

BUILDING RECORDING  
OF  
PLOWSTAL FARMHOUSE,  
BAYTON, WORCESTERSHIRE

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Illustrations by Shona Robson-Glyde

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Project 3110  
Report 1604  
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## **Building recording of Plowstall Farmhouse, Bayton, Worcestershire**

**Shona Robson-Glyde**

### **Part 1 Project summary**

Building recording was undertaken at Plowstall Farmhouse, Bayton, Worcestershire (NGR SO 6952 7328). It was undertaken on behalf of Bransley Construction Ltd, who proposed to restore the building and divide it into two houses.

The recording of the farmhouse at Plowstall Farm completed the recording of the historic buildings of this farmstead and added to the knowledge already acquired by the recording of the barns at an earlier date. Plowstall Farmhouse is a listed timber-framed structure that had been dated to the 17<sup>th</sup> century date. Dendrochronological dating however pushed this date back into the 16<sup>th</sup> century, specifically the 1570s. This house consisted of a hall with cross-wing and a serving range at the opposite end of the hall. The building was developed in the 17<sup>th</sup> century by the flooring of the hall and insertion of a brick chimney. The 17<sup>th</sup> century fireplace bressumer had a large number of evil-averting marks incised into its face. An 18<sup>th</sup> century kitchen was added to the serving and this was followed by the conversion of the serving area into a dairy in the 19<sup>th</sup> century. At the same time, rebuilding of the ground floor in brick was carried out due to subsidence caused by coal mining.

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## Part 2 Detailed report

### 1. Background

#### 1.1 Reasons for the project

Building recording was undertaken at Plowstall Farmhouse (NGR SO 6952 7328), Bayton, Worcestershire (Fig 1), on behalf of Bransley Construction Ltd. They proposed restoration and division of the farmhouse to two dwellings. A planning application was submitted to, and approved by, Malvern Hills District Council (reference 07/01512), who consider that a site of archaeological interest may be affected (WSM 3607).

#### 1.2 Project parameters

The project conforms to the *Standard and guidance for the archaeological investigation and recording of standing buildings or structures* (IFA 2001).

The project also conforms to a brief prepared by Worcestershire County Council (HEAS 2007a) and for which a project proposal (including detailed specification) was produced (HEAS 2007b).

#### 1.3 Aims

The aim of the building recording was to establish the character, history, dating, form and archaeological development of a specified building, or structure, or complex and its setting, including its buried components, on land or under water (HEAS 2007a).

More specifically the following aims have been identified:

- Dendrochronological dating of primary phase timbers.

### 2. Methods

#### 2.1 Documentary search

Prior to fieldwork commencing a search was made of the Historic Environment Record (HER). In addition to the sources listed in the bibliography, the following documents were also consulted:

##### *Cartographic sources*

- Inclosure map of 1817 (WRO BA 944 ref r899:1)
- 1<sup>st</sup> edition Ordnance Survey map dated 1884 at 1:2500 scale
- Ordnance Survey map of 1904 Worcestershire sheet 13.5

##### *Documentary sources*

- County Records Office
  - Plans and parcels of Shakenhurst Estate (WRO BA 8897 ref 705:970)
  - Parochial notes of Bayton (WRO BA 10509 ref 989.9:91)
- County histories (VCH 1924 and Nash 1795).

- Domesday (Thorn and Thorn 1983).

## 2.2 **Fieldwork methodology**

### 2.2.1 **Fieldwork strategy**

A detailed specification has been prepared by the Service (HEAS 2007b).

Fieldwork was undertaken between 4th and 19<sup>th</sup> February 2008 inclusive. The site reference number and site code is WSM 38547.

Building recording consisted of a photographic survey of the interior and exterior of the buildings, analysis of their development, annotation of existing survey drawings and measured survey. All photographs were taken with photographic scales visible in each shot. The photographic survey was carried out with a Nikon D70 camera. All photographs were recorded on a pro-forma Photographic Record Sheet. Annotation of existing ground plans and elevations, and completion of pro-forma Building Record and Building Phase sheets, complemented the photographic record along with measured drawings completed to scale on permatrace drafting film at 1:10 and 1:20 scales.

### 2.2.2 **Building analysis**

Analysis of the building was based on the study of the photographic record, building recording forms, annotated drawings and measured drawings. It was also informed by the documentary sources listed above. This allowed plans to be drawn up showing the structural development of the building.

## 2.3 **Building recording methodology**

The project conformed to the specification for a level 3 survey as defined in the English Heritage document *Understanding historic buildings: a guide to good recording practice* (EH 2006). This level of survey is described as ‘an analytical record’ comprising of ‘an introductory description followed by a systematic account of the buildings origins, development and use’ (EH 2006). This required the following elements of survey.

### Survey and drawings

- Plans of all main floors and elevations as existing (provided by client).
- Measured drawings showing the form of any architectural or functional detail not more readily captured by photography.

### Photography

- Overall appearance of rooms and circulation areas.
- Detailed coverage of the building’s external appearance.
- Any detail, structural or decorative, relevant to the building’s design, development and use, which does not show on general photographs.

## 2.4 **The methods in retrospect**

Having undertaken the project the following comments may be made with regard to the methods adopted. The recording has achieved a good record of Plowstall Farmhouse, which has fulfilled the required aims of the project. The brief asked that cross-section drawings through the principal axis of the building be produced. However, following a site visit by the Planning Archaeology Advisor, it was decided that the cross-section would be replaced by detail drawings of a sample of timber-framing and of the fireplace lintel.

### 3. Topographical and archaeological context

Bayton is situated in the very north of the county, bounded on the north and west by Shropshire from which it is partly divided by the River Rea. The Shakenhurst Brook forms its south-western boundary, the Mill Brook its southern boundary and Tanners Brook its eastern boundary. It lies about 2 miles south of Cleobury Mortimer and 7 miles west of Bewdley. The settlement of Bayton is first mentioned in the Domesday survey when it was called ‘*Butune*’. This records that the land was owned by Ralph of Tosny and was occupied by Rayner. Prior to the survey it had been divided into two manors occupied by Edric and Leofwin (Thorn and Thorn 1982, 15). The parish appears to be quite compact, c2300 acres in 1924 (VCH IV, 237). The amount of arable land recorded in Domesday is equivalent to about 1000 acres (‘In lordship 3 ploughs’ and ‘14 small holders ... with 12 ploughs’ (Thorn and Thorn 1982, 15). This is a large amount of land to be held under the plough particularly in this area of the county, which is high ground and more appropriate for pasture and grazing land. The value of the parish, 60s in 1066 and £4 at the time of Domesday (Thorn and Thorn 1982, 15), in comparison to its size and the amount of arable land, shows it was a relatively rich parish.

The manors of Bayton descended with the line of Abberley manor: it was recorded in the subsidy of 1280 as ‘Abberley and Bayton’ (VCH IV, 238) and in 1814, when it was enclosed, the lord of Abberley claimed the common land (ibid). The Victoria County History records that a manor was first mentioned at Bayton in 1580 when it was held by the same lords as Shakenhurst manor and therefore formed part of that manor (ibid). In 1722 a manor of Bayton was held by Sir Edward Blount, who at this time owned Tymberlake (ibid).

The area surrounding Bayton is covered with the remains of many coal-mining shafts or collieries. These are all registered on the HER (Shakenhurst Colliery - WSM 8174; Mill Colliery - WSM 8175; Bayton Colliery - WSM 8176; Buckridge Colliery - WSM 22071; Carton Farm Colliery - WSM 22072). Historical documents record that the area of coal mining was part of the Bewdley coal basin and was worked at Bayton, Mamble and Rock (Kelly 1900, 1).

There are a number of other sites recorded on the Historic Environment Record in the area around Plowstall Farm. These are detailed below in Table 1. The current village of Bayton is a small settlement that has many historic buildings both listed and recorded on the HER (see Table 1), including Plowstall Farm (WSM 3607).

HER No	Location	Description	Date	NGR
<b>Activities</b>				
WSM 32022	Norgroves End Farm, Bayton	Watching brief for pipe trench. Wooden objects recovered from possible saw pit	19 <sup>th</sup> - 20 <sup>th</sup> C	SO 69263 74238
WSM 36088	Plowstall Farm Barns, Bayton	Building recording of brick barn complex. Including threshing barn and granary.	Early 18 <sup>th</sup> – 20 <sup>th</sup> C	SO 69516 73310
<b>Buildings</b>				
WSM 3607	Plowstall Farm, Bayton	Timber-frame house. Listed grade II.	17 <sup>th</sup> C	SO 69509 73314
WSM 3608	Old School Cottage, Bayton	Cruck House. 2 bay medieval open hall house with cruck exposed and fireplace. Cross passage doorway visible. Brick chimney stacks contain some 16 <sup>th</sup> C bricks. Listed grade II.	16 <sup>th</sup> C	SO 69214 73287
WSM 3609	The Lodge, Shakenhurst, Bayton	Timber framed dwelling. Whitened brick and timber. Listed grade II.	16 <sup>th</sup> C	SO 68020 73070
WSM 3611	Nineveh, Bayton	Post Medieval country house. Listed grade II	16 <sup>th</sup> - 19 <sup>th</sup> C	SO 68170 73840
WSM 3612	Post Office, Bayton	Brick dwelling. Listed grade II.	18 <sup>th</sup> C	SO 69447 73203
WSM 3613	School, Bayton	Brick school building	19 <sup>th</sup> C	SO 69340 73160
WSM 8264	St Bartholomew’s Church, Bayton	Church. Substantial survival of 11/12 <sup>th</sup> C fabric. Norman S doorway with zigzag arch. 1817 W tower. Listed grade II*.	11-16 <sup>th</sup> C	SO 69122 73223
WSM 26786	Shakenhurst Hall, Bayton	Medieval manor. Settlement recorded in late 13 <sup>th</sup> C. Shakenhurst Hall 18 <sup>th</sup> C.	13 <sup>th</sup> - 16 <sup>th</sup> C	SO67900 73200

		Shakenhurst Farm possible focus of medieval manor. Listed grade II*.		
WSM 27228	Houghtonspole, Bayton	Building. Formerly grade II listed.	16 <sup>th</sup> - 20 <sup>th</sup> C	SO 68063 74126
WSM 27760	Parsonage Barn, Bayton	Post medieval brick barn.	16 <sup>th</sup> -20 <sup>th</sup> C	SO 69407 73138
WSM 31549	Bank House, Bayton	Brick and half-timber construction under mellowed tile roof. Listed grade II.	17 <sup>th</sup> - 19 <sup>th</sup> C	SO 69433 73151
WSM 31550	Maypole Cottage, Bayton	Brick addition to row of period black and white cottages. Many period features. Listed grade II (with others).	17 <sup>th</sup> - 19 <sup>th</sup> C	SO 69472 73221
<b>Monuments</b>				
WSM 760	Tymlerlake Castle, Bayton	Documentary evidence of castle and moat. Earthworks of moated site still visible	11 <sup>th</sup> - 16 <sup>th</sup> C	SO 69600 72200
WSM 3606	Coneybury Watermill, Mill Brook, Bayton	Mill marked on map of 1822. No remains except 2 dams	11 <sup>th</sup> - 20 <sup>th</sup> C	SO 68900 72500
WSM 6615	Vicarage, Bayton	Possible moated site	11 <sup>th</sup> - 16 <sup>th</sup> C	SO 69000 73600
WSM 26785	Medieval village of Bayton	Included within Domesday survey	11 <sup>th</sup> - 16 <sup>th</sup> C	SO 69300 73300
WSM 33432	Home Farm, Shakenhurst, Bayton	Watercourse running from a fishpond towards Mill Brook	16 <sup>th</sup> -20 <sup>th</sup> C	SO 67602 73249
WSM 33433	Home Farm, Bayton	Fishpond or ornamental pond	16 <sup>th</sup> -21 <sup>st</sup> C	SO 67503 73126
WSM 35859	Norgroves End Farm, Bayton	Saw pit lined with wooden planks.	20 <sup>th</sup> C	SO 69230 74244
WSM 35860	Norgroves End Farm, Bayton	Small pond shown on 1 <sup>st</sup> Edition OS	19 <sup>th</sup> -20 <sup>th</sup> C	SO 69406 74113
<b>Parks</b>				
WSM 28831	Shakenhurst Hall, Bayton	Park at Shakenhurst Hall of 18 <sup>th</sup> and 19 <sup>th</sup> C shown on map of 1835	19 <sup>th</sup> C	SO 67484 73085

Table 1: Sites in the vicinity

#### 4. Historical context

Plowstall Farm consists of a timber-frame farmhouse with barns and farm buildings to the north. The farmhouse is recorded on the HER as WSM 3607. It is also a Grade II listed building. The listing text describes the building as follows:

Early C17 with mid- to late C19 and mid-C20 alterations. Timber-framed with painted brick infill, brick replacement walling and refacing, pebble-dashed first floor, plain and fishscale tiled roofs, half-hipped to east side. Hall and cross-wing plan; hall of three framed bays aligned east/west with chimney probably inserted into former through-passage with brick ridge stack; cross-wing at west gable end is of two framed bays. Two storeys. Framing: hall has some upper panels visible at rear and a truncated collar and tie-beam truss at east gable end with three struts to collar. Cross-wing has one row of large panels at first floor level on its west side elevation and at rear; short straight braces in upper corners and rear collar and tie-beam truss with three struts to collar and V-strut in the apex. South front elevation: hall part has two 2-light casements with cambered heads and three first floor 2-light casements. Entrance adjacent to cross-wing has a ledged and battened door with a cambered head. Cross-wing gable end has a ground and first floor 3-light casement. Interior not inspected but wall-frame and roof structure said to be largely intact. The front wall of the cross-wing has been rebuilt due to the collapse of a mineshaft beneath (DoE 1986, SO 67 SE 2/16).

The 1817 inclosure map of Bayton (WRO BA 944 ref r899:1) shows that Plowstall was owned by E M Wigley Esq. The Wigley family owned a considerable amount of property in the village and were the owners of Shakenhurst Hall, the former manor of Bayton. The trade directories of 1850 (Kelly 1850, 393), 1855 (Billing 1855, 122), 1876 (Kelly 1876, 919), 1892 (Kelly 1892, 18), 1896 (Kelly 1896, 20) and 1900 (Kelly 1900, 24) show that Shakenhurst Hall was owned by the Wigley family.

Census records for Plowstall Farm go back to 1841 when it was farmed by Thomas and Mary Malpas, who lived with their six children and three servants (NA 1841, 13). Thomas is still recorded as a farmer in a trade directory of 1850 (Kelly 1850, 393) but by 1851 Mary was widowed and was living at the farm with five of her children and two servants (NA 1851, 116). The 1855 trade directory



shows Mary Malpas as farmer of 'Plough Stall' (Billing 1855, 122). The census records in 1861 show Mary was living at the farm with her son, Thomas, and daughter, Eleanor, and three servants (NA 1861, 14). By 1871 Mary, then 70, was living with four of her children - Thomas, Eleanor, widowed daughter, Mary, and son, Joseph - and also two servants (NA 1871, 17). By 1881 Mary had died and Thomas had taken over as head of the household and was living with his three siblings and one servant (NA 1881, 14). The trade directory of 1896 has Eleanor Malpas as farmer of 'Plough Stall' (Kelly 1896, 20) as does the 1900 directory (Kelly 1900, 24) which shows that she had taken over as head of the household after the death of Thomas. This is confirmed by the census record of 1901 when Eleanor, 69 is recorded as head of the household living with her sister Mary, 74, and one servant (NA 1901, 13). Eleanor and Mary appear to have both died by 1912 when a Clement Malpas, presumably a cousin or nephew, is recorded in the trade directories as farmer of 'Plough Stall' (Kelly's Directory 1912, 29).

In 1923 an inventory of Shakenhurst estate was drawn up (WRO BA 8897 ref 705:970). At this time the estate still included Plowstall Farm and the inventory details repairs required to the house, wagon and cart shed, barn, pigsty and store with loft as a result of subsidence.

The Ordnance Survey maps of 1884 and 1904 show the site, called Plowstall Farm, in much the same plan as it was when recorded, with the farmhouse to the south of the main range of farm buildings.

## 5. Results

Ground and floor plans, elevations and detail drawings have been reproduced as Figures 2 – 6. Analysis of the structure has allowed a phasing of the building to be produced. This is reproduced as Figure 4. A number of relevant photographs have been reproduced as Plates 1 – 34. Plate numbers have been produced on Figure 7.

### 5.1 Description

On approaching Plowstall Farmhouse from the south, it appears to be a brick 19<sup>th</sup> century building (Plate 1). However this is hiding a hall and cross-wing timber-framed house. Parts of this framing are still visible on the exterior including the east (Plate 2) and west (Plate 3) elevations. The building has also been extended to the north with later brick extensions.

#### 5.1.1 Phase 1 16<sup>th</sup> century, 1570s (Fig 4)

In the 16<sup>th</sup> century a large timber-framed hall with two-bay cross-wing was constructed. It is not known who built the house, but it is possible that the owners of Shakenhurst, the manor of Bayton, constructed it, as in the early 1800s it was still part of the Shakenhurst estate. Large portions of the timber frame have survived later development (Plates 1-3).

Although it is listed as being of 17<sup>th</sup> century date, dendrochronological analysis showed this date to be incorrect. This survey showed that the building was constructed in the 1570s at least 50 years earlier than was previously believed. Dr Bridge wrote in his report '*six timbers from the cross-wing and two from the hall dated. None retained complete sapwood, but a couple of samples had only lost a very few outer rings on coring. The two parts of the house are seen to be of the same date, with the timbers most likely having been felled in the 1570s*' (see Appendix 2).

The building was a very well constructed post-and-truss building with generously proportioned timbers (Plate 4, Fig 6). The roof had large principal rafters and side purlins. The roof trusses were collar and tie beam trusses with three struts below the collar and vee-struts above it (Plate 5). The main frame consisted of square panels with end of bay up-braces (Plate 6).

The internal arrangement consisted of a two-bay central hall with an open hearth. The cross passage was probably in the position of rooms G3 and G4 and the position of a doorway appears to be visible on the north elevation exterior wall of room G4 (Fig 3). The hall window was on the north elevation in the position of the current window (Plate 7). There was an attached service area to the east and a

cross-wing to the west. The service area may have consisted of two rooms or a single room. Unfortunately, the ground floor has been so extensively altered, and a later partition inserted on the first floor, that the original layout could not be seen. The typical layout is for a pantry and buttery to be on the ground floor. It is likely that there was originally a single first floor sleeping chamber above these rooms, with ladder access from within the ground floor service rooms. The layout of the cross-wing could still be discerned. This consisted of two rooms on both ground and first floor. There is no evidence of a straight stair within the cross-wing therefore the winder stair, within room G7, is probably the original 16<sup>th</sup> century access (Plate 8) to the first floor sleeping chamber and solar. The ground floor rooms probably consisted of parlours; one would have been a private space and one for entertaining guests.

A small amount of paint, hidden beneath layers of lime wash, was still adhering to timbers on the first floor of the cross-wing. In room F8, this consisted of a dark magenta colour (Plate 9) and in room F9 it was a warm red colour (Plate 10). This suggests that these rooms were decorated and may have had painted plaster panelling between the painted timbers. Painting of higher status rooms, such as a chamber, solar or parlour, was not uncommon and appears to have mainly occurred between the late 16<sup>th</sup> and early 17<sup>th</sup> century in vernacular houses (Davies 2008, 119). The decoration in room F9 may have been similar to that still visible in one of the second floor chambers of Harvington Hall – painted red timbers with black outline on the panels to create the appearance of a relief (Davies 2008, 184). The internal panels may have had a decorative scheme also.

Another sign of the higher status of the cross-wing rooms and of the hall is the use of the wind braces in the roof structure. These braces are used initially to provide greater structural integrity to the roof and reduce the risk of the roof collapsing sideways. The braces run from the principal rafter of the truss to the purlin and are usually up-braces. The wind braces are also used as decoration in the higher status rooms of a house and would have been on show. At Plowstall the wind braces are up-braces and occur in the chambers above the parlour and in the hall (Plate 11) and although they are very plain and undecorated would still have been on show.

### 5.1.2 Phase 2 17<sup>th</sup> century (Fig 4)

The 17<sup>th</sup> century saw the demise of the open hall in Worcestershire as new floors were being constructed and chimneys were added to the hearth area. At Plowstall the hall was floored and the inglenook fireplace (Plate 12) was created in this period. It was built of brick but also had a timber-frame wall (Plate 13) to separate it from the cross passage and service wing. In essence this created a completely separate service area as there was no access on the first floor, past the fireplace, between the two parts of the building (Fig 4). This division of the service area from the rest of the house required a staircase to be added at the service wing end of the building to gain access to the first floor. Ceiling beams in the current kitchen, room G2, suggest a possible location of a staircase (Plate 14) leading up into room F2. It is also possible that the straight flight with winder staircase (Plate 15) in the cross passage, room G4, was added in this phase as the access to the first floor instead.

As a result of the hall being floored the hall window had to be altered. A new window was put in place and the former opening blocked with bricks measuring 8 ½" by 3 ¾" by 2" (Brick style J on Fig 3) that date to the mid 17<sup>th</sup> century (Plate 16).

Various forms of protection against witches were used through out the 17<sup>th</sup> century and at Plowstall is found an example of incised apotropaic (meaning literally 'evil-averting') marks on the fireplace bressumer (Plate 17, Fig 5). These marks are ranged along the length of the wooden lintel and consist of inter-cutting lines and circles. The majority of the marks are very faint, visible only with a side light, and were made by a knife or scratch awl before the timber had dried out. The likelihood is that they were carved by the carpenter when he was creating the bressumer for the fire place and therefore the house occupier may not even have been aware of their existence. The marks consist of inverted **V**s and **M**s and were intended to invoke the protection of the Virgin Mary (Easton 1999, 24) and are known as Marion marks. Some of the marks consist of pairs of compass drawn-circles with dots in the centre and are known as spectacle marks. These were intended to avert the 'evil eye' (Easton 1999, 26-27), as were the single circles with dots in them. These spectacle marks have been cut more deeply into the wood and have ragged edges to them (Plate 18), which shows that they were carved, or re-

carved, after the wood had begun drying out. A group of three circles, also with dots in the centre, is said to represent the Holy Trinity (Easton 1999, 26-27). It appears that some of the circles, and the large **M** towards the left of the lintel, were re-cut over time showing that at least these spectacle marks, and therefore their function, were known about by the occupier. A number of **TM** marks at the left end were probably carved by Thomas Malpas, the house occupier in the 19<sup>th</sup> century.

#### 5.1.3 **Phase 3 18<sup>th</sup> century** (Fig 4)

In the 18<sup>th</sup> century, an extension was added to the north elevation of the service wing (Plate 19). This two storey extension contained a fireplace (Plate 20), with a bread oven, on the ground floor and was probably used as a kitchen. There was no access into the first floor room of this extension from the rest of the house (Plate 21). The staircase to the first floor appears to have been in the position of the 20<sup>th</sup> century toilet adjacent to the fireplace. This floor may have been a granary or cheese room.

Also at this time part of the north and west elevations of the cross-wing were rebuilt in brick (Plate 22) measuring 9" by 4" by 2 ¾", coursed in English Garden Wall bond (Brick styles F and I on Fig 3). The ground floor was probably originally constructed of timber, like the first floor. The reason for replacing this part of the building is unknown and may have been the result of subsidence, as occurred in the early 20<sup>th</sup> century (see below). The north elevation of the hall was rebuilt in brick on the first floor (Plate 6) also in this period.

#### 5.1.4 **Phase 4 19<sup>th</sup> century** (Fig 4)

The greatest amount of alteration to the building occurred in the 19<sup>th</sup> century. Much of the external ground floor was rebuilt in brick, including the frontage of the hall (Plate 23), the east elevation (Plate 24), and part of the west elevation (Plate 25), that part which was not already rebuilt in the 18<sup>th</sup> century.

The first of the sections of wall to be rebuilt was that on the ground floor west elevation. It was constructed of bricks measuring 9 ½" by 4 ½" by 2 ¾" and coursed in Stretcher bond (Brick style E on Fig 3). This size of brick dates the rebuilding to the early-mid 19<sup>th</sup> century. The front (south) and east ground floor elevations were rebuilt in bricks measuring 9" by 4" by 3" and coursed in English Bond (Brick styles A and C on Fig 2). This size of brick dates the rebuild to the late 19<sup>th</sup> century. This appears to be an attempt to strengthen the building against subsidence.

The ground floor internal arrangement was altered in the 19<sup>th</sup> century also, as shown on the phased plans (Fig 4). This alteration replaced the late 16<sup>th</sup> service area of the house. It is possible that this room then became a dairy with the kitchen still in the 18<sup>th</sup> century extension to the north. The Shakenhurst Estate survey carried out in 1923 records this room as a dairy (WRO BA 8897 ref 705:970). Modern conversion of the room into a kitchen has removed any earlier traces of the function of the structure.

A cellar (Plate 26) was also inserted under part of the cross-wing portion of the building. The cellar was partly flooded at the time of the survey and it was not possible to enter fully to record any brick sizes but the brickwork appeared to be of 19<sup>th</sup> century date although later construction had also been carried out. The stairs into the cellar must also have been added at this time (Plate 27) and the partition for this staircase created the west wall of room G9 (Plate 28).

In the 19<sup>th</sup> century a porch was added to the north elevation of the building (Plate 29). This porch consisted of brick built walls and round-edged moulded brick piers (Plate 30) with a cat-slide roof, a lengthening of the roof of the 18<sup>th</sup> century extension (Plate 31). This structure covered the doorways from the main house and from the 18<sup>th</sup> century kitchen extension.

#### 5.1.5 **Phase 5 20<sup>th</sup> century** (Fig 4)

With the exception of internal furnishing, very little was altered in the building in the 20<sup>th</sup> century. The only visible changes were the partial rebuilding of the south elevation of the cross-wing and the

addition of an outhouse on the north elevation of the cross-wing. The rebuilding of the south elevation was a result of subsidence. A survey of the Shakenhurst Estate carried out in 1923 (WRO BA 8897 ref 705:970) records that there was substantial repair required at the farm, to a number of the buildings including the house, as a result of subsidence due to previous coal mining in the area. This repair was carried out at around the time of the survey and was completed with bricks measuring 9-9 ¼" by 4 ¼" by 2 ⅞" (Brick style B on Fig 2) coursed in Flemish Stretcher bond (Plate 32). They were brown misfired bricks that were heated to a very high temperature in the kiln and were probably intentionally misfired to attempt to counteract the subsidence effect on the building by creating a stronger fabric.

The outhouse, a small single storey building with single pitch roof (Plate 33), was constructed in the 20<sup>th</sup> century but using reused early bricks bonded with a cement mortar. The bricks were 9" by 4" by 2 ¼", coursed in Stretcher Bond (Brick style G on Fig 3) and only one brick thick which is a form of construction rarely used because of its lack of strength.

## 6. Synthesis

The farmhouse of Plowstall Farm shows a history of development dating back to the 16<sup>th</sup> century. The owners of Shakenhurst manor appear to have owned this property even as far back as the 16<sup>th</sup> century and therefore would have been responsible for the construction of Plowstall farmhouse. The house may have been originally constructed as a single house although it is more likely that it was constructed as an entire farmstead with the 16<sup>th</sup> century buildings now replaced by the later 18<sup>th</sup> and 19<sup>th</sup> century structures. The mid-16<sup>th</sup> century to mid-18<sup>th</sup> century was a time of agricultural growth in England. Large landowners benefited from the sale of lands following the Dissolution of the monasteries and rising prices benefited all farmers. Agricultural productivity was also spurred by a doubling of the population between 1560 and 1660, from 2.5 million to 5 million (Lake *et al* 2006). Therefore there was a benefit from constructing new farms in this period. The size and layout of the farmhouse even suggests that it was the residence of a yeoman farmer who would have held the leasehold for the land.

The 17<sup>th</sup> century alteration of the building to create two floors in the hall occurred at a time when this development was happening across the country. This came about for two main reasons; the first was the need for more and better accommodation, the space above the hall being the obvious place for this. The second reason was advent of enclosed chimney stacks. As brick became a more common material, enclosed chimney stacks over fireplaces were introduced into the open hall allowing the hall to be floored over. From about 1550, the flooring of open halls was taking place in rural districts but this was taken up very slowly in Worcestershire with open halls still being constructed in the 17<sup>th</sup> century and at the same time existing halls were being floored over, such as this at Plowstall.

In the 17<sup>th</sup> century the fear of witches was its height, as described in 1604 by King James I in his 'Daemonologie': *'for some of them sayeth that being transformed in the likeness of a little beast or fowl they will come and pierce through whatsoever house or church, though all ordinary passages be closed, by whatsoever open[ing] the air may enter in at'* (Easton 1999, 22 and Hall 2005, 151). From this it can be seen that people would seek to protect areas of their house from entry by witches. Doors and windows could be protected by wood or glass but the fireplace was left vulnerable and open to the sky. The marks added to the fireplace bressumer were invoking the protection of the Virgin Mary and are obvious of Catholic originally, whether they were carved by a carpenter or added by the occupant at a later date. It is interesting that this practice of protecting the home was carried out using Catholic symbols and invocations at a time when Catholicism was banned. These marks were never defaced or hidden and occur even in areas of England with strong Puritan beliefs (Easton 1999, 28). It is possible that these old religious beliefs were held onto by the craftsmen, carpenters, and passed down to apprentices eventually becoming a habit rather than a known ritual for protection.

The later development of the farmhouse in the 18<sup>th</sup> and 19<sup>th</sup> centuries was partly due to the subsidence of the land due to coal mining, on the 1<sup>st</sup> and 2<sup>nd</sup> edition maps there is a mining shaft situated to the immediate north-east of the farm. The development of farming in the 18<sup>th</sup> century with rising meat and dairy prices, due to increased population and the Napoleonic Wars cutting off the imports of food

from the continent, resulted in an increased production of dairy products on farms. This was sometimes carried out in separate buildings but more often it was carried out in a special room attached to the farmhouse. The current kitchen at Plowstall was identified as a dairy at the beginning of the 20<sup>th</sup> century and it is likely that it had this function from the late 18<sup>th</sup> century onwards. The room above the 18<sup>th</sup> century extension (room F3) may even have been used as a cheese room.

## 7. Research frameworks

Plowstall Farm is a compact settlement of F-plan courtyard and a farmhouse range (Plate 34) within the village of Bayton. Although the ideal would be to record the entire farmstead at the same time, what has occurred at Plowstall is the recording of the barns prior to their conversion (Robson-Glyde and MacHugh 2007) followed by the recording of the farmhouse at this stage. Although this has now created a complete record of the farmstead an overall analysis of the farmstead would complete the picture of the development of the farmstead as a whole and to join together the functions and work-flow through the farmstead.

The study of apotropaic marks in historic buildings is gathering momentum within the small circle of buildings archaeology. The leading expert on the subject, Timothy Easton, has been recording these marks for over 30 years (Easton 1999, 22) and originally believed that they were a phenomenon particular to the area around Suffolk. However marks are being discovered and recorded throughout the country, including in Evesham, Worcestershire (Robson-Glyde 2008) and in Warwickshire (Meeson 2005).

The Post-Medieval Research Agenda for the West Midlands Regional Research Framework for Archaeology ([http://www.iaa.bham.ac.uk/research/fieldwork\\_research\\_themes/projects/wmrrfa/](http://www.iaa.bham.ac.uk/research/fieldwork_research_themes/projects/wmrrfa/)) has yet to be published and cannot therefore be referred to here. Atkin, in 'Archaeology in Worcestershire 1500-1750', states that '*there has been increasing building recording on farms and barns ... But we are not yet at a stage at which synthesis has been undertaken* (Atkin 2003, 5). The seminars for the post-medieval period consistently do not refer to the standing archaeology of the area.

There is an already recognised need to record historic buildings, prior to their loss, which can be seen by existing publications on farm buildings and houses such as R W Brunskill's *Traditional farm-buildings of Britain* [already in its fourth edition] (Brunskill 2007), *Houses and cottages of Britain* (Brunskill 2000) and *Timber building in Britain* (Brunskill 1999). Other studies have concentrated on individual areas such as *The development of farm buildings in Western Lowland Staffordshire up to 1880* (J E C Peters 1969). An analysis of the agrarian settlement and buildings of Worcestershire is one which is missing in the library of historic building studies, as noted above by Atkin.

## 8. Publication summary

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

*Building recording was undertaken on behalf of Bransley Construction Ltd at Plowstall Farmhouse, Bayton, Worcestershire (NGR ref SO 6952 7328; SMR ref WSM 38547).* The recording of the farmhouse at Plowstall Farm completed the recording of the historic buildings of this farmstead and added to the knowledge already acquired by the recording of the barns at an early date. Plowstall Farmhouse is a listed timber-framed structure that had been dated to the 17<sup>th</sup> century date. Dendrochronological dating however pushed this date back into the 16<sup>th</sup> century, the 1570s. This house consisted of a hall with cross-wing and a serving range at the opposite end of the hall. The building was developed in the 17<sup>th</sup> century by the flooring of the hall and insertion of a brick chimney. The 17<sup>th</sup> century fireplace bressumer had a large number of evil-averting marks incised into its face. An 18<sup>th</sup> century kitchen was added to the serving and this was followed by the conversion of the serving area into a dairy in the 19<sup>th</sup> century. At the same time, rebuilding of the ground floor in brick was carried out due to subsidence caused by coal mining.

## 9. Acknowledgements

The Service would like to thank the following for their kind assistance in the successful conclusion of this project, R O Sandbrook; Damon Dawson and Alison Edwards of Bransley Construction and Mike Glyde.

## 10. Personnel

The fieldwork and report preparation was led by Shona Robson-Glyde. The project manager responsible for the quality of the project was Simon Woodiwiss. Fieldwork was undertaken by Shona Robson-Glyde and illustrations by Shona Robson-Glyde. Dr Martin Bridge contributed the dendrochronology survey.

## 11. Bibliography

Atkin, M, 2003 '*Archaeology in Worcestershire 1500-1750*', Worcestershire Research Assessment, West Midlands Regional Research Framework Seminar 6, accessed 28<sup>th</sup> October 2009: <http://www.iaa.bham.ac.uk/research/fieldwork%5Fresearch%5Fthemes/projects/wmrrfa/sem6.htm>

Billing, M, 1855 *Directory and gazetteer of Worcestershire*, Birmingham

Brunskill, R W, 1999 *Timber building in Britain*, Orion Group

Brunskill, R W, 2000 *Houses and cottages of Britain*, Orion Publishing Group Ltd

Brunskill, R W, 2007 *Traditional farm buildings of Britain and their conservation*, Orion Publishing Group Ltd

CAS, 1995 (as amended) *Manual of Service practice: fieldwork recording manual*, County Archaeological Service, Hereford and Worcester County Council, report, **399**

Davies K 2008 *Artisan Art: Vernacular wall paintings in the Welsh Marches 1550-1650*, Logaston Press

DoE, 1986 *List of buildings of special architectural or historical interest: District of Malvern Hills*, Department of the Environment

Easton, T, 1999 'Ritual marks on historic timber', *Weald and Downland Open Air Magazine*, Spring 1999, Weald and Downland Open Air Museum

EH, 2006 *Understanding historic buildings: a guide to good recording practice*, English Heritage

Hall, L, 2005 *Period house fixtures and fitting 1300-1900*, Countryside Books

HEAS, 2007a *Requirements for a programme of historic building recording at The Farmhouse, Plowstall Farm, Bayton, Worcestershire*, Historic Environment and Archaeology Service, Worcestershire County Council unpublished document dated 25<sup>th</sup> November 2007

HEAS, 2007b *Proposal for recording of an historic building of Plowstall Farmhouse, Bayton, Worcestershire*, Historic Environment and Archaeology Service, Worcestershire County Council, unpublished document dated 31<sup>st</sup> October 2007, **P3110**

IFA, 2001 *Standard and guidance for the archaeological investigation and recording of standing buildings or structures*, Institute of Field Archaeologists

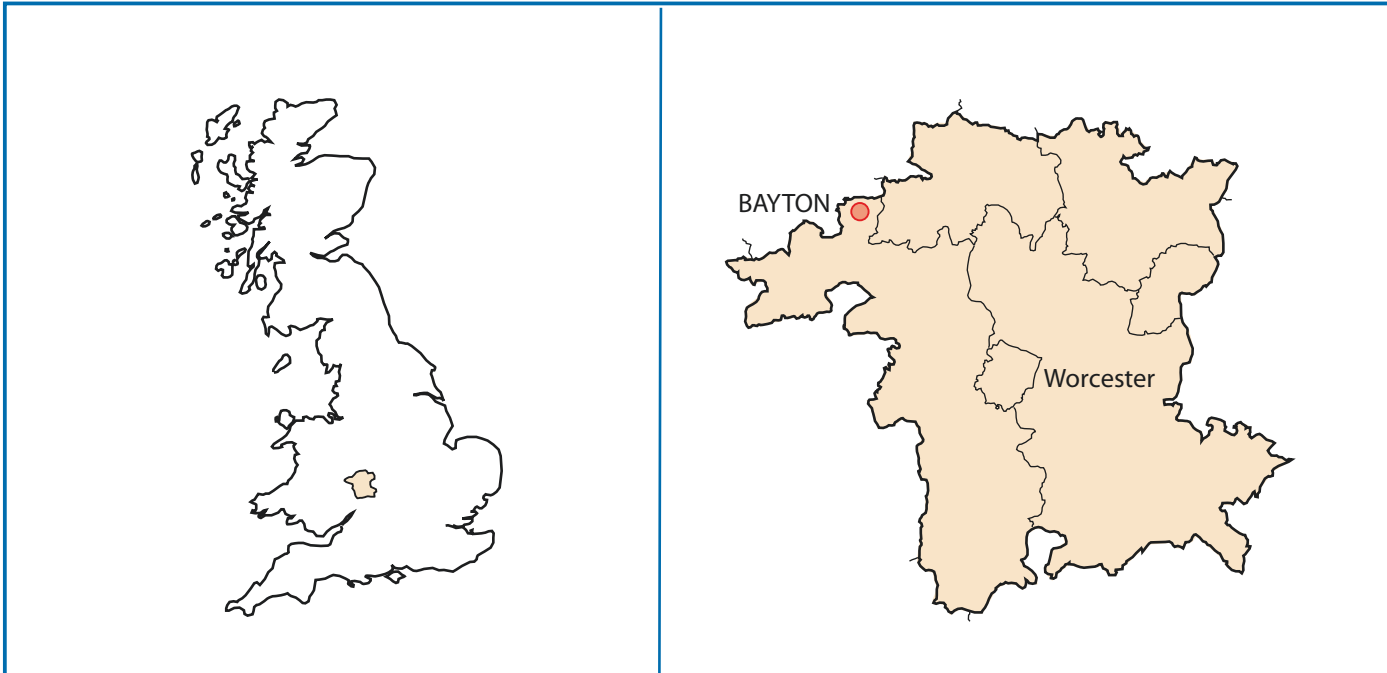
Kelly, E R, 1876 *Post Office directory of Worcestershire*, London

- 
- Kelly, E R, 1892 *Directory of Worcestershire*, London
- Kelly, E R, 1896 *Directory of Worcestershire*, London
- Kelly, 1900 *Directory of Worcestershire*, London
- Kelly, W, 1850 *Post Office directory of Birmingham, Staffordshire and Worcestershire*, London
- Lake J, Edwards B, Wade Martins S, Gaskell P, Ryan J, 2006 *Historic Farmsteads Preliminary Character Statement: West Midlands Region*, University of Gloucester, English Heritage and the Countryside Agency
- Meeson, B, 2005 'Ritual marks and graffiti: curiosities or meaningful symbols?', *Vernacular Architecture* 36, Vernacular Architecture Group
- NA, 1841 *England Census, Worcestershire*, National Archives ref HO 107/1192/3
- NA, 1851 *England Census, Worcestershire*, National Archives ref HO 107/1985
- NA, 1861 *England Census, Worcestershire*, National Archives ref RG 9/1846
- NA, 1871 *England Census, Worcestershire*, National Archives ref RG 10/2737
- NA, 1881 *England Census, Worcestershire*, National Archives ref RG 11/2625
- NA, 1901 *England Census, Worcestershire*, National Archives ref RG 13/2515
- Nash, J, 1795 *History of Worcestershire*
- Peters, J E C, 1969 *The development of farm buildings in Western Lowland Staffordshire up to 1880*, Manchester University Press
- Robson-Glyde, S, and MacHugh, G, 2007 *Building recording at Plowstall Farm, Bayton, Worcestershire*, Historic Environment and Archaeology Service, Worcestershire County Council, report **1507**
- Robson-Glyde, S, 2008 *Abbey Gate, Merstow Green, Evesham*, Historic Environment and Archaeology Service, Worcestershire County Council, report **1560**
- Thorn, F, and Thorn, C, 1982 *Domesday Book - Worcestershire*, Chichester
- VCH, Page, W (ed), 1924 'Bayton' by Willis-Bund in *Victoria History of the County of Worcestershire*, **IV**

12. **Figures**

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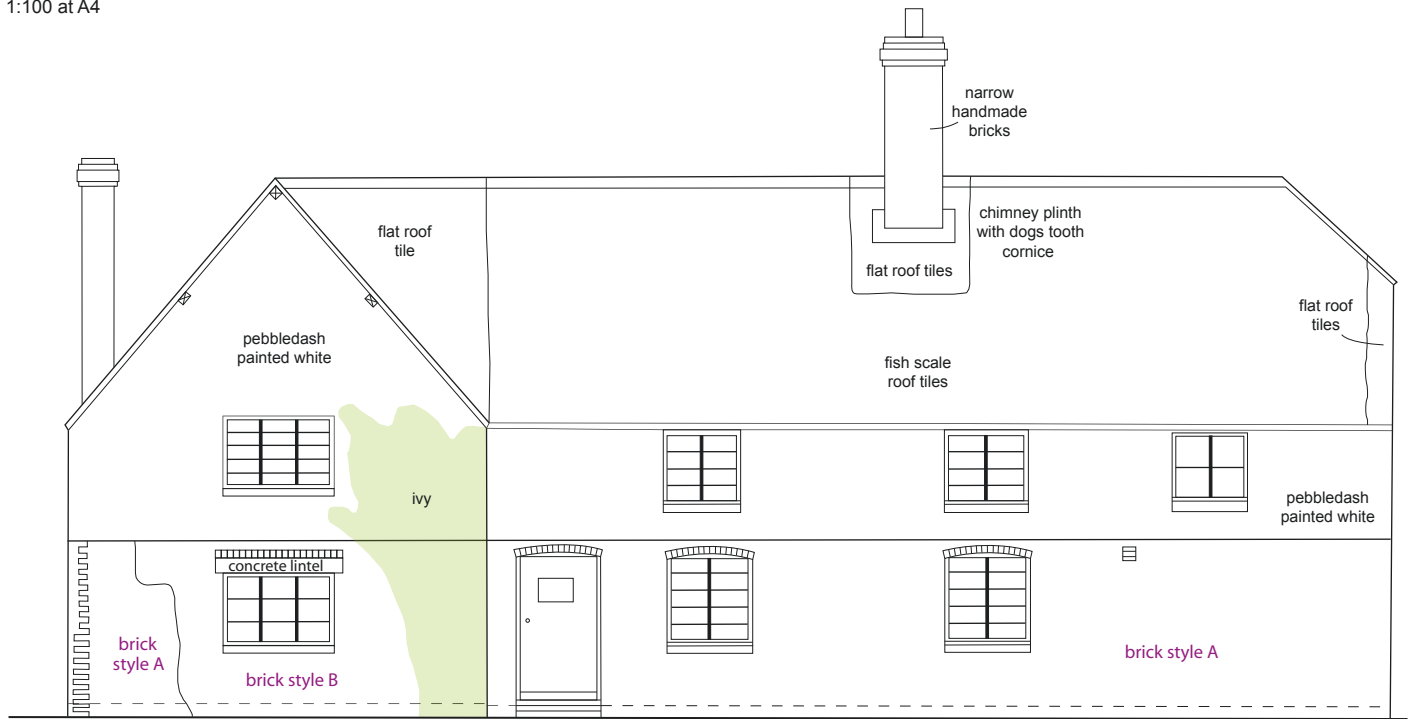




Location of the site.

Figure 1

1:100 at A4



South elevation



East elevation

**Brick Styles**

A - brown red cut bricks; English Bond; 9" x 4" x 3"; depth of 4 courses 13 1/2"

B - Brown misfired machine made bricks; Flemish Stretcher Bond; 9-9 1/4" x 4 1/4" x 2 7/8"; depth of 4 courses 13 3/4"

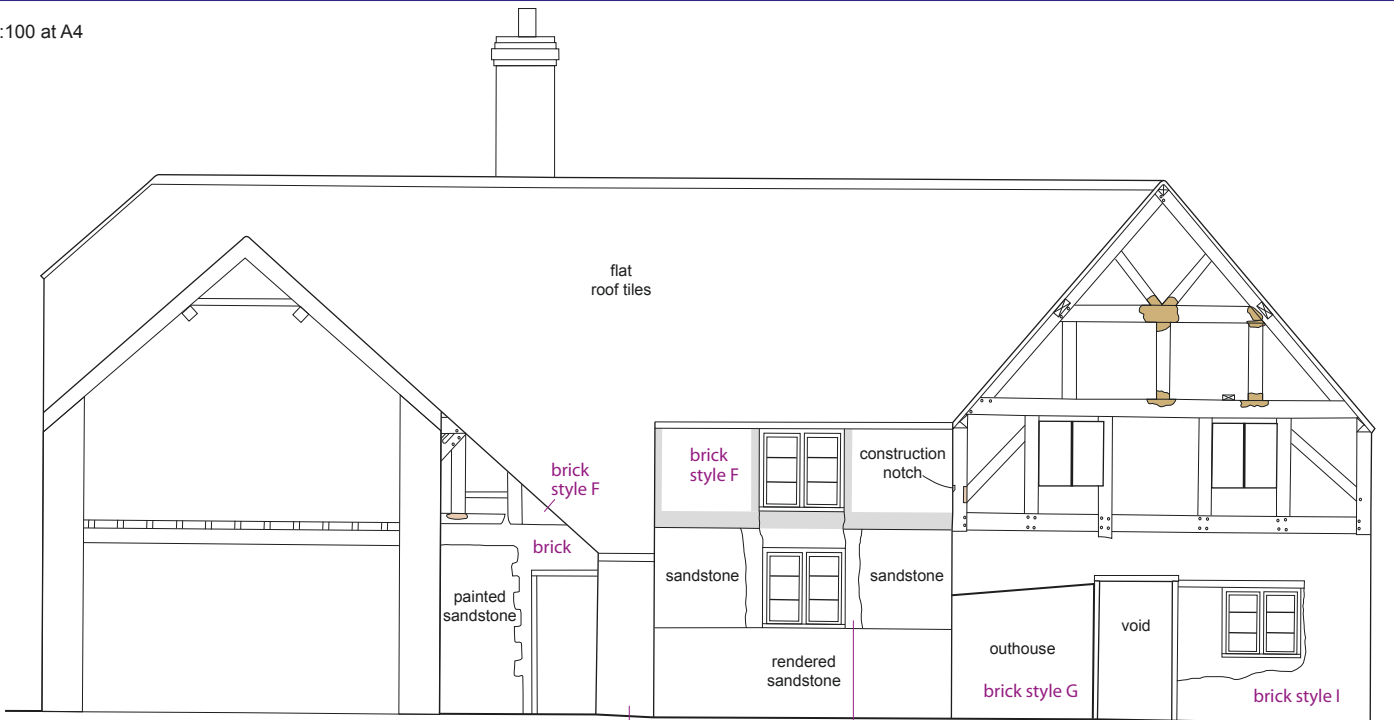
C - brown red cut bricks; English Bond; 9" x 4" x 3"; depth of 4 courses 13 1/2" (same as A)

D - terracotta colour mould made bricks; lots if inclusions; English Garden Wall Bond; 9" x 4 1/4" x 2 1/2"; depth of 4 courses 11 3/4"

South and East elevations

Figure 2

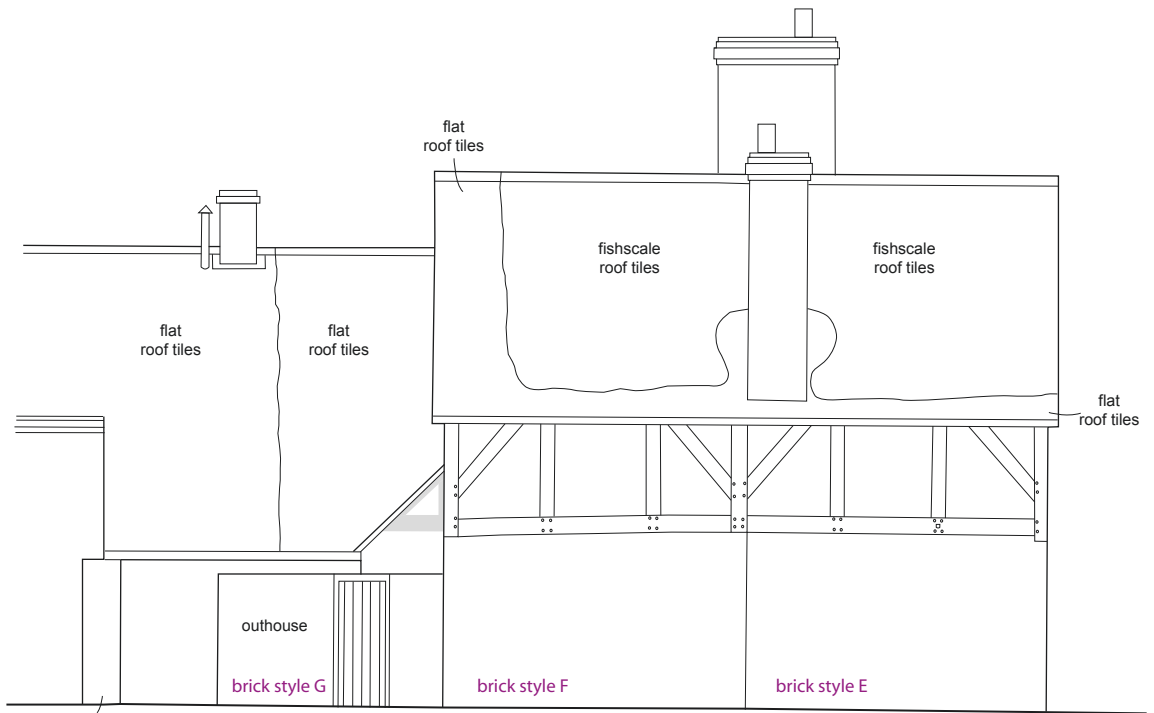
1:100 at A4



North elevation



- timber painted on
- mortar



West elevation







**Brick Styles**

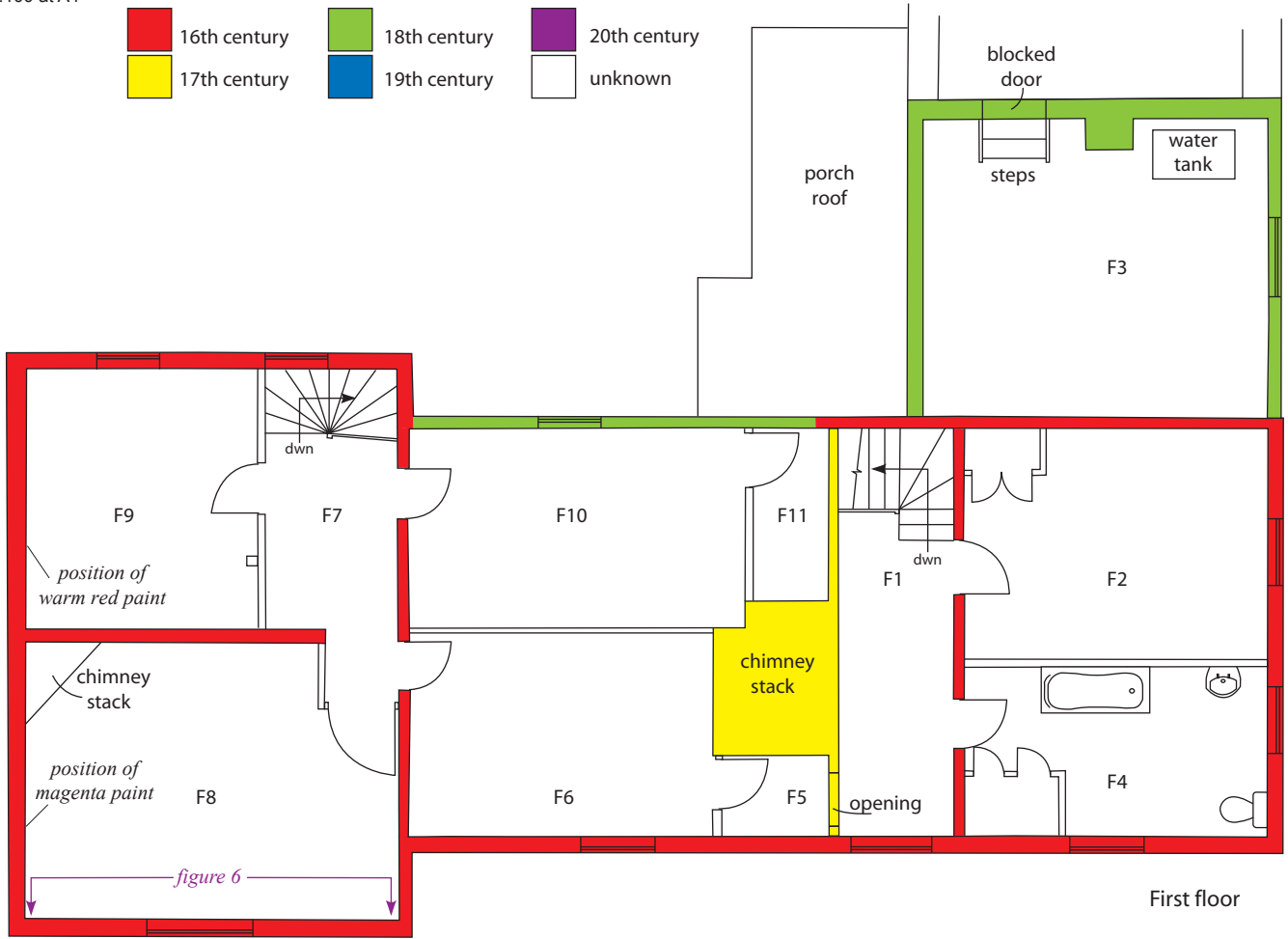
- E - orange red mould made bricks; some inclusions; cement mortar; Stretcher Bond; 9 1/2" x 4 1/2" x 2 3/4"; depth of 4 courses 13 1/2"
- F - brownish red mould made bricks; some inclusions; some misshaped; grass/straw marks; very pale almost white lime mortar; English Garden Wall Bond; 9" x 4" x 2 3/4"; depth of 4 courses 12 1/2"
- G - brownish red mould made, single thickness bricks; inclusions; grass/straw marks; cement mortar; Stretcher Bond; 9" x 4" x 2 1/4"; depth of 4 courses 12 1/4"
- H - white washed; possibly same as D; English Garden Wall Bond; 9" x 4 1/2" x 2 3/4"; depth of 4 courses 11 3/4"
- I - brownish red mould made bricks; some misshapen; some inclusions; Flemish Stretcher Bond; 9" x 4" x 2 3/4"; depth of 4 courses 12 1/2" (same as F)
- J - reused, dark red brown handmade bricks; inclusions; very early date; 8 1/2" x 3 3/4" x 2"; depth of 4 courses 9 3/4" - late 16th C
- K - red mould made bricks; rounded corners; grass/straw marks; English Garden Wall Bond; 9" x 4 1/2" x 2 3/4"; depth of 4 courses 12"

North and West elevations

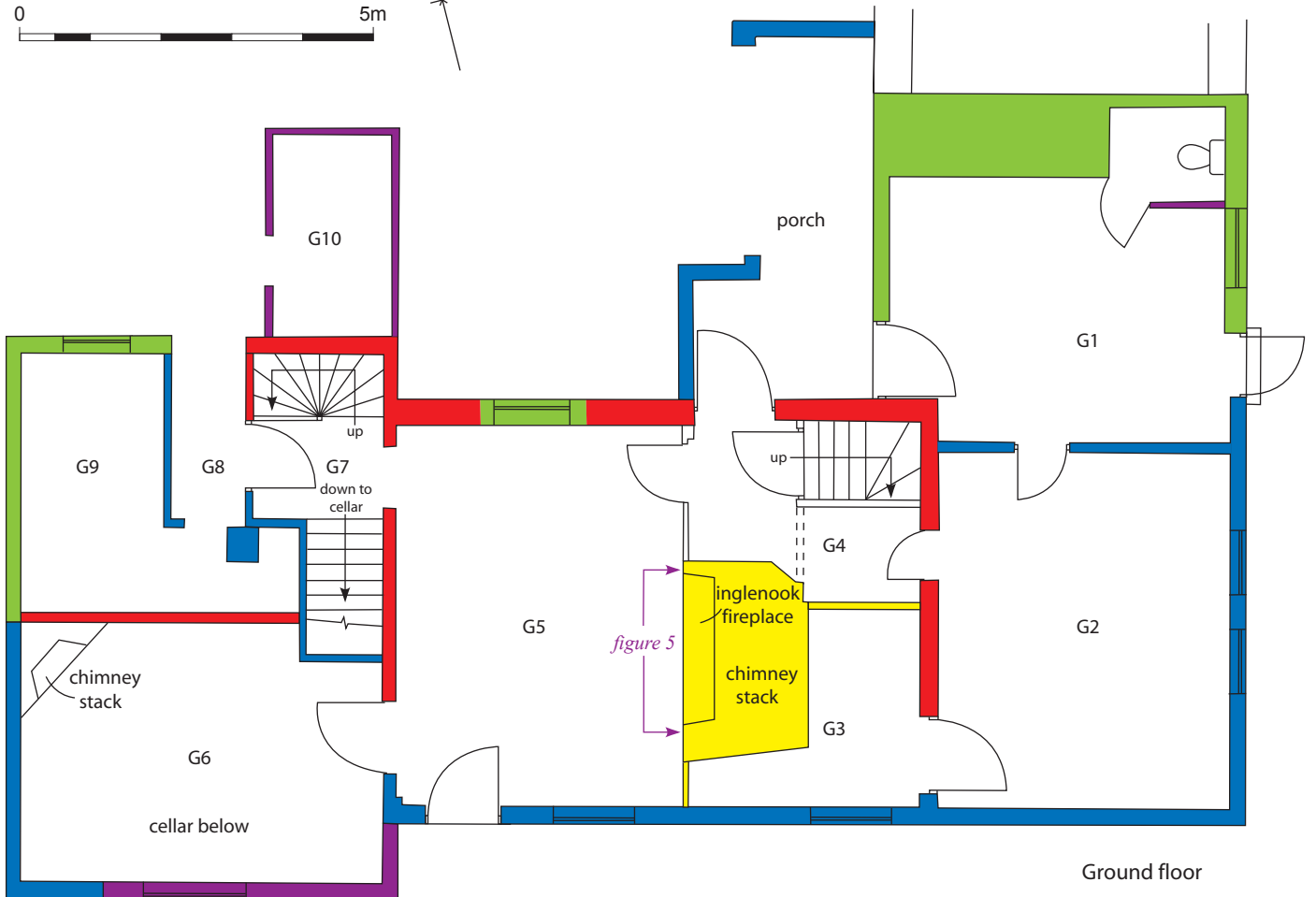
Figure 3

1:100 at A4

- |  |  |  |
|--|--|--|
|  16th century |  18th century |  20th century |
|  17th century |  19th century |  unknown      |



First floor







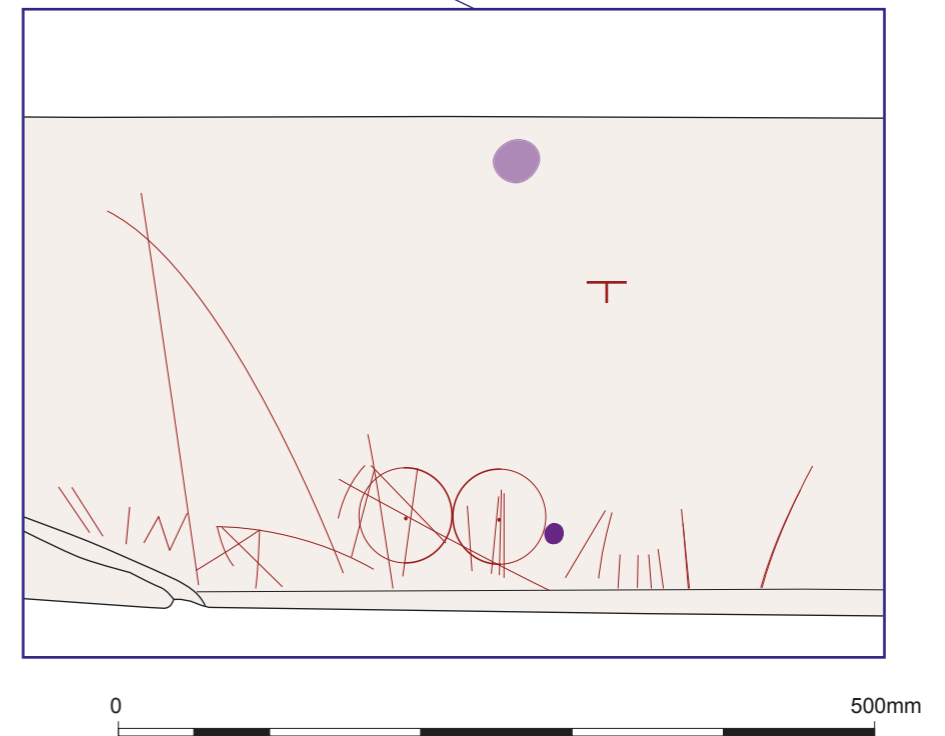
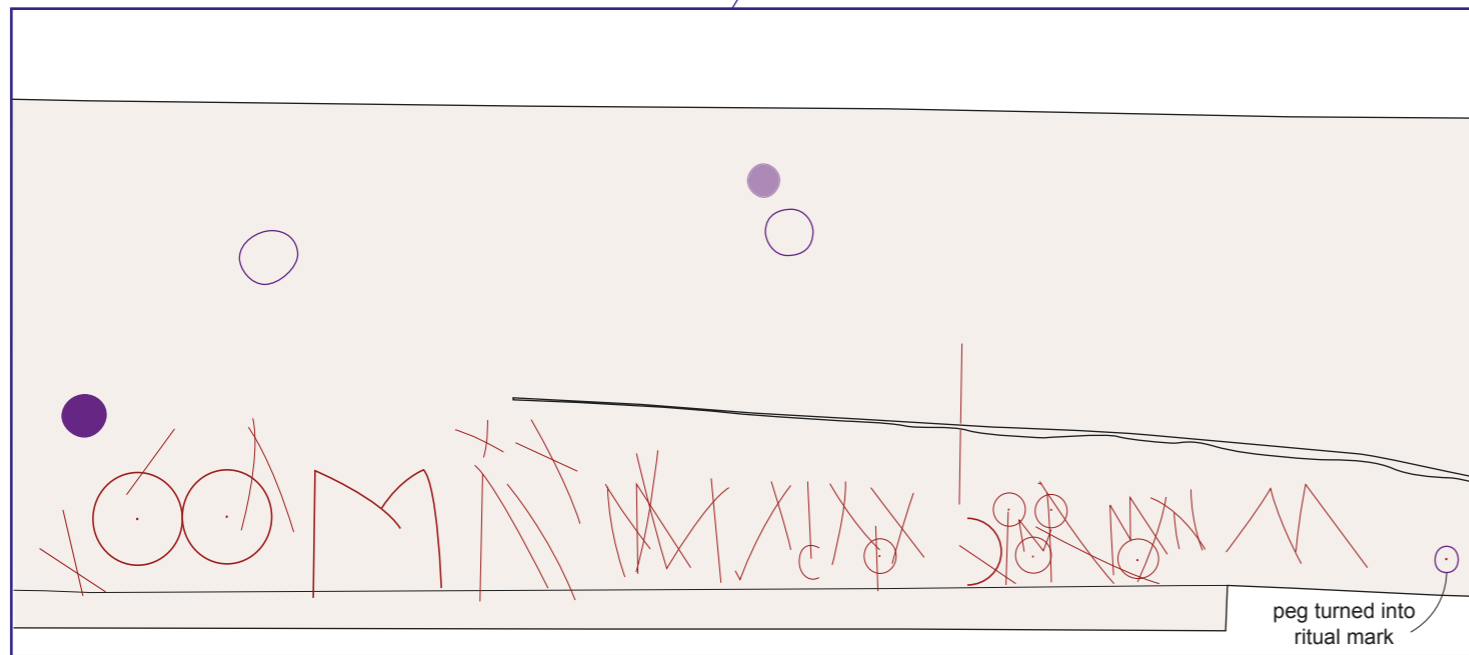
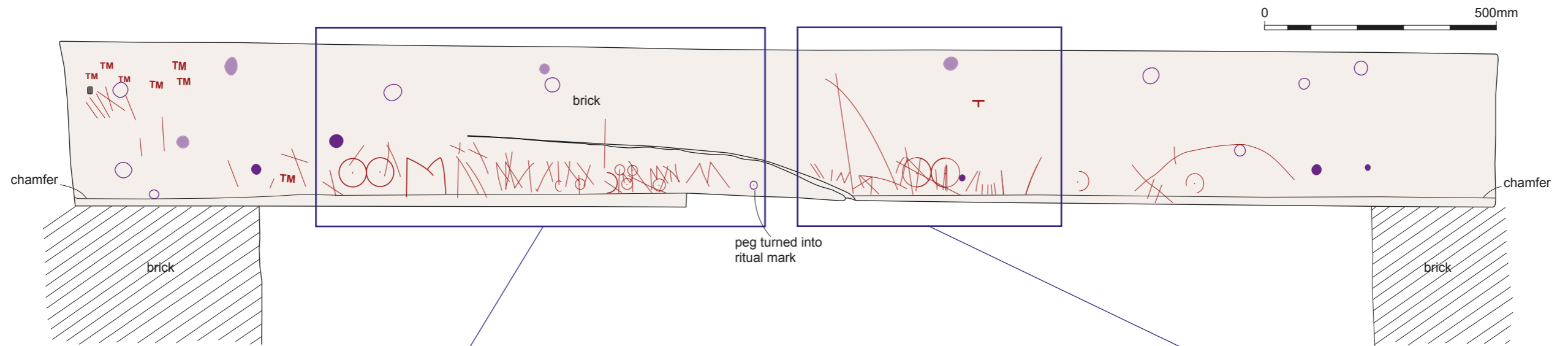
Ground floor

Phased ground and first floor plans

Figure 4



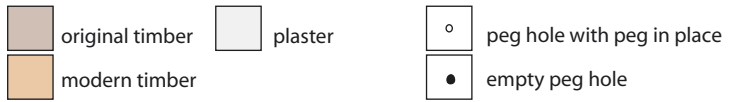
-  Empty peg hole
-  Peg hole covered in plaster
-  Peg in hole
-  Incised ritual marks



Inglenook fireplace bressumer ritual marks and details of most intense areas of marks

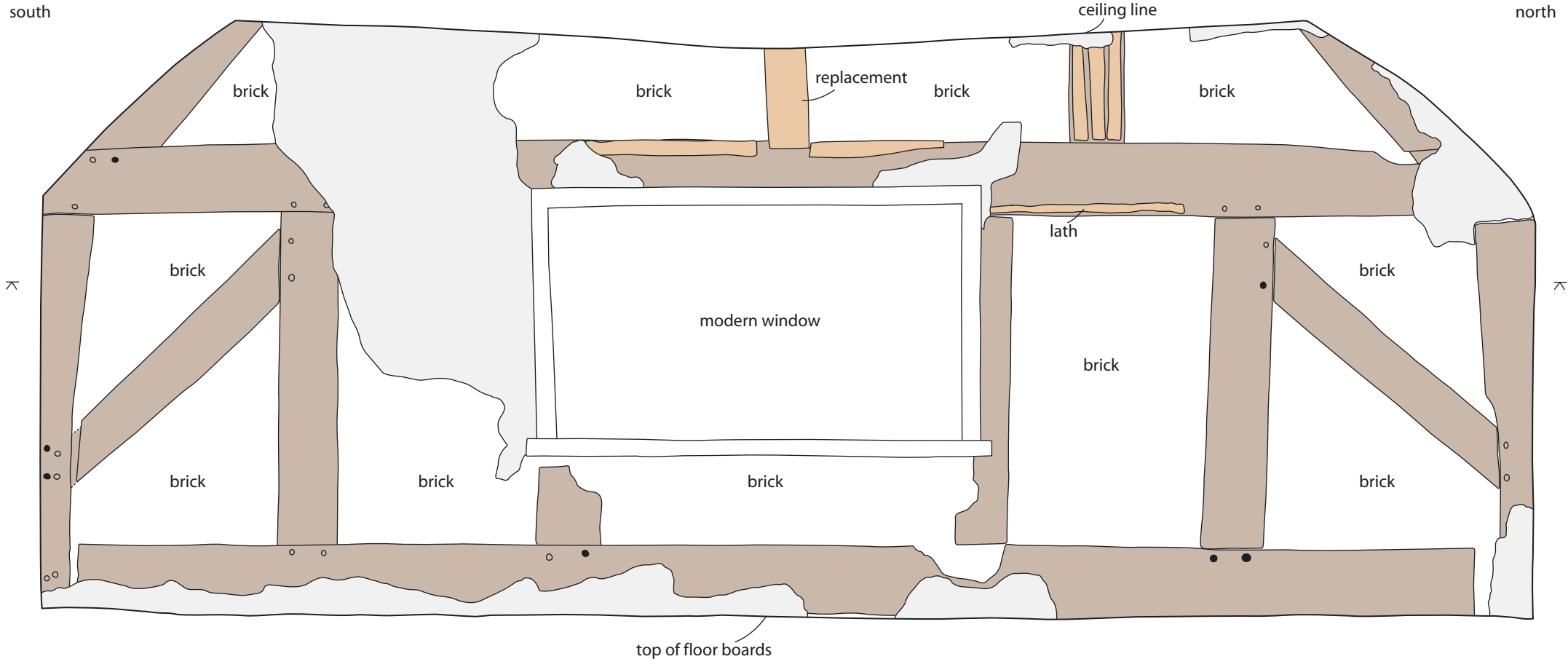
Figure 5

1:20 at A4



south

north



Example of timber frame: north facing elevation of Room F8

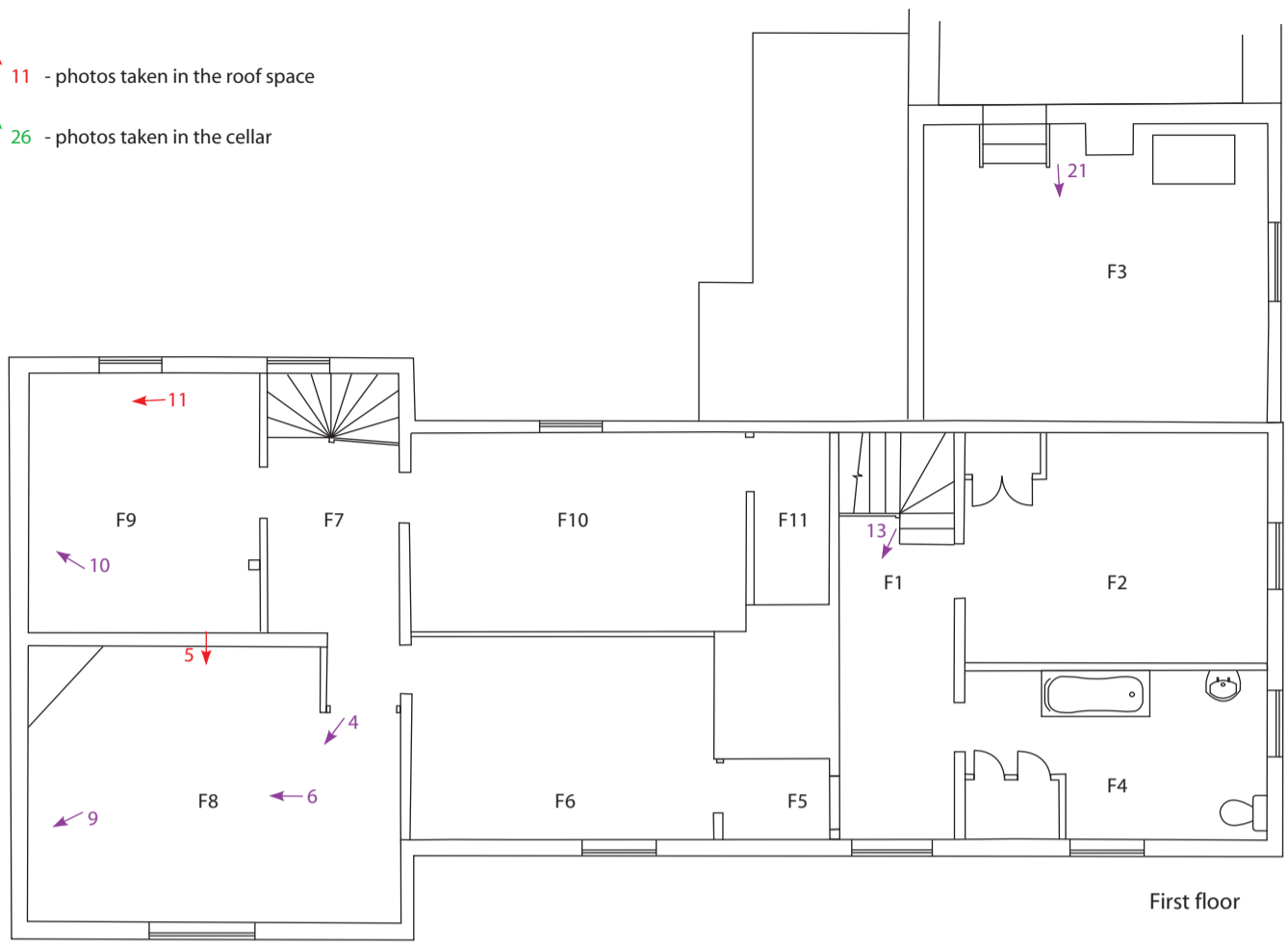
Figure 6

1:100 @ A3



↑ 11 - photos taken in the roof space

↑ 26 - photos taken in the cellar



First floor



Ground floor

Locations of photographs reproduced as plates

Figure 7

13. **Plates**

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*Plate 1: Plowstall Farmhouse south west elevation*



*Plate 2: Plowstall Farmhouse south east elevation*

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*Plate 3: Plowstall Farmhouse north west elevation*



*Plate 4: Revealed timber frame in room F8 (see also Fig 6)*



*Plate 5: V-struts above collar, roof space of cross-wing*



*Plate 6: Timber frame panels and up brace*



*Plate 7: Position of hall window in north east wall of building*



*Plate 8: Original staircase position in room G7*



*Plate 9: Magenta paint on timbers in room F8*



*Plate 10: Red paint on timbers in room F9*

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*Plate 11: Wind brace in roof space of cross-wing*



*Plate 12: 17<sup>th</sup> century inglenook fireplace*



*Plate 13: part of timber-frame wall behind chimney stack*

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*Plate 14: Ceiling beams in room G2 showing possible staircase position*





*Plate 15: Straight flight with winder staircase inserted in to cross passage*

---



*Plate 16: Blocking of hall window*



*Plate 17: Ritual (apotropaic) marks on fireplace bressumer*



*Plate 18: Apotropaic marks in fireplace bressumer showing 'marion' and 'spectacle' marks*



*Plate 19: East elevation of 18<sup>th</sup> century extension*

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*Plate 20: Fireplace in 18<sup>th</sup> century extension with bread oven to immediate right of scale*



*Plate 21: Party wall between 18<sup>th</sup> century extension and 16<sup>th</sup> service wing*



*Plate 22: 18<sup>th</sup> century (left) rebuild of west elevation ground floor*

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Plate 23: South elevation, ground floor 19<sup>th</sup> century rebuild



Plate 24: East elevation 19<sup>th</sup> century rebuild



*Plate 25: West elevation 19<sup>th</sup> century ground floor rebuild (right)*



*Plate 26: Cellar interior*





*Plate 27: Stairs to cellar*



*Plate 28: Timber cellar stairs partition wall*

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*Plate 29: 19<sup>th</sup> century porch*



*Plate 30: Moulded rounded brick pier of porch*



*Plate 31: Cat slide roof on porch*

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*Plate 32: 20<sup>th</sup> century repair building break on south elevation*



Plate 33: 20<sup>th</sup> century outhouse



Plate 34: Aerial photo of Plowstall Farm facing north (provided by former owner)

## **Appendix 1 Technical information**

### **The archive**

The archive consists of:

- 3 Fieldwork progress records AS2
- 4 Photographic records AS3
- 268 Digital photographs
- 6 Scale drawings

The project archive is intended to be placed at:

Worcestershire County Museum  
Hartlebury Castle  
Hartlebury  
Near Kidderminster  
Worcestershire DY11 7XZ  
Tel Hartlebury (01299) 250416

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## **Appendix 2 Dendrochronology**

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Oxford Dendrochronology Laboratory  
Report 2008/11

**THE TREE-RING DATING OF  
TIMBERS FROM  
PLOWSTALL FARMHOUSE,  
BAYTON,  
WORCESTERSHIRE**

**(NGR SO 695 732)**



**Summary**

Plowstall Farmhouse has a three-bay hall and two-bay two-storey cross-wing thought to be contemporaneous. It is listed as being of early 17<sup>th</sup>-century date. Six timbers from the cross-wing and two from the hall dated. None retained complete sapwood, but a couple of samples had only lost a very few outer rings on coring. The two parts of the house are seen to be of the same date, with the timbers most likely having been felled in the **1570s**. The site master composed of the eight dated timbers gives very strong matches with dated reference material and is of local origin.

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March 2008



## **The Tree-Ring Dating of Timbers from Plowstall Farmhouse, Bayton, Worcestershire (NGR SO 695 732)**

### **BACKGROUND TO DENDROCHRONOLOGY**

The basis of dendrochronological dating is that trees of the same species, growing at the same time, in similar habitats, produce similar ring-width patterns. These patterns of varying ring-widths are unique to the period of growth. Each tree naturally has its own pattern superimposed on the basic 'signal', resulting from genetic variations in the response to external stimuli, the changing competitive regime between trees, damage, disease, management etc.

In much of Britain the major influence on the growth of a species like oak is, however, the weather conditions experienced from season to season. By taking several contemporaneous samples from a building or other timber structure, it should be possible to crossmatch the ring-width patterns, and by averaging the values for the sequences, maximise the common signal between trees. The resulting 'site chronology' may then be compared with existing 'master' or 'reference' chronologies.

This process can be done by a trained dendrochronologist using plots of the ring-widths and comparing them visually, which also serves as a check on measuring procedures. It is essentially a statistical process, and therefore requires sufficiently long sequences for one to be confident in the results. There is no defined minimum length of a tree-ring series that can be confidently crossmatched, but as a working hypothesis most dendrochronologists use series longer than at least fifty years.

The dendrochronologist also uses objective statistical comparison techniques, these having the same constraints. The statistical comparison is based on programs by Baillie & Pilcher (1973, 1984) and uses the Student's *t* test. The values of '*t*' which give an acceptable match have been the subject of some debate; originally values above 3.5 being regarded as acceptable (given at least 100 years of overlapping rings) but now 4.0 is often taken as the base value. It is possible for a random set of numbers to give an apparently acceptable statistical match against a single reference curve - although the visual analysis of plots of the two series usually shows the trained eye the reality of this match. When a series of ring-widths gives strong statistical matches in the same position against a number of independent chronologies the series becomes dated with an extremely high level of confidence.

One can develop long reference chronologies by crossmatching the innermost rings of modern timbers with the outermost rings of older timbers successively back in time, adding data from numerous sites. Data now exist covering many thousands of years and it is, in theory, possible to match a sequence of unknown date to this reference material.

It follows from what has been stated above that the chances of matching a single sequence are not as great as for matching a tree-ring series derived from many individuals, since the process of aggregating individual series will remove variation unique to an individual tree, and reinforce the common signal resulting from widespread influences such as the weather. However, a single sequence can often be successfully dated.

Growth characteristics vary over space and time, trees in south-eastern England generally growing comparatively quickly and with less year-to-year variation than in many other regions (Bridge, 1988).

This means that even comparatively large timbers in this region often exhibit few annual rings and are less useful for dating by this technique.

When interpreting the information derived from the dating exercise it is important to take into account such factors as the presence or absence of sapwood on the sample(s), which indicates the outer margins of the tree. Where no sapwood is present it may not be possible to determine how much wood has been removed, and one can therefore only give a date after which the original tree must have been felled. Where the bark is still present on the timber, the year, and even the time of year of felling can be determined. In the case of incomplete sapwood, one can estimate the number of rings likely to have been on the timber by relating it to populations of living and historical timbers to give a statistically valid range of years within which the tree was felled. For this region the estimate used is that 95% of oaks will have a sapwood ring number in the range 11 - 41 (Miles 1997a).

Whenever possible, a *group* of precise felling dates should be used as a more reliable indication of the *construction period*. It must be emphasised that dendrochronology can only date when a tree has been felled, not when the timber was used to construct the structure under study. However, it is common practice to build timber-framed structures with green or unseasoned timber and that construction usually took place within twelve months of felling (Miles 2005).

## **PLOWSTALL FARMHOUSE, BAYTON**

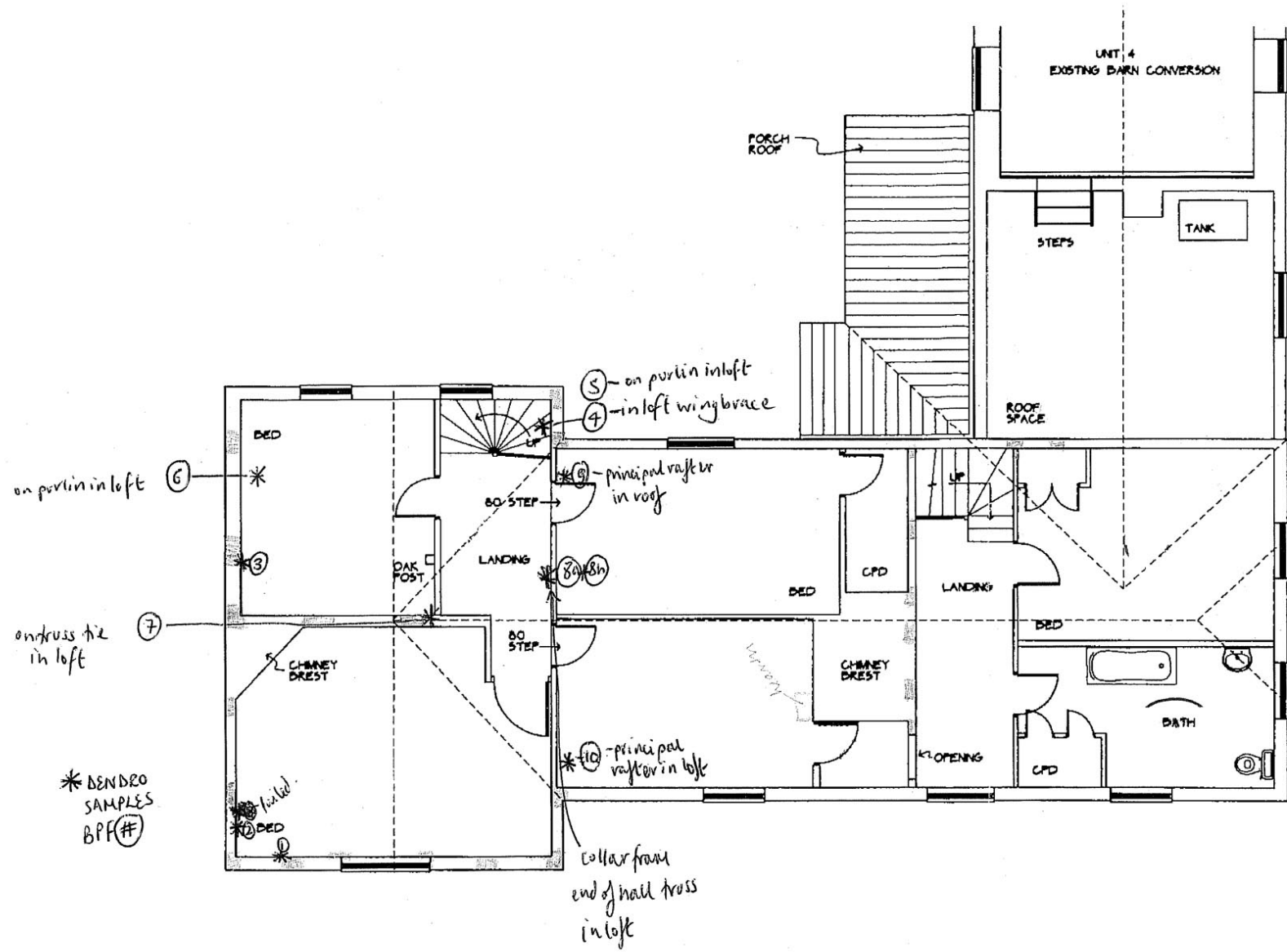
Plowstall Farmhouse has a three-bay hall and two-bay two-storey cross-wing thought to be contemporaneous. It is Listed as being of early 17<sup>th</sup>-century date. The side-purlin roof contains generously proportioned timbers, with particularly large principal rafters.

## **SAMPLING**

Sampling was undertaken in February 2008. Access to the roof of the cross-wing was far easier than the hall roof, and more timbers were therefore sampled from this part of the house. The west end truss of the east-west hall was accessible and was sampled in order to confirm the contemporaneity of the two elements.

Core samples were extracted using a 15mm diameter borer attached to an electric drill. They were labelled (prefix **bpf**) and removed for further preparation and analysis. Cores were mounted on wooden laths and polished with progressively finer grits down to 400 to allow the measurement of ring-widths to the nearest 0.01 mm.

The samples were measured under a binocular microscope on a purpose-built moving stage with a linear transducer, attached to a desktop computer. Measurements and subsequent analysis were carried out using DENDRO for WINDOWS, written by Ian Tyers (Tyers 2004).



**Figure 1:** First-floor plan showing the timbers sampled here and in the roof above, after an original drawing by S. Robson-Glyde

## **RESULTS AND DISCUSSION**

All the timbers sampled were of oak (*Quercus* spp.). The locations of the samples are given, along with other basic information, in Table 1 and illustrated in Figure 1. Complete sapwood was present on several of the timbers, but was very fragile and the outermost rings were lost on most samples. One timber, the collar to the west hall truss (**bpf08**) retained complete sapwood. Two cores were taken from this as one lost the outer ring on coring, but although the samples could be matched together, the resulting series did not match other samples, nor did it date independently against dated reference material. Another sample, **bpf04**, despite being 76 years long, also failed to match the other timbers, or to date independently.

The remaining eight timbers could all be matched together (Table 2) and a 161-year site master chronology, **BAYTONPF** was derived by combining the series. This was dated to the period AD 1410–1570 by comparison with dated material, and gave exceptionally strong matching. The best results of the cross-matching are given in Tables 3a (with regional chronologies) and 3b (with individual sites).

The relative positions of overlap of the dated samples are shown, along with their derived likely felling date ranges, in Figure 2. The eight dated timbers have their heartwood-sapwood boundary dates within a nine-year period, with a mean heartwood-sapwood boundary date of 1544. This would yield a likely felling date range of 1555-1585, which can be modified in the light of retained sapwood rings to 1571-1585. As noted at the time of sampling, a couple of the timbers lost only a few outer rings of fragile sapwood, and the most likely period of felling for this group of timbers is therefore in the **1570s**.

## **ACKNOWLEDGEMENTS**

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**Table 1:** Timbers sampled from Plowstall Farmhouse, Bayton Worcestershire

Sample number	Timber and position	Dates AD spanning	H/S bdry	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges (AD)
<b>Cross-wing</b>									
* bpf01	South wallplate room F8	1457-1543	1541	2	87	1.29	0.27	0.181	1552-1582
* bpf02	South brace in west wall	1477-1560	1549	11	84	1.67	0.28	0.119	1561-1590
* bpf03	Stud in west wall	1431-1542	1542	H/S	112	1.00	0.20	0.185	1553-1583
bpf04	North-east wind brace	undated	-	H/S	76	0.96	0.28	0.146	unknown
* bpf05	East purlin	1410-1558	1545	13 (+11NM)	149	1.07	0.28	0.157	1570-1586
* bpf06	West purlin	1410-1570	1546	24	161	1.19	0.31	0.129	1571-1587
* bpf07	Tie in central truss	1446-1560	1546	14	115	1.59	0.44	0.173	1561-1587
<b>Hall</b>									
bpf08a	Collar to west truss	<i>undated</i>	-	25C	58	1.55	0.88	0.275	
bpf08b	<i>ditto</i>	<i>undated</i>	-	24	50	1.43	0.75	0.298	
bpf08	Mean of 08a + 08b	undated	-	25C	58	1.56	0.88	0.274	unknown
* bpf09	North principal rafter to west truss	1457-1561	1543	18	105	1.25	0.28	0.154	1562-1584
* bpf10	South principal rafter to west truss	1429-1542	1542	H/S	114	1.27	0.35	0.216	1553-1583
* = included in Site Master <b>BAYTONPF</b>		<b>1410-1570</b>			<b>161</b>	<b>1.20</b>	<b>0.28</b>	<b>0.130</b>	

Key: H/S bdry = heartwood/sapwood boundary – last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; C = complete sapwood, winter felled; Sapwood estimate of 11 - 41 used for English timbers (Miles 1997).

**Table 2:** Cross-matching between the dated samples from Plowstall Farmhouse, Bayton

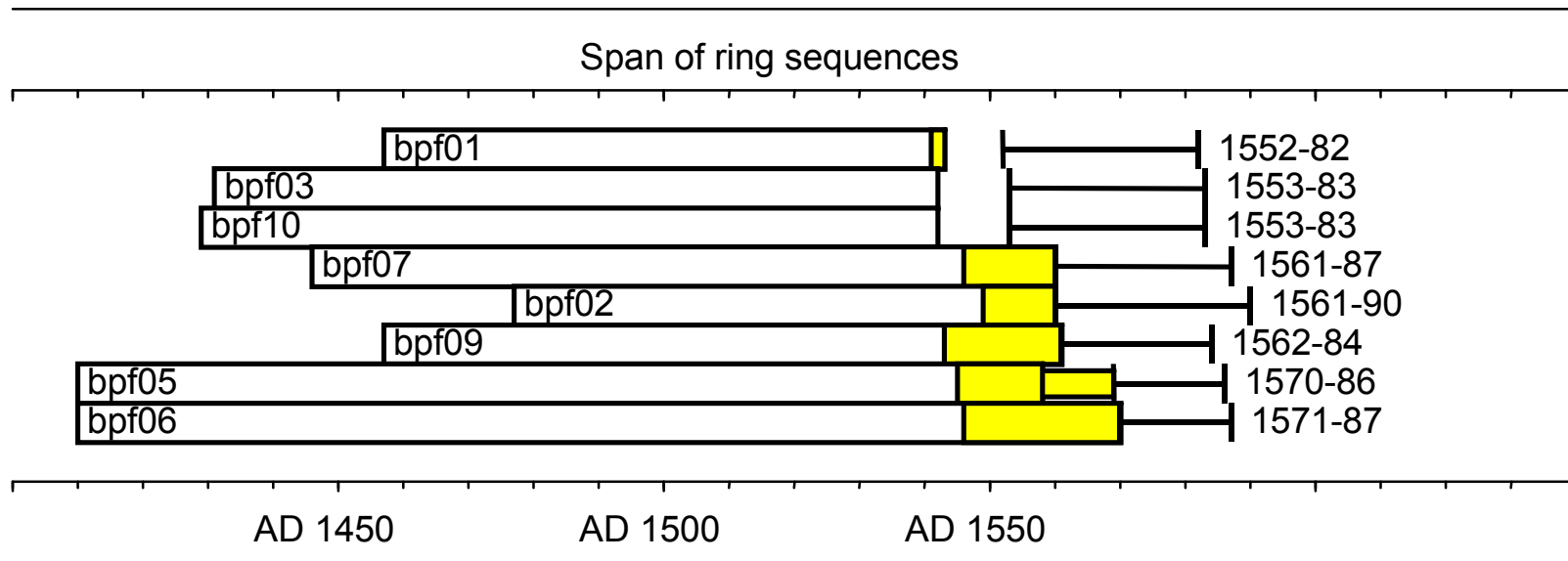
<b>Sample</b>	<b>bpf02</b>	<b>bpf03</b>	<b>bpf05</b>	<b>bpf06</b>	<b>bpf07</b>	<b>bpf09</b>	<b>bpf10</b>
<b>bpf01</b>	3.2	4.2	1.0	3.4	6.3	3.9	7.8
<b>bpf02</b>		3.1	2.0	5.2	2.7	4.6	3.1
<b>bpf03</b>			3.3	6.0	4.7	4.8	4.8
<b>bpf05</b>				4.7	4.1	4.7	3.3
<b>bpf06</b>					3.3	6.2	2.8
<b>bpf07</b>						5.3	9.4
<b>bpf09</b>							4.8

**Table 3a:** Dating evidence for the site sequence **BAYTONPF** AD 1410–1570 with regional multi-site chronologies in **BOLD**

<i>County or region:</i>	<i>Chronology name:</i>	<i>Short publication reference:</i>	<i>File name:</i>	<i>Spanning:</i>	<i>Overlap (yrs):</i>	<i>t-value:</i>
Wales	Welsh Master Chronology	(Miles 1997)	<b>WALES97</b>	404-1981	161	13.8
Shropshire	Shropshire Master Chronology	(Miles 1995)	<b>SALOP95</b>	881-1745	161	13.6
Wales/borders	Hillside oaks	(Siebenlist-Kerner 1978)	<b>GIERTZ</b>	1341-1636	161	13.2
Great Britain	British Isles Master Chronology	(Haddon-Reece and Miles 1993)	<b>MASTERAL</b>	404-1987	161	11.9
Northern England	Northern England Master	(Hillam and Groves 1994)	<b>NORTH</b>	440-1742	161	11.5
Yorkshire	Yorkshire Buildings Chronology	(Hillam pers comm)	<b>YORKS2</b>	1192-1663	161	10.5
East Midlands	East Midlands Master	(Laxton and Litton 1988)	<b>EASTMID</b>	882-1981	161	9.1
Somerset	Somerset Master Chronology	(Miles 2004)	<b>SOMRST04</b>	770-1979	161	8.8

**Table 3b:** Dating evidence for the site sequence **BAYTONPF** AD 1410–1570 with individual site chronologies

<i>County or region:</i>	<i>Chronology name:</i>	<i>Short publication reference:</i>	<i>File name:</i>	<i>Spanning:</i>	<i>Overlap (yrs):</i>	<i>t-value:</i>
Staffordshire	Sinai Park	(Tyers 1997)	SINAI	1227-1750	161	10.9
Herefordshire	Little Brockhampton Gatehouse	(Nayling 2001)	LBG-T10	1368-1543	134	10.7
Herefordshire	White House, Vowchurch	(Nayling 2000)	WVT9	1364-1602	161	10.3
Warwickshire	Kingsbury Hall	(Arnold <i>et al</i> 2006)	KNGHSQ01	1391-1564	155	10.2
Worcestershire	Upwich salt making site	(Groves and Hillam 1997)	UPWICH3	1454-1651	117	10.2
Shropshire	Brookgate Farm	(Miles and Haddon-Reece 1993)	BROOKGT	1362-1611	161	10.0
Wales	Rhos-fawr-isaf, Meifod	(Miles <i>et al</i> 2005)	RHOSFAWR	1430-1576	141	10.0
Gloucestershire	Mercer's Hall, Gloucester	(Howard <i>et al</i> 1996)	GLOUCMH	1289-1541	132	10.0
Worcestershire	Old School Ho., Bayton	(Bridge 1996)	BAYTON	1348-1525	116	9.6



**Figure 2:** Bar chart showing the relative positions of overlap of the samples dated, showing their sapwood complements (yellow hatched areas) and their derived likely felling date ranges. Narrow sections of bar indicate additional unmeasured rings.



## **REFERENCES**

- Arnold, A. J., Howard, R. and Litton, C. D. (2006) *Tree-ring analysis of timbers from Kingsbury Hall, Kingsbury, Warwickshire*, **Res Dept Rep**, 53/2006.
- Baillie, M.G.L. and Pilcher, J.R. (1973) *A simple cross-dating program for tree-ring research*. **Tree Ring Bulletin**, 33, 7-14.
- Bridge, M. C. (1996) List 69 - Tree-ring dates, **Vernacular Architecture**, 27, 91-92.
- English Heritage (1998) *Guidelines on producing and interpreting dendrochronological dates*, **English Heritage, London**.
- Groves, C. and Hillam, J. (1997) *Tree-ring analysis and dating of timbers, in Multiperiod Saltmaking at Droitwich, Hereford & Worcester - excavations at Upwich, 1983-4*, (ed J D Hurst), **CBA Res Rep**, 107, 74-88.
- Haddon-Reece, D. and Miles, D. H. (1993) Working compilation of 190 British reference chronologies supplied by various researchers, unpublished computer file MASTERAL, Oxford Dendrochronology Laboratory.
- Hillam, J. and Groves, C. (1994) Compilation of master chronologies from the North, unpublished computer file NORTH, Sheffield Dendrochronology Laboratory
- Howard, R., Laxton, R. R. and Litton, C. D. (1996) *Tree-ring analysis of timbers from Mercer's Hall, Mercer's Lane, Gloucester*, **Anc Mon Lab Rep**, 13/96.
- Laxton, R. R. and Litton, C. D. (1988) An East Midlands Master Tree-Ring Chronology and its use for dating Vernacular Buildings, Univ Nottingham, Dept of Classical and Archaeology Studies, Monograph Ser, 3.
- Miles, D. H. (1995) Working compilation of 71 reference chronologies centred around Shropshire by various researchers, unpublished computer file SALOP95, Oxford Dendrochronology Laboratory
- Miles, D. (1997a) The interpretation, presentation, and use of tree-ring dates, **Vernacular Architecture**, 28, 40-56.
- Miles, D. H. (1997b) Working compilation of 58 reference chronologies centred around Wales by various researchers, unpublished computer file WALES97, Oxford Dendrochronology Laboratory
- Miles, D. H. (2004) Working compilation of reference chronologies centred around Somerset by various researchers, unpublished computer file SOMRST04, Oxford Dendrochronology Laboratory.
- Miles, D. H. and Haddon-Reece, D. (1993) List 54 - Tree-ring dates, **Vernacular Architecture**, 24, 54-60.
- Miles, D. H., Worthington, M. J. and Bridge, M. C. (2005) Tree-ring dates, **Vernacular Architecture**, 36, 87-101.
- Nayling, N. (2000) *Tree-ring analysis of timbers from The White House, Vowchurch, Herefordshire*, **Anc Mon Lab Rep**, 73/99.
- Nayling, N. (2001) *Tree-ring analysis of timbers from Lower Brockhampton Gatehouse, near Bromyard, Herefordshire*, **Centre for Archaeology Rep**, 98/2001.
- Siebenlist-Kerner, V. (1978) 'The Chronology, 1341-1636, for certain hillside oaks from Western England and Wales', in *Dendrochronology in Europe* (ed J M Fletcher), **BAR**, 51, 157-161.
- Tyers, I. (1997) *Tree-ring analysis of Timbers from Sinai Park, Staffordshire*, **Anc Mon Lab Rep**, 80/97.
- Tyers, I. (2004) *Dendro for Windows Program Guide 3rd edn*, **ARCUS Report**, 500b.