

# Archaeological evaluation of land to the rear of Worcester Arena, Riverside Campus, University of Worcester, Chequers Lane, Worcester

Worcestershire Archaeology  
*for University of Worcester*

March 2020



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**WORCESTER ARENA  
RIVERSIDE CAMPUS  
UNIVERSITY OF WORCESTER  
CHEQUERS LANE  
WORCESTER**

Archaeological evaluation report

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## SITE INFORMATION

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Site name:	Land to the rear of Worcester Arena, Riverside Campus, University of Worcester, Chequers Lane, Worcester
Site code:	WCM 102405
Local planning authority:	Worcester City Council
Planning reference:	Preplanning
Central NGR:	SO 8417 5490
Commissioning client:	University of Worcester
Client project reference:	-
WA project number:	P5615
WA report number:	2732
HER reference:	WCM 102405
Oasis reference:	fieldsec1-364361
Museum accession number:	-

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<b>DOCUMENT CONTROL PANEL</b>				
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# Archaeological evaluation of land to the rear of Worcester Arena, Riverside Campus, University of Worcester, Chequers Lane, Worcester

By Graham Arnold

With contributions by Liz Pearson and Rob Hedge

Illustrations by Carolyn Hunt

## Summary

An archaeological evaluation and borehole survey were undertaken on land to the rear of Worcester Arena, Riverside Campus, University of Worcester, Chequers Lane, Worcester (NGR SO 8417 5490). It was commissioned by University of Worcester, in advance of a proposed Cricket School, for which a planning application will be submitted to Worcester City Council.

The site had been subject to an earlier evaluation and borehole survey, with a borehole transect recorded across the location of present Worcester Arena to the north-east.

Four trenches were excavated within the proposed footprint of the new building, located to fit with ecological and live service constraints. Further to this, six boreholes were placed in the east side of the site to analyse the overburden, alluvial and natural deposits.

The investigations revealed a similar stratigraphy to the previous works undertaken in 2013, with a series of made-ground deposits overlying alluvial sands, the sand and gravels of the Severn river terrace.

The evaluation trenches recorded natural deposits in the east of the site, overlain by a series of 18<sup>th</sup> – 20<sup>th</sup> century dump deposits of clinker, industrial and domestic waste, deposited to level the natural west to east slope of the ground. No earlier material was recovered. A small sample of late 19<sup>th</sup> and early 20<sup>th</sup> century material was recovered from made-ground deposits in Trenches 2 and 3. The small assemblage of domestic waste is typical of a Worcester household in the early 20<sup>th</sup> century. The majority probably belongs to the period AD 1900-1920. Material from elsewhere was imported into site during development in the 19<sup>th</sup> century.

An earlier palaeochannel was recorded running roughly north to south through the site, although the upper deposits and profile had been truncated by the post-medieval and modern demolition and levelling activity.

Within Borehole 6 possible Roman material was identified at c 12.77mAOD, c 1.91m depth, at the interface between the modern industrial made-ground dumping and the natural alluvial material below. This is comparable with the results of Borehole 8 from the previous investigations.

Given that the proposed foundation design involves piling rather than foundation trenches, it is probable that the possible Roman layers will be disturbed, but that they will not be visible during the groundworks.



# Report

## 1 Introduction

### 1.1 Background to the project

An archaeological evaluation and borehole survey were undertaken by Worcestershire Archaeology (WA) in July 2019 of land to the rear of Worcester Arena, Riverside Campus, University of Worcester, Chequers Lane, Worcester (NGR SO 8417 5490). This comprised four evaluation trenches and six boreholes. The project was commissioned by the University of Worcester, in advance of a proposed development of the site, for which a planning application will be submitted to Worcester City Council.

The archaeological advisor to the local planning authority considered that the proposed development has the potential to impact upon specific heritage assets. Previous borehole survey and evaluation on the site has identified palaeochannels and Roman material on site.

No brief was provided but a written scheme of investigation (WSI) was prepared by Worcestershire Archaeology (WA 2019) and approved by the Archaeological Officer of Worcester City Council. The evaluation also conforms to the industry guidelines and standards set out by the Chartered Institute for Archaeologists in *Standard and guidance: for archaeological field evaluation* (CIfA 2014a) and *Guidelines for archaeological work in Worcester* (Worcester City Council 2016).

### 1.2 Site location, topography and geology

The site is located to the rear of Worcester Arena, on the west bank of the River Severn and is currently used as car parking, with stone hardcore. It covers an area of 0.425 hectares and is bounded by the recent Worcester Arena building to the east, further car parks to the north, residential properties to the west, and a railway embankment to the South. The ground slopes from c 23m AOD in the west to c 15m AOD in the east, towards the river.

The underlying geology comprises bedrock of the Sidmouth Mudstone formation, overlain by superficial deposits of sands and gravels of the Worcester Member and Holocene silt and clay alluvium (BGS 2018).

## 2 Archaeological and historical background

### 2.1 Previous archaeological work on the site

All of the previous archaeological investigations on site, along with the current works, are provided in Figure 2.

The site had been subject to a borehole survey (Daffern 2013; WCM 101887), with a borehole transect recorded across the location of the new Worcester Arena building.

This identified Roman slag on site, specifically in the central portion of the site, and a series of post-medieval and modern made ground deposits overlying alluvial and natural sand and gravel deposits. The Roman slag was recorded at the interface between the 19<sup>th</sup> Century industrial dumping and the alluvial layers. The summary from this report is provided below.

The site had previously been subject to various archaeological investigations, an evaluation (Lockett and Jones 2001), a desk-based assessment (Archaeological Solutions 2005), a watching brief (Vaughan 2008), and an archaeological assessment (CgMs 2010).

The evaluation (Lockett and Jones 2001) produced a residual Mesolithic flint scraper and a residual sherd of Roman Severn Valley ware pottery from alluvial deposits which underlay the post-medieval and modern deposits covering the entirety of the site (Lockett and Jones 2001). The watching brief similarly encountered alluvial deposits sealed beneath significant quantities of post-medieval and modern deposits. A small quantity of Roman slag was also recovered (Vaughan 2008).

These alluvial deposits were considered to have potential for the recovery of significant archaeological evidence. In addition, a Palaeolithic hand axe has been recovered c 20m to the north of the site (WCM 100695) indicating the potential for further early prehistoric archaeological remains.

The initial, assessment phase of boreholes (Boreholes 1-8), undertaken on a north-east to south-west transect through the middle of the site, was undertaken to confirm the previously reported character of the site but also to establish the nature of the deeper alluvial sequence which had only been tentatively investigated during previous works. This investigation was aimed at establishing the depth of the alluvium, its potential for archaeological and palaeoenvironmental preservation and, if possible, to establish the dating of the alluvium and any archaeological remains encountered therein.

The results of the assessment indicated that significant palaeoenvironmental and archaeological remains were present; this included the highly significant presence of stratified early prehistoric deposits, representing the first identification of stratified remains of Neolithic date from the city.

### 3 Project aims

The aims of the project were to:

- determine the presence or absence of archaeological deposits beyond reasonable doubt;
- identify their location, nature, date and preservation;
- assess their significance;
- assess the likely impact of the proposed development (where the foundation designs have been provided to WA)

### 4 Project methodology

A WSI was prepared by Worcestershire Archaeology (WA 2019). Fieldwork was undertaken between 29 July and 3 August 2019.

Four trenches, amounting to 170m<sup>2</sup> in area, were excavated over the 0.425 ha site, representing a sample of 4%. The location of the trenches is indicated in Figure 2, together with previous investigations on site. A fifth trench was aborted due to the presence of modern services (Plate 12).

The trenches were laid out for best fit, avoiding modern services and ecological constraints on site which limited their positioning.

Deposits considered not to be significant were removed under constant archaeological supervision using a JCB 3CX type wheeled excavator, employing a toothless bucket. Subsequent excavation was undertaken by hand. Clean surfaces were inspected and selected deposits were excavated to retrieve artefactual material and environmental samples, as well as to determine their nature. Deposits were recorded according to standard Worcestershire Archaeology practice (WA 2012) and trench and feature locations were surveyed using a differential GPS with an accuracy limit set at <0.04m. On completion of excavation, trenches were reinstated by replacing the excavated material. Trenches were stepped to allow for deeper excavation and access to deep trenches and was not made.

The borehole survey was carried out with a Competitor Rig, taking 1m cores until natural deposits were reached. The cores were retained for analysis, and the stratigraphy checked against the results from the borehole transect recorded and reported on in 2013.

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

The project archive is currently held at the offices of Worcestershire Archaeology. Subject to the agreement of the landowner it is anticipated that it will be deposited at Museums Worcestershire.



## 5 Archaeological results

### 5.1 Introduction

The features recorded in the trenches are shown in Figure 3. The trench and context inventory for the evaluation trenches and borehole logs is presented in Appendix 1.

### 5.2 Phasing/Trench descriptions

#### 5.2.1 Natural deposits across the site

The natural fluvial silts and reddish-brown sands and gravels of the River Severn terrace were recorded in all of the trenches, apart from Trench 3, where modern industrial deposits continued to 2.20m below ground level and could not be excavated deeper due to ground water at 1.50m below ground level, the nature of the loose material above and adjacent live services. The Boreholes in this area demonstrated that natural deposits were between 2.50–3.00m below ground level, overlain by alluvial deposits.

In all of the trenches these were overlain by a series of 19<sup>th</sup> and 20<sup>th</sup> century levelling dump deposits and modern car park surfacing.

#### 5.2.2 Trench 1

Trench 1 (Plates 2-3) contained early 20<sup>th</sup> century pits [105] and dump deposits (103) levelling the slope of the ground at the south-east end of the trench, with the natural geology at 1m below the ground level.

#### 5.2.3 Trench 2

Trench 2 (Plates 4-5) contained a palaeochannel [208], filled by gleyed, moderately compact mid blueish black sands, 0.30m deep at the base of the trench. This was 3.50m in width, on an approximately north to south alignment. This had been truncated and was overlain by the early 20<sup>th</sup> century made ground deposits (203). 20<sup>th</sup> century deposits (210) and (211) were also evident to the east of the palaeochannel.

#### 5.2.4 Trench 3

Trench 3 (Plates 6-7) contained a series of industrial and household waste deposits throughout, to the base, overlain by later demolition and levelling deposits, related to the former scrapyards and later use of the site as a car park. Groundwater was encountered at 1.50m below ground level. The natural geology was not encountered due to the ground water and depth of the made ground (>2.20m). The presence of live services in the area prevented extending or stepping the trench sides.

#### 5.2.5 Trench 4

The palaeochannel (404) recorded in Trench 2 continued in Trench 4 (Plates 8-9), on a similar alignment, overlain by modern dump deposits. In Trench 4 it was 3.00m in width, had a similar fill, 0.30m deep and was recorded at 1.20m below the ground level. The natural slope in the east had been levelled with industrial made ground (409), containing porcelain and clinker, similar to that recorded in Trenches 2 and 3.

## 6 Artefactual evidence, by Rob Hedge, PCIfA

Recovery of artefacts was undertaken according to standard Worcestershire Archaeology practice (WA 2012). The finds work reported here conforms with the following guidance: for findwork by ClfA (2014), for pottery analysis by PCRG/SGRP/MPRG (2016), for archive creation by AAF (2011), and for museum deposition by SMA (1993).

## 6.1 Recovery policy

The artefact recovery policy conformed to standard Worcestershire Archaeology practice (WA 2012; appendix 2).

## 6.2 Method of analysis

All hand-retrieved finds were examined. They were identified, quantified and dated to period. A *terminus post quem* date was produced for each stratified context. The date was used for determining the broad date of phases defined for the site. All information was recorded on Microsoft Access database.

The pottery and ceramic building material was examined under x20 magnification and referenced as appropriate by fabric type and form according to the fabric reference series maintained by Worcestershire Archaeology (Hurst and Rees 1992 and [www.worcestershireceramics.org](http://www.worcestershireceramics.org) ).

## 6.3 Discard policy

Artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained, unless they are of intrinsic interest (e.g. worked flint or flint debitage, featured pottery sherds, and other potential 'registered artefacts'). All artefacts will be collected from stratified excavated contexts, except for large assemblages of post-medieval or modern material, unless there is some special reason to retain such as local production. Such material may be noted and not retained, or, if appropriate, a representative sample may be collected and retained. Discard of finds from post-medieval and earlier deposits will only be instituted with reference to museum collection policy and/or with agreement of the local museum.

## 6.4 Artefactual analysis

The artefactual assemblage is summarised in Tables 1 and 2.

The finds came from three stratified contexts and were all post-medieval or modern in date. A representative sample of 23 artefacts, weighing 3.7kg, was recovered for the purposes of dating the deposits. Most comprised complete or near-complete ceramic and glass vessels, and diagnostic sherds of pottery.

## 6.5 Model table

period	material class	object specific type	Count	weight(g)
post-medieval/modern	ceramic	hot water bottle	1	690
		ornament	3	101
		pot	11	617
		roof tile	1	499
	glass	vessel	5	1456
modern	glass	vessel	2	339
<b>Totals</b>			<b>23</b>	<b>3702</b>

Table 1: Quantification of the assemblage

Broad period	fabric code	Fabric common name	count	weight(g)
Modern	81.4	Miscellaneous late stoneware	2	908
	85	Modern china	13	500
<b>Totals</b>			<b>15</b>	<b>1408</b>

Table 2 Quantification of the pottery by fabric

## 6.6 Discussion

Finds from the fill (211) of ditch (210) included 19<sup>th</sup> century roof tile and transfer printed whiteware (fabric 85).

Made-ground deposits (203) and (302) appear broadly contemporary. They contained an interesting mix of typical domestic material from the late-19<sup>th</sup> and early 20<sup>th</sup> centuries. Typologically, there were beer and medicine bottles with applied lips, pre-dating the advent of machine-made bottles which started to become widespread after 1905. However, several of the bottles from (302) had been manufactured after 1905. A small ink-bottle with a sheared lip is of a type in production from the 1890s to the 1920s. The brand names represented help to refine the dating somewhat:

- Virol was a malt extract produced from around 1900 onwards;
- Western Counties Creameries: Alpin & Barrett Ltd implies a date after 1898, when the two companies merged;
- a Crown Perfumery Co. bottle dates to between 1872 and 1921;
- Lewis Clarke and Co were a well-known Worcester brewery, operating from Angel Place at the turn of the 20th century, and thought to have ceased brewing in 1937;
- Dr Birley's Phosphorus was a quack nerve tonic popular in the first decade of the 20th century;
- On Dudfield Worcester little information can be found, but the bottle style suggest production before 1910.
- Other unbranded artefacts included transfer-printed whitewares, an ornamental ceramic pink elephant, and a fragment of a stoneware hot-water bottle.

context	material class	object specific type	Count	weight(g)	start date	end date	Context TPQ date range
203	ceramic	hot water bottle	1	690	1870	1940	AD 1898 - 1910
		ornament	3	101	1870	1920	
		pot	1	218	1898	1930	
			1	28	1820	1950	
			6	136	1850	1950	
	glass	vessel	1	43	1872	1921	
			1	433	1880	1910	
			1	445	1895	1910	
	211	ceramic	pot	2	32	1820	
roof tile			1	499	1800	1950	
302	ceramic	pot	1	203	1870	1920	AD 1905 - 1930
	glass	vessel	1	472	1870	1910	
			1	63	1890	1930	
			2	339	1905	1930	

Table 3: Summary of context dating based on artefacts

## 6.7 Further analysis and reporting

No further work on the assemblage is required.

## 6.8 Discard and retention

The assemblage is not thought to obviously warrant retention by Museums Worcestershire, but it does have potential in a museum context. As a snapshot of the waste of typical households around 100 years ago, including products that show a focus on health and wellbeing, it highlights how approaches to health have changed over the intervening century.

# 7 Environmental evidence, by Elizabeth Pearson, ACIfA

## 7.1 Sampling method

Environmental sampling was undertaken according to standard Worcestershire Archaeology practice (WA 2012). Six Boreholes were retrieved for environmental analysis. The borehole logs are available in Appendix 1 and their locations in relation to the borehole transect of 2013 are marked on Figure 2.

## 7.2 Method of recording

In order to rapidly compare deposits in boreholes against those recorded in 2013 (Daffern 2013), broad descriptions of the deposits in the cores were made by viewing these intact with their plastic sleeve. It was possible to broadly distinguish colour and between compact silty clay layers and gravel-rich or industrial 18<sup>th</sup> – 20<sup>th</sup> century made ground deposits (Appendix 1).

Cores from BH 5 and 6 were identified as being in close proximity to the cores in which possible Roman slag deposits were recorded as part of the Worcester Arena analysis in 2013 (Daffern 2013, BH 1, 7 and 8).

A single core (BH 6) was opened to examine the deposits. At the base of the core (3.26m bgs / 11.61m AOD; (6004)) a sequence of pink and orange gravels, blue/grey clay and black sandy silty clays with abundant angular stone inclusions was identified. From 1.91m (bgs) (12.77m AOD), these were overlain by compact, plastic grey/black silty clays with some angular stone inclusions.

The lower made-ground deposits (6002), immediately overlying an alluvial layer, included slag, possible leather fragments and waterlogged wood. This material may correspond to the slag deposits identified during the 2013 borehole survey. These change gradually to more mixed made-ground, containing glass fragments, which are likely to be post-medieval in date. This conforms to the sequence described by Wilkinson (2013) for Borehole 8, where:

Probable archaeological deposits were found conformably overlying fine-grained alluvium at 13.61 – 13.21m AOD in Borehole 8 comprising iron smelting debris (slag) with interbedded waterlogged organic layers. This smelting debris appears similar in morphology, stratigraphic position and elevation to those previously encountered on the eastern bank of the Severn at Newport Street (Wilkinson 2006a) and The Butts (Wilkinson 2006b).

Layer (6002) in Borehole 6 (2019 sequence) lies at 13.65 – 12.77m AOD.

The fact that, on initial analysis, the stratigraphy of the boreholes follows the previous stage of borehole transect on site, all of which were fully analysed, it is felt that, given the close proximity of the current boreholes to those already analysed, further analysis of the boreholes from this stage of works would be unnecessary as it is likely to mirror the previous findings.

## 8 Discussion and Conclusions

The results were similar to the previous evaluations and borehole surveys carried out on site, demonstrating the build-up of late 19<sup>th</sup> century and early 20<sup>th</sup> century made ground. The small assemblage of domestic waste is typical of a Worcester household in the early 20<sup>th</sup> century. The majority probably belongs to the period AD 1900-1920. A palaeochannel was also encountered running on an approximately north to south alignment. The palaeochannel appears to have been visible in the late 19<sup>th</sup> century and was overlain by the 20<sup>th</sup> century made ground levelling material.

The six boreholes undertaken during these works demonstrated a similar stratigraphy to the previous works undertaken in 2013, with a series of industrial 18<sup>th</sup>-20<sup>th</sup> century made ground deposits of industrial waste raising the ground level for construction and occupation. These modern deposits were seen to be overlying alluvial sands and the sand and gravels of the River Severn terrace.

No archaeological deposits were recorded in the evaluation trenches that dated earlier than the 18<sup>th</sup>-20<sup>th</sup> century industrial dumping. Leather, slag and waterlogged wood that may relate to Roman activity was noted in BH6 at the interface between the post-medieval industrial made ground and the natural alluvial sequence. This was recorded at a depth of 12.77m AOD, 1.91m below the current ground level, and is comparable with the results of Borehole 8 from the previous investigations.

Given that the proposed foundation design involves piling rather than foundation trenches, it is probable that the possible Roman layers will be disturbed, but that they will not be visible during the groundworks.

The methods adopted allow a high degree of confidence that the aims of the project have been achieved. Conditions were suitable in all of the trenches to identify the presence or absence of archaeological features. It is considered that the nature, density and distribution of archaeological features provides an accurate characterisation of the development site as a whole.

## 9 Project personnel

The fieldwork was led by Graham Arnold (PCIfA), assisted by Jesse Wheeler (PCIfA). The borehole survey was sampled by Geospek Geo-environmental Drilling and monitored by Jesse Wheeler.

The project was managed by Tom Vaughan (MCIfA). The report was produced and collated by Graham Arnold. Specialist contributions and individual sections of the report are attributed to the relevant authors throughout the text.

## 10 Acknowledgements

Worcestershire Archaeology would like to thank the following for the successful conclusion of the project: David Norman (Project Manager, Estates Services, University of Worcester), April White (Arena Operations and Engagement Manager, University of Worcester), Chris Binks (Geospek Ltd), James Dinn (Archaeological Officer, Worcester City Council).

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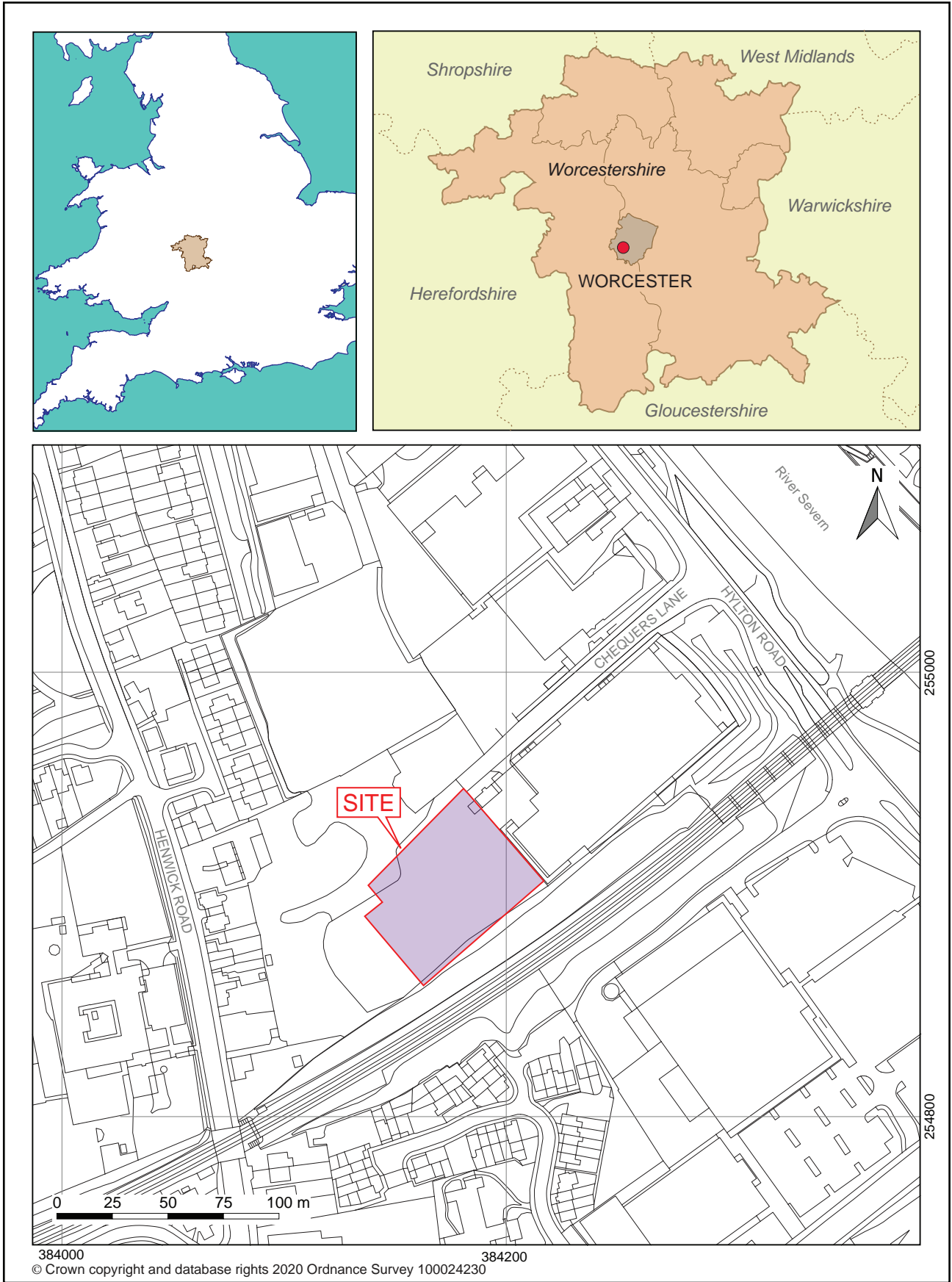
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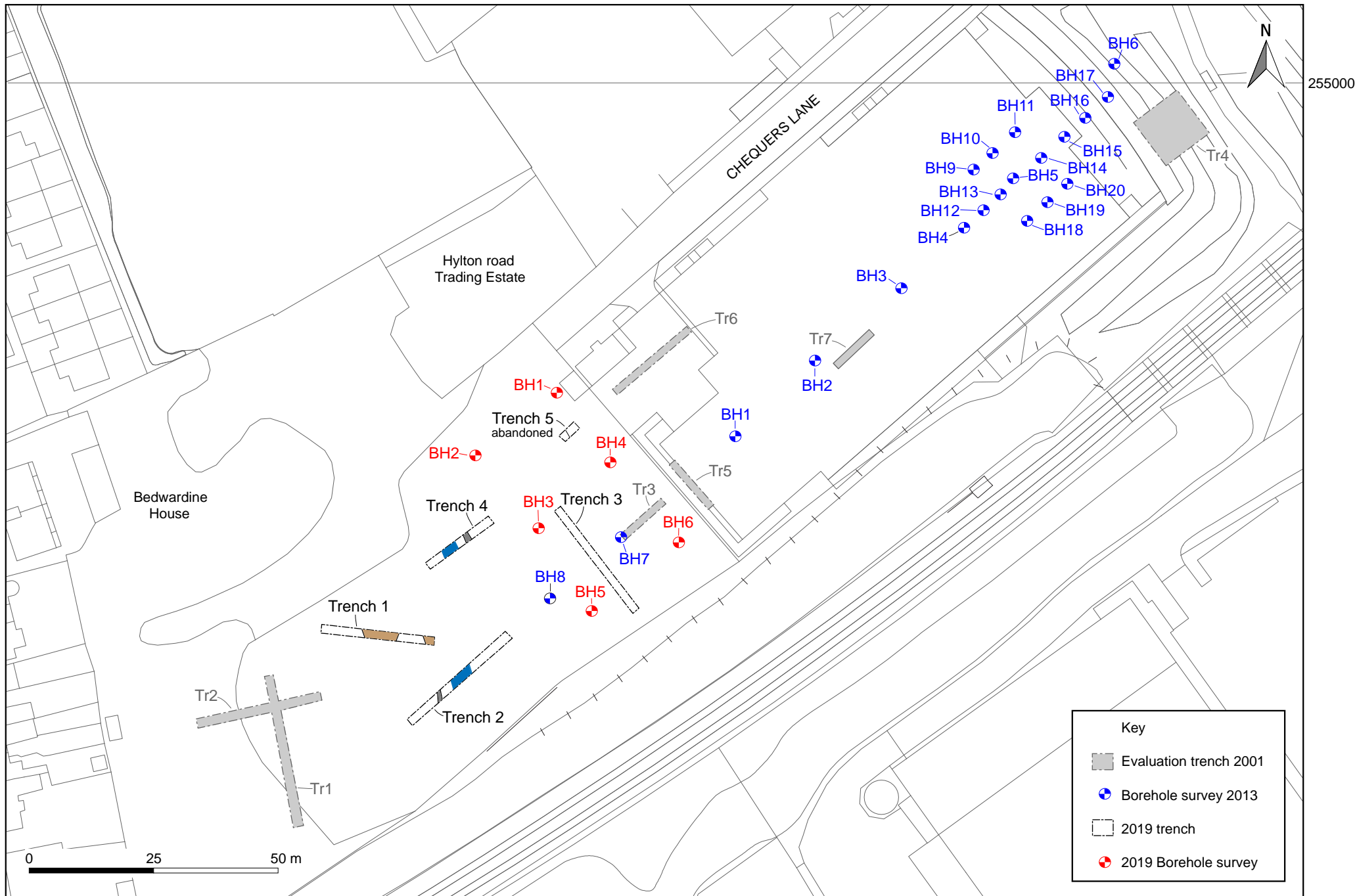
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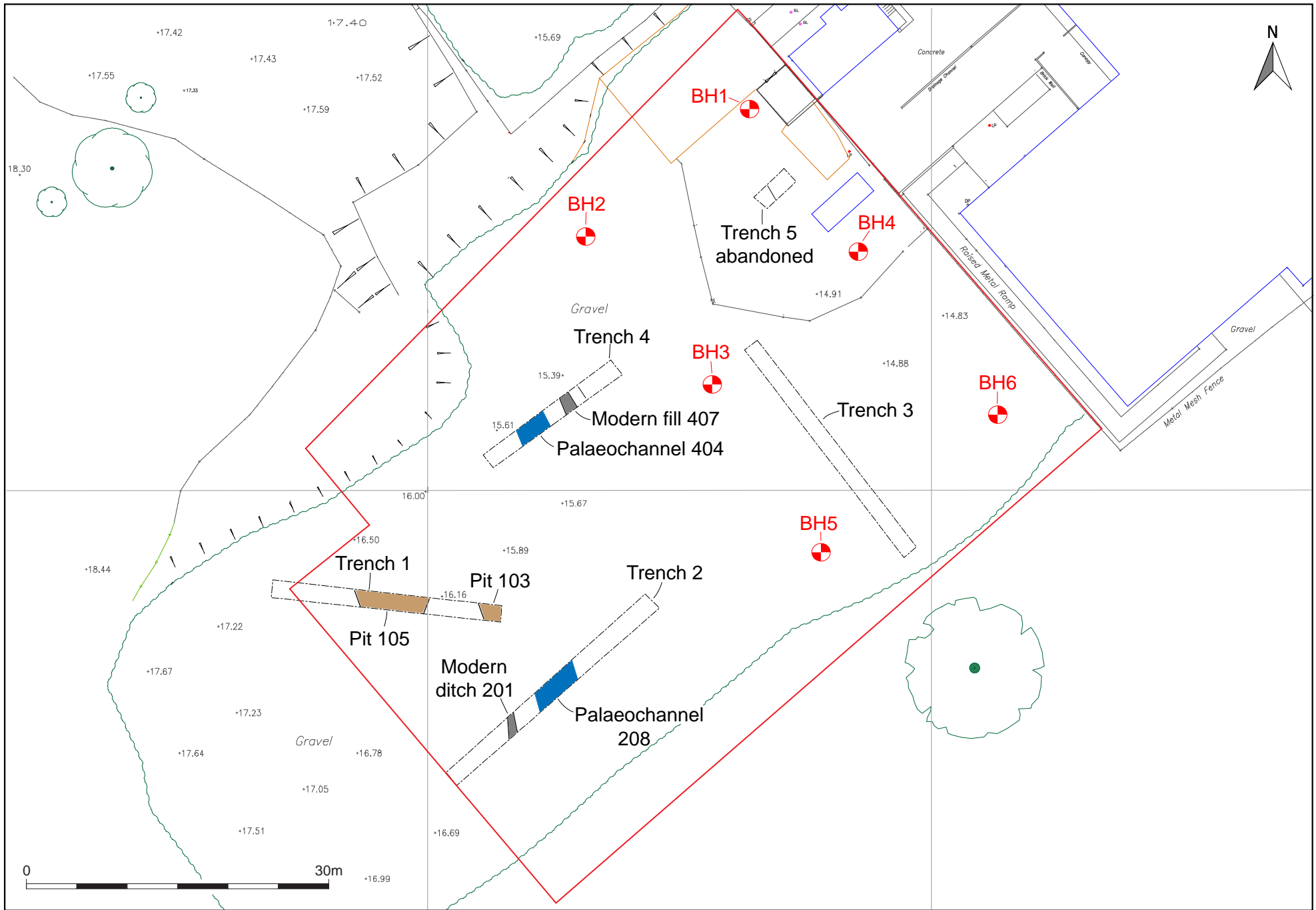
## Figures



Location of the site

Figure 1







## Plates



*Plate 1: Car park prior to excavations, looking west-south-west, no scales*



*Plate 2: Trench 1 general view, looking west-north-west, 2x 1m scales*





*Plate 3: Trench 1 general view, looking north-east, 2x 1m scales*



*Plate 4: Trench 2 general view, looking north-east, 2x 1m scales*





*Plate 5: Trench 2, palaeochannel below modern truncation and overburden, looking south-east, 2x 1m scales*



*Plate 6: Trench 3, general view, modern clinker backfill, looking south-east, 2x 1m scales*





*Plate 7: Trench 3, modern dump deposits, clinker backfill, and ground water, looking south, no scales*



*Plate 8: Trench 4, palaeochannel and modern clinker backfill, looking west, 2x 1m scales*





*Plate 9: Trench 4, possible palaeochannel fill and natural gravels, looking north, 1m scale*



*Plate 10: Trench 4, modern disturbance at west end (409) filled with modern clinker, looking south, 1m scale*





*Plate 11: Sample of glass bottles and jars from clinker made ground in Trenches 2 and 3, no scale*



*Plate 12: Trench 5, aborted due to presence of live service ducting, 1m scale*

## Appendix 1: Trench and borehole log descriptions

### Trench 1

Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
100	Made ground	0.08	0.00	Type 1 gravel car park overlying terram
101	Made ground	0.24	0.08	Gravels and reinforced concrete slab overlying terram
102	Made ground	0.28	0.32	Brick rubble layer with rebar. Levelling layer from demolition.
103	Layer	0.50	0.23	19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural
104	Cut	0.40	0.50	Domestic and industrial waste clinker truncation cut into natural deposits
105	Fill	0.40	0.50	Charcoal rich waste pit with white porcelain, brick and clinker, industrial waste.
106	Alluvium	0.10	0.90	Mid greyish yellow sands with occasional rooting with organic staining.
107	Natural	-	1.00	Brownish red sands and gravels

### Trench 2

Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
200	Made ground	0.08	0.00	Type 1 gravel car park overlying terram
201	Made ground	0.24	0.08	Gravels and reinforced concrete slab overlying terram
202	Made ground	0.28	0.32	Brick rubble layer with rebar. Levelling layer from demolition.
203	Layer	0.50	0.23	19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural
204	Layer	0.40	0.50	Moderately compact dark yellowy grey silty sands with occasional brick fragments and other industrial waste from layer above



Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
205	Alluvium	0.40	0.50	Mid greyish yellow sands with organic staining from rooting
206	Alluvium	0.10	0.90	Mid orangey brown sands with occasional rooting with organic staining. Lower alluvial layer
207	Natural	-	1.00	Firm brownish red sands and gravels.
208	Cut of palaeochannel		0.60 – 1.80	Palaeochannel with sloping sides. Truncated on the northeast side by modern backfilling 207 on the north
209	Fill of palaeochannel		0.60 – 1.80	Soft blue grey silty sands
210	Cut	1.00	0.50	Angular linear ditch from modern truncation on site
211	Fill	1.00	0.50	Gleyed yellowy grey silty sands containing clinker and white porcelain. Seen in section and in plan.

### Trench 3

Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
300	Made ground	0.12	0.00	Type 1 gravel car park overlying terram
301	Made ground	0.55	0.12	Demolition layer and dump deposit from former scrapyards including hydrocarbons, tyres and domestic debris and refuse.
302	Layer	2m +	0.67	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural. Ground water reached at 1.60m below ground level.

## Trench 4

Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
400	Made ground	0.10	0.00	Type 1 gravel car park overlying terram
401	Made ground	0.33	0.10	Gravels and reinforced concrete slab overlying terram
402	Made ground	0.44	0.43	Brick rubble layer with rebar. Levelling layer from demolition.
403	Alluvium	0.50	0.23	Mid greyish yellow sands with organic staining from rooting
404	Cut of palaeochannel	0.40	0.50	Moderately compact dark yellowy grey silty sands with occasional brick fragments and other industrial waste from layer above
405	Fill of palaeochannel		0.60 – 1.80	Soft blue grey silty sands
406	Alluvium	0.10	0.90	Mid orangey brown sands with occasional rooting with organic staining. Lower alluvial layer
407	Alluvium			Gleyed compact light blueish grey sandy clays
408	Natural	-	1.00	Firm brownish red sands and gravels.
409	Layer	1.50m	0.67	Clinker and charcoal rich industrial 19th C demolition and dump deposit backfilling slope of natural also seen in trench 1-3 at East extent of trench

## Trench 5

Aborted due to live service

## Borehole 1

Ground level - 14.72m AOD

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
1000	Made ground	14.72 – 13.90	0.00 – 0.82	Modern levelling of car park
1001	Made ground	13.90 – 13.79	0.82 – 1.63	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural. Ground water reached at 1.60m below ground level.
1002	Alluvial Layer	13.79 – 13.12	1.63 - 2.25	Compact blueish grey alluvial
1003	Alluvial layer	13.12 – 12.07	2.25 – 3.30	Compact Blue brown sandy clay
1004	Natural	12.07 – 11.82	3.30-3.65	Pinkish orange sands and gravels

## Borehole 2

Ground level - 15.13m AOD

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
2000	Made ground	15.13- 14.05	0.00 – 1.08	Modern levelling of car park
2001	Made ground	14.05 – 13.43	1.08 – 1.70	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural. Ground water reached at 1.60m below ground level.
2002	Natural	13.43 – 13.18	1.70 – 1.95	Compact orange clay natural

## Borehole 3

Ground level - 15.36m AOD

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
3000	Made ground	15.36 – 14.79	0.00 – 0.57	Modern levelling of car park
3001	Made ground	14.79 – 13.98	0.82 – 1.63	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural. Ground water reached at 1.60m below ground level.
3002	Alluvial Layer	13.98 – 13.01	1.63 - 2.50	Compact blueish grey alluvial silty clay
3003	Alluvial layer	13.01 – 12.51	2.50 – 3.00	Compact Blue brown sandy clay
3004	Natural	12.51 – 12.31	3.00-3.20	Pinkish orange sands and gravels

## Borehole 4

Ground level - 14.91m AOD

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
4000	Made ground	14.91 – 14.34	0.00 – 0.57	Modern levelling of car park
4001	Made ground	14.34 – 13.28	0.57 – 1.63	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit backfilling slope of natural. Ground water reached at 1.60m below ground level.
4002	Alluvial Layer	13.53-12.41	1.63 - 2.50	Compact blueish grey alluvial silty clay
4003	Alluvial layer	12.41-11.91	2.50 – 3.00	Compact Blue brown sandy clay
4004	Natural	11.91-11.71	3.00-3.20	Pinkish orange sands and gravels

## Borehole 5

Ground Level 15.77m AOD. Similar height and location to Borehole 8 P3637

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
5000	Made ground	15.77 – 15.45	0.00 – 0.42	Modern levelling of car park
5001	Made ground	15.35 – 14.52	0.42 – 1.25	Modern demolition material
5002	Layer	14.52 – 13.57	1.25 - 2.20	Clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit
5003	Alluvial Layer	13.57 – 13.07	2.20 - 2.70	Moderately compact blueish grey silt clay alluvial layer
5004	Natural	13.07 – 12.47	2.70 - 3.30	Pinkish orange sands and gravels

## Borehole 6

Ground level - 14.95m AOD. Similar to Borehole 7 P3637

Context	Brief description	AOD depth (m)	Depth from ground surface (m)	Comments
6000	Made ground	14.95 – 14.67	0.00 – 0.28	Modern levelling of car park
6001	Made ground	14.67 – 13.65	0.42 – 1.30	Modern demolition material
6002	Layer	13.65 – 12.77	1.30 - 2.05	Slag, waterlogged wood and possible leather fragments, changing to clinker and charcoal rich industrial 19 <sup>th</sup> C demolition and dump deposit
6003	Alluvial Layer	12.77 – 12.35	1.92 - 2.60	Moderately compact blueish grey alluvial layer / palaeochannel fill
6004	Natural	12.35 – 11.65	2.60 - 3.30	Pinkish orange sands and gravels

## Appendix 2: Summary of project archive (WCM102405)

TYPE	DETAILS*
Artefacts and Environmental	Environmental Boreholes
Paper	Context sheet, Correspondence, Diary (Field progress form), Report
Digital	Database, GIS, Geophysics, Images raster/digital photography, Spreadsheets, Survey, Text

\*OASIS terminology

## Appendix 3: Summary of data for HER

HER reference WCM102405

period	material class	object specific type	count	weight(g)
post-medieval/modern	ceramic	hot water bottle	1	690
		ornament	3	101
		pot	11	617
		roof tile	1	499
	glass	vessel	5	1456
modern	glass	vessel	2	339
<b>Totals</b>			<b>23</b>	<b>3702</b>

Table 1: Quantification of the assemblage

Broad period	fabric code	Fabric common name	count	weight(g)
Modern	81.4	Miscellaneous late stoneware	2	908
	85	Modern china	13	500
<b>Totals</b>			<b>15</b>	<b>1408</b>

Table 2 Quantification of the pottery by fabric

context	material class	object specific type	Count	weight(g)	start date	end date	Context TPQ date range
203	ceramic	hot water bottle	1	690	1870	1940	AD 1898 - 1910
		ornament	3	101	1870	1920	
		pot	1	218	1898	1930	
			1	28	1820	1950	
			6	136	1850	1950	
	glass	vessel	1	43	1872	1921	
			1	433	1880	1910	
			1	445	1895	1910	
211	ceramic	pot	2	32	1820	1950	AD 1820 - 1950



context	material class	object specific type	Count	weight(g)	start date	end date	Context TPQ date range
		roof tile	1	499	1800	1950	
302	ceramic	pot	1	203	1870	1920	AD 1905 - 1930
	glass	vessel	1	472	1870	1910	
			1	63	1890	1930	
			2	339	1905	1930	

Table 3: Summary of context dating based on artefacts