Maxy House Farm, Cottam, Preston

Written Scheme of Investigation for a Programme of Staged Archaeological Work

1 Introduction

1.1 Project Background

1.1.1 This document comprises a Written Scheme of Investigation (WSI) for a programme of staged archaeological work (field evaluation by means of geophysical survey and trial trenching and, if necessary, further open-area excavation) of land at Maxy House Farm, Cottam, Preston, Lancashire. It outlines the proposed method of investigation to be used by Archaeological Research Services Ltd (ARS Ltd) for undertaking a geophysical survey of c.4.24 ha followed by trial trenching and, if necessary, open-area excavation.

1.1.2 Wainhomes Developments Ltd have been granted outline planning permission for residential development of 11.3 ha of land for up to 350 dwellings at Maxy House Farm, Cottam. A condition of the planning permission is that: “no development shall take place within any phase of development until the applicant, or their agents or successors in title, have secured the implementation of a programme of archaeological work for that phase in accordance with a written scheme of investigation which shall be submitted to and approved in writing by the local planning authority” (Application no. 06/2013/0140). In consultation with the Lancashire County Council Planning Officer (Archaeology), the archaeological work will comprise a phased programme of geophysical survey of 40% of the site followed by trial trenching and, potentially, geophysical survey of the rest of the site and, if necessary, open-area excavation.

1.2 Location and Land-Use

1.2.1 The site is situated at Maxy House Farm on the north-western edge of Cottam, to the north of the River Ribble, and is centred at SD 49921 33013 (Figure 1: see below).

1.2.2 The underlying solid geology comprises sandstone of the Sherwood Sandstone Group. Overlying this is Devensian – Diamicton Till (British Geological Survey 2014).

2 Archaeological Background

2.1 The proposed development site lies partly within the limits of the study area of the report on *ASLF Aggregate Extraction and the Geoarchaeological Heritage of the Kirkham Moraine* (Oxford Archaeology North & University of Liverpool Department of Geography 2008). The report suggested that around half of the site of the development site lies in areas of high potential to contain archaeological deposits associated with settlement of the prehistoric, Romano-British and medieval periods.

2.2 At present, there are no known archaeological remains within the site.
3 Aims and objectives

3.1 Aim

3.1.1 Identify and record the possible presence/absence, location, nature, extent, survival, quality, significance and date of prehistoric and earlier historic archaeological deposits that may exist on the proposed housing development site.

3.2 Objectives

3.2.1 Magnetometry survey to identify potential sub-soil archaeological features.

3.2.2 Excavation of evaluation trenches targeting potential sub-soil features identified by the magnetometry survey down to the surface of any archaeological deposits and investigation of these deposits in order to ascertain their nature and date (following standard excavation methodologies).

3.2.3 Open-area excavation, if required, of any areas of archaeological deposits identified by evaluation trenching in order to ascertain their nature and date (following standard excavation methodologies).

3.2.4 Appropriate post-excavation assessment, analysis, reporting, archiving and dissemination.

4 Geophysical Survey

4.1 Coverage

4.1.1 It is intended to conduct a geophysical (magnetometer) survey over a c.4.24 ha area of the site of the proposed housing development.

4.1.2 The proposed development site is shown in Figures 1-2 (see below). What’s being included/excluded at this stage?

4.2 Objective

4.2.1 The objective of the detailed gradiometer survey is to identify anomalies of possible archaeological origin within the survey area (see Figure 2) in order to:

- identify and record the possible presence/absence, location, nature and extent of prehistoric and earlier historic archaeological deposits that may exist on the proposed development site.

- gather sufficient evidence to establish, supplement, improve and make available information about the archaeological resource existing within the areas of investigation.

- assist the formulation of any strategies for the future treatment of archaeological deposits in relation to the housing development proposals.

4.2.2 The presentation and interpretation of the results will be carried out in accordance with the Code of Conduct of the Institute for Archaeologists (IfA 2012) and will follow the English Heritage guidelines (2008) Geophysical Survey in Archaeological Field Evaluation and IfA Standard and Guidance for archaeological geophysical survey (2011). ARS Ltd is a corporate member of the International Society of Archaeological Prospection (ISAP).
4.3 Selected technique

4.3.1 The geophysical survey technique selected for the site is magnetometry. Magnetometry using Fluxgate Gradiometer instruments is the preferred geophysical technique utilised for the detection of buried features such as iron-based features and objects, or those subjected to firing such as kilns, hearths and even the buried remains of brick walls. It is also used to locate more subtle features such as boundary or enclosure ditches, pits and post holes which have been gradually in-filled by more humic material. The breakdown of organic matter through microbiotic activity leads to the humic material becoming rich in magnetic iron oxides when compared with the subsoil allowing features to be detected. In addition to this, variations in the magnetic susceptibility between the topsoil, subsoil and bedrock have a localised effect on the Earth’s magnetic field enabling the detection of features such as backfilled ditches or pits due to the fact that the topsoil has more magnetic properties than the subsoil or bedrock, resulting in a ‘positive’ magnetic anomaly. Conversely, earthwork or embankment features can also be identified as ‘negative’ magnetic anomalies due to the action of placing less magnetic subsoil on top of more magnetic top soil.

4.4 Methodology

4.4.1 A survey grid comprising 30m x 30m individual grids will be set up over the selected survey areas (Figure 2). The survey will use a temporary survey grid accurately positioned using a suitable DGPS system. The temporary grid will be co-registered to the Ordnance Survey National Grid using digital tiles provided by ARS Ltd or suitable digital map tiles provided by the client.

4.4.2 These grids will then be surveyed using a Bartington Grad 601-2 gradiometer. The Grad 601-2 has two gradiometer sensors and therefore collects two lines of data during each traverse. Data are collected in a zigzag fashion within the grid starting in the north-west corner, facing east. Readings are taken every 0.25m on traverses 1m apart. This equates to 7200 readings in a complete 30mx30m grid. Sensor balance will be checked and adjusted at regular intervals.

4.4.3 Two times each day the data will be downloaded to a PC or laptop using Geoscan Geoplot V3.

4.4.4 All staff employed on the geophysical survey will be suitably qualified and experienced for their respective project roles and have practical experience of geophysical survey.

4.4.5 All staff will be made aware of the archaeological potential of the area and will be fully briefed on the work required by this WSI.

4.5 Data Processing, Interpretation and Report

4.5.1 Data processing will be undertaken by a geophysicist using Geoscan Geoplot V3. Anomalies will be digitised and geo-referenced in the project GIS. They will be colour coded using ARS Ltd’s standard scheme to provide the most likely interpretation. Anomalies will be numbered and catalogued in the GIS and report text as systematic groups or individual anomalies as appropriate. The final report will include a graphical and textual account of the techniques undertaken, the data obtained and an archaeological interpretation of that data and conclusions about any likely archaeology. The report will describe the work undertaken and the results obtained. It will (as a minimum) include the following.

- A Non-technical summary
5 Evaluation Trenching and Open-Area Excavation

5.1 Coverage

5.1.1 Following discussion of the results of the geophysical survey with the Lancashire CC Planning Officer (Archaeology), nine evaluation trenches are to be excavated. The evaluation trenches are targeted to where they are likely to be able to provide answers to specific questions and to assess below ground areas that are thought to have potential to contain buried remains based on the results of the geophysical survey. Depending on the results of the evaluation trenching and in discussion with the Lancashire CC Planning Officer (Archaeology), further archaeological fieldwork in the form of open-area excavation may be required.

5.1.2 Any changes to the agreed trenching WSI will be discussed with, and agreed with, the Lancashire CC Planning Officer (Archaeology) before implementation.

5.2 Objectives

5.2.1 This phase of archaeological work will involve the excavation of nine trenches to evaluate the below ground survival of archaeological remains both as indicated by the geophysical survey and in the areas that have not been surveyed. The objective of the evaluation trenching is to identify and assess archaeological features within the area of the proposed development in order to inform on:

- the location and potential significance of buried archaeology on the site
- the likely impact of the proposed development upon such buried archaeological remains
- the potential to minimise the impact of the design and layout of the proposed development upon the archaeology
- appropriate archaeological mitigation that may form a condition attached to the planning permission.

5.2.2 Should buried archaeological remains be recorded in any of the evaluation trenches, open-area excavation may be required for which the objective would be to fully record, analyse and report all archaeological remains within the areas of interest ('preservation by record') prior to their destruction during the development of the site, and to place the results of this work in the public domain by depositing it with the Lancashire Historic Environment
All elements of the archaeological evaluation will be carried out in accordance with the Institute for Archaeologists’ *Standards and Guidance for Archaeological Evaluation* (2013b), *Standards and Guidance for Archaeological Excavation* (2013c) and with the IfA *Code of Conduct* (2014).

### 5.3 Evaluation Trenching and Open-Area Excavation Methodology

5.3.1 Each trench will be machine stripped under continuous archaeological supervision to the first archaeological horizon in successive level spits, or to a level where it is possible to assess the presence or absence of archaeological features. A toothless ditching bucket will be used. The location of the trench will be accurately recorded in relation to the Ordnance Survey national grid.

5.3.2 Each trench will be cleaned by hand to allow the identification and planning of archaeological features. Each trench will be planned at an appropriate scale: 1:20 where complex deposits are present or 1:50 in areas of lesser complexity (to be omitted if the trench is completely blank). One representative long section of each trench will be produced, at an appropriate scale, if necessary. Sections and profiles of each feature sampled will be drawn at 1:10 or 1:20, depending on the size of the feature. Spot levels relative to ordnance datum in metres will be taken as appropriate. All features will be investigated - discrete features will be half-sectioned in the first instance; linear features will be sampled a minimum of 20% along their length or a minimum of a 1m sample section, if the feature is less than 10m long, depending on how much of the linear feature is situated within the trench. The deposits at junctions or interruptions in linear features will be sufficiently excavated for the relationship between components to be established.

5.3.3 Identified archaeological features will be sampled by manual excavation to allow their date, nature and degree of survival to be ascertained. Provision will be made to establish whether earlier features/surfaces are sealed beneath later layers. All features investigated will be recorded in plan and section and all finds recovered retained for analysis.

5.3.4 For brick structures the record will include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins).

5.3.5 All identified archaeological features will be accurately fixed using an EDM/Total Station, surveying in either the planning baselines or the features themselves.

5.3.6 The site archive will include plans and sections at an appropriate scale, a photographic record, and full stratigraphic records on recording forms/context sheets. Each context will be recorded on pro-forma records which will include the following: character and contextual relationships, detailed description (dimensions and shape; soil components, colour, texture and consistency), associated finds, interpretation and phasing, as well as cross-references to the drawn, photographic and finds registers. Each feature will be recorded on an individual record.

5.3.7 A photographic record will be maintained in colour high resolution digital, including photographs of all significant features and overall photographs of each area or trench, and will contain a graduated photographic scale. The main photographic archive will comprise 35mm b/w SLR print film supplemented by digital SLR (minimum 7 megapixels).
5.3.8 All stratified finds will be collected by context or, where appropriate, individually recorded in three dimensions. Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest. All finds and pottery will be initially retained for rapid assessment other than material which is demonstrably modern.

5.3.9 Where features have the potential to contain palaeoenvironmental or datable remains, a sampling strategy will be adopted in order to extract necessary samples to answer key research questions about the deposits. Where deposits have the potential to contain palaeoenvironmental remains or datable material, the entire fill, or a representative sample of larger deposits, will be floated. Flotation of all feature fills with organic content will be undertaken on site employing graduated brass sieves, with 500µ as the smallest fraction. This strategy and approach will be refined dependent on on-site conditions. Provision will be made available for recovery, processing and suitable assessment/analysis. The above strategy will be sufficient to identify botanical macrofossils and charred remains in order to inform on both human activity and the palaeoenvironment.

5.3.10 Samples will be assessed by a suitable specialist with provision for further analysis as required. Specialist advice on the collection of industrial residues will be sought and their strategies implemented. The advice of the English Heritage Scientific Adviser will be sought in relation to all scientific sampling strategies.

5.3.11 All retained finds and palaeoenvironmental samples will be treated in accordance with the English Heritage guidance document *A Strategy for Care and Investigation of Finds (1995)* and the UKIC's document *Guidelines for the Preparation of Excavation Archives for Long Term Storage*.

5.3.12 Provision will be made for additional specialist advice (e.g. for finds analysis, conservation and scientific dating).

5.3.13 Finds of "treasure" will be reported to the Coroner in accordance with the Treasure Act procedures.

5.3.15 If grave cuts are discovered on site, then they will be sampled through hand excavation to determine the presence/absence, depth and preservation of the uppermost burials, before being initially left *in situ*. Where excavation of human remains is necessary, a license will be obtained from the Ministry of Justice and work will be carried out under appropriate environmental health regulations and, if appropriate, in compliance with the Disused Burial Grounds (Amendments) Act 1981.

5.3.16 Disarticulated human bone will be quantified, characterised and retained for assessment.

5.3.17 The record of the extent and vulnerability of features will be sufficiently detailed to facilitate discussions regarding the need for preservation beneath any future potential development, or any other mitigation measures including further excavation or recording.

5.3.18 A risk assessment will be undertaken before commencement of the work and health and safety regulations will be adhered to at all times.

5.4 Report

5.4.1 Following completion of the evaluation trenching ARS Ltd will produce a report which will include the following.
• A non-technical summary
• Introduction and objectives of the evaluation
• Methodology of the evaluation
• An objective summary statement of results
• A phased stratigraphic discussion of the archaeological features
• An interpretive discussion of the results, placing them in a local and regional framework and an assessment of the significance of any remains
• Appropriate supporting illustrations, including a site plan, trench and section plans, feature sections and plans and a phased site plan
• A site location plan at 1:2500 or 1:10000 as appropriate and a phased interpretation of the site as appropriate
• The results of an assessment of artefacts, ecofacts and industrial residues carried out by suitable specialists, who will be furnished with relevant contextual and stratigraphic information
• If sufficiently significant remains are recovered then an analysis of the above based upon the specialist assessment recommendations
• In the event that significant remains are encountered, then a timetable for wider dissemination will be included in the report
• A detailed context index and supporting data in tabulated form or in appendices
• An index to and the proposed location of the archive
• The proposed date of deposition of the archive
• References
• Photographs of work in progress on the site.

Within the report:
• all plans will be clearly related to the national grid
• all levels will be quoted relative to ordnance datum.

5.4.2 Copies of the final report will be deposited with the HER and will be submitted as a paper copy and a digital copy.

6 Access and monitoring

6.1 ARS Ltd will give the Lancashire County Council Planning Officer (Archaeology) at least 48 hours (or less if so agreed) notice of the commencement of fieldwork.

6.2 ARS Ltd will afford access to Lancashire CC’s Planning Officer (Archaeology) or their representative at all times, for the purposes of monitoring the programme of archaeological works.

6.3 ARS Ltd will maintain regular communication with Lancashire CC’s Planning Officer (Archaeology) to ensure that the project aims and objectives are met.

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7 Archive Deposition and Dissemination

7.1 A digital, paper and artefact archive, of all parts of the pre-determination evaluation, which will consist of all primary written documents, plans, sections, photographs and electronic data which will eventually be submitted to the identified recipient museum in their standard form when possible. Advice on the retention and discard of finds and samples will have been provided by specialists during the assessment and/or analysis phases and this information will be discussed with the museum when preparing the site archive. The museum service will be notified of intended deposition using the standard accession request form. The digital archive will be deposited with the ADS. ARS Ltd will either arrange for copyright on the deposited material to be assigned to the archive, or will licence the archive to use the material, in perpetuity. This licence will allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

7.2 All artefacts and associated material will be cleaned, marked, recorded, properly stored and deposited in the archive (see above).

7.3 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be supplied to the HER and deposited with the archive as digital images on a CD ROM that will be attached with the report.

7.4 The Lancashire CC Planning Officer (Archaeology) will be notified on completion of fieldwork with a timetable for reporting and archive deposition.

7.5 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

7.6 An OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and, as the project proceeds, information will be added to this record. Key fields will be completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

7.7 Lancashire CC’s Planning Officer (Archaeology) will be notified of the final deposition of the archive.

8 Changes to Methodology or Work Programme

8.1 Changes to the approved methodology or programme of works will only be made with the prior written approval of Lancashire CC’s Planning Officer (Archaeology).

9 Project management

9.1 ARS Ltd is a Registered Organisation with the Institute for Archaeologists (IfA). Registered Organisations are continuously assessed to ensure that the highest standards of work are carried out, in line with the Code of Conduct of the IfA (2014). In addition to our key management staff, who have achieved the highest grade of corporate IfA membership, many of our field staff also hold corporate grade membership.

9.2 All staff employed on the project will be suitably qualified and experienced for their respective project roles and have practical experience of geophysical surveying and reporting.
All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification. Each member of staff will be fully conversant with the aims and methodologies and will be given a copy of this WSI to read. All members of staff employed by ARS Ltd are fully qualified and experienced archaeologists, this will ensure that appropriate decisions regarding excavation and sampling will be made in the field.

9.3 Project Team

- Project management: Chris Scott MIfA (ARS Ltd)
- Geophysical surveyor: Richard Durkin BEng (ARS Ltd)
- Excavation supervisor: Laura Strafford AIfA (ARS Ltd)
- Excavation assistant: Joseph Tong PIfA (ARS Ltd)

10 Health and Safety

10.1 A full health and safety risk assessment will be carried out prior to each episode of fieldwork commencing. All people working on the site will be briefed on the safety requirements whilst working on-site and given access to a copy of the risk assessment and all ARS Ltd staff working on the site will undergo a Health and Safety induction. ARS Ltd maintains a strict health and safety policy and the appointed Health and Safety Officer for the company is Chris Scott.

11 References


Oxford Archaeology North & University of Liverpool Department of Geography. 2008. *Aggregate Extraction and the Geoarchaeological Heritage of the Kirkham Moraine.* ALSF.

UKIC. *Guidelines for the Preparation of Excavation Archives for Long Term Storage.* Ironwork. UKIC.
Maxy House Farm

Figure 2

Location of Survey Grids

Key

- 30m x 30m Survey Grid
- Survey Area
Maxy House Farm, Sandy Lane, Cottam
Evaluation Trench Location Plan

Key to Evaluation Trenches
- Blue: 30m x 1.5m
- Red: 20m x 1.5m
- Trench Number

Note: Trench numbers 5 and 6 omitted and not shown on plan

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