



Bright Water Landscape Partnership Middleham Castle (Bishops Manor)

Post Excavation Assessment

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Purpose of document

This document has been prepared as a Post-Excavation Assessment Report for Bright Water Landscape Partnership, Durham County Council Archaeology Section, Historic England and other stakeholders. The purpose of this document is to provide a comprehensive account of the excavation undertaken at Middleham Castle (Bishops Manor) with specialist assessment of finds and samples, and recommendations for further investigation and analysis. It is supported by an easily accessible online database of all written, drawn, photographic and digital data, and recommendations for further analysis.

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Project summary

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Executive summary

DigVentures was commissioned by the Bright Water Landscape Partnership to excavate two trenches following geophysical survey. The overarching aim of this fieldwork was to provide baseline information to contribute to the future management and research of the site, creating multiple educational and participatory learning experiences for community participants.

Fieldwork took place between 5th and 25th August 2019 (DigVentures project code: MDC19). This stage of the project was designed to understand the layout of the castle interior, recover details of the form, character and function of the buildings and retrieve an assemblage of artefacts and ecofacts to illustrate daily life and the material culture of the inhabitants as well as the relationship of the remains to nearby sites and how the settlement played a role in the wider environs.

This report presents results from the excavation, incorporating specialist assessment. The potential of these results to achieve the aims and objectives of the project are discussed in the final section of this report, followed by a detailed list of specialist recommendations for further analysis. As this work was undertaken as part of an ongoing programme of archaeological works at Middleham Castle, it is intended that full analysis and reporting will be undertaken once all stages of investigative work have been completed and assessed.

Results summary

Fieldwork was undertaken between the 5th to 25th of August 2019, following on from desk-based research, earlier geophysical and topographical surveys (Francis 1998, 1999) and a new geophysical magnetic survey (Phase Site Investigations 2019). Documentary evidence suggests an elite status for Middleham Castle with phases of structural development and alterations by successive Bishops. Remote sensing has provided a detailed account of the extent, layout and complexity of the site, but its development, nature and chronology remain elusive. Therefore, a programme of excavation was designed to investigate the castle layout (Forster and Brightman 2019).

Significant structural remains were uncovered in the excavations suggestive of high-status buildings within both trenches indicative of the elite status of the Middleham Castle as a whole. The fieldwork recovered details of the form, character, chronology and function of structures retrieving an assemblage of artefacts and ecofacts providing insight into the decoration of the buildings, the daily life and material culture of the inhabitants. This will aid in the exploration of the relationship of the remains to nearby sites, including similar episcopal sites and how these settlements played a role in the wider environs.

All data was recorded by project archaeologists using a web accessible relational database. This is housed on the project microsite, which can be explored by following the links shown in green font throughout the report.

<https://digventures.com/bright-water/background/bishop-middleham-castle/>



In Trench 1 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its subsequent abandonment. The earliest phase of activity was associated with the foundations of an earlier wall or structure F10 dating before the mid-12th century AD. The second phase was associated with E-W aligned walls F15 and F16. It likely dated to the mid-12th to early-13th century AD. The third phase involved the subsequent remodelling of the existing walls and construction of N-S aligned wall F17 to form building F14. Building F14 represented the final configuration of the bishop's manor house before its demolition and abandonment. It likely dated to the mid-13th and 14th century AD, although may have continued into the early-15th century AD. The fourth phase was related to the eventual demolition and abandonment of the building. It was probably intentionally demolished and stripped of materials. Most likely the demolition occurred later in than the 15th-16th century AD. A fifth phase related to the post-medieval accumulation and soil formation was also recorded.

In Trench 2 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its subsequent demolition. The earliest phase was associated with earlier structure F3. The full extent of the structure was unclear, continuing beyond the limit of excavations, and partially obscured by later structure F1. It may have dated from the mid-12th-13th century AD, although was only poorly dated. North of a structure F3 was a line of stones that may have been foundations of an adjacent wooden structure. It was not excavated due to time constraints, so the exact function and age of the stone feature is unclear. The second phase was associated with the construction of E-W aligned wall F9 and N-S aligned wall F2 to form building F1. The walls were similarly constructed, probably contemporary in age, and square-spaced recessed sockets integrated into the walls likely held timber uprights. Building F1 was associated with the remnants of floor surfaces and occupation waste likely dating from the mid-13th and 14th century AD. The third phase was related to the eventual demolition and abandonment of the building, likely dated to the 15th century AD. A fourth and final phase was related to post-medieval accumulation and soil formation.

Public engagement was integral to the research aims and the success of the project. Evaluation of the three-week programme showed significant impact on visitors excavation participants. The project succeeded in attracting a diverse audience with a marked improvement on existing community archaeology provision. The overall perception of archaeology and local history was improved by developing and honing skills and understanding of the discipline. Most visitors described an improved perception of the immediate Middleham Castle locality because of seeing the excavation. Insights gained from this evaluation have established a clear community need and demand for more archaeological work at Middleham Castle and could assist with funding applications for any future activities.



Contents

1	INTRODUCTION	10
1.1	Project background	10
1.2	Site location, topography and geology.....	10
2	ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.....	11
2.1	Introduction	11
2.2	Research background	11
2.3	Historic background	13
2.4	The wider regional context.....	14
2.5	Summary of previous work at the site	14
3	PROJECT AIMS AND OBJECTIVES	16
3.1	Project model	16
3.2	Research aims	16
4	METHODOLOGY	18
4.1	Photogrammetric survey.....	18
4.2	Excavation.....	18
4.3	Artefacts and ecofacts	19
5	EXCAVATION RESULTS	21
5.1	Introduction	21
5.2	Trench 1 (Figure 3).....	22
5.3	Trench 2 (Figure 4).....	25
6	ARTEFACTS AND ECOFACTS	27
6.1	Summary	27
6.2	Pottery	28
6.3	Animal bone	30
6.4	Ceramic building material	32
6.5	Stone building material	32
6.6	Mortar	33
6.7	Metalwork	33
6.8	Industrial waste	34
6.9	Glass	34
6.10	Clay pipe	34
6.11	Environmental	35
7	PUBLIC IMPACT	36
7.1	Introduction	36
7.2	Public programming	37
7.3	Evaluation methodology	37
7.4	Social impact – participants.....	38
7.5	Social impact – communities	40
8	DISCUSSION AND CONCLUSIONS	41
8.1	Introduction	41
8.2	Background.....	41
8.3	Remote Sensing.....	41
8.4	Chronology	42
8.5	Environmental conditions	44



8.6	Public engagement.....	44
8.7	Conclusions.....	46
9	RECOMMENDATIONS	47
9.2	Excavation.....	47
9.3	Finds and ecofacts.....	48
10	BIBLIOGRAPHY.....	48

Tables

Table 1:	Trench 1 context descriptions	62
Table 2:	Trench 2 context descriptions	66
Table 3:	Pottery catalogue	69
Table 4:	CBM catalogue.....	74
Table 5:	Worked stone catalogue	75
Table 6:	Mortar catalogue	76
Table 7:	Fe catalogue.....	77
Table 8:	Cu alloy.....	80
Table 9:	Mixed metals	80
Table 10:	Silver catalogue	81
Table 11:	Lead catalogue	81
Table 12:	Glass catalogue	82
Table 13:	Clay pipe catalogue	82
Table 14:	Catalogue of metal working debris.....	83
Table 15:	Dimension of the Hearth Bottom	83
Table 16:	Data derived from the HH-XRF Analyses	83
Table 17:	Summary of identifiable mammal remains.....	85
Table 18:	Summary of unidentifiable mammal remains.....	85
Table 19:	Summary of bird remains	86
Table 20:	Summary of fish remains	86
Table 21:	Summary of marine molluscs.....	86
Table 22:	Summary of vertebrate remains with butchery evidence, count.....	87
Table 23:	Palaeoenvironmental sample assessment.....	88

Figures

Figure 1:	Site location.....	52
Figure 2:	Trench 1 & 2 locations overlying mapping and geophysics	53
Figure 3:	Trench 1 excavation results.....	54
Figure 4:	Trench 2 excavation results.....	55
Figure 5:	Site photos	56
Figure 6:	Age, gender and socio-economic background	57
Figure 7:	Average distance from site for visitors and participants of all visitors to project	58
Figure 8:	Motivations and highlights of participants	59
Figure 9:	Venturers	60
Figure 10:	Age, gender and impressions of visitors.....	61



Appendices

Appendix 1. Trench and context descriptions	62
Appendix 2. Pottery catalogue.....	69
Appendix 3: Pottery fabric descriptions	72
Appendix 4: Building materials catalogue	74
Appendix 5. Metalwork catalogue	77
Appendix 6. Glass catalogue.....	82
Appendix 6. Clay pipe catalogue.....	82
Appendix 7. Industrial waste catalogue	83
Appendix 8: Animal bone catalogue.....	85
Appendix 9: Environmental catalogue	88



1 INTRODUCTION

1.1 Project background

1.1.1 DigVentures has been appointed by the Bright Water Landscape Partnership and Durham County Council Archaeology Section (DCCAS) to undertake a community investigation at Middleham Castle, Bishop Middleham, County Durham, hereafter 'the Site' (Figure 1). This investigation represents the first season of a multi-staged project comprising of a two-year programme of community archaeological excavation at the Site. This report presents an assessment of the findings from the first season of fieldwork undertaken in August 2019. The excavations were informed by geophysical survey undertaken in July 2019 (Phase Site Investigations 2019). The overarching aim of the fieldwork was to characterise the scale, depth and density of the extant archaeological remains pertaining to the history of the bishop's manor house, from its early development to later use. A second season of field investigation comprising further archaeological excavation at the site is planned for March 2021, the methodology for which will be detailed in an Updated Project Design.

1.1.2 Middleham Castle is a Scheduled Monument under the Ancient Monuments and Archaeological Areas Act 1979 (Historic England List Entry No. 1002330). Following consultation with Historic England, a Project Design (Forster and Brightman 2019) 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 an excavation and assessment stage. Scheduled Monument Consent was granted by Lee McFarlane (Historic England, Inspector of Ancient Monuments, North East Region), acting under direction from the Secretary of State for Culture Media and Sport for the 2019 field season. Fieldwork took place between 5th to 25th of August 2019 (DigVentures Project Code: MDC19). An assessment of the results is presented here and have been circulated for peer review and consultation with the wider project team.

1.1.3 The report is one of several archive and dissemination products generated by the project including the digital archive and metadata, the paper archive and the artefact and environmental material recovered and recorded. All archive material is currently held by DigVentures and will, when the project is complete, be deposited with the Durham County Council Historic Environment Record, Archaeological Data Service, OASIS portal and will be available on the project microsite:

<https://digventures.com/bright-water/>

1.2 Site location, topography and geology

1.2.1 The site of Middleham Castle (NZ 32714 31046) covers an area of approximately three hectares situated on the outskirts of Bishop Middleham village, on land to the south of Church Street and St Michaels Church. The area defined as the castle measures approximately 200m x 150m and includes earthworks denoting the remains of buildings, banks and ditches. Middleham Castle is a Scheduled Monument under the Ancient Monuments and Archaeological Areas Act 1979 (Historic England List Entry No. 1002330).

- 1.2.2 The key settlement pattern characteristic of this area comprise old agricultural villages scattered thinly across the landscape. Bishop Middleham is a good example, with buildings of local limestone or carboniferous sandstone, roofed with slate or clay pantile and set around a village green. Settlements often include a medieval core, with 19th and 20th century housing and local authority housing located at the settlement edge, although at Bishop Middleham it is also to be found within the heart of the historic core (Durham County Council 2012).
- 1.2.3 Middleham Castle is located on sedimentary dolostone bedrock of the Ford Formation, which formed 252-272 million years ago when the Local environment was dominated by shallow carbonate seas. These sedimentary rocks are shallow-marine in origin and generally comprise carbonate material including fossilised coral and molluscs. The superficial geology was formed through glacial action creating till and glaciofluvial deposits of sand and gravel during the Devension period of the Quaternary up to 2 million years ago. The area is also interspersed with alluvial deposits of clay, silt, sand and gravel resulting from the fluvial processes of the rivers that once existed here (BGS, <http://mapapps.bgs.ac.uk>).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 The investigation of Middleham Castle contributes to a key theme of the Bright Water Landscape Partnership investigating the impact of the Church on settlement and landscape development in the Bright Water area. Desk-based research, geophysical survey and archaeological excavation at Middleham Castle have been undertaken during the first phase of the project, and an ongoing programme of research is underway. The project results provide new evidence for understanding human impacts on the Bright Water landscape during the medieval period.

2.2 Research background

- 2.2.1 Bishops were among the most powerful figures in medieval Britain, controlling vast swathes of land and were major drivers of ecological, social and political change. Consequently, the role of medieval bishops has long captured both scholarly and public attention (Rollason 2017). Unlike some other medieval building types, bishop's houses were particularly diverse and regionally variable. The Bishops of Durham alone possessed 18 residences intermittently, consisting of castles, palaces, manor houses and hunting lodges, together with numerous parks (Smith and Graves 2017). Traditionally, narratives of bishops are based on evidence from documentary sources, whilst the contribution of archaeological research has tended to be minimal (Petts and Gerrard 2006; Smith 2016). There are estimated to have been more than 300 medieval bishop's houses and their associated landscapes in England and Wales (Thompson 1998). Few of these houses have been investigated in detail, fewer still have had modern scientific archaeological techniques applied to them. As a result, our understanding of bishop's houses is fragmentary, often focused solely around standing building remains and lack the depth of focus to best distinguish patterns of uniqueness and commonality related to this site type.
- 2.2.2 In recent years, development-led archaeology has provided valuable contributions to the archaeological record. Among the residences of the Bishops of Durham, three

sites have been the focus of intense archaeological investigation in the last ten years (Westgate Castle (ASDU 2014), Darlington Bishop's Manor (ASDU 2014), Auckland Castle (ASDU 2013-2019). Results from these projects highlight the potential to discover new and intriguing information about their nature, development and use. The discovery of previously unknown buildings has transformed our knowledge of the scale and development at these sites, while palaeoenvironmental and faunal remains recovered through excavation have informed our understanding of consumption, production, trade and landscape exploitation. Elsewhere, geophysical prospection has been used to ground-truth observations from documentary sources (Dunning 2010), while detailed standing buildings analysis has informed reinterpretations of building chronologies (White and Cook 2015). While adding to our knowledge of bishops' houses, the results from these projects highlight the deficits in our understandings of these sites and the potential contribution of using a range of archaeological techniques.

2.2.3 Further archaeological study of Middleham Castle provides a unique opportunity to investigate two key aspects of which we know tantalisingly little. Firstly, owing to the limited use of Middleham Castle as a residence, the in-situ building remains have the potential to reveal important insights into the early formation of bishop's houses, and possibly shed light on its abandonment. Middleham Castle is known to have been occupied from the 12th-14th centuries, though the buildings likely date from earlier, and were regularly occupied until the mid-14th century, though the bishop's maintained ownership of the site until 1649 (Smith 2016). Its decline in use coincides with identified trends in increased building elsewhere (Smith 2016), which continued into later periods. Consequently, at other bishop's houses the early building phases are often obscured. Moreover, there has been no post-medieval development on the site of Bishop Middleham Castle, providing unprecedented access to a relatively undisturbed 12th-14th century episcopal residence. To date, there are no other episcopal residences that have been excavated in England and Wales which can boast this combination of factors.

2.2.4 Secondly, studies of the surviving documentary accounts for Middleham Castle reveal that the surrounding park was used to produce a range of resources between the 14th-17th centuries, some of which were not produced at other residences of the Bishops of Durham. Medieval accounts indicate that the watery landscape was used for the rearing of swans and doves, and to produce hay from meadows/watermeadows (Smith 2016). Additionally, earthworks identified as fishponds provide an additional use for the site. These accounts are partial however, and it is likely that this landscape served more varied and complex capacities we do not understand yet. Unexpected discoveries of hemp pollen from fishponds at Ellerton Priory reveal the potential of these features to yield fascinating insights into undocumented aspects of the past (Geary et al 2005: 319). The survival of shells recovered from crumbling wall sections (Smith and Graves 2017) together with the natural propensity of the landscape to flood, all suggest that there is the high potential for the survival of organic remains both atop the rocky outcrop and in the immediate landscape. The recovery of faunal and palaeoenvironmental remains have the potential to further understandings of the extent of the ecological management of the landscapes by bishops.

2.3 Historic background

- 2.3.1 Bishop Middleham village is thought to have Anglo-Saxon origins with Middleham meaning middle settlement. The village is recorded in 1183 in the 'Boldon Book', a survey of all the land owned by the Bishop of Durham, stating that there were 32 households in the village (DCC 2012). The village may have been the central stopping off point for the bishop travelling between his castles at Durham and Stockton, or it may have been a village in the centre of an Anglo-Saxon estate (Watts 2002, p.77).
- 2.3.2 Middleham castle located to the south of the village was used as a high-status building for the bishops from about the 11th to the 14th century. The castle stands on a promontory surrounded with water on three sides (DCC 2012). With a narrow and restricted causeway leading into the complex, Middleham Castle may have resembled a peninsula whilst elements of the watery landscape and steep escarpments parallel other episcopal residence sites (Smith and Graves 2017, 31). Another Manor House linked to the Bishop of Durham, Wheel Hall in Riccall (North Yorkshire), was set in an area notorious for flooding but seems to have been deliberately located, described as the 'house in the river-deep' in the 14th century (Smith 1937, cited in Smith and Graves 2017, 31).
- 2.3.3 The marshy ground below Middleham Castle was used for fishponds, meadowland and a swannery (Durham County Council 2012). Documentary evidence suggests that Middleham Castle was used for the rearing and keeping of swans (Smith and Graves 2017, 33). In 1998, oyster shell and medieval pottery were discovered to have eroded out of one side of the hilltop following a storm (S. G. Pritchard, pers. comm. 1998, cited in Smith and Graves, 33). This evidence suggests that the breeding of swans and consumption of oysters represents elite activity within a managed landscape involving the exploitation of natural resources already well attested by documentary sources at Darlington Manor and Westgate Castle (Smith and Graves 2017, 33).
- 2.3.4 Historic evidence provides a well-documented list of the Bishops who occupied and attended the site, including names of bishops from the 12th to 14th centuries, Bishop Pudey (1183), Bishop Philip De Poitou (1197-1208), Robert of Holy Island (1283) and Richard Kellaw (1316) who died on the site, Bishop Hatfield (1349 – 50) who undertook extensive repairs (VCH 1928). By 1384 references to the Bishops' occupation of the site ceases and the residence of the Bishops now only survives as earthwork remains to the south of the village (DCC 2012).
- 2.3.5 There is evidence for a medieval deer park surrounding Middleham Castle which may contain evidence of earlier settlement patterns which pre-date the 11th century, the remains of deer houses or park keepers' quarters. Fragments of the original walling and gates also survive (Durham County Council 2012). Portions of the original park pale set within a later stone wall mark out parts of the original park boundary which enclosed areas of known carr land wetland (Hardie 2010, cited in Smith and Graves, 33).
- 2.3.6 To the north of the castle the church of St Michael stands on high ground at the southwest side of the village of Middleham. The church is an 11th or 12th century church foundation (Durham County Council 2012). The surviving building is early 13th century in date with the exception of the modern vestry. The original medieval floor plan is intact but unfortunately successive alterations and restorations have destroyed

many of the early features. Originally the windows were all lancet openings but they only survive in the north and south sides of the chancel and at the ends of the aisles (VCH 1928).

2.4 The wider regional context

2.4.1 The community archaeology projects delivered as part of the Bright Water Landscape Partnership will provide the community with knowledge, transferable skills and an identity based in landscape commonality. In addition, the programme of activities provides an excellent opportunity to contribute new research to our understanding of past human activity in the region. Addressing the research themes and questions posed in the North-East Regional Research Framework (NERRF, Petts and Gerrard 2006), as well as those raised more recently as a result of developer-led archaeology and academic research will ensure maximum impact and legacy for the Bright Water Landscape Partnership and Durham County Council Archaeology Section in the archaeological sphere.

2.4.2 The archaeology undertaken as part of the wider project could reveal evidence for a journey through human activity in the Bright Water area over a period of over 12,000 years; from the potential for preservation of evidence for early post-glacial activity in the organic-rich peat deposits of the Carr-lands, to the model farms and mills of the 18th to 19th centuries, taking in the Roman and medieval periods along the way. The Bright Water community archaeology programme as a whole can address some shared themes;

- Chronology - establishing chronologies for human activity in the past remains one of the most critical aspects of archaeological research. This is highlighted in each of the cultural periods defined in the NERRF (Petts and Gerrard 2006).
- Industry and Transport - being critical to the expansion of and success of settlement in the North East in more recent times, and the collapse of industry leading to the increasing signs of failure to sustain the once booming economy. However, industry and transport have been an important aspect of this region since at least Roman times (Petts and Gerrard 2006, 223-225).
- Cultural Identity - understanding archaeological evidence in terms of identifying cultural identities in the past is a challenging task, but an important one, especially given the current political context in which the Bright Water programme will operate. Results derived from the fieldwork embedded in the programme could contribute significantly to the current knowledge base and discussion around identity in the Bright Water area through time (Petts and Gerrard 2006, 217-218).

2.5 Summary of previous work at the site

2.5.1 A geophysical and topographical survey was previously undertaken by Francis (1998) and conducted as part of a postgraduate dissertation. The work continued in 1999, again by Francis and with the Archaeological Services Durham University, commissioned by Niall Hammond for Durham County Council. This comprised a full hilltop survey with a closer sampling interval (Francis 1999).

2.5.2 Survey data confirmed the presence of stone buildings or structures spread around the sides of the hilltop including a series of individual buildings. The main concentration directly corresponded with the surviving earthworks on the eastern side

of the hill. There were indications of the existence of an encircling wall, a possible western gateway and, at the extreme northwest of the site, possible footings of two large wooden buildings of presumed medieval or early post medieval date. There were general indications that there was a greater survival remains much further north than was previously considered (Francis 1999 p.3).

- 2.5.3 A strong positive anomaly was interpreted as a possible large oven located in the northeast of the site. To the south of the site an east-west aligned building was indicated that informed the positioning of Trench 1. To the immediate north of this building was a possible north-south aligned building with a circular feature. Together they formed a possible L-shaped complex suggestive of a chapel and hall (Francis 1999 p.4).
- 2.5.4 The survey was later discussed by Smith and Graves, in their review of the residencies of the medieval Bishops of Durham (2017). The authors concluded that the surveys undertaken by Francis (1998, 1999) provided a valuable indication of the spatial arrangement within the residence complex, although specific spaces could not be identified with confidence. In order to understand the buildings and to consider the relationship of Middleham Castle to the form, layout, and development of other residences of the Bishops of Durham more data and ground observation would be required (Smith and Graves 2017).
- 2.5.5 As part of the current investigations, a new geophysical magnetic survey was undertaken in advance of the community excavations (Phase Site Investigations 2019). The aim of the latest survey was to help establish the presence/absence of buried features, including the extent, character, relationships, and potential date. A 3 ha area was targeted for geophysical magnetic survey in July 2019 (Figure 2). Owing to the presence of dense vegetation and steep slopes the area accessible and suitable for survey was reduced to 1.6 ha. The topography of the site meant that the survey was split into two areas. The northern part of the site was an area of higher ground sloping steeply downwards to the east, south and southeast. The southern part of the site was relatively level. The ground was generally firm underfoot but was uneven in some areas in the east of the site. There were areas of dense vegetation and a gravel track ran through part of the site.
- 2.5.6 A number of anomalies corresponded with earthworks and were likely to be associated with the remains of Middleham Castle. Anomalies indicative of infilled features likely reflecting enclosures or sub-enclosures rather than buildings were indicated in the northwest of the area. These do not appear to relate to earthworks, and it was considered that they may predate Middleham Castle. A number of trends were present in the south of the area but it was not certain if these were related to anthropogenic features/activity (of unknown date or function) or natural features/variations. Several other weak trends and positive responses were also present. Some of these could have been related to archaeological features or activity (either associated with the remnants of the castle or features that may pre-date it). Many of the responses may have been caused by relatively modern material or activity or natural features/variations. A greater survival of remains were generally indicated much further north than was previously considered. There were also indications of the existence of two large enclosures that could be earlier than the foundation of Middleham Castle interpreted in the earlier survey as possible footings of two large enclosures or wooden buildings thought likely to be medieval or early post-medieval.

There was also earthwork evidence of a linear embankment, possibly a northern boundary wall with structures set inside, which was corroborated by the recent geophysical survey and informed the positioning of Trench 2 (Figure 1).

- 2.5.7 Whilst the evidence visible within the landscape and results of geophysical survey provide a detailed account of the extent, layout and complexity of the site, its development, nature and chronology remained elusive. The community field investigation undertaken as part of the Bright Water Landscape Partnership in 2019, has provided the means to test the results of geophysical survey and explore the site's development in greater detail.

3 PROJECT AIMS AND OBJECTIVES

3.1 Project model

- 3.1.1 The overarching aim of the archaeological excavation was to define and characterise the physical extent of the sites through a programme of non-intrusive investigations (desk based assessment, LiDAR data and geophysical survey) and intrusive excavation, obtaining baseline data that will facilitate its future management, research, presentation and enjoyment in line with the recommendations made in the North East Regional Research Framework (Petts and Gerrard 2006).

3.2 Research aims

- 3.2.1 The following aims were refined from those outlined in the overarching project design for Bright Water Landscape Partnership Lot 2: Built Heritage: Ecclesiastical (Forster and Brightman 2019) prepared in response to a Design Brief produced by Durham County Council Archaeology Section and relate specifically to Bright Water Landscape Partnership Lot 2A: Middleham Castle (Bishops Manor).

Aim 1: Identify the physical extent and character of the archaeological remains on the site with a programme of desk-based research and remote sensing.

- 3.2.2 This aim was built on previous geophysical and topographical surveys (Francis 1998, 1999; Smith and Graves 2017) along with a new programme of geophysical (magnetometry/ GPR/resistivity), (Phase Site Investigations 2019). These low impact tools added to our understanding of the monument and the results have been used to support plans for interventions and enabled us to determine likely features for targeted trenching designed to characterise features identified through these surveys addressing specific questions:

- Q1: In light of current findings from projects at similar sites, do any outstanding research objectives from previous research or earlier phase of remote sensing still remain to be addressed?
- Q2: Can the layout of the site and associated sub-surface archaeology be established by remote survey?
- Q3: Can we identify any phasing in the topographic or remote sensing anomalies indicative of an extended period of use?
- Q4: Can we establish the current risk to the archaeological remains from cultivation and natural erosion?

Aim 2 – Characterise the results of desk-based research and non-invasive survey, refining the chronology and phasing of the site with a programme of excavation or environmental sampling

3.2.3 This aim was achieved through using appropriate geoarchaeological, palaeoenvironmental and archaeological techniques to evaluate the nature and quality of the survival of building remains, artefacts, faunal and palaeoenvironmental remains. It added to our understanding of the following questions:

- Q5: Can we corroborate chronological phasing for the sites, including the presence of earlier and later features and structures, as defined in Aim 1?
- Q6: What are the typical and atypical features of the archaeological remains at Middleham Castle and did this influence the functions and activities that took place?
- Q7: What is the landscape setting and character surrounding the sites and how did this shape their location, design and development?

Aim 3 – Understand the site’s archaeological and palaeoenvironmental conditions.

3.2.4 This aim was achieved with an assessment of the samples as defined and recovered in Aim 2, using appropriate palaeoenvironmental and archaeological techniques to establish preservation and significance.

- Q8: What is the current state of the archaeological and palaeoenvironmental material across the site?
- Q9: How well do deposits and artefacts survive, and how deeply are they buried?
- Q10: Can the palaeoenvironmental data recovered from sampling in the excavation inform us about seasonal farming regimes, specialised food processing or industrial activities that may have taken place at the site?
- Q11: What is the range and spatial patterning of ecofacts and artefacts recovered from the sites?
- Q12: Can we increase our understanding of the local environment during the formation and/or occupation of the site?

Aim 4 – Making recommendations, analysis and publication.

3.2.5 This aim requires all data from Aims 1-3 to be collated, with an integrated synthesis of the archaeological and palaeoenvironmental resource at the Site. Recommendations will be made to conserve, enhance and interpret the heritage significance of the Site, proposing either further fieldwork stages, and/or analysis, publication and final archiving.

- Q13: What can an integrated synthesis of the results of this work with previous studies of contemporary regional sites tell us about the sites and their settings?
- Q14: In light of the evidence recovered from this and previous work, can we articulate a link between the periods of use of the sites and their different areas?
- Q15: Can we formulate recommendations for further archaeological or palaeoenvironmental analysis based on Aims 1-3, and implement a programme to publish and disseminate the results or continue fieldwork into additional seasons?
- Q16: Is the current extent of the scheduled area appropriate to the extent of the site, and can we provide any further information to Historic England to inform future decisions around scheduled area?

- Q17: What strategies should be put in place in order to protect archaeological remains and deposits at Middleham Castle for the enjoyment of future generations?

Aim 5 – To engage and train local people in the research of Bright Water Study Area and provide opportunities for public engagement.

3.2.6 The project offered a range of opportunities for local community members to get involved, providing training in heritage skills linked to the assessment and analysis of historic buildings. As part of the overarching project, providing opportunities for volunteers was an important component of the defined aims. Key objectives included:

- To further the study, understanding and enjoyment of the Bright Water Study Area by interested individuals and community groups
- To recruit and retain a core team of volunteers to collect data, and to analyse and interrogate the results
- The provision of training, guidance and technical support to members of the community in desk-based research, geophysical survey, laser scanning, photogrammetry, archaeological excavation and historic landscape interpretation.

4 METHODOLOGY

4.1 Photogrammetric survey

4.1.1 A photogrammetric survey of the excavation trenches was made in accordance with Historic England's (2017) *Photogrammetric Applications for Cultural Heritage: Guidance for Good Practice* to assist in recording any remains encountered. The survey utilised Agisoft Metashape 3D Modelling software to detect the feature points of the structure and match these in different images to create a point cloud, from which photo realistic 3D models were generated. All models were georeferenced using a minimum of eight coded targets for each model, surveyed into the National Grid using a robotic total station.

4.1.2 Images were captured perpendicular to the structure using telescopic mounted cameras, to deliver optimum results requiring little or no rectification. All images are taken with at least a 16 mega pixel Nikon D7000 / Canon 750D digital camera (unless other cameras are specified) with a variety of standard and other lenses and are captured in RAW format for later processing into high resolution JPG and TIF files and downloaded directly on to the hard disk of the laptop.

4.2 Excavation

4.2.1 All work was completed to ClfA (2014a) *Standard and guidance for archaeological excavation* and was undertaken in accordance with the standards set out within the Project Design (Forster and Brightman 2019). The excavation was carried out in accordance with the company Health and Safety Policy, to standards defined in The Health and Safety at Work Act 1974, and The Management of Health and Safety at Work Regulations 1992.

4.2.2 Excavation took place between the 5th and 25th of August 2019, principally designed to address the research questions associated with Aims 1, 2 and 5 (Section 3.2). This entailed a program of targeted interventions, comprising two trenches designed to investigate the nature, extent and character of the archaeological deposits relating to the Middleham Castle (Bishops Manor) (see Aims and Objectives, Section 3).

- Trench 1 focused on the eastern end of an east-west aligned building at the southern limit of the castle enclosure to characterise the form, use and age of a possible hall structure that had the potential to contribute considerably to the story of the site.
- Trench 2 was focused on the outworks and associated structures at the northern limit of the castle enclosure to establish the northern limit of the site and the nature of this northern boundary as a priority.

4.2.3 All trenches were located using a GPS prior to the commencement of work, and each area using the results of pre-existing non-invasive survey data ((Phase Site Investigations 2019). Trenches were hand dug, cleaned, planned and photographed. Any archaeological features and deposits exposed in the evaluation trenches were hand-cleaned and excavated to determine their nature, character and date. Carefully chosen cross-sections were then excavated through features to enable sufficient information about form, development, date and stratigraphic relationships to be recorded. All excavated features were dry sieved for artefacts using a 10mm gauge.

4.2.4 A complete drawn record of the trenches comprises both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix A. Layers and fills are recorded with curved brackets (001), whilst the cut of the feature is shown [001]. Each context is prefixed with the relevant Trench number (i.e. Trench 6, 6001+, Trench 7, 7001+). Features have been specified in a similar manner, pre-fixed with the letter F (i.e. Trench 6, F601+, Trench 7, F701+).

4.2.5 All interventions were surveyed using a dGPS tied into the Ordnance Survey grid. All recording was undertaken using the DigVentures Digital Dig Team recording system. Digital Dig Team is DigVentures' bespoke, cloud-based, open data recording platform, designed to enable researchers to publish data directly from the field using any web-enabled device (such as a smartphone or tablet) into a live relational database. Once recorded, the born-digital archive is instantly accessible via open access on a dedicated website and published to social profiles of all project participants (community, professional and specialist). Links to all individual trench, feature and context records are provided in Appendix A, from where all associated finds, samples, plans, sections, photographic records and 3D models can also be explored.

4.3 Artefacts and ecofacts

4.3.1 Finds were treated in accordance with the relevant guidance given in the ClfA's *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (2014b), except 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.

Animal bone

- 4.3.2 All animal remains were identified to element, side and to as low a taxonomic level as possible using the Author's reference collection and published and online identification guides (Hillson 2003; 2005). Quantification used the diagnostic zone method as presented by Dobney and Rielly (1988). A taphonomic assessment of each fragment was undertaken, recording the presence and absence of cut and chop marks, burning and calcination, any evidence for animal activity (canid or rodent gnawing), and surface preservation; any other surface modifications of note were also recorded. At this stage, no attempt was made to sex any of the remains, or to measure any elements. Sheep (*Ovis* sp.) and goat (*Capra* sp.) distinction was also not considered. Fragments of bones that could be identified to element but not any specific species were grouped as far as possible using size and class or order categories. Results were recorded in an electronic proforma in Microsoft Excel.
- 4.3.3 The assessment of the data follows the standards and guidelines published by Historic England (Baker and Worley 2019) and the Chartered Institute for Archaeologists (2014), with reference to the North-East Regional Research Framework (Petts and Gerrard 2006) and the Project Design (Forster and Brightman 2019).

Industrial waste

- 4.3.4 The slags were visually examined and the classification is based on morphology with additional data obtained from Hand-Held X-Ray Fluorescence Analysis. The debris associated with metalworking, or submitted in the understanding that they are associated with metalworking, can be divided into two broad groups; residues diagnostic of a particular metallurgical process or non-diagnostic residues that may have derived from any pyrotechnological process (McDonnell 2001). The diagnostic ferrous debris can be attributed to a particular ironworking process; these comprise ores and the ironworking slags, i.e. the macro, hand recovered smelting and smithing slags and the micro-residues such as hammerscale and slag fragments recovered from sieving programmes. The second group, are the diagnostic non-ferrous metalworking debris, e.g. crucibles and moulds. Thirdly, there are the non-diagnostic slags, which could have been generated by a number of different processes but show no diagnostic characteristic that can identify the process. In many cases the non-diagnostic residues, e.g. hearth or furnace lining, may be ascribed to a particular process through archaeological association. The residue classifications used in the report are defined in Appendix 8.

Environmental

- 4.3.5 Bulk environmental soil samples for plant macrofossils, small animal bones and other small artefacts were taken from appropriate sealed and dateable archaeological contexts (each context will normally be sampled). Samples of between 20-40 litres were taken or 100% of smaller contexts. Samples were not taken from the intersection of features. Bulk environmental soil samples were processed by flotation and scanned

to assess the environmental potential of deposits, but were not fully analysed. The residues and sieved fractions were recorded and retained with the project archive.

- 4.3.6 Flots were sieved to 0.3mm and air dried. The heavy residue (the material which does not float) was not examined, and therefore the results presented here are based entirely on the material from the flot. The flot was examined under a low-power binocular microscope at magnifications between x12 and x40. A four point semi quantitative scale was used, from '1' – one or a few specimens (less than an estimated six per kg of raw sediment) to '4' – abundant remains (many specimens per kg or a major component of the matrix). Data were recorded on paper and subsequently on a personal computer using a Microsoft Access database.
- 4.3.7 Identification was carried out using published keys (Jacomet 2006, Biejerinkc 1976, Jones – unpublished and Zohary and Hopf 2000), online resources (<http://www.plantatlas.eu/za.php>), the authors own reference collection. Taxonomy and nomenclature follow Stace (1997).
- 4.3.8 The flot was then sieved into convenient fractions (4, 2, 1 and 0.3mm) for sorting and identification of charcoal fragments. Identifiable material was only present within the 4 and 2mm fractions. A random selection of ideally 100 fragments of charcoal of varying sizes was made, which were then identified. Where samples did not contain 100 identifiable fragments, all fragments were studied and recorded. Identification was made using the wood identification guides of Schweingruber (1978) and Hather (2000). Taxa identified only to genus cannot be identified more closely due to a lack of defining characteristics in charcoal material.

5 EXCAVATION RESULTS

Joshua Hogue and Stuart Noon

Digital context and feature records are accessible via the Digital Dig Team system and can be reviewed at <https://digventures.com/middleham-castle/ddt/browser.php> and by clicking on the links in green in the text.

5.1 Introduction

- 5.1.1 An archaeological excavation was carried out between the 5th and 25th August 2019 at Bishop Middleham Castle. The overarching aim of the investigations was to gain a better understanding of the layout of the castle interior, recover details of the form, character and function of the buildings and retrieve an assemblage of artefacts and ecofacts (Forster and Brightman 2019). The following stratigraphic assessment addresses Aim 2–3 Questions 5–12 of the Updated Project Design refining the chronology and phasing of the site through programme of excavation enabling a better understanding of the conditions of survival.
- 5.1.2 Excavation comprised two trenches focused on features identified through a recent programme of geophysical survey (Phase Site Investigation 2019) and previous results of geophysical and earthwork survey (see Section 4). **Trench 1** was broadly rectilinear in plan, measuring approximately 12m x 6 m. **Trench 2** was broadly L-shaped, measuring approximately 10m along its long edges and 3m wide. Figure 2 shows the location of the trenches in relation to the results of the recent geophysical survey

results. Figure 3 shows Trench 1 and Figure 4 shows Trench 2 final post-excavation plans derived from a rendered 3D model and GPS data. Detailed descriptions of contexts are included in Appendix 1.

5.2 Trench 1 (Figure 3)

5.2.1 In Trench 1 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its subsequent demolition. The earliest phase of activity was associated with the foundations of an earlier wall or structure F10, the second phase was associated with E-W aligned walls F15 and F16, the third phase involved the subsequent remodelling of the existing walls and construction of N-S aligned wall F17 to form building F14, and the fourth phase was related to the eventual demolition and abandonment of building. A fifth phase related to the post-medieval accumulation and soil formation was also recorded.

Phase 1 – Wall foundations F10

5.2.2 Natural geology F12 was only exposed in a relatively limited area of the site, comprising fractured bedrock (1015). The earliest phase of activity and construction was represented by wall foundations F10 which were exposed in plan in the northwest corner of the trench during the last few days of excavation and only partially excavated due to time constraints. The wall foundations were unbonded and made of roughly faced limestone blocks (1021) and would have been for a NNW-SSW aligned wall. The full extent of the foundations were unclear, continuing north-east beyond the limit of excavation and south-west beneath later structural remains, and due to the lack of further excavation it was not possible to attribute any function or usage to wall foundations F10. The wall foundations may have been for an isolated feature demarcating a boundary or have been part of a sequence of walls associated with a building. The only notable feature of wall foundations F10 was that they were on a NNW-SSW alignment and a different alignment from subsequent E-W aligned walls F15 and F16 and N-S aligned wall F17. The change in alignment of the walls is noteworthy and appears to suggest an earlier phase of building predating and potentially not related to the manor house. No dating evidence was recovered from wall foundations, although a *terminus post quem* is provided by the subsequent structural remains and associated occupational horizons of AD 1150-1300.

Phase 2 – Construction of walls F15 and F16

5.2.3 The second phase of activity and construction was represented by walls F15 and F16. Wall F15 was exposed in plan at the southern limit of the trench. It was E-W aligned and constructed of squared limestone blocks bonded with coarse lime mortar and a rubble core, (1008). It was 1.0m wide and survived 0.6m high. It continued eastwards and westwards beyond the limits of excavation and based on correlation with the geophysical survey results it survived at least 10m long. A *terminus anti quem* of AD 1150-1300 for wall was provided by a single potsherd of splash glazed jug recovered from beneath the wall in buried subsoil (1010) which overlay the natural geology.

5.2.4 Wall F16 was exposed towards the north of the trench and truncated the remains of earlier wall foundations F10. It was E-W aligned and ran parallel with previously described wall F15. Wall F16 comprised coursed squared limestone facing blocks

bonded with coarse lime mortar and a rubble core (1002) and a door opening defined by chamfered threshold stones (1023). It was associated with construction cut [1025] and backfill (1016). Wall F16 measured 0.85m wide and survived 0.48 m high, with a 1.3m wide door opening. The eastern terminus of the wall fell within the confines of the trench. The western continuation of the wall continued beyond the limits of the excavation. Based on correlation with the geophysical survey results it was at least 5.6m long.

5.2.5 To the north and aligned parallel with E-W aligned wall F16 were the remnants of drain F20, which survived as poorly preserved line of roughly worked stones (1022). Drain F20 and Wall F16 were likely contemporary and respectively infilled and abutted by greyish brown silt deposit (1020). Four potsherds of local glazed sandy ware (Types 6 and 7) and Tees Valley ware were recovered providing a *terminus anti quem* of 1200-1300 AD for wall F16 and drain F20.

5.2.6 Wall F15 and Wall F16 were similarly constructed, thus suggesting that they were broadly contemporary in age. However, it appears unlikely that they were originally part of the same structure and instead were only later remodelled and integrated to form a single structure. Wall F15 was wider and more substantial than F16, and it appeared likely to have been originally constructed as the southern outer curtain wall of the bishop's manor house. Wall F16 in contrast was narrower and was associated with a door opening suggesting that it was part of a separate building. Finds recovered from buried soil horizon (1010) underlying F15 and finds recovered from accumulation deposit (1020) abutting wall F16 and overlying drain F20 date the construction of the walls to the mid-12th/13th century AD.

Phase 3 – Remodelling of walls F15 and F16, construction of wall F17, and foundation of building F14.

5.2.7 The third phase of activity relates to the construction of wall F17 and remodelling/reconfiguration of walls F15 and F16 to form building F14. Wall F17 was made of squared limestone blocks, coursed and bounded with gritty lime mortar, with a rubble core (1003). It was N-S aligned and measured 6.0m long and 0.60m wide. At its southern end it was built up against wall F15. At its northern end it was built up against wall F16. Together walls F15, F16, and F17 formed respectively the northern, southern, and eastern walls of building F14. Based on the results of geophysical survey the exposed walls formed the eastern end of was a E-W aligned building measuring c. 20m by 8m.

5.2.8 Wall F17 was associated with a spread of construction debris (1024), which butted up against the wall and covered buried soil (1017). It seemed likely that buried soil (1017) immediately predated the construction of wall F17, although the relationship was not fully investigated during excavation. No finds were recovered from construction debris (1024). However, local wares (Types 1, 4 and 5, including SF48) and Bransby type potsherds were recovered from buried soil (1017) providing a likely *terminus post quem* of AD1250-1500 for the construction of Wall F17. Food waste was evidenced by the presence of butchered animal bone from buried soil (1017). Rat remains were also present that could suggest low levels of pest management, although given the relatively well-preserved condition of the bones may have been more recent intrusive remains.

- 5.2.9 Remnants of exterior cobbled surface F11 butted up against the northern and eastern walls, F16 and F17, of building F14. The cobbled surface comprised (1011) - angular stones, rounded pebbles and gravel packed into silty sand. As well as butting up against the walls of the structure it covered construction debris (1024) associated with the construction of wall F17. Local ware (Type 5), early glazed sandy ware, and oxidised gritty ware potsherds were recovered ranging in date from AD1100-1350. Refitting pot fragments recovered from the construction debris (1024), cobbled surface (1011), and subsequent demolition rubble (1005), indicate some disturbance of the deposits. Most notably a hearth bottom, lining and the majority of the smithing slag from the site were recovered from cobbled surface (1011). Faunal evidence from (1011) included small to large mammal bones, including pig, and a bird bone.
- 5.2.10 Recorded within wall F16, the northern wall of building F14, was blocked up doorway F21. The doorway was blocked up by limestone/sandstone rubble and lime mortar (1012). The blocking up of the door seemed likely to have been contemporary with the building of wall F17 and remodelling of earlier walls F15 and F16 to form building F14. Immediately beneath the rubble mix of blocked up doorway F21 was floor accumulation (1019). Two sherds of green-glazed Humberware, including one from a drinking jug (SF47), were recovered from floor accumulation (1019) and provided a *terminus post quem* of AD1350-1500 for the blocking up doorway F21.
- 5.2.11 In the interior of building F14 were the remnants of floor surfaces F19, (1006) and (1013), consisting of layers of stone-rich silty sand and occupational detritus. From lower horizon (1006) local glazed ware (types 1 and 6, including SF15) and Humberware ware potsherds were recovered dating to AD1350-1600. An iron whittle tang knife (SF11) dating to the 13th-14th century AD, nails, and a couple of fragments of smithing slag was recovered from the same horizon. From upper horizon (1013) a ceramic tile fragment with glazed splashes dated the layer to the 15th-16th century AD. A small lump of lead casting waste, nails, and fragments of smithing slag were recovered from the same horizon. Faunal evidence from (1006) and (1013) indicated the presence of small to large mammals, including horse; a variety of bird species, including goose, wood pigeon, mallard, and domestic fowl; fish, including Atlantic cod; and mussels - with direct evidence for butchery of animals, indicative of meat production, alongside evidence for gnawing by carnivore(s).

Phase 4 – Demolition and abandonment

- 5.2.12 The final phase of activity was associated with demolition and abandonment debris F13, comprising collapsed wall rubble, numerous angular stone fragments, tile, mortar, and sandy deposits (1004), (1005) and (1009). Numerous pottery fragments from a wide range of different wares and vessel types were recovered from debris F13, including local wares (types 1, 3, 4, 5, 6 and 7; including SF8, SF9, SF10, SF12, SF15, SF41 and SF43), coal measures whiteware, Healey types ware (including SF45), Humberware (including SF7, SF8, SF13, SF14, SF21, SF22, SF25, and SF37), NGR type ware, and Tees Valley ware (type B; including SF32). Much of the pottery assemblage was likely residual as attested by refits between potsherds recovered from earlier layers (1006), (1011) and (1017). However, Early Healy type wares were only recovered from the demolition and abandonment debris F13 and provide a likely *terminus anti quem* for the demolition event of AD1450-1600 AD.

- 5.2.13 Demolition and abandonment debris **F13** helped to further characterise structure **F14**. On the interior of building, debris contained glazed tile (**SF18**), stone floor tile (**SF38**), a column drum fragment (**SF35**), and fragments of mortar with white paint revealing evidence of internal decoration. The occurrence of glazed tile may indicate an ecclesiastical structure and it is possible that some of the CBM fragments were ridge tile, also commonly associated with early ecclesiastical structures and perhaps indicative of a chapel. An English jetton (**SF19**) from the reign of Edward I (AD 1272 - 1307), probably dating to AD 1302 – 1307, was also recovered amongst the debris, along with a copper alloy disc (**SF20**) which may have been a second, much more poorly preserved, coin.

Phase 5 – Post-demolition accumulation and modern soils

- 5.2.14 Topsoil (**1001**) and subsoil (**1007**) overlaid layers of debris associated with the demolition and abandonment of the medieval bishop's manor house. Most of the finds from these layers were residual. Numerous pottery fragments from a wide range of different wares and vessel types were recovered, including local wares (types 1, 2, 4, 5, and 7; including **SF23**, **SF31**, **SF35**, **SF39**), early glazed sandy ware, ENPO, Humberware (including **SF3**, **SF4**, **SF6**, **SF17**, and **SF24**), REFW, TPW, and Tee Valley wares (types A and B; including **SF32**). Conjoining pot fragments were recovered from topsoil (**1001**) and subsoil (**1007**), demolition layers (**1004**) and (**1005**), and buried soil (**1017**). Numerous fragments of different building materials were also recovered, including worked stone, stone tiles (including **SF5**), peg tile (including **SF27**), glazed floor tiles (including **SF30**), mortar bonding, painted mortar wall plaster, nails, and lead (**SF36**). Most of the finds likely related to the Medieval use of the site, but brick, tile, glass, and clay pipe stems dating from the 18th – 20th century AD were also recovered from topsoil (**1001**). A cut quarter of silver coin (**SF49**) was found during metal detecting in the vicinity. It was unstratified, but likely dated to the 12th-13th century AD.

5.3 Trench 2 (Figure 4)

- 5.3.1 In Trench 2 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its subsequent demolition. The earliest phase was associated with earlier structure **F3**, the second phase was associated with the construction of E-W aligned wall **F9** and N-S aligned wall **F2** to form building **F1**, the third phase was related to the eventual demolition and abandonment of the building, and the fourth and final phase was related to post-medieval accumulation and soil formation.

Phase 1 – Early building F3

- 5.3.2 Natural geology was not exposed within the trench. The earliest phase of activity and construction was represented by structure **F3**. It was exposed at the base of the trench and comprised only the basal course of conjoining N-S and E-W aligned walls (**2012**) made with squared limestone blocks with rubble fill. The full extent of the structure was unclear, continuing beyond the limit of excavation to the west and south, and partially obscured by later structure **F1**. It was thought likely that the adjoining walls represented the corner of a building rather than an internal sub-division.

- 5.3.3 To the south and west of the walls associated with building F3 and likely contemporary with the structure was surface F5 comprising a discontinuous spread of stones with discrete areas of charcoal, reddened heat-affected clay and mortar, (2016) and (2017). From the structure and associated surface a couple of local wares (types 1 and 7) pot fragments were recovered dating from AD1150-1300 and AD1300-1500. Faunal remains from large mammals were also recovered including bones from horse, wild boar, and pig.
- 5.3.4 To the north of building F3 and parallel with the structure was an E-W aligned spread of stones F7 which was not exposed in plan but not excavated due to time constraints. It was represented by unbonded and roughly hewn limestone blocks (2010). The full extent of the feature was unclear, continuing east and west beyond the limits of excavations. It was buried at a similar depth to the structural remains associated with building F3, although its chronology remains unclear and no dating material was recovered. The spread of stones F7 may speculatively have been the foundations for an adjacent structure or may in fact relate to the subsequent wall collapse of the adjacent buildings.

Phase 2 – Construction of building F1

- 5.3.5 The second phase of activity relates to walls F2 and F9 associated with building F1. Wall F2 was N-S aligned and constructed of squared limestone blocks, coursed and bonded, with gritty lime mortar and with a rubble core, (2004). It was 0.75m wide and survived 0.75m high. It joined wall F9 at its northern end and continued southwards beyond the limit of excavation. Wall F9 was E-W aligned and similarly constructed of squared blocks, built to courses, (2008). It was 0.60m wide and survived 0.60m high. It continued eastwards and westwards beyond the limits of excavation. A couple of square-shaped recessed sockets, (2018) and (2019), were built at the intersection of the walls, and were probably constructed to hold timber uprights. Each socket measured approximately 0.25m by 0.25m. Wall F9 reutilised the lowermost masonry courses associated with earlier building F3 as a foundation, and wall F2 was built on a clay foundation (2015), which covered the discrete areas of charcoal, reddened heat-affected clay and mortar, associated with the use of earlier building F3. Based on the exposed remains and results of the geophysical survey, walls F2 and F9 were interior walls of building F1 – a large E-W aligned structure measuring c.15m by 9m.
- 5.3.6 Walls F2 and F9 were similarly constructed suggesting that they were broadly contemporary in age. However, slight differences in the width of the walls and the fact that the walls were not fully interlinked may suggest that some remodelling of the existing structures on the site was undertaken. It was initially thought that the square-shaped recessed sockets may also be a later addition related to the reuse and reconfiguration of the walls. However, there was no definitive evidence for this interpretation.
- 5.3.7 The interior of building F1 – in the southeast corner of the trench – was associated with remnants of a floor surface and associated debris F6, (2006) and (2007), consisting of stone-rich silty sand horizon and occupational waste. Local wares (types 1, 5 and 7; including SF27) and Tees Valley ware (type B) potsherds recovered indicated a probable date range of AD1250-1350. An architectural fragment of reticulated tracery (SF26) was recovered consistent with a 14th century AD for building F1. A single lump of smithing slag and iron nails were also recovered from F6. Faunal evidence indicated

the exploitation of medium to large mammals, including pig, domesticated dog or wolf, rabbit; and a variety of bird species; including goose, wood pigeon, and fowl.

Phase 3 – Demolition and abandonment

- 5.3.8 The next phase of activity was associated with the demolition and abandonment episodes F4, comprising collapsed building rubble, numerous masonry fragments, roof tiles, mortar, and sandy deposits (2003), (2005), (2011), and (2014). A range of different wares and vessel types were recovered from demolition and abandonment debris, including local wares (Type 1, 5, 7, including SF40), oxidised gritty glazed ware, and Tees Valley ware (Type A). However, the pot assemblage was relatively small and much of the pottery assemblage was likely residual. It ranged in date from the mid-12th to 15th century AD. An iron whittle tang knife (SF42) dating circa AD1200-1400, nails, lead window flashing (SF28), and a couple of fragments of smithing slag were recovered from the same horizons. Numerous faunal remains from small to large mammals were also recovered, including bones from rat, pig, wild boar, horse, sheep and goat; bird remains, including goose, domestic fowl, and pigeons; and fish bones.

Phase 4 – Post-demolition accumulation and modern soils

- 5.3.9 Topsoil (2001) and subsoil (2002)=(2009) overlaid layers of debris associated with the demolition and abandonment of the medieval bishop's manor house. Most of the finds from these layers were residual. Numerous pottery fragments from a wide range of different wares and vessel types were recovered, including local wares (Types 1, 4, 5, 6, 7), gritty ware, ENPO, LGRSEL, Humberware, reduced green glazed ware, REFW, REFEW PNTD, TPW, York glazed ware, Tees Valley ware (Type B) Pink Tyneside buff white ware. Numerous fragments of different building materials were also recovered, including brick, mortar, nails, and glass. Most of the finds likely related to the medieval use of the site, but the brick and glass likely dated from the 19th – 20th century AD. A 20th century AD spanner (SF2) was also recovered from topsoil (1001).

6 ARTEFACTS AND ECOFACTS

Andrew Sage (pottery), Phil Mills (CBM, worked stone, mortar), Pamela Graves (window tracery), Stuart Noon (metal, clay, glass), Hannah Russ (Animal bone and other taxa), Gerry McDonnell (slag) and Rosalind McKenna (environmental)

6.1 Summary

- 6.1.1 The excavations yielded an assemblage of 291 sherds of pottery, 684 animal bones and mollusc shells, 156 CBM fragments, 14 stone masonry fragments, 219 mortar fragments, 124 ferrous objects, five lead objects, three composite metal objects, two copper alloy objects, one silver coin, 37 industrial residues, seven glass fragments, and two clay pipe fragments. Of these finds, 49 registered special finds were recovered during excavation.
- 6.1.2 The recovery of finds from the excavation at Middleham Castle characterised the results of the non-invasive survey and provided key information about the phasing of the site (Aim 1), some insight into the chronological framework and status of the site (Aim 2) as well as providing a better understanding of the site's archaeological and

palaeoenvironmental conditions (Aim 3). The condition and preservation of finds across the site was generally good for all artefact types (Aim 3, Q8 and Q9).

6.1.3 Pottery recovered from the excavations provided broad chronological evidence between the mid-12th to early-15th century AD, with the remodelling and deliberate dismantling dating to the 15th-16th century AD (Aim 2, Q5). Excavations preliminary focused on removing the rubble and debris associated with final demolition of Middleham Castle, which included CBM, worked masonry elements, floor and roof tiles, and numerous mortar fragments, providing insights into the decoration and finish of buildings (Aim 3 Q6). Faunal remains were the most numerous finds recovered and included domestic mammals and birds, as well as fish and marine molluscs, demonstrating that a wide variety of dietary resources were exploited at and in the vicinity of Middleham Castle (Aim 3 Q8). The remains of animals with butchery marks provide evidence for the rearing or consumption of beef, pork, lamb/mutton and poultry including chicken, duck, goose and possibly pigeon (meat/eggs/feathers) in the vicinity of the Castle (Aim 3 Q10). Animal bones, teeth and shells recovered provide an insight into the role of animals at the site and have some potential to inform understanding of local environmental conditions (Aim 3 Q11). As excavations preliminary focused on removing the rubble and debris associated with final demolition of Middleham Castle suitable deposits for environmental sampling were not identified, although two hand collected charcoal indicate the presence of oak, likely used as fuel (Aim 3 Q11-12).

6.2 Pottery

Andrew Sage

- 6.2.1 The pottery assemblage consisted of a collection of medieval and post-medieval pottery numbering 291 sherds of pottery weighing 2.394kg and ceramic building material from 20 contexts (Appendix 4). The medieval pottery spanned the 12th to 16th century. The smaller post-medieval element of the assemblage consisting of 38 sherds weighing 221g and was predominantly early modern, dating from the 18th and 19th century.
- 6.2.2 The earliest material was represented by a small number of sherds (1010), (1011), (1020), which appeared to be mid-13th century in date. A buried soil at the base of possible curtain wall (1010) could have potentially dated from the early 13th century, although there was only a single sherd present. There were sherd links between a cobbled courtyard (1011), (1017) and later building collapse (1005).
- 6.2.3 Layer (1008) contained a single sherd of mid-13th to mid-14th century Tees Valley ware and (1014) and (1017) may also have dated to the mid-13th to early 14th century. However, (1017) may in fact have dated to the mid-14th century or later as it had numerous vessel/sherd links with collapse possible demolition rubble demolition debris (1004), although it did not contain any Humberware and may therefore merely have been disturbed by these later deposits.
- 6.2.4 The bulk of the medieval assemblage came from collapse, possible demolition rubble, inside (1004) and outside (1005) of the building, a possible floor (1006) and subsoil (1007). These contained a range of earlier medieval wares but were dominated by Humberware types. They appeared to be a single, or closely related set of deposits of

later 14th to 15th century date as there were numerous sherd links between the contexts. There was also significant mixing with the early modern topsoil layer (1001). The deposit from the blocking up of the doorway (1019) contained a small quantity of Humberware only.

- 6.2.5 The amount of material from Trench 2 was much smaller with the majority being residual material within early modern topsoil layer (2001). The material from rubble layers (2003), (2005), (2007), (2011), was of a broadly similar nature containing a range of early 13th to early 14th century types and could be tentatively dated to the early 14th century based on the presence of MEDLOC 1 types. The subsoil (2002)=(2009) contained later 14th to 15th century Humberware types. There were no sherd links between any of the Trench 2 contexts and the material from this group appeared more abraded than that from the Trench 1 contexts.
- 6.2.6 The three main traditions of pottery present in the assemblage are later-12th to mid-13th century early glazed sandy wares (MEDLOC types 6 and 7), early 13th to mid-14th century buff to oxidised sandy wares (MEDLOC types 4 and 5) which may parallel types from Thirlby and 14th to 15th century later reduced greenware types (Humberware and MEDLOC type 1). There were no 16th or 17th century types present in the assemblage.
- 6.2.7 A small number of gritty ware sherds may have been 12th century in date. Gritty wares were produced at number of sites from across Yorkshire and north east England, from the late 11th to early 13th century, all of which would have made use of a range of clay sources and there was significant variation between the fabrics here. The area around Potterton near Leeds has been identified as a possible source for gritty wares in Yorkshire and a kiln site producing oxidised red firing wares the early 13th century has been identified at Thorner, West Yorkshire. The gritty wares were typically unglazed, although were often found with splashes of glaze suggesting they were fired with glazed products.
- 6.2.8 Later 12th to mid-13th century early glazed sandy wares types were represented by Medieval Local types 6 and 7. These types were very fragmented with a low average sherd weight. Early glazed sandy wares were a tradition present across Yorkshire and north-east England and include a wide range of typical white, buff and red fabric sandy fabrics. At Shotton in Northumberland they were being produced alongside gritty wares and the presence of splashes of glaze on gritty wares suggest this may have been the case elsewhere. Early coarse sandy wares from the Tees Valley and splash glazed sandy wares recorded from York as well the products of the Winksley kilns all fall within this tradition. As with gritty wares it seems likely that a range of clay sources would have been utilised by different kiln sites.
- 6.2.9 No material from 16th to 18th century types were present in the assemblage, suggesting a hiatus in activity during that period. The late 18th to 19th century assemblage is very fragmentary.

6.3 Animal bone

Hannah Russ

- 6.3.1 An assemblage of vertebrate (684 fragments weighing 4.79kg) and marine mollusc remains (nine fragments weighing 36g) was recovered via hand collection during excavations at Bishop Middleham (Appendix 9). The assemblage comprised a range of mammal, bird, fish and marine molluscs species and was found in generally good condition suggesting that the burial environment was generally conducive for bone preservation.
- 6.3.2 In total, 365 fragments of animal bone and shell were recovered from 12 contexts in Trench 1. Mammals (n=290) included equid (*Equus* sp. Horse/donkey/mule), domestic cattle (*Bos taurus*), domestic pig (*Sus domesticus*), sheep/goat (*Ovis aries*/*Capra hircus*), European hare (*Lepus europaeus*), European hedgehog (*Erinaceus europaeus*) and a single specimen consistent with European water vole (*Arvicola terrestris*) (Table 16). Many of the mammal remains recovered from Trench 1 (77.2% by count) could only be attributed to size categories in order (e.g. ungulate) or class (mammal) groups (Table 17). Bird remains (n=52) included domestic goose (*Anser anser domesticus*), mallard (*Anas platyrhynchos*), domestic fowl (*Gallus gallus domesticus*), common pheasant (*Phasianus colchicus*), Eurasian coot (*Fulica atra*), wood pigeon (*Columba palumbus*) and blackbird (*Turdus merula*) (Table 18). Additional bird remains could be identified as galliformes (fowl/pheasant order) and 'large' to 'medium' sized birds. Fish remains (n=14) included Atlantic cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*) and conger eel (*Conger conger*) as well as remains identified to the cod family (gadidae) and order (gadiformes) and unidentified fish remains (Table 19). Marine molluscs (n=9) were only recovered from Trench 1 deposits and features and included edible oyster (*Ostrea edulis*) and mussel (*Mytilus* sp.) (Table 20).
- 6.3.3 Surface preservation was variable between 'excellent' (scored as 1) and 'awful' (scored as 5), with the majority of the specimens having 'good' surface preservation (scored as 2; n=322). Due to high levels of fragmentation and poor surface preservation for some specimens, no measurable or sexable elements were present. Epiphysis fusion data for one or both epiphyses were collected for 46 longbones (including cattle, sheep/goat, hare, goose and domestic fowl) and tooth eruption and wear could provide age at death data for one equid mandible.
- 6.3.4 Direct evidence for butchery of animals, most likely indicative of meat production, was identified in the form of cut, chop and/or saw marks on 12 specimens from five contexts; (1001), (1005), (1007), (1013) and (1017). These specimens included cattle femur and astragalus, pig pelvis, and sheep/goat scapula and femur (Table 21). Two calcined specimens; a medium and a large mammal longbone shaft fragments, both recovered from topsoil (1001), were the only fragments baring evidence for exposure to high temperatures recovered from Trench 1. Evidence for gnawing by carnivore(s) was recorded on four specimens from three contexts; (1004), (1007) and (1013).
- 6.3.5 In total, 328 fragments of animal bone were recovered from nine contexts in Trench 2 (Tables 16 and 17). No mollusc remains were encountered. Mammals (n=297) included equid, domestic cattle, domestic pig, sheep/goat, domestic dog or fox (*Canis familiaris*/*Vulpes vulpes*), European rabbit (*Oryctolagus cuniculus*) and rat (*Rattus*), Table 5. A proportion of the mammal remains (64.2% of count) could only be

attributed to size categories in order (e.g. ungulate) or class (mammal) groups (Table 16). Bird remains (n=30) included domestic goose, mallard, domestic fowl and wood pigeon. Additional bird remains could be identified as galliformes and 'large' to 'medium' sized birds (Table 18). A single unidentified fish bone was recovered from (2005) in Trench 2 (Table 19).

- 6.3.6 Surface preservation was variable between 'excellent' (scored as 1) and 'moderate' (scored as 3), with the majority of the specimens having 'good' surface preservation (scored as 2; n=273). Eight specimens were measurable including equid, cattle and goose. Epiphysis fusion data for one or both epiphyses were collected for 52 longbones (including equid, cattle, pig and sheep/goat) and tooth eruption and wear could provide age at death data for two specimens (one cattle and one sheep/goat).
- 6.3.7 Direct evidence for butchery of animals, most likely indicative of meat production, was identified in the form of cut and chop marks on 10 specimens from four contexts; (2003), (2005), (2007) and (2009). These specimens included cattle patella and pelvis and a pig femur. No evidence for exposure to high temperatures (burned or calcined bones or teeth) was present. Evidence for gnawing by carnivore(s) was recorded on five specimens from four contexts; (2003), (2005), (2007) and (2009).
- 6.3.8 The vertebrate and marine mollusc remains recovered include the main domestic livestock species in Britain from the Iron Age to recent times; equid, cattle, pig, sheep/goat, goose and domestic fowl. The remains of these animals provide evidence for the rearing or consumption of beef, pork, lamb/mutton and poultry including chicken, duck, goose and possibly pigeon (meat/eggs/feathers) in the vicinity of the Castle. This is supported by the specimens with cut and chop marks recovered from Trench 2. Eating horse meat was banned in Britain in 732 AD (e.g. Pillsbury 1998, 14), equids were generally kept for transportation and traction, serving in agriculture, military contexts and day to day life, with exploitation of bone and other resources from their carcasses once they were unable to carry out their primary purpose. The remains of a domestic dog or fox could not be distinguished, but either species are not unexpected in archaeological deposits of the nature of those encountered at Middleham Castle. Hare and the remains of rabbit are also to be expected given the rural nature of the castle's setting, and may represent either food waste, waste from fur exploitation or naturally accumulating remains at the site. Other naturally accumulating remains almost certainly include the hedgehog and vole as well as some of the smaller bird remains, such as blackbird and coot, none of which are usually considered as dietary resources. The rat remains (contexts (1017) and (2005)) could represent recent intrusive remains within the archaeological record as they are amongst the best-preserved bones in the assemblage. However, if the contexts represent sealed deposits or features, then the remains attest to local conditions where rats were present, suggesting the availability of food (waste) and shelter and low levels of pest management.
- 6.3.9 The remains of oysters, mussels, cod, haddock and conger eel provide evidence for the utilization of marine resources at this inland site. Oysters are a common feature of archaeological assemblages in Britain from the Roman period onwards, representing a popular dietary resource. Marine fish became an increasing utilised resource during the medieval period in Britain as the preserved fish trade established (e.g. Barrett et al. 2004; 2008; Serjeantson and Woolgar 2006) and the popularity of fish increased, likely at least in part due to the adoption of Christianity (e.g. Woolgar 2000).

6.3.10 The conger eel, a very large specimen, could have come to Middleham Castle as fresh or preserved fish (dried/salt conger). The cod, haddock and other gadiforme remains, however, suggest the provision of fresh fish to the site, being too small to have been selected for preservation as stockfish.

6.3.11 The bones, teeth and shells recovered from the archaeological excavation at Middleham Castle provide an insight into the role of animals at the site during the medieval period in Britain (based on feature typology and medieval pottery presence within some deposits). There is potential that the remains may also provide an indication of local environmental conditions.

6.4 Ceramic building material

Phil Mills

6.4.1 There were 156 fragments of ceramic building material (CBM), weighing 3689g presented for assessment. This included 71 fragments, 1869g of stratified material (excluding topsoil) from four contexts (1003), (1004), (1007), (2002). There were two fragments of possible brick from topsoil deposits, including the edge of a frog. These were unlikely to date from before the 18th century (Table 4).

6.4.2 This small group of CBM was mainly later than the 14th century in character, but with a few fragments of 18th century or later material from the topsoil. The group was very fragmentary in nature and there were not many corners present. This is typical of very reworked deposit and material discarded as rubble. The roof tile includes an example of a thick peg tile and a fragment of a possible nib tile, both of which were noted in the county and could date from the 14th century onwards.

6.4.3 There was a small group of tiles with glaze on them. This becomes common in the 15th – 16th century but can occur earlier on ecclesiastical structures. It is possible that some of the fragments come from ridge tile which could be used on early ecclesiastical structures with stone tile. One fragment was unusually thick for a roof tile and was possibly a plain inferior glazed mosaic tile (Stopford 2005 group 11, late 13th century).

6.5 Stone building material

Phil Mills and Pamela Graves

6.5.1 There were 14 fragments of worked stone, weighing 10653g presented for assessment of which six fragments, 1869g, came from stratified contexts (1001), (1004), (1005), (1007), (1013), (2001), (2003) (Table 5).

6.5.2 The majority of the stone fragments were thick sandstone tiles of medieval date (1001), (1005), (2003). These stratified fragments were likely parts of an earlier roof reused in later building phases. The shapes are generally rectangular with poorly finished edges and some tapering towards the top, with a round fixing or peg hole. There was one flat fragment which could have been a stone floor tile and also a column fragment (1004) diameter 150mm with 15% remaining and a worked stone with a groove/notch carved into one side with a possibly floral decoration with mortar adhering in the subsoil (1007) giving evidence of original decoration and suggestive of a high-status building.

- 6.5.3 On top of a floor (2007) was a large fragment of medieval window (SF26) reticulated tracery that is likely to be 14th century probably dating to the 1330/40s. It could be a smaller portion of a later medieval window which would 15th century but a date of early 14th century is more likely (Pamela Graves pers comm).
- 6.5.4 The stone material can give insights into the earliest appearance of the structure and give evidence of decoration probably for the modified structure associated with Trench 1 as they were found in the collapse possible demolition rubble inside of the building and the subsoil respectively.

6.6 Mortar

Phill Mills

- 6.6.1 There were 219 fragments of mortar weighing 4520g presented for assessment, of which 187 fragments, 4162g, were stratified (Table 6). The majority of the mortar comes from Trench 1. Most is wall mortar with mortar underlay, although perhaps too coarse to consider as plaster, and quite often having a thin layer of white paint on the surface (1004), (1006), (1007), (1013). There is a possible red bonding mortar from the topsoil (1001). There are a number of large unidentified fragment of mortar including some with dowel impressions found in dismantling rubble (1009) of wall (1008) a floor (1014) associated with Structure F14 perhaps thick wall mortar on a supporting wooden frame.
- 6.6.2 There is a small fragment of a possible decorative piece of moulded mortar from Trench from subsoil (2002) was mixed with rubble to the west of a wall (2004). The mortar informs us of the internal appearance of the final phase of the structure associated with trench 1.

6.7 Metalwork

Stuart Noon and Josh Hogue

- 6.7.1 In total, 124 iron objects (including two whittle tanged knives), five lead objects, three composite metal objects, two copper alloy objects (including one jetton), and one silver coin were recovered from Bishop Middleham Castle. Most of the metalwork was modern or recovered as residual finds from the topsoil (1001), (2001) and subsoil (1007), (2002), (2009) horizons and layers of debris associated with the demolition and abandonment of buildings (1004), (1005), (1009), (2003), (2005), (2011) and (2014). A full catalogue of metalwork finds is given in Appendix 5. A brief description of the notable metalwork finds of likely Medieval antiquity is given below.
- 6.7.2 A cut quarter of a silver penny (SF49) dating from the 12th-13th century AD was recovered from topsoil (1001). A jetton (SF19) was recovered from demolition layer (1005) and a degraded copper disc (SF20) which may have been a second jetton or coin was recovered from the same layer. The jetton featured Edward I (observe type 1) and on the other side a short cross (Moline, Fox Class 10 – reverse type 5). It dated AD1302-1307 (Berry 1974, p. 31). A whittled tanged knife blade (SF11) was recovered from the interior of building F14 from floor surface F19, layer (1006), in Trench 1. Rectangular whittle tang blades are most abundant during the 14th century (Schuster et al. 2012, p.146), though examples have been found as early as the 12th century (Holdsworth 1987, p.131). They also continue into the post-medieval period, but

shorter tangs like on these objects are indicative of an earlier date (Cowgill et al. 1987, p. 25). A whittled tanged knife blade (SF42) was also recovered from building rubble (2003) associated with the demolition of building F1 in Trench 2.

6.8 Industrial waste

Gerry McDonnell

6.8.1 A small assemblage comprising a fragment of hearth bottom, a fragment of hearth lining, 31 fragments of smithing slag, one ferrous metal fragment and three non-ferrous waste fragments was recovered from Bishop Middleham (Appendix 8). The small assemblage was dominated by a hearth bottom, hearth lining and 15 fragments of smithing slag recovered from exterior surface F11, (1011), associated with building F14 in Trench 1. It was likely a deliberate dump of smithing debris. Most of the other smithing debris was found as isolated fragments. Hand-Held X-Ray Fluorescence (HH-XRF) was used to analysis the non-ferrous metal comprising a lead disc, a spill of lead and a lead-tin alloy (solder). The smithing debris and non-ferrous lead alloy fragments could be derived from the deliberate destruction of the buildings.

6.8.2 The small assemblage is consistent with iron smithing which would have been an essential craft during the construction and functioning of a high-status settlement such as a bishop's manor house. Furthermore, if the buildings were deliberately demolished then smiths may have been employed to remove ironwork and forge it into trade bar and the lead from the buildings would also have been worth recycling (e.g. window comes, pipework).

6.9 Glass

Stuart Noon

6.9.1 In total, there were seven glass fragments from the assemblage, weighing 29.08g. The glass material recovered is all likely to date from the 19th to 20th century AD. The group has low significance in terms of the research aims for this project, and further work is unlikely to add to the understanding of the site or address questions in the project design. The material does not require any special conservation and retained material can be safely stored in a stable environment.

6.10 Clay pipe

Stuart Noon

6.10.1 In total, there were two fragments in the assessment weighing 4.22g. Both fragments were recovered from topsoil (1001) in Trench 1. The fragments belonged to different clay pipes and dated from the 19th and 20th century AD. The group had low significance in terms of research aims of the site, and further work is unlikely to efficiently add to the understanding of the site or address the questions in the project design. The material does not require any special conservation and retained material can be safely stored in a stable environment.

6.11 Environmental

Rosalind McKenna

- 6.11.1 No environmental samples were taken due to the lack of sealed and disturbed nature of the deposits. Two hand-picked charcoals were submitted for assessment from Bishop Middleham Charcoal fragments recorded, scored a '4' on the semi quantitative scale, with preservation of the charcoal fragments was fair to poor. The majority of the fragments were too small to enable successful fracturing that reveals identifying morphological characteristics. Where fragments were large enough, the fragments were very brittle, and the material crumbled or broke in uneven patterns making the identifying characteristics difficult to distinguish and interpret, and so only a limited amount of environmental data can be gained from the samples. Identifiable remains were however present in both of the samples, and the results of this analysis can be seen in Table 41 below.
- 6.11.2 The total range of taxa comprises oak (*Quercus*). The taxa belong to the groups of species represented in the native British flora. It is possible that this was the preferred fuel wood obtained from a local environment containing a broader choice of species. The compositions of the samples are very similar, it is probable therefore that the assemblages of charcoal reflect the deposition or build-up of domestic waste.
- 6.11.3 Generally, there are various, largely unquantifiable factors that effects the representation of species in charcoal samples including bias in contemporary collection, inclusive of social and economic factors, and various factors of taphonomy and conservation (Thiery-Parisot 2002). On account of these considerations, the identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment in a definitive sense and are possibly reflective of particular choice of fire making fuel from these resources. The samples produced some environmental material of interpretable value, with the charcoal remains from the two samples. The deposits from which the samples derive, probably represent the deposition or build-up of domestic waste associated with fires.
- 6.11.4 The charcoal remains showed the exploitation of a single species native to Britain. Oak has good burning properties and would have made a fire suitable for most purposes (Edlin 1949). Oak is a particularly useful fire fuel as well as being a commonly used structural/artefactual wood that may have had subsequent use as a fire fuel (Rossen and Olsen 1985). Dryland wood species indicates the presence of an oak-ash woodland close to the site. This would have consisted of oak, which would be the dominant large tree species (Gale & Cutler 2000, 120, 205). As asserted by Scholtz (1986) cited in Prins and Shackleton (1992:632), the "Principle of Least Effort" suggests that communities of the past collected firewood from the closest possible available wooded area, and in particular the collection of economically less important kindling fuel wood (which was most likely obtained from the area close to the site), the charcoal assemblage does suggest that the local vegetation would have consisted of an oak woodland close to the site.

- 6.11.5 It is thought to be problematic using charcoal and plant macrofossil records from archaeological sites, as they do not accurately reflect the surrounding environment. Wood was gathered before burning or was used for building which introduces an element of bias. Plant remains were also gathered for food and were generally only burnt by accident. Despite this, plant and the remains of charcoal can provide good information about the landscapes surrounding the sites presuming that people did not travel too far to gather food and fuel.

7 PUBLIC IMPACT

By Johanna Ungemach and Brendon Wilkins

Profiles for all project participants have been archived on the Digital Dig Team system and can be reviewed at <https://digventures.com/dig-team/brightwater/> and by clicking on each individual profile

7.1 Introduction

- 7.1.1 This section details the social impact of the Middleham Castle project public programming for visitors and project participants over the course of August 2019. 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).
- 7.1.2 Public engagement was integral to the research aims of the Middleham Castle project (Aim 5), designed to 'engage and train local people in the research of the Bright Water Study Area and provide opportunities for public engagement' (Forster and Brightman 2019, 15). The castle is situated within an area of high deprivation (Source: English Indices of Deprivation 2015), with the North East as a whole having the second highest unemployment rate in the UK (Office for National Statistics, www.ons.gov.uk/employmentandlabourmarket). The Bright Water area itself has higher rates of unemployment than the national and local averages, as well as poorer general health (Census 2011, www.ons.gov.uk/census/2011census). The project therefore presented a major opportunity to help address the strong social and educational needs of the surrounding communities, based on the principle that archaeology can do so much more than answer a planning brief: it can transform lives and communities and provide the kind of public support that underpins positive, sustainable growth (Wilkins 2020, 33)

7.2 Public programming

7.2.1 A carefully designed mix of professional excavation and public participation was programmed over the course of the three-week project (5th August until 23rd August), creating participation opportunities from informal site visits to structured field training (Figure 6 and 7). This blended model comprised three weeks dedicated to servicing a research brief with participation and training of venturers in the trench to National Occupational Standards, with possibilities for the public to visit running alongside:

- Excavation and finds sorting training for adults (5th August until 23rd August) – 61 participants (Plate 1)
- Daily unscheduled opportunities for people to visit the excavation and learn about the site (5th August until 23rd August) – 117 visitors

7.2.2 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 Brightwater 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. The Middleham Castle project reached a minimum of 58k people across Facebook and Twitter, with an average engagement rate of 20% on Facebook, and 1% for Twitter. In addition, there 1970 unique page views of more in-depth information on the project microsite: <https://digventures.com/middleham-castle/> including background information, dig updates, and archival site records.

7.2.3 Whilst these results demonstrate a significant public appetite for the Middleham Castle 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 East Park further below.

7.3 Evaluation methodology

7.3.1 The Middleham Castle project audience was separated into two broad categories: project participants, who joined the project through a formal booking process, and site visitors, who visited the excavation to look at the trenches and learn about the site and its archaeology, with all opportunities delivered free of charge. DigVentures have developed a methodology for measuring the social impact of archaeology programmes for both participants and visitors, pictured as a Theory of Change detailing outputs, outcomes and impacts. 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.

7.3.2 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.

7.3.3 In support of this overarching methodology, two slightly different data collection strategies were undertaken for both project participants and site visitors; participants were interviewed pre and post dig experience (99% completion rate, or 66 in total), and visitors completed a questionnaire following their experience (40% completion rate, or 47 in total). The age, gender and professional background of participants was derived through digital analytics, with categories derived from the Office for National Statistics, followed by 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'. Questionnaires combined closed-end questions easily convertible to statistical data (usually attitudinal questions) and open-ended questions designed to elicit extended responses which were then coded for statistical analysis or otherwise consolidated in order to address the observable implications. The social impact results for both groups are discussed in turn below, with evidence organised according to the specific social outcome that activities were designed to achieve.

7.4 Social impact – participants

7.4.1 To ensure that 'a wide range of people will be involved in archaeology and heritage', people were invited to actively participate in the excavation. To help decrease perceived barriers to participation, accessible day sessions were offered to give venturers a taste of the work happening in the trench, all of which followed DigVentures' ClfA-endorsed Field School curriculum (Figure10).

7.4.2 Gender profiles for participants were broadly balanced, with 57% female and 43% male, with the youngest aged 11 and the oldest 73. Participants represented a variety of full-time occupations (37%) and retirees (29%). The remainder were students, either of compulsory educational age or those attending university (27%), or people in long-term unemployment (7%). Those in full time employment were divided into categories based on the Office of National Statistics (ONS) classifications, the breakdown of which can be seen in 7illustrating that digging opportunities were taken up by a significant number of people with low income, as well as young people. Examples of professions included lawyer, mental health nurse, clinical trial manager, foster carer, reflexologist, tour guide, project assistant, hairdresser, company director, motorbike instructor and sound engineer. Taking this into consideration, all age groups and socio-economic backgrounds were well represented in the data (Figure 6), with a marked improvement on existing community archaeology provision compared with the typically retired, over 65 local civic society groups (Wilkins 2020, 33).

7.4.3 Participants joined the project from the immediate locality (41% of participants drove no further than 10 miles to take part in the project), regionally (over two thirds of participants living no further than 50 miles from the site) and nationally (23% of participants having travelled more than 50 miles to have the opportunity to take part

in the project, from as far as Northumberland, Cheshire, Leicestershire, East Sussex, Greater London and Shropshire), indicating that the project raised the site profile in local, regional and national networks (Figure 7).

- 7.4.4 In addition to widening the demographic and socioeconomic range of participation (when compared to existing community archaeology provision), the project attracted a new audience for archaeology. Over a third of participants (39%) were re-engaged after also having been part of the previous East Park Roman Settlement excavation, which saw 55% of its participants having been involved with archaeology for the very first time. Pre-experience interviews were completed with all project participants to help understand why each had decided to get involved in something entirely new to them, and provide a baseline understanding against which the impact of the experience could be determined through post-experience interviews. Participants answered in their own words, and the response were coded into ten categories of which eight were represented in the answers.
- 7.4.5 The results show the different motivations of venturers for joining the excavation for different lengths of time. The majority of people who joined the dig for one or two days (38% and 35% respectively) described themselves as 'passive consumers of archaeology' who embraced the opportunity to finally get hands-on with their interest. Contrarily, participants of a week or more, mainly joined because they had previously been part of another DigVentures project such as the East Park Roman Settlement project (36%), or because they are interested specifically in Middleham Castle and/or the excavation was local to them. The decision to join the dig in order to experience teamwork and camaraderie was exclusively given by those joining for at least a week, which illustrates clearly the different expectations that venturers had on different lengths of participation, but also why people with different motivations decided on different lengths of participation. This is further supported by the fact that people who ticked the experience of their bucket list, exclusively chose to test this out for only one or two days (4% and 6% respectively) (Figure 8).
- 7.4.6 Post-experience 'exit' interviews were also undertaken for all participants, indicating how initial perceptions of archaeology changed and providing evidence for wider social outcomes, such as learning, skills acquisition and well-being. Participants were asked to summarise their highlight of the project in their own words, with responses then codified into four categories in order to visualise the results (Figure 8). A shift in highlights is also visible when comparing the three different groups of participation lengths. The most important consideration for 50% of one day participants was the experience of real archaeology, and the opportunity to get hands-on experience with finds and in the trenches. Closely related to this was the 'thrill of discovery' for 38% of participants, indicating an overwhelmingly positive experience for first time participations. For those participants, however, who stayed for one week or longer, gaining experience was still important (35%), but the 'thrill of discovery' was superseded by the positive experience of teamwork and camaraderie (Figure 9). Six participants even went on to become regular finds cleaning volunteers at the DigVentures office in Barnard Castle (Figure 9). A closer assessment of interviewees answers (often elicited through follow up questions) reveals that in addition to having a good time (such as "I had a really wonderful experience!"), more subtle impacts could be clearly discerned and will be analysed more in depth in the final report.

7.5 Social impact – communities

- 7.5.1 Alongside structured activities for project participants, other lighter touch opportunities were provided for site visitors throughout the course of the project. Observers were encouraged to talk to and interact with the team and see what had been discovered. Visitors were encouraged to complete a short evaluation form after their experience (40% of those visitors who took part), to understand the impact the project had on the wider community.
- 7.5.2 A similarly, if slightly less, diverse demographic profile was also observed for site visitors, in terms of age, gender and socioeconomic background. Over a fifth of respondents were younger than 44, with 13% under 16 and 6% over 75. In terms of gender, 70% were female and 30% male (Figure 10), and different professional categories were represented (according to ONS classifications) including landowner, deep sea fisherman, architectural technologist, carer and teacher.
- 7.5.3 Three quarters (75%) of visitor survey respondents stated that the dig was their main reason for visiting the site, supporting the wider project outcome that a 'wider range of people will be involved in heritage'. This audience was predominantly local, with 78% of visitors living within 10 miles of the site, 13% between 10 and 20 miles, and the remaining traveling from up to 50 miles (Figure 7).
- 7.5.4 Although the visitor experience was designed to be as accessible as possible, evaluation feedback indicated that the social outcomes contributed significantly towards 'learning about archaeology and heritage, leading to change in ideas and actions' 57% of respondents had never taken part in a site tour or visited an archaeological site before. Visitors described an improved perception/impression of archaeology (78%) or strengthened in their pre-existing interest for the discipline (10%). A further 68% of respondents found archaeology to be more exciting as a consequence of their visit, and when asked whether they are now more likely to get involved with archaeology in their local area, 43% of respondents agreed (Figure 10).
- 7.5.5 As well as changing opinions of archaeology more generally, visitors also described an improved perception of the immediate Bishop Middleham locality, supporting the social outcome that 'the local area will be a better place to live, work or visit'. 90% of respondents who claimed that their impression of the local area had changed (Figure 10). One respondent clearly stated that the history was "older than previously thought". Locally, the positive impact of the project went even further and provided visitors with a better understanding of their local archaeology, with one respondent saying that it was "interesting to see what's on your doorstep. I had no idea!". Furthermore, Bishop Middleham and its surrounding area has become a better place to live for visitors who before "didn't appreciate what was hidden here".

8 DISCUSSION AND CONCLUSIONS

By Josh Hogue, Stuart Noon, Erin McDonald, Johanna Ungemach and Brendon Wilkins

8.1 Introduction

8.1.1 The overall aim of the 2019 fieldwork season at Bishop Middleham was to define and characterise the physical extent of the site through a programme of excavation. The results provide baseline information to contribute to the future management and research of the site, whilst creating multiple educational and participatory learning experiences for community participants. Aims and objectives from the Project Design (Forster and Brightman 2019; see Section 3 above) are referenced, where appropriate, in the following discussion.

8.2 Background

8.2.1 Middleham Castle located to the south of the village was used as a high-status building for the bishops from about the 11th to the 14th century (Durham County Council 2012). The castle stands on a promontory surrounded with water on three sides with a narrow and restricted causeway leading into the complex resembling a peninsula, Middleham Castle may have resembled a peninsula with parallels to other episcopal residence sites such as, Wheel Hall in Riccall (North Yorkshire) (Smith 1937, cited in Smith and Graves 2017, 31). The marshy ground below Middleham Castle was used for fishponds, meadowland and a swannery (Durham County Council 2012). Documentary evidence suggests the breeding of swans (Smith and Graves 2017, 33), and consumption of oysters (S. G. Pritchard, pers. comm. 1998, also cited in Smith and Graves, 33) representing elite activity within a managed landscape involving the exploitation of natural resources. This exploitation of natural resources by bishops around their elite residences is already well attested by documentary sources at Darlington Manor and Westgate Castle (Smith and Graves 2017, 33).

8.2.2 Documentary evidence indicates that bishop's houses were particularly diverse and regionally variable and there is not a set form. Few medieval bishop's houses and their associated landscapes have been investigated using archaeological techniques and fewer still have had modern scientific techniques applied to them. As a result, the understandings of bishop's houses are fragmentary, often focused solely around standing building remains and lack the depth of focus to best distinguish patterns of uniqueness and commonality related to this site type. Three sites relating to the Bishops of Durham, have been the focus of intense archaeological investigation in the last ten years - (Westgate Castle (ASDU 2014), Darlington Bishop's Manor (ASDU 2014), Auckland Castle (ASDU 2013-2019) - which have added to our knowledge of bishop's houses, but only serve to highlight that there are deficits in our understandings of these sites and by association Middleham Castle. Archaeological investigation at Middleham Castle has helped to address these deficits, although questions remain outstanding.

8.3 Remote Sensing

8.3.1 Smith and Graves (2017), in their review of the residences of the medieval Bishops of Durham, concluded that although geophysical and earthwork surveys undertaken by Francis (1998, 1999) provided a valuable indication of the spatial arrangement within

the residence complex at Bishop Middleham, specific spaces could not be identified with confidence and more data and ground observation was required. New geophysical survey was undertaken by Phase Site Investigations (2019) as part of the current programme of works confirmed previous survey results but did not significantly add any further detail. Even though these low impact tools have added to our understanding of the monument, helping to establish the physical extent of the remains. It is unlikely that further surveys will reveal any meaningful detail concerning any outstanding research objectives that can only be potentially realized by excavation (Aim 1, Q1).

8.3.2 Overall remote sensing has indicated much of the layout and associated sub-surface archaeology of Middleham Castle (Aim 1, Q1). However, given the limitations of the techniques they provide only a composite view of the layout of site, subsuming multiple phases of structural development, and providing limited information regarding the phasing of the topographic and remote sensing anomalies of the period of use of the Site. Nonetheless, this composite view of the history and development of the site provided preliminary insights into the layout of the site and potential targets for further investigations and ground-truthing (Aim 1 Q2–3).

8.3.3 To the south of the site an E-W aligned building was indicated from geophysical survey. To the immediate north of this building is a possible north-south aligned building with a circular feature. Together they form a possible 'L' shaped complex suggestive of a chapel and hall. A greater survival of remains were generally indicated much further north than was previously considered. There were earthworks probably related to the northern boundary wall with structures set inside which were also indicated on the recent geophysical survey. Across the site structural remains appeared to be close to the surface, often protruding above the surface, highlighting the threat of erosion and churning by modern pastoral farming techniques (Q4).

8.4 Chronology

8.4.1 In Trench 1 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its subsequent demolition (Aim 2, Q5). The earliest phase of activity was associated with the foundations of an earlier wall or structure F10 dating before the mid-12th century AD. The second phase was associated with E-W aligned walls F15 and F16, Wall F15 may have been a boundary wall, possibly part of the curtain wall. F16 had a door opening and was certainly part of an early phase of building. Both walls were similarly constructed suggesting they were broadly contemporary and both likely dated to the mid-12th to early-13th century AD. The third phase involved the subsequent remodelling of the existing walls and construction of N-S aligned wall F17 to form building F14. Building F14 correlated with linear anomalies identified from the geophysical results and walls exposed through excavations formed the eastern end of was a E-W aligned building measuring c. 20m by 8m. Building F14 represented the final configuration of the medieval bishop's manor house before its demolition and abandonment. It likely dated to the mid-13th and 14th century AD, although may have continued into the early-15th century AD. The fourth phase was related to the eventual demolition and abandonment of building. It was likely intentionally demolished and stripped for materials. Most likely the demolition occurred on later than the 15th-16th century AD. Even though masonry and other construction materials likely continued to be taken from the site in subsequent years the relative lack of later finds suggests

that the demolition of the palace may have been a relatively rapid event and the palace was likely intentionally stripped for materials immediately following its dissolution. A fifth phase related to the post-medieval accumulation and soil formation was also recorded.

- 8.4.2 In Trench 1 finds retrieved from the mid-13th/14th century AD building F14 and found amongst debris probably related to its systematic dismantling helped to better understand the function of the remodelled structure (Aim 2 Q6). Mortar recovered had a thin layer of white paint on the surface and dowel impressions indicated thick wall mortar on a supporting wooden frame. Masonry elements including the fragments of a column, worked stone with floral decoration, glazed floor tiles, and stone roof tiles all indicate a high-status structure. The building may have functioned as an ecclesiastical structure, possibly even a chapel. Excavations only focused on the eastern periphery of the building and further work within the interior is needed to clarify its use.
- 8.4.3 In Trench 2 the archaeological sequence could be broadly divided into four major phases of activity associated with the medieval bishop's manor house and its sequent demolition (Aim 2 Q5). The earliest phase was associated with earlier structure F3. The full extent of the structure was unclear, continuing beyond the limit of excavations, and partially obscured by later structure F1. It may have dated from the mid-12th-13th century AD, although was only poorly dated. North of a structure F3 was a line of stones that may have been foundations of an adjacent wooden structure. It was not excavated due to time constraints, so the exact function and age of the stone is unclear. The second phase was associated with the construction of E-W aligned wall F9 and N-S aligned wall F2 to form building F1. The walls were similarly constructed, likely contemporary in age, and square-spaced recessed sockets integrated into the walls likely held timber uprights. Building F1 was associated with the remnants of floor surfaces and occupation waste likely dating from the mid-13th and 14th century AD. The third phase was related to the eventual demolition and abandonment of the building, likely dated to the 15th century AD. A fourth and final phase was related to post-medieval accumulation and soil formation.
- 8.4.4 In Trench 2 finds were far less numerous, although showed evidence a similar range of activities as the finds recovered from the building exposed in the southern trench (Aim 2 Q6). Fragments of decorated and moulded mortar, stone roof tiles, and reticulated tracery indicate a relatively high-status status function for building F1. Evidence of in situ burning and domestic waste may indicate a hearth associated with earlier building F3. However, relatively limited evidence was recovered in associated with the remains of earlier building F3 and alternatively burning may be associated reasons for the building falling out of use and its eventual replacement by building F1.
- 8.4.5 Evidence for abandonment in the late-14th century with indications of deliberate dismantling of the structures in the late-14th to 15th century AD fit with an overall pattern of changes in occupational practice of the Bishops of Durham attributable to a wider decline in the 'Great Household' from the fourteenth century (Woolgar (1999 p.14). In earlier centuries, itineration around the diocese by nobles was a necessary factor in governance to ensure the security and maintenance of their widely dispersed lands and possession. By the 14th century AD effective systems of communication between landowners and their estates had been established (Wickson (2015).

8.5 Environmental conditions

- 8.5.1 The remains recovered included domestic mammals and birds, as well as fish and marine molluscs, demonstrate that a wide variety of dietary resources were exploited at and in the vicinity of Middleham Castle (Q8). The condition and preservation of the finds was generally good for all artefact types artefacts some being from sealed contexts and in disturbed contexts relating to collapse/demolition and a disuse phase (Q9) The remains of vertebrates and shellfish demonstrate preservation variable between 'excellent' and 'awful', with the majority of the specimens having 'good' surface preservation (Q8, Q9).
- 8.5.2 The remains of animals with butchery marks provide evidence for the rearing or consumption of beef, pork, lamb/mutton and poultry including chicken, duck, goose and possibly pigeon (meat/eggs/feathers) in the vicinity of the Castle. This is supported by the specimens with cut and chop marks. Hare and rabbit remains are also to be expected given the rural nature of the castle's setting, and may represent either food waste, waste from fur exploitation or naturally accumulating remains at the site. The rat remains (1017), (2005) could represent recent intrusive remains within the archaeological record as they are amongst the best-preserved bones in the assemblage. However, if the contexts represent sealed deposits or features, then the remains attest to local conditions where rats were present, suggesting the availability of food (waste) and shelter and low levels of pest management (Q10).
- 8.5.3 The remains of oysters, mussels, cod, haddock and conger eel provide evidence for the utilization of marine resources at this inland site. The conger eel, a very large specimen, could have come to Middleham Castle as fresh or preserved fish (dried/salt conger). The cod, haddock and other gadiforme remains, however, suggest the provision of fresh fish to the site, being too small to have been selected for preservation as stockfish (Q10). The bones, teeth and shells recovered from the archaeological excavation at Middleham Castle provide an insight into the role of animals at the site during the medieval period in Britain (based on feature typology and medieval pottery presence within some deposits). There is potential that the remains may also provide an indication of local environmental conditions (Q11).
- 8.5.4 Recovery of environmental remains from the site was minimal with few palaeoenvironmental remains present. Two hand excavated samples were taken from the excavation from Trench 2. They were taken from a charcoal rich deposit containing material which were not necessarily recovered in situ. The charcoals may represent the deposition or build-up of domestic waste associated with fires with oak as the primary fuel, although could alternatively be related to the building collapse and abandonment (Q11, Q12).

8.6 Public engagement

- 8.6.1 Structured through a Theory of Change, the evidence presented above shows significant impact for both individual participants and community visitors as a consequence of the Middleham Castle project. The project attracted a diverse community of people from an area of high deprivation to explore and investigate the heritage of the Bright Water area, especially Bishop Middleham in a new and different way. Evaluation shows that the project tackled the strong social and educational needs of the surrounding communities and was a success for public engagement. A high

number of locals was engaged with archaeology and individuals gained pride for their heritage, as well as ownership of their involvement in the excavation. This project did not only change participants' perception of heritage and archaeology and improved their skills and understanding of the discipline, but also had an impact on visitors to the site. Their understanding of local history improved, while their interest and willingness to participate in local archaeology increased.

- 8.6.2 The credibility of a Theory of Change rests on the level of certainty that organisational activities are the cause of any impact observed. To address this DigVentures has developed a 'Standards of Evidence' framework drawing on evidential standards devised by Nesta. This framework determines the levels of certainty that project activities will have a positive impact on the intended outcome, ensuring that the correct data is collected to isolate the impact to the intervention, and that findings are validated externally.
- 8.6.3 This framework begins with Level 1, where practitioners are able to give an account of hypothesised impact, providing a logical reason why project activities could have an impact on outcomes, and how that would be an improvement on alternative provision. For a project to achieve Level 2 practitioners gather data that shows some change amongst participants, but this may not be sufficient to provide evidence of direct causality. At Level 3 practitioners will be able to demonstrate that they are causing the hypothesised impact, by showing less impact amongst those who don't participate in the project or receive the product/service. Progressing to Level 4 and practitioners can explain why and how the project is having the impact observed, with results potentially independently verified. Finally, at Level 5 the project methodology is robust and well-evidenced enough to be scaled up and operated by other teams or organisations, whilst continuing to have positive and direct impact on the outcome and remaining a financially viable proposition.
- 8.6.4 The Middleham Castle Project offered different activity streams for participants and visitors, and as such, can be seen to have reached differing levels on the standards of evidence framework (level 2 for community and level 3 for participant impact). Evidence was collected for both visitors and project participants indicating a change as a consequence of project activities (level 2), however, impact for participants was additionally established through a pre-and post-experience survey showing a significant improvement on similar data for other local archaeological society groups (Wilkins 2020, 33). Training activities were also independently accredited through ClfA – an independent body – ensuring that impact evidence for participants can be assigned to level 3.
- 8.6.5 The insights gained from this evaluation have established a clear community need and demand for more archaeological work at Bishop Middleham and could assist with funding applications for any future activities.

8.7 Conclusions

- 8.7.1 The programme of desk-based research and remote sensing has contributed to existing geophysical and earthwork survey elucidating outstanding research issues (Aim 1 Q1) and highlighting the need for excavations to ground-truth the results of non-invasive survey. Combined with the existing remote sensing results the current programme of geophysical survey has provided a composite view of the history and development of the site and provided preliminary insights into the layout of the site (Aim 1 Q2-3). Furthermore, walkover survey has shown established that much of the archaeological resource remains at risk due to the shallow nature of deposits which were often to be projecting out from beneath the topsoil (Aim 1 Q4).
- 8.7.2 Excavation has helped to characterise and refine the phasing of suggested by desk-based research and remote sensing (Aim 2 Q5). Evidence suggests major phases of building activity during the early-12th century AD, mid-12th century/early-13th century AD, and mid-13th/14th century AD. The earlier phases of building activity are currently only poorly characterised. Most of the archaeological remains uncovered relate to the final layout and configuration of Middleham Castle during the mid-13th/14th century AD by which time it was a high-status ecclesiastical development (Aim Q6) set on a promontory above wetlands (Aim Q7).
- 8.7.3 Preservation of the archaeological and environmental material was generally good (Aim 3 Q8), although at risk due to the shallow nature of deposits with structural remains found projecting out from beneath the turf (Aim 3 Q9). Faunal remains yielded some information regarding the subsistence strategies adopted – seemingly included a diverse range of mammals, birds, fish and marine resources (Aim 3 Q10). Artefactual evidence was not particularly numerous, but did include fragments from a wide range of ceramic vessels and notably coinage and a jetton, used for calculation on a counting board, and whittle-tanged knife blades were recovered (Aim 3 Q11). Excavations preliminary focused on removing the rubble and debris associated with final demolition of Middleham Castle. Consequently, suitable deposits for environmental sampling were not identified, although could be buried further beneath the demolition rubble and help to elucidate our understanding of the local environment and occupation of the site (Aim 3 Q12).
- 8.7.4 The results provide a preliminary interpretation for the history and development of the site which will be refined by further excavation. Following the completion of all intrusive work an integrated synthesis of the archaeological results will help better understand the nature of the site in relation to contemporary regional sites and provide information necessary for the conserving, enhancing and interpreting the significance of the Site (Aim 4 Q13-17).
- 8.7.5 Public engagement was integral to the research aims and in the success of the project (Aim 5). Evaluation of the three-week programme showed significant impact on visitors excavation participants. The project succeeded in attracting a diverse audience with a marked improvement on existing community archaeology provision. The overall perception of archaeology and local history was improved by developing and honing skills and understanding the discipline. Most visitors described an improved perception of the immediate Middleham Castle locality because of seeing the excavation. Insights gained from this evaluation have established a clear community

need and demand for more archaeological work at Middleham Castle and should assist with the impactful design and funding applications for any future activities.

9 RECOMMENDATIONS

9.1.1 This work was undertaken as part of an ongoing programme of archaeological works at Middleham Castle. Full analysis and reporting for all investigations will be undertaken once the additional stages of investigative work have been completed and assessed. The following sections highlight additional archaeological investigation and research as well as recommendations from the project specialists that should be considered as part of the full analysis and publication of the site.

9.2 Excavation

9.2.1 Understanding of bishop's houses is partial, often focused solely around standing building remains and lack the depth of focus to best distinguish patterns of uniqueness and commonality related to this site type. Evidence gleaned through landscape analysis and textual sources reveals the unique role and layout of this residence and the excavations indicating a strong survival of the below-ground deposits. The picture emerging from the excavations is of an elite residence site including high status buildings defended within curtain walls but more excavation is needed to inform the layout and structural development of the site including the dating and function of the buildings. Further archaeological investigation may be able to address the deficits in understanding these sites in comparison with the other extent excavations potentially populating outstanding research objectives.

9.2.2 Therefore, it is recommended that future archaeological fieldwork focusses on further characterising the archaeological remains already discovered in the trenches to further contextualise the nature of the high-status buildings already identified at Middleham Castle. An Updated Project Design has been prepared as a separate document that presents the full aims, objectives and methodology for the next phase of the project that will involve a second season of archaeological fieldwork in 2021 comprising of two further trenches.

9.2.3 The proposed trenches are:

- Trench 3 – c. 12m x 6m focused on the western area of an east-west aligned building and encompassing the area of an adjacent potential well and north-south aligned building within an 'L' shaped complex. The use and age of this structure an adjacent possible well and hall have the potential to contribute considerably to the story of the site.
- Trench 4 – c. 10m x 7m focused on the west of Trench 2 to further inform the layout of the high status building and further define the northern boundary of the site which is viewed as a priority. Establishing the northern limit of the site and the nature of this northern boundary is a priority and this would further allow evaluation of the form of the outer boundary as well as the interior and exterior of the rectangular high-status structure set against it.

9.3 Finds and ecofacts

- 9.3.1 No further work is recommended for the pottery, CBM, worked stone, mortar, animal bone, metalwork, industrial waste, or environmental remains recovered to date. All finds should be retained from the 2019 excavations until the completion of any subsequent stages of excavation and assessment. Following assessment of finds from all excavation years, recommendation for analysis should be reviewed and the finds retention policy reviewed by the team, DCCAS, County Durham Archaeological Archives, and Sevenhills Repository, prior to any material being discarded.

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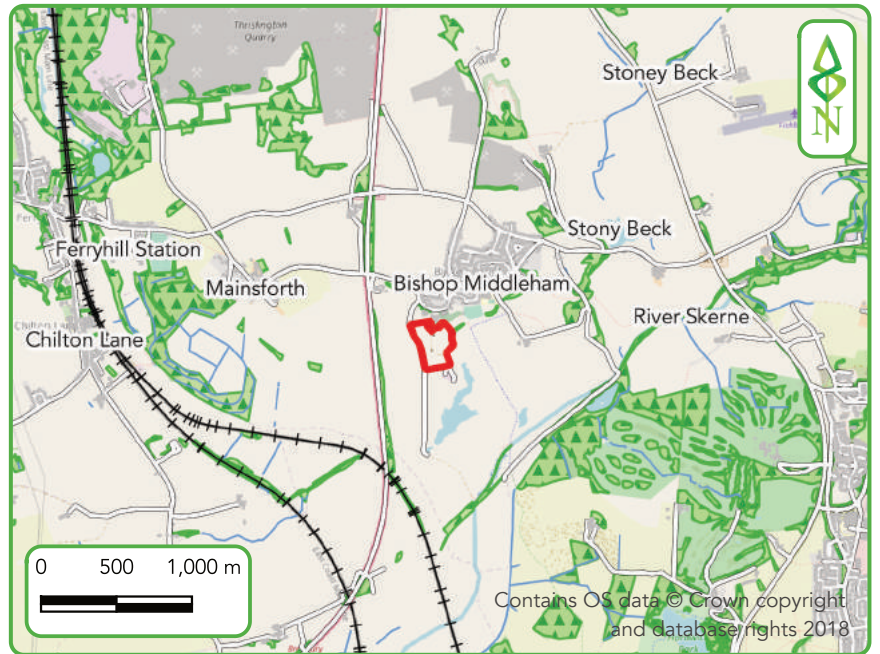


Figure 1 - Site location



Figure 2 - Trench locations overlying geophysical survey



Figure 3a - Post-excavation orthorectified photographic plan of Trench 1

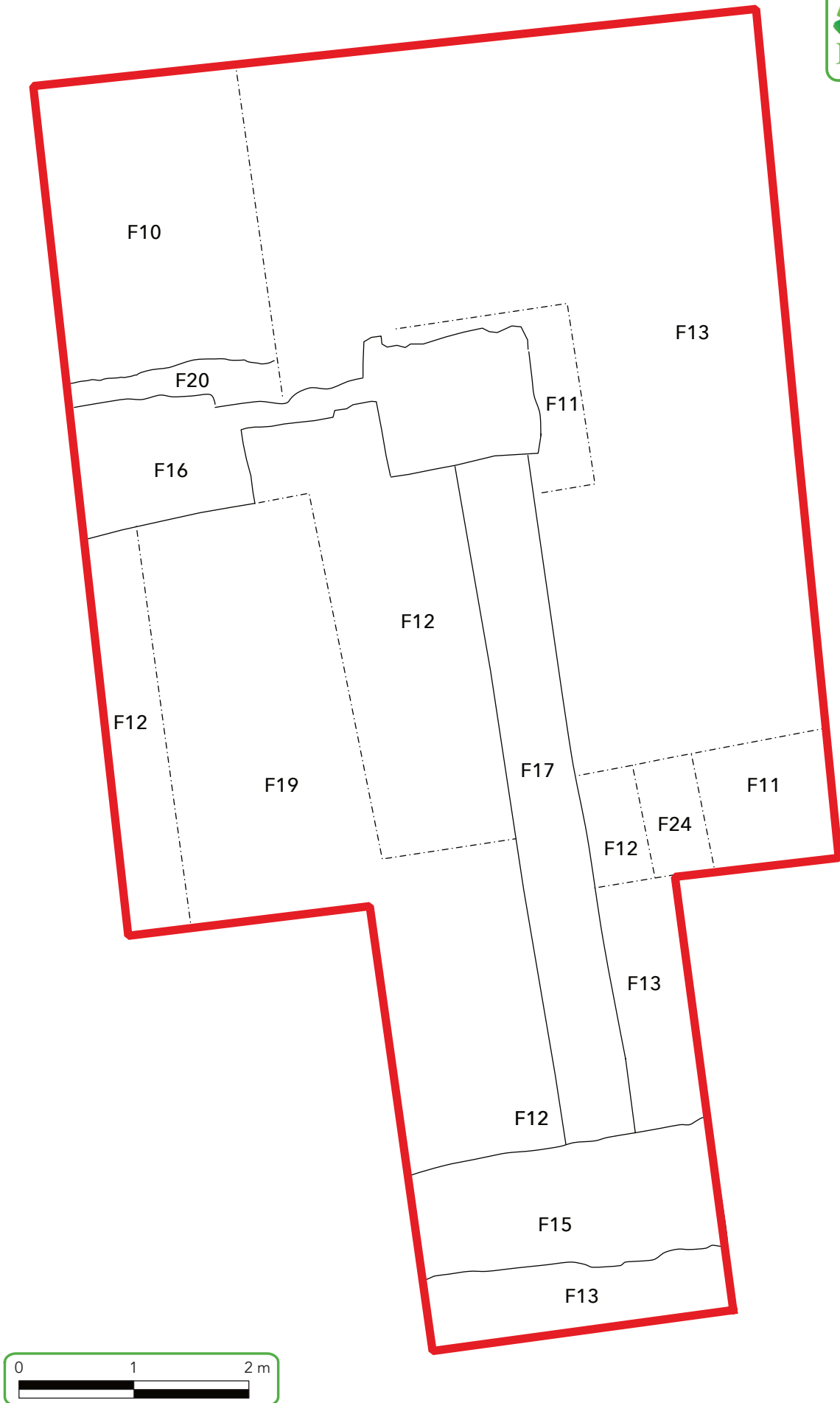


Figure 3b - Post-excitation plan of Trench 1



E-W aligned wall F16 with block doorway F21, looking east. 1m scale



E-W aligned wall F16 with threshold stones exposed, looking east. 1 m scale.



N-S aligned wall F17, looking east. 1m scale



Intersection of N-S aligned wall F17 and E-W aligned wall F16, looking west. 1m scale



Interior of building F14 formed by walls F15, F16 and F17, looking northeast. 1m scale

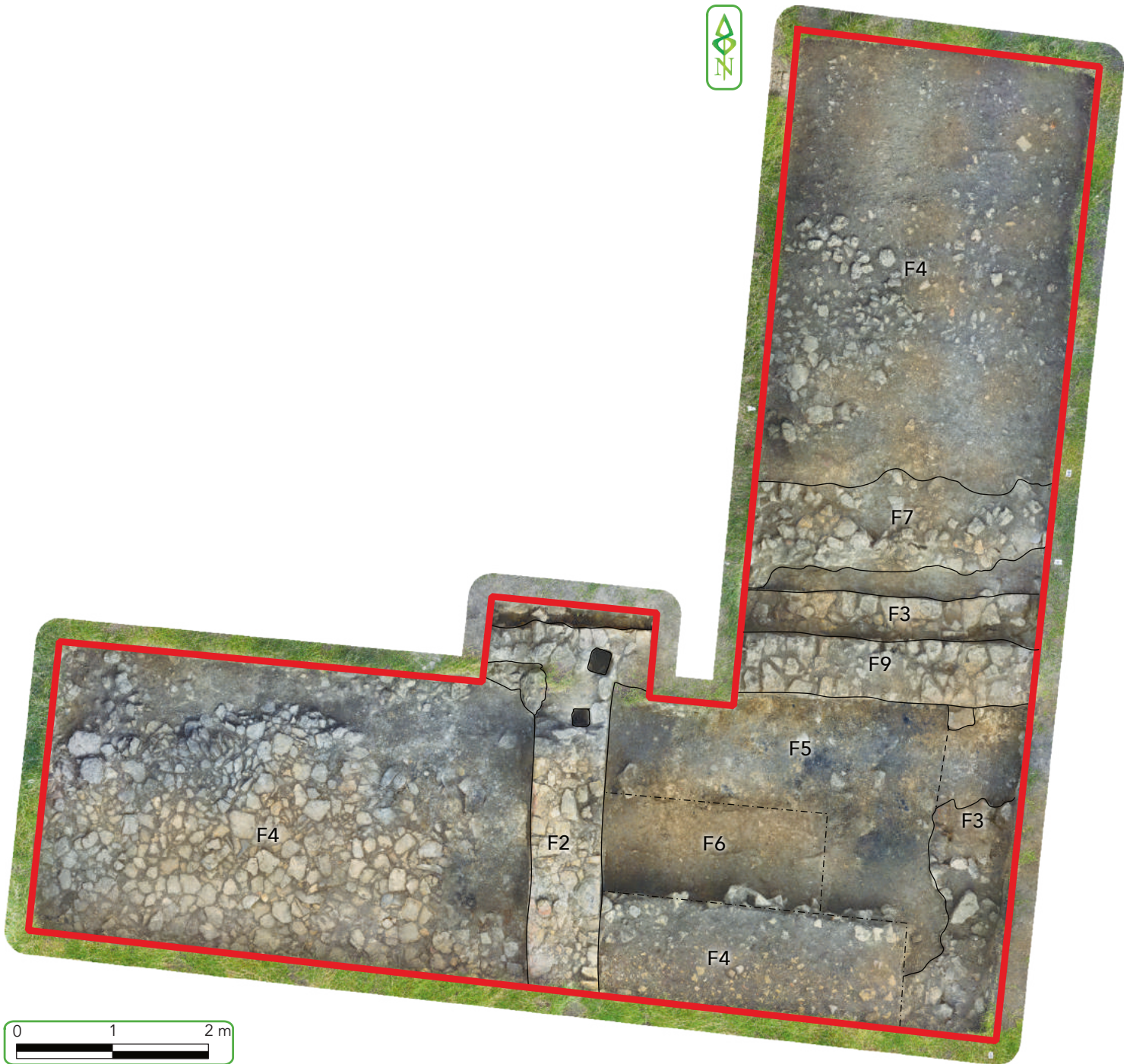


Figure 4a - Post-excavation orthorectified photographic plan of Trench 2

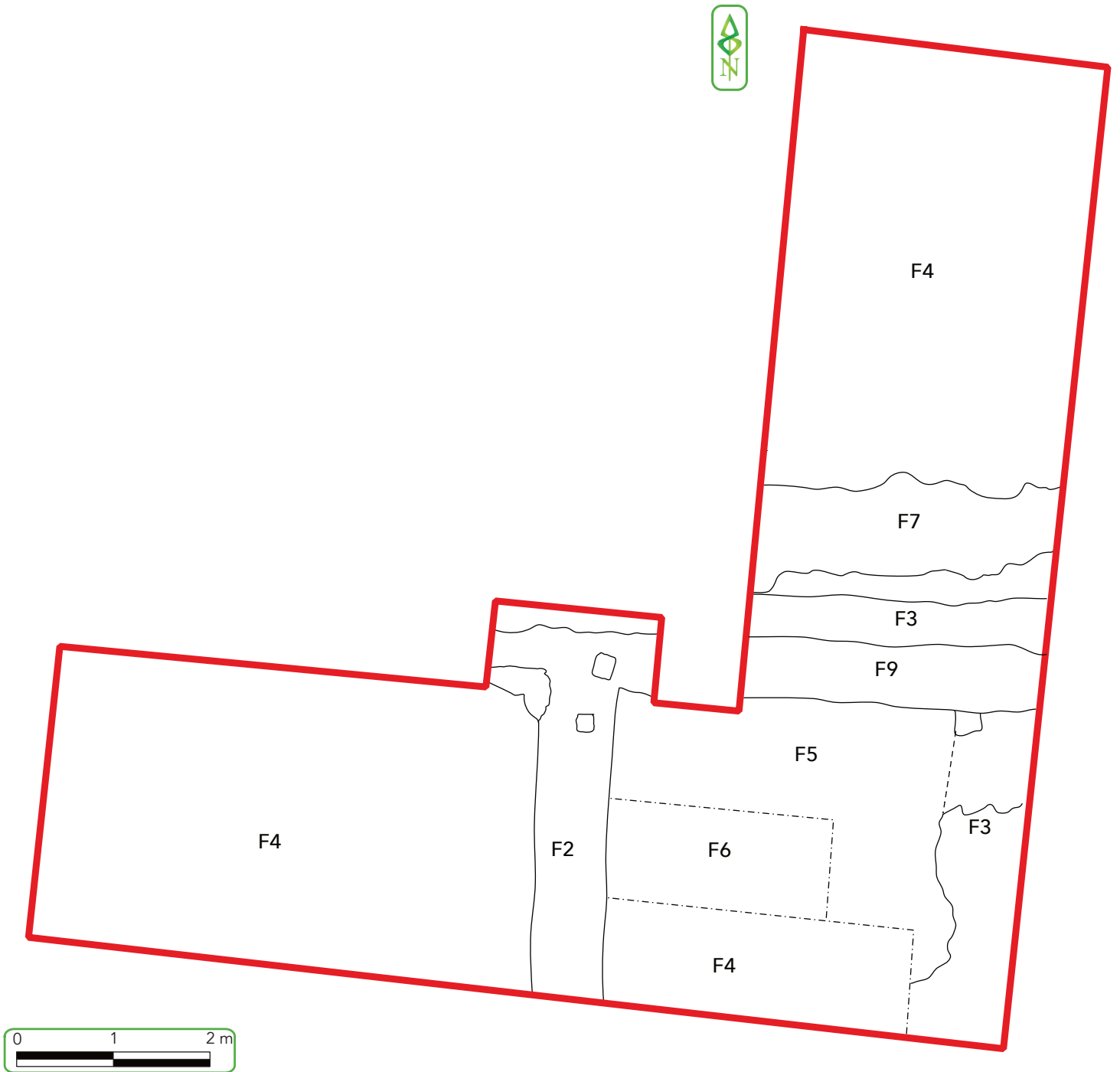


Figure 4b - Post-excitation plan of Trench 2



E-W aligned wall F2, looking west. 2m scale



Cobbled surface and burning F5, looking west. 1m scales



Beamslots within walls F2 and F9 of building F1, looking south. 0.3m scale



Interface of N-S aligned wall F2 and E-W aligned wall F9 of building F1, looking northwest. 0.3m scale



Rubble deposit F4, looking south. 1m and 2m scales



1 - Martin and John carefully expose a medieval wall



2 - Lindsey and Hugh relax with a cup of tea



3 - Martin, Jamie and Doug reveal the wall's coursing - a vital clue to its construction



4 - Archaeology is a great day out for students Eleanor and Hannah



5 - Teamwork gets the job done!



6 - Chris shows John how to photograph the site



7 - Medieval window tracery was one of our most impressive (and popular) discoveries



8 - Venturers gather at the end of the day for a debrief with Chris



9 - A jetton provided the team with some interesting dating evidence



10 - Sharon, Jacob, Rachael, Lindsey, Michelle, Rufus and Bret celebrate their teamwork

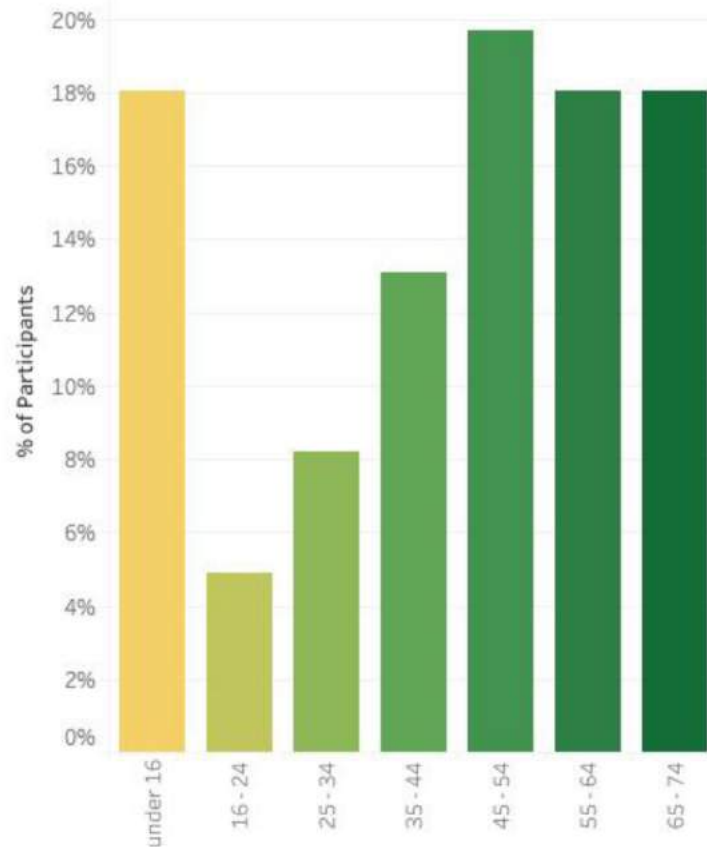


11 - Rachael and Mike collect photos to create a 3D model of the site

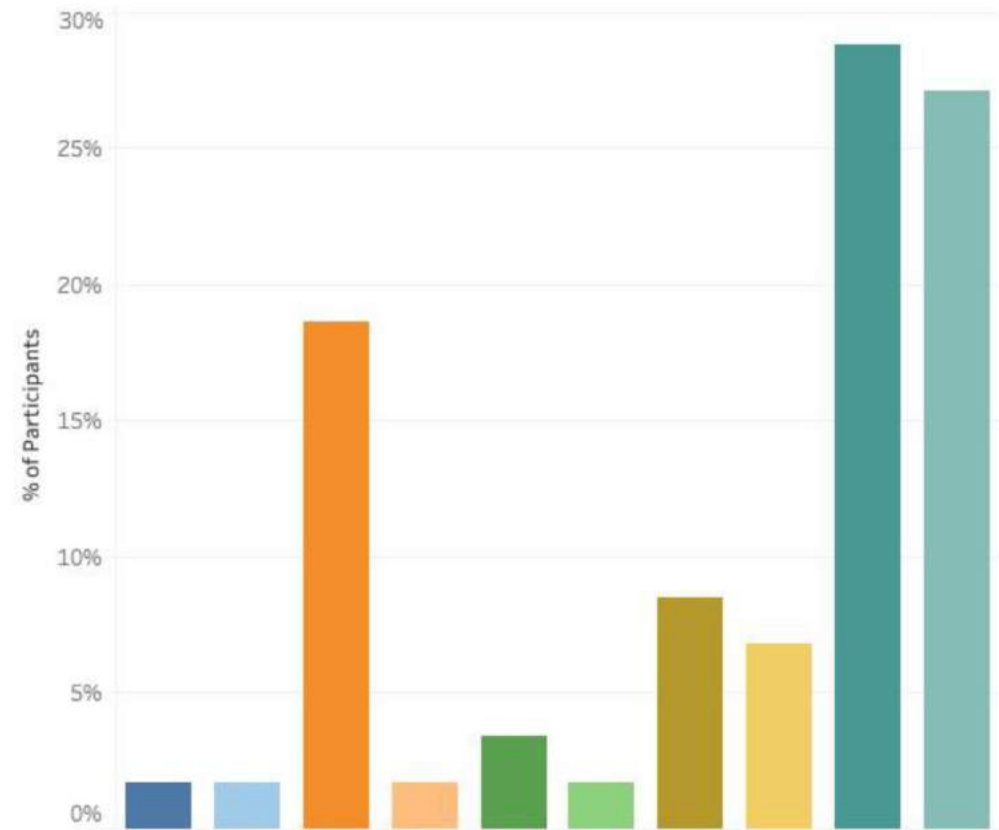


12 - Nigel, Caio, Caroline and Martin have revealed another mighty wall

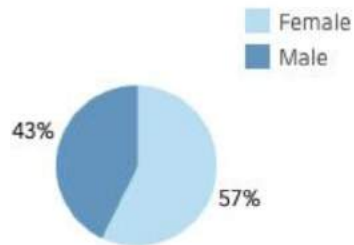
Age



Professional Background



Gender



- Higher managerial, administrative and professional occupations
- Higher professional occupations
- Lower managerial, administrative and professional occupations
- Small employers and own account workers
- Lower supervisory and technical occupations
- Semi-routine occupations
- Routine occupations
- Never worked and long-term unemployed
- Retired
- Student

Figure 6 - Age, gender and socio-economic background

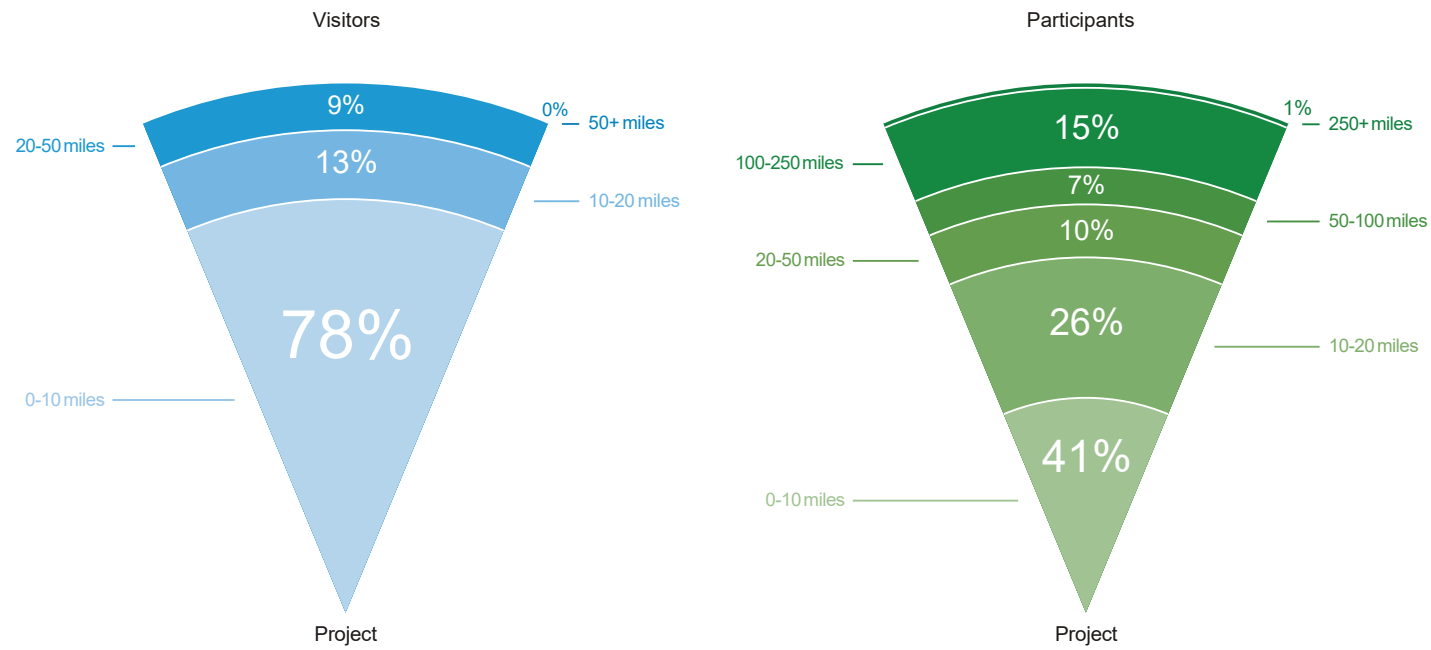
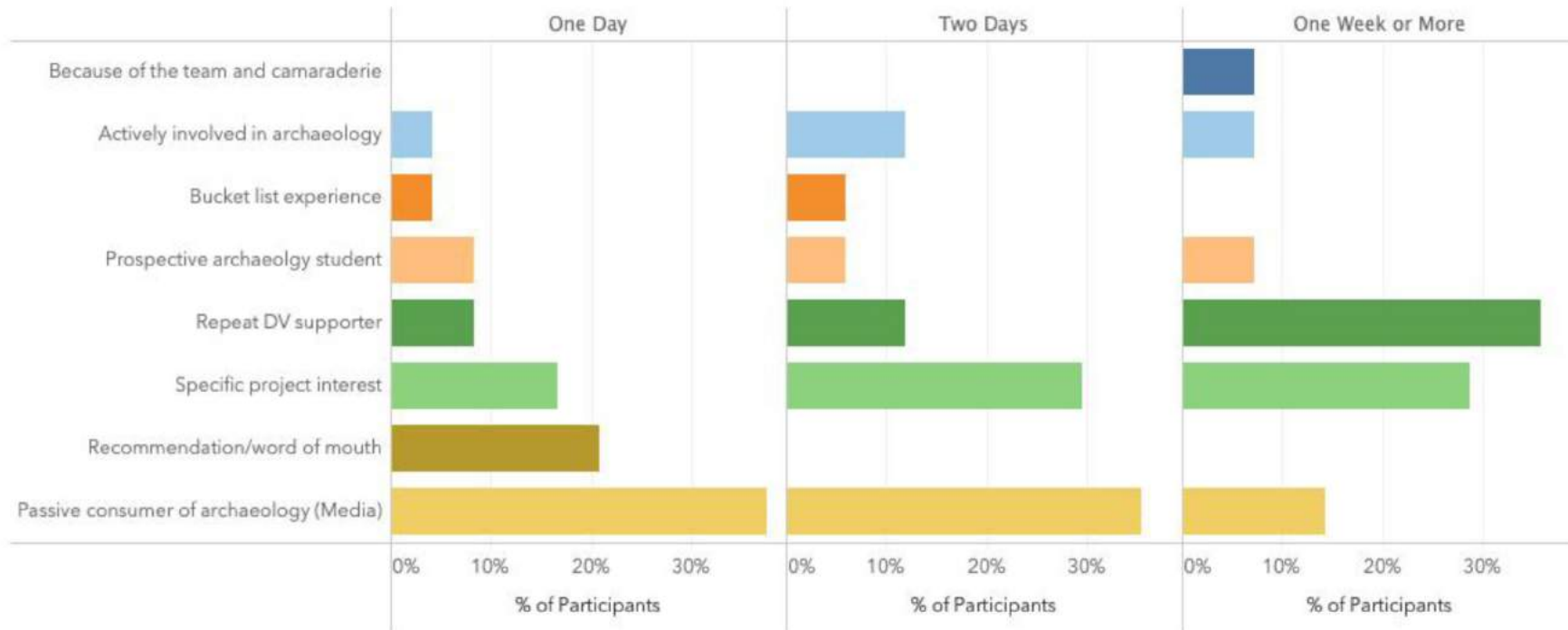


Figure 7 - Average distance from site for visitors and participants of all visitors to project

Reason for supporting



Highlights

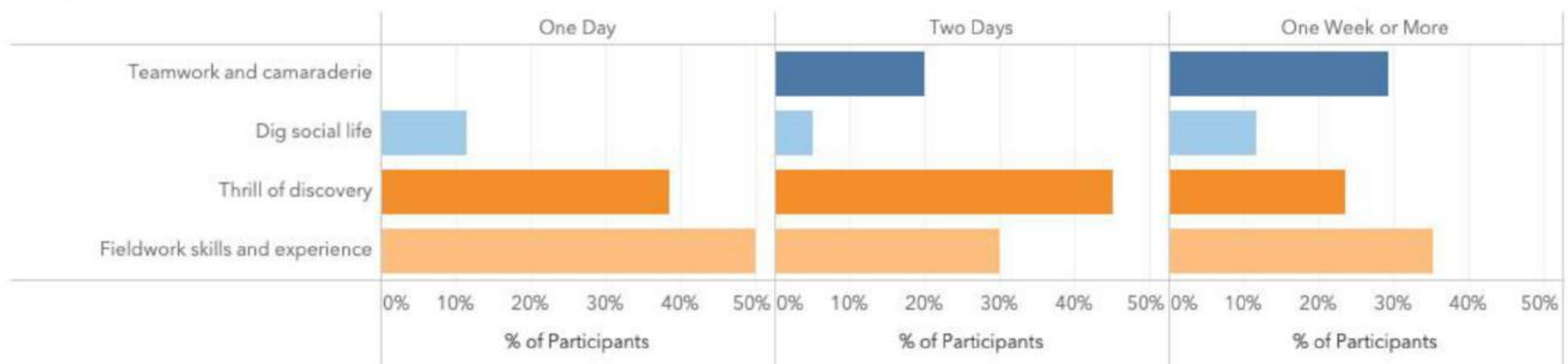
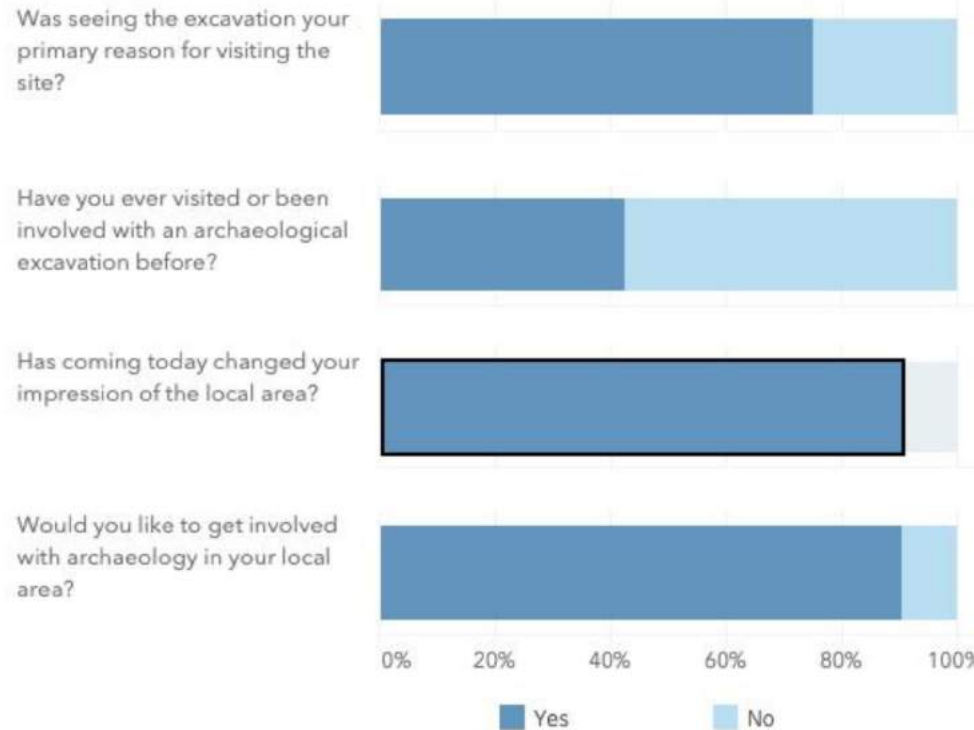
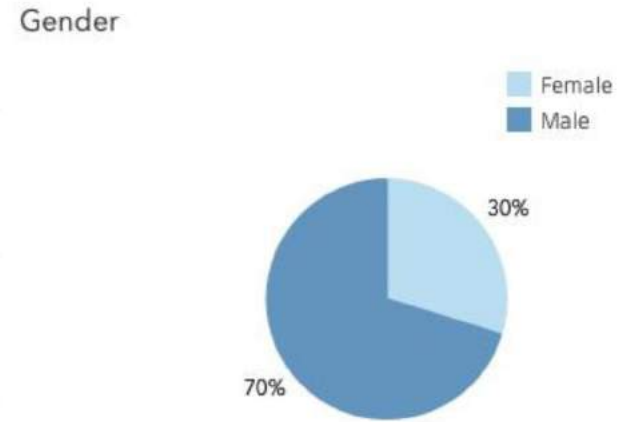
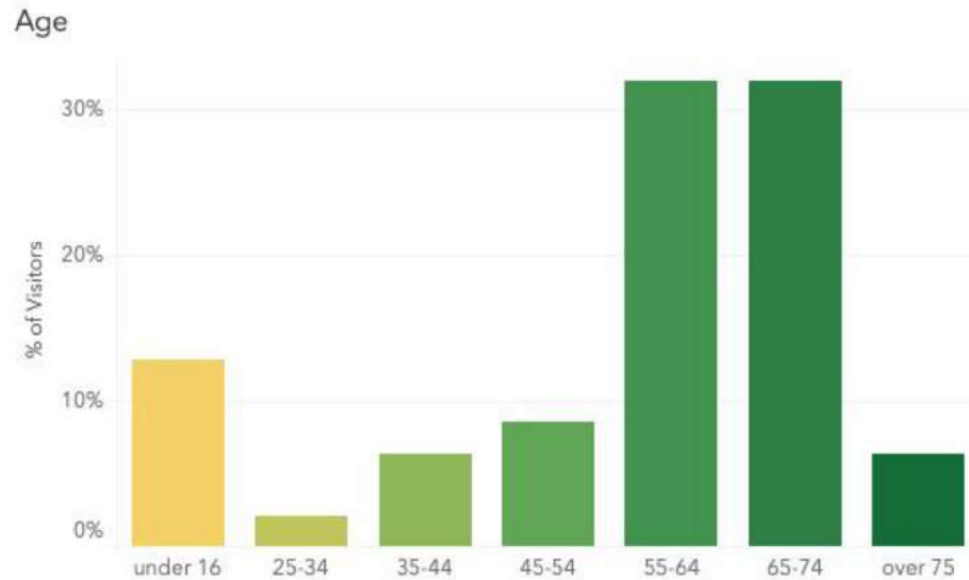
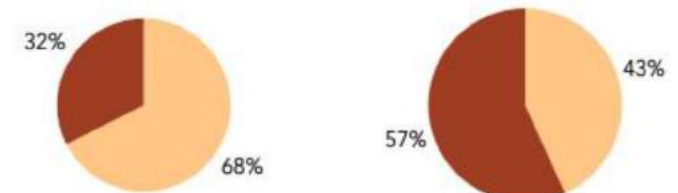


Figure 8 - Motivations and highlights of participants



89% of visitors stated that their impression of archaeology has changed after visiting the site, and now think that...

■ They are more likely to get involved
■ There is no change in their wish to get involved



■ Archaeology is more exciting
■ Archaeology is neither more nor less exciting

Figure 9 - Age, gender and impressions of visitors

Appendices

Appendix 1. Trench and context descriptions

Table 1: Trench 1 context descriptions

Trench 1	Dimensions: 12m x 6m				
	Orientation: North to South				
	Reason for Trench: Characterisation of the form, survival, use and age of the structural remains focused on the eastern end of east-west aligned building at the southern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
1001	Mid greyish brown sandy silt with 10% inclusions of sub-angular stones ranging from 3-10cm. 1% snail shell	Topsoil	Length	12.00m	
			Width	6.00m	
			Depth	0.18m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1001				
1002	E-W aligned wall of coursed square flat faced limestone and gritty coarse grey/cream lime mortar.	N- facing wall of building	Length	3.89m	F14 & F16
			Width	0.84m	
			Depth	0.48	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1002				
1003	N-S aligned wall of coursed square flat faced limestone and gritty coarse grey/cream lime mortar.	E- facing wall of building	Length	3.60m	F14 & F17
			Width	0.57m	
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1003				
1004	Mid yellowish-brown sandy clay with 80% angular stone and rubble inclusion (2-30cm) and mortar.	Demolition rubble inside building	Length	5.70m	F13
			Width	3.23m	
			Depth	0.17m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1004				
1005	Mid greyish brown sandy silt with 80% large and medium rounded stone inclusions (2-30cm) and <1% charcoal.	Collapse possible demolition rubble outside building	Length	6.00m	F13
			Width	1.50m	
			Depth	0.23-0.30m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1005				
1006	Mid brown silt, with moderate pebbles.	Possible floor surface	Length	5.70m	F19
			Width	3.23m	
			Depth	0.04m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1006				
1007	Mid greyish brown, sandy silt.	Subsoil	Length	12.00m	
			Width	6.00m	

Trench 1	Dimensions: 12m x 6m				
	Orientation: North to South				
	Reason for Trench: Characterisation of the form, survival, use and age of the structural remains focused on the eastern end of east-west aligned building at the southern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
			Depth	0.13m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1007				
1008	E-W aligned wall of coursed square flat faced limestone and lime mortar. Max size of blocks 30x15x23cm.	South wall of building and possible curtain wall	Length	2.06m	F14 & F15
			Width	1.05m	
			Depth	0.60m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1008				
1009		Dismantling of probable curtain wall	Length	3.06m	F13
			Width	0.46m	
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1009				
1010	Mid greyish brown silty clay	Buried soil at base of possible curtain wall. Same as (1018)	Length		
			Width		
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1010				
1011	Mid greyish brown silty sand with 80% poorly sorted angular stone inclusions (15cm), rounded gravel and pebbles (8cm) and degraded sandstone.	Cobbled courtyard	Length	7.00m	F11
			Width	2.60m	
			Depth	0.11m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1011				
1012	Mid dark greyish brown silty sand with 90% inclusion of poorly sorted angular stones (ranging 6-50cm), pebbles, and lime mortar.	Intentional blocking of door within wall (1002)	Length	1.18m	F21
			Width	0.89m	
			Depth	0.28m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1012				
1013	Dark greyish brown silty sand with 90% inclusion of poorly sorted angular stones (ranging 6-50cm), pebbles, and lime mortar.	Sub-floor within the interior of the building	Length	2.80m	F19
			Width	1.50m	
			Depth	0.13m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1013				
1014	Mid greyish brown sandy clayey silt with 40% sub	Sub-floor within interior	Length	1.66m	F14
			Width	1.00m	

Trench 1	Dimensions: 12m x 6m				
	Orientation: North to South				
	Reason for Trench: Characterisation of the form, survival, use and age of the structural remains focused on the eastern end of east-west aligned building at the southern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
	angular gravel (<5cm), 10% mortar, <5% sub angular stones (<15cm) inclusions.	of earlier structure defined by wall (1021)	Depth	0.13m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1014				
1015	Fractured limestone bedrock	Natural	Length		F12
			Width		
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1015				
1016	Mid yellow degraded sandstone	Construction cut infill	Length	0.44m	F14 & F16
			Width	0.45m	
			Depth	0.03m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1016				
1017	Mid greyish brown sandy silt with 5% angular gravel (3cm) inclusions.	Buried soil. Same as (1018)?	Length		
			Width		
			Depth	0.15m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1017				
1018	Mid greyish brown silty clay.	Buried soil. Same as (1010)?	Length		
			Width		
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1018				
1019	Mid reddish brown sandy silt with 5% gravel, 5% angular stones (5cm) and <1% charcoal inclusions.	Floor accumulation beneath blocked up door way	Length	1.14m	F14 & F21
			Width	0.65m	
			Depth	0.07m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1019				
1020	Mid greyish brown silt with <2% small stones and very limited sandy inclusions.	Silting up of drain	Length	0.80m	F20
			Width	0.26m	
			Depth	0.10m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1020				
1021	Linear corner of building of coursed limestone blocks ranging from 14x8x8cm to 40x18x16cm. Aligned NNE-SSW, some faced stones, no bonding material evident.	Foundation of an earlier building	Length	2.03m/1.02m	F10
			Width	0.65m	
			Depth	Not defined	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1021				
1022		Drain	Length	0.85m	F20

Trench 1	Dimensions: 12m x 6m				
	Orientation: North to South				
	Reason for Trench: Characterisation of the form, survival, use and age of the structural remains focused on the eastern end of east-west aligned building at the southern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
	Angular limestone and sandstone c.20x15x10cm aligned E-W. Rough coursing and rough finish, no bonding material evident.		Width	0.40m	
			Depth	0.10m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1022				
1023	Single course of regular limestone blocks c.28x19x15cm facing N-S. No bonding material evident.	Chamfered threshold stones of doorway	Length	1.30m	F14 & F16
			Width	0.85m	
			Depth	0.15m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1023				
1024	Mottled cream/mid brown silt with angular limestone fragment inclusions.	Construction debris related to wall F17	Length	7.05m	F17
			Width	2.05m	
			Depth	0.15m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1024				
1025	Linear in shape with uneven sides and a flat base. E-W oriented.	Construction cut for wall (1002)	Length	1.00m	F14 & F16
			Width	0.40m	
			Depth	0.20m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_1025				

Table 2: Trench 2 context descriptions

Trench 2	Dimensions:				
	Orientation: L-shaped				
	Reason for Trench: Establish character focused on the outworks and associated structures at the northern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
2001	Dark brown silty loam with angular limestone fragment inclusions.	Topsoil	Length		
			Width		
			Depth	0.17m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2001				
2002	Mid greyish brown sandy silt with regular gravel, angular limestone fragments, occasional mortar and charcoal fleck inclusions.	Subsoil	Length		
			Width		
			Depth	0.19m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2002				
2003	Mid brown clayey silt with angular limestone blocks and gravel throughout. Occasional roof tile fragments and charcoal flecks.	Collapse of wall (2004)	Length	4.20m	F4
			Width	3.00m	
			Depth	0.58m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2003				
2004	N-S aligned. Regularly coursed linear wall of limestone blocks and fragments (av. 40x25x13cm). Internal face faces W, external to E. Seven courses extant bonded with yellow lime mortar. External faces of stones are well finished with visible tooling.	E-facing wall of building of possible partition wall	Length	3.25m	F1 and F2
			Width	0.75m	
			Depth	0.85m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2004				
2005	c.100% grey stone roof tiles	Deliberate dismantling	Length	4.09m	F4
			Width	2.50m	
			Depth	0.15m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2005				
2006	Mid greyish brown clayey silt with 80% sub-rounded pebbles (<7cm), lime mortar and charcoal inclusions.	Probable robbed out floor surface	Length	5.02m	F6
			Width	3.01m	
			Depth	unexcavated	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2006				
2007			Length	4.20m	F6

Trench 2	Dimensions:				
	Orientation: L-shaped				
	Reason for Trench: Establish character focused on the outworks and associated structures at the northern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
	Mid brown clayey silt with <5% mortar and <2% charcoal inclusions.	Occupational debris/floor surface	Width	2.20m	
			Depth	0.11m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2007				
2008	Regularly coursed linear wall of limestone blocks and fragments. Internal face S, external to N. Courses slope in line with natural contour of ground. Bonded with yellow lime mortar.	Wall of Building F1	Length	5.80m	F1 & F9
			Width	0.62m	
			Depth	0.60m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2008				
2009	Brownish grey silt with <30% sub angular stones (<10cm) and <30% mortar inclusions.	Same as (2002)	Length	3.30m	
			Width	0.80m	
			Depth	0.60m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2009				
2010	Stones of various sizes observed in an E-W alignment.	Foundations?	Length	3.30m	F7
			Width	0.85m	
			Depth	0.38m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2010				
2011	Mid reddish brown sandy silt with 40% mortar, 40% sub angular small stones (<2cm), 5% medium stone (<10cm).	Mortar spread possibly from demolition of wall (2008)	Length	1.60m	F4
			Width	0.11m	
			Depth	/	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2011				
2012	E-W linear wall with 90 degree turn to southeast. Faced limestone blocks (<38x20x12cm)	Remains of early building	Length	3.04m	F3
			Width	0.45m	
			Depth	/	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2012				
2013	Void	Robber cut, no longer believed to be a real	Length	5.00m	F8
			Width	0.90m	
			Depth	0.19m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2013				
2014	Loose dark brown sandy silt, 80% roof tile pitched in soil.	Roof tile in western cell deliberate demolition	Length	1.50m	F4
			Width	1.10m	
			Depth		

Trench 2	Dimensions:				
	Orientation: L-shaped				
	Reason for Trench: Establish character focused on the outworks and associated structures at the northern limit of the castle enclosure				
Context	Description	Interpretation/ Process of deposition	Dimensions (m)		Feature
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2014				
2015	Very firm green brown clay.	Foundation deposit beneath wall (2004)	Length		F2 and F1
			Width		
			Depth		
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2015				
2016	Loose beige sandy clayey silt with 50% mortar and <10% charcoal inclusions.	Lens of material within the floor	Length	1.60m	F5
			Width	1.70m	
			Depth	unexcavated	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2016				
2017	Mid reddish-brown sandy silt with large sub angular stones (19x20cm) placed to form a possible surface. 50% charcoal inclusions spread evenly across the deposit. Heat affected clay evident in areas and some fired purpled clay observed.	Floor surface	Length	1.60m	F5
			Width	1.45m	
			Depth	/	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2017				
2018	Unfinished subangular limestone blocks, constructed to form a tube within walls (2004) and (2008). Inclined slightly towards south.	Constructed recess to house a timber support post	Length	0.26m	F1
			Width	0.26m	
			Depth	0.60m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2018				
2019	Possibly faced rectangular limestone blocks, coursed and constructed to form a rectangular slot in wall (2004). Not fully excavated so full depth unknown.	Square socket for timber	Length	0.20m	F1
			Width	0.19m	
			Depth	0.43m	
Link	https://digventures.com/middleham-castle/ddt/cxt/MDC_2019				

Appendix 2. Pottery catalogue

Table 3: Pottery catalogue

Context	Type	No	wt	ENV	Date Range	Notes	SF No.
1001	Early glazed sandy ware type	1	2	1	1100-1250		
1001	ENPO	5	13	5			
1001	Humberware	12	48	1	1350-1600	Misc sherds. Some micaceous possibly Healy types	
1001	Local Medieval type 1	1	4	1	1300?-1500?	Ox int surface	
1001	Local Medieval type 4	1	5	1	1250?-1350?		
1001	Local Medieval type 7	3	5	2	1150-1300?	Early glazed coarse sandy ware. Equiv to TVWA/EGW types. Range of similar types identified at Bowes and Barnard Castles.	
1001	REFW	12	19	3		Scalloped rim	
1001	TPW	1	6	1			
1001	Humberware	1	28		1350-1600	Abund mica; Links with Cxts 1004, 1005 and 1007	3
1001	Humberware	1	23	1	1350-1600	Abund mica; Links with Cxts 1004, 1005 and 1007	4
1001	Humberware	1	24		1350-1600	Abund mica; Links with Cxts 1004, 1005 and 1007	6
1001	Local Medieval type 1 type	1	4	0	1300?-1500?	Links with Cxts 1005 and 1007	6
1001	Humberware/Healey type ware?	3	59	1	1450?-1600?	Dark grey fabric with no oxidised margins. Fabric similar to Early Healey type.	34
1004	Coal measures whiteware type	2	5	1	1250-1350	Pale grey fabric with pale buff/reddish yellow internal margin. Pitted green glaze. Clean matrix with mod to sparse medium to coarse sub rounded pale grey quartz, sparse fine to medium rounded sandy FeO ₂ grains.	
1004	Early Healey type ware	1	10	1	1450?-1600?		
1004	Humberware	3	106	1	1350-1600		
1004	Local Medieval type 4	3	11	1	1250?-1350?		
1004	Local Medieval type 5	2	15	1	1250?-1350?		
1004	Local Medieval type 6	9	15	1	1150-1300?		
1004	Humberware	1	5		1350-1600	Link with 1001, 1005 and 1007	7
1004	Early Healey type ware	3	47	1	1450?-1600?		13
1004	Local Medieval type 3	1	6	1	1250-1350	Jug with clubbed rim. Reddish yellow fab with paler margins. Mod to sparse sub-angular - sub-rounded pale grey/pink quart 0.1 - 0.25mm; mod sub-rounded opaque pinkish quartz 0.4 - 0.6mm, occasionally up to 0.8mm; sparse very fine <0.1mm FeO ₂ .	13
1004	Local Medieval type 6	7	30	1	1150-1300?		13
1004	Humberware	1	34		1350-1600	>	14
1004	Humberware	1	18		1350-1600	> Same vessel. Links with 1006	21
1004	Humberware	1	4		1350-1600	>	22
1004	Humberware type	1	8	1	1350-1600		25
1004	Humberware	1	23	1	1350-1600		37
1004	Humberware/Healey type ware	2	58	1	1450?-1600?		45
1005	Humberware type	3	95	2	1350-1600		
1005	Local Medieval type 1	18	94	1	1300?-1500?	Jug forms only. Links with 1007 and 1017	
1005	Local Medieval type 4	1	4	1	1250?-1350?		
1005	Local Medieval type 4 type	3	16	0	1250?-1350?	Jug forms only. Links with 1017	
1005	Local Medieval type 5	7	52	1	1250?-1350?	Jug forms only. Links with 1007, 1011 and 1017	
1005	Local Medieval type 5 (white firing version)	1	3	1	1250?-1350?		
1005	Local Medieval type 6	1	1	0	1150-1300?		
1005	Local Medieval type 7	1	4	1	1150-1300?		
1005	Local Medieval type 7 type	6	9	1	1150-1300?		
1005	NGR type	1	7	1		Everted clubbed rim. Grey fabric, sparse sub-rounded - rounded pale grey quartz inc, 0.25 1mm, coarse rounded black inc (unknown), occ medium - coarse rounded to sub-rounded red chert.	
1005	Tees Valley ware type B	1	3		1250-1350		
1005	Humberware	1	2	0	1350-1600	>	
1005	Humberware	1	14	0	1350-1600	> Same vessel. Links with 1001, 1004 and 1007	8
1005	Local Medieval type 1 type	1	4	1	1300?-1500?		9
1005	Local Medieval type 5 type	1	1	0	1250?-1350?		9

Context	Type	No	wt	ENV	Date Range	Notes	SF No.
1005	Local Medieval type 1	1	4	1	1300?-1500?		10
1005	Local Medieval type 1	1	6	1	1300?-1500?	Links with 1007 and 1017	43
1005	Local Medieval type 1	2	38		1300?-1500?	>	8
1005	Local Medieval type 1	1	21		1300?-1500?	> Same vessel (jug). Links with 1001 and 1007	12
1005	Local Medieval type 1	1	30		1300?-1500?	>	41
1005	Scarborough Ware type 1	1	13	1	1225-1350	Jug	44
1006	Humberware	14	184	2	1350-1600	Links with 1004	
1006	Local Medieval type 1	1	2	0	1300?-1500?		
1006	Local Medieval type 6	6	28	1	1150-1300?		
1006	Local Medieval type 6	1	4	1	1150-1300?		15
1007	Humberware	4	12	1	1350-1600	Links with 1001, 1004 and 1005	
1007	Local Medieval type 1	1	6	0	1300?-1500?	Jug	
1007	Local Medieval type 4 type	2	10	2	1250?-1350?	Jar?	
1007	Local Medieval type 5	2	6	0	1250?-1350?	Links with 1005 and 1017	
1007	Local Medieval type 7 type	11	16	1	1150-1300?		
1007	NGR type	1	14	1			
1007	Tees Valley ware type A type	3	18	1	1200-1300	Pale reddish yellow fabric with pale grey core int surface. Relatively fine matrix. Moderate sub-rounded to rounded pale grey/white/glassy medium, occasionally coarse quartz inclusions.	
1007	Tees Valley ware type B	2	4	0	1250-1350	Red - pink fabric. Cu rich speckled gg ext. Relatively fine/clean matrix, Mod-sparse fine to coarse sub-rounded - rounded rose coloured quarts, sparse subangular pale grey quartz.	
1007	Humberware	3	95	1	1350-1600	Jug with large strap handle. Links with 1001, 1004 and 1005	17
1007	Local Medieval type 1	1	5		1300?-1500?	Links with 1005 and 1017	23
1007	Humberware	1	34	1	1350-1600		24
1007	Local Medieval type 2	1	5	1	1150-1300?		24
1007	Local Medieval type 5	1	3		1250?-1350?	Links with 1005 and 1017	31
1007	Local Medieval type 1	2	30		1300?-1500?		39
1009	Tees Valley ware type B	1	7	1	1250-1350	Abraded sherd. Pale red fabric with mid grey core. Splash glazed. Mod sub-rounded pale grey quartz ranging 0.2 - 0.5mm. Occasional sub-rounded quartz sandstone c1mm.	32
1010	Local Medieval type 7	1	14	1	1150-1300?	Jug. Abraded sherd. Pale red fabric with mid grey core. Splash glazed. Mod sub-rounded pale grey quartz ranging 0.2 - 0.5mm. Occasional sub-rounded quartz sandstone c1mm.	33
1011	Early glazed sandy ware type	1	10	1	1150-1300	Sandy white fabric with dark black core and pale pink int surfaces. Poorly fluxed glaze ext. Very fine sandy matrix with mod to abundant very fine mica, mod to sparse fine to medium angular - sub-angular pale grey/glassy quartz, sparse - occasional medium to coarse angular quartz, occasional medium to coarse quartz, sparse fine to medium rounded FeO2 grains, occasional medium- coarse subangular iron ore. Distinct from most MEDLOC fabrics here are as predominantly angular quartz grains. Possible Pennine as a opposed to Moors fringe source	
1011	Local Medieval type 5	2	15	0	1250?-1350?	Jug. Link with 1005 and 1017	
1011	Local Medieval type 5 (white firing version)	1	3	0	1250?-1350?		
1011	Oxidised Gritty ware type	3	11	1	1100-1250	Jar	
1014	Local Medieval type 5 type	1	1	0	1250?-1350?		
1017	Brandsby type ware	1	2	1	1200-1350		
1017	Local Medieval type 4 type	3	36	1	1250?-1350?	Jar. Links with 1005	
1017	Local Medieval type 5	2	27	0	1250?-1350?	Links with 1005 and 1011	
1017	Local Medieval type 1	1	5	0	1300?-1500?	Jug. Links with 1005 and 1007	48
1017	Local Medieval type 5	7	69	2	1250?-1350?	Jug. Links with 1005 and 1011	48
1019	Humberware	1	15	1	1350-1600	Fine calcitic accretions to breaks and surfaces of sherd.	

Context	Type	No	wt	ENV	Date Range	Notes	SF No.
1019	Humberware	1	51	1	1350-1600	Drinking jug. Non-micaceous. Humber estuary origin	47
1020	Local Medieval type 6	1	2	0	1150-1300?		
1020	Local Medieval type 7 type	2	17	2	1150-1300?	Jar	
1020	Tees Valley ware type A	1	13	1	1200-1300		
2001	ENPO	4	14	2			
2001	Gritty type ware	1	3	0	1100-1250		
2001	Humberware	2	28	1	1350-1600	Jug. Upright slightly collared rim with int bevel. Hole in wall of neck. Post production but certainly intentional although the purpose is not clear. Not micaceous - Humber estuary origin.	
2001	LGRESL	2	35	1		Bowl	
2001	Local Medieval type 1 type	2	2	0	1300?-1500?		
2001	Local Medieval type 7 type	1	6	1	1150-1300?		
2001	REFW	5	6	1			
2001	REFW PNTD	1	2	1			
2001	SWSG	1	37	1		Jar	
2001	TPW	4	19	4			
2001	York Glazed Ware type	1	2	0	1150-1300		
2002	Pink Tyneside Buff White type ware	1	7	1	1250-1350	Pale buff fabric with pale reddish yellow external surfaces. Mod fine Sparse sub-rounded quartz upto 1.5mm; sparse quartz sandstone up to 2.5mm; mod sub rounded white/pale grey quartz 0.2 - 0.5mm; sparse sub rounded/sub-angular chert upto 0.3mm; mod red and black rounded Fe inclusions upto 0.2mm only very sparse, very fine mica visible in surfaces. Nearest known parallel are Tyneside buff-white ware types.	
2002	Humberware type	1	4	1	1350-1600		
2002	Local Medieval type 4 type	1	2		1250?-1350?		
2002	Local Medieval type 5	1	3	0	1250?-1350?		
2002	REFW	1	1	1		Potentially intrusive?	
2002	Reduced green glazed ware type	1	10	1	1300?-1500?		
2002	Tees Valley ware type B	1	2	1	1250-1350		
2003	Local Medieval type 1	1	8	1	1300?-1500?		
2003	Local Medieval type 1 type	1	2		1300?-1500?		
2003	Local Medieval type 7	1	2	0	1150-1300?		
2003	Tees Valley ware type A type?	1	1	0	1200-1300		
2005	Local Medieval type 1 type	1	3	0	1300?-1500?		
2005	Local Medieval type 5 type	2	18	1	1250?-1350?		
2005	Local Medieval type 7 type	1	8	1	1150-1300?		
2007	Local Medieval type 1 type	4	12	1	1300?-1500?		
2007	Local Medieval type 5 type	1	4	1	1250?-1350?		
2007	Tees Valley ware type B type	1	3	0	1250-1350		
2007	Local Medieval type 7	1	51	1	1150-1300?	Rod handle. Buff-white fabric with mid grey core. Similar to Durham type buff wares.	27
2009	Humberware	6	27	5	1350-1600		
2009	Local Medieval type 1 type	2	4	0	1300?-1500?		
2009	Local Medieval type 5	2	7	2	1250?-1350?		
2009	Local Medieval type 5 type	2	47	2	1250?-1350?	Loop handled jar/bowl	
2009	Local Medieval type 6 type	1	2	0	1150-1300?		
2009	Local Medieval type 7	2	11	1	1150-1300?		
2009	Oxidised Gritty ware type	1	5	1	1100-1250	Dark grey micaceous fabric with red external margins/surfaces. Mod coarse inc.	
2009	Tees Valley ware type B type	2	4	0	1250-1350		
2011	Local Medieval type 1	1	57	1	1300?-1500?	Jug	40
2011	Oxidised Gritty glazed ware type	1	93	1	1200-?	Jug handle. Green/brown glazed, decorated strap handle. Twisted cord dec in central thumbing flanked with stabbed combed impressions. Hard fired light red fabric.	40
2012	Local Medieval type 1 type	1	3	0	1300?-1500?		0
2012	Local Medieval type 7 type	1	9	0	1150-1300?		

Appendix 3: Pottery fabric descriptions

The pottery assemblage was identified to type and quantified using the number of sherds, the weight of the sherds and the estimated (maximum) number of vessels (ENV) recorded, as per the Standard for Pottery Studies (PCRG, SGRP and MPRG 2016) onto a database, and measured by sherd count and weight.

Middleham is in an area of North Yorkshire that has seen few substantial assemblages published. Modest assemblages have been recorded from Jervaulx Abbey (Jennings 2010), Richmond in Swaledale (Vince and Young 1999) and Ripon (Mainman 1997, Vince and Steane 2006) with a major assemblage from Barnard Castle (Freeman 2007) to the north. Major pottery traditions in the area are based on the Tees Valley, and the Hambleton Hills to the south east, a major supplier to York through the medieval period. Medieval pottery kilns have been excavated at Healey, nr Masham (Sage 2008), at Winksley near Ripon (Mainman 1997 and Vince 2004) and on the opposite side of the Vale of Mowbray at Thirlby near Thirsk (Mainman and Jenner 2013, 1232).

MEDLOC 6 is a finer early glazed sandy ware type. Reddish-yellow hard fired fabric with mid grey core. It has a laminar appearance, abundant very fine mica visible in surfaces, abundant very fine quartz sand <0.1mm, moderate fine to medium sub-angular pale grey quartz, occasional medium to coarse sub-rounded pale grey/glassy quartz, mod to sparse very fine rounded FeO₂ rich clay pellets, occasional coarse rounded FeO₂ rich clay pellet. Very small fragment of clubbed rim.

MEDLOC 7 appears to be an EGSW type equivalent to ECSW types from Tees Valley / Co. Durham and parallels with types from Bowes and Barnard Castles. Pale buff to buff-pink fabric with mid grey core, pale grey/white beneath glaze externally. The fabric has a laminar structure, mod very fine mica visible in break, mod very fine pale grey/white quartz, abundant ill-sorted fine to coarse sub-angular pale grey/white quartz, occasion fine to medium rounded Fe rich clay pellets. Both MEDLOC 6 and 7 are distinct from the pottery produced around Winksley which typical contained angular quartz grains compared with the sub-angular to sub-rounded grains seen here suggesting they may have a Tees Valley/Vale of Mowbray origin.

MEDLOC 4 and MEDLOC5 appear to be mid- 13th to mid- 14th century types. These buff firing sandy wares appear to parallel types recorded from Thirlby (Mainman and Jenner 2013, 1232). Where forms are identifiable, most appear to be jugs, although jars and a handled jar or bowl form were also recorded.

MEDLOC 4 is a buff to reddish yellow fabric, often with a mid-grey core. Abundant very fine pale grey (occasionally glassy) sub-angular – sub-rounded quartz, sparse fine to medium sub-rounded (occasionally subangular) pale grey quartz, occasional coarse rounded pale grey or red/rose stained quartz, sparse fine to medium sub-rounded burnt FeO₂ rich inclusions. There are splashes and streaks of green glaze externally.

MEDLOC 5 is a reddish yellow sandy streaky fabric, some sherds are reduced in the core. Only sparse very fine mica is visible in the surface of the fabric. Abundant very fine angular quartz, mod to abundant sub-rounded to sub-angular medium quartz, sparse coarse sub-rounded quartz, occasional coarse to very coarse sub-rounded - rounded quartz sandstone, fine to coarse rounded Fe rich clay pellets, sparse elongated rounded voids possibly organics, sparse fine to medium sub-rounded/sub-angular sandstone with FeO₂ cement, sparse fine black iron ore, sparse medium to coarse sub-rounded quartz sandstone with white cement. Splash glazed externally with bands of diagonal slashed rouletting as is seen on both Winksley and Brandsby types as well as several types present at Barnard Castle. Whilst splash glazed the fabric does not tally with descriptions of reduced splashed wares from York or Winksley so

seems likely to have Tees Valley Moors fringe origin. Whilst splash glaze is often seen as an indicator of earlier 12th century types however 13th to early 14th century types from Tyneside continue to utilise it as a glazing method.

A range of 13th to early 14th century types are present in the assemblage. Most common amongst these are Tees Valley wares these are well recorded from sites in the Lower Tees Valley and Cleveland but have also been found to form a substantial part of assemblages from sites further south in the Vale of Mowbray at Thornton-le-Street (Cumberpatch pers com). Material from elsewhere is limited with only occasional sherds of Durham type coal measure whitewares, Brandsby and Scarborough types present. Later, 14th and 15th century medieval types are represented by MEDLOC1 and Humberware types.

MEDLOC1 is a fine sandy micaceous mid to dark grey fabric with reddish yellow margins. The fabric is coarser than most late medieval reduced green wares such as Humberware. It appears in greatest quantities here alongside more typical mid- 14th to 15th century Humberware types but it also occurs in several contexts alongside earlier buff sandy wares so may be an early 14th century type. Fourteenth to 15th century Humberware types are the most common type present in the assemblage. The majority are abundantly micaceous something that is not common amongst types seen from sites around the Humber lowlands (Didsbury pers com) and may be of a more local origin. One notable aspect of the late medieval part of the assemblage is the low quantity of Healey-type ware in the assemblage. A large deposit of wasters and the remains of a 15th/16th century pottery production site were partly excavated at Firs Farm, Healey, just 5 miles south of Middleham. Healey type wares including elaborate lobed bowls have been identified at Jervaulx Abbey (under 3 miles to the south east) (Jennings 2010) in later 15th/early 16th century contexts and Healey ware would appear to have formed the bulk of the material within the late 15th century assemblage from the woolhouse, Fountains Abbey (15 miles to the south) (Sage 2008). The absence of this relatively well dated late 15th to early 16th century type, along with the absence of other common 16th century types such as Cistercian ware suggests that medieval deposits pre-date the later 15th century.



Appendix 4: Building materials catalogue

Table 4: CBM catalogue

Context	SF No.	Quantity	Weight(g)	Function	Notes
1001		1	67	Brick	unclear if complete thickness present; C18+
1001		1	43	Pan Tile	C18+?
1001		6	83	Tile	C18+?
1004		1	22	Tile	Post med/modern??
1004	18	1	39	Tile	Medieval tile fragment with brown/green glaze
1005		3	57	Tile	
1007		1	19	Tile	
1007	30	1	27	Tile	Medieval floor tile with pale green glaze
1007	29	1	44	Peg Tile	Medieval peg tile with square hole; mortar on both upper and lower faces
1011		1	44	Floor tile	thick tile with pale green glaze
1011		5	25	Nib Tile	
1011		2	29	Tile	
1013		1	6	Tile	glazed splashes - C15-C16
1014		8	62	Tile	
1014		5	13	Tile	
1014		1	12	Floor Tile	dark green glaze splash
1014		2	21	Tile	glaze
2001		1	15	Tile	
2001		1	87	Brick	
2001		1	61	Ridge Tile	
2001		6	33	Tile	
2001		7	90	Tile	
2002		3	94	Tile	
2002		2	94	Tile	Rooftile/Brick?

Table 5: Worked stone catalogue

Context	SF No	Fabric	Function	NoSH	Weight(G)	Mortaring	Notes
+		Sandstone	Tile	1	2442	1	len 245+ mm sandstone squared/ rectangular tile round peg hole c 10mm
+		Sandstone	Tile	1	2282	1	round peg hole 15mm irregular rectangular with rounded top 2nd round drill? Hole plugged with mortar
+		Sandstone	Tile	1	2027	1	260+mm probably rectangular tile coarse underside c 15m peg hole
+		Sandstone	Tile	1	1706	1	260+ len with rounded top. tile with round peg hole 20mm diameter
1001		Sandstone	Tile	1	30		sandstone tile
1001	5	Sandstone	Tile	1	192		round peg hole
1004	35	Sandstone	column	1	186		poss column drum fragment diameter 150mm 15% remaining
1004	38	Sandstone	Flat	1	544		possible floor tile
1005		Sandstone	Tile	1	100		probable roof tile 25 mm thick with round peg hoe 16mm diameter
1007		Sandstone	Structural fragment	2	Too heavy for scales		Worked stone with groove/notch carved into one side with a possibly floral decoration
1013		Sandstone	unidentified	1	484	1	stone fragment with worked surface and possible hole 27mm diameter, traces of mortar suggest this has been reused as hardcore fill
2001		Sandstone	Unidentified	1	3		
2003		Sandstone	Tile	1	555		round peg tile
2007	26	Sandstone		1			Reticulated tracery that is likely to be 14th century probably dating to the 1330/40s. It could be a smaller portion of a later medieval window which would 15th century but a date of early 14th century is more likely



Table 6: Mortar catalogue

Context	Material Type	Quantity	Weight(g)	Function	Notes
1001	Mortar	2	67	Unidentified	
1001	Mortar	2	43	Bonding Mortar	poss yellowish red mortar bonding
1005	Mortar	2	83	Unidentified	
1007	Mortar	3	22	Unidentified	
1009	Mortar	6	39	Unidentified	
1009	Mortar	2	57	Unidentified	stick imprinted
1011	Mortar	2	19	Unidentified	
1014	Mortar	1	27	Unidentified	possible dowel imp
2002	Mortar	3	44	Unidentified	
2007	Mortar	1	44	Unidentified	
1001	Mortar	12	25	wall	
1004	Mortar	70	29	wall	white paint
1004	Mortar	15	6	wall	white paint
1005	Mortar	1	62	wall	mortar surface
1006	Mortar	4	13	wall	white paint
1007	Mortar	13	12	wall	white paint
1013	Mortar	78	21	wall	matt white paint
1019	Mortar	1	15	wall	possible wall underlay



Appendix 5. Metalwork catalogue

Table 7: Fe catalogue

Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Notes
1001		Fe	Assorted, including nails, plate and horseshoe fragments	Modern		89.51	3 x nails, plate and horseshoe fragment
1004		Fe	Nails	Medieval	4	17.20	
1004		Fe	Nail	Medieval	1	15.73	
1004		Fe	Plate	Modern	1	37.6	
1005		Fe	Nail	Medieval	4	18.20	
1005		Fe	Nails	Medieval	12	53.31	
1006		Fe	Nails	Medieval	5	47.65	
1006	11	Fe	Whittle tanged knife	AD1200-1400	1	21.0	An incomplete Medieval iron whittle tang knife, probably dating to the 13th-14th century. The tang is missing
1007		Fe	Nails	Medieval	8	58.95	
1009		Fe	Nail	Unknown	1	7.23	
1013		Fe	Nails	Medieval	7	48.87	
1017		Fe	Undiagnostic		1	7.55	

Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Notes
1018	46	Fe	Wrought iron bracket		1	30.31	
1019		Fe	Nails	Medieval	2	10.34	
1020		Fe	Nails	Medieval	1	8.17	
2001/7		Fe	Nails	Modern	4	22.99	
2001	2	Fe	Wrench or spanner?	Modern	1	271.0	
2002		Fe	Nails		7	44.48	
2003	42	Fe	Whittle tanged knife	AD1200-1400	1	14.18	Probably an incomplete wrought iron whittle tanged knife blade dating to the Medieval period (c. AD 1200-1400). The blade is triangular in shape and in cross-section. The tip is broken. The elongated tang, which is rectangular in shape and cross-section, is set centrally relative to the blade.
2003		Fe	Nails		2	23.31	
2003		Fe	Nail	Medieval	1	6.99	
2005		Fe	Nails	Medieval	8	70.43	
2006		Fe		Modern	1	3.22	
2009		Fe	Nails		2	15.72	
2009		Fe	Nail	Medieval	1	7.79	
Unstrat (T1)		Fe	Nails		5	35	



Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Notes
Unstrat (T2)		Fe	Nails		9	65	
Unstrat		Fe	Assorted, including nails and horseshoe	Modern	8	Too heavy for scales	Horseshoe and nails probably of a shire horse modern
Unstrat		Fe	Nails	Modern	4	15.44	
Unstrat		Fe	Undiagnostic		2	9.34	
Unstrat		Fe	Undiagnostic		2	57.11	
Unstrat		Fe	Assorted, including nails and plate		16	86.24	
Unstrat		Fe	Pipe	Modern	1	Too heavy for scales	
Total					124		



Table 8: Cu alloy

Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Period
1005	19	Cu alloy	Jetton	AD1302 -1307	1	1.11	A complete Medieval English jetton of Edward I (AD 1272 - 1307), dating to AD 1302 - 1307. Obverse type 1: sterling head, reverse type 5: short cross Moline, Fox Class 10. Ref.: Berry (1974, 31). The jetton is pierced in the centre of the obverse face.
1005	20	Cu alloy	Coin/Jetton?		1	0.38	Metal disc unidentifiable
Total					2	1.49	

Table 9: Mixed metals

Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Period
1005		Mixed	Undiagnostic		2	3.44	Lead and other composite alloys
Unstart		Mixed	Button	17 th century AD	1	2.26	Incomplete copper alloy button, composite, discoidal two-piece with a solid convex front and a broken separate iron shank. There is a slight knob at the centre of the convex front. The rear is flat. Only a stub of the shank remains at the rear. Date: Post medieval- 17th century
Total					3	5.70	



Table 10: Silver catalogue

Context	SF No.	Material	Object(s)	Period(s)	Quantity	Weight (g)	Period
1001	49	Silver	Penny (Quarter)	12-13 th century AD	1	0.33	A cut quarter of silver coin (SF49) was found during metal detecting in the vicinity. It was unstratified, but likely dated to the 12th-13th century AD.
Total					1	0.33	

Table 11: Lead catalogue

Context	SF No.	Material	Object	Period(s)	Quantity	Weight (g)	Notes
Unstart		Lead	Undiagnostic		2	22.56	Both fragments undiagnostic
1007	36	Lead	Undiagnostic		1	8	
1013		Lead	Casting waste		1	5.15	Probable casting waste
2005	28	Lead	Lead flashing		1	7.92	Lead flashing probably from a window
Total					5	43.63	



Appendix 6. Glass catalogue

Table 12: Glass catalogue

Context	Material Type	Quantity	Weight (g)	Notes
2001	Glass	5	19.59	The fragments are undiagnostic. Two are modern, three possibly 19th century
1001	Glass	2	9.49	One probably 20th century the other possibly 19th century
Total		6	29.08	

Appendix 7. Clay pipe catalogue

Table 13: Clay pipe catalogue

Context	Material Type	Quantity	Weight (g)	Notes
1001	Clay pipe	2	4.22	1 x 19th century. 1 x 20th century
Total		2	4.22	

Appendix 8. Industrial waste catalogue

.Table 14: Catalogue of metal working debris

Context	Hearth bottom		Smithing slag		Hearth lining		Fe metal		Non-ferrous metal waste	
	n	g	n	g	n	g	n	g	n	g
1001			2	3						
1004			1	23						
1006			2	19						
1011	1	532	15	441	1	30				
1013			8	43						
2003			1	20			1	154		
2007			1	5						
2011			1	2						
U/S									3	13
Total	1	532	31	556	1	30	1	154	3	13

Table 15: Dimension of the Hearth Bottom. D1- Major Diameter; D2 - minor Diameter; DP - Depth

SF#	Context	HB Weight	D1 (mm)	D2 (mm)	DP (MM)	Calculated Volume (CM3)
1011	532	120	81	45	916	1011

Table 16: Data derived from the HH-XRF Analyses of the unstratified non-ferrous metal debris. (Weight %, note Fe removed)

	Cu	Zn	Ag	Sn	Pb	tot
Disc	n.d.	0.1	n.d.	n.d.	99.9	100.0
Spill1	0.3	0.1	n.d.	66.6	33.0	100.0
Spill 2	n.d.	0.1	n.d.	n.d.	99.9	100.0

Diagnostic ferrous slags and residue classifications

- Hearth Bottom - a plano-convex accumulation of iron silicate slag formed in the smithing hearth.
- Smithing Slag - randomly shaped pieces of iron silicate slag generated by the smithing process. In general slag is described as smithing slag unless there is good evidence to indicate that it derived from the smelting process.
- Hammerscale - there are two forms of hammerscale, flake and spheroidal generated during the smithing process. The presence of hammerscale is therefore a strong indicator that smithing (primary or secondary) was carried out on the site. Their small size precludes their hand recovery, and they are usually recovered during soil sample sieving (for environmental data).



Diagnostic non-ferrous slags and residues classifications

- Non-Ferrous Metal – fragments of metal or droplets and metal spills.

Non-diagnostic slags and residues classifications

- Hearth or Furnace Lining - the clay lining of an industrial hearth, furnace or kiln that has a vitrified or slag-attacked face. It is not possible to distinguish between furnace and hearth lining.

HH XRF Method

- The instrument used was a Bruker S1 Turbosdr hand-held XRF instrument operating at 15kV. The technique is non-destructive. A beam of x-rays is generated in the instrument and focussed on a fresh fractured surface of the sample, the x-rays interact with the elements present in the sample resulting in the emission of secondary x-rays which are characteristic (in terms of their energy and wavelength) of the elements present in the sample. The energies of the secondary x-rays are measured and a spectrum generated showing a level of background noise with peaks of the elements present superimposed on the background noise.



Appendix 9: Animal bone catalogue

Table 17: Summary of identifiable mammal remains

Context	<i>Equus</i>	<i>Bos</i>	<i>Sus</i>	<i>Ovis/ Capra</i>	<i>Canis/ Vulpes</i>	<i>Lepus europaeus</i>	<i>Oryctolagus cuniculus</i>	<i>Erinaceus europaeus</i>	<i>Rattus</i>	<i>cf. Arvicola terrestris</i>
1001	1							3		1
1004	1	4	2	3				1		
1005	1		5	12		2				
1006	1									
1007		5	5	5						
1009										
1011			1							
1013		3		1		1				
1014			1							
1017		2	1						1	
1019				2						
1020			1							
2001		5	3	1						
2002	22	2	1	2						
2003		1	1							
2005	3	6	6	4					1	
2007			2	8	1		1			
2009	15									
2011				1						
2012	17	1	2							
Total	61	29	31	1	3	1	4	2	1	6

Table 18: Summary of unidentifiable mammal remains

Context	Ungulate			Mammal				
	Large	Small	Unsize	Large	Medium/ Large	Medium	Small/ Medium	Small
1001				8	5	17		2
1004		3		7	2	20	2	
1005		9	2	15		23	2	2
1006		6		2		4		
1007		8		28	7	11		
1009					2			
1011				4		5	1	
1013	4	4		8		3		
1014				1				
1017		1		2		2		
1019				1		1		
1020								
2001	1			12	4	10		
2002		1		32	3	15		1
2003	1	2		6	3	9	1	1
2005		5		10	4	7		
2007		6		15	2	3		
2009		2		9	5	10	4	1
2011				2		3		
2012				1				
Total	6	47	2	163	37	143	10	7



Table 19: Summary of bird remains

Context	Goose	Mallard	Domestic fowl	Common pheasant	Coot	Wood pigeon	Blackbird	Fowl/pigeon order	Bird		
	<i>Anser anser domesticus</i>	<i>Anas platyrhynchos</i>	<i>Gallus gallus domesticus</i>	<i>Phasianus colchicus</i>	<i>Fulica atra</i>	<i>Columba palumbus</i>	<i>Turdus merula</i>	Galliformes	Large	Medium/large	Medium
1001					1					1	
1004			1								
1005	1	1	4	1					1	19	1
1006	1					1			1		2
1007	1								1		2
1009	1						1				
1011								1		2	
1013		1	1							5	
2001		3						1		1	2
2003									1	4	
2005	3		2					1	2		
2007	1					1		1	1		
2009	1	1								1	
2011											1
2019		1								1	
Total	9	7	8	1	1	2	1	4	7	34	8

Table 20: Summary of fish remains

Context	Atlantic cod	Haddock	Cod family	Cod order	Conger eel	Fish	
	<i>Gadus morhua</i>	<i>Melanogrammus aeglefinus</i>	<i>Gadidae</i>	Gadiformes	<i>Conger conger</i>	Large	Unidentified
1001							1
1004							
1005				1	1	1	
1006						2	
1007		1	2				
1009							1
1011							
1013	1					1	2
2005							1
Total	1	1	2	1	1	4	5

Table 21: Summary of marine molluscs

Context	Material Type	Quantity	Notes
1004	Shell	1	Mussel
1006	Shell	4	Mussel
1001	Shell	1	Mussel
1007	Shell	1	Edible Oyster
1007	Shell	2	Edible Oyster
Total		9	



Table 22: Summary of vertebrate remains with butchery evidence, count

Context	Species	Cut	Chop	Saw
1001	Large mammal			2
1005	Sheep/Goat		1	
1007	Large mammal	2	2	
	Large mammal		1	
	Pig		1	
	Sheep/Goat	1		
1013	Cattle		1?	
1017	Cattle	1		
2003	Large ungulate		1	
	Pig		1	
2005	Cattle	1		
	Large mammal	1	3	
	Cattle		1	
2007	Large mammal		1	
2009	Large mammal		1	



Appendix 10: Environmental catalogue

Methods

Hand collected samples were processed in the laboratory, where they were described using a pro forma. Identification carried out using published keys (Jacomet 2006, Biejerinkc 1976, Jones – unpublished and Zohary & Hopf 2000), online resources (<http://www.plantatlas.eu/za.php>), the authors own reference collection. Taxonomy and nomenclature follow Stace (1997). The samples were sieved into convenient fractions (4, 2, 1 and 0.3mm) for sorting and identification of charcoal fragments. Identifiable material was only present within the 4 and 2mm fractions. A random selection of ideally 100 fragments of charcoal of varying sizes was made, which were then identified. Where samples did not contain 100 identifiable fragments, all fragments were studied and recorded. Identification was made using the wood identification guides of Schweingruber (1978) and Hather (2000). The full species list appears at Table 3 are summarised in Appendix xx. Taxa identified only to genus cannot be identified more closely due to a lack of defining characteristics in charcoal material.

Table 23: Palaeoenvironmental sample assessment

Context number	2007	2007
No. fgts.	7	100+
Max. size (mm)	6	34
<i>Quercus</i> (Oak)	5	100
Indeterminate	2	

