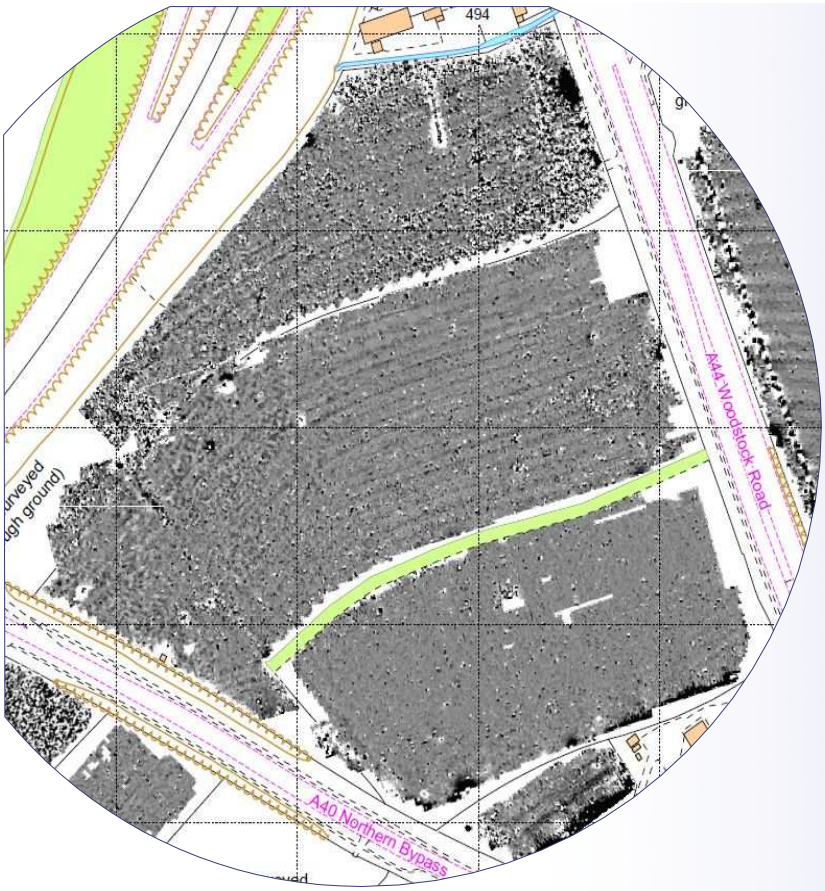

Oxford North
Wolvercote
Oxford

Written Scheme of Investigation for an Earthwork Survey and Archaeological Evaluation

May 2020

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Oxford North, Wolvercote, Oxford

Written Scheme of Investigation for an Earthwork Survey and Archaeological Evaluation

Centred on SP 49489 10565

Contents

List of Figures

1 INTRODUCTION

1.1 Project details

1.1.1 Oxford Archaeology (OA) has been commissioned by EDP to undertake an earthwork survey and archaeological evaluation at the proposed Oxford North development, Wolvercote, Oxford. The work is being undertaken in relation to a proposed new development.

1.1.2 The work is being undertaken as part of outline Planning Application 18/02065/OUTFUL. A specification has been set by David Radford (2020), Oxford City Archaeologist, detailing the Local Authority's requirements for work necessary to inform the planning process; this document outlines how OA will implement those requirements with specific regard to Stage 1 and Stage 2 of the specification from the City Archaeologist. Any further investigation and recording that may subsequently be required will be addressed by a further WSI.

1.1.3 This work follows on from the submission of an archaeological desk-based assessment geophysical surveys and previous phases of evaluation that covers part of the development area. This WSI details how OA plan to undertake the archaeological evaluation works. The first part is site specific while the appendices detail general OA standards and procedures.

1.1.4 All work will be undertaken in accordance with the Chartered Institute for Archaeologists' 'Standard and Guidance for archaeological field evaluation' (revised 2015) and local and national planning policies.

1.2 Location, topography and geology

1.2.1 The site lies between and adjacent to the A40 Northern bypass to the south and the A40 Woodstock Road to the north and is south-east of the A34, (Figure 1: SP 49489 10565).

1.2.2 The area of proposed development consists of agricultural and pasture fields and slopes gently down from west to east from 69 to 63m aOD (above Ordnance Datum).

1.2.3 The geology of the area is mapped as Oxford Clay Formations and West Walton Formations which include mudstones formed approximately 156 to 165 million years ago in the Jurassic Period (BGS http://mapapps.bgs.ac.uk/geologyofbritain/home.html). The previous adjacent evaluation to the north-west recorded Wolvercote sands and gravels (MOLA Northampton 2015). The terrace gravels and the Wolvercot Channel are important geological deposits for early Prehistoric remains. There is the suggestion that no Wolvercote Channel or Wolvercote Terrace deposits are present west of the railway cutting, but that they are likely to be found to its east.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and historical background

2.1.1 An extensive archaeological and historical background of the area including the present site has been described in detail in the Historic Environment Assessment (MOLA 2014a), and is only briefly summarized here.

Early Prehistoric period

2.1.2 Archaeological investigation has shown the potential for survival of *in-situ* Lower Palaeolithic remains within the Wolvercote Terrace gravels. In the area there have been exposures of an interglacial channel deposits containing Lower Palaeolithic faunal remains and artefacts within the poorly understood Wolvercote Gravel Terrace (third terrace). The interglacial Wolvercote Channel Deposit produced what appears to be an *in-situ*, or little disturbed, tool manufacturing site. This is currently the oldest and most significant Lower Palaeolithic assemblage known from the Upper Thames. Unfortunately, the exact location and orientation of the palaeo-channel is yet to be established.

2.1.3 There has been considerable debate over the geo-archaeological sequence exposed at the Wolvercote Channel deposit. The artefact assemblage was recorded from sediments at the base of the interglacial channel in association with palaeontological and palaeobotanical remains. The channel was previously attributed to MIS 7 or 5e (summarised in Roe 1994: 13), but is now accepted as being most likely of MIS 9 age (Bridgeland 1994). The assemblage from the channel is probably in near primary context and is recognised as being of national importance. However, the channel deposits have not been exposed since the 1930s, despite several attempts in the 1980s and more recently to locate them, and as a result the context and dating remain uncertain.

Bronze Age period (2300-800BC)

2.1.4 A number of barrows (HER 1323, 1354) are recorded in the wider landscape to the site, suggesting that the area had become of some significance during this period. However, no cropmarks or prehistoric find-spots have been recorded close to the site.

Iron Age period (800BC-43AD)

2.1.5 A Late Iron Age settlement site has been recorded, just north-west of the site, on the opposite side of the A34, although its limits are not well defined and so associated features may extend into the site. While no buried features, such as ditches, have been recorded from the study of aerial photographs, subsequent ploughing in later periods may be masking their presence.

Roman period (AD 43–410)

2.1.6 The site lies west of a possible Roman road and there have been a number of find-spots and excavated remains in the area, dated to the 2nd century AD onwards. It is known that an important area of Roman pottery production developed to the south-

west of Oxford with a possible area developed further north of the site, indicating the potential importance of the area. Just north-west of the site, on the other side of the A34, evidence of a Late Iron Age/early Roman farmstead was identified. There is a scatter of Roman finds across the area (HERs 1637 and 1653) showing that there is a level of occupation and activity within the wider Roman landscape.

Early Medieval (AD 410–1066)

2.1.7 Settlement sites such as Wolvercote, Water Eaton, Yarnton became established and provided foci for the activity in this period. Areas surrounding these settlements became part of the agricultural landscape supporting them including the area of the site, which became part of the open fields of Wolvercote.

Medieval period (AD 1066–1485)

2.1.8 There are areas of surviving ridge and furrow earthworks within the site and the sinuous pattern and spacing is consistent with later medieval agricultural practices. The area east of the A44 is more pronounced in profile than that to the west, between the A44 and the A40. The site also contains surviving elements of hedgerows and other boundaries representing probable later medieval field boundaries. The ridge and furrow is well preserved, and may have continued to be ploughed into the post-medieval period.

Post-medieval period (AD 1485–present)

2.1.9 The site was maintained as agricultural land throughout this period and remains so today. The area became more accessible with the opening of the canal between 1769-90, the railway line in 1846, and the modern roads such as the A40 bypass by 1959.

2.1.10 Red Barn Farm was established between 1834 and 1872 and exists to the north of the site today.

Geophysical survey

2.1.11 Two geophysical surveys were conducted over parts of the proposed development area in 2014 by MOLA (MOLA 2014b and c). The main survey (MOLA 2014b) did not identify any archaeological remains other than medieval to early post-medieval ridge and furrow. Nor did it identify any palaeochannels or other geological features which might contain significant Palaeolithic material. This suggests that no substantial archaeological sites are likely to exist within the areas surveyed. However, the presence of small or ephemeral remains (eg. Inhumations, timber-structures) cannot be firmly excluded, as these often present very difficult targets for geophysical survey to identify.

Previous archaeological works in the area

2.1.12 To the north-east at the New Post House Hotel a watching brief on foundation and service trenches observed only modern made-up ground deposits overlying natural clay (TVAS 2000, CBA 2001).

2.1.13 To the south-east of the proposed development site an evaluation at The Oxford Hotel, Godstow Road, Wolvercote in 2001 revealed no archaeological remains (TVAS 2001, CBA 2002).

2.1.14 Also to the south-east at the BP Garage, Woodstock Road, a watching brief undertaken during construction of a new underground fuel tank storage pit. Due to the proximity to the old Wolvercote brick pit Palaeolithic site, there was potential for important Pleistocene deposits and Palaeolithic remains to be present. However, no Pleistocene deposits were observed. Modern disturbance across the site ranged from 0.6m below ground surface level to several metres. The underlying natural sediment was always Oxford Clay. The conclusion is reached that no Wolvercote Channel or Wolvercote Terrace deposits are present west of the railway cutting, but that they are likely to be found in the east (CAHOR 2012).

2.1.15 As part of the A34 Wolvercote viaduct replacement scheme the excavation revealed activity associated with a long-lived settlement spanning the Iron Age/early Roman period to the 4th century AD. Features, such as a possible enclosure, pits and areas of burning, attest to the presence of a Roman settlement. The low density of the features and the finds assemblage suggest a non-intensive, low-status, rural settlement (FA 2011).

2.1.16 An evaluation to the immediate north-west of the present site identified furrows of medieval to post-medieval ridge and furrow cultivation (MOLA Northampton 2015). Several sherds of post-medieval pottery and a clay-tobacco pipe were recovered from some of the furrows. No earlier archaeological remains or finds were identified. No evidence of the gravel terrace was identified, nor any Lower Palaeolithic remains (Ruddy, MoLAS 2015).

2.1.17 More recently in 2017, Oxford Archaeology undertook 12 trenches across the central field of the site as part of Phase 1a. No significant archaeological remains were identified, only the remains of medieval ridge and furrow were identified.

2.2 Potential

2.2.1 The archaeological potential of the site can be summarised as follows:

- 1) the site lies in close proximity to a nationally important Lower Palaeolithic remains recorded in the nearby Wolvercote Quarry Pit (now a water feature on the other side of the railway)
- 2) the general potential for prehistoric activity because of its location above and adjacent to the Thames floodplain and wider contextual patterns,
- 3) the general potential for Roman activity because of its location above and adjacent to Thames floodplain and wider contextual patterns and recorded Roman activity at Wolvercote Viaduct to the north,
- 4) Some speculative potential for early medieval activity adjacent to the historic Woodstock Road,
- 5) surviving medieval ridge and furrow earthworks and later field boundaries within the site.

2.2.2 The site has a low potential to contain prehistoric remains. The site lies on heavier soils derived from the clay geology and there is a strong tendency for earlier Prehistoric remains to be focused on the gravel terraces. There is a low potential for Bronze Age remains as although the area is known to have a number of barrows there are no crop marks visible on aerial photographs.

2.2.3 Just north-west of the central field of the site, on the opposite side of the A34, evidence of a Late Iron Age settlement site has been recorded, and so associated features may extend into the site. While no buried features, such as ditches, have been recorded from the study of aerial photographs, subsequent ploughing in later periods may be masking their presence.

2.2.4 The site has a moderate potential to contain Roman remains as it is within the hinterland of a possible Roman road and there is a general level of Roman activity in the area including pottery production, settlement and agricultural activity from the 2nd century AD onwards.

2.2.5 The site has a low potential to contain early medieval remains. However, the medieval field layout may be a continuation of one established during this era. The land would have been part of the agricultural landscape supporting settlements such as Wolvercote, Water Eaton, and Yarnton.

2.2.6 The site includes areas of ridge and furrow of probable later medieval origin, and has a moderate potential to contain other later medieval remains. The ploughing and surviving elements of hedgerows and other boundaries represent possible later medieval field systems of which little survives in the Oxford hinterland. Residual finds of later medieval date, either chance lost artefacts or derived from domestic waste spread on the fields, are likely to be present.

2.2.7 The site has a high potential to contain post-medieval remains including buried elements of post-medieval farm buildings, other agricultural features or finds and features associated with the increased transport network of the area.

3 AIMS

3.1 General

3.1.1 The general aims and objectives of the evaluation are:

i. To determine the location, extent, date, character, condition, significance and quality of any archaeological remains within the development;
ii. To assess vulnerability/sensitivity of any exposed remains;
iii. To determine the potential of the Site to provide palaeoenvironmental and/or economic evidence;
iv. To provide sufficient information on the archaeological potential of the site to enable the archaeological implications of any proposed developments to be assessed;
v. To assess the impact of previous land use on the Site;
vi. To inform a strategy to avoid or mitigate impacts of any proposed development on surviving archaeological remains;
vii. To disseminate the results through the production of a site archive for deposition with an appropriate museum and to provide information for accession to the Oxfordshire HER.

3.2 Specific research aims and objectives

3.2.1 The specific aims and objectives of the evaluation are as outlined in the project brief (Radford 2020):

viii. **Stage 1**: Produce an accurate contour survey of the extant ridge and furrow in the eastern field (south of Peartree Park and Ride).
ix. **Stage 2**: trial trenching will aim to gather sufficient information to generate a reliable predictive model of the extent, character, date, state of preservation and depth of burial of important archaeological remains within the area of study. In this case the following specific objectives have been identified:
    - Establish the character and extent of any prehistoric, Roman activity.
    - Whilst dating the formation and evolution of ridge and furrow earthworks by excavation has proved to be a problematical exercise because of the frequency of poor or indeterminate results in this instance targeted recording of extant ridges is considered to be warranted because 1) well preserved ridges are present of two orientations 2) this is one of the few remaining fields of the Upper Wolvercote open field system. Test pitting should therefore employ spit recording to see if any manuring scatter sequence can be identified. The results should be considered alongside the survey data and subsequent trenching data to establish whether any complexity can be identified (i.e. realignment etc.) (See Hall 2011, 2011).
x. ***Stage 3 (if this is required)*** should, subject to the results of the trial trenching seek to establish, as far as is practical, the chronology, plan form and function of archaeological features affected by development and interpret the results in terms of the documented history and historical topography of North Oxford. If this stage is required, it will be addressed through an additional WSI to be approved by the City Archaeologist.

3.2.1 The results of the project will refer to the city and regional resource assessments and research agendas available on the web:
http://thehumanjourney.net/index.php?option=com_content&task=view&id=553&Itemid=277
http://www.oxford.gov.uk/PageRender/decP/OxfordArchaeologicalPlan.htm

4 EXCAVATION AND RECORDING METHODOLOGY

4.1 Scope of works

4.1.1 The project will be divided up into the following three stages:

4.1.2 **Stage 1:** As specified, an earthwork survey of extant ridge and furrow covering c.4.5 hectares. OA uses as a guideline for its metric survey English Heritage Metric Survey Specifications and Landscape Survey Specifications. The survey will be conducted with reference to these.

4.1.3 Six 1x1m test pits will also be hand excavated in 10cm spits (to natural) through four separate ridges (of ridge and furrow) to recovery dating material. The locations of the proposed test pits are shown with the Lidar on figure 2.

4.1.4 **Stage 2:** An array of 19 trenches will be excavated as shown on Figure 3. All trenches will measure 50m x 2m. This represents a sample of the proposed Phase 2, with a contingency of further 20m of trenching if required.

4.1.5 The proposed trench locations may be subject to slight adjustments in the field in order to avoid services or other unforeseen obstacles. The trenches will be located to provide a representative sample of the archaeological potential of the site in order to help inform any further mitigation strategies.

4.1.6 **Stage 3:** Based on the results of the evaluation first archaeological mitigation works may be required in areas of archaeological potential impacted by the Scheme. In these circumstances, an additional WSI will be produced to address the specific requirements for this work.

4.2 Programme

4.2.1 It is anticipated that the fieldwork will take two weeks to complete starting 8th June, by a team consisting of a Project Supervisor, directing up to two Project Archaeologists, under the management of Carl Champness, Senior Project Manager.

4.2.2 All fieldwork undertaken by Oxford Archaeology (South) is overseen by the Head of Fieldwork, David Score MCIfA.

4.3 Earthwork Survey

4.3.1 The survey will be conducted using a GPS at a scale and accuracy commensurate with the brief (Radford 2020). The survey will incorporate heights taken at regular intervals to provide detail of the morphology of earthworks and significant features to enable a contour plan and 3-D surface model to be generated. In this instance we would utilize Environment Agency LIDAR data at 1 metre resolution augmented by 'ground truthing' and adding any additional detail by a site visit.

4.4 Test pitting

4.4.1 A programme of six 1m by 1m hand dug test pits will be dug through the extent ridges within the eastern field of the site. Three on the NW-SE ridge orientation and three on the NE-SW ridge orientation as shown on Figure 2. The test pits will be dug in 10cm

spits until natural is reached or the first archaeological horizon, whichever is encountered first.

4.4.2 One representative section showing any stratigraphy through the ridge will be recorded for each test pit. Any finds will be assigned to the appropriate context to help date the sequence of ridge and furrow.

4.5 Evaluation trenching methodology

4.5.1 A summary of OA's general approach to excavation and recording can be found in Appendix A. Standard methodologies for Geomatics and Survey, Environmental evidence, Artefactual evidence and Burials can also be found below (Appendices B, C, D and E respectively).

4.5.2 Site specific methodologies will be as follows:

- The 19 trenches measuring 50m by 1.8m will be laid out as shown in Figure 3 using a GPS with sub 25mm accuracy, except were minor adjustments are required due to ground conditions or site obstructions.
- The trenches will be excavated using an appropriately powered mechanical excavator fitted with a toothless bucket under the direct supervision of an archaeologist. Spoil will be stored adjacent to, but at a safe distance from trench edges.
- Machining will continue in spits down to the top of the undisturbed natural geology or the first archaeological horizon depending upon which is encountered first. Once archaeological deposits have been exposed, further excavation will proceed by hand and the appropriate use of machine as agreed with David Radford.
- The exposed surface will be sufficiently clean to establish the presence/absence of archaeological remains. A sample of each feature or deposit type, for example pits, postholes, and ditches, will be excavated and recorded. In the event of the identification of an exceptional number and complexity of archaeological deposits, sample excavation will be more circumspect and will aim to be minimally intrusive. Excavation will however be sufficient to resolve the principal aims of the evaluation.
- Upon agreement with David Radford, City Archaeologist, the trenches will be backfilled.

4.5.3 All features and deposits will be issued with unique context numbers, and context recording will be in accordance with established best practice and the OA Field Manual. Small finds and samples will be allocated unique numbers. Bulk finds will be collected by context.

4.5.4 Digital photos will be taken of any archaeological features, deposits, trenches and evaluation work in general.

4.5.5 Plans will be produced at an appropriate scale (normally 1:50 or 1:100) with larger scale plans of features as necessary. Section drawings of features will be drawn at a scale of 1:20 and 1m wide sample sections of stratigraphy will be drawn at a scale of

1:10. All section drawings will be located on the appropriate plan/s. The absolute height (m. OD) of all principal strata and features, and the section datum lines shall be calculated and indicated on the drawings.

4.5.6 Should in-situ complex or fragile archaeological remains be encountered in the trench, consideration will be given to the most appropriate strategy to deal with them. If necessary, complex and fragile finds or structures may be protected and left in-situ for excavation during future phases of work. When encountered features or deposits will be characterized, dated where possible and sampled for environmental remains if appropriate.

4.5.7 The trench and sample sections will be located using either a GPS unit or total station. Co-ordinates relative to Ordnance Survey and Ordnance Datum will be obtained for each sampling location.

4.6 Environmental sampling

4.6.1 Appendix C provides an environmental sampling strategy. In general, different environmental sampling strategies may be employed according to the perceived importance of the strata under investigation. Bulk samples, preferably of 40 litres if possible, will be taken for flotation for charred plant remains. Bulk samples will be taken from any waterlogged or mineralised deposits present for macroscopic plant remains. Columns for pollen analysis and mollusc samples will be taken if appropriate. Other bulk samples for small animal bones and other small artefacts may be taken from appropriate contexts. Sub-sampling will be undertaken to retrieve evidence of metal-working. The sampling process will be constantly reviewed on-site with the advice of Dr. Rebecca Nicholson, Head of the Environmental Dept. at Oxford Archaeology.

4.7 Finds recovery

4.7.1 Artefact assemblages will be recovered (by context) by hand to assist in dating the stratigraphic sequences and for obtaining ceramic assemblages for comparison with other sites. The finds will provide an invaluable contribution to the interpretation of the functions and activities taking place on (and off) the site, as well as reveal aspects of trade and economy. All artefacts will be retained from excavated contexts unless they are of recent origin. In these cases, sufficient material will be retained to date and establish the function of the feature.

4.8 Human Remains

4.8.1 Although no human remains were encountered during any previous works close to the site and no known historic graveyards are within the development area, there is still the potential for burials to be encountered.

4.8.2 All human remains will be left *in situ* in the first instance and will only be excavated under the appropriate Home Office licence, and will be Supervised by an experienced Osteoarchaeologist.

4.8.3 Human remains will be cleaned and placed in boxes by following the methods described by McKinley and Roberts (1993). Current guidance issued by English

Heritage and the Church of England (2005, 43) states that human remains must be marked. However, the recent Code of Practice (see: http://www.babao.org.uk/index/ethics-and-standards), published by BABAO, acknowledges that marking bone is not always feasible and that there are economic, curatorial, conservational and ethical issues associated with this practice.

4.9 Treatment of Treasure

4.9.1 Finds, discovered by the archaeological contractor, falling under the statutory definition of Treasure (as defined by the Treasure Act of 1996 and its revision of 2002) will be reported immediately to the relevant Coroner's Office, the landowner and HCC. A Treasure Receipt (obtainable from either the FLO or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. Failure to report within 14 days is a criminal offence. The Treasure Receipt and Report must include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

5 REPORTING AND ARCHIVE METHODOLOGY

5.1 Programme

5.1.1 The report will be completed within four to six weeks following the completion of the fieldwork.

5.1.2 Two bound copies of the final report will be supplied to the City Council Archaeologist along with a digital copy in PDF format. A copy of any specialist papers relating to the project will also be supplied. When the report has been agreed a final digital copy will then be supplied to the County Historic Environment Record (HER), along with a selection of digital images showing the main features, at archaeology@oxfordshire.gov.uk on the understanding that it will become a public document after an appropriate period of time (generally not exceeding six months).

5.1.3 A summary report (including illustrations where appropriate) will also be sent to the editors of South Midlands Archaeology not later than three months after the end of the calendar year in which the work is undertaken. A publication grant should be provided to the publishers in accordance with their requirements.

5.2 Content

5.2.1 The content of this report will be as defined in Appendix F.

5.3 Specialist input

5.3.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA have well established working relationships. A general list of these specialists is presented in Appendix G; in the event that additional input should be required, an updated list of specialists can be supplied.

5.4 Archive

5.4.1 The site archive will be deposited with Oxfordshire Museum Service following completion of the project.

5.4.2 The archive shall be prepared in accordance with the guidelines published in Guidelines for the preparation of Excavation Archives for long-term storage (United Kingdom Institute for Conservation, 1990) and Standards in the Museum care of archaeological collections (Museum and Galleries Commission, 1994).

5.4.3 Oxford Archaeology will endeavor to ensure that the full integrated site archive including all finds shall, with the agreement of the owners, be deposited after completion of post-excavation work with the County Museums Service (Oxfordshire Museums) unless another repository is indicated. If, during the course of excavation, items are found that may be potentially defined as 'Treasure' under the Code of Practice of the Treasure Act 1996, the archaeological contractor will be responsible for ensuring that the County Coroner is informed.

5.4.4 A summary of OA's general approach to documentary archiving can be found in Appendix H.

6 HEALTH AND SAFETY

6.1 Roles and responsibilities

6.1.1 The Senior Project Manager, Carl Champness, has responsibility for ensuring that safe systems of work are adhered to on site. He delegates elements of this responsibility to the Project Officer, who implements these on a day to day basis.

6.1.2 The Director with responsibility for Health and Safety at OA is Dan Poore Tech IOSH (Chief Business Officer).

6.2 Method statement and risk assessment

6.2.1 A summary of OA's general approach to health and safety can be found in Appendix I. A risk assessment has also been undertaken and approved and will be kept on site, along with OA's standard Health and Safety file, which will contain all relevant health and safety documentation.

6.2.2 The Health and Safety file will be available to view at any time.

6.3 Monitoring of works

6.3.1 At least two weeks' notice of the commencement of the evaluation works will be given to David Radford, Planning Archaeologist for Oxford City Council.

6.3.2 David Radford will have free access to the site (subject to Health and Safety considerations) and all records to ensure the works are being carried out in accordance with this WSI and all other relevant standards.

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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 may 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.2.1 The Chartered Institute for Archaeologists Standard and Guidance notes relevant to fieldwork are:

- Standard and Guidance for Archaeological Field Evaluation
- Standard and Guidance for Archaeological Excavation
- Standard and Guidance for an Archaeological Watching Brief.

A.2.2 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), or photogrammetry.

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 photogrammetry or rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for photogrammetry or 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 Historic England (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording Practice.

B.2.2 Historic England (2015), Metric Survey Specifications for Cultural Heritage.

B.2.3 Historic England (2016), Understanding Historic Buildings A Guide to Good Recording Practice.

B.2.4 Historic England (2017), Photogrammetric Applications for Cultural Heritage. Guidance for Good Practice.

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 Historic England 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 on sediment type and like modes of preservation (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 Historic England 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.

C.2.2 Historic England 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)

C.2.3 Historic England 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.

C.2.4 Historic England 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.

C.2.5 Historic England 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.

C.2.6 Historic England 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.

C.2.7 Historic England 2014. Animal Bones and Archaeology. Guidelines for Best Practice.

C.2.8 Historic England, 2015. Archaeometallurgy. Guidelines for Best Practice.

C.2.9 Historic England 2015 Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.

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 CIfA (Roberts and McKinley 1993) and the Advisory Panel on the Archaeology of Burials in England (APABE, 2015, 2017). For crypts and post-medieval burials, the recommendations set out by the CIfA (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 Historic England and Church of England (2005) and updated by the Advisory Panel on the Archaeology of Burials in England (2017), 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 (those less than 100 years old) 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 normally 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 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 and/or quadrants (i.e. large deposits or spreads), 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, 2017).

E.1.15 Unless deemed osteologically or archaeologically important disarticuled bone / charnel 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 quadranted 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 recorded by photogrammetry or 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

- Condition, completeness and fragmentation of stones, no longer in original positions
- Iconography (an illustration may best describe these features)
- Inscription (verbatum 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, 2017 Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England.

E.2.2 Advisory Panel on the Archaeology of Burials in England, 2015 Large Burial Grounds. Guidance on sampling in archaeological fieldwork projects.

E.2.3 Association of Diocesan and Cathedral Archaeologists and APABE. 2010 Archaeology and Burial Vaults. A guidance note for churches. Guidance Note 2.

E.2.4 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Practice.

E.2.5 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Ethics.

E.2.6 Cox, M, 2001 Crypt archaeology. An approach. CIfA Paper No. 3

E.2.7 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, CIfA 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, CIfA Technical Paper No. 7. 9-13.

E.2.9 McKinley, J, 2017 Compiling a skeletal inventory: cremated human bone. In Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIfA 14-19

E.2.10 Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIFA 2017

E.2.11 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.

E.2.12 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85

E.2.13 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 of buried 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 Historic England 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 Historic England 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 Historic England'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 Historic England (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
Dr Mairead Rutherford	Pollen	BSc, MSc
Lee Broderick	Animal bone	BA (hons), MA, MSc, FZG, SAC Dip (ecology)
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 (Hons Dunelm)
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 Where there is currently no receiving museum for the project archive, although responsibility for the archive ultimately lies with the client, OA will hold the archive on their behalf for a period of up to 3 years after completion of the report, after which time (in the event that a suitable depository has not been secured) provision for further storage of the archive will be made in agreement with Oxford Archaeology, the client and the relevant planning archaeologist.

H.1.4 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.1.5 The hard copy site archive will be security copied by scanning to PdFA and a copy of this will be housed on the OA Archive Server. A full digital copy of the archive, including scanned hard copy and born digital data, will be deposited with and made publicly available on-line through the ADS. A further copy will be maintained on the OA server and if requested a copy on disk will also be sent to the receiving museum 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.1.6 Born digital data will only be printed to hard copy for the receiving museum where practical. Archive elements that need maintaining in digital form will be sent to ADS in accordance with Arches Standard and ADS guidelines. A copy will be sent to the receiving museum by CD and back-up copies will be stored on the OA digital network. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.

H.1.7 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.1.8 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. Deposition charges will be required from the client as part of the project costs but the level of the fee is set by the receiving body, and may be subject to change during the lifespan of the project. Changes to archiving charges beyond OA's control will be passed across to the client.

H.1.9 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 the receiving repository or museum for the archive with a full licence for use to the client in all matters directly relating to the project as described in the Written Scheme of Investigation, and in line with the relevant receiving body guidelines.

H.1.10 OA will advise the receiving repository or museum for the archive of 3rd party materials supplied in the course of projects which are not OA's copyright.

H.1.11 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. Archaeological findings and conclusions can be kept confidential for a limited period but will be made publicly available in line with the above procedure either after a specified time period agreed with the client at the outset of the project, or where no such period is agreed, after a reasonable period of time. 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 2014 EAC Guidelines A Standard and Guide to the Best Practice for Archaeological Archiving in Europe (GB) Perrin K, Brown E et al.

H.2.3 The 2014 CIFA Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives.

H.2.4 The 2011 AAF guide Archaeological Archives A Guide to Best Practice in Creation, Compilation, Transfer and Curation. Brown D.

H.2.5 The UKIC's Guidelines for the preparation of excavation archives for long-term storage.

H.2.6 The MGC's Standards in the museum care of archaeological collections.

H.2.7 Local museum guidelines such as Museum of London Guidelines: (http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposResource) will be adopted where appropriate to the archive collecting area.

H.2.8 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, Historic England 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 current OA Health and Safety Policy, 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

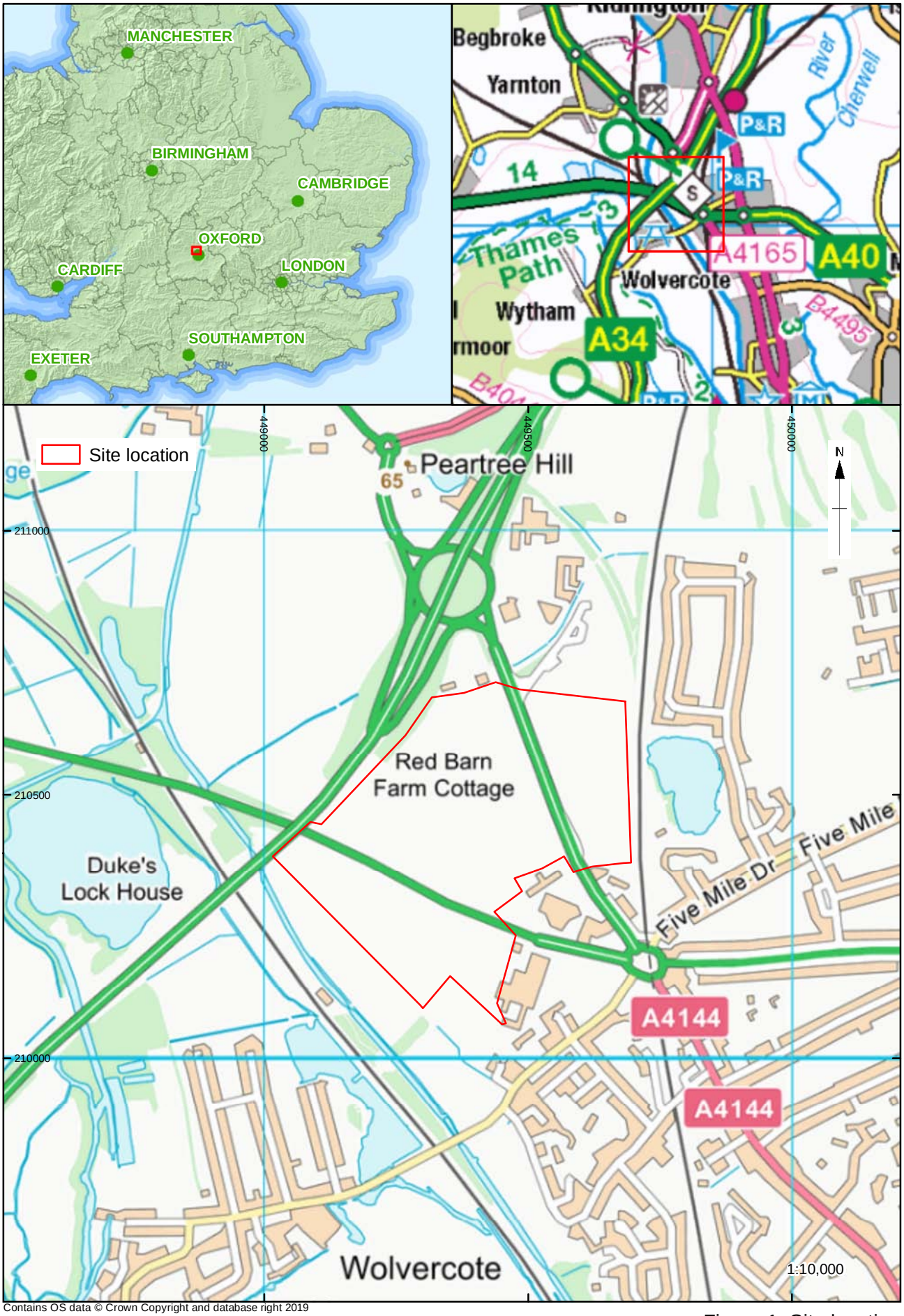
I.2.8 The OA Health and Safety Policy.

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.



Contains OS data © Crown Copyright and database right 2019

Figure 1: Site location

X:\o\Oxford_Northern_Gateway\010Geomatics\03 GIS Projects\24648_WSI_figure1_2020-05-28.mxd*matt.bradley*28/05/2020

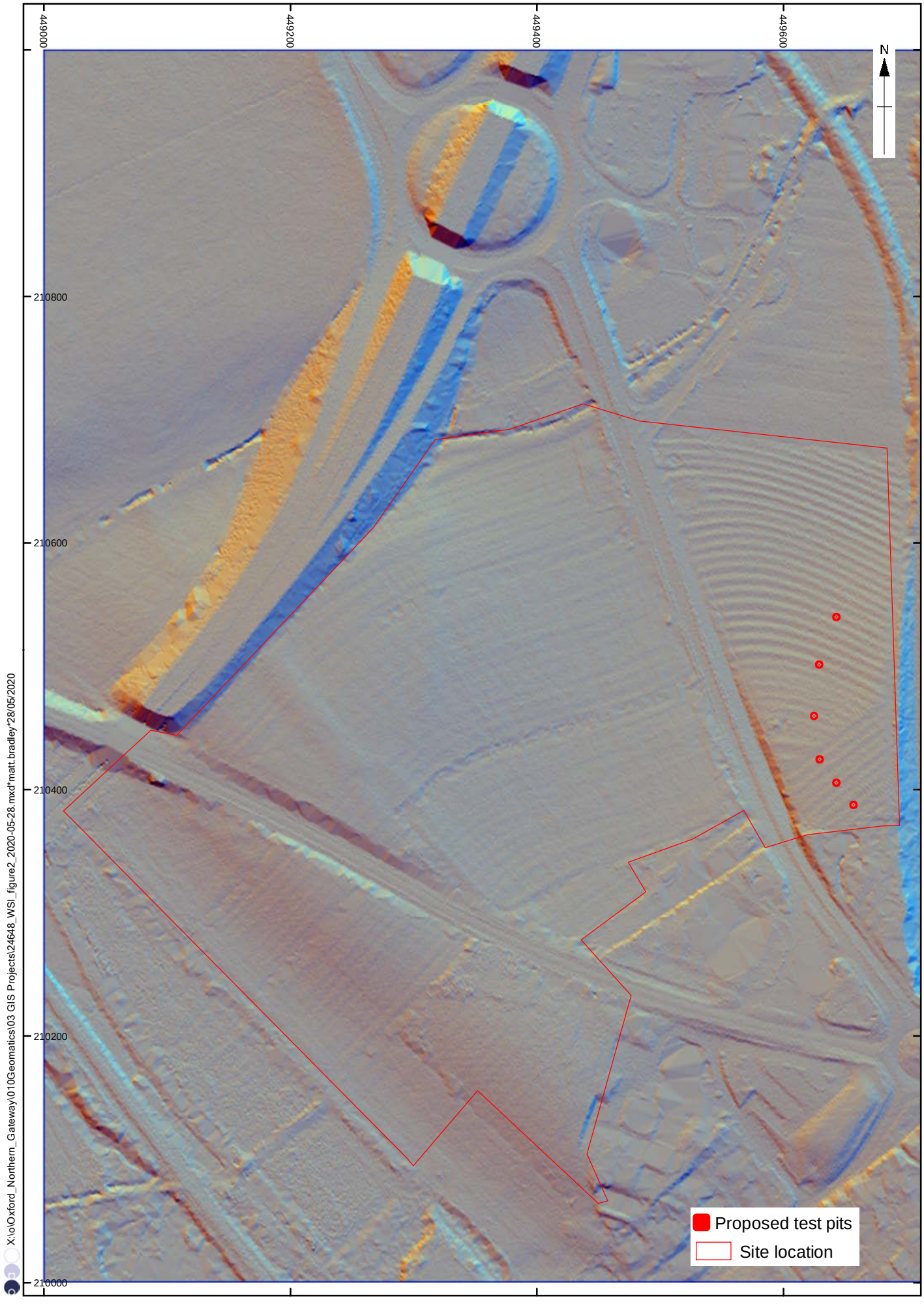


Figure 2: LiDAR with proposed test pit locations

Figure 3: Proposed evaluation trenches

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