



**Mile End Mill Hydro Scheme,
Llangollen, Denbighshire.
September 2015
V 1.0**



aeon archaeology



Archaeological Assessment
Project Code: A0064.1
Report no. 0067



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Mile End Mill Hydro Scheme, Llangollen, Denbighshire. September 2015

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Archaeological Assessment

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Project Code: A0064.1

Date: 06/09/2015

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1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was commissioned by Baileys and Partners LLP to undertake an archaeological assessment of a proposed new hydro-electric scheme as part of a pre-application feasibility study at Mile End Mill, Llangollen.

The assessment identified five archaeological or historical receptors within the 40.0m wide assessment corridor centred on the pipe route. Site specific mitigatory measures have been proposed for an archaeological watching brief in vicinity of the in-filled historic headrace leat and for a photographic and descriptive record of the historic turbine prior to removal.

No further assessment and mitigatory measures are proposed and the scheme is generally viewed as being of beneficial to the Mill building through the reinstatement of the historic turbine hall and outfall leat.

2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

Aeon Archaeology was commissioned by Baileys and Partners LLP to undertake an archaeological assessment of a proposed new hydro-electric scheme as part of a pre-application feasibility study. The proposed scheme intake is to be located on the western bank of the River Dee, approximately 1.0km northwest of the town of Llangollen, Denbighshire and centred on **NGR SJ 20751 42903**. The proposed pipeline will then run southeast along the western bank of the River Dee for approximately 178.0m, where it will breach the eastern elevation of Mile End Mill, to a new turbine to be located within the historic turbine chamber of the mill **NGR SJ 20820 42756**. The hydro scheme outfall will then empty back into the River Dee by the historic outfall leat to the south. The proposals are then to connect the new electricity cable to an existing transformer through a three phase connection unit within the mill building (figures 1 and 2).

The intake will consist of a submerged covered channel which will feed into two parallel runs of glass reinforced plastic piping buried within a 3.0m wide trench, cut initially through the existing trackway and then through the car park of Mile End Mill.

This archaeological assessment is for the proposed development area, which includes the water intake point, the pipeline, the turbine house, the water outflow, the new power supply, and a 40.0m wide assessment corridor centred on the proposed pipeline route.

As part of the archaeological assessment a 1.0km search area centred on the proposed route was utilised for a search of the Clwyd-Powys Historic Environment Record (HER). This provided a background historical narrative of the area and included source material from the Denbighshire Archives and Record Office, as well as the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW), and the National Library of Wales. Information on Scheduled Ancient Monuments and Listed Buildings was obtained from Cadw.

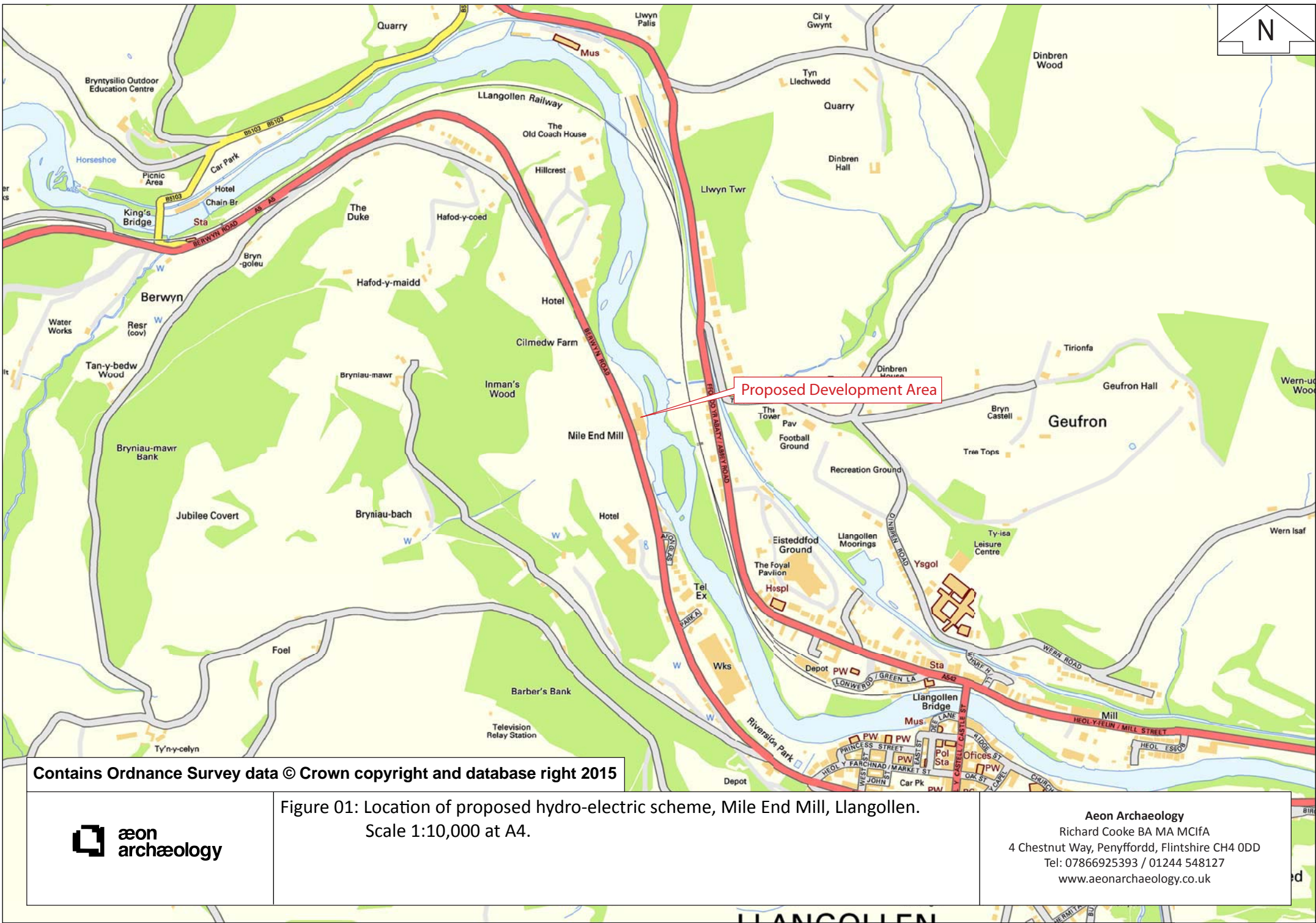
The following report conforms to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Chartered Institute for Archaeologists, 2014).

The archaeological assessment considered the following:

- (i) The history of the site;
- (ii) The significance of any remains in their context both regionally and nationally;
- (iii) The potential impact of the proposed development on known sites of archaeological importance including their setting.

The archaeological assessment was undertaken in four stages:

- (i) Archival research
- (ii) Field visit/site walkover of all accessible areas
- (iii) Written report
- (iv) Project archive

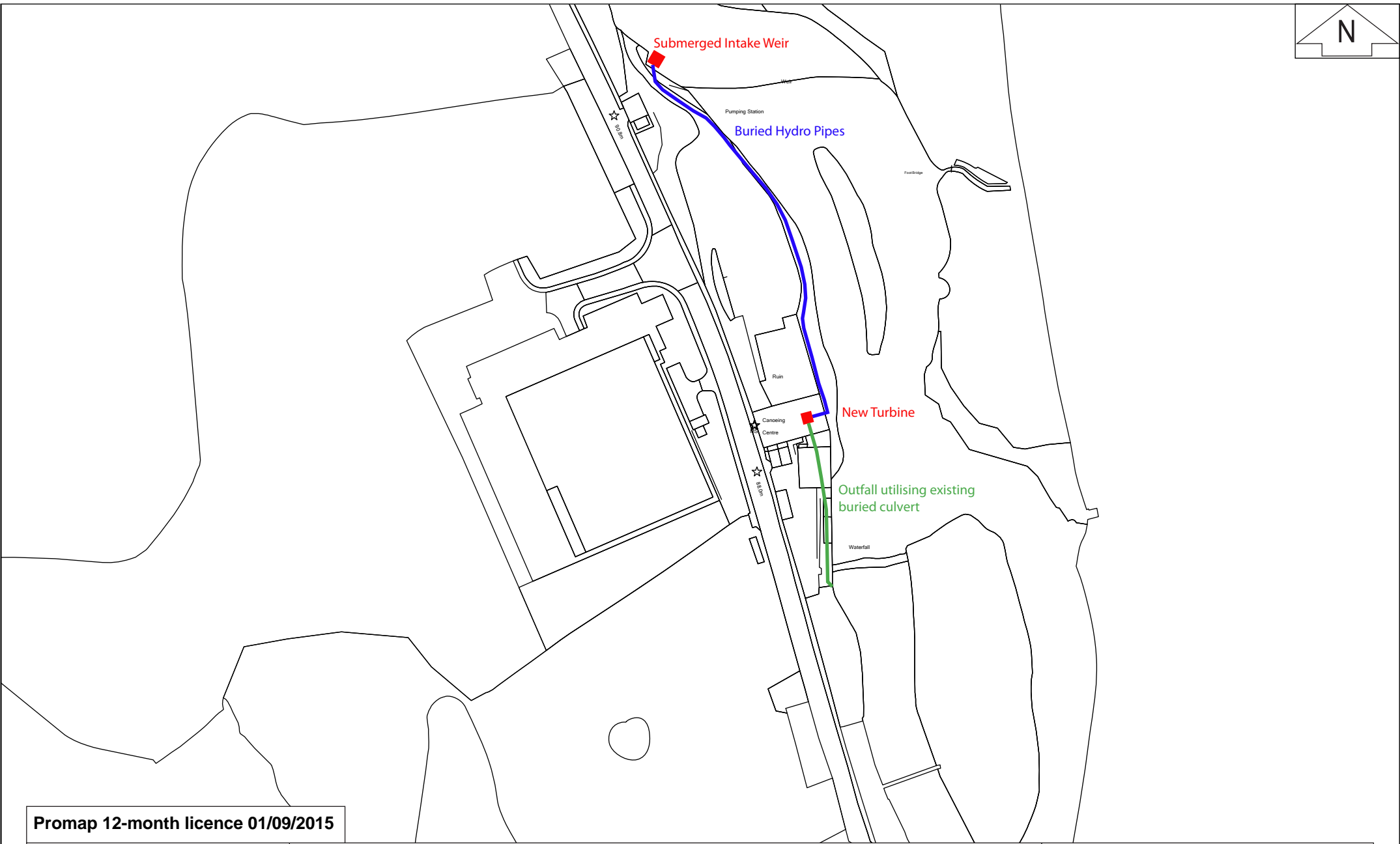


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Figure 01: Location of proposed hydro-electric scheme, Mile End Mill, Llangollen.
Scale 1:10,000 at A4.

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Figure 02: Location of proposed hydro-electric scheme, Mile End Mill, Llangollen.
Scale 1:2,000 at A4.

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Plate 01: Location of proposed hydro-scheme intake, from the northwest.

3.0 METHODS AND TECHNIQUES

3.1 Archival research

The archaeological assessment involved the study of the following records:

- The regional Historic Environment Record (Clwyd-Powys Archaeological Trust) was examined for information concerning the study area. This included an examination of the core HER, and secondary information held within the record which included unpublished reports, the 1:2500 County Series Ordnance Survey maps, and the National Archaeological Record index cards and aerial photography.
- The National Monuments Record (NMR RCAHMW, National Monuments Record of Wales, Plas Crug, Aberystwyth, SY23 1NJ) was checked for sites additional to the HER.
- Information about Listed Buildings and Scheduled Ancient Monuments from Cadw were examined in the regional HER. The Register of Outstanding and Special Historic Landscapes and the Register of Parks and Gardens was checked, and also the location of World Heritage Sites.
- Secondary sources were examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales, and works held within the regional libraries.
- Evidence from aerial photographs was collated.
- Archive maps were consulted in the National Library of Wales at Aberystwyth, and at the Denbighshire archives. This included the relevant estate maps and tithe maps and information from Land Tax Assessments.
- Results from previous archaeological work within the area was also reviewed.

3.2 Site walkover

The site walkover was carried out on 3rd September 2015 by Richard Cooke BA MA MCIfA, archaeological contractor and consultant at Aeon Archaeology. The weather conditions were ideal for the field search being both bright and clear. All archaeological sites and view points were photographed using a digital SLR (Canon 550D) set to maximum resolution (72 dpi).

3.3 Assessment report

All features identified from the archival research and site walkover were assessed and allocated to categories of international, national, regional/county, local and none/unknown importance as listed in section 6.0. These are intended to place the archaeological feature within a geographical context of importance and thus help inform the most suitable level of mitigatory response. The criteria used for allocating features to categories of importance are based on existing statutory designations and, for non-designated assets, the Secretary of State's non-statutory criteria for Scheduling Ancient Monuments; these are set out in National Planning Policy Framework (NPPF), Welsh Office Circular 60/96, and Planning Policy Wales.

3.4 Project archive

A full archive including plans, photographs and written material was prepared. All plans, photographs and written descriptions were labelled and cross-referenced using Aeon Archaeology pro-formas. A draft copy of the report was sent to the client and upon written approval from them copies of the report will be sent to the regional HER and Development Control Archaeologist (Clwyd-Powys Archaeological Trust), and the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW). All notes, plans, and photographs arising from the assessment are stored at Aeon Archaeology under the project code **A0064.1**.

4.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND

4.1 Topographic Description

The proposed hydro-electric scheme lies within the grounds of a former flannel mill on the western bank of the River Dee and approximately 1.0km northwest of the centre of Llangollen. The intake point is accessible by a rough stony track that leads southward through the forested bank of the river to the car park of the mill.

The site lies within the parish of Llangollen and within the township of Bache, within the historic county of Denbighshire. The assessment area slopes from approximately 92m OD at the proposed hydro intake, with the proposed outfall lying at approximately 89m OD.

The bedrock geology is of the Elwy Formation, a mudstone, siltstone and sandstone sedimentary bedrock that formed approximately 419 to 423 million years ago in the Silurian Period when the local environment was dominated by deep seas (British Geological Survey).

4.2 Statutory and non-statutory designations

4.2.1 Non-designated monument points from the Clwyd-Powys Historic Environment Record (figure 3)

The Clwyd-Powys Historic Environment Record (HER) maintains a register of non-designated archaeological sites represented as single point data or as polygons. These are identified through their Primary Reference Number (PRN). These include sites which are of archaeological/historical interest, artefact find spots, documentary evidence, and locations of past events such as archaeological projects.

There are 94 non-designated monuments within 1.0km of the proposed pipeline route (see appendix I) with one monument located within the 40.0m assessment zone centred on the pipe:

- (i) The post-medieval *Mile End Flannel Mill* (PRN: 93414).

The pipe route lies within 100.0m of the following:

- (i) Approximately 28.0m east of the post-medieval *Mile End Mill Shelter II* (PRN: 128043)
- (ii) Approximately 42.0m east of the postulated Roman Road from *Rhyn Park to Rhug* (PRN: 47514);
- (ii) Approximately 46.0m east of the post-medieval *Mile End Mill Shelter I* (PRN: 128042);
- (iii) Approximately 65.0m east of the post-medieval *Mile End Farm* (PRN: 128044).

4.2.2 Scheduled Ancient Monuments (figure 4)

Scheduled monuments are those considered to be monuments of national importance. The Ancient Monuments and Archaeological Areas Act 1979 supports a formal system of Scheduled Monument Consent (SMC) for any work to a designated monument. Any works within a Scheduled area will require SMC; this includes non-invasive techniques such as geophysics or field-walking.

There is 1 Scheduled Ancient Monument within 1.0km of the proposed pipeline route (see appendix I) but no monuments are located within the 40.0m assessment zone centred on the pipe.

The pipe route lies within 500.0m of the following:

- (i) Approximately 162.0m west of the *Pontcysyllte Aqueduct and Canal* Scheduled Ancient Monument (DE175);
- (ii) Approximately 900.0m northwest of the medieval *Llangollen Bridge* Scheduled Ancient Monument (DE026).

4.2.3 Listed Buildings (figure 5)

The Secretary of State for Culture, Media and Sport holds a List of Buildings of Special Architectural or Historic Interest, considered to be of national importance. Compiled under the Planning (Listed Buildings and Conservation Areas) Act 1990, the List includes structures from boundary walls and telephone boxes to cathedrals. Listing gives statutory protection and restrictions apply. Consent may be required for works to, or that affect the setting of, a Listed Building and the Local Planning Authority conservation officer should be consulted if in doubt.

There are 62 Listed Buildings within 1.0km of the proposed pipeline route (see appendix I) but no monuments are located within the 40.0m assessment zone centred on the pipe or within 100.0m of the proposed development.

4.2.4 National Monuments Record (figure 6)

The Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) maintains the National Monuments Record (NMR) for Wales. This is a register of non-designated archaeological sites represented as single point data or as polygons. These are identified through their National Primary Reference Number (NPRN) and include sites which are of archaeological/historical interest, artefact find spots, documentary evidence, and locations of past events such as archaeological projects that are not statutorily protected.

There are 89 non-designated monument points within 1.0km of the pipeline route (see appendix I) and the following lie within the 40.0m assessment zone centred on the pipe:

- (i) The post-medieval *Mile End Flannel Mill* (NPRN: 24,888).

4.2.5 Historic Landscape Character Areas (HLCAs) (figure 7)

Cadw, National Resource Wales (formerly the Countryside Council for Wales), and the International Council of Monuments and Sites (ICOMOS UK) compiled the two volume Register of Landscapes of Historic Interest in Wales. This includes 58 landscapes of outstanding or special historic interest, which are considered to be the best examples of different types of historic landscapes in Wales. The Register provides information to decision makers and landscape managers, to help ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed.

The proposed development lies within the Llangollen Historic Landscape Character Area (HLCA) (1152).

4.2.6 Historic Parks and Gardens (figure 8)

Cadw holds a Register of Historic Parks and Gardens of Special Historic Interest. These Registered landscapes are graded I, II* or II, and include private gardens, public parks and other green spaces. They are valued for their design, diversity and historical importance. Inclusion on the Register brings no additional statutory controls, but there is a presumption in favour of conservation of the designated site. Local authorities are required to consult Cadw on applications affecting sites Registered as grade I or II* and the Garden History Society on sites of all grades.

There are no historic parks and gardens within the 40.0m wide assessment corridor centred on the pipe route or within 100.0m of the proposed development area.

4.2.7 World Heritage Sites (figures 8 and 9)

The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. This is embodied in an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by UNESCO in 1972. The programme catalogues, names, and conserves sites of outstanding cultural or natural importance to the common heritage of humanity.

National Planning Policy Framework defines a World Heritage Site as a designated heritage asset. Accordingly, great weight should be given to its conservation and substantial harm to a World Heritage Site's significance (the heritage aspects of its Outstanding Universal Value) or total loss of the site should be wholly exceptional.

There are no World Heritage Sites within the 40.0m wide assessment corridor centred on the pipe route however the proposed development lies within 100.0m of the following:

- (i) Approximately 162.0m west of the *Pontcysyllte Aqueduct and Canal* World Heritage Site.

The proposed development area also lies within the Pontcysyllte World Heritage Site essential setting as shown in figure 9.

4.2.8 Conservation Areas (figure 9)

Historic buildings help give Wales its special character and make it distinctive. The need to preserve the best examples has long been recognised in legislation. Individual buildings of special architectural or historic interest have been given special protection in planning law, most recently the Planning (Listed Buildings and Conservation Areas) Act 1990, supplemented by guidance in Welsh Office Circulars 61/96 and 1/98. There are over 500 conservation areas in Wales. They are designated by local planning authorities for their special architectural and historic interest.

The designation of a conservation area is not an end in itself. Local authorities need to develop policies which clearly identify what features of the area should be preserved or enhanced, and set out how this can be done.

Many authorities have undertaken conservation area character appraisals which identify areas where enhancement through development may be desirable. Including conservation area

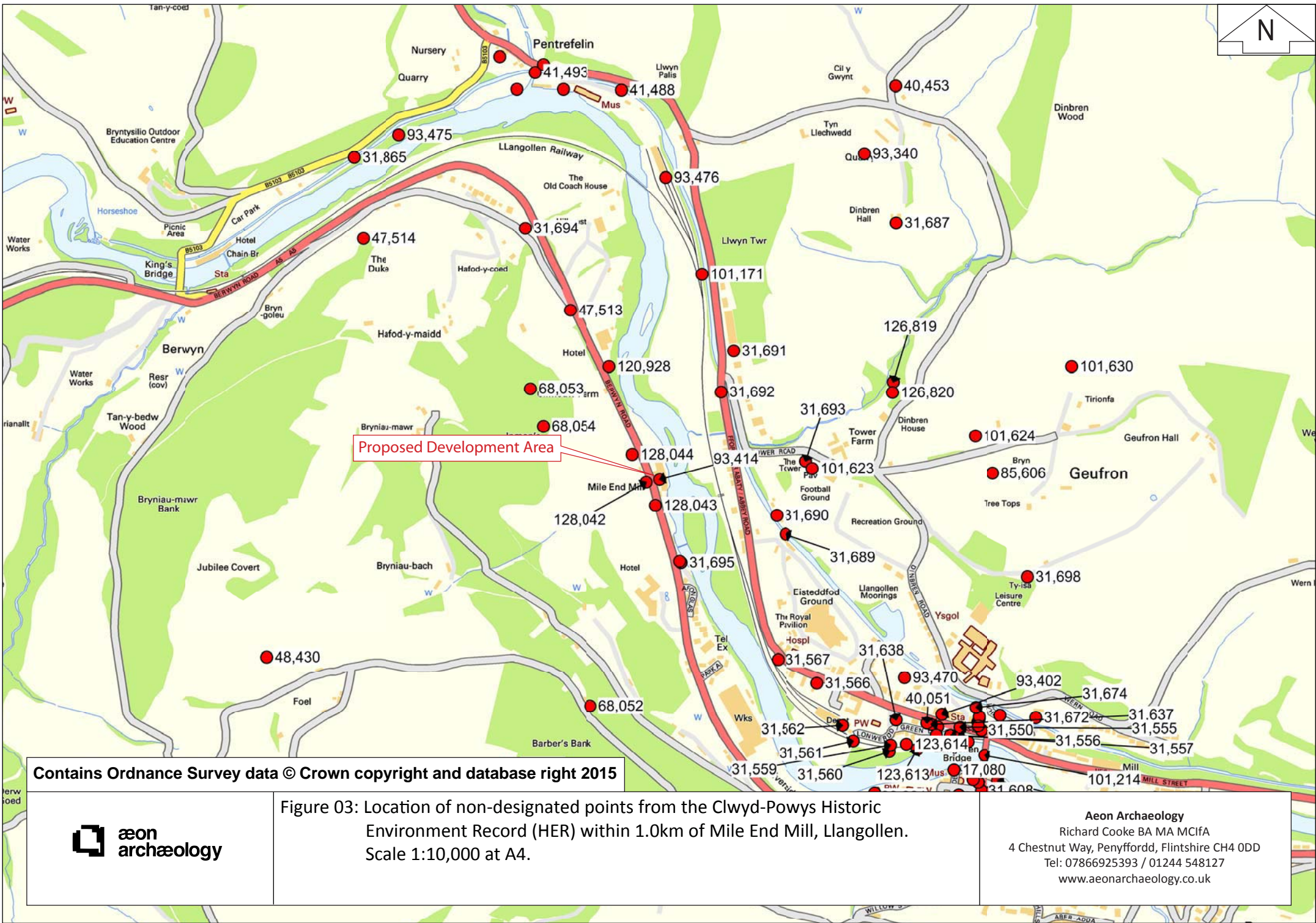
policies in the local authority's statutory Development Plan is the best means of integrating conservation areas with wider planning policies, such as those concerned with shopping and traffic management.

The proposed development area does not lie within 100.0m of a Conservation Area.

4.2.9 Events (figure 10)

The proposed development area has not been included within any past archaeological assessment or mitigatory works. The Mill was however briefly included within a report by the Clwyd-Powys Archaeological Trust Mills and Milling Scheduled Enhancement Programme of 2012 (Hankinson, R and Sylvester, R.J.).

The area is also included within the Clwyd-Powys Archaeological Trust Vale of Llangollen and Eglwyseg Historic Landscape Characterisation report in 2005 (Britnell, W.J.)

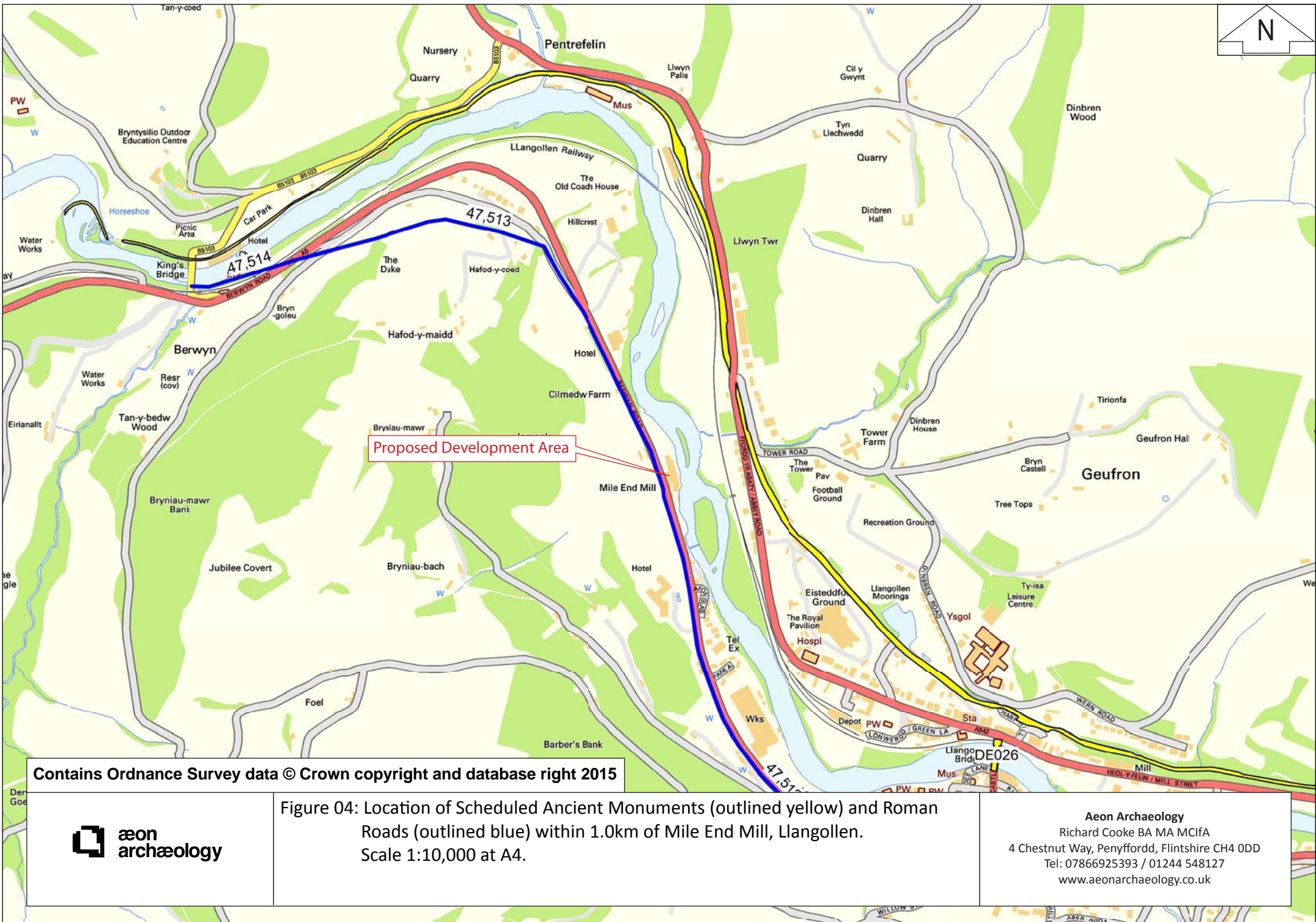


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Figure 03: Location of non-designated points from the Clwyd-Powys Historic Environment Record (HER) within 1.0km of Mile End Mill, Llangollen. Scale 1:10,000 at A4.

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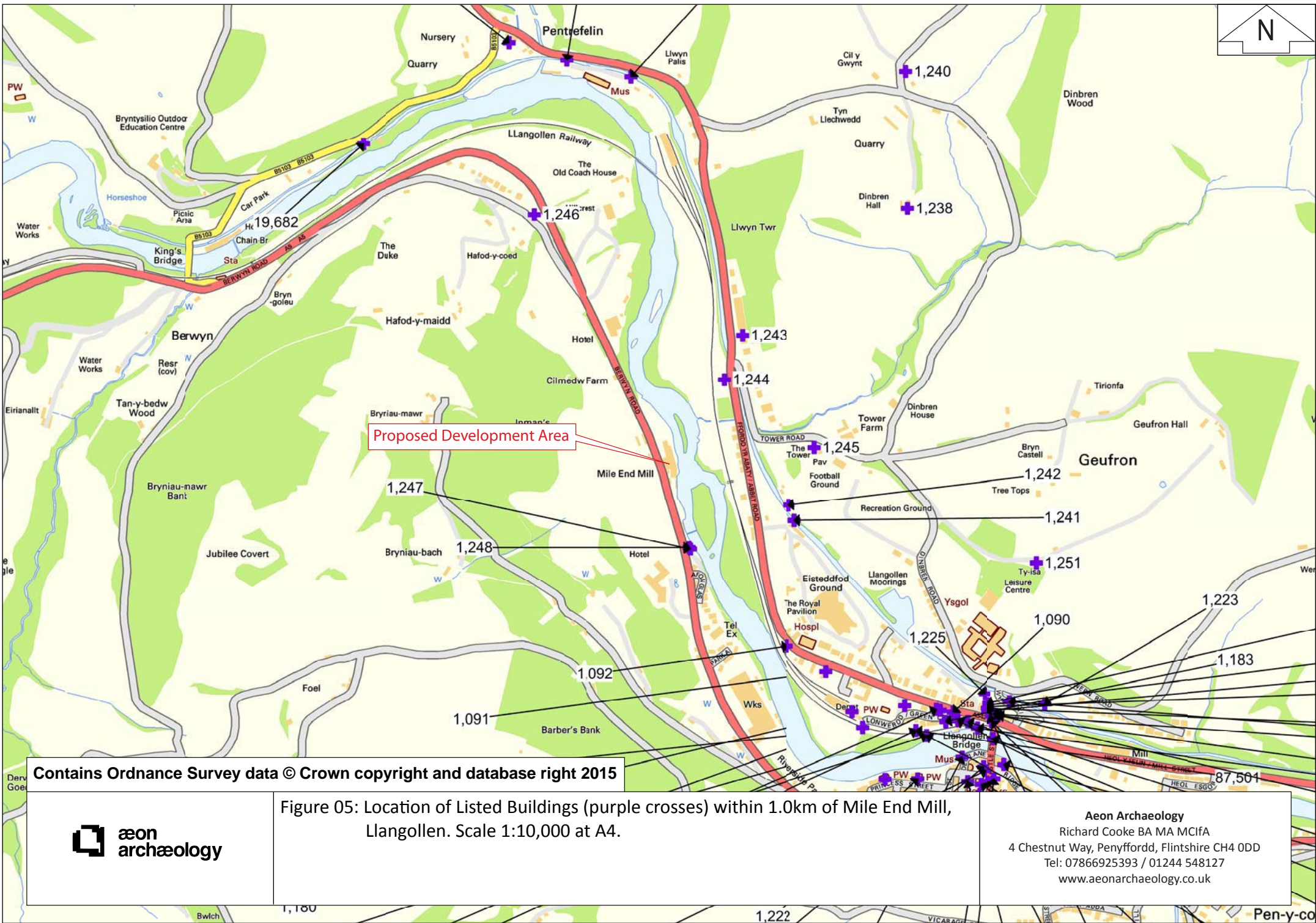


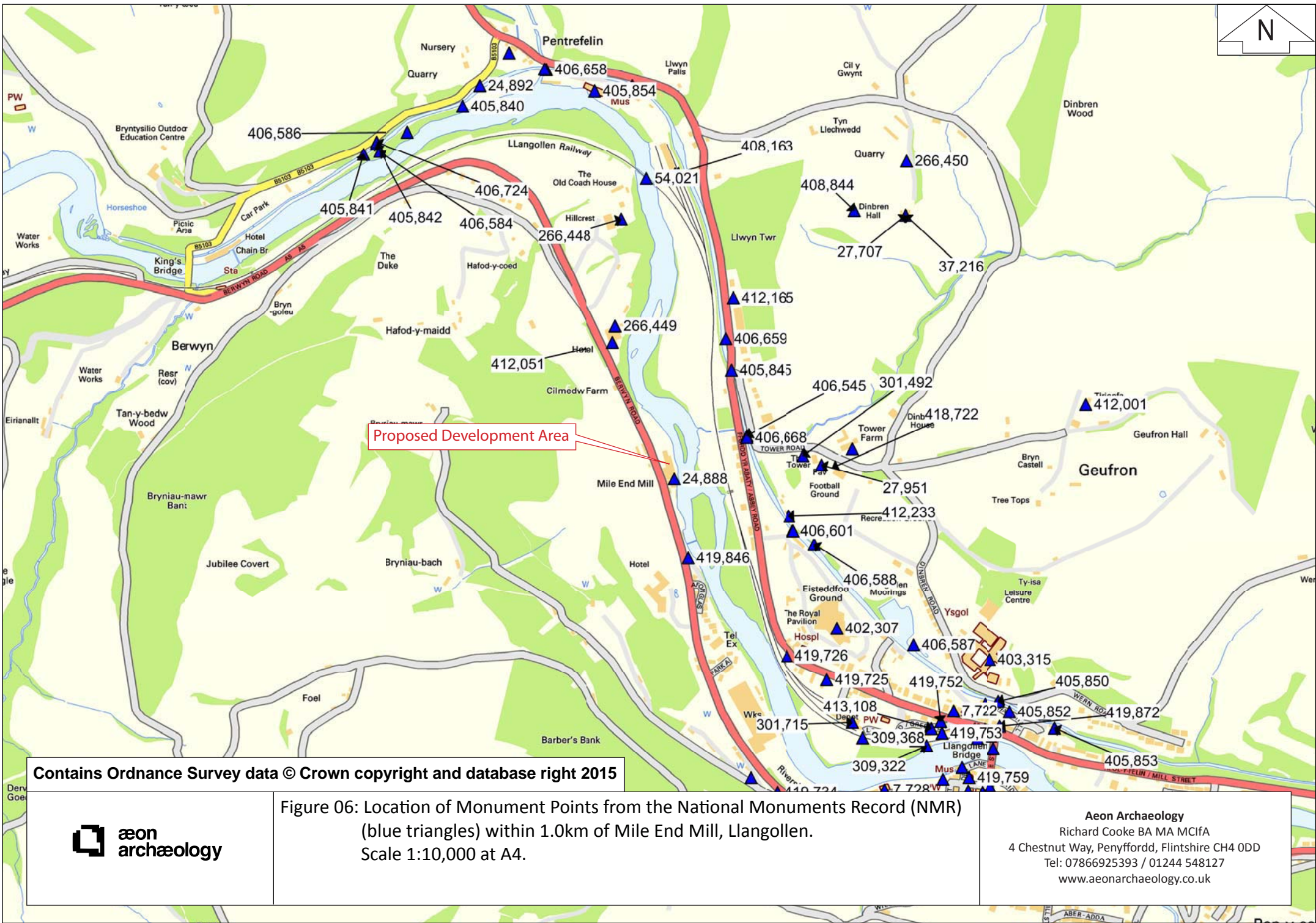
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Figure 04: Location of Scheduled Ancient Monuments (outlined yellow) and Roman Roads (outlined blue) within 1.0km of Mile End Mill, Llangollen.
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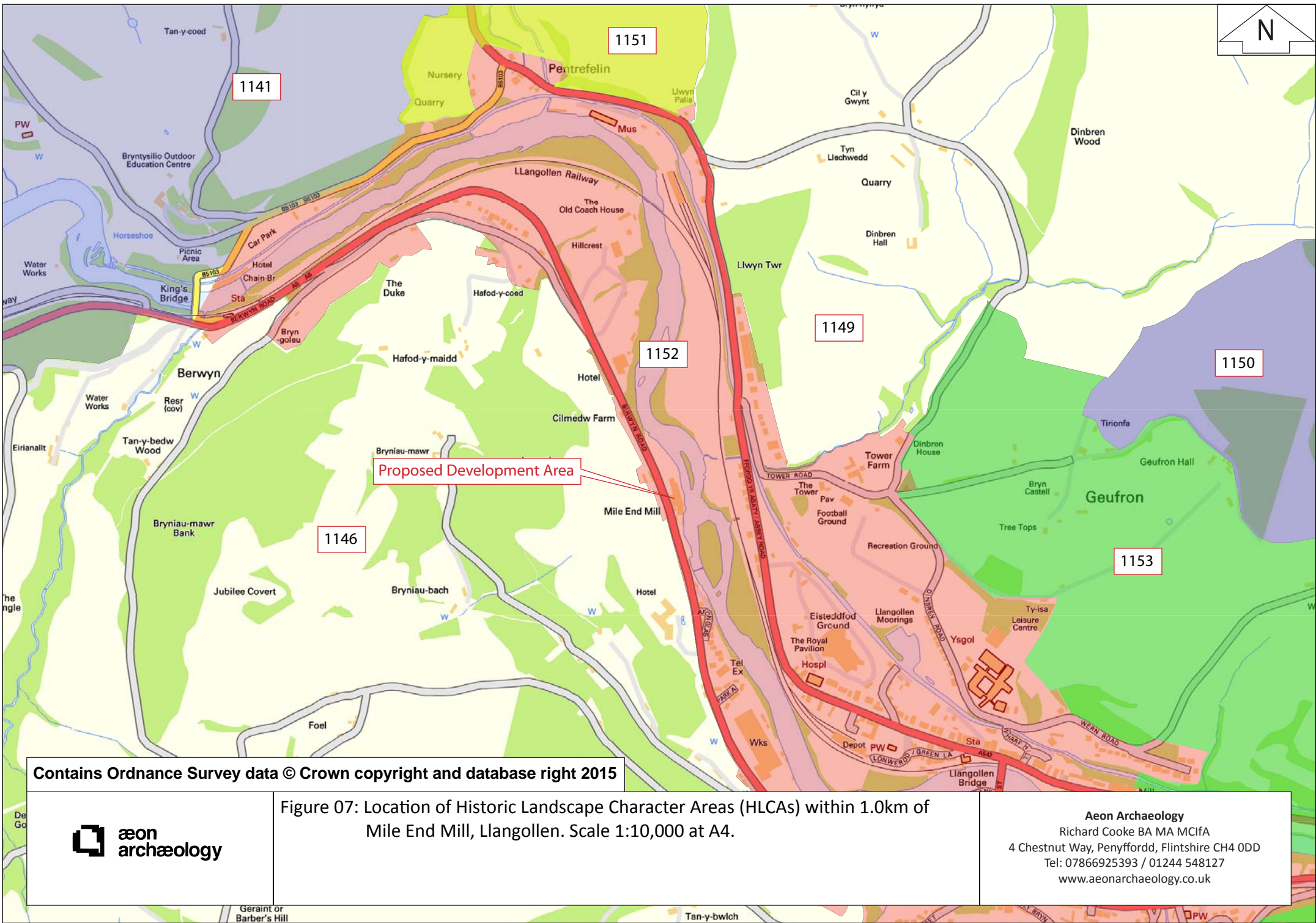


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Figure O6: Location of Monument Points from the National Monuments Record (NMR) (blue triangles) within 1.0km of Mile End Mill, Llangollen. Scale 1:10,000 at A4.

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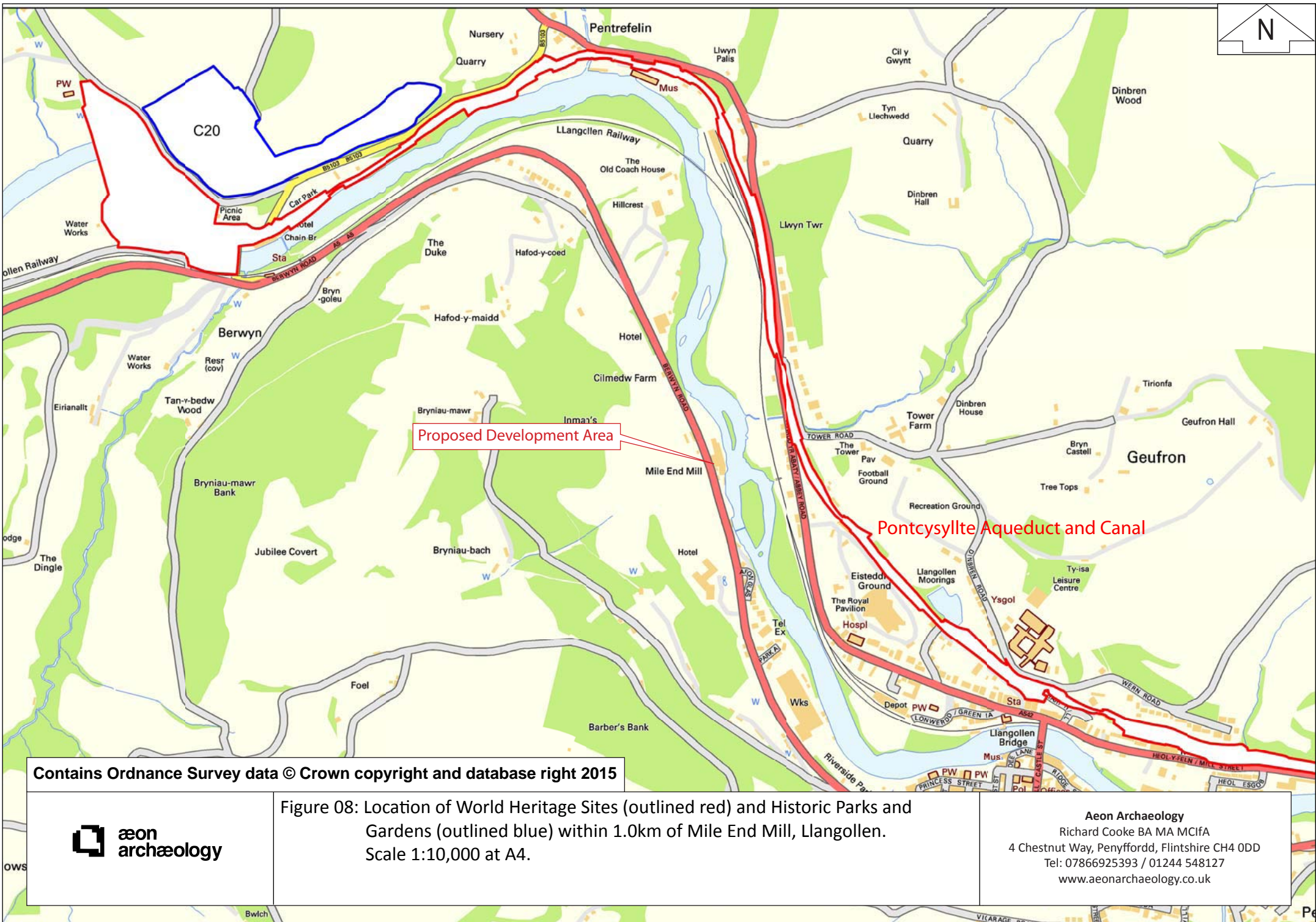


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Figure 07: Location of Historic Landscape Character Areas (HLCA) within 1.0km of Mile End Mill, Llangollen. Scale 1:10,000 at A4.

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Proposed Development Area

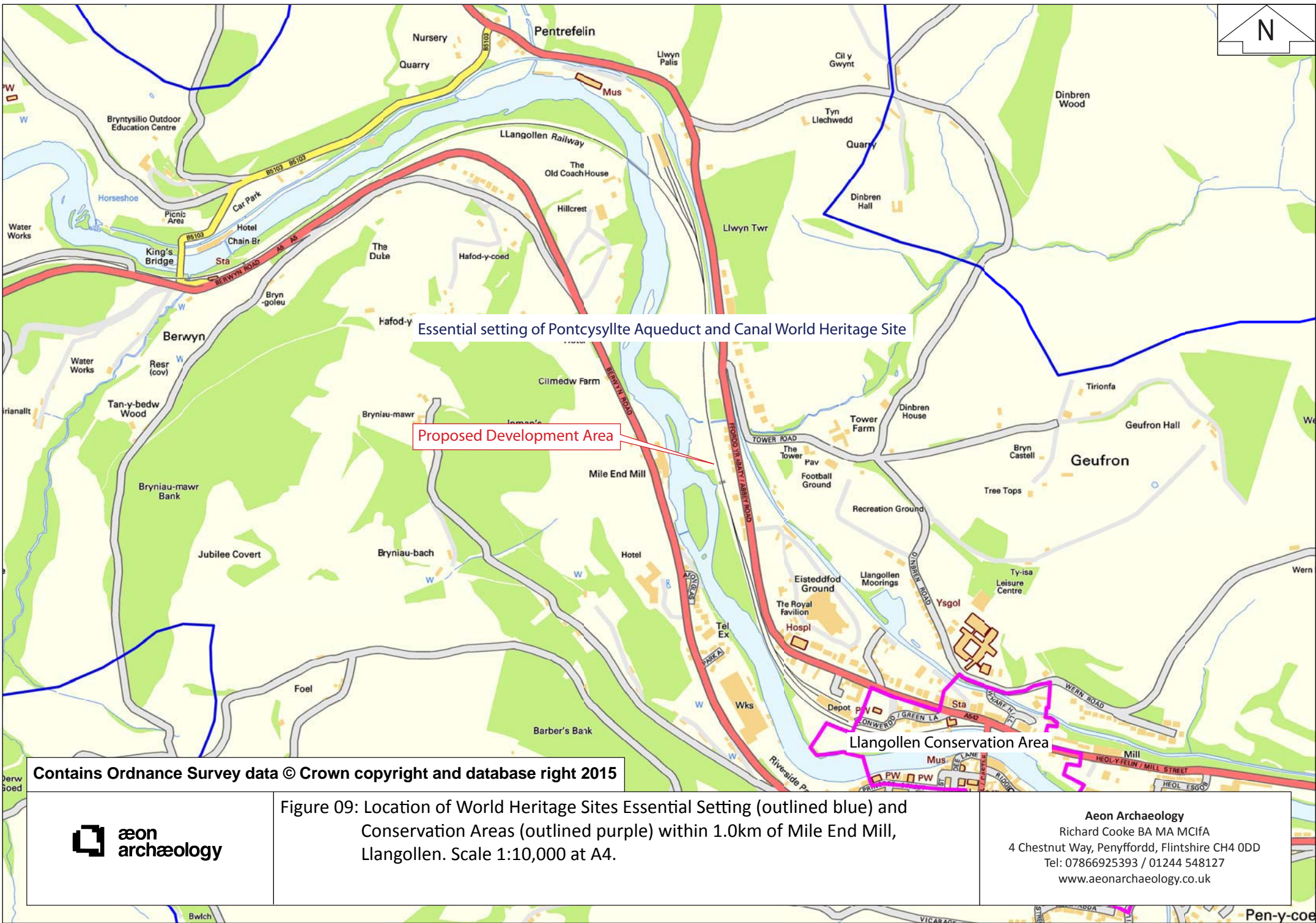
Pontcysyllte Aqueduct and Canal

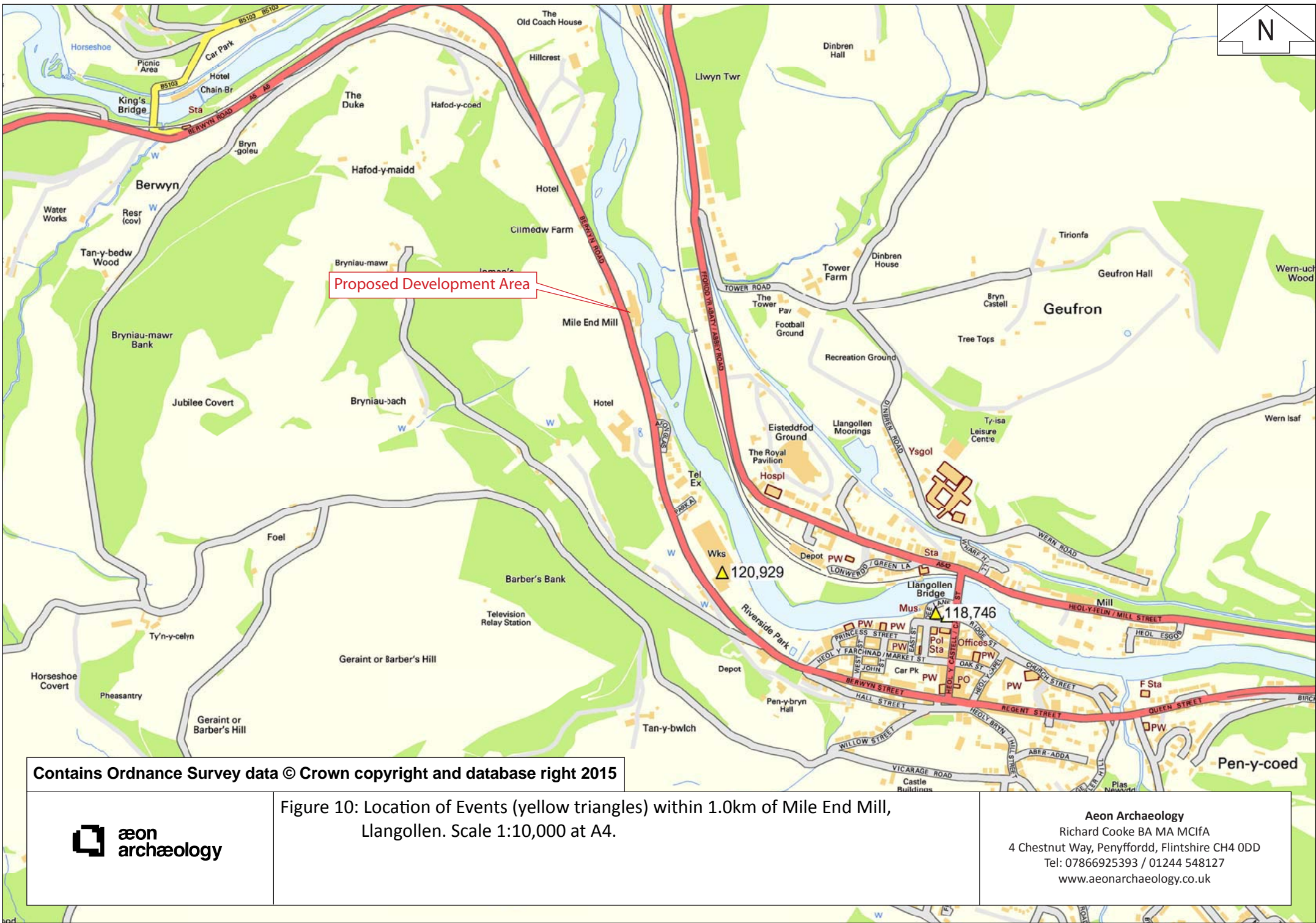
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Figure 08: Location of World Heritage Sites (outlined red) and Historic Parks and Gardens (outlined blue) within 1.0km of Mile End Mill, Llangollen.
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Figure 10: Location of Events (yellow triangles) within 1.0km of Mile End Mill, Llangollen. Scale 1:10,000 at A4.

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5.0 THE HISTORICAL CONTEXT

The following sections describe the known archaeological record within the general area of the proposed development. Sites are identified by their Primary Reference Number (PRN) which is the number by which they are identified in the Clwyd-Powys Historic Environment Record (HER), or by their Scheduled Ancient Monument reference, Listed Building reference and/or their National Primary Reference Number (NPRN) if applicable. The intention of this section is to provide a historic and archaeological context to the site. This aids in establishing the relative importance of an archaeological feature within its landscape, as well as assessing the potential for unknown buried archaeological remains on the proposed development site.

The beginning and end of certain periods is a contentious issue. In the Clwyd-Powys Historic Environment Record (HER) the following dates are used. This is a standard convention across all of the Welsh HERs.

Table 1. Historic periods

Palaeolithic (prehistoric)	500,000 BC – 10,001 BC
Mesolithic (prehistoric)	10,000 BC – 4,001 BC
Neolithic (prehistoric)	4,000 BC – 2,351 BC
Bronze Age (prehistoric)	2,350 BC – 801 BC
Iron Age (prehistoric)	800 BC – 47 AD
Romano-British	48 AD – 409 AD
Post-Roman (Early Medieval)	410 AD – 1065 AD
Medieval	1066 AD – 1539 AD
Post-Medieval	1540 AD – 1900 AD
Modern	1901 AD – 2050 AD

5.1 Prehistoric and Roman Period

The prehistoric period is poorly represented within the localised landscape with only two known sites within 1.0km of the proposed hydro-scheme. The first site lies approximately 870.0m to the south of the development area and was the discovery of a Bronze Age palstave measuring 0.17m in length on Mountains above Llangollen (PRN: 101191). The second site lies approximately 930.0m east of the development area and is the Cae Castell Ucha Issa and Pella fieldnames (PRN: 101630) which may well relate to the nearby hillfort Castell Dinas Bran located nearby.

The Roman period is similarly represented within the localised landscape with only one site listed within the Clwyd-Powys HER as the predicted line of the Roman Road between Rhyn Park and Rhug (PRN: 47514). This road is however only postulated and remains of it have not been uncovered. The projected line does however lie approximately 42.0m to the west of the development area.

The location of the proposed hydro-scheme on land that is relatively flat and bordering the River Dee may well have been conducive to early habitation, especially with the presence of two small islands within the river at this point and shallow waters making crossing the river relatively easy. The lack of prehistoric and Roman sites within the localised landscape is likely to be one of reduced preservation and/or discovery rather than an absence of sites, however due to the ground disturbance from the construction of the Mill buildings and car park it appears likely that the preservation of prehistoric or Roman remains would have

survived. As such the potential for unknown buried sites belonging to the prehistoric and Roman periods is considered to be low.

5.2 Early Medieval, Medieval and Post-Medieval Periods

The Early Medieval period is poorly represented within this part of northeast Wales and there is only one recorded site on the Clwyd-Powys HER which is a findspot of five Saxon sceattas from Llangollen (PRN: 120928).

The medieval period is slightly better represented within the localised landscape with five medieval sites recorded within 1.0km of the proposed development area. These include the Siambr Wen, sepulchral slabs (PRN: 123749), one slab built into the wall of a garage at Siambr Wen, having formerly been in the garden and before that built into Llangollen bridge and located 530.0m to the south of the development area.

Further to the south and approximately 900.0m from the development site is the medieval Scheduled Ancient Monument of Llangollen Bridge (DE026). The original bridge was supposedly constructed by Henry I but the bridge was probably reconstructed in 1346 by John Trevor the Bishop of St Asaph. The bridge consists of four irregular pointed arches of hewn stone and was widened in 1873 when an arch was added and enlarged to twice its original width.

Lying to the east of the development area and just outside of the 1.0km search area is the remains of Valle Crucis Abbey. It was founded in 1201 by Madog ap Gruffydd Maelor on the site of a temporary wooden church and was the last Cistercian monastery to be built in Wales. Originally founded in the principality of Powys Fadog, Valle Crucis was the spiritual centre of the region, while Dinas Bran was the political stronghold. The abbey took its name from the nearby Pillar of Eliseg, which was erected four centuries earlier by Cyngen ap Cadell, King of Powys in memory of his great-grandfather, Elisedd ap Gwylog.

Madog was buried in the then-completed abbey upon his death in 1236. Not long after Madog's death, it is believed that a serious fire badly damaged the abbey, with archaeological evidence that the church and south range were affected.

The dissolution of Valle Crucis Abbey in 1537 was a pivotal moment in the development of Llangollen. Until then, the large monastic estates had dominated agriculture in the Vale of Llangollen and Eglwyseg valley for over 300 years. Farmland became available for development by local families and the buildings themselves were dismantled and used to build houses in the area. Stones from the abbey have been found in local houses and Llangollen Bridge.

The proposed hydro scheme site is first depicted on the Llangollen tithe map of 1845 (figure 11). The site is shown as undeveloped land on the western bank of the River Dee with no visible structures or features depicted. The plot of land upon which Mile End Mill now lies is labelled as plot 323 which was in use for coppice. The tithe apportionment shows that the land was tenanted by Samuel Jones however the field name and landowner entries were damaged and unreadable.

The Clwyd-Powys HER claims that Mile End Mill was located to take advantage of the improved communications provided by Telford's Holyhead Road opening in 1826. A later entry in the HER claims that the mill was built in the 18th Century and possibly enlarged in the 19th Century, however there is no structure depicted on the 1845 tithe map. Moreover, no entries referring to the mill could be found in any of the trade directories from 1828 to 1844, until the production of the Slater's Directory in 1850 which lists 'Mile-End' under the flannel mills entry and owned by Stephen Edward Jones. After this the mill is recorded within every

trade directory for Llangollen. As such it appears unlikely that a mill stood at the site prior to 1846 at the very earliest.

The RCAHMW archive for Mile End Mill (NPRN: 24888) states that a watercolour by Varley dated 1795 and lodged in the National Library of Wales depicts the mill as a small stone-built structure with tandem undershot wheel, however even though a sketch of this watercolour (plate 7) was found within the RCAHMW the painting did not appear to be within the collections of the National Library of Wales and as such could not be verified.

The mill is first depicted in detail on the first edition 25" County Series Ordnance Survey map of 1873 (figure 12) as an L-shaped building with an intake weir and headrace shown north of the building on the western bank of the River Dee. Adjacent to the weir is what appears to be a holding tank labelled 'sluice' and an open leat running southward into the north of the mill building. Just prior to the leat entering the structure a small footbridge is shown crossing the open leat to provide access to the east part of the mill buildings. The structure is shown fronting directly on to the river with no land in between and a rectangular outbuilding to the rear. A second weir is shown further downstream.

The mill is shown similarly on the second edition 25" Ordnance Survey map of 1900 (figure 13) with the exception that an overflow leat is shown towards the northern end of the headrace emptying back into the River Dee. A trackway is also depicted running alongside the eastern edge of the leat parallel with the river and the rear outbuilding had been expanded into a square shaped structure.

By the production of the third edition 25" Ordnance Survey map of 1912 (figure 14) a strip of made ground had been deposited along the eastern face of the mill building creating an area of land between it and the river. Two footbridges are also shown crossing the headrace leat towards the northern and southernmost ends with the rest of the complex depicted as it was in 1873.

The mill would have been originally driven by at least one waterwheel and had a vertical axis Francis turbine installed, most likely to replace the waterwheel, in the latter part of the 19th Century. Indeed, the creation of made ground depicted in the third edition 25" Ordnance Survey map is likely to represent this phase of modernisation at the mill. The turbine remains in-situ within the sub-floor vaulted turbine hall; however this area could not be accessed as part of the assessment and thus could not be recorded. The current proposals are to remove the historic turbine in order to install the new turbine with the turbine hall.

The mill produced flannel which is a soft woven fabric of various fineness. Flannel was originally made from carded wool or worsted yarn but was later produced from either wool, cotton, or synthetic fibre. Flannel may be brushed to create extra softness wherein a fine metal brush rubs the fabric to raise fine fibres from the loosely spun yarns. Typically, flannel has either a single or double-sided nap. Double-napped flannel refers to a fabric that has been brushed on both sides. If the flannel is not napped, it gains its softness through the loosely spun yarn in its woven form.

The upper floor of Mile End Mill was destroyed by fire just before Christmas in 1907 (plate 8) and the rebuilding added a third storey with flat roof. The mill caught fire again in 1920 and during World War II became a munitions factory. After the war and until its closure in the mid 1970's the mill was known as Mile End Factory trading under the name Deeside Broadhurst Ltd and operated as a sheet metal works producing farm equipment.

To the immediate north of Mile End Mill at least five narrow gauge railway lines 0.5m in width can be seen running into the car park from the north, as well as turntables. The Clwyd-Powys HER records these features as being related to the production of munitions however

they are more likely to be the location of the former guillotine shop. This structure was a curved corrugated steel structure where all of the sheet metal from the steelworks at Brymbo was hauled into the workshop on large flat bed trestles, after which the steel was transported into the main factory for fabrication. A crane was also located on site which lifted the sheets of steel on to the flatbeds.

5.3 Aerial Photographs

As part of the archaeological assessment the RCAHMW was visited to examine available historic aerial photographs of the proposed development area, however no historic coverage of this area was available.

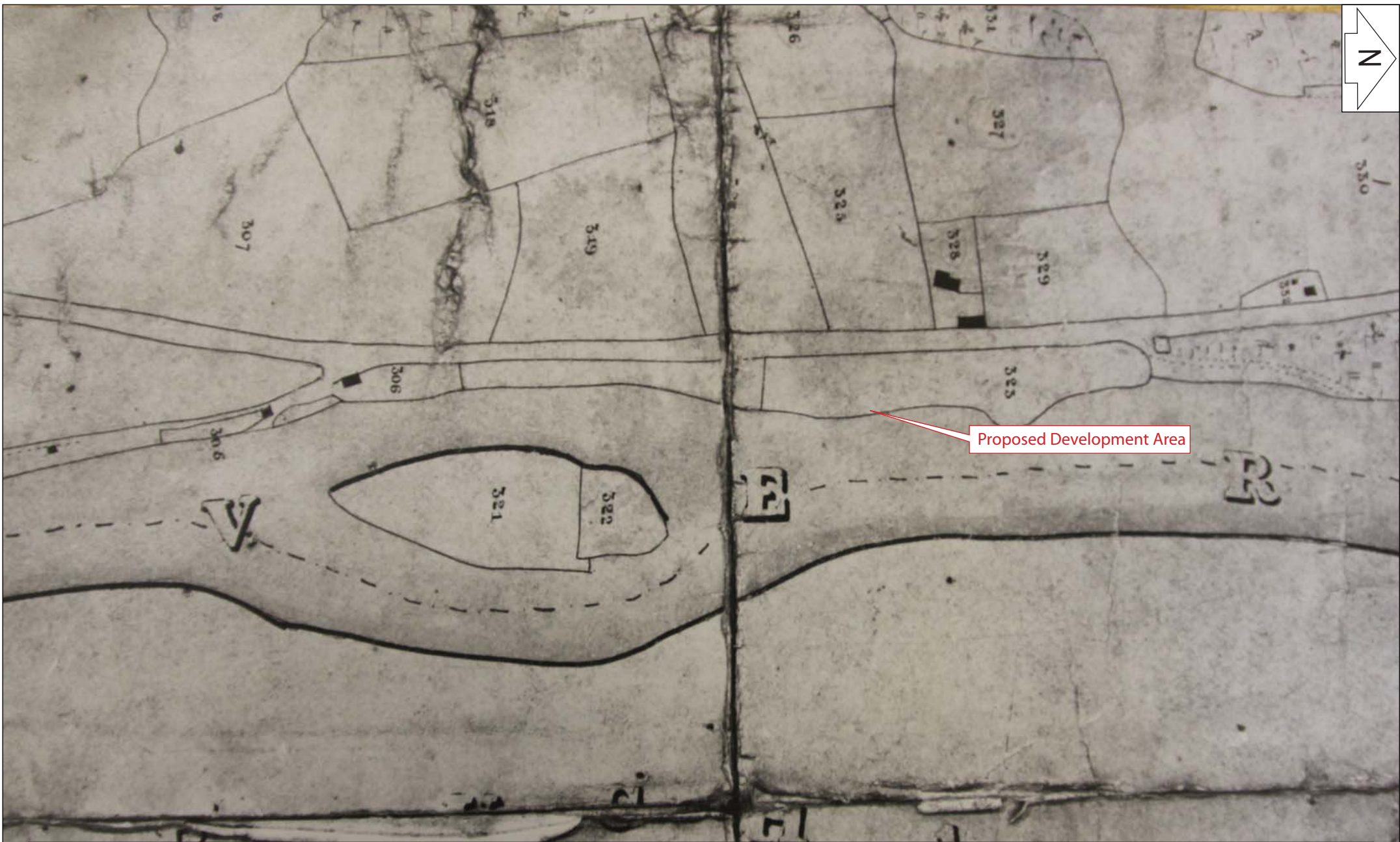


Figure 11: Location of the site of Mile End Mill on the Llangollen Tithe Map of 1845.

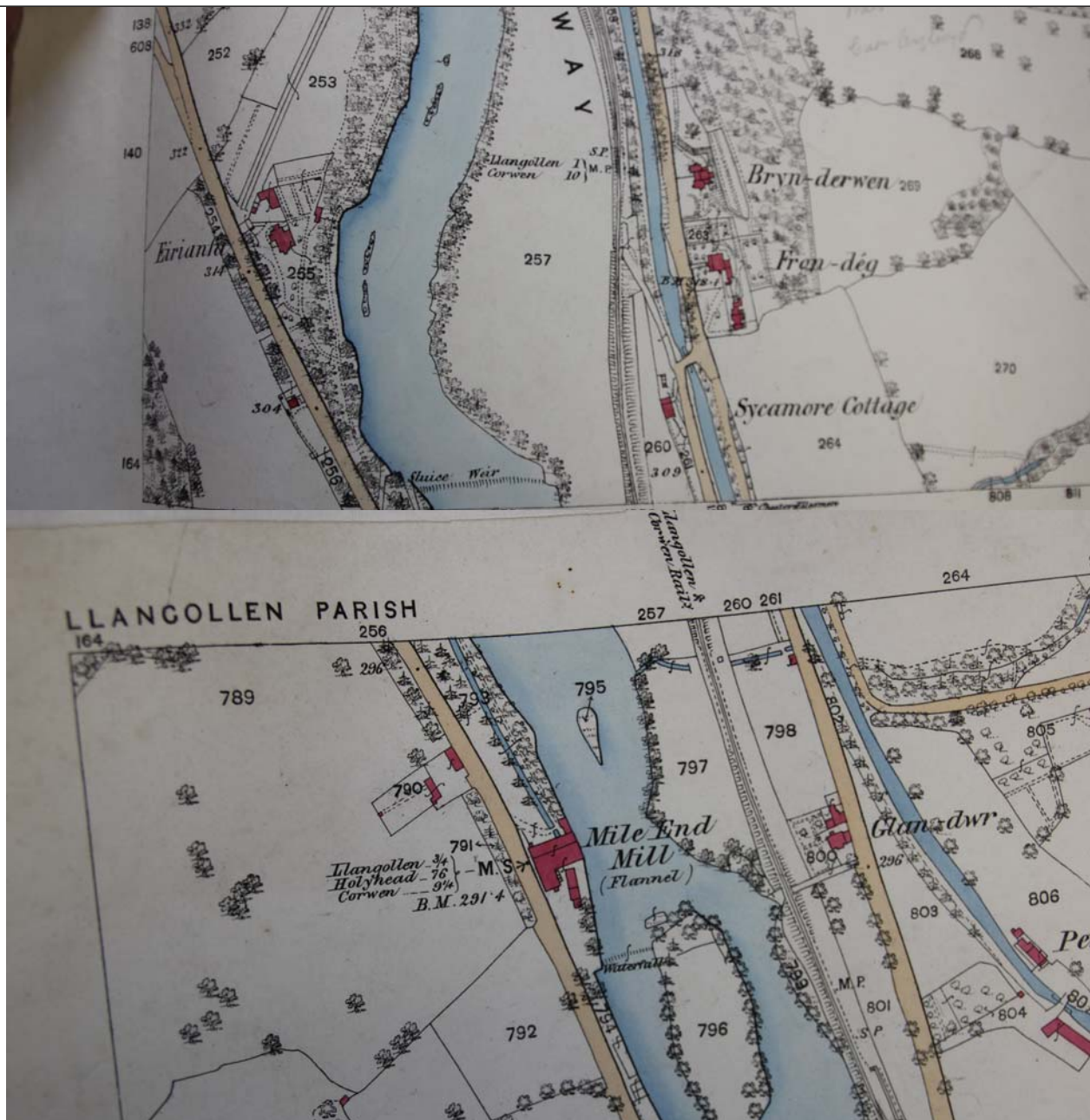


Figure 12: Location of the site of Mile End Mill on the First Edition 25" County Series Ordnance Survey Map of 1873.



Figure 13: Location of the site of Mile End Mill on the Second Edition 25" County Series Ordnance Survey Map of 1900.

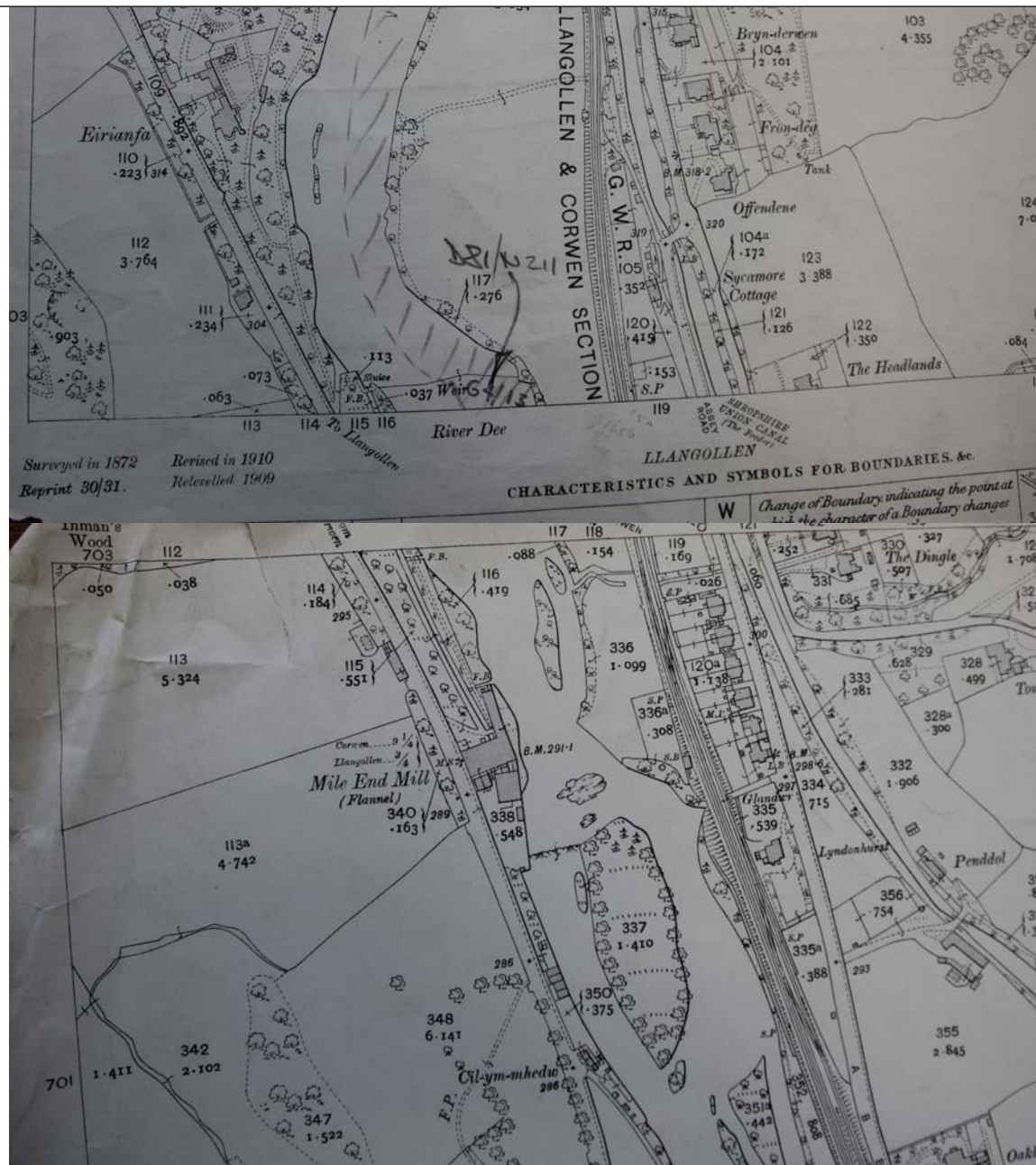


Figure 14: Location of the site of Mile End Mill on the Third Edition 25" County Series Ordnance Survey Map of 1912.



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6.0 ASSESSMENT OF HISTORICAL ASSETS

6.1 Definitions

Definitions of importance, impact, and significance of effect as used in the gazetteer (section 6.2) are listed below. Definitions of assessment and mitigation techniques as used in the gazetteer are listed in appendix II.

1. Definition of Categories of importance

The following categories were used to define the importance of the archaeological resource.

Significance	Description
International (Very High)	Archaeological sites or monuments of international importance, including World Heritage Sites. Structures and buildings inscribed as of universal importance as World Heritage Sites. Other buildings or structures of recognised international importance.
National (High)	Ancient monuments scheduled under the Ancient Monuments and Archaeological Areas Act 1979, or archaeological sites and remains of comparable quality, assessed with reference to the Secretary of State's non-statutory criteria. Listed Buildings. Undesignated structures of national importance.
Regional/ County (Medium)	Conservation Areas Archaeological sites and remains which, while not of national importance, score well against most of the Secretary of State's criteria.
Local (Low)	Archaeological sites that score less well against the Secretary of State's criteria. Historic buildings on a 'local list'.
Negligible/None	Areas in which investigative techniques have produced no or only minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.
Unknown	Archaeological sites whose importance cannot be determined with the information currently at hand. This can include sites where the extent of buried remains is unknown.

2. Definition of Impact

The direct impact of the proposed development on each site was estimated. The impact is defined as follows:

Magnitude	Direct Impacts	Indirect Impacts
High Adverse	Complete removal of an archaeological site. Complete destruction of a designated building or structure.	Radical transformation of the setting of an archaeological monument. A fundamental change in the setting of a building.
Medium Adverse	Removal of a major part of an archaeological site and loss of research potential. Extensive alteration (but not demolition) of a historic building or feature, resulting in an appreciable adverse change.	Partial transformation of the setting of an archaeological site (e.g. the introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use, accessibility or appreciation of an archaeological site). Partial adverse transformation of the setting of a designated building.
Low Adverse	Removal of an archaeological site where a minor part of its total area is removed but the site retains a significant future research potential. Change to a historic building or feature resulting in a small change in the resource and its historical context and setting.	Minor change to the setting of an archaeological monument or historic building.
Negligible/ Neutral	No impact from changes in use, amenity or access. No change in the ability to understand and appreciate the resource and its historical context and setting.	No perceptible change in the setting of a building or feature.
Low Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains or understanding/ appreciation of a historic building or place	Decrease in visual or noise intrusion on the setting of a building, archaeological site or monument. Improvement of the wider landscape setting of a building, archaeological site or monument.
Medium Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains, or understanding/ appreciation of a historic building or place, including through interpretation measures (heritage trails, etc). Removal of harmful alterations to better reveal the significance of a building or structure, with no loss of significant fabric.	Significant reduction or removal of visual or noise intrusion on the setting of a building, archaeological site or monument; and Improvement of the wider landscape setting of a building, archaeological site or monument Improvement of the cultural heritage amenity, access or use of a building, archaeological site or monument.
High Beneficial	Arrest of physical damage or decay to a building or structure;	Exceptional enhancement of a building or archaeological site, its cultural heritage amenity and access or use

3. The significance of effect

The significance of effect is derived from the importance of the resource and the magnitude of the impact upon it.

Very large - A serious impact on a site of international or national importance with little or no scope for mitigation. These effects represent key factors in the decision making process.

Large - Lesser impacts on sites of national importance and serious impacts on sites of regional importance, with some scope for mitigation. These factors should be seen as being very important considerations in the decision making process.

Moderate - Moderate or minor impacts on sites of regional importance and minor to major impacts on sites of local or minor importance. A range of mitigatory measures should be available.

Slight - Negligible impacts on sites of regional, local or minor importance and minor and moderate impacts on minor or damaged sites. A range of basic mitigatory measures should be available.

Neutral - No perceptible effect or change to sites of all categories.

The significance of effect will be determined using the table below, a basic matrix combining archaeological value and magnitude of impact.

Determination of Significance of Effect

Archaeological Value	International	Neutral	Moderate or Large	Large or Very Large	Very Large
	National	Neutral	Moderate or Slight	Moderate or Large	Large or Very Large
	Regional	Neutral	Slight	Moderate	Moderate or Large
	Local	Neutral	Neutral or Slight	Slight	Moderate or Slight
	Negligible	Neutral	Neutral or Slight	Neutral or Slight	Slight
		None	Low	Medium	High
		Magnitude of impact			

7.0 SITE GAZETTEER – IMPACTS AND SIGNIFICANCE OF EFFECT

The field walkover discovered 4 sites of archaeological and historic interest within the 40.0m wide assessment corridor, with 1 further site being identified from historic maps, as listed below.

In accordance with Paragraph 128 of the National Planning Policy Framework and Welsh Office Circular 60/96 each heritage asset has been assigned a level of importance ranked from International through to National, Regional/County, Local, and None. If it is not possible to assess the importance of the site from the visible remains, then it is ranked Unknown with the suspected importance level placed in brackets if possible. Identified sites were also assigned a level of impact ranked from High through to Medium, and Low. Levels of impact can be considered as both adverse or beneficial, and can be direct (physically impacting upon a site) or indirect (indirectly physically impacting upon a site). The significance of effect is determined from the importance level of the resource and the magnitude of the impact upon it. Where it is expected that a site will be impacted upon by the proposed works then mitigation/assessment recommendations are provided. All archaeological/historical sites identified are depicted on figure 15 along with the location/orientation of photographs.

1. Trackway	PRN: Tbc
Figure: 12, 13, 14 and 15	Plate: 2
NGR: SJ 20744 42911 – SJ 20775 42877	Period: Post-medieval
<p>Description</p> <p>A trackway runs from north to south connecting the proposed intake location with the mill car park. It measures 2.5m in width and is constructed from compressed hardcore material. The trackway is depicted on the first, second and third edition 25” Ordnance Survey maps of 1873, 1900 and 1912 respectively as running alongside the headrace leat for the mill. The current trackway appears to run slightly to the west of the original track and it is likely that it runs over the top of the in-filled historic leat.</p> <p>The trackway is of local importance as part of the historic mill complex. The hydro-scheme dual pipe will be placed within much of the trackway within a 3.0m wide trench, as such the proposed development will have a medium adverse direct physical impact upon the feature, resulting in a slight adverse significance of effect. It is therefore proposed that a photographic record be taken of the trackway prior to being breached, however the photographs and description provided within this report should be seen as being commensurate with a basic record level and as such no further assessment or mitigatory works are proposed aside from reinstatement.</p>	
Category of importance: Local	
Level of impact: Medium adverse direct physical	
Significance of effect: Slight adverse	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None / reinstatement	



Plate 02: Trackway (feature 1), from the north. Scale 1.0m.



Plate 03: Route of proposed hydro scheme along the western bank of the River Dee, from the north. Scale 1.0m.

2. Narrow gauge railway tracks, turntables and crane anchor	PRN: Tbc
Figure: 12, 13, 14 and 15	Plate: 4
NGR: SJ 20797 42807	Period: Post-medieval
<p>Description</p> <p>A series of at least five sets of narrow gauge railway tracks measuring 0.5m in diameter run from the north into the car park next to the mill building, along with mini turntables and a crane anchor point. The Clwyd-Powys HER records that these features date to when the factory was utilised for the production of munitions during the Second World War, however local knowledge suggests that they were in fact utilised as part of the sheet steel works at the site. It is however likely that at least some of the tracks date to the War period and as such can be considered of local/regional importance.</p> <p>The proposed hydro scheme will be located towards the east of these features and it is not anticipated that there will be any direct impact upon them. As such no further recommendations are made.</p>	
Category of importance: Local/regional	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



Plate 04: Mile End Mill showing narrow gauge railway tracks (feature 2), from the north. Scale 1.0m.

3. Historic Leat and intake weir	PRN: Tbc
Figure: 12, 13, 14 and 15	Plate: N.A.
NGR: SJ 20802 42797 – SJ 20754 42898	Period: Post-medieval
<p>Description</p> <p>The historic headrace leat is shown on the first, second and third edition 25” Ordnance Survey maps of 1873, 1900 and 1912 respectively as running from an intake weir in the north down to the mill building in the south. The rubble-built weir still exists today although it has clearly eroded and would have retained a higher river level than present. The open leat is no longer visible and had been in-filled once the mill had gone out of use, probably as part of the utilisation of the building as a munitions factory. It is likely that preserved buried remains of the leat exist beneath ground level.</p> <p>The leat should be considered as being of local to regional importance through its group value with the mill complex. Furthermore, it is probable that the excavation of a 3.0m trench for the hydro-scheme will unearth preserved remains of the leat and likely have a medium adverse direct physical impact resulting in a moderate adverse significance of effect. As such it is recommended that an archaeological watching brief be maintained during groundworks in vicinity of the leat and that a record of any revealed structural remains are recorded prior to being breached so that the feature can be preserved via record.</p>	
Category of importance: Local to regional	
Level of impact: Medium adverse direct physical	
Significance of effect: Moderate adverse	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Archaeological watching brief during groundworks	

4. Mill building, turbine and tailrace leat	PRN: 93414
Figure: 12, 13, 14 and 15	Plate: 5 and 6
NGR: SJ 20809 42756	Period: Post-medieval
<p>Description</p> <p>The mill building is first depicted on the first edition 25" Ordnance Survey map of 1873 (figure 12) but is not shown on the tithe map of 1845 (figure 11). As such it is likely to have been constructed between these dates and is first referred to in the Llangollen trade directory of 1850.</p> <p>The mill building, although not architecturally significant, should be considered to be of at least regional importance through its social, economic and cultural associations as well as an example of a mid 19th Century industry building which undoubtedly help shape the development of Llangollen.</p> <p>The proposed scheme will involve breaching the eastern wall of the mill building beneath ground level and feeding the new pipe into a new turbine within the historic vaulted turbine hall. This will involve the removal of the vertical axis Francis turbine which still site in-situ within the hall. The historic outfall leat will then be utilised to return water to the River Dee, although there is not expected to be any impact upon this part of the mill.</p> <p>The in-situ turbine could not be accessed and as such no record of the feature has been undertaken as part of this assessment. As such it is proposed that once access into the turbine hall is established that a photographic and written description of the turbine is taken prior to its removal.</p>	
Category of importance: Regional	
Level of impact: High adverse direct physical (turbine)	
Significance of effect: Moderate adverse	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Photographic and descriptive record of the turbine prior to its removal	



Plate 05: Proposed hydro-scheme route along east side of Mill, from the north. Scale 1.0m.



Plate 06: Proposed hydro-scheme entrance into Mill building, from the northeast. Scale 1.0m.



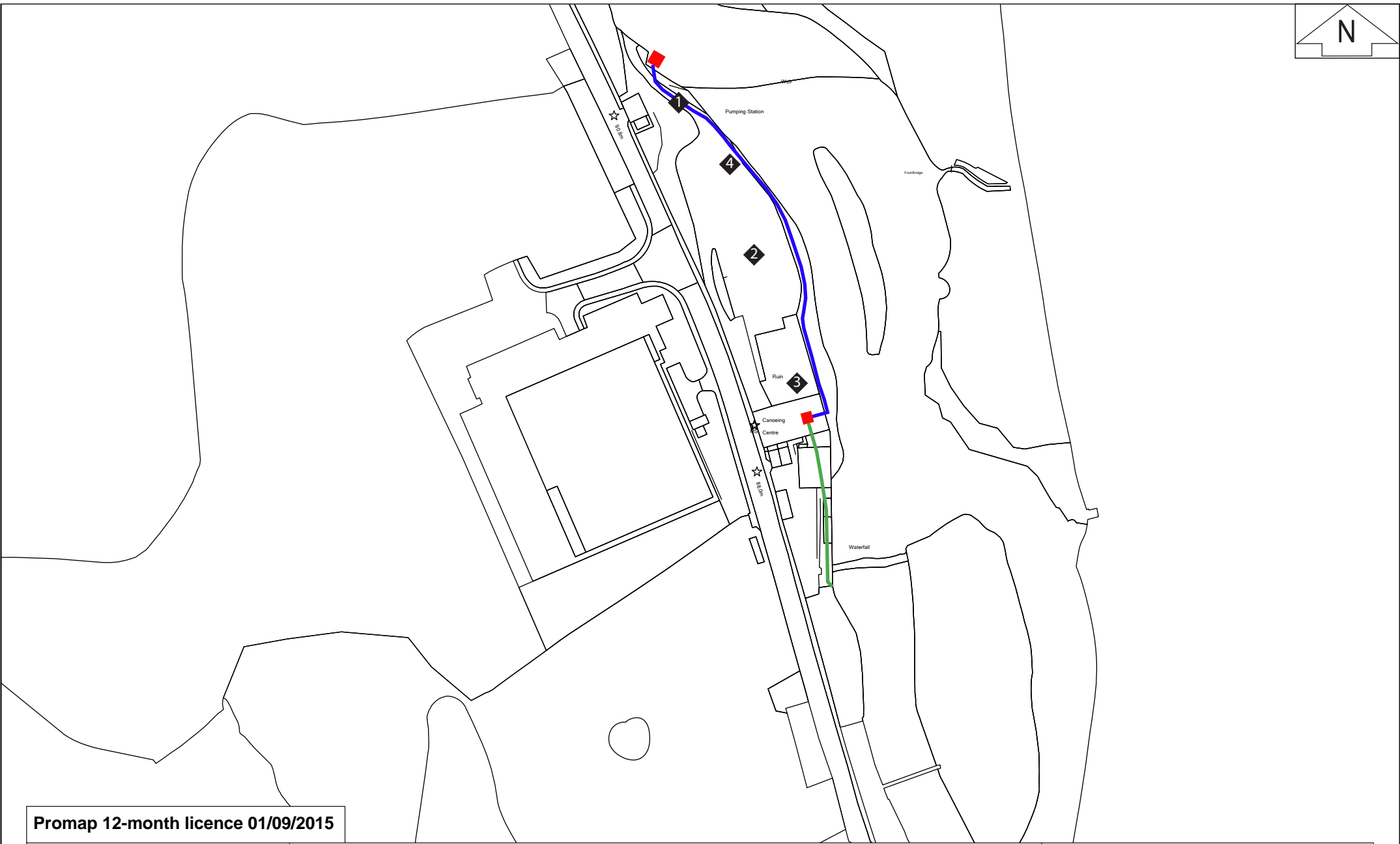
Plate 07: Sketch of 1795 Varley Watercolour reportedly of Mile End Mill housed at the RCAHMW.



Plate 08: Mile End Mill after the fire of 1907.

5. Pontcysyllte Aqueduct and Canal World Heritage Site	SAM: DE175 World Heritage Site Listed Building
Figure: 3 - 9	Plate: N.A.
NGR: SJ 20982 42802	Period: Post-medieval
<p>Description</p> <p>The aqueduct, built by Thomas Telford and William Jessop, is 336 yd (307 m) long, 4 yd (3.7 m) wide and 5.25 ft (1.60 m) deep. It consists of a cast iron trough supported 126 ft (38 m) above the river on iron arched ribs carried on eighteen hollow masonry piers (pillars). Each of the nineteen spans is 53 ft (16 m) wide. Despite considerable public scepticism, Telford was confident the construction method would work: he had previously built at least one cast iron trough aqueduct – the Longdon-on-Tern aqueduct on the Shrewsbury Canal, still visible in the middle of a field, though the canal was abandoned years ago. Part of what was originally called the Ellesmere Canal, it was one of the first major feats of civil engineering undertaken by Telford, by then a leading civil engineer, supervised by Jessop, the more experienced canal engineer. The iron was supplied by William Hazledine from his foundries at Shrewsbury and nearby Cefn Mawr. It was opened on 26 November 1805, having taken around ten years to design and build at a total cost of £47,000.</p> <p>At the time of the aqueduct's completion, the canal terminated at a wharf slightly to its north. A feeder to bring water from the Horseshoe Falls beyond Llangollen was completed three years later in 1808, and at some point after 1820 the Plas Kynaston Canal was built to serve industry in the Cefn Mawr and Rhosymedre areas.</p> <p>The canal and aqueduct are statutorily protected as a World Heritage Site, Scheduled Ancient Monument and Listed Building and as such any potential impacts should be mitigated for in their entirety. The proposed scheme will not impact directly or indirectly upon the site but does lie within its essential setting area and as such any potential impacts should be assessed.</p> <p>It is considered that the hydro-scheme will be visible from the World Heritage Site during construction however this will be time limited and when considered in the context of the large essential setting polygon will be negligible in its visual impact. As such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: International	
Level of impact: Negligible upon essential setting during construction	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	

Table 3: Summary of archaeological features.						
GREEN = <u>no</u> action required; RED = Action required						
Number	Name	Importance	Impact	Significance of effect	Further Assessment	Mitigation Recommendations
PHYSICAL DIRECT AND INDIRECT IMPACTS						
1	Trackway	Local	Medium adverse direct physical	Slight adverse	None	None / reinstatement
2	Narrow gauge railway tracks, turntables and crane anchor	Local / regional	None	Neutral	None	None
3	Historic Leat and intake weir	Local / regional	Medium adverse direct physical	Moderate adverse	None	Archaeological watching brief during groundworks
4	Mill building, turbine and tailrace leat	Regional	High adverse direct physical (turbine)	Moderate adverse	None	Photographic and descriptive record of the turbine prior to its removal
5	Pontcysyllte Aqueduct and Canal World Heritage Site	International	Negligible upon essential setting	Neutral	None	None



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Figure 15: Location of historical assets at Mile End Mill, Llangollen.
Scale 1:2,000 at A4.

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8.0 IMPACT AND RECOMMENDATIONS

8.1 Direct physical impact

Construction phase

The proposed development scheme is expected to have a *medium adverse direct physical* impact upon two sites of historic importance (trackway feature 1, and historic leat feature 3) during the construction phase resulting in a slight adverse and moderate adverse significance of effect respectively. It has been proposed that an archaeological watching brief be maintained during groundworks between the intake and the northern part of the mill building to record any preserved remains of the historic leat that may be uncovered.

The scheme is also expected to have a *high adverse direct physical* impact upon the historic vertical axis Francis turbine (feature 4) housed within the mill vaulted turbine hall due to the requirement for its removal. This will result in a *moderate adverse* significance of effect and as such recommendations have been made for a photographic and descriptive record of this feature prior to removal once access has been established into the turbine hall.

Completion phase

The proposed development scheme is not expected to have any direct physical impact upon any known sites of archaeological and historical significance upon completion.

8.2 Indirect physical and non-physical impact

Construction phase

The proposed development scheme is expected to have a *negligible* indirect non-physical (visual) impact upon the essential setting of the Pontcysyllte Aqueduct and Canal World Heritage Site. This however will be time limited and is generally expected to have a neutral to very low significance of effect. As such no further recommendations are made.

Completion phase

The proposed development scheme is not expected to have any indirect physical and non-physical impact upon any known sites of archaeological and historical significance upon completion.

8.3 General recommendations

Mile End Mill should be regarded as being of regional importance through the role it played in the social, cultural and economic development of Llangollen as a large employer of local people from the mid 19th Century. The building itself, although architecturally insignificant, is a well preserved example of a Victorian industry that helped shape this part of North Wales.

The proposed hydro-scheme can be seen as relatively sympathetic in nature and will re-establish the turbine hall and outfall leat to their historic purpose and as such should be seen as an overall beneficial scheme. Where potential impacts do occur, in particular the probable breach of the in-filled historic leat and removal of the vertical axis Francis turbine mitigatory responses have been provided which should mitigate for any impacts.

9.0 SOURCES

OS Maps

1st edition 25 inch Ordnance Survey Map of 1873.

2nd edition 25 inch Ordnance Survey Map of 1900.

3rd edition 25 inch Ordnance Survey Map of 1912.

OS 1:10 000 Series sheet SJ 24NE, SJ 24SE, SJ 24SW, and SJ 24NW.

Tithe map and apportionment for the parish of Llangollen, 1845.

Sources

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APPENDIX 1: SCHEDULED AND NON-SCHEDULED SITES WITHIN 1.0KM

Undesignated monuments within 1km of the proposed development area as listed on the Clwyd-Powys HER (figure 3)

PRN	Name	Type	Broadclass	Period
68052	Barber's Bank, building	Building		Post-Medieval
68810	Barber's Hill, mast	Mast		Modern
93475	Bryn Tysilio Limekilns	Lime kiln	Industrial	Modern
101630	Cae Castell Ucha Issa and Pella Fieldname	Hillfort;Castle	Defence	Iron Age;Medieval
101624	Cae Maengwyn Fieldname	Boulder;Standing stone	Monument (by form)	Unknown;Prehistoric
93340	Dinbren Quarry	Quarry	Agriculture and Subsistence	Post-Medieval
68053	Inman's Wood, trackway	Trackway		Post-Medieval
68054	Inman's Wood, well	Well		Post-Medieval
120663	Llangollen Abad lands (Valle Crucis)	manor	agriculture and subsistence	Medieval
101171	Llangollen Axe	Find	Monument (by form)	Bronze Age
93466	Llangollen Brewery	Brewery	Industrial	Modern
101214	Llangollen Bridge	Bridge	Transport	Medieval
41493	Llangollen Canal, aquaduct (Pentrefelin - Afon Eglwyseg)	Canal aqueduct	Transport	Post-Medieval
31689	Llangollen Canal, Bridge 46 (Penddol Bridge)	Canal bridge	Transport	Post-Medieval
41488	Llangollen Canal, Bridge 48 (Pentrefelin Bridge)	Canal bridge	Transport	Post-Medieval
31865	Llangollen Canal, Bridge 48A (Pentrefelin Bridge)	Canal bridge	Transport	Post-Medieval
93402	Llangollen Chapel	Nonconformist chapel	Religious, Ritual and Funerary	Modern
120666	Llangollen fishery (Valle Crucis)	fishery	agriculture and subsistence	Medieval
99991	Llangollen Methodist Church	Nonconformist chapel		Modern
101191	Llangollen Palstave	Find	Monument (by form)	Bronze Age
31560	Llangollen Railway Station, "down" platform	Railway platform	Transport	Post-Medieval
123613	Llangollen Railway Station, "down" platform, building	railway station building	transport	Post-Medieval
31559	Llangollen Railway Station, "up" platform	Railway platform	Transport	Post-Medieval
123614	Llangollen Railway Station, "up" platform, building	railway station building	transport	Post-Medieval
31562	Llangollen Railway Station, goods shed	Railway goods shed	Transport	Post-Medieval

31556	Llangollen Railway Station, main building	Railway station	Transport	Post-Medieval
31561	Llangollen Railway Station, Overbridge	Railway footbridge	Transport	Post-Medieval
31557	Llangollen Railway Station, signal box	Railway signal box	Transport	Post-Medieval
93470	Llangollen Tenters	Tenters	Agriculture and Subsistence	Modern
31567	Llangollen, Abbey Road Arnon Cottage	House	Domestic	Post-Medieval
31566	Llangollen, Abbey Road Fair View (including outbuilding	House	Domestic	Post-Medieval
31691	Llangollen, Abbey Road Fron Deg	House	Domestic	Post-Medieval
31555	Llangollen, Abbey Road Gated drive entrance to Llangollen	Gateway	Gardens, Parks and Urban Spaces	Post-Medieval
31690	Llangollen, Abbey Road Penddol	House	Domestic	Post-Medieval
31550	Llangollen, Abbey Road Pillar Box on pavement outside No 1	Post box	Communications	Post-Medieval
31692	Llangollen, Abbey Road Sycamore	House	Domestic	Post-Medieval
31558	Llangollen, Abbey Road, Embankment Wall to railway line	Railway embankment wall	Monument (by form)	Post-Medieval
31563	Llangollen, Abbey Road, Lamp standard at the Y junction	Lamp post	Gardens, Parks and Urban Spaces	Post-Medieval
31569	Llangollen, Abbey Square Nos 1-4 (inclusive) (and No 3	House	Domestic	Post-Medieval
40186	Llangollen, Abbey Square Nos 1-4 (inclusive) (and No 3 Abbe	House	Domestic	Post-Medieval
40187	Llangollen, Abbey Square Nos 1-4 (inclusive) (and No 3 Abbe	House	Domestic	Post-Medieval
40188	Llangollen, Abbey Square Nos 1-4 (inclusive) (and No 3 Abbe	House	Domestic	Post-Medieval
40189	Llangollen, Abbey Square Nos 1-4 (inclusive) (and No 3 Abbe	House	Domestic	Post-Medieval
31694	Llangollen, Berwyn Road, A5 Henllys	House	Domestic	Post-Medieval
31695	Llangollen, Berwyn Road, A5 Nos 1 and 2 Cilmedw Cottages	House	Domestic	Post-Medieval
40454	Llangollen, Berwyn Road, A5 Nos 1 and 2 Cilmedw Cottages	House	Domestic	Post-Medieval

31576	Llangollen, Berwyn Street Cambrian Hotel	House	Domestic	Post-Medieval
31572	Llangollen, Berwyn Street Post Office (excluding Dalesford)	Baptist college	Domestic	Post-Medieval
31578	Llangollen, Bridge Street Royal Hotel	House	Domestic	Post-Medieval
40453	Llangollen, Caledfryn and attached cottage	House	Domestic	Post-Medieval
31610	Llangollen, Castle Street 'Bull Inn' (including Caesar Hughes)	House	Domestic	Post-Medieval
31609	Llangollen, Castle Street ECTARC (former Bedyddwyr Chapel)	Nonconformist chapel	Religious, Ritual and Funerary	Post-Medieval
31608	Llangollen, Castle Street Pillar Box on the pavement outside	Post box	Communications	Post-Medieval
31611	Llangollen, Castle Street Square Gabriels and Cottage Tea R	House	Domestic	Post-Medieval
40448	Llangollen, Castle Street Square Gabriels and Cottage Tea R	House	Domestic	Post-Medieval
31600	Llangollen, Castle Street, War Memorial	War memorial	Commemorative	Post-Medieval
17080	Llangollen, Dee Mill	Textile mill;corn mill	Industrial	Post-Medieval
31687	Llangollen, Dinbren Hall	Country house	Domestic	Post-Medieval
31638	Llangollen, Green Lane Green Villa	House	Domestic	Post-Medieval
31640	Llangollen, Green Lane, Dee Bank	House	Domestic	Post-Medieval
31637	Llangollen, Green Lane, Green Lodge	Lodge	Domestic	Post-Medieval
40051	Llangollen, Green Lane, Neuadd	House	Domestic	Post-Medieval
31645	Llangollen, Hall Street Tegwern	House	Domestic	Post-Medieval
85606	Llangollen, land south of Geufron Farm Lane, R.O.C. observation bunker	Observation post	Defence	Modern
132632	Llangollen, Parade Street 6	HOUSE	domestic	Post-Medieval
31652	Llangollen, Parade Street Police Station	Police station	Civil	Post-Medieval
31696	Llangollen, Tan y Bwlch	House	Domestic	Post-Medieval
31693	Llangollen, Tower Road The Tower	Tower	Gardens, Parks and Urban Spaces	Post-Medieval
31698	Llangollen, Ty-Isa	House	Domestic	Post-Medieval
31671	Llangollen, Victoria Promenade Glanrafon Evangelical	Nonconformist chapel	Religious, Ritual and	Modern

	Church		Funerary	
31672	Llangollen, Wern Road, Siambr Wen	House	Domestic	Post-Medieval
123749	Llangollen, Wern Road, Siambr Wen, sepulchral slabs	inscribed stone	religious, ritual and funerary	Medieval
31674	Llangollen, Wharf Hill Canal Museum	Warehouse	Commercial	Post-Medieval
31673	Llangollen, Wharf Hill Wharf Cottage	House	Domestic	Post-Medieval
120928	Llangollen, Whitewaters Country Hotel, Coins	coin hoard;find	unassigned;object	Early Medieval
128044	Mile End Farm	farm complex	agriculture and subsistence	Modern
93414	Mile End Flannel Mill	Flannel Mill	Industrial	Post-Medieval
128042	Mile End Mill Shelter I	shelter	defence	Modern
128043	Mile End Mill Shelter II	Shelter	defence	Modern
126935	Pen-y-bryn Brewery, building I	Building		Post-Medieval
126936	Pen-y-bryn Brewery, building II	Building		Post-Medieval
126934	Pen-y-bryn Hall, glasshouse	Glasshouse		Post-Medieval
93398	Pentre-felin Corn Mill	corn mill	agriculture and subsistence	Post-Medieval
93422	Pentre-felin Slab and Slate Works	Stone processing works	Industrial	Modern
93476	Pentre-felin Slate and Slab Works Tramway	Tramway	Transport	Modern
26248	Pentrefelin, Pentrefelin House	House	Domestic	Post-Medieval
47513	Rhyn Park to Rhug	Trackway;Road		Post-Medieval;Roman
47514	Rhyn Park to Rhug	Road		Roman
31697	Tan y bwlch, dovecot	Dovecote	Agriculture and Subsistence	Post-Medieval
126819	The Dingle, building	Building		Post-Medieval
126820	The Dingle, circular building	Building		Post-Medieval
101623	Tower House Mound	Motte	Defence	Medieval
48430	Tyncelyn, trackway	Trackway		Post-Medieval
35780	Valle Crucis Abbey, mill (site of)	Mill	Agriculture and Subsistence	Medieval

Scheduled Ancient Monuments within 1km of the proposed development area (figure 4)

SAM no.	Name	Type	General	Broadclass
DE026	Llangollen Bridge	Bridge	Medieval	Transport

Listed Buildings within 1km of the proposed development area (figure 5)

Id	Name	Grade
0	Down platform building to w of llangollen station building railway station abbey road	II
0	'Up' platform building to w llangollen railway station	II
7973	Llangollen methodist church	II
8443	Pentrefelin house	II
8110	Pentrefelin (afon eglwyseg) aquaduct	II
8856	Ty craig canal bridge	II
8442	Pentrefelin bridge, llangollen canal bridge no 48	II
8885	Ty-isa,geufron	II
7774	Former dovecote at tan-y-bwlch,the geraint	II
8771	Tan-y-bwlch,the geraint	II
8216	No.2 cilmedw cottages,berwyn road,a5 (e.side)	II
8190	No.1 cilmedw cottages,berwyn road,a5 (e.side)	II
7930	Henllys,berwyn road,a5 (w.side) the duke	II
8547	The tower,tower road,dinbren	II
8736	Sycamore,abbey road,a542 (e.side) dinbren	II
7805	Fron deg,abbey road,a542 (e.side) dinbren	II
8428	Penddol,abbey road,a542 (e.side) dinbren	II
7438	Canal bridge no.46 at penddol,abbey road, a542 (e.side) dinbren	II
7552	Cottage attached to caledfryn,dinbren	II

7628	Dinbren hall,dinbren	II
7439	Canal museum,wharf hill	II
8143	Wharf cottage,wharf hill	II
8690	Siambur wen,wern road	II
7842	Galnrafon evangelical church, victoria promenade	II
8117	Police station,parade street	II
6322	No.8 mill street (bishop trevor)	II
8343	No.6 mill street (welsh crafts)	II
8301	No.4 mill street (wedding limousines)	II
8843	Tregwern,hall street	II
7596	Dee bank,green lane	II
7880	Green villa,green lane	II
8073	Neuadd,green lane	II
7879	Green lodge,green lane	II
7604	Dee mill,dee lane	II
7553	Cottage tea rooms,castle street square	II
7810	Gabriel's,castle street square	II
7426	Bull inn p.h.(including caesar hughes) castle street	II
7717	Ectarc (former bedyddwyr chapel) castle street	II
8450	Pillar box on the pavement outside the town hall, castle street	II
8838	Town hall	II
8923	War memorial,castle street	II
8529	Royal hotel	II
7436	Cambrian hotel,berwyn street	II
7678	Post office(excluding dalesford)berwyn street	II
7201		II
8286	No.4 abbey square	II
8290	No.3 abbey square	II

8214	No.2 abbey square	II
8188	No.1 abbey square	II
7283	Arnon cottage,abbey road	II
7625	Fair view,including outbuilding range to right,abbey road	II
7952	Lamp standard at the y junction of green lane and abbey road	II
7335	Goods shed at the llangollen railway station goods yard,abbey road	II
8640	Railway overbridge,including ramped paths & revetments to w.of llangollen station, abbey road	II
7154	Not in cadw's november 2012 dbf please check - "up" platform building to w.of llangollen railway station,abbey road	II
7153	Not in cadw's november 2012 dbf please check - "down" platform building to w.of llangollenstation building railway station,abbey road	II
7699	Embankment wall to railway,including below station,abbey road	II
8691	Signal box at llangollen railway station, abbey road	II
8641	Railway station (main building & footbridge) abbey road	II
7831	Gated driveway entrance to llangollen railway station,abbey road	II
8448	Pillar box on pavement outside no.1 abbey rd.	II
7965	Llangollen bridge,a539	I

NMR Monument Points within 1km of the proposed development area (figure 6)

Nprn	Name	Broadclass	Type	Period
419734	Waterloo house, berwyn street, llangollen	Domestic	House	Post medieval
419759	Museum (library), parade street, llangollen	Education	Public library;museum	Post medieval
419752	Green lodge, green lane, llangollen	Domestic	House	19th century
405845	Tower bridge n0. 47, abbey road, llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal bridge	Modern
419758	Police station, parade street, llangollen	Defence;health and welfare	Police station	19th century
419743	Town hall, llangollen	Civil	Town hall	19th century
419733	Berwyn street (58-68), llangollen	Domestic	Terraced housing	Post medieval
419756	Car park, market street, llangollen	Gardens, parks and urban spaces	Car park	Modern
37216	Plas dinbren outbuilding	Agriculture and subsistence	Outbuilding	Post medieval
419846	Cilmedw cottages, llangollen	Domestic	Cottage	Post medieval
419729	The post office, berwyn street, llangollen	Civil	Post office	19th century
405853	Royal view 1 & 2, llangollen canal, ellesmere canal;shropshire union canal	Domestic	House	Post medieval
419872	Mill street (6-10), llangollen	Commercial	Shopping parade	Post medieval
405842	Ty-craig navigation stop-lock, llantysilio, llangollen canal;ellesmere canal;shropshire union canal	Industrial	Bridge abutment	Post medieval
37262	Stables the old water mill	Agriculture and subsistence	Stable	Post medieval?
419754	Tregwern, hall street, llangollen	Domestic	House	Post medieval
419725	Fair view, abbey road, llangollen	Domestic	Building	19th century
419844	Berwyn street (50-42), llangollen	Domestic	Terraced housing	Post medieval
419845	Berwyn street (56), llangollen	Domestic	Terraced housing	Post medieval
405850	Siambr wen bridge number 45, llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal bridge	Modern
419748	Castle street square	Gardens, parks and urban spaces	Square	Post medieval

419753	Dee bank cottage	Domestic	Cottage	Post medieval
419726	Arnon cottage, abbey road, llangollen	Domestic	Cottage	Post medieval
418726	Former nonconformist school, east street, llangollen	Education	School	19th century
418722	Tower farm, llangollen	Domestic	Farmhouse	Post medieval
416546	Llangollen and corwen railway;llangollen railway	Transport;recreational	Railway	Post medieval;19th century
412051	Eirianfa	Domestic	House	Post medieval
412186	Llangollen cottage hospital	Health and welfare	Hospital	Post medieval
412291	Plas geraint, llangollen	Domestic	House	Post medieval
412165	Iscoed and llwyn, abbey road, llangollen	Domestic	House	Post medieval
413108	Village green, llangollen	Gardens, parks and urban spaces	Village green	Modern
412233	Penddol, abbey road, llangollen	Domestic	House	Post medieval
408844	Plas dinbren ridge and furrow	Agriculture and subsistence	Ridge and furrow;field system	Medieval
412001	Tirionfa, geufron	Domestic	Farmhouse	19th century
405854	Pentre-felin slab and slate works, llangollen canal, ellesmere canal;shropshire union canal	Industrial	Slate processing works	Post medieval
408163	Pentre felin slateworks tramway;moel y faen railway;orenant tramway	Transport	Tramway	Post medieval
408203	Llangollen brewery	Commercial	Brewery	Post medieval
408186	Bache wollen factory mill pond and dam, pengwern	Water supply and drainage	Mill pond;dam	Post medieval
406545	Tower stream culvert no. 106, llangollen canal;ellesmere canal;shropshire union canal	Water supply and drainage	Culvert	Post medieval
406601	Chain bridge hotel second footbridge, llangollen canal;ellesmere canal;shropshire union canal	Transport	Footbridge	Modern
406724	Feeder watercourse, llangollen canal;ellesmere canal;shropshire union canal	Water supply and drainage	Water channel	Post medieval
406587	Llangollen mooring basin, llangollen canal;ellesmere canal;shropshire union canal	Transport	Canal basin	Post medieval

406586	Ty-craig limekilns, llantysilio, llangollen canal;ellesmere canal;shropshire union canal;bryn tysilio limekilns	Industrial	Lime kiln	Post medieval
406584	Ty-craig limekilns manager's house, llantysilio, llangollen canal;ellesmere canal;shropshire union canal	Industrial	Lime kiln	Post medieval
406668	Tower stream culvert (bw105), llangollen canal;ellesmere canal;shropshire union canal	Water supply and drainage	Culvert	Modern
406659	Tower bridge cutting no. 41, llangollen canal;ellesmere canal;shropshire union canal	Industrial;transport	Canal cutting	Modern
406658	Pentre-felin slate slab mill railway movable bridge, llangollen canal;ellesmere canal;shropshire union canal	Industrial;transport	Moveable bridge	Modern
406588	Pen-y-ddol canal cutting no. 40 & embankment no. 27, llangollen, llangollen canal;ellesmere canal; shropshire union canal	Transport	Canal cutting	Post medieval
405840	Pentre-felin outlet sluice, llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal sluice	Post medieval
405852	Wharf cottage, llangollen, llangollen canal, ellesmere canal;shropshire union canal	Domestic	Cottage	Post medieval
405849	Pen-y-ddol bridge no. 46, llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal bridge	Post medieval
405851	Warehouse, llangollen wharf, llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal warehouse	Post medieval
43125	Pentre-felin bridge;llangollen canal bridge 48	Transport	Bridge	Post medieval
405843	Afon eglwyseg aqueduct, llangollen canal, ellesmere canal;shropshire union canal	Transport	Aqueduct	Post medieval
405841	Ty craig bridge (48a), llangollen canal, ellesmere canal;shropshire union canal	Transport	Canal bridge	Post medieval
403315	Yale crest, dinbren road, llangollen	Domestic	House	Post medieval
54629	Dee corn mill;dee mill, llangollen	Agriculture and subsistence	Corn mill	Post medieval;18th century
54021	River dee viaduct, near llangollen, llangollen and corwen railway;llangollen railway	Transport	Railway viaduct	Post medieval;19th century

266450	Plas dinbren, garden, llangollen	Gardens, parks and urban spaces	Country house garden	Post medieval
23349	Armoury the, berwyn street, llangollen	Civil	Public building	Post medieval
24051	Llangollen bridge; dee bridge, llangollen	Transport	Road bridge	Medieval;post medieval;modern
24888	Mile end flannel mill	Industrial	Flannel mill	Post medieval
266448	Ystrad, country house garden, llangollen	Gardens, parks and urban spaces	Country house garden	Post medieval
266452	Pen-y-bryn hall, garden, llangollen	Gardens, parks and urban spaces	Country house garden	Post medieval
97339	Wesleyan methodist chapel (sunday school), greenfield and market street, llangollen	Religious, ritual and funerary	Sunday school	Post medieval
33095	Llangollen	Civil	Town	Unknown
266449	Eirianfa, country house garden, llangollen	Gardens, parks and urban spaces	Country house garden	Post medieval
87029	Llangollen railway station, llangollen and corwen railway;llangollen railway	Transport	Railway station	Post medieval;19th century
24892	Pentrefelin mill	Agriculture and subsistence	Corn mill	Post medieval
301492	Outbuilding at the tower, tower road, llangollen	Domestic	Outbuilding	Post medieval
301715	Llangollen railway station goods shed, llangollen and corwen railway;llangollen railway	Transport	Goods shed	Post medieval;19th century
309322	Llangollen railway station: down platform building, llangollen and corwen railway;llangollen railway	Transport	Railway station building	Post medieval;19th century
309367	Llangollen railway station: up platform building, llangollen and corwen railway;llangollen railway	Transport	Railway station building	Post medieval;19th century
309368	Llangollen railway station: west footbridge, llangollen and corwen railway;llangollen railway	Transport	Footbridge	Post medieval;19th century
309305	Llangollen railway station entrance, llangollen and corwen railway;llangollen railway	Transport	Gateway;road	Post medieval;19th century
27707	Plas dinbren, llangollen	Domestic	Dwelling	Post medieval
7720	Glanrafon congregational chapel, victoria promenade,	Religious, ritual and	Chapel	Modern;20th century

	llangollen;glanrafon evangelical church	funerary		
7721	Castle street welsh baptist chapel;bedyddwyr chapel, llangollen	Religious, ritual and funerary	Chapel	Post medieval;19th century
7722	Dr prichard memorial english baptist chapel, abbey road, llangollen	Religious, ritual and funerary	Chapel	Post medieval
305481	The cambrian hotel, berwyn street, llangollen	Recreational	Public house	Post medieval
309318	Llangollen railway station main building, llangollen and corwen railway;llangollen railway	Transport	Railway station building	Post medieval;19th century
309319	Llangollen signal box, llangollen railway station, llangollen and corwen railway;llangollen railway	Transport	Railway signal box	Post medieval;19th century
305390	Royal hotel, llangollen	Commercial	Hotel	Post medieval
27888	Siambr-wen; siamber wen, wern road, llangollen	Domestic	Dwelling	Post medieval
27951	Tower, the;tower house, tower road, llangollen	Domestic	House	Post medieval
7728	Llangollen english wesleyan methodist chapel, princess street, llangollen	Religious, ritual and funerary	Chapel	Modern;20th century
309320	Llangollen railway station, embankment wall, llangollen and corwen railway;llangollen railway	Transport	Embankment;wall	Post medieval;19th century
27644	Pentrefelin house, pentrefelin, llangollen	Domestic	House	Post medieval
402307	Royal international pavilion, llangollen	Recreational	Pavilion	Modern

APPENDIX 2: DEFINITIONS OF FURTHER ASSESSMENT AND MITIGATORY MEASURES

1. Definition of field evaluation techniques

Field evaluation is sometimes necessary when the importance of an identified archaeological feature cannot be ascertained via an archaeological desk based assessment alone. There are several different techniques but the three most common are geophysical survey, trial trenching, and supervised metal detector survey:

Geophysical survey

This technique is a non-intrusive form of archaeological field evaluation. It utilises a magnetometer which detects differences within the earth's magnetic field caused by the presence of iron in the soil. This iron often takes the form of magnetised iron oxides in the topsoil which have been re-deposited into lower archaeological features through cutting and backfill. A magnetometer can also detect iron artefacts within the soil and the presence of burnt stone material such as on hearths, kilns, and burnt mounds.

Trial trenching

Where a site is suspected to contain more subtle archaeological features such as pits, a geophysical survey may not be appropriate due to its lack on sensitivity in detecting these features. Indeed, trial trenching can also be utilised when anomalies have been identified during the geophysical survey and clarification is required in order to identify them. Trial trenches usually measure 20m by 2m although can vary in size if targeting geophysical anomalies. Trenches are excavated using a mechanical tracked excavator and supervised by an archaeologist. The topsoil and subsoil are removed onto buried features or if absent, on to the natural glacial substrata. Any archaeological remains found are usually evaluated and recorded prior to backfilling of the trench, so that further site specific mitigatory recommendations can be made.

Supervised Metal Detector Survey

Some types of underlying substrata and bedrock can mask the results of investigation techniques such as geophysical survey. In such instances an archaeologically supervised metal detector survey can be undertaken. This involves the supervision of metal detectorists by a suitably qualified archaeologist and the spatial mapping of artefacts as they are discovered. This technique can give a geographical spread of metal finds and thus be indicative of 'hotspot' areas which may require further investigation by trial trenching for example.

2. Definition of Mitigatory Recommendations

None:

No further action is required.

Detailed recording:

A photographic and concise descriptive record is required, along with a digital survey.

Basic recording:

A photographic and basic descriptive record is required.

Watching brief:

Monitoring is required by a suitably qualified archaeologist during the proposed development. An archaeological watching brief is divided in to four categories according to the IFA, 2001.

Institute for Archaeologists 2001 Standard and Guidance for an archaeological watching brief:

- comprehensive (present during all ground disturbance)
- intensive (present during sensitive ground disturbance)
- intermittent (viewing the trenches after machining)
- partial (as and when seems appropriate).

Avoidance:

These features should be avoided by the proposed development and any ancillary works including the establishment of compound and material lay-down areas. It may be necessary to surround the feature with a barrier and/or signage to avoid accidental damage.

Reinstatement:

These features should be reinstated to their original location and condition. Supervision by an archaeologist is required.

