

De Montalt Mill Combe Down Bath



Archaeological Evaluation Report



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DE MONTALT MILL, COMBE DOWN, BATH.
ARCHAEOLOGICAL EVALUATION REPORT
ST 7622 6200

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SUMMARY

De Montalt Mill is a complex of buildings, some roofed, some demolished, some in intermediate states of repair, located on the southern edge of Combe Down village c.3 kilometres to the south of Bath city (NGR: ST 7622 6200, centred). The mill was built in 1804-5 as a water-powered paper mill and steam power was added in 1808. The mill ceased paper production in 1841.

In October 2005, Oxford Archaeology (OA) carried out an archaeological evaluation, for Classico-Rural Ltd. A staged programme of building recording for the standing buildings that are grade II listed was carried out in parallel and will be reported on separately. Nevertheless, it will be necessary and appropriate to refer to the standing buildings as part of the evaluation. The evaluation was carried out in response to a brief prepared by Bath and North East Somerset Council East Somerset Council issued in relation to the application for planning permission and listed building consent for conversion. The building record and the evaluation are being carried out to complete work, the first stage of which was executed by Bath Archaeological Trust (Davenport 2001). The study area for the evaluation included trenching along the western side of Buildings 2 and 4 (see main text) and archaeological clearance of the soil and debris south of Building 2 on the site of Buildings 3 and 5. The initial demolition and dump layers were excavated, revealing flag floors, foundation pads, drains, possible machine mounts, flues and wall foundations. There were, at a minimum, 4 phases of activity evidenced and the features uncovered lend themselves to further speculations on the boiler type, the steam engine positioning and function. In addition, shaped stone blocks with iron fittings were retrieved from the debris and recorded. These were machine mounting blocks. Ex situ architectural stonework was also recorded.

Attached to the west elevation of building 2 were the buried walls and floors of a structure secondary to it which appeared to be the base of a steam cabinet for bending wood, dating from when the mill was a cabinet works in the late 19th century (Structure 1). West again, were two revetment walls, creating stepped platforms adjacent to the flue entrance. Beneath these platforms an earlier structure running on a north-west/south-east alignment was apparent. This appears to be the flue leading from the steam boiler of 1808 to the detached chimney upslope. It must have gone out of use by the mid 19th century as it appears to be either cut away by, or be contemporary with, a cellared building found in Trench 1, which on map evidence, predates 1852 and has vanished by 1886. As its alignment makes it clear that it must have run behind the retaining wall north of the pigsties (Davenport 2001) and its route thereafter is fairly constrained, no further excavation of the flue was undertaken.

All the remains uncovered, except for small portions of the revetment walls of Structure 1, will be preserved in situ in the new development.

The Apprentice building or buildings 1a-1d are being developed separately by a second client and were subject to a parallel assessment under the same brief (BAMAS05). This will be reported on separately.

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 In October 2005, Oxford Archaeology (OA) carried out a building record and archaeological evaluation on De Montalt Mill, Combe Down, Bath (NGR: ST 7622 6200, centred), for Classico Rural Ltd. The site is situated on a south-east facing aspect *c.*200m down slope from De Montalt House, on the south-eastern edge of Combe Down village, *c.*3k south of Bath (Fig. 1).
- 1.1.2 In view of the historical import and architectural merit of the study site, discussed in the Bath Archaeological Trust Impact Assessment (Davenport 2001), J. Wilkinson of Bath and North East Somerset Council stated a requirement for further work to inform planning permission. Such further work was made a condition of planning consent and a brief was issued by Bob Sydes, then B&NES Archaeological Officer, for works to discharge the condition.
- 1.1.3 A specification to meet the brief was prepared by OA and approved by Charlotte Matthews, acting Archaeological Officer for B&NES from March to November 2005.

1.2 Local topography

- 1.2.1 De Montalt mill is situated on a south-east facing aspect below Vinegar Down Quarry. Springs flowing from the quarry vicinity provided a convenient water supply and determined the choice of its location.

1.3 Historical background

- 1.3.1 A full desk-based archaeological assessment of the development site and its environs was undertaken by Peter Davenport (2001), then of Bath Archaeological Trust (BAT). The scope of that assessment included maps from the Bath Central Library collection, maps from Bath and North East Somerset Archive, papers from the Somerset Record office, secondary articles on paper making (in particular the *Journal of the British Association of Paper Historians*), internet sources on paper making, speaking to previous owner and advice from a number of local historians. The results of that assessment are not repeated here, but they are summarised and where relevant referred to.
- 1.3.2 De Montalt Mill was purpose built as a paper mill in 1804-5, by a partnership of three local men, George Steart, John Balley and William Ellen. It got its name from Baron de Montalt, the landowner. It was powered by water and boasted England's largest wheel in its day, some 56ft in diameter. Some of Britain's finest quality paper and paperboards were produced here. Steart, the technician behind the enterprise, was awarded the RSA's Silver Medal in 1821 for specialised art boards and numbered among his clients such notables as Constable, Turner, Bonington, Cox and Cotman.
- 1.3.3 The original mill building (Building 2) was an unusual building architecturally, clearly designed with more than utility in mind (Plates 1 and 2). Of special note is the colonnaded front, built, no doubt, to impress De Montalt's design conscious customers. The building

appears to have undergone little significant change, except the insertion of large openings in the south façade, presumably related to construction of Buildings 3 and 5 (Fig. 2 and Plate 2).

- 1.3.4 Buildings 1a-b were thought in the original report to predate the mill buildings and probably to have originated as farm buildings. This is now thought unlikely, and these earlier buildings were simply stables and a cart shed for the works. Building 1c (the apprentice shop) was added between 1852 and 1886, probably after 1875. Test trenches and investigations were undertaken to the north, east and west of those buildings in a parallel study to this as part of the same brief and specification, but for a different client and are reported elsewhere (OA 2006).
- 1.3.5 In 1808 a requirement for more power led to the supplementing of the wheel with a steam engine. This was provided by Boulton and Watt of Birmingham. In the assessment report, it was suggested that a drawing of 1808 (Fig. 11) showed that this might have been housed in Building 3 but evidence from the more recent phases of work suggests otherwise.
- 1.3.6 Davenport (2001) suggests Building 4 was either contemporary with the main mill building (Building 2) or was added in 1808 along with the “new mill”, building 3. Recent work makes it clear that Building 3 and 4 are the same build, but fulfilled very different functions.
- 1.3.7 Based upon the observation that there is no building on the site of Building 5 in the Tackler view of c.1850 (dated through costumes and knowledge of Tackler’s career – Fig. 9) and that a building is clearly shown on a map of 1852, it was assumed (Davenport 2001) that this building was constructed in that short period. Its absence in an OS map of 1932 suggests its destruction prior to that date. The physical evidence revealed during this fieldwork and a re-assessment of the Tackler drawing suggests a more complex history and that at least the eastern end of Building 5 (5a) predated the 1850s and probably housed the steam engine and boiler.

1.4 Acknowledgements

- 1.4.1 OA extends its thanks to the following for their comments during the fieldwork: Matt Taylor of Taylor Builders & Co; Lynn Willis, David Pollard and Owen Ward and his fellow members of the Bristol Industrial Archaeology Society.

2 EVALUATION AIMS

- 2.1.1 These were outlined in a WSI prepared by OA and approved by the Archaeological Officer of B&NES (Davenport 2005) and were to record the remains of buildings 3 and 5 and any other elements of the mill uncovered during site clearance and redevelopment; to excavate alongside the west side of Buildings 2 and 4 to evaluate the below ground archaeology in this area..
- 2.1.2 To produce a report presenting the evidence collected continuing the research started in 2001 by Bath Archaeological Trust and collated in Davenport 2001
- 2.1.3 To provide information to assess the possibilities for *in situ* preservation during the present development programme.

3 EVALUATION METHODOLOGY

3.1 Scope of fieldwork

- 3.1.1 The assessment strategy was devised by Peter Davenport, formerly of Bath Archaeological Trust, now of Oxford Archaeology (Davenport 2002), in response to a request by J. Wilkinson of Bath and North East Somerset Council. An updated WSI taking cognisance of the brief provided by B&NES Archaeological Officer (AO) in early 2005 was prepared by OA and approved by the AO as the basis for the current programme (Davenport 2005).
- 3.1.2 This scope of this phase of fieldwork included clearing, cleaning, recording and photographing the remains of buildings 3, 5 and an area to the west of Building 2, designated "Structure 1", and the excavation of two evaluation trenches alongside Buildings 2, 4 and 5. The basic idea was that extensive clearance of the overburden over Buildings 3 and 5 would be more informative about the plan details and extent of the demolished buildings, given its known likely depth, than trenching, and less destructive. In addition, such clearance was part of the programme of site preparation proposed by the developers.
- 3.1.3 The trench proposed along the west side of Buildings 2 and 4 was intended to find the route of the flue presumed to connect the steam engine of 1808 with the detached chimney up hill a hundred metres away to the west.

3.2 Fieldwork methods and recording

- 3.2.1 The area to the west of structure 1 and the floor surfaces of buildings 3 and 5 were littered with fallen blocks of masonry, some of quite remarkable size, and had developed a covering of up to a foot thick of soil. The stones were inspected, drawn and photographed and put to one side before the soil was machine stripped using a tracked 1.5 ton 360 degree excavator with a toothless bucket. The areas were then cleaned by hand. Areas were planned at either 1:20 or 1:50 dependent on their significance and complexity. All features were photographed using colour slide and black and white print film. Recording followed procedures laid down in the *OA Fieldwork Manual* (ed. D Wilkinson, 1992).

3.3 Presentation of results

- 3.3.1 The uncovered features are presented area by area and then discussed, and interpretation follows. A short conclusion is then presented. The building complex is orientated towards the north-west. In the descriptions this true orientation is simplified to "site north". In the plans this means the top of the page is north for descriptive purposes.

4 RESULTS: DESCRIPTIONS BY AREA

4.1 Building 5

- 4.1.1 Building 5 comprises the area between buildings 2, 3 and 4 (Fig. 2). The entire area was covered in a layer of collapsed rubble and modern farm debris (context 1). After removal it became apparent that this area fell into three areas that have been used as the basis of description and discussion. For the purposes of this report these have been designated 5a

(east), 5b (west) and 5c (central). These areas do seem to represent different buildings or phases (Fig. 3).

- 4.1.2 Building 5a constitutes everything to the east of the vat house and comprises contexts 1 to 15 (Figs 3 and 4). The vat house is so called in a drawing by Steart of 1808 (Fig. 10) and is now the projecting block of solid masonry on the middle of the south side of Building 2. It is bounded on the north by building 2, on the south by a wall footing (10) that would have separated it from building 3 and the east by the site of the wheel pit. A number of phases and features of note were evident within this area.
- 4.1.3 **Phase 1:** Phase 1 comprises the wheel pit and associated structures in this area and everything prior to the 1808 addition of the steam engine and boiler (Fig. 3). To the east of 5a, raised masonry (3) built from large blocks of Bath stone, delineates the western edge of the wheel pit (Fig. 4). This was a huge structure and the excavated area includes the part of the structure that supported the wheel bearings and, therefore, forms an element of the earliest building phase. A post slot (11), cut into the surface of this structure originates in a later phase and is discussed below in Phase 3. Two square mortise holes facing the wheel-pit were cut into the south eastern corner of this structure (3) and a second pair of similar mortise holes are visible cut into two blocks (4) situated against the inner edge of the wheel pit. Further structure (2) potentially associated with the wheel pit is preserved in the roots of a tree to its south east. It is of similar construction (notably, large cut blocks of Bath Stone) and survives to a height of 1.2m. It is now situated on the site of the wheel pit but has certainly been dislodged from its original location. The large maple tree here has pushed the blocks *en masse* over a metre east of their original position on the western edge of the wheel pit and over half a metre upwards. The south-eastern corner of Building 2 extends southwards a little way into area 5a forming a small outshut. Much of this is demolished but its footings were recognised as context 13 and the scar is very evident on the standing building. This enclosed the large diameter gear wheel/flywheel which transferred the power from the great waterwheel to the lay shaft on the upper ground floor (Fig 10 and Davenport 2002, Fig. 32). To the east of this another wall (9) also projects south from the main mill building. It appears on the 1808 drawing of this area by Steart (Fig. 10) suggesting a location for the steam boiler. It must therefore predate the steam engine. It is described by Steart as “temporary”, but its function remains unknown. It was presumably demolished before the steam engine was installed. No floor surface could be definitively linked with this phase of building and it seems likely that no building stood at this location until 1808.
- 4.1.4 **Phase 2:** Phase 2 comprises the elements added and augmentations made to facilitate the addition of the Steam engine in 1808. Towards the centre of 5a a red brick curvilinear structure (6), a rectangular depression (14), a flue-like vertical hole in the floor masonry leading to an underground chamber (16), and two floor surfaces (15 and 20) were noted (Fig. 4). This arrangement is thought to reflect the addition of the Boulton and Watt steam engine in 1808, as indicated in a drawing from Boulton and Watt showing the proposed installation, dated May 1808 (Fig. 11). However, the proposal drawings do not match what was found. The question is discussed below. Context 6 comprised two curvilinear arrangements of red brick and contained some highly oxidised clay. It is probably constitutes the remains of a flue coming from the boiler. To its south, a rectangular depression (14) sunk into the floor surface with a second smaller rectangular depression in its centre, is probably where the machine mount for the steam

engine was situated. This is the same shape and size as the structure around the engine on the May 1808 B & W drawing. Context 16, a slot entering an underground chamber immediately west of those features, fits with this hypothesis when one views the underground chambers shown on 1808 Bolton and Watt plan (Fig. 11). Both floor surfaces (15 & 20) are constructed from a mixture of mortar and stone and although they exhibit no clear stratigraphic relationship, the respective associations with surrounding features suggest they are contemporary with the surrounding masonry. A substantial piece of masonry structure (5) abutting the west side of the wheel pier base (3) appears to be structurally a part of floor surface 20. While its relationship is unclear it may represent a mount for further machinery.

- 4.1.5 While the shaped masonry blocks were all found *ex situ* (Figs. 13, 14 and 15), it is very likely that some of them are part of the structure that supported the boiler and engine. They were found not at all far from the site of the engine. Certainly the use of washers and wedges to secure the iron work, in association with large bolts, has the look of early 19th century engineering. Their massive size would certainly be appropriate for the purpose. Further specialist study may prove more enlightening about their purpose.
- 4.1.6 It seems clear from the evaluation in this area that the boiler and engine were set up here broadly as suggested by Steart in 1808 (*pace* Davenport 2001, 30). The Tackler print shows a building here which in hindsight is clearly to house the steam machinery (Fig. 9). It has a monoslope roof and the scar of this is still clearly visible on the elevation of Building 2 immediately above 5a (Davenport 2002, Fig. 31). This, incidentally, proves that the long narrow window above this area predates the steam engine and therefore is original to the mill.
- 4.1.7 **Phase 3** comprises any structural elements that appear to post date use of the Boulton and Watt steam engine and boiler. Three square, similar-sized indentations (7, 8, & 11), forming a right angle were visible in area 5. One of the pads (11) appears to be cut through the footing of a pier suggesting that they post-date the removal of the waterwheel, sometime after 1869.
- 4.1.8 Building 5c constitutes the area immediately north of building 4 and comprises an area of flags (21) clearly defined by a wall footing to the east (22) and west (23) (Fig. 5). The stone floor comprised well-laid flags of Bath stone sitting on a rubble and mortar make up. Both walls (22 & 23) abut the main mill, Building 2, to the north and Building 4 to the south, creating a building the same width as Building 4. No scars were visible in Building 2 or 4 where the upper parts of wall 22 would have abutted, suggesting a simple mortared junction with no attempt at dogging in. There are, in contrast, clear signs of this at the western end where wall 23 abutted.
- 4.1.9 An entrance (24) through the western wall (23) was defined by two orthostats and reflected in the size of pennant gutter stones (29) running alongside the exterior of the building (Fig. 5). A flag stone (37) projecting out of the rubble fill to the east may be a threshold block indicating the position of the entrance through the eastern wall (22).
- 4.1.10 A number of vertical slots or sockets were visible cut into the floor. A north-south alignment of three rectangular sockets followed the line between two similarly sized opposed beam pockets in the wall faces of Buildings 2 and 4 (Fig. 5). They are unlikely to have supported an

internal division contemporary with context 22, as they were situated on an alignment only 0.8m from the masonry eastern wall that was probably load-bearing. They may represent a substantial set of shelves or alternatively a replacement internal division after demolition of the masonry wall. The latter is not proved but pockets for ceiling joists in the face of Building 2 and 4 show that Building 5 at one point was one continuous structure along the whole length of Building 2. This extension must have been later than Building 5a and must have incorporated it. Three regular pentagonal slots formed an east-west alignment across the southern part of Building 5c. Their strange shape suggests they may have supported metal rather than wooden posts. Two areas of disturbance (26 & 28) where slabs had been removed from the flag floor probably destroyed further evidence of this pattern.

- 4.1.11 Building 5b comprises the remaining area between 5a and 5c (Fig. 4). The east of this area is covered with well-laid Bath stone (17) flags similar to area 5c, and the west in a layer of small mortared rubble (27). It was not possible, without removing archaeological layers which were likely to otherwise remain *in situ* under the development, to clarify the extent of this paving. Investigation of the edge of the paving gave the impression it ran under the mortared rubble (27), which is, however, similar to the material underlying the flag floor in area 5b. It may therefore be, alternatively, where flagstones stepped up to a slightly higher level have been robbed out. One noticeably larger block in the flagstone floor, immediately west of the supposed site of the steam engine (17), may have served as a machine mount. Against this is the lack of mounting slots or iron work. Two drains or slots (18 & 19), leading underground, were noted up against the southern edge of the Vat house (Fig.4). While their function is unsure, they may connect with culverts exiting under Building 3.

4.2 Building 3

- 4.2.1 Building 3 comprises everything south of wall footing 10, west of the wheel pit and east of building 4 (Fig. 3). An area 18.5 sq. m. representing approximately 17% of the area of Building 3 immediately adjacent to building 4 could not be cleaned for health and safety reasons (unsafe structure). A 0.30 to 0.40 m deep layer of mixed rubble and modern debris (1) was removed from all other areas. It revealed mid-yellowish brown stone dust and mortared rubble (27) that would have underlain the robbed floor surface. Personal information from the previous owner, Mrs Mann, indicates that much paving was taken from this area for recycling during the use of the buildings as a farm by her father. While the floor was robbed or destroyed a number of interesting features did manage to survive: the line of three drains (54, 55 & 56), a drain entrance (53), a possible machine mount (52), two rubble pits (51 & 55), a wall remnant (57) and the base pads for internal piers (59, 60 & 61) were also recorded.
- 4.2.2 The line of the three drains (54, 55 & 56) was just visible through the crushed rubble mix (27). Two of them ran on an east-west alignment and the third on a north-south orientation. Further excavation would expose their extents and may reveal further drains. A square stone drain mouth surround (53) similar to that in area 5b (19) confirms the former floor surface level and although not on the orientation of the drains noted, is probably connected to the same network. The larger of the two rubble-filled pits (51) was situated near the centre of building 3 (Figs. 3 and 4). It measured 3m by 2.5m in plan and is the fill of a test trench previously excavated by Bristol Industrial Archaeology Society. During that excavation a

vertical shaft leading to a horizontal flue or drain was recorded at this location (Owen Ward pers comm.). Its position and size has been marked on the plan from information provided by Mr Ward. Immediately to the west of the rubble pit a potential machine mount (52) survived *in-situ*. It consisted of three rectangular cut stone blocks and a hollow metal tube. The second rubble filled pit was rectangular in shape situated along the southern wall of building 3, towards the south east corner. Its origin is unclear.

- 4.2.3 The potential foundation pads each measured c.0.46 by 0.48m in plan and each comprised a single block of Bath stone. The eastern one was on the line of the east wall of Building 3 and indicates that the east end was perhaps largely open, closed only by louvres (Fig. 3). This would fit the impression given, but not proved, by the view of c.1810 (Davenport 2002, Figs 8 & 9 and present front cover) where the pier would actually have supported a chimney for a fireplace on the first floor.
- 4.2.4 The buildings are all located on a south-facing slope and while the southern wall of building 3 only survives to just above floor height on the interior, it survives to a height of c. 1.8m on the exterior, retaining a terrace on which the floor sits. A number of stone chutes, probably associated with the drains on the interior of the building, are visible exiting on its exterior face.

4.3 West of Buildings 2 and 4: 1. The western cellar and other subterranean structures

- 4.3.1 The WSI for this area envisaged a continuous trench dug alongside Buildings 2 and 4 running from the near the site entrance to the gateway between Buildings 1 and 4. By agreement this was varied during the works to two overlapping but discontinuous trenches (Trenches 1a and b) running from the junction of Building 2 and 5 to very near the south end of Building 4. North of this an area was cleared archaeologically, rather than a trench dug, to reveal the extent of an unsuspected structure (Structure 1) built against the south end of the west elevation of Building 2 and originally found during clearance for supporting scaffolding bases. As the flue for the detached chimney was found under this structure, and the search for this was the reason for the northern part of the trench, the excavation was not extended beyond the northern limits of Structure 1. However, observation of engineers test pits near the north-west corner of Building 1 added more information about this area.
- 4.3.2 The results from the trenches will be dealt with first. Both trenches came down into a stonewalled cellar with a flat stone or concrete floor (122). It was not apparent which it was as the lower part of the trench was covered in about 0.15 m of ground water, preventing the clearance of silts to allow its closer examination. The machine bucket proved that the floor was very solid (figs. 5, 6 & 7).
- 4.3.3 The floor was reached by a stone stair (123) that entered from the south after turning at right angles from the east. This east-west part of the stair was built against a stone wall built of squared rubble set in grey mortar which formed the southern limit of the cellar (124). This wall was in line with the north wall of Building 4. The north-south run of stair was probably built up against the west wall of the cellar, which could be estimated from the 1852 map (Davenport 2002, Fig. 3). The east side of this flight was enclosed by an ashlar wall that also rose to line the higher flight, so that the stair was in a proper, enclosed stair well (125). The

floor of the cellar was only 1.9 m or so below the floor level of Building 5c, which is the level from which the stairs seem to descend (phasing is discussed below, however). This must imply a ceiling height higher than the floor of Building 5c. This is discussed further below.

- 4.3.4 The cellars had been deliberately backfilled with Bath stone rubble (Figs. 6 & 7). This had been laid in two stages, the upper being finer and smaller material (126/127 and 128 at the base) and between the two was a thin layer of mortar (129). The topmost layer was a mixed stony loam (132). However, this backfill was not introduced until after a layer about 0.30 m thick of stony, grey-brown, loamy silt had been allowed to accumulate (130). This implies the cellar was left open without a floor above it for some period.
- 4.3.5 Before this occurred, a brick walled, stone capped culvert, running roughly east-west, was laid on the cellar floor, using the floor as the base of the culvert (131). The fall was therefore impossible to measure, but as the drain was tending slightly down the contours as it passed westwards, it is assumed the overall fall was in that direction. The culvert was built free standing on the floor of the cellar and may have been inserted when Building 5a was erected, otherwise it would have to have been tunnelled.
- 4.3.6 It was assumed that the stone steps occupied the south west corner of the cellar and this assumption is supported by the identification of the building to which this cellar belonged on the 1852 Cotterell map (Davenport 2002, Fig. 3). However, the massive rubble forming the fills right up to the western section line, which falls almost on the estimated internal face of the supposed western wall, imply this wall must have been demolished, otherwise the rubble would have fallen away from the section, being only about one stone thick. The south wall, though better preserved, was itself demolished to below ground level (Fig. 6, 148).
- 4.3.7 There were more structures to the south and west of the cellar, however. A pennant-stone-framed manhole survived at ground level immediately west of the centre of Trench 1b (133) and this gave limited visual access to an ashlar-built, cellar-like room, with a segmental, ashlar-vaulted roof (134). This was also inspected via two holes where stones were missing (Plate 11). This enabled its internal width to be measured, at 1.28 m, and one end to be identified, 6.3 m from the south external face of the western cellar wall (Fig. 5). The northern limit could not be ascertained.
- 4.3.8 The chamber was choked with rubble and soil almost to the springing of the vault so its depth could not be measured (Plate 11). A similar chamber on approximately the same alignment is known, exposed in the slope further south, under the flat terrace just beyond Building 4 (Fig. 3). This was not further recorded.
- 4.3.9 The size of the chamber makes it unlikely to be a cellar and its clean, neat, ashlar finish, and the manhole access, suggests it might have been a water cistern. Such structures are known in Bath and recently discovered at Brassknocker Hill (private communication).
- 4.3.10 The stratigraphic relationship to the western cellar makes it clear that the cistern is later. While all the various uses to which the mill has been put, or thought to have been put, during the 19th century would have had need of lots of water, the most likely period for this is contemporary with Structure 1 (see below), as both post-date the cellar backfilling.

4.3.11 Excavation of the rest of Trench 1b continued alongside this structure, revealing its external structure of large, rough blocks and its minimum depth of 1.3 m. A better-finished and wider section at the south end indicated that the wall may have had external finishing blocks removed. The cistern wall was shown here to cut through a series of soily dumps that predated the demolition of the western cellar (137-143), and the first phase stone chipping dump (136), see Fig. 6.

4.3.12 At the southern end of the trench a rather odd, loose, but relatively orderly, piling up of squared and not so squared stones seemed to represent the dry stone footings of a small building shown in this area in the late 19th century mapping (Fig. 6, 144 & 145)

4.4 West of Buildings 2 and 4: 2. Structure 1.

4.4.1 The backfill of the cellars predates the construction of Structure 1, floor slabs of which overlay it (104). Structure 1 also post-dated the blocking of a door which had given access from the west to the lower ground floor of Building 2 in its first phase. Structure 1 seems to fall into two parts: a predominantly stone-built, lean to shed with floor levels stepped up the hill separated by low revetment walls (Figs. 5 and 8, 101 & 107); and a brick-built structure obviously designed to cope with high temperatures (Figs. 5 and 8, 117-121). Slots and pockets on the wall of Building 2 showed where a lightweight roof had once existed. The western wall of the stone section was not found in the excavated area but could not be far away. Alternatively, the buildings may have been open on this side. The two elements were nonetheless built as one, with the brick/stone junction indicating the structural unity of the building, and made up an area of *c.*45m². At the southern end of the structure, at the level of the floor of Building 5c, was a floor of Bath stone slabs not unlike those of 5c (Figs. 5 and 8, 104). It provided a working space in front of the brick element of Structure 1 and extended along the front (south) of the lowest revetment wall (Figs. 5 and 8, 101).

4.4.2 The brick structure consisted of two parallel walls joined by a cross wall at the north which had rounded internal corners (117, Figs. 5 & 8). At the south end it appeared to have a straight brick wall but only the bottom course survived and a pit had been dug just inside it removing some structure (Fig. 5). The side walls splayed outwards slightly at this end.

4.4.3 A channel was defined along the centre of the structure by brick platforms along each side (121) supporting two rows of specially manufactured firebricks with a quadrant section (119). Disconnected sections of steam pipes (with bolted, flanged, pressure joints) were seen in the channel but were only fragmentary. The quadrant was set with the curved face away from the central channel towards two higher, parallel channels between the quadrant bricks and the side walls. These side channels used the brick side-walls of the structure as the outsides and the base was also brick lined (118, Figs. 5 & 8).

4.4.4 The side channels (118-119) rose at the north end of the chamber and came to an end. The central channel, being much deeper (it was not bottomed here) continued under the end wall forming a horizontal flue capped with a large single firebrick lintel (120, another was just visible behind, under the end wall 117). The flue was seen again, built of large, but thin, ashlar blocks, 8.5 m to the north in an engineering test pit (Fig. 3). By peering along it, and

pushing a rigid tape measure along it, it could be seen to continue another 4.75 m before seeming to turn east, but this could not be confirmed.

- 4.4.5 The flue seemed to have a branch through the west wall of Building 2 where a massively built masonry structure in the adjacent lower ground floor room supported a flue which in turn cranked awkwardly through an internal wall to join a vertical section of flue which linked to the original chimneys in Building 2 (Fig. 3).
- 4.4.6 The bricks were a seemingly random mix of red clay bricks, frogless but made in a metal mould, and reddish buff bricks not unlike a darker version of fresh Bath stone. They were laid in a very soft, broken down mortar. The quadrant blocks were of this latter material as was the large lintel. The quadrant blocks were stamped "Hickman and Co Stourbridge". This was a coal mining, clay quarrying and brick making company that flourished in the late 19th century.
- 4.4.7 The stone structure attached to the brick one had probably had stone floors on its two higher terraces, as on the lowest, but only the soft mortar make up remained *in situ* (114 & 116). It was mixed with much carbonised material and coal ash that had presumably accumulated over the stone slabs and had been dumped back on the make up when the slabs were lifted (110). This burnt material also spread over the lower slabs (104). In the east side of the lowest revetment wall (101) a deep and narrow recess was formed with its base just below the level of slabs (104) at the base of the wall (103). It was built of brick and stone and looked like the stoke hole of a forge or small boiler which would have stood over it but is now gone. The small surviving fragment of revetment wall that formed its north wall was stained pink with heat (Figs 5 & 8).
- 4.4.8 The structure was covered in dark cindery soil and a soil formation which contained a large amount of early 20th century rubbish, particularly glass bottles and jars which had contained largely soft drinks and food items such as Oxo, with some patent medicine bottles (appendix 3). These made it clear the structure was demolished in the early years of the last century. One of the quadrant fire bricks was found in the soil overlying Building 3.

4.5 West of Buildings 2 and 4: 3. The underground flue.

- 4.5.1 Standing up hill and detached from the main site of the mill is the tall, stone-built, industrial chimney. It has been assumed that the steam engine and boiler installed in 1808 must have been linked to this via an underground flue. It was one of the aims of the evaluation to locate this and its path.
- 4.5.2 Clearance of the floors of both levels of Structure 1 revealed the side walls of a stone structure that is clearly the flue (102 & 111). The walls are built of mortared, only roughly squared, Bath stone rubble. Its external width is 1.92 m, which suggests an internal width of around 1.2 to 1.5 m. Height is unknown but it was followed down externally on its south side to 0.75 m. It is likely to be tall enough to walk along, if bent over, say about 1.5 m. It presumably runs under Building 5 to the subterranean chambers established but not explored under 5a.
- 4.5.3 It has been truncated by both Structure 1, which partly incorporated it and whose construction sliced off its vaulted(?) top and apparently was the occasion that it was carefully back-filled;

and by the western cellar which must have been built across its route. However, it was cut through a thick layer of stone dust and fine chippings (Fig 5, 109). This layer was seen in Trench 1b south of the western cellar (Fig. 6, 136) and was also seen by the Apprentice Shed under the cobbling layers recorded there – see separate report, OA 2006. This chipping layer appears to be the original make up or levelling layer of the original construction of the Mill in 1805 and is presumably graded quarry waste from Vinegar Down Quarry or one of the others nearby on Combe Down. Stratigraphically, therefore, the flue is in the right place in the sequence.

- 4.5.4 The route of the flue is constrained by the mill buildings and the retaining wall north of the Apprentice Shed. The flue is heading north of this wall and within a very little, its path can be predicted accurately from this point on. In light of this, no further excavation was undertaken.

5 DISCUSSION

5.1 The Wheel Pit

- 5.1.1 The western side of the wheel pit has been found in excavation, reasonably close to where it can be plotted from the historical evidence. That has been marked on the plan, fig. 3. for comparison. This also helps make sense of the structure, context 2, moved out of place by tree roots.
- 5.1.2 The pit was not excavated beyond the top course of stones. As it must be over 8.5 m (28 feet) deep, this would, of course, be a fruitless and unnecessary exercise. At this top level, a few hints of the position of the great obelisk-like piers that stood here originally could be seen, but not clearly interpreted. A few metal bolts and fittings are still set into the stone, along with slots and recesses, suggesting major clampings of stones and fittings. No clear sign of the wheel bearings was seen although their position in plan is exactly known from the old drawings.

5.2 Building 5

- 5.2.1 Building 5, as one large building between Buildings 2 and 3, has been mapped since 1852 and disappeared from the mapping by 1932. It quite clearly does not appear on Mrs Tackler's view of around 1850 (Fig. 9). This gives rise to various difficulties, as neither does Building 3. As Building 5 clearly depends on Building 3 to provide its southern wall (as shown on Building 4 and on all later 19th and early 20th century mapping) we cannot simply argue that Building 3 has been demolished and Building 5 not yet erected when the print was made.
- 5.2.2 One solution is to assume that Mrs Tackler used an old view as reference for her own drawing. This makes sense when we see that her view includes the mono-slope roofed building that we are now confident housed the steam engine and boiler (Building 5a) and a building at the west end of the site of Building 5 which stands exactly over our western cellar. However, as Building 3 is shown on a print of c.1810, we must assume her source view pre-dated that and post-dated 1808.
- 5.2.3 The ground level gutter of Building 5c (29) must post-date the western cellar and its associated building, as it lies over the backfill and anyway is an external gutter similar to that

outside the Apprentice Store (Building 1). Building 4 shows no sign of any scar where the southern cellar wall 124 would abut it. This suggests that the western building is of a different structural phase and no attempt was made to tie either into the other. There is, however, evidence of attachment of the new west wall of Building 5 on the corner of Building 4. Mrs Tackler's view, on our theory, suggests the cellared building is earlier, if only by a short period. We therefore have a phase where the original building, Building 2, has had an extension added to the south east corner to contain the new steam machinery and another at the south west corner for – what? Building 3/4 appears to then be added between the two extensions and then the mapped Building 5 built over them, involving demolition and incorporation.

- 5.2.4 It was stated above that the western cellar must cut the line of the main flue (para 4.5.3). However, an alternative view might be that the western building was built precisely to give access to the flue, away from the heat and smoke of the steam boiler itself. It must have had more functions than this as it seems to have had two storeys, as well as the cellar, according to Mrs Tackler.
- 5.2.5 It does seem possible to say that the second phase of the paper mill's development involved the construction of the steam engine house (Building 5a) and what I have called the Western Building with its cellar. The ground floor of this building must have been a little higher than the later level of Building 5c to give head room in the cellar.
- 5.2.6 The understanding that Building 5a is the steam engine site allows a clearer interpretation of the phase 1 elevation of Building 2 at this point where it has been much altered. We now know that the long narrow horizontal window high up in the upper ground floor elevation is primary and that the large opening below it is almost certainly part of the steam era alterations, opening the new block into the old. In addition, I am indebted to Mr Owen Ward for pointing out that the letter of April 1808 from Steart to Boulton and Watt actually places the Vat Room on the upper ground floor, "9 or 10 feet above the ground". This means that the solid block north of 5b is original and that at least part of the large opening adjacent at upper ground floor level must be original (although it has clearly been enlarged). Steart further describes two windows on the east face of this room and confirms a window inferred from fabric study on the south face of the main building.
- 5.2.7 This letter also shows the intention of using the steam engine to drive the wheel, presumably when water was scarce or to add power. This implies that the Boulton and Watt proposal drawing (Fig. 11) has the wheel to the top of the plan, which further makes it possible to interpret the plan as a partly implemented proposal. The engine is shown where it was finally installed, at the south side of Building 5a; but the boiler, here shown in the east end of Building 3 was actually installed close to Building 2 where Steart wanted it in his April letter. However, it would be odd to drive the wheel from the steam engine and this comment from Steart may be a result of his lack of familiarity with the new technology: the engine may have been installed otherwise.
- 5.2.8 It is possible to argue that building 5c was originally self-contained albeit built between Building 2 and Building 4. The flat roof line at first floor level shown by the row of joist pockets on the south elevation of Building 2 and the north elevation of Building 4 implies a

continuous structure as long as Buildings 2 and 3/4. This is what is mapped on 19th century mapping. However, there is another roof line, a single slope at a single storey height on Building 4. This might allow for a single storey Building 5c with a single pitch roof pre-dating the 1850s and requiring the demolition of the western building. It has to be admitted that it is not possible to say which of the roof lines is the earliest.

- 5.2.9 There is no evidence for a similar independent existence for structure 5b. This seems to be laid up to Building 3 and 5a but the evidence for its use and date is inconclusive. It may have provided an open courtyard outside what appears to have been an open sided ground floor to Building 3 (see below). However, the difficult-to-interpret Mrs Tackler implies a low roof here, making a single storey structure possible between the taller 5a and Western Building (Fig. 9).
- 5.2.10 What is clear is that one continuous structure was erected between Building 3/4 and 2 by 1852 and that this probably incorporated 5a, 5b and 5c. 5a would have had its monoslope roof replaced by the flat one represented by the continuous run of joist pockets. If 5b & c were single storey buildings predating this change then they gained a storey. The two storey west elevation of Building 5 is clearly indicated by the remains of masonry dogging on Buildings 2 and 4 and the remains of a first floor window with a stone cill at the junction with Building 4 (plate 1).
- 5.2.11 The first floor Vat Room would most likely have gone at this point. The date and relationship of the large opening in the centre south front of Building 2 remains a mystery. In origin it would communicate between the Vat Room and the large room north of it. It has certainly been enlarged and it seems to cut across the roofing of Building 5, yet must surely be earlier.

5.3 **Building 3/4.**

- 5.3.1 Building 4 still stands, minus its roof and the upper part of the east wall. Building 3 was demolished by 1932 and only the very bottoms of the walls survive and part of the terrace wall on the south side. They are the same structure, and are only distinguished because 4 escaped demolition. However, while Building 4 was roofed from north to south, Building 3 was roofed east to west, reinforcing a conceptual difference even within the same basic building shell.
- 5.3.2 Building 3 is clearly shown on the c.1810 print, although Building 5a is not. The print is not altogether accurate in checkable details but seems broadly reliable. The omission of 5a is odd. It may simply be that in the dark area behind the wheel, detail was left out. Excavation threw no further light on the date of the building. Stylistically, it is different from Building 2, more conventionally Georgian, as is the use of large neatly cut ashlar blocks. At least, that applies to Building 4, still standing: the print suggests a more industrial, functional style for Building 3.
- 5.3.3 It is possible to say something about Building 3, nevertheless. The clearance revealed three stone pads and implied a fourth. This gives clues to the wall and ceiling layout of the ground floor. Fallen blocks indicated further features.

- 5.3.4 The many large cuboid blocks showed a wall construction different from Building 2, using large, well cut ashlar. In this it is, unsurprisingly, like Building 4. Blocks were recorded up to 25" x 12" (0.635 m x 0.305 m) but were more typically 19" (0.48 m) long. Blocks were typically 5"-6" (0.127m x 0.15 m) thick. This is typical of late Georgian stone cutting in Bath.
- 5.3.5 The south wall retains the eastern jamb of a window, right where Building 3 attached to Building 4. The jamb has two rebates internally. Many shallow blocks of stone on the site of Building 3 with similar rebates on each side seem to represent the central mullions of two (or more) light windows. Two stone cill blocks were found lying below likely window positions in the south wall. They indicated window widths of just under 1.20 m, or perhaps two lights. Such simple mullioned windows are typical of late Georgian industrial buildings and show that there was a functional difference between Building 4 with its sashes, and this, probably with casements where there were not simply louvres.
- 5.3.6 The stone pads suggest a ground floor with its ceiling supported on piers and an open north side between Building 4 and Building 5a. There appears to have been a single run down the centre (the position of one pier inferred in the disturbed area dug by BIAS). This will have supported a longitudinal timber beam from which subsidiary cross beams would have gone to the side walls and the pier in the north wall. From these, joists would have supported the upper floorboards (the system in Building 2). The end wall by the wheel pit may have been open, as there is a pier base embedded on the foundations. The central chimney shown in 1810 may only have been on the upper floor.
- 5.3.7 Part of the central pier line may have been walled in, as a thin ashlar stub wall is in evidence at the west end. Two phases of ceiling joists are suggested by the western end wall at the junction with Building 4. Little can be inferred at first floor level as the surviving first floor masonry on this side has been largely rebuilt after Building 3 was demolished. As part of this tidying up, the ragged junction of Building 3 and 4 has been sawn or chiselled back smooth, and indeed, on the south junction, rebuilt.
- 5.3.8 The open nature of the space reconstructed from this evidence, the water management features and the proximity of the steam engine suggest this building might have been for washing and beating machines for the paper rags. The upper floor would have been valuable drying loft space.
- 5.3.9 It is more than ever clear from this brief evaluation that Building 4 was of a distinct design, internally and externally, roofed separately from Building 3 and was almost certain to have been offices, or even accommodation.

5.4 **The western cellar/building**

- 5.4.1 This cellar is known archaeologically from the southern wall, the floor, probably of stone slabs, and the steps into it. It can be identified on the Tackler drawing and on the 1852 Cotterell map.
- 5.4.2 It was demolished before the ground level drain associated with the west elevation of Building 5 was laid, and before Structure 1 was constructed. Whether any phase of Building 5c was contemporary with the western building is unknown. What we can say is that the

Tackler view (Fig. 9) shows the western building without 5c and that 5c continued in existence after the demolition of the western building.

- 5.4.3 It seems to be an addition to Building 2 and, from the Tackler view, was a two storey single cell structure over the cellar. However, if the ground floor was higher than the floor of Building 5 (para 4.3.3) then it may only have had one tall storey over it. It must be admitted that detail on the Tackler drawing can be shown not to be reliable. Access may have been via an external stair.
- 5.4.4 It has been suggested above that it may have had some function in connection with the underground flue, but exactly what would require more than a simple access hatch is unclear.

5.5 Structure 1 and the water cisterns

- 5.5.1 The brick and firebrick construction in Structure 1 and the abundance of burning products in the adjacent stone built element make it clear that a hot process was going on here. A structure is shown on the 1886 OS map in this position and not in 1852. A likely date for its construction would be the establishment of Whitaker's cabinet works here in 1875.
- 5.5.2 Given the date range, it is considered that the most likely interpretation of the structure is that it is a steam cabinet or kettle for heating and dampening timber so it can be bent. The brick structure is the lower part under the steam chamber itself, a metal, but possibly brick-encased, tank fed with high temperature steam. This would be fed from water pipes passing through a heating system to provide steam. Hot gases were clearly intended to pass along the central channel (and out along the underground flue) which probably contained a set of pipes into which water was fed, which, when turned to steam, was led to the upper chamber. This was probably accessed from the slab area immediately south. There would have been a great deal of condensation on the brick structure below the chamber, which may explain the drainage gullies either side of the central channel.
- 5.5.3 Where the heating furnace would be is uncertain. It could perhaps have been in directly in the central channel with the pipes above it, which would account for the extensive use of fire brick in this area. The pipes would then be directly heated by the burning coal. Hot gases would go off along the flue and the diversion into the basement room might have been for some subsidiary heating use. The terraced spaces to the west may have been for storage of coal or clinker. The failure to find a western wall might imply these spaces were open on that side, providing ease of access. The burnt recess 103 may have been to do with the production of steam on a smaller scale or perhaps a small forge. Further research on contemporary parallels would probably solve the problem.
- 5.5.4 Obviously steam requires water and the stone chambers seen in Trench 1b are the obvious place for it to have been stored. There must have been hand or steam pumps to raise it into the steam pipe system.

6 ASSESSMENT OF EVALUATION AIMS

- 6.1 The investigation carried out for this evaluation was remarkably successful. It has clarified the position of the steam engine and boiler known from documentary sources, shown the position

and condition of the top of the wheel pit, added much detail to the development history of Building 5 and revealed the existence of unknown structures and made possible some attempt at their interpretation and dating.

- 6.2 The work has also raised questions about the evidence from topographic views, especially the work of Mrs Tackler. However, archaeological evidence has allowed a very useful re-interpretation of her drawing, realising its value in a different manner than that expected.
- 6.3 The evaluation has also shown that the development can go ahead while ensuring the preservation *in situ* of nearly all the remains uncovered by excavation. Removal of the top course of the revetment walls 101 and 107 of Structure 1 was agreed by the B&NES AO to allow the grading of the access drive. Building 5 and Building 3 are to be used as the site of gardens and terraces and the pavings and walls will be buried under new landscaping. The monoliths representing a door into 5c will be retained as garden gate posts.

7 FURTHER WORK REQUIRED

7.1 Building 3/4

- 7.1.1 The proposal is to turn Building 4 into a house. It is intended to add an extension on to the south end of the east façade.
- 7.1.2 It is hoped to build the south wall up from the south terrace wall of Building 3 and incorporate and reconstruct the window opening that partially survives here (para 5.3.5).
- 7.1.3 The main issue is that this extension will require foundations. These have not yet been designed and investigations are likely to be needed to design them, and further excavations to insert them. In general these investigations will need to be evaluated and probably fall under the conditions that have required this current work. However, the authors would recommend that as the materials below the floor of Building 3 are terrace make up but may contain drains and culverts, a simple mitigation excavation in the limited area of the extension might be an appropriate way forward.
- 7.1.4 The routes of any intrusive services are also meant to be evaluated before they are inserted. This has not yet been done, but discussion has taken place to see if a route or routes can be found for services to cause as little damage as possible. One possible line is around the east of Building 2 and around the wheel pit. A route across Building 3 would need to be found and mitigated if necessary.

APPENDICES

APPENDIX 1 CONTEXT LIST

<i>Area/Buil ding</i>	<i>Ctxt No</i>	<i>Type</i>	<i>Dimensions (m)</i>	<i>Description/Comment</i>
Over all	001	Layer	Over all areas and of varying depth	Mixed rubble and soil material cleaned of the site to reveal extant layers.
5a	002	Str	Length: 1.70m Width: 1.1m Height: 1.2m	Stone structure built from large bath stone blocks, probably originally part of the wheel pit it was both preserved by and dislodged from its original position by a large tree.
5a	003	Str	Length: 6.2m Width: 1.25m	Stone structure that supported the pillar which the main wheel axle was connected to. Built from large blocks of Bath stone alongside the western side of the wheel-pit. It now only survives to floor/roughly axle height. 2 square mortise holes, facing the wheel-pit, were cut into the South eastern corner of this structure. They were situated 0.4m apart, were 0.05m wide 0.15m long and 0.2m deep.
5a	004	Str	Length: 0.8m Width: 0.2m	Two large stones siting against the eastern face of Str 3 and projecting into the wheelpit both with identical cut mortises 0.09 wide, 0.11 long and 0.05 deep.
5a	005	Str	Length: 5.2m Width: 1.65m	Later addition of masonry abutting the western side of the pillar base C3. Constructed of mortar and large cut but irregularly placed Bath stone. Two large metal nails/pegs were noted towards its northern end. May be contemporary with floor surface C20 and therefore the 1808 addition of the boiler and steam engine.
5a	006	Str	Length: 1.1m Internal width 0.2m.	Double brick alignment forming a curvilinear channel 0.2m wide internally and c.1.1m long, with an area of highly fired oxidised clay at one end. Probably a flue from or the base of a boiler itself.
5a	007	Str/Cut	0.4m by 0.4m	Square indentation cut into mortar floor C15 to support a substantial post. Contemporary with C11 and C8 and thought to post date all other features.

5a	008	Str/Cut	0.4m by 0.4m	Square indentation adjacent wall C9 cut to support a substantial post. Contemporary with C11 and C7 and thought to post date all other features.
5a	009	Str	Length: 2.6m Width: 0.7m	North south wall footing extending southward from the southern face of building 2. Of unknown function but known to predate the addition of the boiler and steam engine. Shown on the 1808 drawing by G. Steart (Fig 11) suggesting a location for the steam engine.
5/3	010	Str	Length: entire building Width: 0.42m	Wall footing separating building 5 from building 3.
5a	011	Str/Cut	0.4m by 0.4m	Square indentation cut into the base of the no longer extant pillar C3 to support a substantial post. Contemporary with C8 and C7 and thought to post date all other features.
5a	012	Str	Width 0.96m	East gable wall of building 2. It extends southward into area 5a and returns as wider wall C13. Together these walls form a void that must have housed wheel balancing or energy transferring equipment.
5a	013	Str	Width: 1.35m	The wider return of the east gable wall of building 2. These walls form a void that must have housed wheel balancing or energy transferring equipment.
5a	014	Str	Length: 3.4m Width: 1.7m	Stone built rectilinear structure of white bath stone bonded with whitish grey mortar. Base of the steam engine or boiler.
5a	015	Str	Length: 4.5m Width: 4.2m	Floor surface of mixed grey mortar and sub-angular pieces of bath stone.
5a	016	Str	Length of depression: 1.5 Width of depression: 0.6m Depth of shaft: >2m	Drain cut through floor C15. Crescent shaped depression for collection leading to a square shaft heading into an underground void or chamber. May be connected with the boiler and steam engine added in 1808, underground voids are shown in Boulton and Watt's drawings (Fig. 12 & 13).
5b	017	Str	Length: 3.4m Width: 2.45m	Paved area of Bath stone flags, adjacent the southern side of the Vat house.

	018	Str	Length exposed: 1m Width: 0.38m	Possible drain extending from under the Vat house and turning eastward towards the area of the underground void (see 16).
5b	019	Str	Opening 0.2m by 0.2m	Square drain entrance potentially heading southward under building 3 and connecting with one of the culvert exits in the southern wall.
5a	020	Str	Length: 2.4m Width: 2.05m	Floor surface of mixed grey mortar and sub-angular fragments of bath stone. It appears contemporary with the flue 6 and therefore the 1808 addition of the steam engine and boiler.
5c	021	Str	Length: 5.5m Width: 4m Depth: 50mm	Paved area of well laid Bath rag stone flags between the west facing gable end of Building 4 and the rear elevation of Building 2. The floor is laid directly on building rubble (028). The individual flags range in size from 0.2m by 0.2m to 0.4m to 0.5m. It is bounded to the east and west by partially surviving wall foundations (022 & 023). A number of beam slots (034, 033, 035, 041, 040, 039) cut through the floor have obvious relations with those apparent on the both adjoining buildings. This area provides the access to Building 5b and possibly Building 3. The flags are laid on rubble from a previous building indicating it is not from the first phase of building at De Montalt Mill.
5c	022	Str	Length: 7.4m Width: 0.5m Depth: Unknown but appear at least 0.3m deep as visible in pit (C025).	Wall foundation defining the eastern edge of C021. Built mostly from dressed bath stone and occasional rough undressed bath stone. The wall footing is broken and filled by building rubble Mortar?? The wall only survives for one course and appears to have been faced on both sides. Along with the opposing wall (023), the south fascia of building 2 (046) and the north facing gable end of building 4 (047) this wall appears to have formed a distinct building.
5c	023	Str	Length: 7.55m Width: 0.35m Depth: 0	Wall footing defining the western edge of 021. Very light to no foundations, appears to have been built directly onto the paving 021. Built from both dressed bath stone and rough undressed bath stone. Mortar?? The remains are very fragmentary but appear to have been faced on both sides. Along with the opposing wall (022), the south fascia of building 2 (C046) and the north facing gable end of building 4 (047) this wall appears to have formed a distinct building.

5c	024	Str	Length: 0.85m Width: 0.35m Depth: 50mm	Gap in wall 023 defined by 2 orthostats, both c.0.4m by 0.25m in plan and standing to a height of 0.75m. Entranceway through the western wall (023) bounding the paved area (021). The two orthostats probably formed part of the wall (023) and the depth of the gap probably reflects a decayed wooden doorstep. The gap measures 0.85m by 0.35m in plan and c. 50mm deep.
5c	025	Cut	Length: 1.6m Width: 1.5m Depth: Unknown	Cut of a pit truncating the north end of the paved floor surface (021) adjacent the south elevation (046) of Building 2. This pit was dug by machine within recent years to examine the buildings foundations (pers. com. Matt Taylor Site contractor).
5c	026	Fill	Length: 1.6m Width: 1.5m Depth: Unknown	Mixed rubble fill of pit 025. Backfill of modern origins
3/5	027	Layer		Mid yellowish brown crushed stone/mortar rubble layer. After the removal of 1 this layer was uncovered over most of Building 3 and parts of Building 5. It is thought to be material brought in to create a level surface for building upon and therefore where found it represented areas where the floor surface had been robbed out or destroyed. It may also have been re-deposited to conceal some flag flooring in area 5b.
5c	028	Layer	Length: Unknown Width: Unknown Depth: Unknown	Rubble layer. The flag surface (021) is punctured along its southern edge against wall 047 and this is visible underneath. It is probably material from an earlier phase of building or material brought in to level the ground for initial construction.
5c	029	Str	Combined length: 4m Width 0.4m	5 blocks of pennant stone laying in a line parallel to the wall foundation (023). A groove c.0.1m wide and 60mm deep runs the length of the stones. 4 of the 5 stones measure 0.8m by 0.4m in plan and the 5th measures 0.8m by 0.3m. The 5th stone is situated directly outside the entrance. These five stones form a drain running parallel to wall 023 bounding the western side of the paved area (021) and probably collected water that fell from a pitched roof.
5c	030	Fill	Length: 1.7m Width: 0.08m	Sections of the drain were filled by this material. It is probably waste material from the nearby brick built boiler (C113).

5c	031	Group		Set of 5 (032, 033, 034, 035 & 036) rectangular cuts through the paved area (021) and running on an alignment parallel to the wall (C023) bounding its eastern side. 3 (C033, C034 & C035) are cut through the floor surface and 2 (C032 & C036) into the opposing walls (C046 & C047).
5c	032	Cut	0.1m by 0.1m	Rectangular cut, one of 5, see group 31.
5c	033	Cut	0.1m by 0.1m	Rectangular cut, one of 5, see group 31.
5c	034	Cut	0.1m by 0.1m	Rectangular cut, one of 5, see group 31.
5c	035	Cut	0.1m by 0.1m	Rectangular cut, one of 5, see group 31.
5c	036	Cut	0.1m by 0.1m	Rectangular cut, one of 5, see group 31.
5c/b	037	Str	Length 0.6m Width: 0.4m	Stone flag adjacent the east face of wall footing 22, potentially signalling the access/egress point from 5b to 5c
5c	038	Grp		East west row of three pentagonal cuts/ beam shafts cut into the paved area 21.
5c	039	Cut	Diameter: 0.09m	Pentagonal cut, one of three, see group 38
5c	040	Cut	Diameter: 0.09m	Pentagonal cut, one of three, see group 38
5c	041	Cut	Diameter: 0.09m	Pentagonal cut, one of three, see group 38
5c	042	Cut	Length: 0.08m Width: 0.06m	Oval groove or cut into floor surface 21.
5c	043	Cut	Diameter: 0.08m	Circular groove/ mortar filled shaft cut into floor surface C21. Situated adjacent and probably associated with 44.
5c	044	Cut	Diameter: 0.08m	Circular groove/ mortar filled shaft cut into floor surface 21. Situated adjacent and probably associated with 43.

5c	045	Fill	Length: 0.4m exp. Width: 0.2m exp. Depth: unknown	Grey concrete containing bricks and tile. May be a fill in the core of wall (022)
5c	046	Str	--	South elevation of Building 2
5c	047	Str	--	North gable end of Building 4
5c	048	Cut	Length: 4.1m Width: 2.35m Depth: 0.38m	Area of robbed/disturbed flags to the south of 21 adjacent the north gable end of Building 4 (C47)
	051	Cut	Length: 3m Width: 2.5m	Rubble filled pit, the test trench dug by BIAS. Another drain/culvert entrance was uncovered therein.
3	052	Str	Combined length: 1.25m Combined width: 0.8m	Potential machine mount, comprising three slabs of bath stone and one hollow metal tube of diameter 0.22m.
3	053	Str	Opening: 0.2m by 0.2m	Square drain/culvert shaft/entrance, almost identical to 19 in area 5b
3	054	Str	Length visible:0.6m Width visible: 0.05m	Probable culvert just visible, covered by and sitting in 27
3	055	Str	Length visible:1.75m Width visible: 0.4m	Probable culvert just visible, covered by and sitting in 27
3	056	Str	Length visible:0.5m Width visible: 0.05m	Probable culvert just visible, covered by and sitting in 27

3	057	Str	Length: 1.45m Width: 0.60m	Wall remnant. Potentially one end of the wheel pit.
3	058	Cut	Length: 1.1m Width: 0.75m	Rubble filled pit, rectangular in shape, of unknown origin.
3	059	Str	0.46m by 0.48m	Block of Bath stone. Square foundation pad in north wall of B3 that probably supported a structural element of building 3.
3	060	Str	0.46m by 0.48m	Block of Bath stone. Square foundation pad in centre line of B3 that probably supported a structural element of building 3.
3	061	Str	0.46m by 0.48m	Block of Bath stone. Square foundation pad in centre of east wall of B3 that probably supported a structural element of building 3.
West of main mill building	101	Str	Length: 3.1m Width: 2.4m	Revetment wall built on top of 102 and holding up 116 to create a working platform. Faced on the south and eastern sides.
West of main mill building	102	Grp/Str	Length exposed: 2.4m Width: unknown	The edge of a stone structure running north west/south east under 101 and 107. A line of parallel stones 111 may be the other edge of this structure. They both run on an alignment at odds with all the other structure in the vicinity and may be the flue heading uphill for the chimney. If 111 is the other side of this structure the flue would be approximately 1.92m on the exterior.
West of main mill building	103	Str	Length: 1.4m External width: 0.8m Internal width 0.25m	Blocked up flue entrance possibly associated with structure 1. Built of brick and block sitting along the west side of Str 1. The revetments (101 and 107) seem to be abutting this feature. Appears contemporary with the remains of flag floor 104.
West of main mill building	104	Str	Length surviving: 2m Width surviving: 1.4m	Remnants of a flagstone floor, sitting on the crushed rubble fill (109), abutting and apparently relating to the revetment (107) and flue entrance (103).
West of main mill building	105	Cut	Length exposed: 3.8m	North/south cut running below the revetments. Its relationship to the potential flue is unsure, but is probably earlier

West of main mill building	106	Cut	--	Not actually a cut, just the edge of fill 116 built up on the inside of revetment 101 to create a working platform
West of main mill building	107	Str	Length: 2.2m Width: 2.1m	Revetment wall built on top of 102 and holding up 114 to create a working platform. Faced on the south and eastern sides
West of main mill building	108	Cut	--	Not actually a cut, just the edge of fill 114 built up on the inside of revetment 101 to create a working platform, where it appeared to be a cut in section was simply the slope of the hill.
West of main mill building	109	Dep	Extending out of the area to the west.	Light brownish yellow sand/grit. Appears to be crushed Bath Stone used as fill. Possibly brought in from the Mines to build up/level the area prior to or immediately after construction.
West of main mill building	110	Dep	Extending out of the area to the south	Dump of coal and burnt material, probably from some phase of the boiler, it may be backfill in a previous test trench.
West of main mill building	111	Str	Length exposed: 1.2m Width: unknown	The edge of a stone structure running north west/south east under 101 and 107. A line of parallel stones 102 may be the other edge of this structure. They both run on an alignment at odds with all the other structure in the vicinity and may be the flue heading uphill for the chimney. If 102 is the other side of this structure the flue would be approximately 1.92m on the exterior.
West of main mill building	112	Dep	Extending out of the area to the south	Same as 109
West of main mill building	114	Dep	Length: 2.4 Width: 1.2	Dump of mixed rubble etc placed behind the revetment 107 to build up a flat working surface.
West of main mill building	115	Dep		Fill of cut 105. Mid greyish brown mixture of sand, clay and building rubble.

West of main mill building	116	Dep	Length: 2.62 Width: 0.55	Dump of mixed rubble etc placed behind the revetment 101 to build up a flat working surface.
Structure 1	117	Str	Length: 3.86 m width: 2.25 m	Brick wall enclosing the presumed steam cabinet
Structure 1	118	Str		Bricks forming base of side channels inside 117
Structure 1	119	Str	length 0.305m width 0.225m	Quadrant fire bricks between side and centre channels in 117. Size given is individual bricks (1' x 9")
Structure 1	120	Str	length: 0.82 m width: 0.24 m	Fire brick lintel at north end of central channel at entrance to underground flue
Structure 1	121	Str		Bricks forming side of the central channel, under 118 and 119
Western building	122	Str	Extent of cellar	Floor of cellar, probably large, smooth stone blocks, obscured by silty ground water
Western building	123	Str		Stone stair case turning with a single right angle winder
Western building	124	Str	length (as trench) width: 0.67 m	South wall of cellar built of roughly squared masonry set in grey mortar. Length reconstructed at 3.65 m
Western building	125	Str		Ashlar wall of stair enclosure for 124. Large thin ashlar blocks
Western building	126	fill	0.46 m thick	Top rubbly fill of cellar over 127, only seen in south end of cellar
Western building	127	fill	0.46 to 0.52 m thick	Middle rubble fill of cellar in Trench 1b and top rubble fill in Trench 1a

Western building	128	fill	0.90 m thick	Bottom rubble fill of cellar
Western building	129	layer	30-50 mm thick	Layer of mortar between 127 and 128
Western building	130	layer	0.30 m thick	Gritty, stony, dark grey-brown silt in bottom of cellar
Western building	131	Str	0.35 m wide x 0.25 m high internally	Brick walled and stone capped gutter built on floor of cellar
Western building	132	layer	0.25 m thick	Dark, loamy top soil above all layers. Same as 147.
Trench 1b	133	Str	1.15 m x 1.18 m x 0.19 m	Pennant stone frame for manhole into water tank 134
Trench 1b	134	Str	>6.26 m x 1.3 m x >1.25 m high (internal)	Subterranean stone vaulted chambers (water tanks) south of Structure 1
Trench 1b	135	Str		External rough stone block wall, possibly robbed of facing, on east of 134
Trench 1b	136	layer	c.0.50 m thick	Chippings of Bath stone very small size in dust and compacted to a hard layer
Trench 1b	137	layer	0.15 m thick	Loamy, stony fill same as 142
Trench 1b	138	layer	0.15 m thick, 0.30 m wide	Dump of stone chippings similar to 136 in 137/142
Trench 1b	139	layer	0.15 m thick, 0.30 m wide	Dump of stone chippings similar to 138 in 137/142
Trench 1b	140	layer	80 mm - 0 mm	lens of silty loam below 137 and 139
Trench 1b	141	Layer	0.35 m - 0 m	Lens of stony silt sitting on a terrace cut into 136 and itself truncated by layer 143. Poss related to construction of cellar 124
Trench 1b	142	layer	0.15 m thick	Loamy, stony fill same as 137

Trench 1b	143	Layer	< 0.55 m thick	Thick dump of very stony soil , probably a levelling dump over 136, contemporary with 124
Trench 1b	144	Str?	0.55 m thick	Stones loosely piled into rough courses but in a fill of loose soil and the coursing breaking up to the north into a rougher pile. Possible damaged dry stone footings for a building shown on 1886 OS map. They sit on 145.
Trench 1b	145	Str?	>0.60 m thick	Clinker fill of pit or trench, (150) under 144
Trench 1b	146	Fill	<0.50 m wide and >0.50 m deep	Stony loam fill of construction trench (150) of 124
Trench 1b	147	layer	0.25 m thick	Dark, loamy top soil above all layers. Same as 132.
Trench 1b	148	fill	0.50 m thick	Loamy fill of robber trench (149) of wall 124
Trench 1b	149	Cut		Robber trench of wall 124
Trench 1b	150	Cut	<0.50 m wide and >0.50 m deep	Construction trench of wall 124
Trench 1b	151	Cut	>1.40 m wide and >1.25 m deep	Construction trench for 144/145
Trench 1b	152	Layer	>0.11 m thick	Dark grey loam. Probably pre mill ground surface

APPENDIX 2 THE SHAPED STONE BLOCKS

Peter Davenport

Lying on the ground in piles were a large number of shaped Bath stone blocks. As first glance these were lying where they had fallen during demolition on the sites of Buildings 3 and 5. It was a condition of the planning permission that such blocks were to be kept at least temporarily and archaeologically inspected. Block were recorded for the information they would yield for the appearance of the demolished parts of the building, and for light that might be cast on the machinery installed in the building. Full analysis was not budgeted for in the current programme but the descriptive catalogue will allow future work to take place.

They were recorded as being in one of three groups.

Group 1 was the area at the west end of Building 3 against the east end of Building 4. It was assumed that the majority of these would have come from Building 4, but in the event it was reasonably clear then some came from Building 3.

Group 2 were found in a tumbled pile in the centre of the north side of Building 4

Group 3 was found piled up in front of the eastern end of the south face of Building 2, near the wheel pit.

Individual stones were recorded as being a number in a group; thus, 2.1G: second stone in the first group

The stones were put on pallets and later moved to the storage area south of Building 3.

Group 1

Most of the stones were plain cuboidal blocks, well shaped and cut from Bath stone. The thickness range was 4.5 to 6 inches (11.4 to 15.24cm) and three typical sizes were 11" x 19" x 5", 14" x 21" x 6" and 12" x 25" x 6". These were simply wall masonry blocks. These stones were not numbered or kept.

Two stones of this size, 4 of group 1 and 7 of Group 1 (4.1G and 7.1G) had a rebate and a slot cut into them, almost certainly for floor joists.

Other stones were more complex and occasionally a likely interpretation could be offered.

5.1G (which is an exemplar of at least 13 others and two fragments) is probably a section of a central mullion for a two light window. However, such low coursing is unusual, upright long jambs and mullions being more common.

Two blocks were found against and inside the south wall of Building 3, which might well be window cills (1.1G and 2.1G), giving a window width of about 120cm.

Group 2

Generally Group 2 contained larger blocks than in Group 1 but equally well finished. The cross section was typically 11.75-12" x 14" (29.8 - 30.5cm x 35.56cm) and lengths from

25.5" to 39" (64.77cm - 99.06cm). There were about a dozen of these blocks in the group with one or two others a little further away. One of them had a 3" high equilateral triangle incised neatly on the shallower side. No stones of this size and precision can be seen in the existing walls and it is assumed they are from internal machine mountings or similar. None had mounting marks, straps or bolts, however. They had attained their present position after the loss of the paving slabs of the floor, lying in some cases in voids in the floor.

Some variations or odd stones were associated with this group. One block had a raised strip tooled a ¼" (6mm) deep and 4¼" (10.8cm) wide on the 14" side. Another (2.2G), was roughly tooled diagonally with a pointed chisel and one face was battered at an angle. Another (1.2G) was shaped into a right angled triangle wedge with a lip at the top of the hypotenuse face.

Group 3

Four blocks in particular were noted. These were clearly machinery mounting blocks, similar to those still in place in room G2 in building 2.

1.3G and 2.3G were very similar indeed. 1.3G was longer than, but identical in width and height to 2.3G and shared the chamfer around the top edges. Both were pierced by holes for 1" bolts three of which in 1.3G lined up perfectly with three of the four in 2.3G. It is clear for other reasons that the two blocks were not superimposed, but they may have carried matching (parts of) machinery. Both were marked with two rust brown stained strips running inside the bolt holes as if the result of rusting iron mounting rails. Curiously, both had thin layers of plaster laid to fill irregularities in the surface prior to machine mounting. Both had various slots and rebates cut into the surface but 2.3G had one of these carefully repaired as if there had been a change of plan or a mistake.

3.3G and 4.3G were identical in dimensions, although 3.3G had its upper face neatly flat chisel worked and not smoothed down. Both had a right angled "U"-shaped channel cut into the bottom left quadrant (as drawn). They also had two iron bolts in place, passing right through the block. Each pair was the same distance from the ends and from the side faces, but on opposite sides of the block. The bolts on 3.3G still had some fittings on them. These were a pierced metal plate or strap with a smaller one above it, and a circular washer. The central cut-out for the washer was not circular but an equilateral curved tetragon (since one cannot have a curved square). The top of the bolt was pierced with a rectangular slot with a flat cotter (wedge, rather than a) pin. The flat plates this would act on spanned the groove. The other bolt had a similar washer and cotter but no plates. Corrosion was too great to see how much adjustment was available via the cotter, but the shape of the wedge would have allowed up to 5mm of tightening.

Catalogue

Group 1

1.1G Cuboid block with chamfered upper surface and rebated and grooved lower. 380mm wide x 180mm thick x 1240mm long. Probably a window cill from Building 3 south face. Found lying below south wall on north side.

- 2.1G Cuboid block with chamfered upper surface and rebated and grooved lower. 380mm wide x 18mm thick x >1150mm long (broken). Probably a window cill from Building 3 south face. Found lying below south wall on north side.
- 3.1G One of several pieces. Cuboid block with chamfered face at 60°. 500 mm wide (reducing to 370 mm with chamfer) x 215 mm thick x 500-800 mm long.
- 4.1G Ashlar block 254mm wide x 127 mm thick x >630 mm long (broken). Cut out at one end, probably for floor joist, 165 mm x >165 mm.
- 5.1G Flat, "T"-shaped stone, probably a course of a built up mullion. One of 14 whole examples, two probable fragments. Pierced with neat, round, blind holes in various, apparently fixed, combinations. Only 1 & 2 and 2 & 3 were found together (see plan). Upright of "T" 140 mm x 140 mm, cross of "T" 270 mm long, total length 455mm.
- 6.1G Ashlar block 285 mm x 140 mm x 305 mm long. Two rebates in long edges on wider side, 45 mm x 45 mm. Two examples.
- 7.1G Ashlar block 305 mm x 12.25 mm x 697 mm. Cut out in one corner 305 mm x 65 mm and a rebate in lower face 25.4 mm wide, fading from 3 mm to 0 mm deep across stone.
- 8.1G Very damaged cuboid block 280 mm x 150 mm x 285 mm with roughly semicircular cut out at one side.
- 9.1G Worn ashlar block 370 mm x 150 mm x 710 mm. Top angled surface shows signs of wear with a rebate cut in after the wear had taken place.
- 10.1G Small horizontal conic section, 195 mm dia base and 185mm dia top, 95 mm high.

Group 2

- 1.2G Ashlar block of a right angled triangle wedge cross section with a lip at the top of the hypotenuse face.
- 2.2G Ashlar block 296 mm x 590 mm chamfered back to 545 mm x approx 550mm long. The steep chamfer may make this stone a candidate for one of the blocks of the piers either side of the great wheel.
- 3.2G Ashlar block 360 mm x 180 mm x 500 mm with thin shallow groove on wide face, 6 mm x 12 mm deep, 80 mm from and parallel to long edge.

Group 3

- 1.3G Large cuboid stone block with upper chamfered edges, various rebates and recesses and four bolt holes drilled all the way through. Three of these form the corners of a rectangle and the fourth is "random". Depressions in the finely finished upper surface have been filled with plaster prior to the placing of iron strips (now missing but shown by ferrous staining). 720 mm x 380 mm x 1520 mm. This is presumably a machine mounting block from Building 3 or 5c.

- 2.3G Very similar to 1.3G but with more complex angled cut outs and top chamfer interrupted at one end. Same plaster infill and iron staining. 750 mm x 305 mm x 1400 mm. It has four bolt holes forming a rectangle of the same size and relationship to the sides as 1.3G. They cannot fit together but may have supported similar sized machinery.
- 3.3G Cuboid block with a channel of semicircular cross section forming quadrant in one corner. A blind, shallow, square recess occurs on same face and two iron rods with threaded ends are still *in situ* passing all the way through the stone block from this face. 655 mm x 305 mm x 965 mm.
- 4.3G Almost identical to 3.3G, but no blind recess. Bolt holes with *in situ* threaded rods on opposite side of block but same spacing. These rods have iron strips and washers held in place with cotter wedges. The main face has rougher chisel working compared to 3.3G. 655 mm x 325 mm x 965 mm.

APPENDIX 3 GLASS BOTTLES AND JARS FROM STRUCTURE 1 OVERBURDEN

A3.1 Glass Bottles and Jars

- A3.1.1 A very large number of bottles of all types were found in the demolition layers over and in structure 1. Although two phases of deposition were noted stratigraphically, there was no chronological distinction in the material collected. In total about 100 items, mostly complete, were noted. None were kept.
- A3.1.2 Small clear/frosted glass, barrel-shaped jars, paper top (ie no twist cap). Most were faceted, some round section. Most had "SHIPPAM'S" embossed on the side and were paste jars. One had "OXO" embossed on the side.
- A3.1.3 Small prism bottles with screw cap and paper label marked with "Empire Lemonade". Bottle embossed with "Made in Maidstone"
- A3.1.4 Cylindrical, cuboid and prismatic medicine/chemical bottles with "NOT TO BE TAKEN" along side, green and blue, cast, with vertical ribs. Cork top. One had "proserine" embossed on it in small letters. Two or three small, clear glass, cylindrical and flange top medicine bottles were noted. A few of these had rubber neck linings and a glass stopper (not ground).
- A3.1.5 Beer/cider/lemonade bottles were noted from Rogers of Bristol, George's of Bristol, Fussells of Devizes, Charlton Brewery of Shepton Mallet and Holbrook and Co. The Rogers bottle had a trademark of crossed bottles. All these were screw plug tops. All except the Fussell's bottle, of clear glass, were green or brown.
- A3.1.6 These were all of types current and from companies trading in the very late 19th century and early 20th century. This implies the demolition and burial of the structure soon after this, probably when Mr Mann bought the mill to run as a farm in 1921.

APPENDIX 4 BIBLIOGRAPHY AND REFERENCES

- OA 2006 De Montalt Mill, Archaeological Evaluation and watching brief surrounding building 1a-d
- Davenport 2001 De Montalt Mill, Combe Down Bath; Historic Building Impact Assessment.
- Davenport 2002 Method Statement for the treatment of archaeological remains at De Montalt Mill, Combe Down, Bath during restoration/conversion works. Prepared by BAT in response to a request by J. Wilkinson of B&NES.
- Davenport 2005 De Montalt Paper Mill, Combe Down, Bath, Bath & North East Somerset. Written scheme of investigation for historic building recording and archaeological evaluation. Prepared in response to a brief by the AO of B&NES and approved.

APPENDIX 5 SUMMARY OF SITE DETAILS

Site name: De Montalt Mill, Combe Down, Bath

Site code: BADEMM05

Grid reference: ST 7622 6200, centred

Type of evaluation: Field evaluation of below ground deposits, linked to building survey

Date and duration of project: October 2005/ 1.5 weeks

Area of site: 2400m²

Summary of results: The study area for the evaluation included trenching along the western side of Buildings 2 and 4 (see main text) and archaeological clearance of the soil and debris south of Building 2 on the site of Buildings 3 and 5. The initial demolition and dump layers were excavated, revealing flag floors, foundation pads, drains, possible machine mounts, flues and wall foundations. There were, at a minimum, 4 phases of activity evidenced and the features uncovered lend themselves to further speculations on the boiler type, the steam engine positioning and function. In addition, shaped stone blocks with iron fittings were retrieved from the debris and recorded. These were machine-mounting blocks. *Ex situ* architectural stonework was also recorded.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and has been accepted for deposition with the Building of Bath Museum, Vineyards, Bath. The accession number will be allocated by the museum on deposit.



Scale 1:25,000

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Figure 1: Site location



Figure 2: Site plan of De Montalt Mill, Combe Down, Bath (based on a survey by H.J. Rees & Company Ltd, Chartered Land Surveyors)

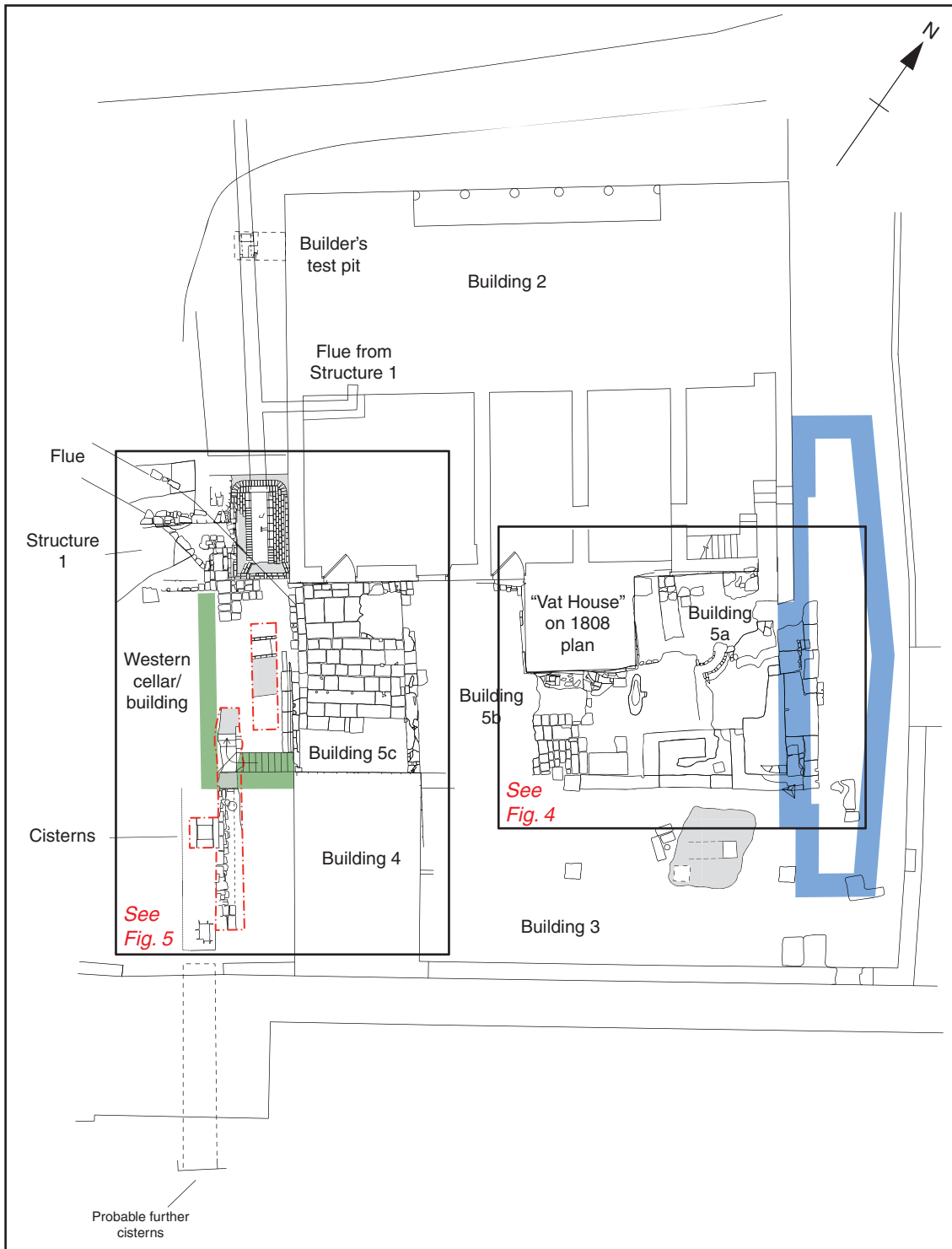
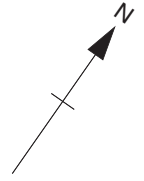
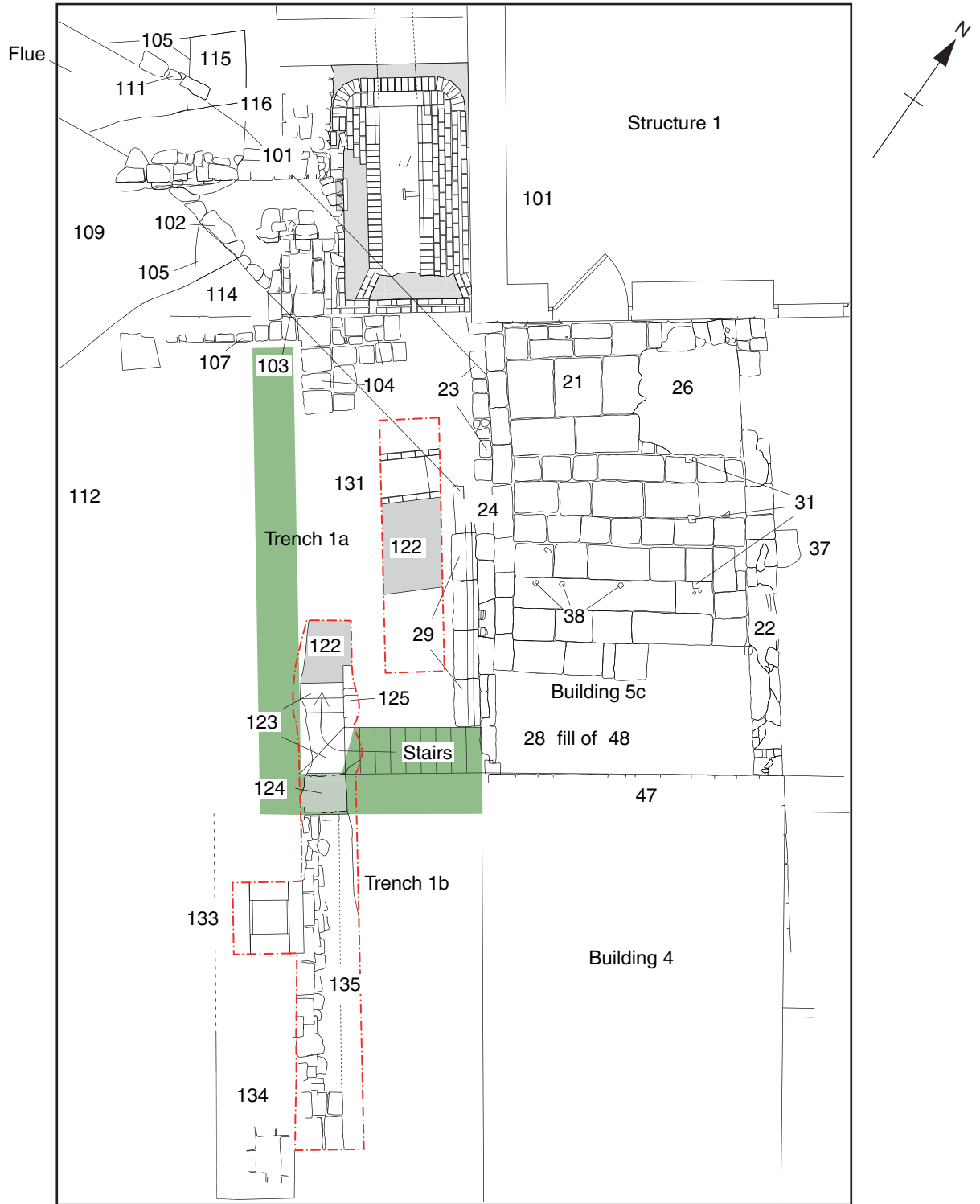


Figure 3: Site plan showing excavated areas and buildings. The lower ground floor of Building 1 is shown (based on a survey by H.J. Rees & Company Ltd)



Key	
	Wheel pit (from historical sources)
	Area outline (as in figure 3)
9	Wall described as temporary in 1808. The boiler was probably sited between 9 and 13
6	Part of the boiler ducting
14	Thought to be the site of the steam engine itself
16	Small shaft leading to the void under 15

Figure 4: Detail of Buildings 5a and 5b



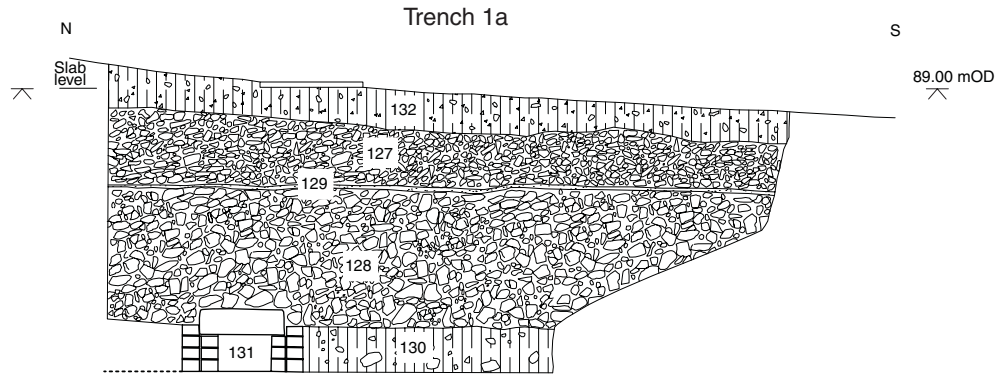
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Key

- Western cellar reconstructed
- Area outline (as in figure 3)
- Trench outlines

(Individual context numbers for the brick elements of Structure 1 have been omitted for clarity)

Figure 5: Detail of Building 5c, Structure 1, and Trenches 1a and 1b



Left; Trench 1a, the northern part of Trench 1. The cellar floor and the brick and stone conduit are shown, as well as the massive amount of rubble infill in the cellar. Note the silting predating the infill.

Below; Trench 1b, the southern part of Trench 1. The cellar structures are shown. Layer 136 is the original stone chip makeup of the 1805 yard, covered by later 19th century makeup. 144/145 appear to be part of a demolished later 19th century building.

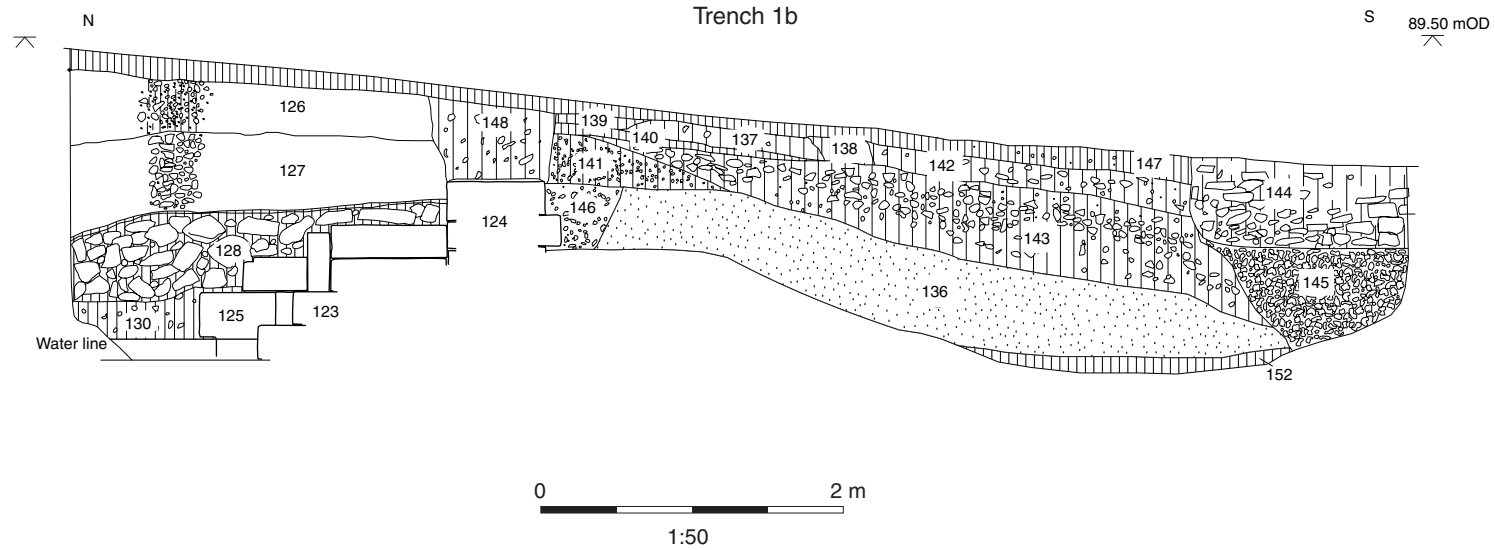
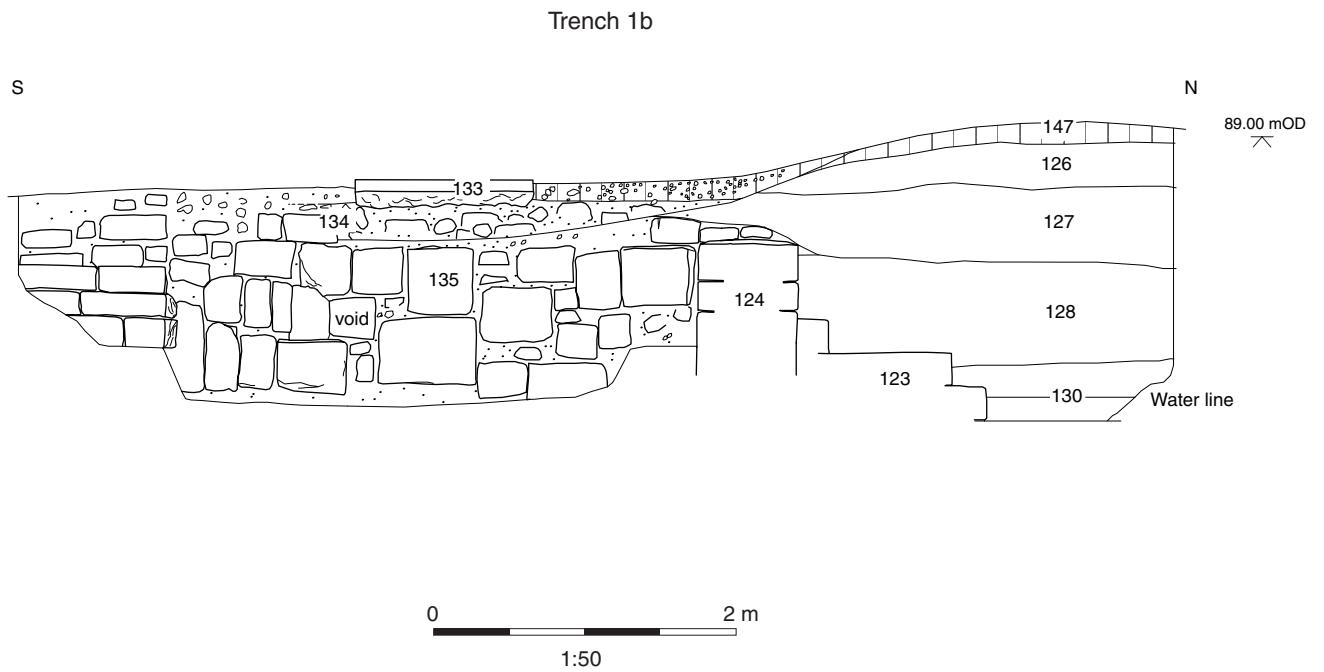
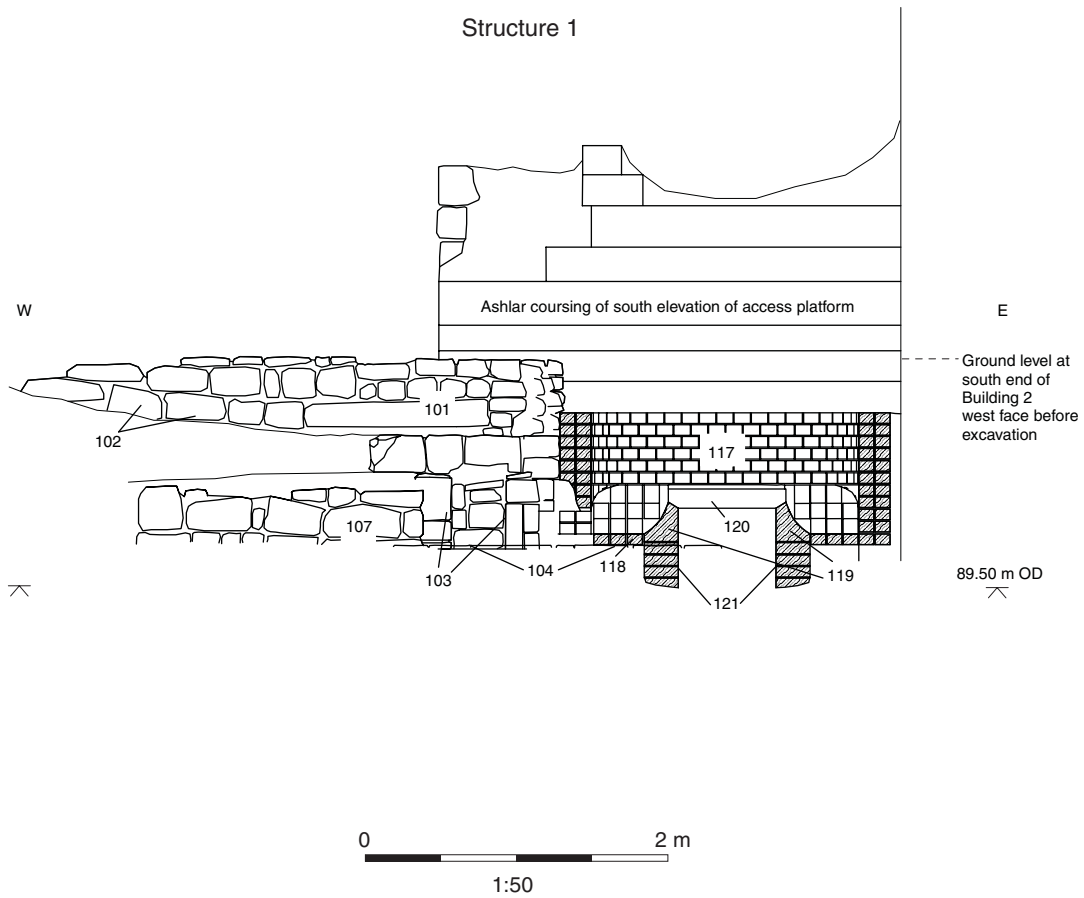


Figure 6: Trench 1a and b



The cellar structure and infill is shown (the latter schematically). The side of the stone chambers, interpreted as water tanks (contexts 134 and 135) are shown, probably robbed of facing, some of which survives on the south, and the manhole, 133.

Figure 7: Trench 1b, the southern part of Trench 1



Walls 101 and 107, and the end of 103, are shown in elevation. The brick structure is shown in section just south of the lintel 120 and the curved end wall of 117 is shown in elevation behind it. Blocks 119 are the “quadrant” fire bricks stamped with “Hickman and Co. Stourbridge”. The profile of the surface of the slabs (104) in front is also indicated. 102 are blocks of the flue incorporated in 101, shown before further excavation.

Figure 8: Section and elevations of Structure 1 from the south

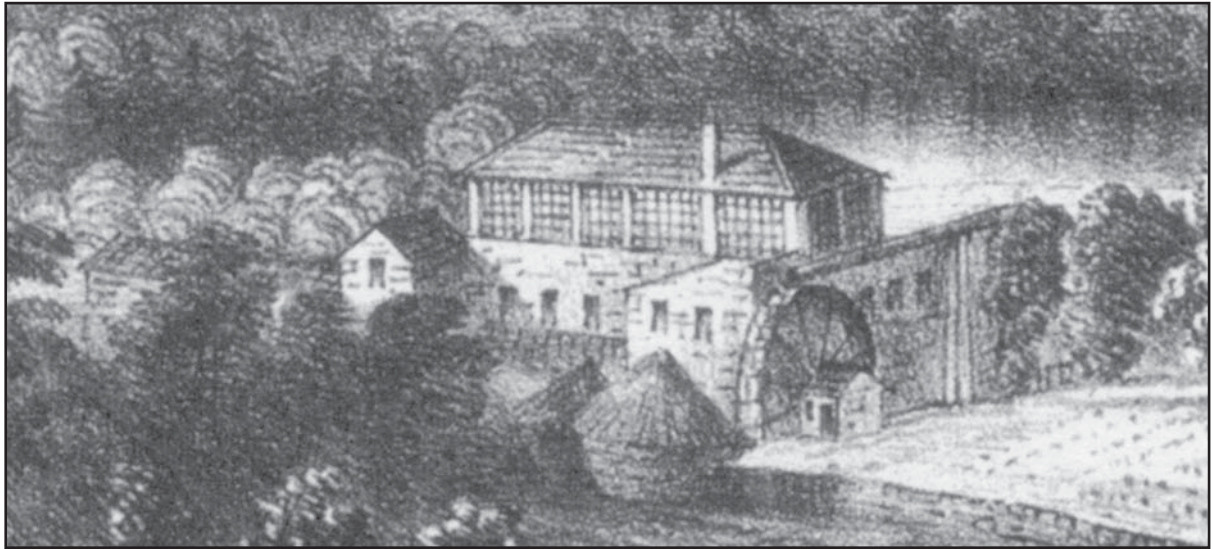


Figure 9: A detail from a drawing by Mrs Tackler of Bath which shows the mill after the construction of single pitch roofed Building 5a and the gabled “western building”, and before the construction of Building 3. It ought, therefore, to date from before 1810. There is a suggestion of a single storey building between them, perhaps Building 5b. It is known that Mrs Tackler was active in the 1850s, yet her details also predate the structures shown on Cotterell’s 1852 map and on subsequent mapping until 1932. She may have used an older view for reference, but updated it inconsistently

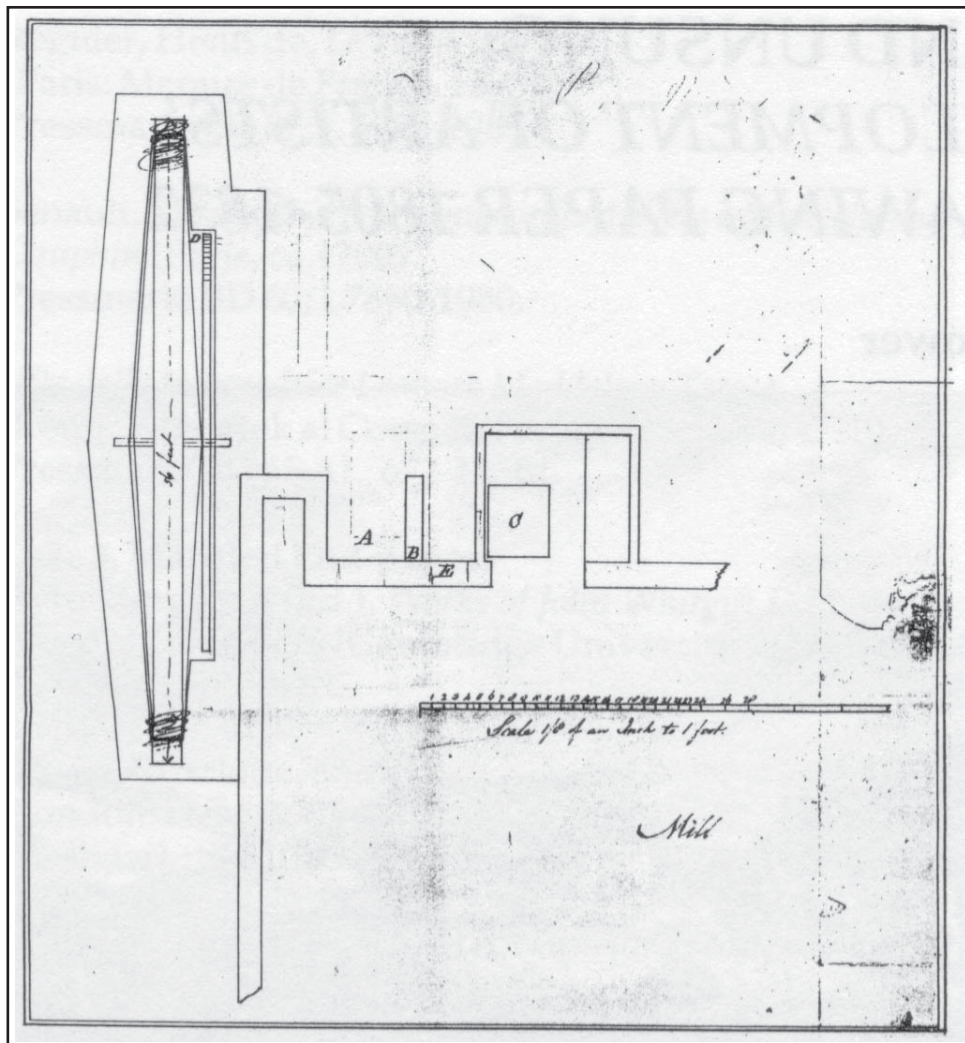


Figure 10: Steart’s drawing of the area of Building 5a in 1808 showing his preferred position for the boiler (A). This cannot be reconciled to Boulton and Watt’s proposal of the following month (fig. 11) but looks to be close to the position suggested from excavation

Architectural Ashlar from Groups 1 and 2

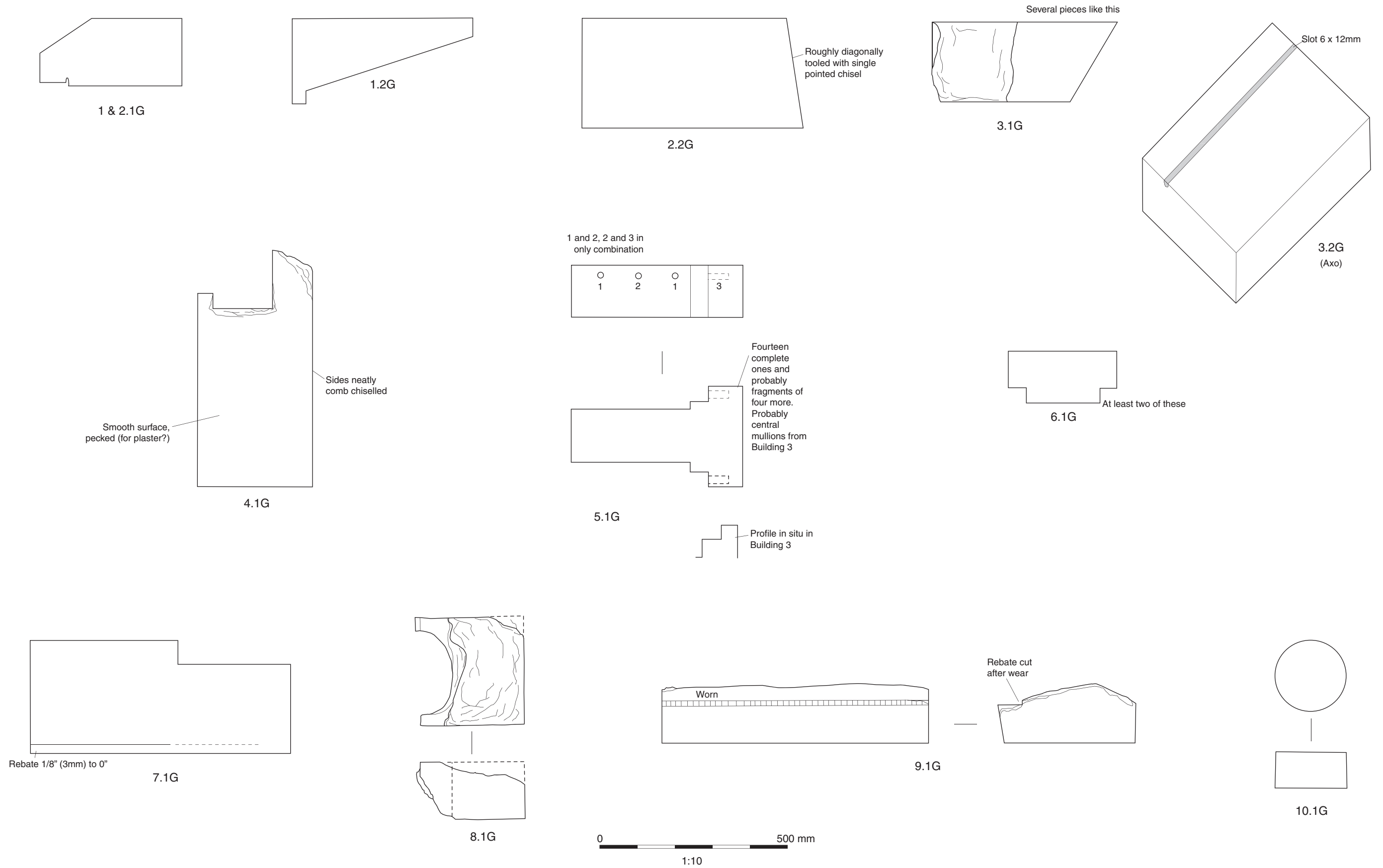


Figure 13: Architectural ashlar from Groups 1 and 2

Stone Mounting Blocks

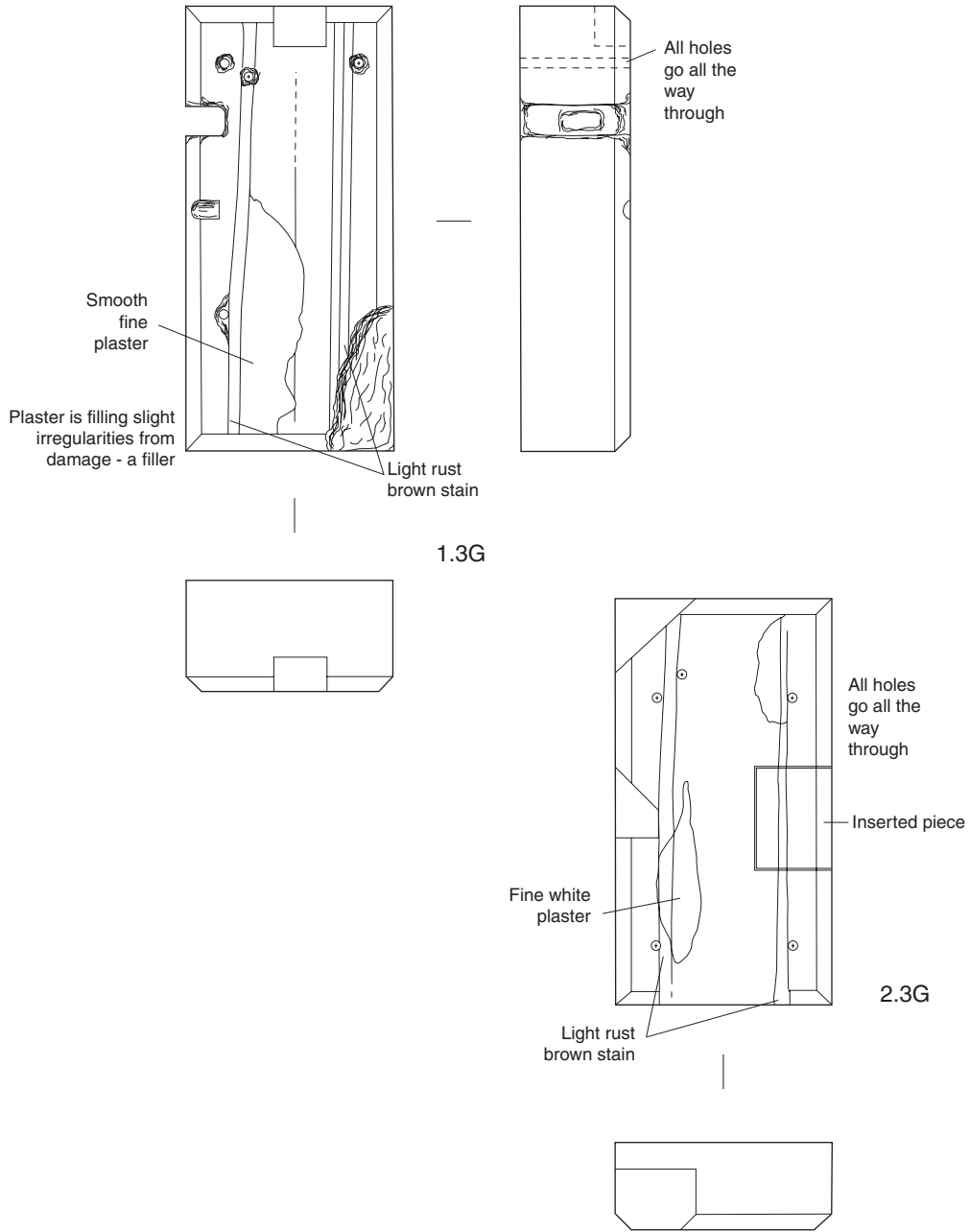
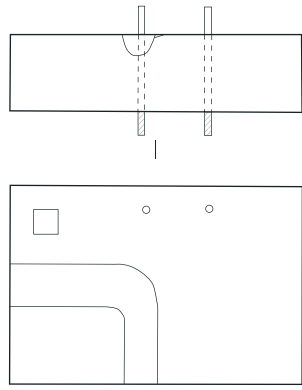
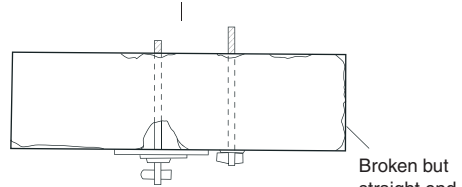
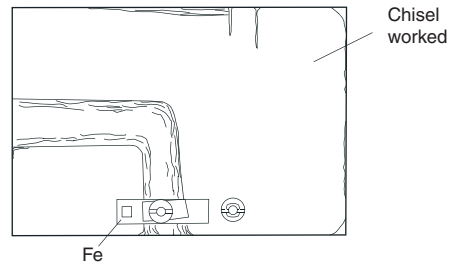


Figure 14: Stone machine mounting blocks from Group 3 on the site Building 3



4.3G



3.3G

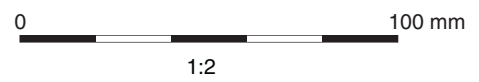
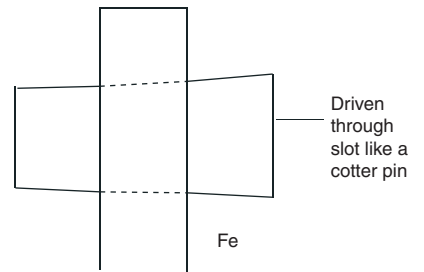
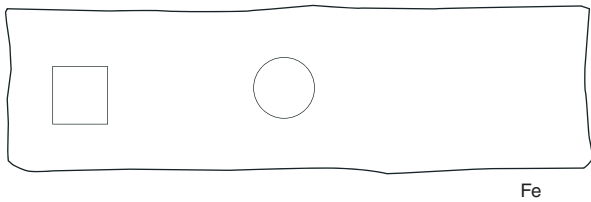
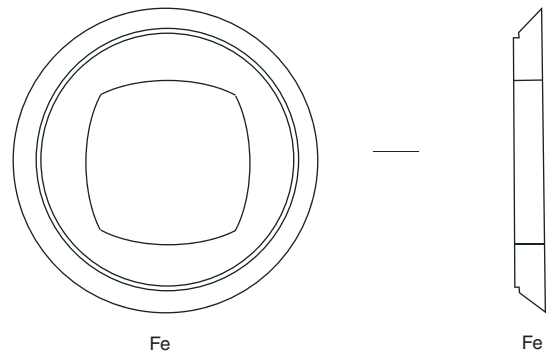


Figure 15: Stone machine mounting blocks from Group 3 on site of Building 3 and Building 5a/b



Plate 1: General view of mill from west with Building 2 to left rear and roofless Building 4 to right rear. The low range bottom right is Building 1, subject of a separate report



Plate 2: View from south with the platform of Building 3 in foreground (Building 4 to left) and Building 2 in the background



Plate 3: Building 5a seen from above and north. Suggested steam engine position at top and boiler position below



Plate 4: Building 5a and 5b seen from above and north. Building 5b to right of picture



Plate 5: Building 5c seen from the east



Plate 6: Structure 1 seen from the west. The stone walls and robbed floors of the terracing are evident in the foreground and the brick steam cabinet base in the background. The pre-excitation ground surface is still shown by the mark on the wall of Building 2 in the background



Plate 7: Context 3, the slot in Structure 1 lowest terrace. This also shows the structural interlocking of the brick and stone parts of the structure. Note the pink heat discolouration of the stones at the rear of context 3



Plate 8: The brick culvert in Trench 1a seen from the south, just after discovery. Note the strong ledge formed by layer 129, the mortar layer between rubble fills 127 and 128



Plate 9: The stone steps down to the "western cellar" seen from the north in Trench 1b. Wall 124 to top of picture



Plate 10: The west side of Trench 1b, showing the water tank's robbed (?) east side and the pennant framed manhole, 133



Plate 11: Interior of the water tank next to Trench 1b seen through a void in the side wall, showing it almost full of rubble and rubbish



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