

DOCUMENT VERIFICATION

J.A.Symes Factory Site
Barking
London Borough of Barking & Dagenham

Archaeological Evaluation, Excavation & Watching Brief

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	Name & Title	Signature	Date
Text Prepared by:	Rebecca Lythe		October 2006
Graphics Prepared by:	Hayley Baxter		October 2006
Graphics Checked by:	Josephine Brown		October 2006
Project Manager Sign-off:	Jon Butler		October 2006

Revision No.	Date	Checked	Approved

Pre-Construct Archaeology Ltd
Unit 54
Brockley Cross Business Centre
96 Endwell Road
London
SE4 2PD

**An Archaeological Evaluation, Excavation and Watching Brief on land at
J. A. Symes Factory Site, Highbridge Road, Town Quay, Barking, London
Borough of Barking & Dagenham**

Site Code: JFS 06

Central National Grid Reference: TQ 4391 8378

**Written and Researched by Rebecca Lythe
Pre-Construct Archaeology Limited, October 2006**

Project Manager: Chris Mayo

Commissioning Client: CgMs Consulting on behalf of Wimpey Homes

**Contractor: Pre-Construct Archaeology Limited
Unit 54 Brockley Cross Business Centre
96 Endwell Road
Brockley
London
SE4 2PD**

Tel: 020 7732 3925

Fax: 020 7639 9588

Email: cmayo@pre-construct.com

Website: www.pre-construct.com

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1 ABSTRACT

- 1.1 This report details the results and working methods of an archaeological watching brief and excavation conducted on land formerly occupied by the J. A. Symes Factory Site, at Highbridge Road, Town Quay, Barking, London Borough of Barking & Dagenham. The project was undertaken by Pre-Construct Archaeology Ltd. and was commissioned by Suzanne Gailey and Duncan Hawkins of CgMs Consulting Ltd. on behalf of Wimpey Homes.
- 1.2 The site is centered on National Grid Reference TQ 4391 8378 (Fig 1). The site boundaries are formed by commercial and industrial units fronting Abbey Road to the north and east, by Highbridge Road to the south and by the River Roding to the west. The site was assigned the code JFS 06.
- 1.3 The underlying drift geology of the site is thought to consist of river terrace gravels sealed by post-medieval to 20th century river alluvium. The underlying terrace gravel was not reached during the evaluation, and the earliest deposit observed consisted of post-medieval river alluvium.
- 1.4 The investigations revealed a layer of river alluvium sealed by a deposit of made-ground, presumed to pre-date the 18th century structures found on the site. The dump layer was deposited in order to reclaim land from the river.
- 1.5 An 18th century red fabric brick structure was then constructed on the reclaimed land. The structure formed part of a water powered mill and adjoining miller's house.
- 1.6 A steam-powered extension was added to the building in the 19th century, which consisted of a rectangular engine house and a long, linear boiler room. The boiler room was modified in the late 19th century, when it was enlarged in order to install a second boiler.
- 1.7 A deposit of river alluvium was observed to the west of the mill buildings. The layer probably dates from the early 19th century to mid 20th century, and is likely to have accumulated against the side of the foundations. A number of timber uprights were driven through the alluvium. They may have formed part of a timber jetty or may have functioned as mooring posts. A wattle fence and several smaller posts and postholes also truncated the layer to the north of the site, which are also presumed to be late 19th to early 20th century in date. The posts and postholes may have functioned as mooring posts, whilst the function of the wattle fence remains enigmatic.

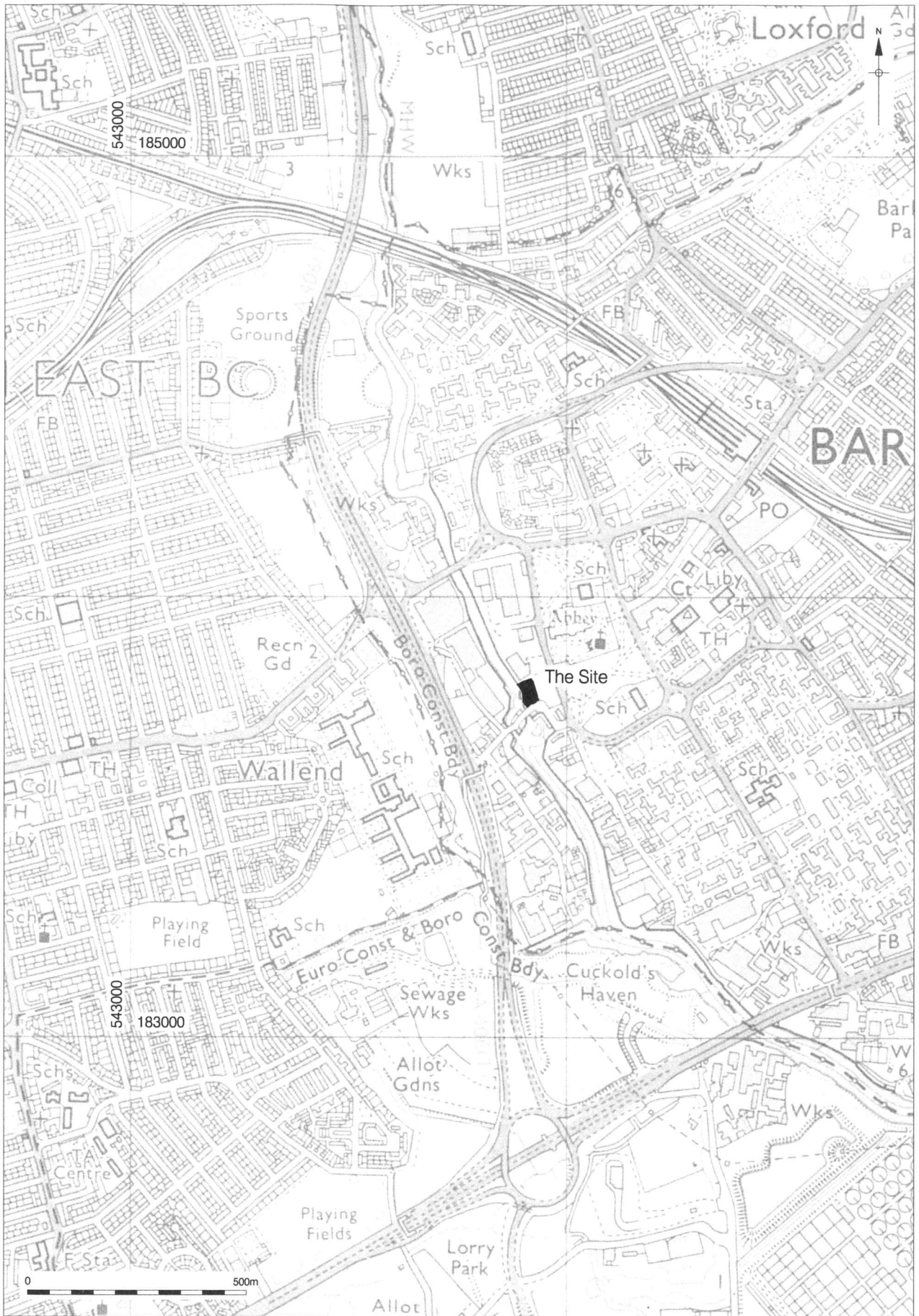
- 1.8 The foundations of the mill complex were sealed by a layer of rubble, interpreted as debris from its demolition in the 1920's and 1930's. A further deposit of made ground was then created immediately west of the mill buildings, when the remaining portion of the study site was reclaimed from the River Roding in the early to mid 20th century. This layer sealed the remains of a scuppered 19th to early 20th century barge, which sat on top of the river alluvium in the south of the site.

2 INTRODUCTION

- 2.1 A watching brief was conducted on land at the former J.A. Symes Factory Site, Highbridge Road, London Borough of Barking & Dagenham, between 30th and 31st March 2006 and 27th April and 3rd May 2006. It revealed post-medieval to 20th century archaeological remains, which suggested a high level of survival across the site. A method statement for an archaeological excavation was therefore drawn up by Duncan Hawkins of CgMs Consulting Ltd. in April 2006¹, and an excavation was conducted between 15th May and 26th May 2006. This was followed by a second watching brief phase, which was conducted between 30th June and 25th July 2006.
- 2.2 The archaeological evaluation and excavation was commissioned by Duncan Hawkins and Suzanne Gailey of CgMs on behalf of Wimpey Homes. The project was managed by Chris Mayo and was supervised by Rebecca Lythe, both of Pre-Construct Archaeology Ltd. David Divers of English Heritage monitored all archaeological work on behalf of the London Borough of Barking and Dagenham.
- 2.3 The proposed redevelopment will consist of residential housing in the form of flats. Whilst the proposed structures are not basemented, the required density of piles and other groundworks, in addition to plant movements across the site, will severely impact upon the underlying archaeology.
- 2.4 The site is situated in an Archaeological Priority Zone, as defined by the Borough of Barking and Dagenham's Unitary Development Plan, because of the presence of Saxon, medieval and post-medieval remains in the immediate vicinity. The site itself was deemed to be of particular importance as initial analysis of the available documentary evidence, carried out as part of an archaeological desk based assessment, suggested that it was situated on the site of a corn mill, dating from the 18th century². The desk based assessment also suggested that the River Roding had been pushed steadily across the site in a westerly direction, from the early post-medieval period onwards. Consequently, the presence of post-medieval river walls, revetments, moorings and scuppered boats remained a possibility on the eastern side of the site.
- 2.5 The completed archive, comprising written, drawn and photographic records and artefacts, will be stored by Pre-Construct Archaeology Limited until their eventual deposition in the Museum of London.

¹ Hawkins, 2006

² Gailey, 2006



Reproduced from Ordnance Survey 1:25,000. Crown Copyright 1992.

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Figure 1
 Site Location
 1:12,500 at A4



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© Pre-Construct Archaeology Ltd

Figure 2
Trench Location
1:625 at A4

3 PLANNING BACKGROUND

3.1 In November 1990 the Department of the Environment issued Planning Policy Guidance Note 16 (PPG16) "Archaeology and Planning", providing guidance for planning authorities, property owners, developers and others on the preservation and investigation of archaeological remains.

3.2 In short, government policies provide a framework which:

- Protect Scheduled Ancient Monuments
- Protect the settings of these sites
- Protect nationally important un-scheduled ancient monuments
- Has a presumption in favour of *in situ* preservation
- In appropriate circumstances, requires adequate information (from field evaluation) to enable informed decisions
- Provides for the excavation and investigation of sites not important enough to merit *in situ* preservation

3.3 In considering any proposal for development, the local planning authority will be mindful of the policy framework set by government guidance, in this instance PPG16, of existing development plan policy and of other material considerations.

3.4 The London Borough of Barking and Dagenham Unitary Development Plan (UDP) includes several clauses in relation to archaeological practice within the Borough. This includes the following:

Policy DE36

When any development is proposed on sites of archaeological significance (as shown on map 9) or for any site identified by English Heritage the council will seek to ensure that an early evaluation is carried out, and that preservation *in situ* is given first consideration. However, if preservation *in situ* is not possible and the nature of the remains does not warrant a planning refusal, the council will require that adequate time, funding and resources are provided to enable archaeological investigations by an acceptable agent to take place during the process of development (see appendix 16).

Justification

36.1 The archaeology of the Borough is a community asset. Its preservation is a legitimate objective against which the needs of development must be balanced and assessed.

36.2 Where development may affect land of archaeological significance or potential, the Council will expect applicants to have properly assessed and

planned for the archaeological implications of their proposals. This does not only include fieldwork but also the analysis and preservation of results, where appropriate. A preliminary site evaluation to the specifications laid down by the Council, or an acceptable agent would be required. PPG16 states that the needs of archaeology and development can be reconciled, and potential conflict reduced if developers discuss their preliminary plans for development with the Local Planning Authority at an early stage. It is, therefore, in the interests of prospective developers to include as part of their research into the development potential of a site, an initial assessment of whether the site is known or likely to contain archaeological remains.

The developer shall ensure that an archaeological evaluation and if necessary excavation is carried out (after site clearance and before any development) on a site by an archaeological organisation to be approved by the Local Planning Authority. The specification and programming for archaeological work shall be matters for negotiation between the developer and the approved archaeological organisation, but all such work shall be carried out to the general satisfaction of the Local Planning Authority.

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

- 4.1.1 The underlying drift geology of the site consists of post-medieval river alluvium sealing river terrace gravel.

4.2 Topography

- 4.2.1 The site is generally flat, although this is entirely the result of land reclamation that took place in the mid to late post-medieval period. Prior to this episode, the site was occupied by the River Roding, which now runs to its immediate west. The river has been revetted with a substantial concrete and metal wall, constructed in the mid 20th century, which forms the western boundary of the study site.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Prehistoric

- 5.1.1 Isolated find spots dating to the Palaeolithic, Mesolithic and Neolithic periods have been recorded in the vicinity of the site.
- 5.1.2 Several Bronze Age trackways, platforms and an ancient water channel were recorded to the west and some Bronze Age pottery was recovered from a pit to the north. A Bronze Age crouched burial and Iron Age pits containing pottery fragments were recorded to the northeast.
- 5.1.3 Despite the density of surrounding prehistoric remains, the archaeological potential for the Palaeolithic to Iron Age periods on the site itself is thought to be low. The site is situated on the location of a later river channel, and any remains pre-dating the channel are likely to have been eroded³.

5.2 Roman

- 5.2.1 Roman remains in the vicinity of the site include a pair of Roman gullies and a timber jetty to the immediate east. This suggests that the site itself would have been situated within the channel of the River Roding. The likelihood of encountering archaeological remains of Roman date during the excavation was therefore deemed to be slim⁴.

5.3 Saxon and Medieval

- 5.3.1 The earliest documentary reference to Barking refers to the establishment of the Abbey in AD666. Excavations conducted within the medieval Abbey precinct revealed workshops associated with the Saxon Abbey. Mid to Late Saxon features were also recorded to the immediate north of the site⁵.
- 5.3.2 Evidence of a mill leat, situated to the northeast of the site, has also been recorded. It is thought that the leat may have fed one or more mills, mentioned in the Domesday

³Gailey, 2006.

⁴*ibid*

⁵*ibid*

survey of 1086, which were probably situated to the immediate south of the site⁶. The Domesday Book states that Barking Abbey owned two mills at the time of the survey, and it has been hypothesised that one or more of them were predecessors of the mills uncovered during the excavation⁷.

- 5.3.4 The site itself, however, was probably still submerged within the main channel of the River Roding at this time and as a result Saxon and medieval remains were not expected⁸.

5.4 Post-Medieval

- 5.4.1 Historical evidence suggests that the medieval mills continued to function during the early post-medieval period, remaining property of Barking Abbey until the Reformation. Ownership of the mills then passed to the Crown, until the Manor of Barking was sold to the Fanshawe family in 1628⁹.

- 5.4.2 An archaeological evaluation conducted to the immediate east of the site suggests that a phase of land reclamation commenced during the late medieval to the early post medieval period and it is hypothesised that this process would have extended to the study site during the late 17th and early 18th centuries¹⁰.

5.5 18th to 19th Century

- 5.5.1 In the early 18th century, ownership of the Abbey mills had passed to Robert Humfreys, Lord of the Manor of Barking, who leased them to tenants Robert and Charles Smith. In 1736, their lease was conditionally extended on the grounds that they rebuild the mills and adjoining house in brick and timber at a cost of £2,000. Historical maps suggest that the tenants honoured their agreement, as both the mill on the north side of Highbridge Road and the granary on the south side appear for the first time on a map of Barking marshes made by the Commissioners of Sewers in 1740¹¹.

- 5.5.2 By 1796, ownership of the mill had passed from Robert Humfreys to Sir Edward Hulse, who leased the property to Mssrs William Smith and Company. The lease was then sold to Francis Whitbourne of Leatherhead, who spent a further £8,000 on the

⁶ Gailey, 2006

⁷ Phillpotts, 2006

⁸ Gailey, 2006

⁹ Phillpotts, 2006

¹⁰ Gailey, 2006

¹¹ Phillpotts, 2006

buildings in the 1850s, introducing steam power for the first time. Historical maps suggest that two large northern extensions were made to the mill between 1858 and 1864, which probably represent part of Whitbourne's improvements¹².

- 5.5.3 Mssrs T D Ridley and Sons are listed as occupants of Barking mill from 1870 to 1894, and are specifically noted for their use of both water and steam power from 1886 onwards. Historical documents suggest that they extended and modernised the mill, eventually transforming it into one of the largest flour mills in the country¹³. The Ordnance Survey map of 1897 suggests that the most northerly section of the mill had been further extended by this time¹⁴. This extension probably formed part of the Ridley's modernisation programme.
- 5.5.4 The mill building appears to have functioned as such until 1897, when production ceased. It was retained by the Ridley family but was used as offices, their manufacturing being concentrated at Chelmsford. The family attempted to sell the property in 1900 and 1905, but were unable to find a buyer¹⁵. An inventory of machinery was noted when the mill was put up for auction. Items on the list included "twenty pairs of mill-stones, four pairs of roller mills, twelve grain clearing and four dressing machines, wheat grinders etc"¹⁶.
- 5.5.5 The main mill building and the bridge to the granary were demolished in 1922 and a match factory was constructed on the site in 1924. The boiler house and the miller's house were demolished between 1924 and 1931¹⁷. The portion of the site to the west of what had been the mill was reclaimed from the River Roding between 1938 and 1961¹⁸.

¹² Phillpotts, 2006, Gailey, 2006

¹³ *ibid*

¹⁴ Gailey, 2006

¹⁵ Phillpotts, 2006

¹⁶ Gailey, 2006

¹⁷ Phillpotts, 2006

¹⁸ Gailey, 2006

6 ARCHAEOLOGICAL METHODOLOGY

6.1 The first phase of the archaeological watching brief consisted of the monitoring and recording of four trenches, termed Trenches 1 to 4 (Fig 2). The dimensions of the trenches were as follows:

Trench 1:	10.60m north-south x 8.14m east-west
Trench 2:	2m north-south x 19.5m east-west
Trench 3:	10m north-south x 3.5m east-west
Trench 4:	2m north-south x 18.5m east-west

The trenches demonstrated that important archaeological remains survived on the site that would be severely impacted upon by the proposed redevelopment. These remains included a building of unknown function in the northern portion of the site and the foundations of the corn mill in the central and southern portions of the site.

6.2 An excavation within the footprint of the new buildings was therefore proposed. Two areas were opened for investigation, which were termed Areas A and B (Fig 2). Area A was extended until the western, northern and southern limits of the building had been exposed. The eastern end could not be fully uncovered due to the proximity of a live service. Area B was extended until all the brick-built foundations of the corn mill, located within the limits of the site boundary, had been revealed. The dimensions of the areas were as follows:

Area A:	4m north-south x 8.2m east-west
Area B:	30.1m north-south x 9.2m east-west

6.3 After the excavation had been completed, a further watching brief phase commenced. This involved the observation of four more trenches, termed Trenches 5 to 8 (Fig 2). The dimensions of the trenches were as follows:

Trench 5	5.5m north-south x 3m east-west
Trench 6	5.7m northwest-southeast x 4.5m northeast-southwest
Trench 7	2m north-south x 2.4m east-west
Trench 8	6m northwest-southeast x 10m northeast-southwest

6.3 The site was excavated using a 360° type mechanical excavator fitted with a toothless ditching bucket, under archaeological supervision. Between 0.4m and 1m of 20th century demolition debris was removed. Machining stopped when 19th century or earlier deposits or structures were encountered.

- 6.4 All recording systems adopted during the investigations were fully compatible with those most widely used elsewhere in London, that is those developed out of the Department of Urban Archaeology Site Manual, now published by the Museum of London Archaeology Service (MoLAS 1994). Individual descriptions of all archaeological strata and features excavated and exposed were entered onto pro-forma recording sheets. All plans and sections of archaeological deposits were recorded on polyester based drawing film, the plans being drawn at a scale of 1:20 or 1:50 and the sections at 1:10 or 1:20. The OD heights of all principal strata were calculated and indicated on the appropriate plans and sections. A full photographic record of the investigations was also prepared, including both black and white prints and colour transparencies on 35mm film.
- 6.5 All archaeological structures and deposits were hand cleaned prior to recording. In some cases, archaeological structures and deposits were removed by hand, after recording. All brick structures were sampled in order to provide typological and dating evidence.
- 6.6 A Temporary Bench Mark with a value of 4.53m OD was established on the site from the Bench Mark on the southeast corner of the boundary wall of St. Margaret's Church, which had a value of 7.51m OD.

7 ARCHAEOLOGICAL PHASE DISCUSSION

7.1. PHASE 1- POST-MEDIEVAL RIVER ALLUVIUM

7.1.1 The earliest deposit to be observed during the excavation was a layer of firm, mid greyish-blue silty clay, assigned the context numbers [85] and [86] in Trench 4, [200] in Trench 6 and [213] in Trench 8. The layer was observed at a maximum height of 3.64m OD in the north of the site and 2.73m OD in the south and is therefore assumed to slope gradually towards the south. It was interpreted as a layer of post-medieval river alluvium deposited by the River Roding, which probably occupied the site until the mid to late post-medieval period.

7.2 PHASE 2- POST-MEDIEVAL DUMPING

7.2.1 A layer of dumped material, approximately 0.8m thick, sealed the river alluvium and timber structures. The layer was composed of dark grey brown sandy silty clay, with occasional inclusions of red fabric brick fragments. The layer was assigned the context numbers [84] in Trench 4 and [183] in Area B. It was interpreted as made ground, deposited in order to reclaim land from the River Roding. The top of the layer was observed at a height of 3.95m OD in the north of the site and 3.68m OD in the south. This suggests that a relatively flat surface was created through the deposition of the dump layer, perhaps in order to facilitate the subsequent phases of construction that occurred on the site. The layer was presumably deposited before the 18th century building to the south was constructed, which appeared to truncate the deposit.

7.2.2 In Trench 4, two posts were recovered from the layer, contexts [92] and [93], which were observed at a height of 3.07m OD. The posts were substantial in size, being 0.92m and 0.9m long respectively, with diameters of approximately 0.3m. Tool marks were observed on both timbers, including saw marks and possible axe marks. Both had a joint close to the top, one of which contained the remains of a peg. The posts were tapered to a point at the base, which suggests they were originally vertically driven. However, the timbers were discovered in horizontal positions, and were therefore interpreted as having been redeposited in a secondary context. They may originally have been part of a post-medieval waterfront structure before being dumped during land reclamation.

7.3 PHASE 3- 18th CENTURY MASONRY: Robert and Charles Smith's Watermill.

- 7.3.1 Historical accounts suggest that the excavation area was reclaimed from the River Roding in the early 18th century in order to create land upon which a replacement for the medieval Abbey mill could be constructed. This was probably undertaken by tenants Robert and Charles Smith, who were instructed to rebuild the mill "in brick and timber" when their lease was renewed in 1732. The lease specified that the building should measure 90 feet by 25 feet with ground behind it, and that a "miller's house" should also be constructed¹⁹. The house would have served as a residence for the tenant miller, as provision of domestic accommodation within a mill complex was increasingly seen as integral from the 17th century onwards²⁰. The earliest masonry observed during the excavations was situated in the far south of the site, and probably formed the northeastern section of the 18th century mill.
- 7.3.2 Several sections of the watermill were observed in Excavation Area B and Trench 8 (see Fig 3). The foundations were composed of 24 courses of "English bonded" red fabric bricks, held together with indurated light grey mortar. No construction cuts were observed, and as a consequence they are presumed to be trench built. The foundations formed part of a building that is presumed to be over 20m long and over 7m wide, orientated northeast–southwest. The walls were approximately 1.8m deep, and were observed at a maximum height of 4.2m OD.
- 7.3.3 Context [125], the most northerly of the foundations, was orientated northeast-southwest and was 0.8m wide. Butting [125] was foundation wall [121] / [124] / [205]. The two walls appeared to form a rectangular structure, probably representing the foundations of a small room, the internal dimensions of which were 3.8m by 4.4m. Another red fabric brick wall, context [206] was also observed 4.4m to the east of [121] / [124] / [205], parallel to its northwest-southeast portions. It is assumed to be part of the same structure, which continued beyond the limits of excavation to the east, west and south.
- 7.3.4 The location of the walls, when compared with an historical map dated to 1801, suggests that context [125] may once have represented the external northern wall of the original 18th century watermill, whilst the others probably formed internal foundations. The easternmost foundation, context [206], may represent the internal dividing wall between the "working section" and the miller's domestic residence²¹. As

¹⁹ Phillpotts, 2006, p.4

²⁰ Watts, 2002, p.125

²¹ Gailey, 2006

can be seen on the Ordnance Survey map of 1864²², the later steam powered extension (described in the next section) is slightly offset from the dividing wall, a layout that was mirrored by the archaeology observed.

- 7.3.5 Two red fabric walls were also observed within Trench 6, to the west. The fabric and bonding material used in their construction, as well as their thickness and bond-type, were identical to those previously described within Trench 8 and Area B. Historical maps dating to the 18th and early 19th centuries also suggest that the main body of the mill extended to the west, overhanging the River Roding. As a consequence, it seems probable that the walls also form part of the watermill.
- 7.3.6 Wall [193] was found to be 3.5m long on a northwest-southeast alignment, continuing beyond the southern limit of excavation, with a 2.5m long northeast-southwest return to the north (see Fig 3). Wall [192] butted [193] to the south. It extended 0.8m to the north, before kinking towards the west on an east-west alignment (see Fig 3). The walls were approximately 3m deep, and were observed at an approximate maximum level of 3.2m OD.
- 7.3.7 Walls [192] and [193] extended to a greater depth than the rest of the Phase 3 masonry, and as a result it remains a possibility that they may have formed part of a wheel pit for one or more of the waterwheels. Historical records indicate that two undershot wheels, 4.27m in diameter and 3.66m wide, provided the waterpower²³. Consequently, the "pit" would have been deep enough to accommodate one of them. However, as such a limited section of the structure was revealed, this cannot be conclusively proven.
- 7.3.8 During the second watching brief phase, the demolition of the southern portion of wall foundation [121] / [124] / [205] was observed. The wall was found to have been built on a wooden "raft" of horizontal timber planks and vertical wooden piles, observed at a level of 1.9m OD. The horizontal planks were assigned context number [211] and the driven timber piles were assigned context numbers [207], [208], [209] and [210]. The piles were 0.6m wide with square, horizontal cross-sections, and were between 1.2m and 1.8m long. The horizontal planks were between 2m and 3.5m long and were 0.4m wide. An identical foundation design was also observed below wall [193] to the east, where two horizontal planks, contexts [194] and [195], and four piles, contexts [196], [197], [198] and [199] were recorded at an approximate height of 0.2m OD. It is therefore hypothesised that this design was used below the entire Phase 3 masonry foundations.

²² Gailey, 2006

²³ Phillpotts, 2006

7.3.9 Historical maps consulted suggest that the water powered portion of the mill had been constructed by the 1740's²⁴. However, the brick samples retrieved from walls [121], [124] and [125] suggest that these portions were constructed after 1785. The archaeological evidence therefore suggests that the mill may have been constructed in several stages, from the mid to late 18th century.

²⁴ Phillpotts, 2006

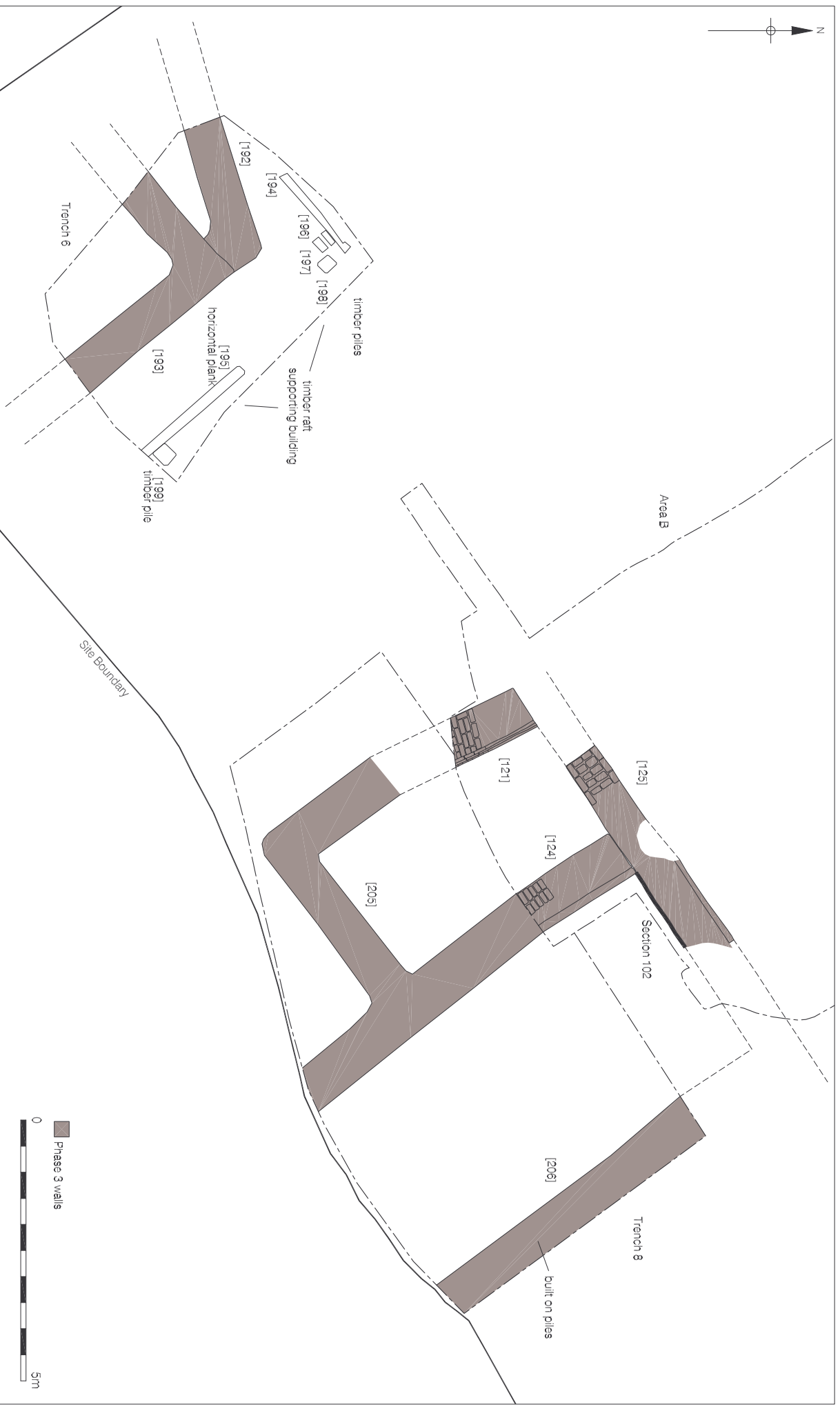


Figure 3
 Phase 3: 18th century masonry structures
 Trenches 6, 8 & Area B
 1:100 at A4

7.4 PHASE 4- MID 19th CENTURY (1858 to mid 1860s):

Francis Whitbourne's Roller Mill Extension

7.4.1 The Ordnance Survey Map of 1864 indicates that two extensions were made to the building in the mid 19th century. A rectangular structure was tacked onto the northern side of the watermill, immediately west of the miller's house, and a long, thin building with a small, square annex was added to the rectangular structure's northern face²⁵. In the mid 1850's, the lease of the mill passed from the Smith family to Francis Whitbourne, who spent £8,000 modernising the building and introducing steam power. Both the rectangular structure and the long, thin building are presumed to be associated with Whitbourne's renovations. The introduction of steam power within the mill would have been crucial for maintaining its productivity and cost-effectiveness within the last half of the 19th century. It had formerly been powered by two undershot wheels²⁶, the least efficient of all modes of water milling. Undershot wheels transfer a meagre 35% of power from the river to the grinding equipment²⁷ and, in the case of Barking mill, would have been dependent on the tide. The introduction of steam-power would have enabled continuous production.

7.4.2 The Engine Room

7.4.2.1 The archaeological excavation in Area B revealed the remains of a rectangular extension, assumed to be the same building as the rectangular structure depicted on the 1864 Ordnance Survey map²⁸. It was found to be 12.5m long and 8.52m wide, on a northwest-southeast alignment, and was constructed with yellow stock bricks bonded with lime mortar or Roman cement. Where later demolition rubble was removed to reveal post-medieval made ground, no construction cuts were observed. The foundations are therefore assumed to be trench built. The building was interpreted as an engine room for the steam powered machinery installed by Whitbourne.

7.4.2.2 The external walls of the building were formed by context [126], which truncated the earlier 18th century red brick structures to the south. The western outer wall of [126] was pointed with Roman cement, unlike the other outer walls, which were pointed with lime mortar. Roman cement is a waterproof bonding material, and as a result it seems probable that the western wall came into contact with water. It is therefore proposed that the western wall of the engine room also functioned as the river wall of the Roding at this time. This assumption seems to be supported by the Ordnance

²⁵ Gailey, 2006

²⁶ Phillpotts, 2006

²⁷ Larkin, 2000

²⁸ Gailey, 2006

Survey map of 1864, presumably compiled soon after the extension was made, which shows the edge of the building as having been flush with the river²⁹.

7.4.2.3 An internal wall, part of the same build as [126], was situated 1.25m from the northern edge of the building. It protruded from the western side for 6.52m, before wrapping around upon itself, creating two internal voids and a surrounding 0.8m wide "channel" (see Fig 4). The westernmost void was 1.98m northeast-southwest, 1.18m northwest-southeast and was lined with context [132], an iron tank. The easternmost void was 3.13m northeast-southwest, 1m northwest-southeast and of unknown depth. The bricks lining the channel and the two internal voids were pointed with waterproof Roman cement. Another internal dividing wall, also part of [126], was located 4.25m from the northern edge of the building. The northern side of the wall formed part of the "channel" and was also pointed with Roman cement, whilst the southern side was pointed with lime mortar. It therefore seems likely that the two voids and the internal section of the "channel" came into contact with water.

7.4.2.4 A compound beam engine with 16-inch and 24-inch cylinders is recorded as having supplied power to the roller mill extension³⁰. It is therefore proposed that the engine itself, and mechanisms associated with it, could have been situated within the voids and the so-called "channel". A circular fixing was observed in section within the second void, which could potentially have supported an axle associated with the engine's flywheel (see section 103, Fig 5). The northern end of the axle could have been supported within a second circular feature, observed to the immediate north and located at the same height as the fixing (section 106, Fig 5). The waterproof bonding material used in the two voids and the "channel" is also significant, as the masonry surrounding the engine would have come into contact with steam or condensed water. The exact functions of the voids, the associated iron tank, channel and fittings remains hypothetical, however, and further work is required in order to establish the layout and design of the engine more precisely.

7.4.2.5 The use of lime mortar in the southern half of the building suggests that it was probably relatively dry. It may have housed the main body of the beam engine's drive shaft, as well as being used as a storage area.

7.4.2.6 A red fabric brick structure ran down the centre of the southern half of the extension. The structure was 4.75m long and 2.25m wide, and was observed at a maximum level of 4.36m OD. The structure had been partially truncated during demolition, but several possible settings were observed in section (section 105, Fig 5) that could

²⁹ Gailey, 2006

³⁰ Phillpotts, 2006, p.7

have secured pieces of machinery in place. A metal plate was also observed on the top of the structure, which consisted of an iron alloy plate, over 1.1m long and 0.28m wide, with three ovoid holes, 0.22m apart. The plate probably acted as a base for machinery driven by the beam engine. The structure was assigned the context numbers [150], [149] and [146]. It was interpreted as having acted as a support for machinery, potentially forming a base for part of the drive shaft of the beam engine. Again, further research will be required in order to establish a more specific function.

7.4.2.7 The remains of three walls were also recorded, which butted the western side of wall [126] at a height of 2.88m OD. The walls were assigned the context numbers [131], [128] and [130]. Each protruded 0.88m to the east, and was 1.64m wide. All three had been horizontally truncated, presumably when the building was demolished. The surviving sections, however, appeared to have retained bricks, known as "springers"³¹, which formed the bases of three arches. This suggested that the surviving wall remnants would originally have functioned as supports, termed "imposts"³², propping up three arches. The fourth "impost" for the most southerly arch probably formed part of wall [126] to the immediate south, where a "springer" could also be seen. The arches would have created three small, covered alcoves running down the western side of the southern half of the engine room. They may possibly have been mirrored by identical alcoves to the east, where the remains of two potential "springers" were observed (see Fig 4). The precise function of the alcoves remains ambiguous, although they could potentially have been used as storage areas for raw materials or fuel. As a large granary was situated to the immediate south of the site, it seems more probable that items required in the engine room and boiler house would have been stored here.

7.4.2.8 A large metal fixing, context [127], was anchored to the southwest corner of the external wall of the engine room, protruding out into what would have been the River Roding. The fixing was 4.2m long and 50mm wide and was attached to the highly degraded remains of two wooden planks with five metal pegs. It was postulated that the fixing could have functioned as some kind of sluice gate for the watermill to the immediate south³³, which continued to function throughout the life of the roller mill.

³¹ Ching, 1995

³² *ibid*

³³ Bonwick, 2006 *pers comm.*

7.4.3 The Boiler House

7.4.3.1 Butting the external wall of the engine room was the external wall of what is presumed to be the boiler house. The boiler house originally appears to have consisted of a 13.5m long by 4.25m wide rectangular building on a northwest-southeast alignment, with a 2.26m square chimney tacked onto the eastern edge of its northern face. It was composed of lime mortar and English bonded, yellow stock bricks. Historical maps and documentary sources suggest that the boiler house and the engine room were contemporaneous³⁴. The stratigraphy encountered during the excavation, however, indicates that the external shell of the engine room was erected first, before the boiler house was added to the eastern side of its northern face. Logic dictates, however, that the amount of time between the two extensions cannot have been significant, as a boiler is naturally required to power a steam engine. The two buildings are therefore considered to be part of the same phase of activity on the site. Masonry that was interpreted as forming part of the boiler house was identified in Trench 4 and Area B.

7.4.3.2 External wall [145] ran the entire length of the eastern side of the building and was 0.12m wide. It had 4 buttresses, 1.05m long and 0.4m wide, placed evenly along its external, eastern face. It would originally have formed the external, eastern wall of the boiler house. The wall was butted by a square structure to the north, context [151] / [116]. The structure was 2.26m square, and contained a central rectangular void, 1m long, 0.8m wide and 0.89m deep. A stretcher bonded, fireproof brick floor was uncovered when demolition debris was removed from the void, which was soot stained, as were the internal yellow stock brick faces. It was interpreted as forming the base of a chimney, which can be observed on the Ordnance Survey map of 1864³⁵, and can be seen on photographs taken in the late 1860s³⁶. The north face of the chimney contained an archway with a 0.45m wide, 0.58m deep opening, which had been blocked with poured concrete and slate tiles, presumably when it fell out of use (section 104, Fig 5). The function of the opening remains uncertain. It could perhaps have facilitated airflow through the boiler house via convection, drawing hot vapours from the boiler through the flue and into the chimney.

7.4.3.3 A semi-circular brick wall, context [181], was observed in the northern section of the boiler house at a height of 3.56m OD. The wall was sealed by a later concrete floor, context [156], to the south, and was truncated by later wall [155] to the east. The visible section of the wall was 0.22m wide and 0.75m long, orientated approximately east-west (see Fig 4). The wall is presumably one of the earliest structures to be

³⁴ Gailey, 2006, Philpotts, 2006

³⁵ Gailey, 2006

³⁶ Philpotts, 2006

created within the interior of the boiler house, as it was sealed by the concrete floor. It could perhaps have formed one side of an earlier flue, which may have led into chimney [151]. Due to the small section of wall exposed, however, a precise interpretation cannot be proffered.

7.4.3.4 A concrete slab, context [156], was then deposited, butting the external wall and the chimney. This appears to have formed the foundation layer of the floor of the boiler house, and was observed at a height of 3.81m OD. Imprints of bricks were observed across its entire surface, suggesting that it once formed a base for a brick floor. The bricks would probably have been fireproof, installed to protect the concrete from the heat of the overlying boiler and flue. The partial remains of a later floor are extant in places, composed of bricks that were not produced until 1880³⁷. They consequently cannot have made the indentations in the concrete floor, which is presumed to have been deposited in the mid 1860s. The brick floor was therefore probably sporadically replaced when damaged by heat.

7.4.3.5 Sitting upon the concrete slab were two internal walls, contexts [171] / [154] and context [212]. The walls formed a 12.75m long structure with a 1.5m wide central void. They were interpreted as forming brick housing for a boiler, which is presumed to have sat within the central void, above a layer of fireproof bricks. The northern section of context [171] / [154] was interpreted as forming the eastern side of a flue, which probably connected the boiler with the chimney. The western side of the flue had probably been truncated away when the building was modified.

7.4.3.6 Rectangular brick floor [176] was 3.38m long by 0.88m wide and was observed at a level of 3.75m OD. It was situated to the immediate south of the proposed location of the boiler, and it is therefore possible that the structure may have functioned as the heat-pool floor below the "stoke hole", into which fuel was fed. A rectangular structure was also located at the proposed northern end of the boiler housing. The structure was 2.13m northeast-southwest and 1.27m northwest-southeast, observed at a height of 3.8m OD. It consisted of a concrete floor lined with 1 course of fireproof bricks, context [167], and the remains of an external wall, context [166]. The structure was probably associated with the boiler, although its precise function is unknown. Further research is therefore required in order to establish how Lancashire boilers were constructed in order to enable further interpretation.

³⁷ Brown, 2006, this report



Figure 4
Phase 4: 1858 - mid 60s masonry structures
Trenches 3, 8 & Area B
1:100 at A3

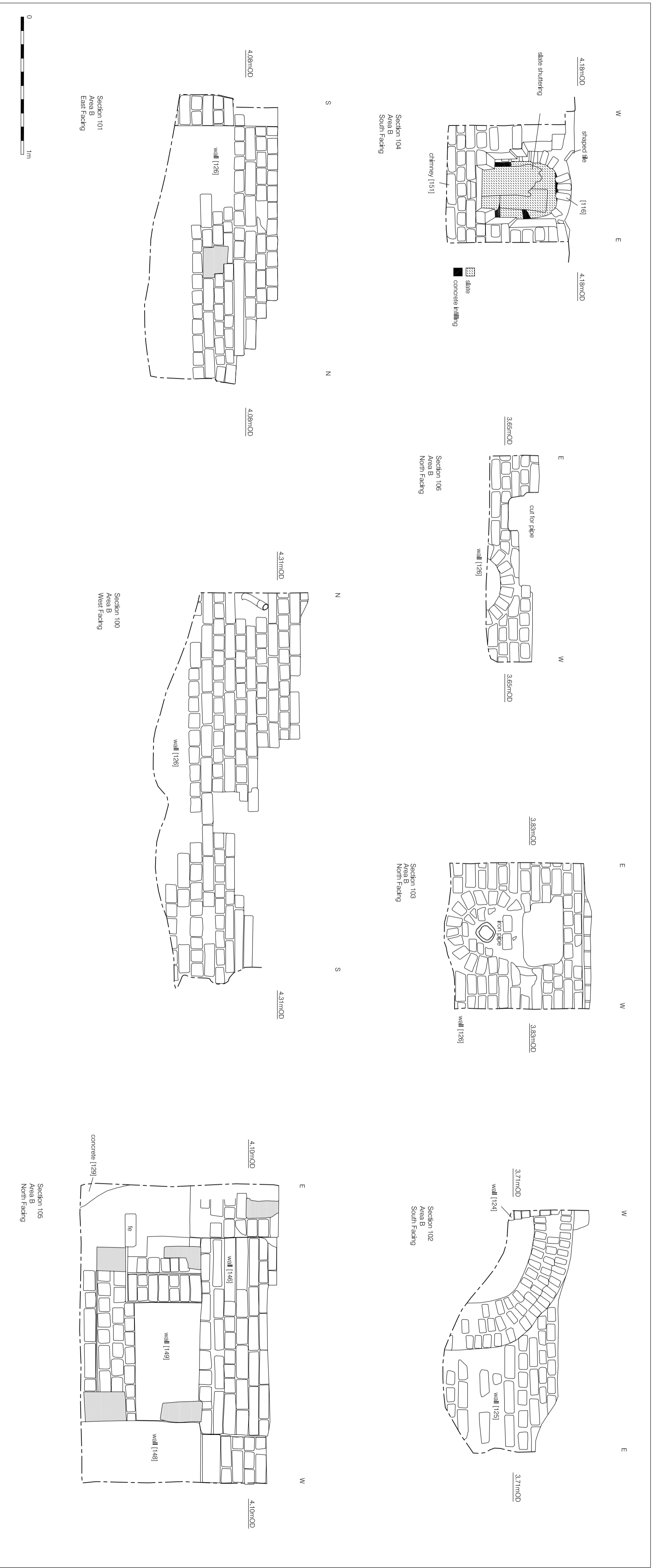


Figure 5
Phase 3: Late 1730s to 40s
Section 102
Phase 4: 1858 - mid 1860s
Sections 100 - 101, 103 - 106
Area B
1:20

7.4.4 The Outhouse / Workshop

- 7.4.4.1 A small rectangular brick structure was revealed in the northeast corner of the site, within Trench 2 during the watching brief and Area A during the excavation (see Fig 6). A building of similar size and shape, in virtually the same position, was depicted on the 1864 Ordnance Survey map. The building revealed during the excavations and the building on the map are therefore assumed to be the same. The building was interpreted as being roughly contemporary with the engine room and boiler house, which were also first depicted on the 1864 map³⁸.
- 7.4.4.2 The rectangular structure was built on a northeast-southwest alignment. It was 8.22m wide and 17.28m long as seen, continuing beyond the area of excavation to the north. Unfortunately, the trench could not be extended further to the north due to the proximity of a live service. The external wall, recorded as contexts [61] / [62] during the evaluation and as [103] / [105] / [111] / [113] during the excavation was two courses wide along the northern edge, whilst the western and southern external walls were one course wide. It was composed of predominantly header bonded, yellow fabric bricks. No construction cut for the building was observed, as the outer walls were butted by a later dump layer, context [55] / [64], which was not excavated.
- 7.4.4.3 Built into the internal side of the southern wall was context [115], a stretcher bonded yellow fabric brick structure. The structure was 3.1m long and 0.4m wide, orientated northeast-southwest. The brickwork in the centre of the structure sloped down towards the middle, forming a 0.24m wide, 0.35m deep hollow, lined with yellow fabric half-bricks. It is hypothesised that the hollow could have accommodated a wheel, and may have formed part of a flywheel pit. The feature was almost certainly associated with granite base [114], situated on the external side of wall [113], immediately to the south of the internally situated pit. The granite base could have acted as a support for a machine associated with the feature (see Fig 6).
- 7.4.4.4 A 0.32m thick layer of loose, mid brownish red, silty sandy gravel, context [58] / [101], butted against the internal side of wall [103] / [105] / [111] / [113] and “fly-wheel pit” [115]. This was sealed by a thin layer of light yellow, loose sand, 0.1m thick, assigned context number [100]. The deposits formed a base upon which the floor of the building could be constructed. Sealing these make-up layers was context [57] / [60] / [104]. The layer was 0.1m thick and consisted of compact, light yellowish grey sandy lime mortar, presumably deposited in order to bond the brick and tile floor of the building in place. The floor surface itself, context [56] / [59] / [102] consisted of 7 rows

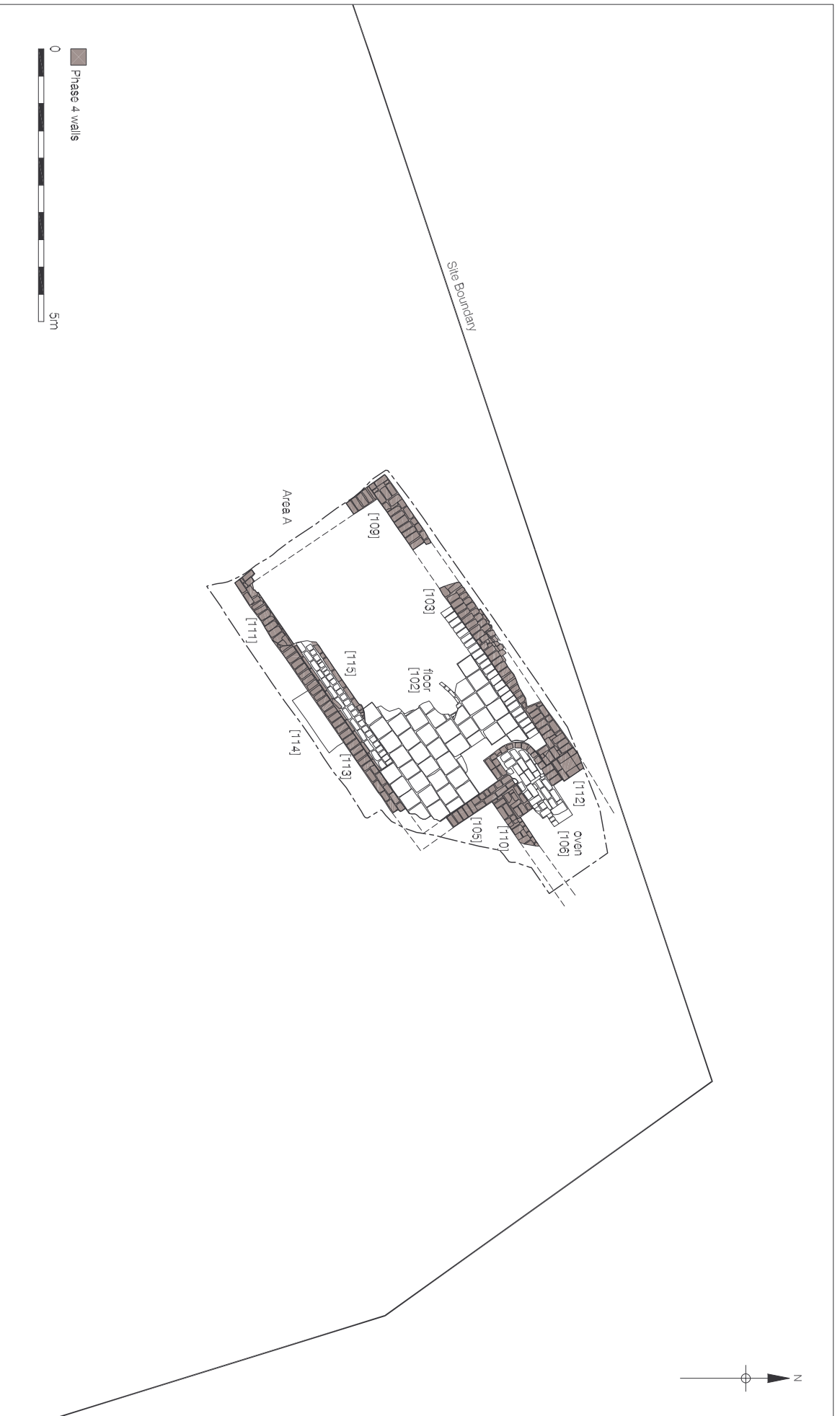
³⁸ Gailey, 2006

of tiles, 314mm square, with a row of red fabric bricks to the north and south. The surface was observed at a level of 3.85m OD.

7.4.4.5 The eastern face of wall [103] / [105] / [111] / [113] was butted by a later addition, wall [108]. The wall was 0.27m wide and over 1.18m long, continuing below a deposit of modern made ground to the east. The wall may have been constructed in order to accommodate the small hearth or furnace described below.

7.4.4.6 A roughly "L"-shaped structure, 1.76m wide and 1m long, was constructed in the eastern end of the building. The structure had a curvilinear wall at the western end, composed of fireproof half-bricks, one course wide, and a fireproof brick floor, composed predominantly of stretcher bonded bricks, assigned context numbers [53] / [106]. The southern wall of the feature was partially formed by outer wall [107] and later rebuild [110] to the east. The floor surface was observed at a height of 3.88m OD, and was sealed by primary fill [52], a 0.05m thick deposit of loose silty sand. The sand had evidently been severely heat affected, as it was bright red in colour. Sealing the deposit was secondary fill [51]. The fill was 0.15m thick and consisted of loose, very dark grey, carbon rich sand to granule sized particles, which probably formed the remains of burnt industrial debris. The structure appeared to form a small, oven-like feature, with a 0.52m wide sunken area at the eastern end into which soot and debris from the oven could be scraped. The interior of the sunken area suggested that this had indeed taken place, as it was stained black, presumably by its former contents. The oven may have formed part of an industrial activity, such as smelting. This is supported by the fact that a loose, dark grey deposit rich in iron-slag and clinker, context [65], was observed to the immediate north of the building, dumped against the external wall.

7.4.4.7 The remains of a manhole for a possible drain, context [112], was observed in the northeast corner of the building. It was 0.9m square, with a 0.48m wide opening, observed at a level of 3.81m OD.



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Figure 6
 Phase 4: 1858 - mid 60s masonry structures
 Area A
 1:100 at A4

7.5 PHASE 5- LATE 19th CENTURY (1870 to 1894)

Ridley and Sons' extension to the boiler house

- 7.5.1 The mill was sold to Thomas Dixon Ridley in the mid 1860's, and remained the property of the Ridley family until its demolition in the early 20th century. The Ridley's are recorded as making a number of improvements to the mill soon after it came into their possession, eventually transforming it into one of the biggest flour mills in the country. The contents of the engine room and boiler house at this time are recorded as including a compound beam engine with 16-inch and 24-inch cylinders and two Lancashire boilers, one 7 feet in diameter and 28 feet (8.53m) long, the other 6 feet 6 inches in diameter and 26 feet (7.92m) long³⁹.
- 7.5.2 The archaeological investigations undertaken in Area B suggested that the boiler house had been constructed in two phases. The second phase of construction may therefore be associated with the improvements made by the Ridley family, probably in order to install a second boiler and increase the efficiency of the mill. The extension mirrored the original boiler house, creating a rectangular, roughly symmetrical structure, 15.76m long and 8.65m wide, approximately twice the size of the original building (see Fig 7). The shell of the new extension and the shell of the original building were both composed of identical fabric bricks, identically coursed, both having been constructed with English bonded, yellow stock bricks and lime mortar. The northern and western external walls of the original boiler house were presumably demolished before the new extension was added to the western side.
- 7.5.3 The western outer wall of the building, context [138], was 15.76m long and 0.38m wide at the northern end, widening to 0.5m at the southern end. It butted "L"-shaped wall [136] to the north, which also formed the northern external wall, incorporating chimney [151] within the main body of the boiler house for the first time. The wall was lined with fireproof bricks, context [168], which sat on top of the concrete floor described below. The lining was one course wide. It had presumably been constructed in order to protect the external wall from heat damage caused by the proximity of a flue that would have transferred hot vapours from the boiler to the chimney.
- 7.5.4 Concrete layer [135] / [142] / [158] / [180] butted the two external walls. The concrete appears to form the floor surface of the later boiler house extension, butting the earlier concrete floor of the pre-existing boiler house to the east. The floor surface was observed at a level of 3.78m OD.

³⁹ *ibid*

- 7.5.5 Sitting on top of the poured concrete surface was context [178], a 2.95m long and 0.76m wide slab of concrete, observed at a level of 3.68m OD. It resembled earlier brick surface [176] to the east, which formed part of the original boiler house, and probably fulfilled a similar function. It may therefore have formed the floor below the stoke hole, associated with the second boiler.
- 7.5.6 A mirror image of the southern section of earlier boiler setting [171] / [212], described in the previous section, was also constructed, which would presumably have housed the second boiler. The western wall of the setting was assigned the context number [169]. The end of the context had been damaged and rebuilt at a later date, perhaps because of heat damage. It was therefore assigned context number [179]. The eastern side of the boiler housing, context [170], butted its earlier counterpart, context [212], along its western edge.
- 7.5.7 The floor around the boiler was lined with one course of fireproof bricks, context [173] / [172], observed at a level of 3.9m OD. Walls [179] and [169] were also lined with a row of fireproof bricks, 1 course wide, which were assigned the context number [174]. The bricks would have protected the walls and the underlying concrete floor from the heat of the boiler, and would presumably have been easy to replace if damaged.
- 7.5.8 The southern section of boiler setting [171] / [212] in the earlier section of the mill was also identically lined with fireproof bricks. The lining on the floor of the structure was assigned context numbers [119] / [165] / [164], whilst the wall lining was assigned the numbers [177] and [161]. The floor lining is presumed to have originally covered the entire concrete floor of the building, as indentations of an earlier brick lining, presumably laid when the concrete was still wet, were observed across its entire surface. The surviving remnants, contexts [119] / [165] / [164], were not contemporary with the 1860's floor and boiler setting, however, as they consisted of bricks that were not produced until the 1880's. They must therefore have been inserted later, probably at the same time as their counterparts in the later, western half of the building, perhaps after the original fireproof lining became too degraded to function effectively.
- 7.5.9 The construction of the later half of the boiler house and the later half to the west appeared to be more or less symmetrical, with the exception of the flue situated in the northern portion of the later boiler house. It was necessary to bend the flue to the north so as to connect it with the original chimney, and as a consequence the structure truncated what would have been the northern external wall of the original boiler house (see Fig 9). The flue was roughly "S"-shaped, bending southwest-northeast, southeast-northwest and southwest-northeast before connecting with the chimney. It was 7.02m wide, and its outer walls were constructed from yellow fabric

stock bricks, assigned the context numbers [139] / [152]. A deposit of poured concrete, context [143], then appears to have been laid down to the north and west of flue wall [139] / [152]. This effectively formed the northern section of wall [169], but appeared to have been poured after the external walls of the flue were constructed. The walls of the flue were also lined with a protective course of replaceable, fireproof bricks, assigned context number [140], which were butted by a fireproof brick floor, assigned context number [118]. The floor surface of the flue was observed at a height of 3.59m OD.

7.5.10 The earlier flue, built into the northern section of support wall [154] / [171] in the eastern half of the building, was also lined with fireproof bricks. Whilst the eastern support wall of the flue was undoubtedly contemporary with the earlier phase of the building, the western wall and the fireproof lining were probably put in later. The western wall was assigned the context number [155]. It was probably rebuilt when the later, western section of the boiler house was added. The wall lining was assigned the context numbers [141] / [153] and the floor lining was assigned the context number [117]. Again, the fireproof bricks are of a type that were not produced until the 1880's and must also have been added later. This indicates that the eastern side of the structure continued to function as a boiler house, even after the western side was constructed.

7.5.11 A rectangular structure was also installed within the western half of the building, to the immediate south of flue [139] / [152]. The structure was 2.96m northeast-southwest and 1.27m northwest-southeast, and was observed at a height of 3.93m OD. It consisted of a concrete floor, context [157], an external, "U"-shaped wall with a 1.08m wide opening in the centre of its southeast-facing side and a fireproof brick lining, 1 course deep, which sealed the concrete floor. The structure was probably associated with the boiler, although its precise function is unknown. It was similar in form and fabric to structure [166] / [167] to its immediate east, in the earlier boiler room. It presumably fulfilled an identical function, although further research is required in order to establish how Lancashire boilers were constructed in order to establish its true purpose.



Figure 7
Phase 5: 1870 - 94 masonry structures
Trench 8 & Area B
1:100 at A3

7.6 PHASE 6-: LATE 19th TO EARLY 20th CENTURY

- 7.6.1 The buildings continued to function as a flour mill until 1897, when the Ridley family converted them to offices, having moved the bulk of their production to Chelmsford⁴⁰.
- 7.6.2 In Area A, a machine fixing, context [162] / [163], was observed within the central section of the boiler house, which was partially constructed from bricks produced after 1900⁴¹. It was 1.1m wide and would originally have been 7.25m long, having been truncated away in the centre, presumably when the mill was demolished (see Fig 8). It consisted of a concrete base, both sides of which sloped towards the centre of the building. The base was bound by yellow fabric brick walls, one course wide. Metal settings were fixed to the eastern and western ends of the walls. Each had two holes bored into them, which could presumably have been used to bolt machinery in place. The structure appeared to truncate the housing for both the eastern and western boilers, suggesting that they were no longer functional when it was installed. It is therefore probable that the building had ceased to function as a boiler room by the time the structure was erected. The post-1900 date of the bricks used in its construction also supports this notion, as documentary sources suggest that the mill ceased to function as such by 1897. The machine base may therefore have supported a piece of machinery that was unconnected with the milling process. It is possible that the Ridley's utilised the boiler room as a workshop after the main body of the mill was converted into offices for the family.
- 7.6.3 The arch, built into the northern wall of the chimney in the northeastern corner of the boiler room, appears to have been blocked with slate-tiles and poured concrete, presumably when the boilers and associated machinery were decommissioned (see section 104, Fig 5). The concrete and slate may have been deposited in order to prevent drafts blowing through the building, suggesting that it may still have been utilised in some capacity after it ceased to function as a boiler house. The northern end of flue [139] / [152] was also blocked with bricks, perhaps for similar reasons. The bricks were assigned the context number [160].
- 7.6.4 A layer of mid grey blue, silty clayey alluvium was recorded to the immediate west of the boiler room and engine house, observed at a maximum level of 2.90m OD. It is presumed to have accumulated against the side of the structures throughout the 19th and early 20th centuries, when this section of the site was submerged in the River Roding. The deposit was assigned the context numbers [5] in Trench 1, [10] in Trench 3, [190] in Trench 5 and [203] in Trench 7. A similar deposit of river alluvium,

⁴⁰ Phillpotts, 2006

⁴¹ Brown, 2006 (this report)

context [74], was observed in Trench 2 to the north, at a maximum level of 3.54m OD. The layer contained leather shoes, which are thought to be 19th century in date. It is therefore proposed that the northwest section of the site was also situated within the channel of the River Roding during the 19th century.

7.6.5 Six posts, contexts [8], [9], [186], [187], [188] and [189] were observed within Trenches 3 and 5, truncating the alluvium in the southwest corner of the site. The posts were approximately 0.5m square and of unknown depth. They may have functioned as mooring posts, or may even represent part of a timber jetty (see Fig 8). The remains of a wooden barge, context [185], was also observed in Trench 5. It was over 5.5m long and 0.6m wide, continuing beyond the northern and southern limits of excavation. The boat appeared to have been deliberately scuppered, probably immediately before land reclamation recommenced, as several large fragments of masonry were observed within it. The boat also sat between the river alluvium and a deposit of early to mid 20th century made ground. It was observed at an approximate level of 2.83m OD.

7.6.6 A number of smaller, circular posts and postholes truncated alluvial layer [74] in Trench 2, to the north of the mill buildings (see Fig 9). Three postholes were recorded and assigned the context numbers [69], [71] and [73]. The postholes were between 0.25m and 0.20m in diameter and between 0.25m and 0.35m deep. They all contained humic rich, mid reddish brown sandy clay fills, which were assigned the context numbers [68], [70] and [72] respectively. The latter two fills both contained brick fragments dating between 1900 and 1950 and 1800 and 1900. The postholes appeared to be associated with a number of driven posts of a similar size and shape, assigned context numbers [66], [67], [87] and [88]. The posts and postholes were not substantial in size, and as a result they were not interpreted as a waterfront structure. The posts probably functioned as late 19th to 20th century moorings for small boats or barges.

7.6.7 A wattle fence or hurdle was also recorded in Trench 2 at a height of 3.84m OD, on an east-west alignment (see section 2, Fig. 10). Only a small section was observed, having been exposed when the northern edge of Trench 2 partially collapsed. This revealed a 0.8m long portion of wattle, which presumably continues to the east and west. As seen, the wattle work consisted of 2 sails, assigned context numbers [90] and [91], and 11 withies, assigned context number [89]. The sails were approximately 0.15m in diameter. The diameter of the withies varied between 0.05m and 0.02m, forming a 0.32m high fence. A medieval account dated 1321/2 exists for the use of hurdles in water management at Barking Abbey mill⁴². However, the fence or hurdle was driven into alluvium that contained 19th century leather shoes and was sealed by a dumped deposit

⁴² Phillpotts, 2006

containing rare 19th century pottery fragments, precluding such an early date. It is therefore probable that the wattle dates to the 19th century or possibly later. It may form part of some kind of water management system but, due to the small section observed, its true function is difficult to ascertain.

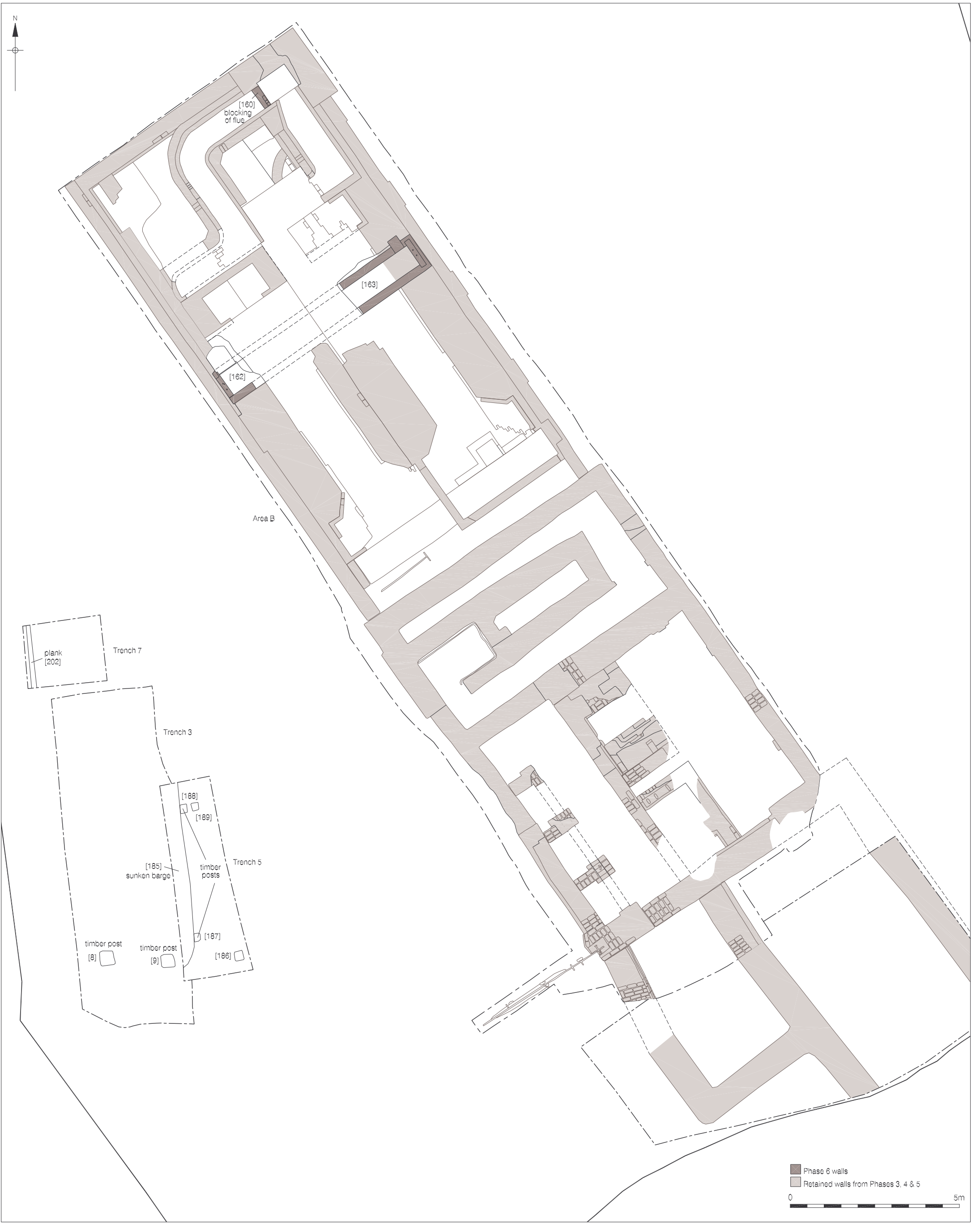


Figure 8
 Phase 6: 19th to 20th Century masonry and timber structures
 Trenches 3, 5, 7 & Area B
 1:100 at A3

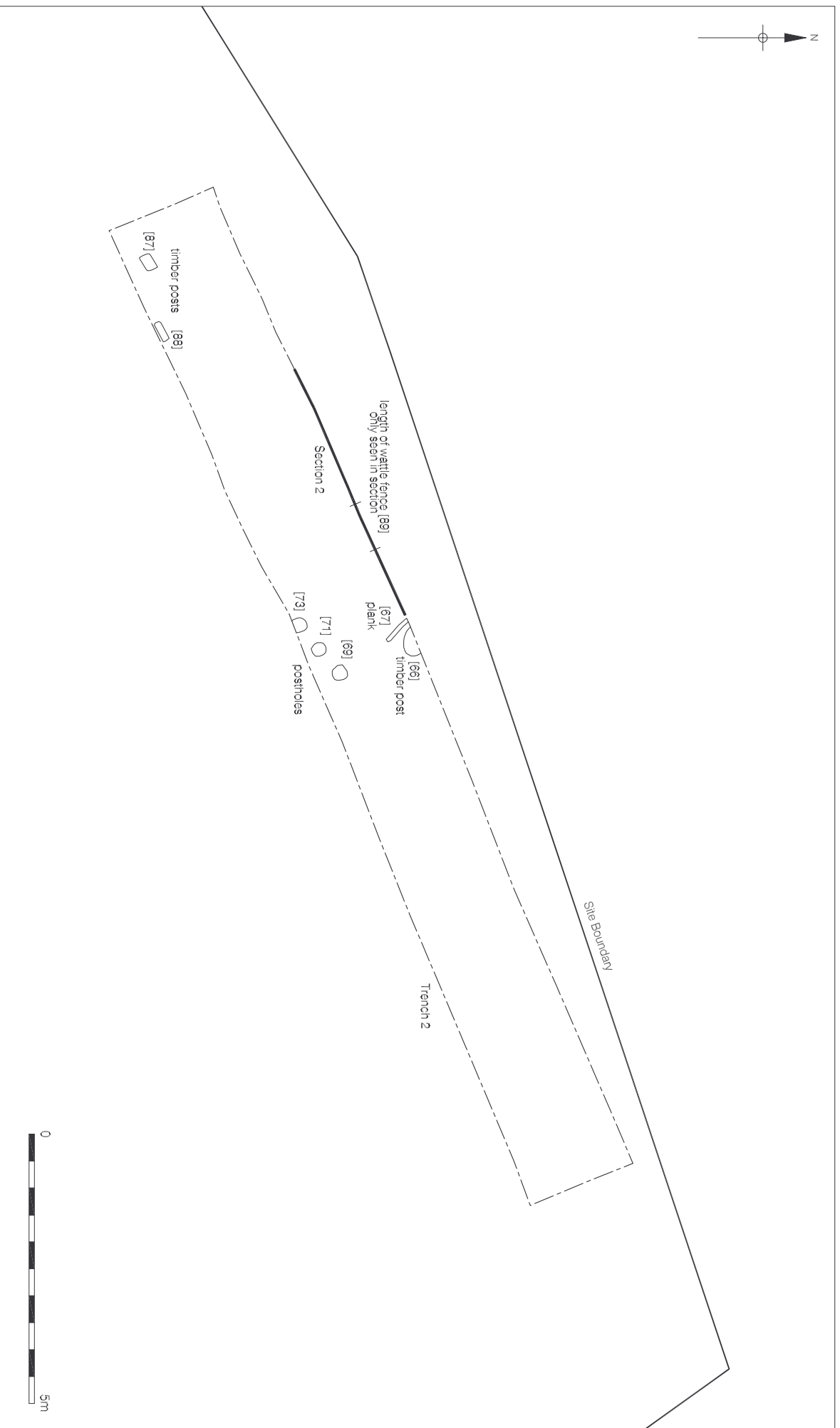
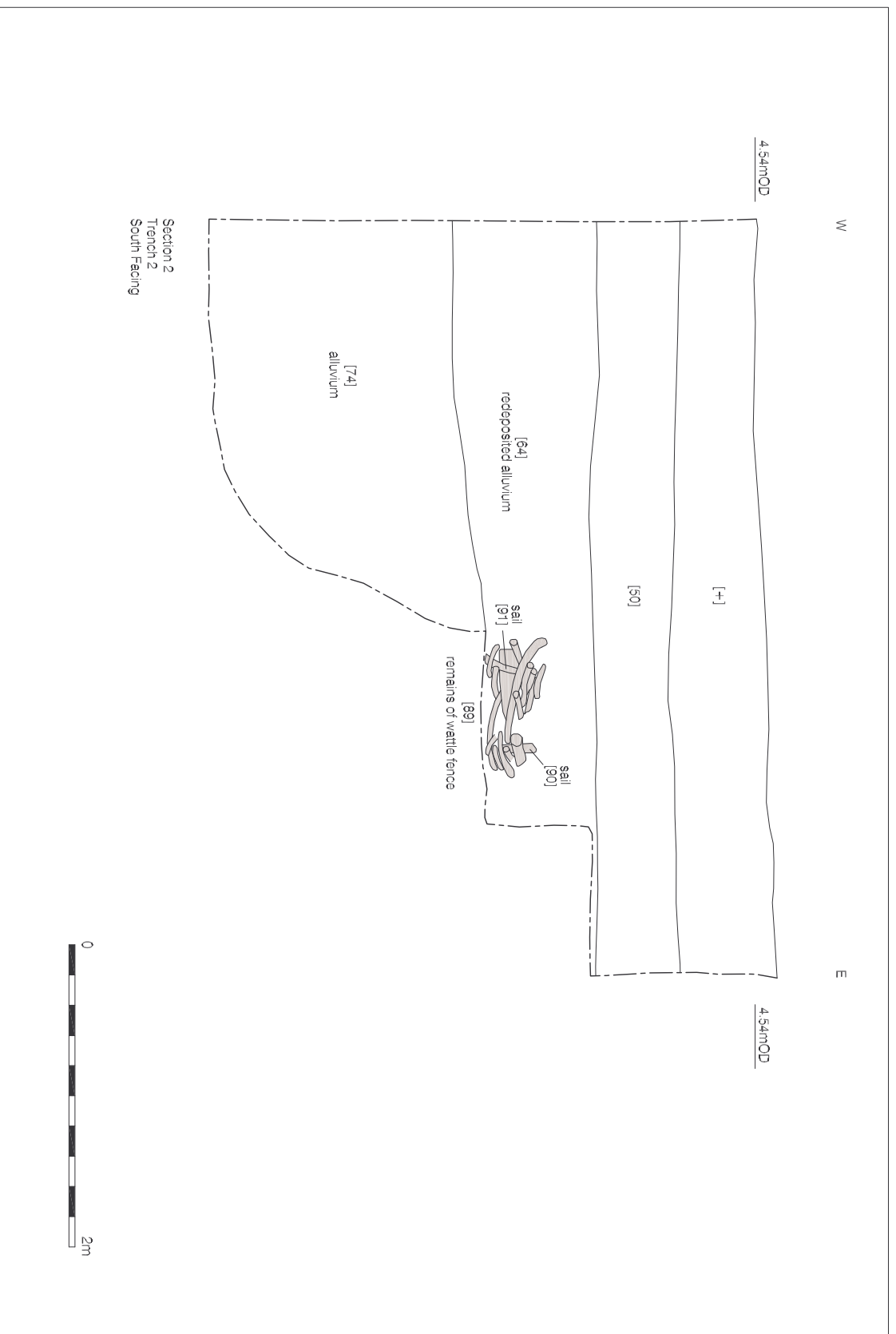


Figure 9
 Phase 6: 19th to early 20th century timber structures
 Trench 2
 1:100 at A4



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Figure 10 Phase 6: 19th to early 20th century timber structures

Section 2
Trench 2
1:40 at A4

7.7 PHASE 7- 20th Century

- 7.7.1 The buildings were auctioned in 1900, but no buyer was found. The watermill was eventually demolished in 1922, followed approximately a decade later by the boiler house and engine room⁴³. The site then became part of a match factory.
- 7.7.2 The remaining portion of the site, situated to the immediate west of the boiler house and engine room, was reclaimed from the River Roding in the early to mid 20th century. This episode was represented by a thick dump layer, assigned context numbers [50], [55] and [64] in Trench 2, [94] in Trench 3, [75] in Trench 4, [182] in Area A, [123] in Area B, [191] in Trench 6, [201] in Trench 7 and [204] in Trench 8. The top of the deposit was observed at a level of 4.25m OD. It was found to be approximately 2m thick.
- 7.7.3 The demolition of the mill buildings was represented by a layer of brick rubble, which was between 1m and 0.5m thick. The layer covered the entire excavation area, the top of the deposit having been observed at a height of 4.53m OD. The layer was assigned the context number [122].
- 7.7.4 A concrete pile, presumably associated with the match factory, truncated walls [126] and [125] in the south of the site. The pile was assigned the context number [133]. A concrete drain base also sealed and partially truncated walls [149] / [146] and [125]. The drain base was assigned the context number [129].

⁴³ Phillpotts, 2006

8 ORIGINAL AND ADDITIONAL RESEARCH QUESTIONS

8.1 ORIGINAL RESEARCH OBJECTIVES

The archaeological evidence obtained during the excavations was evaluated in light of the original research questions posed. An assessment of the archaeological evidence was made, in order to establish whether it could be used to address the research objectives. The original research objectives are listed below, along with an evaluation of the relevant evidence:

8.1.1 To determine, if possible, the date of the successive phases of enwharfment

No wharfs were discovered on the site. However, two large posts, which looked as though they were once driven, were discovered within a dumped deposit of made ground. The posts were not in their primary context, having been dumped as inclusions within the deposit. They may, however, have formed part of an earlier wooden waterfront structure that was damaged prior to land reclamation.

8.1.2 To determine the sequence and date of river wall development

No river walls predating the mid 19th century were observed on the site. The earliest river wall observed probably dates to approximately 1858, consisting of the western side of the engine room of the steam-powered mill. The wall would presumably have continued in some capacity to the north of the mill building, as suggested by the map regression. It had been replaced by the time of excavation, however, by a later wall, which formed the western side of the boiler house extension. After the mill fell out of use, further land was reclaimed from the river during the early 20th century. The current river wall was then constructed in the mid 20th century.

8.1.3 To recover as much data as possible on the form and fabric of the late post-medieval mill complex.

The excavation, in conjunction with historical research, revealed that the mill complex had been constructed in three separate phases, detailed below:

Initially, a red fabric brick building was constructed to the south, the northeast section of which was unearthed during the excavation. The structure was erected in the 18th century, and comprised a watermill and miller's house. Brick samples recovered from the building suggested that the portion observed had been constructed after 1785, whilst historical sources suggest a construction date of approximately 1740. It is

therefore possible that the portion observed may have been part of a later extension. A possible wheel pit, which would have overhung the river to the west, was also uncovered. The miller's house was probably located to the immediate east, just beyond the limit of excavation.

The next phase of construction involved the creation of a steam powered extension. Initially, an engine room was built to the immediate north of the watermill. It was found to contain a possible fixing for a beam engine, along with a linear structure, which may have supported the drive shaft. The machinery that processed the flour would probably have been situated either on the second floor of the engine room, which contemporary photographs show was two storeys tall, or within the earlier red brick mill to the south. It also remains a possibility that machinery could have been situated in both locations.

A boiler house was also constructed to the north, presumably immediately after the external shell of the engine room was completed. The boiler house consisted of a stoke hole for the boiler, the remains of a setting for a Lancashire boiler, the remains of a flue to carry exhaust away from the boiler and a chimney through which the exhaust was emitted.

A small workshop or outhouse was also constructed during this time, situated to the northeast of the mill building.

The final phase of development within the mill itself consisted of an extension to the boiler house. A mirror image of the building was constructed, creating another possible stoke hole, another setting for a second Lancashire boiler and another flue, which lead into the original chimney.

8.2 ADDITIONAL RESEARCH OBJECTIVES

8.2.1 To research the types of machinery listed within an inventory of mill contents.

An inventory of machinery was made when the mill was put up for auction in 1905. The boiler room and engine house are recorded as having contained "a compound beam engine with 16-inch and 24-inch cylinders, supplied by two Lancashire boilers, one 7 feet in diameter and 28 feet long, and the other 6 feet 6 inches in diameter and 26 feet long". The roller mill is recorded as having contained "20 pairs of 4-foot French Burr millstones, 4 sets of Wegman's patent porcelain rolling mills, 13 dressing machines, two purifiers and a bran duster", whilst the wheat cleaning plant contained

“a horizontal high-pressure condensing steam engine with a 16-inch cylinder, built by Whitmore and Binyon”, powering “an aspirator, 3 smutters, a separator, 3 elevators, 2 conveyors, a chaff cutter, an oat bruiser and bean kibbler, a stive chamber and a fan”⁴⁴ Further research into how these various items of machinery functioned is required in combination with research into how they were arranged within the mill. This will enable surviving sections of the steam powered extension to be interpreted further. For example, further investigation into the design of Lancashire boilers is required in order to facilitate better understanding of the masonry structures within the boiler house. The probable design and location of the engines also needs to be understood in order to further interpret associated masonry supports and fixings. A probable setting for only one steam engine has been identified and it is therefore important to establish whether this setting really contained the compound beam engine or the condensing steam engine. The likely position of the second engine also needs to be identified.

8.2.2 To compare the archaeological remains of the roller mill with other steam powered flour mills of a similar age and type.

Further research into the design of 19th century roller mills is required in order to shed further light on the archaeological remains observed within the engine room and boiler house. For example, research into possible driving mechanisms used to power the machinery within the mill is required, in order to further interpret masonry structures within the engine room. It is also important to establish the likely location of the steam-powered rollers and assorted machinery used to process the corn. The two storey boiler room and one storey engine room seem too small to accommodate the vast amount of processing machinery. It therefore seems likely that this may have been contained within a modified portion of the old watermill. These objectives will probably be best achieved via comparison with other late 19th century steam-powered corn mills.

8.2.3 To establish the precise nature of the compound beam engine.

A plethora of compound beam engine designs were in existence by the mid 19th century, including the “Woolf”, “McNaught”, “A-frame” and “Grasshopper” types⁴⁵. It is therefore important to establish whether or not it is possible to identify the particular design in use at Barking from the surviving archaeological evidence.

⁴⁴ Phillpotts, 2006, pp.7

⁴⁵ Cossons, 1993, Watkins, 1967.

8.2.5 To undertake further analysis on the building material recovered from the site in order to elucidate further upon the excavation records.

Further analysis of the building material recovered from the site is required in order to generate as much detail regarding the form and fabric of the mill as possible. For example, further research into manufacturers' stamps on a number of bricks could elucidate further upon their age and provenance.

8.2.7 To undertake further research into the leather shoes recovered from the alluvial layer.

A more detailed analysis of the leather shoes recovered from the site is required in order to establish their age. The shoes and associated alluvial layer are currently thought to be 19th century in date. Analysis by a leather specialist is required in order to confirm this.

8.2.8 To establish whether the dumped posts recovered from the post-medieval made ground were originally structural in nature.

Specialist analysis of the two dumped posts located within the post-medieval made ground is required in order to establish whether they could have formed part of an earlier post-medieval or medieval waterfront structure.

9 CONTENTS OF THE ARCHIVE

9.1 The Paper Record

Context Record Sheets	137
Sample Record Sheets	0
Plans	6 on 13 sheets
Sections	10 on 11 sheets
Photographs	133 Colour Transparencies 133 Black & White Prints

9.2 The Finds

Pottery	1 box
Bricks	58 samples
Leather	1 box
Timbers	2

10 IMPORTANCE OF RESULTS AND PUBLICATION OUTLINE

10.1 IMPORTANCE OF RESULTS

- 10.1.1 The investigation carried out by Pre-Construct Archaeology Ltd. at J.A. Symes Factory Site revealed deposits and structural remains that provided information about the development of the area from the late post-medieval period to the 20th century. The investigation also provided important information concerning the development of the mill complex, which was known to have existed on the site from the 18th century to the early 20th century. The results of the excavation will therefore increase understanding of Barking's industrial past.
- 10.1.2 The investigations established that the site was occupied by the River Roding until a period of land reclamation commenced. The land reclamation is presumed to pre-date the earliest phase of building on site, which is 18th century in date.
- 10.1.3 A red-fabric building then appears to have been constructed on the reclaimed land in the 18th century. The structure probably formed part of the main body of a watermill. Documentary sources suggest that the structure had been constructed by the 1740s, but the form and fabric of the bricks suggest that the portion observed was constructed in the late 18th century.
- 10.1.4 A steam-powered extension was then added to the building between 1858 and the mid 1860's. The extension consisted of an engine house and a boiler room. A small workshop also seems to have been constructed at this time, which was situated to the northeast of the mill.
- 10.1.5 The boiler house was then enlarged between 1870 and 1894. It was extended to the west in order to install a second boiler and increase the efficiency of the mill.
- 10.1.6 The mill functioned as such until the turn of the century, when it was converted into offices. The boiler house may have been converted into a workshop at this time.
- 10.1.7 A series of 19th century to early 20th century timber structures were observed, truncating alluvial layers that had accumulated against the western side of the mill buildings and within the northwest corner of the site. A scuppered boat or barge was also recorded in the southwest corner of the site, sitting on top of the alluvial layer.
- 10.1.8 The mill buildings were then demolished between 1922 and the 1930's. Further land reclamation then occurred in the mid 20th century, to the west of the old foundations.

10.2 PUBLICATION OUTLINE

- 10.2.1 Publication of the results will take the form of an article within the Journal of Post-Medieval Archaeology or the Journal of Industrial Archaeology. It will consist of a description of the archaeology uncovered and a summary of the interpretations drawn.
- 10.2.2 A series of figures depicting the development of the mill complex throughout the 18th and 19th century will be included.
- 10.2.3 Further research into the internal layout of the steam powered mill will be required, via a comparison with other steam powered roller mills of a similar date. The items of machinery listed as having been present within the buildings will also require further research.

11 ACKNOWLEDGEMENTS

- 11.1 Pre-Construct Archaeology Ltd. would like to thank Wimpey Homes for funding the archaeological investigation and Suzanne Gailey and Duncan Hawkins of CgMs Consulting Ltd. for commissioning the work on their behalf. Pre-Construct Archaeology would also like to thank David Divers of English Heritage for monitoring the project.
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A Glossary of Mill Terms

<http://www.angelfire.com/journal/pondlilymill/glossary.html>

The Mills Archive

<http://www.millsarchive.com>

Appendix 1- Context Index

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid Square	Type	Description
1	Tr.1	*	*	*	*	4	Tr.1	*	Masonry	Rebuild associated with water mill
2	Tr.1	*	*	126?	*	4	Tr.1	*	Masonry	Wall associated with water mill
3	Tr.1	*	*	126?	*	4	Tr.1	*	Masonry	Wall associated with water mill
4	Tr.1	*	*	*	*	4	Tr.1	*	Masonry	1864 river wall
5	Tr.1	*	*	*	*	6	Tr.1	*	Layer	Mid 19th century river alluvium
6	Tr.3	*	*	*	*	4	Tr.3	*	Masonry	Rebuild associated with water mill
7	Tr.3	3	*	126?	*	4	Tr.3	*	Masonry	Wall associated with water mill
8	Tr.3	*	*	*	*	6	Tr.3	*	Timber	Mid to late 19th century mooring post
9	Tr.3	*	*	*	*	6	Tr.3	*	Timber	Mid to late 19th century mooring post
10	Tr.3	3	*	*	*	6	Tr.3	*	Layer	Mid 19th century river alluvium
11 to 49	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
50	Tr.2	2	*	94, 123	Y	7	Tr.2	*	Layer	20th century dump
51	Tr.2	*	*	*	Y	4	Tr.2	*	Fill	Secondary fill of [53]
52	Tr.2	*	*	*	Y	4	Tr.2	*	Fill	Primary fill of [53]
53	Tr.2	*	*	106	Y	4	Tr.2	*	Masonry	Industrial hearth or furnace
54	Tr.2	*	*	*	Y	4	Tr.2	*	Cut	Construction cut for [53]
55	Tr.2	*	*	*	Y	7	Tr.2	*	Layer	Modern dump layer
56	Tr.2	*	*	102	Y	4	Tr.2	*	Masonry	Brick edging to floor
57	Tr.2	*	*	60, 104	Y	4	Tr.2	*	Layer	Mortar bedding layer
58	Tr.2	*	*	100	Y	4	Tr.2	*	Layer	Sand bedding layer
59	Tr.2	*	*	102	Y	4	Tr.2	*	Masonry	Tile floor
60	Tr.2	*	*	57, 104	Y	4	Tr.2	*	Layer	Mortar bedding layer
61	Tr.2	*	*	62, 103, 105 109, 111, 113	Y	4	Tr.2	*	Masonry	External yellow brick wall
62	Tr.2	*	*	61, 103, 105 109, 111, 113	Y	4	Tr.2	*	Masonry	External yellow brick wall
63	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
64	Tr.2	2	*	182	Y	7	Tr.2	*	Layer	Modern dump layer
65	Tr.2	*	*	*	Y	4	Tr.2	*	Layer	19th century slag-like dump
66	Tr.2	*	*	*	Y	6	Tr.2	*	Timber	18th / 19th century vertical post
67	Tr.2	*	*	*	Y	6	Tr.2	*	Timber	18th / 19th century horizontal plank

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid Square	Type	Description
68	Tr.2	*	*	*	Y	6	Tr.2	*	Fill	fill of [69]
69	Tr.2	*	*	*	Y	6	Tr.2	*	Cut	Posthole- 18th / 19th century
70	Tr.2	*	*	*	Y	6	Tr.2	*	Fill	Fill of [71]
71	Tr.2	*	*	*	Y	6	Tr.2	*	Cut	Posthole- 18th / 19th century
72	Tr.2	*	*	*	Y	6	Tr.2	*	Fill	Fill of [73]
73	Tr.2	*	*	*	Y	6	Tr.2	*	Cut	Posthole- 18th / 19th century
74	Tr.2	2	*	*	Y	6	Tr.2	*	Layer	Post-med. alluvium
75	Tr.4	4	*	122	Y	7	Tr.4	*	Layer	Demolition debris
76	Tr.4	*	*	*	Y	5	Tr.4	*	Layer	Bedding layer for a floor
77	Tr.4	*	*	*	Y	5	Tr.4	*	Masonry	Wall associated with roller mill
78	Tr.4	*	*	*	Y	5	Tr.4	*	Masonry	Wall associated with roller mill
79	Tr.4	*	*	*	Y	5	Tr.4	*	Masonry	Brick floor associated with rolled mill
80	Tr.4	*	*	*	Y	5	Tr.4	*	Masonry	Internal feature, part of roller mill
81	Tr.4	*	*	*	Y	5	Tr.4	*	Fill	Sandy fill of [80]
82	Tr.4	*	*	*	Y	5	Tr.4	*	Cut	Construction cut for roller mill
83	Tr.4	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
84	Tr.4	4	*	*	Y	2	Tr.4	*	Layer	Post-med dump layer
85	Tr.4	4	*	*	Y	1	Tr.4	*	Layer	Alluvium
86	Tr.4	4	*	*	Y	1	Tr.4	*	Layer	Alluvium
87	Tr.2	*	*	*	Y	6	Tr.2	*	Timber	18th / 19th century mooring
88	Tr.2	*	*	*	Y	6	Tr.2	*	Timber	18th / 19th century mooring
89	Tr.2	2	*	*	Y	6	Tr.2	*	Timber	Withies within post-med wattle fence
90	Tr.2	2	*	*	Y	6	Tr.2	*	Timber	Sail within wattle fence
91	Tr.2	2	*	*	Y	6	Tr.2	*	Timber	Sail within wattle fence
92	Tr.4	4	*	*	Y	2	Tr.4	*	Timber	Timber within post-med dump
93	Tr.4	4	*	*	Y	2	Tr.4	*	Timber	Timber within post-med dump
94	Tr.3	3	*	50, 123	Y	1	Tr.3	*	Layer	20th century dump
95-99	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
100	Area A	*	*	58	Y	4	Area A	*	Layer	Sand bedding layer
101	Area A	*	*	*	Y	4	Area A	*	Layer	Gravel bedding layer
102	Area A	*	*	56, 59	Y	4	Area A	*	Masonry	Brick and tile floor
103	Area A	*	*	61, 62, 105 109, 111, 113	Y	4	Area A	*	Masonry	External wall / foundation
104	Area A	*	*	57, 60	Y	4	Area A	*	Layer	Mortar bedding layer

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid Square	Type	Description
105	Area A	*	*	61, 62, 103, 109, 111, 113	Y	4	Area A	*	Masonry	External wall
106	Area A	*	*	53	Y	4	Area A	*	Masonry	Industrial hearth or furnace
107	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
108	Area A	*	*	*	Y	4	Area A	*	Masonry	External wall extension
109	Area A	*	*	61, 62, 103, 105, 111, 113	Y	4	Area A	*	Masonry	External wall
110	Area A	*	*	*	Y	4	Area A	*	Masonry	Support for hearth / furnace [106]
111	Area A	*	*	61, 62, 103, 105, 109, 113	Y	4	Area A	*	Masonry	External wall
112	Area A	*	*	*	Y	4	Area A	*	Masonry	Drain / manhole
113	Area A	*	*	61, 62, 103, 105, 109, 111	Y	4	Area A	*	Masonry	External wall
114	Area A	*	*	*	Y	4	Area A	*	Masonry	Granite machine base
115	Area A	*	*	*	Y	4	Area A	*	Masonry	Fly wheel pit?
116	Area B	104	*	151	Y	4	Area B	100/225	Masonry	Brick arch associated with furnace
117	Area B	*	*	*	*	5	Area B	100/225	Masonry	Floor of flue
118	Area B	*	*	*	*	5	Area B	95/235, 100/235	Masonry	Floor of flue
119	Area B	*	*	*	Y	5	Area B	100/215	Masonry	Floor of oven / hearth
120	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID	VOID
121	Area B	*	*	*	*	3	Area B	95/200	Masonry	Red fabric wall
122	Area B	*	*	75	*	7	Area B	Entire area	Layer	20th century demolition debris
123	Area B	*	*	50, 94	*	7	Area B	95/200 to 95/225	Layer	20th century dump
124	Area B	102	*	*	*	3	Area B	95/200, 100/200	Masonry	Red fabric wall
125	Area B	102	*	*	Y	3	Area B	100/200, 95/200	Masonry	Red fabric wall
126	Area B	100, 101 103,105, 106	*	2, 3, 7? *	Y	4	Area B	95/200, 95/205, 95/210, 100/200, 100/205, 100/210	Masonry	External and internal walls of water mill
127	Area B	*	*	*	*	4	Area B	90/200, 95/200	Fe alloy	Possible sluice gate, perhaps in secondary context
128	Area B	*	*	*	Y	4	Area B	95/205	Masonry	Internal support for arch
129	Area B	105	*	*	*	7	Area B	95/200, 100/200, 100/205	Masonry	Concrete base for modern drain
130	Area B	*	*	*	Y	4	Area B	95/200	Masonry	Internal support for arch
131	Area B	*	*	*	Y	4	Area B	95/206	Masonry	Internal support for arch
132	Area B	*	*	*	*	4	Area B	95/210	Fe alloy	Metal tank sitting within [126]
133	Area B	*	*	*	*	7	Area B	100/200	Masonry	Modern concrete pile

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid Square	Type	Description
134	Area B	*	*	*	*	5	Area B	95/210	Fe alloy	Metal tie-back for western edge of [126]
135	Area B	*	*	*	*	5	Area B	95/210, 95/215	Masonry	Poured concrete securing [134]
136	Area B	*	*	*	*	5	Area B	95/220, 95/225, 100/225	Masonry	External wall of roller mill
137	Area B	*	*	*	*	5	Area B	95/225	Masonry	External wall of roller mill
138	Area B	*	*	*	*	5	Area B	95/215, 95/220, 95/225	Masonry	External wall of roller mill and probable river wall
139	Area B	*	*	*	*	5	Area B	95/225, 100/225	Masonry	Flue wall
140	Area B	*	*	*	*	5	Area B	95/225, 100/225	Masonry	Flue lining
141	Area B	*	*	*	*	5	Area B	100/225	Masonry	Flue lining
142	Area B	*	*	*	*	5	Area B	95/225	Masonry	Concrete floor
143	Area B	*	*	*	*	5	Area B	95/220, 95/225	Masonry	Concrete infill
144	Area B	*	*	*	*	5	Area B	95/220, 95/225, 100/220, 100/225	Masonry	Flue floor / oven floor
145	Area B	*	*	*	*	4	Area B	100/215, 100/200/100/225	Masonry	External wall of roller mill
146	Area B	105	*	*	*	4	Area B	100/205	Masonry	Possible machine mount base
147	Area B	*	*	*	*	4	Area B	100/205	Masonry	Possible machine mount base
148	Area B	*	*	*	*	4	Area B	95/200, 95/205, 100/200, 100/205	Masonry	Internal wall of roller mill
149	Area B	105	*	150	Y	4	Area B	100/205	Masonry	Base / support for heavy machine?
150	Area B	*	*	149	Y	4	Area B	100/205	Masonry	Base / support for heavy machine?
151	Area B	104	*	116	*	4	Area B	100/225	Masonry	Possible furnace?
152	Area B	*	*	*	*	5	Area B	100/225	Masonry	Flue wall
153	Area B	*	*	*	*	5	Area B	100/225	Masonry	Flue lining
154	Area B	*	*	*	*	4	Area B	100/225, 100/220	Masonry	Internal wall
155	Area B	*	*	*	*	4	Area B	100/225	Masonry	Flue wall
156	Area B	*	*	*	*	4	Area B	100/225, 100/220, 100/215	Masonry	Concrete floor
157	Area B	*	*	*	*	5	Area B	95/200	Masonry	Concrete oven floor
158	Area B	*	*	*	*	5	Area B	100/220, 95/220, 95/215	Masonry	Concrete floor
159	Area B	*	*	*	*	5	Area B	95/220	Masonry	Brick oven floor
160	Area B	*	*	*	*	5	Area B	100/225	Masonry	Blocking of flue
161	Area B	*	*	*	*	5	Area B	100/215	Masonry	Flue lining
162	Area B	*	*	*	Y	6	Area B	95/220	Masonry	Machine base
163	Area B	*	*	*	Y	6	Area B	100/225	Masonry	Machine base
164	Area B	*	*	*	*	5	Area B	100/200	Masonry	Flue floor
165	Area B	*	*	*	*	5	Area B	100/215, 100/220	Masonry	Brick floor
166	Area B	*	*	*	Y	4	Area B	100/220, 100/225	Masonry	Lining of oven / hearth
167	Area B	*	*	*	Y	4	Area B	100/220, 100/225	Masonry	Brick floor of hearth / oven

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid Square	Type	Description
168	Area B	*	*	*	*	5	Area B	95/225	Masonry	Internal wall lining
169	Area B	*	*	*	*	5	Area B	95/220, 95/215	Masonry	Internal wall of roller mill
170	Area B	*	*	*	*	5	Area B	95/220, 100/220, 95/215, 100/215	Masonry	Internal wall of roller mill
171	Area B	*	*	*	*	4	Area B	100/220, 100/215	Masonry	Internal wall of roller mill
172	Area B	*	*	*	*	5	Area B	95/220, 95/215	Masonry	Fire proof lining
173	Area B	*	*	*	Y	5	Area B	95/215	Masonry	Floor lining of hearth / furnace
174	Area B	*	*	*	*	5	Area B	95/215	Masonry	Fire proof lining of hearth / furnace
175	Area B	*	*	*	*	4	Area B	100/215	Masonry	Internal wall rebuild
176	Area B	*	*	*	*	4	Area B	100/215	Masonry	Internal brick wall associated with roller mill
177	Area B	*	*	*	*	5	Area B	100/215	Masonry	Sunken feature associated with roller mill
178	Area B	*	*	*	*	5	Area B	95/215, 100/215	Masonry	Concrete slab
179	Area B	*	*	*	*	5	Area B	95/215	Masonry	Internal wall rebuild associated with roller mill
180	Area B	*	*	*	*	5	Area B	100/225	Masonry	Concrete slab
181	Area B	*	*	*	Y	4	Area B	100/225	Masonry	Semi-circular brick structure
182	Area A	*	*	64, 183	Y	7	Area A	*	Layer	20th century dump layer
183	Area B	*	*	64, 182	Y	2	Area B	100/200, 100/205, 100/210, 100/215, 100/220, 100/225	Layer	Post-med dump layer
184	Trench 5 / 6	*	*	0, 94, 75, 12	*	7	Trench 5	*	Layer	Modern dump layer
185	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Timber	Late 19th / early 20th century barge
186	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Timber	Driven post
187	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Timber	Driven post
188	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Timber	Driven post
189	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Timber	Driven post
190	Trench 5 / 6	*	*	*	*	6	Trench 5	*	Layer	Alluvium
191	Trench 5 / 6	*	*	0, 94, 75, 12	*	7	Trench 6	*	Layer	Modern dump layer
192	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Masonry	Red fabric wall
193	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Masonry	Red fabric wall
194	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Horizontal base plate
195	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Timber pile
196	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Timber pile
197	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Timber pile
198	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Timber pile
199	Trench 5 / 6	*	*	*	*	3	Trench 6	*	Timber	Timber pile
200	Trench 5 / 6	*	*	*	*	1	Trench 6	*	Layer	Alluvium

Context	Plan No.	Section No.	Sample No.	Same As	Photo	Phase	Trench	Grid	Type	Description
201	Trench 7	*	*	0, 94, 75, 12	*	7	Trench 7	*	Layer	Modern dump layer
202	Trench 7	*	*	*	*	6	Trench 7	*	Timber	Horizontal base plate
203	Trench 7	*	*	*	*	6	Trench 7	*	Layer	Alluvium
204	Trench 8	*	*	*	*	7	Trench 8	*	Layer	Made Ground
205	Trench 8	*	*	*	*	3	Trench 8	*	Masonry	red fabric wall
206	Trench 8	*	*	*	*	3	Trench 8	*	Masonry	Red fabric wall
207	Trench 8	*	*	*	*	3	Trench 8	*	Timber	Timber pile
208	Trench 8	*	*	*	*	3	Trench 8	*	Timber	Timber pile
209	Trench 8	*	*	*	*	3	Trench 8	*	Timber	Timber pile
210	Trench 8	*	*	*	*	3	Trench 8	*	Timber	Timber pile
211	Trench 8	*	*	*	*	3	Trench 8	*	Timber	Horizontal base plate
212	Area B	*	*	*	*	4	Area B	95/220, 100/220, 95/215, 100/215	Masonry	Internal wall of roller mill
213	Trench 8	*	*	*	*	1	Trench 8		Layer	Alluvium

APPENDIX 2- SITE MATRIX

Phase 7- 20th Century
debris from the demolition of the mill,
modern made ground and modern intrusions

Phase 6- Late 19th to 20th Century

Phase 5- 1870 to 1884
Ridley & Sons' extension to boiler house / roller mill

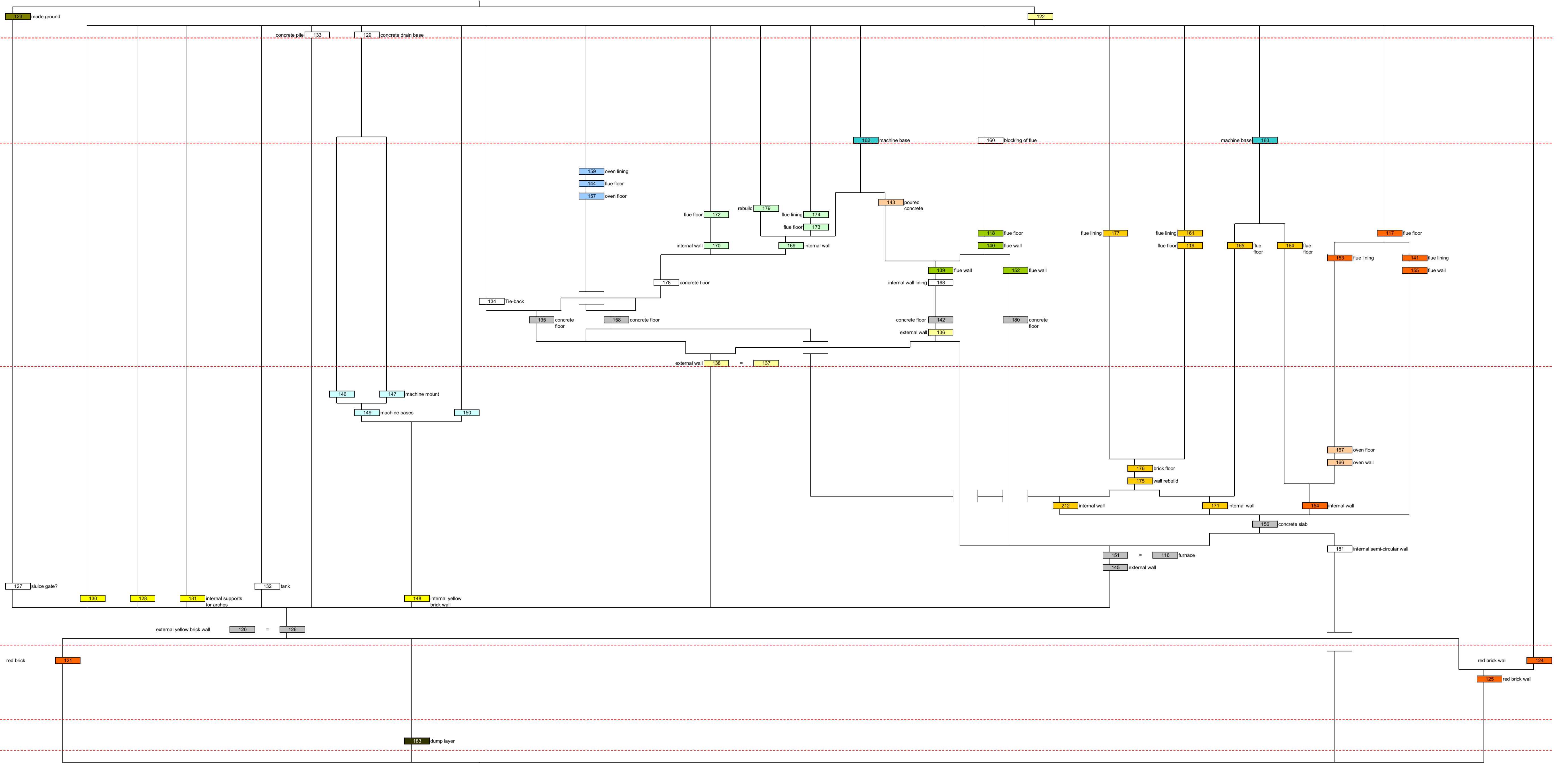
Phase 4- 1858 to mid 1860s
Whitbourne's roller mill extension- the boiler house

Whitbourne's roller mill extension- the engine room

Phase 3- 18th Century
Robert and Charles Smith's watermill

Phase 2- Post-Medieval Dumping
Post-medieval land reclamation

Phase 1- Post-medieval alluvium
Alluvium deposited by River Roding



APPENDIX 3: BUILDING MATERIAL ASSESSMENT

BY JOHN BROWN

QUANTITY AND CONDITION

Total No. Assessed boxes: N/A

Total No. Assessed contexts producing Building material: 58

Total Count: 77 (+ in situ material)

Total Weight kg: N/A

Total No. Complete pieces: N/A

Total No. Masonry Samples: 77

INTRODUCTION

The material assessed consisted of in-situ post-medieval ceramic building materials/stone building materials relating to the development of the site as a flour rolling mill during the late 18th and 19th centuries. The evidence from the building remains suggests that the initial development was to the south of the site with subsequent extensions to the north throughout the 19th century. Evidence of industrial processes was indicated by the use of fireclay bricks in oven and flue structures. These most likely relate to the installation of a steam engine to power the mill. Materials of different periods and forms are discussed below. The phase discussion follows the excavator's phasing where possible.

METHODOLOGY

The building materials were examined using the London system of fabric classification. Examples and descriptions of the fabrics can be found in the archives of PCA and/or the Museum of London.

Current deposition policies of many regional archives prevents the retention of complete CBM assemblages and therefore features are usually sampled onsite to provide diagnostic information. Analysis is therefore skewed towards the qualitative, rather than quantitative, elements of the assemblage. A sampling strategy (Brown 2001) has been developed to account for different classes of material and is available from the PCA archives.

Quantification of items was undertaken and the data recorded and entered onto a computer database (Microsoft Access 2000). After analysis common fabric types were discarded, with a type sample kept for archive. Unusual pieces or uncommon fabrics were also kept for archive.

BUILDING MATERIAL TYPES

Fabrics and forms are tabulated below and shown in order of period, source and occurrence. Medieval and post-medieval forms follow the Museum of London DUA guide to identifying ceramic building material.

Period	Source	Fabric	Form	Description	Number
PMED	Uncertain Source	3047	FT	Floor tile	3
PMED	Uncertain Source	3047	BW	Wirecut/machine made brick	4
PMED	'London stock' Bricks, London, Essex, Kent	3035	BF	Frogged brick	9
PMED	'London stock' Bricks, London, Essex, Kent	3035	BWF	Wirecut, frogged brick	11
PMED	Local post-fire brick	3034	BU	Unfrogged brick	
PMED	Local post-fire brick	3034	BF	Frogged brick	7
PMED	Local post-fire brick	3034	BWF	Wirecut, frogged brick	10
PMED	Local post-fire brick	3032 red	BU	Unfrogged brick	
PMED	Local post-fire brick	3032	BU	Unfrogged brick	
PMED	Local post-fire brick	3032	BF	Frogged brick	2
MOD	Mortar fabrics	3101	CEM	Cement	
MOD	Machine-made brick	3038	BMWF		1
MOD	Machine-made brick	3038	BWF	Wirecut, frogged brick	12
MOD	Firebrick (Coal Measures)	3261	BWF	Wirecut, frogged brick	
MOD	Firebrick (Coal Measures)	3261	BW	Wirecut/machine made brick	18

Uncommon fabrics/forms

Although not necessarily common in a typical archaeological assemblage for the 19th century, Fireclay bricks are common on 19th century industrial sites where fireproofing was required as part of the industrial process. In this instance, Fireclay brick fabrics were used alongside Fletton type brick fabrics in areas subject to intense heat, both fabrics being high in alumina – a mineral with good refractory properties. Another sandy fabric similar to 3047 was present both as square floor tiles with straight edges and bricks (the latter stamped 'FIRE').

Several examples of 19th century bricks bore stamped names of the manufacturers:

Fireclay Bricks –

'[N]EWTON' or '[H]EWTON'	233x105-115x60-65mm	x3
'R.B. Co'	225x110x60mm	x1
'A'	230x110x63mm	x2

Fletton Bricks –

'LBC' & 'PHORPRESS'	225x108x70mm	x3
'STAR'	220x105x65mm	x1
'STAR' & '8'	220x105x65mm	x1
'FAR[?G]O	225x108x70	(in-situ)

Other fabrics –

Fabric 3034 (illegible)	232x115x67mm	x1
Fabric 3035 (illegible)	225-230x105-108x65-66mm	x2 & (in-situ)
Fabric 3035 'H'	230x110x65mm	x1 & (in-situ)
Fabric 3047 'FIRE'	225x108-110x55mm	x4

The bulk of the in-situ masonry remains were constructed of stock bricks in fabrics 3032, 3034 and 3035, and are typical for the period.

DISTRIBUTION

CBM Phase 2

No material was recorded from the excavator's Phase 2.

CBM Phase 3

To the south of the site structure 1 consisted of an EW aligned wall [125], with two NS walls [121] and [124]. They represent the earliest masonry structures on the site. The brick fabrics, their dimensions, and the bonding mortar used (lime/sand mortar) suggest a construction date in the late 18th to mid 19th century. The west face of wall [124] was later rendered with a Portland cement type mortar, and may have functioned as a basement.

Table of Phase 3 Brick Forms and Fabrics

Phase	Structure	Group	Fabric	Type	Suffix	Min Length	Max Length	Min Width	Max Width	Min Depth	Max Depth
3	1		3032	BF							
3	1		3032	BU		223	225	98	105	65	105
3	1		3032 red	BU		223	225	98	105	65	68
3	1		3034	BF							
3	1		3035	BF							
3	1		3101	CEM	portland						

CBM Phase 4

The most significant phase of building was undertaken during this period and is represented by the construction of structures 3 (the ?engine house), 4 (the boiler house) and 5 (the chimney). These masonry features are built primarily of stock bricks, in fabrics 3032, 3034 and 3035, materials typically in use during the mid 19th century. Refractory bricks made from Fireclay (fabric 3261) are first employed during this phase and would have formed lining to areas subject to intense heat. These linings would have been repaired and the bricks replaced on a regular basis.

Roman cement-based mortar was used in specific locations during the construction of structure 2, the probable engine house, and possibly indicates the location of the steam engine in the northern section of structure 2. It may have been intended as water proofing and is also visible of the riverside face of wall [126] to the west.

Table of Phase 4 Brick Forms and Fabrics

Phase	Structure	Group	Fabric	Type	Suffix	Min Length	Max Length	Min Width	Max Width	Min Depth	Max Depth
4			3032	BF	sha	228	230	108	110	65	65
4			3034	BWF	sha	225	230	105	108	66	68
4			3035	BF	sha	240	240	100	100	66	74
4			3035	BWF	sha si	225	225	105	105	65	65
4		53	3261	BW	sha si	225	233	105	115	60	65
4		56	3047	BW	sha si	225	225	108	110	55	55
4		56	3047	FT	sha	305	312	305	310	37	38
4		56	3261	BW	sha	223	223	110	110	67	67
4		61	3034	BF	sha	218	225	104	110	65	65
4		61	3034	BWF	sha	220	225	100	102	60	65
4		61	3034	BWF	sha si	232	232	115	115	67	67
4		61	3035	BWF	sha			105	105	63	63
4	2		3032	BF		220	228	100	105	65	70
4	2		3032	BU		225	225	100	102	63	65
4	2		3034	BF		225	225	102	105	65	65
4	2		3034	BF	sha	235	240	105	110	65	70
4	2		3034	BU		230	230	105	105	70	70
4	2		3034	BWF	sha	225	225	100	102	65	65
4	2		3035	BF		228	235	100	108	70	70
4	2		3035	BWF	sha	235	235	108	108	70	70
4	2		3101	CEM	roman						
4	2	2	3032	BF		225	228	105	105	68	70
4	2	2	3034	BF		230	230	105	105	70	70
4	2	2	3034	BU		230	230	105	105	70	70
4	2	2	3035	BF		223	235	100	110	65	70
4	3		3035	BF	sha						
4	3		3035	BWF	sha si	230	230	110	110	65	65
4	3		3038	BWF	sha	235	235	110	110	65	65
4	4	116	3035	BWF	sha	230	233	105	108	65	66

CBM Phase 5

The expansion of the boiler house (structure 5) was undertaken in this phase and postdates 1864 according to the map and documentary evidence (Phillpotts 2006). The use of Fletton type brick fabrics, which were first produced c 1880, indicates that the surviving flues and firebrick linings in both structures 3 and 5 were constructed after this date.

The use of Fletton type bricks stamped 'LBC' and 'PHORPRESS' in the possible machine base [162]=[163] indicates a construction date after 1900 for this feature. This may relate to

repairs or alterations to machinery late in the life of the mill, or to the buildings conversion to offices prior to demolition on 1922.

Table of Phase 5 Brick Forms and Fabrics

Phase	Structure	Group	Fabric	Type	Suffix	Min Length	Max Length	Min Width	Max Width	Min Depth	Max Depth
5			3035	BWF	sha	225	236	105	110	65	70
5			3038	BMWF	sha bull	225	225	105	105	65	65
5	3		3038	BWF	sha si	223	223	105	105	65	65
5	3		3261	BW	sha	225	225	105	105	65	65
5	5		3035	BF	sha si						
5	5		3035	BF	si	230	230	108	108	66	66
5	5		3038	BWF	sha	223	225	105	108	63	70
5	5		3038	BWF	sha si	220	225	105	108	65	70
5	5		3101	CEM	portland						
5	5		3261	BW	sha	223	225	100	118	66	70
5	5		3261	BW	sha si	230	230	110	110	63	63
5	5		3261	BWF	sha si						
5	3		3038	BWF	sha si	225	225	108	108	70	70
5	5		3038	BWF	sha si	225	225	108	108	70	70

CBM Phase 6

One context [9], recorded as a timber mooring post, had two examples of frogged brick in fabric 3034 associated with it. The bricks are thought to date from the late 18th to 19th century.

CBM Phase 7

No material was recorded from the excavator's Phase 7.

SIGNIFICANCE AND POTENTIAL

The material is slightly limited both in terms of significance and potential due to the degree of demolition encountered and the absence of machinery. However it is possible that the use of refractory bricks as lining can help to identify areas of the industrial process, namely the position and arrangement of the boilers, flues and chimney.

The use of waterproof 'Roman Cement'-based mortar is interesting, as it may represent a relatively late application of this material, which was superseded by the use of Portland cement type mortar from the 1850's. It is clearly applied specifically to areas of the probable engine house (structure 2) and may have been intended to act as damp- or waterproofing to protect the brickwork in these areas. The principal areas being the northern section of

structure 2 and the exterior wall facing the river. It is interesting to note that the Phase 6 boiler house (structure 5) utilises Portland cement- type render on the exterior riverside wall.

Overall the material is considered to be of local significance.

RESEARCH AIMS

This site would benefit from comparison with more complete examples of industrial corn mills, and the publication of the site would benefit the knowledge of 19th century industrial processes in Barking.

RECOMMENDATIONS FOR FURTHER WORK

Further analysis of the samples from the watching brief phase of the site needs to be undertaken to correlate this information with the excavation records. Additionally some anomalies in the recording of masonry samples needs to be addressed.

Further research into the manufacturers' stamps should be undertaken and may reveal the source and time period of manufacture of the *in situ* building remains. This may help to elucidate the development of the site.

Comparison of the *in situ* masonry with other examples of 19th century flour rolling mills should be undertaken to determine if the location of the beam engine described in the documentary research (Phillpotts 2006).

BIBLIOGRAPHY

Phillpotts, C., 2006, 'Barking Mill, Town Quay, Barking: Documentary Research report'
Unpubl. Archive Document for CGMS Consulting, London.

DATE RANGES

The **Fabric ED/LD** compares the earliest start date and the latest end date for CBM fabrics within the context. The **TPQ date** shows the date after which the latest fabrics in the context were produced. The **Form ED/LD** compares the latest start date and earliest end date for CBM forms in a context (note that if residual material appears in a context contradictions will be apparent in start and end dates of this field). The **DEP ED/LD** is the suggested date of deposition for the materials in the context. Also noted is the **Size** (number of sherds) and **Weight** (grams) of each context. Groups are determined as small (1-30 sherds), medium (31-100 sherds), large (over 100 sherds), very large (over 10 boxes).

Table of CBM by context with size/weight and date ranges

Phase	Context	Mas	Size	Weight	Fabric ED	Fabric LD	TPQ Date	Form ED	Form LD	DEP ED	DEP LD	R	I
7	9	Yes	2		1666	1900	1666	1785	1900	1785	1900	No	No
	26	Yes	1		1770	1940	1770	1850	1900	1850	1900	No	No
	36	Yes	2		1770	1940	1770	1785	1900	1785	1900	No	No
	38	Yes	2		1770	1940	1770	1850	1900	1850	1900	No	No
	39	Yes	2		1850	1950	1850	1880	1950	1880	1920	No	No
	45	Yes	2		1770	1940	1770	1850	1900	1850	1900	No	No
	46	Yes	1		1666	1900	1666	1785	1900	1785	1900	No	No
	47	Yes	2		1770	1940	1770	1790	1890	1790	1890	No	No
4	52	Yes	2		1850	1950	1850	1880	1950	1880	1920	No	Yes
4	53	Yes	2		1800	1950	1800	1820	1900	1820	1864	No	No
4	56	Yes	2		1680	1900	1680	1850	1900	1850	1864	No	No
4	59	Yes	4		1680	1950	1800	1850	1900	1850	1864	No	No
4	60	Yes	2		1800	1950	1800	1800	1900	1810	1864	No	No
4	61	Yes	1		1666	1900	1666	1785	1900	1810	1864	No	No
4	62	Yes	2		1666	1940	1770	1850	1900	1850	1864	No	No
4	63	Yes	2		1666	1900	1666	1785	1900	1810	1864	No	No
6	67	Yes	2		1800	1950	1800	1800	1900	1800	1900	No	Yes
6	69	Yes	2		1850	1950	1850	1880	1950	1880	1920	No	No
6	71	Yes	2		1850	1950	1850	1900	1950	1900	1950	No	Yes
6	73	Yes	2		1800	1950	1800	1800	1900	1800	1900	No	Yes
5	77	Yes	1		1770	1940	1770	1850	1900	1880	1900	No	No
5	78	Yes	1		1770	1940	1770	1850	1900	1880	1900	No	No
6	79	Yes	1		1770	1940	1770	1850	1900	1880	1900	No	No
5	80	Yes	1		1850	1950	1850	1880	1950	1880	1920	No	No
4	102	Yes	3		1680	1900	1680	1850	1900	1850	1864	No	No
4	105	Yes	1		1666	1900	1666	1785	1900	1810	1864	No	No
4	106	Yes	2		1800	1950	1800	1820	1900	1820	1864	No	No
4	108	Yes	2		1666	1900	1666	1850	1900	1850	1864	No	No
4	110	Yes	2		1770	1940	1770	1785	1900	1810	1864	No	No

Phase	Context	Mas	Size	Weight	Fabric ED	Fabric LD	TPQ Date	Form ED	Form LD	DEP ED	DEP LD	R	I
4	111	Yes	1		1666	1900	1666	1850	1900	1850	1864	No	No
4	112	Yes	1		1770	1940	1770	1850	1900	1850	1864	No	No
4	113	Yes	2		1666	1900	1666	1785	1900	1810	1864	No	No
4	115	Yes	2		1666	1900	1666	1785	1900	1810	1864	No	No
5	117	Yes	1		1800	1950	1800	1800	1900	1880	1900	No	No
5	118	Yes	3		1800	1950	1800	1800	1900	1880	1900	No	No
5	119	Yes			71	100	71	1880	1900	1880	1900	No	No
3	121	Yes			1666	1940	1770	1785	1850	1785	1850	No	No
3	124	Yes			-1500	1900	1666	1850	1850	1785	1850	No	Yes
3	125	Yes			1666	1900	1666	1785	1850	1785	1850	No	No
4	126	Yes			1666	1940	1770	1790	1890	1810	1864	No	No
4	128	Yes	1		1666	1940	1770	1850	1900	1850	1864	No	No
4	130	Yes	2		1666	1940	1770	1785	1900	1810	1864	No	No
4	131	Yes	1		1666	1940	1770	1785	1900	1810	1864	No	No
5	138	Yes			50	1950	1770	1850	1900	1880	1900	No	No
5	139	Yes			1850	1950	1850	1880	1900	1880	1900	No	No
5	140	Yes			1800	1950	1800	1880	1900	1880	1900	No	No
4	146	Yes			-1500	1666	-1500	1790	1890	1810	1864	No	No
4	148	Yes	2		1666	1900	1666	1785	1900	1810	1864	No	No
4	151	Yes	2		1770	1940	1770	1850	1900	1850	1864	No	No
5	155	Yes	2		1850	1950	1850	1900	1950	1880	1950	No	Yes
5	161	Yes			1800	1950	1800	1850	1900	1880	1900	No	No
5	162	Yes			1850	1950	1850	1900	1950	1900	1920	No	No
5	163	Yes			1850	1950	1850	1900	1950	1900	1920	No	No
5	169	Yes			1850	1950	1850	1880	1900	1880	1900	No	No
4	170	Yes	2		1770	1950	1850	1880	1900	1880	1900	No	Yes
4	171	Yes			1770	1940	1770	1850	1900	1850	1864	No	No
5	172	Yes			1770	1950	1850	1880	1900	1880	1900	No	No
5	174	Yes	2		1800	1950	1800	1820	1900	1880	1900	No	No

[MAS] masonry feature material

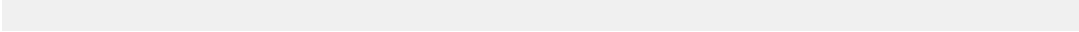
[I] Contains intrusive material

[R] Contains Residual material

APPENDIX 4: LEATHER ASSESSMENT

By Märit Gaimster

Several incomplete leather shoes, including the sole of a child's shoe, were retrieved from context [74]. The shoes are likely to be of late post-medieval date as display evidence of heels and machine stitching. It is recommended that this material be seen by a leather specialist for further identification and dating, and that the leather is included in any forthcoming publication of the site.



APPENDIX 5- OASIS DATA COLLECTION FORM

OASIS ID: preconst1-18904

Project details

Project name J.A. Symes Factory Site, Barking

Short description of the project An archaeological watching brief and subsequent excavation was carried out at the former J.A. Symes Factory Site, Barking. The investigations revealed a wattle fence and a number of post-medieval moorings. These features were sealed by a layer of mid to late post-medieval made ground, deposited in order to reclaim land from the River Roding. A water-powered flour mill was then constructed in the early 18th century. The building was modified throughout the 19th century, when a steam powered extension was constructed and subsequently enlarged. A small, separate workshop was also constructed in the mid 19th century, which was situated to the northeast of the mill. A number of 19th to early 20th century mooring posts and a boat or barge were discovered to the immediate west of the steam powered extension. They were sealed by a deposit of mid 20th century made ground, deposited in order to reclaim the remaining portion of the site from the river.

Project dates Start: 30-03-2006 End: 25-07-2006

Previous/future work No / No

Any associated project reference codes JFS 06 - Sitecode

Type of project Recording project

Site status Local Authority Designated Archaeological Area

Current Land use Other 13 - Waste ground

Significant Finds BRICK Post Medieval

Significant Finds BRICK Post Medieval

Significant Finds STRUCTURAL TIMBER Post Medieval

Significant Finds POST Post Medieval

Significant Finds BOAT Post Medieval

Significant Finds	POT Post Medieval
Significant Finds	SHOE Post Medieval
Investigation type	'Part Excavation', 'Part Survey'
Prompt	Direction from Local Planning Authority - PPG16

Project location

Country	England
Site location	GREATER LONDON BARKING AND DAGENHAM BARKING J.A. Symes Factory Site
Postcode	IG11 7XX
Study area	1823.00 Square metres
Site coordinates	TQ 4390 8376 51.5338789144 0.07494811065470 51 32 01 N 000 04 29 E Point

Project creators

Name of Organisation	Pre-Construct Archaeology Ltd
Project brief originator	CgMs Consultants Ltd
Project design originator	Duncan Hawkins
Project director/manager	Chris Mayo
Project supervisor	Rebecca Lythe
Type of sponsor/funding body	Wimpey Homes

**Project
bibliography 1**

Publication type	Grey literature (unpublished document/manuscript)
Title	An Archaeological Excavation and Watching Brief on Land at J.A. Symes Factory Site, Highbridge Road, Town Quay, Barking, Essex.
Author(s)/Editor(s)	Lythe, R.
Date	2006
Issuer or publisher	Pre-Construct Archaeology
Place of issue or publication	Unit 40, Brockley Cross Business Centre, 96 Endwell Road, Brockley, London, SE4 2PD.
Description	A4 ring-bound report with a blue cover
<hr/>	
Entered by	jon butler (jbutler@pre-construct.com)
Entered on	11 October 2006