



**YORK ARCHAEOLOGICAL TRUST**



**UNIVERSITY OF YORK,  
HESLINGTON EAST**

**WRITTEN SCHEME OF INVESTIGATION, V4**

*by Martin Stockwell*

**WSI**



## **YORK ARCHAEOLOGICAL TRUST**

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. It can manage projects, provide professional advice and monitor archaeological works to ensure high quality, cost effective archaeology. Its staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York its services are available throughout Britain and beyond.



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## 1. BACKGROUND

### 1.1 SITE DESCRIPTION

The Heslington East site (Centre SE 640506) occupies c. 103ha and lies c. 3km to the east of the centre of the City of York and on the east side of the village of Heslington. The site is bounded by Field Lane and Hull Road (A1079) to the north, the A64 trunk road to the south-east, and Low Lane to the south. The site is currently divided up into fields which are largely under arable cultivation, principally sugar beet, potatoes, and cereal crops.

The highest point in the site is at c. 32m OD, on Kimberlow Hill, in the north-eastern corner. The land falls away steeply from here towards the Vale of York basin to the south, with the lowest point in the site being at c. 11m OD. It falls more gradually from Kimberlow Hill to the south-west reaching c. 21m OD in the north-west corner of Field 5 and then falls away again to the west.

The whole of the northern part of the Heslington East site is situated on the glacial moraine which exists as a ridge or ridges of elevated ground running roughly east-west across the Vale of York and cut by the river Ouse at York. The moraine is composed of gravels, sands and boulder clay deposited at the end of the last glaciation. These materials were revealed in trenches on the northern side of the Heslington East site. In certain areas colluvium (hillwash) covers the glacial deposits. The southern part of the site lies on glacial sands as well as silts and clays. The solid geology is Bunter and Keuper sandstones (*Geological Survey of England and Wales*, Sheet 63).

There is a line of springs along the south-facing slope of Kimberlow Hill in Fields 1 and 8 – 9. Features interpreted as spring heads were excavated in Evaluation Trenches 33 and 60.

A number of other landscape features have been identified on the site:

A dry valley runs north-west / south-east across the eastern end of Field 1 / western side of Field 3. This probably drained an area of former peat bog or marsh (now a green area in the Badger Hill estate) which formed on top of the moraine.

A shallow linear depression runs east - west, along the southern edge of Fields 1, 3, 6 and 8-10. The land to the south of this rises slightly to form a chain of low relief clay islands in Fields 4, and 13 - 17.

Adjacent to Low Lane, the land drops away to a second shallow east - west linear depression. It is thought that this was created when a number of streams, which may have once meandered across the site were either culverted or dyked to follow the modern field boundaries. This work was probably carried out when the fields were enclosed in the post-medieval and modern periods.

A natural depression or possible quarry hole is located in the centre of Field 5A, as contained in the archaeological brief

## 1.2 PREVIOUS WORK

In accordance with PPG16 several stages of archaeological work have already been undertaken at Heslington East as follows:

Two preliminary desk-top studies (Evans 2002; Mason and McComish 2003)

A campaign of field walking (Kendall 2003; Mason 2003). This was based on 100m x 100m grids, further divided into 20m x 20m squares. During the collection process the southern and western edges of each square were walked and material was picked up from up a band 1.5m wide on each side of those edges.

A series of geophysical surveys (Bartlett 2003; Bartlett and Noel 2003; 2004a – included with this document; 2004b) which eventually covered c. 50% of the site with a fluxgate magnetometer. The survey used a system of alternating 40m strips aligned on the north-west / south-east field boundaries. A resistivity survey was conducted on the intermediate strips in Field 7 and the northern part of Fields 8 and 9. Conditions were generally favourable for the investigation of subsurface features, although the response was more complete on the higher ground to the north of the site than on the lower lying ground to the south. No survey was possible in Field 17 due to the ploughed condition of the ground. The survey identified a number of areas on the site where geophysical anomalies appeared to be concentrated. These were subsequently sampled in the evaluation excavation.

An archaeological evaluation excavation, undertaken from November 2003 - February 2004 by York Archaeological Trust (YAT) to a brief prepared by the Principal Archaeological Officer for City of York Council (Macnab 2004 – included with this document). 115 trenches, usually measuring 100 or 200 square metres, were excavated. Approximately 1.58% (c. 16,300 square metres) of the development area was evaluated, trenches being targeted in part, but not wholly, on geophysical anomalies. On the whole the geophysical survey was a good guide to areas of archaeological significance.

In addition, the archaeology and cultural heritage of Heslington East were covered in two chapters of the Environmental Impact Assessment.

### **1.3 REASONS FOR PROJECT**

#### **1.3.1 CURRENT STATUS**

Following the successful outcome of a public inquiry under the terms of the Town and Country Planning Act 1990, the University has now received outline planning permission for the development of a new university Campus at the Heslington East site. The development will involve a combination of building construction and landscaping. In addition there will be a lake up to 1km in length on the southern side of the site.

#### **1.3.2 PRINCIPLES**

The impact of the University of York's redevelopment proposals on archaeological deposits at Heslington East is being managed by the local authority (City of York Council) through the development control process, in line with guidance provided by Planning Policy Guidance Note 16: Archaeology and Planning (PPG16; DoE 1990). Archaeological planning advice has been provided to the University by the City's Principal Archaeological Officer.

## **2. AIMS AND OBJECTIVES**

### **2.1 ACADEMIC RESEARCH DESIGN**

The size of the Heslington East site and the character of the archaeological resource present the York region with an unrivalled opportunity to examine a large area of prehistoric and Roman landscape with considerable research potential. Three research topics with associated questions which set the objectives for the fieldwork are summarised below, although other objectives may be developed as the project progresses.

### **2.2 RESEARCH TOPICS AND QUESTIONS**

#### **2.2.1 LANDSCAPE AND ENVIRONMENT IN EARLY PREHISTORY**

Do remains of landscape management from early prehistory survive on the site?

What is the context for the late Bronze Age / early Iron Age pottery? Does a settlement of this period survive on the site?

What can the organic material in the dry valley tell us about the environmental history of the area?

**2.2.2 IRON AGE INTO ROMAN: THE PROCESSES OF CHANGE**

Can a distinctively late Iron Age landscape be identified?

Did this Iron Age landscape survive unaltered after the Roman Conquest and if so for how long?

What changes, if any, were made to the Iron Age landscape in the Roman period? Do they represent changes in the agricultural regime, in terms of type of farming or intensity of exploitation of the land?

When did Rome's impact as revealed in material culture begin to take effect? – is the early 2<sup>nd</sup> century date already proposed for Heslington East valid?

What are the implications of the introduction of Romanised material culture? Do they mean Heslington East and surrounding area were now integrated into a Romanised economic system geared to supplying the fortress and town with agricultural products, and receiving manufactured and traded goods in return?

Did all commodities reaching the site come from York itself or is there evidence for trade networks which bypassed York? If so what light does this throw on York's role in the local economy?

**2.2.3 LATE ROMAN – POST-ROMAN : THE PROCESSES OF CHANGE**

In what way and to what extent was the late Roman landscape, especially in terms of the field system, different from what existed hitherto?

Does change in the landscape indicate change in the agricultural regime?

In what way and to what extent was the Heslington East area integrated with the economy of the core areas of Roman York in the late Roman period?

Is a smaller quantity of material culture from the late Roman period than from the 2<sup>nd</sup> – 3<sup>rd</sup> centuries indicative of change in the economic system or of some other phenomenon such as depopulation?

Is it possible to identify an Anglian presence on the site? If so is this purely agricultural or is there a settlement of the period?

### **2.3 PUBLICATION AND PRESENTATION**

It is expected that the final publication would be web-based, in our own The Archaeology of York Web Series, using our IADB to provide the background data. Popular publications would take the form of initially a web diary on our own website. This could be supplemented with a short pamphlet type publication aimed at a general audience.

## **3. METHODOLOGY**

All archaeological recording would be undertaken to the standards contained in our Fieldwork Recording Manual, (copy enclosed as PDF document), which are consistent with those adopted by the IFA.

A sampling strategy for the recovery and assessment of all samples would be in line with the relevant English Heritage guidelines, such as those for environmental samples put forward in *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post -Excavation* (English Heritage 2002).

All securely stratified deposits would be sampled for retrieval and analysis of biological remains. Particular attention will be paid to deposits in which there is good organic preservation. Samples would be collected from primary and secondary contexts, where applicable, from a range of representative features, including pit and ditch fills, postholes, floor deposits, ring gullies and other negative features. Sampling would also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Bulk samples would be taken in accordance with English Heritage Guidelines (2002), and would be 30 litres in size, although this will be dependent upon the volume of the context. Entire contexts would be sampled if the volume is low, and specialist samples such as for General Biological Analysis (GBA) would be of the order of 10 litres. Allowance has been made for a site visit from our environmental specialist. Buried soils and sediment sequences would be inspected and recorded on site and samples for laboratory assessment collected where appropriate, in collaboration with our geoarchaeologist specialist. The guidance of Canti in *Guidelines for carrying out Assessments in Geoarchaeology* (1996, Ancient Monuments Laboratory Report 34/96, English Heritage) would be followed.

A discard strategy for all artefacts would be arranged with the accessioning museum before the start of site works. (see *Selection, Retention and Dispersal of Archaeological Collections, Guidelines for use in England, Northern Ireland, Scotland and Wales*: Society of Museum Archaeologists 1993). Any recording, marking and storage materials would be of archive quality,

and recording systems would be compatible with the recipient museum. See also *Towards an Accessible Archaeological Archive, the Transfer of Archaeological Archives to Museums: Guidelines for use in England, Northern Ireland, Scotland and Wales* Society of Museum Archaeologists 1995.

All artefact conservation would be undertaken in our own Conservation Laboratory, with delivery of items requiring conservation being undertaken immediately. Finds would be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds*. In accordance with the procedures outlined in MAP2, all iron objects, a selection of non-ferrous artefacts (including all coins), and a sample of any industrial debris relating to metallurgy would be X-radiographed before assessment.

## 4. RESOURCES, PROGRAMMING AND COSTS

### 4.1 WATCHING BRIEF

At the beginning of the project a watching brief is required on the construction of the haul road which will run north-south through Fields 3 & 5a. This would be undertaken by a team of [one Field Officer and one Excavation Assistant](#), along with all the necessary recording equipment. It is anticipated that this will take up to [four weeks](#).

**Weekly rate..... £1,470.00 plus VAT**

In those parts of the site not examined in detail, a watching brief will be maintained as appropriate on all soil stripping and other groundworks likely to disturb archaeological remains. This would be undertaken by a team of [one Field Officer and one Excavation Assistant](#), along with all the necessary recording equipment. It is anticipated that this will proceed once a main contractor has been appointed.

**Weekly rate..... £1,510.00 plus VAT**

### 4.2 BOREHOLE SURVEY

As part of the research objective 1 the extent and character of the dry valley or palaeochannel identified on the western side of Field 3 will be investigated prior to stripping of Area A1. A method of determining the extent of the dry valley would involve the sinking of up to ten boreholes, initially at 10m intervals in two transects, one north-south to determine the length and the other east-west to establish the width. Intermediate coring may be required to provide greater resolution once preliminary readings have been collated.

Due to the nature of the topsoil and subsoil it is felt that the method of using a 200mm hand auger to a maximum depth of 3.3m, would be impractical. Instead we would propose to use a powered mini-rig 80mm diameter window sampling borehole, which would penetrate any soil conditions to the depth required; this would be sub-contracted to a specialist supplier. The positions of all boreholes would be accurately recorded using a total station theodolite and the soil profiles would be described in line with conventional geoarchaeological practice. This would be undertaken by a team of **one Field Officer and one Surveyor**, along with all the necessary recording equipment. It is anticipated that this will take **two days**.

**Fixed price**..... £1,990.00 plus VAT

#### **4.3 WELFARE FACILITIES AND ON-SITE SERVICES**

In order to provide suitable welfare facilities and on-site services for staff, any further work should also include the **weekly rate** for the provision of these services, for the length of the site works contract. This includes the provision of a fenced and hardcore surfaced compound containing a secure storage unit for equipment and archaeological finds, a secure office unit for the management of the project, a personnel welfare unit containing, toilets, drying room, seated mess area along with all essential utility services, and the provision for site security if required. Fencing or hoarding of the excavated areas has **not** been included, except for any specific areas of deeper excavation. In order to take account of the revised programme with Areas A1 and A2 running together, welfare facilities will be increased for the additional staff.

**Weekly rate**..... £2,180.00 plus VAT

#### **4.4 SITE STRIP, AREAS A1 & A2**

##### MACHINE STRIPPING OF AREAS A1 & A2

Provision of plant for the stripping of areas A1 and A2

Area A1 – Total 2.50ha, strip c.0.50m overburden = 12,500m<sup>3</sup>

Area A2 – Total 4.28ha, strip c.0.50m overburden = 21,400m<sup>3</sup>

One excavator could strip c.700m<sup>3</sup> per day

Machine provision as follows:

x3, 23 ton 360deg excavator

x4, 6x6 25 ton Artic dump trucks

x1, D6 Dozer with PAT blade, to manage spoil stockpile

**Weekly rate** for all stripping plant..... £11,780.00 plus VAT

We estimate that this should take **4 weeks**, but will be dependent on site ground conditions.

**Fixed price** for mobilization and delivery of all stripping plant..... £2,700.00 plus VAT

#### ARCHAEOLOGICAL SUPERVISION & CLEANING OF STRIPPING AREAS A1 & A2

Once the borehole survey is completed, those parts of Areas A1 and A2, specified in the supplied drawings, can be stripped. This would be undertaken using machinery supplied by the archaeological contractor and under archaeological supervision. The areas would be stripped of overburden to the level of archaeological remains or the natural sub-soil, which ever is the higher. The exposed surface would be quickly cleaned by hand to remove loose material and define any major archaeological features or modern intrusions. As there is the likelihood that this exposed surface will not be immediately investigated, especially in Area A2, we would propose planning this surface, whilst it is still fresh, using a TST to define and locate any features for future investigation. We estimate that the duration of this work would match the period of time required for the stripping of areas A1 and A2. A team of [one Field Officer, one Surveyor and five Excavation Assistants](#) would be allocated to this task.

**Weekly rate..... £3,570.00 plus VAT**

#### **4.5 GEOPHYSICAL SURVEY**

In order to ensure a full record of the archaeological and significant natural features, an additional geophysical magnetometer survey would be undertaken in Areas A1, A2, B1, B2, B3, B4 and B7, filling in the gaps left in the 2003/4 survey. This survey should proceed where possible on ground from which the overburden has already been removed, as in areas A1 and A2. This will involve the surveying of 40m wide strips to the length shown below.

Area A1	1010m x 40m	= 4.04ha
Area A2	600m x 40m	= 2.40ha
Area B1	460m x 40m	= 1.84ha
Area B2	560m x 40m	= 2.24ha
Area B3	460m x 40m	= 1.84ha
Area B4	140m x 40m	= 0.56ha
<u>Area B7</u>	<u>410m x 40m</u>	<u>= 1.64ha</u>
Total hectares		= 14.56ha

This survey would be undertaken to the procedures outlined in the brief, but would be subcontracted to another supplier.

**Fixed price..... £9,060.00 plus VAT**

#### **4.6 EXCAVATION**

After a review of the results of the geophysical survey there would be a targeted programme of investigation to firstly define and date archaeological features and determine stratigraphic relationships and secondly recover samples of artefactual and biological material.

#### 4.6.1 STAGE ONE

Firstly this involves the excavation of twelve **evaluation** trenches, each 100m<sup>2</sup> in size, in Areas B1, B2, B3, B4 and B7, their location guided by the results of the geophysical survey. This would involve a site team of **one Field Officer and eight Excavation Assistants** for a period of **three weeks**. This fixed price also includes the cost of machinery to open the trenches and also backfill them once the evaluation is completed.

**Fixed price..... £19,245.00 plus VAT**

Secondly this involves the **investigation** of that part of the Area of Archaeological Significance **A1** to be impacted by the new development and shown on the drawing supplied. The aim would be to sample *up to* 50% of the fill of all cut features, however this figure may be increased for features in which deposits contain substantial numbers of artefacts or artefacts of particular interest or which have good organic preservation. This would involve a site team of **one Field Officer and eight Excavation Assistants** and it is estimated that this could be completed in **nine weeks**.

**Weekly rate..... £4,980.00 plus VAT**

#### 4.6.2 STAGE TWO

This involves the **investigation** of that part of the Area of Archaeological Significance **A2** to be impacted by the new development and shown on the drawing supplied. The aim would be to sample *up to* 50% of the fill of all cut features, however this figure may be increased for features in which deposits contain substantial numbers of artefacts or artefacts of particular interest or which have good organic preservation. This would involve a site team of **one Field Officer and eight Excavation Assistants** and it is estimated that this could be completed in **twelve weeks**. It is likely that this second stage investigation will take place starting in March 2008. Additional costs may be required if new welfare and on-site services need re-establishing.

**Weekly rate..... £5,150.00 plus VAT**

#### 4.7 ARCHIVE AND ASSESSMENT

The initial result of the fieldwork stage will be the site archive, which will be prepared in accordance with the *Management of Archaeological Projects*. All hand written and drawn records will be transferred to and stored in digital format, in systems which are easily accessible.

Accompanying the completed archive will be a report which assesses the character and significance of all categories of the excavated evidence. This will eventually lead to the production of an updated project design for further analysis and publication of the results.

<b>Initial fixed price.....</b>	<b>£17,570.00 plus VAT</b>
<b>CONTINGENCY, specialist input.....</b>	<b>£5,000.00 plus VAT</b>

#### **ADDITIONAL ASSESSMENT - RATED ITEMS**

<b>Artefact Conservation (first aid) - Day rate.....</b>	<b>£190.00 plus VAT</b>
<i>Estimated 8 days work</i>	
<b>Palaeoenvironmental GBA sample - Rate per sample.....</b>	<b>£133.00 plus VAT</b>
<i>Estimated 120 samples</i>	
<b>Palaeoenvironmental BULK sample - Rate per sample.....</b>	<b>£127.00 plus VAT</b>
<i>Estimated 80 samples</i>	
<b>Geoarchaeological sample - Rate per sample.....</b>	<b>£180.00 plus VAT</b>
<i>Estimated 40 samples</i>	
<b>Column sample - Rate per sample.....</b>	<b>£126.00 plus VAT</b>
<i>Estimated 25 samples</i>	
<b>Industrial residue sample - Rate per sample.....</b>	<b>£200.00 plus VAT</b>
<i>Estimated 20 samples</i>	
<b>Scientific dating - Rate per sample.....</b>	<b>£380.00 plus VAT</b>
<i>Estimated 5 samples</i>	
<b>Human bone - Rate per sample.....</b>	<b>£140.00 plus VAT</b>
<i>Estimated 6 samples</i>	
<b>Animal bone - Rate per standard box.....</b>	<b>£111.00 plus VAT</b>
<i>Estimated 10 boxes</i>	
<b>Shell - Rate per standard box.....</b>	<b>£106.00 plus VAT</b>
<i>Estimated 5 boxes</i>	
<b>Coin – Rate per hour.....</b>	<b>£36.00 plus VAT</b>
<i>Estimated 8 hours</i>	

#### **4.8 ANALYSIS AND PUBLICATION**

The post-excavation analysis would follow the proposals as set out in the updated project design and include an agreed strategy for specialist analyses and for artefact conservation. The form of publication, yet to be decided, will disseminate the results of the archaeological investigations. A web-based publication may be used to disseminate basic data sets and specialist reports. A popular publication may be produced in either paper or web-based form.

Due to the uncertain nature of the results of these investigations, the cost of this analysis and publication can only be estimated at this stage.

**Estimated price.....£25,950.00 plus VAT**

**ADDITIONAL ANALYSIS/PUBLICATION - RATED ITEMS**

**Artefact Conservation (Full) - Day rate.....£260.00 plus VAT**

*Estimated 15 days work*

**Palaeoenvironmental GBA sample - Rate per sample.....£500.00 plus VAT**

*Estimated 30 samples*

**Palaeoenvironmental BULK sample - Rate per sample.....£400.00 plus VAT**

*Estimated 15 samples*

**Geoarchaeological sample - Rate per sample.....£250.00 plus VAT**

*Estimated 20 samples*

**Column sample - Rate per sample.....£300.00 plus VAT**

*Estimated 10 samples*

**Industrial residue sample - Rate per sample.....£300.00 plus VAT**

*Estimated 10 samples*

**Scientific dating - Rate per sample.....£380.00 plus VAT**

*Estimated 5 samples*

**Human bone - Rate per sample.....£300.00 plus VAT**

*Estimated 4 samples*

**Animal bone - Rate per standard box.....£240.00 plus VAT**

*Estimated 5 boxes*

**Shell - Rate per standard box.....£240.00 plus VAT**

*Estimated 3 boxes*

**Coin – Rate per hour.....£35.00 plus VAT**

*Estimated 3 hours*

#### **4.9 STAFF & SPECIALISTS**

Each of the various excavation areas would be independently supervised by an experienced Field Officer and dependant on the timing, is likely to be chosen from the following staff:

Mark Johnson, Field Officer (CV supplied)

Kurt Hunter-Mann, Field Officer (CV supplied)

Jane McComish, Field Officer (CV supplied)

Other in-house specialists are as follows:

Ailsa Mainman (Ceramics) (CV supplied)  
Anne Jenner (Ceramics) (CV supplied)  
Jane McComish (CBM) (CV supplied)  
Nicola Rogers (Artefacts) (CV supplied)  
Lesley Collett (Graphics) (CV supplied)

Our nominated external specialists are as follows:

Palaeoecology Research Services Ltd. (Environmental, Geoarchaeological & Animal Bone)  
Geophysical Surveys of Bradford (Geophysical Survey)  
Geoinvestigate Ltd (Boreholes)  
Cath Mortimer (Industrial residues)  
Rebecca Storm, University of Bradford (Human remains)  
Terry Manby (Prehistoric artefacts)  
David Knight (Prehistoric artefacts)  
Ruth Leary (Roman ceramics)  
Hilary Cool (Roman artefacts)  
Peter Makey (Flint)  
Rachel Tyson (Medieval glass)  
Craig Barclay (Coins)

## **5. ARCHIVE DEPOSITION**

### **5.1 YORKSHIRE MUSEUM**

The approved repository for the documentary and material archive from this site is the Yorkshire Museum. This museum makes a single accessioning charge per standard box for the deposition and long-term curation of the archive and any finds from this site.

**Charge per 0.017m<sup>3</sup> box of material.....£200.00 plus VAT**

## APPENDIX 1

### PROGRAMME (Provisional)

TASKS	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08
WATCHING BRIEF HAUL RD													
WATCHING BRIEF ALL													
BOREHOLE SURVEY													
SITE STRIP													
GEOPHYSICAL SURVEY													
EVALUATION TRENCHES													
EXCAVATION A1													
EXCAVATION A2													
ARCHIVE AND ASSESSMENT													
ANALYSIS AND PUBLICATION													Start