Stori Brymbo Groundworks,

Brymbo Ironworks, Wrexham

Written Scheme of Investigation for Archaeological Monitoring and Recording

NGR: SJ 29479 53552

Planning No.: **P/2023/0624** and **P/2023/0674**

Designation ID.: **DE202**

Project No.: AD181-05

August 2024

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

Version	Date
v1.0	15.08.2024

© ArchaeoDomus

2024. All Rights Reserved.

CONTENTS

Summary **1**

Crynodeb **2**

1 INTRODUCTION **3**

1.1 General *3*

1.2 Archaeological Monitoring and Recording *4*

1.3 Consent and Planning *5*

1.4 Legislative Framework *6*

2 SITE AND LOCATION **8**

2.1 General *8*

2.2 Geology *10*

3 SITE SPECIFIC OBJECTIVES **11**

3.1 Archaeological Monitoring and Recording *11*

3.2 Archaeological Evaluation *11*

3.3 Report and Archive *12*

3.4 Research Agenda *12*

3.5 Cadw's Pan-Wales Heritage Interpretation Plan *12*

4 METHOD FOR ARCHAEOLOGICAL MONITORING AND RECORDING AND EVALUATION **14**

4.1 Archaeological Monitoring and Recording *14*

4.2 Evaluation *15*

4.3 Archaeological Monitoring and Recording and Evaluation Method *16*

4.4 Reporting *18*

5 REPORTING **20**

5.1 General *20*

6 DATA MANAGEMENT PLAN **22**

6.1 General *22*

6.2 Data Collection *22*

6.3 Data Standards *22*

6.4 Documentation and Metadata *23*

6.5 Ethics and Legal Compliance *23*

6.6 Data Security: Storage and Backup *23*

6.7 Selection and Preservation *23*

6.8 Data Sharing *24*
6.9 Responsibilities *24*
7 PUBLICATION **25**
8 MONITORING **25**
9 RESOURCES AND TIMETABLE **26**
9.1 Standards *26*
9.2 Staff *26*
9.3 Equipment *26*
9.4 Timetable of Archaeological Works *26*
9.5 Insurance *26*
9.6 Health and safety *26*
9.7 Professional standards *27*
9.8 Variations to the specification or contract *27*
10 SOURCES **28**
APPENDIX I **29**
APPENDIX II **32**

FIGURES

Fig. 1 – Brymbo Ironworks. *3*
Fig. 2 – Location – Brymbo. *8*
Fig. 3 – Location – Brymbo Ironworks Site *8*
Fig. 4 – Brymbo Ironworks Upper and Lower Site. *9*
Fig. 5 – Brymbo Buildings as currently named. *9*
Fig. 6 – Section 104 Drainage Layout. Scheduled Monument DE202 (red). *30*
Fig. 7 – Proposed SuDS layout. Scheduled Monument DE202 (red). *31*

Archaeological Monitoring and Recording During Groundworks at Brymbo Ironworks, Wrexham County Borough

Written Scheme of Investigation

Summary

ArchaeoDomus have been commissioned by the Brymbo Heritage Trust to undertake a programme of archaeological monitoring and recording (AMR) at Brymbo Ironworks in Wrexham County Borough. This Written Scheme of Investigation sets out the methodological approach for the AMR. The aim of the investigation is to facilitate the development whilst ensuring appropriate monitoring and recoding of the archaeological resource during all groundworks. In agreement with Cadw and Heneb Planning Service, where unexpected archaeological remains are encountered, the area of excavation will be enlarged to allow the appointed archaeologist, as far as possible, to elucidate the character and extent of the previously unrecorded remains.

The findings of the AMR will be documented in a written and illustrated report, which 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.

Monitro a Chofnodi Archaeolegol yn ystod Groundworks yng Ngwaith Haearn Brymbo, Bwrdeistref Sirol Wrecsam

Cynllun Ymchwilio Ysgrifenedig

Crynodeb

Comisiynwyd ArchaeoDomus gan Ymddiriedolaeth Treftadaeth Brymbo i ymgymryd â rhaglen o fonitro a chofnodi archaeolegol (AMR) yng Ngwaith Haearn Brymbo ym Mwrdeistref Sirol Wrecsam. Mae'r Cynllun Ymchwilio Ysgrifenedig hwn yn nodi'r dull methodolegol ar gyfer AMR. Nod yr ymchwiliad yw hwyluso'r datblygiad tra'n sicrhau monitro ac ailgodio'r adnodd archeolegol yn briodol yn ystod yr holl waith tir. Mewn cytundeb â Gwasanaeth Cynllunio Cadw a Heneb, lle ceir olion archeolegol annisgwyl, bydd yr ardal cloddio yn cael ei helaethu i ganiatáu i'r archeolegydd penodedig, cyn belled ag y bo modd, i egluro cymeriad a maint yr olion a gofnodwyd o'r blaen.i raddau lle gellir deall a dehongli'r adnodd yn briodol. Y nod yw rhoi amser i ymchwilio ymhellach i'r adnodd drwy werthuso i ddeall ei natur a'i darddiad.

Bydd canfyddiadau'r AMR yn cael eu dogfennu mewn adroddiad ysgrifenedig a darluniadol, a fydd 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 programme of archaeological monitoring and recording (AMR) (formally known as a watching brief) during groundworks at Brymbo Ironworks in Wrexham County Borough (hereafter also 'site' or 'monument'). This written scheme of investigation (WSI) details the scope and proposed methodology for the project, in line with the *Universal Guidance for archaeological monitoring and recording* (2023) from the Chartered Institute for Archaeologists. The purpose will be to monitor all groundworks within the Scheduled Monument (**DE202; Appendix II**) (subject to Scheduled Monument Consent) and outside of this area. The archaeological monitoring and recording forms part of a larger programme of archaeological recording and investigation, which will run alongside a project to preserve and transform the former ironworks into a community hub and heritage attraction.



Fig. 1 – Brymbo Ironworks.

1.1.2 The remaining core of the much larger site of the former Brymbo iron and steel works retains buildings and structures from every period of its industrial development from its late-18th century foundation through to its late-20th century closure. These surviving buildings of sandstone and red brick are only a part of its history, with numerous buildings and structures lost to make way for new industrial processes or equipment, often without any record of their use. Mapping of the 19th and 20th centuries highlight how the site has developed as processes and requirements change, with the loss of buildings being a natural part of this. As a result, the buried archaeological resource has the potential to improve our understanding of the development of the site from the establishment of the works in the late-18th century, through to closure in the late-20th.

1.1.3 The purpose the archaeological AMR is to monitor all excavations to identify, investigate, and record any archaeological deposits, features, or structures that might be uncovered during the course of works. The results will provide information to Cadw, the Welsh Governments Historic Environment Service, and Heneb Planning Services, on the survival of the archaeological resource, and to determine its likely origins and significance.

1.1.4 The commissioning of this programme is to enable the conservation, regeneration and adaptive reuse of the site whilst making provision for archaeological recording and investigation. The output of this work 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, whilst enabling the proposed programme to commence.

1.2 Archaeological Monitoring and Recording

1.2.1 A programme of archaeological monitoring and recording will be maintained on all groundworks associated with the project and will include, but not be limited to:

- Site Drainage
- Agents House – Chimney underpinning
- Pattern Store – Excavation of upper woodblock floor
- All other excavations

1.2.2 Plans relating to the excavations can be found in **Appendix I**.

1.2.3 An archaeological evaluation (ArchaeoDomus, AD181-EV) was conducted in March 2024 to determine the potential for the survival of archaeological deposits of features associated with the lean-to extensions for the Machine Shop (**P/2023/0624**). The evaluation found that the deposits and features within the area surrounding the Machine Shop and related to its construction in 1920 or later siteworks, and an associated stable built in the 1920s to its south elevation. As such, it was determined that there were no deposits of archaeological significance within the development area and no further below ground archaeological mitigation was recommended as this has been fully understood. Therefore, it is only envisioned that a watching brief will only be undertaken where internal floors of the building will be lifted or reduced.

1.2.4 *The programme of archaeological monitoring and recording will not be a completely passive exercise but will seek to understand the archaeological resource exposed during the excavation process. This may require a greater extent exposed to understand the form and nature of the resource; this will be determined on site by the archaeologist. In such an event, the excavation trench will be extended to a degree that will allow features to be interpreted and recorded. Should the resource be found to be of a significant nature and/or value, representatives from Cadw and Heneb will be informed and invited to site for inspection, and to determine the requirement for further investigation.*

1.3 Consent and Planning

1.3.1 As the planned excavations will take place both within and outside the Scheduled Area, this WSI has been compiled to discharge a planning condition from the local authority, and to be submitted as part of a Scheduled Monument Consent application.

1.3.2 The 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.

1.3.3 Planning permission has been granted by the local authority, Wrexham County Borough Council, under numbers **P/2023/0624** and **P/2023/0674**.

1.3.4 Permission **P/2023/0624** provides consent for the

> *Conversion of former machine shop to exhibition area (use class d1) with café and shop, business use (use class b1) and general industrial use (use class b2) and erection of two lean-to extensions to the side of machine shop*

1.3.5 Permission **P/2023/0674** provides consent for the

> *'Refurbishment and change of use of agent's house and pattern shop to provide visitor facilities, siting of 3 no containers and canopy to form stage, use of store for small scale cider making facilities, external repair of charging wall, foundry, furnace 1 and cupolas and associated landscaping'*

1.3.6 With this consent Archaeological Conditions were applied in accordance with the recommendations made by the Planning Services Archaeologist at the Heneb: Clwyd Powys to the Local Planning Authority. These recommendations are in line with *Planning Policy Wales* section 6.5.7, and *TAN 24* sections 4.13 and 4.14. The conditions on both consents state:

> *'**9)** The developer shall ensure that a suitably qualified archaeological contractor is present during any groundworks within the site so that archaeological monitoring and recording can be conducted. The monitoring and recording must meet the standards laid down by the Chartered Institute for Archaeologists Standard and Guidance for Archaeological Monitoring and Recordings.*
>
> *A copy of the resulting report should be submitted to the Local Planning Authority and the Development Control Archaeologist, Heneb: Clwyd-Powys Archaeology (neil.bayliss@cpat.org.uk). On approval by the Local Planning Authority, project data must be submitted and approved for inclusion in the Heneb: Clwyd-Powys Archaeology Historic Environment Record. For any questions regarding this submission process, please contact the HER Team at her@cpat.org.uk. The full digital archive must also be submitted and approved for inclusion within the National Monuments Record, RCAHMW or the Archaeology Data Service, ADS.*
>
> *REASON: To secure preservation by record of any archaeological remains which may be revealed during ground excavations for the development.'*

1.3.7 The Local Planning Authority is Wrexham County Borough Council, and full documentation

relating to the application is available on request from the authority. Plans of the buildings can be found in **Appendix I**.

1.3.8 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 discharge . Its aim is to provide information on the methodology and archaeological practice to be employed during the programme of archaeological investigation.

1.3.9 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).

1.4 Legislative Framework

1.4.1 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.

1.4.2 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.

1.4.3 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).*

1.4.4 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(I) 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.

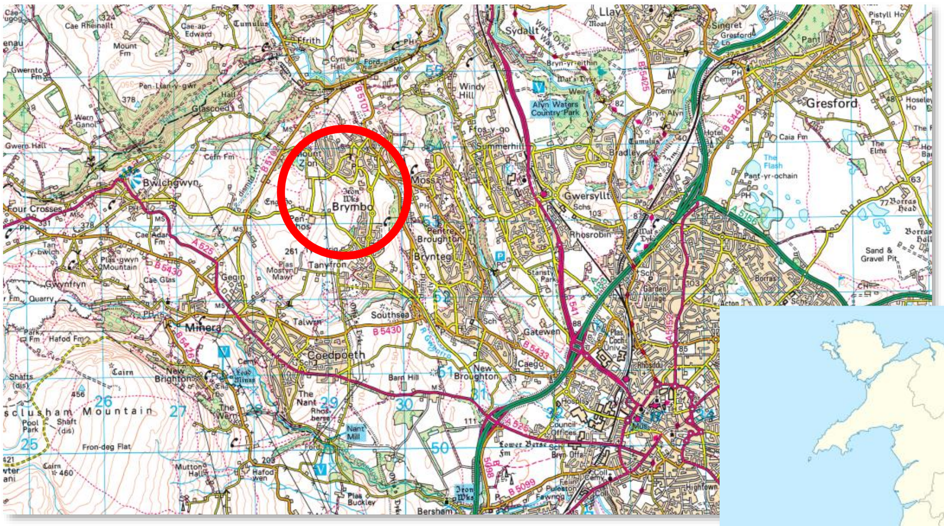




Fig. 2 – Location – Brymbo.
OS OpenData © Crown copyright and database right 2024.

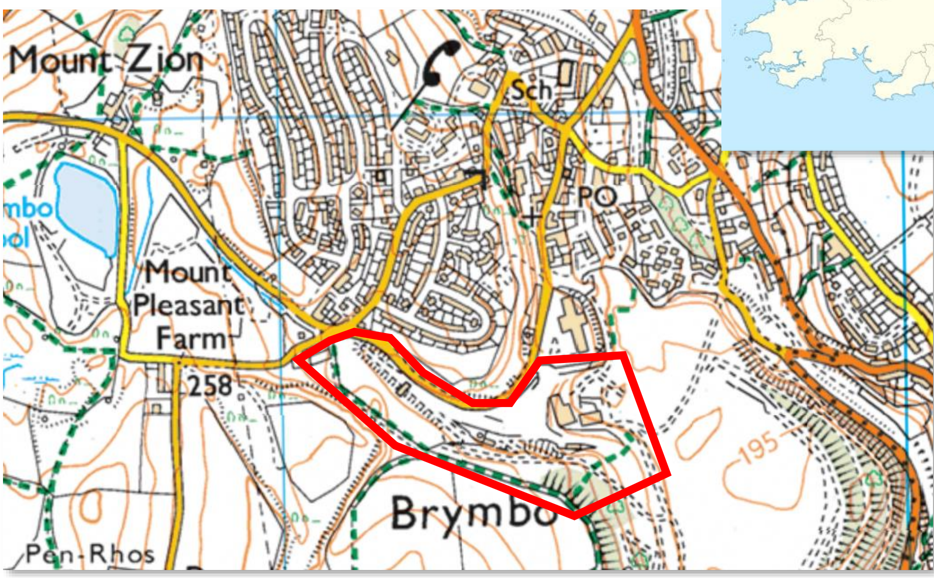


Fig. 3 – Location – Brymbo Ironworks Site
OS OpenData © Crown copyright and database right 2024.

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 Geology

2.2.1 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 Archaeological Monitoring and Recording

3.1.1 Archaeological monitoring and recording (AMR) are defined by the CIfA (2023) as:

> *'Archaeological monitoring and recording is a formal programme of observation, investigation and recording conducted during works carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed. This will be within a specified area or site on land, in an inter-tidal zone or under water. This definition and Standard do not cover chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains in situ.'*

3.1.2 The purpose of the AMR is to identify and record any potential archaeological deposits uncovered during excavations, which may shed light on the earlier uses of the site. It is not intended to reduce or remove the requirement for excavation or preservation of known or new archaeological discoveries. Its purpose is to act as a guide and not to replace any requirement for contingent excavation or preservation of the resource.

3.1.3 The AMR will include, but not be limited to, excavations for:

- Site Drainage
- Agents House – Chimney underpinning
- Pattern Store – Excavation of upper floor woodblock floor
- All other excavations

3.1.4 The outcome will be the production of an illustrated written account detailing the findings of the AMR.

3.2 Archaeological Evaluation

3.2.1 Where the area of excavation needs to be extended, the method will conform to an archaeological field evaluation. The aims of the archaeological evaluation, as defined by the CIfA (2023), are:

> *'Archaeological field evaluation is a programme of non-intrusive and/or intrusive fieldwork which seeks to determine the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts. It may form a single or final phase of work within a defined area or site on land, in an inter-tidal zone or under water.'*

3.2.2 An archaeological evaluation complying with the CIfA *Universal Guidance for archaeological fieldwork evaluation* (2023) will be completed to assess the presence and survival of the unknown archaeological resource and to provide this information to Cadw, the Welsh Governments historic environment service.

3.2.3 The results of the archaeological evaluation, as defined by CIfA (2014) will help with:

a. The formulation of a strategy to ensure the recording, preservation or management of the resource;

b. The formulation of a strategy to mitigate a threat to the archaeological resource;

c. The formulation of a proposal for further archaeological investigation within a programme of research

3.2.4 The results of an evaluation will be used to inform Cadw of the requirement for further mitigation or to determine the requirement for further archaeological investigation or monitoring during any programme works.

3.3 Report and Archive

3.3.1 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.

3.3.2 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.

3.4 Research Agenda

3.4.1 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.

3.4.2 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.

3.5 Cadw's Pan-Wales Heritage Interpretation Plan

3.5.1 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 ARCHAEOLOGICAL MONITORING AND RECORDING AND EVALUATION

4.1 Archaeological Monitoring and Recording

4.1.1 An AMR programme complying with the CIfA *Universal Guidance for archaeological monitoring and recording* (2023) will be completed during groundworks. In agreement with Cadw and Heneb, a exploration of unexpected archaeological resource has been agreed, through the widening of the planned excavations. This will be at the discretion of the archaeologist and only where there is deemed potential to improve our understanding of the site's development. Its purpose is to allow any archaeological resource of potential significance to be further explored and understood. The method for this will broadly fall in line with the method for an archaeological evaluation.

4.1.2 An AMR involves the archaeologist, or archaeologists, to monitor any excavations or demolition associated with the development. Its intentions are to ensure that all archaeological finds, deposits and remains are investigated and recorded, should they be uncovered. As defined by the CIfA (2023)

> *'Archaeological monitoring and recording is a formal programme of observation, investigation and recording conducted during works carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed. This will be within a specified area or site on land, in an inter-tidal zone or under water. This definition and Standard do not cover chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains in situ.'*

4.1.3 The AMR will not be a completely passive exercise but will seek to understand the archaeological resource exposed during the excavation process. This may require a greater extent exposed to understand the form and nature of the resource; this will be determined on site by the archaeologist. In such an event, the excavation trench will be extended to a degree that will allow features to be interpreted and recorded. Should the resource be found to be of a significant nature and/or value, representatives from Cadw and Heneb will be informed and invited to site for inspection, and to determine the requirement for further investigation.

4.1.4 The AMR is intended to provide a staged approach for the monitoring and investigation of the archaeological resource. If features or deposits are revealed through the planned programme, the archaeologist will signal to Cadw and Heneb the discovery of any uncovered archaeological resource to determine the required scheme of investigation and recording. Should the discovery be more complex and require additional time and resources, then a programme that allows the resource to be recorded or mitigated must be agreed with Cadw and Heneb. However, if the archaeological discovery is of greater significance, scale or complexity, then a meeting would need to be arranged with the Cadw, Heneb, the Brymbo Heritage Trust, and ArchaeoDomus. The aim of this would be to agree a way forward for the AMR, with consideration made for further investigation and the triggering of contingency arrangements.

4.1.5 Contingency costs are beyond the scope of this written scheme of investigation and would need to be agreed in advance of any extension to the archaeological programme.

4.1.6 The agents, contractor, or project manager shall provide a minimum of **four weeks notice** for the commencement of works for an archaeologist to be present to monitor any groundworks.

4.2 Evaluation

4.2.1 The evaluation will seek to identify any archaeological remains or features within the development area, and to help inform any mitigation in the protection or further investigation of said deposits. The purpose of the evaluation is to provide information regarding the archaeological resource to Cadw. The aim is to signal to all parties the extent and nature of the resource, and to help determine the requirement for further archaeological investigation or mitigation. The results of this work will not negate the requirement for further archaeological investigation or mitigation.

4.2.2 Should significant finds be made, Cadw will be informed, and a site meeting arranged. If a decision is made for further work to be undertaken, i.e. excavation of area, all further plans are to be made in conjunction with Cadw to undertake this.

4.2.3 The information gathered during the evaluation will be communicated via email to Cadw and Heneb Planning Services. This will be done immediately on completion of archaeological work on site and will detail the extent, type, and form of any archaeological discoveries, including small finds.

4.2.4 The trenches will be excavated using a machine with toothless bucket or by hand to the first archaeological horizon and deposits and features excavated sufficiently to identify their nature and form followed by recording. We will notify Cadw and Heneb Planning Services in the event of a particularly complex or significant discovery. Should additional trenching be required then this would need to be agreed in advance as a variation to the contract.

4.2.5 The general aim of archaeological intervention under these circumstances is:

- To ensure that as much as possible of the archaeological resource affected by scheme proposals is preserved in situ, in line with Historic England's Preserving Archaeological Remains (2016) guidance.

4.2.6 The field evaluation will meet the standards of the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Field Evaluation* (published 2014, revised 2020).

4.3 Archaeological Monitoring and Recording and Evaluation Method

4.3.1 During the programme, a 360° tracked machine with **toothless bucket** or hand excavation will be used to remove any topsoil, overburden or ground reduction, under the supervision of a qualified archaeologist. Excavation will continue to the depth of foundations/trenches, archaeological features, burials or *in-situ* sub-soil/natural geology, whichever is encountered first. Should archaeological features or palaeoenvironmental remains be uncovered, machining will stop to allow the archaeologist to investigate, map, and sample such deposits.

4.3.2 The archaeologist will be in control of all ground stripping and be provided with access at all times. **No demolition or ground works should be undertaken without the site archaeologist being present unless otherwise agreed.**

4.3.3 Should human remains be uncovered during the course of excavations, work will cease, and the police and County Coroner informed. If these require excavation, this should be done so under the correctly obtained licence from the Ministry of Justice and in accordance with the Chartered Institute for Archaeologists' *Professional Practice Paper No 7 Guidelines to the Standards for Recording Human Remains* (2004) and *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains: Technical Paper Number 13* (1993). The excavation, analysis and reporting will also be undertaken in accordance with Historic England's *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (2018), with guidance for the ethical handling and recording of such remains provided by the Advisory Panel on the Archaeology of Burials in England's *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*. Human remains will be appropriately stored on site until reburial, unless otherwise specified, for which the local parish priest or vicar will be contacted to perform the appropriate rights. If skeletal remains are not to be removed, their physical security will be ensured. If analysis is required, this will be undertaken by Richard Madgwick of Cardiff University, who will be invited to attend site if human remains are encountered.

4.3.4 Any secure stratigraphical deposits which are considered to have paleoenvironmental potential will be sampled by core, column, or bulk. All disturbed deposits will not be sampled as these may be compromised by multi-period deposits and disturbance. The sampling strategy will be devised on site by a suitably qualified archaeologist in consultation with our paleoenvironmental adviser named below, and will be governed by the nature and extent of the stratified archaeological deposits, and the aims of the archaeological field evaluation. Where necessary, multiple samples will be taken of the same sequence if it is considered appropriate. The location of the sample(s) will be recorded, located on a site plan, and stored in suitable and stable conditions, before being sent to the appropriate specialist. The environmental sampling strategy will adhere to the guidelines of Historic England's *Environmental Archaeology; A guide to the theory and practice of methods, from sampling and recovery to post-excavation* (2011). Archaeological sample analysis will be contracted to University of Wales Archaeological Service (UWLAS), who will provide processing methodologies prior to the commencement of contracted works.

4.3.5 If and where required, sampling of structures or discrete negative feature, such as pits and postholes, will be taken at 50% and linear features at 25%. It is accepted that some linear features may only warrant a 10% sample.

4.3.6 The following specialists will be contacted when necessary to undertake additional analysis and interpretation:

- Geoarchaeology and quaternary – Dr Martin Bates.
- Metal and precious small finds (coins, rings etc) – Richard Henry.
- Animal bones and remains – Ros Coard, UWLAS.
- Roman, early medieval, and medieval ceramics – Joyce Compton or Steve Clarke.
- Conservation – Phil Parkes, Cardiff University.
- Preserved leather and textiles – Quita Mold.
- Radiocarbon – Oxford Radiocarbon Accelerator Unit.
- Osteoarchaeology – Dr Richard Madgwick, Cardiff University.
- Flint and stone tools – Richard Lewis, Black Mountains Archaeology Ltd.
- Bulk Analysis – University of Wales Archaeological Service.
- Other finds (post-medieval ceramics, China, building debris, mortar etc.), molluscs, wood identification, and dendrochronological dating and analysis will be undertaken in-house.

4.3.7 If, during the course of archaeological investigations, further specialist expertise is required, a suitably qualified contractor will be sought to undertake said work.

4.3.8 All classes of finds will be retained (cleaned and catalogued) in appropriate conditions until arrangements for final deposition have been agreed, in line with the requirements of the Chartered Institute for Archaeologists' *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (published 2014, revised 2020). Ownership will be transferred to the institution receiving the archive unless other arrangements are agreed with the Brymbo Heritage Trust.

4.3.9 Bulk finds will be assessed by context on site. The following collection policy will apply to this project, in line with the relevant Standard and Guidance issued by the Chartered Institute for Archaeologists.

- All finds will be collected initially. An initial sift will be made either on site, or at our office subsequently if doing so on site is not feasible due to weather, or other site conditions.
- All prehistoric, Roman, early medieval and medieval finds will be retained.
- Early post-medieval (eg 16th/17th-century) finds will normally be retained in full as well, unless only a few extremely small pieces are present, and these are of no

relevance to the remaining archaeology on the site. These may be discarded subject to the agreement of DAT-DM.

- Later post-medieval (18th/early 19th century) material will be noted by count but only retained if significant within the research aims or because of features/structures found during the excavations. Otherwise they will be discarded.
- Modern material (later 19th/20th-century) will only be retained if it is of exceptional interest in its own right.

4.3.10 If substantial quantities of undiagnostic, residual, or modern material are recovered, an on-site recording and discard policy for these classes of find will be employed. However, sufficient material will be retained to understand the nature, date, and function of the deposit from which it was recovered.

4.3.11 All items that may be subject to *The Treasure Act 1996* will be reported to the HM Coroner for the local area and to Cadw.

4.3.12 A digital camera of no less than 12 megapixel will be used during the evaluation to keep a record of works and to record any archaeological features uncovered, or lack thereof. All significant contexts will be photographed.

4.3.13 Should archaeological features be uncovered, these will be surveyed using LiDAR equipped camera for the capture of accurate 3D digital data. Surveys will be located and benchmarked to the Ordnance Survey using survey grade RTK-GNSS equipment. Plan and section drawings will be produced at 1:1 scale using Rhino 7, and plotted to 1:20, 1:50 or 1:100 for reporting purposes.

4.3.14 If photogrammetric recording is undertaken, it will be done so in accordance with Historic England's *Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (2017).

4.4 Reporting

4.4.1 Following completion of the fieldwork programme all artefacts, ecofacts and samples will be processed, assessed and packaged in accordance with Chartered Institute for Archaeologists' Standards and Guidance for the *Collection, Documentation, Conservation and Research of Archaeological Materials* (published 2014, revised 2020), and *Museums and Galleries Commission Standards in the Museum Care of Archaeological Collections* (SMA 2020). The archive of archaeological records and artefacts will be prepared to the guidelines set out in Historic England's *Management of Archaeological Projects* (1991) Appendix 3, and if appropriate for the project the *Management of Research Projects in the Historic Environment MoRPHE* (2015).

4.4.2 A report on the field evaluation will be produced to discharge planning conditions. The report will assess the potential of any recovered evidence and then a programme of analysis and research would be undertaken (however brief) resulting in the preparation of a site narrative and supporting information, including finished drawings and photographs if required.

4.4.3 Subject to the landowner's permission, the site archive, including all artefacts, ecofacts, samples and records will be deposited whole with a receiving institution (excepting any that may be subject to the Treasure Act 1996) in accordance with CIfA guidelines set out in *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation* (Brown 2011). The final archive of records relating to the preparation of the reports will be prepared to Historic England's guidelines set out in the *Management of Archaeological Projects* (1991), Appendix 6 and if appropriate for the project the *Management of Research Projects in the Historic Environment MoRPHE* (2015).

4.4.4 Where necessary, a selection strategy will be implemented to help enhance the value of and to reduce the size of the finds archive. If substantial quantities of undiagnostic, residual, or modern material are recovered, an on-site recording and discard policy for these classes of find will be employed. However, sufficient material will be retained to understand the nature, date, and function of the deposit from which it was recovered. A selection strategy will be included in the final report.

4.4.5 A final report detailing the results of the evaluation will be submitted when the fieldwork and post-excavation analysis process has been completed. The report will conform to the professional standards as laid down by the Chartered Institute for Archaeologists' *Universal guidance for an archaeological field evaluation* (2023). Following formal approval of the report by Heneb Planning Services, digital copy of the report and archive summary will be supplied to the client, Heneb-PS, CADW, and regional HER. Paper copies can be provided on request at a small cost.

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. Summary (English and Welsh)
2. Introduction
3. Site Location
4. Archaeology and History
5. Aims and Objectives
6. Methodology
7. Archaeological Result
8. Discussion
9. Archiving
10. References
11. 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' *Universal Guidance for archaeological monitoring and recording* (2023) and *Universal Guidance for archaeological field evaluation*.

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 Heneb.

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 Heneb.

10 SOURCES

10.1.1 **CIfA** 2023, *Universal guidance for archaeological monitoring and recording.*

10.1.2 **CIfA** 2023, *Universal guidance for a archaeological evaluation*

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

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

APPENDIX I

Plans

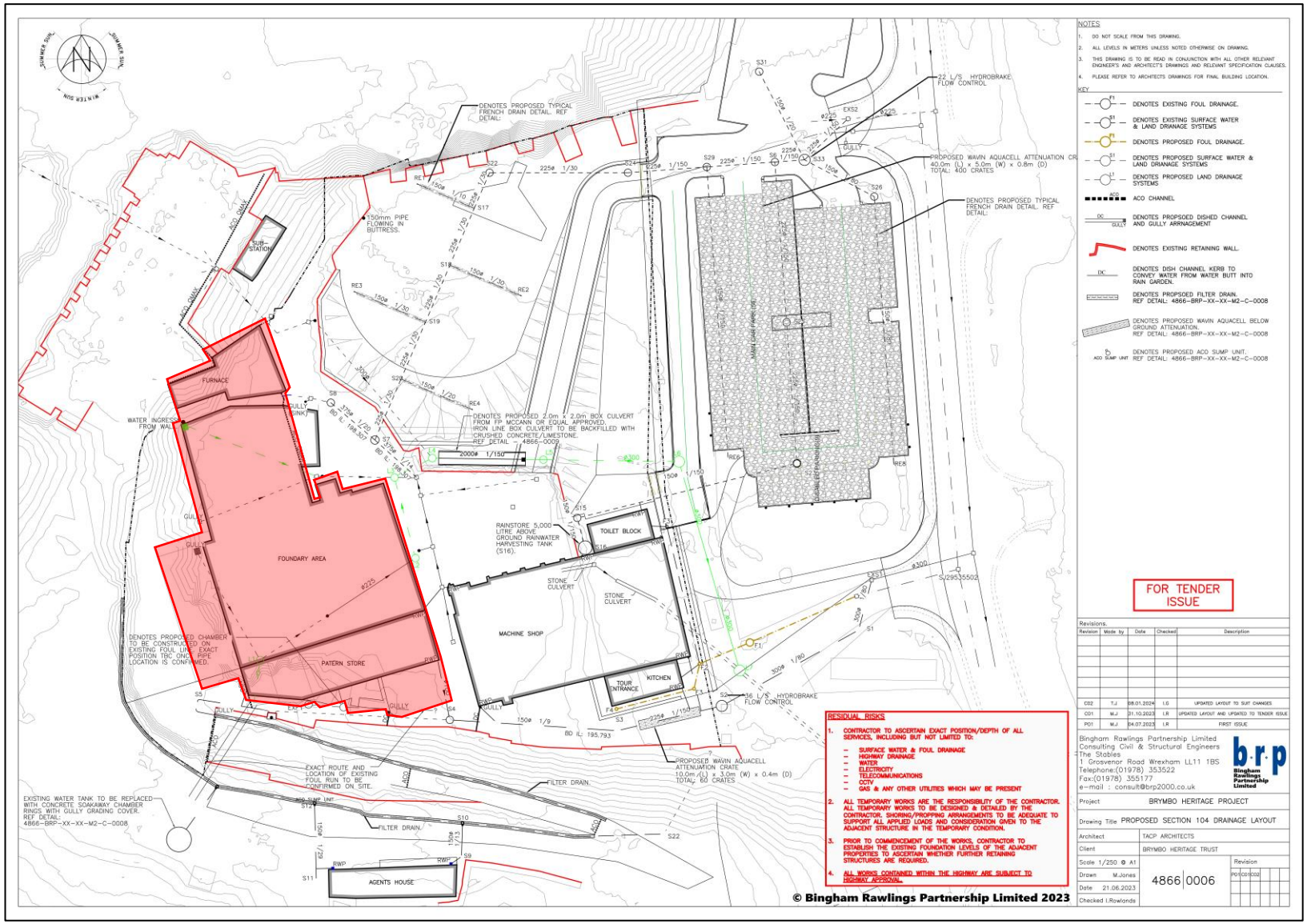


Fig. 6 – Section 104 Drainage Layout. Scheduled Monument DE202 (red).

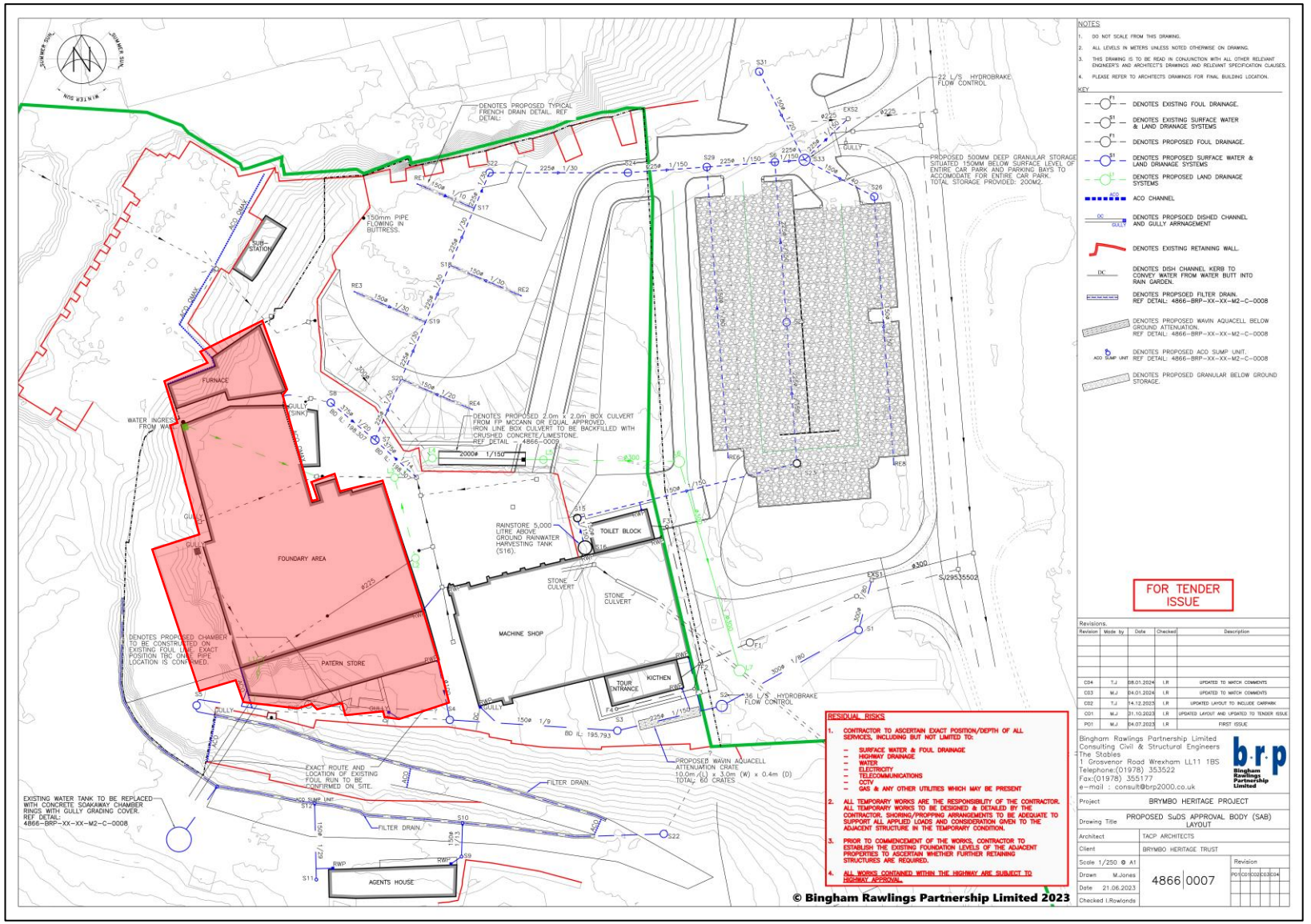


Fig. 7 – Proposed SuDS layout. Scheduled Monument DE202 (red).

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