

Merthyr Learning Quarter, Merthyr Tydfil

Archaeological field evaluation

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A report for the University of Glamorgan
by Rob Dunning BSc

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Summary

Merthyr Tydfil County Borough Council have requested that work be undertaken in preparation for an outline planning application for the construction of the Merthyr Learning Quarter, Cyfartha, Merthyr Tydfil. The Glamorgan-Gwent Archaeological Trust's Projects Division (GGAT Projects) were commissioned by the University of Glamorgan to undertake a desk-based assessment (Goldsmith 2011) to inform on the archaeological impact of the proposed development.

The assessment indicated that the development would likely have a significant impact on various structures associated with the Ynys Fach Ironworks (00964m/01263m/01623m/33724/34122/LB16073/Gm331). A project design (Dunning 2011) was compiled which provided the detailed specifications for undertaking the evaluation. The evaluation itself took place between 20th June 2011 and the 24th June 2011.

Historic mapping suggests that a wall (2008) and associated foundations, uncovered in Trench 2, are likely to be the remains of the eastern wall of one of the casting houses of the Ynys Fach Ironworks. Rubble deposit 2014 is likely to be the remains of this structure, following its demolition in the mid 20th century. Similarly, the stone sleepers (2013) are the remains of the railway network utilised by the ironworks. No archaeologically significant features or structures were encountered in Trenches 1, 3 or 4. All of the excavated deposits dated to the Post-medieval or Modern periods. Similarly the recovered artefactual material also dated to the Post-medieval period at the earliest.

The results of the archaeological investigation indicate that within the evaluated area, some of the structures associated with the Ynys Fach Ironworks have been severely damaged. However, features have survived, albeit in a damaged condition, and may be encountered during any future ground intrusion works. Furthermore, as Trench 1 was relocated in order to avoid a large retaining bank, it is possible that the remains of the engine house and boiler house could be encountered, particularly as due to their location, the structures could have survived the majority of the 20th century demolition works.

Acknowledgements

The project was managed by Richard Lewis BA MifA (Head of Projects) and the fieldwork was undertaken by Rob Dunning BSc (Project Officer) and Fay Bowen BA (Project Archaeologist) of GGAT Projects. The finds were processed and analysed by Andy Sherman BA (Assistant Project Officer). The report and illustrations were prepared by Rob Dunning.

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1 Introduction

1.1 Project background

Merthyr Tydfil County Borough Council have requested that work be undertaken in preparation for an outline planning application for the construction of the Merthyr Learning Quarter, Cyfartha, Merthyr Tydfil (centred at NGR SO 0460 0603). The Glamorgan-Gwent Archaeological Trust's Projects Division (GGAT Projects) were commissioned by the University of Glamorgan to undertake a desk-based assessment (Goldsmith 2011) to inform on the archaeological impact of the proposed development.

The assessment indicated that the development would likely have a significant impact on various structures associated with the Ynys Fach Ironworks (00964m/01263m/01623m/33724/34122/LB16073/Gm331). These included the refinery, casting houses, forge, boiler house, engine house, an unidentified building and a railway network. In order to mitigate the effect of the development on these structures, the assessment recommended that an archaeological evaluation be carried out. The purpose of the evaluation was to assess and record the survival and condition of any structures or features of archaeological interest, as well as to determine the presence of hazardous materials. A project design (Dunning 2011) was compiled which provided the detailed specifications for undertaking the evaluation. The evaluation itself took place between 20th June 2011 and the 24th June 2011.

1.2 Location and topography

The development area is centred on NGR SO 0460 0603, to the southwest of Merthyr College main building (see Figure 1). A housing estate borders its western and southwestern sides, separated by the ruins of the Ynys Fach Ironworks furnaces, which are a Scheduled Ancient Monument (Gm331). The ironworks were constructed against a steep charging bank, but the evaluation area was on flat land, at around 170m OD. Trenches 1,2 and 4 were located within car-parking areas, whereas Trench 3 was located within the footprint of the old workshops.

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1.3 General archaeological background

Detailed below is a summary of the history of Merthyr Tydfil and the Ynys Fach Ironworks, for a detailed account please see Goldsmith 2011.

Prior to the arrival of the ironmasters, several of whom migrated from Sussex as early as the 17th century (Merthyr Teachers Centre Group 1981), activity in the region was closely linked to agriculture, *i.e.* lime burning, corn-milling and leather tanning. Merthyr Tydfil had no established industrial tradition. The reliance on dairy farming continued into the 17th and 18th centuries; it is known for instance that during the period 1688-1725 farmers in the Merthyr Tydfil area each on average owned fifteen cows (Merthyr Teachers Centre Group 1981). Merthyr Tydfil underwent a radical transformation in the second half of the 18th century. In 1696, it is described as ‘a village of about 40 houses’ and a population of 110 inhabitants has been conjectured; by 1801, the population of Merthyr Tydfil had increased to 7,700, making it at that time the largest town in Wales (Merthyr Teachers Centre Group 1981).

Despite the lack of an industrial tradition in the region, the Taff Valley represented an ideal setting for the establishment of an iron industry, due to the availability of iron ore, coal, timber, limestone, and waterpower, all in convenient proximity. Thanks to improved means of production in the late 18th century, iron had become more readily available and more affordable. At the same time, the wider context of constant wars, the increased use of iron tools and implements in domestic and agricultural contexts, and the spread in iron use in construction, all resulted in an upsurge in the demand for iron. This represented a very lucrative market, which lured potential investors into investing vast sums of money into the iron industry. The ironworks of northern Glamorganshire and Monmouthshire were large-scale enterprises from the beginning, where outside capital was essential.

The first iron furnaces and forges were erected near the head of the Taff Valley between 1759 and 1765. By the early 1780s, there were four ironworks in operation in Merthyr Tydfil: Dowlais, Plymouth, Cyfarthfa, and Penydarren. Dowlais Ironworks started as probably the first coke powered ironworks in South Wales in 1759. Plymouth opened in 1763, Cyfarthfa in 1765, and Penydarren in 1784. Ynys Fach Ironworks was conceived as a subsidiary works to Cyfarthfa, and opened in 1801. Other subsidiary ironworks to open in the early 19th century were Ivor by Dowlais, Dyffryn by Plymouth, and further forges in Pentrebach, a part of Plymouth Ironworks.

The years 1791-4 saw the construction of the Glamorganshire Canal by the Merthyr Tydfil iron masters, linking Merthyr Tydfil with Cardiff through 50 locks (Ynys Fach had its own transshipment point at Chapel Row, connected by a tram-line). An iron bridge (01618m/116/Gm283) over the river Taff was finished in May 1800, and became a vital link between Ynys Fach and the town itself. Dismantled in 1963, it has been restored and is now on display in Cyfarthfa Park. The Local Board of Health, set up in 1850, was given powers to lay down a sewerage system and provide Merthyr Tydfil with an adequate water supply. However, work on supplying water only began in 1858 and was completed in 1861, when water was finally available from standpipes in the streets (Perkins, Thomas, and Evans 1986).

With the global demand for iron being gradually replaced by the need for steel during the second half of the 19th century, the Merthyr Tydfil ironworks were faced with transformation into steel production plants or closure; Penydarren was closed in 1858 and Plymouth bought out in 1863 (Newman 1995). Ynys Fach was reconditioned and put in stand-by in 1879, while Cyfarthfa was re-used as a steel production works (Egloff 2008).

1.4 Specific archaeological background

The history of the Ynys Fach Ironworks is intimately linked to that of the Cyfarthfa works. It was conceived to supplement the Cyfarthfa furnaces, primarily in order to increase the total output of pig iron. The ironworks was situated on an area of prime land, abutting a steep sloping hillside, with coal and ore being initially mined only a few yards away. Transportation of materials was available in the form of an easy access to the Glamorganshire Canal, on which Ynys Fach works had its own transshipment point, reached by way of a tram-line.

A working forge is recorded on site in 1769, but unfortunately no name for the leasee of the land at that time is known. Plymouth was in the hands of Anthony Bacon since he had bought the works in 1765. Following this, the forge in Cyfarthfa was used to process pig iron produced in the Plymouth factory. Charles Wood states in his diary that Cyfarthfa Ironworks commenced in 1766, and it is therefore possible that forging was carried out in Ynys Fach prior to the opening of Cyfarthfa. There is no evidence to suggest that Bacon was leasing land at Ynys Fach at this early date. He did, however, lease part of Ynys Fach from the Griffiths family of Gelly in the Parish of Llanwonno, in May 1782, at an annual rent of £3 3s (Goldsmith 2011).

In September 1782, Bacon leased part of the Cyfarthfa Ironworks to Francis Homfray for a term of 50 years. Homfray was granted the 'Lower Works' or 'Foundry' and a mill at Cyfarthfa for the boring of cannon. It has been suggested that the 'Lower Works' included the forge at Ynys Fach. However, the site is not unequivocally identified. Francis Homfray left for Penydarren in October 1784, and the mill and the forge were taken over by David Tanner of Monmouth. In March 1786, Tanner's lease passed into Richard Crawshay's hands. The cannon boring mill was reportedly so successful that pig iron had to be imported from Dowlais and Plymouth in addition to the Cyfarthfa production.

On Bacon's death in January 1786, lease of the works at Cyfarthfa, with the exception of the above mentioned cannon boring mill and forge, already in Crawshay's possession, was granted by the Court of Chancery to Richard Crawshay and Company, *i.e.* Crawshay, James Cockshutt, and William Stephens from January 1, 1787, until 1795, when Bacon's eldest illegitimate son would reach the age of maturity. The Crawshay-Cockshutt-Stephens partnership was dissolved in 1791, and Richard Crawshay and George Watkins took over the works from 1792 onwards.

At this point, Crawshay's lease of the Lower Works and mill was not due to expire until 1832, whereas his lease of the Cyfarthfa Ironworks would, at best, need to be renegotiated with Bacon's heir at the latest in 1795. Again, assuming that the Lower Works partly, or fully, referred to the forge at Ynys Fach, it is likely that Crawshay would preferably invest in the latter, more secure leasehold.

Ynys Fach Ironworks was opened in 1801. It initially had two blast furnaces, according to plans drawn by engineer Watkin George and built by Thomas Jones of Merthyr Tydfil. These were voluminous furnaces for the period, being 53 feet (*c.* 16.15m) high, and 12 feet (*c.* 3.65m) across the boshes. They were the second furnaces to have steam-powered air blast in Merthyr Tydfil, the first ironworks using a steam engine owned by Richard Crawshay. As a consequence, output was more regular, and considerably higher than that of the Cyfarthfa works. Between 45 and 62 tons of iron were produced weekly at the waterwheel-powered Cyfarthfa plant, whereas Ynys Fach produced between 65 and 70 tons a week.

The northern engine house, which survives until the present day, has a style typical for Cyfarthfa. It comprises three storeys, and its quoins consist of limestone work. It housed a beam engine, possibly similar to the double acting Boulton and Watt blowing engine installed

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at Dowlais three years previously. The adjacent boiler house supplied steam from coal fired boilers. A 100 feet high square stack stood nearby.

In 1836, two additional furnaces and adjoining casting houses were erected at Ynysfach (the inscription WC 1836 on the cast iron keystone of furnace no. 3 is still visible today). A new engine house with boiler and chimneystack, built to the south of the new furnaces, provided them with blast power.

Ynys Fach Ironworks closed during the strike of 1874, until Robert Thomson Crawshay's death five years later. While Cyfarthfa was converted to a steel production plant, the Ynys Fach furnaces were reconditioned and held in stand-by in case of a renewed demand for iron. However, Ynys Fach was probably never used again, and by 1905 the masonry was reported to be starting to crumble. The southern engine house was demolished some time after 1905, and the masonry was reused to construct a fan pit at Gethin.

Due to its perceived precarious condition, one boiler stack (belonging to the northern boiler house) was brought down in December 1949 using a charge of explosives.

The majority of the 19th century buildings and canal structures survived until the late 1950s, when development of the college commenced. All buildings were then destroyed, with the exception of the western part of the ironworks and its northern engine house. The canal and all other water retaining structures were also backfilled.

Nine archaeological investigations conducted by the Glamorgan-Gwent Archaeological Trust have previously been carried out in the vicinity of the development area. These consist of four watching briefs (Lawler 1995, Egloff 2008b, James 2009b and James 2011), two desk-based assessments (Egloff 2008a and Goldcliff 2011), and two written scheme of investigations (Dunning 2009 and James 2009a). The development area is also included within the Southeast Wales Industrial Ironworks Landscapes (Roberts 2005).

The two watching briefs (one including a photographic survey) conducted in 1995 and 2009 primarily dealt with the Parliament Lock and the Rhydyar Canal Bridge respectively and both indicated that the Glamorganshire Canal was backfilled (Lawler 1995 and James 2009b).

In 2008, a series of geotechnical test pitting and trial trenching, conducted under archaeological watching brief conditions revealed that the buildings associated with the Ynys Fach Ironworks were not fully removed or leveled during the construction of Merthyr College and the associated workshops, but are still extant in places, possibly up to a height of c 1.20m. Walls found during the course of this watching brief are located at a depth of 0.6m in an area where the Ynys Fach houses once stood. Two distinct typological phases were identified, which could mirror the changes and enlargement that Ynys Fach underwent in 1836, when two blast furnaces were added to the two initial ones. Within the perimeter of the refinery building, a brick floor and stone block, with a vertical iron bar rising up from it, was uncovered at a depth of 1.8m. Brick and mortar structures were located under the subsequently constructed Merthyr College buildings at depths ranging from 0.65m to 1.8m. The other test pits contained spoil or waste deposits that relates to the ironworks, at depths of 0.65m, 1.0m and 1.8m. The results of the watching brief confirm that below-ground remains associated with the Ynys Fach ironworks survive at a minimum depth of 0.6m, and are likely to be encountered during any construction works (Dunning 2009 and Egloff 2008b).

2 Methodology

The project design (Dunning 2011) allowed for four evaluation trenches, all measuring 10m by 1.8m. However, the presence of a large revetment bank and services required the re-location of three trenches (Trenches 1, 3 and 4), one of which (Trench 1) was reduced in size to 5m (see Figure 1).

The trenches were mechanically excavated using a 1.8m wide toothless grading buckets under direct archaeological supervision. Sufficient excavation of archaeological features and deposits were undertaken to establish the nature and extent of archaeological remains, including the nature and depth of the natural horizons. The archaeological works were carried out to the professional standards laid out in the Institute for Archaeologists' *Standard and Guidance for Archaeological Field Evaluation Specifications* (1994, revised 2001 and 2008).

A written and photographic record was made of all archaeological features and deposits in accordance with the GGAT *Manual of Excavation Recording Techniques*. Contexts were recorded using a continuous numbering system, and are summarised in Appendix I. All significant contexts were photographed using a digital camera (with a minimum resolution of 8mp). The excavated area was located in relation to standing buildings and/or published boundaries and the site datum related to Ordnance Survey (OS) datum. Levels are related to the OS benchmark (BM 170.69m) located on the fire station at NGR SO 04596 06244. All context depths were measured from the present ground surface.

All classes of finds were retained, cleaned, and catalogued and remain in temporary store until arrangements for final deposition are agreed, in line with the requirements of the Institute for Archaeologists' *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2001).

The project archive will be deposited with an appropriate receiving organisation, in accordance with the ICON and IfA Guidelines. A copy of the archive index will be deposited with the National Monuments Record, Royal Commission on the Archaeological and Historical Monuments of Wales (RCAHMW), Aberystwyth.

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Figure 1. Location of development area (red) and Trenches 1-4 (blue)

3 Results

Trench 1

Trench 1 measured 5m in length by 2m in width, and was excavated to a maximum depth of 1.37m (see Plate 1). The basal context was a slag deposit (**1005**), composed of iron slag and vitrified waste material, with no bonding matrix and a minimum depth of 0.2m. This was overlain by an industrial layer (**1004**), composed of a black silty clay and containing occasional angular and sub-angular stones (less than 0.06m in diameter), isolated iron slag fragments, vitrified waste material, slate and mortar flecking. The deposit had a depth of 0.33m. Overlying this was a levelling material (**1003**), composed of angular and sub-angular stones (less than 0.21m in diameter), machine-made brick, iron, slate, wire and concrete fragments, with a depth of 0.62m. Overlying **1003** was a layer of black sandy clay (**1002**), which measured 0.13m in depth and contained occasional angular and sub-angular stones (less than 0.06m in diameter) and isolated mortar flecking. The uppermost deposit was a yellow-brown sand (**1001**), 0.09m in depth.

Trench 2

Trench 2 measured 10m in length by 2m in width, and was excavated to a maximum depth of 0.98m (see Figure 2 and Plates 2-3). The basal deposit was a compact industrial deposit (**2006**), composed of black-brown sandy clay, containing frequent slag, iron concretions and isolated mortar flecking, with a minimum depth of 0.06m. This was overlain by a loose industrial layer (**2005**), composed of a black silty clay and containing occasional angular and sub-angular stones (less than 0.06m in diameter), occasional iron slag and vitrified waste material fragments, isolated iron concretions, slate and glass fragments. The deposit had a depth of 0.32m. Overlying this was a levelling material (**2004**), composed of angular and sub-angular stones (less than 0.22m in diameter), machine-made brick, mortar and glass fragments, with a depth of 0.28m. Overlying **2004** was a layer of hardcore chippings (**2003**), and two layers of black tarmac (**2002** and **2001**).

Located at 169.37m OD were the remains of a wall (**2008**), although only a single course composed of two bricks survived, a third brick was present but not *in situ*. The foundations of the wall were formed of a mortar bed (**2009** and **2010**), which underlay a hardcore formed of an orange-brown clay (**2007**) containing frequent angular and sub-angular stones, slag and iron concretions. To the southwest of **2008**, underlying **2004**, was a deposit of demolition rubble (**2014**). The rubble effectively replaces **2005** within the interior of the **2008** building.

Three stone sleepers (**2013**) were contained by **2006**, and likely *in situ*. All were sub-rectangular in shape, with the northwestern sleeper measuring 0.46m by 0.3m by 0.12m; the southeastern sleeper measuring 0.4m by 0.34m by 0.12m, with the eastern stone measuring 0.32m by 0.26m by 0.1m. The iron fastening pins that would have secured the rails are still present in the northwestern and eastern stones, although only the retaining hole is present in the southeastern sleeper.

A service trench (**2011**) was also noted in Trench 2, aligned northeast-southwest and with a width of 0.36. The fill (**2012**) of the trench was composed of a fine grey sand which contained frequent angular stones (less than 0.01m in diameter).

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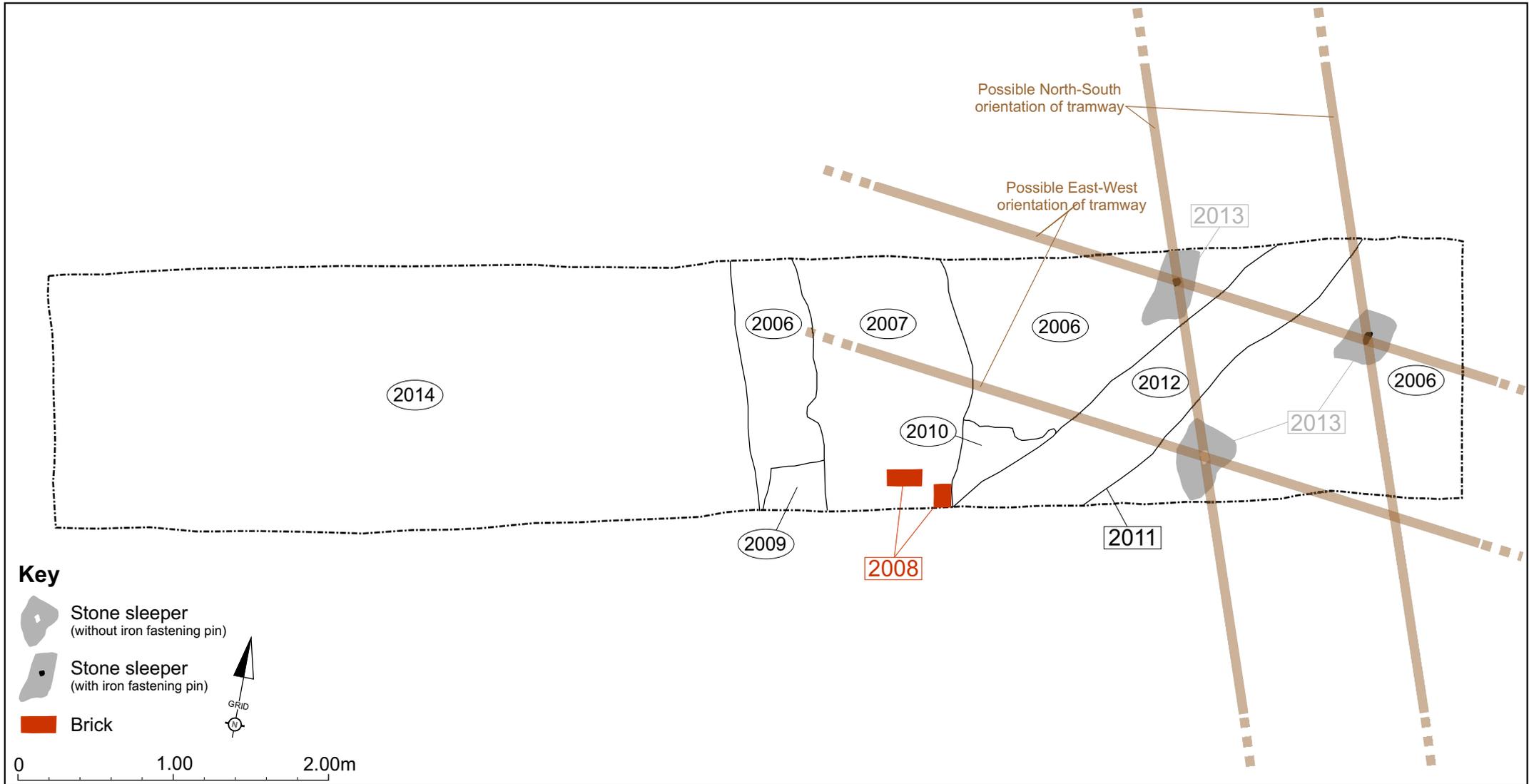


Figure 2. Plan of Trench 2 showing possible orientation of tramway associated with 2013

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Trench 3

Trench 3 measured 10m in length by 2m in width, and was excavated to a maximum depth of 1.27m (see Plate 4). The basal deposit was a compact industrial deposit (**3006**), composed of black-brown sandy clay, containing frequent slag, iron concretions and isolated mortar flecking, with a minimum depth of 0.05m. This was overlain by a loose industrial layer (**3005**), composed of a black silty clay and containing occasional angular and sub-angular stones (less than 0.06m in diameter), occasional iron slag and vitrified waste material fragments, isolated iron concretions, slate and glass fragments. The deposit had a depth of 0.45m. This was overlain by a levelling deposit (**3004**), composed of a grey-black clay, containing angular and sub-angular stones (less than 0.16m in diameter), isolated machine-made brick, slate and iron concretions. Overlying this was a grey sandy clay (**3003**), containing frequent rounded and sub-rounded stones (less than 0.06m in diameter) isolated machine-made brick fragments, and with a depth of 0.16m. Overlying **3003** was a layer of black clay (**3002**), which measured 0.04m in depth and contained isolated angular stones (less than 0.01m in diameter) and frequent coke and slag fragments. The uppermost deposit was a light brown silty clay (**3001**), containing isolated rounded and sub-rounded stones (less than 0.06m in diameter), 0.26m in depth.

Trench 4

Trench 4 measured 10m in length by 2m in width, and was excavated to a maximum depth of 3.06m (see Plates 5-6). The basal context was a slag deposit (**4006**), composed of iron and vitrified waste material, with no bonding matrix and with a minimum depth of 1.7m. This was overlain by an industrial layer (**4005**), composed of a black silty clay and containing occasional angular and sub-angular stones (less than 0.06m in diameter), isolated iron slag and vitrified waste material fragments, iron concretions, slate, glass and mortar flecking. The deposit had a depth of 0.76m. This was overlain by a levelling deposit (**4004**), composed of angular and sub-angular stones (less than 0.24m in diameter), machine-made brick, mortar, wood and glass fragments. This deposit was only present in the southwest corner of the trench, and had a maximum depth of 0.35m. Overlying this were two layers of hardcore (**4003** and **4002**), with depths of 0.12m and 0.06m respectively. The uppermost deposit was composed of black tarmac (**4001**), 0.07m in depth.

Contained within deposit **4005** were a group of at least four stone flagstones (**4007**). They were aligned northwest-southeast, and while none survive intact, they measure 0.6m by 0.6m by 0.05m. Whilst no construction cut was apparent, they likely form a cover for ducting or services.

4 Finds report by Andy Sherman BA

Finds from four contexts were examined (**2005, 2015, 3005** and **4004**). Contexts **2005, 2015** and **3005** contained representative samples of metalworking slag, the presence of this material was noted and then the slag discarded. The single ecofact produced by the site (a fragment of wood recovered from context **3005**) was unworked and probably represented a tree-root.

The site assemblage was separated by context; all artefacts and ecofacts were then quantified by type, fabric, sherd/fragment and weight, and recorded in a database (see Appendix II).

The assemblage produced by the site is of entirely Modern date; the only exceptions are two artefacts from context **3005**. A sherd of local coarseware with a dark red glaze, which occurs throughout the Post-medieval period and into the Modern period, and a small fragment (length 11mm) of clay pipe stem dating to the Post-medieval period.

This assemblage is typical of a late Post-medieval to early Modern industrial or urban site.

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Plate 1: View to the southeast of Trench 1



Plate 2: View to the northwest of Trench 2, showing wall 2008, associated foundations and stone sleepers 2013

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Plate 3: View to the southwest of Trench 2, showing wall 2008 and associated foundations



Plate 4: View of Trench 3, looking southeast

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Plate 5: View of Trench 4, looking southwest



Plate 6: View of partially backfilled Trench 4, looking northeast

5 Conclusions

A review of historic mapping (see Figure 3) suggests that wall **(2008)** and associated foundations, uncovered in Trench 2, are likely to be the remains of the eastern wall of one of the casting houses of the Ynys Fach Ironworks. The building was constructed in 1836 and is depicted on the Local Board of Health Plan (1852), 1st edition OS map (1876), 2nd edition OS map (1900) and 3rd edition OS map (1919). Rubble deposit **2014** is likely to be the remains of this structure, following its demolition in the mid 20th century. Similarly, the stone sleepers **(2013)** are the remains of the railway network utilised by the ironworks (see Figures 2 and 3). However, due to the relatively small scale of the evaluation, it was unclear whether **2013** was associated with the system that entered the casting house (Local Board of Health Plan and 1st edition OS), or the railway that ran parallel to, but outside the buildings (2nd and 3rd edition OS).

No archaeologically significant features or structures were encountered in Trenches 1, 3 or 4, certainly no remains associated with the refinery (Trench 3) or wider transport system (Trench 4) survive. Such structures were likely destroyed during the demolition of the ironworks or construction of the old workshops. It is important to note that whilst Trenches 3 and 4 were moved to avoid services, they were still in a position to locate any remains associated with the refinery and the transport system. However, Trench 1 (moved to avoid a large revetment bank) could not be positioned to determine the preservation level of the southern engine house.

All of the excavated deposits dated to the Post-medieval or Modern periods. Similarly the recovered artefactual material also dated to the Post-medieval period at the earliest.

The results of the archaeological investigation indicate that within the evaluated area, some of the structures associated with the Ynys Fach Ironworks have been severely damaged. However features have survived, albeit in a damaged condition, and may be encountered during any future ground intrusion works. Furthermore, as Trench 1 was relocated in order to avoid a large retaining bank, it is possible that the remains of the engine house or boiler house could be encountered, particularly as due to their location, the structures could have survived the majority of the 20th century demolition works.

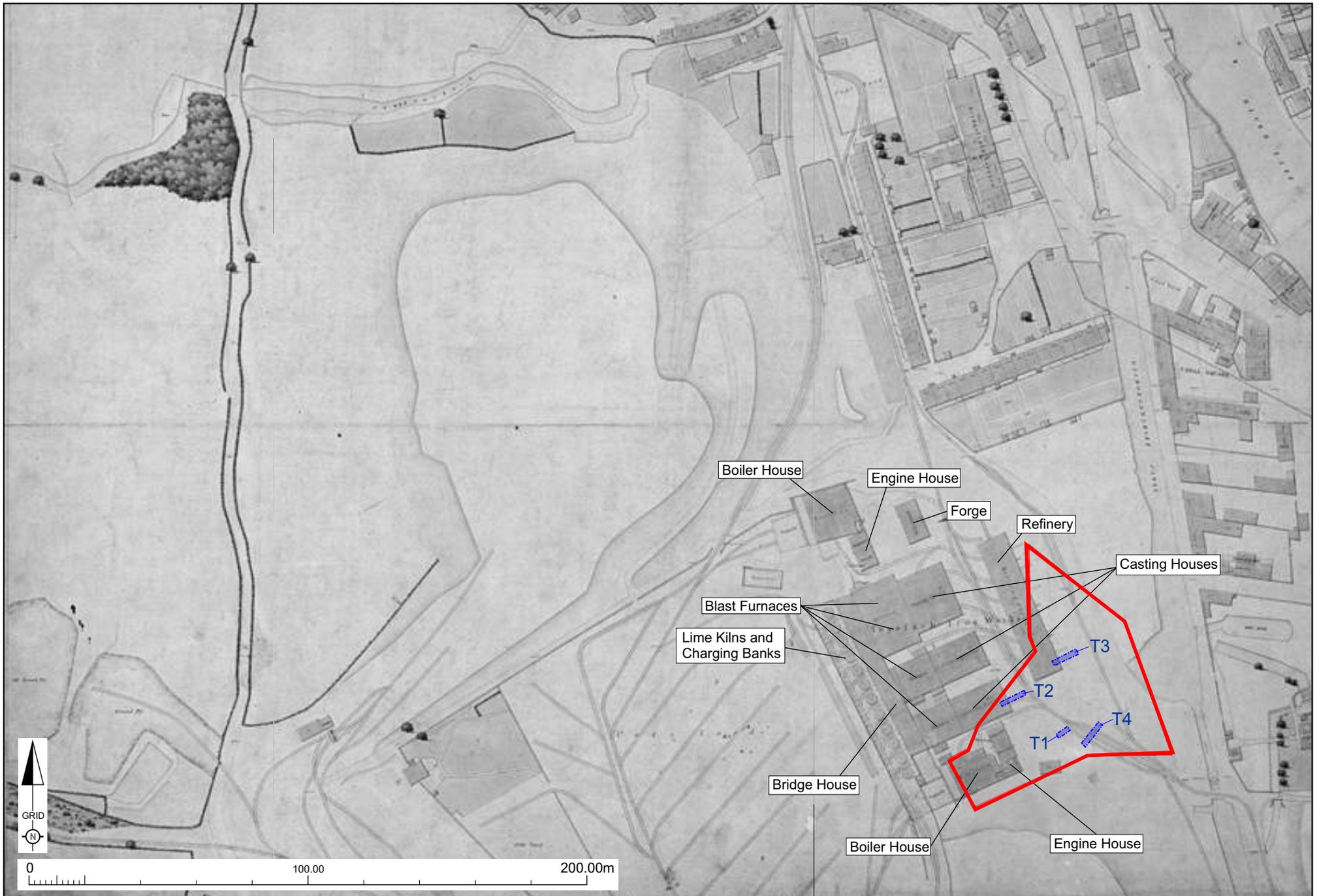


Figure 3. Location of Trenches 1-4 (blue) on the Local Board of Health Plan (1852)

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Appendix I

Inventory of contexts

| Context | Type | Average Depth (m) | Description | Period |
|---------|------|-------------------|---|---------------|
| 1001 | D | 0-0.9 | Yellow-brown sand | Modern |
| 1002 | D | 0.09-0.22 | Black sandy clay, containing occasional angular and sub-angular stones (<0.06m in diameter) and isolated mortar flecking | Post-medieval |
| 1003 | D | 0.22-0.84 | Levelling deposit, composed of angular and sub-angular stones (<0.21m in diameter), machine-made brick, iron, slate, wire and concrete fragments | Post-medieval |
| 1004 | D | 0.84-1.17 | Industrial layer, composed of a black silty clay and containing occasional angular and sub-angular stones (<0.06m in diameter), isolated iron slag fragments and vitrified waste material, slate and mortar flecking | Post-medieval |
| 1005 | D | 1.17-1.47 n.b | Slag deposit, composed of iron and vitrified waste material, with no bonding matrix | Post-medieval |
| 2001 | D | 0-0.09 | Black tarmac | Modern |
| 2002 | D | 0.09-0.17 | Black tarmac | Modern |
| 2003 | D | 0.17-0.32 | Hardcore chippings | Modern |
| 2004 | D | 0.32-0.6 | Levelling deposit, composed of angular and sub-angular stones (<0.22m in diameter), machine-made brick, mortar and glass fragments | Post-medieval |
| 2005 | D | 0.6-0.92 | Loose industrial deposit, composed of black silty clay and containing occasional angular and sub-angular stones (<0.06m in diameter), occasional iron slag fragments and vitrified waste material, isolated iron concretions, slate and glass fragments | Post-medieval |
| 2006 | D | 0.92-0.98 n.b | Compact industrial deposit, composed of black-brown sandy clay, containing frequent slag, iron concretions and isolated mortar flecking | Post-medieval |
| 2007 | D | - | Orange-brown clay containing frequent angular and sub-angular stones, slag and iron concretions | Post-medieval |
| 2008 | S | - | Casting house wall, only a single course (composed of only two bricks) survive | Post-medieval |
| 2009 | D | - | Mortar deposit | Post-medieval |
| 2010 | D | - | Mortar deposit | Post-medieval |
| 2011 | C | - | Construction cut for service trench | Modern |
| 2012 | D | - | Fill of 2012 | Modern |
| 2013 | G | - | Group of three stone sleepers | Post-medieval |
| 2014 | D | 0.6-1.02 n.b | Demolition rubble, likely associated with the casting house | Post-medieval |
| 3001 | D | 0-0.26 | Topsoil, composed of a light brown silty clay, containing isolated rounded and sub-rounded stones (<0.06m in diameter) | Modern |

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| | | | | |
|------|---|-------------------|---|---------------|
| 3002 | D | 0.26-0.3 | Black clay, containing isolated angular stones (<0.01m in diameter) and frequent coke and slag fragments | Post-medieval |
| 3003 | D | 0.3-0.46 | Grey sandy clay, containing frequent rounded and sub-rounded stones (<0.06m in diameter) and isolated machine-made brick fragments | Post-medieval |
| 3004 | D | 0.46-0.77 | Levelling deposit, composed of a grey-black clay, containing angular and sub-angular stones (<0.16m in diameter), isolated machine-made brick, slate and iron concretions | Post-medieval |
| 3005 | D | 0.77-1.22 | Loose industrial deposit, composed of black silty clay and containing occasional angular and sub-angular stones (<0.06m in diameter), occasional iron slag fragments and vitrified waste material, isolated iron concretions, slate and glass fragments | Post-medieval |
| 3006 | D | 1.22-1.27 n.b | Compact industrial deposit, composed of black-brown sandy clay, containing frequent slag, iron concretions and isolated mortar flecking | Post-medieval |
| 4001 | D | 0-0.07 | Black tarmac | Modern |
| 4002 | D | 0.07-0.13 | Grey hardcore chippings | Modern |
| 4003 | D | 0.13-0.25 | Black hardcore chippings | Modern |
| 4004 | D | 0.25-0.6 | Levelling deposit, composed of angular and sub-angular stones (<0.24m in diameter), machine-made brick, mortar, wood and glass fragments | Post-medieval |
| 4005 | D | 0.6-1.36 | Industrial layer, composed of a black silty clay and containing occasional angular and sub-angular stones (<0.06m in diameter), isolated iron slag fragments and vitrified waste material, iron concretions, slate, glass and mortar flecking | Post-medieval |
| 4006 | D | 1.36-3.06 n.b. | Slag deposit, composed of iron slag and vitrified waste material, with no bonding matrix | Post-medieval |
| 4007 | G | - | Group of at least four stone flagstones, aligned NW/SE, measuring 0.6m by 0.6m by 0.05m | Post-medieval |

Note:

D = Deposit

S = Structure

G = Group

C = Cut

n.b. = context not bottomed.

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Appendix II

Finds Index

| Context | Material type | Description | Quantity | Weight (kg) | Period |
|---------|---------------|---------------------|----------|-------------|--------|
| 2005 | Pottery | Modern ceramics | 2 | 0.020 | Modern |
| 2005 | Glass | Modern glass vessel | 1 | 0.004 | Modern |

| Context | Material type | Description | Quantity | Weight (kg) | Period |
|---------|---------------|--|----------|-------------|--------|
| 2015 | Fe | Phillips-head screw | 1 | 0.012 | Modern |
| 2015 | Pottery | Modern ceramics with cream and green decoration – teacup | 2 | 0.014 | Modern |

| Context | Material type | Description | Quantity | Weight (kg) | Period |
|---------|---------------|--|----------|-------------|---------------|
| 3005 | Wood | Unworked fragment of wood, probably tree-root | 1 | 0.015 | - |
| 3005 | Glass | Includes two bodysherds from a square-section bottle and a fragment of modern window glass | 3 | 0.016 | Modern |
| 3005 | Brick | Two fragments of house-brick, one has a thin covering of cement bonding | 2 | 0.032 | Modern |
| 3005 | Tile | - | 1 | 0.016 | Modern |
| 3005 | Clay pipe | Stem fragment | 1 | 0.001 | Post-medieval |
| 3005 | Pottery | Bodysherd with white glaze and a small area of heat damage. | 1 | 0.021 | Modern |
| 3005 | Pottery | Body and baseshards from a teapot with brown glaze and raised floral decoration | 5 | 0.032 | Modern |
| 3005 | Pottery | Local coarseware | 1 | 0.070 | Post-medieval |

| Context | Material type | Description | Quantity | Weight (kg) | Period |
|---------|---------------|---|----------|-------------|--------|
| 4004 | Pottery | Modern ceramic bodysherd with a dark blue glaze | 1 | 0.004 | Modern |