Appendix 9 Archaeological Evaluation: Earthwork Enclosure in Area 7, Land north east of Milton Keynes (July 2021)

ARCHAEOLOGICAL EVALUATION

Earthwork Enclosure in Area 7, Land north east of Milton Keynes, Buckinghamshire

Site Code: EMK1443

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July 2021

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CONTENTS

ABSTRACT

Pre-Construct Archaeology Ltd (PCA) was commissioned by RPS Group Ltd to undertake a programme of archaeological evaluation in Area 7 on Land North-East of Milton Keynes (centred on Ordnance Survey National Grid Reference (NGR) SP 888423) from the 6th of April 2021 to 19th of April 2021. The area including the Area 7 site location has been allocated for comprehensive development in the emerging Milton Keynes Local Plan.

The distinctive layout of the site had been previously identified in a geophysical survey (RPS 2020) and had been previously investigated by means of a fieldwalking and metal detecting survey (Pullen 2021). The D-shaped enclosure revealed by geophysical survey was noted to be similar in size and appearance to the Viking Camp previously identified at Repton by Martin Biddle in the 1980's.

A total of four 50m x 4m evaluation trenches and one 25m x 2m evaluation trench totalling 225 linear meters of trenches were excavated and recorded.

The evaluation confirmed the presence of a triple ditched d-shaped enclosure located on relatively high ground overlooking the River Ousel. The evaluation also identified the presence of lines of postholes between the outer and the middle ditch which likely evidenced a rampart-like structure. Furthermore, a high density of postholes identified within the enclosure is indicative of structural remains.

The relative absence of any artefactual material from the fieldwalking, metal detector survey and trial trenching has meant that both the dating and interpretation of this striking arrangement of ditches and related features remains ambiguous.

INTRODUCTION

1.1 Pre-Construct Archaeology Ltd (PCA) was commissioned by RPS Group Ltd to undertake a programme of archaeological evaluation at Area 7 on Land North-East of Milton Keynes (centred on Ordnance Survey National Grid Reference (NGR) SP 888423) from the 6th of April 2021 to 19th of April 2021 (Figure 1).

1.2 The area including the site has been allocated for comprehensive development in the emerging Milton Keynes Local Plan.

1.3 The evaluation was carried out in accordance with a Written Scheme of Investigation (WSI) prepared by PCA (Meckseper 2021). The work was monitored by Nick Crank, Senior Archaeological Officer, Conservation and Archaeology Team, Milton Keynes Council.

1.4 The aim of the evaluation was to determine the location, date, extent, character, condition and quality of any archaeological remains on the site, to assess the significance of any such remains in a local, regional, or national context with reference to the Solent-Thames Research Framework for the Historic Environment (2014), and to assess the potential impact of the development proposals on the site's archaeology.

1.5 A total of four 50m x 4m evaluation trenches and one 25m x 2m evaluation trench totalling 225 linear meters of trenches were excavated and recorded (Figure 3).

1.6 This report describes the results of the evaluation and aims to inform the design of an appropriate archaeological mitigation strategy. Following Transfer of Title, the site archive will be deposited at Milton Keynes Museum.

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

2.2 The British Geological Survey (BGS Online 2020) indicates that the solid geology of the site generally comprises Mudstone formations, with a mix of Sandstone, Siltstone and Mudstone on the far west of the study site.

2.3 Alluvial deposits are located within the immediate vicinity of the River Ouzel in the western half of the site, whilst gravel terraces and head deposits associated with the river valley are recorded either side of the river. Previous site investigation boreholes recorded by the British Geological Survey are concentrated across the western half of the study site, and generally confirm the underlying geology of the alluvial floodplain.

2.4 Further deposits of Oadby Member (Diamicton) and small pockets of glaciofluvial deposits are recorded across much of the eastern half of the study site.

2.5 Topography

2.5.1 The River Ouzel meanders north-south through the site, creating a river valley within the western half of the site.

2.5.2 The river and its floodplain lie at approximately 57m Above Ordnance Datum (AOD). Land to the west of the floodplain rises gently to c.65m AOD at the far western corner, whilst the topography of the eastern half of the site generally comprises land sloping down towards the river valley, and away from an area of high ground at Moulsoe immediately to the east, and a further area of high ground at the north east corner of the study site. These areas of high ground are generally situated at a height of c.80-90m AOD.

3 ARCHAEOLOGICAL BACKGROUND

3.1 The following archaeological background is taken from the Archaeological Desk Based Assessment (Archer 2018) and the Written Scheme of Investigation (Meckseper 2021) for the site. Numbers in brackets refer to CHER asset numbers.

3.2 No designated World Heritage Sites, Scheduled Monuments, Historic Battlefield sites or Historic Wreck sites lie within the vicinity of the study site.

3.3 In general, the HER records within the study area comprise evidence for a diverse archaeological landscape, comprising artefactual evidence for the prehistoric periods, and occupation activity from the later prehistoric periods through to the present day.

3.4 Previous archaeological work undertaken within the study site comprises programmes of Fieldwalking and Metal Detecting, geophysical survey (see below), evaluation trial trenching and some areas of excavation as part of schemes to widen the M1 motorway in the 1990s. These works have identified Neolithic/Bronze Age artefactual evidence, and possible Iron Age/Roman occupation and Medieval ridge and furrow activity in the far western area of the study site.

3.5 The map regression exercise has demonstrated that the study site has generally comprised open agricultural or pastoral land from the Post Medieval period until the present day, with only minor instances of agricultural development and brickearth extraction activity.

3.6 Recent Geophysical Survey

3.6.1 Sumo Geophysics Ltd were commissioned by RPS group to undertake a geophysical survey of an area outline for comprehensive development (RPS 2020). The geophysical survey has produced some remarkably clear results.

3.6.2 The geophysical survey identified several archaeological sites, some of which were previously unknown including two prehistoric occupation sites, an extensive Romano-British/Medieval settlement and an earthwork enclosure

(RPS 2020).

3.6.3 The proposed fieldwalking and metal detecting cover Areas 7, 8, 11, 13, 14B, 15, 16, 22 and 25 (see Fig 2 & RPS 2020 Fig 24). The results from these areas are summarised below.

3.6.4 **Area 7**. Overlooking the river Ouzel this area displays clear anomalies interpreted as a series of ditches associated with banks which form a multivallate, fortified enclosure, with the river providing the southern defences. The enclosure has maximum dimensions of 210m by 120m and there appears to be a single entrance in the south. Rectilinear anomalies inside the enclosure appear to indicate building foundation trenches. The results correspond with the location of a curvilinear cropmark enclosure recorded in the HER (MMK3823).

3.6.5 **Area 8**. A complex of archaeological features comprising ring ditches, enclosures and a probable trackway are visible. The ring ditches are presumed to be gullies associated with roundhouses. The complex extends over 400m east to west and appears to represent prehistoric settlement. The area 8 settlement activity extends into areas 9 and 11.

3.6.6 **Area 11**. A small rectangular area of slightly increase magnetic response visible on aerial imagery might could be associated with the brickworks further south. A possible windmill in existence in the 19th century may be represented by Anomaly 17. In the central and eastern half of Area 11 there are several poorly defined rings, arcs and short linear responses. These features are thought to be prehistoric, representing roundhouses or possible round barrows. Several pit-like responses would tend to favour settlement rather than burial activity.

3.6.7 **Area 14B**. In the north of Area 14B there are ring-shaped anomalies, arcs and trends which form a small focus of features like those in Area 8 and 11. In the south east extremity of Area 14B and extending in Area 14D is a curving band of negative magnetic responses which may be indicative of a former bank, now ploughed out.

3.6.8 **Area 15, 16, 16A & Area 7 South**. In this area a plethora of archaeological type anomalies extends over an area exceeding 12 hectares. Anomalies from Area

15, 16 and 17 (south) appear to represent enclosure and trackways. Some of these are on a rectilinear and others are more curvilinear.

3.6.9 **Area 22**. A rectilinear enclosure was revealed to the east of which some 50m by 40m in size.

3.6.10 **Area 25**. The geophysics provides a very clear picture of a series of rectilinear enclosures, trackways, ring ditches, pits and ditches. These features are assumed to represent a multi-phase settlement which extends over some 5 hectares.

3.7 Palaeolithic

3.7.1 Evidence for Palaeolithic human activity within the study area comprises a finished axe head and a single flint flake found at Newport Pagnell to the north west of the study site (HER Refs: MMK3636-7, SP 88800 43200 & NMR Ref: 344978). A complete ox horn and a fragment of a further horn were found at the base of a gravel pit within the area of the Cotton Valley Sewage Works at the south west extent of the study area (HER Ref: MMK1598, SP 88400 40900).

3.7.2 The presence of Palaeolithic material can be notoriously difficult to predict and is typically dependent upon the presence of an appropriate underlying geology sequence (such as terrace gravels or brickearth), as well as suitable topography and access to nearby resources and water. Whilst the alluvial deposits likely present within the western area of the study site are considered too late in date to contain Palaeolithic material, the potential presence of residual flintwork artefacts cannot be discounted at depth within any underlying river terrace gravel deposits which may be present. Therefore, a generally low to moderate archaeological potential is identified for the Palaeolithic period within proximity to the River Ouzel, and a generally low potential is identified for the remainder of the study site.

3.8 Mesolithic

3.8.1 A largely residual Mesolithic flint scatter was recorded during excavation at a site c.250m south of the study site boundary (HER Ref: EMK990, SP 89400 40500).

3.8.2 Based on the paucity of evidence within the study area, the archaeological potential of the study site for the Mesolithic period is considered low.

3.9 Later Prehistoric - Neolithic & Bronze Age

3.9.1 The Milton Keynes HER records only limited evidence for Neolithic occupation activity within the study area, in the form of an early Neolithic pit which included a plain bowl pottery assemblage, identified c.250m south of the study site during archaeological excavation (HER Ref: EKM990, SP 89400 40500).

3.9.2 Further evidence for Neolithic activity comprises Neolithic/Bronze Age flintwork which is recorded throughout much of the study area and has generally been identified during systematic fieldwalking programmes both within the study site and the immediate area. Generally, any finds are recorded along the southern area of the study site (HER Refs: MMK503, MMK3965, MMK3977-8, MMK3980-2). Further findspots of Neolithic and Bronze Age flintwork are concentrated to the north west and south west of the study site (HER Refs: MMK475, MMK982-9, MMK1235, MMK3851).

3.9.3 Cropmark evidence for possible Bronze Age ring ditches and barrow cemeteries are recorded within the western part of the study site (HER Refs: MMK502, MMK504, MMK929-30 & NMR Ref: 345028), as well as to the west of the site (HER Ref: MMK993/NMR Ref: 345034), to the south of the M1 (HER Refs: EMK898 & MMK1120/NMR Ref: 641446, & NMR Ref: 344979), and to the east of the site (NMR Ref: 16222028).

3.9.4 The HER records further Bronze Age occupation activity to the south of the study site, including cremation burials at Cotton Valley Sewage Works to the south of the M1 (HER Refs: MMK1120-2, SP 88600 40910), and at Broughton Barn Quarry to the south east of the study site (NMR Ref: 1330218/1393304/1354482, SP 9076 4056). A bronze socketed axe is recorded at a likely inaccurate location south west of the study site, as the event record notes the find at Bradwell, 5km to the west (HER Ref: EKM408, SP 88248 41321).

3.9.5 Neolithic and Bronze Age evidence is generally located to the south and

western areas within the study area, whilst most of the evidence recorded within the study site comprises artefactual evidence which is not indicative of settlement or occupation activity. Therefore, whilst a generally low to moderate archaeological potential can be identified across the study site for Neolithic/Bronze Age artefactual evidence, a specific potential is identified at the western end of the study site for possible Bronze Age ring ditches.

3.9.6 A moderate potential for organic paleoenvironmental evidence dating to the later prehistoric periods within the Ouzel River Valley is appropriate.

3.10 Iron Age & Roman

3.10.1 A middle Iron Age occupation site is recorded at Tickfordfield Farm to the north of the study site, which comprised an occupation layer containing pottery fragments, bone and charcoal (HER Ref: MMK3411, SP 89480 43450 & NMR Ref: 657222). In addition, possible traces of an Iron Age building were recorded to the south east of this, near to the study site's north east corner (HER Refs: MMK546-7, SP 90000 43100).

3.10.2 Geophysical survey along the route of the M1 widening scheme in the 1990s identified enclosure ditches and pits, possibly representing late Iron Age or Roman agricultural activity (HER Ref: MMK7915, SP 89085 41700). This record is given an inexact grid reference in the centre of the study site as the detailed location is unknown. The National Monuments Record also notes that archaeological evaluation work was undertaken along the route of the M1 motorway which identified evidence for Iron Age and Roman ditches, pits and possible occupation (NMR Ref: 1324853, SP 8815 4165 to SP 8030 4924). It seems that occupation may have been located around a site at West Caldecote to the west of the study site where a substantial number of Iron Age and Roman features have been identified (HER Ref: MMK934, SP 87448 42218). A further settlement site is recorded at Brooklands, c.400m south of the study site, which suggested a confined settlement surrounded by associated field systems (HER Ref: EMK989-90, SP 89800 40100).

3.10.3 The HER notes Iron Age/Roman features generally comprising enclosures, ditches and pits at Broughton c.500m south of the study site (HER Refs:

MMK1593-6 & EMK967, SP 89310 40270 & NMR Ref: 1343554), at the Cotton Valley Sewage Works site to the south of the M1 (HER Refs: MMK1244-7, SP 88500 40800 & NMR Ref: 344979), within the area south of M1 junction 14 (HER Ref: EMK982, SP 89283 40458), and also at Broughton Farm to the south east of the study site (NMR Ref: 1324848 & 1330218, SP 9076 4056). In addition, evidence for an Iron Age/Roman field system is recorded at London Road to the north of the study site (HER Refs: MMK7918, SP 88798 43046 & NMR Ref: 1454307). It is likely that these comprise evidence for activity associated with the settlements at Brooklands and at West Caldecote.

3.10.4 The nearest major Roman routeway to the study site as recorded by Margary (1955) is Watling Street, which passes through Milton Keynes c.6km south west of the study site. However, the smaller road known as 'Viatores 175' is projected to pass through the western end of the study site, possibly fording the River Ouzel adjacent to the study site's north west corner (NMR Ref: 868140 & HER Ref: MMK457, SP 88400 42600). Several finds comprising pottery fragments and a quern stone have been made within the immediate area of this likely fording spot, which may indicate the presence of an occupation site near to the ford, or activity associated with the settlement at West Caldecote to the west (HER Refs: MMK545-6, SP 88400 42600 & NMR Ref: 344993). Typical archaeological features associated with Roman roads can include evidence for settlement and occupation, roadside ditches and associated land division, together with quarry pits, burials and chance losses.

3.10.5 Further evidence for the Iron Age and Roman periods within the study area comprises artefactual evidence, which is not detailed here as it is generally located within areas of occupation activity or adjacent to routeways which are noted above. Fieldwalking within the study site has identified a single sherd of Roman pottery, which is recorded in the centre of the study site (HER Ref: MMK3979, SP 89300 40950 & MMK3980, SP 89400 41250), whilst further pottery sherds and a metal artefact have been found to the east at Moulsoe (HER Refs: MMK552-4, SP 90670 41760 & MMK7174, SP 90315 41953).

3.10.6 The study site would have comprised a settled agricultural landscape during the Iron Age and Roman periods, characterised by scattered farmstead settlements

surrounded by an agricultural hinterland. Known activity is concentrated generally within the vicinity of the projected road which passes through the western part of the study site and it is more likely that any Iron Age/Roman evidence will be located within the western area of the site. Therefore, a high archaeological potential can be identified within the western area of the study site associated with the Roman road and any roadside activity which may be present. A generally low to moderate potential is suggested across the remainder of the study site for evidence associated with isolated farmsteads and agricultural activity.

3.10.7 It is possible that further alluvial deposits may date to the Iron Age or Roman periods within the River Ouzel Valley, and therefore a moderate potential is suggested for organic palaeoenvironmental evidence dating to these periods within the Ouzel River Valley.

3.11 Anglo-Saxon/Early Medieval & Medieval

3.11.1 A middle 5th century sunken featured building was identified during works at Brooklands, to the south of the M1, which may be indicative of a Saxon settlement within that area (HER Ref: EMK990, SP 89400 40500). Two early Saxon pits were also recorded to the south of this at Broughton (HER Ref: EKM967, SP 89330 40250).

3.11.2 A programme of fieldwalking during the widening of the M1 identified a single sherd of Saxon pottery, at a findspot which is recorded at the southern boundary of the study site (HER Ref: MMK3979, SP 89300 40950). A further programme of fieldwalking to the north west of Caldecote in the north western extent of the study area identified c.70 sherds of Saxon pottery (HER Ref: MMK991, SP 88310 42740).

3.11.3 Gravel extraction in 1900 at the northern extent of the study area revealed a Saxon cemetery, and several associated grave goods (HER Refs: MMK474/476& MMK7720-2, SP 88770 43310 & NMR Ref: 344952)

3.11.4 Several late Saxon estates are recorded within the area of the study site by the Domesday Survey of 1086 (Domesday Online 2018). These include:

3.11.5 Tickford - located to the north of the study site, medium sized estate of 15 households, assessed for a large total tax of 5 geld units;

3.11.6 Moulsoe - located to the east of the study site, medium sized estate of 17 households, assessed for a very large total tax of 10 geld units. The HER notes the location of the manor house and the historic core of settlement at Moulsoe to the east of the study site (HER Refs: MMK159, SP 90748 41742; MMK548-51, SP 90600 41600; MMK3629, SP 90656 41746; MMK5412, SP 90582 41637 & NMR Ref: 1576671);

3.11.7 Broughton - located to the south of the study site, medium sized estate of 17 households, assessed for a large total tax of 5 geld units. The HER notes the associated shrunken Medieval village of Broughton (HER Ref: MMK3482, SP 89675 40062 & NMR Ref: 344989).

3.11.8 Milton (Keynes) - located to the south of the study site, very large estate of 37 households, assessed for a very large total tax of 10 geld units;

3.11.9 Newport (Pagnell) - located to the north of the study site, medium sized estate of 14 households, assessed for a large total tax of 5 geld units;

3.11.10 Caldecote - located to the north west of the study site, listed by the HER as comprising a moated manorial site, with possible associated deserted village or manorial buildings, and a mill (HER Refs: MMK87, SP 88170 42290; MMK90, SP 88332 42322; MMK91, SP 88029 42288; MMK92, SP 88335 42340; MMK93, SP 88010 42380; MMK1078, SP 88430 42650; MMK3423, SP 88220 42075 & NMR Refs: 344953 & 1592528).

3.11.11 The nearest of these estates to the study site are Caldecote to the north west and Moulsoe to the east. The lands associated with the estate at Moulsoe comprise plough land, meadows and woodland (Domesday Online 2018). It is therefore likely that the study site was located within an area of mixed arable land, pasture, and woodland at the time of the Domesday Survey. The HER also notes a mill that was recorded within Moulsoe Hundred by the Domesday Survey, although it is acknowledged that the mill may not be located within Moulsoe Parish (HER Ref: MMK3763, SP 91000 41500).

3.11.12 In addition to the above Saxon estates, the HER also records the estate and village at Willen to the south west of the study site, which was first documented in AD1189 (HER Ref: MMK5481, SP 87903 41209).

3.11.13 Evidence for Medieval ridge and furrow agricultural activity is noted by the HER in the far western extent of the study area (HER Ref: MMK7915, SP 89085 41700 & NMR Ref: 915523), which is also evident on the LiDAR plot.

3.11.14 It is likely that the study area remained characterised by scattered estate centres and farmsteads, interspersed with agricultural and pastoral land, during the Saxon and Medieval periods. Known centres of settlement and occupation are located outside the study site boundary, whilst evidence for ridge and furrow activity survives within the western area of the site. Therefore, whilst a low archaeological potential can be identified for evidence of Saxon or Medieval settlement within the study site, a generally moderate archaeological potential is identified for evidence of associated agricultural activity and land division.

3.12 Post Medieval & Modern (including map regression exercise)

3.12.1 Several HER records within the study area refer to Post Medieval and Modern archaeological remains which are not discussed in detail here unless relevant to the study site.

3.12.2 During the Post Medieval and Modern periods, our understanding of settlement, land-use and the utilisation of the landscape is enhanced by cartographic and documentary sources, which can give additional detail to data contained within the HER.

3.12.3 Jeffrey's 1768 Map of Buckinghamshire characterises the study site within areas of probably open land, between the various settlements and hamlets at Newport Pagnel to the north west, Mulshoe to the east, Broughton to the south, Willen to the south west and Caldecot to the west. The north-south London Road bisects the study site, whilst the River Ouzel bisects the area of the study site to the west of the London Road. The London Road is recorded as the Woburn to Newport Pagnell turnpike road, which was set up in 1728 (HER Ref: MMK5881, SP 90754 39016). A few trackways are shown branching off from

the London Road towards Moulsoe and Tickford Park to the east.

3.12.4 Early 19th century enclosure maps for Moulsoe and Tickford, as well as a Willen parish map show the study site divided into agricultural and pastoral plots of land. The Tickford map notes a 'Mill Field' in the northern area of the study site, which may indicate a possible windmill within this area (HER Ref: MMK3385, SP 89100 42600). The agricultural nature of the site is further shown on an 1814-15 Ordnance Survey Drawing, which also shows a small cluster of buildings adjacent to the London Road in the centre of the study site, and a further building labelled as Moulshoe Barn adjacent to the London Road at the southern study site boundary.

3.12.5 By 1886, the study site generally remains characterised as areas of open agricultural and pastoral fields. The cluster of buildings in the centre of the study site was labelled as Moulsoe Buildings, whilst the former Moulshoe Barn at the southern site boundary was labelled as Cottage Farm. A further farm labelled as Caldecotehill Farm is shown adjacent and to the north of the study site boundary, adjacent to the London Road. Brickworks (HER Ref: MMK3400, SP 89000 42450) with associated brick kilns and extraction pit are shown adjacent to the London Road, with an area of allotments immediately south of this (see geometric patterned fields). A further area of allotment is shown at the eastern study site boundary, and an area of scrubland labelled Drake's Gorse is shown to the north of this.

3.12.6 Only minor changes are shown with the study site on 20th century mapping and aerial photography through to the present day, as the aforementioned areas of development were expanded minimally, and much of the study site was opened up through the removal of field boundaries to create larger agricultural and pastoral fields. The first stretch of the M1 motorway between Watford and Rugby was opened in 1959 and is first shown adjacent to the southern boundary of the study site in the 1960s. Minor additional development is shown adjacent to the Newport Road and the London Road by 2002. The urban expansion of Milton Keynes is first shown to the south west in 2002, which also depicts the A509 which forms the northern study site boundary. The area of the former Moulsoe Buildings is now shown as a hotel.

3.13 Historic mapping has demonstrated that the study site has generally comprised open agricultural or pastoral land from the Post Medieval period into the Modern period, with only minor instances of Modern agricultural development and brickearth extraction activity. Therefore, a low archaeological potential can be identified for the Post Medieval period, and a generally low archaeological potential can be identified for the Modern period. Specific areas of high potential for the Modern period are identified, which are associated with 19th and 20th century development.

3.14 Previous work

3.15 The following account is taken from the fieldwalking and metal detecting survey report (Pullen 2021):

3.16 The only metal find of interest in Area 7 (Figure 2) was a medieval to post-medieval loop which could date from the 12th to the 19th century.

3.17 A possible Anglo-Scandinavian cast gaming piece dating to the Middle Saxon period was recovered from Area 8 (Figure 2).

4 METHODOLOGY

4.1 General

4.1.1 The archaeological evaluation comprised four 50m x 4m trial trenches and one 25m x 2m trial trench, totalling 225 linear meters. These were targeted on geophysical anomalies identified during the geophysical survey (RPS 2020) and followed a comprehensive field walking and metal detecting survey (Pullen 2021).

4.2 Excavation methodology

4.2.1 Ground reduction during the evaluation was carried out using a wheeled JCB mechanical excavator to strip the excavation area (Plate 1). Topsoil and other overburden of low archaeological value was removed in spits down to the level of the undisturbed natural geological deposits where potential archaeological features could be observed and recorded. Metal detecting was undertaken at all stages of excavation to aid in the recovery artefactual remains.

4.2.2 Exposed surfaces were cleaned by trowel and hoe as appropriate, and all further excavation was undertaken manually using hand tools.

4.2.3 Not all features were excavated at the evaluation stage following consultation with the client and MKSAO, as the aim of the evaluation was to characterise and test the geophysical anomalies identified during the geophysical survey, to enable the formulation of a suitable management/investigation strategy for the site's heritage assets.

4.3 Recording and Finds Recovery

4.3.1 The limits of excavations, heights above Ordnance Datum (m OD) and the locations of archaeological features and interventions were recorded using a Geomax Zenith 15/25 Pro Series GPS rover unit with RTK differential correction, giving three-dimensional accuracy of 20mm or better.

4.3.2 Deposits or the removal of deposits judged by the excavating archaeologist to constitute individual events were each assigned a unique record number (often referred to within British archaeology as 'context numbers') and recorded on individual pre-printed forms (Taylor and Brown 2009). Archaeological

processes recognised by the deposition of material are signified in this report by round brackets (thus), while events constituting the removal of deposits are referred to here as 'cuts' and signified by square brackets [thus]. Where more than one slot was excavated through an individual feature, each intervention was assigned additional numbers for the cutting event and for the deposits it contained (these deposits within cut features being referred to here as 'fills'). The record numbers assigned to cuts, deposits and groups are entirely arbitrary and in no way reflect the chronological order in which events took place. All features and deposits excavated during the evaluation and excavation are listed in Appendix 1. Artefacts recovered during excavation were assigned to the record number of the deposit from which they were retrieved.

4.3.3 Metal-detecting was carried out during the topsoil and subsoil stripping and throughout the excavation process. Archaeological features and spoil heaps were scanned by metal-detector periodically.

4.3.4 High-resolution digital photographs were taken of all relevant features and deposits and were used to keep a record of the excavation process. In addition, monochrome photographs were taken of significant features.

4.4 Sampling Strategy

4.4.1 Discrete features were half-sectioned, photographed and recorded by a cross-section scaled drawing at an appropriate scale (either 1:10 or 1:20).

4.4.2 Linear features were investigated by means of slots in locations agreed with RPS and MKSAO.

4.5 Environmental Sampling

4.5.1 A total of 31 bulk samples (generally 20-40 litres in volume) were taken to extract and identify micro- and macro-botanical remains. The aim of this sampling was to investigate the past environment and economy of the site, the diet of the ancient inhabitants and the agricultural basis of the settlement. An additional aim of the sampling was to recover small objects that are not readily recovered by hand-collection, such as metalworking debris and bones of fish and small animals. These samples were taken from sealed deposits.

5 QUANTIFICATION OF ARCHIVE

5.1 Paper Archive

Context register sheets	5
Context sheets	71
Plans at 1:10	3
Section register sheets	1
Sections at 1:10 & 1:20	21
Trench record sheets	5
Photo register sheets	2
Small finds register sheets	1
Environmental register sheets	2

5.2 Digital Archive

Digital photos	678
GPS survey files	8
Digital plans	1
Access database	1

5.3 Physical Archive

Struck flint	2 pc
Burnt flint	3pc
Pottery	3 sherds
Small Finds	5
Slag	0
Animal bone	41 fr.
Environmental bulk samples	
Environmental bulk samples (10 litre buckets)	
C14 samples	2

6 EVALUATION RESULTS

6.1 Overview

6.1.1 The evaluation consisted of the excavation of four 50m long by 4m wide trenches and one 25m long by 2m wide trench (a total of 225 linear metres). The trenches were located to target the anomalies identified by the geophysical survey.

6.1.2 The evaluation confirmed the presence of the three ditches shown on the geophysical survey to form a D-shaped enclosure closed to the northwest by the river Ousel.

6.1.3 The layout and topographical position of the enclosure resembles the Viking winter camp known from Repton, Derbyshire; which together with the findings of two possible lead gaming pieces (Pullen 2021, p. 40-41; Lucking Section 7.3.5 below) lead to its provisional dating to the 9th century AD (the time of Viking raids in Mercia).

6.1.4 The ditches, certainly defensive in character, ranged in size between 4-10m wide, their maximum depth could not be established due to the high water table. A series of postholes running along the line of the enclosure in two or three rows between the outer and middle ditches was found in Trenches 1, 2 and 4. Based on their location and alignment it is deemed highly likely that the posts would be part of a defensive rampart.

6.1.5 In Trench 3 the evaluation identified a vast number of postholes which would have most certainly formed part of the enclosure's internal structures. The features identified in Trench 16 exactly matched the geophysical survey, however their exact function remains unclear. Although the majority of the features seemingly more or less contemporary with the enclosure (such as the 'rampart' postholes and structural postholes in Trench 3) were provisionally dated to the 9th century, a small number of features, both discretes and ditches could not be dated due to the lack of obvious 'links' to the enclosure. Some of these features were stratigraphically earlier (cut by the presumed 9th century features) and could represent pre-existing activity in this area, the exact dating

of which could not be established at the present stage.

6.1.6 The trenches are described below in numerical order and the features and deposits investigated by the evaluation are summarised below. Information relating to the trenches and the thicknesses of the topsoil, subsoil and the depth of the geology are given in Appendix 1. Finds and environmental remains, where present, are mentioned in the following descriptions of the features and deposits from which they were recovered.

6.2 Archaeological Results by Trench

6.3 Trench 1 (Figures 4-5, Plates 1-6)

Ditch [151]

6.3.1 The ditch was located was located to the north of the outer ditch [195] identified on the geophysical survey. The ditch had moderate sloping sides and a flat base, measuring 0.7m wide and 0.2m deep. One fill (150) of soft, mid reddish-brown sandy silt was identified within the ditch. No finds were identified within the ditch.

Outer Ditch (Slot [195])

6.3.2 The ditch had steep sides and measured 4.26m wide and +1.20m deep. Seventeen fills were identified within the excavated slot, the majority of which were interpreted as deliberately backfilled burnt destruction debris. These fills (Fills (188), (187), (192), (193), (194)) were of distinctly black or very dark greyish-brown colour with occasional to moderate charcoal amounts. Fills (191) and (194) had patches of mid brownish-red sandy silt perhaps suggesting that the material thrown into the ditch was still burning or at high temperature at the time of the deposition. This would indicate that the backfilling took place shortly after the fire. Fill (186) was interpreted as a structural wooden beam (from the rampart) which had been thrown or fallen into the ditch and rotten over time. A burnt flint flake was identified within fill (186) but was likely residual (see Bates; Section 7.1). Small quantities of animal bone were identified within fills (186) and (193) (see Reilly; Section 7.4). The stratigraphical order of the above-mentioned deposits suggests that the backfilling was undertaken from both sides of the ditch. This would indicate that the destruction debris did not only

come from the burnt down rampart on the inner side but there may have been another structure on the outer side, the traces of which were not identified during the evaluation. Fills representing initial silting consisted of either light bluish-grey sandy silt (fills (181), (184), (220)) or mid reddish-brown sandy silt mixed with gravel (Fills (179), (180)). Although the excavation of the ditch had to cease because of the high water table, the angle of slope of the fills interpreted as initial silting was relatively moderate or gentle suggesting that the base of the feature was not far off. Two samples were taken for radiocarbon dating and processed in order to establish the date of the ditch (see Appendix 7). A C14 charcoal sample was taken from fill (193). The date of the processed sample was 401-351BC. Another C14 sample (seeds) was taken from fill (191) and produced a date of 416-545AD. Surprisingly, none of the radiocarbon dates point to the Anglo-Scandinavian period. Such discrepancies in C14 dates most likely hint at some degree of contamination and post-depositional disturbance and as such cannot be treated with confidence.

6.3.3 Posthole [217] was identified within the ditch, cut into its southern side. The posthole was filled with a postpipe (215) and packing around it (216). The original post appeared to have been rotten in situ due to its dark, organic fill. The packing consisted of mid brownish-grey sandy silt. A burnt flint spall was identified within the post packing (216) but was likely redeposited (see Bates; section 7.1). The posthole had been cut into the side of the ditch approximately halfway through its excavated depth (c. 0.5m) and the post put into the hole vertically. The postpipe was excavated to a depth of 0.25m, the full depth was not reached due to the water table.

Rampart (Slots [153, 155], [157], [159], [161], [163], [165], [167], [169], [171], [173], [175]

6.3.4 A total of twelve postholes had been identified between the outer the middle ditches: five postholes in the northern row, three in the middle and four in the southern row. The postholes were substantial (roughly 0.4-0.5m in diameter) and well defined in plan. One post in the southern row [175] was interpreted to have been rotten in situ, due to the organic nature and black colour of its fill. The absence of packing around the postpipe suggested that the post was, at

least at this depth, driven into the ground. The post was deeper (0.4m deep) than the other postholes (on average 0.2-0.35m deep), a factor presumably linked to its preservation. The lighter, mid greyish-brown colour and lesser amount of charcoal in the other postholes may suggest that the remainder of the posts had been removed. Animal bone was identified in fills (164) [165] and (174) [175] (see Rielly; section 7.4). The environmental assemblage (see Abel, Section 7.5) from the postholes consisted of highly fragmented charcoal in moderate amounts, a few charred seeds and cereals and vitrified material suggesting burning at high temperatures.

Middle Ditch (Slot [212])

6.3.5 The ditch had steep sides and measured c.8m wide. It had been excavated to a depth of 1.2m deep, further excavation was not possible due to the high water table and health and safety constraints. Within the excavated slot nine fills were recorded, the majority of which (203), (204), (205), (206), (207), (208) were the result of deliberate backfill. These were usually dark in colour which could suggest the incorporation of destruction debris, although this was not as obvious as with the fills of the outer ditch [195]. Fills (209), (210) and (211), much lighter in colour and containing frequent gravel inclusions, were interpreted as the initial silting of the sides. Two small sherds of pottery were identified in the uppermost fill (203). One sherd was dated to the late Roman period and the other to the early-middle Saxon period, although it was noted that the small size of the sherds impeded definitive dating (see Sudds; Section 7.2). Two residual flint flakes were also identified within fill (203) (see Bates; section 7.1), in addition to fourteen fragments of animal bone (see Reilly; section 7.4). The environmental evidence (see Abel, Section 7.5) indicates the presence of a low level of charcoal, only extracted from sample (203). Although, the presence of charred cereal grains were also noted in this sample, possibly indicative of on-site small-scale cereal processing. It is worth noting, however, post-depositional disturbance is suggested to be likely within this context.

Ditch [214]

6.3.6 The ditch was truncated along its southern edge by the large middle boundary ditch [212]. The ditch measured 1.4m wide and 0.4m deep, with moderate

sloping sides and a concave base. It had a single fill (213) of firm, mid greyish-brown sandy silt. No finds were identified within the ditch.

6.4 Trench 2 (Figure 6)

6.4.1 Trench 2 contained all three of the above-mentioned defensive ditches as well as the post rampart. The top fills of the outer ditch were, similarly to its section in Trench 1, dark, almost black, containing burnt timber remains. The middle ditch was also similar in character to the section excavated in Trench 1. This was the only Trench to capture the whole width of the inner ditch, which was excavated by means of a hand dug slot. As in Trench 1, a series of postholes forming three rows was identified between the outer and middle ditch. This consisted of thirteen postholes in total, three in the northern row, three in the middle and seven in the southern row.

Outer Ditch (Slot [202])

6.4.2 The ditch had near vertical sides and measured c. 5.8 meters wide. It had been excavated to a depth of 0.8m deep, at which point further excavation became unfeasible due to the high water table. Four fills were identified within the excavated slot, Fills (200) and (201) being interpreted as primary infills due to their silty nature and blueish-grey colour; the homogenous largely silty (with patches of silty clay) Fill (199) possibly representing deliberate backfilling of an earth bank; and uppermost Fill (198) being a result of natural infilling (tertiary deposition). The environmental assemblage (see Abel, Section 7.5) from the outer ditch contained low to moderate quantities of fragmented charcoal, a few charred seeds and cereals.

6.5 Trench 3 (Figure 7)

6.5.1 Forty-three postholes were identified within Trench 3, as well as two possible pits and two narrow linear features which could represent either small drainage ditches or land drains. The postholes were well defined and measured on average c. 0.4-0.5m in diameter. Their fills were usually consistent of mid to dark greyish-brown sandy silt. Due to the density of the features within the trench, it was not possible to distinguish between structures. Within this trench two features were investigated by means of hand dug slots, [177] and [197]. Pit or posthole [177] was the bigger of the two, measuring 0.7m long, 0.5m wide

and 0.22m deep. It was located in the central part of Trench 3, in the immediate proximity of two smaller postholes to the northeast and 'capped' from the top by stones. The stones appeared to be deliberately placed on top of the feature, perhaps acting as a postpad. Posthole [197] was located in the south-eastern part of the Trench, seemingly in a northwest-southeast oriented row of postholes. It measured approximately 0.45m in diameter and 0.4m deep. It had vertical sides and a flat base. Its fill was a homogenous, mid greyish-brown silty sand, a result of natural infilling after the post had been removed from the ground. A flint end scraper was identified within fill (196) (see Bates; section 7.1) but was likely residual. The environmental record (see Abel; section 7.5) notes the moderate quantity of charcoal contained in this context, with indeterminate charred cereals were noted in greater abundance perhaps, once more, indicative of on-site cereal processing.

6.6 Trench 4 (Figure 8)

6.6.1 The trench contained two of the three large ditches shown on the geophysical survey, the inner ditch being either absent in this section of the enclosure or located beyond the north-western limit of excavation. Both ditches contained dark, almost black, organic fills with visible traces of burnt clay or daub and burnt timber remains. Seemingly sitting on top of these fills were mid greyish-brown subsoil-like fills. The continuation of the post-build rampart was also identified in this trench, consisting of two rows of postholes (6 and 5 postholes in each row, 11 postholes in total). Two postholes of the western row were found to be cut into an earlier, east-west aligned ditch and two postholes of the eastern row were truncating a narrow, ENE-WSW aligned ditch. In total, six smaller ditches seemingly unrelated to the enclosure, were identified in this trench, three of which were found to be cut by later features (the two aforementioned and an ENE-WSW ditch cut by the enclosure's middle ditch).

6.7 Trench 16 (Figure 8)

6.7.1 Trench 16 was positioned to target two possible discrete features and a rectilinear anomaly initially presumed to represent a structure, in the southern corner of the enclosure. The trenching confirmed the presence of features shown on the geophysics, however the character of the rectilinear anomaly

could not be established. A single posthole or pit was found cut into the southern arm of the rectilinear anomaly. The pit/posthole contained a dark, almost black sandy silt whereas the rest of the features were filled with mid reddish-brown sandy silt, similar to the surrounding natural. Surface finds were recovered from a ditch (218) [219] in the northern part of the trench. One sherd of pottery dated to the Late Iron Age/Roman (see Sudds; Section 7.2) and part of a possible cattle tibia were identified (see Reilly; Section 7.4).

7 THE FINDS AND ENVIRONMENTAL EVIDENCE

7.1 Lithics

By Sarah Bates

7.1.1 Five pieces of flint were recovered during the evaluation of the site.

7.1.2 There is a small thick blade-like piece, hard hammer struck from a patinated platform. Its distal end is missing but the broken edge is, slightly retouched, or utilised, as a scraper [196], <16>. A small irregular quite thick flake from a multi-platform core has slight retouch of various edges including a small shallow notch in one side [203]. From the same context a thick squat flake has been struck at ninety degrees from a former platform edge resulting in its faceted platform. Its convex distal part, which is cortical, has slight signs of use as a scraper.

7.1.3 The other two flints are burnt. One might have been a thickish cortical flake - although most of its surface are fractured due to burning [186], <25>. The other is an irregular spall.

Flint by Context

Trench 1

7.1.4 Two thickish flakes, one slightly edge-retouched, the other utilised as a scraper came from ditch [212], a burnt fragment, possibly a flake, was found in ditch [195] and a burnt spall came from post-hole [217].

Trench 3

7.1.5 A utilised small thick blade-like piece was found in post-hole [197].

Conclusions

7.1.6 The flint is evidence of activity in the vicinity of the site during the prehistoric period although it seems that it is possible all of the features which include flint in their fills are of later date (context database). The flint is not closely dateable but the nature of the struck pieces suggests a later Neolithic or later date. The burnt flints, both of which may have been struck, are also likely to be prehistoric (although it is possible that they may have become burnt at a later date).

7.2 Pottery

By Berni Sudds

7.2.1 Three sherds of pottery were recovered during the evaluation, weighing a total of 40g (Table 1). The two sherds from feature [212] include a shelly-ware of possible Roman date and a small sand-tempered sherd tentatively dated to the early to middle Saxon period. The possibility was considered that the latter represents a black-burnished ware. The small size impedes definitive dating, but the presence of inclusions of possible detrital origin and sparse organics would be more consistent with a Saxon date. The likelihood that the shell-tempered ware could be later in date, particularly a Middle Saxon Maxey-type ware, was also considered but the absence of diagnostic shell-types and the surface finish make this unlikely.

7.2.2 The reduced coarseware body sherd from feature [219] is also small and not particularly diagnostic but based upon the suite of inclusions is most probably of Late Iron Age or Roman date.

Cut	Context	Description	Sherd Count	Weight	Date
212	203	Thick-walled body/base sherd. Shell-tempered, vesiculated surfaces. Light grey core, oxidised surfaces.	1	27	Late Roman?
	203	Small body sherd. Black throughout. Sand-tempered with sparse organics. Internally and externally burnished.	1	3	Early – Middle Saxon?
219	218	Thick-walled body sherd. Dark grey core and and greyish-buff surfaces. Moderate fine calcareous inclusions and sparse grog. Soapy feel.	1	10	Late Iron Age/ Roman

Table 1: Pottery by context. Cxt = context; SC = sherd count; Wg = weight.

7.3 Metalwork

By Thomas Lucking

Introduction and Methodology

7.3.1 A total of five metal objects of various materials were recovered from topsoil (100) during metal detecting of the trench footprints and surrounding area (Table 2). The assemblage consisted of post-medieval or undated material, probably scattered on the field through arable manuring practices. Due to the potential significance of the archaeology on site, a number of objects of uncertain function and date have been retained until it can be determined whether they relate to any activity that may be detected through further work.

7.3.2 Objects which are recommended for retention are described in more detail below, while those which are of low archaeological value and have been recommended for discard are only briefly described.

The Assemblage

7.3.3 SFN8 is a cast lead powder measure of 17th century date. It is cylindrical in form with concave/hollow interior, flaring towards the rim and partially deformed due to post-depositional damage. At either side of the circular base are the remains of integrally cast projecting oval lugs with oval apertures, one of which is incomplete due to old breaks. It measures 18.26mm in height, 23.63mm in in width at the widest part of the rim, 18.27mm in width at the widest part of the base, 1.32mm in thickness at rim, and weighs 13.18g. This is a Post-Medieval powder flask cap or measure used as part of a powder flask to hold enough gunpowder for a complete charge for the weapon. A series of similar holders would have been attached to a bandolier (chord). They are of Post-Medieval date, belonging in the 17th century AD. This example is similar to examples recorded from a possible Anglo-Dutch skirmish site near Felixstowe and recorded on the Portable Antiquities Scheme Database (Record numbers SF-F1AF21, SF-B35BF5 and SF-B370B6).

7.3.4 SFN9 is a worn and corroded copper alloy halfpenny of George III, dated 1799 AD.

7.3.5 SFN10 is a possible cast lead weight of uncertain date. It is cylindrical in form, open at both ends and D-shaped in section. It measures 32.82mm in diameter, 29.08mm in height, 6.38mm in thickness and weighs 74.71g. Objects such as this are not closely datable outside of a secure context.

7.3.6 SFN11 consists of a group of four fragments of sheet lead, presumably found in spoil from the same trench. They have no diagnostic features or form and, as topsoil finds, are undated. They collectively weigh 24.42g.

Discussion

7.3.7 Overall, this assemblage is of limited archaeological value.

7.3.8 The presence of a post-medieval powder measure cap (SFN8) may suggest a small degree of 17th century military activity in the area but may equally be the result of a hunting loss or as part of domestic material scattered on the field through manuring.

7.3.9 An undated loop (SFN7) and weight (SFN10) may be of considerable age, but it is not possible state this with any certainty when they were recovered from a disturbed topsoil.

7.3.10 The remainder of the assemblage consists of post-medieval material that appears to have been scattered on the field through the manuring of arable land and is of relatively low archaeological value.

7.3.11 It is notable that no clearly datable metalwork of early medieval date has so far been recovered, particularly as metalwork assemblages at comparable sites, such as Torksey, were present in considerable quantity and formed a crucial part in identifying and interpreting the site (Hadley et al. 2016, pp. 36-59). While it was noted that the distribution of most metalwork in the topsoil across the Torksey site did not appear to differentiate activities within the camp, there did appear to be some differentiation in the distribution of gaming pieces (Ibid. p. 39).

7.3.12 It is also important to note that Area 7 has not been subject to heavy ploughing in recent years so ground conditions here do not equate with the heavily

ploughed out Torksey site. With this in mind, and considering the potential significance of this current site, it may be worthwhile carrying out further intensive metal detecting survey of the topsoil when the field is in a suitable condition, before the topsoil is removed. The size and quantity of other metalwork recovered from this site suggest that the field has not been heavily metal detected, and it is therefore likely that should any metalwork relating to the earthwork be present in the topsoil, then a focussed detecting survey should find this.

Recommendations

7.3.13 Recommendations for retention and discard are given as a separate column in the main catalogue.

7.3.14 Should further work be undertaken on site, the retained assemblage should be reinterpreted alongside any further metalwork found, and spatially in relation to any archaeology discovered.

SF No.	Context	Material	Condition	Description	Spot Date	Recommend
7	100	Cu Alloy	Complete	Loop	Undated	Retain
8	100	Pb	Complete	Powder measure cap	17th Century AD	Retain
9	100	Cu Alloy	Complete	Coin - George III Halfpenny	1799 AD	Discard
10	100	Pb	Complete	Weight?	Undated	Retain
11	100	Pb	Incomplete	Four lead fragments	Undated	Discard

Table 2: Catalogue of Metalwork

7.4 Animal Bone

By Kevin Reilly

Introduction

7.4.1 The site is located between the River Ouzel to the west and the London Road (A509) to the east, some 1.4km north of M1 Junction 14 at the eastern perimeter of Milton Keynes. This is part of a much larger project divided into numerous areas, the earthwork site within Area 7. Four strip trenches were excavated,

revealing a small quantity of animal bones recovered by hand as well as from a series of bulk samples, these taken from Trenches 1 and 2, the two most northerly excavated strips.

Methodology

7.4.2 The bone was recorded to species/taxonomic category where possible and to size class in the case of unidentifiable bones such as ribs, fragments of longbone shaft and the majority of vertebra fragments. Recording follows the established techniques whereby details of the element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic including natural and anthropogenic modifications to the bone were registered. The sample collections were washed through a modified Siraf tank using a 1mm mesh and the subsequent residues were air dried and sorted. A concerted effort was undertaken to refit as many bones as possible, noting the actual number of fragments prior to refitting.

Description of faunal assemblage

7.4.3 There was a total of 1 hand collected and 40 sieved bone fragments. The great majority of these bones were unidentifiable to species, the sieved collection mainly comprising indeterminate sheep-size pieces (see Table 3). A cattle-size piece, possibly part of a cattle tibia arose from (218) cut [219]. The only other 'identifiable' was a vole cheektooth, possibly field vole, from the sieved contents of (164) cut [165]. These latter bones are moderately preserved and do not appear to have undergone major fragmentation.

Conclusion and recommendations of further work

7.4.4 This collection is small and poorly dated. There is a level of fragmentation, as demonstrated by the sieved assemblage, though the state of the hand collected bones do appear to show some potential for good survival. However, while it is highly likely that further excavation will produce more bones, the quantity revealed is unlikely to be sufficient to warrant more than cursory comments on animal exploitation at this site. The sieved collection is indeed rather poor, but it may still be worthwhile entertaining the idea of a bulk sampling programme, if only to confirm the absence or slight deposition of bones within these strata.

Context:	**164**	**174**	**186**	**193**	**203**	**218**	**Total**
Feature:	**165**	**175**	**195**	**195**	**212**	**219**	
Species:							
Cattle							1
Equid							1
Cattle-size						1	1
Sheep/Goat							2
Sheep-size	(10)	(3)	(2)	(10)	(14)		39
Vole	(1)						1
Grand Total	(11)	(3)	(2)	(10)	(14)	1	1(40)

Table 3. Distribution of hand collected and sieved (in brackets) bones by context, feature and species.

7.5 Plant Remains

By Tegan Abel

Introduction

7.5.1 This report aims to summarise the findings from the assessment of 27 bulk environmental samples taken during an archaeological evaluation at the earthwork enclosure at Land North-East of Milton Keynes. The sample volumes ranged from 5 to 18 litres, with the samples being extracted from three ditches and a single pit (table 1).

Context no.	**Feature no.**	**Environmental sample no.**	**Context category**	**Feature type**
154	155	1	Fill	Posthole
158	159	2	Fill	Posthole
164	165	3	Fill	Postpipe
168	169	4	Fill	Posthole
174	175	5	Fill	Postpipe
166	167	6	Fill	Posthole
170	171	7	Fill	Posthole
192	195	8	Fill	Ditch
186	195	9	Fill	Ditch
192	195	11	Fill	Ditch
215	217	14	Fill	Postpipe
216	217	15	Fill	Posthole
196	197	16	Fill	Posthole
203	212	18	Fill	Ditch
205	212	19	Fill	Ditch

206	212	20	Fill	Ditch
213	214	21	Fill	Ditch
201	202	22	Fill	Ditch
200	202	23	Fill	Ditch
193	195	24	Fill	Ditch
186	195	25	Fill	Posthole
183	195	26	Fill	Ditch
192	195	27	Fill	Ditch
194	195	28	Fill	Ditch
190	195	29	Fill	Ditch
181	195	30	Fill	Ditch
191	195	31	Fill	Ditch

Table 4: Context information for environmental samples

Aims

7.5.2 The aims of the report are as follows: 1- To give an overview of the ecofacts and artefacts extracted from the bulk samples; 2- To evaluate the potential of the environmental remains and, 3- To make recommendations for additional analysis.

Methodology

7.5.3 27 samples were retrieved during this evaluation; prior to being processed, the sediment volume was measured and recorded, the data for which is presented in table 2. Samples were processed using a modified SIRAF floatation system; the flot residue was collected using a 300 µm mesh and the heavy residue, a 3mm mesh. After being left to dry naturally, the residue was sieved through 2mm, 5mm and 10mm sieves, and sorted to remove ecofacts and artefacts; material was recorded using a non-linear scale, as follows: 1- occasional (1-10), 2- fairly frequent (11-30), 3- frequent (31-100) and abundant (31-100).

The light residue was examined under a low-power binocular microscope and the contents recorded (table 2), with abundances being quantified as above.

Results

7.5.4 Postholes- [155] <1>, [159] <2>, [169] <4>, [167] <6>, [171] <7>, [217] <15>, [197] <16> and [197] <25>

7.5.5 All the posthole samples contained moderate quantities of highly fragmented charcoal, with only samples **7** [171] and **25** [197] containing any specimens of a suitable size for species identification (>4mm in all diameters). Charred seeds were noted in samples **4** [169], **7** [170] and **16** [197], though all the specimens from sample **4** and a few from sample **7** were unable to be identified to species level due to the poor preservation of the specimens. Low abundance of indeterminate charred cereal was present in samples **6** [167] and **7** [171]. Indeterminate charred cereals were noted in a greater abundance in sample **16** [197], along with more than 100 specimens of good enough preservation to identify the cereals to species level. A small amount of cereal chaff was present in sample **25** [197], which may indicate cereal processing on site. Less than 10 whole terrestrial molluscs were present in sample **4** [169], with their presence not being noted in and of the other posthole samples. Vitrified material and/or coal was present in low amounts in samples **1** [155], **2** [159], **4** [169]**, 6** [167] and **15** [217], with the former material possibly indicating burning at high temperatures. Animal bone was observed in samples **1** and **25**, along with CBM in the former sample. Additionally, sample **15** had a small amount of struck flint and a low abundance of burnt flint was noted in sample **25**. Bioturbation of all the sampled contexts may be suggested by the presence of an abundance of roots/tubers and moderate amounts of modern plant material. This is also further supported by the small quantity of uncharred seeds and insect eggs/remains which were noted in samples **2** [159], **6** [167], **7** [171], **15** [217], **16** and **25** [197].

Postpipe- [165] <3>, [175] <5> and [217] <14>

The charcoal noted in all three of the postpipe samples was once again highly fragmented in nature, with slightly lower quantities seen in sample **14** [217]. A small concentration of charred seeds, both species determinate and indeterminate, were present in sample **3** [165], as well a small amount of cereal chaff in sample **5** [175]. Animal bone was noted in samples **3** [165] and **5** [217], as well as coal in the latter sample. Moderate to abundant quantities of modern plant and root material, as well as small amounts of insect remains/eggs, may indicate post-depositional disturbance of these contexts.

Ditches- [195] <8, 9, 11, 24, 26, 27, 28, 29, 30, 31>, [202] <22, 23>, [212] <18, 19, 20>, [214] <21>

All the contexts sampled from ditch [195] contained moderate amounts of highly fragmented charcoal, with specimens of identifiable size (>4mm in all dimensions) noted in ditch [195] samples **9** (186), **24** (193), **27** (192), **28** (194) and **30** (181). Small quantities of charred seeds were noted in samples **9** (186), **11** (191), **24** (193) and **26** (183), **29** (190) and **30** (181), with a few of the specimens from sample **26** being unidentifiable in nature. Charred cereal and cereal chaff were present in small quantities in samples **9** (186), **24** (193) and **26** (183), **29** (190) and **31** (191). The presence of the chaff could suggest the possibility of small-scale cereal processing on site. Coal was noted in samples **24** (193) and **28** (194) and a small amount of animal bone was also present in sample **24**. Post-depositional disturbance of the contexts sampled from ditch [195] was moderate, as indicated by fairly frequent to moderate root inclusions, as well as low to fairly frequent quantities of modern plant material in the samples, alongside small amounts of insect remains/eggs in samples **8** (192), **26** (183), **28** (194) and **31** (181).

The two samples- **22** (201) and **23** (200) from ditch [202] contained low to moderate quantities of fragmented charcoal. Less than 10 charred seeds were recognised in each sample, along with a few charred cereal grains in sample **23**. Sample **22** was the only sample from ditch [2020] to contain charcoal with the potential for species identification (>4mm). Root material was abundant in the sample, alongside low frequencies of modern plant material. The presence of these may suggest bioturbation of the contexts.

Ditch [212] contained three samples, these being extracted from (203) **18**, (205) **19** and (206) **20**, with the former sample being the only one to contain charcoal which maybe suitable for species identification (>4mm), though all the samples contained a moderate abundance of highly fragmented charcoal specimens. Charred cereal grains, both determinate and indeterminate in nature, were also present in sample **18** (203), as well as a small number of charred rachis, which may again indicate on-site small-scale cereal processing. Less than 10 charred cereals were noted in sample **20** (206).

Another material present in sample **18**, was a small amount of fragmented animal bone. Post-depositional disturbance to all three contexts is suggested by the presence of many roots/tubers and smaller quantities of modern plant material and insect eggs/worm cases.

In the final ditch sample- **21** (213) [214], charcoal inclusions of a fragmented state were. CBM was present in low quantities (>10 pieces) and was the only artefact present, although in an unrecognisable form. The context was likely to have suffered from post-depositional disturbance, as indicated by an abundance of rooting and high quantities of modern plant material, as well as fewer than 10 uncharred seeds.

Conclusions

7.5.6 An assessment of the environmental samples from an archaeological evaluation at the earthwork enclosure at Land North-East of Milton Keynes, has provided evidence for the preservation of carbonised plant material at this site.

7.5.7 A single sample from the contained a high density of archaeobotanical remains. Sample <16> produced over one-hundred identifiable charred cereal grains.

7.5.8 No other samples contained an abundance of plant remains, though carbonised ecofacts, such as grains and seeds, may provide the potential for radiocarbon dating of individual features.

7.5.9 The degree of preservation of the uncharred seeds noted from the site indicates intrusive specimens; the presence of these seeds along with un-burnt plant material, roots and insect remains, could indicate post depositional disturbance to the contexts.

7.5.10 Carbonised plant material has the potential to be preserved on this site.

8 DISCUSSION

8.1.1 The evaluation has confirmed the presence, previously shown on the geophysical survey, of three ditches forming a D-shaped earthwork enclosure as well as anomalies in the south-eastern corner of this enclosure. The project also identified previously unknown features, such as a plethora of postholes located within the enclosure and a range of ditches seemingly unrelated with the enclosure. Despite the range of non-intrusive and intrusive fieldwork undertaken so far the archaeological results remain ambiguous and a number of possible interpretations can be suggested from the limited evidence available an these options are explored in some detail below.

8.2 Iron Age hypothesis

8.2.1 The C14 date obtained from the charcoal from the outer ditch in Trench 1 suggested an Early to Middle Iron Age date (401-351BC/302-208BC). In this time, fortified settlements take the form of hillforts, which as their name suggests, are often situated at hilltops or scarp edges. These are often circular or oval in shape, greatly ranging in size and with up to six defensive circuits of ditches and their banks, sometimes with timber ramparts (Historic England 2018). From about 100 BC hillforts are being replaced by oppida – enclosed settlements of high status. Ceasar describes a fort of a British (possibly Catuvellaunean?) chief Cassivellaunus *(…) it was protected by woods and mashers, and (…) quite a large number of men and cattle had been brought together there. By 'stronghold' the Britons mean a densely wooded location which they had fortified with a rampart and ditch and in which they are accustomed to gather in order to escape an enemy attack* (Ceasar, Gallic War, V, 21 in: Ireland 2008, p. 36).

8.2.2 Although there are morphological similarities with the enclosure such as the presence of defensive ditches and a timber rampart, the topographical location and scarcity of finds are in stark contrast with both hillforts and oppida, which usually produce an abundance of cultural material. The site had produced one sherd of possible Late Iron Age/ Early Roman pottery, however this is most certainly residual, perhaps associated with the activity at the 1st century settlement to the south (Mlynarska forthcoming). At present, the earthwork

enclosure has no obvious parallels with sites of Iron Age date and the very sparse artefactual assemblage does not support this dating. The C14 date obtained from charcoal found in the outer ditch, as previously stated (see Section 6.3.2) cannot be treated reliably and most is most certainly an effect of some contamination or post-depositional disturbance.

8.3 Early Saxon hypothesis

8.3.1 A Saxon date of the enclosure perhaps would have been more likely than Iron age, considering the typically Saxon paucity of finds observed on many other sites of that date. Although Saxon strongholds known as burhs were first established in the 9th century by Alfred the Great as a result of the Viking invasion, earlier Saxon fortifications do exist. However, as it stands, the enclosure in Milton Keynes does not have any parallels in the Early Saxon period. The C14 date obtained from a seed found in the outer ditch was contradictory in relation to another sample (pointing to an Iron Age date) from the same feature and are hence not reliable.

8.4 Anglo-Scandinavian hypothesis

8.4.1 The Viking Great Army (Saxon *micel here*) or Great Heathen army raided England between 865 and 879. The Anglo-Saxon Chronicle records some of their movements across England as well as the locations of their 'winter camps' (York, Nottingham, Thetford, Reading, London, Repton, Chippenham, Cirencester, Torksey). There had been very limited attempts to excavate sites of this type, and archaeological record in England is basically constrained to Repton and Torksey, in contrast with the much larger volume of work done in Ireland, Germany and Scandinavia.

8.4.2 The excavations at Repton, which originally aimed to explore the origins of the Anglo-Saxon Church of St Wystan, found a large, defensive ditch forming part of a D-shaped enclosure, at the north of which the River Trent acted as a natural defence. The Anglo-Saxon church was used as a gatehouse to the Viking enclosure. A charnel mound (also converted from an Anglo-Saxon chapel) found nearby, outside of the enclosure contained the remains of at least 264 people, mostly men. The artefactual evidence associated with the charnel consisted of an iron axe, two knives and most importantly five silver pennies

dated to AD 872-874. Further graves equipped with distinctly Scandinavian grave goods were found within and in proximity of the enclosure. The most significant was a double grave of two men buried with a Peterson type M sword and a Thor's hammer (Jarman, Biddle, Higham, Ramsey 2018, p.183-185). This evidence, combined with radiocarbon dating lead to the hypothesis that the enclosure served in fact as the winter camp for the Great Heathen Army, which the Anglo-Saxon Chronicle records *A. D. 874. This year went the army from Lindsey to Repton, and there took up their winter quarters, drove the king, Burhred over sea (…)*(Anglo-Saxon Chronicle online).

8.4.3 The excavations in Repton were the most extensive to date. Much less is known about the winter camp in Torksey, also recorded in the Anglo-Saxon Chronicle *A.D. 872. This year went the army against the Northumbrians, and fixed their winter quarters at Torksey in Lindsey* (Anglo-Saxon Chronicle online). The site is mainly known from metal finds: coins including Northumbrian stycas, Arabic dirhams, Carolingian coins, as well as hacksilver, hackgold, lead gaming pieces and axe heads (Hadley, Richards et al. 2016). The size of the camp, based on the distribution of finds, is currently estimated at 55ha.

8.4.4 The investigations at Repton and Torksey yielded a sizeable collection of diagnostic finds associated with the Viking invaders. Torksey in particular produced a sizeable collection of lead gaming pieces used to play in board games such as Mill or Hnefatafl (Dobat 2017, p. 599, 601). Objects like these were found in male warrior graves in Scandinavia as early as the Late Roman Iron Age and board games were though to be an integral part of a warrior's life (*op. cit.* p. 601). Meanwhile, the enclosure at Milton Keynes produced lead objects, which although initially interpreted as possible Viking gaming pieces or weights, upon investigation seem more likely of 17th century date. It is however necessary to add, that the field in which the enclosure lies was at the time of the fieldwalking and metal detecting survey covered in a tall crop, which may have significantly impacted on the number of retrieved finds.

8.4.5 At present, there is little evidence to confirm the age of the earthwork enclosure as Viking. Although its layout, topographical and geographical position speak in favour of this theory - the ambiguous C14 dates and lack of distinctively

Scandinavian finds (if we exclude the possible lead gaming pieces), could seem to contradict it. Neuport, as Newport Pagnell appears in the Domesday Book (Open Domesday online), is not mentioned in the Anglo-Saxon Chronicles - something which may appear strange considering that the 'camp' is bigger than Repton, which was mentioned in the Chronicle several times. It needs to be remembered however that the Anglo-Saxon Chronicle is most certainly a fragmentary source and does not present a full account of events. In this case it may be worth to reiterate the old saying that the absence of evidence is not the evidence of absence. It has been also previously suggested that Newport may have started as a checkpoint on the border of Danelaw at the times of Alfred the Great, perhaps even established by the Danes (Baines 1986).

8.5 Conclusions

8.5.1 The enclosure was initially interpreted as a potential Viking winter camp, based on its topographical location by the river Ousel and the D-shape and clearly defensive character of the ditches, the layout of which do bear a striking resemblance to the Viking camp at Repton.

8.5.2 The current archaeological evidence supports the defensive character of the enclosure. The topographical position of the site with the river Ousel acting as a natural defence at its western side, as well as three large ditches with their banks and a timber rampart, which most certainly would have served as a watch post – would make this place very secure.

8.5.3 The abundance of postholes found in Trench 3 hints at the quantity of structures (perhaps tents?) within the enclosure. This, together with the lack of signs of maintenance such as repairing posts or cleaning (re-cutting) ditches, the impression of quick abandonment and the scarcity of finds suggests that the enclosure most likely served as a short-lived military camp (perhaps occupied during one winter), rather than permanent settlement.

8.5.4 The current evidence needs to be treated tentatively as the current extent of works had only provided a very small sample of the actual site. The ditches had not been bottomed due to a high water table at the time of excavation.

8.5.5 It is also not currently known whether all the ditches and the 'rampart' are contemporary or not. If not, do they represent a subsequent development within the same period or was the enclosure abandoned and re-build much later?

8.5.6 Unfortunately, the radiocarbon dates obtained from seeds and charcoal found in the outer ditch in Trench 1 are inconclusive, to say the least and are not considered to be reliable or meaningful at this time. The date obtained from charcoal from fill (193) points to the Early to Middle Iron Age, whereas the seed from (191) dates to the Early Saxon period. A possible explanation of the early charcoal date may be the old age of used timber, although this in unlikely considering wood is a highly degradable material and usually does not last for a long time. Radiocarbon dating of cereals and seeds is more reliable, however they may be intrusive (transported into deposits by animal or root activity). The list of reasons is not exhaustive and currently, considering such discrepancies, the radiocarbon dates cannot be treated with confidence and would need to be compared against further samples (should further work occur).

8.5.7 At present stage, considering the contradictory evidence it is not possible to confidently date the enclosure to either of the periods discussed above. The dated artefactual assemblage, which consists of three sherds of Roman or Early to Middle Saxon pottery is not sufficient to draw further conclusions as the material could be residual (if Viking). The lead work from Area 7 contains at least one piece that does bear some similarities with a Viking gaming piece from Torksey and a further two lead items of possible Anglo-Scandinavian origin were recovered during fieldwalking but the metal work assemblage overall is unfortunately not definitive and may be in fact of post-medieval date (see Lucking, Section 7.3).

8.5.8 On balance, a 9th century, Anglo-Scandinavian date is still the most plausible and convincing interpretation considering all of the presented arguments.

8.5.9 Should further work occur, and the date of the enclosure can be established with confidence, the site has a significant research potential and could broaden the current state of knowledge about fortified enclosures, irrespective of its period.

9 ACKNOWLEDGEMENTS

9.1 Pre-Construct Archaeology Ltd would like to thank Duncan Hawkins of RPS Group Ltd for commissioning and funding the work. PCA are also grateful to Nick Crank, Senior Archaeological Officer, Conservation and Archaeology Team, Milton Keynes Council for monitoring the work on behalf of the Local Planning Authority. The project was managed for PCA by Mark Hinman and was supervised by Judy Mlynarska. This report was written by Judy Mlynarska witch contributions from Thomas Revell and Jenn Hulse. The specialist reports were written by from Sarah Bates, Bernie Sudds, Thomas Lucking, Kevin Rielly and Tegan Abel. The author would like to thank the site team: Tabitha Lawrence, Connor Brabyn, Charlotte Lockwood and Iza Jamar Anderle for their hard work. Figures accompanying this report were prepared by Rosie Scales of PCA's CAD Department.

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11 FIGURES

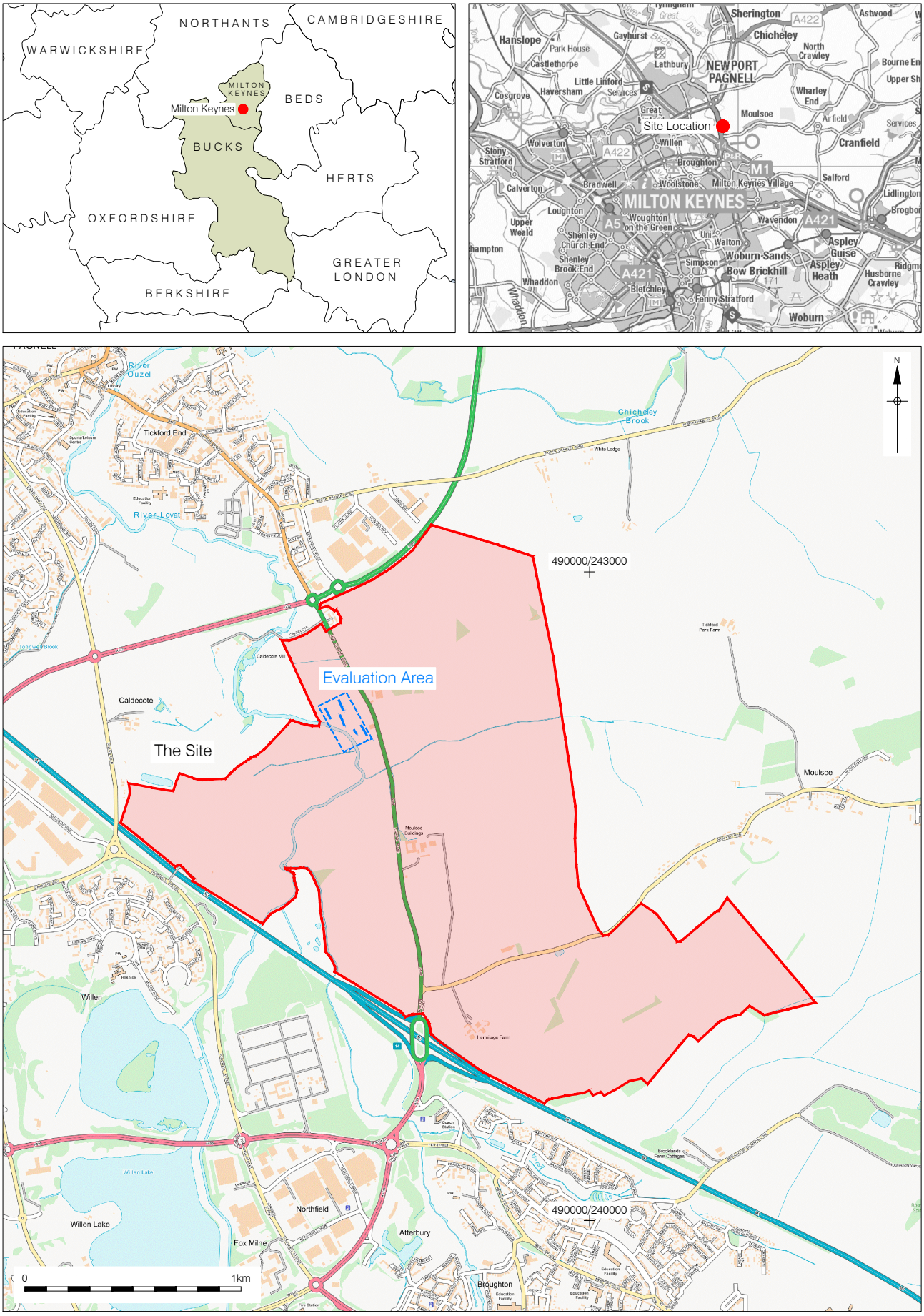

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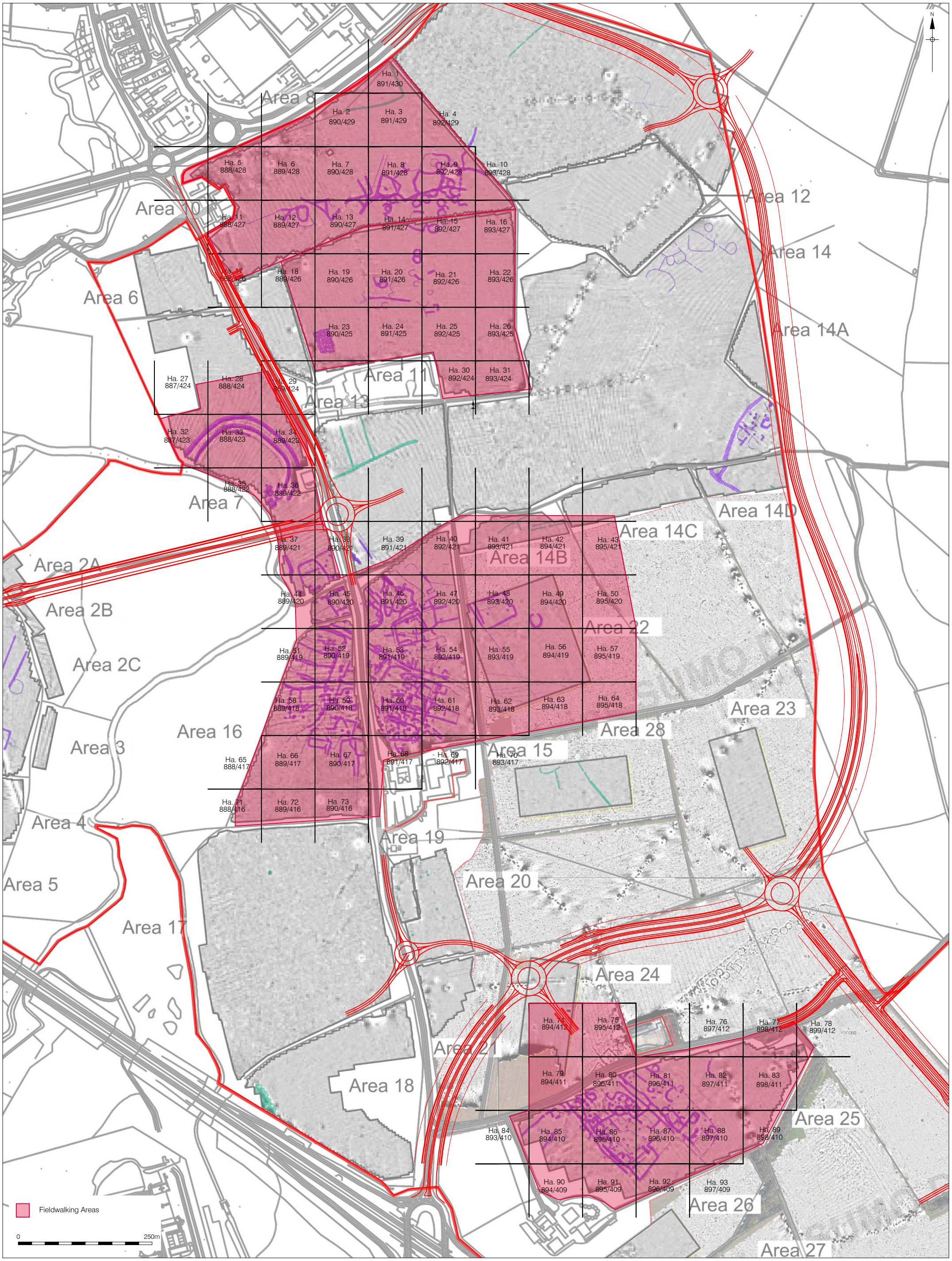
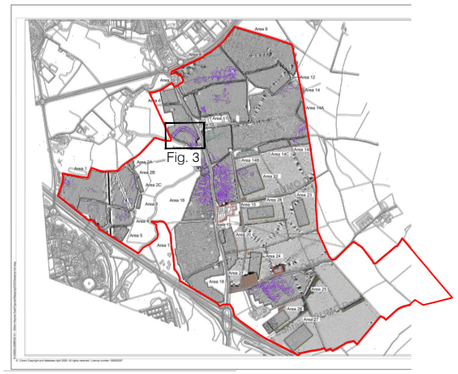
Figure 1
Site Location
1:2,000,000, 1:250,000, 1:25,000 at A4



08/06/2021 RS

Figure 2
Fieldwalking Areas
1:6250 at A3



Trench 1

Trench 2

Trench 3

Trench 4

Trench 16

N

Modern

Archaeological Feature

0 40m

05/05/2021 RS

Figure 3
All Features Plan
Inset 1:50,000, 1:800 at A3

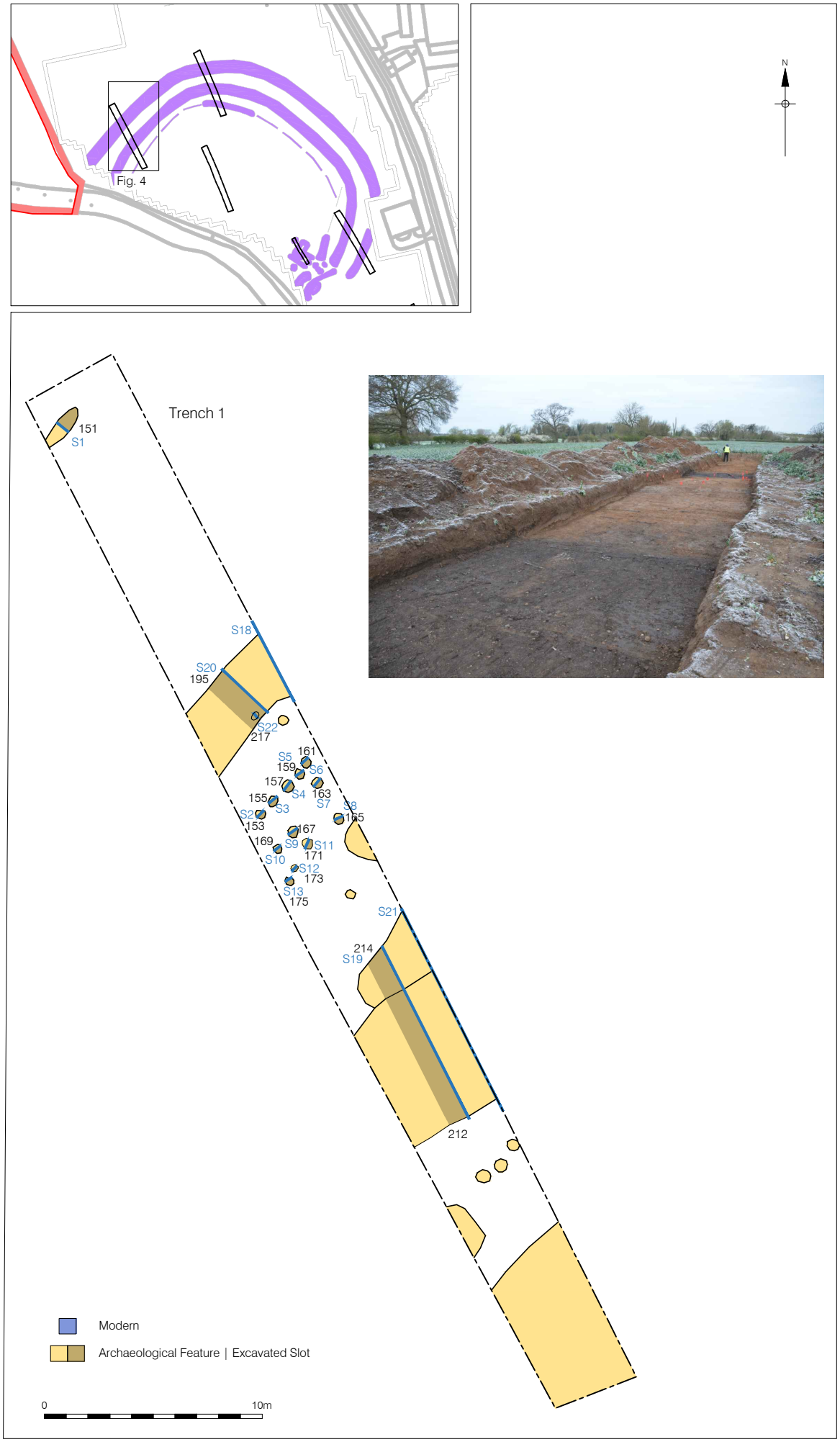
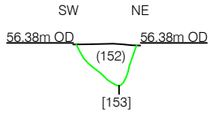
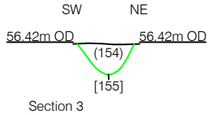


Figure 4
Trench 1 Plan
Inset 1:4000, Plan 1:250 at A3

05/05/2021 RS



Section 2
Trench 1
Southeast Facing



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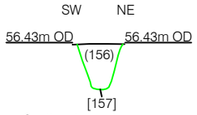
Trench 1
Southeast Facing



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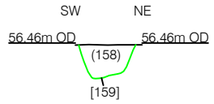
Trench 1
Southeast Facing



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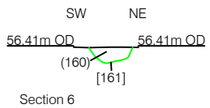

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Trench 1
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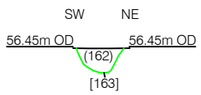

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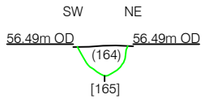
Trench 1
Southeast Facing



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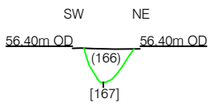

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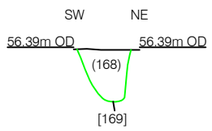
Trench 1
Southeast Facing



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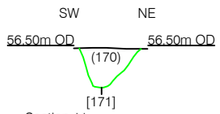
Trench 1
Southeast Facing



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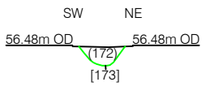
Trench 1
Southeast Facing



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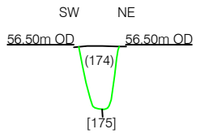
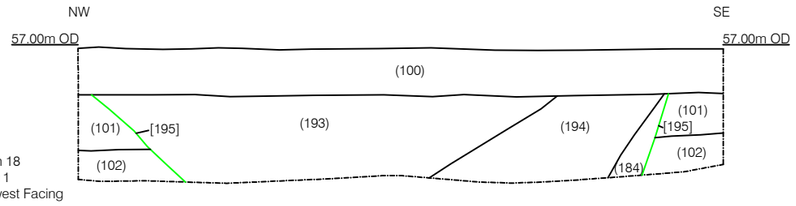
Trench 1
Southeast Facing



Section 13
Trench 1
Southeast Facing

Detail of Ditch [195]



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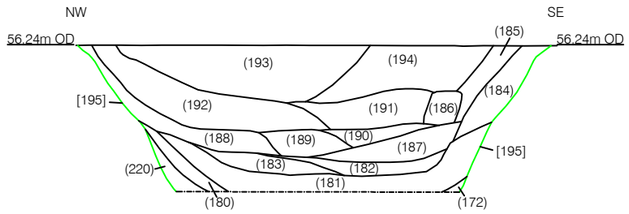
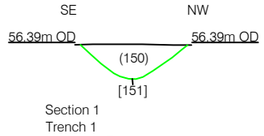
Trench 1
Southwest Facing

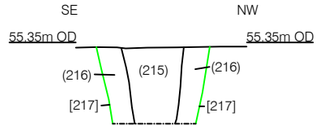


Section 20
Trench 1
Southwest Facing

Ditch [195]



Section 1
Trench 1
Northeast Facing



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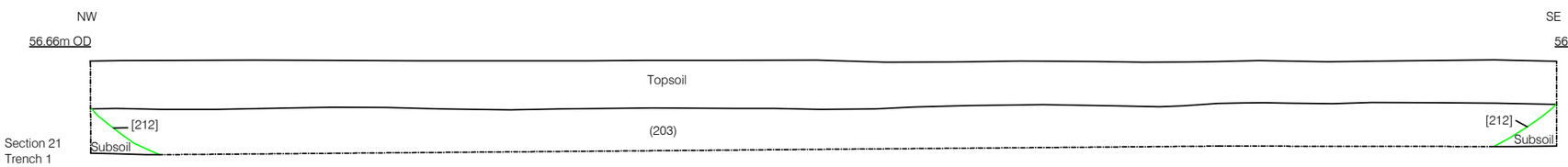
Trench 1
Northeast Facing



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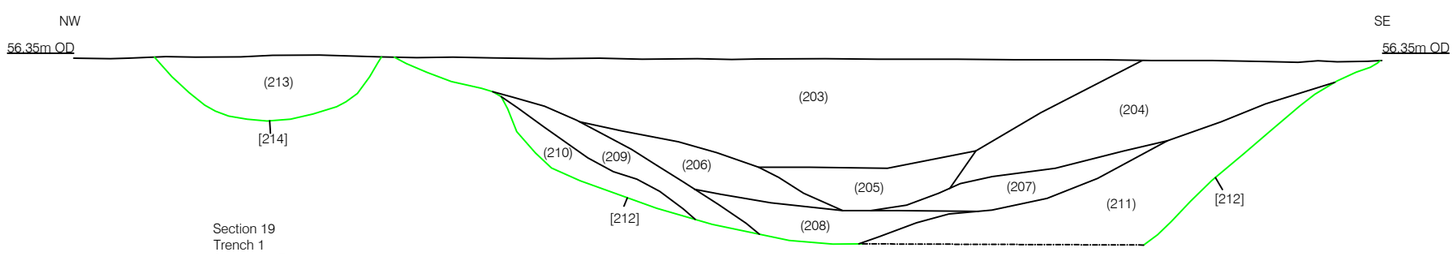
Trench 1
Southwest Facing

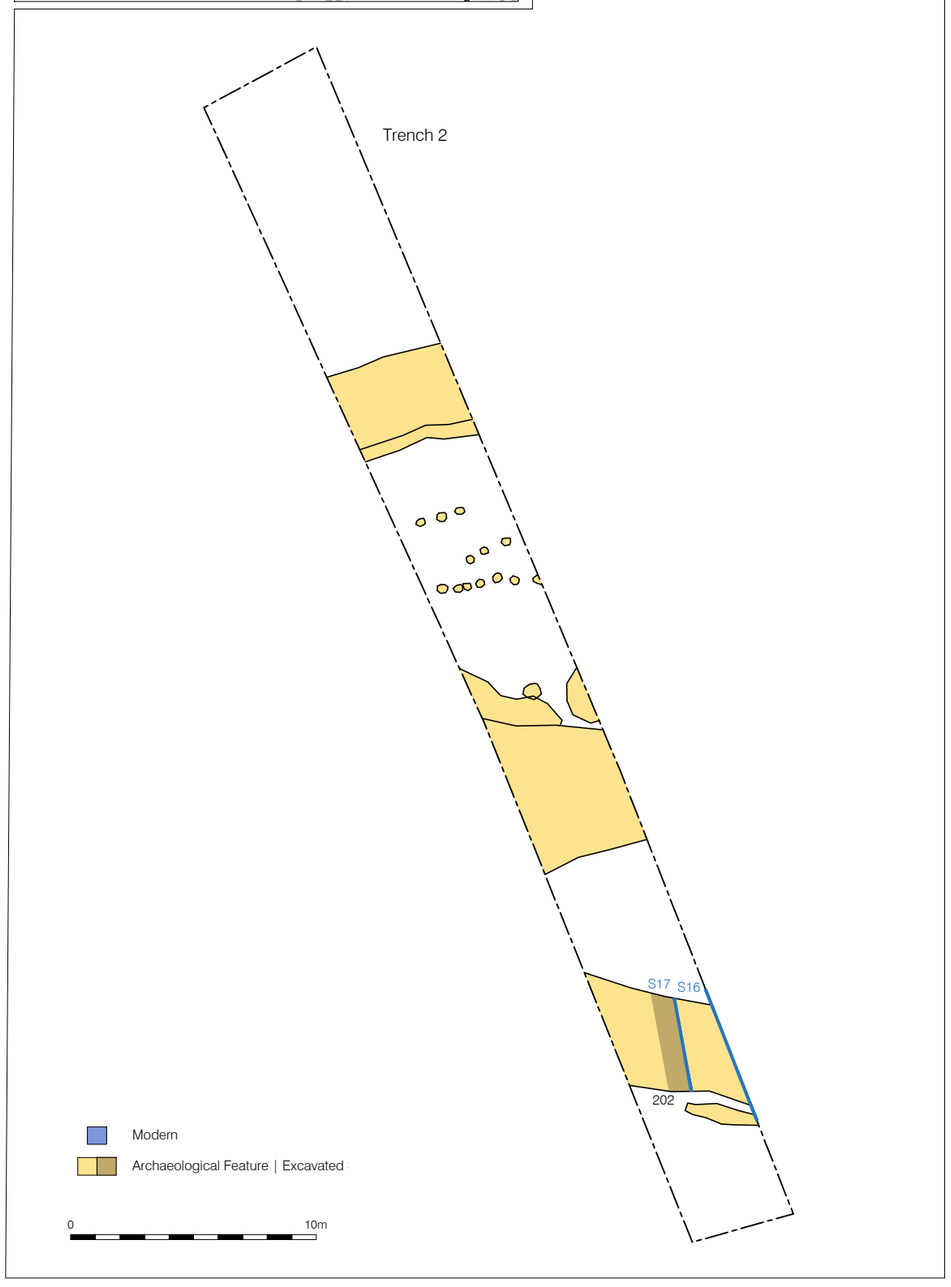


Section 19
Trench 1
Southwest Facing

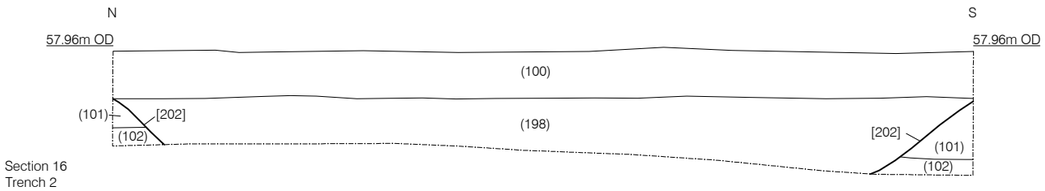
Ditch [212]

05/05/2021 RS

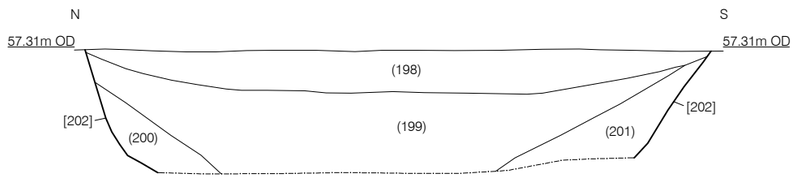
Figure 5
Trench 1 Sections
1:40 at A3



Trench 2



Section 16
Trench 2
West Facing



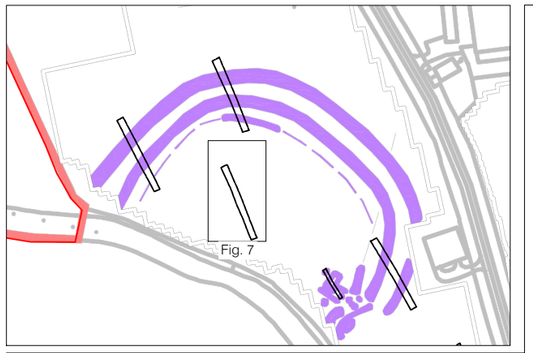
Section 17
Trench 2
West Facing

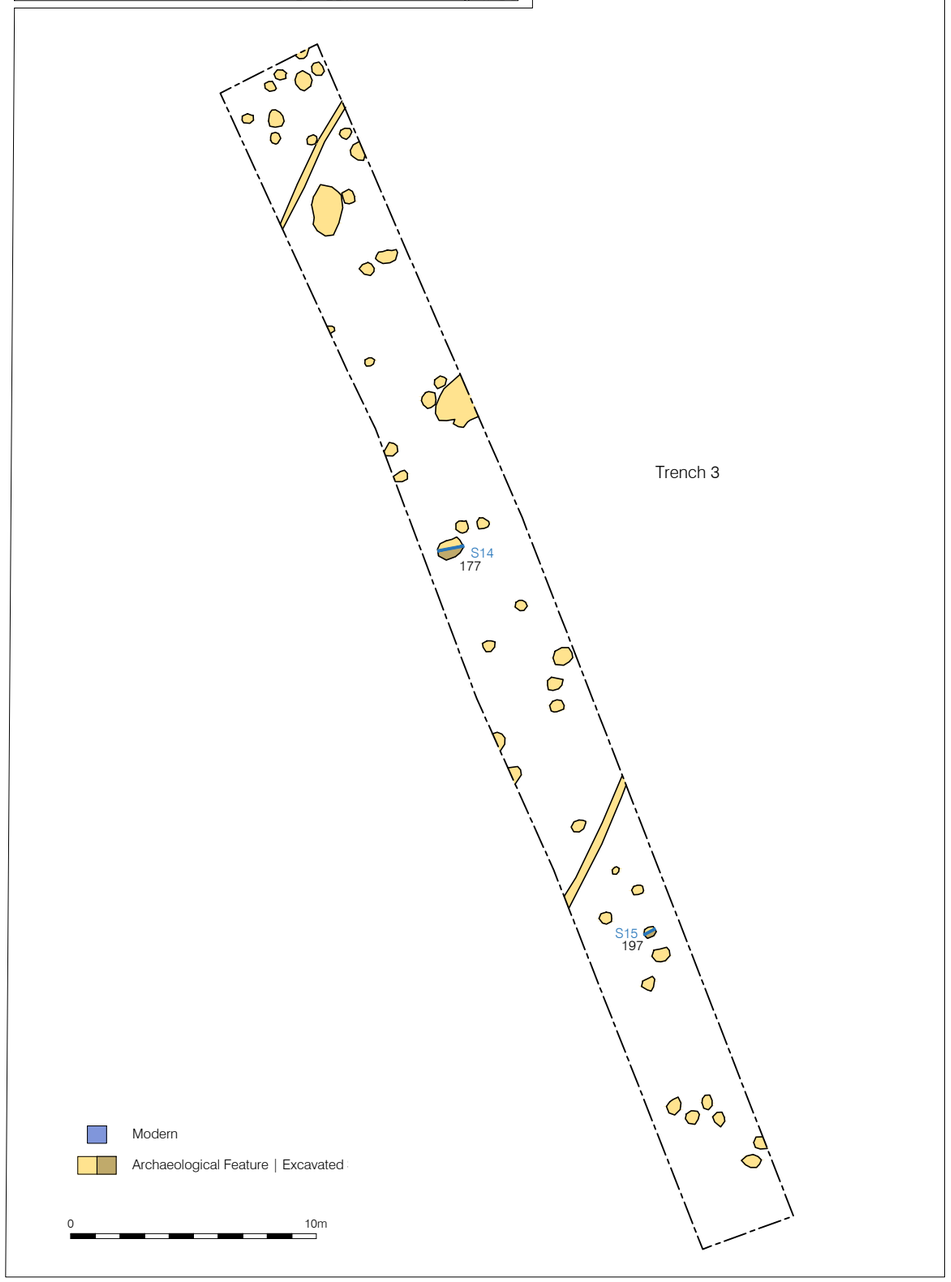
0 2m

Ditch [202]

05/05/2021 RS

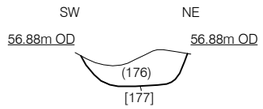
Figure 6
Trench 2 Plan and Sections
Inset 1:4000, Plan 1:250, Sections 1:40 at A3



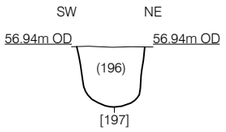


Trench 3

Trench 3



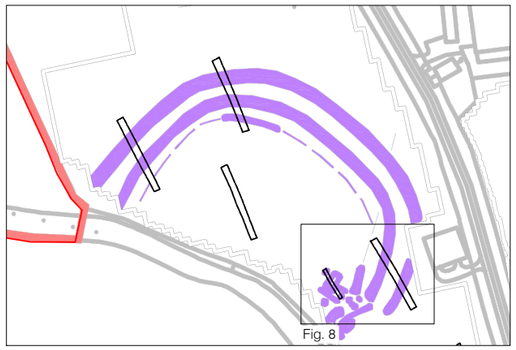
Section 14
Trench 3
Southeast Facing

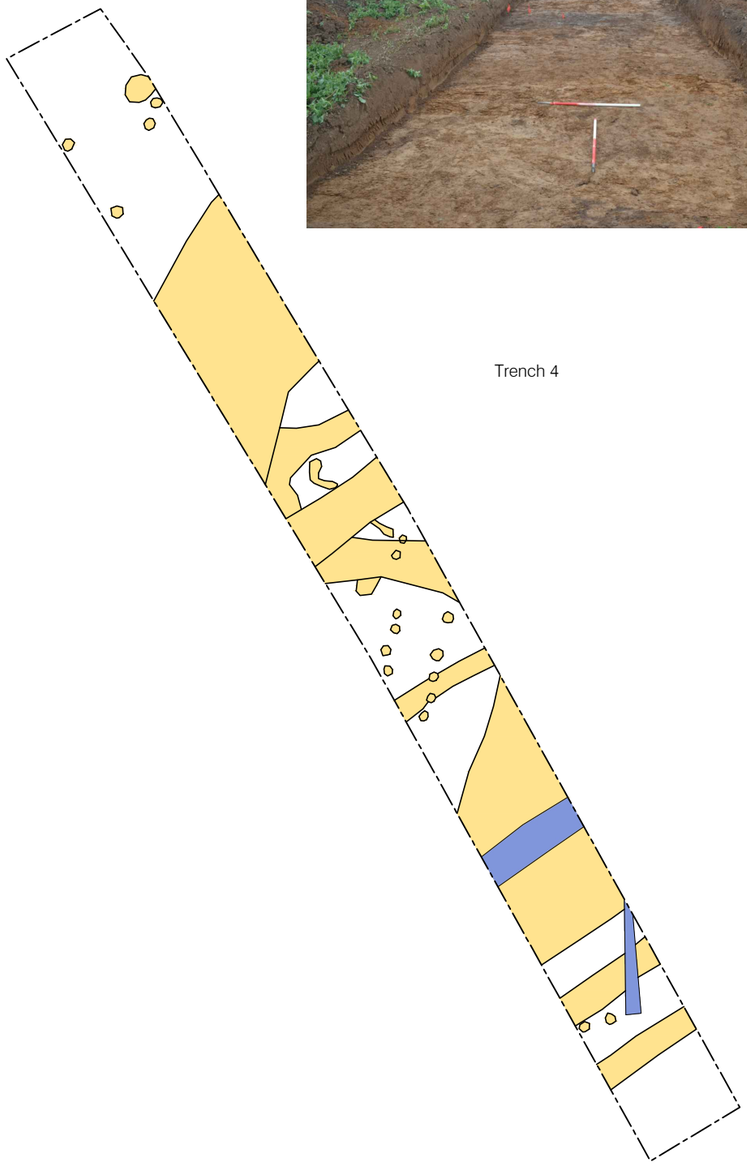


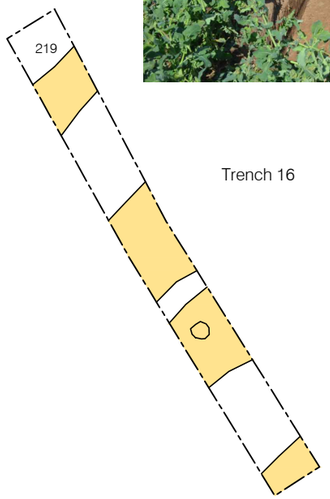
Section 15
Trench 3
Southeast Facing

05/05/2021 RS

Figure 7
Trench 3 Plan and Sections
Inset 1:4000, Plan 1:250, Sections 1:40 at A3







05/05/2021 RS

Figure 8
Trench 4 and 16
Inset 1:4000, Plan 1:250 at A3

12 APPENDIX 1: PLATES

Plate 1: Trench 1 Metal Detecting Survey

Plate 2: Trench 1 view to the north showing rampart and outer ditch.

Plate 3: Trench 1 recording outer Ditch [195] view north.

Plate 4: Trench 1 excavation and recording of rampart postholes, view northeast.

Plate 5: Trench 1 view to the south showing middle and outer ditches.

Plate 6: Trench 1 recording middle Ditch [212], view east.

Plate 7: Trench 4 outer ditch view to the east.

13 APPENDIX 2: TRENCH DETAILS

Trench Number	Trench Length	Trench Width	Trench Orientation	Topsoil description	Subsoil description	'Natural' description	End 1 Location	Topsoil thickness End 1 (m)	Subsoil Thickness End 1 (m)	End 2 Location	Topsoil thickness End 2 (m)	Subsoil Thickness End 2 (m)	Maximum trench depth (m)
1	50	4	SE-NW	Friable, dark brownish-grey silty sand.	Firm, mid reddish-brown sandy silt.	Hard, light reddish-brown sandy silt with gravel.	NW	0.5	0.3	SE	0.4	0.3	1
2	50	4	SE-NW	Friable, dark brownish-grey silty sand.	Friable, mid reddish-brown silty sand.	Hard, mid yellowish-red sandy silt.	NW	0.4	0.3	SE	0.35	0.3	1
3	50	4	SE-NW	Friable, dark brownish-grey silty sand.	Friable, mid reddish-brown sandy silt.	Hard, mid brownish-red sandy silt.	NW	0.3	0.2	SE	0.3	0.3	0.7
4	50	4	N-S	Friable, dark brownish-grey silty sand.	Friable, mid reddish-brown silty sand.	Hard, mid redddish-yellow sandy silt or light brownish-yellow silty clay.	N	0.3	0.15	S	0.3	0.2	0.7
16	25	2	SE-NW	Friable, dark brownish-grey silty sand.	Friable, mid reddish-brown sandy silt.	Hard, mid yellowish-brown sandy silt	NW	0.3	0.4	SE	0.3	0.2	0.6

14 APPENDIX 3: CONTEXT INDEX

Ctxt No.	Cut No	Trench	Section Number	Length (m)	Width (m)	Depth (m)	Feature type	Ctxt type	Shape in plan	Sides	Base	Orientation	Compaction	Colour (tone)	Colour (hue)	Colour (main)	Composition	Significant inclusions - description	Interpretation
150	151	1	1	1	0.7	0.2	Ditch	Fill					Soft	Mid	Reddish	Brown	Sandy silt		Natural infilling
151	151	1	1	1	0.7	0.2	Ditch	Cut	Linear	Moderate	Flat	NE-SW							Enclosure ditch (?
152	153	1	2	0.4	0.43	0.26	Posthole	Fill					Firm	Mid	Reddish	Brown	Sandy silt		Natural infilling
153	153	1	2	0.4	0.43	0.26	Posthole	Cut	Circular	Moderate	Irregular/ Uneven								Structure
154	155	1	3	0.4	0.31	0.2	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt	Occasional medium charcoal	Natural infilling
155	155	1	3	0.4	0.31	0.2	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
156	157	1	4	0.3	0.28	0.29	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Natural infilling
157	157	1	4	0.3	0.28	0.29	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
158	159	1	5	0.38	0.34	0.22	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Natural infilling
159	159	1	5	0.38	0.34	0.22	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
160	161	1	6	0.31	0.28	0.16	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Natural infilling
161	161	1	6	0.3	0.28	0.16	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
162	163	1	7	0.31	0.4	0.22	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt	Occasional medium charcoal	Natural infilling
163	163	1	7	0.31	0.4	0.22	Posthole	Cut	Sub-circular	Steep	Concave								Structure
164	165	1	8	0.37	0.32	0.21	Postpipe	Fill					Firm	Dark	Greyish	Brown	Sandy silt	Occasional small charcoal	Natural infilling
165	165	1	8	0.37	0.32	0.22	Postpipe	Cut	Circular	Steep	Tapered rounded								Structure
166	167	1	9	0.4	0.37	0.21	Posthole	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Natural infilling
167	167	1	9	0.4	0.37	0.21	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
168	169	1	10	0.35	0.45	0.34	Posthole	Fill					Firm	Dark	Greyish	Brown	Sandy silt	Frequent medium stones and gravel	Natural infilling
169	169	1	10	0.33	0.39	0.34	Posthole	Cut	Circular	Steep	Tapered rounded								Structure
170	171	1	11	0.4	0.58	0.25	Posthole	Fill					Soft	Mid	Reddish	Grey	Sandy silt		Natural infilling
171	171	1	11	0.4	0.58	0.3	Posthole	Cut	Circular	Steep	Irregular/ Uneven								Structure
171	171	1	11	0.4	0.58	0.3	Posthole	Cut	Circular	Steep	Irregular/ Uneven								Structure
172	173	1	12	0.3	0.24	0.13	Posthole	Fill					Soft	Mid	Greyish	Brown	Sandy silt		Natural infilling
173	173	1	12	0.3	0.24	0.13	Posthole	Cut	Circular	Steep	Flat								Structure
174	175	1	13	0.25	0.32	0.41	Postpipe	Fill					Soft	Dark	Greyish	Brown	Sandy silt	Dark fill-perhaps due to the wooden post decomposing in situ	Demolition/ destruction debris

175	175	1	13	0.25	0.32	0.41	Postpipe	Cut	Circular	Vertical	Tapered pointed								Structure
176	177	3	14	0.7	0.55	0.22	Postpad	Fill					Soft	Mid	Reddish	Brown	Silty sand	Small flecks-a moderate amount	Natural infilling
177	177	3	14	0.7	0.55	0.22	Postpad	Cut	Circular	Gentle	Concave								Structure
179	195	1	20	1	0.1	0.1	Ditch	Fill					Firm	Light	Brownish	Yellow	Sandy silt	V frequent gravel	Primary fill
179	195	1	20	0	0.1	0.1	Ditch	Fill					Soft	Light	Brownish	Yellow	Sandy silt		Natural infilling
180	195	1	20	1	0.1	0.45	Ditch	Fill					Firm	Light	Brownish	Yellow	Sandy silt	V frequent gravel	Natural infilling
181	195	1	20	1	2.1	0.45	Ditch	Fill					Soft	Mid	Blueish	Grey	Sandy silt		Primary fill
182	195	1	20	1	2.3	0.1	Ditch	Fill					Soft	-	-	Black	Sandy silt		Demolition/ destruction debris
183	195	1	20	1	2	0.25	Ditch	Fill					Soft	Light	Blueish	Grey	Sandy silt		Deliberate backfill
184	195	1	20	1	0.25	0.8	Ditch	Fill					Soft	Mid	Blueish	Grey	Sandy silt		Primary fill
185	195	1	20	1	0.2	0.55	Ditch	Fill					Soft	Dark	Brownish	Grey	Sandy silt		Demolition/ destruction debris
186	195	1	20	1	0.2	0.5	Ditch	Fill					Soft	-	-	Black	Sandy silt	Organic, v frequent charcoal	Rotten beam
187	195	1	20	1	0.6	0.25	Ditch	Fill					Soft	Dark	Brownish	Grey	Sandy silt		Deliberate backfill
188	195	1	20	1	1.3	0.7	Ditch	Fill					Soft	Light	Brownish	Grey	Sandy silt		Deliberate backfill
189	195	1	20	0	0.5	0.2	Ditch	Fill					Soft	-	-	Black	Sandy silt		Demolition/ destruction debris
190	195	1	20	1	0.57	0.1	Ditch	Fill					Soft	Light	Greyish	Yellow	Sandy silt		Deliberate backfill
191	195	1	20	1	0.75	0.3	Ditch	Fill					Soft	-	-	Black	Sandy silt		Demolition/ destruction debris
192	195	1	20	1	1.5	0.6	Ditch	Fill					Soft	-	-	Black	Sandy silt	V frequent charcoal	Demolition/ destruction debris
193	195	1	20	1	1.65	0.36	Ditch	Fill					Soft	-	-	Black	Sandy silt		Demolition/ destruction debris
194	195	1	20	1	1.2	0.36	Ditch	Fill					Soft	-	-	Black	Sandy silt	Lumps of dark reddish brown (burnt) material	Demolition/ destruction debris
196	197	3	15	0.45	0.45	0.4	Posthole	Fill					Soft	Mid	Greyish	Brown	Sandy silt	Occasional small charcoal	Natural infilling
197	197	3	15	0.45	0.45	0.4	Posthole	Cut	Sub-circular	Vertical	Flat								Structure
198	202	2	17	1	4.1	0.3	Ditch	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Natural infilling
199	202	2	17	1	4	0.7	Ditch	Fill					Firm	Light	Brownish	Yellow	Sandy silt		Deliberate backfill
200	202	2	17	1	0.7	0.6	Ditch	Fill					Soft	Mid	Blueish	Grey	Sandy silt		Natural infilling
201	202	2	17	1	1.2	0.8	Ditch	Fill					Soft	Mid	Blueish	Grey	Sandy silt		Natural infilling
202	202	2	17	4	4.1	0.8	Ditch	Cut	Linear	Steep	Not reached	E-W							Boundary ditch
203	212	1	19	1	4.8	0.7	Ditch	Fill					Firm	Dark	Greyish	Brown	Sandy silt	Small to medium occasional charcoal	Demolition/ destruction debris

204	212	1	19	1	2.9	0.8	Ditch	Fill					Firm	Light	Yellowish	Brown	Sandy silt		Deliberate backfill
205	212	1	19	1	1.3	0.3	Ditch	Fill					Firm	Mid	Brownish	Grey	Sandy silt	Occasional small to medium charcoal	Demolition/ destruction debris
206	212	1	19	1	1.5	0.3	Ditch	Fill					Firm	Mid	Greyish	Brown	Sandy silt	Rare small charcoal	Demolition/ destruction debris
207	212	1	19	1	1.6	0.4	Ditch	Fill					Firm	Light	Yellowish	Brown	Sandy silt		Deliberate backfill
208	212	1	19	1	1.5	0.3	Ditch	Fill					Firm	Light	Greenish	Yellow	Sandy silt		Deliberate backfill
209	212	1	19	1	1.6	0.9	Ditch	Fill					Firm	Light	Reddish	Yellow	Sandy silt		Deliberate backfill
210	212	1	19	1	1.2	0.9	Ditch	Fill					Firm	Light	Brownish	Yellow	Sandy silt		Natural infilling
211	212	1	19	1	2.9	1	Ditch	Fill					Firm	Mid	Yellowish	Brown	Sandy silt	V frequent stones	Deliberate backfill
212	212	1	19	4	6.1	1.2	Ditch	Cut	Linear	Steep	Not reached	E-W							Boundary ditch
213	214	1	19	1	1.4	0.4	Ditch	Fill					Firm	Mid	Greyish	Brown	Sandy silt		Deliberate backfill
214	214	1	19	4	1.4	0.4	Ditch	Cut	Linear	Moderate	Concave	E-W							Boundary ditch
215	217	1	22	0.25	0.15	0.25	Postpipe	Fill					Soft	Dark	Brownish	Grey	Sandy silt		Rotten post
216	217	1	22	0.6	0.5	0.25	Posthole	Fill					Soft	Mid	Blueish	Grey	Sandy silt		Packing
217	217	1	22	0.6	0.5	0.25	Posthole	Cut	Sub-circular	Vertical	Not reached								Structure
220	195	1	20	1	0.25	0.45	Ditch	Fill					Soft	Light	Blueish	Grey	Sandy silt		Primary fill

15 APPENDIX 4: FLINT CATALOGUE

Ctxt	Sample	Cat.	Type	No.	Comp.	Cort.	Prim.	Pat.	Sharp	E.dam.	Hinge	Cortical platform	Prepared platform	Burnt	Date	Comment
186	25	burn	burnt fragment	1	0	0	0	0			0	0	0	0		a few ripple scars suggest may have been a fl?? some tiny pieces have fractured off in bag
196	16	utbl	end scraper	1	1	1	0	0			0	0	0	0		sm short thick 'blade', dist edge broken but appears utilised
203		utfl	utilised flake	1	1	1	0	0			0	0	0	0		sq thick semi-circ with wide thick faceted plat from a former plat edge, sides and, cortical, dist show slight signs of scr use
203		retf	retouched flake	1	1	1	0	0			0	0	0	0		sm thickish fl, mdds, various slight edge ret incl a sm shallow notch
216	15	flak	spall	1	0	0	0	0			0	0	0	1		v sm fl-like - prob struck, burnt

																white/slightly crazed surface

16 APPENDIX 5: ANIMAL BONE CATALOGUE

Context	BN	SMP	Mesh	Species	Bone	Part	N1	N2	Prop	Age	Comments	Burnt
164	53269	3	1	SSZ	IND	S	10	10	1		165:1:	
164	53270	3	1	VOLE	TTH	W	1	1	5	A	165:1:?FIELD VOLE CHEEKTOOTH	
175	53271	5	1	SSZ	IND	S	2	2	1		174:2:	
175	53272	5	1	SSZ	IND	S	1	1	1		174:1:	WHITE
186	53273	25	1	SSZ	IND	S	2	2	1		195:2:	
193	53274	24	1	SSZ	IND	S	10	10	1		195:10:	
203	53275	18	1	SSZ	IND	S	14	14	1		212:14:	
218	53276	0		CSZ	LBF	S	9	1	1		219:9:	

17 APPENDIX 6: ENVIRONMENTAL FLOTS

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant.

Sample Number	1	2	3	4	5	6	7	8	9	11	14	15	16	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Context Number	154	158	164	168	174	166	170	192	186	191	215	216	196	203	205	206	213	201	200	193	196	183	192	194	190	181	191
Feature Number	155	159	165	169	175	167	171	195	195	195	217	217	197	212	212	212	214	202	202	195	197	195	195	195	195	195	195
Feature type	Posthole	Posthole	Postpipe	Posthole	Postpipe	Posthole	Posthole	Ditch	Ditch	Ditch	Postpipe	Posthole	Posthole	Ditch	Ditch	Ditch	Ditch	Ditch	Ditch	Ditch	Posthole	Ditch	Ditch	Ditch	Ditch	Ditch	Ditch
Period	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon	Saxon
Volume of flot (mililitres)	8	14	9	26	32	18	58	15	62	62	16	25	58	35	6	16	45	18	6	25	18	12	102	10	8	22	12
Volume of residue (litres)	5	9	5	8	5	5	18	5	18	4	6	5	18	10	10	16	2	4	3	2	5	3	12	6	4	4	7
FLOT RESIDUE:																											
Charcoal																											
Charcoal >4mm							1		2	3				1						2	1		3			1	
Charcoal 2-4mm	3	2	3	4	3	3	3	3	3	4	2	2	4	4	3	1	3	1	1	4	3	3	4	4	3	3	4
Charcoal <2mm	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4
Charcoal of ID size							1		2					1						1	1		2	1		1	
Seeds																											
Charred seed			1				1		2				2			1		1	1	1		1			1	1	
Indeterminate charred seed			1	1			1															1					
Un-charred seeds		1	1		1	1	1						1				1										
Cereals																											
Chaff- Spikelet?																						1					1
Chaff					1				1												1						
Rachis														1						1							
Culm node																									1		
Charred cereal													4														
Indeterminate charred cereal						1	1						3	1						1					1		1
Other plant macrofossils																											
Modern plant material	2	2	2	3	2	2	3	1	1	1	3	2	2	1	1	2	3	1	1	1	2	1	2	1	1	1	1
Roots/ tubers	4	4	4	4	4	4	4	3	2	1	4	4	4	3	3	4	4	4	4	3	4	2	3	2	2	2	2
Molluscs																											
Terrestrial molluscs				1																							
Other remains																											
Insect eggs/ worm cases		1			1						1	1	2	1	1	1						2		1			1
Insect remains		1	1				1	1						1		2		1			1						
CBM	1																										
Coal	1			1	1	1											1			1				1			
Vitrified material	1	1										1															
Pot				1																							
Animal bone	1																										
HEAVY RESIDUE:																											
Charcoal																											
Charcoal >4mm								1	1	3			1			1		1		1	1	1					
Charcoal 2-4mm			2		2		1	3	3	4	2	1	3	3	3	2	1	1	1	3	2	3		1	2	2	1

Cereal																									
Charred cereal												4	1					1							
Indeterminate charred seed												2													
Seeds																									
Charred seed										1															
Indeterminate charred seed										1															
Finds																									
Animal bone			1		1								2						1	1					
Burnt Flint												1								1					

18 APPENDIX 7: RADIOCARBON DATING RESULTS

Beta Analytic, Inc.
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ISO/IEC 17025:2017-Accredited Testing Laboratory

May 25, 2021

Ms. Sian ONeill
Pre-Construct Archaeology
The Granary, Rectory Farm, Brewery Road
Pampisford, CB22 3EN
United Kingdom

RE: Radiocarbon Dating Results

Dear Ms. ONeill,

Enclosed are the radiocarbon dating results for two samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2020 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators here. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result unless otherwise requested. The reported d13C values were measured separately in an IRMS (isotope ratio mass spectrometer). They are NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

When interpreting the results, please consider any communications you may have had with us regarding the samples.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact us.

Sincerely,

Chris Patrick
Vice President of Laboratory Operations

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ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Sian ONeill

Pre-Construct Archaeology

Report Date: May 25, 2021

Material Received: May 17, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 592516	**EMK1448[195](193)< 38 >**	**2280 +/- 30 BP**	IRMS δ13C: -25.0 o/oo

(51.3%)	**401 - 351 cal BC**	**(2350 - 2300 cal BP)**
(44.1%)	**302 - 208 cal BC**	**(2251 - 2157 cal BP)**

Submitter Material: Charcoal
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 75.29 +/- 0.28 pMC
Fraction Modern Carbon: 0.7529 +/- 0.0028
D14C: -247.11 +/- 2.81 o/oo
Δ14C: -253.55 +/- 2.81 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 2280 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

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ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Sian ONeill — Report Date: May 25, 2021

Pre-Construct Archaeology — Material Received: May 17, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 592517	**EMK1448[195](191)< 37 >**	**1600 +/- 30 BP**	IRMS δ13C: -23.4 o/oo

(95.4%) 416 - 545 cal AD (1534 - 1405 cal BP)

Submitter Material: Seeds
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 81.94 +/- 0.31 pMC
Fraction Modern Carbon: 0.8194 +/- 0.0031
D14C: -180.60 +/- 3.06 o/oo
Δ14C: -187.60 +/- 3.06 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 1570 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -25.0 o/oo)

Laboratory number **Beta-592516**

Conventional radiocarbon age **2280 ± 30 BP**

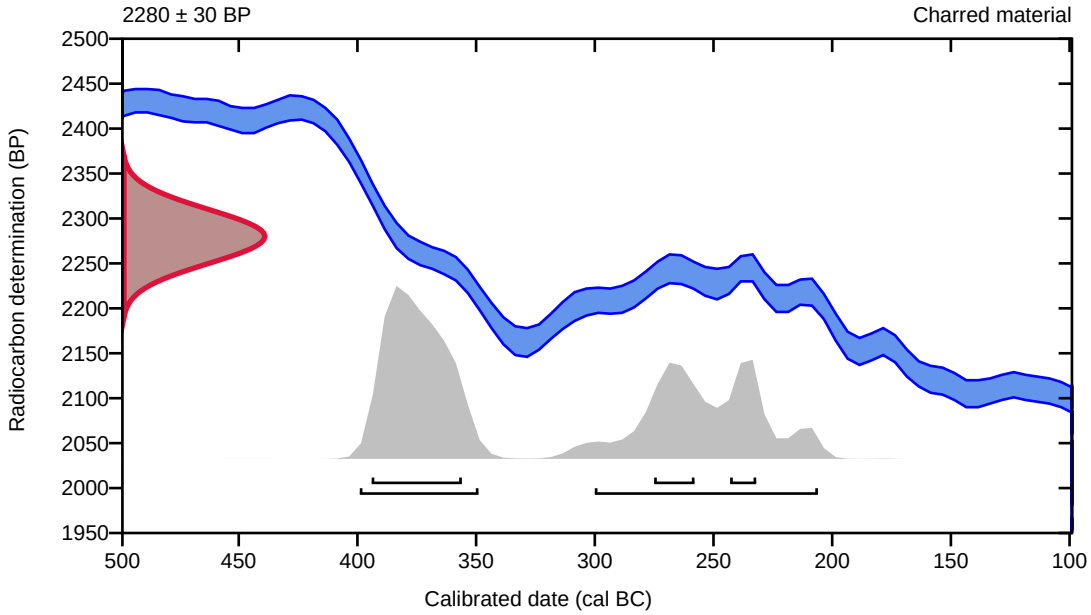
95.4% probability

(51.3%)	401 - 351 cal BC	(2350 - 2300 cal BP)
(44.1%)	302 - 208 cal BC	(2251 - 2157 cal BP)

68.2% probability

(45.8%)	396 - 358 cal BC	(2345 - 2307 cal BP)
(13.4%)	277 - 260 cal BC	(2226 - 2209 cal BP)
(9%)	245 - 234 cal BC	(2194 - 2183 cal BP)

EMK1448[195](193)< 38 >



Database used

INTCAL20

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

References to Database INTCAL20

Reimer, et al., 2020, Radiocarbon 62(4):725-757.

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Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -23.4 o/oo)

Laboratory number **Beta-592517**

Conventional radiocarbon age **1600 ± 30 BP**

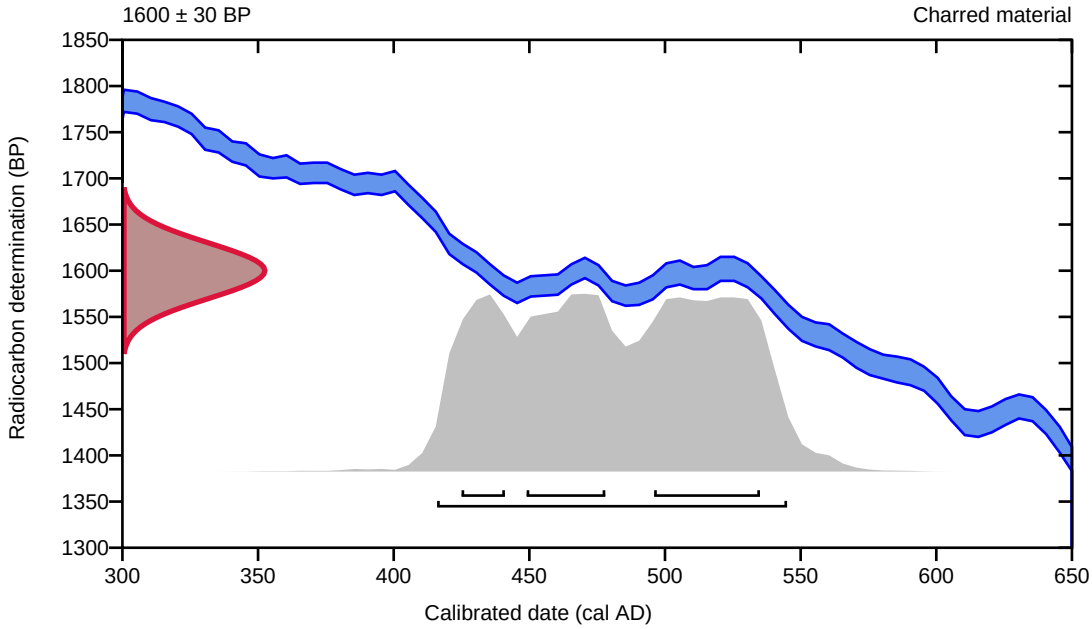
95.4% probability

(95.4%)	416 - 545 cal AD	(1534 - 1405 cal BP)

68.2% probability

(32%)	496 - 535 cal AD	(1454 - 1415 cal BP)
(23.4%)	449 - 478 cal AD	(1501 - 1472 cal BP)
(12.7%)	425 - 441 cal AD	(1525 - 1509 cal BP)

EMK1448[195](191)< 37 >



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ISO/IEC 17025:2005-Accredited Testing Laboratory

Quality Assurance Report

This report provides the results of reference materials used to validate radiocarbon analyses prior to reporting. Known-value reference materials were analyzed quasi-simultaneously with the unknowns. Results are reported as expected values vs measured values. Reported values are calculated relative to NISTSRM-1990C and corrected for isotopic fractionation. Results are reported using the direct analytical measure percent modern carbon (pMC) with one relative standard deviation. Agreement between expected and measured values is taken as being within 2 sigma agreement (error x 2) to account for total laboratory error.

Report Date: May 25, 2021
Submitter: Ms. Sian ONeill

QA MEASUREMENTS

Reference 1

Expected Value:	96.69 +/- 0.50 pMC
Measured Value:	96.73 +/- 0.28 pMC
Agreement:	Accepted

Reference 2

Expected Value:	0.44 +/- 0.10 pMC
Measured Value:	0.45 +/- 0.03 pMC
Agreement:	Accepted

Reference 3

Expected Value:	129.41 +/- 0.06 pMC
Measured Value:	129.50 +/- 0.35 pMC
Agreement:	Accepted

COMMENT: All measurements passed acceptance tests.

Validation: Digital signature on file

Date: May 25, 2021

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ISO/IEC 17025:2017-Accredited Testing Laboratory

May 25, 2021

Ms. Sian ONeill
Pre-Construct Archaeology
The Granary, Rectory Farm, Brewery Road
Pampisford, CB22 3EN
United Kingdom

RE: Radiocarbon Dating Results

Dear Ms. ONeill,

Enclosed are the radiocarbon dating results for two samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2020 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators here. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result unless otherwise requested. The reported d13C values were measured separately in an IRMS (isotope ratio mass spectrometer). They are NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

When interpreting the results, please consider any communications you may have had with us regarding the samples.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact us.

Sincerely,

Chris Patrick
Vice President of Laboratory Operations

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ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Sian ONeill

Pre-Construct Archaeology

Report Date: May 25, 2021

Material Received: May 17, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 592516	**EMK1448[195](193)< 38 >**	**2280 +/- 30 BP**	IRMS δ13C: -25.0 o/oo

(51.3%)	**401 - 351 cal BC**	**(2350 - 2300 cal BP)**
(44.1%)	**302 - 208 cal BC**	**(2251 - 2157 cal BP)**

Submitter Material: Charcoal
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 75.29 +/- 0.28 pMC
Fraction Modern Carbon: 0.7529 +/- 0.0028
D14C: -247.11 +/- 2.81 o/oo
Δ14C: -253.55 +/- 2.81 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 2280 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

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REPORT OF RADIOCARBON DATING ANALYSES

Sian ONeill — Report Date: May 25, 2021

Pre-Construct Archaeology — Material Received: May 17, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 592517	**EMK1448[195](191)< 37 >**	**1600 +/- 30 BP**	IRMS δ13C: -23.4 o/oo

(95.4%) 416 - 545 cal AD (1534 - 1405 cal BP)

Submitter Material: Seeds
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 81.94 +/- 0.31 pMC
Fraction Modern Carbon: 0.8194 +/- 0.0031
D14C: -180.60 +/- 3.06 o/oo
Δ14C: -187.60 +/- 3.06 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 1570 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -25.0 o/oo)

Laboratory number **Beta-592516**

Conventional radiocarbon age **2280 ± 30 BP**

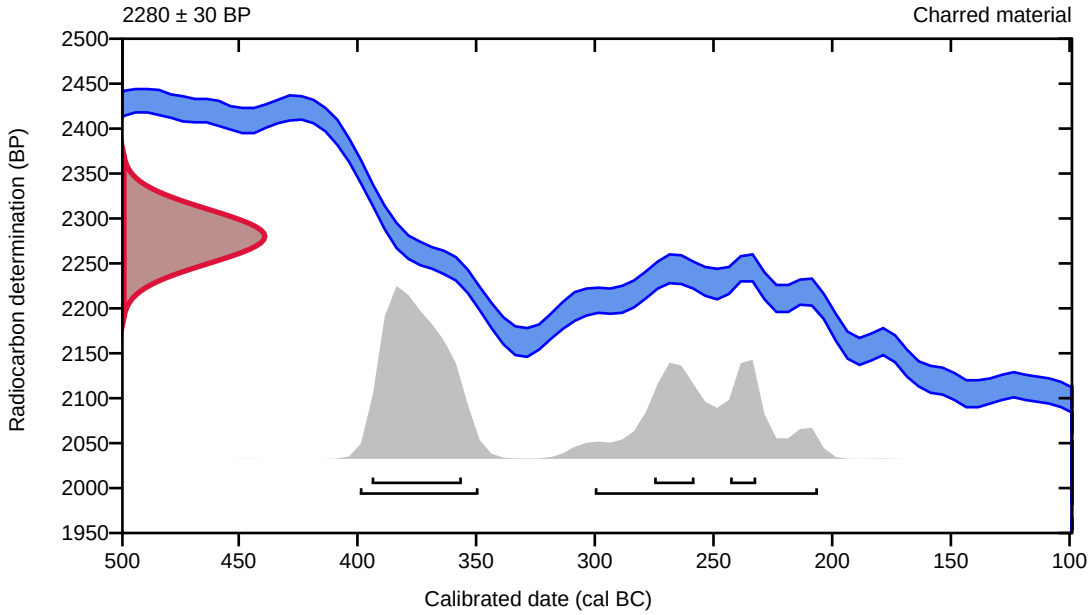
95.4% probability

(51.3%)	401 - 351 cal BC	(2350 - 2300 cal BP)
(44.1%)	302 - 208 cal BC	(2251 - 2157 cal BP)

68.2% probability

(45.8%)	396 - 358 cal BC	(2345 - 2307 cal BP)
(13.4%)	277 - 260 cal BC	(2226 - 2209 cal BP)
(9%)	245 - 234 cal BC	(2194 - 2183 cal BP)

EMK1448[195](193)< 38 >



Database used

INTCAL20

References

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Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -23.4 o/oo)

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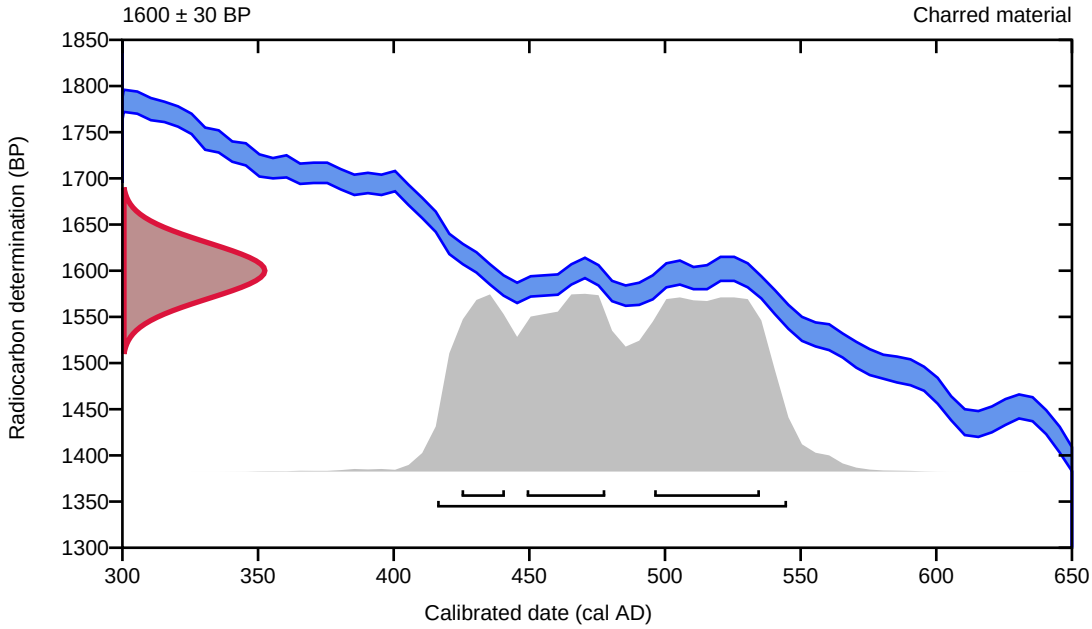

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Report Date: May 25, 2021
Submitter: Ms. Sian ONeill

QA MEASUREMENTS

Reference 1

Expected Value:	96.69 +/- 0.50 pMC
Measured Value:	96.73 +/- 0.28 pMC
Agreement:	Accepted

Reference 2

Expected Value:	0.44 +/- 0.10 pMC
Measured Value:	0.45 +/- 0.03 pMC
Agreement:	Accepted

Reference 3

Expected Value:	129.41 +/- 0.06 pMC
Measured Value:	129.50 +/- 0.35 pMC
Agreement:	Accepted

COMMENT: All measurements passed acceptance tests.

Validation: Digital signature on file

Date: May 25, 2021

19 APPENDIX 8: OASIS FORM

19.1 OASIS ID: preconst1-424195

Project details

Project name	Earthwork Enclosure in Area 7, Land North-East of Milton Keynes: an Archaeological Evaluation
Short description of the project	A total of four 50m x 4m evaluation trenches and one 25m x 2m evaluation trench totalling 225 linear meters of trenches were excavated and recorded. The evaluation confirmed the presence of a triple ditched d-shaped enclosure located on relatively high ground overlooking the River Ousel. The evaluation also identified the presence of lines of postholes between the outer and the middle ditch which likely evidenced a rampart-like structure. Furthermore, a high density of postholes identified within the enclosure is indicative of structural remains.
Project dates	Start: 06-04-2021 End: 19-04-2021
Previous/future work	Yes / Not known
Any associated project reference codes	EMK1448 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 2 - Operations to a depth less than 0.25m
Monument type	DITCH Uncertain
Monument type	POSTHOLE Uncertain
Monument type	PIT Uncertain

Significant Finds	LEAD Uncertain

Project location

Country	England
Site location	BUCKINGHAMSHIRE MILTON KEYNES NEWPORT PAGNELL Earthwork Enclosure in Area 7, Land North-East of Milton Keynes
Postcode	MK160JB
Study area	4.5 Hectares
Site coordinates	SP 88848 42332 52.071798254479 -0.703566572457 52 04 18 N 000 42 12 W Point
Height OD / Depth	Min: 57m Max: 59m

Project creators

Name of Organisation	Pre-Construct Archaeology Ltd
Project brief originator	no brief
Project design originator	Christiane Meckseper
Project director/manager	Mark Hinman
Project supervisor	Judyta Mlynarska
Type of sponsor/funding body	Consultancy

Name of sponsor/funding body	RPS

Project archives

Physical Contents	"Ceramics","Environmental","Metal"
Digital Media available	"Images raster / digital photography","Spreadsheets","Survey"
Paper Media available	"Context sheet","Miscellaneous Material","Section"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Earthwork Enclosure in Area 7, Land North-East of Milton Keynes: an Archaeological Evaluation
Author(s)/Editor(s)	Mlynarska, J.
Date	2021
Issuer or publisher	Pre-Construct Archaeology
Place of issue or publication	Pampisford
Description	A4 book

Entered by	Judy Mlynarska (Jmlynarska@pre-construct.com)
Entered on	4 July 2021

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