

Land off Royston Road, Barkway, Hertfordshire – Archaeological Excavation

1 Archaeological Methods

CFA Archaeology is a registered organisation with the Chartered Institute for Archaeologists (CIfA). Work will be conducted with regard to the Institute's Standards documents (CIfA 2020a-b and 2023a-d), relevant Historic England guidance documents (Historic England 2011, 2015a and 2015b), the Written Scheme of Investigation produced by Phoenix Consulting Archaeology (2024), and this methodology. Recording of all elements will be done following established CFA procedures. The archaeological works will be undertaken in a method agreed by with Phoenix Consulting Archaeology and Hertfordshire County Council Historic Environment Advisory Service (HCCHEAS).

Should there be unexpectedly significant or complex discoveries that warrant more detailed recorded than is described in this methodology, the archaeological contractor, CFA Archaeology Ltd., will contact Phoenix Consulting Archaeology Ltd who will inform HCCHEAS with the relevant information.

A visual inspection of the site will be undertaken before the commencement of works, including identification of any surface features of potential archaeological interest, areas of potentially significant disturbance, and any hazards or constraints in undertaking further archaeological work on site.

1.1 Archaeological Strip Map and Record

Areas where the previous archaeological field evaluation identified significant archaeological remains will be subject to strip, map and record. Three areas have been identified as requiring strip map and record excavation. The first area is located to the north-west of the PDS and is situated over Trenches 1 and 2 of the previous evaluation to target the Roman features identified. The second area is located to further characterise the Middle Bronze Age to Early Iron Age archaeological features identified in Trenches 4, 5, 9, 10 and 12 of the evaluation, and the third area is located over Trench 7 of the evaluation, situated to further characterise the undated feature identified.

The excavation area will be scanned by a competent person using a Cable Avoidance Tool (CAT) prior to mechanical excavation. All necessary measures to avoid services will be undertaken.

The areas will be machine excavated using a wide toothless ditching bucket under direct archaeological supervision. Topsoil and subsoil will be removed to the level of the natural substrate or the first significant archaeological horizon, whichever is reached first, in successive level spits of a maximum of 0.2m thickness.

A sufficient sample of archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner, in order to ensure the preservation by record of the heritage assets. The complete excavation of features will be required as necessary; in some instances, however, a sufficient sample may be appropriate but will still need to be sufficient enough to understand the full stratigraphic sequence, down to naturally occurring deposits. A minimum 20% sample will be taken of all enclosure ditches and field boundary ditches, a 50% sample of pits and post-holes, all funerary contexts will be 100% excavated and all junctions and intersections and corners of linear features will be investigated so their stratigraphic relationships can be determined. Features may be 100% excavated if requested by the HCCHEAS.

In the event of the identification of an exceptional number and complexity of archaeological deposits, sample excavation will be more circumspect, relying on the professional judgement of the supervising archaeologist on site, aiming to be minimally intrusive. Excavation will, however, be sufficient to resolve the principal aims of the Strip Map and Record excavation. Should the excavation and recording required be more detailed than those proposed works will be halted until a strategy has been agreed with HCCHEAS, and if necessary, the Historic England Regional Science Advisor.

All finds will be collected and retained. They will be bagged and labelled in accordance to their context location. Finds of significant interest will be given a 'small finds' number and their location will be recorded using industry standard surveying equipment and tied to the OS National Grid. No finds will be discarded without prior approval from HCCHEAS.

1.2 Archaeological Watching Brief

An intermittent watching brief will be maintained during development across the eastern field of the development, where prior field evaluation has not taken place. The frequency of the archaeological visits will be dependent on the assessed potential for archaeological remains, with a minimum of 40% watching brief cover being maintained during the course of the groundworks.

Where these ground works take place, surface coverings/hardstandings will be broken up, then overburden, made ground and any subsoil will be removed with a toothless grading/ditching bucket under direct archaeological supervision to the depth of the natural substrate, to the first significant archaeological horizon, or to the depth of the proposed groundworks, whichever is reached first.

If archaeological deposits or features are encountered, then machining will cease in that area to allow the supervising archaeologist time to investigate the exposed remains. Following the initial machine excavation, no further excavation will take place until any archaeological features have been investigated, and the area has been signed off by the monitoring archaeologist for Hertfordshire County Council Historic Environment Advisory Service on behalf of the Local Planning Authority. If areas requiring monitoring are determined during the watching brief to be highly truncated by modern development, then, with consultation with the monitoring archaeologist for HCCHEAS on behalf of the Local Planning Authority, it may be agreed that these can be excluded from further monitoring.

Features of archaeological interest will be hand excavated in an archaeologically controlled and stratigraphic manner in order to establish their likely date, nature, extent, and condition. Built structures such as walls and floors will be investigated sufficiently to establish their form, phasing and construction techniques. All intersections will be investigated to determine the relationship(s) between the component features. Where structural elements are shown to be later additions to earlier structures, it may be necessary to remove those later remains to expose earlier phases of activity on the Site. Following discussion with HCCHEAS, it may be necessary to utilize a mechanical excavator to assist with the excavation or removal of features which due to their thickness, size or weight cannot be moved by hand, for example extensive deposits of made ground, modern concrete structures, compacted deposits, or large objects such as worked stones.

Records will be made of the remains including a location plan, photographs, and individual descriptions of any archaeological strata and features on standard CFA pro-forma recording sheets. Written registers will be kept of the numbers allocated to the contexts, drawings, photographs, small finds and samples during the project.

Archaeological remains will be recorded using GPS or hand drawn plans (scale 1:20 or 1:50) and/or section/elevation drawings (scale 1:10 or 1:20) which include heights in metres above Ordnance Datum including levels at the top and base of features. The location of all drawings will be shown on the overall site plan and recorded using industry standard surveying equipment and will be tied to National Grid coordinates. Hachures will be used for planning complex and/or inter-cutting features. The actual areas of investigation will be accurately located on a site plan which. Written descriptions will be made on context and masonry record sheets.

A digital photographic record will be made showing the layout of the archaeology within the watching brief areas and individual features or groups of features where their relationship is important. Photographs will include an appropriate scale, an information board and where necessary a north arrow. All photographs will be recorded on a photographic register detailing photo number, subject, location, direction and date of the shot. The primary photographic record will comprise high quality digital images taken using cameras with a minimum resolution of 10 megapixels; RAW format may be used to capture images, and these will be archived as described in section.

1.3 Method of Recording

All excavation and on-site recording will be carried out according to standard CFA procedures, principally by drawing, photography, and completing standard CFA record forms. A full written, drawn and photographic record, and stratigraphic matrix will be made of all archaeological features exposed during the project.

The location of the mitigation area and the location of the watching brief groundworks will be recorded using industry standard surveying equipment and tied to the OS National Grid. Vertical survey control will be tied to the Ordnance Survey Datum.

Sections will be recorded by means of a measured drawing at an appropriate scale, typically at 1:10. The height of a datum on the drawing will be calculated and recorded. The locations of sections will be recorded on the site plans, relative to the site grid.

Cut features will be recorded in profile, planned at an appropriate scale, normally 1:20, and their location accurately identified on the appropriate site plans.

Photographs will include an appropriate scale, and a photo information board for each new subject matter. All photographs will be recorded on a photographic register detailing subject, location, and direction of shot. Photographs taken will adhere to Historic England's guidance '*Digital Image Capture and File Storage*' (Historic England, 2015). Photographs should be taken with a camera with sensors exceeding 12 Mega pixels and taken using the highest quality setting. Photographs should be stored in both JPEG and RAW formats and metadata will be embedded in the RAW files, to include: the name of the site, the national grid reference for the site, the date, the subject, the direction of the shot, and reference to CFA Archaeology Ltd, photo ID, capture device, converting software, colour space, bit depth, resolution, photographer, and any alterations made to the image. Subject matters will include, but may not be limited to:

- the site prior to commencement of fieldwork
- the site during work, showing specific stages of fieldwork
- the layout of archaeological features within the mitigation and watching brief areas
- individual features and, where appropriate, their sections
- groups of features where their relationship is important

1.4 *Artefact and Environmental Recovery*

Metal detector searches will take place for ferrous and non-ferrous metal artefacts at all stages of the excavation using a visual assessment and a metal detector capable of making this discrimination, operated by a competent person. Metal detecting of the mitigation area should be carried out before excavated, with the area being scanned again and spoil scanned once the area has been opened. Metal detecting will be conducted over the surface of all exposed features before the end of each working day as a countermeasure to 'nighthawking'. All metal finds will be located using industry standard surveying equipment and tied to the OS National Grid.

If, during the course of excavation, items are found that may be potentially defined as 'Treasure' under the Code of Practice of the Treasure Act 1996 (and the act's amendment of 2003 to include prehistoric objects such as Bronze Age metalworking hoards and other non-precious metal items), Phoenix Consulting, HCCHEAS, the Finds Liaison Officer, and the County Coroner will be informed. Any items that may be potentially defined as 'Treasure' will be moved to a safe place, or protected from theft or damage using suitable security measures until such time as their location can be made safe.

CFA's Palaeoenvironmental specialist will assess the environmental potential of the mitigation area and an environmental sampling strategy will be agreed between the environmental specialist and HCCHEAS once the fieldwork is underway.

Environmental sampling will be carried out in accordance with current guidelines (Historic England 2011), namely that bulk samples will be taken from all securely stratified deposits using a strategy of systematic and judgement sampling, excepting those with excessive residuality or those with an abundance of debris, stone, rubble, or masonry. Samples will consist of 40 litres, where volume of deposit allows, of environmental material recovered from, at a minimum, the basal deposits of any archaeological features. Samples will be used to recover a sub-sample of charred macroplant material, faunal remains and artefacts where necessary, as well as any significant industrial residue.

Environmental samples will not usually be recovered from intersections or unclear relationship sample sections.

Column samples, or specialist samples, may be taken in instances where buried soils or other specialised deposits are encountered for micromorphological and pollen analysis. These samples will be stored in a controlled manner on the advice of CFA's Palaeoenvironmental specialist and/or the Historic England Regional Science Advisor until such time as they can be analysed and assessed.

1.5 Human Remains

Any human remains encountered will be reported to Phoenix Consulting Archaeology, the Ministry of Justice and HCCHEAS. Any human remains encountered will be left *in situ*, and recorded in plan to identify the date character of the remains, then covered and protected. The discovery of any human remains maybe reported to and require on-site assessment and/or assistance from a palaeopathologist or osteoarchaeologist. If removal is deemed necessary, for example if there is a risk of damage or discretion, exhumation will be undertaken, in agreement with HCCHEAS, in compliance with the Burial Act 1857 and after obtaining a Section 25 exhumation licence obtained from the Ministry of Justice and with the relevant regulations and government guidance (CFA internal policy, *Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England* Advisory Panel on the Archaeology of Burials in England [APABE] 2017, *Standards for Recording Human Remains* 2017).

2 Analysis and Reporting

2.1 Artefact and Environmental Sample Analysis

All finds, if appropriate, will be retained, assessed and treated in accordance to accepted professional standards, namely Campbell et al. 2011 and ClfA 2020. Finds will be cleaned and marked according to their contextual information and accepted principles and in line with appropriate period/material guidelines. If necessary, a programme of conservation will be undertaken, appropriate to the artefact material, by a specialist conservator; assessment and advice should be sought as soon as possible.

For all categories of material recovered, including finds, paleoenvironmental, industrial, and other specialist samples, an assessment by an appropriately experienced specialist will be

undertaken. Samples will be processed and sorted, and any artefacts recovered provided to the appropriate specialist(s) to be considered alongside the hand-recovered material. Basic stratigraphic information will be supplied to the project specialists.

For ceramic assemblages, recording shall be carried out in a manner compatible with existing typological series in local pottery reference collections. The guidelines for handling Post-Roman Ceramics produced by the Medieval Pottery Research Group will be followed for relevant material (MPRG 2001).

Environmental samples will be processed to aid in the recovery of artefactual material, including ceramics, animal and fish bones, human remains, industrial residues, charcoal, and mineralised plant remains. Specialist samples such as monoliths or cores will be processed separately, as appropriate.

Where material suitable for scientific dating is recovered, such as charcoal or bone, sufficient dating will be undertaken to meet the aims of the archaeological works. These materials will be identified to species and assessed for suitability prior to submission to a dating laboratory.

Artefact assessment reports will include the production of a descriptive catalogue including quantification of finds by context and discussion or interpretation, if appropriate. Finds critical for dating or interpretation will be illustrated or digitally photographed.

Environmental assessment reports will include the identification of the remains, a quantification by context, appropriate discussion or interpretation, and a description of the processing methodology.

2.2 Reporting

An interim report will be produced within 6 weeks of the completion of the fieldwork. A final report will be produced which includes background information on the project, a description of the methodology, and a full description and interpretation of the results. The report will be produced within 3 months of the completion of the fieldwork.

Specifically, the report will contain:

- A concise non-technical summary of the project results;
- The site location given as an 8-figure grid reference;
- A front cover/frontispiece which includes the planning application number and the national grid reference of the excavation site;
- Site address, site code, accession number, author/originating body;
- Phoenix Consulting Archaeology's details;
- The dates on which the work was undertaken;
- A description of the site location, topography and geology;
- A description of the historic and archaeological background of the site;
- An explanation of any agreed variations from the WSI, including justification for any work not undertaken;

- A description of the methodology employed, work undertaken, and the results obtained.
- Contexts and feature descriptions;
- An assessment of the stratigraphic evidence;
- Maps and other illustrations at an appropriate scale including all both the mitigation area plans and watching brief area plans with detailed plans of all excavated features; Plans should include sufficient grid references to allow them to be geo-rectified
- A specialist analysis report for all finds materials including palaeoenvironmental and other samples;
- A description of any environmental or other specialist work undertaken and outline of the results obtained;
- Interpretation of the contexts and features identified, and their wider context within the landscape, local and regional contexts, including the known archaeological information located within Hertfordshire HER;
- A selection of photographs of work in progress;
- A sample of excavation and watching brief photographs;
- An appropriate sample of photographs of the archaeological features;
- A discussion of how the work contributed to the aims and objectives set out in the project design;
- An assessment of the archaeological potential of the stratigraphic, artefactual and environmental evidence;
- A conclusion;
- A bibliography;
- A context index;
- An archive index;
- An OASIS summary sheet

A draft copy of the report will be issued to HCCHEAS for comment before being finalised. One digital copy (PDF-A format) shall be supplied to the Hertfordshire Historic environment Record (HER) on the understanding that it will become a public document after an appropriate period of time (generally not exceeding six months).

If significant remains are encountered, then arrangements will be made for the publication of results within an appropriate journal.

2.3 *Archive Preparation and Deposition*

The requirements of the repository will be adhered to, and the Hertfordshire HER will be notified in advance. Contact will be made with the archiving museum prior to the start of any fieldwork to confirm their acceptance of the archive and to receive an accession number, expected to be North Hertfordshire Museums Resource Centre. The nominated museum will be notified at set stages of the project, including at project initiation (comprising a project initiation form), a mid-point review, and completion stages, to discuss archaeological archiving requirements. An archive will be prepared in accordance with the current guidelines (ClfA 2020b) and the selected museum's deposition requirements (North Hertfordshire District Council Museums Service 2014) with reference to the countywide standard for archives in Hertfordshire (Hertfordshire Museums 2017). Arrangements will be made for deposition of the

archive with an appropriate repository. It is expected that North Hertfordshire Museums Resource Centre will accept the complete excavation archive, including primary site records, research archives, and finds.

All records will be checked, fully cross referenced and consistent, indexed and consolidated following the completion of fieldwork. It will consist of paper and digital records, finds and samples as selected in accordance with the museum's deposition requirements. Consent for full transfer of title of finds to the recipient museum will be agreed in principle with the landowner at the outset. A transfer of title form must be signed by the landowner and the report should clearly indicate whether or not this has been done.

Confirmation of transfer of title from the landowner, and confirmation of assignment of copyright, along with a full archive inventory, will be submitted with a project completion form to the recipient museum. The Hertfordshire Historic Environment Record (HER) officer will be provided with a copy of the completion form, including the assigned accession number.

The recipient archive will be licensed to use the deposited material in perpetuity, without restrictions; this licence will allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

An online OASIS form will be initiated prior to the start of any fieldwork and completed within three months of the completion of the work. An appropriately formatted copy of the report will also be uploaded to OASIS within three months of the completion of the work.

The Hertfordshire Historic Environment Record (HER) will be provided spatial data of the excavation areas and archaeological features which will be submitted in a suitable GIS format, via HCCHEAS.

CFA are ISO 9001 accredited, with all our internal archiving and digital record systems being fully compliant with CIfA Standards and Guidance, particularly the guidance on Planning and Data Management Plans for Archaeological Projects (2022). The digital archive will be subject to a selection process, depending on the results of the works, and the resulting digital archive will be deposited with the Archaeological Data Service (ADS) and HCCHEAS. All creation digital deposition will be undertaken in line with guidance from ADS (2023), CIfA (2022) and Historic England (2015b).

CFA will produce a Digital Management Plan, in line with the museum's digital deposition requirements (North Hertfordshire District Council Museums Service 2014), which will set out how the gathered digital data will be managed throughout the delivery of the project and what will happen with the archaeological data once the project is completed. This will include:

- Details of data that will be gathered;
- Type of file formats to be used (e.g. .doc, .pdf, .dwg, .shp, etc.);
- Methods of data collection or capture (e.g. GPS/Total Station/digitising from hard copies);
- File naming conventions (e.g. ADS naming conventions);
- Metadata, standards and quality assurance measures;

- Plans for sharing data;
- Ethical and legal issues or restrictions on data sharing (e.g client confidentiality etc.);
- Copyright and intellectual property rights of data;
- Data storage and back-up measures;
- Data management roles and responsibilities;
- Costing or resources needed (ADS archiving costs etc.);
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The digital archive will be produced using a clear file structure that allows for distribution with stakeholders and members of the public via Hertfordshire HER, and preservation in perpetuity.

3 Resources and Programming

3.1 Key Personnel

Phil Mann (BA MCIfA) is a Senior Project Manager for CFA Archaeology. Phil has project managed numerous archaeological projects of all periods throughout the country including those undertaken for large infrastructure projects.

A **Field Director** from CFA will be selected from CFA's pool of Field Officers, depending on availability, all of whom have appropriate experience. The CV for the selected Field Officer can be forwarded prior to the start of the project.

Dr Shelly Werner (BSc MPhil PhD) is CFA's Graphics Manager, responsible for the organisation and management of all GIS, CAD and Illustrative material. She is an experienced illustrator with specialist knowledge in GIS consultancy and standing building survey and has worked on a variety of projects in Scotland and England.

Post-excavation and environmental coordination will be managed by CFAs post excavation and archiving manager **Christina Hills**; CVs for CFA's 'in house' specialists or external consultants can be supplied on request.

3.2 Project Specialists

Archaeobotany	Mhairi Hastie BSc MSc ACIfA (CFA Archaeology)
Archaeozoology	Joshua Toulson MSc ACIfA (CFA Archaeology)
Ceramic building material	Jamie Walker BA MCIfA(CFA Archaeology)
Clay pipes	Peter Hammond
Conservation laboratory	Ian Panter (York Archaeological Trust)
Dendrochronology	Ian Tyers
Industrial residue	Gerry McDonnell PhD
Leather	Quita Mould
Mollusca and fish remains	Joshua Toulson MSc ACIfA (CFA Archaeology)
Neolithic and Bronze Age pottery	Alex Gibson PhD
Osteoarchaeology	Malin Holst MSc

Palynology	Robert McCulloch BA PhD (University of Stirling)
Post-medieval small finds	Gail Drinkall
Post-Roman pottery	Paul Blinkhorn BA PhD
Roman and Pre-Roman Iron Age pottery	Jamie Walker BA MCIfA(CFA Archaeology)
Roman glass	Hilary Cool
Soil micromorphology	Clare Ellis BA PhD MCIfA
Worked bone	Joshua Toulson MSc ACIfA (CFA Archaeology)
Worked Flint and Stone	Ann Clarke

Table 1: List of Artefact and Ecofact Specialists

The above list is not exhaustive, should unusual or locally specific archaeological materials be discovered; or replacement specialists be required, then appropriate specialists will be sought in consultation with OCAS and the regional Historic England scientific advisor.

3.3 Health and Safety

All CFA staff have been inducted into CFA's Health and Safety Policy and will operate with due regard for Health and Safety regulations. All work for the project will be subject to Risk Assessment procedures and a Risk Assessment will be produced, disseminated, and agreed with all staff on site.

3.4 Monitoring

Close contact will be maintained with Phoenix Consulting Archaeology and HCCHEAS for the purposes of managing, monitoring and reviewing the project. Important or unexpected discoveries will be communicated to them, and a monitoring visit will be arranged if appropriate. Any monitoring visit will include a site tour and overview by the senior archaeologist present and the opportunity will be afforded to view all excavations, any artefactual finds still on site, and any records that are not in immediate use.

Any deficiencies noted during the site monitoring visit will be made good, in consultation with Phoenix Consulting Archaeology, to the satisfaction of HCCHEAS, and other stakeholders by the next agreed site meeting.

Phoenix Consulting Archaeology will provide HCCHEAS with a minimum of two weeks' notice of the commencement of on-site works to allow for provision of monitoring visits. Contact numbers for the site will be forwarded in advance of the work starting.

4 Bibliography

ADS, 2024, Archaeology Data Service, available at: <https://archaeologydataservice.ac.uk/advice/DepositingData.xhtml#How%20to%20Deposit>

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ClfA, 2023a, *Universal guidance for archaeological excavation*. Chartered Institute for Archaeologists.

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ClfA, 2023c, *Universal guidance for archaeological monitoring and recording*. Chartered Institute for Archaeologists.

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Historic England, 2011, *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation*, Historic England, (2nd edition)

Historic England, 2015a, *The Management of Research Projects in the Historic Environment*, (MoRPHE), Project Managers' Guide, Historic England

Historic England, 2015b, *Digital Image Capture and File Storage*, Historic England

Hertfordshire Museums 2017 *Hertfordshire Archaeological Archive Standards: A Countywide Standard for the Creation, Compilation and Transfer of Archaeological Archives in Hertfordshire*

North Hertfordshire District Council Museums Service 2014, *Archaeological Archives Deposits Policy* NHDC

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Online Sources

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<https://www.archaeologists.net/digdigital/planning> [Accessed 31/10/2024]