DigVentures

Sudeley Castle and Gardens

Archaeological Assessment Report

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Archaeological Assessment Report

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Purpose of document

This document has been prepared as an Assessment for Sudeley Castle Estate and DigVentures' global community. The purpose of this document is to provide a comprehensive account of the 2021 field season, 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.

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Project summary

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Social Value Act

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The Project Executive for DigVentures was Lisa Westcott-Wilkins with Stephanie Duensing in the role of Project Manager and Site Director, ably supported by Maiya Pina-Dacier as Community Manager, Indie Jago, Ben Swain, Harriet Tatton, David Wallace and Ginny Cole as Community Archaeologists.

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Executive summary

DigVentures Ltd were invited by Sudeley Castle and Gardens to undertake a crowdfunded community-based archaeological research project at Sudeley Gardens (hereafter 'the Site'). This report details the results of the third field season of a multi-staged project, encompassing an evaluation and assessment stage, followed by final analysis and publication.

Fieldwork took place between 17th October and 2nd November 2021. The fieldwork was designed to investigate:

- the extent and significance of the surviving archaeological remains relating to the Tudor gardens and associated banqueting hall.
- the chronology and phasing of the site.
- the nature of the earthworks in relation to excavated archaeology, refining the results from previous investigations and earlier archaeo-topographic and geophysical survey combined with LiDAR and test pit data.
- the site's archaeological and palaeoenvironmental conditions.
- the potential of the archaeology to contribute to syntheses on the form, development and significance of Tudor Gardens.

This report presents results from excavations, incorporating preliminary specialist assessments and a summary of the results to date. The impact of the fieldwork and how findings have contributed to achieving the aims and objectives of the project are discussed, and recommendations for further work given. This report is one of several archive and dissemination products generated by the project, including a digital archive. All products and dig records are available on the project microsite: https://digventures.com/sudeley-castle/.

Results summary

Four trenches were excavated in 2021, situated to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure believed to relate to a Tudor Garden and a banqueting house:

- Trench 8 reopened the eastern end of Trench 7 and extended north, east and south to understand the deposits surrounding the wall identified in 2019.
- Trench 9 was located over a linear earthwork that was initially interpreted as being a walkway between twin banqueting halls.
- Trench 10 was a 3 x 2m test pit excavated approximately 8m north of Trench 8, and investigated the edge of the mound.
- Trench 11 was a test pit located approximately 15m south of Trench 8 and targeted the continuation of the wall (F801) to the south of Trench 8.

The excavations revealed a greater length of the wall (F801) which was previously identified in Trench 7 during the 2019 season. No further evidence was found within Trench 8 to suggest a floor surface either side of the wall and, as such, the interpretation of the wall forming part of a banqueting house has been discarded. The wall has been re-interpreted as a garden

boundary wall, demarking the edge of a Tudor formal garden. The wall was demolished and covered when the garden was converted to a wilding or water garden in a later Tudor period. The north extension of Trench 8 revealed evidence of Victorian trenches.

Investigation within Trench 9 demonstrated that the mound was constructed in a single phase, and the material used was sourced from one location. It is possible that the material originated from a feature to the east that may have been a pond. There was a lens of gravel underneath the topsoil which may have been the walkway.

The digging of two test pits investigated later remodelling of the area. Trench 10 found more evidence supporting Victorian remodelling and disturbance in the mound. A cast iron drain pipe, and the surface of a Victorian trackway was identified. The addition of Trench 11 and probing with a road iron has provided a good understanding of the position and extent of the wall (F801) and aided in its re-interpreted as a garden wall.

In keeping with the work of previous seasons, all data has been recorded by community participants using a web accessible relational database. This can be explored by following the links throughout the report (and in Appendix 1).

As the project moves into the fourth year, an Updated Project Design has been produced (bound separately) distilling these results into proposals for three evaluation trenches to characterise possible water features, to recover dating evidence relating to the different phases of use of the gardens, and to assess the archaeological survival of the Tudor Gardens. An earth resistivity survey is proposed because the site has a large degree of ferrous disturbance, which will not produce interference in earth resistivity results. Earth resistance surveys are also particularly well suited to identifying ponds, which in combination with the excavation should provide stronger evidence for or against the presence of water features.

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1 INTRODUCTION

1.1 Project background

1.1.1 DigVentures were invited by Sudeley Castle Estate to undertake a crowdfunded community-based archaeological research project in the Sudeley Castle Gardens to the east of St Mary's Church (hereafter 'the site'; Figure 1). Following consultation with the landowners and Natural England, a project model was devised according to the MoRPHE framework (Management of Research Projects in the Historic Environment, Historic England 2015). This approach has been used to design a multi-staged field research project, encompassing an evaluation and assessment stage and a final publication and presentation stage.

1.1.2 The information contained in this report encompasses third year of evaluation and assessment, completed between 17th October and 2nd November 2021. The site is designated a Grade II* Historic Park and Garden (List Entry: 1000784) and situated within an area of high significance Natural England SHINE site (GC267). As such, the Project Design (Noon and Caswell 2020) was reviewed by Jo McAllister, Historic England, Toby Catchpole, Gloucestershire County Council, and Stacey Melia, Natural England. The results presented in this report detail that work, and have been circulated for peer review and consultation with the wider specialist team.

1.1.3 This document is one of a number of 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 landowners and freely disseminated through the Historic Environment Record, Gloucestershire, Archaeological Data Service (ADS), OASIS and portal project microsite (https://digventures.com/projects/sudeley/).

1.2 Project scope

1.2.1 The overarching aim of the fieldwork was to provide a baseline information to contribute to the future management, research and presentation of the site, creating multiple educational and participatory learning experiences for community participants. This was achieved through a community-based archaeological research project designed to understand:

- the extent and significance of the surviving archaeological remains relating to the Tudor gardens and associated banqueting hall.
- the chronology and phasing of the site.
- the nature of the earthworks in relation to excavated archaeology, refining the results from previous investigations and earlier archaeo-topographic and geophysical survey combined with LiDAR and test pit data.
- the site's archaeological and palaeoenvironmental conditions.
- the potential of the archaeology to contribute to syntheses on the form, development and significance of Tudor Gardens.

1.2.2 In addition to the archaeological research objectives, the development stage of the community project aims to raise awareness to the site and its story, engaging actively

with the public throughout. This will be achieved through the involvement of community participants in the archaeological investigations and a public activity programme running alongside.

1.3 Public impact

1.3.1 This phase of the project was funded exclusively through public crowdfunded contributions, raising a total of £40,170, with the professional excavation team assisted throughout by crowdsourced voluntary public participation. The project's crowdfunding community has so far amounted to 330 people from 10 countries, comprising local residents as well as UK-wide and international visitors of all ages, walks of life, and different levels of archaeological experience and knowledge.

1.3.2 Over the course of the 2021 season, 166 adults and children took part in the dig and 203 castle visitors joined the daily tour, reaching 45 visitors on the busiest day. DigVentures organised a series of online events and tours alongside the dig, including a Virtual Tour (45 mins), Tudor Cook-Along (90 mins), and Tudor Ghost Stories (60 mins), plus a short tour published on YouTube (15 mins). Across the three online events 702 participants booked places and 1,294 individuals viewed the short tour on YouTube.

1.3.3 DigVentures published 45 social media updates across Facebook, Instagram, and Twitter during the dig receiving 51k impressions on Twitter, 113k people on Facebook with 8.3k active engagements (comments, likes, and shares combined). The team also provided in-depth live updates via the Dig Timeline and project microsite for crowdfunders and subscribers. During the dig there were 3.4k unique page views of more in-depth information on the project microsite.

1.4 Site description

1.4.1 Sudeley Castle is situated on the east side of River Isbourne, a north-flowing tributary of the Warwickshire River Avon in the Cotswolds approximately one mile east of Winchcombe and eight miles north east of Cheltenham, Gloucestershire, England (Figure 1). Located on the western side of the limestone Cotswold escarpment, the site has only received limited archaeological investigation, despite now functioning as a heritage attraction. Sudeley Castle stands in an area of Charmouth Mudstone Formation of the Early Jurassic epoch, in the valley of the Beersmoor Brook, a tributary of the River Isbourne, as it cuts through the limestone, mudstone and siltstone of the Cotswold plateau.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Historical background

2.1.1 Sudeley Castle stands at the base of the edge of the Cotswold limestone plateau, well-known as a very rich archaeological landscape. A large number of Neolithic long barrows are known from the surrounding region, such as Belas Knap, worked flints were recovered from around Boilingwell, with prehistoric pottery recorded at Stancombe Wood (GCCHER: 9104, 9108, 9133). Iron Age forts are known at Nottingham Hill, Spoonley Wood, Wadfield Farm, Winchcombe Secondary School and farmsteads at Almsbury, (GCCHER: 20493), while residual Romano-British material from a number of sites across Winchcombe indicates a wide spread of settlement (Cox

2014). A probable Romano-British villa with underlying Iron Age activity may also have been recorded during the pipeline scheme as it crossed Dunn's Hill (GCCHER: 2178). Emma Dent also reports tesserae being found at 'Sudeley Lanes Farm', which could be possibly Sudeley Lawn Farm or Lanes Barn to the east of Sudeley Castle, and also at the lodge site further to the east, while a Roman tombstone or altar stone was recovered from Stancombe Wood and coins found at various locations around the estate (Dent 1877, 15; GCCHER 2117).

2.1.2 In the mid-9th century, Sudeley was the property of King Ethelred. The estate was rich in oak trees and included a royal deer park. Unusually, the property was not confiscated after the Norman Conquest, but remained in the de Sudeley family, descendants of Ethelred. In 1441, Ralph Boteler (d 1473), Admiral of the Fleet, was created Baron Sudeley. His projects included the rebuilding of the Castle and the construction of St Mary's chapel, the Banqueting Hall, the Great Barn, and the Portmare Tower. Following Lancaster's defeat in the Wars of the Roses, in 1469 Boteler was forced to sell the Castle to Edward IV.

2.1.3 Architectural analysis of the surviving structure has suggested that the earliest standing elements date to the fifteenth century, although a castle is documented at Sudeley from 1139. The castle is recorded in relation to a number of conflict events during the 'Anarchy' period, apparently as a wider hub of engagements in and around the town of Winchcombe, including Hailes and Postlip. In terms of Late Medieval archaeological evidence, there are 15th century structural remains at Sudeley Castle, the nearby 'Grange' building (Ellis 2008, 88) and the buildings at the 'St Kenelm's Well' complex (SP 0431 2770), which includes the nearby remains of a medieval chapel incorporated into a 19th century house (GCCHER: 2170).

2.1.4 Architecturally there is no known fabric at Sudeley Castle that pre-dates the 15th century, and extensive remodeling of the complex in the post-medieval period means that an assessment of the castle's original form and date cannot be ascertained. John Leland visited Sudeley in 1542 indicated the presence of a manor house at the site of the Castle and that 'the platte is yet seene in Sudeley Parke where it stoode' (Dent 1877, p.58). Emma Dent, who lived at Sudeley Castle, indicated that the location of the possible manor house was potentially known, stating that the 'spot where the Manor-House once stood (as named by Leland) has always been traditionally indicated in the raised broken ground in the field called the Hop-yard, and is distinctly visible from the East Terrace' (1877, p.59). Emma Dent claimed that there was 'a tournament or tilting ground in the vicinity of the Olde Manor House measuring about sixty by forty pace's (ibid p.77).

2.1.5 The Gloucestershire Sites and Monuments Record indicates that there was a Manor House present in the area from the Saxon period through to the reign of King Stephen in the 12th century, which is thought to have been located in a field called the Hop-Yard, beyond the east terrace of Sudeley Castle (GCCHER: 2169). This location was investigated by Emma Dent, resident of the Castle during the latter part of the 19th century. Dent combined history, historiography and antiquarian investigation in her work on the Castle and Winchcombe, the Annals of Winchcombe and Sudeley (1877). As part of this, Dent aimed to locate the site of the Manor House that Leland reported seeing. To this end, Dent funded an investigation in 1875, comprising a 'cutting' made to the east of Sudeley Castle 5 under the supervision of Canon Lyson. The excavations recorded the foundations of houses, roads and walls that were interpreted as 'Saxon'

in date (Dent 1877, 59, 77). Dent states that 'as the houses of the gentry up to this time and to a much later period, were built chiefly of wood we were not surprised when excavating, in the summer of 1875; the traditional site of the ancient Manor-House to find only debris of foundations and walls' (1877, p.77). Derek Maddock (current Sudeley Castle Archivist) considers that there is no other evidence for the location of the Manor House other than Dent's work (pers comm). The HER records that the feature published as Manor House (site of) is a 1.6m high irregular shaped mound, grass covered and tree planted and may represent a spoil heap from Lyson's excavations.

2.1.6 Jean Bray (previous Sudeley Castle archivist) has indicated that Emma Dent was reputedly looking for the remains of a Saxon Palace/Manor House which may have been the residence of Goda the daughter of Æthelred. Emma interpreted the high-status architecture which was purportedly discovered during the 1875 excavation as belonging to this Anglo Saxon residence (pers comm). This interpretation is what was subsequently recorded on the 25" 1st edition Ordnance Survey map of 1884, presumably as a result of Dent's work. Unfortunately, perhaps as a result of having had an operation in April of the same year, there is no reference to the Hopfield / Hop Yard excavation in Dent's 1875 personal diary, despite various comments concerning Roman digs at Wadfield, Humblebee and Spoonley in previous years (Derek Maddock pers comm). There is an archive of artefacts which relate to Emma Dent, presumably objects she collected from the estate, although none appear to have been recovered during the 1875 excavations. There are a number of clay pipe fragments, the earliest of which are Elizabethan, and some stone implements found from the upper slopes of Humblebee, Belas Knap and Farmcote (Derek Maddock pers comm).

2.1.7 Areas of earthwork remains of medieval ridge and furrow are visible in the area around Sudeley Castle. Although the remains of a reputed deserted medieval settlement and Manor House have been supposedly identified to the east of the castle, this interpretation has been challenged by the suggestion that some of these elements may relate to formal gardens connected to the castle (GCCHER: 2169).

2.1.8 Leland notes that Winchcombe Abbey formerly held the hillfort at Towbury Hill, identifying it as a castle with double ditches and formerly held by King Offa or Kenulph, although there is no evidence of medieval occupation (Toulmin Smith 1909, 135). It remains possible that references to a castle at Winchcombe may relate to the fortification at Sudeley due to the site's proximity to the town. The extensive park at Sudeley was extant by the 16th century, and the alignment and some of the fabric of the inner park wall may be medieval in origin (GCCHER: 2175), and while the fabric of the outer park wall is probably late post medieval in date, it may too follow a medieval predecessor.

2.1.9 Major rebuilding programmes began at the castle under Ralph Boteler in the 15th century, and the church or chapel of St Mary was also constructed or rebuilt at this time (Dent 1877, 118-9), while the 'Tithe Barn' west of the castle also dates architecturally to this century. Leland makes specific reference to the rebuilding of Sudeley Castle by the Boteler, but that it was subsequently sold to Edward IV when the loyalties of the family were suspect and had fallen into ruin by the c.1540 when he visited, having been granted to Winchcombe Abbey by Henry VII (Dent 1877, 136; Toulmin Smith 1908, 55-6). The castle would subsequently become home to the Seymour family, and Henry VIII's final wife Catherine Parr was buried in the Church of

St Mary in Sudeley in 1548 having married Thomas Seymour following the king's death in 1547. The future Elizabeth I and Lady Jane Grey also briefly stayed at the castle during this time. Under Queen Mary the castle would pass to John Brydges, 1st Baron Chandos.

2.1.10 During the reign of Elizabeth 1 it was his grandson Giles the 3rd Lord Chandos who entertained the Queen on three occasions. The first visit was in August or September 1574 in her progress westward to Longleat, Bristol and Wilton. The second visit was in 1575 on her way to Woodstock. It was between the second and third visits that the country was threatened by the Spanish Armada. Lord Chandos was appointed to collect an army to defend the young trees of the Forest of Dean. Perhaps in recognition of this the Queen visited again in 1592 after the defeat of the Armada (Derek Maddock pers comm). A spectacular three-day feast was held to celebrate the anniversary of the defeat of the Spanish Armada in 1592 (Kolkovich, E. 2016. pp. 73-8). The Queen was welcomed on Saturday with a pageant, especially written for the occasion, followed by bear and bull baiting, mummers, jousts and feasting. On Sunday there was dancing and a specially written play was performed. The High Constable of Cotswold should have been presented the next day but it was too wet. The three-day party has been described as one of the longest in history (Derek Maddock, pers comm). Elizabeth I was in her eighties when she came to Sudeley in 1592. The celebratory banquet is likely to have been a small select affair involving the local aristocracy in a banqueting house. The 'progression' at Sudeley would have involved jousts, tournaments and a feast (Derek Maddock pers comm). There are no references to the types of garden used for the party events other than a single mention that they are in a garden (Brydges 1815).

2.1.11 In the English Civil War, the castle was subject to two major sieges and left ruined in the aftermath. In 1649 Sudeley was slighted by Cromwell's forces. Huge fines were paid and carpenters and stone masons were brought in from the Forest of Dean and removed the wood and stone. The house was systematically dismantled and the stone banqueting house ruined. (Derek Maddock pers comm).

2.1.12 The castle was left to ruin until it was purchased in the 1830 by the Dent family who set about the renovation of buildings and gardens, and was later developed as a heritage attraction in the later 20th century (GCCHER: 13732). The area north-west of the castle was utilised as a prisoner-of-war camp during the Second World War (GCCHER: 22898). The title of 'Lord Sudeley' was also revived in the 19th century, but the family seat was established at nearby Toddington Hall.

3 RESULTS OF PREVIOUS FIELDWORK

3.1 Cartographic, topographic and magnetometry survey

3.1.1 There is very little early cartographic material for Sudeley or Winchcombe, and even the available tithe mapping lacks information for much of the area. A key feature depicted on early 1st edition 25" maps is an antiquarian identification of the 'Manor House (Site of)' in a square earthwork feature in a field to the east of Sudeley Castle. Analysis of available LiDAR data gives a clear impression of the level of archaeological earthwork preservation in the vicinity of the castle. This includes a range of enclosure forms to the east and south of the castle. There are also surviving fragments of ridge and furrow cultivation, including sections of at least three adjacent furlongs to the east

of the castle. A map held by Gloucestershire County Council Archaeology Service depicts Sudeley Castle in 2004 and suggests evidence of buildings in Hop Field, although the lack of a key means it is unclear as to the meaning of other map symbols.

3.1.2 During 2014, the University of Exeter carried out an extensive topographic and geophysical survey (Fradley et al 2014). This revealed many anomalies suggestive of successive phases of activity. The topographical survey indicated that the overall level of preservation of archaeological earthworks at Sudeley Castle is excellent, in part a result of its use as a parkland landscape and an extended period of abandonment as a high-status residence between the 17th and 19th centuries. The key areas of activity can be seen to the east and south-east of the surviving castle structure. The large field to the east of the castle contains the most complete and intricate earthwork complex surveyed, although elements of these complexes continued into the field to the south.

3.1.3 Magnetometer survey of the environs of Sudeley Castle identified several additional features of archaeological interest. To the east of the castle the results of the survey were surprisingly limited given the extent of archaeological earthwork preservation. The dominant feature is the extensive linear anomaly running primarily east-west across the site which is iron pipework from the Sudeley Castle water management system. Across the rest of the field a small number of linear features toward the south-eastern corner of the surveyed area correspond with earthwork features recorded as part of the topographic survey.

3.1.4 The earthwork remains of a network of formal gardens on the eastern side of the castle, and continuing around its southern and possibly its western face. The clearest evidence is visible set within a large rectangular enclosure on the eastern side of the castle, which have previously been misinterpreted as medieval settlement earthworks (Ellis 2008, 88; GCCHER: 2169), with evidence of a range of sub-divisions into track-ways and rectangular garden beds. Excavations by Emma Dent in the 19th century identified the foundation walls of a masonry structure within the north-eastern mound which she interpreted as 'Saxon'.

3.1.5 The form of these gardens is comparable with other examples dated to the 16th or early 17th century, as can be seen in many of the examples recorded by Atkyns (1712). The documented conflict at Sudeley in the 1640s and slighted by Cromwell in 1649 provides a highly probable date for when these gardens abandoned. The form of this garden layout subsequently influenced the form of the gardens laid out when Sudeley Castle was re-established as an elite residence in the 19th century. The Church of St Mary was 'restored' in the 19th century, but dates originally to the 15th century, and like the adjacent castle very little is known about its earlier history. It appears that any rural medieval settlement that existed in the vicinity of the church may have been cleared ahead of the development of this garden system. In the 20th century along the length of the balustrade at the boundary of the Queen's Garden two extensive trenches were excavated previously with a gap of 2m between to bury an architectural artwork. All the ground was found to be disturbed behind the balustrade filled with Cotswald limestone fragments. This area was probably made ground relating to the construction of the later garden (Peter May, Groundsman, pers comm).

3.1.6 The surveys have indicated that Sudeley Castle was largely remodeled during the 15th and 16th century, leaving few details of its form in the 12th century. Although some possible areas of high potential for future research have been identified which aim to

evaluate both the survival and significance of archaeology relating to the development of the Tudor gardens and banqueting house and the contribution that its archaeological evidence could provide to a broader understanding of the landscape, historical and cultural context concerning the creation of these types of gardens (Section 4). The scale and quality of archaeological preservation in the vicinity of the castle is otherwise excellent, and contains a range of evidence from the Neolithic through to the present.

3.2 2018 test pits

3.2.1 A test pitting exercise was undertaken by DigVentures with community participants in October 2018. Five test pits were excavated in the Sudeley Castle Gardens to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure believed to relate to a Tudor Garden and a banqueting house. The aim was to characterise the structures, recover potential dating evidence relating to their different phases of use and to assess the archaeological survival of the Tudor Garden and banqueting hall (Noon et al 2018). The fieldwork established the depth of archaeological remains buried across the site and has informed the positioning of three new evaluation trenches.

- Test pit 1 was positioned over the top of a linear earthwork possibly representing the northern walkway around the Tudor Garden and on top of a linear geophysical anomaly (on a different alignment) that may be an old water pipe to supply the castle.

- Test pit 2 was positioned over the mound in the north east corner of the garden, labelled on early maps as the site of a Manor House.

- Test pit 3 was positioned over a large mound adjacent to existing castle garden that may once have been a centerpiece to the original garden possibly a water feature.

- Test pit 4 was positioned to investigate earthworks in the middle of the field that were potentially garden features and to see if there was any masonry associated with them.

- Test pit 5 was positioned over the possible site of a Manor House.

3.2.2 The test pit results broadly correspond with the results of the earthwork and magnetometry survey (Fradley et al 2014), confirming the existence of a raised platform and possible garden features likely to relate to an earlier Tudor Garden and a raised mound that is potentially related to a banqueting house. Test pit 1 was dug to a depth of 0.48m and revealed a raised bank likely to relate to the northern walkway around the Tudor Garden platform but a possible water pipe was not located. It contained finds of animal bone, tile, a nail, three dressed stones and a stone with traces of mortar, all consistent with general gardening activities located on and around the platform.

3.2.3 Test pit 2 was dug to a depth of 0.94m and revealed a raised bank with a line of stones observed in the section that were roughly dressed. The fill was very mixed indicating that it was either a constructed mound potentially relating to the site of a banqueting

house or backfill from a previous excavation interpreted as medieval settlement earthworks and Manor House (GCCHER: 2169, Dent 1877, 59, 77).

3.2.4 Test pit 3 was dug to a depth of 0.48m and revealed layers of clay probably relating to the construction of a mound that may have been a centerpiece to the original garden but a possible water fountain was not located. Test pit 4 was dug to a depth of 0.38m and revealed layers of silty clay with evidence of disturbance probably relating to the construction of garden features with associated masonry comprising several flat stones in the north east corner that may have been deliberately placed. Finds of an animal tooth, flint, clay pipe and two fragments of nails were not related to any particular features and are consistent with generalized garden activity. Test pit 5 was dug to a depth of 0.56m and revealed a raised bank believed to be a constructed mound either relating to the site of a Manor House or banqueting house.

3.3 2019 excavation

3.3.1 Two trenches were excavated in 2019, situated to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure likely to relate to a Tudor Garden and a banqueting house. The aim of the fieldwork was to characterise the structures, recover potential dating evidence relating to their different phases of use and to assess the archaeological survival of the Tudor Garden and banqueting house (Noon et al 2019).

- Trench 6 was located to investigate a raised platform and possible garden features likely to relate to an earlier Tudor Garden.

- Trench 7 was located to investigate a raised mound potentially related to a banqueting house.

3.3.2 Trench 6 revealed an outer bank probably functioning as a walkway and an inner bank surrounded by puddle clay lined water filled ditches functioning as a centre piece and probably a very grand water feature such as a fountain been fed by a well. Similar garden layouts have a central water feature or fountain such as Kennilworth (Paula Henderson pers comm).

3.3.3 Trench 7 revealed that the mound in the north east corner was made up of a raised platform with two structural walls and a possible floor with a possible contemporary drain. The walls were interpreted as a building structure. The walls went through a process of collapse which was then robbed out by an antiquarian excavation in 1877 by Canon Lyson funded by Emma Dent. These trenches appear to have removed approximately half of the mound which is likely to now be backfill from Canon Lyson's excavations with the remains of a Tudor raised garden platform and possible banqueting house constructed on top. Based on the 2019 excavations the platform and what was believed to be building remains looked like it fit the classic profile for a banqueting house with hardcore to build up the mound with a clay capping and a small building often 9m x 6m which would comfortably sit on the platform. They are not usually huge buildings but quite small as only a select audience would be dinning there. Hampton Court is a banqueting house with two floors with a projecting window another similar example would be Wynguard Gardens (Paula Henderson pers comm).

3.3.4 There was a variance in function of the two areas with a raised viewing platform with a building construction likely to be a banqueting house and a center piece water feature (fountain). The Tudor Garden then went into a disuse phase after 1649 when the castle was slighted by Cromwell's forces and was then abandoned with the land given over to agricultural activities until it was purchased in the 1830 by the Dent family who set about the renovation of buildings and gardens. During this renovation material was dumped in the upper fills of the ditches Trench 6 mainly comprising of greenhouse with material continuing to be dumped until 1941 representing convenient levelling activity in the hollows of the ditch. The material finds indicated that the site has been disturbed over time both through the development of the site as a Tudor Garden extension with later agricultural activity and dumping episodes particularly a 19h century greenhouse and including materiel from renovation activity from 1830.

4 PROJECT AIMS & OBJECTIVES

4.1 Background

4.1.1 The overarching aim of the archaeological research was to define and characterise the physical extent of the earlier Tudor Gardens and banqueting house through a program of evaluation trenches in order to obtain baseline data that will facilitate its future management, presentation and enjoyment. Four key research aims were identified with a series of objectives which would facilitate evaluation of the survival and significance of archaeology relating to the development of the Tudor gardens and banqueting house at Sudeley Castle. In addition, research aimed to understand the potential for extant archaeology to provide a broad understanding of the landscape, historical and cultural context concerning the creation of these types of gardens. Our fifth aim articulated the project's ambition to embed community training and participation at its centre. The aims and objectives presented below provided the research and engagement framework for the 2019 archaeological investigations.

4.2 Aims and objectives

4.2.1 The overarching aim of the project was to define and characterise the physical extent of the site through a programme of non-intrusive and obtrusive investigation to obtain baseline data that will facilitate its future management.

4.2.2 Aim 1 – Define and establish the physical extent and character of the Tudor gardens and associated banqueting house through non-intrusive survey. This aim was built on previous topographical and geophysical survey work, combined with LiDAR survey overlays in order to establish the layout of the garden and its landscape context. The south of the gardens are obscured by overburden cognisant with the disuse of the gardens post-1649 and the utilisation of that area for agricultural purposes up to 1830.

4.2.3 The previous results were used to support plans for interventions and enabled us to determine likely features for targeted trenching and addressed the following questions:

- Q1: Can the layout of the site and associated sub-surface archaeology be established by remote survey?

- Q2: Can we identify any phasing in the topographic or remote sensing anomalies indicative of an extended period of use?

4.2.4 Aim 2 – Excavate earthwork and remote sensing anomalies to further understand the date, form and chronology of the Tudor gardens and banqueting hall. In the light of the evidence base collated for Aim 1, this aim was addressed with targeted trenches to answer the following questions:

- Q3: What is the landscape setting and character of the Tudor gardens and banqueting house of Sudeley Castle Estate, and how did this shape its design and development?

- Q4: To what extent do the archaeological remains at the site survive, and what is the potential of these gardens to inform a greater understanding of the landscape context including their relationship to the banqueting hall and other castle buildings?

- Q5: Can we refine the chronological narrative for the site, including the presence of earlier and later features and structures, as defined in Aim 1?

- Q6: Can we understand the date, form and motivation for the creation of the garden and banqueting house?

- Q7: Building on previous work undertaken, can we build an understanding of the historical and cultural context of the gardens?

4.2.5 Aim 3 – To understand the site's archaeological and palaeoenvironmental conditions. This aim comprised the assessment of archaeological finds and samples recovered during excavations, 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: What is the range and spatial patterning of artefacts recovered from the gardens and banqueting house, and can this inform our understanding of the use of the landscape and utilisation of wider resources?

- Q11: Can we increase our understanding of the structures and environment of the Tudor gardens and banqueting house at Sudeley Castle Estate?

4.2.6 Aim 4 – Making recommendations, undertaking analysis and publication. This aim required all data from Aims 1-3 to be collated, with an integrated analysis of the archaeological and palaeoenvironmental resource at Sudeley Castle Estate to make recommendations to conserve, enhance and interpret the heritage significance of the site.

- Q12: What can an integrated synthesis of the results of this work with previous studies of contemporary regional sites tell us about the Site and its setting?

- Q13: What recommendations can be made to protect, conserve and enhance the site?

4.2.7 Aim 5 – Creating opportunities for people and communities. In addition to the archaeological research of the project, achieving public engagement and benefits for the local community members, school children and visitors to the area to get involved and learn more about the archaeology of Sudeley Castle Estate were key targets embedded within this project.

4.2.8 As part of the overarching project, volunteers were provided with opportunity's which an important component of the defined aims. Key objectives included:

- Engaging volunteers in undertaking archaeological investigation and delivering educational activities.
- Training volunteers in archaeological fieldwork, incorporating workshops and masterclasses, and provide training in post-excavation analysis and digital recording techniques.
- Providing access to the site via guided tours around the archaeological trenches to introduce the importance of the site.
- Co-producing a digital archive and resource for the project website with community participants.
- Creating and broadcasting social media updates about the archaeology and our finds so everyone can follow the excavations as they progress.
- Providing access to artefacts via a pop-up finds room to enable visitors to experience and learn about post-excavation processes.

5 METHODOLOGY

5.1 Project model

5.1.1 The archaeological fieldwork was carried out in accordance with the methodology defined in the Updated Project Design (Noon and Casswell 2020). All work was undertaken in conjunction with best practice, national guidelines and published standards (CIfA 2014).

5.2 Excavation methodology

5.2.1 Excavation took place between 19th and 31st October 2021, principally designed to address the research questions associated with Aims 2 and 5 (Section 4.2). This entailed a program of targeted interventions outlined in the Updated Project Design (Noon and Caswell 2020). Four trenches were excavated targeting earthworks comprising of two mounds likely related to the Tudor garden. Trench 8 investigated the remains of a north-south running wall identified in Trench 7 in the 2019 season to further investigate the hypothesis that this was the remains of an Elizabethan banqueting house. Trench 9 was located over linear earthworks and mounds to the south of Hop-yard field. Trenches 10 and 11 were positioned to investigate the floor plan of the wall in Trench 8, the trenches were located using road irons to determine

any resistance indicating that the wall might have continued. A further trench was proposed to target an earthwork interpreted as a twin banqueting hall, but due to land permissions this trench could not be excavated.

5.2.2 Trench 8 and 9 were located using a GPS prior to the commencement of work using the results of pre-existing non-invasive survey data (Fradley et al, 2014) and a programme of test pitting. The extents of all the trenches were recorded with a GPS. Machine excavation of trenches 8 and 9 was carried out using a JCB 3CX fitted with a toothless ditching bucket, removing the overburden to the top of the first recognisable archaeological horizon, under the constant supervision of an experienced archaeologist. Trenches 10 and 11 were hand deturfed and the topsoil was removed by hand.

5.2.3 Trenches were subsequently hand-cleaned, planned and photographed prior to hand excavation. 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.

5.2.4 A complete drawn record of the trenches comprised of both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights were produced. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix 1. 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 (ie Trench 6, 6001+, Trench 7, 7001+). Features have been specified in a similar manner, pre-fixed with the letter F (ie Trench 6, F601+, Trench 7, F701+).

5.2.5 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.

5.3 Animal bone

Hannah Russ

5.3.1 The vertebrate 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 for mammal remains 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 aries) and goat (Capra hircus) and equid (Equus sp. - horse/donkey/mule) distinctions were 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.

5.3.2 This assessment was undertaken in line with published standards and guidelines (Baker and Worley 2019; CIfA 2014), the updated project design (Noon and Casswell 2021) and with reference to the South West England Research Framework for the Post-Conquest Medieval Period (Rippon and Croft 2008).

5.4 Pottery

Stephanie Duensing

5.4.1 All artefacts collected in the field were recovered by hand. All hand-retrieved finds were examined. They were identified, quantified and dated to period. The artefacts were examined by eye or under x20 magnification. Fabrics were categorised and dated using appropriate published typologies for the specific material type for Gloucestershire county.

5.4.2 The results from assessment of this assemblage are discussed in relation to assemblages from other local and regional sites.

5.4.3 The project conforms to standards and guidance issued by the Chartered Institute for Archaeologists (CIfA 2014), as well as further guidance on pottery analysis, archive creation and museum deposition created by various pottery study groups (PCRG/SGRP/MPRG 2016), the Archaeological Archives Forum (AAF 2011), and the Society of Museum Archaeologists (SMA 1993).

5.5 CBM and mortar

Phil Mills

5.5.1 The CBM and mortar were examined by context with material grouped by fabric type using a fabric series already used in Gloucestershire and forms identified where possible. Unidentifiable fragments were classed as 'B/T' (Brick tile). Metrics recorded were number of fragments (No), weight in grams (Wt), and no of corners (CNR). Complete dimensions were recorded in mm. Mean sherd weight (MSW) was calculated by Wt/No.

5.6 Architectural stone

Elizabeth Foulds

5.6.1 The fragments of architectural stone were recorded on 17th March 2022 in a Microsoft Access database. Where possible, all fragments were identified by material and object type using the FISH Thesaurus for materials, archaeological objects and periods. All fragments were described, counted, weighed and recorded in a single data table. Dimensions were recorded where object type could be established.

5.6.2 The architectural stone finds recording and reporting was completed in accordance with the national finds standards and guidance (English Heritage 2008, Chartered Institute for Archaeologists (CIfA) 2014; Chartered Institute for Archaeologists (CIfA) 2021).

5.6.3 References are made in text to 'SF' numbers and 'ID' numbers, which correspond to the data supplied in Appendix 3. Dates given in the data spreadsheet should be read as 'circa'.

5.7 Health and safety

5.7.1 All work was carried out in accordance with DigVentures' Health and Safety Policy and in line with standards defined in The Health and Safety at Work etc. Act 1974 and The Management of Health and Safety Regulations 1999, and in accordance with the SCAUM (Standing Conference of Archaeological Unit Managers) manual Health and Safety in Field Archaeology (1996) and DigVentures Health and Safety Policy.

6 EXCAVATION RESULTS

Indie Jago and David Wallace

6.1.1 All digital context and feature records have been archived on the Digital Dig Team system and can be reviewed here: https://digventures.com/sudeley-castle/ddt/browser.php.

6.2 Introduction

6.2.1 During 2021 four small-scale evaluation trenches were investigated. The principle purpose of these excavations were primarily to redefine and establish the precise physical extent and nature of the site (Aim 2) and establish the current state of preservation of the in situ archaeological and palaeoenvironmental material across the site (Aim 3). Each trench was designed to address a specific research objective, and these are discussed with the excavation results below. Figure 1 shows the overall location of each targeted area, and Figures 2-9 provide illustration of individual trenches containing archaeological features. Detailed descriptions of each and every context are included in Appendix 1, organised by trench number.

6.2.2 The Castle and Estate have been through numerous developments in the past c. 600 years. Queen Catherine Parr (1512-1548) is buried here beside St Mary's Church, and the gardens are thought to be the site of a Banqueting Hall used by Elizabeth I for entertaining. The focus of the 2021 excavation was in the Hop-yard field, part of the Castle's gardens to the east of St Mary's Church. Four trenches were excavated targeting earthworks comprising of two mounds likely related to the Tudor garden. Trench 8 investigated the remains of a north-south running wall identified in Trench 7 in the 2019 season to further investigate the hypothesis that this was the remains of an Elizabethan banqueting house. Trench 9 was located over linear earthworks and mounds to the south of Hop-yard field (Noon and Caswell 2021). Trenches 10 and 11 were positioned to investigate the floor plan of the wall in Trench 8.

6.3 Trench 8 and 11

6.3.1 Trench 8 reopened the eastern end of Trench 7 and extended north, east and south to understand the deposits surrounding the wall identified in 2019 (Figure 2-3). The trench was excavated by machine to remove of the topsoil and some of the subsoil including the backfill from the 2019 excavations. The trench was originally proposed to measure 7 x 7m but was extended to 14 x 7m with two 2m wide extensions to the north and south to expose more of the stone wall (F801).

6.3.2 The dry stone wall (F801) was the earliest feature identified in Trench 8, a 1.5 x 1m slot was excavated to the west of the wall which reached the natural. The natural limestone was observed at a depth of 1.65m with the natural clay (8016) lying on top. The foundations of the wall (8013) were placed directly on top of the natural clay (8016). No foundation cut for the walls foundations were observed, the dry stone foundations of the wall (8013) consisted of very compact limestone chunks (Figure 6). This foundation supported a dry stone wall (8005) comprising of facing stones which varied in size from the largest 0.70 x 0.74 x 0.50m and the smallest being 0.11 x 0.07 x 0.11m and a rubble core. The outside faces of the stones were roughly hewn, some of stones had roughly hewn faces inside the wall, indicating that the stones may have been reused. The wall was partially demolished so the original height could not be seen, the number of courses that survived varied across the trench, from 3-5 (Figure 10).

6.3.3 Trench 11 comprised a 3 x 2m test pit (Figure 5) located approximately 15m south of Trench 8 which targeted the continuation of the wall 8005 (F801) to the south of Trench 8. Very little depth was excavated, the topsoil (11001) was removed to expose the wall (11002) in plan. Additional probing with road irons suggest that the wall probably continues at least five meters further south of Trench 11, suggesting a total of approximately 31m of the wall remains under the earthwork.

6.3.4 The wall was much longer than originally thought making the original interpretation of the wall as part of an Elizabethan banqueting hall very unlikely. The wall has been reinterpreted as a substantial garden wall that separated the formal gardens to west from an area of 'wilderness' to the east. There are further earthworks to the east of this wall potentially relating to other garden features and have been tentatively interpreted as water features.

6.3.5 After the wall fell out of use, it was partially dismantled and a mound was constructed over the wall. The first of the deposits that create the banks on either side of the wall are (8010), (8019), to west and (8020) to the east. It is unclear if these deposits were placed as an initial layer of the mound or if this layer represents the ground surface contemporary with the wall. The mound to the west of the wall was constructed using one homogenous clayey silt (8006). This layer included a couple of broken architectural stone blocks SF64 and SF65. The only other special find within this context was a small iron knife blade SF68. The mound to the east of the wall comprised of two layers; first a layer of rubble (8011) capped by a silty clay deposit (8007). There was more rubble to the east of the wall, including the thick layer of rubble at the base of the mound (8011) and a layer in the south-east of the trench (8015). This suggests that the mound was created immediately after the wall was partially demolished and during the demolition process they knocked the upper courses down towards the east and used this stone to form the base of the mound.

6.3.6 Silty clay (8006) was used to construct the mound to the west of the wall (F801). This was capped by two dumps of large dressed and carved stone fragments (8003) and (8004). The stone from these contexts included many pieces with a ball rose(s) carvings (SF43, SF47, SF55, SF71, SF76, SF77, SF80) which have been interpreted as motifs often found in ecclesiastical settings (Figure 12). The stone may therefore originate from Winchcombe Abbey and may have been moved to the site during the dissolution of the monasteries. The stone carvings showed little signs of weathering and SF79 had white paint still attached to the stone (Figure 12), this indicates that they may have originally been inside a structure, this suggests that the stone from dumps (8003) and (8004) is not demolition from the wall 8005. If the stone does come from Winchcombe Abbey, this dates the wall before the dissolution of the monasteries.

6.3.7 A tree bowl (F802) was identified in the south-east of Trench 8. The cut [8008] was very irregular in shape and the fill (8009) was mottled with no clear horizon visible with the deposit it cut into (8015). This tree bowl is located near two trees that were both planted in the 1920's, no finds were recovered from this feature making it difficult to date. This suggests that the mound continued to be used for landscaping with trees planted along it in the post-medieval/modern period.

6.3.8 An old trench [8012] excavated by the antiquarian Emma Dent was identified in the northern extension of Trench 8 (F803) (Figure 7). The antiquarian excavations removed part of the wall (F801) and were backfilled with a loose topsoil like deposit (8022). The mound Trench 8 is located over is labelled on the 25" 1st edition Ordnance Survey map of 1884, a "Saxon Manor House (site of)". It is possible that this was informed by Emma Dent's excavation and the Tudor wall (F801) may have been misidentified as a Saxon Manor House.

6.4 Trench 9

6.4.1 Trench 9 was located over a linear earthwork that was initially interpreted as being a walkway between twin banqueting halls. The trench was positioned over this mound to investigate the earthwork construction. Several layers of silty clay were identified (9005), (9004), (9003), (9006), (9002), these layers where very similar to each other and homogenous (Figure 8). It appears that the mound was constructed in a single phase, and the material used was sourced from one location. It is possible that the material was sourced from a feature to the east that may have been a pond. There was a lens of gravel underneath the topsoil which may have been the walkway. Natural was identified at the base of the mound (9007). The trench only had three finds: one fragment of pottery, one fragment of glass and one fragment of CBM.

6.4.2 A lens of gravel was observed at the underneath the topsoil at the top of the mound, this was potentially the remains of a pathway. It is therefore still likely that the earthwork represents a walkway, but due to the results from Trench 8 and 11 this is unlikely to be between banqueting halls. The walkway perhaps was used to navigate through water gardens.

6.5 Trench 10

6.5.1 Trench 10 (Figure 4, 9) was a small 3 x 2m test pit excavated by hand approximately 8m north of Trench 8, and investigated the edge of the mound. The trench aimed to further understanding of how far the wall (F801) extended to the north of Trench 8.

The wall (F801) was not present in the trench, probing with a road iron suggested that the wall returned to the west underneath where a tree is planted today. The earliest phase of activity was the construction of the mound (10011), (10007), (10006), (10010). Cut through this mound was a Victorian iron drain pipe F1001 which reached a depth of 1.62m. The drain is likely related the Victorian renovations of the gardens that took place in front of Sudeley Castle. The backfill (10009) of the drainpipe cut [10008] was significantly softer than the series of hardened gravelly clay deposits that made up the mound. After the pipe was laid a hardened stone or gravel surface was placed (10004), (10005) on top, this was probably placed during the same Victorian construction phase. The gravel surface probably formed a trackway through the field. In deposit (10005) an iron cylindrical object SF62 was found which may have been part of the tip of an iron fence. The vast majority of the finds were post-medieval and more likely of a 19th century date and where found in either mound (10006), (10007) or the gravel trackway (10003), (10004), (10005).

7 ARTEFACTS

7.1 Summary

7.1.1 The excavations at Sudeley Castle Gardens yielded an assemblage of 97 fragments of CBM, 29 fragments of mortar, 33 pieces of architectural stone, 25 iron objects, one possible coin or jeton, seven pieces of slag, seven fragments of glass, 55 clay pipe fragments (Appendix 3), 55 pottery sherds (Appendix 2) and fragments of animal remains comprising mammals and molluscs (Appendix 4).

7.1.2 The finds recovered from the excavations have greatly increased the understanding of the character of the site and provided preliminary dates to the construction of the gardens and subsequent activity occurring on site. The finds assemblage has been assessed by the appropriate specialists, the results are discussed below.

7.2 CBM

Phill Mills

7.2.1 There were 94 fragments weighing 6075g of ceramic building material (CBM) presented for assessment. Table 9 shows the complete catalogue of the CBM. Table 10 shows the breakdown of the stratified CBM by area.

7.2.2 Table 11 shows the breakdown by context type of the CBM. The MSW of 65g per fragments is in the high range of CBM groups of the post medieval period. The majority of the material is from layers as would be expected from a high status structure. All the material from Trench 8 and 9 came from layers.

7.2.3 Four CBM fabrics were present (Table 12); TZ01, TZ11, TZ13 and TZ22. TZ01 is a red fabric with an irregular fracture and sandy feel. It has inclusion of moderate black ironstone at 0.4mm and sparse sub rounded quartz at 0.4mm in a fine sandy matrix. It perhaps dates to 17th -19th Century. This was the most common fabric noted. The bricks made of TZ01 were 110 x 72-75mm with regular rounded arises with examples of deep striations on the upper and lower faces, possibly as a result of an early extrusion process. They therefore probably date to the 19th Century or later. There was one floor tile mase of TZ01 which appeared to have been reused, and two fragments of plain tile with thickness 15mm.

7.2.4 TZ11 is a pale red fabric with coarse clay pellets, it probably dates to the 19th Century or later. This material was present as a single modern brick fragment from topsoil. TZ13 is a pale red fabric with abundant quartz at 0.2-0.5mm and occasional red grits. This was present as one brick fragment only. TZ22 is a red fabric with moderate rounded lime at 0.4mm and common quartz at 0.4mm and occasional black inclusion at 0.2mm – 2mm. The material dates to the 18th Century or later. This was present as an 18mm thick water pipe with an internal diameter of 100mm, the pipe is probably 18/19th century or later.

7.2.5 This is a small group of CBM of probably C18/19 date or later. Much of this material probable derives from a nearby structure, although there is a small amount of other material which is usual scatter. The material appears to be a result of Victorian works. The brick fabric in TZ13 may derive from an earlier phase of building but this cannot be proved.

7.3 Mortar

Phill Mills

7.3.1 There were 29 fragments of mortar weighing 1718g of mortar presented for assessment. This was examined by context and a fabric type and mortar type recorded with number of fragments and weight in grams. The full catalogue is shown in Table 13. M01 is a yellow medium grain mortar used for bonding and was found in Trench 8 in construction layers of the bank (8007) and (8001).

7.3.2 M11 is a fine grain white plaster which included a fragment with a lath impression, a technique which perhaps dates to the 18th Century or later. There were also examples with yellow paint surviving. These were found in subsoil of Trench 10 (10003), and in deposits making a possible Victorian path in Trench 10 (10004) and (10005).

7.3.3 This is a small group of bonding mortar and wall plaster which is consistent with an 18th century or later date.

7.4 Architectural stone

Elizabeth Foulds

7.4.1 An assemblage of architectural stonework was recovered, it has been suggested that the architectural stonework derived from the nearby abbey at Winchcombe or Hayles Abbey and had been re-purposed in the garden at Sudeley Castle (Noon and Caswell 2020, 38–39). An assemblage of 33 fragments were hand collected over the course of the excavations in the 2021 fieldwork season. Where fragments were indicative of date, most objects could be attributed to the medieval period.

7.4.2 In total, 33 fragments (76,873g) of architectural stone were submitted for assessment (Table 5). All fragments were limestone except for 6 fragments of slate and 3 fragments of possible sandstone. The assemblage was primarily composed of roof tile fragments, although a few examples were of slate. There were six fragments likely from medieval roof tiles with partial or complete peg/nail holes, although none of the tiles were complete. The holes diameters ranged from 7.0mm to 12.3mm.

7.4.3 The remaining fragments were from carved blocks, some of which were moulded or otherwise decorated. Three of the collected fragments were very large. SF79 was moulded and would have been from an archway and the surface had traces of paint. Two other large fragments, SF77 and SF80, were also moulded archway fragments but with attached ball flowers. Ball flowers were carved stone ornaments used as a decorative element in Gothic style architecture, especially in the 14th century. There were 11 additional examples of detached ball flowers within the assemblage. SF47 was a block without carved decoration, but the largest face was neatly finished and had an incised 'X'. There were 17 additional architectural stone fragments not recorded here that were left on site.

7.4.4 The assemblage of architectural stone consists of a range of structural finds, many of which were decorated or were decorative elements. The roof tiles, on the other hand, appear to have been strictly functional and generally reflective of the medieval period.

7.4.5 The architectural stonework was discovered from Trenches 8 and 10 (Table 6). Most of the carved decorative fragments were found in Trench 8. A noted concentration came from a rubble layer on top of a collapsed garden wall (8003). The three large architectural fragments, along with three roof tile fragments came from this context. The detached ball flowers came from subsoil (8002) as well as other rubble layers in Trench 8 (8003), (8004), (8011). Finds from Trench 10 consisted primarily of roof tile fragments. This included the slate fragments and possible sandstone examples. There was a single fragment of carved moulding found in this trench (ID 4).

7.4.6 The archaeological excavations in 2021 revealed a small assemblage of architectural stonework. The majority of the identified fragments, including the carved mouldings, ball flowers and roof tiles, were distinctly medieval in date. The ball flowers point to a 14th century date.

7.5 Metalwork

Stephanie Duensing

7.5.1 In total, 25 iron objects (including one whittle tanged knife), one metal alloy coin (unstrat) were recovered from Sudeley Castle in October 2021. Most of the metalwork was 19th century or recovered as residual finds from the unstratified material, topsoil (10001), (11001) and subsoil (10003), (8002) horizons and layers of debris associated with the later use of the area in the 19th century (10004) and (10005). The material making up the mound layer (8006) was the main deposit overlying the earlier garden wall. A full catalogue of metalwork finds is given in Table 3. A brief description of the notable metalwork finds of likely postmedieval antiquity is given below.

7.5.2 Wrought iron nails make up the bulk of this assemblage, accounting for 24 out of 26 items. These were largely recovered in 19th century or later deposits, with the exception of 3 nails recovered from the material covering the wall, (8006).

7.5.3 A worn, metal disc SF58, was recovered from spoil heap near Trench 8 on the southern side. A possible coin or jeton, it appears to have been hammered and featured a degraded, but still visible cross, with three pips visible in two of four quarters and on the other side was an even more degraded surface which was not possible to decipher what was originally depicted. The disc is 0.5mm thick and 16.5mm diameter with a

weight of 0.78g, giving it a density of roughly 6.9 g/cm3 which is roughly in line with the density of pewter at 7.31 g/cm3. The long-cross penny dates from the 13-15thth century AD. These coins were minted during the reigns of Edward I (1272 AD) to Richard III (1485 AD).

7.5.4 A whittled tanged knife blade was recovered from the layer (8006), in Trench 8. Rectangular whittle tang blades are most abundant during the 14th century, though examples have been found as early as the 12th century (Holdsworth 1987, p.131). They also continue into the post-medieval period, with longer tangs being indicative of a later date (Cowgill et al. 1987, p. 25).

7.6 Industrial waste

Stephanie Duensing

7.6.1 A small assemblage seven fragments of slag were recovered from Sudeley Castle (Table 7). The small assemblage was comprised of a majority of tar and coal waste material from a 19th century levelly deposit (10005) in Trench 10, and three fragments of heat altered metal waste recovered from landscaping mound material (8006), associated with covering the earlier garden wall in Trench 8. It was likely a deliberate dump of smithing debris.

7.6.2 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 this and therefore its presence is unsurprising, and almost certainly residual.

7.7 Glass

Stephanie Duensing

7.7.1 In total, there were seven glass fragments from the assemblage, weighing 29.08g (Table 4). The glass material recovered is all likely to date from the 19th to 20th century AD.

7.8 Clay pipe

Stephanie Duensing

7.8.1 In total, there were four fragments in the assessment weighing 9g (Table 8). Two fragments were recovered from Trench 8, from subsoil (8002) and from a deposit (8017) under a layer of rubble on the eastern side of the early garden wall and two from Trench 10, topsoil (10001) and (10004), fill of a 19th century or later surface overlying a Victorian water pipe trench cut. The fragments belonged to different clay pipes and dated from the 17th to 19th century AD. Three of the group had low significance in terms of research aims of the site due to the superficial point of discovery. However, the stem found in (8017) has a pipe stem borehole diameter of 8/64 inch, which is indicative of the earliest introduction of clay tobacco pipes in Britain during the early 17th century. It was recovered from a deposit on underlying rubble to the east of the dismantled garden wall, which would indicate that it was associated with use of the most recent version of the garden and likely residual, though deposited in antiquity, as opposed to associated with the landscaping actions themselves.

8 POTTERY

Stephanie Duensing

8.1 Introduction

8.1.1 The assemblage totalled 55 artefacts weighing 478g (Appendix 2). Finds came from 9 stratified contexts. They could be dated by eye and are consistent with an early post medieval date. Condition for older material was moderate and abraded; this is likely to be due to a combination of the deleterious effects of the site soils as well as historic post-depositional disturbance. More recent material appears in moderate to good condition; this is likely to be due to a combination of the more robust material as well as less post-depositional disturbance.

8.2 Results

8.2.1 Fabrics consisted of 15 different types, of coarse earthen ware and refined earthen wares. Coarse wares dominated the assemblage, accounting for 47% by count and 68% by weight of the total material recovered. The fabrics recovered are described by using the Gloucester TF Codes (https://glospot.potsherd.net/docs/intro) and are described in the catalogue below:

- TF8A Central Gaulish samian: Refined red earthenware with red slip glaze. Tablewares: cups, bowls, platters, dishes, mortaria, Decorationmoulded, rouletted, barbotine (residual), 2nd - 3rd century (Tomber and Dore 1998, 30-32).

- TF40 Malvernian unglazed ware: Characteristic inclusions are "Malvernian" rock fragments, usually granitic (quartz, feldspar and mica) and occasional sand grains. Handmade or Wheel-thrown, reduced or oxidised (residual), 12th to 14th century.

- TF44 Oolitic limestone tempered ware (Minety ware): The main inclusions are small/fine, oolitic limestone fragments. There is very little quartz sand, and the surfaces often have a smooth texture, and micaceous glitter. Handmade and Wheel-thrown, reduced or oxidized often iron-stained (light brown), although commonly oxidized on both surfaces or totally. Handmade or Wheel-thrown, oxidized or reduced, 12th to 15th century.

- TF52 Malvernian-glazed wares (unglazed element): often finer (fewer and smaller inclusions) than TF40 (above). Handmade or Wheel-thrown, oxidized or reduced, 12th to 17th century (Vince 1977a).

- TF54 Micaceous, quartz-free, glazed wares: An iron-rich fabric, usually very fine textured and always having a distinct micaceous sparkle. Wheel-thrown and oxidized. Five groups can be recognized with this fabric, 15th to 18th century (Vince 1977b).

- TF55 Late post-medieval yellow-glazed, cream-bodied earthenware: Inclusionless fabric with an even, clear lead glaze (appears yellow). Wheel-thrown or moulded, oxidized. (The glaze is usually crazed (covered with fine cracks) and some pieces are stamped on the base (Victoria Ironstone ware, Derbyshire), 19th to 20th century.

- TF69 Staffordshire, and Bristol 'creamware', and later whitewares: White inclusionless fabric. Wheel-thrown, total clear glaze, 19th to 20th century.

- TF71 Staffordshire transfer-printed wares: White inclusionless fabric. Wheel-thrown, total clear glaze over many varieties of decorative patters, colours and techniques, 19th to 20th century.

- TF79 Late medieval jug fabric: Light-coloured clay, usually oxidized, with some mica and quartz inclusions. Wheel-thrown and hard-fired. Mottled, patchy green glaze, 15th to 17th century.

- TF80 Ashton Keynes ware: Post-medieval, sand-tempered, kitchen wares. (Cirencester B fabric). Characterized by fine sand temper, iron and large limestone inclusions. Clear, iron-flecked glaze, 16th to 18th century.

- TF103 Cranham earthenwares: Iron-rich, oxidized, micaceous fabric, sometimes with clear lead glaze, or rarely iron glaze, and white paint. Wheel-thrown, 18th to 20th century (Brears 1971).

- TF106 Coleford Kiln wares: Oxidized, iron-rich fabric. Wheel-thrown wares, 18th to 20th century (Brears 1971).

- TF110 Sandy-limestone-tempered ware: Quartz and sandy-limestone inclusions, and visible white mica. Wheel-thrown, 11th to 12th century..

- TF120 Wedgwood Black basalt wares: Very hard fabric with black, green or terracotta red polished surfaces, 18th to 19th century.

- TF125 Black-glazed red earthenware: Hard fabric with red core and surfaces. Slight greenish tinge to glaze, 17th to 20th century.

8.2.2 Six contexts in Trench 8 produced pottery from 11 different fabric types; the earliest of these contexts stratigraphically was associated with the earlier Tudor garden wall. This wall showed evidence of having a stony deposit abutting the part of the wall on the interior of the garden (8010) to the west (inner) of the wall (F801). This garden deposit contained what appears to be to Samian ware which was residual within the deposit. There was a similar stoney material (8011) to the east (outside) of the wall (F801), which contained a single fragment of TF80 from the base of a vessel dating to the 16th to 18th century. The material associated with the covering of the earlier garden wall (8006) contained what appeared to be a single footed base fragment of TF44, dating to the 12th to 15th century. The mound deposit (8007) on the external aspect of the wall contained one frag of Malvernian glazed ware (TF52). Pottery was manufactured between the Malvern Hills and the River Severn (Bryant 2004: 300-304) from the 12th to 17th centuries (Vince unpublished). The oxidised (unglazed) sherd represented is in line with those in production across the 15th/16th, although often seen with glaze. The rest of the material from Trench 8 was recovered in either the topsoil (8001) or subsoil (8002). The topsoil only yielded one fragment of TF79, a common 15th century material used primarily for jugs. The subsoil just below the topsoil layer yielded several 19th century material.

8.2.3 Contexts (10001), (10004) and (10005) contained 42 ceramic fragments, weighing 380g. There were eight different fabrics represented. These were all from 19th century

dated layers, but did contain some fragmentary earlier sherds, which likely shared a regional origin.

8.3 Significance

8.3.1 There is relatively little that can be gleaned from such a small assemblage from secondary deposition. This assemblage produced insight in three key areas: first, it demonstrates that these soil horizons are in fact redeposited rather than natural; second, the ceramic evidence can help narrow down the periods of activity in the phases of relandscaping or construction; and third, it demonstrates the breadth of time and the wider range of materials which were in use in the surrounding area over time.

8.3.2 The presence of a single Roman pottery sherd is another encouraging sign; that there were Roman finds suggests that the original location of this material is highly likely to relate to Roman activity on the site. Should a possible location be found as a potential point of origin for the mound material, it could help provide a link.

8.4 Conclusions

8.4.1 The artefacts are consistent with a late medieval and early post medieval date, and this is by far the likeliest scenario, but a later post medieval date can be wholly excluded due to the residual nature of the material.

8.4.2 This is a small assemblage; it is hard to offer certainties given the size and condition of the fragments. However, we can say that the fragments were residual at the time of deposition, likely from waste linked to activities from the estate and immediately surrounding area. Many of the fabrics recovered are from utilitarian typologies whose function is linked with domestic cooking and storage overwhelmingly, but could also relate to vessels used to carry traded commodities.

9 FAUNAL REMAINS

Hannah Russ

9.1 Introduction

9.1.1 Animal remains comprising mammals and molluscs (138 fragments weighing 656g) were recovered via hand collection during archaeological excavations at Sudeley Castle, Winchcombe, Gloucestershire, by DigVentures in 2021 (Appendix 4). Animal bone and shell recovered during excavations at the Site in 2018 and 2019 have already been assessed elsewhere (Russ 2019). This assessment includes quantification of the animal bone and shell assemblages, identification at species level where possible, an assessment of significance and recommendation(s) for any further work.

9.2 Results

9.2.1 Animal bone (78 fragments weighing 601g, Table 14) was recovered from Trenches 8 and 10 and included the remains of equid (Equus sp. – horse/donkey/mule), domestic cattle (Bos taurus), possible red deer (Cervus elaphus), fallow deer (Dama dama), domestic pig (Sus domesticus) and sheep/goat (Ovis aries/Capra hircus). Some of the recovered fragments could only be identified within size-based clade (ungulate) and

class (mammal) groups (39.7% by count, n=31). No bird, fish or amphibian remains were recovered.

9.2.2 Mollusc shells (60 fragments weighing 55g) were only recovered from Trench 8 and included the remains of marine and terrestrial species, Table 15. A single fragment of marine shell was from an edible/European oyster (Ostrea edulis). The terrestrial mollusc shells represented five species: the garden snail (Cornu aspersum), brown- and/or white-lipped snail (Cepaea sp.), hairy snail (Trochulus hispidus), strawberry snail (Trochulus striolatus) and shiny glass snail (Zonitoides nitidus).

9.3 Taphonomic assessment – animal bone

9.3.1 Bone surface preservation varied throughout the assemblage from 'excellent' to 'very poor' (categories 1-5). Most of the specimens displayed 'good' or 'moderate' surface preservation (67.9% by count, n=53). Fragmentation was moderate throughout the assemblage with some partial bones and teeth recovered and some re-fitting fragments of single specimens.

9.3.2 Evidence for butchery in the form of fine cut marks and more substantial chop marks was recorded on four specimens throughout the assemblage. Two specimens from Trench 8 included a fallow deer metacarpal from context (8001) and a cattle femur from context (8006). Two specimens from Trench 10 included a stylohyoid fragment from cattle or red deer from context (10003) and a vertebra fragment from a medium-sized mammal from context (10004). The cut marks observed on the stylohyoid, were produced by a knife and are consistent with the cut marks that would be created during removal of the animal's tongue. Site-wide evidence for carcass processing was low.

9.3.3 No evidence for carnivore or rodent activity was observed. No skeletal abnormalities possibly resulting from disease, injury or age were recorded. No burnt or calcined bone was recovered.

9.3.4 In total, seven mammal bones were suitably complete to allow measurement for size estimation. Measurable elements included cattle, fallow deer and sheep/goat. Bone fusion data for estimation of age at death was recorded for one or both epiphyses of 14 specimens. One loose cattle tooth provided an age-at-death of c. 1 month based on dp4 tooth wear. No animal remains were suitable for identifying sex.

9.4 Discussion

9.4.1 With the exception of fallow deer, the mammal remains recovered during excavation at Sudeley Castle in 2021 as consistent with those expected from archaeological sites in England dating from the Bronze Age onwards (Baker and Worley 2019, 3). Fallow deer are not native to Britain but were introduced in the later 11th century by the Normans. The majority of fallow deer were kept in deer parks (e.g. Cantor and Hatherly 1979), which were managed and guarded such that only the elite could hunt the deer inside (Birrell 1992). A deer park owned by the crown is recorded at the Sudeley Estate, though it is not clear if the park represents one of the very few pre-Norman deer parks in England in existence before the Conquest. The recovery of bones from fallow deer from the Sudeley estate is consistent with the consumption of venison and the high-

status dining that would be expected at a Castle in England from the late 11th century onwards.

9.4.2 The cut marks on the stylohyoid bone are indicative of tongue removal. However, it was not possible to distinguish between cattle and red deer due to breakage and the presence of the mid-shaft 'beak' in both species (Frey and Riede 2013, 316; Lubinski and Hale 2018, 372). In either case, the removal of the tongue indicates its use as a food item, and that small-scale butchery of whole or substantial portions of animal carcasses for meat was being undertaken on the Sudeley Estate. The consumption of tongue is claimed to have both been a delicacy and a food for the poor during medieval times.

9.4.3 The oyster shell provides scant evidence for the consumption of marine resources sourced at some distance from the estate, adding to the evidence recovered during previous excavations at the site (Russ 2019).

10 PUBLIC IMPACT

Johanna Ungemach and Indie Jago

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

10.1 Introduction

10.1.1 This section details the social impact of the Sudeley Castle project public programming for in person and virtual project participants over the course of 19th – 31st October. 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).

10.1.2 Public engagement was integral to the project design of Sudeley Castle and Gardens, as a 'co-producing a digital archive and resource for the project website with community participants. The project was designed to provide to engage 'volunteers in undertaking archaeological investigation and delivering educational activities' and to provide 'training volunteers in archaeological fieldwork, incorporating workshops and masterclasses, and provide training in post-excavation analysis and digital recording techniques' (Noon & Casswell 2020).

10.1.3 Unfortunately, public engagement with both venturers and visitors were significantly limited due to the circumstances surrounding Covid-19. Participant numbers had to be limited to provide a safe working environment for everyone on site. Instead of offering site tours for visitors, or organising in-person events the Sudeley Castle project pivoted online, offering several digital events throughout the course of the excavation. One downside to online provision and access was digital fatigue; over the period of several lockdowns, potential online participants were overwhelmed by

virtual content provided by many companies and organisations, which may have limited the success of some online events for this project.

10.2 Public programming

10.2.1 A carefully designed mix of professional excavation and public participation was programmed over the course of the Sudeley Castle excavation (19th until 31st October 2021), creating a breadth and depth of participation opportunities from informal digital events to structured field training. This blended model comprised two weeks dedicated to servicing a research brief with participation and training of venturers in the trench to National Occupational Standards, with public events running alongside:

- Excavation and finds room training for adults (19th until 31st of October) – 70 participants
- DigCamp parent and child (aged 6-11) activity (23rd until 27th October) – 67 participants
- DigClub parent and teenager (aged 12-16) activity (24th, 28th, 29th October) – 23 participants
- Three virtual events (22nd, 28th, 30th October) – 670 bookings

10.2.2 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 Sudeley Castle 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 Sudeley Castle project reached a minimum of 33k individuals across Facebook and Twitter, with 8.3k active engagements. In addition, there were 3.4k unique page views of more in-depth information on the project microsite: https://digventures.com/sudeley-castle/ including background information, dig updates, and archival site records. Whilst these results demonstrate a significant public appetite for the Sudeley 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 Sudeley Castle further below.

10.3 Evaluation methodology

10.3.1 The Sudeley Castle project audience was separated into two broad categories: in person participants, who crowdfunded the excavation and joined the project through a formal booking process, and virtual participants, who were invited to joined online events 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 (Wilkins 2019, 77; Wilkins 2019, 30).

10.3.2 The credibility of a Theory of Change rests on the level of certainty that organisational activities are the cause of this change. In order 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 (Wilkins 2019, 77; Wilkins 2019, 30).

10.3.3 In support of this overarching methodology, two slightly different data collection strategies were undertaken for in person participants and virtual participants; excavation participants were interviewed pre (89% completion rate, or 145 in total), and post dig experience (71% completion rate, or 116 in total), and virtual participants completed a pre-experience questionnaire as part of the booking process (86% completion rate, or 575 in total). The age, gender and professional background of participants was derived through digital analytics, with categories derived from the Office for National Statistics. At this stage, the report only focuses on output numbers and socio-economic distribution of participants. The final evaluation report will include a more in-depth analysis designed to reveal 'whether or not people will have learnt about heritage, developed skills, changed their attitudes and/or behaviour, and had an enjoyable experience'. The output numbers for excavation participants and virtual participants are discussed below.

10.4 Social impact – in person participants (individuals)

10.4.1 To ensure that 'a wide range of people will be involved in archaeology and heritage', adults as well as children and teenagers were invited to actively participate in the excavation and also take part in recording and finds processing. All of the work happening in the trench, followed DigVentures' CIfA-endorsed Field School curriculum.

10.4.2 Gender profiles for participants were broadly balanced, with 61% female and 39% male, with the youngest aged 6 and the oldest 74. Field venturers represented a variety of full-time occupations (45%) and retirees (9%). The remainder were students, either of compulsory educational age or those attending university (41%) or people in long-term unemployment, homemakers or carers (5%). The high number of students and people under 16 (22%) is due to the tailored DigClubs and DigCamps that specifically targeted children and teenagers and were in high demand. Places were soon sold out and waiting lists put into place. Those participants in full time employment were divided into categories based on the Office of National Statistics (ONS) classifications. This breakdown can be seen in Figure 15 and illustrates that excavation opportunities were also taken up by several people with low income, not only by people with high income, which was facilitated by lower priced opportunities for families. Examples of professions included accountant, artist, broadcasting, charity worker, cleaner, designer, doctor, engineer, electrician, executive director, furniture dealer, gardener, geologist, head teacher, human resources manager, IT consultant, JCB driver, lecturer, medical writer, nurse, physiotherapist, primary school teacher, prison officer, property manager, shoemaker, software engineer, solicitor, speech and

language therapist, tour guide, translator and warehouse operative. Taking this into consideration, apart from people aged over 74, all age groups and socio-economic backgrounds were well represented in the data, albeit not equally, with a marked improvement on existing community archaeology provision compared with the typically retired, over 65 local civic society groups (Wilkins 2020, 33).

10.4.3 Field venturers joined the project primarily from the United Kingdom, with four people having travelled from the United States and one participant all the way from Australia. Overall, 68% of participants travelled more than 50 miles to take part in the excavation, while a smaller percentage of participants joined the participants from the immediate locality (6% of participants drove no further than 10 miles to take part in the project) and regionally (32% of participants living no further than 50 miles from the site) (see Figure 16).

10.4.4 Pre-experience interviews were completed with all project participants to help understand why each had decided to get involved in an archaeology project, 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 responses were coded into six categories. The results show that 9% of participants took part in the project because it was local to them and therefore easily accessible, and/or because they are specifically interested in the project. Some 34% of participants described themselves as 'passive consumers of archaeology' who embraced the opportunity to finally get hands-on with their interest; similarly, 14% of participants were prospective archaeology students or 3% noted participating to be able to tick this experience off their bucket list. The second year of the excavation also saw an increase in repeat supporters of the project after having been a part of a previous DigVentures project (16%). Contrarily, 23% of participants joined a friend or family member who was interested in the project, but they did not have pre-existing interest in archaeology themselves (see Figure 17).

10.4.5 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 five categories to visualise the results (see Figure 17). The most important consideration for 47% of participants was the experience of real archaeology, and the opportunity to get hands-on experience with finds or in the trench.

10.4.6 Closely related to experience of real archaeology was the 'thrill of discovery' for 28% of participants, indicating an overwhelmingly positive experience for first time participations. Nevertheless, a fifth of participants also described the social life, teamwork and camaraderie as the highlight of their experience, illustrating a powerful positive side product of taking part in archaeology. A closer assessment of interviewees answers (often elicited through follow up questions) reveals that in addition to having a good time (such as "this was the best day ever!"), more subtle impacts could be clearly discerned and will be analysed more in depth in the final report.

10.5 Social impact – virtual participants (communities)

10.5.1 To reach a wide audience despite the Covid-19 pandemic, three virtual events took place on 22nd, 28th, 30th October, resulting in a total of 670 bookings:

- Tudor cook along – 22nd October
- Virtual site tour – 28th October
- Halloween Special: Tudor Ghost Stories – 30th October

10.5.2 When booking a virtual ticket, people were asked to complete a short questionnaire to understand the socio-economic background of participants, as well as the impact the project had on the wider heritage community. Some individuals booked tickets for several events. When analysing the socio-economic distribution of virtual participants, these participants' information is only represented once. Overall, approximately 505 individuals took part in virtual events, which means that 25% of tickets were booked by repeat audience members.

10.5.3 When analysing the socio-economic background, it needs to be taken into consideration, that it might not be a true representation of the audience. The person who booked a space is likely to be the one who filled in their information, but they may have watched the event together with several other people – friends or family members – who would have provided different information.

10.5.4 The majority of people who booked tickets for virtual events identified as female (72%). Surprisingly, for what is normal for community archaeology provision (see Section 1.5.2), 29% of tickets were booked by people aged 44 and younger. The virtual audience members represented a variety of full-time occupations (53%) and retirees (31%). The remainder were students, either of compulsory educational age or those attending university (10%), or people in long-term unemployment, carers, or homemakers (6%) (see Figure 18).

10.5.5 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 Figure 18 illustrating that the virtual opportunities were taken up by a significant number of people with lower income. Examples of professions included accountant assistant, analyst, archaeologist, architect, artist, attorney, audiologist, author, baker, bartender, clerical worker, consultant, contractor, copywriter, counsellor, court transcriber, director, economist, food scientist, health and safety advisor, hospital worker, influencer, IT manager, lawyer, librarian, MRI radiographer, nurse, physician, product manager, quantity surveyor, social worker, software developer, supply teacher, systems analyst, tourist information host, translator, tutor and yoga teacher. Taking this into consideration, all age groups and almost all socio-economic backgrounds were represented in the data, albeit not equally. This is supporting the wider project outcome that a 'wider range of people will be involved in heritage.

10.5.6 The virtual component of the talks removed geographical barriers of access and made the experiences more inclusive, which is shows in 38% of the booking coming from outside the UK (see Figure 19). Overall, the virtual offers reached not only people from Europe, but also Australia, Asia and South and North America and made them aware of the archaeology at Sudeley Castle. Tickets were booked by residents of 26 different

countries, namely Australia, Austria, Brazil, Canada, Finland, France, Germany, Hungary, India, Israel, Italy, Lebanon, New Zealand, Norway, Poland, Russia, Saint Lucia, Serbia, Slovakia, Spain, Sweden, Switzerland, the Netherlands, the United Kingdom and the United States of America (see Figure 19). When booking for one of the virtual events, one audience member stated: '[I] always wanted to do the things you do. Now I can enjoy the adventure without getting my hands dirty'.

10.5.7 Viewers were predominantly new to archaeology with 43% of the people who booked a ticket for a virtual event stating that they had never done archaeology before. To help understand why people had decided to take part in an online event and to provide a baseline understanding against which the impact of the experience could be determined, responses given at the point of booking were coded into ten categories. While some 7% of people signed up for the event because they were already involved with DigVentures or actively supported DigVentures' mission, the results show that most respondents (42%) did so because they were generally interested in archaeology and consumed it passively through print, broadcast or online media. Almost a quarter of respondents (28%) gave a more specific interest for either the local area and/or the Tudors (see Figure 20).

10.5.8 Although post-experience interviews were not conducted for digital events, some of the responses given when asked for people's motivation to join a virtual event showed that the events have the potential to have a deeper impact on people's lives. Many parents stated that they signed up to the family-oriented events to supplement their home education (1%). Especially during the pandemic, when regular school visits were patchy, this offer was not only helpful for parents who home schooled their children. It was also a chance for people who took part in the excavation to feel connected to what happened on site and follow the progress of their own achievements (5%).

11 DISCUSSION

11.1 Introduction

11.1.1 Excavation at Sudeley Castle focused on the results of the previous seasons trenching. Trench 8 targeted the deposits around the wall identified in Trench 7 in 2019 which was interpreted as a probable banqueting house. Trenches 10 and 11 further investigated the direction and size of the wall. Trench 9 investigated the raised mound between the platform investigated in Trench 8 and a similar platform identified on LiDAR imagery, both believed to be the remains of twin banqueting houses. The results of the 2021 season refute the previous interpretation of the wall in Trench 7 being part of a banqueting hall, instead suggesting it was part of a large garden wall. The linear mound between the two platforms targeted with Trench 9 could be a walkway, though there was no definite evidence of this.

11.2 Project Aim 2

11.2.1 The evidence of this excavation refutes that the square mound Trench 7 and 8 targeted was the location of an Elizabethan banqueting house. The wall identified in the previous season extended too far to be a banqueting hall, instead it appeared to align and connect to the surviving gardens suggesting it was once the limits of the formal gardens. Further excavation in the deposits around the wall have provided no clear evidence that the site was the location of feasting. While there was some animal

bone and shell evidence suggesting some high status food, this was not in sufficient quantity to suggest that this was the site of a feast (Q3, Q4, Q6).

11.2.2 The historical and cultural context of the Tudor garden is comparable with the inward-looking gardens of the medieval period that gave way to more grandiose layouts with open and interlinked designs becoming a means of public advertisement. Formal garden compartments are a feature of Renaissance gardens rarely seen in Britain until Henry VIII created his royal gardens such as at Hampton Court and Tudor gardens dating as early as the 1530's usually relating to royal residences (Fradley et al, 2008: 55). Other Tudor gardens known from earthwork remains or documentary evidence suggest that they were one piece of a much larger formal landscape (Ibid: 25). The fashion for garden buildings began post the 1530's and persisted into the 17th century such as the banqueting houses at chipping (Ibid: 26) (Q7).

11.2.3 The gardens would be similar to Lyveden Northamptonshire constructed in the 1590's. Tudor Gardens were intrinsically water gardens with lots of water features similar to Bramshill Moated Garden. Similar garden layouts have a central water feature or fountain such as Kennilworth. Chipping Camden also has the similar layout with a banqueting house, water garden and symmetrical banqueting houses dating to 1615, it is possible there was a banqueting house in the field but not in the location of Trench 8.

11.2.4 Natural was reached within Trench 8, enabling a better understand of the phasing on site. The wall 8005 (F801) was the earliest feature identified on site, built directly on the natural clay. No dating evidence was found within or below the wall. The wall was demolished and the mound still present today was constructed over the surviving remains. The rose ball carvings found during the 2019 and 2021 seasons now appear to come from contexts separate from the wall and represent a later phase of dumped stone and not demolition. The whittled tanged knife blade recovered from the layer (8006) and the ball flower carvings both point to a 14th century date on the mound construction over wall (F801) (Q5).

11.2.5 Further evidence of Emma Dent's Victorian excavation were found in the north extension of Trench 8. Additional evidence for the Victorian use of the gardens was found in Trench 10. This included a gravel trackway likely used for access and a utility pipe (Q5).

11.3 Project Aim 3

11.3.1 The stones found in Trench 8 are notable due to their good state of preservation, with relatively unworn carvings and in one case even surviving paint. This indicates a quick transition from the interior of a structure to being buried. This may support the interpretation that these are stones from Winchcombe Abbey, moved after the dissolution of the monasteries. In this case they may have been used to cap the mound over the wall (F801) (Q8, Q9).

11.3.2 The animal bone evidence recovered does not indicate that Trench 8 was located over a site of feasting. This further reduces the likelihood that the platform Trench 8 was targeting was the site of an Elizabethan banqueting hall. The presence of fallow deer remains suggests that at some point the site and/or the surrounding area may have been used as a deer park for the purposes of hunting (Q10, Q11).

11.3.3 The small assemblage of residual pottery found throughout the earthwork deposits confirm they were created using redeposited soils. The pottery assemblage although small mostly consisted of utilitarian wares, more likely related to the work at the castle and not to a feasting site (Q10, Q11).

12 CONCLUSIONS AND RECOMENDATIONS

12.1 Conclusions

12.1.1 The principle aims of this investigation were to establish the character of the Tudor gardens and associated banqueting house (Aim 1) and to characterise the site (Aim 2) with a programme of archaeological excavation. The project was successful in furthering these aims. This season of excavation provided strong evidence against the interpretation of a banqueting house sited within Trench 7. Due to the addition of a test pit (Trench 11) and probing with a road iron we now have a good understanding of the position and extent of the wall and it has been re-interpreted as a garden wall.

12.1.2 The level of public engagement with the investigations – both from individuals volunteering with the project and participants taking part in Open Days and public events was deemed high (Aim 5). The week long excavation attracted more than 166 participants excavating on site, 203 individuals attending a site tour, and 1,996 participating in an online workshop or viewing the virtual tour.

12.2 Recommendations for further finds analysis

12.2.1 Due to the significance of the architectural fragments, particularly the decorative stonework, it is recommended that the assemblage is included in an analysis level report. Such a report should combine the results from all completed field seasons and discuss the assemblage at a site level as well as within a wider context of appropriate contemporary medieval assemblages. The following is required to contribute to the production of an integrated analysis level report based on the 2021 fieldwork excavations:

- worked stone should be analysed by a geologist to provide stone identifications.
- comparison of stone identification and stylistic features from hand collected fragments with stone identification from other fragments thought to have been robbed from Winchcombe Abbey.

12.2.2 Based on the current understanding of the architectural stonework assemblage (prior to the completion of any identification work by a geologist), a number of fragments from the 2021 excavations will be fully illustrated within the final report. Selection of material to illustrate will be based on completeness and suitability for illustration, unique objects on site, and to show the range and variations in the assemblage. Due to the significance of the site the architectural stone assemblage and in discussion with the receiving archive repository, worked and/or identifiable fragments of stonework should be retained and deposited.

12.2.3 No further work is recommended for the animal remains from Sudeley Castle recovered in 2021. When all excavations are completed, the bone and shell assemblages from all years will be combined into one report for final grey literature reporting and/or publication. Further research on the deer park at Sudeley Castle and

the consumption of tongue may contribute to further understanding of the role of animals on the Estate and in the diet of those living on or around it. The animal remains will be retained for the duration of the project with proposals for selection for long term preservation made after the completion of any analysis and publication works.

12.2.4 It is unlikely further work on the pottery, clay pipe, glass, CBM or mortar would yield useful information with respect to the project design. The pottery should be retained and incorporated into the site archive for long term preservation. The material does not require any special conservation and retained material can be safely stored in a stable environment. Nothing further can be gained from additional analysis of the industrial waste, therefore the assemblage is not recommended for retention.

12.3 Recommendations for further field investigation

12.3.1 An additional phase of fieldwork is suggested to characterise possible water features, to recover dating evidence relating to the different phases of use of the gardens, and to assess the archaeological survival of the Tudor Gardens.

12.3.2 An earth resistance survey is proposed to add to the existing magnetometer geophysical data collected by Exeter University (Fradley 2009). The site has a large degree of ferrous disturbance, which will not produce interference in earth resistivity results. Earth resistance surveys are also particularly well suited to identifying ponds, which in combination with the excavation should provide stronger evidence for or against the presence of water features.

12.3.3 An Updated Project Design provides a detailed outline of intended fieldwork intended to be delivered in 2022 (Jago 2022).

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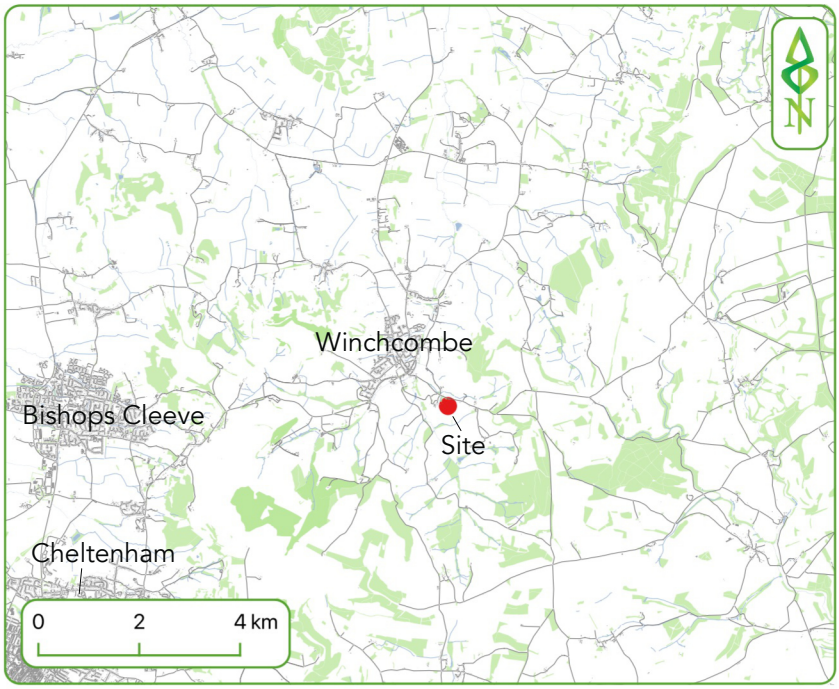


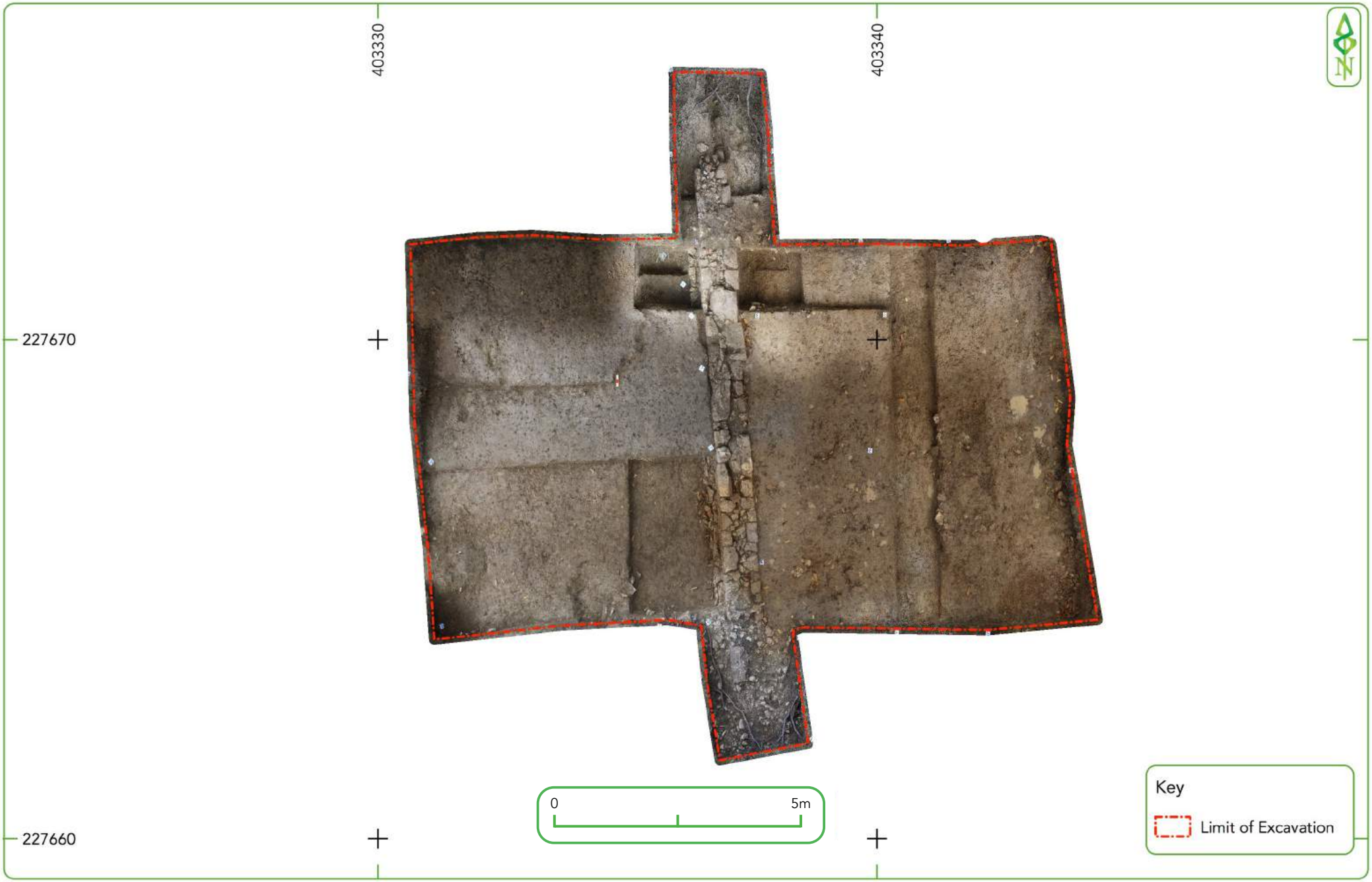
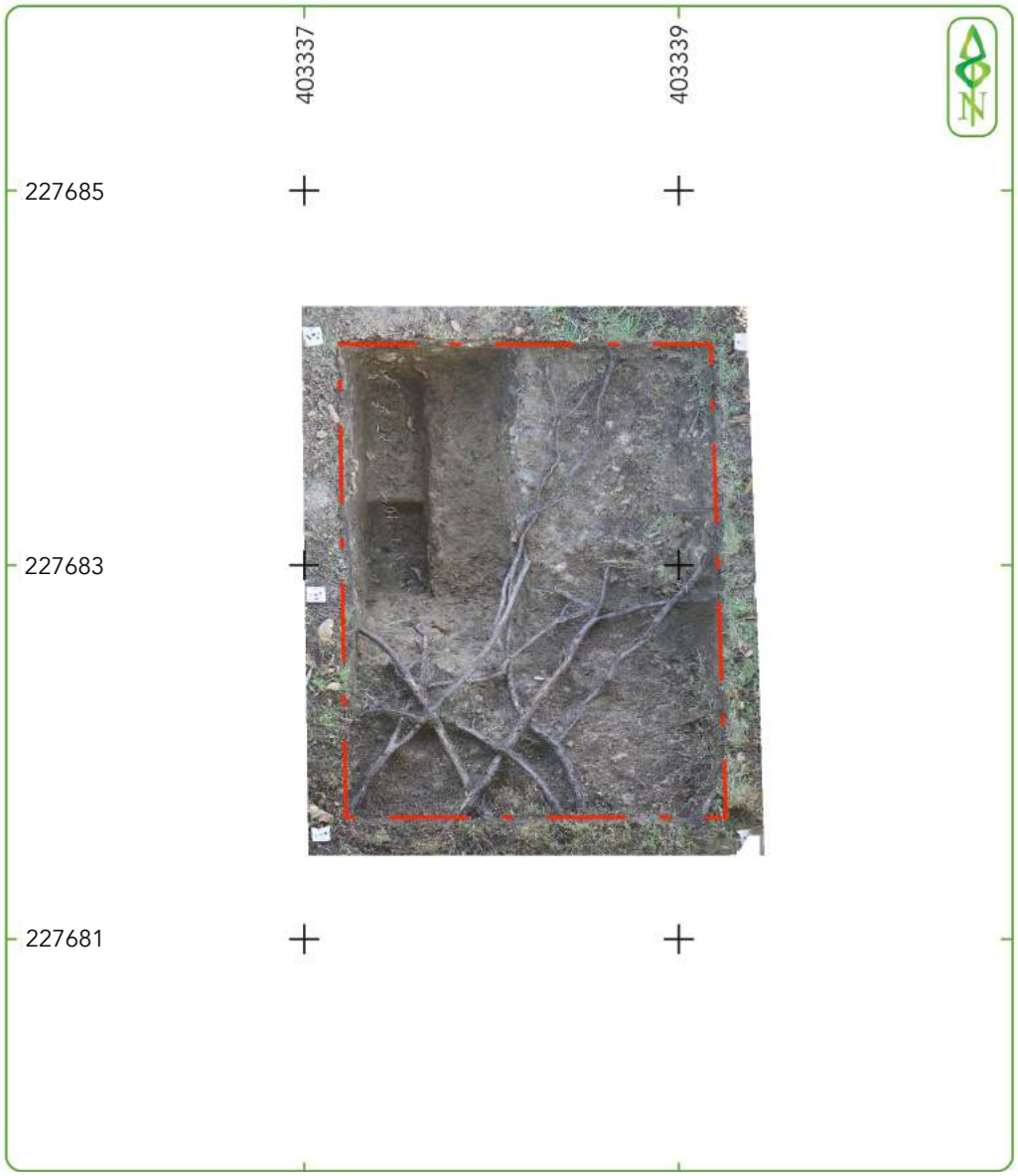
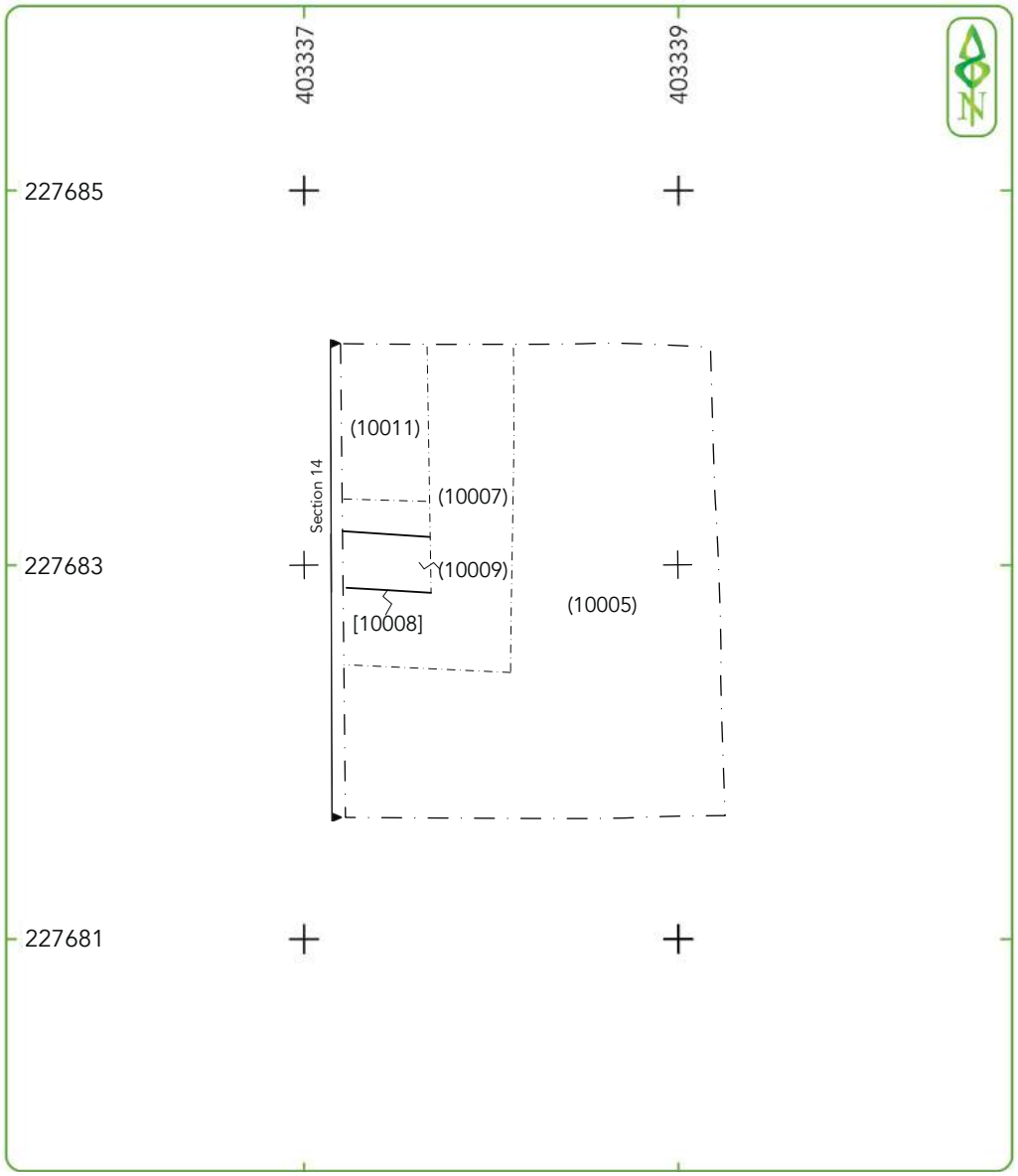


Figure 2. Trench 8 orthophoto

Figure 3. Trench 8 plan



Orthophoto



Plan

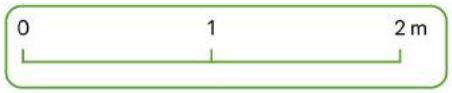
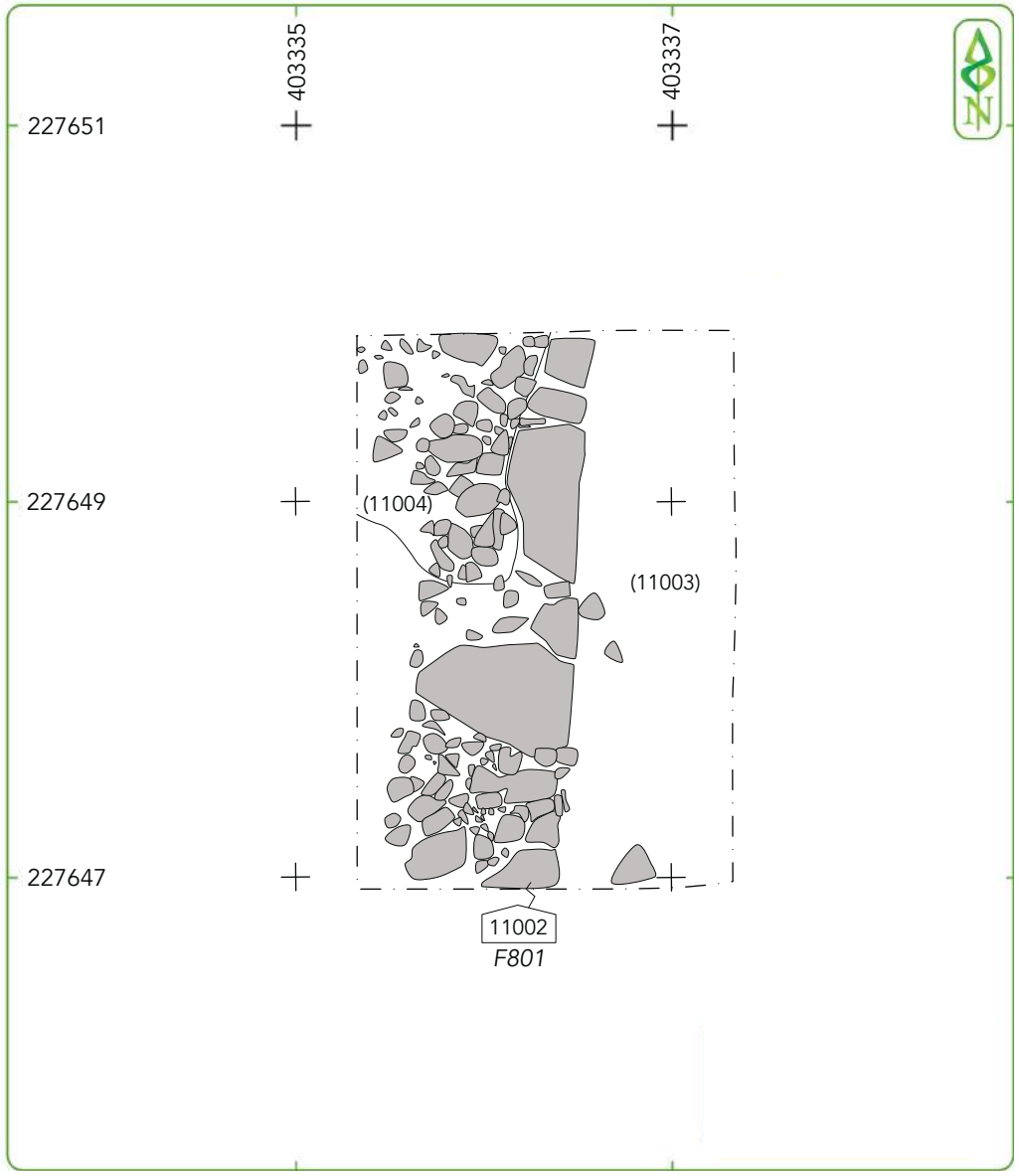


Figure 4. Trench 10 orthophoto and plan

Orthophoto



Plan

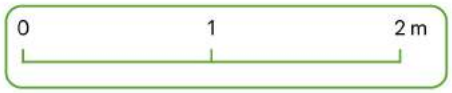


Figure 5. Trench 11 orthophoto and plan

West end of south facing section of F801

East end of south facing section of F801

South facing section though wall F801

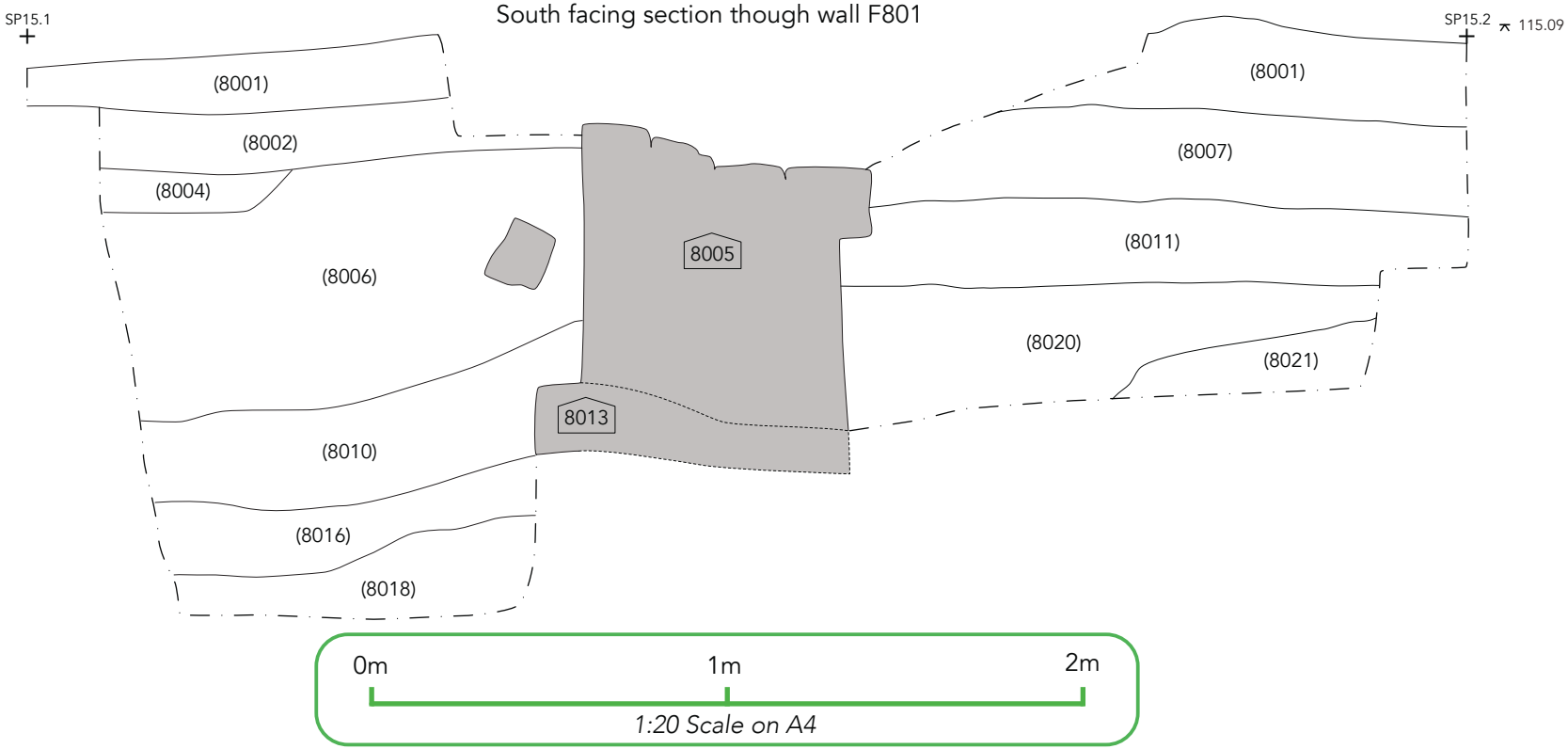


Figure 6. South facing section through wall F801

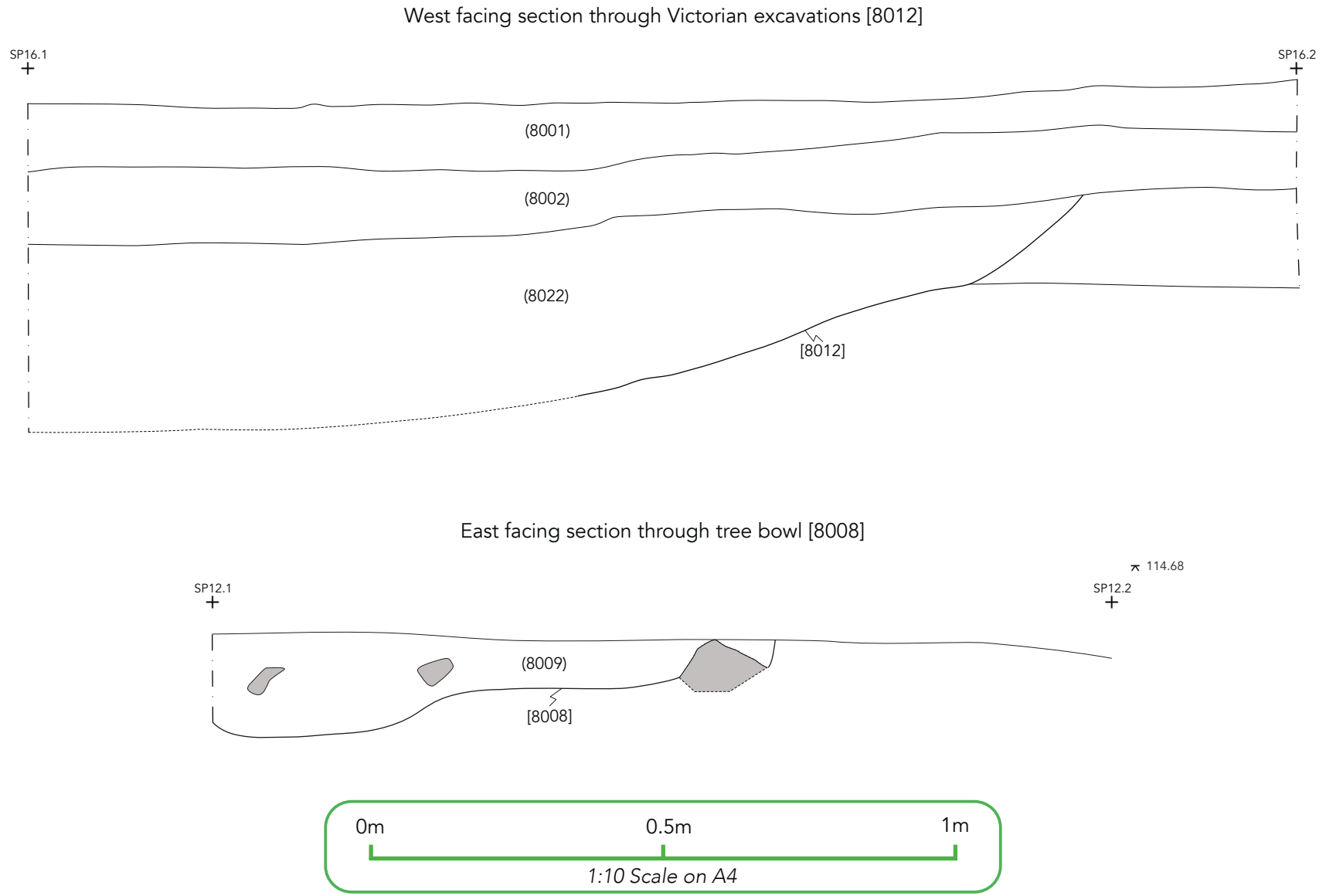


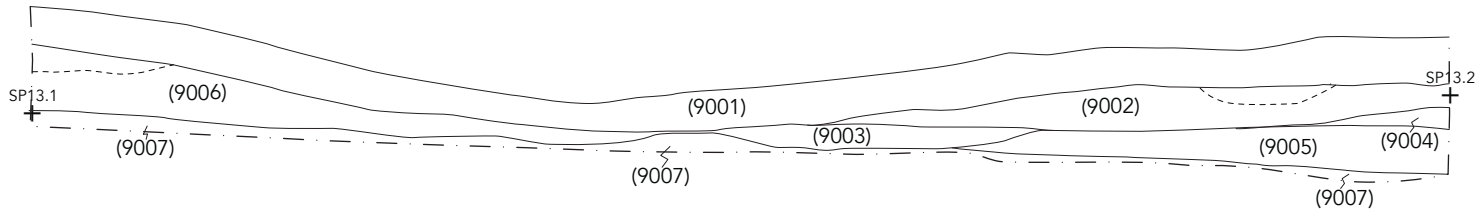
Figure 7. West facing section through Victorian excavations (top), east facing section through tree bowl (bottom)

East end of north facing section of Trench 9

West end of north facing section of Trench 9

Oblique photo of north facing section of Trench 9

North facing section though Trench 9



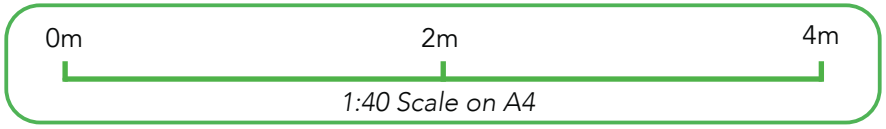
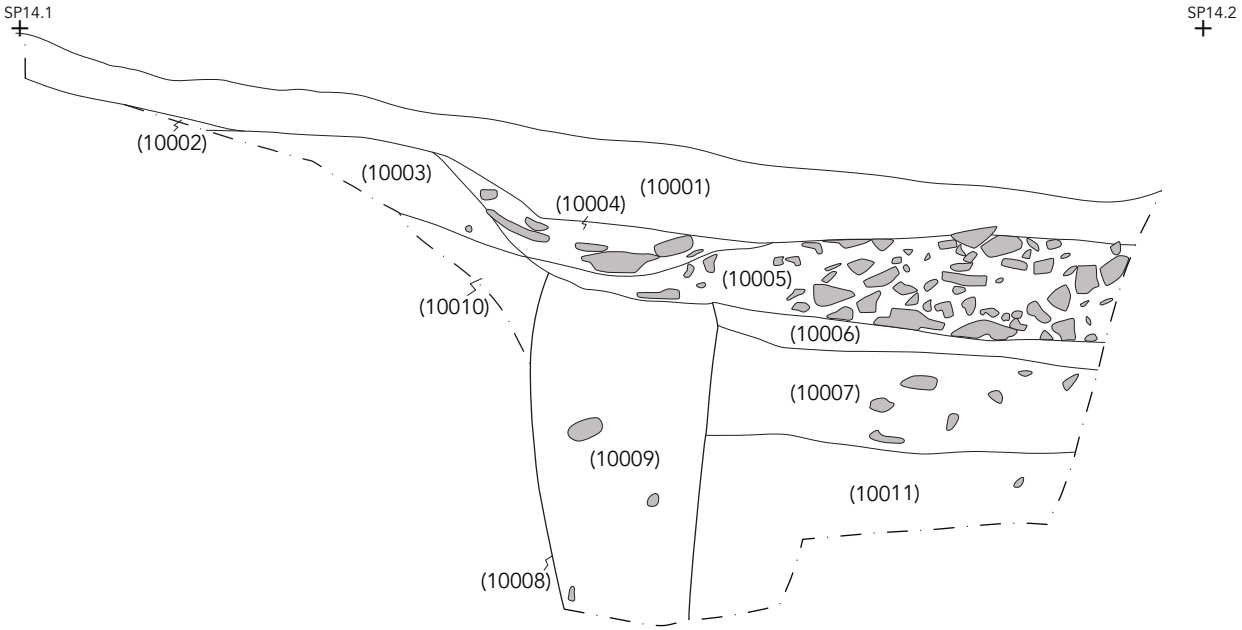


Figure 8. North facing section through Trench 9

East facing section though Trench 10



0m 1m 2m

1:20 Scale on A4

East facing section though Trench 10

North looking photo of Trench 10

Figure 9. East facing section through Trench 10

Trench 8 post excavation

Slot to east of wall 8005

Slot to west of wall 8005

Wall 8005 and foundations 8019

Rubble layer 8015

Emma Dents Victorian trench

Figure 10. Record photos of Trench 8

Rubble spread (8003)

Rubble spread (8004)

Trench 9 post excavation

Trench 10 post excavation

Trench 10 east facing section

Trench 11 post excavation

Figure 11. Record photos of Trenches 8-11

SF79 - Carved stone masonry with paint

SF47 - Carved stone masonry with ball rose motifs and “X” masons mark

SF74 - Carved stone with rose ball motif on the front and hashed marks on the back

SF72 - Carved stone masonry with ball rose motifs

SF65 - Sub-triangular carved stone

SF51 - Sub-triangular carved stone with decorative detailing

Figure 12. Examples of worked stone

Leigh and Josh cleaning back topsoil on the first day on site

Rosie GPSing the extents of Trench 10

DigClub cleaning masonry stones

Abby and Morwenna from DigClub reveal the foundations 8019

Ventures unearth wall 8003

Figure 13. Community photos of ventures and DigClub

DigCamp investigate rubble spread (8003) in Trench 8

Jessica and Emma troweling in Trench 8

Community Archaeologist Ben shows DigCamp how to metal detect

DigCamp excavate a slot through Trench 8

Georgia, Etienna and mum Maxine excavate a slot through Trench 8

Figure 14. Community photos of DigCamp

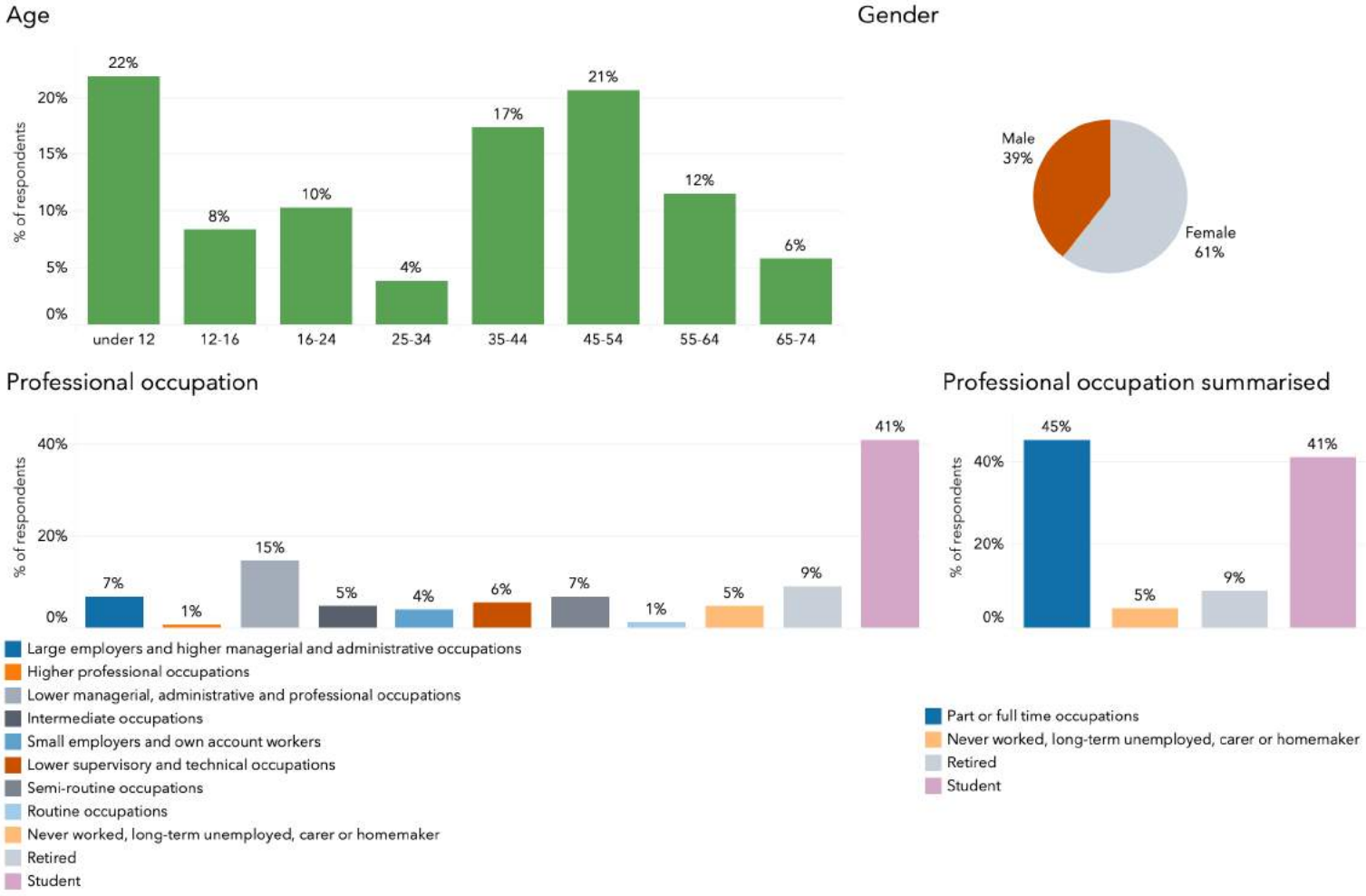


Figure 15. Socio-economic background of field ventures

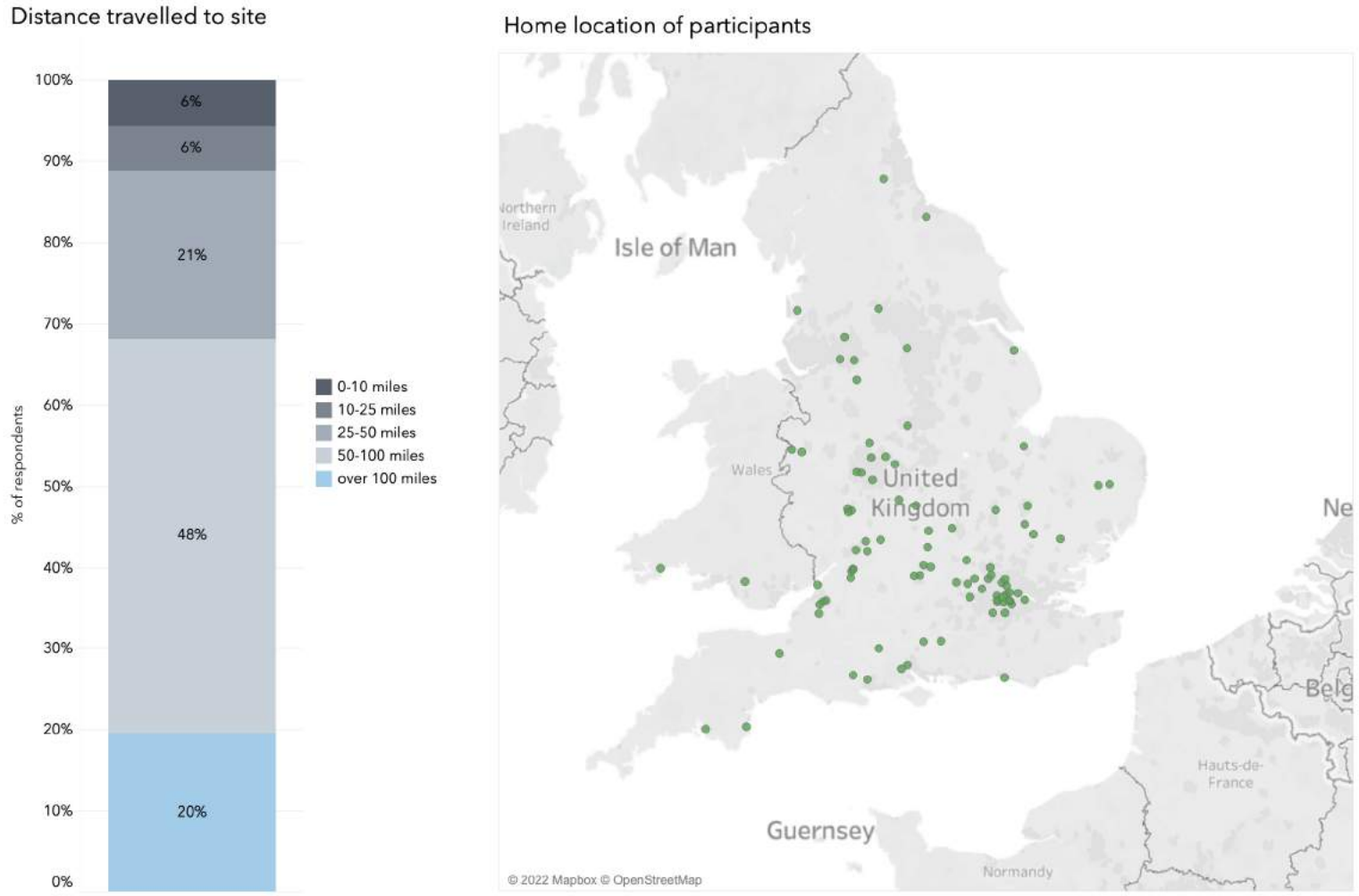


Figure 16. Home location of field ventures

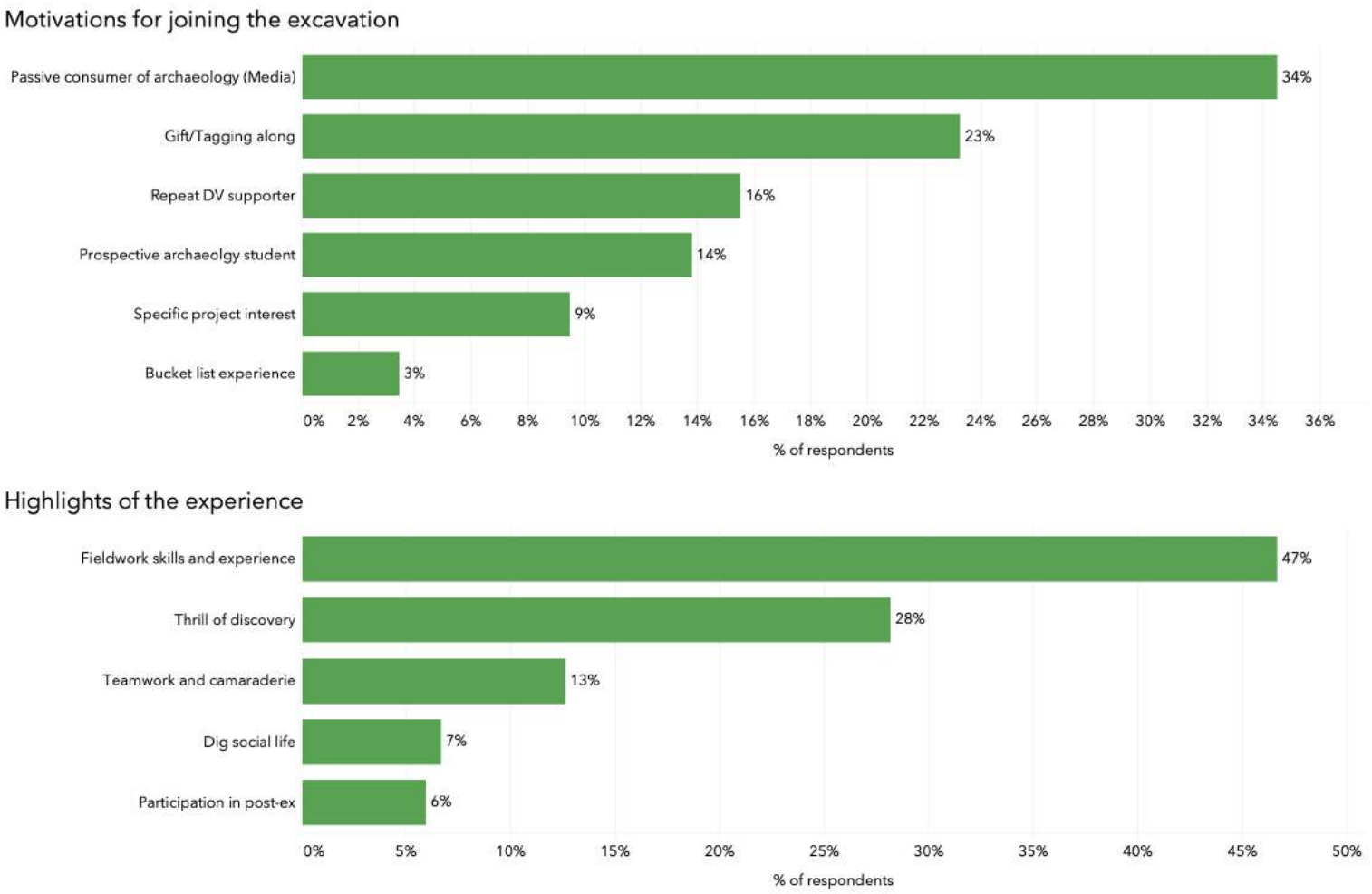


Figure 17. Field ventures motivations for joining the excavation and highlight of the excavation

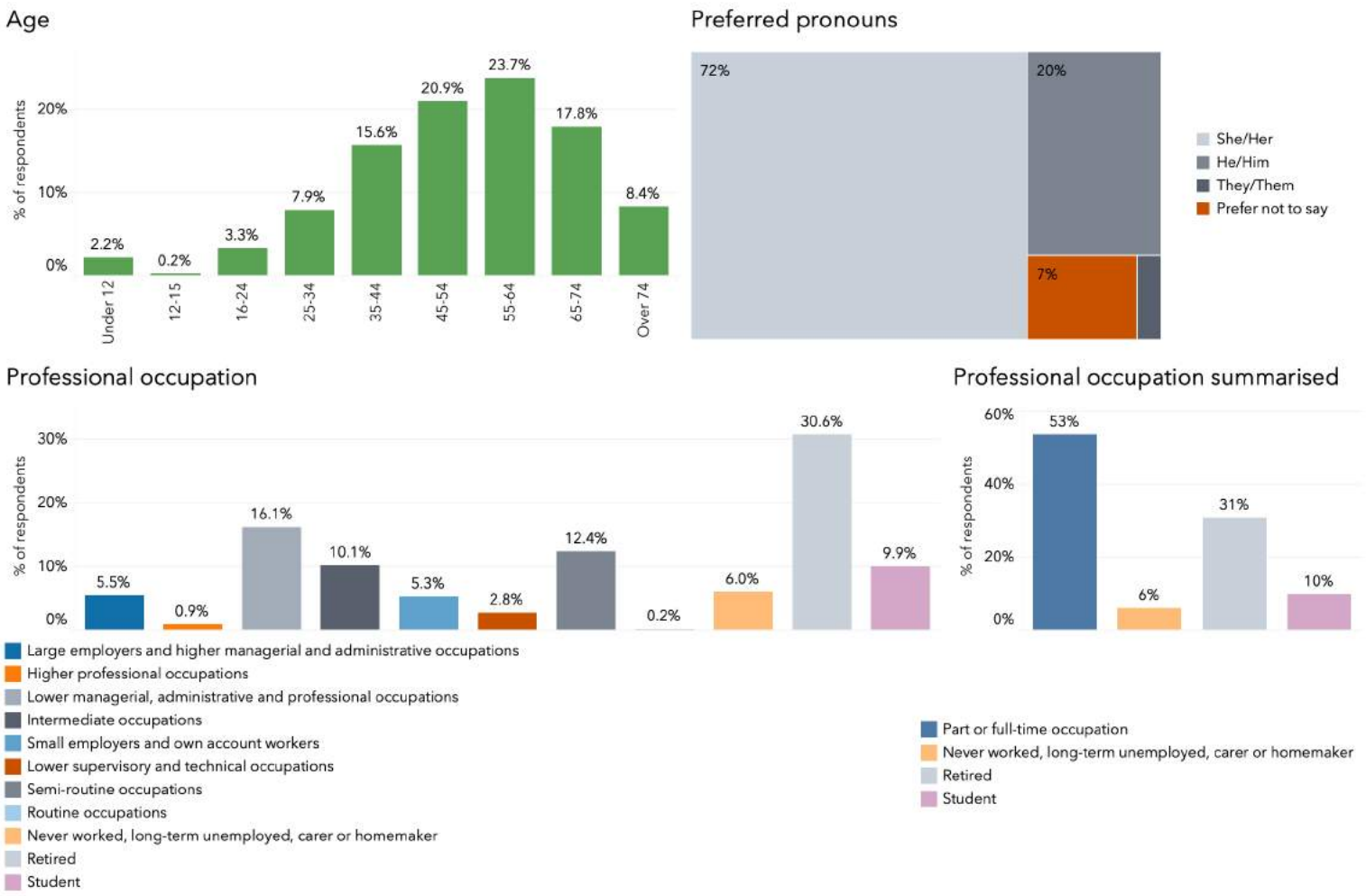


Figure 18. Socio-economic background of digital ventures

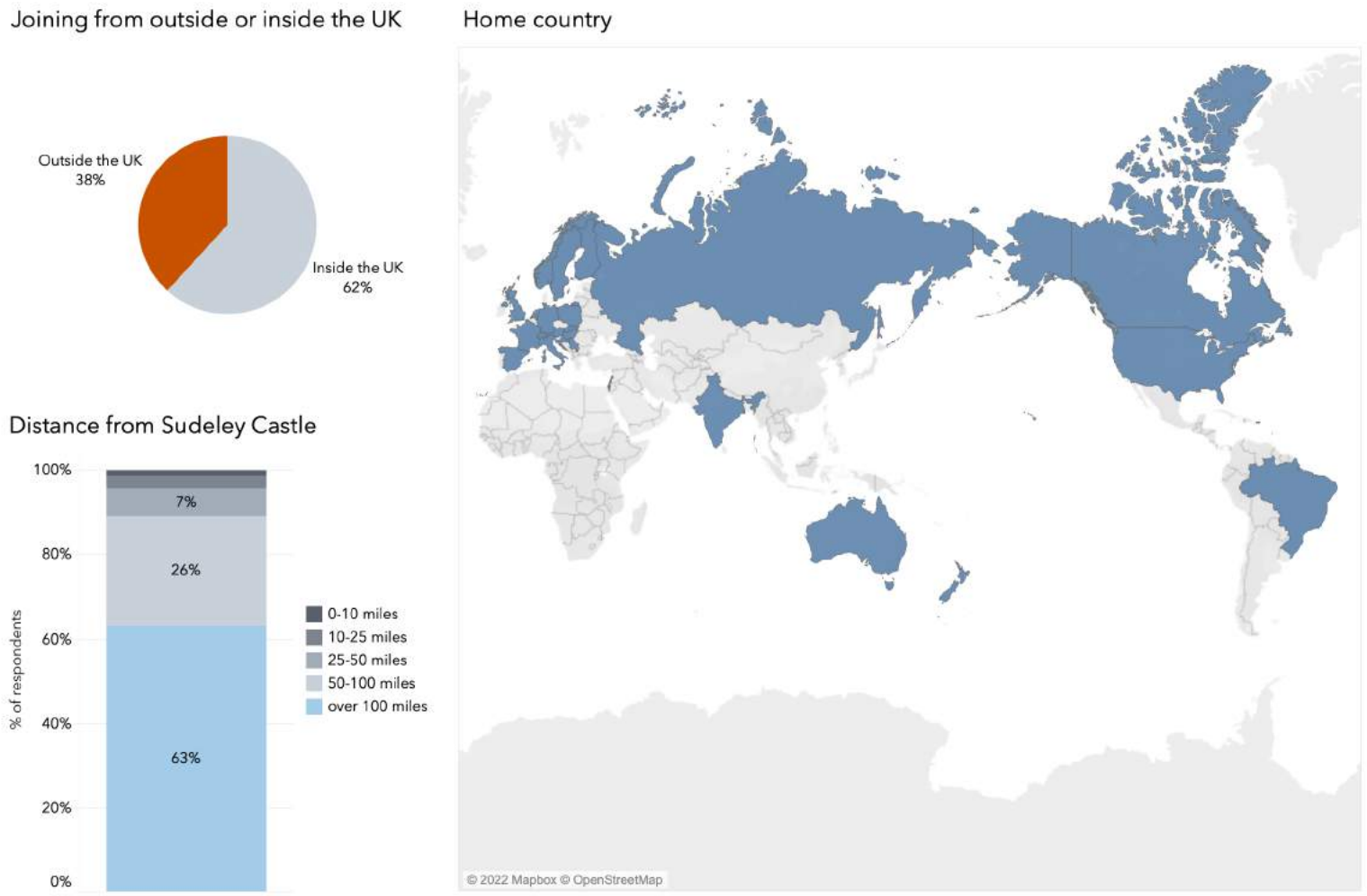


Figure 19. Home location of digital ventures

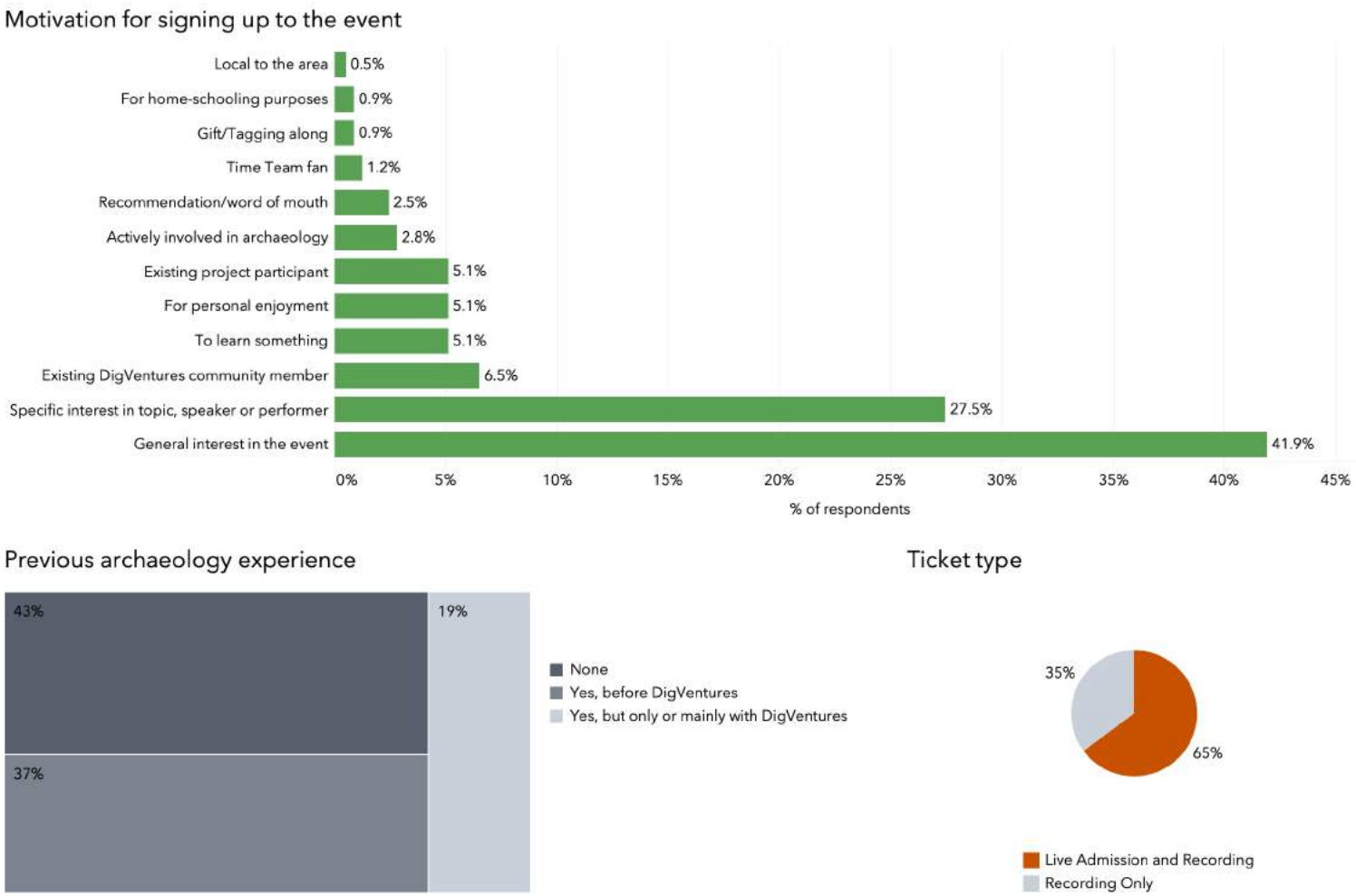


Figure 20. Virtual ventures motivation for joining online events and previous experience

Appendices

14 APPENDIX 1 – TRENCH AND CONTEXT DESCRIPTIONS

Trench 8	Dimensions:						
	Orientation: E-W						
	Reason for trench: to targeting more of the possible structure identified in Trench 7 in 2019						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_8						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
8001	Soft mid brownish grey topsoil in tr 8 mostly removed by digger	Layer	Topsoil			0.37	N/A
8002	Soft mid brownish grey subsoil	Layer	This material was a mix of the remaining subsoil predominately around walls that wasn't removed by the digger to avoid damage and the remaining mixture or topsoil and some backfill from 2019's excavation			0.30	N/A
8003	A very hard light yellowish grey rubble layer with large dressed and carved stone fragments in SW quadrant of Trench 8	Layer	A compact rubble layer possibly associated with garden wall collapse	5.80	2.60	N/A	N/A
8004	A moderately compact dark yellowish brown clayey silt with 20-30% inclusions of small to medium sized sub angular sandstone pieces rubble layer visible protruding from Northern LOE central to Trench 8	Layer	Rubble spread that may possibly be related to the demolition of the N-S aligned wall in trench 8, or contemporary with a later phase of activity on the site possibly to do with the ornamental gardens	2.45	2.30	0.50	N/A

Trench 8	Dimensions:						
	Orientation: E-W						
	Reason for trench: to targeting more of the possible structure identified in Trench 7 in 2019						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_8						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
8005	Sandstone/ limestone N-S aligned wall, with large stone on the outer face and smaller rubble cores, running through centre of trench 8. Same as 7009 discovered in 2019 season	Masonry	Sandstone wall, reasonably substantial, most likely related to the Tudor gardens.	10.23+	0.74	0.72	801
8006	Moderately compact dark orangey brown silty clay layer in western half of trench 8 with very occasional small sub angular sandstone pieces and gravel	Layer	This material forms the predominant deposit of the bank built up against the wall 8005 on the western side. It forms one large dumping event probably to landscape this area of the garden after it went out of use. This maybe also allowed a viewing platform to be formed at the back of the garden. Numerous large pieces of carved masonry were recovered from this material, possibly as a stabilising agent for the bank	N/A	1.53	0.64	N/A
8007	Soft mid brownish grey silty clay built up mound deposit with 10% small-medium sub angular stones to East of wall 8005 running through the centre of trench 8	Layer	A layer related to the mound and most likely to be the same as subsoil (8002)	N/A	1.68	0.66	N/A
8008	Irregular oblong cut of potential tree bowl with irregular sides and base.	Cut	Cut of a tree bowl with no finds on top of rubble layer (8015)	N/A	0.95	0.23	802

Trench 8	Dimensions:						
	Orientation: E-W						
	Reason for trench: to targeting more of the possible structure identified in Trench 7 in 2019						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_8						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
8009	Soft light yellow brown silty clay fill of potential tree bowl [8008] with rare irregular subangular stone inclusions - likely from rubble layer (8015) underneath	Fill	Fill of tree bowl [8008] with no finds on top of rubble layer (8015)	N/A	0.95	0.23	802
8010	Bank deposit with stoney inclusions beneath 8006, western wall slot	Layer	Built up clay deposit over foundations of wall. Possibly represents an element of an old ground surface or the first phase of the construction of the mound over the wall	1.50	1.20	0.32	N/A
8011	Rubble layer below 8007 in Eastern Wall slot Trench 8	Layer	A compact rubble layer underneath the subsoil and butting up against wall 8005 in the East side of trench 8	N/A	1.65	0.93	N/A
8012	Possible linear cut of previous trench with shallow sides excavated by Emma Dent	Cut	Likely Victorian trench dug by antiquarian Emma Dent. Only a small portion of the original excavation was exposed but it is clear that it has cut away part of the Tudor garden wall	2.00	1.70	0.36+	803
8013	Very compacted light greyish yellow sandstone fill of unexcavated wall foundation 8012 in slot to west of wall in Trench 8	Fill	Sandstone chunks layered on top of the natural clay to form a foundation for wall 8005	1.20	0.12	0.19	801

Trench 8	Dimensions:						
	Orientation: E-W						
	Reason for trench: to targeting more of the possible structure identified in Trench 7 in 2019						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_8						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
8014	Context voided in the field	Fill	Originally it was interpreted as the fill of builder's cut for garden wall in southern part of Trench 8. The interpretation now is that the wall was built on top of the natural instead of there being a builder's cut.	N/A	N/A	N/A	N/A
8015	Very hard light yellowish white stone rubble layer in SE of Trench 8	Layer	Remnants of potential garden wall collapse with medium sized stones	3.09	1.27+	0.14	N/A
8016	Moderately compacted dark reddish brown natural clay with occasional small sandstone flecks/pieces beneath wall foundations 8013	Layer	Likely natural clay that wall foundations 8013 are built upon	1.50	1.20	0.20	N/A
8017	Layer on east of wall under rubble 8015	Layer	Silty clay layer under rubble not fully excavated	3.09	1.27+	0.14	N/A
8018	Natural hard stone layer beneath natural clay 8016	Layer	Natural sandstone compacted degraded bedrock	0.95	0.36	0.24	N/A
8019	Very compact mid orangey brown silty clay stoney layer underneath 8006 with10-15% inclusions of small sub angular sandstone pieces and gravel flecks on the W side of the wall (S slot)	Layer	Built up clay deposit over foundations of wall. Possibly represents an element of an old ground surface or the first phase of the construction of the mound over the wall	2.20	1.00	0.50	N/A

Trench 8	Dimensions:						
	Orientation: E-W						
	Reason for trench: to targeting more of the possible structure identified in Trench 7 in 2019						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_8						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
8020	Very compact mid orangey brown silty clay ayer under 8007 with 10-15% inclusions of small sub angular sandstone pieces and gravel flecks to the E of wall 8005	Layer	Built up clay deposit over foundations of wall observed in the eastern part of the south facing section. Possibly represents an element of an old ground surface or the first phase of the construction of the mound over the wall	N/A	1.57	1.24	N/A
8021	Gravelly layer under 8007 to the E of wall 8005	Layer	A layer of compact gravel material that may represent a made ground of some kind when the wall was constructed. Potentially this material was on the outside of the garden wall.	N/A	0.73	0.21	N/A
8022	Backfill of Emma Dents trench	Fill	Backfill of Emma Dents Victorian era excavation	2.00	1.70	0.61	803

Trench 9	Dimensions: 12m x 2m						
	Orientation: NE-SW						
	Reason for trench: Evaluation trench targeting linear earthwork						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_9						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
9001	A soft dark greyish brown clayey silt topsoil	Layer	Topsoil of evaluation trench through garden earthworks.	12	2.00	0.70	N/A
9002	A friable mid greyish brown silty clay layer underneath topsoil with 10% small sub-rounded pebbles and	Layer	Potential subsoil from the earthworks in trench 9	4.50	2.00	1.00	N/A

Trench 9	Dimensions: 12m x 2m						
	Orientation: NE-SW						
	Reason for trench: Evaluation trench targeting linear earthwork						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_9						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
	stones. It is likely to be the same material as (9006)						
9003	Soft mid orangey brown silty clay layer, same as (9004)	Layer	A deposit similar to 9004 that is the part of the earthwork evaluation Trench 9	2.50	2.00	1.40	N/A
9004	Mid greyish brown silty clay layer with 20% small-medium sub angular stones, same as (9003)	Layer	A stoney deposit within the earthwork evaluation Trench 9	1.50	2.00	1.20	N/A
9005	Mid brown silty clay very similar to 9006	Layer	Very similar context to 9006 in terms of composition however it is not subsoil as it is lower in sequence with 9003 and 9004 above it.	4.00	2.00	1.50	N/A
9006	A friable mid greyish brown silty clay layer underneath topsoil and likely the same as (9002)	Layer	Potential subsoil from earthworks evaluation Trench 9	4.50	2.00	1.00	N/A
9007	A firm mid yellowish brown clay bottom most layer in Trench 9	Layer	Lowest layer visible in section 13 during excavation, a very clean context and could potentially be natural.	10.50	2.00	1.55	N/A

Trench 10	Dimensions: 12mx2m						
	Orientation: NE- SW						
	Reason for trench: To investigate deposits that make up the bank to the north of the wall in Trench 8						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_10						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
10001	A soft mid brownish grey topsoil and turf with 20% small sub angular stones and lot of rooting on the southern side of Trench 10	Layer	Small segment excavated due to access (roots) but part of the mound make up	3	2	0.20	N/A
10002	A firm mid yellowy brown gravel layer within Trench 10. Potentially part of the mound associated with the wall in Trench 8	Layer	Small segment excavated due to access (roots) but part of the mound make up	2	1	0.02	N/A
10003	Soft mid yellowish brown clayey silt with layer Rare charcoal flecks and small snail shells. <5% small sub angular stones underneath topsoil- possibly a subsoil	Layer	Clayey layer underneath gravel layer as part of mound feature	1.10	0.87	0.40	N/A
10004	A compact mid greyish brown clayey silt layer disturbed by tree roots and with 20% sub angular stone (possibly limestone/sandstone) 5% charcoal flecks and a larger chunk with a burnt stone	Layer	A clayey layer on top of Victorian pathway/track 10005 made up of lots of limestone inclusions	2	1.75	0.65	N/A
10005	A firm mid brownish grey clayey silt rubble surface with 40% small-medium sub angular stones (sandstone?) 5% charcoal flecks and frags - potentially 19th century path	Layer	Victorian pathway/ track made of lots of limestone inclusions	1.55	2.00	0.85	N/A

Trench 10	Dimensions: 12mx2m						
	Orientation: NE- SW						
	Reason for trench: To investigate deposits that make up the bank to the north of the wall in Trench 8						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_10						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
10006	A firm yellowish brown silty clay with 5% small sub angular limestone inclusions	Layer	Part of the mound created in the post medieval period	1.05	0.86	0.91	N/A
10007	Compact light yellowish brown clayey silt with 40% small- medium sub angular limestone inclusions under 10006	Layer	A quite compact layer forming part of the mound created in the post medieval period	1.00	0.97	1.10	N/A
10008	The linear E-W cut o with vertical sides and no base visible due to a cast iron pipe	Cut	Cut of Victorian drain pipe seen in geophysics related to possibly reworking of foundations/waterworks	0.85	0.54	1.62	1001
10009	Soft mid yellowish brown silty clay with 30% small sub angular stones fill of cast iron pipe	Fill	Fill of Victorian drain pipe (10008) seen in geophysics related to possibly reworking of foundations/waterworks	0.87	0.56	1.62	1001
10010	Soft mid yellowish brown clayey silt with 10% small- medium sub angular stones mound layer underneath 10003 likely same as 10006	Layer	Part of the mound created post medieval with the pipe truncation	0.86	0.40	0.95	N/A
10011	Firm mid yellowish brown silty clay mound layer underneath 10007	Layer	Lower most layer from the mound created from post medieval pipe truncation	3	0.50	1.62	N/A

Trench 11	Dimensions: 3m x 2m						
	Orientation: N-S						
	Reason for trench: Located south of trench 8, targeting the continuation of the Tudor garden wall						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_10						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
11001	Moderately loose dark grey brown silt/loam topsoil with very occasional 1% or less small sandstone inclusions and charcoal flecks	Layer	Topsoil. Thin in places (6cm) directly above wall	3.00m	2.00	0.25	N/A
11002	Angular sandstone blocks from a N-S aligned potential Tudor garden wall with only one course exposed and no bond visible	Masonry	N-S aligned segment of likely Tudor formal garden boundary wall. Very roughly finished and constructed using a dry stone wall method. The western (internal) face appears to be partially robbed away indicating potential re use of stone elsewhere. It is expected and assumed that this is the continuation of the same wall visible in Trench 8 - (8005)	3.00	0.80	N/A	801
11003	Very compacted mid yellowish brown silty clay with 30-50% inclusions of small sub angular pieces of sandstone of a possible rubble surface or demolition build up deposit against Eastern side of wall 11002	Layer	Likely a rubble deposit built up on the Eastern (external) face of the Tudor garden boundary wall. Possibly from the demolition of the wall. It is however apparently smoothly levelled off indicating possible landscaping	3.00	0.90	N/A	N/A
11004	Possible rubble demolition/collapse against Western side of wall 11002	Layer	Possible rubble collapse from the demolition and potential robbing of the garden wall. With the removal of the internal facing stones at this point, it is possible the rubble visible represents the spilling out of the core of the wall	3.00	0.52	N/A	N/A

15 APPENDIX 2 – POTTERY CATALOGUE

Table 1: Pottery catalogue

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
8010	RB	TF8a	refined earthenware	unk	none	body	3	3	1	5.5%	0.2%	2nd c	3rd c	TF8A Central Gaulish samian? Residual
8001	Lmed	TF79	coarse earthenware	jug	none	base	1	1	37	1.8%	7.7%	15th c	17th c	TF79 Late medieval jug fabric
10001	PM	TF71	refined earthenware	vessel	transferprint	body	2	1	2	3.6%	0.4%	19th	20th	TF71 Staffordshire transfer-printed wares
10004	PM	TF71	refined earthenware	cup	transferprint	rim	1	1	1	1.8%	0.2%	19th c	20th c	TF71 Staffordshire transfer-printed wares
10004	PM	TF71	refined earthenware	cup	transferprint	base	1	1	10	1.8%	2.1%	19th c	20th c	TF71 Staffordshire transfer-printed wares
10004	PM	TF71	refined earthenware	unk	transferprint	body	2	2	2	3.6%	0.4%	19th c	20th c	TF71 Staffordshire transfer-printed wares

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
10005	PM	TF71	refined earthenware	unk	transferprint	body	1	1	2	1.8%	0.4%	19th	20th	TF71 Staffordshire transfer-printed wares
10005	PM	TF71	refined earthenware	unk	annular	body	1	1	1	1.8%	0.2%	19th	20th	TF69 Staffordshire, and Bristol 'creamware', and later whitewares
8002	PM	TF69	refined earthenware	unk	molded	body	1	1	2	1.8%	0.4%	1760s	1780s	TF69 Staffordshire, and Bristol 'creamware', dot molded, green lead glaze
10001	PM	TF69	refined earthenware	unk	none	body	5	5	72	9.1%	15.1%	19th	20th	TF69 Staffordshire, and Bristol 'creamware', or later whitewares
10001	PM	TF69	refined earthenware	bowl	none	rim	1	1	2	1.8%	0.4%	19th	20th	TF69 Staffordshire, and Bristol 'creamware',

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														and later whitewares
10004	PM	TF69	refined earthenware	unk	none	body	2	2	4	3.6%	0.8%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware', and later whitewares
10004	PM	TF69	refined earthenware	unk	none	base	1	1	4	1.8%	0.8%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware', and later whitewares
10005	PM	TF69	refined earthenware	unk	none	rim	1	1	23	1.8%	4.8%	19th	20th	TF69 Staffordshire, and Bristol 'creamware', and later whitewares
10005	PM	TF69	refined earthenware	unk	none	body	1	1	10	1.8%	2.1%	19th	20th	TF69 Staffordshire, and Bristol 'creamware', and later whitewares

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
10005	PM	TF69	refined earthenware	unk	none	rim	1	1	2	1.8%	0.4%	19th	20th	TF69 Staffordshire, and Bristol 'creamware', and later whitewares; heat exposed
10004	PM	TF55	coarse earthenware	unk	lead glaze	rim	1	1	25	1.8%	5.2%	19th c	20th c	TF55 Late post-medieval yellow-glazed, cream-bodied earthenware
10005	PM	TF55	refined earthenware	unk	none	body	1	1	2	1.8%	0.4%	19th c	20th c	TF55 Late post-medieval yellow-glazed, cream-bodied earthenware
8002	PM	TF54	refined earthenware	unk	none	body	1	1	8	1.8%	1.7%	15th c	18th c	TF54 Micaceous, quartz-free, glazed wares
8011	PM	TF80	coarse earthenware	cooking pot	none	base	1	1	18	1.8%	3.8%	16th c	18th c	TF80 Ashton Keynes ware
8007	Lmed	TF52	coarse earthenware	unk	none	body	1	1	4	1.8%	0.8%	12th c	17th c	TF52 Malvernian-glazed wares

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														(unglazed element)
10001	Lmed	TF52	coarse earthenware	unk	none	body	1	1	4	1.8%	0.8%	12th c	17th c	TF52 Malvernian-glazed wares (unglazed element)
10004	Lmed	TF52	coarse earthenware	unk	none	body	4	4	39	7.3%	8.2%	12th c	17th c	TF52 Malvernian-glazed wares (unglazed element)
10004	Lmed	TF52	coarse earthenware	unk	none	rim	3	3	26	5.5%	5.4%	12th c	17th c	TF52 Malvernian-glazed wares (unglazed element)
8006	Med	TF44	coarse earthenware	unk	none	base	1	1	20	1.8%	4.2%	12th C	15th C	TF44 Oolitic limestone tempered ware (Minety ware)
10001	Med	TF40	coarse earthenware	unk	none	body	2	2	14	3.6%	2.9%	12th c	14th c	TF40 Malvernian unglazed ware,

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														medieval pot frags, residual
10004	PM	TF125	coarse earthenware	unk	lead glaze	body	1	1	4	1.8%	0.8%	17th c	20th c	TF125 Black-glazed red earthenware
10005	PM	TF125	coarse earthenware	unk	lead glaze	body	1	1	7	1.8%	1.5%	17th c	20th c	TF125 Black-glazed red earthenware
8002	PM	TF120	stoneware	tea pot	engine turned	body	3	3	5	5.5%	1.0%	1760s	1820	TF120 Wedgwood Black basalt wares
8002	PM	TF110	coarse earthenware	unk	none	body	1	1	3	1.8%	0.6%	11th c	12th c	TF110 Sandy-limestone-tempered ware
10004	PM	TF106	coarse earthenware	flower pot	none	body	2	2	6	3.6%	1.3%	19th c	20th c	TF106 Coleford Kiln wares
10004	PM	TF103	coarse earthenware	bowl	lead glaze	rim	1	1	55	1.8%	11.5%	18th c	20th c	TF103 Cranham earthenwares
10004	PM	TF103	coarse earthenware	bowl	lead glaze	base	2	2	57	3.6%	11.9%	18th c	20th c	TF103 Cranham earthenwares

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
10004	PM	TF103	coarse earthenware	unk	lead glaze	body	3	3	6	5.5%	1.3%	18th c	20th c	TF103 Cranham earthenwares
TOTALS							55	54	478	100.0%	100.0%			

Table 2: Pottery occurrence by number and weight (in g) of sherds per context by fabric type

WARE	Context	8001	8002	8006	8007	8010	8011	10001	10004	10005	Total
TF8A	No					3					3
	Wt (g)					1					1
TF79	No	1									1
	Wt (g)	37									37
TF110	No		1								1
	Wt (g)		3								3
TF54	No		1								1
	Wt (g)		8								8
TF44	No			1							1
	Wt (g)			20							20
TF53	No						1				1
	Wt (g)						18				18
TF52	No				1			1	7		9
	Wt (g)				4			4	65		73

WARE	Context	8001	8002	8006	8007	8010	8011	10001	10004	10005	Total
TF40	No							2			2
	Wt (g)							14			14
TF120	No		3								3
	Wt (g)		5								5
TF125	No								1	1	2
	Wt (g)								4	7	11
TF103	No								6		6
	Wt (g)								118		118
TF106	No								2		2
	Wt (g)								6		6
TF55	No								1	1	2
	Wt (g)								25	2	27
TF69	No		1					6	3	3	13
	Wt (g)		2					74	8	35	119
TF71	No							2	4	2	8
	Wt (g)							2	13	3	18
	Context Date	17th c	19-20th c	12-15th c	12-17th c	2-3rd c	13-14th c	19-20th c	19-20th c	19-20th c	

16 APPENDIX 3 – FINDS CATALOGUE

16.1 Metal finds

Table 3: Metal finds catalogue

Context	Period	Fabric	Form	Count	Weight (g)	ED	LD
8002	PM	Fe (Iron)	Wrought nail	4	43	15th c.	18th c.
8006	PM	Fe (Iron)	Wrought nail	2	16	15th c.	18th c.
8006	PM	Fe (Iron)	Knife	1	18	12th c.	16th c.
10001	PM	Fe (Iron)	Wrought nail	2	51	15th c.	18th c.
10003	PM	Fe (Iron)	Wrought nail	1	11	15th c.	18th c.
10004	PM	Fe (Iron)	Wrought nail	1	49	15th c.	18th c.
10004	PM	Fe (Iron)	unk (?nail)	1	22	15th c.	20th c.
10005	PM	Fe (Iron)	unk (?weight)	1	108	15th c.	20th c.
10005	PM	Fe (Iron)	Wrought nail	11	66	15th c.	18th c.
11001	PM	Fe (Iron)	Wrought nail	1	17	15th c.	18th c.
unstrat	LM/PM	pewter	Coin/jeton	1	1	13th c.	16th c.

16.2 Glass finds

Table 4: Glass finds catalogue

Context	Period	Fabric	Colour	Count	Weight (g)	ED	LD	Comments
8002	PM	glass	olive	1	3	1500	1900	wine bottle
8001	PM	glass	Aqua	1	2	1500	1900	window
9006	PM	glass	Aqua	1	1	1500	1900	window
10001	PM	glass	olive	1	45	1500	1900	wine bottle
10001	PM	glass	Aqua	2	2	1500	1900	window
10003	PM	glass	olive	1	18	1500	1900	wine bottle
10003	PM	glass	Aqua	4	3	1800	1900	window
10004	PM	glass	Aqua	5	25	1800	1900	window
10005	PM	glass	Aqua	1	1	1800	1900	window
10005	PM	glass	olive	1	5	1800	1900	wine bottle, originally in with pottery from 10005

16.3 Worked stones

Table 5: Summary of worked stone assemblage by trench and object type

Type	Trench 8	Trench 10	Total
Ball flower (loose)	11	-	11
Block	1	-	1
Moulding	7	1	8
Roof tile	4	8	12
Total	23	9	32

Table 6: Summary data of all stonework by context

ID	Trench	Context	SF no.	Material	Object	Count	Weight (g)	Period
1		0		Limestone	MOULDING	1	1191	Uncertain
2	10	10005		Sandstone	ROOF TILE	1	190	Medieval
3	10	10005		Sandstone?	ROOF TILE?	1	147	Medieval?
4	10	10005		Limestone	MOULDING	1	97	Uncertain
5	10	10001		Slate	roof tile?	3	14	Uncertain
6	10	10001		Slate	ROOF TILE	1	9	Uncertain
7	10	10005		Slate	ROOF TILE?	2	91	Uncertain
8	8	8001		Sandstone	ROOF TILE	1	363	Medieval
9	8	8006	61	Limestone	Ball flower	1	122	Medieval
10	8	8011	69	Limestone	Ball flower	1	188	Medieval
11	8	8011	67	Limestone	Ball flower	1	341	Medieval
12	8	8002	55	Limestone	Ball flower	1	408	Medieval
13	8	8011	66	Limestone	Ball flower	1	114	Medieval
14	8	8004	43	Limestone	Ball flower	1	506	Medieval

ID	Trench	Context	SF no.	Material	Object	Count	Weight (g)	Period
15	8	8003	74	Limestone	Ball flower	1	750	Medieval
16	8	8002		Limestone	Ball flower	1	139	Medieval
17	8	8002		Limestone	Ball flower	1	53	Medieval
18	8	8002		Limestone	Ball flower	1	487	Medieval
19	8	8002		Limestone	Ball flower?	1	89	Medieval
20	8	8003		Limestone	MOULDING	1	101	Medieval?
21	8	8003	75	Limestone	MOULDING	1	956	Medieval
22	8	8006		Limestone	MOULDING	1	224	Medieval?
23	8	8022	78	Limestone	Block	1	492	Medieval?
24	8	8007	73	Limestone	MOULDING	1	620	Medieval?
25	8	8003		Limestone	ROOF TILE	1	557	Medieval
26	8	8003		Limestone	ROOF TILE	1	157	Medieval
27	8	8003		Limestone	ROOF TILE	1	467	Medieval
28	8	8003	79	Limestone	MOULDING	1	9000	Medieval
29	8	8003	77	Limestone	MOULDING	1	40000	Medieval
30	8	8003	80	Limestone	MOULDING	1	19000	Medieval

16.4 Industrial waste

Table 7: Industrial waste finds catalogue

Context	Period	Fabric	Form	Count	Weight (g)	ED	LD	Comments
8006	PM	industrial waste	slag	3	4	1800	1900	n/a
10005	PM	industrial waste	slag	4	55	1800	1900	n/a

16.5 Clay tobacco pipes

Table 8: Clay tobacco pipe finds catalogue

Context	Period	Fabric	Form	Count	Weight (g)	ED	LD	Comments
8002	PM	ceramic	tobacco pipe	1	4	1680	1800	5/64
8017	PM	ceramic	tobacco pipe	1	3	1620	1680	8/64
10001	PM	ceramic	tobacco pipe	1	1	1680	1800	5/64
10004	PM	ceramic	tobacco pipe	1	1	1680	1800	5/64

16.6 CBM

Table 9: CBM finds catalogue

Trench	Context	Fabric	Form	NoSh	Wt	corner	Width	Thickness	Mortaring	Reuse	Date	Comments
8	8003	TZ13	Brick	1	195	0	0	0				
8	8004	TZ01	Floor Tile	1	432	0	0	35	1	1		
8	8006	TZ01	B/T	3	36	0	0	0				
8	8007	TZ01	B/T	1	9	0	0	0	1			
9	9006	TZ01	Brick	1	215	0	0	0				
10	10001	TZ01	Brick	1	66	1	0	0				
10	10001	TZ11	Brick	10	303	0	0	0				
10	10001	TZ22	Water Pipe	1	348	0	0	18			C18+	int diam 100mm
10	10003	TZ01	Brick	1	520	2	0	75	1		C19+	
10	10003	TZ01	Brick	1	316	2	0	75			C19+	deep striations on upper and lower face regular rounded arises
10	10003	TZ01	Brick	1	541	4	110	72	1	1	C19+	deep striations
10	10003	TZ01	Brick	13	322	0	0	0				
10	10003	TZ01	Tile	1	29	0	0	15				
10	10004	TZ01	Brick	1	182	2	0	70			C19+	
10	10004	TZ01	Brick	3	331	0	0	0	1			
10	10004	TZ01	Brick	1	232	2	100	0			C18+	
10	10004	TZ01	Brick	18	493	1	0	0				
10	10004	TZ01	Tile	1	70	0	0	15				

Trench	Context	Fabric	Form	NoSh	Wt	corner	Width	Thickness	Mortaring	Reuse	Date	Comments
10	10005	TZ01	Brick	1	65	0	0	0	1			10mm diam drilled hole
10	10005	TZ01	Brick	3	227	0	0	0	1			
10	10005	TZ01	Brick	30	###	0	0	0				

Table 10: CBM by area

Trench	No	Wt	Cnr
8	6	672	0
9	1	215	0
10	87	5188	14
Total	94	6075	14

Table 11: CBM by context type

Cxt Type	No	Wt	Cnr	MSW
Surface etc.	36.2%	23.6%		42.21
Layer	51.1%	64.6%	92.9%	81.73
Topsoil	12.8%	11.8%	7.1%	59.75
N/AVG	94	6075	14	64.63

Table 12: CBM fabric types

Fabric	No	Wt	Cnr
TZ01	87.2%	86.1%	100.0%
TZ11	10.6%	5.0%	

Fabric	No	Wt	Cnr
TZ13	1.1%	3.2%	
TZ22	1.1%	5.7%	
N	94	6075	14

16.7 Mortar

Table 13: Mortar finds catalogue

Trench	Context	Fabric Code	Function	NoSh	Wt	Comments
8	8007	M01	Bonding Mortar	11	126	yellow med sand soft
8	8011	M01	Bonding Mortar	1	71	med grog
10	10003	M11	wall	2	4	white med grain wall plaster
10	10004	M11	lath	6	253	
10	10005	M01	Bonding Mortar	1	5	
10	10005	M11	wall	8	1259	yellow paint

17 APPENDIX 4 – ANIMAL BONE CATALOGUE

Table 14: Summary of vertebrate remains

Context	Equid	Cattle	Cattle/ Red deer	Fallow deer	Pig	Sheep /goat	Large ungulate	Small ungulate	Ungulate	Large mammal	Medium/ large mammal	Medium mammal	Total
8001				1						1			2
8003										1		2	3
8004				1									1
8006		10		1		1			1	3		5	21
8007	1	2		4		1				1	3		12
8010				2									2
8011		6				2							8
8017		2								2			4
8021					3								3
10001						2							2
10003			1										1
10004						3	2	2			4	1	12
10005				1									1
10006				3						1	1		5
10007												1	1
Total	1	20	1	13	3	9	2	2	1	9	8	9	78

Table 15: Summary of mollusc remains

Context	Marine	Terrestrial					Total
	Edible oyster	Garden snail	Brown/white-lipped snail	cf. Hairy snail	cf. Strawberry snail	Shiny glass snail	
8004		2					2
8006	1	4	2				7
8009		1	2				3
8010			3				3
8011		4	4				8
8017		1	8	20	3	2	34
8021		2	1				3
Total	1	14	20	20	3	2	60