

STANDARDS FOR DEVELOPMENT-LED ARCHAEOLOGICAL PROJECTS IN NORFOLK

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1. INTRODUCTION

1.1 This document has been prepared for the use of professional archaeologists undertaking archaeological projects in Norfolk as part of the planning process. As such, it:

- updates and supersedes the *Standards for Field Archaeology in the East of England* (Gurney 2003), insofar as they relate to Norfolk.
- complements and locally clarifies the Chartered Institute for Archaeologists (CIfA) and other nationally-agreed standards and guidance documents.

1.2 It has been produced to:

- Provide a guide to current standards for development-led archaeological projects in Norfolk.
- Ensure that development-led archaeological projects in Norfolk are of the highest technical and academic quality and that they deliver positive and meaningful outcomes for communities, developers, planning authorities and the study of the historic environment.
- Act as a guide for the preparation of written schemes of investigation, project designs, grey literature reports, publications and archives associated with development-led archaeological projects in Norfolk.
- Inform and support the Service Level Agreements under which Norfolk County Council Environment Service provides archaeological advice to Norfolk's district level planning authorities.

1.3 Norfolk County Council Environment Service (hereafter NCCES) provides advice on the historic environment implications of strategic planning documents, development proposals and the mitigation of their impact to all district council planning authorities in Norfolk (Breckland, Broadland, Broads Authority, Great Yarmouth, King's Lynn and West Norfolk, North Norfolk, Norwich City and South Norfolk), to Norfolk County Council planners, and to developers and historic environment professionals.

1.4 Development-led archaeological projects can take place at a number of different stages in the planning process:

- Strategic planning: archaeological projects can be used to inform the preparation of Local Plans, master plans, Conservation Area Appraisals and Neighbourhood Plans, and during the allocation of sites for development by local planning authorities. They can help ensure strategic planning documents fulfil the requirements of paragraph 126 of the *National Planning Policy Framework (2012)*.
- Pre-application: On the advice of NCCES or an archaeological consultant, developers may choose to carry out archaeological assessments prior to the submission of a planning application to meet the requirements of paragraphs 128 and 135 of the *National Planning Policy Framework (2012)*. This work can involve desk-based research and/or field evaluation.
- Pre-determination and Environmental Impact Assessment: If a local planning authority requires further information on the historic environment implications of a

development proposal in order to determine a planning application or the need for an Environment Impact Assessment, they can require the applicant to submit the results of desk-based research and/or a field evaluation, in line with paragraphs 128 and 135 of the *National Planning Policy Framework* (2012).

- Post-determination: A programme of archaeological mitigatory work can be required by a local planning authority, in accordance with paragraph 141 of the *National Planning Policy Framework* (2012). This work can involve desk-based research, archaeological field and building investigations and recording, and/or preservation *in situ*.

1.5 Relevant paragraphs from the *National Planning Policy Framework* (2012) include:

128. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

135. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

1.6 All archaeological research projects being undertaken in Norfolk are encouraged to follow the standards outlined in this document as best practice and to ensure that the work is included in the Norfolk Historic Environment Record, which aims to be a fully comprehensive record for all archaeological information for the County.

1.7 This document applies to the majority of financial year 2018-19 (following its introduction on 1 May 2018). NCCES recognises that professional practice is continually evolving and will therefore review it during the year, with the aim of issuing an updated version for 2019-20. Feedback on its application during 2018-19 is encouraged and should be submitted to hep@norfolk.gov.uk.

1.8 From 1 May 2018 all documents within the planning process requiring the approval of NCCES (working on behalf of Norfolk's local planning authorities) will be judged on their compliance with the general principles and specific requirements laid out in this document.

2. KEY PRINCIPLES

2.1 All development-led archaeological projects must be conducted in a professional manner by properly qualified, experienced and competent archaeologists operating with sufficient resources and time. In order to ensure that the standards set out in this document are maintained and professionally enforceable, it is essential all development-led archaeological fieldwork and post-excavation projects are undertaken by companies that are Chartered Institute for Archaeologists' Registered Organisations or, in the case of sole traders, individuals who are full members of the Chartered Institute of Archaeologists (MCIfA). CfA Registered Organisations and Members have been accredited by a group of peers, have signed up to the CfA *Code of Conduct* (CfA 2014a) and are subject to a complaints procedure. Registered Organisations are quality assured by the CfA every two to three years.

2.2 All individuals managing development-led archaeological projects (archaeological consultants and Project Managers) should be full corporate members of the Chartered Institute of Archaeologists (MCIfA or ACIfA, depending on the nature of the projects they are managing) or have demonstrated to their employers that they are of equivalent standing (NCCES may request evidence that this has taken place; the evidence required could include *Curriculum Vitae* and continuing professional development logs). Sub-contracted archaeologists and archaeological specialists associated with a project should also be appropriately qualified and experienced within their own field. Further information on professional accreditation can be found at: <http://www.archaeologists.net/>

2.3 All development-led archaeological projects must be undertaken in accordance with the relevant professional standards and guidance. CfA membership and adherence to CfA's *Code of Conduct* (CfA 2014a & 2017) and relevant standards and guidance documents are considered a baseline. Staff working on development-led archaeological projects should not undertake projects or tasks outside their areas of competence.

2.4 Development-led archaeological projects will give due consideration to current archaeological research questions and themes, particularly those outlined for the county in the *Regional Research Framework for the East of England* (Medlycott 2011), and will seek to make meaningful contributions towards these objectives. This should include national, period-specific and artefact-specific research objectives as appropriate.

2.5 Archaeological contractors should seek to maximise the research value of development-led projects through engagement with relevant specialists at an early stage in the delivery of a project (i.e. during, or potentially even before, fieldwork) and the fostering of relationships with appropriate academic institutions. Where appropriate provision should be made for relevant period, artefact or scientific specialists, including conservation laboratory staff, to visit the site during the fieldwork stage to ensure that they are fully aware of the context of the material with which they will be working and so that their advice can be incorporated into the excavation, recording and archiving methodologies as appropriate.

2.6 All development-led archaeological projects should seek to disseminate results as widely as possible. All opportunities for public engagement, including through events, media

coverage, grey literature reports, publication and deposition of archives with a recognised repository, are to be taken.

2.7 Archaeological projects should be considered holistically with all elements (written schemes of investigation/project designs, desk-based research, fieldwork, assessment, analysis, grey literature reporting, publication and the preparation and deposition of the archive with recognised repository) being treated as important. Projects and archaeological contractors must not favour one element over others.

3. PRE-PROJECT AND PROJECT START-UP REQUIREMENTS AND PROCEDURES

3.1 General Requirements

3.1.1 Before development-led archaeological fieldwork starts, the archaeological contractor (or their nominated representative) should obtain a Norfolk Historic Environment Record Event (ENF) number by supplying a completed Request Form to the Norfolk Historic Environment Record (hereafter NHER) at NCCES (heritage@norfolk.gov.uk). Where available NCCES'S Consultation reference (CNF) number should be included on the Request Form (this number can usually be found in email correspondence from NCCES to the planning authority and can, in most cases, be found on the planning authorities websites). If more than one type of archaeological work is going to take place, it is likely more than one NHER Event number will be required. Fieldwork taking place in several separate phases may also require multiple Event numbers.

3.1.2 Where desk-based assessments or evaluations are being undertaken prior to the NCCES Historic Environment Strategy and Advice being consulted (either by the developer, an archaeological consultant or the local planning authority) it will be necessary for the archaeological contractor to obtain a Consultation (CNF) number as well as an Event (ENF) number from the NHER. It is NHER policy that desk-based assessment Event records are excluded from Event record searches (on grounds of confidentiality).

3.1.3 To avoid confusion it is recommended that context numbers used during fieldwork projects do not duplicate those assigned during any preceding phases of work (there being no requirement that contexts assigned to a new Event must start at 1). NCCES may be able to provide details of context numbers used during preceding phases of work, but it is the responsibility of archaeological contractors delivering fieldwork projects to contact all relevant parties (including any other archaeological contractors that may have worked on previous phases) and request the relevant information.

3.1.4 All development-led archaeological projects should obtain up-to-date NHER information prior to the commencement of any fieldwork. There will be cases where a NHER search will be required to inform the production of the written scheme of investigation; these cases will be highlighted in the relevant NCCES brief.

3.1.5 NHER searches need to be formally requested from the NHER, which will charge to supply this data for development-led archaeological projects. The range of datasets requested and other search parameters such as the search area radius will be appropriate for the type and the location of the work taking place and may be specified in the brief. Search results supplied will be regarded as current for a period of 12 months, after which most ongoing projects will be expected to request updated information (on request NHER staff can check to see if any significant relevant changes have been made to HER data). The Norfolk Heritage Explorer website is a filtered NHER dataset with the most sensitive records hidden on the map view and is only periodically updated; it is therefore not suitable for use in any

development-led archaeological work (to use it in this way is contrary to the websites' terms and conditions and could be a breach of Norfolk County Council copyright).

3.1.6 All development-led archaeological projects should have an Online Access to the Index of archaeological investigations (OASIS) record (<http://oasis.ac.uk/pages/wiki/Main>). The online OASIS record will be initiated before a project commences.

3.1.7 NCCES is responsible for monitoring progress and standards of all development-led archaeological projects undertaken in Norfolk on behalf of the county's local planning authorities (to ensure adherence to briefs, Written Schemes of Investigations, planning conditions and the *National Planning Policy Framework 2012*). Archaeological contractors should give NCCES at least six working days written notice of the commencement of each phase of work (including assessment and analysis), so that arrangements for monitoring can be made. NCCES charges for monitoring visits (both to field and office-based projects; please refer to NCCES's historic environment strategy and advice charging schedule 2018-19). If five working days' or less notice is provided prior to the commencement of a phase of work higher fast-track charges will be levied.

3.2 Briefs

3.2.1 Briefs outline the requirements for archaeological work necessary to fulfil the requirements of the planning process, either prior to, or after, the determination of a planning application. They provide clarity and direction to the applicant/developer, their archaeological consultant and contractor, and the local planning authority. They can be used by applicants/developers or consultants to assist with the appointment of historic environment contractors to carry out development-led archaeological projects.

3.2.2 Briefs for development-led archaeological projects are usually produced by NCCES in its role as adviser to Norfolk's local planning authorities. Briefs should be formally requested, with NCCES aiming to provide briefs within 20 working days. NCCES charges for providing briefs (please refer to NCCES's historic environment strategy and advice charging schedule 2018-19).

3.2.3 Briefs issued by NCCES are valid for a specified period from the date of issue (usually one year). After that time, they may need to be revised to take account of new discoveries, changes in policy or the introduction of new working practices or techniques.

3.3 Written Schemes of Investigation

3.3.1 Written Schemes of Investigation are produced by archaeological consultants and contractors and describe all elements of the archaeological work to be undertaken as part of a development-led archaeological project. They state the nature of the work being undertaken by the archaeological contractor and the methodologies that will be employed.

3.3.2 Written Schemes of Investigation should be produced for all development-led archaeological projects in Norfolk. They should meet the requirements outlined in this document and any project brief in full.

3.3.3 Written Schemes of Investigation for all development-led archaeological projects in Norfolk should be submitted to NCCES (working on behalf of Local Planning Authorities) for

approval in writing before they and associated costs are submitted to potential clients. NCCES aims to respond to Written Schemes of Investigation within 20 working days (and within five working days under fast-track services). NCCES charges for assessing some Written Schemes of Investigation (please refer to NCCES's historic environment strategy and advice charging schedule 2018-19).

3.3.4 Where development-led archaeological work is to be undertaken in compliance with planning conditions the NCCES approved Written Scheme of Investigation must be submitted to the local planning authority for formal approval (as part of a formal application to discharge the relevant condition/s). It is the responsibility of a developer (or their nominated representative) to formally submit a Written Scheme of Investigation to the relevant local planning authority.

3.3.5 If a Written Scheme of Investigation covers one phase of archaeological work, it must include full details of the methods to be employed.

3.3.6 Where a programme of archaeological mitigatory work is carried out after the determination of a planning application, the wording of the planning conditions will usually specify the production of a single Written Scheme of Investigation. In these circumstances, or where the Written Scheme of Investigation is produced by a company/organisation (e.g. a consultancy) that is not going to undertake the work itself, it must act as an overarching document that covers all phases of the programme of archaeological mitigatory work. The Written Scheme of Investigation would normally include a detailed Project Design for the first phase of archaeological work only (e.g. post-determination trial trenching) and state that further Project Designs will be submitted to NCCES for approval (on behalf of the local planning authority) for any subsequent phases of archaeological mitigation at the site. It should be noted that all of the requirements for Written Schemes of Investigation stated in this section of the standards document are equally relevant, and should be applied to, separately produced Project Designs.

3.3.7 Written Schemes of Investigation will clearly define the areas of assessment or fieldwork. Areas to be subject to field survey or intrusive techniques will be identified on appropriately scaled plans.

3.3.8 Written Schemes of Investigation should explain how the archaeological projects will contribute to archaeological research, particularly the research questions and objectives outlined in the current *Regional Research Framework for the East of England* (Medlycott 2011). Once an updated East of England Research Framework has been published the research questions and objectives presented by it must be considered.

3.3.9 Authors of Written Schemes of Investigation are advised to inspect the site in question and undertake sufficient background research to establish any constraints to fieldwork, health and safety considerations and to familiarise themselves with the historic environment of the site and its environs.

3.3.10 Written Schemes of Investigations must include a timetable of work.

3.3.11 Written Schemes of Investigation should include the number of person days allocated

to archaeological fieldwork (except for works under archaeological supervision and control, where the number of person days will be determined by the developer's construction timetable).

3.3.12 Written Schemes of Investigation will outline the relevant experience and professional accreditation of the project team. The person managing the project (Project Manager) and fieldwork and post-excavation leaders (Project Officers and/or supervisors) should have demonstrable experience of relevant and appropriate archaeological methods, theory and safe practice.

3.3.13 Professional staff should be employed to undertake all the work necessary to meet the requirements of the project brief and Written Scheme of Investigation. Whilst the provision of opportunities for students, trainees and volunteers (both in fieldwork and office-based tasks) is a practice supported by NCCES, their contribution to development-led projects work must be in addition to that of the project staff and clearly specified in the Written Scheme of Investigation.

3.3.14 The Project Manager and any other supervisory staff should ensure that all members of the project team are appropriately informed as to the projects' methodologies, planning context, historic environment background and specific objectives. As a minimum all members of the team will have read this standards document, the brief and the Written Scheme of Investigation (and/or Project Design/s, if produced).

3.3.15 All archaeological work must be fully compliant with the requirements of the Health and Safety at Work Act (1974) and, where applicable, the CDM Regulations (2015), and the potential for sites to be contaminated by toxins or the presence of unexploded ordnance assessed. Appropriate site-specific Risk Assessments must be produced for all activities.

3.3.16 Archaeological contractors who commence a development-led archaeological project without a Written Scheme of Investigation approved by NCCES will be recorded as having done so and reported to the Chartered Institute for Archaeologists for breaching Chartered Institute for Archaeology guidance (including ClfA 2014c, paragraph 3.2.4; ClfA 2014d, paragraph 3.2.5 and ClfA 2014f, paragraphs 3.2.3-4 and ClfA 2014i, paragraph 1.44.5).

3.3.17 Any variation to an approved Written Scheme of Investigation must be agreed with NCCES, and confirmed in writing, prior to its implementation.

3.3.18 In most cases once approved by NCCES the Written Scheme of Investigation supersedes the brief produced by NCCES within the planning process. If for any reason the archaeological contractor involved in a project changes after a Written Scheme of Investigation has been approved the second archaeological contractor must agree to fulfil the requirements of the existing approved Written Scheme of Investigation or, where this is not possible, submit a Project Design variation to NCCES for approval. The new archaeological contractor may also need to produce updated risk assessments or Project Designs to satisfy the requirements of the developer.

4. STANDARDS FOR RECORDING AND ANALYSIS

4.0.1 These standards can apply to one or more methods of investigation.

4.1 Written Records

4.1.1 All archaeological deposits, features and artefacts exposed, examined or excavated must be fully recorded using written records.

4.1.2 Archaeological contractors will employ standardised and documented recording methods, generally utilising pro forma recording sheets. Copies of contractors' current manuals, recording methodologies or guidance notes should be made available to NCCES and Norfolk Museums Service on request.

4.1.3 Context numbers will be assigned to all features, deposits, structures and other significant elements (e.g. articulated skeletal material) encountered, however recent their origin, in order to enable clear grey literature reports to be produced. The type of context sheets used and the level of recording necessary for recent intrusions will be commensurate with their archaeological importance or lack thereof.

4.1.4 It is acknowledged that digital 'context sheets' are being developed to enable 'paperless' on-site archaeological context recording. Archaeological contractors should discuss and agree any such approaches with NCCES and Norfolk Museums Service prior to their inclusion in a Written Scheme of Investigation.

4.2 Drawn/Graphic Records

4.2.1 The drawn/graphic record is a fundamental element of archaeological investigations of all kinds. The production of drawings whatever methods are employed is fundamental to the analytical observation of archaeological remains.

4.2.2 Where the archaeology of any site reaches beyond a certain level of complication (masonry structures, non-masonry building remains, floors layers, cut features or horizontal stratigraphy of any kind) then it is expected that:

- Detailed plans and sections will be drawn by hand or digitally at appropriate scales. Archaeological contractors should discuss and agree any proposal to use digital plan and section drawing with NCCES prior to its inclusion in a Written Scheme of Investigation. If plans and/or sections are drawn digitally the archive must include print outs of all drawings on paper.
- Full or sample sections of the sides of trenches or excavation areas featuring key deposits and relationships will be drawn on site. The only exception to this is where the stratigraphy comprises topsoil and/or subsoil only directly overlying natural strata of non-anthropogenic significance; in these circumstances depths of topsoil and/or subsoil (and any variations in them) can be recorded in an alternative way.

4.3 Photographic Records

4.3.1 Creating a comprehensive, high quality photographic record is fundamental to all forms of archaeological investigation.

4.3.2 Photographs must be taken during all commercial archaeology field projects, including geophysical survey, field walking, metal detecting and works under archaeological supervision and control.

4.3.3 A project's primary photographic record can comprise either digital or black and white film photography. Digital photography can only form the primary photographic record if the following requirements are met:

- The camera used has a minimum sensor size (APS-C) of 22mm by 15mm. This rules out most compact, bridge and mobile phone cameras.
- The camera used has a sensor that exceeds 10 Mega Pixels.
- All photographs are taken in a raw format (.raw or .nef, for example). Photographs must not be taken in .jpg format.
- All photographs are converted from raw format to uncompressed .tiff at 8 bit. Raw format and .jpg photographs are not suitable for archiving.
- Digital photographs must not be manipulated or altered prior to inclusion in a project archive.
- File names meet the requirements of the Norfolk Museum Service (Norfolk Museums and Archaeology Service 2010).

4.3.4 If one or more of these conditions cannot be met, black and white film photography must form the primary photographic record, alongside illustrative digital photography.

4.3.5 Photographic records must always include general site shots, more specific/detailed shots and photographs suitable for publication. Archive shots of specific features or groups of features must include suitable photographic scales (positioned parallel or perpendicular to the point of view; vertically for deep features and deposits) and a photo-board. Photo-boards must include (as a minimum) the context number and NHER Event number. Scales and photo-boards should be positioned so that they will be legible in the resulting photographs and must not obscure significant elements of the archaeological remains being recorded.

4.3.6 It is expected that a photographic record will be made of all of the archaeological features, deposits, structures or building elements investigated or exposed during fieldwork, unless health and safety considerations make this impossible.

4.3.7 A detailed register should be maintained of the location, subject and direction of view of all photographs taken.

4.3.8 Archaeological contractors are positively encouraged at every appropriate opportunity to use drones to take aerial photographs and video. It is suggested photographs and video are taken from drones on rural open-area archaeological excavations where archaeological features, deposits or structures of regional or higher significance are discovered and aviation rules allow. Video must be shot in a common format that can be archived by the Norfolk Museums Service (see Norfolk Museums and Archaeology Service 2010).

4.4 Metric survey

4.4.1 In most cases, trial trenches, excavation areas, areas monitored, and survey grids and transects, will be laid out according to an approved plan and using a Total Station or a survey grade Global Navigation Satellite System (GNSS)/Global Positioning System (GPS). Once opened, the locations of trial trenches must be confirmed by recording with a Total Station or a survey grade GPS. Data and drawings produced by instrument survey will be fully georeferenced to the Ordnance Survey National Grid.

4.4.2 GNSS/GPS should be used in accordance with Historic England guidance (2015d).

4.4.3 In smaller areas with hard boundaries or structures depicted on Ordnance Survey maps (such as gardens, courtyards and small urban plots) manual triangulation using tape measures may be sufficient.

4.4.4 Fully digital planning of features is acceptable if the resultant plans and illustrations produced are of a sufficient standard (see below).

4.4.5 The use of rectified photographs to produce building elevations and plans of human skeletal remains is encouraged. In most case the rectified photographs will be used as a means to produce a digital plan, section or elevation and rectified images will be an additional part of the archive and not a replacement for the drawn record.

4.4.6 The use of rectified photography to produce 3-dimensional models of structural remains, burials or other significant archaeological features is positively encouraged. Photographs taken to create 3-dimensional models should overlap in such a way that each specific area is present in at least three images (ideally with at least 60% overlap side-to-side and 40% up-and- down to ensure good coverage; Historic England pers comm but see Historic England 2017a). They must also be appropriately geo-referenced.

4.5 Human remains

4.5.1 Excavators must be aware of, and comply with all relevant legislation and guidance relating to human remains, notably the 1857 Burials Act, the Disused Burial Grounds (Amendment) Act 1981, any Ministry of Justice Licence, faculty jurisdiction, The Advisory Panel on the Archaeology of Burials in England's guidance (2015 and 2017), The Protection of Military Remains Act (1986) and any relevant environmental health regulations. The views of faith/religious communities must be sought whenever possible and fully respected.

4.5.2 Where it is known, or might reasonably be expected, that human remains will be encountered during an archaeological project, the archaeological contractor should apply to the Ministry of Justice for an exhumation licence *prior* to the commencement of the archaeological fieldwork. Archaeological contractors should supply copies of exhumation licences issued by the Ministry of Justice (or where appropriate Church of England faculty documents) to NCCES and cite the licence/faculty reference in any subsequent reports.

4.5.3 When human remains are identified during trial trenching phases of a project (either prior to, or after, planning permission has been granted) it may be necessary to excavate, record and exhume a sample of the burials so that their date, state of preservation and

significance can be fully established (using radiocarbon dating if necessary) to ensure that any subsequent mitigation works are suitably informed and that burials are not subject to disturbance and loss between trial trenching and mitigation (e.g. by agricultural activity). Decisions on the excavation, recording and exhumation of human remains during trial trenching will be taken on a site by site basis.

4.5.4 During excavation, burials must be recorded *in situ* and subsequently lifted, washed in water (without any additives), and packed to standards compatible with McKinley & Roberts 1993 and Brickley & McKinley 2004.

4.5.5 Where appropriate samples should be taken to retrieve small bones and other biological remains.

4.5.6 With the exception of projects within active Christian burial grounds, where articulated human remains are discovered during development-led projects, provision must be made for a recognised specialist in human skeletal material to visit the site and confirm their identification during the fieldwork stages of the project so that appropriate advice can be given.

4.5.7 The Ministry of Justice requires details of reburial or archiving (including a timescale for when this will be done) when a licence is applied for. However, the research potential of an assemblage may not be known until it is excavated and the views of interested parties (local and/or faith/religious communities) need to be taken into account. Consequently, although desirable, it is not always possible to state the final destination in a licence application or the Written Scheme of Investigation. Instead, archaeological contractors should make an interim statement when they apply for a licence, with a variation submitted to the Ministry of Justice if and when necessary.

4.6 Palaeoenvironmental and technological analysis

4.6.1 Fieldwork projects must make provision for the sampling of deposits for the analysis of palaeoenvironmental remains and technological residues. Samples for laboratory assessment and analysis will be collected where appropriate, following discussion with the relevant project specialist, with input from NCCES and the Historic England Regional Science Advisor where appropriate.

4.6.2 Bulk samples should be taken at the time of initial excavation, not after a feature has been half-sectioned. If bulk samples are taken after half-sectioning there is a danger there may not be enough of the deposit remaining to provide an adequately-sized sample. Bulk samples should normally be of 20-40 litres (lesser quantities will normally only be acceptable when the maximum volume of a deposit is less than 20 litres).

4.6.3 Bulk samples and samples taken for coarse-mesh sieving from dry deposits must be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies if necessary, but also because processing a backlog of samples at a later stage can cause delays.

4.6.4 All samples should be appropriately packaged and securely stored. Wherever possible samples processed promptly in order to avoid the potential for deterioration.

4.6.5 Appropriate assessment of samples must be undertaken. Where preservation *in situ* is a viable option, consideration should be given to the possible effects of the varied mechanical impacts of construction practices, such as (but not exclusive to) distortion/warping, compaction, consequential dewatering, grouting intrusion, rutting and/or, chemical change.

4.6.6 Deposits will be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological (botanical and faunal) remains. The sampling strategy must include a reasoned justification for selection of deposits for sampling, and will be developed in collaboration with a recognised bioarchaeologist and/or palynologist.

4.6.7 When designing sampling strategies full consideration must be given to the potential for deposits containing palaeoenvironmental remains (e.g. wood or charcoal fragments) to be dated using scientific methods (such as radiocarbon dating) irrespective of whether or not any dateable artefacts are visibly present.

4.6.8 Animal bones should be collected and studied in accordance with English Heritage 2014. Assemblages, or sub-samples of them, must be assessed by a recognised specialist. Following assessment, appropriate samples must be analysed.

4.6.9 Sampling methods for macrofossils (e.g. shells, seeds, insects) and microfossils (e.g. pollen, foraminiferans) must follow the document English Heritage 2011 (and English Heritage 2008b where deposits are waterlogged).

4.6.10 Sampling strategies for wooden structures must follow the methodologies presented in English Heritage 2010.

4.6.11 Geoarchaeology studies should follow the guidance provided by Historic England 2015b. Buried soils and sediment sequences must be inspected and recorded on site at both the evaluation and excavation stage by a recognised geoarchaeologist. Field inspection can provide sufficient data for understanding site formation processes, thereby avoiding the collection and processing of redundant samples.

4.6.12 During fieldwork projects, samples will be collected for analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques as appropriate, following the outline strategy presented in the Written Scheme of Investigation and in consultation with a recognised geoarchaeologist. Special consideration should be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment.

4.6.13 When appropriate features or deposits are encountered provision must be made for the sampling and analysis of technological residues.

4.6.14 Where there is evidence for industrial activity relating, for example to ceramics or glass, macroscopic technological residues (or a sample of them) must be collected by hand.

4.6.15 Where appropriate, separate samples (c. 0.2 litres) must be collected for micro-slugs, hammer-scale and spherical droplets. Reference should be made to *Archaeometallurgy* (Historic England 2015a) and *Hammerscale* (Starley 1995).

4.6.16 Assessment of any technological residues will include x-radiography of a sample of industrial debris relating to metallurgy.

4.7 Scientific dating

4.7.1 All fieldwork projects must make provision for the sampling of deposits for scientific dating. Sampling strategies must be agreed with NCCES and, where appropriate, discussed with Historic England's Regional Science Advisor. Scientific dating should always be undertaken in relation to explicit research questions that are appropriate to both the anticipated accuracy and reliability of the selected technique. In the case of radiocarbon dating, for example, this means considering a current calibration curve in order to determine the likely precision of possible date ranges and the likelihood that the material selected for dating can reliably date any associated structure or deposit.

4.7.2 Scientific dating should adhere to relevant published standards and guidance (for example, English Heritage 2006, English Heritage 2008c and Hillam 1998).

4.7.3 Single samples are generally to be avoided. Multiple samples from across sites and at multiple points within archaeological sequences are preferred.

4.7.4 The application of Bayesian statistics to dates secured through scientific dating is encouraged.

4.8 Artefact collection

4.8.1 All artefacts and ecofacts recovered should be appropriately packaged, labelled and removed to a safe location at the end of each day.

4.8.2 All finds located manually or by other means (such as metal detecting) must be collected and processed, unless sampling strategies (e.g. for bulk materials) are otherwise agreed with NCCES and the Norfolk Museums Service. Any policy to discard all or part of an assemblage (either during collection or post-excavation analysis) must be agreed with NCCES and the Norfolk Museum Service. Discard of artefactual material during post-excavation will normally only be acceptable following the completion of a full, quantified catalogue by an appropriately qualified specialist. For example, if extensive deposits of building debris (such as brick, roof tile) are encountered representative samples of these materials must be retained for specialist analysis. A record of the approximate percentage retained is to be made.

4.8.3 Unless not practically possible or at variance with any agreed, or potential, preservation *in situ* methodologies samples of brick, tile and other building material should be extracted from exposed structures for specialist analysis and dating.

4.8.4 Under certain circumstances specific contexts may need to be sieved in order to maximise the retrieval of artefacts. Such strategies need to be agreed with NCCES.

4.8.5 Every effort should be made to ensure that all artefacts recovered during the course of investigation remain together as part of a complete site archive for deposition with the Norfolk Museums Service.

4.9 Metal Detecting

4.9.1 Metal detecting is to be undertaken during all types of intrusive investigations.

4.9.2 Metal detectors used in development-led archaeology should have separate discrimination and sensitivity controls. It is generally not acceptable for metal detectors to be set to discriminate against iron objects.

4.9.3 Topsoil, subsoil or other overburden must be scanned with a metal detector before and during its excavation, including when it is excavated by machine.

4.9.4 Exposed features and layers should be scanned by metal detector prior to, and periodically during, their excavation.

4.9.5 All spoil heaps, whether of topsoil/overburden or from excavated archaeological deposits are to be scanned with a metal detector. Spoil heaps should be kept as low in height and as spread-out as possible to allow for metal detecting.

4.9.6 Where spoil is removed from a site its final destination should, where possible, be ascertained and described in the relevant grey literature report.

4.10 The Treasure Act

4.10.1 It is the responsibility of all contractors to ensure that they have understood and conform to the terms of the Treasure Act 1996. The implications of the Treasure Act should be factored into any project from its inception.

4.10.2 All development-led archaeological projects should follow the advice provided by the Portable Antiquities Scheme for Treasure (<https://finds.org.uk/treasure/advice/forarchaeologists>).

4.10.3 Should an artefact classed as potential Treasure be recovered during the course of investigation, the law requires that it be reported to the local coroner within 14 days of discovery or realisation that the artefact(s) constitute potential Treasure. Contractors should liaise with the Treasure team at the British Museum directly (treasure@britishmuseum.org), copying the Norfolk Finds Liaison Officer in on all correspondence. Stand-alone reports must be prepared on Treasure finds and submitted to the British Museum; these can be included in project grey literature reports. The Norfolk Finds Liaison Officer can, on request, provide basic advice on the terms and requirements of the Treasure Act. NCCES charges for Finds Liaison Officer time involved in providing assistance in development-led Treasure cases. The archaeological contractor should also make the landowner aware of how the Treasure process works and what this might mean in terms of claiming a reward and archiving.

4.10.4 Although finders are not eligible to receive a reward for Treasure recovered during development-led archaeological investigations, landowners are still entitled to claim their share of any reward. Upon discovery of potential Treasure this should be discussed with the landowner(s) at the earliest possible juncture. Landowners are entitled to waive their rewards and it is recommended that they be encouraged to do so in order to guarantee the integrity of the site archive. As any claim may impair the ability of the designated site repository to acquire this part of the archive, it is important to establish any claim as early as possible.

4.11 Artefact Assessment, Analysis and Conservation

4.11.1 All finds work must be to accepted professional standards and the relevant CfA standard and guidance (CfA 2014g) adhered to.

4.11.2 Finds analysis and reporting should be undertaken by, or under the supervision/guidance of, an appropriately qualified and experienced specialist. Specialists likely to assess or analyse artefacts should be named in the project Written Scheme of Investigation. Changes to specialists named in an approved Written Scheme of Investigation should be agreed with NCCES in advance.

4.11.3 During the assessment of metal finds, the advice of a professional conservator must be sought on conservation and x-ray requirements. A significant proportion of metal objects should be x-rayed, including all coins and most iron objects, in accordance with Norfolk Museums Service's requirements (Norfolk Museums and Archaeology Service 2010, 15). The x-rays must be included in the site archive as an integral component of the finds records. The Norfolk Museums Service will accept digital x-rays in uncompressed tiff format. It may not be possible to ensure the long-term stability of all metal objects and the x-ray data may, in certain circumstances, provide the only record of these artefacts in the archive in the future.

4.11.4 Once assessed, all material must be packed and stored in optimum conditions, as described in *First Aid for Finds* (Watkinson and Neal 1998). Waterlogged organic materials must be dealt with following relevant guidelines (English Heritage 2010; Karsten *et al.* 2012).

4.11.5 A rapid scan of all excavated material must be undertaken by conservators and finds researchers in collaboration. Material considered vulnerable will be selected for stabilisation after specialist recording. Where intervention is necessary, consideration should be given to possible investigative procedures (e.g. glass composition studies, residues in or on pottery, ceramic thin sections, and mineral-preserved organic material).

4.11.6 Investigative conservation will be undertaken on those objects selected during the assessment phase, with the aim of maximising information whilst minimising intervention. Where necessary, active stabilisation/consolidation will be carried out, to ensure long-term survival of the material, but with due consideration to possible future investigations. Proposals for ultimate storage must follow Walker 1990.

4.11.7 No sampling or disposal of cultural material from an evaluation or excavation may take place without prior approval of NCCES and Norfolk Museums Service. The partial or complete disposal of an assemblage during post-excavation is only be acceptable following the completion of a full, quantified catalogue by an appropriately qualified specialist. Artefacts that are clearly modern can be disposed of on site, unless they are of archaeological significance or have direct relationship with a modern site that is being investigated.

5. STANDARDS FOR METHODS OF INVESTIGATION

5.1 Non-intrusive methods

5.1.1 Desk-Based Assessment

5.1.1.1 Desk-based assessments assess the significance of known heritage assets and the potential for new discoveries. They can raise awareness of heritage issues and allow developers to incorporate the historic environment into development proposals. They can provide local planning authorities with the information required to judge development proposals against the *National Planning Policy Framework (2012)*.

5.1.1.2 Archaeological desk-based assessments associated with development-led projects must be produced in accordance with ClfA standard and guidance (ClfA 2014h).

5.1.1.3 NHER Event numbers should be requested for archaeological desk-based assessments.

5.1.1.4 The production of archaeological desk-based assessments associated with development-led projects should involve all relevant sources and include, as appropriate:

- A detailed consideration of all NHER records within a study area appropriate for the size and location of the site. The information provided should be concise, directly relevant to the project and commensurate with the significance of the projects results. Assessments should include synthetic analysis of NHER data, not undigested repetition of information contained in NHER records. It should be borne in mind that the NHER is a record of where information about Norfolk's historic environment has been identified and recorded, not the potential for it to be present. Consequently, spatial gaps in the NHER dataset may reflect a lack of previous investigation in those areas and do not necessarily indicate a low potential for heritage assets to be present. Consultation of the NHER is a minimum requirement of the *National Planning Policy Framework (2012)*.
- An examination of grey literature reports and any other relevant supporting paper or digital material held by the NHER.
- An examination of any grey literature reports held by the Archaeology Data Service but not the NHER.
- Analysis of National Mapping Programme plots and Historic Landscape Characterisation data, if available. Where available, plots of features recorded by the National Mapping Programme must be included within assessments on appropriately scaled plans.
- A full map-regression of the proposed development site and its environs based on inspection of historic maps held in the Norfolk Record Office, the Norfolk Heritage Centre, other relevant collections, published reprints (such as Faden's map of 1797 and Bryant's map of 1826) and online sources (including the Historic Map Explorer (<http://www.historic-maps.norfolk.gov.uk/mapexplorer/>) and the National Library of Scotland (<http://maps.nls.uk>)). The examination of online historic map sources alone is only acceptable when it can be demonstrated that publically accessible repositories do not physically hold any additional relevant maps.

- Consultation of the Norfolk Aerial Photographic Library and other imagery archives (including Google Earth).
- LiDAR data where available.
- Consultation of the National Heritage List (<https://historicengland.org.uk/listing/the-list/>) and MAGIC (<http://www.natureonthemap.naturalengland.org.uk/>).
- Consultation of the National Record of the Historic Environment.
- Consultation of relevant archaeological archives held by museums and local societies.
- Consultation of relevant archaeological publications.
- Consultation of geological maps and relevant borehole data.
- A site visit and a report on the observations made.

5.1.1.5 Archaeological desk-based assessments associated with development-led projects should be produced by staff with demonstrable experience of undertaking high quality desk-based research.

5.1.1.6 Archaeological desk-based assessments associated with development-led projects must list all sources consulted. Any sources known to be available but not consulted should also be listed, with reasons provided to explain why they were not used. Maps and other illustrations will be fully referenced and appropriate permissions obtained for their reproduction.

5.1.1.7 Archaeological desk-based assessments associated with development-led projects will identify and (where relevant) plot:

- All areas of known and potential archaeological interest within the defined area. Areas of known or potential historic, architectural and/or artistic interest can also be highlighted.
- An assessment of the impact that previous development or other activity at the site may have had on buried archaeological deposits including depths where known. This should consider the footprint of current structures, previous building (including structures on historic maps, cellars and basements), landscaping, buried services, quarrying and ground remediation. A plan showing all identified areas of previous impact must be included in the desk-based assessment report.
- Any areas of known or potential ground contamination.
- The scale and nature of the development proposal if known.
- Relevant designated heritage assets (including Scheduled Monuments, Conservation Areas, Parks and Gardens and Listed Buildings). Where non-archaeological constraints are identified (e.g. Site of Special Scientific Interest, sites of wildlife interest, protected species, Tree Preservation Orders, agri-environment schemes, Environmentally Sensitive Areas), it is helpful if these are included
- Geology, soils, drainage, anticipated preservation conditions and variables affecting preservation of biological remains and organic artefacts.
- Any previous investigations in archaeological science at the site or immediately adjacent to it.

5.1.1.8 They should include:

- Assessment of the significance of known and potential archaeological interest at local, regional and national levels.
- Assessment of development proposals and their impact on the significance of known and potential archaeological interest.

5.1.1.9 When NHER records are referenced, NHER numbers (PrefRefs) must be used. Database generated numbers (MNF numbers) must not be used. If project-specific numbering generated by the archaeological contractor is to be used tables must be included to allow easy cross-referencing with the NHER (PrefRef) number.

5.1.2 Analysis of aerial imagery

5.1.2.1 Analysis of aerial images (including photographs and LiDAR) can be an important component of archaeological assessment and may provide a level of detail that cannot be achieved by other non-intrusive survey. Where ground conditions are favourable, aerial analysis can also identify geological disturbances, the periglacial landscape, soil erosion and accumulation, and cut or embanked features.

5.1.2.2 Where an accurate plot of archaeological features is required, suitable air photo rectification software (such as AirPhoto) should be used for all sources (including vertical aerial photographs) that are not already geo-rectified (the most accurate base map available should be used). Plotting of features should be undertaken at a minimum scale of 1:2500. Manual transcriptions are no longer appropriate for development-led archaeological projects.

5.1.2.3 Aerial image analysis should use as a minimum:

- the Norfolk Air Photo Library collections (including RAF, Ordnance Survey and BKS vertical photography)
- Google Earth (all available years)
- Bing Maps
- Environment Agency LiDAR data (<http://environment.data.gov.uk/index.html>)
- Historic England Archive collection in Swindon
- Britain from Above (<https://britainfromabove.org.uk/>)

5.1.2.4 Aerial image analysis should study sources in their original format wherever possible. All stereo runs (vertical and oblique) should be viewed in stereo.

5.1.3 Earthwork survey

5.1.3.1 Archaeological earthwork survey can be employed as field evaluation (pre-application or pre-determination) or mitigation (post-determination) techniques.

5.1.3.2 Archaeological earthwork surveys associated with commercial projects must be produced by archaeological staff with demonstrable experience of undertaking high quality surveys. Although highly skilled, land surveyors rarely have the relevant knowledge and skills to undertake archaeological earthworks surveys; if they are involved they must always work under the supervision of an appropriately experienced archaeologist.

5.1.3.3 Work must be carried out in accordance Historic England's guide to the archaeology of landscapes (Historic England 2017b).

5.1.3.4 Surveys must be undertaken using appropriate survey equipment, preferably including a total station or survey grade GNSS/GPS.

5.1.3.5 Unless otherwise agreed with NCCES earthworks surveys should be based on spot height and contour surveys. Spot height surveys must record any and all existing earthworks; they must fully illustrate all variations in the area being studied. Spot heights must be converted into contours following the completion of the spot height survey (the computer software used to do this must be agreed with NCCES in advance, as must the statistical techniques/algorithm it uses to grid data).

5.1.3.6 Where available, LiDAR data should be used to inform and enhance earthwork surveys particularly to provide a wider context beyond the survey area.

5.1.3.7 Contour plans should be accompanied/overlaid by an earthwork interpretation plan which distinguishes between archaeological earthworks and natural topography in an appropriate manner. This interpretation must be based on the professional judgement of the archaeological surveyor.

5.1.3.8 Earthwork interpretation plans and accompanying grey literature reports must identify the location, form and condition of the earthworks with some indication of function if possible.

5.1.3.9 Earthwork survey interpretative drawings must be in accordance with the following:

- produced at the most appropriate scale
- include at least two National Grid points
- clear identification of earthwork features, potentially with use of hachures
- sufficient detail of the adjacent topography so that the survey can be easily related to present-day landscape features
- include profiles across any earthworks at appropriate scales. Exaggeration of the vertical scale on sections/profiles is acceptable if this aids interpretation.

5.1.3.10 Earthwork survey drawings must be integrated into an analytical grey literature report, with description and interpretation referenced by letters or numbers to the plan. The accompanying written account should include items 1-6 and 8-12 as defined by Historic England 2017b (37). The survey drawings should include items 13-14 as defined by Historic England 2017b (38).

5.1.4 Geophysical survey

Geophysical survey can be employed as a field evaluation technique (pre-application or pre-determination) or as the first-phase of mitigation (post-determination).

5.1.4.1 Geophysical surveys must be carried out in accordance with relevant CIfA and Historic England standard and guidance (CIFA 2014d; English Heritage 2008a).

5.1.4.2 Project archives must be prepared in line with Schmidt 2013 and lodged with an appropriate repository (preferably the Norfolk Museums Service).

5.1.4.3 As with other forms of fieldwork an NHER Event number will need to be acquired from the HER prior to the commencement of a survey. If the geophysical survey does not form part of a wider study such as a desk-based assessment or environmental statement chapter contractors will be expected to obtain a HER search including National Mapping Programme data and examine historic maps in order to place their results fully within the context of previous archaeological findings of all kinds.

5.1.4.4 Magnetometer surveys should be conducted using cart mounted sensors, unless site conditions prevent the use of a cart system. Data must be collected at sub-metre traverse intervals, with a minimum of four samples per metre, and located using appropriate instrument metric survey techniques.

5.1.4.5 Unless the sensor array used renders it unnecessary and agreed in advance, each day on site, the survey team must survey one traverse twice, to check calibration and demonstrate the repeatability of the results. The traverse should not be surveyed twice in quick succession, but should be repeated at a later point in the day. The results of both surveys of the traverses must be presented as an appendix to the grey literature report as raw data. In the case of hand held magnetometers, an entire 30m grid should be repeated daily.

5.1.5 Historic Building recording

5.1.5.1 Historic building recording can be employed as a field evaluation (pre-application or pre-determination) or mitigation (post-determination) technique.

5.1.5.2 Historic building recording must be undertaken in accordance with the guidance contained in *Understanding Historic Buildings: A guide to Good Recording Practice* (Historic England 2016) and relevant ClfA standard and guidance (ClfA 2014e).

5.1.5.3 A suitably qualified buildings archaeologist, conservation architect and/or architectural historian should carry out historic building recording. NCCES may request evidence of historic buildings skills, experience, knowledge and/or professional accreditation.

5.1.5.4 Where a Standing Structure Impact Assessment is required, this will usually include, as a minimum, an Archaeological Desk-Based Assessment, an outline photographic survey, measured plans, elevations, or other surveys representing the existing structure, drawings in plan and elevation indicating the proposed development, and a complete planning history of the site. This may be required before an application is determined, in cases where the information has not already been included with an application. In the case of demolition proposals, then a fuller level of recording may be required at this stage when the structure has potential for archaeological significance.

5.1.5.5 The aims and objectives of a programme of work involving building recording will generally be according to one of the four following levels as laid out and defined in *Understanding Historic Buildings: A guide to Good Recording Practice* (Historic England 2016):

1. A basic visual record. A mainly photographic record with a minimum amount of written information and plans showing where the photographs were taken from.

2. A descriptive record. Similar to level 1 but with an analysis of the building's development. The grey literature report will contain plans and more explanatory photographs.
3. An analytical record. A full and systematic account of the building's history with full illustration of the evidence on which the analysis is based. This will include drawings, sketches, plans and photographs
4. A comprehensive analytical record. This draws on a full analysis of the documentary evidence as well as the fabric and defines its significance in terms of architectural, social, regional or economic history

5.1.5.6 These levels may be tailored in order to address particular circumstances.

5.1.5.7 Photography must be in compliance with account sections 4.4 and 6.1.5-7 of *Understanding Historic Buildings: A guide to Good Recording Practice* (Historic England 2016). For elevations and rectified photography a camera with perspective control (rising front) is especially useful in the recording of buildings. Archive photographs (but not necessarily those used for rectification) will include a scale.

5.1.5.8 Where new measured drawings are required the architectural drawing conventions promoted by Historic England are to be used. These were first published by the Royal Commission on the Historical Monuments of England over 40 years ago and are most recently published in *Understanding Historic Buildings: A guide to Good Recording Practice* (Historic England 2016).

5.2 Intrusive methods

5.2.1 Surface collection (fieldwalking and metal detecting)

5.2.1.1 Fieldwalking and metal detecting can be employed as field evaluation (pre-application or pre-determination) or as part of a suite of mitigation (post-determination) techniques.

5.2.1.2 Work must be carried out in accordance with relevant ClfA standard and guidance (ClfA 2014c) and Historic England's *Our Portable Past* (2018).

5.2.1.3 Written Schemes of Investigation (or Project Designs if they are produced) for fieldwalking and metal detecting must aim for survey in optimum field conditions. In the case of fieldwalking, optimum conditions follow cultivation, levelling (by harrowing, for example), an appropriate period of weathering and with minimal vegetation cover.

5.2.1.4 The surface conditions at the time of survey must be fully documented in the grey literature report, along with other variables (e.g. weather, light, obstructions, topography, collector etc.), and the impact of these variables on the recovery of data should be assessed.

5.2.1.5 Metal detectorists and fieldwalkers with proven experience must be involved in development-led fieldwalking and metal detecting projects.

5.2.1.6 In all cases grids and transects must be located using an appropriate metric survey technique so they can be related to the British National Grid, plotted and fully documented

so that the precise locations of those surveys can be accurately re-established. Transects for fieldwalking should be at 10 metre intervals, unless otherwise specified in a NCCES brief. Search/collection units of specified length will be employed to locate concentrations of artefacts. Fieldwalkers will observe a 2 metre wide strip along each transect, thereby examining a minimum 20% sample of the field surface.

5.2.1.7 Selective collection can bias data and therefore is not advisable. However, where large amounts of *e.g.* post-medieval brick or tile fragments or burnt flints are not collected, the presence of this material must be recorded. Collection and discard policy must be agreed with NCCES and stated in the Written Scheme of Investigation.

5.2.1.8 The recovery of archaeological objects located by metal detector is an activity which, for the purposes of field survey, is to be restricted to the ploughsoil. In the event that an object or group of objects is located below ploughsoil depth, these must initially be left *in situ* while arrangements are made for their recovery under controlled excavation conditions.

5.2.1.9 It is generally not acceptable for metal detectors to be set to discriminate against iron objects. It is generally acceptable to discard items of no archaeological significance, however when the date and function of an object is unknown or uncertain it must be retained for examination by relevant specialists.

5.2.1.10 A pro-forma recording sheet will include details of conditions, the equipment used, discriminator level, operator *etc*, and a general comment about any discarded material.

5.2.2 Mechanical excavation

5.2.2.1 A mechanical excavator working under close and constant archaeological supervision may be used to remove all undifferentiated topsoil, subsoil and/or overburden of recent origin in spits of no more than 0.1m down to the first significant archaeological horizon. A mechanical excavator with a wide flat-bladed (*i.e.* toothless) bucket will usually be used. In some instances, topsoil layers may themselves require hand-excavation, in which case this will be specified in the NCCES brief and/or Written Scheme of Investigation.

5.2.2.2 If necessary the width of the toothless bucket will be specified in a NCCES brief and/or Written Scheme of Investigation (in the case of evaluation trenches, for example).

5.2.2.3 Modern concrete, asphalt and/or hard-core can be broken up with breakers and/or toothed buckets, providing it is not of archaeological significance and is not being retained as part of a development. There may be a requirement to retain Second World War hard-standing, for example.

5.2.2.4 Topsoil and subsoil will be recorded in the same manner as any other archaeological deposits, with full soil descriptions and regular measurements of depths. Variations in depth of topsoil and subsoil across areas subject to trial trenching or excavation must be recorded.

5.2.2.5 Topsoil and subsoil will be metal detected during machine excavation. Artefacts will be recovered, spatially-recorded, labelled, bagged, and retained.

5.2.2.6 Exceptionally, and only with the prior approval of NCCES, the mechanical removal of bulk archaeological deposits may be permitted.

5.2.2.7 Provision must be made for the cleaning by hand of the faces of trenches and, where appropriate, the machined surface.

5.2.2.8 Trenches or excavation areas must not be backfilled without the prior approval of NCCES unless this is necessary for urgent and compelling safety reasons.

5.2.3 Trial trenching

5.2.3.1 The purpose of trial trenching is to recover as much information as possible on the extent, date, phasing, character, function, status and significance of a particular site.

5.2.3.2 Trial trenching can be employed as a field evaluation (pre-application or pre-determination) or mitigation (post-determination) technique. If it is employed as a mitigation technique, project documentation should not refer to it as an evaluation technique, but will instead refer to it as an informative trial trenching within a programme of archaeological mitigatory work.

5.2.3.3 Irrespective of the stage in the planning process at which trial trenching is undertaken the work must be carried out in accordance with relevant ClfA standard and guidance (ClfA 2014c).

5.2.3.4 Trial trenching will normally examine an appropriate sample (often expressed as a % of the area of the proposed development site) as required by a NCCES Brief. The area of the base of a battered or stepped trench will usually be the figure used to determine if the sample has been achieved. Where the sample size is not stipulated in the Brief, a rationale for the sampling method will be provided in the Written Scheme of Investigation, based on knowledge and understanding of the surrounding historic environment resource.

5.2.3.5 Trial trenching projects should produce clear and unambiguous results that can be used inform the planning process and the need for any further archaeological work. To achieve this, it will sometimes be necessary to excavate additional trial trenches to address specific questions, such as the extent/form/date of individual features, which arise during that phase of fieldwork.

5.2.3.6 Before development-led trial trenching projects start, plans showing the proposed location of all trenches must be approved by NCCES. Where cropmarks or geophysical anomalies have been previously identified it is expected these will be targeted by trenches.

5.2.3.7 Where unexpected constraints (e.g. active services) are encountered minor variations to trench layout may usually be made without consulting NCCES. However, any substantive changes to the agreed strategy or trench plan must be agreed with NCCES before implementation particularly where trenches have been positioned to examine specific features such as a cropmarks or geophysical survey anomalies.

5.2.3.8 Trenches should characterise the full archaeological sequence down to undisturbed deposits. It is also expected that all exposed features and key relationships will be investigated

in accordance with agreed sampling strategies. Selective excavation will only be permissible in agreement with NCC, with professional judgement and site monitoring visits used to inform strategies.

5.2.3.9 Archaeological features, deposits and spoil will be metal detected before and during manual excavation. Artefacts will be recovered, spatially-recorded, labelled, bagged, and retained.

5.2.3.10 A sufficient sample of every archaeological and suspected archaeological feature or deposit should be excavated. This is likely to include:

- Slots through each linear feature. Relationships with other features and deposits will normally be investigated. Slots will also be excavated away from relationships to retrieve dating evidence.
- Unless falling into the category below, discrete/non-linear features (pits and post-holes for example) will normally be 50% excavated (half-sectioned). All relationships with other features and deposits will be investigated.
- Discrete features of high potential (palaeoenvironmental and artefactual potential, for example) may need to be fully excavated.

5.2.3.11 The states of preservation of archaeological features or deposits must be determined and then articulated in the project grey literature report. It is also expected that all samples taken in order to assess the nature of particular deposits or the preservation of certain type of environment evidence are processed prior to the submission of the draft grey literature report.

5.2.4 Excavation

5.2.4.1 Archaeological excavation tends to be employed as mitigation (post-determination) technique.

5.2.4.2 The purpose of an archaeological excavation is to recover as much information as possible on the origins, date, development, phasing, spatial organisation, character, function, status, significance and the nature of social, economic and industrial activities of a selected site or area.

5.2.4.3 Archaeological excavations must be carried out in accordance with the relevant ClfA standard and guidance (ClfA 2014b).

5.2.4.4 Archaeological excavations should examine, excavate and replace by record all archaeological features, deposits and structures within a defined area or areas to an agreed depth. They will assess their potential for analysis, produce a Post-excavation Assessment Report and Updated Project Design, undertake an agreed programme of analysis and artefact conservation, produce an archive and a fully illustrated grey literature report, seek to secure the transfer of the full archive (including artefacts) to an appropriate repository and disseminate the results as widely as possible (including publication commensurate with the significance of the discoveries).

5.2.4.5 In many cases, the areas identified for excavation in the brief and Written Scheme of Investigation will be excavated to undisturbed geological deposits, thereby enabling the preservation by record of a complete archaeological sequence. However, investigation should not be at the expense of any structures, deposits, features or finds which might reasonably be considered to merit preservation in situ.

5.2.4.6 The following should be considered as the minimum requirements:

- At least a 10% sample of each linear feature will be excavated in segments, with professional judgement and discussions during site monitoring visits informing strategies. Relationships with other features and deposits will be investigated and sections showing the relationships drawn. Isolated sections away from intersections should also be excavated to retrieve dating evidence.
- Unless falling into the categories below, discrete/non-linear features (pits and post-holes for example) will normally be 50% excavated (half-sectioned) and the section drawn. Relationships will be investigated and sections showing relationships drawn.
- Graves (inhumations and cremations) will be 100% excavated and detailed plans and sections drawn (once relevant licences have been secured).
- Industrial features (kilns, ovens etc) will be 100% excavated, planned in detail and sections drawn. Full sampling will take place to recover evidence of purpose, fuel etc.
- Discrete features with high palaeoenvironmental potential will be 100% excavated. Strategies for excavating infilled ponds and palaeochannels will be based on professional judgement and discussions during site monitoring visits.
- Features containing artefacts of high significance (hoards, structured deposits or whole or near whole pottery vessels, for example) will be 100% excavated.
- All buried soils will be appropriately sampled. Excavation/investigation strategies should be informed by a geoarchaeologist and agreed with NCCES and, where relevant, Historic England's Regional Science Adviser. Buried soils must not be excavated by machine without prior agreement of NCCES.

5.2.4.7 Archaeological features, deposits and spoil will be metal detected before and during manual excavation. Artefacts will be recovered, spatially-recorded, labelled, bagged, and retained.

5.2.4.8 Provision should be made within excavation projects to extend the excavation area if significant archaeological remains are found to extend beyond the initially defined excavation boundary and it is practically possible to do so. The potential need to extend excavation areas will be mentioned in briefs and Written Schemes of Investigation.

5.2.4.9 Archaeological contractors must provide sufficient, secure and separate accommodation for site records, and for finds processing and finds storage if these activities take place on site.

5.2.4.10 Excavations will occasionally take place in a series of intermittent or annual phases. In these cases it will usually be stipulated in the brief that an interim grey literature report is submitted shortly after the completion of each phase of fieldwork. This mitigates against the

impact of key staff moving on, different contractors being appointed, sites changing hands and so forth. The contents of interim grey literature reports are outlined below.

5.2.4.11 There is a general expectation that excavation grey literature reports will fully integrate any relevant results from preceding trial trenching.

5.2.5 Works under Archaeological Supervision and Control (Monitoring)

5.2.5.1 The monitoring of groundworks under archaeological supervision and control (WUASC) tends to be employed as mitigation (post-determination) technique.

5.2.5.2 The monitoring of works under archaeological supervision and control (formerly called a 'watching brief') requires a professional archaeologist to be present throughout, or during certain specified phases of, a development to control works and record any archaeologically significant features or deposits exposed. They should also recover any archaeological artefacts or ecofacts revealed.

5.2.5.3 The monitoring of works under archaeological supervision and control must be undertaken in accordance with relevant ClfA standard and guidance (ClfA 2014f).

5.2.5.4 Unless otherwise set out in the brief and Written Scheme of Investigation provision must be made for an archaeological monitoring and recording of:

- all areas of below-ground disturbance, including the excavation of foundation trenches, service trenches, drains and soakaways, landscaping works and construction compounds
- above-ground remains when the development affects a building of historic importance

5.2.5.5 Archaeological features, deposits and spoil will be metal detected. Artefacts will be recovered, spatially-recorded, labelled, bagged, and retained.

5.2.5.6 The archaeological contractor must be in full control of machining activity and, where appropriate, all plant movements on the site. Archaeological earthworks must be protected from damage by plant and vehicles; the use of plastic ground cover mats is encouraged (and preferred to metal mats and wooden 'bog' mats).

5.2.5.7 Where monitoring of major elements of any development has produced negative results contractors can, subject to prior agreement of NCCES, waive the monitoring of subsequent minor elements of the development, such as service trenches.

5.2.5.8 The location of areas monitored must be confirmed by appropriate measured survey and fully illustrated on appropriately scaled plans within the grey literature report.

5.2.6 Deeply stratified archaeological remains

5.2.6.1 Appropriate methods must be applied to the recording of the complex stratigraphic sequences and structural remains often encountered on archaeological sites in the core of historic town and cities or any site where horizontal stratigraphy is encountered.

5.2.6.2 When trial trenching or evaluation takes place in urban areas, samples smaller or larger than the standard may sometimes be specified by NCCES.

5.2.6.3 Shoring of deeply stratified evaluation trenches is usually the most effective way of characterising the urban archaeological resource whilst minimising its destruction. Stepped trenches are unacceptable in most circumstances due to potential loss of evidence, the depth of deposits and health and safety considerations.

6. STANDARDS FOR DISSEMINATION

6.1 Introduction

6.1.1 Dissemination of the results of development-led archaeological projects is crucial for the further understanding of the historic environment and the delivery of public benefit from development.

6.1.2 Archaeological contractors should seek to disseminate the results of development-led archaeological projects as widely as possible. Dissemination can include:

- Grey literature reports. Grey literature reports are produced by archaeological contractors and consultants. They may be published online but are not published in the traditional sense (for example, in a book, monograph or journal). They can include (but are not exclusive to) assessment reports, updated project designs, interim reports and analysis reports.
- Formal publication, in a book, monograph or journal article and round-up note in local or national journal.
- Deposition of a physical and digital archive with a recognised and accessible repository (preferably Norfolk Museums Service in Norfolk).
- Webpages.
- Posts on social media, including Facebook, Twitter and YouTube.
- Events for the public, including open days, tours, school visits and temporary exhibitions (in libraries and the reception areas of local planning authority offices, for example).
- On-site interpretation, viewing platforms and viewing windows in fences.
- Children's learning resources.
- Media coverage, including newspapers, radio and television.
- Popular publications, including leaflets and coffee table books.
- Contributions to training sessions for planning officers, developers, consultants and contractors.

6.1.3 The minimum requirement for every development-led archaeological project in Norfolk is a grey literature report, archive and OASIS record. Projects with results of local or higher significance must provide a single paragraph summary for inclusion in the annual round-up of archaeological work published in *Norfolk Archaeology* (these summaries must be submitted to hep@norfolk.gov.uk by 20 January of the calendar year after fieldwork has taken place). Additional dissemination should and will be proportionate to the significance of project results and its importance to the public.

6.1.4 Provision of public access is an important tenet of archaeological investigations, and a NCCES brief may require or encourage open days, viewing platforms or windows, site tours, on-site provision of information and publicity. Opportunities should also be provided, where practicable, for local archaeological groups and societies to participate (however, please see section 3.3.13 above).

6.2 Grey Literature Reports

6.2.1 Components and structure

General requirements

6.2.1.1 Grey literature reports submitted to NCCES and LPAs (and deposited with the project archive) will include, where appropriate:

- A title page or cover sheet giving key project details
- A brief non-technical executive summary of the work undertaken and the results obtained
- Acknowledgements
- Site details, including location, NHER event number (ENF) and NCCES consultation number (CNF), OASIS reference, grid reference, geology and soils, place of deposition of the archive, museum accession number, full dates of work and any relevant details of the project's history
- Legible site location plan, indicating site north and based on current Ordnance Survey data, produced at the most appropriate scale. This must clearly delineate the site boundary and effectively and clearly anchor the site in its surroundings.
- Project aims and objectives
- A section detailing the archaeological and historical background of the site (unless the report is on a desk-based assessment)
- Documentary and cartographic evidence
- Methodology including recording and surveying
- Site narrative, comprising the detailed description, analysis and interpretation of the site or structure
- Artefactual evidence, including results of specialist reports
- Environmental evidence, including results of specialist reports
- Archaeological science reports, including results specialist reports
- Discussion/conclusions
- Bibliography
- Illustrative material including maps, plans, elevation drawings, sections, appropriate detail drawings and a key to any conventions used
- Photographs, where appropriate
- Tabular quantification of archive components.
- All trial trenching, excavation and WUASC reports must include an appendix listing all the recorded contexts with detailed descriptions, locations (trench numbers or excavation areas), dimensions and final spot-dates or phasing.
- Separate finds catalogues by context and finds types, as appendices. Specialist reports should include details of methodology, results, interpretation and non-technical summaries.
- Copies of the brief and Written Scheme of Investigation where required, as appendices.
- All final versions of grey literature reports must include a copy of the relevant OASIS data collection form.

6.2.1.2 Each section of a grey literature report should have a clear and distinct purpose, avoiding unnecessary repetition. Any discussion or conclusion section, for example, should do more than simply reproduce elements of the site narrative.

6.2.1.3 The structure of a grey literature report should also reflect the extent of the fieldwork and the nature of any site sub-divisions. This is particularly important when information is most likely going to have to be split across multiple NHER records, such as when fieldwork has taken place in more than one field.

Title Page/Cover Sheet

6.2.1.4 All grey literature reports will include the following information on their front cover or title page:

- The project title and address, including postcode if available (e.g.: Archaeological Evaluation by Trial Trenching at Land to the west of 00 The Street, Townham, Norfolk. NR00 0NN).
- Contractor's report number.
- National eight or ten figure grid reference (e.g.: TM 0101 0101).
- The relevant NCCES (ENF) numbers obtained from the NHER.
- The relevant NCCES Consultation (CNF) number.
- The relevant OASIS ID code.
- The planning reference number with district council (e.g. South Norfolk District Council ref: 2017/4321).
- A Norfolk Museums Service museum accession number for the project archive.

6.2.1.5 The full dates of the fieldwork (not just the year or month) must be clearly stated somewhere in the introductory sections of the grey literature report.

Archaeological and Historical Background

6.2.1.6 The archaeological and historical section should always draw on the results of a current NHER search (defined as less than a year old), with the goal being to present a considered synthesis of the available evidence.

6.2.1.7 As a minimum, other sources such as historic maps, aerial imagery (including the Norfolk Air Photo Library, Google Earth and LiDAR data) and relevant secondary sources should also be consulted and relevant information included.

6.2.1.8 The information provided should be concise, directly relevant to the project and commensurate with the significance of the projects results. It should include synthetic appraisal of NHER data, not simply reproduce information contained in NHER records.

6.2.1.9 NHER (PrefRef) numbers should be included where relevant (but not NHER database generated MNF numbers).

Results (stratigraphic description/text)

6.2.1.10 The results section of a grey literature report should aim to present key information in a clear and readable fashion, avoiding unduly repetitive descriptions. It will be fully integrated and cross-referenced with other elements of the report, including:

- Context numbers.
- Reference to any higher-level entities (Groups, Phases etc.).
- Information on the precise nature, date and quantity of finds recovered, ensuring that this is drawn from the final versions of specialist reports.
- Information from processed samples and the results of scientific dating.
- References to any relevant figures and plates.

6.2.1.11 Results should be presented in a logical and consistent fashion, appropriate to the nature of the work. The reasons for particular interpretations should always be presented. When probable context dates are presented it is important that these draw on the full range of available artefactual evidence, rather than focusing on pottery spot dates alone.

6.2.1.12 Description of archaeological features and deposits in the results section of grey literature reports should be clear and concise. Information about the size, shape and composition of archaeological features, structures and deposits (integrated with finds and palaeoenvironmental/scientific data) must be included where this is pertinent to their interpretation and that of the wider site. However, in most cases, detailed written descriptions of all aspects of individual archaeological contexts is unnecessary in the results section and can make the text difficult to use. Detailed information about archaeological contexts that is not pertinent to their interpretation should instead be included in the context list appendix. Text box 1 provides an example of how the pertinent information can be presented concisely with the detailed context information described in the appendices.

Text box 1: The description of archaeological results of a trial trench

Trench 14 contained two linear features [1404] and [1406], and a sub-circular pit, [1403]. The fill of the larger ditch [1406] produced a single sherd of Nar Valley reduced ware, suggesting a 2nd to 3rd century date for this feature, and two residual flint flakes (SF2 and SF6) of possible later Neolithic or Bronze Age date. Pit [1403] and small ditch [1404] were undated. A soil sample from pit [1403] produced frequent oak charcoal (AAL 2017).

6.2.1.13 It must be remembered that where the form and extent of archaeological features, structures and deposits are not fully described in the results section, sufficient plans and sections must be included to ensure that this information is clearly presented in the report.

6.2.1.14 When presenting radiocarbon dates they should include the calibrated range at 95% probability, the laboratory code and the conventional radiocarbon age BP with its estimated error range. The full results (including the graphs showing relevant sections of the calibration curve used) should always be included as a supporting appendix.

Discussion and Conclusions

6.2.1.15 Grey literature reports should include well-articulated and clearly evidenced discussion and conclusions about the results of the archaeological fieldwork and post-

excavation analyses. The extent to which the original aims of the project were achieved and whether expected archaeological remains were encountered should be considered with explanations where appropriate. The discussion and conclusions should state how themes and questions in the *Regional Research Framework for the East of England* (Medlycott 2011) and other relevant research objectives have been addressed.

6.2.1.16 With exception of Assessment Reports and Updated Project Designs, any recommendations made in grey literature reports for any further archaeological work must acknowledge that the final decision on the nature and extent of any such work will rest with NCCES (acting on behalf of the local planning authority).

Figures and Plates

6.2.1.17 Site location plans should be at appropriate scales and include an appropriate level of detail. In practice this usually means the inclusion of:

- A figure that allows the sites to be accurately located within its wider environs.
- A figure that clearly shows the areas investigated and their position in relation to mapped features in the immediate vicinity.

6.2.1.18 The figures accompanying grey literature reports on intrusive work should include:

- Phased plans where relevant, with features associated with particular phases readily distinguishable.
- Plans showing the relationship of excavated remains to any previously identified cropmark features or geophysical anomalies.
- Detailed plans clearly illustrating the extent of each excavated slot with context numbers and illustrated sections clearly marked.
- Feature/detailed plans of structures and other significant features (i.e. floor layers, kilns and ovens etc.)..
- Section drawings of excavated features and key deposit sequences. The number of section drawings included must reflect both the significance of the archaeological remains uncovered and the nature of the archaeological project (for example, trial trenching projects may require more section drawings than other types of project, given they provide information needed to make decisions during the planning process). If a selection of section drawings are included, the reason/s for leaving some out must be explained and justified in the report text.

6.2.1.19 It is expected that all grey literature reports will be illustrated with a range of photographic plates of appropriate resolution and size. All plates should be clearly labelled with their subject, direction etc.

Finds Reports and Other Specialist Reports

6.2.1.20 All categories of artefact and ecofact recovered will be the subject of separate analytical reports by appropriately-qualified specialists. Specialist artefactual and ecofactual reports should summarise, describe and assess the significance of each assemblage, following approved published methods. Specialist reports are expected to make recommendations for any further analysis or illustration of artefacts or ecofacts as appropriate.

6.2.1.21 All reports are expected to show a reasonable appreciation of the local context of the material being examined and will:

- Use appropriate form/fabric series, typologies etc.
- Display knowledge of local type sites/production centres and appropriate excavated parallels.

6.2.1.22 Specialist reports should also:

- Be clearly titled/headed in a way that allows the specialist contributor to be identified.
- Refer to individual contexts in a way that is appropriate and consistent with how they are presented in the rest of the report.
- Contain tables giving useful summary quantification.
- Include illustrations of significant or interesting artefacts or ecofacts with appropriate scales. This can easily be achieved through digital photography in grey literature reports, but drawings of artefacts may also be required for publication (see below)
- Be accompanied by a detailed tabular appendix that:
 - Breaks the assemblage down by context, type, material and then date.
 - Includes information on both quantity and weight.
 - Includes any relevant cut numbers.
 - Includes relevant site sub-divisions.
 - Includes references to any relevant higher-level entities (groups, phases etc).

Appendices

6.2.1.23 All grey literature reports on projects that have generated context records and finds should include the following appendices. This should include:

- A full context list including:
 - Full context descriptions including dimensions, composition, interpretation and date.
 - Relevant cut numbers.
 - Relevant site sub-divisions (trench numbers, excavation areas)
 - Related higher-level entities (Groups, Phases).
- A full list of the finds recovered from each context:
 - Broken down by type, material and period.
 - Include any relevant site sub-divisions.
- As noted above, all finds reports on assemblages should be supported by catalogue appendices.

OASIS records and forms

6.2.1.24 Prior to the submission of a draft grey literature report archaeological contractors/consultants must make sure they have filled in all five sections of the relevant OASIS record (Project details, Project location, Project creators, Project archives and Project bibliography). All sections should then be set as 'complete' (so the OASIS record displays as shown in Figure 1 below). A copy of the report should not be attached to the OASIS record at this stage.

Completed sections in current version				
Details	Location	Creators	Archive	Publications
Yes	Yes	Yes	Yes	1/1

Figure 1: OASIS record sections marked as complete in OASIS record.

6.2.1.25 When a draft grey literature report is received NCCES will check and validate the draft OASIS record on the OASIS website (meaning there is no longer a requirement to include draft OASIS forms in draft grey literature reports). Once an OASIS record has been validated by NCCES the contractor/consultant must make sure a copy of the approved OASIS data collection form is included in the final version of the report.

6.2.1.26 Draft grey literature reports received before all sections of the OASIS record have been marked as 'complete' (as shown in Figure 1) will be rejected. Figure 2 shows an example of an OASIS record that would result in rejection of the associated draft grey literature report.

Completed sections in current version				
Details	Location	Creators	Archive	Publications
No	No	No	No	0/0

Figure 2: OASIS record sections not marked as complete in OASIS record.

6.2.1.27 When multiple grey literature reports relate to a single phase of fieldwork these should be added to the record created for the first (if it has been validated a request can be made to re-open the relevant section).

6.2.1.28 Contractors are reminded that Monument Type and Find Type indexing must be restricted to the range of terms currently available in the relevant Historic England thesauri (<http://thesaurus.historicengland.org.uk/>). It is also expected that all contractors upload digital versions of their reports, even if they intend to make them available elsewhere.

Grey literature report submission procedures

6.2.1.29 Grey literature reports must meet the requirements of this document, any project brief and the project Written Scheme of Investigation in full.

6.2.1.30 Unless specified below draft copies of grey literature reports should be submitted to the NCCES for comment and approval within forty working days of the completion of the fieldwork (longer timeframes can be agreed with NCCES if necessary). NCCES aims to respond to every draft report within 20 working days.

6.2.1.31 If submitted digitally, draft grey literature reports must be sent to hep@norfolk.gov.uk. Drafts sent solely to other NCCES email addresses will not be considered as received and consequently will not be read.

6.2.1.32 Grey literature reports will be approved by NCCES if they provide sufficient information to support the planning process, and have been compiled in full accordance with the approved Written Scheme of Investigation and this Standards document. The reasons for rejecting any report will be stated, and contractors will be expected to revise the report and resubmit.

6.2.1.33 Once a grey literature report has been approved, final copies (incorporating any requested amendments) should be supplied to NCCES within 40 working days, marked for the attention of the Historic Environment Strategy and Advice team. These should take the form of one unbound hard copy and a digital copy in pdf/A format on CD. Each grey literature report is supplied on the understanding that it will be passed to the NHER and become a public document after an appropriate period of time (generally not exceeding six months). Grey literature reports are made public through the entry of data in NHER, the publication of NHER data on the Norfolk Heritage Explorer website and the supply of copies of by the NHER on request.

6.2.1.34 Please note NCCES is unlikely to recommend that local planning authorities discharge planning conditions for the use or occupation of a development until the single unbound hard copy and pdf/A copy on CD have been received.

6.2.1.35 A copy of each approved grey literature report should be sent directly to the Regional Science Advisor (East of England), Historic England, Brooklands House, 24 Brooklands, Avenue, Cambridge CB2 8BU.

6.2.1.36 Copies of approved reports should be uploaded to OASIS within 40 working days of approval.

6.2.2 Reports on Works under Archaeological Supervision and Control (Monitoring)

6.2.2.1 Grey literature reports on WUASC projects must include accurate, georeferenced and clear plans showing all areas subject to archaeological supervision and control. For example, if foundation or drainage trenches are monitored, these must be included on plans.

6.2.3 Interim Excavation Grey Literature reports

6.2.3.1 Interim grey literature reports will be produced for excavations that continue over many phases and/or years. An interim should be produced for each phase of work.

6.2.3.2 Interim grey literature reports on multi-phase excavations will be expected to contain:

- A summary of the results of previous phases
- A site plan that shows the most recent and previous phases in relation to each other
- A detailed site plan for the most recent phase of work
- Stratigraphic summary of most recent phase of work
- Brief specialist reports for the most recent phase of work
- Discussion of most recent phase of work, making reference to previous phases
- Full supporting appendices for the most recent phase of work

6.2.4 Post-excavation Assessment reports and Updated Project Designs (PXA/AUPD)

6.2.4.1 It is expected all excavation projects will include a formal assessment phase. A formal assessment phase normally follows the completion of excavation fieldwork, during which results are reviewed according to their significance and potential for further understanding.

It is expected that formal assessment will result in the production and submission of a Post-excavation Assessment Report and Updated Project Design (PXA and UPD or AUPD).

6.2.4.2 The assessment process will consider the overall results of the work, as well as critically auditing individual datasets in order to determine their significance, limitations and potential for further analysis. The principal aim of the process is to ensure that any additional future work has explicit, achievable objectives, commensurate with the adjudged significance and potential of the evidence. The assessment process should adhere to the advice note produced by the Association of Local Government Archaeological Officers (2015).

6.2.4.3 An Assessment Report should outline the results of the project and present the findings of the assessment process. It is expected that an assessment report will have the following standard sections, following the guidelines outlined above:

- Summary
- Archaeological and Historical Background
- Methodology
- Results
- Archive summary

6.2.4.4 The Results section should present an overview that focuses on the characterisation and summary quantification of the evidence rather than a detailed description of individual features and deposits. The accompanying illustrations should include a colour-coded site plan presenting basic phasing information but section drawings and detailed plans are not necessarily required unless pertinent to the understanding of the site at this stage.

6.2.4.5 The Assessment report should then present the results of the assessment process, discussing the potential and significance of both the results as an integrated whole and as individual datasets (stratigraphic data, finds assemblages, environmental data etc.). Issues that should be considered include:

- Significance (due to rarity, location, preservation, quantity etc.)
- Potential to address the stated research aims of the project
- Potential to address regional or national research questions/objectives (avoiding overly general and negative statements)
- Potential for further analysis and the likely benefit of this work
- Specific aspects of the evidence that limit its significance or potential.

6.2.4.6 It is expected that all Assessment reports will include separate assessments for each category of artefactual and environmental evidence recovered. These should be undertaken by named specialists who will also be undertaking any further analysis required. Other issues that can be considered include:

- Requirements for additional stratigraphic analysis
- The potential for scientific dating and the research questions that could be addressed (taking into account the likely accuracy and precision of any dates obtained)
- The possibility of further documentary research
- The possibility for analysis of aerial images.

6.2.4.7 The Updated Project Design (UPD) should detail the nature of any further work to be undertaken and present proposals for the dissemination of the project's results. There should be a clear, thematic breakdown of the individual tasks to be completed during the subsequent analysis phase; in each case detailing the nature of the work, who will be undertaking it and its expected duration. Grey literature report and publication proposals should be detailed, including information on their anticipated focus, the level of detail to be presented and the nature of any illustrations and supporting appendices.

6.2.4.8 Evidence from excavations is subject to the same minimum standards for analysis and reporting that apply to other forms of fieldwork. In practical terms this means that unless a comprehensive standalone monograph is proposed some form of grey literature report will be required that contains a detailed results section, full specialist reports and supporting appendices. This has the advantage of allowing any published reports to focus on the aspects of the evidence that have been deemed to be of greatest interest or significance.

6.2.4.9 The UPD should also detail the extent to which information from earlier phases of work will be integrated and provide information on how a project will be archived.

6.2.4.10 Where the results of an excavation are largely negative and/or of obviously limited significance it will usually be acceptable to submit an excavation report rather than a full PXA/AUPD report, providing the prior agreement of the NCCES has been obtained.

6.2.4.11 Draft copies of PXA/AUPDs should be submitted to the NCCES for comment and approval within 140 working days (approximately 6 months) of the completion of the fieldwork (longer timeframes can be agreed with NCCES if necessary). Archaeological contractors and consultants should be aware that developers often want to use PXA/AUPDs to support applications to discharge conditions on planning permissions.

6.2.4.12 UPDs will state how long it will take to complete project dissemination (including final grey literature reports, publication and deposition of project archives).

6.3 Publication

6.3.1 Formal publication is required for projects with results of local and higher significance. The level of publication should reflect the significance of the data collected and must be agreed with NCCES. In general:

- Results of international or national significance should be peer-review published in a regional, national or international journal or monograph series (such as *East Anglian Archaeology*, *Proceedings of the Prehistoric Society*, *Britannia*, *Anglo-Saxon Studies in Archaeology and History*, *Medieval Archaeology* or *Post Medieval Archaeology*).
- Results of regional, or the highest local, significance should be published in a regional monograph series (such as *East Anglian Archaeology*) or in a regional or county-specific journal (e.g. *Norfolk Archaeology*, *the Journal of Breckland Studies* or *the Journal of the Norfolk Industrial Archaeology Society*).
- Results of only local significance should be published in a round-up note in *Norfolk Archaeology*, alongside the results of higher significance. Archaeological contractors are expected to submit single paragraph summaries to NCCES (via hqp@norfolk.gov.uk) by 20 January each year for inclusion in the calendar-year round-

up article. If projects take place in two or more years, interim summaries should be provided each year. Archaeological contractors are invited to provide photographs and illustrations for inclusion.

6.3.2 In some cases NCCES will submit edited versions of single paragraph summaries to national period-based journals for inclusion in their yearly round-up articles. NCCES may approach archaeological contractors for additional information to help support this work.

6.3.3 To ensure that relevant information is published in a clear, structured and user-friendly manner, all formal publications must be subject to an independent editorial process. Suitable outlets provide academic peer review, copyediting, professional indexing and circulation to journals for review.

6.3.4 Formal publications must be drafted to conform to the requirements of the intended outlet. Contractors/consultants must establish contact with the journal or series editor at an early stage to obtain *Notes for Authors*, advice on the submission of synopses, and an estimate of the costs and timescale involved.

6.3.5 Until analysis has been completed, the exact content of the publication cannot be finalised. Any major alterations to publication content should be subject to editorial approval, and a final synopsis should be sent to the outlet and NCCES confirming the scope of the publication and the intended delivery date of the draft text.

6.3.6 Publication costs can be more accurately established once the final text of the publication has been agreed. Usually, these will include:

- copyediting
- typesetting
- origination of page layouts to camera-ready copy
- indexing
- printing
- distribution (including review copies)
- marketing

6.3.7 When a formal publication has been submitted to the intended outlet it should be subject to peer review by an independent academic referee. The role of the independent referee, appointed by the editorial board of the outlet or the sponsor, is to ascertain:

- how far the publication reflects the stated aims of the project
- whether the publication meets the general academic standards and priorities
- whether the proposed publication meets the requirements of the publishing body
- whether publication is warranted and whether it meets professional standards.

6.3.8 By doing so, the referee addresses the needs of the archaeological community, the interests of the publisher and the sponsor.

6.4 Archiving

6.4.1 Introduction

6.4.1.1 The final stage of all archaeological projects will be the submission of a project archive to an appropriate repository. A project is not be considered complete until the archive has been deposited and is publicly accessible.

6.4.1.2 An appropriate repository should be identified prior to commencement of a project and should be clearly identified in the Written Scheme of Investigation. In Norfolk the repository is usually the Norfolk Museums Service. Only in exceptional circumstances will another repository be acceptable. Written confirmation from the other repository's curator will need to be provided.

6.4.1.3 A museum accession number must be acquired prior to commencement of post-excavation work.

6.4.1.4 The project archive consists of all records created during the project (both hard copy and digital) as well as all objects and associated samples collected. When creating and preparing project archives, relevant minimum standards should be adhered to, including Brown 2011 and CiFA 2014j, and guidelines made available by the Archaeology Data Service (<http://guides.archaeologydataservice.ac.uk/>). The specifications set out by Norfolk Museums Service (Norfolk Museums and Archaeology Service 2010) must be adhered to in full.

6.4.1.5 Archives should be submitted to the agreed repository (preferably Norfolk Museums Service) within 140 working days of the submission of a project's final grey literature report or publication, unless agreed otherwise with Norfolk Museums Service and NCCES. NCCES will work with the Norfolk Museums Service to ensure that archive submission is tracked and monitored and on occasion individual archives will be examined to ensure that appropriate standards are being maintained.

6.4.2 Material archives

6.4.2.1 The material archive consists of all objects and associated scientific samples collected during a project. Arrangements for appropriate care and storage of material archives must be taken into consideration during all stages of an archaeological project.

6.4.2.2 The owners of finds and other physical material should always be encouraged to donate these to the Norfolk Museums Service. To help ensure that a complete archive can be submitted at the point a project is completed contractors should initiate a Transfer of Ownership process at the earliest opportunity. Contractors should try at least twice to secure a completed Transfer of Ownership form, fully documenting their efforts. If Transfer of Ownership forms cannot be secured, Norfolk Museums Service may be willing to accept an archive, as long as documents explaining the efforts made are included within it.

6.4.2.3 Owners of finds and other physical material should be actively discouraged from retaining part or all of a project archive. Where finds are retained by the owner and are not to be deposited with the project archive, a comprehensive record including detailed drawings,

photographs and descriptions of individual finds must be included in the final project grey literature report and archive in lieu of the objects. The repository of any finds not included in the project archive must be indicated.

6.4.3 Documentary archives

6.4.3.1 The documentary archive will include, but will not necessarily be limited to:

- Index of archive components
- Brief/s
- Written Scheme of Investigation and, where applicable, Project Design(s)
- Final grey literature report and any relevant drafts
- Registers, context sheets and other paper site records
- Drawn plans and sections
- Surveying records
- Photographic negatives
- X-radiographs
- Finds lists, specialist reports and other documents generated during report production
- Correspondence and other relevant project documentation.
- Microfiche copy of the archive

6.4.4 Digital archives

6.4.4.1 All material originally created in digital form must be created and prepared for deposition according to recognised standards and guidelines such as those made available by the Archaeology Data Service (<http://guides.archaeologydataservice.ac.uk/>). In particular, file formats should be considered carefully (see Norfolk Museums and Archaeology Service 2010, 21-23). Data must be stored in formats that can be used in the future and accompanied by appropriate contextual information. Digital data should only be deposited with a trusted repository with appropriate data migration and back-up procedures.

6.4.4.2 The digital archive should include, where available:

- Brief
- Written Scheme of Investigation and, where applicable, Project Design(s)
- Final grey literature report and any relevant drafts.
- Indexes to the archive itself and any drawings and photographic negatives.
- Security copies of other paper records (where appropriate).
- Fully digitized georeferenced vector drawing of the whole site.
- Uncompressed digital photographs in uncompressed tiff format
- A digital image register, with details of file name, feature description and number, direction of shot, size of scale(s), date taken and full name of photographer.
- Raw surveying data.
- Unprocessed geophysical survey data.
- Full database specialist catalogues should these contain details not present in the printed grey literature report appendices.

6.4.4.3 The digital archive must be submitted on a CD, DVD or portable hard drive (as agreed with the repository prior to submission) labelled with the museum accession number, parish, NHER Event number and site name.

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8. BIBLIOGRAPHY

The Advisory Panel on the Archaeology of Burials in England, 2015 *Large Burial Grounds: Guidance on Sampling in Archaeological Fieldwork Projects*

The 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*, Second Edition

Allen Archaeology Ltd (AAL) 2017 *Archaeological Evaluation Report: Trial Trenching on Land West of Nursery Lane, South Wootton, Norfolk*, Allen Archaeology Ltd report number AAL 2017150

Association of Local Government Archaeological Officers 2015 *Advice Note for Post-Excavation Assessment*, Association of Local Government Archaeological Officers: England

Brickley, M. and McKinley, J.I. 2004 *Guidelines to the Standards for Recording Human Remains* Institute for Field Archaeologists Technical Paper 13

Brown, D H. (2011) *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*, Archaeological Archives Forum

Chartered Institute for Archaeologists, 2014a *Code of Conduct* (available at: <http://www.archaeologists.net/sites/default/files/CodesofConduct.pdf>)

Chartered Institute for Archaeologists 2014b *Standard and guidance for archaeological excavation* (available at: https://www.archaeologists.net/sites/default/files/CIfAS&GExcavation_1.pdf)

Chartered Institute for Archaeologists 2014c *Standard and guidance for archaeological field evaluation* (available at https://www.archaeologists.net/sites/default/files/CIfAS&GFieldevaluation_1.pdf)

Chartered Institute for Archaeologists 2014d *Standard and guidance for archaeological geophysical prospection* (available at http://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics_1.pdf)

Chartered Institute for Archaeologists 2014e *Standard and guidance for the archaeological investigation and recording of standing buildings or structures* (available at http://www.archaeologists.net/sites/default/files/CIfAS&GBuildings_1.pdf)

Chartered Institute for Archaeologists 2014f *Standard and guidance for an archaeological watching brief* (available at: https://www.archaeologists.net/sites/default/files/CIfAS&GWatchingbrief_2.pdf)

Chartered Institute for Archaeologists 2014g *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (available at: http://www.archaeologists.net/sites/default/files/CIfAS&G Finds_1.pdf)

Chartered Institute for Archaeologists 2014h *Standard and guidance for historic environment desk-based assessments* (available at http://www.archaeologists.net/sites/default/files/CIfAS&GDBA_2.pdf)

Chartered Institute for Archaeologists 2014i *Standard and guidance for archaeological advice by historic environment services* (available at: https://www.archaeologists.net/sites/default/files/CIfAS&GArchadvice_2.pdf)

Chartered Institute for Archaeologists 2014j *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (available at: http://www.archaeologists.net/sites/default/files/CIFAS&GArchives_2.pdf)

Chartered Institute for Archaeologists 2017 *Regulations for professional conduct* (available at: <http://www.archaeologists.net/sites/default/files/Profconduct%20regs.pdf>)

English Heritage 2006 *Archaeomagnetic Dating* (available at <https://historicengland.org.uk/images-books/publications/archaeomagnetic-dating-guidelines/>)

English Heritage 2008a *Geophysical Survey in Archaeological Field Evaluation* (available at <https://historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/>)

English Heritage 2008b *Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains* (available at <https://historicengland.org.uk/images-books/publications/curation-of-waterlogged-macroscopic-plant-and-invertebrate-remains/>)

English Heritage 2008c *Luminescence Dating* (available at <https://historicengland.org.uk/images-books/publications/luminescence-dating/>)

English Heritage 2010 *Guidelines on the recording, sampling, conservation and curation of waterlogged wood* (available at <https://historicengland.org.uk/images-books/publications/waterlogged-wood/>)

English Heritage 2011 *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post-excavation*, Second edition (available at <https://historicengland.org.uk/advice/technical-advice/archaeological-science/environmental-archaeology/>)

English Heritage 2014 *Animal Bones and Archaeology: Guidelines for Best Practice* (available at <https://historicengland.org.uk/images-books/publications/animal-bones-and-archaeology/>)

Gurney, D. 2003 *Standards for Field Archaeology in the East of England*, East Anglian Archaeology Occasional Paper 14, Association of Local Government Archaeological Officers

Hillam, J. 1998 *Dendrochronology: guidelines on producing and interpreting dendrochronological data*, English Heritage

Historic England 2015a *Archaeometallurgy* (available at <https://historicengland.org.uk/images-books/publications/archaeometallurgy-guidelines-best-practice/>)

Historic England 2015b *Geoarchaeology: Using earth sciences to understand the archaeological record* (available at <https://historicengland.org.uk/images-books/publications/geoarchaeology-earth-sciences-to-understand-archaeological-record/>)

Historic England 2015c *Guidelines for Archaeological Projects in Greater London*, Greater London Archaeological Advisory Service

Historic England 2015d *Where on Earth Are We? The Role of Global Navigation Satellite Systems (GNSS) in Archaeological Field Survey* (available at <https://historicengland.org.uk/images-books/publications/where-on-earth-gnss-archaeological-field-survey/>)

Historic England 2017a *Photogrammetric Applications for Cultural Heritage: Guidance for Good Practice* (available at <https://content.historicengland.org.uk/images-books/publications/photogrammetric-applications-for-cultural-heritage/heag066-photogrammetric-applications-cultural-heritage.pdf/>)

Historic England 2017b *Understanding the Archaeology of Landscape: A guide to Good Recording Practice*, Second edition (available at <https://content.historicengland.org.uk/images-books/publications/understanding-archaeology-of-landscapes/heag142-understanding-archaeology-of-landscapes.pdf/>)

Historic England 2018 *Our Portable Past*, Third Edition (available at <https://historicengland.org.uk/images-books/publications/ourportablepast/>)

Jennings, L. 2016 *Archaeology Handbook*, Lincolnshire County Council

Karsten, A. Graham, K., Jones, J., Mould Q. and Walton Rogers P. 2012 *Waterlogged Organic Artefacts*, English Heritage (available at <https://www.historicengland.org.uk/images-books/publications/waterlogged-organic-artefacts/>)

McKinley, J.I. and Roberts C. 1993 *Excavation and post-excavation treatment of cremated and inhumed human remains*, Institute for Field Archaeologists Technical Paper 13

Medlycott, M. (ed.) 2011 *Research and Archaeology Revisited: a revised framework for the East of England*, East Anglian Archaeology Occasional Paper 24

Norfolk Museums and Archaeology Service 2010 *Requirements for Deposition of Fieldwork and Excavation Archives with Norfolk Museums and Archaeology Service*, version 3.2, Norfolk Museums Service

Schmidt A. 2013 *Geophysical Data in Archaeology: A Guide to Good Practice*, Second edition, Archaeology Data Service & Digital Antiquity Guides to Good Practice, Oxbow Books

Starley, D. 1995 *Hammerscale*, Historical Metallurgy Society Archaeology Datasheet 10 (available at <http://hist-met.org/images/pdf/hmsdatasheet10.pdf>)

Walker K. 1990 *Guidelines for the preparation of excavation archives for long-term storage*, United Kingdom Institute for Conservation Archaeology Section

Watkinson, D. and Neal, V. 1998 *First Aid for Finds*, Third Edition, United Kingdom Institute for Conservation Archaeology Section