

AUGER SURVEY
AT
CHURCH HILL MIDDLE SCHOOL,
REDDITCH,
WORCESTERSHIRE



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Auger survey at Church Hill Middle School, Redditch, Worcestershire

Suzi Richer

Summary

An archaeological auger survey was undertaken at Church Hill Middle School (SP 06716879; HER WSM00224) was undertaken on behalf of Robin Kalinowski (Senior Building Surveyor) who is acting on behalf of Worcestershire County Council in advance of draining the school's playing fields.

Fishponds are rarely excavated, but they were a substantial element in the landscape of medieval Worcestershire. Church Hill Middle School stands in the middle of a fishpond that was approximately 75,000 sqm. The auger survey has provided us with further information about the construction of the fishpond and has revealed an earlier pond on the site.

The auger survey also identified that the northern part of the site, although once waterlogged, has dried out considerably. In contrast, the southeast end of the site contains waterlogged material suitable for palaeoenvironmental analysis and radiocarbon dating. The survival of these deposits is threatened by the drainage of the site.

Report

1 Introduction and archaeological background

An archaeological auger survey was undertaken at Church Hill Middle School (SP 06716879; HER WSM00224), Figure 1, on behalf of Robin Kalinowski (Senior Building Surveyor) who is acting on behalf of Worcestershire County Council in advance of draining the school's playing fields.

The British Geological Survey indicates that the site is underlain by the Mercia Mudstone Group (laid down 252.2 -201.3 million years ago), whose parent unit is the New Red Sandstone Supergroup (British Geological Survey 2014). The site is not overlain by any superficial/drift deposits, however alluvium and alluvial fan deposits are located less than 100m away to the east of the site. The Soil Survey of England and Wales (Sheet 3, 1983) assigns the soils of the site to the 572f Whimple 3 soil association describing them as 'Reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.'

The proposed development site is considered to include a heritage asset with archaeological interest, the significance of which may be affected by the application (WSM 00224).

Previous survey work has been undertaken at the site, but no intrusive investigations have been made. Prior to the development of the Redditch New Town in the 1960s Mick Aston surveyed, drew and described two medieval fish ponds, just to the south of Beoley (Aston unknown a & b), see Figure 2. Further survey work was undertaken in 2007 identifying a total of three fish ponds: WSM00225, WSM00062 and WSM00224 (Hancox and Mindykowski 2007).

The Historic Environment Record (HER) contains the following description of the fish pond WSM00224 (Cornah 2014):

Medieval fishpond of considerable size, one of three including WSM00225 and WSM00062. The banks along the southern and eastern sides still survive to a maximum height of 3m. A site survey in 2007 confirmed the survival of the pond banks. Documentary research following the site survey indicated that this pond, along with 2 others to the north east formed a medieval fishery dating to at least the 13th century and probably much earlier. The ponds had certainly gone out of use by 1648-50 as a document refers to the sale of Great Pool Meadow at this time.

Field called 'Great Pool Meadow' on 1843-4 Tithe. 1st Edition Ordnance Survey in 1886 shows the dam/bank along the eastern edge as a substantial earthwork.

(The fishpond) now lies within the modern school, with the school boundary following the edge of the pool.

Further details from the 2007 survey include (Hancox and Mindykowski 2007):

There is also a substantial bank running along where the southern edge of the pond would have been, just to the south of Church Hill Way. This bank is up to 3m high. It is visible curving around the south-eastern corner of the pond and running back towards the dam on the other side of the road. It has been landscaped in this corner, but is still apparent to a height of up to 1.5m. No evidence of banks survived on the northern or western edges. Given that the ground slopes naturally slightly to the south and east, any banks on these sides may have been much less substantial. The slightly odd shape of the pond can also be explained by the natural topography. The unusual curved southern edge of the pond seems to be following the base of a natural depression in the landscape, being banked up where the ground starts to rise naturally again.

This pond was roughly 75,000 sqm and given the size of the dam and the surviving earthwork bank on the southern edge of the pond, was probably at least 2.5- 3m deep,

possibly much deeper if it has silted up/been back-filled. Assuming the pond was an average 2m deep, it would have held an enormous 150,000 cubic meters of water.

2 Project parameters

The environmental project conforms to relevant sections of the *Standard and guidance for archaeological field evaluation* (IfA 2008); *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage 2011), *Geoarchaeology: using earth sciences to understand the archaeological record* (English Heritage 2007) and *Environmental archaeology and archaeological evaluations* (AEA 1995).

The project will also follow the procedures of the *Manual of Service Practice: recording manual* (WA 2012a). Of particular importance here are the Guidelines on evaluation and for environmental sampling.

The project conforms to a brief prepared by the Curator (WAAS 2012) and a written scheme of investigation produced by the Service (WA 2012b)

3 Aims

The aims of the auger survey were to determine the likely state of preservation, type, and quantity of environmental remains on the site. This information will be used to assess the importance of the environmental remains.

More specifically the following aims have been identified.

- To establish whether the deposits are waterlogged
- To establish whether the deposits contain palaeoenvironmental and cultural remains
- To establish whether the deposits are suitable for providing C14 dating to enable a scientific date for the monument.

4 Methods

4.1 Personnel

The project was undertaken by Suzi Richer (BSc, MSc, PhD), who joined Worcestershire Archaeology in 2014 and has been practicing archaeology since 2003. The project manager responsible for the quality of the project was Tom Rogers (BA, MSc). Illustrations were prepared by Carolyn Hunt and Laura Templeton.

4.2 Historic Environment Research search

Prior to fieldwork commencing, a search of the Historic Environment Record (HER) for a 500m radius of the site was commissioned (Cornah 2012). The results of that search will be supplied to the client as a separate document.

4.3 Fieldwork methodology

4.3.1 Fieldwork strategy

Fieldwork was undertaken on 27 and 29 May 2014, the site reference number and site code being WSM57112.

Nine auger holes were sunk using an Edelman auger along three transects, the first on a west-northwest to east-southeast alignment; the second on a north-northwest to south-southeast alignment and the third on a north-northeast to south-southwest alignment. Figure 1 and Table 1

present the locations and the above ordinance datum (AOD) heights at which the auger holes were sunk.

Augerhole	Easting	Northing	height AOD (m)	Notes
1	406805.6	268736.3	91.750	
2	406832.8	268726.3	91.640	
3	406861.8	268708.9	91.525	
4	406874.7	268722.9	90.970	
5	406841.8	268764.8	91.570	
6	406827.6	268805.3	91.960	This location was not sampled
7	406807.1	268839.1	92.225	
8	406891.4	268766.8	91.850	
9	406924.7	268824.9	92.970	
10	406771.7	268798.9	91.960	This location was added during fieldwork to give a broader picture of the site.

Table 1 Augerhole coordinates and above ordinance datum heights

The grid reference and the above ordinance datum (AOD) surface height of each auger hole was recorded using a Leica Viva NetRover.

Archaeological recording of deposits was undertaken by the project leader. This involved a fresh sediment face being exposed and described according to standard Service practice (WA 2012a), *Geoarchaeology: Using earth sciences to understand the archaeological record* (English Heritage 2007) and *The description and analysis of Quaternary stratigraphic field sections* (Jones *et al* 1999).

4.3.2 Sampling policy

Samples for potential radiocarbon dating, pollen analysis and plant macro remains were taken according to standard Worcestershire Archaeology practice (2012a). Samples were taken by the project leader from deposits considered to be of high potential for the recovery of environmental remains. A total of 33 samples (each of 2-10cm³) were taken from the site from the following auger holes:

Sample Number	Auger hole	Depth (cm)	Reason for sample
1	AH1	65	C14
2	AH2	26	Pollen
3	AH2	40	Pollen
4	AH2	52	Pollen
5	AH2	52	C14
6	AH2	74	Pollen
7	AH2	80	Pollen
8	AH2	90	Pollen
9	AH2	94	Pollen
10	AH2	105	Pollen
11	AH2	109	Pollen
12	AH2	119	Pollen
13	AH2	123	Pollen

14	AH2	135	Pollen
15	AH2	143	Pollen
16	AH2	128	C14
17	AH9	66	Pollen
18	AH8	43	C14
19	AH4	30	Pollen
20	AH4	44	Pollen
21	AH3	150	C14
22	AH3	154	C14
23	AH3	160	C14
24	AH3	154	Pollen
25	AH3	160	Pollen
26	AH3	154	Plant macros
27	AH3	160	Plant macros
28	AH3	174	C14
29	AH3	174	Pollen
30	AH7	47	Pollen
31	AH10	39	Pollen
32	AH10	44	Pollen
33	AH10	49	Pollen

4.3.3 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was undertaken through a combination of structural and ecofactual evidence, allied to the information derived from other sources.

4.4 Statement of confidence in the methods and results

The methods adopted allow a high degree of confidence that the aims of the project have been achieved.

5 Structural analysis

The locations of the augerholes are shown in Figure 1. The results of the structural analysis are presented in Appendix 1 and profiles of the augerholes are presented in Figures 3-5.

5.1.1 Phase 1: natural deposits

The most frequently encountered natural deposits during the auger survey were the upper weathered Mercia Mudstone and alluvial fan deposits (sands) in the form of purplish red silty clay, reddish orange silty clay and red sandy clay. These were found at various depths across the site between 90.54m AOD (AH5) and 89.425m AOD (AH3), confirming a general impression that the land is sloping from both north to south and west to east.

The red sandy clay and red clay deposits present in AH9 between 92.875 and 92.730m are not thought to be *in situ*. Instead, they are likely to be redeposited natural material, but brought to the site from another area at a later date. The bright red colour of the clay is indicative that it has not been exposed to prolonged saturation, therefore is unlikely to have originated from below the ponds.

5.1.2 Phase 2: pre-medieval lake or earlier fish pond

Grey clay deposits were found in AH2 and AH3, extending to depths of 90.41m and 89.825m AOD, respectively. The grey clays were located directly below a layer of rounded to sub-angular pebbles at 90.58m (AH2) and 90.585m AOD (AH3), considered to be the base of the medieval fishpond.

The clays contained degraded mudstone lithorelicts (c.1mm by 8mm) and organic remains were located at 90.36m (AH2) and 90m AOD (AH3), respectively.

Given that the ground generally slopes towards the south and the deepest deposits were encountered in the southeast corner, particularly in AH3, it would appear that prior to the construction of the fish ponds, a substantial lake or pond existed in this area and probably extended beyond the present site further towards the south and east.

The clay is indicative of a low energy depositional environment, usually associated with a large body of water. The presence of the organic remains suggests that AH2 and AH3 were located towards the edge of this body of water. Plants and trees were likely to have been growing around the margins and as fragments fell into the water they slowly became incorporated into the sediment. The existence of the vegetation both around the pond and the remains in the sediment, would suggest a natural landscape existed around the edge of the water.

The presence of grey clayey sand at 89.625-89.425m AOD, below the grey clay, suggests that early in the lake's history higher velocity water flowed through this part of the site. Given the topography of the site, this moving water is likely to have been the inflow for the previous pond on the site, however, as the lake silted-up the inflow moved further afield, causing the sedimentary change seen in AH3 from grey clayey sand to a grey clay.

5.1.3 Phase 3: medieval fishponds

Coarse well-rounded to sub-angular pebbles were found in all auger holes. These pebbles appeared to form a distinct layer in all auger holes except AH8 and AH9. In AH2, AH3 and AH4 a layer of pebbles was located at approximately 90.5m AOD, and this increased in height heading north and west, to approximately 90.87m AOD in AH5, 90.91m AOD in AH1, 91.26m AOD in AH10, 91.695m AOD in AH7. The fact that the river pebbles appear in a distinct layer and vary considerably in size and form would suggest that they have been deliberately placed, rather than washed onto the site by a very high velocity event, such as a flood. This is corroborated by the fact that the nearest substantial river is approximately 1.5km away.

Immediately above or around the pebbles, in AH3, AH4 and AH5, a layer of yellowish grey clay was present. The colour of the clay is indicative of prolonged saturation and/or that the area is not well drained. Above the yellowish grey clay, or directly above the pebbles in AH1, AH2, AH7, AH8, AH9 and AH 0, a grey or greyish brown clay with frequent to occasional lithorelicts (degraded pieces of stone) of mudstone was present. Occasional flecks of charcoal were also noted in this grey/greyish brown clay and in AH2 there was a band of charcoal flecks at 91.12m AOD. These clays represent the gradual silting-up of the ponds.

The layer of pebbles stretches across the whole area of the site that has been surveyed. It would appear that they are river pebbles that have been purposefully deposited. It is suggested that these pebbles were used as a lining for the base of the medieval fish ponds, placed onto the clay that was already present on site from Phase 2. The pebbles might have had a dual function. Firstly, they would have looked aesthetically pleasing, and secondly they could also have provided a natural filtration system for the pond. The pebbles could have served to keep the pond clean by providing a surface for bacteria to live on, which in turn filtered the water. Documentary evidence exists for the transportation of 'gravell' to other fishponds in Worcestershire, such as at Grimley in 1519 (Aston and Bond 1988 448)

5.1.4 Phase 4: post-medieval/modern deposits/soil formation

The top c.0.3m of each auger hole was assigned to the post-medieval/modern period. These deposits were predominantly clay, but contained varying amounts of silt, or they were composed of a clayey silty topsoil. Bioturbation and roots were present in all auger holes indicating that these top layers have been subject to contamination.

5.2 Discussion

As no artefactual material was recovered from the auger holes it is not currently possible to assign a date to the construction of the fishponds. Despite this, the presence of substantial clay deposits, the layer of pebbles and the organic remains in the lower part of the sequence have shed light on the development of the fishponds over time and have provided material suitable for radiocarbon dating and further environmental analysis.

The ground gradually slopes down from the north and west, towards a small pond on the eastern edge of the field (AH4). The deepest deposits were recovered from this area (AH3), reaching a depth of 2.10m. Waterlogged deposits were noted in the southern half of the field from AH1, AH2, AH3, AH4, AH5, and AH7 which is unsurprising given the topography of the site. The deposits in the northern half of the field from AH7, AH8, AH9 and AH10 were noticeably drier and/or were dark in colour suggesting that they had been more recently exposed to oxygen.

The edge of a body of water, likely to be a lake, was detected in the south eastern part of the site. This body of water was extended at a later date to form the curved shape of the medieval fishpond (see Figure 2). A layer of river pebbles appears to mark the base of the main medieval fishpond. This layer varies in height with the topography of the site; the deepest water would have been located around AH3 at 90.5m and the shallowest point was noted in AH7 at 91.55m, almost 1m shallower. Fish ponds were constructed in different shapes, but they frequently followed the natural lie of the land. This, in conjunction with the fact that the depth of a fish pond is not thought to have had a bearing on the capacity of the pond to hold fish (Chambers and Gray 1988), would explain the shape and depth of the ponds. It is possible that the southern edge of the fish pond is following the line of an old stream-bed.

It is not possible to say whether the earlier body of water was used as a fishpond. However, fishponds from the 13th century often made use of natural features to ease the construction process. Very few early fishponds survive in their original form as they were extended to increase capacity throughout the medieval period (Chambers and Gray 1988). Documentary evidence undertaken as part of the 2007 survey of these ponds found mention of a 'fishery' from 1316 and 'stews' (another term for a fishpond) in 1322, so an earlier fishpond on this site is a strong possibility (Hancox and Mindycowski 2007).

The date at which the fishpond went out of use is unknown, but documentary evidence suggests that the area had become a meadow by 1648-50 (Hancox and Mindycowski 2007). The presence of charcoal fragments in the clay that had built-up on site offer the possibility of obtaining a date after which we know the ponds had fallen out of use, or had at least fallen out of regular maintenance.

It would seem that some reclamation of the area occurred in the post-medieval/modern period, especially in the north-eastern part of the site. The presence of redeposited natural red sandy clay on top of the grey clay is suggestive of deliberate placing. The bright colour of the deposit also attests to the fact that it has not been in waterlogged conditions (i.e. under a fishpond); therefore it will have been brought onto the site.

6 Recommendations

The following recommendations are made for consideration when designing any further archaeological project for this site.

All recommendations for further work are based on AH2 and AH3 where the best waterlogged conditions still survive. Waterlogged deposits were found in AH1, AH2, AH3, AH4, AH5, and AH7. The northern part of the site has already dried out considerably, seen through the dryness and the oxidised colour (darker and/or brighter) of the sediments.

6.1 Scientific dating

The recovery of organic material from AH2 and AH3 could potentially allow a scheme of radiocarbon dating for the development of the fishpond. It is recommended that the lowest organic sample, sample <28>, from AH3 is dated. This sample would provide a date for the earlier pond on the site. A second date from an organic band within the earlier pond could be obtained from sample <16> from AH2 or sample <21> from AH3, depending on preservation and suitability of material. The second sample would provide a closer date for the main phase of when the fishpond covered the whole site. It is recommended that a third date is obtained from sample <4>, the band of charcoal in AH2 that is present in the grey clay above the pebbles, as this will provide a date for when the fishpond started to go out of use.

6.2 Pollen

Assessment for the preservation of pollen, fungal spores and parasite ova is recommended for six samples from AH2 and AH3 where the deposits still remain waterlogged.

It is recommended that full pollen counts (300 grains) are made in order to provide a record of the environmental information stored in the deposits prior to the drainage of the site.

6.2.1 AH3

The samples from AH3 are all from the earliest pond on the site:

- Sample <29> is contemporaneous with the earliest organic layers, representing the earliest environment around the site.
- Samples <24> and <25> are organic bands within the earlier pond and will show changes in local vegetation and human activity around the pond.

6.2.2 AH2

The samples from AH2 are all from the main phase of the large fishpond:

- Sample <9> is from directly below the pebble lining and is likely to represent the vegetation and activity around the pond, from just prior to the main phase of fishpond construction.
- Sample <10> is from the area closely associated with the pebble lining of the pond.
- Sample <5> is from the charcoal band identified for radiocarbon dating, likely to represent the end of use of the fishpond.

6.2.3 Plant macro remains

It is recommended that samples <26> and <27> are processed using standard wash-over techniques for the recovery of plant macrofossil remains with subsequent assessment and identification of the material gathered to assess the presence and preservation and to provide information regarding the vegetation and conditions within the environment. Non-aquatic plant macrofossils would also provide alternative material for radiocarbon dating if a scheme were undertaken.

Samples <26> and <27> are organic bands within the earlier pond, these are likely to show local changes in vegetation. These samples are from the same layers as pollen samples <24> and <25> and radiocarbon sample <28>.

7 Publication summary

Worcestershire Archaeology has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, Worcestershire Archaeology intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

An archaeological auger survey was undertaken at Church Hill Middle School (SP 06716879; HER WSM 00224) on behalf of Robin Kalinowski (Senior Building Surveyor), acting on behalf of Worcestershire County Council in advance of draining the school's playing fields.

Fishponds are rarely excavated, but they were a substantial element of the landscape in medieval Worcestershire. Church Hill Middle School stands in the middle of a fishpond that was approximately 75,000 sqm. The auger survey has provided us with further information about the construction of the main medieval fishpond and has revealed an earlier pond on the site.

8 Acknowledgements

Worcestershire Archaeology would like to thank the following for their kind assistance in the successful conclusion of this project Robin Kalinowski (Senior Building Surveyor), Tegan Cornah (Historic Environment Record Assistant), Mike Glyde (Historic Environment Planning Officer) and Church Hill Middle School. In particular, thanks go to Sue Rejoni and Chris Harbone of Church Hill Middle School for providing access and information about the site.

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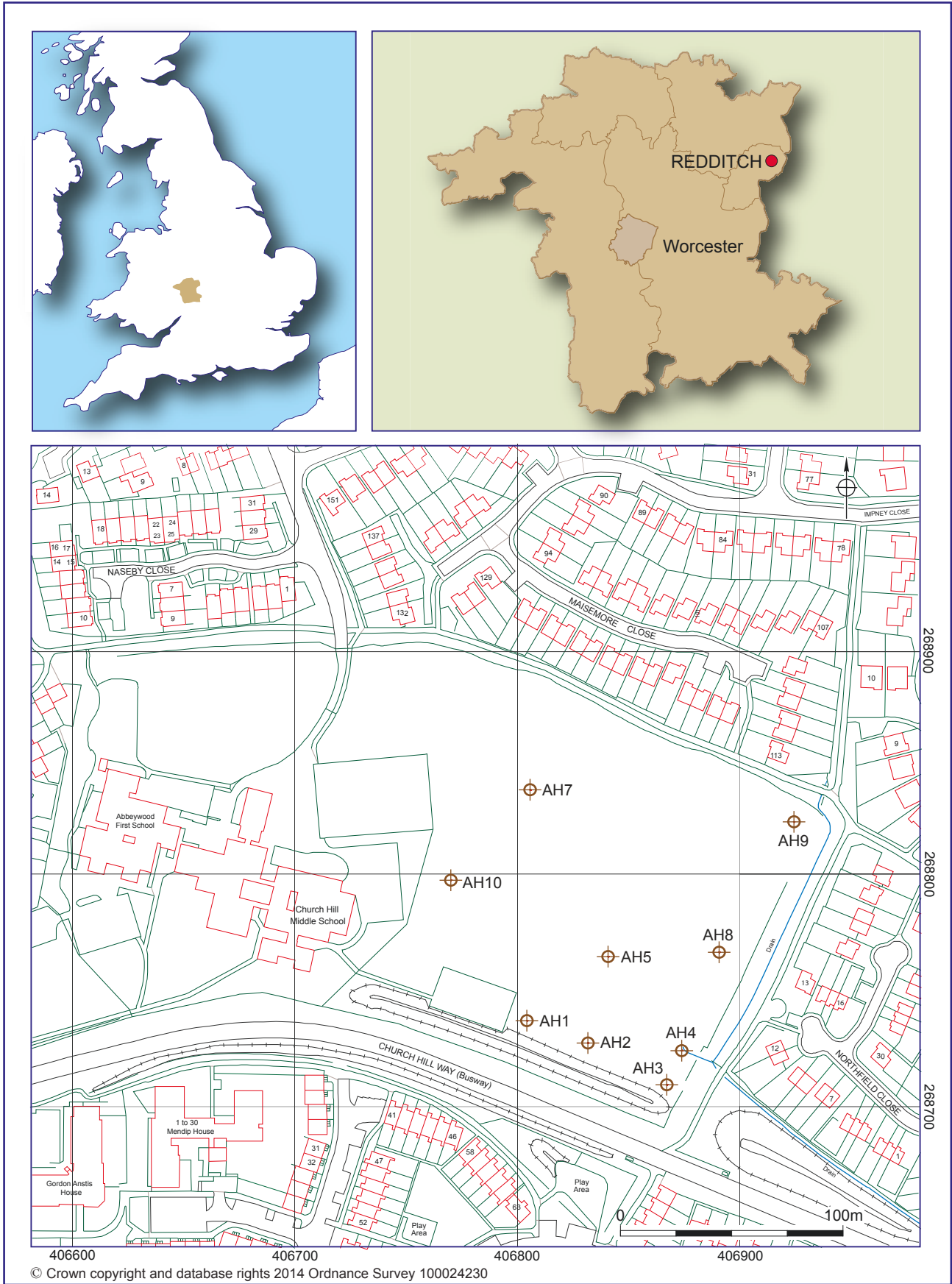
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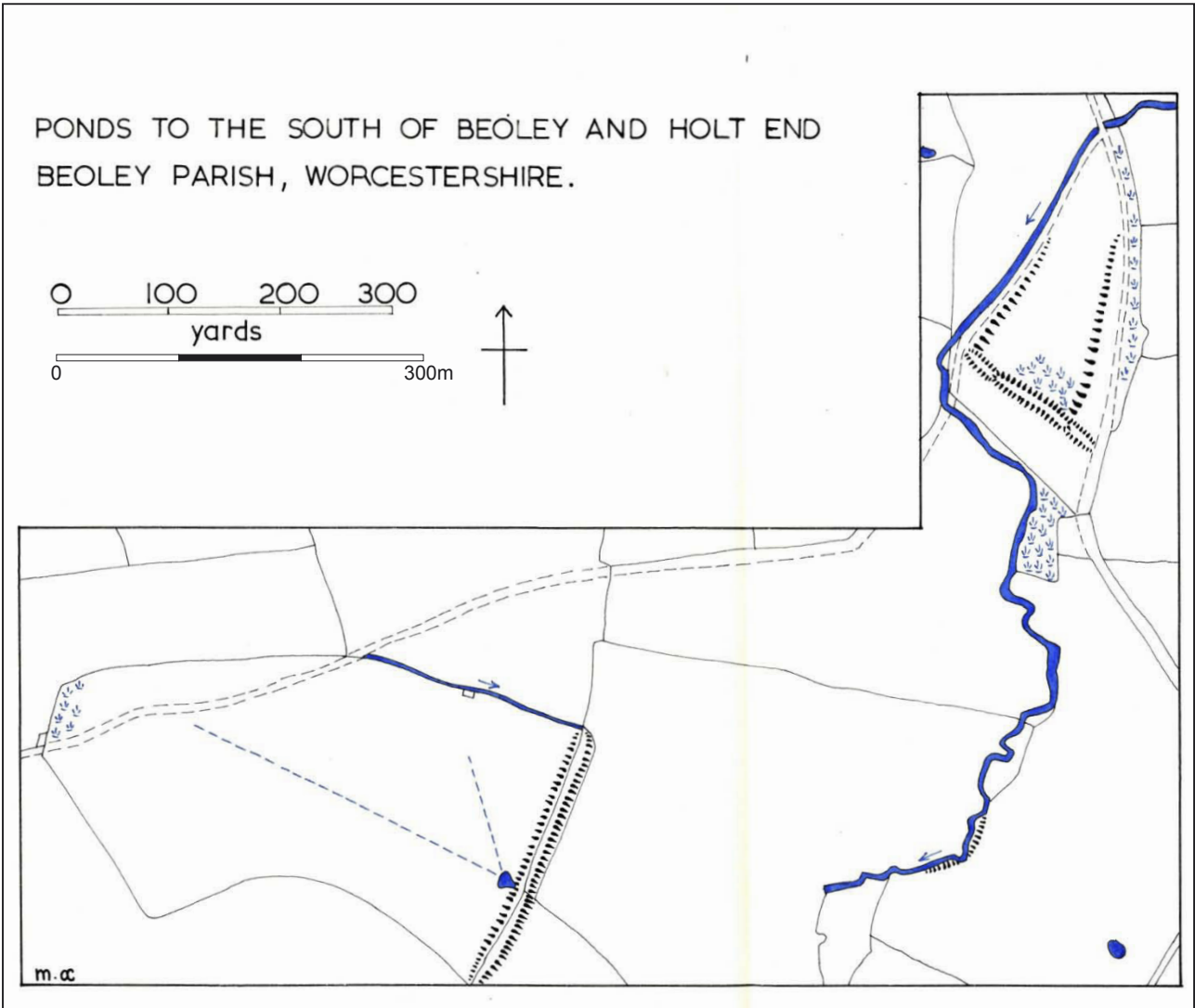
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Figures



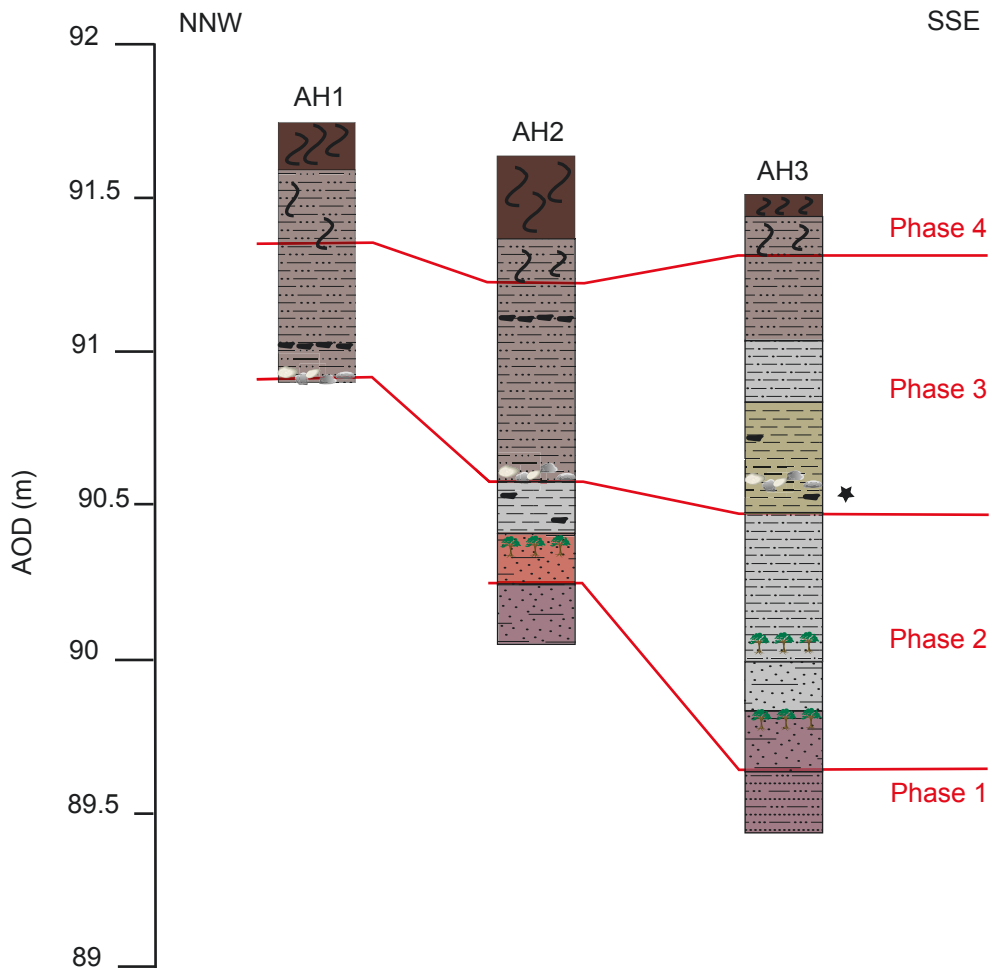
Location of the auger holes

Figure 1

















*Mick Aston's Plan of Beoley and Holt End fishponds.
Left-hand fishpond is the current site (after Aston unknown b)*

Figure 2

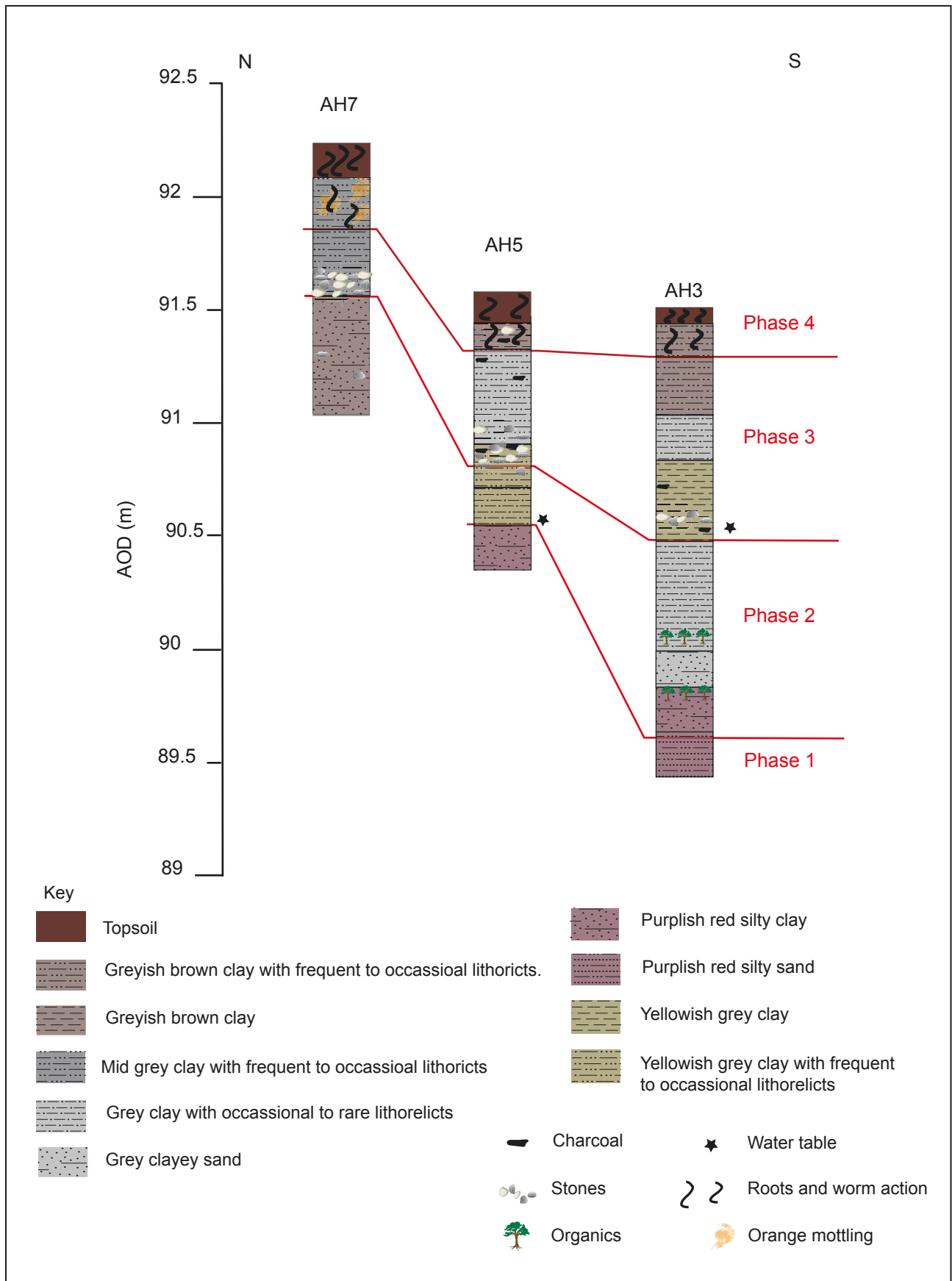


Key

- | | | |
|---|---|---|
|  Topsoil |  Purplish red silty sand | |
|  Greyish brown clay with frequent to occasional lithorictis. |  Purplish red silty clay | |
|  Grey clay |  Reddish orange silty clay | |
|  Grey clay with occasional to rare lithorelicts |  Charcoal |  Organics |
|  Grey clayey sand |  Stones |  Water table |
|  Yellowish grey clay | |  Roots and worm action |

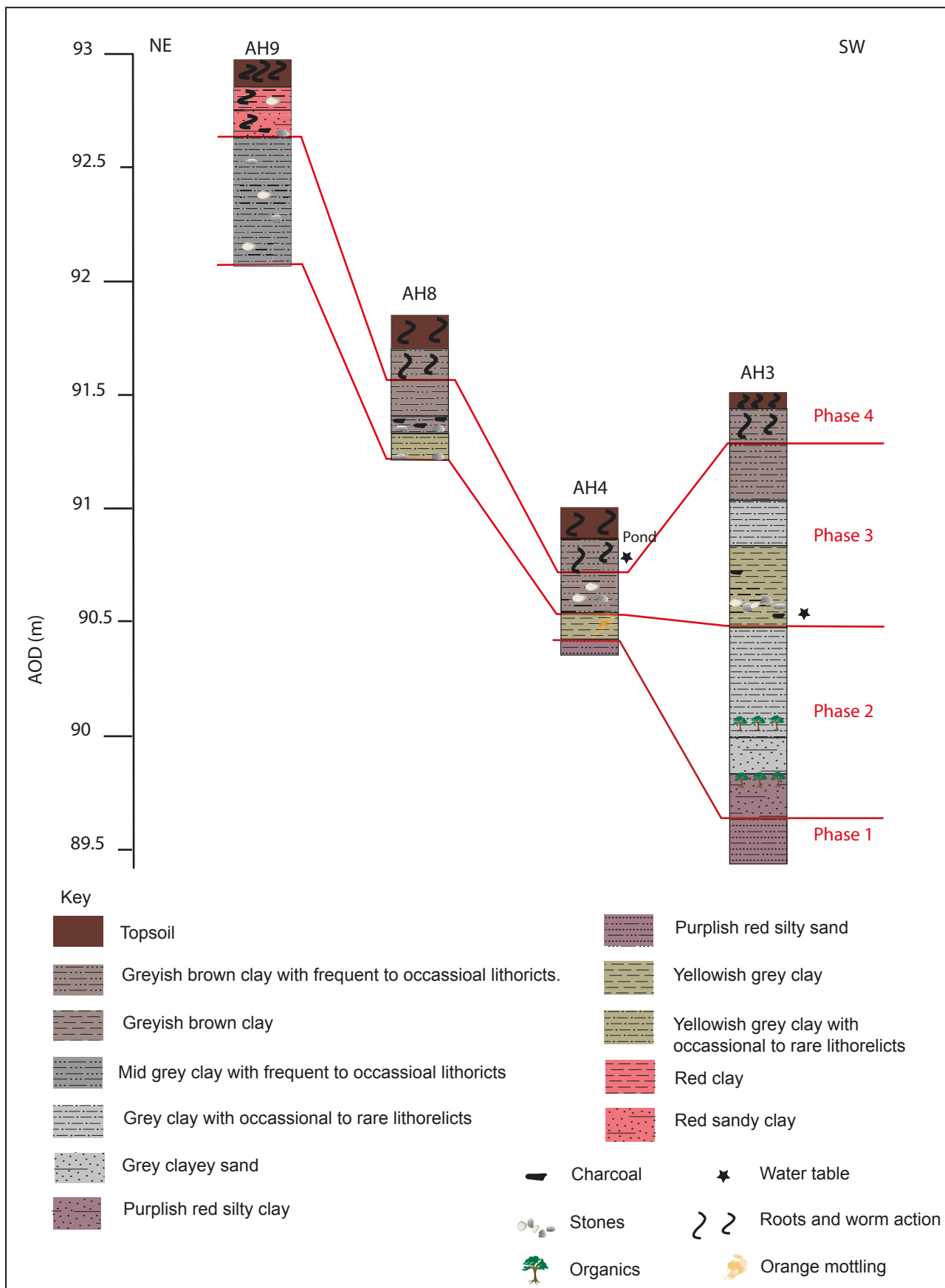
Profile of AH1, AH2 and AH3

Figure 3



Profile of AH7, AH5 and AH3

Figure 4



Profile of AH9, AH8, AH4 and AH3

Figure 5

Plates



Plate 1 Looking towards the south east corner of the site with the upstanding dam of the fish pond on the on the left-hand side



Plate 2 AH5 illustrating the pebble layer within the clay.

Appendix 1 Auger hole descriptions

Auger hole (AH) 1

Height above ordinance datum: 91.750m

Maximum depth: 0.84m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
101	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.16m	91.750 – 91.59m
102	Clay	Firm light- to mid-greyish brown clay. Occasional roots and frequent lithorelicts (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Fine to coarse pebbles at the base, ranging from angular to well rounded. Charcoal flecks at 0.65-0.69m.	0.16m – 0.84m	91.59 – 90.91m
REFUSAL DUE TO STONINESS.			0.84 +	90.91m

Auger hole (AH) 2

Height above ordinance datum: 91.640m

Maximum depth: 1.60m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
201	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.26m	91.640 – 91.38m
202	Clay	Firm light- to mid-greyish brown clay. Occasional roots and frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Charcoal flecks at 0.52m	0.26 – 1.06m	91.38 – 90.58m
203	Clay	Firm light-grey clay. Fine to coarse pebbles at the base, ranging from angular to well rounded. Rare mudstone lithorelics. Occasional charcoal flecks.	1.06m -1.23m	90.58 – 90.41m
204	Silty clay	Firm mid-reddish orange silty clay. Mottled with light grey clay from above. Organic remains recorded at 1.28m.	1.23-1.42m	90.41 – 90.22
205	Weathered Mercia Mudstone	Compact dark purplish red silty clay.	1.42-1.60 m	90.22 – 90.04m
REFUSAL DUE TO FIRMNESS OF UPPER WEATHERED MERCIA MUDSTONE			1.60m +	90.04m

Auger hole (AH) 3

Height above ordinance datum: 91.525m

Maximum depth: 2.10m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
301	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.06m	91.525 – 91.465m
302	Clay	Firm light- to mid-greyish brown clay. Occasional roots and frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone.	0.06 – 0.47m	91.465 – 91.055m
303	Clay	Firm light-grey clay. Occasional, declining to rare, mudstone lithorelics (1mm wide by c. 8mm long).	0.47 - 0.70m	91.055 – 90.825m
304	Clay	Firm yellowish grey clay. Coarse well-round to sub-angular pebbles up to 3-4cm at 94cm. Occasional charcoal flecks. Water table present at approximately 1m.	0.70 – 1.03m	90.825 – 90.495m
305	Clay	Soft light grey clay. Rare mudstone lithorelics (1mm wide by c. 8mm long), rare charcoal flecks and occasional very angular fine pebbles. Organics between 1.50-4m.	1.03 – 1.57m	90.495 – 89.955m
306	Clayey sand	Soft grey clayey sand.	1.57 – 1.70m	89.955 – 89.825m
307	Clayey sand	Soft purplish red clayey sand, becoming increasingly purple with depth. Organics at 1.74m.	1.70 – 1.90m	89.825 – 89.625m
308	Silty sand	Soft purplish red silty sand.	1.90 – 2.10m	89.625 – 89.425m
REFUSAL			2.10	89.425m

Auger hole (AH) 4

Height above ordinance datum: 90.970m

Maximum depth: 0.60m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
401	Topsoil	Very soft organic mud.	0.00 – 0.12m	90.970 – 90.850
402	Clay	Firm light- to mid-greyish brown clay. Occasional roots and frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Occasional fine rounded to sub-angular pebbles. Very damp.	0.12 – 0.43m	90.850 – 90.540
403	Clay	Firm mottled light-grey, red and yellow clay.	0.43 - 0.49m	90.540 – 90.480m
404	Sand	Loose red sand. Very damp.	0.49 – 0.53m	90.480m – 90.440m
405	Clay	Firm light grey clay.	0.53 – 0.60m	90.440 – 90.370m
BASE NOT REACHED – SIDES COLLAPSED.			0.6m	90.370m

Auger hole (AH) 5

Height above ordinance datum: 91.570m

Maximum depth: 1.8m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
501	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.12m	91.570 – 91.450m
502	Clay	Soft light- to mid-greyish brown clayey silt. Occasional roots and charcoal flecks. Occasional fine rounded to sub-angular pebbles.	0.12 – 0.25m	91.450 – 91.32m
503	Clay	Firm mid-grey clay, with 2-3cm bands of light grey clay. Frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone.	0.25 - 0.67m	91.32 – 90.9m
504	Clay	Firm yellowish to light grey clay. Frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Charcoal flecks at 68-72cm and medium to coarse rounded to sub-angular pebbles at 70-85cm.	0.67 – 0.87m	90.9m – 90.7m
505	Clay	Soft yellowish to light grey clay. Occasional lithorelics. Water table present at approximately 1m.	0.87 – 1.03m	90.7 – 90.54m
506	Clay	Soft brownish red sandy clay	1.03 – 1.80m	90.54 – 89.77m
BASE NOT REACHED DUE TO HEALTH AND SAFETY, DIFFICULTY REMOVING THE AUGER BECAUSE OF VACCUUM CREATED BY WATER TABLE AT 1M AND LONE WORKING.			1.80m	89.77m

Auger hole (AH) 7

Height above ordinance datum: 92.225m

Maximum depth: 0.95m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
701	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.13m	92.225 – 92.095m
702	Clay	Very firm, dry, mid-grey clay, with orange mottling. Root action and worm sorting. Lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Rare medium to coarse rounded to sub-angular pebbles.	0.13 – 0.38m	92.095 – 91.845m
703	Clay	Very firm, dry, mid-grey clay Lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Frequent coarse rounded to sub-angular pebbles at 53cm and 67cm.	0.38 - 0.67m	91.845 – 91.555m
704	Clay	Very firm, dry, reddish-grey silty clay, becoming increasingly reddish with depth. Occasional fine rounded to sub-angular pebbles.	0.67 – 0.95m	91.555 – 91.275m
REFUSAL DUE TO DRY, HARD CLAY.			0.95	91.275m

Auger hole (AH) 8

Height above ordinance datum: 91.850m

Maximum depth: 0.95m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
801	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.13m	91.85 – 91.72m
802	Clay	Firm light- to mid-greyish brown clay. Occasional roots and frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone.	0.13 – 0.42m	91.72m – 91.43m
803	Clay	Firm light- to mid-greyish brown clay. Occasional roots and occasional lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone. Occasional fine rounded to sub-angular pebbles. Charcoal flecks at 43-45cm.	0.42 – 0.50m	91.43 – 91.35m
804	Clay	Very firm yellowish to light grey clay. Occasional lithorelics.	0.50 – 0.60m	91.35m – 91.25m
REFUSAL DUE TO STONES AT BASE			0.60m	91.25m

Auger hole (AH) 9

Height above ordinance datum: 92.970m

Maximum depth: 0.90m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
901	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.12m	92.970 – 92.850m
902	Clay	Firm red clay, with bands of grey clay. Occasional roots, occasional fine rounded to sub-angular pebbles and occasional charcoal flecks.	0.12 – 0.24m	92.850 – 92.730m
903	Sandy clay	Firm red sandy clay, with bands of grey clay. Occasional roots, occasional fine rounded to sub-angular pebbles and occasional charcoal flecks.	0.24 – 0.30m	92.730 – 92.670m
904	Clay	Firm reddish grey clay, with small pockets of lithorelicts and bands of grey clay. Occasional fine rounded to sub-angular pebbles.	0.30 – 0.90m	92.670 – 92.07m
REFUSAL DUE TO STONES AT BASE			0.90m	92.07m

Auger hole (AH) 10

Height above ordinance datum: 91.960m

Maximum depth: 0.80m

Context	Classification	Description	Depth of deposits: top and base (m)	
			BGS	AOD
1001	Topsoil	Medium brown clayey silty soil with frequent root action and worm sorting.	0.00 – 0.10m	91.960 – 91.860m
1002	Clay	Firm light grey clay. Occasional roots and frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone.	0.10 – 0.28m	91.860 – 91.680m
1003	Clay	Firm mid grey clay. Occasional lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone.	0.28m – 0.42m	91.680 – 91.540m
1004	Clay	Firm dark grey clay.	0.42m – 0.48m	91.540 – 91.480m
1005	Clay	Firm light grey clay. Frequent lithorelics (1mm wide by c. 8mm long) of degraded Mercia Mudstone, occasional fine angular pebbles, occasional flecks of organic matter. Layer of medium to coarse rounded to sub-angular pebbles at 70cm.	0.48 – 0.80m	91.480 – 91.160m
REFUSAL DUE TO STONES AT BASE			0.80m	91.160m

Appendix 2 Technical information

The archive (site code: WSM 57112)

The archive consists of:

- | | |
|---|-------------------------------|
| 1 | Field progress report AS2 |
| 1 | Recorded finds record AS13 |
| 1 | Sample number catalogues AS18 |
| 9 | Augerhole record sheet AS26 |

Copy of this report (bound hard copy)

The project archive is intended to be placed at:

Worcestershire County Museum
Museums Worcestershire
Hartlebury Castle
Hartlebury
Near Kidderminster
Worcestershire DY11 7XZ
Tel Hartlebury (01299) 250416

Summary of data for Worcestershire HER

WCM 57112 (event HER number)

P4328

Methods of retrieval	Yes/No
Hand retrieval	Yes
Auger	Yes

Type	Preservation	Date (note 1)	Specialist report? Y/N (note 2)	Key assemblage? Y/N (note 3)
Environmental deposit - clay	Anaerobic/anoxic - waterlogged Not decayed	Medieval	N	
Plant remains – macrofossils	Anaerobic/anoxic - waterlogged Not decayed	Medieval	N	

Period	From	To
Medieval	1066	1539

Notes

1. In some cases the date will be "Undated". In most cases, especially if there is not a specialist report, the information entered in the *Date* field will be a general period such as Neolithic, Roman, medieval etc (see below for a list of periods used in the Worcestershire HER). Very broad date ranges such as *late Medieval to Post-medieval* are acceptable for artefacts which can be hard to date for example roof tiles. If you have more specific dates, such as *13th to 14th century*, please use these instead. Specific date ranges which cross general period boundaries can also be used, for example *15th to 17th century*.
 2. Not all evaluations of small excavation assemblages have specialist reports on all classes of objects. An identification (eg clay pipe) and a quantification is not a specialist report. A short discussion or a more detailed record identifying types and dates is a specialist report. This field is designed to point researchers to reports where they will find out more than merely the presence or absence of material of a particular type and date.
 3. This field should be used with care. It is designed to point researchers to reports where they will be able to locate the most important assemblages for any given material for any given period. Most assemblages will not, on their own, be key assemblages.
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