



Quaker's Yard, Treharris Preliminary Ecological Appraisal

August 2022

Englobe





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Plans

Drawing Number: 223340/1/dwg1	UK Habitats Survey Plan
Drawing Number: 223340/1/dwg2	Historic Woodland Extent Plan

Appendices

Appendix 1	Proposed Site Locations
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Appendix 3

Condition Assessments

Contact details can be found at the end of this document.

1.0 Executive Summary

1.1 Keystone Ecology was instructed by Englobe to undertake a Preliminary Ecological Appraisal of land at a former gas works located at Quaker's Yard, Treharris (central grid reference ST 098 966). The survey is required to ensure legal compliance during initial site investigations (Refer to *Appendix 1* for site investigations and main works proposals) and to inform a planning application for the main remediation works, which will require full site clearance as well as works to the riverbanks. In the absence of mitigation, the following recommendations apply:

- **Afon Bargoed Taf SINC/Lower Taf and Edwardsville Woods SINC/HPI Rivers/SPI Brown Trout:** Site investigations and main works must be conducted in accordance with Guidance for Pollution Prevention (GPP) 5 - Pollution Prevention Guidelines for works and maintenance in or near water. A risk assessment and method statement must be produced prior to the start of works and incorporated into a PWMS. Bank restructuring and stabilisation undertaken as part of main works should prioritise the utilisation of site won materials such as tree stumps, trunks and roots where possible and be replanted with native species.
- **Berthlewd SINC/HPI Woodland (on and offsite):** To determine if the woodland on site qualifies as the HPI Lowland Mixed Deciduous Woodland, a National Vegetation Classification survey must be undertaken between April and August.
- To ensure no damage to retained trees within potential offsite HPI Woodland or the adjacent Berthlewd SINC, an arboricultural survey must be undertaken to establish the extent of root protection zones. Once site clearance extent is known, an Arboricultural Impact Assessment and Method statement should be developed to determine the exact specification or protection measure required.
- On completion of works, all woodland on site must be restored. Prior to restoration works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.
- **Bats – Roosting:** To determine if any of the trees on site or within 20 metres of site have potential to support roosting bats, a Bat Roost Inspection Survey (BRIS) should be undertaken in accordance with current guidelines (Collins, 2016).
- **Dormice:** Prior to the start of site investigations, a Precautionary Working Method Statement (PWMS) must be produced detailing working measures with respect to Dormice.
- Prior to the start of main works, a Dormouse presence absence survey must be conducted in accordance with current guidelines (Bright *et al* 2006).
- **Otter:** Prior to the start of site investigations or main works, an Otter survey of the River Bargoed Taf on site and 150 metres up and down stream must be undertaken.

- **Nesting Birds (including SPI and Schedule 1 species):** Site investigation works must take place in September or October 2022, outside the nesting bird season, and at a time that Dormice are not active (refer to above).
- Full site clearance must be carried out outside of the nesting bird season where possible. Where this is not possible, prior to works commencing a PWMS should be produced detailing precautionary working measures in respect of nesting, SPI and Schedule 1 birds.
- To compensate for loss of nesting habitat, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration with respect to those species affected as well as a management timetable.
- **Reptiles:** Due to the extent of habitat loss on site, if reptiles are present in higher numbers, it would not be appropriate to undertake site clearance using precautionary working methods. For this reason, a presence absence survey in line with current guidelines should be undertaken (Hill *et al.*, 2005 and Froglife, 1999).
- **White-clawed Crayfish:** Prior to the start of site investigations or main works, an eDNA test, to establish whether White-clawed Crayfish are present in River Bargoed Taff is required to determine if this species is present.
- **SPI Hedgehog/SPI Common Toad:** To avoid the killing or injury of SPI Hedgehog or Common Toad, prior to the start of works a PWMS should be produced detailing precautionary methods regarding these species. To compensate for loss of habitat for Hedgehog and Common Toad, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable. As part of restoration, at least 3 hibernacula should be constructed using site won materials to provide improved refuge for Hedgehog and Common Toad.
- **SPI and LBAP Invertebrates:** To compensate for the loss of habitat suitable for SPI Invertebrates, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.
- **Himalayan Balsam:** Given the prevalence of Himalayan Balsam upstream of the site, it would not be possible to eradicate this species from site as it will be continually recolonised by seeds being washed downstream. To avoid the spread of Himalayan Balsam during site investigations and main works, a PWMS must be produced prior to the start of works detailing precautionary working methods.
- **Japanese Knotweed:** Prior to the start of site investigations or main works, a PWMS must be produced detailing precautionary working methods with respect to Japanese Knotweed.
- **Harlequin Ladybird:** Prior to the start of site investigations or main works, a PWMS must be produced detailing precautionary working methods regarding Harlequin Ladybird.

2.0 Introduction

Background

- 2.1 Keystone Ecology was instructed by Englobe to undertake a Preliminary Ecological Appraisal of land at a former gas works located at Quaker's Yard, Treharris (central grid reference ST 098 966). The survey is required to ensure legal compliance during initial site investigations (Refer to *Appendix 1* for site investigations and main works proposals) and to inform a planning application for the main remediation works, which will require full site clearance as well as works to the riverbanks.
- 2.2 This survey updates the previous PEA undertaken in 2015 to inform site investigations and remediation works (Keystone Ecology, 2015).

Aims and Objectives

- 2.3 The aims and objectives of the PEA are to:
- Provide the results of a UK Habitats Classification Survey and desk study;
 - Identify key ecological constraints to the proposed works;
 - Inform design and proposed works methods to allow significant ecological effects to be avoided or minimised;
 - Identify further ecological surveys needed to inform the scope/design of such surveys;
 - Allow likely mitigation or compensation measures to be developed;
 - Highlight opportunities for ecological enhancement.
- 2.4 The following ecological features are relevant to this exercise:
- Statutory and local designated wildlife sites;
 - Habitats of Principal Importance (HPI) in Wales or local Biodiversity Action Plan (BAP) habitats and networks of these habitats;
 - Ancient woodland inventory sites;
 - Important hedgerows (as defined by The Hedgerows Regulations 1997);
 - Veteran trees;
 - Legally protected species;
 - Species of Principal Importance (SPI) or local BAP species;
 - The wider green infrastructure resource; and

- Invasive species.

Site Context

- 2.5 The 0.573 hectare site comprises entirely of deciduous woodland. The River Taff Bargoed delineates the southern boundary of the site whilst the northern, eastern and western boundaries are contiguous with adjacent areas of broad-leaved woodland. A public footpath bisects the site and connects the small residential town of Treharris in the north with Mill Street in the south. Stone walls, overgrown with vegetation and small structural remains of the former gas works are scattered throughout the site. All other features of the gas works have been demolished and foundations are not visible through the ground flora.
- 2.6 The site is located on the southern outskirts of Treharris, South Wales. The wider landscape is characterised by small residential villages and communities including Nelson, Abercynon and Trelewis, surrounded by areas of grazing pasture and woodland. The River Taff Bargoed flows north-east to south-west and converges with the River Taff approximately 300 metres south of the site.

3.0 Methodology

Desk Study

- 3.1 Information from South-east Wales Biodiversity Records Centre (SEWBRc) was received, and Natural Resources Wales site designations accessed, on 20th July 2022. Information obtained was used to provide a background on ecological features in the vicinity of the site. Refer to *Appendix 2* for details of records requested, search radii and sources of information.

Field Survey

- 3.2 UK Habitat Classification and Habitat Condition Assessment was undertaken on 15th August 2022 by an Ecologist from Keystone Ecology (Ron Thomas BSc (Hons)). The survey area is illustrated in *Drawing Number: 223340/1/dwg1*.
- 3.3 UK Habitat Classification (Butcher *et al*, 2020) is a unified and comprehensive approach to classifying habitats, designed to provide a simple and robust approach to survey and monitoring. UK Habitat Classifications are written with primary codes given in brackets afterwards (for example, Lowland Mixed Deciduous Woodland (w1f)) followed by any number of secondary codes describing mosaics, origins and management (for example, Scattered Trees (10), Tall Herb (16) etc.). Each habitat or parcel of habitat (as appropriate) within the survey area was described; including details of component plant species abundances (recorded using the DAFOR scale¹).
- 3.4 The habitats identified were also assessed against Natural England's Habitat Condition Assessment criteria (Panks *et al*, 2021) with habitats rated as being in Good, Moderate or Poor condition. Where no condition assessment is required, for example in the case of Cropland or some Urban habitat types, this is indicated.
- 3.5 Incidental observations of protected and/or SPI/local BAP species and the potential for such species to occur on site (and in the surrounding landscape where relevant) were also noted; however, no specific protected/SPI/local BAP species surveys were undertaken. The potential of the site for foraging/commuting bats has been determined in accordance with Table 4.1 of Collins (2016).

Nomenclature

- 3.6 The English names of flora and fauna species are given in the main text of this report. Scientific names are used only in the absence of English names. Vascular plants and Charophytes follow the nomenclature of The Botanical Society for the British Isles database (2007) with all other flora and fauna following the UK Species Inventory (Natural History Museum, 2016).

¹ D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Limitations

- 3.7 The results of the survey and assessment work undertaken by Keystone Ecology are representative at the time of surveying.
- 3.8 This document does not contain a comprehensive list of botanical species on site. Only plant species characteristic of each habitat and incidental observations of notable plant species were recorded. In addition, many plant species are only evident at certain times of the year and so some plant species may have gone undetected.
- 3.9 The data held by consultees may not be exhaustive. The absence of records does not necessarily indicate absence of a species/habitat from an area but rather that these have not been recorded or are perhaps under-recorded within the search area.
- 3.10 The accuracy of data held by consultees varies due to the quality and scale that they were digitised to, the supporting information used to define locations/boundaries and also sensitivity of the data itself. Keystone Ecology cannot take responsibility for the accuracy of external data sources and as such discrepancies and inaccuracies may occur.
- 3.11 South-east Wales Biodiversity Records Centre do not hold information on important hedgerows, veteran trees or ancient woodland less than 2 hectares in size.
- 3.12 Unless otherwise stated survey grid references have been recorded using a hand-held GPS receiver (Garmin GPS map 60CSX) with a manufacturer's stated accuracy of 3-5 metres when not in tree canopy, steep terrain or other enclosed environments.

4.0 Results and Evaluation

Sites and Habitats Identified by the Desk Study

4.1 Sites and habitats identified by the desk study are presented in *Table 1*.

Table 1: Sites and Habitats Identified by the Desk Study

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
European Statutory Sites			
Aberbargoed Grasslands SAC	6,483	The SAC is designated for its Annex I habitat "Molina meadows on calcareous, peaty or clayey-silt laden soils", an Annex I habitat and populations of Marsh Fritillary Butterfly, an Annex II species.	No – given the distance from these SAC's and the limited scope of clearance and works proposed on site during both site investigations and main works.
Cardiff Beech Woods SAC	13,331	The SAC is designated for the largest concentration of <i>Asperulo-Fagetum</i> Beech forests in Wales, an Annex I habitat. The SAC is also noted for but not designated for its Annex I <i>Tilio-Acerion</i> forests of slopes, screes and ravines.	

National Statutory Sites Designated for Bats and Birds

None within search parameters

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
National Statutory Sites			
Nelson Bog SSSI	1,694	Nelson Bog is a valley mire receiving relatively base-poor waters from the underlying Coal Measure rocks and adjoining wet pastures associated with marginal hill farming activities typical of the South Wales Coalfield. The major interest of the site is in the range and diversity of mire communities to be found. These extend from poor fen, through mesotrophic grasslands to areas of Alder carr and upland Hazel/Sessile Oak woodland. In addition, it is a very rich ornithological site with over 90 species recorded to date.	No – given the distance from the SSSI and the limited scope of clearance and works proposed on site during both site investigations and main works.
Local Wildlife Sites Designated for Bats			
None within search parameters			
Local Wildlife Sites			
Afon Bargoed Taf SINC	0	Major river system flowing through the eastern part of the County Borough. The river passes through former industrial areas in its lower reaches and includes some sections that have been canalised. The upstream reaches, in contrast, are bordered by woodland and agricultural land. The SINC covers all sections of the Bargoed Taf which do not fall in other SINC's along the route, comprising 3 discrete sections.	Yes – the riverbanks will be directly impacted during main works, and there is a risk of pollution of the watercourse through silt or fuel spillage during both site investigations and main works.

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
		Includes adjacent bankside habitats, particularly semi-natural woodland along with semi-improved neutral and acid grasslands, bracken stands and swamp. Large mature trees are frequent along the banks, and these may support roosting bats. Otter occurs throughout the length of the river, which is known to be of value to a wide variety of birds, fish, bats and reptiles.	
Berthlwyd SINC	6	Valley side slopes above the Afon Bargoed Taf, supporting semi-natural woodland, semi-improved neutral grassland and stands. Also includes small areas of acid grassland and scrub and a small disused quarry. Much of the grassland is flowery and species-rich and supports species of interest. Small pockets of acid grassland are also present with regionally scarce species also occurring on the site.	Yes – there is a risk of accidental damage to adjacent habitats within the SINC including damage to root protection zones, as well as indirect impacts as a result of fuel spills and dust deposition.
Coed Edwardsville/ Edwardsville Woods (Lower Taf & Edwardsville Woods) SINC	111	Steep valley sides along the sharply meandering lower section of the Afon Taf, mainly supporting ancient semi-natural woodlands. Also includes some adjacent areas of neutral and acid grasslands, scrub, bracken and grassheath. The damp woods have a particularly rich ground flora with the dry woods having a much sparser ground flora but supporting abundant bluebell. A wide range of bird species have been recorded from the woodlands. The grasslands and bracken in the north of the site are important for reptiles.	Yes - the SINC is downstream of site and there is a risk of fuel and silt pollutants degrading the SINC during both site investigations and main works.

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
Craig Berthlwyd SINC	361	Area of valley side slope in an urban setting supporting a mosaic of dry heathland, acid grassland, Bracken and broadleaved woodland. Also includes some rocky outcrops, old quarries and associated clitter scree. The acid grasslands are mostly unimproved.	No – given the distance from the SINC and the limited scope of clearance and works proposed on site during both site investigations and main works.
Parc Treharris/Treharris Park (Treharris Park & Cardiff Woodlands) SINC	459	Semi-natural broadleaved woodlands on valley slopes above the Afon Taf, including areas of ancient woodland and replanted ancient woodland. Also includes some open fridd areas with rocky outcrops, supporting a mosaic of bracken stands and dry heathlands. The site also includes small areas of acid and neutral grassland, scrub and several disused quarries. Ancient woodland indicator plants grow in the richer woodland areas. The fridd areas support a strong population of reptiles and the woodlands are important for a range of breeding birds.	No – given the distance from the SINC and the limited scope of clearance and works proposed on site during both site investigations and main works.
Nant Caiach (Nant Caeach) SINC	485	Stream course which is semi-upland in character at its source and progressively becomes a large lowland stream towards its confluence with the Afon Taf Bargoed. The stream follows an unmodified course and includes natural physical features such as meanders, small waterfalls, pools and riffles. The lower reaches pass through remnant areas of ancient semi-natural woodland as well as wet woodland pockets. Upstream sections pass through agricultural land and	No - this stream is upstream of the site.

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
		include some adjacent areas of semi-improved neutral grassland as well as scattered mature broadleaved trees alongside the stream. There are also small areas of marshy grassland, scrub and Bracken.	
HPI and Ancient Woodland (No. / Closest)			
Ancient woodland	13/0	Area mapped as ancient overlapping site.	No – by comparing the data available in the ancient woodland inventory (Refer to <i>Appendix 1</i>) to Ordnance Survey County Series maps, it is evident that much of the area designated as Ancient woodland is in fact re-growth on areas previously cleared (Refer to <i>Drawing 223340/1/dwg2</i> for visualisation). This is further born out through the age structure and ground flora present as described in this report. As described in the Ancient Woodland Inventory Handbook (Sansum and Bannister, 2018), if remote evidence clearly indicates the imposition of another land-use which would represent a break in continuity, if woodland were to re-establish (i.e., irreversible vegetation change) then such areas should not be assessed as ancient woodland, however, it is likely consultation will still be required with the local tree officer, given its current designation.
Lowland dry acid grassland	3/301	Lowland dry acid grassland located to the south-east of site.	No – given the distance from these habitats and the limited scope of clearance and works proposed on

Name	Distance from Proposed Development Site (m)	Details and Ecological Importance	Potential Constraint
Lowland heath	3/409	Lowland heath located to the south-west of site.	site during both site investigations and main works.
Lowland meadows	3/92	Lowland meadows located south of site.	
Open Mosaic on previously developed land	1/350	Open mosaic habitats located to the north-east of site.	

Important Hedgerows and Veteran Trees (No. / Closest)

No Veteran trees within search parameters

No information on important hedgerow available.

Key to site designations: SAC - Special Area of Conservation; SINC - Site of Importance for Nature Conservation; SSSI - Site of Special Scientific Interest.

Habitats Identified on Site

4.2 The following habitats were identified on site during the course of the field survey (the distribution of these habitats is shown in *Drawing Number: 223340/1/dwg1*):

- Other Woodland, Broadleaved [w1g], Secondary Woodland (38) - Poor condition
- Rivers (priority habitat) [r2a] Freshwater – heavily modified (40) – Unknown condition

Other Broadleaved Woodland [w1g] – Secondary Woodland (38)

4.3 The woodland occupies the land above the riverbank and over the former gas works. The tree ages are similar across the site with the majority of trees being 30 to 40 years old; this has led to a poor vertical structure in the woodland. There are several mature trees along the northern edge of the site and on the riverbank and large areas of open canopy where trees have not been able to establish due to the substrate (remains of structures or hardstanding). There is little evidence of regeneration with only Sycamore seedlings being observed. There is a small amount of standing and fallen deadwood on site and Ash Dieback was observed. The canopy features abundant Ash with occasional Pedunculate Oak and Sycamore. The shrub layer exhibits abundant Hazel, frequent Ash and rarely found Hawthorn and Holly. The herb layer across the site is dominated by Bramble. Himalayan Balsam is abundant, Ivy is frequently found and rarely present are Wood Avens, Hedge Woundwort, Ground Elder, Hogweed, Garlic Mustard, Wavey Hair-grass, Rough Meadow Grass, Field Horsetail and Japanese Knotweed.

Rivers (priority habitat) [r2a]- Freshwater – heavily modified (40)

4.4 The Taff Bargoed is a free stone river, and the site is approximately 11 kilometres from its source and 300 metres to its confluence with the River Taff. The channel is heavily modified with the left bank being composed of stone and concrete revetments. This bank is vertical and approximately 3 metres high. The right bank is a continuous stone revetment which has collapsed in several locations. On average this is 2 to 3 metres high with vertical banks with 2 stone abutments associated with the former gas works.

4.5 The river at the time of the survey was on average approximately 50 centimetres deep with a flow rate of approximately 1 cubic metre per second. The riverbed is a combination of gravel, large stones and boulders with areas where silt has been able to settle. With the exception of occasional Green Filamentous Algae, no aquatic plants were observed. In the silted areas emergent Yellow Flag Iris was rarely found. The dry gravel areas in the river are dominated by Himalayan Balsam with Broad-leaved Willowherb, Shepard's Purse, White Dead-nettle, Broadleaved Dock and Pale Persicaria rarely found. The left bank features occasional Alder and Sycamore in the canopy. The shrub layer is dominated by Bramble with frequent Himalayan Balsam. Japanese Knotweed is rarely present.

HPI and Local BAP Habitats, and Networks of these Habitats Identified on Site

- 4.6 Woodland on site may qualify as the HPI and LBAP Lowland Mixed Deciduous Woodland. The River Bargoed Taff qualifies as the HPI and LBAP Rivers as it supports the SPI species Brown Trout.

Contribution to the Wider Green Infrastructure Resource

- 4.7 The site is contiguous with a large area of deciduous broad-leaved woodland which follows the course of the River Taff and Taff Bargoed and connects the site with SINC's, farmland pasture and managed woodland within the wider landscape. Therefore, the site forms an integral component of the existing network of green spaces. However, as the site sits within a larger wooded area that surrounds it on all sides, the loss of the woodland on site alone would not sever connectivity between woodland habitats. For this reason, temporary woodland loss followed by restoration is not considered to impact the wider green infrastructure resource.

Invasive Species

- 4.8 There are records of Grey Squirrel (138 metres), Entire-leaved Cotoneaster (174 metres), Harlequin Ladybird (226 metres), Himalayan Balsam (252 metres), Himalayan Honeysuckle (181 metres), 16 records of Japanese Knotweed (onsite), Montbretia (252 metres) 2 records of Spanish Bluebell (222 metres) and White Stonecrop (283 metres).
- 4.9 Adult Harlequin Ladybirds are highly mobile, and it is not possible to prevent their movement on or off site. However, there is a risk that if arisings from vegetation clearance are removed from site, Harlequin larvae or eggs may be transported.
- 4.10 Himalayan Balsam and Japanese Knotweed occur on site, and as such are considered constraints to site investigations and main works.
- 4.11 Grey squirrel may occur on site; however Grey Squirrel will not be able to colonise new areas as a result of works and so they are not considered a constraint.

Protected Species

- 4.12 The possibility that protected species will pose a constraint to the proposed development is evaluated for each of the main protected species/groups in *Table 2*, based on assessment of habitat suitability and other relevant factors, such as:
- National distribution of each species/group;
 - Previous records of species occurrence obtained through the desk study;
 - Connectivity to suitable habitats in the surrounding landscape;
 - Field signs (e.g., tracks, droppings, direct sightings) suggesting presence of species within or near to the site;

- Probability of the proposed development having an adverse impact on the species/group if present.

SPI and Local BAP Species

- 4.13 The possibility that SPI or local BAP species will pose a constraint to the proposed development is evaluated in *Table 3* using the same evaluation criteria as *Table 2* (refer to Paragraph 4.12). Given the large number of SPI and local BAP species, these have only been included in the table if present in the desk study records and/or observed on site during the field survey.

Table 2: Protected Species Constraints Evaluation

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Importance	Potential Constraint
Bats	<p>Roosting:</p> <p>Brown Long-eared Bat (7/511)</p> <p>Common Pipistrelle Bat (2/250)</p> <p>Pipistrelle Bat species (3/1,712)</p> <p>Soprano Pipistrelle Bat (2/940)</p> <p>Unknown Bat species (1/1,416)</p> <p>Non-roosting:</p> <p>Brandt's Bat (1/1,914)</p> <p>Brown Long-eared Bat (3/862)</p> <p>Common Pipistrelle Bat (18/115)</p> <p>Daubenton's Bat (4/862)</p> <p>Myotis Bat species (3/862)</p> <p>Nathusius's Pipistrelle Bat (1/1,712)</p> <p>Noctule Bat (8/115)</p> <p>Serotine Bat (1,719)</p> <p>Soprano Pipistrelle Bat (16/197)</p>	✓*	✓	<p>Trees on site or within 20 metres may have potential for roosting bats.</p> <p>Woodland and river habitat has high potential for commuting and foraging bats (Collins, 2016).</p>	<p>All trees on site must be felled to facilitate main works.</p> <p>No temporary or permanent lighting is proposed.</p> <p>Temporary woodland loss would not sever any potential commuting or foraging routes and would result in a temporary increase in linear woodland edge for commuting and foraging.</p> <p>Woodland will be restored on completion of main works.</p>	<p>Yes – bats may be disturbed by site investigation works or disturbed killed or injured during full vegetation clearance for main works.</p>

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Importance	Potential Constraint
Badger	None within search parameters	×		Woodland on site provides suitable sett building habitat for Badger.	No signs of Badger were found on site or within 30 metres of site.	No
Dormouse	None within search parameters	✓		Woodland on site provides suitable habitat for Dormice and has connectivity to extensive areas of suitable off site woodland.	Suitable habitat must be cleared to enable site investigations, and all suitable habitat on site must be cleared to facilitate main works. Any clearance may result in the killing, injury or disturbance of Dormice if present as well as a temporary loss of habitat.	Yes
Otter	3/167	✓	✓	The River Bargoed Taff on site provides suitable habitat for Otter.	Site investigations and main works may disturb Otter if present within 150 metres. Main works may kill or injure Otter if present within the riverbanks on site.	Yes

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Importance	Potential Constraint
Water Vole	None within search parameters	✓		The fast flowing nature of The River Bargoed Taff on site, and scarcity of in channel vegetation, and rocky or hard standing nature of many of the banks for foraging mean the river is not suitable for Water Vole, which require mud banks for burrowing, slower flow rates, and sufficient bankside marginal and emergent vegetation to provide cover and foraging resource (Dean <i>et al</i> , 2016).	-	No
Specially Protected Birds	Brambling (6/283) Fieldfare (1/500) Hobby (5/283) Kingfisher (25/283) Osprey (2/283) Peregrine (1/283) Red Kite (8/283) Redwing (13/283)			The riverbanks on site provide suitable nesting habitat for Kingfisher. Trees on site provide suitable nesting habitat for Red Kite. No suitable habitat for Hobby or Peregrine. Brambling, Fieldfare and Redwing are winter migrants to the UK and do not nest.	Site investigations will take place outside the nesting bird season in October 2022. Habitat suitable for Red Kite and Kingfisher will be cleared to facilitate main works, the timing of which is currently unknown, which may result in the disturbance or destruction of nests.	Yes

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Importance	Potential Constraint
All Other Birds (Refer to <i>Table 3</i> for BAP Species)	n/a	n/a ²	n/a ³	Woodland on site provides suitable nesting habitat for a range of common and widespread species.	Site investigations will take place outside the nesting bird season in October 2022. The site must be cleared prior to main works, the timing of which is currently unknown, which may disturb nesting birds and destroy nests.	Yes
Reptiles	Slow-worm (11/169)	✓		Woodland on site has open areas which provide suitable habitat for reptiles.	Suitable habitat will be cleared during site investigations and as part of main works which may kill or injure reptiles.	Yes
Great Crested Newt	None within search parameters	✓		There are no waterbodies on or within 500m of the site.	-	No
Invertebrates	None within search parameters			None present.	-	No

² Refer to *Table 3* for SPI species of Bird.

³ Refer to *Table 3* for local BAP species of Bird.

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Importance	Potential Constraint
White-clawed Crayfish	None within search parameters	✓		The River Bargoed Taff on site provides suitable habitat for White-clawed Crayfish.	Fuel spillages or silt runoff from site investigations or main works may degrade habitats for White- clawed Crayfish as well as present a killing or injury risk. Works to the riverbanks as part of main works may kill or injure White- clawed Crayfish.	Yes
Plants	None within search parameters			None present.	-	No

*Status dependant on species.

Table 3: SPI and Local BAP Species Constraints Evaluation

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Value	Potential Constraint
Mammals	Hedgehog (7/178)	✓		Woodland on site provides suitable habitat for Hedgehog.	Suitable habitat will be cleared during site investigations and as part of main works which may kill	Yes

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Value	Potential Constraint
					or injure hedgehog. Clearance of the site for main works will also result in a temporary loss of foraging habitat and refuge for Hedgehog.	
Birds	Cuckoo (1/283) Dipper (63/283) Hawfinch (2/283) House Sparrow (163/283) Lesser Redpoll (1/500) Reed Bunting (2/283) Spotted Flycatcher (2/283) Tree Pipit (2/500) Wood Warbler (9/283)	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓	Woodland on site provides suitable nesting habitat for House Sparrow, Spotted Flycatcher and Tree Pipit. Riverbanks on site provide suitable habitat for Dipper. Due to the poor vertical structure of the woodland on site and sparse nature of what understory is present, the woodland is not suitable for nesting Lesser Redpoll, Hawfinch or Wood Warbler. No suitable habitat for Cuckoo or Reed Bunting.	Site investigations will take place outside the nesting bird season in October 2022. Suitable habitat will be cleared to facilitate main works, the timing of which is currently unknown, which may disturb nesting birds and destroy nests. Clearance of the site for main works will also result in a temporary loss of foraging habitat for House Sparrow, Spotted Flycatcher and Tree Pipit.	Yes
Amphibians	Common Toad (2/450)	✓		Woodland on site provides suitable habitat for Common Toad. Whilst there are no ponds on site or within 500 metres, Common	Suitable habitat will be cleared during site investigations and as part of main works which may kill or injure Common Toad. Clearance of the site for main	Yes

Species/ Group	Desk Study Record (No. of Records / Closest Minimum Distance from Proposed Development Site (m))	SPI	LBAP	Potential Habitat	Other Relevant Factors and Ecological Value	Potential Constraint
	(9/283)		✓			
Fish	Brown/Sea Trout (2/159)	✓	✓	The River Bargoed Taff on site provides suitable habitat for Brown/Sea Trout.	Fuel spillages or silt runoff from site investigations or main works may degrade habitats for Brown/Sea Trout as well as present a killing or injury risk. Works to the riverbanks as part of main works may kill or injure Brown/Sea Trout.	Yes
Plants	Witches' Whiskers Lichen (1/283)	✓		Woodland on site is unsuitable for Witches Whiskers Lichen as it is a relatively young secondary woodland, and lichen requires old growth woodland and forest.	-	No

5.0 Relevant Legislation and Policy

Legislation

- 5.1 This section sets out the wildlife legislation and policy relevant (or potentially relevant pending further survey) to the proposed development based on the findings of the desk study and field survey. Please note that this legal information is a summary and intended for general guidance only. The original legal documents should be consulted for definitive information. Web addresses providing access to the full text of these documents are given in the References Section.
- 5.2 The legislation protection afforded to sites/habitats and species that could be affected by the proposed development is detailed in *Table 4*.

Table 4: Legislation Protection Afforded to Species that could Potentially be Affected by the Proposed Development

Species	Legal Status
<i>European Protected</i>	
Bats, Dormice, Otter	<p>These animal species and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 (as amended), which makes it illegal to:</p> <p>Deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs;</p> <p>Deliberately disturb⁴ such an animal;</p> <p>Damage or destroy a breeding site or resting place of such an animal.</p> <p>European Protected Species (EPS) licences can be granted by Natural Resources Wales in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed:</p> <ul style="list-style-type: none"> • The development is for reasons of overriding public interest; • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. <p>Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a</p>

⁴ Under the Conservation Regulations, disturbance of protected animals includes in particular any disturbance which is likely to: (i) impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate; (ii) significantly affect the local distribution or abundance of the species in question.

Species	Legal Status
	consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed.
<i>Nationally Protected</i>	
Bats, Dormice, Otter	<p>These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:</p> <p>Intentionally kill, injure or take any such animal;</p> <p>Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal;</p> <p>Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.</p>
Adder, Common Lizard, Grass Snake, Slow-worm, White-clawed Crayfish	<p>These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.</p>
Nesting Birds (general)	<p>All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:</p> <p>Intentionally kill, injure or take any wild bird;</p> <p>Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.</p>
Red Kite, Kingfisher	<p>Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.</p>
<i>Invasive Species</i>	
Japanese Knotweed, Himalayan Balsam, Harlequin Ladybird	<p>The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act.</p>

5.3 Section 40 of the Natural Environment and Rural Communities Act 2006 (the NERC Act) places a legal duty on public bodies, including planning authorities, to 'have regard' to the conservation of biodiversity when carrying out their normal functions, which includes consideration of planning applications.

5.4 In compliance with Section 42 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in Wales under the UK Post-2010 Biodiversity Framework. This is known as the list of Species/Habitats of Principal Importance, of which there are 57 habitats (HPI) and 557

species (and an additional 4 groups/assemblages) (SPI). The list is used to guide planning authorities in implementing their duty under the NERC Act.

National Planning Policy

- 5.5 Planning Policy Wales (PPW) (2021) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs). Procedural advice is given in National Assembly for Wales/Welsh Office circulars. PPW, Ministerial Interim Planning Policy Statements (MIPPS), the TANs and circulars together comprise national planning policy to which local planning authorities in Wales must have regard in the preparation of development plans.
- 5.6 Technical Advice Note (TAN) 5 (2009) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. This guidance note should be read in conjunction with Planning Policy Wales (2021). TAN 5 brings together advice on sources of legislation relevant to various nature conservation topics which may be encountered by local planning authorities. Chapter 2 sets out the key principles of planning for nature conservation.
- 5.7 The TAN provides advice for local planning authorities on:
- The key principles of positive planning for nature conservation;
 - Nature conservation and Local Development Plans;
 - Nature conservation in development management procedures;
 - Development affecting protected internationally and nationally designated sites and habitats; and
 - Development affecting protected and priority habitats and species.
- 5.8 Local development plan policies and proposals should be based upon up-to-date information, which should be kept under review, about the biodiversity and geological resources of the plan area (PPW Paragraph 2.28). In local development plan reviews, local planning authorities should assess the potential to conserve and enhance those resources (PPW Paragraph 6.4.5).
- 5.9 When considering policies and proposals in local development plans and when deciding planning applications that may affect nature conservation, local planning authorities should:
- Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective (PPW 2.27);
 - Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment (PPW 2.10);

- Promote the conservation and enhancement of statutorily designated areas and undeveloped coast (PPW 6.0.1);
- Ensure that appropriate weight is attached to designated sites of international, national and local importance (PPW 6.2.6);
- Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans (PPW 6.5.2);
- Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation (PPW6.4.5 and 6.4.21);
- Ensure that the range and population of protected species is sustained (PPW 6.4.22); and
- Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered (PPW 6.4.1 and 6.4.4, 5.2.7).

Local Planning Policy

5.10 The Merthyr Tydfil Local Development Plan 2016 -2031 was adopted in January 2020 and provides an extensive guidance note on nature and development (Merthyr Tydfil Council, 2015). The following policies from the previous development plan have been carried forward and is referenced in this guidance note:

- **LDP Policy BW5 - Natural heritage:** The Council will protect and support the enhancement of the County Borough's distinctive natural heritage. Development proposals will only be permitted where they maintain, enhance or do not cause harm to:-
 - The landscape character of the countryside;
 - Trees, woodlands and hedgerows that have natural heritage value or contribute to the character and amenity of an area; and
 - Other biodiversity interests, including protected and priority species and ecological networks.
- **LDP Policy AS6 - Local nature conservation designations:** Using published scientific criteria, Sites of Importance for Nature Conservation have been designated as shown on the LDP Proposals Map. Applications for development affecting these sites and/or the Cwm Taf Fechan Local Nature Reserve, will not be permitted unless full account has been taken of the relevant features so as to prevent damage to their conservation value. Where appropriate, planning conditions or a planning agreement

will be employed to safeguard and /or enhance features, or to provide appropriate mitigation and /or compensatory measures.

6.0 Discussion and Recommendations

Overview of Potential Ecological Constraints Associated with the Proposed Development

6.1 The following sites, habitats and species have been identified as potential constraints to the proposed works (refer to *Drawing Number: 223340/1/dwg1*):

- Afon Bargoed Taf SINC/Lower Taf and Edwardsville Woods SINC/HPI Rivers/SPI Brown Trout
- Berthlewd SINC/HPI Woodland (on and offsite)
- Bats – Roosting
- Dormice
- Otter
- Nesting Birds (including SPI and Schedule 1 species)
- Reptiles
- White-clawed Crayfish
- SPI Hedgehog/SPI Common Toad
- SPI Invertebrates
- Himalayan Balsam
- Japanese Knotweed
- Harlequin Ladybird

Afon Bargoed Taf SINC/Lower Taf and Edwardsville Woods SINC/HPI Rivers/SPI Brown Trout

6.2 Site investigations and main works must be conducted in accordance with Guidance for Pollution Prevention (GPP) 5 - Pollution Prevention Guidelines for works and maintenance in or near water which requires the following:

- Production of a risk assessment and method statement prior to works commencing;
- Inclusion within the above, preventative measures inclusive of designated re-fuelling stations and a site specific 'spill-drill' in the event of accidental spillage during works.
- Direct works to the riverbank must be done within a dammed section of river channel, to prevent silt deposition into the wider channel.

- Direct works within the river channel must be conducted when Brown Trout redds are not present (October to May).
- Depending on the nature of the pollutants present on site, either silt fencing or a non-permeable membrane must be installed to prevent silt deposition during ground works on the remainder of site. Membrane specifications should be determined by a suitably qualified specialist.

6.3 Bank restructuring and stabilisation undertaken as part of main works should prioritise the utilisation of site won materials such as tree stumps, trunks and roots where possible.

6.4 The banks should be replanted with Crack Willow, Goat Willow and Alder. Marginal Pendulous Sedge plugs can also be planted at the top of the embankment, however due to the greatly fluctuating river levels, other marginal plants are unlikely to successfully establish.

Berthlewd SINC/HPI Woodland (on and offsite)

6.5 To determine if the woodland on site qualifies as the HPI Lowland Mixed Deciduous Woodland, a National Vegetation Classification survey must be undertaken between April and August.

6.6 To ensure no damage to retained trees within potential offsite HPI Woodland or the adjacent Berthlewd SINC, an arboricultural survey must be undertaken to establish the extent of root protection zones. Once site clearance extent is known, an Arboricultural Impact Assessment and Method statement should be developed to determine the exact specification or protection measure required.

6.7 On completion of works, all woodland on site must be restored. Prior to restoration works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.

Bats – Roosting

6.8 To determine if any of the trees on site or within 20 metres of site have potential to support roosting bats, a Bat Roost Inspection Survey (BRIS) should be undertaken in accordance with current guidelines (Collins, 2016).

Dormice

6.9 Prior to the start of site investigations, a Precautionary Working Method Statement (PWMS) must be produced detailing working measures with respect to Dormice. These will include:

- No clearance to be undertaken below 300 millimetres at a time when Dormice are likely to be hibernating (December – February).
- Clearance must be limited to 2 metre wide channels to facilitate borehole access only, and the existing footpath must be used as a priority.
- Clearance during active periods (March – November) must be limited to ground flora (such as ruderal vegetation and very low growing Bramble, where Dormice are highly unlikely to reside when active) and limited pruning of woody vegetation.

- All clearance must be supervised by a licensed ecologist or accredited agent, who will ensure no accidental damage of retained Dormouse habitat and will conduct fingertip searches of the areas to be cleared to ensure no killing or injury of Dormice in the highly unlikely event they are present in these areas in their active period.

6.10 Prior to the start of main works, a Dormouse presence absence survey must be conducted in accordance with current guidelines (Bright *et al* 2006).

Otter

6.11 Prior to the start of site investigations or main works, an Otter survey of the River Bargod Taf on site and 150 metres up and down stream must be undertaken.

Nesting Birds (including SPI and Schedule 1 species)

6.12 Site investigation works must take place in September or October 2022, outside the nesting bird season, and at a time that Dormice are not active (refer to *Paragraph 6.9* above).

6.13 Full site clearance must be carried out outside of the nesting bird season where possible. Where this is not possible, prior to works commencing a PWMS should be produced detailing the following measures in respect of nesting, SPI and Schedule 1 birds.

- Conduct clearance using handheld trimmers/brushcutters/chainsaws.
- Vegetation clearance can only be undertaken following checks for active nests birds by the contractor.
- If an active nest is found, a 5 metre radius works exclusion zone centred on the nest must be established to avoid disturbance throughout the breeding attempt. The exclusion zone must be kept in place until the young have fledged.

6.14 To compensate for loss of nesting habitat, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.

6.15 Restored woodland will become suitable for SPI Tree Pipit in its first season after completion as these are ground nesting species which require open areas or woodland edge.

6.16 Restored riverbank must include at least 2 cavity's or crevices to provide nesting habitat for SPI Dipper. Alternatively, a preformed Dipper nest Box (such as the Vivara Pro Woodstone Grey Wagtail and Dipper nest box) can be incorporated into the new riverbank or attached to the underside of the existing footbridge.

6.17 To compensate for the loss of nesting habitat for House Sparrow and Spotted Flycatcher, which require tree cavity's that will taken time to develop, the following bird boxes should be installed on the site perimeter:

- 2 x Schwegler 2GR nest boxes (3 hole model) for House Sparrow
- 2 x Schwegler 2H nest boxes for Spotted Flycatcher

Reptiles

- 6.18 Due to the extent of habitat loss on site, if reptiles are present in higher numbers, it would not be appropriate to undertake site clearance using precautionary working methods. For this reason, a presence absence survey in line with current guidelines should be undertaken (Hill *et al.*, 2005 and Froglife, 1999).

White-clawed Crayfish

- 6.19 Prior to the start of site investigations or main works, an eDNA test, to establish whether White-clawed Crayfish are present in River Bargoed Taff is required to determine if this species is present.

SPI Hedgehog/SPI Common Toad

- 6.20 To avoid the killing or injury of SPI Hedgehog or Common Toad during either site investigations or main works, prior to the start of works a PWMS should be produced detailing the precautionary methods needed for clearing habitat that could harbour Hedgehog or Common Toad. The PWMS must include the following procedures:

- All suitable habitat types must be cleared in a sensitive manner under the supervision of a suitably qualified ecologist, with all refugia dismantled by the ecologist;
- Any Hedgehog or Common Toad encountered should be relocated to a safe area outside the working footprint.
- The habitats within the works area need to be maintained as unsuitable for Hedgehog or Common Toad for the duration of the works to avoid the accidental creation of refuge opportunities.

- 6.21 To compensate for loss of habitat for Hedgehog and Common Toad, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.

- 6.22 As part of restoration, at least 3 hibernacula should be constructed using site won materials to provide improved refuge for Hedgehog and Common Toad.

SPI and LBAP Invertebrates

- 6.23 To compensate for the loss of habitat suitable for SPI Invertebrates, on completion of works, all woodland on site must be restored. Prior to clearance works an Ecological Management Plan (EMP) must be developed setting out the exact specifications for restoration as well as a management timetable.

- 6.24 Restoration must include:

- Honeysuckle planting (as an alternative food plant to Common Nettle currently present on site) for Buff Ermine. This will also serve as food plant for the more generalist White Ermine

- The installation of 5 x bee hotels, created from site won materials to provide refuge for LBAP Buff-tailed Bumblebee, Field Cuckoo Bee, Early Bumblebee, Red Tailed Bumblebee, White Tailed Bumblebee and Common Carder Bee.

Himalayan Balsam

6.25 Given the prevalence of Himalayan Balsam upstream of the site, it would not be possible to eradicate this species from site as it will be continually recolonised by seeds being washed downstream. To avoid the spread of Himalayan Balsam during site investigations and main works, a PWMS must be produced prior to the start of works detailing the following recommendations:

- Clearance at time when Himalayan Balsam is in seed must be avoided (August – October) in the first instance.
- If it is known that site clearance will need to be undertaken at a time when Balsam will be in seed, in the first instance a Balsam pulling exercise should be undertaken earlier in the year (May, June or early July) so that no Balsam is seeding during clearance. As a last resort, seed heads must be carefully bagged and removed. All pulled balsam must be removed from site by an approved waste carrier.
- All boots, equipment and machinery must be cleaned before leaving site to ensure no Balsam seeds leave site.

Japanese Knotweed

6.26 Prior to the start of site investigations or main works, a PWMS must be produced prior to the start of works detailing the following recommendations:

- No ground works will be permitted within 7 metres of Japanese Knotweed stands.
- Prior to the start of works, high visibility fencing must be erected around the 7 metre buffer to prevent contractors accidentally straying into these areas.
- Japanese Knotweed must continue to be subject to spraying twice annually in June and September, to attempt to achieve its eradication on site.

Harlequin Ladybird

6.27 Prior to the start of site investigations or main works, a PWMS must be produced detailing the following recommendations:

- In the first instance, clearance when Harlequin Ladybird larvae and eggs are likely to be present (May – July) should be avoided.
- If this is not possible, all arisings from vegetation clearance in this period must be retained on site.

Opportunities for Biodiversity Enhancement

- 6.28 In addition to those measures required above for mitigation and compensation, the following additional enhancements are proposed. These will also be required to justify additionality; in the event a Biodiversity Net Gain assessment is required:
- An artificial Otter Holt should be incorporated into the riverbank stabilisation works
 - A Kingfisher nest box should be incorporated into the riverbank stabilisation works
 - 3 x Schwegler 2F bat boxes should be installed on a retained mature tree on the site perimeter.

Biodiversity Net Gain

- 6.29 The requirement to achieve a net gain in biodiversity for the project must be determined through liaison with the Local Planning Authority. If it is determined that a quantitative net gain assessment is required, a Biodiversity Net Gain Feasibility study must be undertaken using the latest version of the metric, Biodiversity Metric 3.1 (Natural England, 2022).
- 6.30 To achieve this, a Modular River Survey Condition Assessment must be undertaken to assess the baseline conditions of the River Bargoed Taff.

7.0 References

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Welsh Government (2009). *Technical Advice Note (TAN) 5: Nature Conservation and Planning*. Welsh Government. Available at: <https://gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning> [Accessed 21st August 2022]

Web addresses for access to full legislation and policy text:

Birds Directive:

http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Conservation of Habitats and Species Regulations 2010 (as amended):

<http://www.legislation.gov.uk/ukxi/2012/1927/contents/made>

Countryside and Rights of Way Act 2000:

<http://www.legislation.gov.uk/ukpga/2000/37/contents>

Habitats Directive:

http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

Hedgerow Regulations 1997:

<http://www.legislation.gov.uk/ukxi/1997/1160/contents/made>

National Parks and Access to the Countryside Act 1949:

<http://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97>

National Planning Policy Framework:

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>

Natural Environment and Rural Communities Act 2006:

<http://www.legislation.gov.uk/ukpga/2006/16/contents>

Protection of Badgers Act 1992:

<http://www.legislation.gov.uk/ukpga/1992/51/contents>

UK Post-2010 Biodiversity Framework:

<http://jncc.defra.gov.uk/page-6189>

Wildlife and Countryside Act 1981:

<http://www.legislation.gov.uk/ukpga/1981/69>

Plans

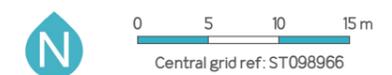


- Key
-  Site boundary
 - Habitats
 -  Other woodland; broadleaved
 -  River
 - Invasive plant stands:
 -  Japanese Knotweed
 -  Himalayan Balsam



Englobe
 Quakers Yard, Treharris
 Drawing Number: 223340/1/dwg1
 UK Habitats Survey Plan

Revision	Date	Drawn	Approved
rev0	26/9/2022	MM	TA



No dimensions to be scaled from this drawing
 All dimensions are to be checked on site
 Measurements displayed are for indicative purposes only

Head/Southern Office T+44 (0) 1666 503687
 Welsh Office T+44(0) 2920 504024

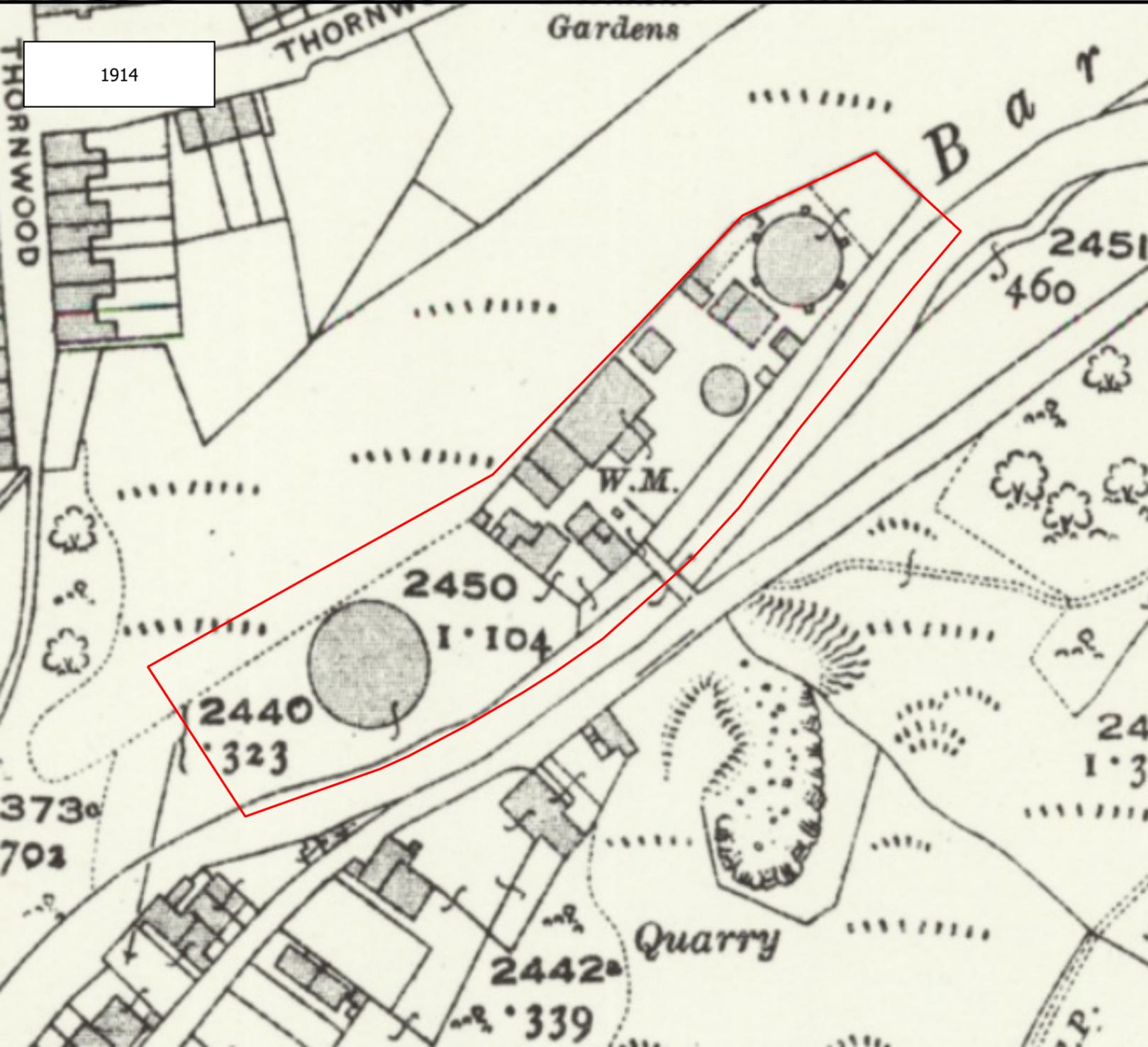
1868



Key

Site boundary

1914



Englobe

Quakers Yard, Treharris

Drawing Number: 223340/1/dwg2

Historic Woodland Extent Plan

Revision	Date	Drawn	Approved
rev0	22/9/2022	MM	TA



0 5 10 15 20 25 m

Central grid ref: ST098966

No dimensions to be scaled from this drawing

All dimensions are to be checked on site

Measurements displayed are for indicative purposes only

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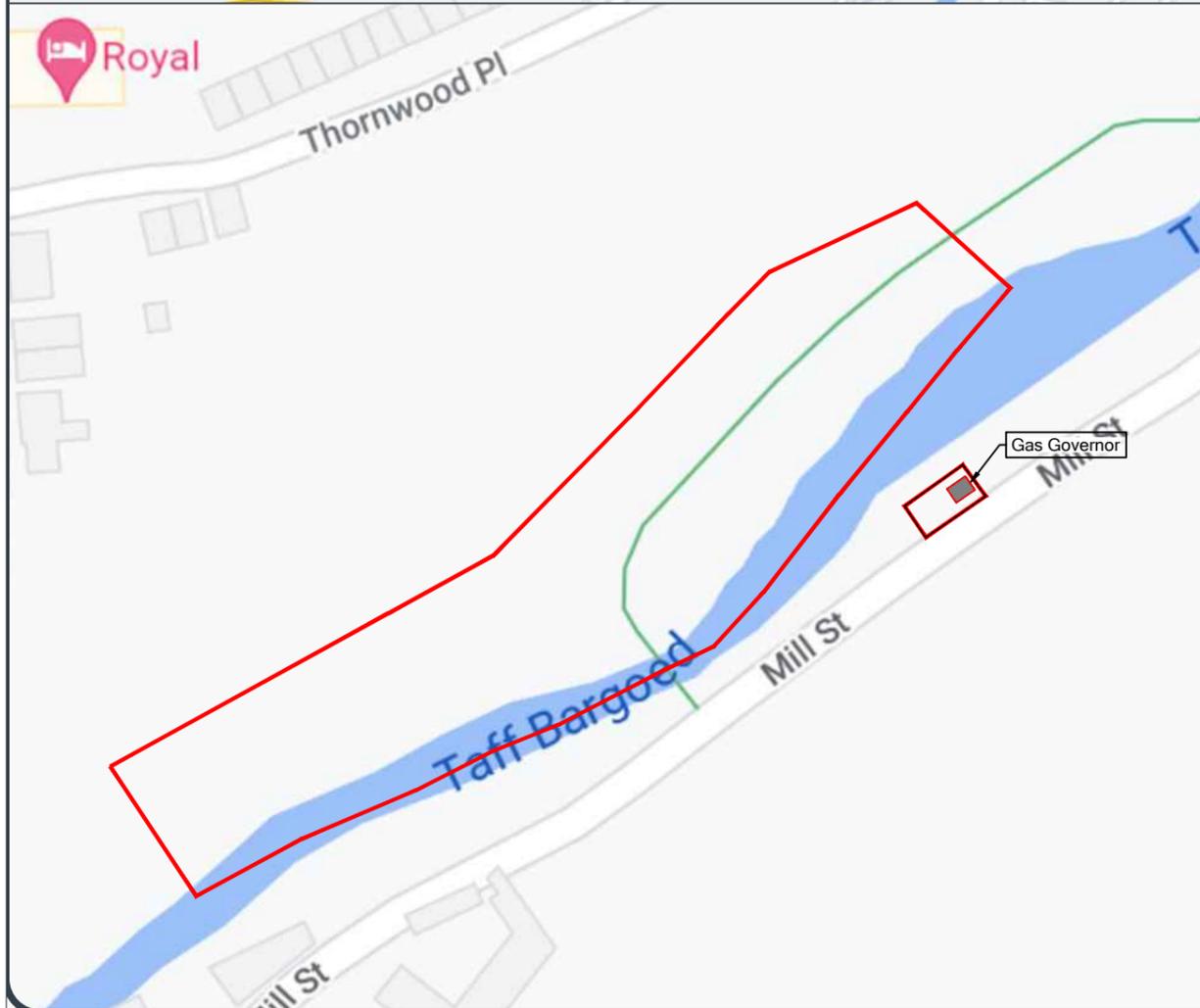
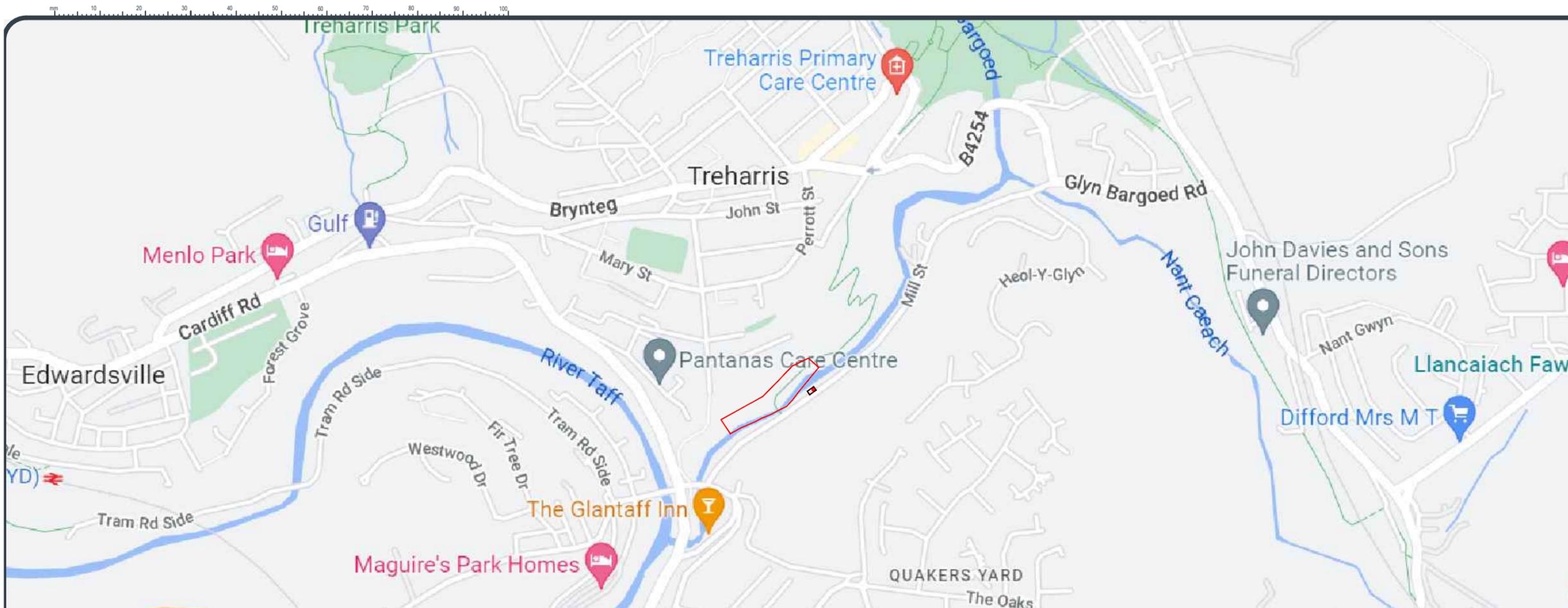
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Appendices

Appendix 1

Proposed Site Layout



LEGEND
— Site Boundary

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Unit 8, Commerce Park
 Brunel Road
 Theale
 Reading
 RG7 4AB
 01189 167340

Columbus House
 Greenmeadow Springs
 Torgwyntia
 Cardiff
 CF15 7NE
 02920 368636

enquiries@englobecorp.com
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Client
 Quakers Yard, Treharris

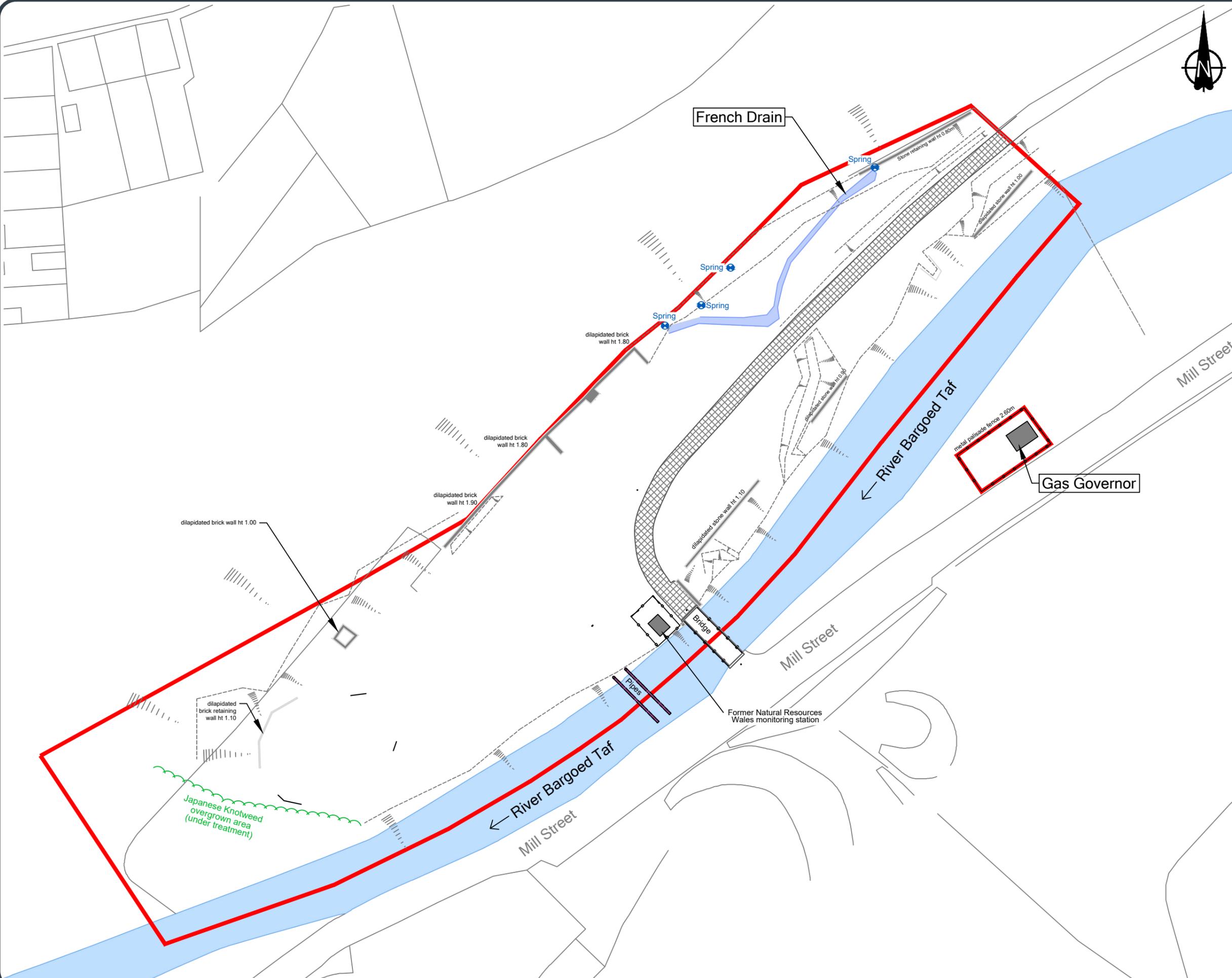
Title
 Site Location Plan

Drawn by CC	Checked Date GR 14/06/2022	Authorised Date GR 14/06/2022
Original Scale N.T.S	Date 14/06/2022	Rev 0
Drawing Number D2759/22/5205/A1		Paper A3



- LEGEND**
- WWU Limited Site Boundary
 - Tarmac
 - Current Structures
 - Pipeline (surveyed)
 - French Drain (surveyed)
 - ⊕ Spring (surveyed)

NOTE: Site is heavily wooded



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Unit 8, Commerce Park Brunel Road Theale Reading RG7 4AB 01189 167340	Columbus House Greenmeadow Springs Torigwynlais Cardiff CF15 7NE 02920 368636	enquiries@englobecorp.com www.englobecorp.com
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Client
WALES & WEST UTILITIES

Project
Quakers Yard, Treharris

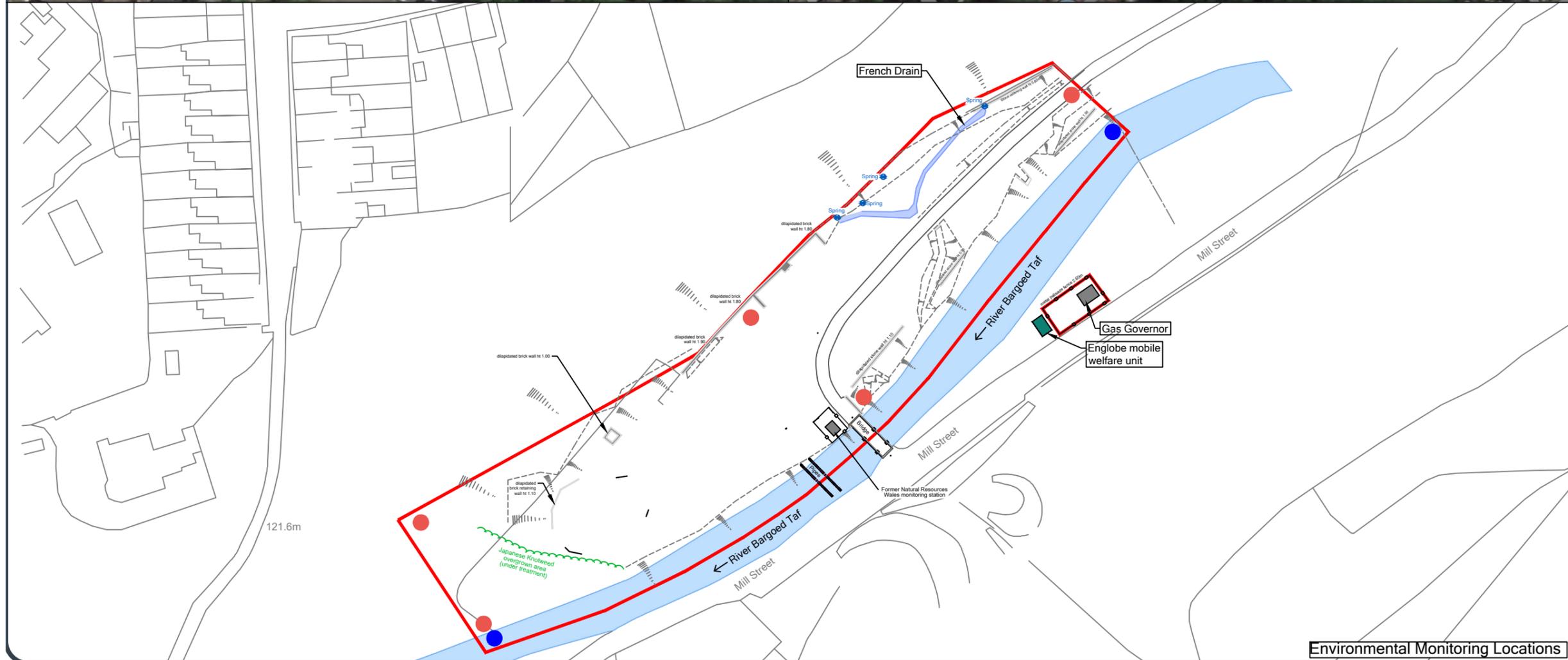
Title
Site Layout

Drawn by CC	Checked Date GR 14/06/2022	Authorised Date GR 14/06/2022
Original Scale 1:500	Date 14/06/2022	Rev 0
		Paper A3

Drawing Number
D2759/22/5205/A2



- LEGEND**
- WWU Limited Site Boundary
 - - - Englobe Site Set-up boundary
 - ➔ Access route between Englobe Site set-up and Site Working Area
 - Mobile Welfare Unit
 - Environmental Monitoring Locations
 - River Monitoring Locations



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Client

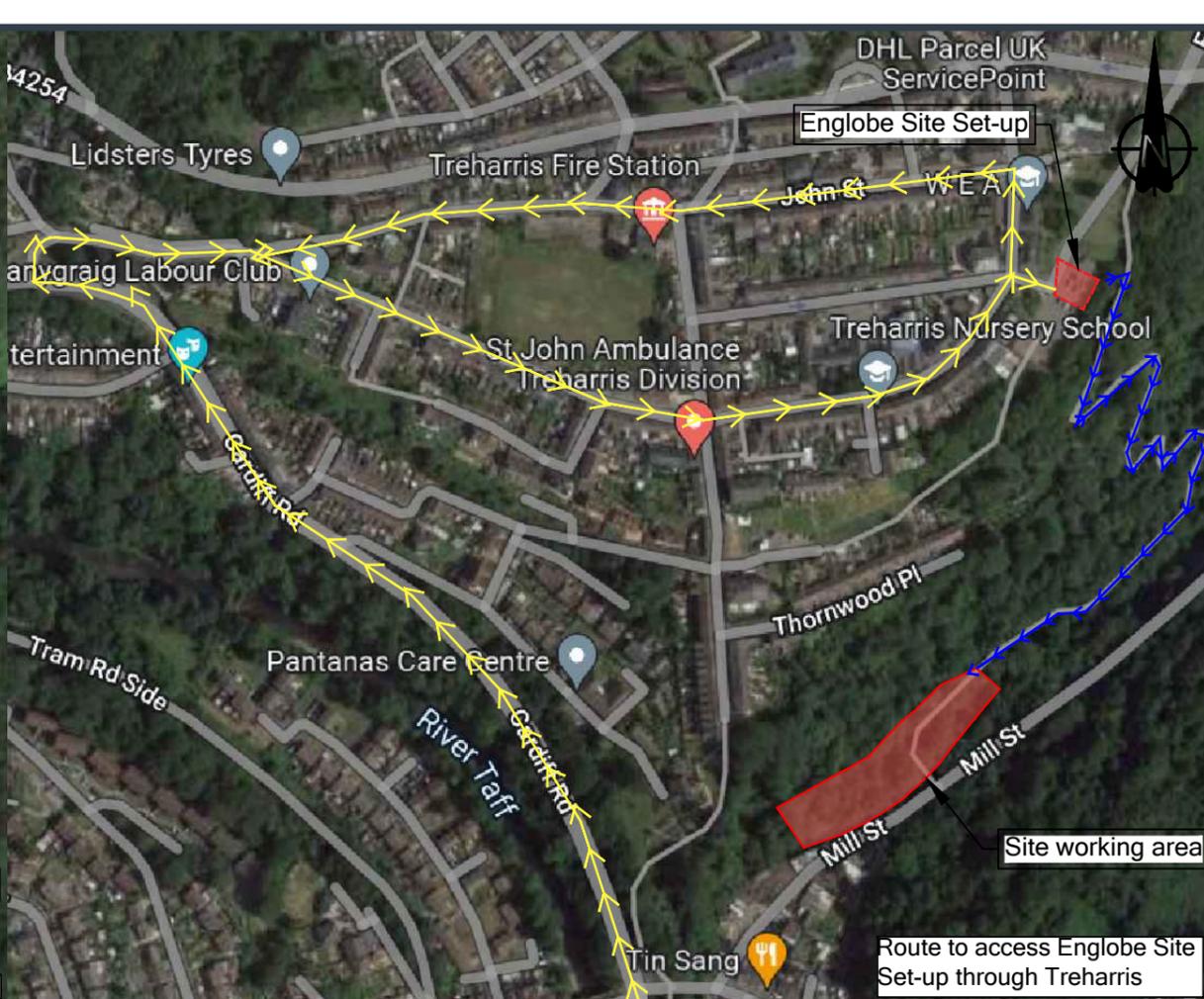
WALES & WEST UTILITIES

Project
Quakers Yard, Treharris

Title
Site Set-up and Environmental Monitoring Locations

Drawn by CC	Checked Date GR 14/06/2022	Authorised Date GR 14/06/2022
Original Scale N.T.S	Date 14/06/2022	Rev 0
Drawing Number D2759/22/5205/A3		Paper A3

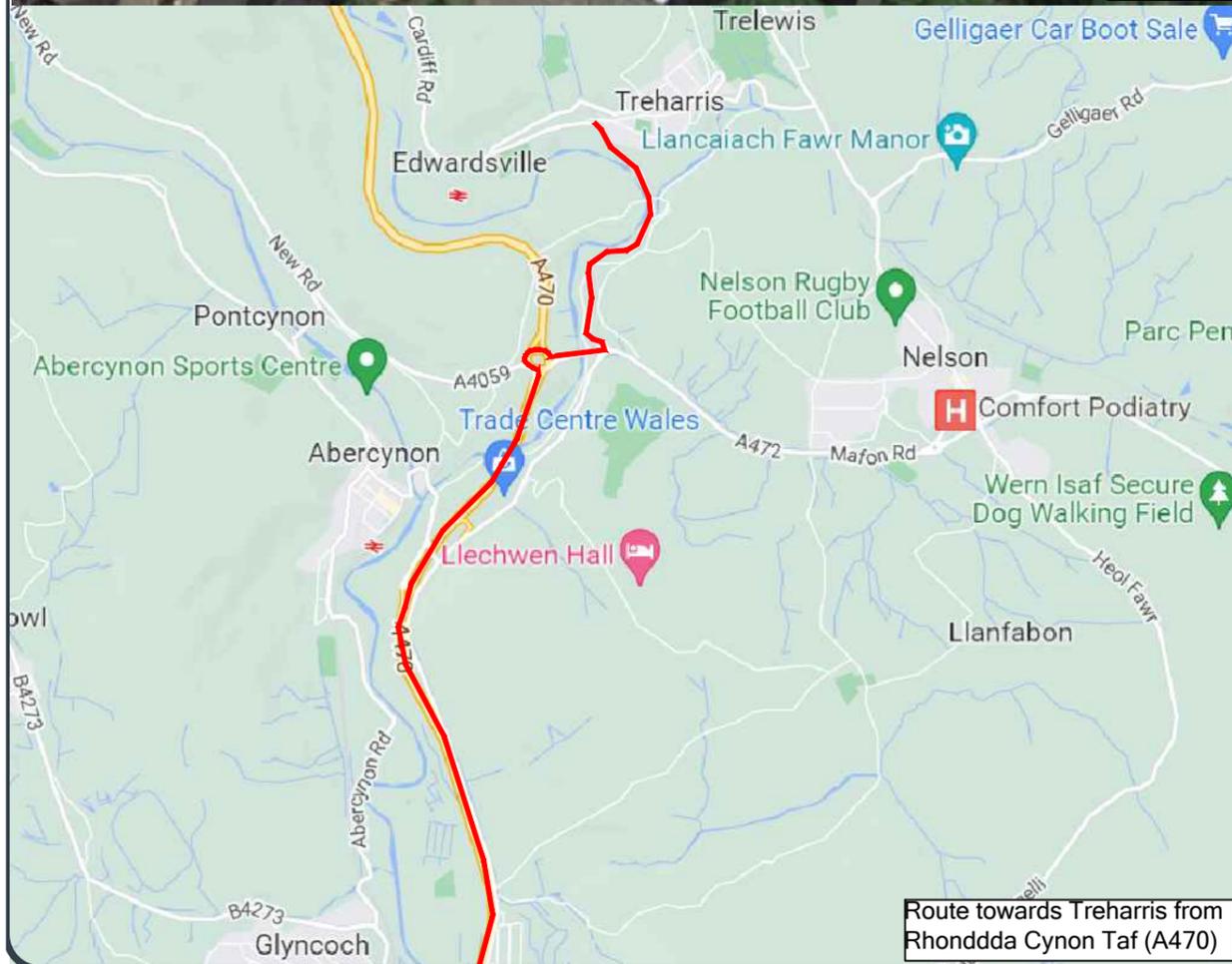
Environmental Monitoring Locations






LEGEND

- WWU Limited Site Boundary
- - - Englobe Site Set-up boundary
- Access route between Englobe Site set-up and Site Working Area
- Access/Egress route in village



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Project Quakers Yard, Treharris	
Title Traffic Management and Site Access Routes	
Drawn by CC	Checked Date GR 14/06/2022
Original Scale N.T.S	Date 14/06/2022
Drawing Number D2759/22/5205/A4	Authorised Date GR 14/06/2022
Rev 0	Paper A3

Legend

- Fenceline
- === Historical structures (as dated)(approximate)
Overlaid from Landmark Envirocheck maps, ref. 68675289_1_1, June 2015
- Historical structures (approximate)
(c. 1930-1940; c. 1960s)
Overlaid from Wales Gas Board archive plans

Advison Site Investigation Locations (2016)

- TP16-06A Trial Pit
- SP16-02 Surface soil sample
- HP16-03 Servicing location pit
- SW16-C Surface water sample
- MW16-04 Monitoring well
- MW16-07 (not installed)

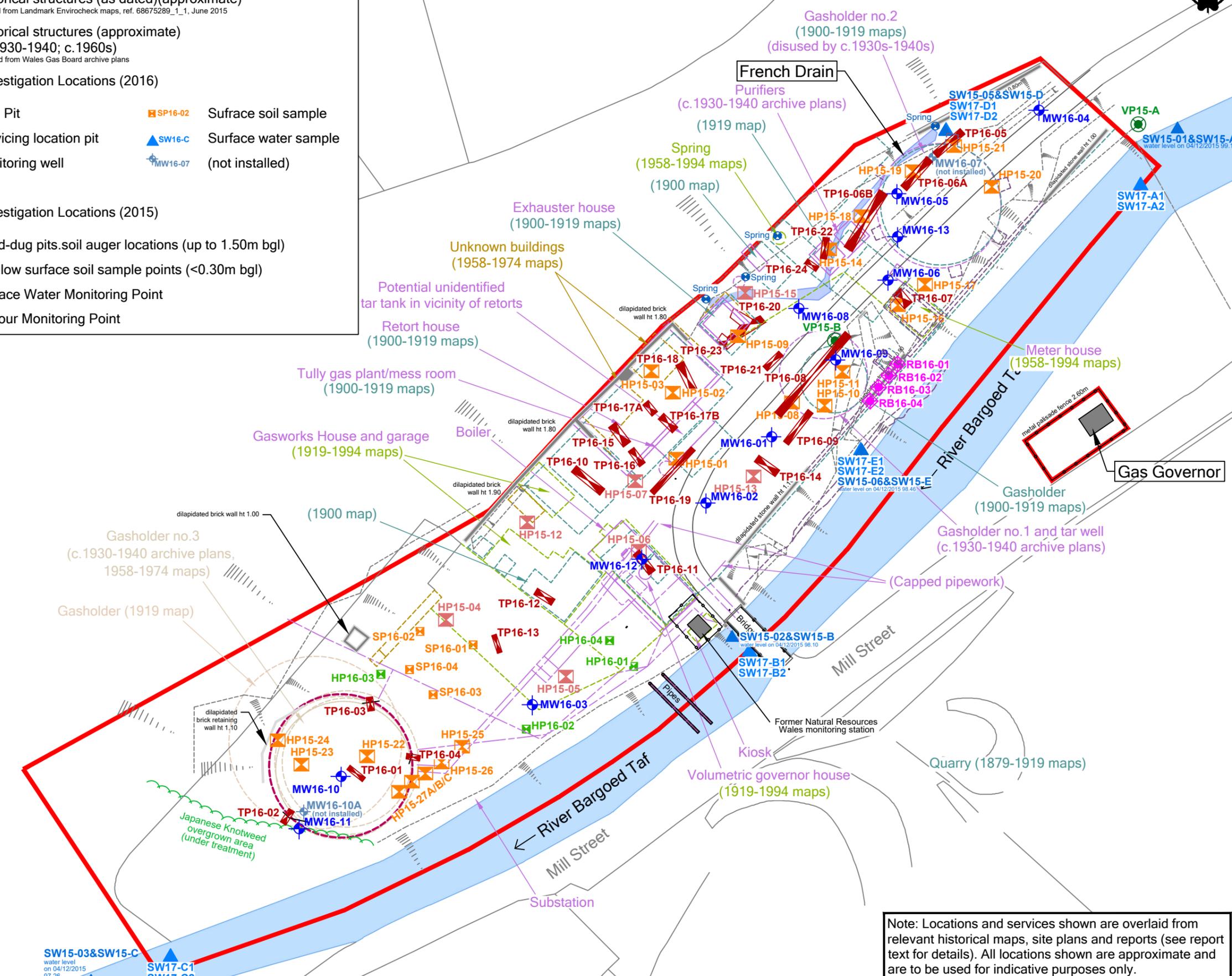
Advison Site Investigation Locations (2015)

- Hand-dug pits/soil auger locations (up to 1.50m bgl)
- Shallow surface soil sample points (<0.30m bgl)
- Surface Water Monitoring Point
- Vapour Monitoring Point



LEGEND

- WWU Limited Site Boundary
- Current Structures
- Pipeline (surveyed)
- French Drain (surveyed)
- Spring (surveyed)



Note: Locations and services shown are overlaid from relevant historical maps, site plans and reports (see report text for details). All locations shown are approximate and are to be used for indicative purposes only.

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Client: **WALES & WEST UTILITIES**

Project: Quakers Yard, Treharris

Title: Previous Site Investigations and Historical Features

Drawn by CC	Checked Date GR 14/06/2022	Authorised Date GR 14/06/2022
Original Scale 1:500	Date 14/06/2022	Rev 0
Drawing Number D2759/22/5205/A5		Paper A3

Legend

- Fenceline
- === Historical structures (as dated)(approximate)
Overlaid from Landmark Envirocheck maps, ref. 68675289_1_1, June 2015
- - - Historical structures (approximate)
(c. 1930-1940; c.1960s)
Overlaid from Wales Gas Board archive plans
- Pipework

Advison Site Investigation Locations (2016)

- TP16-06A Trial Pit
- HP16-03 Servicing location pit
- MW16-04 Monitoring well
- SP16-02 Surface soil sample
- SW16-C Surface water sample
- MW16-07 (not installed)

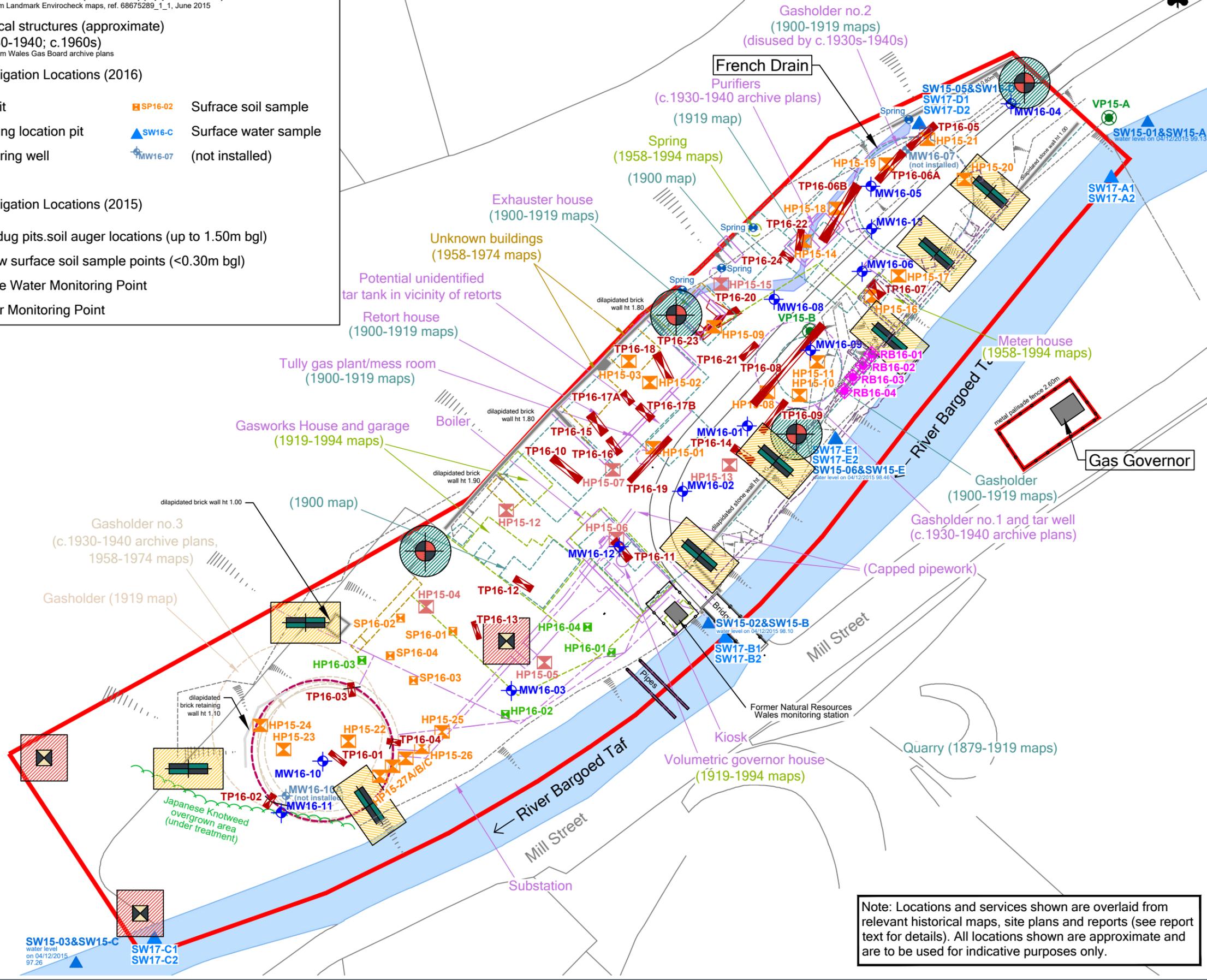
Advison Site Investigation Locations (2015)

- Hand-dug pits.soil auger locations (up to 1.50m bgl)
- Shallow surface soil sample points (<0.30m bgl)
- Surface Water Monitoring Point
- Vapour Monitoring Point



LEGEND

- WWU Limited Site Boundary
- Current Structures
- Pipeline (surveyed)
- French Drain (surveyed)
- Spring (surveyed)
- Englobe Proposed Monitoring Wells
- Englobe Proposed Trial Pits
- Englobe Proposed Hand Pits



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Client

WALES & WEST UTILITIES

Project
Quakers Yard, Treharris

Title
Proposed Monitoring Locations and Site Investigation Locations

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Original Scale 1:500	Date 14/06/2022	Rev 0
Drawing Number D2759/22/5205/A6	Paper A3	

Note: Locations and services shown are overlaid from relevant historical maps, site plans and reports (see report text for details). All locations shown are approximate and are to be used for indicative purposes only.



Legend

- Fenceline
- ==== Historical structures (as dated)(approximate)
Overlaid from Landmark Envirocheck maps, ref. 68675289_1_1, June 2015
- Historical structures (approximate)
(c. 1930-1940; c.1960s)
Overlaid from Wales Gas Board archive plans
- Pipework



LEGEND

- WWU Limited Site Boundary
- Current Structures
- Pipeline (surveyed)
- French Drain (surveyed)
- Remediation Areas
- Gasholder stabilisation
- River defence works
- Asbestos removal works (as shown)
- Foundation removal works (as shown)
- Excavation works (as shown)
- Demolition works (as shown)
- Pipework removal works (as shown)

Turnover and excavation of unsaturated made ground. Grub up foundations to 1.50m below formation.

Excavate and stabilise gasholders

Remove foundations

Gas Governor

Demolish and remove former NRW river monitoring station

Asbestos hot spot removal

Remove pipework

Hotspot removal:
Excavate and screen overlying soils,
break out foundation and crush

Note: Locations and services shown are overlaid from relevant historical maps, site plans and reports (see report text for details). All locations shown are approximate and are to be used for indicative purposes only.

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WALES & WEST UTILITIES

Project
Quakers Yard, Treharris

Title
Remediation Areas

Drawn by CC	Checked Date GR 14/06/2022	Authorised Date GR 14/06/2022
Original Scale 1:500	Date 14/06/2022	Rev 0
Drawing Number D2759/22/5205/A7	Paper A3	

The Contractor is made aware that there is currently no vehicle access to the site.

The Contractor is made aware that the site is located in a steep sided valley.

The Contractor is responsible for 24 hour security of the site during the works.

The Contractor shall prepare a condition survey of all fences, roads and structures prior to any works commencing and following the completion of the works. The Contractor will be responsible for rectifying any deterioration caused by the works (directly or indirectly) at the Contractors own expense.

Any fencing/boundary walls removed to facilitate the works shall be reinstated upon completion to match original, if possible, unless otherwise agreed in writing with the Project Manager.

Services and utilities are present within and surrounding the site.

The Contractor is made aware that unrecorded live and redundant services may be present on-site.

The Contractor's attention is drawn to the fact that excavation works on site may be in close proximity to easements.

The Contractor is made aware that the site is a former gasworks. Asbestos was frequently used on former gasworks sites and therefore the presence of asbestos within soils cannot be discounted.

Asbestos fibre (amosite) was detected in shallow soils in two locations during the 2015 site investigation (see the Site Information for further details of where asbestos has been identified in soils).

The site is heavily vegetated with trees, brambles and grass.

Patches of Himalayan Balsam were previously identified on site.

The Contractor is made aware that the surrounding areas of site are covered by a Tree Preservation Order (TPO). There are no known TPOs on site.

The Contractor's attention is drawn to the presence of existing groundwater monitoring wells on and around site. The Contractor's attention is drawn to perched groundwater contained within structures. During most recent groundwater monitoring works (September 2021), perched groundwater within structures was identified from 1.56 m bgl.

Groundwater outside of structures was identified from 1.45 m bgl.

The Contractor shall note that the site has been classified as having a Low Unexploded Bomb (UXB) Hazard level.

The Contractor is made aware that there are a number of historical structures shown as being present on the site. It is not known how the historical structures have been abandoned. There is a possibility of voids/soft spots.

The Contractor is made aware of the presence uneven and soft ground across the site.

The Contractor is made aware that the site is unsecured.

The Contractor is made aware of the potential for odours, noise and dust to be generated from the works.

The site formed part of a former gasworks and is known to contain potentially contaminated ground.

The Contractor is made aware of the potential presence of hydrocarbons and other contamination at the site which may have the potential to blind filter casings of dewatering pumps (should these be required based on the remediation design).

Legend

- Fenceline
- Historical structures (as dated)(approximate)
Overlaid from Landmark Environment maps, ref. 6867269_1_1, June 2019
- Historical structures (approximate)
(c. 1930-1940; c.1960s)
Overlaid from Wales Gas Board archive plans

Advison Site Investigation Locations (2016)

- MW16-04 Monitoring well
- MW16-07 (not installed)
- VP15-A Vapour Monitoring Point

Services (Surveyed on site, 2015)

- Gas

Services (overlaid from Utility Plans as listed)

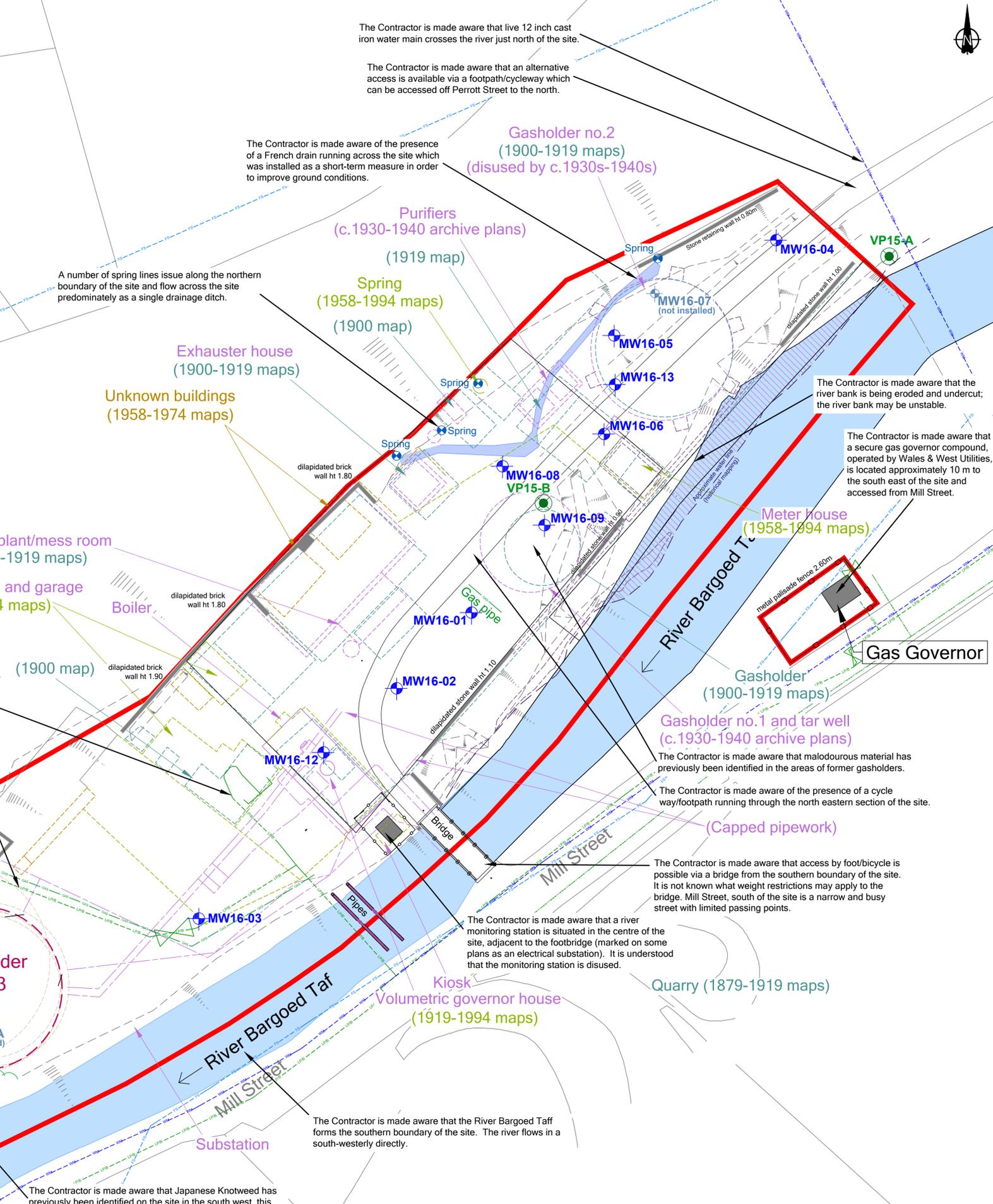
- Gas (MP) (LP)
- Water main
- Four/combined sewer
- Electricity (none indicated in vicinity of site)
- Telecoms (none indicated in vicinity of site)

Note: Locations and services shown are overlaid from relevant historical maps, site plans and reports (see report text for details). All locations shown are approximate and are to be used for indicative purposes only.

Important Note: This drawing is meant for guidance only on environmental issues relating specifically to the proposed works

The Contractor is made aware that live below ground low pressure (LP) gas mains enters the site from the south, crossing the River Bargoed Taff above ground before veering northwest and exiting the site across the northern boundary. A spur runs to the north and is pot-ended in the centre of the site.

The Contractor is made aware that Japanese Knotweed has previously been identified on the site in the south west, this has been treated on several occasions, however further Japanese Knotweed continues to be identified.



The Contractor is made aware that live 12 inch cast iron water main crosses the river just north of the site.

The Contractor is made aware that an alternative access is available via a footpath/cycleway which can be accessed off Perrott Street to the north.

The Contractor is made aware of the presence of a French drain running across the site which was installed as a short-term measure in order to improve ground conditions.

A number of spring lines issue along the northern boundary of the site and flow across the site predominately as a single drainage ditch.

The Contractor is made aware that the river bank is being eroded and undercut; the river bank may be unstable.

The Contractor is made aware that a secure gas governor compound, operated by Wales & West Utilities, is located approximately 10 m to the south east of the site and accessed from Mill Street.

The Contractor is made aware that malodorous material has previously been identified in the areas of former gasholders.

The Contractor is made aware of the presence of a cycle way/footpath running through the north eastern section of the site.

The Contractor is made aware that access by foot/bicycle is possible via a bridge from the southern boundary of the site. It is not known what weight restrictions may apply to the bridge. Mill Street, south of the site is a narrow and busy street with limited passing points.

The Contractor is made aware that a river monitoring station is situated in the centre of the site, adjacent to the footbridge (marked on some plans as an electrical substation). It is understood that the monitoring station is disused.

The Contractor is made aware that the River Bargoed Taff forms the southern boundary of the site. The river flows in a south-westerly directly.



Legend

- WWU Limited Site Boundary
- Current Structures
- Pipeline (surveyed)
- French Drain (surveyed)
- Spring (surveyed)

- NOTES**
- This drawing is to be read in conjunction with the Works Information (WI) and all other relevant documentation.
 - All work to be carried out in accordance with current British Standards and Code of Practice.
 - The Contractor is to trace and identify all underground services prior to the commencement of works.
 - All excavations will be regularly inspected by the Supervisor.
 - Excavation sites to be battered or suitably supported as appropriate. All excavations to be backfilled with compacted in accordance with the WI.
 - Sampling schedule to be determined by the Contractor. (Test suite to be as detailed in the WI). Samples shall be submitted only to laboratories approved by the Project Manager. In addition, geotechnical testing to be undertaken on all material to be used as fill, as detailed in the WI. The Contractor shall allow sufficient time within the programme of works for testing and assessment of results.
 - All lorry drivers and plant operators shall remain in their cabs whilst in the Dirty Area. All lorries leaving the site shall exit via the vehicle wash and must be sheeted if carrying waste off-site.
 - All pipes containing tar contamination encountered in excavations are to be traced back to the site boundary, locally removed and capped.
 - Contaminated water is to be managed appropriately, i.e. tankered off-site or pre-treated prior to discharge to public sewer according to local water company / local authority requirements.
 - Groundwater may be encountered at 1.45 mBGL (metres below ground level).
 - It is the Contractor's responsibility to ensure 24 hour security of the site.
 - No smoking on site.
 - The Contractor's attention is drawn to the cycleway/footpath which traverses the site and the implementation of measures to control dust and odour is considered imperative. The Contractor is required to submit his proposals in this regard prior to commencement of works, in accordance with the WI.
 - All works in the vicinity of live gas mains are to be undertaken under the supervision of the Gas Network Provider.
 - The Contractor is to submit his proposal for phasing of the works to the Project Manager for comment prior to the commencement of works.
 - The Contractor is to submit his proposals for supporting the sides of excavations and adjacent site boundaries (where applicable) to the Project Manager for comment prior to the commencement of works. The Contractor will be responsible for the design, supply, installation and removal of any temporary works required and for making good any damage on completion.
 - The Contractor is referred to the WI for specific details of the contamination.
 - The Contractor is to obtain a Site Clearance Certificate from the Gas Network Provider prior to commencing excavation works.

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Client

WALES & WEST UTILITIES

Project

Quakers Yard, Treharris

Title

Constraints and Hazard Plan

Drawn by CC	Checked Date GR 14.06.22	Authorised Date 14.06.22
Original Scale 1:500	Date 14.06.22	Rev 0
		Paper A1

Drawing Number

D2759/22/5205/A8

Appendix 2

Desk Study Details

Record Type	Search Radius (km) ⁵	Source(s) ⁶
<i>Sites and Habitats</i>		
European statutory sites	15	Locations: Lle - A Geo-Portal for Wales: http://lle.wales.gov.uk/Catalogue?O=2&lang=en
National statutory sites designated for bats and birds	10	Citations: Natural Resources Wales Designated Sites:
National statutory sites	2	https://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-sites-search/?lang=en
Local wildlife sites designated for bats	2	Local biological records centre
Local wildlife sites, important hedgerows and veteran trees	0.5	Local biological records centre
HPI	0.5	None available
Ancient woodland	0.5	Lle - A Geo-Portal for Wales ⁷ : http://lle.wales.gov.uk/Catalogue?O=2&lang=en
Waterbodies	0.5	Ordnance Survey Street View Google Maps
<i>Species⁸</i>		
Bats, Otters and Water Voles	2	Local biological records centre
Other Protected species ⁹	0.5	Local biological records centre

⁵ In each case the search included the site and the specified area beyond the site boundary. Search radius was based on the professional judgement of the ecologist leading this appraisal with reference to current guidelines for preliminary ecological appraisal (CIEEM, 2013).

⁶ Natural Resources Wales GIS Digital Boundary Database accessed on 2nd January 2016 unless otherwise stated.

⁷ Only ancient woodland sites that were over 2 ha on the 1920's base maps are included on the inventory.

⁸ Records over 10 years old are excluded.

⁹ Birds only included if listed under the Wildlife & Countryside Act Sch 1. All species protected from sale only are excluded.

Record Type	Search Radius (km) ⁵	Source(s) ⁶
SPI and local BAP species	0.5	Local biological records centre ¹⁰

¹⁰ With reference to UK Biodiversity Action Reporting System if local BAP status is not indicated by information provided.

Keystone Contact Details

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