

THE FORMER T.D. RIDLEY & SONS BREWERY
HARTFORD END
FELSTED
HISTORIC BUILDING RECORD



Essex County Council
Field Archaeology Unit

September 2011

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**THE FORMER T. D. RIDLEY & SONS BREWERY
HARTFORD END
FELSTED
ESSEX**

HISTORIC BUILDING RECORD

Client: Hartford End Developments Ltd

FAU Project No.: 2461

NGR: TL 6882 1747

Planning Application No.: UTT/2310/10

OASIS No.: 109766

Date of Fieldwork: August 2011

1.0 INTRODUCTION

A programme of historic building recording was undertaken by Essex County Council Field Archaeology Unit (ECC FAU) on an unlisted Victorian brewery complex prior to conversion to residential and business use. The work was commissioned by Hartford End Developments Ltd and carried out in accordance with a brief issued by Essex County Council Heritage Environment Management team (ECC HEM) and confirmed in a method statement (written scheme of investigation) produced by ECC FAU.

Copies of the report will be supplied to the client, ECC HEM and the Essex Historic Environment Record (EHER) at County Hall, Chelmsford. The archive will be stored with Saffron Walden Museum. A digital version of the report may be viewed on the ADS arcsearch library at <http://archaeologydataservice.ac.uk>. An OASIS online record has been created at <http://ads.ahds.ac.uk/oasis/index.cfm>.

Hartford End is a tower brewery built in 1843 by Thomas Ridley and successfully run by succeeding generations of the family until brewing ceased in 2005. Tower breweries use gravity to assist the brewing process and therefore have several levels, enabling the operation to start at the top with the raw materials and finish at the bottom with the casked or bottled beer.

An assessment of the 26 integrated breweries in Essex, carried out as part of a wider survey of breweries (Crosby 2002), concluded that due to its success as a small local independent brewer it was the only remaining operational brewery in Essex that still retained its brewing technologies. Although much of this early brewing equipment was taken away or scrapped after closure, a significant proportion of general historic fixtures and fittings survive and it remains possible to understand to a large extent the Victorian brewery process. This report aims to analyse the 150+ years of the brewery complex and to understand its functioning.

2.0 BACKGROUND

2.1 Site location and description

The former Ridley's Brewery is located off the B1417 road, c.3km south of the village of Felsted, within a rural setting. The development site (NGR TL 6882 1747) comprises the main two to four storey brick-built brewery with its boarded machine houses and Victorian service buildings, along with more modern timber clad and concrete slab buildings used for storage/workshop purposes. The brewery sits within a c.1.0 hectare site, external areas connected by concrete hardstandings immediately north of the River Chelmer, occupying the natural slope of the river valley.

The following structures comprise the main and historic brewery complex (fig. 1) and form a cluster of largely attached buildings occupying the southern part of the site:

- Victorian Brewhouse 1
- Dispatch area and offices 2
- Bottling plant 3
- Edwardian cold store 4
- Post-1920 ancillary rooms 5
- 1938 Conditioning plant 6
- Cooper's shop 7
- Stables 8

Buildings 9-14 are modern additions and are mostly positioned to the north and west of the historic complex. Nos. 1-4 Mill Lane are Worker's houses located beyond the development area (fig. 1) and not subject to record.

Since its closure, the site has remained in a redundant state and much of the brewing equipment has been removed. At the time of the survey the buildings were vacant and the site surrounded by Heras fencing. The area round the buildings is overgrown with buddleia bushes and littered in places by spoil from engineers test-pits dug mainly on the eastern side of the brewhouse and parts of the interior.

2.2 Planning background

Following previous applications in 2008 and 2009, an application was submitted and approved by Uttlesford District Council in 2010 for the redevelopment and conversion of the former brewery complex to provide a mixed use development of 36 apartments, seven town houses, 650 m² B1 (a) office space and car parking (UTT/2310/10).

Given the impact of the proposed works upon this important brewery complex, ECC HEM, in their capacity as archaeological advisors to Uttlesford District Council, recommended that a full archaeological condition be attached to any grant of planning consent based upon advice contained in *Planning Policy Statement 5: Planning for the Historic Environment*. Uttlesford District Council duly specified that a programme of building recording be carried out prior to redevelopment.

2.3 Aims and objectives

The purpose of the historic building survey was to compile a full and detailed record of the brewery prior to the start of the construction, demolition and conversion works in order to preserve the complex 'by record', using descriptive, drawn and photographic means.

The main brewery buildings to be converted or demolished were recorded to English Heritage level 3 standard (English Heritage 2006) addressing materials and method of construction, spatial layout and function, and original fixtures and fittings and technologies and to understand the significance of the brewery in the wider context.

A lower level record, primarily photographic and descriptive, was made to English Heritage level 2 standard of the modern free-standing ancillary structures scheduled for demolition.

2.4 Description of work

Full access was provided around the site and within the brewery complex. As part of the survey, external and internal architectural descriptions were made and plans, sections and elevations supplied by the architect were annotated with 'historic detail'. New plans were made of the cooper's workshop and stables which had not been surveyed previously.

Lighting levels on the ground floor of the brewery were effected by a lack of natural light since most windows apart from the dispatch/office area were boarded-up. In these cases the surveys were undertaken using artificial light.

A series of photographs (digital and 35mm black & white print) were taken internally and externally. The scope of some of the external photographs was restricted by the proximity of buildings and other features. For interiors that had been either modernised or stripped-out, general views were taken. Specific shots were taken of any original fixtures and fittings or architectural detail. A representative selection of photographs is reproduced at the back of the report as plates 1-73. The remainder can be found in the archive.

A phased location/block plan was produced to illustrate the development of the complex (fig.1), based on documentary and cartographic research and existing reports made available from Essex County Council and published sources.

3.0 HISTORICAL BACKGROUND AND DEVELOPMENT

3.1 Ridley's Brewery

Cartographic and documentary research was undertaken at the Essex Record Office, Chelmsford (ERO) and references are supplied in the text. The Essex County Council Comparative Survey of Essex Breweries (Crosby 2002) was also studied as well as a parish history (Drury 1999). Postcard images of the brewery in operation have been included in the report from the Brewery History Society (BHS) website at <http://www.breweryhistory.com>.

Felsted Tithe Map of 1837 (fig. 2) shows an earlier brewery on the site occupying plot 830 (ERO D/CT 138) owned and occupied by William Ridley, father of Thomas Dixon Ridley who established the current brewery. At the same time, Hartford End (corn) Mills further upstream to the west (plot 829), was occupied by Thomas Ridley, which was owned by the Wells family, brewers of Chelmsford, into which he had married.

The early brewery was demolished to make way for a newer and larger brewery, which was completed in 1843. The earliest map showing the layout is from 1875 and shows the brewhouse without its shorter eastern range (fig. 3) that contains part of the boiler room and lucam and no chimney. Booker (1974) suggests that the early brewery was not mechanised but was altered for steam power at a later date and perhaps this is the pre-steam engine brewery. Although some breweries were mechanised from the middle of the century not all

were, since their smoke was an issue with the beer-making. Booker dated the Ridley's steam engine to the "last quarter of the 19th century when the brewery seems, from internal evidence, to have been reconstructed" (Booker 1974, 67). The present derelict and stripped-out state of the brewery makes this hard to confirm or deny but later maps would tend to support this.

The map shows the brewhouse (1) built around the post office building on the SE corner of the plot that may be a converted remnant of the earlier brewery. Apart from this, the layout is familiar, with bottling plant 2 and the timber-framed dispatch area fronting the road, latterly partly adapted as offices, as well as the cooper's shop to the east and stables to the north. Stables 8 form a long range on the north side of the site, next to a building standing where the barrel store now stands and another structure is located on the site of the clockhouse (10). Workers' cottages face the main road (since demolished) and to the west along Mill Lane, which survive but are currently unoccupied.

The business had greatly expanded by Thomas's death in 1882 and passed down through succeeding generations of the family (Crosby 2002). By the 1890s the eastern range (boiler house) and chimney had been built (fig. 4, 1897), perhaps heralding the introduction of the steam engine, though it might be expected that the brewery would have been fitted with a chimney for the boilers to heat the water, unless the coppers were heated by fires. This resulted in the post office building being demolished and moved to no.1 Mill Lane. Around this time, brick-built offices were built onto the NW end of the dispatch area and an unknown structure to the NW of the bottling plant where engineering 13 now stands.

Ridley's was established as a limited company in 1906, by now owning maltings at Writtle, Braintree, Chelmsford, Causeway End and Hartford End Felsted, and the flour mill at Chelmsford, along with 47 public houses. By this time the old flour mill had become the family residence.

In the early 20th century (pre-1920), cold stores 4 were added to the south side of the bottling plant, the offices enlarged to their present form and the dispatch area extended to the east (fig. 5, 1920-21). Judging by their style, staff rooms 5 were probably added soon after. The map also indicates two new structures facing onto Mill Lane that were later demolished when modern warehouse 14 was constructed.

According to Peatty (1992), the existing tower block was built in the 1920s. Conditioning rooms (6) were built in 1938, whose flat roof housed a large water tank. A substantial

warehouse (14) was constructed in 1974, extending the site westwards as far as the worker's houses on Mill Lane. A new office block (11) was built in 1990 on the site of the former worker's housing at the front.

In 1999 there was a workforce of over 50 at the brewery and 64 public houses in Ridley's ownership (Drury 1999). Tours of the brewery were a popular feature, winding up in the Clockhouse - the brewery bar.

T.D. Ridleys continued as an independent brewer until its purchase by the Suffolk brewers Greene King in 2002, who continued brewing at the site up to 2005. By this time it was the only working brewery in Essex apart from some small-scale micro-breweries. Though brewing ceased, the site continued to be used for a short time in a secondary capacity for bottling and distribution.

The site closed on 2nd June 2006 and soon after was recommended for listing because of its unusually high state of preservation, though this was not taken up. It was during this period that much of the important internal apparatus was removed, scrapped or relocated to the Greene King Brewery Museum in Bury St Edmunds. A site visit by ECC HEM in 2009 confirmed the loss and damage to important features but also the survival of original technologies, access routes and substantial fixtures and fittings representative of the brewing process.

3.2 The Brewing Process (from Garwood 1999 and Morlands 1961)

The five main constituents traditionally used in brewing beer are malt (barley), hops, sugar, yeast and water. Barley is the commonest cereal used for malt as it was widely grown and produced a good flavour. Sugar contributes colour, flavour and body, while the unique bitter flavour and aroma originate from the resins contained in the hop flowers or cones. Yeast converts the sugars into alcohol and carbon dioxide, while the water (referred to as liquor) and its mineral properties often determine the type of beer produced (Lovett 1966).

Milling and Mashing

Malt is produced from barley in a malthouse and then brought to the brewery in sacks which are stored at the top of the brewery at the start of the process. In the first stage of the process, the malt is then taken to the mill room where it is screened to remove foreign matter and then crushed by a mill to crack the corn and free the husk from the kernel of starch to become *grist*.

The grist is then mixed with heated liquor (water) in a mashing machine that heats it to a precise temperature to become the mash, which is then transferred into the *mash tuns*. Here the remaining starch in the grist is once again converted by enzymes into sugars, that dissolve into the water to form a sugary liquid called *wort*. The wort is then drawn through the perforated bottom of the mash tun down into a collecting vessel (underback) or straight into the coppers. Hot water is sprayed onto the drained mash to remove any remaining sugar, a process known as *sparging* (Lovett 1966). The grain residue is dried and sold as cattle feed.

Boiling

From the underback, wort is transferred to a copper, the hops are added and the wort boiled for 1-2 hours. In Victorian times this was done by a steam percolator-type device. This process extracts the flavour from the hops, giving the beer its character and nose, halts the enzyme activity and sterilises the wort. At this point spent hops are removed by filtering the boiled wort through another perforated vessel called the hopback.

Cooling and Fermentation

The process of cooling the wort for fermentation is quickened by passing the liquid through heat exchangers, aided in some cases by the liquor of the next mash. In earlier times cooling was carried out on shallow trays on the roof of the brewery (Morlands 1961). Once cooled to about 60° F, the wort is drained into a fermenting tank. Yeast is then added or *pitched* into the tank to convert the sugars into alcohol and carbon dioxide. Fermentation usually takes between four to eight days. Since heat is generated through fermentation, the vessels are fitted with a cooling system of cold water pipes to regulate the temperature (Morlands 1961). Once fermentation has finished and the yeast has settled at the bottom, the new generation of yeast skimmed off and the beer is allowed to rest and cooled in tanks for 2-4 weeks before racking into a cask or tank.

Racking, cellarage and bottling

Once sufficiently cooled, the beer is then tapped and run off to mature. Draught beers are racked into casks that have been inspected after thorough washing and steaming. A small amount of sugar solution may be added to prime the cask and induce a slight fermentation to produce a slightly sweeter beer. Dried hops are added to impart a fresh flavour and aroma and to help preserve the beer, which is then stored until it is ready for dispatch. Prior to dispatch the beer is often cleared by use of isinglass finings (Lovett 1966).

Preparation of bottled beer involves conditioning tanks, chilling, carbonating and filtering and high speed modern bottling plants combine bottle washing, filling, sealing, labelling and pasteurisation machinery (Morlands 1961).

Traditionally the beer was dispatched by drays drawn by horses, hence the presence of stables at breweries, but latterly by lorries.

4.0 BUILDING DESCRIPTIONS

4.1 General description (from Crosby 2002)

Essentially, the main buildings are red brick and slate roofed industrial structures with many of the features associated with industrial breweries. They comprise a two-storey red brick range with an in-line gable lucam to the roadside, a yellow brick two and a half storey tower block with boiler house to the rear (north-west) and a series of four parallel smaller two-storey ranges including the brewhouse and later cold-rooms to the south-east. All buildings are integrated and aligned NW-SE (fig. 1). Though mainly built of brick, weatherboarding is also used but confined to attic/upper storeys or the numerous timber-framed projections typical of industrialised brewing, including a lucam, ridge ventilators, lanterns and lofts. A large central brick chimney stack stands to the north-east of the tower block. The buildings still retain many of their original window openings and many examples of original fenestration, including segmental headed timber sash windows, larger multi-floor casements and an ornate arch-headed window with a dated keystone to the brewhouse. The principal brewery buildings show no overt signs of structural problems and, as you would expect from a recently working complex, remains in good order. Many original parts of the brewery remain intact and as such the complex survives as an example to which few other Essex breweries compare.

General descriptions are provided below of the six main components of the brewery, followed by external and internal descriptions of the brewery beginning from the west side. Separate structures are described under their own headings later on in the report. Building construction dates and phases are included in figure 1.

Brewhouse 1 (1843-1897)

The main element of the Victorian brewery was the brewhouse, which operated using the traditional tower system containing the coppers, mash tun, fermenting vats and facilities for casking over its three floors. The main frontage with its five gables facing onto the Chelmer is

of five ranges built of 9 inch red brick, whilst those shorter elements at the back are of yellow stock brick. The three central ranges are original but the two outer ranges were added later. Windows are original multi-pane sashes with segmental arch heads and limestone sills; most doors are ledged and battened.

Roofs are simple king rod collar roofs and slate-covered. Only in some parts have they been replaced in modern materials, corrugated asbestos sheets, etc, primarily over the various timber-clad tower block buildings that contained the coppers and machinery.

Brewery offices/dispatch 2 (c.1875-97)

The dispatch area is built on a timber-frame and clad in matchboard, with the third bay open to accept carts that were filled up from the loading bay. Records were made of deliveries and dispatches from the Clerk's office beside the loading bay. Offices were built in yellow and red brick, in sympathetic style and same roof structure as the main building.

Bottling plant 3 (1843)

Two parallel single-storey stock brick ranges aligned NE-SW with, pantiled double-pile roofs and gabled ends are terraced into the natural slope at the back of the brewhouse. The bottling plant is built in English bond with sash windows. As the floor is below ground level there is a French drain along its outer walls that continues against the cask fill building at the back (north end) of the brewhouse.

Cold store 4 (c.1900)

Although later in date, the style and materials of the cold store match the ranges of the bottling plant in its use of stock brickwork, though it has a slate roof over its single floor. In latter years, if not before, this was the main entrance for the brewery workers. Refrigeration came in around the turn of the 20th century and chilling was necessary to prepare the beer for bottling (Morland Brewery 1961). The chilling cabinets inside are likely to be original.

Staff and ancillary rooms 5 (post-1921)

Three peripheral single-storey structures stand on the western side of the brewery complex built in different forms from yellow stock bricks after 1921 and likely to predate WW2 and because of their late date have been given a group number. The staff room/switch room at the north end is built in Flemish bond with buttressed walls and a flat concrete roof, perhaps for a tank of some kind. To the south is a store/locker room that seems the earliest of the three. It has a single-pitch roof and no external entry. A small shed beside it is clearly an add-on since it is built over two existing windows. The walls are constructed in stretcher

bonded yellow and red bricks below a corrugated iron single-pitch roof. The door on the side is modern.

Conditioning plant/stores 6 (1938)

A two-storeyed building constructed of modern brick on a pre-cast reinforced concrete frame built onto the south side of the cold store in 1938 and was equipped with beer conditioning tanks. The windows form two bands, one per level, and have metal frames and safety glass. A water tank was housed on its flat roof.

4.2 External descriptions

South-east elevation (Mill Lane)

The main brewhouse façade occupies this elevation, facing onto the river and viewed from Mill Road and the southern approach to the complex (plates 1 & 2). It comprises the five gable ends of the brewhouse ranges, with the central gable projecting slightly forwards and having a higher standard or decor. Each gable is different according to function. The central gable is the grandest and least altered, with its three arched windows lighting the first floor and the keystone over the central window bearing the inscription 'T.D.R. 1843' (plate 3), referring to the founder. Another inscription has been carved into the brick band between the two floors that reads 'W.W.R. 1843', clearly a reference to William Ridley (plate 4). The windows below, that light the ground floor, are oddly unsymmetrical given the importance of this elevation, and are the more regular multi-pane sash windows with segmental arch brick heads. The surrounding brickwork is coursed in Flemish bond with evidence of lines for tuck-pointing, much of which has weathered-out. The roof is topped by a ridge lantern (plate 2).

The ranges either side of the central bay appear to be contemporary; that to the east, bay 4, has been substantially rebuilt in English bond up to first floor level, perhaps when new floor joists were inserted inside in the main hall. On the ground floor is a large vent and window, now hidden from view externally, leading from the boiler room, which occupies both this bay and the outer bay. On the first floor above are a taking-in door leading straight into the brewhouse (rather than into a store) and a sash window on the other side. A concrete sill under the taking-in door ties in with the later brickwork and there is some untidy rebuilding around the window. An oculus window is located in the gable (plate 5).

At the eastern end, bay five is the most distinctive feature of the brewery with its second floor lucam and the boiler house chimney in the background (plate 5). Bay 5 is built in English bond and divided by a straight joint. Thus, it would appear to a later addition or rebuild and

likely associated with evidence seen by Booker (1974) that the building was adapted for steam power later.

The areas around the ground floor vent, window and door and first floor loading door have been rebuilt in cement, the latter removing its loading platform (for hops, etc., rather than malt), leaving sawn-off T-joists. The lucam above, on the top floor, is a gable timber-framed and weatherboarded projection that contains the sack hoist for bringing in sacks of malt and hops into the stores (plate 5). The hoist was capable of handling a weight of 3 cwt (hundredweight), c.152.5kg, as indicated on the inside of one of the brackets as 'S.W.L. OF CHAIN 3 CWT'. The lucam is well-preserved, containing a window at the end and trap door, opened as the sack was raised through it. Back on ground level and further to the east are the gates into the yard behind and the short curving brick wall alongside Mill Lane (plate 5) which are of 19th century date.

The gable of bay 2, to the west side of the central gable, has minimal fenestration and quite narrow windows on both floors (plate 2). A third, quite low window has been blocked recently. The windows have simple wooden lintels and sills apart from the ground floor that has a concrete sill. Circular wooden vents are located in the gable of this bay (hop store) and the next one (bay 1) to the west. Internally there are blocked windows between bays 1 and 2 and the outline of an earlier lean-to structure incorporated in the wall.

A clear straight joint separates bays 1 and 2 since they belong to two phases. The loading door in bay 1 is modern and worked off a (removed) platform inside, predating the ramped loading bay around the corner on the south-west side (plate 2). A narrow window provides sparse light to the brewery hall inside. The external elevations of the 1938 conditioning plant (plates 1 & 6) show no features of interest apart from concrete balls in the corners and the inscription 'T.D.R. 1938' on a plaque in the centre.

North-east elevation (main road)

The north-east elevation (plate 7) is perhaps the most interesting and complicated sides of the brewery since it performs many different roles from the core brewing areas to the dispatch area and offices. From the road, it is partly obscured by the cooper's shop and chimney. The elevation begins with a continuation of the boiler room. Around the base of the walls and around the yard are removed tanks and heaps of spoil from several test-pits dug to view the foundations. They show quite deep stepped foundations in yellow stock brick below the red brick walls. Fenestration is characterised on both floors by tall six-light casement windows, more likely to date from the later part of the 19th century. The gable end of the

boiler house on the north-west side is partly obscured by the chimney, but displays similar, though more uniform and shorter, casement windows and a blue segmental-arched door with fanlight into the room from the yard (plate 7). The original covered flue from boilers to chimney at the base of the wall was blocked and replaced by a modern steel pipe fitted through the partly-blocked ground floor window (plate 8). This probably dates to 1970 when two oil-fired boilers replaced the existing coal-fired Lancashire boilers, installed when the tower was rebuilt in the 1920's (Peatty 1992). The chimney is built of yellow stock bricks in English bond and is square and tapering slightly to the top. It is strengthened by bolted iron rods around the sides at irregular intervals. Originally there were two ground level arched exhaust points, facing the boiler and engine rooms (fig. 6), both of which have been disturbed by modern groundworks here, making closer inspection unsafe. One led into the boiler room and the other into the postulated engine room (fig. 6).

Projecting from the back of the boiler house is a two-storey yellow stock brick structure that contains some of the 'workings' of the brewhouse, with timber projections on the roof for elevators and screening machinery (plate 7). Sash rather than casement windows light the building that, like the boiler house, is built from English bond. A hatch enters the tun room on the first floor behind a modern blue tank.

Following on from the brick-built brewhouse is the original single-storey dispatch area and brick-built brewery offices (2), which have changed very little since Victorian times (plates 9 & 10). The dispatch area, timber-built, and painted blue with a black band at the base, occupies three gabled bays (35° pitch) facing the roadside, the central one of which projects onto the granite-paved barrel yard. Both this and the bay to the south are enclosed with vertical matchboarding and have boarded doors that lead into the cask repair area, with wooden vents set into the gables. The third bay is open to accept carts and contains the wooden loading platform and loading doors. A fixed multi-pane window is situated above the loading doors and another more conventional window, lighting the office corridor, is located between it and the clerk's office. The clerk's office, enclosed within the bay, is fully-lit with multi-glazed panels and has a slate internal roof (plate 10). Wooden beams and collars pass through and beside it, providing a rare example of exposed trenched collar purlin roof structure, a feature which appears to be used throughout the complex. Between the clerk's office and brick-built office is the main office entrance through the clerk's office (fig. 6). Finally, the brick-built office at the end (room 15, fig. 7) has a single sash window facing onto the yard and two smaller ones on the north-east elevation, straddling the chimney. Other office elevations are now hidden by the modern office building of 1990 which is described separately later in this report.

North-west elevation

Apart from the modern office building, the historic elevations exposed on this side are the bottling plant and part of the cask fill area of the brewhouse (plate 11), both of which are terraced into the slope. The bottling plant elevation (plate 12) contains sash windows and later fans inserted inbetween. Window heads along this side are within the roof line and the sills appear to be codestone. At the eastern end are modern steel loading doors associated with a concrete lorry ramp. Two sash windows with segmental arches are located on the north-east gable (plate 12).

The small part of the cask fill elevation that is exposed shows a mixture of English-bonded yellow stocks under red bricks in the same bond but it is unlikely to represent anything other than using up available bricks in a less-seen area. The windows deep down in the elevation face onto the French drain outside and have hopper openings, but are best viewed internally.

South-west elevation

The south-west elevation comprises the western end of the bottling plant (3), a group of post-1921 ancillary buildings (5), cold store 4 and part of the 1938 conditioning plant (6). Photographs of this elevation were restricted by the proximity of warehouse 14, a large tank and the ever-present buddleia.

The bottling plant gable is identical to that on the opposite end, but here the French drain comes up to just short of sill level. In front is the flat-roofed staff room (5), lit on this side by a single sash window between the brick buttresses and entered by a doorway on the south-east side (plate 13). A blocked bearing box is located behind the vegetation on the front of store room 4, but more clearly seen internally (fig.6), located at the end of the bottling plant power line.

The gable end of cold store 4 matches the earlier gables of the bottling plant though the central sash window is hidden by a later small shed with a single-pitch roof (plate 13). The double doors that lead into the lobby area of the cold store have enclosed pintel hinges, like many others in the brewery. All woodwork on this side is painted blue like the dispatch area.

The 1938 conditioning rooms are built onto the cold stores and partially over its roof (plate 13). Where the conveyor to warehouse 14 has been removed the building fabric of Flemish bricks on the inside of the wall cavity and red bricks on the outside can be seen (plate 13). The elevation shows window ranges on both levels though part of the upper window towards the south end is taken up by loading doors, which are probably original (plate 6).

4.3 Internal descriptions

Spatially, the interiors in all areas and levels survive largely unaltered and as a consequence most of the general fixtures such as doors and windows survive too. However, as with any operating process, there have been modifications and improvements over time. All the major historic brewery equipment such as the coppers, tuns, etc, that contributed to the importance of the brewery were removed in 2006, as well as all modern machinery. Many of the numerous stairs have been broken-up, restricting movement within the building. The copper-lined fermenting vessels have been badly-damaged too. However, amidst this disturbance are several pieces of equipment that have survived high up in the building that have great value in understanding how the Victorian brewery operated, and which form an important part of this survey.

In the following descriptions, the brewery is described in the manner of which it was recorded, from west to east and floor by floor rather than in chronological sequence. Each of the main rooms is numbered. Numbering on the ground floor is from 1-18 and from 1-19 on the first and second floor combined. Because of the requirements of the tower brewing system (efficient movements of materials, wheel barrow access, etc), floor levels are not consistent, but the floor plans are logical and show interconnecting ramps. Outbuildings sited away from the main complex are discussed to varying degrees afterwards.

Process flow of the Victorian brewery, from delivery of the raw materials to dispatch of the beer, is discussed separately under its own heading in section 5.0. The Victorian machinery (cask hoists, chain hoist, elevators, etc), was powered by a steam engine (noted in Booker 1974) through a system of line shafts and drive bands, which was common in factories and other industrial buildings from the middle of the 19th century. Understanding of power transference within the brewery is based on limited information: the surviving (and blocked) bearing boxes (annotated BB in figs 6-8) for line-shafts, a length of which still survives, and blocked (presumed) band apertures (BA in figs 6-8) that enables drive to be transferred by drive band from shaft to shaft (one room to another) or from shaft to machinery by drive wheel, all emanating from the engine room. Due to the low level of survival of such equipment, a full understanding is not possible and it is likely that different elements relate to changing set-ups in the brewery. After the brewery was electrified (date unknown), machinery was driven by individual electric motors and subsequently many elements of the inter-linking power drives were removed, and apertures often blocked.

Room function marked on the floor plans is based on the existing survey carried out in October 2005 on behalf of Greene King, which also shows modern partitions and platforms

removed since, for the record. Much of this room function is apparent from signage surviving on doors and walls.

4.3.1 Ground floor/basement (fig. 6 & plates 14-31)

Floors on the ground floor differ slightly in level but tend to be concreted, with ramps through open doorways to enable easy movement through the building. Walls are plain brickwork painted white, with a black band at the base, a style repeated in most rooms and on other floors. Internal support for the floor above comes from iron columns iron and steel joists and reinforced concrete beams depending on the date of different parts of the building. On the whole, the doors are quite heavy ledged and boarded types hung on pintel hinges of the later enclosed form. Most retain signage denoting room function in Victorian lettering. Most of the ceilings are plasterboarded and insulated with modern foam. Most light is taken from high windows in the brewing hall or first floor windows and artificial lighting is all modern strip lights.

Entry into the historic brewery complex from the west side was by the double doors in the cold store via **lobby area 1**, which atleast latterly was the worker's entrance. From here there is access to the staff rooms, bottling plant, cold store and conditioning plant (fig. 6). **Cold stores 2 and 3** were where the beer was kept in refrigerated tanks before bottling. The doors, though old, are fitted with steel insides to form a good seal on closure. Above the cold store entrance is a platform which is coming adrift with the weight of the door (plate 14). Inside walls of the two rooms are lined for insulation with cork and have a coved skirting. The floors of each were covered in ice to keep the beer at 30° F (Bill Price pers. comm.). Temperature was maintained by pumping cool air into the room through a system of ceiling-mounted matchboard cold air cabinets that were controlled by wooden vents now linked into a modern refrigeration system in plant room 3a (fig. 6 & plate 15). Apart from these, the rooms are empty apart from modern pressure and temperature gauges and modern hose fixtures on the walls.

On the immediate left-side of the lobby are staff rooms and stores (rooms 4, 5 and 6). On the south-west wall of **store 4** are staff lockers and further along is a blocked bearing box for line-shafting gear, above the cloak rail (plate 16), implying that staff use was a later function. A second blocked bearing box is located opposite, for shafting into bottling plant 7, and there is a blocked aperture into the staff room for a drive band (fig. 6).

The flat-roofed extension next to stores 4 was divided up into staff room 5 and switch room 6 in the modern period. **Staff room 5** is carpeted and has its own separate external entrance,

though again this would appear to be a later use because of the blocking in the wall between rooms 4 and 5 (vaguely seen on the right of plate 16). It is therefore possible that these were originally engine rooms for the bottling plant added at a later date, perhaps for diesel engines. However there is no venting in the walls to support this interpretation. Refurbishment and division into a staff room and switch room may have removed evidence for this. Like many others around the complex, the sash windows to these rooms are fitted with iron grills for security (plate 17). The electricity **switch room 6** contains only no features of interest.

A ramp leads from the lobby down into bottling room. **Bottling plant 7** is typical of the larger more industrialised spaces of the brewery, with high ceilings, empty concrete machine bases, damp and debris on the floor (plate 18). Apart from the row of tall 4 inch iron columns that support the roof valley and the gully beneath, all fixtures and fittings are modern. Large steel doors lead out to the subterranean loading bay on the north-west side. In the eastern corner is the original doorway into the cask fill area 13, dealt with later in conjunction with the brewhouse. Above it is a bulkhead that forms first floor passage between 1938 stores and Victorian dispatch area, fitted with modern sliding windows (plate 18, right); a means of observing and supervising the bottling plant from the nearby offices. A small office partition was located in the south corner of the room (fig. 6) and is a later insertion.

The various rooms of the 1938 conditioning plant are accessed from the other side of lobby (fig. 6). **Compressor room 8** contained modern compressors that were part of the cooling process for the adjacent conditioning rooms. Only some large disconnected duct piping at the south-east end remains (plate 19, right). On the north-east wall of the compressor room is a 1930s sliding door into the conditioning/tank rooms and beyond this is the staff notice board and clocking in/out board (fig. 6 & plate 20). At the south-east end is the **chemical store 9** that seems to have originally been a washroom/toilets entered by a semi-glazed 1930s-style doorway (plate 19). The interior of this and the other rooms in the 1938 building occupy four bays characterised by reinforced concrete beams and posts and low ceilings. The conditioning tanks in **rooms 10 and 11**, upright stainless steel vessels, have been removed. Next to the external doorway on the south-east wall of **conditioning room 10** are chalk boards for tanks 5-13, recording brew, gyle and date for completion (plates 21 & 22). The doorway is raised and has steps leading up to it. The glass-fibre tank nearby (21, left) is one of two that remain in the complex for sterilising hoses and other equipment. **Conditioning room 11** (CR 2) is bereft of such features but instead gives access to an empty and dark **plant room 3a** which contained plant for the cold store but is devoid of machinery. It has a rebuilt ceiling supported by a reused 4 inch column.

There are two doorways leading into the brewing hall from the conditioning rooms. **Brewing hall 12** is a large area behind three of the four gables on the main elevation; the fourth gable housing the boiler rooms, etc, where the beer was tapped from the fermenting vessels and latterly casks were stored before dispatch. The main warehousing part on the south-west side of the hall until recently had modern platforms that linked to the first floor of the 1938 building (still shown on figures 6 & 7) and a loading door at the front, probably replaced when new loading doors were built on the south-west elevation. The high ceiling of the hall rises to two storeys. Proof that the south-west range was a later addition (between 1843 and 1875) is shown by the survival of an earlier lean-to wall incorporated in the south-east gable wall (plate 23) and three long blocked windows on the south-west wall of cold store 13, next to the laboratory (fig. 6). A blocked bearing box is situated high in the wall of the lean-to next to the former loading doors (plate 23). The opposite view to the north-east (plate 24) shows the cut-down concrete/steel joist supports for the former platforms and openings from the first floor of the conditioning rooms onto them. More significant however, is the line-shafting high up on the north-west wall that drove the cask hoists but was truncated in the middle when a modern 10 inch steel joist was inserted to support the valley (figs. 6 & 7) in a period of modernisation when the traditional loading area on the east side became redundant. Smaller steel joists supported the platforms and still support the fermenting room on the first floor (plates 23 & 25). Those joists below the fermenting room replaced earlier iron columns that carried 9 inch timber joists, some of which were replaced at the same time. These joists were bolted securely to the separate plates that held the boarded enclosure around the fermenting vessels. The 2m gap beneath the vessels is sufficient to tap off the beer from their bases. During the survey much of this area and the area to the south-east was flooded but accessible, though there was little here of interest. **Cold store 13** contained nothing of interest and laboratory next to it was inaccessible, though it is interesting to note that it had its own internal roof, though modern. In the south-east corner of the brewing hall is modern pumping/sterilisation machinery (fig. 6).

Cask fill room 14 is one of the better-preserved areas of the ground floor. Located to the rear (north) of the brewing hall, beneath the first floor dispatch lobby, it has a low ceiling and is, like the bottling plant to which it also links, essentially at basement level. There are three open doorways between room 14 and the brewing hall in line with the loading doors above so that casks could be rolled out and hoisted up to the dispatch area when ready. One of these has been blocked to control the movements of forklifts. Six-pane hopper windows with ovolo mouldings and splayed sills are located along the north-west wall above the French drain outside. It comprises six bays and has a stone floor and cast iron columns that support 6-inch wide bridging joists running along the centre (plate 26). The columns are the same

thickness as those in the bottling plant, but are shorter and have winged heads. The upper part is painted red and the lower part painted black, at the same height as the walls that continue the white/black theme. On the fourth and fifth bays the bridging joist is thicker at 0.45m (3 joists wide) and carried on paired columns to bear the weight of the dispatch area above. At the south-west end of the room are original doors leading into the bottling plant below the baulkhead (fig.6). At the opposite end is the barrel door, through which repaired or empty barrels could be returned to the cask room for refilling from below the loading platform or the cask repair area via a curved compact mortar barrel run (fig. 6). The door has cast iron strap hinges with a central handle and lock-bolts on the opposite side. The cut-out at the bottom was probably for a wooden ramp to roll the casks into the cask fill area (plate 27).

Boiler room 16 is located in the south-east corner of the brewhouse and entered by a short flight of steps from the brewing hall through a doorway labelled 'BS No. 2' (fig. 6). It is essentially one room with a spinal wall down the middle for the boilers either side that heated water for the coppers. The room was enlarged with the addition of a second bay between 1875 and 1897 (16a and 16b in figs. 1 & 10). According to Peatty (1992), two oil-fired boilers were installed in the boiler rooms in 1970, that replaced earlier coal-fired Lancashire boilers dating to the 1920s and which were therefore contemporary with the rebuilt tower block. The boilers and much of the pipework has been removed.

The south-west side of the room (16a) has a concrete floor, bare painted walls and a high jack-arched brick ceiling supported by large 12 inch iron joists. (plate 28). Such ceilings acted as a fireproofing measure and provided a strong base for the floor above, which in this case contained the brick piers that carried the coppers (figs. 7 & 9). At the foot of the north-west wall adjoining room 17 is a small blocked aperture covered on the other side by an iron (fig. 6 & plate 29), for a low-level drive shaft. In the north corner of room 16 is a void, part of the blocked flue where smoke was piped into the chimney outside. The floor at the south-east end contains modern brick-lined drainage channels for the oil-fired boilers but also traces of a granite yard belonging to the earlier phase of the brewery.

The additional bay built onto the north-east side (16b) has sole external entry as a wide ledged, braced and battened door at the front (south-east side) and a similar though narrower door with fanlight out onto the yard. The ceiling in this part of the boiler room is of shuttered. Fenestration on the main elevations is in tall casements (plate 5) there fixed four-pane windows on the chimney side. Some later holes have been made in the dividing wall between the boilers the largest of which is certainly for the later emission pipe that was built into an existing window (plate 8), perhaps marking the change from coal to oil. Below this is

the original flue at the base of the wall, which has been blocked below the iron joist (fig. 6 & plate 8).

Engine room 17 to the north of the boiler room probably contained the steam engine that powered the machinery inside the brewery from the latter part of the 19th century up until electrification (c.1930s?); although none of this equipment now remains. Instead there is a void above in the ceiling where the mash tun was and the three 5-inch iron joists and two 5-inch fluted columns that used to support it. There is the blocked aperture on the south-west wall (fig. 6 & plate 30) that provides evidence for the engine room, since this would have taken a drive band through into the brewing hall to drive the barrel hoists and onwards to power other machinery as far as the bottling plant. Its emissions would pass through the corner of the room and into the general flue from the boiler room. A large part of the floor in rooms 17 and 18 is covered in spoil from engineers test-pits dug before the survey started.

Cask repair room 18 is part of the Victorian timber-built dispatch area with access between the dispatch area and engine room. It was here that damaged casks would be returned, sorted and if needed repaired. They were then rolled along the barrel roll into cask fill 14 for reuse (fig. 6). The interior has been greatly affected by modern activity in the form of a concrete-lined pit, tanks, piping and a modern steel stair over the barrel roll (plate 31). Where exposed, the roof has a king rod bolted collar purlin form, typical of industrial structures. The main surviving historic features are the doors. No other equipment relating to function remains.

4.3.2 First floor (fig. 7 & plates 32-52)

Beginning with the 1938 building on the western side, the first floor **stores and compressor room 1** has the same four-bay construction as the ground floor below. Formerly it had modern partitioning forming a passageway with store rooms either side and a compressor room at its southernmost corner. It has been stripped of all partitions and machinery and only some concrete bases remain and an area of blocked wall where the conveyor to the modern warehouse once stood (fig. 7). Looking towards the brewing hall (plate 32) are two openings onto the platform overlooking the main hall, the largest of which has a sliding door typical of the 1938 building but which was blocked in recent years, while the narrower one remains open. Inspection of the threshold here (at the south-west wall of the Victorian brewery) shows frogged 14-inch brickwork. The only direct route on this level from here to the main part of the brewery is by passage 2 on the northernmost corner (fig. 7).

Passage 2 is part of the c.1900 cold store addition and continues through the baulkhead of the bottling plant, already described. This is a narrow, dark area with a low ceiling and

sloping floor. Plate 33 shows piping (left) for the later refrigeration system supplying the cool store from the plant room below and the re-routed rainwater system (right) as well as the baulkhead itself. A void in the north corner, blocked on this side, probably linked with the line-shafting in the brewing hall by a vertical shaft on the other side of the passage, where there is a counterweighted iron maintenance door in dispatch area 4 (fig. 7 & plate 34).

It was to **loading area 3** that casks were brought up by hoists from the ground floor of the brewing hall ready to be taken away by the drays. The floor is reinforced with steel sheeting and the roof frame above the ceiling is supported on brick corbels and an iron joist. Three loading doors are located along the south-east wall (plate 35) above the brewing hall into which the casks were raised up by hoists driven by overhead line-shafting (fig. 7). Only one of these doors is still functioning, and now the hoist is gone it overlooks the platform next to the fermenting room (5), which was extended after the hoist was removed; a modern development occurring after the loading area was changed to the south-west corner of the brewing hall. At this point the old loading area became used for storage purposes, much of it promotional gear.

The dispatch door at the north-east end leads onto the loading platform by the Victorian reception area, where barrels could be loaded onto waiting carts (plates 35 & 10). These are heavy, braced doors that survive with all fittings attached. Close-by on the south-east wall is a single doorway that opens out onto the fermenting room platform 4. It is held by early T-hinges and has a cord door stay on the corner. **Platform 4** (fig. 7 & plate 36) originally provided access from the office area to the fermenting room and brewhouse. The wooden stairs up to it are a later addition, added at the same time as the platform extension (fig. 7), probably when the brewing hall was refurbished and modernised, and a new loading area introduced. This may have included the installation of platforms along the south-west wall of the brewing hall and the steel joists added under the fermentation room, which all appear to be contemporary. This change made the line-shafting that ran the barrel hoists redundant, but it still survives *in-situ* (plate 37), minus the upward shaft that connected to the gearing at the north corner of the brewing hall (plate 38), where the stairs are now located (fig. 7). This was replaced with a 'MOSS GEAR' electric motor which is still attached close to the band wheel. The positions of the drive wheels in front of the three loading doors would argue that all three had hoists, making for quite a busy operation.

Fermenting room 5, one of the main features of the brewhouse, is suspended off the hall floor and enclosed by a light timber-framed structure internally clad with 5-inch boarded walls and lit from the main hall by 9-pane fixed windows (plate 25). Entry from platform 4 is up a

short flight of wooden steps that lead to a ledged and braced door typical of most inside the brewhouse; painted white and in good order with black-painted ironwork (T-hinges and latch). It is labelled 'FR 1'. Peatty (1992) mentions the presence of 12 copper-lined fermenting tanks inside (plate 39) and provides a short description. These were unfortunately ransacked for their metal after the brewery closed (plate 40). This means the existing tanks have been stripped to the wood and large sections sawn through. Vessel no. 10, which was subdivided to brew barley wine (B. Price pers. comm.), has had half of its bottom removed. The surviving tanks are shown in figure 7 with their fermenting vessel number prefixed 'FV', where this could be established. Detail such as maker's names could not be established, but some have different lettering style.

Each vessel had a sixty barrel capacity on average (Peatty 1992). The one in the south-east corner (?FV 6) was removed before the brewery closed (B. Price pers. comm.). The vessels are constructed from heavy c.6-inch timbers tied with iron rods across the short sides. Wheels operated the iron bars along the top on rounded wooden brackets, probably bearing temperature gauges that could be lowered right down into the beer. The interiors were lined with copper, which has all but disappeared, attached by copper nails. Copper taps on the sides were used for sampling the brew (plate 41) and at the bottom were copper outlets for racking the beer and draining off cleaning fluid afterwards. The temperature of the wort was controlled by cold water from pipes and other pipes were used as overflow, excess fluid being collected in a bowl and drained through pipes between the vessels. Around the outside of the tanks were vinyl-covered walkways with small circular drains at intervals. The passage between FV 10 and 7 continued the brewing hall, though the extent is unknown.

On the south-east wall is the (broken) timber staircase up to 'BH', the brewhouse. Next to it is a small cupboard, containing a wooden stand for samples, and a modern access hatch (secured by a pin) for cleaning hoses to sterilise the tanks after racking. An older opening (plate 40), ties into a channel in the brewhouse floor that carried pipes for tapping the brew from the hopback into the fermenting vessels. The ceiling over is boarded below the double-pile roof that is supported by a wide wooden valley beam and 5-inch iron joists.

For the purposes of the following description, **brewhouse 6** comprises the area outlined on the architect's plans around the former hopback and coppers. Overall though, the 'brewhouse' refers to the whole brewing process from taking-in to fermentation and therefore includes the lucam, mash tun and fermenting room, etc, as shown in figures 7 and 8.

The only existing access into the brewhouse is from the timber staircase behind FV 8 which leads into the hopback area. The hopback was removed with the rest of the metal and all that remains is the feet of its iron base, suggesting a tall rectangular tank that extended up through the second floor (figs. 7 & 8). Other fixtures and fittings around it have also been removed, including the stainless steel modern pipes that would have transferred the strained wort into the fermentation tanks. To the south-east is the main gable with its three arched windows (plate 42). A raised area before it has impressions in the floorboards suggesting it was occupied by storage bins of some kind (fig. 7). Along the primary-braced wall to the north-east is one of the modern sterilising tanks also seen in the conditioning rooms. The roof frame over the gable is a simple collar purlin type (with cleats) bolted to the rafters either end and to the apex by an iron rod (plate 42).

The two coppers accessible on the second floor stood on brick piers on the north-east side of the room, carried on a concrete floor above the jack-arched ceiling of the boiler house below (fig. 7, plate 43). Plate 44 shows an in-situ copper ('COPPER No.1-DV No.2') taken from the floor above. Voids in the floor show a diameter of 2.4m (fig. 7) where it rested on the steel joists (plate 45). The level gauge for copper no.1 remains against the pier, measuring up to 60 gallons and working on a float mechanism that moved through capillary action (plate 46). A similar but much taller gauge measured the amount in the hopback. A large water main runs along the south-west side of the piers to the mash tun behind.

To the south-east of the piers is the taking-in door and barrow ramp for the hops which were stored in **hop store 7** on the south-west side of the brewhouse (fig. 7). The room has HS 1 on the door and inside is a wooden floor and wooden rails presumably for shelves where bags of different hop varieties could be kept. Between the store and the short corridor next to it is a viewing hatch (fig. 7). The hop store was one of the few rooms to have a lock. In the corridor, the fitted cupboard probably served **staff room 8** (labelled 'SR' on the door). The staff room is timber-lined and projects over the brewing hall, but retains no items of interest.

East of the piers for the coppers, stores 9 and laboratory 10 stand above the ground floor boiler room extension, which is borne out on plans on this level which show the wall cutting straight across an external window (fig. 8). Both rooms have been modernised. **Store 9** has a semi-glazed taking in door and a metal ladder up to the lucam above. The floor is screed in concrete apart from the area of the former laboratory stores and the heavy 9-inch joists in the ceiling are exposed. **Laboratory 10** is divided by a timber partition and has boarding on the two external walls also. The main features here are elements of the Victorian power system through the floor for the sack hoist above, in the form of two drive wheels, hidden inside

Perspex boxes as a safety feature (plate 47). The iron bracket that holds their shaft is bolted to the joists and displays a translucent grease nipple.

A short flight of stairs leads down from the coppers to **mashing room 11**, which is where the screened malt was dropped from the floor above and mixed with hot water to create the 'wort'. The copper tun and its associated piping has been removed, leaving a 3.1 diameter gap in the floor with the modern stainless steel grain hopper of the malt mill above it (fig. 7 & plate 48). The tun was a relatively low but wide tank supported on iron joists and fluted columns that were recorded in the engine room below. A modern control panel is situated on the south-west wall adjoining the fermenting room that regulated the temperatures for mashing and sparging. On the opposite wall is a former hatch (fig. 7), presumably for discharging the waste malt grains via a chute after sparging and cleaning out the tun. Behind the hopper is the cast iron base to the BOBY elevator above, a rare survival of 19th century machinery here. As part of the milling process, malt was fed down the wooden chute from the milling room above, into the base of the machine, and elevated back up to the milling machine on the floor above (fig. 9 & plate 49). The plate reads engine number AC 299.

Victorian offices and reception area 12-15 on the north side of the dispatch area were also recorded during the survey and constitute a distinct entity at the business/accounting end of the brewery. Thus, their interiors tend to be better-presented and unharmed by the partial wrecking of the brewing areas. Some good 19th century interiors and fixtures and fittings remain, primarily in rooms 14 and 15.

Corridor 12 leads from loading area 3 into the office area (fig. 7). The walls are matchboarded like other rooms in this area, but stained rather than painted for an austere look, and the upper part of the wall onto the reception area 14 is glazed (fig. 7), the lower part in obscured glass. To the left is **office 13** that contains mainly modern fixtures including a cupboard housing a collection of beer bottles. Originally there was a doorway straight onto the dispatch area, which is now blocked (fig. 7). On the opposite side of the corridor is the **clerks' office 14**, which is one of the best-preserved areas of the brewery. Here the clerks would record the collections and deliveries at the dispatch door. It is equipped with a row of three desks facing onto the granite yard (plates 50 & 10). A hinged flap on the end desk created a counter for delivery forms to be signed but could be lifted when required. The interior is lined in stained matchboard. The office entrance is integrated into this room and leads through into corridor 12, past a line of coat rails and shelves. A third doorway led directly out from office 14 onto the loading platform (fig. 7). **Office 15**, located on the opposite side of the office entrance stairs, is the main office and would have been occupied

by the manager, perhaps even Thomas Ridley and his successors. The room is fully-lined in timber with high 8-inch skirting boards, shelving/cupboards beside and over the door, a fireplace (removed), light and wall-mounted writing platform/desk mounted on carved iron brackets (fig. 7 & plate 51). The iron brackets beneath the cupboard by the door are relatively ornate (plate 52).

4.3.3 Second floor (tower block) (fig. 8 & plates 53-61)

The second floor comprises the timber-framed and weatherboarded tower block and lucam extending over the main brick ranges of the brewhouse, housing the coppers, grist mill and sack hoist, some of which has survived. According to Crosby (2002) and Peatty (1992) the tower block was rebuilt in the 1920s, presumably around the existing Victorian equipment.

The number sequence continues from the first floor.

Malt and hop store 16 (MS 2 & HS 2) is situated in the attic of the later eastern range whose lucam was used to bring in the malt and store it before it went into the milling room for screening. Hops were also brought up and stored here, as well as on the floor below. The room itself is long and narrow and includes the lucam at the south-east end and machinery for the sack hoist at the opposite end. Apart from the lucam which is timber-built, the walls are of painted brick and the floor boarded and strengthened with iron straps (fig. 8; plates 53 and 54).

The chain hoist mechanism is housed within a modern safety enclosure and comprises a heavy iron drum, containing the chain, bolted to heavy timber posts and driven by a 28-inch drive wheel at the back (plate 55). A band on the drive wheel at the back connects down through the floor to a wheel in laboratory 10 below, which transfers the drive upwards at 45° on a second wheel (on the same shaft), back through the floor by a second band to an electric motor in the corner of the room (fig.8). Before the motor was installed, the chain hoist was probably driven in a similar way by line-shafting on the north-east wall of the copper room (18) that drove a band through the aperture in the wall (fig. 9), now blocked. The shaft continued into the mill room to connect with the elevator and screening machinery.

From the drum, the chain passes upwards to travel along a timber board attached to the bolted collars of the roof, guided by hoops and wheels (plates 53 & 54). A rope passed beneath the collars in the exposed roof that controlled an iron break or clutch lever that tensioned the drive band on the drum (plate 55) after the sack was lifted. This, like the chain, continues all the way to the trapdoor of the lucam that was raised by the sack as the malt entered the store (plate 53). The sack was then dragged to its place of storage, as drag

marks on the floorboards testify. The chain was designed to lift up to 3 cwt, which is 336lbs or c.152.5kg.

Mill room 17 is the best preserved area of the brewhouse and contains important Victorian machinery. To get there, sacks of malt were taken from the malt store by barrow down a long wooden ramp (fig. 8 & plate 56) and emptied into a hopper. The hopper is timber-clad and divided into two parts. The open hopper into which the malt was emptied feeds down into the base of the Boby elevator via the wooden chute seen in the room below, then up into the malt mill (plate 57) where the malt is cracked and screened through a revolving drum to remove foreign matter. Cracked malt was then dropped by a wooden chute into the top of the main hopper, whilst foreign matter originally fell down a second chute next to it where it was bagged up and taken away (plate 58, left), an activity more recently undertaken by a 'NALDER AND NALDER' of Wantage machine which sucks the foreign matter through a pipe at the bottom of the mill and into a small silo before bagging (plate 56).

The mill and elevator worked together as parts of the same process, which apart from the drive from the electric motor has not changed. The upper part of the wall between the coppers and mill room 17 contained a large aperture, now blocked, where a drive shaft could easily pass through. In both stages of use, drive was transferred upwards by a band connected to the base of the mill that then travelled upwards by a second band to the top of the machine to power the elevator and by chain to rotate the drum inside. Plate 57 shows the best view of the elevator and malt mill and associated drive bands and chains.

The now removed **coppers** were located in room 18, a well-lit area at the very top of the building. Their positions are indicated by large circular voids in the floor, enclosed by steel safety barriers (plate 59). Historic plate 45 shows Copper no. 2 when the brewery was working, but now only the steam pipe remains. Around the room is the old iron pipework and a third void to the south-west shows where the hopback rose up from the first floor (fig. 8), beside which is another float measuring gauge (plate 59, left) like the one by the copper. Closer inspection was not carried out because of safety concerns. Part of the roof has been rebuilt on the north-west side, but the general characteristics are the same as the other areas of exposure where there are trenched purlins and bolted king rods.

The sugar-dissolving room, **SDLR 19** (plate 60), is a small room located between the malt store and the coppers where liquid sugar was made and stored within vats (since removed) on wooden platforms (plate 61) ready to add to beer. There is a wooden hatch in the roof above for a pipe to take off the steam when the vat was heated (fig. 8).

4.4 Cooper's shop 7

The cooper's shop stands on the east side of the complex, close to the road (plate 7) and the barrel yard on a NNW to SSE alignment. It has a slate roof, gables at both ends and a chimney towards the north. Originally the place where the casks were made, it was more recently used as the brewery museum, but is now largely empty. It is built primarily of yellow stock bricks in Flemish bond, apart from the western elevation that is mainly timber-framed and weatherboarded (plate 62).

All but the western elevation area are without features, apart from a small window on the south wall. All woodwork (bargeboards and weatherboards) are painted blue in keeping with the general colour scheme. Two sash windows light the workshop on the western side and between these are set a pair of ledged and boarded doors where barrels could be rolled in and out. Another single door of the same form stands between the second window and the brick-built part. The brick-built part formerly housed a toilet, lit by a tilting window and entered through a boarded door (plate 62) which was immovable at the time of the survey because of the amount of rubble and spoil outside.

The internal layout comprises the workshop and a storage area at the back over two bays. The workbench, which has seen plenty of use, is situated between the two doors in front of the window (fig. 11, plate 63) to receive the light. Housed in a makeshift rack are tools of the trade: wire brushes, a spike for making holes in the bands and files. The vice is missing from the workbench. On the other side of the main doors is a cooper's iron, embedded into the stone floor (plate 63, right). The hearth is at the north end, but appears to have been modified as part of the museum experience. The small attic above has been modified too, but was probably used to store timber. The south end contains no fixtures or fittings.

4.5 Stables 8

This is the oldest building on the site, dating to before the brewery was established. It is a timber-framed and weatherboarded structure adjoining the modern barrel store that was adapted and used to house the brewery's dray carts and their teams of horses in the 19th and early 20th centuries. Its timberwork suggests an origin in the 16th or early 17th century as a barn or stable either rebuilt from elsewhere or associated with a post-medieval farm pre-dating the brewery.

The stables lie on a NE-SW alignment with the main gable, containing the cartdoors, facing the road (plate 64). The roof is clad in corrugated iron and all doors and windows are 19th century or later, some of which were probably inserted when the interior was divided up into

workshops and stores in the modern period. A stable vent on the south-east side is the main feature of interest on the external elevation (fig. 12).

Although clearly a structure of some age, the interior has been much-altered by the insertion of mainly modern partitions and boarding across the timberwork. The clearest understanding of the structure comes from the north-east bay that shows jowled posts, curved braces and mainly quite wide studs fully-pegged to the wall plate; all good early post-medieval indicators (plate 66). One unusual characteristic is the fact that the end tie beam has been cut back and raised with a curved piece, presumably to make it easier to move the carts out with the driver in place (plate 65). The partition at this end is primary-braced and is probably contemporary with the 19th century brewery, though the area around the cart doors has been rebuilt later. Floors are a mixture of granite stable setts and concrete.

The wall plate in the south-west bay is lower than the rest, but is pegged to the main frame and is therefore likely to be contemporary with the main build.

The rest of the buildings are modern and therefore described in lesser detail.

4.6 Barrel store 9

Added to the west end of the stables is a modern single-pitched weatherboarded shed with a corrugated iron roof and gates at the front into the individual storage compartments (plate 67) that functioned as a barrel store. Some reused timbers from an earlier structure that stood here (see historic maps) are included in the build but it is mainly modern machine-sawn material. The floor inside is concrete of relatively recent date.

4.7 Clockhouse 10

Participants on the brewery tours that were conducted in the latter would end their visit at the clockhouse with a drink. This building replaced a partly open-sided structure evident from historic maps and was built in the same style, with its timber frame, brick plinth, weatherboard sides and a slate roof (plates 11 and 68). The main gable facing the road is plastered and has the TDR inscription above a clock that was perhaps sited somewhere inside the brewery originally (plate 68). The interior is designed to have a country pub feel to it, with exposed timbers and panelling. The bar is at the south-west end (plate 69).

4.8 Modern offices 11

In 1990 the Chelmsford office staff were moved to new offices at the brewery site (Peatty 1992). The office is a large two-storey structure linked by a corridor to the Victorian office area, some of which was probably internally altered at the time. It is built of modern yellow brick with concrete block bands and blue metal windows (plates 11 and 68). Three gables face onto the road, the largest of which accommodates the reception area (plate 70) and main meeting room.

4.9 Oil stores 12

A small modern store is situated to the south-west of barrel store 9, constructed from concrete block with weatherboarded gables and a corrugated plastic roof. A timber/corrugated plastic extension on the south-west side is contemporary. Both contain tubs of oil as well as other items. The most interesting feature is the bar scene mural on the north-east elevation (plate 71).

4.10 Engineering shop 13

To the south-east of the store is another modern building built on the site of an earlier building (see historic maps). It is built of concrete panels on a concrete block base with a low-pitched gabled roof. A garage door is located on the main north-east elevation, as well as some heavy-duty sliding metal doors (plate 72). Internal entry was not possible.

4.11 Warehouse 14

This large pre-fabricated concrete framed warehouse was built in 1974 as the main storage area, replacing earlier structures depicted on the 1921 OS map. Externally, it is clad in corrugated asbestos sheeting on a steel frame above a red brick plinth. Loading bays are located on the front elevation facing Mill lane and on the north-east side (plates 1 and 73). Originally, crates of beer bottles were kept here, brought over by an overhead conveyor from the conditioning plant, where they could be stacked by forklift trucks prior to dispatch by lorry. The interior is typical of its form and largely empty apart from some household items stored by the loading bay.

5.0 PROCESS FLOW (fig.13)

Consideration of process flow is based on surviving machinery and evidence for line-shafts, bearing boxes and drive band apertures that have largely been removed and blocked-in. It is difficult to tell whether this process changed over time but the basic principles seem to have

stayed the same. However, factors such as (a) mechanisation being introduced in the latter part of the 19th century, as Booker (1974) suggests, and (b) the tower block being rebuilt in the 1920s (Peatty 1992) are likely to have had an influence, as are any other major changes and additions. Without the benefit of seeing the brewery fully-equipped and functioning, it is difficult to provide further comment on the impact of such changes and indeed the modern process flow would appear to echo the historic one, represented schematically in figure 13, apart from towards the end of the process.

Victorian process

Sacks of malt and hops were lifted up through the lucam and into the malt store by a sack hoist (A) where they were stored with hops (B). Hops were also delivered through the taking-in doors on the first floor below the lucam and taken to the main hop store, on that level.

The malt was barrowed to the mill room where it was dropped into the collecting hopper next to the elevator (C), elevated up to the mill where it was screened and cracked to become grist (D). The elevator and milling machinery would have been driven by overhead line-shafting through the wall between maltstore 16 and coppers 18.

The grist was then dropped down into the main hopper before passing down into the mash tun (E). Foreign matter fell down a separate chute for bagging-up and removal. Hot water was added to the mash tun and the starch converted to sugars to become wort. Once complete, the wort was tapped off, sparged, and transferred straight to the coppers where it was boiled and the hops added to taste (F). After boiling, the wort passed to the hopback (G) which filtered out the spent hops. From here the hot wort was cooled, latterly between heat exchangers, delivered to the fermentation tanks (H) where yeast was added and left for 4-5 days to 'work'.

Once fermentation was complete, the draught beer was racked into casks from the bottom of the fermentation vessels in the cask fill area (I) and stored. Once conditioned, the beer was lifted up to the dispatch area by the cask hoists (J) powered by the existing line-shaft which drew its power from a vertical shaft below linked to shafting below the fermentation room (removed) and by band to the engine room. From the dispatch area the casks were loaded onto carts from the loading platform.

On their return, the empty casks would be brought in through one of the two loading doors into cask repair room 18 where they would be booked in and checked for damage, then rolled under the loading platform into the cask fill area for cleaning and refilling.

Later process

20th century improvements in mechanisation, power and transport led to increased control of the brewing process and facilitated higher levels of production. The introduction of refrigeration at the turn of the century opened up the market for bottled beers, which required chilling in tanks inside the cold store (K) and after 1938, in the conditioning tanks, before moving to the bottling plant (L), which became increasingly mechanised. With electrification, the old power system was abandoned and the machinery driven from individual electric motors. In the 1970s a new warehouse was built and new loading areas inserted in the brewing hall and bottling plant for lorry collection which made the traditional dispatch area redundant.

6.0 DISCUSSION

A brewery under the ownership of the Ridley family occupied the Hartford End site as early as 1837. A small enterprise, its precise form and date are unknown. Prior to this there is evidence for a farm.

When the existing brewery was established in 1843 the much smaller brewery was replaced with the essential components that form the extant historic core. Initially it would appear the brewery was un-mechanised and it was only in the later part of the 19th century that the boiler room was reconfigured and the (presumed) engine room was built opposite the new chimney. In the 1970s, Booker dated the steam engine to the latter quarter of the 19th century, "when the brewery was reconstructed", which ties in with these changes. At this point the old pre-industrial methods were replaced with a mechanised system of line shafts to drive new machinery, representing a significant investment by the Ridley family, at a time when business was expanding. Apart from the more obvious signs, deeper analysis of the earlier brewery form is difficult because so much had been removed from the complex prior to survey. Figures 6, 7 and 8 attempt to indicate the apparent line-shafting system, but much is missing. Further modernisation may have occurred in the 1920s when the tower block was rebuilt. The extent to which this changed the brewery process is unknown and there is no public record of the tower block before the changes and whether or not it was simply rebuilt or improved. Since new boilers were inserted at the time, it is possible that other changes occurred at the brewery, though it would seem that much of the Victorian gear remained.

Despite inevitable changes to the form and fabric of the buildings over time and installation of technological improvements, the concept of the tower brewery and the functions and

processes employed is relatively easy to understand. Given later events, it is fortunate that enough survives internally to understand, or postulate based on reasonable evidence, how the industrial brewery operated; in this case the change from manual to steam power and electricity. However, given the compromised state of preservation of its machinery, more subtle changes are inevitably difficult to recognise. It is understood that all the machinery in the brewing hall, bottling plant and tower block were driven from a single engine through a system of bands, bearing boxes and shafts covering quite an area and ascending to three levels. Although much is missing, there is one section of horizontal line-shafting remaining and strong evidence for vertical shafting, including a maintenance hatch. Most bearing boxes and band apertures were blocked-off when the shafts were removed, probably when electricity and motor-driven equipment was introduced. Only those of use were kept, such as the barrel hoist shaft in the brewing hall and equipment in the tower block, though now independently-run by electric motors.

The form and architecture of the brewhouse is in keeping with the tower brewery tradition and Victorian aesthetic style. Rather than the austere pier and panel form found on many 19th century industrial buildings, it reflects Ridley's status as a large-scale and successful country brewer. The brick gables have an 18th century feel, with the arched windows and (originally) tuck-pointed brickwork on the main facade, showing a good attention to detail. The lucam is a fine feature and compliments the other timber projections of the tower block that provide an interesting roofscape. The old dispatch area is another distinctive feature; primarily its boarded dispatch office and loading area. Again, the view from the road, with the use of various materials and projections has great impact. Other linking structures around the back of the complex are built in long ranges like at the front, but in more utilitarian stock brick. The 1938 conditioning plant detracts from the historic façade but is interesting in its own right as a pre-WW2 industrial structure and reflects a growth in the brewery's bottled beer trade.

Internally there are still many surviving architectural and mechanical features, most notably the malt mill and Boby elevator and remaining line-shafting in the brewing hall. Good interiors survive in the office and dispatch area, primarily the clerk's office and throughout the building most of the original doors (with Victorian lettering) and windows survive. The variety of levels, materials and surfaces make for an interesting conversion.

Of the separate buildings around the periphery of the brewery complex most are modern and of very little architectural interest, but all have some group value in terms of their role in the function of the brewery. The cooper's shop is interesting for the fixtures and fittings within

and the stables for its c.16th century frame structure and odd alterations in the cart bay. Along with the worker's houses along Mill Lane they have good group value.

7.0 CONCLUSION

As a working building, the Ridley's Brewery was one of the last large-scale breweries in Essex remaining by the late 20th century and its development over the past 150 years was largely a product of growth rather than remodelling and modernisation. This reflects the traditional approach to brewing that persisted through the generations and resulted in the retention and preservation of much of the historic fabric, fixtures and fittings lost at breweries elsewhere. The building itself is a functional structure: an interesting jumble of different designs, levels and materials forming an inter-relating whole of great character, rather than architectural pretension.

The brewery remains an important example of its type, and a rare example of the evolution of 19th and 20th century traditional brewing. Were it to retain its old brewing equipment, it would be of national importance for its rarity value.

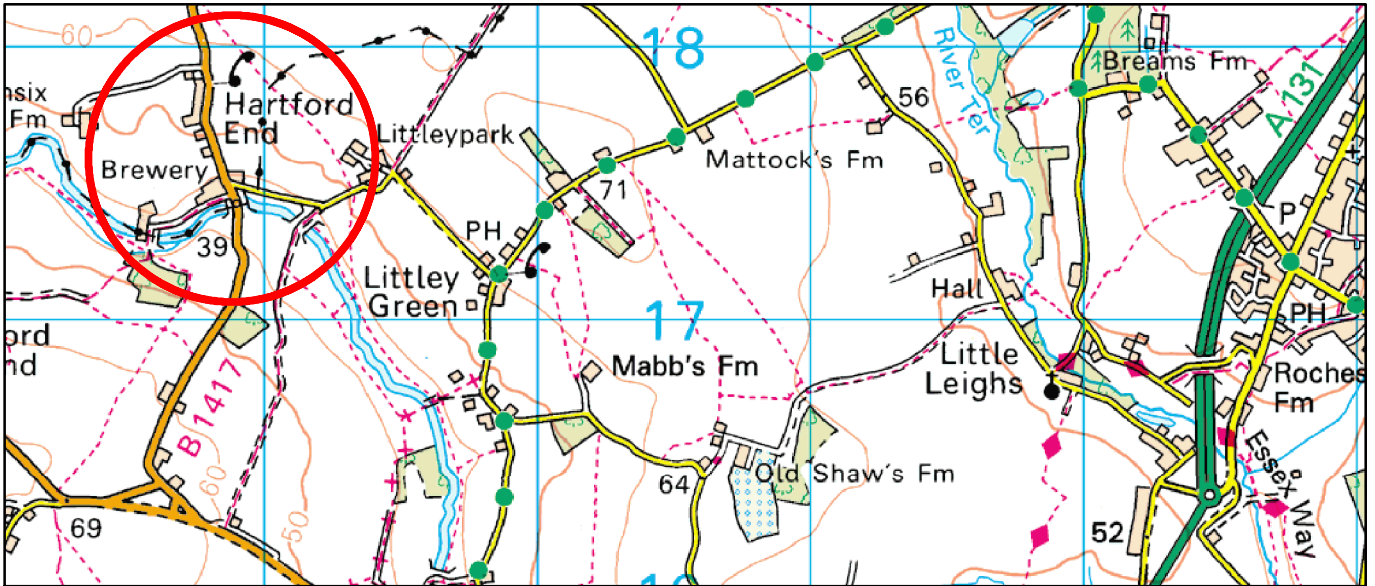
From the surviving elements, this survey has managed to retrieve a good level of record about the brewing process. However, more detailed research such as oral histories involving former brewery workers, enquiries with the Ridley family, consultation of film archives and close comparison with other surviving tower breweries elsewhere might yield more information on brewing at the Hartford End site and clarify some of vaguer aspects of the brewery.

ACKNOWLEDGEMENTS

Thanks are due to Ted Buttleman of Hartford End Developments for commissioning this survey, supplying drawings and facilitating the works. Also to Bill Price, a former Ridleys employee, for some valuable insights into the later functioning of the brewery. Thanks also to staff at the Essex Records Office. Fieldwork, recording and photography were undertaken by the author. Illustrations were prepared by the author and produced by Andrew Lewsey. The project was managed by Adrian Scruby and the report edited by Mark Atkinson of ECC FAU.

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Fig.1. Phased location and block plan

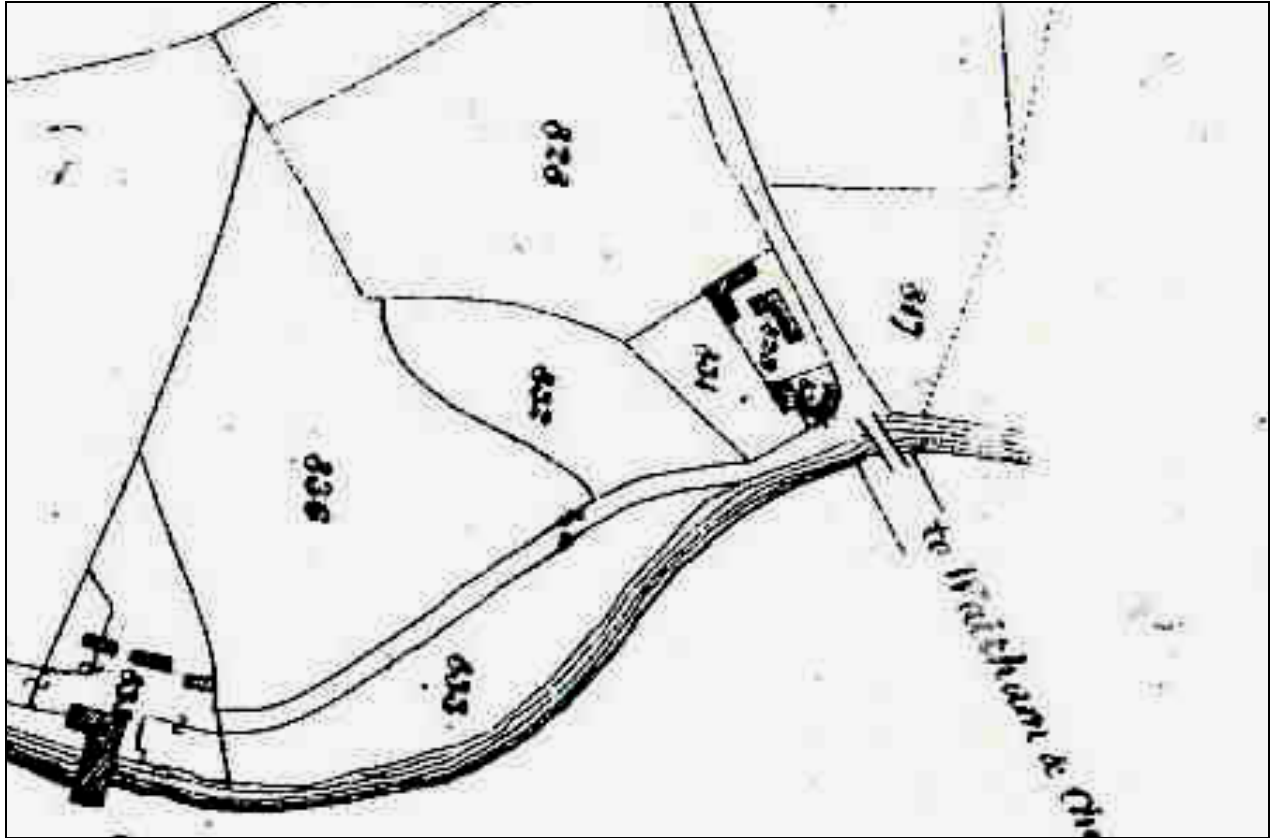


Fig. 2 Felsted tithe map, 1837 (D/CT 138)

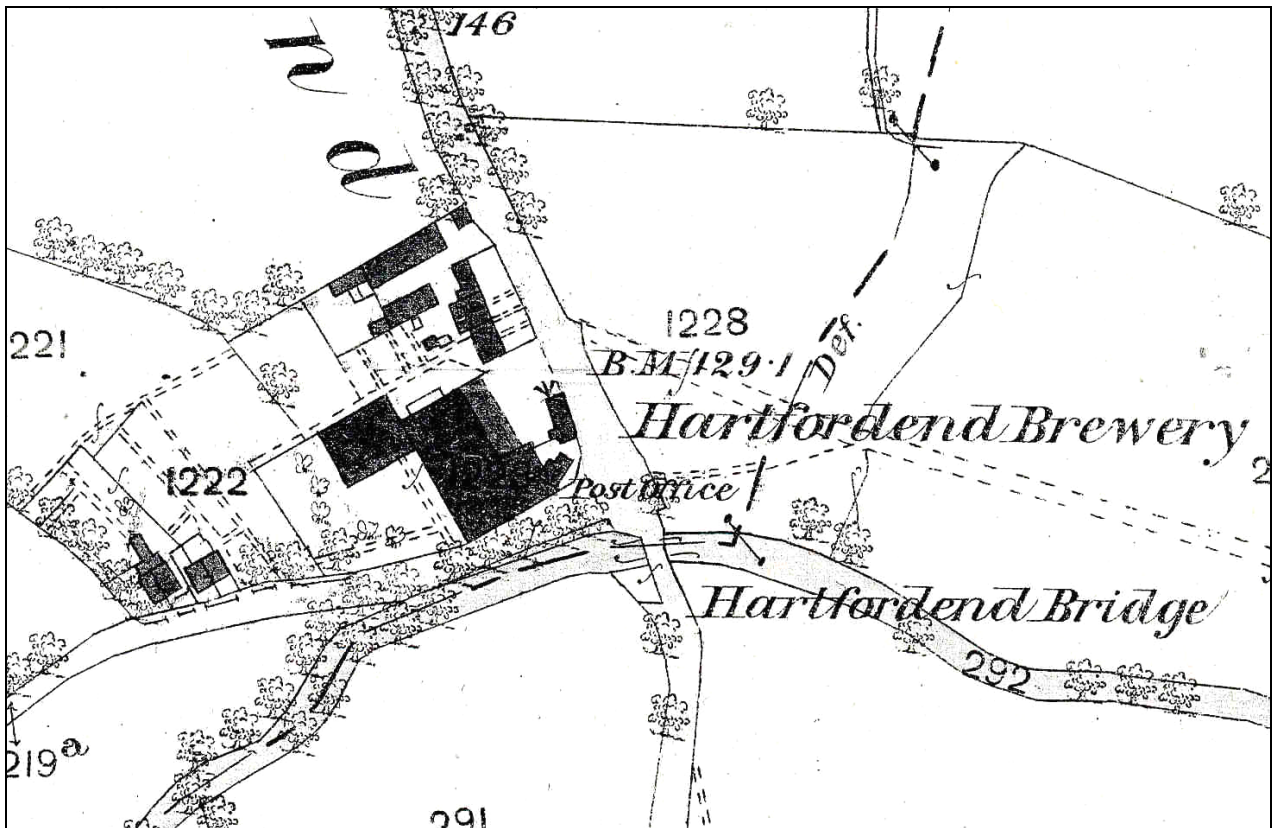


Fig. 3 First edition OS map, 1875 (sheet 33/11)

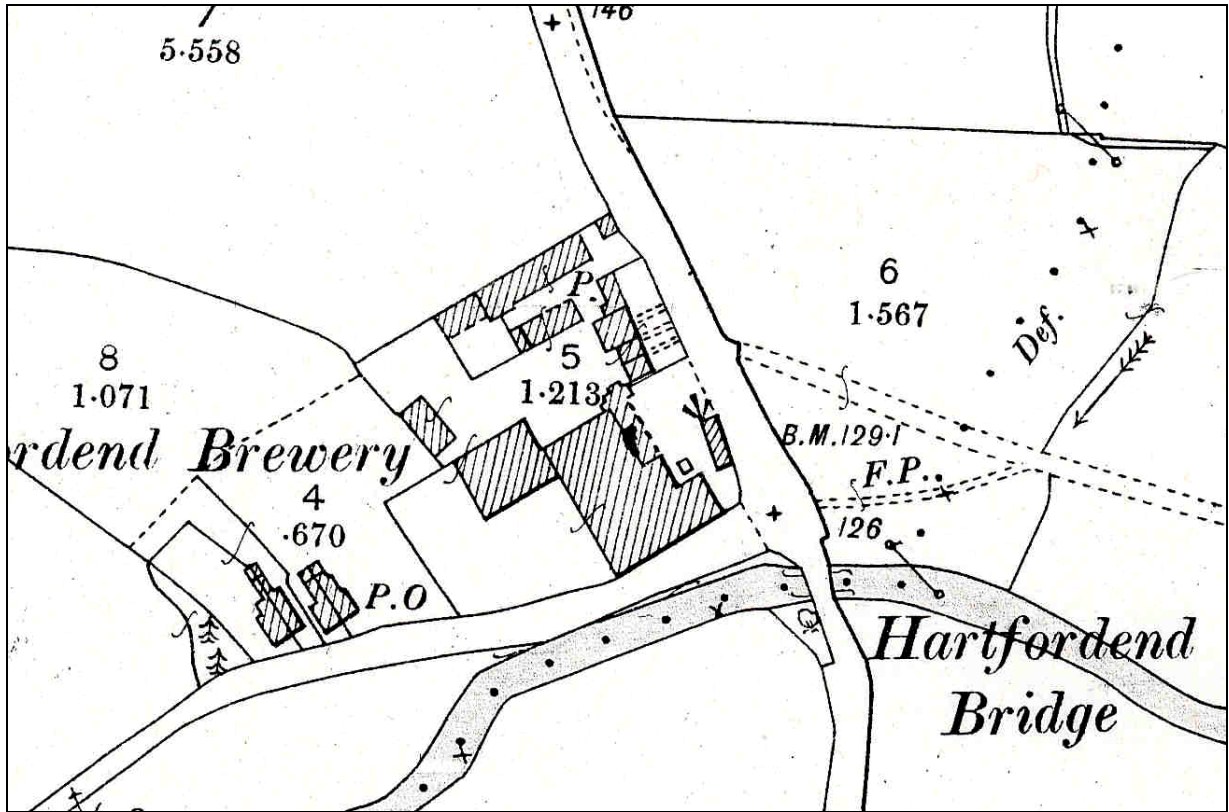


Fig. 4 Second edition OS map, 1897 (sheet 33/11)

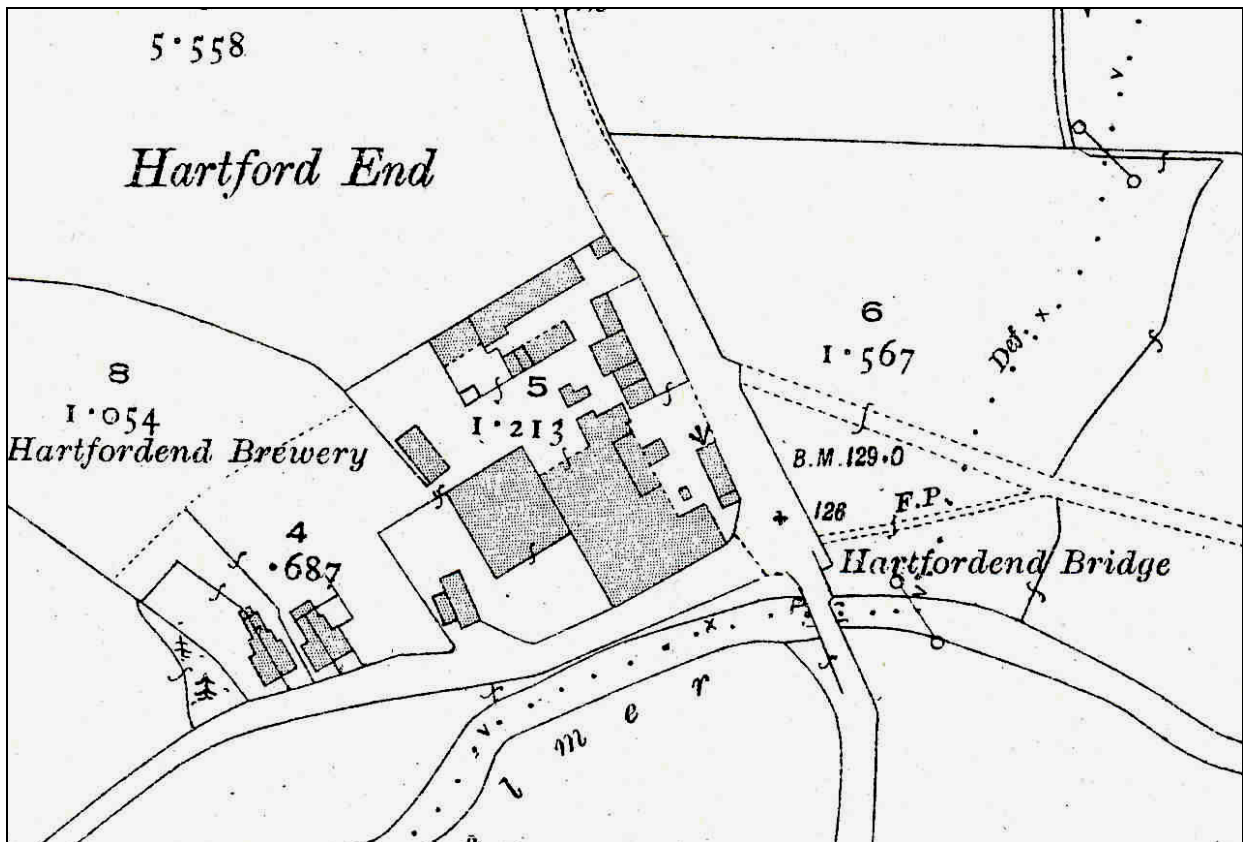


Fig. 5 New series OS map, 1921 (sheet 44/2)

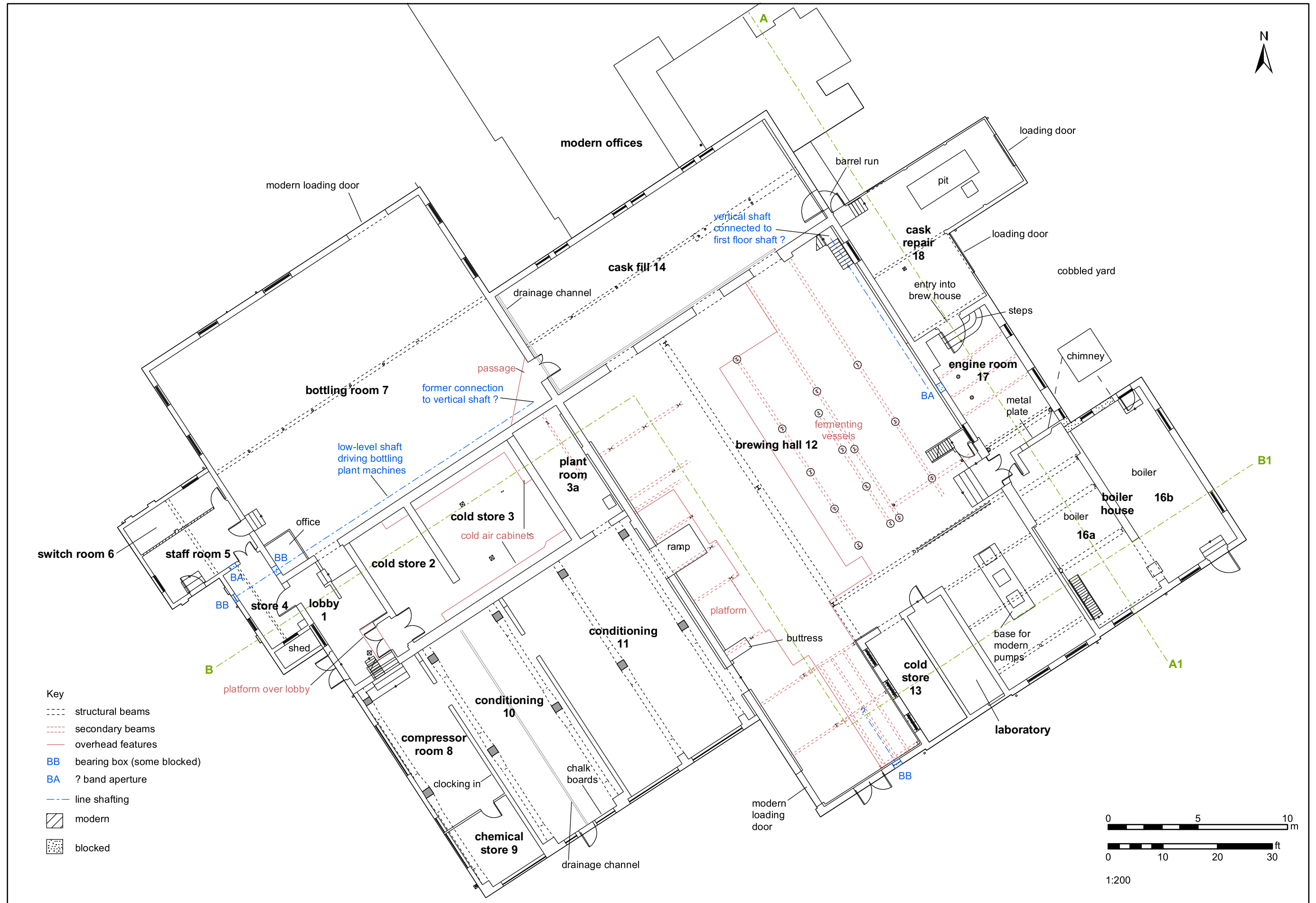


Fig.6. Ground floor plan of brewery



Fig.7. First floor plan of brewery



Fig.8. Second floor plan (tower block)

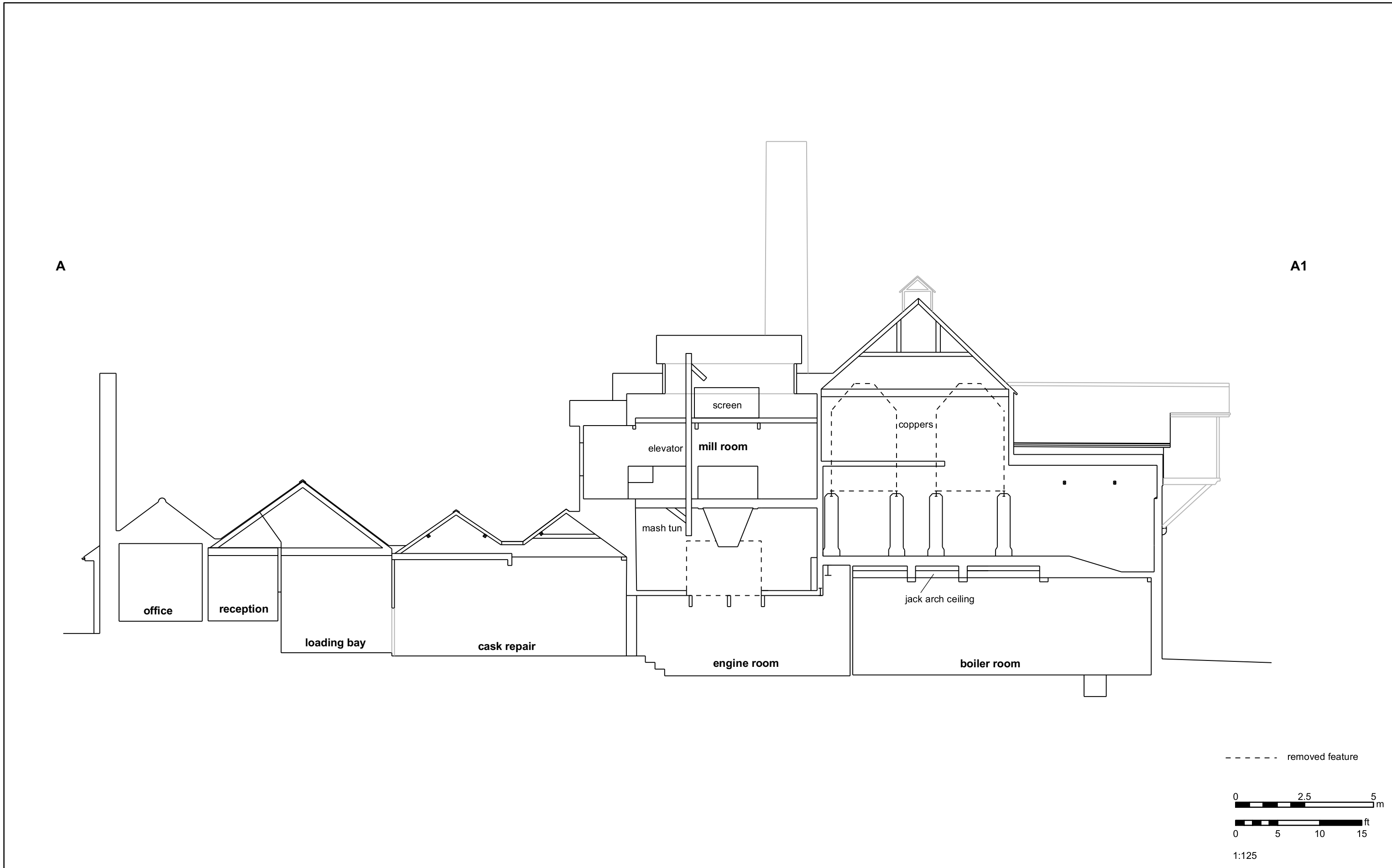


Fig.9. Section A-A1 through brewery

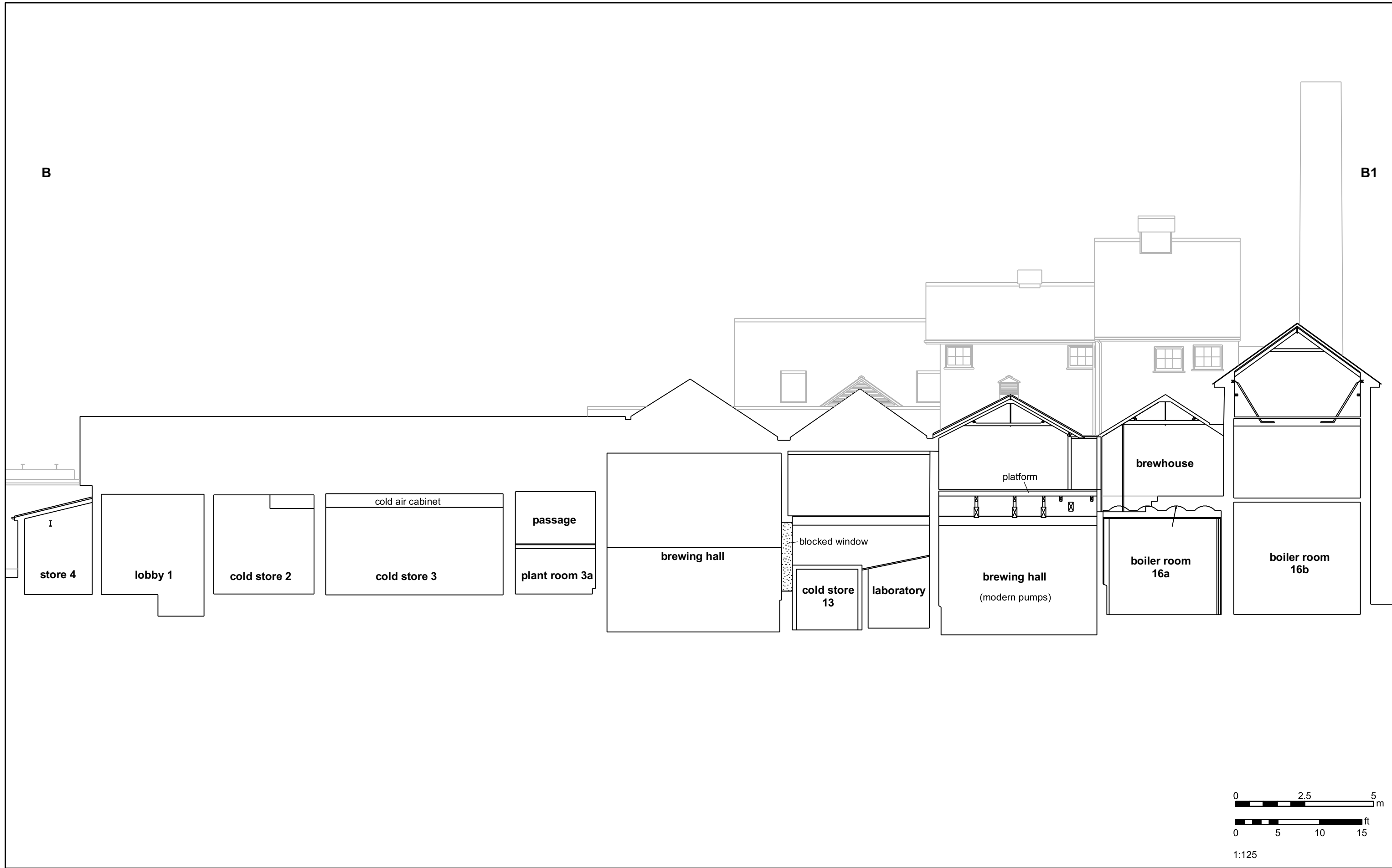


Fig.10. Section B-B1 through brewery

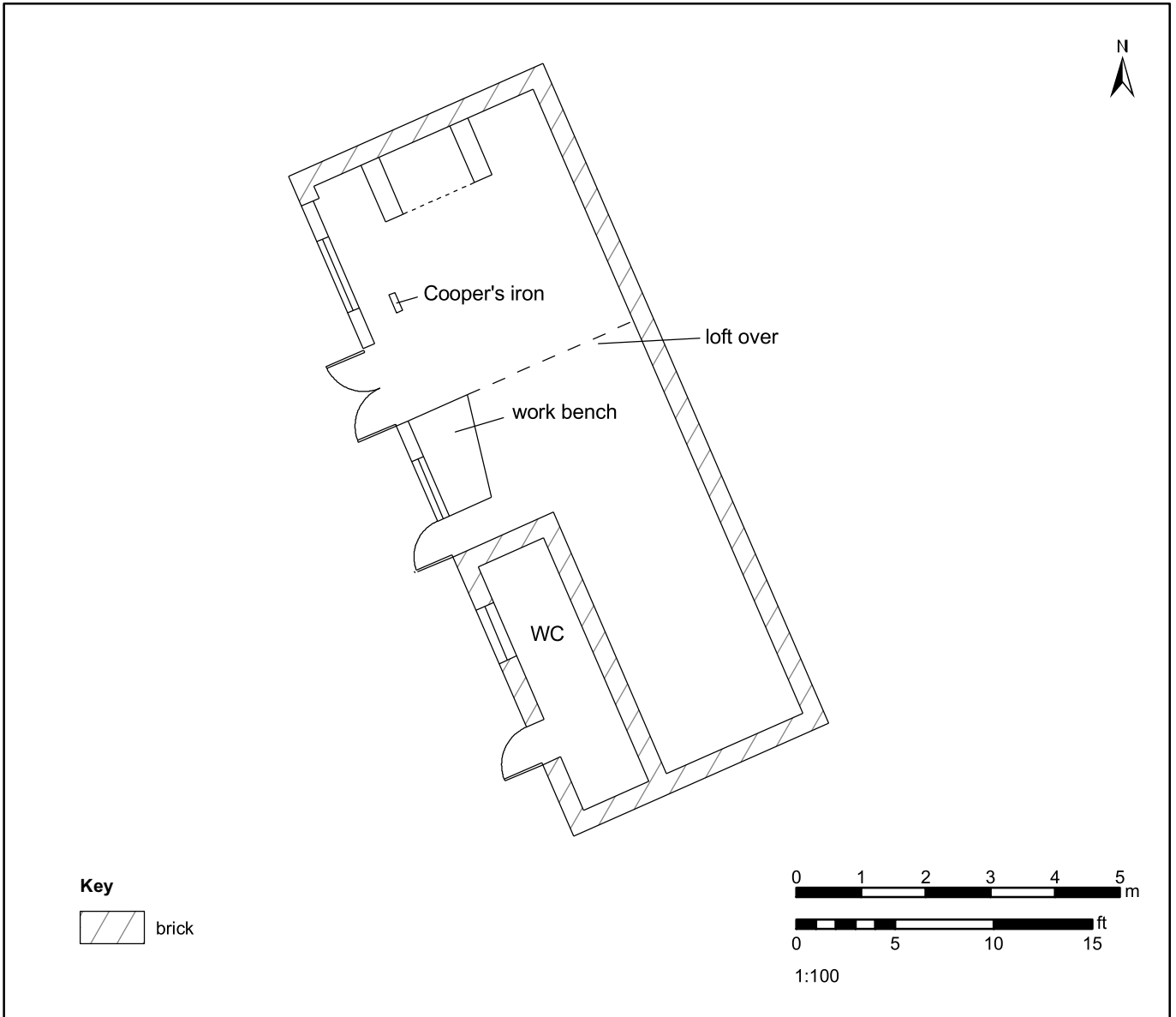


Fig.11. Plan of Cooper's shop

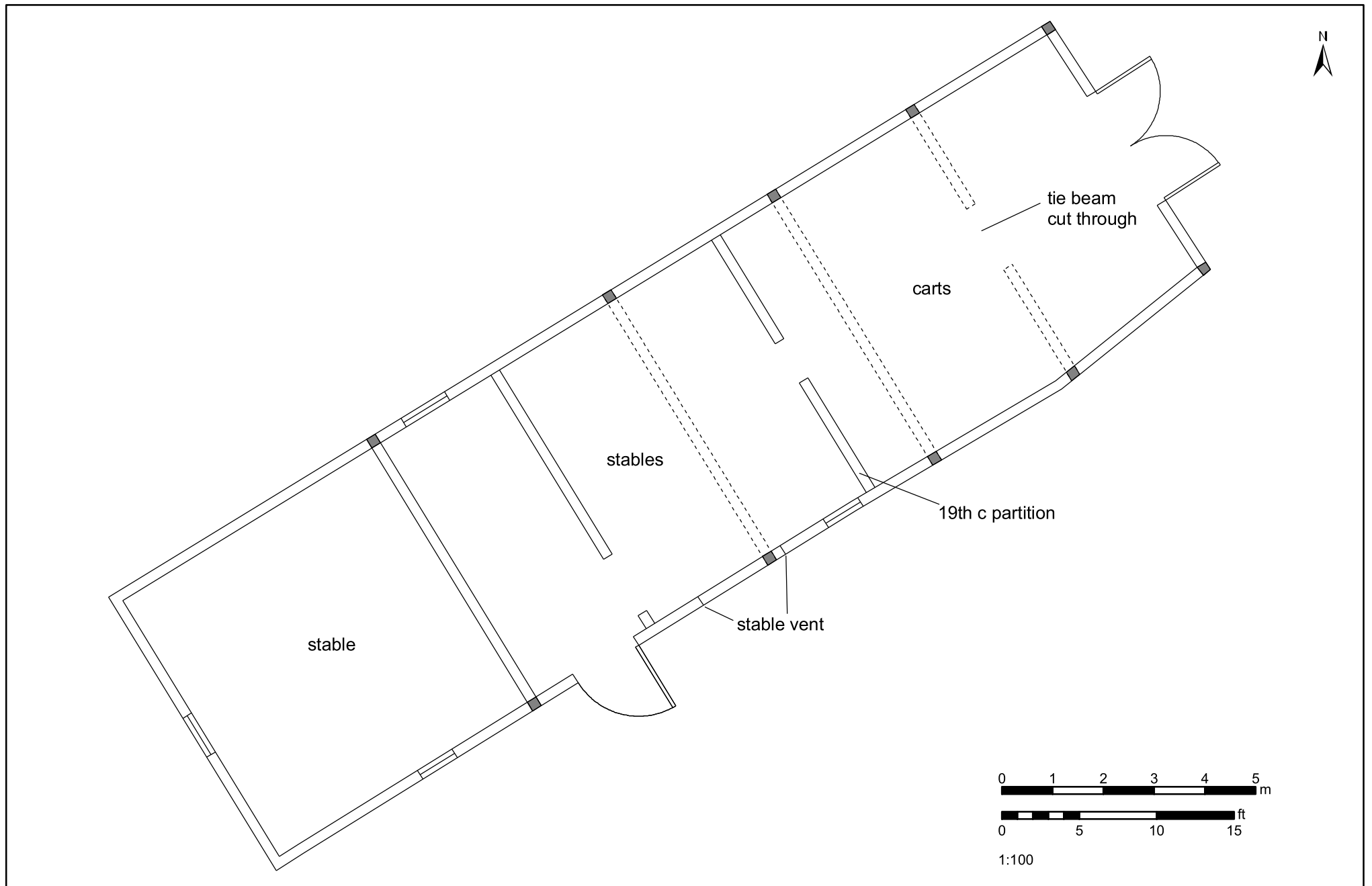


Fig.12. Plan of Stables

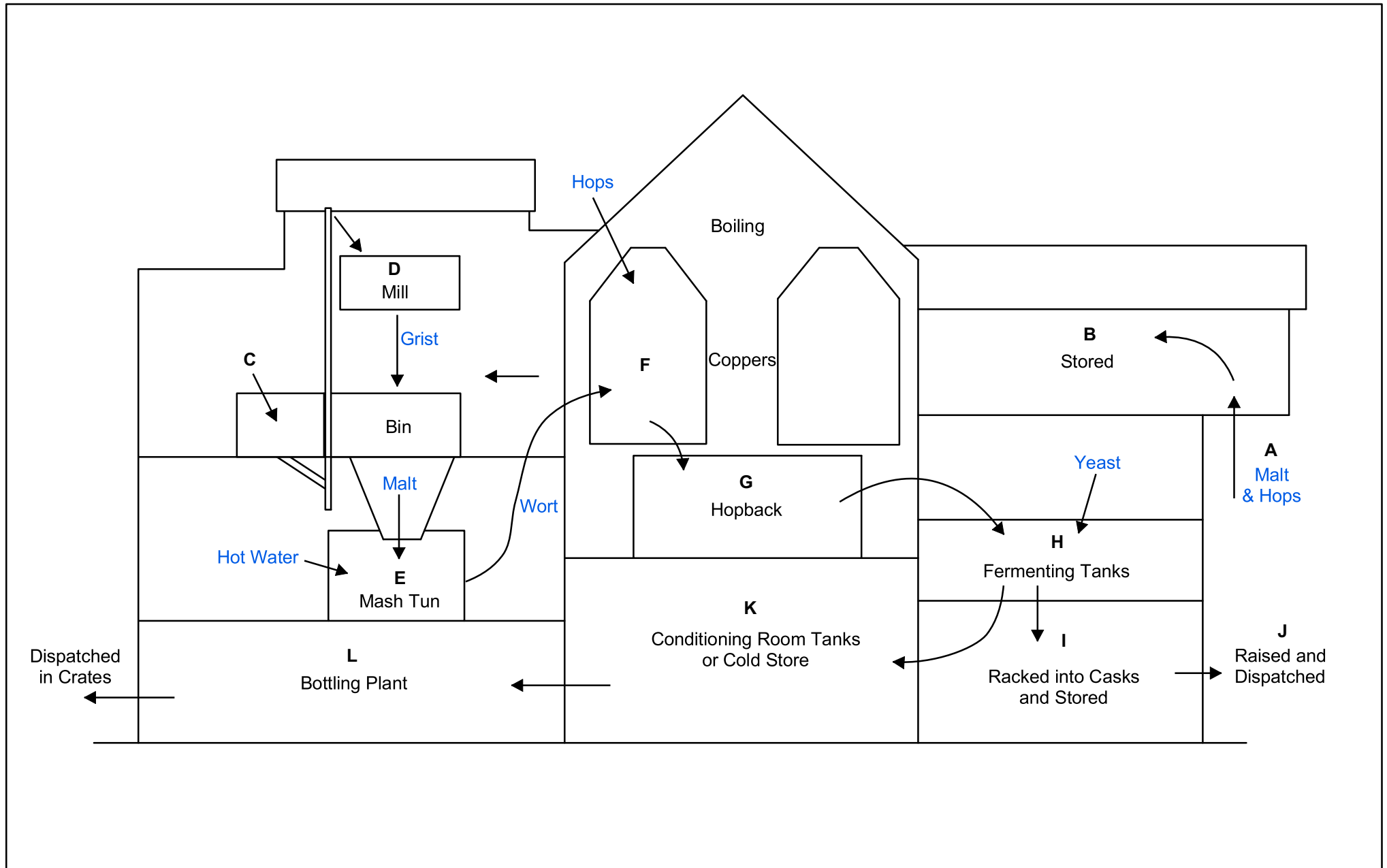


Fig.13. Process flow diagram



Plate 1 Main elevation viewed to north-west



Plate 2 Brewhouse viewed to north



Plate 3 Middle bay on south-east elevation with 'TDR' keystone



Plate 4 'WWR 1843' inscription on brick band of middle bay



Plate 5 Brewhouse viewed to north-west



Plate 6 Conditioning plant viewed to north-east



Plate 7 Brewery complex viewed to north-west



Plate 8 Blocked chimney flues from boiler house and engine house



Plate 9 Dispatch/offices area viewed to north-west



Plate 10 Detail of loading bay



Plate 11 Modern offices attached to north-west end of brewhouse



Plate 12 Bottling plant viewed to south-east



Plate 13 Part of south-west elevation



Plate 14 Cold store viewed from lobby



Plate 15 Interior of cold store



Plate 16 Bearing box and blocked ?band aperture in staff room 5



Plate 17 Typical barred sash window



Plate 18 Bottling plant viewed to north



Plate 19 Compressor room viewed to east



Plate 20 Clocking-in/notice board in compressor room



Plate 21 Conditioning room 10 viewed to south-east



Plate 22 Chalk boards for conditioning tanks



Plate 23 Brewing hall viewed to south-east



Plate 24 Brewing hall viewed to north-west



Plate 25 Exterior of fermentation room viewed from conditioning room 11



Plate 26 Cask fill area viewed to south-west



Plate 27 Door from cask repair area into cask fill room



Plate 28 Jack arch ceiling in boiler room viewed to north-west



Plate 29 Metal plate in engine room (25cm scale)



Plate 30 Engine room viewed to north-west



Plate 31 Cask repair area viewed to north-west



Plate 32 First floor of conditioning room stores viewed to north-east (brewing hall)



Plate 33 Passage 2 viewed to loading area



Plate 34 Maintenance door for vertical line-shaft in loading area



Plate 35 Loading area viewed to north-east



Plate 36 Platform 4 viewed to north-west showing overhead line-shafting



Plate 37 Line-shafting for cask hoists viewed to north



Plate 38 Moss Gear motor and gearing for vertical shaft



Plate 39 Fermentation room in operation, viewed to north-west (BHS)



Plate 40 Fermentation room viewed to south-east (hopback)



Plate 41 Sampling tap



Plate 42 First floor of brewhouse and main gable viewed to south-east



Plate 43 Hopback base and piers for coppers

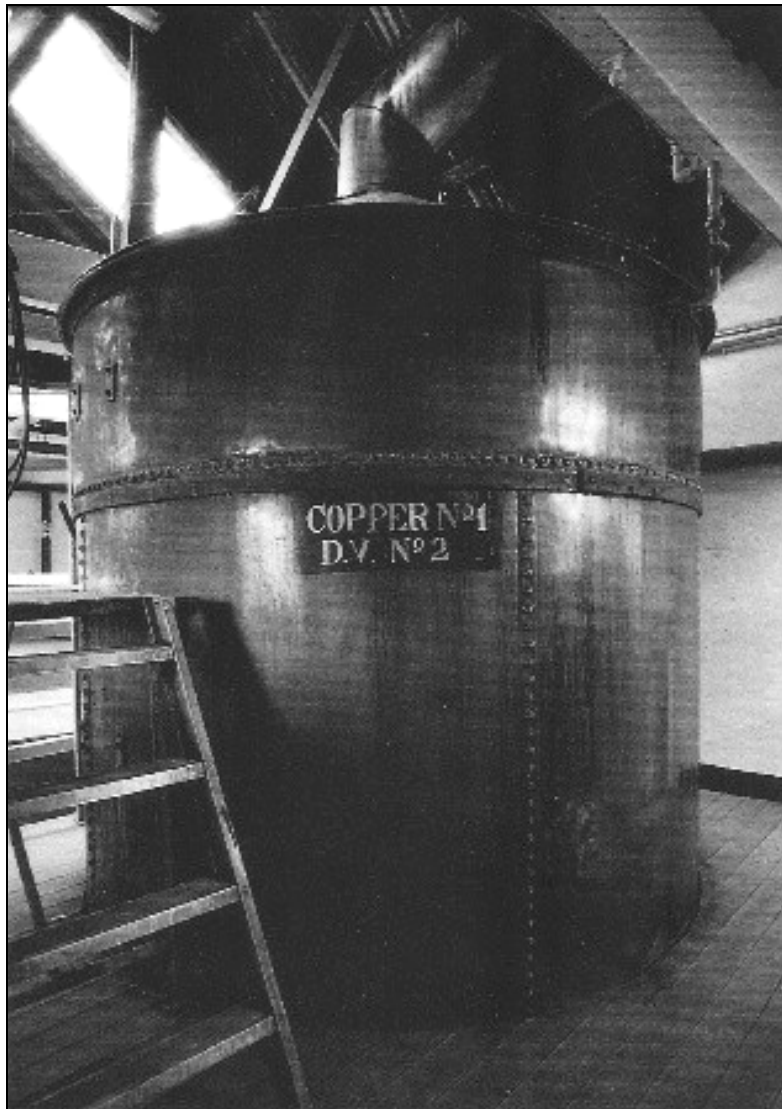


Plate 44 Copper no.1 (BHS)



Plate 45 Vacant supporting joists for copper no. 1



Plate 46 Level gauge for copper



Plate 47 Enclosed drive wheels in laboratory for chain hoist above



Plate 48 Mashing room viewed to north-west



Plate 49 Base of Bobby elevator in mashing room



Plate 50 Clerk's office viewed to north-east



Plate 51 Main office viewed to south-west



Plate 52 Brackets for fitted cupboards



Plate 53 Malt and hop store viewed to south-east (lucam)



Plate 54 Malt and hop store viewed to north-west



Plate 55 Chain hoist at north-west end of store



Plate 56 Mill room viewed to south-east



Plate 57 Elevator and malt mill viewed to south-east



Plate 58 Malt mill and chutes viewed to south-west



Plate 59 Second floor viewed towards former hop back and south-east gable of tower block



Plate 60 Typical Victorian door form (into malt/hop store and sugar dissolving room)



Plate 61 Interior of sugar dissolving room



Plate 62 Cooper's shop viewed to north



Plate 63 Main elements inside cooper's shop



Plate 64 Stables viewed to west



Plate 65 Raised tie beam in cart bay viewed to west



Plate 66 Typical c.16th century framing viewed to cartdoors (east)



Plate 67 Modern barrel store viewed to north-east



Plate 68 Modern offices and clockhouse viewed to south



Plate 69 Clockhouse bar



Plate 70 Reception area inside modern offices



Plate 71 Bar scene mural on north-east wall of stores 12



Plate 72 Engineering 13 viewed to west



Plate 73 Modern warehouse and Victorian worker's houses viewed to north

Appendix 1: Contents of Archive

Site name: The Former T. D. Ridley & Sons Brewery, Hartford End, Felsted, Essex

FAU Project no: 2461

Date of work: August 2011

Index to the Archive:

Document wallet containing:

1. Introduction

- 1.1 HEM design brief
- 1.2 FAU written scheme of investigation (method statement)
- 1.3 Client/archive report (bound and unbound copies)
- 1.4 CD-Rom containing: digital photographs, architect's drawings & copy of report, pdf-formatted

2. Site Archive

- 2.1 Photographic record (digital prints & monochrome 35mm prints & negatives)
- 2.2 Photographic registers
- 2.3 Site notes, annotated architect's plans & elevations

Appendix 2: EHER Summary Sheet

Site Name/Address: The Former T. D. Ridley & Sons Brewery, Hartford End, Felsted	
Parish: Felsted	District: Uttlesford
NGR: TL 6882 1747	OASIS Record No.: 109766
Type of Work: Building recording	Site Director/Team: Andrew Letch ECC FAU
Date of Work: August 2011	Size of Area Investigated: N/A
Curating Museum: Saffron Walden	Funding Source: Client
Further Work Anticipated? No	Related HER Nos. None
Final Report: Summary in EAH	
Periods Represented: Victorian & 20th century	
SUMMARY OF FIELDWORK RESULTS:	
<p>A programme of historic building recording was undertaken on an unlisted former tower brewery prior to conversion to apartments and redevelopment of the surrounding site. The brewery was constructed in 1842-3 by Thomas Ridley to replace a smaller brewery probably established by his father, William. As a tower brewery, it is arranged on three levels connected by barrow ramps and short staircases, to enable the brewery process to operate with the assistance of gravity; in basic terms, raw materials delivered to the top (tower) and beer despatched at the bottom.</p>	
<p>It would seem the 1840s brewery was initially un-mechanised and it was not until the latter part of the century (after 1875) that a steam engine was installed. This engine drove all the machinery in the complex through a system of line-shafts and bands. Surviving examples are the grist mill and its elevator, and the sack hoist in the lucam. During the 1920s the tower block, containing the coppers, hopback and machinery was rebuilt and new boilers introduced. Sometime after this, the brewery was electrified and individual electric motors were introduced to drive the machinery instead. As a consequence, much of the shafting was removed, along with the bearing boxes and drive apertures in the walls for interconnecting bands linking one drive wheel to another. The survey recorded only one length of shafting remaining, but also clear evidence for its original continuation from one end of the complex to the other on all levels and therefore some understanding of process flow for the Victorian and later breweries, which was essentially the same up until storage and dispatch.</p>	
<p>The brewery was sold as a going concern to Suffolk brewers Greene King in 2005 and the following year the brewery closed, bringing to an end 150 years of family brewing tradition. The important elements of the Victorian brewery, the coppers, fermenting vats, etc, along with more modern equipment, were removed for the Greene King museum or else plundered for scrap metal.</p>	
<p>Much of the exterior of the brewery remains extant and its mix of styles, materials and the various brewery projections of the tower and lucam preserving its historic character and making a positive contribution to the landscape. Fixtures and fittings such as original doors and windows remain too, both internally and externally. The Victorian dispatch and office area is well-preserved. Inevitably, other buildings have been added over time from the 1930s</p>	

to 1990s, and although these are not of any architectural merit, they have been built onto the historic core rather than breaking it up and have group value. The brewery stables (adapted from a c.16th century stable or barn) remain and also the cooper's shop along the roadside.

Prior to closure, Ridley's Brewery was described as the only operational brewery to retain its brewing technologies in Essex and was proposed for grade II listing (Crosby 2002). It was therefore of national significance. Although it was subsequently affected by extensive internal changes that impacted upon the survival of the important Victorian technologies and machinery, its unique form, surviving exteriors and original spatial layout of the complex remain well-preserved.

Previous Summaries/Reports: *Essex Breweries: A Comparative Survey* (Crosby, T. 2002)

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