border archaeology

Written Scheme of Investigation for Archaeological Excavation

Balmoral Avenue (Phase 2)
Bretch Hill
Banbury
Oxfordshire

On behalf of

Orbit Homes Midlands

September 2022

border archaeology

archaeology & built heritage
working throughout the UK

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DATE
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Cover: Extract from the Ordnance Survey 6-inch map of 1900 (Oxfordshire V.SE)

ISO 9001 | ISO 14001 | ISO 45001

Contents:

1 Introduction

Border Archaeology (BA) has been instructed by Orbit Homes Midlands to carry out a programme of Archaeological Excavation on land at Balmoral Avenue (Phase 2), Bretch Hill, Banbury (NGR: SP 43690 39968 – approx. centre; *fig.1*) in connection with the erection of up to 49 dwellings and associated open spaces, sustainable urban drainage systems and access from Balmoral Avenue.

In accordance with the *National Planning Policy Framework* (NPPF; Ministry of Housing, Communities & Local Government 2019), planning permission for the proposed works (Planning Ref.: 21/03644/OUT) has been granted by Cherwell District Council subject to conditions 24 and 25 of the Planning Decision, as outlined below:

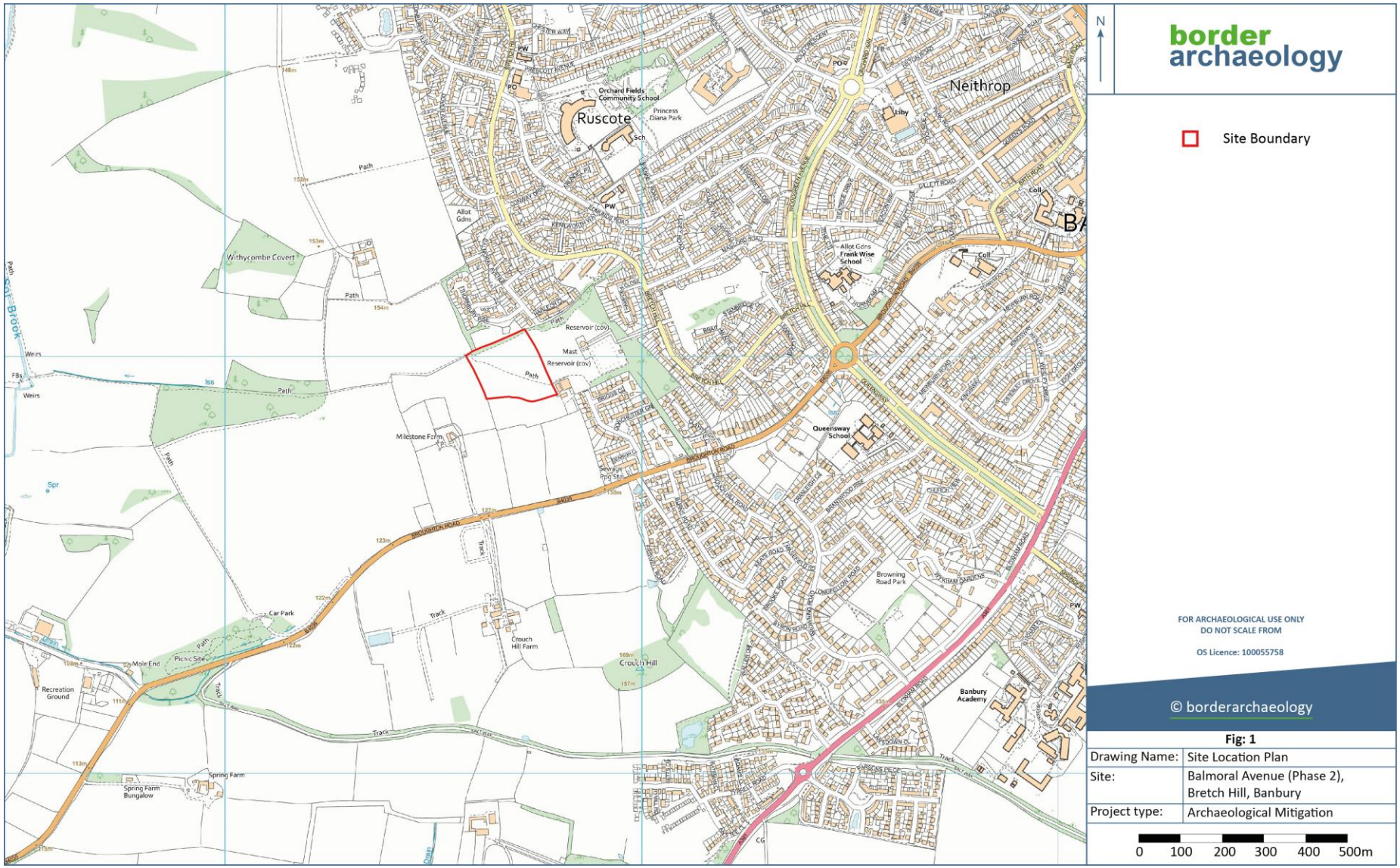
24. *Prior to any demolition and the commencement of the development a professional archaeological organisation acceptable to the Local Planning Authority shall prepare an Archaeological Written Scheme of Investigation, relating to the application site area, which shall be submitted to and approved in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

    Reason: To safeguard the recording of archaeological matters within the site in accordance with the NPPF (2021).

25. *Following the approval of the Written Scheme of Investigation referred to in condition 1, and prior to any demolition on the site and the commencement of the development (other than in accordance with the agreed Written Scheme of Investigation), a programme of Archaeological Excavation shall be carried out by the commissioned archaeological organisation in accordance with the approved Written Scheme of Investigation. The programme of work shall include all processing, research and analysis necessary to produce an accessible and useable archive and a full report for publication which shall be submitted to the Local Planning Authority within two years of the completion of the archaeological fieldwork.*

    Reason: To safeguard the identification, recording, analysis and archiving of heritage assets before they are lost and to advance understanding of the heritage assets in their wider context through publication and dissemination of the evidence in accordance with the NPPF (2021)

This Written Scheme of Investigation (WSI) has been prepared by Lyndsey Clark BSc (Hons.) MCI*f*A with reference to Section 3.2 of *Standard and guidance for archaeological excavation* (CI*f*A 2020a); it is for submission to Victoria Green BA (Hons.) MA PCI*f*A, Planning Archaeologist for Oxfordshire County Archaeological Services, as a methodology for the proposed archaeological programme.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Site Boundary
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Fig: 1
Drawing Name: Site Location Plan
Site: Balmoral Avenue (Phase 2), Bretch Hill, Banbury
Project type: Archaeological Mitigation
0 100 200 300 400 500m
Ruscote
Neithrop
Withycombe Covert
Milestone Farm
Crouch Hill Farm
Crouch Hill
Queensway School
Frank Wise School
Orchard Fields Community School
Princess Diana Park
Browning Road Park
Banbury Academy
Recreation Ground
Mole End
Picnic Site
Car Park
Spring Farm
Spring Farm Bungalow
BROUGHTON ROAD
Sor Brook

2 Site Description

The proposed development area is located on the SW outskirts of Banbury, approximately 35km to the NNW of Oxford (*fig. 1*). The Site itself measures *c*. 8310 sqm and is situated within a single pastoral field bounded by trees and mature hedgerows (*fig. 2*). It occupies a plateau at an approximate height of 159m above Ordnance Datum (AOD), with the agricultural land to the S sloping down towards Broughton Road (*c*. 131m AOD). Further agricultural land lies to the W of the Site, while to the N and E, it is respectively bordered by residential housing and areas of agreed development.

2.1 Soils & geology

The British Geological Society (BGS) identifies bedrock of the Chipping Norton Limestone, Horsehay Sand, Northampton Sand, and Whitby Mudstone Formations; these formed in a local environment previously dominated by shallow seas between 166 to 183 million years ago. No superficial deposits are recorded in the area (BGS 2022).

While no historic borehole data is available for the Site or its immediate environs (BGS 2022), the previous programme of Archaeological Field Evaluation (AFE) in this area revealed a dark grey brown clayey silt topsoil to an average depth of 0.21m below ground level (bgl), overlying a mid-orange brown clayey silt subsoil; the underlying natural geology, which comprised a light brown grey to white silty clay with intermittent patches of bedrock, was encountered at a depth of between *c*. 0.24m and 0.33m bgl (BA 2022).

3 Brief Historical & Archaeological Background

An assessment of the archaeological and historical heritage assets within a 1km study area around the Site was previously submitted as part of the planning application (Environmental Dimension Partnership Ltd 2021) and the following summarises the information contained therein. The results of a geophysical survey undertaken in November 2021 (Cockcroft & Gater 2021) and the programme of AFE undertaken by BA in January 2022 (BA 2022) are also discussed below.

3.1 Prehistoric & Romano-British

No archaeological evidence of prehistoric or Romano-British activity has been identified in the immediate vicinity of the Site based on consultation of the Oxfordshire Historic Environment Record (HER), although several sites and findspots are recorded within the wider study area, including: a Neolithic stone axe (962) recorded *c*. 835m to the SW of Site; Neolithic scrapers and a leaf-shaped arrowhead (EOX2812) recovered from *c*. 600m to the SE of Site; a Late Iron Age farming settlement (EOX3259) identified *c*. 1.3km to the SE of Site; the foundations of a Romano-British building (5378) identified *c*. 900m to the SW of Site; Romano-British pottery sherds (15622) recovered from *c*. 275m to the E of Site; and a collection of *c*. 20 pottery sherds of mostly late Romano-British date (26161) recovered from *c*. 975m to the SW of the Site.

In addition, a geophysical survey (EOX6158) *c*. 955m to the NW of the Site identified the remains of possible enclosures, kilns, isolated ditches, pit alignments and two round barrows, although a subsequent trial trench evaluation (EOX6391) only located a single undated ditch. On this occasion, the investigators postulated that the remains identified by the geophysical survey were so shallow that they had been imperceptible during the intrusive investigation.

Other records of probable prehistoric archaeology in the study area relate to unproven features, the majority of which have been identified through geophysical survey.

3.2 Medieval

The National Mapping Programme data identified cropmarks relating to former ridge and furrow cultivation in two fields to the S of the Site, while geophysical survey (EOX3534) also identified ridge and furrow (28283) *c*. 520m to the S. In addition, Medieval pottery sherds (15850) were recovered from the foot of Crouch Hill, *c*. 350m to the SE of Site, with the possible location of a former deer park (11119) recorded *c*. 710m in the same direction.

3.3 Post-medieval & Modern

The study area records seven sites of Post-medieval or modern date on the Oxfordshire HER, these include: the former location of a brickworks and kiln (79) recorded *c*. 355m to the ESE of the Site; a second brickyard and claypit (12572) recorded *c*. 900m to the SE; disused quarry pits (78 & 85) located *c*. 670m to the E and 850m to the SW respectively; demolished malt houses (75 & 76) located *c*. 800m and *c*. 1km to the E of the Site; and Post-medieval plough furrows (EOX6392) recorded *c*. 1km to the NNW.

Two listed buildings of this period are also recorded in the vicinity. Withycombe Farmhouse and attached stable (1046858) is a Grade II listed early to mid-17th Century structure with later alterations located *c*. 400m to the NW, while the late 17th Century Grade II listed Crouch Farmhouse (119211) is located *c*. 1km to the S of the Site.

The development area itself is depicted on the 1st Edition Ordnance Survey (OS) map of 1882 as an agricultural field with an E-W aligned footpath running across its centre (now the southern boundary to the Site); an outfarm is located immediately to the E of the Site. By the time of the 1888 Edition OS map the outfarm, labelled as Bretch Farm, had been expanded to include a small U-shaped range on the E edge of the Site, although this had been demolished and replaced by a smaller modern building by the 1967-73 Edition.

3.4 Geophysical Survey

A magnetometer survey carried out at the Site by SUMO Geophysical Ltd in December 2021 (Cockcroft & Gater 2021) identified three probable roundhouses, along with other possible structures and a concentration of probable rubbish/storage pits and burnt features; these results were interpreted as likely indicating the presence of an Iron Age farmstead or small settlement (*fig. 3*).

3.5 Previous Archaeological Investigations

The programme of AFE undertaken by BA in January 2022 identified archaeological features within six of the seven trenches excavated in this area (Trenches 001-006). Based on the recovered pottery assemblage these features, which included ditches, pits and a possible trackway/surface, were of Iron Age date. Several Post-medieval features conforming to the former ridge and furrow cultivation patterns identified on the geophysical survey (Cockcroft and Gater 2021) were also present within Trenches 003, 004, 005 and 007, while a possible quarry pit of Post-medieval or modern date was identified within Trench 002 (*fig. 3*; BA 2022).

4 Aims & Objectives

The aim of this programme of Archaeological Excavation is to confirm (as far as is reasonably possible) the presence/absence of archaeological features and/or deposits within the excavation area.

The objectives are to:

- identify and understand as far as possible the nature, depth, extent, date, character and relationship of any identified features and to preserve by record the archaeological remains that will be impacted by the proposed development;
- secure the analysis, conservation and long-term storage of any artefactual or ecofactual materials recovered;
- integrate the results into the wider historic and archaeological landscape addressing any regional research priorities as set out in S*olent-Thames Research Framework for the Historic Environment: Resource Assessments and Research Agendas* (*STRF*; Hey & Hind 2014);
- compile an accurate record of any archaeological features and/or deposits encountered during the groundworks and to disseminate the results to appropriate organisations (where appropriate), including the *Oxoniensia*;
- provide a clearer understanding of the level of activity within the proposed development area and the surrounding landscape.

5 Methodology

All archaeological Site works will be undertaken in accordance with BA's *Archaeological Field Recording Manual* (2021), together with accepted professional standards including *Standard and guidance for archaeological excavation* (CI*f*A 2020a) and *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (CI*f*A 2020b). BA abides by the requirements of the CI*f*A *Code of conduct* (2021) and is cognisant of the *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Lee 2015).

CI*f*A (2020a, 4) defines archaeological excavation as:

a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design.

5.1 Site Specific

An area of *c*. 8310 sqm will be subject to archaeological excavation (*fig. 2*), centred on and around those features found during the course of the AFE (*fig. 3*; BA 2022). Where necessary, and with the prior agreement of the Planning Archaeologist, this area may be extended (as necessary) within the development area to allow for the full exposure and/or characterisation of features and deposits.

Excavation will proceed using a mechanical excavator equipped with a 1.8m wide toothless bucket operating under archaeological supervision. The mechanical excavator will work progressively across the Site, with undifferentiated topsoil or recent overburden being removed in successive, level spits no greater than 100mm in thickness down to the first significant archaeological horizon or to natural geology, where no archaeological deposits are found at a higher level. Care will thus be taken not to machine away seemingly homogenous layers that may include the upper parts of archaeological features.

Topsoil, subsoil and other distinct deposits (such as the fills of archaeological features) will be stored in separate areas, to be agreed with Orbit Homes Midlands and the Planning Archaeologist (where appropriate), with spoil heaps set back at least 1m from the edge of the excavation area.

Machine-excavated deposits and the exposed surface will be regularly scanned for the presence and collection of artefacts. Exposed surfaces and excavated spoil will be scanned by metal detector, with all such activity being carried out by BA in accordance with its *Metal Detecting Policy* (2018), which incorporates Historic England and Portable Antiquities Scheme guidance.

Constant monitoring will be maintained during the course of machining with regular close inspection of exposed surfaces. If archaeological remains are found to be present cutting through soils (e.g. colluvium) which conceal lower archaeological horizons then the upper levels will be mapped and investigated prior to removal of deposits overlying the lower levels.

On completion of, or during, machine-stripping, a pre-excavation plan of archaeological features will be produced at an appropriate scale (1:50 or 1:100 dependent upon complexity) using a survey-grade Global Positioning System (GPS) and/or Total Station (TS). Survey data will be available in Autocad or PDF/A format and printed at a suitable scale for on-site use. If, following the machine-stripping, there remain any areas where it is not clear that archaeological features have been adequately exposed or defined, these will be hand cleaned to further define the archaeology. The resultant surface will be accurately planned. Hand-cleaning and planning operations will run in close sequence.

The exposing and planning of archaeological features will be undertaken on the same or consecutive days while the uncovered surface is fresh, whether or not those features are exposed by machine or hand-cleaning. Where particularly vulnerable deposits such as graves or cremations occur, these will be accorded special priority. Use will be made of spray line paint marker to record the unexcavated form of features prior to mapping.

The exposed surface will be regularly monitored during the course of the investigation to identify any further features that may appear due to weathering. The plan will be updated to reflect the progress of on-site work. Where necessary (for example, detailed structural features or burials) features will be planned either by photogrammetry or by hand at a scale of 1:20 from the grid before being digitised for inclusion on the overall plan.

Mechanical excavation will not be used to re-clean areas of excavation that have been obscured through weathering.

The following investigation/excavation ratios are proposed for excavation:

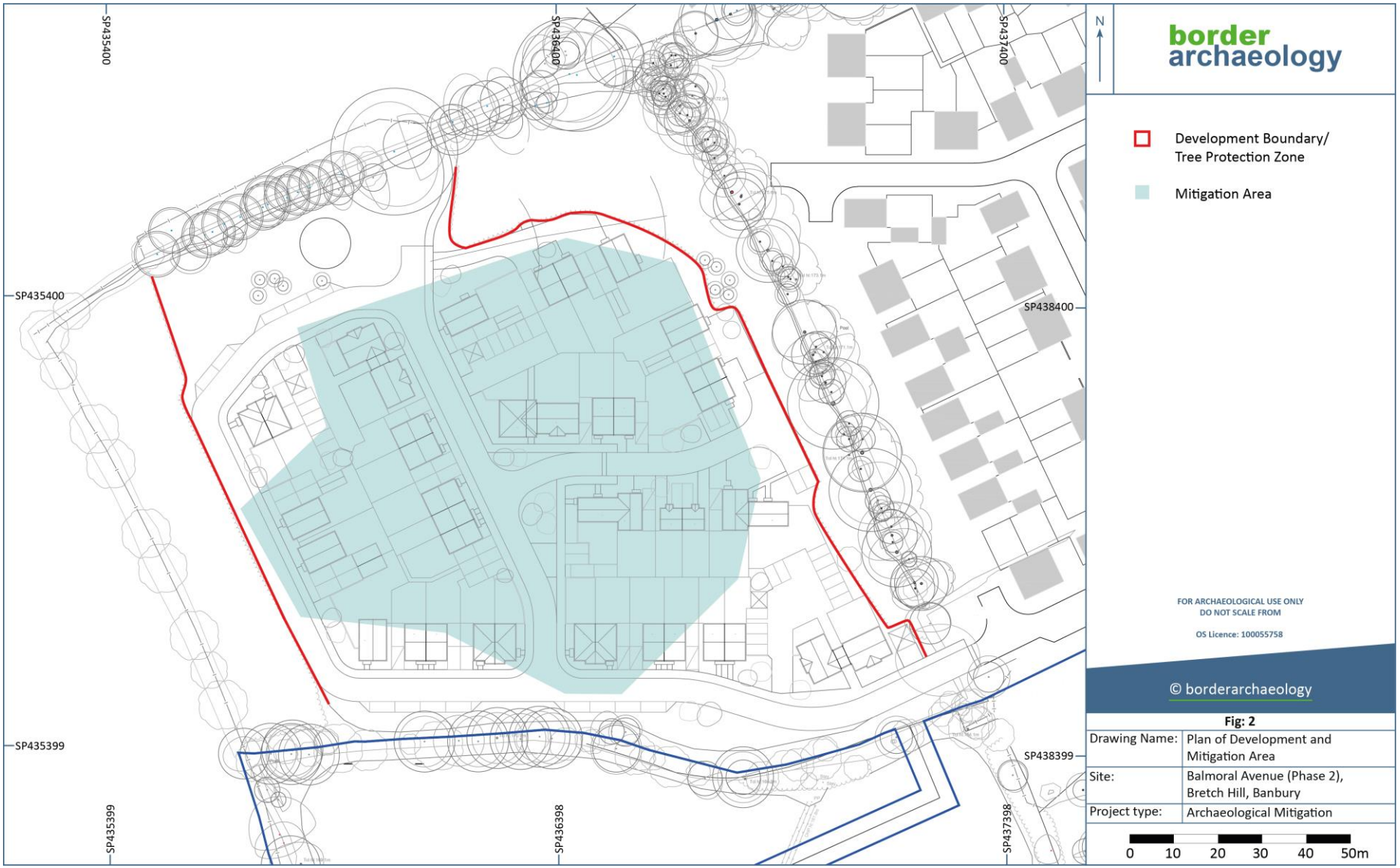
- Linear features: 20% investigation to comprise slots of *c.* 2m located at appropriate intervals along the exposed length, with termini and relationships excavated as a matter of course;
- Settlement features: 33% (minimum), rising to include full investigation where appropriate, e.g. if features are found to contain substantial quantities of settlement evidence;
- Pits: 50-100%, percentage dependent upon date and quantity of material culture present;
- Burials: 100%;
- Structural remains: 100%.

The investigation of pits and other non-structural intrusions will allow for their stratigraphic recording and for the identification of post-pipes, post-packing and any related material. Wells and other deep intrusions encountered below the surviving archaeological horizon will be excavated to depth, except where detrimental to the continuation of any waterlogged preservation.

It is also anticipated that some naturally occurring layers and features, such as peat, alluvium, geoarchaeological deposits and palaeochannels, will be investigated. This is particularly likely when the deposits contain well-preserved biological remains and/or were laid down during periods of archaeological interest.

Measures will be taken to protect particularly significant, valuable or sensitive archaeological remains from exposure, accidental damage and/or theft.

All BA staff are suitably qualified and experienced to discharge their project roles effectively, are fully cognisant of aims and methodologies and are suitably equipped to undertake the work.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border archaeology
Development Boundary/ Tree Protection Zone
Mitigation Area
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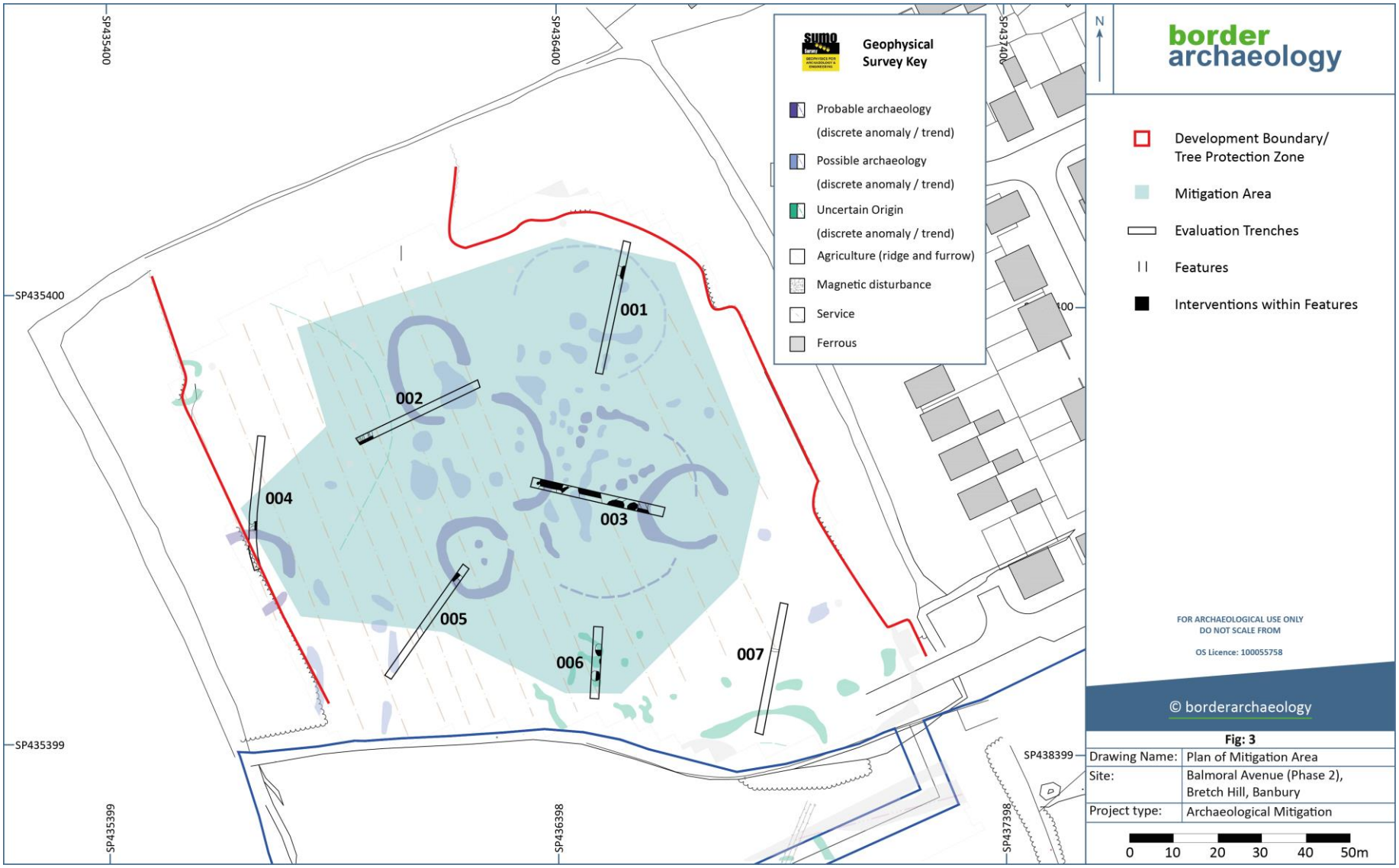
Fig: 2
Drawing Name: Plan of Development and Mitigation Area
Site: Balmoral Avenue (Phase 2), Bretch Hill, Banbury
Project type: Archaeological Mitigation
0 10 20 30 40 50m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001
002
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Geophysical Survey Key
Probable archaeology (discrete anomaly / trend)
Possible archaeology (discrete anomaly / trend)
Uncertain Origin (discrete anomaly / trend)
Agriculture (ridge and furrow)
Magnetic disturbance
Service
Ferrous
N
border archaeology
Development Boundary/ Tree Protection Zone
Mitigation Area
Evaluation Trenches
Features
Interventions within Features
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Fig: 3
Drawing Name: Plan of Mitigation Area
Site: Balmoral Avenue (Phase 2), Bretch Hill, Banbury
Project type: Archaeological Mitigation
0 10 20 30 40 50m

5.2 Recording

The following reference numbers have been assigned to this fieldwork project:

- Site code: BAL22;
- OASIS ID: borderar1-509345;
- Museum Accession Number: TBC.

Full written, graphic and photographic records will be made in accordance with BA's *Archaeological Field Recording Manual* (2021).

Records will include:

- A *pro-forma* context record for each stratigraphic unit examined;
- A full graphic record of all excavated areas, with the primary record consisting, where possible, of hand-drawn plans and sections (produced on gridded, archive-stable polyester film), to show the extent of the area, the extent of all stratigraphic units and appropriate detail within stratigraphic units. Plans will be produced at scales of 1:20 or 1:50 and sections at 1:10 or 1:20, depending on the complexity to be recorded. All levels will relate to Ordnance Datum. Drawings will be numbered and listed in a drawing register cross-referenced to the written record;
- Temporary Benchmarks (TBMs), which will be established at appropriate locations as required;
- Survey using TS and/or survey-grade GPS where appropriate;
- A detailed photographic record of all stratigraphic units and representative photographs showing the progress of archaeological work. The record will be made using a high-resolution digital camera, comprising photographs of archaeological features and appropriate groups of features and structures, as well as photos of each area or trench, general Site shots and photographs suitable for publication. Included in each photograph will be an appropriate scale and all photographic records will be indexed and cross-referenced to written Site records. Details of subject and direction of view will be recorded in a photographic register, indexed by frame number.

The progress of the works will be recorded and assessed using the Company's ISO 9001 procedures.

5.3 Recovery, processing & curation of artefactual data

Finds are herein defined as…

…all artefacts, building materials, industrial residues, environmental material, biological remains (including human remains) and decay products (CI*f*A 2020b, 3).

All stratified finds will be collected and processed in accordance with *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (CI*f*A 2020b) and *First Aid for Finds*

(Watkinson & Neal 2001). All such materials will be labelled with the Site code and context number before being removed off-site. They will be stored in accordance with *First Aid for Finds* (*ibid.*) and with Historic England technical standards and other relevant sources of information, including standards for data-gathering set out by Brown (2011a, 18-20). Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest.

Each retained assemblage will be examined according to typological or chronological criteria and conservation needs identified, with all ceramics referenced to the county type fabric series.

Kate Smith MA ACI*f*A, Post-Excavation Manager: Performance Delivery, will contact Oxfordshire Museums Service for any specific guidance requirements in respect of the collection and subsequent archiving of finds. Decisions regarding selection and retention of archaeological materials are generally made at the pre-analysis stage of the project and will be carried out in consultation with the Planning Archaeologist and the museum and informed by principles set out by Brown (2011a, 23), which in essence specify that this process should be sufficient to produce …

…a project archive that allows a full re-examination and interpretation of all the results of the project whilst avoiding replication, repetition or the retention of materials not germane to future analysis.

BA refers additionally to *Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland* (Society of Museum Archaeologists 1993) and the CI*f*A *Toolkit for Selecting Archaeological Archives* (2019).

5.3.1 Treasure

All finds identified in the Treasure Act (1996) and the Treasure (Designation) Order (2002) as being treasure will be recorded, removed to a safe place and reported to Orbit Homes Midlands, the Planning Archaeologist, the Oxfordshire Finds Liaison Officer (FLO) and the Coroner. If the finds cannot be removed from Site the same day as discovery, provision against theft will be taken. A Treasure Receipt will be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. The Treasure Receipt and Report will include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

5.3.2 Conservation requirements

Janice McLeish MA (Hons.) ACI*f*A, Director: Post Excavation Services, will supervise on-site conservation for the lifting and treatment of fragile objects.

Post-excavation conservation work, including cleaning sensitive finds, will be carried out by BA's conservator and/or York Archaeological Trust (YAT).

Finds will be appropriately packaged and stored under the direction of BA's on-site conservation specialist (Appendix 1) *only* where preserved organic artefactual material is discovered. X-ray photographs of archaeological metalwork will be produced off-site by YAT.

5.4 Recovery & Assessment of Palaeoenvironmental/Palaeoeconomic Data

Samples for palaeoenvironmental/palaeoeconomic purposes will be collected according to guidance set out in *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (2nd Edition; Campbell *et al.* 2011) and the *STRF* (Hey & Hind 2014). The Planning Archaeologist will also be consulted on the environmental sampling strategy for the Site.

Samples of at least 40ℓ will be taken wherever possible and practicable using numbered sample buckets of 10ℓ capacity.

Processing will be undertaken by BA at its Palaeoenvironmental Processing Facility under the supervision and direction of Amy Bunce BSc MA MCI*f*A, Director: UK Operations & Palaeoenvironmental Sciences. This assists on-site guidance for sampling purposes and the ability to quickly determine their archaeoenvironmental potential whilst still under excavation; this will inform whether additional samples are taken.

Wherever practicable, at least 40ℓ or 100% of each sample (both dry and waterlogged) will be processed by flotation using Siraf-style tanks with a 500µm retent mesh and 250µm flot sieve as standard, with smaller retent meshes to 250µm considered where carbonised material is less likely to float. Heavily waterlogged samples will be considered for analysis without prior processing by flotation.

Retents will be initially scanned by magnet to retrieve archaeometallurgical debris such as flake and/or spheroidical hammerscale. A sieve bank will be used to facilitate visual sorting with the smaller fractions sorted by means of magnifying lamp and/or illuminated stereo zoom microscopy. Non-archaeological, -archaeobotanical, -archaeoosteological and -archaeometallurgical material will be disposed of on Site. Retents that are particularly rich in carbonised material may be re-floated once dry to assist the separation of archaeobotanical material.

Flots will be sorted using an illuminated stereo zoom microscope, which will have a trinocular head for digital microscopic photography where necessary. Charcoal will only be subjected to species identification where the contextual information suggests it would be advantageous in addressing aims set out in the *STRF* or in terms of national research strategies. Archaeological, archaeobotanical, archaeoosteological and archaeometallurgical material from flot and retent will be retained as part of the Site assemblage.

Sorting and identification of macro-botanical remains will use an in-house reference collection of botanical material, in conjunction with the consultation of academic, specialist reference books.

5.4.1 Other environmental sampling

Other environmental sampling, e.g. coring and monoliths for pollen, foraminifera, testate amoeba, diatoms etc., will be undertaken under the guidance of the specialist carrying out the further analysis.

Residue analysis on materials such as ceramics will be advised by the finds department.

Potential further investigation of environmental material, e.g. isotope analysis on bone or teeth, will be dependent on national research strategies; this will be considered as part of the post-excavation analysis stage.

5.4.2 Waterlogged wood

Waterlogged wood will be treated in accordance with *Waterlogged Wood Guidelines on the recording, sampling, conservation and curation of waterlogged wood* (Brunning & Watson 2010) and left *in-situ* where this is practical and its long-term preservation is achievable.

5.4.3 Sampling for scientific purposes

A range of scientific dating methods may be employed, as appropriate. In addition to techniques such as ^{14}C and dendrochronology, dating methods applied to inorganic materials exposed to firing or burning may be used, e.g. thermo-luminescence for ceramics, flint artefacts and hearth stones, and archaeomagnetic dating for fired structural remains, such as furnaces and kilns and possibly domestic hearths and ovens.

As luminescence and archaeomagnetic dating will require a specialist Site visit, this will be arranged by BA at the earliest possible opportunity when suitable features are encountered. Provision for other types of scientific analysis will be discussed with the Planning Archaeologist and the Historic England Regional Science Advisor, should unexpected remains be encountered.

5.4.4 Building materials

Samples of construction materials including masonry, brick, roof tile, floor tile, wall tile and hypocaust elements will be recovered for assessment of their potential to assist in the analysis of building palaeotechnology.

5.4.5 Geoarchaeology

Buried soils and sediment sequences considered by the individual to reflect the pedology of the Site will be analysed for information on Site formation processes. Highly significant, well-preserved remains, when encountered, will be investigated in a considered manner in order to assess the archaeological stratigraphy. Geoarchaeological works will in general aim to understand how deposits were initially laid down and subsequently modified through time (Canti & Corcoran 2015).

5.5 Human Remains

Should human remains be discovered, BA will inform the Planning Archaeologist and Orbit Homes Midlands, the remains being covered and protected. BA is cognisant of the deliberations by the Ministry of Justice (MoJ) in 2011 in respect of Section 25 of the Burial Act 1857 (Amended 2018) and any arrangements regarding the discovery of human remains will be at the discretion of HM Coroner, whose instructions/permission will be sought.

Any recording of such remains will be in accordance with *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017) using BA's *pro-forma* Skeleton Recording Sheet and Coffin Recording Sheet.

The removal of such remains will be carried out under the supervision of Niamh Dyer MSc (maternity cover for BA's osteology specialist Dr. Catherine Sinnott MA PhD ACI*f*A), subject to the appropriate Ministry of Justice licence, environmental health regulations and coroner information, with adequate security provided.

Assessment and analysis, where required, will be undertaken by the osteology specialist and will include a statement for the final deposition of the assemblage, together with options for reburial.

Human bone assemblages are treated at all times with due reverence and in accordance with the following guidelines:

- *Excavation and post-excavation treatment of cremated and inhumed human remains,* IFA Technical Paper No. **13** (McKinley & Roberts 1993);
- *Guidelines to the Standards for Recording Human Remains,* IFA Technical Paper No. **7** (Brickley & McKinley 2004);
- *Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports* (Mays, Brickley & Dodwell 2004);
- *Science and the Dead: A guideline for the destructive sampling of archaeological human remains for scientific analysis* (APABE) (Mays *et al.* 2013);
- *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (2nd Edition) (APABE) (Mays 2017);
- *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017);
- *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (Mays, Brickley, Dodwell & Sidell, 2018);
- *Burial Law and Policy in the 21st Century: The way forward* (Ministry of Justice 2007);
- *Statement on the exhumation of human remains for archaeological purposes* (Ministry of Justice 2011).

Where appropriate, the results of any osteological analysis may be submitted to Historic England for inclusion on the database of human skeletal remains.

5.6 Public Engagement

Provision will be made for public benefit in discussion with the Planning Archaeologist and Orbit Homes Midlands. This may include one or several of the following outreach activities: Site public open days; delivering talks to the general public and archaeological and historical society groups at local venues, including schools and village halls; erecting information boards; and producing articles for publication in the local press.

6 Archive Review & Post-Excavation Assessment

An Archive Review will be completed by the Site Manager upon completion of Site works comprising an audit of all archaeological materials recovered. Dependent upon the fieldwork results, assessment of the nature, date and significance of the stratigraphic, artefactual and palaeoenvironmental evidence may be undertaken by BA's nominated specialists, as detailed in Appendix 1 to this document. This will be consistent with Section 3.4 of *Standard and guidance for archaeological excavation* (CI*f*A 2020a, 12-13). Results will be placed in a local and regional context and address, where possible, specific research themes and priorities identified in the *STRF* (Hey & Hind 2014).

Where it has been agreed in consultation with the Planning Archaeologist, materials identified at assessment as appropriate for further analysis will be processed by the relevant specialists and the resultant research archive will be checked and ordered according to *MoRPHE* criteria (Lee 2015). Any such additional analysis will be undertaken as part of an Updated Project Design (UPD).

7 Archive Preparation

All records created during fieldwork will be checked for consistency and accuracy and will form part of the Site archive. The archive will contain all data collected and other specialist materials and will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in *MoRPHE* (Lee 2015).

The archive will be assembled in accordance with *Requirements for Transferring Archaeological Archives* (Oxfordshire Museums Service 2020-2021) and with section 3.6 of *Standard and guidance for archaeological excavation* (CI*f*A 2020a, 15-16). It will accord with guidelines published in *MoRPHE* (Lee 2015) and*, Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (CI*f*A 2020c), *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990), *Standards in the museum care of archaeological collections* (Paine 1992), *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown 2011a), *Safeguarding Archaeological Information: Procedures for minimizing risk to undeposited archaeological archives* (Brown 2011b) and *Toolkit for Selecting Archaeological Archives* (CI*f*A 2019).

BA undertakes that the following issues will be addressed and concluded to the satisfaction of the Planning Archaeologist within a reasonably defined timescale:

- The written, drawn and photographic records will be of sufficient archival quality;
- Data concerning complete identifiable and itemised objects will be transferred to specified object record sheets.

A Museum Accession Number will be requested by Kate Smith MA ACI*f*A within one month of the fieldwork starting and the processed assemblages will be boxed according to the guidelines (Oxfordshire Museums Service 2020-2021). A register of contents will be compiled prior to deposition of the Project Archive.

The project archive will be presented to Oxfordshire Museums Service following completion of the reporting process, subject to the agreement of the Site owner with regards to any finds and availability of the appointed specialists. Digital archiving will be via the Archaeology Data Service.

The archive will conform to museum specifications as set out by Oxfordshire Museums Service (2020-2021). The client will be consulted for permission for the transfer of title to any artefacts discovered to Oxfordshire Museums Service. An OASIS (Online Access to the Index of Archaeological Investigations) data-capture form will be completed upon deposition of the final archive.

8 The Report

The specific requirements of the Full Technical Report (FTR) will necessarily vary according to the scope of works, the nature of the results or other factors (CI*f*A 2020a, 13). However, the FTR will contain the following sections and illustrative components:

- Non-technical Summary;
- Introduction;
- Site Description;
- Historical & Archaeological Background;
- Aims & Objectives;
- Methodology;
- Results;
- Interpretation;
- Finds;
- Environmental potential (where environmental sampling is undertaken);
- Impact Assessment (considering the potential effects of the development on the archaeological remains);
- Conclusions (summarising the method, results, interpretation & impact assessment);
- Archive location (acknowledging the curatorial role played in the project by Oxfordshire County Council Archaeological Services and any provision of information from the County Historic Environment Record, which is copyright of Oxfordshire County Council);
- Location plans based on the current Ordnance Survey at an appropriate scale (reproduced with the permission of the Controller of HMSO);

- Plans showing the Ordnance Survey Grid; Site survey stations; the location of the Ordnance Survey Benchmarks used during the fieldwork and the Site Temporary Bench Marks;
- Plans showing the extent of identified archaeology;
- Illustrations including plans and sections of features recorded;
- Photographs of principal finds and features;
- Appendices providing detailed context records & the results of all specialist assessment and analysis undertaken.

Where geoarchaeological investigation is undertaken, a separate report will be compiled by the nominated specialist for submission as an appendix to the FTR. Included also would be the borehole logs resulting from any geotechnical investigations carried out on the Site.

Prior to the submission of the document to the planning portal, draft digital copies of the Report in PDF/A format will be sent to the Planning Archaeologist for approval, along with Orbit Homes Midlands, whereupon the report will be finalised and one digital copy in PDF/A format will be formally submitted to the Oxfordshire Historic Environment Record along with details of the archive deposition. Once the final report has been accepted by the County Archaeological Service, a digital .pdf copy will be deposited with OASIS (http://www.oasis.ac.uk/) the Archaeology Data Service Access to the Index of Archaeological Investigations website.

BA undertakes to provide Geographic Information System (GIS) or Computer Added Design (CAD) files for the project showing:

- Site outline;
- Groundwork's location(s).

Files may be submitted in .dwg, .dxf, or .shp formats.

A summary report (including illustrations, where appropriate) will be submitted to the editor of *Oxoniensia*, in addition to any relevant period journals, for wider dissemination. Any secondary reports or articles generated by this project shall acknowledge Oxfordshire County Council Archaeological Services and the HER.

9 Staff and Timescales

Amy Bunce BSc MA MCI*f*A, will be responsible for project management and staff deployment with support from Lyndsey Clark BSc (Hons.) MCI*f*A, Director: Archaeological Operations & Reporting.

George Children MA MCI*f*A, Director: Quality and Compliance, will additionally provide overall technical and editorial guidance to all constituent aspects of the works programme.

The works are currently scheduled to commence on 3rd October 2022.

10 Monitoring

The Site will be subject to monitoring by the Planning Archaeologist who shall be notified of the start date at least two weeks prior to the commencement of works in order to arrange a date for monitoring visits, which will be charged at a rate of £240 per visit.

BA will advise the Planning Archaeologist of the project's progress on a regular basis and notify them at the earliest opportunity of any unexpected discoveries, especially where there may be a need to vary the project. A plan showing the progress of Site works will be provided to the Planning Archaeologist prior to any Site visit.

No parts of the excavation area will be handed back to Orbit Homes Midlands until written confirmation stating that they have been signed off has been obtained from Oxfordshire County Archaeological Services. A post excavation plan showing the features and interventions, along with grid references and any other relevant information, will be provided by BA for any sign off areas in advance of this written confirmation.

All issues of a technical nature should be addressed in the first instance to Amy Bunce BSc MA MCI*f*A.

11 Border Archaeology Operating Standards & Arrangements

All projects are carried out in accordance with the Company's *Archaeological Field Recording Manual* (2021) and with CI*f*A *Standards and guidance for archaeological excavation* (2020a).

A pre-works risk assessment will be completed and lodged in the Site Health & Safety File. Site reporting procedures are completed daily.

George Children MA MCI*f*A retains overall responsibility for the qualitative elements of the project.

12 Copyright

13 References

Border Archaeology, 2018, *Metal Detecting Policy.*

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Border Archaeology, 2022, *Archaeological Field Evaluation on behalf of Environmental Dimension Partnership Ltd concerning Land off Broughton Road, Bretch Hill, Banbury*.

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British Geological Survey, 2021, 'Geology of Britain Viewer', http://mapapps.bgs.ac.uk/geologyofbritain/home [accessed 13-09-22].

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CIfA, 2019, *Toolkit for Selecting Archaeological Archives*.

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CIfA, 2021, *Code of conduct.*

Cockcroft, T. & Gater, J., 2021, *Geophysical Survey Report: Balmoral Avenue (Phase 2), Bretch Hill, Banbury*.

Environmental Dimension Partnership Ltd, 2021, *Archaeological and Heritage Assessment: Land off Balmoral Avenue, Bretch Hill, Banbury*.

Hey, G. & Hind, J., 2014, *Solent-Thames Research Framework for the Historic Environment: Resource Assessments and Research Agendas*, Oxford.

Lee, E., 2015, *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide*, Historic England.

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Mays, S., Brickley, M. & Dodwell, N., 2004, *Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports,* English Heritage.

Mays, S., Elders, J., Humphrey, L., White, W. & Marshall, P., 2013, *Science and the Dead: A guideline for the destructive sampling of archaeological human remains for scientific analysis*. English Heritage.

Mays, S., Brickley, M., Dodwell N. & Sidell, J., 2018, *The Role of the Human Osteologist in an Archaeological Fieldwork Project*, Historic England.

McKinley, J.I., & Roberts, C., 1993, *Excavation and post-excavation treatment of cremated and inhumed human remains,* IFA Technical Paper No. **13**.

Mitchell, P. D. & Brickley, M., 2017, *Updated Guidelines to the Standards for Recording Human Remains*.

Ministry of Housing, Communities & Local Government, 2019, *National Planning Policy Framework,* HMSO.

Ministry of Justice, 2007, *Burial Law and Policy in the 21st Century: The way forward,* HMSO.

Ministry of Justice, 2011, *Statement on the exhumation of human remains for archaeological purposes,* HMSO.

Oxfordshire Museums Service, 2020-2021, *Requirements for Transferring Archaeological Archives*, Oxfordshire County Council.

Paine, S., 1992, *Standards in the museum care of archaeological collections*, Museums & Galleries Commission.

Society of Museum Archaeologists, 1993, *Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland*.

Walker, K., 1990, *Guidelines for the preparation of excavation archives for long-term storage*, UKIC Archaeology Section.

Watkinson, D., & Neal, V., 2001, *First Aid for Finds*, RESCUE/UKIC.

14 Appendix 1: Specialists

The following specialists have been appointed to provide, where required, sampling, consulting, analysis & reporting services:

1. Geoarchaeology: Rob Batchelor BSc PhD MCI*f*A Director Quest University of Reading; ARCA, University of Winchester;
2. Pottery: Alex Gibson BA PhD MCI*f*A University of Bradford, Rob Perrin M.Litt MCI*f*A FSA Freelance Specialist, Jo Mills Freelance Specialist, Paul Blinkhorn BTech (Hons) Freelance Specialist;
3. Coins: Peter Guest BA PhD University of Cardiff;
4. Flint: Rebecca Devaney MA ACI*f*A Freelance Specialist;
5. Petrological Analysis: Imogen Wood BA MA PhD;
6. Glass: Nicola Powell MA MCI*f*A Freelance Specialist;
7. Clay Tobacco Pipes: Nicola Powell MA MCI*f*A Freelance Specialist;
8. Leather and Metal Objects: Quita Mould Barbican Research Associates;
9. Archaeometallurgy: Gerry McDonnell BSc PhD Gerry McDonnell Archaeometals;
10. Glass Working: John Shepherd BA FSA MCI*f*A Freelance Specialist;
11. Artefact & Materials Conservation: Ian Panter York Archaeological Trust;
12. Building Materials: Phil Mills BSc PhD MCI*f*A Freelance Specialist;
13. Worked Stone: Ruth Shaffrey BA PhD MCI*f*A Freelance Specialist;
14. On-site Conservation: Janice McLeish MA ACI*f*A Border Archaeology Ltd;
15. Faunal Remains: Chris Faine MA ACI*f*A Freelance Specialist & Janice McLeish MA ACI*f*A Director: Post Excavation Services Border Archaeology Ltd & Clare Rainsford Freelance Specialist;
16. Human Remains: Catherine Sinnott BA PhD ACI*f*A Osteoarchaeologist Border Archaeology Ltd;
17. Archaeobotanical, Charcoal & Wood ID: Amy Bunce BSc MA MCI*f*A Director: UK Operations & Palaeoenvironmental Sciences Border Archaeology Ltd.

Other specialist suppliers will be sourced, if deemed appropriate; suitable management time will be expended to ensure that such external suppliers' work complies with accepted national guidance.

15 Appendix 2: Data Management Plan

Border Archaeology Digital Data Management Plan (DMP) v.3.3

Date DMP initiated:	***Insert date***	***Initials of the editor***
Version: 1.0	**14th September 2022**	*KS*
Updated Version	*date*	*Initials of the editor*

15.1 Section 1: Project Administration

Project BA Number:	**BA22109BAL (for mitigation); earlier evaluation phase completed under job number BA2202LBB**
Site Code:	**BAL22**
OASIS ID:	**borderar1- 509345 (for mitigation)** **borderar1-503619 (for evaluation)**
HER event number:	**tbc**
Accession number:	**OXCMS:2022.14**
Project Brief:	**n/a**
Planning Ref:	**21/03644/OUT (granted by Cherwell District Council)**
Additional Unique Identifiers: (e.g. DOI number for ADS Grey Literature Library)	
Project Name/Location/Scheme number:	**Balmoral Avenue (Phase 2), Bretch Hill, Banbury, Oxfordshire**
Project Description: (nature of the project / key techniques)	**Border Archaeology (BA) has been instructed by Orbit Homes Midlands to carry out a programme of Archaeological Excavation on land at Balmoral Avenue (Phase 2), Bretch Hill, Banbury (NGR: SP 43690 39968 – approx. centre;) in connection with the erection of up to 49 dwellings and associated open spaces, sustainable urban drainage systems and access from Balmoral Avenue.**
Investigation Techniques: (purpose of the investigation)	**Archaeological Excavation**
Project Funder/Client:	**Orbit Homes Midlands**
Project Manager:	**Amy Bunce Director: UK Operations & Palaeoenvironmental Services**
Site Manager:	**tbc**
Data Contact Person:	**Kate Smith Director: Performance Delivery**

15.2 Section 2: Data Collection

What data will you collect and create? How will the data be collected or created?

Methods of data collection are specified within the Written Scheme of Investigation (WSI) and will meet the requirement set out in the Project Brief; the organisation's *Archaeological Field Recording Manual* (August 2021) (BAFM21/REV5); relevant CI*f*A Standards and guidance; and are defined against ADS Guides to Good Practice.

The table below provides a summary of anticipated data types, formats and estimated volume for this project. This table will be updated as the project progresses.

Documents and Reports	Word (.doc); pdf; pdf/a	1 pdf 2411KB
Photographs and images	Our baseline standard is jpeg but we are guided by CA's etc. and then use tif or raw accordingly	e.g. 75 images (381 MB (399,744,694 bytes)
Maps and Plans	AutoCAD (.Dwg); Illustrator (.ai);	Final export: Jpeg for inclusion in report
Spreadsheets	Excel (.xls); (.xlsx)	
GIS	QGIS; ArcGis	
GIS (Research data)	NB GIS data "bought in" for research reports will not be deposited as it is not our data.	n/a
Geophysics	We outsource all geophysics	

Please note: that this reflects the total digital data for the Working Project Archive, **not** the archived selection of project (Preserved Archive).

Where will the working project archive be stored?

The Working Project Archive will be stored in a project specific folder on the internal organisational server. The server is backed-up by our professional IT provider.

File naming conventions

File naming conventions follow established organisational procedures.

Quality assurance

Instruments and cameras used in the collection of data are calibrated prior to use and checked to ensure that they are in full working order.

All Site records and data collected will be checked during Project Delivery.

15.3 Section 3: Documentation and Metadata

What documentation and metadata will accompany the data?

Total station data/Digital location data is used for most projects (excluding AOs). The data is exported and transferred to our Illustrations Department.

Digital images captured during an archaeological programme of work are downloaded as soon as practicable from the camera memory card onto our internal server.

This is especially important for those sites that are:

- large ongoing sites with multiple cameras;
- stop/start sites where more than one Site manager may be involved.

The paper Photographic Record form is completed every time a photograph is taken. This register will include the make and model of the camera, the initials of the individual(s) who took the image, date, and details of the area photographed.

Post Fieldwork Summary

As soon as fieldwork is completed the Site manager completes an Archive Review Form (ARF) which provides an initial "snapshot" of the results of fieldwork. It quantifies the Site paperwork, the unprocessed finds and samples collected and the number of digital images taken.

The Site archive then undergoes a review by the field staff. The finds and samples are delivered to our Post Ex department. Digital images are uploaded to the internal server, if not already within the job folder. We retain the SD card until the archive is deposited.

The paperwork will be checked/audited prior to writing the report. The Site manager will review the digital images and make an initial selection of those that warrant inclusion in the report and/or inclusion within the Preserved Archive. No images will be deleted at this stage.

15.4 Section 4: Ethics and Legal Compliance

How will you manage Ethical, Copyright and Intellectual Property Rights (IPS) Issues?

Copyright for all data collected by the Project Team belong to Border Archaeology.

Formal permission to include data from external specialists and contractors is secured on the engagement of the specialist or contractor.

Personal data will be removed from the archaeological project archive and permission to include individual's names in any report is obtained prior to use.

15.5 Section 5: Storage and Backup

How will the data be stored, accessed and backed up during the research?

The **Working Project Archive**: -

Site specific SD cards will be retained until the Site archive has been deposited, at which point they will be recycled.

Downloaded data will be stored in a project specific folder on the internal organisation server.

- The server operates on permission-based access;
- The server is accessible by permitted staff on and off-site through secure log in.

Where internet access for data backup is not possible, the raw data will be backed up to a separate media device (such as a laptop and portable external hard drive).

Organisational Server

Organisational IT is managed by an external data management provider (who is also responsible for the management and verification of our daily back-ups and who support access to security copies as required.

The internal organisation server is backed up daily by our external data management provider. They ensure that there is sufficient storage space for our digital collection.

Any "archived" data removed from the server is kept in two locations away from the main office.

15.6 Section 6: Selection and Preservation

What should be retained, shared and/or preserved?

The Selection Strategy and DMP are reviewed and updated during the PEX Archiving process and with results from specialist reporting.

Prior to deposition, the Selection Strategy and DMP will be updated and finalised in agreement with all project stakeholders (including the Local Planning Archaeologist, Client, Museum, ADS).

Selection will be informed by the WSI, defined against the research aims, regional and national research frameworks, specialist advice and the significance of the project results.

The data archive will be ordered, with files named and structured in a logical manner, and accompanied by relevant documentation and metadata, as outlined in Sections 2 and 3 of this DMP.

What is the long-term preservation plan for the dataset?

It is understood that the reasons for selection of particular digital components will vary from project to project and will take into consideration the project aims as stated within the WSI, the significance of the results, research potential of the results, research framework requirements and relevant museum guidelines.

As with other aspects of an archaeological archive, it is unlikely that all digital files generated during an archaeological project will be retained as part of the deposited digital archive (Preserved Archive).

Consequently, a project specific Selection Strategy will be implemented: -

External dissemination of the digital archive will be with a CoreTrustSeal certified online depository (most likely the Archaeology Data Service (ADS)) if specified by Museum, CA/HER, etc., guidance, the components of which will be determined by the relevant museum deposition guidelines and correspondence with the necessary stakeholders.

- Therefore, all final reports generated from interventive programmes of work will be uploaded to **OASIS V** following approval by principal project stakeholders- client and CA/HER;
- If appropriate, digital images and supporting documentation will be uploaded to **ADS-Easy** to complement grey literature reports;
- Research reports *may* be deposited on OASIS but only under the direction of the CA/HER, museum curator, etc.

BA will not preserve all digital files from the Working Project Archive on their internal company servers indefinitely.

- Internal preservation of selected digital data on BA's internal server will conform to internal Selection and Deselection standards[1].

Have you contacted the data repository?

The relevant museum will be contacted in the early stages of the project to request an accession number; to confirm current deposition guidelines (unless already contacted within the previous 3 months) and to establish current deposition costs.

The deposition guidelines will be consulted to confirm the situation with regard to the digital archive component and whether this should be deposited with a trusted digital repository.

If the investigation establishes that the Site is negative, the CA and Museum etc. will be contacted to establish whether this can be an OASIS only deposition.

[1] BA Selection and De-selection Guidance 2021

Have the costs of archiving been fully considered?

Sufficient resources to allow for the preparation of the archive, and the cost of deposition of the physical and digital archive have been included in the project budget. A costing estimate may be produced for more complex sites, using the ADS Costing Calculator.

15.7 Section 7: Data Sharing and Accessibility

How will you share the data and make it accessible?

A summary of the project will be included on the OASIS Index of Archaeological Investigation and the museum and digital archive repository, and will be updated as the project progresses.

The investigations are likely to result in a number of documents: Project Brief; Written Scheme of Investigation; Final Report; Journal Submission.

A final version of the project report will be supplied to the Historic Environment Record via OASIS, and any data which they request can also be provided directly.

The location(s) of the final Archaeological Archive will be added to OASIS when appropriate.

The ADS will disseminate the digital elements of the Archaeological Archive online under a creative commons licence and the dataset will receive a unique identifier (DOI).

Any restrictions of data sharing required?

In certain situations, a temporary embargo may be required on the sharing of the project results. If this is the case, specific details, once agreed, will be included in the updated version of this DMP and will be documented in the overarching Project Collection Metadata.

15.8 Section 8: Responsibilities

Who will be responsible for data management?

The Project Manager will be responsible for implementing the DMP, and ensuring it is reviewed and revised at each stage of the project.

Data capture, metadata production and data quality are the responsibility of the Project Team, assured by the Project Manager.

Storage and backup of data in the field is the responsibility of the field team.

Once data is incorporated into the organisations project server, storage and backup is managed by an external company.

Data archiving is undertaken by the project team under the guidance of the Archives Officer, who is responsible for the transfer of the Archaeological Project Archive to the agreed repository.

Details of the core Project Team can be found in the WSI.

Document Title		Document Reference	
Written Scheme of Investigation for Archaeological Excavation on behalf of Orbit Homes Midlands concerning Balmoral Avenue (Phase 2), Bretch Hill, Banbury.		BA22109BAL/WSI	
Compilation	Lyndsey Clark BSc (Hons.) MCI*f*A		
Editing	Amy Bunce BSc MA MCI*f*A		
Artwork	Holly Litherland BA (Hons.)		
Issue No.	**Status**	**Date**	**Approved for issue**
2	Final	September 2022	George Children MA MCI*f*A