TONE WORKS GREASE RECOVERY PLANT, MILVERTON ROAD, WELLINGTON, SOMERSET

Centred on ST 12724 21852

Results of historic building recording and an archaeological watching brief

Taunton Deane Borough Council planning reference 43/11/0080, condition 22

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On behalf of:
Strongvox Homes

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AC archaeology

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Appendix 1: Digital Photograph Register

Appendix 2: Insurance Plan of Tone Grease Works, with annotated notes, n.d.

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Summary

An historic building survey and watching brief was carried out by AC archaeology between September 2014 and May 2015 at the Tone Works Grease Recovery Plant, Wellington, Somerset. The work was carried out prior to and during demolition of the buildings and associated structures.

The plant formed part of the larger 19th- and 20th-century Fox Brothers' textile factory at Tonedale. Two buildings of historical significance survived from the first stage of the Grease Refinery in the later nineteenth century. Other late 19th- and early 20th-century buildings and structures were mainly in very poor condition. Two pump houses of the mid-twentieth century and a number of settling pits and tanks were also identified. A full survey of the plant was prepared, including phasing of the building, settling pits, tanks and channels.

1. INTRODUCTION (Fig. 1)

1.1 This report describes the results of the archaeological recording of buildings, pump houses, settling tanks, channels and other features prior to redevelopment of the former Tone Works Grease Recovery Plant, Wellington, Somerset (NGR ST 12700 21850; Fig. 1). The work was carried out by AC archaeology between 23 September 2014 and 11 May 2015 Ltd on behalf of Strongvox Homes, and was required by Taunton Deane Borough Council under condition 22 of the grant of planning permission (reference 43/11/0080) for "Erection of 84 no. dwellings and associated works as enabling development in connection with the repair and restoration of listed buildings at Tone Mill, Milverton Road, Tonedale, Wellington". Guidance on the scope of works was taken from the Somerset Historic Environment Service's (HES) planning advice to Taunton Deane Borough Council, and the work was carried out in accordance with a Written Scheme of Investigation for historic building recording and an archaeological watching brief (Passmore 2014).

1.2 The Grease Works is located on the outskirts of Wellington, 1.5km north west of the town centre (Fig. 1). The site is on the flood plain of the River Tone, and is generally level at a height of around 47m aOD. The geology comprises of alluvial clays and silts overlying a bedrock of Triassic Otter sandstone formation. The surviving area of the Grease Works covers approximately 1.75ha, and is bounded on the west by Milverton Road, while the access road to the Lowmoor Business Park forms a north boundary between the site and the River Tone. The Business Park and Wellington's sewage treatment works are beyond the east boundary, and the southwesth corner is taken by the Tonedale Industrial Estate which has an entrance off Milverton Road. The remaining part of the south boundary is formed by a track along the course of the abandoned Grand Western Canal.

1.3 The Grease Works is closely associated with two surviving woollen textile mill sites of Fox Bros & Co. The large and impressive Tonedale Mills site is 0.5km to the south, while the Tone Mill and Dye Works (hereafter called 'Tone Works') is opposite the Grease Works on the west side of Milverton Road (Plate 1). Cloth finishing, drying and dyeing took place here and a tall twentieth-century chimney of the boiler house and power plant dominates the scene.

2. HISTORICAL BACKGROUND: FOX BROS & THE GREASE RECOVERY WORKS

Fox Bros & Co. Ltd

2.1 The Grease Works was the last in the line of processes undertaken at the Fox Bros & Co. Ltd's large integrated woollen textile operation, from scouring to spinning, weaving, dyeing and finishing at the two main sites of Tonedale Mills and Tone Works in Wellington. Begun by Thomas Fox in the 1790s, the business grew from its main base at Tonedale Mills to become a large water and steam powered complex which was remarkably well preserved at the time of closure. Many of the buildings at the Tonedale Mills and Tone Works sites have been listed.

2.2 Fox Bros & Co. Ltd produced serge and lighter flannels, and from the 1880s became well known for developing khaki dyes for military clothing and the production of knitted puttees which were much in demand during the Great War. The Fox family showed interest in the housing and welfare of their textile workers in the town of Wellington. The firm became the largest of its type in the South West, with other factories such as Coldharbour Mill at Uffculme, Devon, and the Bliss Mill at Chipping Norton, Oxfordshire. The firm went into receivership in 2000 although Fox Bros still produces high quality cloth at another site. Histories of Fox Bros & Co. Ltd and the mill sites have been published elsewhere (e.g. Hagen & Fox 2000; Williams 2000 and 2013).

2.3 The Tone Works developed for dyeing and finishing in the late eighteenth century at the site of the Were family's fulling mill on the River Tone and the site was enlarged to include its own electricity generating plant in the twentieth century. The dye works section was one of the largest in the South West and much of the finishing machinery survives in the Tone Works.

River Tone pollution

2.4 Wool scouring, and the finishing and dye works, produced large quantities of effluent which became a serious cause of pollution in the River Tone, especially after the expansion at Tonedale Mills from the mid-nineteenth century onwards. Complaints were not just about the grease but also the acidic waste from the dye works which caused harm to fish stocks and cattle.

2.5 At present the full history of the Grease Works site is unclear, but there are early records of attempts to control pollution in the River Tone. For example, in 1854 catch pits and filter beds were constructed east of Milverton Road for the dye works' effluent and in 1877 new ditches were dug to oxygenate effluent from the works (Somerset Industrial Archaeology Society (SIAS) archives). In February 1881 there were plans for new filter beds, with a drain downstream to the far corner of the moors, but in 1885-6 river pollution was far worse than imagined and the weir on the Tone 'causes all soap…to froth into balls which float slowly down.' (Jessop 2007).

2.6 In 1892 action was brought in the High Court by William Ashford Sandford of Nynehead Court, landowner, and Stephen Bailey, tenant at Hornshay Farm, against Fox Bros, alleging that the 'defendants poured noxious and stinking substances into the streams, so that the waters became so foul as to kill the fish in the streams, and to injure the cattle who drank the water besides becoming a nuisance to the families of the plaintiffs.' The state of the river in 1886 was said to be 'extremely filthy and offensive'. A witness, Richard Easton of Bradford-on-Tone, said that since the mid 1870s 'the stream became of a bluish black colour, and the sand on the banks showed deposits of colouring matter.' H.J. Alford, Somerset County Analyst, said the water was 'not fit for human beings, stinking abominably. The effluent was little better than sewage.' James, son of Stephen Bailey, recorded that in 1885 all cattle with access to the river were sick and several died. On 15 July 1891 there was an unusually disagreeable smell from

the river and he found cattle in a very bad state. The river was 'very black' (BMDP 8, 9 & 12 November 1892).

2.7 After considering the case, Mr Justice Charles ruled that although the defendants had a prescriptive right to pour refuse matter into the River Tone, this should not injure fish or cattle, or cause offensive smells, and they had exceeded their said prescriptive right. Further, they had no prescriptive rights to pollute the tributary Black Ham stream. The defendants were ordered to pay the plaintiffs nominal damages of one shilling and their costs. An injunction restrained the defendants from discharging refuse in excess of their prescriptive rights and the river should be no less pure than before the enlargement of their works in 1852 (Times, 14 February 1893).

Grease recovery works

2.8 However, by this date Fox Bros had established their purpose-built grease refinery across the road from the Tone Works. The Rivers Pollution Prevention Act had been in place since 1876 and this is likely to have encouraged the opening of the first grease refinery. Evidence in the court case referred to grease pits being established in 1886, presumably the refinery, and it is significant that W.G. Easton of Bradford commented on a great improvement in water conditions recently.

2.9 An effect of the court case must have been the enlargement of the grease works over the next decade to deal with the dye works' effluent, and in 1892-3 it was said that £1,628 4s 3d was spent on 'New Filtration Buildings and Tanks' for a proper system (Jessop 2007). This is very likely to be the laboratory and long settling tanks which had been added by 1903. Tighter controls and monitoring came much later when Rivers Boards were set up in 1948 and the Rivers (Prevention of Pollution) Act was passed in 1951. The last expansion and improvements of the grease works is likely to have been in response to this under Fox Bros' chief chemist, Brunton, in the 1950s and 1960s. The grease works was being run down by the 1970s, at a time when new dyestuffs were coming in. When the modernised Wellington sewage treatment works was opened in 1971, it was likely to have been capable of treating some of the grease works' effluent.

Processes at the grease works

2.10 The flow sequence through the buildings, pits and settling tanks is not fully understood, but it is clear that underground and overhead pipes (the latter no longer extant, but seen in aerial photographs, e.g. Plate 3) conveyed effluent through the separation and settling processes.

2.11 The purpose of the works was to extract the grease and other matter from the textile mill's effluent and thus reduce pollution in the river but this also provided by-products such as lanolin which had a commercial value.

2.12 The scouring or washing of wool fleece took place at the start of the process at the higher, Tonedale Mills and it is said the effluent was drained by pipe (location uncertain) to the grease works. One wool scouring process was carbonisation whereby acid was used to remove burrs and other vegetable matter in the fleece.

2.13 Sulphuric acid was used to separate the grease and dirt which settled out as a crude sludge. This could be further refined by boiling, filter-pressing and steaming. When the grease was heated and stirred with an added alkali, the fatty acids were saponified into a molten soap mixture. Lanolin was put into casks for cosmetics and the residue was settled in pits and shovelled out in the form of 'cakes' for fertiliser.

2.14 The grease works also treated the effluent from the Tone dyeworks which was strongly coloured and extremely acid. This had to be refined and the chrome and acid dyes neutralised with alkalis before being discharged into the river, and perhaps later it was reduced to a condition acceptable for processing by the nearby Wellington sewage works. One process is said to have used pottery pipes for filtering wool 'flock' which was contained in the effluent. At a later stage there was a round filter bed and rotating spray, using aerobic bacteria to treat effluent, as in a conventional sewage works.

2.15 Many of the buildings were chemical stores and an undated insurance document (Appendix 2) suggests three rooms stored barrels and one room stored withies which are presumed to have been used for making the baskets to contain raw fleece at the textile mill.

2.16 Steam was used in the processes and a small boiler house was identified at the grease works (Building GR5). Later, steam from the large Tone Works boiler house was brought in pipes carried on a lattice gantry bridge (site EF1) across Milverton Road.

3. *ARCHAEOLOGICAL BACKGROUND*

3.1 Most recording work has concentrated, justifiably, on the large Tonedale Mills and Tone Works sites. Mike Williams assessed the significance of the Tone Works for English Heritage in 1995 and 2000, describing that site as 'an unusually well-preserved cloth dyeing and finishing works' (Williams 2000, 2). The grease works was not included, although a later, short report did mention the existence of a separate grease works for treating effluent (Williams 2009-10, 12).

3.2 Attention was given to the grease works in a conservation plan compiled in 2004 but this excluded the original Grease Refinery block which was not then in the ownership of the client. The report concluded that the grease works 'had one principal phase of development. It is therefore of little or no archaeological significance' (Woodhall Planning & Conservation 2004, 55). As seen below, the current recording project shows that this dismissive view is not entirely correct.

4. *AIMS AND METHODOLOGY*

4.1 The principal aim of the historic building recording and watching brief was to provide an archive record of the buildings due for demolition with an assessment of their significance, as well as a record of the settling pits and other features. The recording was undertaken in accordance with a written scheme of investigation prepared by AC archaeology (Passmore, 2014) and prepared to a Level 2/3 survey, as set out in the then applicable *Understanding Historic Buildings: a guide to good recording practices* (English Heritage, 2006).

4.2 Recording was undertaken with due consideration of health and safety issues. For this reason dangerously collapsed structures combined with dense undergrowth made it impossible to access parts of the original Grease Refinery block, the T-shaped block (Building L1) and the settling tanks. The first visit in September 2014 found the whole site extremely overgrown which rendered parts inaccessible. However, the interior of the two main buildings and a pump house were recorded at the time. Following widespread vegetation clearance by contractors across the site by March 2005, other buildings and structures were revealed for recording although some building exteriors were still hidden. Further monitoring took place during demolition work between March to May 2015.

4.3 Background histories of the development of the Tone Works have been obtained from different publications (e.g. Williams 2013) whilst the newspaper reports of the 1892-3 pollution court case were informative. Some archives have aided the interpretation of the remains at the grease works, including an undated insurance plan and notes showing the early part of the site (Appendix 2). Large scale 1:2500 Ordnance Survey maps surveyed and revised between 1887 and 1992 trace the developments at the site, such as changes and additions to buildings and settling tanks (Figs 3-9). A detailed topographical survey of 2009 brought the site up to date (Appendix 3).

4.4 Oblique and vertical aerial photographs (AP) dating from 1946 to 2010 were consulted in the National Monuments Record, Swindon, to provide useful additional information when used alongside the map evidence. Further indication of the usage and deterioration of the Grease Works site came from internet sources such as Google Earth vertical images of 2002, 2006 and 2010. A surprisingly useful source has been the internet Google Streetview, with ground level images of 2009 and 2011 showing the relative heights of buildings, details of windows, doors, former walls and their general condition before the site became overgrown. This is important for sites such as this which do not normally attract the eye of interested photographers.

5. RESULTS OF RECORDING: GREASE WORKS SITE DEVELOPMENT (Figs 2-12)

Development periods

5.1 The Wellington Tithe Map of 1839 shows the Tone Works already established in a recognisable form, but to the east of Milverton Road there has been no development at the Grease Works site (Fig. 2). Of interest is a prominent meander in the River Tone which was subsequently infilled when the river course was straightened. The river was also diverted at the Tone Works.

5.2 Eight periods of development and decline at the Grease Works site are based on Ordnance Survey maps of 1887-2010, supplemented by evidence from aerial photographs, 1946-2010.

Period 1: by 1887 (Figs 3-4)

5.3 The 'Grease Refinery' had been established by 1887, perhaps newly built, when it first appears on the Ordnance Survey 1:500 and 1:2500 scale maps as a square block of buildings aligned approximately northwest–southeast and southwest–northeast. They are arranged around the four sides of a central yard, with vehicle access by a central passage through the southwest range (Building GR1). Opposite, the parallel outline of the smaller Building GR2 can be identified. The northwest range is Building GR4 (now in ruins), while the southeast range may have been less substantial (now vanished). Inside the yard there is a well and there are at least four smaller buildings attached to Building GR1. A small circular feature attached to the outside wall of Building GR2 and a square feature standing half way along its length might be chimneys. The 'Grease Refinery' block remained the core of the site throughout its life.

5.4 The 1:500 scale map (Fig. 5) is large enough to show hedges have been laid out to screen the site from Milverton Road. Vehicle entry is between a hedge and the soap pits while a footpath leads straight from Milverton Road to the front of the refinery block.

5.5 Twin 'aqueducts' (still extant) bring effluent from the Tone Works across the river and under Milverton Road into the site. Here an 'aqueduct' crosses over a drainage channel running parallel to Milverton Road before discharging into the River Tone. There is an effluent branch

towards the soap pits but the main channel passes just south of the Grease Refinery. There is a long drainage channel along the east boundary of the site, fed from a sluice on the line of the former Grand Western Canal.

5.6 It was said during the pollution case brought against Fox Bros in 1892 that 'the grease pits were only established in 1886' (BM&DP, 16 Nov 1892) so it may be that this is also the date of the Grease Refinery as a whole.

Outside the project area

5.7 Immediately north west of the Grease Refinery block and the River Tone the maps show 10 'Soap Pits' which are probably inter-connected and have at least five sluices. Two smaller pits at the south west end might be a single pit with a bridge across the centre, since this is a single pit on all subsequent maps. A remnant of a River Tone meander survives with water in 1887 very close to the east side of the Grease Refinery block. A drain from the site leads some distance to the east where small 'Filtering Pits' are arranged in two rows of 18 and 16 each, with many sluices and footbridges (Fig. 3). These appear to have been for further treatment of effluent from the grease works, rather than part of Wellington's early sewage works. The outflow is believed to be the Black Ham stream referred to in the pollution case.

Period 2: 1887-1903 (Fig. 5)

5.8 By 1903 the refinery block is unchanged except that a small building considered to be a boiler house (GR5) has been attached to the outside of Building GR2 close to two small square features, the outer one of which may be the chimney although it is not named as such until Period 3. The soap pits are now shown as nine, and two new pits of different sizes have been added to the south west of the refinery block. One of these is the magma pit (T5) discovered during demolition work in 2015.

5.9 There has been a major development to the south of the refinery block, with buildings and structures constructed on the same alignment. This includes a large T-shaped building (L1) around which are arranged five large rectangular filter beds and settling tanks, some with internal divisions (BFT, T1 and B1-3). A low bank of raised ground has been thrown up to the south west and south east of the largest bed (B3). The aqueduct channel (with a small settling tank or inspection chamber?) and other channels are marked.

Outside the project area

5.10 The old river meander has been filled in and there is a new, large filter bed or pool with a rounded end to the east.

Period 3: 1903-30 (Fig. 6)

5.11 The layout in 1930 is very similar to 1903 with only a few alterations. A new building (GR3) has been added to the northeast end of the Grease Refinery block, and a smaller building attached just southeast of boiler house GR5. The free-standing chimney for the boiler house is now named.

5.12 There is now a circular feature near the north west corner of the refinery block, and two small square tanks have been attached to the aqueduct channel where it passes the T-shaped building. The channel has been covered in places south of the Grease Refinery block. More subdivisions are marked in the buttressed filter tank (BFT) and five tanks (T2) have been inserted at the north end of filter bed B3, close to the T-shaped building. The southeast site boundary has been altered at its east end, perhaps in anticipation of further expansion.

Outside the project area

5.13 A small building now stands alone near the site boundary to the northeast of Building GR3. Much further east, the south row at the filtering pits has been reduced from 16 to 14. To the south of these the new large Wellington Urban District Council's (UDC) sewage works has been constructed, with filter beds and tanks.

Period 4: 1930-50

5.14 A vertical aerial photograph of May 1946 shows the first sludge bed (B4) south of the main settling tank (T1). This does not appear on Ordnance Survey maps. Soon afterwards two sludge beds (B5 and B6), with side channels and much larger than anything before, were added in the area south east of the main site by March 1950.

Period 5: 1950-65 (Fig. 7)

5.15 Major changes had taken place by 1965 (Ordnance Survey map). New construction included two pump houses, each with their own small tanks. Several long drains are shown on the map. The most western of the original 'soap pits' next to the Tone is no longer shown. A driveway is marked coming into the site from Milverton Road close to Tone Bridge, and there is a new track entering from the southeast corner of the extended site.

Outside the project area

5.16 The small building to the north east of Building GR3 has been removed by 1965, as have the entire two rows of small filtering pits to the east of the site. The Wellington UDC sewage works has been further developed.

Period 6: 1965-73 (Plate 2)

5.17 The site must have been completed in the late 1960s, as an aerial photograph of March 1973 shows the round filter bed unit (RF1 and RF2) had been added at the south end of the site. The early 'soap pits' survive but are probably disused. Overhead pipes or channels are seen on the grease works site, including one from the direction of Tone Works.

Outside the project area

5.18 An overhead pipeline crosses Milverton Road into the site from Tone Works (the steel lattice bridge still survived in 2015 – site EF1).

Period 7: 1973-93 (Fig. 8 and Plate 3)

5.19 A period of decline with the main change to the original Grease Refinery block. The entire southeast range has been demolished along with the three small buildings attached to it. The boiler house chimney stack has also been removed. A new entry to the yard has been made through the northwest range (Building GR4). The long sludge beds are abandoned and overgrown with part of the south bed (B6) now overlain by a corner of the new Tonedale Industrial Estate. The pump houses (one is named) and the round filter bed remain. According to the map all the early 'soap pits' have disappeared. In addition, vertical and oblique aerial photographs of June 1993 show this area crossed by the newly constructed access road into the Lowmoor Business Park. The photographs also show that Building GR1 has acquired a new roof some time previously, as ivy is beginning to grow over the south east end. The building appears to be in use; the archway in the north east wall has been blocked and a yard formed in the area in front of the southwest side, with a new entry from the Business Park road.

Outside the project area

5.20 New buildings of the Lowmoor Business Park have been erected to the east of the original Grease Refinery block. The Milverton Road has been re-aligned, taking some of the west

boundary of the site, and crosses the River Tone by a new bridge, leaving the original bridge intact as a lay-by.

Period 8: 1993-2010

5.21 This is the period of final use and decline following the closure of the Tone Works when the abandoned site steadily became overgrown. Oblique and vertical aerial views show the last activity at the original Grease Refinery site between 1993 and 2010. Building L1 was never re-used. These images coincide with a detailed plan of the site dated February 2009 (Appendix 3).

5.22 Period 8a: 1993-98. Building GR1 is occupied by a landscaping firm (evidence found during the archaeological recording) and two or three temporary structures or sheds were erected in the gravel yard on the west side. The north west range (Building GR4) is still intact in October 1994, but has been demolished by April 1998. The rest of the Grease Works site becomes heavily overgrown with woodland scrub, but the main settling tank (T1), two pump houses, round filter bed and main channel appeared to be still capable of use in June 1993 and possibly as late as April 1998.

5.23 Period 8b: 1998-2003. Only the east end of the northwest range (Building GR4) has survived demolition, where it is attached to Buildings GR2 and GR3. By April 2003 a vehicle access had been cut through the demolished Building GR4 from the Business Park road into the former central yard. Parked cars and vans here are in accordance with field evidence that Buildings GR2 and GR3 are being used as a vehicle repair facility. The ridge vent roof of Building GR2 has been renewed by April 2003.

5.24 Period 8c: 2003-10. The roof of the abandoned Building L1 is intact in April 2003 but most of the slates have been removed by September 2007. Trading at Building GR1 must have ceased by 2007 when the ground had been cleared of materials, subsequently becoming overgrown. The vehicle business in Buildings GR2 and GR3 has ceased by March 2010. Throughout the site vegetation was cleared by 2006 to reveal the outline of tanks and buildings but shrubs were beginning to return by 2010.

5.25 The state of Buildings GR1-4 can be seen from the ground in the internet Google Streetviews of 2009 and 2011. Of greater interest is the more distant T-shaped building (L1) which still stands in March 2011 and shown to be a low single-storey building beneath a large roof from which the slates have been removed. The southwest elevation is clearly visible, with a brick wall and continuous windows. The brick chimney of this building is prominent.

6. RESULTS OF RECORDING: SITE DESCRIPTION (Figs 9-11)

6.1 The recorded buildings, tanks and features are shown on the site plan Fig. 9.

Grease Refinery buildings

6.2 The oldest part of the site is the Grease Refinery block, arranged around a central yard where the main survivals are Building GR1 (the southwest range) and Building GR2 (northeast range). Their walls are of rubble limestone probably quarried at Westleigh (Carboniferous, Westleigh Limestone Formation) in Devon, close enough to have been carried with little difficulty by road or the Great Western Railway, since this section of the Grand Western Canal was already closed by the probable construction date of the Grease Refinery. Plain red bricks used for the window openings and some internal walls have no maker's mark but are likely to have come from the Wellington brickworks at Poole. There are some traces of other early

buildings (e.g. the northwest range, GR4), while the later Building GR3 is of all-brick construction under a slate roof. Concrete blocks were used in Periods 7 and 8 for internal walls and to fill in doorways and windows. The buildings were empty and in a deteriorating condition at the time of recording.

Building GR1 (ST 12675 21912) (Figs 9 and 10, Plates 4-13)

6.3 Period 1, with alterations in Period 7 or 8. The largest building on the site, Building GR1 formed the south west range of the Grease Refinery block which was extant by 1887. The long building is aligned northwest–southeast and divided in the centre by a passage giving vehicle access into a central yard. The external dimensions are 32.2m by 8.9m, with solid stone walls 0.45m thick.

6.4 The final use of the building as a garden design centre is suggested outside by a board across a window which advertises the services of garden design, patio and wall laying, pond and rockery construction and power hose cleaning. Around and about and inside the building are traces of concrete edging and paving slabs (including some moulds) and a compressor and hose.

6.5 *Exterior*

Southwest elevation

6.6 This is the best preserved side, presenting a rubble stone wall 32.2m long and 4.5m high. It is largely unaltered, with a central opening for a passage through the building. Period 1 brick jambs survive but the doorway has been heightened (Period 7) with the insertion of a girder lintel. To the north (left) are three windows for Room B with brick jambs, curved head and sill, the latter with bullnose bricks, and to the south, a matching window and a doorway for Room A. Two iron roller wheels for a sliding door survive on the wall to the left of the doorway. All the windows are boarded over, but the timber frames for six panes survive inside.

Northeast elevation

6.7 This faces into the yard. Towards the north end are two outlines of gable roofs for attached buildings, now demolished (Buildings GR4 and GR7). Two doorways gave access into Room B, but are now filled in with concrete blocks. The wide central passage archway survives unaltered but the opening is blocked. It shows how the brick arch must have looked on the southwest elevation, assuming the dimensions were alike. Towards the south end, a doorway enters Room A; one jamb has rounded single bullnose bricks. Whitewash on the wall indicates the position of the demolished Building GR8.

Northwest elevation

6.8 This is a gable wall of rubble stone, with quoins of square-dressed stones. There are matching central window openings, one above the other, for the ground and first floors, with brick jambs, sills and curved heads. The timber window frames survive for four glazed panes. High up, a protruding timber with two hanging bolts was possibly for a sign or it may be related to a pair of electrical insulators on the wall below. It appears too small to have been for a hoist.

Southeast elevation

6.9 This was overgrown and inaccessible, but it matches the northwest gable with two windows, as observed from inside the building.

Roof

6.10 The gabled roof is of modern corrugated metal sheeting (Period 6), which has helped preserve the structure of the building. Some original iron guttering survives.

Interior

6.11 The interior is divided into two rooms of equal size, separated by a central passage. The floor is *circa* 200mm lower than the ground surface on the southwest side, but level with the yard on the northeast side. Rooms A and B have floors of pale brick paviours. Period 7 and 8 alterations include widened openings, blocked doorways and the construction of an office room.

Central Passage

6.12 The main doorway in the south west elevation opens into a passage 3.05m wide which ran through the whole width of the building. By Period 7 the doorway had been raised to the full height of the wall, with the insertion of a steel girder lintel, but the positions of the original brick arch springing can be seen patched with cement. Two large timber doors, which do not reach to the full height, have almost collapsed. The opposite end of the passage is closed with concrete blocks incorporating a modern window, but the original brick arch is intact on this side, measuring 3.05m wide and 3m high.

6.13 The passage is bounded on each side by brick walls (laid in English bond) which rise to the full height of the building. Each wall is pierced by a wide opening with steel lintels (Period 7 or 8) into Room B on the northwest side and Room A on the southeast side. There is some patching with concrete blocks and both walls have an upper doorway or window opening, perhaps original. There is no obvious sign that the passage had an upper floor. Cement pointing suggests the passage walls may have been rebuilt during the lifetime of the building.

Room A

6.14 This was described as Room 36, an acid room and withy store, in the insurance document (Appendix 2), and has internal dimensions of 13.9m by 8m. The walls of rubble stone have traces of whitewash and two windows in the gabled southeast wall. It is entered from the passage through a wide opening. There are two open doorways, in the northeast and southwest walls, although a heavy iron plate has been pulled across the inside of the latter.

6.15 The doorway in the northeast wall, which gave access to a smaller building in the yard, is between the remains of two tanks with sides constructed of thick brick walls. Tank 1 is the best preserved, measuring 3.9m by 1.9m and 2.2m high. Its two remaining walls are built into the north corner of the room and dried, dark residue shows where the tank had been filled to a depth of 0.95m. The two demolished outer walls were 0.5m thick and their outline is traced across the floor. Tank 2, in the east corner, has been dismantled in a similar way, although there is no evidence for a residue here. Both tanks are considered to have been demolished in Period 7 or 8.

6.16 The timber beams and joists are less well preserved in this room, and on the southwest side two slender cast-iron round pillars support beams which must have become weakened at some stage. Close to the northeast doorway a timber staircase against the wall rises to the first floor over the site of Tank 1. Broken timber steps and floor joists were deemed unsafe and prevented access to the surviving part of the upper floor.

Room B

6.18 Described as Room 34, a barrel store, in the insurance document (Appendix 2). It matches Room A, with similar dimensions. The rubble stone walls have been whitewashed in the past. The northeast wall has two doorways of different widths which gave access into Buildings GR4 and GR7. Both are sealed with concrete blocks. The northwest wall has a central window,

boarded inside, with a higher window for the upper floor. The southwest wall has three windows, one now inside the Period 8 office room.

6.19 Room B was originally subdivided by a wall shown on the insurance plan. This was of single bricks (laid in English bond) but is mostly demolished, leaving a trace on the northeast wall and across the floor. The remainder has survived as a wall for the Period 8 'office' (see below) and retains a window which may be of an early date.

6.20 An office or store was formed in Period 8 within Room B in the space bounded by the external stone wall and the brick walls of the passage and the internal division, by closing the gap with a concrete block wall into which were inserted a doorway and two windows of different styles. This room, filled with hazardous debris, was not entered.

6.21 A feature of Rooms A and B is the use of massive timber beams to support the joists of an upper floor, perhaps consistent with the rooms' function as stores. In Period 8 many of the joists in Room B were removed and at least one large timber beam has been sawn off at both ends. At the northwest end some joists were removed to create a crude hatch or skylight. There is no evidence for stairs, although two timber boards bolted to the north east wall could have been a support.

Roof structure

6.22 The removal of floor timbers has made it possible to view the roof structure. The roof timbers appear lightweight, the rafters tied with a horizontal collar forming a simple A-frame. It is possible that the original roof was altered when the modern corrugated sheeting was added in Period 7.

Building GR2 (ST 12690 21925) *Figs 9 and 11; Plates 14-17*

6.23 Period 1, with minor alterations in Period 7 or 8, it formed the northeast range of the Grease Refinery which was extant by 1887. The building is of similar construction to Building GR1 with walls of rubble stone and roughly squared quoins. Debris inside survives from its final use as a motor vehicle repair works in Period 6.

6.24 *Exterior*

Southwest elevation

6.25 Towards the south end a doorway 2.75m wide and 3.24m high has brick jambs but the original brick arch appears to have been replaced by a steel lintel. A large door of corrugated iron sheeting on a timber frame (Period 7) gives entry into the building. Towards the north end a smaller brick-lined doorway was sealed with concrete blocks in Period 8. The upper guide rail for a sliding door remains on the wall above and to the left of the arch. This may not be original but date from Period 3.

Northeast elevation

6.26 This is almost obscured by dense vegetation, but two small windows for Room B survive high up; these could not be accurately recorded. These are the only windows in this building. An arched opening (blocked in Period 8) is seen from inside the attached building GR5.

Northwest elevation

6.27 A gabled wall of rubble stone, on which can be seen the whitewashed outline of Building GR4. A doorway which gave access into the latter building has been sealed with concrete blocks in Period 8.

Southeast elevation

6.28 This is a gabled wall of rubble stone, almost completely overgrown, with no architectural features.

Roof

6.29 The gabled slate roof is perhaps original but is deteriorating and several ridge tiles are missing. There are two skylight windows on the northeast pitch and two smaller skylights were inserted later on the southwest pitch and since covered over. Across the central portion of the ridge is a raised ventilated roof, now covered with corrugated metal sheets (Period 7 or 8). The timbers for this vent are seen in the roof space above Room B. Some original iron gutters survive above the southwest elevation.

Interior

6.30 The interior walls are rubble stone, whitewashed, with stone or brick patching in many places. The floor is concrete throughout. A brick wall separates Rooms A and B which are of unequal size. Both rooms are open to the roof and there is no evidence for an upper floor.

Room A

6.31 The smallest room, measuring 4.85m by 6.4m, is described as Room 31, a barrel store, in the insurance document (Appendix 2). The walls are heavily whitewashed. It is entered from the outside by the southwest doorway. In the northeast wall opposite, but not quite in line, a brick-arched doorway 2.55m wide and 3.46m high has been filled in with concrete blocks (Period 8). The southeast wall has extensive signs of patching with bricks beneath the whitewash. The north west wall is brick (laid in English bond) and reaches to the roof apex. The wall is whitewashed and high up are two holes of unknown function. Curiously, on the east side appears to be the trace of an angled roofline which could be partly explained by the insurance plan which shows the boiler house (GR5) extending from the outside into Room A. A low-arched opening gives access into Room B. Its original width was 2.28m but in Period 8 enough bricks were removed on the right-hand (north east) jamb to undermine the arch springing.

Room B

6.32 This much larger room, measuring 9.25m by 6.4m, is described as Room 34, a press room, in the insurance document. Like Room A, the walls are of rubble stone with many parts patched with bricks, but the concrete floor is 180mm lower. There are two small windows (blocked) high up on the northeast wall. The northwest wall has a brick-arched doorway 1.53m wide and 2.2m high, sealed with a concrete block wall. This would have given access into Building GR4. The southwest wall has a larger blocked doorway, measuring 1.92m wide and 2.47m high. Two iron bars are fixed high up at an angle across the west corner. The base of each wall below has a shallow recess supported by an iron bar lintel. Their purpose is not known but perhaps related to the room's function as a 'press room'.

6.33 A Period 7 or 8 feature is a concrete floor measuring 2.78m by 2.38m and raised up 150mm in the north corner between the north west and north east walls. Traces on the walls indicate this was for a flat-roofed timber-framed store or office.

Roof structure

6.34 There is no evidence for an upper floor, so both rooms are open to the roof. The three roof trusses in Room B are of king post construction, but the timbers are in a poor condition. A timber frame for the central ridge vent survives, and light to the room is provided by two large skylights in the north east roof pitch and two smaller skylights (covered with sheeting) in the south west pitch.

Building GR3 (ST 12690 21935) *Fig. 9; Plates 18-20*

6.35 This building measures 9.8m by 7.2m, surviving in reasonable condition and aligned southwest to northeast. It was added in Period 3 to the northeast end of Building GR4 and overlaps part of the north corner of GR2. Unlike the earlier buildings, the walls are of red brick and make a striking contrast. It is labelled Room 33A on the insurance document and assumed to have been a barrel store (Appendix 2).

Exterior

Northwest elevation

6.36 The red brick wall (laid in English bond) faces the Lowmoor Business Park road. The lower part has a doorway and a round-arched window with a wooden frame.

Northeast elevation

6.37 The gable wall has an offset doorway to allow for the movement of a large sliding metal door (closed), above which is a relieving brick arch and a large central window (boarded).

Southeast elevation

6.38 This is mostly obscured by vegetation. At the base is a doorway, blocked with bricks laid in stretcher bond courses. Higher up are two narrow windows, one seen to be boarded and the other hidden by ivy.

Southwest elevation

6.39 A gable brick wall stands on part of the original stone wall of Building GR4 to which this building was attached. A doorway between the two buildings is blocked with bricks, and its presence is shown on the insurance plan.

Roof

6.40 The gabled slate roof has a long a ventilated section above the ridge. Most of the iron guttering survives on the northwest and southeast sides.

Interior

6.41 The interior of the building was inaccessible at the time of recording, but glimpsed through the northwest window; the floor is of pale bricks. A door in the south east wall survives intact, although outside it has been blocked with a brick wall. Old tyres and cylinders among the debris inside confirm the building's final use as a vehicle repair workshop in Period 8.

Building GR4 (ST 12682 21933) *Fig. 9; Plates 8 and 21-22*

6.42 This is a ruinous Period 1 building. Aligned southwest to northeast this formed the northwest side of the Grease Refinery yard, attached at one end to Building GR1 and turning at the other where it was attached to Building GR2. It was described as Room 33, a barrel store, on the insurance plan (Appendix 2). It is a much lower, single storey building, originally measuring 18.2m by 8m. The east end of the long exterior north west wall survives, in rubble stone with a small brick window opening. The remainder was demolished in Period 8 to make an access into the yard area. Timber rafters for the gabled roof survive attached to the exterior northeast wall of GR1, in front of which the southeast wall of GR4 is outlined on the floor of the yard. The northeast stone wall was partly lowered when it was incorporated into the brick Building GR3 in Period 3. The section at the east end survived when a concrete wall was inserted to convert it into a small room in Period 8. Part of its slate roof and some collapsed timbers were still attached to the adjacent end wall of Building GR2 in September 2014. A fragment of brick wall is also attached to the end of GR2.

Building GR5 (ST 12698 21925) *Fig. 9 and 11; Plates 23-25*

6.43 This is a Period 2 boiler house, built against an arched opening into Building GR2. It is a narrow building with brick walls (laid in English bond) and internal dimensions of 6.07m by 2.4m, at the thicker base. A small door 1.03m wide in the northeast gable end gave access into a confined space beneath a damaged slate roof. Shaped firebrick boiler supports partly exposed in the floor and red burnt soil are evidence that this held a boiler. It appears to have been disused for a long time. There is an iron frame for a draught regulating plate at the north end of the northwest wall and, outside, the corner of this wall has been repaired. There is no evidence for pipework or any trace of the freestanding chimney, which had been demolished by Period 7. When Building GR5 was demolished many of the bricks were observed to have soot-stained mortar.

Building GR6 (ST 12700 21920) *Fig. 9*

6.44 This is a corrugated iron shed attached to Buildings GR5 and GR2, on a masonry base possibly of an earlier date. Overgrown and difficult to access, it is not shown on earlier plans, so it is considered to be from Period 7 or 8.

Building GR7 (ST 12675 21922) *Fig. 9; Plate 8*

6.45 A Period 1 structure, still standing in 1993 but demolished during Period 8. The whitewashed outline of the gabled building, sawn-off purlins and the shadow of rafters survive on the exterior north east wall of GR1. A doorway (blocked) in the wall gave access between the two buildings.

Building GR8 (ST 12685 21912) *Fig. 9; Plate 7*

6.46 A Period 1 structure, demolished by Period 7. Small building divided into two parts, with some whitewash and timbers (flat or lean-to roof) still attached to the exterior northeast wall of GR1. The division of the building is seen on the wall and by a line of red bricks across the floor of black bricks, now in the yard.

Building GR9 (ST 12690 21905) *Fig. 9; Plate 7*

6.47 A structure forming the original southeast wing of the Grease Refinery which had been demolished by Period 6. A concrete block wall survives on the south east side of the yard, very overgrown, attached to the corner of Building GR1. The stub of a concrete wall is seen against the wall of Building GR1, immediately right of a doorway. Aerial photographs of Period 8 show the walls of a roofless building (if ever roofed, it was lean-to with a low angle) which appears to have been used as an open store area, accessed by the door from GR1.

Building L1 (ST 12680 21870) *Figs. 9 and 12; Plates 26 32*

6.48 The building contained a laboratory and dates from the late nineteenth century, Period 2 (1890s?) expansion of the site which included new settling tanks to treat effluent from the dye works. It is building '39' on the undated insurance plan but, although not matched, this is likely to be building 41 on the list which is the 'Effluent Treatment Laboratory', with a hand-written addition of post-1974 date: 'Only lab used. Rem[ainder] rough storage' (Appendix 2).

6.49 Oblique aerial photographs of 1993-2010 and the Google Streetview of 2011 show this to be a single-story building with a low brick wall and windows beneath an oversized roof. All the roof timbers were surviving intact, but with slates removed, so the major collapse has occurred since March 2011. By September 2014 most of the central roof area had collapsed, but the roof timbers of all three hipped ends still stand.

6.50 It was not possible to investigate this building fully because of its dangerous collapsed state, while the vegetation made it difficult to approach closely. Some observations were subsequently made at different stages of demolition.

6.51 The building has a large T-shaped plan, with the main section aligned northwest to southeast and a wing to the northeast. The surviving brick walls are, unusually, laid in raking stretcher bond. The thin walls are a single brick thick, but doubled to form regularly spaced buttresses to support the main roof timbers. A brick chimney (L2) stands just inside the southwest wall. There is evidence of a red brick floor throughout the interior.

Northeast wing

6.52 This abuts the south west end wall of the upstanding filter tank (BFT) and four of its buttresses are seen partly demolished inside the building. There are vertical breaks in the brickwork where the wider building extends on both sides of the tank. Near the east corner a right-angled pipe protruding from the adjacent chamber 8 of the BFT filter tank must have joined pipework (now removed) inside the building.

6.53 In the north corner of the wing is a small concrete lined pit, not fully exposed. The east corner has a two-part concrete plinth for a motor (probably electric). Holding down bolts are visible on the upper plinth. A further plinth is present nearer a large sunken and partially flooded tank alongside the south east wall. This tank has a dividing wall set towards its northeast end and some of the walls are set onto wider projecting brickwork which possibly supported the wood frames for metal grills or screens which are collapsed here. The tank has a brick-lined channel at the west corner, with a *circa* 300mm diameter ceramic pipe leading into the tank at current water level.

6.54 Before demolition, a light girder crane was observed high up in the surviving hipped roof of the north east wing, while the collapsed area includes a roof truss with a line shaft attached. This 8m length of line shaft has three bearings, a pulley for a belt drive over the sunken tank and two more of different sizes at the other end. The line shaft is incomplete and in any case may have collapsed with the roof trusses away from the first concrete plinth upon which a motor must have had a belt drive. The roof trusses in this wing are king posts with struts. They have iron brackets for interleaving purlins, differing from elsewhere in the building which may indicate a replacement. Some trusses at the corner of the building have white ceramic transmission insulators.

Northwest wing

6.55 The undated insurance plan (Appendix 2) shows two small rooms at the end of the northwest wing. These were said to contain various bottles and jars in 2006, when two photographs were taken of an electric motor with a drive belt attached to a small pump and a second pump on a concrete plinth somewhere inside this part of the building (SIAS archive and Nigel Wood, *pers. comm*.). This machinery may be related to a small chimney or vent protruding from the south west roof which was photographed from a distance in September 2014. Unfortunately the interior was impenetrable and not fully cleared at the time of the 2014-15 survey, and part of this area could not be inspected during demolition due to the presence of asbestos. However, a concrete machine base is beside the south west wall, estimated to measure *circa* 1m by 1.5m and 40cm high with a central raised block with a metal base on top.

Southeast wing

6.56 The exterior is badly overgrown, especially the end wall which may have pipework attached, possibly related to the main settling tank T1 below. A double door in the north east wall gives access from the outside. The interior has a good surviving area of the red brick flooring typical

of this building. Not shown on the insurance plan is a small room containing a WC (broken) in the south corner.

Chimney L2 (ST 12675 21870) *Figs 9 and 12, Plates 33-34*

6.57 A Period 2 square brick chimney is positioned just off-centre in the main range of Building L1, just inside the southwest wall. The undated insurance plan is the only map to show the chimney although it is not named. The chimney stack is of plain orange-red bricks, well built and in good condition. It has a height of *circa* 10.4m, the plinth base is 1.64m wide and the chimney tapers gently to a 1.16m width at the top above a simple swell of four brick courses. Flashing from the old roof line adheres to the stack and there are two pairs of electrical or telephone insulators on the west corner. The brickwork is in stretcher bond, but the plinth base is English bond with its top finished with shaped plinth bricks. The function of the chimney is unclear, since there is no indication of a flue or furnace around the base.

Building PH1 (ST 12750 21872) *Fig. 9; Plates 35-36*

6.58 The Period 5 main pump house, the northern of two pump houses, probably built in the 1950s or early 1960s. Features attached to the building include two tanks of different sizes (T3) and a small tank to control outflow (F11).

Exterior

6.59 The building stands on a brick base and timber steps (collapsed) serve a raised and overhanging concrete platform which gives access to the door on the northeast side. It measures 5m by 2.45m, and the single-brick walls are 1.22m high with continuous windows 1m high on all four sides, under a flat roof. The windows have timber frames but aluminium is used for those with opening louvres. The very overgrown roof is almost flat and appears to be felted.

Interior

6.60 The northeast wall is lined with electrical switch gear. The concrete floor has the positions for three small pumps, probably for duty, assist and standby. The central electric pump survives. The bronze maker's plate reads: 'Wm E Farrer Ltd Non-Chokeable Pumps Patent No. 223097/1924 Birmingham – London' but no serial number is given. At the southeast corner of the room an airtight inspection cover in the floor is cast with: 'Plumpton & Son Sanitary Engineers Cullompton'.

Building PH2 (ST 12760 21798) *Fig. 9; Plates 37-39*

6.61 A second Period 5 pump house, probably built in the 1950s or early 1960s. First shown on the Ordnance Survey map of 1965 and aerial photograph of 1973. The building is associated with two rectangular concrete tanks (T4).

Exterior

6.62 At is brick walled, with a three-paned window on the southwest side and door on the northeast side, reached by a raised and overhanging concrete platform and steps. The roof of corrugated iron is almost flat.

Interior

6.63 Internal measurements of the room are 4.23m by 2.3m with a height of 2.1m. Electrical switch gear is fixed to the walls of the north corner. Two electric pumps are set in the floor, each beside a pair of control probes. Only the north west pump has a maker's plate: Associated Electrical Industries Ltd, Birmingham.

Settling tanks and filter beds

6.64 The undated insurance plan (Appendix 2) names the beds and tanks as a settling tank, filter tank and settling beds. Hand-written notes added to the list accompanying the plan state the filter beds 'shallow earth cut' and the settling tanks 'brick lined'. The surviving early 'soap pits' are shown to be three 'magma pits' and five 'filter beds', and the two pits in front of the refinery block are a magma pit and filter bed.

Main Settling Tank T1 (ST 12720 21870) *Fig. 9; Plates 40-41*

6.65 A major feature, of Period 2, still retaining water, aligned southwest to northeast and measuring *circa* 70m by 9.5m. The depth is unknown and the water level was seen to vary on different visits. The side walls are of brick, laid in English bond, with a top course of upright headers to form a coping *circa* 300mm wide. A low brick wall at a slight angle across the north east end acts as an overflow into the start of channel C2. A concrete footbridge (F10) has been built on the wall to cross this end of the tank. The tank is subdivided into four sections by three cross walls, lower than the sides. There are three circular brick overflows built at intervals against the north west side. The eastern overflow measures *circa* 1.7m diameter, internally *circa* 1.25m. A narrow inflow channel (C3) with brick walls follows the southeast side of the tank from the end of channel 1b. This side has at least one valve control and a ladder descending into the tank. The north west side appears damaged or altered in one place and a parallel outflow channel (C4) links with the tank and channel C2.

Five Settling Tanks T2 (ST 12665 21870) *Fig. 9; Plates 42-43*

6.66 These are Period 3 structures. The north end of Filter Bed B3 (Period 2) located southwest of Building L1 was altered to incorporate a concrete tank, *circa* 23m by 10m, subdivided into five smaller tanks which are inter-connected. A narrow channel along the south west side has at least one sluice or hatch into a tank, with some timberwork surviving in a fragile condition. The northern tank was recorded to be at least 1.5m deep. All the tanks were water-filled, but had been emptied at the time of a later observation.

Main Pump House Tanks T3 (ST 12750 21865) *Fig. 9; Plate 35*

6.67 This dates from Period 5, and is first shown on the Ordnance Survey map of 1965 and aerial photograph of 1973. There are two concrete tanks on the southwest side of the main pump house (Building PH1), the smaller one being set within the larger. Both are filled with water of an unknown depth. The small tank has an access ladder and a protruding iron pipe on the north west side. Four metal control probes on the brick base wall of the pump house descending into this tank may be the cut-in/cut-off for the duty pump and the other two for the assist pump. Either pair could be switched to the standby pump if selected.

South Pump House Tanks T4 (ST 12750 21800) *Fig. 9; Plate 44*

6.68 There are two long rectangular concrete tanks on the west side of the south pump house (Building PH2), each measuring 17m by 5.5m; they date to Period 2. A channel is included on the southeast side, with openings into the tanks, each of which has an upright iron valve control. A channel along the northeast side feeds a square drain at the west corner. The are first shown on the Ordnance Survey map of 1965 and aerial photograph of 1973.

Magma Pit T5 (ST 12655 21905) *Fig. 9; Plates 45-47*

6.69 A Period 2 tank partially uncovered just below ground level during demolition work. It is named 'magma pit' on the undated insurance plan, which has a hand-written note describing the magma pits as 'deep brick lined pits' (Appendix 2). The pit was still extant (disused) on an aerial photograph of 1973, but filled in and covered by 1993. The walls of orange-red brick (English bond) are 0.5m thick and slightly battered on the inside where the bricks are cream coloured (from residue?). The shorter, southwest wall measures 6m externally and the longer

north east side was exposed for a minimum of 11.8m before continuing northwards beyond the site boundary. Most of this wall must be revealed, since map evidence indicates the pit to have been *circa* 13m long. The southwest tank wall is exposed to ground water level at *circa* 1.5m, but continues deeper. At one side, about 0.50m below the top of the tank, is a ceramic pipe angled to the south. Around the tank is natural clay into which it has been dug, mixed to varying depths by black and grey silts and ash.

6.70 The tank is in-filled. The upper fill of rubble and soil is all modern and includes tyres and an aluminium sink. Removal of the top silt exposed a thin deposit of dark grey silts with wood, plants and beams. This overlies a clay deposit and then waterlogged gravels, all contaminated with hydrocarbons and sulphur. The base is at *circa* 2.9m from the top of the tank or *circa* 3.9m from ground level. Basal deposits are waterlogged and the base is not visible (although reached by machine). No other features were exposed.

Brick Buttressed Filter Tank BFT (ST 12705 21890) *Fig. 9; Plates 48-52*

6.71 A unique. Period 2, structure, not sunk into the ground but upstanding to a height of *circa* 2.5m. It is extremely overgrown.

Exterior

6.72 External measurements are *circa* 25m by 10m. The walls of English bond brickwork are 350mm thick and are supported by external buttresses 1m long at the base and stepped with plinth bricks. Several walls between the buttresses on both the longer sides have arched openings 450mm wide and 350mm high at their base, which appear to be for discharging matter into the two parallel filter beds B1 and B2. Other walls have an iron pipe (in at least one case with a valve) for the same function. The west half of the southeast side has been altered with the addition of squared concrete buttresses, perhaps an alteration in Period 5. There are buttresses and external steps at the northeast end wall. The tank's southwest end wall is incorporated into the northeast wing of Building L1, within which survive brick buttresses as well as an iron pipe to/from chamber 8.

Interior

6.73 The interior is very overgrown with small trees but there is evidence of at least one footbridge with side rails across the chambers. The interior is subdivided by robust brick walls into eight chambers, measuring *circa* 5.8m by 4.4m, numbered on the plan 1-8 clockwise from the west corner (Fig. 10). Chamber 3, examined after the demolition of the exterior wall, has a central iron paddle near the floor with four blades each *circa* 1m long. The upright shaft has a rectangular block with six bolts and a short section of shaft above has been cut off when a higher paddle was removed in the past. Chamber 8, seen from above, has two sets of paddles (four blades each) with one bolted above the other on a single upright shaft. An oblique aerial photograph of June 1993 (Plate 3) shows walkways and drive shafts over the top of the chambers within which some paddles are visible. The drive mechanism is uncertain but there is a platform and box over chamber 1 outside the north east wing of Building L1 where concrete bases are likely to have supported the power source. The paddles agitated and aerated the contents of the chambers, perhaps while chemicals were added. Two large timbers fallen into in chamber 3 are the remains of supports for the walkways and drive shafts.

Filter Bed B1 (ST 12697 21895) *Fig. 9; Plate 53*

6.74 A Period 2 shallow bed with traces of brick sides, parallel to the northwest wall of the Buttressed Filter Tank. It measures *circa* 33m by 6m with a surviving depth of *circa* 450mm. It is divided into three parts.

Filter Bed B2 (ST 12710 21880)

6.75 Period 2, later modified, and overgrown and difficult to access, this filter bed lies parallel and between the Main Settling Tank (T1) and the Buttressed Filter Tank. The ground is uneven and the northeast end appears to have been altered by Period 5.

Filter Bed B3 (ST 12670 21850)

6.76 Large, Period 2, bed located southwest of Building L1, with the north end later subdivided into five concrete tanks (T2; see above). It appears to have earthen sides except at the northwest end where a concrete channel extends from the five tanks. The bed is flooded and now connects with settling tank T1.

Filter Bed B4 (ST 12710 21845)

6.77 Period 4, a shallow filter or sludge bed seen on aerial photographs of 1946 to 1973 but overgrown by 1993, and barely visible on the ground. It is not shown on Ordnance Survey maps.

Filter Bed B5 (ST 12720 21830)

6.78 Record as a slight depression and uneven ground, measuring *circa* 110m by 15m, and seen with side channels on aerial photographs of 1950 and 1973 but overgrown by 1993. Shown on the Ordnance Survey map of 1965. It dates to Period 5.

Filter Bed B6 (ST 12730 21815)

6.79 Trace of a shallow Period filter or sludge bed. It originally measured *circa* 100m by 15m, but about 65 m of the SW end was destroyed in Period 7 when the Tonedale Industrial Estate was established. Seen on aerial photographs of 1950 and 1973 but overgrown by 1993 when part destroyed. Shown on the Ordnance Survey map of 1965.

Round Filter Bed RF1 (ST 12765 21780) *Fig. 9; Plates 54-55*

6.80 A raised Period 6 biological filter bed *circa* 16m diameter and 1.5m high surrounded by a battered wall of concrete blocks laid with spaces between. The whole is filled with clinker and it drains into a small channel around the base which feeds into the two tanks (T4). On the flat top a rotating central column supports two long filter/sprinkler arms and two shorter balancing arms. The column is cast: 'WILLIAM E FARRER LTD. PAT. 850507'. The rotating arms would have distributed waste onto the clinker filter at an even rate and in the presence of oxygen bacteria and organisms removed polluting substances. First seen on an aerial photograph of 1973 and shown on Ordnance Survey map of 1992.

Round filter bed flow control RF2 (ST 12755 21785) *Fig. 9; Plate 56*

6.81 Brick and shuttered concrete structure, with ladder access to top. Pipes and possibly a siphon provided a head to control flow to the round filter bed. It dates to Period 6, and is first seen on an aerial photograph of 1973 and shown on Ordnance Survey map of 1992.

Channels

6.82 Various channels can be traced in the undergrowth with great difficulty.

Channel C1 (ST 12765 21892 to ST 12750 21885) *Fig. 9; Plates 57-58 and 62-63*

6.83 Channel 1a; Period 1. The original channel into the site from the Tone Works dyeworks seen in 1887 entering the site from the west, then turning at an angle to run parallel with the southeast side of the Grease Refinery block, before discharging towards the east. The width is 0.91m and depth at least 390mm, between brick and concrete sides. Modifications include four slab bridges or covers (F6-9).

6.84 Channel 1b; Period 2. The same channel has been extended by turning at a sharp angle (ST 12710 21912) to follow the site boundary. It is 1.22m wide between brick sides (English bond) and then turns again very sharply (ST 12750 21885) to feed a narrower channel (C3) along the SE side of settling tank T1.

Channel C2 (ST 12748 21889 to ST 12710 21912) *Fig. 9; Plates 57-58*

6.85 Period 2. This drains from the northeast end of settling tank T1. It shares a wall with C1b as it heads northwest before passing through piped culverts beneath C1a at a corner. Thereafter it is assumed to have drained to the River Tone.

Channel C3 (ST 12745 21880) *Fig. 9; Plate 59*

6.86 Period 2, modified Period 5. Inflow channel for the Main Settling Tank T1, fed from Channel 1b. The channel is 0.90m wide and runs for *circa* 35m or more parallel with the southeast side of the tank. Close to the start, the channel's brick sides are constricted by concrete walls to a narrowed width of 300mm for a short length. This is considered to relate to the Period 5 flow recorder (F1) which stands adjacent.

Channel C4 (ST 12730 21890)

6.87 Period 2. Outflow channel running for *circa* 50m parallel with the northwest side of the Main Settling Tank T1. Brick-built but much overgrown. Modified or damaged, the channel is unusual as it links back into the main tank at the north east end, making it difficult to have acted as a drain.

Other structures

6.88 These include miscellaneous structures surviving around the site.

Chart flow recorder box F1 (ST 12745 21878) *Fig. 9; Plates 60-61*

6.89 Period 5. On a steel support beside channel C3, the flow of which it probably recorded before entering settling tank T1 at valves along its south east wall. The exterior has the electrical supply and a counter balance weight. Inside the box, with the lid removed, is the chart drum, pen assembly with a tension wire over a pulley for the counter balance weight. At the other end of the drum would have been another pulley with a wire attached to a float in a stilling chamber or channel below the recorder.

Pipe and valve F2 (ST 12765 21855) *Fig. 9*

6.90 Period 5. A freestanding pipe with a valve, perhaps related to sludge bed B5.

Drain Inspection Chamber F3 (ST 12770 21850) *Fig. 9*

6.91 Period 5 or 6. A cast-iron cover (no maker's name) upon a concrete inspection chamber, with a pipe inside running south east to north west.

Wooden tank F4 (ST 12705 21909) *Fig. 9; Plate 62*

6.92 A wooden box in the form of a tank with a pipe and valve at the base, resting over channel C1a into which it discharged. It measures 1.50m by 1.00m by 1.12m high. Unknown purpose and date. First identified on aerial photographs of 1993 but considered to be earlier.

Stone Slab F5 (ST 12685 21898) *Fig. 9*

6.93 A large stone slab of uncertain function, between the Channel C1a and Building GR1. Dimensions 3.3m by 1m by 16cm thick (10ft 9ins x 3ft 3ins x 6ins).

Stone Slab Bridge F6 (ST 12675 21892) *Fig. 9; Plate 63*

6.94 Period 3, modifications to Channel 1a include at least four slab bridges or covers. The main bridge (F6) is between Buildings GR1 and L1 and formed by two slabs. On close examination, the largest slab is made of a fine white sandstone and measures 2.35m by 1.52m with a thickness of 135mm (7ft 9ins x 5ft x 5.25ins). There are holes of 30mm diameter along the north side (four) and south side (three), while a single hole of 55mm diameter is further into the slab where it has cracked across.

Slab Covers F7 to F9 (ST 12685 21896 to ST 12698 21900) *Fig. 9*

6.95 Period 3. At least three concrete slabs cover parts of channel 1a as it runs to the northeast of F6. All are in a poor state, and the third (F9) has collapsed.

Concrete Footbridge F10 (ST 12745 21890) *Fig. 9; Plates 57 and 64*

6.96 Period 5. A simple concrete slab forms this footbridge on four pairs of concrete supports across the overflow sill at the northeast end of the main settling tank T1. There are galvanised safety rails on both sides.

Gauge outflow tank F11 (ST 12755 21878) *Fig. 9; Plate 65*

6.97 Period 5. A small tank in two sections to control outflow from the main pump house (F11) to which it attached on the northeast side. It has fixtures to control and monitor the flow which entered through a pipe into the south part.

Concrete capping F12 (ST 12660 21920) *Fig. 9*

6.98 Period 7 or 8. When uncovered by the site contractors this was thought to be a capping over the site of a Filter Bed shown on the undated insurance plan (Appendix 2). However, when removed it became clear it was not. It may have been a concrete access road across soft ground into the yard outside the south west frontage of Building GR1.

Site Context: Features outside the Grease Works site

6.99 Three exterior structures are noted here because they are the physical connection between the Tone Works and Grease Works sites and demonstrate how the former conveyed effluent and steam to the latter.

Gantry bridge EF1 (ST 12645 21835) *Fig. 10*

6.100 A prominent gantry bridge over Milverton Road for a steam pipe from Tone Works into the Grease Works, presumed to date from Period 6.

Four effluent pipes EF2 (ST 12615 21880) *Fig. 10*

6.101 Two effluent pipes from Tone Works in square sections bolted together, perhaps original Period 1 and those named ‘aqueducts’ on the large scale 1887 map (Fig. 4). They cross the River Tone and appear to lead under Milverton Road towards the start of channel 1a in the Grease Works. Immediately on the upstream side there are two round effluent pipes, strengthened with rods, and presumed of a later period.

Single effluent pipe EF3 (ST 12625 21855) *Fig. 10*

6.102 A single round effluent pipe from Tone Works, crossing the River Tone and presumed to flow in the direction of the Grease Works.

7. COMMENTS

7.1 The archaeological investigations have been a rare opportunity to record an almost forgotten aspect of the woollen textile industry, and the Tone Grease Works has retained features dating from its start in the later nineteenth century down to the phases of development, expansion and contraction in the 1960s and beyond.

7.2 Buildings GR1 and GR2 are the earliest buildings forming part of the Grease Refinery block that may have been constructed in 1886. They are well constructed with stone and brick materials from the local area, while GR1 is noted for the use of massive timber joists. The works were expanded in 1892-3 with a Laboratory building and a series of new settling tanks. The complex continued to expanded during the 20th century, in particular during the second half of that century when new filter beds were constructed greatly increasing capacity.

7.3 Although all equipment had been removed from the earlier buildings, and any traces elsewhere were largely inaccessible due to unstable buildings or dense vegetation, it is of interest to find that Fox Bros purchased items (an electric pump and a rotary sprinkler system) in the mid-twentieth century from William E. Farrer Ltd, top designers and manufacturers of sewage treatment equipment. Registered in 1909, the successors of this firm still exist today after various acquisitions within the multinational Biwater, specialists in water supply and waste water processing.

7.4 The Grease Works buildings contrast with the more impressive Grade II listed Tone Mill complex across the road, yet the site played a significant part in Fox Bros' operation, treating the effluent from wool scouring at the spinning and weaving Tonedale Mills and the finishing and dye works at Tone Mill.

7.5 Grease works are hardly mentioned in the literature, yet they became an essential part of the woollen textile industry in the face of increasing river pollution. Grease works were briefly noted in a survey of Yorkshire textile mills, but the two examples mentioned at Manningham, Bradford, were said to no longer survive (Giles & Goodall, 1992, 112-113). In West Yorkshire the problem to be tackled was massive, and the City of Bradford developed a huge 800-acre (324 ha) site, to extract wool grease, recover solid matters for manure and return purified water to the River Aire. This Esholt works employed its own chemists to develop and market useful by-products including lanolin for cosmetics and quick-drying paints, rust prevention and axle grease (Anon, *circa* 1950).

7.6 In comparison, the Tone Grease Works covered only 7.5 acres (3 ha) at its greatest extent, but the processes must have been essentially the same as at the much grander Esholt. The Tone works likewise found markets for its recovered lanolin and had its own chief chemist, Brunton, in the 1950s and 1960s.

7.7 It could be that the Tone Grease Works was significant in Somerset and the South West region as a whole. It is uncertain how other mills dealt with their pollution, but there must have been other grease works in the region's woollen textile areas. The only other example identified by the author is an oil and grease works below woollen mills and dye works on the River Biss in Trowbridge, Wiltshire, named on maps between at least 1887 and 1901. It is not known if anything survives today. Soap pits and other settling tanks are recorded on 19th- and 20th-century Ordnance Survey maps at Westford Mills (Andrew Passmore *pers. comm.*), situated on the Westford Stream (a tributary of the River Tone, that provided water power for the main Tonedale Mills complex). Four of these soap pits were partially excavated in 2008 (Passmore 2009) although their significance was not recognised.

7.8 The investigation has highlighted the potential for future research in the archives and in the field for this overlooked side of a once important Somerset and regional manufacturing industry. More needs to be learnt, for example, about the working of the settling tanks and filter beds. Without thorough research in the extensive Fox Bros' archives, the full story of the firm's business and mill operations has yet to be told.

8. ARCHIVE AND OASIS ENTRY

8.1 A fully integrated site archive has been prepared and will be deposited under the museum accession number TTNCM 91/2014 at Somerset Heritage Centre.

8.2 An entry to the Online AccesS to the Index of Archaeological InvestigationS (OASIS) has been submitted using the unique identifier 264990, which includes a digital copy of this report.

9. ACKNOWLEDGEMENTS

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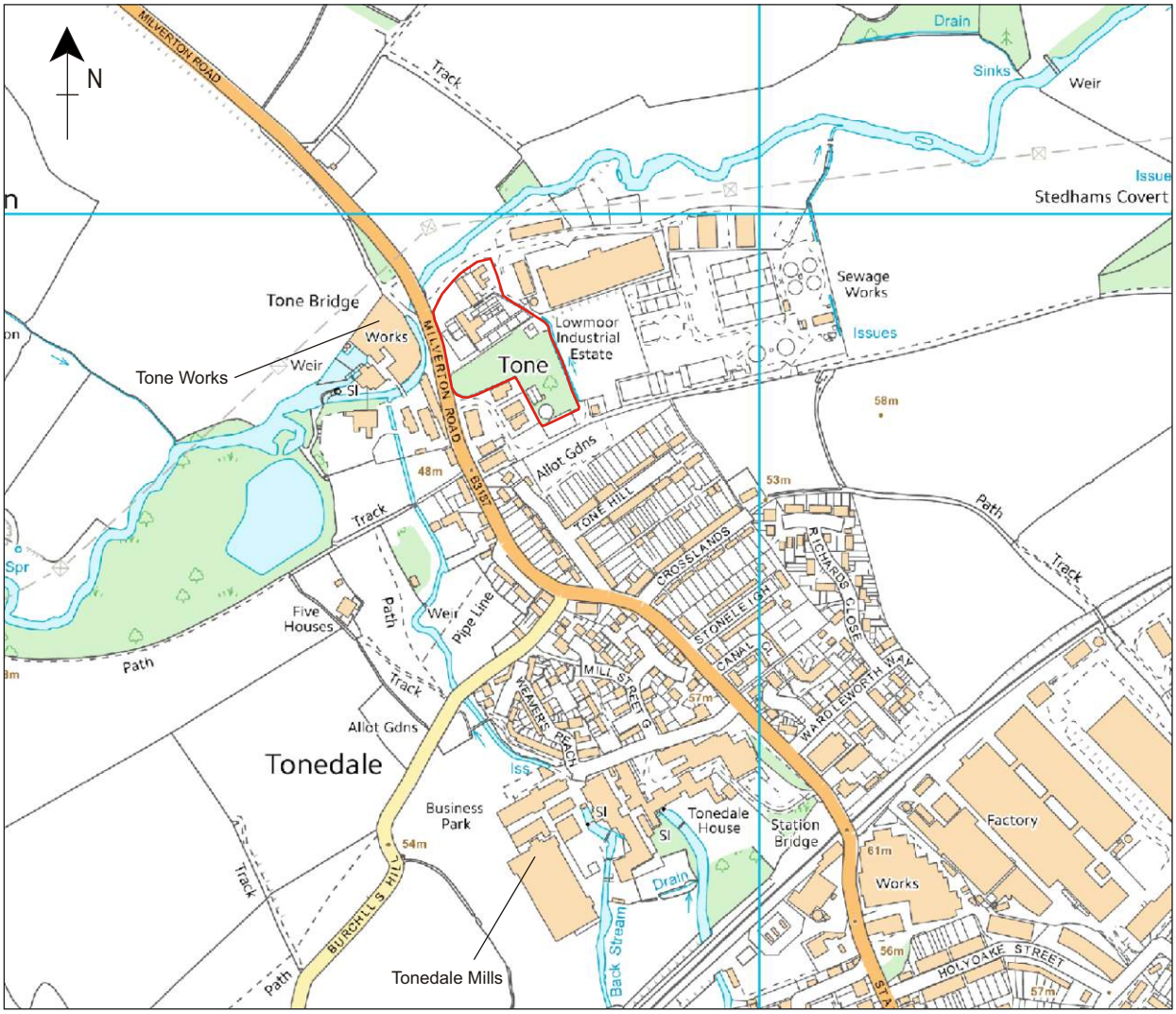

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PROJECT

Tone Grease Works,
Wellington, Somerset

TITLE

Fig. 1: Location of site
and development area

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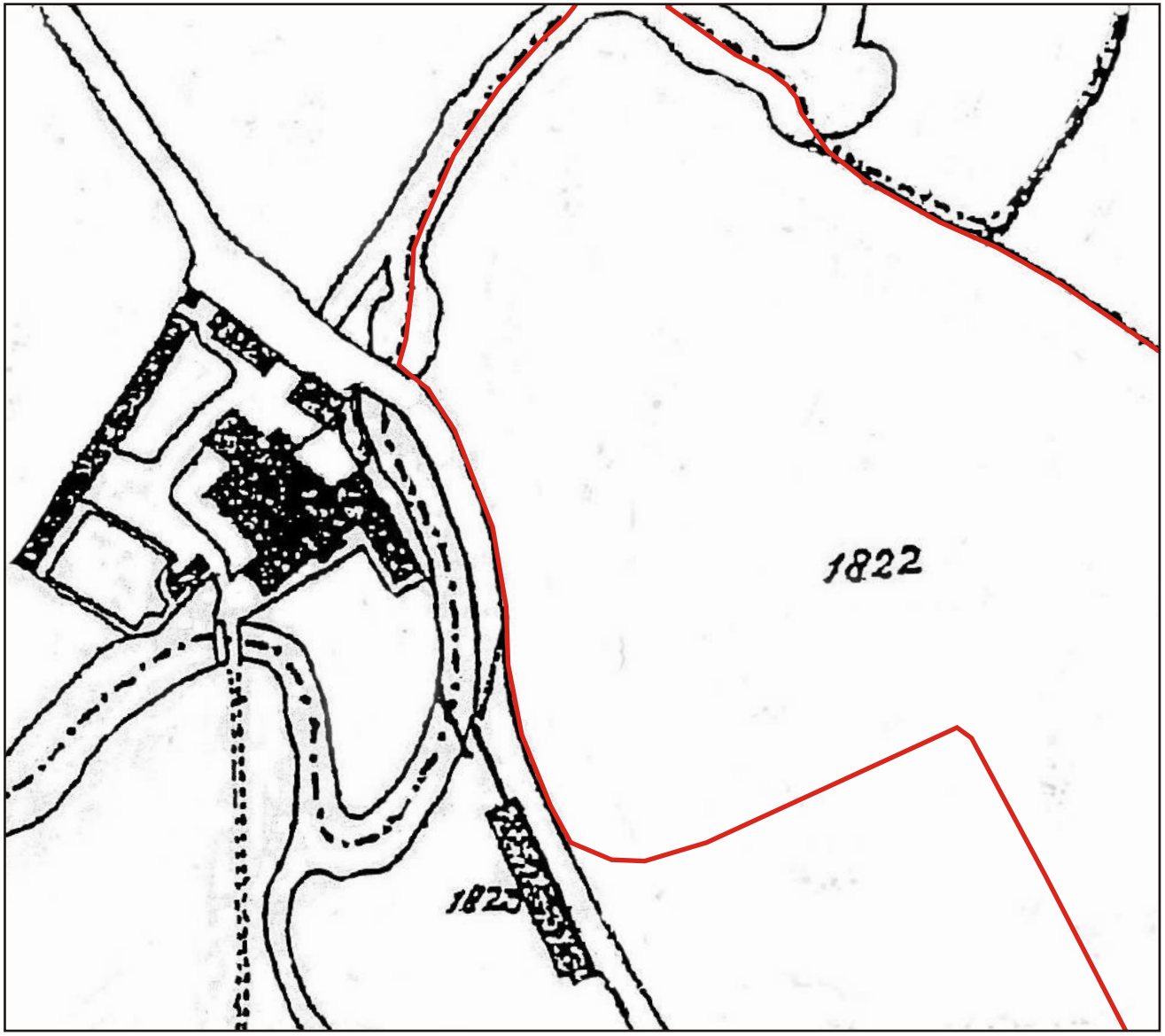

Key

Application area

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Tone Grease Works,
Wellington, Somerset

TITLE

Fig. 2: Extract from Wellington Tithe Map, 1839

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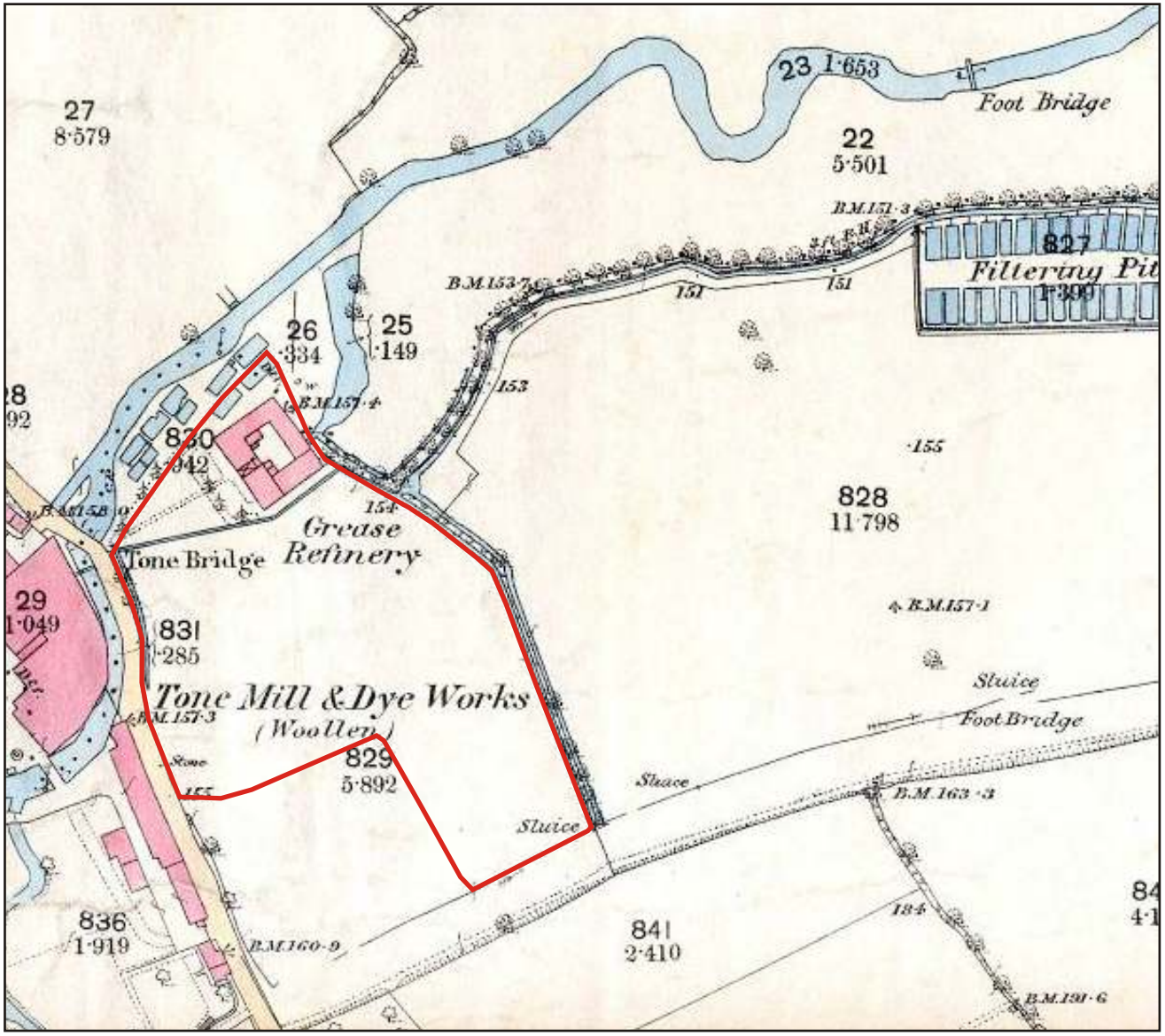

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Fig. 3: Extract from Ordnance Survey map, 25 inch scale, 1887

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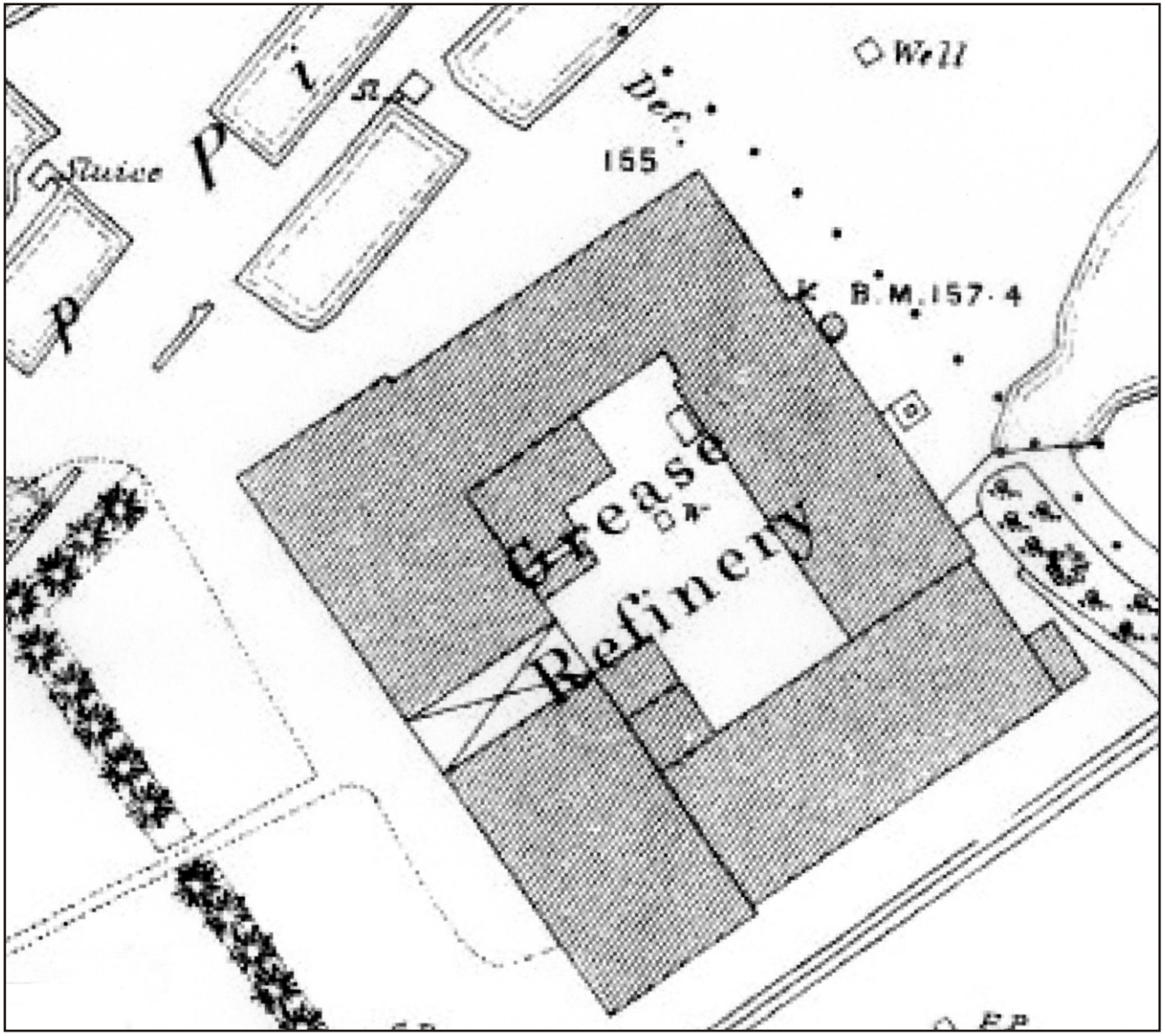

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Fig. 4: Extract from Ordnance Survey map, 1: 500 scale, 1887

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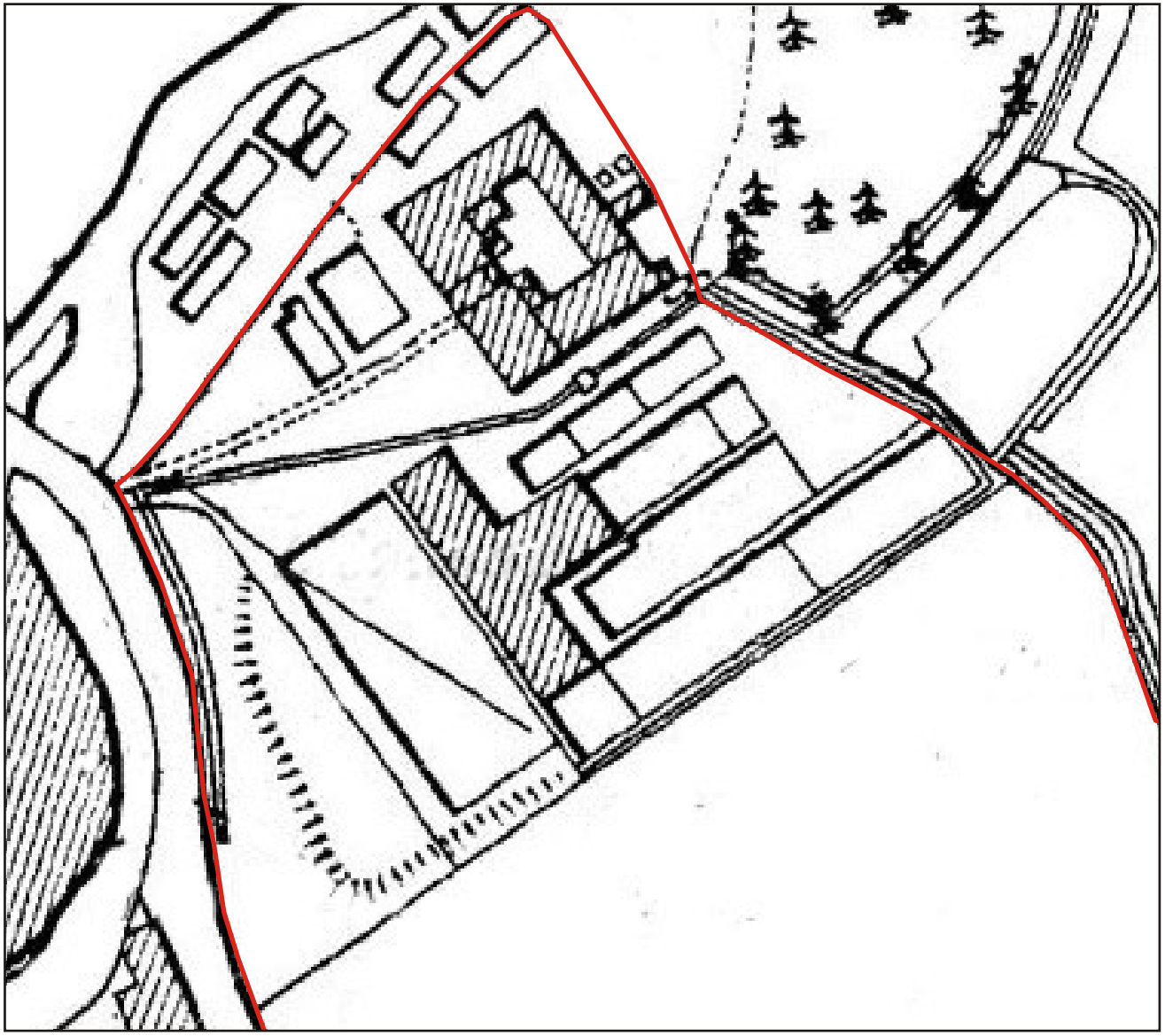

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Fig. 5: Extract from Ordnance Survey map, 1:2500 scale, 1903 (enlarged)

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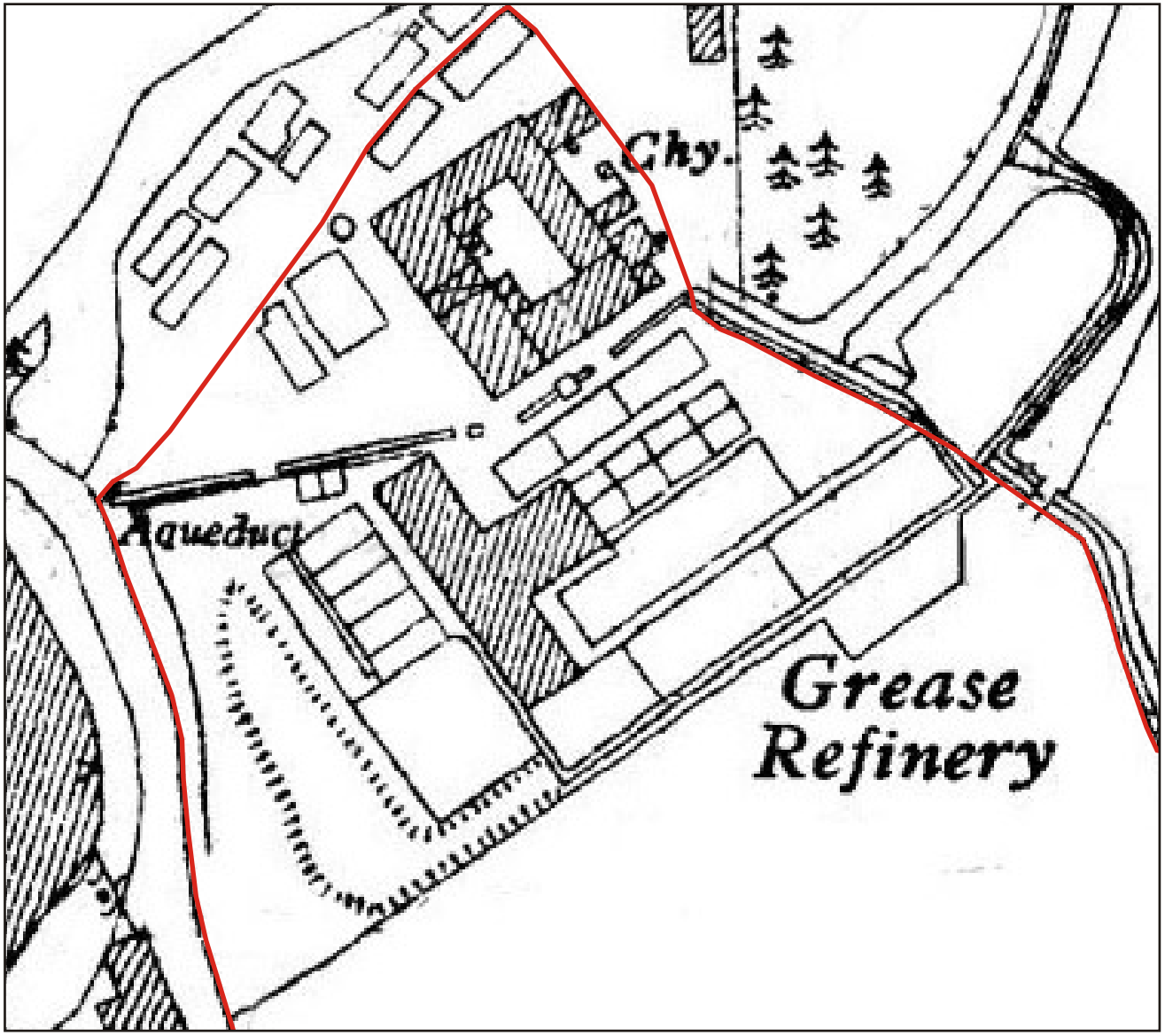

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TITLE

Fig. 6: Extract from Ordnance Survey map, 25 inch scale, 1930 (enlarged)

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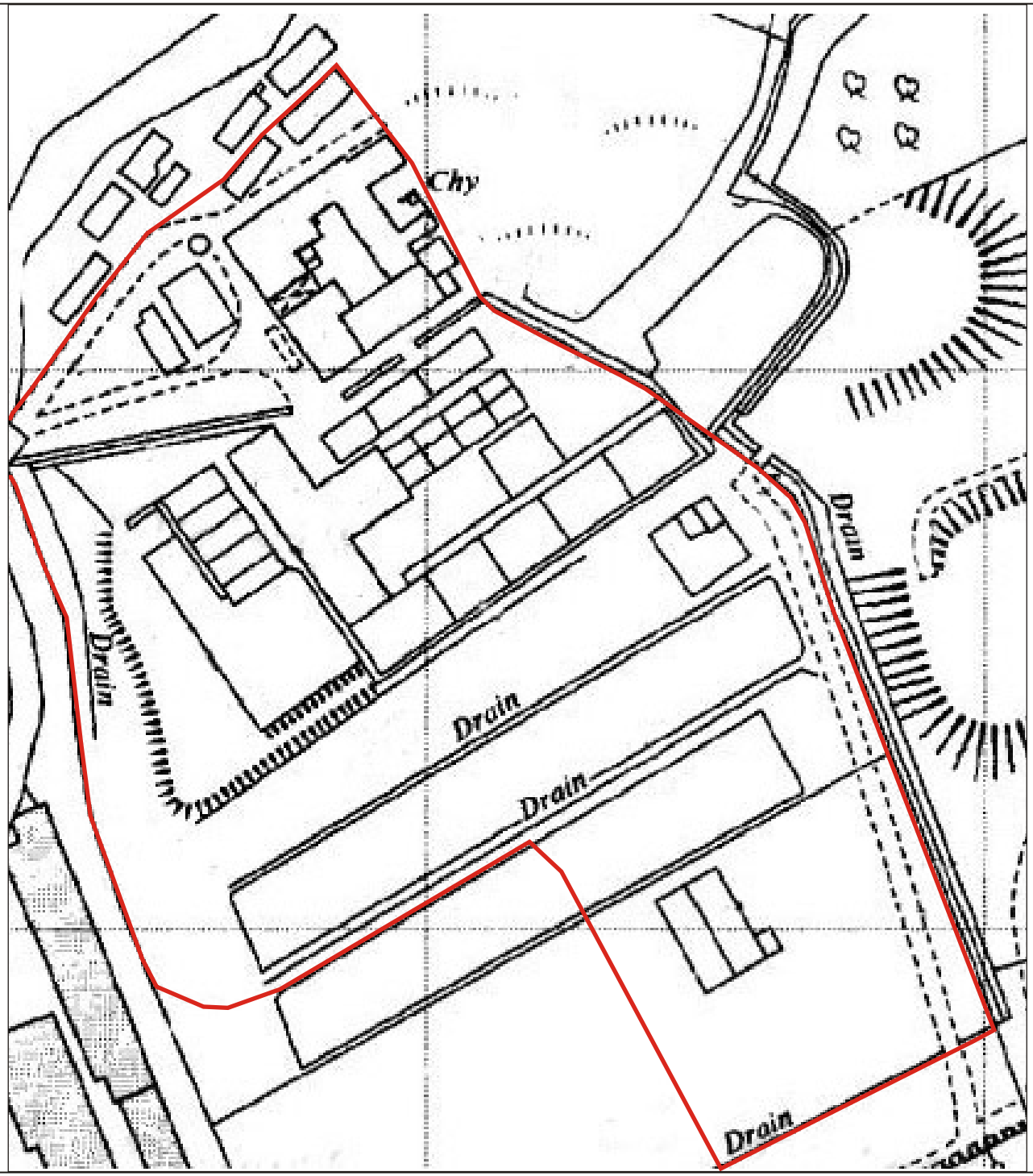

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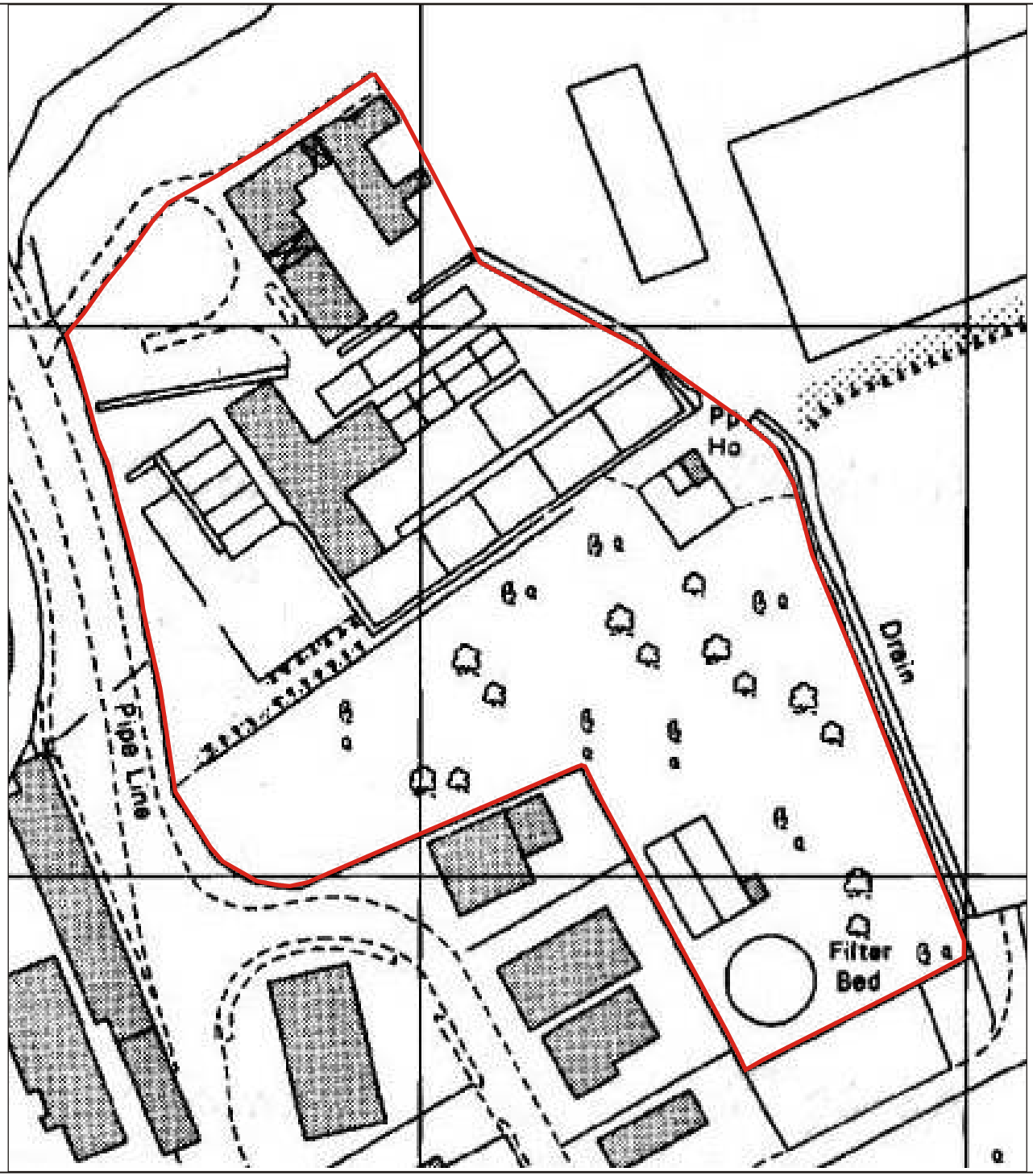
Fig. 7: Extract from Ordnance Survey map, 25 inch scale, 1965 (enlarged)



Key

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Fig. 8: Extract from Ordnance Survey map, 25 inch scale, 1992 (enlarged)

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Tone Grease Works, Wellington, Somerset

TITLE

Fig. 9: Site plan

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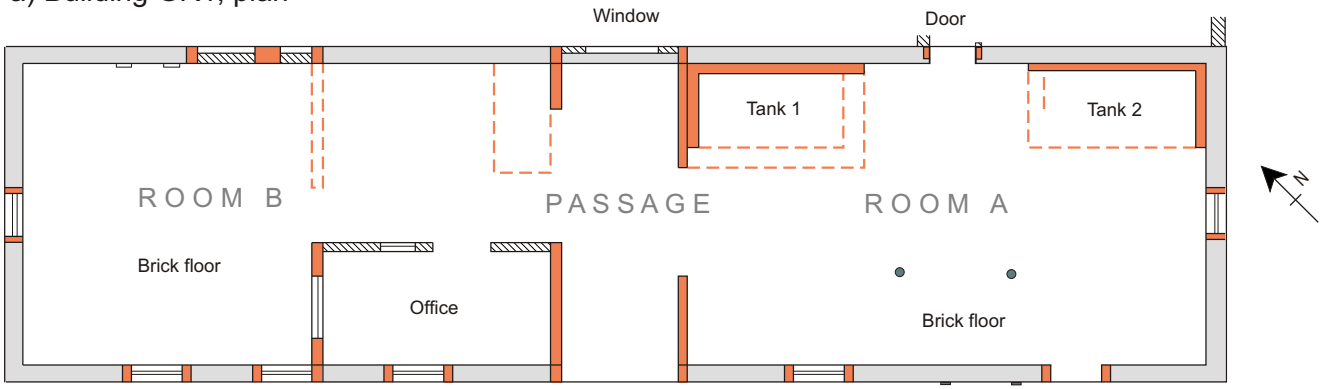
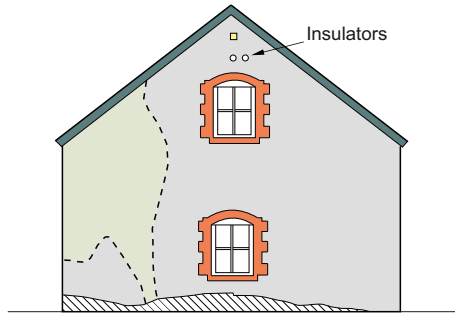
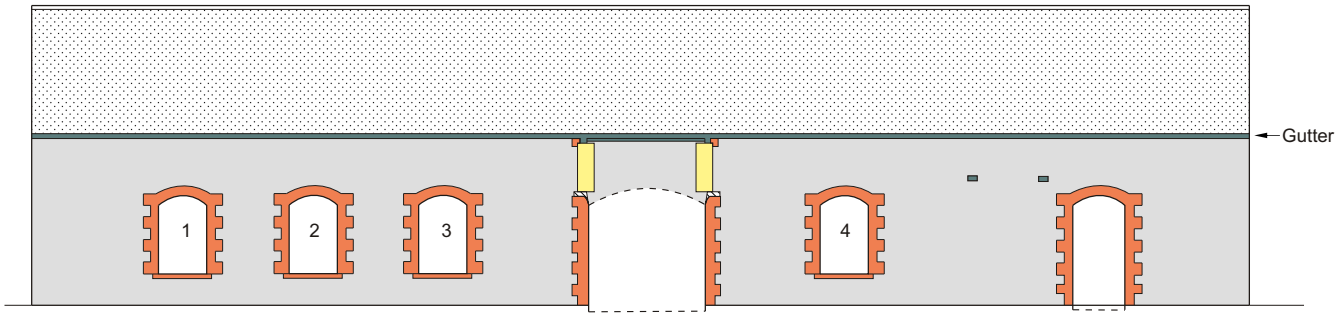
a) Building GR1, plan



d) Northwest elevation



b) Southwest elevation



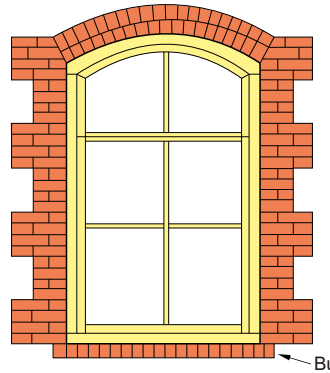
0 a), b), c), & d) 10m

Scale 1:200@A4

Key

- Stone
- Brick
- Concrete block
- Iron work
- Metal roof
- Timber
- Obscured by vegetation

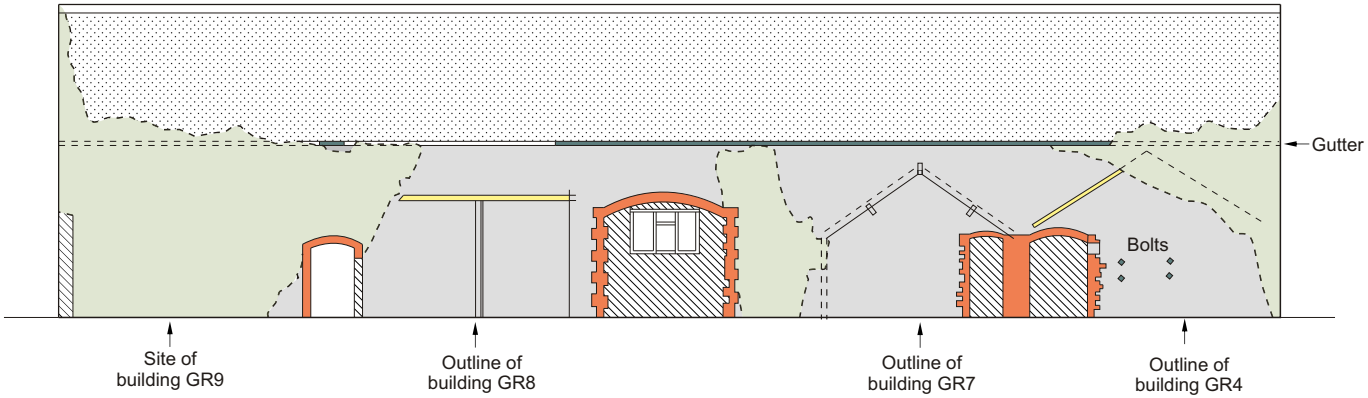
e) Detail of window 3, northwest elevation



0 e) 3m

Scale 1:50@A4

c) Northeast elevation



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Tone Grease Works, Wellington, Somerset

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Fig. 10: Building GR1

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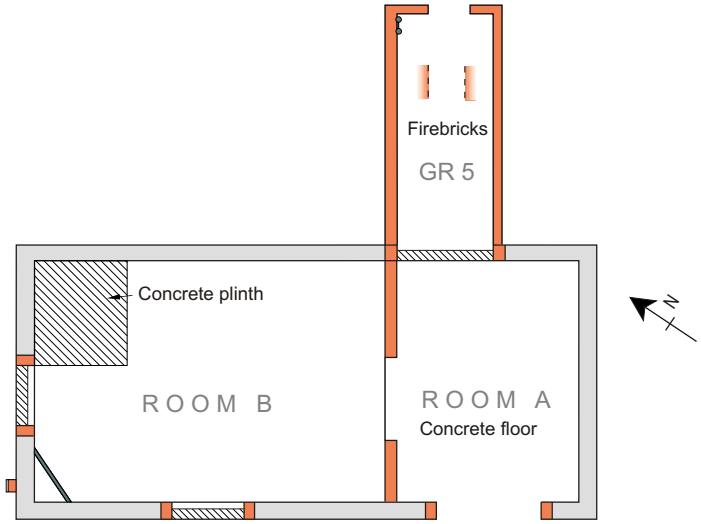
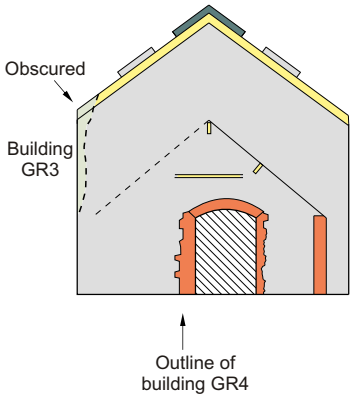
a) Building GR2, plan, showing GR5 boiler house attached



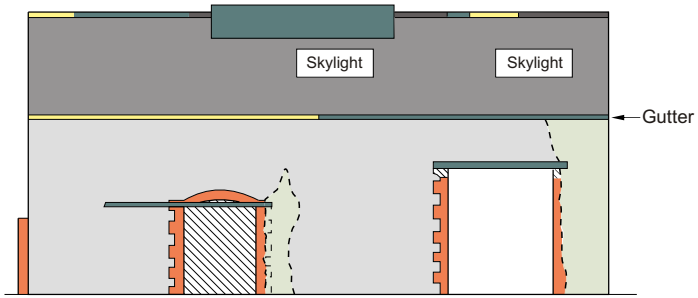
Key

- Stone
- Brick
- Concrete or concrete block wall
- Iron work
- Metal roof
- Slate roof
- Ridge tiles
- Timber
- Obscured by vegetation

c) Northwest elevation



b) Southwest elevation



0 10m

Scale 1:200@A4

PROJECT

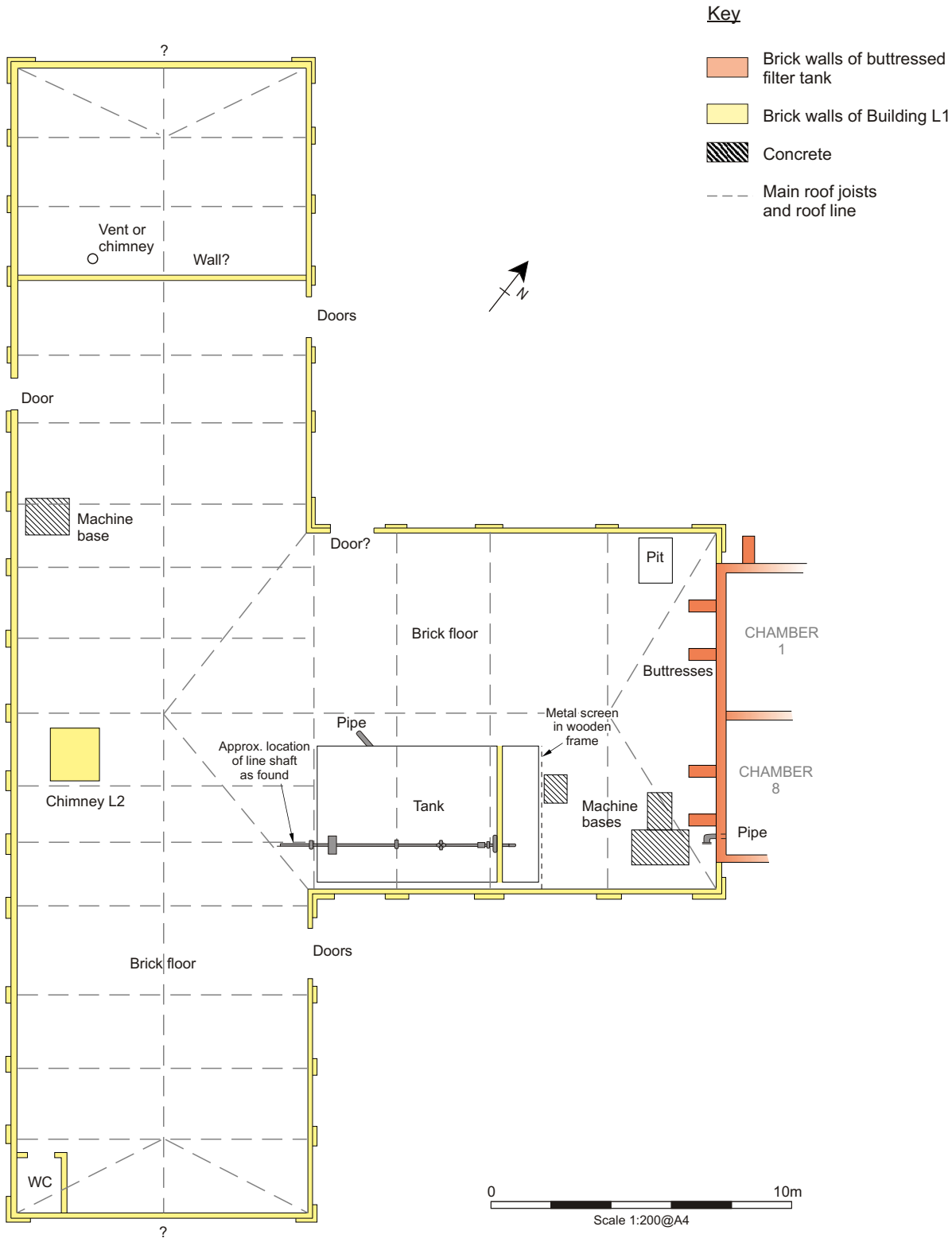
Tone Grease Works, Wellington, Somerset

TITLE

Fig. 11: Building GR2

AC archaeology

a) Building L1, plan



PROJECT

Tone Grease Works, Wellington, Somerset

TITLE

Fig. 12: Building L1

AC archaeology

Plate 1: Vertical aerial view of the Grease Works in 2006 showing its context. The large Tone Works is to the west. (Google Earth, 2006)

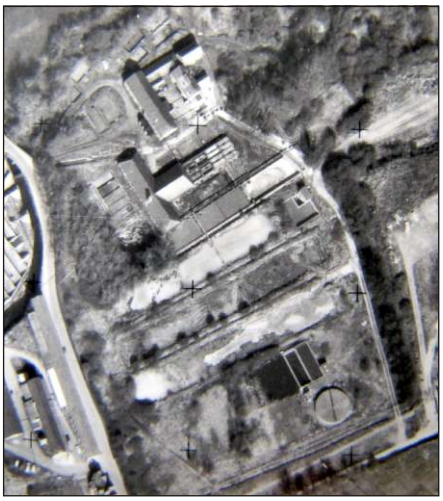


Plate 2: The Grease Works from the air, 29 March 1973. The site is at its full development. (NMR Ordnance Survey 73039 Library 10457.006)

Plate 3: The older part of the site, oblique aerial view from the north, 29 June 1993, showing the Main Settling Tank T1, Building L1 and chimney, Building GR1 (bottom right), Pump house PH1 (bottom left) and Channel C1 with 'bridges'. Overhead pipes are seen associated with Building L1 (NMR ST1221.19. NMR 4893.31)

Plate 4: Building GR1, northwest gable wall with yard and Building GR2 on left, from northwest. (2m scale)

Plate 5: Building GR1, complete southwest elevation, from southwest. (2m scale)

Plate 6: Building GR1, southwest elevation, detail showing the quality of brickwork around the third window, from southwest. (2m scale)

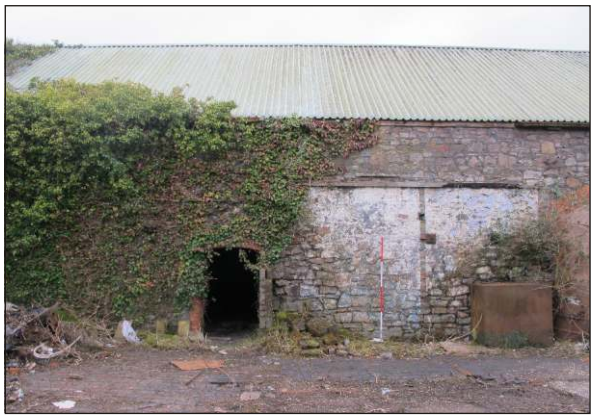


Plate 7: Building GR1, northeast wall, with door from Room A, trace of attached buildings GR8 and GR9 and brick floor in yard, from northeast. (2m scale)

Plate 8: Building GR1, northeast wall, with blocked doors and trace of attached buildings GR7 (left) and GR4, including foundation line, from northeast

Plate 9: Building GR1 interior of Room A, with remains of tank 1 and stairs, from south. (2m scale)

Plate 10: Building GR1 interior of Room A, southwest wall, window and two iron pillars supporting floor timbers, from east. (2m scale)

Plate 11: Building GR1 partly demolished section showing Room A with roof timbers and iron pillar supporting upper floor, from southeast

Plate 12: Building GR1 interior of Room B showing northeast wall, blocked doorways, sawn off upper floor timber, and opening to passage, from west. (2m scale)

Plate 13: Building GR1 interior of Room B showing early wall and newer concrete block 'Office' wall, from north. (2m scale)

Plate 14: Building GR2 exterior, northeast and southwest elevations. Building GR3 and trace of GR4 on left, from west. (2m scale)

Plate 15: Building GR2 interior of Room A showing blocked arch in northeast wall, from southwest. (2m scale)

Plate 16: Building GR2 interior of Room B, showing blocked doorway in northwest wall, iron corner bars and roof timbers, from southeast. (2m scale)

Plate 17: Building GR2 interior of Room B, showing roof timbers with slates removed, from southeast

Plate 18: Building GR3 exterior, northwest elevation with GR4 on right, from northwest. (2m scale)

Plate 19: Building GR3 exterior, southeast and northeast elevations, from east. (2m scale)

Plate 20: Building GR3 interior showing southeast wall with door and two upper windows, from northwest

Plate 21: Building GR4 exterior of northwest stone wall with small window. Gable roof outline seen behind on end wall of GR2, from northwest. (2m scale)

Plate 22: Building GR4, cleared interior, showing relationship with buildings GR2 (right) and GR3 behind, from southwest. (2m scale)

Plate 23: Building GR5, interior showing roof and blocked arch into GR2, from northeast

Plate 24: Building GR5, iron frame for draught regulating plate in northwest wall, from south-southeast

Plate 25: Building GR5, interior, shaped firebrick boiler supports *c.*97cm apart exposed in floor with burnt soil, from northeast

Plate 26: Building L1, complete southwest elevation and chimney, with northwest (left) and southeast (right) wings, from southwest

Plate 27: Building L1, northeast wing exterior with raking stretcher bond brickwork and windows, from northwest. (2m scale)

Plate 28: Building L1, interior of northeast wing with concrete base, collapsed metal screens and tank beyond, from east

Plate 29: Building L1, interior of northeast wing after clearance, showing concrete base and tank, from northeast. (1m scale)

Plate 30: Building L1, interior of northeast wing after clearance, showing nature of tank and concrete bases, from northwest

Plate 31: Building L1, interior of northeast wing, concrete machine base, from north. (1m scale)

Plate 32: Building L1, detail of line shaft removed from northeast wing. (1m scale)

Plate 33: Chimney stack L2, from east

Plate 34: Chimney stack L2 base, from northeast (1m scale)

Plate 35: Main pump house PH1 showing southwest and southeast elevations and tanks (T3), from south (2m scale)

Plate 36: Pump house PH1 interior with Wm E. Farrer pump, from southeast. (1m scale)

Plate 37: South pump house PH2 exterior, southwest elevation, from south-southwest. (2m scale)

Plate 38: South pump house PH2 exterior, northeast elevation with overgrown door and steps, from northeast. (2m scale)

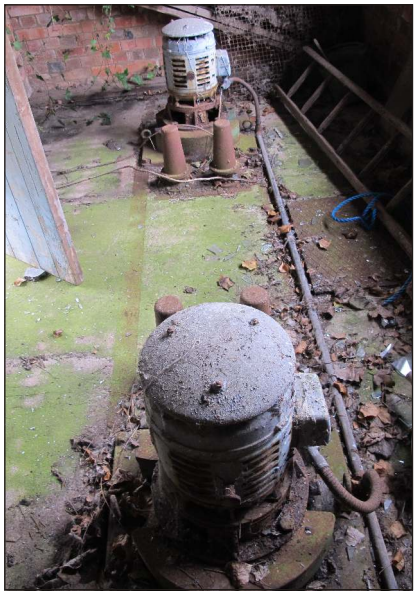


Plate 39: South pump house PH2 interior with two pumps, from northwest

Plate 40: Main settling tank T1, general view with water partly drained, from northeast

Plate 41: Main settling tank T1, circular brick overflow with water level high; northwest wall in foreground, from northwest

Plate 42: Five linked concrete tanks (T2) close to Building L1, with remains of wooden sluice from a channel in the foreground, from west-northwest. (1m scale)

Plate 43: Five linked concrete tanks (T2), with filter bed B3 drained and cleared down to clay in foreground, from west

Plate 44: Twin tanks T4, channels and south pump house PH2, giving a good view over the site, from southeast

Plate 45: Magma Pit T5 as exposed, from east

Plate 46: Excavation of Magma Pit T5, from southeast

Plate 47: Excavation of Magma Pit T5 showing southwest wall, from northeast

Plate 48: Buttressed Filter Tank (BFT) exterior of northwest brick wall, with filter bed B1 in foreground, from north. (2m scale)

Plate 49: Buttressed Filter Tank (BFT) exterior of northwest wall and sluice outlet from chamber 3, from northwest. (2m scale)

Plate 50: Buttressed Filter Tank (BFT). Iron 'paddles' inside chamber 3, from northeast. (1m scale)

Plate 51: Buttressed Filter Tank (BFT). Twin iron 'paddles' inside chamber 5, from northeast

Plate 52: Buttressed Filter Tank (BFT) exterior of southwest wall, with iron pipe from chamber 8 into northeast wing of Building L1, from west

Plate 53: Filter bed B1 with low brick walls, from northeast. Buttressed filter tank BFT on left

Plate 54: Round filter bed RF1 wall with voids and collecting channel in front, from northwest. (2m scale)

Plate 55: Round filter bed top, with clinker and double filter arm, from north. (2m scale)

Plate 56: Concrete flow control feature RF2 associated with round filter bed, from south. (2m scale)

Plate 57: Channels C1b (with scale), C2 with footbridge F10, angled corner to channel C3 in foreground, from southeast. (2m scale)

Plate 58: Channel C2 culvert pipes beneath overgrown corner of C1a and C1, from southeast

Plate 59: Channel C3 exposed on southeast side of main settling tank T1, from northeast. The associated chart flow recorder box F1 has been removed

Plate 60: Chart flow recorder box F1 related to channel C3 on southeast side of settling tank T1, from south-southwest

Plate 61: Chart flow recorder box F1 interior, with chart drum and pen assembly, from southeast

Plate 62: Wooden tank F4 over main channel C1a, from east. (1m scale)

Plate 63: Stone slab bridge F6 over channel C1a between buildings GR1 and L1, from east. Drilled holes are seen in the main slab. (2m scale)

Plate 64: Concrete footbridge F10 at northeast end of main settling tank T1, with channel C3 in foreground and channels C1b and C2 behind, from south. (2m scale)

Plate 65: Small gauge tank F11, outside main pump house PH1 partly cleared, from northeast. (1m scale)

Appendix 1

Digital Photographic Register

AC archaeology **Digital Photographic Register**

Site Code: ACD986 Tone Works Grease Refinery

Archive No	Description	Scale	View from	Photo by	Date
	BUILDING GR1				
1	Exterior, NW gable wall overgrown	-	WNW	PS	23/09/2014
2	Exterior, NW gable, detail at top	-	WNW	PS	23/09/2014
3	Exterior, NW gable wall, with yard and Building GR2 on left	2m	NW	PS	16/03/2015
4	Exterior, NW gable wall	2m	NW	PS	16/03/2015
5	Exterior, SW elevation, blocked window no.1 of room B	2m	SW	PS	23/09/2014
6	Exterior, SW elevation, window no. 3	2m	SW	PS	16/03/2015
7	Exterior, SW elevation, passage door	2m	SW	PS	23/09/2014
8	Exterior, SW elevation, blocked door of room A	2m	SW	PS	23/09/2014
9	Exterior, SW elevation, full length	2m	SW	PS	16/03/2015
10	Exterior, SW elevation, windows 1-3	-	SW	PS	16/03/2015
11	Exterior, SW elevation, N end with passage door	2m	SSW	PS	16/03/2015
12	Exterior, SW elevation, S end	2m	SW	PS	16/03/2015
13	Exterior, SE gable wall, overgrown shows building GR9 concrete block wall	2m	SE	PS	16/03/2015
14	Exterior, NE wall, doorway to room A	2m	NNE	PS	23/09/2014
15	Exterior, NE wall, door at S end & trace of attached buildings GR8 & GR9. Shows brick floor in yard	2m	NE	PS	16/03/2015
16	Exterior, NE wall, door at S end & trace of attached buildings GR8 & GR9.	2m	NNE	PS	16/03/2015
17	Exterior, NE wall, blocked passage arch & trace of attached buildings GR8, GR7 & GR4	2m	E	PS	16/03/2015
18	Exterior, NE wall, blocked passage arch, 2 doors & trace of attached buildings GR4 & GR7	2m	NNE	PS	16/03/2015
19	Exterior, NE wall, 2 blocked doors & trace of buildings GR4 (right) & GR7	2m	NE	PS	16/03/2015
20	Exterior, NE wall, 2 blocked doors & trace of attached buildings GR4 (right) & GR7 including foundation of GR4	-	NE	PS	16/03/2015
21	Passage, broken SW doors, in dangerous state		NNE	PS	23/09/2014
22	Passage NW brick wall near SW door	2m	ESE	PS	23/09/2014
23	Passage NW brick wall & widened opening to room B	2m	SE	PS	23/09/2014
24	Passage NW brick wall & upper window, to roof		S	PS	23/09/2014
25	Passage blocked NE doorway & opening to room B on left	2m	SW	PS	23/09/2014
26	Passage SE brick wall & widened opening to room A	2m	NNW	PS	23/09/2014
27	Passage SE brick wall & upper window, to roof		NNW	PS	23/09/2014
28	Room A, floor	2m	SW	PS	23/09/2014

29	Room A, NW wall enlarged opening & upper floor timbers; tank 1 on right		SE	PS	23/09/2014
30	Room A, tank 1 & stairs	2m	S	PS	23/09/2014
31	Room A, NE wall, doorway &stairs; tanks 1 & 2 visible	2m	SW	PS	23/09/2014
32	Room A, NE wall & tank 2 in E corner	2m	W	PS	23/09/2014
33	Room A, SE wall & blocked window; tank 2 on left	2m	NW	PS	23/09/2014
34	Room A, SE wall, upper floor timbers and roof	2m	WNW	PS	23/09/2014
35	Room A, roof at SE end and large upper floor timber	-	N	PS	23/09/2014
36	Room A, SW wall at S corner; doorway blocked with iron plate	2m	NNE	PS	23/09/2014
37	Room A, SW wall, window & 2 iron pillars supporting floor timbers	2m	E	PS	23/09/2014
38	Room A, SW wall window & iron pillar supporting floor timbers	2m	NE	PS	23/09/2014
39	Room A, partly demolished section, with roof timbers & iron pillar supporting floor	-	SE	AP	27/03/2015
40	Room A, partly demolished section, with roof timbers & iron pillar supporting floor	-	SE	AP	27/03/2015
41	Room B NE wall, blocked doorways, sawn off upper floor timber, & SE opening to passage	2m	W	PS	23/09/2014
42	Room B NE wall blocked doorways, with sawn off upper floor timber	2m	SW	PS	23/09/2014
43	Room B NE wall, blocked doorway, and N corner	2m	SSW	PS	23/09/2014
44	Room B NW wall & blocked window	2m	SW	PS	23/09/2014
45	Room B NW wall, with upper window & roof timbers	2m	SW	PS	23/09/2014
46	Room B SW wall, two windows and sawn-off upper floor timber	2m	NE	PS	23/09/2014
47	Room B SW wall, window inside ‘office’	-	NE	PS	23/09/2014
48	Room B early internal wall and window of ‘office’	2m	NW	PS	23/09/2014
49	Room B ‘Office’ showing early wall and newer concrete block wall	2m	N	PS	23/09/2014
50	Room B ‘Office’ concrete block wall, door & window	2m	NE	PS	23/09/2014
	BUILDING GR2				
51	Exterior, NW gable wall & part SW wall; slate roof. Collapsed GR4 roof on L	-	W	PS	23/09/2014
52	Exterior, NE & SW elevations cleared. Buildings GR3 & trace GR4 on left	2m	W	PS	16/03/2015
53	Exterior, SW wall S end, enlarged doorway, gutter & roof	2m	WSW	PS	23/09/2014
54	Exterior, SE gable wall very overgrown	-	S	PS	23/09/2014
55	Exterior, NE elevation, blocked archway from inside building GR5	-	NE	PS	16/03/2015
56	Exterior, NE elevation, damaged roof & skylights. Overgrown. Buildings GR3 (right) & GR5 (left)	-	NE	PS	16/03/2015
57	Exterior, NE elevation, small upper window of Room B. Overgrown	-	NE	PS	16/03/2015
58	Room A, SW wall, doorway	2m	NE	PS	23/09/2014
59	Room A, SE wall & E corner	2m	WNW	PS	23/09/2014

60	Room A, NE wall, blocked doorway	2m	SW	PS	23/09/2014
61	Room A, NE wall, blocked doorway to Building GR5, shows roof timbers	2m	SW	PS	23/09/2014
62	Room A, NW wall upper part to roof timbers	-	SE	PS	23/09/2014
63	Room A, NW wall damaged opening to Room B	2m	S	PS	
64	Room A, NW wall damaged opening to Room B	2m	SE	PS	23/09/2014
65	Room B, SE wall & opening from	2m	NW	PS	23/09/2014
66	Room B, SE wall to roof timbers	2m	NW	PS	23/09/2014
67	Room B, SW wall & blocked doorway	2m	NE	PS	23/09/2014
68	Room B, SW wall & blocked doorway; W corner on right	2m	NE	PS	23/09/2014
69	Room B, W corner with 2 iron bars across & 2 alcoves	2m	NE	PS	23/09/2014
70	Room B, NW wall, blocked doorway & roof timbers, to roof	2m	SE	PS	23/09/2014
71	Room B, NW wall, blocked doorway & roof timbers	2m	SE	PS	23/09/2014
72	Room B, N corner, platform & blocked doorway on left	2m	S	PS	23/09/2014
73	Room B, NE wall, 2 upper blocked windows; N corner on left	2m	SW	PS	23/09/2014
74	Room 3B, NE wall, 2 upper blocked windows	2m	SW	PS	23/09/2014
75	Room B, roof timbers with slates removed, above NE wall & 2 upper blocked windows	-	SW	PS	16/03/2015
76	Room B, roof timbers to NW	-	SE	PS	23/09/2014
77	Room B, roof timbers to NW, with slates removed	-	SE	PS	16/03/2015
	BUILDING GR3				
78	Exterior, NE gable end with door and upper window	-	N	PS	23/09/2014
79	Exterior, NW elevation in relation to buildings GR2 & GR4	2m	WNW	PS	23/09/2014
80	Exterior, NW elevation. GR4 on right	2m	NW	PS	16/03/2015
81	Exterior, NE gable end with door and upper window	2m	NNE	PS	16/03/2015
82	Exterior, SE & NE elevations	2m	E	PS	16/03/2015
83	Exterior, SE elevation; brick blocked door left of scale	2m	SE	PS	16/03/2015
84	Building demolished, trace of SE wall & brick blocked doorway on left	-	SE	SD	24/03/2015
85	Interior, SE wall with door and two upper windows	-	NW	PS	23/09/2014
	BUILDING GR4				
86	Collapsed roof timbers & overgrown, in dangerous state	-	SW	PS	23/09/2014
	Collapsed roof in corner of buildings B & D, overgrown	-	W	PS	23/09/2014
87	NW exterior wall and roof timbers, seen in relation to buildings GR2 & GR3	-	WNW	PS	23/09/2014
88	NW exterior wall, overgrown, with building GR1 beyond	2m	N	PS	23/09/2014
89	NW exterior wall with blocked window &	2m	NW	PS	23/09/2014

	surviving roof timbers, building GR2 behind				
90	Exterior, NW stone wall with small window same as 89 but timber gone	2m	NW	PS	16/03/2015
91	Position in relation to Buildings GR2 and GR3. Demolished section of NW exterior wall in foreground	-	W	PS	16/03/2015
92	Cleared building, with trace of SE gable against building GR2 & NE stone all with bricked up openings into GR3	2m	SW	PS	16/03/2015
93	Trace of SE gable against NW wall of building GR2	2m	W	PS	16/03/2015
	BUILDING GR5				
94	Exterior, NW elevation, with newer brickwork on corner	2m	NW	PS	16/03/2015
95	Exterior, NW elevation, with newer brickwork on corner	2m	N	PS	16/03/2015
96	Interior, with damaged roof and blocked arch to building GR2	-	ENE	PS	16/03/2015
97	Interior, roof and blocked arch	-	NE	PS	16/03/2015
98	Interior, SE wall with lower brick courses	-	N	PS	16/03/2015
99	Interior, NW wall detail	-	SE	PS	16/03/2015
100	Interior, iron frame for draught regulating plate at N end of NW wall	-	SSE	PS	16/03/2015
101	Interior, floor and SE wall	-	NNE	PS	16/03/2015
102	Interior, shaped firebrick boiler supports partly exposed in floor & red burnt soil	-	NE	PS	16/03/2015
103	Demolished bricks showing soot-stained mortar. Masonry plinth of left may be part of building GR6	-	NE	SD	24/03/2015
	BUILDING GR6				
104	Store shed with corrugated iron walls & roof. On masonry base. Overgrown	2m	E	PS	16/03/2015
	BUILDING L1 & CHIMNEY L2				
105	NW wing roof timbers, from road	-	N	PS	23/09/2014
106	NW wing roof, chimney & SE roof, from road	-	WNW	PS	23/09/2014
107	NW wing roof timbers	-	NE	PS	23/09/2014
108	NW wing roof timbers & pond	-	WSW	PS	23/09/2014
109	NW wing collapsed roof frame and part of wall	-	E	PS	23/09/2014
110	Interior, collapsed central roof, towards NW wing	-	SE	PS	16/03/2015
111	Building, all SW elevation & chimney, with NW (left) and SE (right) wings	-	SW	PS	16/03/2015
112	SE wing, SE elevation, overgrown	-	SSE	PS	16/03/2015
113	SE wing, NE elevation	-	NE	PS	16/03/2015
114	Interior, SE wing exposed brick floor	-	NE	PS	16/03/2015
115	NE & NW wings	-	NE	PS	16/03/2015
116	NE wing, NW elevation with raking stretcher bond brickwork; also windows	2m	NW	PS	16/03/2015
117	Interior, NE wing roof, light girder hoist high up; slates on hipped roof	-	WSW	PS	23/09/2014
118	Interior, NE wing fallen roof frame with line shaft & bearing	-	NW	PS	23/09/2014

119	Interior, NE wing with tank under collapsed roof	-	SW	PS	16/03/2015
120	Interior, NE wing tank & plinth	-	E	AP	27/03/2015
121	Interior, NE wing, line shaft in situ	-	NE	AP	27/03/2015
122	Interior, NE wing SE wall window frame	-	N	AP	27/03/2015
123	Interior, NE wing, tank	-	NW	AP	27/03/2015
124	Interior, NE wing, tank & brick floor	1m	N	AP	27/03/2015
125	Interior, NE wing, general view, buttressed brick settling tank on left	1m	N	AP	27/03/2015
126	Interior, NE wing, machine base	1m	N	AP	27/03/2015
127	Interior, NE wing, machine base	1m	N	AP	27/03/2015
128	Interior, NE wing, N corner abutting brick settling tank	-	W	AP	27/03/2015
129	Concrete base east of tank	1m	NE	AP	27/03/2015
130	Interior, NE wing, void beside tank	1m	NW	AP	27/03/2015
131	NE wing removed line shaft, gen view NW wall behind	-	NW	AP	27/03/2015
132	NE wing removed line shaft detail	1m	-	AP	27/03/2015
133	NE wing removed line shaft detail	1m	-	AP	27/03/2015
134	Interior, NW wing, base N of chimney	-	SE	AP	27/03/2015
135	Brick chimney stack L2 & SE wing roof timbers	-	N	PS	23/09/2014
136	Interior, chimney stack L2	-	E	PS	16/03/2015
137	Chimney L2	1m	NE	AP	27/03/2015
138	Chimney base L2	1m	NE	AP	27/03/2015
	BUILDING PH1 MAIN PUMP HOUSE, TANKS T3 & GAUGE TANK F11				
139	Pump house SW elevation with tanks	2m	SW	PS	16/03/2015
140	Pump house SW & SE elevations & tanks	2m	S	PS	16/03/2015
141	Pump house NE elevation, door, windows, steps platform	-	NE	PS	23/09/2014
142	Pump house NE elevation, concrete platform for wood steps (collapsed)	-	NNE	PS	23/09/2014
143	Pump house NE elevation, louvred windows in aluminium frames near door	-	ESE	PS	23/09/2014
144	Pump house interior, with pump	1m	SE	PS	23/09/2014
145	Pump house interior, with pump	1m	NNW	PS	23/09/2014
146	Pump house interior, pump maker's plate	-	NE	PS	23/09/2014
147	Pump house interior, pump maker's plate	-	NE	PS	23/09/2014
148	Pump house interior, switch gear	1m	SSW	PS	23/09/2014
149	Pump house interior, inspection cover in E corner	-	NW above	PS	23/09/2014
150	Pump house interior, inspection cover detail of maker's name	-	SE above	PS	23/09/2014
151	Exterior, SW & SE elevations, with intermediate and main tanks T3	-	S	PS	23/09/2014
152	Intermediate tank T3	-	W	PS	23/09/2014
153	Intermediate tank & main tank T3	-	WNW	PS	23/09/2014
154	Intermediate tank & main tank T3	-	NW	PS	23/09/2014
155	Small gauge tank F11, part cleared	1m	NE	PS	23/09/2014
156	Small gauge tank F11, inflow or drain	0.5m	NE	PS	23/09/2014
157	Small gauge tank F11, gauge & drain	1m	SE	PS	23/09/2014
158	Small gauge tank F11, drain & board slots	1m	SE	PS	23/09/2014

	BUILDING PH2 SOUTH PUMP HOUSE & TWIN TANKS T4				
159	Pump house 2 SW elevation	2m	SSW	PS	16/03/2015
160	Pump house 2 NE elevation, door & steps. Overgrown	2m	NE	PS	16/03/2015
161	Interior, two pumps	-	NW	PS	16/03/2015
162	Interior, S pump	-	NW	PS	16/03/2015
163	Interior, S pump maker's plate	-	E	PS	16/03/2015
164	Interior, S pump detail, from above	-	SE	PS	16/03/2015
165	Interior, N pump	-	SE	PS	16/03/2015
166	Interior, N pump maker's plate	-	S	PS	16/03/2015
167	Interior, N pump & switchgear	-	S	PS	16/03/2015
168	Interior, switchgear on NW wall	-	SE	PS	16/03/2015
169	Interior, switchgear on NE wall	-	SW	PS	16/03/2015
170	Pump house 2 & tanks T4	2m	WNW	PS	16/03/2015
171	Tanks T4, pump house 2 & round filter bed RF1	2m	NW	PS	16/03/2015
172	Pump house 2 SW elevation	-	SW	PS	16/03/2015
173	Pump house 2 SW elevation, tanks T4 & channel	2m	SSW	PS	16/03/2015
174	Pump house 2 and tanks T4	-	S	PS	16/03/2015
175	Twin tanks T4 and channel	-	SE	PS	16/03/2015
	ROUND FILTER BED RF1				
176	Filter bed wall with voids and collecting channel in front	2m	NW	PS	16/03/2015
177	Top, with clinker and double filter arm	2m	N	PS	16/03/2015
178	Top, centre iron column, double filter arm and single balancing arms	2m	N	PS	16/03/2015
179	Top, centre column maker's name: WILLIAM E FARRER Pat 850507	-	W	PS	16/03/2015
180	Top, centre column base detail	-	NE	PS	16/03/2015
181	Top, clinker detail	-	S	PS	16/03/2015
182	Base and collecting channel from above	-	SE	PS	16/03/2015
				PS	16/03/2015
	ROUND FILTER BED INFLOW STRUCTURE RF2				
183	Concrete feature	2m	NE	PS	16/03/2015
184	Concrete feature	2m	S	PS	16/03/2015
	MAIN SETTLING TANK T1, CHANNELS C3 & C4, & BRIDGE F10				
185	Main settling tank T1	-	NE	PS	23/09/2014
186	Main settling tank T1	-	ENE	PS	23/09/2014
187	Main settling tank, circular overflow	-	NE	PS	23/09/2014
188	Main settling tank, detail of overflow	-	E	PS	23/09/2014
189	Main settling tank, circular overflow, water level high; NW wall in foreground	-	N	PS	16/03/2015
190	Main settling tank, circular overflow, water level high; NW wall in foreground	-	NW	PS	16/03/2015
191	Main settling tank, sluice on NW side	-	N	AP	27/03/2015
192	Main settling tank, general view	-	NE	AP	27/03/2015
193	Main settling tank, NW side wall and linked channel C4	-	NE	PS	16/03/2015
194	Main settling tank, SE side channel C3 and monitor box F1	-	NE	PS	16/03/2015
195	Main settling tank, channel C3 exposed	-	NE	AP	27/03/2015

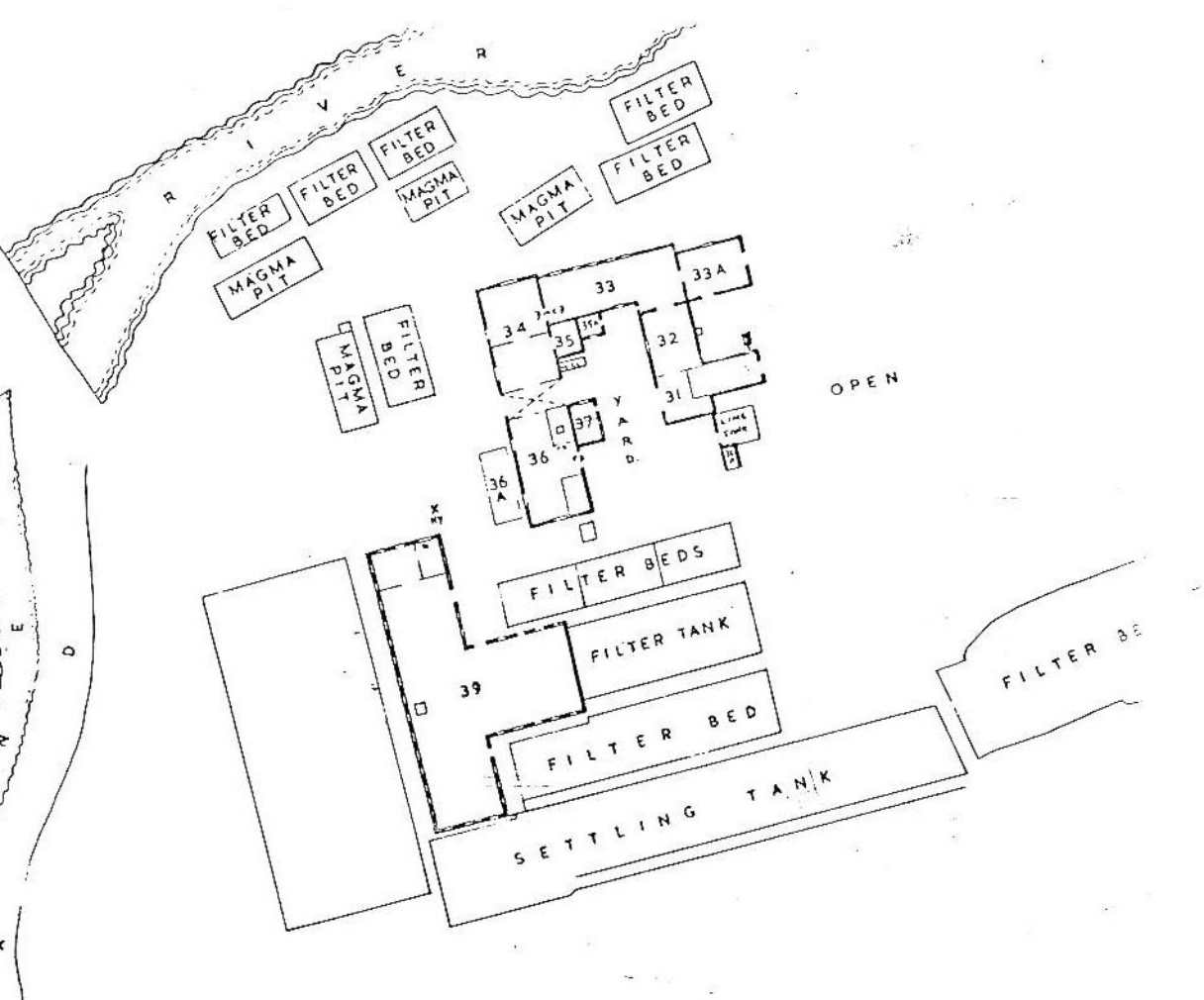
	on SE side				
196	Main settling tank, valve or sluice control handle, with access ladder on SE wall. Pump house tank T3 beyond	-	NW	AP	27/03/2015
197	Main settling tank, bridge F10 at NE end, showing brick overflow wall; side channel in foreground	-	S	PS	23/09/2014
198	Main settling tank, bridge F10 at NE end; side channel in foreground	2m	S	PS	16/03/2015
199	Main settling tank, bridge F10 at NE end; overflow wall and channel C2 in foreground	-	NE	PS	16/03/2015
	FIVE SETTLING TANKS T2				
200	Five linked concrete tanks, in relation to Building LS, with sluice(?) on wall between tanks 4 & 5	-	WNW	PS	16/03/2015
201	Five linked concrete tanks, with small wooden hatch from channel into first tank	1m	WNW	PS	16/03/2015
202	Small wooden hatch from channel into first tank	1m	SW	PS	16/03/2015
203	Small wooden hatch from channel into first tank	1m	NW	PS	16/03/2015
204	Five linked concrete tanks, with drained & cleared Filter/Settling Bed B3	-	W	PS	18/04/2015
	BUTTRESSED FILTER TANK (BFT)				
205	Buttressed NW brick wall; Filter bed B1 in foreground	2m	N	PS	16/03/2015
206	NW wall, sluice outlet from chamber 3	2m	NW	PS	16/03/2015
207	NW wall, iron features & valve for chamber 4	-	NW	PS	16/03/2015
208	SE wall, sluice outlet from chamber 5	-	SE	PS	16/03/2015
209	Twin iron ‘paddles’ inside chamber 5	-	NE	PS	16/03/2015
210	NW wall, broken into chamber 3, view	-	N	SD	24/03/2015
211	NW wall, broken into chamber 3	-	NW	SD	24/03/2015
212	Iron ‘paddles’ inside chamber 3	1m	NE	SD	24/03/2015
213	Iron ‘paddles’ inside chamber 3	1m	NW	SD	24/03/2015
214	SW wall, buttresses with stepped plinth bricks, inside NE wing of Building L1	-	NW	AP	27/03/2015
215	SW wall, iron pipe from chamber 8 into NE wing of Building L1	-	W	AP	27/03/2015
	FILTER BED 1 (B1)				
216	Filter bed with low brick walls; buttressed filter tank BFT on left	-	NE	PS	16/03/2015
217	Filter bed with low brick walls; buttressed filter tank BFT on right	-	W	PS	16/03/2015
	FILTER BED 3 (B3)				
218	Filter bed/tank associated with concrete tanks T2; flooded & linked with T1	-	SSW	PS	16/03/2015
	FILTER BED 4 (B4)				
219	Trace of filter or sludge bed	-	NE	PS	16/03/2015
	CHANNEL 1 (C1a & C1b), STONE SLAB F5, SLAB BRIDGE F6 & SLAB				

	COVERS (F7-9)				
220	Stone slab bridge F6 between buildings GR1 and L1	2m	E	PS	16/03/2015
221	Stone slab bridge F6	2m	W	PS	16/03/2015
222	Stone slab bridge F6 & channel C1a	2m	W	PS	16/03/2015
223	Stone slab bridge F6, detail of depth	0.5m	E	PS	16/03/2015
224	Channel C1a with three slab covers F7-9 (scale on F8); large slab F5 left foreground	2m	SW	PS	16/03/2015
225	Channel with slab cover F7 & large slab F5 behind	-	ESE	PS	16/03/2015
226	Iron pipe to filter bed B1 in background	figure	NW	PS	16/03/2015
227	Channel C1a & C1b corner (overgrown) with C2 culvert pipes beneath	-	S	PS	16/03/2015
228	Channel C1b wall (English bond) & regular holes; C2 wall in foreground	-	SW	PS	16/03/2015
229	Channel C1b rounded corner	2m	W	PS	16/03/2015
230	Channel C1b rounded corner & angled corner of C2 in foreground	-	W	PS	16/03/2015
231	Channels C1b & C2 with bridge F10, from corner	2m	SE	PS	16/03/2015
232	Channel 1b continuing under bridge, narrows to Channel C3 beside Tank T1	-	ENE	PS	16/03/2015
	CHANNEL 2 (C2)				
233	Channel 2 at end of Settling Tank T1, with footbridge F10; C1b on left	-	WNW	PS	16/03/2015
234	Channel 2 & overgrown C1b behind wall on left	-	WNW	PS	16/03/2015
235	Channel 2 culvert pipes beneath overgrown C1a corner; C1b on right	-	SE	PS	16/03/2015
	FLOW RECORDER BOX (F1)				
236	Chart recorder box on SE side of settling tank T1; related to Channel C3	1m	SW	PS	23/09/2014
237	Chart recorder box on SE side of settling tank T1; related to Channel C3	-	SSW	PS	16/03/2015
238	Chart recorder box interior, with chart drum and pen assembly	-	SE	PS	16/03/2015
	PIPE & VALVE (F2)				
239	Pipe and valve		NE	PS	16/03/2015
240	Pipe and valve, in site context		ESE	PS	16/03/2015
	DRAIN INSPECTION CHAMBER (F3)				
241	Drain inspection chamber & cover	-	NW	PS	23/09/2014
242	Drain inspection chamber, cover removed	-	NW	PS	23/09/2014
243	Drain inspection chamber	-	NW	PS	23/09/2014
	WOODEN TANK (F4)				
244	Wooden tank over main channel C1a	1m	E	PS	16/03/2015
245	Wooden tank, detail of pipe & valve	-	ESE	PS	16/03/2015
	CONCRETE SLAB (F12)				
246	Concrete slab over possible filter bed, or period 8 entrance into yard	-	N	SD	30/04/2015

	MAGMA PIT (T5)				
247	Tank as exposed, east side	-	E	AP	11/05/2015
248	Tank as exposed, pipe at east corner	-	ESE	AP	11/05/2015
249	Tank as exposed, pipe at east corner	-	SE	AP	11/05/2015
250	Working shot of excavator	-	N	AP	11/05/2015
251	Excavation of tank	-	NW	AP	11/05/2015
252	Excavation of tank	-	NW	AP	11/05/2015
253	Excavation of tank	-	NW	AP	11/05/2015
254	Excavation of tank	-	SE	AP	11/05/2015
255	Wooden(?) spindle from lower fill	-	n/a	AP	11/05/2015
256	Excavation of tank showing SW wall	-	NE	AP	11/05/2015
	SITE CONTEXT				
257	Buildings GR3 & GR1 general view with business park road in foreground. Chimney at Tone Works in distance	-	NNE	PS	23/09/2014
258	EF1. Gantry bridge for steam pipe over Milverton Road. Tone Works on right	-	N	PS	23/09/2014
259	EF2. Two square-section iron aqueducts & round pipe from Tone Works across River Tone	-	N	PS	16/03/2015
260	EF2. Round iron pipe (of two) on support beside Tone Works aqueducts	-	SE	PS	16/03/2015
261	EF3. Round iron pipe from Tone Works across River Tone	-	N	PS	16/03/2015

Appendix 2

Insurance Plan of Tone Grease Works, with annotated notes, n.d.


R I V E R
FILTER BED
FILTER BED
FILTER BED
MAGMA PIT
MAGMA PIT
FILTER BED
FILTER BED
MAGMA PIT
FILTER BED
33
33A
34
35
32
31
OPEN
37
36
36A
YARD
FILTER BEDS
FILTER TANK
39
FILTER BED
SETTLING TANK
FILTER BE

Fox Bros. & Co., Ltd.

Grease works, Tone, Wellington.

	Description	Super Area
31	Barrel store Brick slate.	500
32	Press room	640
33	Barrel store	1137
34	Barrel store Very Rough Storage (12) Brick slate.	712
35	Basket Making for larger basket making - Store.	
	Ground floor	1234 ?
	First floor	-
36	Withy store Acid Room. (15)	152
37	Mess room (9) B.a.S.	100
~~38~~ F/F	Vitirol Tank House F/F Proof	1150
39	Cloa kroom	-
40	Bottle store	96
41	Effluent Tr eatment Brick slate.	5037
	Laboratory Only Lab used. Rem rough storage	476 5513 5556
		11234

Plant and machinery.

Arrange as sketch

12 Brick tanks

41 Pit for effluent from Tonedale

Engine by Ruston & Hornby

Conduit carrying dye water through the neutralizing and settling process and then to the river. drn & SWS.

1 Lime Tank

No. of brick tanks in use - 5

Any completely void and only part used for storage -

260.
26
234
170

R & H Eng.

Filter Beds - shallow earth cut.
Magma Pits - deep brick lined pits.
Settling Tanks - brick lined

Filter Tanks.

Brunton

Appendix 3

Topographic Survey, February 2009

AREA EXCLUDED FROM TITLE

BOUNDARY LINE TO BE CONFIRMED. CURRENTLY BASED ON ORDNANCE SURVEY DATA

BOUNDARY LINE TO BE CONFIRMED. CURRENTLY ON ORDNANCE SURVEY D

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