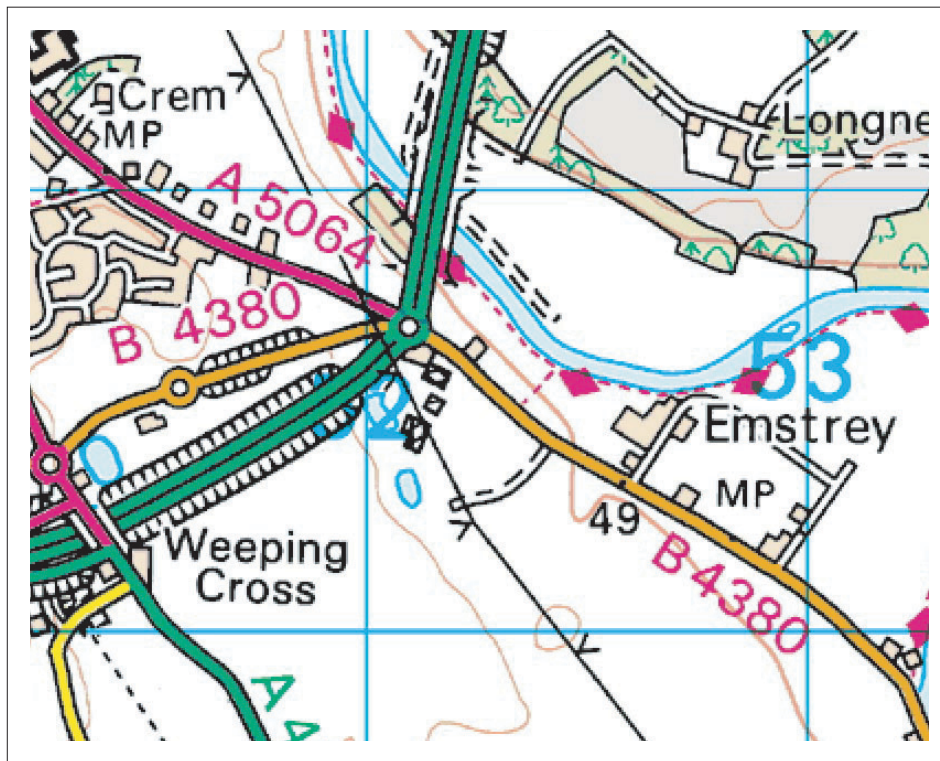




CAMBRIAN  
ARCHAEOLOGICAL  
PROJECTS

## Emstrey, Shrewsbury Shropshire

Geophysical Survey & Field Evaluation



By  
Chris E Smith BA (Hons) MA MIFA

Report No. 559

Cambrian Archaeological Projects Ltd  
Old Chapel Farm, Llanidloes  
Powys SY18 6JR  
Telephone: 01686 413857  
E-mail: info@cambarch.co.uk






CAMBRIAN  
ARCHAEOLOGICAL  
PROJECTS

# Emstrey, Shrewsbury Shropshire

Geophysical Survey & Field Evaluation

Prepared For: H J Wilson  
On Behalf of: WDW Architects

Edited by Gay Roberts  
Signed:   
Position: Editorial Assistant  
Date:

Authorised by Mark Houlston  
Signed:   
Position: Director  
Date:

By  
Chris E Smith BA (Hons) MA MIFA

Report No: **559**

Date: **March 2009**

Cambrian Archaeological Projects Ltd  
Old Chapel Farm, Llanidloes  
Powys SY18 6JR  
Telephone: 01686 413857  
E-mail: info@cambarch.co.uk



# CONTENTS

1	Introduction.....	1
1.1	Location and scope of work .....	1
1.2	Geology and topography .....	1
2	Aims and Objectives .....	1
2.1	Geophysical Survey .....	1
2.2	Field Evaluation .....	1
3	Geophysical Survey Methodology .....	2
3.1	Scope of Fieldwork .....	2
4	Field Evaluation Methodology.....	3
4.1	Scope of Fieldwork .....	3
5	Geophysical Survey Results.....	3
5.1	Ground conditions.....	3
5.2	Survey Location and Summary .....	3
5.3	Results of the Survey.....	3
5.4	Interpretation .....	4
6	Conclusions of the Geophysical Survey.....	4
7	Evaluation Results.....	4
7.1	Soils and ground conditions .....	4
7.2	Distribution of deposits .....	4
7.3	Descriptions.....	5
8	Finds.....	5
9	Discussion and Interpretation.....	5
9.1	Reliability of field investigation.....	5
9.2	Overall interpretation .....	6
9.3	Significance .....	6
10	Acknowledgements .....	6
11	Bibliography and references.....	7

## **List of Figures**

Figure 1	Location Map
Figure 2	Detailed Survey Location
Figure 3	Survey Results
Figure 4	Traced Interpretations of Survey Results
Figure 5	Locations of Survey Results
Figure 6	Locations of Traced Features
Figure 7	Locations of Evaluation Trenches
Figure 8	Trench Illustrations

## **List of Plates**

Plate 1	View along Trench 1
Plate 2	View of Excavated Land Drain
Plate 3	View of Excavated Field Boundary/Hedgerow
Plate 4	View along Trench 2
Plate 5	View of Silt Deposit in Section
Plate 6	View along Trench 3

### **Copyright Notice:**

Cambrian Archaeological Projects Ltd. retain copyright of this report under the Copyright, Designs and Patents Act, 1988, and have granted a licence to WDW Architects to use and reproduce the material contained within.

The Ordnance Survey has granted Cambrian Archaeological Projects Ltd a Copyright Licence (No. AL 52163A0001) to reproduce map information; Copyright remains otherwise with the Ordnance Survey.

# Non Technical Summary

*This report results from work undertaken by Cambrian Archaeological Projects Ltd (CAP) for WDW Architects on land at Emstrey, Shrewsbury, Shropshire. The work involved the undertaking of a geophysical survey and field evaluation.*

*The assessment area is a field to the south east of the Salop Leisure centre adjacent to the B4380. Ordnance Survey photographic evidence suggests the presence of a circular cropmarked enclosure with an associated linear feature within the assessment area. The geophysical survey located a faint circular feature as well as several linear features. These were subsequently investigated by the field evaluation and found to be of little archaeological significance.*

## 1 Introduction

### 1.1 Location and scope of work

1.1.1 In March 2009 Cambrian Archaeological Projects (CAP) carried out a geophysical survey and field evaluation on land to the south east of the Salop Leisure centre adjacent to the B4380 (NGR SJ 52243 10454 – Fig 1) in advance of a proposed extension to business premises at Emstrey, Shrewsbury. Work was carried out on behalf of WDW Architects.

1.1.2 A design brief was set by Michael Watson, Historic Environment Officer for Shropshire County Council, against which an archaeological specification was drawn up by Cambrian Archaeological Projects Ltd.

### 1.2 Geology and topography

1.2.1 The assessment area is located 3.7km to the south east of the centre of Shrewsbury on undulating land adjacent to the River Severn at approximately 54m OD.

1.2.2 The underlying solid geology of the assessment area is comprised of Westphalian and Stephanian Sedimentary series (British Geological Survey Map, 1994).

## 2 Aims and Objectives

### 2.1 Geophysical Survey

2.1.1 To assess the presence/absence of subterranean archaeological remains within the assessment area.

2.1.2 To determine the extent and location of any archaeological remains present.

2.1.3 To inform the approach to any possible trench locations should an evaluation phase be deemed necessary.

### 2.2 Field Evaluation

- 2.2.1 To establish the presence/absence of archaeological remains within the assessment area.
- 2.2.2 To determine the extent, condition, nature, character, quality and date of any archaeological remains present.
- 2.2.3 To establish the ecofactual and environmental potential of archaeological deposits and features
- 2.2.4 To appraise the likely impact of the proposal on any surviving archaeological deposits and, if appropriate, to make suggestions for a mitigation strategy or, where areas contain archaeology of national importance, for preservation *in situ*.

### 3 Geophysical Survey Methodology

#### 3.1 Scope of Fieldwork

3.1.2 Two Fluxgate Gradiometers were used to undertake the survey. Previous research has shown that fired, or cut and backfilled archaeological features such as kilns and hearths, ditches and pits often have an anomalously higher magnetic susceptibility than the surrounding subsoil due to burning and biological processes. Differences in magnetic susceptibility within the subsoil and archaeological features can be detected as changing magnetic flux by an instrument such as a fluxgate gradiometer. Data from this may be mapped at closely spaced regular intervals, to produce an image that may be interpreted to locate buried archaeological features (Clarke 1990).

3.1.3 The machines used for the survey were Geoscan Research FM256 fluxgate gradiometers using the double speed dual gradiometer survey mode. Detailed surveys were carried out in grids of 50m x 50m along parallel traverses spaced at 2m intervals, recording data points spaced at 0.5m intervals to a maximum instrument sensitivity of 0.1nT in accordance with English Heritage Guidelines (EH 1995). The grids were surveyed in the 'zigzag' style (traverses walked alternately south-north/north-south). At regular intervals the data was downloaded to a laptop computer for storage and assessment.

3.1.4 The location of the survey area was then surveyed using a Topcon GTS 725 total station.

#### 3.1.5 Data Processing and Presentation

Following the completion of the detailed surveys, processing and analysis took place using Geoscan Research's Geoplot v.3.00k software. The most typical method of visualising the data is as a greyscale image. In a greyscale, each data point is represented as a shade of grey, from black to white at either extreme of the data range. A number of standard operations were carried out to process the data. The gradiometer data was mathematically adjusted to account for instrument drift over time. The mean level of each traverse of data was reduced to zero and all grids matched so that there were no differences between background levels. The data was then analysed using a variety of parameters and styles and the most useful of these were saved as a \*JPEG image and manipulated using Adobe Illustrator software. The results of the survey were then overlaid onto a digital map of the study area. This was then used to produce the interpretation figures.

3.1.6 All works were undertaken in accordance with both the IFA's *Standards and Guidance: for a geophysical survey* and current Health and Safety legislation.

## 4 Field Evaluation Methodology

### 4.1 Scope of Fieldwork

- 4.1.1 The evaluation consisted of three machine-excavated trenches (Fig 2) that were 1.5m in width. Trench 1 measured 35m in length. Trenches 2 and 3 measured 20m in length. A mechanical excavator fitted with a toothless bucket removed the overburden under close archaeological supervision.
- 4.1.2 Project Manager Chris E Smith and project assistant Irma Bernardus undertook the evaluation. The trenches were cleaned by hand with plans and sections being recorded at scales of 1:10, 1:20 and 1:50 as appropriate. All trenches were photographed using high resolution digital photography.
- 4.1.3 All works were undertaken in accordance with both the IFA's *Standards and Guidance: for an archaeological evaluation* and current Health and Safety legislation.

## 5 Geophysical Survey Results

### 5.1 Ground conditions

- 5.1.1 Generally the site and weather conditions remained warm and dry during the undertaking of the survey.

### 5.2 Survey Location and Summary

- 5.2.1 The assessment area was surveyed using a total of 19 grids, each measuring 20x20m (Fig 2). Features affecting the results of the survey included stubbled corn which occasionally jarred the machines and a metal grill over a culverted section of drain flowing into the ditch adjacent to the survey area.

### 5.3 Results of the Survey

- 5.3.1 The geophysical survey shows seven separate features (Figs 3-6).
- 5.3.2 Feature A shows as a large yet extremely faint circular enclosure. It appears to be approximately 40m in diameter. The nature of the response would appear to indicate a cut ditch.
- 5.3.3 Feature B shows as an extremely faint linear feature running for 100m roughly north to south to the west of feature A. less distinct linear magnetic response running on a SE – NW axis. The nature of the response would appear to indicate a cut ditch.
- 5.3.4 Feature C shows as a faint linear giving a slightly more magnetic response. It appears to run in a north east to south west direction for approximately 80m. The nature of the response would appear to indicate a cut ditch.
- 5.3.5 Features D, E and F all appear as faint thin parallel linear features. All run in a north east to south west direction. The nature of the response would appear to indicate cut features.
- 5.3.6 Feature G is an extremely ephemeral curvilinear feature showing a slightly raised magnetic response to the area surrounding it. It measures approximately 15m in length. The nature of the response, though extremely faint, would appear to indicate a cut feature.

## 5.4 Interpretation

- 5.4.1 Feature A is likely to represent the circular enclosure seen in aerial photographs. The extremely faint nature of the feature indicates a very weak magnetic response. This may be due to either the depth of soil beneath which it is buried or that the circular ditch itself is very shallow, perhaps having been truncated by agricultural activity over the years. The north western edge of the circle is extremely difficult to make out as is any potential entrance. This may again be due to later truncation. A prehistoric date is the most likely for this feature.
- 5.4.2 Feature B is a long linear feature, most likely a ditch, and appears to be reasonably wide, possibly up to 2m. It is equally as faint as Feature A and is located close to the west side of Feature A. No relationship between the two features can be accurately inferred. Feature B appears truncated by later features D, E and F. No date can be assigned to this feature.
- 5.4.3 Feature C is another long linear feature, again most likely a ditch. It notably runs parallel, along the majority of its length, with the extant field boundary against which the survey is located. The relationship between Features C and D is unclear although one does appear to cut the other. Given the parallel nature of Feature C and the extant hedgerow within the field, Feature C is likely to represent a defunct field boundary, most likely predating the early 19<sup>th</sup> century acts of enclosure.
- 5.4.4 Features D, E and F, faint parallel linear features, are likely to represent plough scars or cultivation furrows. They appear to post date features A and B. Given their parallel nature they are likely to be contemporary. Given the width between them they may represent medieval ridge and furrow cultivation.
- 5.4.5 Feature G is the most ephemeral feature. It appears as a very weak magnetic response in a curvilinear shape. It is possible to tentatively suggest it is all that remains of a further, possibly earlier, circular enclosure similar to Feature A.

## 6 Conclusions of the Geophysical Survey

- 6.1.1 The geophysical survey undertaken within the assessment area has shown that the area appears to contain seven distinct archaeological features of various dates. Each feature has only a very weak magnetic response. This may be due to either being buried beneath a depth of soil sufficient to mask the features or to the cut features themselves being shallow in nature, possibly truncated.

## 7 Evaluation Results

### 7.1 Soils and ground conditions

- 7.1.1 Generally the weather conditions whilst on site were mixed with mainly sun and cloud and the occasional light shower. The topsoil was comprised of dark brown friable silt and the ground remained dry throughout the evaluation.

### 7.2 Distribution of deposits

- 7.2.1 The topsoil deposits were consistently present in all four trenches although their thickness did vary slightly. The underlying natural soils and geology of the site varied from trench to trench from natural solid clay to bands of sand and gravel.



## 7.3 Descriptions

### *Trench 1* (Figs 8&9) (Plates 1, 2&3)

7.3.1 Trench 1 was located so as to investigate both the linear features and the circular feature located on the geophysical survey. Removal of topsoil (101) revealed a firmly compacted layer of yellowish brown clay silt with frequent manganese flecks (102). This was revealed at approximately 0.4m deep and was taken to represent a natural subsoil horizon. Cut into this horizon were four land drains [103, 105, 109 & 113] and one shallow ditch [115]. The natural subsoil horizon was found to butt against a different type of natural, a sandy clay, approximately halfway along the length of the trench. The sandy clay natural had several patches of gravel located within it. Upon investigation these were proven to be natural deposits. The land drains cut into the natural all consisted of vertically sided cuts with a ceramic pipe at the base backfilled with loose stone. The ditch [115] located at the west end of the trench contained a single fill (108) and had very irregular edges. The ditch ran parallel with the field boundary adjacent to the site and is likely to represent a similar hedgerow boundary subsequently removed. No further archaeological finds or features were located within this trench.

### *Trench 2* (Fig 8) (Plates 4&5)

7.3.2 Trench 2 was located so as to investigate the circular feature located on the geophysical survey. The removal of topsoil (201) revealed a yellow brown silt clay subsoil (202). Subsequent removal of (202) revealed a sandy deposit similar to that seen in trench 1. Subsequent removal of this deposit revealed a compact red clay natural at approximately 1.1m below the current ground surface. A small area of dark silt was noted in section although no features were apparent in plan during machining of the trench. No further archaeological finds or features were noted within this trench.

### *Trench 3* (Fig 8) (Plate 6)

7.3.3 Trench 3 was located so as to investigate the faint smaller curvilinear feature located on the geophysical survey. The removal of topsoil (301) revealed a yellow brown silt clay subsoil (302). Subsequent removal of (302) revealed a loosely compacted gravel deposit across the entire trench. Subsequent removal of this deposit revealed a compact red clay and gravel natural at approximately 0.4m below the current ground surface. No archaeological finds or features were noted within this trench.

## 8 Finds

8.1.1 Whilst 18<sup>th</sup> and 19<sup>th</sup> century ceramic material was present within the topsoil of the field no finds were recovered from within the trenches.

## 9 Discussion and Interpretation

### 9.1 Reliability of field investigation

9.1.1 The evaluation was unhampered by any modern building or agricultural activity.

9.1.2 The overall findings of the geophysical survey were consistent with those suggested by the aerial photography. However, no trace of a ditch/linear on the eastern side of the enclosure was picked up by the geophysics.

9.1.3 The circular feature located very faintly by the geophysics was not observed in any of the trenches. The trenches did locate the linear features, however, which were land drains and a field boundary ditch (trench 1).

9.1.4 The lack of archaeological evidence within the trenches relating to the circular feature would suggest that either the feature was so ephemeral, possibly due to truncation, that nothing now remains or that the slightly higher readings creating the feature on the survey were coincidental.

## 9.2 Overall interpretation

9.2.1 The survey highlighted the possible presence of prehistoric activity with the apparent location of a large circular enclosure. However, no trace of this feature was located within the trenches.

9.2.2 The linear features noted on the survey were located within the trenches and were shown to represent a defunct field boundary and a series of land drains.

## 9.3 Significance

9.3.1 The evaluation revealed that the majority of the proposed development site is likely to be archaeologically sterile.

# 10 Acknowledgements

10.1.1 Thanks are due to Irma Bernardus for her assistance during the geophysical survey and field evaluation.

## 11 **Bibliography and references**

British Geological Survey Map, 1994

Soil survey of England & Wales, 1983

## ARCHIVE COVER SHEET

Site Name: Emstrey, Shrewsbury, Shropshire  
Site Code: ESS/09/GEO + EVA  
PRN: -  
NPRN: -  
SAM: -  
Other Ref No: Report No. 559  
NGR: SJ 52243 10454  
Site Type: Pastoral Agricultural Land  
Project Type: Geophysical Survey & Field Evaluation  
Project Manager: Chris E Smith MA MIFA  
Project Dates: March 2009  
Categories Present: -  
Location of Original Archive: CAP Office  
Location of duplicate Archives: -  
Number of Finds Boxes: -  
Location of Finds: -  
Museum Reference: -  
Copyright: -  
Restrictions to access: None

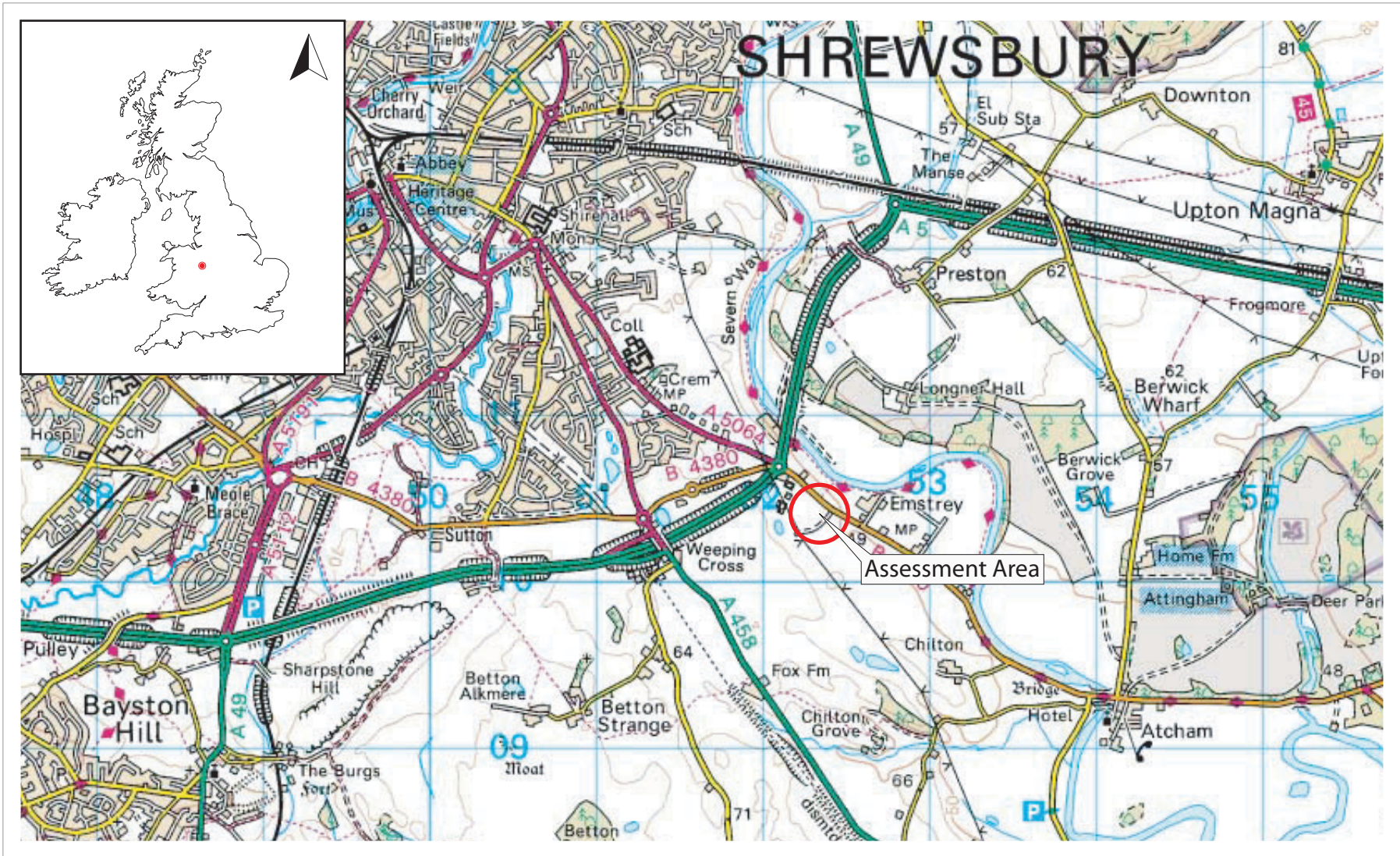


Fig 1: Map showing general location of assessment area

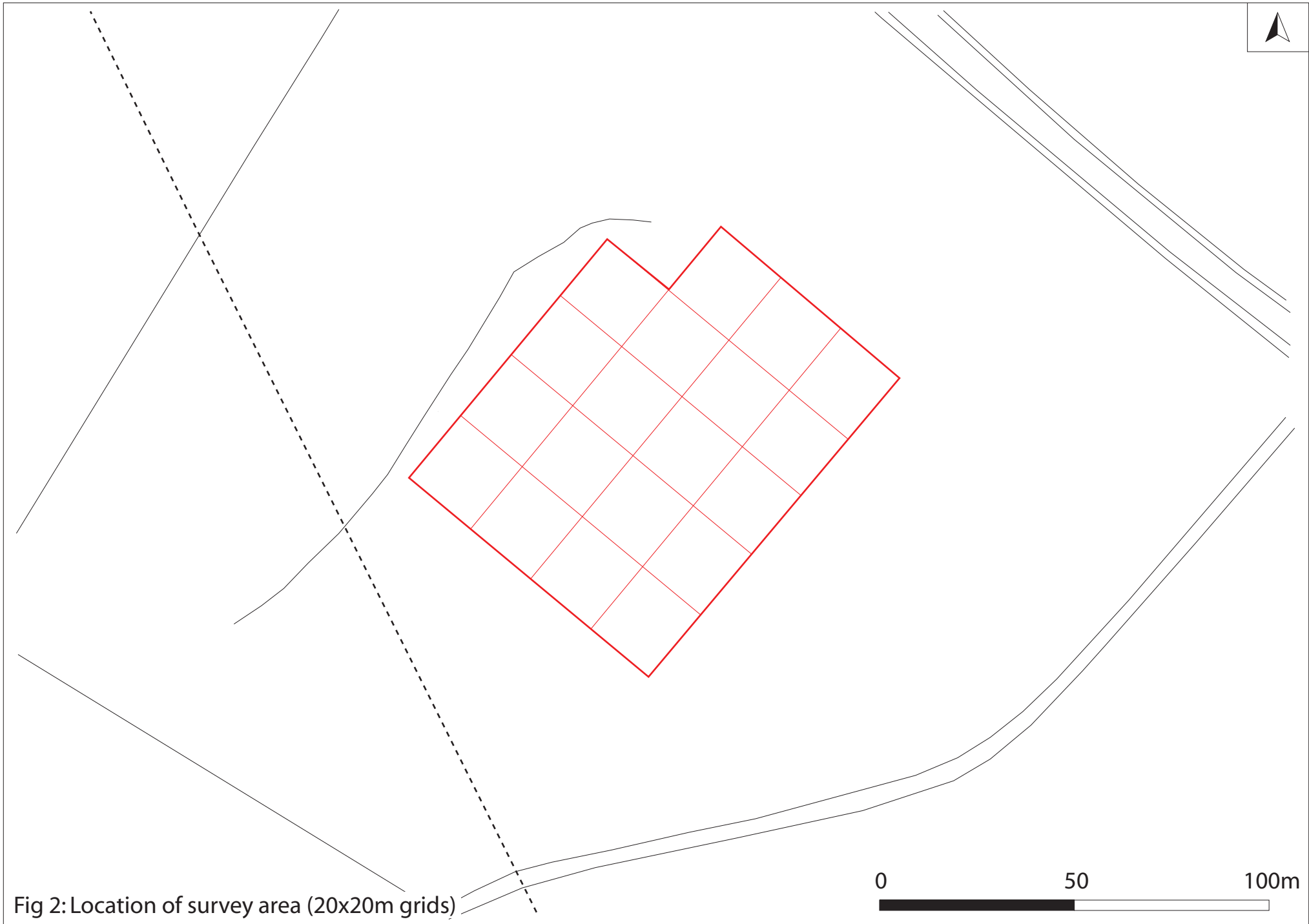


Fig 2: Location of survey area (20x20m grids)

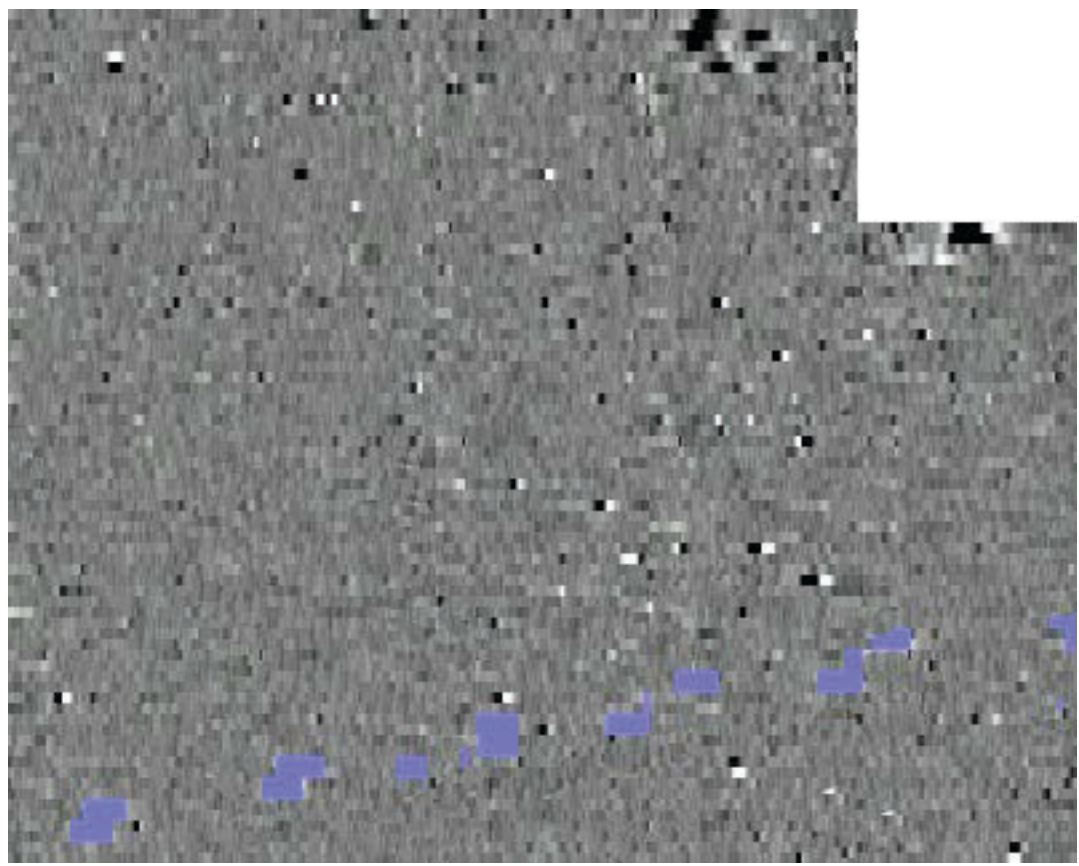


Fig 3: Results of survey



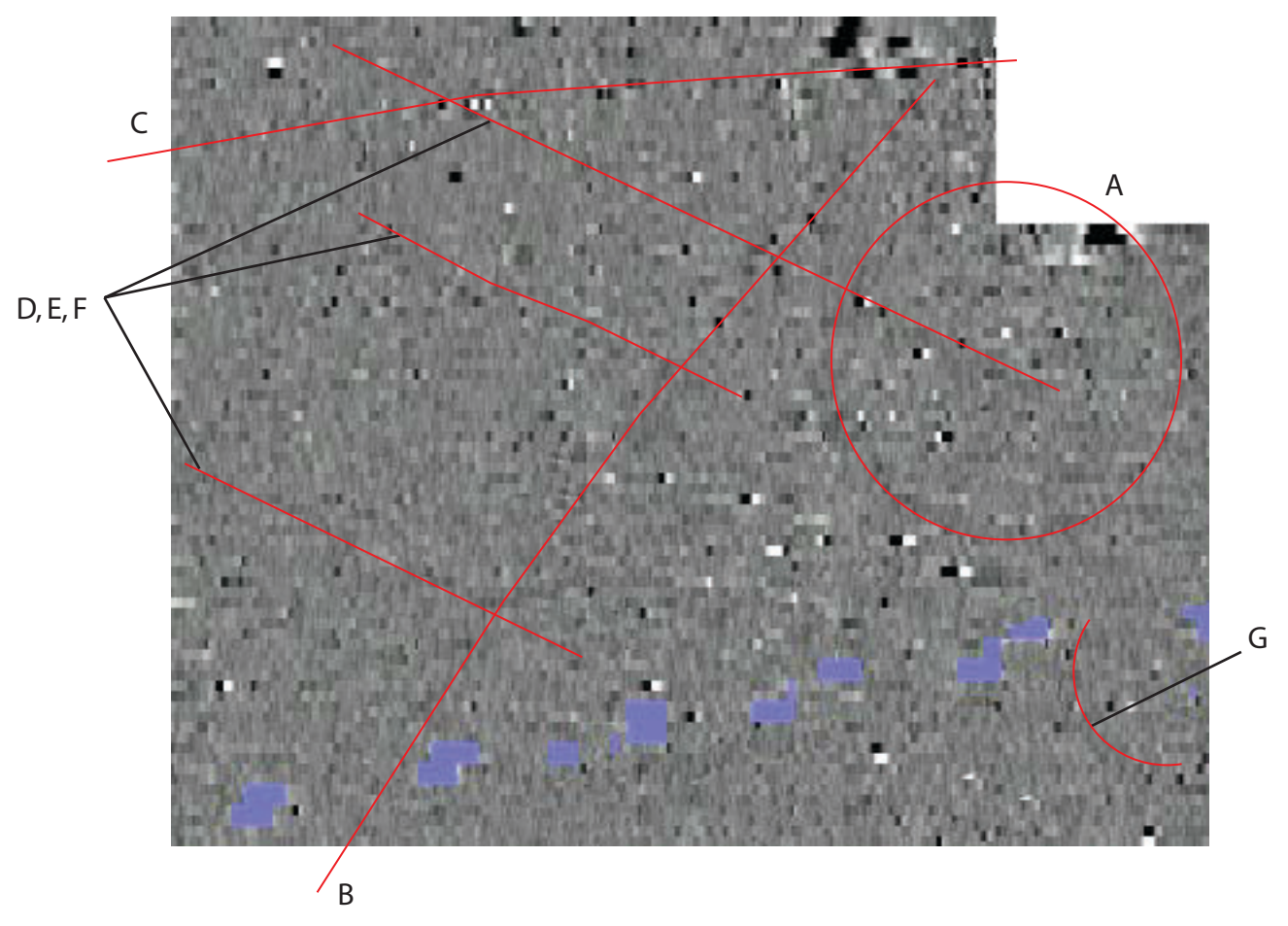


Fig 4: Traced interpretation of features located within survey area







Fig 5: Location of Surveyed features within field

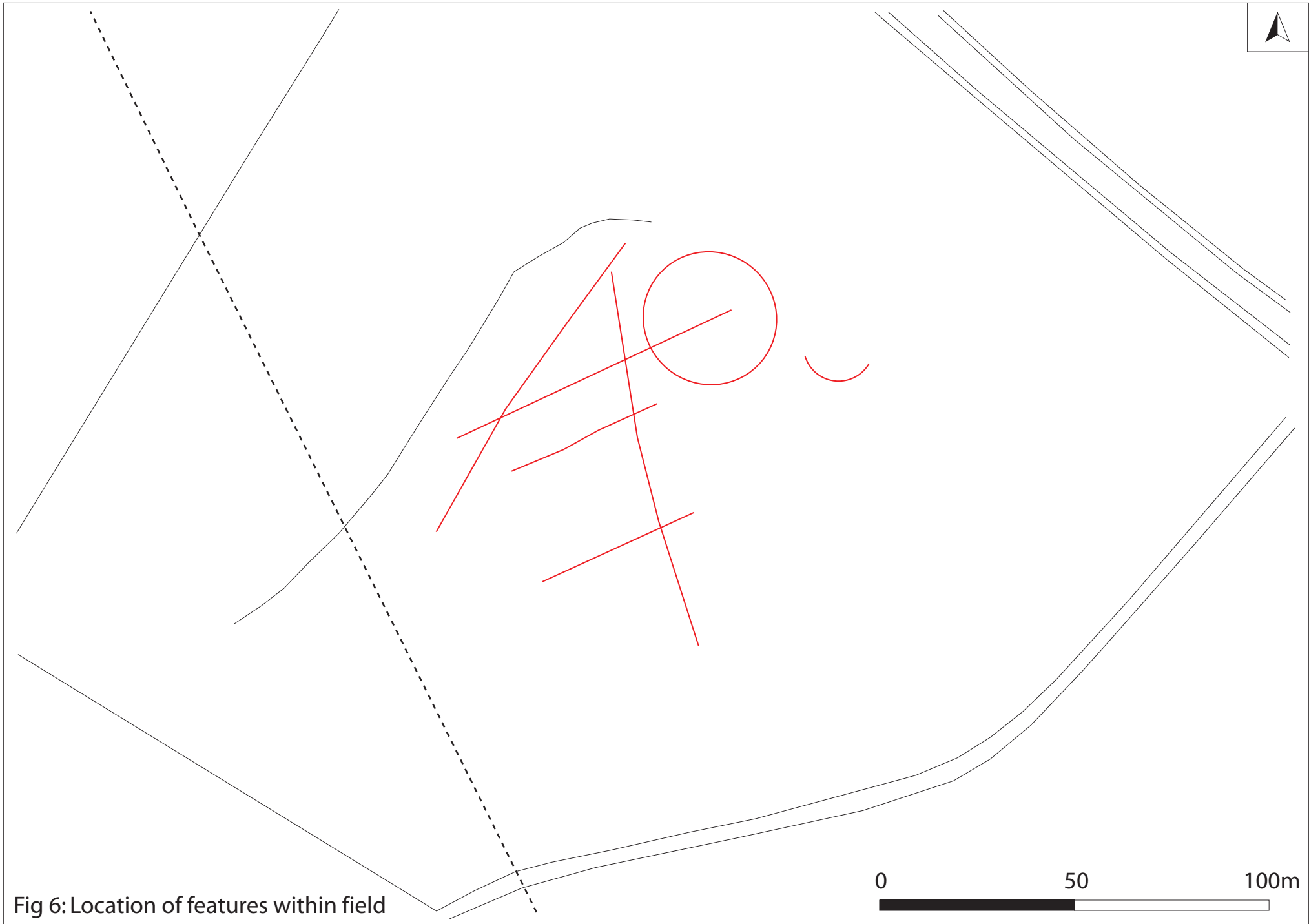


Fig 6: Location of features within field

0 50 100m

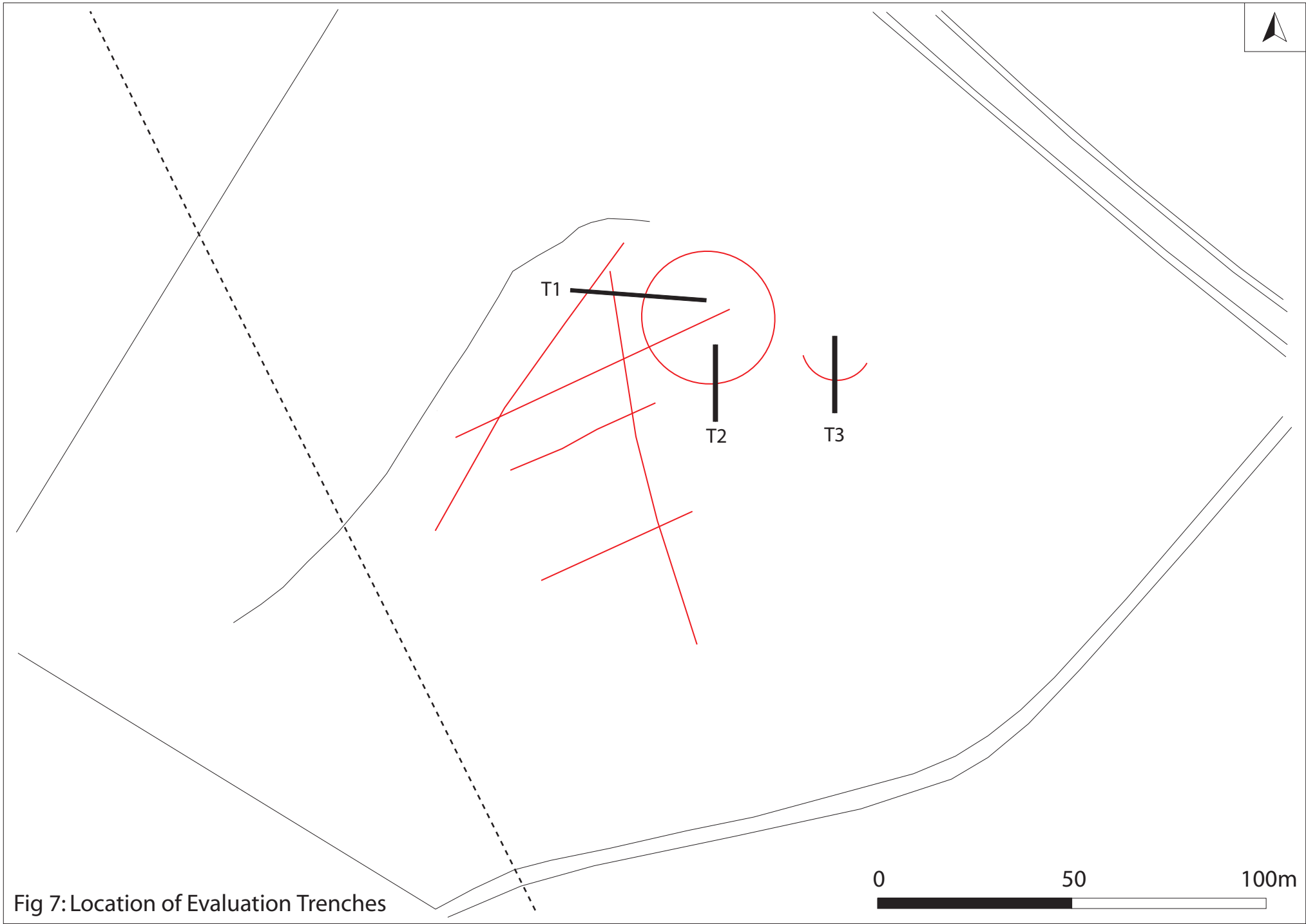


Fig 7: Location of Evaluation Trenches

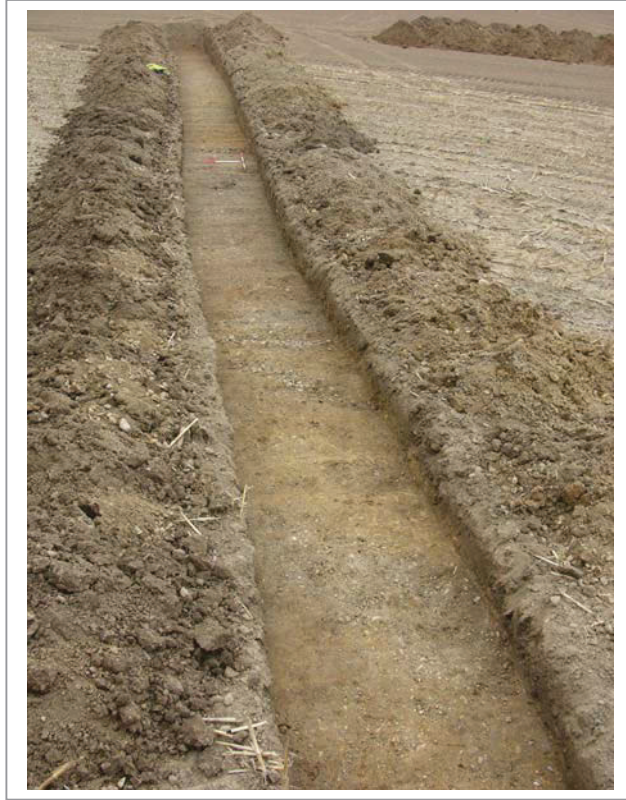


Plate 1: View along Trench 1, Looking East, Scales 1x1m & 1x2m



Plate 2: View of excavated land drains within Trench 1, Scale 1x1m



Plate 3: View of excavated boundary/hedgerow ditch in Trench 1,

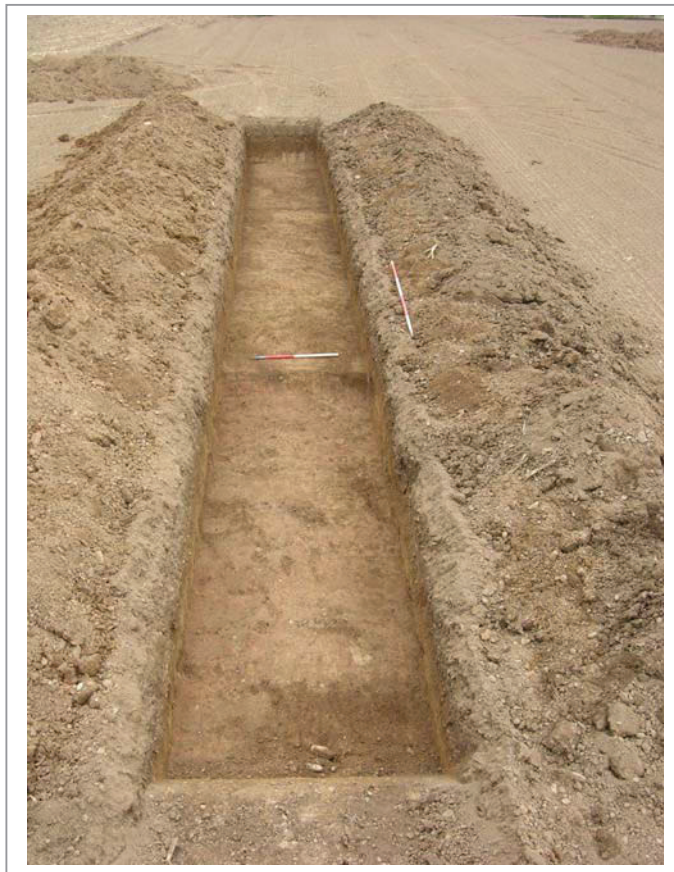


Plate 4: View along Trench 2, Looking North

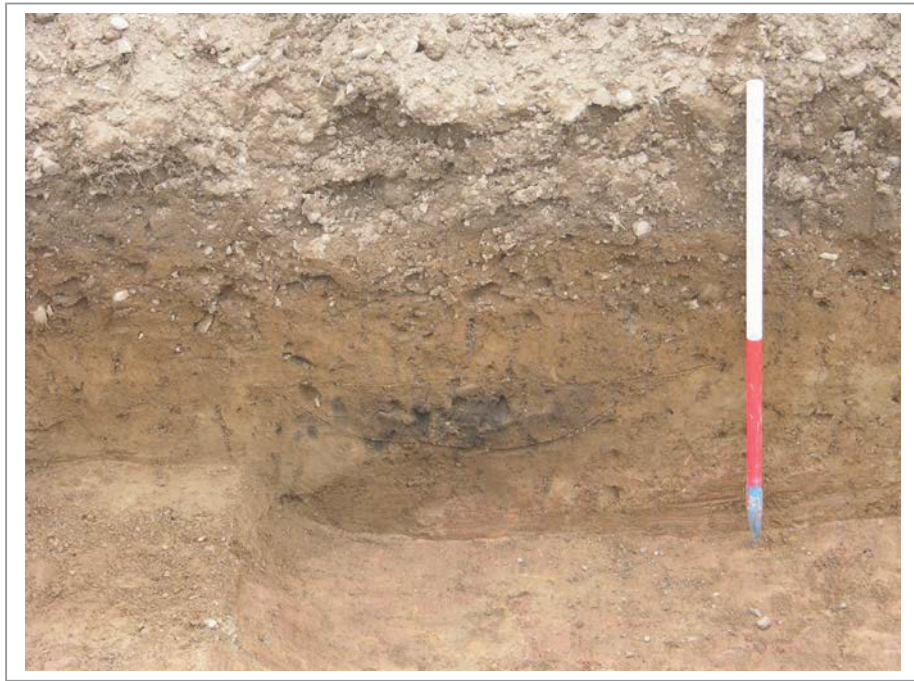


Plate 5: View of silt deposit [205] (206) in Trench 2 section, looking east

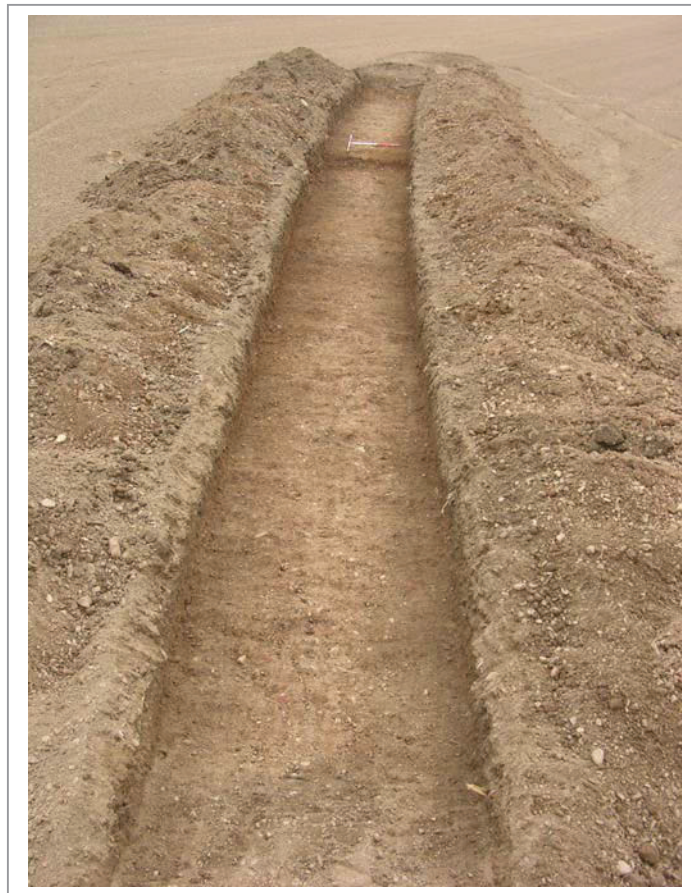


Plate 6: View along Trench 3, Looking North



# CAMBRIAN ARCHAEOLOGICAL PROJECTS

Cambrian Archaeological Projects Ltd  
Old Chapel Farm, Llanidloes  
Powys SY18 6JR  
Telephone: 01686 413857  
E-mail: [info@cambarch.co.uk](mailto:info@cambarch.co.uk)

