DigVentures

Archaeological trial trench investigations at Smeathorns Road, Moorsholm, North York Moors National Park

2022 Assessment Report

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Assessment Report

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Purpose of document

This document has been prepared as a Post-Excavation Assessment Report for Smeathorns, Moorsholm, North York Moors National Park and DigVentures' global community. The purpose of this document is to provide a comprehensive account of the excavation undertaken in 2022 at Smeathorns, Moorsholm, with specialist assessment of finds and samples, and recommendations for further investigations and analysis. It is supported by an archive of drawn, photographic and digital data, and includes recommendations for further analysis.

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Project summary

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We would also like to thank those at the Anglo-American Lockwood Beck and Lady Cross site for their generous assistance with parking and welfare location for our staff. Thanks are extended to Graeme Skinner from Naturally Wild Consultants for his ecological walkover survey and for approving our trench locations in line with the National Park's requirements.

The Project Executive for DigVentures is Lisa Westcott Wilkins, with Brendon Wilkins as Projects Director. The project will be managed by Kimberley Teale, Programme Manager, along with Stephanie Duensing, Programme Manager, Nat Jackson as Site Director, Ben Swain, Indie Jago and David Wallace in the field, and Maiya Pina-Dacier organising the Dig Programme and recruitment with Ginny Cole managing the social media content and bookings.

Final thanks must go to our community of Venturers, without whom this work would never have taken place:

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Executive summary

DigVentures was invited by the North York Moors National Park Authority (NYMNPA) to undertake a community-based archaeological research project at Smeathorns, Moorsholm (hereafter 'the Site'), funded by the NYMNPA. This report details results, assessment of potential and recommendations from further work at the site, encompassing ongoing excavation and assessment to be followed by final analysis and publication.

Fieldwork took place between the 1st and 11th of April 2022, investigating the visible earthworks at the site. Following analysis of LIDAR data, the North York Moors National Park Authority identified and selected several potential archaeological features for further investigation through trial trenching, which this project focussed on. This assessment report provides the results of this first season of fieldwork, giving baseline information to contribute to the future management, research and presentation of the site, creating multiple educational and participatory learning experiences for community participants.

Results summary

Fieldwork was undertaken in April 2022 to address a series of research questions which focused on an extant series of earthworks observed in the LIDAR and subsequent walkover survey (Brightman 2020). The area investigated was located to the west of Smeathorns road, and comprised of a series of earthworks, ditches and banks, and enclosures. The investigations involved a programme of targeted excavation.

In total, five trenches were opened over the course of the excavation, each investigated specific targets determined by the NYMNPA. Trench 1 focused on a hollow that had been determined as the most likely place for occupation at the site. Excavation revealed a large pit in the southern end of the trench, likely to be a watering hole. Trench 1 recovered Roman mortaria and late 3rd century Crambeck ware, as well as fragments of probable early prehistoric pottery and some flints. Trenches 2, 3 and 5 investigated a series of small, banked enclosures at the west of the site. Trench 2 was located inside one of these enclosures and no features were revealed. It wasn't completely empty however and did yield several lithic finds, including a Sutton type arrowhead. Trench 3, in contrast, recorded a higher concentration of archaeology, with layers of colluvial deposits including finds such as a Levallois-type core and a thumbnail scraper. The colluvial deposits were removed and two probable early Bronze Age ditches were visible. Excavation of Trench 5 targeted a substantial ditch and bank which, although few finds were recovered, seems likely to date to the early Bronze Age. In the easternmost corner of the trench, a post hole provided a tantalising suggestion of structures on site. Trench 4 was the southernmost intervention on the site, explored the relationship between two larger enclosures at the top of the hill. In this trench a large shallow ditch was observed, as was a post hole, again indicating the possibility of structures or a fence line. This suggests that the larger enclosures were for livestock. In summary the excavations have revealed a potentially important early Bronze Age settlement on the edge of the North York Moors National Park.

The project actively engaged 497 participants, with 32 individuals taking part in the excavations and 465 in virtual activities. Opportunities provided access to a wide demographic of people, with 57% participating in archaeology for the first time. The virtual programme raised awareness to the archaeology of the region and to the NYMNPA to global audience, with many participants reporting a newly developed interest in the site and archaeology in general.

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1 INTRODUCTION

1.1 Project background

1.1.1 DigVentures was appointed by the North York Moors National Park Authority (NYMNPA) to undertake an archaeological trial trench investigation at Smeathorns, Moorsholm in the North York Moors National Park (NZ 67260 13602) (see Figure 1). Following analysis of LIDAR data, the North York Moors National Park Authority (hereafter the NYMNPA) have commissioned this community-led archaeological investigation to further inspect through trial trenching some possible prehistoric features discovered through LIDAR and a landscape survey. The overarching aim of the fieldwork is to help date and characterise aspects of these possible prehistoric features and to understand their relationship with one another.

1.1.2 Following consultation with NYMNPA, a Project Design (Teale et al 2022) was developed in-line with the MoRPHE framework (Historic England 2006). This provided the research aims and methodology used to deliver a field research project, encompassing excavation and assessment stage.

1.1.3 This document provides an assessment of field investigations at Smeathorns, Moorsholm (hereafter 'the site'), which took place between the 1st and the 12th of April 2022. This assessment report provides the results of the first season of fieldwork, giving baseline information to contribute to the future management, research, and presentation of the site, creating multiple educational and participatory learning experiences for community participants. Plans for further investigation in 2023 are underway and will be detailed in an Updated Project Design (Jackson, forthcoming).

1.2 The NYMNPA Historic Environment Strategy

1.2.1 The site at Moorsholm forms one of 20,000 sites of archaeological or historic interest within the National Park, and investigation at the site will contribute significantly to research and knowledge of prehistoric activities across the North York Moors. The Historic Environment Strategy is divided into four themes, which DigVentures will aim to address as follows;

- **Research and understanding** – the archaeological investigations and report will feed directly into the North York Moors HER database, helping the authority to make sound evidence-based decisions for future conservation works. The data from the site will also feed into the development and implementation of the new Research Framework for the moors, to better inform the next theme.
- **Conservation and management** – the archaeological investigations will help to understand the state of preservation for the supposed archaeological remains which will in turn help to understand the conservation and management needs of the site and its immediate environs.
- **Education and engagement** – a key part of DigVentures' ethos is education and engagement for all in archaeology. We actively seek to include local communities from all backgrounds and abilities in our excavations to help them discover and engage with their local heritage. Our excavation would strengthen participatory

engagement and involvement for the NYMNPA and encourage new visitors and new audiences to engage with the conservation of the park and its heritage.

- **Delivery** – the project will not only collaborate closely with the project managers and park rangers, but relationships with other stakeholders and associated projects within the NYMNPA will be sought so as best to fulfil the project brief and aims and to satisfy the nature of the investigations as thoroughly as possible.

1.2.2 The archaeological project at Moorsholm has the capacity to contribute to all the above objectives. Our proposed public engagement programme has raised awareness to the area, in terms of destination experience and utilising heritage as a draw for physical visitors and online tourists. The works will provide detailed information about the nature and character of the archaeological site, adding to our understanding of the remains and aiding ongoing management of the monument. The research findings will be evaluated within the broader context of other upland moor-based sites, as well as period-based comparators. Understanding how each site relates to one another and providing easily accessible information about the archaeology, will help increase knowledge of the historic environment. Finally, our full site archive will be available online and our work is very much undertaken in the spirit of open access and FAIR principles. On completion, the site archive will be prepared and deposited in full with the NYMNPA HER and appropriate bodies, and signposted from the site's OASIS record and our own website.

1.3 Location, topography, and geology

1.3.1 The site is located within a designated Site of Special Scientific Interest (SSSi) as the North York Moors contains the largest continuous tract of heather moorland in England and is of a national importance due to its mire and heather moorland vegetation communities and its breeding bird populations, in particular the merlin and golden plover. The site also forms part of the North York Moors Special Areas of Conservation (SAC) due to recovering areas of heath and blanket bogs, and part of the North York Moors Special Protection Areas (SPA) due to the presence of nesting merlin and golden plover. Due to this, an ecological walkover was undertaken prior to excavation and special care taken during excavation and reinstatement of turf and heather, including maintenance of the removed turf throughout the excavations.

1.3.2 The site is made up of moorland heather and tussocky grass with nesting birds and grazing sheep, and the topography of the site slopes gently down towards the north-west creating excellent visibility, ranging from approximately 225m above Ordnance Datum (aOD) to 200m aOD. The bedrock of the site is listed as Jurassic sandstone of the Osgodby member, with a thin band of Jurassic limestone and mudstone of the Cornbrash Formation in the very east of the site, with no recorded superficial deposits (British Geological Survey, 2022).

2 ARCHAEOLOGICAL BACKGROUND

2.1 Historic background

2.1.1 The North York Moors National Park (NYMNP) is an area of over 1400 square kilometres containing over 20,000 archaeological sites. The site at Moorsholm sits within an area particularly rich in prehistoric archaeology. Within a five-kilometre radius of the site there are 75 scheduled monuments with individual IDs (see Figure 3), of these most are noted as prehistoric and the vast majority are round barrows. Just over a kilometre away to the southwest is a Bronze Age round barrow sat on Quakers Causeway (SM No.1015447), and two kilometres to the southeast of site is Brown Hill, the location of Mesolithic flint scatters and several more Bronze Age round barrows. These barrows are visible all along the horizon when looking south from site. The site appears to sit on the edge of a funerary landscape, with Bronze Age barrows visible on the horizon (see Figure 4). This figure also shows how many of the scheduled monuments, predominantly round barrows have a view of the site. The prehistoric site of Danby Rigg (SM No.1018782) is located seven kilometres to the southeast of site, this is a similar prehistoric landscape made of field systems, enclosures, and funerary monuments from the Bronze Age.

2.2 Previous fieldwork

2.2.1 Prior to the work carried out by Solstice Heritage (Brightman 2018, 2019, 2020), limited investigation had been undertaken at the site. The site was included in the HER following assessment of the close spaced Sirius LiDAR and walkover survey which took place in advance of a moorland restoration programme including a part of the Smeathorns landscape (Brightman 2018). Following this survey, the landscape around site was prioritised for ground-truthing through walkover survey (Brightman 2019), it was this work that led to the site being a part of a more detailed measured earthwork survey (Brightman 2020).

3 PROJECT AIMS AND OBJECTIVES

3.1 Project model

3.1.1 The overarching aim of the archaeological excavation is to define and characterise several identified features in the site through a programme of intrusive excavations, obtaining data which will better characterise and understand the site. The goal of this work is to date and characterise aspects of the possible archaeological remains and immediate environs. This was a community archaeology project providing a range of physical and digital opportunities to encourage participation and access to the archaeology and research findings. The project model is framed as overarching aims and key questions/objectives that provide a framework for the methods, stages, products and tasks set out in Section 5 and Appendices 1 and 2 of the project design (Teale 2022).

3.1.2 Specifically, the project requirements were to:

- establish a date and sequence for the enclosure complex,

- investigate the hollow at the junction of Features D2 and D3 and establish whether evidence of a structure exists,
- establish the relationship and stratigraphic sequence between D2, D3 and potential associated features within the area of the hollow,
- investigate the nature and stratigraphic sequence of the earthworks D4 and D5,

3.2 Research aims

Aim 1 – Establish a date and sequence for the enclosure complex

3.2.1 A possible complex of late prehistoric enclosures was identified in Area A. Targeted trenching will address the following questions:

- Q1: Can the nature of the enclosures be established?
- Q2: Can a chronological sequence and stratigraphic phasing for the enclosures' archaeological evidence be established (assisted by investigating Aim 2)?
- Q3: Is there any evidence for multi-period occupation of the site?

Aim 2 – Investigate the hollow at the junction of Features D2 and D3 and establish whether evidence of a structure exists

3.2.2 Within the complex located in Area A, a set of earthworks indicate a series of roughly linked small enclosures, platforms and lynchets with evidence of phased development. A hollow in one of the earlier phases suggests the presence of a structure within the complex, and targeted trenching will address the following questions:

- Q4: Is the hollow at the junction of Features D2 and D3 evidence of a structure?
- Q5: Can dating evidence be gained through excavation?

Aim 3 – Establish the relationship and stratigraphic sequence between D2, D3 and potential associated features within the area of the hollow

- Q6: Can the nature of the earthworks D2 and D3 be established?
- Q7: Can a chronological and stratigraphic phasing of the features, the complex and the hollow be established?

Aim 4 – Investigate the nature and stratigraphic sequence of the earthworks D4 and D5

- Q8: Can the nature of the earthworks D4 and D5 be established?
- Q9: Can a chronological and stratigraphic phasing of the features, the complex and the hollow be established?

Aim 5 – Making recommendations, analysis and publication

3.2.3 This aim will require all data from Aims 1 to 4 to be collated, with an integrated analysis of the archaeological and palaeoenvironmental resource at the site, making recommendations to conserve, enhance and interpret the heritage significance of the site.

- Q10: What can an integrated synthesis of the results of this work with previous studies of contemporary regional sites tell us about the site and its setting?
- Q11: Considering evidence recovered from this and previous work, can we articulate the multi-phased use of the site and its immediate environs?
- Q12: Can we formulate recommendations for further archaeological and palaeoenvironmental analysis at the Site based on Aims 1-4, and implement a programme to publish and disseminate the results or continue fieldwork?

Aim 6 – Public engagement and communication

3.2.4 This aim is integral to the success of the project and sits with equal importance alongside our research aims. The excavation involved participation from volunteers, who were trained and mentored in the techniques of archaeological excavation. Our site team delivered an in-person programme at a ratio of 1:3 throughout the dig, with online social media updates to engage and inform the public about the archaeological discoveries. In summary, the project offered a range of opportunities for local community members and visitors to the area to get involved and learn more about the archaeology of Smeathorns and the North York Moors.

3.2.5 Over the course of the excavation, our target for engagement was to:

- train a minimum of 20 community volunteers in excavation and post excavation tasks
- broadcast online content across multiple social media channels
- provide access to our online course, *How To Do Archaeology* for 20 dig participants
- host an online site tour and Q&A session with the project team, to be released after the dig has closed, reaching an expected 120 individuals and a global online community.

4 METHODOLOGY

4.1 Topographic survey and GIS modelling

4.1.1 Topographical survey work was carried out using a Trimble Real Time Differential GPS survey system. The Trimble VRS system is used in conjunction with a GPS Rover unit. It allows for surveying without the use of a site specific fixed base station. This is achieved by connecting to Trimble's network of fixed base stations by means of

mobile phone communication. This method is highly efficient and accurate (+/- 2cm) when good signal is available. The survey data is exported from the data logger as a comma delimited file (csv) and a Trimble data collector file (dc). Either of these files can be imported into Trimble GeoSite Communicator, which recognises the feature code library and plots all strings, polygons and labels as intended. All survey and excavation data was stored within a GIS environment, which will remain the principle conduit for all spatial data throughout the project. Survey was undertaken to standards identified in best practice guidance, including HE Traversing the Past 2016 and HE Understanding the archaeology of landscapes 2017.

4.2 Archaeological excavation

4.2.1 In total, five trenches were excavated on the site (Figure 2). Trench 1, measuring 2 x 6m, targeted the hollow at the junction of features D2 and D3 to establish whether evidence of a structure exists. It also investigated the relationship and stratigraphic sequence between D2, D3 and any potential features discovered within the area of the hollow. Trench 2, measuring 2 x 4m, aimed to investigate the internal area of feature D4. This area is being targeted to look for any possible evidence of structures within the feature, hoping to characterise the function of the feature. Trench 3, measuring 2 x 6m, was aimed at the relationship between features D4 and D5. It investigated the nature and stratigraphic sequence of both features. It was also hoped that this trench will establish a chronological phasing of the features. Trench 4, measuring 2 x 5m, investigated the relationship between features D1 and D2. It targeted an area where the two features may interact and will investigate the nature of and chronological and stratigraphic sequences of the features. Trench 5, measuring 2 x 4m, targeted the ditch and bank on the south side of feature D4, this is where the ditch and bank are most intact, and as such it was hoped that the trench will establish a chronological and stratigraphic sequence of the ditch and bank, and characterise the construction of the features. A contingency trench (Trench 6) which targeted the internal space of enclosure D6 was not excavated. The location of the trenches is shown in Figures 1 and 2.

4.2.2 Turf and topsoil were removed by hand and all trenches were then cleaned, planned and photographed prior to further excavation. All archaeological deposits were excavated and recorded using a single context recording system. A representative section of the entire deposit sequence encountered was recorded. Interventions focused on feature intersections in order to establish relative chronologies, and 'clean' sections to maximise retrieval of stratigraphically secure dating evidence and environmental samples.

4.2.3 Full written, drawn and photographic records were made of each trench. Plans at a scale of 1:50 were prepared, showing the areas investigated and the location of contexts observed and recorded during the investigation. Sections and elevations of archaeological features and deposits were drawn as necessary at an appropriate scale (1:20 or 1:10). Drawings were made in pencil on permanent drafting film. Digital photography was used for all photography of significant features, finds, deposits and general site working. The photographic record illustrates both the detail and the general context of the principal features and finds excavated, and the Site as a whole. The drawn and photographic record was supported by 3D photogrammetric recording

throughout the different stages of the excavation as required, producing orthorectified imagery of significant deposits and features, mid-excavation and post-excavation final trench plans.

4.3 Paleoenvironmental sampling

4.3.1 All deposits with good palaeoenvironmental potential were sampled; context specific bulk samples were taken as appropriate under advisement from the project specialists and in accordance with the selection and categorisation criteria detailed in appendix 1 of the project design (Teale 2022). All aspects of the collection, selection, processing, assessment and reporting on the environmental archaeology component of the evaluation was undertaken in accordance with the principles set out in *Environmental Archaeology: a guide to the theory and practice of methods*, from sampling and recovery to post-excavation (English Heritage 2011) and with reference to the Association for Environmental Archaeology's Working Paper No. 2, *Environmental Archaeology and Archaeological Evaluations* (1995).

4.4 Artefacts and ecofacts

4.4.1 Finds were treated in accordance with the relevant guidance given in the Chartered Institute for Archaeologist's *Standard and guidance for archaeological field evaluation* (revised 2014), and the *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (2014), excepting where they were superseded by statements made below. Archaeological material was handled and sorted following advice in Watkinson and Neal (1998). All artefacts from excavated contexts were washed, counted, weighed, and identified. Finds recovered were assessed by appropriately qualified specialists, who examined the finds to provide an identification, date, and provenance of the material, and to also evaluate the significance of the assemblage.

Pottery

4.4.2 The pottery was recorded to comply with the requirements of the Study Group for Roman Pottery (Darling 2004) using codes and system developed by the City of Lincoln Archaeological Unit expanded to include local material (Darling and Precious 2014) The fabrics are further described below. Handmade feature sherds have also been recorded using the methodology developed by David Knight (1998). Vessels have been paralleled, were possible, to local publications. Tabulated dating summary, quantified lists of pottery by fabric and form and a full archive have been produced. The tabulated data is a key part of this report and is presented in Appendix B.

Lithics

4.4.3 The typo-technological classification follows standard recording procedures (Butler 2005; 2021; Inizan et al. 1999). A primary removal is a flake with at least half of the dorsal surface retaining cortex. A blade is a flake with length at least equal to twice its width; a bladelet is a small blade with a width less than 12 mm; and a blade-like flake is a flake exhibiting traits of a true blade (e.g. parallel margins, arises), but not fulfilling the metric criteria of a true blade. A chip refers to debitage or indeterminate fragments less than 10mm. A chunk is an indeterminate piece measuring equal or greater than

10mm (*cf.* Ballin 2000). All finds were quantified by count and weighed to the nearest 0.1g. Any metrical attributes were recorded after Saville (1980).

Charred plant remains and wood charcoal

4.4.4 The sediment samples were processed by flotation for the recovery of charred plant remains and wood charcoal using a flotation tank (a water separation machine). Any clay-rich samples were soaked in warm water for several days prior to processing. Each sample was first decanted into a 500µm mesh within the flotation tank, allowing much of the sand, silt and clay to be washed away. The sample was agitated gently by water jets and by hand (while wearing gloves) to break up larger clods of sediment, until the heavy residue remaining in the tank mesh was clean. The water level was then raised to allow floating material to flow over a weir into a 250µm mesh, which was hung up to air dry. The heavy residues were spread out in trays lined with 500µm mesh to dry, and were later sieved into >4mm, 2-4mm and <2mm fractions to check for finds, magnetic material, charred plant remains, charcoal and other ecofacts. In total 98l of sediment were processed in this way. Flotation was carried out by members of the SAC team (Dr Victoria Knowles and Miguel Ripoll Amodia).

4.4.5 The samples were assessed in accordance with Historic England guidelines for environmental archaeology assessments (Campbell, Moffet and Straker, 2011). A preliminary assessment of the samples was made by scanning using a stereo-binocular microscope (x10 - x65) and recording the abundance of the main classes of material present. All material found in the samples was quantified using a scale of abundance (- = < 10 items, + = 10-29 items, ++ = 30-49 items, +++ = 50-99 items, ++++ = 100-499 items, +++++ = > 500 items). Preliminary identifications of plant remains were carried out by comparison with material in the reference collections at the Department of Archaeology, University of Sheffield, and various reference works (e.g. Cappers, Bekker and Jans, 2006; Jacomet, 2006). Cereal identifications and nomenclature follow Zohary, Hopf and Weiss (2012) and other (wild) plant nomenclature follows Stace (2019). The abbreviation 'cf.' here means 'compare with' and is used where identifications are uncertain owing to poor preservation.

5 EXCAVATION RESULTS

Nat Jackson

5.1 Introduction

5.1.1 From the 1st to the 11th of April 2022, DigVentures staff alongside a team of volunteers excavated a site in the North York Moors National Park, near the village of Moorsholm (Figure 1). A total of five trenches were opened each targeting specific aims set out in the project design (Teale 2022) (Figure 2).

5.2 Trench 1

5.2.1 Trench 1 targetted a hollow seen between area D2 and D3 identified through the earthwork survey carried out by Solstice Heritage (Brightman 2020) (Figure 5). Upon the removal of the turf and topsoil (1001) and subsoil (1002) it was noticed in the NW

of the trench, the area at the base of the hollow, that there were more larger stones present and a darker silt deposit. This is likely due to material washing down into the hollow. The earliest and only feature present in Trench 1 was a pit in the SW corner of the trench (F101). The function of the pit is not clear. One suggestion is that it may have been a watering hole as at the base of the pit it hit the water table. Another possibility is that it was for storage or rubbish, however the lack of artefacts within it indicated that it probably was not the latter. Following the abandonment of the feature a series of silting events took place throughout the trench, this was where most of the finds were recovered. These finds comprised of a handful of lithics (6 pieces) and most of the pottery discovered on site (17 fragments).

5.3 Trench 2

5.3.1 Trench 2 targeted the inside of enclosure D4 (Figure 6). After the removal of the topsoil and subsoil the trench was thoroughly cleaned and no features were seen. However, within the cleaning layer, and directly above the natural, several lithics were discovered (14 pieces). Of these pieces the most notable was a tanged arrowhead dated to the very late Neolithic or early Bronze Age.

5.4 Trench 3

5.4.1 Trench 3 investigated the north-eastern bank between the two enclosures (Figure 7). Following the excavation of the topsoil, subsoil, and upper silting layers two ditches were revealed. One of these respected the bank seen in the south of the trench F302, the other was running more from the NE to the SW and downslope, F301. Trench 3 was by far the most fruitful with regards to finds with over 120 lithics being recovered and a handful of pottery (6 pieces). The pottery is likely residual and to have washed down slope. There were some lithics found within the ditch fills, one of which was given a special find number (SF26) due to it being at the very base of the ditch F302.

5.5 Trench 4

5.5.1 Trench 4 targeted the relationship between features D1 and D2, it is located in an area where the two features may interact. After the removal of the topsoil (4001) and subsoil (4002) two features were identified within the trench (Figure 8). These were F401, a ditch which ran roughly north to south and was aligned with the bank of feature D2. This ditch was cut by a post hole F402, which was seen in the centre of the trench. The presence of a post hole may indicate a structure, however it seems more likely that it is a fence running along the inside of the ditch F401. There were 21 probable lithics recovered from the trench, of which one was given a special find number, SF29, it is likely to be a flake. A single piece of pottery was recovered from the trench.

5.6 Trench 5

5.6.1 Trench 5 investigated the outside of enclosure D4 and was parallel with Trench 2 (Figure 9). Its main aim was to characterise the construction of the ditch F501 and associated banks on either side. After excavation it can be concluded that the ditch was dug, and the banks were made from the upcast material (5006). The ditch was cut through a very clean sandy natural (5007). There were two fills present within the feature, (5004) was the basal fill and likely represents silting whilst the ditch was open.

(5003) was the upper fill, this is probably the silting that occurred post abandonment. There were very few finds from the ditch, only 4 lithics coming from (5004). These could be important in dating the feature however as there were so few finds they could be residual. In the southern end of the trench there was a gully F503, and post hole F502. The gully appears to be running into the ditch F501, it was truncated by the posthole F502. This may suggest that there was a structure present in this area, however a single post hole is not conclusive evidence. It may be that there was a gully demarcating an area which was then superseded by a fence line, hence the post hole cutting through the gully fill.

6 ARTEFACTS

6.1 Summary

6.1.1 The excavations at Smeathorns yielded an assemblage of 42 sherds of pottery (Appendix B) and 230 lithics and pieces of burnt flint (Appendix C) and recovered six environmental samples (90 litres) (Appendix D).

6.1.2 The finds recovered from the excavations have greatly increased the understanding of the character of the site and provided preliminary dates to the occupation of the site and subsequent activity occurring there. The finds assemblage has been assessed by the appropriate specialists and several finds have been conserved. The results are discussed below.

6.2 Pottery

Ian Rowlandson

Introduction

6.2.1 Forty two sherds (0.210kg, 0.31 RE) from a maximum of 22 vessels were presented for study. The pottery presented for study from this site was almost exclusively retrieved from layers, mostly topsoil and subsoil deposits. A small proportion of the pottery recovered consisted of wheel made reduced ware, Crambeck type grey ware and Crambeck mortaria. All of these fabrics are typical of late Roman sites in this area (eg. Hornsby and Stanton, 1912; Willis and Carne (eds) 2013). The majority of the sherds were small vesicular and predominantly handmade sherds. A proportion of this vesicular material may have been of later prehistoric or more probably Roman date including fragments from at least one jar with a tall everted rim. Much of the vesicular handmade pottery was probably of earlier prehistoric date and may have relate to some of the earlier features recognised in the area. The condition of the material and the near complete absence of feature sherds precluded attributing a close date to a number of the handmade sherds. The small quantity of pottery present suggests the possibility of a Roman settlement in the area and earlier prehistoric activity.

The pottery by fabric

Mortaria

6.2.2 MOCA- Crambeck Mortaria (Tomber and Dore 1997, CRA PA). Heavily abraded sherds from one, or a maximum of two, mortaria were recorded in the typical Crambeck fabric with slag trituration grits. Rim fragments and simple spout were recovered from context 1002 find spot 19. The vessel would fit with Corder's Type 6 form with a reeded rim (see Wilson (ed) 1989). Body sherds were also recovered from context 1005 findspot 24. It was not certain if these sherds were from the same vessel. Mortaria of this type are typically dated to the later 3rd to 4th century AD.

Reduced wares

6.2.3 GREY?- Miscellaneous quartz-gritted Roman grey wares. A single burnt sherd in this fabric group was retrieved from context 1002

6.2.4 CRGR- Crambeck Reduced ware (Tomber and Dore 1997, CRA RE).A single small fragment of Crambeck grey ware was recovered from context 1007. This sherd dates to the later 3rd to 4th century AD.

Coarse gritted handmade wares

6.2.5 ETW2 - Handmade Iron Age tradition wares with coarse rock-grits. A single sherd including igneous rock was recorded from context 1002. Dating these sherds is notoriously difficult and a prehistoric to earlier Roman date may be possible for this single sherd.

6.2.6 CALG – Iron Age or Roman tradition calcareous-gritted fabric. A limited number of vesicular sherds were retrieved from the project and many were stratified with Roman pottery. Thin walled handmade jar with a tall everted rim similar to examples from later Iron Age to Roman sites (see discussion in Rowlandson and Fiske 2021, JEVT p120; eg. Evans 1999, G28-J04). Featureless bodysherds of this type may date from the Iron Age to Roman periods as Huncliff ware body sherds often look similar to this material.

6.2.7 EP/EP?- Possible earlier Prehistoric material. Nearly all of the sherds attributed to this group were vesicular, probably as a result of the loss of calcareous inclusions. Most of the sherds were thin walled and may possibly have been of Bronze Age or perhaps first millennium BC date. Sherds with a fine sand-gritted fabric from context 1003 were the only other fabric type noted.

Discussion and conclusion

6.2.8 Little can be said about this small assemblage as few of the sherds appear to have been stratified in features and most were in poor condition and removed from soil layers. The range of material suggests some activity on the site in the late Roman period with a small proportion of the pottery that may relate to the prehistoric activity on the site. If further excavations on the site are delivered, it is recommended that the pottery from each season should be assessed and consideration given to publication

of a final report at the end of the project when larger assemblages would be available for study.

6.3 Lithics

Joshua Hogue

Introduction

6.3.1 In total, 200 lithic artefacts, 22 burnt unworked flints, and 5 naturally broken/unmodified stone were recovered from community-led archaeological investigations at Smeathorns, Moorsholm. A breakdown of the assemblage is quantified by artefact type in Table 10. An archive catalogue is given in Appendix C. The assemblage principally dates from the later Neolithic/early Bronze Age, but also includes some evidence of residual Mesolithic activity.

Results

6.3.2 The density of humanly struck or intentionally modified flints (n=200) was strong considering the relatively limited scope of interventions. Most of the finds were recovered from Trench 3 (n=151), which may suggest some concentration of activity in this area. Most of the worked flints have no signs of edge damage or only light edge damage characterised by isolated or small discontinuous nicks, indicating that the assemblage was subject to some limited movement and/or re-arrangment, although this may have been broadly contemporary with the initial deposition occurring during discard.

6.3.3 Many of the worked flints had no patina or only a lightly developed patina characterised by a dull film restricted to the edges and arises, or slight mottling of the surface. Many of the other flints have a more strongly developed patina covering most of the surfaces and obscuring the colour of the flint. There is not a clear correlation between the degree of patination and the age of the find, conversely the degree of patination appears largely to be related to the raw material on which the artefacts were manufactured.

6.3.4 Many of the lithic artefacts were made on a light grey/mid grey flint with mottling and chalky inclusions, with a thin, heavily battered cortex, probably derived from locally available secondary sources such as boulder clay flint from Northeast Yorkshire. A range of other colours were also noted, including white, pale brown/yellow, and reddish brown/red, which is generally consistent with the diversity observed amongst secondary sources. A distinctive dark grey/black flint with a thick, buff coloured, cortex was also noted, which more likely derives from a primary source, possibly from bedrock sources much further afield.

6.3.5 Many of the worked flints had evidence of burning (n=50) and many other burnt flints were recovered but these lacked any clear signs of having been struck (n=22). No burnt sediments were reported and consequently these finds may have been burnt before deposition.

Mesolithic

6.3.6 The only certain Mesolithic flint was a microlithic transverse arrowhead (as known as a micro petit tranchet) from colluvium (3004) in Trench 3.

Later Neolithic/Early Bronze Age

6.3.7 A Levallois-like discoidal core was recovered from colluvium (3005) in Trench 3. Even though the Levallois-like approach is chronologically distinctive of the later Neolithic in generally the technique has been poorly described and it is still unclear if the chronological timeframe of this artefact type can be more clearly refined and dated more precisely (Ballin, 2012). Especially pervasive in Yorkshire (Moore 1964) it is found at numerous sites in the region in correlation with Grooved Ware (Manby 1974), Levallois-style cores have been more rarely found in association with Impressed Ware (e.g. Johnson and Ballin 2006).

6.3.8 A Sutton arrowhead (type A; SF20) made on a distinctive dark grey/black flint was recovered from subsoil horizon (2002) in Trench 2. Sutton points appear ubiquitous throughout the Early Bronze Age, commonly associated with Beaker 1/2 through 6 pottery styles (Green 1980; Ballin 2021). A thumbnail scraper (SF12) was recovered from subsoil (3002) in Trench 3, mostly commonly these types have been considered synonymous with the Early Bronze Age (Butler 2005; Ballin 2021). A bipolar core (SF10) was recovered from the same layer although not diagnostic per se they are typically more common amongst Bronze Age assemblages (ibid). A discoidal scraper (SF25), seemingly made on the same distinctive raw material as the arrowhead, was recovered from fill (3009) of drainage ditch F302. It is also typo-technologically consistent with dating from the Early Bronze Age.

Discussion and conclusion

6.3.9 The above assessment indicates the presence of technology consistent with the Mesolithic and later Neolithic/Early Bronze Age was recovered from recent excavations at Smeathorns (Moorsholm, North York Moors National Park). Most, if not all, of the material does not appear to have moved far and may not have travelled far from its place of discard. Most of the diagnostic finds date from the later Neolithic/early Bronze, although the recovery of a single microlith indicates that the site was the focus of at least some transient activity during the Mesolithic. Evidence of knapping activity was recovered suggesting that the site was not only the focus of extractive activities (e.g. hunting) but also the manufacture of tools. The assemblage helps to establish a date and better understand the sequence of activity at the site (Teale, 2022).

6.3.10 The lithic assemblage and its assessment contribute towards the partial fulfilment of the project research aims (Teale, 2022). It helps to develop understanding of the chronological narrative of the site and enhances the understanding of the current state of the archaeological record and survival of the earliest artefacts. Further study would help to better characterise the assemblage and offers an opportunity to better understanding the nature of later Neolithic/early Bronze Age occupation.

7 ECOFACTS

Emily Forster

7.1 Introduction

7.1.1 Excavations were carried out by DigVentures and volunteers at a site near Moorsholm on the North York Moors (MOO22, approximate NGR: 467310 513540) in April 2022. Five trenches were excavated in total, during which pits, ditches and postholes, together with possible tree throws and geological features were recorded. Lithics and pottery were recovered from various features, including an arrowhead identified as late Neolithic/Early Bronze Age (Trench 2), a probable flint flake (Trench 4) and Romano-British pottery (Trench 1)(DigVentures, 2022). In total, six bulk sediment samples were submitted to SAC (Sheffield Archaeobotanical Consultancy) for processing by water separation and assessment of the light (flot) and heavy residues for artefacts and ecofacts. Samples were taken from Trenches 1, 3, 4 and 5 and ranged in volume from 6-20l, with an average of c.16l.

7.2 Aims and objectives

- To determine the concentration, diversity, state of preservation and suitability for use in scientific dating, of any palaeoenvironmental material present in the samples.
- To evaluate the potential of any palaeoenvironmental material to provide evidence for crop plants and/or wild plant foods.
- To evaluate the potential of any palaeoenvironmental material to provide evidence for the nature of the local environment.
- To establish the (approximate) composition of heavy residues and record any potential finds present, in addition to palaeoenvironmental material

7.3 Results

Preservation

7.3.1 Table 11 (Appendix D) lists the samples processed through flotation, together with feature and context information. The original sample volumes, flot volumes (with and without modern root material) and composition of the samples are recorded in Table 12 (Appendix D). Data are arranged by feature number (i.e. the feature filled by the context/sample) in ascending order. Four of the samples are from ditch fills, one from a pit and one from a posthole cutting a ditch/ditch fill. The flots range in volume from <0.5ml to 15ml, excluding uncharred, probably modern, root material, which makes up a substantial proportion of each sample (Table 12, Appendix D). Flot sizes are very small, with only sample <2> (3008) exceeding 5ml in volume. The presence of large volumes of roots in most samples, together with a worm egg capsule in <1> (1004) and a fragment of insect larva in <6> (4006), indicates that the sampled contexts have been subject to bioturbation. Wild/weed seeds are present in four of the samples, but some of these appear uncharred and could be modern/intrusive. Other charred plant remains are rare and generally poorly preserved (see below).

7.3.2 All of the archaeological plant macrofossils and wood from Moorsholm are charred; there is no evidence of waterlogged/anoxic preservation or mineralisation. Some of the wood charcoal and other charred plant remains are encrusted with sediment, making further identification difficult.

Charred plant remains

7.3.3 Remains of possible food plants are limited to *Hordeum* sp. (barley) grains, a single *Vicia/Lathyrus* seed (vetch/vetchling – a pulse) and fragments of endosperm – the latter are most likely from the interior of a cereal grain but cannot be identified further. There is a single barley grain in sample <1> (1004) and one hulled barley plus one cf. barley (uncertain owing to poor preservation) in <3> (3009), which also contains unidentifiable endosperm. Endosperm is also present in <2> (3008), <4> (4008) and <6> (4006). The vetch/vetchling seed is in <4> (4008). Weed seeds, some of which may be charred as opposed to uncharred/modern, include *Medicago/Trifolium* type (medick/clover), *Ranunculus* (buttercup genus) and cf. *Dunthonia decumbens* (heath grass). Samples <1> and <3> also contain fragments of charred rhizome (root stock). There are no obvious differences between feature types and remains are sparse. The very small number of seeds recovered, together with the evidence for bioturbation, means it is uncertain whether the charred plant remains are contemporary with the contexts from which they were recovered; they could all be intrusive from overlying deposits. Direct radiocarbon dating of the barley grains might be possible, but the material is not well preserved and it is not unusual to find barley at prehistoric or later sites in the UK; dating is likely to be of limited value, particularly considering the costs involved.

Wood charcoal

7.3.4 Wood charcoal is present in all of the samples, but none of the flots has more than 100 fragments >2mm in diameter present; this means the flots are not suitable for further analysis, although sample <2> (3008) is markedly richer than the others. No obvious examples of roundwood (for radiocarbon dating) are present in the flots. However, the 2-4mm fractions of the heavy residues for samples <1> (1004), <2> (3008) and <3> (3009) contain at least 100 fragments of charcoal per sample (Table 13, Appendix D); if refloated, the residues might contain sufficient material for charcoal analysis and possibly radiocarbon dating, although as some of the charcoal is encrusted identification/further analysis might be difficult. Wood charcoal analysis has the potential to provide an insight to the type of woodland/scrub growing in the area and of exploitation of resources in relation to the archaeological features/finds. As mentioned above there might also be material suitable for radiocarbon dating if required, though considering the evidence for bioturbation and the quantities of modern material present in most samples, contamination is quite likely.

Heavy residues

7.3.5 Table 13 (Appendix D) shows the volumes and contents of the >4mm, 2-4mm and <2mm fractions of the heavy residues. As mentioned above, the 2-4mm fractions of some of the residues are rich in charcoal compared to the flots. The residues are mostly comprised of stones/pebbles including sandstone and some quartz. Possible CBM/ceramic fragments are present in all of the samples bar <1> (1004), though these

are mostly indistinct and may be fragments of burnt clay or another material occurring naturally in the area. Tiny chips/pieces of flint and chert are present in all of the samples with the exception of <5> (5003); these may be debitage from knapping or possibly even microliths in some cases but would need to be examined by a flint/stone tool specialist together with a possible piece of obsidian in <2> (3008). Magnetic material was found in all of the samples and in most fractions, including probable haematite in <3> (3009).

7.4 Summary

7.4.1 Plant remains are rare and generally poorly preserved within the samples from Moorsholm, consisting of a total of two to three barley grains, one vetch/vetchling seed and a small number of weed seeds (Table 12, Appendix D). These taxa are not unusual for prehistoric or later sites in Britain. It is possible that sampling larger volumes of sediment might have yielded more charred plant remains (e.g. 40-60l samples), but concentrations of grain/seeds are very low and the high volume of uncharred, modern root material suggests substantial bioturbation, making contamination likely. Wood charcoal is also rare in most of the flots, but is better represented in the heavy residues from the site: samples with more than 100 fragments of charcoal >2mm (i.e. the 2-4mm and >4mm fractions combined) may be suitable for further analysis and radiocarbon dating if required, which could provide an insight to the type of local woodland/scrub present and the use of resources at the site.

8 PUBLIC IMPACT

Johanna Ungemach and Nat Jackson

8.1 Introduction

8.1.1 This section details a rapid assessment of the social impact of the excavation at Smeathorns, Moorsholm and its public programming for visitors and project participants over the course of April 2022. DigVentures defines social impact as a measure of the positive and negative primary and secondary long-term effects produced by the programme, whether directly or indirectly, intended or unintended, over and above what would have happened in the absence of the project initiative. Results were analysed using a bespoke social impact methodology, drawing on DigVentures' Theory of Change and Standards of Evidence framework (Wilkins 2019, 77; Wilkins 2019, 30).

8.2 Public programming

8.2.1 A carefully designed mix of professional excavation and public participation was programmed over the course of the nine-day project, creating a breadth and depth of participation opportunities from site visits to structured field training. This blended model comprised two weeks dedicated to servicing a research brief with participation and training of venturers in the trench underpinned by a curriculum guided by National Occupational Standards:

- Excavation training for adults (1st and 11th April) – 32 participants
- Virtual event about the findings of the excavation (27th April) – 465 participants
- Digital engagement strategy for the wider community

8.2.2 A live interview with Rachel Teat for the breakfast show on BBC Radio Tees (135,000 weekly listeners) took place on the 11th of April, giving an update on what was found on site. The interview also went out on BBC Radio York (66,000 weekly listeners) later that day. Following the excavation news articles about the dig featured in Current Archaeology (45,000 readers) in the July edition of the magazine (CA388), it is also available online here, the Yorkshire Post (105,000 readers) and the Darlington and Stockton Times (58,000 readers).

8.2.3 A 'light' online strategy was implemented to amplify the social footprint of the project. This included posting key developments on social media and on the project timeline, to keep the primary audience of dig participants, as well as the NYMNPA and DigVentures followers informed. It did not include a 'full' online strategy aimed at achieving the widest possible local or national coverage as this was not within the remit of the project or available team resources. Social media posts during the dig at Moorsholm made a total of 144k impressions on Facebook and Twitter, reaching a minimum of 21k individuals on Facebook and 6k individuals on Twitter. Whilst these results demonstrate a public appetite for the Smeathorns project, any evaluation of social impact needs to go beyond a list of output numbers of participants and visitors (Gould 2016). DigVentures has developed a bespoke evaluation methodology for measuring the social impact of public archaeology programmes and this is discussed in specific relation to Smeathorns further below.

8.3 Evaluation methodology

8.3.1 The Smeathorns audience was separated into two broad categories: project participants, who joined the excavation in person, and virtual participants, who attended the digital event, with all the opportunities delivered free of charge. DigVentures have developed a methodology for measuring the social impact of archaeology programmes for both project and online participants, pictured as a Theory of Change detailing outputs, outcomes and impacts (see Figure 14). In this framework, social impact can be conceived as the difference that activities make to people's lives over and above what would have happened in the absence of that initiative. Outputs are a measurable unit of product or service, such as a community excavation; outcomes are an observable change for individuals or communities, such as acquiring skills or knowledge. Impact is therefore the effect on outcomes attributable to the output, measured against two metrics: scale, or breadth of people reached; and depth, or the importance of this impact on their lives.

8.3.2 The credibility of a Theory of Change rests on the level of certainty that organisational activities are the cause of this change. For this certainty to be achieved, the correct data must be collected to isolate the impact to the intervention. The DV Theory of Change is therefore linked to a Standards of Evidence framework designed to articulate and highlight the causal links between activity and change. These tools are

then used to create a bespoke, project specific evaluation table linking activities, outputs, outcomes and evidence base (**Error! Reference source not found.**Figure 15).

8.3.3 In support of this overarching methodology, two slightly different data collection strategies were undertaken for project participants and virtual participants; in-person participants were interviewed pre (94% completion rate, or 30 in total) and post dig experience (81% completion rate, or 26 in total), and virtual participants completed a questionnaire upon booking a space for the event (78% completion rate, or 363 in total). The age, gender and professional background of participants was derived through digital analytics, with categories derived from the Office for National Statistics. At this stage, the report only focuses on output numbers and socio-economic distribution of participants. The final evaluation report will include a more in-depth analysis designed to reveal 'whether or not people will have learnt about heritage, developed skills, changed their attitudes and/or behaviour, and had an enjoyable experience'. The output numbers for excavation participants are discussed below.

8.4 Social impact – excavation participants

8.4.1 To ensure that 'a wide range of people will be involved in archaeology and heritage', people were invited to actively participate in the excavation free of charge. All the work happening in the trench followed DigVentures' CIfA-endorsed Field School curriculum.

8.4.2 The project presented an opportunity for the Venturers to take part in an archaeological excavation from start to finish, beginning by deturfing by hand to comply with SSSI conditions to recording the archaeology over the course of the excavation. DigVentures' archaeological curriculum is designed to ensure that anyone joining receives structured learning and can develop their skills incrementally. All our field training is designed in line with National Occupational Standards (NOS) and all participants are encouraged to record their progress in learning new skills. This means participants were able to use tools such as the CPD Skill Passport to track their progress.

8.4.3 Gender profiles for participants were broadly balanced, with 53% female and 47% male. All participants were between 18 and 74 years old and represented a variety of full-time occupations (50%) and retirees (20%). The remainder were students, either of compulsory educational age or those attending university (27%), or people in long-term unemployment (3%). Figure 12 illustrates that digging opportunities were taken up by a significant number of economically inactive people, as well as people under 45 years (40%) (see Figure 12). Examples of full or part time profession included accountant, analyst, builder, café assistant, civil servant, doctor, heating engineer, smallholder tutor, visitor assistant, university teacher, video editor and warehouse worker. Taking this into consideration, almost all age groups and many socio-economic backgrounds were represented in the data, with a marked improvement on existing community archaeology provision compared with the typically retired, over 65 local civic society groups (Wilkins 2020, 33).

8.4.4 Although the majority (65%) of excavation participants live within 50 miles of the site, the geographic distribution of participants is spread more widely. Participants joined

the project from the immediate locality (16% of participants drove no further than 10 miles to take part in the project), but also nationally (23% of participants having travelled 100 miles or more to have the opportunity to take part in the excavation), with one participant having come all the way from the Isle of Man (see Figure 12).

8.4.5 In addition to widening the demographic and socioeconomic range of participation (when compared to existing community archaeology provision), the project attracted an overwhelmingly new audience for archaeology, with 57% of participants having never taken part in archaeology activities before (see Figure 12).

8.5 Social impact – virtual participants

8.5.1 To reach a wider audience for the Moorsholm project, a virtual summary of the excavation was presented on April 27th, resulting in a total of 465 bookings. When booking a virtual ticket, people were asked to complete a short questionnaire to understand the socio-economic background of participants. When analysing the socio-economic background, it needs to be taken into consideration, that it might not be a true representation of the audience. The person who booked a space is likely to be the one who filled in their information, but they may have watched the event together with several other people – friends or family members – who would have provided different information. Over a third (37%) of people who booked a virtual ticket did not join the live event, but rather chose to receive a recording that they could watch in their own time (see Figure 12). This was especially useful for participants from oversees.

8.5.2 Most people who booked tickets for virtual events preferred the pronouns she/her (69%), and 1% each use the pronouns They/Them or She/Her/They/Them. Tickets for the virtual tour were also primarily booked by people over the age of 45 (82%). The virtual audience members represented a variety of full-time occupations (44%) and retirees (46%). The remainder were students, either of compulsory educational age or those attending university (7%), or people in long-term unemployment, carers, or homemakers (3%) (see Figure 12). The virtual opportunity was taken up by a number of people with lower income and of a variety of occupations, examples of which include academic, accountant, analyst, auditor, author, cattery owner, chaplain, chef, civil servant, cytotechnologist, engineer, farmer, forester, gardener, gas technician, lawyer, librarian, midwife, music composer, nurse, painter, pilates instructor, pilot, psychologist, sales assistant, science journalist, software developer, teacher, tour guide and yoga teacher. Taking this into consideration, all age groups and different socio-economic backgrounds were represented in the data, albeit not equally.

8.5.3 The geographical distribution of digital participants presents a stark contrast to that of the in-person excavation participants (see Section 8.4.4). This virtual component of the zoom offer removed geographical barriers of access and made the experience more inclusive, which is shown in 29% of the bookings coming from outside the UK and 70% of the bookings being done by people living more than 100 miles from the site. In comparison, only 2% of digital participant live no less than 10 miles from the site (see Figure 13). Overall, the virtual offers reached not only people from the European continent, but from all six inhabited continents and made them aware of the archaeology at Moorsholm. Tickets were booked by residents of 16 different

countries, namely Australia, Canada, Colombia, France, Germany, India, Indonesia, Ireland, New Zealand. Norway, Slovakia, South Africa, Spain, Switzerland, the United Kingdom (including Isle of Man) and the United States (including Northern Mariana Islands) (see Figure 13). A third of people who booked a ticket for the virtual event (33%) were new to archaeology and stated that they had never done archaeology before (see Figure 12). The virtual tour was further an opportunity to build a bigger audience for archaeology in general, with 82% of respondents expressing their wish of being informed about upcoming events (see Figure 12).

9 DISCUSSION AND CONCLUSIONS

9.1.1 The overall aim of the fieldwork carried out in 2022 was to explore what had been discovered firstly in the LIDAR study and the following walkover survey by carrying out a programme of intrusive excavation. From the excavations it was hoped to determine a chronology and function of the site and to determine its preservation.

9.2 Chronology

9.2.1 Prior to this investigation, the earthworks at the site were thought to be late Iron Age or Romano-British. Whilst there was a handful of fragments of Roman pottery, these were highly degraded and likely to have washed in from elsewhere. It is probable the Roman pottery didn't travel far, and so there is likely a Roman presence on the site. Most of the artefacts recovered were worked lithics (n:200), these indicate that there were people living at the site in the Neolithic and Bronze Age. The results of the assessment of the lithics concluded that the material principally derives from the later Neolithic and early Bronze Age but includes some residual Mesolithic activity. From the 42 fragments of pottery recovered on site, over half of them are potentially handmade early prehistoric fragments (N:22), the rest have been dated predominantly to the late Roman period.

9.3 Function

9.3.1 Previous work at the site had suggested the earthworks were the remnants of a late Iron Age or Romano British farming settlement (Brightman 2020). This however seems not to have been the case, at least in the area that was investigated in the 2022 season. The single microlith discovered may suggest that there was activity, possibly a camp, in the Mesolithic, the likelihood of discovering this seems minimal. Some caution needs to be taken when making this interpretation as the evidence is only coming from a single artefact. As stated in the previous section (Section 9.2), the site was occupied in the late Neolithic and early Bronze Age.

9.3.2 The excavation of the internal area of one of the enclosures (D4) revealed no features, however as the trench was small it is possible that these had been missed. If there were no features within the enclosure it may indicate that this was for keeping animals in, maybe a sheepfold. This enclosure was surrounded by ditch and bank, and so it seems likely that it was either for keeping something in or keeping something out.

9.3.3 The ditches observed in Trench 3 respected the northern bank of D4. They are also probably enclosure ditches but may also be for drainage as they are running downslope and away from the settlement.

9.3.4 The presence of many unabraded flints, including many associated with production would suggest that there were people at least working at the site in the early Bronze Age. Unfortunately, due to the poor preservation of animal bone it can't be determined whether the enclosures were for livestock or occupation. Further excavation at the site may help to determine this.

9.4 Preservation

9.4.1 The onsite preservation of materials was mixed. No animal bone was recovered during the excavations, this is likely due to the acidity of the soil and thus none survived. The pottery easily disintegrated upon excavation, it is possible that they were heavily worn through movement, none of the pottery was recovered from its primary context, all were found in probable hill wash deposits. The poor preservation of the pottery may also have been caused by the acidity of the soil. In contrast the lithics recovered from the site were very well preserved, with very little edge damage present, suggesting that if there was any movement of this material it was likely over very short distances and roughly contemporary with its production.

9.4.2 The preservation of the features on the site were overall very good, limited damage had occurred, with extant ditches and banks, and despite the shallow coverage of the topsoil features were clearly visible upon excavation, both archaeological and natural. Once the topsoil and limited subsoil had been removed it was possible to see natural hollows, shallow scoops, where hill wash or buried soils had been preserved.

9.5 Conclusions

9.5.1 While the function of the site at Smeathorns is still relatively unclear it can be said with some certainty that the earthworks there are associated with a previously unknown late Neolithic or early Bronze Age settlement. The number of unabraded lithics, both debitage and tools, recovered from the site indicate that people were at least working on the site during the period. The pottery recovered was a lot more abraded but that may be due to the poor preservation conditions of the soil on the site. The ceramics indicate that there was occupation in both the early prehistoric and the late Roman periods.

10 RECOMMENDATIONS

10.1.1 The following are recommendations for future work which could be carried out. These involve future excavation and further analysis of the recovered archive.

10.2 Excavation

10.2.1 It is recommended that further excavation is carried out at the site, this would involve opening larger trenches over enclosures to find more evidence pointing towards a settlement rather than a transient camp. It would also be pertinent to look at the potential round barrows that are on the site, to investigate whether these are related to the settlement, and to attempt to date these features. It would be relatively safe to assume that they are of the same the date as the enclosures given that other round barrows in the area are from the Neolithic or early Bronze Age. Finally, as excavation of late Neolithic sites is fairly rare this gives a brilliant opportunity to learn more about the people living at the site. What we have recovered so far is just a glimpse into what we may have.

10.3 Artefacts

10.3.1 It is recommended that further analysis is carried out on the lithics and, should additional material be recovered in the future, that the pottery is analysed as part of a larger group. For the lithic assemblage, detailed attribute and metric analysis, description of the raw material, description of the modes of reduction, description of the tools and evidence of use, and finally a discussion of the assemblage in relation to relevant local and regional assemblages. It is also recommended that select artefacts are illustrated and disseminated as part of an analysis report.

10.4 Ecofacts

10.4.1 Considering the very small quantities of material and limited diversity, there is no possibility of further analysis of the charred plant remains from any of the Moorsholm samples. Wood charcoal analysis and radiocarbon dating of material from the heavy residues of samples <1> (1004), <2> (3008) and <3> (3009) may be possible (Table 13, Appendix D) if this is of interest in relation to the archaeological finds and features, although as with the charred plant remains, the degree of bioturbation means there is a possibility of contamination with more recent material. Samples <2> and <3> may be of more interest than <1> considering that these are from Trench 3, which yielded most of the lithics and ceramics during excavation (DigVentures, 2022). As the primary fill of a ditch, sample <3> is perhaps the least likely of the three to be contaminated, although the volume of roots in the flot was substantial (100ml compared to 4ml of charred material).

10.4.2 As part of future investigation, suitable material from secure contexts could be subject to C14 dating. On prehistoric sites when the predominant finds are lithics, organic material including charred plant remains and burnt wood, has the potential to provide absolute dates and support understanding of the chronology and phasing of the site.

10.5 Public engagement

10.5.1 The project actively engaged 497 participants, with 32 individuals joining our professional team in the trenches and 465 taking part in virtual activities. The opportunities provided access to wide demographic of people, with 57% taking part in archaeology for the first time. The virtual programme significantly widened the audience for the site, with 30% of digital participants coming from non-UK locations. The virtual tour raised awareness to the archaeology of the region and to the work of the NYMNPA to a far bigger audience, many of whom reported their interest in the site and archaeology in general. The success of the community engagement programme demonstrates the value and impact that archaeological opportunities can have, and should remain a key part of the project in the future.

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Figures

DigVentures

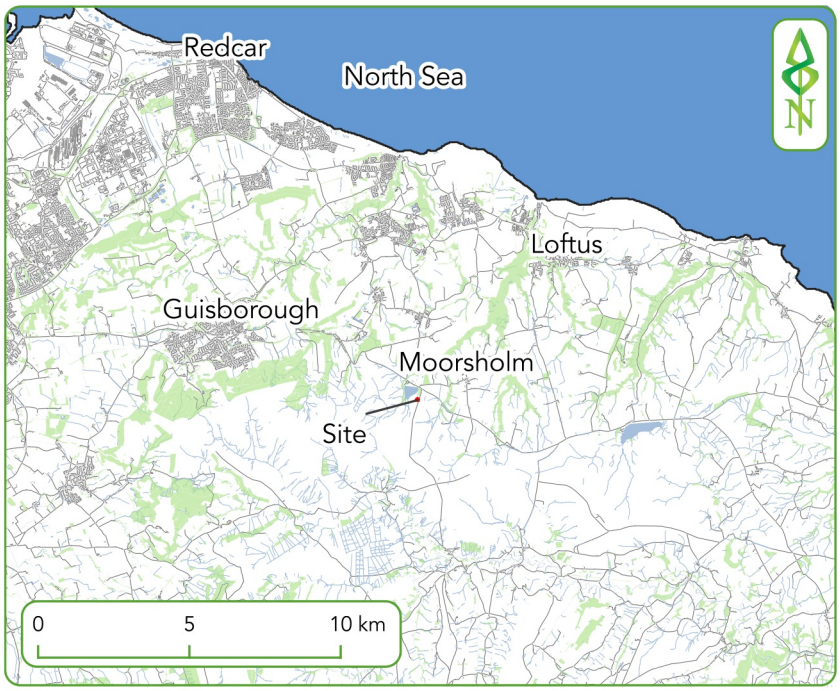


Figure 1. Site location

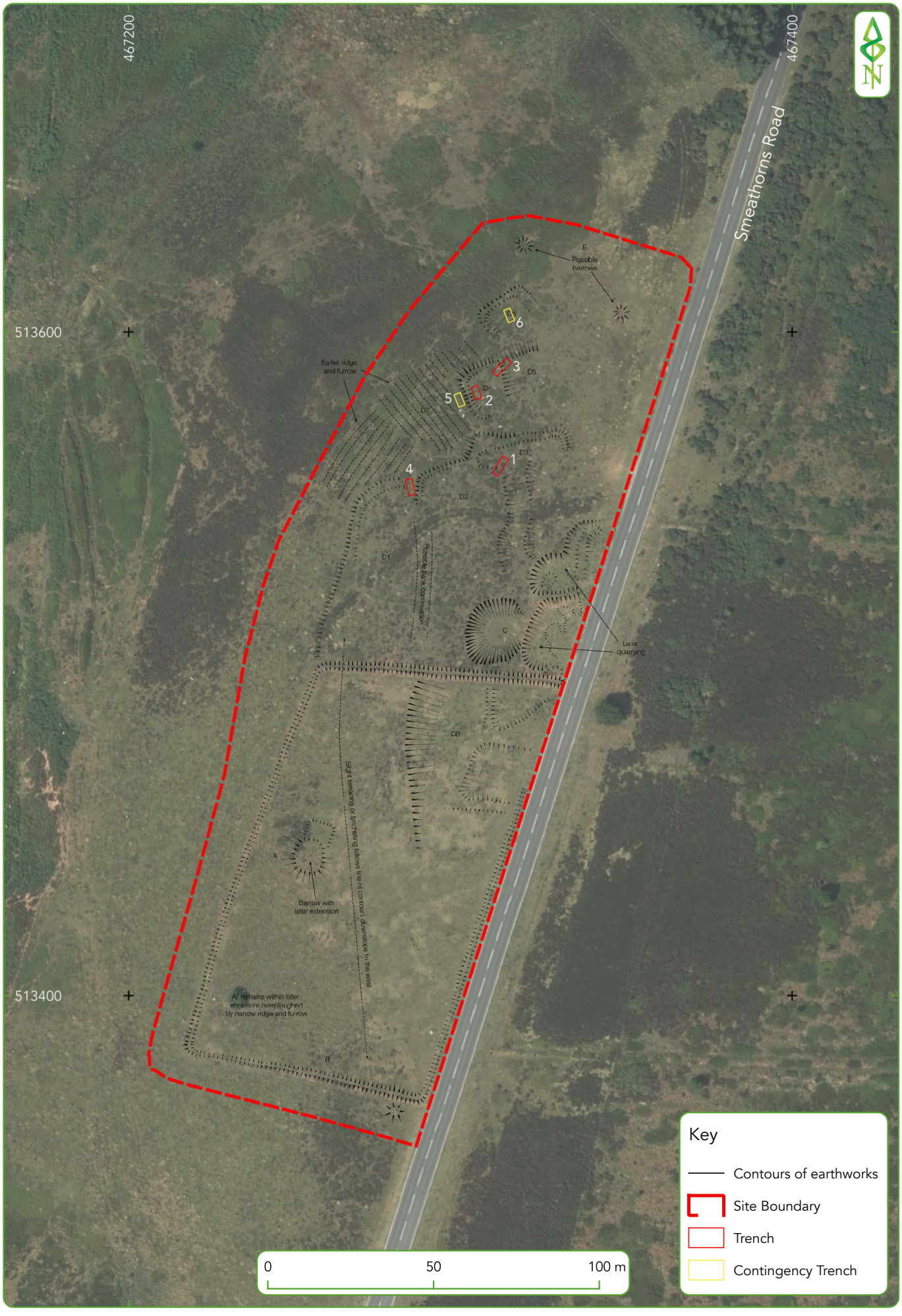


Figure 2. Trench Locations over targeted earthworks (Earthwork survey taken from (Brightman 2020))

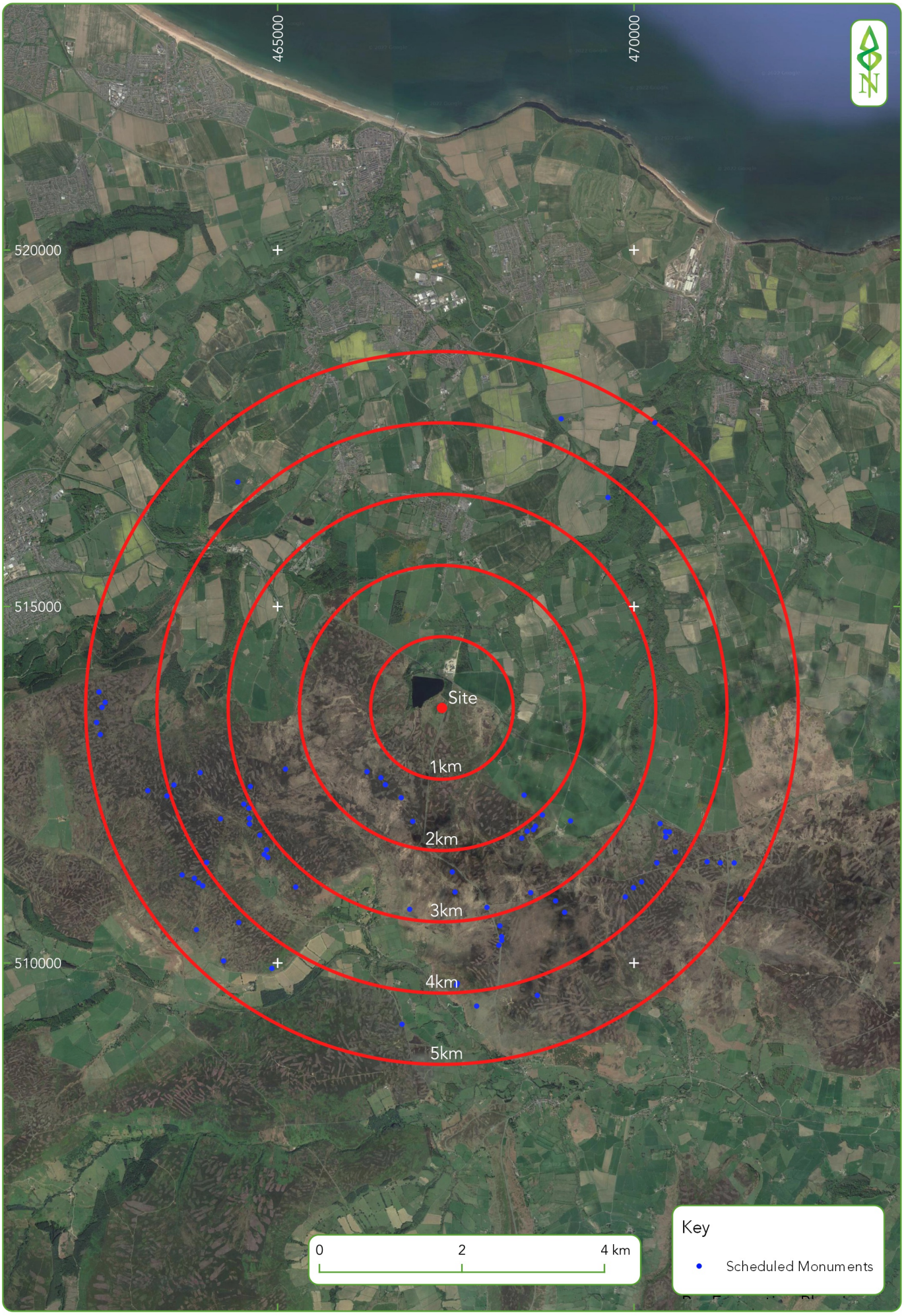
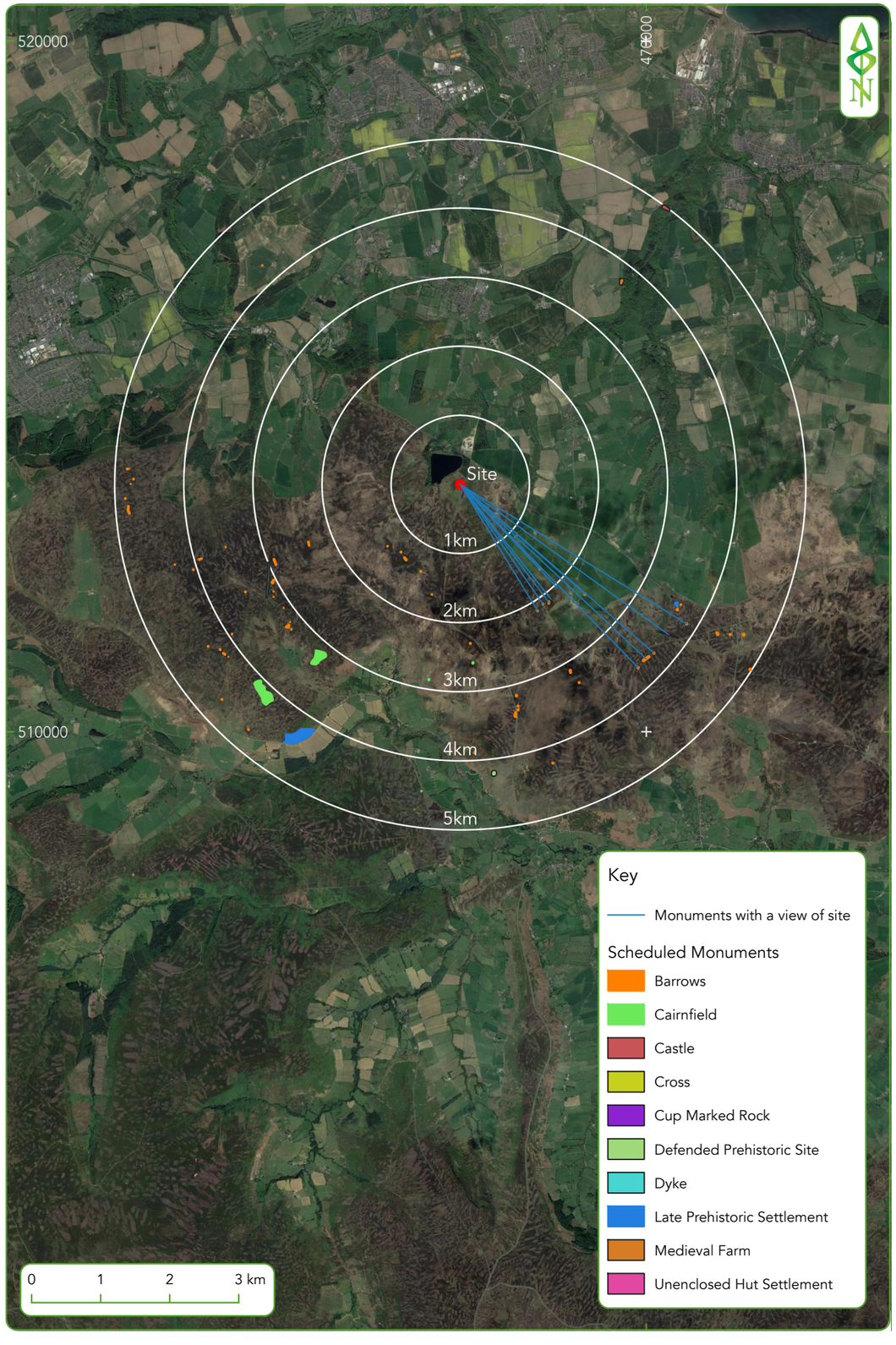


Figure x. Scheduled Monuments within a 5km radius of site



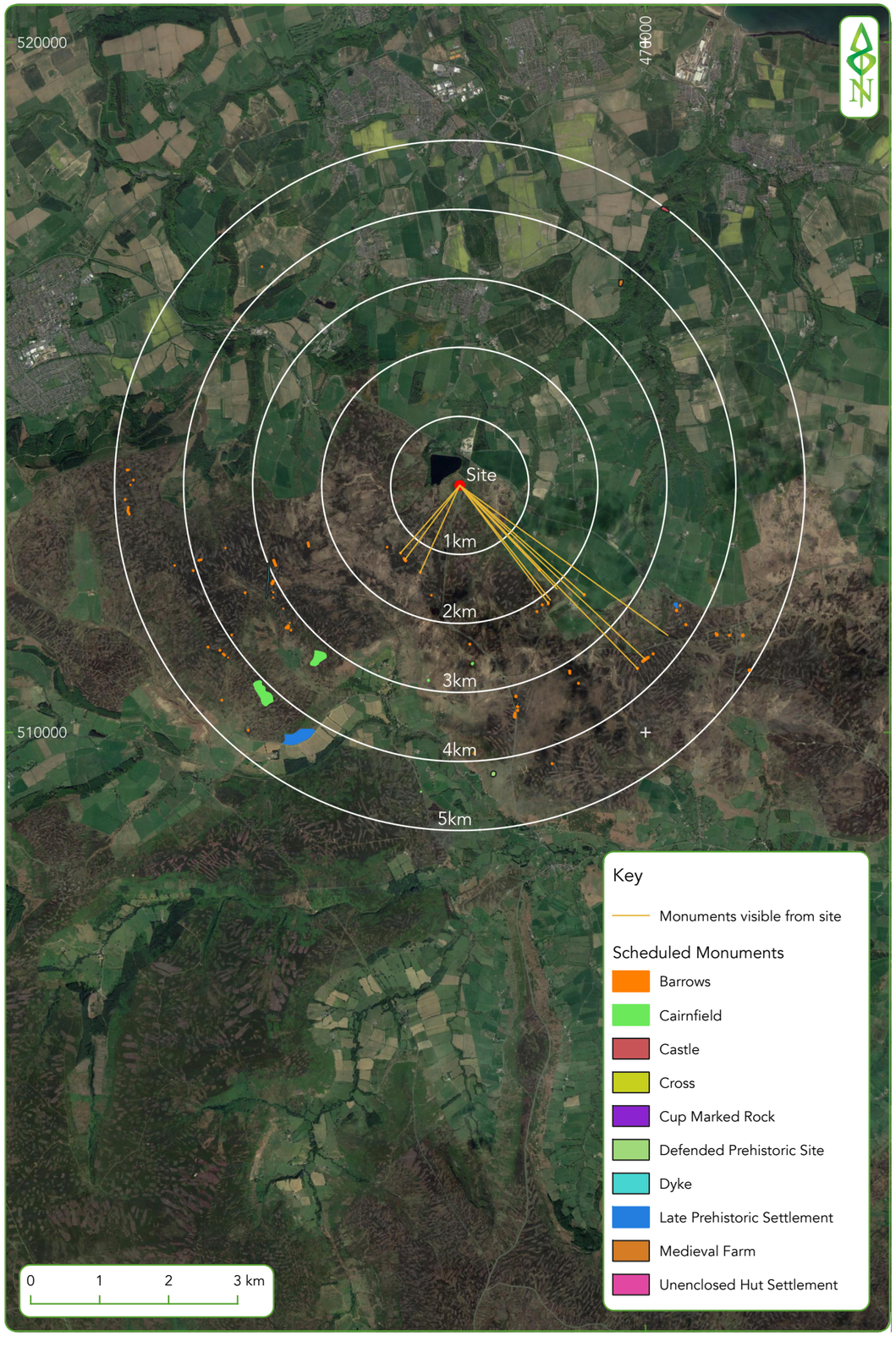
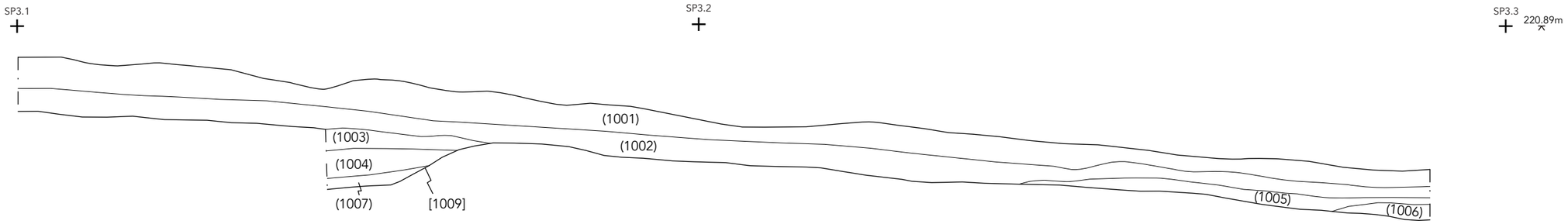
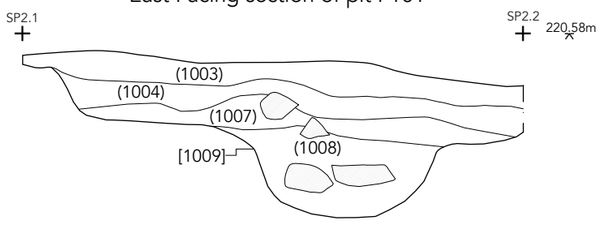


Figure 4. Intervisibility between site and scheduled monuments

South East Facing section of Trench 1



East Facing section of pit F101



Key

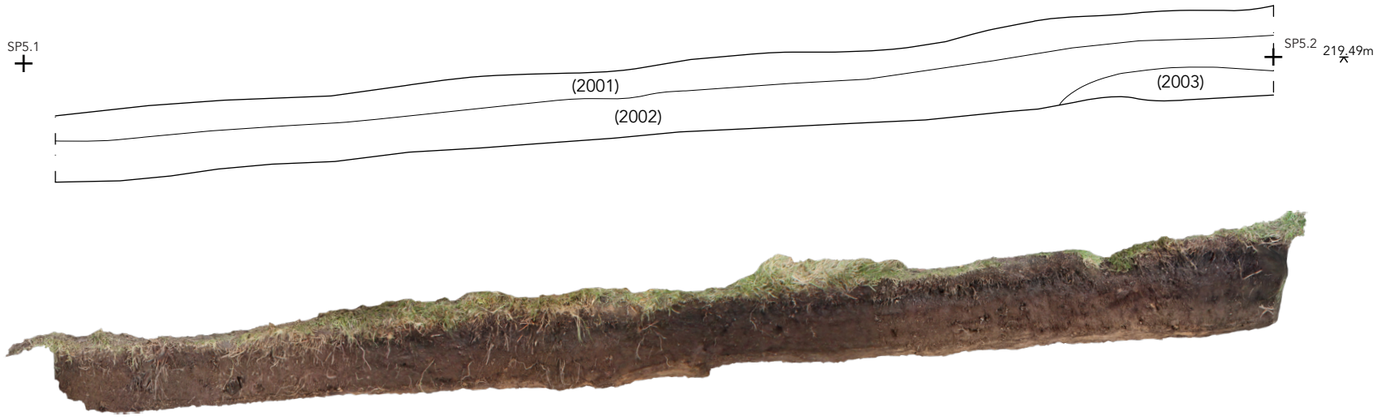
- Special Finds
- Section Lines
- Features
- Limit of Excavation

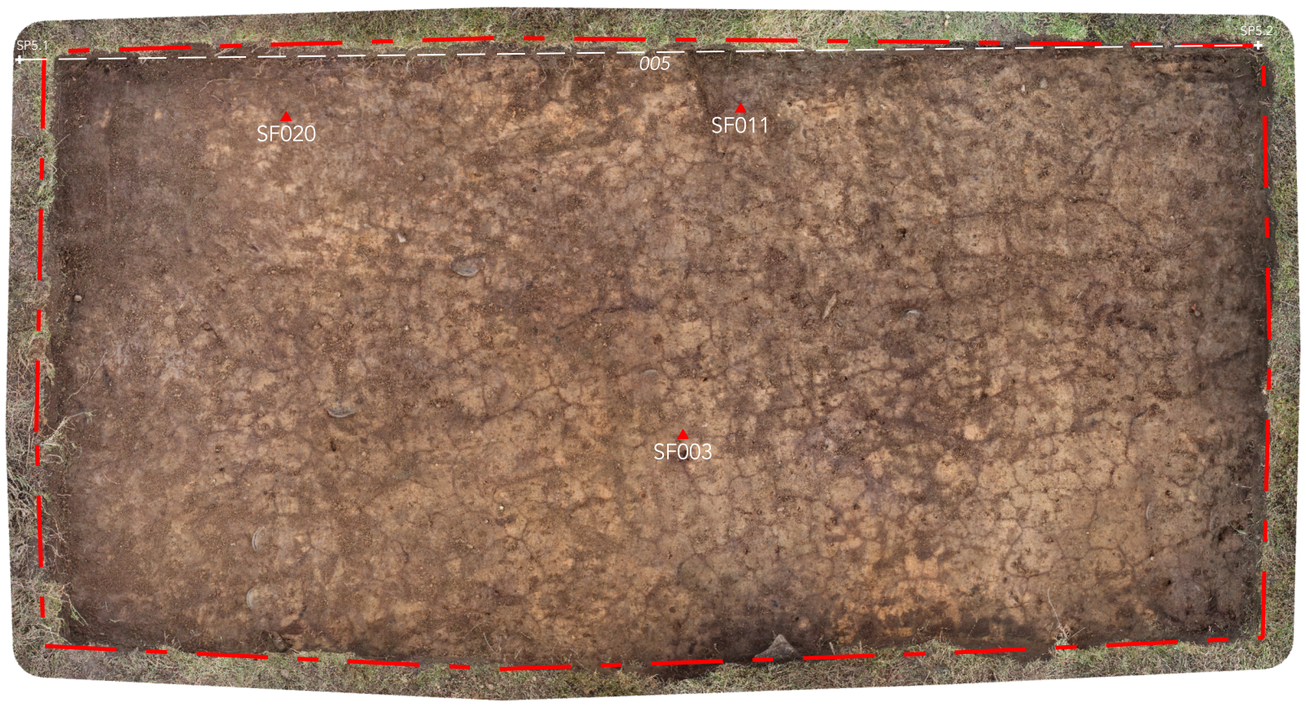
0m 1m 2m

1:20 Scale on A3

Figure 5. Trench 1 Post Excavation plan and sections

South West Facing section of Trench 2



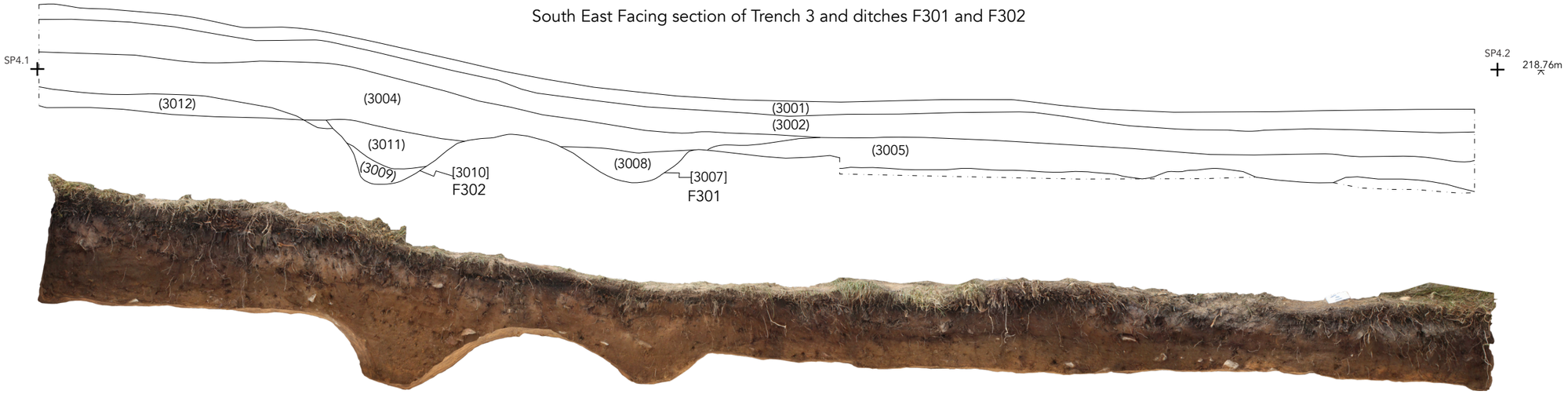


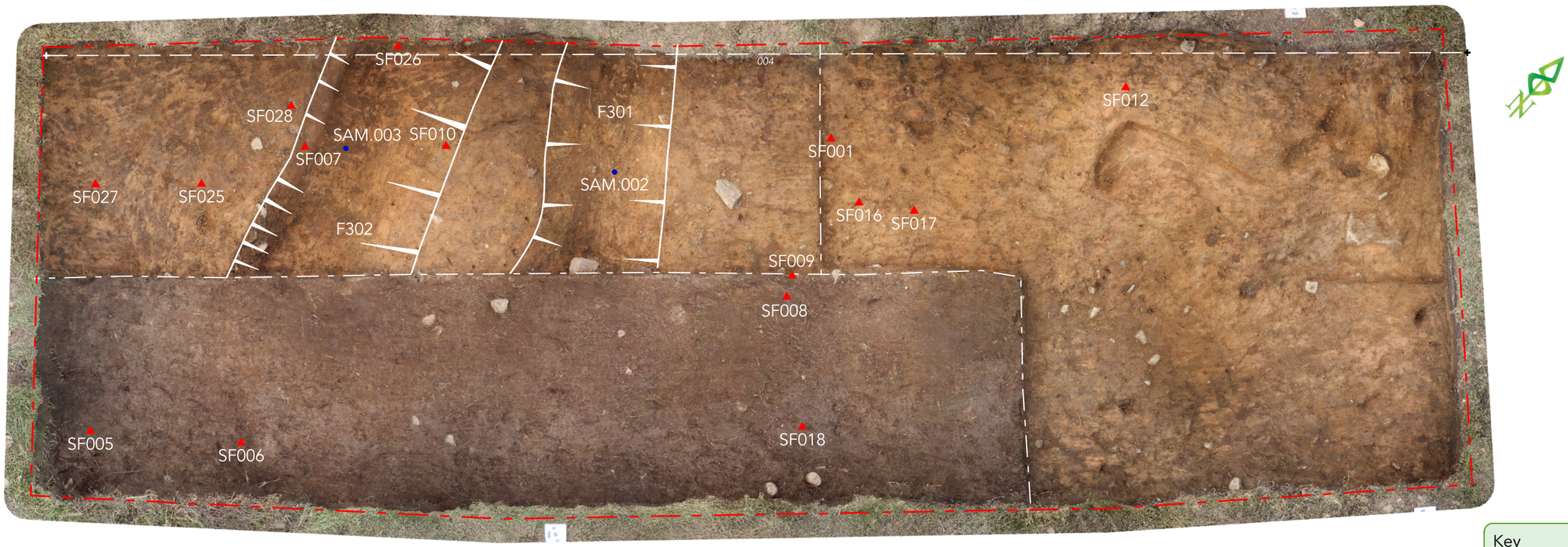
Key
- Special find
- Section Lines
- Limit of Excavation

0m 1m 2m
1:20 Scale

Figure 6. Trench 2 Post Excavation plan and section

South East Facing section of Trench 3 and ditches F301 and F302





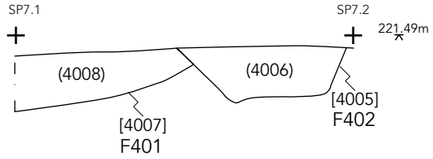
0m 1m 2m

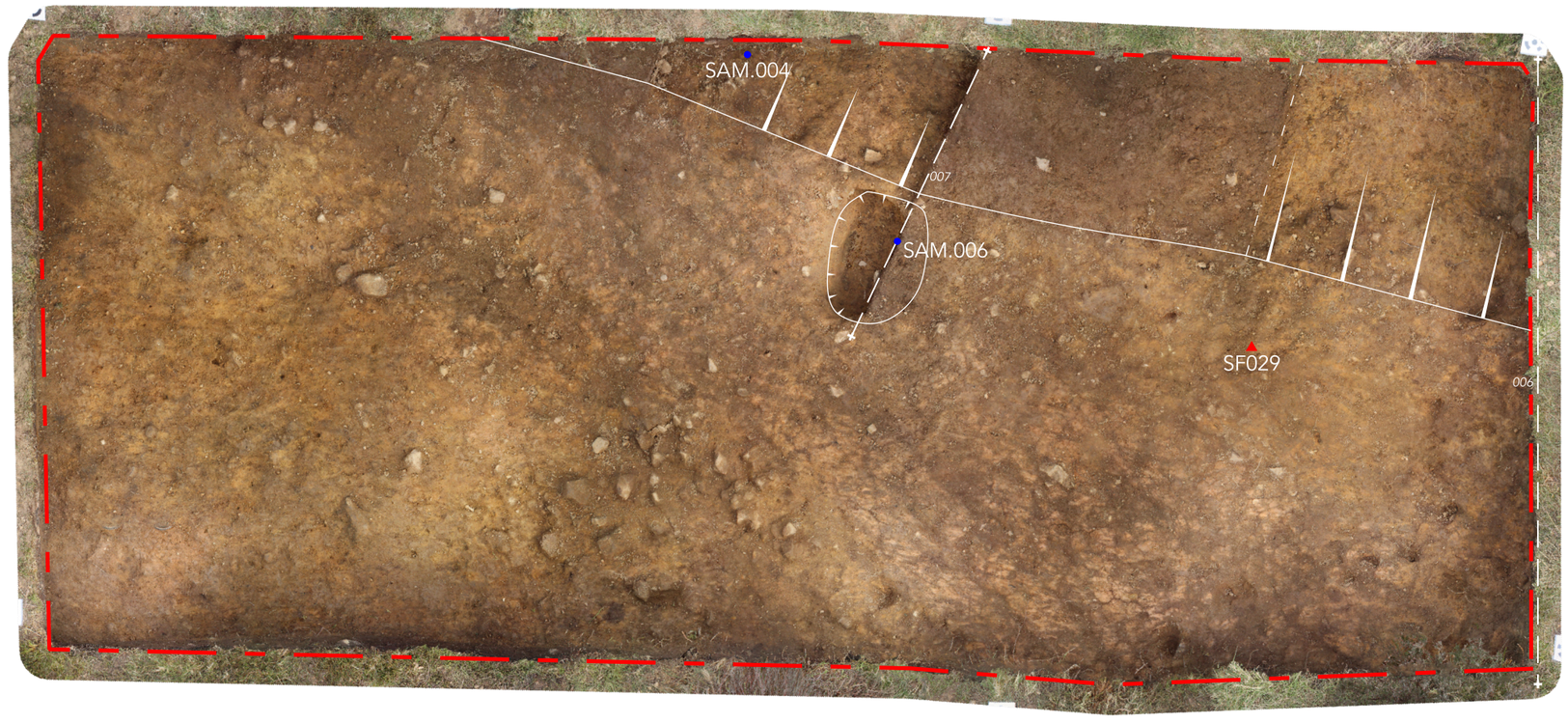
1:20 Scale on A3

Key
- Sample
- Special Find
- Section Lines
- Limit of Excavation
- Features

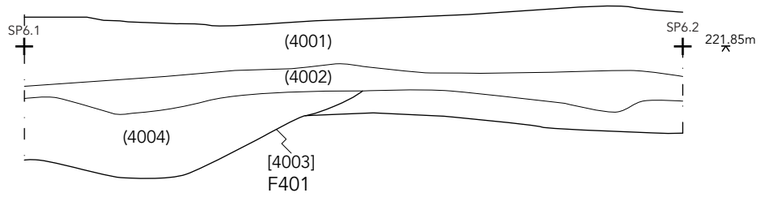
Figure 7. Trench 3 Post Excavation plan and section

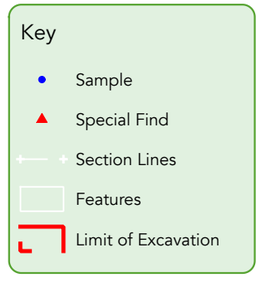
North East Facing section of ditch F401 and posthole F402





North Facing section of Trench 4





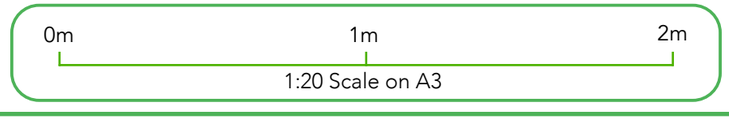
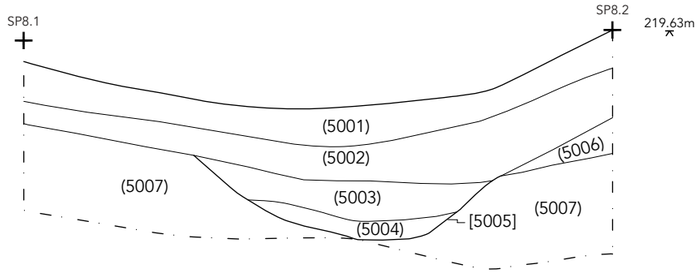
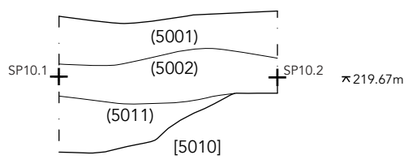


Figure 8. Trench 4 Post Excavation plan and sections

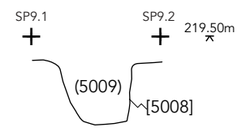
South East Facing section of Trench 5 showing ditch F501 and associated bank



NW Facing Section of gully F503



Profile of post hole F502



Key

- Sample
- Features
- Section Lines
- Limit of Excavation

0m 1m 2m

1:20 Scale

Figure 9. Trench 5 Post excavation plan and sections

Trench 1 post excavation photo looking south west, 1m scale

Record shot of pit F101 looking west, 1m scale

Record photo of ditches F301 and F302 looking north, 1m scale

Trench 3 post excavation photo looking south west, 1m scale

Trench 4 post excavation photo looking south, 1m scale

Record photo of ditch F401 and post hole F402 looking south, 1m scale

Trench 5 post excavation photo looking south east, 1m scale

Post excavation photo of post hole F502 looking south east, 1m scale

Trench 5 post excavation photo looking north west, 1m scale

Figure 10. Record Photographs

Everyone was still smiling deturfing in the snow.

A chilly start cleaning in Trench 3

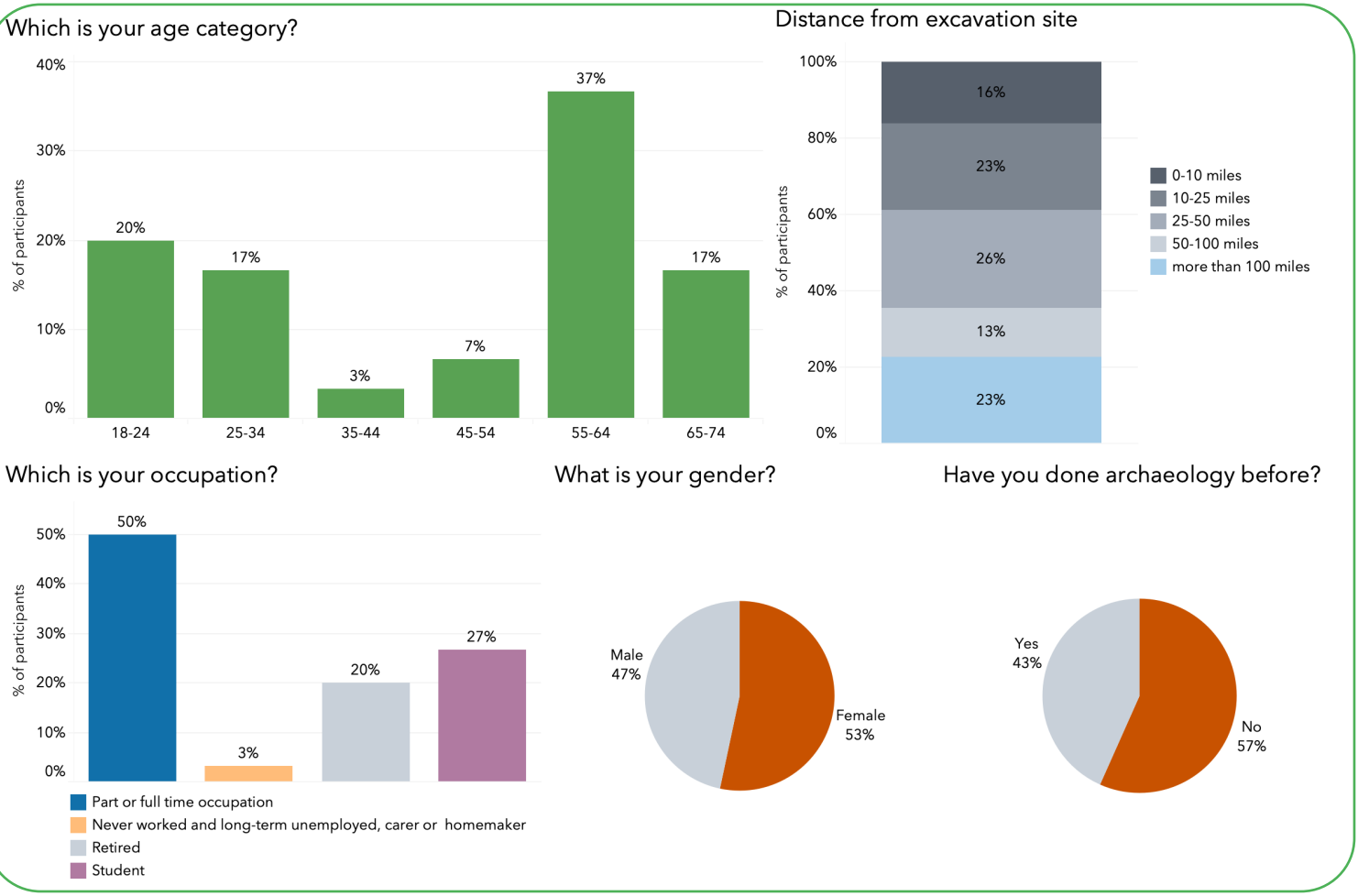
Those Romans get everywhere! Mortaria rim fragments from Trench 1

Henrietta with a lovely little thumbnail scraper from Trench 3

Wrapping up at the end of a hard days digging

A very happy Abi with the find of the dig, a Sutton type arrow head

Figure 11. Community photographs



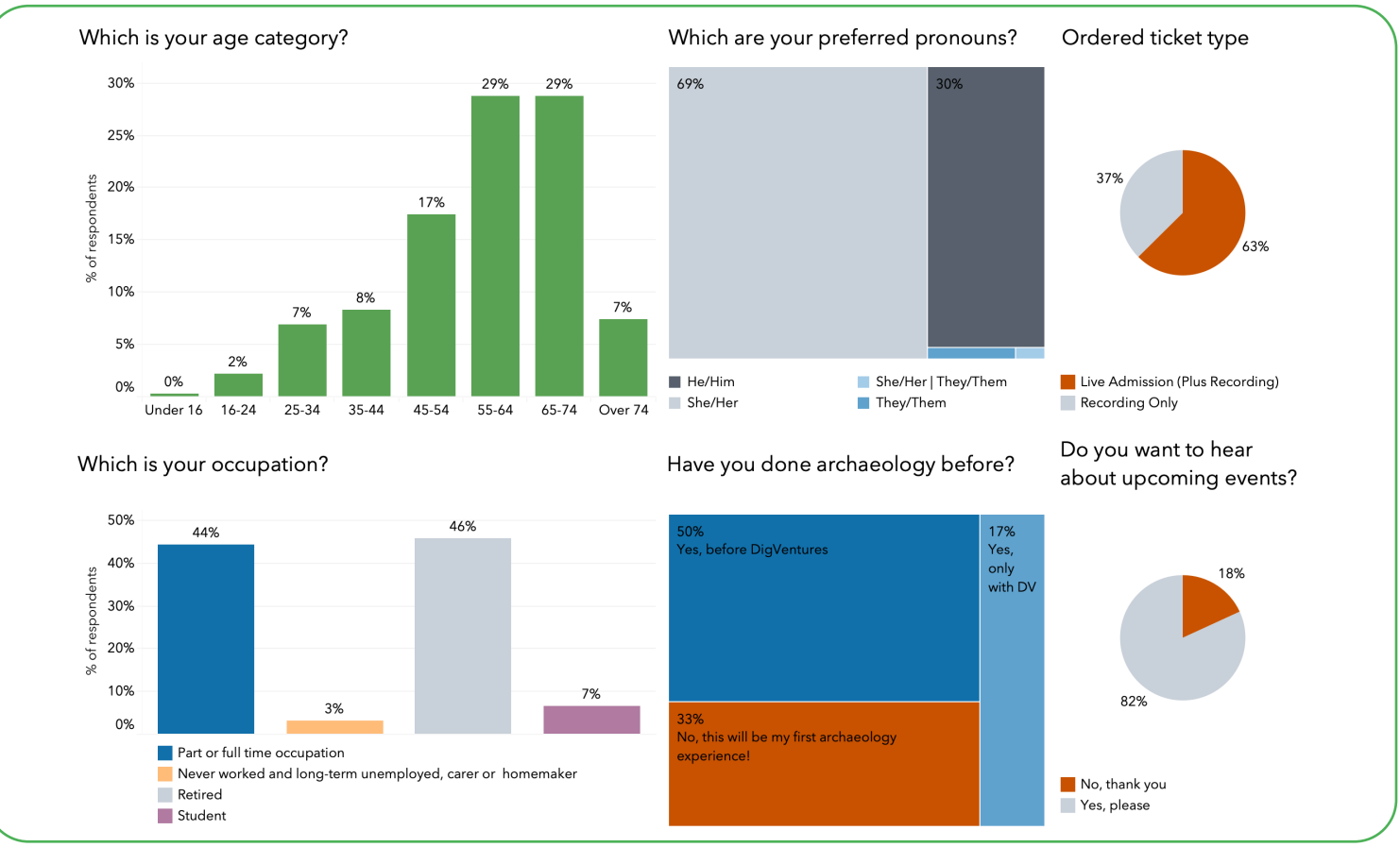
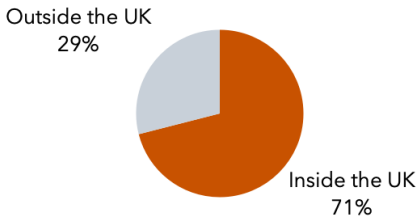
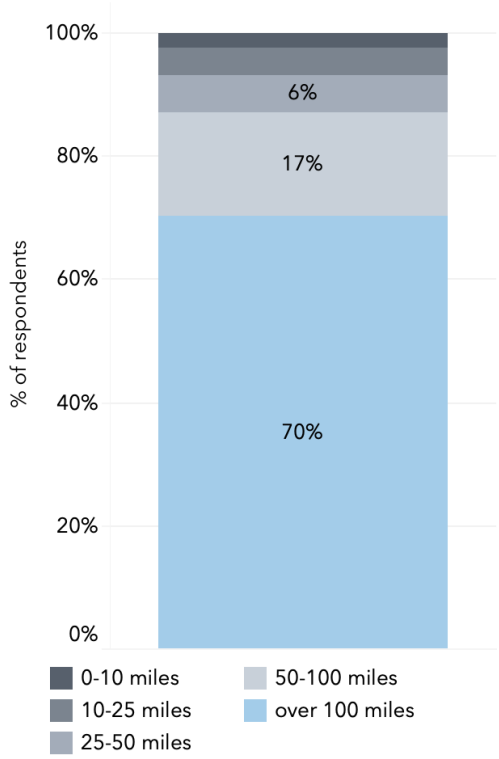


Figure 12. Top - Socio-economic data for in person venturers, Bottom - Socio-economic data for digital venturers

Location



Distance from excavation site



Country of residence

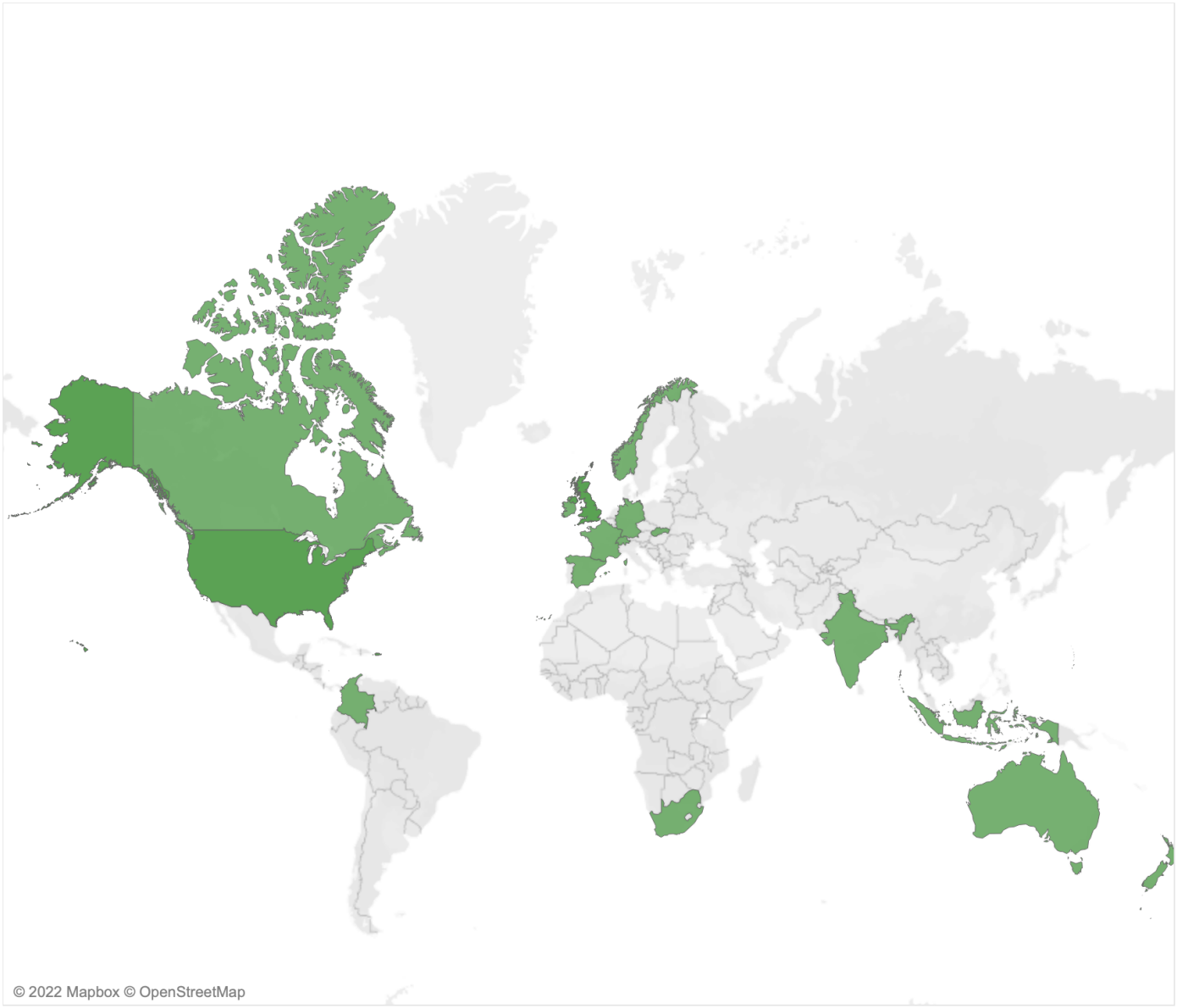


Figure 13. Venturer locations

DigVentures

	INPUTS internally or externally deployed staff and resources	ACTIVITIES the processes and tasks undertaken by the organisation	OUTPUTS a quantifiable unit of 'product' or 'service' measurable once completed	OUTCOMES Observable change for heritage, individuals or communities	MISSION AND VISION The organisation's guiding mission and long term aspirations
For Archaeology and Heritage	Excavation team Wider specialist team Venturers (public participants)	1 Desk-based assessments 2 Remote Sensing 3 3D landscape and building survey 4 Excavation 5 Post-ex assessment and analysis 6 Accessible digital archive	• Project Designs • Survey reports • Assessment and Final Reports • Management Plans • Archaeological Publications • Site Interpretations	Through our work, heritage will be: • identified, interpreted and better explained • better managed and in an improved condition	By collaborating with citizens, businesses, organisations and government, we aim to create a firm evidence-base for the past through accessible, peer-reviewed research, ultimately enabling places to thrive, prosper and sustain distinct local identities
For Individuals	Community management, educational and editorial teams DigVentures' collaborative platform: • collaborative resources DigVentures.com • collaborative finance Crowdfunding app • collaborative labour Digital Dig Team web app • collaborative knowledge MOOC learning management system	1 Crowdfunding campaigns and matched crowd/grant funded applications 2 Accessible training programme comprising Dig for a Day/ Dirty Weekend/ Field Venturer 3 Digital learning resources including site-specific and skills-based learning available in person or online 4 DigCamp and CyberDig family sessions	Funded/Match-funded Project • Number and diversity of Dig participants • Number and diversity of Digital participants • Number and diversity of DigCamp participants • Co-created digital archives and interactive, open-access, online resource measurable through digital analytics	By taking part in our work: • a wider range of people will be involved in archaeology and heritage • people will have learnt about heritage, leading to changes in ideas and actions • people will have greater wellbeing	By creating a spectrum of digital and physical opportunities to participate together, we aim to equip citizens with the skills needed to use, produce, manage and co-commission heritage resources, fostering civic awareness and a deeper sense of place and belonging
For Communities / Society	Community management educational and editorial teams Site Hut Dig Timeline Social Channels	1 School visits 2 Site open days 3 Pop-up and virtual museums 4 Published web content and native social posts 5 Recorded video and live 6 Traditional broadcast and print media	• Number of web/social engagements, and community growth • Number and diversity of site and pop-up visitors • Site and museum visitors increased and lasting audience for sites	As a consequence of our work: • The local area will be a better place to live, work or visit • Partner organisations will be more resilient	By challenging the perceived barriers to archaeological participation, we will create an accessible 'broad tent' incorporating multi-cultural and diverse perspectives; we aim to increasing the awareness and amenity of sites and visitor attractions, stimulate leisure and tourism, and help to make distinctive heritage the unique selling point of a place

Figure 14. OUR THEORY of CHANGE - Measuring impact for both intrinsic outcome for archaeology and instrumental benefits for people and communities

	EXPECTATION	SUGGESTED METHOD	OUTCOMES FOR HERITAGE	OUTCOMES FOR PEOPLE	OUTCOMES FOR COMMUNITIES
	Providing an academically rigorous framework, whilst ensuring that impact measurement is appropriate to the stage of development of a variety of different products, services and programmes.	Steps needed to ensure correct evidence is collected to determine whether or not a venture is making a positive difference	Intrinsic benefits relating to the research dividend and evidence baseline required for successful management of archaeological sites and landscapes	Instrumental benefits for participants and platform users, enabling the voluntary sector to scale in a sustainable and ethically responsible fashion	Wider social impacts received by those who may not be direct participants, but benefit through increased amenity value, tourism and local distinctiveness.
Level One	A low threshold, appropriate to very early stage innovations, which may still be at the idea stage. Involving little more than a clear articulation of why the intervention is needed, what it will aim to achieve why this is better than what currently happens. Project owners will be able to give an account of impact, providing a logical reason why their intervention could have an impact and why that would be an improvement on the current situation.	A clear rationale to show why the product/service could have an impact, and why that would be an improvement on the current situation. Articulated as a theory of change and logic model, linking activities, outputs, outcomes to hypothesized impact.	A fully illustrated Project Design, signed off by statutory stakeholder, outlining key archaeological research questions, roles, procedures, stages and outputs.	A training or activity plan, linking activities to outputs, outcomes and impact, and an explanation of how the outcome could be measured.	A training, activity, audience development and/or heritage resource management plan, linking activities to outputs, outcomes and impact, and an explanation of how the outcome could be measured.
Level Two	At Level 2 projects will be gathering data that shows some change amongst those receiving or using the intervention. At this stage, data can begin to show that there is a change in the measure of the outcome among the recipients of the product or service, but this may not be sufficient to provide evidence of direct causality.	Pre and post–survey evaluation; cohort/panel study; and regular interval surveying.	Assessment Report; Management Report, base-lined against previous investigations	Evaluation survey for participants to quantify demographics, socio-economic characteristics and spatial data, followed up with a pre and post-survey qualitative evaluation using a separate questionnaire methodology to determine any changes as a consequence of taking part	Evaluation survey for site visitors to quantify audience demographics, socio-economic characteristics and spatial data, followed up with a qualitative study using a separate questionnaire methodology to determine any changes that took place as a consequence of the visit
Level Three	At Level 3 projects will be able to demonstrate that they are causing the hypothesized impact, by showing less impact amongst those who don't receive the product/ service.	Robust methods using a control group, or evaluating a random selection of participants, begin to isolate the impact of the product/ service. All products/services at Level 3 will be well documented, with necessary skills, training (and other delivery requirements) outlined clearly, to enable effective replication in alternative places, situation, contexts etc.	Analytical report, synthesizing specialist reports with previous work locally, regionally and nationally, to determine significance, importance and potential of the site.	Meta-analysis of evaluation results with those derived from projects delivering similar community-based activities, including archaeological/ heritage and other unrelated arts/ citizen science projects.	Meta-analysis of evaluation results with those derived from projects delivering similar community-based activities - including both archaeological/heritage and other unrelated arts/citizen science projects.
Level Four	At Level 4 projects can explain why and how the intervention is having the impact observed and evidenced so far, supported by an independent evaluation to validate the findings. This will also assess the extent to which the intervention can deliver impact at a reasonable cost, and whether it can be replicated and purchased in multiple locations.	Robust independent evaluation that investigates and validates the nature of the impact; this might include endorsement via commercial standards or industry kitemarks, underpinned by a documented standardisation of delivery and processes, data on costs of production and acceptable price point for customers.	Quality assured by the Chartered Institute for Archaeologists (CIfA) under the Registered Organisation scheme, and involving independent site inspections and documentary audit.	External audit of quality of training programmes and activities by CIfA, The Archaeological Training Forum, Register of Professional Archaeologists, Skills Passport and National Occupational Standards.	External audit of community programming and impact by specialist consultancy, undertaken independently of project team.
Level Five	At Level 5, projects will be able to demonstrate that the intervention could be operated up by someone else, somewhere else and scaled up, whilst continuing to have positive and direct impact on the outcome, and whilst remaining a financially viable proposition. For a service, this will establish whether it can be delivered by different staff in different locations.	Evidence will be derived from multiple evaluations of the product/ service in different settings (at least two evaluations; one of which will be independent) to demonstrate that the product/service can be used in different settings (which could be in different settings geographically and/or with different types of product/service users). Appropriate methods at this level will include multiple replication evaluations; future scenario analysis; or fidelity evaluation.	An excavation manual, underpinned by a broader operations manual and 'culture deck', detailing how the DigVentures project model should be applied in differing contexts.	A syllabus and training manual, underpinned by a broader operations manual and outline spectrum of engagement, detailing the participant's journey from digital supporter to experienced field digger.	An audience engagement and communications plan, underpinned by a broader operations manual and tailored 'culture deck', detailing how the intervention should be applied with clear and measurable benchmarks.

Figure 15. Standards of Evidence.

Appendices

Appendix A: Context descriptions

Table 1. Trench 1 context descriptions

Trench 1	Dimensions:	2.00 x 6.00m					
	Orientation:	NE-SW					
	Reason for trench:	To investigate a hollow seen in the earthworks survey					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
1001	Very Dark brown silty peat/organic topsoil	Layer	Turf and topsoil	6.00+	2.00+	0.17	
1002	Mid orangey brown sandy silt with frequent small to medium sized rounded and sub angular stone inclusions	Layer	Possibly formed by hillwash due to a residual mix of Roman pottery and Flint in the deposit	6.00+	2.00+	0.15	
1003	Mid greyish brown sandy silt with regular charcoal flecks and occasional rounded pebbles	Layer	Possible Roman occupation layer capping pit F101	2.10+	2.00+	0.12	
1004	Mid greyish brown silty sand with frequent charcoal flecks and occasional sub angular medium sized stones	Fill	Upper fill of pit F101	2.00+	1.35+	0.14	F101
1005	Dark orangey brown sandy silt with occasional medium to large sized sub angular and sub rounded stones.	Layer	Probable hillwash similar in nature to (1002) containing a mix of residual finds	2.05+	2.00+	0.08	
1006	Light greyish brown silty sand with occasional small sub rounded pebbles.	Layer	Likely silting deposit accumulating in natural hollows caused by rooting	3.30+	2.00+	0.04	

Trench 1	Dimensions:	2.00 x 6.00m					
	Orientation:	NE-SW					
	Reason for trench:	To investigate a hollow seen in the earthworks survey					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
1007	Light orangey brown silty clay with frequent charcoal flecks and occasional small to medium sized sub angular stones	Fill	Re-deposited natural backfill of pit F101	1.57+	0.70+	0.08	F101
1008	Light orangey brown sandy clay with frequent large sub angular rocks and occasional small sub rounded stones	Fill	Re-deposited natural backfill of pit F101	0.64	0.24+	0.23+	F101
1009	Cut of a sub-rounded pit	Cut	Cut of a pit possibly used for water access	1.98+	0.72+	0.40+	F101
1010	VOID						
1011	Light orangey brown clayey sand with frequent sub angular and sub rounded medium sized stones	Layer	Probable natural geological feature	0.71	0.83	0.33+	
1012	Light orangey brown silty clay with frequent stone inclusions and pockets of sand	Layer	Natural	6.00+	2.00+	N/A	

Table 2. Trench 2 context descriptions

Trench 2	Dimensions:	2.00m x 4.00m					
	Orientation:	NW-SE					
	Reason for trench:	To investigate the inside of enclosure D4					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
2001	Very Dark brown silty peat/organic topsoil	Layer	Turf and topsoil	4.00+	2.00+	0.10	
2002	Mid greyish brown clayey silt with occasional small sub angular stones	Layer	Subsoil - probable accumulation of silting and hillwash over time	4.00+	2.00+	0.04	
2003	Mid greyish brown silty clay with frequent small sub angular stones	Layer	Similar in nature to (2002) and most likely represents a variation to the subsoil. Possible remnant of occupation layer or levelling layer.	0.70+	2.00+	0.08	
2004	Mid orangey brown silty clay with occasional small to medium sized stones	Layer	Natural	4.00+	2.00+	N/A	

Table 3. Trench 3 context descriptions

Trench 3	Dimensions:	2.00 x 6.00m					
	Orientation:	NE-SW					
	Reason for trench:	To investigate the relationship between enclosures D4 and D5					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
3001	Very Dark brown silty peat/organic topsoil	Layer	Turf and topsoil in Trench 3	6.00+	2.00+	0.10	
3002	Dark reddish brown sandy silt with occasional small sub rounded sandstone pieces	Layer	Subsoil - likely accumulated silting and hillwash	6.00+	2.00+	0.13	
3003	Very dark brown silty peat/organic deposit with small sub	Layer	Likely caused by rooting/bioturbation	0.60	0.40	0.02	

Trench 3	Dimensions:	2.00 x 6.00m					
	Orientation:	NE-SW					
	Reason for trench:	To investigate the relationship between enclosures D4 and D5					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
	rounded sandstone pieces						
3004	Mid reddish brown sandy silt with occasional small to medium sized sub rounded sandstone pieces, quartz and charcoal flecks	Layer	Likely silting from hillwash moving occupational debris, including numerous flints, downslope from an enclosure above.	3.18+	2.00+	0.24	
3005	Light greyish brown clayey silt with occasional small sub rounded sandstone pieces and charcoal flecks	Layer	Possible occupation layer containing debris such as flints, charcoal and pottery.	2.21+	2.00+	0.12	
3006	Light orangey yellow sandy clay with occasional small sub rounded sandstone pieces	Layer	Natural	6.00+	2.00+	N/A	
3007	Cut of a linear ditch	Cut	NW-SE aligned linear ditch in close proximity to F302, likely representing drainage ditches draining water downslope away from the enclosures	1.00+	0.56	0.25	F301
3008	Dark reddish brown clayey silt with very occasional small sub rounded sandstone and quartz pieces	Fill	Silting fill of a ditch	1.00+	0.56	0.25	F301
3009	Light orangey brown silty clay with very occasional charcoal flecks and small sub rounded	Fill	Primary fill of drainage ditch F302	1.00+	0.30	0.10	F302

Trench 3	Dimensions:	2.00 x 6.00m					
	Orientation:	NE-SW					
	Reason for trench:	To investigate the relationship between enclosures D4 and D5					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
	sandstone/ironstone pieces						
3010	Cut of a linear ditch	Cut	N-S aligned linear ditch in close proximity to F301, likely representing drainage ditches draining water downslope away from the enclosures	1.00+	0.58	0.30	F302
3011	Mid greyish brown clayey silt with occasional charcoal flecks and sub angular medium sized red sandstone pieces	Fill	Upper silting fill of a ditch	1.00+	0.58	0.20	F302
3012	Light greyish brown silty clay with occasional charcoal flecks and small sub angular sandstone pieces	Layer	Possible occupation layer similar in nature to (3005), possibly representing a continuation of this deposit	1.05+	1.00+	0.08	

Table 4. Trench 4 context descriptions

Trench 4	Dimensions:	2.00 x 5.00m					
	Orientation:	N-S					
	Reason for trench:	To investigate the relationship between enclosures D1 and D2					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
4001	Dark greyish brown sandy clay topsoil	Layer	Turf and topsoil in Trench 4	5.00+	2.00+	0.10	
4002	Mid greyish brown sandy clay with occasional charcoal flecks and frequent sub angular stones	Layer	Subsoil	5.00+	2.00+	0.14	
4003	Cut of a linear ditch	Cut	Cut of a N-S aligned linear ditch, likely a drainage ditch	1.00+	0.88	0.40	F401
4004	Mid brown silty clay with angular stones	Fill	Silting fill of a ditch	1.00+	0.88	0.40	F401
4005	Cut of a sub-circular post hole	Cut	Cut of a sub-circular post hole truncating ditch F401	0.43	0.22	0.13	F402
4006	Mid brown silty clay with angular stones	Fill	Silting fill of post hole	0.43	0.22	0.13	F402
4007	Cut of a linear ditch	Cut	Cut of a N-S aligned linear ditch, likely a drainage ditch, truncated by post hole F402	1.00+	0.58	0.13	F401
4008	Mid brown silty clay with angular stones	Fill	Silting fill of a ditch	1.00+	0.58	0.13	F401
4009	Light yellowish brown sandy clay with frequent medium sized sub angular stones	Layer	Natural	5.00+	2.00+	N/A	

Table 5. Trench 5 context descriptions

Trench 5	Dimensions:	2.00 x 4.00m					
	Orientation:	NW-SE					
	Reason for trench:	To investigate a bank and ditch on the outside of enclosure D4					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
5001	Dark blackish brown sandy silt topsoil	Layer	Turf and topsoil in Trench 5	4.00+	2.00+	0.20	
5002	Mid greyish brown silty sand with occasional small to medium sized sub rounded sandstone and quartz pebbles	Layer	Subsoil likely accumulated through silting and hillwash	4.00+	2.00+	0.14	
5003	Mid greyish brown sandy silt with occasional small angular stones	Fill	Upper silting fill of ditch	4.00+	0.95	0.45	F501
5004	Light brownish grey silty sand with occasional small stones	Fill	Basal fill of ditch	4.00+	0.66	0.58	F501
5005	Cut of a linear ditch	Cut	Cut of a NW-SE aligned linear ditch likely representing an enclosure boundary ditch	4.00+	0.95	0.58	F501
5006	Mid brownish yellow silty sand with small to medium sized sub angular stones	Layer	Possible bank material	4.00+	0.37	0.79	
5007	Light brownish yellow silty sand with regular small to medium sized sub angular stones	Layer	Natural	4.00+	2.00+	0.58+	
5008	Cut of a circular post hole	Cut	Cut of a circular post hole truncating ditch F503	0.27	0.28	0.61	F502
5009	Dark brownish grey sandy silt with small to	Fill	Fill of a post hole	0.27	0.28	0.61	F502

Trench 5	**Dimensions:**	2.00 x 4.00m					
	Orientation:	NW-SE					
	Reason for trench:	To investigate a bank and ditch on the outside of enclosure D4					
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**
	medium sized sub angular stones						
5010	Cut of a linear ditch	Cut	Cut of a linear ditch truncated by post hole F502	0.86	0.41	0.39	F503
5011	Mid brownish grey sandy silt with occasional small to medium sized stones	Fill	Silting fill of a ditch	0.86	0.41	0.39	F503

Appendix B: Pottery catalogue

Table 6: Pottery dating summary

F No	F Type	Context	Spot date	Comments	Sherd	Weight (g)	Total RE %
1002	Layer	1002	Roman	Three small handmade sherds of prehistoric or Roman date were recorded as bulk finds. A wheel made Roman sherd from a bowl was recovered from finds reference 14. Rim sherds from a handmade jar with a tall everted were recovered from finds reference 15. A Crambeck ware mortarium from finds reference 19 (Corder 1937, type 6 dates the group.	11	106	27
1003	Layer	1003	Prehistoric?	A small group including a handmade vesicular sherd and heavily abraded sherds gritted with fine quartz-sand possibly of prehistoric date.	9	15	0
F101	Pit	1004	Prehistoric- Roman	Small vesicular sherds from a single vessel.	4	14	0
1005	Layer	1005	L3-4	A small group including a sherd from a handmade jar with a tall everted rim from finds reference 22, sherds from a Crambeck mortarium from finds reference 24 and further handmade sherds from finds reference 21.	7	46	4
1006	Layer	1006	Roman?	A single vesicular sherd probably of Roman date.	1	6	0
F101	Pit	1007	L3-4	A single Crambeck grey ware sherd.	1	2	0
3002	Layer	3002	Prehistoric- ?Roman	Small vesicular sherds.	2	2	0
3004	Layer	3004	Prehistoric- ?Roman	Small vesicular sherds.	2	3	0
3005	Layer	3005	Prehistoric- ?Roman	Small vesicular sherds.	4	8	0
4002	Layer	4002	Prehistoric- Roman	A single handmade sherd including some coarse quartz.	1	8	0

Table 7: Pottery fabric summary

Fabric code	Fabric group	Fabric details	Sherd	Sherd %	Weight (g)	Weight %	Total RE %
MOCR	Mortaria	Crambeck mortaria	6	14.29%	76	36.19%	16
CRGR	Reduced	Crambeck grey wares	1	2.38%	2	0.95%	0
GREY?	Reduced	Miscellaneous grey wares	1	2.38%	14	6.67%	0
CALG	Calcareous	Calcite tempered	10	23.81%	59	28.10%	15
EP	Handmade	Earlier Prehistoric	4	9.52%	14	6.67%	0
EP?	Handmade	Earlier Prehistoric?	19	45.24%	40	19.05%	0
ETW2	Rock temper	Erratic pebbles broken up as temper	1	2.38%	5	2.38%	0

Table 8: Pottery form summary

Form	Form Type	Form Description	Sherd	Sherd %	Weight (g)	Weight %	Total RE %
J?	Jar	Unclassified form	1	2.38%	5	2.38%	0
JEVT	Jar	Everted rim- tall	5	11.90%	29	13.81%	15
M	Mortaria	Unclassified Form	3	7.14%	18	8.57%	0
MRR	Mortaria	Reeded rim	3	7.14%	58	27.62%	16
-	Unknown	Form uncertain	30	71.43%	100	47.62%	0

Table 9: Pottery sherd data

Context	Fabric	Form	Rim	Body	Base	Decoration	Vessels	Alt	Comments	Sherd	Weight (g)	Rim diam	Rim eve	SF No.
1002	CALG	-	-	U	-	HM	1	ABR	BS; R; VOIDS; IA-ROM	1	6	0	0	
1002	CALG	JEVT	RD	U	-	HM	1	CARBON DEP	RIM; R; IA-ROM	4	19	14	11	15
1002	EP?	-	-	U	-	HM	1	VAB	BS; IRF; SPARSE COARSE QUARTZ AND CLAY PELLETS	1	4	0	0	
1002	ETW2	J?	-	U	-	HM	1		BS; IRF; IGNEOUS ROCK	1	5	0	0	
1002	GREY?	-	-	-	-		1	BURNT	BS; JAR OR BOWL?	1	14	0	0	14
1002	MOCR	MRR	-	-	-		1	VAB	RIM SPOUT; CRAMBECK FORM 6 REEDED	3	58	27	16	19
1003	EP?	-	-	U	-	HM?	1	VAB	BS; IRF; THIN WALLED; COMMON FINE SAND;	6	9	0	0	
1003	EP?	-	-	U	-	HM	1	ABR	BS; IRF; THIN WALLED; COMMON FINE SAND;	2	2	0	0	
1003	EP?	-	-	U	-	HM	1	ABR; CARBON DEP	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	1	4	0	0	

Context	Fabric	Form	Rim	Body	Base	Decoration	Vessels	Alt	Comments	Sherd	Weight (g)	Rim diam	Rim eve	SF No.
1004	EP	-	-	U	-	HM	1	VAB; CARBON DEP	BS; OX/R; VESIC; PERHAPS BRONZE AGE BEAKER	4	14	0	0	
1005	CALG	-	-	U	-	HM?	1	ABR	BS; IRF	1	2	0	0	
1005	CALG	JEVT	RD	U	-	HM	1	ABR	RIM; R; IA-ROM; ?SAME VESSEL IN 1002	1	10	14	4	22
1005	CALG	-	-	-	-	WF	1		BS; VOIDS; WHEEL FINISHED; ROM?	2	16	0	0	21
1005	MOCR	M	-	-	-		1	VAB	BS	3	18	0	0	24
1006	CALG	-	-	-	-		1		BS; CALC VOIDS; WHEEL FINISHED; HUNTCLIFF TYPE	1	6	0	0	
1007	CRGR	-	-	-	-		1	ABR	BS	1	2	0	0	
3002	EP?	-	-	U	-	HM	1	VAB	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	2	2	0	0	
3004	EP?	-	-	U	-	HM	1	VAB	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	2	3	0	0	

Context	Fabric	Form	Rim	Body	Base	Decoration	Vessels	Alt	Comments	Sherd	Weight (g)	Rim diam	Rim eve	SF No.
3005	EP?	-	-	U	-	HM	1	VAB	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	2	2	0	0	
3005	EP?	-	-	U	-	HM	1	ABR	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	1	2	0	0	
3005	EP?	-	-	U	-	HM	1	ABR; CARBON DEP	BS; IRF; THIN WALLED; COMMON FINE (CALC?) VESICULES; SOME CLAY PELLETS	1	4	0	0	
4002	EP?	-	-	U	-	HM	1		BS; IRF; SPARSE COARSE QUARTZ AND CLAY PELLETS	1	8	0	0	

Appendix C: Lithics Catalogue

Table 10: Summary of lithic assemblage

Category	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Total
Chip	1	1	6	3		11
Chunk	1	2	32	4	4	43
Primary element		2	20			22
Flake	4	6	74	13	4	101
Blade			3			3
Bladelet	1		2			3
Single-platform core, flake removals			1			1
Discoidal core, bifacial			1			1
Discoidal core, levallois-like			1			1
Bipolar core			1			1
Core fragment			1			1
Crested piece, flake			1			1
Thumbnail scraper			1			1
Discoidal scraper			1			1
End-scraper, short			1			1
Arrowhead, type Sutton A		1				1
Notched flake			2			2
Retouched flake		1	1			2
Retouched fragment				1		1
Burin on a break			1			1
Microlithic, tranverse arrowhead			1			1
Total	**7**	**13**	**151**	**21**	**8**	**200**
No. burnt worked flints	1	1	40	5	3	50
No. burnt unworked flints	2	2	18			22
No. unworked			2	1	2	5

Appendix D: Environmental

Table 11: Context information for Moorsholm (MOO22) flotation samples

NB Based on excavation records and DigVentures (2022) only (i.e. does not include results of heavy residue sorting or post-excavation analysis of finds).

Trench	Sample	Context	Associated Feature	Cut/Feature according to sample register	Feature Type	Fill Type	Other Information
1	1	1004	F101		Pit	Upper fill	
3	2	3008	F301	3007	Ditch	Silting fill	Trench 3 had more ceramics and lithics than the rest of the site
3	3	3009	F302	3010	Drainage ditch	Primary fill	F302 had a special find (SF26) at the base (lithic), Trench 3 had more ceramics and lithics than the rest of the site
4	4	4008	F401	4009	Ditch	Silting fill	Trench 4 had 21 probable lithics including special find SF29, likely to be a flake, plus ceramic
4	6	4006	F402		Posthole	Silting fill	Posthole cuts ditch F401 (and/or fill of). Trench 4 had 21 probable lithics including special find SF29, likely to be a flake, plus ceramic
5	5	5003	F501		Ditch	Upper silting fill	There were lithics in layer underlying (5003)

Table 12: Results of assessment of charred plant remains and charcoal from Moorsholm (MOO22) flots

Sample	Context	Feature No.	Original sample volume/l	Flot volume with/without roots/ml	Charcoal fragments >4mm	Charcoal fragments 2-4mm	Cereal grain	Other
1	1004	F101	20	40/2		-	Hordeum sp. grain (-)	Small weed seeds (including *Ranunculus* sp.), possibly modern/uncharred (-); fragments of rhizome (-); worm egg capsule (-)
2	3008	F301	18	350/15	+	+++	endosperm fragments (unidentifiable) (-)	Tiny weed seeds (unidentified), probably modern/uncharred (-)
3	3009	F302	14	100/4	-	+	Hulled *Hordeum* sp. grain (-); cf. *Hordeum* sp. grain (-); fragments of endosperm (unidentifiable) (-)	Fragments of rhizome (-); small weed seeds (cf. *Dunthonia decumbens*) possibly modern/uncharred (-)
4	4008	F401	20	200/0.5		+	Endosperm fragments (unidentifiable) (-)	Vicia/Lathryus seed (-)
6	4006	F402	6	44612	-	+	Endosperm fragments (unidentifiable) (-)	Small-seeded legume (*Medicago/Trifolium* type) seed (-); fragment of insect larva (-)
5	5003	F501	20	85/2	-	-	NA	NA

Abundance scores: - <10; + 10-29; ++ 30-49; +++ 50-99; ++++ 100-499; +++++ ≥500. Abbreviations: indet. – indeterminate; sp. – species of the preceding genus (singular); spp. – species of the preceding genus (plural); cf. – compares with/is most like.

Table 13: Contents of heavy residues for Moorsholm (MOO22) flotation samples

Sample	Context	Volume >4mm/ml	Content >4mm	Volume 2-4mm/ml	Content 2-4mm	Volume <2mm/ml	<2mm magnetic
1	1004	430	c.97% pebbles; charcoal (+); magnetic (-); flint/chert (?debitage/microliths) (-)	150	c.95% pebbles; charcoal (++++); magnetic (++++); ? – tiny black cylinder with white horizontal stripes (fossil or bead?) (-)	175	+++++
2	3008	430	>95% pebbles; charcoal (+); magnetic (-); flint/chert (?debitage/microliths) (-); ?obsidian (-); ?ceramic (-); ?CBM (-)	175	>95% pebbles; charcoal (++++); magnetic (++++); flint/chert (-); ?CBM (-)	150	+++++
3	3009	1200	c.95% stone/sandstone – mostly angular, some pebbles; ?CBM (-); quartz pebble (-); charcoal (-); magnetic (+); flint/chert (?debitage/microliths) (-)	190	c.95% small stones/sandstone; charcoal (++++), magnetic (++++) (including cf. haematite (-)); flint/chert (-); ?CBM (-)	160	+++++
4	4008	4000	c.95% pebbles/large stones/sandstone; ?CBM (-); quartz pebbles (-); charcoal (-); magnetic (-)	220	c.95% pebbles/stones; flint/chert (?debitage/microliths) (-); charcoal (+++)	180	+++++
6	4006	600	c.90% angular stone/sandstone; c.5%small pebbles; quartz pebbles (-); ?CBM (-); charcoal (-); magnetic (-)	110	c.90% angular stone/sandstone; c.5% small pebbles; ?CBM (+); charcoal (+); magnetic (+++); flint/chert (?debitage/microliths) (-)	90	+++++
5	5003	1300	c.95% stone/sandstone – mostly angular; cf. haematite (-); flint (-); ?CBM (-); charcoal (-); magnetic (-); quartz pebble (-)	180	c.95% small angular stones/sandstone; some quartz pebbles (-); charcoal (++); magnetic (++++)	170	++++

'?' before a find/type of material means it is uncertain/possible. Abundance scores: - <10; + 10-29; ++ 30-49; +++ 50-99; ++++ 100-499; +++++ ≥500. Abbreviations: CBM – ceramic building material.