



Written Scheme of Investigation

Archaeological Building Investigation & Recording

prior to repair works on the

'Robertstown Tram Road Bridge'
(Grade II Listed and Scheduled Monument GM347)

NGR: SN 997 036

Listed Building Consent:

Planning Ref:

Prepared for: Rhondda Cynon Taf CBC

On behalf of:

HRS Wales Project No: 216

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1 Introduction

- 1.1 This Written Scheme of Investigation (WSI) details the program of archaeological works and mitigation to be undertaken prior to emergency repair works on the Grade II Listed Robertstown Tram Road Bridge, Trecynon, Aberdare, Glamorgan (NGR: SN 997 036).
- 1.2 The archaeological works will consist of a Level III Archaeological Building Investigation & Recording on the Grade II Listed Robertstown Tram Road Bridge, Trecynon, Aberdare, Glamorgan (NGR: SN 997 036).
- 1.3 This WSI has been prepared by Richard Scott Jones (*BA, MA, MCI(A) [5423]*) of Heritage Recording Services Wales (henceforth HRS Wales) for Rhonda Cynon Taf County Borough Council (RCTCBC).

2 Site Location and Description (*see Figure 1*)

- 2.1 The Robertstown Tram Road Bridge (NPRN: 34820 / PRN: 01096m / LB: 10894 / SM: GM347) crosses the Afon Cynon at SN 997 036, located approximately 6 Km west of Merthyr Tydfil and 2Km north of the centre of Aberdare, in the area of Llwydcoed. The cast iron tram road bridge was erected on 1811 by the Abernant Foundary. It was built to carry the Penydarren tramroad from Abernant across to the Trecynon area and is probably one of the oldest of its type in the world. The bridge is approximately 3m in width and approximately 10.5m in length with rubble stone abutments. The decking is constructed from cast iron plates on four arched lattice beams. Simple modern iron parapets, one upright is possibly reused and inscribed Abernant 1811. The top of the deck is ridged which provided horses with grip when pulling across the bridge. The stone abutments are slightly curved outwards at their ends. The bridge now forms part of a public footpath.

3 Development Proposals

- 3.1 Although some restoration work was undertaken on the bridge in the 1980s, a recent structural survey of the bridge in 2018 found that the structure of the bridge had failed. Critically, all four arch elements were found to have full sectional cracks at mid-span and as a result the bridge has buckled laterally. In addition to this, the cast iron has corroded throughout leading to areas of section loss and the disconnection of one of the ties between arch elements. Added to this it was also noted that the base of the northeast abutment had become undermined by the river, which was a cause for immediate concern.
- 3.2 In order to address the immediate problem, emergency repairs to underpin the damaged northeast abutment were undertaken by placing proprietary grout filled bags into the voids beneath the masonry toe which will be pumped with grout until full. Further repairs are to be undertaken with this phase of work

4 Planning Background

- 4.1 In response to the proposed repair works by RCTCBC, it was advised by Cadw that an archaeological assessment will need to be undertaken on the bridge prior to any repair works. This archaeological work should take the form of a building survey equivalent to an Historic England Level 3 building recording

5 Historical & Archaeological Background

- 5.1 The cast iron bridge across the River Cynon between Trecynon and Robertstown is one of the oldest surviving cast iron 'railway' bridges in the world. It was built by the Aberdare Canal & Navigation Company to carry the Llwydcoed Tramroad that ran from Hirwaun to the canal head at Cwmbach, south east of Aberdare. Little remains of the tramway's structure, though its route has survived as a footpath.
- 5.2 Tramroads were precursors to the early railways, horses rather than steam locomotives pulled loaded wagons along railed tracks. The Llwydcoed Tramroad, engineered by George Overton (1774-1827), connected the Aberdare Canal with the Hirwaun Ironworks and the Hirwaun to Abernant Tramroad, enabling goods transportation in the Cynon Valley.
- 5.3 The bridge at Robertstown is most likely also the work of Overton, though there is so far no definitive proof for this. The bridge spans 10.7m between stone abutments on the river banks and its soffit is some 3.7m above the river bed. Four trussed cast iron lattice beams support the level deck, and spring from continuous cast iron brackets built into the abutments. Each arched truss is only 76mm thick, and rises from a depth of more than 1.5m at the abutments to just 305mm at midspan.
- 5.4 The bridge abutments are about 4m wide and more than 3.7m high from pediment to coping. They were constructed with obvious skill, of dressed stone bedded in mortar, with large stones for the quoins and returns and alternating courses of large, small and thin stones elsewhere.
- 5.5 The deck is 11.2m long and 3m wide, and consists of 17 parallel cast iron plates. There are 15 plates of 710mm and two end plates of 254mm. Transverse ridges on the deck provided grip for horses' hooves.
- 5.6 The cast iron railings on each side are fixed to posts attached to the trusses independently of the deck. The central stanchion is inscribed "Abernant 1811". No rails or fixing shoes from the tramway remain on the bridge, though imprints of the fixings show that it carried a 1.27m (4ft 2in) gauge single track.
- 5.7 The tramway closed in 1900, and the bridge is now used as a pedestrian footbridge between Trecynon and Robertstown. It has been modified with steps constructed at the north abutment to accommodate the adjacent A4059 trunk road.
- 5.8 The route of the Llwydcoed Tramroad, between Hirwaun and Cwmbach, is now a footpath. On the 3km section east of the bridge is an embankment and the remnants of stone sleeper blocks in their original positions.
- 5.9 In the 1980s, the bridge was restored and the railings replaced, with the date stamped original stanchion was reinstated. In 1991, it became Grade II listed. Robertstown Tramway Bridge was made a scheduled ancient monument (number Gm347) in 2008, and was given a blue plaque as part of the Rhondda Cynon Taf heritage trail. On 22nd March 2010, an information panel was unveiled near the bridge, sponsored jointly by ICE Wales Cymru and Rhondda Cynon Taf County Borough Council.

6 Mitigation

6.1 Prior to the repair works, the bridge will undergo a program of building recording equivalent to Historic England level 3. This is an analytical record, which involves three parts:

Level 3 Archaeological Investigation and Recording of Standing Buildings

- i) An introductory written account of the bridge, an analytical description followed by a systematic account of the bridge origins, development and use. Use of readily available documentary sources, such as early Ordnance Survey maps and published sources, to include any useful plans and drawings.
- ii) A full high resolution photographic / photogrammetric survey record of the bridge of all elevations and vaults, as well as detail photographs of any other significant features.
- iii) A drawn measured record of all elevations and significant features associated with the bridge. This will include the annotation of baseline elevations with all architectural features. To also include interpretation of any phasing and repairs.

6.2 The reasons for the standing building recording are:

- To seek a better understanding, compile a lasting record, analyse the findings/record, and then disseminate the results.

7 Methodology and Sources

General

7.1 It is proposed that the initial archaeological building investigation and recording work will be undertaken by HRS Wales staff (Richard Scott Jones BA, MA, MCI(A) using current best practice in late February - early March 2020.

7.2 All work will be carried out by a suitably qualified archaeologist with relevant level membership of the Chartered Institute for Archaeologists (CIfA) and will follow the CIfA Standard and Guidance for an Archaeological Building Investigation & Recording (CIfA 2014).

Detailed

7.3 Contextual photographs will be appropriated of the bridge in both its wider and local context. All elevations will be recorded photographically and drawn records will be made of all elevations and features where deemed necessary. A detailed photographic record will also be made of any original architectural features.

Contingency Arrangements

7.4 In the event of significant archaeological features being discovered during investigative works that may be affected by the development proposals, then Rhondda Cynon Taf CBC, the conservation officer and a representative of Cadw will be notified and a meeting arranged to discuss the best way forward.

Recording

- 7.5 Recording will be carried out using HRS Wales recording systems (pro-forma context sheets etc), using a continuous number sequence for all contexts.
- 7.6 Any required plans and sections will be drawn to a scale of 1:50, 1:20 and 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate.
- 7.7 All features identified will be tied in to the both the OS National Grid and all local site and ground plans.
- 7.8 Photographs will be taken in digital format, using a 24 mega-pixel DSLR camera, with photographs stored in both RAW and high quality JPEG formats. All RAW formats will be exported into TIFF files in preparation for archiving.

Artefacts

- 7.9 It is not anticipated that any archaeological artefacts will be encountered or recovered during the course of the building investigation and recording work. However, as a contingency, if any portable artefacts are encountered that warrant attention and investigation then they will be cleaned and labeled using an accession number, which will be obtained from the local museum. A single number sequence will be allocated to all finds. The artefacts will be stored appropriately until they are deposited with a suitable local museum.
- 7.10 All finds of gold and silver will be removed to a safe place and the Environment Agency, DAT-DM and the local coroner informed, within the guidelines of the Treasure Act 1996.
- 7.11 Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator.

Environmental and technological samples

- 7.12 Given the nature of the archaeological work, it is not anticipated that any environmental or technological samples will need to be taken. However, should the need become apparent then these samples will be assessed and analysed by a suitable specialist, if deemed necessary.

Specialists

- 7.13 In the event of certain finds/features etc. being discovered, the site archaeologist may have to seek specialist opinion for assistance. Such specialists will be accessed either internally within HRS Wales itself or from an external source.

8 Post-Fieldwork Programme

Conservation

- 8.1 It is not anticipated that any artefacts will be encountered during the site recording. However, If any artefacts are discovered during the investigation works of the structure, then after agreement with all concerned parties, arrangements will be made for the long term conservation and storage of all artefacts in an appropriate local or county museum.

Archive

- 8.2 The site archive will be prepared in accordance with MORPHE (Historic England 2015). It will comprise all the data recovered during the fieldwork and shall be quantified, ordered and indexed and will be internally consistent. The paper archive will be deposited with the RCAHMW and all digital data will be archived in accordance with the Royal Commission on Ancient and Historic Monuments of Wales (henceforth RCAHMW) *Guidelines for Digital Archives* (2015). Any finds recovered during the investigation will be deposited with a suitable local museum.

Reporting

- 8.3 The results of the building investigation and recording work will be submitted in an illustrated and bound report, which will include the following material:
- Non-technical summary.
 - Written description of proposed development site;
 - Written Historic and Archaeological background of the Robertstown Tram Road Bridge, drawing on readily available documentary and cartographic sources;
 - Written descriptive account on the results of the standing building investigation and recording. Account of the structure being recorded, including descriptions of all elevations, including any internal features and ground plans;
 - Appendices: *Figures* (Location plans, Maps, Photo index plan, Annotated illustration plans of all elevations. All Plans and section drawings to include ground level, ordnance datum and vertical and horizontal scales. *Photos* (General setting photos, all elevations, detail photos of original features, fixtures and fittings etc ; a statement of the intent to deposit, and location of deposition, of the archive.
- 8.4 Copies of the final report will be submitted to the Rhonda Cynon Taf County Borough Council (RCTCBC) for approval. Following approval, a copy of the report will also be deposited with the regional historic environment record, in this case Glamorgan Gwent Archaeological Trust (GGAT). A copy of the report along with plans and drawings will be sent to Cadw. A further copy of the report along with the full archive will be forwarded to the RCAHMW.

Monitoring

- 8.5 Any changes to this written scheme of investigation that the contractor may wish to make after approval will be agreed in writing with the RCTCBC.
- 8.6 Representatives of RCTCBC will be given access to the site so that they may monitor the progress of the work. RCTCBC will be kept regularly informed about developments, both during the site works and subsequently during any post field works.

Archive Format & Deposition

- 8.7 The full site archive will be deposited within six weeks of the completion of the client report.
- 8.8 The paper/drawing/digital archive will be deposited with the RCAHMW at Aberystwyth, with the finds being deposited with the appropriate local museum. HRS Wales will agree the location and timing of the deposition of the archive before the contract commences.
- 8.9 The archive will include all site notes, documents, drawings, photographs, digital data and a copy of the final report and any prior draft versions. All of these items will be clearly quantified in tabular form

in an 'archive deposition statement' located at the rear of the clients report, and their ultimate location and proposed date of deposition stated.

9 Resources and timetable

Standards

- 9.1 The building investigation and recording will be undertaken by HRS Wales staff using current best practice.
- 9.2 All work will be undertaken to the standards and guidelines of the ClfA.

Staff

- 9.3 The project will be undertaken by suitably qualified HRS Wales staff. In this instance Richard Scott Jones (BA, MA, MCIfA) will be managing the project.

Equipment

- 9.4 The project will use existing HRS Wales equipment.

Timetable of archaeological works

- 9.5 It is anticipated that the building recording work will be undertaken in late February - early March 2020.

Health and safety

- 9.6 All members of staff will adhere to the requirements of the *Health & Safety at Work Act, 1974*, and the Health and Safety Policy Statement of HRS Wales.

Insurance

- 9.7 HRS Wales presently holds Public Liability Insurance up to £5,000,000 and Professional Indemnity Insurance up to £1,000,000.



Richard Scott Jones (BA, MA, MCIfA)

Date: 24th February 2020