



Graven Hill, Bicester

Outline Written Scheme of Investigation (Planning Application ref. 11/01494/OUT - Condition 71)

February 2016

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

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Comments				

The third issue takes into account comments by Richard Oram, Planning Archaeologist, Oxfordshire County Council.

Disclaimer

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1. Introduction

- 1.1. This specification for archaeological excavation and watching brief has been prepared by Waterman Infrastructure & Environment Ltd (Waterman) on behalf of Graven Hill Village Development Company Limited (hereafter referred to as the 'Applicant'). The Applicant has obtained outline planning permission for the:

'Redevelopment of former MOD sites including demolition of existing buildings, development of up to 1,900 homes; local centre to include a 2 form entry primary school (class D1), a community hall of 660sqm, five local shops or facilities to include A1, A2, A3, A5 and D1 uses totalling up to 1,358sqm, up to 1,000sqm gross A1 uses, a pub/restaurant/hotel (class A4/A3/C1) up to 1,000sqm and parking areas; employment floorspace comprising up to B1(a) 2160sqm, B1(b) 2400sqm, B1(c) and B2 20,520sqm and B8 uses up to 66,960sqm; creation of public open space and associated highway improvement works, sustainable urban drainage systems, biodiversity improvements, public transport improvements and services infrastructure. Erection of a 70,400sqm fulfilment centre on 'C' site and associated on site access improvement works, hardstanding, parking and circulation areas'

- 1.2. The parcel of land (hereafter referred to as the 'Site') covers an area of approximately 186 hectares (ha) and is located within the administrative boundary of Cherwell District Council (CDC).
- 1.3. The outline planning application was submitted in October 2011 (**11/01494/OUT**) and granted conditional consent in August 2014. The planning consent included four archaeology related conditions, of which Condition 71 is relevant for this specification.

Condition 71

- 1.4. *"Prior to any demolition and the commencement of the development at Graven Hill a professional archaeological organisation acceptable to the Local Planning Authority shall prepare an Archaeological Written Scheme of Investigation, relating to the Graven Hill application site area, which shall be submitted to and approved in writing by the Local Planning Authority.*

Reason - To safeguard the recording and inspection of matters of archaeological importance on the site in accordance with Government guidance contained within the National Planning Policy Framework."

- 1.5. In February 2015, an outline specification for archaeological investigation and mitigation was prepared for Land Transfer Area 1 (LTA1) in response to a requirement for an 'Archaeological Scheme of Investigation'. This outline Written Scheme of Investigation was prepared in line with a design brief issued by Richard Oram, Planning Archaeologist at Oxfordshire County Council (OCC) in their capacity as advisors to CDC in planning matters related to archaeology¹. This brief set out the first stage of the investigation, consisting of an archaeological field evaluation, which has been completed.
- 1.6. An addendum to the original outline Written Scheme of Investigation was also produced, setting out the details for an archaeological watching brief to be undertaken during ground intrusive works associated with the demolition of Rodney House, namely, the breaking out and removal of ground floor slab, and the removal and grub out of foundations for the same building.²

¹ Waterman Energy, Infrastructure and Environment Ltd, February 2015. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71*

² Waterman Infrastructure & Environment Ltd, February 2016. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71 - Addendum*

- 1.7. The results of these two initial evaluation stages of fieldwork were reported by Pre-Construct Archaeology in June 2015³ (watching brief over geotechnical ground investigation, undertaken between the 2nd and 16th March 2015), and by Oxford Archaeology in April 2016⁴ (trial trench evaluation – 57 trial trenches, undertaken between the 7th September and 20th November 2015) and in September 2016⁵ (watching brief over demolition of Rodney House ground floor slab and an additional 5 evaluation trenches, with the watching brief undertaken between the 24th and 25th February 2016, and the trial trenching between the 6th and 17th June 2016).
- 1.8. Although Condition 71 was discharged upon receipt of the initial outline Written Scheme of Investigation and Addendum, a further specification (Written Scheme of Investigation) is required to address the next stage in the programme of mitigation. This document sets out the additional (final) mitigation required in relation to Phase 1 of the development within LTA1.
- 1.9. This document provides an overview of the archaeological potential of this area – summarised from previous watching brief and evaluation reports. The following sections provide an overall scope and methodology for the investigations, and determine the archaeological contractor requirements.

³ Pre-Construct Archaeology, June 2015. *Gravenhill, Bicester, Oxfordshire – An Archaeological Watching Brief*

⁴ Oxford Archaeology, April 2016. *Bicester MoD, Gravenhill, Bicester, Oxfordshire – Evaluation Report*

⁵ Oxford Archaeology, September 2016. *Bicester MoD, Gravenhill, Bicester, Oxfordshire – Archaeological Watching Brief and Evaluation Report*

2. The Site

- 2.1. The Site is approximately 186 hectares (ha) in area, centred on Ordnance Survey Grid Reference SP 58863 20363.
- 2.2. The Site is located 1.5 km to the south of the centre of Bicester with the northern site boundary formed by the A41 and the boundary to the west being the main (Oxford to Bicester) railway line. Relatively flat agricultural land is located to the south, and the village of Ambrosden is located to the south-east.
- 2.3. Land around Graven Hill has been in use as a military depot since 1941-2 and so the Site is occupied by a number of large storage buildings arranged around the base of Gravenhill Wood. These are served by a local network of road and rail lines which surround Graven Hill Wood. The sloping ground which rises toward the wooded hilltop consists mainly of agricultural land, under a pasture regime.
- 2.4. A historic environment investigation by Amec, on behalf of the Defence Infrastructure Organisation, delivering a Historic Environment chapter in the Environmental Statement (ES), was submitted with the original planning application⁶. In it, the potential for the presence of heritage assets within the Site was demonstrated. The potential relates to the presence of sub-surface archaeological remains within limited parts of the Graven Hill Site, as suggested by the results of desk-based assessment and geophysical survey.
- 2.5. Further to Pre-Construct Archaeology undertaking a watching brief over an initial geotechnical ground investigation, Oxford Archaeology was commissioned by Graven Hill Village Development Company Limited to undertake further monitoring and a trial trench evaluation of the Land Transfer Area 1 (LTA1) within the greater development boundary at Graven Hill. A variety of positive results spanned the late Iron Age, Roman, Medieval and post-Medieval periods, as well as evidence associated with the historic use of the MoD site during WWII, indicating the varied potential of the Site.

Topography

- 2.6. The landform of the surrounding study area is predominantly flat, and generally at elevations of approximately 60 m to 65 m Above Ordnance Datum (AOD), rising gently to the north of Bicester. This flat landform is associated with the River Ray floodplain and small tributary streams which dominate the southern half of the study area around the Site. The Graven Hill landform at the centre of the Site rises to 115 m AOD, and is one of a series of isolated hills (Poundon Hill, Arncott Hill and Muswell Hill) which rise above the surrounding landscape. The majority of the developed part of the Site lies below 75 m AOD, closer to levels within the immediate surroundings.

Geology

- 2.7. The superficial (drift) geology was generally absent from the results of a Site Investigation carried out prior to submission of the planning application, however, deposits of alluvium (clay, silt and gravel), made ground and topsoil were all encountered during the initial watching brief over a geotechnical ground investigation. These deposits were underlain by clay layers with firm orange-brown mottled and brown-grey mottled, clay layers with occasional sand and gravel bands of fine gypsum crystals encountered at shallow depth. These layers were themselves underlain by a firm,

⁶ Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

brown, laminated, clay layer typically with highly weathered yellow chalk veins and fine gypsum crystals.

- 2.8. The bedrock (solid) geology comprised stiff grey laminated clay with shell fragments and occasional gypsum crystals and was believed to be part of the Peterborough Member (mudstone) of the Oxford Clay Formation. Beneath the Oxford Clay Formation, the Kellaways Sand and Kellaways Clay members of the Kellaways Formation, and the Cornbrash Formation (predominantly calcareous shelly mudstones and fossiliferous limestones) underlays the Kellaways Formation.

3. Archaeological Background

- 3.1. The archaeological background is summarised in the initial evaluation and watching brief specification⁷ and the abstracts from each of the three fieldwork reports to date are set out below, for ease of reference.

Pre-Construct Archaeology, June 2015. Gravenhill, Bicester, Oxfordshire – An Archaeological Watching Brief

“Pre-Construct Archaeology Limited (PCA) was commissioned by Waterman Energy, Environment & Design Limited to carry out an archaeological watching brief on geotechnical test pits being excavated on land at Graven Hill, MOD Bicester. The works were carried out between 2nd and 16th March 2015.

A total of 54 Test Pits were excavated from ground level down to a maximum depth of 3.0m below ground level.

The watching brief recorded naturally deposited clays sealed by subsoil deposits which in turn were sealed by relatively modern topsoil.

Variations to this sequence were seen particularly in the test pits towards the east and north-east of the study site, with two test pits having evidence for a stone surface and five that had evidence for a buried historic topsoil/agricultural horizon, all of which may be medieval in date.

There was no subsoil present towards the southern part of the study site, which is considered to be on the lower slope of Graven Hill.

No discreet and/or cut features or deposits were encountered during the watching brief.

No prehistoric or Roman material was collected during the excavation of the test pits.”

Oxford Archaeology, April 2016. Bicester MoD, Gravenhill, Bicester, Oxfordshire – Evaluation Report

“Oxford Archaeology was commissioned by Graven Hill Village Development Company Ltd to undertake the evaluation of the Land Transfer Area 1 (LTA1) within the greater development boundary at Graven Hill. This comprised the excavation of 55 evaluation trenches measuring 50m by 4m. The scope and arrangement of the trenches was agreed between the client's consultant archaeologist, Waterman Infrastructure and Environment Ltd, and the Planning Archaeologist for the Cherwell District. In the event two further trenches measuring 30m by 2m were added to the scope.

A variety of positive results were gained at five separate and distinct locations. These spanned the late Iron Age, Roman and medieval periods, indicating the varied potential of the site. The earliest significant find was a Neolithic polished flint axe fragment. This was recovered from a subsoil deposit within the western part of the evaluation area (Trench 3) although additional artefacts or features of this date were absent.

Late Iron Age activity was evidenced by a dispersed group of ditches and pits focused upon Trenches 21, 22 and 24. These remains appear to be moderately well preserved and entirely of pre Roman conquest origin. The related activity seems to be relatively sprawling with the features spread over a 100m long area around the lower slopes of Graven Hill. Further late Iron Age ditches were recorded to the north of Circular Road within Trenches 12 and 13.

⁷ Waterman Energy, Infrastructure and Environment Ltd, February 2015. Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71

Comparatively dense Roman remains were encountered within the northern part of the LTA1 adjacent to the current Rodney House building. Trenches 39-42 each produced a number of linear ditches, three of which produced moderate-large assemblages of pottery dated mid-late 2nd century. The relative sterility of several other ditches and the apparent phasing represented by intersections and recuts demonstrate a degree of longevity to the activity here. The ditch arrangements are suggestive of field boundaries or other small enclosures. It is possible that this activity or occupation may relate to a known building of some pretension beyond the LTA1 and development boundary to the WNW near to Langford Park Farm.

Further remains of likely Roman origin were investigated in the form of Akeman Street. This survives in the modern landscape as a hedge boundary aligned approximately east-west through the evaluation area. Historically the route of Akeman Street was defined by a double hedge line boundary enclosing a track. This route was investigated along its eastern extent within the evaluation boundary where the hedge lines had been removed, revealing a track or road surface constructed of limestone pieces set within a shallow terrace into the hill slope within Trenches 49, 58 and 59. No dating evidence was present although the absence of modern material suggests that the road surface was sealed by silting layers prior to the military occupation and use of the site.

Within the core of the LTA1 evaluation boundary Trenches 32 and 35 both produced evidence for medieval activity spanning the period 12th-14th century. It is unclear what the linear ditches represent in terms of activity or settlement, although the presence of domestic pottery and a buckle does suggest that some contemporary occupation may be located within the vicinity.”

Oxford Archaeology, September 2016. Bicester MoD, Gravenhill, Bicester, Oxfordshire – Archaeological Watching Brief and Evaluation Report

“Oxford Archaeology (OA) was commissioned by Graven Hill Village Development Company Ltd to undertake a watching brief and evaluation on separate occasions in 2016 at Graven Hill, Bicester, Oxfordshire. The watching brief was undertaken during the removal of the ground slab following the demolition of Rodney House during February. Subsequently, five additional targeted evaluation trenches were excavated in June to supplement the results of a primary evaluation stage undertaken by OA in September and November 2015.

No archaeological horizons were revealed during the removal of the ground slab with the demolition disturbance being limited to the underlying hardcore rubble layer.

From the evaluation phase, Trenches 60 and 61 produced inconclusive evidence for the extent of the archaeological features previously recorded in Trenches 32 and 35 during the 2015 investigation. Three shallow linear features were recorded in Trench 60, one of which produced a single sherd of Roman pottery. However, the remains did not provide more conclusive evidence for the extent or character of activity within this field.

The evaluation confirmed the presence of remains of Roman Akeman Street within Trenches 62 and 63. The sequence recorded within these was comparable to those of Trenches 49, 58 and 59 from the 2015 evaluation with a surface constructed of limestone pieces set within a shallow terrace into the slope of Graven Hill. A single sherd of Roman pottery was recovered from the surface in Trench 63.

Trench 64 was targeted on the shallow linear features of probable Iron Age date recorded within Trenches 12 and 13 from the 2015 evaluation. Excavation of an area measuring 25m by 25m revealed a more extensive arrangement of shallow curvilinear ditches and larger linear ditches dating from the late Iron Age.”

4. Scope of Archaeological Investigation

- 4.1. Given the archaeological potential and significance identified during the evaluation stages mentioned above, a number of areas of varying archaeological potential were identified for recording prior to commencement of development.
- 4.2. Figure WIC15119-112-SA-79-018-A01 in **Appendix A** depicts the extent of previous evaluation work (with the exception of the geophysical survey undertaken pre-planning), and Figure WIC15119-112-SA-79-019-A01 in **Appendix B** depicts the extent and general scope of the next stage of mitigation, which can be summarised as follows:
 - **Area A – Strip, map and record.** This area, in the northern slopes of Gravenhill Wood, was identified during the evaluation stage as having potential for late Iron Age activity, evidenced by a dispersed group of ditches and pits. These remains appeared to be moderately well preserved and entirely of pre Roman conquest origin. The area to which the strip, map and record applies coincides with the footprint of the development in this area, which is otherwise referred to as the Southern Crescent.
 - **Area B – Strip, map and record.** This area, to the south of Rodney House, was identified during the evaluation stage as having potential for relatively dense Roman activity, evidenced by a number of linear ditches, three of which produced moderate-large assemblages of pottery dated mid-late second century. The ditch arrangement and limited evidence of recuts did indicate an element of phasing being present suggesting a degree of longevity to the activity. The area to which the strip, map and record applies coincides with the footprint of a balancing pond and surrounding embankments.
 - **Area C – Strip, map and record.** This area, to the south-west of the former E3 hangar (now demolished), was identified during the evaluation stage as having potential for late Iron Age remains, evidenced in an arrangement of shallow curvilinear ditches and larger linear ditches. The area to which the strip, map and record applies coincides with an area of residential development, and future school playing fields.
 - **Area D – Strip, map and record.** This area, to the west of the former Garrison Theatre (now demolished), was identified during the evaluation stage as having potential for Medieval activity, although the nature of this was not fully established within the scope of the evaluation. The remains identified comprised linear ditches that produced small quantities of pottery dated from the twelfth to fourteenth centuries. The presence of domestic pottery and a buckle was interpreted as possible evidence for some contemporary occupation to be located within the vicinity.
 - **Southern Path – Watching brief.** The alignment of the Southern Path coincides with the alignment of the Akeman Roman road recorded in previous evaluation trial trenches. An archaeological watching brief shall be maintained where these two features intersect, in order to record the area of Roman road where the construction of the footpath may impact upon the buried remains below the level of the existing topsoil and turf.
 - **Road stripping – Watching brief.** Preliminary site preparation, consisting of a range of civil engineering works, including creating balancing pond and embankments, services diversions, stripping of new road network and ongoing ecological and landscape mitigation, shall be ongoing where possible, at the discretion of the Planning Archaeologist for OCC (Richard Oram) where these works entail ground intrusive elements. Although the scope may be altered at a later stage,

a number of roads which will be stripped during the initial site preparation works have been identified for archaeological watching brief, due to the archaeological potential and significance of features and finds recorded in these areas during the initial archaeological evaluation stages. Should the watching brief over these areas of road strip reveal significant archaeological remains, the watching brief shall cease, and the methodology adopted for mitigation in these areas shall be re-considered in consultation with OCC, and in principle, it shall default to the methodology set out for strip, map and recording, unless otherwise agreed in writing by the Planning Archaeologist for OCC.

Areas to be confirmed

- 4.3. At the time of writing, there are three areas for which the scope of the mitigation strategy has not yet been agreed, given that the detailed submissions for development in these areas are not yet available, and therefore the extent of development in these areas is not known.
- 4.4. These areas are marked in yellow and located at:
 - Rodney House (north);
 - Play Area and Hibernacula in woodlands to the east of the former Garrison Theatre, and;
 - area of Woodland Regeneration to the north-east of Gravenhill Wood.
- 4.5. A further specification shall be supplied by the Applicant for these areas, if necessary, once details of proposals are known.

5. Methodology

Strip, map and record – Areas A, B, C and D

- 5.1. Areas A, B, C and D have been defined for archaeological investigation ahead of the development construction based on the results of the evaluation stages and following discussions between Susana Parker for Waterman and Richard Oram for OCC. The limits of the excavation of Areas A and B are based on the construction impacts that will otherwise destroy these remains. It is unlikely that these areas will increase in size as those currently defined adequately cover the known archaeological remains and the full extent of the proposed development in these areas.
- 5.2. The final limit of the Area C excavation will be determined during the course of the site stripping. At this location the full extent of the remains is not currently known. Machine clearance of the overburden will primarily aim to reveal the extent of the significant activity here. Machine clearance will be completed in strips until the full extent of this activity within this field is defined. In the first instance Waterman and the archaeological contractor will use their experience and judgement to gauge at which point the full extent has been achieved, which will be determined in consultation with the Planning Archaeologist at OCC. A detailed scope of works will then be agreed in consultation with the Planning Archaeologist at OCC.
- 5.3. The extent of the medieval remains currently defined as Area D is also not fully known. The limits of this excavation area will similarly be defined through a combination of strip, map and record and through undertaking a watching brief on the removal topsoil prior to the road construction. Where significant remains are encountered in the watching brief areas, appropriate open area excavation will be undertaken through agreement between Waterman and the Planning Archaeologist (see Watching Brief method below).
- 5.4. For each excavation area all soil and overburden shall be removed by a mechanical excavator, fitted with a toothless bucket, operating under archaeological supervision. Machine stripping shall cease at the level that archaeological remains are revealed, or natural geology, whichever level is reached first. No machine movements across the stripped areas shall be permitted unless by prior agreement with the CDC (and OCC, their advisors).
- 5.5. The identification of archaeological features shall be made during all phases of machine stripping. Where necessary, areas shall be cleaned with hand tools to clearly define archaeological features and deposits. Once machining is complete, pre-excavation planning of remains shall be undertaken and used to inform the detailed excavation sampling strategy. This shall be discussed with the CDC (and OCC their advisors) at monitoring meetings. A copy of the pre-excavation plan shall be supplied to the CDC (and OCC their advisors), for each monitoring meeting and at suitable intervals thereafter where this has been updated during the course of the excavation.
- 5.6. All archaeological features and deposits of interest shall be investigated and recorded. Based on the results of the evaluation, it is likely that the most common types of archaeological features will be pits and ditches. Once these have been distinguished from natural features or geological anomalies, hand excavation shall be concentrated on these features. A sample of between 15% and 20% of all exposed linear features, no less than 1m wide and up to 2m wide, shall be fully excavated and recorded, however the excavation of ditches shall not seek to provide additional repetitive information that is unlikely to yield good quality interpretable data if the aims of the excavation have already been

achieved. Where it is proposed to excavate less than 15% of a linear feature, this will be discussed and agreed with OCC. Similarly, 50% of each exposed pit shall be excavated by hand, unless otherwise agreed by OCC. This is in order to sufficiently characterise and understand the archaeological remains.

- 5.7. Should features such as burials, wells or remains of buildings/structures be exposed, a methodology shall be agreed with OCC, as relevant to the remains and their condition, and all relevant licences shall be obtained by the archaeological contractor on behalf of the Applicant before proceeding. As set out above, pre-excavation planning of remains shall be undertaken and used as the framework for the detailed excavation and sampling strategy. Human remains will be 100% excavated. Where encountered, structures and associated features will be exposed fully in plan and the detailed excavation of these will use a combination of single and multi-context recording (section excavation) where deemed appropriate. Although not exclusively, the excavation of structures will normally include the 100% removal of occupation horizons and floor surfaces combined with an appropriate level of recording of the structure construction method.
- 5.8. All stratigraphic relationships between features and deposits shall be investigated and recorded.
- 5.9. Provision shall be made for taking environmental/organic samples where appropriate. The archaeological contractor has provided an environmental sampling statement in **Appendix D**.

Watching brief – Southern Path and Road Stripping

- 5.10. A watching brief will be undertaken on the road stripping within the zones of raised archaeological potential surrounding the excavation Areas A, C and D. The watching brief will provide an opportunity, if needed, for the archaeological contractor to signal, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated are not sufficient to support a treatment to a satisfactory and proper standard.
- 5.11. Should archaeological remains be exposed during the course of a watching brief, the default methodology to be applied shall be that set out above for strip, map and record/sample, otherwise agreed in writing with OCC. Where archaeological deposits are encountered that extend beyond the limit of the road construction, the investigation area will be appropriately extend to include the full extent of important remains. The application of this principle will be agreed on site, between Waterman, the archaeological contractor and OCC, in response to the quality and importance of the remains encountered and the likely impact of the development in these areas.

All Mitigation Areas

- 5.12. No formal mitigation areas, or areas within the watching brief agreed for strip, map and record, will be handed back to the developer until written confirmation of the sign off has been obtained.

6. Recording Systems

- 6.1. The recording system shall be compatible with Historic England (HE) and Chartered Institute for Archaeologists (CIfA) standards and guidance. The recording system shall also be compliant with other systems used in CDC/OCC. The recording system shall be based on single context planning as informed by the recording system adopted by the archaeological contractor (Oxford Archaeology). Pro-forma context sheets shall include all relevant stratigraphic relationships and for complex stratigraphy a separate matrix diagram shall be employed. The following plans and sections shall be prepared:
- an overall Site plan of the excavated area shall be prepared detailing archaeological deposits as well as the extent of the area relative to the National Grid on a 1:2,500 plan. An overall excavation plan shall be prepared at 1:100 scale, or as appropriate;
 - sections containing significant deposits, including half sections, shall be drawn as appropriate. Section drawing shall include heights Ordnance Datum (OD), where appropriate;
 - all archaeological plans and sections should be on drawing film and at a scale of 1:10 or 1:20 and should include context numbers and OD spot heights for all principal strata and features; and
 - an adequate photographic record of any significant archaeological remains is required, in both plan and section.

7. Finds and Samples

- 7.1. A high priority should be given to dating any remains and so all artefacts and finds are to be retained, where appropriate. Consideration shall also be given to the recovery of specialist samples for scientific analysis, particularly samples for absolute dating, structural materials and cultural / environmental evidence. Environmental samples shall be taken from suitable deposits and examined for carbonised remains, macroscopic plant remains, pollen, seeds, insect, molluscs. etc., where appropriate.
- 7.2. All finds and samples are to be treated in a proper manner to prevent deterioration. This shall involve cleaning and conservation where necessary and labelling, cataloguing and secure storage in appropriate containers.
- 7.3. The strategy for palaeo-environmental sampling on the Site and for processing and analysis of samples has been provided by the appointed archaeological contractor for this stage of work (Oxford Archaeology), and is included in **Appendix C**. This work shall accord with the minimum standard guidance provided by HE and the ClfA. The archaeological contractor shall carry out an assessment of the palaeo-environmental potential of the Site and shall submit this assessment in concise form in writing within the full post-excavation assessment report. The archaeological contractor is expected to seek the advice of a palaeo-environmental specialist in this regard.
- 7.4. The archaeological contractor shall demonstrate that arrangements are in hand to cover all necessary processing, conservation and specialist analysis of finds and samples, including if necessary, the conservation of organic and composite materials and dendrochronological and environmental analysis of samples.
- 7.5. Every effort should be made to ensure that finds analysis is consistent with existing local systems.

8. Monitoring and Access

- 8.1. CDC's archaeological advisors (OCC) and Waterman shall be allowed access to inspect the archaeological works to ensure that they are being conducted to the proper professional standards and in accordance with the agreed method statement.
- 8.2. To facilitate this, a projected timetable for Site work shall be agreed between Waterman, CDC's archaeological advisors (OCC), the Principal Contractor for the initial site preparation works (Careys), and the contracting archaeological organisation (Oxford Archaeology).
- 8.3. Safe access to the Site shall be granted to Waterman, the archaeological contractor, and CDC's archaeological advisors (OCC).
- 8.4. The Applicant shall notify OCC of the start of the works.

9. Health and Safety

- 9.1. The archaeological contractor shall comply with the requirements of the Health & Safety at Work Act. The archaeological contractor shall prepare a Risk Assessment for the Site in accordance with the organisation's health and safety policy. Health and safety shall take priority over archaeological matters. All archaeologists undertaking fieldwork shall comply with all relevant Health and Safety Legislation. In particular, machinery shall be kept away from unsupported trench / excavation edges and public access should be restricted. Barriers, hoardings and warning notices should be installed as appropriate. Safety helmets and other applicable Personal Protective Equipment (PPE) shall be used by all personnel as necessary.
- 9.2. Available reports and drawings pertaining to ground conditions and services shall be provided to the archaeological contractor, however, any further information deemed necessary shall be obtained by the archaeological contractor prior to intrusive works commencing. In addition to written records excavation areas shall be checked and cleared for services using a CAT scanner. The Principal Contractor (Careys) shall be responsible for any damage and repairs to site services and any associated business interruption.
- 9.3. Spoil shall be kept at a safe distance from any excavation edges. The location of the spoil heap/s may be within the Site or spoil may be removed off-site immediately.
- 9.4. No existing rights of way or accesses shall be blocked during the course of Site work. No trees or protected species shall be harmed by Site works. Adjacent public roads shall be kept free of mud and spoil.
- 9.5. To ensure wildlife legislation is adhered to, this Written Scheme of Investigation shall be read in conjunction with the method statement(s) for ecological mitigation, where they exist, and any areas of overlap shall need to be considered in terms of both ecological and archaeological works proposed, with a view of establishing a programme of works which complies with both methodologies. Should a protected species be identified, works shall stop and an ecologist consulted for advice (Waterman are the appointed ecological consultant.)
- 9.6. If works are undertaken in the vicinity of any trees, trees shall be adequately protected as detailed in BS 5837-2012: Trees in relation to design, demolition and construction. Should any conflict arise, works shall stop and an arboriculture specialist shall be consulted for advice. (Waterman are the appointed arboriculture consultant.)
- 9.7. There is a potential for intrusive works to expose unforeseen contamination at the Site, such as asbestos containing materials (ACMs). The Principal Contractor (Careys) shall detail adequate control measures within their method statements should unforeseen contamination be encountered.
- 9.8. Careys is the Principal Contractor for the initial site preparation civil engineering works, and shall control all aspects of the Safe System of Work for the site through their Construction Phase Plan (CPP). A Risk Assessment, supplementary to the CPP, which covers all risks associated with the archaeological contractor's activities on site, shall be provided by the appointed archaeological contractor for this phase of work (Oxford Archaeology). The archaeological contractor's Risk Assessment shall also consider hazards posed by the activities of other contractors on site, where those hazards might pose a risk to employees of the archaeological contractor.

- 9.9. All work shall be carried out in compliance with the Health and Safety requirements of the Principal Contractor (Careys).

10. Post – Excavation and Reporting

- 10.1. The archive shall be prepared and a post-excavation assessment undertaken immediately after the Site works have been completed, and shall be completed within 12 months of completion of site works. This shall be prepared in accordance with the specification given in *Management of Research Projects in the Historic Environment*⁸ and MoRPHE (applicable Technical Guides and Project Planning Notes).⁹
- 10.2. Each category of finds shall be assessed by specialist staff and recommendations prepared for a further study should this be required by OCC. All artefacts and ecofacts shall be processed in accordance with standard practice. No artefacts, ecofacts or environmental samples shall be discarded without written permission from OCC.
- 10.3. The draft Post-Excavation Assessment shall be submitted by the archaeological contractor. to Waterman for verification and approval. It shall be the property of the Applicant and shall represent a confidential document. Waterman shall be responsible for submitting the draft report to OCC for comment prior to final approval.
- 10.4. Once the Post-Excavation Assessment is finalised, a hard copy of the Final Report shall be submitted by the archaeological contractor to a suitable archive. An e-copy, as a pdf, shall be submitted to OCC for inclusion in the Historic Environment Records (HER). GIS (shape) files of the final phased excavated site plan should be provided to the office of the County Archaeological Officer. In addition, the photographic record of the works shall be made available to the National Monuments Record (NMR) prior to archiving in order to enable selection of suitable materials for copying for inclusion into the HER. Once submitted, the Final Report shall become a public document.
- 10.5. Provision shall be made for an appropriate level of publication of the results of the evaluation. A summary report shall be prepared by the archaeological contractor and submitted for publication in the relevant local journal. Additional publication requirements shall be agreed with the CDC's archaeological advisors (OCC).
- 10.6. The report should include, as appropriate:
 - a review of the aims and methods used in the watching brief and strip, map and record areas;
 - a table summarising the descriptive text showing the features, classes and numbers of artefacts and their interpretation;
 - artefact analysis to include the production of a descriptive catalogue with finds critical for dating and interpretation illustrated;
 - illustrations including Site and excavation area plans at suitable scales and general and detailed photographs;
 - the nature, extent, date, condition and significance of the archaeological and environmental material uncovered with specialist opinions and parallels from other sites in the area;
 - an interpretation of the results should be produced and attention should be given to the significance of the remains in local, regional and national terms, if appropriate; and
 - a reconsideration of the methodology used, including a confidence rating of the strategy and the results.

⁸ Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

⁹ Available from <https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/>

- 10.7. The archaeological contractor shall also input details of the project to the online database maintained by the Online Access to the Index of Archaeological Investigations (OASIS) Project at the following internet site: <http://www.ads.ahds.ac.uk/project/oasis>.

11. Archiving

- 11.1. The Site archive, which comprises records of the watching brief and excavation areas, and any materials recovered, including written elements, plans and drawings, photographic prints and transparencies (where appropriate) and other primary data recovered during the investigation, shall be quantified, ordered, indexed and made internally consistent. It shall also contain, as a minimum requirement, a Site matrix, Site summary (a short report giving a preliminary account of the discoveries) and brief written observations on the artefactual and environmental data.
- 11.2. The Site archive will also include a summary of all archaeological investigations and mitigation for the Site, incorporating the results of all final assessment and analysis reports, and thereby providing an integrated record.
- 11.3. Work on the Site archive shall be completed by the archaeological contractor within twelve calendar months of completion of the archaeological field investigation. Upon completion of the Site archive the archaeological contractor shall arrange a meeting with OCC to present the archive for inspection prior to its deposition in an appropriate museum. Oxfordshire has a working repository at the County Museum Store at Standlake. The archive shall be deposited there.
- 11.4. All artefacts (e.g. pottery, metalwork, objects in worked flint and stone, wood, bone, horn and leather, slag) and ecofacts (organic finds such as bones, preserved ancient plant remains, seeds, pollen and charcoal, soil samples) recovered during the archaeological investigation shall be made available to the archaeological contractor pending completion of the excavation report, to be stored during the course of the archaeological investigation at the archaeological contractor's secure offices or usual place of secure storage of archaeological finds.
- 11.5. All artefacts recovered during the archaeological investigation shall be suitably washed (where the condition of the artefacts allows) and marked by the archaeological contractor and all artefacts and ecofacts bagged and boxed by the archaeological contractor, in accordance with current United Kingdom Institute for Conservation (UKIC) / RESCUE publication First Aid for Finds (3rd. ed. 1998). All 'small finds' shall be boxed together, separate from bulk finds.
- 11.6. In preparing cost estimates for the archaeological investigation, the archaeological contractor shall include provision for at least a basic minimum level of conservation of finds liable to deterioration after excavation.
- 11.7. Subject to the legislation of the Treasure Act 1996, all artefacts and ecofacts unearthed from the investigation and all other elements of the Site archive (as defined in *Management of Research Projects in the Historic Environment*¹⁰) should be deposited by the archaeological contractor in an appropriate public museum registered or provisionally registered by the Museums and Galleries Commission and acceptable to OCC. No artefacts or ecofacts from the Site shall be deposited in the relevant depository without the prior written consent of the landowner. Should the land owner be unwilling to deposit the archive with the chosen archive, a full photographic and drawn survey shall be made of all artefacts and elements being withheld.
- 11.8. In the absence of an appropriate archive, provision shall be made by the archaeological contractor for retaining the project archive until such time as a suitable depository is available and arrangements have been made for the transfer of the archive.

¹⁰ Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

- 11.9. The archaeological contractor shall ensure that the Collections Manager is notified and liaised with at an early stage. It is the responsibility of the archaeological contractor to meet the local museum's reasonable requirements with regard to the preparation of archives for deposition.
- 11.10. Provision shall be made for the payment of a 'deposit grant' at the time of archive transfer towards the costs of archive curation in perpetuity. The rates and requirements currently employed by archive stores elsewhere in the country and by the chosen museum for its archive store shall be used for guidance.
- 11.11. Prior to the deposition of finds in the recipient museum, the archaeological contractor shall agree with that museum the sample or quantity of bulk finds (pottery, animal and (if appropriate) human bone, other ecofactual material, building material, burnt flint, worked flint and stone) to be deposited.
- 11.12. All excavated artefacts and ecofacts and all other elements of the Site archive should be delivered by the archaeological contractor to the recipient museum as one deposit, and written confirmation of this shall be provided to CDC's advisor. Where this arrangement is not practicable lists shall be submitted by the archaeological contractor to the recipient museum of objects not deposited, together with information as to the quantity involved and their current location, reasons why items have not been deposited and a timetable for their ultimate deposition.
- 11.13. The archaeological contractor shall contact the recipient museum prior to preparing cost estimates for the work in order to discuss any special requirements for the deposition of finds.
- 11.14. Subject to the resources available and to discussion with the recipient museum, all articles needing conservation shall be properly stabilised by the archaeological contractor prior to their deposition at the recipient museum and records of their treatment lodged with the museum. Those items for which available resources do not permit stabilisation shall be separately packed and listed by the archaeological contractor.
- 11.15. Prior to commencement of the archaeological investigations the archaeological contractor shall obtain from the recipient museum an accession number(s) for excavated artefacts and ecofacts from the project and any guidelines regarding deposition of such artefacts and ecofacts specific to the recipient museum.
- 11.16. All finds, save those specifically excluded by the recipient museum or excluded on grounds of size/material, shall be marked by the archaeological contractor with the recipient museum's accession number.
- 11.17. Artefacts and ecofacts deposited by the archaeological contractor in the recipient museum shall be accompanied by the remainder of the original Site archive or by a complete duplicate record thereof. A microfiched security copy of the Site archive should also be supplied by the archaeological contractor to the recipient museum.
- 11.18. Subject to the agreement of the landowner, all artefacts and ecofacts recovered from the archaeological excavations shall be deposited by the archaeological contractor within the recipient museum within five years from the date of completion of the investigation.
- 11.19. Copyright of the written, drawn and photographic elements of the Site archive shall be vested jointly with the archaeological contractor and the recipient museum.
- 11.20. The following documents should be adhered to:
- Standards in the Museum Care of Archaeological Collections¹¹;

¹¹ Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections*

- Management of Research Projects in the Historic Environment¹²; and
- MoRPHE (applicable Technical Guides and Project Planning Notes).¹³

¹² Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

¹³ Available from <https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/>

12. Requirements of the Archaeological Contractor

General

- 12.1. The appointed archaeological contractor for this phase of work (Oxford Archaeology) has provided Waterman with a detailed method statement for undertaking the archaeological investigations, which is presented above, and shall require approval from the CDC's archaeological advisors (OCC), as required. This shall include all fieldwork and post-excavation work including archiving.
- 12.2. The archaeological contractor has also provided a brief career profile of the Site supervisor which demonstrates his / her suitability for undertaking the work.
- 12.3. A full cost estimate for the fieldwork, post-excavation and archiving has been provided to Waterman's Project Archaeologist.
- 12.4. The requirements of this Written Scheme of Investigation shall be met in full where reasonably practicable.
- 12.5. Any variations to this Written Scheme of Investigation shall be agreed with OCC in advance.
- 12.6. The scope of work detailed in the main part of the specification is aimed at meeting the aims of the project in a cost-effective manner. Waterman attempts to foresee possible site-specific problems and resource these. However, there may be unusual circumstances which have not been included in the costing and programme, such as:
 - unavoidable delays due to extreme bad weather;
 - vandalism; and
 - complex structures or objects, including those in waterlogged conditions, requiring specialist removal.

Insurance

- 12.7. The archaeological contractor shall hold Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details will be supplied on request.
- 12.8. Waterman and the archaeological contractor shall not be liable to indemnify the Client against any compensation or damages for or with respect to:
 - damage to crops being on the Area or Areas of Work (save in so far as possession has not been given to the archaeological contractor);
 - the use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project. Interference whether temporary or permanent with any right of way, light, air or water or other easement or *quasi* easement which are unavoidable result of the Project in accordance with the Agreement;
 - any other damage which is the unavoidable result of the Project in accordance with the Agreement; and
 - injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the Client or his agents, servants or their contractors (not being

employed by Waterman) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.

Copyright and Confidentiality

- 12.9. Waterman and the archaeological contractor shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the Client in all matters directly relating to the project as described in this WSI.
- 12.10. Waterman and the archaeological contractor shall assign copyright to the Client upon written request but retains the right to be identified as an author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV. S.79).
- 12.11. Waterman shall advise the Client of any such materials supplied in the course of projects that are not Waterman's or the archaeological contractor's copyright.
- 12.12. Waterman undertakes to respect all requirements for confidentiality about the Client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. Waterman further undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect Waterman's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

Standards and Procedures

- 12.13. Waterman and the archaeological contractor shall conform to the standards of professional conduct outlined in the ClfA Code of Conduct, the ClfA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, the ClfA Standards and Guidance for Field Evaluations, Desk Based Assessment, etc. and the British Archaeologists and Developers Liaison Group Code of Practice.
- 12.14. Project Supervisors shall be recognised in an appropriate Area of Competence by the ClfA.

13. References and Sources

Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections*

Oxford Archaeology, April 2016. *Bicester MoD, Gravenhill, Bicester, Oxfordshire – Evaluation Report*

Oxford Archaeology, September 2016. *Bicester MoD, Gravenhill, Bicester, Oxfordshire – Archaeological Watching Brief and Evaluation Report*

Pre-Construct Archaeology, June 2015. *Gravenhill, Bicester, Oxfordshire – An Archaeological Watching Brief*

Waterman Energy, Infrastructure and Environment Ltd, February 2015. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71*

Waterman Infrastructure & Environment Ltd, February 2016. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71 - Addendum*

APPENDICES

A. Figure WIC15119-112-SA-79-018-A01 - LTA1 Evaluation



B. Figure WIC15119-112-SA-79-019-A01 – Phase 1 Final Mitigation Strategy

Appendices

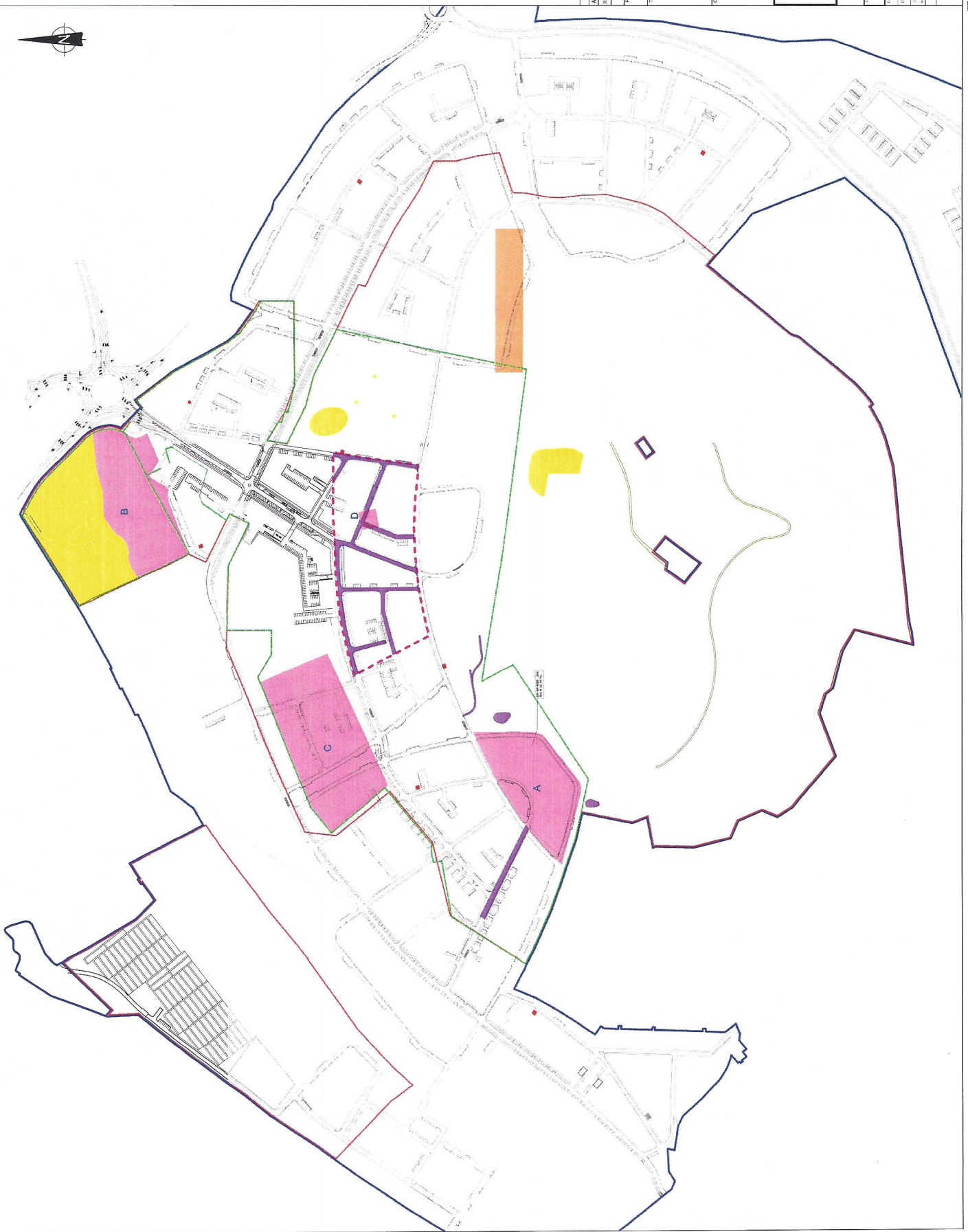
Graven Hill, Bicester

Project Number: WIE11386-112

Document Reference: WIE11386-112-S-4-3-1-WSI Phase 1

KEY

- SITE BOUNDARY
- LIA 1 BOUNDARY
- PHASE 1a BOUNDARY
- TO BE CONFIRMED
- STRIP-MAP AND-RECORD
- WATCHING BRIEF
- COMMUNITY ARCHAEOLOGY PROJECT
- PREVIOUS TIAL TRENCHING
- FORMER THEATRE FIELD



Rev	Date	Description	By
A01	22/02/17	PLANNING ISSUE	DD

Project
GRAVEN HILL, BICESTER

Phase
PHASE 1

Title
FINAL MITIGATION STRATEGY



Graven Hill Village Development Company Limited



Waterman House, Watling Road, Bicester, OX1 0BN

PLANNING			
SP	SP	SP	SP
WIC16119	WIC16119	WIC16119	WIC16119
DD	DD	DD	DD
FEB 17	FEB 17	FEB 17	FEB 17
1200	1200	1200	1200
SA	SA	SA	SA
79	79	79	79
019	019	019	019
A01	A01	A01	A01

DATE: 15/02/2017 14:00:00

C. Environmental Sampling Strategy (by Oxford Archaeology)

“Archaeological remains from a variety of periods have been identified at Graven Hill by the evaluation undertaken by OA. These include Iron Age, Roman and medieval features largely comprising ditches and pits. Provision has been made for appropriate levels of environmental sampling to be included during the excavation phase of each identified site. The detailed sampling strategies for each investigation area will be advised by OA’s senior Environmental Manager (Rebecca Nicholson) through discussion with the OA Project Supervisor (Jim Mumford) and Project Manager (Steve Lawrence), in consultation with the Planning Archaeologist at OCC, following the machine clearance of the overburden deposits and the production of a pre-excavation plan. The sampling strategies will reflect the significance and type of features and deposits encountered and will avoid the sampling of deposits that are unlikely to provide useful interpretable information. The sampling strategies will also be consistent with company sampling policy and guidelines provided by the local authority and national bodies (see OA Standard Fieldwork Methodology Appendix C - below).

Detailed sampling for charred plant remains (CPR) will seek to address period-specific research questions with reference to the Regional Research Agendas for the Solent-Thames (Hey and Hind 2014). Sample locations will target datable deposits of clear interpretable value. These will include, but are not limited to, dumped deposits, deposits associated with a clear event or activity such as crop processing, deposits associated with hearths or ovens, floor surfaces within buildings, other deposits noted as being rich in CPR and any features of earlier prehistoric date. Generally, features such as field boundary ditches that are distant from identified occupation areas with limited dating evidence and which only display silting fill sequences lacking clear CPR inclusions are unsuited for bulk sampling as these are unlikely to provide useful interpretable charred material. However, where activities such as crop processing are evident, a sampling strategy including the surrounding ditches may prove useful. Such instances will be considered on merit once identified during the fieldwork.

Environmental sampling will also target anaerobically preserved organic deposits where these are encountered as these deposits may contain waterlogged plant remains (WPR) and insects. Whilst still important for identifying the initial association of such deposits with contemporary remains, associated artefact assemblages are less essential here and radiocarbon dating may be used where the deposits are reasonably expected to be earlier than post-medieval origin. Waterlogged deposits can provide both local and wider context habitat information that the archaeological remains can be set against. The potential for encountering such deposits is limited based upon the evaluation data. However, it would not be unreasonable to expect the presence of a well or waterhole in association with remains of the periods represented. The presence of a large pond close to the medieval remains is also noted and this may provide a useful source if waterlogged deposits are present that predate the post-medieval period. Both bulk samples for plant and insect remains and column samples for pollen analysis may be recovered if the sediment sequences encountered in waterlogged features are suitable and sufficiently well-preserved.

To design, advise and implement detailed period and site specific strategies, the primary field results will be first discussed between OA’s project and environmental managers. The environmental manager will visit each site on an as needed basis such as where the remains include or comprise waterlogged features, occupation (structures with hearths etc.), or crop processing activities.”

Appendices

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D. OA Standard Fieldwork Methodology

Appendices

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Document Reference: WIE11386-112-S-4-3-1-WSI Phase 1

OA STANDARD FIELDWORK METHODOLOGY APPENDICES

The following methods and terms will apply, where appropriate, to all OA fieldwork unless varied by the accompanying detailed Written Scheme of Investigation.

Copies of all OA internal standards and guidelines referred to below are available on request.

APPENDIX A GENERAL EXCAVATION AND RECORDING METHODOLOGY

A.1 Standard methodology – summary

Mechanical excavation

- A.1.1 An appropriate mechanical excavator will be used for machine excavation. This will normally be a JCB or 360° tracked excavator with a 1.5 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator will be used.
- A.1.2 All mechanical excavation will be undertaken under direct archaeological supervision.
- A.1.3 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.
- A.1.4 Following mechanical excavation, all areas that require examination or recording will be cleaned using appropriate hand tools.
- A.1.5 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.
- A.1.6 After recording, evaluation trenches and test pits will usually be backfilled with excavated material in reverse order of excavation, and compacted as far as is practicable with the mechanical excavator. Area excavations will not normally be backfilled.

Hand excavation

- A.1.7 All investigation of archaeological levels will usually be by hand, with cleaning, examination and recording both in plan and section.
- A.1.8 Within significant archaeological levels the minimum number and proportion of features required to meet the aims of the excavation will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be subject to 100% hand excavation.
- A.1.9 In the case of evaluations, it is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

Recording

- A.1.10 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.
- A.1.11 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.
- A.1.12 Plans will normally be drawn at 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Detailed plans will be at an appropriate scale. Burials will be drawn at scale 1:10 or recorded using geo-referenced digital photography.
- A.1.13 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.
- A.1.14 A register of plans will be kept.
- A.1.15 Long sections of showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.
- A.1.16 A register of sections will be kept.
- A.1.17 Generally, all sections will be tied in to Ordnance Datum.
- A.1.18 A full photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work.
- A.1.19 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

- A.1.20 The Institute for Archaeologists' Standard and Guidance notes relevant to fieldwork are:
- Standard and Guidance for Field Evaluation
 - Standard and Guidance for Excavation
 - Standard and Guidance for an Archaeological Watching Brief.
- A.1.21 These will be adhered to at all times.

A.3 Relevant OA manual and other supporting documentation

- A.3.1 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming).
- A.3.2 Further guidance is provided to all excavators in the form of the OA 'Fieldwork Crib Sheets - a companion guide to the Fieldwork Manual'. These have been issued ahead of formal publication of the revised Fieldwork Manual.

APPENDIX B GEOMATICS AND SURVEY

B.1 Standard methodology - summary

- B.1.1 The aim of OA methodology is to provide comprehensive survey cover of all investigation areas. Additionally, it is designed to provide coverage for any areas, beyond the original scope of the project, which arise as a result of further work. It provides digital plans of all required elements of the project and locates them within an overall grid.
- B.1.2 It also maintains all necessary survey data and ensures that the relevant information is copied into the primary record, in order to ensure the integrity of the project archive. Furthermore, it ensures that all core data is securely stored and backed up. It establishes accurate project reference systems utilising a series of control stations and permanent base lines.
- B.1.3 The survey will be conducted using a combination of Total Station Theodolite (TST) survey utilising Reflectorless Electronic Distance Measurement (REDM) where appropriate, hand-measured elements and GPS (Global Positioning System).
- B.1.4 Before the main work commences, a network of control stations will be laid out encompassing the area. Control stations will be tied in to known points or existing features using rigorous metric observation. The control network will be set in using a TST to complete a traverse or using techniques as appropriate to ensure sufficient accuracy. A GPS, or other appropriate method, will be used to orientate the control network to National Grid or other recognised coordinate system.
- B.1.5 All control stations will be checked by closed traverse and/or GPS, as appropriate. The accuracy of these control stations will be accessed on a regular basis and re-established accordingly. All stations will be recorded on Survey Control Station sheets.
- B.1.6 Each control station will be marked with a PGM (Permanent Ground Marker). Witness diagrams will include the full 3-D co-ordinates generated, a sketch diagram and measurements to at least three fixed details, written description of the mark and a photograph of the control point in its environs.
- B.1.7 Prior to entry into the field all equipment will be checked, and all pre-survey information will be logged onto the field computer and uploaded onto survey equipment as appropriate. The software in the field computer will be verified and all cabling between the GPS and/or TST and computer will be checked. Prior to conducting the survey, the site will be reconnoitred for locations for a viable control network and check the line of sight and any possible hindrance to survey. Daily record sheets will be kept to record daily tasks and conditions.
- B.1.8 All spatial data will be periodically downloaded onto a field computer, and backed up onto CD, or DVD. It will be cleaned, validated and inspected.
- B.1.9 All survey data will be documented on daily survey record sheets. Information entered on these sheets includes key set up information (Instrument height etc.) as well as daily variables and errors/comments. All survey data will be digitally recorded in a raw format and translated during the download process this shall allow for any errors to be cross referenced with the daily survey record and corrected accordingly.

- B.1.10** A weekly summary of survey work will be produced to access development and highlight problems. This information also will be recorded on the weekly survey journal. Technical support for the survey equipment and download software shall be available at all times. In those instances, where sites are remotely operated, all digital data will be backed up regularly and a copy returned to Oxford on a weekly basis.
- B.1.11** A site plan will initially be created by a rapid survey of relevant archaeological features by mapping their extent using a combination of TST and GPS. This will form the basis for deciding excavation strategy and will be updated as the excavation clarifies the extent of, and relationships between, archaeological features.
- B.1.12** Excavated archaeological interventions and areas of complex stratigraphy will be hand drawn. At least two Drawing Points (DPs) will be set in as a baseline and measurements taken off this by tape and offset. The hand drawn plans will be referenced to the digitally captured pre-site plan by measuring in the DPs with a TST or GPS. These hand drawn elements will then be scanned in, geo-referenced using the DPs as reference points and digitised following OA's digitising protocols. For further details on hand planning procedure please refer to the fieldwork guidelines.
- B.1.13** Where appropriate rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for rectified photography.
- B.1.14** Survey data recorded in the field will be downloaded using appropriate downloading software, and saved as an AutoCAD Map DWG file, or an ESRI Shapefile. These files will be regularly updated and backed up with originals being stored on an OA server in Oxford.
- B.1.15** All drawings will be composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols. Once created, additional GIS/CAD work will normally be carried out at the local OA central office or at on-site remote locations when appropriate. Support for all GIS/CAD work will be available from OA's Oxford Office during normal office hours. The aim of the GIS/CAD work is to produce workable draft plans, which can be produced as stand-alone products, or can be readily converted to GIS format. Any hand-drawn plans will be scanned and digitised on site in the first instance. Subsequent plans will be added to the main drawing as it develops.
- B.1.16** All plan scans will be numbered according to their plan site number. Digital plans will be given a standard new plan number taken out from the site plan index.
- B.1.17** All digital data will be backed up incrementally on CD or DVD. On each Friday the entire data directory will be backed up and returned to Oxford where it will be copied onto the OA projects server. Each CAD drawing will contain an information layout which will include all the relevant details appertaining to that drawing. Information (metadata) on all other digital files will be created and stored as appropriate. At the end of the survey all raw measurements will be made available as hard copy for archiving purposes.

B.2 Relevant industry standards and guidelines

- B.2.1** English Heritage (2009), Metric Survey Specifications for Cultural Heritage

- B.2.2 English Heritage (2006), Understanding Historic Buildings A Guide to Good Practise
- B.2.3 English Heritage, (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording practise

B.3 Relevant OA manual and other supporting documentation

- B.3.1 OA South Metric Survey, Data Capture and Download Procedures
- B.3.2 OA South Digitising Protocols
- B.3.3 OA South GIS Protocols
- B.3.4 These will be superseded by the OA South Geomatics Manual (in progress).

APPENDIX C ENVIRONMENTAL EVIDENCE

C.1 Standard methodology – summary

- C.1.1** Different environmental and geoarchaeological sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by English Heritage and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (e.g. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.
- C.1.2** Geoarchaeological sampling methods are site specific, and methodologies will be designed in consultation with the geoarchaeological manager on a site by site basis.
- C.1.3** Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.
- C.1.4** Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

C.2 Relevant industry standards and guidelines

- C.2.1** English Heritage 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.
- C.2.2** English Heritage 2001. Archaeometallurgy. Centre for Archaeology Guidelines 2001.01.

- C.2.3 English Heritage 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)
- C.2.4 English Heritage 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.
- C.2.5 English Heritage 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.
- C.2.6 Historic England 2015. Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.
- C.2.7 English Heritage 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.
- C.2.8 English Heritage 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.
- C.2.9 English Heritage 2014. Animal Bones and Archaeology. Guidelines for Best Practice.
- C.3 Relevant OA manual and other supporting documentation**
- C.3.1 Oxford Archaeology 2005. Environmental Sampling Guidelines, 2nd ed.

APPENDIX D ARTEFACTUAL EVIDENCE

D.1 Standard methodology - summary

- D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Head of Finds. Information will be provided by the project manager about the nature of the site, the expected size and make-up of the finds assemblage and any site specific finds retrieval strategies. On-site requirements will be discussed and a conservator appointed who can be called on to make site visits if required. Special requirements regarding particular categories of material will be raised at this early stage for instance the likelihood of recovering assemblages of waterlogged material, large timbers, quantities of structural stone or ceramic building material. Specialists may be required to visit sites to discuss retrieval strategies.
- D.1.2 The project manager will supply the Head of Finds with contact details of the landowner of the site so that consent to deposit any finds resulting from the investigation can be sought.
- D.1.3 The on-site retrieval, lifting and short term packaging of bulk and small finds will follow the detailed guidelines set out in the OA Finds Manual (sections 2 and 3), First Aid for Finds and the UKIC conservation guidelines No.2.
- D.1.4 All finds recovered from site will be transported to an OA regional office for processing; local sites will return finds at the end of each day, away based sites at the end of each week. Special arrangements can be discussed for certain sites with the department manager before the start of a project. Larger long running sites may in some instances set up on-site processing units to deal with the material from a particular site.
- D.1.5 All finds qualifying as Treasure will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act (1996), and the Treasure (Designation) Order 2002. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.
- D.1.6 Each box of finds will be accompanied by a finds context checklist itemising the finds within each box. The number of bags of finds from each context and individual small find from each context will be recorded. A member of the processing team will check the list when it arrives in the department. There are separate forms for finds recovered from fieldwalking.
- D.1.7 The processing programme is reviewed on a weekly basis and priorities are worked out after discussions with the Head of Fieldwork and the Head of Post-excavation. Project managers will keep the Head of Finds informed of any pressing deadlines that they are aware of. All finds from evaluations are dealt with as a matter of priority.
- D.1.8 All bulk finds are washed (where appropriate), marked, bagged and boxed by the processing team according to the guidelines set out in section 4 and 5 of the OA Finds Manual, First-aid for finds and the UKIC guidelines No.2. They must also take into account the requirements of the receiving museum. Primary data recording count and weight of fragments by material from each context is recorded on the site database.

- D.1.9** Unstable and sensitive objects are recorded onto the database and then packaged and stored in controlled environments according to their individual requirements. The advice of a conservator will be sought for sensitive objects in need of urgent conservation. All metalwork will be x-rayed prior to assessment (and to meet the requirements of most receiving museums).
- D.1.10** Finds recovered from the environmental sample processing will be incorporated into the main assemblage and added to the database.
- D.1.11** On completion of the processing and data entry a finds file for each archaeological investigation will be produced, a summary of which is available for the project manager. The assemblage is allocated an OA number for storage purposes. Bulk finds are stored on a roller racking system, metals in a secure controlled storage and organic finds are refrigerated where possible.
- D.1.12** The movement of finds in and out of the department storage areas is strictly monitored and recorded. Carbon copy transit forms exist to record this information. Finds will not be removed from storage without the prior knowledge of the Head of Finds.
- D.1.13** Finds information summarised in the finds compendium is used to assess the finds requirements for the post excavation stages of the project. The Finds department holds a list of all specialists used by OA (see below) both internal and external.
- D.1.14** On completion of the post excavation stage of the project the department prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the head of finds to finalise any selection, retention or discard policy. Most museums issue strict guidelines for the preparation of archives for deposition with their individual labelling, packaging and recording requirements.

D.2 Relevant industry standards and guidelines

- D.2.1** UKIC, 1983, Packaging and Storage of Freshly-Excavated Artefacts from Archaeological Sites. Conservation Guidelines No.2. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.2** UKIC, 1988, Excavated Artefacts and Conservation: UK sites Revised Edition. Conservation Guidelines No.1. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.3** Society of Museum Archaeologists, 1993, Selection, retention and dispersal of Archaeological Collections. Download available via <http://www.socmusarch.org.uk/publica.htm>
- D.2.4** Watkinson, D E & Neal, V, 1998, First Aid for Finds (3rd edition). RESCUE & UKIC

D.3 Relevant OA manual and other supporting documentation

- D.3.1** Allen, L, and Cropper, C (internal publication only) Oxford Archaeology Finds Manual.

APPENDIX E HUMAN REMAINS

E.1 Standard methodology - summary

- E.1.1 Human remains will not be excavated without a relevant licence/faculty and, where applicable (for example, a post medieval cemetery), a risk assessment from the local environmental officer.
- E.1.2 All human remains will be treated with due care and regard to the sensitivities involved, and will be screened from the public throughout the course of the works.
- E.1.3 Excavation will be undertaken in accordance with ClfA (Roberts and McKinley 1993) and English Heritage and The Church of England guidelines (Mays 2005). For crypts and post-medieval burials, the recommendations set out by the ClfA (Cox 2001) and by the Association of Diocesan and Cathedral Archaeologists and APABE (2010) are also relevant.
- E.1.4 In accordance with recommendations set out in the English Heritage and Church of England (2005) document Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England, skeletons will not be excavated beyond the limits of the trench, unless they are deemed osteologically or archaeologically important.
- E.1.5 Where any soft tissue survives and/or materials (for example, inner coffins, mattresses and other paddings) soaked in body liquor, no excavation or handling of the remains will take place until an appropriate risk assessment has been undertaken. Relevant protocols (i.e. Cox 2001) for their excavation, recording and removal will be adhered to.
- E.1.6 OA does not excavate or remove modern burials (post-1907) and does not remove or open sealed lead coffins. Appropriate PPE (e.g. chemical suit, latex gloves) will be worn by all staff when working with lead coffins.
- E.1.7 Graves and their contents will be hand excavated in plan. Each component (for example, skeleton, grave cut, coffin (or remains of), grave fill) will be assigned a unique context number from a running sequence. A group number will also be assigned to all of these, and small finds numbers to features such as coffin nails, hobnails and other grave goods (as appropriate).
- E.1.8 Soil samples will be taken during the excavation of inhumations, usually from the region of the skull, chest, right hand, left hand, abdomen and pelvis, right foot and left foot. Infants (circa. less than 5 years) will normally be recovered as bulk samples. Soil samples will also be taken from graves that appear to contain no human bone.
- E.1.9 Burials (including the skeleton, cremation, coffin fittings, coffin, urn, grave goods / other) will be recorded by photographic and written record using specialised pro forma context sheets, although these records may only include schematic representations of the location and position of the skeletons, depending on the nature and circumstances of the burial.
- E.1.10 Where necessary, hand drawn plans (usually at 1:10, sometimes 1:5) will be made, especially of contexts where required details cannot be adequately seen using digital rectified photography (for example, urned cremations; undisturbed hob nails).

- E.1.11 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.
- E.1.12 Human remains that are exhumed will be bagged and labelled according to skeletal region and carefully packed into suitable containers (for example, acid free cardboard boxes) and transported to a suitable storage location. Any associated coffins and coffin fittings will be contained with the human remains wherever possible.
- E.1.13 Unurned cremations will not usually be half sectioned, but excavated in spits or recovered as a bulk sample.
- E.1.14 Wherever possible, urned cremations will be carefully bandaged, recovered whole and will be excavated in spits in the laboratory, as per the recommendations of McKinley (2004).
- E.1.15 Unless deemed osteologically or archaeologically important disarticulated bone / chancel will be collected and reserved for re-burial if immediate re-internment as close to its original position is not practicable. In some instances, a rapid scan of this material may be undertaken by a qualified osteologist, if deemed relevant.
- E.1.16 If undisturbed, pyre sites will normally be excavated in quadrants, at the very least in 0.5 m blocks of 0.5 m spits.
- E.1.17 Pyre debris dumps will be half sectioned or quadrant and will be subject to 100% sampling.
- E.1.18 Wooden and lead coffins and any associated fittings, including fixing nails will be recorded on a pro forma coffin recording sheet. All surviving coffin fittings will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue that is being compiled by OA. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Biographical details obtained from legible departum plate inscriptions will be recorded and further documentary research will be made.
- E.1.19 Funerary structures, such as brick shaft graves and/or vaults will be hand-drawn at a scale of 1:10 or 1:20, as appropriate. Location, dimensions and method of construction will be noted, and the structure added to the overall trench plan.
- E.1.20 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.
- E.1.21 Where required, memorials will be accorded an individual context number and will also be included as part of the grave group, if the association with a burial is clear.
- E.1.22 Memorials will be recorded on pro-forma context sheets, based on and following the guidelines set out by Mytum (2002), and will include details of:
- Shape
 - Dimensions
 - Type of stone used
 - Iconography (an illustration may best describe these features)
 - Inscription (verbatim record of inscription; font of the lettering)

- Stylistic type

E.2 Relevant industry standards and guidelines

- E.2.1 Advisory Panel on the Archaeology of Burials in England, 2015 Large Burial Grounds. Guidance on sampling in archaeological fieldwork projects
- E.2.2 Association of Diocesan and Cathedral Archaeologists and APABE. 2010 Archaeology and Burial Vaults. A guidance note for churches. Guidance Note 2
- E.2.3 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Practice.
- E.2.4 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Ethics.
- E.2.5 Cox, M, 2001 Crypt archaeology. An approach. ClfA Paper No. 3
- E.2.6 Mays, S, 2017 Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England. Advisory Panel on the Archaeology of Burials in England.
- E.2.7 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, ClfA Technical Paper No. 13
- E.2.8 McKinley, J, 2004 Compiling a skeletal inventory: cremated human bone. In Brickley, M, and McKinley, J (eds) Guidelines to the Standards for Recording Human Remains, ClfA Technical Paper No. 7. 9-13.
- E.2.9 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.
- E.2.10 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85
- E.2.11 The Human Tissue Act 2004

E.3 Relevant OA manual and other supporting documentation

- E.3.1 Loe, L, 2008 The Treatment of Human Remains in the Care of Oxford Archaeology. Oxford Archaeology internal policy document.
- E.3.2 Excavating and recording human remains. Oxford Archaeology internal guidelines document.

APPENDIX F REPORTING

F.1 Standard methodology - summary

F.1.1 For Watching Briefs and Evaluations, the style and format of the report will be determined by OA, but will include as a minimum the following:

- A location plan of trenches and/or other fieldwork in relation to the proposed development.
- Plans and sections of features located at an appropriate scale.
- A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
- A reconsideration of the methodology used, and a confidence rating for the results.
- An interpretation of the archaeological findings both within the site and within their wider landscape/townscape setting.

F.1.2 For Excavations, a Post-Excavation Assessment and Project Design will generally be prepared, as prescribed by English Heritage Management of Research Projects in the Historic Environment (MoRPHE) 2006, Section 2.3. This will include a Project Description containing:

- A summary description and background of the project.
- A summary of the quantities and assessment of potential for analysis of the information recovered for each category of site, finds, dating and environmental data. Detailed assessment reports will be contained within appendices.
- An explicit statement of the scope of the project design and how the project relates to any other projects or work preceding, concurrent with or following on from it.
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A list of the project aims as revised in the light of the results of fieldwork and the current post-excavation assessment process.

F.1.3 A section on Resources and Programming will also be produced, containing:

- A list of the personnel involved indicating their qualifications for the tasks undertaken, along with an explanation of how the project team will communicate, both internally and externally.
- A list of the methods which will be used to achieve the revised research aims.

- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays. Time will also be allowed for the report to be read by a named academic referee as agreed with the County Archaeological Officer, and by the County Archaeological Officer.
- A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.

F.1.4 The Project Design will be submitted to the County Archaeological Officer or equivalent for agreement.

F.1.5 Under certain circumstances (e.g. with very small mitigations), and as agreed with the County Archaeological Officer or equivalent, a formal Assessment and Project Design may not be required and either the project will continue straight to full analysis, or a simple Project Proposal (MoRPHE 2006 Section 2.1) will be produced prior to full analysis. This proposal may include:

- A summary of the background to the project
- Research aims and objectives
- Methods statement outlining how the aims and objectives will be achieved
- An outline of the stages, products and tasks
- Proposed project team
- Estimated overall timetable and budget if appropriate.

F.1.6 Once the post-excavation Project Design or Project Proposal has been accepted, the County Archaeological Officer or his appointed deputy will monitor the progress of the post-excavation project at agreed points. Any significant variation in the project design will be agreed with the County Archaeological Officer.

F.1.7 The results of the project will be published in an appropriate archaeological journal or monograph. The appropriate level of publication will be dependent on the significance of the fieldwork results and will be agreed with the County Archaeological Officer. An OASIS (Online Access to the Index of Archaeological Investigations) form will be completed for each project as per English Heritage guidelines.

F.2 Relevant industry standards and guidelines

F.2.1 Oxford Archaeology (OA) adheres to the national standards in post-excavation procedure as outlined in English Heritage's Management of Research Projects in the Historic Environment (MoRPHE; EH 2006). Furthermore, all post-excavation projects take into account the appropriate regional research frameworks as well as national

research agendas such as the Framework for Historic Environment Activities & Programmes in English Heritage (SHAPE; EH 2008).

APPENDIX G LIST OF SPECIALISTS REGULARLY USED BY OA

G.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of external specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, MLitt, MCIfA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MCIfA
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hons), MCIfA
Cynthia Poole	CBM and Fired Clay	BA (Hons), MSc
Edward Biddulph	Roman Pottery	BA (Hons), MA, MCIfA
Ian Scott	Metalwork and Glass	BA (Hons)
Leigh Allen	Metalwork and worked bone	BA (Hons), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD, MCIfA
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hons), MA, D.Phil, MCIfA, FSA Scot
Mairead Rutherford	Pollen	BSc, MSc
Lee Broderick	Animal bone	BA (hons), MA, MSc, FZG, SAC Dip (ecology)
Sheila Boardman	Charred plant remains and charcoal	BA (Hons)
Julia Meen	Charred and waterlogged plant remains and charcoal	BSc (Hons), MA
Dr Denise Druce	Charred plant remains, charcoal and pollen	BA (Hons), PhD, MCIfA
Elizabeth Stafford	Geoarchaeology and land snails	BA (Hons), MSc
Carl Champness	Geoarchaeology	BA (Hons), MSc, ACIfA
Dr Ian Smith	Animal Bone	BSc, PhD
Nicola Scott	Archaeological archive deposition	BA
Mike Donnelly	Flint	BSc, MCIfA
Dr Louise Loe	Human Bone	D.Phil, BA, MCIfA
Helen Webb	Human Bone	MSc, BSc
Mark Gibson	Human Bone	MSc, BA
Dr Lauren McIntyre	Human Bone	D.Phil, MSc, BSc

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hons)
Quita Mould	Leather	BA, MA

Specialist	Specialism	Qualifications
Penelope Walton Rogers, The Anglo Saxon Laboratory	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn-Brown	Conservation	BSc (Hons), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard Macphail	Soils, especially Micromorphology	BA (Hons), MSc, PhD
Dana Challinor	Charcoal	MA, MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hons), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hons), D.Phil
Dr David Starley	Metalworking Slag	BSc (Hons), PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (Hons)
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-Luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MCIfA
Dr Hugo Anderson- Wymark	Flint	BSc, PhD, FSA Scot, MCIfA
Dr Damian Goodburn- Brown	Ancient Woodwork	BA, PhD

APPENDIX H DOCUMENTARY ARCHIVING

H.1 Standard methodology – summary

- H.1.1 The documentary archive constitutes all the written, drawn, photographic and digital records relating to the set up, fieldwork and post-excavation phases of the project. This documentary archive, together with the artefactual and environmental ecofact archive collectively forms the record of the site. The report is part of the documentary archive, and the archive must provide the evidence that supports the conclusions of the report, but the archive may also include data which exceeds the limitations of research parameters set down for the report and which could be of significant value to future researchers.
- H.1.2 At the outset of the project OA Archive department will contact the relevant local receiving museum or archive repository to notify them of the imminent start of a new fieldwork project in their collecting area. Relevant local archiving guidelines will be observed and site codes, which integrate with the receiving repository, will be agreed for labelling of archives and finds.
- H.1.3 During the course of the project the Archive department will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.
- H.1.4 The site archive will be security copied either by microfilming and the master sent to English Heritage as part of the National Archaeological Record or it will be digitally scanned and stored in a dedicated archive section of the OA computer network. A copy of the work as microfiche diazo or .pdf/a on disk will be sent to the receiving museums with the hard copy. This will act as a safeguard against the accidental loss and the long-term degeneration of paper records and photographs.
- H.1.5 Born digital data where suitable will be printed to hard copy for the receiving museum but if the format is such that it needs maintaining in digital form a copy will be sent to the receiving museum by CD. Back-up copies will be stored on the OA digital network and or posted to the ADS in accordance with AAF & ADS guidelines. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.
- H.1.6 Prior to deposition the Archive department will contact the museum regarding the size and content of the archive and discuss any retention and dispersal policies which may be applicable in line with local and SMA Guidelines ' Selection, Retention & Dispersal of Archaeological Collections' 1993
- H.1.7 The site archive will then be deposited with the relevant receiving museum or repository at the earliest opportunity unless further archaeological work on the site is expected. The documentary archive will include correspondence detailing landowner consent to deposit the artefacts and any copyright licences in accordance with the receiving museum guidelines.
- H.1.8 Oxford Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide a licence to the client in all matters directly relating to the project as described in the Written Scheme of Investigation.

- H.1.9 OA will advise the client of any such materials supplied in the course of projects which are not OA's copyright.
- H.1.10 OA undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. OA further undertake to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect OA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

H.2 Relevant industry standards and guidelines

- H.2.1 At the end of the project the site archive will be ordered, catalogued, labelled and conserved and stored according to the following national guidelines:
- H.2.2 The 2007 AAF guide Archaeological Archives A Guide to best practice in creation, compilation, transfer and curation. Brown D.
- H.2.3 The ClfA Standard & Guidance for the creation, compilation, transfer and deposition of archaeological archives
- H.2.4 The UKIC's Guidelines for the preparation of excavation archives for long-term storage
- H.2.5 The MGC's Standards in the museum care of archaeological collections
- H.2.6 Local museum guidelines such as Museum of London Guidelines: (<http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposRe> source) will be adopted where appropriate to the archive collecting area.
- H.2.7 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, English Heritage 1991.

H.3 Relevant OA manual and other supporting documentation

- H.3.1 The OA Archives Policy.

APPENDIX I HEALTH AND SAFETY

I.1 Standard Methodology - summary

- I.1.1 All work will be undertaken in accordance with the OA Health and Safety Policy (Revision 19, July 2016), the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.
- I.1.2 Where a project falls under the Construction (Design and Management) Regulations (2015), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan (CPP).

I.2 Relevant industry standards and guidelines

- I.2.1 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively:
- I.2.2 The Health and Safety at Work Act (1974).
- I.2.3 Management of Health and Safety at Work Regulations (1999).
- I.2.4 Manual Handling Operations Regulations 1992 (as amended).
- I.2.5 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013).
- I.2.6 The Construction (Design and Management) Regulations (2015).
- I.2.7 Relevant OA manual and other supporting documentation
- I.2.8 The OA Health and Safety Policy.
- I.2.9 The OA Site Safety Procedures Manual.
- I.2.10 The OA Risk Assessment templates.
- I.2.11 The OA Method Statement template.
- I.2.12 The OA Construction Phase Plan template.

UK and Ireland Office Locations

