



Pinsley Brook, Leominster, Herefordshire An Assessment of Archaeological Potential

*Community Heritage and Archaeology Consultancy
Christopher Atkinson BA (Hons), MA
Dr Emily Forster BSc (Hons), MSc, PhD
November 2016*

Pinsley Brook, Leominster, Herefordshire

An Assessment of Archaeological Potential

Community Heritage and Archaeology Consultancy

Report No. CHAC2016/04

HER No:

Compiled by Christopher Atkinson *BA (Hons), MA*

and

Dr Emily Forster *BSc (Hons), MSc, PhD*

Department of Archaeology, University of Sheffield

November 2016

Community Heritage and Archaeology Consultancy

Email: catkinson132@gmail.com

Web: <http://aki132.wix.com/consultant>

Tel: 07746787514

Copyright & Confidentiality

The property and any copyright or other intellectual property rights in any documents or any other material produced by Community Heritage and Archaeology Consultancy shall belong to Community Heritage and Archaeology Consultancy subject only to the client's right to use the document's or any other material for the purpose stated in the project brief, but this does not include the right to authorise any other person or organisation to use the document's or any other material produced by Community Heritage and Archaeology Consultancy.

Any documents or material or other information provided by the client which is so designated by the client will be kept confidential by Community Heritage and Archaeology Consultancy and Community Heritage and Archaeology Consultancy will only use or disclose it as may be required in the performance of the service. Any documents or other material or other information provided by Community Heritage and Archaeology Consultancy, which is so designated by Community Heritage and Archaeology Consultancy, shall be kept confidential by the Client. This clause shall not apply to any document or other materials, data or other information which are public knowledge at the time when they are so provided by the party and shall cease to apply if at any future time they become public knowledge through no fault of the other party. The client warrants that any documents or other material and its use by Community Heritage and Archaeology Consultancy for the purposes of providing the service will not infringe the copyright or other rights of any third party and the client shall indemnify Community Heritage and Archaeology Consultancy against any loss, damage, costs or expenses or other claims from any such infringement.

Community Heritage and Archaeology Consultancy

Email: catkinson132@gmail.com

Web: <http://aki132.wix.com/consultant>

Tel: 07746787514

Contents

Summary	5
1.0 Introduction	6
2.0 Location and Geology	7
3.0 Aims and Objectives	9
4.0 Methodology	10
5.0 Results	11
6.0 Discussion	14
7.0 Acknowledgments	15
8.0 Bibliography	16
9.0 List of illustrations	17
10.0 Appendix 1 – Site Location	

Summary

The following report highlights the results of a trial auger survey into the course of what was the Pinsley Brook, a canalised water course that enclosed the northern and eastern limits of the Priory Church and precinct of St Peter and St Paul. The survey was undertaken on behalf of Leominster Civic Society and Grange Court as an element of the Destination Leominster Project.

An auger was used as part of the survey to gauge the depth and nature of deposits within the brook. A small number of samples were recovered from the sediment extracted; these were assessed for pollen preservation and microcharcoal content. The results indicated that although pollen was sparse, the grains seen were mostly in good condition, suggesting that there is potential for organic preservation in the sediments.

1.0 Introduction

The survey discussed in this report was undertaken on behalf of Leominster Civic Society and Grange Court as an element of the Destination Leominster Project. There is growing interest in the origins of the Pinsley Brook, a water course that had been canalised to flow through the north of Leominster until the 20th century when it was backfilled. Its origins however, are largely unknown, although it was certainly present when the Benedictine Monastery at the site of the present Priory Church of St Peter and St Paul was established by King Henry I in 1123. Despite this there is some suggestion that it had been established earlier during the 7th century when a nunnery existed at the site. This survey aimed to support the Leominster Civic Society's and Grange Court's potential application for funding to investigate the Pinsley Brook's origins further.

The event served to introduce the public to archaeological sampling techniques, whilst providing a platform for the promotion of the potential future project. Soil samples were extracted for analysis in order to determine the potential for organic preservation.

2.0 Location and Geology

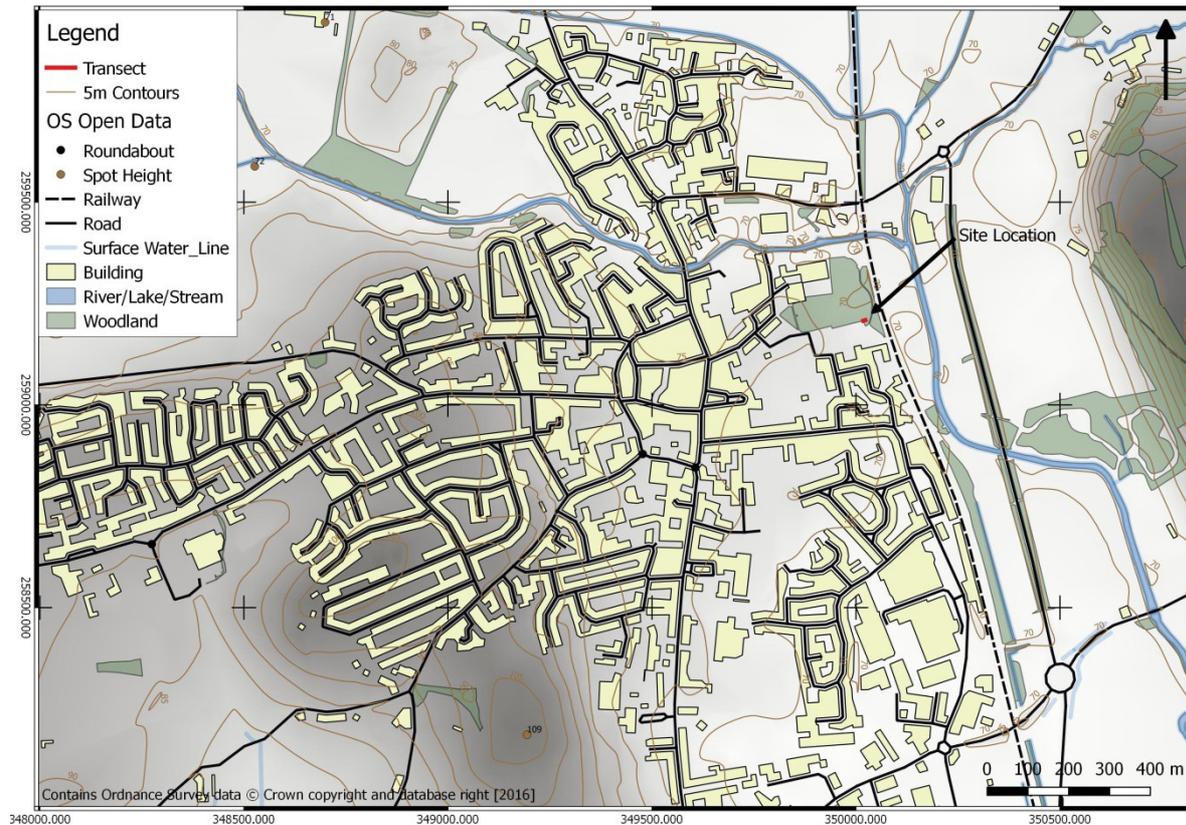


Figure 1: Location of the Pinsley Brook survey, Leominster, Herefordshire. Contains Ordnance Survey data © Crown copyright and database right [2016]

The Survey was undertaken immediately east of the southeast corner of the priory church precinct of St Peter and St Paul, Leominster, Herefordshire (NGR: 350021 259209), within a public park planted as an apple orchard. The survey transect extended east across the site of the brook, for a distance of 5.0m away from the end of a stone constructed wall that demarcates the southern extent of the prior church precinct.

Though the Pinsley Brook was backfilled in the mid-20th century, it survives as a subtle linear earthwork, largely overgrown with scrub vegetation. The east-facing earthen terrace (the summit of which is lined deciduous and coniferous mature trees) that demarcates the eastern edge of the priory church precinct, serves to indicate the inner edge of the Pinsley Brook.

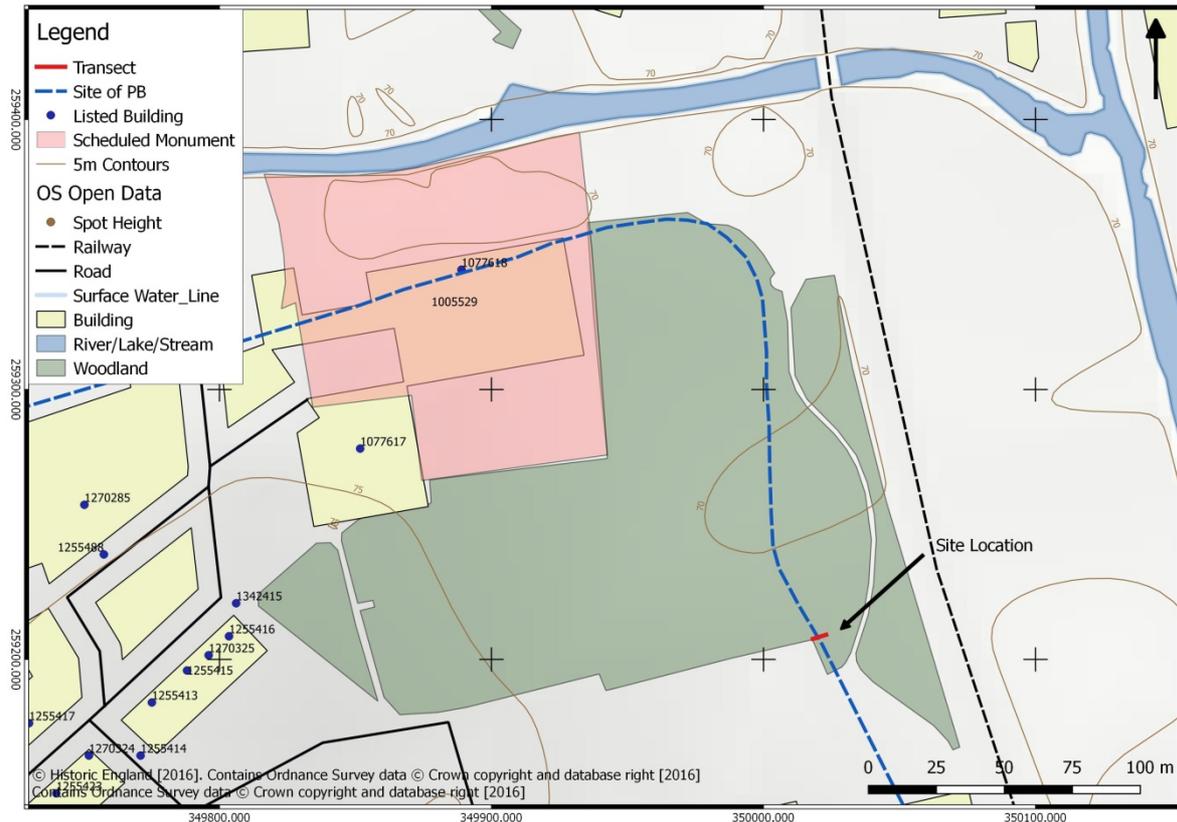


Figure 2: Location of survey transect and site of Pinsley Brook. © Historic England [2016]. Contains Ordnance Survey data © Crown copyright and database right [2016]

The underlying solid geology consists of interbedded siltstone and mudstone recognised as the Raglan Mudstone Formation formed approximately 416 to 419 million years ago during the Silurian Period. The site of Pinsley Brook is located upon a juncture between superficial alluvium and till. The superficial geology to the east of the priory church precinct consists of alluvial clay, silt and gravel formed up to 2 million years ago during the Quaternary Period. The priory church precinct and much of Leominster is located upon superficial Devensian till deposits (BGS, 2016).

3.0 Aims and Objectives

The purpose of this survey was to investigate the depth and potential for the survival of archaeological deposits within the site of Pinsley Brook, whilst promoting and introducing the public to the archaeological techniques employed and the aims of a future investigation.

The aim of this survey was:

1. To identify by means of an auger survey the original depth of the Pinsley Brook
2. To assess the condition of buried deposits and to determine the potential for any future archaeological analysis
3. To extract soil samples from different deposits along the survey transect in order to assess pollen preservation and the microcharcoal content.

4.0 Methodology

4.1 Auger Survey

A screw auger was used to gauge the depth and nature of deposits within, and overlying, the brook at 1.5m intervals. Brief descriptions of the augered deposits are given below (see 6.1). Although excavation and more extensive sampling would be required to understand the deposits fully, a small number of samples were recovered from the sediment; these were assessed for pollen preservation and microcharcoal content.

4.2 Pollen Extraction and Assessment

One centimetre cubed of sediment from each auger sample was processed for pollen using standard techniques of potassium hydroxide digestion, hydrofluoric acid treatment and acetolysis (after Moore et al. 1991). Two *Lycopodium* spore tablets (batch 938934, 10679 spores per tablet) were added to each sample before processing, both as a control on pollen survival through processing and so that pollen concentrations could be calculated if required. Samples were then mounted

in silicon oil and scanned at x400 magnification using a Zeiss Axioscope microscope. As this is only a preliminary assessment and samples were not collected in ideal conditions, full assessment counts have not been carried out at this stage.

5.0 Results

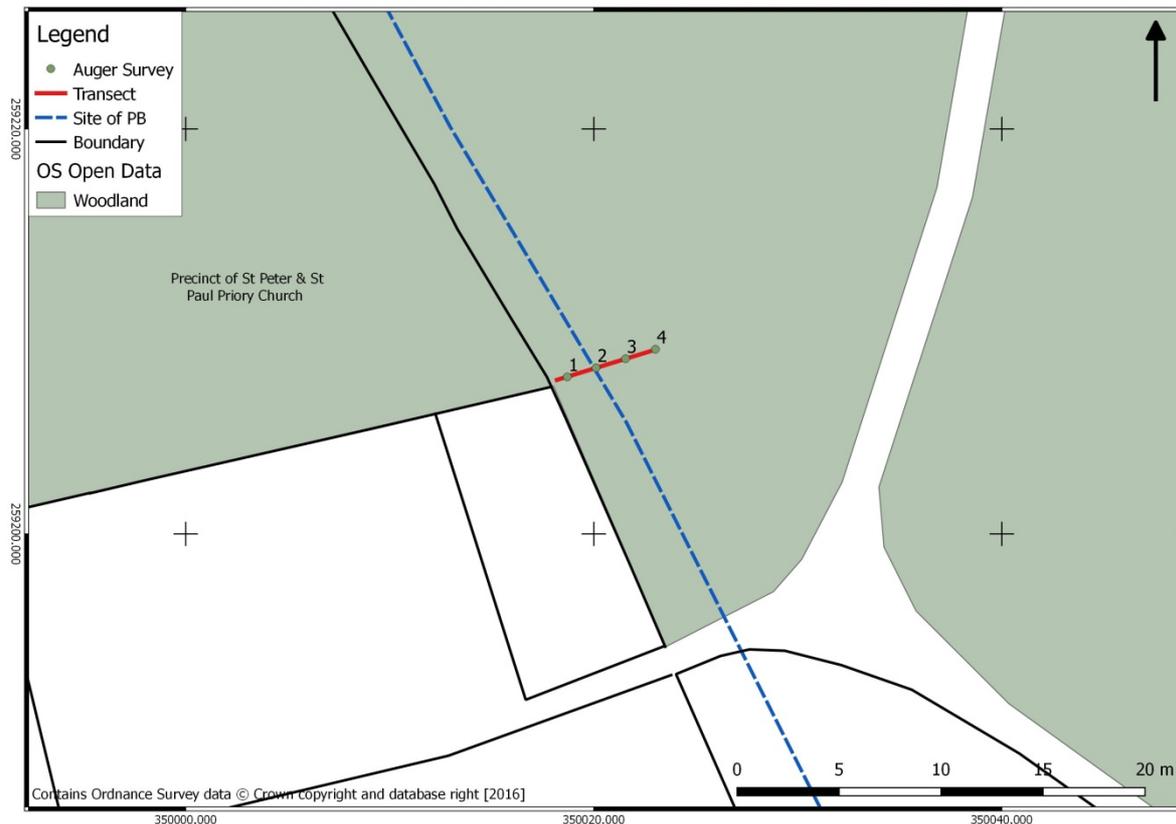


Figure 3: Location of the four auger surveys taken in relation to the southeast corner of the Priory Church Precinct. Contains Ordnance Survey data © Crown copyright and database right [2016]

5.1 Sediments/soils encountered

The maximum depth reached with the auger was approximately 1.5m at a location 2m from the end of the wall marked in the plan. Augering was made difficult by the clayey nature of the sediments, and stony layers containing small pebbles were found in several places. At all four of the augering locations medium-brown silty topsoil was underlain by yellow-brown/yellow-grey clayey sediment. The clay contained archaeological material, including brick, charcoal, a nail and fragments of possible coke/coal.

Auger 1 - 0.5m from wall end

Medium-brown silty topsoil extended to approximately 40cm below the surface, where the soil/sediment became lighter yellow-brown in colour, with a clayey texture and large charcoal inclusions (e.g. 1cm³), and possible fragments of coke/coal. At 88cm depth there was a change to grey-yellow clay with no obvious inclusions.

Auger 2 - 2.0m from wall end

Medium-brown silty topsoil was found at the surface, underlain by reddish-brown silt grading into yellow clay from 35-38cm depth. Brick fragments were retrieved from around 40cm depth, together with charcoal. The clay became increasingly grey-yellow with depth, containing sandstone clasts and charcoal. At 90-100cm depth a layer containing slate, small stones, charcoal and a nail was encountered.

Auger 3 - 3.5m from wall end

Medium-brown silty topsoil, with yellow-brown/grey clayey sediment from 45cm down, containing lots of charcoal, in addition to small pebbles and possible coke fragments.

Auger 4 - 5.0m from wall end

Medium-brown silty topsoil, which became increasingly silty and clayey with depth. Brick fragments were seen at 38cm. An impenetrable stony layer was encountered at 45cm depth. The presence of this layer, which contained bigger pebbles/sandstone clasts than seen at any of the previous augering locations, may suggest that this point was beyond the limits of the brook (e.g. on the bank).

5.2 Pollen and microcharcoal assessment

All of the samples showed a slight reaction when mixed with hydrochloric acid, indicating a calcareous component; this could be a natural feature of the sediment/soil, or may be caused by the presence of calcium carbonate (lime) either in building materials or used as fertiliser (etc.).

All of the samples bar one (sample 5) contained pollen, microcharcoal, fungal spores and unidentifiable organic material (UOM) (see table 1). The pollen present was mostly *Cichorium intybus*-type, a robust pollen grain originating from dandelions or chicory. Pollen from the grass family (Poaceae) was the next most common type, while there were rare occurrences of unidentifiable trilete spores, most likely from ferns or mosses, and a few other broken and damaged grains that have been tentatively identified as plantain (*Plantago* spp.), oak (*Quercus*) and the heather/*Erica* family (Ericaceae).

Importantly, spheroidal carbonaceous particles (SCPs) were also seen at all depths sampled; SCPs are products of fossil fuel burning and appear as a marker of the industrial revolution (e.g. Rose and Appleby 2005) meaning that the sediments sampled are most likely to date to post- AD 1850 (+/-25 years). This indicates that the brook and any pre-industrial deposits within it are beneath >1.5m of sediment; this may be positive in terms of organic preservation within the brook itself, as it would suggest that the area was covered and 'sealed' relatively quickly, preventing microbial action and soil formation, which tend to destroy pollen and other plant material.

Table 1: results of the pollen assessment

Distance from wall/m	Depth/m	Sample	Pollen encountered	SCPs present	Microcharcoal	NPP
0.5	0.88	1	<i>Cichorium intybus</i> -type Poaceae	Y	Y	<i>Tilletia sphagni</i> * Acsospores [†] Fungal spores UOM
2	0.38	2	<i>Cichorium intybus</i> -type Fern/moss spore	Y	Y	Acsospores UOM
2	1.00	3	Fern/moss spore ? <i>Quercus</i> (damaged) ? <i>Plantago</i> spp. (broken)	Y	Y	Fungal spores UOM
2	1.50	4	?Ericaceae (broken) Poaceae	Y	Y	Acsospores UOM

3.5	1.00	5	NA	Y	Y	Fungal material UOM
-----	------	---	----	---	---	------------------------

*Grows on *Sphagnum* moss

†From some types of fungus

6.0 Discussion

Although pollen was sparse, the grains seen were mostly in good condition, suggesting that there is potential for organic preservation in the sediments. There may be a bias towards more robust taxa (*Cichorium intybus*-type), but a fuller assessment of samples from the site would be needed to establish this, and if there are waterlogged deposits at greater depth (i.e. within the brook) better preservation could be expected. The presence of charcoal is also encouraging in terms of potential for radiocarbon dating, although as explained above, the sediments encountered in this assessment are thought to be too recent to answer questions about the age of the brook. Excavation of a section of the brook would be necessary to see a cross-section of the deposits within and beneath it, and also to obtain a sequence of sediment cores through the deposits. A combination of archaeological and environmental techniques could then be used to further investigate the history of the brook, including analysis of the sediments themselves, pollen and diatoms (algae) within them. Chronological control through radiocarbon (or other) dating would be a crucial aspect of any investigation.

7.0 Acknowledgments

We would like to thank Nico and Martin Baines of Leominster Civic Society and Grange Court for inviting us to aid in their investigations of the Pinsley Brook. We wish you all the best for your future application and success in your investigations.

8.0 Bibliography

Online Resources

Online Resource

BGS 2016 '*Geological map of Great Britain*' in The British Geological Survey

<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Date accessed 20th November 2016

References

MOORE, P. D., WEBB, J. A. & COLLINSON, M. E. (1991) Pollen analysis. Oxford; London; Edinburgh; Boston; Melbourne; Paris; Berlin; Vienna: Blackwell Scientific Publications.

ROSE, N. L. & APPLEBY, P. G. (2005) Regional applications of lake sediment dating by spheroidal carbonaceous particle analysis I: United Kingdom. *Journal of Paleolimnology*, 34 pp349-361.

9.0 List of illustrations

Figures

Figure 1: Location of the Pinsley Brook survey, Leominster, Herefordshire. Contains Ordnance Survey data © Crown copyright and database right [2016]

Figure 2: Location of survey transect and site of Pinsley Brook. © Historic England [2016]. Contains Ordnance Survey data © Crown copyright and database right [2016]

Figure 3: Location of the four auger surveys taken in relation to the southeast corner of the Prior Church Precinct. Contains Ordnance Survey data © Crown copyright and database right [2016]

Tables

Table 1: results of the pollen assessment

Appendix 1 – Site Location

Figure 1: Location of the Pinsley Brook survey, Leominster, Herefordshire.

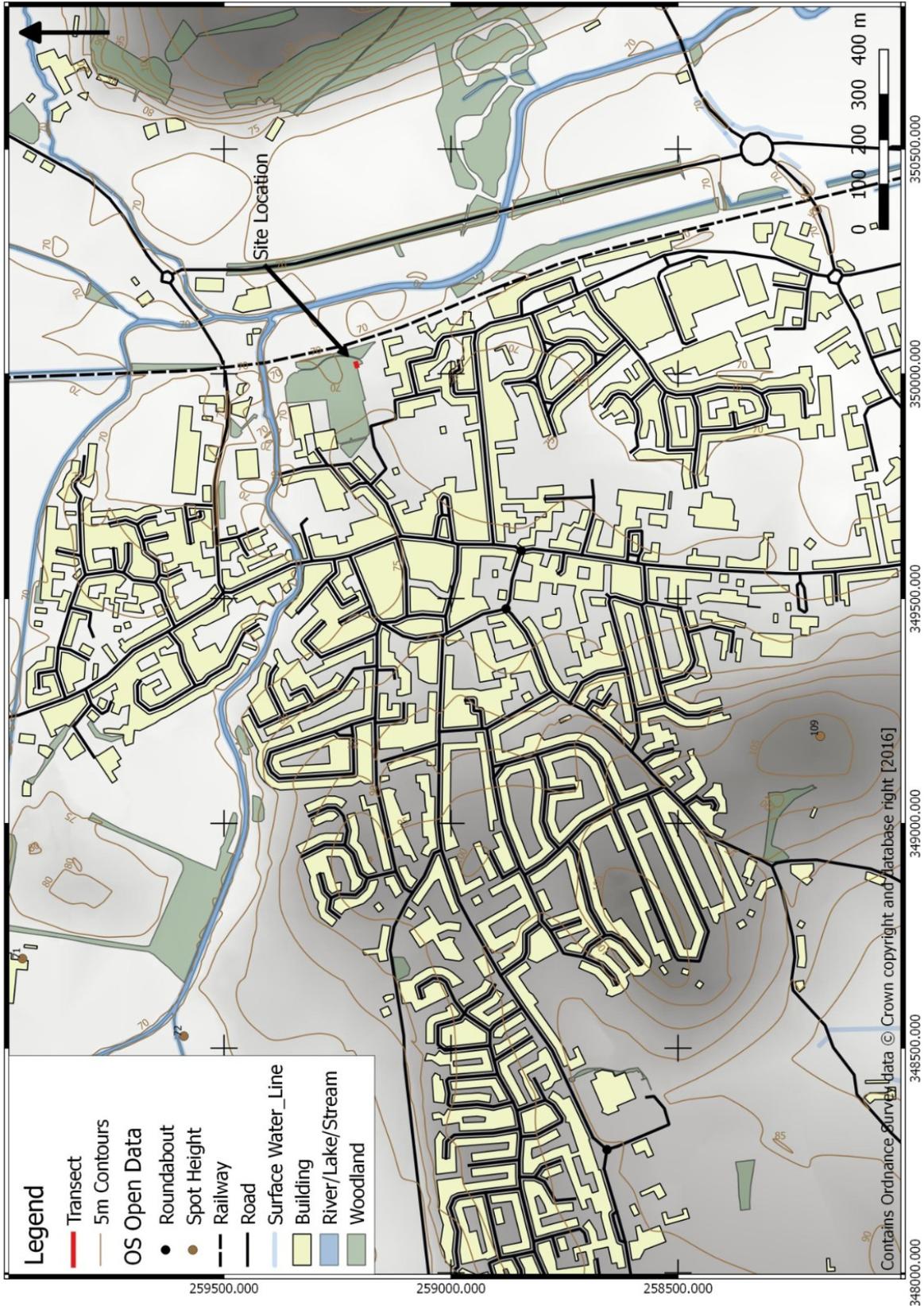
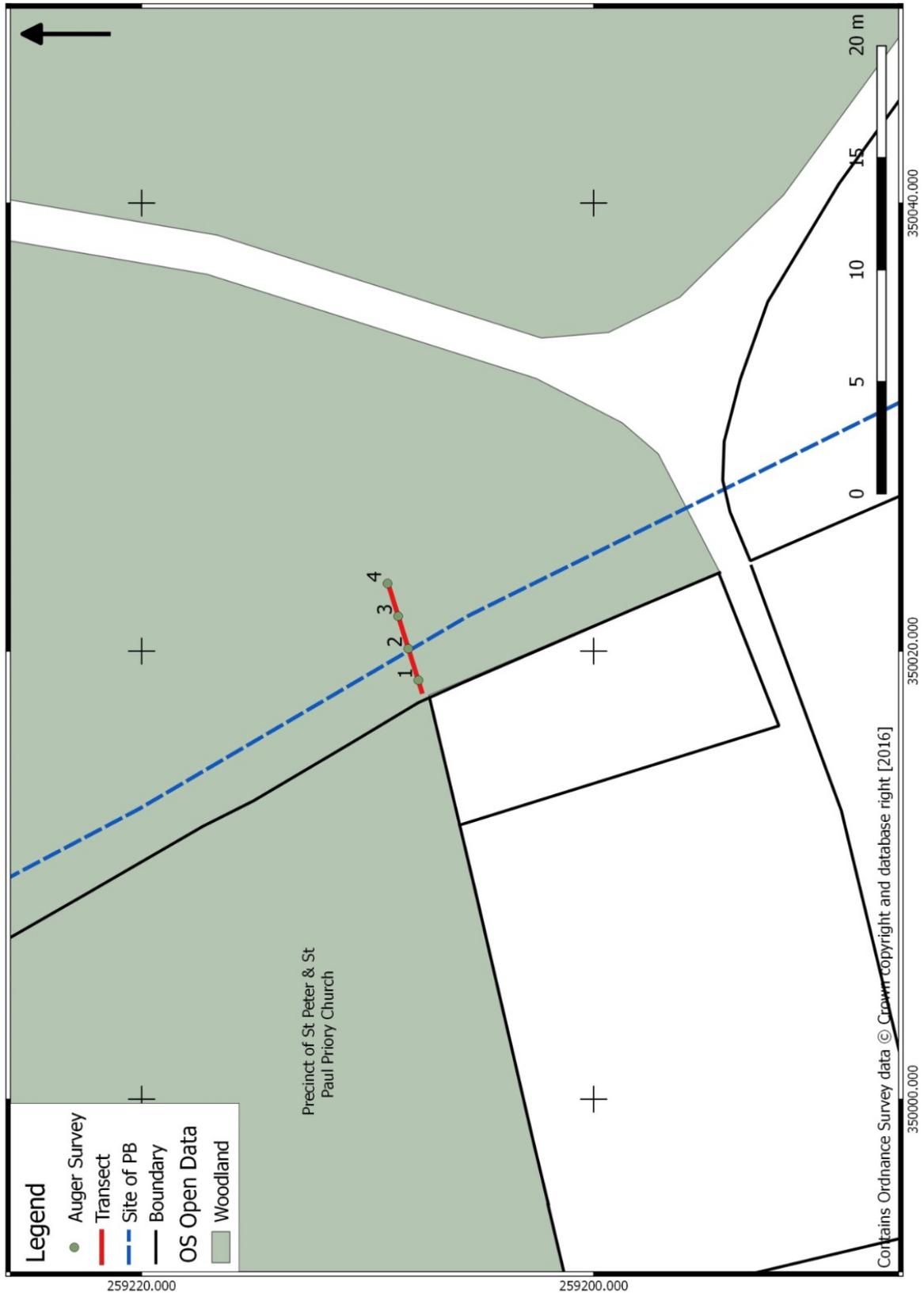


Figure 2: Location of survey transect and site of Pinsley Brook.



HER No:

Pinsley Brook, Leominster, Herefordshire
An Assessment of Archaeological Potential

Figure 3: Location of the four auger surveys taken in relation to the southeast corner of the Prior Church Precinct.