

Archaeology Wales

A465 Diversions, Heads of the Valleys, Dowlais Top

Archaeological Watching Brief Report



By
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with Contributions by Juan Moreno &
Jessica Woolley


Report No. 2052


Archaeology Wales

A465, Heads of the Valleys, Dowlais Top

Archaeological Watching Brief Report

Prepared For: Western Power Distribution

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Non-Technical Summary

Archaeological monitoring was undertaken during November 2021 and January 2022, for the excavation of trenches to accommodate a new power cable and the construction of a new power cable tower between NGR SO 07786 08094 and NGR SO 07369 08454. The work was associated with the A465 diversions, Heads of the Valleys, Sections 5 to 6, Dowlais Top to Hirwaun. The site is located 3.4km north-east of Merthyr Tydfil town centre, just to the north of the residential area of Dowlais.

The purpose of the proposed archaeological mitigation works was to ensure that all buried artefacts and deposits are fully investigated and recorded if they are disturbed or revealed as a result of activities associated with the development.

The Watching Brief did not identify any archaeological features other than layers within the upper levels that may relate to the former Brecon & Merthyr Railway which ran alongside the northern part of the site.

All work was undertaken in accordance with the standards and guidelines of the Chartered Institute for Archaeologists (2020).

Crynodeb Annhechnegol

Cynhaliwyd gwaith monitro archeolegol yn ystod mis Tachwedd 2021 a mis Ionawr 2022, ar gyfer cloddio ffosydd i ddarparu ar gyfer cebl pŵer newydd ac adeiladu tŵr cebl pŵer newydd rhwng NGR SO 07786 08094 a NGR SO 07369 08454. Roedd y gwaith yn gysylltiedig â gwyradau'r A465, Blaenau'r Cymoedd, Adrannau 5 i 6, Dowlais Top i Hirwaun. Lleolir y safle 3.4km i'r gogledd-ddwyrain o ganol tref Merthyr Tudful, ychydig i'r gogledd o ardal breswyl Dowlais.

Diben y gwaith lliniaru archeolegol arfaethedig oedd sicrhau bod yr holl arteffactau a dyddodion claddedig yn cael eu hymchwilio a'u cofnodi'n llawn os cânt eu tarfu neu eu datgelu o ganlyniad i weithgareddau sy'n gysylltiedig â'r datblygiad.

Nid oedd y Briff Gwyllo yn nodi unrhyw nodweddion archeolegol ar wahân i haenau o fewn y lefelau uchaf a allai fod yn berthnasol i hen Reilffordd Aberhonddu a Merthyr a oedd yn rhedeg ochr yn ochr â rhan ogleddol y safle.

Gwnaed yr holl waith yn unol â safonau a chanllawiau'r Sefydliad Siartredig archaeolegwyr (2020).

1. Introduction & Planning Background

This report details the results of a programme of archaeological Watching Brief undertaken in association with excavation of trenches to accommodate a new power cable and the construction of a pylon tower. The groundworks were located between NGR SO 07786 08094 and NGR SO 07369 08454, A465 Heads of the Valleys, Sections 5 to 6, Dowlais Top to Hirwaun.

A WSI (Appendix II) was prepared by James Evans of Archaeology Wales for Western Power Distribution (Henceforth - the client) and approved by Glamorgan-Gwent Archaeological Trust - Archaeological Planning Management (henceforth - GGAT-APM) in their capacity as archaeological advisors to the Local Planning Authority (LPA). This set out the methodology for archaeological monitoring and recording of groundworks associated with the project.

The purpose of the archaeological mitigation is to ensure that all archaeological and historical components of the site are fully investigated and recorded if they are to be revealed as a result of activities associated with the development.

The project was managed by Archaeology Wales (AW) Project Manager John Davey PhD MCifA MIScT (RSci) with site fieldwork supervised by AW Supervisor Juan Moreno PhD, AW Project Supervisor Sam Pamment MA and AW Site Assistant Jessica Woolley MA, intermittently between the 22nd November 2021 and 14th January 2022.

All work was undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (2020). AW is a Registered Organisation with the CifA.

2. Site Description & Archaeological Background

The site is located approximately 3.4km north-east of Merthyr Tydfil town centre, just to the north of the residential area of Dowlais Top. The proposed cable route was excavated between NGR SO 07786 08094 and NGR SO 07369 08454. The southern end of the proposed route (NGR SO 07786 08094) is located to the south of the A465 interchange/roundabout at Dowlais Top. The northern end of the proposed route (NGR SO 07369 08454) is located to the north of the Dowlais Top to Hirwaun A465 carriageway, just to the west of the Asda supermarket (Figures 1 & 2). The immediate area of the proposed cable route is comprised of improved or rough enclosed pastureland.

The underlying geology of the site is composed of mudstone, siltstone and sandstone belonging to the South Wales Lower Coal Measures Formation. This sedimentary bedrock formed approximately 318 to 319 million years ago in the Carboniferous Period. This is overlaid by superficial deposits of till, Devensian - Diamicton. This was formed up to 2 million years ago in the Quaternary Period (BGS 2021).

The site is located within the Registered Historic Landscape of Merthyr Tydfil HLW (MGI) 2, and within HLCA 47 Dowlais Top. This area comprises a former industrial landscape associated with the Dowlais Ironworks and is an area of reclaimed industrial land that has now been redeveloped for modern commercial, retail and light industrial use.

There is evidence for prehistoric activity within the wider landscape, however this appears to be mainly on uplands further north, beyond the modern commercial redevelopment at Dowlais Top. This prehistoric activity consists of a series of field boundaries (GGAT04886m,

GGAT04904m & GGAT04947m), cairns (GGAT04893m & GGAT03139m), and enclosures (GGAT04892m).

Little is known of the area during the Romano-British period, research and excavations have tended to focus on Penydarren fort, which is close to the centre of Merthyr Tydfil. There is also very little known about the early medieval and medieval period of this area (Thomas 2020, pp. 11-12).

During the post-medieval period the area saw dramatic change. In the 1750s Merthyr Tydfil was a modest village, but by 1801 it was the largest town in Wales (Cadw, CCW & ICOMOS 1998, p. 47). This growth was fuelled by industry and the establishment of ironworks, such as the Dowlais Ironworks and the Cyfarthfa Ironworks. The town of Merthyr Tydfil and the surrounding area remain a potent example of an internationally renowned industrial landscape of the 18th and 19th century Wales (Cadw, CCW & ICOMOS 1998, p. 47).

The majority of the built heritage and archaeology surviving in this area relate to collieries, ironstone mines, quarries, railways, tramroads and other infrastructure related to industrial activity (Thomas 2020, p. 12). There are several post-medieval archaeological remains recorded within the vicinity of the proposed groundworks. To the north of the A465, and approximately 100m to the East of the cable route is a Grade II Listed Aqueduct (LB 80964). It was built between 1860 and 1865 to carry water to the nearby reservoir. There are two reservoirs just to the west of the cable route. The reservoirs are linked, the upper reservoir (GGAT03127m) is to the north of the A465 and the lower reservoir (GGAT03131m) to the south.

The cable route is likely to cross a former railway line belonging to Brecon & Merthyr Railway (Figure 2). This former railway is located to the north of the A465, and sections of an embankment associated with this railway are still intact (GGAT03126m & GGAT08009m).

3. Objectives

The objective of the archaeological mitigation is to identify, excavate, record, and analyse any significant archaeological remains that will be disturbed by the proposed development. As any such remains will be removed by development, preservation by record is required. This approach should help understand the broad pattern of settlement dynamics and how key elements of the archaeological landscape relate to each other spatially, functionally, and chronologically.

The objective of the watching brief was:

- to allow the investigation and recording of any archaeological features that are uncovered during the proposed groundworks within the application area.
- to provide the opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief are not sufficient to support the treatment to a satisfactory or proper standard.

This report is intended to provide a detailed account of all the archaeological watching brief work conducted during the installation of new cables at A465 Heads of the Valleys, Dowlais Top. Sufficient research has been undertaken to ensure that the results of this work are properly understood, interpreted and reported.

A full site archive will be produced, including project records, artefacts, ecofacts and any other sample residues and summaries of the context, artefact, and environmental records.

4. Methodology

4.1 Watching Brief

The excavations were carried out using a toothless grading bucket fitted to an 8-tonne tracked 360° mechanical excavator, provided by the principal contractor, intermittently between the 22nd November 2021 and 14th January 2022. Two continuous trenches were excavated for the laying of the new cables. The base of the existing pylon was also excavated to allow modifications to the tower to commence.

Day Sheets were maintained for each visit and photographs of progress and those with appropriate scales were taken throughout the Watching Brief using a 12MP digital camera. Plans and sketches of the excavation were drawn to the appropriate scale using regular conventions. All the deposits encountered were recorded by means of a continuous context numbering system and recorded using AW recording systems (pro-forma context sheets etc). All features and deposits are described in accordance with ClfA conventions. A register of all contexts and photographs was also made.

5. Results (Figures 3&4)

5.1. Trench 1 & 2 (Figures 3 & 4; Plates 1 – 3)

Two parallel trenches were excavated for the installation of the new electrical cables (Fig 3). The trenches measured 0.50m wide and between 1m and 1.3m deep. They were oriented approximately east to west, parallel to the A465, for 320m before turning north and passing under the A465 to connect with the existing pylon. In addition to this, two trial holes were excavated near to route of the cable run at the point where it passes under the existing A465. This was to investigate and ensure that any services relating to the reservoir did not lie directly in the path of the cable trenches.

The trenches were excavated by machine in 3-6m sections, with each section excavated to a depth of 1m, before a fine gravel was laid down and the cable pipes installed. The section was then backfilled before new sections were excavated.

The basal deposit recorded within both trenches appeared to be the natural geology (102). It consisted of a firm, mid-greyish brown/orange silty clay and contained occasional subrounded sandstone with occasional lenses of blue/grey mottled clay. The depth at which this deposit was recorded varied between 0.70m-0.80m and measured more than 0.10m thick as excavated in the base of the trench. This context is the same as (117).

During the excavation of the two trial holes a modern red brick structure (103) was uncovered cutting into the natural clay (102). This structure was laid out in a 1m x 1m square and measured less than 1m deep. It was bonded with cement and was 4-5 courses high. The structure is likely a modern manhole relating to the waterworks within the area (Plate 3). The Structure was overlain by a layer topsoil (100).

In the cable trenches, overlying (102)/(117) a redeposited clay/levelling deposit (116) was recorded. This consisted of a firm, mid-brown silty clay containing frequent large sub-rounded stone and lenses of re-deposited topsoil within the clay matrix. The deposit measured between 0.60m and 0.75m thick.

Cut into (116) was a pipe trench [109] for a modern service. The pipe trench had a u-shape profile with moderately steep sloping sides and was recorded as being 1.10m wide, 1m long and 0.75m deep. The pipe trench was backfilled with a dark grey sandy clay (110) containing frequent rubble and mudstone inclusions and measuring 0.75m thick. This modern service likely relates drainage leading to the nearby reservoir.

Capping the modern service was a layer of made ground (111) consisting of red sand and gravels measuring in excess of 1.10m wide and 1m long by 0.15m thick. A similar deposit (108) was also recorded in other sections of the trench, which suggest that this material is also being used as a made ground/levelling deposit across the site.

Overlying deposits (111) & (108) was a layer of coal mining waste (101) consisting of a loose dark blackish grey silty clay containing very frequent angular coal and slate waste and occasional large, rounded stone. The layer measured between 0.40m and 0.50m in thickness. This deposit covered almost the entirety of the site and results from the deposition of coal waste associated with historic mining activity in the area.

Overlying the coal tip deposit (101) and sealing the lower deposits was a layer of topsoil (100) consisting of soft, dark brown/black clay silt, with occasional large, rounded limestone, measuring 0.10m thick.

5.2. Trenches North of A465 (Figure 3, Plates 4 – 6)

Some additional 30m of cable trenching was also monitored to the north of the A465, which will connect the new cable route to the modified pylon. The deposits recorded in these trenches were similar to those noted in the cable trenches to the south.

The lowest deposit recorded was the levelling deposit (116) measuring between 0.50m - 0.80m thick. A layer of modern concrete (118) was recorded overlying deposit (116). This deposit measured c.3m long, 0.50m wide and 0.30m thick. This deposit was only recorded in in the southern end of western cable trench next to the A465 and therefore likely relates to the construction of the A465. Overlying this was a layer of topsoil (100) measuring 0.10m – 0.20m thick.

The absence of the coal waste (101) deposit in this area is likely due to its removal during the construction of, and subsequent improvement works to, the A465, as it is recorded further to the north (see 5.3 Test Pit 1).

Approximately 100m to the east of the cable route the Grade II listed Aqueduct (LB 80964) was identified under the modern footpath. This was not impacted by the cable trenching.

5.3. Area DD3A Test Pits 1 & 2 (Figures 3 & 4; Plates 7 & 9)

As part of the diversion of the power cables associated with the extension to the A465, one of the existing pylons was modified. This required new footings for the pylon to be excavated and monitored as part of the archaeological mitigation. Two test pits were excavated to the north and south of the existing footing. Test Pit 1 measured 1.5m wide, 5.9m long and 2m deep. Test Pit 2 measured 8m long, 6m wide and 1.75m deep.

No archaeological features were identified during the monitoring of these footings however the soil profile was recorded as follows:

In both test pits, the basal deposit encountered was the natural (106)/(115) consisting of a light grey, silty clay with rare small subrounded stone and grit. The deposit was recorded to be greater than 1m thick.

In Test Pit 1 this basal deposit (106) was overlain by a former soil horizon (105) consisting of a dark reddish brown, peaty silt with frequent rooting measuring 0.50m thick. This deposit was overlain by a layer of coal waste (107) consisting of loose, dark blackish grey silty clay containing very frequent angular coal and slate waste, measuring 0.30m thick. Deposit (107) was overlain by a layer of made ground (104) consisting of a loose, light brownish grey silty gravel measuring 0.20m thick. This deposit is modern and associated with the construction of the existing pylon and footpath.

In Test Pit 2, overlying the basal deposit (115) was an old subsoil (113) consisting of a mid-greyish brown, silty clay with rare, small, sub-angular stone measuring 0.30m in thickness. Above (113) was an old soil horizon (112) consisting of a loose dark grey/black loam with very frequent rooting and occasional sub-angular stone, measuring 0.20m thick. This was overlain by a made ground/levelling deposit (114) consisting of a light grey, silty clay, with occasional small sub-angular stone, measuring 0.45m thick.

Sealing all the deposits in both test pits was a layer of topsoil (100) measuring 0.10m thick.

6. Finds (Plates 10-11)

Very few finds were recorded during the monitoring works. However, a c.0.70m iron stake or bolt (Plate 10) and an iron tie bar from a rail track (Plate 11), along with a fragment of iron railway tracks were recovered from the deposit (101). The spike and the tie bar were retained, with the track discarded once identified. These finds are evidence of the site's industrial heritage and may derive from the former Brecon & Merthyr Railway.

7. Discussion

The Watching Brief was designed to help identify and record archaeological features or deposits that may be associated with the industrial and pre-industrial landscape of Merthyr. The monitoring focused on the excavation of two cable trenches and footings for the modification of an existing pylon.

The results of the watching brief failed to identify any discrete archaeological features relating to either the pre or industrial landscapes of Merthyr. Nevertheless, a substantial deposit of coal waste was recorded across the site. This can also be seen at surface level, through undulating topography of the site. The thickness of this spoil meant that the depth of the excavations along the cable route rarely penetrated the base of these deposits.

The Test Pits DD3A 1 & 2 failed to identify the remains of the former the Brecon and Merthyr Railway. The gravel deposit identified in Test Pit 1 (104) likely relates to the construction of the modern footpath rather than the former track bed of the railway. The 2nd edition (1901) OS mapping shows the line of running beneath the current location of the existing pylon. It is therefore possible that the section of Brecon and Merthyr Railway within the monitoring area may have been previously impacted during the construction of the existing pylon or may lie under the modern footpath.

The Grade II listed Aqueduct (LB 80964) was identified c.100m to the East of the pylon, under the modern footpath however, this was not impacted by the works. This structure along with the artefacts recovered, does however, provide evidence pointing to to the area's industrial past including the presence of the Brecon & Merthyr Rail.

8. Acknowledgements

Archaeology Wales would like to thank Western Power Distribution for their help and co-operation during the course of the project.

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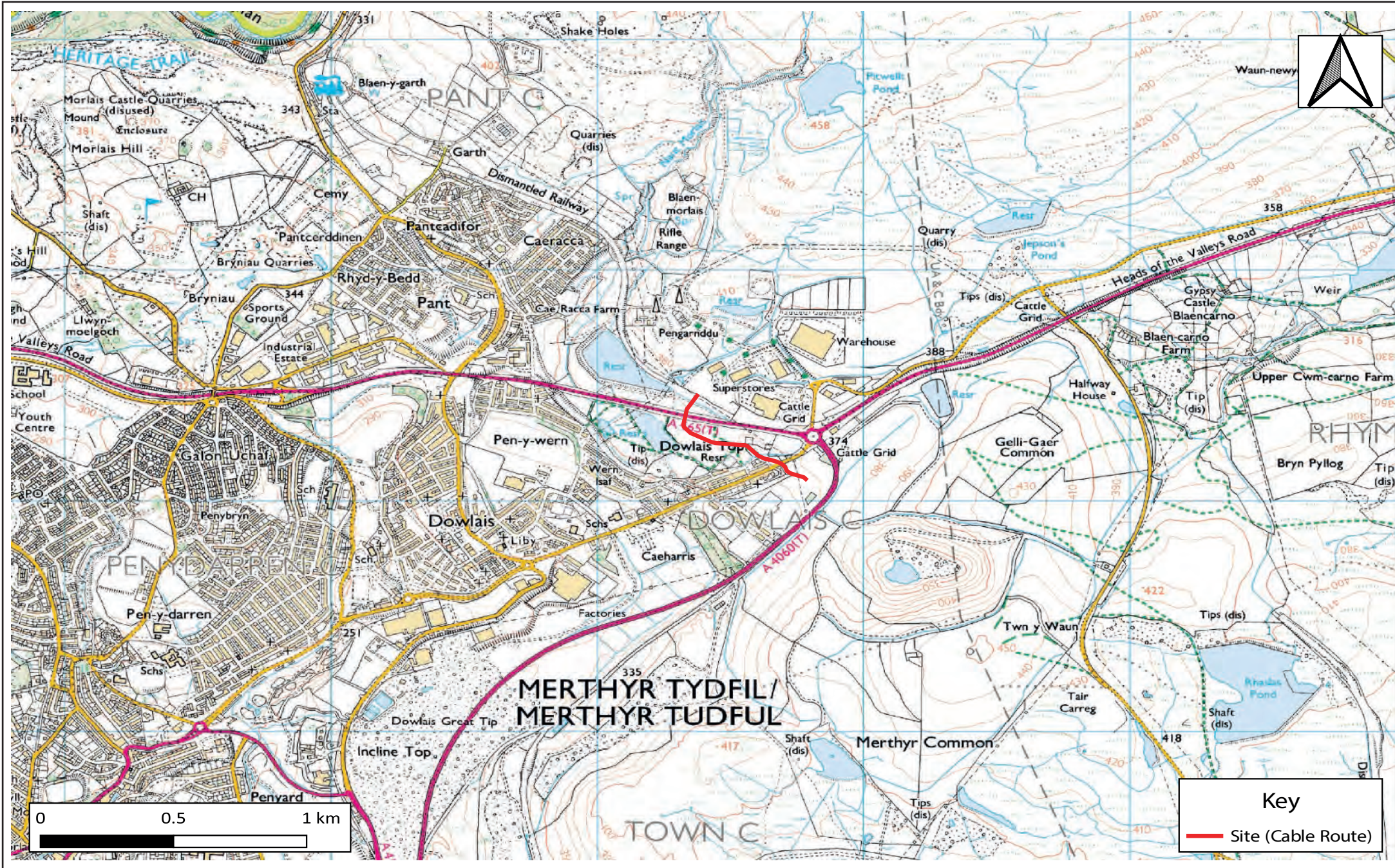
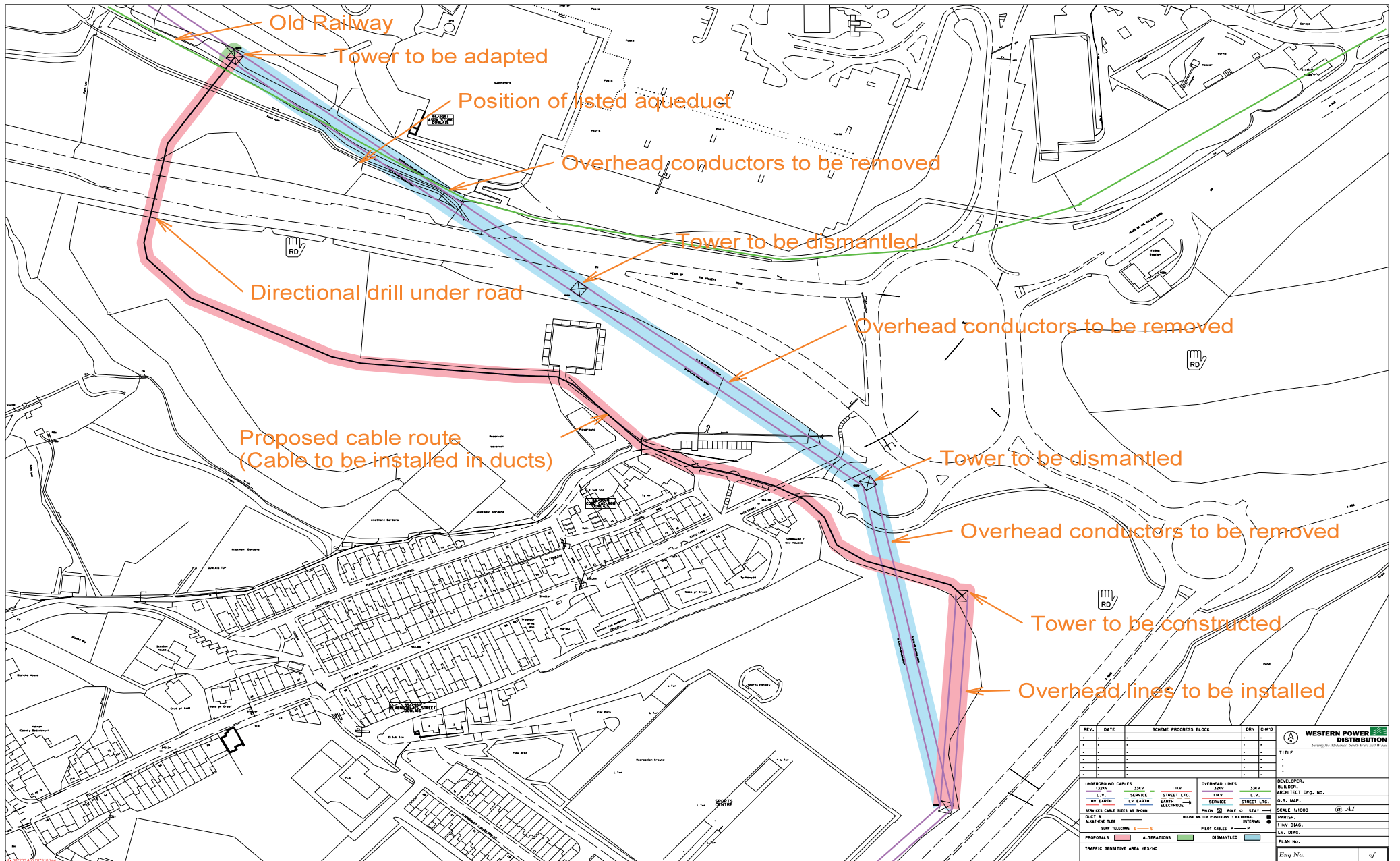


Figure 1. Site Location (red line)



PLEASE NOTE: This plan ONLY shows assets owned by Western Power Distribution. Electricity assets owned by DSOs (Independent Network Service) shall be present in this plan.

Information is given as a guide only and its accuracy cannot be guaranteed.

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Figure 2. Proposed Cable Route

Supplied by the client



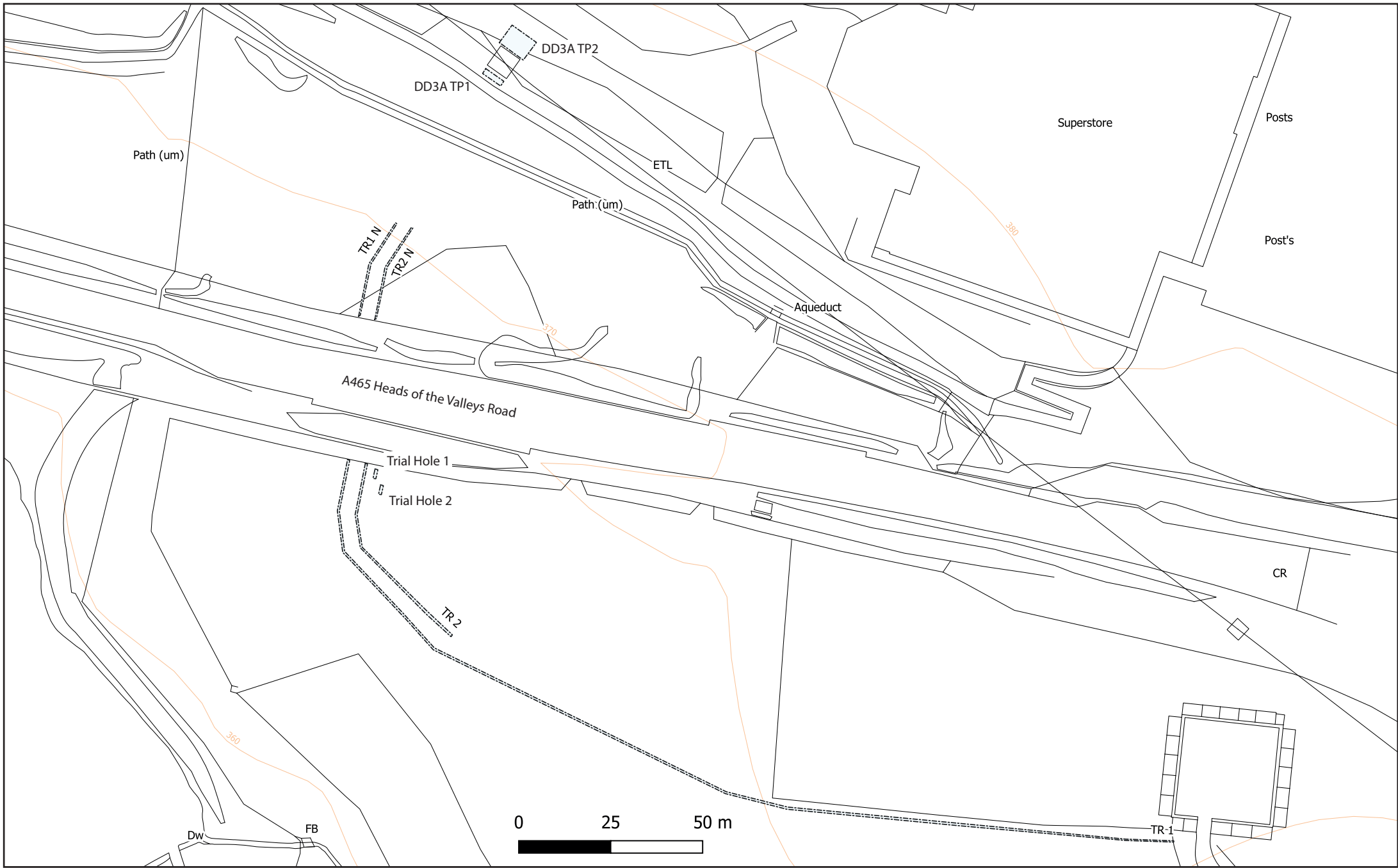
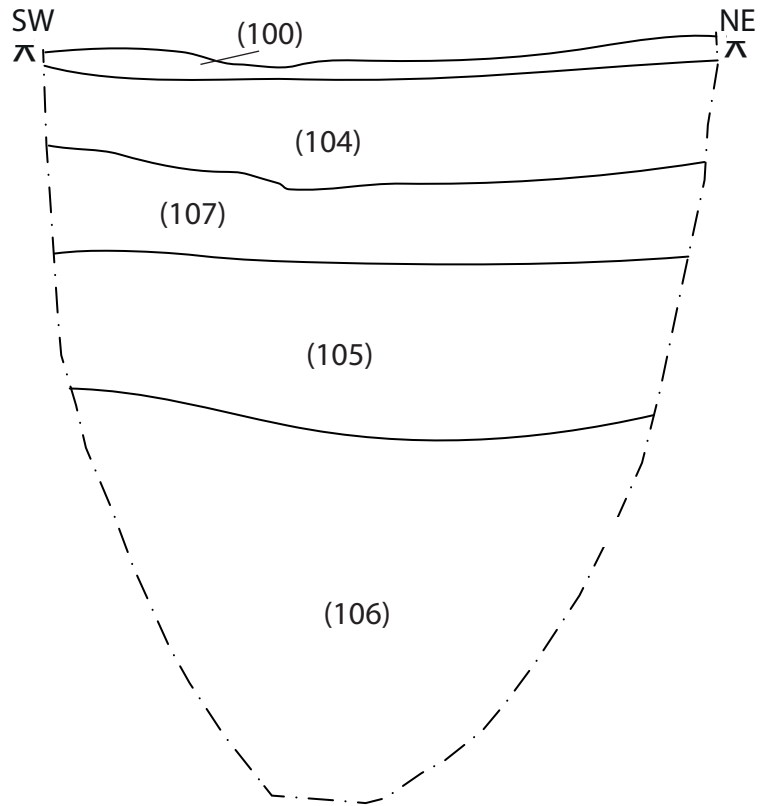
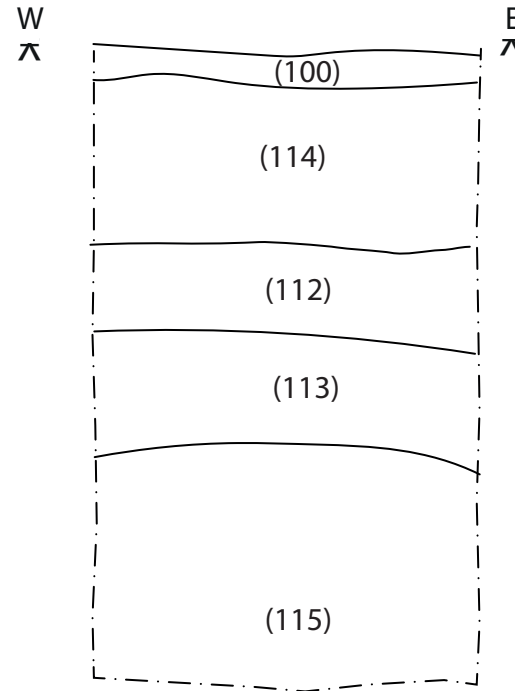


Figure 3. Trench Location Plan

DD3A TP1 SE Facing Section



DD3A TP2 Representative SE Facing Section



TR1 Representative S Facing Section

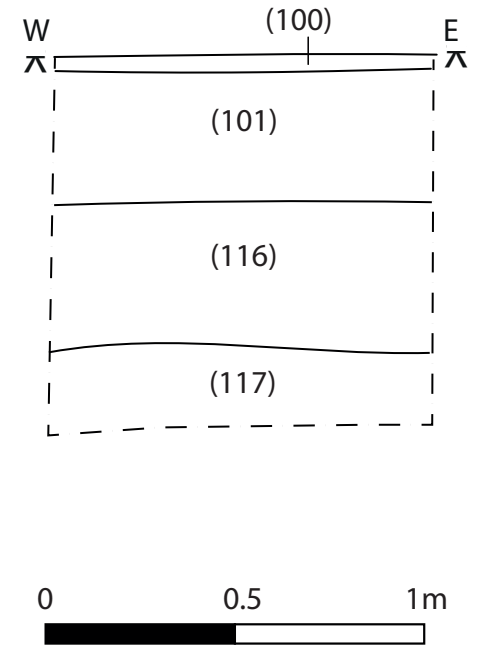


Figure 4. A465 Diversions, Dowlais Top, Representative Trench Sections



Plate 1: Excavation of Cable Trench, Working shot, View to NW



Plate 2 : Cable Trench, S Facing Representative section, Showing contexts (111), (102) (101) & (100), 1m Scale



Plate 3: Manhole (103), View to NW

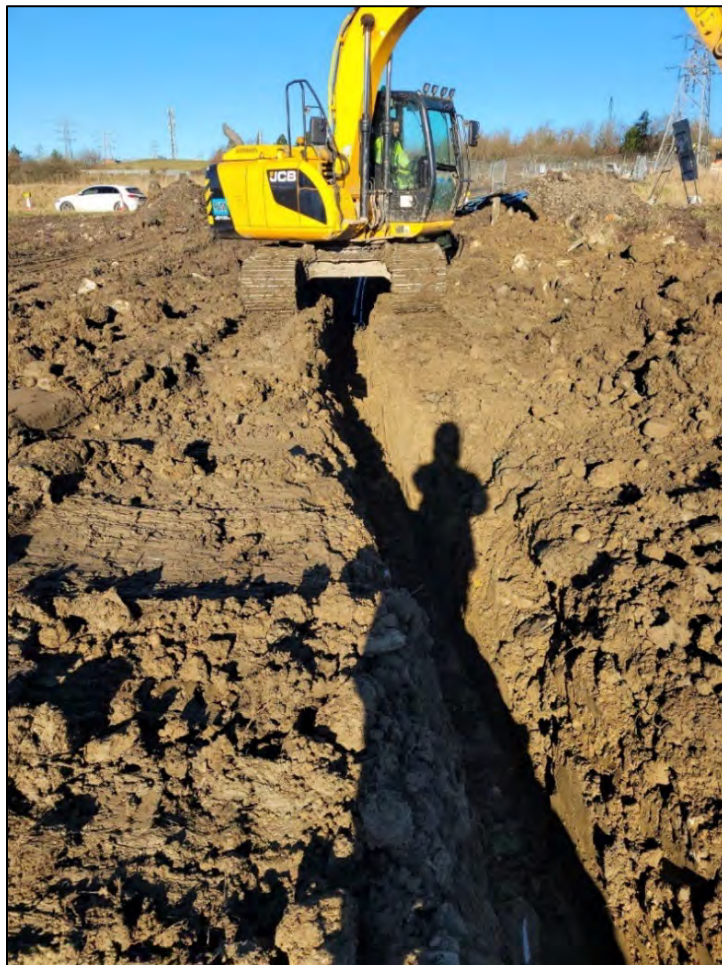


Plate 4: Excavation of Cable Trench N of A465, View to N



Plate 5: Cable Trench N of A465, E facing Section, View to W



Plate 6: Grade II Aqueduct (LB 80964), View to N



Plate 7 : DD3A Test Pit 1 SW of existing pylon, Working Shot, View to E



Plate 8: DD3A Test Pit 1, SW of existing pylon, View to SE



Plate 9: DD3A, NE facing section of Test Pit 2 Showing contexts (115) - (112) and (100), 2m Scale



Plate 10: Iron stake or bolt recovered from Trench 1, context (101), 0.5m Scale



Plate 11: Iron tie bar recovered from Trench 1, context (101), 0.5m scale.

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APPENDIX I:
Context
Inventory

Appendix I

Context Inventory

Context No.	Trench No.	Type	Description	Dimensions	Relationship
100	1 & 2	Layer	Soft, dark brown/black clay silt - Topsoil	L: > Trench W: > Trench T: 0.05m – 0.10m	Above (101)
101	1 & 2	Layer	Loose dark blackish grey silty clay containing very frequent angular coal and slate waste – Coal tip deposit	L: >Trench W: >Trench T: 0.05m	Below (100) Above (116), Same as (107)
102	1 & 2	Layer	Mid-greyish brown/orange silty clay with occasional lenses of blue/grey mottled clay – Natural clay	L: > Trench W: > Trench T: 0.70m – 0.80m	Below (116), (101)/(107) Same as (117), Cut by (103)
103	1 & 2	Layer	Modern redbrick structure - Manhole	L: 1m W: 1m H: < 1m	Below (100), Cuts (102)
104	DD3A TP1	Layer	Loose, light brownish grey silt and gravel - Made ground	L: 5.9m W: 1.5m T: 0.20m	Below (100), Above (107),
105	DD3A TP1	Layer	Dark reddish brown, peaty silt – Former soil horizon	L: 5.9m W: 1.5m T: 0.50m	Below (101), Above (106), Same as (112)
106	DD3A TP1	Layer	Firm, light whitish grey silty clay - Natural	L: 5.9m W: 1.5m T: > 1m	Below (105), Same as (115)
107	DD3A TP1	Layer	Loose dark blackish grey silty clay containing very frequent angular coal and slate waste – Coal tip deposit	L: 5.9m W: 1.5m T: 0.30m	Below (104), Above (105), Same as (101)
108	1 & 2	Layer	Loose, reddish-brown gravels - Made ground/capping material	L: > 2.5m W: > Trench T: 0.15m	Below (101), Above (102), Same as (111)
109	1 & 2	Cut	U-shape profile cut, with moderately steep sides – Cut for modern service	L: > 1m W: > 1.10m D: 0.75m	Below (110), Cuts (116)
110	1 & 2	Deposit	Firm dark grey sandy clay – Backfill of modern service cut [109]	L: > 1m W: > 1.10m T: 0.75m	Below (111), Above [109]

Context No.	Trench No.	Type	Description	Dimensions	Relationship
111	1 & 2	Layer	Loose, reddish-brown gravels - Made ground/capping material	L: > 1m W: > 1.10m T: 0.15m	Below (101), Above (110), Same as (108)
112	DD3A TP2	Layer	Loose, grey/black loam – Former soil horizon	L: > 8m W: > 6m T: 0.20m	Below (114), Above (113), Same as (105)
113	DD3A TP1	Layer	Firm, mid-greyish brown, silty clay – Old sub-soil	L: > 8m W: > 6m T: 0.30m	Below (112), Above (115)
114	DD3A TP1	Layer	Firm, light grey, silty clay – Made ground/levelling deposit	L: > 8m W: > 6m T: 0.45m	Below (100), Above (112)
115	DD3A TP1	Layer	Firm, light grey, silty clay - Natural	L: > 8m W: > 6m T: 0.65m	Below (113)
116	1 & 2	Layer	Firm, mid brown silty clay – Possible re-deposited clay/ levelling deposit.	L: > Trench W: > Trench T: 0.75m – 0.80m	Below (101), Above (117), Cut by [109]
117	1 & 2	Layer	Mid-greyish brown/orange silty clay with occasional lenses of blue/grey mottled clay – Natural clay	L: > Trench W: > Trench T: 0.10m	Below (116) Same as (102)
118	1 & 2	Deposit	Light grey concrete.	L: > 3m W: > Trench T: 0.30m	

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**APPENDIX II:
Written Scheme
of Investigation**

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**WRITTEN SCHEME OF INVESTIGATION
FOR AN ARCHAEOLOGICAL
WATCHING BRIEF AT
A465 Heads of the Valleys
Dowlais Top**

**Prepared for:
Western Power Distribution**

Project No: 2857

January 2021



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Figure 1. Site Location

Figure 2. Proposed Cable Route

1. Introduction and Planning Background

- 1.1.1. This Written Scheme of Investigation (WSI) details a programme of archaeological mitigation to be undertaken by Archaeology Wales Ltd (henceforth – AW) at the request of Dale Morgan of Western Power Distribution (henceforth – ‘the client’).
- 1.1.2. The proposed development consists of the excavation of trenches to accommodate a new power cable and the construction of a new power cable tower. These groundworks will take place between NGR SO 07786 08094 and NGR SO 07369 08454 (Figures 1 & 2), A465 Heads of the Valleys, Sections 5 to 6, Dowlais Top to Hirwaun (henceforth – ‘the site’).
- 1.1.3. The methodology set out in this WSI has been agreed with Glamorgan-Gwent Archaeological Trust – Archaeological Planning Management (henceforth – GGAT-APM).
- 1.1.4. The purpose of the archaeological mitigation is to provide sufficient information regarding the nature of archaeological remains on the site of the development, the requirements for which are set out in *Technical Advice Note (TAN) 24: The Historic Environment* (2017). The work is to ensure that all archaeological and historical components of the site are fully investigated and recorded if they are to be revealed as a result of activities associated with the development.
- 1.1.5. This Specification has been prepared by James Evans (Desk-Based Assessment Officer, AW). It provides information on the methodology that will be employed by AW during the archaeological watching brief.
- 1.1.6. All work will be undertaken to the standards and guidance set by the Chartered Institute for Archaeologists; *Standard and guidance for an archaeological watching brief* (2020 update). AW is a Registered Organisation with the ClfA.

2. Site Description

- 2.1.1. The site is located approximately 3.4km north-east of Merthyr Tydfil town centre, just to the north of the residential area of Dowlais Top. The proposed cable route will run between NGR SO 07786 08094 and NGR SO 07369 08454. The southern end of the proposed route (NGR SO 07786 08094) is located to the south of the A465 interchange/roundabout at Dowlais Top. The northern end of the proposed route (NGR SO 07369 08454) is located to the north of the Dowlais Top to Hirwaun A465 carriageway, just to the west of the Asda supermarket (Figures 1 & 2). The immediate area of the proposed cable route is comprised of improved or rough enclosed pastureland.
- 2.1.2. The underlying geology of the site is composed of mudstone, siltstone and sandstone belonging to the South Wales Lower Coal Measures Formation. This sedimentary bedrock formed approximately 318 to 319 million years ago in the Carboniferous Period. This is overlaid by superficial deposits of till, Devensian - Diamicton. This was formed up to 2 million years ago in the Quaternary Period (BGS 2021).

3. Historical and Archaeological Background

- 3.1.1. The site is located within the Registered Historic Landscape of Merthyr Tydfil HLW (MGI) 2, and within HLCA 47 Dowlais Top. This area comprises of a former industrial landscape associated with the Dowlais Ironworks and is an area of reclaimed industrial land that has now been redeveloped for modern commercial, retail and light industrial use.
- 3.1.2. There is evidence for prehistoric activity within the wider landscape, but these tend to be on uplands further north, beyond the modern commercial redevelopment at Dowlais Top. This prehistoric activity consists of a series of field boundaries (GGAT04886m, GGAT04904m & GGAT04947m), cairns (GGAT04893m & GGAT03139m), and enclosures (GGAT04892m).
- 3.1.3. Little is known of the area during the Romano-British period. Research and excavation have tended to focus on Penydarren fort, which is close to the centre of Merthyr Tydfil. There is also very little known about the early-medieval and medieval period of this area.

(Thomas 2020, pp. 11-12).

- 3.1.4. It is during the post-medieval period that this area saw dramatic change. In the 1750s Merthyr Tydfil was a modest village, but by 1801 it was the largest town in Wales (Cadw, CCW & ICOMOS 1998, p. 47). This growth was fueled by industry and the establishment of ironworks, such as the Dowlais Ironworks and the Cyfarthfa Ironworks. The town of Merthyr Tydfil and the surrounding area remain a potent example of an internationally renowned industrial landscape of the 18th and 19th century Wales (Cadw, CCW & ICOMOS 1998, p. 47).
- 3.1.5. The majority of the built heritage and archaeology surviving in this area relate to collieries, ironstone mines, quarries, railways, tramroads and other infrastructure related to industrial activity (Thomas 2020, p. 12). There are a number of post-medieval archaeological remains within close vicinity of the proposed groundworks. On the northern side of the A465, c. 100m to the east of the proposed cable route is a Grade II Listed Aqueduct (LB 80964). It was built between 1860 and 1865 to carry water top the nearby reservoir. There are two reservoirs just to the west of the proposed cable route. The reservoirs are linked, the upper reservoir (GGAT03127m) is to the north of the A465 and the lower reservoir (GGAT03131m) to the south.
- 3.1.6. The proposed cable route is likely to cross a former railway line belonging to Brecon & Merthyr Railway (Figure 2). This former railway is located to the north of the A465, and sections of an embankment associated with this railway is still intact (GGAT03126m & GGAT08009m).
- 3.1.7. There is a strong possibility that groundworks will encounter post-medieval archaeological remains connected to the above sites, or their associated infrastructure.

4. Objectives

- 4.1.1. This WSI sets out a program of works to ensure that the watching brief will meet the standard required by The Chartered Institute for Archaeologist's *Standard and guidance*

for archaeological watching briefs (update 2020).

4.1.2. The objective of the watching brief will be:

- to allow the investigation and recording of any archaeological features that are uncovered during the proposed groundworks within the application area.
- to provide the opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief are not sufficient to support the treatment to a satisfactory or proper standard.

4.1.3. A written report will be compiled following the fieldwork. Sufficient desk-top research will be undertaken to ensure that the results of this work are properly understood, interpreted, and reported.

4.1.4. The report will include a comprehensive assessment of the historic context within which the archaeological evidence rests and will aim to highlight any relevant research issues within regional, national and, if relevant, international research frameworks.

5. Timetable of works

5.1. Fieldwork

5.1.1. The watching brief will be undertaken during ground works associated with the proposed development. AW will update GGAT-APM with the exact date.

5.2. Report delivery

5.2.1. The report will be submitted to the client and to GGAT-APM within three months of the completion of the fieldwork. A copy of the report will also be sent to the regional HER.

6. Fieldwork

6.1. Detail

6.1.1. The work will be undertaken to meet the standard required by The Chartered Institute

for Archaeologist's *Standard and guidance for watching briefs* (update 2020).

- 6.1.2. The watching brief should be undertaken using a tracked 360 degree excavated equipped with a flat-bladed bucket and will be monitored by a suitably qualified archaeologist.
- 6.1.3. The site archaeologist undertaking the watching brief will be afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundwork will not be undertaken without the presence of the site archaeologist. The site archaeologist will record finds and less significant archaeological deposits and features without significant delay to the work program.
- 6.1.4. Where significant or complex archaeological deposits or features are encountered there will be a requirement for those areas to be fenced off and highlighted to all contractors employed on the site. Machines or contractors shall not enter this area until archaeological recording has been completed. If significant archaeological features are revealed during the work a meeting between the client, GGAT-APM and AW will be called at the earliest convenience.
- 6.1.5. If significant archaeological features are encountered contingency arrangements will be made. Contingency costs will be agreed in advance before any extension to the programme commences and will follow a site meeting between Archaeology Wales, the client (or their representatives) and GGAT-APM.

6.2. Recording

- 6.2.1. Recording will be carried out using AW recording systems (pro-forma context sheets, etc.) using a continuous number sequence for all contexts.
- 6.2.2. 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.
- 6.2.3. All features identified will be tied into the OS survey grid and fixed to local topographical boundaries.
- 6.2.4. Photographs will be taken in digital format with an appropriate scale, using a 12MP

camera with photographs stored in Tiff format.

- 6.2.5. The archaeologists undertaking the watching brief will have access to the AW metal detector and be trained in its use.

6.3. Finds

- 6.3.1. The professional standards set in the Chartered Institute for Archaeologists' *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (2014) will form the basis of finds collection, processing and recording.
- 6.3.2. All manner of finds regardless of category and date will be retained.
- 6.3.3. Finds recovered that are regarded as Treasure under The Treasure Act 1996 will be reported to HM Coroner for the local area.
- 6.3.4. Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

6.4. Environmental Sampling Strategy

- 6.4.1. In areas that have previously been disturbed, environmental sampling is unlikely to be required, unless excavations go beyond the disturbed layers and archaeology is encountered below that level.
- 6.4.2. Features or archaeological deposits that are encountered will be sampled by means of the most appropriate method (bulk, column, etc.) up to 40 litres in size. These samples will be predominantly taken for artefact retrieval due to their potential Romano-British date.
- 6.4.3. Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental archaeologist. All environmental sampling and recording and will follow English

Heritage's *Guidelines for Environmental Archaeology* (2002).

6.5. Human Remains

6.5.1. In the event that human remains are encountered, their nature and extent will be established, and the coroner informed. All human remains will be left in situ and protected during backfilling. Where preservation in situ is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work. Human remains will be excavated in accordance with the Chartered Institute for Archaeologist's *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains: Technical Paper Number 13* (1993), and the Chartered Institute for Archaeologist's *Updated Guidelines to the Standards for Recording Human Remains* (2017).

6.5.2. A meeting with the client, GGAT-APM and AW will be called if the human remains uncovered are of such complexity or significance that the contingency arrangement would not be of sufficient scope.

6.6. Specialist Advisers

6.6.1. In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	Specialist
Flint	Kate Pitt (Freelance)
Animal bone	Richard Madgwick (Cardiff University)
CBM, heat affected clay, Daub etc.	Rachael Hall (APS)
Clay pipe	Charley James-Martin (Archaeology Wales)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Richard Madgwick (Cardiff University)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University)
IA/Roman pottery	Jane Timby (Freelance)

Roman Pottery	Rowena Hart (Archaeology Wales)/ Peter Webster (Freelance)
Post Roman pottery	Stephen Clarke (Monmouthshire Archaeology)
Charcoal (wood ID)	John Carrot (Freelance)
Waterlogged wood	Nigel Nayling (University of Wales – Lampeter)
Molluscs and pollen	Dr James Rackham
Charred and waterlogged plant remains	Wendy Carruthers (Freelance)

6.7. Specialist Reports

6.7.1. Specialist finds and palaeoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

7. Monitoring

7.1.1. GGAT-APM will be contacted approximately five days prior to the commencement of archaeological site works, and subsequently once the work is underway.

7.1.2. Any changes to the WSI that AW may wish to make after approval will be communicated to GGAT-APM for approval.

7.1.3. Representatives of GGAT-APM will be given access to the site so that they may monitor the progress of the watching brief. GGAT-APM will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

8. Post-fieldwork programme

8.1. The Site Archive

8.1.1. An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE)* (Historic England 2006) upon completion of the project.

8.1.2. The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with ClfA Guidelines (*Standard and guidance for the creation, compilation, transfer and deposition of archaeological*

archives', 2020). It will also conform to the guidelines set out in '*The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017*' (National Panel for Archaeological Archives in Wales 2017). The legal landowner's consent will be gained for deposition of finds. The project will adhere to the *Welsh Archaeological Trust's joint Guidance for the Submission of Data to the Welsh Historic Environment Records* (2018).

8.2. Analysis

8.2.1. Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken. The report will adhere to the *Welsh Archaeological Trust's joint Guidance for the Submission of Data to the Welsh Historic Environment Records* (2018).

8.2.2. This will result in the following inclusions in the final report:

- Non-technical summary, in English and Welsh
- Location plan showing the area/s covered by the watching brief, all artefacts, structures, and features found
- Plan and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- Written description and interpretation of all deposits identified, including their character, function, potential dating, and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate.
- An indication of the potential of archaeological deposits which have not been disturbed by the development
- A discussion of the local, regional, and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and the regional HER as appropriate.
- A detailed archive list at the rear listing all contexts recorded, all samples finds and find

types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

8.3. Report to client

8.3.1. Copies of all reports associated with the watching brief, together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted to the client and GGAT-APM upon completion.

8.3.2. The report will be submitted to the client and to GGAT-APM within three months of the completion of the fieldwork. A copy of the report will also be sent to the regional HER.

8.4. Additional reports

8.4.1. After an appropriate period has elapsed, copies of all reports will be deposited with the relevant county Historical Environment Record, the National Monuments Record and, if appropriate, Cadw.

8.5. Summary reports for publication

8.5.1. Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

8.6. Notification of important remains

8.6.1. Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

8.7. Archive deposition

8.7.1. The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution, usually the relevant Local Authority museums service. Arrangements will be made with the receiving institution before work starts.

8.7.2. Although there may be a period during which client confidentiality will need to be maintained, copies of all reports and the final archive will be deposited no later than six

months after completion of the work.

8.7.3. Copies of all reports, the digital archive and an archive index will be deposited with the National Monuments Record, RCAHMW, Aberystwyth.

8.7.4. Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to GGAT-APM.

8.8. Finds deposition

8.8.1. The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal landowners.

8.9. Staff

8.9.1. The project will be managed by John Davey PhD MCIFA (AW Project Manager) and the fieldwork undertaken by AW Staff. Any alteration to staffing before or during the work will be brought to the attention of GGAT-APM and the client.

9. Health and Safety

9.1. Risk Assessment

9.1.1. Prior to the commencement of work AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with The Management of Health and Safety Regulations 1999. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

9.2. Other Guidelines

9.2.1. AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual Health and Safety in Field Archaeology (2002).

9.3. Covid-19 Specific Considerations

9.3.1. If an AW Staff member believes they are at an increased risk from the virus they are to

contact management.

- 9.3.2. If anyone is showing symptoms of Covid-19 they are to go home immediately and notify the appropriate people.
- 9.3.3. Staff will drive to site in a private vehicle alone or with someone from their household only. If sites require multiple staff members to attend, they will travel separately and will try to avoid the use of public transport (walking, cycling etc.)
- 9.3.4. Staff will stay at least 2m away from any person, who does not live within their own household, AT ALL TIMES. This includes on site, within office space, in the canteen and all other parts of the compound.
- 9.3.5. Staff will wash hands regularly and thoroughly, especially on arriving to site, leaving site and before eating.
- 9.3.6. The staff members should take their own food and drink to site.
- 9.3.7. Once returning home, appropriate care should be taken to ensure that contamination does not spread (change clothes, shower, etc.)
- 9.3.8. Staff will avoid touching surfaces if possible. If they have to touch a surface, such as a door handle or toilet seat, staff must either wear gloves or wash their hands/ relevant body part with sterilising hand wash immediately afterwards. DO NOT touch your face after touching any surface. Staff should also disinfect surfaces before and after touching. Staff must bring their own sterilising handwash, wipes and gloves and dispose of them safely after use.
- 9.3.9. All staff will read, sign and adhere to the separate AW Covid – 19 risk assessment AND Site Operating Procedures for full details and work in accordance with them.
- 9.3.10. If any AW staff, contractor or any other persons on site are not abiding by these rules, the staff member will remove themselves from the risk and contact the Project Manager immediately.

10. Community Engagement and Outreach

10.1.1. Wherever possible, AW will ensure suitable measures are in place to inform the local community and any interested parties of the results of the site investigation work. This may occur during the site investigation work or following completion of the work. The form of any potential outreach activities may include lectures and talks to local groups, interested parties and persons, information boards, flyers and other forms of communication (social media and websites), and press releases to local and national media.

10.1.2. The form of any outreach will respect client confidentiality or contractual agreements. As a rule, outreach will be proportional to the size of the project.

10.1.3. Where outreach activities have a cost implication these will need to be negotiated in advance and in accordance with the nature of the desired response and learning outcomes.

11. Insurance

11.1.1. AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate Insurance. Full details of these and other relevant policies can be supplied on request.

12. Quality Control

12.1. Professional standards

12.1.1. AW works to the standards and guidance provided by the Chartered Institute for Archaeologists. AW fully recognise and endorse the Chartered Institute for Archaeologists' Code of Conduct, Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology and the Standard and guidance for an archaeological watching brief (CIfA 2020) currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are

expected to adhere to these Codes and Standards during their employment.

12.2. Project tracking

12.2.1. The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

13. Arbitration

13.1.1. Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' Arbitration Scheme for the Institute for Archaeologists applying at the date of the agreement.

14. References

British Geological Survey: Geology of Britain viewer:

http://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.251480260.352877121.1610615680-2012226724.1601977855 (accessed 14/01/21)

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