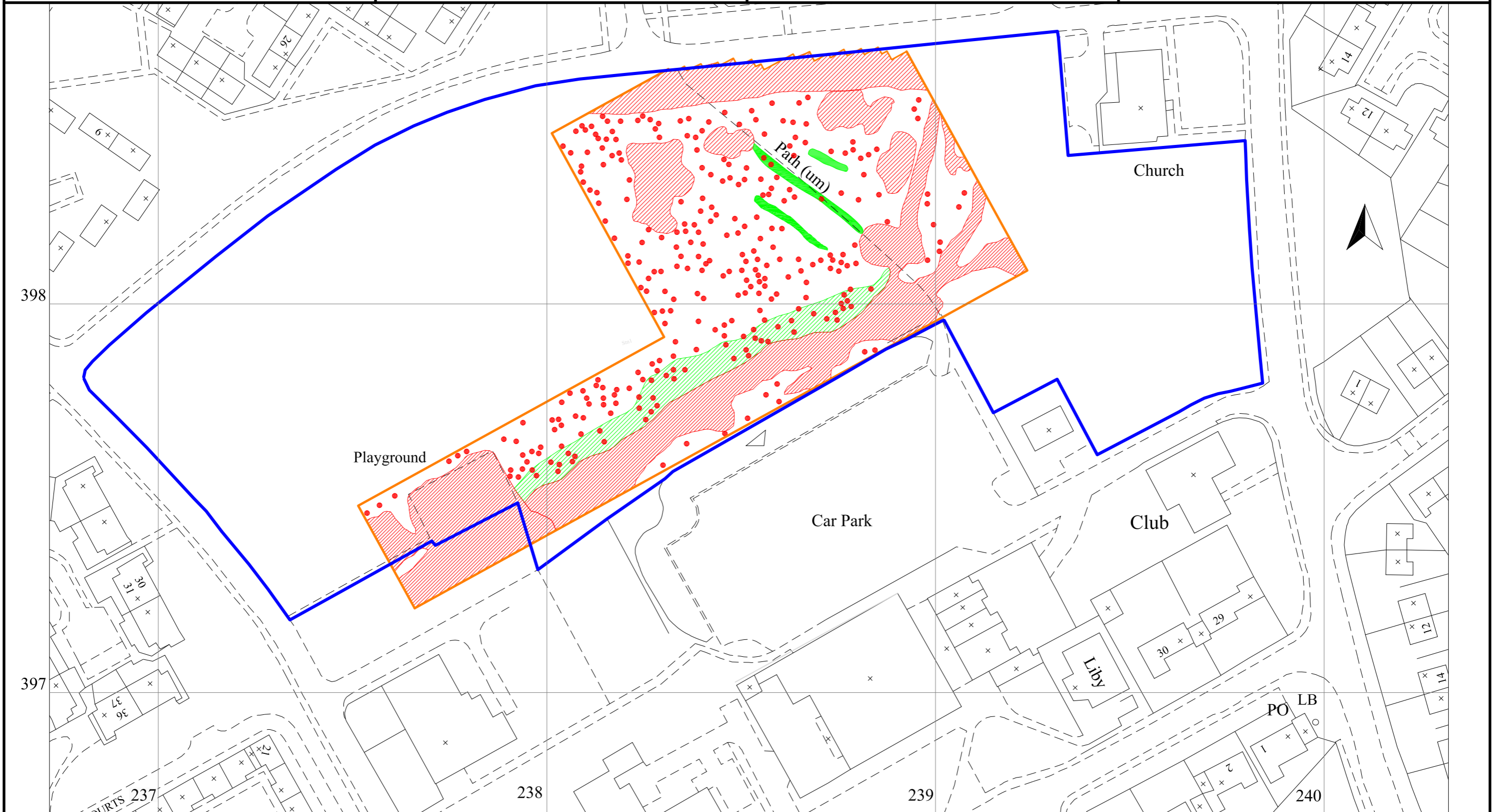
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-  proposed development area
-  outline of survey area
-  positive magnetic anomalies
-  dipolar magnetic anomalies

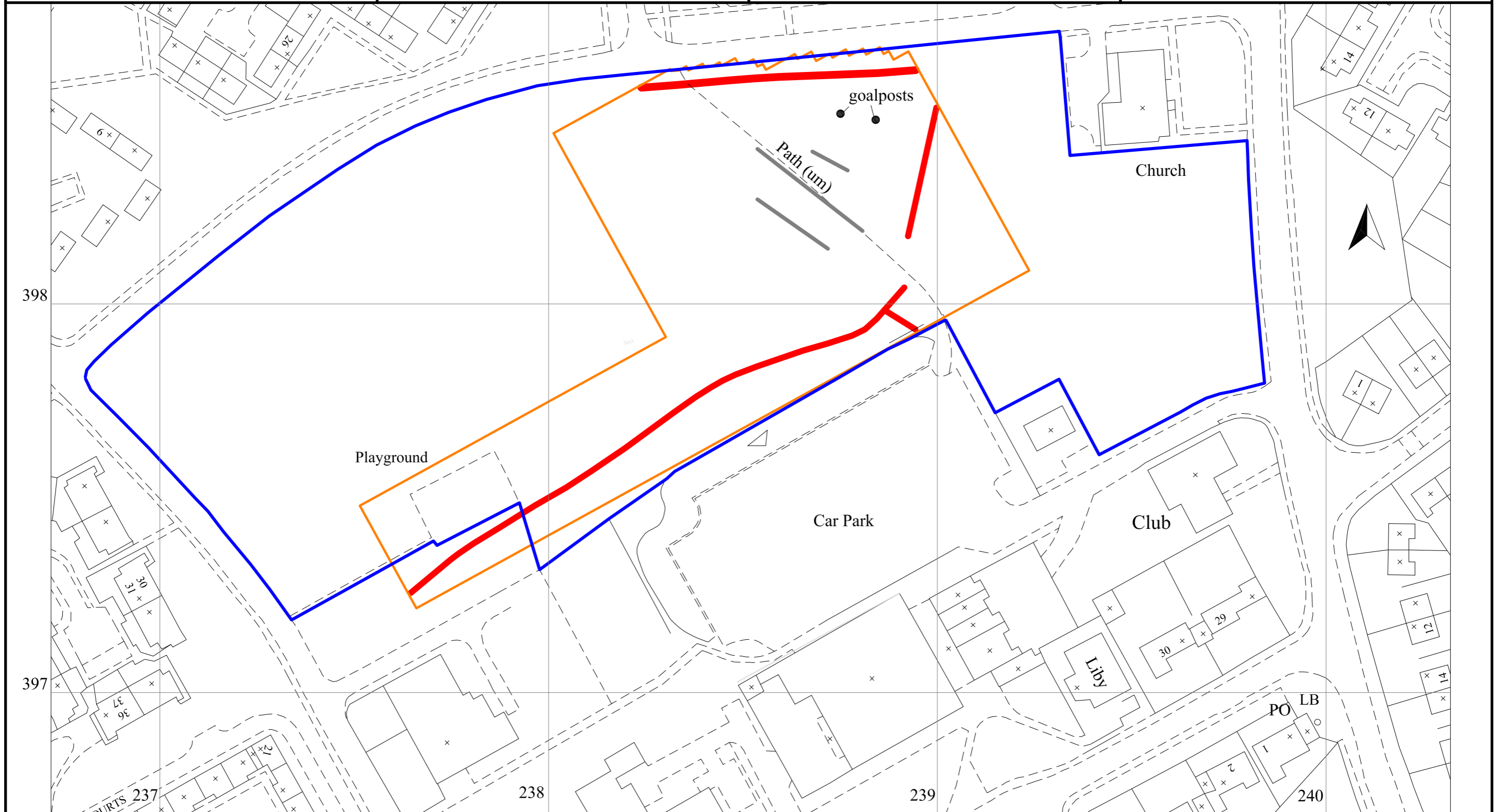
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Figure 3
Geophysical interpretation



-  proposed development area
-  outline of survey area
-  probable utilities
-  possible land drains

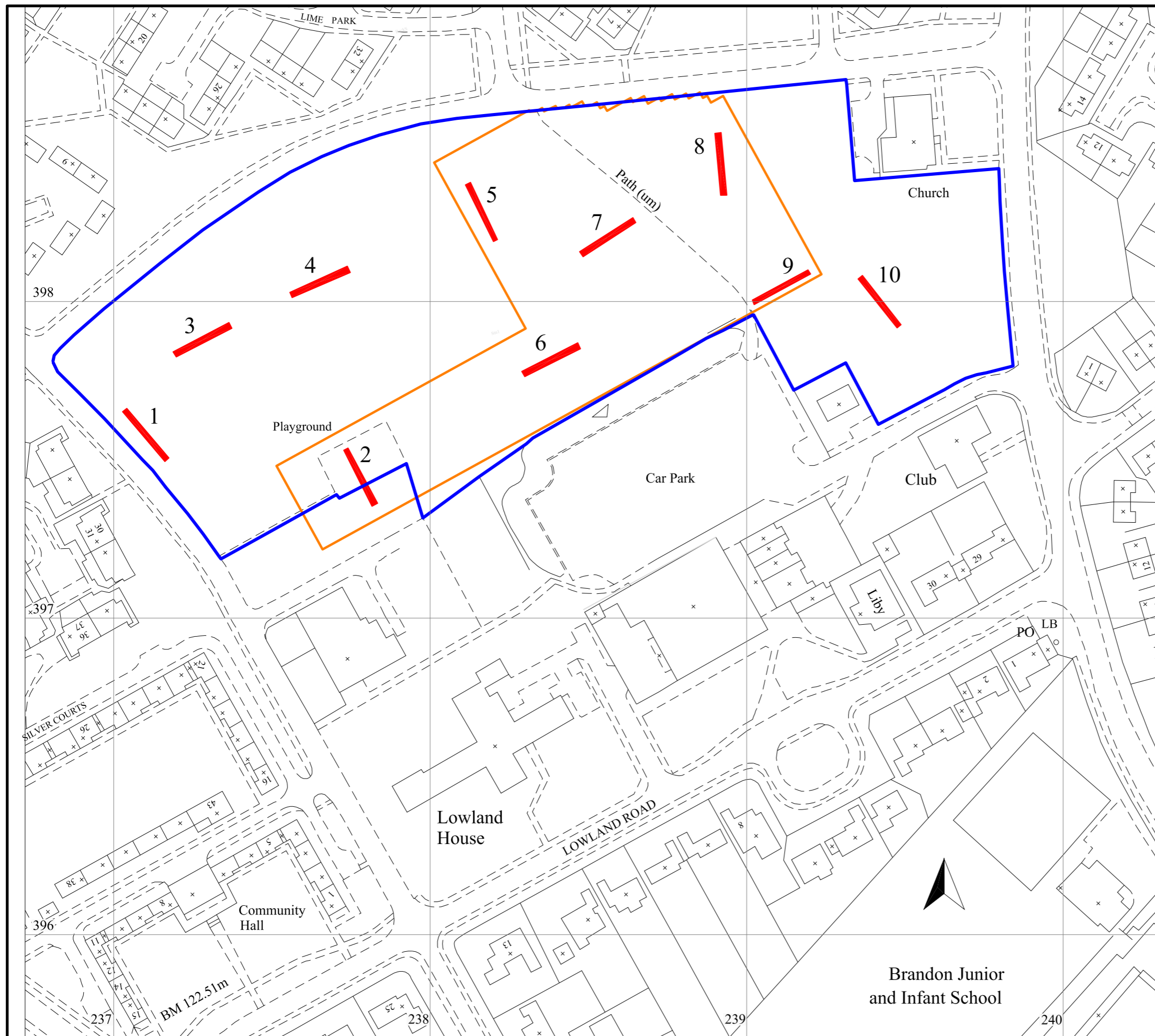
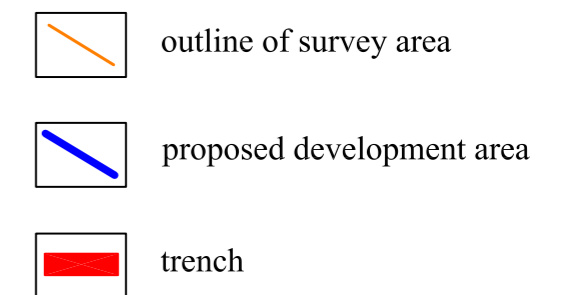
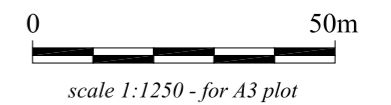


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Figure 5
Location of the evaluation trenches

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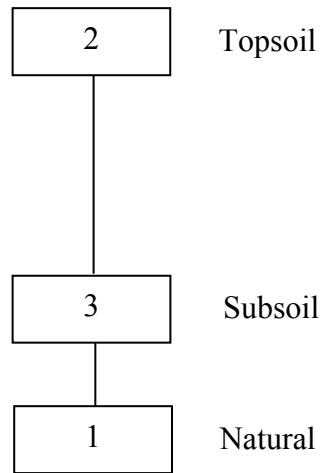


Appendix 1: Context data

No	Description
1	Yellow boulder clay
2	Dk brown silty clay topsoil
3	Brown clay loam subsoil
4	Tarmac (trench 2)

Appendix 2: Stratigraphic matrices

Trenches 1 and 3-10



Trench 2

