ARCHAEOLOGICAL EVALUATION REPORT

Trevor Basin, Pontcysyllte Aqueduct World Heritage Site

ARS Report N°: 2021/53
OASIS ID: archaeol5-419567

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An Archaeological Evaluation at Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham

ARS LTD REPORT 2021/53

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Planning Reference:	N/A
Local Authority:	Wrexham Borough County Council
Archaeological Trust:	Clwyd-Powys Archaeological Trust
Site central NGR:	SJ 27215 42453
OASIS ID:	archaeol5-419567

EXECUTIVE SUMMARY

Project Name:	An Archaeological Evaluation at Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham
Site Code:	TBG21
Planning Authority:	Wrexham Borough County Council
Planning Reference:	N/A
Location:	Trevor Basin, Wrexham, LL14 3SG
Parish:	Trevor
Hard Geology:	Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation
Superficial Geology:	Devensian Till
Soil Type:	Soilscape 17: Slowly permeable seasonally wet acid loamy and clayey soils
NGR:	SJ 27215 42453
Date of Fieldwork:	23/03/2021 – 08/04/2021
Date of Report:	22/04/2021

These works were carried out in advance of the submission of a planning application for the relocation of the Anglo Welsh boat hire base from its current location south of Scotch Hall Bridge, to the north of the bridge which until recently was occupied by Jones The Boats boat hire centre.

The proposed development area comprises part of the Pontcysyllte Aqueduct and Canal Scheduled Monument and the works had the potential to contribute towards research topics identified in A Research Framework for the Archaeology of Wales: Later Medieval and Industrial (1750-1899).

The evaluation involved the excavation of four trenches and was undertaken between 23/03/2021 and 8/4/2021 in accordance with a written scheme of works agreed with the Clwyd-Powys Archaeological Trust Development Control Archaeologist and CADW.

Three features of archaeological interest were identified. A single course of bricks (103) at the north-western extent of Trench 1 and a hardstanding surface (105). These features may have been associated with c.1836 structures depicted on historic mapping to the west of the trench. Trench 3 contained three parallel linear features on a north-south alignment which may be connected with railway tracks depicted on historic mapping.

The features uncovered by the evaluation are unlikely to be of more than local significance and suggest the potential for further finds relating to 19th Century housing. Along with a public house at the west of the proposed development area these would likely be of local to regional significance based on their potential to contribute towards the regional research framework.

EXECUTIVE SUMMARY

Gwnaethpwyd y gwaith yma cyn cyflwyno cais cynllunio i adleoli safle llogi cychod Anglo Welsh o'i leoliad presennol i'r de o Bont Scotch Hall i'r gogledd o'r bont lle, tan yn ddiweddar, safai canolfan llogi cychod Jones y Cychod.

Mae'r ardal datblygu arfaethedig yn cynnwys rhan o'r heneb gofrestredig, Dyfrbont Pontcysyllte a'r Gamlas ac roedd gan y gwaith y potensial i gyfrannu at y pynciau ymchwil a nodir yn y Fframwaith Ymchwil ar gyfer Archaeoleg Cymru: Canoloesol Diweddar a Diwydiannol (1750-1899).

Roedd y gwerthusiad yn golygu cloddio pedair ffos ac fe'i gwnaethpwyd rhwng 23/03/2021 a 8/4/2021 yn unol â chynllun gwaith ysgrifenedig y cytunwyd arno ag Archaeolegydd Rheoli Datblygu Ymddiriedolaeth Archaeolegol Clwyd-Powys a CADW.

Nodwyd tair nodwedd o ddiddordeb archaeolegol. Haen o frics (103) ym mhen gogledd-orllewinol pellaf Ffos 1 ac wyneb llawr caled (105). Gall fod y nodweddion hyn yn gysylltiedig â strwythurau oddeutu 1836 a ddangosir i'r gorllewin o'r ffos ar fapiau hanesyddol. Roedd Ffos 3 yn cynnwys tair nodwedd linellol gyfochrog yn rhedeg o'r gogledd i'r de sydd o bosib yn gysylltiedig â thraciau rheilffordd a ddangosir ar fapiau hanesyddol.

Nid yw'r nodweddion a ddatgelwyd gan y gwerthusiad yn debygol o fod yn fwy nag o arwyddocâd lleol ac maent yn awgrymu'r posibilrwydd o ddarganfyddiadau pellach sy'n perthyn i dai o'r 19eg ganrif. Ynghyd â thafarn yng ngorllewin yr ardal datblygu arfaethedig, byddai'r rhain yn debygol o fod o arwyddocâd lleol i ranbarthol ar sail eu potensial i gyfrannu at y fframwaith ymchwil rhanbarthol.

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1 INTRODUCTION

1.1 Background and Scope of Work

1.1.1 These works were carried out in advance of the submission of a planning application for the relocation of the Anglo Welsh boat hire base from its current location to the south of Scotch Hall Bridge to a new location north of the bridge, which until recently was occupied by Jones The Boats, boat hire centre.

1.1.2 Archaeology is a material consideration in the planning process under *Planning Policy Wales* Edition 11 (Feb 2021) paragraph 6.1.23 which, *recognises the need to conserve archaeological remains. The conservation of archaeological remains and their settings is a material consideration in determining planning applications, whether those remains are a scheduled monument or not.* This is further expounded in Technical Advisory Note 24: The Historic Environment (May 2017)

1.1.3 In accordance with these planning requirements, Archaeological Research Services Ltd (ARS Ltd) was commissioned by The Canal and Rivers Trust to undertake evaluation trenching at Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham (Figure 1), centred at NGR SJ 27215 42453 .

1.1.4 A Heritage Statement has also been produced in advance of the application (Brown 2020).

1.1.5 The evaluation comprised the excavation and recording of four trenches (Figures 4-16).

1.1.6 Works were undertaken in compliance with the Written Scheme of Investigation (WSI) (See Appendix III) approved by the Clwyd-Powys Archaeological Trust and CADW and took place from 23/04/2021 to 08/04/2021.

1.2 Site Location and Description

1.2.1 The proposed development area (PDA) is indicated in red on Figure 1. The 'red line boundary' of the PDA is yet to be finalised, but the project area is contained wholly within the Canal & River Trust's Land Ownership to the north of Scotch Hall Bridge, which is the area edged in blue on Figure 1. This covers an area of c.1.2ha, centered upon the two terminal arms of the Llangollen Canal separated by a central pier. There is a dock on the western terminal, and at the eastern terminal there is a blocked junction bridge to the now infilled branch canal originally built to serve the Plas Kynaston Colliery and a former loading dock wide enough for a single boat where goods were transferred to and from the Ruabon Brook Railway.

1.2.2 To the west of the western terminal is the former location of the Jones the Boats hire centre, which has recently been demolished, although some foundations and low walling associated with this survive. Immediately to the north of the footprint of the former building is an area of hard standing previously used as a car park, which is accessed via a trackway with an entrance at the north end of the site. Either side of this access route at the north of the site are overgrown areas of scrub, whilst further to the south the areas alongside the towpaths are grassed and benches have been placed adjacent to the bridge over the now infilled private branch canal and former loading dock. The central pier is also overgrown with scrub and trees, although scrub removal was underway at the time of the site walkover. The site was positioned between 99.65m and 94.55m aOD.

1.3 Geology and Soils

1.3.1 The underlying solid geology of the PDA comprises undifferentiated Pennine Lower and Middle Coal Measures Formations; frequent coal seems within alternating grey Mudstone, grey Siltstone and Sandstone. This is Sedimentary Bedrock formed approximately 310 to 319 million years ago in the Carboniferous Period when the local environment was dominated by swamps, estuaries and deltas. This is overlain by a superficial deposit of Devensian Till, a Diamicton formed during the last Glacial maximum between ~29 and ~14 kya (BGS 2020, Glasser et al. 2018).

1.3.2 The soils of the PDA are classified as Soilscape 17: Slowly permeable seasonally wet acid loamy and clayey soils.

1.4 Archaeological and Historical Background

1.4.1 The archaeological and historical background to Trevor Basin has been discussed in detail in the previous Heritage Statement (Brown 2020). A brief summary is offered here:

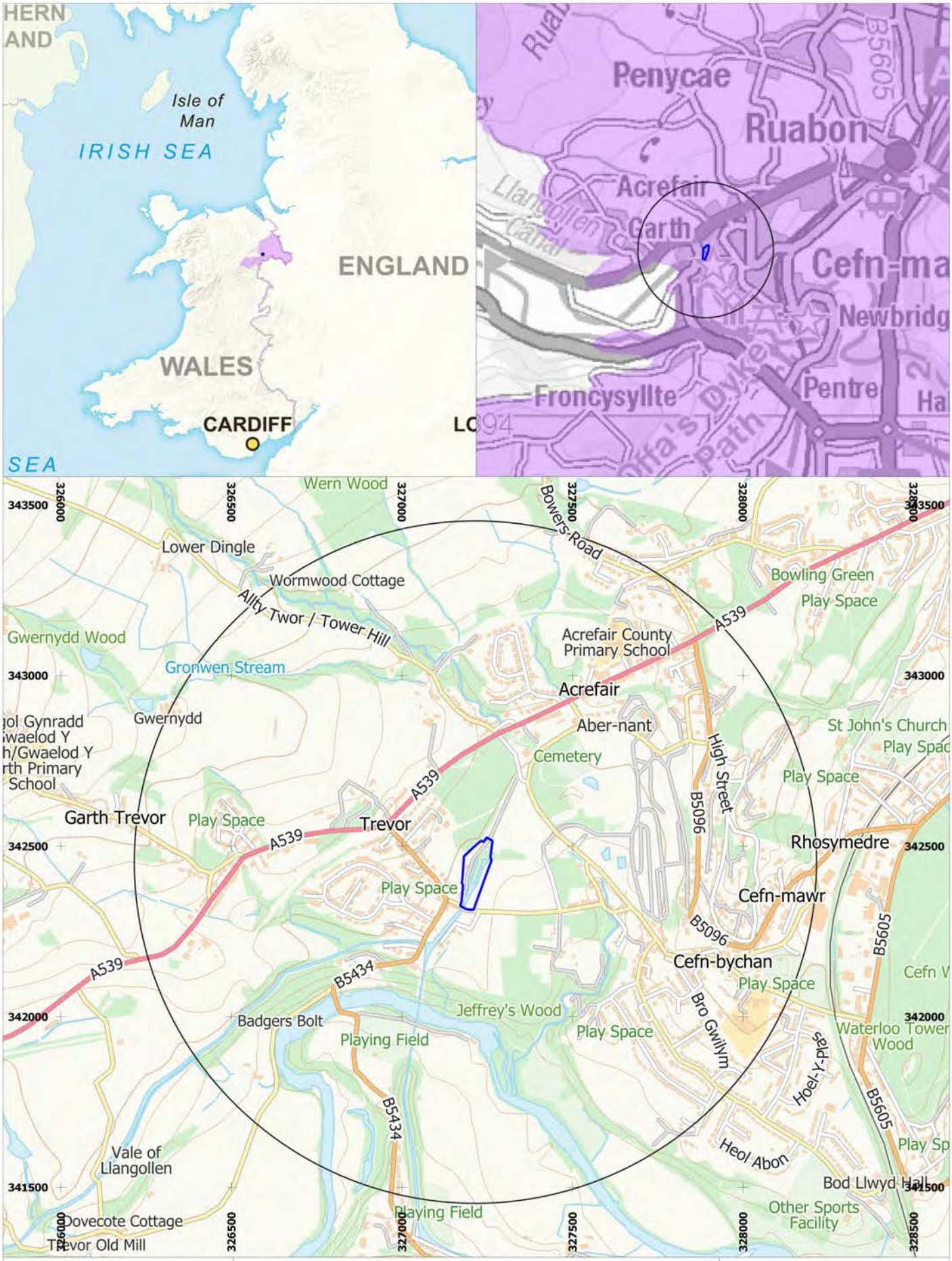
1.4.2 Nothing is reported from the site from any period prior to the arrival of the canals. Although the landscape does have sparse occurrences of Later Prehistoric and Medieval artefacts these will not be found during these works.

1.4.3 By January 1800 the plans to connect the western canal onward to Chester where abandoned. The Trevor Basin was consequently established and finished by November 1805. A new iron railway ran from here to surrounding collieries and quarries, and on to Cefn Mawr where a crane was required to switch the contents from trucks running on these newer T shaped rails to the old style plateways (L shaped rails).

1.4.4 In the 1860's the tramway was converted into a standard gauge railway and an engine shed was constructed to house an ex-L&NWR shunting engine. This shed was located just north-north-east of the central pier (in line with the eastern arm of the canal, an extension of which it straddled) with two lines passing through it; one terminating on the central pier. This was quite a large stone built structure some 125ft 6 inches by 17ft 9 inches with a gable styled slate roof and skylights. An additional line ran down the western side of the shed splitting into two additional terminals on the central pier, whilst a further line bisected into five additional sidings to the western side of the basin. These were weaned down until just two remained in 1912.

1.4.5 A survey of 1896 revealed that the engine shed and adjacent transfer warehouse had a store, coaling platform and goods section, in addition to a sand-furnace and external water tower. In September 1902 these facilities were closed and by 1920 all canal interchange traffic had ceased at the Trevor Basin with its deterioration meaning that the waterway became increasingly hard to navigate. The railways were also slowly wound down, finally closing on 1st January 1968, with the tracks being lifted over 1969-70.

1.4.6 There is a chance that Trevor Basin, and more specifically the engine shed may be the location of Pickering and Rowlands patented Boat lift. In 1794 the Ellesmere Canal Committee ordered that a place be found for its construction, and by 1796 the local press were reporting its successful trials. Whilst the actual location remains unidentified one argument is that the photographic evidence shows the engine shed to have walls of uneven thickness with the potential for several alterations over the years, including perhaps utilizing elements of the boat lift.



Site name: Trevor Basin, Pontcysyllte Aqueduct WHS
Date: March 2020
Drawn by: AB
Scale: Varies

Figure 1:
Site location

N

Wrecsam/ Wrexham | 1km study area | Assessment area

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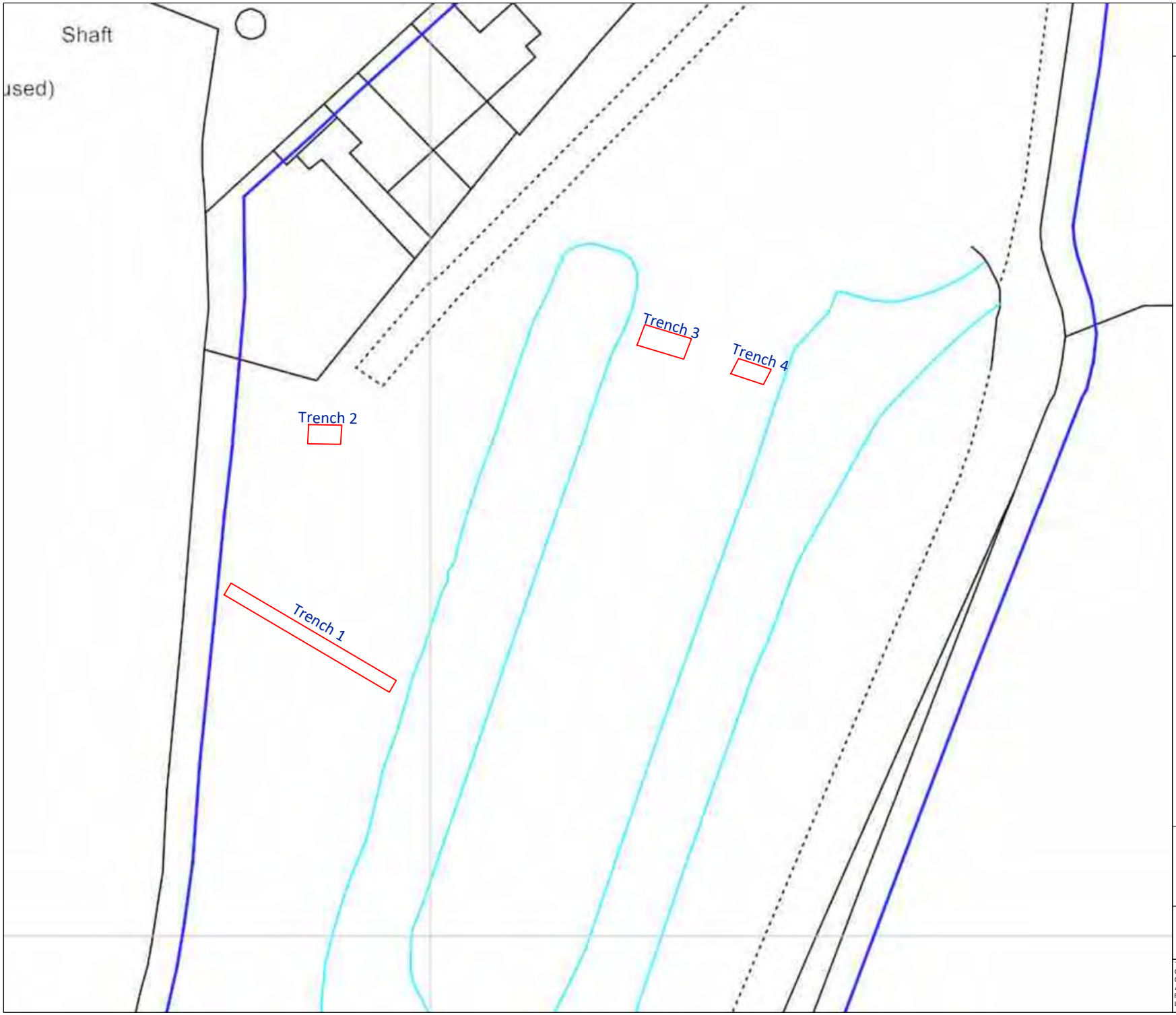

Figure 2: Trench Location

Trench Location

N

Site name:	Trevor Basin
Date:	16/04/2021
Drawn by:	JT

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Figure 3: Trench Location over 1899 Ordnance Survey Map

Trench Location

N

Site name: Trevor Basin
Date: 16/04/2021
Drawn by: JT

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2 AIMS AND OBJECTIVES

2.1 Research Aims and Objectives

2.1.1 It should be noted that part of the proposed development area comprises part of the Pontcysyllte Aqueduct and Canal Scheduled Monument and therefore comes under the auspices of CADW. The remainder of the proposed development area comes under the auspices of the Clwyd-Powys Archaeological Trust (CPAT); both of these organisations have commented upon the scope of the works and have agreed to the scheme undertaken.

2.1.2 The aims and objectives of the archaeological evaluation are outlined in detail in the WSI (see Appendix III) prepared by ARS Ltd. in consultation with Mark Walters, Development Control Archaeologist, Clwyd-Powys Archaeological Trust, and CADW, prior to the commencement of the works. They are summarised below.

2.1.3 Research topics identified in *A Research Framework for the Archaeology of Wales: Later Post-Medieval and Industrial (1750-1899)* (Gerrard and Bailey 2017) with relevance to the site include:

Sub-theme	**Topics within theme**
Transport	Canals Docks/ports/harbours covered by: Railways/Tramroads
Extraction	Coal Stone Quarrying
Infrastructure	Warehousing & storage Industrial housing Social infrastructure, work Institutes, theatres, pubs
Power	Water Steam Mineral Electricity Gasworks
Economy	Employment Company Tourism

Table 1: Relevant key aspects within Individuals & Society theme which could be addressed.

2.1.4 In summary, the identified priority research objectives for North-East Wales, which the proposed archaeological works had the potential to contribute to, include the assessment of:

- 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.

- The significance, form and archaeological survival of transport corridors – turnpikes, government-sponsored roads, canals, railways – their engineering, the industries they served and the settlements they sustained.
- The significance, form and archaeological survival of major dock systems; their context and significance in terms of similar sites elsewhere in the world.

2.2 Project Aims

2.2.1 The evaluation aimed to:

- Identify the presence/absence of archaeological features and deposits within the site, particularly with relation to surviving features associated with:
    - The construction phase of the Ellesmere Canal (e.g. Is there any evidence for the presence of an experimental boat lift or any other construction techniques or methods? Are any artefacts present that could shed light upon the lives of those employed in the work?).
    - The operational phase of the Ellesmere Canal/Shropshire Union Canal/Llangollen Canal (e.g. Is there any canal furniture surviving buried beneath later deposits? Are any artefacts present that could shed light upon the lives of those employed on the canal?).
    - The Ruabon Brook Tramway and/or Pontcysyllte Branch Railway (e.g. Are there any tracks or other associated features surviving along the central pier or wharf? Are any upstanding or buried features associated with the former Engine Shed/Warehouse present within the proposed parking bays?) Can any evidence be identified, which might support theories regarding the presence of an experimental boat lift at this location? Are any artefacts present that could shed light upon the lives of those employed on the railways?).
    - Buildings on or adjacent to the canal wharf (e.g. Are there any buried remains associated with the Beer House or workers' housing surviving in the vicinity of the proposed new shop, offices and facilities building, and the gas bottle store? Is there any evidence for an apparent earlier phase of housing on the wharf, as depicted on the 1838 tithe map in the vicinity of the proposed north-western parking bays?).
- Record all archaeological features and deposits encountered.
- Sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating and quality of preservation.
- Gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance and potential to inform the aim outlined in section 2.1 above.

2.3 Project Objectives

2.3.1 The objectives of evaluation were as follows:

- Evaluate the PDA via evaluation trenching for the presence of archaeological remains.
- Establish the character extent and function where possible, of any archaeological remains present.
- Identify, sample and fully record archaeological deposits and features within the evaluation trenches.
- Establish the condition of preservation of any archaeological remains and palaeoenvironmental deposits present.
- Obtain, dating and phasing of archaeological deposits where possible.
- Establish the significance, where possible, of any archaeological remains present.

3 METHOD STATEMENT

3.1 Introduction

3.1.1 The methodology for the evaluation is set out in detail in the Written Scheme of Investigation (Appendix III). Four trenches were excavated across the site, in addition to constant monitoring of overburden stripping.

3.2 Coverage

3.2.1 The location of the evaluation trenches is depicted in Figures 2 and 3.

- Trench 1 measured 18x2m and was situated to evaluate part of the planned drainage associated with the proposed new shop, offices, and facilities building, in addition to targeting part of the footprint of a building first identified on the 1865 Plas Kynaston Estate map, and possibly related to the Canal Tavern as recorded in the censuses, recorded as 'Beer House' on the 2nd Edition OS map.
- Trench 2 measured 3x2m and was located over the footprint of the proposed parking bays. It was positioned to assess whether any of the trackways identified on historic mapping survive.
- Trench 3 measured 5x2m and was situated on the central reservation within the scheduled monument. It was positioned to assess trackways depicted on historic mapping.
- Trench 4 was also within the Scheduled monument and measured 3x2m. It was positioned to target one of the trackways running down the central reservation depicted on historic mapping, and also to assess the potential impact on the canal wall coping stones.

3.3 Professional Standards

3.3.1 The archaeological fieldwork was undertaken in accordance with the Chartered Institute for Archaeologists (CIfA) *Code of Conduct* (2019) and *Standard and Guidance for Archaeological Evaluations* (2020a).

3.4 Health and Safety

3.4.1 All works were undertaken in full compliance with the Health and Safety at Work Act 1974 and with the Management of Health and Safety Regulations 1992.

3.4.2 A risk assessment (RA No. 022/21/B) was produced before commencement of the work and was adhered to throughout the course of the fieldwork.

3.5 Fieldwork

3.5.1 The trenches were sited in accordance with the WSI (Appendix III) using survey grade equipment that typically give a minimum tolerance of sub-metre accuracy and usually centimetre accuracy, dependent upon satellite visibility. The same equipment was used to record known points on drawn plans and sections and to take spot heights within the trenches.

3.5.2 Overburden was removed in level spits down to the first archaeological horizon using a Compact 6 Tonne, 360° mechanical excavator equipped with a 1m wide and a 0.5m wide toothless ditching bucket under continuous archaeological supervision.

3.5.3 Each trench was cleaned by hand to expose and define archaeological features. Pre-excavation photographs were taken of each trench and any exposed archaeology within them.

3.5.4 All archaeological features were drawn and recorded at an appropriate scale and were sample excavated in accordance with the WSI. All trenches and features were accurately drawn in accordance with the ARS Ltd Field Recording Manual.

3.5.5 All features and trenches were tied into the Ordnance Survey Grid and all spot heights expressed in metres above Ordnance Datum (aOD).

3.5.6 All features were digitally photographed using a Fujifilm XP150 with 14.4 megapixel resolution and a full register of photographs was kept.

3.5.7 All written records were kept on pro forma recording sheets and a Harris Matrix was compiled for each trench where multiphase archaeological stratigraphy was present.

4 RESULTS

4.1.1 An overall plan of trench locations is presented in Figures 2 and 3. Individual trench plans and photographs for those trenches where archaeological features were present are included as subsequent figures.

4.1.2 The context records are summarised in Tables 3-6 providing an overview of the presence/absence of, or potential for, archaeology associated with each evaluation trench. These tables should be viewed in association with the figures, photographs, and text for each trench where archaeological remains were present.

4.1.3 The overburden across the area subject to evaluation was machine excavated down to the start of the archaeological horizon or depth of development, whichever was the shallower, under continuous archaeological supervision. The depth of the excavations are summarised in Table 2 as well as the depth of subsequent sondage cuttings within the trench, following consultation with CADW and CPAT.

Trench Number	Depth of Initial Archaeological Horizon	Final Depth Including Sondage
Trench 1	0.57m Below Ground Level (BGL)	0.87m BGL
Trench 2	0.58m BGL	0.90m BGL
Trench 3	0.70m BGL	1.16m BGL
Trench 4	0.83m BGL	1.07m BGL

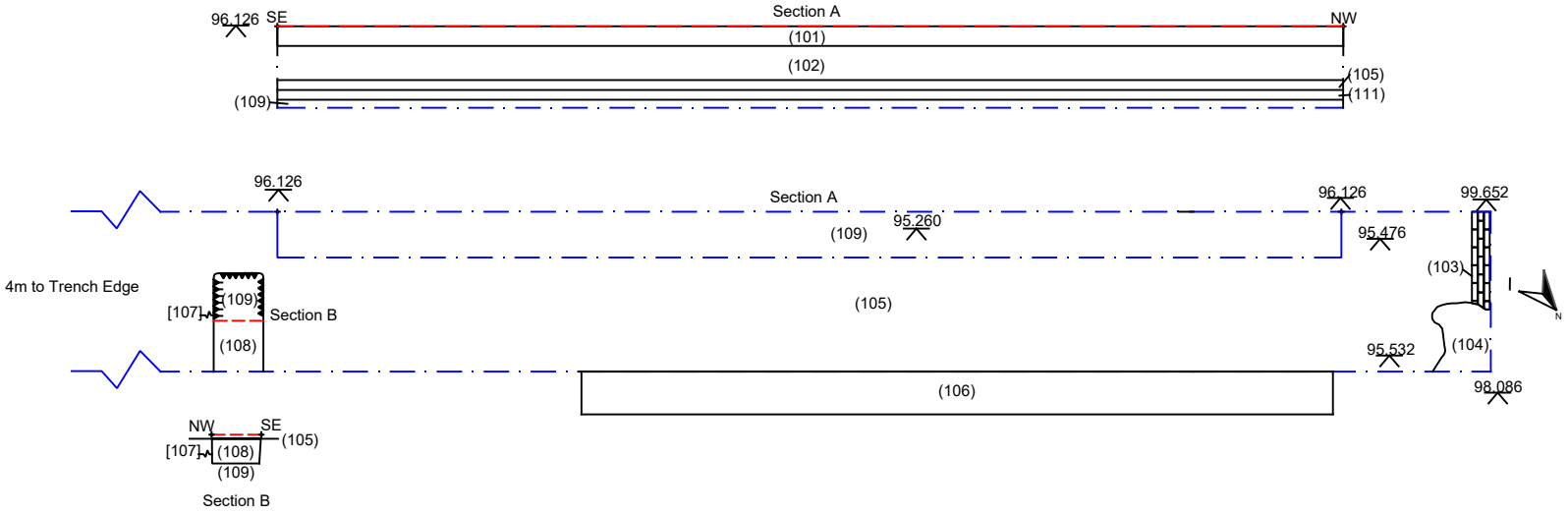
Table 2: Depth of Excavations within Trenches

4.2 Results

4.2.1 A total of four evaluation trenches were excavated, as described in Section 3.2 which covered a combined excavated area of 82m^2. All evaluation trenches were sited to provide appropriate coverage of the proposed development area and were located to target features on historic mapping as outlined in Section 3.2.

4.2.2 All four trenches contained archaeological remains. The following text describes those trenches where archaeological remains are present. This section should be read in conjunction with the accompanying figures 4-18 and captions, the Trench Summary Tables (Tables 3-6), and the Context Summary Table (see Appendix I).

Figure 4: Trench 1 Plans and Sections



Limit of Excavation

Section Line

Above Ordnance Datum Height (m)

Site name: Trevor Basin
Date: 16/04/2021
Drawn by: JT

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Trench 1

Context No.	Max. Depth (m)	Depth to Top (BGL) (m)	Depth to Top (aOD) (m)	Description
101	0.21	0.21	95.92	Hardstanding surface of white/grey rubble and slate chippings. Upper layer of trench.
102	0.37	0.58	95.55	Black/dark brown demolition deposit containing frequent CBM.
103	-	0.61	95.49	Single course of machine made bricks at north-west of trench.
104	0.03	0.64	95.52	Thin and friable grey concrete surface overlying bricks (103).
105	0.10	0.65	95.51	Compacted hardstanding, possible yard surface of rubble and silty clay.
106	0.45	0.45	95.68	Grey concrete foundation (?) block within south-west facing section.
107	0.15	0.86	95.26	Probable demolition cut, rectangular in shape cut through (102) and (105).
108	0.15	0.86	95.26	Fill of [107] - mottled yellow sandy silty clay redeposited natural.
109	-	0.78	95.34	Natural geological layer - soft pale yellow sandy clay.
110	0.11	0.82	95.29	Found in section of cut [107] – dark brown/black silty clay underlying (105)
111	0.29	0.78	95.34	Similar to (110) – dark brown/black silty clay underlying (105).

Table 3: Trench 1 Context Register

4.2.3 Trench 1 contained the buried remains of a single course of machine made bricks (103) at the north-western extent of the trench (Figure 5). The bricks measured 0.23m x 0.12 x 0.08m and were laid on a north-east to south-west alignment. The bricks were overlain by a concrete surface (104) at the south-west facing section wall and were laid at a similar height to the hard standing surface (105), composed of compacted rubble and dark brown silty clay which covered the entire trench at a height of 0.57m BGL, 98.00m aOD (Figure 6).

4.2.4 Deposit (105) was truncated towards the south-east of the trench by a rectangular shaped cut feature [107] with a flat base and straight vertical edges and was filled by redeposited mottled dark yellow sandy silty clay (108) (Figure 8). The trench south-west facing section wall of the trench shows that this feature measures 1m x 0.56m x 0.78m and was cut through (102) and (105) (Figure 8).

4.2.5 A sondage measuring 11m x 0.5m was machine excavated along the north-east facing section wall of the trench. It was excavated through deposit (105) and a deposit of dark brown silty clay (111) which was overlying natural pale yellow sandy clay (109) at a maximum trench depth of 0.87m BGL, 97.66m aOD (Figure 7).

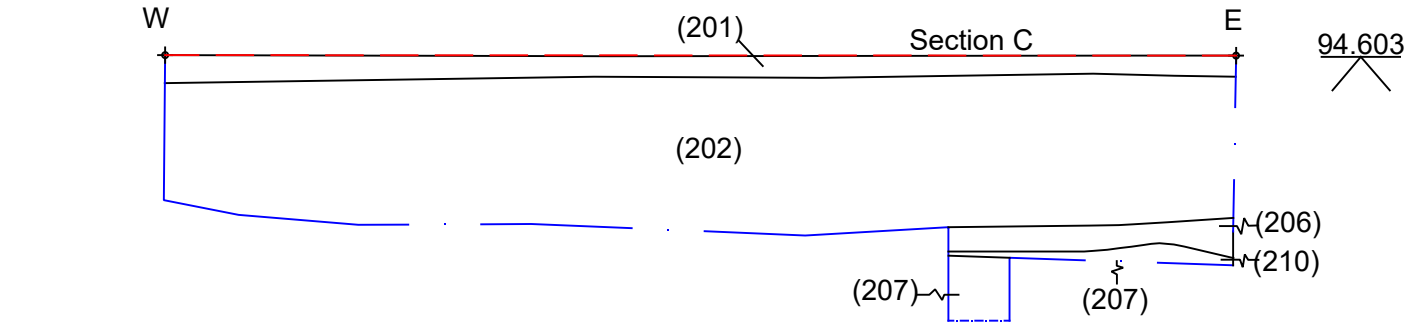
Figure 5: View of brick feature (103). Facing north-west – Scale 1x1m.

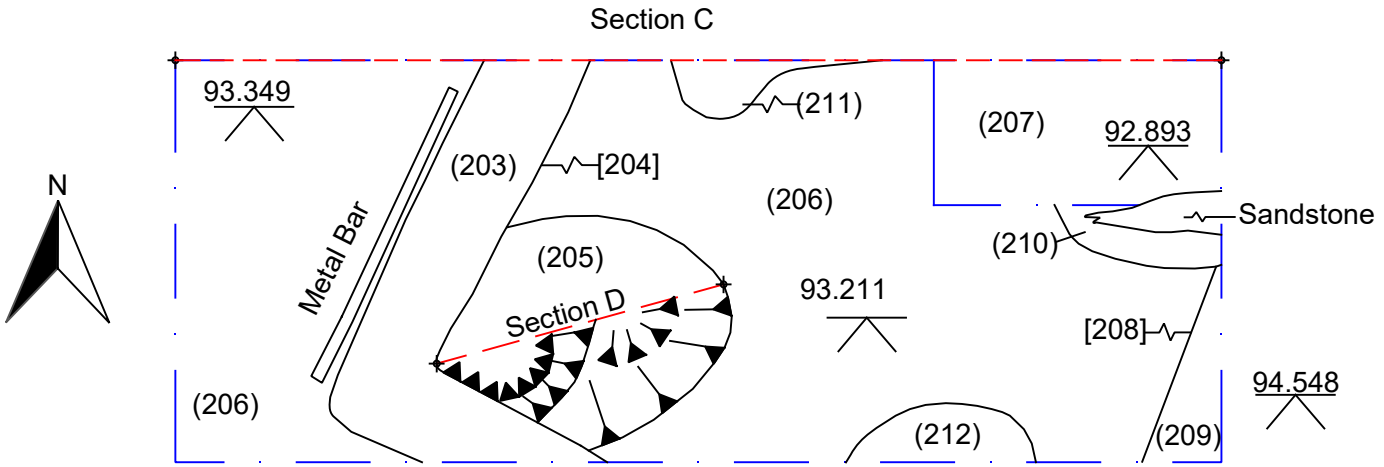
Figure 6: View of hardstanding feature (105). Facing north-west – Scale 1x1m.

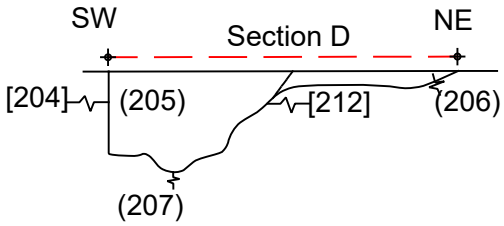
Figure 7: View T1 (Section A). Facing south-west – Scale 1x1m.

Figure 8: View of cut feature [107] (Section B). Facing north-east – Scale 1x1m.

Figure 9: Trench 2 Plans and Sections







Limit of Excavation

Section Line

Above Ordnance Datum Height (m)

Site name: Trevor Basin
Date: 16/04/2021
Drawn by: JT

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Trench 2

Context No.	Max. Depth (m)	Depth to Top (BGL) (m)	Depth to Top (aOD) (m)	Description
201	0.20	0.20	94.34	Hardstanding surface of white/grey rubble and slate chippings. Upper layer of trench.
202	0.49	0.69	93.86	Dark brown demolition deposit containing frequent CBM.
203	0.28	0.97	93.63	Fill of foundation/demolition trench cut [204]. Redeposited pale yellow sandy clay.
204	0.28	0.97	93.63	Right angled linear cut foundation/demolition trench.
205	0.34	1.03	93.57	Black with red streaks cinder rich deposit of silty clay. Likely dumped deposit.
206	0.08	0.67	93.90	Redeposited sandy silty clay covering trench below (202).
207	-	0.82	93.51	Natural geological layer - soft pale yellow sandy clay.
208	-	0.67	93.90	Cut feature visible in south-eastern extent of Trench 2 (Unexcavated due to limited view).
209	-	0.67	93.90	Dark brown/black silty clay fill of cut feature [208] (Unexcavated)
210	0.10	0.88	93.69	Black deposit composed of cinder and coal found within north-east sondage, below (206).
211	-	0.67	93.90	Deposit similar to (210). Can be seen underlying (206).
212	-	0.67	93.90	Deposit similar to (210) Can be seen underlying (206).

Table 4: Trench 2 Context Register

4.2.6 Trench 2 mostly contained deposits of modern dumping and demolition. The uppermost demolition deposit (102) covered the entire trench to a depth of 0.57m BGL, 93.21m aOD and was composed of dark brown silty clay containing large quantities of demolition material including glazed fire surround bricks in various colours, all stamped “Bratt Colbran” or “Well Fire Co.” (Figure 9).

4.2.7 An undulating deposit of redeposited mottled dark yellow sandy silty clay (206) was found to be underlying demolition deposit (202). (206) covered the entire trench at a depth of 0.58m BGL, 93.21m aOD and six features were identified as being cut into (206). However, upon investigation (205), (210), (211) and (212) were found to be dumped deposits of red and black cinder below (206) and these deposits had been revealed as a result of machine excavation of the trench removing undulations in the surface of (206) (Figures 10 and 11).

4.2.8 A linear cut demolition/robber trench [204] was identified on a north-east to south-west alignment before turning a right angle to the south-east at the south of the trench. [204] had straight vertical edges with a flat base and was filled by redeposited pale yellow sandy clay (203) (Figure 12).

4.2.9 A cut feature [208] was also identified in the south-east portion of the trench which was filled by dark brown/black silty clay (209). However, due to the limited view afforded by the trench, this feature was not excavated.

4.2.10 A sondage measuring 0.70m x 0.50m was hand excavated in the north-east corner of the trench. It was excavated through (206) and (210) which was overlying natural pale yellow sandy clay (207) at a maximum trench depth of 0.90m BGL, 92.89m aOD (Figure 11).

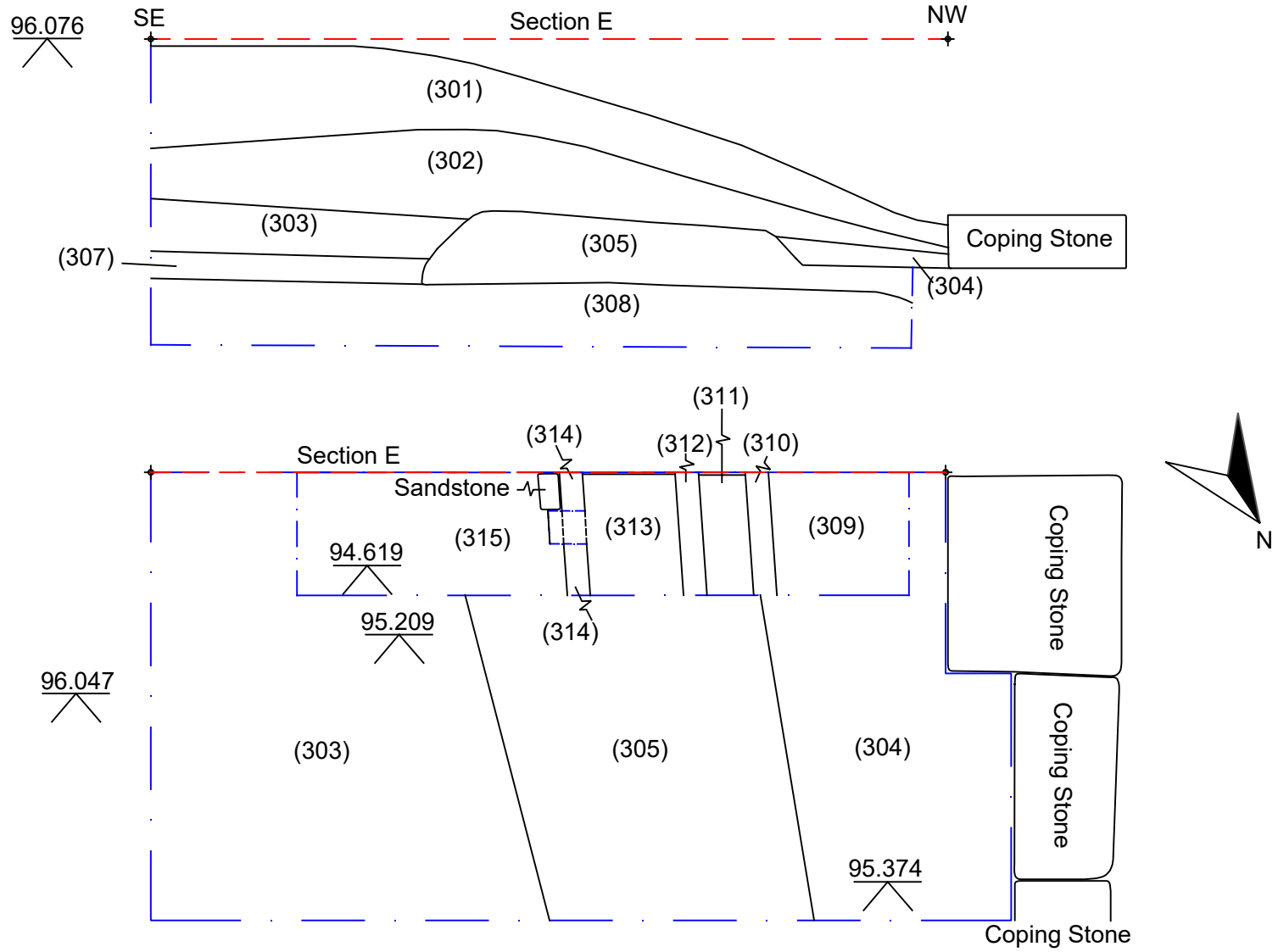
Figure 10: Bratt Colbran and Well Fire Company bricks retrieved from demolition deposit (202).

Figure 11: View of redeposited natural deposit (206) and linear feature [204]. Facing west – Scale 1x1m

Figure 12: View of sondage in Trench 2 (Section C). Facing north – Scale 1x1m.

Figure 13: (Board Mislabelled) View of feature (205) in Trench 2 (Section D). Facing north – Scale 1m.

Figure 14: Trench 3 Plans and Sections



Limit of Excavation

Section Line

Above Ordnance Datum Height (m)

Site name: Trevor Basin
Date: 16/04/2021
Drawn by: JT

Archaeological Research Services Ltd
Suite 1
First Floor
Dunham House
Cross Street
Sale
M33 7HH
Tel: 0161 9762544
www.archaeologicalresearchservices.com

Trench 3

Context No.	Max. Depth (m)	Depth to Top (BGL) (m)	Depth to Top (aOD) (m)	Description
301	0.40	0.40	95.68	Pale brown silty sandy clay topsoil – Accumulated soils.
302	0.30	0.70	95.38	Dark Brown silty sandy clay with frequent cinder and slag inclusions.
303	0.29	0.88	95.17	Red/brown silty loam to east of (305).
304	0.10	0.91	95.14	Black silty loam with frequent cinder and slag inclusions to the west of (305).
305	0.29	0.99	95.05	North-south aligned linear feature composed of slag, coal and clinker.
306	Void	Void	Void	Void
307	0.12	0.98	95.06	Mid brown sandy silt deposit below 303.
308	0.30	1.16	94.88	Mid-pale brown silty clay deposit below (305) and (307).
309	-	1.16	94.88	Coal rich deposit of dark brown/black silty clay to west of linear feature (310).
310	-	1.16	94.88	Linear feature composed of yellow clay on north-south alignment, parallel to (314).
311	-	1.16	94.88	Coal rich deposit of dark brown/black silty clay similar to (309) separated by (310) to the west.
312	-	1.16	94.88	Linear feature composed of pale brown silty clay on north-south alignment, parallel to (310)
313	-	1.16	94.88	Loosely compacted orange sand between (312) and (314).
314	0.06	1.22	94.82	Linear feature composed of yellow clay on north-south alignment, parallel to (310).
315	-	1.16	94.88	Coal rich deposit of coarse dark-brown/black silty clay

Table 5: Trench 3 Context Register

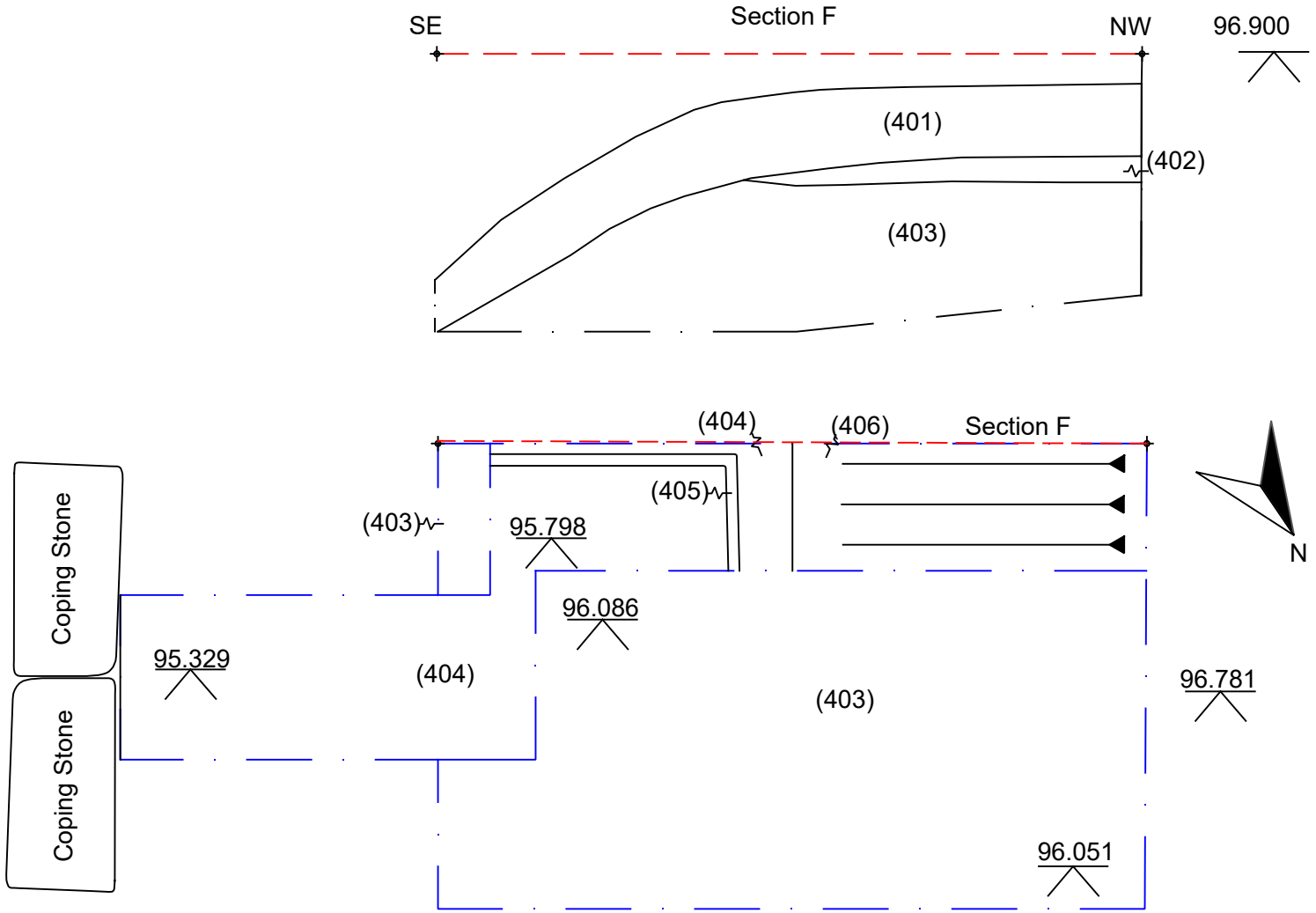
4.2.11 Trench 3 contained the buried remains of a linear dump deposit composed of slag, coal and clinker (305) on a north-south alignment at a depth of 0.57m BGL, 95.50m aOD (Figure 13).

4.2.12 A sondage measuring 2.5m x 0.5m was machine excavated against the north-east facing trench section wall. It was excavated through (305) and a dumped deposit of mid-pale brown silty clay (308) which was overlying three parallel linear features (310), (312) and (314) which were on a north to south alignment (Figure 14). The two outer linear features (310) and (314) were approximately 0.9m apart and were composed of friable, pale yellow clay overlying dark brown silty clay deposit (309) and fine orange sand deposit (313) respectively at a depth of 1.16m BGL, 94.62m aOD (Figure 14).

Figure 15: View of linear feature (305). Facing north-west – Scale 1m.

Figure 16: View of Trench 3 sondage (Section E) and linear features (310), (312) and (314). Facing south-west – Scale 1x1m.

Figure 17: Trench 4 Plans and Sections



Limit of Excavation

Section Line

Above Ordnance Datum Height (m)

Site name: Trevor Basin
Date: 16/04/2021
Drawn by: JT

Archaeological Research Services Ltd
Suite 1
First Floor
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Trench 4

Context No.	Max. Depth (m)	Depth to Top (BGL) (m)	Depth to Top (aOD) (m)	Description
401	0.30	0.30	95.68	Pale brown silty sandy clay topsoil – Accumulated soils.
402	0.18	0.48	95.50	Deposit of pale yellow sandy clay underlying (401).
403	0.34	1.07	95.16	Clinker and slag rich deposit of dark brown silty clay at a similar height to canal coping stones.
404	-	1.07	95.16	Coal rich deposit of dark brown/black silty clay.
405	0.09	-	95.16	Iron pipe on north-south and east-west alignment within deposit (404).
406	-	0.87	95.11	Coal rich deposit of dark brown/black silty clay with patches of yellow clay.

Table 6: Trench 4 Context Register

4.2.13 Trench 4 was excavated to a depth of 0.78m, 96.58 aOD and was excavated through dumped and accumulated deposits (401), (402) and (403) (Figure 15). A sondage measuring 2.5m x 0.50m was machine excavated against the north-east facing trench section wall to a depth of 1.07m BGL, 95.80 aOD (Figure 16). The sondage revealed a dumped deposit composed of dark brown / black silty clay (404) at the south-east of the sondage, which contained a large iron pipe (405) (Figure 16). The sondage also revealed a deposit of coal rich dark brown / black silty clay with yellow clay inclusions (406), similar to deposit (309) in Trench 3, at the north-west of the sondage which sloped to the south-east and was found to be underlying (404).

4.2.14 A second sondage measuring 1.6m x 0.6m was hand excavated to the east of the trench and was excavated to the level of the coping stones of the eastern terminus arm of the central pier, 0.20m BGL, 95.32m aOD. The sondage revealed that dumped deposit (404) extended to the south-east of the trench and abuts the canal coping stones.

Summary

4.2.15 The evaluation trenches mostly identified deposits of modern demolition and dumping. Trenches 1 and 2, particularly contained deposits of demolition, likely from structures depicted on historic mapping in this area. Trenches 3 and 4 mostly contained deposits consistent with dumped or accumulated soil. However, the parallel linear features at the base of Trench 3 have the potential to be connected with former railway tracks.

Figure 18: View of dumped deposit (403). Facing north-west – Scale 1x1m.

Figure 19: View of Trench 4 sondage (Section F) and deposits (404), (405) and (406). Facing south-east. Scale 1x1m.

5 DISCUSSION

5.1 Site Context

5.1.1 These works were carried out in advance of the submission of a planning application for the relocation of the Anglo Welsh boat hire base from its current location to the south of Scotch Hall Bridge to a new location north of the bridge, an area which until recently was occupied by Jones The Boats boat hire centre.

5.1.2 The works have the potential to contribute towards research topics identified in the Research Framework for the Archaeology of Wales for the North East Wales: Industrial Wales 1750-1899 (Gerrard and Bailey 2017).

5.2 Summary of archaeology present

5.2.1 The archaeological evaluation revealed three features of archaeological interest:

- Trench 1 contained a single course of bricks (103) at the north-western extent of the trench at a depth of 0.61m BGL, 95.49m aOD, and a hardstanding surface (105) at a similar depth. These features may have been associated with *c.*1836 structures depicted on historic mapping to the west of the trench (Brown 2020).
- Trench 3 contained three parallel linear features (310), (312) and (314) on a north-south alignment at a depth of 1.16m BGL, 94.88m aOD. These linear features may be connected with railway tracks depicted on historic mapping (Brown 2020).

5.3 Significance

Industrial Housing / Institutes, Theatres, Pubs

5.3.1 The features uncovered in Trench 1 are unlikely to be of more than local significance. However, the results of the evaluation suggest the potential for further archaeological remains pertaining to *c.*1838 housing, and a Public House to survive in the west of the PDA, in the vicinities of Trench 1 and Trench 2. Any such remains may be of local to regional significance based on their potential to contribute towards the regional research framework.

Transport (Canals, Railways/Tramways)

5.3.2 The results of the evaluation suggest that there is a low potential for physical remains of railways to survive within the PDA. The parallel linear features uncovered in Trench 3 have been tentatively linked to railway tracks depicted on historic mapping of the PDA. However, no remains of the tracks, or finds which might confirm these features as being linked to former railway tracks, were recovered during the evaluation. Therefore, these features are considered to be of negligible significance. Any remains of railway tracks in areas outside of the evaluation area would likely be of local to regional significance based on their potential to contribute towards the regional research framework.

6 PUBLICITY, CONFIDENTIALITY AND COPYRIGHT

6.1.1 Any publicity will be handled by the client.

6.1.2 ARS Ltd will retain the copyright of all documentary, photographic and video material under the Copyright, Designs and Patent Act (1988).

7 STATEMENT OF INDEMNITY

7.1.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

8 ARCHIVE

8.1.1 A paper and digital archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, which will be deposited with The Canal and River Trust

8.1.2 The archive will follow the recommendations provided by CIfA's (2020) '*Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives'*, and the Society of Museum Archaeologists' (1993) '*Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*'.

8.1.3 A set of annotated, illustrative pictures of the site and watching brief area is contained within the digital archive.

8.1.4 An OASIS online record http://ads.ahds.ac.uk/project/oasis/ has been initiated and completed for this work and all parts of the OASIS online form completed for submission to the HER. This will include an uploaded pdf version of this report. In addition, a copy of this report will be deposited with the Clwyd-Powys Archaeological Trust.

9 ACKNOWLEDGEMENTS

9.1.1 ARS Ltd would like to thank the Canal and Rivers Trust for commissioning this work. We must also acknowledge the assistance of Mark Walters at Clwyd-Powys Archaeological Trust and Will Davies at CADW.

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APPENDIX I CONTEXT DESCRIPTION TABLE

Trench No.	Context Number	Feature Number	Context Type	Length (m)	Width (m)	Depth (m)	Finds	Context Description	Palaeoenvironmental Residues	Estimated Date
1	101		Deposit	Site	Site	0.18		Hardstanding surface of white/grey rubble and slate chippings. Upper layer of trench.		Modern
1	102		Deposit	Trench	Trench	0.59		Black/dark brown demolition deposit containing frequent CBM.		Modern
1	103		Structure	1.03	0.18	0.08		Single course of machine made bricks at north-west of trench.		Modern
1	104		Deposit	1.33	0.63	0.03		Thin and friable grey concrete surface overlying bricks (103).		Modern
1	105		Deposit	Trench	Trench	0.10		Compacted hardstanding, possible yard surface of rubble and silty clay.		Modern
1	106		Structure	8.00	0.45	0.45		Grey concrete foundation (?) block within south-west facing section.		Modern
1	107		Cut	1.00	0.56	0.15		Probable demolition cut, rectangular in shape cut through (102) and (105).		Modern
1	108		Fill	1.00	0.56	0.15		Fill of [107] - mottled yellow sandy silty clay redeposited natural.		Modern
1	109		Deposit	-	-	-		Natural geological layer - soft pale yellow sandy clay.		Modern
1	110		Deposit	Trench	Trench	0.11		Found in section of cut [107] – dark brown/black silty clay underlying (105)		Modern
1	111		Deposit	Trench	Trench	0.29		Similar to (110) – dark brown/black silty clay underlying (105).		Modern
2	201		Deposit	Trench	Trench	0.20		Hardstanding surface of white/grey rubble and slate chippings. Upper layer of trench.		Modern
2	202		Deposit	Trench	Trench	0.49	Fire Surround Bricks	Dark brown demolition deposit containing frequent CBM.		Modern

2	203		Fill	0.30	3.70	0.21		Fill of foundation/demolition trench cut [204]. Redeposited pale yellow sandy clay.		Modern
2	204		Cut	0.30	3.70	0.21		Right angled linear cut foundation/demolition trench.		Modern
2	205		Deposit	0.64	0.80	0.24		Black with red streaks cinder rich deposit of silty clay. Likely dumped deposit.		Modern
2	206		Deposit	Trench	Trench	0.20		Redeposited sandy silty clay covering trench below (202).		Modern
2	207		Deposit	-	-	-		Natural geological layer - soft pale yellow sandy clay.		Modern
2	208		Cut	1.00	0.10	-		Cut feature visible in south-eastern extent of Trench 2 (Unexcavated due to limited view).		Modern
2	209		Fill	1.00	0.10	-		Dark brown/black silty cl2ay fill of cut feature [2208] (Unexcavated)		Modern
2	210		Deposit	0.90	0.50	0.10		Black deposit composed of cin2der and coal found wit2hin north-east sonda2ge, below (206).		Modern
2	211		Deposit	0.24	0.20	-		Deposit similar to (210). Can be seen underlying (206).		Modern
2	212		Deposit	0.30	0.15	-		Deposit similar to (210) Can be seen underlying (206).		Modern
3	301		Deposit	Trench	Trench	0.40		Pale brown silty sandy clay topsoil – Accumulated soils.		Modern
3	302		Deposit	Trench	Trench	0.30		Dark Brown silty sandy clay with frequent cinder and slag inclusions.		Modern
3	303		Deposit	2.00	1.50	0.29		Red/brown silty loam to east of (305).		Modern
3	304		Deposit	2.00	1.40	0.20		Black silty loam with frequent cinder and slag inclusions to the west of (305).		Modern
3	305		Deposit	2.00	1.44	0.28		North-south aligned linear feature composed of slag, coal and clinker.		Modern
Void	306	Void	Void	Void	Void	Void	Void	Void	Void	Void

3	307		Deposit	1.06	2.00	0.12		Mid brown sandy silt deposit below 303.		Modern
3	308		Deposit	2.00	2.46	0.30		Mid-pale brown silty clay deposit below (305) and (307).		Modern
3	309		Deposit	0.80	0.80	-		Coal rich deposit of dark brown/black silty clay to west of linear feature (310).		Modern
3	310		Deposit	0.80	0.20	0.06		Linear feature composed of yellow clay on north-south alignment, parallel to (314).		Modern
3	311		Deposit	0.80	0.21	-		Coal rich deposit of dark brown/black silty clay similar to (309) separated by (310) to the west.		Modern
3	312		Deposit	0.80	0.10	0.04		Linear feature composed of pale brown silty clay on north-south alignment, parallel to (310)		Modern
3	313		Deposit	0.80	0.44	-		Loosely compacted orange sand between (312) and (314).		Modern
3	314		Deposit	0.80	0.20	0.06		Linear feature composed of yellow clay on north-south alignment, parallel to (310).		Modern
3	315		Deposit	0.80	1.26	-		Coal rich deposit of coarse dark-brown/black silty clay		Modern
4	401		Deposit	Trench	Trench	0.30		Pale brown silty sandy clay topsoil – Accumulated soils.		Modern
4	402		Deposit	Trench	Trench	0.18		Deposit of pale yellow sandy clay underlying (401).		Modern
4	403		Deposit	Trench	Trench	0.34		Clinker and slag rich deposit of dark brown silty clay at a similar height to canal coping stones.		Modern
4	404		Deposit	3.20	0.80	0.14		Coal rich deposit of dark brown/black silty clay.		Modern
4	405		Deposit	1.90	0.10	0.10		Iron pipe on north-south and east-west alignment within deposit (404).		Modern
4	406		Deposit	2.00	0.80	-		Coal rich deposit of dark brown/black silty clay with patches of yellow clay.		Modern

APPENDIX II OASIS FORM

OASIS DATA COLLECTION FORM: Wales

Printable version

OASIS ID: archaeol5-419567

Project details

Project name	An Archaeological Evaluation at Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham
Short description of the project	These works were carried out in advance of the submission of a planning application for the relocation of the Anglo Welsh boat hire base from its current location to the south of Scotch Hall Bridge to a new location to the north of the bridge which until recently was occupied by Jones The Boats boat hire centre. Part of the proposed development area comprises part of the Pontcysyllte Aqueduct and Canal Scheduled Monument and the works also had the potential to contribute towards research topics identified in the Research Framework for the Archaeology of Wales for the North East Wales: Industrial Wales 1750-1899.
Project dates	Start: 23-03-2021 End: 08-04-2021
Previous/future work	Not known / Not known
Type of project	Field evaluation
Monument type	BRICK WALL Modern
Significant Finds	NONE None
Methods & techniques	"Sample Trenches","Targeted Trenches"
Development type	Not recorded
Prompt	Voluntary/own interest
Position in the planning process	Pre-application

Project location

Country	Wales

Site location	FLINTSHIRE MARITIME (BELOW MLWS) Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham
Postcode	LL14 3SG
Study area	84 Square metres
Site coordinates	SJ 27215 42453 52.974168669782 -3.084032092187 52 58 27 N 003 05 02 W Point

Project creators

Name of Organisation	Archaeological Research Services Ltd
Project brief originator	Clwyd-Powys Archaeological Trust
Project design originator	Archaeological Research Services Ltd
Project director/manager	Dr David Underhill
Project supervisor	Joseph Tong

Project archives

Physical Archive recipient	to be agreed later
Physical Contents	"other"
Digital Archive recipient	to be determined
Digital Contents	"none"
Digital Media available	"GIS","Images raster / digital photography","Spreadsheets","Text"
Paper Archive recipient	to be determined
Paper Contents	"none"
Paper Media available	"Context sheet","Drawing","Matrices","Photograph","Plan","Report","Section","Survey "

Entered by	Joseph Tong (joseph.tong@archaeologicalresearchservices.com)
Entered on	16 April 2021

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APPENDIX III WRITTEN SCHEME OF INVESTIGATION

Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham: Written Scheme of Investigation for Archaeological Evaluation

ARCHAEOLOGICAL
RESEARCH SERVICES LTD
Digging with Purpose

Angel House, Portland Square, Bakewell, Derbyshire, DE45 1HB

www.archaeologicalresearchservices.com

Prepared on behalf of:	Canal & River Trust
Date of compilation:	March 2021
Compiled by:	Dr David Underhill
Checked by:	Rueben Thorpe MCIfA FSA
Planning Reference:	N/A
Local Authority:	Wrexham Borough County Council
Archaeological Trust:	Clwyd-Powys Archaeological Trust
Site central NGR:	SJ 27215 42453

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1 INTRODUCTION

1.1 Project and Planning Background

1.1.1 This document comprises a Written Scheme of Investigation (WSI) for a programme of archaeological works at Trevor Basin, Pontcysyllte Aqueduct World Heritage Site, Wrexham (Fig. 1). It outlines the proposed methods of investigation to be used by Archaeological Research Services Ltd (ARS Ltd) for undertaking initial evaluation trenching and overburden removal ahead of further, more extensive evaluation trenching. This is in advance of the submission of a planning application for the relocation of the *Anglo Welsh* boat hire base from its current location to the south of Scotch Hall Bridge to a new location to the north of the bridge which until recently was occupied by *Jones The Boats* boat hire centre. The results of these investigations will help to further inform a Heritage Impact Assessment which is also being produced as part of the application.

1.1.2 It should be noted that part of the proposed development area comprises part of the *Pontcysyllte Aqueduct and Canal* Scheduled Monument (hatched in purple on Figures 2 and 3) and therefore comes under the auspices of CADW, whilst the remainder of the proposed development area comes under the auspices of the Clwyd-Powys Archaeological Trust (CPAT); both of these organisations have commented upon the scope of the works and have agreed to the scheme presented here.

1.2 Location, Land-Use, and Geology

1.2.1 The 'red line boundary' of the proposed development area (PDA) is yet to be finalised, but the project area is contained wholly within the Canal & River Trust's Land Ownership to the north of Scotch Hall Bridge, which is the area edged in blue on Figure 1. This covers an area of *c*.1.2ha, centered upon the two terminal arms of the Llangollen Canal separated by a central pier. There is a dock on the western terminal, and at the eastern terminal there is a blocked junction bridge to the now infilled branch canal originally built to serve the Plas Kynaston Colliery and a former loading dock wide enough for a single boat where goods were transferred to and from the Ruabon Brook Railway.

1.2.2 To the west of the western terminal is the former location of the *Jones the Boats* hire centre, which has recently been demolished, although some foundations and low walling associated with this survive. Immediately to the north of the footprint of the former building is an area of hard standing previously used as a car park, which is accessed via a trackway with an entrance at the north end of the site. Either side of this access route at the north of the site are overgrown areas of scrub, whilst further to the south the areas alongside the towpaths are grassed and benches have been placed adjacent to the bridge over the now infilled private branch canal and former loading dock. The central pier is also overgrown with scrub and trees, although scrub removal was underway at the time of the site walkover.

1.2.3 A plan of the site prior to the recent demolition of the *Jones The Boats* hire centre, and a plan of the proposed development are provided in Appendix 1.

1.2.4 The underlying solid geology of the PDA comprises undifferentiated *Pennine Lower* and *Middle Coal Measures Formations*; frequent coal seems within alternating grey Mudstone, grey Siltstone and Sandstone. This is Sedimentary Bedrock formed approximately 310 to 319 million years ago in the Carboniferous Period when the local environment was dominated by swamps, estuaries and deltas. This is overlain by a superficial deposit of *Devensian Till,* a Diamicton formed during the last Glacial maximum between ~29 and ~14 kya (BGS 2020, Glasser *et al*. 2018).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 The archaeological and historical background to Trevor Basin has been discussed in detail in the previous Heritage Statement (Brown 2020). A brief summary is offered here:

2.2 Nothing is reported from the site from any period prior to the arrival of the canals. Although the landscape does have sparse occurrences of Later Prehistoric and Medieval artefacts these will not be found during this phase of the works.

2.3 By January 1800 the plans to connect the western canal onward to Chester where abandoned and as a consequence the Trevor Basin was established, finished by November 1805. A new iron railway ran from here to surrounding collieries and quarries, and on to Cefn Mawr where a crane was required to switch the contents from trucks running on these newer T shaped rails to the old style plateways (L shaped rails).

2.4 In the 1860's the tramway was converted into a standard gauge railway and an engine shed was constructed to house an ex-L&NWR shunting engine. This shed was located just north-north-east of the central pier (in line with the eastern arm of the canal, an extension of which it straddled) with two lines passing through it; one terminating on the central pier. This was quite a large stone built structure some 125ft 6 inches by 17ft 9 inches with a gable styled slate roof and skylights. An additional line ran down the western side of the shed splitting into two additional terminals on the central pier, whilst a further line bisected into five additional sidings to the western side of the basin. These were weaned down until just two remained in 1912.

2.5 A survey of 1896 revealed that the engine shed and adjacent transfer warehouse had a store, coaling platform and goods section, in addition to a sand-furnace and external water tower. In September 1902 these facilities were closed and by 1920 all canal interchange traffic had ceased at the Trevor Basin with its deterioration meaning that the waterway became increasingly hard to navigate. The railways where also slowly wound down, finally closing on 1st January 1968, with the tracks being lifted over 1969-70.

2.6 There is a chance that Trevor Basin, and more specifically the engine shed may be the location of Pickering and Rowlands patented Boat lift. In 1794 the Ellesmere Canal Committee ordered that a place be found for its construction, and

by 1796 the local press were reporting its successful trials. Whilst the actual location remains unidentified one argument is that the photographic evidence shows the engine shed to have walls of uneven thickness and with the potential for several alterations over the years, including perhaps utilizing elements of the boat lift.

3 AIMS AND OBJECTIVES

3.1 Regional Research Aims and Objectives

3.1.1 The proposed archaeological works have the potential to identify the presence of evidence pertinent to overarching research themes and sub-themes identified in the *Research Framework for the Archaeology of Wales for the North East Wales: Industrial Wales 1750-1899* (Gerrard and Bailey 2017).

3.1.2 These include the following sub-themes and sub-theme topics within the overarching theme *Individuals & Society:*

Sub-theme	**Topics within theme**
Transport	Canals Docks/ports/harbours covered by: Railways/Tramroads
Extraction	Coal Stone Quarrying
Infrastructure	Warehousing & storage Industrial housing Social infrastructure, work Institutes, theatres, pubs
Power	Water Steam Mineral Electricity Gasworks
Economy	Employment Company Tourism

Table 1: Relevant key aspects within Individuals & Society theme which could be addressed.

3.1.3 In summary, the identified priority research objectives for North-East Wales which the proposed archaeological works have the potential to contribute to include the assessment of:

- 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.

- The significance, form and archaeological survival of transport corridors – turnpikes, government-sponsored roads, canals, railways – their engineering, the industries they served and the settlements they sustained.
- The significance, form and archaeological survival of major dock systems; their context and significance in terms of similar sites elsewhere in the world.

3.2 Specific Archaeological Aims and Objectives

3.2.1 The aim of this archaeological evaluation is to assess the survival of any below ground archaeological remains that may be present and to begin evaluating the impact of the planned development. Specific focus shall be given to recovering information that could help to contribute to the overarching research themes and sub-themes identified in section 3.2 above.

3.2.2 The following objectives will contribute towards accomplishing this aim.

- Identify the presence/absence of archaeological features and deposits within the site, particularly with relation to surviving features associated with:
    - The construction phase of the Ellesmere Canal (e.g. Is there any evidence for the presence of an experimental boat lift or any other construction techniques or methods? Are any artefacts present which could shed light upon the lives of those employed in the work?).
    - The operational phase of the Ellesmere Canal/Shropshire Union Canal/Llangollen Canal) (e.g. Is there any canal furniture surviving buried beneath later deposits? Are any artefacts present which could shed light upon the lives of those employed on the canal?).
    - The Ruabon Brook Tramway and/or Pontcysyllte Branch Railway (e.g. Are there any tracks or other associated features surviving along the central pier or wharf? Are any upstanding or buried features associated with the former Engine Shed/Warehouse present within the proposed parking bays?) Can any evidence be identified which might support theories regarding the presence of an experimental boat lift at this location? Are any artefacts present which could shed light upon the lives of those employed on the railways?).
    - Buildings on or adjacent to the canal wharf (e.g. Are there any buried remains associated with the Beer House or workers' housing surviving in the vicinity of the proposed new shop, offices and facilities building, and the gas bottle store? Is there any evidence for an apparent earlier phase of housing on the wharf, as depicted on the 1838 tithe map in the vicinity of the proposed north-western parking bays?).
- Record all archaeological features and deposits encountered.

- Sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating and quality of preservation.
- Gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance and potential to inform the aim outlined in section 3.1 above.

4 METHOD STATEMENT

4.1 Coverage

4.1.1 Four trenches shall be excavated across the site, in addition to constant monitoring of overburden stripping (Figures 2 & 3).

4.1.2 Trench 1 will be 18x2m and is situated to evaluate part of the planned drainage associated with the proposed new shop, offices, and facilities building, in addition to targeting part of the footprint of a building first identified on the 1865 Plas Kynaston Estate map, and possibly related to the Canal Tavern as recorded in the censuses, recorded as 'Beer House' on the 2nd Edition OS map.

4.1.3 Trench 2 shall be 3x2m and target the footprint of the proposed parking bays, assessing whether any of the trackways identified on historic mapping survive.

4.1.4 Trench 3 is situated on the central reservation within the scheduled monument. A 5x2m trench which targets trackways depicted on historic mapping.

4.1.5 Trench 4 is also within the Scheduled monument and is a 3x2m trench targeting one of the trackways running down the central reservation depicted on historic mapping, and also assessing the potential impact on the canal wall coping stones.

4.1.6 The location, size and number of trenches may be subject to change following additional consultation with the Canal & River Trust, the Clwyd-Powys Archaeological Trusts Development Control Archaeologist and/or Cadw as appropriate, with any changes being discussed and agreed in writing by all parties prior to implementation.

4.2 Excavation Methodology

4.2.1. All elements of the archaeological evaluation will be carried out in accordance with the Chartered Institute for Archaeologist (CIfA) *Code of Conduct* (2019) and will follow the CIfA's *Standards and Guidance for Archaeological Evaluation* (2020a).

4.2.2. All staff employed on the project will be suitably qualified for their respective project roles and have substantial experience of archaeological excavation and recording. All staff will be made aware of the archaeological importance of the area

surrounding the site and will be fully briefed on the work required by this specification.

4.2.3 The topsoil or recent overburden will be removed down to the first archaeological horizon, in successive level spits, by a suitable mechanical excavator fitted with a toothless ditching bucket. If significant archaeological features are identified, the Development Control Archaeologist for Clwyd-Powys Archaeological Trust will be notified and a decision taken as to the best method of proceeding.

4.2.4 ARS Ltd will ensure that no plant or machinery will be operated in the immediate vicinity of any archaeological remains until they have been recorded.

4.2.5 All further excavation shall be undertaken by hand, excepting areas of known modern hardstanding/tarmac where a mini excavator fitted with a concrete breaker might be utilised.

4.2.6 Stripped areas will be appropriately cleaned using hand tools in order to expose the full nature and extent of archaeological features and deposits.

4.2.7 All spoil removed during ground works will be scanned visually to recover small finds. Any finds so recovered will be recorded and their location noted on a site plan at a relevant scale. The finds will be retained and recorded.

4.2.8 All archaeological features will be planned and sectioned as a minimum objective.

4.2.9 Isolated, discrete features such as pits and postholes not belonging to structures or industrial activities will be 50% sampled, although if they produce artefacts then provision is made for full excavation.

4.2.10 Sampling of linear features such as ditches and gullies relating to agricultural activity will be sufficient to determine their character, stratigraphy and relationship to other features and attempts made to obtain dating evidence.

4.2.11 Any deposits relating to funerary/ritual activities, such as burials and cremation deposits, will be 100% excavated. Domestic/industrial activity (such as walls, postholes, floors, hearths) will be sufficiently excavated to understand their form and function and to recover potential dating evidence and artefact and ecofact assemblages.

4.2.12 Area deposits such as buried soils or middens, will be hand excavated at a minimum 10%. Subsequent excavation by machine will be considered. Large intrusions, such as reservoirs, will be sufficiently excavated by machine, within safe limits, to provide information on their character.

4.2.13 Limited representative samples of bricks from brick-built structures will be retained for specialist analysis where appropriate.

4.2.14 Discovery of any human remains will be reported to the coroner and excavated following receipt of the appropriate Ministry of Justice Guidelines.

4.2.15 For deposits that have potential for providing environmental or dating evidence, a minimum of 10 litres of sample will be taken, or 100% of the sample if smaller. This material will be floated and passed through graduated sieves, the smallest being a 500µ mesh. Should other types of environmental deposits be encountered appropriate specialist advice will be sought and an appropriate sampling strategy devised. Samples will be assessed by a suitable specialist with provision for further analysis as required. Advice from Cadw will be taken as appropriate.

4.2.16 In all instances sampling strategies will be in accordance with guidelines issued by Historic England's *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from sampling and recovery to post excavation* (Campbell *et al*. 2011) and will be targeted in order to provide an evaluation of the type of preservation that may be present.

4.2.17 All site operations will be carried out in a safe manner in accordance with ARS Ltd's health and safety policy. A risk assessment will be prepared before commencement on site.

4.3 Recording

4.3.1 Site recording will follow standard conventions outlined in the *Site Recording Manual* of Museum of London Archaeology (MoLA) (2002).

4.3.2 The site will be accurately tied into the National Grid and located on a 1:2500 or 1:1250 OS base map of the area. The site will be recorded using a single context planning system in accordance with the ARS Ltd field recording manual.

4.3.3 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro-forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings will be drawn where required at 1:50, 1:20 and 1:10 scales, as appropriate.

4.3.4 The stratigraphy of the site will be recorded even where no archaeological deposits have been identified.

4.3.5 All archaeological deposits and features will be recorded with above ordnance datum (AOD) levels.

4.3.6 A photographic record will be produced. All images will be taken in black and white print and digital format and will contain a graduated photographic scale. The main photographic archive will comprise 35mm b/w SLR print film, supplemented by digital SLR images taken as RAW data files. A register of all photographs will be kept. A selection of working shots will be taken to demonstrate how the site was investigated and what the prevailing conditions were like during excavation. Record photographs will be printed at a minimum of 5" x 4". Photographic prints will be mounted in appropriate archival stable sleeves.

4.3.7 Where stratified deposits are encountered, a 'Harris' matrix will be compiled.

4.4 Find Processing and Storage

4.4.1 All finds processing, conservation work and storage of finds will be carried out in compliance with the Chartered Institute for Archaeologists' *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2020b) and those set out by UKIC (1990).

4.4.2 Artefact collection and discard policies will be appropriate for the defined purpose.

4.4.3 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

4.4.4 All small finds will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.

4.4.5 During and after the excavation all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.

4.4.6 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum at Wrexham.

4.5 Post-excavation Assessment and Report

4.5.1 The aims of the post-fieldwork phase of the project are to:

- produce a concise post-excavation assessment strategy
- prepare an orderly archive of the records of the fieldwork
- clean, conserve and prepare artefacts/ecofacts for long-term museum storage
- prepare specialist reports as appropriate
- prepare a report describing the basic nature of the archaeological deposits discovered
- outline further works/ mitigation which may be required as a condition of reserved matters permission.

4.5.2 The written report will include as a minimum the following.

- A non-technical summary.
- Introduction and objectives of the evaluation.
- Methodology of the evaluation.
- An objective summary statement of results.
- A phased stratigraphic discussion of the archaeological features.
- An interpretive discussion of the results, placing them in a local and regional framework and an assessment of the significance of any remains.
- Appropriate supporting illustrations, including a site plan, trench and section plans, feature sections and plans and a phased site plan as appropriate.
- A site location plan at 1:2500 or 1:10000 on an OS base map as appropriate and a phased interpretation of the site as appropriate.
- The results of an assessment of artefacts, ecofacts and industrial residues carried out by suitable specialists, who will be furnished with relevant contextual and stratigraphic information.
- If sufficiently significant remains are recovered then an analysis of the above based upon the specialist assessment recommendations.
- In the event that significant remains are encountered, then a timetable for wider dissemination will be included in the report.
- A detailed context index and supporting data in tabulated form or in appendices.
- An index to and the proposed location of the archive.
- The proposed date of deposition of the archive.
- References.
- Photographs of work in progress on the site.

4.5.3 Within the report:

- all plans will be clearly related to the national grid
- all levels will be quoted relative to ordnance datum.

4.5.4 An OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be undertaken for the project, after client confidentiality has been waived.

4.5.5 One bound copy of the final report with a digital copyin PDF/A formatwill be deposited with the Clwyd-Powys Regional Historic Environment Record (HER) and the National Monuments Record of Wales (NMRW). A copy of the report shall also be uploaded as part of the OASIS record.

5 PUBLICATION

5.1 In consultation with the Clwyd-Powys Archaeological Trust's Development Control Archaeologist, a summary report may be submitted to the Flintshire Historical Society Journal within two years of the completion of the project.

5.2 In the event of significant remains being encountered and excavated, there may be the need for a more formal publication than in the summary form. In this instance a suitable programme and timetable for publication and dissemination will be discussed and agreed upon by all stakeholders. This may include a note or short article in an appropriate archaeological journal.

6 ARCHIVE SELECTION STRATEGY

6.1 Selection of the working project archive will be guided by the aims and objectives as set out in this WSI (section 3 above), the *Research Framework for the Archaeology of Wales for the North East Wales: Industrial Wales 1750-1899* (Gerrard and Bailey 2017) and the requirements of Wrexham Museum.

6.2 Documentary Archive

6.2.1 All original documentary material created and collected during the archaeological works will be selected for inclusion in the final archive. Any duplicates (including photocopies) of original documents will not be included in the final archive.

6.1.2 The deselected documents will be recycled, subject to final checks by ARS Ltd's Post-Excavation and Archives Officer.

6.3 Digital Archive

6.3.1 All digital data created over the course of this project will be collected, stored, and selected for final deposition in line with the project's Data Management Plan. The key types of digital data produced will include the following.

Type	Data
Text	Digital copies of the Written Scheme of Investigation and final report
Images	Site photography, scans of site drawings, graphics for reports, digitised drawings
Finds Data	Finds reports and tables, conservation records, images

Table 3: Digital data produced during the project

6.1.3 Only final copies of any digital data will be selected and deposited in the final project archive.

6.1.4 Digital data to be included in the final archive will be reviewed during the post-excavation and archiving phase of works.

6.1.5 The project manager and digital archive repository will be consulted on the fate of any deselected material. Deselected material is expected to include duplicates and any non-final versions of data. Digital photographs will be assessed during post-excavation works and the deselected material will be stored on the ARS Ltd server for a period before being reviewed and disposed of.

6.4 Material Archive

6.4.1 The selection of material finds for final deposition in the archaeological archive will be decided in collaboration with the finds specialist during the post-excavation phase, based on addressing the aims and objectives of the project set out in this WSI, the *Research Framework for the Archaeology of Wales for the North East Wales: Industrial Wales 1750-1899* (Gerrard and Bailey 2017) and the requirements of Wrexham Museum.

6.4.2 No material will be discarded without processing and recording. Deselected material can be retained as part of a handling or teaching collection, returned to the landowner, or discarded as agreed by the landowner, specialists, collecting museum and planning archaeologist.

7 Archive Deposition

7.1 A digital, paper and artefactual archive, which will consist of all primary written documents, plans, sections, photographs and electronic data will be submitted to Wrexham Museum in a format agreed in discussion with the Clwyd-Powys Archaeological Trust's Development Control Archaeologist and the Museum Curator.

7.2 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive (see 4.4.2 – 4.4.5 above) in line with the Chartered Institute for Archaeologist' *Standards and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (2020c).

7.3 If they are forthcoming as a result of the work, a full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be supplied to the HER and deposited with the archive as digital images on a CD ROM.

7.4 The Clwyd-Powys Archaeological Trust's Development Control Archaeologist will be notified on completion of fieldwork, with a timetable for reporting and archive deposition.

7.5 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

7.6 An OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and, as the project proceeds, information will be added to this record. Key fields will be completed on Details, Location and Creators forms. All parts of the OASIS online

form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

7.7 The Clwyd-Powys Archaeological Trust's Development Control Archaeologist will be notified of the final deposition of the archive.

8 TIMETABLE, STAFFING AND RESOURCES

8.1 ARS Ltd is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA). Registered Organisations are continuously assessed to ensure that the highest standards of work are carried out, in line with the *Code of Conduct* of the CIfA (2019). In addition to our key management staff, who have achieved the highest grade of corporate CIfA membership, many of our field staff also hold corporate grade membership.

8.1 All staff employed on the project will be suitably qualified and experienced for their respective project roles and have practical experience of archaeological excavation and recording. All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification. Each member of staff will be fully conversant with the aims and methodologies and will be given a copy of this WSI to read.

8.2 This project shall be managed by Dr David Underhill, Project Manager at ARS Ltd. The Fieldwork Project Officer will be Joseph Tong , Project Officer at ARS Ltd.

8.3 An outline timetable for project implementation is presented below

Task	Commencement date
Excavations	23 March 2021
Report	Immediately following completion of groundworks

Table 2. Outline timetable for project implementation

8.4 Specialist analysis will be carried out by appropriately qualified specialists as detailed (subject to availability).

- Flint and prehistoric pottery: Dr Robin Holgate MCIfA
- Romano-British pottery: Ian Rowlandson
- Samian ware: Dr Gwladys Monteil
- Medieval and post-medieval pottery: Dr Chris Cumberpatch/Dr Robin Holgate MCIfA
- Clay pipes: Mike Wood MCIfA
- Plant macrofossils and charcoals: Elise McLellan

- Human and animal bone: Milena Grzybowska
- Radiocarbon dating: Prof Gordon Cook (SUERC)
- Finds conservation: Vicky Garlick (Durham University)

9 Access

9.1 ARS Ltd will afford access to the Clwyd-Powys Archaeological Trust's Development Control Archaeologist or his representative at all times, for the purposes of monitoring the programme of archaeological works.

9.2 ARS Ltd will maintain regular communication with the Clwyd-Powys Archaeological Trust's Development Control Archaeologist to ensure that the project aims and objectives are met.

9.3 Should complex archaeological features be discovered, requiring detailed recording, a contingency will be required. The allocation of this contingency will be agreed with the client and the Clwyd-Powys Archaeological Trust's Development Control Archaeologist. Consultation between the client, ARS Ltd and the Clwyd-Powys Archaeological Trust's Development Control Archaeologist will be required at the end of the programme of works to ensure that all the below ground archaeology has been adequately recorded.

9.4 ARS Ltd will liaise with the Clwyd-Powys Archaeological Trust's Development Control Archaeologist at regular intervals throughout the course of the work:

Mark Walters
Development Control Archaeologist
Planning Services
Clwyd-Powys Archaeological Trust
41 Broad Street
Welshpool
Powys
SY21 7RR

Direct Tel: 01938 553670
Email: markwalters@cpat.org.uk

10 Changes to Methodology or Work Programme

10.1 Changes to the approved methodology or programme of works will only be made with the prior written approval of the Clwyd-Powys Archaeological Trust's Development Control Archaeologist.

11 General Items

11.1 Health and Safety

9.1.1 All work will be carried out in accordance with *The Health and Safety at Work Act 1974*. Specific health and safety policies exist for all out workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork and will be read and signed by all operatives. ARS Ltd retains Peninsula as its expert health and safety consultants and the appointed Health and Safety Officer for the company is Mark Potter.

11.2 Insurance Cover

11.2.1 ARS Ltd has full insurance cover for employee liability (£10 million) public liability (£10 million), professional indemnity (£10 million) and all-risks cover.

11.3 Community Engagement and Outreach

11.3.1 Any opportunities for engaging the local community in any archaeological findings should be sought, for example a guided site tour and/or dissemination of information via the Canal and River Trust and/or ARS Ltd website and social media.

11.4 Publicity and Copyright

11.4.1 Any publicity will be handled by the client. ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

10 References

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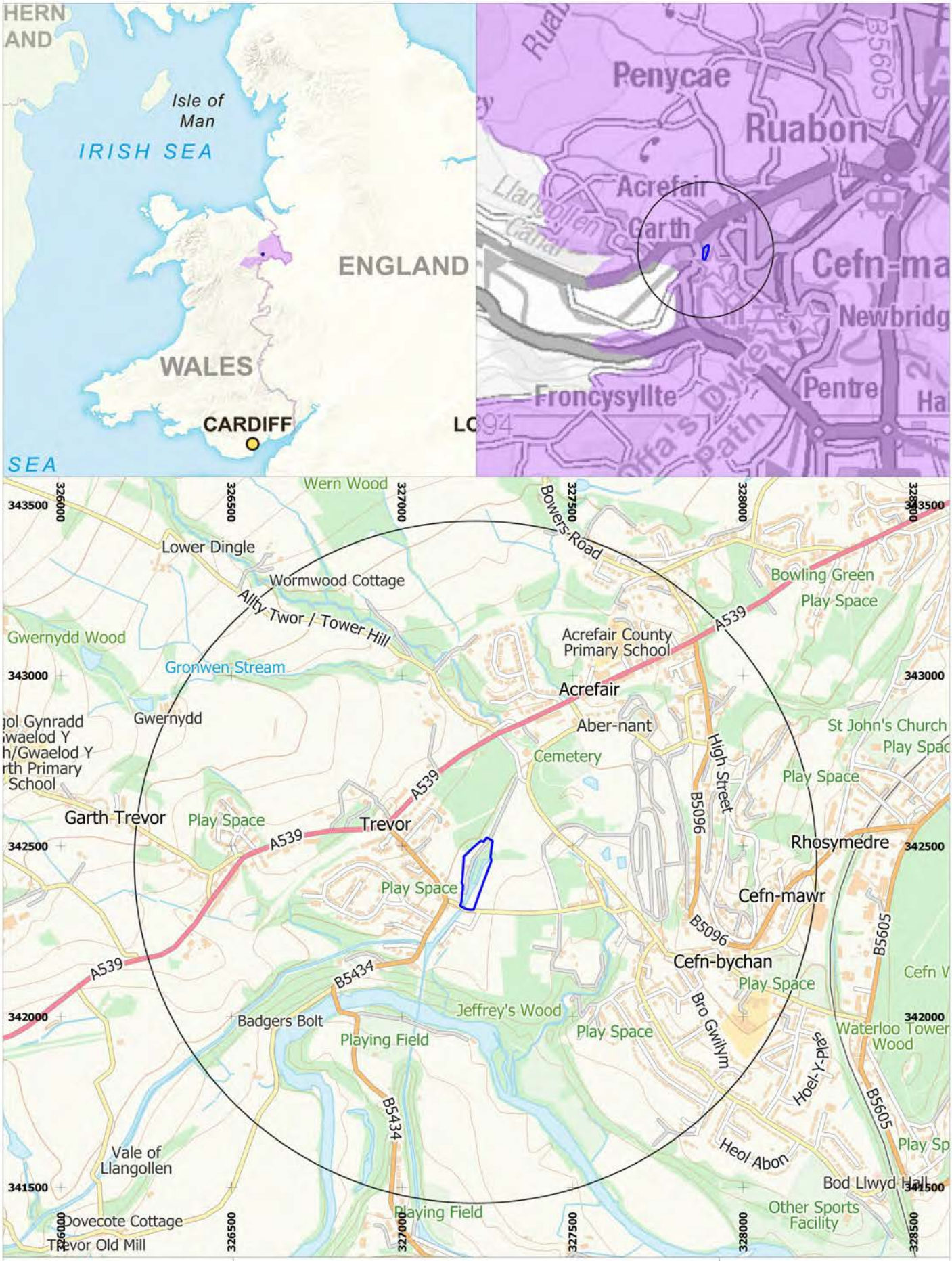
APPENDIX 1: FIGURES



Site name: Trevor Basin, Pontcysyllte Aqueduct WHS
Date: March 2020
Drawn by: AB
Scale: Varies

Figure 1:
Site location

N

Wrecsam/ Wrexham | 1km study area | Assessment area

Archaeological Research Services Ltd

Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Tel: 01629 814540

ARCHAEOLOGICAL RESEARCH SERVICES LTD

www.archaeologicalresearchservices.com

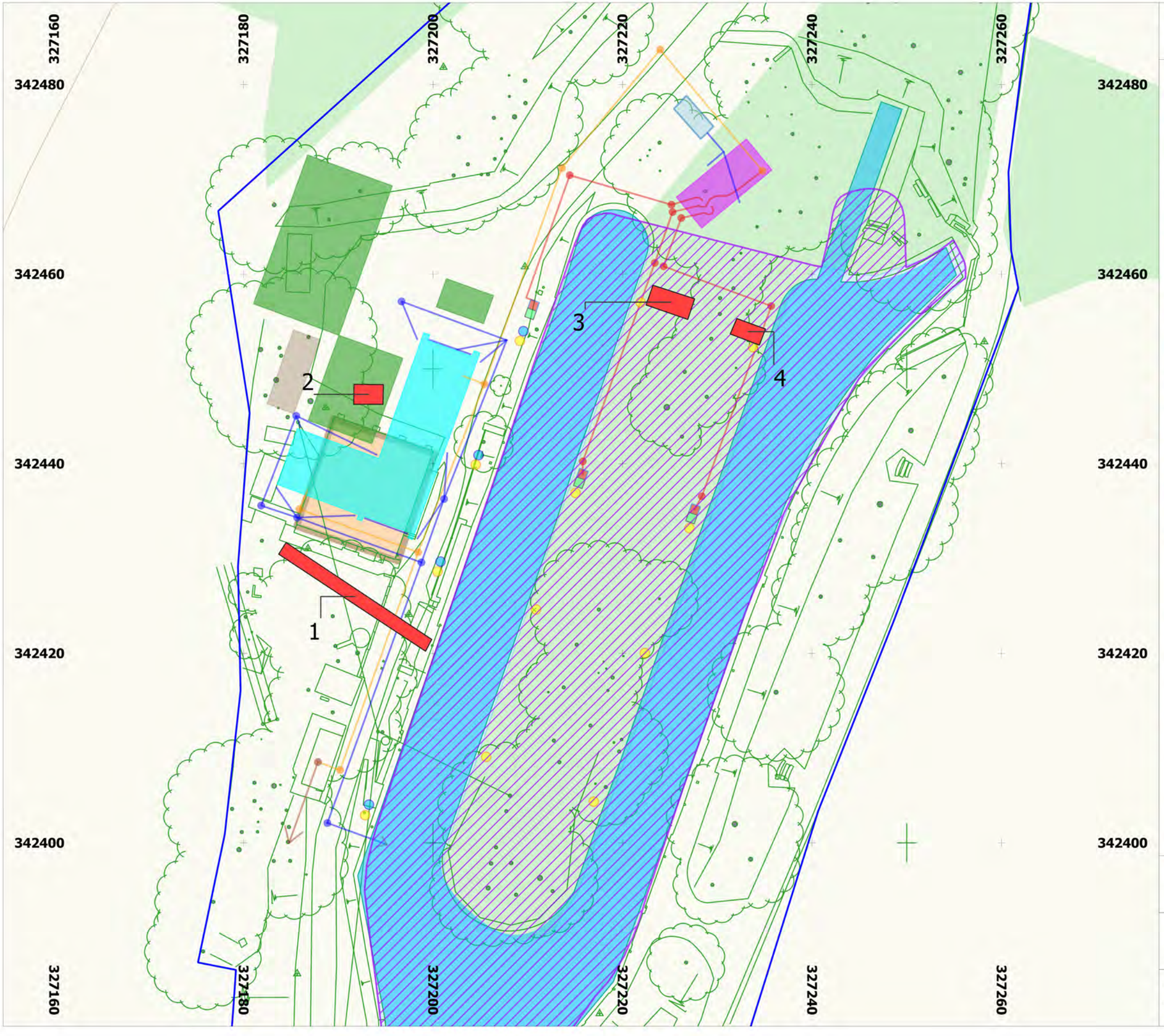


Figure 2: Proposed trench plan

- Assessment area
- Canal
- Scheduled Monument
- Proposed trenches
- Site operator's facilities
- Gas bottle and bin store
- Parking area
- Pump-out building and fuels store
- Foul service point
- Fuel service point
- Electricity service point
- Water service point
- Surface water drainage route
- Surface water inspection chamber
- Foul water drainage route
- Foul water inspection chamber
- Foul water pump out route
- Pump out run inspection chamber
- Existing foul water drainage route
- Existing foul water inspection chamber
- Soak away chamber

0 5 10 15 20 25 m

N

Site name: Trevor Basin, Pontcysyllte Aqueduct WHS
Date: March 2021
Drawn by: DU
Scale: 1:400 @ A3

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Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Tel: 01629 814540

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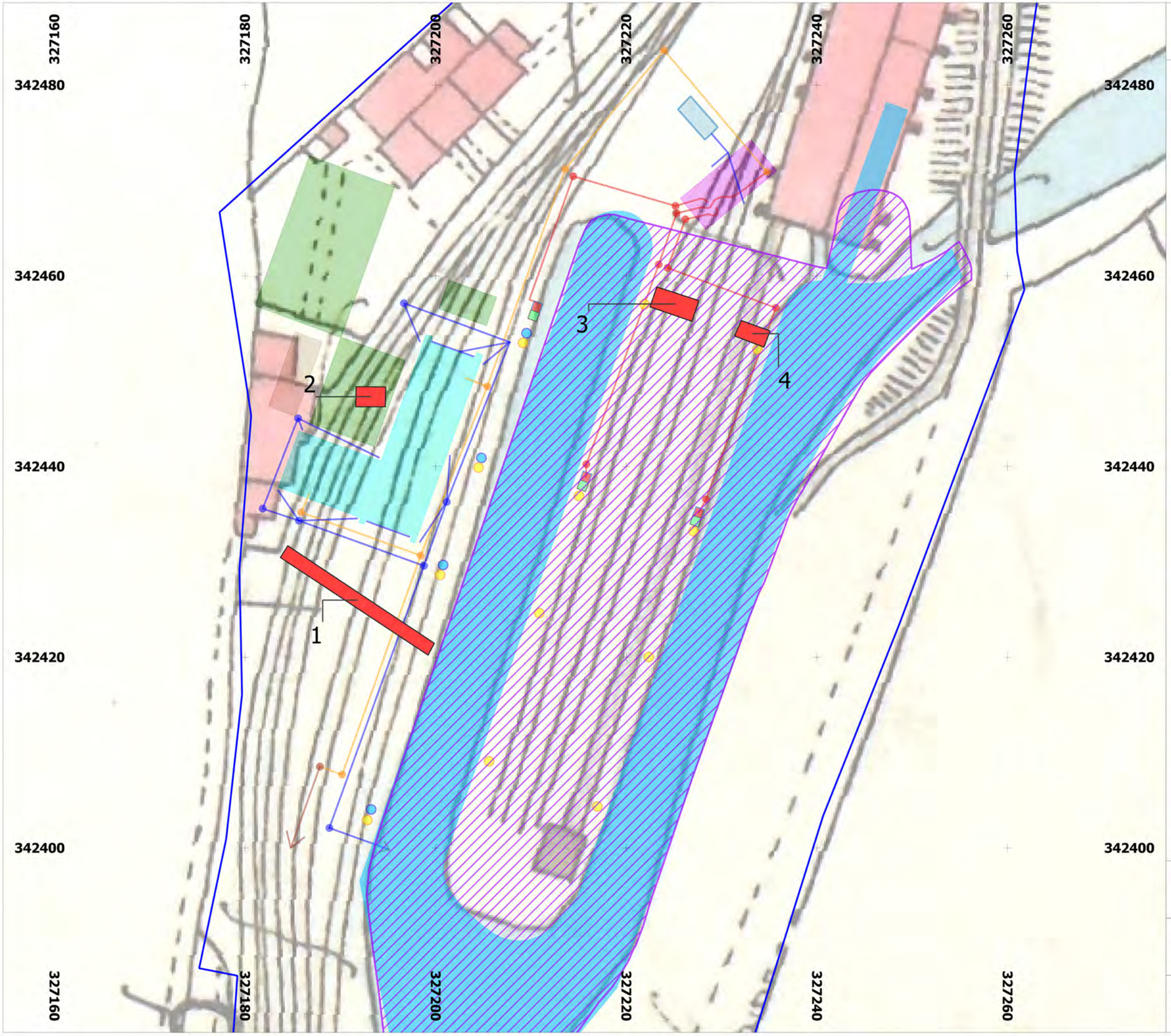
Figure 3: Proposed trench locations overlaid with the OS 1st edition (1880).



- Assessment area
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0 5 10 15 20 25 m

N

Site name: Trevor Basin, Pontcysyllte Aqueduct WHS
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