

SURVEY RESULTS

2001 / 52 Leighton, Shropshire

1. Survey Area

- 1.1 The two areas that were surveyed using geophysical techniques can be seen in Figure 1. Various techniques were used in the two areas as a result of the variable soil cover as well as potentially differing depths to the archaeology.
- 1.2 The survey grids were set out by **GSB Prospection** and tied in by Dr Henry Chapman using a GPS system.

2. Display

- 2.1 The results are displayed as X-Y traces, dot density plots and grey scale images. These display formats are discussed in the *Technical Information* section, at the end of the text.
- 2.2 These display formats are discussed in the *Technical Information* section at the end of the text.
- 2.3 Letters in parentheses in the text refer to specific anomalies noted on the interpretation diagrams.

3. General Considerations - Complicating Factors

- 3.1 Conditions for survey were variable. Within the area of the car park the conditions were good for the techniques that were used. The surface was flat and free from obstacles.
- 3.2 The grass field adjacent to the car park was partially overgrown with nettles. Many of the nettles were cut down, but some areas were still poor for survey as walking was not easy over the changeable surface of the meadow.
- 3.3 The soils at the site are likely to be from the 711n Clifton association. This association comprises seasonally waterlogged fine reddish soils (SSEW 1983). However, given the historic use of the site the soils are likely to be significantly modified.

4. Results from the Car Park - Area 1

A single 20x20m block was surveyed adjacent to the corner of the pub where the blast furnace is situated. Three techniques were used in this block: GPR, Fluxgate Gradiometry and EM. None of these techniques require a physical penetration of the ground and therefore are ideally suited to survey over a tarmac car park

Fluxgate Gradiometer Survey

Given the likelihood of fired/burnt material in the survey area the gradiometer data was predictably noisy. The results cannot really be interpreted in an archaeologically meaningful way. In retrospect, however, there is a broad positive response that coincides with the proven position of the furnace (A). Other anomalies, such as (B), indicate areas of ferrous and industrial material typical of such sites.

Electromagnetic Survey

The Geonics EM-38 instrument was set to collect data, in a 1x1m matrix, in its conductivity mode. It was hoped that the EM data would produce a contrasting image to the magnetic survey. As can be seen from the images the data is less confused and has produced a number of high conductivity responses. Of particular interest was the high conductivity area (C) which is not within an area of high magnetic response. This was excavated and a spread of ashy material was found. Anomaly (D) corresponds with the disturbed magnetic anomaly (B) noted in the gradiometer survey.

Ground Penetrating Radar

GPR traverse were collected along 1m traverses using a Pulse Ekko 225 MHz antenna.

The results are confused and probably indicate that the remains beneath the ground are very complex. The one anomaly of note (E) in the timeslice (Figure 4) is an area of reduced signal that coincides with the high conductivity anomaly noted in the EM data. While no anomaly could be detected over the furnace, a coherent set of responses was noted at (F) and these coincided on excavation with archaeological features.

5. Results from the Meadow - Area 2

Due to the conditions within the meadow (long grass, nettles and a dump of brick and related material) only two techniques were used in this area.

Magnetic Survey

The magnetic survey is dominated by strong anomalies that are clearly indicative of industrial material. These anomalies form two patterns. The clearest are linear and are the result of ditches filled in with burnt or industrial debris. These are probably water channels associated with the blast furnace. The second set of anomalies (G) is a general spread of noise adjacent to the Kynnersley Arms car park. This reflects dumps of brick and associated material.

Resistance Survey

The resistance survey covers the majority of the area of the magnetic survey. However, some of the area was not surveyed due to the presence of bricks, as described above.

The clearest anomalies are high resistance anomalies adjacent to the car park (H). While these are interpreted as possible building or structural remains, they are not correlated with a high magnetic response. If they do represent building material then the material is not fired i.e. it is not brick. The response could indicate hard core to create a platform.

The linear anomalies can largely be equated with earthworks noted above.

6. Conclusions

6.1 Survey in the Kynnersley Arms car park revealed a few anomalies of archaeological potential. However, the main focus of attention, the furnace, was only revealed using the magnetic technique. Other anomalies were the result of the industrial use of the site and indicated spreads of waste material.

6.2 The partial survey of the meadow largely reflected the earthworks that are apparent at the site. These include presumed water channels as well as platforms for structures.

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References:

SSEW 1983. *Soils of England and Wales. Sheet3, Midland and Western England.* Soil Survey of England and Wales.

SITE SUMMARY SHEET

2001 / 52 Leighton, Shropshire

NGR: SJ 611 055

Location

The village of Leighton lies on the B4380 to the west of Ironbridge, Shropshire. The main area of interest is situated to the rear of the Kynnersley Arms public house that fronts onto the southern side of the B4380. This land comprises the tarmac car park for the pub. A second area lies in the pasture meadow to the east of the car park.

Archaeology

The known archaeology at the site includes a blast furnace for the production of iron. Part of the furnace is incorporated within the cellars of the pub and evidently must extend into the car park at the rear. Apart from the furnace it was thought that the survey areas may contain many remains associated with the furnace including outbuildings, casting pits and possibly the Tail Race.

Aims of Survey

The geophysical work involved the investigation of part of the car park to the rear of the Kynnersley Arms and a sample of the adjacent pasture field. It was hoped that the location of features linked to the former industrial use of the site would be identified. The techniques used in this investigation include Ground Penetrating Radar (GPR), Resistance, Fluxgate Gradiometry and Electro-Magnetism (EM). The work formed part of a wider investigation undertaken by **Time Team** on behalf of **Channel 4 TV**.

Summary of Results *

The results of the geophysical work at Leighton have provided a mixed set of results. Within the car park of the pub a number of anomalies were mapped that are of archaeological interest. However, the majority are near surface and probably relate to recent use of the site.

In the area surveyed in the pasture meadow the data indicated clear archaeological type anomalies. These largely reflect the earthworks that are apparent in the field as well as former water channels.

*** It is essential that this summary is read in conjunction with the detailed results of the survey.**

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