Research Report Series 20/2023

Historic England

Clifford's Tower, York

Excavations 2014-2016

Compiled by Vicky Crosby

With Paddy O'Hara, Duncan H Brown, Gill Campbell, Greg Campbell, Thomas Cromwell, Rachel Cubitt, Alice Forward, Andy Hammon, Karla Graham and Sarah Stark

Historic England Archaeological Investigation Team

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Summary

This report collates the results of excavations carried out by Historic England at Clifford's Tower, York, over a total of 6 weeks, between November 2014 and May 2016. There is a summary of the excavation archive and some assessment and analysis of the results.

The main aims of the excavations were to characterise the foundations of Clifford's Tower and enhance our knowledge of the form and function of this part of the castle architecture. This was to contribute to a feasibility study to enhance the presentation of the monument. Evaluation of the motte deposits in November 2014 was followed by further evaluation of the deposits in the tower courtyard in September 2015. The third intervention in May 2016 also investigated the motte structure, particularly the retaining wall associated with the prison. The excavations included 15 test pits and 1 trench within the tower courtyard, at the base of the external wall of the tower, and around the motte to determine the position of the 19th-century retaining wall.

Contributors

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Acknowledgements

The report is based on the site records and summary reports by Paddy O'Hara, with additional work by Alice Forward and Thomas Cromwell. Most photographs are from the excavation records taken by the field team [© Historic England]. Greg Campbell took the photographs of the oyster shells. John Vallender drew figure 17. The trench and test pit locations plans (Figures 1 and 22) were generated from the project Intrasis database/GIS by Vicky Crosby; Thomas Cromwell assisted with the background mapping.

Front cover image: Recording Test Pit 2. [Source © Historic England, Pr7166-7188]

Archive location

The physical archive will be deposited at English Heritage, Helmsley Archaeology Store, Old Station Yard, Station Road, Helmsley, North Yorkshire, YO62 5BZ.

The digital archive will be deposited with the Archaeology Data Service.

Date of survey/research/investigation

Field work was carried out between November 2014 and May 2016. The report was completed in August 2024.

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Contents

Illustrations

Tables

Introduction

This Site Archive Completion Report collates the results of the excavations carried out by Historic England at Clifford's Tower, York, over a total of 6 weeks, between November 2014 and May 2016. The project manager was Paddy O'Hara.

The principal aims of the excavations were 'to characterise the foundations of Clifford's Tower and to enhance our knowledge of the form and function of this piece of castle architecture' as well as to 'contribute to…. the feasibility study to enhance the presentation of the monument' (O'Hara 2014, 3). The evaluation of the motte deposits in November 2014 was followed by further evaluation of the deposits in the tower courtyard in September 2015, which looked 'to further enhance the presentation of the monument' (O'Hara 2015, 3). The third intervention also investigated the motte structure, particularly the retaining wall. Over the course of 6 weeks work on site, a total of 15 test pits and 1 trench were placed within the tower courtyard, at the base of the external wall of the tower, and around the motte to determine the position of the 19th-century retaining wall.

As well as the site records, this report draws on the Project Designs (O'Hara 2014, 2015) and an interim site overview, also by O'Hara (2016). It was compiled by Vicky Crosby; an earlier version was collated by Alice Forward, with additional work by Thomas Cromwell. Some sections of the report go into greater detail than usual for the archive completion stage and are closer to assessment level. Production of the original report was delayed by factors including staff and organisational changes.

It had been anticipated that the HE Archaeological Projects Team would carry out further excavations. Options for that work were put forward in 2016, and a Project Design was produced by Thomas Cromwell in 2017. This was subsequently used as the basis for the work carried out by FAS Heritage for the English Heritage Trust.

The results from the cores from the boreholes through the mound in 2015 were published in Historic England Research Report 40/2016 (Canti et al 2016).

Background

This section is taken from the 2014 Project Design (O'Hara 2014) with a revised geology description.

Site Location

The site is located in York, between two rivers; the River Ouse and the River Foss. The surrounding topography is generally level with Clifford's Tower located on the summit of the earthwork motte. The motte is approximately 10m high.

Geology

Geological information is taken from the British Geological Survey's Geology Viewer, https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/ and the BGS Lexicon of Named Rock Units, https://www.bgs.ac.uk/technologies/the-bgs-lexicon-of-named-rock-units/.

The bedrock geology is Sherwood Sandstone Group. It is a red, yellow and brown sandstone, part pebbly and conglomeratic in its lower part. Pebbles are generally extraformational quartz and quartzite, and there is subordinate red mudstone and siltstone.

The superficial deposit underlying the motte and its surroundings is Vale Of York Formation – a clay, sandy and gravelly sedimentary deposit. It is dominantly glacial till (sandy clay, clayey sand and clay with gravel and boulders) with interbedded sand, gravel and laminated clay.

West of Clifford's Tower and closer to the River Ouse, the superficial deposits are Alluvium (unconsolidated clay, silt, sand and gravel deposited by running water) and Alne Glaciolacustrine Formation (laminated clay with silt and subordinate fine-grained sand beds, plus a little marginal sand and gravel).

History

Clifford's Tower is the most substantial survival of the principal royal castle of York, one of two fortresses in the city. A castle was first established on the site in 1068, though archaeological evidence of much earlier occupation, including possible Roman or Prehistoric activity, was later discovered during excavation of the motte. The early history of the Norman castles on the site, which is complex and violent, needs no summary here, beyond the statements that the earth motte on which Clifford's Tower is built incorporates structures from some of these early phases. By the 1070s, with the establishment of relative political stability, the damage of these early years was repaired and it seems likely that the Norman motte-and-bailey castle, containing structures largely of timber, survived relatively un-altered through most of the twelfth century. Parts of this castle, almost certainly the structures on the motte, were damaged or destroyed during anti-Jewish riots

at Easter 1190, the single most famous and controversial event which took place on the site. Repairs were carried out in the immediate aftermath of these riots, including the rebuilding of structures on the motte. It has been suggested that these were damaged or destroyed during storms in 1228. According to this received history, no building had stood on the motte for 16 years, when Henry III, (1216-1272) visited York in 1244. In the following year, he ordered works for the fortification of the castle, an instruction which is usually interpreted as a reference to the construction of Clifford's Tower.

Documents indicate that works to the castle were under way by the early 1250s, but progress was slow and sporadic, leaving the tower still unfinished in the 1270s. The building was probably complete early in the reign of Edward I (1272-1307), although the first known references to the building being occupied occur in the late 1290s.

The function of the building is open to question. Despite the regional and national importance of the city of York, its royal castle does not seem to have been regarded as particularly significant. York Castle was generally treated as most useful for administrative purposes, notably for imprisonment, for the hosting of judicial sessions, and occasionally as a home for the Exchequer and its various treasuries, when military action against the Scots caused the royal court to relocate to the north of England. York Castle was not generally used as a royal residence. Either as a cause or a result of this indifference, works accounts show clearly that the buildings more than once fell into disrepair, notably Clifford's Tower, whose position on a motte was susceptible to erosion during floods of the river Fosse. By 1360, several of the structural defects which are visible today had already appeared.

The later-medieval history of York Castle and Clifford's Tower is hampered by a lack of documentary evidence, and suggestions that some of the buildings were demolished and/or repaired under the Yorkist kings in the later-fifteenth century cannot be evaluated. By the reign of Henry VIII (1509-1547), the castle certainly remained in use, and arguably retained some symbolic importance as a landmark and a signifier of royal authority (suggested by the public execution of the rebel Robert Aske by hanging from Clifford's Tower). However, Clifford's Tower itself was ruinous, and repairs to castle buildings (principally the gaol and court-house) between 1537 and 1547 make no clear mention of it.

Arguably the most significant event in the known fabric history of Clifford's Tower occurred in 1596. In the face of vocal opposition from the Corporation and archbishop of York, it was revealed that the gaoler, Robert Redhead had begun the demolition of Clifford's Tower, intending to break and burn the stone for lime to his own profit. The tower itself was 'not used for habitation nor for anye other nedeful or necessarye howse for lodginge nor for saif kepinge of any prisoners', but the city authorities demanded that it be preserved, both as an ornament to the city, and as a structure with some potential for future use. Consultation with Redhead and with various local interests seemed to reveal a consensus

that the building should not be touched, but clearly suspicion remained, and in December 1597, it was reported that Redhead's workmen had been seen removing stone from the top of the tower. It was alleged that they would work only on the interior, so as to avoid detection, and thereby take the tower down little by little. Unfortunately the surviving correspondence, which is substantial, is inconclusive about what damage had actually taken place, (as opposed to what future damage was feared). It is likely, as the writers of the Conservation Plan suggest, that Redhead took relatively little stone from the wall-tops, lowering the parapet by only a few feet. There are important unresolved questions as to whether the building was still roofed in 1596, and whether Redhead removed the roof. Certainly by the mid-seventeenth century, Clifford's Tower was roofless.

After a brief period when Clifford's Tower and the motte passed out of royal ownership, the tower was again occupied in 1643 by a royal garrison. Apparently at the behest the Queen, the building was again roofed and floored, creating storage rooms for ammunition, and a gun-platform on the roof. It was also in this year that the forebuilding was largely reconstructed. The city fell to the Parliamentarians the following year, but the tower remained in occupation by a garrison of between 40 and 80 men. It may also have served occasionally as a prison, as for the Quaker George Fox in 1665.

The alleged dissolute conduct of the garrison contributed to rising discontent among the citizens of York, and frequent calls for the demolition of the tower, scathingly nicknamed 'the minced pie'. In April 1684, the interior was partly gutted by fire, allegedly as a result of the firing of a ceremonial salute for Saint George's Day. This fire can only have been partial, since parts of the building remained in use for storage, and cannon were still positioned on the roof (possibly a flat roof over the forebuilding). In 1699, Clifford's Tower was released to freeholders, and sketches of the interior by Francis Place (1647-1728) show that it was completely roofless.

The eighteenth-century history of the tower and motte is one of changing ownership and gradual encroachment of houses and gardens onto the motte. Clifford's Tower seems to have been treated as a garden folly, and possibly as a stable or cattle-shed. This was in marked contrast to the former bailey of the castle, which was re-developed as a prison in the eighteenth century with the construction of new courthouses and gaol buildings, culminating in the nineteenth century with the extension of the prison to encompass the whole of the castle area, enclosing the tower and motte and effectively hiding it from view. Clifford's Tower was only saved from demolition with some difficulty, and was generally out of bounds to the public, only being accessible with permission from a magistrate.

In 1902, a radical campaign of repairs and investigations was undertaken by Mr Basil Mott, including the partial reconstruction of the motte in an effort to underpin the south-east lobe with buried concrete 'flying buttresses'. During these works, the most detailed archaeological investigation to-date of the internal structure of the motte was carried out.

On 30 March 1915, Clifford's Tower was taken into State Guardianship,2 Several campaigns of masonry repair of the structure were carried out, notably between 1919 and 1922, including the insertion of steel reinforcement into the walls at the level of the former first floor. Public access to Clifford's Tower was further improved in 1935 with the demolition of the surviving nineteenth-century prison buildings, notably the wall enclosing the motte on its north and west sides: the lower parts of the motte slope were restored to their presumed medieval profile, and a stairway leading up to the forebuilding in a straight line was created, replacing a former spiral path. Perhaps the most dramatic change to the physical appearance of the interior was the decision, (at a date as yet undiscovered, in the 1970s or 1980s) to pave the whole floor surface, replacing a slightly terraced arrangement of turf.

Previous work

Borehole Records

Historical borehole records available through the BGS indicate that to the south and east of Clifford's Tower the site is underlain with rubble and 'black soils' to a depth of up to 23 feet (7.5mbgl) though this is typically around 18 feet (6.0m) and is described as Made Ground. Underlying the Made Ground is generally soft brown Clay to depth of 29 feet (9.0mbgl) though layers of sand and black silts are described in the borehole logs. A hard brown Boulder Clay (glacial till) is described below the soft clay.

To the north of the site the available borehole information indicates that the site is underlain by Made Ground to a depth of approximately 6.5m consisting of ash, brick, gravel, cobbles, charcoal, coal, tiles, leather, sandstone fragments, clays, silts and sands. Underlying the Made Ground are layers of sand and clay before the sandstone is encountered at depths of around 18 to 20mbgl.

Clifford's Tower Motte

The earthwork mound upon which Clifford's Tower is constructed is approximately 10m high and has been built up over a period of many years. There have been numerous modifications to the motte and the Tower over the years.

At the start of the 20th century, underpinning of the southeast quadrant was undertaken to provide structural support to the area. This was due to visible deformation in the structure with a gradual sinking of the gateway and adjoining parts towards the southeast. This may have been caused, and certainly must have been at least accelerated, by the curtailment of the mound about 1836. At this time a nearly circular retaining wall, of massive structure, was built and furnished with internal buttress, to hold up the mound. The weight gradually thrust the upper stones of this wall outward it is not known if it was a local foundation issue or overall stability.

The underpinning works consisted of five “flying buttress” style foundations that extended underneath the foundation of the Tower and behind the retaining wall and provide perhaps the best indication of the soil profile of the mound.

It should be noted that the retaining walls situated at the base of the mound have also been modified over time. In 1936 the motte profile was reinstated by the addition of earthworks materials to reinstate the slope. It is not known whether the retaining walls were removed or (more likely) simply buried.

The article ‘Notes on Cliffords Tower’ (Benson and Platnauer 1902), mentions that a natural mound may have existed at the site prior to the various incarnations of the castle being constructed upon it. While this was not proven, it was mentioned that “…an outer crust of firmer and more clayey material has been made round the older summit, and lighter material has been placed inside this crater to bring it up to the necessary level.”

This statement conflicts with what was encountered during the underpinning works. Beside each flying buttress soil descriptions are provided for the material encountered as it was exposed. From the descriptions there appears to be a defined layering of the soils within the motte.

Table 1 Layering of soils within the motte reported in 1902

No.	Layer	Depth	Origin
1	Black Soil	0.0-3.0	Made Ground
2	Hard Made Ground & Stones	3.0-7.0	Made Ground (Vale of York Formation)
3	Black Soil Clay with Stones	7.0-12.0	Made Ground (Alluvial)
4	Clay	12.0-14.0	Alluvial
5	Original Clay	14.0-16.0	Vale of York Formation

Aims and Objectives

The following is summarised from O’Hara 2014, 2015, 2016.

November 2014 Evaluation of motte deposits

Aims:

- To characterise the motte deposits within and without the perimeter walls of the tower and at defined location on the side of the motte.
- To enable the collection of geotechnical information required by the structural engineers to enable them to proceed with a programme of core sampling of the motte.

Objectives:

- To discover the extent of and characterise the nature of any underpinning works and specifically identify those on the SE lobe carried out by Basil Mott.
- To characterise the 13th century foundations of the tower.
- To evaluate the nature of the foundations of the octagonal ‘column’
- To search for evidence of internal structures and associated occupation surfaces that relate to the final phase of the buildings use.
- To look for earlier medieval occupation surfaces pre-date the stone tower.
- To look for evidence of extra mural palisading.
- To see if it possible to identify piling voids within the motte.
- To ground truth the GPR survey conducted within the confines of the tower
- To provide structural engineers with areas clear of surface archaeology to enable coring programme

September 2015 Further evaluation of deposits within tower courtyard

Aim: To evaluate the courtyard deposits in some of the areas that will accommodate the proposed interior structure.

Objectives:

- To search for evidence of internal structures and associated occupation surfaces that relate to the final phase of the buildings use.
- To ground truth the GPR survey conducted within the confines of the tower
- To provide the architects and structural engineers with areas clear of surface archaeology to enable construction.
- The excavation has the potential to further examine the post medieval floor level found in Test Pit Two from autumn 2014

May 2016 Retaining Wall investigations (watching brief and small test pits)

Aim: To understand the extent of the remains of the retaining wall as this would impact the development of the visitor’s centre.

Summary account of the structural record

The structural archive

The project archive – physical and digital - is currently located at Fort Cumberland. Following assessment of the material archive it will be deposited at the English Heritage Archaeology Store at Helmsley. The digital data will be deposited with the Archaeology Data Service. All data created is Historic England copyright, and English Heritage will be given licence to copyright for all parts of the documentary archive transferred to their curatorial care.

All context records were entered into the Intrasis project database. Context sketches, working matrices and the site drawings have been scanned.

Permatrace drawings form part of the project archive, but paper records sheets do not and will be discarded once work on the project in completed (all data will be available digitally via scanned sketches and the project database).

All project photography was digital. The photograph descriptions and relationship are in the project database. All project photographs have been given site-level metadata.

Scanned images and digital photographs have been imported into the Intrasis database, which stores a thumbnail of each image and a link to its current location on the network.

Matrices have been created as Excel files for archiving and copied to .pdf format for reporting.

Survey data is stored in the project database. Survey stations were established using a Leica Total Station. The site survey book contains handwritten logs of the daily survey work. The daily survey files are saved in folders within the Intrasis database.

Digital data (2023)

The Intrasis database is HE7166-CliffordsTower. All other digital files are in the appropriate locations in the project folder. The Record Numbers Used Form and Drawing Sheet Index are Sections 6.1 and 6.4 of this report.

Methods

The evaluation followed the excavation methods laid out in the Historic England Archaeological Recording Manual (2010, 2015). Excavation removed only the minimum amount of archaeological deposits to meet the research objectives. Cut features and layers were excavated, but masonry walls and floors were left in situ. All deposits were excavated stratigraphically.

Method statements, summarised from O'Hara 2014, 2015, 2016

2014 Test Pits 1-6

Six pits will be excavated on the summit of the motte, three within the tower and three without. Test pit one at 2m x 2m is the largest of the test pits the other five are 2m x 1.5m. All pits are to be excavated to a maximum depth of two metres.

Interior of the Tower

Test Pit 1 against the raised octagonal feature in the centre of the courtyard will locate and characterise the foundations of the column.

Test Pit 2 against the internal face of the tower wall will characterise the foundations of the C13 tower and to test to see if there was any C20th underpinning to this part of the tower.

Test Pit 3 The foundations of the tower in the area of the SE lobe were extensively underpinned in 1903. It is hoped that we can rapidly remove the associated backfill to reveal those concrete foundations. The removal of this backfill is likely to signpost the probable sequence of deposits in the other courtyard trenches.

Exterior of the Tower

Test Pit 6 was excavated against the external face of the SE lobe of the tower. In the SW corner of the TP we anticipate that we will encounter Mott's 1903 foundations in the form of the fifth of the five 'flying buttresses like concrete ribs.

2014 Test Pits 10-17

Motte slope and motte base

Eight test pits numbered 10-17 will be arrayed around the motte, measuring 1m x 1m they will be excavated to a depth of 1m. Four will be placed on the slope of the motte and four at the base of the motte.

Each of these eight 1m x 1m test pits will be de-turfed, excavated and re-instated within one day. Whilst operational these trenches will be demarcated by road irons and high visibility bunting and will be supervised at all times. Test pit 10 will be located on the slope of the motte above the second of Motts flying buttress ribs

2015 Trench 20

Courtyard

The aim of Trench 20 was to evaluate the courtyard deposits in some of the areas that will accommodate the proposed interior structure, and to search for evidence of internal structures and associated occupation surfaces that relate to the final phase of the buildings use. It was also hoped to further examine the post medieval floor level that was found in Test Pit Two from autumn 2014.

A trench 1.5m wide will be excavated between the proposed locations of the NW and NE column footprints.

2016 Test Pits 9, 24-28

Retaining Wall investigations
Test Pit 9 investigated the retaining wall.

Five further small test pits (24-28) were placed into the motte to identify and locate the retaining wall at other points. This was a basic identification exercise rather than excavation (the test pits and the line of the retaining wall within them were surveyed).

Test Pit and Trench Summaries

The excavation records are held in the project's database (in the Intrasis GIS and database system). The site paper records were intended as 'prompt sheets' to hold field notes which were then entered into the database, and the digital archive forms the definitive record of the excavation results. Some of the context sheets included sketches; these have all have been scanned and form part of the digital record.

There are some issues with the site records. Some contexts lack a full record (a few were only noted in the context register); stratigraphic and physical relationships were sometimes omitted. However, O'Hara's overview (2016) provides valuable additional description of the results. Organisational and staff changes affected the initial record checking and site archive completion work.

Subsequent post-excavation checking and record correction were carried out by Alice Forward and Thomas Cromwell. In late 2022/early 2023, Vicky Crosby checked and completed the digital project record, though there are a few gaps.

No plans were hand drawn. As part of the site recording procedure, context outlines should all have been surveyed and imported as geo-objects into the database. However, not all contexts were surveyed. In some cases, the context sheet sketches are the best evidence. Only one section was drawn, in Trench 20. Locations of the test pits and prison retaining wall from 2016 were added to the database by Andrew Lowerre.

The archive includes 335 site photographs and 3 finds photographs. In additional 8 orthoimages were created from laser scans and there is one photogrammetry model which are not covered by standard archive procedures.

Context recording took place in the six larger test pits (Test Pits 1 to 6) and in Trench 20; context numbers were assigned in other test pits but without detailed recording. Interpretive Context Indexes (Appendix 8.1) and Matrices (Appendix 8.2) were completed by Vicky Crosby, building on earlier work by Thomas Cromwell. Missing stratigraphic relationships were added to the database as part of this work.

Paddy O'Hara provided English Heritage with a summary of the results at the end of each season of excavation, to inform the work on the development of plans for the proposed Visitor Centre. The three reports were later combined into a single interim report, the site overview (O'Hara 2016).

The Test Pit and Trench summaries are based on the site overview, with additions and amendments based on recent post-excavation work on the excavation records and the context matrices.

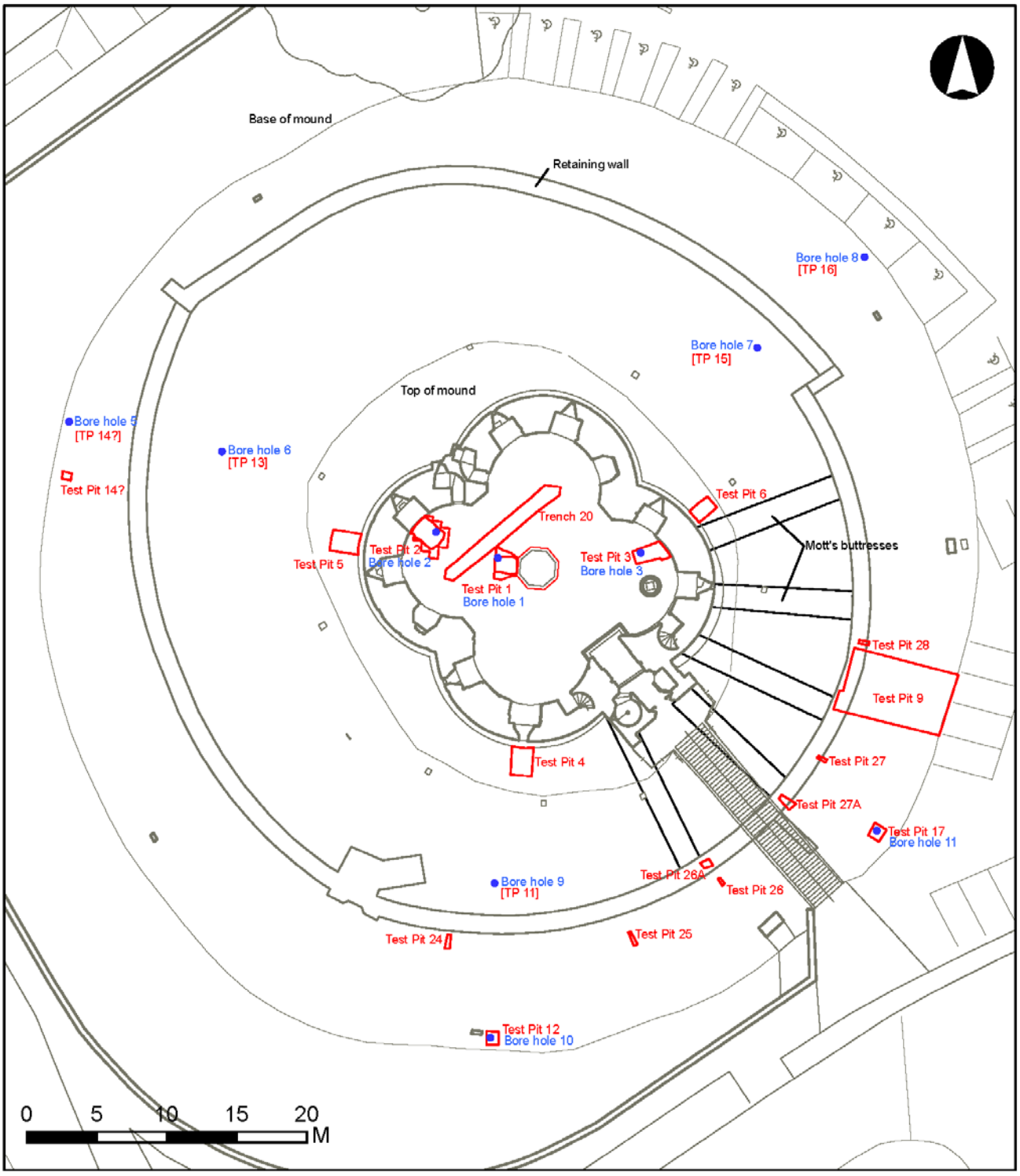

Figure 1: Location of trenches, test pits and boreholes

Investigation Phase 1: Evaluation of the motte

November 2014 excavations: Courtyard Test Pits 1-3

Test Pit 1

Test pit 1 was 1.75m long by 1.5m wide and ran west from the west side of the raised octagonal feature in the centre of the courtyard.

Table 2 Site Records for Test Pit 1

Site Records for Test Pit 1	
Site Subdivision number	10001
Contexts	90101-90105
Samples	-
Small Finds	3014
Drawings	None

Figure 2 Foundations of octagonal feature. [Source © Historic England, Pr7166-7167]

The flagstones (90101) and their bedding layer (90102) of sand overlay a homogenous layer (90103) of dark sticky brown clay with few inclusions.

The octagonal feature laid out on the surface of the courtyard had little in the way of foundations, resting on no more than a shallow layer of small stones bonded together in concrete (photograph 7167). It was possible to drive a two-metre ranging pole deep into the clay layer below the feature; clearly more substantial foundations do not survive at this level.

The octagonal feature has been used to support interpretations that the tower had an all-over roof, although the evidence that it marks an earlier column is slight (Ashbee 2003, 19-20). It remains possible that foundations were seen at a lower level during Office of Works consolidations between 1919 and 1922, but Test Pit 1 produced no evidence to support this.

Figure 3 Cobble feature 90104.Source © Historic England, Pr7166-7146

Two clay layers were seen in this test pit. The uppermost (90103) contained a range of material, some quite modern. Separating the two layers a linear spread of water worn cobbles (90104) lay on the surface of the lower dark orangey brown clay (90105). The cobbles ran west to east across the length of the test pit exiting beneath the octagonal feature (photograph 7146). A tentative suggestion is that this represents a French drain soak away.

The lower clay deposit (90105) again contained a range of material; pottery indicates an early modern date for its deposition, probably in the C19th. It also contained a few late and post-medieval sherds, suggesting it had been re-deposited.

A 500mm wide sondage was dug lengthwise through layer 90105 on the north side of the test pit to a sufficient depth to place the coring guide tube for Borehole 1 (at 451476.29/460464.57).

Test Pit 2

Test Pit 2 was 1.75m long by 1.5m wide and ran northwest-southeast wide from the inner base of the northwest embrasure in the west lobe of the courtyard.

Table 3 Site Records for Test Pit 2

Site Records for Test Pit 2	
Site Subdivision number	10002
Contexts	90201-90221
Samples	50002
Small Finds	3003, 3004, 3012, 3013, 3015, 3016, 3021, 3024
Drawings	None. There is a sketch matrix on context sheet 90207.

The paving (90201) and bedding (90202) overlay a ‘trample layer’ (90203). Below 90203 a clearly defined rectangular cut (90209, fill 90204) 0.7m wide extended 1.2 m from the tower wall. The single fill (90204) was a mix of mortar, stone and brick fragments in a matrix of brown loamy clay and excavated to a depth of 0.45m. The profile of the cut matched the vertical shuttered concrete (90216) below the foundations for the embrasure. It is suggested that this feature housed a latrine or water closet dating to the tower’s use as part of the Victorian prison complex.

90209 cut a charcoal-rich darker clay layer (90205/90207) about 0.1m deep. In the northeast part of the test pit a cobbled surface (90206) lay below 90205. Under these was a substantial dumped deposit (90210/90213) consisting of copious amounts of mortar, masonry pieces, and 17th century brick contained in a sandy clay matrix.

Toward the base of layer 90213 (0.8m below ground surface) the frequency of brick fragments increased and the layer rested on the remnants of a C17th brick floor (90214) set on a mortar base (90220).

The floor was left in situ except where a small area of the mortar bedding was removed to allow for the insertion of the guide pipe for Borehole 2.

Figure 4 Brick floor 90214 and mortar base 90220.Source © Historic England, Pr7166-7159

Figure 5 Northwest section of Test Pit 2. Source © Historic England, Pr7166-7161

Figure 6 Mortar floor 90218 and wall footing 90219 cut by pit 90209. Source © Historic England, Pr7166-7162.

This exposed a layer (90221) of mid red/brown silty clay with occasional small pebbles. This was probably motte material, representing the level at which the C17th truncation had stopped. Sample 50002 was taken from 90221.

Beneath the foundations of the embrasure, O'Hara thought it was possible to deduce the imprint of steps leading up from the floor (Photographs 7161, 7162). He suggested the floor (90214) related to work undertaken by Henrietta Maria in 1643 in defence of the Royalist cause and that this 'subterranean' level possibly afforded protection against ordnance from incoming fire. This is a persuasive theory, although the interpretation of

dark soil deposit (90215) as ‘the ghost of the bottom step of a staircase’ is not convincing, given its location in relation to the latrine pit cut (90209).

A possible medieval mortar floor (90218) and the tower wall footing (90219) were seen in the northwest section (Photographs 7161-7162). This floor only survived in the section and had been cut away when the surface was lowered and floor 90214 was inserted.

Test Pit 3
Test Pit 3 was 1.75m long by 1.5m wide ran southwest from the foot of the northeast embrasure in the east lobe of the courtyard.

Table 4 Site Records for Test Pit 3

Site Records for Test Pit 3	
Site Subdivision number	10003
Contexts	90301 - 90311
Samples	-
Small Finds	3001, 3002, 3005, 3017-3020
Drawings	There are no plan or section drawings. There are sketches on context sheets 90304, 90306 and 90307. The sketch on context sheet 90304 shows the relationship of 90304-5 and 90309-11. Most of the contexts were not surveyed.

Paving 90301 and bedding 90302 overlay a ‘trample layer’ 90303. Below this, the east end of the trench contained a deposit of dark brown sticky clay (pit fill 90305) with a very mixed range of finds, of Romano-British, post-medieval and modern date (but see note on finds recording below). This layer extends about 0.8m out from the wall face. O’Hara suggested it was the backfill from prospecting work done in advance of Basil Mott’s engineering works of 1903, but the pit (90310) may instead relate to the insertion of the concrete buttressing (90306).

An Office of Works campaign used ashlar blocks to stitch together the crack that had developed up the side of the SE corner of the tower; one course of three blocks (90307) are visible in the side of the trench immediately below the level of the flagstone. O’Hara’s report described these as sitting on contemporaneous concrete foundations. However, the site records (and photograph 7016) indicate that the concrete butted against the base of the course.

The concrete extended 0.25 forwards from the wall. It is not clear that it extended under the ashlar blocks, and as shown in the photographs (7016-7018) the southern blocks visible lay directly on the rubble footing for the tower wall (90308). The concrete buttressing was at least 1.5m deep and extended below the level at which excavation stopped.

On balance it seems likeliest that the ashlar stitching, concrete buttressing and pit (90309) and its fill (90305) relate to a single twentieth century intervention, Office of Works consolidations in the 1920s. If Mott's external wall buttressing (seen in Test Pit 6 on the outside of the wall) had extended into the courtyard, it would probably have been visible at 1.5m deep; it was not and probing a further 0.7m with a road iron did not locate it.

Figure 7 Northeast section of Test Pit 3 showing ashlar blocks 90307, concrete buttressing 90306 and the rubble wall footing 90308.Source © Historic England, Pr7166-7016.

The rubble footing of the tower wall (90308) appeared to end at a depth of 1.4m. The dark layer appearing below it on the photographs could have been the same as 90311, but as this was not recorded and because of the similarity of 90305 and 90311 it is a tentative suggestion.

The western end of the trench was occupied by a layer (90304) of light yellow-brown sandy silt loam with frequent large angular limestone fragments and smaller stones. Towards the end of excavating Test Pit 3 it was recognized that 90304 was the fill of a pit (90310) which cut layer 903011 (90311 had not been noted earlier because of its similarity to 90305, the fill of 90310). 90304 was cut by 90309 (the cut for the early C20th repairs). These layers are shown on photographs 7017 and 7018, and context sheet sketch HE7166-90304.

O'Hara suggests the pit may have been associated with the sweeping away of ruinous structures when the tower was incorporated into the prison during the nineteenth century. Similar pits were excavated in Trench 20 (95034,95036, 95039).

Figure 8 North facing section of Test Pit 3 showing cut 90309. Source © Historic England, Pr7166-7019.

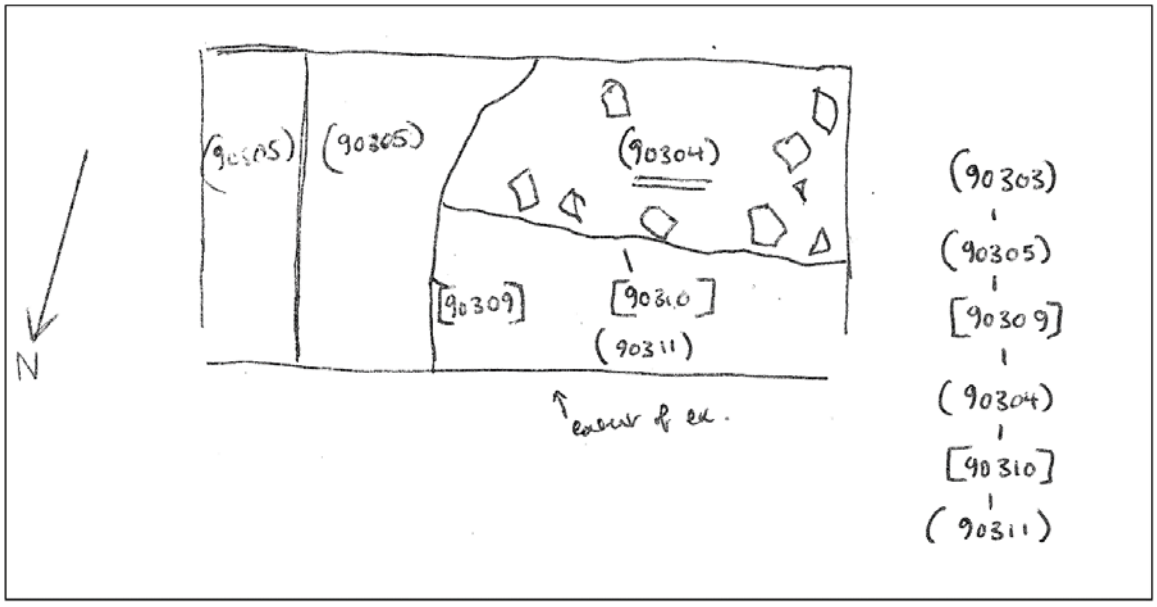

Figure 9 Sketch of Test Pit 3 showing cuts 90309 and 90310. Source © Historic England, HE7166-90304

The difficulties in resolving the stratigraphy in this test pit appears to have led to confusion in the finds recording. Pit fill 90304 was described as having “brick throughout the context but no finds”. Pit fill 90305 was described as “incredibly mixed with a large amount of re-deposited material including Roman pottery, clay pipe stems, 19th Century ceramics, 19th century brick and 17th century brick”. However, the database records no finds from 90305 but numerous finds from 90304, including modern, post medieval and Romano-British pot sherds, glass fragments and clay pipe. It seems likely that these finds formed a single assemblage, but almost certainly from 90305 rather than 90304 as recorded.

Borehole 3 (Canti et al 2016) was located at 451476.66/460474.78 in the north-east part of Test Pit 3.

Figure 10 Test Pit 3 after excavation Source © Historic England, Pr7166-7017.

Outside the tower wall: Test Pits 4-6

Test Pit 4
Test Pit 4 was 1.75m long by 1.5m wide was placed centrally against the exterior wall of the South lobe. An electric services conduit (90405) ran across the southern end of the test pit.

Table 5 Site Records for Test Pit 4

Site Records for Test Pit 4	
Site Subdivision number	10004
Contexts	90401-90413
Samples	-
Small Finds	3025-3026
Drawings	There are sketches on context sheets 90402, 90404, 90408, 90410

Figure 11 Test Pit 4 showing concrete raft 90402. Source © Historic England, Pr7166-7101.

Beneath the turf line three limestone slabs (90408) forming part of the wall foundations protrude from the face of the wall. At a depth of 0.2m these slabs and the rest of the face of the wall below ground level were enveloped in a raft of poured concrete (90402). The upper surface had a hard capping of brick fragments cemented together below this

capping the repair was of a more consistent and uniform mix of concrete. This underpinning raft occupies the width of the test pit and extended away from the wall face for 1m, being considerably greater by volume than the concrete features encountered in either Test Pit 3 or Test Pit 6. It was excavated and probed to a depth of 1m, but it was not possible to determine the depth of the underpinning. It is clear that this C20th raft supports the contemporary masonry above and is assumed to be part of the same Office of Works campaign seen in Test Pits 3 and 6.

The concrete occupied a pit or trench (90404) cut into a modern levelling or landscaping layer (90407) which contained both modern and medieval pot sherds.

The lowest layer in the sequence (90413) was a compact clay loam containing gravel, charcoal and bone. This may have been the top of the motte material. It was cut by a triple post hole (90410) which contained clay pipe and a sherd of modern pottery.

Test Pit 5
Test Pit 5 is 1.75m long by 1.5m wide, located on the northwest side of the west lobe.

Table 6 Site Records for Test Pit 5

Site Records for Test Pit 5	
Site Subdivision number	10005
Contexts	90501-90506
Samples	50001
Small Finds	3007-3008
Drawings	None

The tower wall foundations were seen at a depth of 0.2m below ground surface. The top course of the foundations stepped out from the wall face 0.15m. At a depth of 0.25m a thin layer of consistently sized small water worn pebbles (90502) formed what appeared to be a narrow path parallel to the wall face (photograph 7133) and may date to C18th, when the motte and tower were was used as a folly or belvedere within the garden walls of a large house to the east (Clark 2010, 36). When this path was in use the motte must have been lowered, exposing to view a course or more of the foundations (90505).

Further excavation against the wall face revealed a second larger course of foundation stones stepping out a further 0.2m. A square sondage (photograph 7145) was excavated to a greater depth; the rubble foundation (90505) dropped vertically below the masonry courses, terminating at a depth of 1.6m below ground surface.

Two distinct layers were identified below the topsoil and path. Layer 90503 (described on site as ’upper motte’) was dark grey brown silty clay and included subangular stones and fragments of ceramic building material. It overlay ‘lower motte’ 90504, a mid-grey/red silty

clay with sub-rounded stones. Sample 50001 was taken from 90504; it contained RB and medieval sherds and one early modern sherd, possible intrusive.

Figure 12 Tower wall foundations 90505 and pebble path 90502. Source © Historic England, Pr7166-7133.

Figure 13 Wall foundations 90405 and sondage. Source © Historic England, Pr7166-7145.

The lower rubble part of the foundations (90505) probably occupied a cut (90506) about 1.0m deep into layer 90504. This cut was inferred rather than observed - “foundations were trench built up to the edge of the cut” although “loose mortar [was] seen b/w foundation stones and edge of cut”.

Test Pit 6
Test pit 6 was 1.5m long and 1m wide located on the northeast side of the east lobe

Table 7 Site Records for Test Pit 6

Site Records for Test Pit 6	
Site Subdivision number	10006
Contexts	90601-90611
Samples	-
Small Finds	3006, 3010, 3011, 3023, 3027
Drawings	There are sketches on context sheets 90601, 90602, 90603, 90605, 90611 and a sketch matrix on context sheet 90606.

Below the turf line two courses of ashlar continued the line of the face of the tower wall. These in turn are underpinned by a third course of ashlar which extends out from the face a further 0.4m. Unlike the medieval foundations seen in Test Pit 5, O’Hara confidently suggested that these ashlars were re-worked by the Office of Works as part of the previously seen work in Test Pit 3 and probably contemporary with the work on the south side of the tower seen in Test Pit 4. Cut 90607, fill 90606 and concrete 90609 are also associated with the office of works repairs.

These ashlars sat on smaller pieces of masonry whose lime mortar matrix suggests that they are medieval foundations. The same context number (90605) was assigned to both the recent work (shown as 90605b on the matrix) and the probably medieval rubble foundation (90605a).

Basil Mott’s 1903 work to remedy the structurally instability of the tower is seen in this test pit as the dense mass of concrete (90608) that butts against the medieval foundations (90605a). It occupies cut 90608; 90610 and 90603 are packing and backfill deposits.

Counting anti-clockwise from the south, this is the fifth of five concrete ribs that rise up to clasp and stabilise the foundations of the southeast of the tower and its fore-building.

Figure 14 Mott's concrete buttress 90608 and wall foundations 90605a. Source © Historic England, Pr7166-7086.

Mid-Slope Test Pits: 10, 11, 13, 15

These test pits were planned as small rapid investigations into the upper layers of motte slope and to prepare the ground for boreholes for coring (O'Hara 2014, 14). None of them had records in the project database, and these were added during post-excavation. Canti et al (2015, Figure 1) shows both test pit and borehole numbers so they can be related, and the borehole co-ordinates are in the project database. There was not a borehole associated with Test Pit 10. Samples were taken in three of these test pits; the samples are assigned to contexts, but there is no further information about the contexts.

The following descriptions are from O'Hara (2016).

All were excavated to a depth of 0.60m in an area 0.6m square sufficient to clear the area of services and sink the borehole guide tubes. All four had a layer of topsoil 0.25m deep.

Test Pit 10
This was situated adjacent to and NE of the staircase leading up to the fore-building. Below the topsoil a series of mixed layers with modern finds reflects the proximity of the early C20th engineering works.

Table 8 Site Records for Test Pit 10 (Site subdivision 10010)

Site Records for Test Pit 10 (Site subdivision 10010)	
Samples	5006 (context 91004), 5007 (context 91003) Pot spotdate from samples: 5006 - post-medieval, with late medieval and RB sherds; 5007 - single RB sherd
Borehole	-

Test pit 11
This was situated to the S. Below the topsoil seemingly there was undisturbed motte material.

Table 9 Site Records for Test Pit 11 (Site subdivision 10011)

Site Records for Test Pit 11 (Site subdivision 10011)	
Samples	5005 (context 91103)
Borehole	9

Test Pit 13
This was situated to the NW, as 11.

Table 10 Site Records for Test Pit 13 (Site subdivision 10013)

Site Records for Test Pit 13 (Site subdivision 10013)	
Samples	None
Borehole	6

Test Pit 15
This was situated to the E. Below the topsoil a layer of very dark brown clay loam was initially seen as equivalent to 11 and 13 part of the original motte but at 0.6m below the surface a further layer was encountered which was a better match to the layers seen in 11 and 13.

Table 11 Site Records for Test Pit 15 (Site subdivision 10015)

Site Records for Test Pit 15 (Site subdivision 10015)	
Samples	5003 (context 91504), 5004 (context 91503) Pot spot date from samples: 5003 – medieval with RB sherds; 5004 – post-medieval, with late medieval and RB sherds
Borehole	7

Motte base test pits: 12, 14, 16, 17

As with the mid slope test pits, these were planned as small rapid investigations into the upper layers of motte slope and to prepare the ground for boreholes for coring (O'Hara 2014, 14). There is limited information in the project database (a few contexts were numbered but not described; no samples are noted). Locations of the boreholes are shown in Canti et al 2015, Figure 1. Co-ordinates of the boreholes and outlines of Test Pits 12, 14 and 17 are recorded in the project database.

The following description is from O'Hara 2016:

> The four test pits at the base of the motte were dug to clear the area of services and accommodate guide tubes. The deposits in all four test pits exhibited a similar morphology. Beneath the turf line each had a layer of topsoil typical 0.3m deep; this sealed a layer of mixed rubble brick and mortar of 0.4m. The rubble deposit became increasingly more compacted with depth finally resting on a hard packed barely penetrable surface. During the C19th the motte was incorporated within the wider prison complex and the base of the motte was removed. The hard surface is the hogging to the perimeter path that surrounded the reduced motte. The rubble, characterised by finds of clay pipe, C19th and later ceramics, is the prison demolition debris used to backfill and recreate the motte's original profile.

Table 12 Site Records for Test Pit 12 (Site subdivision 10012)

Site Records for Test Pit 12 (Site subdivision 10012)	
Contexts	91201-91203
Borehole	10

Table 13 Site Records for Test Pit 14 (Site subdivision 10014)

Site Records for Test Pit 14 (Site subdivision 10014)	
Contexts	-
Borehole	5

Table 14 Site Records for Test Pit 16 (Site subdivision 10016)

Site Records for Test Pit 16 (Site subdivision 10016)	
Contexts	-
Borehole	8

Table 15 Site Records for Test Pit 17 (Site subdivision 10017)

Site Records for Test Pit 17 (Site subdivision 10017)	
Contexts	91701
Borehole	11

Investigation Phase 2: Evaluation of the courtyard

September 2015 courtyard trench

Trench 20

Site Records for Trench 20 (Site Subdivision 10020)	
Contexts	95001-95039
Samples	5012-5014
Small Finds	3038-3051
Drawings	Section 22501 on Drawing Sheets 1-3. There are sketches on context sheets 90516 and 90535, and a sketch matrix on context sheet 90517.

Table 16 Site Records for Trench 20 (Site Subdivision 10020)

In September 2015 a 10 x 1m trench E-W was opened in the northern half of the courtyard and was dug along its length to a depth of 1.3m at either end deeper at 1.5m. The 13th-century motte (95037) survives at a depth of 1m.

It was expected that the brick floor surface (90214) discovered in Test Pit 2 in November 2014 would continue into Trench 20.

A dark soil layer 95019/95023 extended throughout the trench. It was cut by three probably Victorian service trenches (95004, 95006 and 95025) and two more recent services connected to the operations facilities, conduit 95027 (from 1998) and an electric cable trench (95013) which was left unexcavated.

At the west end of the trench, layer 95019/95023 overlay rubble-filled pits 95015 and 95028 (fills 95014, 95016/95020). These fills contained modern material which was discarded. Pit 95032 was poorly recorded, and may be either the earliest of this group or another of the pits cutting 95037 and described below.

Below these features a layer of orange brown silty clay (95029) was present throughout the trench. It contained pottery, animal bone and ceramic building material (mostly brick). This appears to be a levelling or consolidation layer.

95029 lay above four straight sided features (95034, 95036, 95039 and an un-numbered cut containing layer 95031) which were cut into the motte surface (95037) and are described in the O'Hara 2016 as 'of some depth'. These features were not excavated to their full depth because of the constraints of excavating in a narrow trench and in line with the project aims and methods, though only context 95036 records this. The section drawing shows them as only up to 0.25m deep, reflecting the limit of excavation rather than the base of the features. This was not clear from the drawing, but has been confirmed by O'Hara (personal comment). The rubble fills of the three pits shown on the

section drawing all extend above the level of the top of the cuts, by about 0.25m. It seems likely that the pits were pre-existing cuts into which rubble was dumped rather than deliberate cuts for depositing the material. Two of these deposits contained 10 to 15% of brick. The third (95035) was different, being 30% large stone blocks. All produced a mixed assemblage including Roman and medieval pottery but were characterised by material suggesting a much later date, in particular a high presence of brick.

Figure 15 Trench 20 after excavation. Source © Historic England, Pr7166-7804

The scale of disturbance caused by these large pit-like features means that if the brick floor from Test Pit 2 had extended into this area it had been totally removed. In addition, due to the pitting absolutely no identifiable structure or other archaeological features other than the motte material remained in the area opened by the trench.

The motte material (95037) was sampled in three locations along the trench (Samples 5012- 5014, 20 litres each) to continue the sampling strategy begun in the first season of

excavation. This was to compare the material found across the motte as a large quantity of fish bone, charcoal and other small finds were found. Pottery fragments from the samples were medieval or Romano-British. The samples were taken from below the exposed surface to ensure the motte material was as undisturbed as possible.

Figure 16 Taking sample 5012 from motte material 95037. Source © Historic England Pr7166-7808.

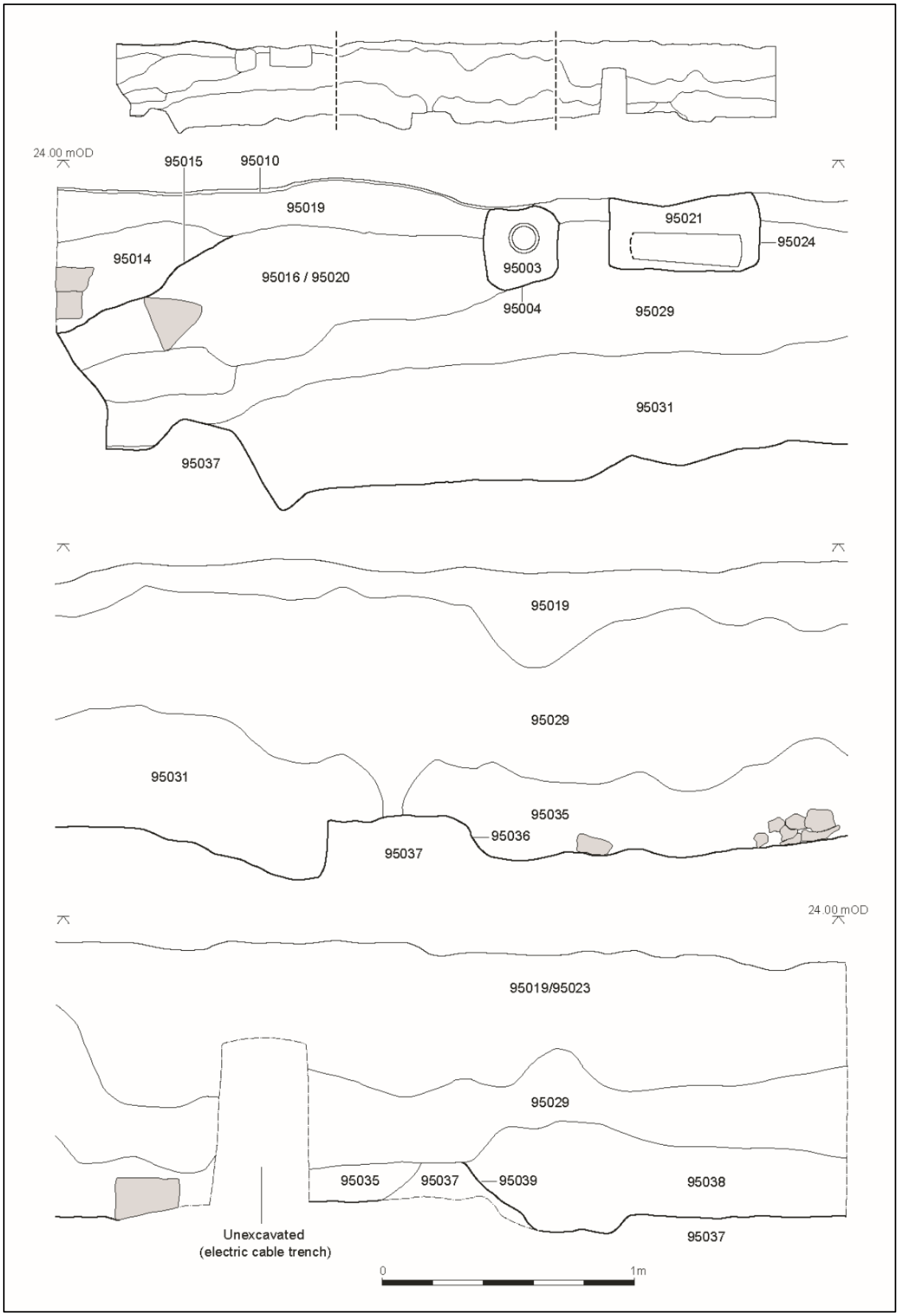

Figure 17 South facing section of Trench 20. Pits 95034, 95036, 95039 and the cut containing layer 95031 were not fully excavated.

Investigation Phase 3: Locating the retaining wall

May 2016 retaining wall excavation

The aim of this stage of the evaluation was to understand the extent of the remains of the retaining wall, because this would affect the development of the Visitor Centre. The work consisted of a watching brief on Test Pit 9 (which investigated the restoration of the mound and the area in front of the retaining wall) and five small test pits (Test Pits 24-28) which aimed solely to identify the retaining wall and record its location. Locations of the retaining wall were added to the database by Andrew Lowerre, based on the surveyed test pit outlines and photographs.

Descriptions are taken from O'Hara 2016.

Test Pit 9

Table 17 Site Records for Test Pit 9 (Site Subdivision 10009)

Site Records for Test Pit 9 (Site Subdivision 10009)	
Contexts	90901

The excavations revealed the retaining wall (90901) to be buried beneath a modern soil dump, placed over the top of the retaining wall in what appeared to be an attempt to re-instate the motte to its pre-19th century appearance.

Ground works removed the turf to reveal the extent of the 1935 reconstruction. Huge masonry blocks were pressed into service to build a pyramid stepped arrangement which was in-filled with smaller demolition debris (photograph 7926). The blocks had to be drilled, dowelled and craned away to allow access to the wall face and ground surface.

Within the cleared area a shuttered box was excavated through the Victorian and later rubble.

The battered ashlar wall face gave way to a single course of rough-hewn masonry set in a trench cut through stiff pink clay natural. The pink clay is likely to either be alluvial material or the natural York Formation clays. Any earlier archaeological remains appear to have been truncated either by the construction of the prison wall or by the later re-instatement.

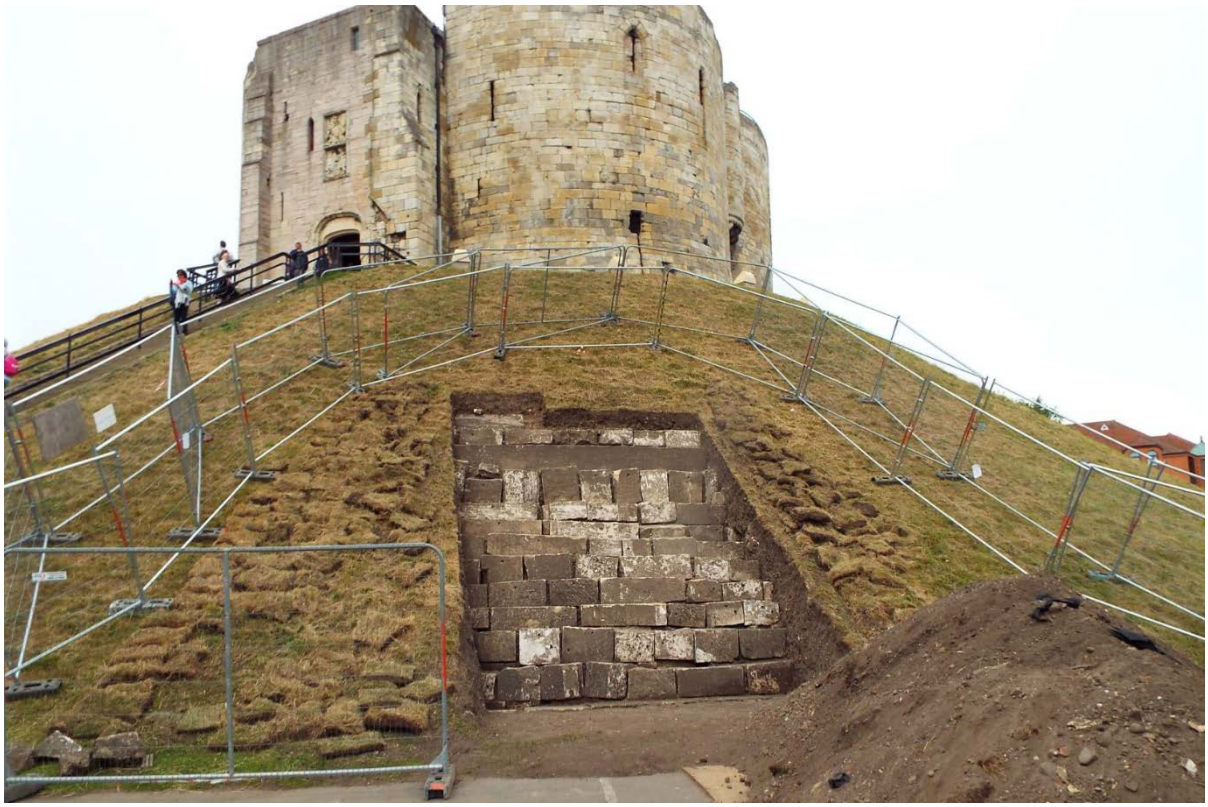

Figure 18 Stepped masonry blocks in Test Pit 9. Source © Historic England Pr7166-7926.

Figure 19 Excavation box from top of prison wall. Source © Historic England Pr7166-7937.

Figure 20 Section through modern backfill against wall. Source © Historic England Pr7166- 7932.

Figure 21 Wall foundation and pink clay subsoil. Source © Historic England Pr7166-7947.

Test Pits 24-28

Five further test pits were placed into the motte to identify and locate the retaining wall at other points. This was a basic identification exercise rather than excavation, and there are no context descriptions in the project database. At each point where the retaining wall was located its line was recorded and surveyed. The test pit outlines were added to the database during post-excavation.

Test Pits 26A and 27A were a short distance from Test Pits 26 and 27 respectively.

Table 18 Site Records for Test Pits 24-28, 26A and 27A

Site Records for Test Pits 24-28, 26A and 27A **(Site Subdivisions 10024-10028, 10261 and 10271)**	
Structural Group 10000231 (Retaining wall)	Consists of retaining wall contexts 92401, 92501, 92601, 92701, 92801 in Test Pits 24-28, and context 90901 in Test Pit 9
Structural Group 10000278 (Mott's buttresses)	Consists of two concrete spreads (contexts 92611, 92711) in Test Pits 26A and 27A. These are the tops of the two southern buttresses installed by Basil Mott in 1902.

An e-mail from O'Hara (09/05/2016) gives additional information. Because of practical difficulties, these test pits were spade-width slots.

> "Digging this sort of TP [test pit] on the slope proved challenging primarily because of the amount of overburden that needed to be removed bagged and then replaced. It was clear that we would need to compromise and we cut, instead, spade width slots to locate the wall tops.
>
> The wall tops located in five individual TPs were characterised by well finished milled blocks set level and plumbed as opposed to the more jaunty blocks of the re-instatement.
>
> To the north-east of the stairway at TP 28 we were able to confirm the position of the walling as laser scanned by Paul Bryan. TP 27 immediately adjacent to the stairway was sited to the north-east of its intended location to avoid disturbance from the construction of the stairway. In both these trenches the location and height of the wall agrees with the underlying plan.
>
> South-west of the stairway the wall top is slightly lower, probably one block lower, reflecting the need to work with the shallower slope when re-instating the mound. TPs 24, 25 and 26 locate just outside of the ring of the original survey i.e. nearer to the base of the slope/pavement."
>
> The other variable of course is that looking at the tops of the walls does not guarantee to locate the position of the wall at ground level.

In our work we did meet the top of Mott's concrete ribs either side of the stairs."

The line of the wall as seen differed from the Office of Works plan in places (Figure 22); the maximum discrepancy between them is about 1.5 metres (assuming the line shown in the database represents the front lip of the wall).

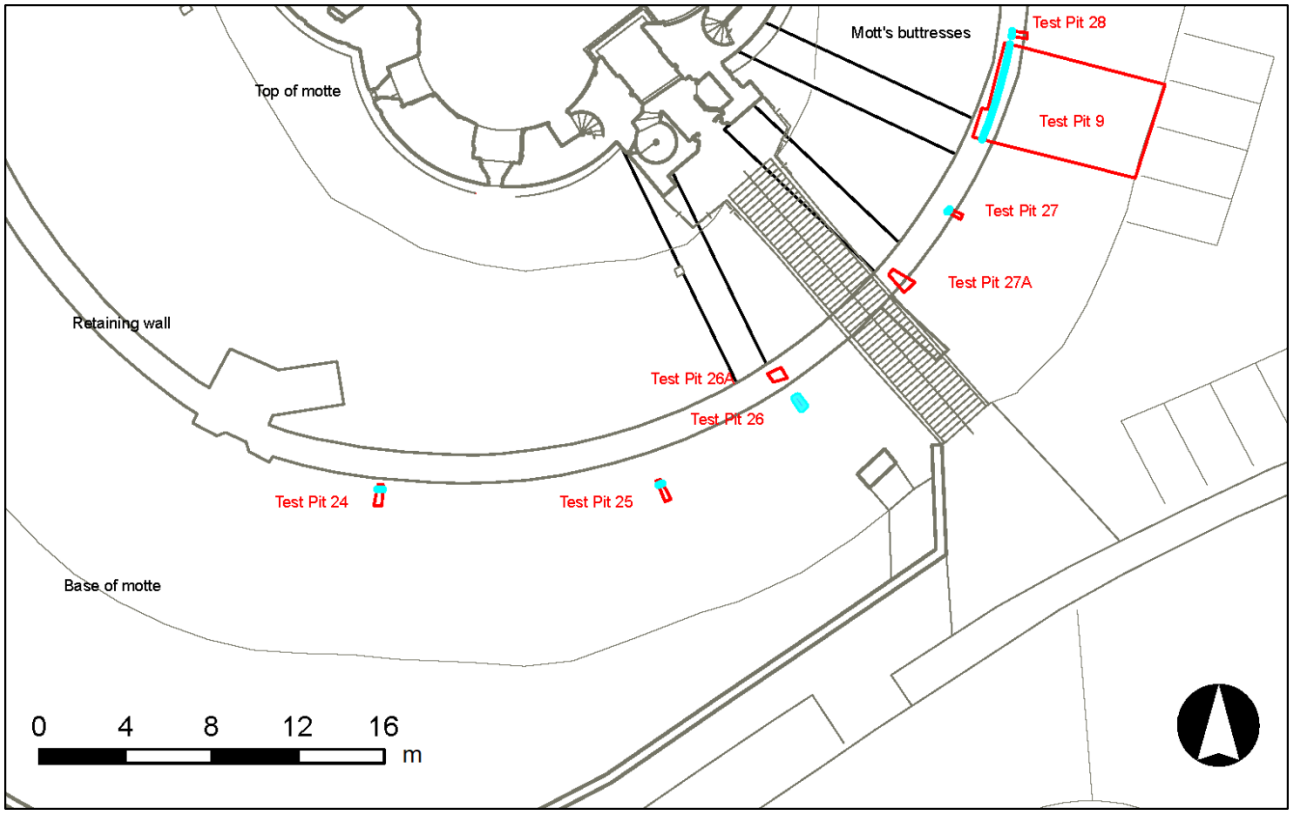

Figure 22 Plan showing location of retaining wall segments (blue) identified during excavation

Figure 23 Small Test Pits 25 and 26. Source © Historic England Pr7166-7908.

Figure 24 Top of retaining wall 92401 in Test Pit 24. Source © Historic England Pr7166-7912.

Figure 25 Retaining wall 92071 in Test Pit 27. Source © Historic England Pr7166-7918.

The Finds

Artefacts

Alice Forward and Rachel S Cubitt (Finds specialists)

Introduction

This report summarises the material culture assemblage retrieved from the excavations at Clifford's Tower, and provides information on the finds elements of the Site Archive Completion procedure:

The purpose of this procedure is to ensure that all the necessary records and other products associated with a site archive have been created and checked, ensuring that all records are ordered, indexed, adequately documented, internally consistent, secure, quantified and conformant to standards required by the archive repository.

Site Archive Completion finds methodology

All Intrasis finds records were entered by Alice Forward onto the Clifford's Tower database at Fort Cumberland. Once the material was processed from samples, she visually examined the objects alongside the records, which were checked for accuracy and consistency. Measurements of the objects, and additions and alterations to the records were made as required (signed and dated in each instance). She boxed the finds assemblages and created a box list within the database.

X-Radiography

Alice Forward liaised with Angela Middleton (Conservation and Technology team) to ensure that X-Radiography took place. Additional Digital X-Radiography took place in 2021 following liaison between Rachel Cubitt and Karla Graham (Archaeological Science).

The Clifford's Tower objects can be found on digital X-Ray plates P4314 to P4317 and P4886 – P4887.

Finds tables

No finds were retained from 95014 or 95016, and modern CBM from 95010 and 95017 were discarded.

The Box List is Section 6.6 of this report. Finds from samples are housed alongside the corresponding hand collected materials.

Table 19 Small Finds

Material	No of Small Finds records	No of fragments
Glass	18	44
Metal - copper-alloy	4	4
Metal - iron	19	28
Metal - lead	3	6
Shell - marine	1	1
Stone - architectural	5	5
Total	50	88

Table 20 Bulk Finds

Material	Bulk find records
Bone - animal	24
Ceramic - building material	24
Ceramic - clay pipe	15
Ceramic - pottery	23
Industrial Debris - Slag	6
Mortar	1
Shell - marine	11
Stone - architectural	4
Stone - slate	1
Grand Total	109

Table 21 Finds from Samples

Material	Sample records
Bone - animal	30
Bone - burnt	2
Bone - human	1
Ceramic - building material	9
Ceramic - clay pipe	2
Ceramic - pottery	12
Charcoal	19
Clinker	5
Flint - worked	1
Glass	2
Industrial Debris - Slag	11
Metal - lead	1
Mortar	4
Plant - macro remains	6
Shell - marine	9
Unknown/blank	46
Total	160

Summary of assemblages

Rachel S Cubitt

A modest assemblage of 18 boxes of material was collected from the excavations at Clifford's Tower.

Overall the assemblage is dominated by structural elements and includes five pieces of architectural stonework (small squared blocks and rounded mouldings or column fragments) and a fragment of slate. The glass assemblage includes fragments of window glass, some of which appears to be painted. The ironwork from the site is largely structural, comprising nails, strips and a possible hinge pivot (SF 3018). Copper alloy tack SF3013 may also fall into this structural category. The ceramic building materials include fragment of bricks and of roofing tile. There are numerous measurable fragments although only one brick survives complete. Many of the fragments have mortar adhering and lumps of detached mortar are also present in the assemblage.

Objects attesting to preparation and consumption of foodstuffs include the pottery assemblage (181 sherds with total weight of 1,454.4g), which appears to cover a range of dates from Roman to post-medieval, with some contexts including a mixture. Assessment of the fabrics is required to permit closer dating. Sherds are mostly small but include rims, handles and bases which may be diagnostic of particular forms and functions. The glass assemblage includes sherds of modern vessels as well as of post-medieval wine bottles whose base fragments should be typologically datable. SF3045 is the base of a small cylindrical phial that would have had a pharmaceutical use.

Evidence for personal adornment or the activity of individuals present at the site is scarce. The assemblage includes post-medieval copper-pins, used either as clothing fasteners or in sewing, of which SF3012 is complete and has a wire wound globular head and ?tinned surface. Twenty-six fragments of clay tobacco pipe evidence smoking in the post-medieval period. The assemblage comprises mostly stems but includes one glazed tip from context (90409) and four bowl fragments that may be typologically datable where enough of the original form survives. The bowl rim fragment from context (91503) has a milled border. No other decorative or makers marks are apparent.

The assemblage includes fragments of industrial debris from a process focussed on ferrous metals and a fragments of melted lead alloy. However, the latter may be an example of structural or artefactual lead accidentally melted rather than indicative of lead working.

The single fragment of flint from sample 50002 appears to be a knapped flake and should be shown to a lithic specialist.

The bulk environmental remains collected include an assemblage of animal bone comprising numerous identifiable, and some complete, elements from both large and small mammals and from fish. The bone is generally in a good state of preservation. The marine shell assemblage is made up of oysters and includes some complete valves. SF3001 is a valve that has been pierced with a series of roughly circular holes of c 5-10mm diameter (see section 3.3 below).

Three fragments of human bone were identified amongst the animal bone assemblage. They are described below by Sarah Stark, along with the human remains recovered during excavations by FAS.

Note: Finds assigned to context 90304 are almost certainly from 90305. See description of Test Pit 3 (Section 2.3.1)

Pottery

Duncan H. Brown, February 2023

An assemblage of 154 sherds was recovered from 29 contexts across five trenches. The pottery was scanned by Duncan H. Brown to establish the ware types present. A sherd count of each ware type occurring in each stratigraphic context was made to provide a preliminary indication of quantity.

The make-up of the assemblage is shown in the accompanying table; a spreadsheet is in the project archive.

Overall, there are no contexts that contain pottery exclusive to any single period earlier than the 17th century. The assemblage is mixed with Romano-British and medieval pottery usually occurring with later material and the conclusion must be that most, of not all, of the assemblage is redeposited.

Several contexts are represented only by sherds from soil samples, which are usually much smaller than those recovered by hand digging. Among these, there is a more consistent Romano-British and medieval presence, with later wares less common. Identification is difficult with small fragments but some of the material characterised as medieval coarseware could be early medieval, perhaps pre-dating Norman conquest.

Further work to identify the fabric types of the Romano-British and medieval pottery would probably be appropriate, if only to confirm the attributions of the scanning exercise. A more thorough characterisation and quantification could be carried out but it would be unlikely to alter the overall conclusion about the nature of the assemblage. Any such work would need to be carried out by a specialist familiar with the range of pottery types that occur in York.

Table 22 Pottery scan

Site Sub-division	Context	Soil sample	Pottery description	Sherd count	Ceramic period	Comments
TP01	90105		brown-glazed earthenware with internal clear-glazed white slip	2	early modern	probably 19th century; 1 base, 1 body sherd
TP01	90105		late or post-medieval unglazed earthenware	1	late medieval	
TP01	90105		pale blue tinglazed	1	post-medieval	
TP02	90203		brown-glazed earthenware	1	post-medieval	
TP02	90203		English brown stoneware	1	modern	
TP02	90203		flower pot	4	modern	includes 1 large rim
TP02	90203		Mocha-type ware	1	modern	
TP02	90203		transfer-printed refined earthenware	1	modern	
TP02	90211		flower pot	1	modern	base of small vessel
TP02	90221	50002	medieval coarse earthenware	2	medieval	
TP02	90221	50002	Romano-British coarseware	1	Roman	
TP03	90303		flower pot	1	modern	
**TP03	90304		flower pot	2	modern	
**TP03	90304		refined earthenware	1	modern	
**TP03	90304		Romano-British coarseware	5	Roman	
**TP03	90304		Samian	1	Roman	
**TP03	90304		yellow-glazed white earthenware	1	post-medieval	possibly 17th/18th century
TP04	90403		flower pot	3	modern	
TP04	90407		flower pot	2	modern	small sherds including 1 tiny rim fragment

Site Sub-division	Context	Soil sample	Pottery description	Sherd count	Ceramic period	Comments
TP04	90407		glazed sandy earthenware	2	medieval	base sherds from the same vessel
TP04	90407		medieval coarse earthenware	4	medieval	
TP04	90407		white gritty coarseware	1	medieval	
TP04	90409		flower pot	1	modern	
TP05	90501		blue-ish glazed refined earthenware	1	modern	teapot handle
TP05	90501		flower pot	4	modern	
TP05	90501		white refined earthenware	7	modern	includes basin rim
TP05	90504	50001	English grey stoneware	1	early modern	
TP05	90504	50001	medieval coarse earthenware	9	medieval	
TP05	90504	50001	Romano-British coarseware	1	Roman	
TP05	90504	50001	Romano-British colour-coat	1	Roman	
TP05	90504	50001	Shelly ware	1	early medieval	
TP06	90603		flower pot	1	modern	
TP06	90603		medieval coarse earthenware	5	medieval	
TP06	90603		white gritty coarseware	4	medieval	
TP06	90606		flower pot	1	modern	
TP06	90610		black-glazed red earthenware	1	post-medieval	probably 18th/19th century
TP10	91004	5006	Late medieval glazed earthenware	1	late medieval	
TP10	91004	5006	post-medieval glazed earthenware	1	post-medieval	rim or handle sherd?
TP10	91004	5006	Romano-British colour-coat	1	Roman	
TP10	91003	5007	Romano-British coarseware	1	Roman	
TP15	91503	5004	Glazed refined earthenware	1	early modern	

Site Sub-division	Context	Soil sample	Pottery description	Sherd count	Ceramic period	Comments
TP15	91503	5004	medieval coarse earthenware	2	medieval	
TP15	91503	5004	NE English white-slipped, black-glazed redware	1	early modern	mid-late 19th century
TP15	91503	5004	Romano-British coarseware	1	Roman	Oxidised ware
TP15	91504	5003	medieval coarse earthenware	2	medieval	
TP15	91504	5003	Romano-British colour-coat	1	Roman	
?	91903	5009	Yellow-glazed post-medieval earthenware	1	post-medieval	
*TP20	92003	5010	post-medieval glazed earthenware	2	post-medieval	
*TP20	92003	5010	Romano-British coarseware	1	Roman	Probably Roman? Oxidised ware
Trench 20	95008		English grey stoneware	1	early modern	bowl base with footring
Trench 20	95008		post-medieval glazed earthenware	1	post-medieval	probably late post-medieval; 18th/19th century
Trench 20	95010		post-medieval coarse earthenware	2	post-medieval	probably late post-medieval; 18th/19th century
Trench 20	95010		post-medieval glazed earthenware	1	post-medieval	
Trench 20	95010		white refined earthenware	1	modern	jam jar type rim
Trench 20	95017		Black-glazed coarse earthenware	1	modern	possibly from a water/sewer pipe; thick-walled, glazed both sides
Trench 20	95023		black-glazed earthenware	2	post-medieval	includes 1 bowl rim
Trench 20	95023		medieval coarse earthenware	1	medieval	small body sherd
Trench 20	95023		Romano-British whiteware	1	Roman	burnt, so not easy to identify
Trench 20	95023		white gritty coarseware	1	medieval	

Site Sub-division	Context	Soil sample	Pottery description	Sherd count	Ceramic period	Comments
Trench 20	95023		white refined earthenware	2	modern	
Trench 20	95029		Drabware	1	early modern	tankard rim
Trench 20	95029		glazed sandy earthenware	1	medieval	jug handle
Trench 20	95029		medieval coarse earthenware	2	medieval	
Trench 20	95029		mortarium	2	Roman	1 white, 1 pink
Trench 20	95029		painted refined earthenware	1	modern	
Trench 20	95029		Romano-British coarseware	3	Roman	greyware
Trench 20	95029		transfer-printed refined earthenware	1	modern	
Trench 20	95029		unusual unglazed coarseware	1	uncertain	narrow-necked, thick-walled; possible roof furniture
Trench 20	95029		white earthenware	1	post-medieval	
Trench 20	95029		white gritty coarseware	2	medieval	
Trench 20	95029		white refined earthenware	1	modern	
Trench 20	95029		yellow-glazed white coarseware	1	post-medieval	
Trench 20	95031		black-glazed red earthenware	2	post-medieval	1 sliver that fits the bigger sherd
Trench 20	95031		Romano-British coarseware	1	Roman	Probably Roman? White coarseware base sherd
Trench 20	95031		Samian	1	Roman	
Trench 20	95035		English white saltglazed stoneware	1	early modern	tankard
Trench 20	95035		medieval coarse earthenware	1	medieval	
Trench 20	95035		orange-glazed sandy ware	1	post-medieval	
Trench 20	95037	5012	medieval coarse earthenware	5	medieval	

Site Sub-division	Context	Soil sample	Pottery description	Sherd count	Ceramic period	Comments
Trench 20	95037	5012	Romano-British coarseware	1	Roman	
Trench 20	95037	5012	Samian	1	Roman	
Trench 20	95037	5012	white gritty coarseware	2	medieval	
Trench 20	95037	5013	medieval coarse earthenware	3	medieval	
Trench 20	95037	5013	Romano-British coarseware	2	Roman	
Trench 20	95037	5014	medieval coarse earthenware	2	medieval	
Trench 20	95037	5014	Romano-British colour-coat	2	Roman	
Trench 20	95037	5014	white gritty coarseware	1	medieval	
Trench 20	95038		Drabware	1	early modern	rim sherd
Trench 20	95038		green-glazed whiteware	1	high medieval	speckled bright green glaze
Trench 20	95038		medieval glazed sandy ware	2	high medieval	1 base sherd; 1 handle/body sherd with olive green glaze
Total				154		

*These samples are assigned to contexts and text pits which are otherwise unrecorded.
**Finds assigned to context 90304 are almost certainly from 90305. See description of Test Pit 3 (Section 2.3.1)

Worked oyster shell

Greg Campbell with Fay Worley,10 March 2023

Possible fibre-working tools

SF 3001 and 3052, both pit-fill (90304): 19th or early 20th Cent. AD

Two right (flat) valves of common or native oyster, *Ostrea edulis* L., the larger valve (68 x 63mm) badly broken (the lower rearward edge missing) and pierced by five roughly equally spaced holes set in from the shell edge, forming an irregular ring (Fig. 26, photograph 7960); the two holes nearest the hinge are larger and sub-rectangular, the two furthest from the hinge smaller and circular (the hole opposite the hinge is incomplete due to the break), and the fifth hole just survives as an indentation on the top edge of the rearward break. The holes' edges are as polished as can be expected in such a flaky kind of shell.

The smaller valve (49 x 54mm) is reduced from its original size by the loss of its lower forward edge (Fig. 27, photograph 7961), this edge polished by wear and bearing two semi-circular indentations, also polished; the indentations align exactly with two holes on the larger valve (Fig. 28, photograph 7962).

Figure 26 Pierced oyster shell 3001. Source © Historic England Pr7166-7960, Greg Campbell.

The exact function of these objects cannot now be determined with certainty. The suggestion that these are button-making or inlay-waste is very improbable because the holes are convincingly wear-polished, and buttons or inlay as small as these holes would crumble in such flaky shell; true oysters do not produce the tough highly polishable nacre or mother-of-pearl used to make buttons and inlays (good sources of nacre are the subtropical pearl-oysters *Pinctada* sp., the native British ormer *Haliotis tuberculata* and perhaps the very largest of the British freshwater *Unio* mussels).

Figure 27 Pierced oyster shell 3052. [Source © Historic England Pr7166-7961, Greg Campbell]

Figure 28 Shells 3001 and 3052 superimposed. [Source © Historic England Pr7166-7962, Greg Campbell]

These are also not typical of perforated oysters, themselves a regular and perplexing archaeological find. Holes drilled in oysters by predatory snails (such as dog-whelks *Nucella lapillus* or oyster-drills *Ocenebra erinaceus*) are millimetre-sized and very circular, but can be enlarged by wave-erosion, making the holes sharp-edged. Most ragged-edged holes in archaeological oysters, circular if small, sub-rectangular when large, are likely the result of harvesting with oyster-tongs, pairs of long-handled rake-like implements bolted together so they scissor open and shut (Dupont 2010), and believable Romano-British examples show their antiquity of use here (e.g.: Campbell 2013). Centrally-pierced oysters and scallops packed on poles are traditionally used in Atlantic France to collect baby

oysters (‘spat’) for raising elsewhere (Berthomé et al. 1984), so some archaeological pierced oysters may be ancient spat-collectors. Some stray finds may have been weights for fishing lines or nets, or curios or mementoes of seaside visits. However, all these would have created one (or rarely two) holes in a valve.

The spacing and wear to the holes on the larger valve and the inundated edge of the smaller valve suggest they acted as guides for fibres. They may have been ‘registers’ or ‘tops’, guides for the strands in rope- or cord-making, also have roughly concentric rings of holes (Shelley 1862, 179-180), but they seem rather delicate for such robust work. It seems more likely (but not proven) that these objects were weaving tablets. Tablet weaving of strips or borders (often highly decorative), an ancient craft, is complex and requires several tablets, flat palm-sized objects (often square, sometimes circular or triangular) with perforations set in from their edges which guide the strands being woven (Knudsen 2012), and archaeological tablets (dating from late prehistory through to the high medieval, many Roman) were made from everyday materials (bone, wood, metal, horn, stiff leather) (Gleba & Mannering 2012; MacGregor 1985: 191-192).

The smaller valve could not be another weaving-tablet or cordmaking register, because holes in these have to be complete, not indentations. The indentations on the edge of the smaller valve aligning with the holes on the larger suggests they operated as a pair, while the wear to the indented edge suggests the same process polished both the holes of the larger valve and the indented edge of the smaller. The larger valve may have been the tablet proper, with the smaller inserted between the fibres to untangle them or to act as a ‘brake’ to hold the fibres in place while they were changed over or breaks repaired.

The time in the past when these objects were used is also not clear, as the context (post-medieval) contained re-deposited medieval and Roman artefacts. While archaeological weaving tablets are relatively most common in the Roman period, they have a wide date-range (MacGregor 1985, 192).

Conservation

Karla Graham

Site work

No site visits were made or required.

Quantification

Table 23 Conservation materials and quantities

Material	Numbers
Copper Alloy	4
Iron	18
Lead	4

X-radiography programme

The X-ray programme was undertaken at Fort Cumberland by Angela Middleton and Eric Nordgren in 2017 and later by Karla Graham in 2021. Metal Small Finds were selected for radiography following HE guidance (Fell *et al* 2006) resulting in the X-ray of 18 Iron Small Finds. The 4 copper alloy objects were not X-rayed as, based on their good condition (low corrosion and clearly visible shape and surfaces), it was assessed that radiography was not necessary or would result in informative X-ray images.

Table 24 Two different sets of X-ray and Computed Radiography (CR) equipment were used for the radiography program.

Year	X-ray machine	CR Scanner	Digital Imaging Plates	X-ray numbers
2017	Gulmay HS225kV	HPX-1	Kodak Industrex High Resolution	P4301; P4314 to P4317
2021	Comet MXR320/23	HPX-1 Plus	Kodak Industrex XL Blue	P4886 to P4887

Computed Radiography (CR) and Carestream Industrex Digital Viewing Software was used resulting in a digital archive. All the imaging plates were scanned at 25-micron resolution and quality was ensured using an Image Quality Indicator (IQI): Duplex wire type EN462-5.

In total, 7 radiographs were produced and X-ray image records created on Intrasis. The scanner generated a primary (unprocessed) DICONDE file[1]. Each unprocessed DICONDE image was then labelled with site information and Small Find numbers and saved as DICONDE format. These labelled images were exported as a Tiff.

Table 25 Material and X-ray numbers

Material	X-ray numbers
Iron	P4301; P4314 to P4317; P4886 to P4887

Table 26 X-ray file formats, descriptions and file numbers.

Description	File format	Viewing software	Number of files
Primary X-radiograph	DICONDE (.dcm)	DICONDE compatible software	7
Labelled X-radiograph (site name & SF/Context numbers)	DICONDE (.dcm)	DICONDE compatible software	7
Exported TIFF screen capture of labelled X-radiograph	TIFF	Microsoft	7

First Aid Conservation

None required

[1] Digital Imaging and Communications in Non-destructive Evaluation (DICONDE) files are the non-destructive testing (NDT) industry standard and require licensed software to view them. The DICONDE data file comprises the image and image attributes

Biological Remains

Samples Taken

Fourteen flotation samples were taken during the excavations. The majority, 11 in total, were recovered from test pits and ranged in size from 13-40 litres. These samples were taken to characterise the nature of the deposits uncovered within the test pits and what the material recovered from the samples could reveal about the nature of the motte make-up. Unfortunately, the location of test pits 18, 19, and 20 is unknown so the four samples taken from these interventions are of no research value and the finds retrieved from them must be treated as unstratified.

The remaining three flotation samples, <5012> to 5014>, each of 20 litres, were taken from different areas within context 95037, comprising remnants of the motte -make-up that had been cut through in various places. All flotation samples were processed at Fort Cumberland using a modified Siraf tank with a 0.25mm mesh used for the flot and a 0.5mm mesh for the residue. Th resulting residues were split into fractions. 100% of the >4mm residue and 25% of the 4-2mm fraction from each sample was sorted for finds and other material that had failed to flot. The remaining 75% of the 4-2mm fraction of each residue, and the <2mm fraction were retained unsorted.

A further five specialist samples were taken from cores in order to characterise the make-up of the motte and provide dating material. Two samples were taken from core 1, <5015> was for General Biological Analysis (GBA) and <5019> contested of animal bone and was taken for radiocarbon dating. <5016> to <5018> were recovered from core 2 for GBA. The results of the work on these samples and on cores taken through the mound (motte) are reported in Campbell *et al* (2016).

Animal Bone

Andy Hammon

Trial excavation produced a small animal bone assemblage derived from both hand-collection and samples / sieving. The assemblage is contained in two standard museum boxes and one small museum box. This short report represents an archive catalogue.

Methods

An attempt was made to identify every fragment by taxa and skeletal element, with unassigned fragments being categorised as:

- Large mammal;
- Medium mammal;
- Bird; or,

- Unidentifiable.

No attempt was made to separate closely related taxa using morphometric criteria, including:

- Sheep (*Ovis aries*) and goat (*Capra hircus*);
- Equidae (horse family);
- Red deer (*Cervus elaphus*) and fallow deer (*Dama dama*);
- Leporidae (rabbit and hare family);
- Rats (*Rattus* sp.) and European water vole (*Arvicola amphibious*);
- Muroidea (rodent superfamily);
- Chicken (*Gallus domesticus*), common pheasant (*Phasianus colchicus*) and helmeted guineafowl (*Numida meleagris*);
- Anatidae (goose family);
- Columbidae (pigeon and dove family);
- Corvidae (crow family);
- Turdidae (thrush family); and,
- Bufonidae (frog and toad family).

No attempt was made to identify the fish remains.

Where possible, tooth eruption and wear were recorded for the major domesticates:

- Cattle (Grant 1982);
- Sheep/goat (Payne 1973 & 1987); and,
- Pig (Grant 1982).

Post-cranial epiphyseal fusion was also recorded for the major domesticates where possible.

Measurements were taken following von den Driesch (1976).

Evidence of bone modification was recorded using one-word descriptors for the following categories:

- Butchery;
- Burning; and,
- Gnawing.

Pathological lesions were also noted.

The raw data is held in Microsoft Excel spreadsheet: HE7166_CliffordS_Tower_SAC_AnimalBoneData.

The assemblage

Given the small size of the assemblage, both the hand-collected and sampled / sieved assemblages have been combined and are summarised in Appendix 8.3 by taxa / taxonomic group and context. Numbers of unidentifiable specimens have not been included in Appendix 8.3, although are included in the spreadsheet (numbers of

unidentified fragments from the sampled / sieved fraction have been estimated due to their small size).

The assemblage is dominated by the major domesticates (cattle, sheep / goat and pig). Chicken / common pheasant / helmeted guineafowl is the next most frequent category; in all likelihood the majority of these remains represent chicken. Small numbers of the other domesticated mammals were also present, including equids, dog and cat. The remainder of the assemblage is made-up of wild mammals and birds, plus the fish. Most of the wild mammals and bird remains probably represent accidental inclusions due to the commensal nature of most of the species involved. However, the deer and potentially the rabbit / hare remains will have been deliberately exploited. The goose and pigeon / dove specimens present could be either the domesticated forms or their wild progenitors. Whilst no attempt was made to identify the fish remains both large and small specimens were noted.

A small number of cattle, sheep / goat and pig specimens generated tooth eruption and wear, plus post-cranial epiphyseal fusion, data. The assemblage also produced a small number of measurements. The assemblage contains insufficient data to consider either age-at-death / mortality profiles or conformation / breed development.

The provenance of the material is difficult to ascribe with any certainty. A high degree of reworking and residuality may be expected given the nature of the site (underlying Roman activity, medieval earthworks and structure, extensive post-medieval and modern remodelling, etc.). Material from individual contexts demonstrated reasonable homogeneity (surface texture, colour and overall preservation), which might indicate material derived from primary deposition or contemporaneous secondary deposition. However, most contexts also included material that obviously derived from different taphonomic pathways. No articulated specimens were noted, and the assemblage also included several burrowing species, which might be intrusive. Moderate levels of dog gnawing were also noted and might infer secondary deposition.

The assemblage has little intrinsic research potential overall and no further work is recommended. The assemblage should be retained and archived with the rest of the project outputs, however. If further fieldwork was ever undertaken at Clifford’s Tower and another animal bone assemblage generated, the material discussed in this short report could conceivably be combined with it to increase the evidential value of both. In such an eventuality, any fieldwork should include a comprehensive sediment sampling programme to maximise the presence of smaller mammals, birds and fish noted in this assemblage.

Plant Remains

Gill Campbell

Five flots from samples relating to the motte make-up, including three samples (<5012>, <5013>, <5014>) from context 95037 were assessed as to their contents. In addition, plant remains other than charcoal that had been recovered as part of sorting the >4mm and 25% 4-2mm residues of the samples (see section 5.1) were also identified. The remaining flots were not examined as they were thought likely to contain material of recent origin.

Methods

The flots and material recovered from residues were examined by scanning under a binocular-dissecting microscope at magnifications up to x 60. The preservation and the nature of any plant remains present was recorded. The amount of charcoal, cereal grain, other seeds, and cereal chaff present in each flot was recorded using the following abundant scale: rare: 1-5, frequent: 6-25, common 26-100, abundant: 101-500; super-abundant 500+. Identification of plant remains took place with reference to the modern comparative collection held at Fort Cumberland (Historic England). Nomenclature follows Stace (1997) for wild plants and Zohary and Hopf (2000, table 3, table 5) for the cereals.

Results

The results are presented below:

Sample: <5001>, Flot:
Rather mixed preservation with frequent well preserved and very poorly preserved cereal. Well preserved grain included *Hordeum* sp. (hulled barley) and *Triticum* sp. (wheat). Charcoal frequent
Sample: <5001>, 4-2mm residue:
1 *Hordeum* sp. - hulled *vulgare* sprouted, grain
1 *Hordeum* sp - hulled, twisted grain
1 *Avena* sp. grain.

Sample: <5002>, Flot:
Cereal grain and charcoal are frequent. Grain includes sprouted oat, and hulled barley. No charred weeds of chaff were noted. The presence of uncharred seeds of *Sambucus nigra* (elder) and *Hyoscyamus niger* (henbane) is suggestive of intermittent waterlogging/ recent intrusion.

Sample: <5002>, > 4mm residue:
1 *Corylus avellana* (hazelnut) shell fragment.
Sample: <5002>, 4-2mm residue:
1 cf. *Avena* sp -sprouted grain.

Sample: <5003>, 4-2mm residue:
1 *Hordeum* sp - hulled grain.

Sample: <5008>, 4-2mm residue:
1 *Hordeum* sp -hulled, twisted grain.

Sample: <5012>, Flot:
Frequent well-preserved cereal grain, mainly barley with some wheat. Rare weeds, including a *Fallopia convulvus* (black bindweed).

Sample: <5013>, Flot:
Cereal grain common -mainly hulled barley with some oat. Charcoal is also common -mainly oak but including 1 fragment of small diameter Betulaceae type. A *single Eleocharis palustris* type (spike-rush) seed was noted.

Sample: <5014>, Flot:
Cereal grain frequent, with barley, *Triticum aestivum* s.l. (naked wheat type grain) and oat present. Less material than the other samples from this context. Charcoal also frequent but with few large fragments.
Sample: <5014>, 4-2mm residue:
1 *Triticum dicoccum/ spelta* grain,
2 *Hordeum* sp - hulled grain
1 *Hordeum* sp - hulled, twisted grain

Discussion

The samples contained moderate numbers of cereal grain including hulled barley, hulled wheat, bread wheat type grain and oat. The cereal grain was generally well preserved with some sprouted grains noted. No cereal chaff was found recorded and wild taxa were only present in small numbers. Taken as a whole the assemblage can be interpreted as representing a background scatter of material derived from repeated activities involving the final stages of crop processing (Hillman 1981) over an unspecified period of time. The assemblage has limited research potential because of this but serves to illustrate the nature of the material making up the mound and shows the kind of material that is to be expected in mixed urban deposits at this location (c.f. Hall and Huntley 2007, 139 - 149).

Human Remains

Sarah Stark

A total of five human remains fragments were identified from the animal bone assemblages of Historic England and FAS Heritage. The Historic England remains are from trench 20 and relate to the topsoil of the motte make-up and include two fragments from context **90304** and one from context **95029**. Another two human remains fragments were uncovered by FAS heritages animal bone assemblage, context **C1110** (find number 9), and relate to the modern refuge area near the stairwell. As there are ethical matters to consider for the human remains at Clifford's Tower, it was imperative to examine all fragments in one assessment.

Methods

Skeletal preservation and completeness were assessed for all fragments and follow standard guidelines based on the nature of erosion to the cortical and joint surfaces (Brickley and McKinley 2004: 6, Buikstra and Ubelaker 1994: 7). Dimorphic traits for sex estimation were observed for only one fragment of an *os coxa* or pelvic bone (**90304**) (following Brothwell 1981: 59-63). Age-at-death could be estimated for the auricular

surface of the *os coxa* (**90304**) (following criteria set by Lovejoy *et al* 1985) and for two juvenile fragments of a femur (**C1110***)* and clavicle (**90304**) based on epiphyseal fusion (criteria by Brothwell 1981: 66-68). Metric and non-metric recordings were limited based on the fragmented nature of the remains (Brothwell 1981: 85-87, 98-99). All elements were examined for pathological lesions (following Brothwell 1981 and Roberts and Manchester 2005).

Results

Three bones are adult sized and two are juvenile. The minimum number of individuals (MNI), represented by the two age groups of adult and juvenile, is two. The skeletal elements are gracile in morphology apart from a humeral midshaft (**C1110**) which shows extreme robusticity and muscular architecture. The condition of the material has good to moderate preservation, with the majority of bone surfaces showing slight to moderate erosion.

Context 90304

A left *os coxa* or pelvic bone was uncovered with moderate preservation. Of the five bones, inference of sex could be made (using criteria of Brothwell 1981, 59-63) which is a probable female. Age estimation based on the auricular surface (Lovejoy *et al* 1985) indicates an age-at-death of 35-39 years old.

A second human bone was uncovered in this context, a right clavicle with moderate preservation. The lateral end (acromial extremity) is missing so no complete measurement can be taken. The medial end (sternal extremity) is unfused, which indicates a juvenile under the age of 18 years old (using criteria of Brothwell 1981: 66-68).

Context 95029

An adult lumbar vertebrae (L1) was recovered with good preservation. No pathological lesions, such as osteoarthritis, Schmorl’s nodes or other indicators of general wear are observed.

C1110 (Find number 9)

A fragment of a left femur was uncovered in good to moderate condition. The femoral head is missing; however, the greater trochanter is present and unfused which suggests a juvenile under the age of 15 years old (using criteria of Brothwell 1981: 66-68).

A second fragment of a robust left humeral midshaft in moderate to good condition was found. There is a roughened deltoid tuberosity, which is the insertion site for the deltoideus muscle. This roughened texture is indicative of repetitive movements and commonly seen in males. However, no firm sex estimations can be made based on muscle architecture alone.

Discussion

The assemblage of human remains has limited research potential as it is small and fragmented. Given the sensitivities of the events associated with AD 1190, it is recommended that all fragments are radiocarbon dated.

These results will determine if

a) the individuals *are not* associated with the AD 1190 event. In this instance, it is suggested that the assemblage remain with the site archive and project outputs. This is to ensure that if any further field work is undertaken at Clifford's Tower and additional human remains are found, they could be integrated into a potentially larger skeletal collection.

b) the radiocarbon dates suggest that the individuals *could be* associated with the AD 1190 event, then further discussions will be made with relevant stakeholders and religious groups about reburial.

Note: The human remains recorded from context 90304 are almost certainly from 90305. See description of Test Pit 3 (Section 2.3.1)

Tabulated quantification of the site archive

Table 27 Record Numbers Used in site archive

Record Type	Record Numbers Used	SSD	Comments
Site Sub Division (SSD)	10001-10006, 10009-10017, 10020, 10024-10028, 10261, 10271		Test pits 1-6, 9-17, Trench 20, Test pits 24-28, 27A and 27B. Planned TPs 7 and 8 were not excavated. Numbers 21-23 were not used; 18-19 were *probably* not used (see contexts 91803, 91903).
Contexts	90101-90105 90201-90221 90301-90311 90401-90413 90501-90506 90601-90611 91003-91004 91103 91503-91504 91803, 91903 92401 92501 92601 92701 92801 95001-95039	TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 10 TP 11 TP 15 - TP 24 TP 25 TP 26 TP 27 TP 28 Trench 20	Numbers assigned in blocks by SSD It is unclear whether these contexts existed (TPs 18, 19?).
Small Finds	3001-3051		
Samples	5012-5014	Trench 20	
	5003-5011 50001-50002	Test pits	
	5015-5019	Boreholes	
Sections	22501	Trench 20	
Drawing Sheets	1-3		There are three A3 drawing sheets on permatrace for Section 22501
Grid pegs	60201-60203 60301-60304 60601-60604	TP 2 TP 3 TP 6	
Photographs	7001-7166 7701-7809 7901-7958 7960-7962	Test Pits Trench 20 2016 Finds	
Structural groups	10000231, 10000278		

List of X-rays

Record numbers: P4301; P4314 to P4317; P4886 to P4887 (details in Section 4: Conservation).

Intrasis records for the X-rays have been created and relevant information entered into the database.

Pottery spot dating

Spot dates based on Duncan Brown's pottery scan data are included in the Interpretive Context Index.

Table 28 Spot dates for pottery linked to location

Site Sub-division	Context	Sample	Spot date
TP01	90105		Early modern, prob C19th, with late and post-medieval sherds
TP02	90203		Modern, with post-medieval sherd
TP02	90211		Modern
TP02	90221	50002	Medieval, with RB sherd
TP03	90303		Modern
TP03	90304		Modern, with RB sherds
TP04	90403		Modern
TP04	90407		Modern, with medieval sherds
TP04	90409		Modern
TP05	90501		Modern
TP05	90504	50001	Medieval? with RB and 1 early modern sherd
TP06	90603		Modern, with medieval sherds
TP06	90606		Modern
TP06	90610		Post-medieval
TP10	91003	5007	RB (single sherd)
TP10	91004	5006	Post-medieval, with late medieval and RB sherds
TP15	91503	5004	Early modern, with medieval and RB sherds
TP15	91504	5003	Medieval, with RB sherds
Trench 20	95008		Early modern, with post-medieval sherd
Trench 20	95010		Modern, with late post-medieval sherds
Trench 20	95017		Modern
Trench 20	95023		Modern, with post-medieval, medieval and RB sherds
Trench 20	95029		Modern, with post-medieval, medieval and RB sherds
Trench 20	95031		Post-medieval, with RB sherds
Trench 20	95035		Early modern, with post-medieval and medieval sherds
Trench 20	95037	5012 - 5014	Medieval, with RB sherds
Trench 20	95038		Early modern, with high medieval sherds

**Finds assigned to context 90304 are almost certainly from 90305. See description of Test Pit 3 (Section 2.3.1)

Drawing Sheets Index

Table 29 List of drawing numbers

Sheet No	No. of Drawings	Drawings shown
1	1	S22501 (pt1)
2	1	S22501 (pt2)
3	1	S22501 (pt3)

The ‘paper archive’

All prompt sheets and other site paper records will be retained while work on the project is in progress. No paper prompts or indexes will be passed to Archaeological Archives for accessioning. All information from these has been entered into Intrasis, which is the primary site record. Sketches and matrices from the context sheets have been scanned and included in the digital archive.

Table 30 Non-digital records - the ‘paper archive’

Non-digital records - the ‘paper archive’	
The following records will be passed to Archaeological Archives for accessioning:	
Survey notebook	1
Site Drawings: A3 Permatrace sheets	3

Box List

Table 31 Archive boxes and contents

Box number	Material	No of boxes	Size
1	Animal Bone (bulk)	1	Standard
2	Animal Bone (from sample)	1	Skull
3	Animal Bone Tr20	1	Standard
4	Brick and Tile	1	Standard
5	Brick and Tile	1	Standard
6	Stone Masonry	1	Standard
7	Stone Masonry	1	Standard
8	Pottery and clay pipe	1	Skull
9	Oyster shell	1	Skull
10	Mortar and slag	1	Skull
11	Flots	1	Skull
12-15	Residues	4	Standard

16	Glass	1	Stewart
17	Metal	1	Stewart
18	Brick	1	Standard
Total		**18 boxes**	

Other images

Table 32 Images not included in standard excavation archive

Type	Description
Photogrammetry	3D Model, Trench 20
Orthoimages from laser scans	8 images, sections of Test Pits 2 and 3

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Appendices:

Interpretive Context Index, Test Pits 1-6 and Trench 20

Spot dates are taken from Duncan Brown's pottery scan.

Test Pit 1

Table 33 Interpretive context index Test Pit 1

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90101	Deposit	Surface, paved	Flagstone surface	Unrecorded				
90102	Deposit	Layer	Sand bedding for flagstones 90101	Unrecorded				
90103	Deposit	Layer	Layer of clay with modern material.	Unrecorded				
90104	Deposit	Layer	Band of water-worn pebbles lying on layer 90105, possibly a drain. Early modern.	Unrecorded		7146		
90105	Deposit	Layer	Orange/brown clay layer, possibly levelling. Probably the same as 95029 in Trench 20.	Unrecorded	Early modern, prob C19th, with late and post-med sherds	7146, 7167		

Test Pit 2

Table 34 Interpretive context index Test Pit 2

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90201	Deposit	Floor	Modern flagstone flooring.	Unrecorded				
90202	Deposit		Levelling sand beneath flagstones	Possible				
90203	Deposit	Layer	Trample layer	Possible	Modern, with 1 post-med sherd			
90204	Deposit	Layer: rubble	Rubble back fill of feature 90209 (possibly part of a latrine).	Possible		7113, 7114, 7115, 7117, 7119	90209	
90205	Deposit	Layer	Compacted charcoal rich layer, probably the same as 90207. Cut by foundation 90209.	Possible		7113, 7114, 7115, 7117, 7119, 7123		
90206	Deposit	Surface: metalled	Patch of well-laid surface of small rounded cobbles.	Possible		7113, 7114, 7115, 7117, 7119, 7123, 7125		
90207	Deposit	Layer	Compacted charcoal rich layer, probably the same as 90205. Cut by 90209.	Possible		7113, 7114, 7115, 7117, 7119, 7123		
90208	Deposit	Surface	Deliberately laid bricks in the base of 90209, possibly part of the structure rather than back fill.	Unrecorded		7113, 7114, 7115, 7117, 7119, 7123	90209	
90209	Cut	Foundation: cut	Cut feature by tower wall. Possibly part of a latrine/water closet			7113, 7123, 7124, 7125		90204, 90208

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90210	Deposit	Layer: rubble	Rubble layer, cut by 90209. It is the top part of layer 90213.	Unrecorded				
90211	Deposit	Layer: rubble	Rubble backfill, inadequately recorded, but with finds. Same outline as 90210 but relationship not noted.		Modern			
90212	Cut	Feature	Void context (incorrect initial interpretation on site)			7152, 7153		
90213	Deposit	Layer: rubble	Rubble deposit with C17th brick fragments, some heat affected. From destruction of civil war tower?	Unlikely				
90214	Masonry	Brickwork	Laid brick floor on a mortar bedding (90220). Well worn, only part remains.			7156, 7157, 7159		
90215	Deposit	Layer	Dark soil, interpreted on site as 'ghost' of a staircase. Not convincing - probably relates to latrine 90209.			7154, 7155, 7158, 7162		
90216	Masonry	(Concrete blocking)	Concrete block in wall, at the NE end of 90209, probably blocking gap where a drain had left the possible latrine.			7144, 7147, 7160, 7161, 7162		
90217	Masonry	Brickwork	A line of bricks seen in section only. Possibly associated with C17th structure.			7160, 7161, 7162		
90218	Deposit	Surface: mortar	A thick mortar layer in section. Medieval floor, truncated when brick floor 90214 was laid.	Possible		7160, 7161, 7162		

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90219	Masonry	Wall footings/ foundations	Seen in the NE section/wall elevation only, stone footing for the 13th century tower.					
90220	Deposit	Surface: mortar	Mortar base for brick floor 90214.	Unlikely		7156, 7158, 7159, 7163		
90221	Deposit	Layer	Silt clay layer seen where mortar 90220 was removed for boring. Part of the make-up of the motte?	Unlikely	From samples: med, RB sherd			

Test Pit 3

Table 35 Interpretive context index Test Pit 3

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90301	Deposit	Surface, paved	Flagstone paving inside tower	Unrecorded				
90302	Deposit	Layer: levelling	Sand bedding for flagstones 90301	Possible				
90303	Deposit	Layer	Compacted dark soil layer under 90302 - 'trample layer'	Possible	Modern			
90304	Deposit	Pit: fill	Light yellow-brown deposit with limestone rubble, fill of pit 90310, cut by 90309.	Possible	Modern, with RB sherds; 1 possibly C17th or C18th sherd	7020, 7017, 7018, 7019	90310	
90305	Deposit	Pit: fill	Backfill of trench 90309 for tower wall repair or monitoring, early C20th.	Possible			90309	
90306	Masonry		Concrete abutting internal face of tower wall, early C20th.			7024, 7022, 7026, 7029, 7038, 7016, 7017, 7018		
90307	Masonry	Wall	Three ashlar blocks, interpreted by O'Hara as 'stitching' for wall consolidation.			7016-7018, 7021, 7039-7042, 7044-7050, 7052-7055, 7057-7059, 7061-7063, 7065-7066, 7022,		

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
						7027, 7028, 7029, 7038,		
90308	Masonry	Wall footings/ foundations	Rubble foundations for tower wall.			7021, 7024, 7022, 7023, 7026, 7027, 7028, 7038, 7016, 7017, 7018		
90309	Cut	Pit	Cut for consolidation work, early C20th. Probably a single episode by the Office of Works.			7017, 7018		90305
90310	Cut	Pit	Cut with rubble fill			7017, 7018		90304
90311	Deposit	Layer	Layer appearing similar to 90305, cut by 90309 and 90310.			7017, 7018		

**Finds assigned to context 90304 are almost certainly from 90305. See description of Test Pit 3 (Section 2.3.1)

Test Pit 4

Table 36 Interpretive context index Test Pit 4

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawing
90401	Deposit	Layer: topsoil	Topsoil	Probable		7100			
90402	Masonry	Wall footings/ foundations	Concrete skirt reinforcing tower foundation 90408.			7100, 7101, 7102, 7103	90404		
90403	Deposit	Back fill	Upper backfill of cut 90404 for concrete reinforcement 90402.	Probable	Modern	7100, 7101	90404		
90404	Cut	Foundation: cut	Cut for inserting concrete reinforcement 90402.			7100		90402, 90403, 90412	
90405	Deposit	Drain: pipe	Modern services	<<Unrecorded>>		7100, 7101	90406		
90406	Cut	Modern intrusion	Cut for modern services			7100, 7101		90405	
90407	Deposit	Layer: levelling	Layer, probably C19/C20 levelling	Possible	Modern, with medieval sherds	7100			
90408	Masonry	Wall footings/ foundations	Foundations of tower wall. Uneven courses of roughly squared blocks.			7084, 7100, 7101			
90409	Deposit	Post-hole: fill	Fill of triple post hole 90410.	Unlikely	Modern	7106, 7109, 7110, 7111, 7112	90410		

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawing
90410	Cut	Post-hole	Triple post hole. If relationship between 90407 and 90409 is correctly recorded this is not part of the concrete reinforcement.			7105, 7106, 7109, 7110, 7111, 7112		90409	
90411	Cut	Post-pipe	Void left by decay of a timber support for concrete reinforcement.			7101, 7104, 7111, 7112			
90412	Deposit	Back fill	Lower fill/packing of cut 90404.	Possible		7107	90404		
90413	Deposit	Layer	Compact dark yellow brown clay loam, with charcoal and bone, at base of sequence, probably motte material.	Possible		7109, 7110, 7111, 7112			

Test Pit 5

Table 37 Interpretive context index Test Pit 15

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90501	Deposit	Layer: topsoil	Turf and topsoil	Probable	Modern			
90502	Deposit	Surfaced: cobbled	Path of water-worn pebbles, possibly dating to the C18th, when the castle was used as a folly in the garden of a large house.	Unlikely		7127-7138		
90503	Deposit	Layer	Levelling layer post-dating construction of tower.	Possible		7127-7138		
90504	Deposit	Layer	Compact silty clay layer, probably part of motte construction and cut by wall foundation trench.	Unlikely	From sample: Med? Med and RB sherds; 1 early modern sherd.	7145		
90505	Masonry	Wall footings/ foundations	Wall foundations, about 8 regular courses of roughly rectangular stone of various sizes.			7145	90506	
90506	Cut	Foundation: cut	Cut for wall foundations, edge indicated by mortar between foundation and layer 90505.			7145		90505

Test Pit 6

Table 38 Interpretive context index Test Pit 6

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90601	Deposit	Layer: topsoil	Turf and topsoil.	Probable				
90602	Deposit	Layer	Charcoal rich layer overlying compacted rubble/clay layer (90603) and post-dating stitch repair.	Unrecorded				
90603	Deposit	Layer	Variable layer/fill, “Buttress packing material”. Pre-dates stitching repair - final infill of 90611	Probable	Modern, with medieval sherds		90611	
90604	Deposit	Modern intrusion: fill	Electrical cable pipe entirely within topsoil 90601.	Probable				
90605	Masonry	Wall footings/ foundations	Single number assigned to ashlar stitching and wall foundations (smaller stones in lime mortar).			7092, 7093, 7094, 7090, 7084, 7083, 7095, 7096, 7009, 7010		
90606	Deposit	Layer: rubble	Backfill in cut 90611 and around Mott's concrete buttress.	Probable	Modern	7087	90611	
90607	Cut	Feature	Cut associated with concrete insertion and Office of Works stitch repair.			7087		90606, 90609
90608	Masonry		Mott's concrete buttress, in cut 90611.			7092, 7094, 7090, 7087, 7091, 7083, 7086, 7095, 7096	90611	

Context	Type	Simple Name	Interpretive comments	Contamination	Spot date	Photos	Fill of	Filled by
90609	Masonry		Concrete, within cut 90607, probably associated with the Office of Works stitch repair.			7090, 7087, 7083, 7086, 7095, 7096	90607	
90610	Deposit		Backfill in cut 90611 and around Mott's concrete buttress.	Unrecorded	Post-medieval (single sherd)	7094	90611	
90611	Cut	Foundation: cut	Cut for Mott's underpinning buttress 90608.					90603, 90608, 90610

Trench 20

Table 39 Interpretive context index Trench 20

Context	Type	Simple Name	Interpretative comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawings
95001	Deposit	Layer: levelling	Sand bedding for paving slabs	Probable		7718, 7719			
95002	Deposit	Drain: pipe	Ceramic drainpipe, in drain 95004	Probable		7715, 7718, 7719	95004		
95003	Deposit	Drain: capping	Gravel fill round ceramic pipe, in in drain 95004	Probable		7715, 7718, 7719	95004		
95004	Cut	Drain: construction trench	Cut for drain			7715, 7716, 7717, 7718, 7719, 7723		95002, 95003, 95005	
95005	Deposit	Drain: fill	Layer of brick fragments in base of in drain 95004	Probable		7718, 7719	95004		
95006	Cut	Drain: construction trench	Stone lined drain			7720, 7721, 7731		95007, 95009	
95007	Deposit	Drain: lining	Stone edging of drain 95006	Unlikely		7720, 7721, 7731	95006		
95008	Deposit	Layer: rubble	Layer of stone, brick and mortar rubble, northeast end of trench	Probable	Early modern, with 1 post-med sherd	7720, 7721			
95009	Deposit	Drain: fill	Fill inside stone lining 95007 of drain 95006				95006		

Context	Type	Simple Name	Interpretative comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawings
95010	Deposit	Layer	Thin layer, mixed material including mortar and CBM fragments	Probable	Modern, with late post-med sherds	7722, 7723			Section 22501, Sheets 1-3
95011	Deposit		Layer, part of 95010 (separated by drain 95004)	Unrecorded		7723			
95012	Deposit	Surface: Cobbled	Spread of cobbles and building material overlying layer 95019	Unrecorded					
95013	Cut	Modern intrusion	Trench for electric cable, unexcavated			7801, 7802, 7803, 7804, 7805, 7806			
95014	Deposit	Pit: fill	Rubble fill of pit 95015. Part of a group of modern intrusions in southwest end of trench.	Unrecorded		7728, 7729	95015		Section 22501, Sheets 1-3
95015	Cut	Pit	Pit. Part of a group of modern intrusions in southwest end of trench.			7728, 7729		95014	Section 22501, Sheets 1-3
95016	Deposit	Layer: rubble	Rubble layer (50% brick) upper fill of pit 95028. Modern intrusion in SW end of trench.	Possible		7728, 7729, 7747, 7748	95028		Section 22501, Sheets 1-3
95017	Deposit	Layer	Gravelly layer slumped into feature 95028. Part of a group of modern intrusions in SW end of trench.	Possible	Modern	7728, 7729, 7730			
95019	Deposit	Layer	Dark soil layer throughout trench (same as 95023).	Possible					Section 22501, Sheets 1-3

Context	Type	Simple Name	Interpretative comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawings
			Postdates modern intrusions in SW end of trench.						
95020	Deposit	Feature: fill	Gravel deposit, part of same dumping episode as 95016				95028		
95021	Deposit	Drain: fill	Fill/packing for drain 95024.	Unrecorded	C20th	7736, 7741, 7742	95024		
95022	Cut	Feature	Slight dip in the surface of layer 95023, overlain by rubble layer 95008.			7731			
95023	Deposit	Layer	Dark soil layer (same as 95019, but at NE end of trench).	Probable	Modern, with post-med, med and RB sherds	7731			
95024	Cut	Drain: construction trench	Cut for modern drain (ceramic pipe 95025).			7741, 7742		95021, 95025	
95025	Deposit	Drain: pipe	Ceramic drain pipe in drain 95024. Reinstated during backfill.	Possible			95024		
95026	Deposit	Linear feature: fill	Pea grit fill of modern conduit trench 95027.	Possible	C20 th		95027		
95027	Cut	Linear feature	Linear feature, described by John Ward as 1998 conduit. Location not recorded.			7745, 7746		95026	
95028	Cut	Feature	Cut for earliest of a group of modern intrusions in SE			7749, 7753		95016, 95020, 95030	

Context	Type	Simple Name	Interpretative comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawings
			of trench, cutting levelling layer 95029						
95029	Deposit	Layer	Extensive orange-brown deposit throughout trench. Levelling layer.	Possible	Modern, with post-med, med and RB sherds	7754, 7755, 7757, 7758, 7759			Section 22501, Sheets 1-3
95030	Deposit	Pit: fill	Lower fill of pit 95028. Part of a group of modern intrusions in SW end of trench.	Unrecorded			95028		
95031	Deposit	Layer	Rubble layer (15% brick) in and above a cut into motte material 95037. One of four similar deposits.	Possible	Post-med, with RB sherds		95032		Section 22501, Sheets 1-3
95032	Deposit	Pit: fill	Poorly recorded pit in SE end of trench. Stratigraphic position relative to 95029 uncertain.	Unrecorded				95031	
95033	Deposit	Feature: fill	Fill of 95034 (no context description but probably below 95029)	Unrecorded			95034		
95034	Cut	Feature	Feature in SW end of trench, probably part of another rubble-filled pit cutting motte material 95037					95033	
95035	Deposit	Linear feature: fill	Fill of 95036. Large stone blocks near top of fill, loose fill with degraded mortar below.	Probable	Early modern, with post-med and med sherds	7782, 7783, 7784, 7785, 7786	95036		Section 22501, Sheets 1-3

Context	Type	Simple Name	Interpretative comments	Contamination	Spot date	Photos	Fill of	Filled by	Drawings
95036	Cut	Linear feature	Cut into motte material 95037, extending beyond trench, depth not established.			7782, 7783, 7784, 7785, 7786		95035	Section 22501, Sheets 1-3
95037	Deposit	Layer	Dark brown layer, truncated by large pits, but seen in three places. Top material of the motte.	Probable	From samples: Medieval, with RB sherds.	7804-7810			Section 22501, Sheets 1-3
95038	Deposit	Pit: fill	Fill of pit 95039. Mortar with brick and stone rubble, some burnt.	Unlikely	Early modern, with high med sherds		95039		
95039	Cut	Pit	One of the large pits with rubble fills truncating motte 95037. Limited excavation.					95038	

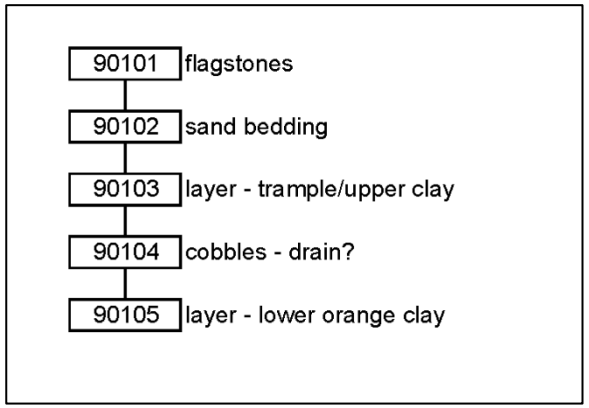
Other Test Pits

Table 40 Interpretive context index of other test pits

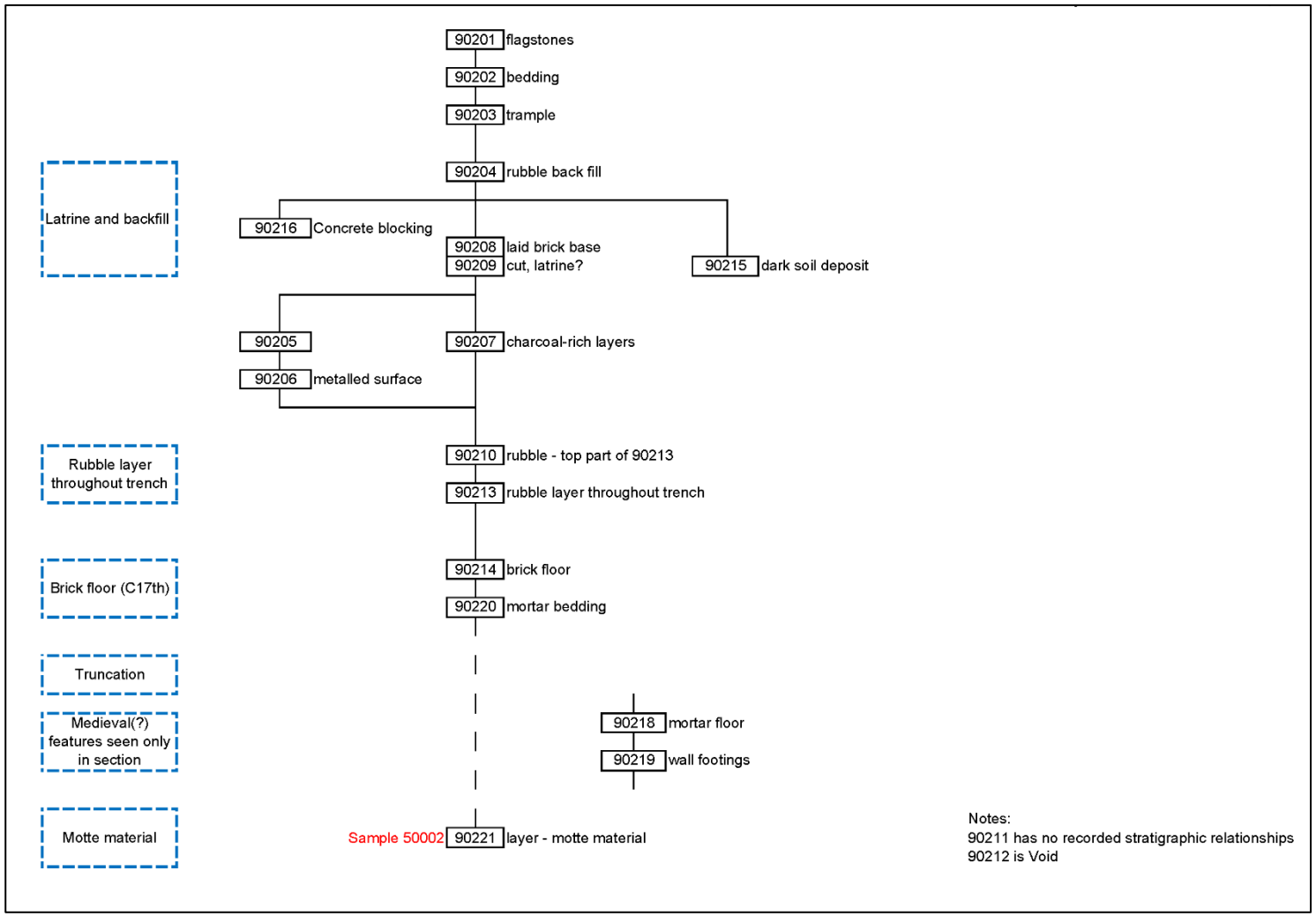
Context	Type	Simple Name	Interpretive comments	Site subdivision	Photos	Structural Group number	Structural Group description
90901	Masonry	Wall	Retaining Wall in TP9	Test Pit 9	7926-7928, 7929-7935, 7937-7955	10000231	Prison Retaining Wall
91201	Deposit	Layer: Topsoil	Topsoil	Test Pit 12			
91202	Deposit			Test Pit 12			
91203	Deposit			Test Pit 12			
91701	Deposit	Layer: Topsoil	Topsoil	Test Pit 17			
92401	Masonry	Wall	Retaining Wall in TP24	Test Pit 24	7910-7912	10000231	Prison Retaining Wall
92501	Masonry	Wall	Retaining Wall in TP25	Test Pit 25	7913, 7914	10000231	Prison Retaining Wall
92601	Masonry	Wall	Retaining Wall in TP26	Test Pit 26	7915, 7916	10000231	Prison Retaining Wall
92611	Deposit		Concrete spread in TP26A	Test Pit 26A	7917	10000278	Mott's buttressing
92701	Masonry	Wall	Retaining Wall in TP27	Test Pit 27	7918-7920	10000231	Prison Retaining Wall
92711	Deposit		Concrete spread in TP27A	Test Pit 27A	7921	10000278	Mott's buttressing
92801	Masonry	Wall	Retaining Wall in TP28	Test Pit 28	7922-7925	10000231	Prison Retaining Wall

Matrices, Test Pits 1-6 and Trench 20

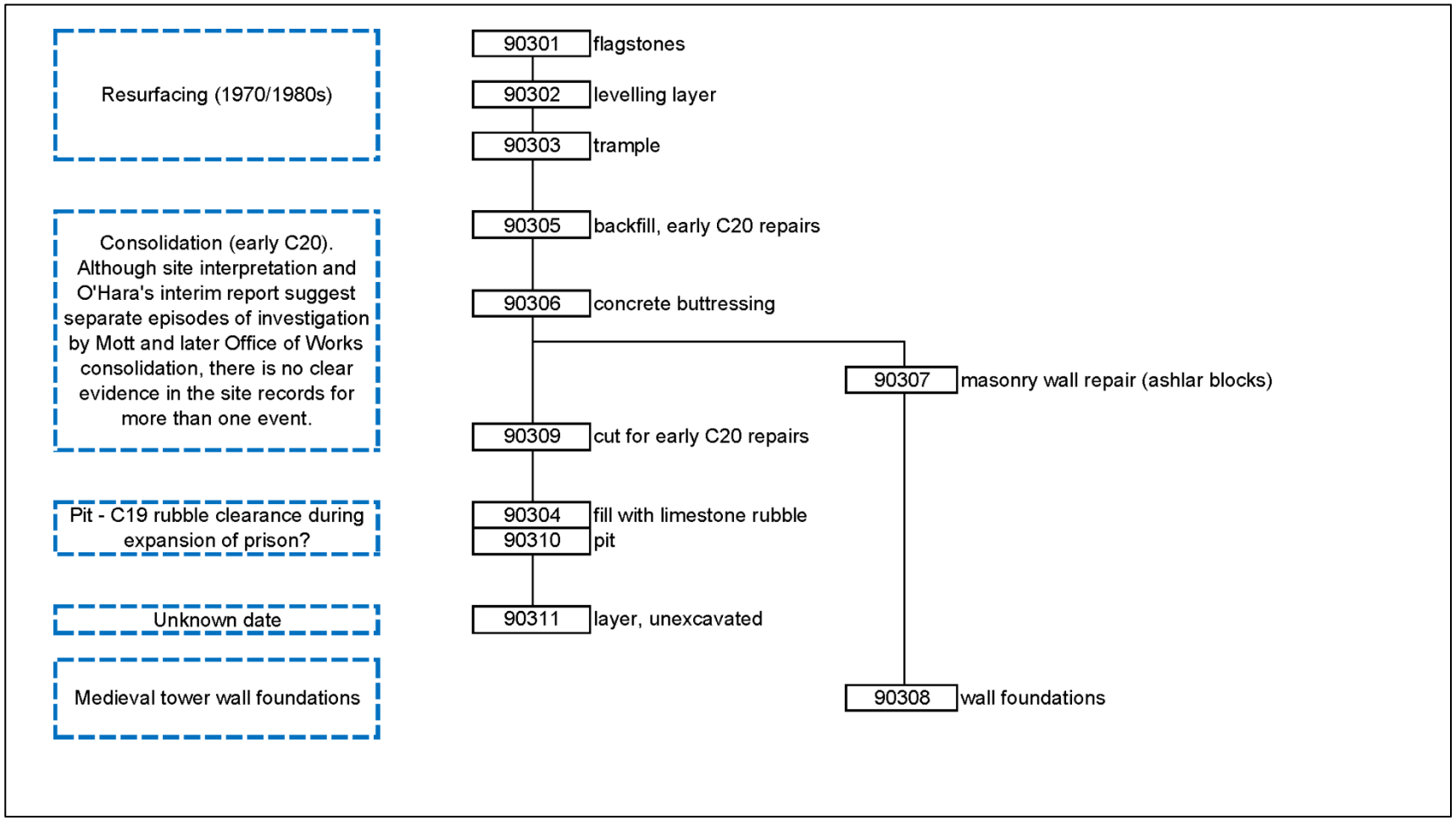
Test Pit 1 matrix



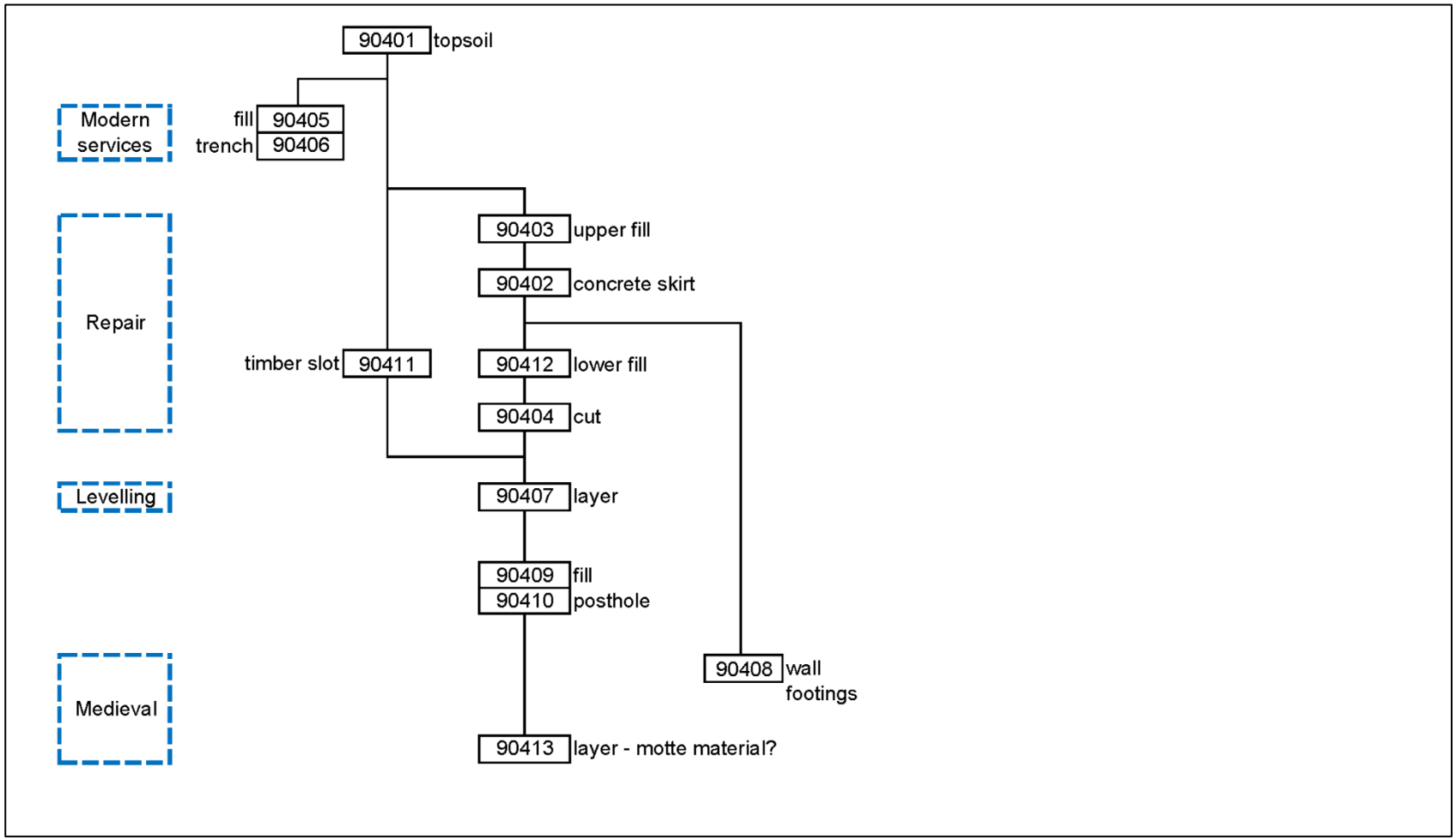
Test Pit 2 matrix



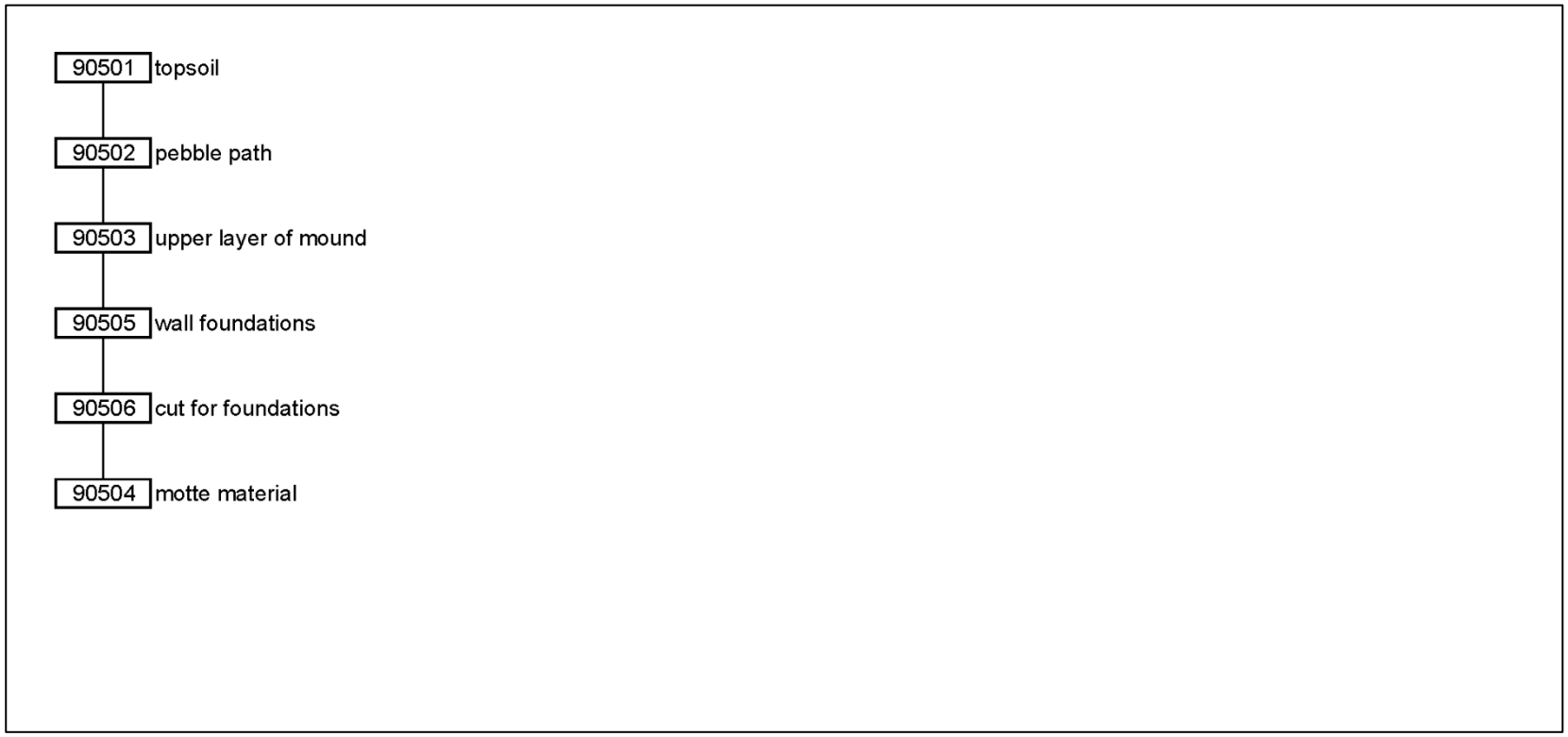
Test Pit 3 matrix



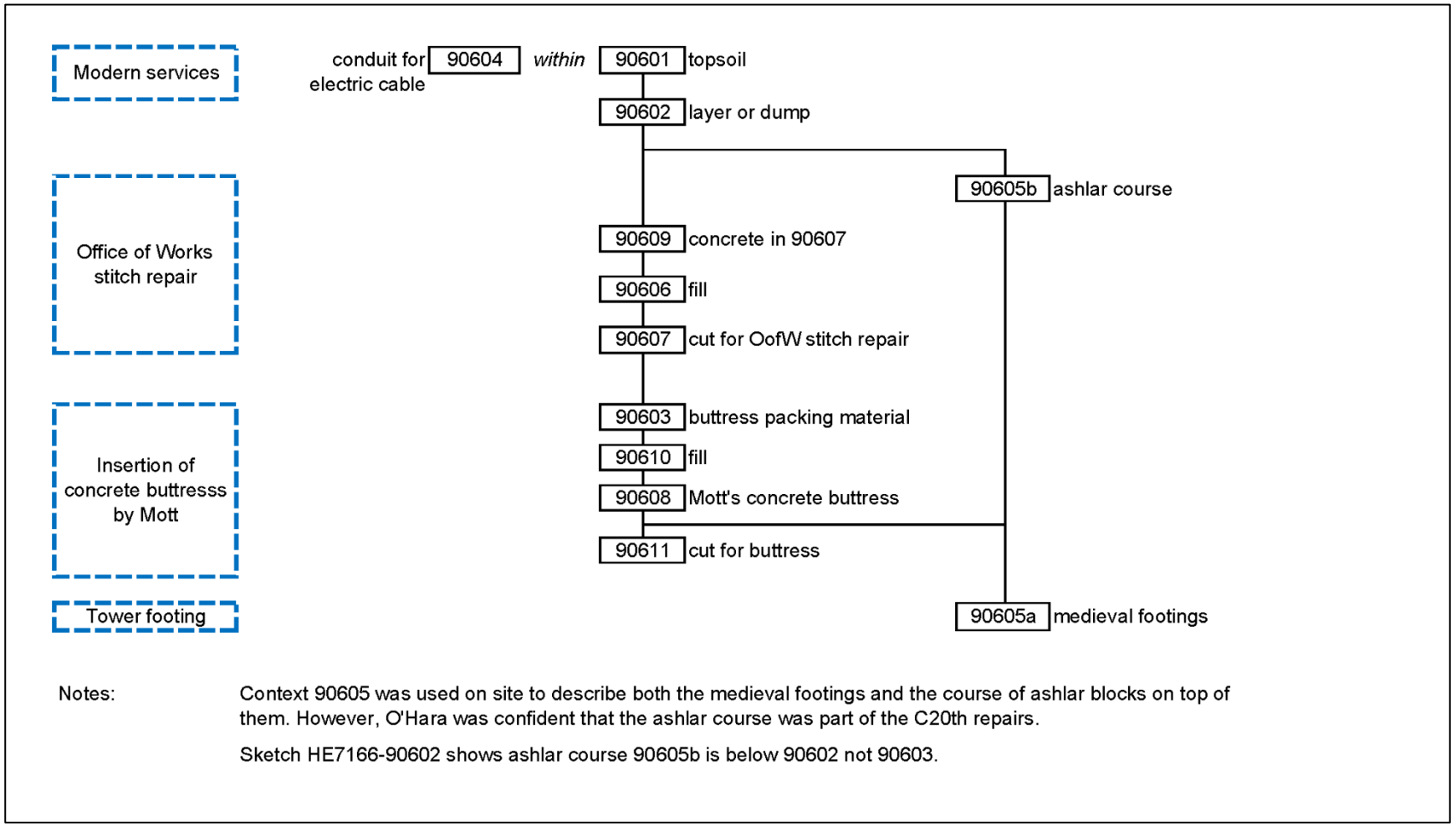
Test Pit 4 matrix



Test Pit 5 matrix



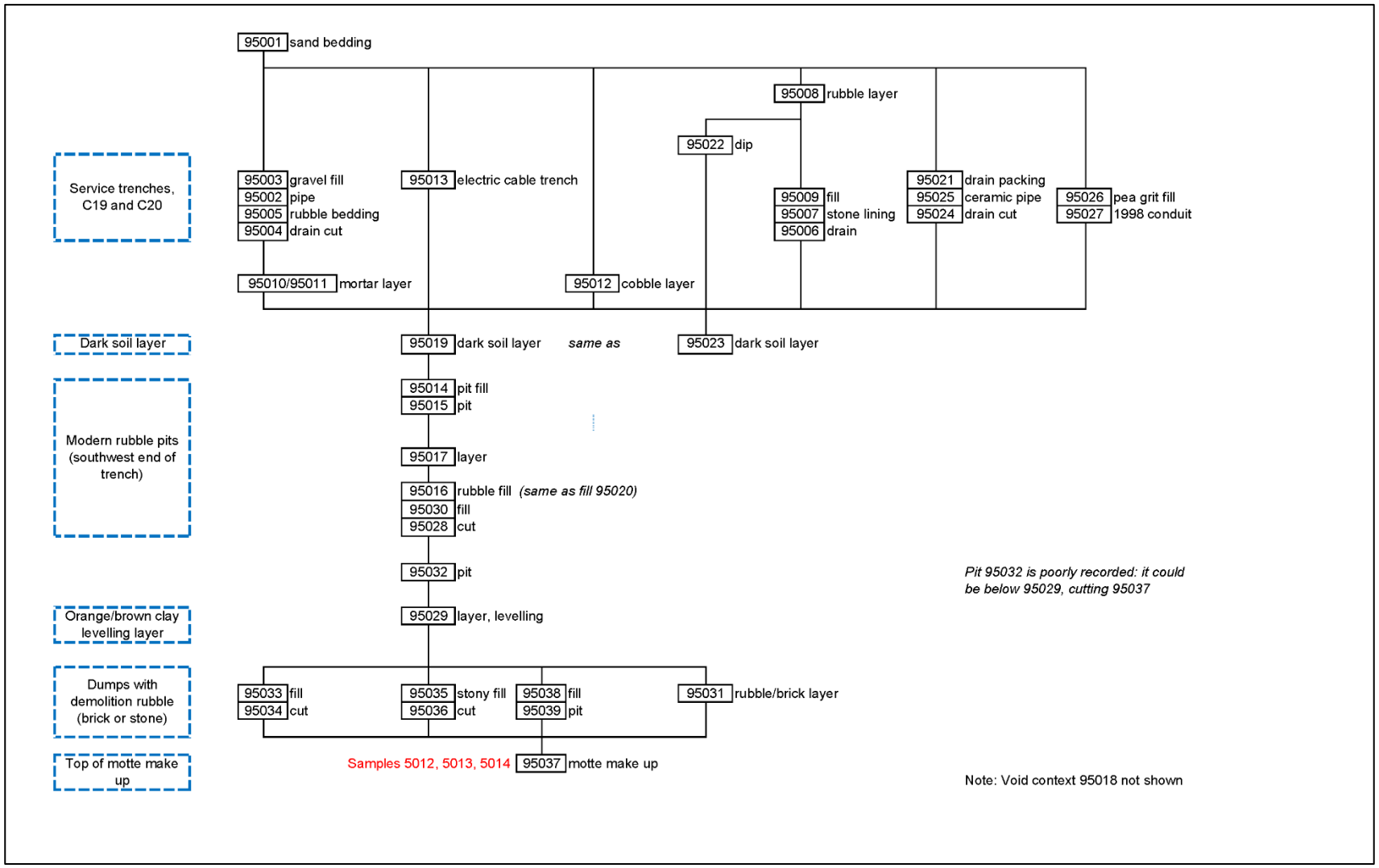
Test Pit 6 matrix



Notes: Context 90605 was used on site to describe both the medieval footings and the course of ashlar blocks on top of them. However, O'Hara was confident that the ashlar course was part of the C20th repairs.

Sketch HE7166-90602 shows ashlar course 90605b is below 90602 not 90603.

Trench 20 matrix



Hand-collected and sampled animal bone

Table 41 Hand-collected and sampled animal bone.

Taxa/Context	90105	90203	90210	90211	90221	90303	90304	90403	90407	90409	90501	90504	90602	90603	91004	91103	91303	91503	91803	91903	92004	95010	95016	95017	95023	95029	95031	95035	95037	95038	Total
Cattle	5		3				18		4	1		3		2	1			1				1			1	24	2	2			68
Sheep/goat	3	3	5	3	1		4		2		1	1		1			1		1	1						13			7	2	49
Pig	3	1					8	2	1	1		3		1					1						1	5	1				28
Equid							1																			4					5
Dog																				1											1
Cat			2	1								2															2				7
Red/fallow deer	1						1																	1							3
Leporidae														2												1					3
Rat/water vole				1								2		1																	4
Muroidea												2								1											3
Chicken/pheasant/ guineafowl		1		2			2	1	2		1			2				2							1	2			1		17
Anatidae									1					1																	2
Columbidae														1											1						2
Corvidae																								1			1				2
Turdidae																		1													1
Bufonidae																				1											1
Large mammal	9	3	4	2	1	7	28	2	10	3	2	6	2	18	3		1	2		1	1	1		1	3	46	5	1	13	3	178
Medium mammal	4	4	2	7	2	6	21	1	6		1	1	1	6						1		1	2			16	5		10		97
Bird							1		4			2			2		2			1					1	2			2		17
Fish					1			1			1	15			12	1	8	1	5	9	4								40		98
Total	25	12	16	16	5	13	84	7	30	5	6	37	3	35	18	1	12	7	7	16	5	3	2	3	8	113	16	3	73	5	586

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