

Merthyr Tydfil College, Ynys Fach, Merthyr Tydfil

Archaeological watching brief

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A report for Stradform
by Charlotte James BA PIfA

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Summary

Merthyr Tydfil College acting through its agent Stradform has received planning permission for the demolition of existing workshops, followed by the erection of new, replacement workshops at Ynys Fach, Merthyr Tydfil (Planning Application P/08/0443). The archaeological watching brief was necessary to comply with the condition placed upon the development works by the Local Planning Authority.

During excavation a wall and a length of tramline were exposed. The length of tram track would have been part of the tram system of the Ynys Fach Ironworks and the stone wall appears to be the rear wall to the gardens of the row of terraced housing to the north of the site, shown on the first, second and third edition Ordnance Survey map. These features were left in situ.

Acknowledgements

This project was managed by Richard Lewis BA MifA and the fieldwork undertaken by Charlotte James BA PifA. The photographs and report were prepared by Charlotte James BA with illustrations by Paul Jones (GGAT Senior Illustrator).

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1 Introduction

1.1 Project background and commission

Merthyr Tydfil College have received planning permission for the demolition of existing workshops, followed by the erection of new, replacement workshops at Ynys Fach, Merthyr Tydfil (Planning Application P/08/0443). A condition (no. 4) attached to the planning consent stated that a suitably qualified archaeologist was to conduct an archaeological watching brief during all ground disturbing works.

The Glamorgan-Gwent Archaeological Trust Projects Division (GGAT Projects) was commissioned by Stradform on behalf of Merthyr Tydfil College to undertake the required archaeological watching brief. This was undertaken between 7th May 2009 to 13th April 2010.

1.2 Location, topography and geology

The proposed development area is centred on NGR SO 04584 06099 to the west of the Merthyr College main building. The Ynys Fach housing estate borders the development area to its west and southwest sides, separated by the ruins of the Ynys Fach Ironworks furnaces (Figure 1). The ironworks was built into a steep bank, thereby taking advantage of the local topography. The charging platforms were situated on elevated ground and were level with the top of the blast furnaces, in order to facilitate access of the charging barrows to the top of the furnaces. The underlying geology of the college area is Garw Lower Coal measures made up of Palaeozoic sandstone and shale, and coal seams (SSEW 1983).

1.3 Historical and archaeological background

The Ynys Fach Iron Works opened as an extension to Crawshay's Cyfarthfa works in 1801 and despite being the second in the area to employ steam-blowing engines, after Dowlais, it generally played a secondary role to Cyfarthfa. The impressive remains at Ynys Fach represent one of the better-preserved 19th century ironworking complexes still visible within the Merthyr Tydfil area. The site is noted for its association with the early ironworking dynasties of Merthyr Tydfil and experienced expansion under Richard and William Crawshay (Roberts 2005).

The initial development of the Ynys Fach Iron Works area was a direct result of the American War of Independence (1776-1783), when a foundry was established to cast cannon and cannonballs. Francis Homfray leased the foundry in 1782 to cast cannon from pig iron supplied by the nearby Cyfarthfa Furnace, but was soon after succeeded by Richard Crawshay of Normanton, Yorkshire, who later gained control of the Cyfarthfa Works themselves (Roberts 2005).

Ynys Fach had two furnaces in blast in 1801, increasing to four in 1805, when it produced 10,460 tons of iron. Expansion continued, as in 1807 there were six furnaces at the two sites, two rolling mills and four steam engines (50h.p., 40h.p., 12h.p. and 7h.p.) During the period, Cyfarthfa was the largest of the Merthyr Ironworks and by all accounts the largest ironworks in the world. Crawshay's partner Watkin George supplied much of the necessary engineering expertise for the development of the Cyfarthfa, and its subsidiary Ynys Fach Ironworks. Both Cyfarthfa and Ynys Fach suffered following the end of the Napoleonic Wars, though conditions gradually improved from around 1817. By 1823 there were eight furnaces in blast at the Crawshay's concerns, producing 24,200 tons of iron. A ninth furnace was added in 1824 and in 1830 the nine furnaces produced 29,000 tons of iron. Expansion continued during the 1830s and in 1839 work commenced on the construction of two more furnaces at Ynys Fach and in 1840 a 52 1/2in. beam blowing engine was bought from the Neath Abbey Ironworks to provide the blast (Roberts 2005).

When steel production started at neighbouring Cyfarthfa in 1884, the four blast furnaces at Ynys Fach were relined and kept in reserve, in case of a renewed demand for iron. However, it is considered unlikely that the furnaces were ever utilised again (Ince 1993, 63).

1.4 Specific historical and archaeological background

A series of geotechnical test pitting and trial trenching, conducted under archaeological watching brief conditions was undertaken prior to the start of the current development (Egloff 2008).

Trial Trenches 1 and 2 encountered significant walls that are likely to be associated with the Ynys Fach casting houses, at a depth of 0.6m below the present ground surface. The walls displayed two distinct typological phases, possibly relating to the enlargement that occurred in 1836, when two additional blast furnaces were added to the existing works.

Test Pit 5 revealed a brick floor and associated stone block and iron bar at a depth of 1.8m below the present ground surface. It is likely that the brick floor is associated with the former refinery building. Test Pits 4 and 6 also revealed brick and mortar structures, at depths of 0.8m and 1.3m respectively, although their exact nature

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remains unclear. Test Pits 2, 4, 5 and 6 all contained spoil or waste deposits that relate to the ironworks at a minimum depth of 0.65m below the current ground level. Although test Pit 1 revealed no archaeologically significant deposits.

The results of the watching brief confirmed that below-ground remains associated with the Ynys Fach ironworks survive within the proposed development area at a minimum depth of 0.6m, and are very likely to be encountered during any construction works (Dunning 2009).

2 Methodology

In the area of the short wing (See Figure 2) the ground level was reduced to a maximum of 1.5m below current ground level, and in the long wing trenches were excavated along its length and width to a maximum depth of 1.0m below the current ground level using a tracked, mechanical excavator with a 1.8m wide grading bucket. The area of the short wing was piled using a continuous flight augering method.

A full written, drawn and photographic record was made of all archaeological contexts, in accordance with the GGAT *Manual of Excavation Recording Techniques*. Contexts were recorded using a single continuous numbering system, and are summarised in Appendix I. All significant contexts were photographed. Finds were selected according to the GGAT *Manual of Excavation Recording Techniques* discard policy; no finds were retained as they were all identified on-site as modern.

An archive of records relating to the preparation of the reports has been prepared to the specifications in *Management of Archaeological Projects* (English Heritage, 1991) Appendix 6 and ICON's *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* 2007.

After an appropriate period has elapsed, copies of the report and archive index will be deposited with the regional Historic Environment Record (HER). A copy of the report and archive index will also be deposited with the National Monuments Record, RCAHMW, Aberystwyth.

3 Results

3.2 Short Wing

The basal deposit encountered was a natural brown clay (**108**), which had a minimum depth of 1.2m. Overlying this deposit was yellow-brown clay (**107**) with a maximum depth of 0.6m. Overlying this deposit in the western area of the short wing was a fine coal dust industrial deposit (**105**) with a maximum depth of 0.4m. Overlying deposit **105** in the western area was a hard iron slag layer (**106**) measuring 0.05-0.1m in depth. Deposit **107** was overlain in the eastern area by a high concentration of coal dust and slag (**102**) which also overlay the slag layer (**106**) in the west, the deposit (**102**) also included a large amount of demolition rubble with large stones and bricks. This deposit which measured between 0.8m and 1.6m in depth. The uppermost deposit was topsoil (**101**), which measured 0.07-0.1m in depth.

Below the topsoil (**101**) a stone built wall (**103**, plate 1) was exposed in the northern part of the short wing. It was exposed to a minimum length of 18.5m and measured 0.5m in width. The wall was orientated approximately northeast–southwest. It was constructed entirely of stone and was bonded with a light grey/white mortar. As part of the piling process a section of the wall was removed, which revealed it to be 1.7m in depth from the top of the surviving wall to the base. The remainder of the wall was left *in situ*. It was unclear how this wall **103** fitted with the stratigraphy of this area.

In the southwest corner of the short wing a small length of tramline was exposed (**104**, plate 2), which was also left *in situ*. It was aligned northwest–southeast although it curved slightly. The surviving feature measured 4.4m in length and was 0.95m in width. Between the parallel tracks red and yellow bricks were located, consisting mainly of fragments with very few whole bricks present. Many of the bricks were now missing or broken and were laid in a random pattern. The tracks were composed of iron ‘L’ shaped tracks, measuring 0.11m in width and 0.05m in depth. The length of track was exposed at 0.7-1m below the current ground level. Underlying the tracks was industrial deposit **105**.

3.3 Long Wing

The basal deposit encountered in the area of the long wing was a yellow-brown clay (**202**), which was excavated to a maximum depth of 0.3m. Overlying this deposit was a demolition layer (**201**) with a high concentration of coal dust, slag, ash, stone and brick. This deposit had a minimum depth of 1.0m. No archaeologically significant finds or features were encountered within the area of the long wing.



Plate 1. Stone wall **103**, view to the northeast



Plate 2. Length of tramline **104**, view to the north east.

3.4 Finds

All finds recovered from the excavation were of a Modern date. They were examined on site and discarded.

4. Conclusion

The general stratigraphy in the short wing area represents the known use of this land since the 18th century with numerous industrial deposits and Modern make-up. The length of tram track (**104**) is likely to have been part of the tram system of the Ynys Fach Ironworks. The stone wall (**103**) appears to be the rear wall to the gardens of the row of terraced housing to the north of the site, shown on the first, second and third edition Ordnance Survey map.

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Appendix I: Context Inventory

Context Number	Context Type	Context Description	Depth below ground surface	Period
101	Deposit	Topsoil mid-dark brown silty loam	0 - 0.1m	Modern
102	Deposit	Industrial deposit with a high concentration of coal dust, slag and demolition rubble.	0.1 - 0.9m	Post-medieval
103	Structure	Stone built wall, measuring 18.5m in length, 0.5m wide and 1.7m in depth. It was bonded with a light grey/white mortar. Located in the northern part of the short wing area, aligned northeast–southwest.	0.1 - 1.7m	Post-medieval
104	Structure	Brick based tram track travelling northwest–southeast, curving slightly towards the northeast. It had a remaining length of 4.4m and was 0.95m wide. Between the tracks were pieces of red and yellow bricks. It had been truncated at its north end by the college workshops and by modern services at its south end.	1m - 1.1m	Post-medieval
105	Deposit	Similar to deposit 102 although this deposit contained almost no demolition rubble and had a higher concentration of coal dust.	1.0 - 1.4m	Post-medieval
106	Deposit	Iron slag layer. Hard layer of iron slag overlying parts of deposit 105 . It was the same depth as 104 . It measured between 0.05–0.1m in depth.	0.9 - 1.0m	Post-medieval
107	Deposit	Yellow-brown clay	1.4 - 2m	Unknown
108	Deposit	Natural brown clay	2m - 3.2m n.b	Natural

n.b. – not bottomed

Context Number	Context Type	Context Description	Depth below ground surface	Period
201	Deposit	Demolition deposit consisting of coal dust, ash, slag, stone and brick. Similar to deposit 102 in the short wing area.	0 - 1m	Post medieval
202	Deposit	Yellow brown clay	1m -1.3m n.b	Unknown

n.b. – not bottomed