Brymbo Ironworks: Early Blast Furnace, Cast House & Foundry, Brymbo Ironworks, Wrexham

Written Scheme of Investigation for Level 4 Historic Buildings Records

NGR: SJ 29454 53526

Consent No.: **DE202**

Designation ID.: **DE202**

Project No.: AD181-06

ArchaeoDomus
Archaeological & Heritage Services

LGF09 Creuddyn, Pontfaen Road, Lampeter, SA48 7BN
01570 429 539 / 07910 213 557
ross.cook@archaeodomus.co.uk
www.archaeodomus.co.uk

Prepared for:

The Brymbo Heritage Trust

Clients Project No: N/A

Prepared by:

Ross Cook

ArchaeoDomus - Archaeological & Heritage Services

LFG09, Creuddyn, Pontfaen Road, Lampeter, Ceredigion, SA48 7BN

+44 (0) 1570 218048 / +44 (0) 7910 213557

ross.cook@archaeodomus.co.uk

www.archaeodomus.co.uk

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Level 4 Historic Buildings Record of the Brymbo Ironworks: Early Blast Furnace, Cast House & Foundry,

at Brymbo Ironworks, Wrexham County Borough

Written Scheme of Investigation

Summary

ArchaeoDomus have been commissioned by the Brymbo Heritage Trust to undertake a Level 4 Historic Buildings Record of the Machine Shop at Brymbo Ironworks in Wrexham County Borough. This includes the preparation of this Written Scheme of Investigation to set out the methodological approach for the historic buildings record. The aim of the investigation is to produce a lasting record of the Machine Shop prior to a planned programme of stabilisation and consolidation. The programme will undertake aa record of the monument prior to the commencement of any programme of conservation or alteration.

The findings of the historic buildings record will be documented in a written and illustrated report, and will be deposited with the National Monuments Record for Wales, and the regional Historic Environment Record.

This WSI has been prepared by Ross Cook at the request of the Brymbo Heritage Trust.

Lefel 4 Cofnod Adeiladau Hanesyddol Gwaith Haearn Brymbo: Ffwrnais Chwyth Cynnar, Tŷ Cast a Ffowndri, yng Ngwaith Haearn Brymbo, Bwrdeistref Sirol Wrecsam

Cynllun Ymchwilio Ysgrifenedig

Crynodeb

Comisiynwyd ArchaeoDomus gan Ymddiriedolaeth Treftadaeth Brymbo i ymgymryd â Chofnod Adeiladau Hanesyddol Lefel 4 o'r Siop Peiriant yng Ngwaith Haearn Brymbo ym Mwrdeistref Sirol Wrecsam. Mae hyn yn cynnwys paratoi'r Cynllun Ymchwilio Ysgrifenedig hwn i nodi'r dull methodolegol ar gyfer y cofnod adeiladau hanesyddol. Nod yr ymchwiliad yw cynhyrchu cofnod parhaol o'r Siop Beiriannau cyn rhaglen wedi'i chynllunio o sefydlogi a chydgrynhoi. Bydd y rhaglen yn ymgymryd â chofnod o'r heneb cyn cychwyn unrhyw raglen gadwraeth neu newid.

Bydd canfyddiadau'r cofnod adeiladau hanesyddol yn cael eu cofnodi mewn adroddiad ysgrifenedig a darluniadol, a bydd yn cael ei adneuo gyda Chofnod Henebion Cenedlaethol Cymru, a'r Cofnod Amgylchedd Hanesyddol rhanbarthol.

Mae'r WSI hwn wedi'i baratoi gan Ross Cook ar gais Ymddiriedolaeth Treftadaeth Brymbo.

1 INTRODUCTION

1.1 General

1.1.1 ArchaeoDomus have been commissioned by the Brymbo Heritage Trust to undertake a Level 4 Historic Buildings Record of the scheduled area of Brymbo Ironworks: Early Blast Furnace, Cast House & Foundry (**DE202; Appendix II**) (***Fig. 6***) in Wrexham County Borough (hereafter also 'site' or 'monument'). This written scheme of investigation (WSI) details the scope and proposed methodology for the Level 4 Record. Its purpose will be to prepare a *comprehensive analytical record* (HE 2016) of the scheduled monument prior to and during a programme of conservation and reinstatement. This piece of work forms part of a larger programme of archaeological recording and investigation, which will run alongside the conservation and development programme to transform the former ironworks into a community hub and heritage attraction.



Fig. 1 – Brymbo Ironworks. Scheduled Monument (red).

1.1.2 The scheduled area forms part of the core of the historic steel and ironworks and comprises of four distinct buildings: Blast Furnace, Cast House, Foundry, and Pattern Store. These are built of yellow sandstone, with brick detailing to windows, arches, and reveals. The monument can help reveal how the earliest phase of the ironworks developed under John Wilkinson in the 1790s, and how this changed with major works in the mid-19th and mid-20th centuries.

1.1.3 The commissioning of this programme is to enable the planned programme of conservation and conversion, whilst making provision for archaeological recording and investigation to further understand and document the monuments development. This programme will provide an *comprehensive analytical record* of the monument. The output will be an illustrated and interpretative report, which will be deposited with the National Monuments Record for Wales, and Regional Historic Environment Record. This programme is designed to enhance our

understanding of the monument and to produce a lasting record the investigation.

1.1.4 This WSI has been prepared by Ross Cook FSA, Buildings Archaeologist and Dendrochronologist at ArchaeoDomus. It has been prepared at the request the Brymbo Heritage Trust to fulfil its scheduled monument consent condition for archaeological recording. Its aim is to provide information on the methodology and archaeological practice to be employed during the programme of archaeological investigation.

1.1.5 All work will be undertaken by qualified staff and in accordance with the standards and guidance laid down by and the *Chartered Institute for Archaeologists* (CIfA).

1.2 Scheduled Monument Consent

1.2.1 The Deputy Minister for Culture, Heritage, Sport and Tourism is the consenting authority for all works within the Scheduled Monument and has the authority to determine applications relating to this area. The application process is administered by Cadw and their Inspector of Ancient Monuments for the region, Ashley Batten. Consent is determined on a case-by-case basis.

1.3 Legislative Framework

1.3.1 Any works affecting an ancient monument and its setting are protected through implementation of the *Ancient Monument and Archaeological Areas Act 1979*. In Wales, the 1979 Act has been strengthened by *The Historic Environment (Wales) Act 2016*. The 2016 Act makes important improvements for the protection and management of the Welsh historic environment. It also stands at the centre of an integrated package of secondary legislation (Annexes 1-6), new and updated planning policy and advice, and best-practice guidance on a wide range of topics (*TAN 24 Historic Environment*). Taken together, these support and promote the careful management of change in the historic environment in accordance with current conservation philosophy and practice.

1.3.2 The *Ancient Monument and Archaeological Areas Act 1979* and *The Historic Environment (Wales) Act 2016* sets out a presumption in favour of preservation in-situ concerning sites and monuments of national importance (scheduled/listed), and there exists in the current *Planning Policy Wales (Chapter 6)* a presumption in favour of preservation in-situ of all types of heritage assets.

1.3.3 Planning legislation is set out in the *Town and Country Planning Act 1990*. *Planning Policy Wales (PPW 11th Edition)* sets out the land use planning policies of the Welsh Government. Chapter 6 sets out the Welsh Government's policy towards the historic environment. It states:

> *'The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. The historic environment is a finite, non-renewable and shared resource and a vital and integral part of the historical and cultural identity of Wales. It contributes to economic vitality and culture, civic pride, local distinctiveness and the quality*

> *of Welsh life. The historic environment can only be maintained as a resource for future generations if the individual historic assets are protected and conserved. Cadw's published Conservation Principles highlights the need to base decisions on an understanding of the impact a proposal may have on the significance of an historic asset.'* (PPW 2021, 126).

1.3.4 Underpinning PPW are a series of legislative powers and TANs. The *Planning (Wales) Act 2015* sets out a series of legislative changes to deliver reform of the planning system in Wales, to ensure that it is fair, resilient and enables development. The 2015 Act also introduces a mandatory requirement to undertake pre-application consultation for certain types of development. The *Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016* defines in Schedule 4(l) the parameters and definitions for the requirement of pre-application consultation by Welsh Ministers, particularly in response to the effect of statutory designated monuments, buildings, and parks and gardens.

2 SITE AND LOCATION

2.1 General

2.1.1 Brymbo Ironworks is located at the southern edge of the village of Brymbo, in the County Borough of Wrexham, historically being Denbighshire. The site runs uphill from east to west, with the lowest and most level part of the former ironworks bounding the western edge of an unnamed road (leading from Phoenix Drive). The lower part of the site sits within a cut into the hillside, with Charging Walls bounding this area to the north and west; the Brymbo Enterprise Centre is located above the site to the north. Blast Road bounds the site to the west and north, with the south bounded by a track, with sparse woodland and fields beyond. The Ironworks sits at an elevation of circa 330m and at NGR SJ 29454 53526 / 53°04'27.9"N 3°03'15.3"W.

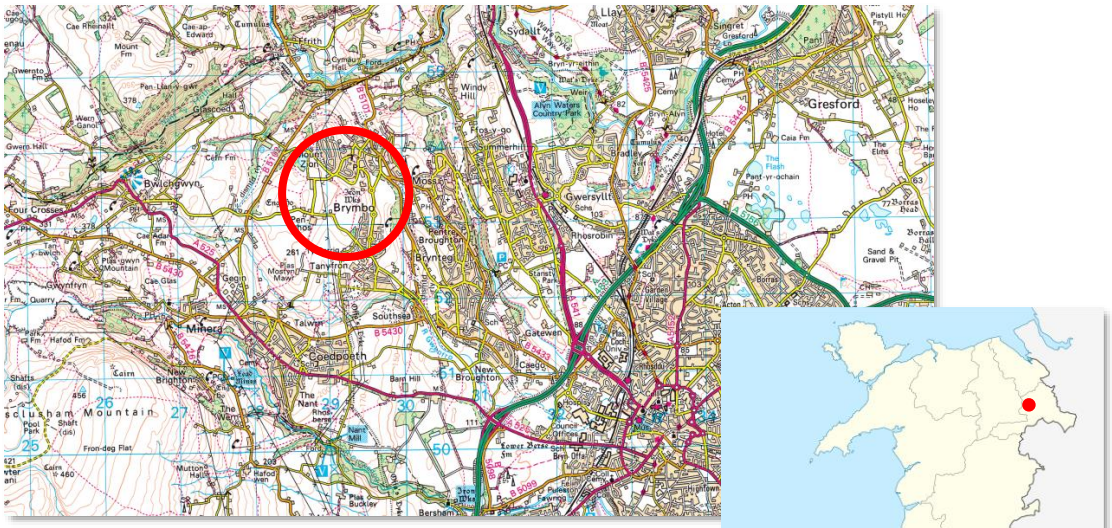


Fig. 2 – Location – Brymbo.
OS OpenData © Crown copyright and database right 2024.

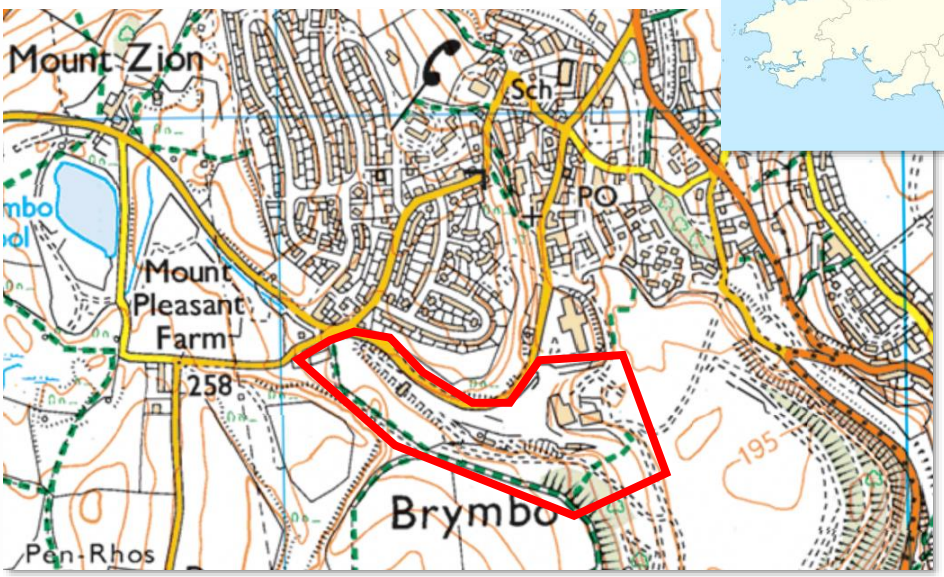


Fig. 3 – Location – Brymbo Ironworks Site
OS OpenData © Crown copyright and database right 2024.

2.1.2 The surviving ironworks is divided between the 'lower site' and 'upper site' (***Fig. 4***). The lower site forms what can be considered the core of the heritage area, with the Scheduled Monument Area, Machine Shop and Winch Room (***Fig. 5***), and is the point of entry for all visitors. The upper site starts on arriving at the Agent's House, after rising up via the site road, and extends to the western reaches of the site bounding Blast Road and the end of Mount Zion (road) to the west. In this section of the site, the Agent's House, Pit Head, Winding House, Ancillary Railway Buildings and Rail Platform (***Fig. 5***) are to be found.



Fig. 4 – Brymbo Ironworks Upper and Lower Site.

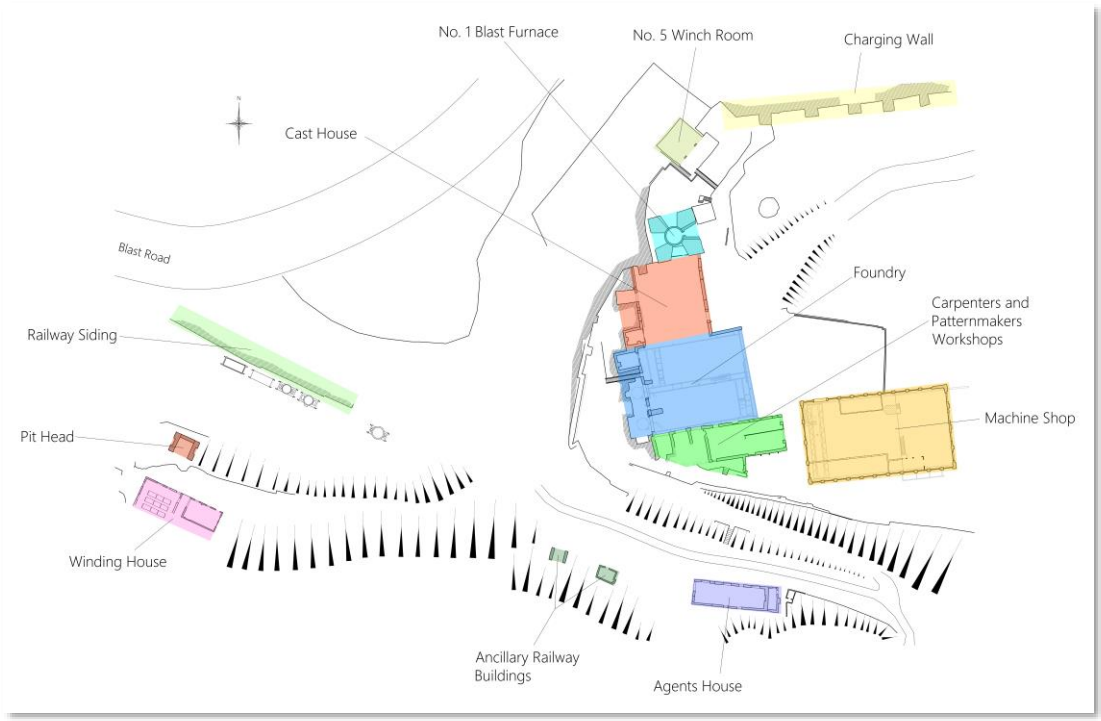


Fig. 5 – Brymbo Buildings as currently named.

2.2 Brymbo Ironworks: Early Blast Furnace, Cast House & Foundry

2.2.1 The scheduled monument is located at the centre of the heritage area and runs on a north-south alignment. The upstanding walls are predominantly built of yellow sandstone with brick used for arches and reveals. Two large cupola furnaces rise at the west of the foundry. No roof survives over the structure.

2.2.2 The monument was scheduled on 7th November 1991 (**DE202**). It was designated for *its potential to enhance our knowledge of the early modern ironmaking industry and its development through the 19th and 20th centuries.*

2.3 Geology

2.3.1 The underlying geology is formed from mudstone, siltstone, and sandstone with deposits of Carboniferous coal, and are known as the Pennine Lower Coal Measures Formation and Pennine Middle Coal Measure Formation (BGS) with no superficial deposits recorded (BGS). The local soil type is unsurveyed (UKSO), classified as unclassified (UKSO).

3 SITE SPECIFIC OBJECTIVES

3.1 Historic Buildings Record

3.1.1 The aim of the buildings record is to investigate and record the Charging Wall and to produce a lasting record prior to any interventions required through a programme of conservation, defined by the CIfA (2020) as:

> *'A programme of archaeological building investigation and recording will determine, as far as is reasonably possible, the nature of the archaeological resource associated with a specified building, structure or complex. It will draw on existing records (both archaeological and historical sources) and fieldwork. It will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of conduct, Code of approved practice for the regulation of contractual arrangements in archaeology, and other relevant by-laws of the CIfA. The programme will result in the production of drawings, an ordered accessible archive and a report'*

3.1.2 Produce a descriptive and photographic record of the monument prior to any alterations and interventions made through the planned programme of works.

3.1.3 Produce phased and interpreted drawings of the monument to show the phasing and changes the structure has undergone since first constructed.

3.1.4 The results of the investigation and report will aim:

> *'to seek a better understanding, compile a lasting record, analyse the findings/record, and then disseminate the results.' (CIfA 2020: 3)*

3.2 Report and Archive

3.2.1 To communicate the results of the archaeological investigation to the client in the form of an illustrated report, and to provide digital copies to the Regional HER and the NMRW.

3.2.2 To prepare a digital archive of the projects report, photographic archive, all drawn elements for deposition with the National Monuments Record of Wales, and the Regional HER held by the Clwyd-Powys Archaeological Trust.

3.3 Research Agenda

3.3.1 The Research Framework for Wales sets out the knowledge base of past research and sets out a rationale for future studies (https://www.archaeoleg.org.uk/index.html). The present investigations will be undertaken considering the key themes and where are limitations in current knowledge, particularly where the present investigations can enhance our understanding of some of these key areas.

3.3.2 This programme of investigation would fulfil part of the research agenda set out in *A Research Framework for the Archaeology of Wales: Later Post-Medieval and Industrial, 1750 to 1900* (2017).

This has a priority research area relating to industrial sites:

- [To understand the] significance and scale of technical change within the major industries of coal, iron, copper, tin, lead and slate, and the impact of that change within the landscape; their context and significance in terms of similar sites elsewhere in the world; their relationship with the markets they served.

3.4 Cadw's Pan-Wales Heritage Interpretation Plan

3.4.1 The research from this this project will support Cadw's *Pan-Wales Heritage Interpretation Plan* (2012), which identifies key national, chronological and/or thematic story strands. This to help develop the key stories that are important to the development of the Welsh nation, with eight key story strands, each of which has secondary overreaching framework plans. This includes the story strand focussing on 'Wales: First Industrial Nation', with four framework themes: '*Innovation and exploitation*', '*Ambition and success*', '*Landscape change*' and '*Social reform*'. The outcome from this programme of investigation and recording will aim to provide additional information to support the development of improved interpretation of the site and its place in the wider context of the region and wider Welsh nation.

4 METHOD FOR A HISTORIC BUILDINGS RECORD

4.1 General

4.1.1 For projects to make intervention to the Listed Buildings, a Level 4 Historic Buildings Record will be made in line with Historic England's *Understanding Historic Buildings; A guide to good recording practice* (2016).

4.1.2 A buildings record will be undertaken prior to the commencement of **any conservation works**. This will take the form of

> *'Level 4 provides a **comprehensive analytical record** and is appropriate for buildings of special importance. Whereas the analysis and interpretation employed at Level 3 will clarify the building's history so far as it may be deduced from the structure itself, the record at Level 4 will draw on the full range of other sources of information about the building and discuss its significance in terms of architectural, social, regional or economic history. The range of drawings.' (EH 2016: 27)*

4.1.3 A visual investigation will be made of the monument, looking for and identifying key phases and evidence of alterations, which will inform the analytical record.

4.1.4 A photographic survey will be made of the building, both internally and externally, using terrestrial and drone mounted cameras, where safe to do so. This will seek to produce a photographic record of the building. The record will be made using standard and wide-angle lenses. Ranging rods of 2 x 1m or 1 x 2m used for scaling, where appropriate. All photographs will be in .jpg format and included as an appendix in the final report. This will include items 1-9.

4.1.5 Existing plans will be used to prepare interpreted and annotated drawings of the monument for inclusion in the final report and as standalone survey sheets. All drawn work will be produced in Rhino 8 (.3dm) and exported to PDF formats. All drawn interpretation will be included as an appendix in the final report. This will include items 2, and sometimes one or more of 3-12 (HE 2016).

4.1.6 A report documenting the findings of the investigations will be compiled in line with Historic England's *Understanding Historic Buildings; A guide to good recording practice* (2016). The written report will include items 1-3, 5-8, 10-23, and sometimes 24.

4.1.7 Documentary research will be undertaken at the regional record office, National Library of Wales, and other archives where material is shown to be held. The resources of the regional HER and other readily available resources will also be consulted during this process.

4.1.8 The final report will be disseminated in PDF format.

4.1.9 The report will be produced within 12 months and provided to both the client, Regional HER and NMR.

5 REPORTING

5.1 General

5.1.1 Reports will be produced to collate the written, graphic, and recorded information outlined in any given programme of works. The reports will include descriptions, analysis, and interpreted plans and elevations of the monument. The reports will include, but not be restricted to, the following:

1. Non-technical summary (English and Welsh)
2. Introduction
3. Site Location
4. Archaeology and History
5. Aims and Objectives
6. Methodology
7. Description
8. Analysis and Interpretation
9. Conclusions
10. Archiving
11. References
12. Appendices

5.1.2 The reports will be submitted within 12 months of completion of the fieldwork - dependant on production of any specialist reports that may be required, in which case this may exceed this period. The report and archive will conform to the professional standards as set out in the reporting section of the Chartered Institute for Archaeologists' *Standard and guidance for the archaeological investigation and recording of standing buildings or structures* (2020).

5.1.3 On completion of the assessment and reports, copies will be submitted to the client and to the regional HER, NMRW. A copy of the report will also be made available on the ArchaeoDomus website at www.archaeodomus.co.uk.

5.1.4 The project archive will comprise all field notes and documents, photography, finds, associated reports, and drawings. The archive will be compiled and deposited following *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017*.

5.1.5 All records, digital and physical, will be collated, labelled, and catalogued with the unique project code. All digital data will use the same project code and be maintained in folders and sub-folders, with records made of file types and software.

5.1.6 The report will be deposited with the RCAHMW and Regional HER. All data will be submitted to the relevant archives in accordance with the RCAHMW's *Guidelines for Digital Archaeological Archives* (2015), *Unmanned Aerial Vehicle (UAV) Policy,* and the WATs *Guidance for the Submission*

of Data to the Welsh Historic Environment Records (HERs) (2018).

5.1.7 On completion of the report and its acceptance the clients will have fulfilled their archaeological planning conditions.

5.1.8 ArchaeoDomus shall retain full copyright of any commissioned reports, tender documents or other project documents, under the *Copyright, Designs and Patents Act* 1988 (chapter IV) with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project.

5.1.9 Any dispute or difference arising out of a contract in relation to this work shall be referred for a decision in accordance with the *Rules of the Chartered Institute of Arbitrators' Arbitration Scheme* for the *Chartered Institute for Archaeologists* applying at the date of the agreement.

6 DATA MANAGEMENT PLAN

6.1 General

6.1.1 This data management plan has been developed in response to guidance from the Chartered Institute for Archaeologists. Its purpose is to provide information on data capture, storage, and final deposition.

6.1.2 It should be noted that the guidance and toolbox from the CIfA is Anglocentric in its nature and only briefly refers to Wales or Welsh institutions, and is therefore not wholly appropriate as national guidance for CIfA members/organisations. The guidance wrongly identifies the Royal Commission on the Ancient and Historical Monuments of Wales as the repository for digital archives in Wales, which should be the National Monuments Record for Wales. The NMRW is held and managed by the RCHAMW. As such, this DMP has been adapted to conform to nationally agreed standards in Wales, from both the NMRW and the regional Historic Environment Records.

6.2 Data Collection

6.2.1 It is anticipated that the following forms of data will be collected:

Type	Format	Estimated Volume
Text / Documents	PDF	2 items (<100MB) WSI Final Report
Images	Lossy image files (.jpg)	50-100 items (1-3GB) Record Photography
Vector Graphics	Interpreted Drawings (.3dm, DXF, PDF)	2-4 items (<100MB) Annotated and Interpreted Plans

6.3 Data Standards

6.3.1 All data will be created in accordance with and drawing from the following:

- *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales* (2017).
- *Guidance for the Submission of Data to the Welsh Historic Environment Records* (HERs) (2018).
- *Dig Digital : a guide to managing digital data generated from archaeological investigations.* DigVentures 2019.

6.3.2 The data will conform to the preferred file formats identified by the National Monuments Record for Wales and regional Historic Environment Records.

6.3.3 The methods of data collection are specified within this WSI.

6.3.4 The working project archive will be stored together in a specific project folder, which will be structured with a logically ordered file hierarchy. File naming conventions will follow the

established organisational format (project code, descriptor, version, name).

6.3.5 All data will be backed up using a cloud service to ensure retention of data in the even of local storage failure.

6.4 Documentation and Metadata

6.4.1 Data collected will include standard formats which maximise opportunities for use and reuse in the future.

6.4.2 Metadata will be collected at point of creation through the completion of registers recording relevant details, including date of creation, creator, and descriptors.

6.5 Ethics and Legal Compliance

6.5.1 Copyright for all data collected by the project team belongs to the organisation, and formal permission to include data from external specialists and contractors is secured on the engagement of the specialist or contractor.

6.5.2 Where formal permissions and/or license agreements are linked to data sharing, they will be included in the project documentation folders and will accompany the archaeological project archive.

6.6 Data Security: Storage and Backup

6.6.1 Sufficient data storage space is available via the organisational cloud-based server, which includes two-factor authentication and permissions-based access. The server is accessible by staff on and offsite through secure log-in.

6.6.2 Off-site access to the project files on the organisation's cloud server is provided to support back-up of raw data while fieldwork is ongoing. Where internet access for data back-up is not possible, the raw data will be backed up to a separate media device (such as laptop and portable external hard drive).

6.6.3 Project files will be shared with external specialists and contractors directly using the same system, with the wider project team gaining access to only the files needed using permissions-based access.

6.7 Selection and Preservation

6.7.1 The Selection Strategy and DMP will be reviewed and updated during the course of post fieldwork assessment and reporting, this may require an updated DMP or project design.

6.7.2 Selection will be informed by the project design (within the WSI) and, where required, this will be defined against the research aims, regional and national research frameworks, specialist advice and the significance of the project results.

6.7.3 The final project report will be published as an online technical report (accessible via the

regional HER and NMRW).

6.7.4 The project results are likely to provide new research data which can be included in the Historic Environment Record.

6.7.5 The data archive will be ordered, with files named and structured in a logical manner, and accompanied by relevant documentation and metadata, as outlined in previous sections of this DMP.

6.7.6 The digital archive will be deposited with the National Monuments Record for Wales.

6.8 Data Sharing

6.8.1 The final report is expected to be completed within 12 months of the completion of fieldwork.

6.8.2 A final version of the project report will be supplied to the regional HER and NMRW.

6.8.3 The regional HER will disseminate the digital report under the previously defined release agreement between ArchaeoDomus and the HER.

6.8.4 A temporary embargo may be required on the sharing of the project results. If this is the case, specific details once agreed will be included in the updated version of this DMP.

6.9 Responsibilities

6.9.1 The project manager will be responsible for implementing the DMP, and ensuring it is reviewed and revised at each stage of the project.

6.9.2 Data capture, metadata production and data quality is the responsibility of the project team, assured by the project manager.

6.9.3 Backup is managed by Microsoft.

6.9.4 The management plan will be reviewed and updated within the final report by the project manager.

7 PUBLICATION

7.1.1 Short summaries of each year's work will be submitted to Archaeology in Wales, the journal of the CBA Wales Group, and Indistrial Archaeology, the journal of the Association for Industrial Archaeology.

7.1.2 Through arrangement with the Brymbo Heritage Trust, a publication should be considered to present the full programme of conservation, and archaeological and historical investigations.

8 MONITORING

8.1.1 ArchaeoDomus are happy for its work to be monitored at any time during the programme of works by:

- Cadw and/or their representatives,
- CPAT Planning Services and/or their representatives,
- The Chartered Institute for Archaeologists (CIfA) and/or their representatives

Provided that:

- Advance notice is provided for the monitoring visit,
- Attendees fully observes site and Health & Safety rules,
- Attendees cause no undue delay to the programme of works,
- Attendees do not provide any instruction to vary the agreed works without prior consultation and agreement with all relevant parties,
- Attendees have the appropriate academic and professional qualifications and relevant experience to comment on the archaeological works being undertaken, or in lieu of are attended by an appropriate specialist.
- Attendees provide a written monitoring report in line with CIfA guidance, particularly Para 1.69.3, Chartered Institute for Archaeologists (CIfA) *Standard and guidance for archaeological advice by historic environment services* (Published December 2014, updated June 2020). Monitoring reports should be provided within one week of the visit or in line with the organisation's monitoring policy.

9 RESOURCES AND TIMETABLE

9.1 Standards

9.1.1 The field work will be undertaken by using current best practice as laid down by the CIfA and Historic England Guidance.

9.2 Staff

9.2.1 The project will be managed by Ross Cook FSA.

9.2.2 Fieldwork will be undertaken by appropriately qualified and experienced staff from ArchaeoDomus. All work will be carried out to the Codes of Conduct, Bylaws and Guidelines of the *Chartered Institute for Archaeologists*, irrespective of the status of individual's membership of the Chartered Institute.

9.3 Equipment

9.3.1 The project will use equipment supplied and maintained by ArchaeoDomus.

9.4 Timetable of Archaeological Works

9.4.1 A timetable for works will be agreed with the client and communicated with Cadw.

9.5 Insurance

9.5.1 ArchaeoDomus are fully insured to undertake the work and full details of our policies can be supplied on request.

9.5.2 ArchaeoDomus will not be liable to indemnify the client against any compensation or damages in discharging the responsibilities set out in this document, including satisfying professional and statutory/legislative obligations.

9.6 Health and safety

9.6.1 ArchaeoDomus takes health and safety issues seriously and is committed to protecting the health and safety of its staff and all those affected by its business activities and attending its premises or places of work (site). We have prepared a Health and Safety Policies in accordance with current legislation, including *The Health and Safety at Work etc Act* 1974 and *The Management of Health and Safety Regulations* 1999. At the design stage of any project a *Health and Safety Risk Assessment* will be undertaken and continuously updated as risks are identified/mitigated. A copy of these documents is both available on request, and will be displayed in any site office, and will be supplied to any other contractors working on site.

9.6.2 Archaeological work is not covered under the Construction Design and Management Regulations 2015; however, archaeological work may be undertaken where CDM regulations are applied. In such cases we will prepare any documentation required.

9.7 Professional standards

9.7.1 Irrespective of corporate or personal membership, all employees are expected to adhere to the Codes of Conduct, Bylaws and Guidelines of the *Chartered Institute for Archaeologists* as a condition of employment. All work is overseen by a full Member of the *Chartered Institute for Archaeologists*.

9.8 Variations to the specification or contract

9.8.1 The archaeological resource is unpredictable, and the encountering of unexpected archaeological deposits on the site cannot be ruled out. Where the examination of such archaeological deposits is required but exceeds the scope of this specification a variation to the contract may be required and this specification updated. Such variations will be agreed in advance with Cadw.

10 SOURCES

10.1.1 **Cosson, N.** 1993. *The BP Book of Industrial Archaeology*. David & Charles, Devon.

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10.1.3 **Griffiths, L.** 1958, *Brymbo and its industry*. Luther Griffiths, Port Talbot.

10.1.4 **MacLoed, C.** 2002, *Inventing the Industrial Revolution; The English patent system, 1660-1800*. Cambridge University Press, Cambridge.

10.1.5 **Riden, P. & Owen, J. G.** 1995, *British Blast Furnace Statistics 1790-1980*. Merton Priory Press Ltd, Cardiff.

10.1.6 **Soldon, N. C.** 1998, *John Wilkinson (1728-1808), English Ironmaster and Inventor*. Studies in British History. Edwin Mellen Press Ltd. Lampeter.

10.1.7 **Historic England** 2024, *Geospatial Survey Specifications for Cultural Heritage*

10.1.8 **Historic England** 2016, *Understanding Historic Buildings; A guide to good recording practice.*

10.1.9 **English Heritage** 2010, *Measured and Drawn: Techniques and practice for the metric survey of historic buildings.*

10.1.10 **Welsh Government** 2017, *Planning Policy Wales: Technical Advice Notice 24: The Historic Environment.*

10.1.11 **Welsh Government** 2016, *Planning Policy Wales*

10.1.12 **CIfA** 2020, *Standard and guidance for the archaeological recording of historic buildings and structures.*

APPENDIX I

Plans



Fig. 6 – Existing Plans.

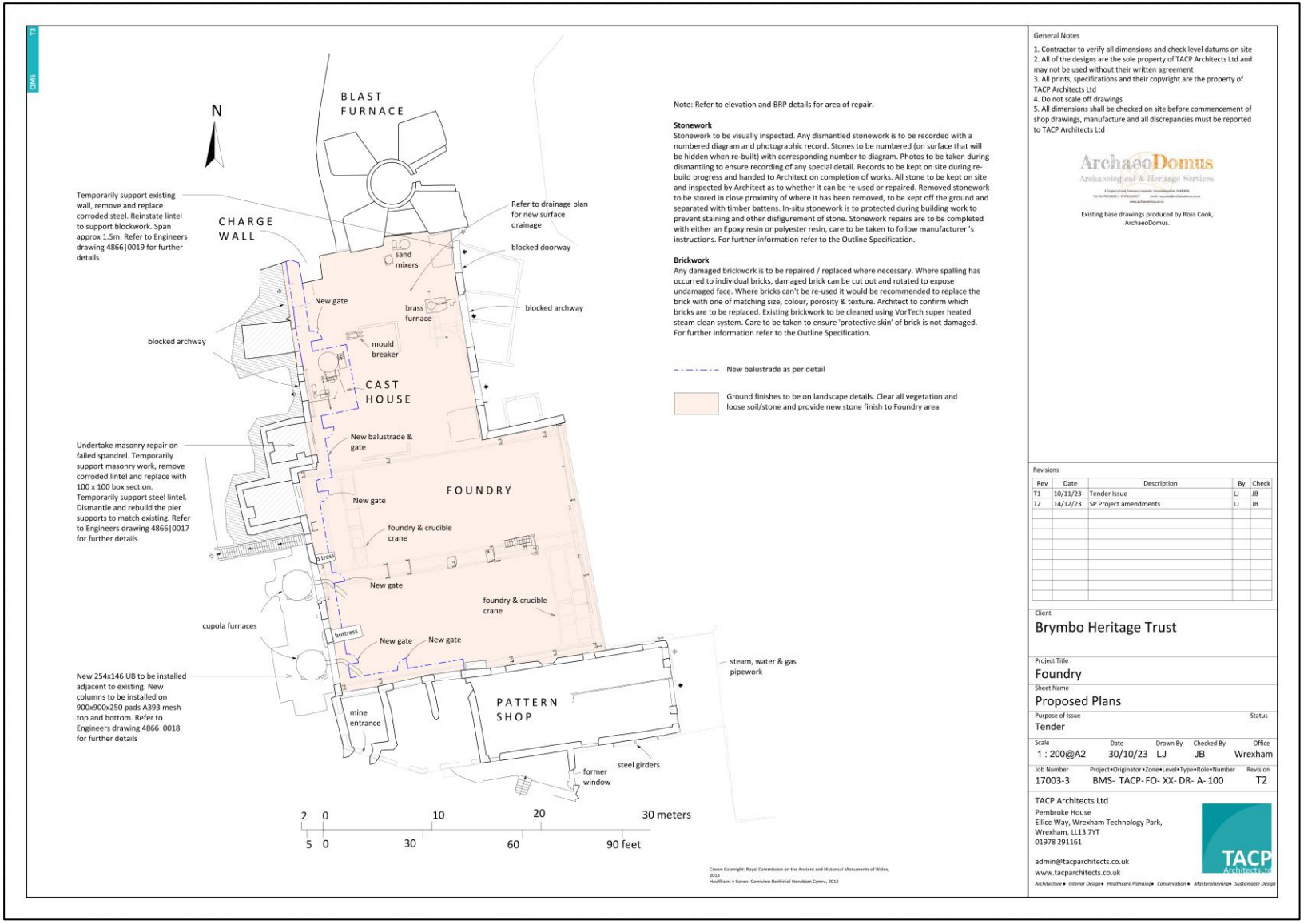


Fig. 7 – Proposed Plans.

APPENDIX II

Scheduling

Name	Brymbo Ironworks: Early Blast Furnace, Cast House & Foundry	**ID**	DE202
Status	Scheduled Monument	**Community**	Brymbo
Date Scheduled	7th November 1991	**Unitary Authority**	Wrexham
Grid Reference	SO 329455 353526	**Class and Type**	Industrial/Ironworks

Scheduling Description

The following provides a general description of the Scheduled Ancient Monument. The monument consists of the remains of an ironworks established by John Wilkinson in 1798, remaining in use through to its adaptation to a huge steelworks, all eventually abandoned in 1990. The principal scheduled remains comprise the massive rectangular sandstone stack of the early 19th century No. 1 blast furnace occupying the site of Wilkinson's original which is known from an early print to have been circular. This stands to its full height, the walls held together with steel ties, although three of its four great arches contain later blocking. Immediately adjacent to the S are the remains of a contemporary stone cast house and to the east of that the roofless but substantially intact remains of a large foundry, both of which were subject to successive later alterations and repairs in brick and other materials. The southern walls of both structures form part of a tall and massively built continuous sandstone revetment or charge wall holding back the uphill slope. Two chambers set into this contain the rusting remains of early 20th century iron furnaces, their rusting towering cupolas at the top of the revetment wall being perhaps the most prominent features on the site. Adjoining the foundry to the east is long rectangular pattern maker's shop, which occupies three split levels with the lower at the level of the foundry and the top floor entered independently from the higher ground to the S. Numerous other documented or mapped features have been lost but are likely to survive as buried features following successive episodes of massive landscaping, including at least four additional furnaces. Associated with the scheduled remains are the upstanding early 19th century Agent's House, a colliery, the impressive 20th century brick machine shop and a network of ancillary tracks, railways, retaining walls. The monument is of national importance for its potential to enhance our knowledge of the early modern ironmaking industry and its development through the 19th and 20th centuries. In addition to its well preserved structures, which retain extensive details and fixings including floors, machinery and other artefacts the whole site retains high archaeological potential, with a strong probability of the presence of buried structural remains including other documented furnaces, railway tracks and ancillary buildings, and associated archaeological features and deposits. These have high collective potential to retain evidence of the construction, development and use of the site including evolving industrial processes, machinery, construction techniques and raw materials. The scheduled remains share group value with the other upstanding and buried elements of the ironworks, later steelworks, colliery, tracks, railways and other structures. The scheduled area comprises the remains described and areas around them within which related evidence may be expected to survive.

Yn rhan o'n hawydd i wella ansawdd ein gwasanaeth, rydym yn croesawu unrhyw adborth y gallwch ei ddarparu.

As part of our desire to improve our quality of service we welcome any feedback you are able to provide.

ArchaeoDomus - Archaeological & Heritage Services

Office/Swyddfa: LFG09, Creuddyn, Pontfaen Road, Lampeter, Ceredigion, SA48 7BN

Tel/Ffôn: 01570 429 539 / 07910 213 557

Email/E-bost: ross.cook@archaeodomus.co.uk

Web/Gwefan: www.archaeodomus.co.uk

Social/Cymdeithasol: www.twitter.com/archaeodomus / www.facebook.com/archaeodomus