



**Rhydycar West  
Leisure Resort,  
Rhydycar West,  
Merthyr Tydfil**

**FINAL DRAFT**

**Archaeology and  
Heritage Baseline  
Assessment**

Prepared by:  
**The Environmental  
Dimension  
Partnership Ltd**

On behalf of:  
**Marvel Ltd**

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## Non-Technical Summary

- S1 This Archaeology and Heritage Baseline Assessment has been researched and prepared by the Environmental Dimension Partnership Ltd (EDP) for Marvel Ltd. It has been commissioned to support the submission of an application for planning permission, to address the proposed development of land at Rhydycar West, Merthyr Tydfil.
- S2 The 'site' as referenced in this report relates to the blue ownership boundary as illustrated on the plans, which is the subject of the baseline assessment. The red line shown on the plans is the area where the proposed development will be located, and which will be the subject of the assessment which will come forward in a future Environmental Impact Assessment (EIA).
- S3 The baseline study has identified that the site contains nine designated historic assets, consisting of eight Scheduled Monuments and one listed building. The development of the site would have the potential to impact directly and indirectly on the significance of these assets.
- S4 The assessment has identified that the site (or parts of the site) contributes to the setting of designated heritage assets located beyond its extent. These consist of a single conservation area, a single scheduled monument, a Registered Park and Garden and 13 listed buildings, including two Grade I listed buildings.
- S5 The assessment has identified that the site contains a large number of non-designated historic assets, which for the most part, reflect earthwork and structural remains related an intensive mining history from the late 18<sup>th</sup> century to the mid-20<sup>th</sup> century. Remains also exist within the site that date from a pre-industrial agricultural landscape, including remains of field boundaries and buildings.
- S6 The assessment concludes that, as relatively recent, late 19<sup>th</sup> or 20<sup>th</sup> century features, poorly preserved remains, or parts of an integrated group but which is in a fragmented state, most of the site's non-designated industrial and pre-industrial remains comprise historic assets of low or negligible value. However certain remains, which either demonstrate early (pre-late 18<sup>th</sup> century) dates, or which are well-preserved and/or have a strong and appreciable group integrity with other related remains, are considered to represent historic assets of moderate value. Also, of enhanced historical value are remains related to transport networks, which governed the function of the site's industry.
- S7 The site is located within the Merthyr Tydfil Landscape of Outstanding Historic Interest. Reference to the Register of Landscapes of Outstanding Historic Interest, and thus an assessment of effects on the component Historic Landscape Character Areas that make up the Merthyr Tydfil Landscape of Outstanding Historic Interest, will be a consideration for any future assessment of development impacts.

- S8 Impacts on historic assets will be assessed within an Environmental Statement that will, in respect of the Merthyr Tydfil Landscape of Outstanding Historic Interest, include an ASIDHOL2 assessment. It is anticipated that, as well as resulting in impacts on the significance of historic assets, the proposed development will also result in beneficial effects through improved access to, management and conservation of some historic assets.

## **Section 1**

### **Introduction**

- 1.1 This Archaeology and Heritage Baseline Assessment has been researched and prepared by the Environmental Dimension Partnership Ltd (EDP) for Marvel Ltd.
- 1.2 This assessment has been commissioned to identify baseline conditions in relation to the historic environment, in support of an application for planning permission for the proposed development of Land at Rhydycar West, Merthyr Tydfil.
- 1.3 The 'site' as referenced in this report relates to the blue ownership boundary as illustrated on the plans, which is the subject of the baseline assessment. The red line shown on the plans is the area where the proposed development will be located, and which will be the subject of the assessment which will come forward in a future Environmental Impact Assessment (EIA). This area is referenced where relevant.
- 1.4 The assessment's objective is to understand and document the nature, extent, condition and significance of historic assets, and, where relevant, the contribution made to their significance by their settings.
- 1.5 The assessment also considers the extent of the settings of designated historic assets without the site; whether, and to what degree, these contribute to the heritage significance of the assets; and whether land within the site contributes to their setting.
- 1.6 In doing so, it addresses the legislative and policy requirements of the *Planning (Listed Buildings and Conservation Areas) Act 1990*, *Planning Policy Wales Eleventh Edition* (i.e. PPW 2021), Technical Advice Note 24 (TAN 24) and the relevant policies of the adopted Merthyr Tydfil Replacement Local Development Plan 2016-2031 (Merthyr Tydfil County Borough Council, January 2020).
- 1.7 The assessment draws together the results of previous studies, background archives searches, cartographic sources, sources of remotely sensed data (aerial photographs and LiDAR) and the completion of a number of walkover surveys, completed by two experienced archaeologists in May and June 2017.

#### **Location and Topography**

- 1.8 The site is located on land to the west of the town of Merthyr Tydfil. It encompasses approximately 2.2km<sup>2</sup> and mostly occupies hillsides sloping to the east and north-east towards the valley of the River Taff. The far eastern part of the site is less steeply sloped, occupying a part of the valley bottom. The site consists of a mixture of rough pasture, scrub and deciduous woodland; both mature and semi-mature, that is dense in places. The higher parts of the site, on its western fringe, are more open than parts to the south and east which are generally densely wooded.

- 1.9 The site contains several watercourses, most notably the Nant Cwm Glo which, along with its tributary the Nant Llwyn-yr-eos, form steep sided valleys that cross the northern part of the site from west to east. The site's far southern boundary is broadly defined by the course of the Nant Canaid.
- 1.10 The site's topography has been heavily influenced by intensive industrial activity in the form of mining for coal and ironstone. This has resulted in the alteration of the landform, mainly through the creation of large spoil tips, which are notable features across the entire site; but also through the construction of mining levels, shafts, causewayed railways and tramways; amongst other features. In addition, the site is crossed by various artificial watercourses, some of which still contain water; and contains several extant reservoirs. This alteration of the landscape has resulted in parts of the site becoming entirely flooded as drainage systems have deteriorated. Parts of the site are heavily pitted either due to shallow mineworking (such as bell shafts) or the subsequent collapse of below-ground workings resulting in 'crownholes'.
- 1.11 The site is centred on National Grid Reference (NGR) 304076, 205230; and its location and layout are both illustrated on **Plan EDP 1**.
- 1.12 The site is bordered to the west by an upland landscape of plantations and moorland; the peaks of Mynydd Aberdar, Pen Llwynmelyn and Twyn Gwersyllfa lie at the head of the land as it rises to the west. To the south are further wooded slopes and former industrial sites, within the publicly accessible Gethin Woodland Park. To the north is housing comprising the settlement of Heolgerrig. To the east is the A470, beyond which are retail parks and offices within the Taff Valley, and the town of Merthyr Tydfil.

### **Geology**

- 1.13 The site lies within the South Wales Coal Field; a syncline covering much of upland South Wales made up of interbedded sedimentary rocks dating from the Carboniferous Period. This geology contains Coal Measures which outcrop on the northern side. The site is located on the Middle Coal Measures, comprising sandstone, siltstone and mudstone within which are coal seams, bands of Ironstone and Ferricrete<sup>1</sup>. A superficial deposit of glacial till is also recorded across much of the site, especially on the eastern side (British Geological Survey website (BGS), accessed 2017).
- 1.14 The site's extant industrial archaeology is defined by its geology which in part governed the way in which the site was mined, and the archaeological legacy that this produced. Greater detail on the site's geology, and the methods by which minerals were extracted from it, is given in **Section 4**.

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<sup>1</sup> A hard, erosion-resistant layer of sedimentary rock, usually conglomerate or breccia, that has been cemented into a duricrust (a hard mineral crust) by iron oxides.

## Section 2 Planning Guidance

- 2.1 This section outlines the legislative and planning policy context, to the form of development proposed, at both the national and local levels.

### **Legislation**

- 2.2 In March 2016, the *Historic Environment (Wales) Act* came into force, although many of its provisions will not commence until a later date. Whilst providing a number of new provisions to existing legislation, the changes do not specifically affect the planning process or the way archaeology and heritage is assessed.

### **Archaeology**

- 2.3 The *Ancient Monuments and Archaeological Areas Act 1979* addresses the designation and management of scheduled monuments, providing for a schedule of monuments (and archaeological remains) which are protected. The designation of archaeological and historic sites as scheduled monuments applies only to those that are deemed to be of national importance and is generally adopted only if it represents the best means of protection.
- 2.4 The 1979 Act does not address the concept of ‘setting’, just their physical remains and, therefore, for scheduled monuments the protection of ‘setting’ is a matter of policy only.
- 2.5 In Wales, Scheduled Monument Consent, the written consent of the Welsh Minister is required for development that would directly impact upon a scheduled monument. Scheduled Monument Consent applications are submitted to Cadw, the Welsh Government’s Historic Environment Service.

### **Listed buildings**

- 2.6 The *Planning (Listed Buildings and Conservation Areas) Act* of 1990 is the primary legislative instrument addressing the treatment of listed buildings and conservation areas through the planning process.
- 2.7 Section 66 of the *Planning (Listed Buildings and Conservation Areas) Act* 1990 sets out the statutory duty for Local Planning Authorities, where proposals would affect a listed building or its setting. It states that:

*‘...In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building*

*or its setting or any features of special architectural or historic interest which it possesses.'*

- 2.8 The '*special regard*' duty of the 1990 Act has been tested in the Court of Appeal and confirmed to require that '*considerable importance and weight*' should be afforded by the decision maker to the desirability of preserving a listed building along with its setting. The relevant judgement is referenced as *Barnwell Manor Wind Energy Ltd v East Northants DC, English Heritage and National Trust* [2014] EWCA Civ 137.
- 2.9 Section 72(1) of the 1990 Act addresses Conservation Areas and states that '*...with respect to any buildings or other land in a conservation area, of any powers under any of the provisions mentioned in subsection, (2) special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area*'.
- 2.10 In other words, the decision-maker's statutory duty under the Act is to pay special attention to the desirability of preserving or enhancing the character or appearance of a Conservation Area.
- 2.11 As far as Section 72 is concerned, it has previously been established by the Courts that development that does not detract from the character or appearance of a Conservation Area is deemed to be in accordance with the legislation. There is no statutory requirement to actively 'enhance'.
- 2.12 It is also established to be the case that the statutory duty, set out in Section 72 of the 1990 Act, does not extend to cover the 'setting' of a Conservation Area, which instead is a matter addressed through relevant planning policies.

### **National Planning Policy**

- 2.13 In February 2021 the Welsh Government published *Future Wales: The National Plan 2040*. The Plan is a national development framework for Wales that presents a strategy for addressing key national priorities through the planning system.
- 2.14 The Plan addressing the separate regions of Wales stating for the Valleys region of the south-east that '*The region's distinctive heritage should be preserved and enhanced by high quality development.*'
- 2.15 National planning guidance, concerning the treatment of the historic environment across Wales, is detailed in Section 6.1 of Chapter 6 Distinctive and Natural Places of *Planning Policy Wales Edition Eleven*, which was published on 24 February 2021 (PPW 2021).
- 2.16 At Paragraph 6.1.2, it identifies the historic environment as comprising individual historic features, such as archaeological sites, historic buildings and historic parks, gardens, townscapes and landscapes, collectively known as '*historic assets*'.

2.17 At Paragraph 6.1.6 the Welsh Government's specific objectives for the historic environment are outlined. Of these, the following are of relevance to the current assessment. These seek to *'safeguard the character of historic buildings and manage change so that their special architectural and historic interest is preserved'* and *'preserve or enhance the character or appearance of conservation areas, whilst the same time helping them remain vibrant and prosperous'*.

2.18 At Paragraph 6.1.7, it is stated that:

*'It is important that the planning system looks to protect, conserve and enhance the significance of historic assets. This will include consideration of the setting of an historic asset which might extend beyond its curtilage. Any change that impacts on an historic asset or its setting should be managed in a sensitive and sustainable way.'*

2.19 As such, with regard to decision making, it is stated that: *'Any decisions made through the planning system must fully consider the impact on the historic environment and on the significance and heritage values of individual historic assets and their contribution to the character of place'*.

2.20 Regarding listed buildings PPW 2021 states, at Paragraph 6.1.10, that:

*'...there should be a general presumption in favour of the preservation of a listed building and its setting, which might extend beyond its curtilage'* and then adds that *'For any development proposal affecting a listed building or its setting, the primary material consideration is the statutory requirement to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses.'*

2.21 It then adds that: *'The aim should be to find the best way to protect and enhance the special qualities of listed buildings, retaining them in sustainable use'*.

2.22 Regarding conservation areas, it is stated at Paragraph 6.1.14 that: *'There should be a general presumption in favour of the preservation or enhancement of the character or appearance of conservation areas or their settings'*.

2.21 Paragraphs 6.1.15 and 6.1.16 state that:

*'There will be a strong presumption against the granting of planning permission for development, including advertisements, which damage the character and appearance of a conservation area or its setting to an unacceptable level. In exceptional cases the presumption may be overridden in favour of development deemed desirable on the grounds of some other public interest'*, and that: *'Preservation or enhancement of a conservation area can be achieved by a development which either makes a positive contribution to an area's character or appearance, or leaves them unharmed.'*

2.22 It is apparent that PPW does not state that any damage to the character and appearance of a conservation area would result in the refusal of planning permission. It is only

damage that is of an ‘unacceptable level’ which would result in a strong presumption against the granting of planning permission. The required judgement is concerned with what constitutes an ‘unacceptable’ level of harm not whether there is any harm at all.

#### **Technical Advice Note 24 (TAN 24)**

2.23 Additional guidance for archaeology in Wales is set out in *Technical Advice Note 24: The Historic Environment* (Welsh Government, 2017).

2.24 TAN 24 provides ‘*guidance on how the planning system considers the historic environment during development plan preparation and decision making on planning applications.*’

2.25 Of particular relevance to the current application is *Annex A: Scheduled Monuments*, although it is predominantly concerned with direct effects on their fabric. Also of relevance is Section 5, which deals with listed buildings, although it is predominantly concerned with direct effects on their fabric, rather than indirect effects on their settings.

2.26 Indirect effects through changes within the settings of designated heritage assets are also covered in TAN24 at Paras 1.23-1.29. These paragraphs define the setting of an historic asset as:

*‘...the surroundings in which it is understood, experienced, and appreciated embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral. Setting is not a historic asset in its own right but has value derived from how different elements may contribute to the significance of a historic asset.’*

2.27 They also give advice of factors to be considered when assessing effects on setting. Paragraph 1.26 of TAN 24 states that:

*‘...for the applicant to provide the local planning authority with sufficient information to allow the assessment of their proposals in respect of scheduled monuments, listed buildings, conservation areas, registered historic parks and gardens, World Heritage Sites, or other sites of national importance and their settings.’*

2.28 Paragraph 1.29 states that:

*‘The local planning authority will need to make its own assessment of the impact within the setting of a historic asset, having considered the responses received from consultees as part of this process. A judgement has to be made by the consenting authority, on a case-by-case basis, over whether a proposed development may be damaging to the setting of the historic asset, or may enhance or have a neutral impact on the setting by the removal of existing inappropriate development or land use.’*

2.29 Section 4 of TAN 24 is concerned with archaeological remains and is thus also relevant to the current assessment. Key points of advice, derived from the guidance, regarding archaeological remains and the development process, which are relevant to the current application, are as follows:

- *'The importance of pre-application discussion is stressed in order to reconcile the needs of archaeology and development between the applicant, the local planning authority, their archaeological advisors and, in cases where scheduled monuments may be affected, Cadw;*
- *Applicants are encouraged to make an enquiry with the body with responsibility for the relevant historic environment record and seek advice from the local planning authority's archaeological advisor at an early stage in considering their development proposal;*
- *Where archaeological remains are known to exist, or considered likely to exist, and a study has not already been undertaken by the applicant, the local planning authority should ask an applicant to undertake a desk-based archaeological assessment and, where appropriate, an archaeological evaluation. These should be done by a qualified and competent expert to the appropriate standard. The reports of these investigations will form part of the planning application. Applicants should show they have modified their development proposals to minimise any negative impact on the identified archaeological remains, and how they intend to mitigate any remaining negative impacts; and*
- *The case for the preservation of archaeological remains that are not considered to meet the criteria for national importance (see Annex A.2), must be assessed on the individual merits of each case. The local planning authority must take into account relevant policies and material considerations, and will need to weigh the significance of the remains against the benefits of and need for the proposed development.'*

2.30 Regarding the preservation, recording and understanding of archaeological evidence, the guidance contains the following points of advice:

- *'Measures can be taken to minimise the impact of a development proposal on identified archaeological remains and allow their preservation in situ;*
- *Having considered all policies and other material considerations and the need for the development, the local planning authority may decide that the significance of the archaeological remains is not sufficient to justify their physical preservation. In these cases, the local planning authority must satisfy itself that the necessary and proportionate arrangements for the excavation and recording of these archaeological remains are secured, and the results of this archaeological work are properly analysed and published; and*

- *Any programme of archaeological excavation and recording should precede the start of work on the development, unless there are exceptional circumstances which prevent this from occurring.'*

2.31 Regarding unexpected archaeological discoveries, the guidance states the following:

- *'Where unexpected archaeological discoveries are considered to be of national importance, the Welsh Ministers have the power to schedule the site (see Annex A). In the event of scheduling, the developer must seek separate scheduled monument consent before work can continue. It is also open to the local planning authority and the Welsh Ministers to revoke or modify a planning permission under these circumstances, in which case there is provision for the compensation of the developer for loss of value and expenditure incurred.'*

### **Local Planning Policy**

2.33 The *Merthyr Tydfil Replacement Local Development Plan 2016-2031* (LDP), which was adopted by Merthyr Tydfil County Borough Council (MTCBC) on 29 January 2020, provides the local planning policy framework for the area.

2.34 Strategic Objective 9, Heritage and Cultural Assets aims to: *'To protect, enhance and promote all heritage, historic and cultural assets.'*

2.35 Policy CW1: *The Historic Environment* outlines detailed policy, relevant to historic assets present within the site, against which proposals for new development will be determined. It states that:

*'The integrity of our historic environment assets will be conserved and enhanced. Development proposals will only be permitted where it can be demonstrated they would preserve or enhance the architectural quality, character or the historic or cultural importance of our designated historic environment assets.'*

*Development affecting undesignated historic environment assets including, Locally Listed Buildings or structures, Landscapes of Outstanding Historic Interest in Wales, Urban Character Areas and Archaeologically Sensitive Areas should have regard to their special character and archaeological importance.'*

2.36 In this respect the whole of the site is designated as part of an Urban Character Area (UCA 9) and the northern part as an Archaeologically Sensitive Area. The extent of these areas are shown on the Council's Proposals Map

2.37 Also of relevance are objectives contained within the *Sustainability Appraisal Report* which is a part of the LDP (January 2020). In the report objectives 16 and 18 relate to the historic environment:

*'16: To protect and enhance heritage assets that defines the County Borough as the most significant Welsh town of the Industrial Revolution.*

*18: To protect and enhance the quality of designated areas of landscape value and good quality townscapes.'*

2.38 The legislation, plans and policies identified above have each been considered in the preparation of this baseline.

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## Section 3 Methodology

### Assessment and Data Collection Methodology

- 3.1 This report has been produced in accordance with the *Standard and Guidance for Historic Environment Desk-Based Assessment* issued by the Chartered Institute for Archaeologists (CIfA, 2020). These guidelines provide a national standard for the completion of archaeological and heritage desk-based assessments.
- 3.2 The assessment initially involved the consultation of readily available archaeological and historical information from documentary, cartographic and remotely sensed sources. This included the following:
- i) The Glamorgan-Gwent Archaeological Trust (GGAT) Historic Environment Record (HER), which holds information on known archaeological sites, monuments and finds, as well as previous investigations;
  - ii) The National Monuments Record of Wales (NMRW);
  - iii) Cadw's Historic Environment Service;
  - iv) Historic maps held by the East Glamorgan Archives;
  - v) Additional historic mapping obtained from online sources;
  - vi) The Central Register of Aerial Photography for Wales (CRAPW) at Cardiff;
  - vii) LiDAR data for the site (acquired from [www.lle.gov.org](http://www.lle.gov.org));
  - viii) The database of the National Museum of Wales (NMRW);
  - ix) Online collections of historic photographs (accessed from [http://www.alangeorge.co.uk/old\\_merthyr.htm](http://www.alangeorge.co.uk/old_merthyr.htm));
  - x) Relevant books, articles and previous assessment reports on the site; and
  - xi) The Historic Wales online portal.
- 3.3 These sources were used to inform and underpin a thorough and robust understanding of the site's historic origins and chronological development, through to the present day. They have similarly underpinned a robust understanding of the nature and significance of the historic environment within the site and its interrelationships with heritage assets located more widely in the surrounding environs.

- 3.4 Information was requested for a 1km radius around the site. This produced a disproportionate amount of information and subsequently it was agreed that the 'study area,' utilised as a focus for the assessment would be reduced to 500m radius from the site.

**Previous studies**

- 3.5 The site has been subject to several previous studies. These have produced a wealth of information on the site which has been drawn upon as a resource of secondary data to complement primary sources detailed above. Previous studies are detailed below:

*Cambrian Archaeological Projects, 2000, Uplands Survey Project – West Merthyr Tydfil. RCAHMW – Uplands Initiative Field projects*

- 3.6 An archaeological survey was carried out in 1999/2000 on behalf of, and funded by, the Royal Commission for the Ancient and Historical Monuments of Wales (RCAHMW). This covered a 10km<sup>2</sup> area of upland and was part of an ongoing programme of work to record archaeological remains across the uplands of Wales. The study area included most of the site aside from the far southern end, around the Nant Caniad and a strip on the eastern side.

- 3.7 The survey aimed to systematically record the archaeology within the outlined area by means of desk-top study and field walking. It recorded 676 previously unrecorded archaeological sites mostly industrial remains associated with coal and ironstone mining.

*GGAT, 2000 Land at Rhyd-y-Car, Merthyr Tydfil (Merthyr Village): archaeological desk-based assessment*

- 3.8 This was carried out for the site in 2000 having been written for Capita Property Services in support of a planning application .

*Archaeological Investigations, 2004. West Merthyr Historic Landscape Study*

- 3.9 This was commissioned by Cadw with an emphasis on: '*defining, explaining and depicting the inter-relationship of different components of the industrial landscape as surveyed in 1875.*' The study is intended to '*ensure that the interest of the historic landscape can be properly understood and represented when judgements are made regarding the potential impact of development proposals.*'

- 3.10 They identify four 'zones' (reproduced on **Plan EDP 7**) which are considered to represent '*areas of good survival of legible and articulated remains of the landscape associated with mineral extraction, sorting and transportation*'. Of these, three are based on the site's main north-south communication routes, with a fourth centre on the remains of the Vale of Neath and Gethin Railways, which have a separate historic integrity.

3.11 It is considered that these 'zones' are useful in understanding and characterising the site's industrial archaeology, in that they represent high-level distinctions in which mining remains are demonstrably integrated.

3.12 However, they lack detail, a fact acknowledged in the 2004 report which identified a requirement for sub-zones within them, and, as stated in the report reflect the archaeology of the late 19<sup>th</sup>, as opposed to that of earlier periods. As such, in term of identifying the significance of remains within the site, the 'zones' only have a limited application.

*Merebrook Science and Environment Limited, 2008. Reclamation Scheme Land at Rhydycar, Merthyr Tydfil, Environment Statement.*

3.13 This ES was produced as part of an unsuccessful application for reclamation works designed to remedy health and safety risks at the site. Proposed works included excavating unstable ground, filling voids and tip removal with the objective being to produce land suitable for later development.

3.14 The ES was composed of a series of technical studies. Of relevance to the site's archaeological resource were the following, as outlined in Section 7 of the ES chapter:

- An updated Assessment of the Significance of Impact of Development on Historic Landscape Areas (ASIDHOL) by Oxford Archaeology in 2005 (OA 2005a);
- An Environmental Impact Based Assessment for a proposed access road into the E13 Area prepared by Oxford Archaeology in November 2005 (OA 2005b);
- A Cultural Heritage Environmental Impact Assessment for the E13 Area produced by Oxford Archaeology in September 2007 (OA 2007);
- An ASIDOHL assessment for the E13 Area prepared by Oxford Archaeology in February 2008 (OA 2008); and
- A review of *Site Stability and Remedial Options* which included a detailed summary of the industrial development of the site, prepared by Ove Arup in March 2008 (Arup 2008).

#### **Use of LiDAR**

3.15 Airborne LiDAR (light detection and ranging) data was utilised as a source of primary data for the current assessment. LiDAR scanning records height data and has applications in the recording of archaeological earthworks. A major factor affecting the usefulness of LiDAR for archaeological assessment is the nature of the land-use of the area of interest. In the current context land use is predominantly either semi-wooded scrubland or woodland. It is considered that, in such circumstances, LiDAR is a useful archaeological tool; in woodland environments, the technique is considered to be one of the best available for identifying archaeological earthworks (Crow, P. in English Heritage, 2010).

- 3.16 Woodland environments physically hinder ground based survey and tree cover can obscure the observation of archaeological features in aerial photographs. LiDAR scanning can pass through leaf canopies, producing data that reflects the appearance of the ground surface located beneath the trees. Certain woodland types produce better results than others with broadleaf environments (such as that present within the site) being favourable to coniferous woodland. Ideally, woodland environments are best studied through the use of high resolution LiDAR data which has been acquired at times of low vegetative cover, such as the mid-winter.
- 3.17 In light of the above, it was deemed that given the unfavourable environmental conditions at the site that LiDAR data would prove a useful source of information. It was not in the remit of the assessment to record, in the form of a transcription, every archaeological feature identified in the data. Rather, the data was used to compare and contrast with other sources (such as HER data, aerial photographs, historic maps) as a contribution to a robust tool kit of techniques for the assessment of the site. Specifically, the LiDAR data was used as guide to site walkover survey with features identified in it targeted in order to enact identification and characterisation through 'ground truthing'.
- 3.18 A Digital Terrain Model (DTM) for the entire site was acquired from Environment Agency Data available online. Resolution of the data is at one data point for each 2m<sup>2</sup>, a low resolution which, for archaeological prospection, has fairly limited application. However, given that the site's archaeology is mostly characterised by large earthworks, in the context of the site, the data has been used successfully, producing effective visualisations that have provided additional detail on the site's content.
- 3.19 The DTM was processed using the Relief Visualisation Toolbox (ver. 1.3 ZRC SAZU, 2016). This software allows for a range of visualisation techniques to be applied to the data. Different techniques have varying degrees of successful application, depending on the nature of the environment where the data was collected. As such, the whole suite of visualisations was produced and then, the individual images appraised as to their usefulness in the current context. The following visualisations were found to produce the most useful images in terms of the perception of detail on the site's archaeology.

*Multiple direction hill-shades*

- 3.20 Relief shading or hill-shading is the most commonly used LiDAR visualisation technique. It illuminates the DTM from a specific angle, imitating the sun and as such produces the most 'natural' and intuitively readable imagery. However, it is limited in that areas facing directly towards or away from the illumination source are saturated (homogeneously bright or dark respectively) and little detail can be perceived plus, features that lie parallel to the light source can be imperceptible.
- 3.21 This effect can be overcome by combining hill-shades from different directions in three different colour bands into a single image. This technique was used to produce useful images for the assessment which provided the standard format used for guiding the walkover surveys; a starting point for deciding whether other techniques could be successfully applied.

### *Sky View Factor*

- 3.22 Sky View Factor (SVF) measures the proportion of the sky visible from a given point. Locally flat terrain, ridges and earthworks (e.g. spoil tips, old field boundaries, raised tramways) which receive more illumination are highlighted and appear in light to white colours on a SVF image, while depressions (e.g. trenches, cuttings, ploughing furrows, mining pits) are dark because they receive less illumination. SVF is a good technique for general visualisation because it enhances the visibility of simple and complex small-scale features whatever their orientation and shape, on most types of terrain particularly in areas of moderate to steep topography (such as characterises the site; Kokalj and Hesse, 2017).
- 3.23 The technique is very useful in highlighting the distinction between well-defined positive and negative features and, as such has application in the context of the site, which contains both high, positive features such as steep sided tips, and highly contrasting deep, negative features such as mine shafts and subsidence pits.

### **Site Walkover Surveys**

- 3.24 An understanding of the nature and significance of the historic environment resource within the site; as derived from desk-based sources, has been complemented through the completion of three site-based surveys and walkovers undertaken during May and June 2017 by experienced archaeologists.
- 3.25 The site contains many hundreds of individual earthworks related to past mining activity most of which are located within densely vegetated areas. Furthermore, the nature of the site presents health and safety considerations; the site's dense vegetation shrouds mine shafts, air shafts and holes that have opened due to collapsing underground workings; and, as such traversing such areas presents serious risks. In addition, parts of the site are heavily waterlogged and cannot be safely entered. Given the considerations outlined above, the site walkover survey was restricted to parts in which risks could be controlled or mitigated.
- 3.26 The site walkover surveys intended to:
- Investigate specific impressions on LiDAR data so as interpret them;
  - Identify the degree to which pre-industrial remains are preserved within the site;
  - Target main centres of historic mining activity in order to assess survival and condition of individual elements; and
  - As best as possible, given health and safety considerations, target features identified on the GGAT HER.
- 3.27 The site walkovers did not, survey any archaeological feature in detail or enter densely vegetated or waterlogged parts of the site.

### ***The Significance of Historic Assets***

- 3.28 The definition of the ‘significance’ of historic assets is derived from Cadw’s (2011) *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment in Wales*.
- 3.29 This document defines *significance* of a historic asset as embracing ‘*all of the cultural heritage values that people associate with it, or which prompt them to respond to it*’. It also states that these values are considered to ‘*grow in strength and complexity over time, as understanding deepens and people’s perceptions evolve*.’
- 3.30 Conservation Principles identified four component values that make up significance:
- The asset’s ‘evidential value’, which is defined as those elements of the historic asset that can provide evidence about past human activity, including its physical remains or historic fabric;
  - The asset’s ‘historical value’, which is defined as those elements of an asset which might illustrate a particular aspect of past life or might be associated with a notable family, person, event or movement;
  - The asset’s ‘aesthetic value’, which is defined as deriving from the way in which people draw sensory and intellectual stimulation from the historic asset; and
  - The asset’s ‘communal value’, which is defined as deriving from the meanings that a historic asset has for the people who relate to it, or for whom it figures in their collective experience or memory.

### ***Setting Assessment Methodology***

- 3.31 In addition to the potential for direct impacts on the fabric of an asset, when assessing the impact of proposals on designated historic assets, it is important to ascertain whether change within its setting would lead to a loss of significance. This assessment is made according to Cadw’s guidance *Setting of Historic Assets in Wales* (published on 31 May 2017).
- 3.32 In simple terms, setting ‘*includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape*’ (Cadw, 2011). It must be recognized from the outset that ‘setting’ is not a heritage asset, and cannot itself be harmed. The guidance states that the importance of setting ‘*lies in what it contributes to the significance of a historic asset*’.
- 3.33 As such, when assessing the indirect impact of proposals on designated heritage assets, it is not a question of whether their setting would be affected, but rather a question of whether change within the asset’s ‘setting’ would lead to a loss of ‘significance’.

- 3.34 Set within this context, where the objective is to determine the potential for development on designated heritage assets beyond the boundary of a development site, it is necessary to first define the significance of the asset in question - and the contribution made to that significance by its 'setting', in order to establish whether there would be a loss, and therefore harm. The guidance identifies that change within a heritage asset's setting need not necessarily cause harm to that asset - it can be positive, negative or neutral.
- 3.35 Cadw's guidance (Cadw, 2017) sets out a four-stage approach to the identification and assessment of setting effects; i.e.:
- Stage 1: Identify the historic assets which might be affected;
  - Stage 2: Define and analyse the setting, to understand how it contributes to the asset's heritage significance;
  - Stage 3: Evaluate the potential impact of development; and
  - Stage 4: Consider options to mitigate or improve that potential impact.
- 3.36 The current baseline assessment considers only Stages 1 and 2 of this process. Stages 3 and 4 will be considered in any future assessment following the establishment of a scheme for the development of the site.

### ***Historic Landscape Characterisation***

- 3.37 The site falls within the *Merthyr Tydfil Landscape of Outstanding Historic Interest* (MTLOHI). The MTLOHI is defined by its 18<sup>th</sup> and 19<sup>th</sup> century industrial heritage and regardless of recent land reclamation, and the sanitisation of surrounding waste tips, the town and its environs still retain its industrial landscape character as the most significant Welsh town of the Industrial revolution. The MTLOHI contains numerous individual archaeological elements including the remains of large ironworks, coal and ironstone mining industry, water power, communication systems (such as early tramroads), tips and terraced housing. As well as its economic significance, the area also has importance as a religious, literary and political centre.
- 3.38 The MTLOHI is made up of 79 Historic Landscape Character Areas (HLCAs). Of these the site is located across all or part of five HLCAs. A further five HLCAs are located in close proximity to the site.
- 3.39 As per PPW and Section 7.6 of TAN 24, should the proposed development of the site require Environmental Impact Assessment, information on the Register of Historic Landscapes in Wales will have to be taken into account when determining the planning application. As such, an assessment will have to be made of impacts upon the MTLOHI using the Cadw and CCW publication *A Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process revised* (2<sup>nd</sup> edition (2007)).

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## Section 4

### Existing Information and Historic Development

- 4.1 This section identifies those previously recorded archaeological sites, features and remains of relevance, both within the site and the 500m study area. It also summarises the evidence, taken from the available historic sources, regarding the origins, development and historic use of the surrounding area, in order to place the site's archaeological resource in its context and, as best possible, identify the nature and significance of any hitherto unidentified archaeological remains which may potentially be located within its boundary.

#### Designated Historic Assets

- 4.2 Designated historic assets located within the site and within the Zone of Theoretical Visibility (ZTV) are illustrated on **Plans EDP 1** and **2**.

#### Settings Assessment - Stage 1

- 4.3 As far as Stage 1 is concerned, while setting is not purely a visual concept, changes to the setting of an historic asset as a result of development will most commonly occur as a result of intervisibility or direct views between the asset and the proposed development, or as a result of changes to the view of a feature from a third viewpoint.
- 4.4 All designated historic assets within the site boundary were considered to have potential for their settings to be altered by the proposed development of the site, such that this change would potentially impact upon their significance. As such, all of these assets were considered for Stage 2 in the section below.
- 4.5 Regarding designated historic assets located beyond the site boundary, Stage 1 of the assessment process utilised a ZTV to identify assets with potential intervisibility with the site. This projection was based on a 'bare-earth' model and was not generated in relation to the 'proposed development area' rather the ownership boundary that is referenced as 'the site'. As such, it represents an estimation of the visibility of the site from the wider landscape. For the EIA a refined ZTV (developed by the project's landscape consultants Tir Collective) will be used based on the fixed scheme for development which will narrow the basis of the assessment as presented in this report, which will be presented in the Cultural Heritage ES Chapter.
- 4.6 At the time when the research was carried out, within a 2km radius (excluding assets within the site) the ZTV contained 167 Listed Buildings, 4 Conservation Areas, 5 Scheduled Monuments and one Historic Park and Garden. The location of these is shown on **Plan EDP 1**.
- 4.7 Stage One identified that a large proportion of the Listed Buildings within the ZTV (132); and the conservation areas Morgantown, Town Centre and Thomas Town are located

within the urban extent of Merthyr Tydfil, which occupies the valley floor. The conservation areas represent the historic core of the town, and areas of historic planned settlement related to industry.

*Cyfarthfa Castle: Two Grade I Listed Buildings (Cadw 11396 and 11397), five Grade II Listed buildings (Cadw 11398, 11399, 11400, 11401 and 11402) and Grade II\* Historic Park and Garden (GM1)*

- 4.8 Cyfarthfa Castle has a close historical relationship with the archaeological remains of mining that are present within the site. In addition, a view of the castle and surrounding park is possible from the site, and vice versa. As such, these assets are considered further at Stage 2 of the assessment process.
- 4.9 The five Grade II Listed buildings within Cyfarthfa Park relate to features of the park, such as walls, railings and fountains. Their significance is in part derived from their relationship to the design and function of the surrounding park, which represents their setting, and which would be unaffected by the development of the site. The wider landscape has little or no relevance to their significance. As such, these individual listings are not considered any further within the assessment process.

#### *Scheduled Monuments*

- 4.10 Of the five scheduled monuments, two are located within the modern urban extent of the town: the *Ynys Fach Iron Furnaces* (GM331); and the *Merthyr Tramroad Tunnel* (GM573). These assets are entirely surrounded by modern development, which screens all views towards the site. Although Ynys Fach Ironworks historically had a functional relationship with the mines within the site, this cannot now be experienced, and as such the site is not considered to represent a part of the monuments' setting. As such, it is not considered that the development of the site would change the setting of these monuments and they are not considered any further within the assessment process.
- 4.11 Likewise, the *Iron Ore Scours and Patch Workings at Winch Mawr* (GM554) also have an historical relationship with similar working within the site. However, these are located 1.4km from it and, although they are partially within the ZTV are in reality heavily screened from the site by modern houses and other landscape features. As such, no relationship can be experienced and the development of the site is not considered capable of changing the setting of this monument, which is not considered any further within the assessment process.
- 4.12 Two scheduled monuments are in relatively close proximity to the site (GM495 and GM402) and so were considered further below.

#### *Listed Buildings*

- 4.13 The site is situated on the valley side and upland fringe; a landscape beyond the extent of the urban development in the valley floor. Elements of the settings of listed buildings within the urban area that are most relevant to their significance are their spatial relation

to, and visibility within, the immediate townscape. As such, it is considered most likely that it is their urban setting, and surrounding streetscape, that contributes to their significance, enhancing their historical and communal values, rather than the wider landscape.

- 4.14 Where the site is visible from a listed building within the town, it appears only as a distant part of the wider landscape; a part of the general backdrop to the wider town. It is considered that this distant landscape contributes very little to the significance of any specific building. Therefore, aside from those buildings located in close proximity to the site, listed buildings within the urban extent of the town are unlikely to be affected by the development and have been excluded from further consideration within the assessment process.
- 4.15 A similar logic applies to former industrial features, designated as listed buildings or scheduled monuments, which are located at a distance from the site. The elements of the setting of such features most likely to contribute to their significance are their functional relationships with local, historically related features, such as associated watercourses or railways. Distant views towards the site are not considered relevant to the significance of such features, and, as such, aside from those located in close proximity to the site, or with a direct functional relationship to the site's archaeology, these have been excluded from further consideration within the assessment process.

#### *Conservation Areas*

- 4.16 In the assessment Merthyr Tydfil's three central conservation areas: *Morgantown*; *Town Centre*; and *Thomas Town*, it is most useful to consider the heritage value, and contribution made to this, of views from the urban area out to the valley sides and the site. Views out to the wider landscape are considered within the Character Appraisals of these areas, and are discussed in relation to their 'special interest' below.
- 4.17 The *Thomas Town* conservation area is located on west facing slopes on the eastern side of the town. Its 'special interest' is mostly characterised by its architectural interest, representing an area of Georgian and Victorian planned urban development, that includes key municipal buildings and the course of the historically significant Pen-y-Darren tramroad.
- 4.18 The appraisal (*Thomas Town Conservation Area Appraisal*, Merthyr Tydfil County Borough Council, 2009a) identifies that, from its easternmost parts, views can be obtained across the town centre to the western slopes of the Taff Valley. However, this highlights key views across the town centre, where such views are not noted specifically within a statement of the conservation area's special interest, which is focussed on the area's architecture and history. As such, views may be possible from the conservation area that include the site, but they are not considered to be important in terms of its special interest. As such, it is considered unlikely that development within the site would have any effect on the character and appearance of the conservation area, and it is not considered any further within this assessment.

- 4.19 The *Morgantown* conservation area also represents an area of planned industrial settlement, associated with the adjacent Cyfarthfa Ironworks. The area's architectural significance is the key aspect of its special interest, as identified in the relevant character appraisal (*Morgantown Conservation Area Appraisal*, Merthyr Tydfil County Borough Council, 2009b). Key views looking out from the conservation area are identified in the appraisal. These include views from Park Terrace in a southerly direction looking down the Merthyr valley and across the town centre (views of the valley sides and the site are not mentioned). It is also stated that the most striking views are to the north, and that due to the building density of the conservation areas 'views from vantage points within the conservation area do not offer spectacular viewing'.
- 4.20 As such, similarly to Thomas Town, views may be possible from the conservation area that include the site, but these are not considered to be important in terms of its special interest. It is therefore considered unlikely that development within the site would have any effect on the character and appearance of the conservation area, and it is not considered any further within this assessment.
- 4.21 The *Town Centre* conservation area is also primarily defined by its built heritage and architectural interest. However, it is stated in the Character Appraisal (*Town Centre Conservation Area Appraisal*, Merthyr Tydfil County Borough Council, 2009c) that '*particularly important*' views include a '*vista west and south-west from Castle Street and Swan Street to Mynydd Aberdare and Mynydd Gethin including the historic iron and coal extraction landscape above Heolgerrig*.' This statement suggests that views of the site are within this 'important view'. The site, in relation to this view, is therefore considered further below.
- 4.22 In addition to the above, the Cyfarthfa Conservation Area is also partially within the ZTV. This designation essentially reflects the historical integrity of the remains of the Cyfarthfa ironworks, associated industrial features and Cyfarthfa Castle. Many of these features, including the remains of the works, are located outside of the ZTV. The key elements that fall within the ZTV include the historic park and the castle. As stated above, these are considered further at Stage 2 of the assessment process below.

### **Settings Assessment - Stage 2**

- 4.23 Further to Stage 1 of the assessment process, these assets are considered at Stage Two of the process below to, as stated in the guidance: '*Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced.*' Their locations are given on **Plan EDP 2**:

- *Merthyr Tydfil Town Centre Conservation Area*;
- Scheduled Monument: *Cyfarthfa Tramroad Section at Heolgerrig* (GM495);
- Scheduled Monument: *Carn Pentyle-Hir and Adjacent Round Cairn* (GM402);

- Grade II\* Historic Park and Garden: *Cyfarthfa Castle* (GM1);
- Grade I listed building: *Cyfarthfa Castle* (11396);
- Grade I listed building: *School at Cyfarthfa Castle* (11397);
- Grade II listed buildings: *Nos. 1-16 Upper Colliers Row* – ten separate listings (11488, 80765, 80766, 80767, 80772, 80773, 80774, 80775, 80776, 80777);
- Grade II listed building: *Rhydycar Skew Bridge* (15676);
- Grade II listed building: *Upper Abercanaid House* (11494);
- Grade II listed buildings: *Nos. 1-6 Quay Row*– four separate listings (11496, 81753, 81754, 81755); and
- Grade II listed building: *Blaen Canaid Farmhouse* (11493).

***Designated Heritage Assets within the site (land ownership boundary – blue line)***

4.24 There are no registered parks and gardens, or conservation areas within the site and neither is any part of the site or study area included within the boundary of such a designation.

4.25 There are eight scheduled monuments within the site, all of which are shown on **Plans EDP 1 and 2**. It should be noted that of these assets, two are located within the proposed development area; ***Cwm Pit and Head of Railway*** (GM607) and ***Cyfarthfa Balance Pond and Leat*** (GM608).

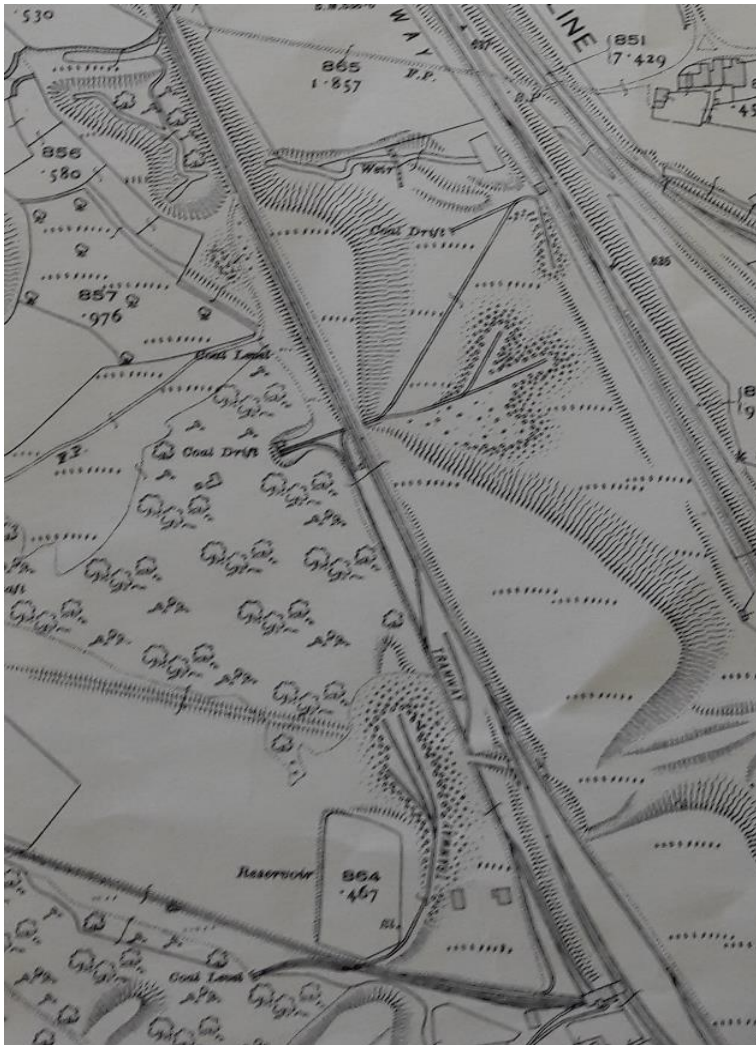
- ***Cyfarthfa Canal Level*** (GM467);
- ***Vale of Neath Railway Cutting and Tunnel Portal*** (GM606);
- ***Cwm Glo Chapel*** (GM610);
- ***Cwm Pit and Head of Railway*** (GM607);
- ***Cwm Du Air Shaft and Fan*** (GM460);
- ***Cyfarthfa Balance Pond and Leat*** (GM608);
- ***Black Pins Early Ironstone Workings*** (GM609); and
- ***Cwm Glo Pit and Ironstone Tip*** (GM611).

- 4.26 There is a single listed building within the site: the Grade II listed *Base of Chimney at Cwm Pit* (24365) which is also within the proposed development area.

#### *Scheduled Monuments*

##### Cyfarthfa Canal Level (GM467)

- 4.27 The *Cyfarthfa Canal Level* monument comprises two sections of the former Cyfarthfa Canal including an entrance to a mining level. The canal was one of the first generation of canals in Wales and dates from 1777-8. It carried small 'tub boats' approximately 4.5m by 2.5m in size and was used to transport coal from levels dug into the slopes along the east side of the site, to the Cyfarthfa Ironworks c. 560m to the north. The canal ran from roughly north-south along a sinuous route through the east side of the site, from Cwm Pit and the Canaid brook in the south, north to Cyfarthfa; a route of approximately two miles.
- 4.28 The canal fell out of use by around 1835-1840 and most of the course was subsequently covered by spoil tips and railways which superseded its role. Few parts remain extant; some of the less well preserved are discussed in the section on non-designated assets below. The scheduled parts consist of a length of the canal which survives a large ditch with embanked walls, and a similar section (also consisting of a broad ditch with embanked walls) with a channel off-shooting to the west to access a level mouth and stone-lined tunnel (**Image EDP 1**). Both parts of the former canal are dry and are heavily overgrown with vegetation.
- 4.29 In the late 19<sup>th</sup> century, following the introduction of the long-wall technique of mining (discussed later), the Canal Level was reopened. OS maps of 1900 and 1919 show that it was connected via tramways (following the canal basin) to a loading area at Lower Collier's Row to the south (**Figure EDP 1**). A tramway, passing under the Cwm Pit Railway, carried spoil from the mine to tips to the east. It is likely that at least part of the structure of the level entrance dates from this period of re-use.



**Figure EDP 1:** Re-use of the Canal Level in the early 20<sup>th</sup> century.

- 4.30 The stone-lined tunnel includes parts of a ruined building located at its entrance; ventilation gate fittings; a ventilation flue; and a stone-lined access hole from the surface. The citation describes the monument's significance as follows:

*'The monument is of national importance for its potential to enhance our knowledge of 18th and 19th century transportation systems. It retains significant archaeological potential, with a strong probability of the presence of associated archaeological features and deposits. a canal level may be part of a larger cluster of industrial monuments and their importance can further enhanced by their group value. The scheduled area comprises the remains described and areas around them within which related evidence may be expected to survive.'*

- 4.31 Given the above, the canal remains are considered to derive their significance primarily from the evidential value inherent in their physical remains. They also possess a degree of historical value illustrating the appearance and function of the former industrial mining landscape and transportation systems to Cyfarthfa. As functional structures, the canal remains have very little aesthetic value. They have a very small degree of communal

value, representing a structural element of the wider landscape of mining remains that was once an important part of the local community.

- 4.32 The increasing expansion of woodland within the site has encroached heavily upon the remains of the canal. Consequently, the effect of unmanaged tree and shrub growth is such that these archaeological earthworks and structures are damaged and concealed. This surrounding wooded environment has little relevance to the monument's historic setting which would have been more open and defined by industrial activity, with views to other works possible. As such, the wooded environment as noted below, detracts in its current unmanaged state from the monument's significance.
- 4.33 The remains of the canal are associated with other archaeological remains related to early 19<sup>th</sup> century mining within the site. In particular, they have a functional and historical relationship with the remains of the canal lock and aqueduct to the north (**GGAT02798m**). Elsewhere remains of the canal have been destroyed or covered with spoil, although it is possible that buried remains survive in some locations. Owing to this association, any remains related to the canal are considered to be part of the monument's setting and contribute highly to its historical value; illustrating the former appearance and function of the canal, in places beyond the extent of the scheduled area.
- 4.34 Other industrial remains are also part of the monument's setting but, as they mostly represent the remains of later phases of mining exploitation, contribute little to the significance of the monument. The contribution of nearby remains to the significance of the monument is further diminished by the fact that they cannot be experienced in conjunction with the monument, due to the dense vegetation present in the locality.
- 4.35 Both parts of the scheduled monument are located within dense woodland characterised by self-seeded broadleaved trees and dense understorey vegetation. Both are highly inaccessible and vegetation impedes the perception of their form and components. The wooded environment has little relevance to the monument's historic setting which would have been more open and defined by industrial activity.
- 4.36 It is considered that this current setting has an adverse effect on the significance of the monument. Moreover, the dense vegetation continues to damage the monument's fabric through the effect of plant roots, thus having an adverse effect on its evidential (archaeological) value. Also, the vegetation obscures the monument, reducing the degree to which it can be perceived as part of a wider landscape of related industrial remains, thus diminishing its illustrative, historical value.

*Cwm Du Air Shaft and Fan* (GM460)

- 4.37 The *Cwm Du Air Shaft and Fan* consists of a colliery ventilation fan and shaft associated with 19<sup>th</sup> and 20<sup>th</sup> century mine workings at Cwm Du. The shaft is set on a low spoil mound with a circular shaft at its centre, lined in brick and stone, and currently capped with gravel. Beside the shaft is the fan box, set on metal foundations, which consists of an iron boxed structure with sheet metal inlet tube and, inside, the axle and blades of the fan (**Image EDP 2**).

4.38 The citation describes that the fan is:

*'...of national importance for its potential to enhance and illustrate our knowledge and understanding of the development of the mining industry in Wales. It retains significant archaeological potential, with the strong possibility of the presence of associated archaeological features and deposits. An air shaft may be part of a larger cluster of industrial monuments and their importance can further enhanced by their group value. The scheduled area comprises the remains described and areas around them within which related evidence may be expected to survive.'*

4.39 Given the above, the fan is considered to derive its significance primarily from the evidential value inherent in its physical remains. It also possesses a degree of historical value illustrating the appearance and function of the former industrial mining landscape at Cwm Du. As a functional structure, the fan has no aesthetic value. It has a very small degree of communal value, representing a structural element of the wider landscape of mining remains that was once an important part of the local community.

4.40 The fan is set within a relatively open area characterised by an extent of rough pasture, populated by small trees, on ground sloping to the east. Whilst this area is located within the ownership boundary (site) it does not extend to the area proposed for development. It is experienced within this setting in conjunction with various remains of historic industrial activity; adjacent to the south is a spoil tip (recorded by Arup, 2008 as the Lower Llwyn-yr-eos ironstone and coal spoil) with the substantial tips of the Cwm Du colliery to the north, as well as earthwork remains relate to a former mining level to the west. Viewed from the south, the buildings of the former Cwm Du colliery are in the background (**Image EDP 3**).

4.41 The fan is therefore set within a landscape populated by associated archaeological remains, all of which contribute to its historical value, and which place it in its functional context as a component of the former industrial landscape. The rough pasture which surrounds the fan is not in itself a setting which contributes to the fan's significance, particularly when considering that the fan would originally have been set within a heavily industrialised landscape defined by noise, smoke etc... and is considered to be neutral in this regard.

*Vale of Neath Railway Cutting and Tunnel Portal (GM606);*

4.42 The Vale of Neath railway cutting and tunnel portal (**Image EDP 4**) comprises a cutting into bedrock, that once carried a single broad-gauge railway track, and an entrance arch into a tunnel that carried the railway under Aberdare Mountain for approximately 2.3km. The entrance is constructed in coursed, rock faced Pennant sandstone with the arch framed by ranking buttresses and made up of six courses of yellow engineered brick. The cutting and tunnel were designed by Brunel, and when finished in 1853 was the longest railway tunnel in Wales. The tunnel is blocked by a metal panelled modern gate, with spiked top.

4.43 The citation described the monument as:

*'of national importance for its potential to enhance and illustrate our knowledge and understanding of the development of the transport network in South Wales in the nineteenth century. The cutting and tunnel are unaltered since their completion and represent one of the best examples of the work of Isambard Kingdom Brunel to survive in Wales. The Portal and cutting are superb examples of Victorian engineering. The cutting track bed and tunnel portal may be expected to contain archaeological information in regard to construction techniques and functional detail.'*

4.44 Given the above, the cutting and portal are considered to derive their significance primarily from the evidential value inherent in their physical remains. They also possess a high degree of historical value, illustrating the appearance and function of the former industrial transport system, and through their association with Brunel. The cutting has no inherent aesthetic value, although its function as an approach to the tunnel entrance, which is itself a visually striking feature with attractive stonework, is atmospheric and, as such, the monument is considered to possess a degree of aesthetic value. The monument has a small degree of communal value, representing a structural element of the wider landscape of mining and transport remains that was once an important part of the local community.

4.45 It should be noted that the Council in partnership with Welsh Government are presently undergoing a plan to re-open the tunnel as part of a wider walking/cycling route. A Right of Way related to this route will pass through the site including through the area proposed for development.

4.46 The cutting and tunnel are set within a deep incision surrounded by dense woodland. The monument is hard to experience from outside the cutting; the best experience is from the approach along the former railway track to the north-east. The cutting is particularly visible in views from a road bridge which cross the railway, immediately adjacent to the scheduled area to the north-east (**GGAT02820m; Image EDP 5**).

4.47 The monument is historically associated with the remains of the railway to the north-east which includes several bridges (detailed later in the report). These elements of the historic environment are considered to represent features of the monument's setting which, through their function and historical association and, in the case of the bridge and approach to the monument from the north-east, as locations from which the monument is experienced, provide the tunnel with an historical context and thus contribute to its significance.

4.48 Industrial remains in the wider landscape are contemporary with the cutting and tunnel but, due to the surrounding woodland and deep incision of the cutting, they are not experienced from, or in conjunction with, the monument. As such, no other remains are considered to represent a part of the monument's setting that contributes to its significance.

- 4.49 Within the cutting, recent works by Merthyr Tydfil Borough Council's (MTBC) engineers related to drainage and tip remediation have resulted in a drainage ditch being cut along the edge of the former rail track as well as works to clear vegetation from and broaden the track. These works have not damaged any key elements of the monument and will have reduced the destructive impact of water erosion on it. The works have little implication for the monuments setting as they do not screen or alter the experience of the tunnel entrance as it is approached.
- 4.50 The vegetation surrounding the monument is dense and does not reflect the monument's original setting which would have been within a much more open, industrialised landscape, rather than dense woodland. As for most of the monuments in the site, the increasing expansion of unmanaged woodland has encroached upon their archaeological remains, damaging and concealing them. Vegetation encroaches upon the cutting and shrouds the stone work of the tunnel entrance. As such, in its current state where the vegetation is only managed to a limited degree, it is considered to have a negative effect on the monument's setting; disturbing its fabric and thus reducing its evidential value and masking its aesthetic quality. The presence of the modern security gate reflects the tunnel entrances' unmanaged and derelict state. This feature, although essential for safety considerations, is a large, imposing and ugly structure; it masks and distracts from the tunnel's aesthetic quality, inherent in its construction, reducing its aesthetic value and in turn detracting from its significance.

*Cwm Pit and Head of Railway (GM607)*

- 4.51 The scheduled monument comprises the remains of Cwm Pit coal mine and the head of the Cwm Pit Railway. Cwm Pit is one of the larger mining complexes within the site, with some of the best preserved upstanding remains.
- 4.52 Mine working at Cwm Pit dates from the late 18<sup>th</sup> century. It was the location of the terminus of the Cyfarthfa Canal which served to connect surface coal working in the locality with the Cyfarthfa Ironworks. At the western end of the scheduled area is a well-preserved former water balance pond defined by an earthwork (**GGAT03951m**). A pond at this location is recorded on an Ordnance Survey map of 1814 (**Plan EDP 15**), and it is considered that this feature may have been used as a water supply for scouring, as part of the early surface workings. Later, it was used as a source of power for a water balance winding mechanism.
- 4.53 In 1843, a deep pit (with steam powered mechanics) was sunk at Cwm Pit which eventually reached to 150 yards; one of the deepest in the region. An Ordnance Survey Map of 1876 (**Figure EDP 2**) shows six buildings at the mine. The shaft is adjacent to a winding engine house and boiler house. The map shows tramroads extending past the mine to the west, presumably to access a mining level in this location. Additional tramroads carried spoil to a tip to the north, and possibly also to the east. During the late 19<sup>th</sup> and early 20<sup>th</sup> centuries additional buildings were constructed, which are recorded on OS maps from 1900 and 1919 (**Figure EDP 3**) and the mine eventually went out of use in 1924. The later maps indicate additional, related levels (such as the Cwmfelin



**Figure EDP 3:** Cwm Pit as depicted on an OS map of 1919.

- 4.54 The mine is illustrated by a photograph (**Image EDP 6**). This was taken from the north-east and judging by the buildings on view dates from the early 20<sup>th</sup> century. The photograph illustrates the architecture of the sites building's as well as its imposing square chimney. It is clear that, unlike its present situation, the mine was set within a relatively open landscape, busy with industrial activity, and would have been highly visible. In this respect, as noted below, the wooded environment in which the monument now lies, detracts in its current unmanaged state from the monument's significance.
- 4.55 The mine workings were accessed by the Cwm Pit railway (**GGAT02858.0m**), a narrow-gauge railway that ran from its terminus at Cwm Pit to Cyfarthfa ironworks, replacing the function of the earlier canal. The line was constructed in the mid-19<sup>th</sup> century, it is shown as incomplete on the 1850 Tithe map and is first shown completed on the OS map of 1876 (shown in full on the 6" OS map of 1885 **Plan EDP 17**). The line was an important spinal route through the site; a major haulage route for iron and coal that influenced the subsequent industrial development of the locality. The railway is discussed in further detail in the section on non-designated asset below.
- 4.56 Notable remains at Cwm Pit that are within the scheduled area include the following:
- The head of the railway and site of the main shaft – these are set within an embankment defined by massive revetment walls on the south and north sides constructed in coursed Pennant sandstone blocks (**Images EDP 7 to 9**). The walls are constructed on a stepped base and contain various features including arched entrances, a former entrance to an adit, lines of putlog holes, sockets and remains of iron brackets. The wall corners at a place marked by stone steps carried on a pair of semi-circular arches;
  - Remains of colliery buildings – these are located to the south of the revetment wall, at a higher level. Of these, for most buildings, very little surface remains are visible. The locality is densely wooded and remains are either buried and/or located within densely vegetated areas. In places stone wall bases are visible as are earthwork remains and level building platforms. The best preserved former building is the base of an engine house chimney stack (**Image EDP 10**). This is Grade II listed as discussed separately below; and
  - Water balance/scouring pond – this feature is possibly the earliest within the monument. It consists of a U-shaped banked earth and stone dam, that still contains water, on the hillslope to the west of the mine (**Image EDP 11**).
- 4.57 The monument is described in the citation as:
- 'Of national importance for its potential to enhance and illustrate our knowledge of the late 18<sup>th</sup> and early 19<sup>th</sup> century coal mining industry. The history of the site dates back into the later 18<sup>th</sup> century and it demonstrates the technological change from a water balance pit to a deep mine with steam power haulage and drainage. It is the most*

*complete coal mine complex in the Merthyr area. The structures may be expected to contain archaeological information in regard to chronology, building techniques and functional detail.'*

- 4.58 Given the above, the monument derives its heritage significance mostly from the evidential value, inherent in its remaining structures; and any associated buried archaeological remains. It also has a high degree of historic value through its associations with the Welsh coal mining industry and Cyfarthfa Ironworks, illustrating the appearance and function of the former industrial landscape. The monument has a lesser, but still significant, degree of aesthetic value, as the upstanding remains are well-constructed, imposing stone structures with a degree of decorative quality. The monument also has some communal value, representing the remains of a former workplace for the inhabitants of the communities that live in the locality.
- 4.59 Cwm Pit is set within dense woodland crossed by several footpaths that follow the route of former tramways. This setting is a marked contrast to its original historic setting which would have been a much more open landscape defined by intensive industrial activity including noise, movement of people and trains, smoke and smells associated with industry. The monument's historic setting is vividly illustrated in the historic photograph at **Image EDP 6** which shows an entirely different landscape to that around the remains of the works at present, notably lacking in adjacent trees.
- 4.60 A stream flows along the route of the former Cwm Pit railway. The mine is, historically, closely associated with various elements of the surrounding, former industrial landscape. The ground rises to the north where there are large spoil tips and the earthwork remains of an incline railway, formerly used to transport spoil produced by the by mine. Further west an offshoot of the Cwm Pit railway connected to mining levels at Cwmfelin Drift. To the north-east of Cwm Pit, the railway ran along a cutting and out across land that is now heavily waterlogged. Also closely related are the remains of the Cyfarthfa balance pond and leat, located c. 20m from the north-eastern extent of the scheduled monument. This provided water for Cwm Pit as well as other mines in the locality.
- 4.61 These closely related elements of the historic environment are considered to represent features of the monument's setting which, through their functional and historical association, contribute to its significance. However, the industrial remains in the wider landscape, are, due to the surrounding dense woodland vegetation; and, in places, incursion by water; not readily experienced from or in conjunction with the monument. This difficulty in experiencing the monument within its former industrial setting reduces the degree to which these associated elements contribute to its significance.
- 4.62 The vegetation that surrounds the monument is dense, as for most of the monuments in the site, the increasing expansion of unmanaged woodland has encroached upon their archaeological remains, damaging and concealing them. In this case, it encroaches upon the upstanding earthworks and buildings, shrouding and damaging their stone work. As such, in its current state: in which the vegetation is only managed to a limited degree, it is considered to represent a negative aspect of the monument's setting; disturbing its fabric and thus reducing its evidential value as well as (as described above) lessening the

degree to which the monument can be experienced as an element of the wider historic environment.

- 4.63 On the north-west side of the monument the former track-bed of the head of the Cwm Pit railway is now the location of a water course. It is evident that the natural flow of water from the north-west follows this route which was evidently diverted when the mine was in operation most likely through various leats and culverts mainly located upstream to the north-west.
- 4.64 Now, with these drainage systems having been eroded away, water follows the former track bed. This water has resulted in the upper surface of the track bed having been scoured away and runs close to the base of the revetment walls that lie adjacent to the track. In time it is likely that the watercourse will undermine the walls and cause them to collapse or at least become unstable. The track bed is evidently entirely damaged. In this regard the water course is a negative element of the monument's setting that is having an ongoing, physical erosive effect on its fabric and thus is resulting in significant adverse effects to the monument.

*Cwm Glo Chapel (GM610)*

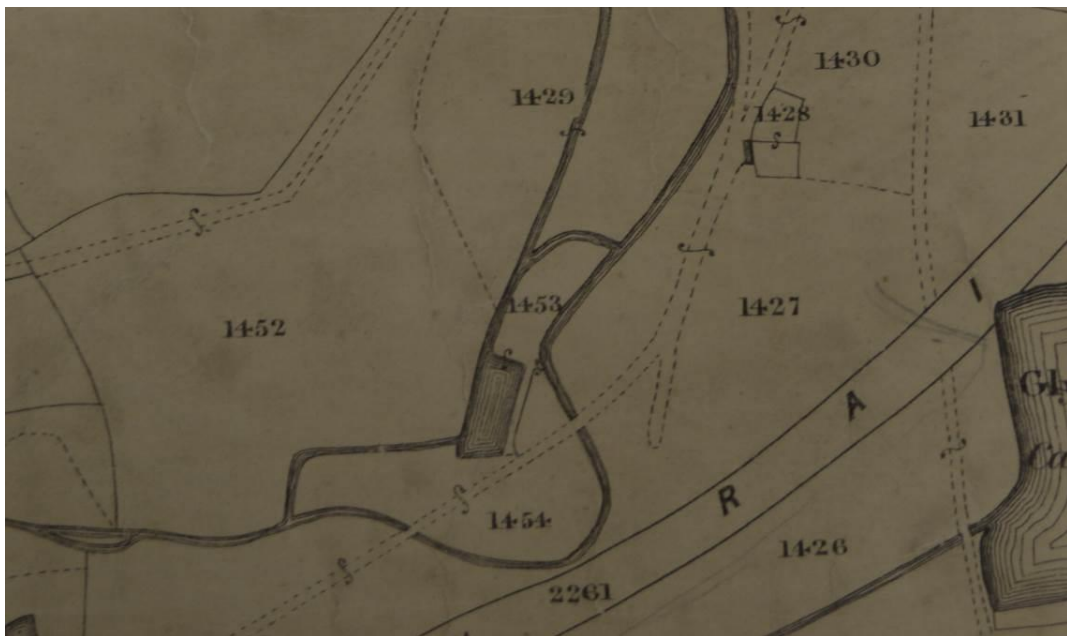
- 4.65 The scheduled monument comprises the remains of Cwm Glo Chapel. The chapel was one of the earliest non-conformist chapels in South Wales. Following the restoration of King Charles II, Merthyr Tydfil was a centre for Puritan Dissenters. Persecution of the movement led the faithful to hold their meetings in a barn at the secluded Cwm Glo Farm (**GGAT04399m**). The Toleration Act of 1689 allowed the practice of their faith in public, and, the following year, a chapel was erected near Cwm Glo on the banks of the Nant Llwyn-yr-eos. The chapel was a central place for Christian non-conformity in north Glamorgan until 1749, when the lease expired and a new chapel was built in the town of Merthyr.
- 4.66 The remains consist of a rectangular stonewalled yard containing the chapel, with the walls of the chapel measuring 14 by 6m, with an extension on the south-east side, and surviving to a height of 0.9m (**Image EDP 12**).
- 4.67 The citation describes the monument as: '*Of national importance as one of the earliest non-conformist chapels in south Wales, built immediately after the Toleration Act of 1689. The site forms an important element in the wider post-medieval landscape*'.
- 4.68 The remains have a degree of evidential value inherent in the remaining walls, and in any associated archaeological deposits. Their main source of heritage significance, however, is derived from their historical value; their association with the early non-conformist movement, its leaders and practitioners. In this respect, the remains also possess a degree of communal value, through their importance to modern non-conformist Christians in the Merthyr area; representing a place of importance in the history of their movement. Consisting entirely of low stone walls, the remains possess very little aesthetic value.

- 4.69 The remains are set in a hollow, on the south side of the steep-sided valley of the Nant Llwyn-yr-eos, a remote location c. 500m from the settlement at Heolgerrig. The valley, and much of the surrounding landscape, is densely wooded and the remains are fairly inaccessible, approached by a steep overgrown path from the south-west. The wider landscape contains numerous remains from 18<sup>th</sup> and 19<sup>th</sup> century industry including shafts, spoil tips and former tramways. It also includes the remains of the pre-industrial agricultural landscape including the remains of stone walls, representing former field boundaries, and the ruined remains of several post-medieval farms and cottages such as Pen-y-coedcae (**GGAT02824m**), Llwyn-yr-eos (**GGAT04397m**) and Cwm Glo Farm (**GGAT04399m**).
- 4.70 The chapel was intentionally built in a secluded location and constructed close to the former place of worship at Cwm Glo Farm (located c. 210m to the north). Because of this historical relationship, the remains of the farm have a direct association with the chapel, and are considered to represent a part of the monument's setting that contributes to its significance, enhancing its historical value. Other remains of the post-medieval agricultural landscape that exist in the locality represent the chapel's historic setting and thus, to a lesser degree also contribute to the monument's historical value. Industrial remains have no historic or functional association with the chapel and their presence is not considered to contribute to its significance.
- 4.71 The chapel's remains continue to be located within a secluded and remote setting. In part, this contributes to their significance, reflecting the building's original historic setting. It is likely that there would have been a desire for remoteness and seclusion on the part of its builders, who wished to conduct religious practice that, although legal, would have been fairly subversive in the 17<sup>th</sup> century.
- 4.72 As such, the surrounding woodland is considered to represent a setting which contributes to the historical value of the monument. However, in its unmanaged state the woodland encroaches upon the remains of the chapels, potentially damaging their fabric and disturbing any related archaeological remains. As such, the positive effect of the woodland setting is tempered by its lack of sustainable management.

*Cyfarthfa Balance Pond and Leat (GM608)*

- 4.73 The scheduled monument comprises the earth and stone work remains of a large pond and associated former leat. The structure is also recorded by the GGAT HER (**GGAT06456m** and **GGAT08244m** – although this record is mis-located). The pond dates from the 1830s when it was constructed as part of a hydrological system used to feed water into water balance mechanisms used at mining pits in the locality. Cadw describe how the pond and leat were used to feed mechanisms for pits along its length, located on lower ground to the south and south-east. This is likely to have included Cwm Pit (GM607) and the pit, and other mine workings at Lower Colliers Row (**GGAT02811m**).

- 4.74 The Cyfarthfa Canal ran alongside the pond, and is shown linked to it via a channel on the 1850 Tithe map (**Figure EDP 4**). It is likely that the pond and leat had, at this time, some additional function as a feeder to the canal. Ordnance Survey maps show the pond and leat linked into a network of water courses and leats, including the adjacent canal, and via these was linked to other reservoirs, such as those at Cwm Pit and Lower Colliers Row.
- 4.75 There is evidence for a channel diverting water from the leat to the east created by a deliberate blockage. This is illustrated on the 1876 OS map (**Figure EDP 5**) and a sluice is identified at this location. It is likely that the arrangement was related to the control of the water flow along the leat. It was probably also related to the provision of water for either the Cyfarthfa Canal or possibly to a smithy that was located a short distance to the east. The OS map of 1900 shows four sluices along its length suggesting a system in which water flow was controlled and tapped.



**Figure EDP 4:** The Cyfarthfa pond and leat as shown on the 1850 Tithe map.



**Figure EDP 5:** Detail on the sluice on the Cyfarthfa leat from the OS map of 1876.

4.76 The physical remains of the feature consist of an earth and stone dam built on three sides on an east facing slope. The inner face of the dam is stone-revetted and there are several features such as a stone lined sluice and brick lined spillway. The leat is formed by a linear bank of earth and stone and runs for c. 270m along the contour, although its original length would have been greater. It is noteworthy that, at the northern end of the monument, the leat is infilled and badly obscured by later spoil tips and the dumping of waste materials. In this area it has lost its intelligibility as a former waterway, and thus its significance is less than that at the better-preserved parts at the southern end.

4.77 The monument is described in its scheduling citation as being:

*'...of national importance for its potential to enhance and illustrate our knowledge of the early 19th century coal mining and iron working industries of Wales. It is the largest and best preserved balance pond that survives on the Cyfarthfa estate, famous for its use of water balance technology in extracting coal and ironstone. The structures may be expected to contain archaeological information in regard to chronology, building techniques and functional detail.'*

4.78 The monument derives its significance from the evidential value inherent in its associated structures and any related archaeological remains. It also has a high degree of historical value illustrating the function of water balance technology, which was employed extensively across the Cyfarthfa mine working area during the early-mid 19<sup>th</sup> century, and which is fairly unique to South Wales as an early mining technology. The

monument has a limited degree of communal value, in that it represents a component part of the industrial remains which characterise the West Rhydycar area and which were an important feature of the lives of local inhabitants until the mid-20<sup>th</sup> century. Consisting of earth banks and a pond the monument has very little aesthetic value.

- 4.79 The pond and leat are set within dense woodland crossed by a footpath that follows the edge of the watercourse. The mine is historically closely associated with various elements of the surrounding, former industrial landscape. The wooded environment in which it is now set has little relevance to the monument's historic setting which would have been more open and defined by industrial activity, along with its associated noise, movement, smoke and smells.
- 4.80 As described, the pond fed water to several mines situated along its length. Of these remains exist at Cwm Pit and Lower Colliers Row. These archaeological remains are considered to represent features of the monument's setting which, through their functional and historical association, contribute to its significance. However, the industrial remains in the wider landscape, are, due to the surrounding dense woodland vegetation, and, in places, incursion by water, not readily experienced from or in conjunction with the monument. This difficulty in experiencing the monument within its former industrial setting reduces the degree to which these associated elements contribute to its significance.
- 4.81 The vegetation that surrounds the monument is dense and, as for most of the monuments in the site, the increasing expansion of unmanaged woodland has encroached upon the monument's archaeological remains, damaging and concealing them. The surrounding woodland, in its current state and reflecting nothing of the monument's historic setting, and in which the vegetation is only managed to a limited degree, is considered to represent a negative aspect of the monument's setting; disturbing its fabric and thus reducing its evidential value as well as (as described above) lessening the degree to which the monument can be experienced as an element of the wider historic environment.
- 4.82 The ground to the east of the monument is heavily waterlogged, which has masked or destroyed any upstanding archaeology in this area related to the former Cyfarthfa Canal, the Cwm Pit railway or to any water courses or leats that may have been formerly associated with the monument. This part of the monument's setting, although not encroaching on the monument or damaging its fabric, has removed a part of the former industrial landscape that was associated with it, reducing the degree to which the monument's function can be understood. As such, this aspect of the monument's setting is considered to be negative, reducing its historical value.

*Black Pins Early Ironstone Workings (GM609)*

- 4.83 The scheduled monument comprises an area containing the remains of former iron stone workings, at a location known as the Black Pins. The works date from the early 19<sup>th</sup> century up until the 1870s, after which (as stated by Cadw) the site was abandoned for a similar operation at Winch Fawr (located beyond the site c. 2.5km to the north-west).

The works targeted surface outcrops of ironstone using primitive open cast mining techniques such as patching and scouring with water.

4.84 The irregular proposed scheduled area encompasses an uneven landscape of steep sided finger tips and former open cast excavation pits. The mine workings were accessed by a tramway from the north-east which is visible as a low earthwork. The locations of other former tramways are identifiable within the monument area (**Image EDP 13**). No specific buildings are described in the scheduling description, and none were noted within the area proposed for scheduling during the site walkover survey. Like much of the site, the mining works overlay a former landscape of post-medieval fields and in places the lines of former boundaries, covered by later spoil tips, can be traced, by following patterns of tree growth.

4.85 The monument is described in its scheduling citation as being:

*'...of national importance for its potential to enhance and illustrate our knowledge of the early 19th century iron industry. The monument comprises a particularly clear and well preserved group of remains of early surface mining techniques of patching and scouring associated with Cyfarthfa Ironworks. They have additional importance in association with the later Iron Ore Scours and Patch Workings at Winch Fawr (Scheduled Ancient Monument GM554), which they preceded.'*

4.86 The monument derives its significance from the evidential value inherent in the physical remains of mining activity, and buried archaeological remains, that are present within its bounds. It also possesses a high degree of historical value, illustrating the specific technology of early open-cast mining, and through its association with Cyfarthfa Ironworks and with the later mines at Winch Fawr. The monument also has a limited degree of communal value, in that it represents an early component part of the industrial remains which characterise the West Rhydycar area, representing a well-known local landmark. Although the monument consists of earthworks, its distinctive tips are a striking feature of the hillside and as such are considered to possess a degree of aesthetic value.

4.87 The Black Pins works are mostly covered by dense woodland, although on the eastern side parts are relatively open; in particular on the tops of the spoil heaps. The spoil tips offer a vantage point from which views are possible across the landscape to the east, although vegetation below limits these. Likewise, the spoil tips are visible features of the hillside, although they are shrouded by tree cover and their distinctive form is not especially identifiable. This surrounding wooded environment has little relevance to the monument's historic setting which would have been more open and defined by industrial activity, with views to other works possible. As such, the wooded environment as noted below, detracts in its current unmanaged state from the monument's significance.

4.88 The Black Pins form a distinct area within the Rhydycar mine workings. They possess a functional association with related extant elements of the former industrial landscape. This includes the former tramway that ran north-east from the mine, ultimately linking the mines with Cyfarthfa, with other related works and tramroads to the south and with the remains of a leat which drained water from the quarries to the north-east. Another

association, as noted in the Scheduling description, is the historic link with the Winch Fawr works to the north-west. These associated archaeological sites represent elements of the setting of the Black Pins which contribute to its significance, enhancing its historical value.

- 4.89 The monument's prominent position on this hillside allows for views of its spoil tips from a broad area; a topographic situation that is considered to enhance the monument's limited aesthetic value. However, views of the tips are shrouded in most directions by woodland, thus limiting the degree to which their form can be viewed. Regardless, the tip's aesthetic quality is entirely incidental and represents only a limited aspect of the monument's significance as an historic asset when contrasted with its historical value.
- 4.90 This present setting of the monument, within and surrounded by woodland is in marked contrast with its original, historic setting where the monument would have been set within a highly industrialised, much more open landscape populated by industrial mine workings, buildings and railways along with their associated noise, movement, smoke and smells.
- 4.91 The vegetation that surrounds the monument is dense, as for most of the monuments in the site, the increasing expansion of unmanaged woodland has encroached upon their archaeological remains, damaging and concealing them. Vegetation encroaches upon the earthworks and blocks access to the open cast excavations that make up part of the scheduled monument. The surrounding woodland, in its current state, in which the vegetation is only managed to a limited degree, is considered to represent a negative aspect of the monument's setting; disturbing its fabric and thus reducing its evidential value as well as (as described above) lessening the degree to which the monument can be experienced from wider landscape.

*Cwm Glo Pit and Ironstone Tip (GM611)*

- 4.92 The scheduled monument at Cwm Glo pit (also known as Robbin's Pit) comprises the core area related to mining operations at Cwm Glo. The Cwm Glo pit was one of the larger operations in the West Rhydycar mining area, and the site, producing both coal and ironstone from a shaft and mining levels to the south-east. It is thought by the GGAT HER that the shaft was operated from the 1830s or 40s up until 1905. The site sits on the edge of and is surrounded on the west and east sides by, large spoil tips.
- 4.93 The proposed scheduled monument encompasses the area occupied by the Cwm Glo shaft (capped with concrete) and associated works (**Image EDP 14**). This includes a building platform adjacent to the shaft. It also includes the head of an incline railway which connected the mine at Cwm Glo to the Cwm Pit Railway to the east and a wide, open area, the location of a complex junction of tramways, from which lines fanned out, distributing ore across an area that was used for drying ironstone (**Image EDP 15**). To the north-west are the earthwork remains of a pond (**Image EDP 16**), formerly a source for the water balance hoist mechanism employed at the pit. Several stone sleepers are visible on the tramways that led north from the pit area.

- 4.94 The scheduled area also includes a possible older feature, predating the Cwm Glo shaft. This consists of a small pond and associated leat that runs to the west down towards the valley of the Nant Cwm Glo (**Image EDP 17**). It is theorised by Cadw that this is an early 'hushing pond' used as part of late 18<sup>th</sup> and early 19<sup>th</sup> century scouring operations in the Cwm Glo valley.
- 4.95 The monument is described in its scheduling citation as being:
- '...of national importance for its potential to enhance and illustrate our knowledge of the late 18th and early 19th century coal mining and iron working industries. The history of the site dates back into the later 18th century and the remains comprise a well-preserved complex of early features typical of the techniques used on the Cyfarthfa Estate during the height of the ironworks production.'*
- 4.96 The monument derives its heritage significance primarily from the evidential value inherent in the earthwork remains associated within it and other archaeological remains, such as building platforms and sleepers that are within. The monument also possesses a degree of historical value illustrating the function and appearance of the 19<sup>th</sup> century mining operations on the Cyfarthfa Estate and possible the earlier operations related to scouring in the Cwm Glo valley. The monument has a limited degree of communal value, representing a feature of the industrial landscape that was a central part of the lives of the communities that lived and worked there. Consisting of earthworks, the monument has very little aesthetic value.
- 4.97 The Cwm Glo monument is set on ground overlooking the steep sided valley of the Cwm Glo, to the south. The valley is densely wooded but the scheduled area has a fairly open setting, consisting of grassed spaces; although bracken is prolific in the summer months. The northern edge of the monument is the most overgrown with dense vegetation occupying the northern edge and interior of the former balance pond. The semi-wooded environment around the monument has little relevance to its historic setting which would have been more open and defined by industrial activity.
- 4.98 The archaeological earthworks at the monument have a functional and historical association with a large number of other earthworks in the locality. Foremost amongst these are the large spoil tips which dominate the site's surroundings, forming an artificial plateau on which much of the monument is set. Also, closely related are the deep cut remains of the Cwm Glo level to the south-east (**GGAT04412m**). The landscape to the south-west is a mass of spoil tips and other mining earthworks, the remains of the long history of scouring, patching and digging of levels into the outcrops in the Cwm Glo valley. Some of these works are possibly some of the earliest in the site and are considered below in the discussion of non-designated historic assets.
- 4.99 The monument sits at a junction of various former tramway routes. A north-south route extends from the Black Pins works, at its southern end, north to the Coed Cae mine before heading north, beyond the site, towards Cyfarthfa. Another route ran to the east, connecting Cwm Glo with the Cwm Pit Railway via an incline (**NMRW 262076**).

- 4.100 The mining remains (described above) and the network of tramways all relate to the function of the mine at Cwm Glo representing, its functional and historical context and their presence allows for the working of the mine to be interpreted. Through this association they are considered to contribute to the monument's significance, enhancing its historical value.
- 4.101 The relatively open grassland setting, which is within the wider ownership boundary rather than with the area of the site proposed for development, allows for the monument's component parts to be experienced in conjunction with each other, and with some, more visible, elements of the wider historic environment which relate to them, such as the surrounding spoil tips and the incline railway. However, much of the monument's surroundings (in particular the land to the south) are covered by dense woodland so an experience of the monument in relation to much the wider landscape is not possible; views out to the south are of woodland, industrial remains related to the Cwm Glo mine are not visible.
- 4.102 The 'openness' of the monument's immediate surroundings is entirely incidental and not related to its historic setting, which would have been busy with industrial activity. As such, although it allows for an experience of the monument's components as an integrated group, it is not considered to contribute specifically to its historic significance, and thus is considered to represent a neutral aspect of its setting.

### **Listed Buildings**

*Grade II Listed building: Base of Chimney at Cwm Pit (81752)*

- 4.103 The only listed building within the site is the *Grade II listed Base of Chimney at Cwm Pit (Image EDP 10)*. The building dates from the 1820s-1840s and originally supported a very tall square stack (as depicted in the photograph at **Image EDP 6**) situated to the south of the engine house at the Cwm Pit colliery.
- 4.104 The chimney base is constructed in large rock-faced stone squared blocks with a stepped upper part below the demolished chimney stack. Each side of the building has a large arched stoking hole. Three of these are lined with yellow brick and one with masonry. It is theorised in the listing description that the yellow brick may have replaced masonry.
- 4.105 The citation describes the building as: '*Included as a particularly massively built chimney base, an historically important feature of this earlier C19 pit (Cwm Pit).*'
- 4.106 The building derives its significance from its physical remains (its evidential value) and from its historical association with Cwm Pit, illustrating its former appearance and function and, with the Welsh coal mining industry of the 19<sup>th</sup> century in general. The building has some limited aesthetic value, but it was primarily a functional structure and not designed to be viewed. The building also has some limited communal value, representing an element of the industrial landscape at Cwm Pit, which was an important part of the lives of local inhabitants.

- 4.102 The building is set within dense woodland adjacent to a footpath. It has a close association with the surrounding upstanding and archaeological remains of Cwm Pit, which are a scheduled monument (GM607). The elements of the monument, including the chimney base, have an integrity based on their closely related function and history. The association with the surrounding remains at Cwm Pit is an aspect of the chimney base's setting which contributes highly to its significance, enhancing its historical value.
- 4.103 However, the remains at Cwm Pit, due to the surrounding dense woodland vegetation, are not readily experienced from or in conjunction with the chimney base. The wooded environment has little relevance to the chimney's historic setting which would have been more open and defined by industrial activity. This difficulty in experiencing the monument within its former industrial setting reduces the degree to which these associated elements contribute to its significance.
- 4.104 The vegetation that surrounds the building is dense. It encroaches upon the building, potentially damaging its masonry. The surrounding woodland, in its current state, in which the vegetation is only managed to a limited degree, is considered to represent a negative aspect of the monument's setting; disturbing its fabric and thus reducing its evidential value as well as (as described above) lessening the degree to which the monument can be experienced as an element of the wider historic environment.

***Designated Historic Assets within the ZTV considered for assessment***

- 4.105 Visits were made to these designated historic assets to consider their setting, and the degree to which it contributes to their heritage significance. The relationship of the site (being the ownership boundary) to this setting was then identified. As note previously, a more refined setting assessment with reference to the fixed development proposals will be presented within the Cultural Heritage ES Chapter.
- 4.106 It is worth noting that, although the assessment below, in places, makes reference to views from within the site outward, the site is presently closed to the public and fenced off and such view are not from publicly accessible locations.
- 4.107 The designated historic assets considered are:
- *Merthyr Tydfil Town Centre Conservation Area;*
  - Scheduled Monument: *Cyfarthfa Tramroad Section at Heolgerrig* (GM495);
  - Scheduled Monument: *Carn Pentyle-Hir and Adjacent Round Cairn* (GM402);
  - Historic Park and Garden: *Cyfarthfa Castle* (GM1);
  - Grade I listed building: *Cyfarthfa Castle* (11396);
  - Grade I listed building: *School at Cyfarthfa Castle* (11397);

- Grade II listed buildings: Nos. 1-16 Upper Colliers Row – ten separate listings (11488, 80765, 80766, 80767, 80772, 80773, 80774, 80775, 80776, 80777);
- Grade II listed building: *Rhydycar Skew Bridge* (15676);
- Grade II listed building: *Upper Abercanaid House* (11494);
- Grade II listed buildings: Nos. 1-6 Quay Row– four separate listings (11496, 81753, 81754, 81755); and
- Grade II listed building: *Blaen Canaid Farmhouse* (11493).

4.108 The significance of these assets, and the contribution their setting makes to this, is discussed below.

#### *Merthyr Tydfil Town Centre Conservation Area*

4.109 The conservation area encompasses the historic core of the settlement at Merthyr Tydfil. The *Town Centre Character Appraisal* (Merthyr Tydfil County Brough Council, 2009c) summaries the key characteristic of its special interest as thus:

- *'A town centre developed from the late 18<sup>th</sup> century as a result of rapid and massive industrial development and population growth, continuing to function as the district's main high street shopping area into the 21<sup>st</sup> century;*
- *The concentration of 23 listed buildings and numerous other locally listed buildings and street frontages, creating an area of high architectural interest;*
- *The concentration of commercial, civic, social and spiritual uses relating to the development of Merthyr Tydfil as an industrial town of international importance between the late 18<sup>th</sup> and early 20<sup>th</sup> centuries;*
- *Landmark buildings of particular architectural quality, which emphasise each of the above historic functions of the area;*
- *Dense urban development of mainly narrow frontages on the backs of pavements, creating varied elevations and a noticeable sense of enclosure;*
- *A strong linear form created by the long axis of Penydarren Road, Pontmorlais High Street, and High Street, with numerous short side streets providing ready access to and from surrounding areas;*
- *Attractive views along street lines to focal points, landmark buildings and out to mountain scenery; and*

- *A variety of architectural styles and materials, with details relating to the late Classical, Gothic Revival and Edwardian Baroque movements.'*

4.110 The site is located c. 600m from the edge of the conservation area to the west. And, as such, there are no direct impacts upon the architectural interest or streetscapes which are key features of its character and appearance. However, as previously noted, the site's relationship with the conservation area is within the context of an 'important view' from within the conservation area to the wider landscape. This view is described in the appraisal as consisting of: *'Vistas west and south west from Castle Street and Swan Street to Mynydd Aberdar and Mynydd Gethin including the historic iron and coal extraction landscape above Heolgerrig.'*

4.111 The importance of this view reflects the historic connection between the town, and its inhabitants, and the mining landscapes that were the source of its 19<sup>th</sup> century prosperity, and that are of direct relevance to the history of its iron industry. It is apparent that, with regard to the site, the view only encompasses the higher parts on its western side which are unlikely to be within the area proposed for development. The potential for the development to be present within this view will be fully assessed in the Cultural Heritage ES Chapter. Most of the site is shrouded in trees and appears as distant woodland, with modern buildings dominating the foreground. The lower parts of the site on the eastern side are not at a sufficient elevation to be visible from the town and are screened by intervening development.

4.112 Concerning the site's industrial archaeology, it is only the large spoil tips at Cwm Du (which are not located in the area proposed for development) that are clearly discernible over the distance from Castle Street/Swan Street (c. 1-1.5km to the higher parts of the site).

*Scheduled Monument: Cyfarthfa Tramroad Section at Heolgerrig (GM495)*

4.113 The monument consists of a section of an 18<sup>th</sup> century tramroad used for horse drawn trams associated with the Cyfarthfa Ironworks. It includes a track bed featuring a double row of stone sleeper blocks with peg holes. It also includes bridges, drainage systems, embankments and revetments. The citation states that: *'The monument is of national importance for its potential to enhance our knowledge of the development of industrial transportation in the 18<sup>th</sup> and 19<sup>th</sup> century. The track bed, bridges, drainage systems, embankments and revetments may all be expected to contain archaeological information in regard to construction techniques and functional detail'.*

4.114 The monument primarily derives its significance from the evidential value inherent in its physical remains. It also possesses a degree of historical value through its association with Cyfarthfa and through its illustration of early industrial technology, pre-dating the advent of steam power. Consisting of a functional structure, the monument possesses very little aesthetic value. It does possess a small degree of communal value, representing a component of the industrial landscape that was an important part of the lives of local people.

- 4.115 The remains are set along a wooded boundary, separating two horse paddocks on private land. Originally located within an industrial landscape, and associated with a tramroad, the setting of the asset has changed considerably, consisting now of fields surrounded by modern houses. The remains are not especially prominent, and the present setting represents modern re-use of former industrial land. However, as a relatively open landscape this does allow for the remains to be experienced, and they are preserved within it. As such the fields are considered to represent a neutral setting to the monument.
- 4.116 The only aspect of the monument's setting that contributes to its significance is the presence of other contemporary remains in the surrounding landscape, that relate to the former function of the tramway, and with it possess a degree of historical integrity representing the fragmented remains of the former industrial landscape. In the more immediate environment this includes extant spoil tips, remains of a reservoir and remains related to mine working, located to the north and north-east. These remains are experienced in conjunction with the monument, and thus contribute to an understanding and appreciation of its historic value.
- 4.117 The tramway was once part of a line that ran between the Cwm Du mine (located within the site) and Cyfarthfa Ironworks. This line is no longer extant but an historic connection exists between remains of the Cwm Du works and the remains of the tramway. However, this relationship is not visible (as the site is entirely screened from the monument by buildings) and it contributes little to understanding and appreciating the historic asset. As such, the site's archaeological remains make no contribution to the significance of the scheduled monument.

*Scheduled Monument: Carn Pentyle-Hir and Adjacent Round Cairn (GM402)*

- 4.118 The monument consists of the remains of two burial cairns probably dating from the Bronze Age (c. 2300 – 800 BC). The cairns are both situated, in close proximity to each other, on open moorland on the south-east side of Mynydd Aberdare. Both cairns comprise low mounds of stone, and display evidence for stone kerbs. The citation states that:

*'The monument is an important relic of a prehistoric funerary and ritual landscape and retains significant archaeological potential, with a strong probability of the presence of both intact burial or ritual deposits, together with environmental and structural evidence. Cairns may be part of a larger cluster of monuments and their importance can further enhanced by their group value.'*

- 4.119 The monument primarily derives its significance from the evidential value inherent in its physical remains and related archaeological deposits. It also possesses a degree of historical value, illustrating the appearance of the Bronze Age landscape and the nature of Bronze Age ritual and funerary activity. Consisting of low mounds of stone rubble, the monuments possess very little aesthetic value; and, as isolated features of the upland landscape, almost no communal value.

- 4.120 The two cairns are set on the summit of Mynydd Aberdare within an open upland landscape of rough grassland. Wide views are possible to the west across Aberdare and to the north and south along the line of the ridge on which they lie. This open landscape has no specific historical relationship with the cairns, but it does allow for an appreciation of the monuments, and for wider ranging views from them. As such, this is considered to represent a neutral setting. Other contemporary Bronze Age funerary/ritual monuments are located further south along the ridge and on the hills to the west. The associative, historical relationship (as monuments of a similar type, produced by similar traditions) and possible intervisibility between these monuments, is considered to represent an aspect of their settings that enhances an understanding of them; and thus contributes to their significance.
- 4.121 Views east, beyond the plateau of the mountain, are limited; and views of the site from the cairn are entirely screened by the shoulder of the mountain and by forestry, which occupies land to the west of the site (**Image EDP 18**). Given the lack of views to the site, and that the site does not contain any contemporary prehistoric monuments, it is considered that the site does not represent a part of the setting of these monuments, and that its development would have no effect on their significance.

*Grade II\* Historic Park and Garden: Cyfarthfa Castle (GM1) and Grade I listed buildings: Cyfarthfa Castle and School at Cyfarthfa Castle (11396 and 11397)*

- 4.122 Cyfarthfa Castle is a picturesque country house dating from 1824-5. It was designed by Robert Lugar for the ironmaster William Crawshay II, owner of the Cyfarthfa Ironworks. The large, stone-built building has a castellated appearance with crenelated parapets, round and square towers and turreted gatehouses (**Image EDP 19**). The castle was converted into a school and museum in the early 20<sup>th</sup> century, with a large extension was added for the school in 1912.
- 4.123 The castle is set within a contemporary parkland that was developed between 1825 and 1870 (**Image EDP 20**). Features of the gardens include woodland, a stable block, former ice house, a lawn terrace, kitchen gardens and a lake. The lake had a dual function, as a picturesque feature, and as a source of water for the Cyfarthfa Ironworks, which lay adjacent to the park to the south-west.
- 4.124 Cadw states that the park was designed to provide a setting for the mansion and to form a backdrop to the ironworks, adding sublimity to its landscape setting. In 1909 the house and park was sold to the Merthyr Tydfil council and converted into a museum, art gallery and school with the park opened to the public. This use continues to the present day. It is worth nothing that Cyfarthfa Park and Castle are due to undergo substantial redevelopment under the Cyfarthfa Plan led by Ian Ritchie Architects. This plan was developed with MTCBC and will be implemented over coming years to renovate the castle, reinstate historic features such as glasshouses, create a museum and extend the park to encompass 100-acres including other monuments in the locality, such as the remains of the Cyfarthfa Ironworks. It is anticipated that the project will transform the present setting of the castle.

- 4.125 The reason for listing is not given in the citation; however, it is clear that the house and gardens possess a high degree of significance in relation to all forms of heritage values. In particular, the house possesses a high degree of historical value illustrating the nature and appearance of the 19<sup>th</sup> century industrial landscape, a key location in the history of Merthyr Tydfil and its ironworking industry. The house also has a high degree of aesthetic value, occupying a prominent site that makes it visible from various vantage points in the locality, including from within the site at West Rhydycar.
- 4.126 The castle and park have a strong integrity based on their shared history. The park represents a part of the castle's setting that contributes highly to its significance, enhancing all of its values. Further historical context is provided by the presence of the scheduled remains of the Cyfarthfa ironworks and related infrastructure that are located in the valley to the south, a short distance from the edge of the park. The close spatial relationship between the castle, parkland and ironworks was deliberate, with the seat of the Crawshay family overlooking their main economic asset. As such, given this close historical relationship, and deliberate organisation of the landscape, the remains of the ironworks and of its related infrastructure are considered to contribute highly to the significance of the castle and park.
- 4.127 Elements of the wider landscape setting also have a strong historic association with the park and castle. As previously noted, the planned housing at Morganstown was designed to house the workers at Cyfarthfa Ironworks. As such, the built heritage within this area of the town, represents a part of the integrated group of related historic assets set around Cyfarthfa, contributing to the significance of the group, and of the individual assets within it.
- 4.128 However, the castle and park are also set within a modern urban landscape and their surroundings contain various modern buildings. For example, in views north from the front of the castle, although tree and a lake, that are part of the historic park, dominate the foreground, the middle distance is dominated by views of a broad band of modern light industrial buildings, and modern housing is present beyond this (**Image EDP 21**). The presence of such buildings illustrates the fact that views out from the castle, although encompassing related historic assets, are not of a well-preserved historic landscape.
- 4.129 The view from the castle, and from the south side of the park, includes a distant view of part of the site. The archaeological remains related to mining in the site form a distant element within the same group as that represented by the castle, park and ironworks; they are elements of the former industrial 'empire' of the Crawshay family, and a distant view of the leasehold estate from which the families' enterprise derived their raw materials may have been a consideration in the siting of the castle.
- 4.130 From the higher, more open parts of the site, on its western side such as around Cwm Du or from the top of the spoil tips at Cwm Glo or The Black Pins), views are possible that include the castle and its surrounding parkland setting (**Image EDP 22**). This visual connection would have been highly apparent to people working within the site, a reminder of the dominance of their pay master over the locality.

4.131 At present, it is still possible to experience this association, both from within the site (albeit that the site is presently closed to visitors) and from the south side of the castle and park. Although the functional association is lost, the visual link allows for a greater understanding of the mining history of the area, the economic context of the mines and the social status of the Crawshay family. Given this, the upper parts of the site, from which this experience is had, and which are experienced from the castle, are considered to represent a part of the castle's setting which contributes to its significance. Specifically, this contribution is to its historical value, and that of the park, and other related assets within the group of monuments associated with Cyfarthfa.

4.132 As noted above, views out from the castle, and views towards the castle from the site, also contain considerable modern development, reflecting the fact that the view is not of a well-preserved historic landscape. It is rather of a fragmented landscape, containing isolated, but interrelated historic assets. Furthermore, the site is derelict and this important historic connection is in no way supported or promoted within the site.

4.133 Archaeological remains (related to mining) that lie elsewhere within the site, also possess an historical association with the castle and park. However, this is not readily experienced, and as such these remains, as part of the wider setting, presently contribute little to the significance of the castle and park.

*Grade II listed buildings: Nos. 1-16 Upper Colliers Row – ten separate listings (11488, 80765, 80766, 80767, 80772, 80773, 80774, 80775, 80776, 80777)*

4.134 The houses at Upper Colliers Row consist of a row of early 19<sup>th</sup> century worker's houses with catslide roofs to the rear, which are typical of housing built for the industrial workforce on the Crawshay estate (**Image EDP 23**). All have been altered in the late 20<sup>th</sup> century, but they have retained their period character and represent one of the few early 19<sup>th</sup> century rows to survive in the Merthyr area. The houses were used by workers in the Cyfarthfa mines, and also the Ynysfach Ironworks, being located adjacent to transport routes to both locations.

4.135 The ten Grade II listed houses were originally built in stone, with stone-heads to openings, stone-slab roofs and stone chimneys, and a catslide roof to the rear. Roofs are now in slate. Each dwelling had one window and one door on the ground floor and small upper floor windows, probably with sash glazing. The listing citation describes that the row is listed as they represent '*one of the last surviving rows of industrial workers' houses in the Merthyr region*'.

4.136 The houses possess a degree of evidential value inherent in their architecture and fabric. They also have a degree of historical value, illustrating the appearance of the early 19<sup>th</sup> century domestic landscape, on the Crawshay leasehold. The houses also have a degree of communal value as they are currently lived in, and represent an iconic row of workers houses within the locality. The houses were plain, functional buildings but represent an architectural type, displaying a catslide roof that was built exclusively on Crawshay lands, as such they are also considered to possess a limited aesthetic value.

- 4.137 The terraced houses are located along a dead-end lane, representing a small pocket of settlement on the outskirts of Heolgerrig. Spatially, their location is related to their function as workers dwellings, being located close to industrial transport routes. The lane to the south would have linked the houses to mines located to the west and east, and a modern road, approaching the houses from the north, follows the course of the former Cwm Pit Railway and before that the Cyfarthfa Canal, both of which passed the houses to the immediate east. To the immediate west are large spoil tips associated with historic mining at Coed Cae and Cwm Glo collieries and well as other remains related to the former industrial landscape.
- 4.138 To the south are a series of small field enclosures. These are evident on historic maps dating from the 1850s onwards. They are thought most likely to have been a domestic resource for the mining cottages, probably representing paddocks and allotments for which they are still partially in use. At present, they are occupied by sheds, garages, allotments and are densely vegetated in places.
- 4.139 To the north is an area of woodland (occupying a piece of land on which former industrial tips have been levelled), and to the east is the embanked A470 dual carriageway. The houses are in close proximity to the site, the edge of which lies 15m to the west.
- 4.140 The houses represent a remnant of the early 19<sup>th</sup> century industrial landscape, and as such share an historical integrity with contemporary remains that surround them. The houses are experienced in close conjunction with the spoil tips to the west (**Image EDP 24**). These form a backdrop in views from the east along the street, representing a barrier to wider views in this direction and giving a sense of enclosure to the row, from the wider landscape to the west. The historical association, although diminished by the loss of function, between the tips and the cottages is still experienced and the tips are considered to represent a part of the row's setting that contributes moderately in a positive way to the significance of the buildings.
- 4.141 The lane on which the houses are set is historically related to the houses, and the stone walls which line it are probably contemporary with the cottages. A discarded stone sleeper lies beside the road, although historic maps do not indicate that the lane was ever occupied by a tramway, so this may have been moved from elsewhere. As a part of the cottage's setting the road is functionally associated with them and the streetscape is thought likely to be relatively unchanged, since the earlier 20<sup>th</sup> century, although some of the sheds to the south are probably relatively modern. As such, the road, and streetscape, is considered to represent a part of the row's setting which contributes moderately in a positive way to the significance of the buildings.
- 4.142 The land to the south, occupied by small enclosures is also part of the historic setting of the cottages. Part of this area, at the southern end, is located within the site but not within the area proposed for development. And, although it has been subject to some modern development, still retains a layout of fields, and functions as a space for allotments. Given this continued use, this area is also considered to represent a setting of

the row of cottages that contributes moderately in a positive way to the significance of the buildings.

- 4.143 The woodland to the north has no historical association with the cottages. It adds to a sense of enclosure around them forming a barrier to views in this direction, although this is of little relevance to the cottage's historic significance. As such, the woodland is considered to represent a neutral element of the cottage's setting.
- 4.144 The modern approach road to the east, although following the course of former industrial transport routes, retains no industrial character. It has a bleak, featureless appearance with the vegetated embankments of the A470 to the immediate east (**Image EDP 25**). The busy dual carriageway is highly prominent, rising above the cottages and the noise from traffic along it is ever present and distracts from the tranquillity of the locality. As such this area, the road, embankment and dual carriageway, is considered to represent an aspect of the row's setting which contrasts with the historic character of the cottages, and much of the locality. Furthermore, the A470 dominates the cottage's setting through its physical presence and noise. As such, the setting to the east of the row is considered to have a negative effect, detracting in a small way from the significance of the cottages.  
*Grade II listed building: Rhydycar Skew Bridge (15676)*
- 4.145 The Rhydycar Skew bridge was built between 1847 and 1853 to carry the Vale of Neath Railway on a high embankment across the Glamorganshire Canal. The bridge was designed by Isambard Kingdom Brunel and has a 12m span carrying the railway across the canal and its tow paths. It consists of three arches, and is constructed in sandstone and brick, with the arches separated by thin tapering piers. The citation states that the bridge is listed: '*...as an unusually distinguished railway bridge by the foremost railway engineer of the mid nineteenth century*'.
- 4.146 The bridge possesses a degree of evidential value inherent in its construction and architecture. It also possesses a degree of historical value due to its association with Brunel. The bridge is a striking and distinctive feature of the landscape, and, as such, also possesses a degree of aesthetic value. The bridge possesses a small degree of communal value, representing a feature of the former industrial landscape that was an important part of the lives of local people.
- 4.147 The bridge is set within woodland with the former course of the railway identifiable as an informal footpath. A modern tarmac footpath follows the former course of the Glamorganshire Canal, passing under the bridge.
- 4.148 The bridge is only considered to derive its significance from those aspects of its setting with which it had a functional relationship, and from which its aesthetic value can be appreciated. In this respect, the course of the former railway (such as it is preserved) represents a part of that setting. The section close to the bridge allows for an experience of it, and crosses it, its former course is evident even though it no longer is a railway. As such this section of the railway is considered to contribute highly to its significance.

- 4.149 Further west, parts of the former railway are preserved within the site. These parts are entirely screened from the bridge by intervening woodland and by the A470 dual carriageway. They do have an historical relationship with the bridge, but this can no longer be easily experienced from it. However, the preservation of these parts of the railway in the wider landscape does allow for an appreciation of the railway's former course which gives historic context to the bridge. As such, although they cannot be experienced from it, the parts of the railway that lie within the site are considered to contribute to the significance of the bridge to a small degree.
- 4.150 The modern footpath represents a space from which to experience the bridge, although it does not physically resemble the former canal and only follows part of its course. In this respect, the footpath has some association with the bridge's history, and its former function can be experienced from it. As such, the section in the vicinity of the bridge is considered to represent a setting which contributes positively to its significance to a small degree.
- 4.151 The woodland surrounding the bridge has no historical relationship with it, but does not encroach upon it or shroud it. As such, this aspect of the bridge's setting is considered to represent a neutral contribution to its significance.  
*Grade II listed building: Upper Abercanaid House (11494)*
- 4.152 Upper Abercanaid House is a mid-19<sup>th</sup> century detached villa associated with nearby collieries. It was owned by a local landowner and 'coal baron' Thomas Thomas. The house was divided into two properties and much altered and extended in the late 20<sup>th</sup> century. The house is on painted stucco with a hipped roof finished in slate. It has sash windows and an ornate entrance. The citation states that it is listed: '*...despite alterations as a substantial industrialist's house significantly positioned amid the workers' housing of Upper Abercanaid*'.
- 4.153 The villa possesses a degree of evidential value inherent in its architecture and fabric. However, it is apparent that its greater significance is derived from its historic value, through its associations with the 19<sup>th</sup> century industrial history of the locality, neighbouring coal mines and the Thomas family. As an attractive building with decorative elements, the house also has a degree of aesthetic value. It also has a small degree of communal value, through its association with the domestic history of the locality.
- 4.154 The villa is set within a large, enclosed, private garden. This space is intimately associated with the house and represents a part of its setting that contributes highly to its significance. The garden boundaries serve to partially screen it from its surroundings. It is located in close proximity to Quay Row, a row of contemporary terraced workers houses closely associated with a former quay on the Glamorganshire Canal. The house and terrace have a degree of historical integrity, together representing a remnant of the early 19<sup>th</sup> century industrial landscape, along with a partially preserved section of the Glamorganshire Canal which lies adjacent. This integrity contributes strikingly to the significance of the asset within this group.

4.155 The wider landscape is a mix of woodland, to the south and west, and modern light industrial estates to the north and east. The modern industrial estates are screened from the houses by trees and the house and terraces at Abercaniad represent an isolated survival of historic buildings. The woodland screens the landscape further to the west (including the site) and beyond it, the A470 dual carriageway represents an additional spatial barrier between the house and the site. The archaeological remains within the site have no direct historical association with the house, and are heavily screened from it, as such the site is not considered to lie within the setting of the house, and its development would not affect the house's significance.

*Grade II listed buildings: Nos. 1-6 Quay Row- four separate listings (11496, 81753, 81754, 81755)*

4.156 The houses on Quay Row, like those on Upper Colliers Row, represent a survival of early 19<sup>th</sup> century worker's houses associated with the nearby industry; specifically the Glamorganshire Canal which passed by them. The terraced houses have been heavily altered but essentially consist of small, slate roofed, stone-built cottages. Those on Quay Row were closely associated with the neighbouring villa at Upper Abercaniad. The citation describes them as: '*...one of the best surviving groups of early industrial worker's housing in the region*'.

4.157 The houses possess a degree of evidential value inherent in their architecture and fabric. They also have a moderate degree of historical value, illustrating the appearance of the early 19<sup>th</sup> century domestic landscape in the context of the wider industrial landscape. The houses also possess a degree of communal value as they are currently lived in, and represent an iconic row of workers houses within the locality. The houses were plain, functional buildings and so display very little aesthetic value.

4.158 The houses' setting is similar to that described for Abercaniad House. They are located adjacent to a ruinous section of a former quay on the Glamorganshire Canal, which they were closely associated with both historically and functionally. They are also located in close proximity to the contemporary Abercaniad House. These associations with extant, related elements of the historical landscape represent an aspect of the setting of the houses that contributes to their significance.

4.159 The wider landscape is a mix of woodland, to the south and west, and modern light industrial estates to the north and east. The modern industrial buildings are mostly screened from the terrace by trees, and the house and terraces at Abercaniad represent an isolated survival of historic buildings. The woodland screens the landscape further to the west (including the site) and beyond it, the A470 dual carriageway represents an additional spatial barrier between the terrace and the site. The archaeological remains within the site have no direct historical association with the terraced houses, and are heavily screened from it, as such the site is not considered to lie within the setting of the house, and its development would not affect the house's significance.

*Grade II listed building: Blaen Canaid Farmhouse (11493)*

- 4.160 Blaen Canaid is a Welsh vernacular farmhouse dating from the 17<sup>th</sup> century. It was restored in the 19<sup>th</sup> century and again in the late 20<sup>th</sup> century. The house is built in rubble-stone with a slate roof and stone end stacks. The house was associated with a very early non-conformist meeting place, established c. 1642. The citation describes that the building was listed: ‘...as a very early site of nonconformist worship of historical interest and a vernacular farmhouse incorporating elements of a C17 house’.
- 4.161 Given the above, it is apparent that the house has a degree of evidential value, inherent into its architecture and fabric, and a degree of historical value through its association with early-non-conformist Christianity. The house also has a degree of communal value, representing a part of the history of non-conformist Christianity which continues at present within the community. The building is of a functional type and so has little aesthetic value.
- 4.162 Blaen Canaid is situated on slopes close to the head of the Canaid Valley on the south-eastern side of Mynydd Aberdare. It is at the end of a private drive, which approaches from the north through a landscape of fields. Due to the privacy of this approach, the house was not visited during the site walkover. The farmstead is located c. 400m from the edge of the site.
- 4.163 It is considered that the fields surrounding the house represent an aspect of its setting that is historically and functionally associated with it. The fields are likely to date from at least the 18<sup>th</sup> century as they are depicted on an OS map of 1814. The fields represent the farm’s historic estate and they form a well-defined group with the house at the centre. As such, the fields are considered to represent a setting of the farm which contributes moderately to its significance.
- 4.164 Beyond the extent of the fields, the landscape is mostly wooded, with the only exception being a modern bike track to the north-east, which is itself surrounded by woodland. With the land (in the site) to the east dropping away from the farmstead, views into the site to the east, or from the site west towards the farm, are screened by this woodland. The part of the site located to the north is screened from Blaen Canaid and its surrounding fields by a spur of higher land protruding from the south-east side of Mynydd Aberdare. This blocks all visibility of this part of the site.
- 4.165 Given the above, the site is not considered to be within the setting of the farmhouse and any development within it is unlikely to be visible from the farm, and very unlikely to change its setting such that it would harm its significance.

#### ***Merthyr Tydfil Landscape of Outstanding Historic Interest***

- 4.166 As previously described, the site is located within the MTLOHI. The five HLCAs which include part of the site are described briefly in the paragraphs below and are illustrated on **Plan EDP 6**).

#### *014 River Taff Canal and Railway Corridor*

- 4.167 This large, linear HLCA broadly represents an historic communications corridor following the Taff Valley. It encompasses an early parish road, the 18<sup>th</sup> century Cyfarthfa Canal, the Glamorganshire canal and former tramroads, railways and roads. It also includes extensive remains related to coal and ironstone mining including the site of several major collieries, and the former industrial housing at George Town.

*064 Winch Fawr, Pen-y-Heolgerrig, Cwm Du and Upper Cwm Glo Workings*

- 4.168 This extensive HLCA encompasses an upland landscape characterised by the remains of ironstone and coal extraction associated with the Cyfarthfa Ironworks. Within the site the HLCA comprises the mining remains at Cwm Du Pit and the Black Pins which date from the 18<sup>th</sup> – early 20<sup>th</sup> centuries. The HLCA also includes extensive mining remains at Winch Fawr which lie several kilometres to the north-west of the site.

*069 Cwm Glo, North*

- 4.169 This small HLCA is almost entirely within the site. It encompasses a landscape related to post-medieval settlement and agriculture which was only partially affected by industrial activity. The HLCA includes the remains of post-medieval farmsteads and of the Cwm Glo Chapel, all of which have associations with the early history of non-conformist Christianity. Industrial remains include the earthwork remains of the Cwm Glo colliery, remains related to the Cwm Du Drift Mine and reservoirs and leats at Coed Cae.

*070 Cwm Glo: Tramroad, Plateway and Incline Corridor*

- 4.170 This HLCA is located almost entirely within the site. It is characterised by an historic transport corridor related to the industrial landscape. It includes earthwork remains, related to a network of incline railways and tracks, that connected mine workings and tips, within the Cwm Glo valley, and slopes below Blaen Canaid, to the rail, tramroad and canal corridor to the east. The HLCA also includes various features related to extraction including levels, shafts, pits and waste tips alongside water management features.

*071 Upper Collier's Row*

- 4.171 This small HLCA is partly within the site. The area is focussed on the housing present at Upper Colliers Row and also includes surrounding enclosures, allotments and other settlement features. The main feature of the HLCA is the row of extant, 19<sup>th</sup> century Grade II listed workers houses.

## **Non-designated Historic Assets**

### ***Discussion of non-designated historic assets by period***

- 4.172 This section presents a chronological account of the site (being the ownership boundary rather than the area proposed for development) and its wider context (with reference to the 500m radius Study Area). The account is derived from data drawn from all of the

sources consulted and listed in **Section 3** including information drawn from previous studies. As such, this section represents a synopsis of the archaeological baseline information on the site.

- 4.173 This section of the archaeological assessment outlines the historic context surrounding the origins and development of the site and the area around it. In doing so, it draws upon written and cartographic sources.
- 4.174 This section does not distinguish between the wider site and the area proposed for development. Archaeological remains within this area will be defined and impacts upon them assessed within the context of the Cultural Heritage ES chapter.

#### *Introduction*

- 4.175 The archaeological resource present within the site is overwhelmingly related to the use of the site for coal and ironstone mining in the 18<sup>th</sup>, 19<sup>th</sup> and early 20<sup>th</sup> centuries. Prior to this phase in the site's history, the land was part of an agricultural landscape of scattered farms set within fields on the upland fringe. This agricultural landscape is likely to have originated in the medieval period although most elements of it, (farmsteads, outbuildings and field boundaries) are, or would have been, post-medieval in date. The HER and NMRW do not record any features within the site that pre-date the medieval period, nor were any identified during the site visit.
- 4.176 Features pre-dating the medieval period are however present within the wider landscape and, in order to place the site's history within its wider landscape context, an account of its prehistory and early history is given.

#### *Prehistoric and Roman period (500,000 BC – 410 AD)*

- 4.177 The GGAT HER does not contain any records within the site which relate to the prehistoric or Roman periods. Within the study area there are three records that relate to the prehistoric periods.
- 4.178 The NMRW does not contain any records within the site which relate to the prehistoric or Roman periods. Within the 500m radius study area two records relate to features dating from the prehistoric periods.
- 4.179 The HER records a Mesolithic flint scatter at Troed-y-rhiw consisting of a collection of blades, flakes and microliths (**GGAT00880m**). The circumstances of the find are not detailed.
- 4.180 The two prehistoric records on the NMRW (**300975** and **262044**) and one of the HER records (GGAT 00445m) refer to two Bronze Age cairns located on moorland on Mynydd Aberdare. These are a scheduled monument, Carn Pentyle-hir and Adjacent Round Cairn (GM402), and are detailed previously within this report. An additional possible cairn is recorded further south along the ridge by the HER (**GGAT03761m**), approximately 240m south-west of the edge of the site.

- 4.181 The presence of the cairns indicate that the locality was probably settled to some degree from at least the Bronze Age, although it is not thought that any related prehistoric archaeology is located within the site. Evidence for prehistoric settlement is found c. 1.1km to the west of the site, where remains of an Iron Age hut settlement are recorded, on the western slopes of Mynydd Aberdare.
- 4.182 The site is rich in minerals, such as iron stone and coal, which would have outcropped naturally, especially on the exposed valley sides, such as that at Cwm Glo. Such resources would probably have been known to local prehistoric peoples, and may have also been exploited by the Romans, who had a military presence in the region.
- 4.183 From the mid-Iron Age, sources of ironstone were frequently exploited, with evidence suggesting that localised, small-scale ore smelting occurred within communities often close to the source of the raw material (Cunliffe, 2005). It is possible that the ironstone within the site may have been mined and gathered from surface outcrops by local communities, however, no remains related to early mineral exploitation are recorded within the site and, by their very nature (being located at mineral outcrops), are likely to have been destroyed by later exploitation of the same resources. Given the disturbance across much of the site by post-medieval, and modern, industrial activity, the likelihood of remains from the prehistoric or Roman period, such as evidence for early mining or smelting, occurring within the site is considered to be very low.

*Early medieval and medieval (410 AD – 1485 AD)*

- 4.184 The GGAT HER does not contain any records within the site or within the 500m study area which relate to the early medieval or medieval periods.
- 4.185 The NMRW does not contain any records within the site which relate to the early-medieval period. A single record relates to the medieval period, Waun Penyrheol meadowland (NMRW: **261976**). No other records within the 500m radius study relate to features dating from the early medieval or medieval periods
- 4.186 A settlement is known to have existed at Merthyr Tydfil during the early medieval period. However, on the basis of current evidence it is not known what the site would have been used for at this time. As with earlier periods it is possible that the site's surface mineral resources would have been exploited and that iron may have been locally smelted. However, as also with earlier periods, no remains related to such activity are known, and any archaeological remains would be very sensitive to disturbance by later mineral exploration.
- 4.187 Likewise, it is not known what the nature of the land at the site would have been in the medieval period (1068 – 1485 AD). It is likely that the land was under agriculture, probably, due to its hillside aspect, and upland climate, used for grazing animals.
- 4.188 The single medieval record on the NMRW relates to the Waun Penyrheol meadowland (NMRW: **261976**). The entry refers to an old record referring to an extent of land that the

Cwm Glo brook ran through, described as 'an ancient large meadow'. This reference suggests that the land within this part of site was probably used for grazing animals and the production of hay.

4.189 It is considered possible that some of the site's farmsteads originated in the medieval period. However, none are recorded as such, and no medieval remains have been identified. On the basis of current evidence, it is not possible to ascribe a medieval date to any of the extant agricultural archaeological features within the site, which are more confidently ascribed to the post-medieval period. However, it is possible that remains related to medieval farmsteads and agriculture are present within the site, either as buried remains, possibly associated with later post-medieval settlement sites, or as particularly old field boundaries, which consist of hedge banks or low drystone walls.

4.190 It is likely that mineral outcrops within the site were exploited during the medieval period. However, as with any remains of early exploitation, remains related to medieval surface mining are likely to have been destroyed or disturbed by the intensive mining of the 18<sup>th</sup> and 19<sup>th</sup> centuries.

*Post-medieval (pre-industrial) (1485 AD – mid-18<sup>th</sup> century)*

4.191 The GGAT HER contains 14 records related to post-medieval settlement or agriculture within the site and eleven within the 500m study area.

4.192 The NMRW contains 26 records related to post-medieval settlement or agriculture within the site and 18 from the 500m study area.

4.193 Although there is documentary evidence for small scale coal and ironstone extraction from at least the early 17<sup>th</sup> century (GGAT, 2000), up until the mid-late 18<sup>th</sup> century the main land use within the site and its locality was sheep and cattle farming. Archaeological remains are present within the site that date from this period, consisting of building remains, former field boundaries and tracks. As previously described it is possible that some of these features originate in the medieval period.

4.194 Coal and ironstone extraction during this period, was likely to have been from surface outcrops and shallow deposits. Methods used included sporadic, open-cast mining known as 'patching' which usually involved using water to clear soils from surface deposits. Sometimes minerals may have been mined from shallow shafts or short adits following surface exposures. The farm Cwm Glo (**GGAT04399m**) dates from at least the 17<sup>th</sup> century, the name of which translates from Welsh as 'Coal Valley,' suggesting that the mineral potential of the locality was well established by this time and likely to have been exploited.

4.195 It has not been established precisely what remains exist within the site related to early post-medieval mining, most of which is likely to have been destroyed by later, more extensive works. However, some archaeological remains are likely to be early. An area with a strong potential for early surface works being preserved is the land to the south-west of Lower Colliers Row, where surface extraction is evident close to the

'Parish Road', an old route across the site to a former mill at Melin Caniad that dates from at least the 17<sup>th</sup> century. The road would have presented a route along which minerals could have been transported, and so any surface mining close to it could potentially be quite early. However, this part of the site is dense with mining remains and no definitive early remains have been identified.

*Post-medieval domestic buildings: Farmsteads and houses*

- 4.196 Historic maps provide a primary source of information on the nature of post-medieval settlement within the site. The earliest available map of the site is Yates Map of Glamorgan dated 1799 (**Plan EDP 14**). The map is on a broad scale, and it does not show the location of all individual dwellings and farmsteads. It has greater application as a record of early-industrial activity within the site, and, in this respect, shows the post-medieval fulling mill Melin Caniad (named as *Canode Mill*). The map does not show any non-industrial buildings within the site.
- 4.197 The earliest map to illustrate the site in sufficient detail to show individual farmsteads is the 1814 2" Ordnance Survey Map (**Plan EDP 15**). This map also provides detail on field boundaries, woodland and trackways within the site. The 1850 Tithe map of Merthyr Tydfil Parish (**Plan EDP 16**) shows extensive mining activity but also documents the earlier landscape of farms and fields.
- 4.198 The farmsteads and dwellings recorded within the site by the HER and the NMRW are described below, with reference to historic maps, and, if possible, their current state of preservation.

*Upper Wern*

- 4.199 Upper Wern (**GGAT02799m**; NMRW **262050**) is interpreted by the HER and NMRW as having been a cottage or farmhouse. The building was located close to the Cyfarthfa canal and is shown on the OS map of 1814, but not named. It is first named on the Tithe Map Apportionment of 1850 as 'Wern Fach,' although this is also the name of the larger farmstead located to the east (outside of the site). The building is most clearly depicted on the Ordnance Survey Maps of 1876 and 1900 where it is named as 'Upper Wern' shown as a cluster of buildings within a small enclosure, with additional enclosures to the north and south. The building is shown extant on Ordnance Survey maps up until the 1970s.
- 4.200 Extant remains at Upper Wern are recorded on the NMRW as consisting of low rubble stone walls of approximately 30m by 10m. During the site walkover survey rubble was noted, at the location situated within dense woodland (**Image EDP 26**). The most notable features were a series of enclosures defined by earthen banks, located to the south of the building. On LiDAR data, the area of the former building is notable as a surface expression, but the enclosures are not easily defined, probably due to the masking effect of dense undergrowth in this area.

4.201 The remains at Upper Wern possess a limited degree of historic value, illustrating the appearance of the pre-industrial landscape. They also possess a limited degree of evidential value, inherent in the remaining walls, enclosure banks and any related archaeological deposits. The remains possess very little aesthetic or communal value. Given the above, the remains are considered to represent an historic asset of low value.

*Cwm Du*

4.202 A farmstead is recorded at Cwm Du (**GGAT06376m**; NMRW **262135**). The settlement is first shown on the OS map of 1814 where it appears as two buildings set within a square enclosure, which itself is set within fields on the edge of open upland, which extends to the west. A similar situation is depicted on the Tithe map of 1850. The HER describes a farmhouse with adjoining barn, set in a farmyard with a funnel-shaped access to the upland to the west.

4.203 Late 19<sup>th</sup> century and 20<sup>th</sup> century mapping shows the land around the farmstead increasingly encroached upon by industrial activity. The OS map of 1876 (**Figure EDP 6**) shows a tramway and tips to the immediate north, a mining level to the east and a substantial quarry to the west. It also shows a well associated with the farm located to the south-east. Later maps show considerable mining activity across the hillsides around the farm, mostly in the form of mining levels and associated tips. The building is shown extant on Ordnance Survey maps up until the 1970s.

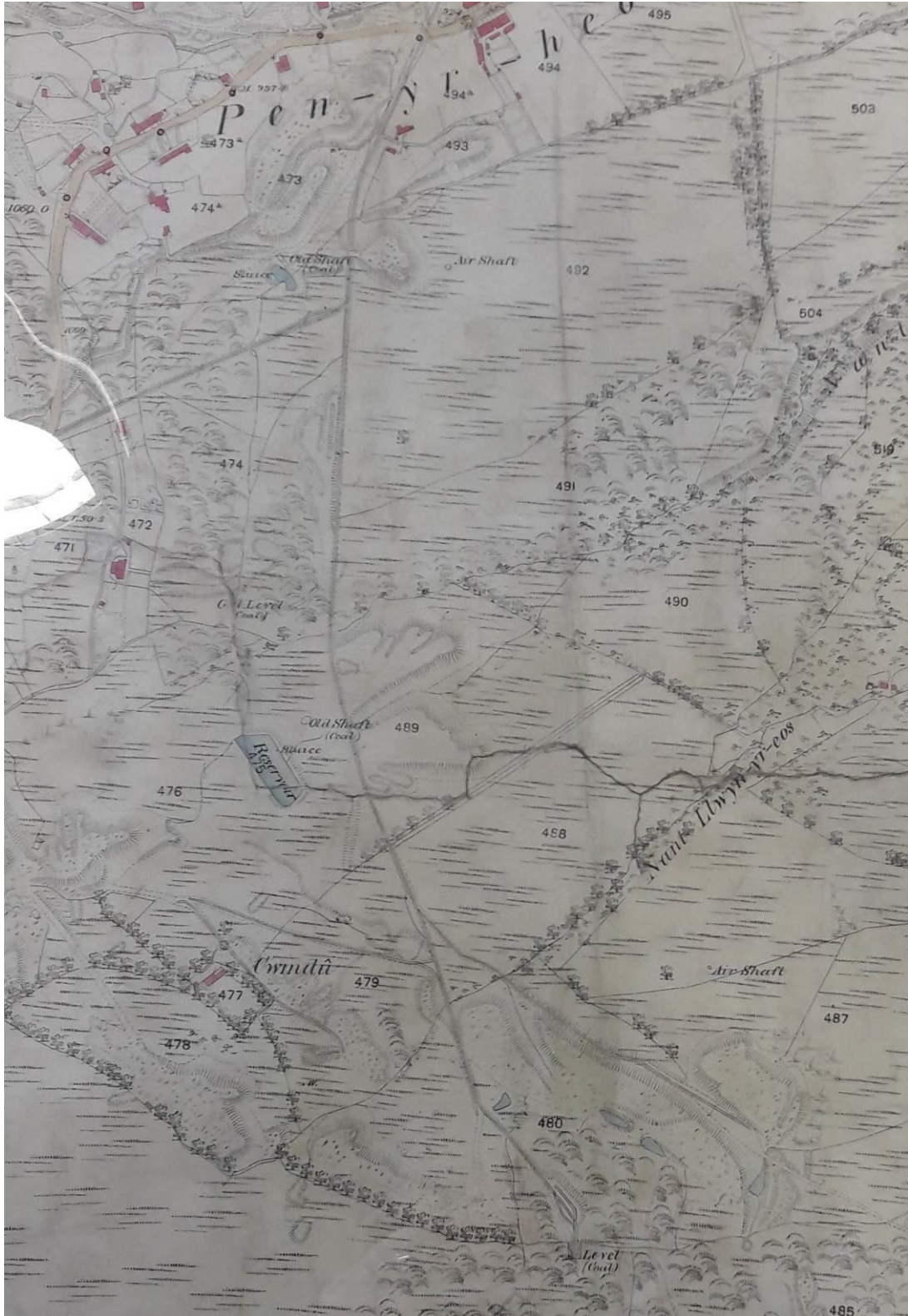


Figure EDP 6: The Cwm Du area on OS Map of 1876.

- 4.204 The NMRW survey identified two platform areas and tree-lined boundaries associated with the farm at Cwm Du. Building remains were not identified having been over-tipped. This observation was confirmed during the site walkover, with the farm buildings noted as buried beneath later spoil tips. Substantial trees were noted, marking the boundaries of the former farmyard (**Image EDP 27**).
- 4.205 Cwm Du's well is recorded on the OS map of 1876 but is not evident on the next edition of 1900. The location of the well is recorded by both the HER (**GGAT04988m**) and the NMRW (NMRW **262125**). The NMRW states that the well has been covered over and destroyed by spoil tips, a fact that was confirmed during the site walkover survey.
- 4.206 The remains at Cwm Du have been entirely destroyed, and it is unlikely that deposits retaining any evidential value remain within the spoil tips; which in any case are inaccessible. As such the farmstead is not considered to represent an historic asset.

#### *Cwm Glo*

- 4.207 A farmstead is recorded at Cwm Glo (**GGAT04399m**; NMRW **262064** and **262065**). The earliest depiction of the farmstead is on the OS map of 1814 (**Plan EDP 15**), where it is shown as a small group of buildings within a rectangular enclosure, sitting on high ground to the immediate north of the deeply incised Cwm Glo valley. Tracks lead north-west towards another farm at Pen-y-coedcae and south-east down into the Cwm Glo valley, linking the farmstead with the non-conformist chapel and Llwyn-yr-eos house further to the south-west.
- 4.208 The 1850 Tithe map provides greater detail, showing five buildings set within a cluster of small enclosures, just north of the stream, amongst surrounding fields (**Figure EDP 7**) Later OS maps show a similar situation; a fairly substantial farm approached from the north and south, set adjacent to the stream and amongst fields which occupied land to the north and south of the stream.



**Figure EDP 7:** Cwm Glo farm as depicted on the Tithe map of 1850.

- 4.209 The OS maps of 1876, 1900 and 1914 indicate that the farmstead and its surrounding fields represented, a block of agricultural land un-encroached upon by industrial activity, but within a wider landscape that had been heavily industrialised. Circa 100m to the south-east of the farm mining had completely transformed the Cwm Glo valley, industrial reservoirs were located on the land c. 85m to the north-east and, from 1903, spoil tips occupy land c. 140m to the north-west.
- 4.210 The farm is first shown as abandoned on an OS map of 1958 (**Figure EDP 8**). The buildings and surrounding enclosures are depicted but the settlement is labelled as a 'ruin'. A similar situation is described on all later mapping.



Figure EDP 8: Cwm Glo Farm depicted on OS map of 1958.

- 4.211 The HER records the farmstead as a possible longhouse set within sheltered enclosures (**GGAT04399m**). A record of the farmstead exists in the form of an historic photograph (**Image EDP 28**). The photograph indicates that the building was a rectangular Welsh vernacular farm house with several associated outbuildings, mostly likely byres, hay barns or dairy houses. It is not possible to assess the nature or exact date of the building from the photographs aside from that it was two-storey with a pitched roof that appears to be thatched or turfed, and was probably built in locally quarried stone finished with whitewash. The outbuildings appear to be similar in construction, but single storey with low, pitched roofs.
- 4.212 The farmhouse probably originated as a long-house, with a house and byre incorporated into the same range, that was later extended. The photographic record gives few indications of date aside from a broad post-medieval date, but there is no indication that the farmstead represented a *hafod* or *hendre*, associated with seasonal transhumance, and is more likely represent a permanently occupied farm, more typical to the 16<sup>th</sup> or 17<sup>th</sup> centuries. The CAP survey report (2000) identified that the farm was recorded in the Parish Registers in 1694 and was alleged by Pedlar in 1930 to have been a flourishing

farm by 1600. As noted previously the house was used as a secret meeting place for non-conformist Christians prior to the construction of the Cwm Glo Chapel in 1690.

- 4.213 The NMRW record comments on the house's condition when surveyed, noting that the house had been levelled and all usable building materials removed. A record also relates to the farm's outbuildings, describing grass covered, rubblestone foundations. It is suggested that these structures were not roofed, however this is contrary to the photograph which appears to show all the farm's buildings as roofed. During the site visit it was not easy to discern the farms former location. Part of the farm site contains modern agricultural buildings and is in use as a horse paddock. Other possible parts are shrouded by very dense vegetation which was impenetrable. It is unlikely that, in the context of modern land use, upstanding remains consist of anything other than piles of rubble.
- 4.214 The remains at Cwm Glo possess very little heritage significance. The lack of discernible remains reflects a negligible degree of historic value and no aesthetic value. The continuing use of the farm site, reflects a low degree of communal value, although the form and function of the farm has changed; it being represented by a cluster of barns/sheds rather than an historic farmhouse. It is possible that buried archaeological remains, related to the farm, might exist that would possess a limited degree of evidential value. Given the above, the remains, are considered to represent an historic asset of negligible value.

#### *Gelli-Du*

- 4.215 A dwelling is recorded at Gelli-Du (**GGAT02825m**; NMRW **262250**, **262198** and **262199**). It is first recorded on the OS map of 1814 (**Plan EDP 15**) as a single, unenclosed and unnamed building, but is shown in greater detail on the 1850 Tithe map (see **Figure EDP 8** above). The Tithe map shows the dwelling as a single building located within a small enclosure. It is short distance from the large farm at Cwm Glo, and also from early mine workings in the Cwm Glo valley, and it is considered likely to have originated as a worker's cottage, either connected with the farm or mines.
- 4.216 Greater detail is provided on the 1876 OS map which shows three buildings situated on the edge of a larger enclosure, located to the south (**Figure EDP 9**). A path runs between two of the buildings crossing the Llwyn-yr-eos stream to the west, heading towards Cwm Glo Farm. The same path runs south towards Pen-y-coedcae. Later, OS mapping from 1903 shows only a single building, with a small enclosure to the north-east encompassing the former building. The footpath to the south is not shown possibly as mining activity had by this time covered it with a spoil tip. Interestingly the map of 1914 shows new development at Gelli-Du with a new building evident, the older building re-shown, and the path to the south reinstated.
- 4.217 The OS map of 1958 (see **Figure EDP 10** below) also shows an extent dwelling, with five separate structures evident, although a map of 1975 shows the buildings as having been removed, the only remains indicated being the wider enclosure. It is apparent from the map evidence that the dwelling site went through several phases before becoming

derelict in the mid-late 20<sup>th</sup> century. The site appears to have been used for two successive cottages (the first of at least an early 19<sup>th</sup> century date), with some re-development in the early 20<sup>th</sup> century. This redevelopment is at odds with the surrounding industrial landscape, which declined from this time, and may be related to pastoral use of the locality after the general cessation of industrial activity.

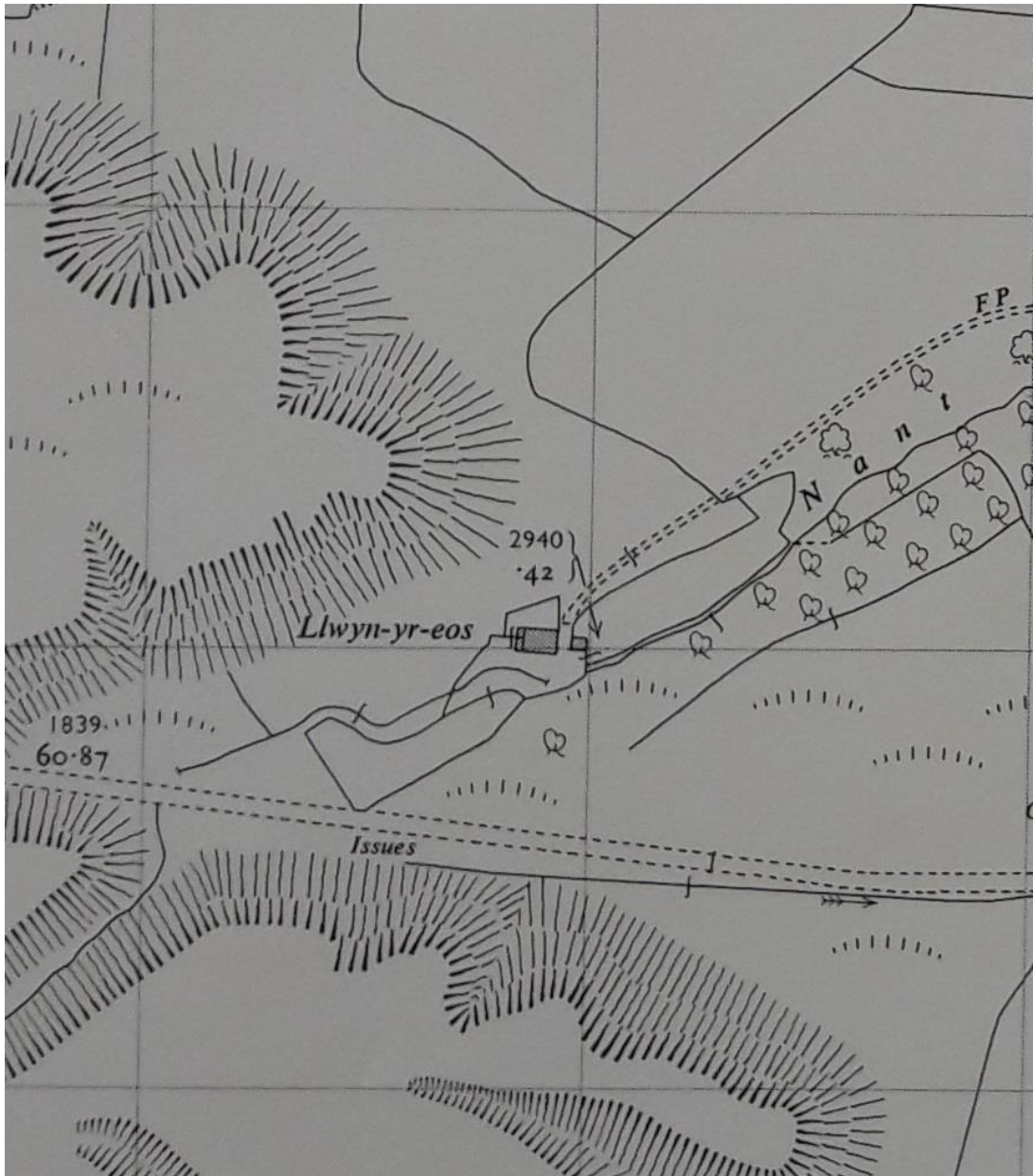


Figure EDP 9: Cwm Glo pit and surroundings on OS Map of 1876.

- 4.218 The HER records the house as a cottage and outbuildings with a central well or pit (**GGAT02825m**). The NMRW records a demolished rectangular building located within its own enclosure (NMRW **262250**), and also that the enclosure consisted of a stone walled boundary (NMRW **262198**). The wall bases of an additional rectangular building are also recorded abutting the south side of the enclosure (NMRW **262199**).
- 4.219 The site was visited and the stone rubble remains of at least three small rectangular buildings, consisting of rubble covered wall bases, were noted set within a small external enclosure defined by a rubble-stone wall. To the west the rubble remains of a rectangular brick building were noted which include modern building material such as a tiled floor (**Image EDP 29**). The area occupied by the building remains, and their surroundings, is densely vegetated which hindered an understanding of the extent of the remains.
- 4.220 As low standing ruined walls, the remains at Gelli-Du possess limited historic value, illustrating to a small degree the appearance of pre-industrial and industrial settlement within the site. They do possess a small degree of evidential value, inherent in the remains of walls, enclosure banks and any related archaeological deposits. As rubble ruins located in dense woodland, the remains possess very little aesthetic value and very limited communal value. Given the above, the remains are considered to represent an historic asset of low value.

*Llwyn-yr-eos*

- 4.221 A dwelling is recorded at Llwyn-yr-eos (**GGAT04397m**; NMRW **262238**). It is first recorded on the OS map of 1814 (**Plan EDP 15**), which depicts it as a single, unnamed building located within a square enclosure, adjacent to the Llwyn-yr-eos stream. Later, the 1850 Tithe map depicts a single small building set within a small enclosure, with two other small, conjoined enclosures to the east.
- 4.222 The OS map of 1876 names the house as Llwyn-yr-eos, depicting it as it is on the Tithe map, as a small square dwelling set within a small enclosure, with additional enclosures to the east. The map of 1814 shows a path connecting the house to the Cwm Glo Chapel, located further east along the stream, however by 1876 this is not shown, possibly reflecting the chapel's disuse in the 19<sup>th</sup> century.
- 4.223 The house is shown as extant on the OS maps of 1903 and 1914 (**Plan EDP 18** and **19**) and on the map of 1958 (**Figure EDP 10**). By this time large spoil tips, associated with Cwm Du colliery has progressed to within a very short distance of the house to the west. The outline of the house and its enclosures are shown on the map of 1975, but it is not labelled suggesting that it was disused by this date.



**Figure EDP 10:** Llwyn-yr-eos shown on an OS map of 1958.

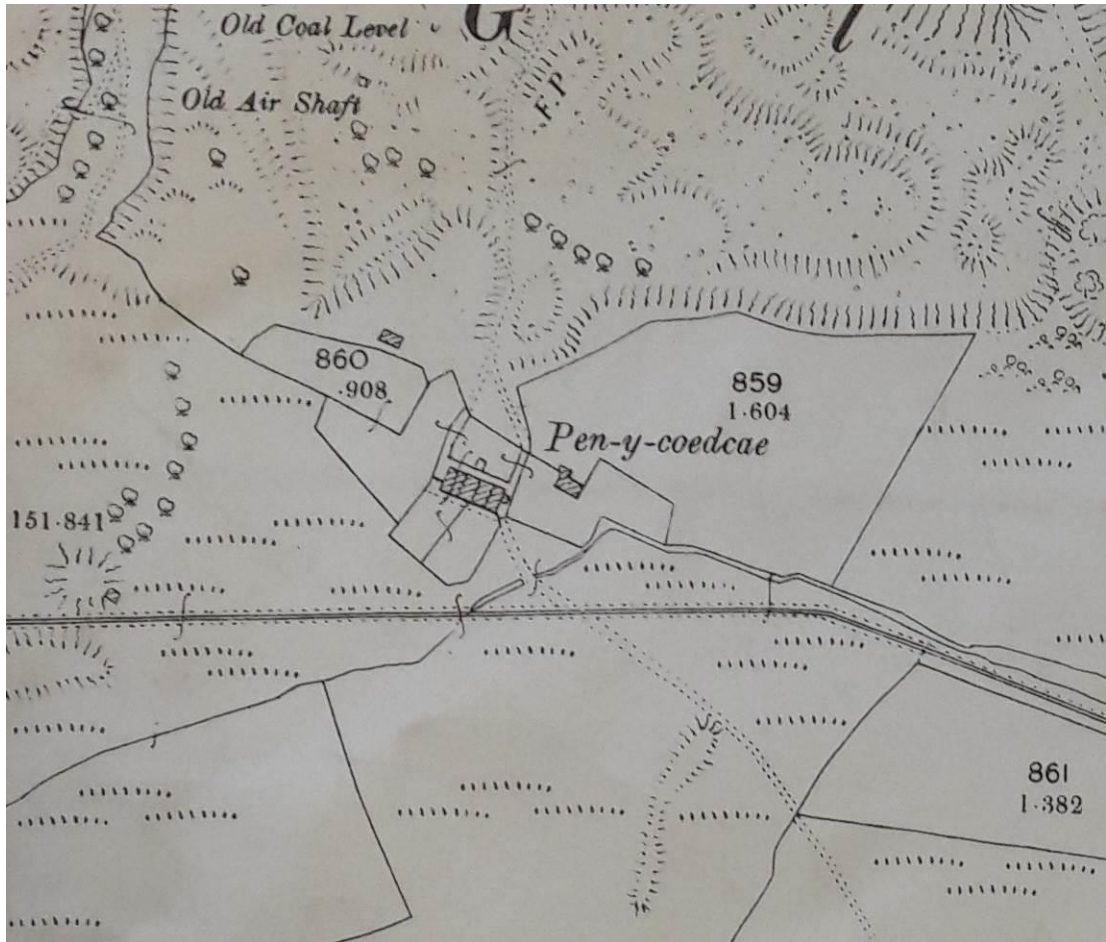
- 4.224 The HER records the cottage as Cwm Glo Uchaf (**GGAT04397m**), rather than Llwyn-yr-eos, as it is named on the OS maps, which may reflect an earlier or alternative name. The record describes it as a post-medieval dwelling site, and relates its appearance on the OS. The NMRW supplies a more detailed description (NMRW **262238**), describing its remains as a stone revetted foundation wall visible to 0.6m on the south side.
- 4.225 The remains were visited during the site visit. Remains were observed of a rectangular building with a possible entrance on the south side, facing the stream. The building was defined by low, rubble stone walls and was sited within a level platform, cut from the side of a south-facing bank. To the immediate north was another slightly higher terrace, probably representing a garden, with its boundaries defined by low stoney banks topped with very mature trees. It was noted that the building was approach via a path from the

north-east, which upon its approach to the house, was defined by low stone walls. A short distance from the house the path is lost as it runs into a boggy area.

- 4.226 The remains at Llwyn-yr-eos possess only a limited degree of historic value, illustrating the appearance and function of the pre-industrial landscape. They also possess a limited degree of evidential value, inherent in the remaining walls, enclosure banks and any related archaeological deposits. As low standing ruined walls, the remains possess very little aesthetic or communal value. Given the above, the remains are considered to represent an historic asset of low value.

*Pen-y-coedcae*

- 4.227 A farmstead, associated outbuildings and enclosures are recorded at Pen-y-coedcae (**GGAT02824m**; NMRW **262249, 262212, 262211, 262210, 262209**). The farm is first recorded on the OS map of 1814 (**Plan EDP 15**) which depicts it quite simply as a single building within a rectangular enclosure, surrounded by fields. The building appears to be labelled as Cwm-Glo-Fach, and is connected to Cwm Glo by a track to the north, suggesting that it may have originated as an outlier dwelling associated with the larger, Cwm Glo farm to the north.
- 4.228 The Tithe map of 1850 shows a large rectangular building within a cluster of four small enclosures. This depiction differs with that on the OS map of 1876 (**Figure EDP 9**), which shows the rectangular building divided into five sections, accessed from the north-east side, and a small outbuilding to the east. The map of 1900 (**Figure EDP 11**) also shows this layout, with an additional small outbuilding to the north-west. Further small outbuildings, to the immediate north, and south-east of the building, is shown on the OS map of 1919. On these plans, the 'outbuilding' to the east is labelled as 'Pen-y-coedcae', suggesting that this may have assumed the role of a dwelling, with the original house thought to have been converted into a row of workers cottages.



**Figure EDP 11:** The dwelling at Pen-y-coedcae in 1900.

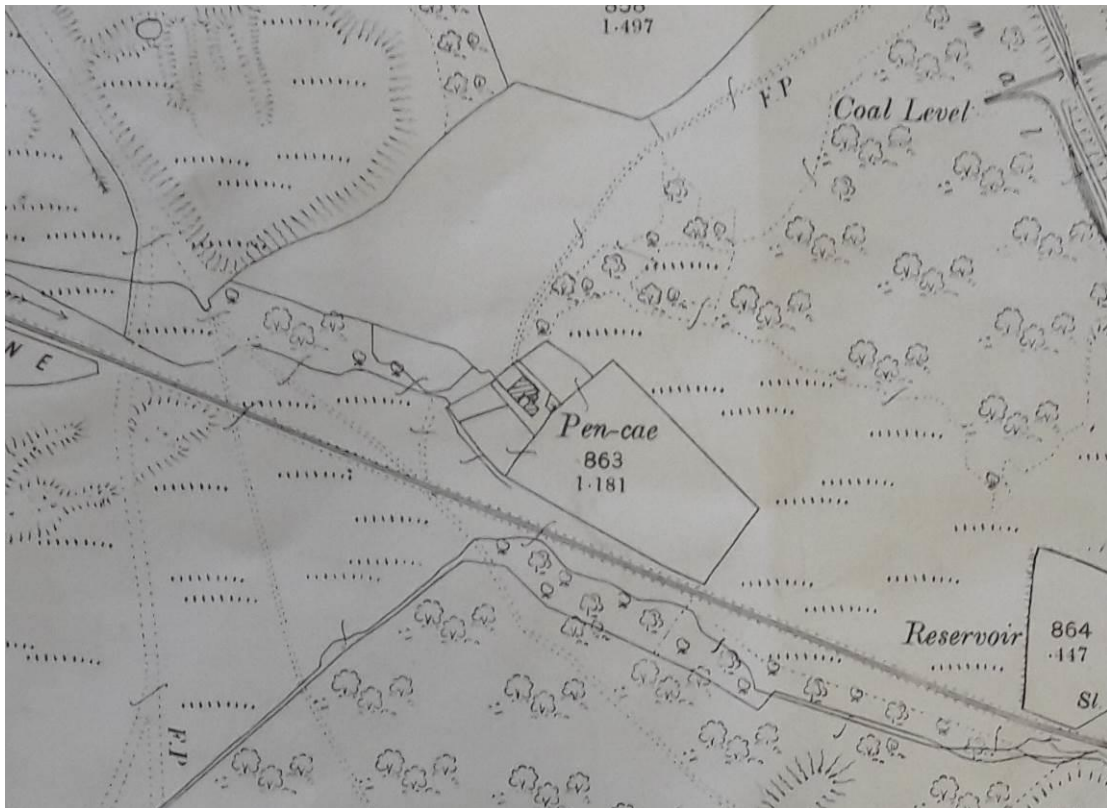
- 4.229 It should be considered that by the early 20<sup>th</sup> century the farmstead was surrounded by industrial features. Spoil tips lay to the immediate north and tramways lay to the west and south. The farm appears to have been restricted to a few surrounding fields but may have accessed fields to the south of the tramroad via a track, and may have continued to keep livestock in this area. It is possible to speculate that, as the older farmstead declined it was converted into dwellings for workers, with the smaller late 19<sup>th</sup> century building to the east becoming the farmhouse.
- 4.230 The OS map of 1958 shows the cluster of enclosures at the farm, and the probable workers cottages, although the later farmhouse is labelled as a ruin, and it is fairly likely that the farm was disused by this time. The map of 1875 shows a similar layout but is unlabelled, it is likely that this reflects the whole settlement being ruined by this time.
- 4.231 The HER records Pen-y-coedcae as a row of four early 19<sup>th</sup> century workers cottages (**GGAT02824m**), possibly on the site of an earlier cottage or farmstead. It is likely this was the case, although map evidence suggests that the main building remained a single dwelling up until the mid-late 19<sup>th</sup> century. It is noted on the Tithe Map Apportionment as a 'cottage' rather than a row of cottages and is first shown subdivided on the OS map of 1876, coinciding with the construction of the building that would assume the role of the farmhouse.

- 4.232 The NMRW describes the ruin as a rectangular structure with walls surviving to 1m in height under brambles (NMRW **262249**). It describes how the ruins are set within a field system which survives in plan, defined by tree-lined banks approximately 0.6m in height. It also describes the later farmhouse (NMRW **262212**), (named as an outbuilding) as consisting of a low rectangular structure with regular stonework walls 0.8m wide and 1m high. The outbuilding to the north-west is recorded (NMRW **262209**) but no structural remains were observed. The remains of the enclosures were noted (NMRW **262210**), describing them as stone and turf covered boundary walls lined by trees dating from at least the mid-19<sup>th</sup> century. A final record associated with the settlement (NMRW **262211**) refers simply to a hollow within the easternmost enclosed field. It is speculated as being likely to have been caused by collapsed mine workings below.
- 4.233 The remains were visited during the site visit. The remains of the main farmhouse were seen to consist of low, stone walls and piles of rubble, although the area was covered by dense vegetation, which obscured a close inspection of the remains. The building remains were located within a series of enclosures, and those to the south of the main building were clearly identifiable, being bounded by stone walls. A stone-revetted path was identifiable on the east side of the former buildings (**Image EDP 30**). This corresponds to that shown on the historic mapping. A short distance to the east the remains of the later farmhouse were identified, consisting of a rectangular building defined by low rubble-stone walls (**Image EDP 31**).
- 4.234 The remains at Pen-y-coedcae are some of the most extensive post-medieval settlement remains identified within the site. The individual components possess a group integrity and together they possess a limited degree of historic value, illustrating the appearance and function of the pre-industrial and industrial landscape, and reflecting the process by which industrial needs eclipsed those of farming in the mid-late 19<sup>th</sup> century. They also possess a limited degree of evidential value, inherent in the remaining walls, enclosure banks and any related archaeological deposits, probably reflecting several different phases and functions. Consisting of low walls and rubble, the remains possess very little aesthetic value, although as a relatively recent settlement location the remains may have some meaning to local people and thus have a small degree of communal value. Given the above, the remains, both as individual components and as an integrated group, are considered to represent historic assets of low value.

*Pen-cae*

- 4.235 A dwelling is recorded at Pen-cae (**GGAT02823m**; NMRW **261999**). The dwelling is first recorded on the OS map of 1814 where it is depicted as an unnamed, single building within a rectangular enclosure, approach from the north-east by a track. The Tithe map of 1850 present a similar record, the dwelling shown as a single, enclosed building, amongst field, accessed from the north-east.
- 4.236 The OS map of 1876 shows greater details, depicting the dwelling within a series of small enclosures, with a watercourse to the south-west. The map of 1900 depicts a similar layout, with an additional enclosure to the south-east, but with the surrounding landscape increasing industrialised (**Figure EDP 12**). Later mapping depicts the same; a dwelling

set within a series of small enclosures surrounded by industrial features such as tramroads and spoil tips. The OS map of 1958 labels the dwelling as a ruin.



**Figure EDP 12:** Pen-cae as depicted in 1900.

- 4.237 The GGAT HER describes the dwelling as the remains of a stone and brick built cottage with an outbuilding to the south-east set in gardens. It suggests 17<sup>th</sup> or 18<sup>th</sup> century date, but records the building as having been destroyed in the 1970s. The NMRW does not record the house but does record the surrounding enclosure walls which are described as stone-built and enclose pasture land.
- 4.238 During the site visit the remains at Pen-cae were seen to be entirely located within a dense thicket of vegetation and were not viewed. As they were not recorded by the NMRW (whose survey was fairly comprehensive), it is likely that the remains are largely destroyed, and only possess a very limited degree of evidential value, inherent in any related archaeological deposits. With no structural presence, the remains would possess no aesthetic or communal value and very little historical value. Given the above, the remains are considered likely to represent an historic asset of negligible value.

#### *Melin Ganaid*

- 4.239 Melin Ganaid is the site of a former post-medieval watermill mill located on the Nant Canaid. It is recorded by the NMRW (**261909, 261910**) but not by the GGAT HER. The mill is first depicted on Yate's Map of Glamorgan, dated 1799 where, as previously mentioned it is named as *Canode Mill*. The OS map of 1814 names it as *Felin Caned*

where it is shown as a single building in an enclosure located on the stream, and beside a road. A similar depiction is made on the Tithe map of 1850.

- 4.240 The OS map of 1876 shows greater detail with the mill depicted as two buildings located within a small group of four small enclosures (**Figure EDP 13**). The Parish Road passes between the enclosures, crossing the Nant Canaid. The stream joins another to the south of the mill, before dropping down a waterfall and entering a deep valley and flowing to the east. Later OS mapping shows little change at the mill site. Extant buildings are shown up until 1975. The map evidence suggests that the mill may have gone out of use, possibly in the 19<sup>th</sup> century, and been converted into two small cottages. This may have coincided with the increasing industrialisation of the surrounding landscape, with agricultural use no longer required the mill building may have been reused as workers cottages.



**Figure EDP 13:** Melin Ganacid as depicted in 1876.

- 4.241 The NMRW describes the mill as consisting of the rubble-stone ruins of two cottages (**261909**) with remnants of rubble-stone garden walls apparent (**261910**). The CAP report (2000) identified that the mill was referred to in a Parish register entry of 1714, and that Pedlar had located a date stone marked 1726 when investigating the site in the 1930s.
- 4.242 The mill site was visited during the site walkover survey. The remains of a single, two celled rectangular building were noted (**Image EDP 32**). The walls of this structure are defined by heaps of stone rubble, much of which appears worked. It is likely that wall bases are evident beneath the rubble, as well as possible internal features. Low walls, representing the remains of an enclosure, or series of enclosures were noted to the

immediate south. These are likely to correspond to those on historic maps, representing the 'garden' spaces of the building.

- 4.243 With regard to its function as a mill, remains of a leat (or possible an infilled wheel pit), defined by stone revetted banks, were noted on the west side (**Image EDP 33**). Much of the course of this feature has been lost, suggesting that it was deliberately infilled, possibly in order to extend the gardens of the two cottages. The leat is evident, further to the south-east, as an outflow conduit overlooking a drop down to the River Caniad below.
- 4.244 The extant remains at Melin Ganaid possess a degree of historic value, illustrating the appearance and function of the pre-industrial landscape. They appear fairly well-preserved and probably contain archaeological remains related to the history of use of the site. As such, they are considered to possess a degree of evidential value, inherent in the remaining walls, enclosure banks and any related archaeological deposits. As low ruined walls, the remains possess very little aesthetic or communal value. Given the above, the remains are considered to represent an historic asset of low value.

*Cottage and Garden near to Lower Collier's Row*

- 4.245 A cottage and its garden is recorded close to the later industrial settlement at Lower Collier's Row (**GGAT02810m**; NMRW **261974**). The unnamed dwelling is first recorded on the 1850 Tithe map, as single building within an irregular enclosure, but does not appear on the OS map of 1814, suggesting that it originated between these two dates.
- 4.246 Later OS mapping from 1876 shows the dwelling within an enclosure, with a small outbuilding. The dwelling is located adjacent to the industrial site at Lower Collier's row with spoil tips and an ironstone level immediately adjacent to it. It is likely that the house was in some way connected with the industrial development, possibly as a manager's dwelling.
- 4.247 The house is shown as extant on the 1900 OS map and on the map of 1919. The map of 1958 indicates additional enclosures associated with the house to the north-west and south-west, suggesting that the property expanded its boundaries at this time.
- 4.248 The HER describes the cottage as originating in the early 19<sup>th</sup> century and becoming derelict by 1967. The NMRW recorded the condition of the cottage at the time of survey as consisting of foundations set within a stone walled enclosure. The house is recorded as entirely levelled, being only identified by dispersed stone rubble and brick.
- 4.249 The house was not visited during the site walkover, although the general surrounding of Lower Colliers Row were noted as heavily vegetated, much of which was impenetrable at the time of the site visit.
- 4.250 Having been entirely levelled, the remains of the cottage possess only a very limited degree of evidential value, inherent in any related archaeological deposits. With no structural presence, the remains possess no aesthetic or communal value and very little

historical value. Given the above, the remains are considered to represent an historic asset of negligible value.

#### *Field Boundaries*

- 4.251 It is apparent from historic maps that, by the early 19<sup>th</sup> century, most of the site was divided into fields. This is likely to have happened during the post- medieval period, with some division possibly dating from the medieval period.
- 4.252 No maps exist that show the site prior to any industrial activity, and on all depictions the former landscape of fields is obscured to some degree by industrial features. The earliest map to depict field boundaries is the OS map of 1814. This map shows the land on the higher, western part of the site divided up into regular enclosures, with woodland apparent in the steep sided valleys of the Cwm Glo and Nant Llwyn-yr-eos. The eastern part of the site is characterised more by open land, large tracts of woodland and industrial activity.
- 4.253 The layout of fields on the 1814 map does not correspond with that with that shown on later mapping nor with the extant remains within the site. It is considered unlikely that the landscape was entirely reorganised in the early-mid 19<sup>th</sup> century, and more likely that the map of 1814 is inaccurate, its depiction of fields being symbolic; representing a general indicator of the character of the land, rather than an accurate depiction of the form of the fields.
- 4.254 The 1850 Tithe map shows the site's agricultural land divided into large irregular enclosures. Many of these boundaries are shown on later OS maps, and several are extant within the site. The boundaries on the Tithe map are well-defined; substantial earth and stone banks and ditches that are tree lined, suggesting that they represent well-established land divisions. Many of these boundaries can be picked out clearly on aerial photographs (**Plans EDP 12** and **13**) and in views across the site as they encompass trees of greater maturity and stature than the self-seeded trees that proliferate generally across the site.
- 4.255 The 1885 OS (**Plan EDP 17**) shows various other smaller fields, and subdivisions of the larger enclosures shown on the Tithe map. It is possible that some of these represent mid-late 19<sup>th</sup> century enclosures, post-dating those on the Tithe map, however some of the boundaries appear older. For example, denuded boundaries were noted on open land to the south-west of the former Cwm Glo farmstead where an area of old fields is preserved. Banks consist of low stone or earthen walls which are in places marked by shrubs and trees (**Image EDP 34**). The boundaries are undated but it is though likely that these represent fields related to early post-medieval farming probably associated with the farmstead at Cwm Glo.
- 4.256 It may be that, prior to 1850, land at the site was divided into titheable divisions which in some places encompassed old, redundant fields. These, being redundant, were not identified on the Tithe map. The later OS map represents an accurate survey and so incorporated the old boundaries, regardless of whether they were still in use.

- 4.257 Many of the post-medieval boundaries within the site have been destroyed by subsequent industrial activity. Often this destruction is due to over-tipping. In places it is possible to identify former boundaries as lines of mature trees emerging from spoil tips. This incidence was noted at the Black Pins, and at Cwm Du, where mature trees mark the former boundary of a farmstead with the surrounding land and the Cwm Du farm buried by spoil.
- 4.258 In terms of their heritage significance: as common features of the wider landscape, the individual boundaries have little that distinguishes them from similar examples found elsewhere in upland South Wales. Archaeological deposits related to them, such as buried walls or infilled ditches would be unlikely to contain significant information about the past and are considered to possess only a limited degree of evidential value.
- 4.259 The boundaries have a greater value through their coherence as a group, and the fact that they illustrate the appearance of past agricultural landscapes within the site. In instances where the boundaries interact with later industrial remains there is a clear illustration of the history of the site; the changing nature of land-use is readily observed. As such, although their individual significance is negligible the boundaries do relate to the significance of the Historic Landscape Character Areas defined above, representing grouped features that contribute to the character of the historic landscape.
- 4.260 A possible clearance cairn or similar stone scatter was identified by the NMRW on slopes on the southern part of the site (NMRW **262082**). A spread of large stones is identified and interpreted as most likely related to post-medieval clearance, although some stones are recorded as appearing to have been set in place.

#### *Trackways*

- 4.261 The farmsteads within the site were linked to each other and to surrounding areas of settlement by a network of trackways. Tracks ran south into the site connecting the farms at Cwm Glo and Pen-y-coedcae with Heolgerrig to the north. Another track probably followed the valley bottom on the east side of the site but, on all historic maps, this area is heavily industrialised and the communication routes depicted would have been primarily concerned with transporting minerals.
- 4.262 A track crosses the southern part of the site from north-east to south-west, known as the Parish Road. This route is noted on all historic maps from 1814 and is still extant, formerly linking Rhydycar to the east of the site with Melin Ganaid and beyond to the upland farms at Hendre-fawr and Blaen Canaid to the south-west.
- 4.263 Most of the older tracks within the site went out of use and disappeared as the farms that they served became reductant. Others, such as those that followed the routes into the site from the north, were converted to tramroads in the 19<sup>th</sup> century, providing a direct route to Cyfarthfa Ironworks to the north. The tracks preserved in the site do not contain any archaeological evidential value although as remnants of the pre-industrial landscape they possess a degree of historical value, illustrating former communication routes. However, this value is fairly negligible and individual tracks are not considered to

represent historic assets. As with the site's field boundaries, the track's significance relates to the significance of the Historic Landscape Character Areas defined above, representing features that contribute to the character of the historic landscape.

*Post-medieval: Summary*

- 4.264 In conclusion, during the post-medieval period, prior to the mid-18<sup>th</sup> century the site was mostly a pastoral agricultural landscape, typical to the Welsh countryside, which on the west side was located on the upland fringe. It consisted of small farmsteads and subsidiary dwellings, dispersed across the hillside, positioned close to the site's deeply incised watercourses. The dwelling places were set within a landscape of field enclosures and woodland and connected by a network of trackways.
- 4.265 It is not known at what date the hillside was settled, but the post-medieval layout, evident on historic maps and to some extent in the present-day landscape, probably originates in the medieval period, with farmsteads and fields established and enclosed from heath or woodland.
- 4.266 The eastern part of the site is less well understood than the western, as industrial activity was earlier in this area and has obscured the former agricultural landscape in historic map depictions. It is however likely that the area was also farmland but with a valley bottom character. Regardless of heavy industrial change, remnants of this landscape exist within the site such as the former farmstead at Upper Wern. On historic maps, the valley to the east appears to have been dense with farmsteads, with several recorded on the Tithe map of 1850 such as those at Llwyn Celyn, Wern and Rhydycar. Now, this area is entirely re-developed with modern industrial estates and the A470.
- 4.267 The agricultural landscape continued in use throughout the 19<sup>th</sup> century, but was gradually eclipsed by the site's industrial function. Farms and cottages appear to have become dwellings for workers, especially evident at the farmstead of Pen-y-coedcae, which appears to have been converted into worker's cottages. Industrialisation resulted in many of the site's field boundaries being consumed by spoil tips or mine workings. In the case of Cwm Du farm, the entire farmstead and its related infrastructure has been covered over with spoil. As such, the site's field systems are preserved only as fragmented boundaries, best preserved in locations that lie between coal seams and were not mined, such as they are to the south-west of Cwm Glo Farm which contains very old field boundaries.
- 4.268 A feature of the pre-industrial landscape is its historical association with early non-conformist Christianity. This is best exemplified in the remains of the Cwm Glo Chapel, which are a Scheduled Monument, but other elements of the archaeological landscape are also part of this history. In the site for example, the farmstead at Cwm Glo was used as a location for non-conformist religion as was the farm to the south-west of the site at Blaen Canaid.
- 4.269 Post-medieval farmsteads exist only as ruins within the site and as such, in general where there is some degree of preservation are ascribed a low level of heritage significance. The

more interesting examples are the farm at Cwm Glo, which, in addition to its religious associations, was demonstrably of a 16<sup>th</sup> or 17<sup>th</sup> century date, although little or no above-ground remains now exist of this farmstead, and the farmstead at Pen-y-coedcae which is of interest due to its later conversion into industrial dwellings.

- 4.270 The remaining parts of the pre-industrial landscape, such as field boundaries and trackways, do possess a functional integrity and, in places, relate in interesting ways to the later industrial landscape, such as the line of trees emerging from spoil at Black Pins. However, their heritage value is fairly negligible, better preserved fields systems exist across the locality, for example the fields that surround Blaen Canaid to the south-west. As such, these features are only ascribed a degree of significance in their contribution to the character of the historic landscape, as defined under the character designation of the MTLOHI.

### ***Post-medieval/Modern: Industrial Period (mid-18<sup>th</sup> century – mid-20<sup>th</sup> century)***

#### *Introduction*

- 4.271 The site contains extensive remains related to industrial mineral extraction, chiefly the extraction of coal, ironstone and building stone, but also to a lesser degree lime and fire clay. The site's geology and topography are such that seams of coal and ironstone are accessible within it, a fact that was exploited probably since at least the early post-medieval period. From the mid-18<sup>th</sup> century extraction greatly intensified, as the land became a source of material for use in the Cyfarthfa Ironworks. This activity peaked in the mid-late 19<sup>th</sup> century before ceasing in the early-mid 20<sup>th</sup> century.
- 4.272 The site's 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> century mining activity, and the nature of the archaeological remains associated with it, were governed by three key factors; the demands of the Cyfarthfa Ironworks, the site's geology and the technology of extraction and transport, which changed over the course of the period. These factors are discussed below after which the section discusses the impact upon the site of mining with reference to chronological phases.

#### *Cyfarthfa Ironworks*

- 4.273 The evidence for archaeological remains related to mineral extraction in the site prior to the mid-18<sup>th</sup> century has been described earlier in this report. The majority of remains were produced by a phase of extraction driven by the demands of the iron making industry at Merthyr Tydfil.
- 4.274 In 1709 a technology was invented to smelt iron using coke, rather than charcoal, and by the mid-18<sup>th</sup> century this technology was employed in a coke-iron industry in South Wales, where the local geology provided an ideal mix of the required raw materials (Hereford Archaeology, 2004). The first ironworks were established at Merthyr in 1759, with the Cyfarthfa Ironworks established in 1766 by Anthony Bacon. Four works were established in the area, although Cyfarthfa was ultimately the most productive, being at its peak the

largest ironworks in the world. In 1786, Bacon died, and control of the works passed to William Crawshay whose family retained ownership throughout the work's lifetime.

- 4.275 The Cyfarthfa works were located c. 550m to the north of the site (the ownership boundary). Part of the works are extant and are a Scheduled Monument (GM425). As a source of raw materials, in the 18<sup>th</sup> century, the Cyfarthfa enterprise leased 4000 acres of land to the west and north-west of Merthyr from Lord Dynevor. The site is located entirely within this leasehold. As such, land at the site was mined for Cyfarthfa, although from the early 19<sup>th</sup> century the site also produced coal and ironstone for another ironworks at Ynys Fach.
- 4.276 Cyfarthfa Ironworks was located to the north of the site. The transportation of minerals from the mines to the works was governed by this relationship and so transport routes within the site developed on a north-south axis. Key developments in terms of transport, such as the completion of the Cyfarthfa Canal in 1778 and the Taff Vale Railway in 1841, were direct catalysts for intensifying mining operations and increasing iron production.
- 4.277 Iron production at Cyfarthfa peaked in the 1840s-60s, mostly due to the demand for rails for the rapidly developing rail networks (Arup, 2008). However, from the 1870s the economic climate changed, with the demand shifting from iron to steel, and the demand for coal shifting from domestic use to overseas exports. From this time, ironstone production slowed or ceased however, although it diminished from the late 1920s, coal production continued within the site up until the mid-1950s

#### *Geological Factors*

- 4.278 As noted previously the site is located on the South Wales Coal Measures. Within the site, running roughly from north-west to south-east are a concentration of coal and iron ore seams, naturally exposed by the downcutting of the River Taff. These have been further cut by the action of water flowing down local streams such as the Nant Cwm Glo and Nant Llwyn-yr-eos. As such, the land at the site presents a location from which coal and iron ore can be worked easily from the east, or from the deeply incised stream valley sides.
- 4.279 The location, in plan, of the different coal and iron seams is reproduced overlaid onto the LiDAR data (**Plan EDP 20**) illustrating the strong correlation between the seams, and the site's surface disturbance (whether caused by the collapse of shallow underground working or archaeological remains such as mine entrances, cuts for roadways or spoil tips). This indicates the way in which geology governs the site's archaeology and how intensively the seams within the site were mined.
- 4.280 Exposed seams were worked directly from the surface via scouring or patching operations, methods typically employed early in the history of extraction. The site's topography lent itself to mining via *levels* or *drifts* cut into the hillside, tunnels that sloped upwards, wining minerals from below. As the seams dipped to the south-east, following the exhaustion of a seam, a new passage, or roadway, was often cut at right angles from the level, to work an adjacent, higher seam as it dipped downwards. This method of

extraction was common across the site which contains a large quantity of mine entrances accessed via levels.

- 4.281 As the level roadways within a mine increased in length, it often became more economically advantageous to sink shafts into the seams from above, a method which came to characterise later mining activity. Detail on the differing methods and the archaeological remains that they have produced is given in the section below.

#### *Technology*

- 4.282 The Industrial Revolution was defined by technological progression and the site contains archaeological evidence for a range of mining technologies including technologies associated with extraction and with transportation.

#### *Extractive Technologies*

##### Patching, Scouring and Hushing

- 4.283 The extraction of minerals found close to the surface, was often carried out using simple open-cast methods, akin to quarrying called patching. This type of mining often utilised a method dating back to Roman times, or earlier, that involved using a concentrated force of water to wash soils away from bedrock, exposing any outcrops of desired minerals, known as scouring or hushing. It was essentially a technique used for prospection and was only effective on sloping ground.
- 4.284 The basic method involved water, channelled down slope from a holding pond, held back by a sluice and then released across the target surface. The force of water would remove lighter waste and soils exposing bedrock, and leaving heavier ore and coal behind. Archaeological remains related to such activity would consist of systems of leats, reservoirs and gullies used to channel and contain the waters. Such features would be at a higher altitude to the target seams, although gullies designed to catch run off water would also be expected.
- 4.285 Within the site, such methods were mostly used early on in the history of mining, probably for exploiting outcrops along the river banks. As such it is considered likely that archaeological evidence of these techniques was mostly destroyed by later mining activity. Archaeological remains related to water management are found across the site including a number of leats and reservoirs. It is possible that some of these were used in scouring operations, although later mining techniques also demanded high volumes of water, and drainage, and so ascribing a precise use for scouring is problematic.
- 4.286 It is very likely that the technique was employed in the early extraction that occurred along the Nant Cwm Glo with evidence for this on historic maps, and in the form of earthworks to the west of the later Cwm Glo Pit. It is also likely that scouring occurred at Cwm Glo Pit, with the reservoir adjacent to the later mine thought to be early and connected with the practice. Some of the best-preserved remains of early open-cast

mining in the site is found at the Black Pins where ironstone outcrops were mined using open-cast methods in the early-mid 19<sup>th</sup> century.

- 4.287 As noted previously a great density of surface mining remains are located to the south-west of Lower Colliers Row, and although this area is likely to contain remains of various dates, early mining activity of the 18<sup>th</sup> century or earlier is thought likely to have been carried out here.

#### Drift Mines or Levels

- 4.288 Drift mines or levels were created by driving horizontal, or slightly sloping adits into the hillside which would then intersect with mineral seams. As previously described the hill slope character of the site lends itself well to this technique and adits are the most commonly found mine entrance<sup>2</sup>.
- 4.289 Mining levels varied in size and sophistication. Mines could be small, temporary operations targeting a single seam which would have been held up with wooden posts and are likely to have collapsed shortly after abandonment. Or they might represent entrances to complex systems of tunnels, with lined, well-supported entrances. Levels were frequently driven at an angle so as to facilitate natural drainage and often the adits were cut in order to provide drainage to an existing mine.
- 4.290 During the 18<sup>th</sup> and early 19<sup>th</sup> centuries underground working was by 'pillar and stall' a method in which pillars were left to support the roof with stalls formed by removing the coal. Later, from the 1860s mines tended to adopt the more efficient 'long-wall' system (Morris and Williams, 1958, 57-8), and it is assumed that this probably occurred at the collieries within the site. As previously noted, once a seam was exhausted along a single 'road-way' a passage would often be cut at right angles, or around 75 degrees, (known as a cross-heading) in order to hit the seam above as it dipped, or to follow the current seam 'to the rise' following its uphill slope (Morris and Williams, 1958, 57-8).
- 4.291 The archaeological remains of mining levels consist of deeply incised 'road ways' approaching the adit entrance and possibly the adit entrance itself (although these often collapsed or were deliberately collapsed when the mine was closed. The location of collapsed mining levels can often be identified as water issues or by following long, 'finger tips' of waste which emanate from the mine entrances (Hereford Archaeology, 2004).
- 4.292 The remains of mining levels are found throughout the site. Some possess well-defined incised roadways and spoil tips (such as the Cwm Du Drift), but very few retain a well-defined entrance. Examples of levels where the entrance is still well defined include the Canal Level on the Cyfarthfa Canal (GM467; **Image EDP 1**) and a level entrance at Cwm Pit (**Image EDP 9**).

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<sup>2</sup> The Coal Authority Database records 185 mine entrances within the site of which 110 are levels and 75 shafts, although it is likely that numerous unrecorded entrances also exist as mining is known to have occurred in the area up to 100 years before there was a statutory requirement to produce mining plans (Arup, 2008, 16).

4.293 Mining levels have a distinctive surface expression and it is possible to identify them on LiDAR data (**Plan EDP 10** and **11**). It is also possible to observe the patterns made by surface collapse related to levels, which occurs across many parts of the site in which mine working was intensive. Linear patterns of pits, probably caused by below-ground collapse of shallow workings can be observed.

#### Deep mining - Shafts

4.294 Mining from shafts is generally ascribed to the later phases of mining within the site, certainly in the case of the major collieries which all employed mine shafts to access deep seams, from the 1820s-30s onwards. Shafts were also employed toward the end of the lifespan of a drift mine, when level roadways became too long and shallow deposits were exhausted, access to seams from above became more economical.

4.295 However, early mining techniques also employed shafts with 'bell pits' sunk to intersect shallow mineral horizons (Arup, 2008, 18). Bell pits involved a shaft being sunk to around 10 to 15m with seams worked from the side until they became unstable. In this way they were similar to patches, representing a short lived, chaotic and opportunistic approach to mining. On abandonment, they were usually loosely infilled. The Arup report identified features on the south-west side of the site close to the outcrops of the Six Feet, Four Feet and Two Feet None Seams that may represent such features (*ibid*, 18).

4.296 Deep mine shafts presented technological challenges. Chiefly these comprised, the requirement of power for lifting minerals out of the shafts (winding), drainage and ventilation.

4.297 For winding, a simple and economical technique known as the 'water balance' method was employed. This method was unique to South Wales as it depended on a plentiful and constant supply of water, as provided by the local climate. The method involved using water as a weight on a pulley system to lift trams filled with minerals. The water would be emptied at the base of the shaft. Water balance systems were employed at all of the Cyfarthfa pits although the method become less efficient with deeper pits and was sensitive to drought. As such, by the late 19<sup>th</sup> century the deep pits had taken to using steam powered engines for winding.

4.298 Drainage was achieved either by utilising old drift mines or driving new adits. This places a restriction on the depth of shafts (which cannot go below the valley floor) and, later the site's deep mines utilised steam power to pump out unwanted water, generally using condensing high-pressure engines (Hereford Archaeology, 2004).

4.299 Ventilation was a major issue with deep coal mining as miners needed air to breath and certain coals sometimes produced gas (known as 'fiery coal') that unless vented could explode. Ventilation was provided by air shafts, which were narrow and unlined. There are many example of air shafts within the site most of which are capped in some way. Air shafts were used to create a downcast/upcast system with bad air drawn out of the mine using furnaces, set in a side shaft. Within the mine a system of doors was employed to

control airflow. Later, steam powered ventilation fans were employed, an example of which is preserved within the site at Cwm Du (GM460).

4.300 As noted previously, the site contains many examples of mine shafts some of which are open, uncapped and fenced off. These vary from narrow air shafts (c. 1-2m in diameter) and small collapsed bell-pits to large shafts 5-6m across which were the entrances to the site's major collieries. These are all now infilled, with all mining gear removed, and the capped entrances can be seen at most locations i.e. at Cwm Du (**Image EDP 35**) and Cwm Glo (**Image EDP 14**). Most remains of buildings, winding gear or other infrastructure were removed, although remains of these can be seen at various location, most notably at Cwm Pit but also at Lower Colliers Row (**Image EDP 36**) and Cwm Du Drift where buildings are preserved extant.

#### Transport Technology

4.301 Prior to the late 18<sup>th</sup> century, minerals were transported away from the mines using mules traversing an existing network of lanes and tracks (such as the Parish Road). In 1778, William Crawshay opened the Cyfarthfa Canal, dramatically improving the efficiency by which coal could be transported, from the mines within the site, to Cyfarthfa Ironworks. Approximately 130m to the east of the site at its nearest point, was the Glamorganshire Canal, which again only now survives as fragmentary remains. The canal was opened in 1794 as a major north-south transport route along the Taff Valley, allowing the ironworks of Merthyr access to the docks at Cardiff.

4.302 From the late 18<sup>th</sup> century railway tracks began to be used to improve transport efficiency. Wooden railways may have been originally used but, by the 1790s 'iron edged' rails were in use, followed by tramroads running on the more sophisticated 'plateway' rails. Tramroads used a narrow gauge of 2fy 6in. Trams were hauled from the mines by hand or by horse, with the method replaced by stationary, atmospheric steam engines in the 19<sup>th</sup> century. During the late 18<sup>th</sup> and early 19<sup>th</sup> centuries, trams would have been typically pulled by horses, along narrow gauge tramways, to load barges at the Cyfarthfa Canal or direct to the ironworks.

4.303 In 1804 Richard Trevithick demonstrated a mobile, high-pressure steam engine, on a stretch of track at the Pen Y Darren Ironworks in Merthyr Tydfil. Although the test was a success, the use of steam locomotives did not catch on immediately. Britain's first commercial, industrial use was in Northumberland in 1813 by the famous 'Puffing Billy' locomotive. It is not known when exactly steam locomotives were used at the Cyfarthfa mines but it is likely that, in keeping with most of Britain's industrial use, it began in the 1820s. By the end of the 1830s steam locomotives would probably have been fairly typical, replacing horses as the main form of haulage.

4.304 From the mid-late 19<sup>th</sup> century steam power, either in the form of steam driven winches, used on incline railways, or steam locomotives, dominated transport between the mines and the ironworks. In 1841 the Taff Vale Railway (running c. 400m to the east of the site) opened, allowing rail transport along the Taff Valley, replacing the function of the

Glamorganshire Canal. Later, in 1853, the Vale of Neath railway was opened, the remains of which are partially located within the site.

- 4.305 Two private railways also passed through the site. Around 1850 the Cwm Pit railway opened, replacing the function of the Cyfarthfa Canal, transporting minerals between the mines in the site, and Cyfarthfa Ironworks. Also, the south-east part of the site is crossed by the Gethin Railway, built in the mid-19<sup>th</sup> century, which transported minerals from mines to the south of the site to the Ynys Fach and Cyfarthfa Ironworks.

*Early industrial activity: 18<sup>th</sup> century*

- 4.306 Definitive archaeological evidence related to 18<sup>th</sup> century industry within the site is limited. The only definite 18<sup>th</sup> century features are the Cyfarthfa Canal (**GGAT02865.0m, GGAT02412m**), which dates from 1777-87, and mining levels associated directly with it.
- 4.307 It is very likely that 18<sup>th</sup> century mining of surface exposures of coal and ironstone took place. As noted previously, intensive remains of surface mining, following exposed seams, are located to the south-west of Lower Colliers Row (**Image EDP 37**). These are located close to the Parish Road, which would have represented an early transport route, prior to the construction of tramways. These remains are likely to, in part, date from 18<sup>th</sup> century surface extraction. Remains are evident of extensive pitting, reflecting surface exploitation consisting of patching or in places bell-pit shafts. The area was subject to mining impacts through the industrial history of the site and, on the basis of current evidence, it is not possible to assign any of these remains precisely to the 18<sup>th</sup> century.
- 4.308 It is possible that earthwork remains of a pond and leat, to the west of the later Cwm Glo Pit (discussed previously), are related to early 18<sup>th</sup> century scouring in the Cwm Glo Valley. However, there is no definite date for these earthworks.
- 4.309 Following the opening of the Cyfarthfa Ironworks in 1766, mines were established in the site by the Cyfarthfa Company. The earliest mines consisted of levels located at the base of the slope on the eastern side of the site. From these locations coal and ironstone seams could be accessed and minerals easily transported to Cyfarthfa Ironworks by road, along the flat valley bottom. The Cyfarthfa Company built the Cyfarthfa Canal in order to facilitate access to these mines via small 'Tug Boats' pulled by horse, and in doing so led to an intensification of mine working in this area.
- 4.310 The earliest depiction of the canal is on Yate's Map of 1799 (**Plan EDP 14**) where it is shown following a highly sinuous route between Cyfarthfa Ironworks and the Nant Canaid valley. The Canal is best depicted on the Tithe map of 1850 (**Plan EDP 16**). This map shows the canal in some detail. At the northern end, it enters the site at a reservoir, at Llwyn-Celyn (NMRW **262054**). After this the canal curves to the east (presumably due to the contour) before passing through a lock and over a small aqueduct crossing the Nant Cwm Glo. Further south the map shows some interaction with the Cyfarthfa Balance Pond leat, which is linked to the canal via a channel, and further south the balance pond leat appears to end at the canal.

- 4.311 The canal was mostly destroyed by the construction of the Cwm Pit Railway and other industrial works. The best preserved, extant parts of the Cyfarthfa Canal are a Scheduled Monument and they, and the canal, have been discussed previously in the report.
- 4.312 Less well-preserved parts of the canal are recorded by the GGAT HER, these consisting of a lock and aqueduct (**GGAT02798m** and **GGAT08231m**). The lock and aqueduct were located immediately adjacent to each other. The aqueduct carried the canal over the Nant Cwm Glo after which it turned sharply to the right into the lock which was on an East-West orientation. The HER describes that the construction was such that the lock was terraced into the slope on the north side of the Cwm Glo valley, with an embankment on the south side, and raised the level so that boats could then cross at the higher level of the aqueduct.
- 4.313 The lock and aqueduct were visited during the site walkover, like much of the site the features are situated within dense woodland. The aqueduct is no longer extant but part of a stonewall was seen projecting over the stream that is, due to its location, likely to represent a remnant of its structure. The lock is better preserved; the embankment on the south side is apparent, although the lock basin is largely infilled and heavily overgrown with vegetation. A section of stonewall, built in courses from stone blocks is present on the north side, representing the internal edge of the lock on this side (**Image EDP 38**). The wall is in very poor condition and subject to damage from vegetation.
- 4.314 The LiDAR data illustrates that the structure of the canal is only preserved in the area in the vicinity of the Scheduled part and the lock (**Plan EDP 9**). It can be seen that the canal has a surface expression that is traceable between the east end of the lock and to around 40m south of the Canal Level, although a spoil tip creates a blockage between the two Scheduled parts of the canal. Tracing its course, it is not possible to identify any other extant parts of the canal.
- 4.315 The remains of the canal are in part ascribed a degree of national importance, which has been outlined earlier in this report. The non-designated parts also possess a degree of historical value, illustrating the appearance and function of the 18<sup>th</sup> century canal, although this is diminished by their poor condition and minimal extant remains. The remains also have degree of evidential value inherent in the limited structural remains and in any related archaeological deposits. Consisting of poorly preserved structures situated in dense woodland, that are not readily experienced, the remains are not considered to possess any aesthetic or communal value. The non-designated remains of the canal are considered to represent historic asset of low significance.
- 4.316 LiDAR data indicates that the non-designated remains of the canal physically connect with the designated parts and as such the remains, as a group, possess a degree of integrity, along with the better preserved Scheduled area. Because of this relationship, and given the early date of the canal in terms of the site's industrial archaeology, the remains are considered to represent an historic asset of moderate significance.

- 4.317 Documentary evidence suggest that the canal served a series of early mining levels situated along the lower slopes in the eastern part of the site (Arup, 2008). The Arup report describes records indicting mines at the southern end of the canal at Cwm Canaid, Cwm Level (associated with the later Cwm Pit), Levels Number 3 and 4 and Wain Level (Arup, 2008, 10). Further north, adjacent to the canal were Levels Number 8 and 9, Mr David's Level, Canal Level, Old Cwm Glo Level and the Pen Machine Level. The locations of most of these mines is not exactly known, and given that many of them would have been destroyed or altered by later workings, it is hard to locate remains of them within the site. The earliest (Cwm Level) was apparently situated c. 100m east of Cwm Pit, although this is not considered to be intact, nor is it recorded on historic maps (Arup, 2008, 9).
- 4.318 In terms of preservation the Canal Level which is part of the scheduled monument is the best-preserved example of an early mining level within the site. As described previously this level was accessed directly from the canal with boats entering the mine. The GGAT HER records another level with direct access from the canal (**GGAT02831m**) speculating that this was an early level possibly re-opened. Due to the heavy vegetation in this area this was not identified during the site visit, however a slight linear expression on LiDAR data in this area suggests that some surface impression of the former level may be extant.
- 4.319 Other early levels in the site are likely to have been destroyed by later mining activity, although a deeply incised cutting is apparent at the Cwm Glo Level (**GGAT04412m**) and the NMRW records another possible early level at Cwm Glo, which is collapsed but displays evidence for a stone revetment (NMRW **262059**), and the HER records another at Lower Colliers Row (**GGAT04420m**). A plan included in the Arup report (Figure 5) shows the location of levels recorded within the site and it may be that some of those located to the north of Cwm Pit, may represent early mines, known to have existed in this location, which utilised the canal for transport.
- 4.320 Historic maps are not especially useful in identifying the location of 18<sup>th</sup> century mining levels. Yates Map of 1799 (**Plan EDP 14**) indicates three locations labelled as 'Coal and Iron Mines'. The locations may refer to specific mining sites although they might also simply symbolise the general location of the various mines located to the west of the canal. Based on an understanding of the canal's geography, the three locations could refer to the Cwm Glo Level or Canal Level, at the north, an un-named mine (or mines) close to Lower Colliers Row in the centre and mine workings at Cwm Level to the south.
- 4.321 The remains of early levels are clearly poorly preserved and it is not easy to ascribe an early date to the remains. The well-preserved Canal Level has been ascribed a degree of national importance however, with no firm dating evidence and poor preservation none of the other possible early levels within the site can confidently be identified as 18<sup>th</sup> century. As such the remains are, due to a limited historical value and evidential value, ascribed a low degree of significance.

4.322 Mining remains such as pits and other earthworks at Lower Colliers Row, which are accurately dated, through archaeological survey or excavation, would potentially be of greater than low value, representing remain of moderate significance due to their evidential value. These features and their location within the site is discussed in greater detail below.

*Early-mid 19<sup>th</sup> century -1800-1850*

4.323 During the early 19<sup>th</sup> century the Cyfarthfa Canal, provided the main method of transport for raw materials between the mines in the site, and the ironworks. By the end of the 1830s tramways utilising locomotives had superseded the canal which fell into disuse (Hereford Archaeology, 2004). Also in the 1830s, in order to keep up with demand, the Crawshays expanded mining operations and the first deep mine shafts were sunk.

4.324 During the early 19<sup>th</sup> century mining operations also expanded to the west with the earliest operations around Cwm Du likely to date from this period. Likewise, the patch working of exposed ironstone at Black Pins, on the south-west side of the site was established.

Cartographic sources

4.325 A key source of information on the site in the early 19<sup>th</sup> century is the 1814 OS map (**Plan EDP 15**). The map has been analysed by Hereford Archaeology (2004, 20-1) who illustrated how, although the map does not explicitly indicate a heavily industrialised landscape (showing more a landscape of agriculture), it does show features suggestive of mining activity. These are discussed in the 2004 report and consist of:

- The Cyfarthfa Canal, the presence of which indicates a necessity to bulk-transport goods;
- A possible tramroad that runs alongside the Cyfarthfa Canal. This is speculated to run between the canal and a mining site close to the location of the later Glyn-dyrps pit. Other possible tramroads are evident to the east of the canal, reflecting industrial activity in this location, to the east of the site;
- An expanse of spoil related to mineral extraction in the Cwm Glo Valley. As previously described, the valley is likely to have been subject to extraction from an early date, and the presence of a broad area of disturbance, identified on the map, set around the valley suggests considerable mining activity in the area even as early as 1814. The map shows a possible tramroad running north from the valley towards Cyfarthfa Ironworks, suggesting that a direct link between the valley, and its mines, and the ironworks was in place by this time;
- A reservoir is depicted at Cwm Pit, which is likely to be the same feature as is currently extant at this location. This suggests that, either scouring was taking place on exposed outcrops located at the later Cwm Pit mine, or possibly that an early

predecessor to the later deep shaft was already operating in this area (the reservoir representing a balance pond); and

- The terraced houses at Lower Colliers Row and Upper Colliers Row are depicted, indicating that there was sufficient industrial activity in the area for a workforce to be present that required housing.

4.326 The Tithe map of Merthyr Tydfil Parish, dated 1850 (**Plan EDP 16**), provides a useful source on the site mid-century, reflecting change at the site over the course of the period under discussion. As with the earlier map, the Tithe map has been analysed by Hereford Archaeology (2004) who identify that, although pits, quarries and other workings are not overtly identified on the map, the impact of industrial extraction can be assessed from plot usage (as given in the Tithe map apportionment), and by tracing associated transport and water power features.

4.327 In general, in terms of industrial features the map shows:

- Transport links – These include dashed tracks, which are considered to represent either tramroads (including the Cwm Pit Railway) or trackways. The Cyfarthfa Canal, is shown along with other watercourses, with no distinction in conventions between artificial and natural features. The prospective Vale of Neath Railway, which was probably under construction at the time of the survey;
- Reservoirs – These are shown across the site, although elements such as sluices or leats, that must have existed, are not always depicted; and
- Area of land that were either the location of mines or used for tipping described as ‘Spoilt Land’, ‘Spoilt’ or ‘Rubbish’ in Welsh on the Tithe Map Apportionment.

4.328 The map is not considered to represent an entirely reliable depiction of the site’s industrial use in 1850. It is likely that many details were omitted. For example, aside from a few exceptions, mines and mine workings are not shown precisely, including sites known to have been operating at the time.

#### Transport Links

4.329 By 1850 the main method of transporting minerals from the mines to Cyfarthfa had shifted from the canal to a network of tramroads, with trams likely to have been pulled, by this date, exclusively by steam engines, or possibly a combination of horse and steam power. The Tithe map shows the Cwm Pit Railway, which may have been under construction, as it is not shown as complete further north than Upper Colliers Row. The railway was built following the opening of the Cwm Pit shaft in 1845. It is shown incorporating a branch linking it to a tramroad that fed the Ynys Fach Ironworks, suggesting that the mine was not exclusively worked for Cyfarthfa.

4.330 The Tithe map shows the Cyfarthfa Canal but gives some indications that it may have gone out of use by this time, for example it is cut across by the Cwm Pit railway in several

locations, and it is speculated (Hereford Archaeology, 2004) that a pond shown partway along its length might have been caused by the canal flooding as a result. The Arup report states that the canal had fallen into disuse by 1836 (Arup, 2008, 11).

- 4.331 Probable tramways are shown which represent access routes to known mines. An anomaly is a tramroad shown to the east of Cwm Glo which is shown running between the ironworks and a point to the north-west of Pen-cae cottage. The Hereford Archaeology report speculates that this may have served to transport sandstone to Cyfarthfa for the construction of Cyfarthfa Castle (2004, 23). However, it is considered more likely that it was related to the transport of ironstone to the works as it ends at the location of an ironstone level shown on the 1876 OS map, indicated as 'old'. The route was superseded by later tramroads but can still be traced in part on the later OS maps.

#### Black Pins

- 4.332 The ironstone works at the Black Pins have been described previously, as the area is proposed as a scheduled monument. Cadw propose an early 19<sup>th</sup> century date, post-1814, for the works, presumably based on map analysis, as the works are not shown on the 1814 OS. It is suggested that the ironstone extraction reflected less accessible sources being mining as sources lower down the hillside, adjacent to the Cyfarthfa Canal became exhausted. No works are shown in this location on the 1850 Tithe map, however this is not an indication that works did not occur at this date, as not all industrial sites are shown. It does however suggest that works might have been minimal, and not of sufficient extent to require a tramroad link. The tramroad that accessed the Black Pins is not shown on historic maps until 1876 (**Figure EDP 14**).

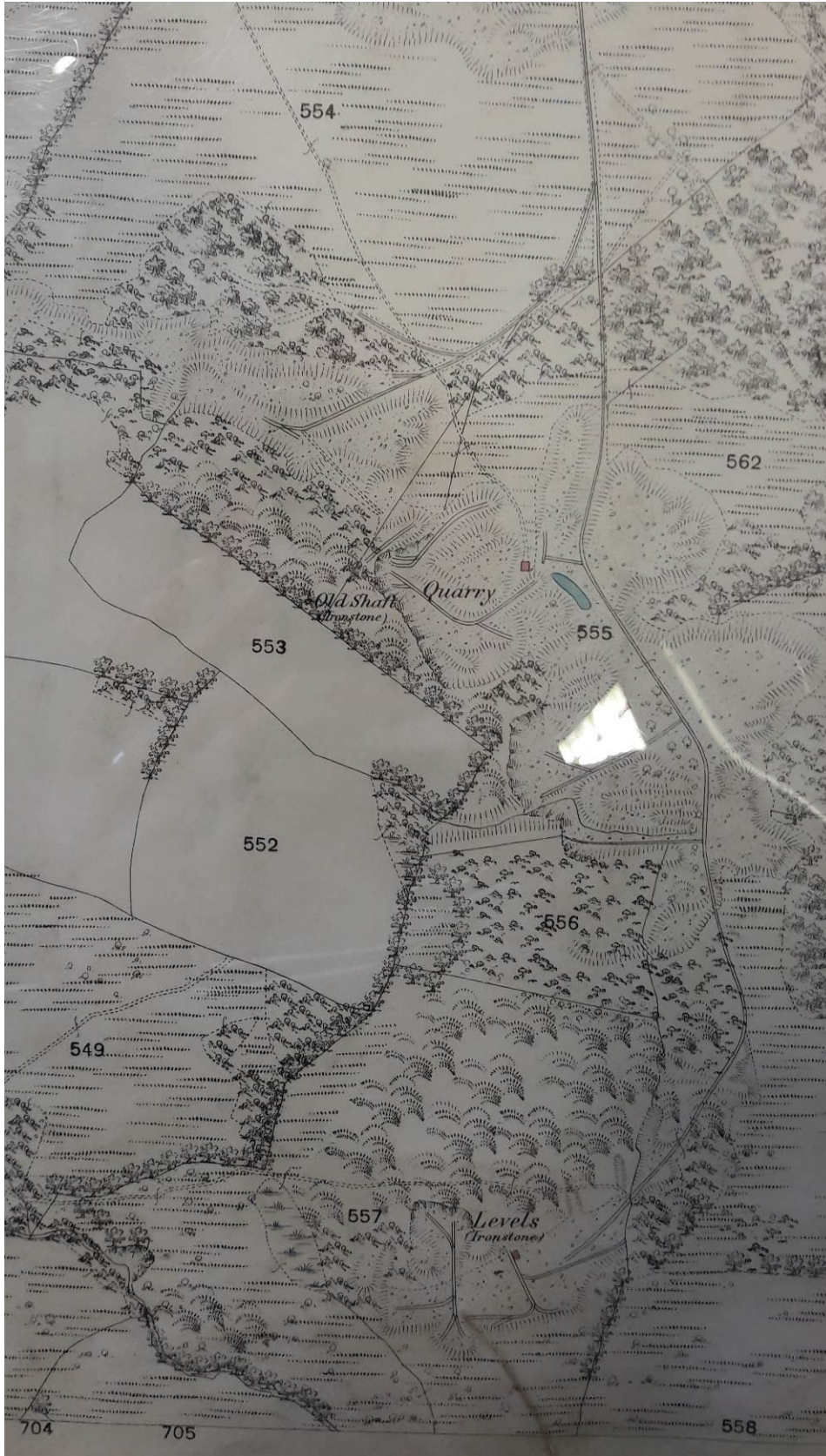


Figure EDP 14: Black Pins as depicted on an OS Map of 1876.

4.333 It is noteworthy that similar exposed horizons of ironstone were worked in succession at a similar altitude, around the crop. The ironstone occurred close to a good source of Pennant Sandstone and quarries, winning both resources, developed high on the hillside, above Heolgerrig, at Winch Mawr, (to the north-west of the site), and within the site to the west of Cwm Du. All of these works reflect the exploitation of less-accessible resources further from the Ironworks, through the course of the 19<sup>th</sup> century, as the resources downslope became exhausted.

#### Cwm Du

4.334 Industrial workings at Cwm Du are located at the highest part of the site, on the north-west edge. The area was subject to mining for coal and ironstone and also to quarrying for Pennant Sandstone, used as a building material. Extraction is not recorded on the 1814 OS map suggesting that if it was occurring at this date it was possibly not extensive enough to warrant illustrating. The Tithe map of 1850 (**Plan EDP 16**) also does not illustrate quarries, but it does indicate the presence of a shaft (one of the few workings shown on the map) and a tramroad running out of the site to the north, ultimately linking the mine to Cyfarthfa Ironworks. The Tithe map apportionment records the plot in which the shaft is located as a 'rubbish tip', presumably reflecting spoil produced by the mine.

4.335 Hereford Archaeology (2004) suspect that mining activity was occurring in this area by 1850 (unrecorded on the Tithe map), as the OS map of 1876 (**Figure EDP 6**) records considerable waste tips, quarries, tramroads and mine workings, some of which are recorded as 'old' in this area. It is reputed that the stone used to build Cyfarthfa Castle was quarried from this location (Arup, 2008, 1), and if so quarries must have been operating before 1825 when it was built.

4.336 It is speculated that the extensive activity shown on the OS map is unlikely to have been produced solely in the 26 years between 1850 and 1876. However, on the basis of current evidence, it may be that this part of the site was in fact most extensively mined after 1850, reflecting the trend for more intensive extraction works further up the hillside as the 19<sup>th</sup> century progressed. Notwithstanding, some of the mining and quarrying in this area may have occurred earlier, but was too small-scale to warrant recording on the Tithe map.

4.337 The early-mid 19<sup>th</sup> century mine at Cwm Du, (as depicted on the Tithe map) is recorded by the GGAT HER (**GGAT06384m**) as having consisted of two shafts, presumably due to ventilation requirements. The shaft was visited during the site walkover. The concrete capping is visible in the midst of a level space (**Image EDP 35**), on the edge of dense scrubland. A linear earthwork to the north may reflect the edge of a tramroad running up to the mine from the north, which is now superseded, along most of its course by a tarmac road (NMRW **85688**) (**Image EDP 39**). Extensive spoil tips, thought to have been produced by the mine, extend to the north-east (**GGAT06351m**).

4.338 A reservoir was located to the south-west, which was presumably contemporary, and probably used to power a water balance mechanism (NMRW **85729**). This was also

identified during the site visit and seen to consist of a well-defined earthwork bank enclosing a marshy area. The reservoir was fed via a leat running downslope from the south-west, however this was noted by the NMRW as being overlaid a later farm track (NMRW **262147**).

- 4.339 A sluice linking the reservoir to the mine (**noted** on the 1876 OS map) was not identified during the site visit. The NMRW records a collection pond and two narrow channels/leats (NMRW **262151**, **262150** and **262152**) adjacent to and running from the reservoir that may have been associated with the function of the mine. However, one of the channels is truncated by a large and deep collapse located to the south of the mine (NMRW **262181**), (one of a series of collapses in the locality NMRW **262149** and **262148**), and the other runs east in the direction of the later Cwm Du Level, suggesting that it is a later feature. They also record a rectangular pond (NMRW **262153**), located adjacent to the mine and road, which is speculated to have held run off water from the reservoir.
- 4.340 To the north of the pit, adjacent to several watercourses is a former mining level, also connected to the tramroad (GGAT **06383m**). Although it is not depicted on the Tithe map, it is noted on the 1876 OS map as 'old level', and it is speculated that it was contemporary with the shaft, possibly part of the same mining complex. During the site walkover this was not visited, however LiDAR evidence indicates a linear depression in the location suggesting that the level entrance is extant.
- 4.341 The remains of the mid-19<sup>th</sup> century workings at Cwm Du, as described above, are understood fairly well in terms of date and have a discernible integrity as an interrelated group, although this integrity is disputed by collapsed workings. Discernible above-ground remains have a degree of historical value, illustrating the form and function of the mid-19<sup>th</sup> century mine at Cwm Du and, in the case of those with earthworks remains, possess a degree of evidential value. As low, overgrown and denuded earthworks the remains possess very little aesthetic value or communal value. As such, the remains are considered to represent, as group, an historic asset of low significance.

#### Cwm Glo

- 4.342 In the 1830s or 1840s a deep pit, known as 'Robbins Pit' was dug at Cwm Glo in order to mine ironstone and coal. This pit is part of the proposed scheduled monument (GM611) and has been described previously. The pit operated up until 1905, and became a hub of tramroads, with extensive sidings and produced large spoil tips. However, in 1850, based on the illustration on the Tithe map, the works were quite simplistic with access via a tramroad to the north, and the two reservoirs (discussed previously) the only features shown.
- 4.343 As noted by Hereford Archaeology (2004) the area to the south of Nant Cwm Glo, which is identified as a spoil tip on the 1814 OS map (**Plan EDP 15**), is not identified as such on the Tithe map. The land parcel is noted as 'pasture'. Hereford Archaeology identify this as evidence that the workings, that produced this spoil has ceased by this time and the land reverted to grass. If this explanation is correct, then it may be that, by the

mid-19<sup>th</sup> century, early working by patch, scouring or levels on the valley sides had ceased possibly as the exposed seams were exhausted. These works were superseded by the deep pit (Robbin's Pit) which sought to win coal and ironstone from seams located at greater depth. Levels to the south-east, associated with Cwm Glo, with transport links to the Cyfarthfa Canal and Cwm Pit railway, may also have been active from this period (such as NMRW **262074** and **262059**). Spoil from Robbin's Pit was deposited more conveniently to the north-east, as identified on the Tithe map.

- 4.344 As previously described, an area encompassing the pit and its associated earthworks at Cwm Glo has been designated as a Scheduled Monument, and thus is considered to be of 'national importance'.
- 4.345 During the site visit, it was noted that the valley sides along the Cwm Glo valley, close to Gelli Du and Cwm Glo farmhouse appear to be artificially widened, possessing the appearance of a quarry, with near vertical faces up against the valley slopes (although this observation was masked by dense vegetation in this part of the site). This widening is also apparent on LiDAR data which appears to show a wide and jagged 'cut-shape' to the valley (**Plans EDP 9** and **10**), which extends to the south. Further east the sides of the valley are obscured by large spoil tips related to the later Robbins Pit, so the effect cannot be viewed in this location.
- 4.346 This 'cut area' corresponds well in shape and size to the area of disturbance shown on the 1814 OS map. It also sits directly below the end of the leat, running west from Cwm Glo that has been speculated as evidence for an early scouring system. It is suggested that this cut area was carved out of the valley sides by scouring and mining of exposed seams in the Cwm Glo valley, known to have occurred at an early date. As such, this may represent evidence of some of the earliest mining activity in the site. Although the effect has been to create an 'open cast' type excavation centred on the river, rather than any more specific mining remains, and is generally within an area that has been heavily disturbed by later mining.
- 4.347 Furthermore, close to the confluence of the Llwyn y Oes and the Cwm Glo is evidence for pitting (especially notable on the sky-view factor LiDAR image **Plan EDP 10**) and (possibly several) small levels. Further up the slope, to the south-west, within an area of old field boundaries are other surface pits (NMRW **262197**) and spoil tips (NMRW **262087** and **GGAT06354m**). The pits are not indicated on any historic maps and they are described as 'old workings' on surface outcrops by both the NMRW and the HER. Given the evidence that Cwm Glo Valley was a focus for early mining, it is possible that these remains may also be of an early date. However, as no dating evidence is currently available it cannot be stated that these are definite early remains.
- 4.348 The remains of early extraction in the Cwm Glo Valley have, in places, been disturbed considerably by later mining operations (see discussion in Section below) and some areas would contain limited evidential value. However, this area, at the west end of the Cwm Glo at and around the confluence with the Llwyn yr Eos does possess a strong historic value, the remains within it, illustrating the nature, and resulting landform of early

mine working. As such, this part of the site is considered to represent an area likely to contain early remains, which would represent historic assets of low or moderate value.

#### Cwm Pit

4.349 As with Cwm Glo, the Cwm Pit mine has been described above, as it is a Scheduled Monument. The Arup report describes other shafts located in the vicinity of Cwm Pit being opened around this time including the Griffith Evans pit, Carriage Pit, Tasker's Pit and Pond pit. The locations of these are shown on Figure 5 of the Arup report, although none are recorded by either the HER or the NMRW. Certainly, Pond Pit was located outside of the site to the south and Carriage pit and Griffith Evans pit would have been located either in the waterlogged area to the north-east of Cwm Pit or under a large spoil tip partially created in the 20th century by the construction of the A470.

#### Glyn-dyrys

4.350 The 1814 OS map suggests that mine working at Glyn-dyrys, which was situated at the very edge of the Cyfarthfa land holding was underway, probably via level, in the early 19<sup>th</sup> century. The map suggest that a tramroad may have linked the mine, northwards to the Cyfarthfa Canal.

4.351 The Tithe map shows a building just to the north-west of the later mine in this area, named as a cottage, set within a small enclosure (**GGAT02814m**). The cottage was later entirely destroyed by the spoil tips produced by the Glyn-dyrys Pit. The map does not show the pit but describes the land in which it was located as 'Spoilt Land' in the Tithe Map Apportionment.

4.352 The Glyn-dyrys pit (**GGAT02816m**) is identified by the Arup report as having been an Engine Shaft, with its winding gear powered by a steam engine. This is contrary as to what is recorded by the GGAT HER which speculates that a balance hoist may have been supplied by the adjacent Cyfarthfa Canal. When the pit engine was removed, it is recorded as having been inscribed with the date 1839, suggesting that the pit was sunk in that year (Arup, 2008, 11).

4.353 Earthwork remains are present related to the Glyn-dyrys pit. Situated on a raised plateau with its edges formed by spoil tips are a group of earthworks and a large hole. The earthworks comprise an elongated bank from west to east with a depressed area defined by banks to the south-west that is broadly rectangular (**Image EDP 68**). To the west are further slighter earthworks that curve and which may represent the remains of track beds. To the south-east of the group is a large, vegetation filled hole which may be the remains of the shaft itself.

4.354 Reference to the 1885 Ordnance Survey Map (**Plan EDP 17**) which shows the mine in its hey-day illustrates tracks around the mine as well as its buildings. It is possible to speculate that the rectangular area may have been the location of the engine house. The level plateau to the north would have held further track beds used (as at Cwm Glo) for drying ironstone.

- 4.355 The large Glyn-dyrys Reservoir (**GGAT02518m**) (located to the east) was built in 1805 as a feeder for the Glamorganshire Canal, rather than for a water balance mechanism. The reservoir was partly demolished in 1995 with excavation identifying a complex sluice gate at its north-east corner, a revetment wall and a main sluice (**GGAT000277**)
- 4.356 To the immediate west of the Glyn-dyrys Pit was a smithy (**GGAT02815m**). This is shown on the OS map of 1876 (**Figure EDP 5**) as a rectangular building but is not shown on the map of 1900. Nothing is thought to remain above-ground of this building as it is located within a heavily waterlogged and overgrown area.
- 4.357 Across land to the west of Glyn-dyrys Pit, the NMR records various mine workings of indeterminate date (i.e. NMRW **261933**, **261927**, **261906**, **261935** and **261937**). These includes levels, shafts, pits and spoil tips. None are definitively dated, although some of the works may reflect early surface extraction on exposed seams, in this densely mined area. They may be similar to other potentially early remains located to the south-west of Lower Colliers Row, which are described below. One of the most likely early features is a row of circular shafts 2-4m in diameter that run north-south adjacent to the Cyfarthfa Reservoir Leat (NMRW, **261906**). These appear to follow an exposed seam and may reflect early bell-pit type mining.
- 4.358 In terms of significance, the mining remains at Glyn-dyrys, although its buildings and structures have been removed, evidently have some archaeological value. The earthwork and buried remains associated with them have a degree of evidential value as well as historical value by illustrating the function of the mine, which operated in the 19<sup>th</sup> century. They also have a degree of integrity and an associative relationship with the spoil tips which surround them and to former transport features to the west. In this respect, the remains constitute a historic asset of low value.
- 4.359 Some of the earthwork remains in this area, to the west of the colliery and the canal leat, potentially relate to early mine working and thus potentially have a strong evidential value, providing information on early mining techniques and practices. However due to the nature of the area, which has experienced successive mining activity, it is hard to define the different phases. Certainly, remains of indeterminate age and poor condition are not considered to be especially significant, representing remains of low or negligible value.
- 4.360 Mining remains of possible early provenance (such as the linear pits identified by the NMRW), would be considered to potentially represent remains of moderate value, due to their evidential potential.

#### Coed Cae

- 4.361 The Coed Cae workings were relatively small scale compared with others in the locality. Typically, the earliest workings were via a level located in a deeply incised cut to the north of the pit (**GGAT04408m**). This was associated with a tramroad and a stables (**GGAT 04410m**), suggesting that trams were horse drawn (and therefore of an early date), with minerals accessing the Cyfarthfa Canal, or later Cwm Pit Railway close to

Upper Colliers Row, a short distance to the east. The level was visited, but was seen to be located in a deep, heavily vegetated cut and so was not closely inspected. It is likely that the level entrance has been blocked or has collapsed.

- 4.362 The Coed Cae Pit (which mined both ironstone and coal) was fairly shallow at 34 yards. It is considered by the HER to be one of the earliest in the area (**GGAT04407m**), but no date is given, and the Hereford Archaeology report dates the pit to the 1830s, alongside others in the locality. As noted, the 1850 Tithe map does not show the pit, but indicates that it was located within land described in the Apportionment as a 'Rubbish Tip'.
- 4.363 The pit site was visited during the site walkover which identified the remains of a possible three small buildings, located within a dense thicket of trees and shrubs (**Images EDP 40 and 41**). The buildings are entirely ruined. Two possess indistinct plans, comprising sections of wall bases, and mounds of stone and brick rubble. A third is identifiably rectangular and defined by a low stone wall. No evidence for a capped shaft was noted, although this may have been within a dense thicket.
- 4.364 The mine was accessed via the former tramway to the west, and extensive spoil tips are located to the west, south and east (**GGAT04406m** and **GGAT04409m**). The flat surface of these was crossed by railway sidings, which are still visible as slight surface expression, seen both in LiDAR data and on the ground (Image 1674). It is likely that, as at Cwm Glo to the south, these were used to weather ironstone.
- 4.365 A reservoir was located to the west of Coed Cae Pit. This is likely to have been used as a water balance pond for the pit, and an earthwork leat is apparent which directed water towards the mine. Other pits and earthworks located to the north of the leat are thought to represent surface collapse of shallow mine workings probably related to the level,
- 4.366 On the Tithe map, it was observed by Hereford Archaeology (2004, 23) that the reservoir was linked via a channel to the Nant Cwm-Pant-Bach to the north. It is speculated that the reservoir had originated as a source of water for scouring operations in this valley. The reservoir is located with a densely wooded area but LiDAR data indicates that it is an extant earthwork. It is also possible to trace leats running between it and the Cwm Glo reservoir to the south (**GGAT04403m**), and west to a large former reservoir located outside of the site that is now a football pitch (NMRW **262242**). These links suggest a complex water management system in this part of the site, consisting of interlinked reservoirs.
- 4.367 The remains of the early-mid-19<sup>th</sup> century workings at Coed Cae, as described above, are understood fairly well in terms of date and have a discernible integrity as an interrelated group, although certainly in the case of the mine buildings, they are not especially well-preserved. The above-ground remains have a degree of historical value, illustrating the form and function of the mine at Coed Cae, illustrating two clear phases. The earthwork remains, and building remains also possess a degree of evidential value, although this is limited by their state of preservation. As low, heavily overgrown and denuded earthworks, low walls and rubble, the remains possess very little aesthetic value or communal value.

As such, the remains are considered to represent, as group, an historic asset of low significance.

#### Lower Colliers Row

- 4.368 Mine working at Lower Collier Row was some of the most intensive in the whole site. The locality is dense with earthworks related to mining, including remains of levels, pits, shafts, tramroads and spoil tips, as well as holes created through subsidence. The area is also densely wooded and in places occupied by tracts of impenetrable shrub vegetation, which along with the extremely rough and dangerous terrain hindered complete access during the site walkover.
- 4.369 The surface expression of mine working in the locality can be clearly seen on LiDAR data (**Plans EDP 9 and 10**) and are very apparent on aerial photographs from the 1940s (**Plans EDP 12 and 13**). Surface workings (or in many cases collapsed underground workings) consisting of pits and linear expressions can be traced across the locality following closely the lines of several mineral seams which crossed this area in a dense cluster (The Two Feet Nine, Twenty Inch, Four Feet, Upper Six Feet and Lower Six Feet).
- 4.370 The NMRW surveyed this area and recorded four areas of 'Old Workings' located to the south-west of Lower Colliers Row (NMRW **261971, 261938, 261988** and **261963**). All four are described as '*intensive coal workings located in dense bracken in broadleaf woodland*'. They record areas '*pitted with collapsed shafts/hollows of c.2-3m diam; open c.1.5 to 2m deep*'. It is notable that this area is recorded as woodland on all historic maps, which was also noted by the surveyors, suggesting that surface workings in this area may in fact be very early. The NMRW suggest that they could be '*c.200 yr old plus*'. This part of the site may represent an area in which early surface workings (i.e. 18<sup>th</sup> century or earlier) are preserved, although dating the features would be problematic, due to later disturbance.
- 4.371 During the site visit part of this area was visited and it was noted that pits varied between small depressions 1-2m in diameter (**Image EDP 42**) up to large holes 5-6m across (**Image EDP 43**). Such pits could be of varied provenance, possibly representing early surface mining, or later collapsed shafts or air shafts. Equally some of the more amorphous holes could reflect the collapse of underground workings. As noted previously, surface pits located close to early transport routes, such as the Parish road, which passes through this part of the site (**Image EDP 44**), would be considered to have the greatest chance of reflecting early mining, as logically, the exposed seams closest to the transport routes would have been those exploited first. Level entrances were also evident, with the relationship between the roadway and finger tips of spoil clearly evident in some cases, however these are thought to correspond with later levels, as recorded in this area on historic maps, which date from the early 20<sup>th</sup> century (**Image EDP 45**).
- 4.372 Early mining levels dated to the late 18<sup>th</sup> or early 19<sup>th</sup> century, that utilised the Cyfarthfa Canal were also probably present in the area around Lower Colliers Row. The HER records six levels (none of which are well preserved) located to the south, south-west and west of Lower Colliers Row (**GGAT02852m, 04421m, 04432m, 04434m, 04435m** and

**04436m**) and the NMRW records a further three (NMRW **261947**, **261963** and **261984**). Some of these are certainly of a modern date, as levels were dug in this area up until the mid-20<sup>th</sup> century. However, some of the less well defined could represent workings from any time between the late 18<sup>th</sup> and mid-19<sup>th</sup> centuries, with some re-used in the later 19<sup>th</sup> century.

- 4.373 A distinctive characteristic of the mine workings at Colliers Row was a row of 21 terraced houses (**GGAT 02809m**). The houses were thought to have been built either in the late 18<sup>th</sup> or early 19<sup>th</sup> centuries; they are shown on the 1814 OS map, and were derelict by 1967 and demolished by 1970. The HER describes the cottages as having had front and rear gardens and a rear alleyway, and that a bake-house was located at the north end. They are described as 3-5m in width. The NMRW (**19251**) provides greater detail on the houses:

*'This terrace of houses was demolished in 1970. They may have been the earliest examples of the "catslide outshot" type identified by Jeremy Lowe, and associated with ironworks controlled by the Crawshay family. Lowe's database records sixteen of this type, but the Ordnance Survey 25-inch map of 1876 suggests that by then there were twenty-one houses. The sixteen were arranged as mirrored pairs, with living room fireplaces and half-spiral stone stairs in the thick dividing walls between the pairs. The single upper rooms were open to the roof, and a pantry and second bedroom occupied the ground floor space under the catslide roof. Roof timbers were a mixture of oak and softwood with pegged dovetail joints, the softwood showing that they were probably built after 1794 when the Glamorganshire Canal was opened.'*

- 4.374 The houses are depicted in a photograph presumably taken in the mid-20<sup>th</sup> century as they appear to possess television aerials (**Image EDP 46**). The photo appears to show the front of the houses as the catslide roof was to the rear. The photo indicates that the houses faced north-east (as Aberdare Mountain is in the background), away from the local mine workings, but towards the canal and later the railway. Between the canal and the houses were a series of allotments, and it is presumed that the buildings in the foreground are probably allotment sheds.
- 4.375 The remains of the terraced houses were visited during the site walkover. For parts of the terrace, the outline of the houses and garden plots could be seen, defined by low stone walls (**Image EDP 47**), and in some fireplaces were identifiable. Others were not identifiable, with remains obscured by pits and dense vegetation. Considerable amounts of demolition waste, containing brick, stone and modern materials such as breeze blocks and concrete, is present across the whole area and covers much of the remains.
- 4.376 It is possible that the terraces, are contemporary with the detached enclosed dwelling to the south-west, the dwellings together representing a hierarchical workers settlement. The house may have represented a manager's dwelling, with the general workforce housed in the terraces.
- 4.377 The Lower Colliers Row shaft was located to the south-east of the terraces (**GGAT02811m**). The Tithe Map indicates that it was located immediately adjacent to the

Cyfarthfa Canal and it is likely that material was loaded directly onto barges, prior to replacement by the Cwm Pit Railway. The end of a broad channel that ran north from the Cyfarthfa Reservoir was located close to the colliery, and it is likely that this provided a source for a water balance mechanism.

- 4.378 The colliery location was visited during the site walkover. The colliery was located within an area that is now mostly an open space. The shaft was located to the immediate east in an area now consisting of a large open pit, caused by the collapse of the shaft in 2008. The only upstanding remains were seen to consist of the iron base of some kind of industrial structure, possibly a later pit head winding mechanism (**Image EDP 36**).
- 4.379 The remains of the early-mid-19<sup>th</sup> century colliery at Lower Collier Row, including the remain of domestic buildings, are understood fairly well in terms of date and have a discernible integrity as an interrelated group, and a relationship with other remains in the locality of earlier and later mine working. Although remains of buildings exist, they are fragmented and damaged and thus have limited evidential value. They might provide some information on the domestic lives of miners, although the long use of the dwellings is likely to have resulted in modern remains being more prevalent than anything from earlier periods. The above-ground remains are in a ruinous state and thus have limited historical value, in relation to earlier periods, reflecting more the appearance and of the late 19<sup>th</sup> and 20<sup>th</sup> centuries. As such, the remains of buildings and the colliery at Lower Colliers Row are considered to possess only a low degree of significance.
- 4.380 Some earthwork remains, in the landscape around Lower Colliers Row, potentially related to early mine working and thus potentially have a strong evidential value, providing information on early mining techniques and practices. However, due to the nature of the area, which has experienced successive mining activity, it is hard to define the different phases. Certainly, the many mining levels in the locality, which could have been worked from any period between the 18<sup>th</sup> and early 20<sup>th</sup> centuries, and which are in a state of poor preservation are not considered to be especially significant, representing remain of low or negligible value.
- 4.381 Mining remains of demonstrable early date (such as the Old Workings identified by the NMRW), would be considered to potentially represent remains of moderate value, due to their evidential potential.

Summary: Post-medieval/Modern: Industrial Period (mid-18<sup>th</sup> century – mid-20<sup>th</sup> century)

- 4.382 In summary, the early-mid 19<sup>th</sup> century was a period in which industrial activity was intensified within the site. This is exemplified by the establishment of deep shaft mines, which were dug from around the 1830s. These replaced or complemented an existing array of mines accessed by levels. The shafts were accompanied by works concerned with water management, with new reservoirs and leats built to feed the commonly employed water balance winding mechanisms. It is likely (although evidence is hard to establish) that these water systems utilised in some areas existing water sources and reservoirs that had been used early in the century, or in the 18<sup>th</sup> century for scouring operations.

- 4.383 Although map evidence for this period is limited, as detailed Ordnance Survey maps had not yet been produced. The 1814 OS map and 1850 Tithe map do provide some information of the site's industrial development over the period. The most intensive works were likely to have been in areas in which outcropping seams ran close together areas, which had probably already been subject to considerable surface working before the start of the century. The earliest works were probably in the most accessible of these places; areas closest to the Cyfarthfa Canal in the east of the site (which was superseded by the Cwm Pit Railway mid-century), and via tramroads running north from the Cwm Glo valley.
- 4.384 In particular, documentary evidence, archaeological evidence and evidence from LiDAR, indicates that the most intensive, early surface workings occurred in around Cwm Pit, Glyn-dyrys, Cwm Glo and in particular on land to the south-west and west of Lower Colliers Row.
- 4.385 Later in the period, as the more accessible resources were exhausted, mine working also spread to the higher land to the west. This was exemplified by the patch working of outcropping iron stone at the Black Pins and elsewhere in the region, to the north-west of the site (such as at Winch Mawr) and by mining for coal and ironstone at Cwm Du, at which a colliery, and new tramroad link to Cyfarthfa was established in the 1830s. Intensive extraction in this area, is most likely to have occurred after this transport link was in place.
- 4.386 Improvements in transport technology were a key catalyst for mining activity over this period. At the turn of the century the canal provided a main transport spine and haulage was on primitive tramroads using hand or horse to pull carts. By the 1830s steam engines were almost certainly used for haulage and a network of tramroads was established connecting mines initially with the canal, and later directly with the ironworks. Rail transport was further improved by the establishment of the Cwm Pit Railway around 1850, which entirely superseded the canal's function, it rapidly becoming derelict, which probably happened before this date.
- 4.387 The site contains considerable earthwork and structural remains related to mining in the early-mid 19<sup>th</sup> century. The best-preserved sites, with the greatest integrity, and of the earliest date have been identified by Cadw and preserved as Scheduled Monuments. Elsewhere, mining remains have less integrity, having been truncated by later remains or re-use or have been eroded by natural processes. The assessment has identified parts of the site where early remains are most likely to have occurred, with logic dictating that the earliest works would have consisting of surface working along exposed seams, that were close to early transport links. However, the accurate dating of pits and other earthworks is problematic. Accurately dated early remains would be considered to represent historic assets of moderate significance.
- 4.388 Most mining remains within the site, dating from the early – mid 19<sup>th</sup> century would be considered to represent historic assets of low value, on the basis of their historical and communal values, represent the visible, although poorly preserved, remains of a major local industry.

### ***Mid-Late 19<sup>th</sup> century***

- 4.389 The Mid-Late 19<sup>th</sup> century started as a period in which the site's mining industry was at its peak, and ended with the ironstone industry in decline. Key drivers for change at the Cyfarthfa mines over this period were technological changes and responses to wider, economic factors.
- 4.390 Early in the period, steam engines became the most reliable source of power for haulage and transportation. Fixed steam engines were increasingly used for underground haulage, and later in the century they replaced the water-balance as a method for raising trams to the surface. It was reported that, by 1875, underground haulage was generally by machinery, but with horses working alongside (Morris and Williams, 1958, 70). Steam powered locomotives allowed for the rapid, bulk transport of minerals between mining sites, the ironworks, and to the port terminals to the south. This led to the development of a local rail network, between the mines within the site and the ironworks, which in turn allowed access to the wider rail network. Historic maps illustrate new tramroads and incline railways.
- 4.391 From around the 1860s mining techniques advanced with the implementation of the more efficient long wall method of extraction as opposed to the older pillar and stall methods. It is not known when exactly this method was employed at the Cyfarthfa mines although it was reported by a mines inspector in 1879 that the method prevailed across most of South Wales (Morris and Williams, 1958, 62). The new technique allowed for the re-opening of older coal mines on the thicker seams in order to work pillars of coal left by the pillar and stall methods (Arup, 2008, 12). The new technique also led to the driving of new levels, including the major Cwm Du Drift.
- 4.392 Economically, from the 1870s iron became cheaper to import, and British production declined. Some works (such as Cyfarthfa's direct competitor Dowlais) switched early on to steel production to compensate for the decline of the iron industry. Cyfarthfa was slow to adopt the new technology and, as a result, the loss of demand for iron led to the closure of the works in 1875, resulting in the closure of the company's ironstone mines. The works were re-fitted and opened in 1884 for steel production, but rather than re-open local mines ironstone was imported from Spain (Arup, 2008, 11). Unfortunately, the re-design of the business was not especially successful and in 1902 the works were sold.
- 4.393 Although from the late 1870s the demand for iron ore ceased, the site's coal mines continued to operate. The original 99-year lease, held by Cyfarthfa for their mineral take, forbade the sale of coal, with the mineral only to be used for iron production. From 1864 the lease was renewed with a clause allowing the sale of coal. As such, from this point onwards the company began to sell a proportion of its product, sending it down to Cardiff by rail.

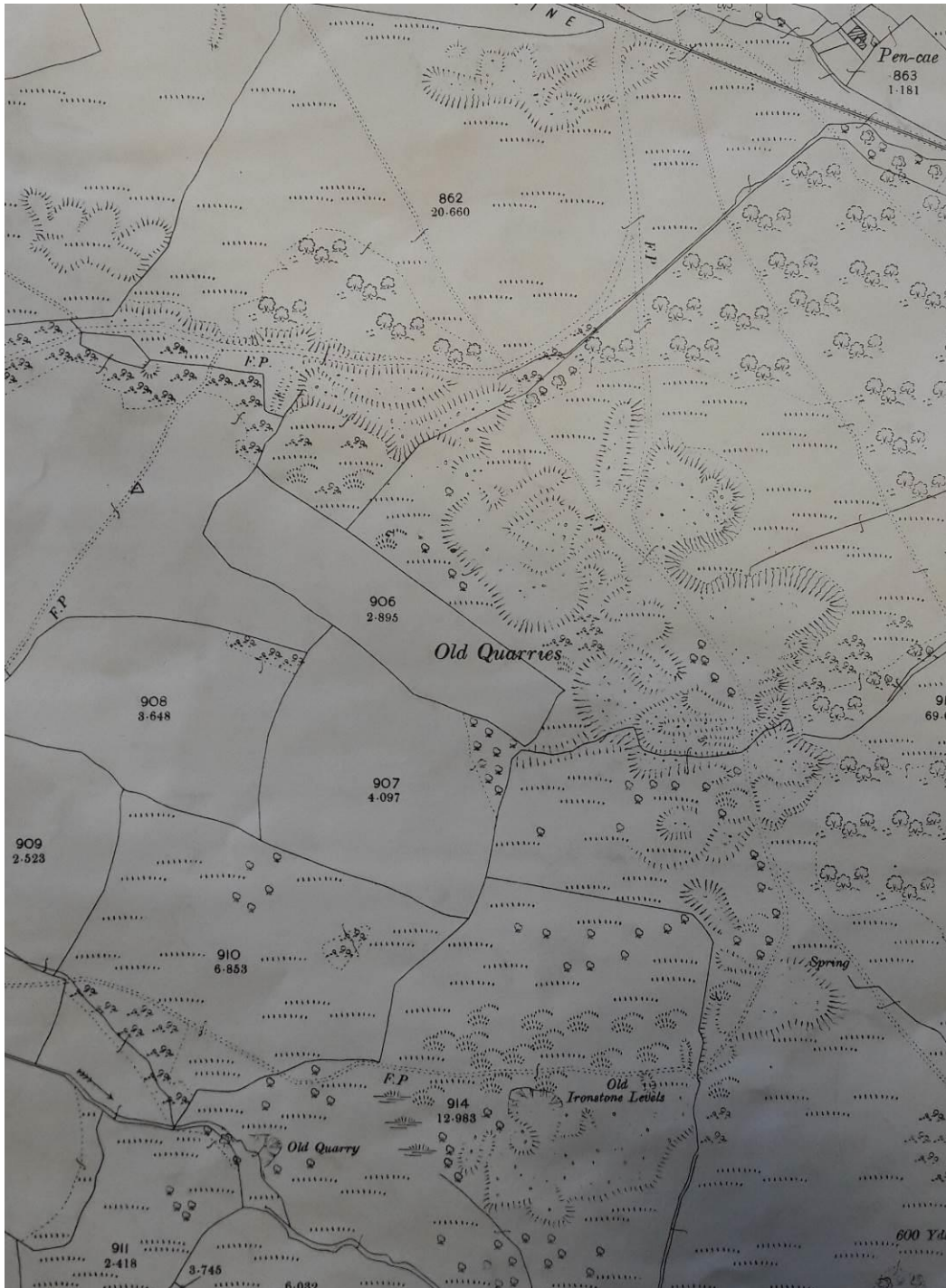
### *Cartographic Sources*

- 4.394 The most detailed cartographic sources for the mid-late 19<sup>th</sup> century comprise the 25" to the mile (1:2500) Ordnance Survey Maps. These represent the first fully detailed surveys

of the site and provide the most comprehensive plan of the peak industrial period. Editions consist of the 1876 and 1900, which is incomplete and reproduced where possible as figures showing specific detail. Equivalent, 6" to the mile surveys are also available, dating to 1885, 1903 and 1914. These are reproduced at a larger scale for the whole site at **Plans EDP 17, 18 and 19**.

#### *Black Pins*

- 4.395 The Ordnance Survey Map of 1876 shows the works at the Black Pins in operation and at their greatest extent (**Figure EDP 14**). A spinal tramroad is shown running from Cwm Glo Pit south to the works, with branches accessing the numerous quarries and levels. The road ran south beyond the main quarries, accessing a group of ironstone levels further along the course of the Black Pins ironstone seam, that were beyond the site boundary. The wider map shows that by this time, ironstone was being extracted all along the seam with considerable quarries at Winch Mawr and above Heolgerrig. The seam ran above Cwm Du and it may be that quarries in this area also extracted this source of ironstone.
- 4.396 The course of the wider tramroad network associated with the Black Pins is not well-preserved. Part of the route to the immediate south of Cwm Glo is reflected in the course of a footpath, however the route up the hillside to the quarries was not clearly identifiable at the time of the site visit, although it is noted as a low earthwork by Cadw. The course of the tramroad can be traced through the quarried area and south from the proposed scheduled area on LiDAR data (**Plan EDP 9**). It was noted during the site visit to be set in a hollow at one location (**Image EDP 13**). The NMRW records the tramway, to the north-east of the quarries as a broad grassy track (NMRW **261961**).
- 4.397 It is stated by Cadw that the Black Pins works are likely to have utilised scouring as a technique to facilitate open cast mining. The OS map of 1876 indicates a system of leats which may have been utilised as part of such a system, or may have functioned simply as drainage from the mine workings. A probable leat is shown running past the quarries, down slope towards Pen-cae where it joined another carrying water to a reservoir to the north of Lower Colliers Row. Part of this leat is probably extant as it shows as a linear expression on LiDAR data.
- 4.398 It is apparent that the pattern of spoil tips, quarries and mining levels depicted on the map of 1876 follows closely the pattern of surface expressions depicted on the LiDAR. This suggests that the works depicted on the map were close to the full extent of works, and it is likely that mining activity declined there shortly after the mid-1870s, coinciding with the closure of Cyfarthfa Ironworks. The OS map of 1900 reinforces this interpretation, with the quarries and levels described as 'old' and the tramway as having been removed (**Figure EDP 15**).



**Figure EDP 15:** The Black Pins shown on OS map of 1900.

4.399 For the Black Pins sites (i.e. the ridge-top ironstone mines sites along the ridge that shared a tramroad), the NMRW records fourteen records within the proposed scheduled area, a further three records related to works to the south, and six that relate to works to the north-west. Four of the records within the scheduled monument area relate to open-cast quarries and five to tips of material produced by the quarries. Three indicate the remains of tramroads and one to a former mining level on the southern edge of the monument.

- 4.400 Those to the south relate to the remains of former ironstone levels and tips (NMRW **261943**, **261944** and **261945**). Those to the north-west relate to the remains of two former levels (NMRW, **262017** and **262020**), a shaft (NMRW, **262022**), tips (NMRW **262022** and **262018**) and the tramroad which accessed them (NMRW **262019**). The mines to the north-west of the main quarries may date from early in the phase of ironstone extraction at the Black Pins, as the OS map of 1876 does not indicate that they were operational at the time of the survey.
- 4.401 During the site walkover survey, it was noted that earthwork remains in this part of the site, where visible due to vegetative cover, were generally well-preserved. At a slightly lower position on the slopes an L-shaped cutting was observed containing deposits of stone including two possible buildings. This is recorded by the NMRW as a former stock pile for stone removed from the ironstone quarries (NMRW **261951**). This is not recorded on any OS maps, suggesting that it may be a feature related to the earliest phases of extraction.
- 4.402 The significance of the remains at Black Pins is demonstrated by the proposal of the quarry area as a scheduled monument. Cadw consider the core of the mine of 'national importance'. The reasons for this have been discussed previously.
- 4.403 Other archaeological remains in the Black Pins area, such as the earthwork remains of the tramroad to the north, levels to the south and north-west, and the remains of buildings or stone deposits, are understood fairly well in terms of a mid-late 19<sup>th</sup> century date and have a discernible integrity as an interrelated group. The above-ground remains have a degree of historical value, illustrating the form and function of the mine workings at Black Pins. The earthwork remains, and building/stone remains also possess a degree of evidential value, although this is limited by their state of preservation. As heavily overgrown earthworks, low walls and rubble, the remains possess very little aesthetic value. This is in contrast to the scheduled tips and quarries at the Black Pins, which are as previously described ascribed a degree of aesthetic value. Their place within the industrial history of Merthyr Tydfil demonstrates communal value, although as remote inaccessible earthworks they are not easily experienced. As such, aside from (as described earlier) representing a part of the setting of the scheduled area at Black Pins, the earthworks and building remains represent, an historic asset of low significance.

#### *Cwm Du*

- 4.404 The OS map of 1876 (**Figure EDP 6**) illustrates that the early-mid 19<sup>th</sup> century coal shaft and level at Cwm Du had ceased to operate by this time. Coal levels, accessed by tramways branching from a spinal tramroad, are depicted (both labelled and unlabelled) across the hillsides to the south and south-west of the older mine. It is possible that mining strategy followed an economic logic, with the less easily accessible seams, further up the hillside, mined as more economically viable sources became exhausted.
- 4.405 The tramway that led from the older workings was extended to the south. As previously described, the course of this tramway was superseded in modern times by a road. The former branches from it, that led to the various levels, are in places, still discernible as

earthworks (**Image EDP 48**). Several of these are recoded by the NMRW (NMRW **85673, 85674, 85688, 262182, 262121** and **262104**).

- 4.406 The NMRW records a large number of mine entrances on the hillsides at Cwm Du. Many of these are not depicted on the OS maps. This suggests that either the mines predated the maps (i.e. that they likely date from early – mid 19<sup>th</sup> century works) or that the maps simply did not record all of the mine workings. Some of the workings post-date the 1900s which are discussed later.
- 4.407 The earthwork remains of six levels (NMRW, **262155, 262130, 262124/85773, 85805, 262114, 262106**) are recorded by the NMRW along the southern edge of the site, cut into the slopes above Cwm Du, that are also depicted on the 1876 map. This suggests that these were either in operation or earlier in date. The NMRW also records two shafts (NMRW **262105** and **85794/262009**) located at the far eastern extent of the tramroad that were probably in operation at the time of the survey for the 1876 map.
- 4.408 Mines unrecorded on the OS maps include a group of six, small collapsed shafts (NMRW **262144, 262145** and **262146**) located in close proximity to the south of the Cwm Du reservoir. These are not on the OS, however a track, likely to represent a former tramroad is shown leading from them to the main spinal route on the map of 1876. The shafts appear out of use by this date, but must have been contemporary with the spinal tramway, thus suggesting at the earliest a mid-19<sup>th</sup> century date. They may have been related to the main mid-19<sup>th</sup> century Cwm Du shaft to the north, possibly representing air shafts.
- 4.409 Another group of small shafts, unrecorded on the OS maps is located to the north of Cwm Du Farm (NMRW **262187, 262186** and **262137**). Several of these have collapsed creating an east-west linear fissure and a series of hollows (NMRW **262185** and **262139**).
- 4.410 A tramway branch appears to have also provided access to stone (and possibly ironstone) quarries to the west and south of Cwm Du Farm (NMRW **85787**). The map of 1876 indicates that the quarries were probably in use at this time. Other quarries further north, appear to have been accessed via a road running south-west from Heolgerrig.
- 4.411 The OS map of 1900 (**Figure EDP 16**) illustrates a shift in economy and output at Cwm Du. The mining levels depicted in operation on the OS map of 1876 are labelled as 'old'. Additional 'old' levels are illustrated, suggesting that mining continued in this area after the mid-1870s and the closure of Cyfarthfa. The NMRW records four mining levels, on the hillside, that are shown as 'old' on the 1900 map but which are not on the map of 1876 (NMRW **262109, 262111, 85789** and **85788**).
- 4.412 By 1900 it is apparent however that the main focus of coal mining at Cwm Du was the Cwm Du drift mine (NMRW **409701**). The drift operated from the late 19<sup>th</sup> century working well into the 20<sup>th</sup> century. It linked up with older workings associated with Cwm Du Pit, accessing deeper seams in the western part of the site and using the longwall method to exhaust older mines.

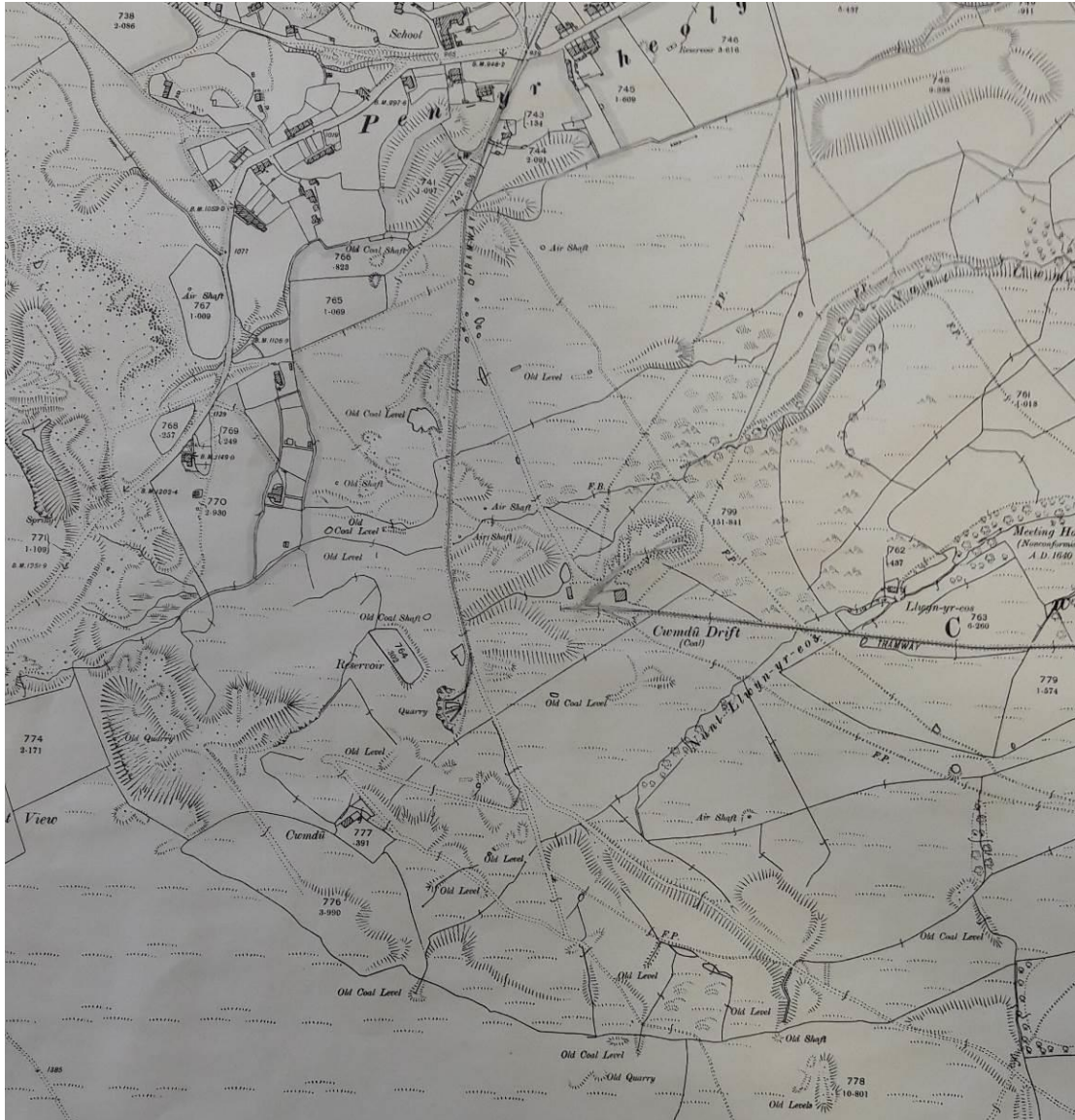


Figure EDP 16: Cwm Du area as depicted in 1900.

- 4.413 An historic photograph asserts to show the Cwm Du drift portal (**Image EDP 49**), however the appearance of the surrounding landscape does not reflect that of the portal's surrounds as depicted on maps, and it may be that the image is in fact of another entrance in the vicinity. The drift mine is associated with a group of three extant buildings which are currently in use as agricultural buildings.
- 4.414 Closest to the portal is a probable engine house (**Image EDP 50**). The rectangular building is constructed in random, dressed pennant sandstone stone with red brick quoins and large arched windows with red-brick surrounds. It has a corrugated metal roof, pedestal base and a large arched entrance on the east side which was covered with corrugated metal when visited. All windows are bricked up. The building is not shown on historic maps until 1919. It is recorded by the HER as an engine house (**GGAT04390m**) and may reflect the NMRW record for Cwm Du Drift Building I, although the description seems erroneous (**262166**).

- 4.415 Adjacent to the engine house is a long rectangular building (**Image EDP 51**). This is also constructed in random, dressed sandstone blocks with red brick quoins and entrance surrounds. It has several doorways and bricked-up windows entrances on the east side including a partially bricked-up wider entrance. In this respect, the building resembles a stables and is recorded as such by the HER (**GGAT04391m**), which identifies it as a probable stables and blacksmith. The building has a small brick lean-to extension on the west side and a modern metal walled extension on the north side. The building is depicted on the OS map of 1900 suggesting that the original part is late 19<sup>th</sup> century in date.
- 4.416 Approximately 40m to the east is another building (**Image EDP 52**). This consist of a group of joined brick, corrugated metal and concrete sheds. Part of the building, constructed in rendered stone, on the north side may represent the oldest part, as a building is shown at this location on the OS map of 1900. It is not known what function this building may have had. It is recorded by the HER (**GGAT04392m**).
- 4.417 The OS map of 1919 shows an additional building to the east labelled as 'engine house' as well as two smaller buildings. None of these are extant. A large modern stables is located to the north-east of the historic buildings.
- 4.418 For haulage, the drift mine did not utilise the older tramroad to the west but instead an incline railway was constructed running down the hillside to the east. Via this route coal was transported to the Cwm Pit railway, with a loading station just to the north of Lower Colliers Row. The OS map of 1900 indicates a tramroad emanating from the mine to the north-east towards a tipping point. At present considerable waste tips are present in this location which are best observed on LiDAR data (**Plans EDP 9 and 10**). The incline is well-preserved especially at the west end, close to the mine, its course can be easily traced and it is open and walkable for most of its length. During the site visit it was seen that the incline is set between steep sided, spoil tips. It was also noted that in places, on the base of the railway concrete sleepers were still evident (**Image EDP 53**).
- 4.419 A significant, related historic asset to the Cwm Du drift is the air shaft and pump which is a scheduled monument. The significance and setting of this feature has been described previously. It is notable that the air shaft predates the drift mine as it is depicted on the 1876 OS map. It is likely that the shaft was related to the workings of the mid-19<sup>th</sup> century Cwm Du pit.
- 4.420 Water management remains are also apparent at the Cwm Du drift. A small reservoir was located to the immediate west of the stables (NMRW **262169**). This is now a boggy depression. On the OS map of 1900 this appears to have been linked to the larger older Cwm Du reservoir to the west by a leat.
- 4.421 The OS map of 1900 identifies the quarries to the west of Cwm Du farm as 'old'. It is possible that these went out use as demand for ironstone ceased following the closure of Cyfarthfa, or that the quarries were simply exhausted as a supply of building stone. It is notable the map illustrates that stone continued to be quarried in the area, as a small

quarry is depicted to the south of the Cwm du reservoir. This quarry continued to utilise the otherwise redundant tramroad north out of the site.

- 4.422 Other industrial remains at Cwm Du include substantial tips. These indicate a regime of mixed production, with spoil evident from quarrying for stone and ironstone and coal. Of these it is apparent that 19<sup>th</sup> century tips are the smallest in the locality. Tips are well-defined in LiDAR data, but when comparison is made between the tips depicted on the OS map of 1900, it is apparent that the larger tips were not present at this time. This reflects the greater intensity of mining activity in the 20<sup>th</sup> century. Many of the 19<sup>th</sup> century tips are small and discrete, reflecting the small scale and ephemeral nature of many of the mines that were dug in this part of the site. As could be expected the larger of the 19<sup>th</sup> century tips are those associated with upcast from the Cwm Du pit.
- 4.423 Also apparent is a system of drainage with leats located on slopes to the north-east of the main mining area, designed to drain water from the mines and tips down towards the Nant Llwyn-yr-eos.
- 4.424 The mid-late 19<sup>th</sup> century remains at Cwm Du are in places well preserved. A particular integrity, both in terms of the group value of the extant buildings and earthworks and their preservation is apparent with the remains of the Cwm Du drift, although this represents a late phase in the site's mining history. An aspect of this integrity is their association with the scheduled air shaft and pump. Particularly well preserved is the Cwm Du incline, from which the aesthetic character of the mine, enshrined in its buildings and tall tips, is readily appreciated. As a group, the remains at Cwm Du drift are considered to represent historic assets of moderate significance, illustrating well the appearance and function of a late 19<sup>th</sup>/early 20<sup>th</sup> century coal mine.
- 4.425 The small-scale mid-late 19<sup>th</sup> century remains generally have less historic and material integrity. Many of the pits and levels on the hillsides to the south have suffered collapses and as such are poorly preserved and under present conditions gaining an experience of them is dangerous. Furthermore, some degree of small scale 20<sup>th</sup> century mining occurred in this area which has in places masked earlier mining landscapes. As such, mid-late 19<sup>th</sup> century mining remains on the hillsides to the south of Cwm Du pit are considered to possess relatively limited historical and evidential value. In general, the remains at Cwm Du have a place within the industrial history of Merthyr Tydfil which demonstrates communal value, although as remote inaccessible earthworks they are not easily experienced.
- 4.426 An exception to this are the remains of tramroads, which do survive well in this part of the site. Another expectation are the quarries to the west. These possess an additional historical and communal value as the possible source of building stone for Cyfarthfa Castle and therefore may be of an earlier date than as recorded on historic maps. In general, as heavily overgrown earthworks, the earlier mid-late 19<sup>th</sup> century remains possess very little aesthetic value, but again, an exception to this are the quarries and tips, which like those at the Black Pins represent large and fairly dramatic earthworks.

4.427 In conclusion, the earthwork remains of mining activity on the hillside to the south of Cwm Du pit are considered mostly to have a negligible historic significance. However, those elements which display greater integrity and value, such as the quarries and tramroads, along with other demonstrably better-preserved elements of the mining landscape are considered to represent historic assets of low significance.

#### *Cwm Glo*

4.428 The OS map of 1876 illustrates the mine at Cwm Glo at the peak of its production, as well as the appearance of the heavily disturbed landscape in which it lay (**Figure EDP 9**). The mine, and several features that surround it are proposed as a scheduled monument, and have been described previously. The Cwm Glo mine appears to have been accessed by several levels, with the 1876 map shown one to the south-west and another to the south-east. Air shafts are also apparent at several locations in the vicinity. The NMRW indicates that the portals of both levels have since collapsed (NMRW **262251** and **262074**). Both air shafts still exist as depressions (NMRW **262068** and **262201**).

4.429 The map illustrates that by the 1870s the mine was served by a network of tramways. An incline railway ran to the east, down slope, linking to the Cwm Pit railway. The original tramway from the mine ran to the north linking directly to Cyfarthfa. A local route accessed a mining level to the south-west and a tramway ran to the south towards the works at the Black Pins. Tram lines fanned out across the level tips of spoil heap to the north-east. These, as previously described, were either tipping platforms or were used for weathering ironstone.

4.430 It is speculated by Hereford Archaeology (2004) that the two tram routes away from Cwm Glo were organised to carry ironstone and coal separately. Both materials were won from the mine at Cwm Glo, and additional ironstone would have come to the area from the Black Pins, and further north from Coed Cae. The theory is that the line to the north carried only ironstone whereas the coal won from Cwm Glo was sent east down the incline to the Cwm Pit Railway which was linked only to coal mines.

4.431 During the site visit it was noted that the cut (between spoil tips) of the incline railway is well-preserved (**Image EDP 54**), although no remains related to its brake house (**GGAT02827m**) were noted, nor were remains of tracks. Remains of the two tramways which ran south from the mine no longer exist as the banks which carried them over the Nant Cwm Glo have since collapsed.



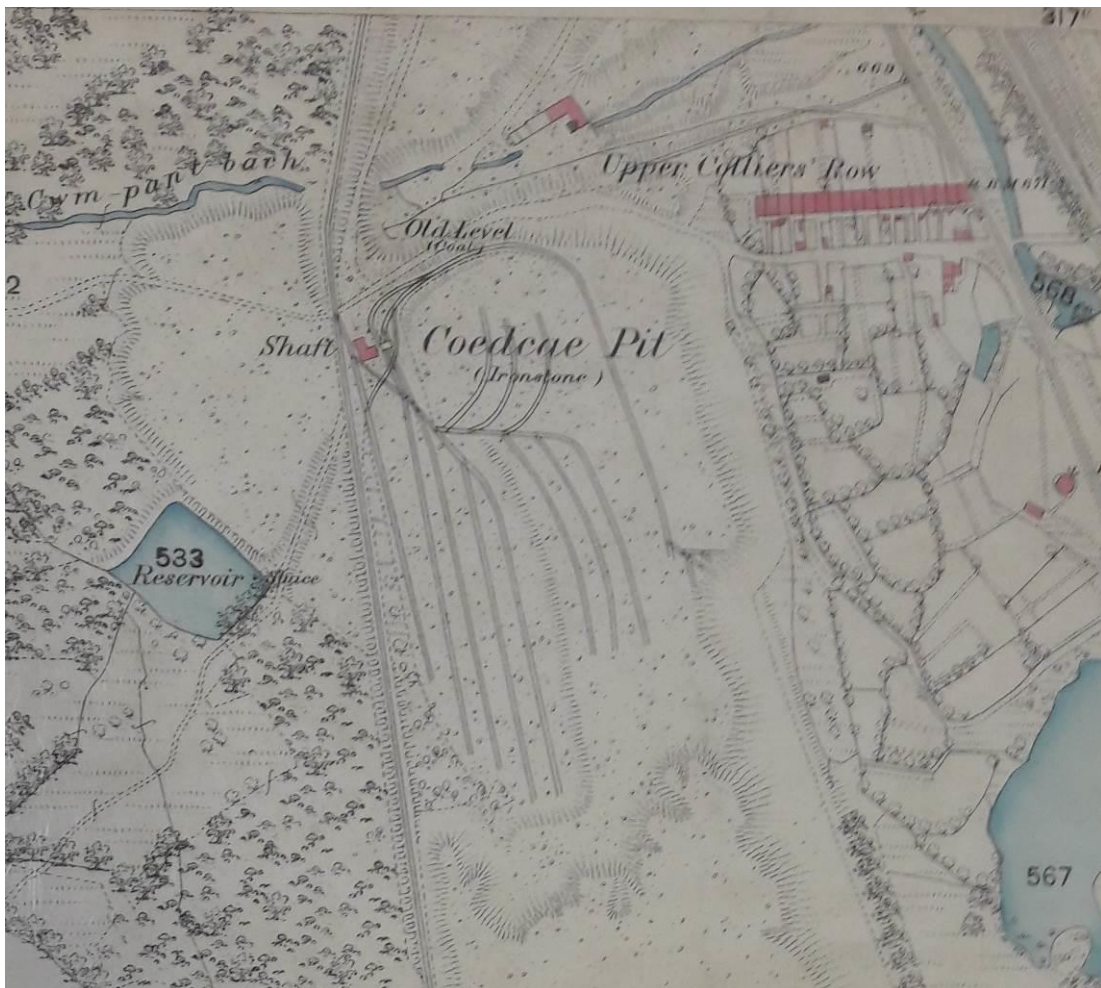
**Figure EDP 17:** Cwm Glo Pit as depicted in 1900.

- 4.432 The OS map of 1900 depicts the mine at Cwm Glo as disused with its associated levels labelled 'old' and its associated tramways removed (**Figure EDP 17**). Although Cadw identify the mine was closed by 1905, it is apparent that it was in fact earlier. It is most likely that, given its role in the production of ironstone that the pit closed or scaled back production to coal only, from the late 1870s and the closure of Cyfarthfa.
- 4.433 It has already been described how the 'core' area of the Cwm Glo mine has been considered by Cadw to be of 'national importance', and therefore proposed as a scheduled monument. It has also been described how the disturbed areas around the Nant Cwm Glo and Nant Llwyn-yr-eos are likely to contain remains related to early mining activity which, depending on their state of preservation, could represent historic assets of low or moderate significance. Later remain in this part of the site, such as remains of tramroads, air shafts and tips vary in terms of their significance.
- 4.434 The Cwm Glo incline is well preserved and, like the Cwm Du incline, is a fairly dramatic topographic feature from which the aesthetic character of the mine, and its function can be readily appreciated. This feature is part of the setting of the proposed scheduled monument, it has a close functional link to its remains. As such the feature is considered to represent an historic asset of moderate significance.
- 4.435 The large tips that dominate the landscape around Cwm Glo are also a part of the setting of the scheduled monument. These large features have little evidential value but do have a strong visible presence, and like others in the site, are iconic reminders of the mining heritage of the locality. As such, they are considered to represent historic asserts of low significance.

4.436 Other remains such as the remains of levels, air shafts and tramways (that headed south) are not well preserved. As such, they possess limited evidential value and are not easily experienced or appreciated as part of a formerly integrated mining landscape. They represent a part of the setting of the scheduled monument at Cwm Glo, but in and of themselves are considered to have negligible heritage significance.

#### Coed Cae

4.437 The shaft at Coed Cae appears to have followed a similar mid-late 19<sup>th</sup> century history to Cwm Glo. On OS maps, in 1876 (**Figure EDP 18**), it is shown as an operational mine, a depiction that represents the best record of the mine at its fully operational capacity. However, by 1900 is labelled as 'disused'. The OS identified that the mine produced ironstone, and it is likely that it ceased to operate following the closure of Cyfarthfa in the 1870s.



**Figure EDP 18:** Coed Cae pit and its surroundings shown on an OS Map of 1876.

4.438 The Coed Cae level, located to the immediate north of the shaft is labelled as 'old' on the OS map of 1876, suggesting that it was not in use at this time. However, unlike the shaft the level is shown as active on the map of 1900, having been renamed 'Clay Level'. The level targeted coal and it is likely that the re-opening was a response to the continuing

economic value of coal and the implementation of the long-wall method, thus enabling old mines to be re-worked. This level was linked via a tramroad to the Cwm Pit railway.

- 4.439 The 1876 map illustrates the various features associated with the mine, which were described previously. Particular detail is provided on the layout of tramroads on land to the south-east. These were probably used for weathering ironstone, although a tipping run is also evident.
- 4.440 The OS map of 1900 illustrates the mine buildings as still extant but that the land to the south-east had been enclosed, presumably converted for use as farmland. As with Cwm Glo it is apparent that tips produced by the mine had ceased to grow noticeably in size between the map of 1876 and that of 1900. This suggests that the ironstone mine probably went out of use shortly after the closure of Cyfarthfa in 1875.
- 4.441 The significance of the remains of the 19<sup>th</sup> century mine at Coed Cae have already been discussed. No new mine workings were implemented in the mid-late 19<sup>th</sup> century. Remains related to the re-opened level would possess a limited degree of evidential value and some historical value, illustrating the continued process and technique of coal mining. Given this the remains would be considered to represent an historic asset of low significance

#### *Glyn-dyrys*

- 4.442 Glyn-dyrys pit was subject to the same economic pressures as Cwm Glo and Coed Cae. The pit is illustrated on the OS maps of 1868 and 1876 (**Figure EDP 5**) at its operational peak, and is labelled as an ironstone mine. The function of the pit is reflected in a layout of tramroads which surround it, likely to reflect an area used for weathering ironstone, much the same as the spaces around Cwm Glo and Coed Cae were used for similar purposes. The mine is shown connected directly to the Cwm Pit railway, dismissing the concept that the railway was only used for transporting coal. The map shows a tipping run heading north from the mine, with tips situated to the east of Lower Collier's row. These tips are now buried beneath considerable additional waste deposited in this location during the construction of the modern A470 road.
- 4.443 The OS map of 1900 shows the mine buildings at Glyn-dyrys still extant but abandoned and the surrounding network of tramroads removed. By the late 20<sup>th</sup> century OS maps indicate that the building had been removed resulting in the earthworks that are now present within the site and which have been described previously.

#### *Cwm Pit*

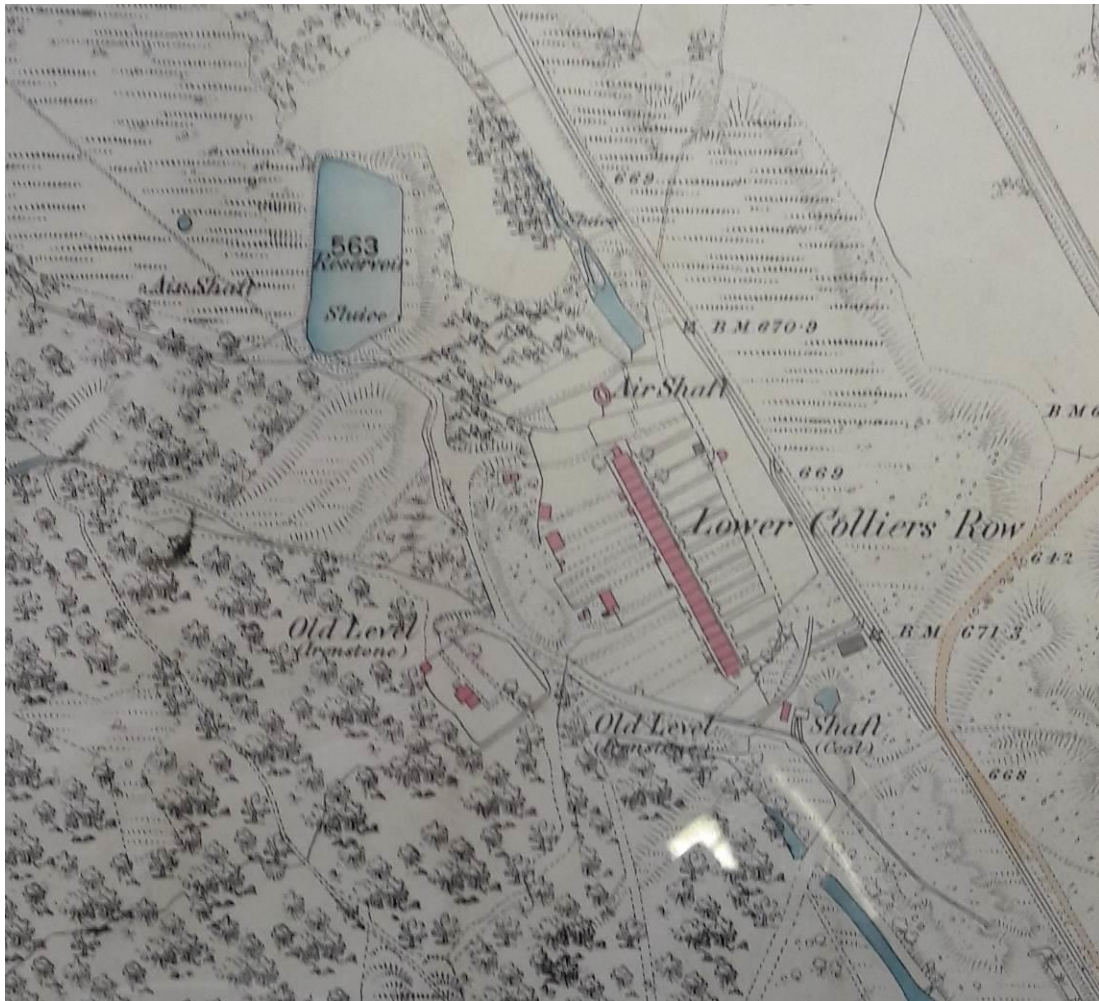
- 4.444 As a coal mine the Cwm Pit colliery was not affected by the closure of Cyfarthfa Ironworks and continued to operate throughout the mid-late 19<sup>th</sup> century. The appearance of the mine on the 1876 and 1900 OS maps has been described previously. It is apparent that the mine expanded over the course of the mid-late 19<sup>th</sup> century, with additional levels being dug to the west and tipping across an area to the north.

4.445 During the site visit it was noted that the tips to the north are of considerable height, representing an imposing earthwork (NMRW **261916**, **261917**, **261919**). Likewise, although shrouded by dense woodland the incline that fed the tips was identified, consisting of a cut feature between the spoil tips. As previously discussed, these large features represent a part of the functional setting of the scheduled Monument at Cwm Pit. They have little evidential value but do have a strong visible presence, and like other tips in the site, are iconic reminders of the mining heritage of the locality. As such, they are considered to, in their own right, represent historic assets of low significance

*Lower Colliers Row*

4.446 As previously outlined, Lower Colliers Row was one of the most intensively mined parts of the site. Primarily a coal mining site, Lower Colliers did not decline in step with the closure of Cyfarthfa and continued in use throughout the latter half of the 19<sup>th</sup> century.

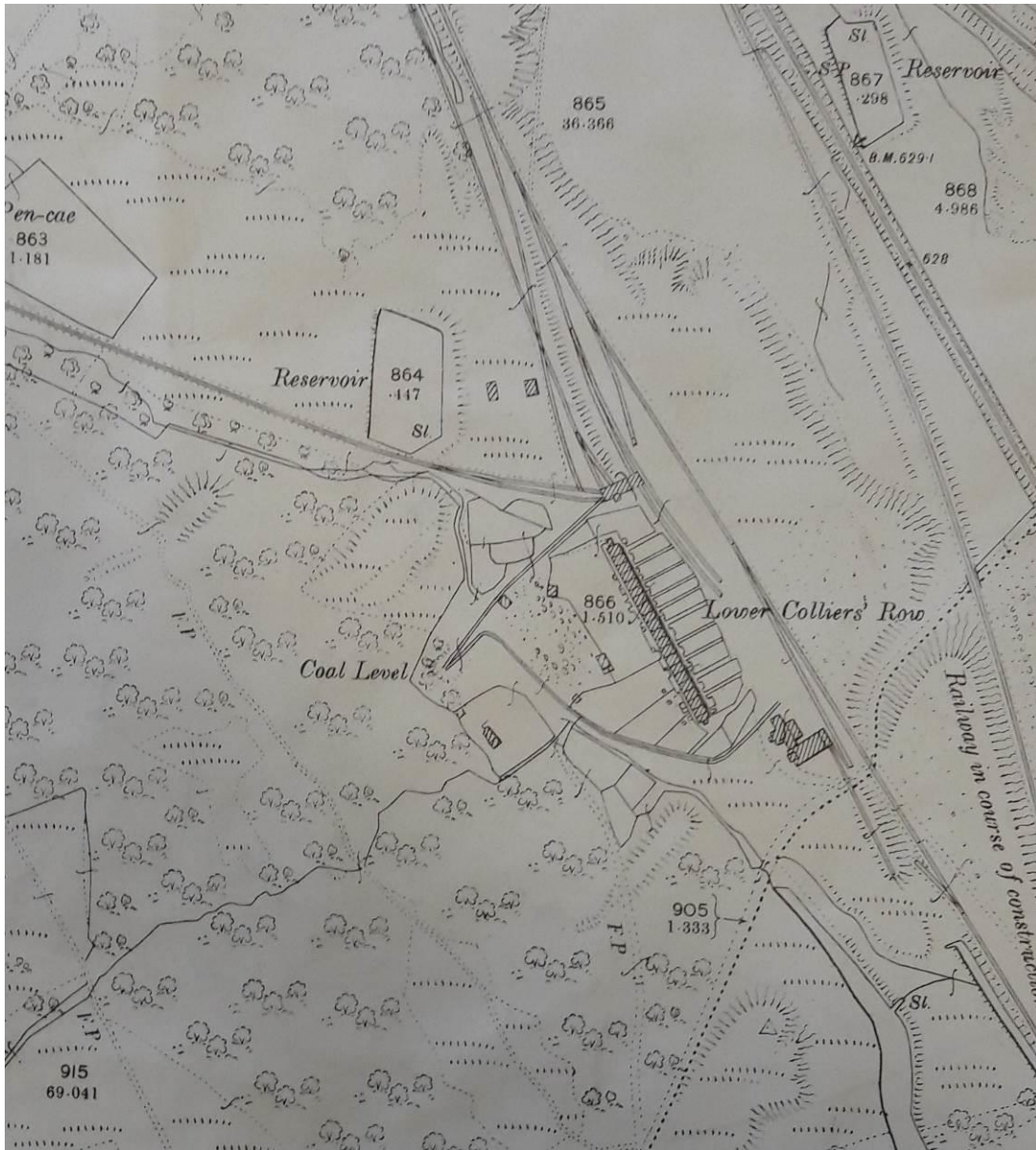
4.447 The 1876 OS map indicates little change from the mid-19<sup>th</sup> century picture, as previously described (**Figure EDP 19**). The Lower Colliers shaft was fully operational and tramways serving the shaft were connected directly to the Cwm Pit railway, with a tipping line headed south. The map indicates disused ironstone levels, to the west of the Lower Colliers Row, possibly reflecting the cessation of ironstone production that occurred at the Cyfarthfa mine fields at this time. The map also indicates two air shafts, one of which is recorded as extant by the HER (**GGAT02828m**) with the other infilled by later development to the north of Lower Colliers Row (**GGAT04433m**).



**Figure EDP 19:** Lower Colliers Row as depicted on an OS Map of 1876.

4.448 The OS map illustrates clearly the systems of water management in place at Lower Colliers Row. A reservoir is located to the north of the terraces (NMRW **261991**). Unlike other reservoirs, this structure is not depicted on the 1850 Tithe map and so it is supposed that it was built between 1850 and 1876. The reservoir appears to be fed by leats coming down the hillside from the west and may have provided water to a system of ditches (possibly allotments) to the immediate north of Lower Colliers Row, rather than a water balance system. The function of this system is not known, although it may have been designed to control the run-off of water from the Black Pins and Cwm Du, diverting it away from the area of settlement. It may also have been that the water was used for domestic purposes. Two levels appear to be cut into the slopes to the south of the reservoir, with leats or streams running from them to the east. These may represent levels dug as drainage from mines at a higher altitude to the west.

4.449 The OS map of 1900 (**Figure EDP 20**) illustrates considerable change at Lower Colliers, reflecting the general increase in coal mining towards the end of the century, as seen across the site. A substantial rail junction is illustrated to the north of Lower Collier's Row. The incline railway from Cwm Du Drift meeting the Cwm Pit Railway. The OS map shows a structure at the end of the incline. The HER records a loading structure or tipping bay (**GGAT02808m**) and the NMRW records a loading platform.



**Figure EDP 20:** Lower Colliers Row as depicted on an OS Map of 1900.

- 4.450 During the site visit a walled structure was recorded close to this location, situated in dense woodland (**Image EDP 55**). The structure is constructed in dressed, random coursed sandstone blocks, and has several chutes set into the wall. It is of a similar appearance to the loading walls at the head of the Cwm Pit railway, and it is likely to represent a loading bay situated at the end of the incline, and thus dates from the late 19<sup>th</sup> century.
- 4.451 The foundation remains, and rubble of at least two other stone and brick built buildings were located in the vicinity of the walled structure. It is likely that these represent some of the buildings depicted on the 1900 OS map, and which are recorded by the NMRW (**261993** and **261994**). Other extant remains in this area include stone walls and former tramways.

- 4.452 A functioning coal level is depicted on the 1900 map to the west of the terrace. This represents the re-opening of an older level and probably reflects the exploitation of older mines using the long-wall technique, as witnessed elsewhere within the site. This feature is recorded as collapsed by the NMRW (**261975**) and was not seen during the site visit.
- 4.453 The 1900 map continues to show a group of buildings at the Lower Colliers shaft, however it is not thought that the shaft was still in operation at this time. The HER records the buildings as a 'branch haulage building complex' (**GGAT04426m**), presumably related to the function of the adjacent railway. No remains are thought to exist of this building, although at present its location is within a deeply vegetated area.
- 4.454 The significance of early-mid 19<sup>th</sup> century remains at Lower Colliers has already been described. The earthworks remains of the Cwm Du incline, the building bases, loading bay walls, former tram routes and rubble remains are the most notable archaeological remains related to the mid-late 19<sup>th</sup> century history of Lower Colliers. Although not especially well-preserved, and located in dense woodland, these remains have a degree of evidential value, possessing information on the operation of the late 19<sup>th</sup> century transport network. They have some degree of historical group integrity in relation to the course of the Cwm Pit railway, and the remains of the terraced houses at Lower Colliers Row, and also illustrate the function of the interrelated mining landscape at the site in the mid-late 19<sup>th</sup> century, specifically the transportation of coal, thus possessing a limited historical and communal value. As rubble ruins, however the remains possess little aesthetic value, although the stonework on the loading bay wall has an aesthetic quality. As such they are considered to possess some degree of heritage significance and are considered to represent historic assets of low significance.

#### *Other mine workings*

- 4.455 Unlike earlier maps the First (1876, 1885) and Second Edition (1900, 1903) OS maps illustrate the position of various small-scale mine workings at locations across the site that are not associated directly with any specific colliery. These workings, and others, can be traced on LiDAR data and many have been recorded by the RCAHMW in their comprehensive survey of the site. Some of these workings have also been visited during the site walkover survey.
- 4.456 Not every small-scale mining site is detailed in the discussion below, although some general trends and patterns are identified.

#### *Mining along the main surface outcrops*

- 4.457 As previously discussed in relation to Lower Colliers and Glyn-dyrys, the site contains a considerable density of surface remains across land to the west of Lower Colliers, an arc up to and area just west of Pen-cae farm. These remains reflect a targeting of surface outcrops of the shallow seams, the Four Feet, Twenty Inch and Upper Six Feet which run through this part of the site. The density of remains is most apparent on LiDAR data (especially the Skyview factor which clearly shows sharp depressions) which illustrates a

band of surface expressions that corresponds closely to the mineral geology (**Plans EDP 9 and 10**).

- 4.458 The expressions reflect small pits tracing mineral seams, which either relate to surface shafts or 'patches' or to collapsed below ground workings. Linear depressions are also apparent either reflecting the presence of levels, and the roadways that approached them, or again reflecting collapsed underground workings. The levels can in many cases be closely associated with small finger tips protruding away from the mouths of the former mines.
- 4.459 On historic maps, unlike other disturbed parts of the site (such as at Cwm Du or Cwm Glo), mining remains in this area are not well-represented. On all editions, the area is predominantly shown as woodland, with occasional distinct spoil tips shown. On the OS map of 1876, only the remains of works to the west of Pen-cae are shown. These appear disused and a possible former tramroad runs to the north, lining to an existing route. This association between tramways suggest that the works may have been early-mid-19<sup>th</sup> century possibly associated with the tram route that accessed this area as shown on the 1850 Tithe map (**Plan EDP 16**).
- 4.460 Remains in this area are reflected by a cluster of NMRW and HER entries. These identify evidence for at least five levels (NMRW **262094**, **262248**, **262040**, **262028** and **262092**) and nine probable shafts (NMRW **262089**, **262035**, **262032**, **262034**, **262032**, **262027**, **262026**, **262033** and **262090**) with related spoil tips, trackways and with a tram route to the east (NMRW **262039**, **262036** and **262030**). Collapsed mine workings are also identified. Of all the working the NMRW only identified two area of possible old surface pits consisting of a group c. 15 shafts or hollows following a seam (NMRW **262010**) and a group of c10 circular shafts.
- 4.461 The surface workings further east, which are not generally shown on historic maps, are more likely to represent older, early 19<sup>th</sup> century or even pre-19<sup>th</sup> century workings. The NMRW records a group of workings close to Pen-cae farm. This includes a group of workings immediately adjacent to Pen-cae farm that consist of small pits and shafts, possibly representing bell-pits or early surface workings (NMRW **262002**). Also in this area are a shaft and level (NMRW **261998** and **261964**). These works are over cut by the Cwm Du incline and so must be at least mid-late 19<sup>th</sup> century in date.
- 4.462 Surface remains further south, which on LiDAR appear as dense clusters of pits, are not well-documented by the NMRW. Two records relate to this area both of which identify 'old' workings (NMRW **261963** and **261962**). The HER also records pits in this area which it interprets as collapsed underground workings (**GGAT02849m**).
- 4.463 It is apparent that, like the area to the south-west of Lower Colliers Row this part of the site has potential to contain the archaeological remains of early surface mine working. Well-preserved examples would be considered to possess a degree of evidential value, and historical value illustrating the techniques and appearance of early mining in the site. Such, remains would be considered to represent historic assets of moderate significance. Other, later remains, in some cases, display a degree of group integrity. For example, the

remains to the west of Pen-cae, although subject to collapse, can be seen to relate to an episode of intensive mining in a specific area, and given their relationship with known tram routes, were probably of an early-mid 19th century date. Given the historic integrity of the remains they are considered to represent an historic asset of low significance.

*Mines to the west of the Black Pins*

- 4.464 Slightly further south, upslope from the remains described above, is another area of discrete earthworks located to the west of the Black Pins. Located at a similar altitude, it is possible that these remains targeted the same ironstone as that quarried further east. The NMRW records two collapsed levels, including a double-entranced level and two shafts along with related spoil tips (NMRW **262085**, **262082**, **262086** and **262083**) The map of 1876 indicates that the remains were extant but not operational at this time, and they do not appear to have been linked to the tramroad that served the Black Pins. This suggests that they probably predate the exploitation of the Black Pins area. The mines in this area may have been accessed via a track from the west, in which case they may have transported minerals via the transport routes at Cwm Du.
- 4.465 The age of these remains is not known although they clearly predate 1876. As levels and shafts, it is likely that they represent early to mid-19<sup>th</sup> century exploitation. The group are not especially well-preserved but given their integrity, they are considered to possess some historic value and represent an historic asset of low significance.

*Mines to the east of Cwm Du*

- 4.466 Small-scale mine working remains are present across the hillsides to the east of the works at Cwm Du. These are most clearly identified on LiDAR data and remains have also been identified by the NMRW and HER. A discrete level and associated spoil tip is located high on the hillside to the south-east of the Cwm Du Drift (NMRW **85800** and **262097**). The NMRW names it as the T. Lewis level. The date of the workings are not known, but the level is shown disused on the First Edition OS (i.e. 1885 **Plan EDP 17**) suggesting that it at least dates from the mid-19<sup>th</sup> century.
- 4.467 To the north-east, close to the line of the Cwm Du incline and just south of the Cwm Glo Chapel another two levels and a shaft are recorded. Of these only one is thought to be 19<sup>th</sup> century (NMRW **85798**) as it is depicted on the OS map of 1900 (but not the map of 1876). The other features are illustrated on early 20<sup>th</sup> century maps suggesting a short-lived period of 20<sup>th</sup> century mining in this location.
- 4.468 Also recorded in this area are two extant air shafts. Neither are recorded on historic maps prior to 1919 suggesting that they are later features related to 20<sup>th</sup> century mining.
- 4.469 The mining remains in this area possess limited evidential value but are not extensive, or of an early date. They have some integrity as discrete remains that can clearly be attributed to specific episodes of mining in this part of the site. As such they are considered to represent historic assets of low significance.

*Mines to the north of Cwm Du*

- 4.470 Earthworks remains of mines are also present across land to the north of the mid-19<sup>th</sup> century Cwm Du Pit all of which are discernible on the LiDAR data (**Plan EDP 9**). A fairly dense area of remains is located to the west of the Cwm Du tramroad (the modern tarmacked road). These are partially depicted on the OS map of 1876 (**Figure EDP 6**) and it is likely that some will have been contemporary with the mid-19<sup>th</sup> century works at Cwm Du Pit. The OS map of 1900 (**Figure EDP 16**) shows additional levels and tips in this area suggesting that mid-late 19<sup>th</sup> century also occurred.
- 4.471 The NMRW records two shafts (NMRW **262191** and **262173**), two air shafts (NMRW **85764** and **85784**), two levels (**85782** and **85777**) and a pond (NMRW **262164**) in the area of disturbed and heavily vegetated ground to the west of the road. In addition to small associated tips, and pits created by collapsed underground workings. An interesting record relates to a trackway, depicted on the OS map of 1900, which passed through this area running from the Cwm Du Drift to an alehouse at Beili-Glas, just beyond the site to the west (NMRW **262195**).
- 4.472 To the east of the road the landscape is more open, with less dense vegetation, and, situated in a gap between outcropping seams, contains very few mine workings. A collapsed level is present, and roadway (**Image EDP 56**) with a well-preserved finger-tip emanating from it.
- 4.473 The NMRW records these features (**85781** and **262172**) and map evidence suggest that they date from the late 19<sup>th</sup> century. They are not depicted on the map of 1876 and the mine is labelled as 'old' on the OS map of 1900, reflecting a short-lived mining episode. In addition, a drainage channel is recorded (NMRW **262189**). During the site visit this was seen adjacent to a large depression of unknown origin, possibly reflecting a pond or possibly an area of subsidence (**Image EDP 57**). It was noted that other collapses had occurred, in a line emanating from the level, which have disturbed the interpretation of remains in this area.
- 4.474 Mine working remains also occur on the very northern fringe of the site. Close to the tarmacked road are spoil tips and an air shaft (**Image EDP 58**) which were associated with a pit named Corrywaun (NMRW **85723**). This was located just beyond the site boundary to the north (NMRW **85776**). The Arup report notes that this pit was contemporary with the 1840 Cwm Du Pit and worked only ironstone.
- 4.475 Further east area remains of spoil tips and a former shaft close to Old Factory Cottage. Historic maps indicate that these remains were produced between 1876 and 1900 suggesting a late 19<sup>th</sup> century date. The NMRW records the remains as having been heavily disturbed by later landscaping (NMRW **262234**).
- 4.476 The mining remains in this part of the site vary in date. Those to the west of the road at Cwm Du are probably contemporary with the early working in this area, as are the remains related of the mine at Corrywaun. The discrete level to the east of the road probably reflects the pattern of short-lived level digging, targeting old pillar and stall

workings, with the long-wall technique, that is evident across the site during the late 19<sup>th</sup> century.

- 4.477 The earlier remains, west of the road have clearly been affected by subsidence and collapses and so have diminished in both evidential and historical value. Well-preserved elements in this group would however illustrate early-mid 19<sup>th</sup> century mine working and thus are considered to represent historic assets of low value. Likewise, for the remains at Corrywaun. The level and tip to the east have a strong integrity and appear fairly well preserved. However, they are not of an early date and are comparable to many other similar remains across the site. As such, these are also considered to represent an asset of low significance. Other less well-preserved remains, or those disturbed by collapse or later landscaping are considered to have negligible heritage value.

*Isolated industrial remains on the eastern edge of the site*

- 4.478 Small-scale industrial remains dating to the mid-late 19<sup>th</sup> century are also present on the eastern edge of the site. Remains include an ironstone level, located adjacent to the Gethin Railway and a later platform and signal box (**GGAT02813m**). The level was noted as 'old' on the OS map of 1876 suggesting that it may have been relatively early. The level has collapsed and its vicinity heavily altered by later works associated with the railway. During the site visit it was apparent that rubble remains related to the signal box and platform are extant in this area, but the level was not noted.
- 4.479 Further north, also adjacent to the later Gethin railway are the earthwork remains of a reservoir. These were not visited but can be seen clearly on LiDAR suggesting that they are well preserved (**Plan EDP 9**) The HER records the reservoir stating that its purpose is unknown (**GGAT02802m**), but suggesting that it may have been related to a water balance at the nearby Rhydycar pit, which was located outside of the site. The reservoir is first shown on the 1876 OS map indicating a mid-late 19<sup>th</sup> century date. The reservoir is a fairly isolated feature, as later development, such as the adjacent railway and modern A470, have destroyed any associated leats or other remains.
- 4.480 Another feature fairly isolated by later development in this part of the site is a weir of unknown specific function on the Nant Cwm Glo (**GGAT04439m**). It is not known if this feature is still extant.
- 4.481 The Archaeological features described, represent fragmented remains of former industrial landscapes that are located in a part of the site which has been subject to great change, either from the construction of railways, or spoil tipping and land moving in the 20<sup>th</sup> century. As such they represent isolated features with little context or group integrity. Of the above the reservoir, being a well-preserved feature, is considered to possess a degree of evidential value and would be considered to represent an historic asset of low value. The other remains would be considered of negligible significance.

## *Railways*

- 4.482 A notable feature, of the south-eastern part of the site, are the remains of former railway lines. Aside from the Cwm Pit railway, three railways passed through the site; the Gethin Railway, The Ynys Fach Railway and the Vale of Neath Railway. A complex junction, between the latter three, existed at Cyfarthfa Crossing.
- 4.483 All four lines were extant in the mid-late 19<sup>th</sup> century and are depicted on the OS maps of 1885 and 1903 (**Plans EDP 18 and 19**). Of these the Gethin and Ynys Fach railways were designed to deliver coal from mines to the south of the site, either to main line railways, or to the Cyfarthfa or Ynys Fach Ironworks. Around 1900 an additional branch was constructed that linked the Cwm Pit railway directly with the Gethin line. It is likely that this allowed coal to be more easily transported from Cwm Pit directly to the national railway network as, also by 1900, the Gethin line had been partially subsumed into the GWR Rhymney Line.
- 4.484 The courses of railways within the site are mostly extant and in most cases used as informal footpaths through dense woodland which dominates this part of the site. Recent engineering works related to tip remediation by MTBC have resulted in parts of several of the routes notably part of the former Ynys Fach railway (including where it ran adjacent to the Gethin railway) and Vale of Neath railway, and an area around part of the former Cyfratha junction being cleared of vegetation to create broad routes where new drainage ditches and stone lined drains have been dug. This work has made the Cyfarthfa junction area more open and has revealed a brick trackside structure which would have been adjacent to the Ynys Fach and Gethin railways (**Image EDP 69**).
- 4.485 The former course of the Cwm Pit railway and part of the Gethin railway were both partially over tipped during the construction of the A470 in the mid-20<sup>th</sup> century. This can be seen clearly on the LiDAR data (**Plans EDP 9 and 10**). As a result, the southern part of the Cwm Pit railway, from Lower Colliers southward, has been lost as an extant earthwork, its course can only be followed along its northern extents. Parts of the cutting of the Gethin line are extant to the south of the Cyfarthfa junction, although the area is within dense woodland. The northern extent of the Ynys Fach line, from the Cyfarthfa junction, is preserved, and is in use as a now much widened footpath.
- 4.486 The best preserved former railway in the site is the Vale of Neath railway. This preservation is exemplified by the Vale of Neath Tunnel which is a scheduled monument. The course of the railway, heading north-east from the tunnel, is represented by a cutting between spoil tips, and to the north-east of the junction by a low embankment. No remains were noted of railway tracks or sleepers.
- 4.487 Three bridges are extant features of the Vale of Neath railway line, all of which are depicted on the OS map of 1885 (**Plan EDP 17**). A bridge crossed the railway just before the cutting for the Vale of Neath tunnel (**GGAT02820m**). This bridge carried a road which, having also crossed the Nant Canaid, formerly turned north and headed towards Glyn-dyrys and Lower Colliers Row. The bridge was visited and seen to consist of a flat, iron sided bridge mounted on stone revetment walls. Like much of the site's stonework,

the bridge is constructed in random coursed, dressed sandstone blocks (**Image EDP 59**). Water is diverted through stone lined draining channels that run down either side of the bridge (**Image EDP 60**).

- 4.488 Further to the north-east a large stone bridge carried a footpath across the railway (**Image EDP 61**). It is not recorded by the HER or NMRW. This bridge was visited and was seen to consist of an arched bridge constructed in dressed, random coursed or even coursed sandstone, a similar construction style to other stone work present elsewhere within the site, such as in the walls at Cwm Pit. Substantial stone revetments extend along the railway cutting from the bridge, which are supported by large buttresses (**Image EDP 62**). These features are clearly under considerable pressure from the weight of adjacent spoil tips.
- 4.489 The Cyfarthfa Crossing was the point at which the Gethin, Ynys Fach, and an unnamed tramline connected with the Vale of Neath Railway. The Gethin and Ynys Fach merged to the north before crossing the Vale of Neath. The tramline passed beneath the main railway junction in a stone revetted cutting that is still extant. The area was densely overgrown, although the northern part of the junction area has been cleared of vegetation by MTBC during tip remediation works. As such this part of the junction can be seen including the area around tramline tunnel/bridge albeit now crossed by a large stone lined drain (**Image EDP 63**). Historic maps indicate the layout of the junction which increased in complexity following the establishment of the GWR Rhymney Line. During the site visit no remains were noted of a former signal box that was once located adjacent to the junction.
- 4.490 The Vale of Neath railway crosses the former tramway via a bridge of a similar appearance to that adjacent to the tunnel. I.e. it consists of a flat iron structure supported by random coursed dressed sandstone walls which form part of the revetment wall of the cutting below (**Image EDP 64**). Following the tram route to the south, the route is heavily overgrown and the remains of another collapsed bridge are apparent (**Image EDP 65**). This once carried a connecting branch between the Gethin railway and the Vale of Neath.
- 4.491 Further along the Vale of Neath railway the remains of a brick built structure were noted adjacent to the railway line. The function of this is unknown but it corresponds to a very small structure noted on the OS map of 1958.
- 4.492 The significance of the railway lines is defined by the evidential value of the embankments, structures and revetments that survive within the site, the integrity of these features as a group and in the historic value of their plan. They illustrate former transport links that have been completely removed from the landscape elsewhere. The routes relate to the function of the mines and of the transportation of raw materials, representing a remnant of landscape in which trains and railways were the dominant form of transport.
- 4.493 The greatest structural and group integrity is in the remains associated with the Vale of Neath Railway. The railway's course is well-defined and along its length are various

structural remains including bridges and wall sections that are well-preserved, and of a construction type and style that is mirrored elsewhere across the site. Furthermore, the railway represents the setting of the scheduled tunnel and, as noted previously, will form the route of a cycling/walking path that will utilise a proposed reopening of the tunnel by Welsh Government in partnership with MTCBC. Given the degree of preservation of the railway's archaeology, the attractive appearance of much of the stonework, and the fact that it represents a preserved section of a railway route that has been lost elsewhere. The railway and its related structures are considered to, as group represent an historic asset of moderate significance.

- 4.494 The courses of the site's other railways are more fragmented. The Cwm Pit railway, which historically represented a key transit route for coal and probably other minerals along the east side of the site, and which replaced the function of the Cyfarthfa Canal, is only partially extant. Its course can be followed as a well-defined footpath from the north as far as the Cwm Glo. Formerly the railway crossed the river although the bridge here has collapsed, its former presence reflected in rubble lining the riversides (**Image EDP 66**). After this point the railway continues as a narrow footpath until Lower Colliers Row after which its course is lost, buried beneath spoil laid down following the construction of the A470. The railway can be traced as a faint expression on LiDAR, but the route passes through a heavily waterlogged part of the site, and so it cannot be easily followed on the ground.
- 4.495 The Gethin railway, and its branch to the Cwm Pit, are also mostly beneath the A470 spoil, although the LiDAR data clearly shows the cutting of the former course extending to the north of the spoil tip (**Plan EDP 9**). Given their fragmented states the site's other railways do not possess the integrity of the Vale of Neath railway. Nor are they lined by impressive built structures such as bridges. Their significance is related to their planned form, and its relevance to the history of transportation within the site and the function of the mines and of the ironworks. Given this historical value, the remains of the railways, where extant, are considered to represent historic assets of low significance.

*Summary: Mid-late 19<sup>th</sup> century*

- 4.496 The mid-late 19<sup>th</sup> century was a period of change in the industrial history of the site. The evidence suggests that, whilst the ironstone mining industry declined rapidly following the closure of Cyfarthfa Ironworks (resulting in the closure of the major pit at Cwm Glo), the coal industry continued to grow, diversifying in response to the commercial demand for coal from beyond the ironworks. Major centres for coal mining (such as Cwm Pit and Lower Colliers) continued to operate across the period.
- 4.497 A new practice emerged of digging levels targeting old workings, in order to implement the new long-wall method of mining. In the eastern part of this site this generally appears to have involved the re-opening of old levels, whereas in the west new mines were created. The most prominent and prolific of these was the Cwm Du Drift which resulted in considerable infrastructure changes and produced large highly visible tips.

- 4.498 A major change was the intensification of rail transport with railways becoming a dominant feature within the site in particular in the eastern, more level parts. This emphasised the north-south route, from the mines to Cyfarthfa that had been already established, with particular emphasis of the importance of the Cwm Pit railway. By the end of the century the other north-south routes out of the site (from Cwm Du and Cwm Glo) had diminished and the new centre for mining in the western part of the site at Cwm Du Drift became linked to the Cwm Pit railway via an incline railway.
- 4.499 The site contains considerable earthwork and structural remains related to mining in the mid-late 19<sup>th</sup> century. The best-preserved sites, with the greatest integrity, have been identified by Cadw and preserved as Scheduled Monuments. Elsewhere, mining remains generally have less integrity, having been truncated by later remains or re-use or have been eroded by natural processes or collapse. Few sites dating from the mid-late 19<sup>th</sup> century would be considered to represent historic asset of greater than low value, many poorly preserved or fragmented features would be considered to possess negligible value.
- 4.500 The assessment has identified parts of the site where mid-late 19<sup>th</sup> century remains are considered to have greater significance, either because of the good physical preservation of individual sites or the integrity of interrelated components of a functional system, or their closely related communal value. These are the remains of the mining complex at Cwm Du Drift and the remains of the Vale of Neath Railways, both of which stand out for the preservation and integrity of related structural remains and their historical value, both to the history of the site and beyond.

## **20<sup>th</sup> century**

### *Early-mid 20<sup>th</sup> century*

- 4.501 During the early 20<sup>th</sup> century, coal mining continued within the site in much the same fashion as in the late 19<sup>th</sup> century. Coal was worked using the long wall method from temporary levels and drifts, either as new ventures or, as often, by re-opening older mines. From the 1920s mining activity declined. The Crawshay's lease ended in 1924 resulting in the closure of Cyfarthfa's mines, including Cwm Pit and the closely associated Cwmfelin Drift, the Lower Collier's pit and the Cwm Du Drift, and although the lease was taken on by Gomer Thomas, mining activity was never as intensive. Mining continued in the Lower Colliers area until the 1950s and on a small scale at Cwm Du until at least the 1960s.
- 4.502 The Cyfarthfa Ironworks closed in 1910 (although it was re-opened temporarily during the First World War). After this, mining in the site was mostly of coal for commercial sale. The decline in mining, from the 1920s onwards, reflects the decline of the industry on a national scale. Simplistically, this was due to competition from overseas imports and a switch, especially from the 1960s, to other sources of power, such as gas, oil and nuclear.

- 4.503 20<sup>th</sup> century coal mining utilised mechanisation to drive winding gear and haulage. From the mid-20<sup>th</sup> century road transport superseded rail as a preferred method of moving raw materials from the mines. Another innovation was the use of conveyor technology along the long-wall. The Arup report (2008) states however that this method was only utilised at one location within the site; being used at one of the mid-20<sup>th</sup> century levels in the Lower Colliers Row area.
- 4.504 The history of the site from the mid-20<sup>th</sup> century to the present is less complex than in earlier periods. In general, from the mid-1960s, most industrial activity ceased and much of the site was abandoned to vegetative growth. Small-scale agricultural activity is the only land-use, with open land at the north-west end of the site used for grazing horses. Modern agricultural buildings are present at the former Cwm Glo farmstead and at the former Cwm Du Drift mine.

#### *Cartographic sources*

- 4.505 The most detailed cartographic sources for the early-mid 20<sup>th</sup> century comprise the 25" to the mile (1:2500) Ordnance Survey Maps. These provide the most comprehensive plan of the period. Editions consist of the 1919 and the later 1956-58 edition at 1:2500. For the latter part of the century the most detailed map is a partial record at 1:2500 made in 1975. These partial modern maps, rather than reproduced as plans, are referenced in the text, alongside figures showing specific detail. An equivalent, 6" to the mile survey is also available, dating to 1914 (**Plan EDP 19**). 1:10,000 scale maps are also available for the latter part of the century.

#### *Aerial photographs*

- 4.506 A total of 33 vertical aerial photographs, covering the site and its immediate environs, were identified within the collection maintained by the Central Register of Aerial Photography for Wales (CRAPW) at Cardiff. The available images span the period from August 1945 to May 1996.
- 4.507 Two sets of aerial photographs from 1945 and 1947 (reproduced on **Plans EDP 12** and **13**) provide a source of information on the operational status of mining within the site during the mid-1940s and are referenced in the discussion below.
- 4.508 It is apparent that the site was considerably less vegetated on the 1940s images. Particularly apparent is a lack of tree cover across the centre, eastern and southern parts of the site, that are at present heavily vegetated. Woodland is most apparent in the vicinity of Cwm Pit, which would have been closed for approximately 20 years when the photographs were taken.
- 4.509 The lack of tree cover allows for a clear view of the surface pitting of the seams to the west of Lower Collier's Row. As a resource for identifying the extent of such remains the aerial images compare favourably with the LiDAR data. It is apparent that surface working, some of which (as described earlier) is probably of an early date, was very intensive, with pits probably numbering in the thousands.

4.510 Later photographs from the 1960-1990s show the site after almost all mining activity had ceased (not reproduced). In most areas, the site becomes increasingly vegetated. In an image from 1963, the maintenance of the site's infrastructure appears restricted to the maintenance of the former Cwm Pit railway as an access track to Lower Collier's Row, and the former Cwm Du tramway as an access road to Blaen Canaid, as it is at present. An image from 1996 shows activity in the site in the form of spoil being deposited during the construction of the A470.

*Developments in mining and transport*

4.511 The Third Edition OS maps of 1914 and 1919 illustrates a similar mining landscape to that illustrated by the maps of 1900 and 1903. Of the site's major collieries, only the Cwm Pit works and the Cwm Du Drift show evidence for expansion. At Cwm Pit additional buildings are evident, and a new drift mine is depicted. Labelled as the Cwmfelin Drift, the mine was located adjacent to an existing level to the west of the pit. The NMRW records the mine entrance, and an associated air shaft, as having probably been destroyed by a modern forestry track (NMRW **261924** and **261923**).

4.512 Cwm Pit closed in 1924 and the OS map of 1958 records only four extant buildings including the mine's chimney, with all related tramways removed. The map of 1975 shows only a single building; the chimney base which is still extant.

4.513 At the Cwm Du Drift, on the OS map of 1919, additional buildings, to the east of the mine are depicted. Mining sites on the hillsides to the west and south of the drift are depicted as abandoned. Tramways are no longer shown as active and mine workings, where recorded, are labelled as 'old'. Regardless of this depiction, mines are recorded in this area later in the century and it is possible that small-scale, unmapped works continued operating throughout the early 20<sup>th</sup> century. The NMRW records a reservoir thought to overlay a late 19<sup>th</sup> century track, suggesting a 20<sup>th</sup> century date for the structure (**262118**).

4.514 The Cwm Du Drift mine closed in 1924 and the OS map of 1958, records the drift mine as disused. The Arup report (2008) records a mine named New Cwm Glo Drift as active in this part of the site from the 1920s, having been developed by Gomer Thomas, the new lease holder. However, although the exact location of this venture is not evident on historic maps, it is thought likely to have been to the immediate south of the Cwm Du drift as a substantial spoil tip is depicted in this location on the OS map of 1958 that is not present on earlier maps (**Figure EDP 21**). Activity is also apparent in this part of the site on the aerial photographs of the 1940s (**Plan EDP 12** and **13**).

4.515 The OS map of 1914 (**Plan EDP 19**) shows a branch extension from the Cwm Du incline under construction. An OS map of 1938 (not shown) indicates that the extension ran beyond the Cwm Pit railway connecting directly to the Rhymney railway line further east. It is likely that the line was built specifically to facilitate the transport of coal from the New Cwm Glo Drift, without recourse to the Cwm Pit railway which closed in 1924.

4.516 The OS maps of 1958 and 1975 indicate that the mining activity at the New Cwm Glo Drift had ceased by this time, and that the incline was by then disused.

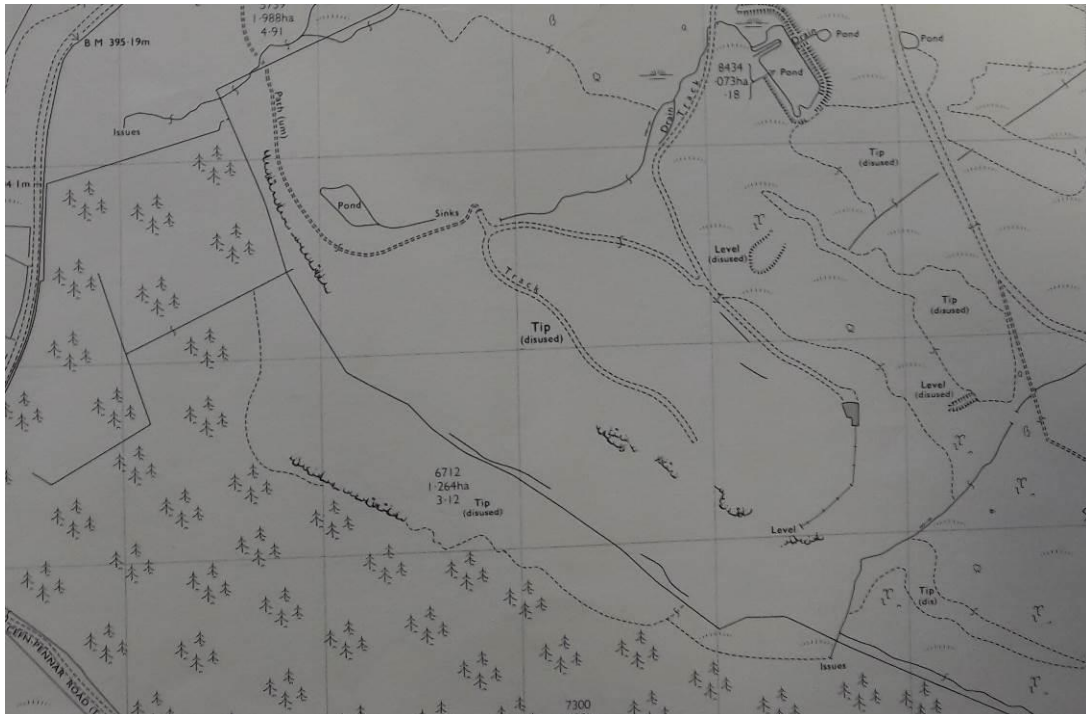
4.517 The map of 1975 records a small-scale mining level located to the south-east of the former Cwm Du farmhouse. This consisted of a level with a short tramway and a building, presumably an engine house for the haulage tram (**Figure EDP 22**). The mine was presumably accessed by road as it was linked to the existing road network by a track to the north. The track also allowed access to tips to the west which had covered the remains of Cwm Du Farm. It is assumed that the mine is the same as that recorded by the NMRW as Perrin's Upper Level, which records a mine entrance covered by a corrugated iron sheet and the remains of a building (NMRW **262142** and **262141**). These remains were seen during the site visit (**Image EDP 67**).



**Figure EDP 21:** Tips to the south-east of Cwm Du Drift likely to have resulted from the 20<sup>th</sup> century New Cwm Glo mine.

4.518 Activity related to mid-20<sup>th</sup> century mining at Cwm Du is notable on an aerial photograph dating from 1963 (**Figure EDP 23**). This shows an area of disturbance at and around the mining level described above, plus additional disturbance in the former quarry areas to the west and south-west. The OS map of 1975 illustrates a different appearance to this area to that given on the map of 1958 suggesting some activity here, probably reflecting

renewed mining or quarrying, or possibly the tipping of material from the adjacent Perrin's level. The NMRW recorded the foundations of a concrete hut in the quarry area that is interpreted as of a modern appearance (NMRW **262131**).



**Figure EDP 22:** Land to the south of Cwm Du in 1975 showing continued mining.



**Figure EDP 23:** Extract of an aerial photograph of 1963 showing mining activity to the south-west of Cwm Du.

- 4.519 Elsewhere within the site, in various locations, there is map evidence for small-scale, early 20<sup>th</sup> century mining. Advantage appears to have been taken of the transport route presented by the Cwm Du incline as several levels are illustrated in close proximity to it (i.e. **GGAT08212m**, **GGAT08211m**, **GGAT08213m**). A level is linked directly to the incline close to Lower Colliers Row (**GGAT02839m**); several are located close to Pen-cae farmhouse (**GGAT02835m** and **GGAT02848m**) and another three active levels are depicted to the west of the dwellings at Pen y Coedcae (NMRW **85802**). These are linked directly to the incline via a tramroad (NMRW **262011**).
- 4.520 Further east, the Cwm Pit railway also acted as a facilitator of continued mining activity. Active levels, linked to the railway via tramways, are depicted to the north of Upper Colliers Row, and just north of Upper Wern farmhouse (**GGAT04418m**). A small mining complex appears to have developed around the old Canal Level, which as discussed previously was re-opened with the advent of the long-wall method. This level was linked to tips and an additional level, named as the Rhydycar Level on the HER (**GGAT04440m**), to the north-east via a tramway. During the site walkover, this area was visited and remains seen to consist of a long, deeply incised roadway approach to the collapsed level entrance.
- 4.521 Continued mining is also depicted at Lower Colliers, with two drift mines depicted, on the 1919 map, to the south-west of the terraced houses (**GGAT04435m** and **GGAT04434m**), and an additional level located further to the south-west, adjacent to the parish road (**GGAT02842m**). All were linked to the railway via tramroads. Remains of some of these features are likely to be partially buried beneath later spoil tips associated with the A470, across land to the south of the former terraces. Remains of the far south-western level are extant and consist of earthworks, seen during the site visit (**Image EDP 45**). These works are likely to have disturbed earlier remains that are abundant in this part of the site.
- 4.522 Mining, from levels located along the Cwm Pit railway, is likely to have ceased following the loss of Cyfarthfa's lease in 1924. Evidence from OS maps indicate that by the 1950s all of the levels are labelled as 'old' and buildings around Lower Colliers Row are depicted as 'ruins'.
- 4.523 The Arup report (2008) describes how Gomer Thomas opened new drift mines to the south-west of Lower Colliers Row between 1938 and 1946, presumably due to demand for coal during the Second World War. These mines were nationalised by the Coal Board in 1947, but had closed by the mid-1950s. The mines are not depicted on OS maps and, although mining levels are evident, their precise location is not apparent on the aerial photographs consulted.
- 4.524 Railways in and around the site were scaled back over the course of the 20<sup>th</sup> century. The Cwm Pit line, was closed following the end of the Cyfarthfa lease in 1924. It is considered likely that coal was transported from Thomas's mines in the Lower Colliers Row by a combination of road transport and via the Gethin/Rhymney railway. This line is recorded in the Arup report (2008) as having been shut in the mid-1950s following the closure of the last level at Lower Colliers. Subsequently, the Vale of Neath line was closed in 1963

and the Brecon and Merthyr line (located just outside of the site to the east) closed in 1964.

*Significance of 20<sup>th</sup> century industrial remains*

- 4.525 Remains related to 20<sup>th</sup> century mining within the site are in some cases well-preserved. This is most apparent in the site's more recent spoil tips which, as reflected in the LiDAR data represent the largest, best-defined of such structures within the site a prime example being the tips at Cwm Du (located beyond the area proposed for development). Good preservation is also apparent in some of the levels around Lower Colliers Row, and other locations, which are easily interpreted, and can often be seen associated with the earthworks remains of tramways and spoil tips.
- 4.526 However, this preservation is offset against the age of these remains. They lack evidential interest, simply as they date from a period in which mining techniques were modern and well-documented. The remains do possess a very limited historical value, illustrating the continuity of mining activity into the 20<sup>th</sup> century, and some are associated with the post-Crawshay, Thomas leasehold. Aesthetic value is reflected only in the site's modern spoil tips which dominate views of the site from afar and which, as stated previously, are iconic of the site's mining heritage. 20<sup>th</sup> century remains are considered to possess a similar communal value to others within the site, reflecting the site's place as a work location in the lives of local people.
- 4.527 Given the above it is considered that remains of 20<sup>th</sup> century mining activity within the site should be considered of negligible, or at most low heritage significance, for the best-preserved features. The large tips at Cwm Du, due to their aesthetic value would certainly be considered to represent historic assets of low significance.

*Post-Industrial change*

- 4.528 The most significant event in the history of the site in the later 20<sup>th</sup> century was the construction of the A470 in the mid-1990s, which coincided with modern development of the Taff Valley and which removed most of the former industrial landscape to the east of the site. The road is located outside of the site's boundary to the immediate east. Its construction had a direct impact upon the site as large quantities of spoil were deposited within it. Spoil was tipped over existing spoil heaps to the south-east of Lower Colliers Row and was probably responsible for a deposit of material to the immediate south-west of the former mine, which is thought to have covered mid-20<sup>th</sup> century mines in this location.
- 4.529 The act of tip construction was recorded in an aerial photograph of 1996 which shows the tips being built (**Figure EDP 24**). The areas of modern tipping can be easily identified on LiDAR data, as the modern heaps display a smooth surface reflecting their construction using modern land-moving machinery. The modern tips are thought to have been responsible for the flooding across the area to the east of the Canal Leat, by inhibiting drainage to the east of this area (pers. Comm.).



**Figure EDP 24:** Extract from aerial photograph of 1996 showing tipping within the site during the construction of the A470.

- 4.530 The increasing expansion of woodland within the site has encroached upon archaeological remains, an effect that is detailed in the individual descriptions for many historic assets, as given above. The effect of unmanaged tree and shrub growth is such that archaeological earthworks are damaged and concealed. As a general point, in many areas of the site this is considered to impact directly upon the evidential value of remains, and restricts a visual appreciation and understanding of the historic environment, thus resulting in a loss of historical and communal value.
- 4.531 The site is now crossed by numerous modern paths. Many of these follow former tram roads and tracks (such as the Parish Road). In addition, a forestry track has been constructed, crossing the southern part of the site from east to west. This is thought to have been instigated after 1989 as it not shown on an OS map of this date.
- 4.532 As such an intensively exploited site, parts of it are unstable and have been subject to collapses. The Arup report states that mining related subsidence features are widespread, and that subsidence is an ongoing, and intensive process with new incidents occurring regularly (Arup, 2008, 45).
- 4.533 In terms of the site's archaeological earthworks, subsidence tends to destroy archaeological sites, or at least create areas of surface disturbance that mask or disrupt the experience, appreciation and interpretation of the historic landscape. A good example of this is at Cwm Du, where substantial collapsed mine workings have created large, deep holes to the south of the former mid-19<sup>th</sup> century pit. These cavities and fissures will have destroyed archaeological earthworks related to this otherwise fairly well-preserved group of interrelated mining remains; a loss of integrity to the historic landscape that reduces

its historic value. Another example is at Lower Colliers Row where the main shaft collapsed in 2008 resulting a large pit being present in the location of the former mine.

- 4.534 Notwithstanding the direct effect on historic assets, the effect of collapsing mines results in a landscape that is physically dangerous to enter, and thus it is not possible to appreciate and experience the historic environment. It is likely that, with no action to stabilise the ground surface, the process of collapse will continue, gradually eroding the physical integrity of the remains of the historic landscape, within the site.
- 4.535 A final notable, modern impact has been through intentional land reclamation. This has been implemented on land at the north-east corner of the site, where spoil heaps have been removed and the land re-mediated for development, and in the south-east, notably in the location of the former Glyn-dyrys reservoir which was infilled.

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## Section 5 Conclusions

### Designated Historic Assets

- 5.1 The baseline study has identified that the site (being the ownership boundary rather than the area proposed for development) contains nine designated historic assets consisting of eight Scheduled Monuments and one listed building. These assets are protected by the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990, respectively and any proposal to remove them or alter their fabric (direct effects) would require the written consent of the Welsh Minister.
- 5.2 However, note that 3 heritage assets (all of which are discussed within this baseline report) are located within the area proposed for development and these are:
- Scheduled monument, *Cyfarthfa Balance Pond and Leat* (GM608);
  - Scheduled monument, *Cwm Pit and Head of Railway* (GM607); and
  - Grade II listed building, *the Base of Chimney at Cwm Pit* (81752).

A full account of the heritage baseline specifically for the area proposed for development and its justification (including an assessment of the above assets) will be comprehensively considered and addressed within an ES Chapter which will be submitted as part of the planning application for the development.

- 5.3 Further, the area proposed for development is located within the MTLOHI. The Cultural Heritage ES Chapter will also consider the potential for effects on the character of this landscape area and in doing so will make reference to an assessment carried out in accordance with the ASIDHOL 2 process (Cadw, 2007).
- 5.4 Annex A of TAN 24 (Welsh Government, 2017) details the process by which Scheduled Monument consent can be applied for. Section A.4 outlines that applications for scheduled monument consent are made to the Welsh Ministers through Cadw. Applicants are encouraged to request a pre-application meeting with Cadw on site to discuss their proposals. Applications must '*show that they have understood and considered the significance of the monument when designing the programme of works, and include sufficient information and drawings to illustrate the direct effects on the significance of the site*'. This information would form the basis of a '*heritage impact assessment*'. Applications for scheduled monument consent will normally require the same level of information as that required for full planning consent.
- 5.5 Section A.5 states that there is a presumption in favour of the Scheduled Monument's physical preservation when considering an application for scheduled monument consent. This means that there is a presumption against proposals which would involve *significant*

*alteration or cause damage, or which would have a significant impact on the setting of remains.* Applicants are expected to demonstrate that no practicable alternative route or location, avoiding the monument, exists and that the need to undertake the work outweighs the presumption in favour of the protection of the scheduled monument.

- 5.6 Section A.6 outlines that the Welsh Ministers can enter into a management agreement with the occupier of a scheduled monument to carry out an agreed programme of maintenance and/or capital works to benefit or facilitate public enjoyment of a Scheduled Monument. Management agreements for scheduled monuments are normally time limited. Certain works, such as maintenance works, which are executed in accordance with such a management agreement will benefit from class consent, for which monument consent is automatically granted. A list of these consents is given in Section A.8 of TAN 24.
- 5.7 A similar process is required for any direct impacts upon listed buildings. Paragraph 5.9 of TAN 24 states that *'the Planning (Listed Buildings and Conservation Areas) Act 1990 requires any works of demolition, alteration and/or extension which would affect the character of a listed building to be authorised through the process of listed building consent.'* It highlights that it is a *'criminal offence to carry out such works without consent, which should be sought from the local planning authority'*. It is also stated that *'when considering any applications for listed building consent, the local planning authority or the Welsh Ministers must have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses'*.
- 5.8 The development also has the potential to impact indirectly on the significance of these assets through change to their setting, such that the contribution it makes to their significance is affected. However, most of the designated assets are identified as having negative aspects to their settings (commonly intrusive vegetative growth) and, as such, sensitive development, achieved through good design, has the potential to result in enhancement by removing negative aspects from their settings through landscaping, and thus opening up the monuments so as their significance and associations with other assets can be better experienced than they are at present. Such works might be integrated with a management agreement for a programme of direct maintenance and/or capital works to benefit or facilitate public enjoyment of the monuments.
- 5.9 The assessment has identified that the site (or parts of the site, but not necessarily the parts proposed for development) represent a part of the setting of designated heritage assets located beyond the extent of the site. These consist of the following:
- Merthyr Tydfil Town Centre Conservation Area;
  - Scheduled Monument: Cyfarthfa Tramroad Section at Heolgerrig (GM495);
  - Grade II\* Historic Park and Garden: Cyfarthfa Castle (GM1);

- Grade I listed buildings: Cyfarthfa Castle and School at Cyfarthfa Castle (11396 and 11397);
- Grade II listed buildings: Nos. 1-16 Upper Colliers Row – ten separate listings (11488, 80765, 80766, 80767, 80772, 80773, 80774, 80775, 80776, 80777); and
- Grade II listed building: Rhydycar Skew Bridge (15676).

5.10 Parts of the site, and the archaeology contained therein, contribute to the significance of these historic assets. This contribution is variable, as different parts of the site are part of the setting of different assets. None of the contributions are especially high, with the most contribution being from the spoil tips at Coed Cae to the significance of the workers cottages at Upper Collier's Row. The potential for development to result in an indirect impact upon the significance of these assets through change to their settings will be fully assessed in respect of the final proposals in the Cultural Heritage ES Chapter.

#### **Non-Designated Historic Assets**

5.11 The assessment has identified that the site contains a large number of non-designated historic assets, which for the most part reflect an intensive mining history from the late 18<sup>th</sup> century to the mid-20<sup>th</sup> century. Remains also exist within the site that date from a pre-industrial agricultural landscape, including remains of field boundaries and buildings. In several situations, the site's archaeology reflects a change in the nature of settlement, as land use shifted from agriculture to industry.

5.12 A full account of the heritage baseline specifically for the area proposed for development and its justification (including in respect of non-designated historic assets) will be comprehensively considered and addressed within an ES Chapter which will be submitted as part of the planning application for the development. However, it should be noted that there are a limited number of non-designated historic assets located within the area proposed for development which are:

- Earthwork remains related to the Glyn Dyrys Upper Level mine and its associated tips comprising a historic asset of low significance;
- Remains comprising a post-medieval track and its associated hedgerows/banks called 'The Parish Road' representing a historic asset of low significance;
- Earthwork remains and buried archaeological remains related to the former Glyn Dyrys Pit and the Glyn Dyrys Tip comprising a historic asset of low significance;
- Possible buried remains related to the course of the Cyfarthfa Canal comprising a historic asset of medium significance;

- Earthwork and possible buried remains related to the former Cwm Pit Railway comprising a historic asset of low significance;
  - Remains consisting of a footpath and possible buried remains related to the former Ynys Fach Railway comprising a historic asset of low significance;
  - Earthwork and buried archaeological remains mainly comprising pits some of which may relate to early (post-medieval) mine workings located close to the Parish Road. Pre-late-18th century remains would comprise a historic asset of medium significance with later mining remains of low significance;
  - Earthwork and possible buried archaeological remains related to the Lower Collier's Row drift mines comprising a historic asset of low significance;
  - Remains consisting of a footpath and possible buried remains related to the former Glynn Dyrys upper level tramway comprising a historic asset of low significance;
  - Remains consisting of a probable post-medieval trackway comprising a historic asset of low significance;
  - Remains consisting of footpaths, a cutting, an embankment and two stone-built bridges and possible buried remains related to the former Gethin and Vale of Neath Railways comprising a historic asset of low significance; and
  - Remains consisting of footpaths, bridges and possible buried remains related to the former Cyfarthfa Crossing railway junction comprising a historic asset of low significance.
- 5.13 Industrial remains vary in the scale and degree of preservation. The site contains a large quantity of small extant pits, concentrated particularly in areas where close running mineral seams outcropped. Of these, some small pits and surface workings (patchings) have the potential to represent early mining activity, with some remains possibly predating the late 18<sup>th</sup> century, when the site began to be mined intensively on behalf of the Cyfarthfa Ironworks. Such remains would potentially, on account of their early date, be of a higher degree of significance than other later, more ubiquitous, mining remains.
- 5.14 Areas in which such remains are suspected to be present, include land to the south-west and west of Lower Collier's Row, which was intensively mined, and includes surface pitting and possible bell-pits, that might reflect early-shallow exploration. Also, the western end of the Cwm Glo valley, where surface pitting is again recorded, and the valley sides suggest intensive scouring with water. The more commonly found remains related to mining are thought to date from the 19<sup>th</sup> and 20<sup>th</sup> centuries and consist of the more substantial earthwork remains of pits, levels, tramways, reservoirs, leats and spoil tips.
- 5.15 The site also contains structural remains related to mining, and remains related to transportation, including parts of an early canal and the routes of former railways, alongside the remains of related infrastructure, such as bridges.

- 5.16 Remains related to mining do not exist in isolation, and in each case there are demonstrable, functional associations discernible between extant features. In some cases, the integrity of these relationships (as they survive) is strong and visible, such as at Cwm Glo mine where it is easy to associate the components of the former mine with related earthworks such as surrounding spoil tips, tram ways and an incline railway, or Cwm Du Drift where buildings form an integrated group, associated with a well-defined incline to the east and related spoil tips.
- 5.17 In others it is highly fragmented, truncated by later activity, and changes to systems which superseded them. An example of the latter is the Cyfarthfa Canal, which now exists in a highly fragmented and poorly preserved state, as detached sections, mostly due to the direct physical impact of its successor; The Cwm Pit Railway, which survives as an embanked former railway adjacent to the route of the former canal.
- 5.18 In considering the heritage significance of such remains, it is notable that in every case the assets have (a) lost their function and (b) been subject to damage and decay, either through deliberate reclamation of materials (such as tram rails and sleepers) or through inevitable processes such as natural erosion, subsidence of underground mines and the effects of unchecked and unmanaged vegetation growth. This assessment applies to remains of the site's pre-industrial history as much as its industrial remains.
- 5.19 Integrity is an important concept in defining the value of the archaeological remains within the site. Remains which are well-preserved, and have an appreciable association with other elements of an interrelated system; such as the functional relationship between a coal mine, the spoil tips that it produced, demonstrably related features such as reservoirs or leats, the haulage routes by which material was transported from it and the wider transport network; are considered to possess a greater degree of historical value than remains which represent fragments of a system from which other important constituent parts have been lost. Similarly, the better preserved an earthwork or structure is, the greater its evidential value will be. Integrity is offset to a degree by the age of the remains in question. Remains of demonstrable antiquity; such as surface workings related to early mining are considered to possess greater historical and evidential value regardless of whether the wider 'mining system' in which they lie is equally preserved.
- 5.20 Additional historical value is enshrined in the way in which the site's archaeology is associated with wider historical events, economic and technological development and the lives of notable persons. For example, change related to technological development is evident across the site, as are changes related to closure of the Cyfarthfa Ironworks in the 1870s. In this way, the site's archaeology documents the history of mining and iron making in Merthyr Tydfil from the 18<sup>th</sup>- 20<sup>th</sup> centuries, although the degree to which it can tell this story is very much related to the degree to which remains survive and the integrity of their group associations.
- 5.21 Communal value is also closely tied to the preservation and integrity of interrelated remains. In general, the whole site contains industrial archaeological remains closely related to the recent history of Merthyr Tydfil and of its inhabitants. Again, this value is best realised in remains which are well-preserved and part of an appreciable, integrated

system. A key expression of the communal value of the remains within the site is through their relationship with the heritage present within the wider landscape, such as the historically related remains at Cyfarthfa Castle.

- 5.22 In terms of aesthetic value, aside from sites exhibiting well-preserved upstanding structures (such as at Cwm Pit), remains overwhelmingly consist of earthworks, spreads of rubble and low standing structures. Such remains are not generally considered to possess any aesthetic quality. An exception to this refers to the site's large spoil tips, which, where they are visible (as often they are shrouded by woodland), remain imposing features, iconic of the presence of former mineral workings.
- 5.23 Situations in which well-defined mining remains are juxtaposed with such earthworks often create a scene in which the function and appearance of historic mining activity can be seen and appreciated. Good examples of this are at Cwm Glo Pit and Cwm Du Drift, where earthwork and built remains of mining are juxtaposed with large spoil tips and deeply incised incline railways, meaning that the overall character and appearance of the remains can still be discerned, and its former appearance when working envisaged and imagined. The more typical situation is that remains have lost their original form and are indistinct and shrouded by invasive and unmanaged vegetation, making any interpretation of their former appearance, and former associations with other remains, hard to appreciate.
- 5.24 Another form of aesthetic value is inherent in the various structural remains within the site. Where upstanding, industrial structures are constructed in a very similar style with a use of dressed Pennant sandstone, in random courses. Some of the stonework is very fine, as at Cwm Pit. The construction style is also very apparent in the structures associated with the former Vale of Neath Railway. This uniformity in appearance reflects the vernacular architectural style commonly used in local 18<sup>th</sup>/19<sup>th</sup> century stonework and would once have been common to many of the site's structures.
- 5.25 In summary, the assessment, found most of the site's non-designated industrial and pre-industrial remains to consist of historic assets of low or negligible value. This is as most remains lack historical integrity, either consisting of relatively recent features, representing remains related to late 19<sup>th</sup> or 20<sup>th</sup> century mining, or are poorly preserved, or are part of an integrated group but which is in a fragmented state, and thus not easily discernible or clearly associated with functionally related features. Exceptions to this are considered to be the following (shown on **Plan EDP 21**), which are all deemed to represent historic assets of moderate value, because of factors such as their early date or clear integrity in their preservation and relationships with other, related archaeological features:
- Probable early surface workings – located, amongst later features, in a broad arc west, north-west and south-west of Lower Colliers Row;
  - Probable early surface workings – located, amongst later features, in the Cwm Glo valley around the confluence with the Nant Llwyn-yr-eos;

- The Vale of Neath railway line and the remains of its associated bridges and junctions;
- Remains of buildings, transport features and mining earthworks at the Cwm Du drift; and
- The earthwork remains of the Cwm Glo incline railway.

5.26 Also ascribed some additional significance are remains related to the transport routes which governed the site's mining activity (also shown on **Plan EDP 21**). As previously discussed, these routes formed the basis for the 'zones of coherence' identified in the 2004 Hereford Archaeology study. However, in the case of the Cyfarthfa Canal, and most of these former tram ways, the physical remains of these routes are badly preserved and lie as fragments. Regardless of this, due to the key role that they played in the function of the site's mines and the subsequent shaping of its archaeology, the remaining parts of these structures are ascribed an additional degree of historical value.

5.27 It is apparent that the site is located within the Merthyr Tydfil Landscape of Outstanding Historic Interest. Reference to the Register of Landscapes of Outstanding Historic Interest, and therefore an assessment of effects on the component Historic Landscape Character Areas that make up the Merthyr Tydfil Landscape of Outstanding Historic Interest, will be a consideration for the development proposals.

5.28 Development **proposals** when fully defined (including beneficial proposals that seek to conserve and preserve the sites scheduled monuments) will be fully assessed as to their potential for historic environment impacts within the context of the Cultural heritage ES Chapter. In respect of the potential for change to the *Merthyr Tydfil Landscape of Outstanding Historic Interest*, this assessment will include an ASIDHOL2 assessment that makes reference to *A Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process revised (2<sup>nd</sup> edition (2007))*.

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## Images



**Image EDP 1:** Entrance to the scheduled Cyfarthfa Canal Level.



**Image EDP 2:** The Cwm Du Air Shaft and Fan.



**Image EDP 3:** The setting of the Cwm Du Air Shaft and Fan.



**Image EDP 4:** Entrance to the Vale of Neath Railway Tunnel.



**Image EDP 5:** View along the Vale of Neath cutting from the iron bridge to the north-east.



**Image EDP 6:** Historic photograph of Cwm Pit Colliery.



**Image EDP 7:** Loading Bay walls at Cwm Pit.



**Image EDP 8:** Furnace entrance at Cwm Pit.



**Image EDP 9:** Walls and level entrance at Cwm Pit.



**Image EDP 10:** Base of the former chimney at Cwm Pit.



**Image EDP 11:** Bank and interior of the Cwm Pit reservoir.



**Image EDP 12:** Walls and entrance at the Cwm Glo Chapel.



**Image EDP 13:** Track bed of a former tramway at Black Pins.



**Image EDP 14:** The capped shaft at Cwm Glo with a reservoir in the background.



**Image EDP 15:** The former ironstone weathering area at Cwm Glo.



**Image EDP 16:** The banks of the Cwm Glo reservoir.



**Image EDP 17:** Remains of the possible early hushing pond at Cwm Glo.



**Image EDP 18:** View towards the site from the Carn Pentyle-Hir Cairn illustrating the lack of visibility.



**Image EDP 19:** The front elevations of Cyfarthfa Castle.



**Image EDP 20:** Cyfarthfa Castle with part of the registered park to the front and rear.



**Image EDP 21:** View towards the site from the front of Cyfarthfa Castle.



**Image EDP 22:** View towards Cyfarthfa Castle from spoil tips at Cwm Du.



**Image EDP 23:** View of the front of Upper Collier's Row.



**Image EDP 24:** View along the lane at Upper Collier's Row with the Coed Cae tips in the background.



**Image EDP 25:** View along the approach road to Upper Colliers Row with the A470 embankment on the right.



**Image EDP 26:** Remains of buildings at Upper Wern.



**Image EDP 27:** Remains of the tree-lined boundary at the former Cwm Du cottage.



**Image EDP 28:** Historic photograph of Cwm Glo farm.



**Image EDP 29:** Building remains at Gelli-Du.



**Image EDP 30:** Remains of a path between walled boundaries at Pen-y-Coedcae.



**Image EDP 31:** Building remains at Pen-y-Coedcae.



**Image EDP 32:** Building remains at Melin Canaid.



**Image EDP 33:** Remains of a leat at Melin Canaid.



**Image EDP 34:** Old field boundary marked by a denuded wall and shrubs.



**Image EDP 35:** Capped shaft at Cwm Du Pit.



**Image EDP 36:** Remains of the base of mining equipment at Lower Collier's Row.



**Image EDP 37:** General shot of pitted landscape across land to the south-west of Lower Collier's Row.



**Image EDP 38:** Wall of the former canal lock on the Cyfarthfa canal.



**Image EDP 39:** Route of former tramway at Cwm Du.



**Image EDP 40:** Building remains at Coed Cae Pit.



**Image EDP 41:** Building remains at Coed Cae Pit.



**Image EDP 42:** Typical small pit to the south-west of Lower Collier's Row.



**Image EDP 43:** Large pit/possible collapse, to the south-west of Lower Collier's Row.



**Image EDP 44:** The Parish Road, with pitted landscape on the left.



**Image EDP 45:** Possible 20<sup>th</sup> century mining level cut and roadway to the south-west of Lower Collier's Row.



**Image EDP 46:** Historic Photograph of Lower Collier's Row.



**Image EDP 47:** Remains of domestic buildings at lower Collier's Row.



**Image EDP 48:** Track bed of former tramroad at Cwm Du.



**Image EDP 49:** Historic Photograph purporting to be of the Cwm Du Drift mine.



**Image EDP 50:** Probable engine house at the former Cwm Du Drift mine.



**Image EDP 51:** Probable workshop and stables at the former Cwm Du Drift mine.



**Image EDP 52:** Non-descript buildings at the former Cwm Du Drift mine.



**Image EDP 53:** Part of the track bed of the former Cwm Du incline railway.



**Image EDP 54:** Part of the former Cwm Glo incline railway.



**Image EDP 55:** Possible loading bay building north of Lower Collier's Row.



**Image EDP 56:** Mining level to the north of Cwm Du Drift.



**Image EDP 57:** Possible pond to the north of Cwm Du Drift.



**Image EDP 58:** Open air shaft at Corrywaun.



**Image EDP 59:** Iron bridge on the Vale of Neath Railway.



**Image EDP 60:** Stone lined culvert on the Vale of Neath Railway.



**Image EDP 61:** Arched stone bridge on the Vale of Neath Railway.



**Image EDP 62:** Revetment walls beside the stone bridge on the Vale of Neath Railway.



**Image EDP 63:** Location of the former Cyfarthfa Crossing rail junction, now partially cleared of vegetation by MTBC.



**Image EDP 64:** Iron bridge at the Cyfarthfa Crossing.



**Image EDP 65:** Former bridge across tramway at the Cyfarthfa Crossing.



**Image EDP 66:** Rubble and concrete remains in the location of the former Cwm Pit Railway bridge across the Nant Cwm Glo.



**Image EDP 67:** Corrugated iron covering across a modern mining level at Cwm Du.



**Image EDP 68:** Earthwork remains of the colliery at Glyn-dyrys illustrating their rectangular form that may reflect the location of a former building.

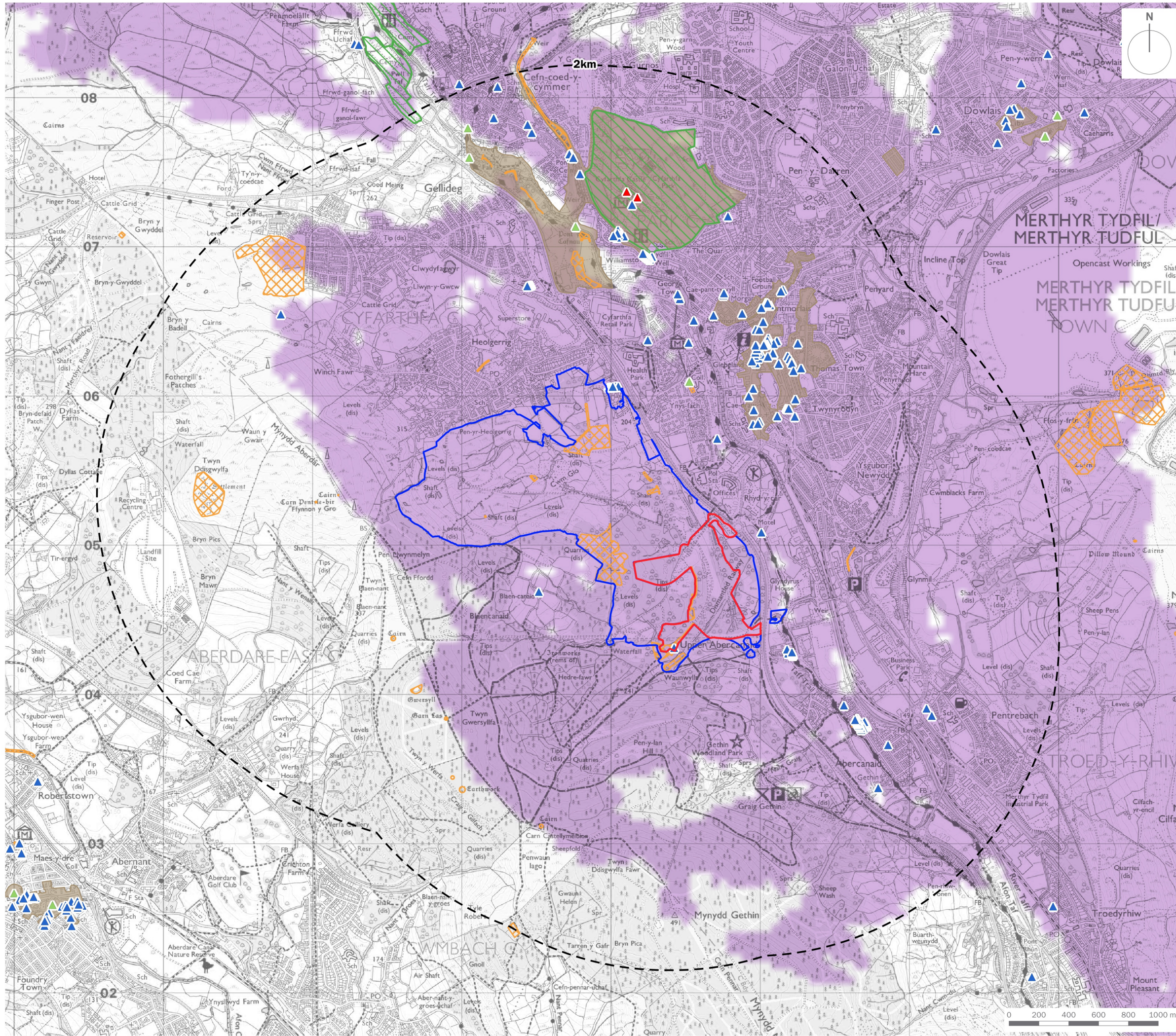




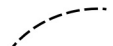







**Image EDP 69:** Brick structure revealed by vegetation clearance adjacent to the former Ynys Fach railway.

## Plans

- Plan EDP 1** Designated Heritage Assets – Wider Landscape and ZTV  
(edp2324\_d012c 10 March 2022 EJ/RS)
- Plan EDP 2** Designated Heritage Assets – Assets Considered for Settings Assessment  
(edp2324\_d013b 10 March 2022 EJ/RS)
- Plan EDP 3** HER Entries – Areas, Lines and Events  
(edp2324\_d014b 10 March 2022 EJ/RS)
- Plan EDP 4** HER Entries – Points  
(edp2324\_d015c 10 March 2022 EJ/RS)
- Plan EDP 5** NMRW Entries  
(edp2324\_d016c 10 March 2022 EJ/RS)
- Plan EDP 6** Historic Landscape Character Areas  
(edp2324\_d017b 10 March 2022 EJ/RS)
- Plan EDP 7** Zones of Coherence  
(edp2324\_d018b 10 March 2022 EJ/RS)
- Plan EDP 8** LiDAR data – Multi-Direction Hillshades – North  
(edp2324\_d019b 11 March 2022 EJ/RS)
- Plan EDP 9** LiDAR data – Multi-Direction Hillshades – South  
(edp2324\_d020b 11 March 2022 EJ/RS)
- Plan EDP 10** LiDAR data – Sky View Factor – North  
(edp2324\_d021b 11 March 2022 EJ/RS)
- Plan EDP 11** LiDAR data – Sky View Factor – South  
(edp2324\_d022b 11 March 2022 EJ/RS)
- Plan EDP 12** Aerial Photographs 1947  
(edp2324\_d023b 11 March 2022 EJ/RS)
- Plan EDP 13** Aerial Photographs 1945  
(edp2324\_d024b 11 March 2022 EJ/RS)
- Plan EDP 14** Extract from Yates map of Glamorgan, 1799  
(edp2324\_d025b 21 January 2022 EJ/RS)
- Plan EDP 15** Extract from Ordnance Survey Map, 1814  
(edp2324\_d026b 11 March 2022 EJ/RS)

- Plan EDP 16** Extract from Tithe Map of Merthyr Tydfil Parish, 1850  
(edp2324\_d027b 11 March 2022 EJ/RS)
- Plan EDP 17** 1885 Ordnance Survey Map 6" to the mile  
(edp2324\_d036a 11 March 2022 EJ/RS)
- Plan EDP 18** 1903 Ordnance Survey Map 6" to the mile  
(edp2324\_d029b 11 March 2022 EJ/RS)
- Plan EDP 19** 1914 Ordnance Survey Map 6" to the mile  
(edp2324\_d030b 11 March 2022 EJ/RS)
- Plan EDP 20** Coal Seam Locations  
(edp2324\_d032b 11 March 2022 EJ/RS)
- Plan EDP 21** Non-Designated Historic Assets of moderate significance  
(edp2324\_d035b 11 March 2022 EJ/RS)



-  Proposed Development Area
-  Ownership Boundary (Site)
-  2km Study Area
-  Scheduled Monument
- Listed Building**
-  Grade I
-  Grade II\*
-  Grade II
-  Registered Park and Garden
-  Conservation Area
-  ZTV Based on Ownership Boundary

client  
**Marvel Ltd**

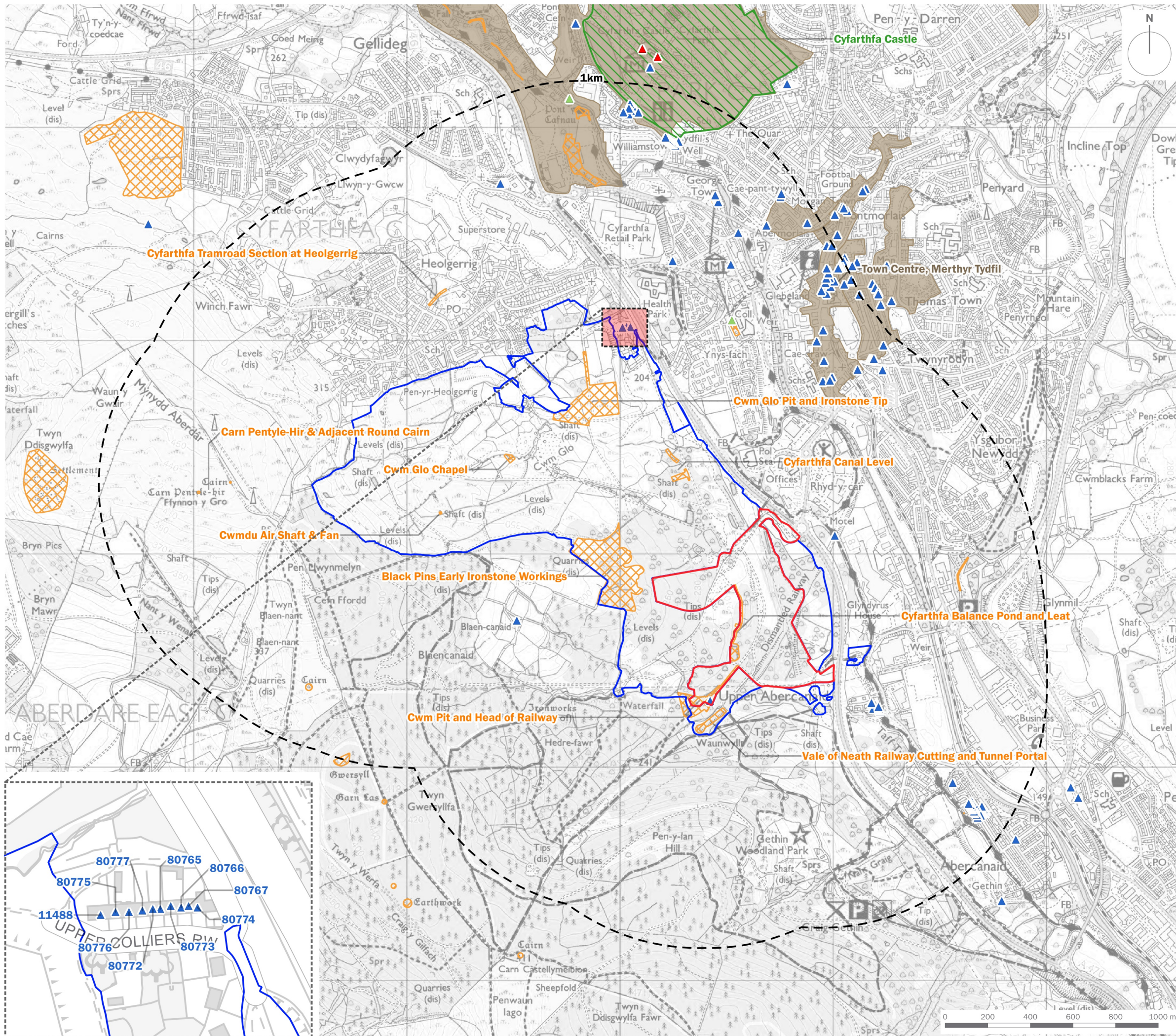
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drawing title  
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date **10 MARCH 2022** drawn by **EJ**  
drawing number **edp2324\_d012c** checked **RS**  
scale **1:25,000 @ A3** QA **RB**



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- Proposed Development Area
- Ownership Boundary (Site)
- 1km Study Area
- Scheduled Monument
- Listed Building**
- ▲ Grade I
- ▲ Grade II\*
- ▲ Grade II
- Registered Park and Garden
- Conservation Area

client  
**Marvel Ltd**

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

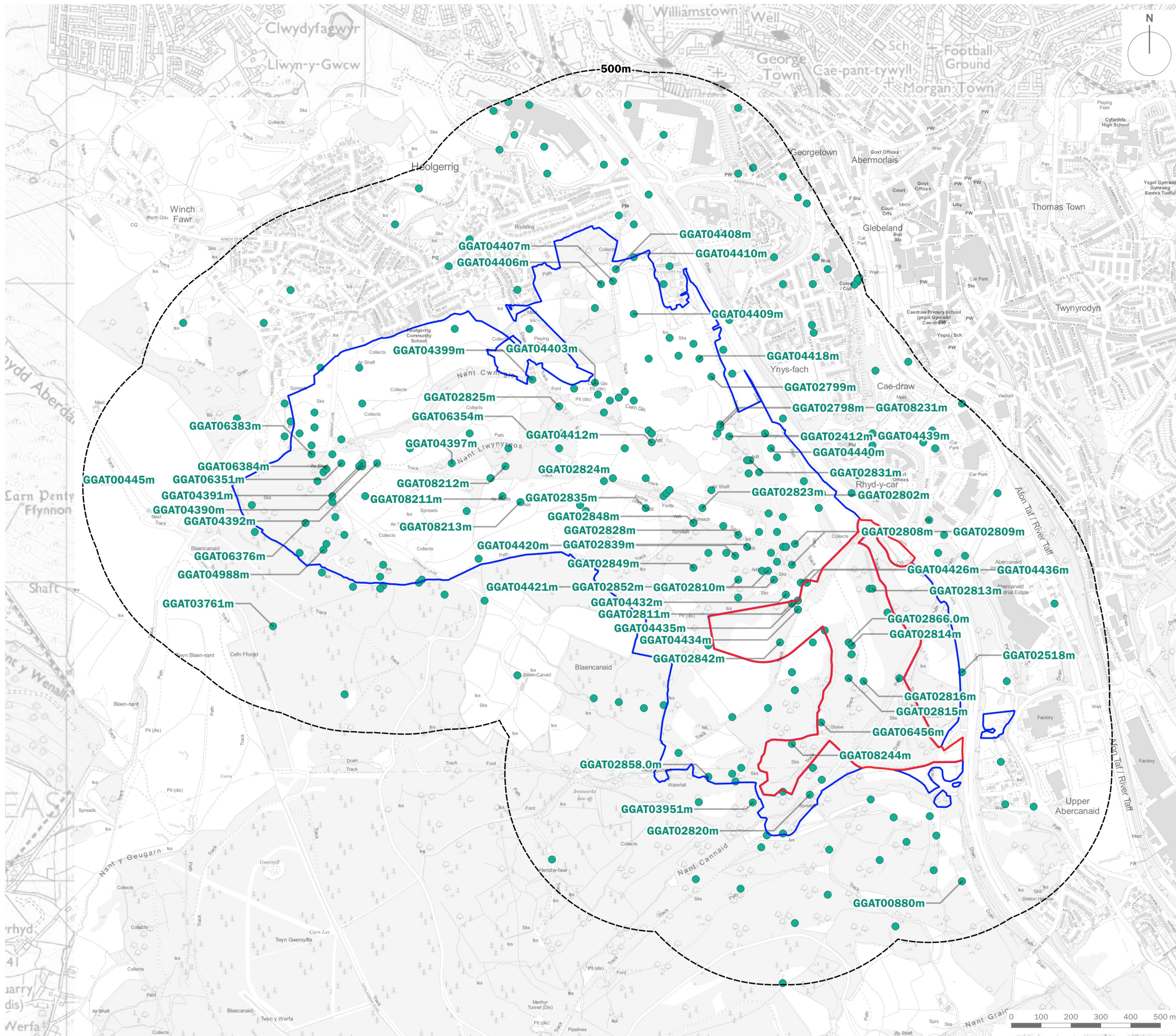
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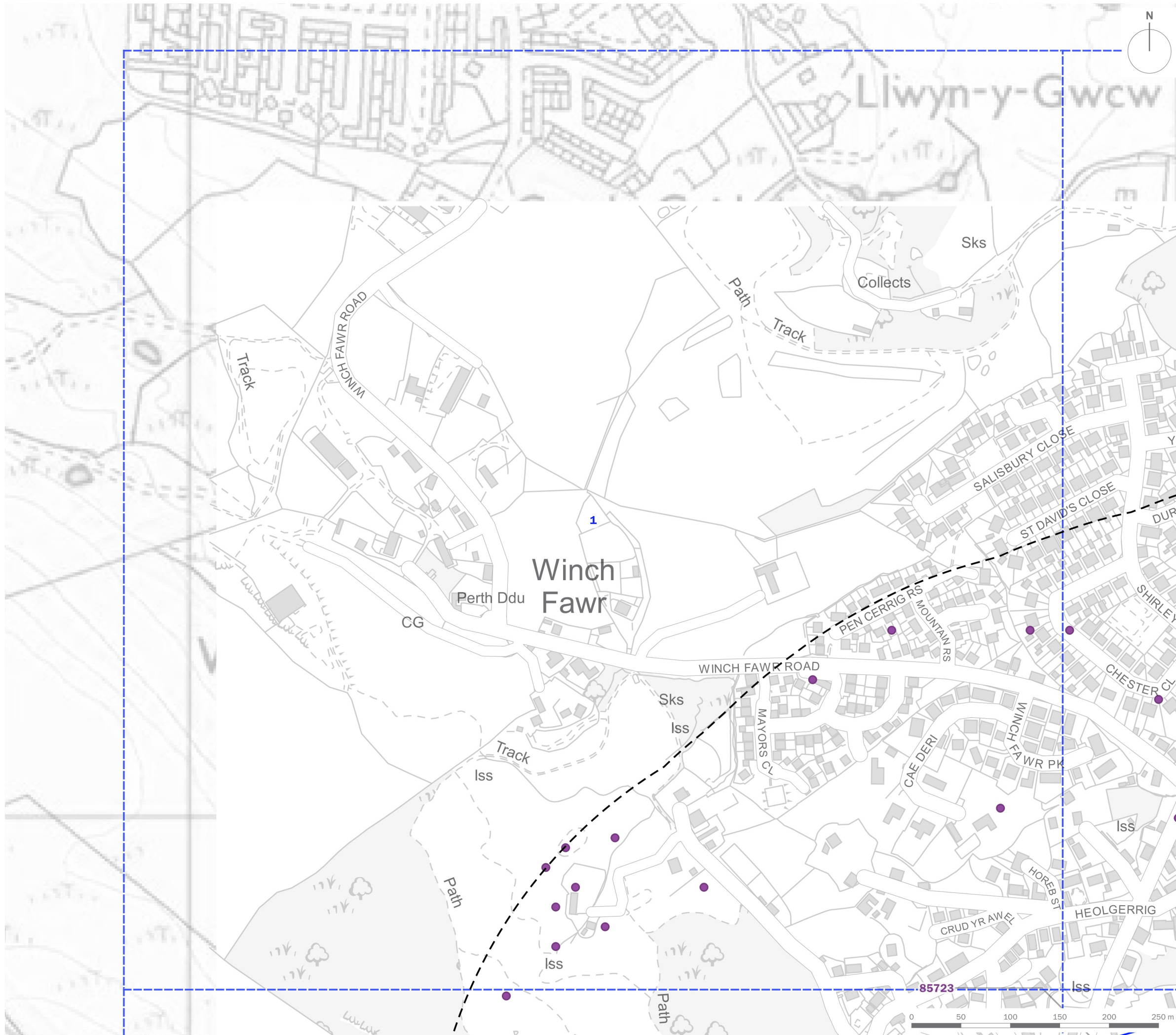
- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- HER Points

client	<b>Marvel Ltd</b>	
project title	<b>Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil</b>	
drawing title	<b>Plan EDP 4: HER Entries - Points</b>	
date	<b>11 MARCH 2022</b>	drawn by <b>EJ</b>
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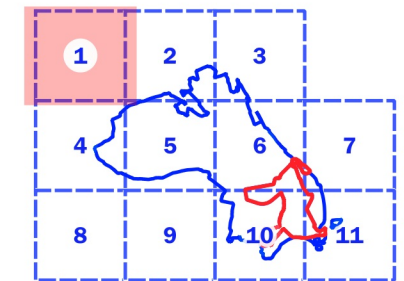


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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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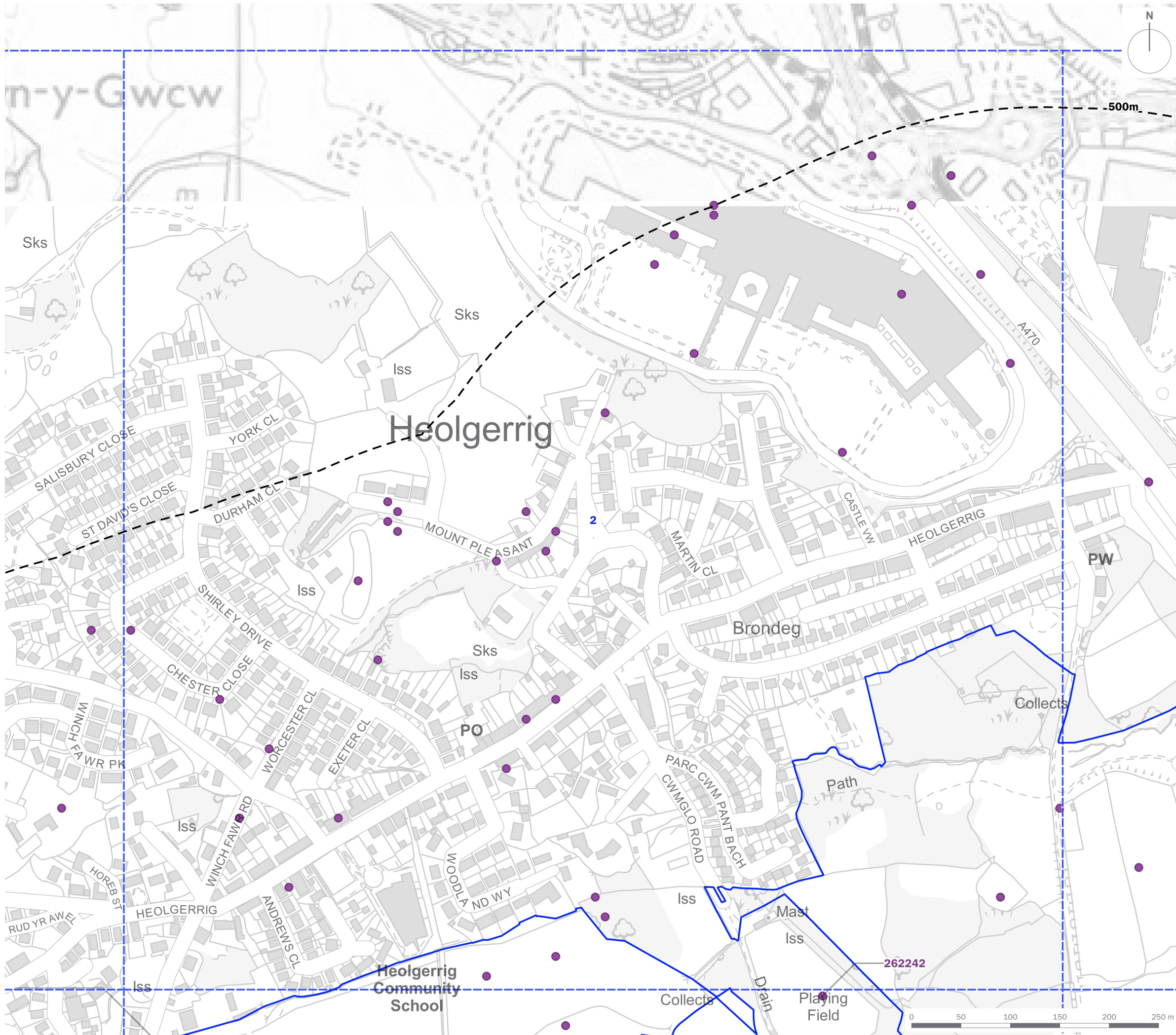
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 1 of 11)**





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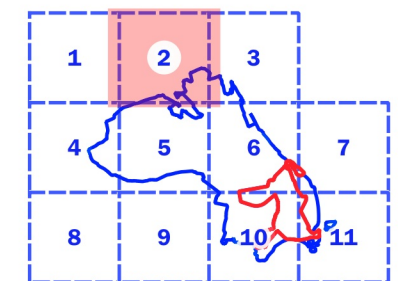
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scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>



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-  Proposed Development Area
-  Ownership Boundary (Site)
-  500m Study Area
-  National Monument Record of Wales



client  
**Marvel Ltd**

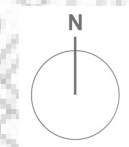
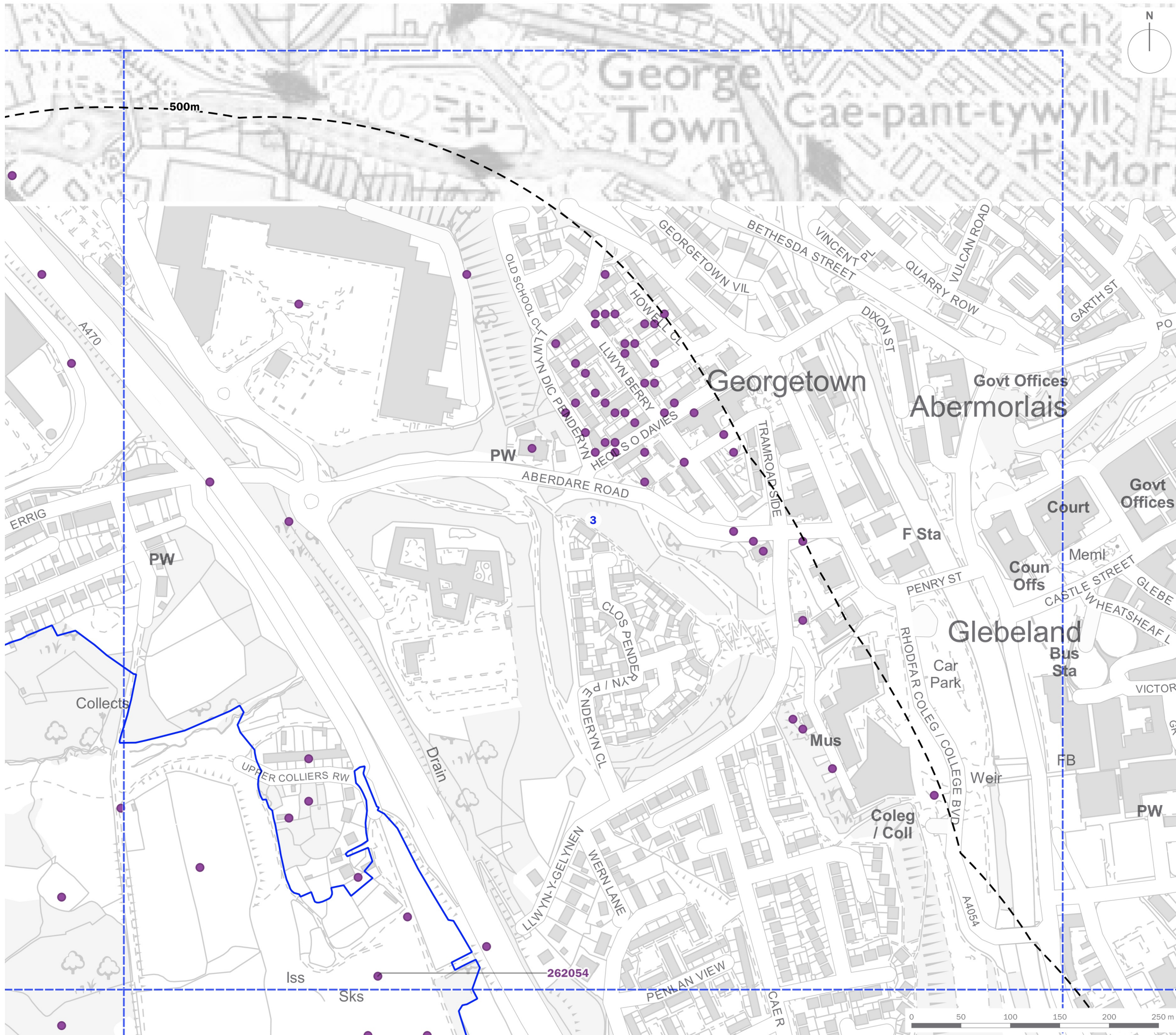
project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

drawing title  
**Plan EDP 5: NMRW Entries (Sheet 2 of 11)**

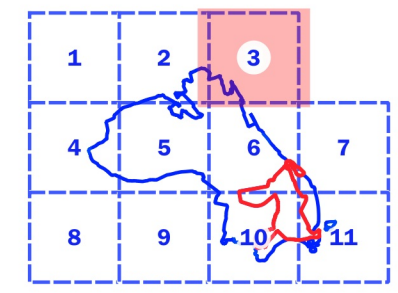
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drawing number **edp2324\_d016c** checked **RS**  
scale **1:3,774 @ A3** QA **RB**

 the environmental dimension partnership

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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

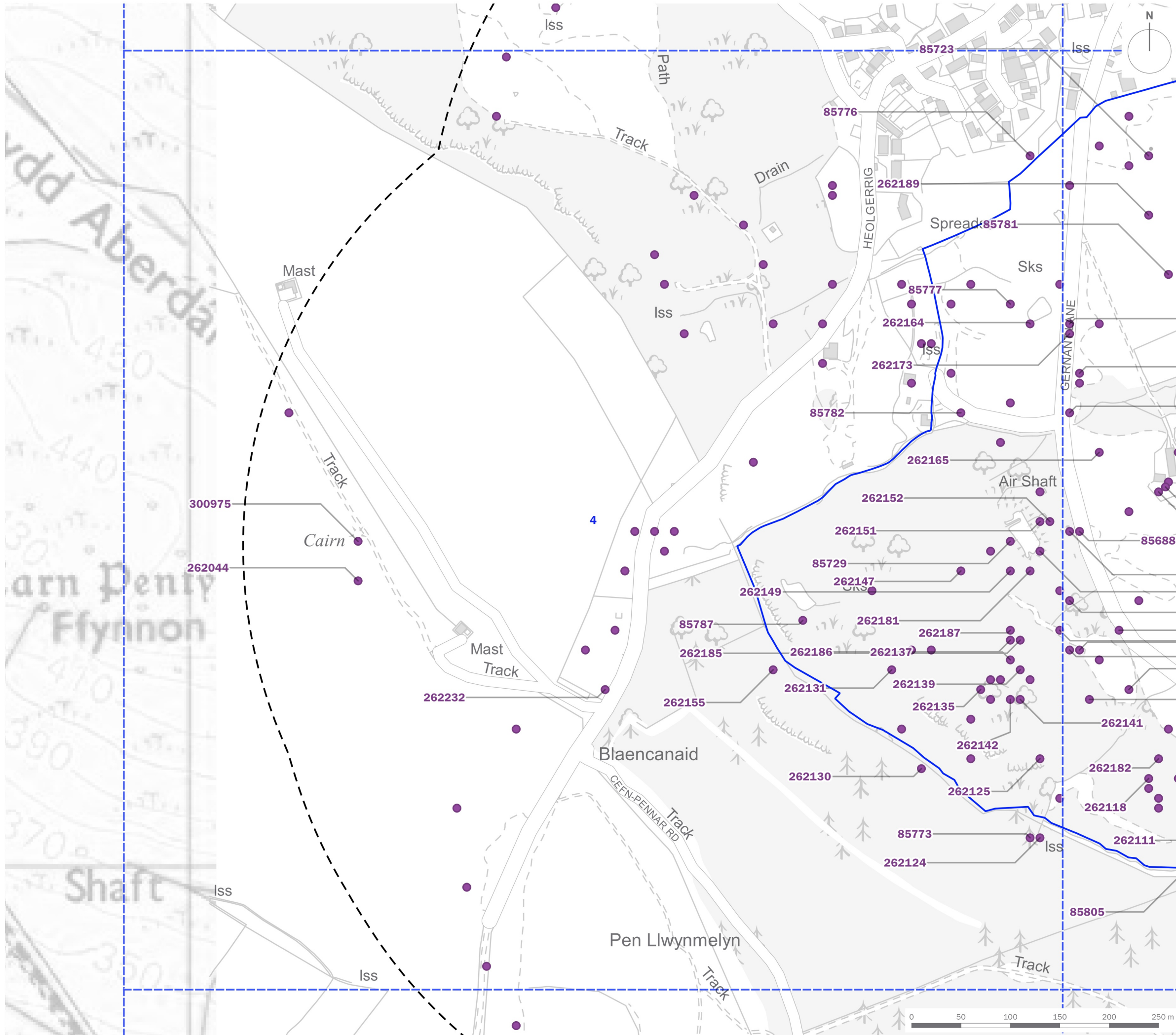
project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

drawing title  
**Plan EDP 5: NMRW Entries (Sheet 3 of 11)**

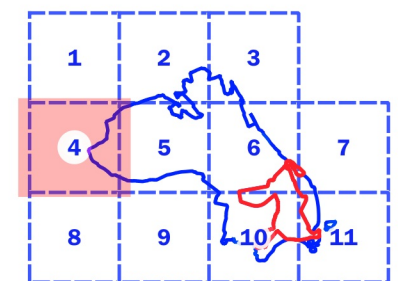
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scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>



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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

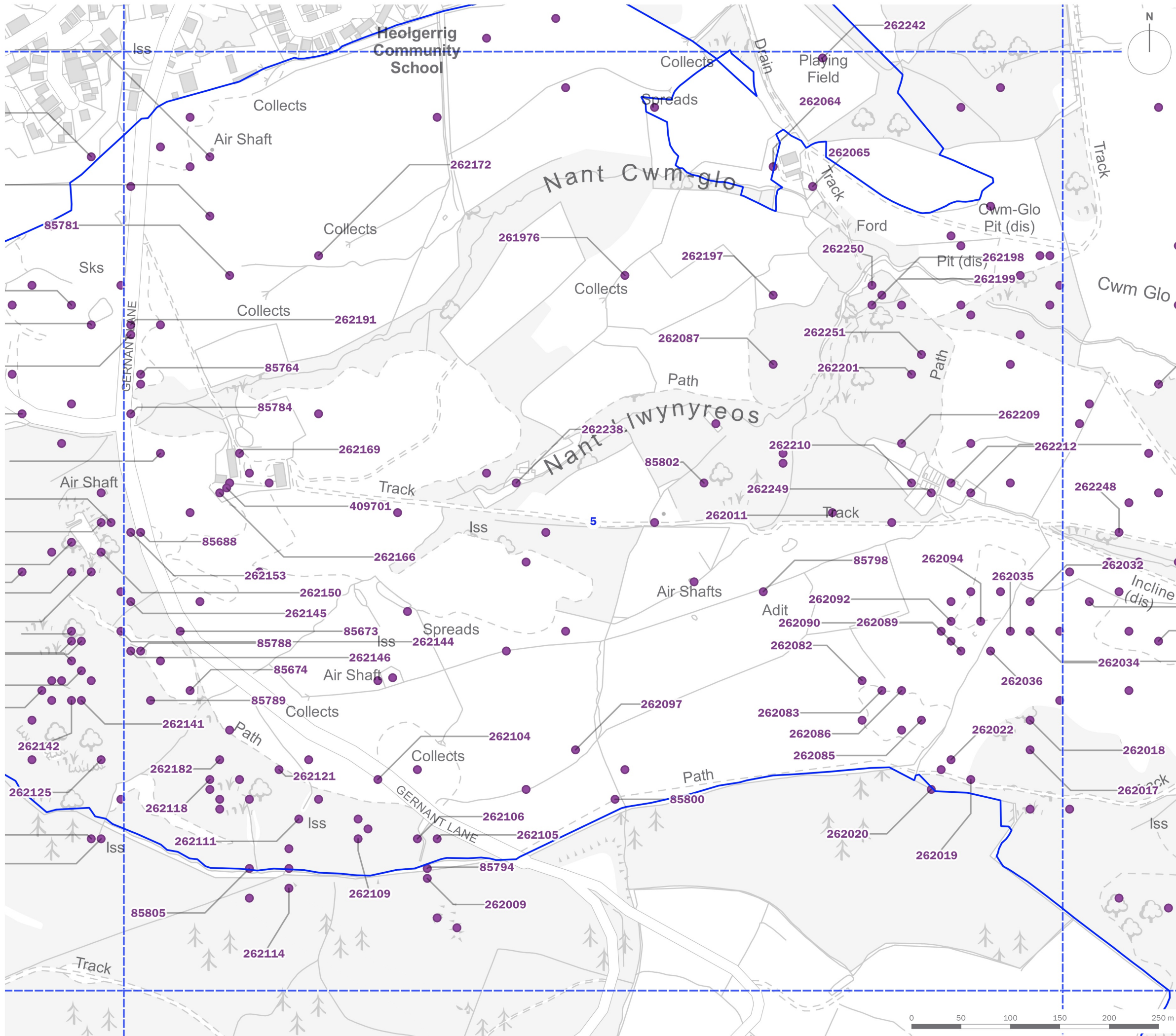
project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

drawing title  
**Plan EDP 5: NMRW Entries (Sheet 4 of 11)**

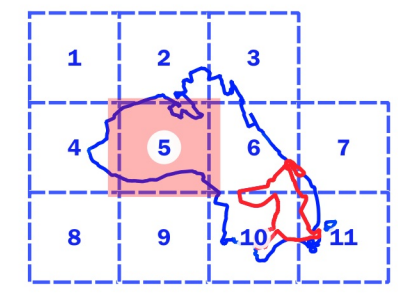
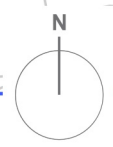
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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



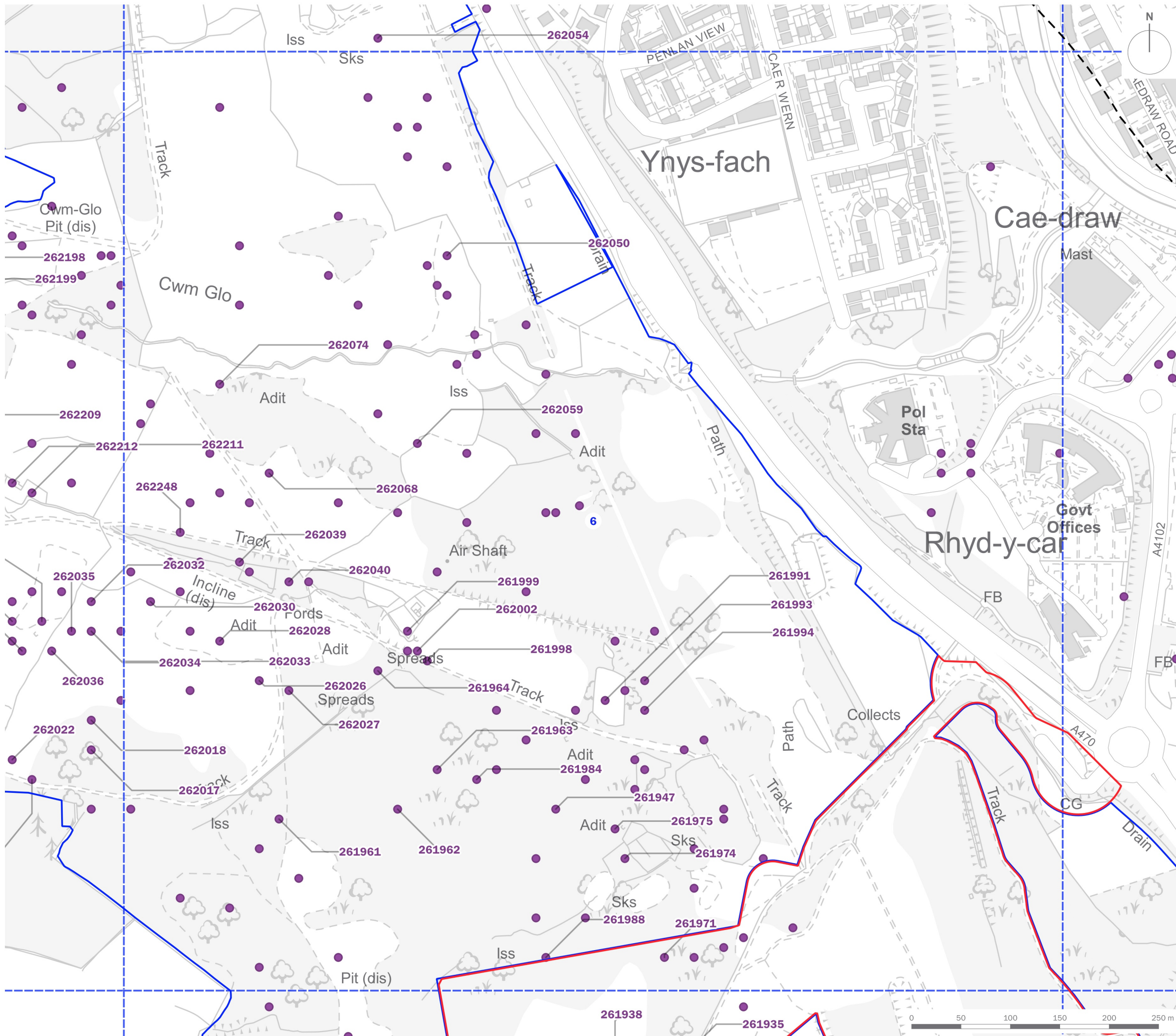
client  
**Marvel Ltd**

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

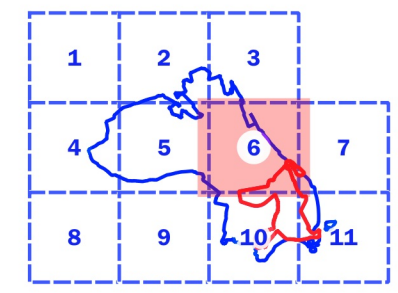
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 5 of 11)**

date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d016c</b>	checked	<b>RS</b>
scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>





- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

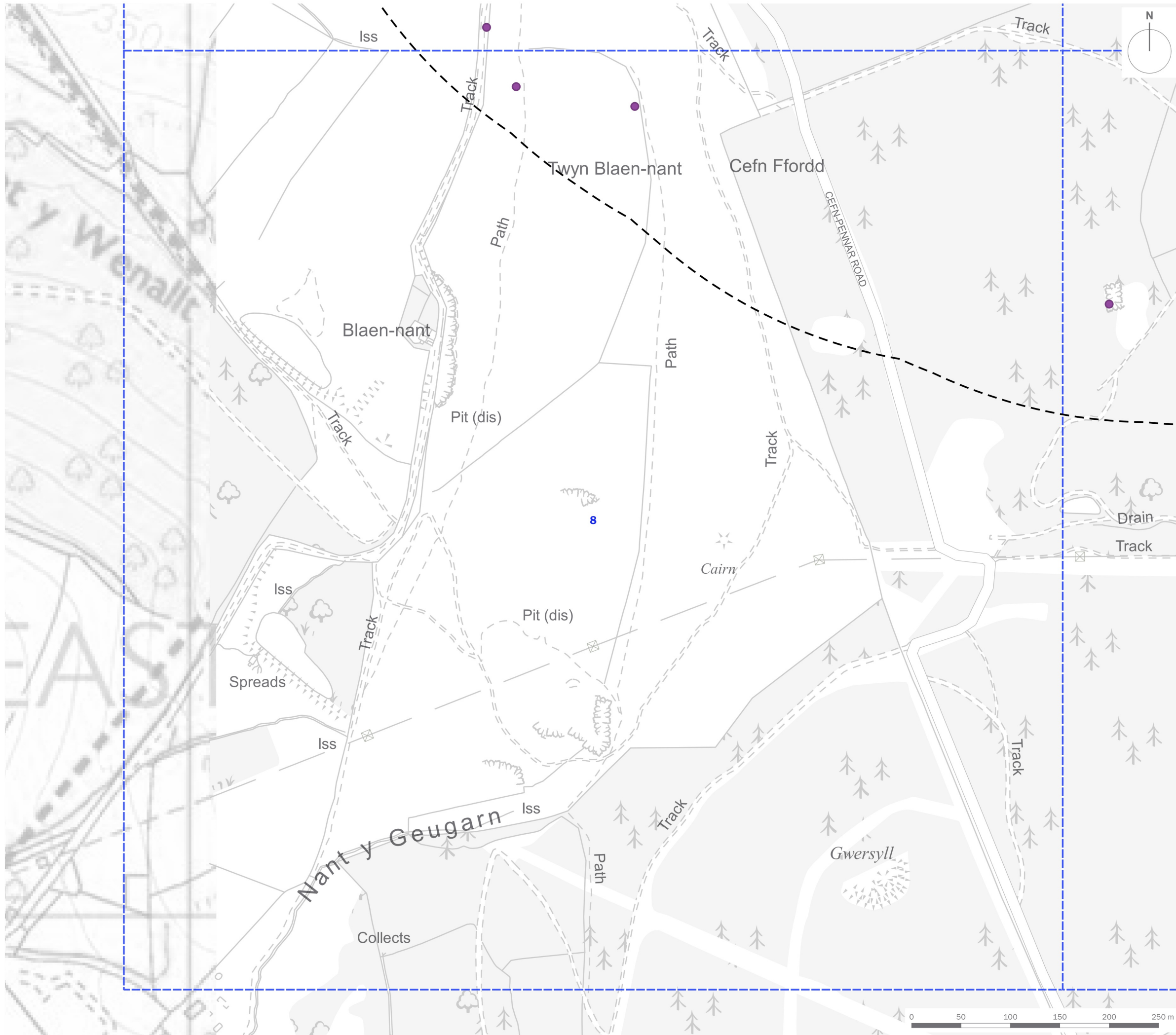
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 6 of 11)**

date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d016c</b>	checked	<b>RS</b>
scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>

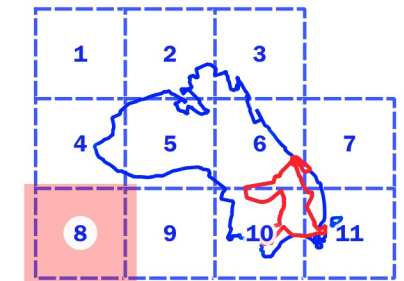


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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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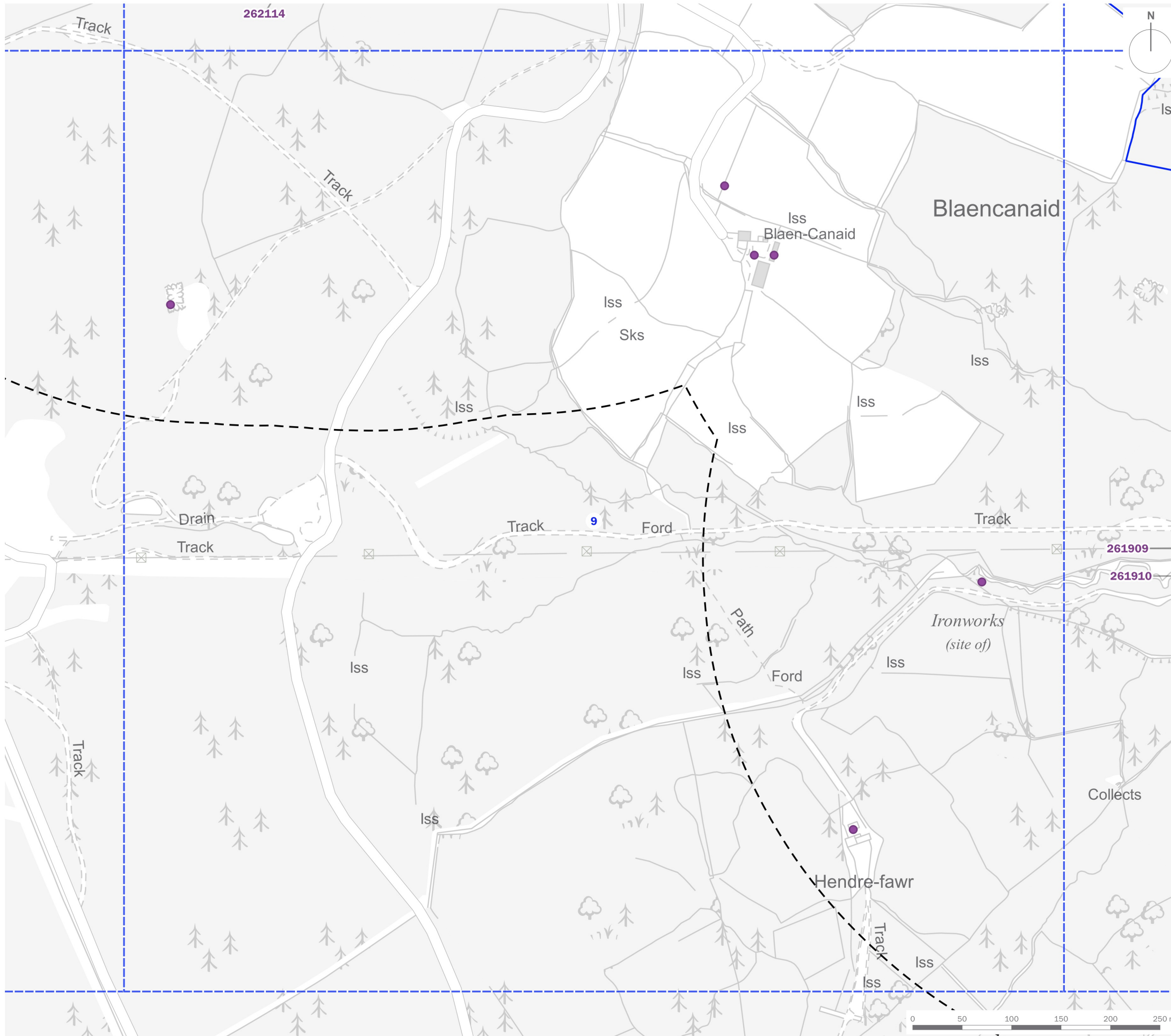
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 8 of 11)**





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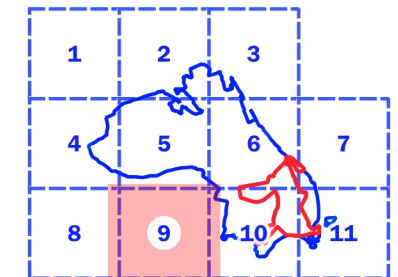
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-  Proposed Development Area
-  Ownership Boundary (Site)
-  500m Study Area
-  National Monument Record of Wales



client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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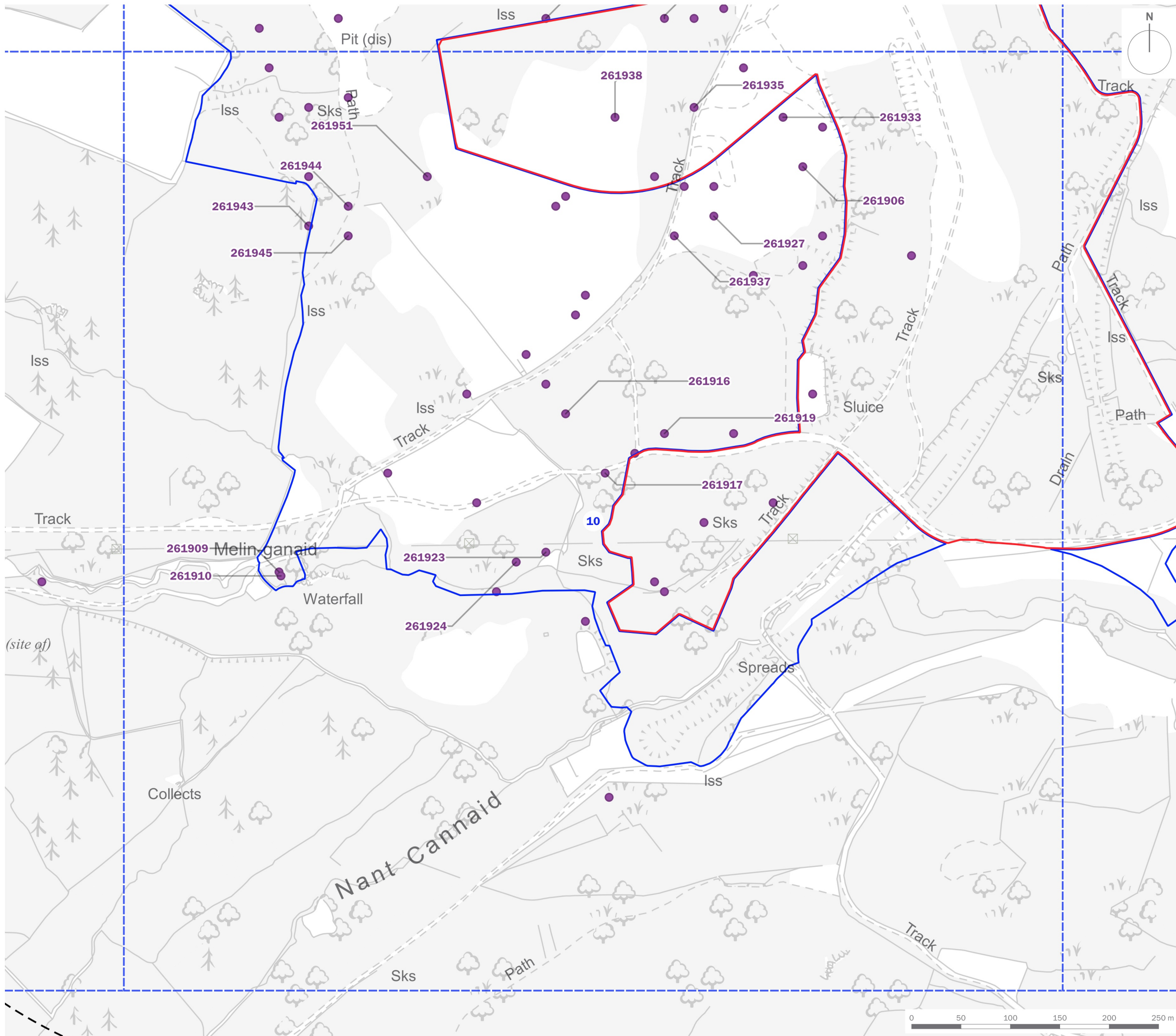
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 9 of 11)**

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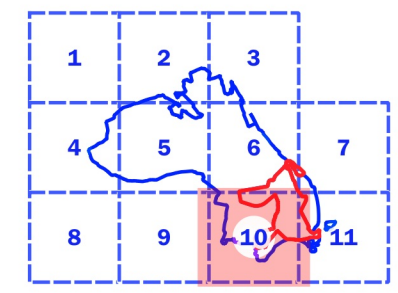
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scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>



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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

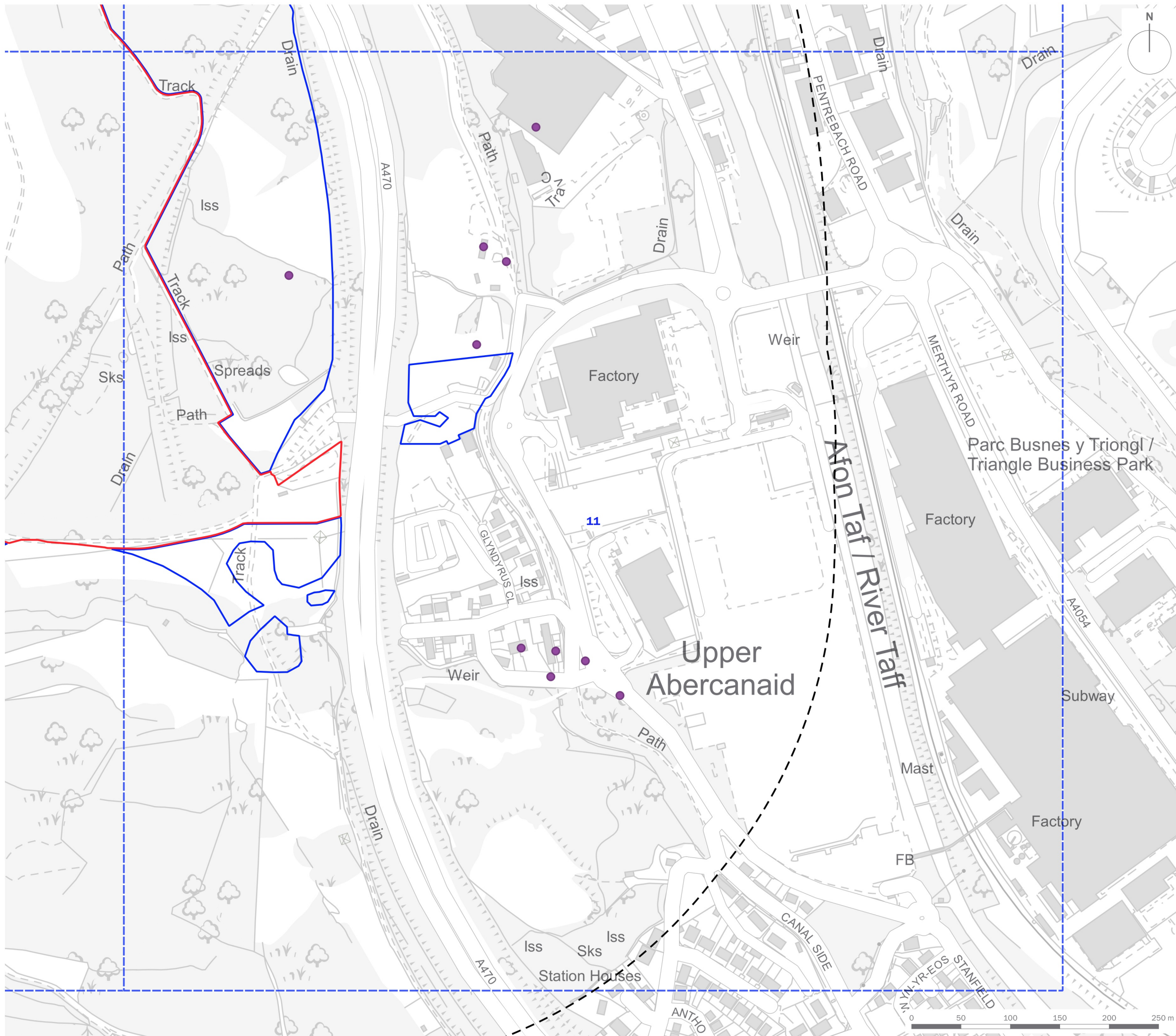
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**Plan EDP 5: NMRW Entries (Sheet 10 of 11)**

date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
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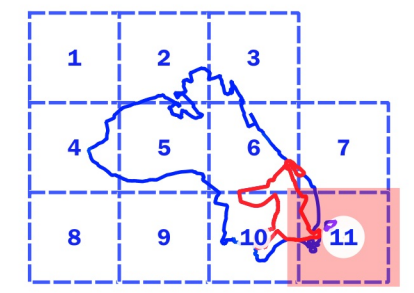


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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- National Monument Record of Wales



client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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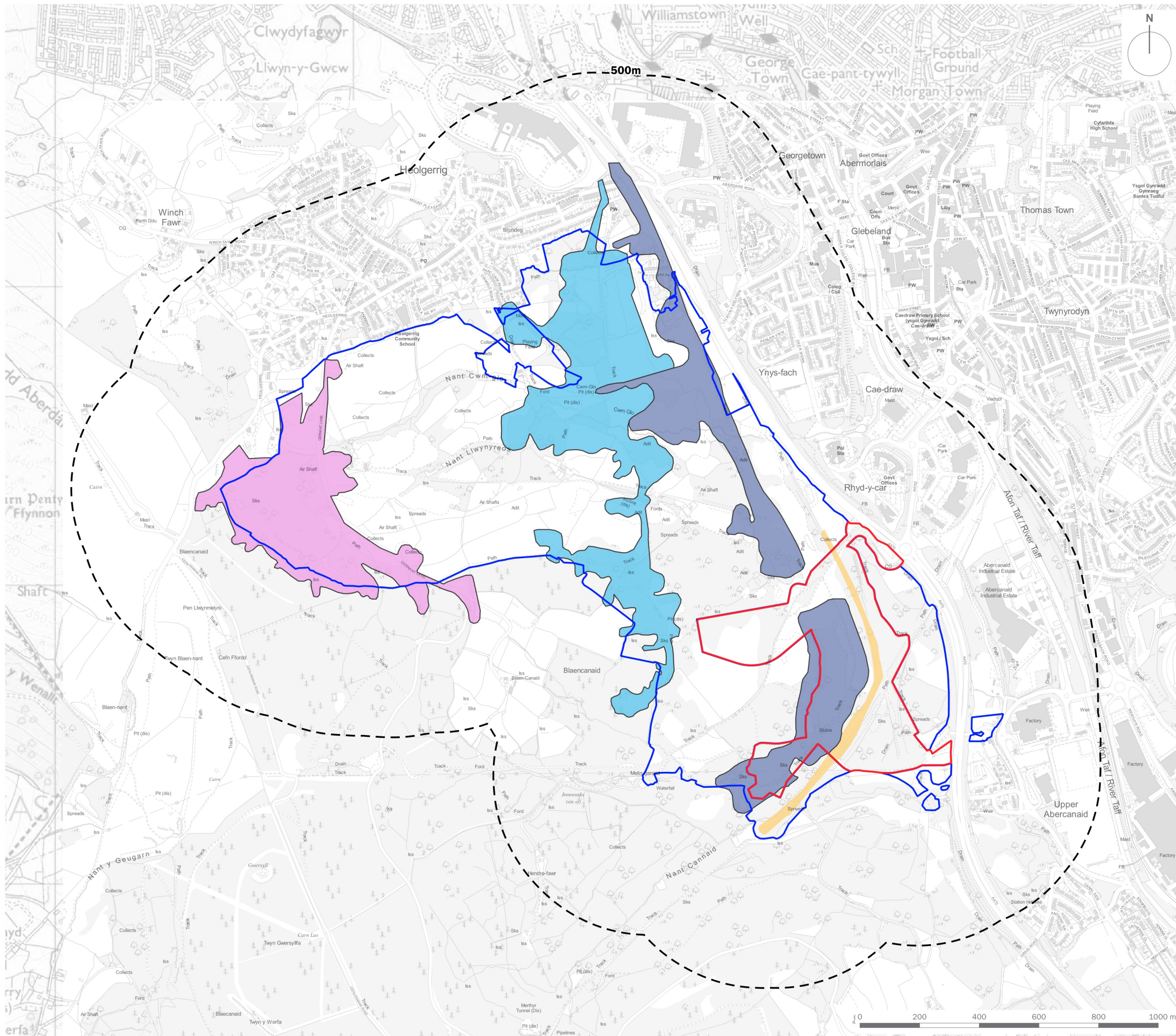
drawing title  
**Plan EDP 5: NMRW Entries (Sheet 11 of 11)**

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date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
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scale	<b>1:3,774 @ A3</b>	QA	<b>RB</b>

the environmental dimension partnership  
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- Proposed Development Area
- Ownership Boundary (Site)
- 500m Study Area
- Zone A
- Zone B
- Zone C
- Zone D

client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

---

drawing title  
**Plan EDP 7: Zones of Coherence**

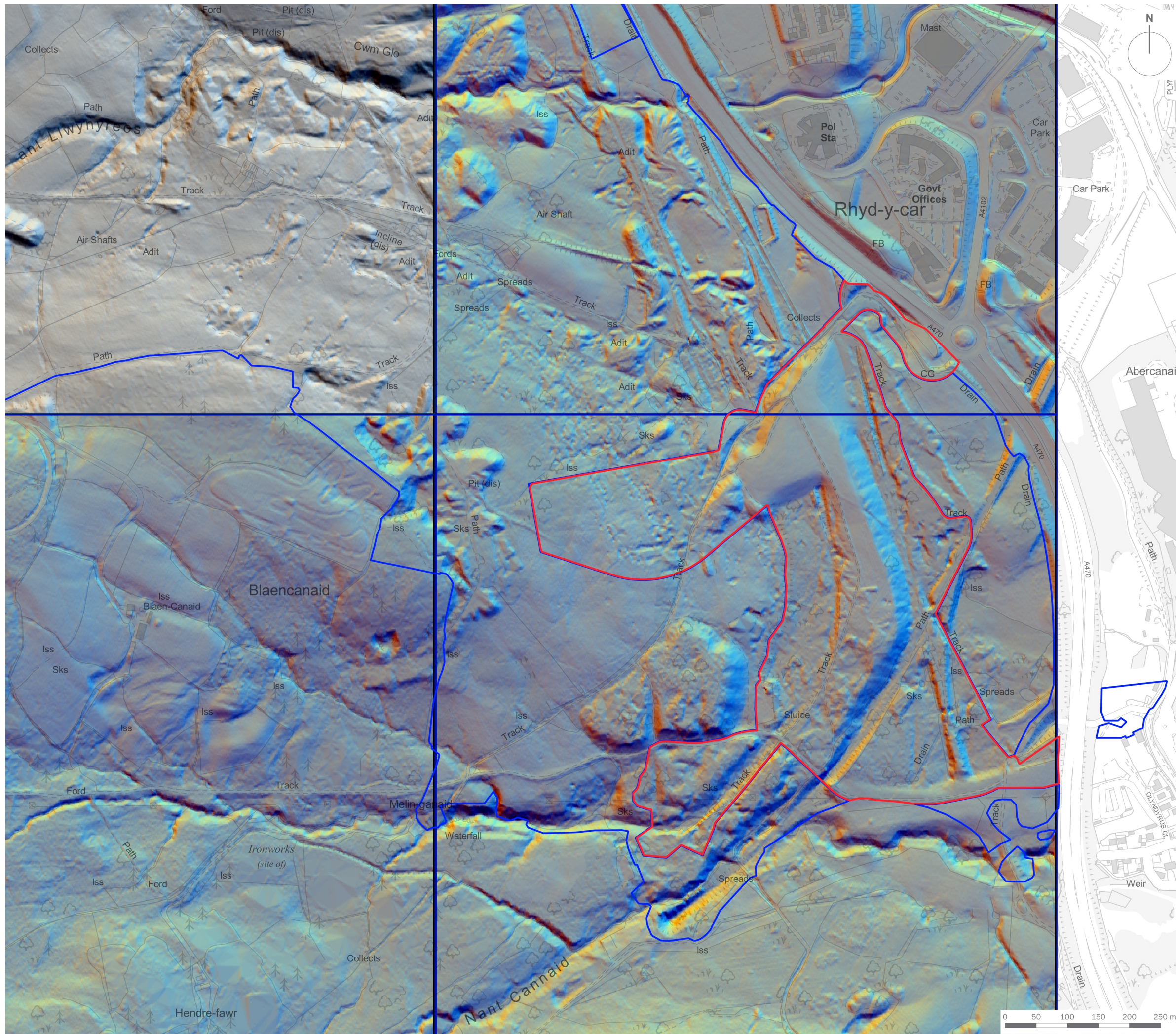
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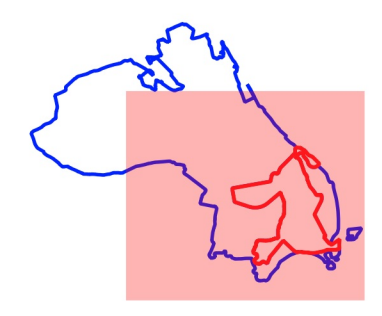


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- Proposed Development Area
- Ownership Boundary (Site)
- LiDAR Data Using 2m Digital Surface Model (DSM) with Multi-directional



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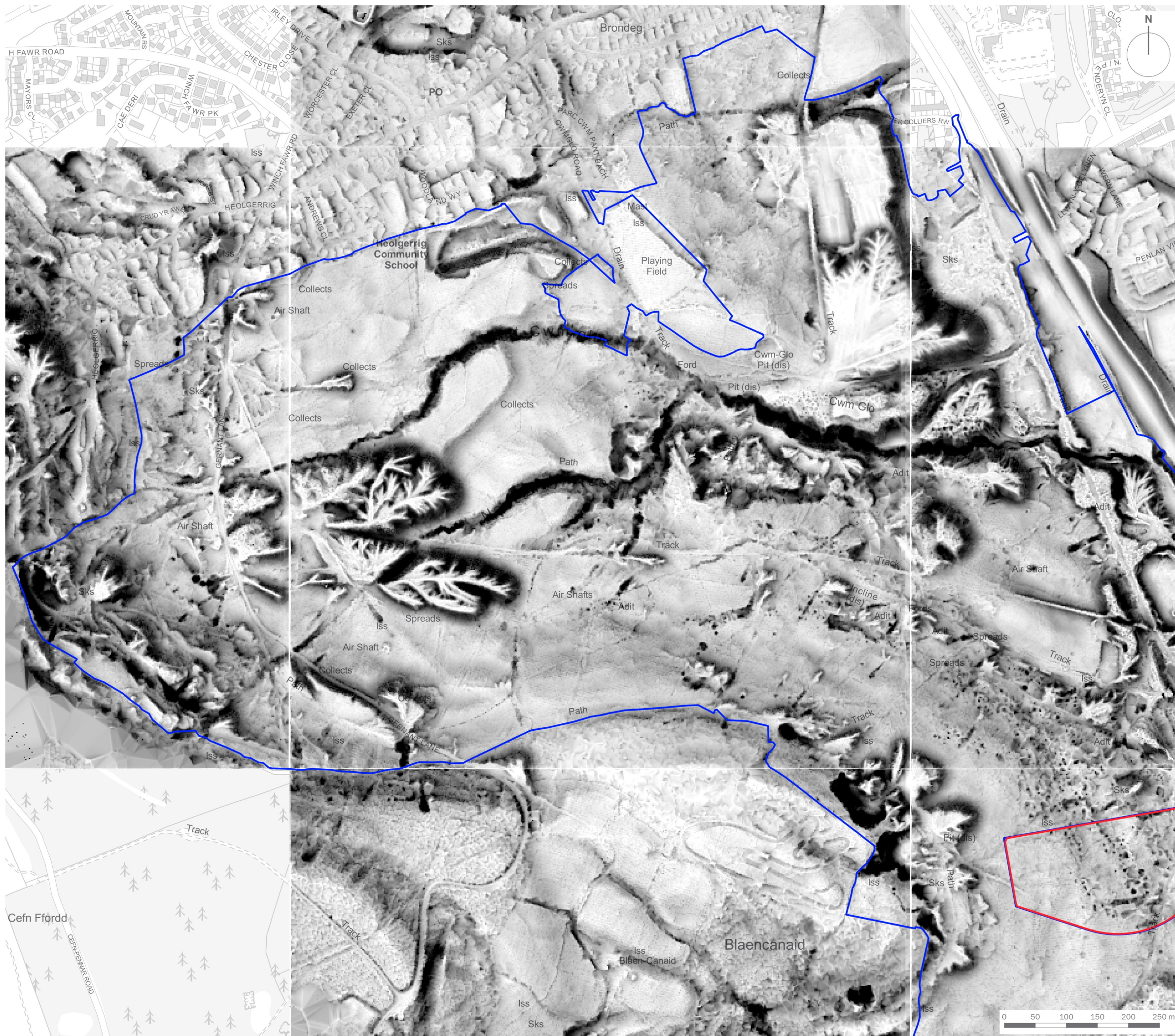
project title  
**Rhydycar West Leisure Resort, Rhydycar West, Merthyr Tydfil**


drawing title  
**Plan EDP 9: LiDAR Data - Multi-directional Hillshades - South**

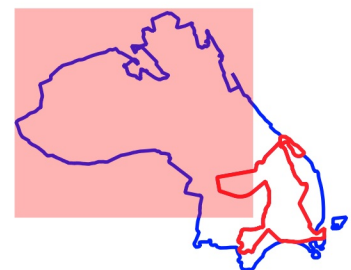
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scale	<b>1:6,000 @ A3</b>	QA	<b>RB</b>



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-  Proposed Development Area
-  Ownership Boundary (Site)
-  LiDAR Data Using 2m Digital Surface Model (DSM)



client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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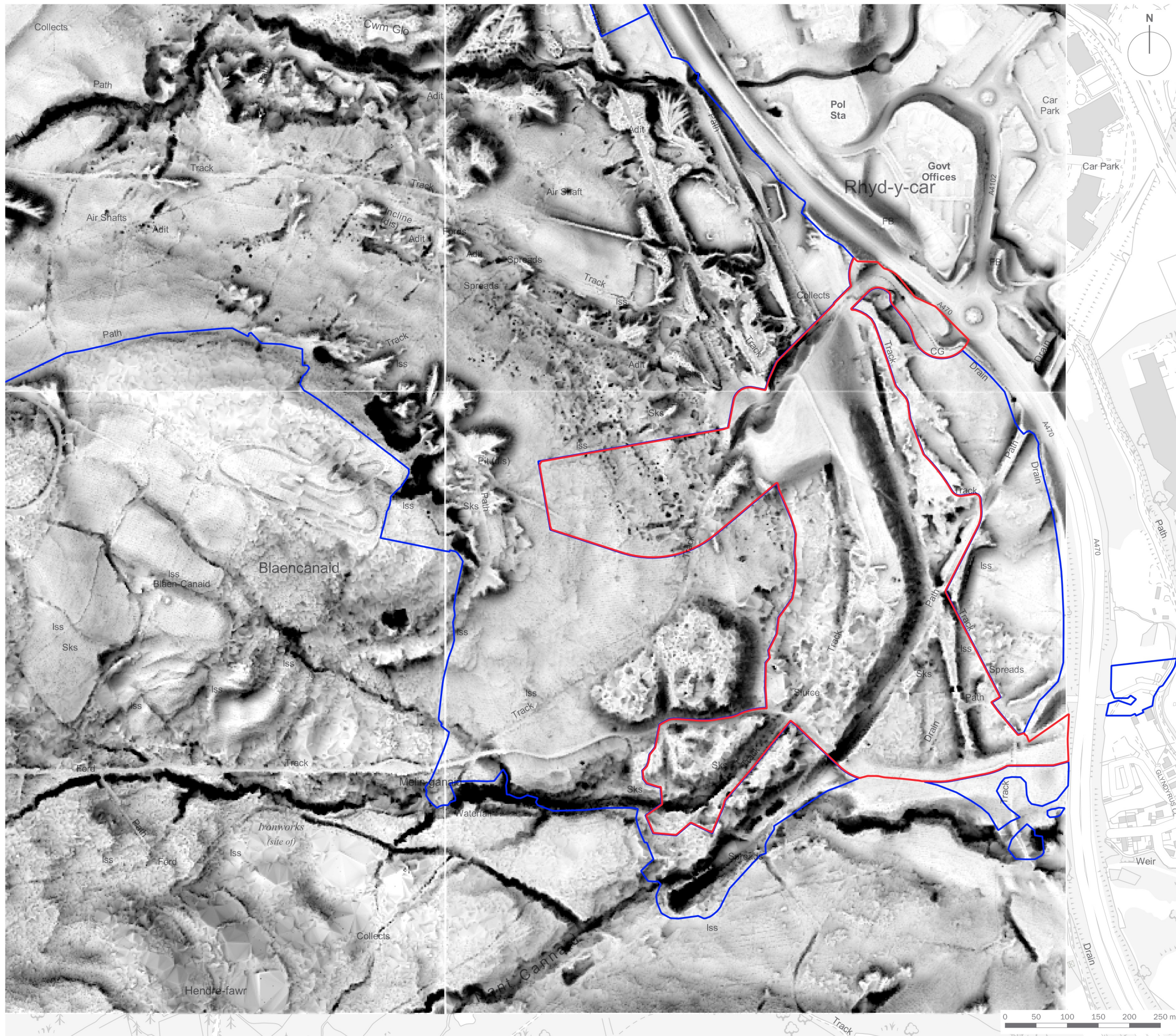
drawing title  
**Plan EDP 10: LiDAR Data - Sky View Factor - North**

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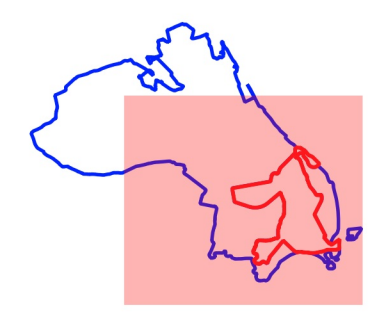
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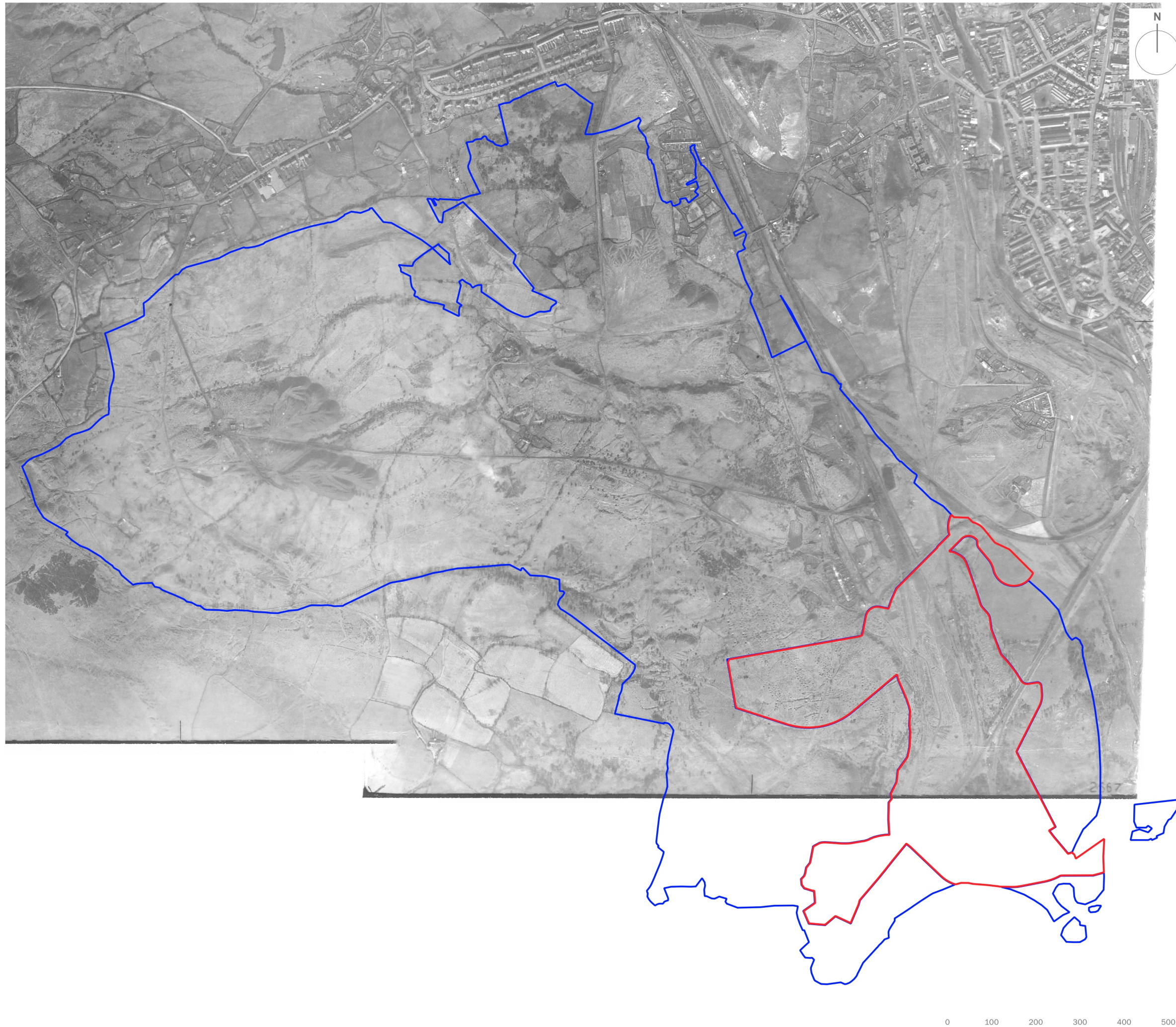
- Proposed Development Area
- Ownership Boundary (Site)
- LiDAR Data Using 2m Digital Surface Model (DSM)



client		
<b>Marvel Ltd</b>		
project title		
<b>Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil</b>		
drawing title		
<b>Plan EDP 11: LiDAR Data - Sky View Factor - South</b>		
date	<b>11 MARCH 2022</b>	drawn by <b>EJ</b>
drawing number	<b>edp2324_d022b</b>	checked <b>RS</b>
scale	<b>1:6,000 @ A3</b>	QA <b>RB</b>



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- Proposed Development Area
- Owndership Boundary (Site)

client  
**Marvel Ltd**

---

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

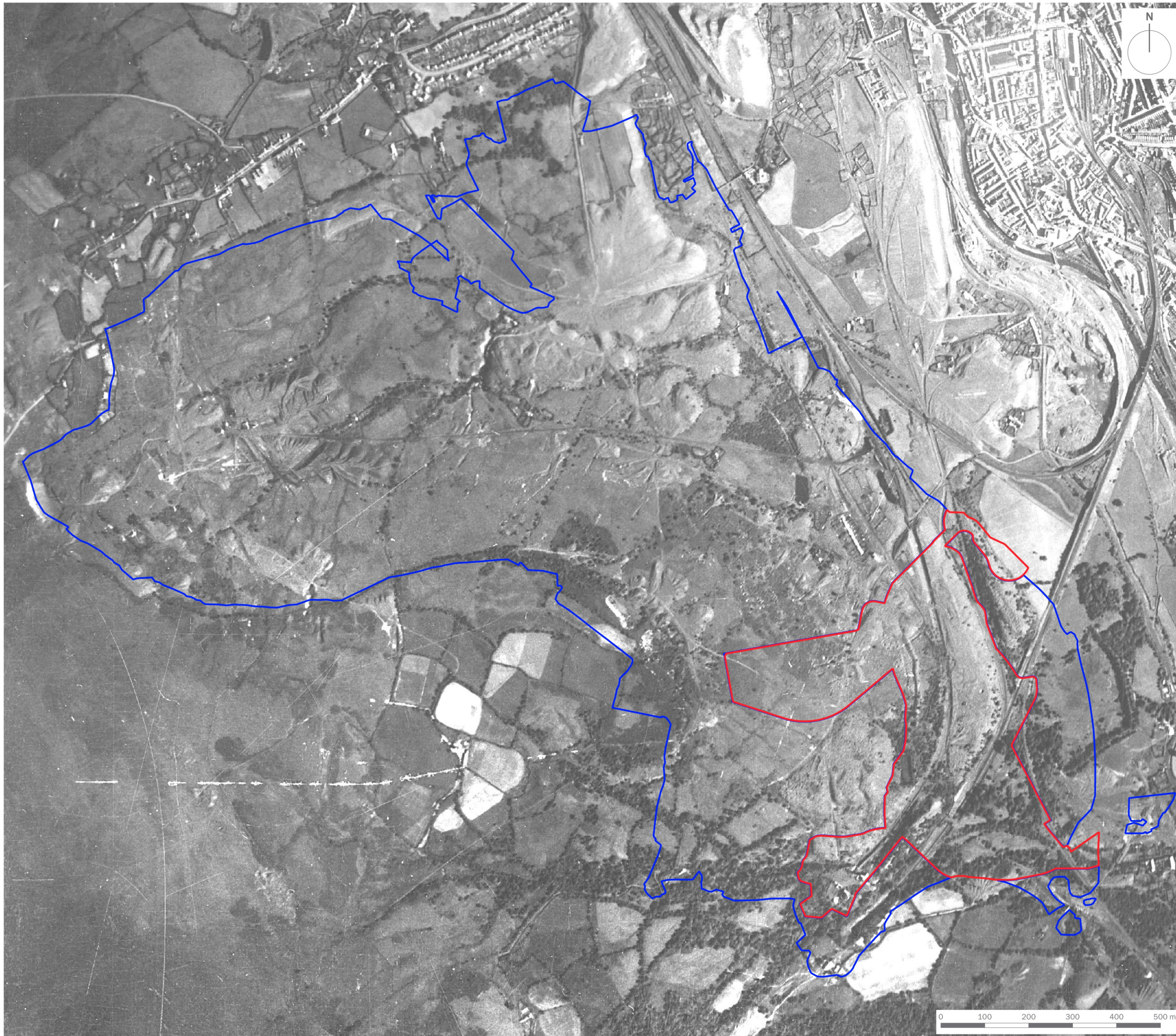
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drawing title  
**Plan EDP 12: Aerial Photograph, 1947**

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date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d023b</b>	checked	<b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA	<b>RB</b>





- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client  
**Marvel Ltd**

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project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

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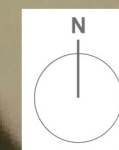
drawing title  
**Plan EDP 13: Aerial Photograph, 1945**

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date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d024b</b>	checked	<b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA	<b>RB</b>



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- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client

**Marvel Ltd**

project title

**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

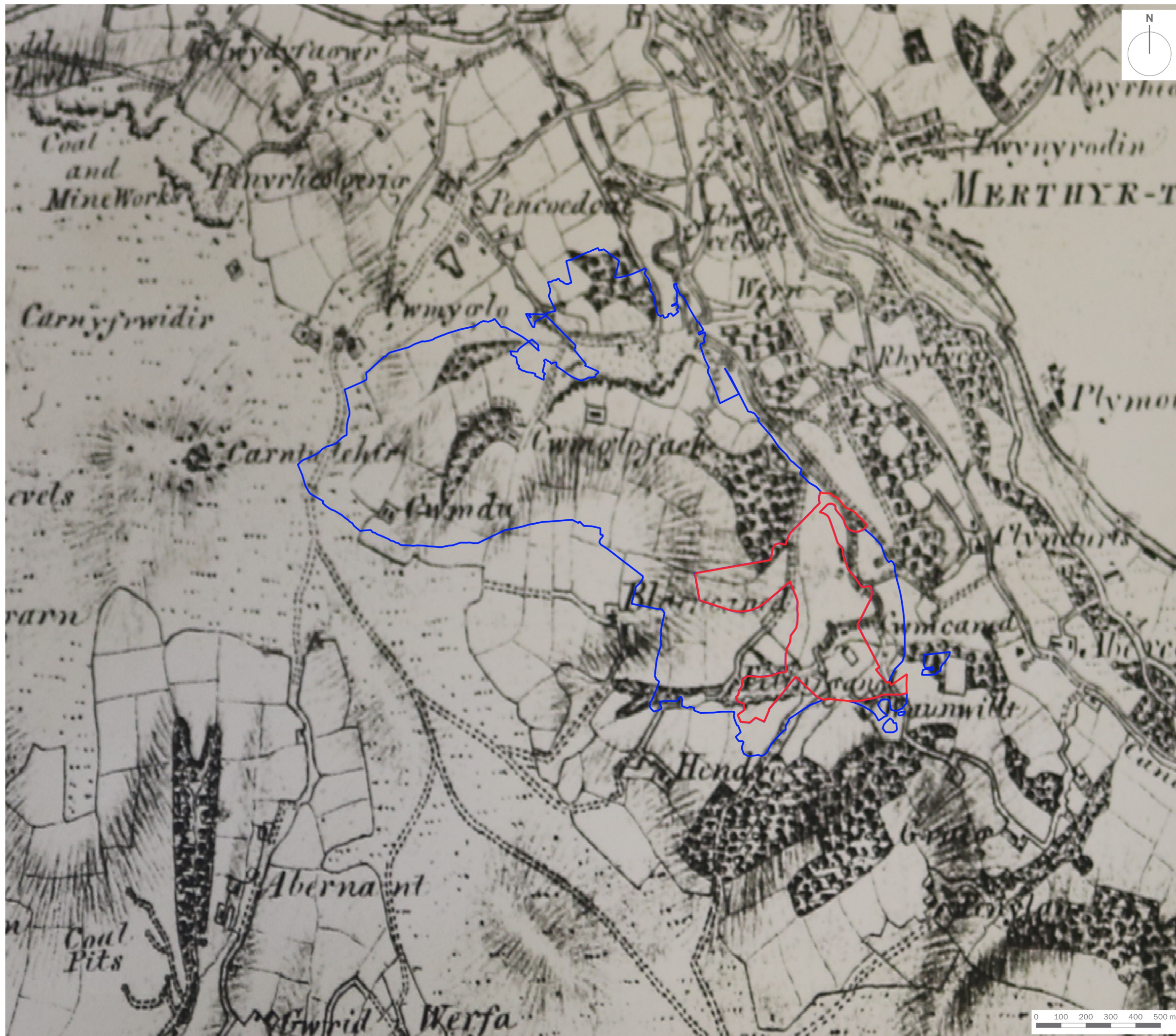
drawing title

**Plan EDP 14: Extract from Yates Map of Glamorgan, 1799**

date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d025b</b>	checked	<b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA	<b>RB</b>



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- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client  
**Marvel Ltd**

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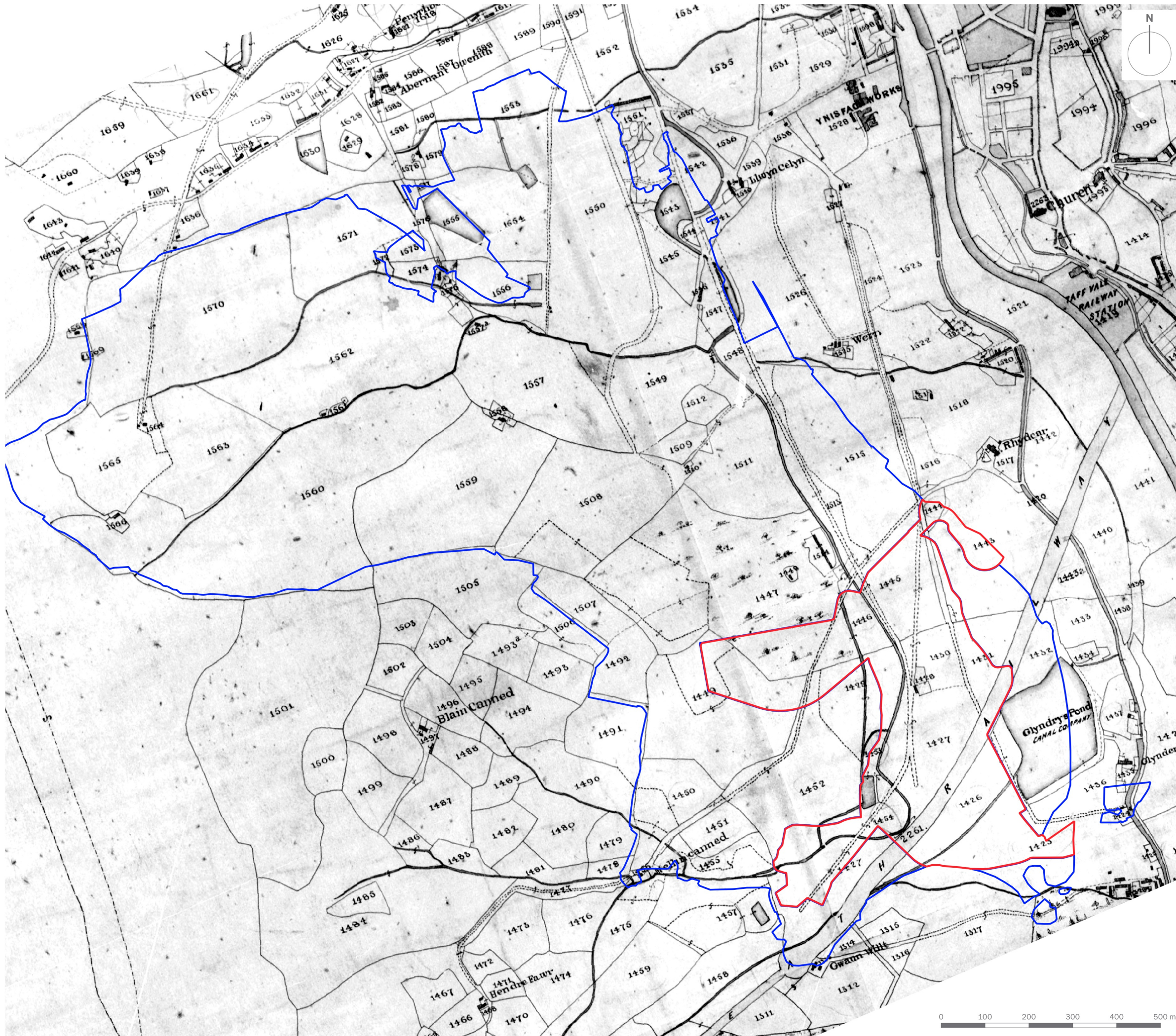
project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

---

drawing title  
**Plan EDP 15: Extract from Ordnance Survey Map, 1814**

---

date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d026b</b>	checked	<b>RS</b>
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- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client  
**Marvel Ltd**

---

project title  
**Rhydycar West Leisure Resort, Rhydycar West, Merthyr Tydfil**

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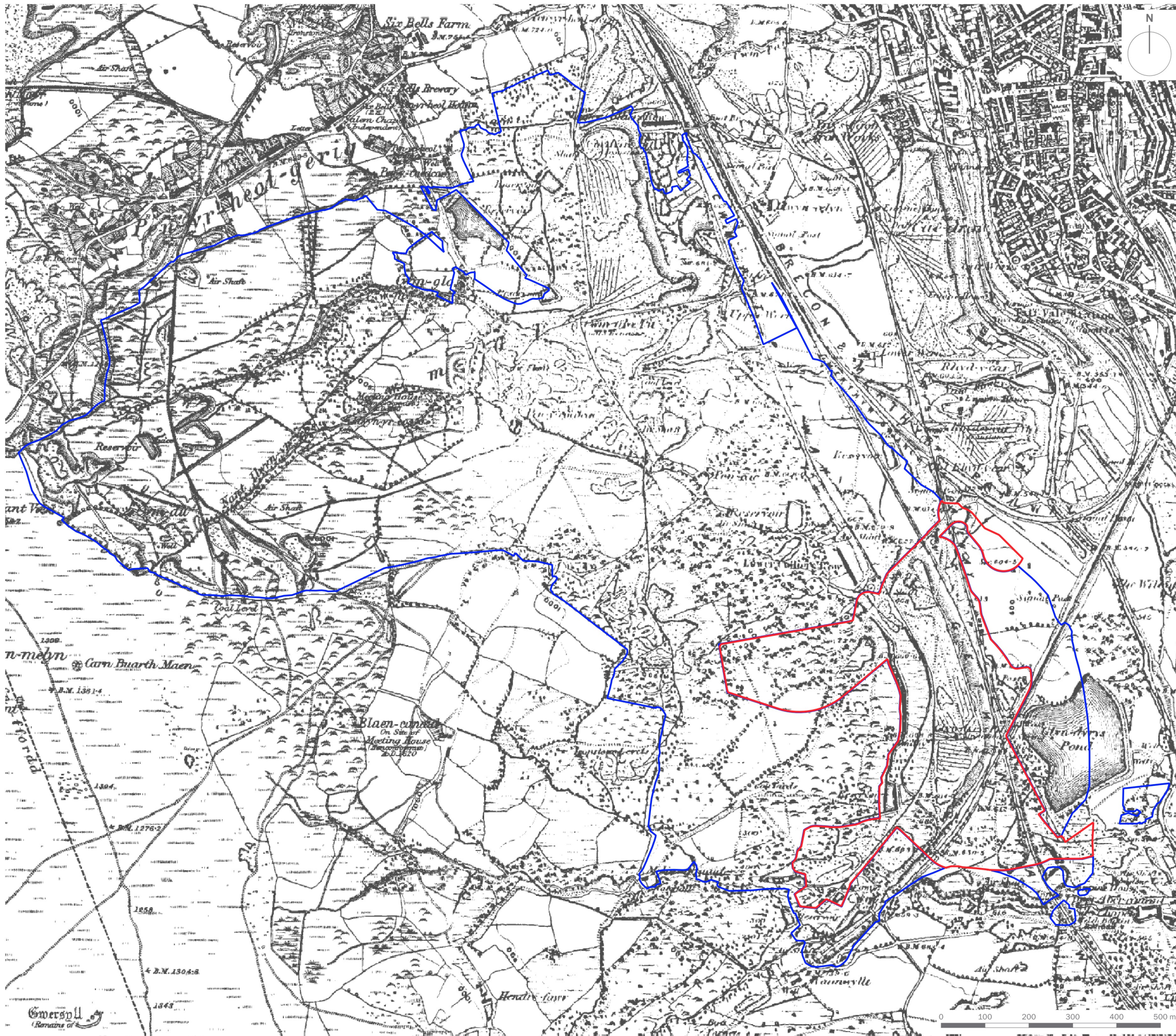
drawing title  
**Plan EDP 16: Extract from Tithe Map of Merthyr Tydfil Parish, 1850**

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date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d027b</b>	checked	<b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA	<b>RB</b>



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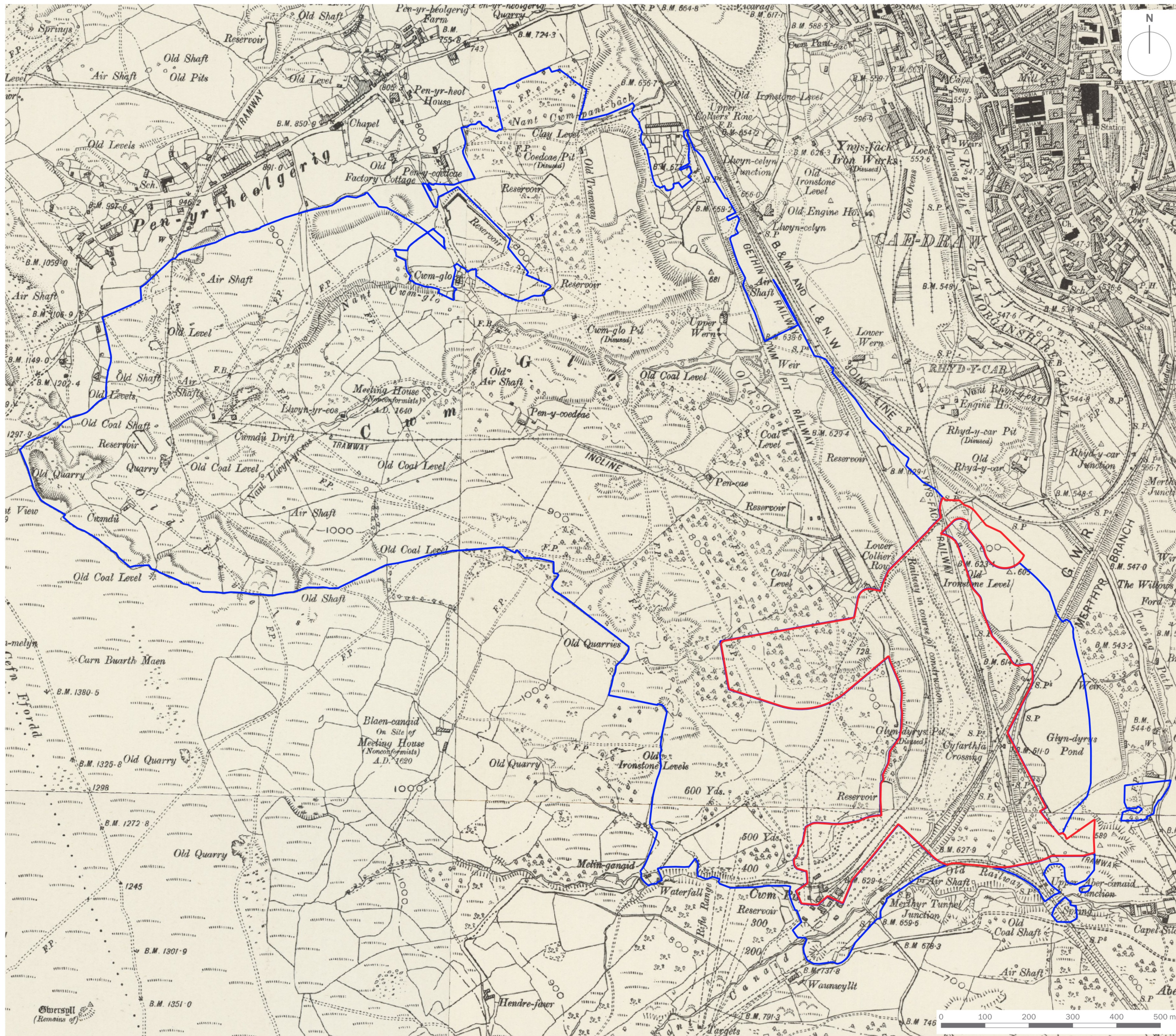


- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client			
<b>Marvel Ltd</b>			
project title			
<b>Rhydycar West Leisure Resort, Rhydycar West, Merthyr Tydfil</b>			
drawing title			
<b>Plan EDP 17: 1885 Ordnance Survey Map 6" to the Mile</b>			
date	<b>11 MARCH 2022</b>	drawn by	<b>EJ</b>
drawing number	<b>edp2324_d036a</b>	checked	<b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA	<b>RB</b>



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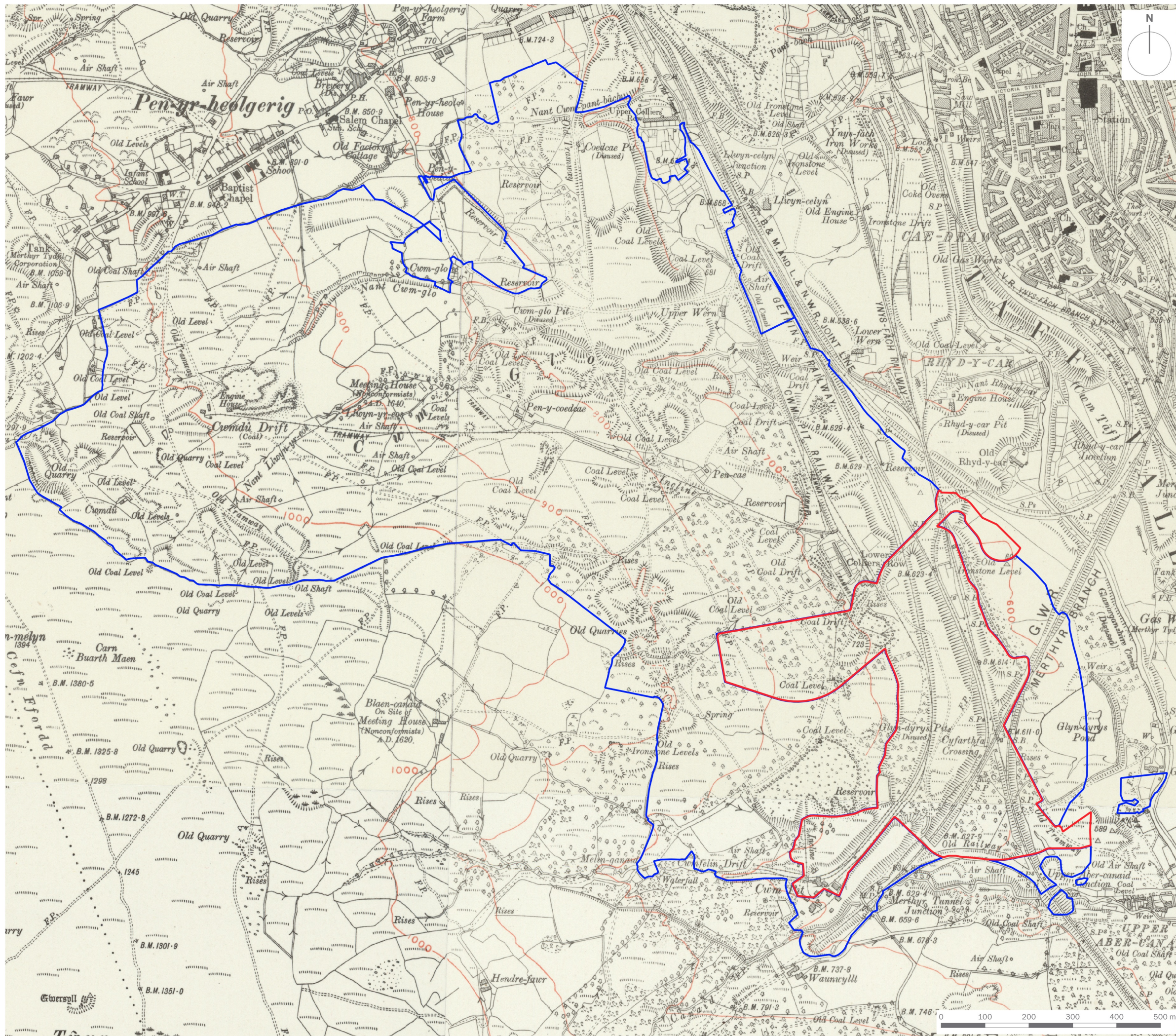


- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client		
<b>Marvel Ltd</b>		
project title	<b>Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil</b>	
drawing title	<b>Plan EDP 18: 1903 Ordnance Survey Map 6" to the Mile</b>	
date	<b>11 MARCH 2022</b>	drawn by <b>EJ</b>
drawing number	<b>edp2324_d029b</b>	checked <b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA <b>RB</b>



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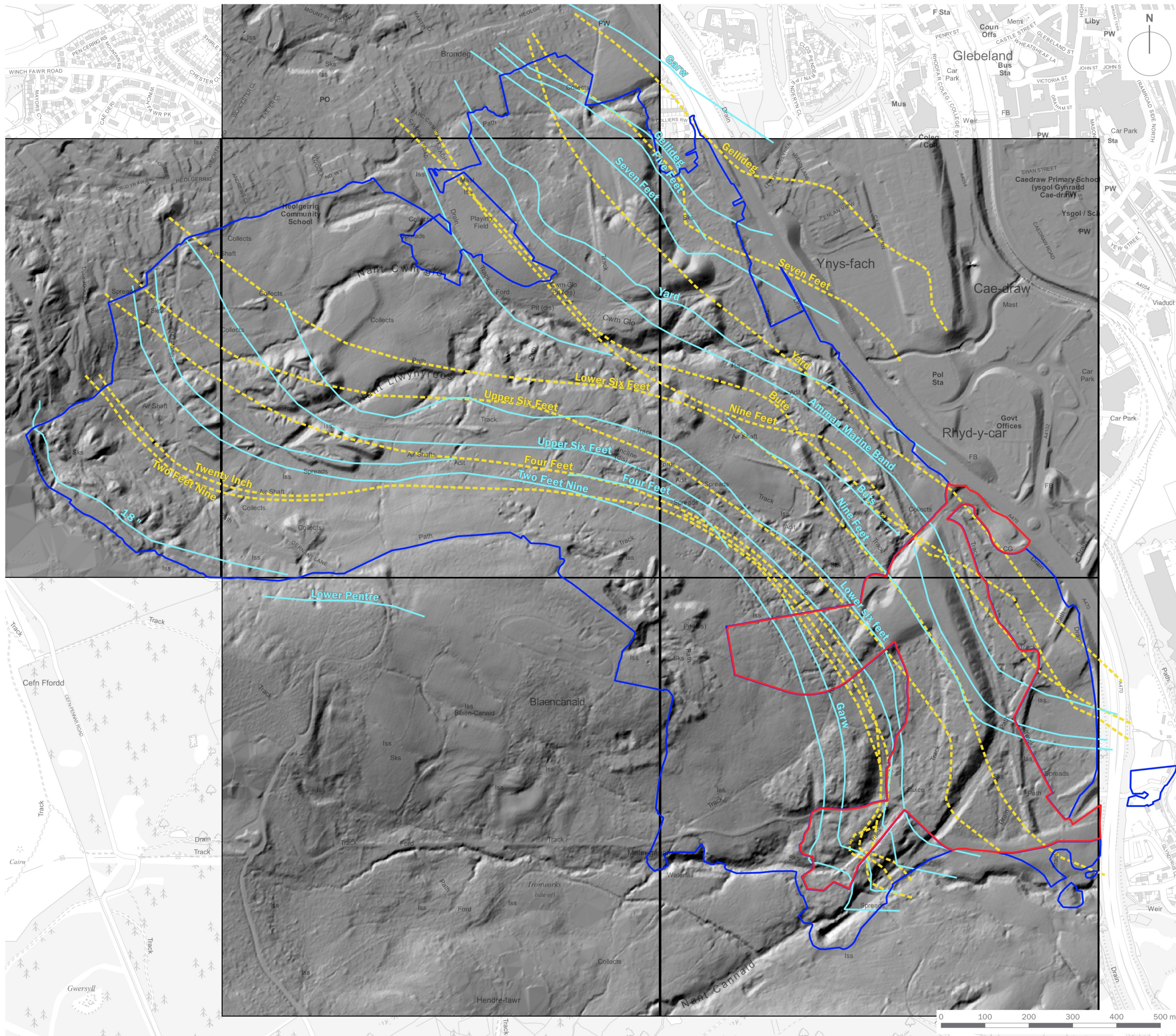


- Approximate Proposed Development Area
- Approximate Ownership Boundary (Site)

client		
<b>Marvel Ltd</b>		
project title		
<b>Rhydycar West Leisure Resort, Rhydycar West, Merthyr Tydfil</b>		
drawing title		
<b>Plan EDP 19: 1914, Ordnance Survey Map, 6" to the Mile</b>		
date	<b>11 MARCH 2022</b>	drawn by <b>EJ</b>
drawing number	<b>edp2324_d030b</b>	checked <b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA <b>RB</b>



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-  Proposed Development Area
-  Ownership Boundary (Site)
-  Coal Seam (Coal Commissions Plan)
-  Coal Seam (from Published Geological Map)
-  LiDAR Data Using 2m Digital Surface Model (DSM) with Multi-directional

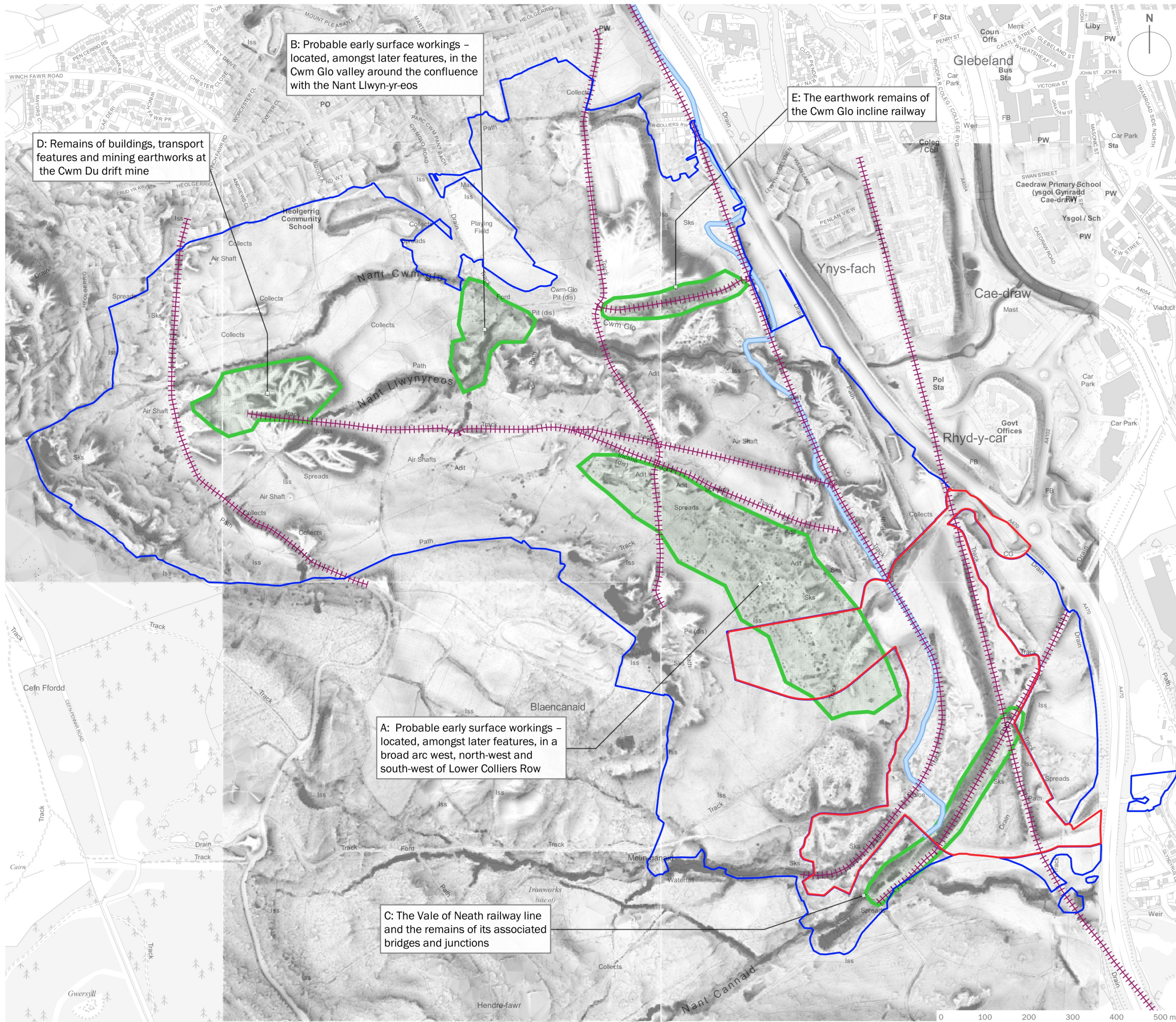
client  
**Marvel Ltd**

project title  
**Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil**

drawing title  
**Plan EDP 20: Coal Seam Location**

date **11 MARCH 2022** drawn by **EJ**  
drawing number **edp2324\_d032b** checked **RS**  
scale **1:8,500 @ A3** QA **RB**





- Proposed Development Area
- Ownership Boundary (Site)
- Non-designated Heritage Asset
- Important Rail or Tram Route
- Route of Cyfarthfa Canal
- LiDAR Data Using 2m Digital Surface Model (DSM)

client		
<b>Marvel Ltd</b>		
project title		
<b>Rhydyar West Leisure Resort, Rhydyar West, Merthyr Tydfil</b>		
drawing title		
<b>Plan EDP 21: Non-designated Historic Assets of Moderate Significance</b>		
date	<b>11 MARCH 2022</b>	drawn by <b>EJ</b>
drawing number	<b>edp2324_d035b</b>	checked <b>RS</b>
scale	<b>1:8,500 @ A3</b>	QA <b>RB</b>



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