

Botley West Solar Farm

Outline Written Scheme of Investigation

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Figure 1: Site Location showing installation areas and archaeological protection zones





Glossary

Term	Meaning
Beaker Period	The time period 2500 – 1700 BCE.
Bronze Age Period	The time period 1800 – 600 BCE.
Early Medieval Period	The time period AD 410 – 1066.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Iron Age	The time period 600 BCE – AD 43.
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Medieval Period	The time period AD 1066 – 1485.
Mesolithic Period	The time period 12000 – 4000 BCE.
Modern Period	The time period AD 1800 – present.
Neolithic Period	The time period 4000 – 1800 BCE.
Order Limits	The area of land encompassing the Project including all land required temporarily or permanently, as shown on the Site Location and Order Limits Overview (Volume 2, Figure 1.1 of the ES [APP-059]).
Palaeolithic Period	The time period 900,000 – 12,000 BCE.
Post-medieval Period	The time period AD 1486 – 1799.
Roman Period	The time period AD 43 – 410.
The Applicant	SolarFive Ltd.
The Project	The Botley West Solar Farm (Botley West) Project.
The Site	The area of land encompassing the Project development and shown on the Site Location and Order Limits Overview (Volume 2, Figure 1.1 of the ES [APP-059]).





Abbreviations

Abbreviation	Meaning
AD	Anno Domini
ADS	Archaeology Data Service
BCE	Before the Christian Era
C.	Circa
CAT	Cable Avoidance Tool
CIfA	Chartered Institute for Archaeology
CoCP	Code of Construction Practice
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
GNSS	Global Navigation Satellite System
HER	Historic Environment Record
MWe	Megawatt electrical
NGET	National Grid Electricity Transmission
OCAS	Oxfordshire County Archaeological Services
OWSI	Outline Written Scheme of Investigation
PCS	Power Converter Station
PV	Photovoltaic
PVDP	Photovolt Development Partners GmbH
WSI	Written Scheme of Investigation

Units

Unit	Description
1	Litre
m	Metre
ml	Millilitre
mm	Millimetre
MWe	Megawatt electrical





1 Outline Written Scheme of Investigation

1.1 Introduction

- 1.1.1 This Outline Written Scheme of Investigation (OWSI) has been prepared by RPS on behalf of Photovolt Development Partners GmbH. (PVDP) for the Applicant, SolarFive Ltd. (SolarFive). SolarFive is a licence holder under the Electricity Act 1989. SolarFive is also a company registered in England and Wales (company no. 12602740).
- 1.1.2 PVDP intends to submit an application on behalf of SolarFive for development consent to the Planning Inspectorate (PINS) under the Planning Act 2008. The proposal is to install and operate approximately 840 megawatt electrical (MWe) of solar generation in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts (the Project).

1.2 Purpose of the Outline Written Scheme of Investigation

- 1.2.1 This OWSI provides provisional information on the programme of post-consent archaeological investigation required with regard to the construction of the Project.
- The preparation of a Written Scheme of Investigation (WSI) is secured as a requirement within the draft Development Consent Order (DCO) [AS-009]. The Written Scheme of Investigation must be submitted to, and approved by, the relevant Local Authorities prior to the commencement of works, and must be substantially in accordance with this OWSI. All archaeological investigations, including fieldwork, reporting and archiving would be undertaken in accordance with the current suite of guidance produced by the Archaeology Service at Oxfordshire County Council, and any future guidance or updated versions of the current guidance produced by the Archaeology Service at Oxfordshire County Council.
- 1.2.3 This is an outline document that is based on the Project design set out in Volume 1, Chapter 6: Project Description of the Environmental Statement (ES) [APP-043]. It describes the procedures that would be used to determine the requirements for further archaeological work that may be undertaken within the Project Site, and the methodologies that will be deployed within that programme of further archaeological work. This outline document does not seek to identify specific areas within the Project Site where any of these methodologies would be deployed that would be established within the detailed WSI following consultation with the relevant stakeholders.
- 1.2.4 The OWSI should be read in conjunction with the Outline Code of Construction Practice (CoCP) [APP-232 and APP-233] and its supporting appendices.
- 1.2.5 The OWSI is in accordance with the Oxfordshire County Council guidance document regarding the preparation of an overarching WSI (OCAS 2024a).
- 1.2.6 Archaeological research and fieldwork undertaken ahead of the submission of the application for a DCO for the Project is reported in the following documents.





- Volume 3, Appendix 7.1: Historic Environment Desk-based Assessment
 of the ES [APP-131]. This provides a detailed review of the known and
 potential archaeological resources within the Project Site and a defined 1
 km buffer around the Project Site.
- Volume 3, Appendix 7.2: Assessment of Airborne Remote Sensing and Satellite Imagery for Archaeology of the ES [APP-232]. This describes the results of a review of available aerial imagery and other remote sensing data for the area encompassing the Project Site;
- Volume 3, Appendix 7.3: Geophysical Survey Report [APP-133 APP-140]. This describes the results of a programme of purposive archaeological geophysical survey undertaken within the Project Site.
- 1.2.7 A programme of purposive trial trenching within the Project Site commenced in August 2024. This programme comprises a total of 919 trenches targeted on the following locations:
 - Areas where the Project design includes elements that have the potential
 to impact on buried archaeological deposits. These elements include
 foundations for the National Grid substation, secondary substations and
 Power Converter Stations (PCSs), also the internal access and
 maintenance roads, temporary construction compounds and cable
 corridors.
 - Areas of likely archaeological remains identified through the desk-based research and the geophysical survey.
 - Areas identified as 'blank' through the desk-based research and the geophysical survey.
- 1.2.8 Reports on the results of the programme of trial trenching will be submitted into the Examination of the DCO application at the earliest opportunity.
- 1.2.9 The methodologies for the programmes of geophysical survey and trial trenching were agreed in advance with the Lead Archaeologist at Oxfordshire County Archaeological Services (OCAS), acting as archaeological advisor to the relevant Local Authorities.

1.3 The Project Site

Location and Topography

- 1.3.1 The Project Site is located to the west and north-west of Oxford and is divided into three main areas the Northern, Central and Southern Site Areas with a total area of approximately 1,400 ha. and with the proposed area of installed panels (excluding internal roads and support areas) of approximately 840 ha. These three areas are connected by a 275kV cable route linking the power generating assets to a new National Grid Electricity Transmission (NGET) 400kV substation which will be located within or adjacent to the Southern Site Area (Figures 1a 1c).
- 1.3.2 The land within the Northern Site Area in which development is proposed measures approximately 247.3 ha. and is relatively flat, although rises gently





to the north (Figure 1a). To the west the land falls away into the valley of the River Dorn.

- 1.3.3 The land within the Central Site Area in which development is proposed measures approximately 545.2 ha. and is located to the west of Kidlington (Figure 1b); it is encircled by the settlements of Bladon, Begbroke, Yarnton, Cassington, Freeland, Eynsham, Church Hanborough and Long Hanborough. This is mostly gently undulating land with the highest areas being at Purwell Farm and Begbroke Wood. The River Evenlode flows from north to south through the western part of the Central Site Area before draining into the River Thames just to the south of Cassington.
- 1.3.4 The land within the Southern Site Area in which development is proposed measures approximately 46.2 ha. and is located to the south-east of Farmoor Reservoir, with the village of Cumnor to the south and the Oxford suburb of Botley to the east (Figure 1c). The land is on the lower slope of a north-facing scarp, with the flat ground at its northern edge traversed by a 400 kV overhead power line to which the Project will connect via the new NGET substation. The substation could be located within the western end of the Southern Site Area or possibly just outside this area the precise siting and design are subject to ongoing feasibility studies by NGET.

Geology and soils

- 1.3.5 The British Geological Survey (BGS) records the geology of the Northern Site Area as mostly limestone of the White Limestone Formation and the Forest Marble Formation (with interbedded mudstones). There are no superficial deposits recorded within the Northern Site Area.
- 1.3.6 The underlying geology within the Central Site Area is mainly mudstone of the Forest Marble Formation, the Kellaways Clay Member, the Oxford Clay Formation and some limestone of the Forest Marble Formation and the Cornbrash Formation. A narrow band of sandstone and siltstone of the Kellaways Sand Member crosses the northern and north-western parts of the Central Site Area. Superficial deposits mainly consist of alluvial clay, silt, sand and gravel on either side of the River Evenlode and pockets of sand and gravel of the Northern Drift Formation.
- 1.3.7 The Southern Site Area lies wholly within the Oxford Clay Formation and West Walton Formation with underlying mudstone and no recorded superficial deposits.
- 1.3.8 The Cranfield Soil and Agrifood Institute identifies the soils within the Northern Site Area as a mixture of free-draining, lime-rich, loamy soils (Soilscape 5) and shallow lime-rich soils over chalk or limestone (Soilscape 3).
- 1.3.9 The Central Site Area is described as having shallow, lime-rich soils over chalk or limestone (Soilscape 3), slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils (Soilscape 18), free-draining slightly acid but base-rich soils (Soilscape 7), slightly acid loamy and clayey soils with impeded drainage (Soilscape 8), free-draining lime-rich loamy soils (Soilscape 5) and loamy soils with naturally high groundwater (Soilscape 22).





1.3.10 The Southern Site Area lies within an area with soils described as slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey (Soilscape 18).

1.4 Archaeological and historic background

- 1.4.1 The following information is derived from the appropriate elements of the historic environment desk-based assessment (Volume 3, Appendix 7.1: Historic Environment Desk-based Assessment of the ES [APP-131]), the review of available aerial imagery and other remote sensing data for the area (Volume 3, Appendix 7.2: Assessment of Airborne Remote Sensing and Satellite Imagery for Archaeology of the ES [APP-132]) and the programmes of Project-specific fieldwork.
- 1.4.2 For the purposes of the examination of the archaeological and historical background of the land within the Order Limits, a study area was established comprising a buffer zone extending for 1 km from the boundaries of the Northern, Central and Southern Site Areas, also a buffer extending for 500 m from the edge of the Order Limits for the 275kV cable corridor where this falls outside the 1 km buffer zone for the Northern, Central and Southern Site Areas. This is known as the historic environment study area. Data were collected from a number of sources in order to establish the archaeological and historical baseline within the historic environment study area.
- 1.4.3 The land within the Project Site has reasonable potential to contain archaeological sites and features of most periods, particularly from the Neolithic through to the Early Medieval.

Palaeolithic

1.4.4 Material of Palaeolithic date has been found within the historic environment study area around the main elements of the Project Site in the form of flint tools. These are most likely to have come from secondary contexts rather than from a primary place of deposition, having been moved to their discovered locations through fluvial action. Similar artefacts may be present in gravels and sands within the Project Site, particularly within the valleys of the Rivers Thames and Evenlode, but are unlikely to be disturbed from their current positions by the construction of the Project.

Mesolithic

- 1.4.5 Mesolithic activity within the historic environment study area is also attested predominantly by the presence of flint tools. These are less likely to have moved far from their primary deposition location (when compared to the Palaeolithic examples) but are often found during programmes of surface artefact collection or as background finds during investigations of archaeological features dating to later periods.
- 1.4.6 However, a small pit examined during an archaeological investigation of land immediately adjacent to the Northern Site Area could be of Mesolithic date, and similar features may be present within any part of the Site. Evidence for settlement or other more permanent activities is most likely to be found in areas





that have the potential for waterlogged deposits, such as palaeochannels within the floodplain of the River Evenlode.

Neolithic and Bronze Age

1.4.7 Evidence for Neolithic and Bronze Age activity is widespread within the historic environment study area. There is a particular focus on the gravels within the floodplain of the River Thames, but also plenty of sites and features on the gently undulating ground beyond these areas. Ring ditches representing burial monuments of Bronze Age date are widespread, with cemeteries made up of multiple examples but also small groups as well as isolated individual instances. The larger groups are most likely to occur on the river floodplains, but small groups and isolated examples are known from the more elevated land within the Project Site. Examination of such features within the Site has found evidence for urned burials during the Beaker period as well as inhumation burials likely to be of later date.

Iron Age

1.4.8 Sites and features representing Iron Age activity are also present across much of the historic environment study area, with larger sites such as hillforts and substantial enclosures as well as smaller settlements including unenclosed examples. Several examples of both enclosed and unenclosed settlements of this date have been identified within the Project Site. There are also groups of pits within the historic environment study area that may represent farmsteads for which the evidence of the buildings has now been lost.

Roman

- 1.4.9 Key features for the Roman period include the important military road known as Akeman Street which crosses the Northern Site Area and adjacent to which is a settlement containing several buildings including a potential temple.
- 1.4.10 The potential for significant Roman remains to be present within the Project Site is emphasised by the discovery during the Project-specific geophysical survey of a probable Romano-Celtic temple complex within the Central Site Area, in an elevated location overlooking the valley of the River Evenlode. This site has not been previously identified and does not appear to show up on any historical aerial photographs. Another area of archaeological interest within the Central Site Area may also represent a Roman villa. Some of the settlement enclosures that have been recorded as cropmarks on aerial photographs, including examples within the Project Site, may have originated during the later prehistoric period but continued in use well into the Roman period.

Early Medieval

1.4.11 Evidence for Early Medieval activity within the historic environment study area includes settlement, but also several inhumation cemeteries are known including examples where the mounds representing Bronze Age round barrows were reused by Anglo-Saxons. These can be found on the river floodplains but are also known from more elevated areas such as Purwell Farm.





Medieval to Modern

1.4.12 There is a reduced potential for remains of Medieval, Post-medieval and Modern activity to be present within the Project Site given the well-documented history of settlement in the area. However, some settlements have reduced in size or even disappeared altogether and remains associated with these may be present. Elements of the Medieval and Post-medieval landscapes have been identified through the review of available LiDAR data, and in some areas are retained in the current landscape within and around the Site. This can include areas of woodland as well as boundaries and other earthworks.

1.5 Surveys

Geophysical survey

- 1.5.1 As described above in paragraph 1.2.6, a programme of purposive geophysical survey has been undertaken within the Site. This has covered all land within the Northern, Central and Southern Site Areas. Some additional geophysical surveys have been undertaken within the cable route corridors for the 275kV cable where these corridors lie outside the Northern, Central and Southern Site Areas.
- 1.5.2 The results of this programme of geophysical survey are presented in Volume 3, Appendix 7.3: Geophysical Survey Report [APP-133 APP-140]. The survey identified areas of likely significant archaeological remains including individual ring ditches, enclosed and unenclosed settlements of probable later prehistoric date, a possible Romano-Celtic temple, a possible Roman villa and a putative Medieval settlement, as well as linear features likely to represent former field boundaries.

Trial trenching

1.5.3 As set out above in paragraphs 1.2.7 – 1.2.9, a programme of trial trenching within the Site commenced in August 2024. An initial appraisal of the results of this work indicates that the data produced by the geophysical survey are very reliable in identifying areas of significant buried archaeological remains. The nature and date of such remains has largely been confirmed by the trial trenching, other than the putative Medieval settlement which now appears to be of Roman date. Very few archaeological features have been identified through the trial trenching that were not previously known or suspected from the geophysical survey.

1.6 Further archaeological work

Introduction

1.6.1 The potential for the Project to adversely impact significant archaeological remains has been mitigated through changes to the design of the development. A total of 44 areas have been excluded from development activities; this includes one area measuring approximately 17.4 hectares encompassing land to the north, west and south of a Scheduled Monument





- comprising settlement activity to the south of the Roman Road known as Akeman Street (in the Northern Site Area). These Archaeological Protection Zones are indicated on Figures 1a 1c.
- These identified areas of significant archaeological remains will be fenced ahead of any construction, with signage placed on the fencing to indicate that these areas are being protected due to their archaeological significance. Following the completion of all construction in the vicinity of a fenced area, the fencing will be removed and the area will be retained within the development as managed grassland. Any sheep grazing within the solar farm would be allowed to happen within these areas of significant archaeological remains.
- 1.6.3 The requirement for further archaeological work within the Project Site will therefore be based on the following principles:
 - 1. The agreed programme of trial trenching will be completed in full. It is possible that a few trenches will not be excavated within the main programme of work. This is due mainly to land-use issues, as some trenches are located within land that is currently unavailable as a result of being used for game-bird cover or being within an agreed agricultural scheme which precludes the excavation of trial trenches. In the event of the trial trenching completion leading to the identification of one or more previously unknown areas of significant archaeological remains, any such areas will be removed from the development and protected during construction in accordance with the procedures set out above in paragraph 1.6.2. It is possible that the agreed programme of trial trenching would be completed ahead of the granting of the DCO application, in order to reduce the potential for construction delays.
 - 2. Areas of impact within the Project Site that have not been examined in detail by way of trial trenching would be subject to additional trial trenching as necessary ahead of the commencement of construction. Specifically, these areas comprise the temporary construction compounds, the entrance and exits pits for any trenchless crossing, and the internal construction and maintenance roads. Some trenches have been excavated within each of the temporary construction compounds and along some of the internal construction and maintenance roads, but overall the coverage is not extensive enough to be able to conclusively rule out the presence of any archaeological remains. The final locations for the entrance and exits pits for trenchless crossings have yet to be determined. When the detailed design work for the Project has been completed and areas of impact such as those described above have been clearly identified, the requirement for further trial trenching at any location will be reviewed. A WSI for this programme of additional trial trenching would be agreed in advance with the Lead Archaeologist at Oxfordshire County Archaeological Services (OCAS), acting as archaeological advisor to the relevant Local Authorities, prior to the commencement of works. In the event of significant archaeological remains being identified at any location subject to additional trial trenching, the potential for the protection of such remains through design amendments will be reviewed in consultation with the Lead Archaeologist at OCAS. If the remains cannot be protected, a suitable





- programme of detailed archaeological investigation ahead of construction will be agreed with the Lead Archaeologist at OCAS and this programme will be implemented ahead of construction.
- 3. Currently the DCO submission identifies several route options with a defined corridor for this cable connection. In some places these route options have been subject to geophysical survey with the results presented in Volume 3. Appendix 7.3: Geophysical Survey Report [APP-133 - APP-140]. However, no trial trenching has been undertaken within any of these route options. Once the definite cable route has been identified, a detailed review of the potential requirements for further archaeological investigation will be undertaken. This may include further geophysical survey (where this has not already been undertaken) followed by trial trenching. If any buried archaeological remains are present within the 275kV cable route it may be possible to avoid or reduce potential impacts through the design and implementation of specific construction methodologies such as limiting the area of topsoil stripping and micrositing of the cable trench within the construction easement. If this is not possible then detailed archaeological investigation ahead of construction may be necessary. It is possible that some further archaeological investigation of the cable route options would be undertaken ahead of the granting of the DCO application, in order to reduce the potential for construction delays. The methodologies for any such investigations would be agreed in advance with the Lead Archaeologist at OCAS, acting as archaeological advisor to the relevant Local Authorities. To the extent that any investigations had been agreed with OCAS and carried out substantially in accordance with this draft oWSI then these works will not need to be approved as part of the WSI.

General

- 1.6.4 Any phase of archaeological work will be undertaken in accordance with a WSI submitted to, and approved by, the Lead Archaeologist at OCAS ahead of commencement. Any WSI would be substantially in accordance with this Outline WSI. All archaeological investigations, including fieldwork, reporting and archiving, would be undertaken in accordance with the current suite of guidance produced by the Archaeology Service at Oxfordshire County Council, and any future guidance or updated versions of the current guidance produced by the Archaeology Service at Oxfordshire County Council.
- 1.6.5 Any additional geophysical survey would be undertaken in accordance with the agreed WSI for such survey at the Project Site (Atlas 2023). Any additional trial trenching would be undertaken in accordance with the agreed WSI for such work within the Site (RPS 2024).
- 1.6.6 The archaeological work will be undertaken by one or more specialist archaeological contractors who will be Registered Organisations with the Chartered Institute for Archaeologists (CIfA). Procurement of the specialist archaeological contractor(s) will be in accordance with the relevant CIfA standard and guidance (CIfA 2020a).





- 1.6.7 The archaeological contractor(s) will prepare a written Specification setting out their scope of works and also their proposed programme, senior personnel and specialists, and digital data management plan. The Specification(s) will be submitted to the Lead Archaeologist at OCAS for approval prior to the commencement of any fieldwork. Any Specification would be in line with the agreed WSI for that phase of archaeological work.
- 1.6.8 The fieldwork, post-excavation, reporting and archiving will be managed by Members or Associated members of ClfA, and the ClfA Code of Conduct (ClfA 2022) will be adhered to at all times.
- 1.6.9 The Lead Archaeologist at OCAS will be given reasonable prior notice of any archaeological work within the Site. A programme of monitoring of the archaeological work in the field shall be agreed in advance between the archaeological contractor(s), the Applicants' appointed representative(s) and the Lead Archaeologist at OCAS. The timing and frequency of each monitoring visit will be agreed in advance with all parties. At least 10 days' notice of the requirement for a monitoring visit will be provided to the Lead Archaeologist at OCAS.
- 1.6.10 The Oxfordshire County Museum Service will be contacted to obtain one or more accession numbers for the agreed programme of archaeological work. The museum accession number will be cited in the detailed WSI for that part of the programme of archaeological work. The detailed WSI for that part of the programme of archaeological work will also identify the OASIS (Online Access to the Index of Investigations) reference number for that programme of archaeological work.
- 1.6.11 The Solent-Thames Research Framework for the Historic Environment was published in 2014 (Hey and Hind 2014). This sets out research agendas for each archaeological and historic period. The research agendas for the Neolithic, Bronze Age, Iron Age, Roman and Later Medieval periods are likely to be the most relevant for this programme of archaeological evaluation. The WSI(s) produced for the programme of archaeological work will identify any specific objectives that link back to the research agendas.
- All relevant and applicable health and safety legislation, regulations and approved codes of practice will be complied with. Prior to the commencement of any works on site the archaeological contractor(s) will submit a detailed Health and Safety Risk Assessment for those works. The archaeological contractor(s) will comply with all aspects of any Health and Safety regimes established for the Site by the Applicant or their appointed representatives.
- 1.6.13 As part of the works, opportunities will be taken, where feasible, to engage in outreach activities through which the results of any archaeological investigations can be made available to a wider audience. This may include the provision of information for web-based updates and communications.

Fieldwork

Archaeological fieldwork methods

1.6.14 The archaeological fieldwork will be undertaken in accordance with the relevant ClfA standard and guidance documents (ClfA 2020b; ClfA 2020c;





CIfA 2023a; CIfA 2023b; CIfA 2023c; CIfA 2023d; CIfA 2023e; CIfA 2023f) and the relevant OCAS guidance documents (OCAS 2024b; OCAS 2024c; OCAS 2024d).

Further trial trenching

- 1.6.15 The length and width of any trial trench will be set out within the WSI agreed in advance with the Lead Archaeologist at OCAS. The locations of trenches will be set out using a real-time kinematic (RTK) global navigation satellite system (GNSS), accurate to 0.02 m. The trench will then be scanned using an appropriate proprietary Cable Avoidance Tool (CAT), operated by a suitably qualified and experienced person. The position of any potential services will be marked out and demarcated, with the areas of potential services being avoided. Once the trench has been deemed clear, mechanical excavation will commence.
- 1.6.16 The topsoil and any subsoil will be removed by mechanical excavator using a toothless ditching bucket, under direct supervision of a suitably qualified and experienced archaeologist, in stratigraphic order to natural geology, stopping at the first significant archaeological remains. Machine excavation will proceed in level spits of approximately 50 to 200 mm until either the archaeological horizon or the natural geology is reached. The excavated material will be placed adjacent to the trench, at least 1.0 m from the edge of the trench. Spoil heaps will be monitored for the presence of artefacts, including the use of metal detectors.
- 1.6.17 Any trenches left open overnight may need to be enclosed within fencing comprising Netlon hung on road pins or similar. Deeper trenches may need to be fenced using 2 m high Heras-type anti-climb fencing. At least one end of each trench will be ramped to provide safe access and egress for personnel and to enable any wildlife to escape if they accidentally enter the trench.
- 1.6.18 Where archaeological features and deposits are encountered, these will be cleaned and planned using appropriate electronic survey equipment.
- 1.6.19 Archaeological layers, features, deposits and structures requiring clarification will be excavated by hand. Excavation of areas of complex archaeological remains will be circumspect, being sufficient to meet the principal aims of the evaluation but not cause any damage to material that might be better excavated under different circumstances, i.e. detailed archaeological investigation.

Detailed archaeological investigation

- 1.6.20 In the event that detailed archaeological investigation is required at any location, the following methodology will apply.
- 1.6.21 If not already stripped of topsoil and subsoil, the areas of detailed archaeological investigation will be set out using a real-time kinematic (RTK) global navigation satellite system (GNSS), accurate to 0.02 m, based upon the agreed area plan. The area will then be scanned using an appropriate proprietary Cable Avoidance Tool (CAT), operated by a suitably qualified and experienced person. The position of any potential services will be marked out





and demarcated, with the areas of potential services being avoided. Once the area has been deemed clear, mechanical excavation will commence.

- 1.6.22 The topsoil and any subsoil will be removed by mechanical excavator using a toothless ditching bucket, under direct supervision of a suitably qualified and experienced archaeologist, in stratigraphic order to natural geology, stopping at the first significant archaeological remains. Machine excavation will proceed in level spits of approximately 50 to 200 mm until either the archaeological horizon or the natural geology is reached. The excavated material will be bunded in a designated location. The plant movements will be restricted to running on the topsoil until the stripping has been signed off (to be confirmed by the Lead Archaeologist at OCAS; there is to be no running of plant or vehicles on the stripped surface until this sign-off has occurred.
- 1.6.23 The appropriate levels of sampling of archaeological features will be agreed with the Lead Archaeologist at OCAS. The proposed general approach is the following.
 - Intersections of potentially significant ditches and gullies will have all relationships defined, investigated and recorded through 100% excavation (all terminals will be excavated). Some 10% by length of linear features will be excavated to determine their character over the exposed course, achieved via a sequence of slots and excavation of terminals and junctions to aid understanding/dating.
 - A minimum of 50%, by volume, of all discrete features, post-holes and pits will be excavated.
 - There will be 20% excavation of ring gullies, including slots at each terminus and at strategic locations around the feature.
 - All funerary contexts will be fully excavated and all relationships recorded.
 - For other types of features, further investigation will be a matter of on-site judgement in discussion with the Lead Archaeologist at OCAS.
 - Sufficient artefact assemblages will be recovered (where possible) to assist in the dating of the stratigraphic sequence and for comparison with other sites.
- 1.6.24 The presumption is that all excavation works detailed above will be undertaken by hand. However, in limited circumstances mechanical plant may be used to assist the excavation methodology, in particular where:
 - deep archaeological strata can only be safely investigated by stepping or battering a localised sondage; or
 - a large number of slots are proposed to meet percentage requirements across extensive features, particularly where the aim is to recover dating evidence beyond feature characterisation; or
 - sterile/natural layers are encountered that mask archaeologically significant strata.





1.6.25 The use of mechanical plant within the area of investigation after the initial stripping phase will be confirmed and agreed with the Lead Archaeologist at OCAS.

Recording

- 1.6.26 A context-based recording system acceptable to the Lead Archaeologist at OCAS will be used to record all archaeological deposits, features etc. Proforma sheets will be used to record all relevant information.
- A digital photographic record of the archaeological works will be compiled in accordance with the Historic England guidance document Digital Image Capture and File Storage: Guidelines for Best Practice (Historic England 2015a). Photographs will illustrate both the detail and context of the principal archaeological features discovered. A selection of representative feature group/area shots will also be taken, if appropriate. All photographic records will include information detailing: site name and number/code, date, context, scale and orientation. All photographs will be cross-referenced onto the context records.

Human remains

- In the event of the discovery of human remains, these will be left in situ and not further examined until an appropriate strategy for their recording has been agreed. The Applicant's appointed representative(s) will be informed immediately along with the Coroner, the police and the Lead Archaeologist at OCAS. A recognised specialist should visit the site to provide further advice. The Specification prepared by the archaeological contractor for any part of the programme of archaeological work will include identification of the recognised specialist for examination of human remains.
- 1.6.29 If removal of human remains is necessary, a license will be obtained from the appropriate authorities (the Ministry of Justice at the time of writing) by the archaeological contractor and all conditions attached to that license will be complied with. All excavation and post-excavation work regarding human remains, including cremated remains, will be undertaken in line with the standards set out in the Institute of Field Archaeologists (IfA) Technical Paper No. 13 (McKinley and Roberts 1993) and the subsequent CIfA guidance document (CIfA 2017), and other appropriate guidance (including Historic England 2018a).
- 1.6.30 If any human remains are to be left unexcavated, these will be recorded in situ by a human osteologist or an archaeologist with human osteological experience, in accordance with the relevant guidance (Historic England 2018a). A reburial strategy will be prepared by the archaeological contractor and agreed with the Lead Archaeologist at OCC. The reburial strategy will be in accordance with the guidance set out in the document Preserving Archaeological Remains: Decision-taking for Sites under Development (Historic England 2016, Appendix 5: Materials for Use in the Reburial of Sites).
- 1.6.31 The draft DCO [AS-009] sets out the process that will be followed in relation to human remains interred less than 100 years ago.





Environmental archaeology and conservation

- 1.6.32 The archaeological contractor's Specification for any part of the programme of archaeological work will use the results of any previous fieldwork (specifically the trial trenching) to inform a location-specific environmental sampling strategy which relates directly to the identified research aims and objectives. Environmental sampling will be targeted upon potentially significant archaeological deposits or features and will predominantly examine sealed and well-dated contexts. Sample size will take into account the frequency with which material appropriate for sampling will occur, but bulk samples will normally be a minimum of 40 - 60 litres. Sampling strategies (on- and off-site) will principally derive from the English Heritage (now Historic England) guidance document Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (English Heritage 2011). Specialist input into the environmental sampling strategy may be sought from the Science Advisory team at Historic England or other appropriate specialists.
- 1.6.33 If archaeological deposits are found to have significant potential for the presence of palaeoenvironmental material, advice will also be taken from the Lead Archaeologist at OCAS and/or the Historic England Science Advisor on the need to extract, process and further examine environmental samples.
- 1.6.34 Bulk sampling may also be used to collect charcoal or other materials suitable for radiocarbon dating where appropriate. The sampling strategy will consider the relevant guidance published by Historic England (Historic England 2022).
- 1.6.35 The potential for other scientific dating techniques to be deployed will be considered throughout the programme of detailed excavation. Such techniques could include archaeomagnetic and luminescence dating.
- 1.6.36 All artefacts and animal bones will be recorded, collected and labelled according to their individual stratigraphical context. Finds from each archaeological context will be allocated an individual finds tray/bag and waterproof labels will be used for each tray/bag to identify unique individual contexts.
- 1.6.37 Retrieval of animal bone will be in accordance with relevant guidance (Historic England 2019). The archaeological contractor's Specification for any part of the programme of archaeological work will include identification of the recognised specialist for examination of animal bone.
- 1.6.38 Artefacts of clearly modern date will be recorded but not retained for off-site assessment, the Oxfordshire Museums Service will be contacted regarding their collection policy.
- 1.6.39 On-site conservation advice may be necessary prior to lifting of and initial treatment of fragile objects. All finds and samples will be exposed, lifted, cleaned, conserved, marked, bagged and boxed according to guidelines produced by the United Kingdom Institute for Conservation (UKIC) and other bodies (IFA 1992; UKIC 1983; Watkinson and Neal 2001). Iron finds may require X-rays prior to conservation and similarly residues on pottery may require study ahead of any conservation, which may be appropriate.





- 1.6.40 In the event of the discovery of waterlogged wood and other organic material, this material will be dealt with in accordance with the relevant English Heritage and Historic England guidance documents: Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood (English Heritage 2010); and Waterlogged Organic Artefacts: Guidelines on their recovery, analysis and conservation (Historic England 2018b).
- 1.6.41 Where there is evidence for industrial activity, macroscopic technical residues (or a sample of them) will be collected by hand. Separate samples (c. 10 ml) will be collected for micro-slags (hammerscale and spherical droplets). Collection and treatment will be in accordance with the Historic England guidance document Archaeometallurgy: Guidelines for Best Practice (Historic England 2015b). X-radiography of a sample of industrial debris will be carried out during the post-fieldwork stage of the work.

The Treasure Act 1996

In the event of the discovery of an artefact that may fall within the remit of the Treasure Act 1996, the Treasure (Designation) Order 2002, the Treasure (Designation) (Amendment) Order 2006 and the Treasure (Designation) (Amendment) Order 2023, the Applicants' appointed representative(s), the Coroner and the Lead Archaeologist at OCAS will be informed within 14 days. All finds of potential treasure will be removed to a safe place. The definition of treasure is provided in the Treasure Act 1996.

Reporting

- 1.6.43 The involvement of the Applicant and the Lead Archaeologist at OCAS will be acknowledged in any report or publication generated by the programme of archaeological and geoarchaeological work.
- 1.6.44 Copyright of all reports prepared by the archaeological contractor(s) will be retained by the archaeological contractor(s) under the terms of the Copyright, Designs and Patents Act (1988) with all rights reserved, excepting that the archaeological contractor(s) provides an exclusive licence to the Applicants for the use of the reports in all matters relating to the project and to the local planning authorities with regard to the provision of planning advice and public awareness of the historic environment.

Interim Reports

A draft interim report will be produced within six weeks of the completion of any piece of archaeological work undertaken within the Site. Following agreement of the draft interim report with the Applicant, a digital copy (either in .pdf or .doc format) will be supplied to the Lead Archaeologist at OCAS for verification and review. When the report has been agreed a digital final copy will be provided to the Lead Archaeologist at OCAS. A digital copy in PDF format will be provided to the Oxfordshire 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).





Post-excavation assessment report

- 1.6.46 Following completion of the full programme of archaeological work within the Site, the archaeological contractor(s) will produce a post-excavation assessment report outlining the results of the archaeological investigations. This report will describe the programme of work undertaken including any sampling that was carried out. Samples will be quantified and processedin order to provide information on their potential for further detailed analysis. Some scientific dating may be required in order to inform the post-excavation assessment report. The post-excavation assessment report will include recommendations for further analysis and for any further scientific dating that may be appropriate.
- 1.6.47 The post-excavation report will include, as a minimum:
 - a front sheet (setting out the project/site name, National Grid References to minimum eight figures, description of task(s) undertaken, date and duration of the fieldwork, site code/number);
 - a non-technical summary of the work including the results;
 - identity of the organisation(s) and individuals who carried out the work;
 - a general introduction to the project including site descriptions;
 - aims and objectives;
 - methodologies employed to undertake the works;
 - descriptive text presenting the results of the work including finds and environmental data where appropriate;
 - quantifications of the finds recovered and environmental samples taken;
 - interpretation and discussion of the results;
 - assessment of the significance of any archaeological remains;
 - assessment of the potential of any data for further analysis including scientific dating where appropriate;
 - proposals for publication of the further analysis in an appropriate format, subject to further discussion with the Lead Archaeologist at OCAS regarding the appropriate publication vehicle and the nature/extent of the report;
 - updated design;
 - a synopsis of the envisaged final report(s) for publication;
 - details of the scale, nature and location of the archive and the intended place of deposition;
 - report bibliography; and
 - sufficient illustrations to support the text including figures to show the location of the Site in a regional and local context, locations of all works undertaken, detailed plans and sections as appropriate.





1.6.48 The draft post-excavation assessment report will be produced within four months of the completion of the final fieldwork element. Following agreement of the draft report with the Applicant, a copy will be provided to the Lead Archaeologist at OCAS for their review. Any comments will be acted on in the production of a final version of the post-excavation assessment report that will be approved by the Lead Archaeologist at OCAS.

Final Report

1.6.49 Following agreement of the post-excavation assessment report, a final report will be prepared for publication in an appropriate format as described within the post-excavation assessment report. The nature of any publication report will be determined by the results of the programme of archaeological work. The timetable for the production of the final report will be described within the post-excavation assessment report, but is assumed to be within 12 months of the acceptance of the post-excavation assessment report by the Lead Archaeologist at OCAS. As a minimum a report on the results will be prepared for publication in the journal *South Midlands Archaeology*.

Archive

- 1.6.50 The project archive consists of the records relating to the programme of archaeological work, including written records, photographs, drawings and artefacts. The archaeological contractor(s) will ensure that the archive is fully catalogued, indexed, cross-referenced and checked for consistency.
- 1.6.51 The archive will be prepared in accordance with procedures outlined in relevant standards and guidance documents (*cf.* ClfA 2020c; Museums and Galleries Commission (MGC) 1992; Society of Museum Archaeologists (SMA) 1995; UKIC 1984) and any procedures adopted by the Oxfordshire County Museum Service. The archaeological contractor(s) will ensure that the archive is deposited with the Oxfordshire County Museum Service and that a storage grant is provided in line with the requirements of that Service.
- 1.6.52 The retained artefacts remain the property of the landowner with the exception of human remains and any artefacts that fall within the remit of the Treasure Act 1996. Subject to obtaining written consent from the landowner, the artefacts will be deposited with the Oxfordshire County Museum Service along with the rest of the archive. Arrangements for the finds to be viewed by the landowner will be made on request. Any Specification produced by the archaeological contractor will clearly state whether the landowner has agreed to transfer of title in respect of the retained artefacts.
- 1.6.53 No recovered finds will be discarded without the written consent of the recipient body. Selection and retention policy will be guided by the relevant standards and guidance documents (*cf.* CIfA 2020c, SMA 1993).
- The information regarding the results of the programme of archaeological work will be entered onto the relevant Online Access to the Index of Archaeological Investigations (OASIS) form and submitted to the OASIS database by the archaeological contractor(s). Electronic copies of any reports generated will be attached to the form.





- 1.6.55 GIS files will be submitted to the Oxfordshire HER in an appropriate format (such as ESRI, shapefile or MapInfo Tab). The files will include the areas of investigation and will accurately depict archaeological features (where present). These will be accurately tied to the British National Grid using the OSGB36 projected coordinate system.
- 1.6.56 The digital data will be submitted to the Archaeological Data Service (ADS) upon permission from the Applicant, subject to any dictated time embargoes.





1.7 References

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