

BUILDING SURVEY OF
A FORMER MALTHOUSE
BEHIND 19, ST. JOHN'S,
WORCESTER

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General view of S. Gable with St John's Church spire in background

Building Survey of a former Malthouse behind 19, St. John's, Worcester

Steve Litherland

Part 1 Project summary

A building survey was undertaken of a structure behind 19, St John's, Worcester (NGR SO 8409 5446). This was requested by EC Harris on behalf of Arthur Amos Associates (acting on behalf of Sainsbury's Supermarkets) in accordance with a brief prepared by Worcester City Museum Archaeology Section in response to the submission of a planning application to Worcester City Council (reference numbers P07C0408 & L07C0084). These remains were recorded prior to and during demolition in advance of the construction of a new youth centre, and was part of a broader scheme of archaeological evaluation of Phases 2 to 8 of the Sainsbury's scheme that included additional trial trenching.

The potential survival of a malthouse had been identified by previous archaeological desk-based assessment from documents and maps, and also limited internal and external inspection. The building survey was able to confirm that significant parts of a three-storey malthouse consistent in style and build with a later 18th century date had survived despite extensive later alteration. This correlated with a proposed original build date of around 1790 by a John Hooper, baker and maltster, as derived from historical documentation.

There was enough structural evidence to interpret that the malthouse comprised a steeping/storage floor, a germination/storage floor, and a withering floor in the basement/undercroft, ground floor and upper storey, respectively, while the wider northernmost component housed the kiln, drying floor, and main access areas. A substantial brick-built well was also situated to the east of the kiln. The well contained the remains of an Archimedes screw mechanism made of cast-iron with wooden paddles still in situ.

The malthouse was both larger and more scientifically organised than a traditional one of perhaps a century or so earlier, but it was not yet truly industrial in scale. It was purpose-built using brick and cast-iron alongside traditional heavy hand-carpentered timber floors, joists, and roof trusses. It was cleverly designed to work within the confines of the complicated medieval back plot pattern of the area. The slope of the site down from the south towards St John's also seems to have been used to advantage. Heavy raw materials such as coke and barley could be loaded easily into the building from the yard immediately to the rear of the frontages that had cart access from St. John's. The rear of the plot overlooked fields and gardens until the latter half of the 20th century.

There was limited evidence of mid 19th century improvements, including the provision of piped water, together with 20th century changes related to its subsequent use as a cabinet works, a cycle works and a garage. After WWII the story of this plot becomes linked to the expansion and nationalisation of the grocery trade. Extensive change occurred in the 1950s when Burton's Supermarket, later absorbed into the Fine Fare chain, redeveloped most of the site, although parts of the malthouse survived. With the expansion of supermarket shopping into ever larger and larger stores Fine Fare closed in the 1990s, and the shop was subdivided back into smaller specialist retail concerns, with Bourne Builders occupying the remains of the malthouse. Finally, the new Sainsbury's development which brings supermarket shopping back into the town thus moving away from the era of the 'greenfield superstore', has led to the most recent phase in the development of this medieval back plot.

Part 2 Detailed report

1. Background

1.1 Reasons for the project (Fig. 1 Location of the Maltings)

A building survey was undertaken of a former malthouse behind 19, St John's, Worcester (NGR SO 8409 5446). This was requested by EC Harris on behalf of Arthur Amos Associates (acting on behalf of Sainsbury's Supermarkets) in accordance with a brief prepared by Worcester City Museum Archaeology Section in response to the submission of a planning application to Worcester City Council (reference numbers P07C0408 & L07C0084).

The remains of the former malthouse was recorded prior to and during the demolition of the Bourne Builders office and stores and the adjacent Transcad building behind 19, St John's, in advance of work to build a new youth centre and access there, and was part of a broader programme of archaeological evaluation of Phases 2 to 8 of the Sainsbury's scheme that included selective trial trenching in the yard area adjacent to Bourne Builders, which is reported on elsewhere (Wainwright 2009).

The potential survival of the former malthouse had been identified by previous archaeological desk-based assessment from documents and maps, and also limited internal and external inspection. This background is covered in several research reports listed in section 1.1 of the HEAS project proposal dated 31 October 2007 and therefore is not repeated here (the most relevant being Hughes 2000 and Tann 2000).

1.2 Project parameters

The project conforms to the Institute for Archaeologists' *Standard and guidance for the archaeological investigation and recording of standing buildings or structures field evaluation* (revised 2008) and Worcester City Council (*Requirements for archaeological building recording*, 2007) is designed to provide a level 3 record as defined by English Heritage (*Understanding historic buildings: A guide to good recording practice*, 2006).

A project proposal (including detailed specification) was produced (HEAS 2007) and approved prior to the commencement of the project.

1.3 Aims

The aims of the project were to establish the character, history, dating, form and development of the malthouse and its setting, and to further consider the colonisation of back-plot areas and land in suburbs in the post-medieval period.

2. Methods

2.1 Documentary search

A detailed programme of desk-top assessment had been carried out as specified in section 1.1 of this report (see above). Therefore, no further historical research was carried out as part of this survey, with the exception of obtaining readable quality copies of the 1950s building plans from Worcester City Council (WCC Planning Dept. Ref 9403 & 12106).

2.2 Fieldwork methodology

2.2.1 Fieldwork strategy

A detailed specification has been prepared by the Service (HEAS 2007 section 1.3 *Buildings fieldwork*), and included photography, drawing, analysis, and reporting in a Stage 2 report.

Fieldwork was undertaken in January and February 2008, and included further observation and recording of the malthouse during demolition.

2.2.2 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was achieved through a combination of structural and artefactual evidence, allied to the information derived from documentary sources and comparative study of similar structures.

2.2.3 Artefact recovery policy

All artefacts from the area of the evaluation were retrieved by hand and retained in accordance with the service manual (CAS 1995 as amended).

Artefacts were identified, quantified and dated and a *terminus post quem* date produced for each stratified context.

2.3 The methods in retrospect

The methods adopted allow a high degree of confidence that the aims of the project have been achieved. The weather was good throughout the course of the fieldwork.

3. Topographical, archaeological and industrial context

(Fig 2 Plans of the Maltings, 1789 and 1816; Fig 3 Extracts from the Tithe Map, 1840 and Ordnance Survey 1888, 1926 and 1940; Fig 4 Aerial view of St John's, 1938)

The potential survival of the former malthouse had been identified by previous archaeological desk-based assessment from documents and maps, and also limited internal and external inspection (Tann 2000, & Hughes 2000, 31-31). These results are summarised, briefly, below because they provide a framework for interpreting the structural development of the building.

The St John's district lies upon a gravel terrace on the western bank of the River Severn. For the purposes of this survey the plot in which the malthouse lies follows the numbering system established in 1910 and is simplified to 19, St John's, following the amalgamation of the plot frontages into a supermarket in the 1950s, although the building actually lies behind 21, St. John's. Prior to 1910 the building lay behind 61, St John's. This land belonged to the charity of St John's from the 13th century, although the first lease identified is 17th century in date. The broad morphology of the plots to the south of St John's is indicative of a medieval origin, albeit one constrained by earlier features. The plot amalgamation appears to date back to a fundamental reorganisation that took place here in 1789 that generated an accompanying plan. Records show that the two messuages here were old and empty and a new lease to John Hooper, a baker and maltster, required him to redevelop the plot, including the construction of a malthouse and bakehouse. There is evidence that another maltster, George Charles, continued to operate the malthouse into the later 19th century. Thereafter, 19, St John's is listed as occupied by Henry Allen a cabinet maker, Alfred Allen, a draper (1904), F W Bullock & Co, bicycle makers (1916), and Norman's Garage (1920s-1938). After WWII a series of grocers/early supermarkets undertook to further amalgamate and redevelop the plot, Bourne Builders taking over the former malthouse behind. This situation continued until the

early 1990s when the supermarket shut and the frontage was subdivided into smaller shops again, followed in the later 2000s by Bourne Brothers closing their operation here.

In order to understand and identify the various components of the malthouse it is necessary to have a general overview of the processes typically carried out at the time it was constructed. Malt is used in brewing and some types of baking. Malt vinegar is also an ingredient of Lea and Perrin's Worcestershire Sauce, one of the region's best-known products.

Malt provides the colour, much of the flavour, and the alcohol to beer. It is produced by germinating barley - through cheating the seeds into sprouting and turning their stores of starch into sugars, then abruptly halting this process by heating - to create malt. The St John's malthouse was built at a time of transition in the industry, incorporating many of the features of traditional manual malting except on a larger scale, although this was nowhere near that of later 19th century mechanised and industrialised operations.

A useful contemporary guide to the theory and process of malting using a three-storey malthouse was given in the 'A Practical Brewer' produced in 1793. Barley arrived and was sorted, partially dried, and stored, prior to being *steeped* or soaked in large cisterns with plenty of fresh water (in the basement). This water was changed regularly for three days. The grains were then drained and rinsed for a period of twelve hours. These grains were then spread over a *growing* floor (above the basement) at a depth of between ten and fifteen inches. They were then regularly turned by hand using large wooden shovels for a period of twenty to twenty five days until they started to germinate. As this process mimicked spring conditions in the ground it was very important that the temperature was regulated at this stage, and that the growing floor be kept reasonably dark. Once germination had taken place the barley was moved to the *withering* floor (on the upper storey) where it was partially dried for a period of three to four days, still being turned regularly. Finally, the grains were moved to the kiln-drying floor and spread over this to a depth of about two inches where they were turned perhaps every quarter of an hour. The firing had to take place slowly to avoid scorching and the uniquely pierced ceramic floor tiles, characteristic of the malting industry, allowed high temperatures to be reached creating 'brown malt', loved by brewers for its rich colour and flavour. After this heating the malt was put into sacks and stored for a minimum of three months.

4. Results

The building survey was able to confirm that significant elements of a three-storey type malthouse, consistent in style and build with a later 18th century date, had survived despite extensive later alteration (Patrick 1996). Its form and style correlated with a proposed original build date of around 1790, as indicated by the existing historical documentation.

4.1 Structural analysis

(Fig 5 The Maltings, Plan of the Ground Floor; Fig 6 The Maltings, Plan of the basement, Fig 7 The Maltings, Plan of the Upper Storey; Fig 8 The Malting, Existing elevations and cross section; Plates 1 -20)

A summary description of the building is outlined below, although because the extent of later alterations is so widespread (up to 40%) for clarity the description of these is cursory and largely confined to recorded plans and elevations along with some photography. The reconstruction of the probable form and functioning of the original malthouse and the phasing of these alterations is then outlined in the synthesis (section 6.0) of this report.

The malthouse was a rectangular structure aligned north/south, but set back from and perpendicular to the St John's street frontage. In total it measured just over 29m in length and consisted of two major elements. The northernmost 12m of the building, largely comprising the former kiln area, was 9m wide and two storeys in height. All the buildings to the north of this (i.e. Transcad) and the supermarket with flats over were modern, being rebuilt either in

the late 19th or the mid 20th century, and are therefore not of historic significance. To the south of the kiln lay a longer and narrower structure, once containing the malting floors. This was 6m in width and three stories in height, consisting of a 'basement', ground floor, and a partially reinserted upper storey. The roof had been replaced with asbestos sheeting and sawn-timber trusses probably when Norman's Garage occupied the site, although some reuse of earlier hand-carpenetered timbers was evident. Most of the northern part of the building (where the kiln was originally located) had been dismantled to ground-floor level and incorporated into the Transcad building, probably at the same time that the roof was replaced and the well built over in the early part of the 20th century. The distinctive kiln flue/roof was no longer visible on an aerial photograph taken in 1938 (Fig 4), although disused ovens were noted still *in situ* in the basement of the kiln on a 1950s building plan (Fig 12).

The original build features of the malthouse included one and a half brick wide gable and main elevation walls to the 'basement' and ground storeys, narrowing to one brick wide for the upper storey to provide a supporting plinth for the upper floor (since removed). These were constructed from a rich orangey-red, clamp-fired brick with dimensions of 8^{1/2} by 4^{1/4} by 2^{1/2} inches laid in English Garden Wall bond. These walls were later rendered with a pebble-dash finish sometime in the 1950s, which largely obscured any evidence of previous alteration or blocking externally. Where it survived *in situ* (in parts of the ground floor), or was reused (in some of the roof trusses), the original timber work was of a heavy scantling and was adzed and hand sawn with mortice and tenon jointing, rather than the machine cut and nailed later deal timberwork. The original capped well adjacent to the furnace also used a cast-iron Archimedes screw with timber blades to raise the water, and original cast-iron features and fittings may have been used elsewhere in the building (particularly in the kiln ovens, for example).

The '**basement**' of the malting area originally had a brick paviour floor laid directly over the natural sands and gravels of the river terrace, into which the basement had been partially cut to a depth of about 1m. One section of floor situated on the western side of the kiln area floor was laid with quarry tiles and may have been the location of the steeping bins. Other parts of the floor, mainly in the vicinity of the later insertion of an entrance in the east wall, made when the building was a garage, were concreted over. A central spine beam ran down the centre of the building, this had been reinforced with an additional spine beam adjacent to it supported by cast-iron props and brick piles. These were probably inserted in the 1920s and 1950s. The western wall also had an additional half-brick thick lining wall built against it and a pair of doorways into the kiln area had also been bricked up at this time. Only the southern section of the ground floor appeared original, the rest having been replaced. Therefore, there was no evidence of trap doors or chutes through which the barley may have been passed from the ground floor down into the steeping and conching bins located in the basement.

The floor of the kiln area also originally had a brick paviour floor. The gravel under this floor had been scorched, which together with an abandoned spread of coke fuel found here, presumably indicated the location of the malthouse ovens. To the east of the ovens was the well from which the water for the steeping bins would originally have been drawn. The size of the Archimedes screw was such that it is likely that this device would have required some sort of mechanical manipulation, possibly from a horse gin located in the yard.

The **ground floor** of the malting area appears to have been very dark, there being no structural evidence of blocked openings. However, the northern end of this structure had been completely rebuilt in the 1950s, along with nearly all of the former kiln area. This removed any evidence of the original access arrangements between the various floors of the building.

In contrast, the **upper storey** of the malting area was served by a number of windows, some of which had subsequently been blocked or rebuilt. All of the original floor had been removed and only sections of it replaced at various points in the 20th century. The upper floor of the kiln area had also been entirely removed, including any evidence of the flue. Indeed it is likely that there was no upper storey to this structure, the withered barley being thrown down directly from the upper storey of the malting area onto a mezzanine drying floor below.

The **main east-facing elevation** overlooked the yard of 19, St John's and was pebble dashed, obscuring evidence of former outbuildings and openings here. The upper storey had four original window openings, but the northern half of the building had been entirely rebuilt and included later windows and openings cut into the ground and first floors, including a doorway with steps up and a large access portal at ground-floor level. Internally, there was evidence of the blocking of further openings at 'basement' level and the blocked insertion of a large access ramp, inserted when the building was part of Norman's Garage.

The **main western elevation** was built adjacent to an earlier garden wall belonging to a Mrs Knight in 1789, necessitating the blocking of a former opening towards the end of this wall. In the upper storey there was evidence that three (or possibly four) window openings had been blocked and ventilation bricks inserted. A dentilated eaves cornice survived here at eaves level.

The **north-facing gable**, that had been part of the kiln, had been largely demolished in the later 19th century or early 20th century down to ground level, although parts of the foundations were incorporated into the later Transcad structure.

The **south-facing gable** was pebble-dashed, although the lower metre had either been chiselled or had fallen away exposing the original brickwork. Here, it was possible to see that the continuation of the rear boundary wall across the back of 19, St John's was contemporary with the construction of the malthouse. Only five courses of this wall survived with regular brick columns providing structural support. This would probably have run across the entire width of the back yard as the area behind was fields until the mid 20th century. All the brickwork above this original work was later, being added to serve various outbuildings constructed when this area was a cycle works, then a garage, and finally a set of storage sheds. Within the gable end of the malthouse there was a single original 3 feet-square window opening to serve the upper storey, but otherwise the wall was blank, apart from two later ventilation bricks, presumably inserted to provide air to the 'basement' after the openings onto the backyard were blocked in the mid 20th century.

4.2 **Artefact analysis**

All the artefacts recovered were from a mixed-levelling deposit sealed between the original floor of the kiln and a concrete floor laid in the 1950s. These consisted of enamelled advertising signs for 'Lyons Tea' and 'Carless Petrol', various car parts, and a selection of mainly broken kiln-floor tiles. These would appear to be detritus left behind from a redundant storage area before the concrete floor was laid.

5. **Synthesis**

5.1 **The Early Industrial Malthouse (1789/90 to c 1830)**

(Fig 9 Evidential plans of the Malthouse c 1800; Fig 10 Hypothetical reconstruction of the Malthouse c 1800)

There was enough structural evidence to interpret that the original malthouse was of three storeys (Fig 10) and was built in 1789/90 as part of a complicated redevelopment of the backplots of two medieval tenements situated on the south side of St John's. It was purpose-built by John Hooper, a maltster and baker, and used readily available contemporary materials, including brick and cast-iron, and traditional heavy hand-carpentered timber floors, joists, and roof trusses. It was cleverly designed to work within the confines of the complicated medieval back plot pattern of the area, although this pattern was clearly beginning to break down and simplify as we approach what the historical geographer Conzen has termed 'the climax of the burgage cycle' in the middle of the 19th century. Comparing plans of 1789 and 1816 no landowner or tenant in this vicinity remained the same, and many of the buildings in St John's, including the malthouse, were newly rebuilt around this time in

a lull in the French Wars and before the introduction of the brick tax (in 1784) became very onerous.

The malthouse was built in two parts. The northernmost component would have housed the kiln (furthest north) in a structure that was probably originally the same width as the malthouse, and the slightly wider main access area (situated between the kiln and the malting areas to the south). A substantial brick-built well was also situated to the east of the kiln area in the adjacent yard. This well contained the remains of an Archimedes screw mechanism made of cast-iron with wooden paddles still *in situ*, which would have been used for drawing large quantities of water to the surface, possibly using a horse gin.

The longer and thinner southern component would have housed the steeping/storage floor, the germination/storage floor, and the withering floor in the basement/undercroft, ground floor and upper storey, respectively. It was cleverly designed to work within the confines of the complicated medieval back plot pattern and the topography of the area. The western elevation of the malthouse had to be built up against the brick boundary wall of the adjacent property, necessitating the blocking of an entrance to the south of this wall that belonged to a Mrs Knight and meant that the ground floor was dark. However, this aided the germination process and similarly little light was provided at this level in the southern gable or the eastern elevation. The rear of the plot overlooked fields and gardens until the latter half of the 20th century, and was fenced off with a buttressed brick wall initially, possibly surmounted by wrought-iron railings, examples of which survive in other period properties near here. Therefore, the upper storey was best lit and this was where the withering process was carried out.

The slope of the site down from the south towards St John's seems to have also been used to advantage. Heavy raw materials such as coke could be loaded easily into the two-storeyed kiln and access areas of the building from the yard immediately to the rear of the frontages that had cart access from St John's, as the basement was near to the ground surface here (correspondingly, waste products from the steeping, called *culm*, were also easy to move to the nearby pig cots). Likewise, just to the south where the access area was probably located, the incoming bags of barley could be readily loaded into the ground floor storage area from carts and the finished malt exported, all controlled for stock taking purposes with the yard that had narrow access then to the garden area behind, as shown on early 19th century plans. Similarly, while later alterations are probably most apparent in the access area, the barley may have been readily dropped down to the basement steeping and conching area, which had also water provided at that level, either through openings or chutes in the floor above, or via staircases.

Therefore, it can be seen that in design and scale the malthouse was both larger and more scientifically organised than a traditional one of perhaps a century or so earlier, but it was not yet truly industrial in scale - like the mid to late 19th century Severn-side maltings in Bridgenorth, for example. In terms of kiln size and malting floor area it was roughly two to three times the size of the recently renovated malthouse at Harvington Hall (built in around 1810 for a country house estate; Driver & Hislop 2005), but its potential storage area was much larger. It was family owned, the workforce possibly around six in total when in full production during the winter months (based upon the scale of production and its manual nature compared with traditional examples of malting still carried out in the Scottish malt whisky trade). It would probably have mainly served local brewers catering to the community on this side of the river, but possibly also some brewers in Worcester proper.

In this sense it was one of the typical smaller family businesses that Barrie Trinder (2002) has described as the backbone of the English market town in the late 18th/early 19th century. The economics of the business should also be considered against the larger background of the growth of Atlantic trade, of which the Severn was a major arterial route inland at this time; the concomitant rising demand generated by an increasing urban population hungry for bread and thirsty for beer; and restrictions on the supply (and therefore price) of alternative drinks such as wine and brandy caused by the French, and later, the Napoleonic Wars.

5.2 The Victorian Malthouse (c 1830 to 1880)

The later years in the life of the malthouse are the most difficult to reconstruct because the structural evidence is limited. However, some changes may be expected to have occurred due to changing technology, such as the availability of piped mains water and drainage for example from the 1850s, as well as structural changes within the organisation of the brewing and malting industry.

Another maltster, called George Charles, is known to have continued malting here until the later part of the 19th century, after John Hooper. The only structural evidence of change that can be confidently ascribed to this period was the wall built over the well to the east of the kiln. This was one-and-a-half bricks wide and was built of red brick laid in English Garden Wall Bond, whose dimensions were slightly larger than the original brickwork, measuring $9\frac{1}{4}$ by $4\frac{1}{2}$ by $2\frac{3}{4}$ inches. This made the well redundant and enlarged the width of the kiln by over one metre. There are two possible reasons for this change; firstly, that the availability of a clean reliable piped water supply would have been preferable to that drawn from a well, and secondly, that the size of the ovens for kiln could be increased, thereby increasing production. Moreover, it is highly likely that the ovens would have needed to have been replaced after operating for roughly 60 years. The building plans compiled in the 1950s (Fig 12) show these ovens still *in situ*, although no trace of them had survived on the kiln floor, which suggests that they were probably made of cast iron. These were coke fired and were arranged around a central furnace, access to them being from the yard and the steeping basement of the building. The need for increased production may have stemmed from competition with later larger more mechanically-powered maltings beginning to appear at this time. Although this modernisation was ultimately doomed to failure as later in the century regional, and later national, brewing companies, aided by railway transportation, were tending to centralise malt production within their works leading to the decline of local (or what we call today 'micro') breweries and maltings. It was this larger process that ultimately led to the demise of the smaller maltings, such as 19, St John's as there was neither sufficient space, nor adequate transport links for this concern to expand further. Within this phase of economic hardship it is therefore unlikely that substantial later alterations would have been made to the malthouse.

5.3 The early 20th century workshops and garage (c 1890 to 1940)

In many ways the continued development of 19, St John's after the malthouse closed towards the end of the 19th century is typical of the changing industrial and commercial usage of back-plot space in older suburbs in the region's towns and cities. Towards the end of the 19th century 19, St John's was briefly occupied by a cabinet maker called Henry Allen. He may have reused parts of the former malthouse as a cabinet-making works and storage, and it may have been then that the ground-floor cambered windows shown in Worcester Planning Department Plan (WPD) 12106E were inserted (Fig 11). Henry Allen was succeeded by Alfred Allen a draper, and it would seem unlikely that the malthouse would have had any pressing function. Then after an empty period in 1912 the site was taken over and expanded by F W Bullock & Co, a bicycle maker, during the period of WWI and some further outhouses erected in the yard.

After WWI, in a pattern mirrored in Coventry, the cycle works became a motor garage owned by the Norman family in the 1920s. Motoring was a new and expanding industry in the 1920s and it is likely to have been sufficiently profitable for a while to justify significant alterations and new building within the malthouse and back plot. It is likely that the redundant kiln roof was dismantled at this time, as no such structure is visible on an aerial photograph taken in 1938 (Fig 4). While simultaneously larger lean-to sheds were built against the former malthouse, presumably to shelter and service cars, an inspection pit was dug, strengthening operations were carried out on the ground floor of the malthouse, the first floor probably dismantled, and two large garage openings inserted and a ramp dug into the cellar of the malthouse.

5.4 The Supermarket Era (c 1940 to 1990)

(Fig 11 Cross-section and elevations of The Maltings from architect's plan dated 1955; Fig12 Plan of The Maltings from architect's plan dated 1955)

After WWII the story of this plot became linked to the expansion and nationalisation of the grocery trade. Self-service and the provision of refrigerated goods became more widespread, and was possibly another social and scientific legacy of the modernisation and exposure to American culture brought about by that conflict. First an independent grocer called R J N Gray's amalgamated the two Georgian shops. Then Burton's Supermarket put forward plans for the limited redevelopment of 19, St John's in 1950 (WPD 9403), which retained most of the existing buildings, but this was never carried out on any significant scale. Then in the mid 1950s more radical plans were drawn up for Burton's Supermarket that was later absorbed into the Fine Fare chain (WPD 12106 series). These included the demolition and replacement of the 18th century buildings fronting onto St John's and further extensive rebuilding of the back plot properties was proposed. Several schemes were produced, but it is likely that WPD 12106E was the one carried out (Figs 11 and 12). This scheme included the partial retention of the malthouse structure. The growing floors were to be utilised as a warehouse and wine store, while the former kiln area became a cold store and preparation room, it is probable that the male and female toilets above this were also built at this time. The fact that the floor of the kiln ovens and well area was littered with debris such as enamelled 'Lyon's Tea' adverts, one for 'Carless Petrol' and other car parts together with kiln floor tiles corroborates this evidence for substantial rebuilding then. Later in the century the former malthouse then became the office and stores of Bourne Builders. With the expansion of supermarket shopping into ever larger and larger stores Fine Fare then closed, and the shop was subdivided back into smaller specialist retail concerns. Finally leading around to the present Sainsbury's development in St John's, which in many ways completes this cycle, bringing supermarket shopping back into the town away from the era of the 'green-field superstore'.

5.5 Research frameworks and overall significance

The results of this building survey can be evaluated against the research frameworks of the broader project and in terms of their significance in the following ways.

- Firstly, the original form and function of the malthouse have been sufficiently established (Figs 9 and 10) and set within the broader context of early industrial growth in the late 18th century St John's and the region as a whole.
- Secondly, the development of this business has also been outlined against the social and structural changes within the malting industry.
- Thirdly, when the later history of this back plot is also considered together with that of the medieval archaeological evidence established by the evaluation of this site, then a comprehensive model of the development of this back plot from the medieval period right up to the late 20th century can be proposed, which is potentially of use to our broader understanding of the development of this suburb of Worcester, and by inference to other similar suburbs throughout the region.
- Finally, while this study is potentially of importance to our local, regional and national understanding of the development of the malting industry, unfortunately the extent of later alterations to the malthouse itself did not merit its preservation *in situ*. However, the decision to undertake its preservation by record has been demonstrated to have been the correct one.

6. **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.

A building survey was undertaken of a former malthouse behind 19, St John's, Worcester (NGR SO 8409 5446). This was requested by EC Harris on behalf of Arthur Amos Associates (acting on behalf of Sainsbury's Supermarkets) in accordance with a brief prepared by Worcester City Museum Archaeology Section in response to the submission of a planning application to Worcester City Council. The remains were recorded prior to and during their demolition, in advance of work to build a new youth centre and was part of a broader scheme of archaeological evaluation that included trial trenching in the adjacent yard.

The potential survival of the former malthouse had been identified by previous archaeological desk-based assessment and limited internal and external inspection. The survey was able to confirm that significant parts of a three-storey malthouse, consistent in style and build with a later 18th century date had survived, despite extensive later alteration. This correlated with a proposed original build date of around 1790 by a John Hooper, baker and maltster, as suggested by existing historical documentation.

There was enough structural evidence to interpret that the original malthouse measured just over 29m in length. Its southern component measuring 17.5m by 6m housed the steeping/storage floor, the germination/storage floor, and the withering floor in the basement/undercroft, ground floor and upper storey, respectively. The northernmost component was wider, measuring 12m in length and just over 9m in width. This would have housed the kiln, drying floor, and access. There was evidence of burning in the north-western quadrant of the kiln floor, including its gravel substrate, where the ovens were located, and pieces of distinctive ceramic drying-floor tiles were concentrated above the basement floor in this area. A substantial brick-built well was also situated to the east of the ovens, probably outside of the building. The well housed the remains of an Archimedes screw mechanism made of cast-iron with wooden paddles, which would have been used for drawing large quantities of water to the surface. The southern part of the kiln block was probably occupied by a stairwell giving access to the main floors of the malthouse.

The malthouse was purpose-built using readily available contemporary materials, including brick and cast-iron, alongside traditional heavy hand-carpentered timber floors, joists, and roof trusses. It was cleverly designed to work within the confines of the complicated medieval back plot pattern of the area, although this pattern was clearly beginning to break down and simplify as we approach what the historical geographer Conzen has termed 'the climax of the burgage cycle' in the mid 19th century. Comparing plans of 1789 and 1816 no landowner or tenant in this vicinity remained the same, and many of the buildings in St. John's including the malthouse were newly rebuilt around this time.

The western elevation of the malthouse had to be built up against the brick boundary wall of the adjacent property, necessitating the blocking of an entrance to the south of this wall that belonged to a Mrs Knight, which meant that the ground floor was dark. This aided the germination process, and similarly no light was provided at this level in the southern gable or the eastern elevation. The upper storey was best lit and this was where the withering process was carried out. In addition, the slope of the site down from the south towards St John's was used to advantage. Heavy materials, such as the coke and barley, could be loaded easily from the yard that had cart access from St John's, as the basement was near to ground surface here (correspondingly waste products from the steeping for the nearby pig cots was also easy to move). The rear of the plot overlooked fields and gardens until the latter half of the 20th century, and was fenced off with a buttressed brick wall initially, possibly surmounted by wrought-iron railings, examples of which survive in other period properties near here.

In scale the malthouse was both larger and more scientifically organised than one of perhaps a century or so earlier. But it still employed traditional labour intensive methods and was not yet truly industrial in scale, unlike the Severn-side maltings in Bridgenorth for example. In terms of kiln size and malting floor area it was roughly twice the size of the recently renovated malthouse at Harvington Hall, Worcestershire, but its potential storage area was much larger. It was family owned, the workforce probably being around six when in full production during the winter months, and would have mainly served the local community on this side of the river, but possibly also some brewers in Worcester proper as well. In this sense it was one of the typical smaller family businesses that Barrie Trinder has described as the backbone of the English market town in the late-18th/early 19th century. The contemporary economics of the business should also be considered against the larger background of the role of the River Severn as a major internal transport link with the Atlantic trade, rising demand generated by an increasing urban population, and restrictions on the supply (and price) of alternative drinks to beer, such as wine and brandy, caused by the French, and later the Napoleonic Wars.

There is some limited evidence of improvement to the basic workings of the malting in the mid 19th century. This included the provision of piped water, making the well redundant, and possibly the expansion of the kiln. However, the growth of the regional, and later the national, brewer and the continued industrialisation of the malting industry worked against the continued survival of the smaller maltster. The malthouse eventually closed towards the end of the 19th century. The next recorded occupant was a cabinet maker called Henry Allen, who was succeeded by Alfred Allen a draper, although it is unclear if he would actually have used the former malthouse building itself. Then after an empty period in 1912 the site was taken over and expanded by F W Bullock & Co, a bicycle maker, during the period of WWI. Some small alterations to the malthouse may have been made at this time, mainly to allow more light into the ground floor.

After WWI the cycle works became a motor garage owned by the Norman family in the 1920s and more extensive alterations were made to the former malthouse. These included the addition of large lean-to sheds and the puncturing of two large vehicle access ways into the main east-facing elevation one via a ramp into the basement, the removal of the first floor and the strengthening of the ground floor. Around this time the redundant kiln roof was also probably dismantled, as no such structure is visible on the aerial photograph taken in 1938, which was also the year that Norman's Garage relocated to more spacious premises.

After the Second World War the story of this plot became linked to the expansion and nationalisation of the grocery trade. First, an independent grocer called R J N Gray's moved into the Georgian shop front and undertook some limited redevelopment of the shop buildings in order to provide more retail space. However, by the mid 1950s Burton's Supermarket, who were later absorbed into the Fine Fare chain, planned to replace the Georgian shops and carry out large-scale alterations to the buildings in the back-plot area. This produced several sets of plans before a final decision was made, which resulted in the buildings still visible on the site today. While there were some alterations made to the former malthouse, including the removal of some internal walls and the provision of male and female toilet facilities the structure was not profoundly altered. The fact that the floor of the kiln area was littered with debris such as enamelled 'Lyon's Tea' adverts, one for 'Carless Petrol' and other car parts together with kiln floor tiles argues for major change around this time as it was sealed with a concrete floor constructed in the mid 1950s. It is likely that with access now available from the rear, the former malthouse also became the offices and stores of Bourne Builders sometime after. With the expansion of supermarket shopping into ever larger and larger stores Fine Fare then closed in the 1990s, and the shop was subdivided back into smaller specialist retail concerns. The supermarket connection finally came full circle with the arrival of the new Sainsbury's development which brings supermarket shopping back into the town moving away from the era of the 'green-field superstore'.

7. **Acknowledgements**

The Service would like to thank the following for their kind assistance in the successful conclusion of this project: James Dinn (Archaeological Officer, Worcester City Council), and the staff of the Worcester City Planning Department (WPD) who provided access to the building plans.

8. **Personnel**

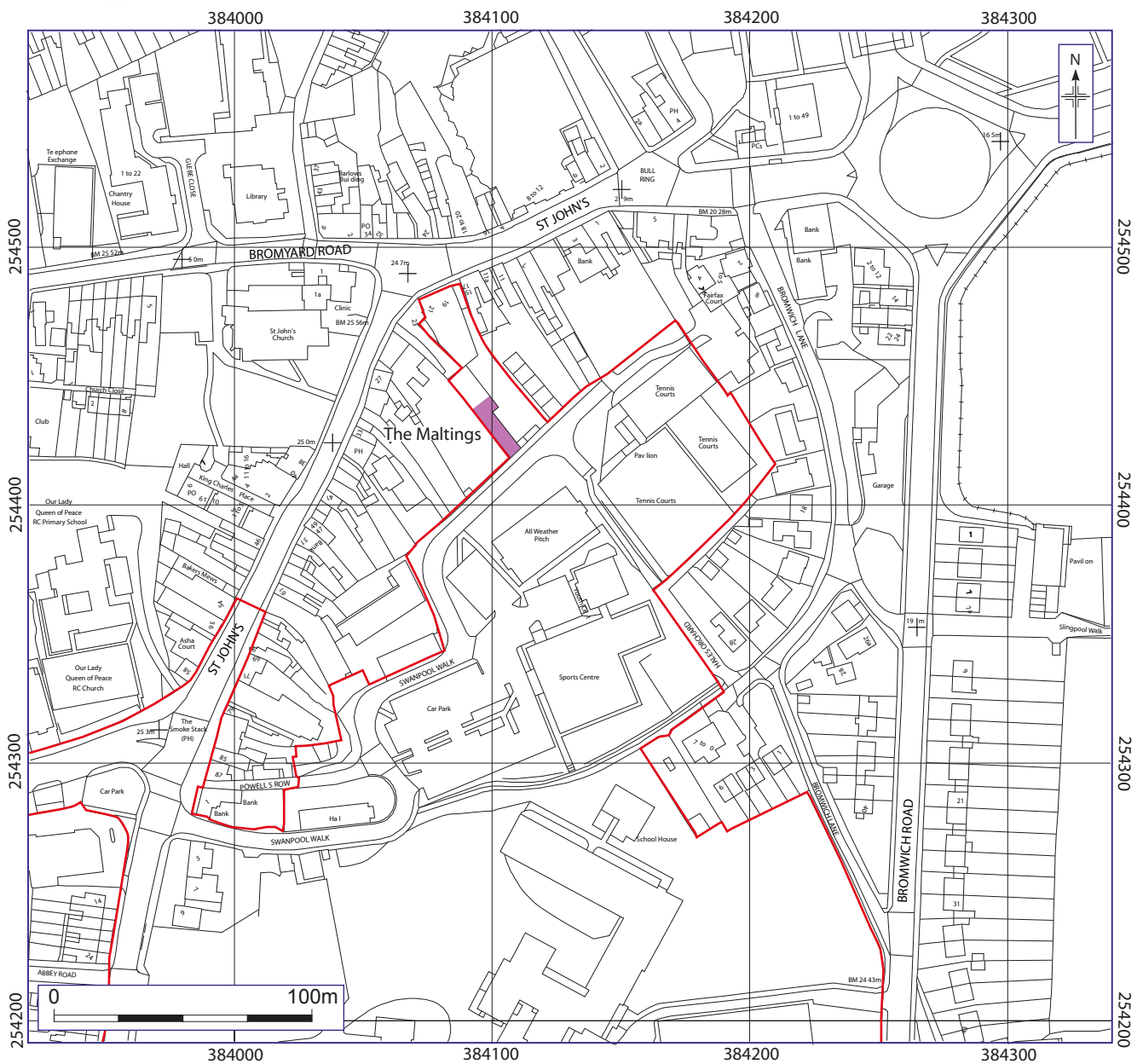
The fieldwork and report preparation was by Steve Litherland. Illustration was by Carolyn Hunt, and the project management was by Tom Vaughan.

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Figures

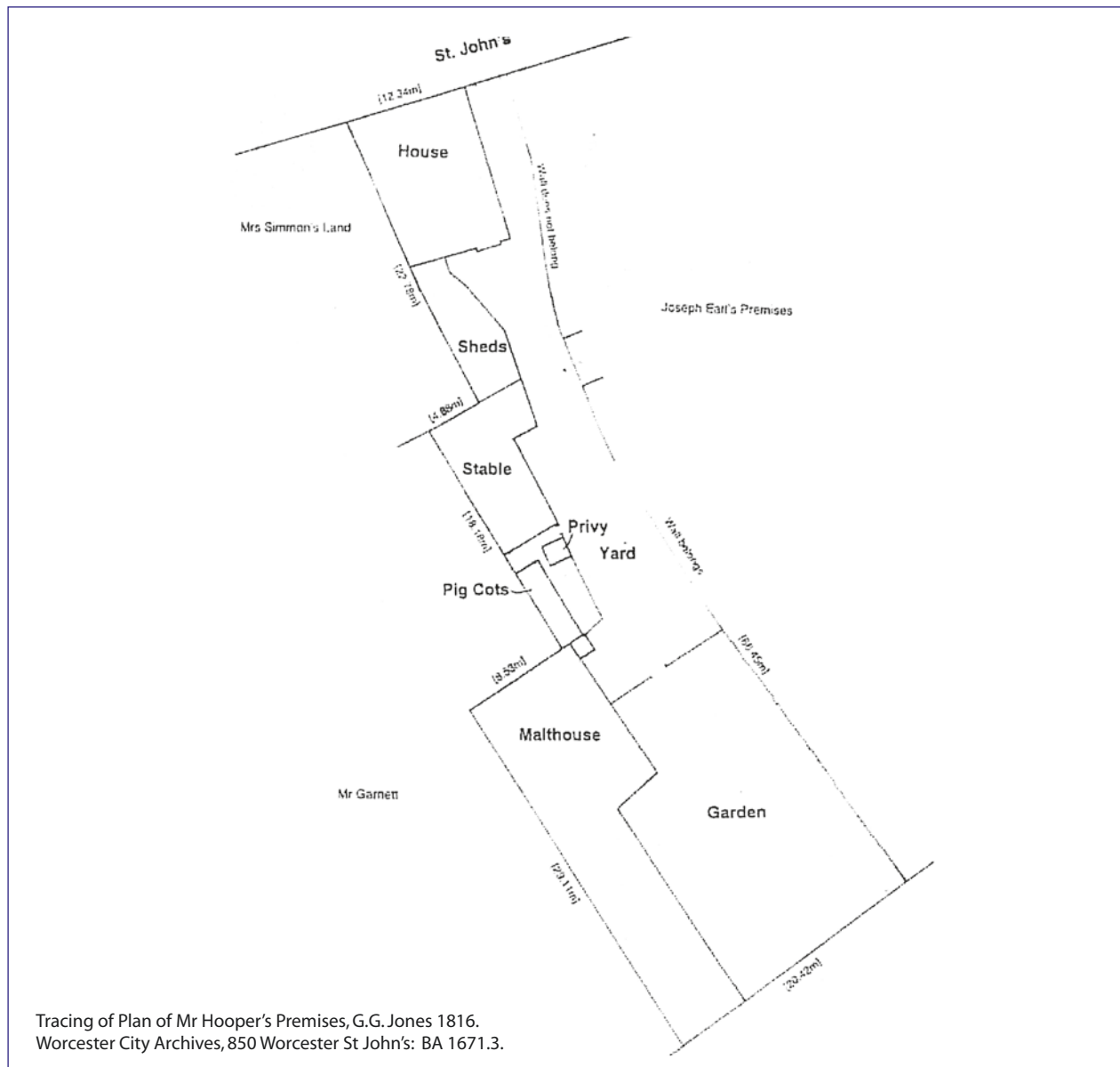
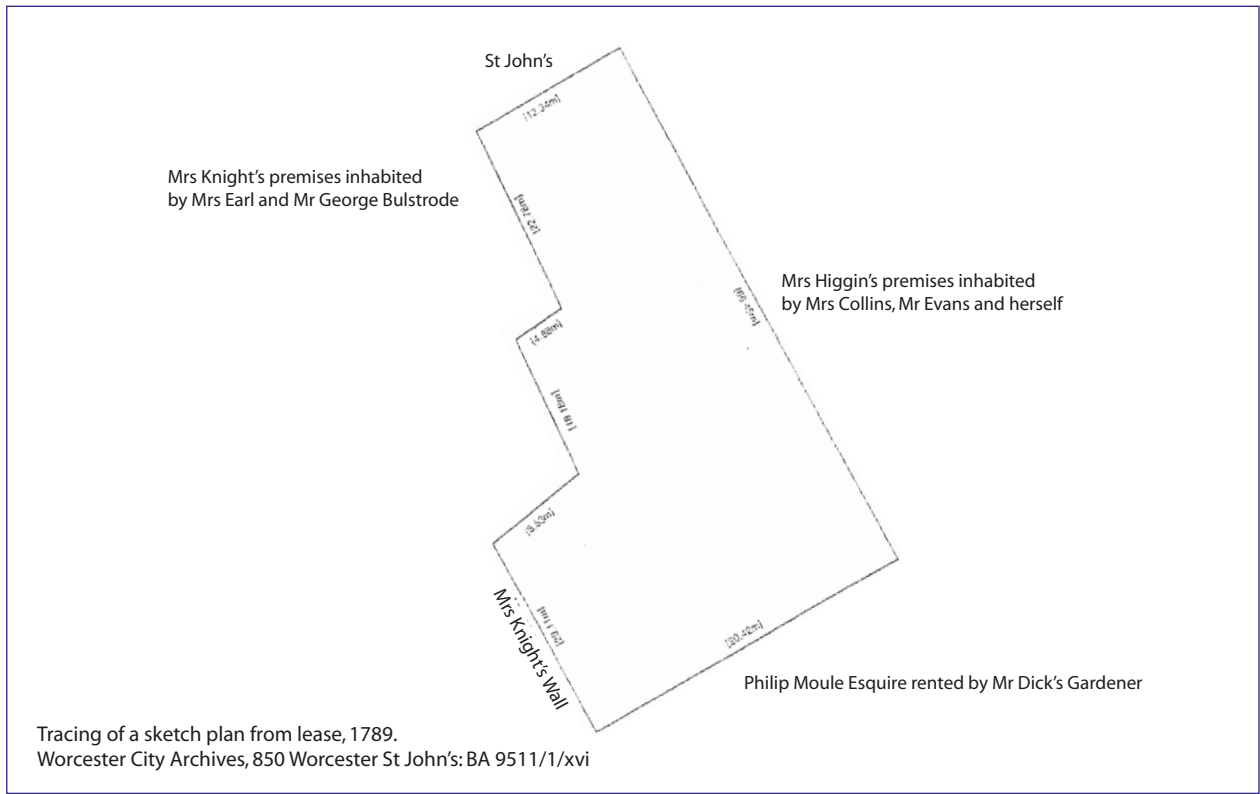
1. *Location of The Maltings*
 2. *Plans of The Maltings, 1789 and 1816*
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 5. *The Maltings, Plan of the Ground Floor*
 6. *The Maltings, Plan of the Basement*
 7. *The Maltings, Plan of the Upper Storey*
 8. *The Maltings, Existing elevations and cross-section*
 9. *Evidential plans of the Malthouse, c 1800*
 10. *Hypothetical reconstruction of the Malthouse, c 1800*
 11. *Cross-section and elevations of The Maltings from architect's plan, dated 1955, Worcester Planning Department Plan (WPD) 12106E*
 12. *Plan of The Maltings from architect's plan, dated 1955, Worcester Planning Department Plan (WPD) 12106E*
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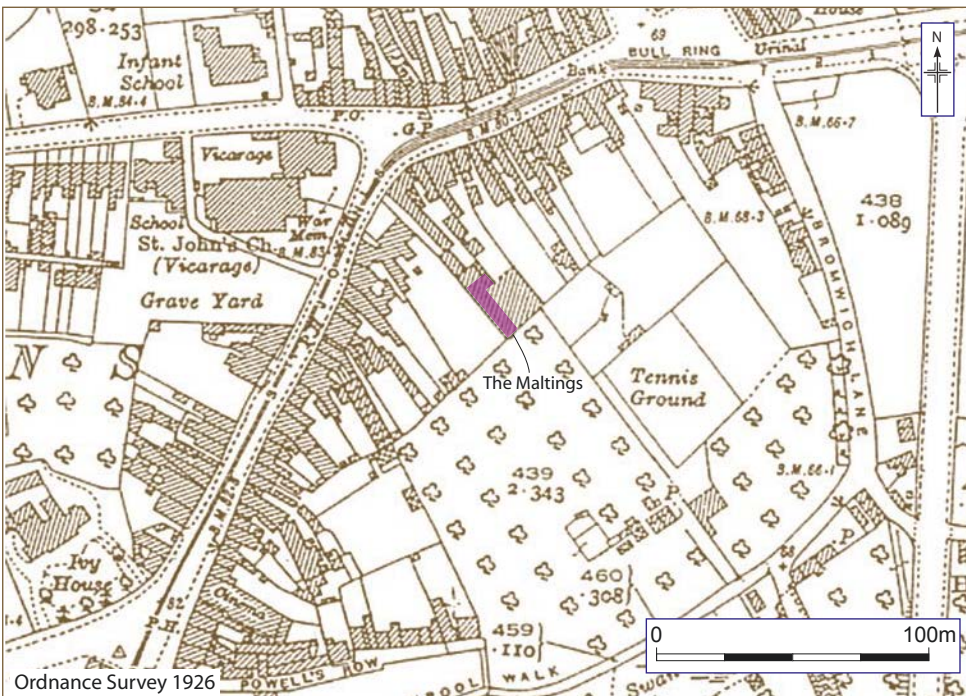
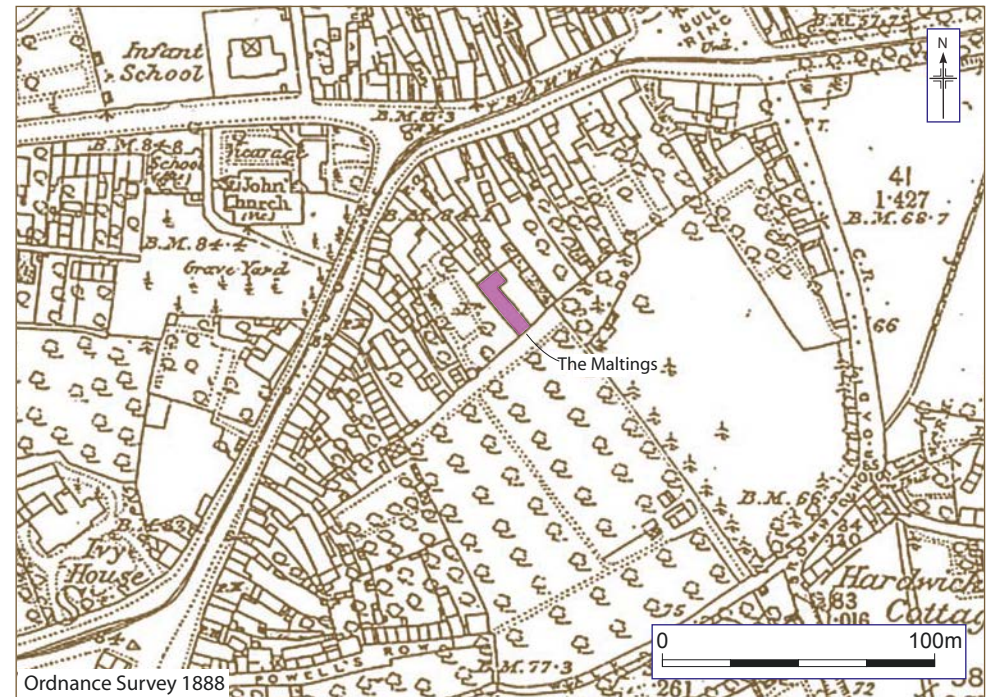
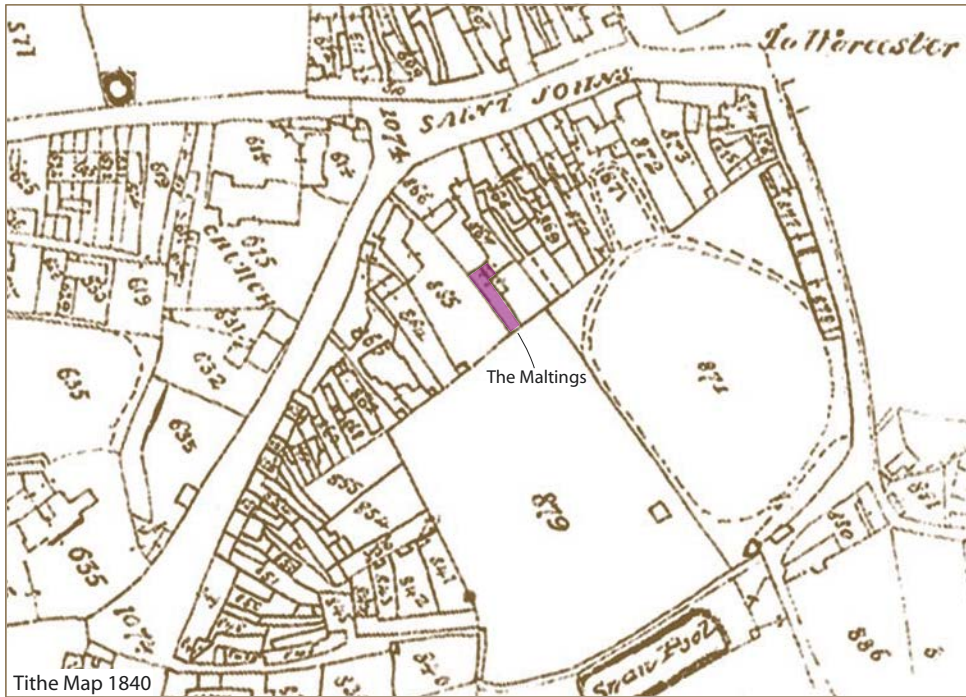
Location of The Maltings

Figure 1



Plans of The Maltings, 1789 and 1816

Figure 2



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Extracts from Tithe Map, 1840 and Ordnance Survey 1888, 1926 and 1940

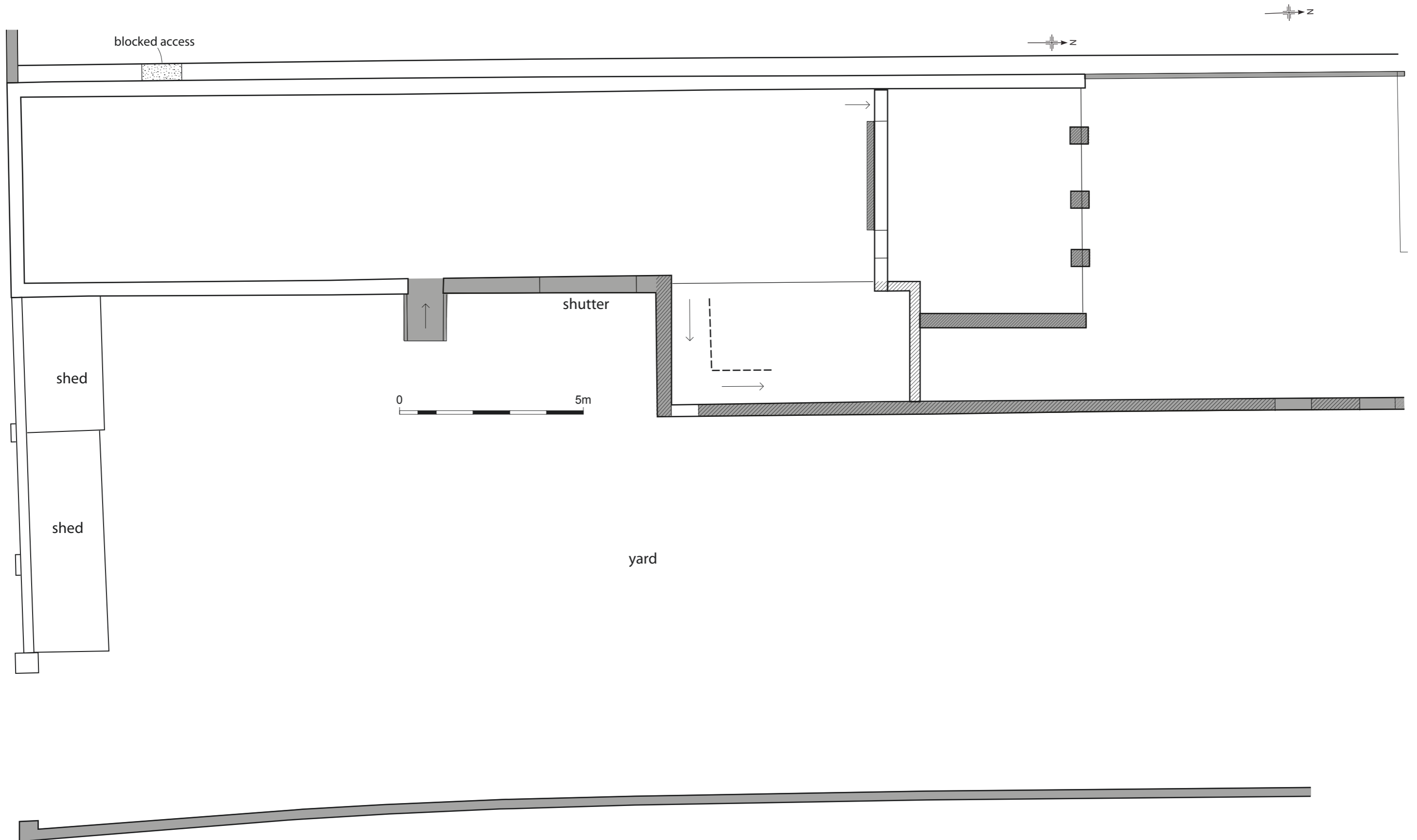
Figure 3



Aerial view of St Johns, 1938

Figure 4

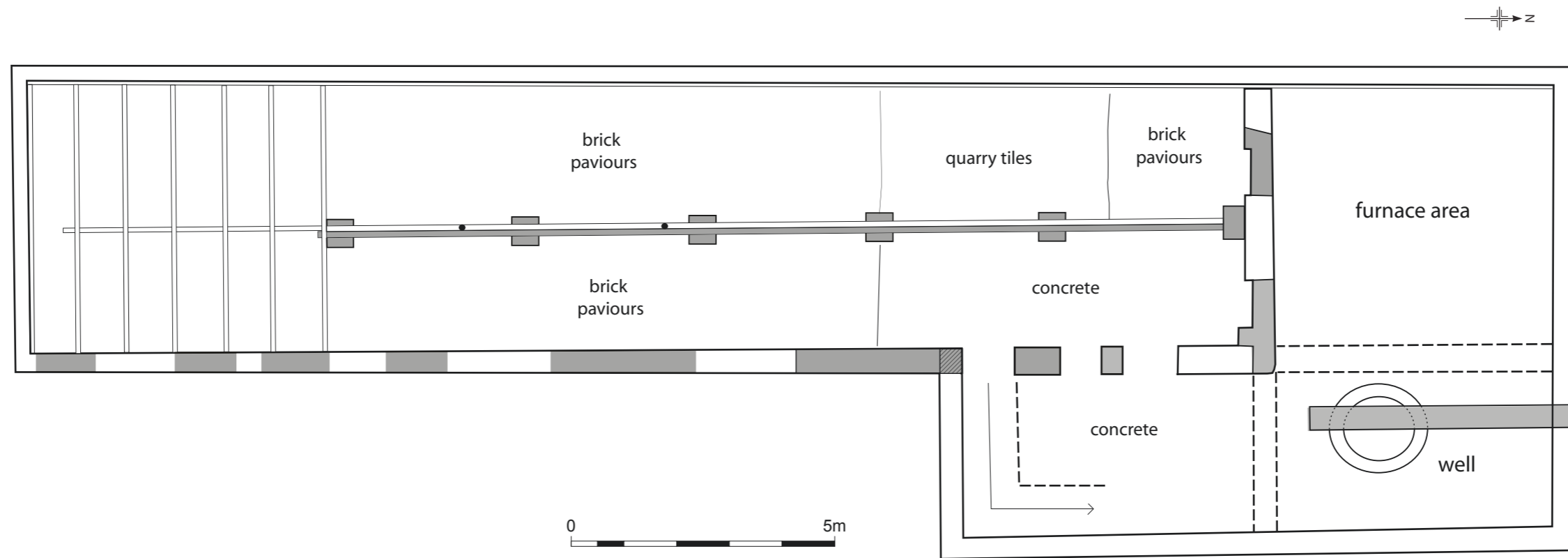
GROUND FLOOR PLAN



The Maltings: Plan of Ground Floor

Figure 5

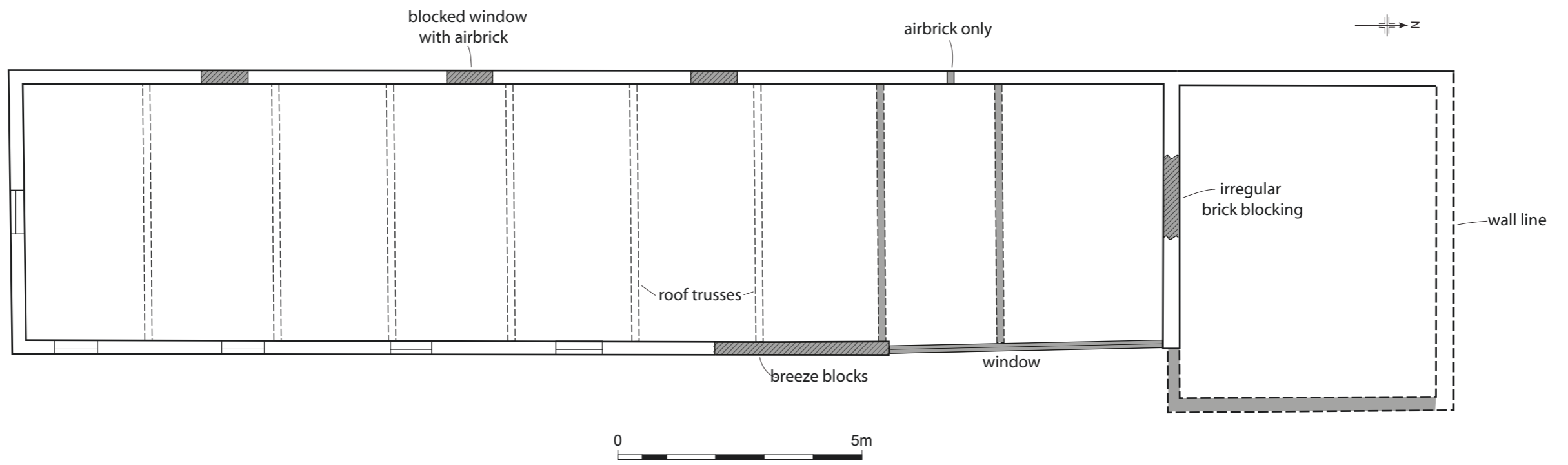
BASEMENT PLAN



The Maltings: Plan of Basement

Figure 6

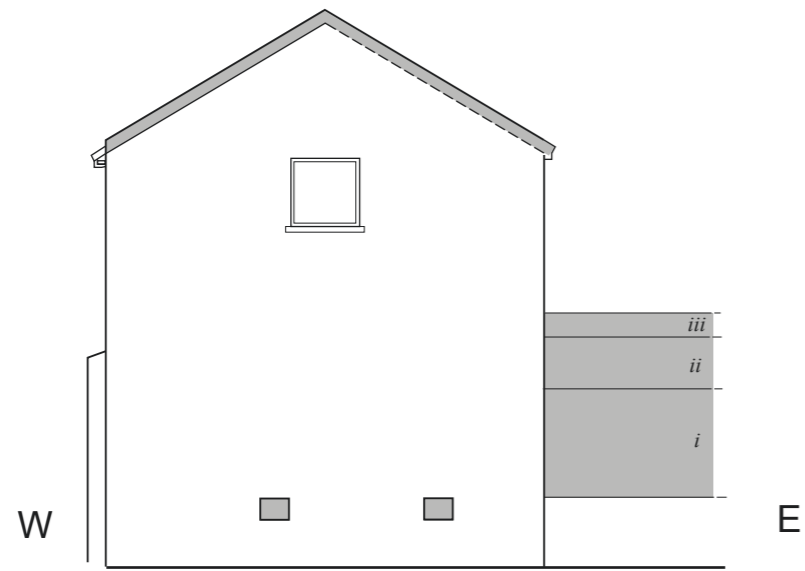
UPPER STOREY PLAN



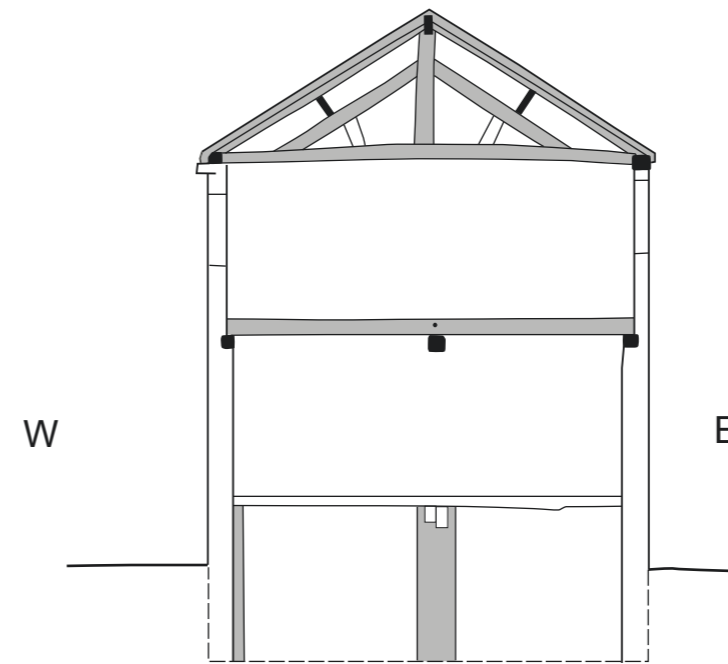
The Maltings: Plan of Upper Storey

Figure 7

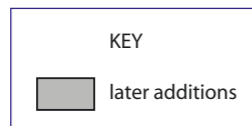
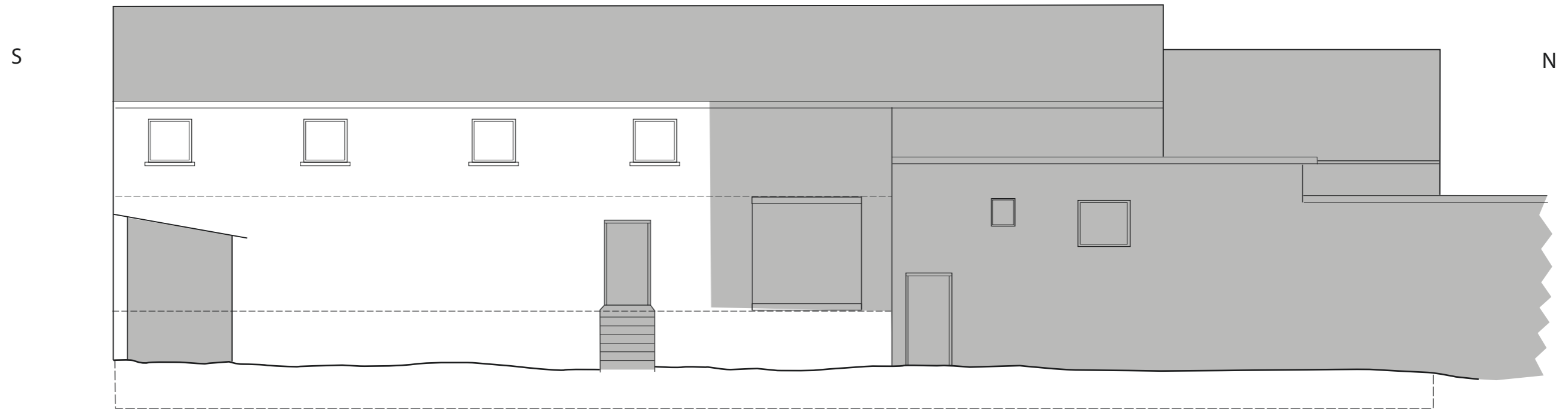
EXISTING SOUTH GABLE END



EXISTING CROSS-SECTION OF MALTING FLOORS

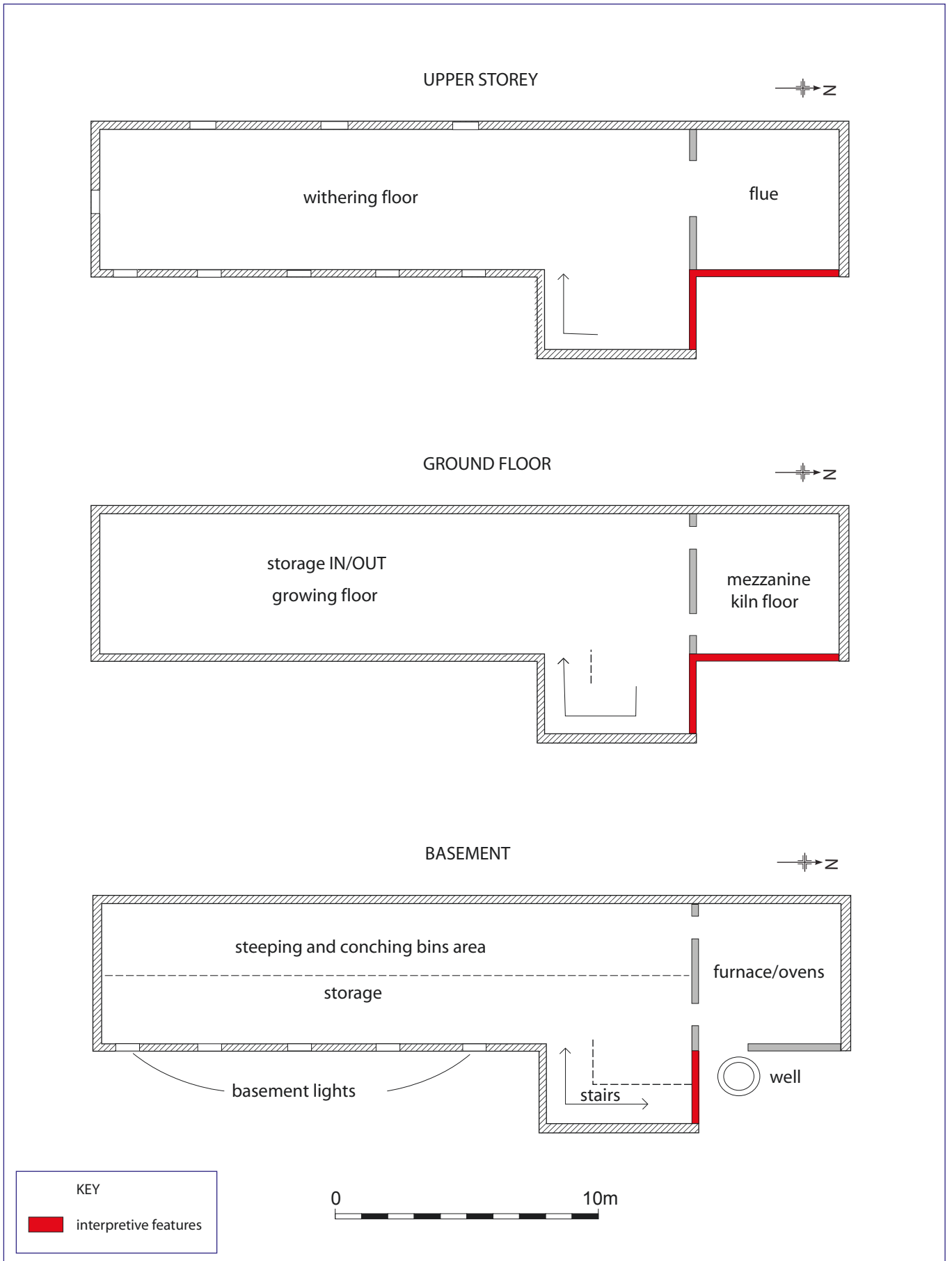


EXISTING EAST ELEVATION



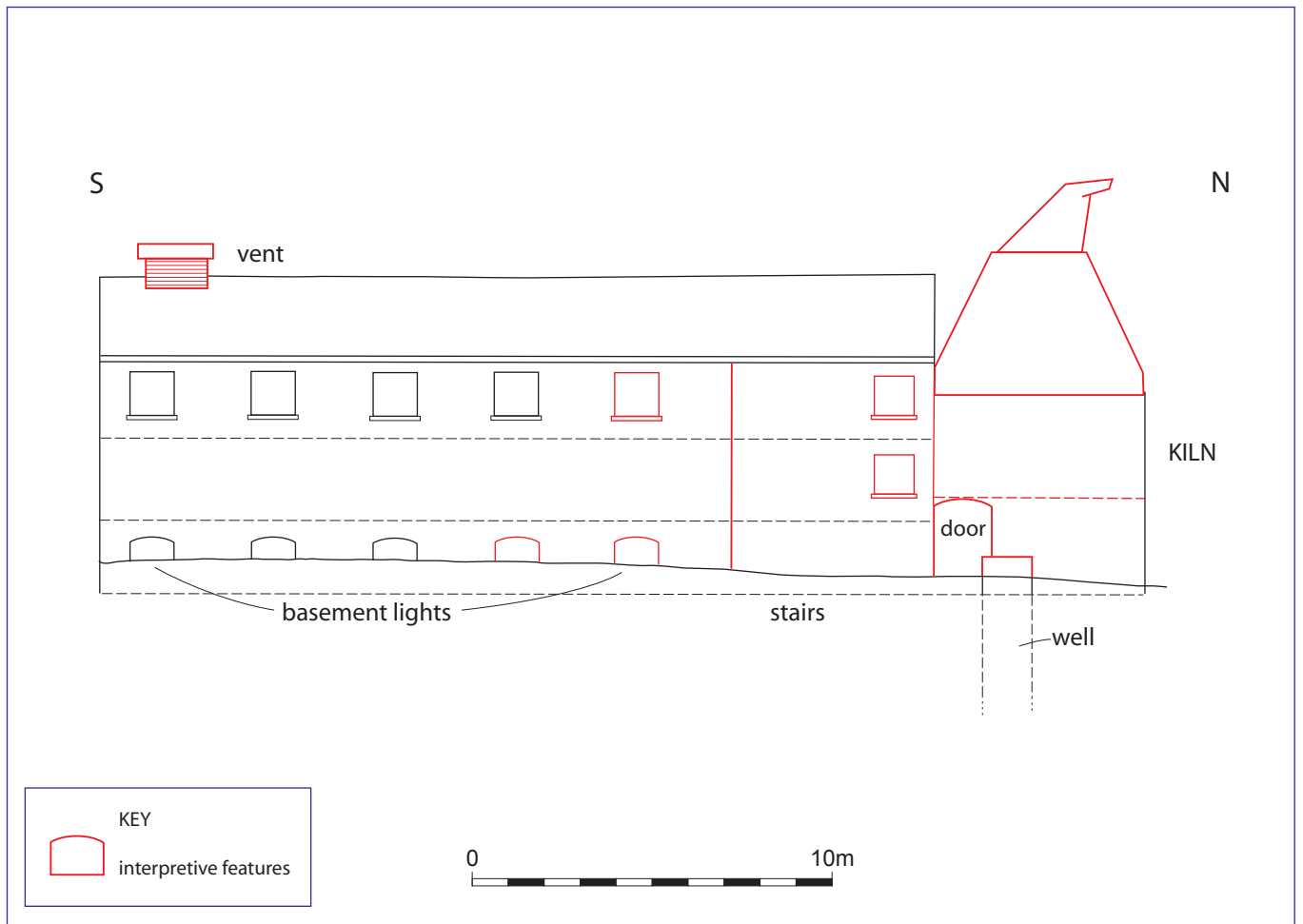
The Malthouse: Existing elevations and cross-section

Figure 8



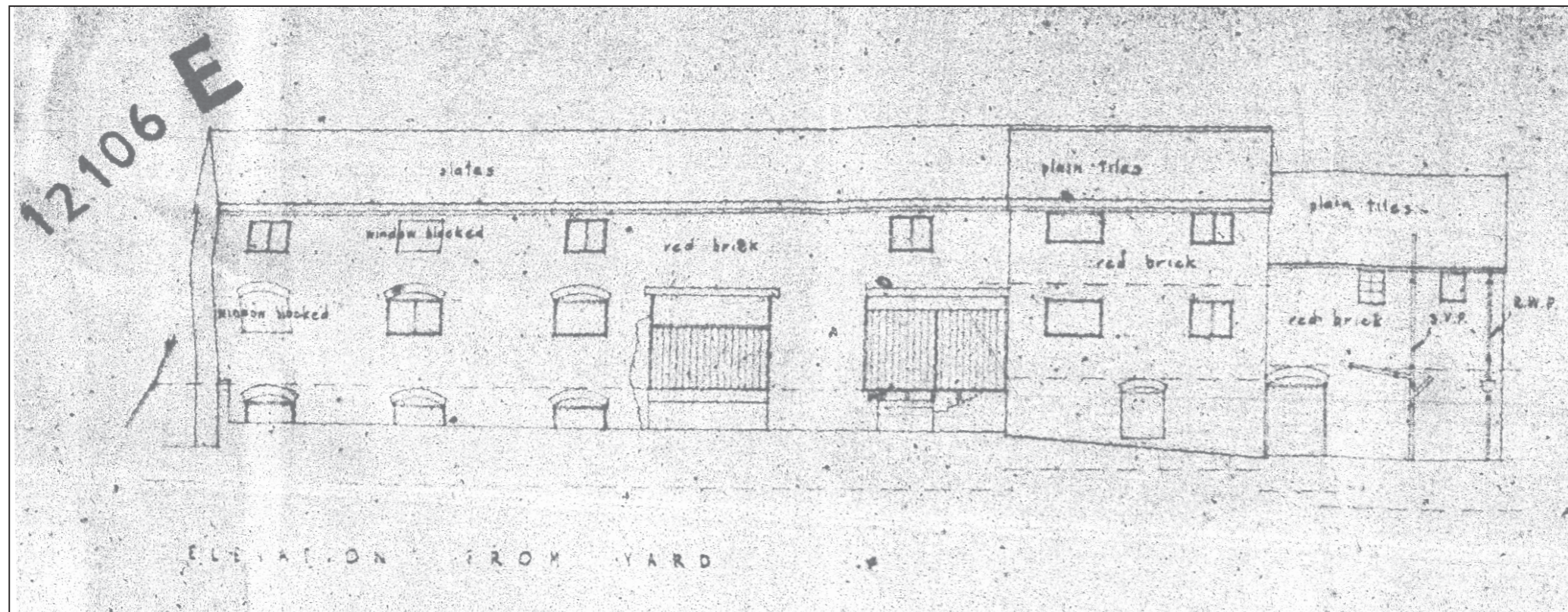
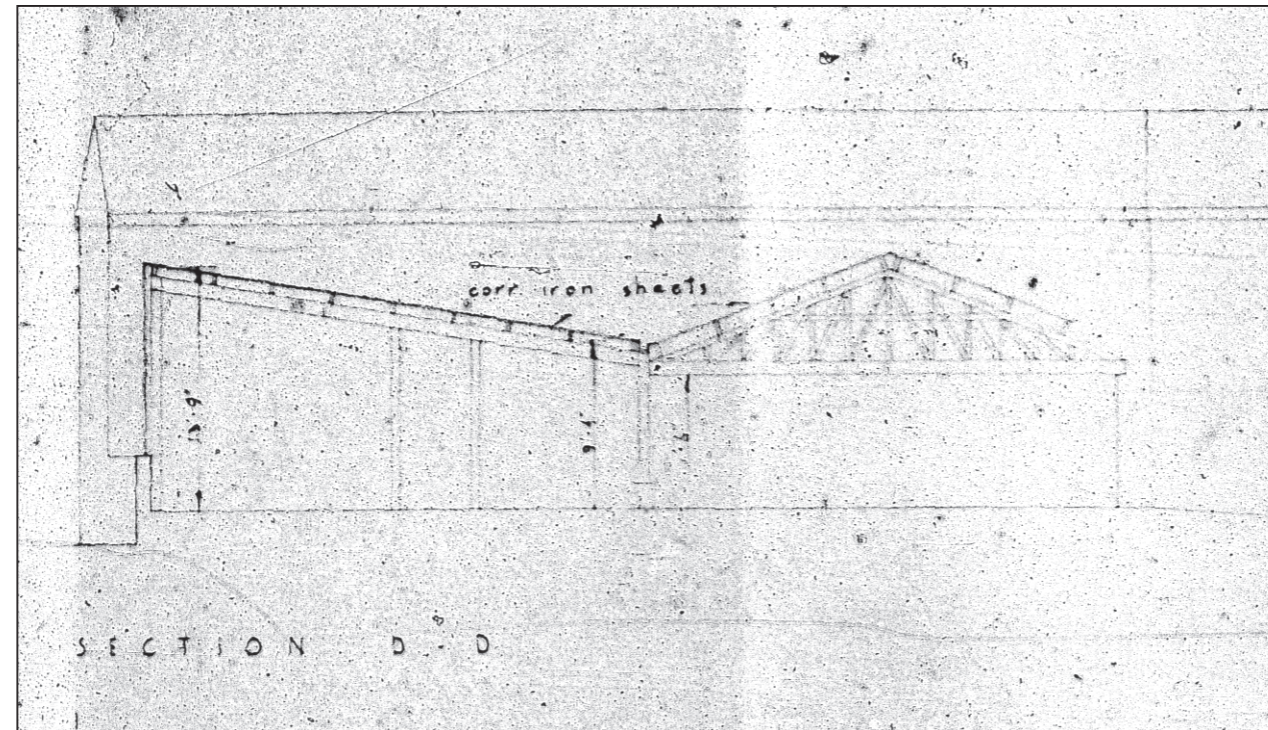
Evidential plans of The Malthouse c.1800

Figure 9



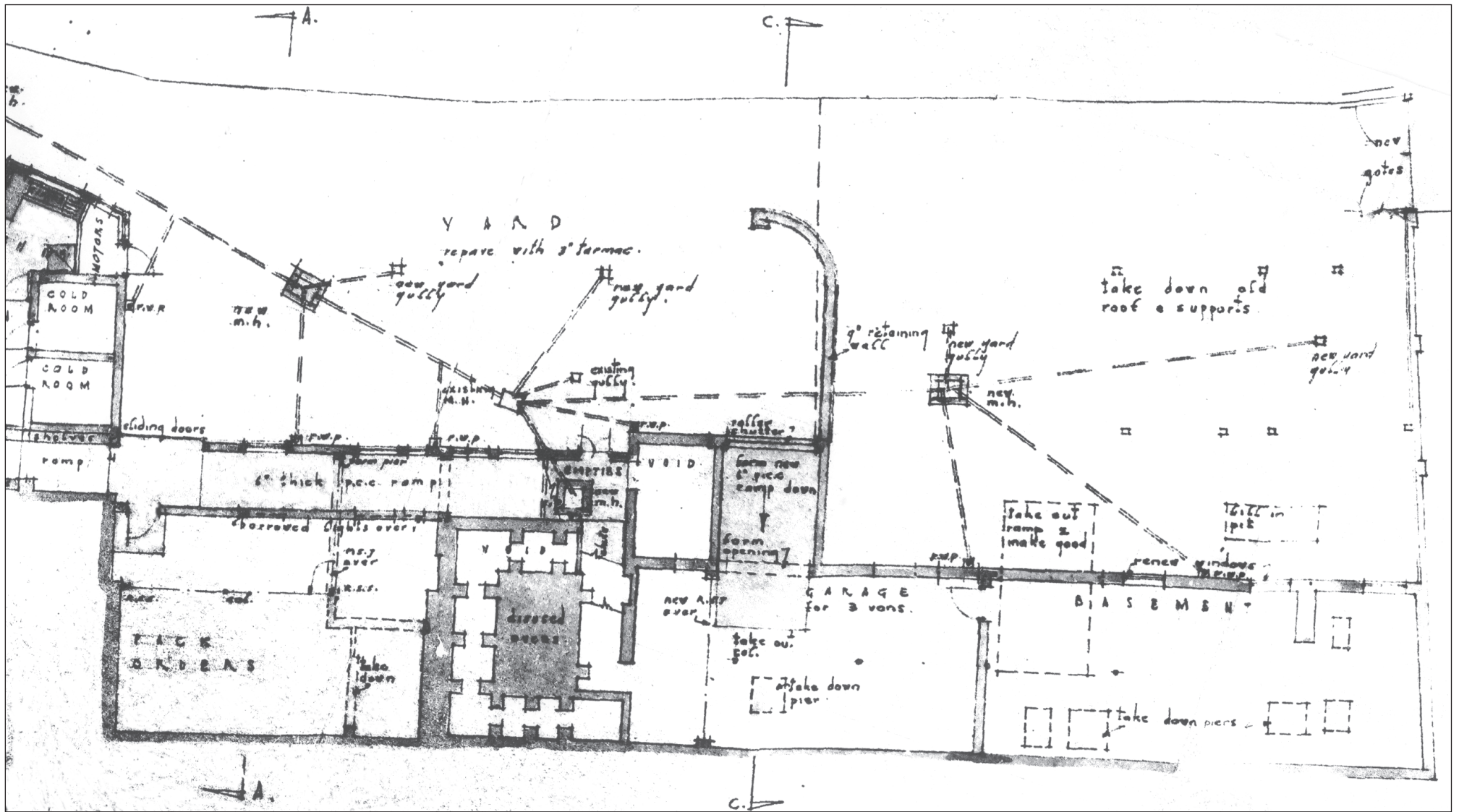
Hypothetical reconstruction of The Malthouse c.1800

Figure 10



Cross-section and elevations of *The Maltings* from architect's plan dated 1955

Figure 11



Plan of The Maltings from architect's plan dated 1955

Figure 12

Plates



1. General view of S. Gable and E. Elevation



2. E. Elevation seen from roof of 1950s flats



3. *Detail of S. Gable and boundary walls*



4. *Detail of W. Elevation including blocked doorway in garden wall*



5. *Detail of W. Elevation including garden wall at kiln end of malthouse*



6. *Blocked doorway in Mrs knight's garden wall, exposed after demolition of malthouse*



7. *Detail of construction of eastern basement wall*



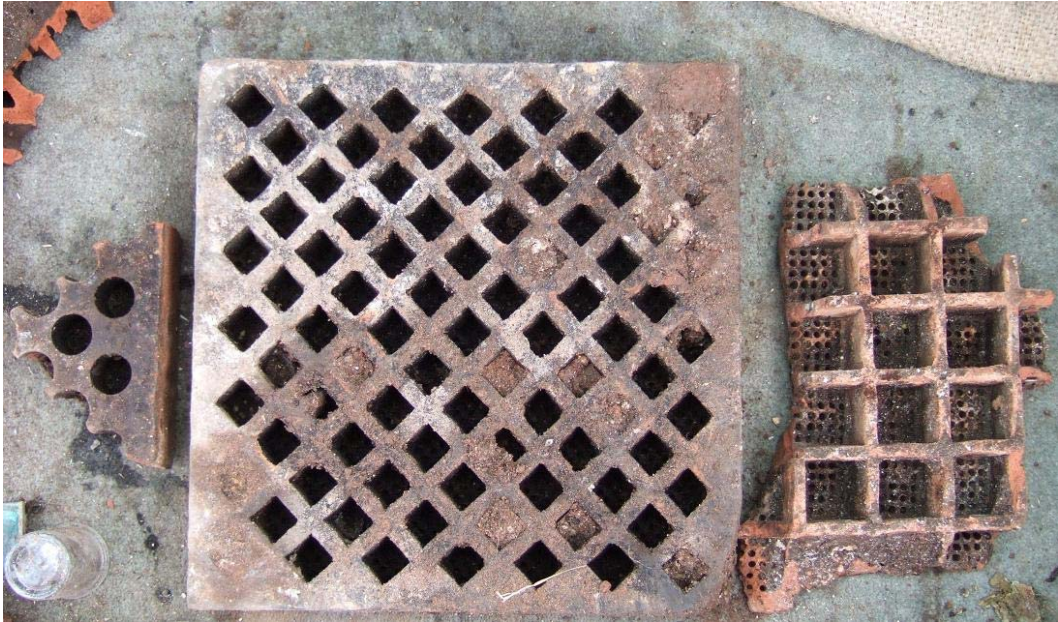
8. *Detail of construction of S. Gable and W. Elevation basement walls, including later brick skim*



9. *Coke dust and burning in kiln area*



10. *Well top and debris spread over kiln floor*



11. Selection of kiln floor tiles



12. Detail of well and Archimedes screw



13. Basement E. Elevation, detail of blocked openings and floor joists, old and new



14. Basement, central spine beam and later strengthening



15. Basement, kiln party wall, later strengthening and blocking of access ways



16. Basement, brick pavements and quarry-tiled floor



17. Upper storey floor support and change in wall thickness



18. View of blocked 1st floor windows in W. Elevation



19. Detail of later roof truss assembly



20. Detail of reuse of earlier roof beams

Appendix Technical information

The archive

The archive consists of:

200	Referenced Digital photographs
1	Drawing number catalogue AS4
1	Context finds sheets AS8
4	Scale drawings on 4 A3 sheets and accompanying notes
1	Box of finds
1	Computer disk

The project archive is intended to be placed at:

Worcester City Museum and Art Gallery,
Foregate Street,
Worcester,
WR1 2PW

Tel. Worcester (01905) 25371
