FAS HERITAGE

Clifford's Tower York

Archaeological investigation

Report

September 2023

CLIFFORD'S TOWER

YORK

NORTH YORKSHIRE

ARCHAEOLOGICAL
INVESTIGATION

REPORT No 836

SEPTEMBER 2023

FAS HERITAGE

Unit 8 Fulford Business Centre
35 Hospital Fields Road
York YO10 4DZ

01904 652000
mail@fas-heritage.co.uk
www.fas-heritage.co.uk

Field Archaeology Specialists Ltd (trading as FAS Heritage) is a limited company registered in England (Company No. 02801722, VAT Registration No. GB 599 0974 69).

Project Details

Client	ENGLISH HERITAGE 37 Tanner Row York YO1 6WP
Project name	Clifford's Tower
Location	York North Yorkshire
NGR	SE 6046 5147
Project type	Archaeological investigation
Project team	Justin Garner-Lahire BA Jonathan Clark BA MA DPhil FSA Cecily Spall BSc MA MCIfA Nicola Toop BA MA PhD MCIfA Richard Jackson BA
Report prepared by	Nicola Toop BA MA PhD MCIfA Jonathan Clark BA MA DPhil FSA
Site code	YCT 21-22
Report code	FAS2022 836 YCT780
Planning reference	20/00217/FUL
OASIS reference	fieldarc1-509484

Document Control Grid

Version	Date	Author(s)	Reviewed by	Status	Revision(s)	Authorised by
1.0	02/09/23	Jonathan Clark Nicola Toop	Cecily Spall	Final	-	 Justin Garner-Lahire

Contents

List of figures

List of plates

List of tables

Summary

This report presents the results of a scheme of archaeological investigation undertaken to mitigate the impact and maximise the research dividend of a programme of visitor improvement and conservation works at Clifford's Tower, York. The investigation was undertaken by FAS Heritage on behalf of English Heritage between 6th January 2021 and 14th February 2022.

The archaeological programme involved controlled archaeological ground reduction across the interior of the tower (Intervention 6) and in the forebuilding (Intervention 11), alterations to the motte slope in the form of three rest bays (Intervention 10), archaeological monitoring of new service trenches (Intervention 7 and 8) and excavation in advance of the construction of an attenuation tank at the foot of the motte (Intervention 12). A structural watching brief and programme of fabric recording was also undertaken in concert with the installation of a new gantry structure inside the tower to provide access to the upper levels of the structure including garderobes, a new roof platform, recommissioning and extension of the bartizan stairs, replacement of the entrance kiosk as well as a programme of conservation works to the interior and exterior masonry, including the chapel roof (Intervention 9).

The results have provided new understanding of Clifford's Tower and its motte from the pre-Conquest period to the modern day. Insight into the Norman-period motte and its composition has been won through analysis of an assemblage of residual Roman and early medieval finds. In addition, a clearer view of the original conception and execution of the 13th-century stone tower, its design, form and adaptation has emerged. This includes the significant discovery that the design did not include a central pier as well as new insight into the arrangement of windows, internal floor levels, the wall head, the chapel and the well which appears to have formed the only deposit trap for medieval material assemblages.

The reuse of the tower in the 17th century during the Civil War and the decades following included the lowering of internal floor levels and the insertion of brick-built structures which removed medieval floor level. Ongoing reuse of the tower into the 18th century saw it being reappropriated as a managed romantic ruin within the grounds of a gentry house to the northeast. The tower was again reappropriated as part of the judicial and penal heart of the city albeit largely symbolically and host to a large flagpole at this time, initially on the walls and later within the centre of the tower. From the early 20th century repairs to prevent the failure of the tower gradually transpose into active management of the Clifford's Tower as a heritage asset which remains the case today.

Acknowledgements

FAS would like to thank Dr Mark Douglas, Dr Jeremy Ashbee, and Rachael Baldwin-Gledhill, English Heritage, and Dr Keith Emerick, Historic England, for advice and support during this project. We would also like to thank the staff of the Principal Contractor, Simpson (York) Ltd for their assistance, with particular thanks to the Project Manager, Neil Moss.

1 Introduction

This report presents the results of a scheme of archaeological investigation undertaken to mitigate the impact and maximise the research dividend of a programme of visitor improvement and conservation works at Clifford's Tower, York. The investigation was undertaken by FAS Heritage on behalf of English Heritage between 6th January 2021 and 14th February 2022.

1.1 Location and land use

Clifford's Tower is a popular visitor attraction, situated to the southeast of York city centre, occupying a spur of land between the Rivers Ouse and Foss (Figure 1; Plate 1 and Plate 2). The iconic stone tower is located on the summit of an earthwork motte, c.10m high, bounded to the northeast by a public car park, to the northwest and southwest by Tower Street, and to the southeast by the road leading towards the Castle Museum and open ground known as the Eye of York. A stone stair provides access to the tower from the southeast.

Plate 1 Aerial view of the site (2022 © Google Earth)

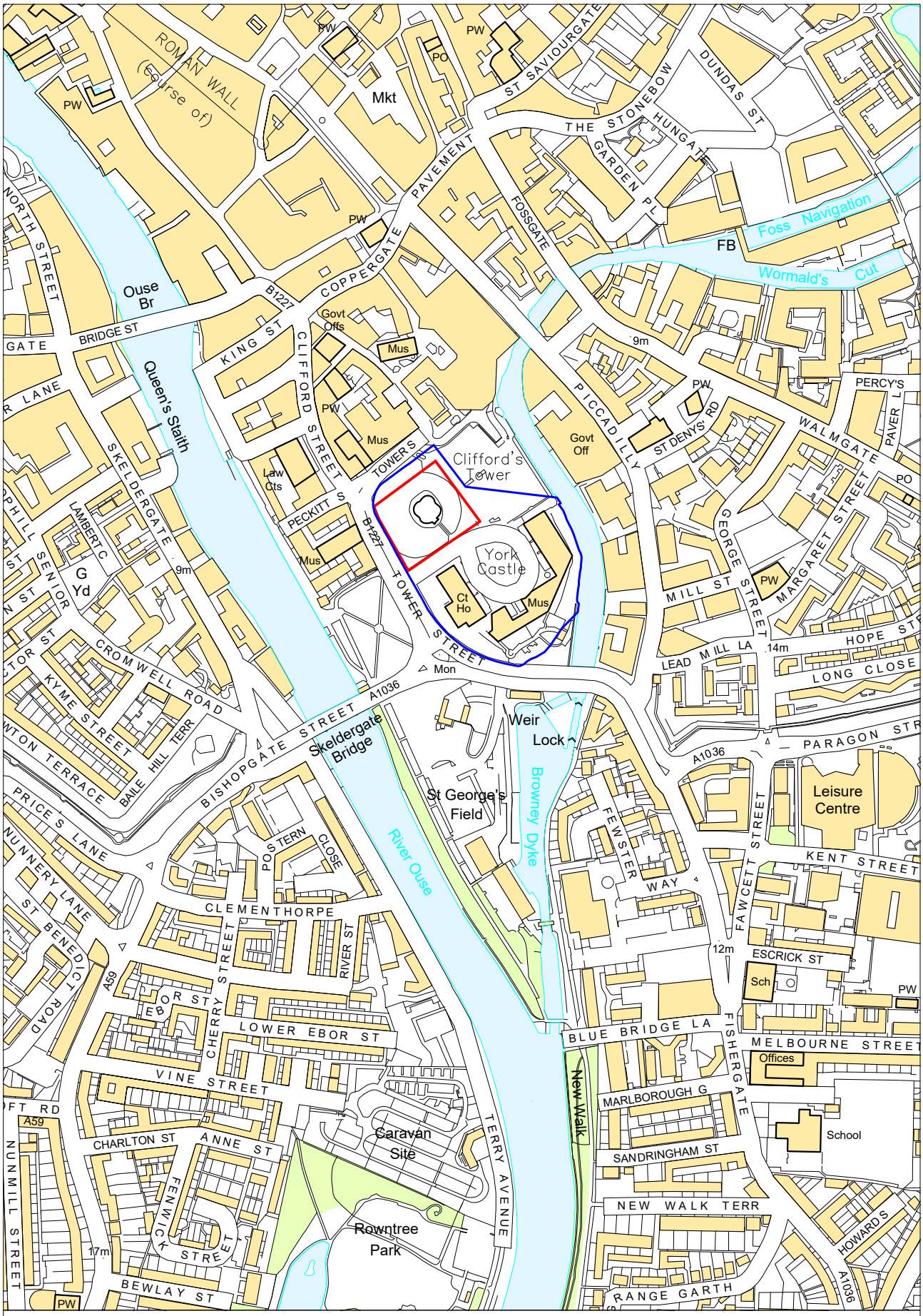


Figure 1 Location map - site outline in red, scheduled monument outline in blue

Scale 1:5000@A4

Plate 2 General view of the tower prior to the onset of works, looking north

1.1.1 Statutory designations

The site of the archaeological investigation lies within the Scheduled Monument designated as *York Castle: motte and bailey castle, tower keep castle (including Clifford's Tower), and site of part of the Romano-British fort-vicus and Anglian cemetery* (NHLE 1011799)(see Figure 1). The Scheduled Monument Description is provided in Appendix 1.

Clifford's Tower is a Grade I Listed Building (NHLE 1259325); the Listed Building description is included in Appendix 2.

The site also lies within the Central York Conservation Area and the York Area of Archaeological Importance.

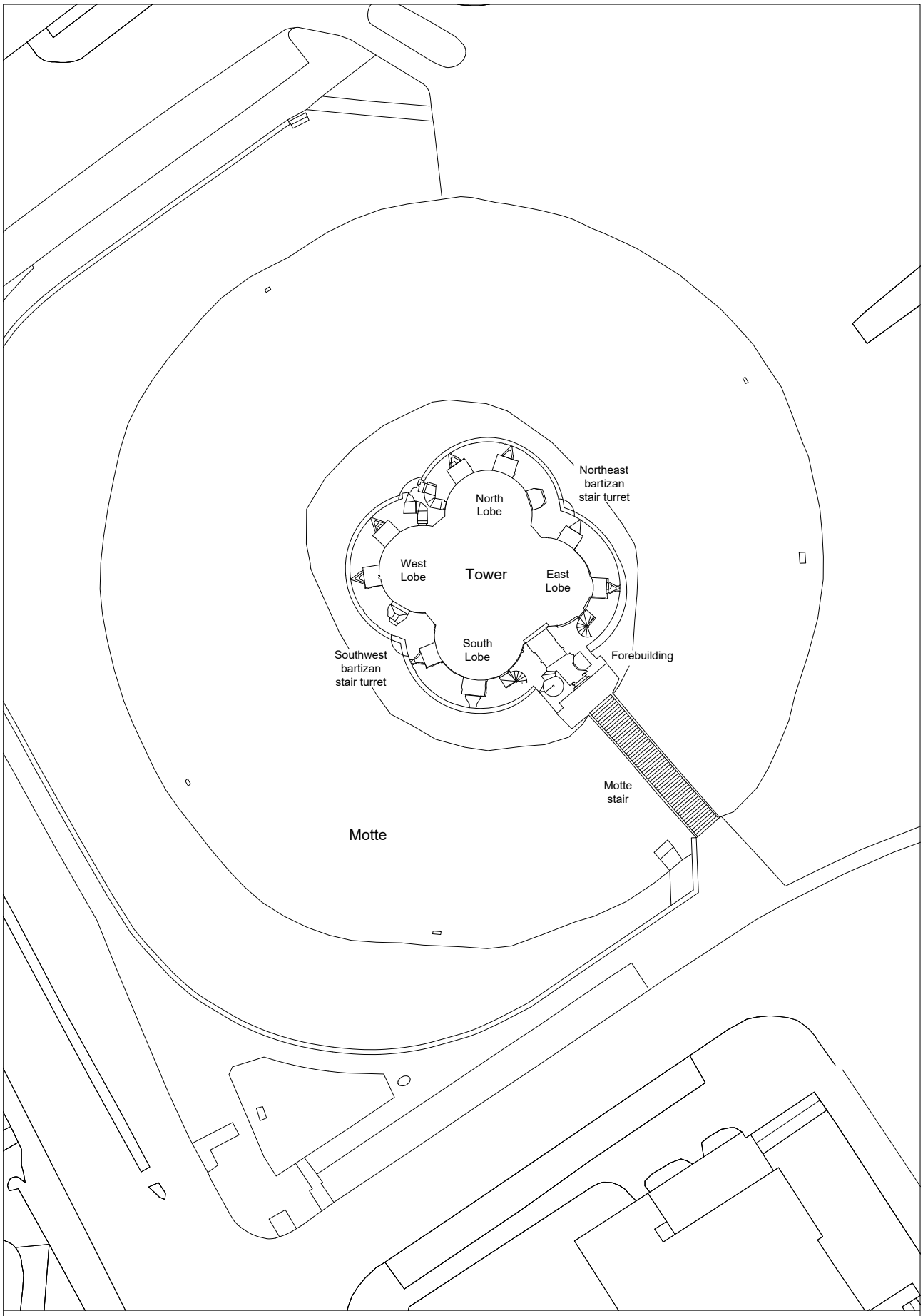


Figure 2 Plan of the site

Scale 1:500@A4

2 Historical and archaeological background

The historical and archaeological development of Clifford's Tower has been set out in detail in a Conservation Plan for the site (FAS Heritage 2006), and previous reports on the site (Ashbee 2003). These have been drawn upon, with additional documentary and archival research, in the following summary background; these sources should be consulted for more detailed discussion of the documentary references.

2.1 Geology

The solid geology of this area is Sherwood Sandstone of the late Permian period (information from the BGS Map Viewer). This is overlaid with glacial till, described as interbedded sand, gravel and laminated clay, generally between 10 and 30m in depth. To the west, the superficial geology gives way to laminated clay identified as part of the Alne Glacio-lacustrine formation, up to 20m thick. To the east, are areas of alluvium, described as soft to firm silty clay [bgs.ac.uk consulted 20/04/2020].

2.2 Before the Norman castle

A castle was first established at the site in 1068, but the archaeological evidence from the immediate area indicates that this spur of land has been the site of activity from the Roman period and possibly earlier.

2.2.1 Prehistoric activity

Evidence for prehistoric activity is fragmentary. During underpinning of the tower in 1902, a crouched burial in a stone cist was encountered; from contemporary descriptions this has been interpreted as Bronze Age in date (Benson and Platnauer 1902, 70; Radley 1974, 12). Benson and Platnauer suggested in 1902 that this provided evidence that the motte had been built on a low, pre-existing mound, although this insight was based on poor descriptions from the workmen and they did not view the site or possible evidence first hand.

2.2.2 Roman period

During the Roman period, this site occupied a location outside the city walls, in an area known to have been used for burial.

A Roman road is believed to have passed close to the location of Clifford's Tower. The Royal Commission on the Historical Monuments of England (hereafter Royal Commission or

RCHME)(1962, 1) suggested that Road 2 from Lincoln passed over the Foss close to the Castle Museum, turning into castle yard, while other suggestions indicate that a Roman road within the castle yard would have been a more minor route (Ottaway 1993, 12). Archaeological evaluation in the Castle Car Park in 1995 was designed to find the conjectured route of Road 2 to the southeast of Clifford's Tower, but it was not located. The original topography of the banks of the Foss at this point has been used to question the proposed route as projected by the Royal Commission (Ottaway 2011, 231-235).

This extramural area appears to have served primarily as a cemetery with little evidence for occupation having been identified. Discoveries of burials in the area of the castle have been recorded since 1824, with more recent discoveries occurring during the installation of drainage in 1956 (Ramm 1956-8, 400*ff*). A range of burial types have been encountered, including inhumation burials of some status; a number of stone coffins have been recovered. The first was found in 1835, and was inscribed for Aurelius Super, a centurion of the VIth Legion. It lay at a depth of 7 to 8ft, and was possibly reused, as the ornate decoration is likely to have been intended for a tomb (RCHME 1962, 69). A second stone coffin was found just a few feet away, and it has been suggested that these burials represented man and wife (RCHME 1962, 69).

In 1956, a drain was excavated on a line from the area in front of the entrance to Clifford's Tower to the north end of the Castle Museum (the former Female Prison) and revealed a total of four burials (Ramm 1956-8, 400*ff*). The first was represented by a lead coffin, containing the skeleton of a child wrapped in linen (fragments of which had survived), lying 8-9ft below the ground level. The second coffin was of stone, inscribed and carved, lying northeast of the first, at the same level and of the same alignment. Although the coffin contained a male skeleton aged 35-40 years, it was made for Julia Victoriana by her husband, a centurion of the VIth Legion. Again, the fine carving on the stone indicated the coffin would have lain in a tomb, and fragments of wall plaster and building stones were found in an adjoining grave (RCHME 1962, 68). A third inhumation, in a plank-lined grave, was identified to the northeast, perpendicular to the reused stone coffin. Again, the skeleton was male, but the grave was too short for the body, causing the head to be slightly propped up. This burial had been cut by a fourth inhumation, in a wooden coffin, containing the skeleton of a young woman; associated finds consisted of three bronze and two bone bracelets, tied onto the right shoulder of the body with a leather thong. There was also a Castor Ware beaker found just beneath the body. Other finds in the area consist of pottery sherds and a small perfume flask (RCHME 1962, 69) and features containing 3rd to 4th-century pottery (Ottaway 2011, 231-233).

Of the many burials recovered since 1824, of particular interest are the two inscribed sarcophagi that refer to centurions. These inscriptions have led to the suggestion that the cemetery, now known as the Castle Yard Cemetery, may have belonged to a burial club of the centurionate (RCHME 1962, 67). Due to the presence of at least two reused coffins and a variety of burial types, it has been

suggested that this was a multi-phase cemetery, with the inscribed sarcophagi belonging to the earlier phase (RCHME 1962, 67). Since burial was not permitted within the areas occupied by the living, and cemeteries frequently focussed around major routeways, this evidence is consistent with the existence of the Roman road through this area. The presence of human bone in the makeup of the motte mounds has been used to suggest that it comprises upcast from disturbed graves and cemetery soils.

There is some limited evidence for extramural settlement just north of the line of the later outer bailey ditch. In 1871, a mosaic pavement was discovered adjacent to St Mary, Castlegate, apparently under the 'buttress on the left side of the entrance door'. In addition, a column base was located in front of Castlegate house in 1883 (RCHME 1962, 59). Slightly further to the north, a number of structures were discovered during the excavations of 16-22 Coppergate, immediately north of the castle, consisting of timber structures dated to the late 1st to 2nd century and later stone buildings (Ottaway 1993, 67). These findings demonstrate that there was some settlement in the Roman period in this area. There is an apparent correlation between the known extent of the Roman cemetery and the line of the later outer bailey ditch to the north of the site, perhaps suggesting that this was a boundary which had been fossilised from the Roman period into the 11th century.

2.2.3 Early medieval

Evidence for early medieval activity clusters at the Castle Yard-Clifford Street area and provides an indication of funerary, ecclesiastical, and domestic activity in this zone (Spall and Toop 2011). This period in York is generally discussed in terms of the Anglian period (mid-5th to mid-9th century) followed by the Anglo-Scandinavian period (mid-9th to 11th century), and this terminology is used within this report.

Evidence for early Anglian activity (mid-5th to mid-7th century) is fragmentary, but points to a possible cemetery within this area, reusing the site of the Roman burial ground. A 7th-century copper-alloy hanging bowl and two ceramic vessels found in Castle Yard may have originated in funerary contexts (Cramp 1967, 5-6). To this might be added a 6th-century Coptic footring bowl purported to be from Clifford Street; although the latter should be included with caution and a possible provenance outside of York has been suggested (Tweddle, Moulden and Logan 1999, 236; Mainman 2019, 29).

In later centuries, a 7th-century ecclesiastical foundation has been tentatively identified within this general area. Salvage recording undertaken in 1975 within St Mary Castlegate (200m to the north; Figure 3) produced four architectural fragments using reworked Roman stone. The fragments included a capital from a street-side colonnade and three column drums made from reused Roman blocks in 'a style not characteristically Roman' (Blagg 1983, 153). Tweddle suggested an interpretation as evidence for a major Anglian structure, possibly a church with freestanding columns,

dating to the 7th century (Wenham *et al* 1987, 154; Tweddle, Moulden and Logan 1999, Fig.44, 186). It has been suggested that St Mary Castlegate originated as a pre-Conquest minster, which would have continued to serve the inhabitants of the nearby castle during the medieval period (RCHME 1973, 60).

Fragments of a fine-quality, stone monument of 8th- to 9th-century date, found during excavations at Coppergate, would point to further ecclesiastical in the vicinity in the following centuries (Lang 1991, 104-5). These fragments were found close to a group of four Anglian-period inhumations at Coppergate. Radiocarbon-dating places two of these burials in the period AD 670-780, and two more could be late 7th/8th to late 9th-century in date (Hall 2014, 720; Mainman 2019, 68, 122). These burials, and the sculptural fragments, have been linked to a pre-Conquest foundation at All Saints, Pavement, which lies a short distance to the north.

The form of the early settlement that would have been served by these churches is not well attested and intact evidence for occupation in the area in the Anglian period is scarce, most frequently represented by stray and residual finds. At 16-22 Coppergate, a thick grey layer was found overlying Roman deposits, interpreted as the accumulation of natural deposits reflecting a relatively deserted area. Anglian features were confined to a wood-lined pit, which contained the 8th-century Coppergate helmet, and the burials noted above; the two later burials were interred in pits, rather than graves.

A highly significant residual Anglian assemblage was also identified, including rare wet-preserved wooden items including part of a decorated wooden saddle bow, a churn dasher and an iron sword beater. At 22 Piccadilly, which lies c.200m northeast of Clifford's Tower, evidence was encountered for wattle alignments associated with Anglian pottery.

Mitigation excavation at 23 Clifford Street excavated levels down to c.8m AOD leaving c.300mm of stratigraphy in situ (FAS Heritage 2011). The earliest activity excavated was dated broadly to the 9th- to 11th-century, but residual sherds suggested that deposits of late 8th- to 9th-century date had been disturbed, and probably directly. Two bone artefacts were also recovered: a fragment of composite, double-sided comb and a fragmentary bone thread-picker. The evidence points towards increased activity towards the later Anglian period, the 8th- to 9th-century, the nature of which remains uncertain. Further stray finds from the vicinity add to this picture, including decorated bone pins (early 9th-century), a bone trial piece, a girdle hanger, two 9th-century antler ?lucets, a lead-alloy cross stamped with impression of styca of King Osbert of Northumbria (875-67), a styca of Aethelred II (c.840-8) and a sceatta of Eanred (c.810-840)(Waterman 1959; Mainman 2019, 114).

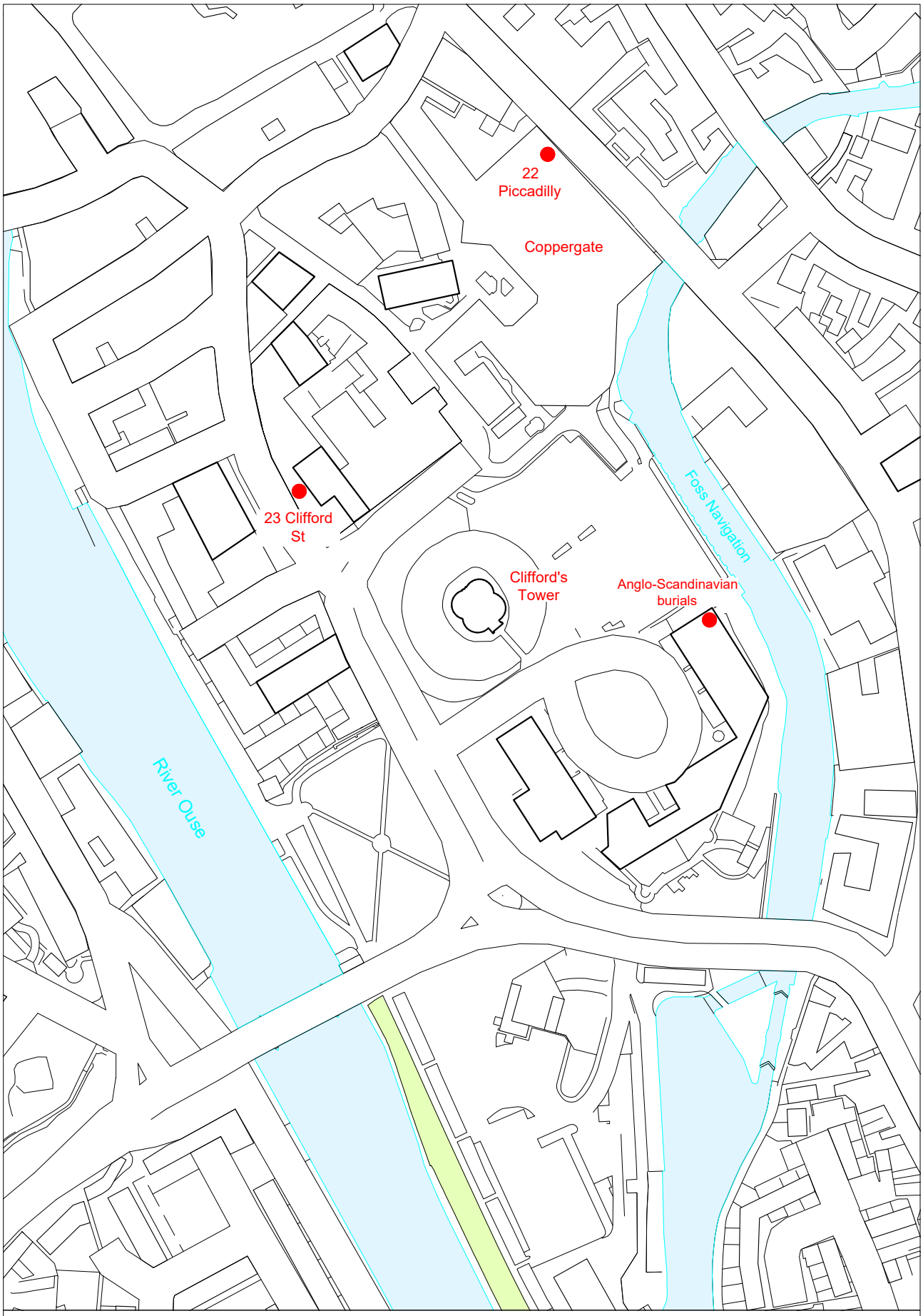


Figure 3 Location of sites mentioned in the text Scale 1:2500@A4

From the 9th century onwards, evidence indicates an intensification of activity and occupation, and archaeological evidence is more prolific. By this period, many of the streets and lanes of the area had been established, probably incorporating the water lanes that ran from Castlegate to the river, prior to the construction of Clifford Street. These are documented from the 12th-century onwards, known as Kergate/Cargate or 'First Water Lane' (now King Street), Thursgayl or 'Middle Water Lane' (now Cumberland Street) and Hertergate or 'Far Water Lane' (no longer exists)(Raine 1955, 202).

The greatest concentration of evidence for Anglo-Scandinavian activity has come from the Coppergate excavations (Hall 2014). This revealed evidence for intensive occupation established between the late 9th century and c.930-5, with a series of long narrow tenements bounded by Coppergate and the river Foss. The buildings, with their gables facing onto the street, were of post-and-wattle construction, with backyards defined by wattle fence alignments running down to the Foss. The buildings were replaced by a series of sunken plank-built buildings occupied c.930-c.955 associated with intense craft-working on a commercial scale. These were replaced at the street frontage, c.955 with sunken-feature structures with continuity of property boundaries into the 11th century. The final addition to the site was made early in the 11th century, when a large building interpreted as a boat shed or warehouse was erected towards the river.

Evidence for late Anglo-Scandinavian activity was also encountered during excavation within 23 Clifford Street. This took the form of soil spreads, possibly levelled middens. The soils contained a quantity of pottery, with 65 sherds representing 58 vessels, including York ware and Torksey-type ware together indicating activity of mid-9th to 11th-century date, associated with animal bone indicative of food refuse. A small assemblage of antler off-cuts, an amber bead broken during lathe-polishing and a fragmentary copper-alloy ingot also signal craft-working activity.

Closer to Clifford's Tower, evidence suggests at least part of the castle site was used for burial during the Anglo-Scandinavian period. In 1998, inhumation burials were encountered during investigations by York Archaeological Trust at the northeast corner of the former Female Prison building. The graves were laid out in an orderly manner on a similar alignment, and while only two inhumations were excavated, many more are reported to have been visible in the sides and base of the trench. The graves were accompanied by well-stratified ceramic of 9th to 11th-century date (YAT 1998). It was concluded that the site continued in use as a cemetery into the early medieval period, potentially associated with the closest surviving early church of St Mary Castlegate, some 200m distant, or with a hitherto unidentified ecclesiastical foundation. Given this evidence it is possible that, rather than necessarily being Roman in date, the residual human remains encountered within the Clifford's Tower motte could alternatively be early medieval in date.

2.3 Establishment and development of the castle

2.3.1 Construction of the castle in 1068

In 1068, William I marched northwards, establishing a series of castles at Warwick, Nottingham and York, followed by those at Lincoln, Huntingdon and Cambridge on his southward return. In 1069, a force of Northumbrians attacked the city and castle at York, to be defeated when William returned to the city (establishing the second castle on the west side of the Ouse, at the 'Old Baile'). In the following year, the York garrison was again attacked by combined Northumbrian and Danish forces.

Structures associated with the Norman motte and bailey castle would have been timber, and current understanding of the site is that following tumultuous events of its early years, the motte and bailey castle survived largely unaltered through most of the 12th century. Expenditure on the king's houses in York is recorded in the Pipe Roll in 1130, but references explicitly to the castle do not occur until 1173 when works to the tower were accounted for (PR 19 Henry II, 2; FAS Heritage 2006, 4).

The earthen motte of the Norman castle would have sealed and disturbed remains from earlier activity at the site. Archaeological and antiquarian observations point to the original motte being slightly lower than its current form; a report on observations made during the underpinning suggested burnt timbers at 15'6" beneath the ground level within the tower, and a second layer of timbers at 13' (Benson and Platnauer 1902, 69-70).

The infamous anti-Jewish riots and subsequent massacre that took place in Easter 1190, also resulted in the damage or destruction of several parts of the castle, and almost certainly the loss of structures on top of the motte. Although repaired in the immediate aftermath, further damage to the castle occurred during storms of 1228.

Documentary references in the early years of 13th century indicate that at least some of the castle was being rebuilt in stone at this time, and that repairs were being undertaken to the gaol in the castle. Works recorded in 1200 and 1204 followed visits to York by King John. The Pipe Rolls in 1200 include reference to carrying stone between a quarry and the castle, haulage of stone for the repairs to a bridge, and repairs to 'houses' in the castle (PR 2 John 101-2), while in 1204 stone and lime was to be collected for strengthening the castle (PR 6 John, 193). This work is believed to have focussed on the curtain wall and south gate (FAS Heritage 2006, 6). Documentary evidence does not indicate any substantial rebuilding of the castle, however, until the mid-13th century.

2.3.2 Henry III's rebuilding of the castle

From the 1240s, Henry III instigated an ambitious programme to rebuild the castle in stone, prompted by a royal visit to York in 1244, and the possibility of war with Scotland. In 1245, the king sent Master

Simon the carpenter and Master Henry the mason to York. They were to view the castle with the purpose of arranging how it should be rebuilt (CR 1242-47, 293). This included the construction of a large quadrilobe tower of unique design on the motte, the building now known as Clifford's Tower.

From 1246 onwards there are numerous references to funds allocated for the rebuilding of the castle (CLR 1245-51, 26, 102, 133; PR 92, m.14; PR 93, m.9; see FAS Heritage 2006). Specific references mention that some of the towers had been completed, with 20 oaks required to make the roof boards, but no reference clearly identifiable with Clifford's Tower occurs until February 1251, when 300 marks were allocated specifically for works on the tower (*…ad operaciones castri nostri et turris inde faciendas*)(CLR 1245-51, 292).

The tower receives specific mention again in 1259, when a mandate was issued to allow the sheriff to have a further 40 oaks for repairs to the houses and tower of the castle (PR 106, m.2). In 1269, possibly triggered by Henry's visit to York the previous year, repairs were ordered:

> To the sheriff of York. Contrabreve to have the tower, the tower bridge and all the buildings of York castle repaired without delay. (CLR 1267-72, 82)

And in the following year:

> 'To the sheriff of York. Contrabreve to have the tower of York castle completed without fail or delay. (CLR 1267-72, 144)

Orders made in 1271 indicate that timbers were still required for the completion of the tower (CR 1268-72, 383-4), and it seems from documentary sources that the tower was only completed after Henry III's death in 1272. In 1273, it is recorded that:

> *Robertus de Wytebi et Robertus Verdene visores operationum regis Eboraci affirmarunt pro cxxx li xix s vii d positis in quadrum parte turris castri predicti preficienda per Rogerum Extraneum vicecomitem.*
>
> Robert de Whitby and Robert Verdenel, viwers of the King's Works at York Castle affirm that £130-19-7 have spent by Roger le Strange, sheriff, on finishing a part of the tower of the said castle. (PRO E159/79 m14d.)

2.4 14th century

The castle has often been portrayed as a site in terminal decline in the later medieval period, including references to the large cracks in the tower in the 14th century. However, building accounts spanning from the 14th century until Henry VIII's reign suggest continued repair and reconstruction. In addition, the castle continued to be used as a gaol, mint, treasury and centre of administration throughout most of the medieval period. During the 14th century, the tower was the principal northern base of Edward I, II and III, although it was not generally used as a royal residence. In 1298, an

order had been given to prepare the tower for the Treasury of Receipt, suggesting the tower had been completed, but required modification for this purpose.

After Edward II stayed at the castle in 1312, there is direct reference to the chapel in Clifford's Tower, and construction of the ditch and *pelum* (palisade or tower):

> *Precipimus tibi quod de exitibus ballive tue pelum et fossatum iuxta castrum nostrum Ebor' quos nuper incipi fecimus sine dilacione perfici ac capellam infra turrim castri prediciti de novo constructam plumbo cooperiri facias.*
>
> We command you [the sheriff of York?] out of the proceeds of your bailiwick to make no delay in finishing the palisade and ditch next to our castle at York which we recently order to be begun, and to roof the chapel recently built inside the tower of the said castle (CR 1307-1313, 424)

This reference indicates that a chapel had been established recently within a tower, although it is not explicitly stated which tower. While it is known that the first-floor room in the forebuilding was used as a chapel, later evidence indicates that a separate structure may have existed elsewhere in the castle (see below).

Shortly after this reference, further sources indicate problems with the castle motte caused by flooding of the Ouse and Fosse, which had

> ...surrounded the Castle motte deeper than ever they used to, and have softened the soil of the motte, the foundation of part of the Castle wall containing 262 feet in length has given way, so that part of the wall appears to be a ruin. (CR 1313-18, 262-63)

In response, the sheriff was to take twelve citizens of York and some masons to repair the foundations, which may also have included repairs to the well in the 'great tower', undertaken in 1318:

> *Et in operationibus magne turris castri eboraci et in reparatione fontis infra eandem turrim et bretagio dicti castri xiiii li ii s iiii d per idem brevem...*
>
> By the same writ, £13-2-4 have been spent in works on the great tower of York Castle and in repairing the well inside the same tower, and the brattice of the said castle. (PRO E372/164 rot. 28d.)

Numerous repairs were undertaken during the 1320s, perhaps reflecting a decline in the state of the fabric at the castle. In August 1323, the king ordered lead to be brought to 'cover therewith the houses within the tower of York Castle'. Ashbee (2003, 22) suggested that this reference to 'houses' within the great tower, alongside other references to buildings and roofs within the tower, indicates discrete buildings within the tower which were functionally, and possibly structurally, independent. This would imply that Clifford's Tower was a variant of the shell-keep type.

In October 1323, the sheriff of York was to spend up to six marks on repairing the wooden peel (wooden paling) around the tower of York Castle (CR 1323-27, 14; 25). In 1325, part of the enclosure between the tower and castle was apparently in need of repair. Two years later, in 1327, a tower within the castle was being repaired and refurbished for use by Queen Isabella; this was not, however, explicitly identified as Clifford's Tower.

The tower continued as a high-status residence, however, as indicated in 1338, when the Countess of Buchan was to live in the houses in the tower while her husband, the Earl, was 'set out to parts beyond the sea' (CR 1338, 322).

The subsidence of earlier periods had evidently not been addressed in full, and in 1358,

> *Dicunt quod magna turris castri regis Ebor. in se ruinosa est, et scissa in duobus locis a fundamento usque ad summitatem, maxime propter debile fundamentum ejusdem...*
>
> They say that the great tower of the king's castle of York is in ruins, with cracks in two places from the foundations to the summit, mainly due to the weak foundations of the same. (Inquisitiones ad quod damnum, 33 Edward III, 329)

The same observation was made in 1360:

> The great tower of the castle is split in two places, including a quarter of the tower, from top to bottom, mainly from decay of the foundations ; it cannot be saved from ruin but by pulling down and rebuilding, which is estimated to cost not less than 200 marks ; these defects began to impend more than 40 years ago, but in whose keepership the jurors do not know. (CIM 1348-1377, 366, 130-2)

Roof structures within Clifford's Tower were in a very poor state; again, the reference to buildings within the tower suggests that the space within the tower was divided into separate rooms, or, as Ashbee (2003, 22) has suggested, comprised a number of different buildings:

> The leaden-roofed buildings in the tower are greatly damaged, and the timber decayed, because 90 stone of lead from the roof, worth 46s. 8d., have been taken away and the rest so damaged that the timber and roofing cannot be repaired for less than 40l., but the exact damage cannot be ascertained unless the roof is completely stripped. (CIM 1348-1377, 366, 130-2)

In response to the survey of the state of the castle in 1360, a large-scale restoration programme was carried out between 1360 and 1365, costing in excess of 800 pounds.

In 1362, expenditure was put towards iron stays to support hoarding called 'le brettesse', while a glazier fitted 32 square feet of glass in the windows of the chapel (PRO E501/11). The 'brettesse' has been identified as referring to wooden crenellations or embrasures on the great tower, suggested to refer to timber battlements added to parts of the curtain wall following an inquisition in 1327.

Although the mention of such a large quantity of window glass in the chapel initially appeared at odds with the amount of window space in the room known as the chapel in Clifford's Tower (above the gatehouse), recording work on the forebuilding in 2004 suggested the evidence for a former window which, taken together with other windows in the chapel, would have required a total area of window glass consistent with the 32 square feet mentioned (FAS Heritage 2004, 4).

References to repair continue through the 14th century. In c.1363, two plates for reinforcing the castle gate were bought (PRO E101/501/11), and in February of the same year, the sheriff was to survey the castle and bridge and spend up to 1,000 marks in repairs from fines on the buildings, walls, turrets and bridge (CR 1360-64, 446; 453-4). In 1364, wall tiles were bought for the kitchen chimneys and reredos in addition to two great stones for the mantelpieces (PRO E101/501/11). In 1365, 40 stone of wrought lead, at a cost of 10d. per stone, were purchased for re-roofing the turret beside the chapel, perhaps a roof above one of the stairs, and for the kitchen gutters and 'evesplates' (PRO E101/501/11). Works to the banks of the river Foss were also recorded, the bank being strengthened with straw and rammed earth (PRO E101/478/1), presumably in an attempt to prevent the frequent flooding of the castle. Despite these works, parts of the castle still needed attention ten years later. In 1377, the gaol was described as being in such a poor state of repair that the lives of the prisoners were said to be endangered, and part of it had to be taken down and re-erected (PRO E101/598/24). Further repairs were carried out in 1385-6 (PRO E199/49/64).

2.5 15th to 16th century

The later medieval history of York Castle indicates that the castle buildings were used primarily for judicial and administrative purposes. Maintenance of the fabric appears to have been sporadic and only occurred when structures were completely unfit for use. Minor repairs are recorded during the 15th century but for this period and for most of the 16th century, the history of the fabric of the tower is largely unknown. Some of the castle buildings were demolished by order of Richard III (1483-1485) with a view to rebuilding the castle, but following Richard's death such plans were abandoned.

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 courthouse) between 1537 and 1547 make no clear mention of it. In 1540 Leland described it as a 'desolate ruin':

> ...area of the castelle is of no very great quantitie. There be five ruinous Towres in it. The arx is al in ruine...

Arguably the most significant threat to the survival of Clifford's Tower occurred in 1596. At the time, the tower was still attached to the castle, but was

> not used for habitation nor for anye other nedeful or necessarye howse for lodginge nor for saif kepinge of any prisoners (YCA B31/191b-192).

The gaoler at the time was Robert Redhead, and it was revealed – much to the consternation of the city – that he had begun the demolition of Clifford's Tower, intending to break and burn the stone for lime to his own profit. The rumours reached the aldermen and Mayor of York, who petitioned the Sir William Cecil and Lord Burghley:

> '...we are enformed and perswaded [that Redhead] doth entend to deface & pull downe the residue of the same towre to beate & borne the stones therof into Lyme Which if he should so do wold in respecte of the want of the same Towre be a great defasinge & disgrace to the buetye & showe of this Cyttye in that parte therof.' (YCA B31/191b-192)

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. Although the matter was discussed with Redhead and the matter appeared resolved, in 1597 it was suspected that Redhead's workers had been seen removing stone from the tower. The dismantling is reputed to have included the battlements and a flanking wall ('flanker near out'). This latter reference is interpreted as referring to one of two masonry walls ascending the stair to the tower, now evidenced by a vertical wall scar adjacent to the entrance of the forebuilding (FAS Heritage 2004, 3; 2006 29). There are important unresolved questions as to whether the building was still roofed in 1596, and whether Redhead removed the roof. By the mid-17th century, however, it is known that Clifford's Tower was roofless.

2.6 17th century

Clifford's Tower had passed out of royal ownership during the reign of James I, when it was granted to freeholders in 1615, passing through various hands in the following decades. How the freeholders used the three acres of the tower is not known. However, in 1643 the tower was again occupied by a royal garrison. Queen Henrietta Maria was in York during this year, and it was reputedly at her behest that the tower was refortified; storage rooms were created for ammunition and a gun platform created on the roof. J Torre, writing in 1719, gives 1643 as the year in which 'Clifford's Tower, being exceeding ruinous, was re-edified and strengthened with fortifications' (1719, 105).

A report on the state of the castle was prepared in 1682 by Sir Christopher Musgrave to Colonel George Legge, Master-General of the Ordnance (RCHME 1972, 176-181), providing the reference for changes made in 1643. An extract of Musgrave's report (SCRO D(W) 1778/III/02) on the castle states:

> The Castle and Clifford's Tower are very well Scituated for that end (for which it is conceived) that they were built, the Tower commanding all part of the Citty. Nothing but the Walls were standing when the late Queen Mother Landed at Burlington, and at her Majesty's charge

> Timbers were brought upon the walls and severall Roomes made in which his Majesty's Stores are now Lodged. There is also a Platforme made upon the Top of the Tower which is Leaded and Covered with Plancks, and bout 10 pieces of Ordnance may be planted upon itt. There is no Area in it, or place for drawing up any Men, or convenience to dispose of Musquetteers to secure the place from Suprize'

Drake, a decade or so afterwards, also recounts that

> '...by the direction of Henry then earl of Cumberland, lord lieutenant of the northern parts, and governor of York, this tower was repaired; a considerable additional square building put to it, on that side next the castle, on which over the gate, in stone work, is placed the royal arms and those of the Cliffords, viz. chequee and a fess, ensigned with an earl's coronet, supported by two towers with this motto DESORMAIS. The Tower being repaired and strengthened with fortifications, a draw-bridge, deep moat, and pallisades; on the top of it was made a platform, in which some pieces of cannon were mounted; two demy culverins and a saker, with a garison appointed to defend it.' (Drake 1736, 289)

The 'additional square building' refers to the forebuilding, distinguished from the medieval fabric by the use of geologically distinct stonework and internal use of brick (Ashbee 2003, 17). The forebuilding bears the Arms of Earls of Cumberland; the fifth and last Earl was replaced in York in 1642 and died without male heir in 1643. The insertion of the arms (contrary to accounts by Drake) has been attributed to his daughter, in 1644.

The city fell to the Parliamentarians in 1644, but the tower continued to be occupied by a garrison of between 40 and 80 men. Following the Civil War, the tower appears to have served largely as an armoury, with quantities of cannon and muskets being transported from there in 1650 and 1652. 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, derisively nicknamed 'the minced pie'.

In April 1684, the interior was partly gutted by fire, possibly 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 until 1690, and cannon were still positioned on the roof (possibly a flat roof over the forebuilding). Musgrave once again visited the site and prepared a supplementary report. He stated that 'the Late fire hath burnt all the Tower except the Walls, which are Crack't, in some cases from the Topp to the Bottome'. He cleared rubbish in order to find stores buried in the ruins and had fallen bricks stacked against the inside walls of the tower.

Musgrave's first report provides an inventory of artillery and stores at the castle and estimates for new work to the tower and castle, including for six new bastions, which are drawn on the accompanying plan. Musgrave's first report apparently concluded that it would save considerable

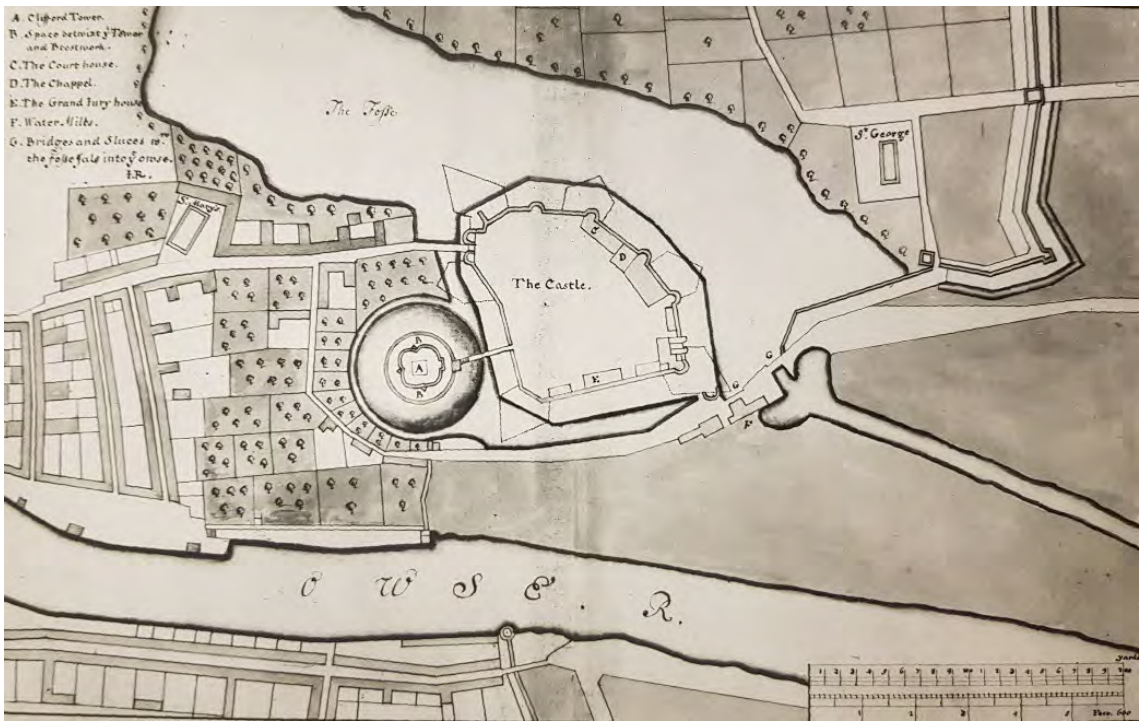


Plate 3 Plan of York Castle by J Richards, 1685 (YC1937)

expense if Clifford's Tower were to be degarrisoned and demolished; this recommendation was reiterated in his supplementary report (RCHME 1972, 177).

Plate 4 Engraving by W H Toms *c*.1680

Musgrave's reports are accompanied by plans signed by Jacob Richards and dated to 1685, including one which focusses on the Castle in particular (Plate 3). This largely replicates an earlier plan attributed to Archer, c.1682. The plans provide an indication of the layout of the tower, moat and defences, with sketches of the proposed bastions. The walls are complete in circumference, with the south gate disused and the bridge at the end of Castlegate spanning the moat to provide access to the castle yard. There is a drawbridge to Clifford's Tower and the moat fully encircles the castle, with the King's fishpond to the east held back from its confluence with the Ouse by the dam at Castle Mills. Within the yard, there is the Court House and 1680 chapel on the east side, and an unidentified building on the south side (the site of the later Debtors' Prison) is probably a great hall (RCHME 1972, 64). On the west side is the Grand Jury House.

Engravings by Francis Place and W H Toms, dating to *c.*1680, provide a different perspective and additional detail. A view from the southwest shows a drawbridge of timber construction at the foot of the motte, possibly a successor to a stone structure (Plate 4).

Plate 5 View of the interior of Clifford's Tower c.1690, by F Place (V & A Museum)

Sketches by Francis Place (1647-1728) also provide an indication of the condition of structural remains in the interior of the tower (Plate 5, reproduced in RCHME 1972, Pl 7). As Ashbee has observed, rather than representing a single view looking north, this image is best interpreted as separate views of the west and east lobes, showing the remains of dilapidated buildings, particularly within the west lobe. The structure appears to be well-built ashlar masonry, and Ashbee observes sinkings in at the approximate level of the offset for the medieval first-floor level.

Despite Musgrave's reiteration that the tower should be degarrisoned, this was not immediately implemented. Sir John Reresby, who had been governor of York since 1682, sought audience with the king to plead the case for retaining a garrison. Whether as a result of this, or for other reasons, the tower was left standing, and the garrison remained in the city. The tower was used for storage until 1690 and a guard remained on the door. In 1687, a gunner was blown from the top while discharging 'one of the great gunns' (he later died from his injuries), and in 1688, the King's birthday was celebrated with a salute of the 'great guns,' indicating that artillery continued to be kept on the tower (Browning 1936, 486, 519). Reresby died in 1689 and no governor appointed to replace him; in 1699, Clifford's Tower was relinquished to the freeholders.

2.7 18th to 19th century

2.7.1 Clifford's Tower as a romantic ruin

The 18th-century history of the tower and motte is one of changing ownership and a shift in function, as it was effectively divided off from the castle to the southeast, being maintained as a romantic ruin, serving as though a garden folly for a property to the northeast.

The area to the north of the castle is known to have been built up with properties, some of substantial size. Speed's map of 1610 shows a residence fronting onto Castlegate, just outside the northern

entrance to the castle bailey, while Archer's map of 1680 shows this in plan as building with possibly courtyard to the rear.

In 1699, when the tower was relinquished by the Crown to freeholders, a complex history of landownership culminated in the purchase of Clifford's Tower by one Richard Sowray, for £58 15s (Cooper 1911, 185). Sowray had, in 1671, purchased the property on Castlegate and so the acquisition of 1699 brought these properties together. The character of the property at this time is not known, although it would seem that the motte was incorporated into the garden at this time. There is one account, dated 1710, written by Dr William King for 'The Northern Atlantis; or York Spy':

> Not far from the Castle (with which it has communication by a Draw-Bridge) is a famous Round Tower, seated upon a Hill, which by Art and Nature excels most in England, and tho' by an unfortunate Fire in the late Reign, it was render'd an unfit Receptacle for Swords-men, yet, said my Friend, the noble uniform Figure of this Hill, and the Shell of the Building upon't was an Honour and Ornament to the City, till an Old Crabbed Humourist, defaced the Mount to enlarge his Gardens, and wou'd not desist prosecuting his design, tho' it prov'd fatal to two Workmen, who had the misfortune to be employed in that unlucky undertaking (King 1713, 18).

Eventually, the property fell to local gentleman Samuel Waud in the early 18th century (ownership confirmed 1727), who is credited with construction of a mansion to the east, replacing those which were depicted on earlier plans. The house and tower were to stay in the Waud family for three generations, until 1825, when an enforced purchase was made by the county for the purposes of building a new prison on the site.

The earliest view of Clifford's Tower together with the property at its base is dated c.1730 (Plate 6). The drawing shows the formal gardens laid out to the west of the mansion, divided from the tower and a wilder element of the garden by a wall. A spiral path encircles the motte; this may have been the 'defacing' of the 'mount' described by King in 1710; this represents a classic 'snail mount' adaptation of a motte to create a garden feature, popular from the mid-16th century onwards (The Gardens Trust 2015). The bailey wall is shown with its entrance, presumably blocked; shadows in its northern lee hint at the presence of the moat surviving as an earthwork.

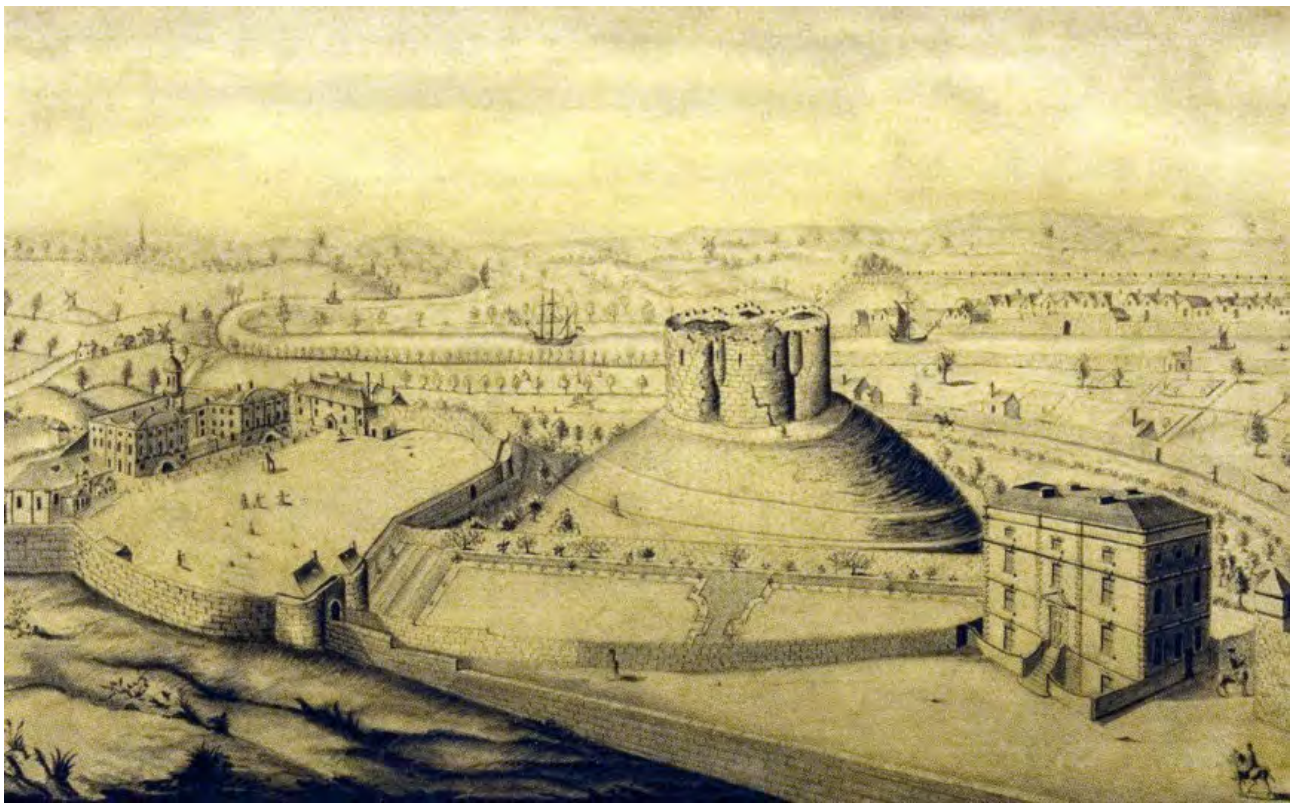


Plate 6 Clifford's Tower *c*.1730

The drawing may have used some existing licence with regard to the location and orientation of the mansion; plans drawn up in 1824 to show the proposed location of the prison buildings place Waud's house securely at the corner of Castlegate, where previous buildings had been shown, with the entrance stair oriented due east (Plate 7).

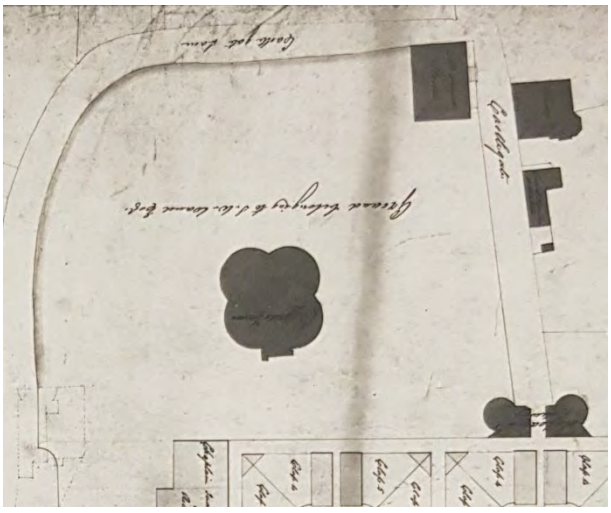


Plate 7 Extract from plan of 1824 showing Mr Waud's house and garden, with proposals for prison buildings to the south (Brierley, Leckenby and Keighley, HEA BF61945)

Edmund King described the tower in his 'Sequel to the observations on Ancient Castles' printed in *Archaeologia* VI, and includes mention of the new winding path:

> '...it is built on the summit of an exceeding high artificial mount...the sides of which are even still so steep, that it cannot be ascended but by a winding path, that has been cut out of late years; or by an old steep flight of steps, situated on the side next the other part of the castle; where was originally a drawbridge, passing over the ditch, and forming a compleat communication; and where the gate in the old wall enclosing the area of the adjoining castle through which the passage is still visible, though now blocked up.' (King 1782, 258)

Evidence for the character of the interior is provided in later years. Hunton, 1855, describes the tower:

> 'The interior of the tower has a very picturesque appearance, being covered with ivy and various other creepers. In the centre is a walnut-tree, said to have been planted (on what authority we do not pretend to determine) by George Fox...There is also a well, about sixty feet deep, which formerly supplied the garrison with water.' (Hunton 1855, 110)

Hunton goes on to say that it is more likely that the walnut tree was planted by William Dewsbury, a member of the Society of Friends who was confined in the castle in 1665, although again there is no source for this.

Plate 8 Interior of Clifford's Tower by Halfpenny, 1807

The wooded and picturesque character of the interior, and its use as part of pleasure grounds in the garden, is indicated by two quite different 19th-century illustrations. Halfpenny's view of 1807 shows an open interior, with some vegetation, piles of rubble, and the well in the east lobe (Plate 8). Evidently saplings in this view were allowed to take hold; in 1828, a view by Varral, after Bartlett, shows a picnic inside the interior within a much wilder, and overgrown setting (Plate 9).

Plate 9 Interior of Clifford's Tower, J Varral after Bartlett, 1828

Surrounding the motte may have been additional buildings; an 1820 advertisement for renting the property mentions a 'three-stall stable and coach house' (Cooper 1911, 190-1).

2.7.2 Changes in the castle bailey

The garden use of the tower during this period was in marked contrast to the former bailey of the castle, which was re-developed as a prison in the 18th century, with the construction of new

courthouses and gaol buildings. Significant change to the castle had occurred during these works; some of the mural towers of the castle were removed, possibly those that were no longer needed with the provision of new prison accommodation (RCHME 1972, 65) and in 1731, the wet ditch on the west side was 'drained by a small arch turned to throw the water into St George's Close' (Beckwith MS quoted in RCHME 1972, 65; Cooper 1911, 214). Cooper states, without giving any reference, that this ditch was known as the 'Little Foss' which suggests that this was the western arm of the castle moat.

The County Gaol was built in 1701. Further new build was planned in the 1760s, and between 1773 and 1777 the new Assize Courts, designed by John Carr, replaced the Grand Jury House on the west side of the bailey. At this time, the castle yard was also levelled (RCHME 1972, 65). The original design of the Assize Courts encompassed only the central section of the current building, extensions in 1818 were added to each end and, in 1821-3, to the rear of the building.

The section of castle wall that had run behind the Grand Jury House was removed, probably during the building of the Assize Courts (shown on Drake's amended plan of 1785). In 1780-3, the last of the present buildings was erected, the Female Prison replaced the old Moot Hall on the eastern side of the bailey. Originally built to match the Assize Courts (the design was by Thomas Wilkinson and John Prince but John Carr oversaw the building work), the Female Prison was also extended. The wings were added in c.1802 and (possibly) the rear courtyard enclosed with walls (or rebuilt). This last new building also affected the castle walls, with some sections being incorporated into the rear of the building and others being demolished (for illustrations relating these developments see RCHME 1972, 62-3).

By 1790, the central area of the castle yard, an oval lawn, was known as the 'Eye of the Ridings', the location for county elections for Yorkshire until 1831 and North Riding elections until 1882 (RCHME 1972, 65). In 1802, the place of execution was moved from York Tyburn on the Knavesmire to the New Drop, located outside the castle walls to the rear of the new Assize Courts where there was a small access door (surviving today). An illustration of the New Drop can be seen in Cooper (1911, 267) and the York Art Gallery, and the location was used until 1868, when executions were carried out inside the prison walls at the north end of the Female prison. This practice ceased finally in 1896.

2.7.3 Construction of the prison

The Gaol Act of 1823 demanded alterations to the prison buildings and in the following year, a resolution was passed by the Court of Gaol Sessions to enlarge the prison. Problems of lack of space inside the prison were exacerbated by the difficulties of expanding in the restricted space of the castle bailey. The purchase of Waud's land was recommended as a solution to the problem. Other more radical suggestions included the removal of the tower and mound (Camidge 1904, 28);

vocal opposition contributed to the survival of the monument, including a publication by Charles Strickland, who in 1825 composed *Reasons for not pulling down Clifford's Tower in making the proposed enlargement of York Castle*. Waud himself was not enthusiastic about the new plans for his land and despite resisting them, the sale was forced upon him in 1825. Fearing for the tower's survival, he had partially excavated the motte and the findings were reported in the Gentleman's Magazine. The report includes few details of the excavations, and the main point of discussion is the discovery of layers of burnt timbers within the motte (Gentleman's Magazine 1827).

Building work began on the new prison on 20th March 1826 and was completed in 1835 (RCHME 1972, 66). Comparison of plans prior to, and following, the construction shows the considerable impact of the new prison (Plate 10). Admittedly the plan prior to the construction of the prison lacks detail around Clifford's Tower – the previous views indicate complex gardens, and it is possible that the stable shown to the north of the motte in 1852 (labelled Tea House and Stable) can be equated with the stable and coach house mentioned in the sale particulars of Waud's property.

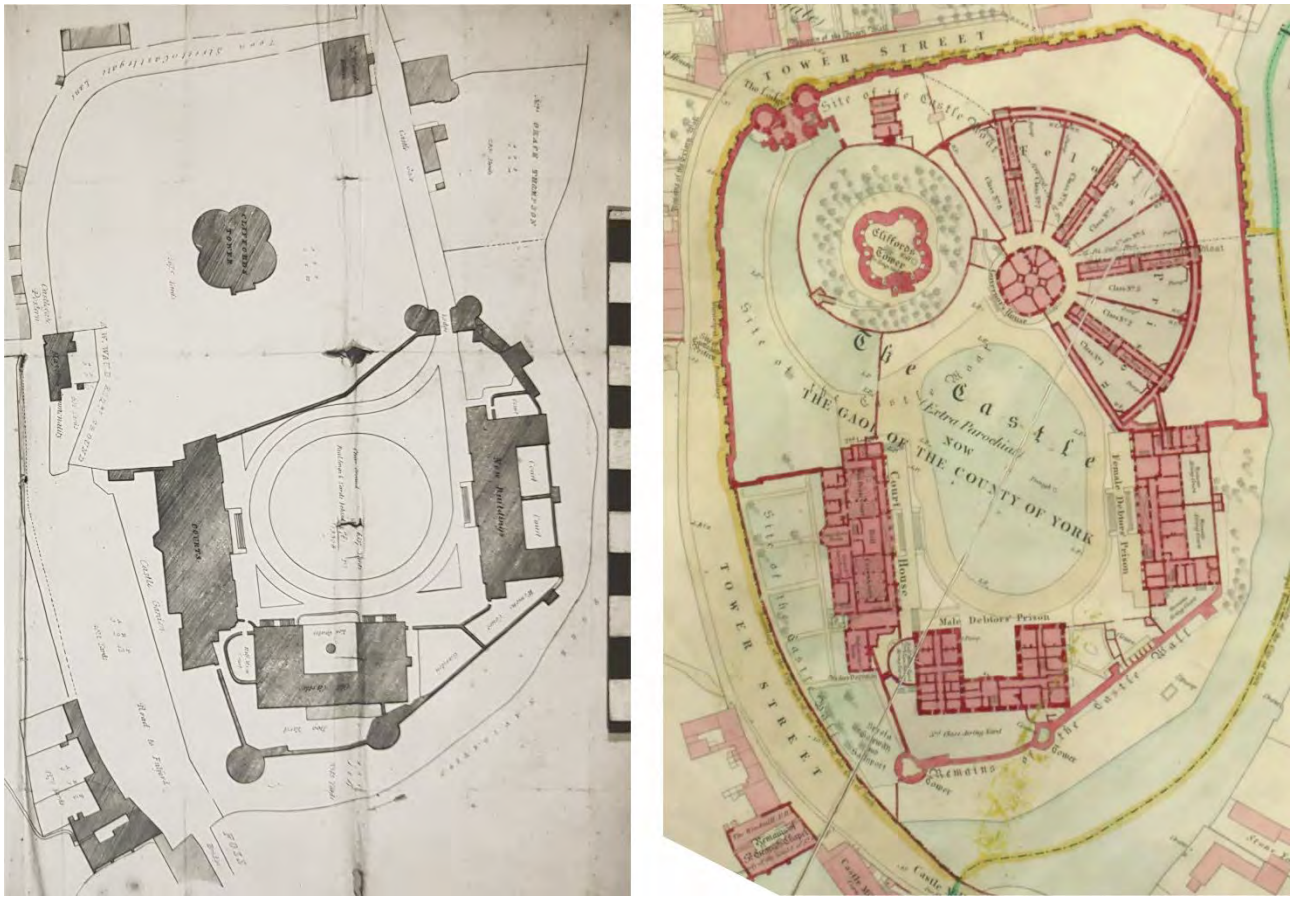


Plate 10 A plan of the castle prior to construction of the prison (HEA BF61945) and extract from the Ordnance Survey plan of 1852

The visual impact of the prison is evident in photographs taken c.1935 (just before it was demolished). A 35ft-high outer wall and towering gatehouse dominated the surrounding area (Plate 11). Clifford's Tower was almost completely invisible from ground level, being overshadowed by the gatehouse and governor's house. This effect would have been greater for the first 45 years since Clifford's Street was not formed until 1881 (Tower Street had been widened in the early 1800s). Until that time, there had been only narrow water lanes running east-west down to the Ouse.

Plate 11 1930s image showing the outer wall to the west of Clifford's Tower, and the prison gatehouse (York Archives)

The imposing presence of the new walls and gatehouse were not the only alterations, and there was a more direct impact on Clifford's Tower as it was incorporated into the new prison grounds. A road was needed from the gatehouse at the northwest of the tower to the governor's house and prison to the east. To construct this, it was necessary to encroach upon the motte. The base of the motte round its entire circumference was cut away and a 20ft-high retaining wall was built around the whole. The removal of soil was uneven, more being taken from the south side than the north (the circular retaining wall did not meet in the northeast section but instead was connected by a straight section of wall placed at a right angle to the motte).

Plate 12 19th-century view of Clifford's Tower. The approach can be seen on the left (York Archives)

The entrance approach to the tower was moved to the southwest and the path up the motte curved round to the forebuilding. This entrance, from the plans of the period, appears to be all above ground, but photographs taken before and during the demolition work of the 1930s show that the entrance was in fact straight into the motte, with the path emerging to ground level further up the slope, curving round to the forebuilding (Plate 12 and

Plate 13 1930s image showing the entrance and stair constructed in the early 19th century (York Archives)

Plate 13). This arrangement meant that the entrance to the tower lay within the outer walls of the prison; the site was only accessible with permission from a magistrate.

Although no records survive relating to repairs, it is known that considerable work was carried out in the 19th century. Iron tie rods were inserted into the forebuilding provide a bond between it and the main body of the tower and a thin skin was applied to the face of the damaged masonry in an attempt to bond the stone together and give the structure strength. Although Camidge (1904, 29) states that the structure was well cared for, and it is evident that repairs were attempted, by the turn of the century, the tower was probably in the worst danger of collapse it had been for centuries.

Change to the internal layout of the prison occurred before 1891, with the erection of a substantial internal wall which effectively closed off the Governor's House and felons prison. After 1900, the prison served as a military prison, and civilians were no longer detained there. The prison closed in 1929.

2.7.4 20th-century repairs and investigations

This change of use (and of management) in c.1900 drew attention to the poor structural condition of Clifford's Tower and almost immediately the situation was attended to. A report of 1901 by the Prison Commission revealed that the forebuilding and southeast lobe were rapidly sinking, as the motte beneath them collapsed. This failure was blamed partly on the removal of the base of the motte in 1826-35. The retaining wall had given way on the southeast side under the pressure from the motte and the forebuilding was found on examination to have parted from the tower. In January 1901 emergency shoring was erected to provide intermediate support while a plan of repairs was drawn up (PRO HO/45/10047). The repair work was arranged with funding from both the prison commissioners and the county and executed under the direction of Basil Mott in 1902. The work consisted of replacing quantities of soil in the southeast section with large concrete flying buttresses to support the foundations and the tower and bond it with the retaining wall below in order to support the motte in between the two (Benson and Platnauer 1903). Trees were also removed, as the many saplings were loosening the soil and water was collecting within the loose stone of the motte.

Contemporary drawings show the location of the flying buttresses and the recorded sections through the motte. It was this work that afforded the opportunity for the recording of archaeological features, presented by Benson and Platnauer to the Yorkshire Philosophical Society in 1903 (Benson and Platnauer 1903, 68-74; also see Cooper 1911, 200-7). The layer of burnt timber encountered by Waud in 1825 was again examined. This time it was thought that the burnt timber dated from a revolt of 1069. Cooper disagrees with this, claiming that the burnt timber dates from the destruction of the tower by fire in 1190 (1911, n.201). Finds consisted mainly of Roman pottery, human and animal bone, bone and horn artefacts, and various metal items. A burial was also found which Benson and

Platnauer, on account of only having seen the grave after disturbance, do not draw any conclusions from.

On 30 March 1915, following two years of protracted negotiations, Clifford's Tower was taken into State Guardianship. Key points of discussions between the Yorkshire County Council and the Office of Works concerned access, admission of the public, collection of fees, appointment of a caretaker and control of the flagstaff (PRO WO/14/130).

During debates over the transfer, a detailed structural survey was carried out by the Office of Works (1914); drawings from 1913 survive including detailed elevations. This survey survives in the records (PRO WO/14/130) and is particularly concerned with the state of the masonry and the reasons for the current poor condition of the buildings, as well as outlining the work necessary to secure the structure against further deterioration; this information has been summarised in the Conservation Plan (FAS Heritage 2006). The main conclusion was that the retaining wall was not solely responsible for the slippage of the tower, but that the damage was an accumulation of many centuries of weakness, insufficient foundations, the removal of the stone bridge in the 16th century (the source quoted for this is Camidge), the damage from the fire in 1684 and other issues such as water penetration and the reshaping of the mound on various occasions. Repair work from the later

Plate 14 Plan of underpinning trenches (MP/CLI0003)

19th century, of poor quality, caused the cracks to deteriorate further by adding a skin of mortar to the weakened areas, the pressure of which they could not maintain. Extensive work was recommended, including the removal and replacement of the late 19th-century repairs, to provide secure bonding for the rent walls; the foundations would require strengthening if not further underpinning; the wall-walk should be repaired (the stonework is described as defective but this does not distinguish between the older masonry and the late 19th-century concrete platform) and waterproofed to prevent the further percolation of water through the keep walls; and that the keep should be drained to remove any damaging water that had collected.

It is assumed that the outbreak of war halted progress on the recommended works, and there is no evidence for further work until after 1919, when extensive repairs were ordered. The extant plans show that large scale reinforcement was undertaken, including metal rods inserted into the lobes, supported by reinforced concrete beams. The major tears in the stonework were rebuilt with sandstone and the lesser fractures were grouted.

In 1928 a railing was erected at the top of each flight of steps, continuing round the inner edge of the wall-walk, to provide support and safety for the visitors: it had been noticed that many were not venturing any further than the top of the steps (PRO WO/14/912).

2.7.5 Demolition of the prison

Public access to Clifford's Tower was further improved after 1935, when the site was sold to the City of York, and the surviving 19th-century buildings were demolished. Notably, this also included 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 entrance and curving path.

Since the 1930s, there have been no major projects, beyond installation of toilet and office space in the garderobes, and the ticket booth at the front entrance. In 1978, a plaque was laid at the base of the motte by the entrance steps, commemorating the massacre of the Jews in 1190. The daffodils were planted on the motte in c.1991-2, following a commemoration of the victims in 1990.

Perhaps the most dramatic change to the physical appearance of the interior was the decision (at an unknown date in the 1970s or 1980s) to pave the whole floor surface inside the tower, replacing a slightly terraced arrangement of turf. Until at least 1972, the interior was described as grassed, with an octagonal structure laid out at the centre (RCHME 1972, 73). The latter reflected a structure said to have been encountered during excavation in the early 20th century, and at that time interpreted as a central support for upper storeys (Cooper 1911, 45).

2.8 Previous investigations

Already noted above were the works carried out by Samuel Waud and reported in the Gentleman's Magazine in 1827, when layers of burnt timber were observed within the motte. Little further can be gleaned from this account.

During the underpinning of the southeastern quadrant of the tower in 1902, a record was made of the sections exposed for the insertion of flying buttresses, and of trenches excavated in the interior for the purposes of investigating the origins of water within the motte deposits. The results were report in the *Annual Report of the Yorkshire Philosophical Society* (Benson and Platnauer 1902) and plans showing the locations of interventions, and the sections drawn, surviving in the Historic England Archive. These works encountered layers of burnt timber within the motte, consistent with Waud's discoveries. Further key discoveries included finds of human bone (including complete skulls), Roman ceramic, and the incompletely reported burial later described as being in a stone cist.

After the demolition of the 19th-century prison buildings in 1935, excavations in the inner bailey were conducted by B. H. St. J. O'Neil to locate the position of the Castle or Lower gate. Trenches were cut across the line of the supposed northwest and northeastern curtain walls in the expectation of locating the gate on the junction of these two walls (O'Neil 1939, 85). Evidence was found on the line of the northwest curtain wall for a bank, with one posthole cut into the top of it. The bank had been subsequently cut back and a further posthole cut into it, and a sherd of pottery found in association with these later features suggested a 13th-century date.

A trench across the line of the northeast curtain failed to reveal any sign of the original curtain wall, but instead uncovered

> '...a gradual sandy slope downwards to the northeast, doubtless the actual bank of the River Foss. In this slope two pits had been dug, and, since the filling contained numerous human bones in confusion, including two skulls, these were probably plague pits.' (O'Neil 1939, 85)

On the basis of these excavations and documentary references (CR 1307-13, 478; CR 1333-37, 284), O'Neil argued for the continued existence of a timber palisade between Clifford's Tower and the bailey into the 14th century (O'Neil 1939, 88). O'Neil also observed that during demolition of the 19th-century prison buildings 'it was noticed that at the time when they were all built all ancient strata below them must have been removed' (1939, 85).

Between 1981 and 1995 York Archaeological Trust (YAT) conducted a total of thirteen watching briefs, evaluations, and excavations around the castle area. Most of the results from these excavations either confirmed results from earlier work or demonstrated the extent of 19th and 20th-century disturbance of archaeological deposits.

Since 1992, investigations in the car park have been undertaken to discover the location of features such as the curtain wall, watercourse and north gate of the castle yard. However, much of the archaeological potential of the area has been reduced by the insertion of the 1938 civic building basement and later intrusions. In 1998, investigations north of the former female prison encountered burials of Anglo-Scandinavian date, preceding a burial ground of prisoners. Features identified as the remains of a palisade were also encountered (YAT 1998).

Beyond investigation of the 1930s motte reprofiling and 19th-century retaining wall, further excavations have not been undertaken on the motte itself, apart from the staged evaluation investigation undertaken during 2014-2016 (Historic England Excavation and Analysis Team forthcoming).

Historic building analysis 2004

In March 2004, a programme of photogrammetric drawing enhancement and analysis was undertaken by FAS Heritage (FAS Heritage 2004). Evidence was found for the sequence of repairs carried out to the tower in the 20th century. Analysis of the fabric and the pattern of sockets within the tower suggested the possible earlier flooring and roofing systems employed. In addition, evidence was found for the subdivision of parts of the interior which appears to agree with historic sources. It is suggested that, on occasion, part of the intended function of the tower was to house both the Exchequer and Mint.

Evaluation 2014

Archaeological evaluation was undertaken between 2014 and 2016 within the tower, to inform the design of future works. A preliminary report (O'Hara 2016) and a draft Site Archive Completion Report (Crosby et al 2023) on this work have been prepared, but full results are yet to be reported on.

In November 2014, three test pits were excavated within the tower, following lifting of the flagstones (TP1-3). Within one trench (TP2), evidence for a 17th-century brick floor was encountered at 0.80m BGL, identified as work related to the refortification of the tower in 1643.

A further three test pits (TP4-6) were excavated against the exterior wall of the south lobe, revealing the concrete inserted during works in 1902. In TP2 evidence for a narrow, pebble path was observed, notably lower than the upper course of the tower foundations.

At the motte base a further four test pits were excavated to receive four borehole guide tubes (TP12, 14, 16, 17). These revealed the turf and topsoil, sealing a layer of mixed rubble brick and mortar 0.40m deep. This represents the hogging to the perimeter path that encircled the truncated motte.

Test pits were also excavated mid-way up the motte slope (TP 10, 11, 13, 15). TP11 and TP13 revealed undisturbed motte material; in TP15 this was overlain a dark brown clay loam.

Evaluation 2015

In 2015, a 10m x 1m trench (TR20) was excavated in the northern half of the tower interior, to a depth of 1.3m BGL, and to 1.5m BGL at either end. In situ motte deposits were contacted at 1.0m BGL. The sequence encountered included Victorian service trenches, over a levelling or consolidation layer, which sealed straight-sided cuts into the motte surface, truncating and removing any further deposits in this area. The cut features are interpreted as 'digging in' during the 17th century.

Retaining wall investigations 2016

In order to understand and locate the retaining wall within the motte and make a partial assessment of its condition, a trench was excavated at the foot of the motte in May 2016 (TP9). Excavations revealed that huge masonry blocks had been placed against the retaining wall, infilled with smaller demolition debris. The stone (which had to be drilled to allow lifting with Lewis pins) was partly removed to reveal the in situ retaining wall (Plate 15 and Plate 16).

A further five test pits (TP24-28) were excavated around the motte to identify the retaining wall.

Plate 15 Gritstone blocks reinstating the slope of the motte

Plate 16 Surviving retaining wall behind the gritstone blocks

Structural watching brief 2019

A structural watching brief was maintained in 2019 during a programme of conservation and repair, which included test pits into the internal fabric at first-floor and wall-walk level, and an external test pit against the motte stair (FAS Heritage 2020). This work contacted remedial works of the 1920s, including the concrete ring-beam, which included steel mesh reinforcement and steel reinforcing bars. A medieval window jamb was identified on the front elevation of the forebuilding.

3 Scheme of work

The scheme of work carried out at Clifford's Tower in 2020 and 2021 involved the creation of new structural elements within the tower, conservation works to the fabric, improved access to areas of the historic fabric, new rest bays on the stair and all associated services.

This involved:

- a new gantry structure inside the tower to provide access to the upper levels of the structure;
- a new roof platform;
- recommissioning and extension of the bartizan stairs;
- provision of access to ground and first-floor garderobes;
- replacement of the entrance kiosk;
- conservation works to the interior and exterior masonry, including the chapel roof;
- alterations to the motte stair including three new rest areas; and
- associated electrical and drainage services, including a new attenuation tank.

4 Aims and objectives

A scheme of archaeological investigation and recording was designed to mitigate the impact and maximise the research dividend of the proposed works. This is set out in a Project Design (PD) prepared by FAS Heritage on behalf of English Heritage and agreed with Historic England prior to the onset of work (Appendix 3).

4.1.1 Aims of the project

The overarching aims of the project, as set out in the PD, were as follows:

> AIM 1 to ensure any impact on historic fabric and below-ground archaeological deposits is mitigated through an appropriate programme of supervision and recording.

AIM 2 to ensure that any remains of archaeological significance affected by groundworks are excavated and recorded to the highest professional standards.

AIM 3 to maximise opportunities to study fabric and enhance the overall record of the fabric of Clifford's Tower and motte.

The aims also align with, but are not limited to, policies within the Clifford's Tower Conservation Plan (FAS Heritage 2006, 22), namely:

Policy G6

> All conservation works to the built fabric of the tower or the motte should be preceded by an assessment of the need for archaeological and historical investigation to establish the sequence and significance of the element in question. If archaeological investigations are required to further inform the understanding of the element in question, a written and drawn record will be produced and analysed, and the results will be taken into account when works are specified.

Policy G8

> There will be a presumption in favour of the in situ preservation of the archaeological resource (above and below ground) as the most effective way to conserve it. Excavation should proceed only where there is a clear need to further understand the resource and its significance, and should be carried out using the least destructive methods possible. Specification of archaeological excavation and non-destructive survey work should be in accordance with current best practice as stated in the AML standard on non-destructive testing.

4.1.2 Objectives

In order to achieve these overall aims, specific project objectives were:

- to monitor the removal of recent deposits within the tower and, if necessary, to excavate any significant archaeological deposits that survive above formation level of the raft foundation for the new roof structure;
- to record any sections of the foundation courses of the tower exposed during the excavation for the raft;
- to record elements of the tower exposed before and during construction work, which will include fabric exposed during alterations to the chapel roof, access to the bartizans and to the medieval garderobes;
- to evaluate the entrance passage of the tower, to determine the likely impact of service installation and re-flooring on the structure of the present, 17th-century forebuilding and on the remains of its 13th-century precursor;
- to monitor the installation of new resting places on the existing motte stair;

- to undertake the excavation for the attenuation tank placement;
- to monitor the excavation of service trenches (electrical and drainage) during construction work.

5 Archaeological programme

The chosen archaeological response to each aspect of the works was designed with reference to understanding and assessment of the archaeological resource derived from earlier evaluation and sampling work (Table 1, Interventions 1 to 5). Each aspect of the work was assigned one or more intervention numbers, following on from a series of archaeological evaluations undertaken by the Historic England Excavation and Analysis Team between 2014 and 2016 (Table 1; Figure 4).

Table 1 Summary of interventions

Int	Location	Description	Originator	Date
1	Outside and inside tower	Test pits 1-6	CAU/EH	11/2014
2	Base and slope of motte	Test pits 12-17	CAU/EH	11/2014
3	Tower interior	Trench 20	CAU/EH	09/2015
4	Base of motte	Trench 9	CAU/EH	05/2016
5	Base of motte	Test pits 24-28	CAU/EH	05/2016
	Tower fabric	Archaeological structural watching brief	FAS Heritage	2019
6	Tower interior	Archaeological watching brief - ground reduction	FAS Heritage	01/2021
7	Tower street and motte	Archaeological watching brief - electricity trench	FAS Heritage	01/2021
8	Tower and motte	Archaeological watching brief - drainage	FAS Heritage	01/2021
9	Tower	Structural watching brief - all conservation works	FAS Heritage	01/2021
10	Motte	Archaeological watching brief - stair rest bays	FAS Heritage	05/2021
11	Forebuilding	Evaluation excavation and watching brief - ground reduction and watching brief on services	FAS Heritage	05/2021
12	Base of motte	Excavation and watching brief - attenuation tank	FAS Heritage	05/2021

The methodology for achieving the objectives set out above is detailed in a series of four Written Schemes of Investigation (WSIs), appended to the PD in Appendix 3:

- Conservation works (PD Appendix A) – Intervention 9
- Interior and structure within the tower (PD Appendix B) – Intervention 6, 10, 11
- Drainage and attenuation tank (PD Appendix C) – Intervention 8, 12
- New electrical supply connection (PD Appendix D) – Intervention 7

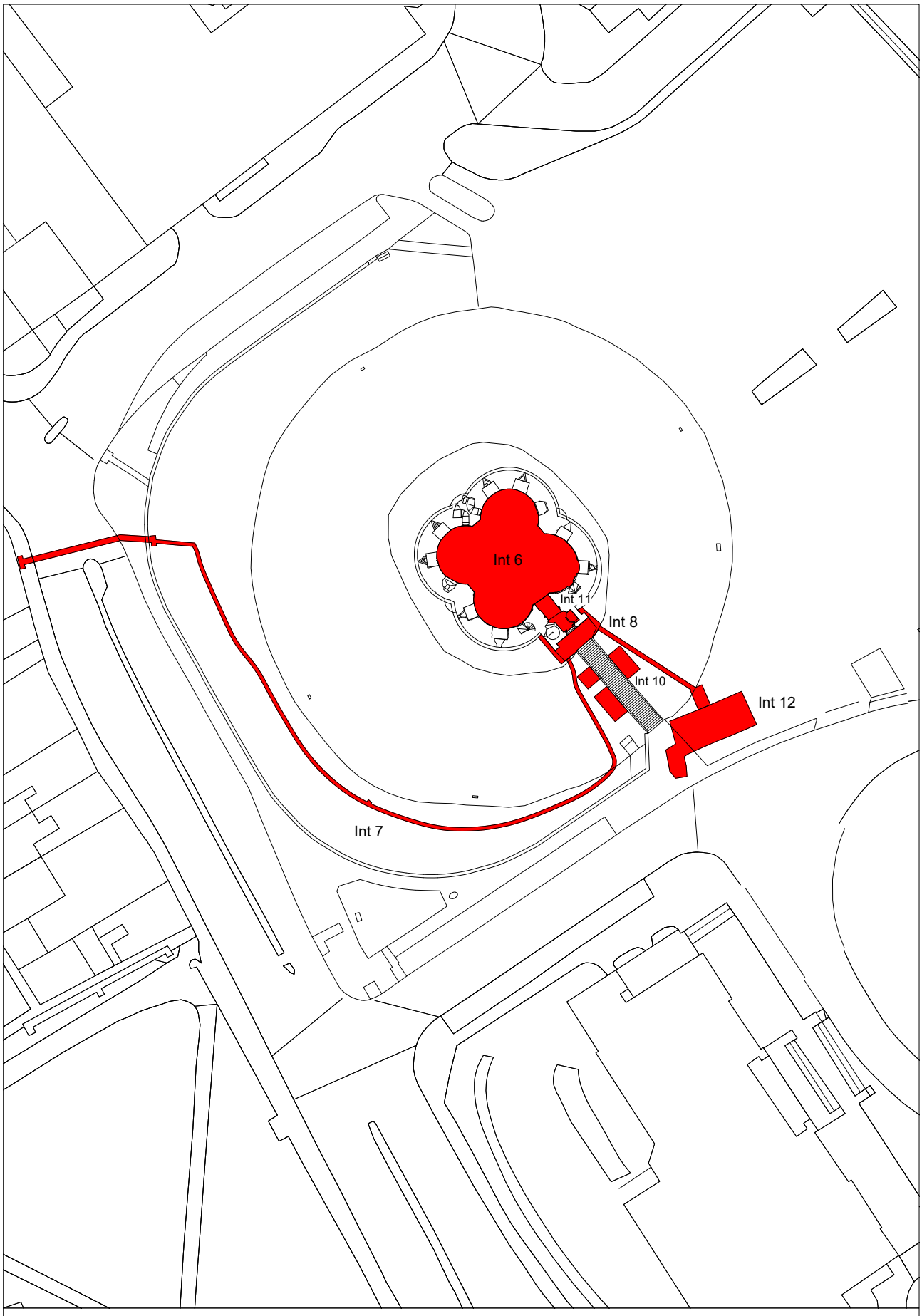


Figure 4 Location of interventions

Scale 1:750@A4

5.1 General protocols

All work was undertaken with reference to the following guidelines:

- Chartered Institute for Archaeologists Code of Conduct (2021)
- Chartered Institute for Archaeologists Standard and guidance for archaeological evaluation (2020)
- Chartered Institute for Archaeologists Standard and guidance for archaeological watching brief (2020)
- Chartered Institute for Archaeologists Standard and guidance for archaeological investigation of standing buildings or structures (2020)
- Historic England Understanding Historic Buildings (2016)

5.2 Fieldwork procedure

5.2.1 Interior and structure of the tower

Raft foundation watching brief

Within the tower, a reduction in ground level was required to receive the new shallow raft foundation for the proposed gantries and walkway. Across most of the area, the ground reduction reached 0.60m in depth, but in some areas the required depth reached up to 1.10m.

The ground reduction (Intervention 6) was undertaken by the archaeological team using a mechanical micro-excavator, operated by a suitably qualified archaeologist. Initial overburden was removed to an arbitrary horizon (Horizon 1), at which point features were planned, sampled and recorded. Subsequently, the full required depth was excavated, and any further features defined and recorded (Horizon 2).

Recording of fabric

Several aspects of the works within the tower exposed or facilitated access to areas of hitherto unrecorded or poorly recorded fabric, allowing a more detailed and up-to-date record to be obtained (Intervention 9). These included:

- the lower courses of the foundations of the wall bases, as exposed by the reduction of ground level for the raft formation;

- the space in the forebuilding occupied by the kiosk, exposed following removal and prior to replacement with a new kiosk;
- the two bartizans where stairs were replaced or inserted;
- the ground- and first-floor medieval garderobes;
- the chapel, where the roof was dismantled and replaced at a slightly higher level, after the removal of the existing timber ring-beam within.

5.2.2 Forebuilding/entrance passage

A number of service ducts were constructed within the entrance passage to carry drainage, electricity and data cabling services. This area was known to have been previously disturbed by the construction of current and previous services, as well as the 1902 concrete underpinning.

Following removal of flagstones, ground level was reduced across the full width of the northern half of the entrance passage to determine the depth and locations of previous disturbances and the surviving height of significant archaeological and architectural remains. The concrete raft was identified and exposed, revealing further fabric within this area. This work was undertaken under continuous archaeological watching brief (Intervention 11); no further archaeological evaluation or excavation was required.

5.2.3 Drainage and electrical service trenches

A continuous archaeological watching brief was maintained during the installation of a new electrical supply (Intervention 7) and the excavation of new drainage trenches to link to the attenuation tank (Intervention 8).

5.2.4 Attenuation tank

A new attenuation tank was required at the foot of the motte, to the west of the stair. Previous investigations (O'Hara 2016) had ascertained that ground in this area comprised nearly 2m of disturbed Victorian or later made ground directly over natural clay, suggesting that the construction and subsequent demolition of the 19th-century prison had truncated all pre-1820s deposits, and the ground was now made up of recent infill. Nevertheless, there remained the potential for hitherto unrecorded archaeological features, and so the trench required for the attenuation tank was excavated archaeologically (Intervention 12).

5.2.5 Alterations to the stair

Three new rest areas were installed to the sides of the current stair. Excavation required for the rest bays was undertaken by hand by contractors under archaeological supervision (Intervention 10).

5.3 Survey methodology

Existing stone-by-stone photogrammetric interior and exterior elevations of the tower were provided by Historic England as a basis for site recording. These drawings were further enhanced with detailed observations during the structural watching brief complemented by digital photography. Newly exposed fabric was recorded using hand survey, computer-rectified photography or ortho-photography as appropriate. Some recording of the exterior of the forebuilding had been undertaken in 2019, when it was scaffolded for structural investigations and repairs.

5.3.1 Tower foundations

Recording took the form of computer-rectified photography which allowed the exposed courses of stonework to be added to the existing stone-by-stone interior elevations of the tower. The same approach was used to record the walls behind the existing ticket kiosk as well as wall footings exposed in the forebuilding.

5.3.2 Bartizan stair turrets

The interiors of the two bartizan stair turrets were surveyed using laser scanning and ortho-photography captured by Paul Bryan and David Andrews of Historic England. The ortho-photography was enhanced in two phases; initially when internal scaffolding had been erected within the turrets and after the scaffolding was removed and the upper part of the turrets reopened to the wall-walk.

5.3.3 Ground-floor garderobes

Meaningful survey drawings or orthophotographs of the interiors of the walls of the garderobes could not be generated, due to confined spaces. Instead, the record was limited to enhancing existing plans and capturing features with photography once modern fitting had been removed.

5.3.4 First-floor garderobe

The interior of the first-floor garderobe was surveyed using laser scanning and ortho-photography captured by Paul Bryan and David Andrews of Historic England. The garderobe had originally been recorded to a limited degree as part of the 2019 structural investigations, but full access allowed for an enhancement of the record.

5.3.5 Chapel roof

Some survey data existed for the chapel roof from which a reflected roof plan has been created as well as section drawings. During stripping and repairs to the roof, the timbers were examined and recorded as appropriate and any previously-concealed masonry was also recorded.

5.3.6 Recording procedure

Survey control was from existing English Heritage survey stations, and Ordnance Survey grid co-ordinates have been used throughout, allowing all archaeological deposits and features to be accurately located in relation to the Ordnance Survey National Grid and Ordnance Survey Datum.

A full written, drawn and photographic record was made of all features and deposits encountered during the course of the investigation. Archaeological deposits, features and structures were recorded using a standard system of context and other record forms. A series of indexes, capable of interrogation, were maintained for all site records. A stratigraphic site matrix was compiled during the course of the investigation.

Feature and context summaries can be found in Appendix 4.

5.3.7 Photographic recording

The photographic record consisted of high-resolution, full-frame digital photography. All photographs include a photographic scale and have been recorded on a photographic index with the subject and direction of each shot. The photographic index is provided in Appendix 5, and photographic location plans showing the location of photographs of elevations is provided in Appendix 6.

5.4 Finds recovery and treatment

All finds identified during excavation were hand-collected and processed. Finds treatment was undertaken in accordance with guidelines set down in First Aid for Finds (Watkinson and Neal 1998). Archive preparation has been undertaken in accordance with Guidelines for the preparation of

excavation archives for long-term storage (Walker 1990) and Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2014).

6 Fieldwork results

The results are discussed by intervention, and where relevant cross-referenced to the photographic archive. For the purposes of the report, the tower is referred to in lobes (north, south, east and west)(see Figure 2). The below-ground investigations are reported on initially, following by discussion of the structural watching brief (Intervention 9).

Where structural remains relating to the tower have been encountered, they have been added to the elevation drawings of the tower, which are included in Appendix 7, and discussed in greatest detail alongside Intervention 9.

6.1 Intervention 6 – Raft foundation

6.1.1 Fieldwork summary

Intervention 6 was assigned to an archaeological watching brief maintained during ground reduction within the tower interior. Ground level was lowered across the whole of the tower interior by 0.60m, with additional areas excavated to greater depth for service trenches (Figure 5). Work was carried out by the archaeological team from January 2021, and was phased as follows:

- removal of modern flagstone flooring by contractors prior to the onset of works;
- machine excavation of preparation layers for the flagstone floor and underlying overburden;
- definition, investigation and recording of features identified following cleaning of the exposed upper surface (referred to as Horizon 1);
- machine excavation to required depth;
- definition, investigation and recording of further features defined following machine excavation to required depth (referred to as Horizon 2);
- excavation of service trenches and bases within the tower interior

The heavily disturbed nature of the deposits within the tower meant that feature definition was poor, and so identification of features at Horizon 1 and 2 do not necessarily represent phases of activity. Figure 6 and Figure 7 show the features in plan, and Figure 8 presents the stratigraphic diagram for this intervention.

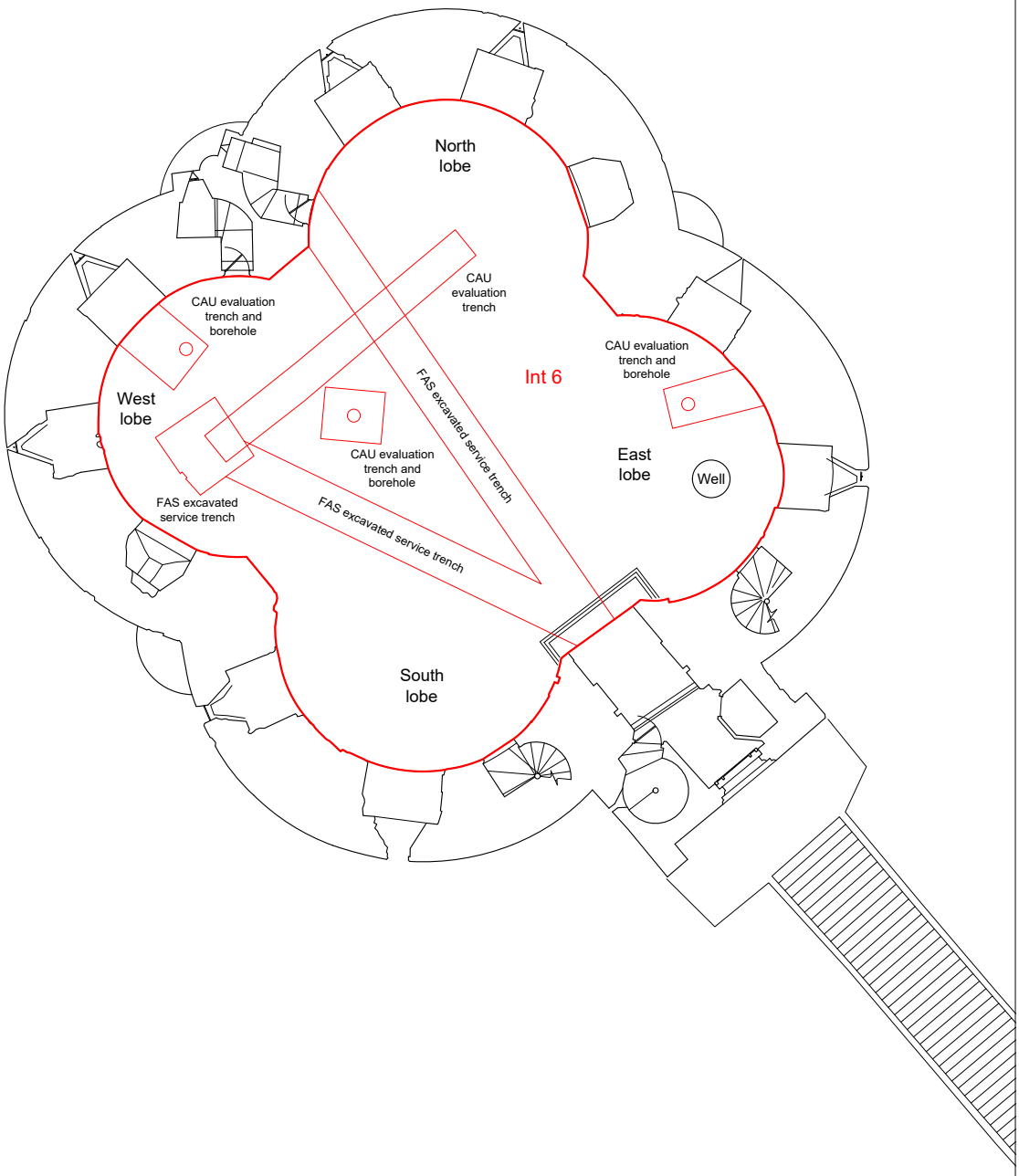


Figure 5 Plan of Intervention 6

Scale 1:200@A4

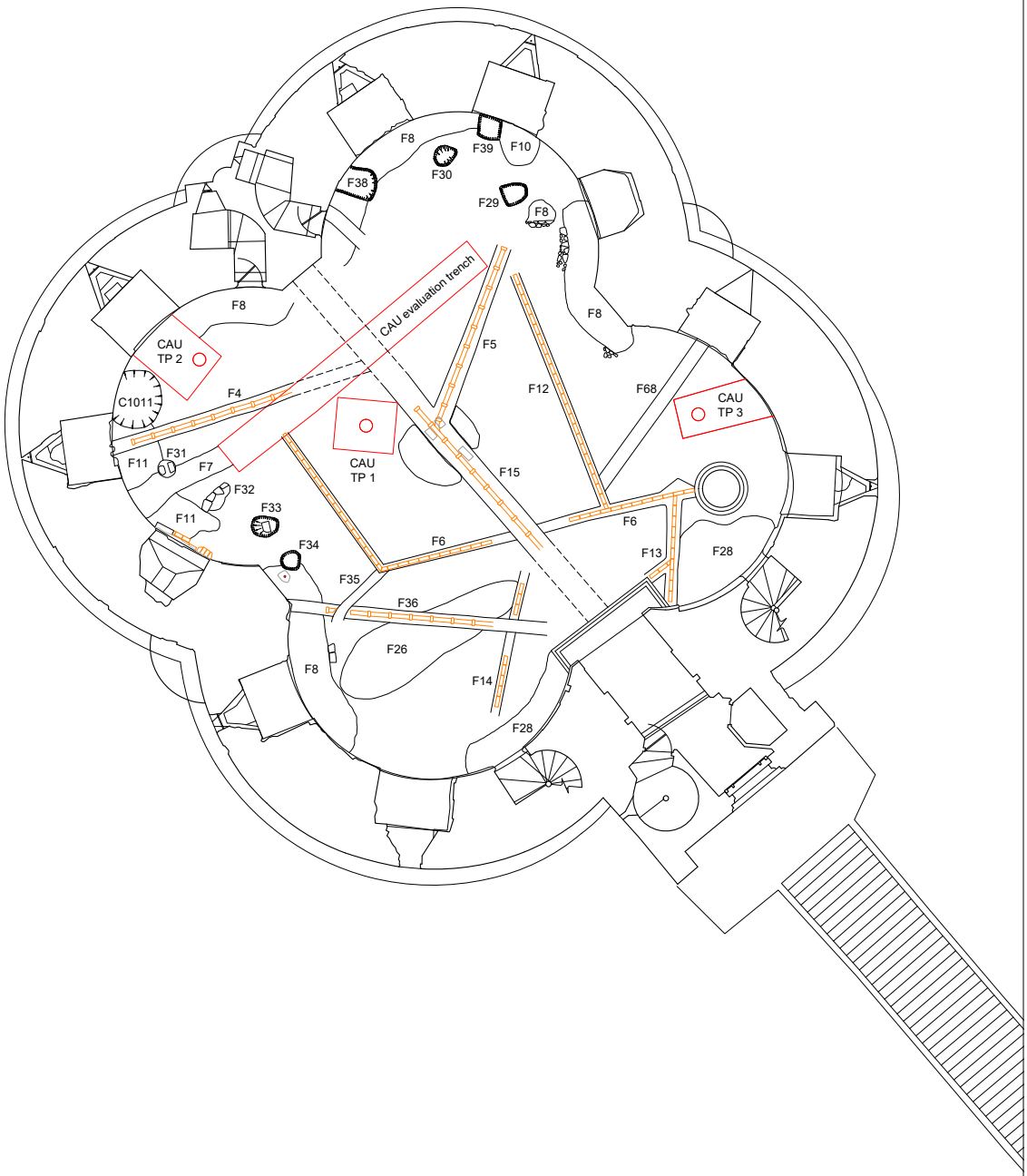


Figure 6 Intervention 6 - plan of features defined at Horizon 1

Scale 1:200@A4

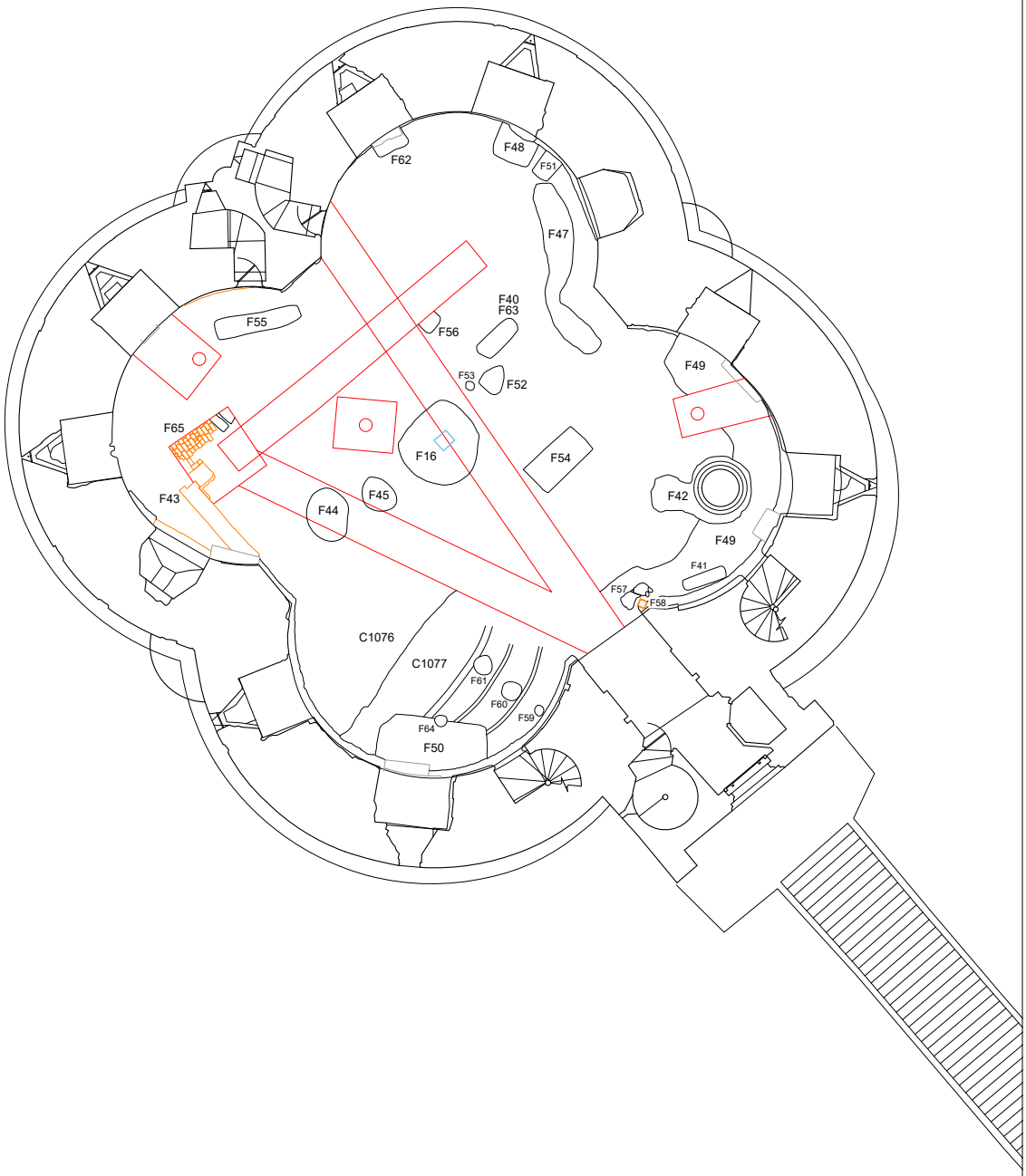


Figure 7 Intervention 6 - plan of features defined at Horizon 2

Scale 1:200@A4

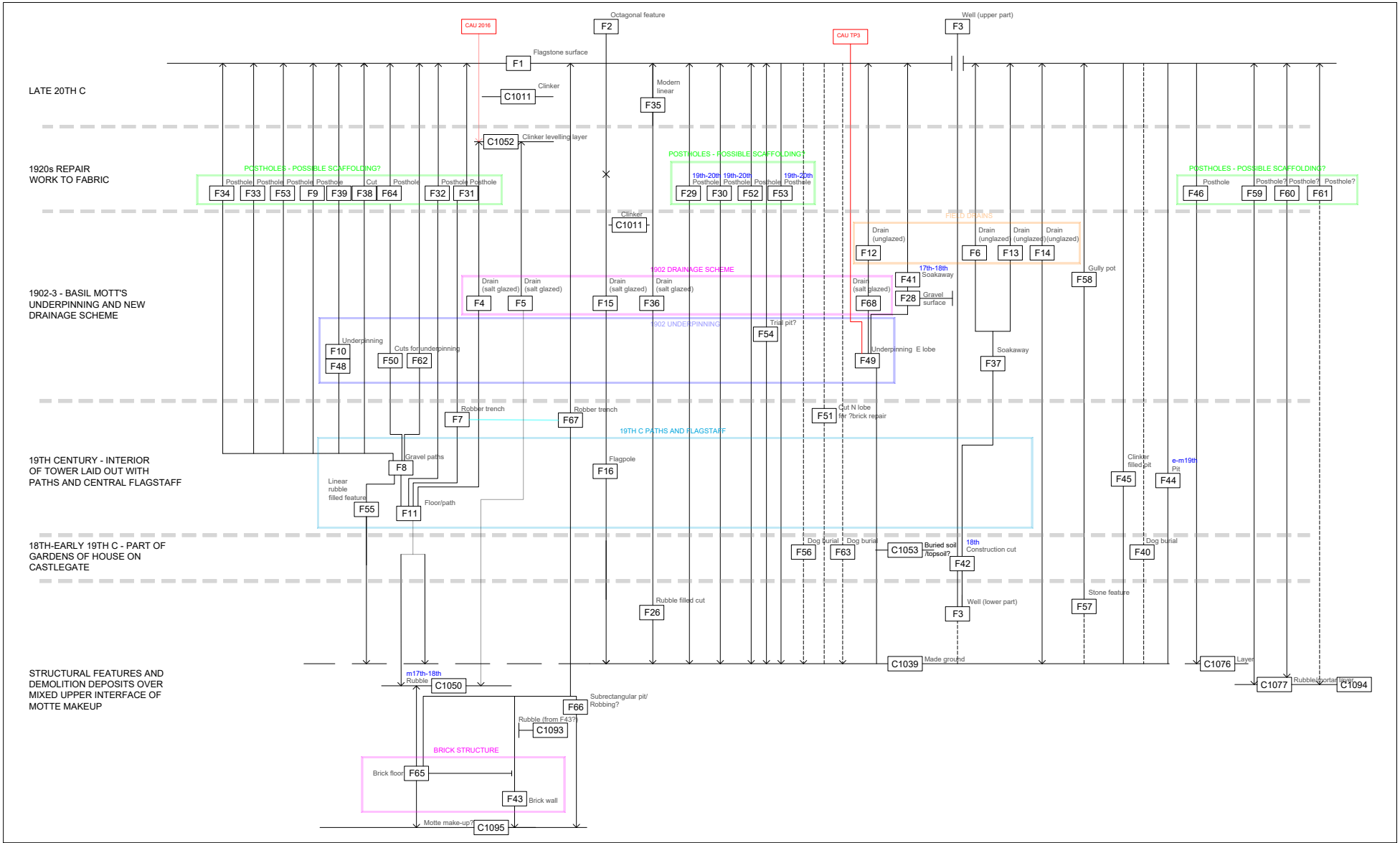


Figure 8 Intervention 6 - stratigraphic diagram

6.1.2 Results

Intervention 6 revealed a sequence of features dating from the 17th to the 20th centuries, with a possible window into medieval motte make-up and residual finds of Roman and later date encountered. The ground reduction exposed areas of medieval fabric at the base of the tower elevations, which is discussed below as part of Intervention 9.

Possible motte make-up and brick structures

The earliest deposit recorded within interior of the tower was in the west lobe, where excavations for an inspection chamber provided a small window into deeper deposits (see Figure 5; Figure 9). The earliest deposit within this area was allocated C1095, and consisted of a clean, dark brown clayey silt, with occasional flecks of charcoal and mortar (upper interface at 22.86m AOD, c.1.1m BGL). This has been tentatively interpreted as original, Conquest-period, motte make-up, also observed within the adjacent evaluation trench in 2016 at a similar depth (recorded as 1.0m BGL, which would be c.23.00m AOD). C1095 continued beyond the depth required for the new services and so no further excavation was undertaken; no finds were recovered.

The possible motte make-up C1095 lay directly beneath brick wall (F43) and associated brick floor (F65), the latter representing the remnants of structural remains that had previously been glimpsed in the 2014 test pits (TP2)(Plate 17).

Plate 17 Excavation for inspection chamber, showing possible motte make-up C1095 with brick wall F43 and associated floor F65, looking SW. Scale 1.0m

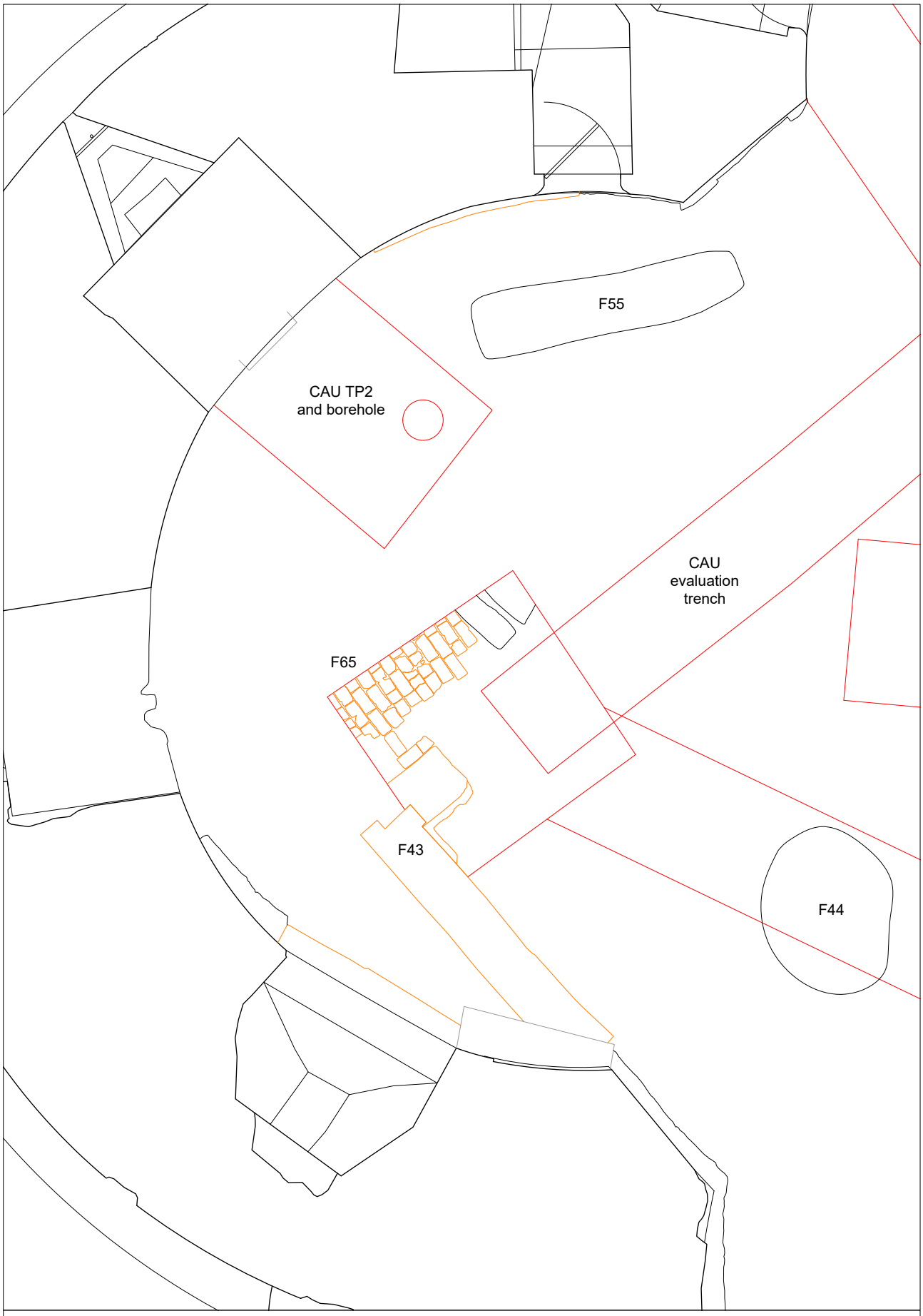


Figure 9 Intervention 6 - features in the west lobe Scale 1:50@A4

Brick wall F43 was initially observed at Horizon 2 when a c.3m length of walling was recorded, oriented NW-SE and forming a continuation of the straight elevation between the south and west lobes. Subsequent excavations for the inspection chamber exposed a right-angle and lower foundations. The courses continued beneath later concrete underpinning between the south and west lobes (Plate 18).

Plate 18 View of west lobe from the wall-walk, looking east. Scale 1.0m

The lower foundation course of F43 consisted of roughly shaped or unshaped limestone rubble, which formed the base for three surviving courses of brickwork (C1066), all bonded with a firm, off-white mortar with charcoal flecks. The upper interface of the surviving courses was contacted c.0.55m BGL (23.40m AOD), and the wall measured 0.50m wide, being four brick-widths across. The fabric comprised slop-moulded bricks measuring 230mm x 110mm x 50mm. Three examples were retained for assessment and have been identified as mid-17th-century or later in date (Appendix 8).

It is likely that the wall foundation cut into motte make-up C1095, but later truncation has removed clear evidence for a construction cut. Surviving backfill against the foundation (C1067) over the slightly projecting rubble foundations consisted of a friable yellowish-brown silty sand with brick rubble and flecks and lumps of lime mortar. This yielded a fragment of Roman brick, and two pieces of medieval plain tile (Appendix 8).

Abutting the north side of the wall was a brick floor (F65), exposed for maximum area of 1.48m x 0.93m within the inspection chamber excavation, with the upper surface contacted at 23.18m AOD (see Plate 17 and Plate 18). The bricks, similar to those in the wall construction, were laid flat in rows perpendicular to the wall, and bedded on a layer of firm white mortar (C1092) directly over possible motte make-up (C1095). In the northern corner of the excavated area, two large blocks of limestone

were also mortared in with the brick surface. These blocks (C1096) measured at least 0.61m x 0.33m and 0.20m thick; they could have been a structural element associated with the floor, or alternatively could represent reused masonry forming the stone foundation of a further, now-removed length of walling.

Disuse and robbing of structures

Floor F65 was overlain by a distinct layer of brick and stone rubble (C1050) seen at Horizon 2 to measure at least 3.0m NE-SW x 3.4m NW-SE (Plate 19; see Figure 9). Notably, the rubble deposit was confined the west lobe, and in plan appears contained to the northwest of the brick wall, possibly representing gradual collapse within the structure while the wall was still standing, and different post-disuse activity within and outside the former building. Ceramic recovered from C1050 included two sherds from a large Ryedale jug or jar (mid-16th to early 18th century) and a large decorated Tin-glazed Earthenware dish (late 17th and mid-18th century)(Appendix 9).

Plate 19 View of the western lobe showing the extent of rubble layer C1050, with part of wall F43 visible, looking E. Scale 2.0m

Evidence for later robbing of the structural remains was encountered, cutting through the initial disuse represented by rubble layer C1050. A steep-sided linear cut was identified within the inspection chamber excavation, cutting away the wall and truncating the brick floor. This cut, allocated F67, may correspond to a steep-sided cut identified within the 2016 evaluation trench, and can potentially be equated with a linear trench defined at Horizon 1 and allocated F7 (see Figure 6). This latter feature extended from the interior elevation of the lobe to extend across the alignment of the wall, and may have been a wall chasing or wall robbing exercise after the 19th century.

Within the north lobe, a linear feature was identified against the internal elevation and allocated F51 C1074. The function of this feature is not clear, but its location and dimensions (0.57m wide and at least 0.73m long) suggest a possible foundation or robber trench for a structure against the internal elevation.

Southeast of wall F43, contained within the right angle, deposits were found to have been cut away by a steep-sided cut, allocated F66 and backfilled with a loosely compacted yellowish-brown silty sand, at least 0.30m in depth (C1097). The close correlation between the edge of this cut and the foundations of the wall suggest that F66 was confined within the existing wall foundation, but its purpose is not clear. The only dated finds were ceramic fragments of possible 14th, and late 15th to 16th-century date (Appendix 9). The cut exceeded the depth of the adjacent foundations of wall F43 and continued beyond the depth of excavation. The nature of deposits defined in plan suggested that the area around the wall had been cut away and backfilled with a rubble deposit, similar to C1050 but distinct in plan, and containing larger rubble and more complete bricks; this may indicate robbing of the walls or quarrying of adjacent motte material. A looser, rubble deposit was identified between wall F43 and the internal elevation of the west lobe, and allocated C1093; this may have been stratigraphically equivalent to C1050 or the later robbing or levelling.

Well

Situated centrally within the east lobe is a well, the stone-lined shaft of which descends the full depth of the motte (F3)(Plate 20). The superstructure of the well is evidently of several phases, including a modern construction, but the shaft is likely to be medieval in origin, cut through the original motte

Plate 20 View of the east lobe looking west, showing rubble within the construction cut of the upper part of the well (Scale 2.0m)

make-up to provide a safe water supply for the tower. Later truncation in this area has removed any evidence for original medieval appearance or context.

A construction cut was exposed during ground reduction around the part of the upper part of the well, and allocated F42 (see Plate 20). The backfill of this cut (C1065) consisted of a dark yellowish-brown silty sand containing voided mass of limestone blocks. Finds included fragments of architectural stone, clay pipe, ceramic and CBM. The six fragments of clay pipe, including one bowl fragment, are dated to the 17th to 18th centuries, while the glass bottle indicates a date in the 19th to 20th century (Appendix 10). The ceramic assemblage included two sherds, one of 16th to 17th, and one of 18th-century date (Appendix 9).

Ground consolidation

To the immediate east of the distinct rubble area in the west lobe was a highly variable deposit of dark yellowish-brown silty clay, extending across the whole of the west and north lobes, and into the east lobe slightly (C1039). This layer, contacted at c.0.25m BGL (23.7m AOD) was seen to contain limestone fragments, clay pipe, ceramic and CBM. Due to poor visibility and known truncation by later, poorly-defined features, a recovery context (C1004) was used for finds recovered during cleaning of the upper interface of this deposit (Horizon 1); subsequently, C1064 was used as a recovery context from cleaning after the required depth had been achieved (Horizon 2), which may also have included finds from C1076 and C1077 (see below). The finds from C1004 included a mixed assemblage of CBM, clay pipe and glass. The clay pipe represents residual finds of 17th to 18th-century date, while brick fragments recovered included a complete engineering brick voussoir stamped '6' and a fragment of 19th- to 20th-century Pease brick. The finds from C1064 were more varied in date, including a significant assemblage of late 9th to post-Conquest 11th-century ceramic which, although residual, has been interpreted as deriving from redeposited primary deposits; the ceramic assemblage was accompanied by finds of a copper-alloy 10th-century clapper bell (a personal ornament), and an iron padlock key of similar date (Appendix 12). An assemblage of animal bone was also recovered (Appendix 11). The highly mixed nature of these deposits was shown by the presence of an 18th to 19th-century pewter button, fragment of modern window pane, ribbed glass tile of 20th-century date and finally, a penny of George V dated to 1928 (Appendix 10 and 12).

C1039 has been interpreted as a period of levelling or ground consolidation within the tower. The deposit did not extend across the area of rubble in the western lobe, suggesting either that it was laid down while a structure – or its collapsed remains – still occupied most of the lobe, or that the structure represented by F43 and F65 was cut into it. Notwithstanding likely intrusion, the artefactual dating and historic evidence suggests the former scenario to be more likely (see Discussion, below). C1039 produced five fragments of clay pipe of 17th to 18th-century date, including a fragment of a barrel-shaped bowl of a type datable to c.1650-1670 (Appendix 10).

The levelling represented by C1039 did not extend to the south lobe, where two discrete deposits of made ground were identified and allocated C1076 and C1077 (Plate 21). C1076 consisted of a dark yellowish-brown silty clay with occasional inclusions of angular limestone fragments and rounded pebbles. C1077 consisted of a distinctive deposit of mortar and rubble, containing angular limestone fragments and CBM (brick) in a matrix of pale brown sand and mortar. This latter deposit produced two fragments of late medieval brick or wall tile, which may have arrived as hearth tiles within the tower. These layers appear to represent levelling or ground consolidation, potentially stratigraphically equivalent to C1039. Some of the finds recovered from C1064 may have originally derived from these deposits.

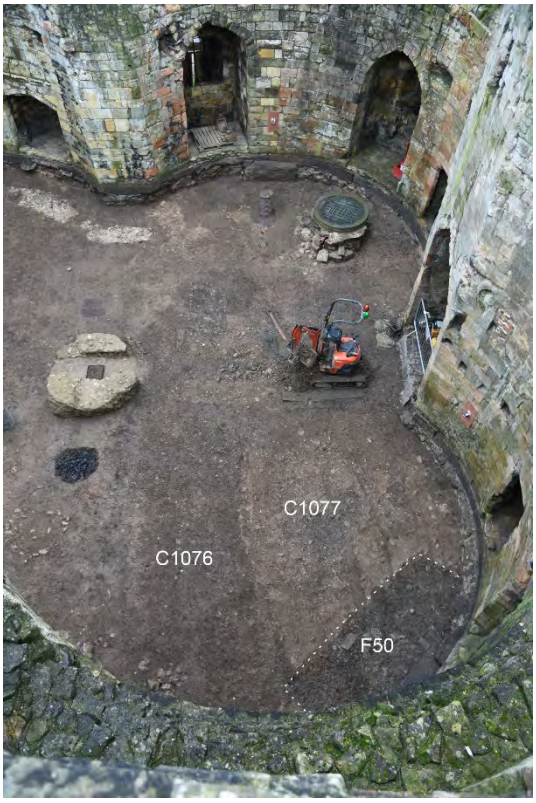


Plate 21 View of the south lobe looking east, with C1076 and C1077 and later F50

These deposits were not fully investigated as the required depth had been achieved, and so their derivation and sequence of deposition remains uncertain. However, they appear to represent made ground created from discrete dumps of material of mixed origin. Linear striations were noted in the surface of C1077 and allocated C1094. Unusually, these resembled plough marks, but may have represented some form of ground preparation following levelling (see Figure 7).

Garden soils and dog burials

Overlying C1039, towards the edges of the machine-excavated areas, were the vestiges of a buried soil, allocated C1053 and consisting of a very dark greyish-brown silty clay deposit contrasting with the paler C1039 below. It is possible that this deposit represents a buried soil horizon that formerly existed across the whole of the tower interior, truncated during later phases of landscaping.

Three dog burials were identified cutting the pack of material assigned C1039; they were contacted relatively close to the surface and so are likely to have been cut through later layers, potentially garden soils.

The dog burials lay within the north lobe, close to the centre of the tower. One example, F40, was excavated, and was found to contain the partial remains of a young dog (C1062), c.18 months old, which would have stood 51-53cm high at the shoulder (Appendix 11). The remains were laid out west-east and within a poorly-defined, sub-rectangular cut (Plate 23). Further dog burials were identified close-by; F56 C1082 was defined only by articulated lower leg bones, while F63 C1090

was identified by exposed remains of a fragmented skull, lower limbs and pelvis, which indicated that the animal had been interred on its back. The required depth of excavation had been achieved when these skeletal remains were exposed and so they were left in situ. F63 lay directly beneath F42 but was evidently not contemporary with it; it is tempting to speculate that a second pet was interred in a grave that was marked in some way.

Plate 23 Dog burial F40 C1062, looking southeast (Scale 0.50m)

Also cutting consolidation layer C1039, were a number of features of uncertain function (F26, F44, F57; see Figure 7). F44 was allocated to a subcircular pit measuring 1.50m NW-SE by 1.30m NE-SW; the feature was not fully excavated but was recorded in plan. The greyish-brown clay backfill (C1068) included fragments of brick and limestone, and two sherds of ceramic and a lace chape were recovered from its upper interface. The ceramic sherds were identified as part of the base of an 18th-century Brown-glazed Earthenware jug or jar, and a fragment of the rim of a small Pearlware cup or bowl likely to date to between the late 18th and early/mid-19th centuries (Appendix 9), and the lace-chape dated to the medieval to post-medieval period (Appendix 12).

Close to F44, but very different in character, F45 was initially identified as a spread of black ashy/clinker material (Plate 22). Subsequent ground reduction revealed this to be a clearly-defined, subcircular feature, 1.0m in diameter and containing a consistent fill of fuel ash or clinker. The feature continued beyond the depth of excavation and no obvious function could be identified.

In the south lobe, F26 was identified as a large rubble-filled feature, oriented NE-SW and measuring 5.90m x 1.30m. The backfill was defined by the presence of large angular blocks of limestone and mortar in a long sub-oval cut (C1037)(Plate 24). Just inside the tower, F57 was allocated to mortar-bonded stone feature, rectilinear in visible plan, measuring 0.95m west-east, with right angled corners to the northwest and northeast (C1083).

Plate 22 F45 C1089, looking northwest (Scale 0.5m)

Paths and flagpole

Situated centrally within Intervention 6, a subcircular structure was defined and allocated F16 (Plate 25). This lay directly beneath a modern octagonal feature in the paved interior of the tower, which clearly referenced a previous observation of this feature (Figure 10).

Plate 24 View of the south lobe looking east, showing rubble-filled F26 in plan

F16 consisted of an irregular, rubble filled construction cut (C1019), c.2.90m in diameter, within which a compact setting of angular limestone rubble and CBM fragments set in a weak lime mortar had been constructed (C1019). The surrounding backfill included fragments of 19th or early 20th-century glass bottle (Appendix 10). This compact setting measured 2.20m in diameter, with faceted edges suggesting that the feature had been shuttered during construction. The mortar setting held in place the base of a substantial wooden post, rectangular in section and measuring 0.44m x 0.40m, lined in lead (C1056). Historic maps allowed this to be identified as the base of a flagpole that existed on the site in the late 19th century (see Discussion).

Plate 25 Central flagpole base F16, looking northeast (Scale 1.0m)

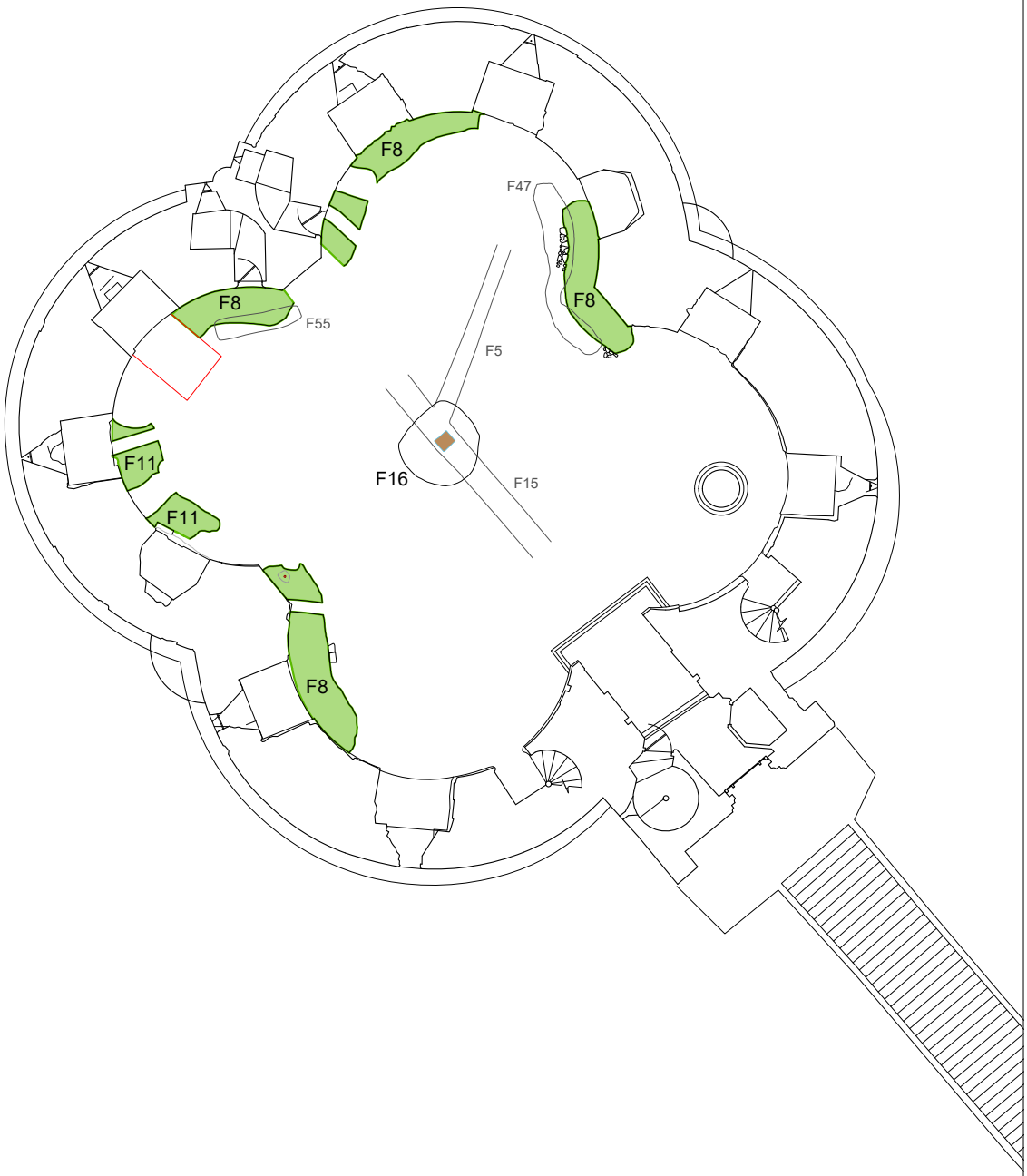


Figure 10 Intervention 6 - flagpole base F16 and gravel paths

Scale 1:200@A4

Potentially contemporary with the central flagpole, a series of linear feature and gravel surfaces were identified, running parallel to the interior of the tower. The earliest of these were allocated F55 and F47, both were identified as linear features, running parallel to, and offset from, the interior of the tower by between 0.70m and 0.80m. In the north lobe, F47 measured c.5.00m long and c.0.60m wide, and was backfilled with a pale brown silty sand with inclusions of brick, stone and mortar (C1071)(Plate 26). Among the rubble fill, a fragment of Roman limestone *mortarium* was identified (Appendix 12, Find No. 46), and a fragment of 17th-century slop-moulded brick (Appendix 8). F55 measured 2.50m long and 0.60m wide, and contained angular stone blocks and pebbles, brick and CBM in a loosely compacted sand and mortar matrix (C1080). These features have been interpreted as possible drainage features, associated with paths that skirted the edges of the tower interior.

Plate 26 North lobe, looking north, with F47 (right) and F47 (left)(Scale 2.0m)

Plate 27 North lobe with vestiges of external paths around the perimeter (Scale 2.0m)

Vestiges of surfacing were identified in the north and west lobes, overlying F47 and F55, and allocated F8 and F11 (Plate 27). These features skirted the interior elevations of the tower, measuring 1.40m wide. F11, identified in the west lobe, consisted of two phases of surfacing, with fine rounded pebbles in a reddish-brown matrix (C1010) overlying a compacted, pale brown sandy silt with gravel and mortar inclusions (C1057)(Plate 28). The earlier deposit (C1057) was very similar to the make-up of F8 (C1005), which was allocated to surfacing around the interior of the west, north and south lobes. In places, a varied kerb was noted, made from rounded and angular cobbles. The surface had been heavily truncated by later activity.

Plate 28 Sequence of gravel surfaces in the north lobe (Scale 2.0m)

Repair and underpinning features

Evidence for repair and underpinning of the tower was identified in the form of diverse features encountered in a number of locations, cutting through the gravel surfaces around the perimeter of the tower. The evidence for underpinning is also discussed in the context of the lower courses of the tower elevations; see below.

This activity was focussed in particular in the east lobe, where a feature was observed in plan extending around the internal edge of the lobe from the forebuilding to the northern embrasure, extending c.1.5m into the interior (Figure 11; Plate 29). This feature, allocated F49, was observed in plan but was not fully excavated. The backfill (C1049) was variable, indicating backfilling at various times, but generally comprised a reddish-brown clay with occasional rounded and angular pebbles. Where truncated by the ground-reduction, this was seen to have been backfilled against concrete reinforcement beneath the tower walls.

Plate 29 East and south lobes, looking south

Similar backfill was noted in a rectangular feature, situated within the east lobe, but not against any of the elevations. This feature (F54 C1088), measuring 1.90m x 0.90m was recorded in plan but not further excavated.

In the south lobe, F50 was allocated to a rectilinear cut measuring 3.10m x 1.30m against the internal elevation beneath the southern embrasure (see Plate 21). The very dark grey silty clay backfill (C1079) was observed against a concrete underpinning; the backfill also contained fragments of brick, fragments of limestone and mortar.

Post-dating these cuts in the south and east lobes were areas of resurfacing, possibly laid down to consolidate surfaces following the underpinning work, allocated F28. These comprised a lower deposit of black, clinkery material, 0.07m thick (C1059), with reddish brown gravel over (0.03m)(C1041).

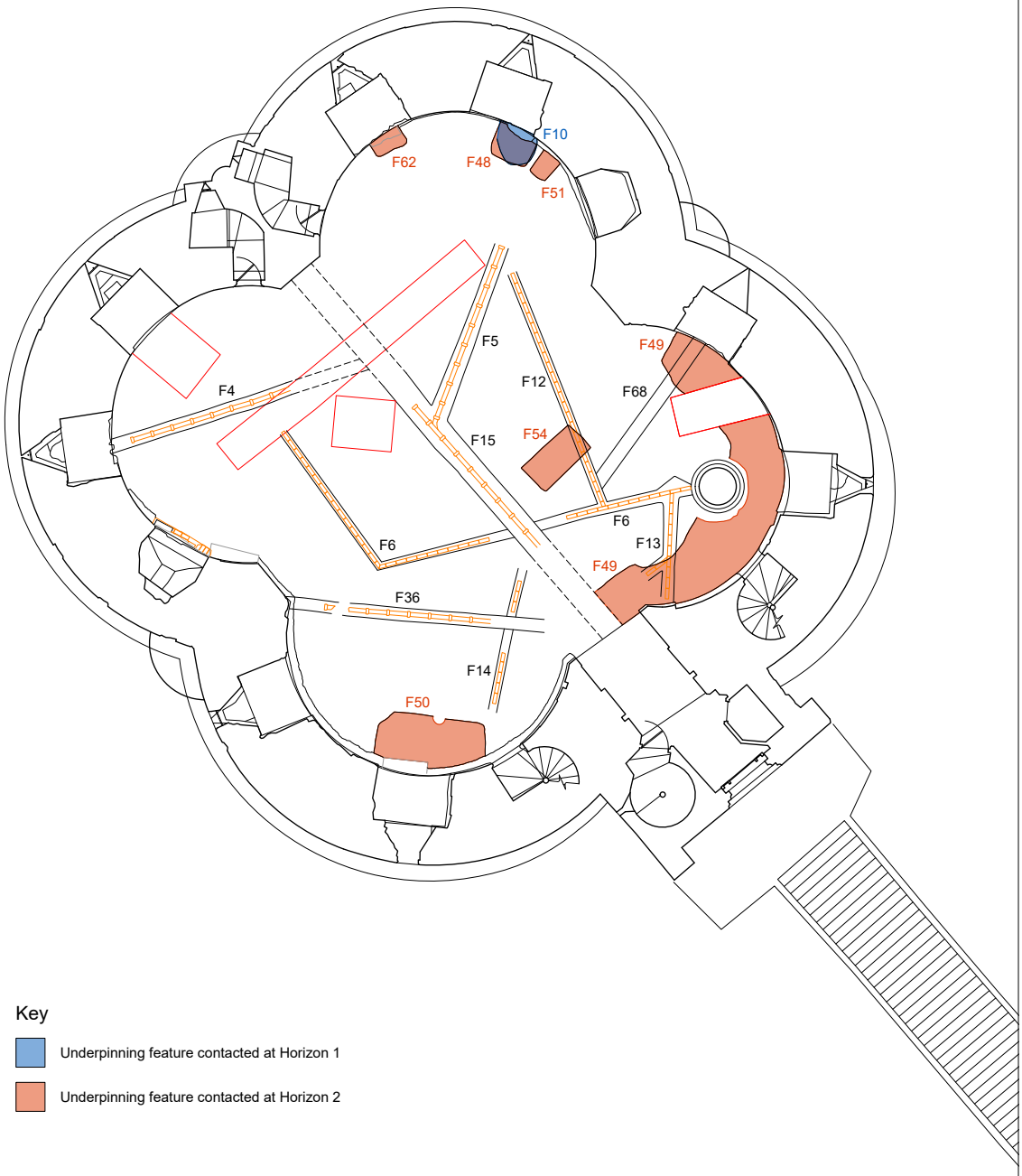


Figure 11 Intervention 6 - underpinning and drainage features

Scale 1:200@A4

In the north lobe, a rectangular cut was excavated against the internal elevation, between the central window and fireplace. The feature (F51) was 0.57m wide and extended 0.73m from the wall. Excavation revealed a dark brown backfill (C1074) with occasional limestone and mortar flecks; the feature corresponded with an area of brickwork within the lower wall foundations.

A second cut (F48) to the west of F51 was initially identified in plan through the presence of a crushed brick patching of the surface of the grave path, allocated F10 (C1013). This was later found to correspond to a deposit of stone blocks beneath the make-up of the east embrasure.

A further rectangular cut was identified against the west embrasure (F62 C1073). This feature measured 0.90m wide and extended 0.45m from the internal elevation; excavation of the mixed clay silt backfill (C0173) showed that this feature corresponded with a series of concrete blocks underpinning the embrasure (Plate 30, see Intervention 9 results).

Plate 30 Concrete blocks in the north lobe west embrasure, corresponding with F62 (Scale 1.0m)

Drainage

Two schemes of drainage were identified cutting through the backfilled cuts for underpinning, and extending across the whole of the tower interior.

A system of salt-glazed pipes was identified across the interior of the tower, recorded as a number of discrete, but connected, features (F4, F5, F15, F36, F68). The system drained from north to south, towards the entrance to the tower (Plate 31; see Figure 11).

A central drain bisected the tower interior (F15), cutting through the centre of the flagpole base. The drain consisted of a salt-glazed pipe with external diameter of 0.13m (0.17m at the collar), within a trench measuring 0.35-0.40m wide. The drainage trench had been backfilled with a loose, dark brown silty clay which included rubble, bricks and mortar. Two similar lengths of drain fed into F15

from the north lobe and west lobe (F5 and F4 respectively); where the pipes met, the pipework had been supported by stone blocks. Further lengths of salt glazed pipe led from the east lobe (F36) and across the south lobe (F68) towards the central pipe and the main exit. A ceramic gully pot (F58) situated close to the east internal side of the entrance passage may also have formed part of this system.

Plate 31 Drainage systems crossing Intervention 6

A series of field drains was also identified (F6, F12, F13), constructed from unglazed, circular clay pipe lengths, 0.10m in external diameter and 0.30m long. F6 extended from the west lobe towards the south for c.5.0m, before turning through 110˚ and continuing for c.9.2m, meeting soakaway F37 and issuing into the well (F3). Soakaway F37 was allocated to an amorphous cut at the western side of the well, backfilled with loose rubble; this may have been created to receive the drainage system represented by F6. Further, similar drains drew water from the north lobe (F12) and south entrance areas (F13) and fed into F6.

The stratigraphic relationship between the salt-glazed drainage and unglazed, field drains, was not clear. Salt-glazed drain F15 appeared in plan to interrupt and cut through F6. Although this may have been due to later truncation. Salt-glazed F68 clearly passed beneath F12; and F6 angled as though to avoid F36, suggesting that the field drains were later, which would also be consistent with the field drains post-dating gravel surface F28. The ambiguous evidence would suggest they might have been contemporary, complementary systems, serving to carry water from the edges of the tower away altogether, and drain surface water from the interior area respectively.

F41 was a rectangular feature identified in the south lobe adjacent to the well (F3). This feature measured 0.70m x 0.40m and was defined in plan against the later gravel surface (F28). Excavation revealed a steep-sided feature 0.65m deep, backfilled with C1063, which included large ceramic sherds and pea grit. The assemblage of finds recovered proved to be notable, including an early medieval clay loom weight, a mixed deposit of late medieval to early post-medieval ceramic along with an enamel coffee pot of modern date. The largest proportion of the ceramic assemblage is most likely to be mid-15th to mid-16th century; the ceramic report notes a cohesiveness to the assemblage, indicating that it may have originated as one or more redeposited primary discard assemblages. Almost the entire assemblage was covered with post-depositional concretions

(including the broken edges) and extreme wear to a high proportion of vessel fragments. In general, the utilitarian nature of the fragments, with evidence for heavy usage, suggests a select kitchen area deposition group. Intriguingly, a recent date for deposition of this assemblage was indicated by fragments of 19th- to 20th-century glass bottle, and the 19th- to 20th-century enamelled tin coffee pot.

Postholes

Across much of the interior a series of postholes were defined in plan and recorded as some of the latest features within this area (Figure 12). Generally, these have been grouped together due to shared characteristics of a high proportion of rubble within their backfills, and the inclusion of large fragments of concrete indicating a relatively modern date. These were interpreted as bases for scaffold poles known to have been erected in the tower in the 1920s.

F29 C1042 produced a fragment of 17th- to 18th-century clay pipe, as well as 19th- to 20th-century glass (Appendix 10); the four ceramic sherds from the backfill ranged in date from a York Gritty ware jar or bowl of 11th to 13th-century date to a flowerpot of 19th to mid-20th-century date. F30 C1043 produced 17th- to 18th-century clay pipe and a fragment of 19th to 20th-century flowerpot, and F33 C1046 also produced clay pipe, but with a fragment of York Gritty ware of 11th to 13th century date. F38 C1054 contained ribbed glass tile of 20th-century date as well as 12th- to 13th-century medieval whiteware, and post-medieval clay pipe (Appendix 9 and 10). Together, the features represent activity disturbing the already much reworked levelling layers across the interior of the tower.

Modern paving and archaeological investigations

All features had been sealed by a clinker layer that evidently formed part of a levelling deposit. This was allocated C1052 and was machine excavated; in places discrete areas of similar material were recorded, including a subcircular area in the west lobe (C1011); these likely represent areas of sinkage. C1011 produced glass fragment of 19th to early 20th-century date, a fragment of salt-glazed pipe of similar date and a garden pot of 19th to 20th-century date. The clinker had been cut by a modern electricity service trench (F35), which extended from the garderobe to the forebuilding.

The clinker had then been overlaid with a clean, yellowish-brown sand bedding for flagstone floor (F1). The paving extended up to, and around, a modern superstructure for the historic well, which comprised well-cut segmental stone blocks (F3 C1003).

The latest activity encountered were the trenches that had been excavated by the Excavation and Analysis Team of Historic England in 2014 and 2015, clearly identifiable in plan, and the boreholes that had been inserted as part of that investigation.

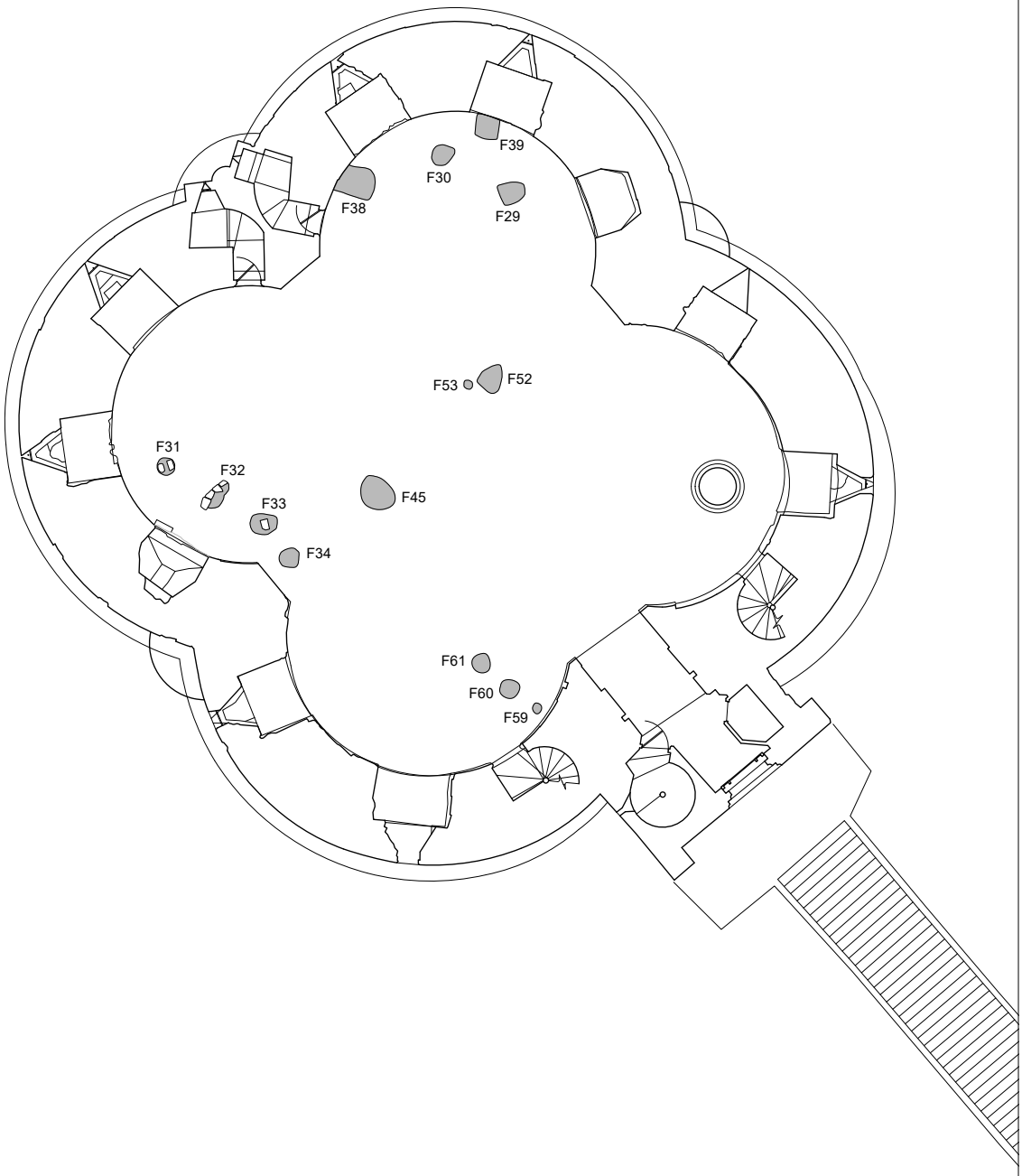


Figure 12 Intervention 6 - plan of postholes Scale 1:200@A4

6.2 Intervention 7 – Electricity trench

6.2.1 Fieldwork summary

A trench for a new electricity cable was excavated, descending the motte on the west side of the steps, before skirting the base of the motte on its western side, and crossing the road to connect with a power supply on the western side of Tower Street (Plate 32)(Figure 13).

The trench measured 0.3-0.5m wide and up to 0.6m deep and was excavated in three stages. The descent of the trench down the motte was hand-excavated by contractors under archaeological supervision. The trench around the base of the motte was excavated using a mechanical excavator fitted with a toothless bucket under archaeological supervision. The final stretch, across Tower Street, involved excavation over two nights due to the need for road closures (one half closed per night). This was carried out under archaeological supervision.

Plate 32 General view of electricity trench, looking west from the motte

Plate 33 Wall make-up F86 in section, looking NW. Scale 1.0m

6.2.2 Results

Natural subsoil was encountered within the area at the foot of the motte, towards the northern end of the trench, and allocated C1034. It consisted of a clean, sterile reddish-brown silty clay with rare gravel inclusions.

Prison wall and 19th-century features

Within the road-crossing trench, on the east side of the road, a layer of reinforced concrete was observed in section, over large stone fragments and blocks. The stonework was allocated F86 C1133 and interpreted as the consolidated remains of a substantial wall; this corresponds with the known location of the external boundary wall of the Victorian prison.

Several linear features were observed crossing the trench as it curved around the foot of the motte. Given the narrow dimensions of the trench, many were only glimpsed and their layout and function were not clear.

At the northern end of the trench, an alignment of two stone slabs was identified, oriented approximately north-south, and allocated F17 C1020. This feature was not further investigated; this could have marked a boundary wall or been the stone capping of a culvert. This was sealed by C1024, a compacted layer of made ground consisting of pale yellowish clayey sand up to 0.20m deep (0.3m to 0.5m BGL), identified throughout most of the service trench, flanking the motte and interpreted as a demolition horizon. In places the upper interface was very firm in compaction suggestive of a former ground surface. At its northern end this was overlain by C1023, a similar, but sandier, material.

A series of features were identified overlying or cutting this made ground. At the northern end of the trench, a length of brick wall foundation was defined and allocated F18 C1021. This feature spanned the trench on a NE-SW alignment and surviving to two courses high (Plate 34). The bricks (which remained in situ) measured 250mm x 110mm x 50mm.

Plate 34 Wall F18, looking NW. Scale 0.5m

Further south, F21 C1030 was assigned to a large, squared stone block spanning the trench. This was also identified as the potential remains of a wall footing; hard buff mortar was noted adhering to the stonework.

Further possible structural features were identified south of F21. F22 (C1031) consisted of a single squared block of limestone, with pale buff mortar adhesions, which appeared to represent part of a robbed wall foundation; the remaining mortar revealed the full width of the former feature.

Plate 35 F23 C1032, looking northeast. Scale 0.3m

F23 (C1032) consisted of a NW-SE alignment of two blocks at the eastern limit of the intervention, one of which had a concave profile with drainage holes to one side (Plate 35). The latter may have related to surface water drainage but did not appear to be in situ.

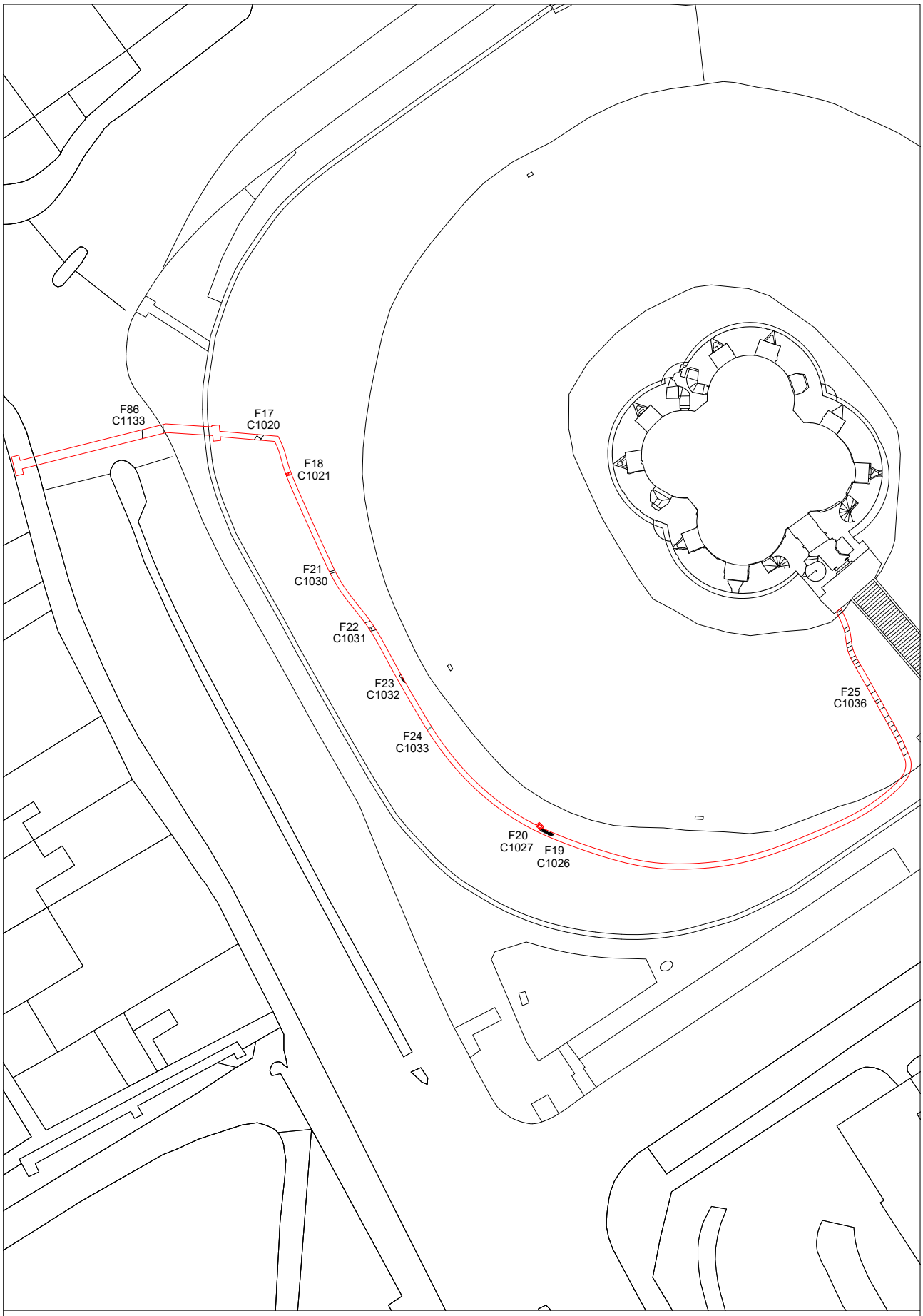


Figure 13 Intervention 7 - plan of features Scale 1:500@A4

Still further south, part of a cobbled surface was identified and allocated F19 C1026, and observed for over 2.5m (Plate 36). The cobbled surface abutted the make-up of manhole F20 C1027, which consisted of a brick-built drainage shaft or soakaway with square top. The shaft was constructed from unbonded bricks – some of which had been reused – lining a square shaft with internal dimensions of 0.40m x 0.40m and extending to at least 1.20m deep; at this depth rubble infill was observed, indicating the feature had been partly backfilled. The stone collar with iron grid was displaced from this feature during machining but had clearly been associated (Plate 37). Nearby a later steel water or gas pipe was observed crossing the trench, and allocated F24 C1033.

Plate 36 Cobbled surface F19 and soakaway F20, looking SE. Scale 0.5m

Demolition deposits

The majority of features were sealed by layers of rubble which represent demolition or levelling. Features F21 and F18 were sealed by layer C1025, a mortar-rich rubble deposit containing a large component of bricks (fragmentary and complete), which was observed discontinuously across the service trench at the foot of the motte. F21 and F22 had been sealed by C1029, a further rubble layer which appears stratigraphically equivalent to C1025, but contained less brick; lenses of mortar and crushed brick were noted, and a single fragment of 17th- to 18th-century clay pipe was recovered, along with and four ceramic sherds, including two sherds of Creamware vessels of late-18th to 19th-century date, and two of Pearlware. A further extensive layer of limestone rubble in a loose sandy matrix was observed extending across the service trench as it turned to follow the southern side of the motte.

Plate 37 Displaced cover from F20

These deposits were sealed by turf and topsoil (C1022) which included a penny of George VI dated to 1948 (Appendix 12).

Motte make-up

The length of electricity trench that ascended the motte revealed only deposits relating to the 20th-century reconstruction of the motte profile (Plate 38). These comprised the stepped profile of large blocks of gritstone (F25 C1036), positioned against retaining wall F27. The blockwork in this area extended beyond the known height of the retaining wall and had been covered with topsoil and turf

(C1040) to recreate the motte profile (Plate 38). A residual fragment of clay pipe was recovered from this deposit (Appendix 10), along with sherds of a Pearlware bowl of probable mid-19th-century date and English stoneware of 19th to early 20th-century date.

Plate 38 Electricity trench (Int 7) showing blockwork forming the motte profile (F25 C1036)

6.3 Intervention 8 – Drainage trench

6.3.1 Fieldwork summary

Installation of a new drainage scheme required the excavation of trenches for pipework extending from the tower interior (partially included within in Intervention 6), passing through the forebuilding and descending the motte on the east side of the stair to meet the attenuation tank (Intervention 12)(Figure 4). This work also included lowering ground level around the foundations of the forebuilding on the exterior of the structure. A small amount of excavation was undertaken on the northwest side of the exterior of the keep, to expose existing drainage pipes. This work was undertaken under archaeological watching brief conditions as Intervention 8.

6.3.2 Results

Exposed fabric including evidence for underpinning

The lowering of ground level outside the entrance to the tower revealed the lower part of the elevation and foundation courses of the forebuilding.

Removal of c.0.3m of turf, topsoil and made ground exposed two further courses of the northeast corner of the forebuilding and supporting buttress. Notably, the lower courses of the buttress appear slightly skew to the respective southeast and northeast elevations above. The projecting courses appear to have been roughly cut away, possibly so that paving could be laid flush to the main elevations (Plate 39). The stepped foundation

Plate 39 SW buttress of the forebuilding, showing lower courses and concrete underpinning

course of the main southeast elevation of the forebuilding had been similarly cut back at the level of former paving.

Stepped stone foundations were noted where foundation trenches exposed lower courses. At the foot of the northeast elevation of the forebuilding, evidence for rebuilding or repair work in brick was noted, with a scar above (Plate 40).

Plate 40 NE elevation of the forebuilding, looking SW. Scale 0.5m

Lowering of ground level across the front elevation revealed areas of concrete underpinning, particularly around the southern corner of the forebuilding (Plate 41). This consisted of a large area, 7.0m x 2.4m of poured concrete which continued beyond the western limit of intervention.

Plate 41 Area of ground reduction immediately outside the forebuilding, looking SE

Drainage

At the top of the motte stairs, the upper part of a rectangular manhole was exposed, measuring 1.55m x 1.0m (F87 C1024)(see Plate 41), serving drainage from the tower interior, that continued beneath the current stair. A stone cap was removed during groundworks, and the concrete upper part of the structure recorded.

Plate 42 Drainage through the NW side of the tower

A limited area of investigation on the northeast side of the tower, within the angle between the north and west lobes, revealed 20th-century drainage passing through the walls of the tower. This included modern plastic drainage and water pipes, protected by lead chute; adjacent, a second chute had been cut through the fabric (Plate 42). Again, stepped stone foundations of the tower were observed.

Motte make-up

The drainage trench that descended the motte on the east side of the stairs exposed only the turf and topsoil make-up of the motte profile (C1040).

6.4 Intervention 10 – Staircase rest bays

Three new rest bays were created to either side of the existing stair ascending the motte, and an archaeological watching brief was maintained during the required earthworks to create level platforms. Service trenches were also required for the ducting associated with the rest bays and stair. For the purposes of recording, the rest bays are numbered 1 to 3 (Figure 14); investigations revealed deposits of medieval to 20th-century date. Due to the steep slope, excavation was undertaken by hand.

Plate 43 Retaining wall (F71 C1104), behind and beneath block make-up (F69 C1102)

6.4.1 Rest bay 1

Rest bay 1 was the lower of two rest bays on the southwest side of the stair, and required excavations measured a total area of 4.5m x 2.2m. Work required for this rest bay was undertaken in two stages; a lower section was excavated in the first instance, and a second, contiguous area excavated above after the blockwork in the first had been removed (see Figure 14).

Plate 44 View of reused window embrasure and chamfered block (Scale 1.0m)

Groundworks in this area provided a glimpse of the retaining wall that had been constructed in the 19th century to support the curtailed motte. The exposed area represented the upper course of the wall, allocated F71 C1104 (Int 7 F27 C1038), and seen to comprise well-dressed and closely fitting sandstone blocks, each measuring at least 0.90m x 0.50m.

Abutting F71 for the full height of the retaining wall and beyond was a stepped make-up of stone blocks (F69 C1102)(Plate 43). Above the highest course, the soil make-up of the reconstructed motte appears to have been supported by a collar of concrete, cast in situ over a chamfered upper course of blocks (see Plate 43). The stone blocks incorporated a number of fragments of reused architectural stone (Plate 44), including a possible window head with chamfered return, and a chamfered sandstone fragment with two sockets (one lead filled); the stonework is likely to derive from the prison buildings that were demolished prior to the motte reconstruction.

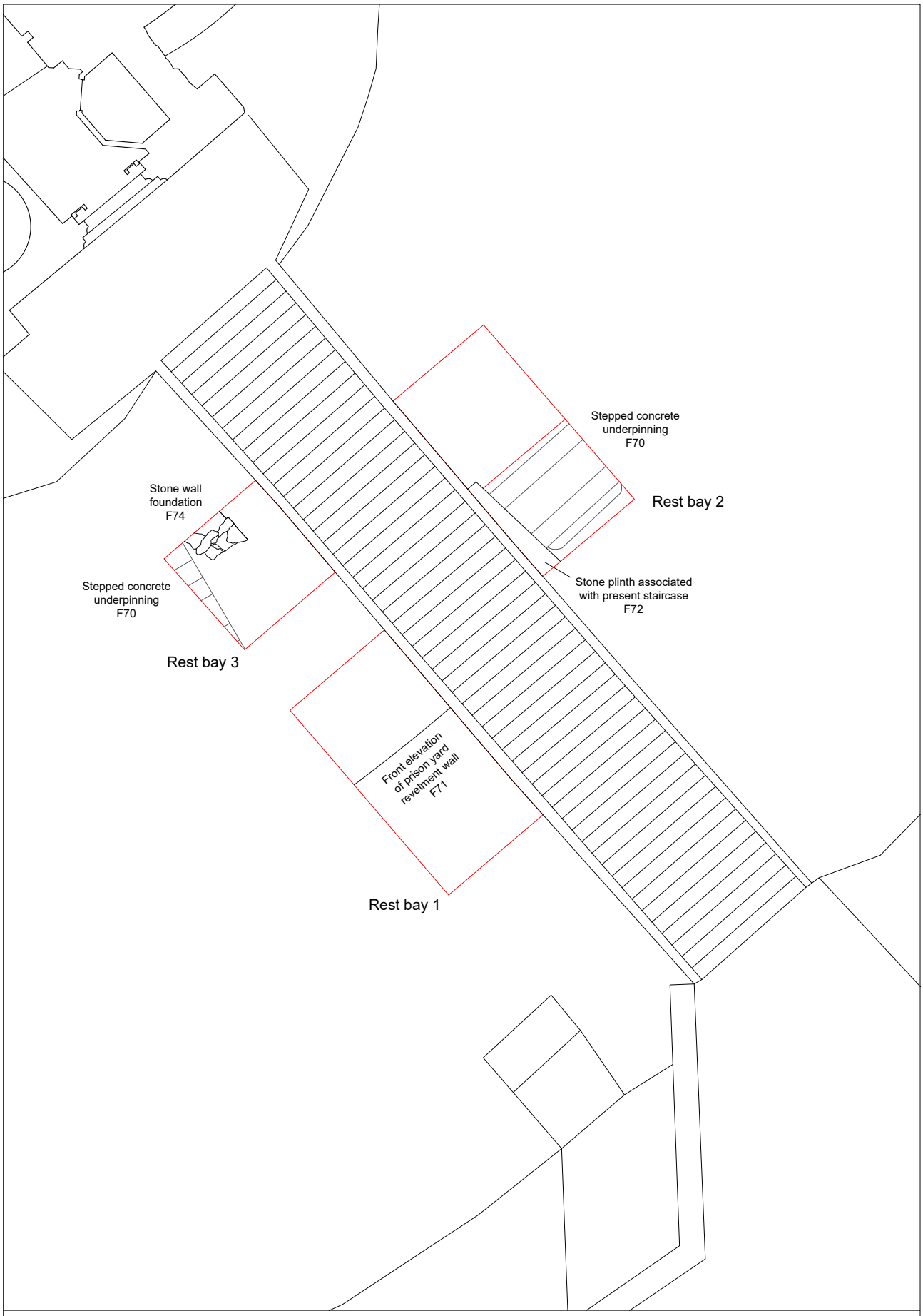


Figure 14 Intervention 10 - plan of features Scale 1:100@A4

The soil profile of the motte seen in Rest bay 1, comprising a dark brown clayey silt (C1040), is likely to represent 20th-century make-up, being deposited to the rear of the concrete shuttering. These deposits were overlain with turf and topsoil (C1101).

6.4.2 Rest bay 2

Rest bay 2 was situated on the northeast side of the stair, at a higher level to Rest bay 1. The retaining wall and blockwork motte construction were not contacted in this area, given its more elevated location.

The earliest feature in this area was the stepped make-up of an area of concrete underpinning, allocated F70 C1103 (Plate 45). The exposed area consisted of four steps of concrete, with imprinted evidence for timber shuttering. The concrete was overlain with C1040, a dark brown clayey silt, laid down to reconstruct the upper part of the motte profile after the insertion of the concrete underpinning. This was then sealed by 0.30m of turf and topsoil (C1101).

Plate 45 View of Rest bay 2, looking southeast (Scale 0.5m)

On the southeast side of the area excavated for Rest bay 2 was a sloping plinth of stone and concrete, forming the foundation of the current stair, and extending 0.43m to the northeast of the stairs (F72 C1105). The northeastern edge of this deposit revealed that it comprised a stepped make-up of stone blocks, with concrete over.

6.4.3 Rest bay 3

Rest bay 3 was the higher of two rest bays on the southwest side of the stair. The earliest deposit encountered within this area was motte make-up (C1110), which consisted of a compact, dark greyish-brown clayey silt with occasional charcoal, gravel and pebbles and large limestone blocks. This deposit produced animal bone (cattle, sheep/goat and pig); two fragments of human long bone, an antler offcut and shell (Appendix 11). As this lies on the upper slopes, to the rear of the retaining wall, and uninterrupted by concrete underpinning, this is interpreted as original motte make-up.

Constructed over this deposit was a limestone wall, allocated F74 C1109. The wall would have been oriented NW-SE, parallel with the alignment of the current stair, but had been heavily truncated (Plate 46). To the northeast, the vestiges of the original elevation of the wall were seen to comprise three courses of squared limestone blocks, bonded with lime mortar; one stone had a dressed face. A rubble core to the rear (southwest) had been truncated when shuttered concrete was inserted as part of the underpinning of the tower. The stepped profile of the underpinning (allocated F70 C1103) was visible in the northeast-facing section of the rest bay (see Plate 46).

Plate 46 View of rest bay 3, showing wall F74 C1109 and concrete underpinning

All deposits were sealed by C1040, a dark brown clayey silt, deposited to recreate the motte profile, beneath c.0.30m of topsoil and turf (C1101).

6.4.4 Cable and ducting trenches

Trenches to receive cables for the rest bays were excavated immediately adjacent to the stairs. These were shallow excavations and exposed only topsoil and, towards the top of the motte, concrete base layers associated with the paved area in front of the forebuilding.

A ducting trench was excavated a short distance from the southwest side of the motte stair, curving inwards towards the top of the slope. This exposed the stepped block make-up of the reconstructed motte (F69 C1102)(Plate 47).

Plate 47 Ducting trench showing stepped makeup

6.5 Intervention 11 – Forebuilding

6.5.1 Fieldwork summary

The ground floor of the forebuilding provides an entrance passage from the top of the motte stair to the tower interior. At the outset of the programme, the interior forebuilding was paved, with a stepped change in level about halfway along the passage. A recess on the northeast side of the passage had previously housed a ticket kiosk; this had been removed prior to the onset of works (Figure 15).

New services were required to pass through the forebuilding, and although the presence of concrete underpinning was anticipated, the archaeological potential of this area was not fully understood and so impact could not be assessed. As such, the programme allowed for an iterative scheme of archaeological evaluation and mitigation to be accommodated within the project timetable.

Initially, the slab surface was lifted and minimal ground reduction undertaken to expose the concrete underpinning and adjacent deposits. This initial stage of work was sufficient to demonstrate that the new services would affect only previously disturbed ground, and no further evaluation or mitigation was required.

6.5.2 Results

The earliest deposit within the forebuilding was a mixed, yellowish-brown made ground observed within the service trench cut in the central part of the area (C1135)(Plate 48). This layer had been cut, and sealed by, evidence for drainage and concrete underpinning.

Plate 48 View of intervention 11, looking north (Scale 1.0m)

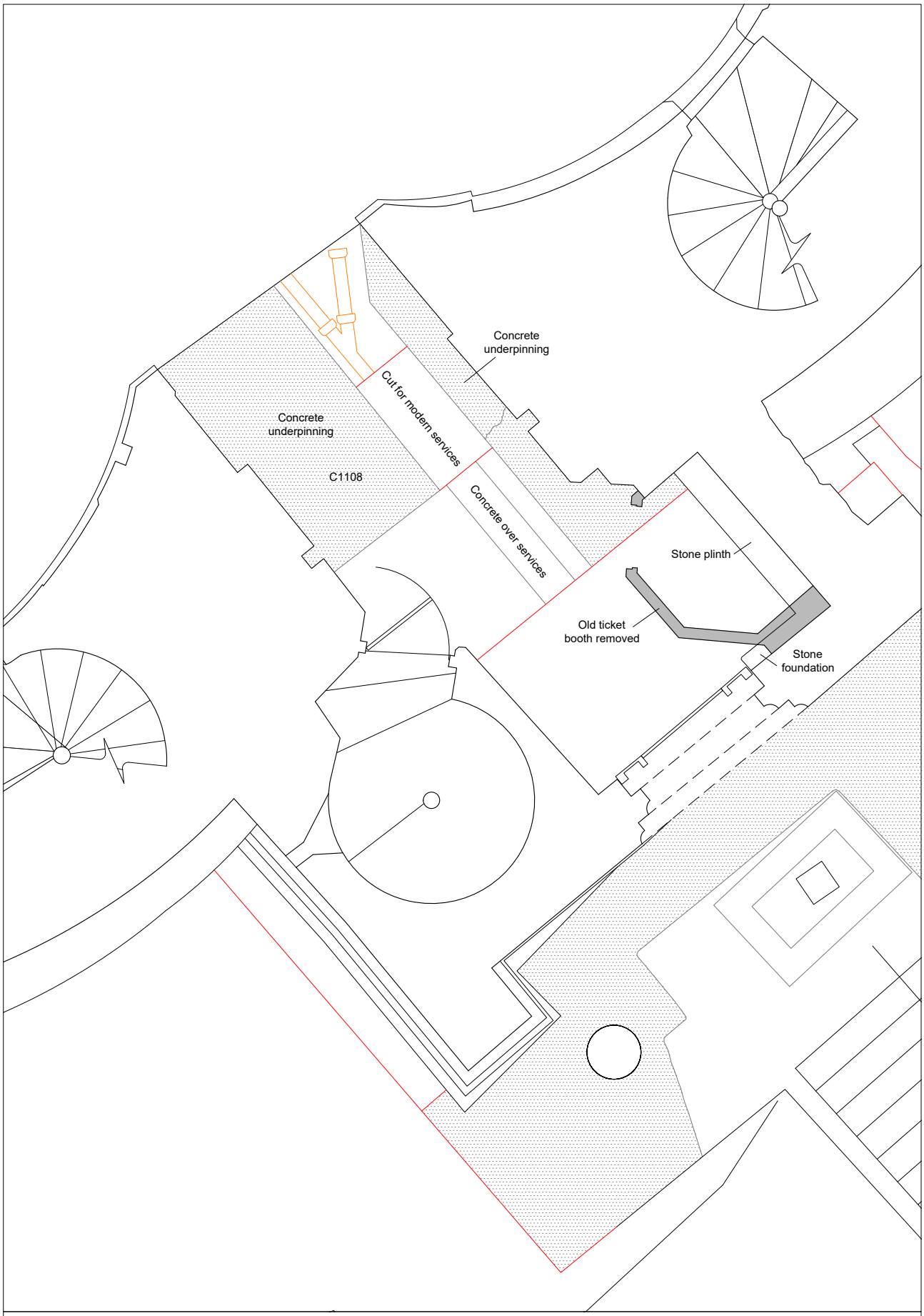


Figure 15 Intervention 11 - plan of features Scale 1:50@A4

An extensive concrete slab was encountered and allocated C1108. This lay predominantly across the northern half of the forebuilding (see Plate 48). The concrete raft had been cut through by the insertion of a salt-glazed pipe; two pipes fed into this at the northern end of the forebuilding, and the drain issued out of the entrance (F85 C1132).

Further made ground (C1107) overlay the concrete slab before the modern paved floor had been laid down (F73 C1006).

6.6 Intervention 12 – Attenuation tank

6.6.1 Fieldwork summary

A new attenuation tank was required as part of the drainage scheme for the project, to be situated at the foot of the motte, to the immediate southeast of the motte stair. The main area of the trench measured 11.5m NE-SW by 5.2m NW-SE; the trench was extended across an area measuring 2m x 2.9m at the southwest corner to accommodate a new manhole (Figure 16). Intervention 12 was excavated archaeologically, following machine excavation of modern surfaces.

6.6.2 Results

Intervention 12 encountered a sequence of deposits relating primarily to the construction and subsequent demolition of the prison in the 19th to early 20th century (Plate 49; Figure 16, Figure 17 and Figure 18).

Plate 49 View of Intervention 12, north-facing section (Scale 2.0m)

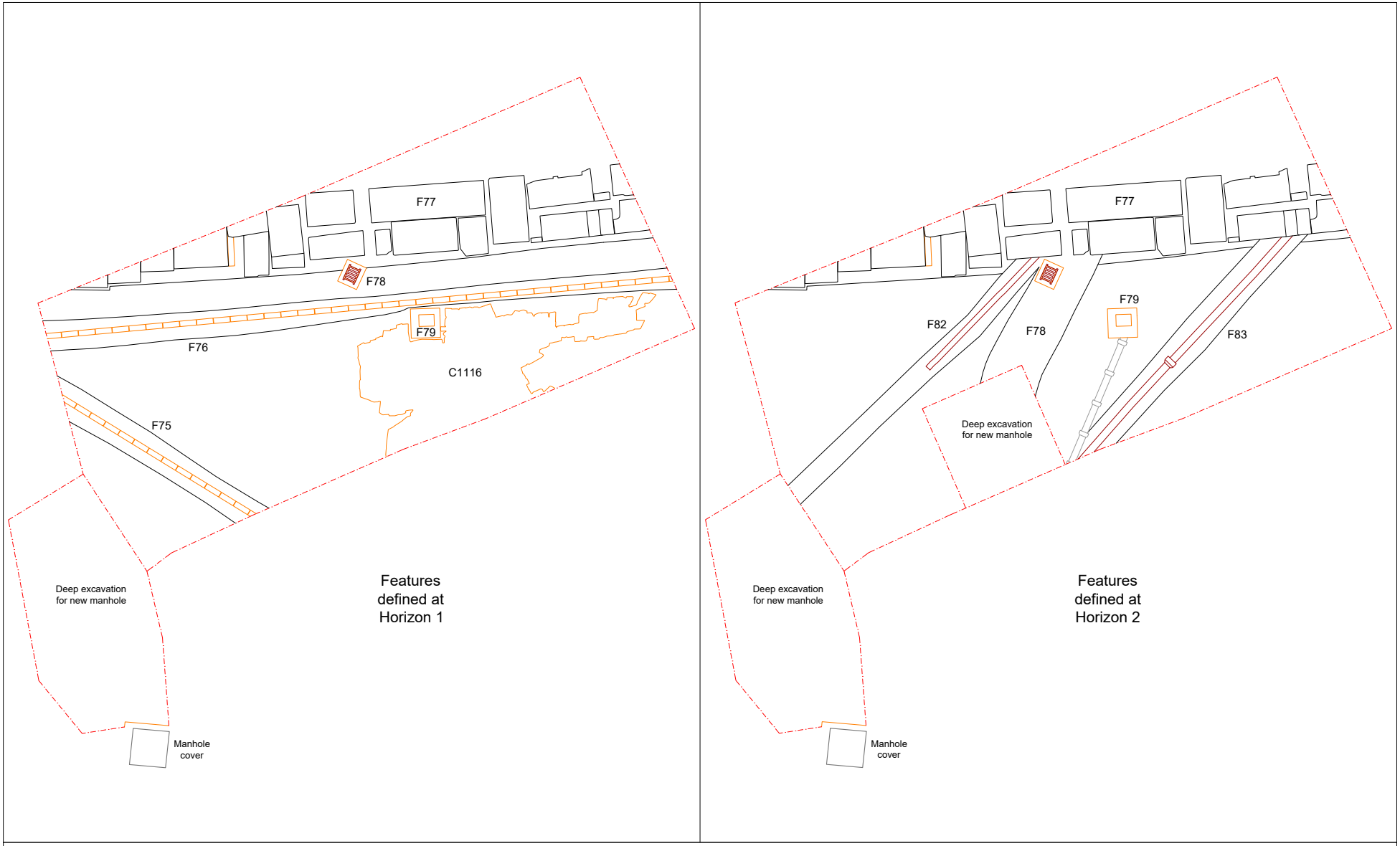


Figure 16 Intervention 12 - plan of features

Scale 1:100@A4

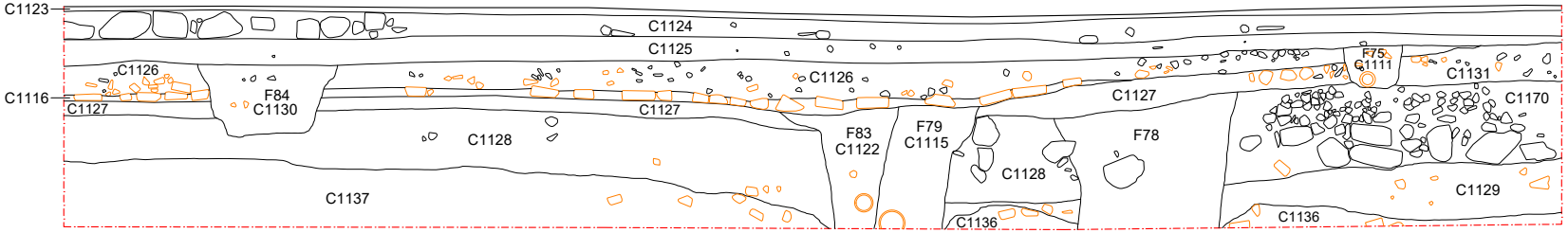


Figure 17 Intervention 12 - north-facing section

Scale 1:50@A4

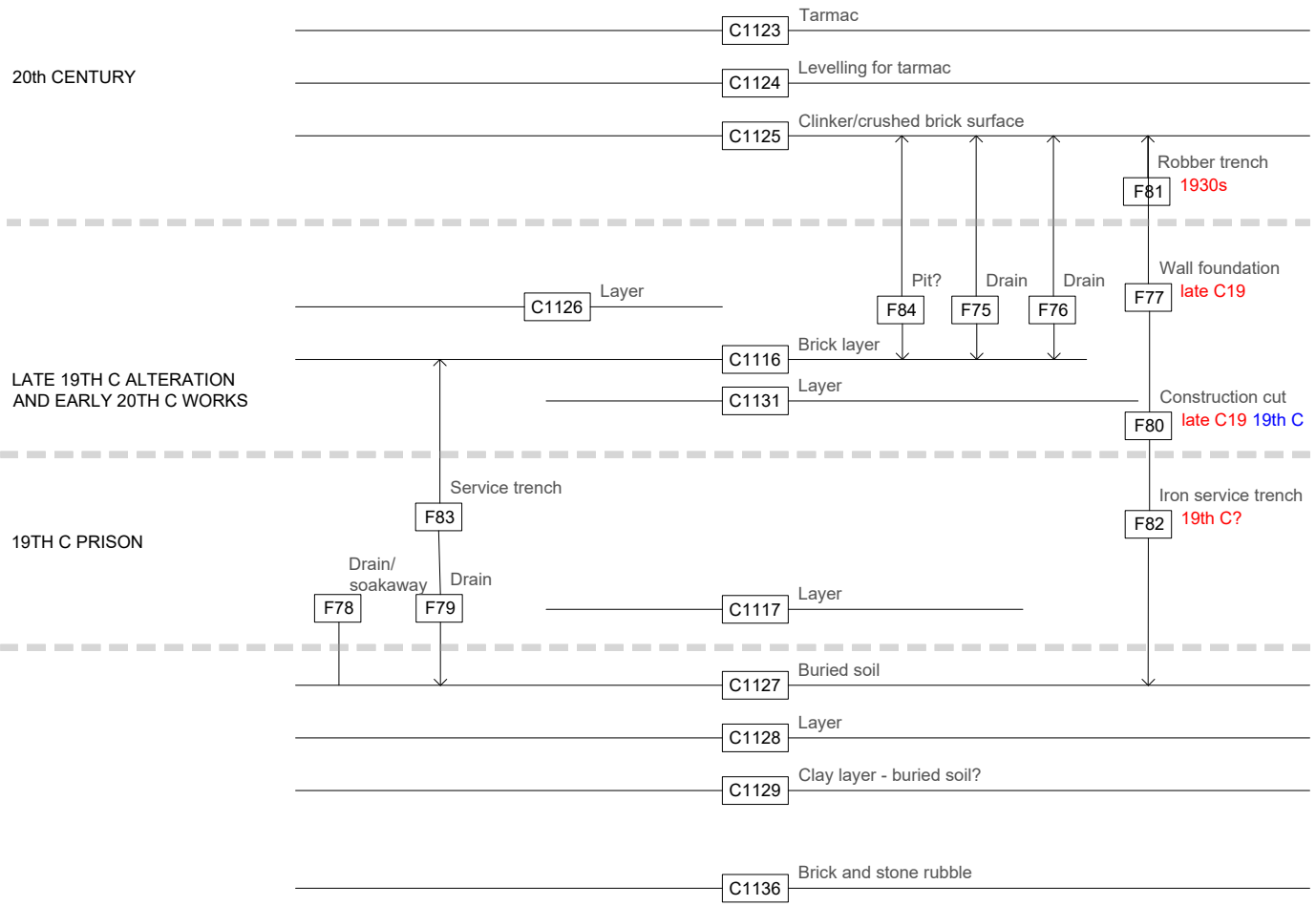


Figure 18 Intervention 12 - stratigraphic diagram

The earliest deposit encountered within Intervention 12 was an extensive layer of brick and stone rubble, identified across most of the trench and allocated C1137, apparently demolition waste laid down to level or make up ground. C1129 was a yellowish-brown clay layer overlying the rubble and brick (C1137), identified in the north-facing section as a deposit extending across the western part of the trench.

Following deposition of C1129, a deeper pack of material had been laid down, defined in section and allocated C1128. This made ground measured 0.68m in depth, and consisted of a dark greyish-brown clayey silt, with limestone rubble. Amongst the rubble, one architectural fragment – interpreted as part of a chamfered plinth – was found to bear an incised graffito reading '1827,' providing a *terminus post quem* for this levelling activity (Appendix 13).

After deposition of the pack of material represented by C1128, a buried soil (C1127) had accumulated. This consisted of a homogenous, dark greyish brown clayey silt with occasional pebbles, mortar and limestone fragments.

At the western end of the trench, a distinct deposit of limestone rubble was identified in section and allocated C1117. The edges of the deposit had been truncated by later services (F78) and so the extent of the deposit – and its stratigraphic relationship C1127 and C1128 – was difficult to ascertain. The character of this deposit suggests that it could have derived from the robbing of limestone structures, potentially from the immediate vicinity. The limestone rubble (C1171) was overlain by a distinct deposit of crush brick and rubble (C1131) which was defined in section at the western side of the trench. The upper interface of C1131 sloped down towards the east, whether through truncation or an original profile was not clear.

A service trench, F79, was seen in section to have cut through buried soil C1127. This feature was initially identified within the trench due to the presence of an in situ fragment of a square stone collar over the top of a square, brick-built shaft measuring 0.30m x 0.30m in plan. Excavation revealed the base of the shaft as a slab of stone; a salt-glazed pipe (C1115) was found to connect with the brick shaft, running on a NNE-SSW direction, and continuing beyond the southern limit of excavation. Sections of pipe measured 0.63m long and 0.19m in diameter.

A second, square brick shaft was identified 1m to the northwest, at a similar level to, F79, and allocated F78. F78 consisted of a brick-built vertical shaft 0.45m x 0.45m external dimensions, set with an iron grille over. The cut for the service trench was observed in plan to have extended south beyond the edge of excavation. Later machine-excavation contacted the upper interface of a vaulted brick drain which would have been fed by F78; this was not fully excavated as the required depth had been achieved.

Cutting through the backfill of the trench for drain F79, but not disturbing the pipe itself, a second trench was found to contain a sectioned, cast-iron pipe, 0.12m in diameter (F83 C1122). The pipe

was laid in a 0.60m-wide trench, and oriented NW-SE. F83 had initially been identified in the western, manhole excavation, and was then recorded in plan within the main attenuation tank trench (see Figure 16). The cast-iron pipe was drilled by Northern Gas Networks to confirm that it was defunct before removal. It seems probable that this pipe represented the provision of town gas to the prison.

A further pipe trench (F82 C1121) was observed crossing the trench on a NE-SW alignment; it continued beneath later wall F77 (see below) and had been truncated to the southwest. This cast-iron pipe was narrower in diameter and thought to have been a water pipe, measuring 0.05m internally and 0.06m externally. Six fragments of 17th-18th century clay pipe were recovered from the backfill of the trench (C1121).

Along the northern edge of the trench, a substantial wall foundation (F77, F80) was contacted, oriented west-east and continuing for over 10m, extending beyond the north and eastern limits of excavation (Plate 50). This feature overlaid the cast iron pipes represented by F82 and F83. A vertical sided cut (F80) had been excavated before the foundation (F77) was laid down. The wall foundation was constructed from large blocks of gritstone, exceeding 2.0m x 0.5m x 0.5m. Smaller blocks were also used and gaps between filed with a lime mortar containing crushed brick (F77 C1113). Many of the blocks had been reused, including in particular several large blocks of gritstone that appear to have represented components around various types of opening. Two of the stones had double chamfered loop heads and sockets for iron grille work. There appears to have been some variation in the widths of the two loops. One would have been c.0.20m wide and secured by a single by a single iron bar; traces of the loop embrasure remained (Plate 51). The other loop would have been c.0.24m wide with traces of what might have been a wider embrasure (Plate 52). The loop was also provided with iron bars with two single outer bars within the loop and a row of three bars, no

Plate 50 View of Intervention 12, looking southeast (Scale 2.0m)

more than c.0.08m apart, set within the narrowest part of the embrasure; evidently security was a high consideration with the latter opening.

Most of remaining pieces of gritstone consisted mainly of rebated jamb stones with some retaining evidence for bars, suggesting that they originated from windows rather than doors (Plate 53). Other stones were of uncertain function. The blocks showed some evidence for lime wash.

The construction cut for foundation wall F77 was then backfilled with a mixed clay deposit (C1119), which included a near-complete Whiteware cup of late 19th to 20th-century date.

Post-dating service trenches F82 and F83, and at the ground level from which F78 and F79 had been excavated, a crude brick surface had been laid down. The bricks, allocated C1116, were semi-ordered, laid down around the edges of the collar drain F79; although roughly tessellated they were unbonded and levelled in places with crushed stone, and so do not appear to represent a formal surface. The bricks survived across an area measuring c.5.0m x 2.0m, continuing beyond the southern limit of excavation (see Plate 50).

As seen in section, C1116 did not create a level surface, and had been covered or levelled with a deeper deposit of rubble, consisting mixed mortar, stone and stone rubble (C1126).

Plate 51 Reused gritstone block retaining head of loop opening (Scale 1.0m)

Plate 52 Reused gritstone block retaining head of wider loop opening (Scale 1.0m)

Plate 53 Reused gritstone jamb with bar holes (Scale 0.5m)

Plate 54 View of Intervention 12, looking southeast (Scale 2.0m)

Further drainage had been cut through from this higher, levelled horizon (Plate 54). At the western end of the attenuation trench, a ceramic drain was identified, oriented NW-SE and continuing beyond the western and southern edges of excavation (F75). The drain was constructed from circular, flat-bottomed ceramic pipe, 0.31m long and 0.11m in diameter (F75 C1111). A similar drain, allocated F77 C1113, was observed running for c.5m on a west-east alignment.

F84 was allocated to a pit or linear feature that was clipped by Intervention 12, and recorded in the north-facing section. The feature was backfilled with C1130, a mixed clay backfill; no obvious evidence for function was noted.

Sealing F84 and the drainage trenches represented by F75 and F76 was a layer of clinker and crushed brick fragments measuring 0.15m thick (C1125). This had been sealed by the preparation (C1124) and surfacing (C1123) of the modern tarmac surface.

6.7 Intervention 9 – Historic building recording

6.7.1 Fieldwork procedure

A programme of historic building recording and structural watching brief was maintained prior to, and during, the implementation of conservation works, allowing for recording of fabric that had been inaccessible previously. These are described in three main sections below, covering:

- the exterior of the tower and forebuilding;
- the interior of the tower and forebuilding, including the lower courses exposed following completion of ground reduction in Intervention 6;

- the interior of the bartizan turrets and the first-floor garderobe.

Where extensive new areas of fabric were exposed, these have been recorded and stone-by-stone drawings prepared (Appendix 7). Where specific features of interest were noted on the elevations during the building recording, these have been annotated and added to the drawings. Record photographs have been taken.

6.7.2 Tower exterior

General

The exterior of the tower consists of a rectangular forebuilding to the southeast, four large lobes (effectively half-round towers) at the cardinal points, and bartizan turrets at three of the junctions of the lobes. The stone is predominantly ashlar Magnesian limestone, probably sourced from Thevesdale near Tadcaster, apart from the forebuilding where gritstone has been employed in its reconstruction (see Figure 2).

Forebuilding

It is thought that the forebuilding is of three periods of construction; an original phase consisting of the original 13th-century structure, a subsequent alteration or phase of completion which saw the chapel on the first floor being roofed in 1312. Finally, a third phase of reconstruction dated around 1643/1644, which included the rebuilding of two of the external walls of the forebuilding. The latter phases have been dated on the basis of documentary references although these should be considered with some caution given the ambiguity of such material.

The exterior fabric of the forebuilding was subject to recording in 2019 when some additional features, particularly on the main southeast elevation, were discovered (Figure 19). In summary, these features consisted of a chamfered window jamb and a section of the chamfered sill of the same, in addition to a moulded stringcourse which was taken around the head of the window to form a drip-moulding. The height of the window jamb, excluding the window head, was calculated as being of *c*.1.71m. A series of sockets in the side of the window jamb would have received horizontal iron bars, providing barring for the window. Moulding profiles of the medieval door opening hood, surround of the armorial panels and vertical chamfered detail were also recorded.

It was also noted that the stone coursing of the forebuilding did not match with the stone coursing on the main body of the tower. In addition, it did appear that the fabric of the forebuilding abutted the fabric of the main tower, possibly indicating that the forebuilding was constructed after the main body of the tower, either as a result of a planned sequence of construction or as a later addition.

The current programme of historic building recording focussed on the northeast and southwest returning elevations. The southwest elevation forms part of the 17th-century rebuilt section of the forebuilding (Figure 20). The main features are the loop windows intended to light the internal newel stair and sandstone blocks along the junction with the south lobe installed in the early 20th century to hold the structure together. A single small socket close to the ground might relate to a fence or wall that ran around the top of the motte.

The northeast elevation forms part of the remaining medieval work of the forebuilding (Figure 21). Like its 17th-century counterpart it has sandstone blocks along the junction with the east lobe installed in the early 20th century to bind the structure together. A selection of sockets in the lower third of the fabric relate to the history of fences and walls that closed off the top of the motte. The elevation has a single lancet window which provides light to the first-floor chapel; this has a substantial crack running through it which extends to the top of the elevation and *c*.1.0m below the window. Packing stones and Portland cement have been inserted into the crack suggesting that the repairs are late 19th or early 20th century.

Roof structure

It had been hoped that the roof structure on the forebuilding might have contained some early timbers reused from medieval or post-medieval predecessors. However, stripping of the roof covering and access from within upper part of the interior confirmed that the roof structure was of machine-sawn timber from the late 19th century or early 20th century (Plate 55). The hipped roof consists of wall plates with rafters seated on them raising to a central ridge piece. As part of the current work the roof was raised and repaired (Plate 56).

Plate 55 The roof structure on the forebuilding in the process of being re-covered

South lobe

All four lobes of the Tower follow a similar pattern the main differences being in the treatment of the window openings at first-floor level. With the east lobe, the south lobe features a single larger window which probably denoted the intended internal of this part of the Tower (Figure 22).

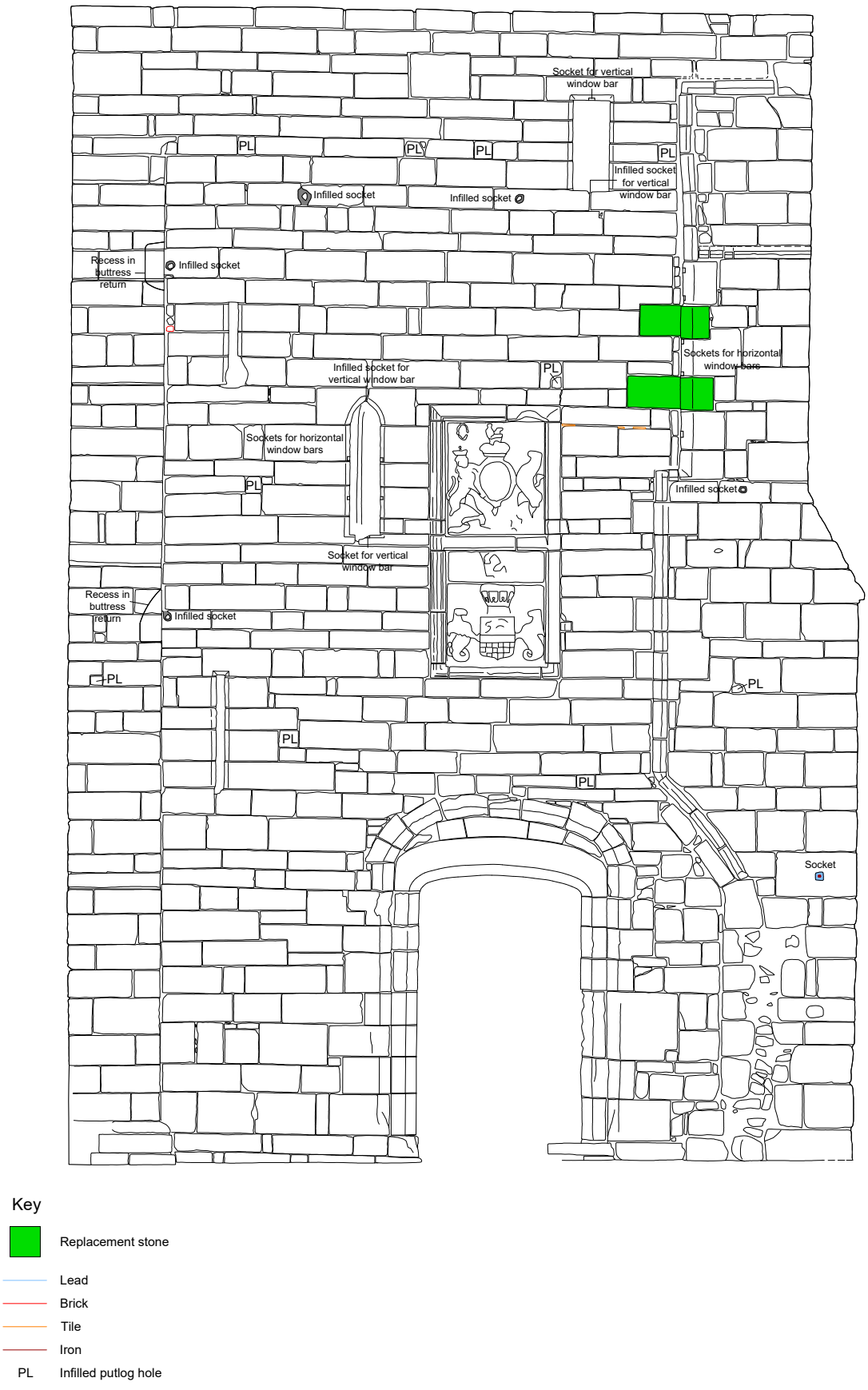


Figure 19 External southeast elevation of the forebuilding Scale 1:50@A4

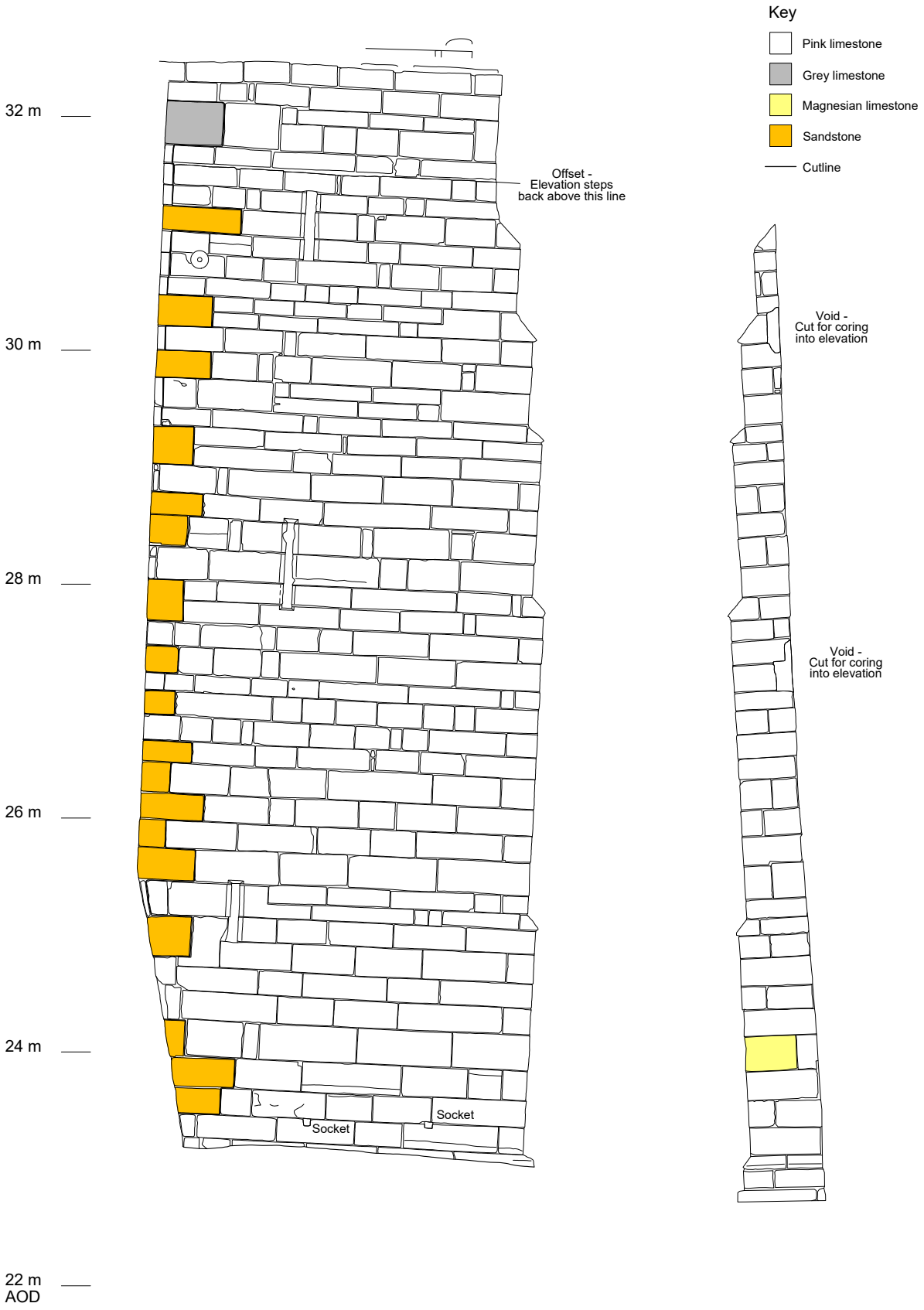


Figure 20 External southwest elevation of the forebuilding Scale 1:50@A4

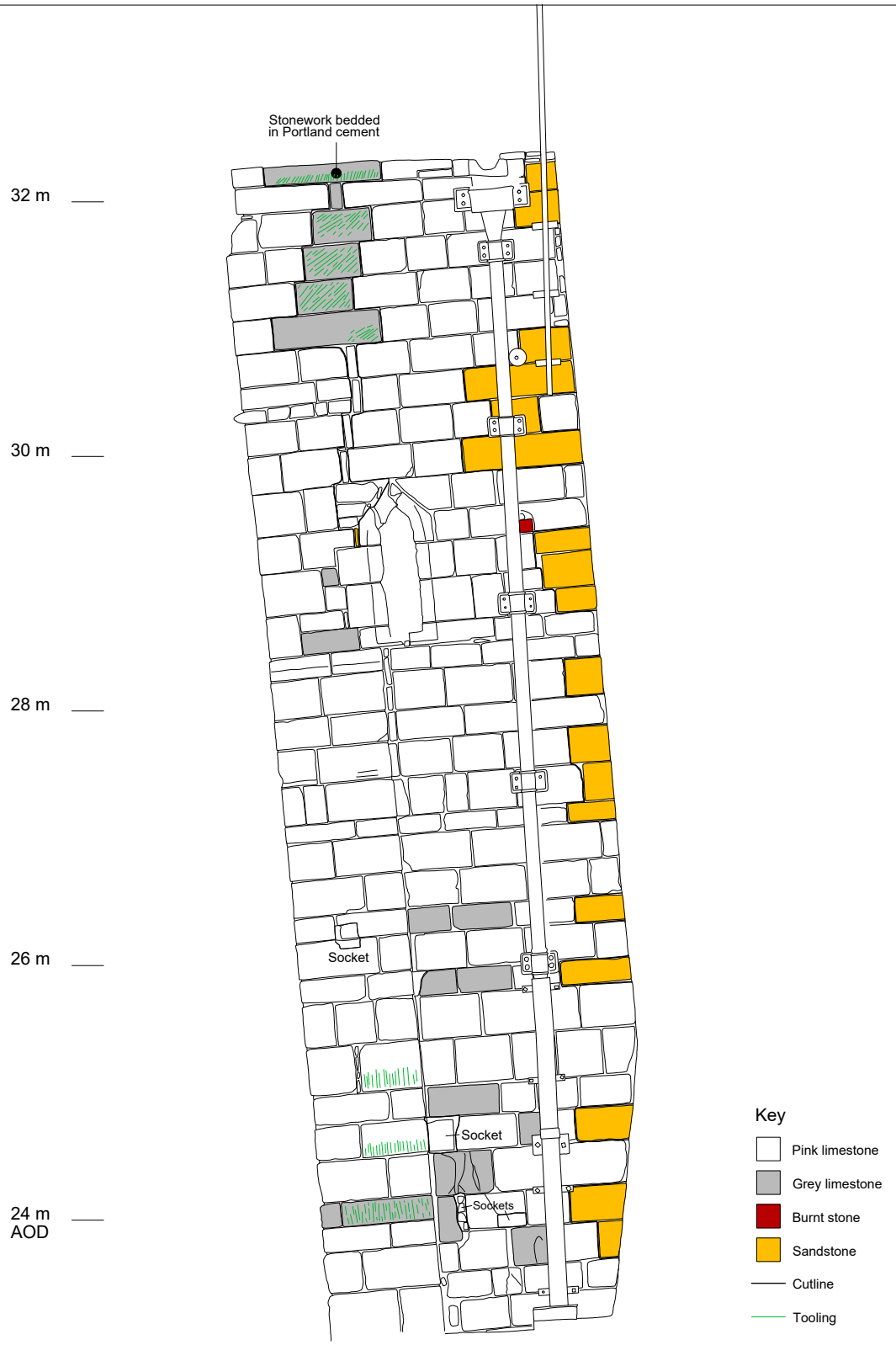


Figure 21 External northeast elevation of the forebuilding Scale 1:50@A4

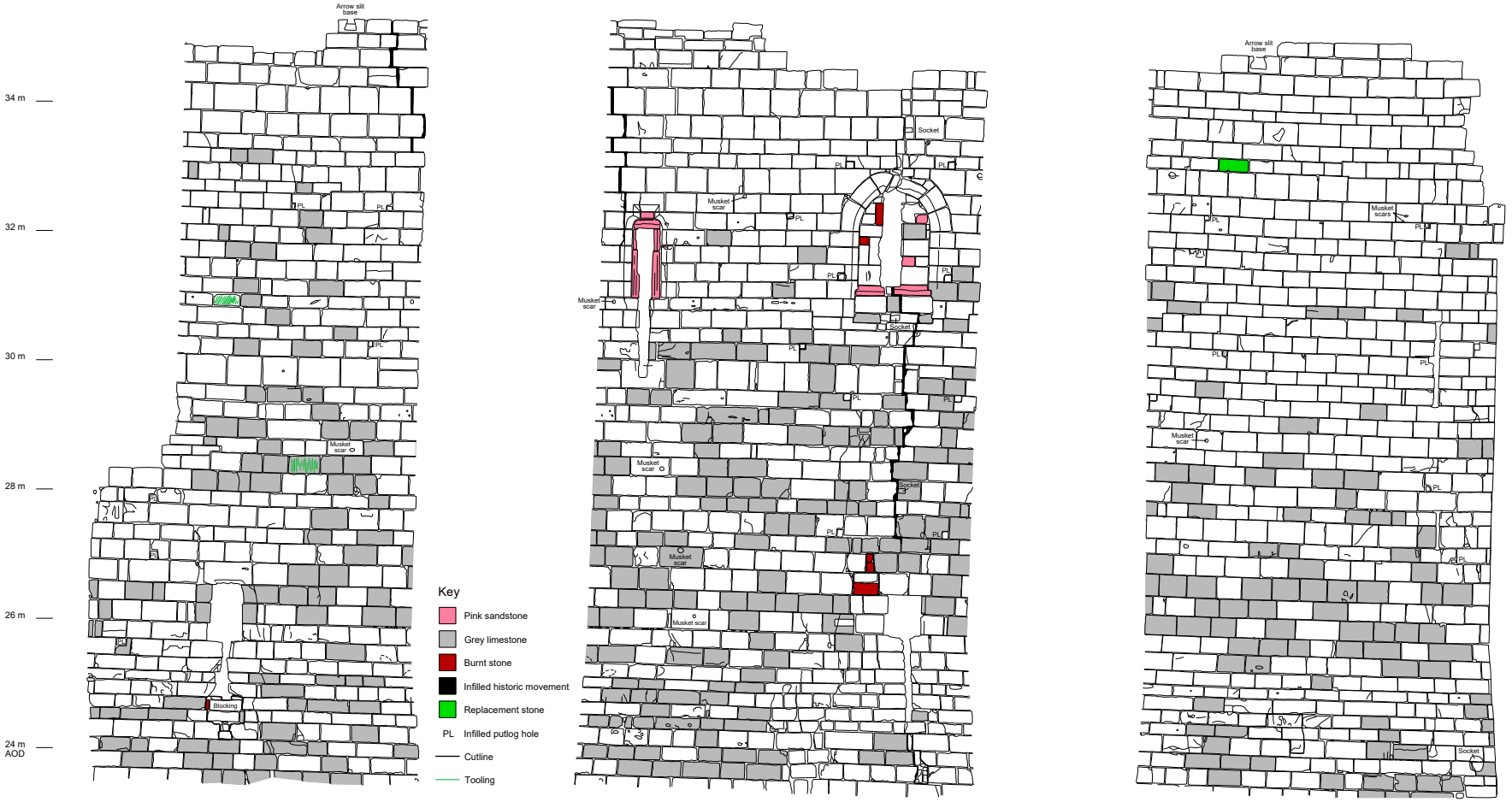


Figure 22 External elevation of the south lobe

Scale 1:100@A4

The junction between the south lobe and the forebuilding indicates, not unexpectedly, that the 17th-century fabric of the forebuilding post-dates the construction of the south lobe.

Plate 56 The roof structure undergoing repairs after being raised

At ground-floor level there are two openings consisting of tall, but narrow, slit openings. The upper part of the slits having been opened out to form a wider opening (Plate 57). Although some effort has been made to make this alteration neatly, with some chamfering on the corners of the cut back masonry, the internal evidence shows that the embrasures have also been cut to accommodate the alterations. It therefore seems likely that these two openings were originally designed as tall arrow slits, subsequently modified to provide openings that increased the admission of light. These larger openings appear to have been secured with an iron grille, the fixing sockets remaining (Plate 58 and Plate 59).

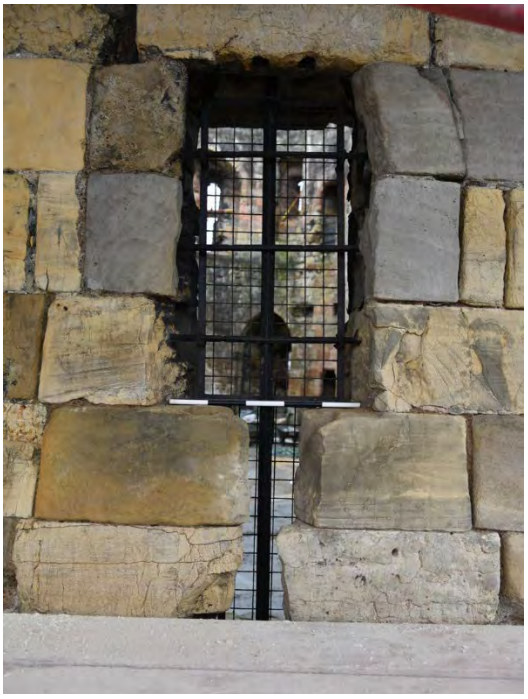


Plate 57 Ground-floor opening on the south lobe (Scale 0.5m)

Between ground and first-floor level, close to the junction with the forebuilding, are two loops one directly above the other. The lower loop is *c.*0.58m tall while that above is *c.*1.32m tall; both loops serve to light a newel stair. There is no obvious explanation for why there is a difference in height between the two loops other than upper loop would have been more secure and the greater size did not represent a security issue.

The first floor has two openings of significantly differing form; one with a two-centre head and narrowed opening the other having shouldered opening above a narrow slit. The former would originally have provided a window opening *c.*1m wide and *c.*2m high

Plate 58 Ground-floor opening on the south lobe showing fixings for ironwork in the bottom of the enlarged opening (Scale 0.5m)

externally, with another example on the east lobe, these are by far the largest surviving window openings on the tower (Plate 60). However, this opening, like its counterpart on the east lobe, has been partly filled-in with a mix of reused masonry including sandstone, burnt stones, grey limestone in addition to the more typical pale yellow Magnesian limestone of which most of the tower is constructed. The narrow opening thus formed is a more modest c.1.47m tall and less than c.0.3m wide, with some effort to carve a small chamfer around the edge of the opening (where this survives). The reason for creating a narrower opening is not difficult to identify; from the top of the tower, passing through the centre of the first-floor opening and then down towards one of the ground floor openings is a crack. Effort has been made to stitch and fill across the crack, but movement of at least *c*.0.14m is evident above the first-floor window opening.

Plate 59 Ground-floor opening on the south lobe showing fixings for ironwork in the top of the enlarged opening

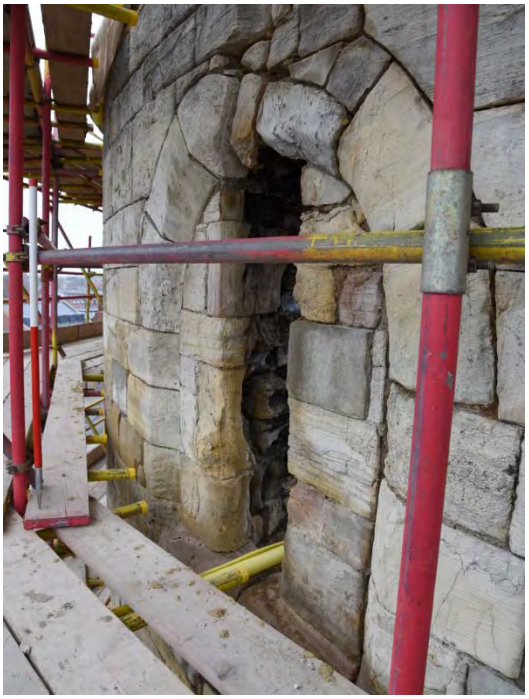


Plate 60 Upper part of partially blocked window, first floor, south lobe (Scale 0.5m)

The cracking appears to have been a historic issue; putlog holes can be seen to have been arranged around the route of crack, top to bottom, presumably reflecting where a discrete area of scaffolding was erected to provide access to undertake repairs. The mix of reused material in the partial infilling of the window opening suggests a post-medieval, rather than medieval, date for the intervention.

The top course of stones in the elevation retains a single arrow slit base of fishtail form (Plate 61). Other bases of this form survive in the top course of the tower and recovered from excavation. The upper courses of stone have been reset and re-bedded during the early 20th-century repair campaigns and the fishtail

Plate 61 Fishtail arrow slit base, south lobe (Scale 0.5m)

arrow slit base might not have been accurately repositioned. Nevertheless, it cannot be massively out of original location and can be taken as a benchmark for the lowest point of the arrow slit which it served. It would certainly suggest that the parapet wall must have been higher than it is today, perhaps stepping up to form merlons, containing the arrow slits, up to c.2m higher than the current wall height.

Putlog holes on the exterior of the south lobe are surprisingly sparse, not obviously regularly placed to reflect scaffold lifts and are of modest size, often less than 0.10m square. The putlogs are in the order of *c.*4m above the current ground level. This arrangement of putlogs seems to follow around the entirety of the exterior of the tower, with the exceptions being around the bartizan turrets and where later repairs have taken place. It would be expected that the putlog holes would have been arranged in regular intervals reflecting the 'lifts' of masonry, typically in the order of 1 to 2m. Further, the putlogs are of a very small size, little more than *c.*0.1m by c.0.1m and may relate to a later scaffold erected to effect localised repairs. The general absence of putlog holes at the lower level would suggest that the scaffolding was not erected until the tower had reached some height.

Southwest bartizan turret

The southwest bartizan is a small turret that contained a stair and is located at the junction between the south and west lobes (Figure 23). Externally, it rises from first floor to parapet level and is supported upon three shaped stone corbels. Two of the corbels are of grey Magnesian limestone and one the more typical pale yellow, perhaps a deliberate decorative choice. The corbels support two courses of chamfered stone that provide a corbelling out of the bartizan's elevation, thus increasing the diameter of the structure.

Other than the corbelling arrangement the main feature of the turret is a small loop opening that served to light the internal newel stair. This has a wide crack running from its sill downwards, for nearly 2m, which has been packed with stone to take up its width.

Stone coursing height largely matches that on the adjacent south and west lobes as does the height of the putlog holes. Further, it is noticeable that the ratio of grey to pale yellow Magnesian limestone, changes in favour of the yellow limestone with height at the same rate to the adjacent lobes. All of this evidence clearly indicates that the southwest bartizan was constructed at the same time as the adjacent lobes.

The stones forming the upper of the turret have probably been reset, a treatment that most of the tower's wall head has received. It is now not clear whether the bartizan was intended to be taller, the same height or shorter than the adjacent lobes.

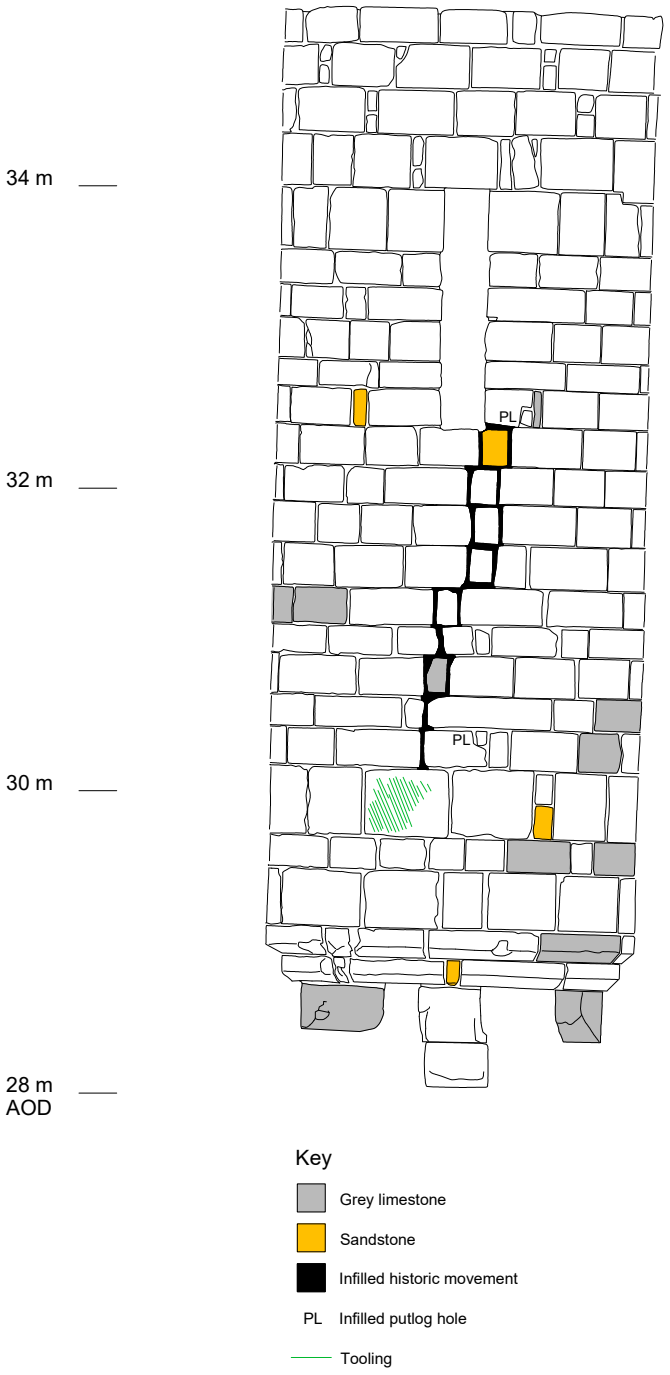


Figure 23 External elevation of the southwest bartizan turret Scale 1:50@A4

West lobe

The west lobe repeats a similar sequence of coursing, geology variation and putlog intervals seen on the south lobe and there seems little reason to doubt that it was constructed at the same time as the south lobe (Figure 24).

Plate 62 Roof scar and sockets on the exterior of the west lobe

As with the south lobe, at ground-floor level there are two openings consisting of tall, but narrow, arrow slit openings. The upper part of the slits have also been opened out to form wider, rectangular, openings. The modification has included the installation of iron bars to form grill protection to the new formed opening, but this would have severely hampered their use as part of the arrow slit; clearly this was not a concern when the modifications were undertaken.

The ground floor also retains evidence for a structure being built against the elevation in the form of a pattern of sockets, roof scar and holes with timber plugs (Plate 62). The roof scar is a thin chase, no more *c.*0.02m high, and *c.*4m in length. Rather than being straight or pitched raising to the centre, the scar is slightly curved and may have a slightly raised pitch to either end. This suggests that the roof sloped down or that it was important to have the roof of the building raised towards its outer walls. Beneath the roof scar there are three irregular sockets which presumably took timbers, probably purlins, to support the roof. A fourth socket, towards the southern end of the vanished structure, would be expected but evidence for this has likely removed through some stone replacement.

Below the irregular sockets are a row of at least 15 small holes, *c.*0.02m in diameter, which contain timber plugs. The plugs are positioned to follow the profile of the roof scar, *c.*0.45m below the roof scar; the fact they follow the roof scar profile suggests that they must relate directly to the vanished roof. It is likely that the pegs were for a face pegged ledge timber that served to support the roof structure.

Further rows of sockets are positioned *c.*0.25m and *c.*1.4m above the current ground level. The sockets are *c.*0.06m x *c.*0.06m, too small for joists or similar structural elements and more likely to be for timber grounds to fix panels or similar finishes to the wall of the tower.

The remaining evidence for the vanished building, constructed against the tower, suggests that it was single storey and of light-weight construction. The absence for any substantial evidence for

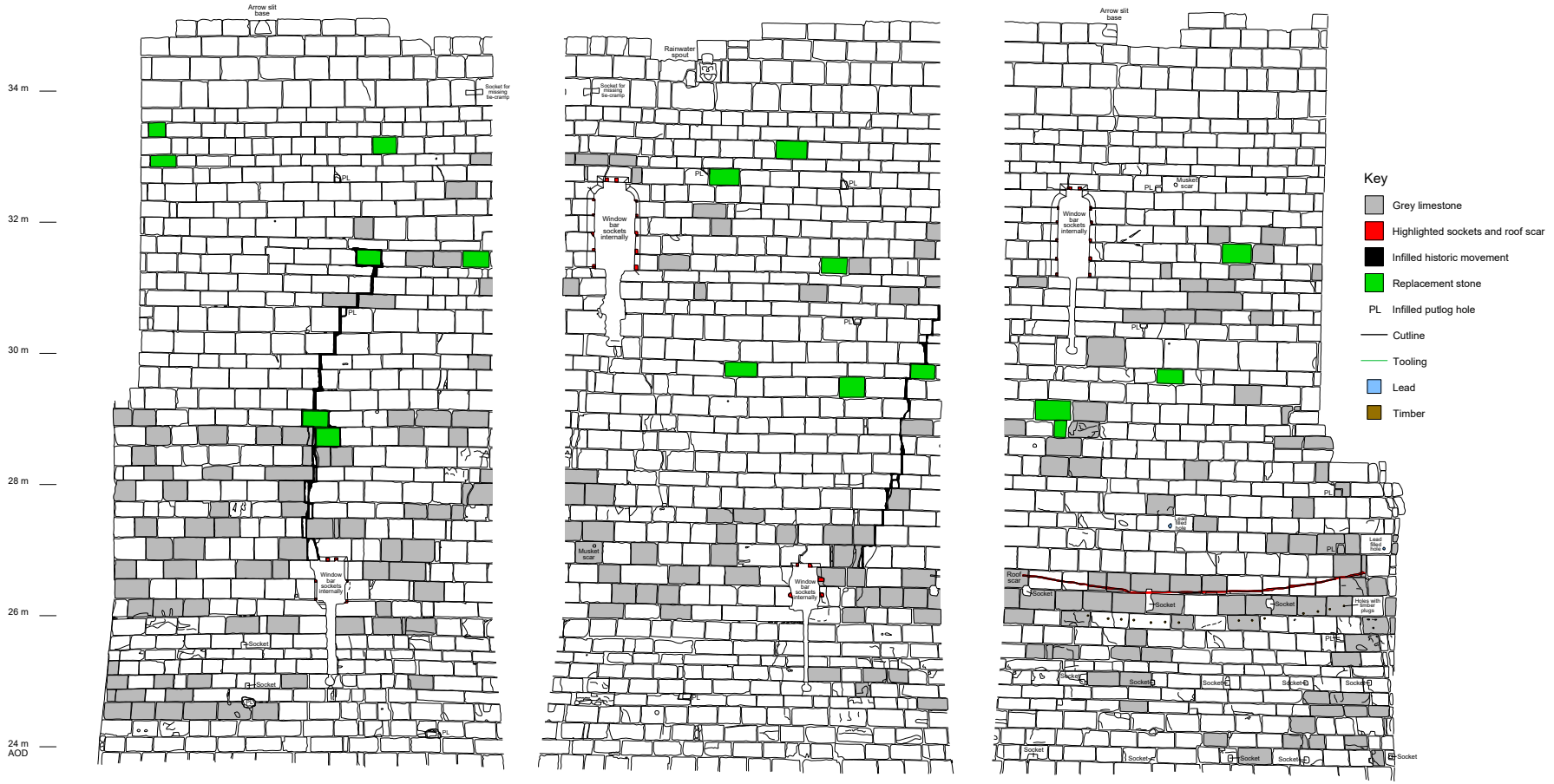


Figure 24 External elevation of the west lobe

Scale 1:100@A4

either the southeast or northwest wall (in the form of sockets for wall plates, rails, or binder sockets etc.), would suggest that these walls were either of very lightweight construction or possibly open.

Plate 63 Upper part of first floor window on the west lobe (Scale 1.0m)

At first-floor level there are two openings of identical form, consisting of a shouldered opening above a narrow slit (Plate 63). The design appears to be deliberate, rather than an alteration, and provides for a very tall opening *c.*2.5m in height. The slit, which is *c*.0.09m wide, features a round termination, known as an oillet, at its bottom. The upper shouldered opening, which is *c*.0.5m wide maximum and has circular holes in its sill for securing bolts, iron grille work or window glazing bars. (Plate 64).

The wall head retains the bases of two arrow slits of fish-tail form and identical to that seen on the south lobe. Between the two arrow slit bases is a rainwater spout which, although decayed, is evidently in the form of a lion's head (Plate 65 and Plate 66). The spout is located approximately midway around the radius of the west lobe; further rainwater spouts would have been located similarly on the other lobes but have been lost. The position of the spout provides a little more certainty regarding the height of the parapet walk which it would have assisted in draining of rainwater.

Plate 64 Sill detail of the upper part of first floor window on the west lobe (Scale 0.5m)

Northwest bartizan turret

The northwest bartizan turret is a slightly more complex affair than its southwest and northeast counterparts (Figure 25). Rather than simply containing stairs for access from first floor to wall-walk level, the northwest bartizan accommodated a pair of garderobes on the ground floor and a single large garderobe on the first floor, in addition to the respective chutes that served these facilities.

As with the southwest bartizan turret, the stone coursing height on the northwest turret largely matches that on the adjacent west and north lobes as does the height of the putlog holes. Again, the ratio of grey to pale yellow Magnesian limestone, changes in favour of the yellow limestone with

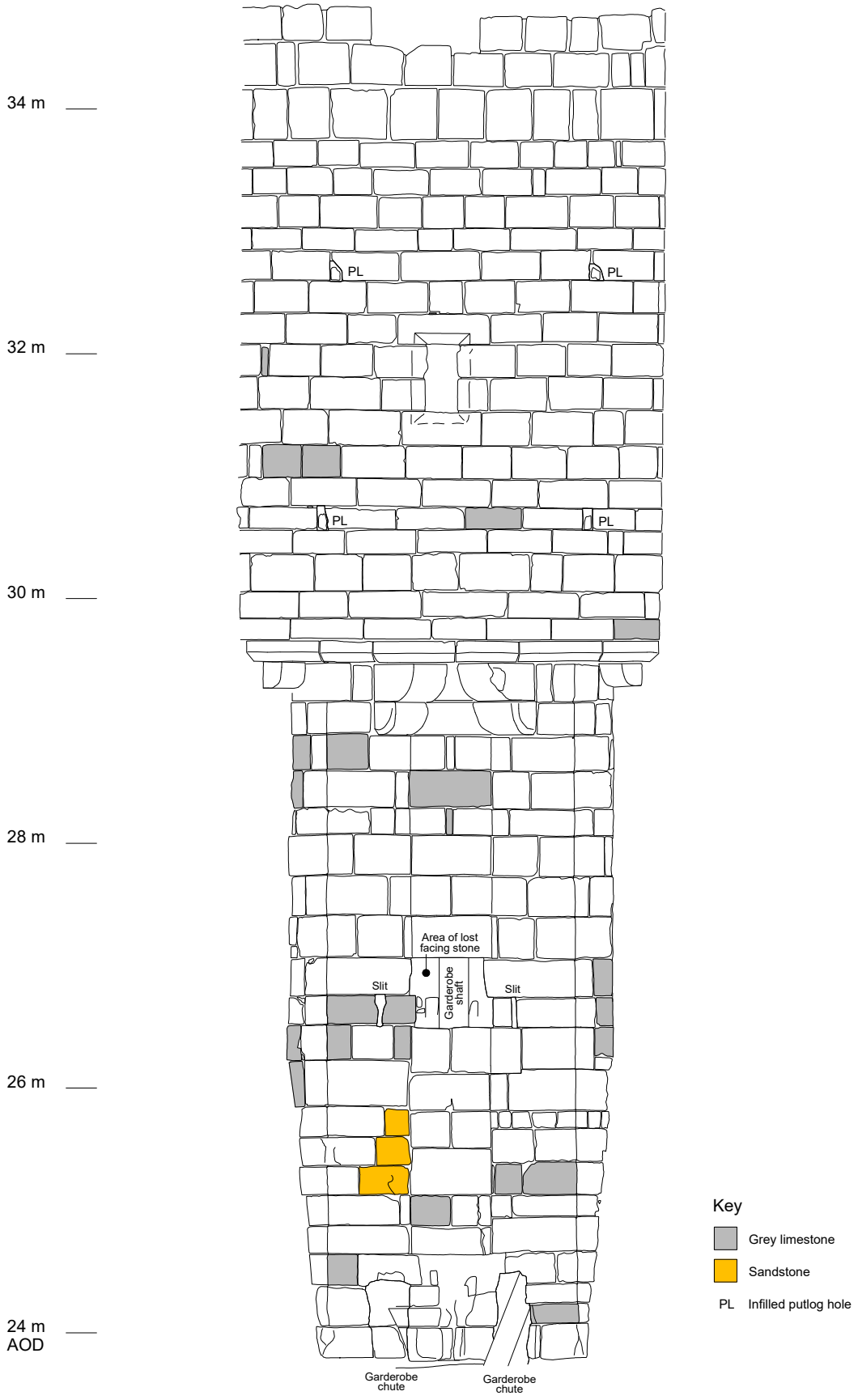


Figure 25 External elevation of the northwest bartizan turret

Scale 1:50@A4

height at roughly the same level as on the adjacent lobes and it can be concluded that the northwest bartizan turret was constructed at the same time as the adjacent lobes.

Externally, the turret rises in two stages; the lower first floor part takes the form of half of a bow tie in plan with two small, angled, projections containing the loop openings and chutes serving the ground floor garderobes, flanking a small circular projection which takes a shaft serving the first-floor garderobe.

The first floor to parapet level and is supported upon four shaped stone corbels all of pale yellow Magnesian limestone. The corbels support a single course of chamfered stone that provides a corbelling out of the bartizan's elevation.

The main feature of the upper part of the turret is a small window opening, with chamfered jambs that served to light the internal garderobe chamber.

Plate 65 Rainwater spout on the west lobe

Plate 66 Detail of rainwater spout on the west lobe

North lobe

The north lobe repeats a similar sequence of coursing, geology variation and putlog intervals seen on the south and west lobes and there seems little reason to doubt that it was constructed at the same time as the south lobe (Figure 26).

As with the other lobes, the ground-floor level has two openings consisting of tall arrow slits with the upper part opened out to form rectangular openings. The rectangular openings are in slightly poorer condition than their counterparts on the other lobes, but still retain traces for the installation of iron bars to form grille protection to the new formed opening. The ground floor also retains evidence for structures being built against the elevation in the form of two groups of sockets; one group of three sockets on the northwest portion of the lobe, is arranged very roughly in a vertical line and evenly spaced, the uppermost socket being *c*.2.0m above the current ground surface. It is likely that these sockets served to secure either a wall or fence to the side of the tower. The second group is a pair of sockets located close to the mid-point along the face of the lobe and consists of one large socket, *c*.0.18m by *c*.0.24m high, near the ground and a smaller socket *c*.1.6m

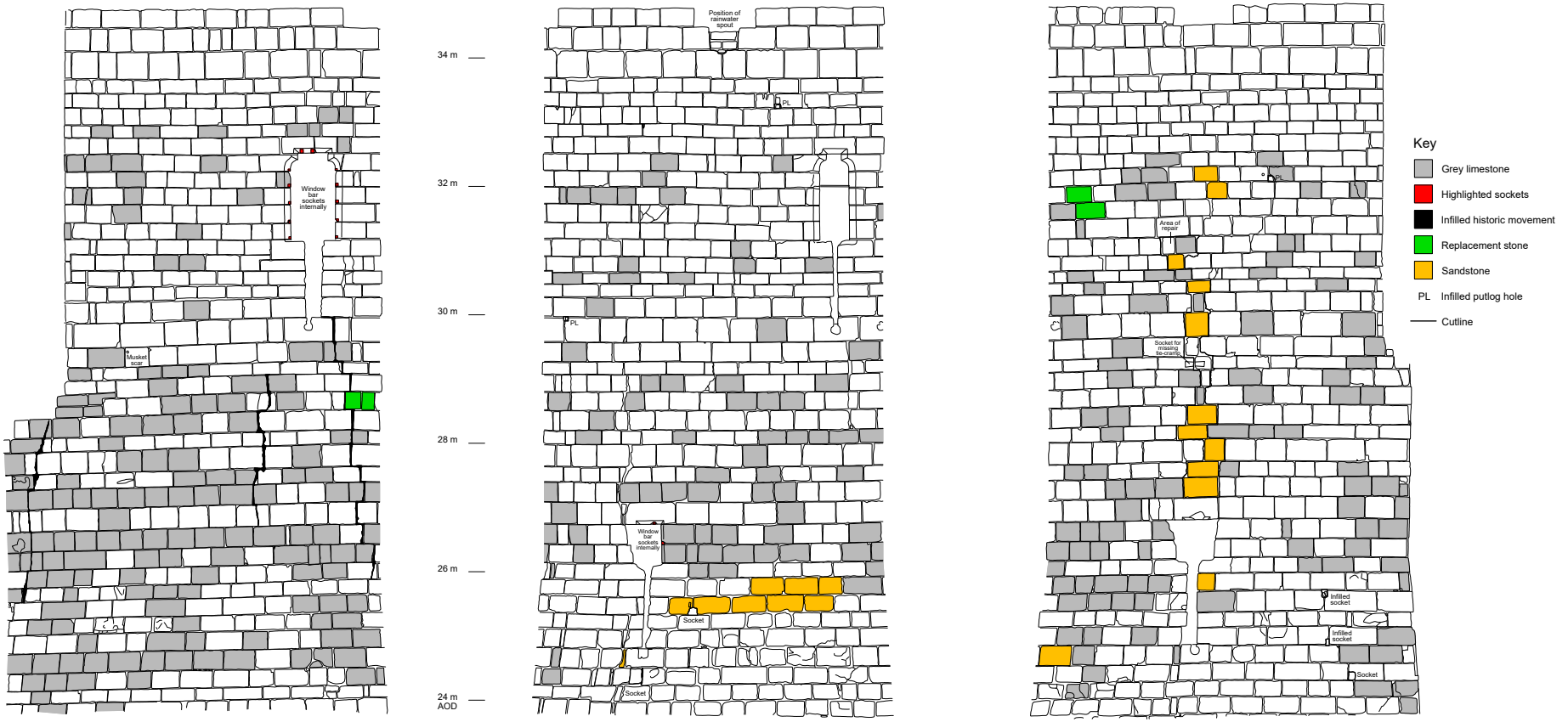


Figure 26 External elevation of the north lobe

Scale 1:100@A4

above the current ground surface. Again, these are likely to relate to fences or walls abutting the tower although the pattern, with just two sockets, is a little less clear.

The two openings at first-floor level are of identical form, consisting of a shouldered opening above a narrow slit. The openings are a mirror of those on the west lobe including the evidence for fixings for either iron grille work or window glazing bars.

Although the wall head does not retain any of the bases for arrow slits seen on the other lobes, it does have a rectangular infilled area located approximately midway around the radius of the lobe. This is likely to be a rainwater spout position, an intact example being on the west lobe.

Northeast bartizan turret

The northeast bartizan turret mirrors the southwest bartizan and is a small turret that contained a stair, located at the junction between the north and east lobes (Figure 27). Externally, it rises from first floor to parapet level and is supported upon three shaped stone corbels. Like the southwest bartizan, two of the corbels are of grey Magnesian limestone and one the more typical pale yellow. The corbels support two courses of chamfered stone that provide a corbelling out of the bartizan's elevation.

Other features of the turret are identical to the southwest bartizan including a small loop opening that served to light the internal newel stair. Stone coursing height largely matches that on the adjacent lobes as does the height of the putlog holes and ratio of grey to pale yellow Magnesian limestone; the northeast bartizan was clearly constructed at the same time as the adjacent lobes.

East lobe

The east lobe largely mirrors the arrangement of the south lobe with two openings at ground-floor level in the form of tall slit openings (Figure 28). As with all the lobes, the upper part of the slits having been opened out to form wider openings. Close to the junction with the forebuilding, is a series of two loops at ground and first-floor levels, of the same proportions as those on the south lobe. However, rather than being one directly above the other they are staggered; this might be due to a slightly planning variation of the newel stair that they lit.

The first floor also mirrors the south lobe with two openings, one with a two-centre head but with secondary narrowing, the other having shouldered opening above a narrow slit. The two-centre headed window would originally have been *c.*1m wide and *c.*2m high externally (Plate 67). The partial filling consists of a similar collection of material used in the south opening with the exclusion of any sandstone. The narrowed opening is *c.*1.28m tall and less than *c.*0.07m wide. In contrast to the south

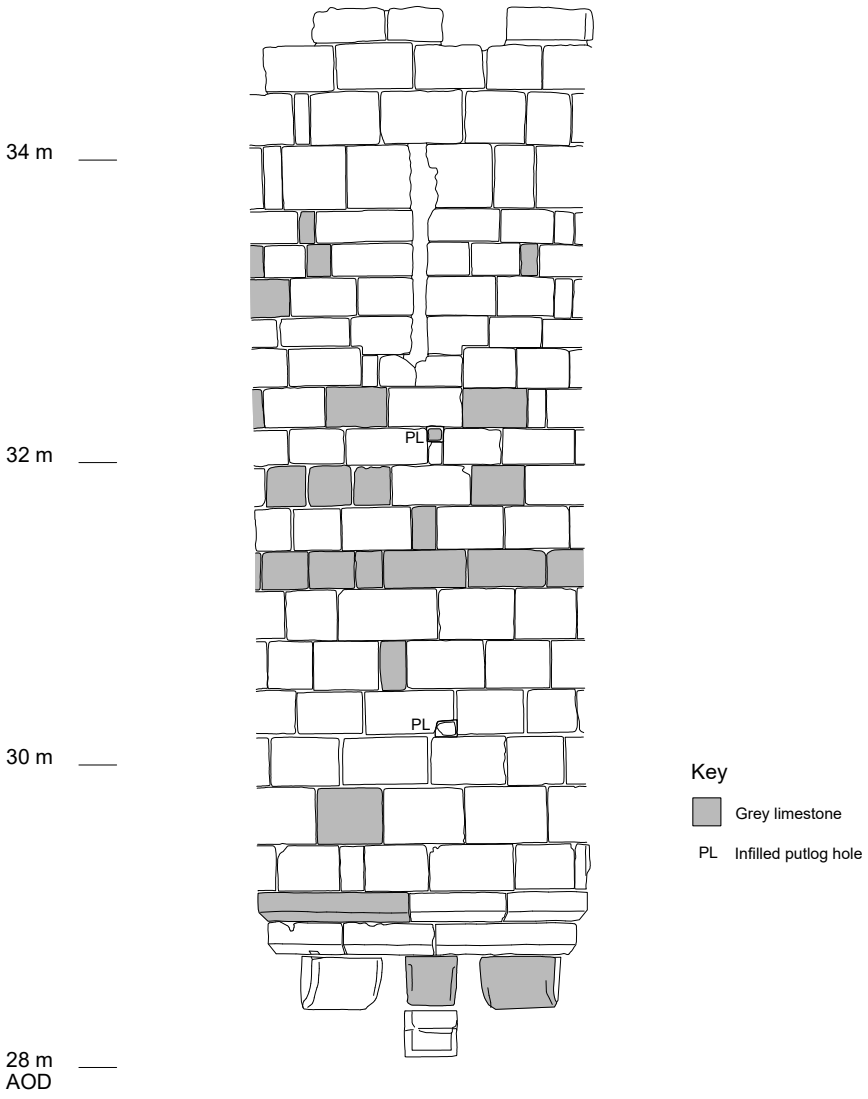


Figure 27 External elevation of the northeast bartizan turret

Scale 1:50@A4

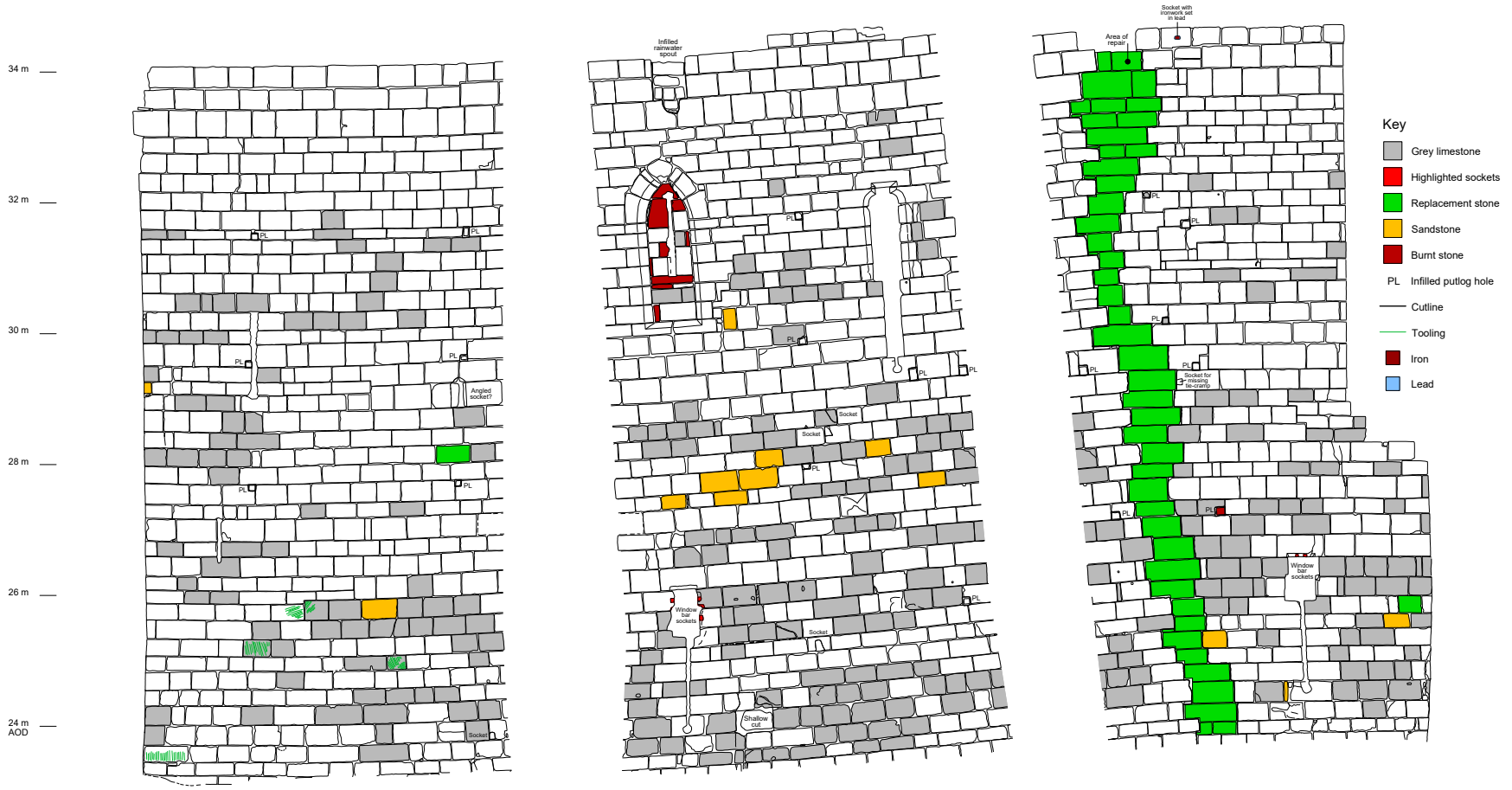


Figure 28 External elevation of the east lobe

Scale 1:100@A4

lobe there is no crack passing through the opening, so this does not provide an explanation as to why the opening has been part filled.

The upper courses of stone have been reset and re-bedded during the early 20th-century repair campaigns. Like the north lobe, the wall head has a rectangular infilled area located approximately midway around the radius of the lobe, likely to be a rainwater spout position.

Putlog holes on the lobe are regularly placed to reflect scaffold lifts of c.1.9m, consistent with the other lobes, and are sparse until a height of c.4m plus above the current ground level. This arrangement of putlog holes seems to follow around the entirety of the exterior of the tower, except where later repairs have taken place.

Plate 67 First floor window on the east lobe (Scale 1.0m)

Possibly the most disquieting feature of the east lobe is massive crack that runs from the bottom to the top of the building, the result of most of the lobe pulling away from its northern end. The crack appears to have been a historic issue; putlog holes can be seen to have been arranged around the route of crack, top to bottom, presumably reflecting where a discrete area of scaffolding was erected to provide access to undertake repairs. Further, there is disruption to the coursing of the masonry adjacent to the crack, indicating a history of attempts at repair. However, the masonry stitching of the crack is of a consistent sandstone and likely to represent the most recent repair campaign.

6.7.3 Interior of the forebuilding

The interior of the tower is entered through a passage on the ground floor of the forebuilding (see Figure 2). Until the current work the interior of the passage had been obscured by a custodian's booth, built in the late 1970s against the northeast wall, and other operational paraphernalia. The removal of this material allowed for a clear examination of the fabric for the first time in over 40 years.

The ground floor of the forebuilding would have originally been divided into two main parts; an outer lobby area which provided a waiting area for those hoping for admission, and an inner passage that could only be reached by passing under an archway that housed a portcullis and then through a doorway.

Outer lobby

The northeast wall of the outer lobby retains the socket, c.0.24m wide by c.0.32m high, that would have received the drawbar that secured the outer door (Figure 29). The lower part of the elevation has a bench seat, now surviving to maximum of c.0.62m above the most recent passage floor surface, with only one section of the bench to surviving at the northwest end. The bench seat arrangement would have presumably been mirrored on the opposite (southwest) side of the passage; a fragment of the recess survives that housed the bench but incorporated into the 17th-century reconstruction.

Plate 68 Stone corbels on the northeast wall of the outer lobby of the forebuilding (Scale 0.5m)

The upper part of the wall features three moulded sandstone corbels, although only one retains its form fully intact, but of regular size being the stones being c.0.25m high and c.0.40m wide. The moulded form is the same to that seen employed elsewhere in the tower, notably the stairs, and all are likely to be a primary feature (Plate 68). The corbels are located c.1m below the current modern floor of the chapel, but judging from the sockets and disrupted masonry evident below the modern floor, the original floor structure was slightly lower. These corbels are likely to have supported short wall posts which, in turn, would have supported the main bridging beams spanning the lobby passage; a timber brace is likely to have been employed between post and bridging beam. The size of the corbels and the way they have been employed are of particular relevance in understanding the floor arrangement within the main body of the tower (discussed below).

The upper part of the northwest end of the elevation is located above the remains of the inner entrance archway; it would have been possible to support the northwest portion of the chapel floor directly off the archway.

The opposite, southwest, wall was largely reconstructed in the 17th century and contains the remains of a newel stair, accessed by a narrow doorway that faces north. The section of wall that encloses the stair is largely of regularly coursed stone, with the upper part of brick (see Figure 29). The ends of timbers remain set within the brickwork, *c*.0.75m below the current floor; these are either joists or other structural timbers that served to support the floor of the chapel.

Figure 29 Northeast and southwest internal elevations of the ground floor of the forebuilding Scale 1:50@A4

Only the lower part of the newel stair remains intact, although the position of vanished risers can be seen higher up the stair drum. The remaining stair risers have been constructed out of reused pieces of masonry (Plate 69 and Plate 70), while the stair drum is a mix of masonry and brick.

The construction of a further stair in the 17th century in close proximity to two further (original, 13th-century) stairs seems to be an excessive luxury; all three stairs provided access to the first-floor level. The main purpose of the additional stair appears to have been to provide access to an inserted second floor within the forebuilding; a shorter stair from first to new second floor would have sufficed.

Plate 69 Newel staircase in the forebuilding (Scale 1.0m)

Inner passage

The northwest wall of the outer lobby is dominated by the fractured two-centre headed archway, and intact vaulted section beyond, that provides access to the inner passage. The passage walls retain a slot for a portcullis and, further into the passage (northwest), a shallow rebate which would have housed an inner, single leaf, door; traces for the location for the pintle fixings and a chase for securing bar remain on the southwest side (see Figure 29).

Plate 70 Stair risers of the newel staircase in the forebuilding (Scale 0.5m)

Either side of the passage is a row of sockets just below springing height for the archway and vault. These sockets appear to be secondary and, given the way that the archway has fractured and moved, it is possible that these sockets are intended to seat temporary centring or formwork.

The chapel

The main intervention in the chapel as part of the current work was the removal of the timber ring-beam. The beam, formed of a plate on each wall, had been inserted as part of the various attempts

to secure the fabric of the tower towards the end of the 19th century; its removal exposed a little more of the internal elevations (Figure 30).

Evidence for an additional upper floor inserted into the chapel space consists of the height of rectangular windows, incorporated into the southeast and southwest walls, and additional sockets and chases (Plate 71 and Plate 72). The windows do not reflect the position of the medieval floor level, that set in the southeast wall being *c*.3.5m above the likely level of the medieval floor. Further, the cutting back of the wall arcade and the insertion of two sockets to accommodate a timber to carry the floor beams is visible in the northeast elevation. This was matched by a further row of sockets cut into the medieval fabric of the southwest elevation; presumably further sockets were contained in the brickwork of the staircase drum which projected into the room, but this no longer survives.

Plate 71 Southeast wall of the Chapel

Plate 72 Southwest wall of the Chapel

It has been suggested that there was a further room above the chapel (O'Neil 1954, 3; RCHME 1973, 74; Butler 1997, 7) but there is little evidence to support this. The opening that has been suggested as the means of access is less than one metre high and much too small to have been a door. Furthermore, there is no evidence for a means of floor support, such as joist holes or an offset in the wall face.

6.7.4 Main tower interior

Like the exterior, the interior of the tower can be considered as number of discrete areas: each of the lobes and the facets between the lobes including the northwest wall of the forebuilding.

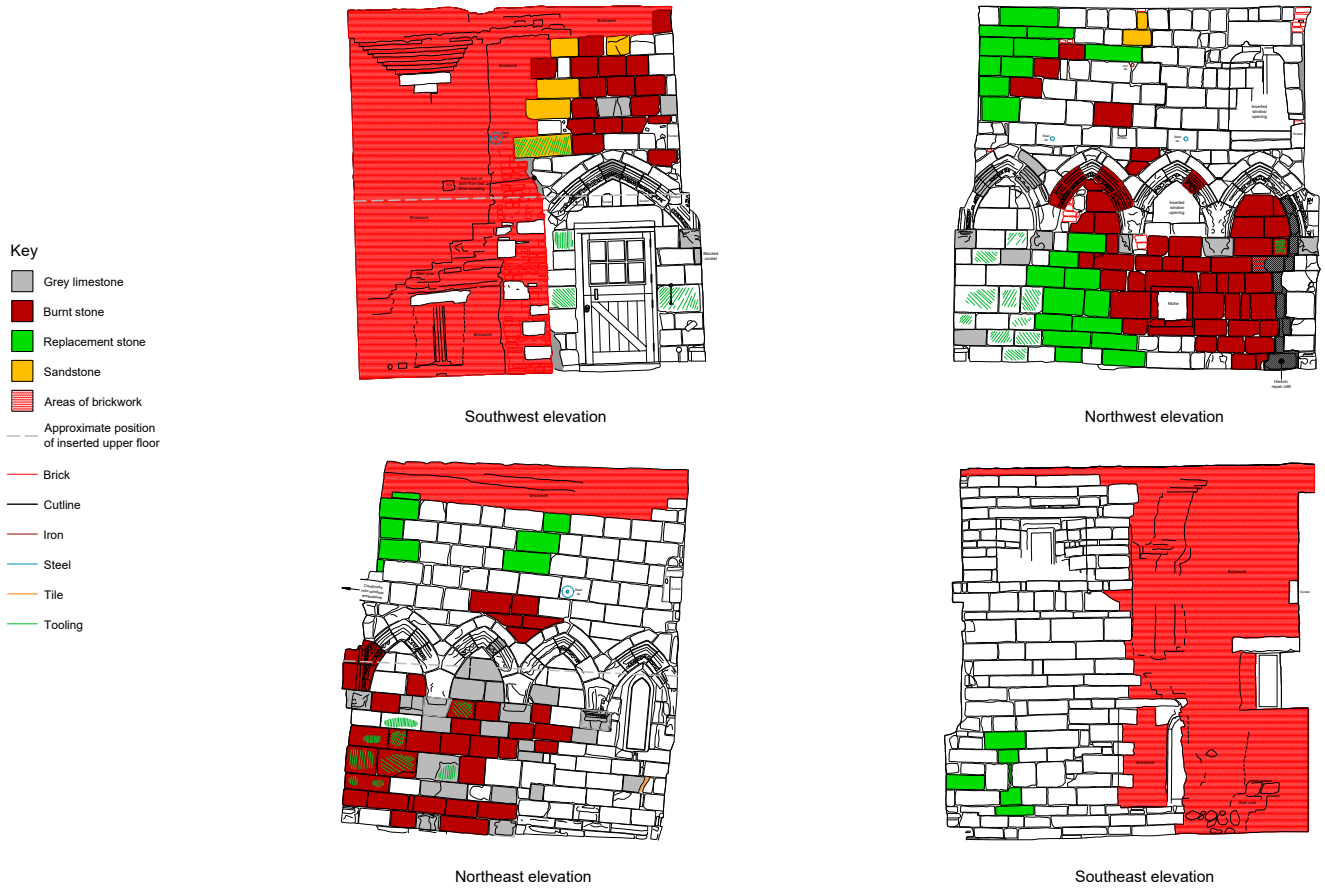


Figure 30 Internal elevations of the chapel in the forebuilding

Scale 1:100@A4

Northwest wall of the forebuilding

The main feature of northwest wall of the forebuilding is the large two-centre headed opening that is the main access into the tower (Figure 31). A large socket just above the head of the opening, filled with brick, must be a secondary insertion given its uncomfortably close relationship with the arch and being higher than the other sockets on the interiors of the lobes. A series of vertical sockets along the southwest side of the opening, where the wall meets the south lobe, might be the location for a timber partition. The northeast side has been subject to a considerable amount of reconstruction in sandstone.

At first-floor level is a window opening that looks into the first-floor chapel in the forebuilding. This window appears to have been inserted, at least in its current form, and retains a shutter rebate, pintle to mount the shutter on and fixings for a window. This window opening has been cited as evidence for the chapel being a secondary feature on the basis of a vertical junction between it and the chapel arcading. Rather the reverse appears to be the case with the window inserted against the arcading. The window might have been inserted to gain a little more light for part of the chapel that was poorly lit or, more likely, when a chamber was created above the main archway into the tower indicated by the secondary sockets above the archway. The purpose of the window would then have been that of squint to allow the liturgy being performed at chapel altar.

The upper part of the wall has been subject to reconstruction using a dark gritstone which has removed much evidence, but some secondary sockets might relate to the insertion of roof serving the suggested chamber.

South lobe

The south lobe contains a pair of window embrasures and a shoulder-headed door opening at both ground and first-floor levels (Figure 32). The latter provides access to the chapel, first floor and wall head.

The ground-floor embrasures have two-centre headed rear arches and each contains a loop opening the upper modified to form a rectangular window opening. The exposure of the lower part of the lobe wall showed that both embrasures had been subject to concrete underpinning in the early 20th century. In addition to exposing the concrete underpinning the ground works exposed the unweathered face of the original internal facing of the tower. A single course of fairly unweathered Magnesian limestone ashlar blocks was exposed on top of the rubble foundation of the tower; the blocks retained their oblique chisel-tooled faces, a finish seen elsewhere on the tower where the stonework has been sheltered or protected.

Repairs to the elevation are indicated by the considerable amount of a hard, green gritstone that has been used, higher up the elevation, contrasting with the Magnesian limestone. Particular areas which

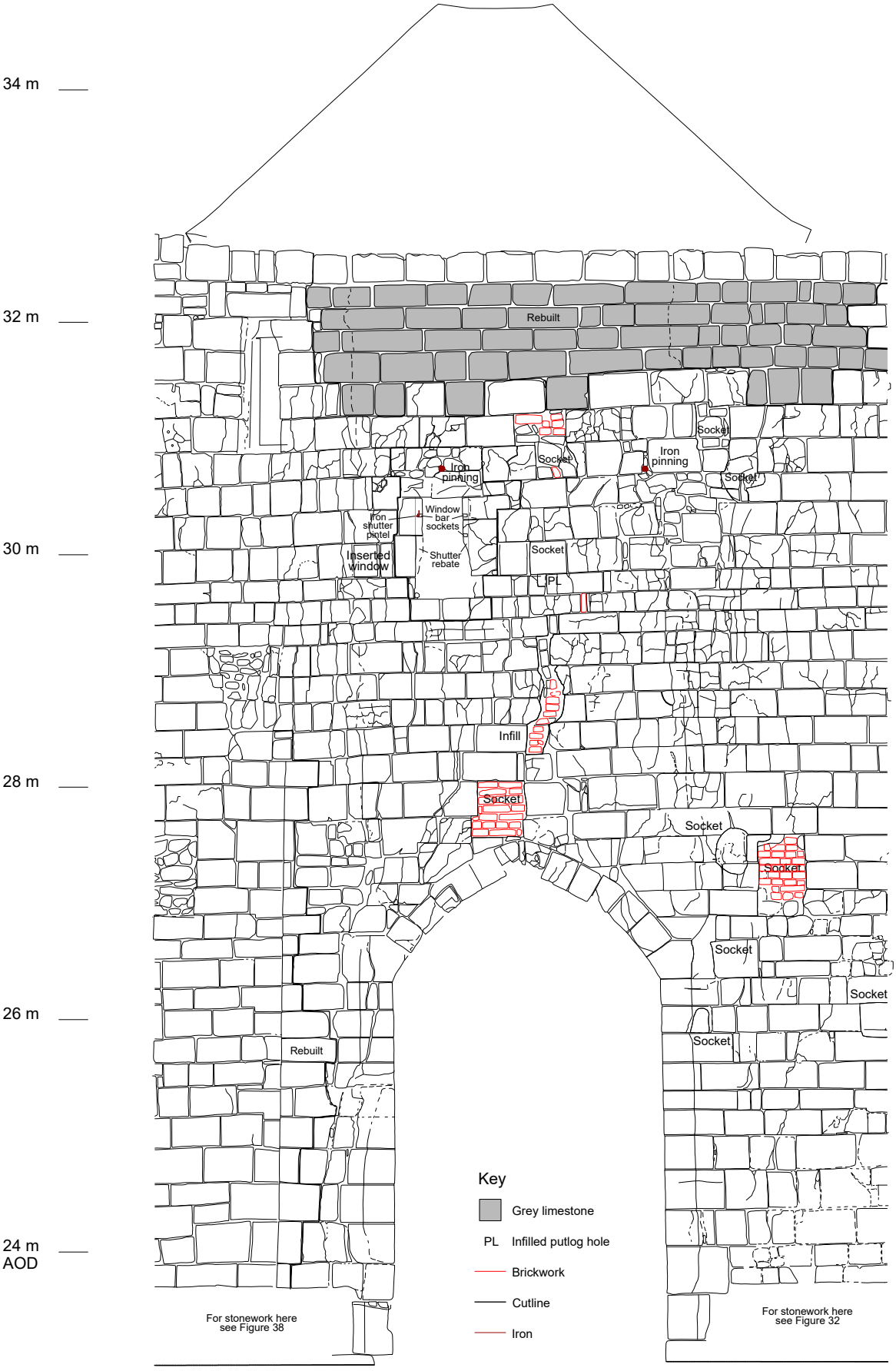


Figure 31 Internal elevation of the forebuilding Scale 1:50@A4

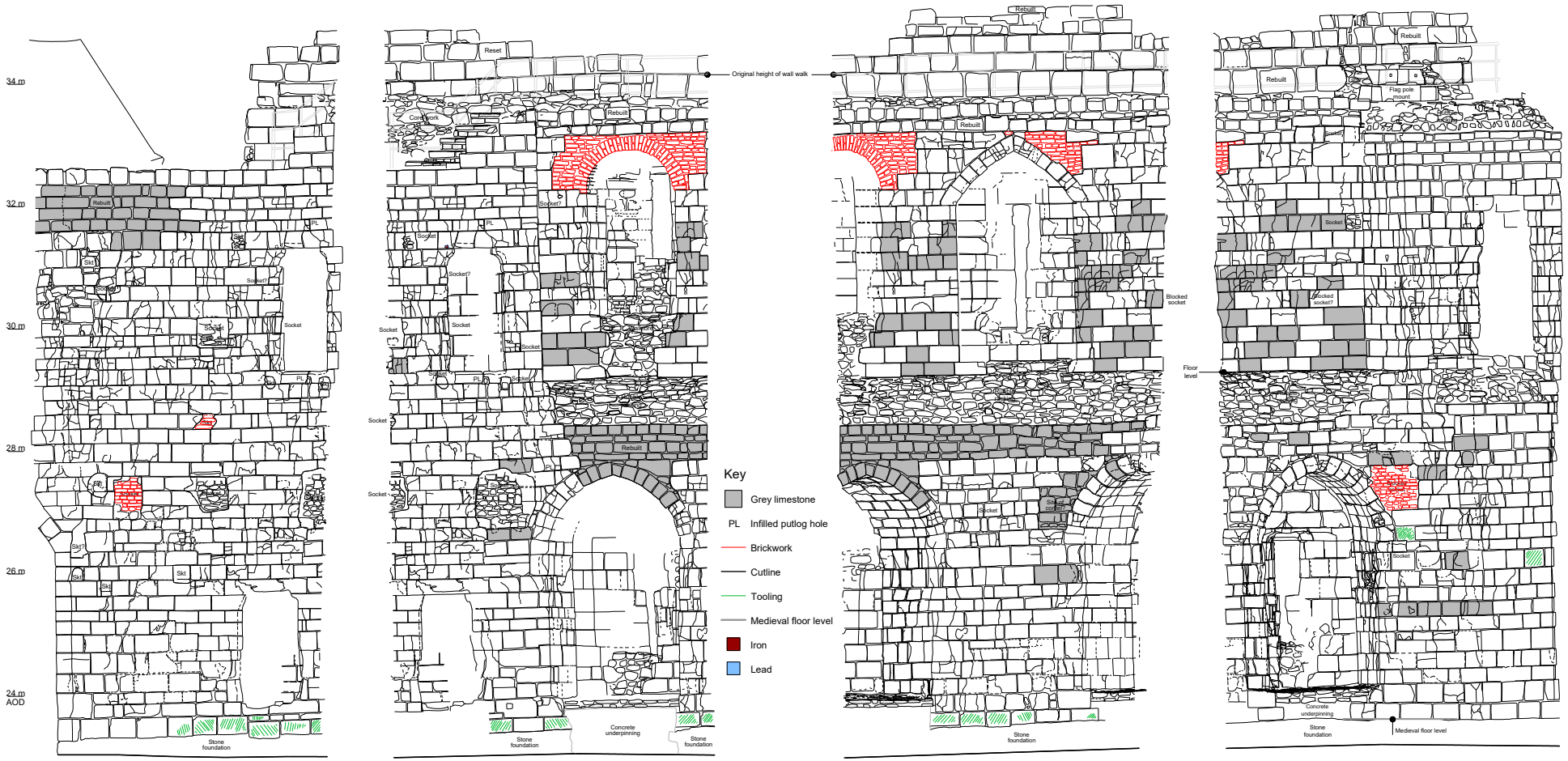


Figure 32 Internal elevation of the south lobe

Scale 1:100@A4

were subject to the gritstone repairs are around the arch heads of the ground-floor embrasures, just below the first-floor level and around the first-floor window openings. It seems likely that these repairs were undertaken in 1902 in conjunction with the underpinning works. However, it is possible that the repairs are earlier – gritstone was used extensively in the construction of the prison in the 1820s and later in the 19th-century for alterations and additions to the same.

The ends of the original first-floor boards would have been supported on an offset but this had been almost entirely obscured by rubble racking that was installed as part of the 1902 reinforcement scheme.

Earlier repairs take the form of a brick reconstruction of the arch head of the southern first floor embrasure and a small area of patching to the adjacent embrasure. The bricks employed in the repairs are the same size as those used in the forebuilding additional stair (c.0.23m x c.0.06m) and likely to be contemporary – part of the reconstruction work to the tower in the early 1640s or following the end of the Civil War.

Plate 73 Brick blocked socket in the south lobe (Scale 1.0m)

Around the face of the lobe is a series of large roughly rectangular sockets with their lowest part c.3.00m above the current ground level. Three of these are grouped above the stair door opening, roughly equally spaced, two smaller possible sockets are located between the embrasures and a further example is located close to the southwest facet. All of the sockets appear to have been subject to opening out and other crude modifications including being blocked partially with either rubble or by brick (Plate 73). The latter similar to the bricks used in the construction of the 17th-century repairs and the additional forebuilding stair.

A single large socket, adjacent to the first-floor shoulder headed doorway, which measures *c*.0.5m by *c*.0.5m square is likely to relate to the roof structure.

A further sequence of much smaller sockets set at various heights probably reflects the positions of internal partitions; in particular a concentration of small sockets near to the entrance through the forebuilding might have been the fixings for a timber framed wall, dividing off the south lobe from the entrance.

Southwest facet

The southwest facet consists of a plain strip of ashlar stonework at ground-floor level, replacement rubble racking where the first-floor structure would have met, and been supported, by the wall, further ashlar work at first-floor level incorporating a shouldered door opening that leads to a stair and further rubble racking up to parapet walk level (Figure 33).

The ground-floor level retains a single socket which might have housed a timber rail for a partition. There has been some reconstruction of the upper part of the ground floor which has largely masked the original arrangement. However, just above the level of the rubble racking (installed in 1902), are small sections of offset which return into the adjacent lobes (south and west) and provide a clear indication of the first-floor height.

At first-floor level, adjacent to the door leading to the stair and cut into the adjacent faces of the south lobes are a number of small sockets which indicate the former presence of a timber-framed wall.

West lobe

The west lobe has four openings at ground-floor level and a further three at first-floor level. The ground-floor openings consist of a fireplace with shallow hood, two window embrasures and a doorway into one of a pair of garderobes contained within the northwest facet (Figure 34).

The base of the fireplace opening was exposed as result of ground reduction excavation and it is evident that the jambs went down further than had been previously been appreciated (Plate 74). There is possible evidence that the fireplace is a secondary insertion; cut lines, or junctions, are evident either side of the fireplace extending up the wall roughly following the route of the flue. Further, putlog holes can be seen either side of the cut lines suggesting that a secondary scaffold was required for the fireplace and associated flue insertion. While this evidence could suggest that the fireplace is an inserted feature, this could alternatively be evidence for a constructional sequence. The carefully shaped masonry, forming the fireplace hood, might have been cut and prepared without reference to the surrounding stone coursing as a separate piece of work. A similar sequence can be seen in the ground-floor fireplace in the north lobe.

Plate 74 Ground-floor fireplace in the west lobe following ground reduction (Scale 1.0m)

Ground reduction excavation also exposed further well-preserved ashlar work and the bottom of the window embrasures. The southernmost opening had been filled

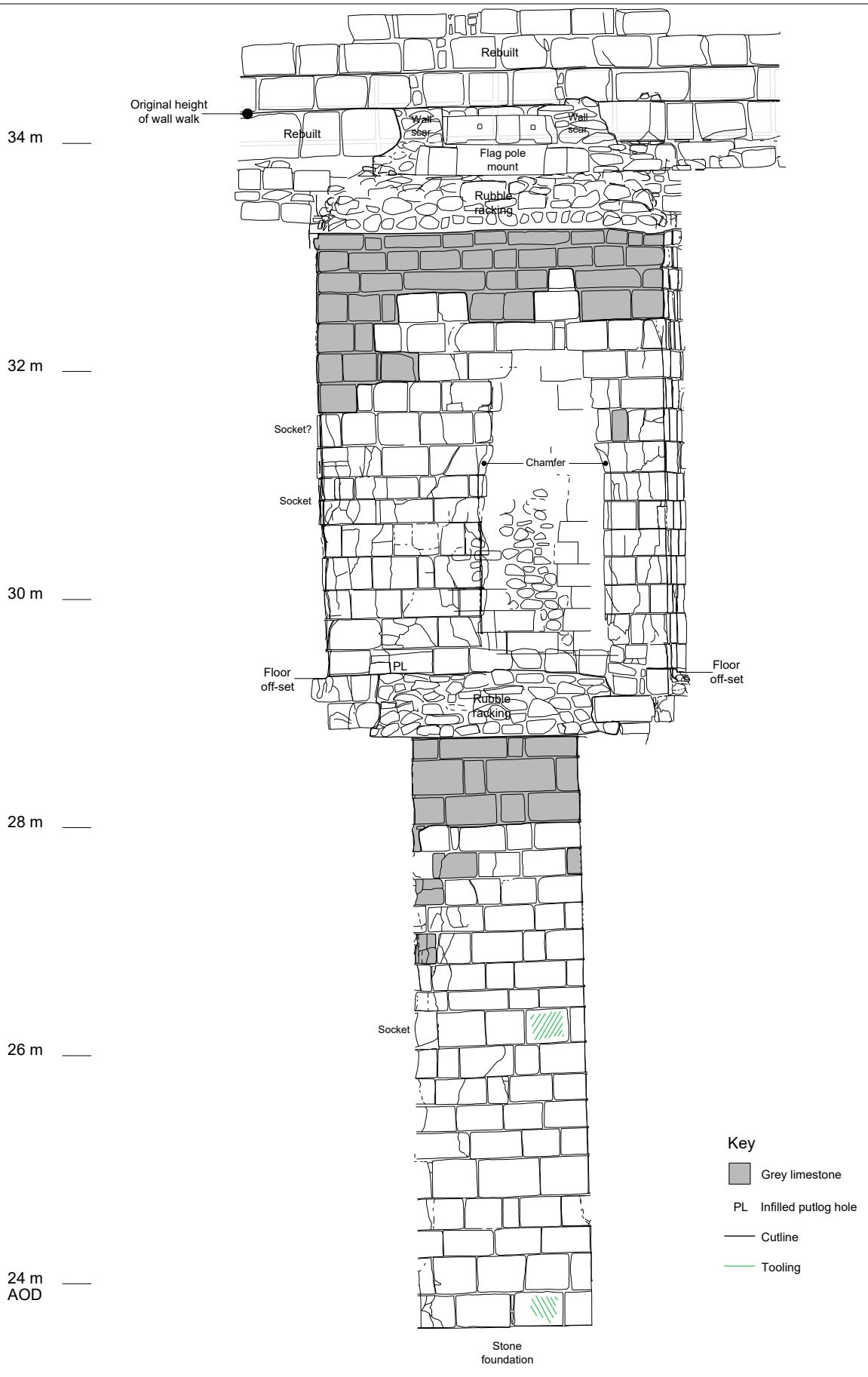


Figure 33 Internal elevation of the southwest facet Scale 1:50@A4

Figure 34 Internal elevation of the west lobe

Scale 1:100@A4

with a mixture of stone, brick and soil. The northern embrasure had been filled partly with concrete, but some possibly in situ 17th-century brickwork also remained that might relate to structures built within the lobe (Plate 75). Further evidence for this building appears higher up the elevation, just below first-floor level, in the form of slight traces of a roof scar.

Plate 75 Bottom of the ground floor northern window embrasure in the west lobe (Scale 2.0m)

The interior face of the west lobe has, historically, undergone a considerable amount of repair with the area of rubble racking being very extensive in the upper zone of the ground-floor level. Despite this massive intervention two sockets relating to the structure of the first floor can be discerned. These sockets are of particular interest as they have been subject to less modification than most at this level (Plate 76 and Plate 77). In both cases the lower part of the socket is well formed and occupies a single course *c*.0.25m high and *c*.0.40m wide; these dimensions are identical to the size of the original corbels that remain in the forebuilding outer lobby. While both sockets have been crudely reworked to increase their height by a further course of stone their original proportions and dimensions are clear. It would appear that the sockets were originally intended to house corbels which were subsequently removed, and the vacant sockets heightened and pad stones added – why this might have been undertaken is discussed below.

Plate 76 Large socket in the west lobe (Scale 0.2m)

Two window embrasures are found at first-floor level – the head of one has been partly reconstructed in brick. Most sockets at this level are modest in proportion and could have served as little more than settings for timber framed partitions.

The wall head shows extensive evidence for reconstruction as seen around the rest of the tower.

The northwest facet

The northwest facet forms the internal wall to the garderobes located at ground and first-floor levels (Figure 35). The elevation has two significant pieces of evidence at first-floor level which relate to

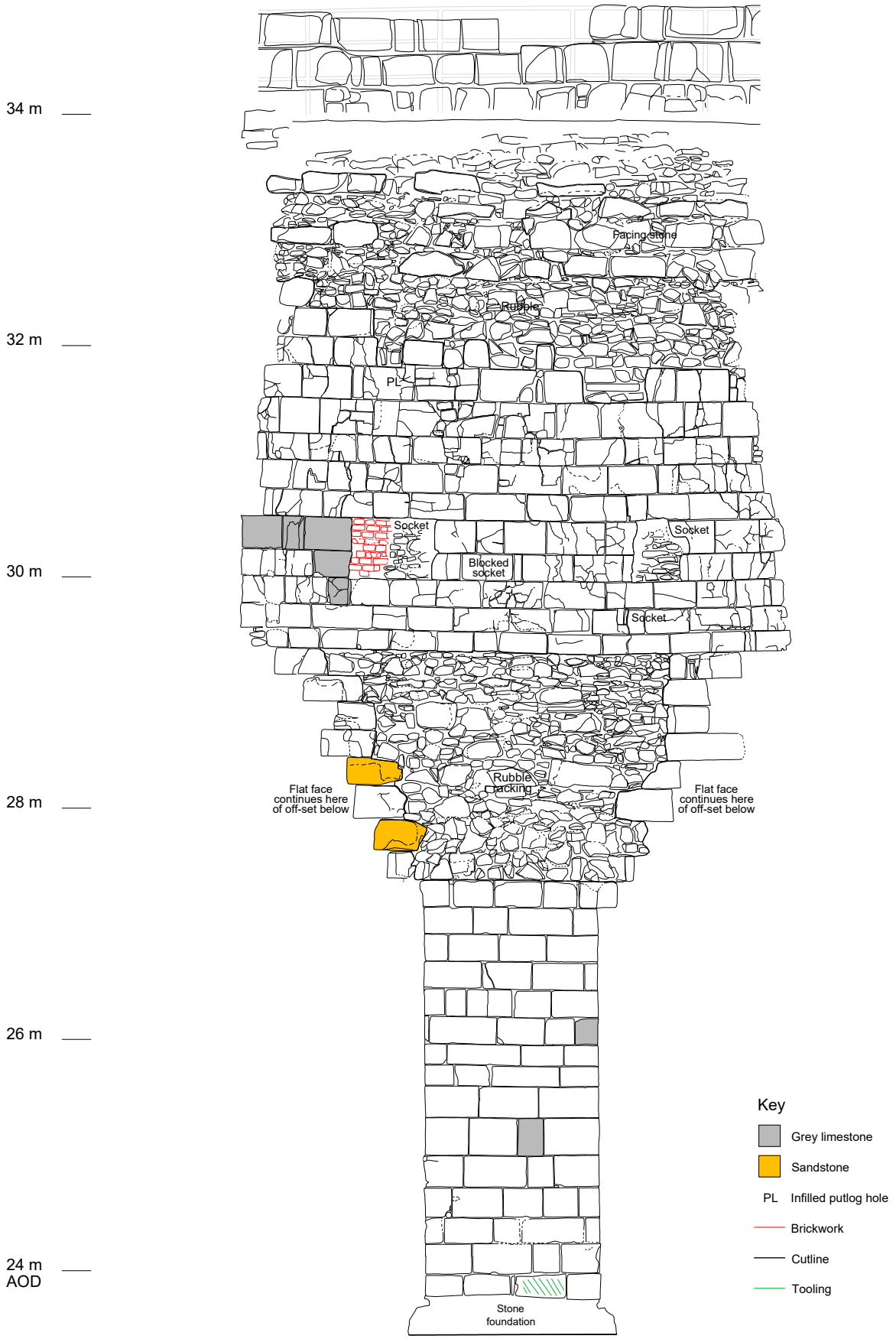


Figure 35 Internal elevation of the northwest facet Scale 1:50@A4

the first floor and roof structures. Despite much reconstruction the elevation retains a slight offset which would have supported the first-floor structure (Plate 78).

Plate 77 Large socket with pad stone in the west lobe (Scale 0.5m)

At first-floor level were two large sockets c.5.8m above the current ground level. These do not relate to floor levels but are likely to have housed corbels that would have supported posts forming the part of the roof structure. One of sockets had been reduced from 0.7m in width to 0.4m by brick packing showing a history of adaption. Below both sockets were shallow cuts, possibly intended to receive small timbers of less than 0.1m square, suggesting some sort of internal subdivision along these lines.

Plate 78 Offset that would have supported the first-floor boarding (Scale 1.0m)

North lobe

The north lobe mirrors the arrangement of the west lobe with four openings at ground-floor level and a further three at first-floor level (Figure 36). One of the ground-floor openings is a fireplace of identical form to that in the west lobe. Directly above the ground-floor fireplace is more ephemeral evidence for a further fireplace at first-floor level consisting of a shallow chasing back of an area of the elevation, tiles set on edge, heat discolouration of the stonework and sockets that would have supported a hood (Plate 79 and Plate 80). The installation of the fireplace must have been an afterthought, but the general form is medieval. With the considerable amount of reconstruction that has happened to the internal facework of the tower, it is quite possible that further fireplaces of this more ephemeral form have been lost.

Only three possible large sockets were identified at ground-floor level, two set at 3.20m from the current ground level and a further one set at 2.80m. As in the west lobe, an offset of c.0.75m has been provided at first-floor level, occupying much of the circumference of the lobe. Two window embrasures have also been provided. Sockets at this level are modest in proportions and would have served as settings for timber-framed walls.

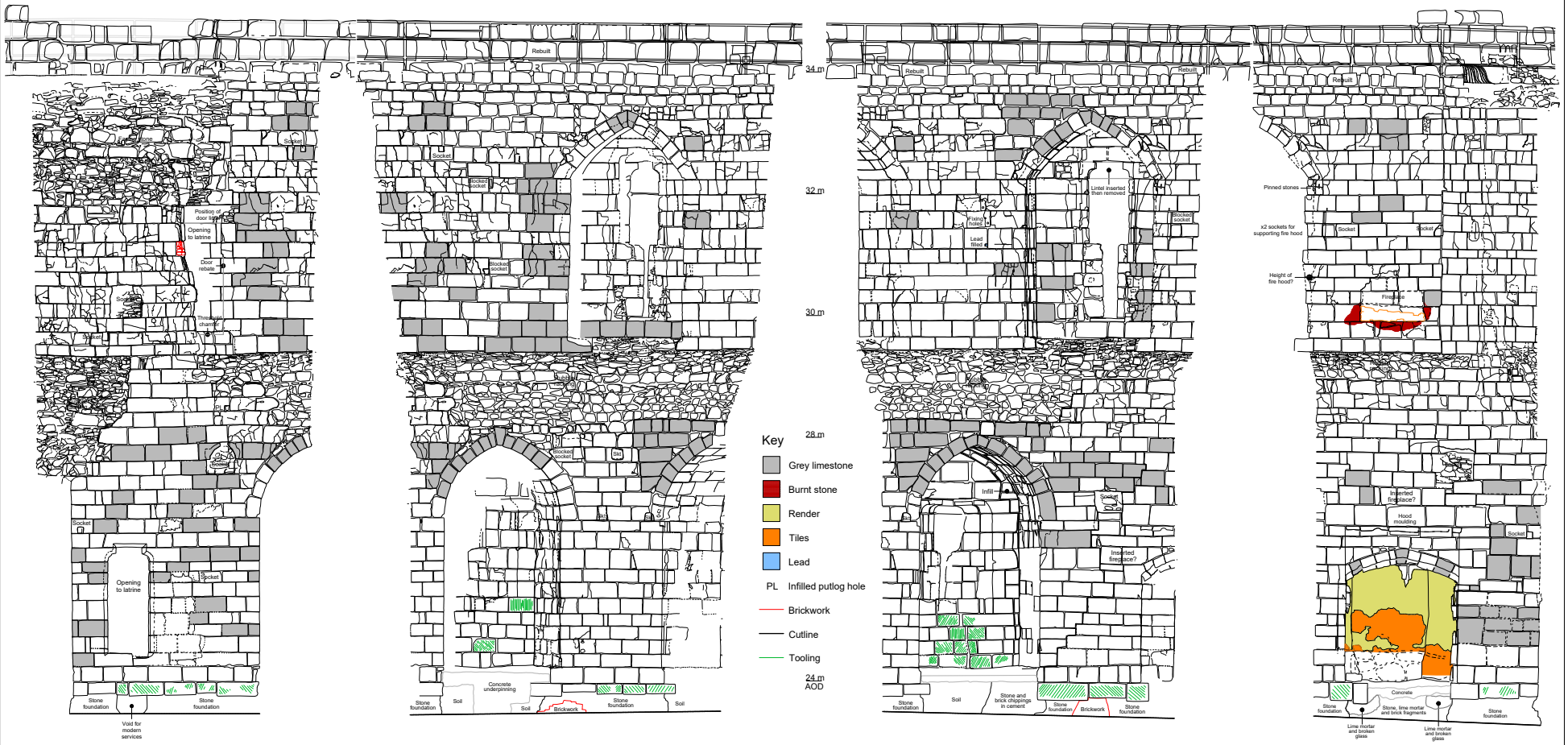


Figure 36 Internal elevation of the north lobe

Scale 1:100@A4

Northeast facet

The character of the northeast facet closely parallels its counterpart to the southwest (Figure 37). The upper portion of the ground-floor level has been rebuilt in rubble masonry but there is sone evidence for an offset that would have supported the first floor.

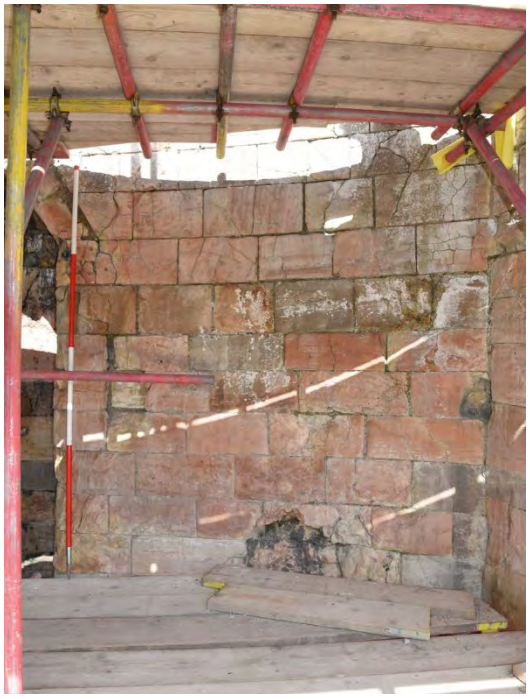


Plate 79 Pair of blocked sockets that would have supported a fire hood above the chased out fireback (Scale 2.0m)

At first-floor level a door provides access to the bartizan stair. Some sockets adjacent to the door would have related to a partition, while above the door is a section of iron chain; this relates to the central flagpole that was installed in the second half of the 19th century (see Plate 95).

East lobe

The east lobe closely parallels the south lobe (Figure 38). It contains a set of three openings at ground and first-floor levels. Arranged around the circumference at ground-floor level are two embrasures with two-centred rear arches and a shoulder-headed door opening to a stair; the stair provides access to the first-floor and wall head.

Plate 80 Fireplace at first-floor level in the north lobe (Scale 1.0m)

The two embrasures each contain a loop opening surmounted by a rectangular window opening. A series of sockets run around the circumference, with their bases at c.3.20m from the current ground level. Four of them are grouped above the stair door opening, roughly equally spaced, whilst a further example is located close to the northeast bartizan. An additional socket, located between the two embrasures and set at 2.80m above the current ground surface, is completely blocked. The sockets have variously been blocked or partly filled, some with limestone rubble, others with 17th-century brickwork.

A further sequence of much smaller sockets set at various heights and above the level of the larger sockets appear to represent the position of an internal partition. Close to the entrance into the tower

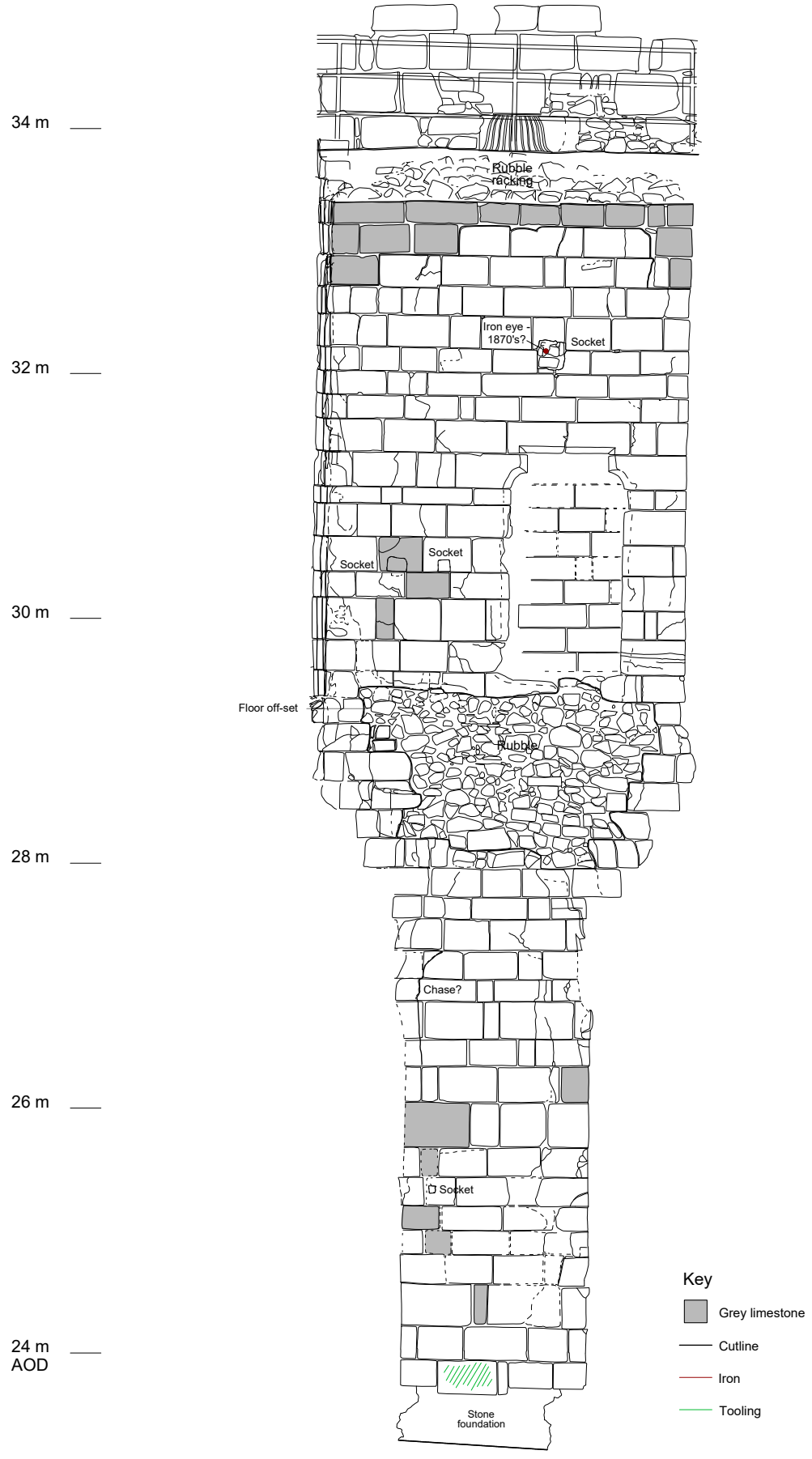


Figure 37 Internal elevation of the northeast facet Scale 1:50@A4

Figure 38 Internal elevation of the east lobe

Scale 1:100@A4

is a vertical band of yellow sandstone representing early 20th-century stitching. This alteration has removed any evidence for smaller, vertically aligned sockets in this position, such as those observed in the same position in the south lobe. However, a single socket, set 4.8m above the current ground level and above the yellow gritstone, may be evidence for a former partition between the entrance and the rooms within the east lobe.

One of the first-floor windows has been the subject of late repairs. The window is shown in 1913 with a reduced arch supported by a pier of masonry, potentially an alteration of the 1902 scheme (Plate 81). A photograph of the 1920s shows the arch being totally rebuilt and wide enough to span the window (Plate 82). Both of these interventions seem likely to have been attempts to address the crack.

Plate 81 View of the east lobe interior dated 1913 showing late repair to first-floor window opening

Plate 82 View of east lobe window opening being rebuilt in the 1920s

6.7.5 Garderobes

Following the removal of modern lavatory and kitchen fittings, installed in *c.*1990, both ground-floor garderobes were recorded. Both garderobes had been used to provide space for modern services since at least the 1930s and the current work afforded a rare opportunity to examine the interiors unencumbered.

The installation of the scaffold access afforded the opportunity to examine the interior of the first-floor garderobe.

Southwest and northeast garderobes

Both ground-floor garderobes are entered via shoulder headed door openings which now house modern replacement doors. From the door openings a very short passage leads to the garderobe seats (Plate 83). Both garderobes retain evidence for their seat and chute arrangements although the actual seats, probably of timber have long since been lost (Plate 84). A notable detail is the chamfering of the leading edge of the seating stonework for the timber seat, a feature which is repeated in the first-floor garderobe.

First-floor garderobe

The first-floor garderobe can now be reached by doorways either side of the main chamber (Figure 39). A careful examination of both door openings confirmed that both openings were original features so the garderobe could be accessed from different rooms at first-floor level.

Plate 83 Passage to ground-floor garderobe (Scale 2.0m)

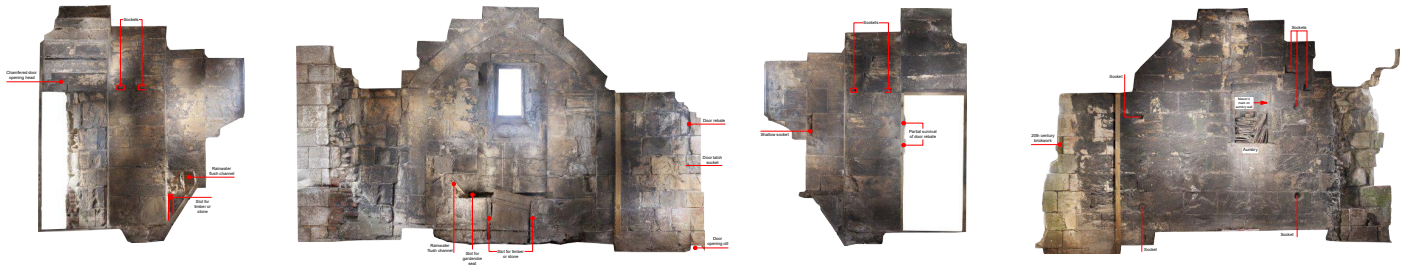
While most of the features have been previously noted, of particular additional interest is the relatively sophisticated flushing arrangement that the garderobe was provided with. A small shaft built into the wall conveyed water from the roof (perhaps stored in a water tank) to a side chute underneath the garderobe seat (Plate 85). It is not clear whether there was a means of controlling the water flow or if this was a continuous flushing arrangement depending on the availability of water.

Plate 84 Ground floor garderobe seat and chute arrangement (Scale 0.5m)

As previously noted, pairs of sockets just beneath the level of the vault, which spans the garderobe seating area, probably served to support the centering for the construction of the vault. Further, roughly-cut sockets were noted on the opposite wall which probably relate to the insertion of secondary doors to close the space off from the main body of the tower.

The small cupboard on the opposite wall to the garderobe seat retained traces of ironwork in the surrounding rebate which probably represent the remains of pintles; the hinge for a door that would have closed off the cupboard (Plate 86). Within the cupboard was a mason's mark in the form of a downward facing arrow (Plate 87).

Plate 85 Small shaft from the wall-walk to the first floor garderobe (Scale 0.5m)



Southwest Elevation

Northwest Elevation

Northeast Elevation

Southeast Elevation

Figure 39 Internal elevations of the first-floor garderobe

Scale 1:100@A4

Bartizan turret stairs

Plate 86 Wall cupboard opposite the first-floor garderobe seat (Scale 0.5m)

Plate 87 Mason's mark within the first-floor garderobe cupboard

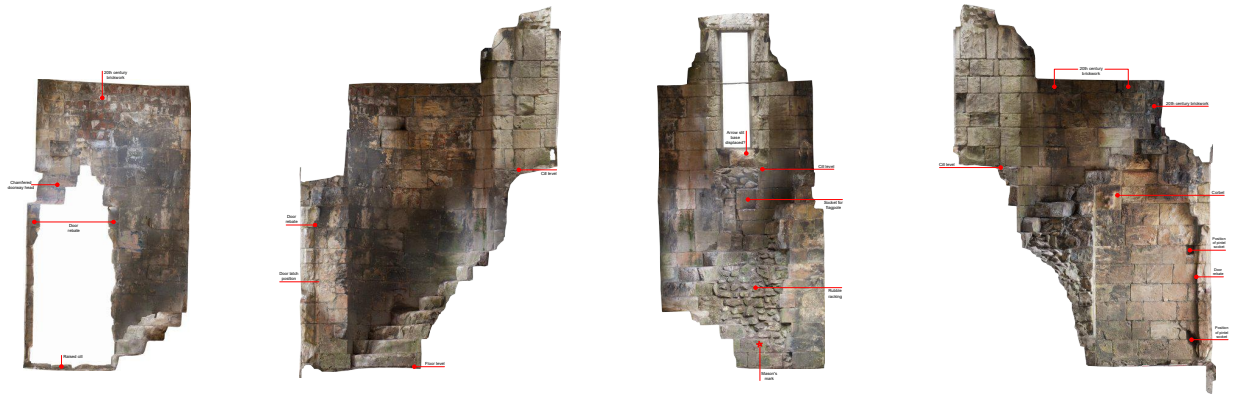
Both bartizan turrets had been sealed over in the early 20th century with concrete supported on iron tie bars. As part of the current project the concrete and iron tie bars were removed in order to reconstruct the upper part of the stairs and allow access on to the wall-walk (Plate 89).

The two turrets are mirrors of each other including all the features (Figure 40 and Figure 41). They are entered by shoulder headed door openings which provide access to a small lobby at the bottom of each stair; the original upper part of the stair has been lost in both turrets.

Plate 89 Upper part of bartizan stair during removal of early 20th century concrete and ironwork (Scale 1.0m)

Plate 88 Loop embrasure in the bartizan stair turret (Scale 0.5m)

The interiors of the turrets are lit by a single tall opening in their external walls set within a deep embrasure (Plate 88). The height of the embrasure significantly exceeds the height of the current wall-walk and it is likely that the turrets were



Northeast elevation

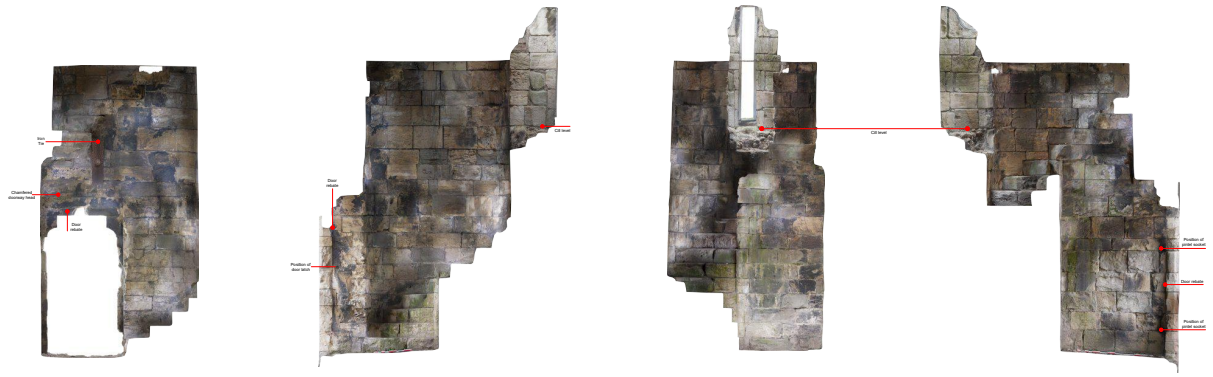
Southeast elevation

Southwest elevation

Northwest elevation

Figure 40 Internal elevations of the southwest bartizan turret

Scale 1:100@A4



Southwest Elevation

Northwest Elevation

Northeast Elevation

Southeast Elevation

Figure 41 Internal elevations of the northeast bartizan turret

Scale 1:100@A4

fully enclosed structures to a greater height. Like the stairs adjacent to the forebuilding, they probably included a small conical roof.

Within the southwest bartizan a single star-shaped mason's mark was recorded (Plate 90).

Plate 90 Mason's mark in the southwest bartizan turret

7 Discussion

The results of the investigations – above and below-ground – have added insight to our understanding of this area of the city and the monument of Clifford's Tower from the pre-Conquest period to the modern day. Residual material and contact with Norman period motte make-up provides new information on pre-castle activities. Understanding of the 13th-century tower, its construction, form and layout has been enhanced in a number of ways. New information about constructional sequence, geology and design has been won. The ongoing issue of instability in the tower and understanding of repair efforts and their impact is also better understood.

The post-medieval reuse of the tower sees it take many new guises including being appropriated as a Civil War bastion which had a severe impact on the structure's interior below-ground. This was followed by the tower's appropriation as picturesque ruin-cum-folly before becoming the centrepiece of a new gaol and courthouse complex which borrowed ideas of medieval justice in its design. The last phase continues today and is the impetus behind the archaeological programme, that is, the recognition of the importance of the tower to the heritage of York, and the concomitant efforts to maintain and preserve it. The heritage management phase begins in the early 20th century and involves the rescue of the tower, the installation of drainage systems, paths, modern facilities and the presentation of a central pier base as an original medieval feature. One feature internal to the tower in particular appears to endure through these transformations – the well – which may have been the source of the largest pot group recovered, perhaps curated in the early 20th century and reburied nearby.

7.1 Residual Roman and early medieval material

The majority of archaeological deposits encountered during the investigation dated from the post-medieval period onwards, but potential glimpses of mid-11th-century motte make-up and

consideration of the body of Roman and early medieval residual material within later deposits provides insight into the development of the site from earlier periods.

A small number of Roman finds was encountered, including CBM and a fragment of stone *mortarium*. The heavily eroded condition of the CBM fragments indicated that they had been recycled in deposits multiple times and the fabrics are those common in York. These emphasise the longevity of activity in this part of York, and the fact that there would have been settlement related to the Roman *canabae* in this area. The large fragment of Roman *mortarium* had evidently been picked from a later deposit as a useful rubble fragment, to be reused in a drain in the 19th century (Appendix 12; Find No. 46, in F47). Stone *mortaria* are unusual finds in northern England and its recovery is notable set against the context of national distributions.

The presence of disarticulated human remains recovered from the original motte make-up is also worthy of note. The origin of the remains may also relate to the Roman cemetery known to occupy the area.

Ten sherds of pottery in four Anglo-Scandinavian ware types were recovered residually. This group dates mainly from the late 9th century to early/mid-11th century, with wares present including Torksey Ware, representing three small and two medium-sized jars, a highly-fired jar of imported ware of late 9th-10th century, and a further small sherd of York type Anglo-Scandinavian glazed ware (early 9th to mid-11th century). The 10th-century copper-alloy clapper bell belongs in a wider group of less than 100 examples which are distributed across the area of the Danelaw in England, and in areas of Norse settlement in Britain more broadly including Caithness, Sutherland and Man. The clay loomweight is more broadly dated, but signals textile-working found at many sites across York which lie close to Clifford's Tower.

Further evidence for early medieval craftworking was recovered from the motte make-up (C1110). Fragments of animal bone from food consumption, including cattle, sheep/goat and pig long bones, also included fragments of sheep/goat metacarpals which had low meat value and may have originated as butchery or craftworking waste. Four fragments of red deer antler offcut recovered from various deposits all exhibit signs of craft working in the form of having either been sawn or polished. Given the existing evidence for this industry thriving during the early medieval period in York, these finds potentially originated in the 8th to 11th centuries, and represent material disturbed during the initial construction, and/or perhaps later raising, of the motte.

The early medieval assemblages are likely to represent redeposited primary material, which invites more detailed consideration of where these finds came from. Although reworked in later phases of levelling, deposits within the tower are likely to derive originally from motte make-up which was quarried from the immediate vicinity. Logic would suggest that those areas that were excavated to create the moat around the tower, and to engineer the flooding of the King's Fishpool, would also have served as quarries. This suggests that the intensive occupation observed at Coppergate, and

suggested at Clifford Street, continued further to the south along the spur between the Rivers Ouse and Foss. The presence of Anglo-Scandinavian burials within the castle bailey further enhances this picture; given the density of occupation, it is possible that a further, hitherto unidentified church, served this population.

The presence of post-Roman burials in the zone of Clifford's Tower also represents a further alternative origin for the disarticulated human bones recovered from the original motte make-up.

7.2 Medieval period

7.2.1 The Conquest-period motte

The earliest in situ deposits encountered within the investigations were the potential glimpses of original motte make-up encountered in the rest bay investigations (Intervention 10, C1110) and in the deeper excavations in the tower interior (Intervention 6, C1095). These glimpses corroborate earlier descriptions of the make-up; this comprised clayey silt which included mixed material including animal and human bone.

The residual material recovered appears to signal that the motte make-up comprises material obtained from the immediate surrounding area. The archaeological deposits quarried for this operation are likely to have been highly organic and humic in composition and predominantly clay-based given the underlying geology of this part of the city. This material does not appear to have been a stable medium on which to erect a motte which later received a substantial stone structure; the organic component would break down over time and the clay component would have been susceptible to drying and rewetting through time. This make-up is likely to have been a contributory factor in the instability of the motte which has been a persistent feature of the monument and has caused issues from the 13th to the 20th century.

No features or deposits dating to between the original erection of the motte c.1068 and the construction of the tower c.1350-75 were identified during the programme of investigation.

7.2.2 Construction of Clifford's Tower

Design and conception of the tower

Other than repair episodes there was no evidence to suggest that Clifford's Tower was not constructed as a single – if protracted – building campaign spanning the third quarter of the 13th century. The putlog holes follow a pattern that can be followed around the exterior of the tower and are in regular lifts other than where additional holes have been inserted for repair work to cracks.

There is a change in how the scaffolding was secured to the tower; there are few putlog holes until *c.*4m above the current level of the motte. This change might reflect a hiatus in the construction work or, more likely, simply the need to provide greater stability to the scaffold one it had reached over *c.*4m in height.

Evidence for the chapel being a later creation as has been suggested remains tenuous and with the use of Occam's razor might best be dismissed altogether. While it had been noted that the stone coursing between forebuilding and the main body of the tower does not match well at the higher level, examination of the footings at the base of both walls, in addition to the lower courses of the ashlar stone, does course through. This would suggest that the two elements were at least planned and started together even if they were not completed together.

The main physical relationship cited to support a later date for the chapel has concerned two openings in the northwest wall. At the high level is an opening that is a later insertion. This opening was designed to rake at an angle providing a view into the chapel of the altar and any liturgical activity taking place. Examination of the stone coursing around this opening confirms that the opening is a later insertion. However, it can be argued, that it could have been inserted due to internal changes within the main body of the tower, to allow a view of a pre-existing chapel and its altar.

The second opening presents a possible reverse sequence. This opening, perhaps a squint, is in the lower part of the northwest elevation and appears to have been partly blocked by the wall arcading suggesting that the arcading post-dates the squint. However, an examination of the fabric around the opening from tower side again indicates that this is likely to be a later insertion, part of a rearrangement of the rooms in the main body of the tower.

There is no further evidence to indicate that the creation of the chapel was a later insertion. The first, much cited, reference to a chapel in the tower was in May 1312 when a command was issued 'to roof the chapel recently built inside the tower of the said castle with lead' (CR 1307-13, 424). This reference has been used to argue for the later insertion of the chapel in the forebuilding but, of course could equally refer to a new chapel built elsewhere in the tower. There is at least one later reference in an account from 1385-6 which suggests this might be the case where a chapel in the tower is referred in addition to a 'small chamber above the door of the tower' (TNA E199/49/64). An alternative explanation is that the upper part of forebuilding was one of the last components of the tower to be completed through a protracted building campaign. The features which have given rise to this apparent discrepancy could easily have been introduced and adapted during the proposed timeframe for construction period for the tower.

Geology of the original masonry

It was noted and recorded that two types of Magnesian limestone had been used as the main facing stone on the tower. This was most evident on the exterior of the tower where the typical pale yellow limestone was interspersed with a grey limestone, the greatest concentration of the grey limestone being towards the lower part of the elevations, thinning out towards the top so that it is completely absent at parapet level. Careful examination of the stone did not indicate any great difference between the two stone types, rather the contrasting colour is likely to reflect the different bed levels from which the stone was obtained. These characteristics might allow for the actual quarry site to be identified in future research.

Later repairs are easily identified by the differences in geology. Larger fractures have been generally repaired with sandstone which appears to be early 20th-century work. In other areas, to build up facework on the interior, a dark gritstone has also been used. This stone was also used in the construction of the prison and for repair works to the castle bailey wall. Rather than originating from demolition of the prison (demolished 1935), it is more likely that these were repairs contemporary with work on the prison buildings, either their original construction or subsequent alteration and repair. Demolition of the northernmost section of curving wall between the radial prison blocks (with adjacent structures) sometime before 1891 might have provided the source of the repair stone.

Much of the modern stonework dates from the early 1980s when repairs were undertaken and the 1990s when limited stone replacement took place as a part of general maintenance of the structure.

Central pier and internal floors

There has been much debate regarding the form of Clifford's Tower, and whether it can be conclusively identified as a shell-keep (Ashbee 2003, 24). This latter interpretation has previously been countered, due to the apparent presence of a central pier within the tower, the location of which was demarcated until recently by rubble stonework and a raised kerb (Plate 91).

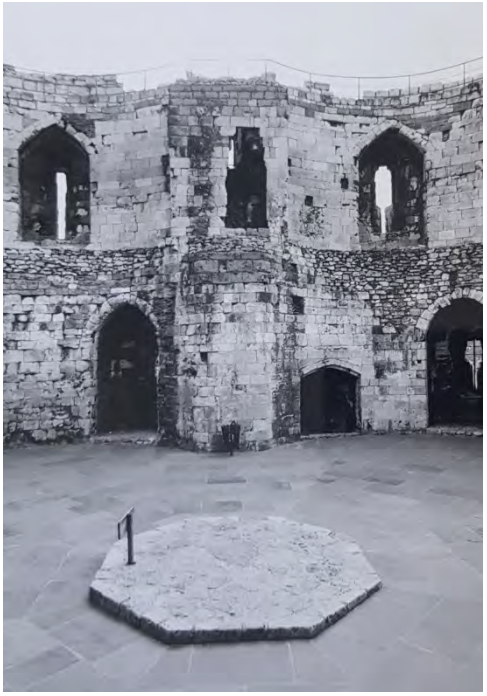


Plate 91 Central pier base marked out in stone, 1984

Cooper stated in 1911 that 'recently the foundations of a pier were exposed by excavations in the centre of the motte…' (Cooper 1911, 45). The octagonal feature is sketched lightly on Mott's drainage drawing of 1902, without identification, possibly at the time of this discovery; whether whoever drew the shape was aware of its identification cannot be known. By the 1930s, photographs show the raised kerb within the

grassed area and a 1935 plan for publication shows the central octagon (as yet unlabelled)(HEA MP/CLI0062). By 1969, the RCHME plans label the feature as 'site of central pier' (HEA MD92/716-7). It seems, therefore, that the presence of the feature was known from an early date, but that its original function had faded from collective memory and a new interpretation added.

The recent investigations have clearly demonstrated that the central feature is not a medieval structure, but rather a late 19th-century flagpole base, constructed to support a substantial, squared timber flagstaff (see 19th-century discussion, below). This allows discussions of the original form and layout of the tower interior to be discussed in a new light (see discussion below).

Plate 92 The Royal Commission highly speculative sectional reconstruction of the tower – the drawing was never published

The form of both the tower and its internal floors have been the subject of considerable speculative reconstruction over the past 100 years. Earlier reconstructions had assumed that the tower interior was entirely floored and roofed over (Plate 92). A critical element of these assumptions was that the tower had a central pier, or column, that served to support both the floor and roof structure. The pier would have served to support either bridging beams to the outer walls or, it has been suggested in at least one reconstruction, stone arches to the facets between the lobes. From the current excavations we now know that, unless its presence was systematically erased, there was no central pier only a massive and short-lived flagpole that was installed in the mid-19th century and removed by the end of the century.

The various substantial sockets that are evident around the interior faces of the lobes had also been dismissed as relating to later floors, likely to be those installed in the 17th century, because they did not coincide with the height of the first floor and were irregular in shape and, thus, must have been secondary insertions. However, the remaining evidence for the medieval floor structure for the chapel provides much of the evidence needed to really understand how the floor of the tower was arranged. It is evident that the chapel floor structure consisted of bridging beams, sat upon wall posts which, in turn, were supported upon sandstone corbels. Braces were likely to have been included between the posts and the bridging beams to provide additional strength to the structure. In order to provide space for the wall post the corbels were set in the order of *c*.1m below the level of the floor. It is this form of construction that was likely to have been used in the main body of the tower.

Most of the larger sockets within the tower would have originally contained identical corbels to those seen below the chapel floor, with the west lobe retaining some of the best preserved former corbel positions. Why then are there no remaining corbels in the main body of the tower? As noted before there is some evidence for levering damage around the edges of some of the sockets evidently where the corbels were deliberately removed. Further, it is clear that most of the sockets have been enlarged presumably to fit more into them – all evidence that points to attempts at modification and repair. The explanation lies in the chronic instability of the tower, first noted in the 14th century, with the outer walls of the tower tending to increasingly lean outwards. As the tower walls pulled away from the vertical the arrangement of bridging beams/posts resting on corbels would have become increasingly precarious. Once the walls had pulled outwards in the order of *c.*0.3m the timber posts would have been at risk of being pulled off the corbels. Removing the corbels and replacing them with longer timbers inserted into the walls would have provided a solution, in addition to extending the bridging beams and introducing additional timbers above them to secure them back to the wall. Eventually, with the extreme lean in some parts of the building, even these solutions would have been insufficient and additional new bridging beams might have been introduced.

The pattern of repairs and additional sockets seen in the tower reflects the history of attempts to deal with a structure, without fundamentally changing the design of the internal buildings. It is notable that the sockets which remain closest to their original corbel form are in the west lobe where the lean to the structure is least. Both south and east lobes and, particularly, the forebuilding have suffered the most extreme lean, and this is reflected in the more extensive modifications and changes seen to the sockets that formed part of the support for the first floor.

The height of the remaining fragments of original offsets, identified particularly around the internal facets, provides the finished height of the original first-floor with addition of the thickness of the boarding.

The south lobe retained evidence for medieval floor level recorded at 23.62m AOD in the form of a fine mortar spread, vestiges of which were noted on the elevation over the rubble foundation, representing a possible floor preparation (see Figure 32). This precious fragment of remaining evidence, taken with the level of the first-floor board off-set observed in several locations, provides a ground floor room height of c.5.6m. The implied tall ceiling height would have provided the potential for grand rooms on the ground floor of the tower.

It is notable that some of the sockets have been repaired using brick which appears to be mid- to late 17th century in date. This suggests that the repairs to the first floor undertaken in the mid-17th century would have largely maintained the original medieval first-floor level. Given the height of windows and door openings at first-floor level this would have made more sense than introducing a floor at a level which did not work with any of the extant openings.

New understanding of the windows of the tower at ground and first-floor level was also gained. The evidence from the fabric indicated that the tower's ground-floor slit openings had been all modified by opening up the upper parts to form rectangular window opening, all of which had been barred with iron. In contrast, the first-floor windows had been designed with this feature as part of their original construction. Further, the first-floor rectangular openings appear to have had a special feature consisting of a pair of internal shutters. Recesses in the window embrasures allowed for the shutters to be folded back and these recesses provided evidence for the shutters' width. Taking these widths, it is evident that the shutters would not have completely closed off the opening, rather a central gap would have been left between the shutters when closed. The slit opening thus formed continued the arrow slit which formed the lower part of the opening, to provide a full height arrow slit. Bolt fixings in the sills of the upper part of the openings ensured that the shutters were kept in the correct position to form a slit. This unique arrangement allowed the first-floor openings to be quickly converted from domestic windows to defensive arrow slits, a feature that has not been identified in castle architecture before.

Roof structure and wall walk

The evidence for the roof structures is even more sparse than for the first-floor structure. However, the few identifiable sockets that relate to the roof would appear to indicate that it was of similar construction to the first-floor structure with the tie-beams for the main trusses supported on posts that sat upon corbels. The corbels would have been set much lower than their first-floor counterparts, providing for a longer post and more substantial bracing. The sparsity of evidence for substantial trusses suggests that much of the roof must have consisted of close coupled rafters.

If the evidence for the roof structure on the main body of the tower is a little sparse the reduction in wall-walk level has further removed evidence for how the rainwater was dealt with. However, the one extant rainwater spout on the west lobe and the positions of further spouts on the north and east lobes does at least confirm the height of the wall-walk at just under 34m AOD. Further, vital clues for how the water was gathered and circulated around the building was discovered. A single section of guttering stone was recovered during excavation that would have formed part of shallow channel, lined with lead, around the wall head (Appendix 13, Find No. 92). Clearly some of this water would have been discharged through the spouts located on the lobes, but some of the water was either stored or allowed to continuously flow through the flushing system discovered for the first-floor garderobe. It is notable that there is a solid platform provided by the upper surface of the northwest facet; this would be the most likely location for a water tank and would place it in close proximity to the shaft from wall-walk to the first-floor garderobe.

Little additional information was found relating to the arrangement of the roofs on the bartizan turrets or above the stairs adjacent to the forebuilding. However, the height of the loop embrasures that

served to light the bartizan stairs indicates that the turrets rose above the level of the parapet walk (effectively forming a stair head building) and, therefore, are likely to have had their own discrete conical roofs. This was also likely to be the case with the stairs adjacent to the forebuilding.

It is likely that, given the presence of stair head structures at wall-walk level, access around the wall-walk was more restricted than it is today. The two bartizan stairs rise in such a fashion that the head of the stairs would have faced, and provided access, towards the west and north lobes. Without scrambling around the roof, it would not have been possible to access the south and east lobes from the bartizan stairs. It is also noticeable that door openings to the bartizan turrets, from first-floor level, are little more than *c*1.9m and certainly not grandiose in scale further suggesting that they lay outside the main route of internal use. This does provide an explanation for the excessive number of stairs in the tower from first to wall-walk level. Further, it might indicate some intended segregation between different parts of the tower.

Some further evidence for the provision of heating was found as part of the current work. Previously, no evidence had been identified for heating at first-floor level within the tower, the assumption being that any fireplaces must have been on lateral, timber-framed walls that have vanished. However, one first-floor medieval fireplace, likely to have been provided with a plaster hood, has now been identified in the north lobe although is a secondary feature. It might be one of the two fireplaces that the amusingly named Master Robert Shitbrowe was constructing chimneys (perhaps the plaster hoods) for in 1362-3 (TNA E101/598/6); the construction of a plaster hood is accounted for in 1327-8 in the porch of a tower in the castle (TNA E372/173 rot 42d). It is likely that the small section of hearthstone edging that was found (Appendix 13, Find No. 85) is from one of the tower fireplaces.

The 13th-century motte and flanking walls

The fragment of limestone wall (F74) encountered within Rest bay 3, Intervention 10 can be readily interpreted as a vestige of one of two flanking walls that would have been situated to either side of the medieval motte stair. This is a remnant of part of the original 13th-century construction of the tower. It is interesting to note that F74 was built against material which appeared to represent Norman-period motte make-up. This implies that the motte was not necessarily heavily remodelled in advance of construction of the 13th-century tower. Contact with original motte make-up in Rest bay 2 also suggests that the motte was not drastically remodelled for the construction of the tower.

The flanking walls to the approach to the tower are first noted in 1325 when 10 perches (a perch being 18 to 24 feet in this period) of the wall either side of the entrance from the castle to the great tower were in need of repair (CCR 1323-1327, 14). This would suggest that the flanking walls are likely to have been part of the original design of the tower. The flanking walls are again documented in 1596 when Robert Redhead was accused of taking down masonry from the 'flanker near out.' The arrangement of walls flanking such stairs is paralleled at Cardiff Castle, when such walls were

provided between 1217 and 1314 (RCHMW 1991, 176-7), and at Pickering Castle. In both cases, the outer wall would have been thicker than the 'inner' flanking wall, providing added protection. The extant surviving fragment exposed in the Rest bay 3 is 0.95m wide, but had evidently been truncated by the insertion of the concrete underpinning (or by Redhead), and so could have been substantially thicker.

The well

The well situated in the east lobe is likely to represent a feature of the original construction of the tower. The well has endured as a feature to the present day and the investigations revealed a sequence of late remodelling and adaptation of the feature on top of the primary stone-built shaft. The upper level of the well (F3) had been remodelled with well-cut stone blocks set in a construction cut which produced 19th to 20th-century material. The 20th-century drainage system also tapped into the well discharging surface water into it from the tower interior pointing to late adaptation with a soakaway function.

The contemporary soakaway feature (F41) which lay close to the well produced an intriguing assemblage of finds of early medieval to 20th-century date but dominated by a large proportion of late medieval to early post-medieval pottery. This component of the assemblage has been closely studied. The group has a likely date range of mid-15th to mid-16th-century and consists of large sherds of large vessels often jugs and cisterns which were broken in worn-out condition and covered with a concretion including across broken edges which suggests deposition in water. The group lacks contemporary finewares such as Cistercianware and Continental stoneware drinking vessels and fine Hambleton ware vessels used for food consumption and table dining; this lack represents a particular oddity in the assemblage make-up.

Ceramic specialists have concluded that the group represents redeposited primary discard assemblages, possibly deriving from a kitchen. The presence of the enamel coffee pot along with the earlier material might point to the ceramic having been recovered from the well – and reburied – during the restoration works in 1902; a section was drawn through the well by Mott which may suggest some investigation was undertaken at that time.

The pot group spans a period – c.1450 to c.1550 – when documentary references to the tower are sparse, no longer featuring in exchequer rolls. What references there are either omit mention of the tower or – further into the 16th century – record its ruinous state. Nevertheless, during this period the castle including the tower was still being used for judicial purposes and use of the tower for public execution are a good demonstration of this. It remains a possibility that some sort of occupation of the tower during the last medieval to very early post-medieval period included a functioning kitchen. The lack of finewares in the group could be explained by the presence of a kitchen catering for

inmates of a gaol. If correctly identified, this pot group represents the singular survival of material which can be related to use and occupation of Clifford's Tower.

7.3 The Civil War and aftermath

One of the principal reasons for the lack of intact medieval archaeological deposits including the loss of original medieval ground-floor level of Clifford's Tower is the extent of below-ground intervention during the 17th century. Activity of this period can be related to the lowering of the internal ground level of the tower in a number of places suggesting it was undertaken across the whole interior.

The fragmentary structural evidence in the west lobe has been assigned to the mid-17th century or later, based on stratigraphic evidence supported by the dating of the bricks. Works to the castle are known to have taken place prior to, and following, the siege of 1644, including significant refortification following the visit of Queen Henrietta Maria in 1643, which provides a plausible context for this activity.

Use of brick throughout the tower provides traces of 17th-century structural modifications, including packing of sockets, reconstruction of openings, and the internal lining of the stair drums in the forebuilding of 1643. Previous study of the structure (FAS Heritage 2004) has indicated that brick characterises the 17th-century work that was undertaken to create a modified internal arrangement to the tower.

The plan of the building identified is difficult to reconstruct from the small area observed but would seem to have partitioned off the west lobe, connecting to the outer elevations to protect the interior fully. The brick floor, contacted in Intervention 6 and also in the 2014 evaluation trenches, indicates that ground level was lowered, possibly to provide additional protection from incoming fire. This is supported by the extensive brick patching within the foundation courses in this lobe. Brick patching is observed in the north and east wings also, possibly indicating ground reduction in these areas previously, although this is much more limited.

The structure is likely to equate to one of those that Musgrave reported on after the fire 1684, when the stores were found to be buried beneath the ruins, and fallen bricks were stacked against the inside walls of the tower. In the 1690s Place drew these ruinous structures; part of the image appears to show a substantial structure which, although it has been interpreted as a central structure, could equally have been situated within the west lobe (see Plate 5). A wall scar noted within the west lobe may relate to this structure. The rubble layer overlying the walls produced material of mid-17th to 18th-century date, consistent with the ruination of these structures.

No evidence for function of this building has been identified, but evidence for occupation through this period is attested by the residual assemblage of late 17th to 18th-century clay pipe found in numerous later deposits across the site.

7.4 Clifford's Tower as a romantic ruin

After the departure of the garrison, and the property purchases to the north of the castle, Clifford's Tower came to form part of a garden for a large mansion on Castlegate, remaining so from the early 18th century until the prison construction began in 1824.

Documentary and cartographic sources provide no indication that structures were erected within the tower during this period. Nevertheless, it is clear that the motte slope was landscaped to allow people to perambulate to the tower easily via the spiral path and take in views offered on the incline. Although no significant internal additions to the tower were identified in this period, it is possible that the single storey structure attached to the west side of the west lobe was of this period. The form of construction used suggests a building of fairly lightweight construction possibly with open sides; perhaps a shelter or arbour. Accessed by the winding path around the tower's motte, the arbour would have provided excellent views south along the river Ouse, to the west and north across the city before 19th-century development intruded.

A social context for the construction of an arbour with such excellent views would have been the 18th-century developments along the riverbank on east side of the Ouse. Along this part of the riverside a path and gardens, known as New Walk, were laid out when the Assembly Rooms were being completed in 1732. St George's Close, through which New Walk ran, was hedged in 1741 and in the following year persons were forbidden to bathe naked in the river beside the walk, presumably to maintain the gentrified atmosphere. Between 1749 and 1753 a well, known as Pikeing Well, and a fountain were constructed adjoining the walk with a well-head and grotto.

Depictions of the interior in the early 19th century show that the tower was styled as something of a wilderness. The trees would have framed views into the tower, creating a picturesque ruin, which would have been in keeping with the aesthetics of the period. The presence of a walnut tree could indicate that planting was managed rather than a result of natural accident or neglect. The tower clearly served as a place of leisure – for picnics and entertaining – and the accumulation of garden soils suggested in the archaeological sequence may belong to this period (C1053). Also of note are sixteen vessels identified as small flowerpots or larger garden pots implying cultivation of plants within the tower in the 19th century. This phenomenon has been noted at other castle sites including Lincoln Castle, where nearly 1,000 flowerpots or garden pots were recovered (Young 2021, 179) and Nottingham Castle (Cumberpatch 2019).

This period provides the most likely context for the burial of three dogs within the tower; these burials are not dated, but stratigraphy indicates this date is consistent. The presence of domestic pets invites comparison with the frolicking animals shown on Varral's illustration of 1828 (see Plate 9). The burial of two dogs in the same location may indicate a marked spot within the garden.

7.5 Clifford's Tower and the prison

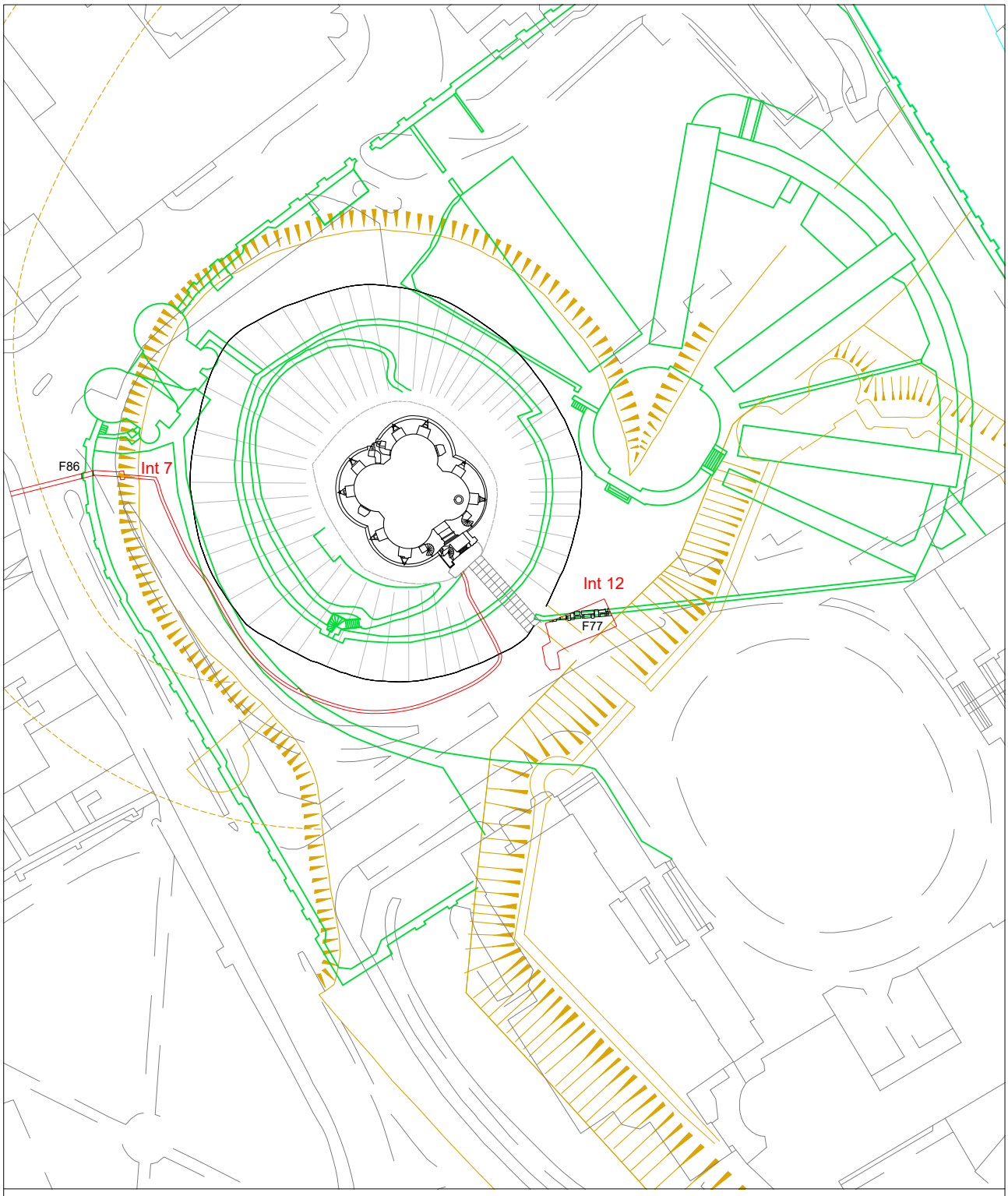
The role of the motte and tower as private garden features ended when Waud's mansion was purchased and demolished to make way for the new prison, constructed between 1826 and 1835. Although there were calls for the demolition of the tower and motte to make further room for prison structures, public support was against this and the tower was saved. It did not remain unscathed however, and the lower slopes of the motte were truncated to facilitate access through the prison. Evidence for the retaining wall around the truncated motte has been encountered previously, and was contacted in the Rest Bay trenches, and in the service trenches up and down the motte.

Evidence for the outer wall of the prison was contacted in the electricity trench (Intervention 7, F86) which corresponded with the wall of the prison as shown on historic maps (Figure 42). Being only glimpsed in the trench, no further insight into the construction was provided, other than to demonstrate that the foundation or lower courses survive at relatively shallow depths.

Plate 93 Late 19th-century view of the tower with gaslight in the foreground

The castle yard had been levelled in the late 18th century, but it seems more likely that the lower deposits within Intervention 12 were laid down as part of the development of the prison, to provide a level base for subsequently surfacing. C1128 produced a graffito stone of 1827 which would suggest material deriving from structures demolished or altered during the construction of the prison. A series of service trenches provided drainage, with stone collars and metal grilles over square brick shafts. These were observed within Intervention 12 (F78 and F79) and Intervention 7 (F16), where a cobbled surface was associated. Together, these indicate that ground level in the early 19th century in the castle yard was lower than today. It is possible that the narrower pipe identified in the trench may have served one of the gas lights shown on early photographs (Plate 93).

Within the tower, the role as a garden appears to have continued, but more public in character. Contemporary sources describe the picturesque character of the tower interior, including the presence of a central walnut tree; interestingly, the 1852 Ordnance Survey edition shows a central tree in the tower. At this time, photographs show that a flagpole appears to have been mounted on the wall, adjacent to the west and south lobes, and a straight wall and gate connected the motte retaining wall and the court (Plate 94).



KEY

- Extant Castle & Defences
- Non-Extant Castle & Defences
- Conjectured Castle & Defences
- Non-Extant Post-Medieval Buildings, Structures, etc.

Figure 42 Plan of features with overlay of historic prison layout

Scale 1:1000@A4

Between 1852 and 1889, paths were laid out around the exterior of the tower, and a central flagpole had been erected. Investigations in Intervention 6 shows that flagpole (F16) was a substantial feature, well-secured at the base; photographs show that it was supported by a series of cables attached to the tower walls, evidence for which was encountered during the historic building recording (Plate 95). The formality of the paths suggests a phase of levelling and removal of trees; the heavily disturbed deposit of C1039 may have originated in this period, with rubble-filled channels created to provide drainage of the surfaces.

Plate 94 View of the tower showing flagpole attached to southwest bartizan turret

At the same time as the internal rearrangement of the tower, alterations to the layout of the prison grounds saw the construction of a substantial wall that partitioned off the governor's house and felon's prison (F77)(Plate 96). The foundation reused architectural fragments; these may have derived from the demolition of a curving yard wall between the northern radial prison blocks; this was shown in 1852 but is not present on 20th-century photographs of the prison. The reasoning for this change in internal partition is not clear, although it could possibly be related to the change from civilian to military prison that took place c.1900. The new arrangement would have facilitated access to the court buildings, and made the prison more secure within the outer walls.

Plate 95 View of the large central flagpole and cable system

Whether or not any of the other linear features identified in Intervention 7 belong to this period could not be ascertained within the limited window provided by the service trench; they likely belong to the 19th-century and relate either to the pre-prison streetscape or the prison infrastructure.

7.6 20th-century heritage management

From the early 20th century, interventions to the motte and tower relate broadly to its rescue and upkeep as a historic monument. Thus begins a century of heritage management which has recently culminated in the current programme of conservation intervention and presentation. Some decisions,

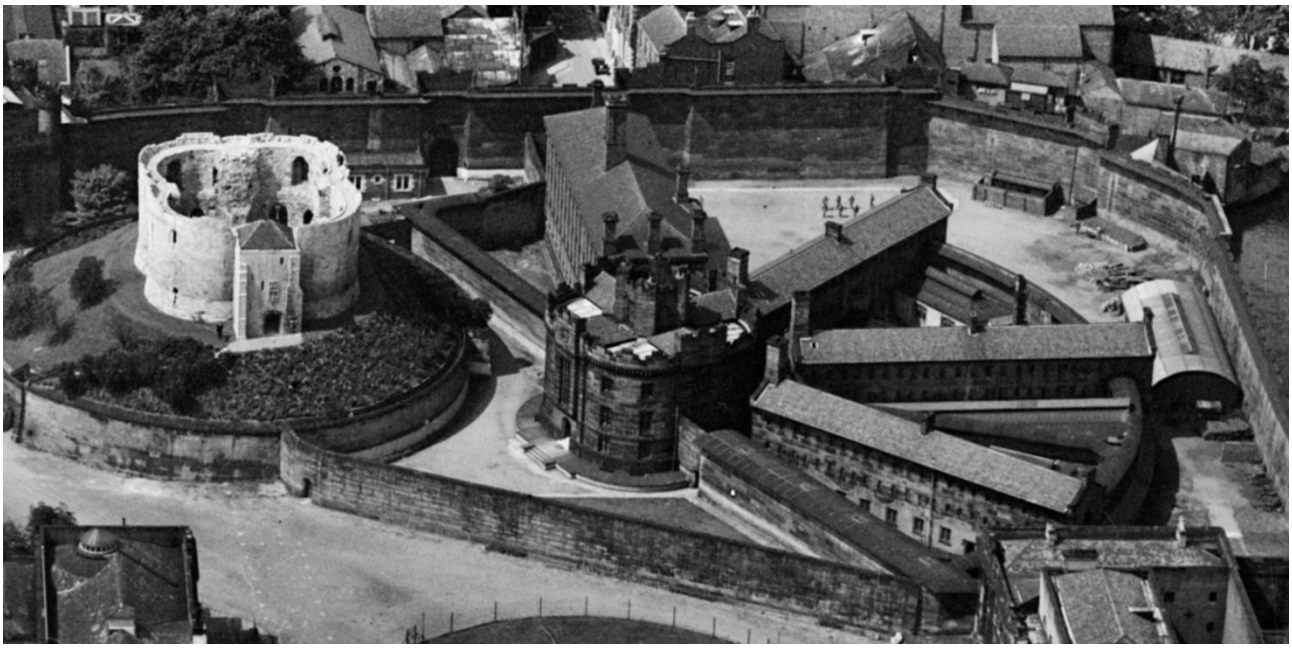


Plate 96 View of boundary wall the foundation of which was encountered within Intervention 12, dated 1926

such as the restoration of the motte slopes to emulate its medieval form may have improved structural integrity but also owe much to decisions based around heritage aesthetics.

7.6.1 1902 underpinning and drainage

The takeover of the prison by the military was followed by surveys confirming the poor condition of Clifford's Tower. At the time this was blamed on the curtailment of the motte, but it is interesting to note that the decision was made to rescue the tower rather than demolish it. Works to underpin the elevation with the insertion of massive concrete ribs is well documented and corresponds accurately with what was identified during fieldwork. The concrete underpinning was contacted in Interventions 6, 10 and 11, with the cuts for inserting these works corresponding well with the documented interventions recorded on plans of 1902 (Plate 97). Mott's drawings show that the concrete was poured in sections, consistent with the mixed nature of the deposits over.

Plate 97 Mott drawing of underpinning locations, dated 1902

Following the underpinning and consolidation works, the issue of drainage within the tower was addressed with the insertion of a system of salt-glazed drains. These (F4, F5, F15, F36, F65) correspond with a plan drawn up in 1902, which connected with a concrete manhole at the top of the motte stair. The field drains may have served to facilitate further drainage of surface water in the

tower. The aim would presumably have been to reduce pressure on the retaining wall by removing water from the tower interior.

Mott's drawings include a section through the well, and it is tempting to speculate that the assemblage of ceramic recovered from the soakaway feature F41 was recovered when investigations down the well shaft were undertaken.

7.6.2 Guardianship and 1920s restoration

Clifford's Tower was taken into guardianship on the 30th March 1915 and five years later a further phase of restoration was begun. During the 1920s, the reinforced concrete ring beam was inserted at first-floor level, and work to the wall walk was undertaken. This work saw the erection of a scaffold within the tower, shown on contemporary photographs (Plate 98). The series of postholes containing large fragments of rubble and concrete are interpreted as the base supports for this scaffolding. A penny of 1928, recovered from C1164, would represent activity in the tower in the subsequent years.

Plate 98 View of scaffold system erected in the tower in the 1920s

Following this phase, the interior of the tower was formally consolidated. Photographs indicate that the interior was grassed through the 1930s; by 1935 the central octagonal kerbed feature had been created. This latter may have occurred following the consolidation works in 1920.

7.6.3 Prison demolition and reinstatement of the motte

The prison was demolished c.1935, and contemporary photographs show the level of groundworks that this involved. The demolition of wall (F77) and subsequent levelling belongs to this period (Plate 99). Many of the drainage features would have been disused, and new services required.

Plate 99 View of prison wall during demolition, the likely source of stone now buried in the motte

The 1930s saw the creation of the motte stair in its current location, and the restoration of the motte profile, using the massive stone blocks that were contacted against the retaining wall in several of the trenches.

At some point in the latter part of the 20th century, sand and flagstones were laid down across the interior, creating the character of the tower that existed until the recent refurbishment and site development works.

8 Archive

8.1 Physical archive

8.1.1 Finds

A small assemblage of 36 clay pipe fragments was submitted for assessment (Appendix 10). No further work is recommended; the items should be retained as part of the material archive.

A small assemblage of glass (10 fragments) was submitted for assessment (Appendix 10). The glass is considered to be of low archaeological potential; this could be disposed of subject to agreement of relevant parties.

An assemblage of CBM (35 sherds totalling 34.68kg) was submitted for assessment and full recording (Appendix 8). Retention of the archive is recommended, but no further work is required.

A small assemblage of 123 hand-collected animal bones and teeth was recovered and submitted for assessment (Appendix 11). No further recommendations have been made.

An assemblage of 387 sherds of post-Roman pottery were submitted for assessment (23.026kg)(Appendix 9). Further analysis was recommended in order to understand the make-up of the assemblage more fully in relation to the medieval pottery type series for the city as well as the make-up and origin of the assemblage from soakaway F41 C1063. A full report has been prepared, accompanied by 34 pot illustrations.

Two fragments of human long bone were recovered from C1110. These were submitted to Historic England and have been identified by Sarah Stark as a juvenile left femoral shaft and a left humeral midshaft with muscle attachment commonly seen in males. The bones are to be submitted for radiocarbon dating in order that their date and origin be better understood. The bones remain in the care of Historic England.

A small assemblage of artefacts of bone, stone, ferrous and non-ferrous metal has been submitted for assessment and targeted conservation cleaning (Appendix 12 and 13). The copper-alloy clapper bell and iron padlock key have been cleaned and consolidated to allow precise identification and handling. These items have been illustrated along with the Roman limestone *mortarium*. The assemblage should be retained and is packaged for long-term storage.

8.1.2 Paper archive

Two copies of this report will be deposited with the archive at the Helmsley Store, Historic England. The paper archive also consists of recording *proformae*.

8.2 Digital archive

A digital version of this report will be circulated in (.pdf) format with copies sent to Keith Emerick, Inspector of Monuments, Historic England, Mark Douglas and Jeremy Ashbee, English Heritage.

The digital archive, to be deposited with ADS consists of digital photographs (.jpeg), drawn plans and sections (.dwg), reports (.docx) and associated metadata (.xls).

9 References

CCR Calendar of Charter Rolls

CPR Calendar of Patent Rolls

CR Close Rolls

CSPD Calendar of State Papers, Domestic Series

EH English Heritage

HEA Historic England Archives

MOW Ministry of Works

PR The Great Roll of the Pipe

PRO Public Record Office

RCHME Royal Commission on the Historic Monuments of England

RCHMW Royal Commission on the Historic Monuments of Wales

SCRO Staffordshire County Record Office

YAJ Yorkshire Archaeological Journal

YAT York Archaeological Trust

YAYAS Yorkshire Architectural and York Archaeological Society

YCA York City Archives

Primary Sources

CLR 1267-72 *Calendar of the Liberate Rolls 1267-1272*, Vol 6, 1964. London, HMSO.

CR 1307-13 *Calendar of the Close Rolls 1307-1313*, 1893. London, HMSO.

CR 1313-18 *Calendar of the Close Rolls 1313-1318*, 1893. London, HMSO.

CR 1323-27 *Calendar of the Close Rolls, 1323-1327*, 1898. London, HMSO.

CR 1333-37 *Calendar of the Close Rolls, 1333-1337*, 1898. London, HMSO.

PR 19 Henry II *The Great Roll of the Pipe for the nineteenth year of the reign of King Henry II 1172-3*, 1890. London, Pipe Roll Society.

PR 2 John *The Great Roll of the Pipe for the second year of the reign of King John Michaelmas 1200* (Pipe Roll 46), ed. Stenton D M 1934. London, Pipe Roll Society.

PR 6 John *The Great Roll of the Pipe for the sixth year of the reign of King John Michaelmas 1204* (Pipe Roll 50), Stenton D M (ed) 1940. London, Pipe Roll Society.

PRO E101/478/1 Exchequer accounts

PRO E101 598/6 Constables accounts

PRO E159/79 m14d. Exchequer accounts

PRO E199/49/64 Exchequer accounts

PRO E372/164 rot 28d Exchequer accounts

PRO HO/45/10047 Papers re. repairs to Clifford's Tower 1901-3.

PRO WO/14/130 Office of Works files on Ancient Monuments

PRO WO/14/912 Ministry of Works files on Ancient Monuments

YCA B31 York Corporation Minute Book, Elizabeth 31 (House Books)

Cartographic sources

Archer J 1680 *The Greate, Antiente and Famous Citty of York*

Chassereau P 1750 *Plan de la ville et faubourgs de York Capitale de la Comte du meme nom Cossins J 1722 Plan of York*

Speed J 1610 *The West Ridinge of Yorkshyre with the most famous and fayre cities of York described*

Secondary Sources

Ashbee J 2003 *Clifford's Tower York: Report on the historic form and function of the building* (unpublished report).

Benson G and Platnauer H M 1903 Notes on Clifford's Tower, *Annual Report of the Council of*

the Yorkshire Philosophical Society.

Blagg T C F 1983 Worked stone fragments from St Mary's Castlegate, in Hall R, 154-55.

Browning A (ed) 1936 *Memoirs of Sir John Reresby*. Glasgow, Jackson, Son & Co..

Camidge W 1904 *Clifford's Tower, York. Its History, Age and Use*. York.

Cooper T P 1911 *The History of the Castle of York from its Foundation to the Present Day with an Account of the Building of Clifford's Tower*. London.

Cramp R 1967 *Anglian and Viking York*, Borthwick Paper 33

Crosby V, Cromwell T and Forward A 2023 Clifford's Tower excavations 2014-2016, Site Archive Completion Report (unpublished draft report).

Cumberpatch C G 2019 *Medieval and later pottery from Nottingham Castle* (NCA17)(unpublished report)

Drake F 1736 *Eboracum: or the History and Antiquities of the City of York*. London.

FAS Heritage 2004 *Buildings Recording: Clifford's Tower, York* (unpublished report).

FAS Heritage 2006 *Clifford's Tower Conservation Plan* (unpublished report).

FAS Heritage 2011 23 *Clifford Street, York, Archaeological Excavation* (unpublished report)

FAS Heritage 2020 *Clifford's Tower, York, structural watching brief* (unpublished report).

The Gardens Trust 2015 https://thegardenstrust.blog/2015/09/12/mounts-and-mounds/ (accessed 21/03/2023)

Hall R 2014 Anglo-Scandinavian Occupation at 16-22 Coppergate, *The Archaeology of York 8/5*. York, CBA.

Hunton J 1855 York and its Vicinity: a guide for the resident and tourist. York.

King E 1782 Sequel to the observations on ancient castles, *Archaeologia* 6: 258-61.

King W 1713 *The Northern Atlantis: or York Spy*; etc. London.

Lang J 1991 *Corpus of Anglo-Saxon Stone Sculpture, Volume 3, York and Eastern Yorkshire The Corpus: York St Mary Castlegate* 10 (chacklepie.com).

Mainmain A 2019 Anglian York. Pickering, Blackthorn.

O'Hara, P 2016 *Clifford's Tower Excavations: Nov 2014 – May 2016*
(unpublished report).

O'Neil B H St J 1939 Excavations at York castle, 1935, *Antiquaries Journal* 19: 85-89.

O'Neil B H St J 1954 *Clifford's Tower*. London.

Ottaway P 1993 *English Heritage book of Roman York*. London.

Ottaway P 2011 Archaeology in the Environs of Roman York, *The Archaeology of York* 6/2. York, CBA.

Radley J 1974 The prehistory of the Vale of York, *Yorkshire Archaeological Journal* 46: 10-22.

Raine A 1955 *Mediaeval York: a topographical survey based on original sources*. York.

Ramm H G 1956-8 Roman Burials from Castle Yard, York, *York Archaeological Journal* 39:400-418.

RCHME 1962 *An Inventory of the Historical Monuments in the City of York: volume 1 Eboracum Roman York*. London, HMSO.

RCHME.1972. *An Inventory of the Historical Monuments in the City of York: volume II The defences*. London, HMSO.

RCHME 1973 *York Castle, An Illustrated History*. London.

Spall C A and Toop N J 2011The Critical Angle – Reflections on Anglian York in the 21st century, *Proceedings of the World Class Heritage Conference*, 2011, available at: https://www.york.gov.uk/downloads/file/780/reflections-on-anglian-york (accessed 21/03/2023).

Torre J 1719 *The Antiquities of York City, and the Civil Government thereof: with a list of all Mayors....Collected from the Papers of Christopher Hildyard*. York.

Tweddle D, Moulden J and Logan E 1999 *Anglian York, a survey of the evidence. Archaeology of York* 7/2. York, CBA.

Waterman, D M 1959 Late Saxon, Viking, and Early Medieval Finds from York, *Archaeologia* 97: 59-106.

YAT 1998 Former Female Prison, Castle Yard, York, Report on an archaeological evaluation. (unpublished report)

Young J 2021 The Post-Roman Pottery, Clark J, Garner-Lahire J I, Spall C A and Toop N J *Lincoln Castle Revealed: The story of a Norman powerhouse and its Anglo-Saxon precursor*, 168-181. Oxford, Oxbow Books.