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**Evaluation of the Footings of the Western Chimney Stack at
Headstone Manor, Harrow**

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Summary

Headstone Manor is a Grade I listed 14th century moated manor house in the London borough of Harrow. A series of small scale excavations were undertaken to evaluate the footings of the manor's western chimney stack in response to a proposal from the project team planning the restoration of the building and its future use. The excavations were carried out between January and March 2001 and the following is the report on the findings.

Keywords

Excavation
Medieval
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Summary

Headstone Manor is a Grade I listed 14th-century moated manor house in the London Borough of Harrow. During the medieval period it was owned by the Archbishops of Canterbury and following the Reformation it passed into secular ownership. Harrow Borough Council, the current owners, are part way through the implementation of a development plan to create a heritage and educational resource centre on the site. This has involved the renovation of the associated buildings to the south-west of the moated enclosure, and the restoration programme is set to continue with major works to the manor building.

The current phase of archaeological works followed a request to the Centre for Archaeology (CfA) from Charmian Baker, the Inspector for Ancient Monuments (IAM) for Greater London.

Due to the current poor condition and state of repair of the building, the project architects and engineers were considering using an arrangement of steel frames to provide support for the timber-framed structure. To tie in and support the steel frames, one option under consideration was the use (following reinforcement) of the building's western brick chimney stack. The first step in this procedure was to undertake an archaeological survey of the stack structure and create a drawn analytical record showing its method of construction and later structural development. This part of the project was undertaken by Richard Bond of English Heritage's Historic Analysis and Research Team, and the findings of the survey are to be reported on separately. Allied to the survey was a series of four small-scale excavations at the base of the chimney stack to establish the depth and nature of its foundations and their relation to the surrounding floor construction and archaeology. The following is the report on the findings of these excavations.

Excavation and recording work was carried out on site between January and March 2001. The location and size of the planned excavations to either side of the stack were altered slightly due to the exposed archaeology and other conditions on site, and although on a small scale, the excavations revealed many features of historical and archaeological importance. These included the flint footings of the north-western wall and jettied south-western wall of the 14th-century crosswing, with an associated 14th-century construction layer. Later features included a mortar floor layer, the 18th-century timber floor structure, and the footings to the chimney stack itself, including evidence for early hearth structures and debris from its construction. The archaeological remains were in a very good condition and they have provided a great deal of evidence for the sequence of development and for the interpretation of use of the building.

1. Introduction

1.1 Location

The manor of Headstone (Scheduled Monument, Greater London 161) is located within 63 acres of parkland, in the London Borough of Harrow, at NGR TQ 1410 8970, at approximately 53m OD, alongside Yeading Brook which feeds the moat. The geology of the area is London Clay, capped in places by heavy gravels.

1.2 Cause for action

1.2.1 Archaeological

To archaeologically excavate to either side of the western brick chimney stack to evaluate the nature of the archaeological deposits and relationship to the footings of the chimney stack, in advance of the finalisation of plans for the renovation of the Manor House structure (a Grade I listed building). In addition, to provide appropriate expert advice regarding the long term management and presentation of the monument to the Inspector of Ancient Monuments.

1.2.2 Management

The involvement of the Centre for Archaeology (CfA) in the work on this scheduled monument has allowed the London and South East Region of the Conservation Department of English Heritage to provide a swift and expert response to specific management and presentational problems on this scheduled site.

This phase of archaeological work on the site would complement and allow improved interpretation of the results from the earlier phases of work, and would allow the provision of informed advice to the Department of Culture, Media and Sport (DCMS) when a Scheduled Monument Consent application is made for the ground disturbance works involved in the restoration of the listed building.

2. Monument history

The manor of Headstone was formerly part of the manor of Harrow, which was purchased by, or granted to, Wilfred, Archbishop of Canterbury in 825 AD (Tucker, 1987). It was first recorded as a separate entity in c.1300 (Tucker, 1987), and in 1396 was recorded as a well-built house with 201 acres of land (NMR, 1996).

The moated manor house at Headstone was a two- (or more) bay timber-framed hall with a western, and possibly a matching eastern, cross wing. The earliest parts of the existing building date from c.1310, and from 1344 it was used as an occasional residence for the Archbishops of Canterbury (Tucker, 1987). In 1546 the estate was surrendered to Henry VIII who sold it six days later to Sir Edward Dudley, later Lord North (Clarke, 1986). During the later part of the medieval period the manor was let by the See of Canterbury to the Redyng family, who appear to have been tenant farmers until 1630 (Tucker, 1987).

The property was in the tenure of the Rewse family from 1630 until it was sold in 1649 to William Williams, who in turn sold it to Sir William Bucknall in 1671. The manor remained

in the Bucknall family until the early 19th century when there were a number of owners. Edward C York bought the manor in 1874 (Tucker, 1987).

In 1925, the house and 63 acres of land was sold by Edward York (son of Edward C York) to Hendon Rural District Council (Tucker, 1987). The property is now the Harrow Museum and Heritage Centre, administered by the London Borough of Harrow, the successor to Hendon Rural District Council. In 1985 the council prepared a development plan to convert the manor into a heritage and educational resource centre (established May 1986). The farm buildings to the south-west of the moated enclosure have been enhanced by the addition of a Granary from Pinner Park Farm, and the ten-bay Tithe Barn and the Small Barn have been renovated. At present it is planned to continue the restoration programme with major works to the manor building, funded in part by the National Lottery.

3. Archaeological history

There have been a number of archaeological excavations, geophysical surveys, and building surveys carried out at Headstone Manor during the last 25 years. In 1986 work was carried out in the farmyard to the south-west of the moated enclosure. This consisted of a combined excavation and structural survey of the Small Barn, which suggested that the earliest phase of activity in this area was from the 13th to the 15th century in date (Tucker, 1987). Evaluation and subsequent excavation of the foundation trenches in advance of the relocation of the Granary building from Pinner Farm to Headstone Manor during 1990-92, produced no evidence of medieval occupation in this area of the manor farmyard (Barnes and Hawkes, 1991).

The moated enclosure has been the subject of two geophysical surveys, the primary purpose of which were to establish the ground plan of the demolished portion of the medieval hall, and that of any other structures within the moated enclosure. However, both surveys produced limited evidence of features, with those located possibly relating to the formal gardens seen in various 19th-century plans and engravings (Watkins, 1985, and Hale and Grove, 1996). The extant manor buildings have been subjected to a number of surveys (see Martin and Martin 1996, Section 1.3), all of which have identified the remains of the north-western bay of a timber-framed hall and the north-western cross wing, and these have recently been dated by dendrochronology to c.1310.

In November 1996, a small-scale archaeological evaluation was carried out within the moated enclosure by the Central Archaeology Service (the previous incarnation of the CfA) of English Heritage. This located buried remains thought to be associated with the south-eastern portion of the medieval hall. The excavator argued that the hall had probably been a four-bay timber-framed structure, some 16m in length, the external walls of which had been built on dwarf flint and mortar walls with a clay floor. To the south-east of the hall the flint and mortar foundations and clay floor of a long, thin building were uncovered. In addition to the remains of the hall and the structure to its south-east, evidence was recovered to suggest that there may also have been rooms or buildings located to the south-west and north-east of the hall. This is a speculative interpretation of the hall as it would represent a hitherto unknown medieval type which until this discovery has been absent from the archaeological/historical record.

This evaluation also suggested that sometime after the Reformation, when the manor was privately owned, the buildings to the south-east of the extant manor house were demolished and a formal garden comprised of six square flower beds of varying sizes, separated by gravel paths, was laid out. Sometime before the 1930s the formal gardens became the rough lawns which can be seen to the south-east of the manor house today (Busby, 1997).

Prior to the current works, the latest archaeological excavations were undertaken in March and April 1999, again by the Central Archaeology Service. These were a series of seven small excavations to evaluate areas that had been proposed for the footings of structural supports to stabilise the manor house.

These excavations revealed the flint footings to several of the 14th-century walls. As well as supporting the external elevations of the 14th-century hall as expected, they were also located beneath some of the internal elevations of the hall, with both the eastern and western elevations of the cross passage supported by flintwork.

Where the 14th-century footings of the external eastern elevation of the hall were exposed (in the excavations in the basement of the 17th-century Tower), the lower three courses were seen to be constructed of roughly hewn chalk blocks.

In the excavations in the hall itself, various layers of quarry tile and mortar bedding from now-removed tile flooring were seen, with the earliest flooring exposed being a small patch of on-edge brickwork adjacent to the screen of the cross passage in the first bay of the hall.

Other findings during these excavations included the flint sleeper wall corresponding to the stepped-in jetty wall of the western front of the cross-wing, and a possible threshold at the western end of the cross passage. Later features included a brick sump beneath the brick floor of the basement to the 17th-century Tower, and garden path material in the excavations outside the extant southern elevation of the building (Fellows, 1999).

4. Aims and Objectives

The aims of this project sit fully within English Heritage's primary goals (outlined in Exploring Our Past 1998 (Archaeology Division, 1998)) as:

- A. Advancing understanding of England's archaeology
- B. Securing the conservation of archaeological landscapes, sites, and collections
- D. Promoting public appreciation and enjoyment of archaeology

Aims

The primary aim of the works was to archaeologically excavate to either side of the 17th-century chimney stack identified by the project architects and engineers for possible use as

structural support for the 14th-century timber framing. The location and nature of the excavations were agreed with Charmian Baker, the Inspector of Ancient Monuments.

The works were taking place in advance of the finalisation of the plans for the renovation of the structure as a whole, a Grade I Listed building.

The excavations were to contribute towards a better understanding of the standing and buried structural remains, and of the archaeology within the moated enclosure of Headstone Manor.

Objectives

- 4.1 To archaeologically excavate to either side of the western chimney stack to reveal the form and structure of the footings of the stack and the nature of the archaeological deposits to aid the understanding of the archaeological remains prior to the finalisation of the plans for the renovation of the building.
- 4.2 To determine where possible, through limited archaeological excavation and recording, and by relating the below ground evidence to the above ground fabric, the development of the chimney stack and related archaeological features (the survey of the stack is reported on separately, the report prepared by Richard Bond of HART).
- 4.3 To determine if possible, through limited archaeological excavation and recording, the likely survival of internal surfaces associated with the early manor house.
- 4.4 To evaluate and characterise any archaeological deposits and structures exposed during the excavations.
- 4.5 To retrieve, where possible, material culture and ecofacts, which could further inform our understanding of the history of the manor and its surrounding landscape.
- 4.6 To provide expert advice to the Inspector of Ancient Monuments (IAM) regarding the long term management and presentation of the site.
- 4.7 To report on the above.

5. Methodology

5.1 Excavation

The areas to be excavated to the north and south of the western brick chimney stack were established by consultation between the IAM, HART and the CfA (*see figure 2*). For the site work and for this report, the excavation locations were identified by the room names they were located in. To the north this was the museum, and to the south it was the pantry.

In the museum, the floorboards were carefully removed to allow reinstatement following the excavation. As the boards were tongue-and-grooved and ran under the skirting boards, this was a more delicate operation than originally envisaged and required the services of a joiner,

kindly provided by Harrow Borough Council (HBC). Following the removal of the boarding, it had been hoped to excavate directly in front of the fireplace currently occupying the stack, extending the excavation to either side to the positions of the alcoves (*see figure 2*). On removal of the floor boards, it was apparent that the boards were attached to battens set into a poured concrete floor slab. Rather than break up the floor to investigate the stack footings, the location and scale of the excavation was altered slightly. To the west of the chimney stack, the removal of some papered-over boarding revealed a blocked cupboard, and as the base of this had not been concreted, it was decided that the excavation would take place within the cupboard's confines.

In the pantry of the 14th-century hall's crosswing, to the south of the chimney stack, excavation was possible in the area planned, with the only preparation required being the temporary removal of the floorboards and several of the joists. The locations of the trenches excavated can be seen on *figure 3*.

The excavation methodology was the same for both sides of the stack. The timber flooring was removed following initial recording, the recording consisting of photographic, drawn and written records in accordance with the CfA Recording Manual (CfA, 1998). The removed boards were numbered and stored near to the excavations for ease of reinstatement. Excavation was then undertaken by hand, the spoil being retained in bags on site for backfilling purposes. Any changes to the locations of the excavations were only made following consultation with the IAM.

An additional trench was excavated in the pantry to address archaeological questions arising from the other excavations and the survey of the stack.

Following the excavation and final site meeting with the IAM, the excavations were backfilled with the stored spoil, with a barrier layer of a geotextile (Terram) used as a marker protecting the archaeology beneath.

5.2 *On site recording*

All archaeological remains were planned at a scale of 1:10 or 1:20 and representative sections were drawn at a scale of 1:10. All remains were photographed and recorded in accordance with the guidelines outlined in the CfA recording manual (CfA, 1998).

5.3 *Finds methodology*

A total finds retrieval and retention policy was adopted and the finds from the excavations (except for the floor surfaces and structural elements lifted for reinstatement) were retrieved and bagged by context.

All archaeological material retrieved from the excavations was initially sent to Fort Cumberland in standard CfA packaging, along with the appropriate locational information. Upon its arrival, the material from each context was sorted into material classes, prior to being processed (cleaned, marked, and recorded) and packaged for long-term storage along with the material from the previous excavation. The potential for further analysis of the

material assemblage will be assessed after the completion of the site archive.

The bulk finds and registered finds were recorded using the principles and techniques outlined in the CfA Recording Manual (CfA, 1998).

6. Excavation Results

For the purpose of this report, the orientation of the house has been simplified to align with the cardinal axes. The true orientation of the long axis of the house is NNW-SSE, but to avoid complication this has been taken to be N-S. All descriptive orientations are relative to these simplified axes.

The numbers in the text (generally in brackets) refer to the context numbers assigned to the archaeological features during the excavation and recording on site. A list of the contexts used with provisional dating information can be seen in Table 1 at the end of this report.

6.1 The Museum

The excavation in the museum was located in the cupboard to the west of the brick chimney stack under investigation. **Figure 5** is a photograph of the southern elevation of the museum. It shows the 17th-century fireplace range with the substantial timber lintel supported on brick jambs, and the later fireplace with alcoves either side inserted into the original fireplace opening.

Following the removal of the timber floor boards and joists (289) from the cupboard, the size of the excavation was limited by the space available. Eventually an area 1.00 x 0.95 x 0.75m was excavated, and **figure 6** shows the floor of the cupboard in its pre-excavation state.

Beneath the floor structure there was a layer of loose depositional material (283) consisting mainly of brick and roof tile fragments, along with lumps of mortar – *see figure 7* for stratigraphic section information.

Finds from this layer included clay pipe fragments and shells, predominantly oyster but with occasional cockles and mussels, evidently food remains. This layer appeared to be a rubbish layer with material mainly derived from building demolition and was most probably deposited at the time the cupboard and flooring were being constructed in the 19th century. Layer 283 overlaid a slightly more compact clay layer (284), rich in tile and brick fragments, that contained similar finds (clay pipe fragments and shells). This layer also had some valuable dating evidence in the form of a George IV halfpenny, dating from 1828, along with another more heavily worn and as yet undated coin. The archaeology exposed and recorded can be seen on **figures 8 and 9** that show the northern section of the excavation on a scaled site drawing and on a photograph.

The brick walling of the western elevation of the chimney stack consisted of hand-made red bricks laid in header bond (context 286). The bricks were 0.11 x 0.06m (4¼ x 2¼ inches) in size and were bonded with a brownish yellow lime mortar.

The outer face of the brickwork had been cut back from the top of layer 284 to a height 1.5m above floor level. This corresponded with the height of the timber lintel of the 17th-century fireplace. The wall had presumably been cut back to this level to open as much of the area to the west of the stack for use as cupboard space. The fact the brickwork above the lintel had not been cut back implies there was originally a step to the face at this side of the stack, at the level of the lintel, possibly for a shelf or for storage in the warmth generated by the fireplace and stack.

The face of the wall had been made good with a thick (in places up to 0.10m) coating of lime plaster with a hair bonding, and above the height of the fireplace lintel the brickwork of the stack retained its original roughly scored mortar pointing.

Associated with the construction of the cupboard was a mortared brick and tile threshold (281) to the doorway. Also included in its construction were re-used brick paviments, all bonded with a hard, pale brown lime mortar. This was located directly beneath the timber flooring and joists (289) and overlying it was the 20th-century concrete floor (282).

Beneath the upper clay layer (284) was a much cleaner yellowish brown clay layer (285). This is thought to be the redeposited natural and was the earliest archaeology encountered in this excavation. It was very similar to the material seen during the earlier excavations in the crosswing of the 14th-century hall. A feature was observed and recorded cutting into this layer at the north-eastern corner of the excavation (context 287). It was roughly squared in plan and consisted of mortared flint and brickwork, and ran beneath the brick wall of the stack (286) to the east and into the edge of excavation to the north. The exposed extents of this feature measured 0.15 x 0.13 x 0.15m, and its construction cut (294) had near vertical sides.

The footings of the chimney stack brickwork (286) were laid directly onto the surface of the clay layer (285). The top of the clay layer corresponded to the top of the flint and brick feature (287) suggesting that prior to construction of the stack there had been a levelling episode truncating the clay and feature 287.

This feature (287) pre-dates the chimney stack (17th century) and may be associated with an earlier structure on the site - possibly part of the late medieval kitchen range to the north of the medieval hall. So little of it was seen however that this is a very tentative suggestion, although it appears to be fairly strong evidence of the existence of a building to the north of the hall.

6.2 *The Pantry*

The locations of the three excavations that were undertaken in the medieval pantry at Headstone are shown on *figure 3*. These smaller interventions took the place of the single excavation measuring 2.5 x 1m in front of the fireplace that was originally planned (*see figure 2*). This had the advantage of minimising the disturbance to the surviving below ground archaeology and of the floor joists, and also enabled the excavations to be targeted to answer additional questions about the development of the manor house that came to light

during the survey and initial excavation work.

The three excavations were as follows, and are numbered on the excavation plan (*figure 3 and also figure 10*).

Trench P1	Excavation in front of eastern half of 17 th century chimney stack
Trench P2	Excavation at junction of north elevation and western jetty elevation
Trench P3	Excavation against the north face of the cross passage partition wall

6.2.1 Chimney Stack Excavation – Trench P1

The excavation against the chimney stack in the pantry of the crosswing of the hall exposed some extremely interesting and revealing archaeology.

Following the removal of the floorboards (270), it was seen that the three joists directly in front of the fire were shorter and less substantial than the other floor joists. They ended c.0.5m from the face of the north wall, and were c.0.12 x 0.12m (4¾ x 4¾”) in cross section compared to the 0.16-0.20 x 0.16-0.20m (6¼ -8 x 6¼ -8”) cross sections of the majority of the other joists. Their ends had been stepped, and large flint nodules (273) up to 0.25 x 0.25m in size had been placed between them (*see figures 10 and 11*).

It seems likely that the arrangement of flint nodules and the stepped ends of these central joists were to support a hearthstone or slab from one of the fireplaces that occupied the stack. The chimney stack has evidence for three fireplaces in the form of brick jambs, arches and tile hearth remains. The earliest dated from the construction of the stack in the 17th century and had a horizontal timber lintel with brick jambs. The intermediate fireplace had a narrowed opening with a segmental brick arch and brick jambs, and probably dated from the construction works of the 18th century. The final fireplace occupying the stack narrowed the opening further still using stock bricks, and probably dates from the late 19th or early 20th century.

Evidence from the floor structure and development of the building (see section 6.2.4 below), particularly the dismantling of the jetty along the western face of the crosswing, suggests that the flint and stepped joists are associated with the second fireplace of 18th-century date.

Beneath the flooring joists were the loose sub-floor deposits (271), up to 0.05m in depth. Removal of these revealed a mortar surface (293), and found resting on top of this surface were several copper alloy dress pins. Also seen on top of the mortar layer around the flint blocks and to the western side of the fireplace were the remains of a layer of brick dust (274). It was difficult to establish whether the reddish dust was part of the mortar layer or had been trampled onto the top of it, although the brick dust had a clear edge 0.9m to the south of the wall face. The mortar surface was probably the existing floor level when the fireplace and stack were inserted, and the brick dust was a trample layer resulting from the 17th-century works.

The excavation measured 1.05 x 0.75m and was eventually excavated to a depth of 1.3m. It was situated directly against the north elevation of the pantry, and it soon became apparent that the brick walling of this elevation of the pantry sat directly on footings of flint (272),

with the flint extending for most of the length of the wall.

Excavation through a layer of yellowish brown clay (275) down to a depth of 0.85m exposed more of the flint face of the roughly coursed wall, and it could be seen that the flintwork had been knapped to create a neat and fairly even face (*see figures 12 and 13*).

At this depth a layer of flint fragments was encountered (276), deeper near the wall, petering out further away. As the excavation continued through and beneath the flint layer, it was seen that this was the level of the boundary between the dressed flint of the wall above and undressed below. Several further courses of undressed flints were encountered before the lowest courses of the wall were exposed, and as seen in excavations elsewhere on the moated platform at Headstone, these were of roughly hewn chalk blocks.

It is thought that the flint wall (272) was the original 14th-century north wall of the manor house crosswing. The fine yellowish brown lime mortar was very similar to that seen in the 14th-century flint walls exposed previously (the cross passage partition wall, the east wall of the northern bay of the hall), and the construction technique using chalk for the lowest courses of the wall with a dressed flint finish to the face of the wall is the same method used for the other 14th-century walls of the building where the footings have been recorded.

The layer of knapped flint fragments (276) appears to have been a construction level, with the face of the wall having been made fair when the ground was at that level (*see figure 13 – section drawing*). Why the dressed flint was then covered is not known – it seems strange to go to the effort of dressing a flint wall to then cover it up - but following the knapping of the flint a large amount of clay was used to level up the ground within the building (layer 275). A possible source of the clay may have been from the excavation of the moat.

Beneath the layer of knapped flints (276) was a layer of mid-dark brown clay (layer 277) that continued beneath the chalk footings of the flint sleeper wall. It was not possible to establish whether there was a construction cut through this clay for the building of the wall – and it appeared more likely that the clay butted against the chalk and lower courses of undressed flint. This may therefore have been another layer of redeposited natural clay, excavated and placed in its current position during the construction of the 14th-century manor building.

6.2.2 Junction of North and West Elevation Excavation – Trench P2

The flint wall footings exposed in the excavation trench P1 described above ran beneath the brickwork of the north wall of the pantry for most of the length of the wall, halting to the west of the corner of the in-built cupboard that sits between the brick stack structure and the western elevation of the building (*see figure 10*).

At this point the wall met the north-south aligned flint wall footings of the jettied west front of the crosswing (wall 278). A further excavation 1.10 x 0.45m in size was undertaken at this junction to establish the relationship between the two, and it was found that they were bonded together and were thus contemporary (14th century) – *see figure 14*.

Cut into the top of the flint sleeper wall of the jettied crosswing (wall 278) were two sockets measuring c.0.40 x 0.20m in size (contexts 291 and 292). These were located on the internal

face of the wall and were separated by a distance of 0.65m. Their function is unclear but they may have been for the setting of pads or upright posts, and they appear to post-date the removal of the jetty wall and the construction of the chimney stack.

6.2.3 Cross Passage Partition Wall Excavation – Trench P3

The third trench excavated in the pantry was adjacent to and to the north side of the flint footings of what is thought to be the cross passage wall (context 206) – *see figure 10*.

The extents of the cross passage wall within the crosswing were established during previous excavations on site (Fellows, 1999). The wall is 0.58m wide and is aligned east-west, running across the pantry to its junction with the north-south aligned footings of the jettied western crosswing elevation (wall 278).

These wall footings are more substantial than expected for supporting an internal timber partition, and so it was decided to undertake a small excavation (0.65 x 0.65m) to investigate and establish the nature of the footings.

The excavation revealed an almost identical stratigraphic sequence to that seen in the excavation against the north elevation of the pantry (trench P1, see 6.2.1 above), with the wall and surrounding clay levels having been established in several construction episodes. Initially the chalk footings were laid and the undressed flint sleeper wall (206) was built. The ground was then built up with clay (layers 277 and 295) to a level c. 0.5m below the top of the wall. This formed a construction surface and whilst this was the ground level, the exposed flints of the wall above were knapped to give the wall a fair face. Further clay (layer 275) was then laid down over the knapped flints and against the wall face to a level several centimetres below the top of the wall – *see figure 15*.

Visual comparisons of the mortars and of the construction techniques suggest that this again is an original 14th-century wall, albeit surprisingly substantial.

6.2.4 The floor structure

Although the recording of the floor of the pantry was not specifically included in this phase of works, removal of the floorboards in preparation for the excavation exposed more detail of the floor structure and the following is a brief description of what was seen. The plan of the floor structure can be seen on *figure 10*.

The flooring itself consists of pine boards 0.20 – 0.25m (8 -10”) wide aligned east-west across the room (contexts 201 and 270). Various repairs using short lengths of narrower boards 0.13m (9”) wide have been undertaken along the western side of the floor (context 207).

The floor boards were nailed to oak joists that were aligned north-south, with 12 used to support the boarding. Along their northern edge the joists rested on the cut back flint of the north wall of the crosswing (context 272), and along the southern edge they rested on the 17th brickwork repairs to the spere partition sleeper wall (context 230). Intermediate support was provided by tiles and brick paviours loosely packed beneath the joists at intervals along their

length. Many of the original joists are in a poor condition and have rotted where they have been in contact with the ground via the sub-floor deposits.

Most of the joists did not span the length of the room (4.90m) with a single timber, and where two or more lengths were used the timbers were lap jointed together, although no pegs were used to secure the joints.

As noted in section 6.2.1 above, the three central joists were less substantial than those to either side, had notches on their northern ends, and were probably used to support a hearthstone for the fireplace in the northern elevation.

Also of interest were the arrangements of holes seen in the upper faces of the joists. These were originally thought to be peg holes from their previous use. They were circular and measured c.0.03m (1¼") in diameter, and cut right through the timbers. On closer inspection and following the recording of the whole of the floor structure (*see figure 10*) these holes were seen to be in an arrangement that appeared to have been implemented with the joists in situ. The 2nd, 5th, 8th and 11th joists (from the east wall) had equally spaced holes along their lengths (c.0.40m separation) that were in alignment with each other. It is difficult to suggest what these signify. They look like stave holes although why they form this arrangement on the floor surface is hard to say.

It is known that the west front of the house (the west wall of the crosswing) was constructed in its current Flemish-bonded brick form in the late 18th century, and it is thought that the timber-framed jettied front to the house survived until this time.

The association of the flooring with the intermediate fireplace in the chimney stack in the northern elevation of the crosswing (see 6.2.1 above) suggests that the floor structure is 18th century in date, and may have been part of the construction episode that removed the jetty and created the new brick western wall.

The floor structure itself incorporates earlier timbers re-used for the joists. Evidence for this can be seen on the side of the joist to the west of the fireplace where traces of a black and red paint scheme survive. The repairs along the western side of the floor are fairly late, dating from 20th-century alterations.

7. Conclusions

The trenches necessary to establish the nature of the chimney stack footings were excavated and recorded in accordance to the principles and techniques set out in the CfA recording manual (CfA, 1998) – (objective 4.1). Following consultation with the IAM, an additional excavation was undertaken to the north side of the cross passage wall to resolve further questions arising from the excavations adjacent to the chimney stack.

The excavations were very informative, and not only did they fulfill the primary aim of establishing the nature of the chimney stack footings, but they additionally revealed a great deal about the construction of the medieval walls of the manor house and of the development of the manor crosswing (objective 4.2).

The precise plan of the 14th-century hall as built, and presumably the first on the site, is not known. It has been suggested that the building originally consisted of a two- (or possibly three-) bay hall with crosswings. Excavations to the south of the standing structure were undertaken in 1997 in an attempt to establish the layout of the demolished part of the hall range (Busby, 1997). These located the remains of flint walls similar to those supporting the timber framing of the existing building, although the excavated walls extended beyond the expected position of the proposed southern crosswing.

The organisation of the space within the manor may have been similar to that of other medieval manorial buildings. The lower end of the hall would have been separated from the service rooms by an access passage (the cross passage), and the upper end of the hall would have been partitioned from the crosswing.

The excavations during this phase of works were located in what would have been the service end of the crosswing – the pantry of the medieval hall. In the two trenches that exposed the full height of the surviving medieval walls, the nature of their construction was revealed. The base of the walls consisted of several courses of roughly hewn chalk blocks above which 0.9 metres of coursed flint walling was laid, and these formed the sleeper walls for the timber wall plates of the 14th-century timber framing.

The lower courses of flint were undressed, whereas the upper courses had been knapped to form a fair face. At the level of the interface, a construction surface for the 14th-century building was exposed, with the flint fragments from the knapping scattered on top of a clay layer (objectives 4.2 , 4.3 and 4.4).

The line of the flint footings of the western elevation of the crosswing were exposed and recorded during the excavation. These are stepped in from the current brick western elevation and relate to the jettied framing that previously existed. The junction between this elevation and the flint forming the footings of the northern elevation was investigated and it was found that the walls were contemporary (from the original 14th-century building) and were roughly bonded together.

One of the trenches exposed the flint sleeper wall of the north partition of the cross passage and this surprisingly showed that the internal wall foundations were as substantial as those used for the external elevations. They were also constructed in the same manner with a combination of chalk, dressed and undressed flint, and had the construction surface described above.

Infilling between the flint walls was a homogenous layer of clay, upto 0.60m thick. This appears to have been deposited in a single levelling episode and the clay was seen in each of the trenches opened. It is possible that the large amount of material used for this may have been derived from the moat when it was being excavated.

On top of the clay layer was a mortar surface forming a floor layer of 17th century or earlier date. It was not possible to establish whether this had ever had tiles laid on it or not, but in the previous excavations (Fellows, 1999) several of the tile surfaces had been laid on mortar bedding of a similar nature. Finds found from the surface of the mortar included several

copper alloy dress pins (objectives 4.3 - 4.5).

The pantry excavations also revealed the flint supports to a hearth stone for one of the fireplaces occupying the 17th-century brick chimney stack in the northern elevation of the crosswing – the fireplace being contemporary with the timber flooring (18th century). The flints sat on the mortar floor level described above.

In the museum excavation to the west of the chimney stack, evidence was seen of what could have been part of an earlier building to the north of the medieval crosswing, possibly part of the earlier kitchen range. Also seen to the west of the stack were the various alterations undertaken to create the cupboard space, including the sub-floor levelling and deposition of rubble make-up layers.

The excavations have again shown the high level of survival of the archaeological deposits and structural remains on this rare and important site. The archaeological remains are in a very good condition with little contamination or disturbance. They have provided a great deal of evidence for the sequence of development and former use of the building, and of the construction techniques employed. The excavations have also revealed the existence of previously unknown features below floor level, including the medieval construction surface.

8. Recommendations for future work

It is anticipated that further phases of archaeological work will be necessary at Headstone. Although these phases of work will be discussed in detail with both the IAM and HART, outline proposals are made below, 8.1 - 8.3. Additional archaeological work may also be necessary in response to alterations and interventions requested by the Project Team responsible for planning the restoration of the building. These will need to be agreed and programmed in consultation between the Project Team, the IAM (Dr Dteven Brindle), HART and the CfA.

The aims of any future stages of the project will remain consistent with the present phase of work. Additional objectives will be:

To retrieve, through limited archaeological excavation, a section through the sedimentary features exposed during the excavations.

To survey the earthwork remains of the post-medieval gardens to the east of the manor house.

8.1 *Cross passage west door access*

It is proposed to re-instate the west door at the end of the cross passage to allow public access. The difference in height of c.0.40m between the internal and external surfaces at this point means an external step will be required, and consequently archaeological excavation in the area that will accommodate it.

8.2 *Section through the moated enclosure*

It is proposed that a section should be cut through the inner moat wall to the east of the extant manor, in an area which has been heavily disturbed by tree roots. It is anticipated a complete picture of the sedimentary sequence though the moat will be examined. The edge of the moat will be cut back by hand over a length of c.3m to reveal a section through the archaeological deposits and upper portion of the natural geology. All deposits will be fully recorded in plan before their removal, and all walls (building and moat revetments) will be recorded and left *in-situ*. In addition to recording the archaeological deposits and structures, the degree of tree root disturbance will be recorded.

8.3 Topographic survey of the post-medieval gardens

It is proposed that a topographic survey of the post-medieval garden earthworks to the east of the extant manor be undertaken using a Total Station Theodolite. A plan of the gardens and a 3-dimensional model of the earthworks tied into the Ordnance Survey National Grid and/or extant manor buildings will be produced. This survey, in conjunction with earlier work, will provide the basis to evaluate the potential to recreate the garden layout.

The proposed survey will enhance the topographic survey undertaken by Harrow Borough Council, with a denser intensity of measurements taken. Consultation will ensure that the results will be captured and manipulated in a format compatible to the original survey (AutoCAD release14).

9. The Site Archive

The site archive (paper and drawn) has been checked and cross referenced and relevant indices, catalogues, and context matrices have been constructed.

The site archive has been integrated with the archive from the earlier works. During its completion, the archive was stored in conditions which met the criteria laid down in the Records Module of the CfA Procedures Manual. This in turn follows the guidance provided in the 'Standards in Museum Care of Archaeological Collections', Museum and Galleries Commission 1992. All finds and documentary archives will be packaged in conservation grade materials in accordance with United Kingdom Institute of Conservation and Institute of Field Archaeologists standards.

During this stage of the project, 26 contexts were allocated (context numbers 270-295) and 14 drawings on 9 sheets of permatrace were produced.

The photographic archive consists of 6 x 36 exposure films, three colour (Provia Fujichrome 400) and three monochrome (Ilford HP5 400). The colour are stored as negatives and are held digitally on compact discs (numbers 2 and 3 of the Headstone series). The monochrome are stored as negatives and on sheets of contact prints.

Each film has a corresponding photographic record form with descriptive text detailing the content of the photographs.

In total there are 36 archive shots (numbered from 1076-1111) resulting from this stage of the project.

It is intended that after its completion the archive will be deposited in its entirety with Harrow Museum and Heritage Centre (Headstone Manor).

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Table 1 - List of Context Numbers Allocated

MUSEUM

Context	Category	Provisional Date
281	Concrete floor	20
282	Brick threshold	19
283	Rubble layer	19
284	Dump layer	19
285	Clay layer	14
286	Brick wall	17
287	Flint and brick feature	14-17
288	Brickwork supporting flooring	19
289	Timber flooring and joists	19
290	Cut (into wall 286)	19
294	Cut	14-17

PANTRY

Context	Category	Provisional Date
270	Floor structure	18
271	Infill layer	18
272	Flint sleeper wall	14
273	Fireplace	18
274	Brick trample layer	14-17
275	Clay layer	14
276	Flint layer	14
277	Clay layer	14
278	Flint sleeper wall	14
279	Cut	14-17
280	Fill	14-17
291	Cut (into wall 278)	14-17
292	Cut (into wall 278)	14-17
293	Mortar floor layer	14-17
295	Clay layer	14
previously allocated contexts used for the excavation in the pantry		
201	Floor structure	17
202	Sub-floor deposits	17
206	Flint sleeper wall	14
207	Replacement joists	20



Figure 11: Southern face of western chimney stack showing shortened joists and flints from hearth -1m scale



Figure 12: Trench P1 North section of chimney stack excavation showing flint walling 272 -1m scale

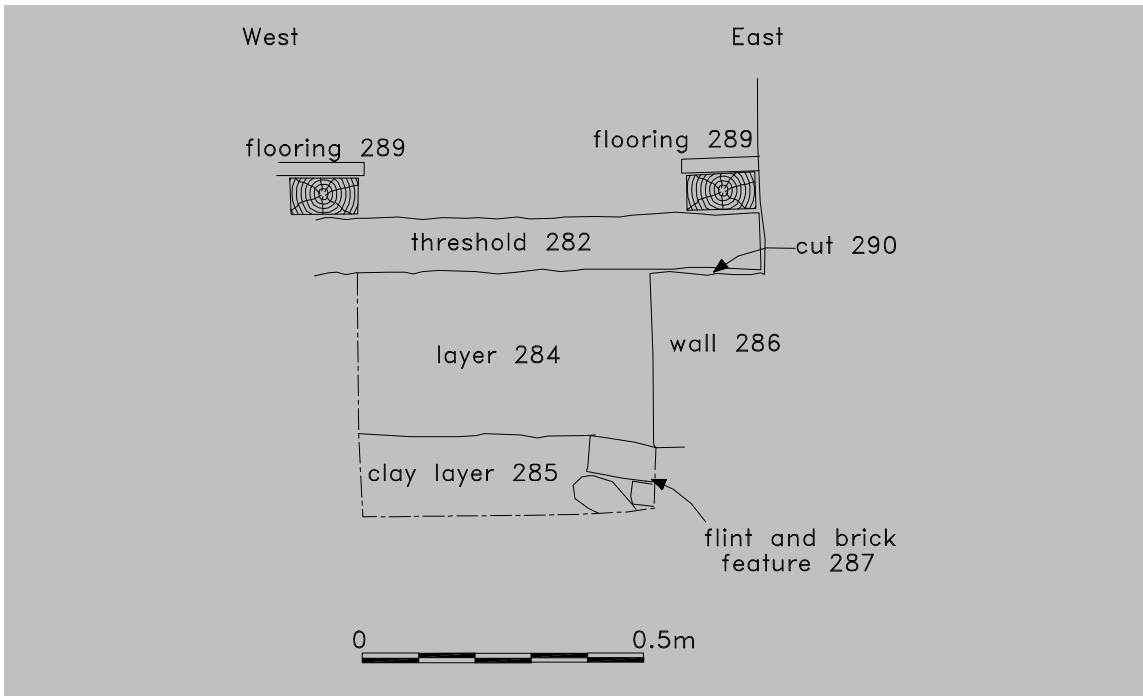
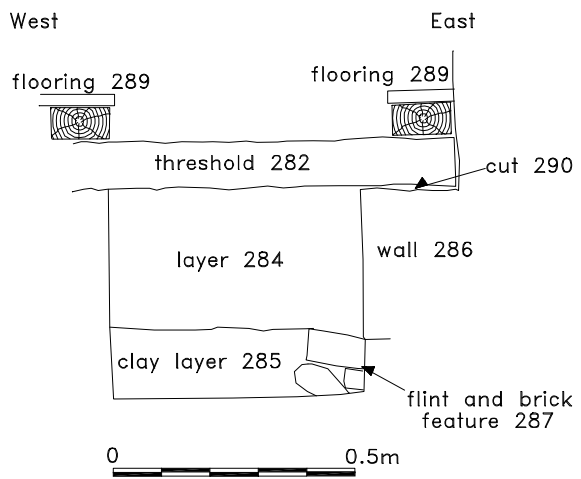


Figure 8: North section of museum excavation



Figure 9: Photograph of north section of museum excavation, 0.5m scale



West

East





Figure 5: Southern elevation of the Museum (northern face of chimney stack) - 1m scale



Figure 6: The base of the cupboard following removal of floorboards - 1m scale

Figure 2 : Plan of proposed archaeological excavation trenches to investigate the footings of the western chimney stack

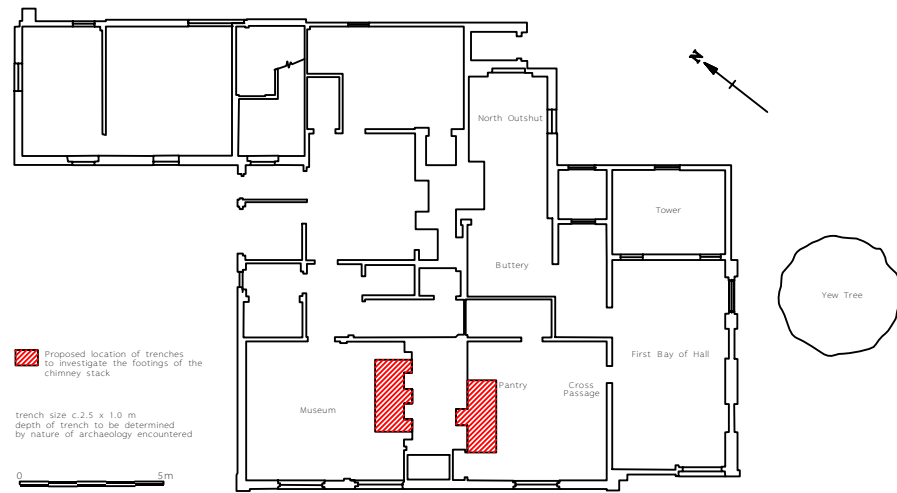


Figure 3: Location of archaeological excavation trenches to investigate the footings of the western chimney stack





Figure 13: Elevation and Section Across Pantry Chimney Stack Excavation - Trench P1

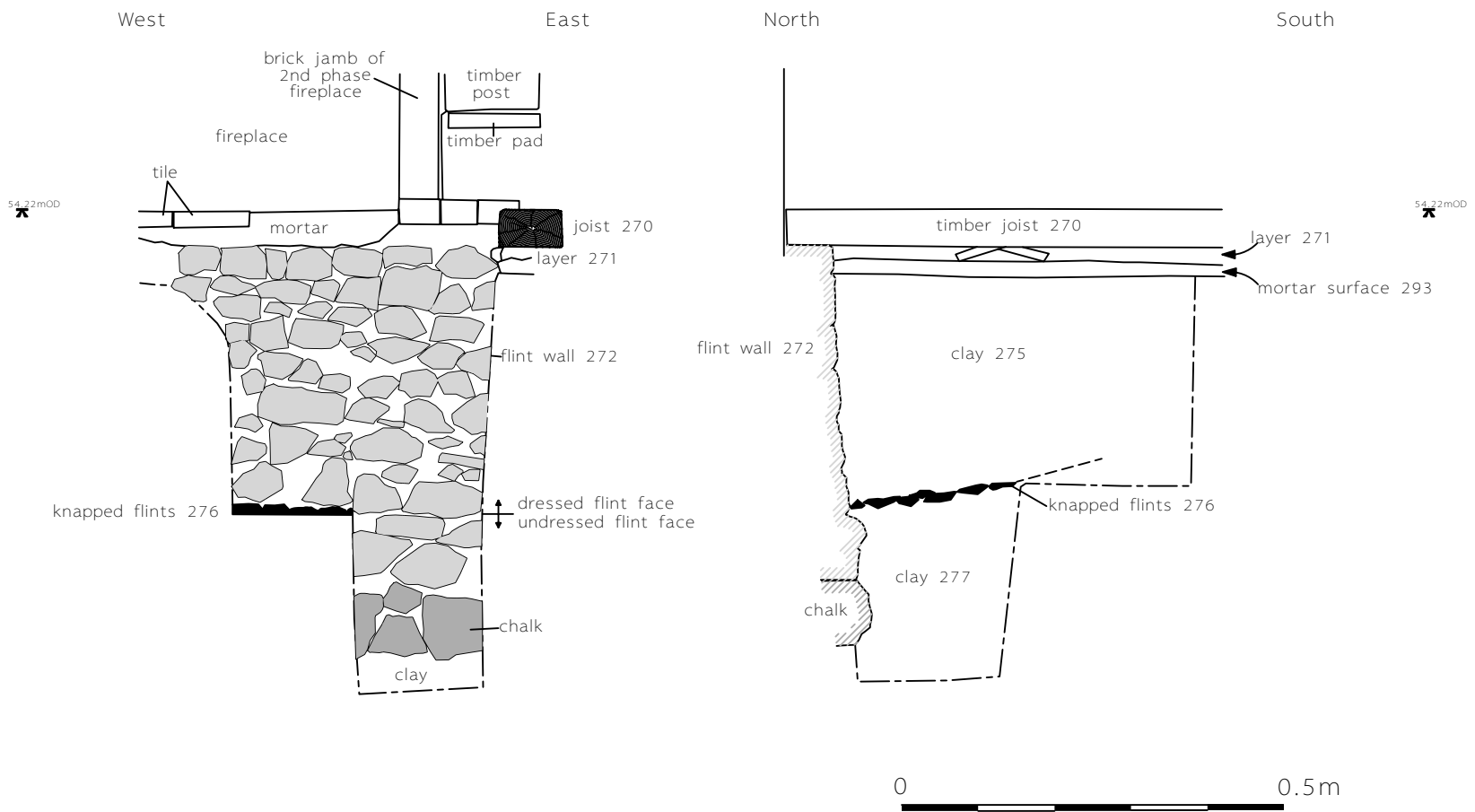


Figure 10: Plan of the floor structure and location of excavation trenches in the pantry

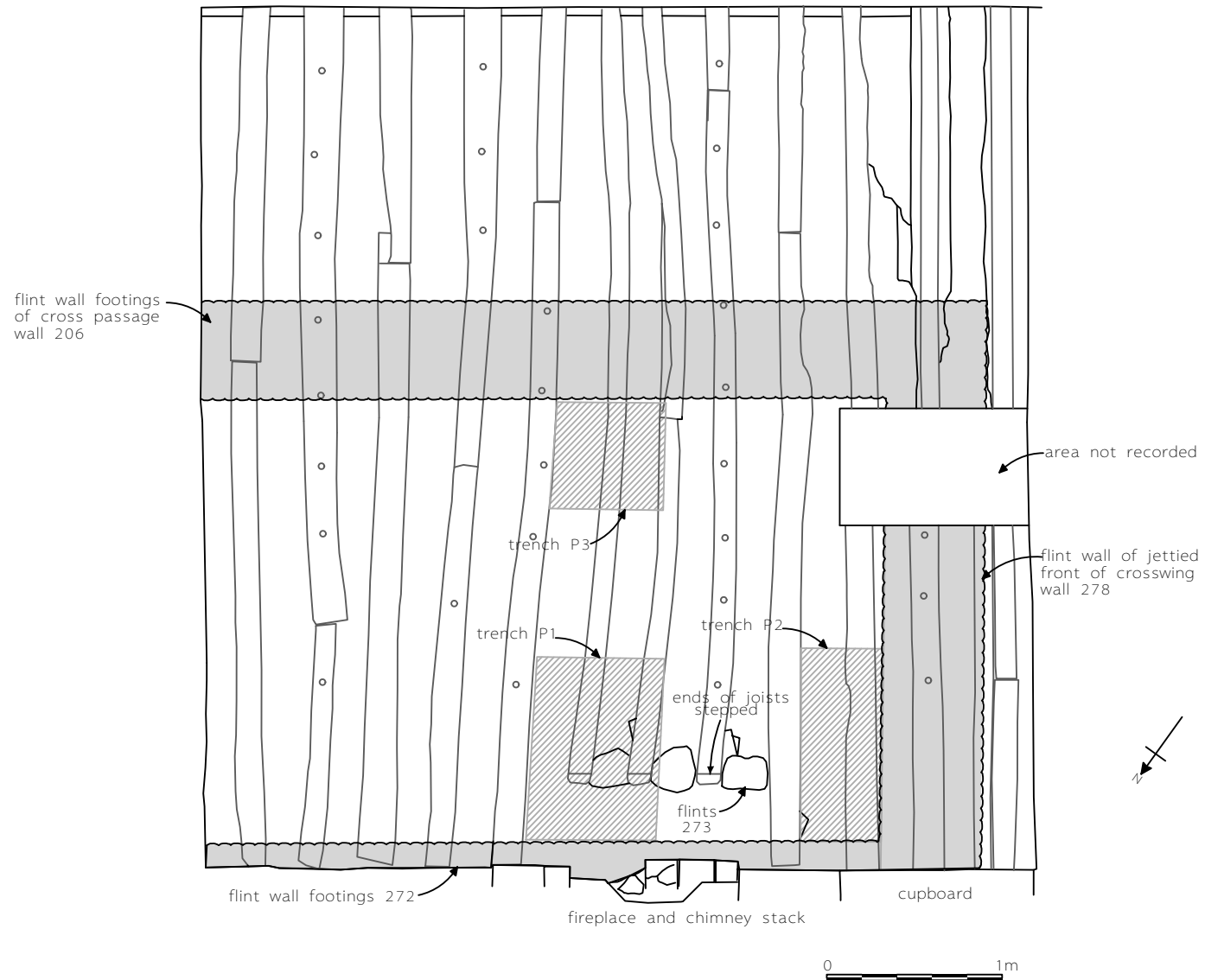


Figure 7 Museum Excavation, eastern elevation of cupboard including section of excavation

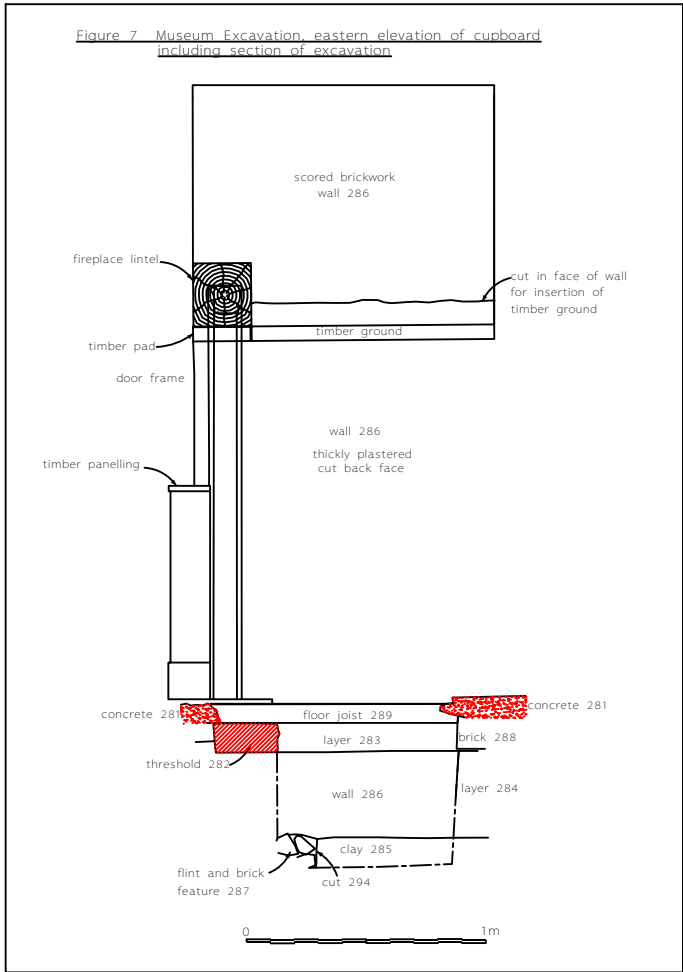




Figure 4: Southern elevation of the western chimney stack prior to investigation works (1m scale)



Figure 14: Trench P2 Junction between the north wall of the crosswing and the footings of the jettied western front of the house - 0.4m scale



Figure 15: Trench P3 - Flint wall of cross passage with chalk footings – 1m scale

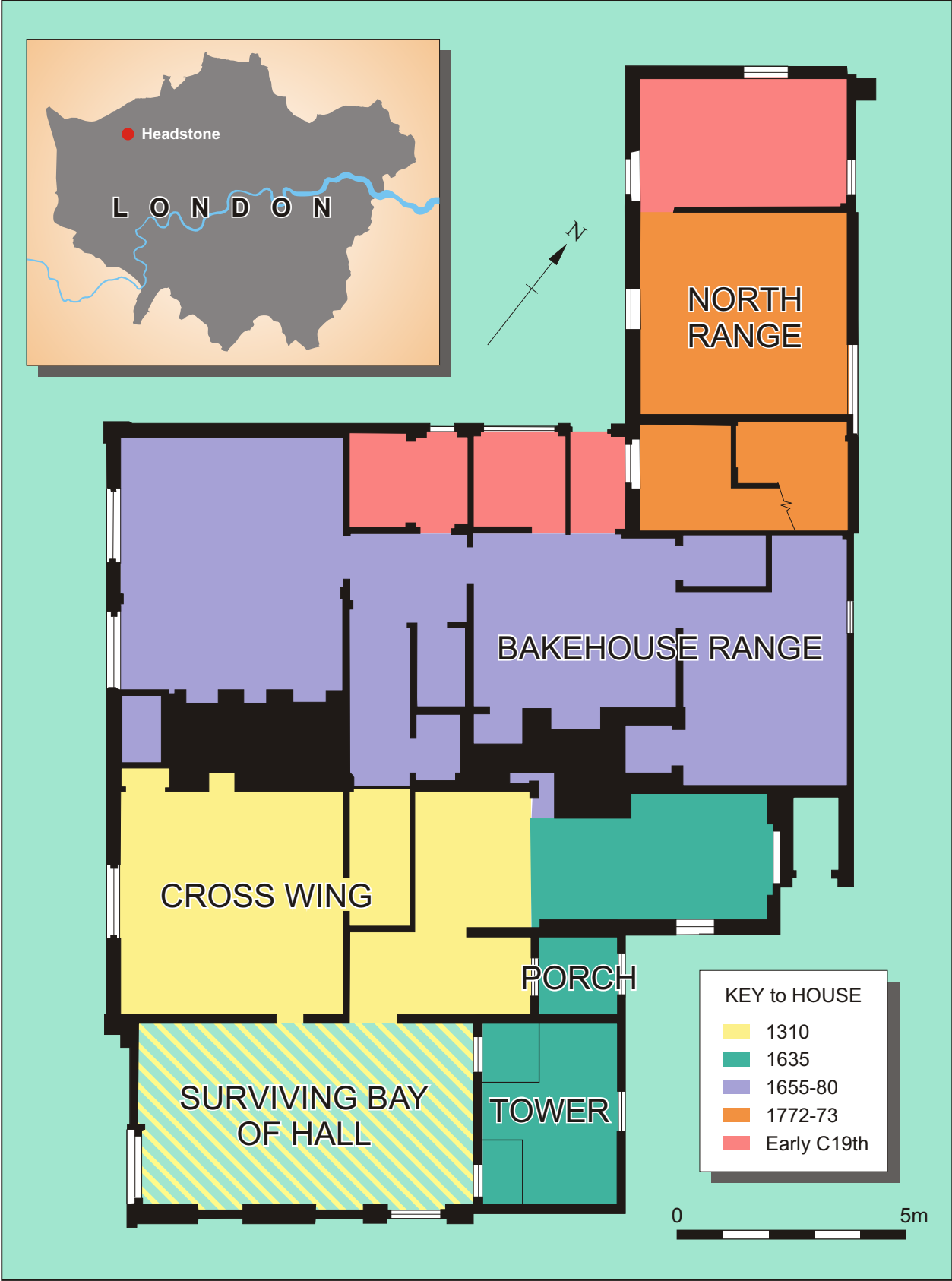


Figure 1: Location plan of Headstone showing phase plan of house