



Pennant Walters Ltd

GLANLLYNFI GARTH WIND FARM: SOUTHERN ARRAY

Appendix 11A (Part 2): Geoenvironmental
Preliminary Risk Assessment (PRA) – Southern
Array





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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1. This Geo-environmental Preliminary Risk Assessment (PRA) Desk Study has been prepared by WSP UK Ltd ('WSP') on behalf of Pennant Walters Ltd ('the Applicant') who is submitting an application for a Development of National Significance (DNS) for the proposed Glanllynfi Garth Wind Farm ('the Proposed Development').
- 1.1.2. The Proposed Development will be located across two land parcels comprised of semi-improved grassland, marshy grassland and heathland, which are situated in the local authority area of Bridgend County Borough Council (BCBC). The nearest town is Maesteg, the outskirts of which are approximately 1 km west of the Northern Array and 1.5 km west of the Southern Array. The Proposed Development is located as follows:
- The Northern Array (Pwll-yr-lwrch) – at central grid coordinates 287102, 192887.
 - The Southern Array (Cynhordy) – at central grid coordinates 288988, 189854.
- 1.1.3. This report relates only to the Southern Array (Cynhordy), herein referred to as 'the Site'; a separate PRA has been prepared for the Northern Array (Pwll-yr-lwrch). The Site location is shown on Figure 1 in **Annex A**.

1.2 DEVELOPMENT PLANS

- 1.2.1. This PRA has been prepared to accompany the draft Environmental Statement (ES) for the Proposed Development. The Proposed Development on the Site comprises the following elements:
- Up to four three-bladed horizontal axis wind turbines, with an anticipated height to blade tip of 180 m. Wind turbine foundations will be required to ensure the stability of the wind turbine structures. Where rockhead, or suitable bearing strata is relatively shallow (<2 m), the wind turbine foundations will bear directly onto rock. Where rockhead or suitable bearing strata is between 2 and 5 m depth, the existing overburden will be excavated and replaced with suitable load bearing material, most likely to be imported stone. The foundation design will depend on the results from detailed ground investigation; it is currently expected that turbines will not require piled foundations. Should piling be necessary, the methodology will be discussed and agreed with the appropriate determining authority prior to construction.
 - Crane hardstanding (aka crane pads) adjacent to each wind turbine. The crane hardstanding will be left in place following construction to allow for the use of similar plant should major components need replacing during the operation and maintenance of the wind farm.
 - Internal access tracks comprised of newly formed stoned tracks. The track construction will be approximately (~) 5 m wide, ~0.6 m deep (dependent on ground conditions), with a ~2 m grass verge either side.
 - Power cables linking the wind turbines to the on-Site substation, laid in trenches underground, typically a trench 750 mm deep and 450 mm wide. The arrangement of the substation within each parcel would depend on National Grid Electricity Distribution (NGED)'s requirements. If required, a transformer would be provided within the substation compound which would comprise a stoned area of approximately 37.5 m x 35 m containing the transformer and associated equipment (isolators, circuit breakers). If a transformer is not required, then all electrical equipment would be housed within the substation building. The

substation buildings (approximately 14 m x 10 m) would be single storey buildings which will house metering, protection and control equipment, storage, and welfare facilities.

- The Proposed Development would include short sections of 66 kV overhead lines (via wooden pole) within the Site to connect the on-Site substation to the Grid Connection (off-Site).
- Stone materials for track building are expected to be imported from local quarries; no borrow pits are proposed on the Site.
- Temporary construction compound(s).

1.2.2. Prior to the main construction phase commencing, enabling works may be necessary, including:

- Geotechnical investigations: excavation of trial pits or boreholes.
- Upgrading of existing access point and tracks and construction of new access tracks and passing places inter-linking the turbine locations and substation; this will require import of suitable roadstone.
- Establishment of Site compounds.
- There may also be required upgrades to public roads, including road widening to allow abnormal loads to negotiate corners, protection of any below ground services and the temporary removal or resitting of infrastructure.

1.3 ASSESSMENT AIMS AND OBJECTIVES

1.3.1. The aim of this assessment is to support the ES and to inform the scope of the ground investigation and measures required for the detailed design and construction of the Project. To address the identified aim, the key objectives include:

- Developing an initial Conceptual Site Model (CSM) to assess the status of any potential contamination and identify any potentially significant contaminant linkages that require further consideration in line with current guidance including the Land Contamination Risk Management (LCRM) guidance published by the Environment Agency.
- Evaluate likely contaminated land exposure pathways and their potential significance to identified receptors.
- Identify potential geohazards and produce a geotechnical risk register.

1.4 SCOPE OF WORKS

1.4.1. To meet the aims and objectives identified in Section 1.3, the PRA includes the following scope of works:

- A targeted walkover of the Site (to be completed prior to the Final ES and the PRA updated, as required).
- Purchase and review of a Groundsure Insight report.
- Review of historical maps and plans to understand former land uses and potential contaminative activities on, and surrounding, the Site.
- Review of relevant regulatory databases.
- Review of information provided by relevant regulators: Natural Resources Wales (NRW) and BCBC.

- Review of relevant publicly available information relating to hydrological features, hydrogeology, neighbouring land use, ecologically sensitive uses and geology, to establish the environmental setting of the Site.
- Development of an initial CSM using the source-pathway-receptor contaminant linkage approach.
- Assessment of the environmental risks associated with the ground, groundwater and ground gas conditions at the Site, in the context of the proposed future use of the Site.
- Provide a Geotechnical Risk Register (GRR).

1.5 LEGISLATIVE CONTEXT

1.5.1. The assessment was undertaken in the legislative context of:

- Part 2A of The Environmental Protection Act 1990 (UK Government, 1990).
- Planning Policy Wales Edition 12 (Welsh Government, 2024).

1.5.2. This PRA has been produced in general accordance with the following industry and statutory guidance for land contamination assessment:

- Land Contamination Risk Management (LCRM) (Environment Agency (EA), 2025).
- Contaminated land statutory guidance (Department for Environment, Food & Rural Affairs, 2012).
- Guidance for the Safe Development of Housing on Land Affected by Contamination (National House Building Council (NHBC), EA, Chartered Institute of Environmental Health (CIEH), 2008).
- Development of Land Affected by Contamination: A Guide for Developers (NRW, 2023).
- Good Practice for Risk Assessment for Coal Mine Gas Emissions (CL:AIRE, October 2021).

1.6 INFORMATION SOURCES

1.6.1. The sources of information used to inform this report are detailed in **Table 1-1**.

Table 1-1 – Sources of Information

Source	Report
WSP	• Scoping Report – see Appendix 1A of the Environmental Statement (ES) • Chapter 4: Development Description of the ES.
Third Party	• Groundsure Enviro+Geo Insight Report, Ref: WSP-3ZB-8A9-1VC-8GU, June 2026, referred to as the 'Groundsure report', included in Annex B • Groundsure Map Insight historical maps, Ref: WSP-ZTK-QE9-QWU-2YA, June 2026, included in Annex B • Consultants Coal Mining Report, included in Annex C • Zetica, 2026, Desk Study & Risk Assessment, Ref: P17427-26-R1, dated 05 June 2026, referred to as the 'Zetica report', included in Annex D
Public Information	• British Geological Survey (BGS) GeoIndex Onshore viewer, www.bgs.ac.uk/map-viewers/geoindex-onshore, accessed June 2026 • BGS Geology Viewer geologyviewer.bgs.ac.uk, accessed June 2026 • BGS 1:50,000 geological survey of Great Britain (England and Wales) Drift, Sheet 248 Pontypridd, 1975

Source	Report
	• BGS 1:63,360 geological survey of Great Britain (England and Wales) Solid, Sheet 248 Pontypridd, 1963 • LandIS Soilscares, www.landis.org.uk/soilscares, accessed June 2026 • Welsh Government. DataMap Wales, datamap.gov.wales/maps/new#, accessed June 2026 • Mining Remediation Authority, Map viewer, datamine-cauk.hub.arcgis.com, accessed June 2026 • Multi Agency Geographic Information for the Countryside (MAGIC) interactive map, www.magic.gov.uk, accessed June 2026 • NRW interactive map viewer, naturalresources.wales/evidence-anddata/maps/browse-map-of-data-about-the-natural-environment, accessed June 2026 • Flood Risk Assessment Wales Map, naturalresourceswales.gov.uk/flooding/check-your-flood-risk-on-amap-flood-risk-assessment-wales-map, accessed June 2026 • Welsh Government (2022) Peatlands of Wales Map, datamap.gov.wales/maps/peatlands-of-wales-maps, accessed June 2026 • Met Office (2018) UKCP18 Marine Climate Change, www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-infographic-headline-findings-marine.pdf, accessed June 2026 • Met Office (2018) UK Climate Projections 2018 (UKCP18) • Climate Central Inc (2021) Coastal Risk Screening Tool, coastal.climatecentral.org, accessed June 2026 • UK Centre for Ecology and Hydrology (2025) Hydroprojections, eFLaG: Groundwater recharge, hydroprojections.ceh.ac.uk/eflag/groundwater-recharge, accessed June 2026
Notes	The report contains British Geological Survey materials ©NERC 2026 and ©Natural Resources Wales database right.

1.7 UNDERSTANDING RISK

- 1.7.1. It is important to understand that any risks identified during a preliminary assessment, such as those presented in this document, are perceived risks based on the information reviewed. A more detailed assessment of the actual risks can only be assessed following further intrusive investigations.
- 1.7.2. The preliminary assessments presented herein are qualitative based on professional judgements following the review of available data and within the context of the existing/ proposed use. Those risk categories presented (very low, low, moderate/ low, moderate, high and very high) follow guidance presented in Guidance for the Safe Development of Housing on Land Affected by Contamination. The guidance states that the classification of risk should be based on an understanding of both the magnitude of probability (i.e. likelihood) of a risk occurring and the magnitude of the potential consequence (i.e., severity) of a risk.

1.8 COMMERCIAL LIMITATIONS

- 1.8.1. This report is addressed to and may be relied upon by the Applicant. The report may not be relied upon or transferred to any other parties without the express written authorisation of WSP. This report should be read in full. No responsibility will be accepted where this report is used, either in its entirety or in part by any other party.



- 1.8.2. Third party information used in the production of this report has been taken in good faith as being accurate. WSP cannot and will not accept any liability for errors and/or omissions in data provided by others and WSP cannot warrant the work of others.
- 1.8.3. General limitations of the assessment are included in **Annex E**.

2 SITE INFORMATION AND ENVIRONMENTAL SETTING

2.1 INTRODUCTION

2.1.1. This section is informed by information sources listed in Section 1.6. Key observations are presented in Table 2-1 below.

2.2 SITE DETAILS

Table 2-1 – Site and Surrounding Area Details

Item	Details
Site Location	The Site is located in South Wales within the Bridgend County Borough Council (BCBC) administrative area between the Garw Valley to the east and the Llynfi Valley to the west. The nearest settlement is Maesteg, the outskirts of which are ~1.5 km west of the Site. There are a number of smaller settlements, isolated properties and busy roads within 1 km of the Site. Access to the Site is via existing access tracks which serve the operational Pen y Cymoedd Wind Farm and Llynfi Afan Wind Farm, from the A4107/A4061.
National Grid Reference	288988, 189854
Site Description and Current Use	An upland plateaux landscape with numerous steep-sided valleys, comprised of semi-improved grassland, marshy grassland, and heathland. The land is open access (NRW Public Forest 2014), and numerous public footpaths run across the Site. Two springs present in the central part of the Site at the northern boundary at the top of the slope. The streams flow in a south-easterly direction, converging in the southern part of the Site at the Site boundary. The eastern spring is labelled 'Cwm Cedfyw', and the other stream labelled 'Nant Cedfyw' on OS mapping. At the time of writing a Site walkover has not been undertaken. Following the walkover, this section will be updated with additional relevant information.
Area	Approximately 101.27 hectares (ha).
On-Site Activities	At the time of writing a Site walkover has not been completed. From 2026 satellite imagery the Site appears to be primarily pastoral field parcels.
Site Setting and Surrounding Land Uses	Part of the northern boundary borders Cwmogwr Forest. Part of the southern boundary borders an unnamed coniferous forest and follows the course of a stream. The northern-most boundary coincides with a track which also connects to the peak of Mynydd Moelgelia in one direction, and in the other direction connects to the existing wind farm in the north.
Topography and Ground Cover	The Site elevation ranges from around 290 m Above Ordnance Datum (AOD) to 345 m AOD. The Site is located on the upper slopes between the Garw Valley and the Llynfi Valley, comprising the hills Moel Cynhordy in the western part of the Site and Mynydd Moelgelia in the eastern part. Moel Cynhordy and Mynydd Moelgelia are both ~340 m AOD at their highest point. They are separated by a steep

Item	Details
	south-eastward sloping valley. The Site is located within a glacial 'cwm' and crag landscape.
Boundaries	At the time of writing a Site walkover has not been completed. From 2026 satellite imagery the Site appears to be primarily pastoral field parcels bounded by stone walls.
Drainage and Flooding	At the time of writing a Site walkover has not been undertaken. Following the walkover, this section will be updated with relevant information.
Embankments and Slopes	Areas of maximum elevation in the east and west of the Site, separated by a steeply south-eastern sloping valley.
Trees and Vegetation	Information to be added following Site walkover.
Foundations, Retaining Walls, and Basements	At the time of writing a Site walkover has not been undertaken. Following the walkover, this section will be updated with relevant information. The site of a former colliery immediately south of the Site is to be inspected during the walkover.
Mining Features	Multiple mineshafts are recorded on Site and will require inspection during the walkover.
Visual Observations of Contamination or Ground Subsidence	At the time of writing a Site walkover has not been undertaken. Following the walkover, this section will be updated with relevant information. The site of a former colliery immediately south of the Site is to be inspected during the walkover.
Asbestos Containing Materials (ACM)	At the time of writing a Site walkover has not been undertaken. Following the walkover, this section will be updated with relevant information. The site of a former colliery immediately south of the Site is to be inspected during the walkover.

Table 2-2 – Site Environmental Setting

Item	Details
Geology	
Soils (including peat)	The LandIS Soilscape indicates two soil types on-Site: very acid loamy upland soils with a wet peaty surface (Soilscape 16) and freely draining acid loamy soils over rock (Soilscape 13). To the north-west and south of the Site there is slowly permeable wet very acid upland soils with a peaty surface mapped. The Peatlands of Wales map shows no peat on-Site. An area of deep peat (defined by the Welsh Government as either >40 cm thickness organic 'O' horizon material within the upper 80cm, or, >30 cm organic 'O' horizon material resting directly on bedrock) of 40 m thickness is mapped just outside the Site boundary to the north-west. There are some areas within 500 m of the Site to the east with a peat evidence score of '1'. The Groundsure report reports the agricultural designation of the Site as poor to very poor quality.

Item	Details
	There are 36 records of topsoil chemistry on-Site reported by Groundsure, sourced from the BGS. Estimated concentrations of arsenic are between 15 and 35 mg/kg; estimated concentrations of bioaccessible lead are 60 mg/kg; estimated concentrations of cadmium are 1.8 mg/kg; estimated concentrations of chromium are between 60 and 90 mg/kg; and estimated concentrations of nickel are between 15 and 30 mg/kg.
Artificial Ground/ Made Ground	None mapped on-Site, however there is potential for Made Ground to be present due to the legacy coal mining and other mineral extractions on-Site.
Superficial Deposits	A landslip deposit is mapped in the south-east of the Site. There is also a landslip deposit mapped ~25 m south of the Site, and two landslip deposits ~200 m north-east of the Site. There are some larger landslip deposits mapped in the north and east within 500 m of the Site. No superficial deposits are recorded on BGS 1:10,000 mapping withing 250m of the Site.
Bedrock	Bedrock geology on-Site comprises primarily the Rhondda Sandstone (RA-SDST), with minor areas of Rhondda Mudstone, Siltstone and Sandstone (RA-MDSS). The RA-MDSS is shown running north-south in the eastern half of the Site, and two bands oriented roughly north-east/ south-west are shown in the south-western corner of the Site. The Rhondda Member is defined in the BGS Lexicon as: “Green-grey, lithic arenites ('Pennant sandstones') with thin mudstone/ siltstone and seatearth interbeds and mainly thin coals”. An area of Llynfi Mudstone, Siltstone and Sandstone (LLFB-MDSS) is mapped in the northern border of the Site, and an area of Llynfi Sandstone (LLFB-SDST) is mapped ~40 m north-west of the Site. The Llynfi Member is defined in the BGS Lexicon as: “Green-grey and blue-grey, feldspathic, micaceous lithic arenites ('Pennant sandstones') with thin mudstone/ siltstone and seatearth interbeds and mainly thin coals”. The 500 m buffer includes: • Brithdir Member ~150 m south-east of the Site (comprising Brithdir Sandstone (BD-SDST) and Brithdir Mudstone, Siltstone and Sandstone (BD-MDSS), defined in the BGS Lexicon as “Green-grey, lithic arenites ('Pennant sandstones') with conglomerate lenses at bases of units; thin mudstone/ siltstone and seatearth interbeds and mainly thin coals”. • Hughes Member ~300 m south of the Site (comprising Hughes Mudstone, Siltstone and Sandstone (H-MDSS) and Hughes Sandstone (H-SDST)), defined in the BGS Lexicon as “Green-grey, lithic arenites ('Pennant sandstones'), with thin mudstone/ siltstone and seatearth interbeds, and mainly thin coals”. Eight inferred coal seams and two observed coal seams on-Site, according to the Groundsure report. They appear concordant with the stratigraphy of the Rhondda Member, concentrated within the RA-MDSS. Two inferred faults on-Site: • A short fault trace in the south-west corner of the Site shown in the Groundsure report. • A fault with a longer trace in the north of the Site, oriented roughly north-south, which is not clearly labelled on the Groundsure report map but can be inferred, and is confirmed by GeoIndex.

Item	Details
	Six additional inferred faults are recorded within 500 m of the Site according to the Groundsure report: • A fault trace terminating ~10 m north-west of the Site boundary, oriented north-west/ south-east. • A fault ~40 m west of the Site oriented north-south. • A laterally extensive sinuous fault trace ~150 m east of the Site oriented generally north-south. • One numbered 66 located ~145 m south-west. • A laterally extensive fault ~350 m south of the Site, oriented north-west/ south-east. • One numbered 129 located ~415 m south-west.
BGS Boreholes	The BGS GeoIndex shows two petroleum exploration boreholes ~500 m south of the Site, of which one was drilled to 785 m depth and one to 650 m depth.
Mining and Mineral Extraction	Ordnance Survey (OS) historic mapping (taken from the Groundsure report) records 271 underground mine working features within 1 km of the Site (nine of which are on-Site). It is noted that this value appears to include duplicate counting of features over multiple OS map editions. The BGS and the Mining Record Office plans held by Groundsure also identifies the potential for historic iron ore workings within 1 km of the Site based on the geology. The Site is located within a coal mining area as defined by the Coal Authority (CA). As such, a Consultants Coal Mining Report (CCMR) has been obtained for the Site and is presented in Annex C. Further assessment of coal mining issues will be included in the WSP Coal Mining Risk Assessment (CMRA) for the Site.
Natural Ground Hazards	• Natural cavities – one record of a ‘gull/ fissure due to cambering’ within the bedrock on-Site, and no more recorded within 500 m of the Site. No reported recent or historic incidents related to natural or mining cavities within 500 m of the Site. • Shrink swell clays – negligible to very low (on-Site and in the surrounding area). • Running sands – negligible (on-Site and in the surrounding area, apart from an area ~500 m north-east of the Site which is low). • Compressible deposits – negligible (on-Site and in the surrounding area, apart from an area of high risk recorded ~500 m north-east of the Site). • Collapsible deposits – very low (on-Site and in the surrounding area). • Landslides – very low to moderate (on-Site), some high risk areas within 500 m of the Site to the north-east and north-west. • Ground dissolution of soluble rocks – negligible (on-Site and in the surrounding area).
Hydrogeology	
Superficial Aquifer	None mapped on-Site. The closest superficial aquifer to the Site is a Secondary A aquifer, 485 m to the east.
Bedrock Aquifer	Bedrock beneath the Site and within the surrounding area is classified as a Secondary A aquifer.
Groundwater Vulnerability	High vulnerability in the southern two thirds of the Site and medium vulnerability in the northern third of the Site.

Item	Details
Groundwater Quality	The Site is within the Swansea Carboniferous Coal Measures groundwater body (GB41002G201000) with an overall rating of poor.
Groundwater Abstractions	No licensed potable abstractions within 1 km of the Site. One recorded historical abstraction ~1.8 km north-east of the Site, household uses.
Source Protection Zones (SPZs)	None within 500 m of the Site.
Groundwater Flooding Risk	No historic flood events reported in the Groundsure report, and the Site and surrounding area are not within a Flood Zone 2 or 3 area. There is negligible risk from groundwater flooding. The Site lies on top of a hill which further reduces the risk of the proposed development impacting, and being impacted by, flooding.
Hydrology	
Surface Water	The Groundsure report details the following on-ground surface watercourses on-Site: three surface drains, one underground drain, a river ('Nant Cedfyw' also referred to as 'Cwm Cedfyw', which flows towards the south), lake/ reservoir (part of Nant Cedfyw) and a surface drain. Off-Site there is a marsh (~130 m south) and a river 'Nant y Fforest' (~160 m north-west of the Site). There are 15 recorded surface water features within 250 m of the Site.
Surface Water Quality	The Site intersects with three water body catchment areas, all of which are within the Ogmere operational catchment and the Tawe to Cadoxton management catchment: • Llynfi - Lletty Brongu STW to confluence with Ogmere (GB110058026332), overall rating poor, chemical rating high, ecological rating poor. • Garw – headwaters to confluence with Ogmere (GB110058026320), overall rating moderate, chemical rating high, ecological rating moderate. • Llynfi – headwaters to Lletty Brongu STW (GB110058026331), overall rating moderate, chemical rating high, and ecological rating moderate.
Surface Water Abstractions	None recorded on-Site or within 500 m. There are five historical surface water abstractions between 500 m and 2 km of the Site: • Four historical abstractions ~870 m south-west of the Site, used for hydroelectric power generation. • One historical abstraction ~1800 m north-east of the Site, household uses.
Surface Water Flooding	Some areas of the Site have risk categories assigned from the Risk of Flooding from Rivers and Sea (RoFRaS) and Flood Risk Assessment Wales (FRAW) models. These areas are confined to the immediate floodplain of the rivers, and the maximum risk category present on-Site is 1 in 30-year rainfall event, 0.3 m – 1.0 m depth of water. There are no records of historic flood events or flood defences on-Site or within 250 m of the Site.

2.3 REGULATORY DATABASE INFORMATION

2.3.1. This section summarises information from the Groundsure report (**Annex C**). The search was undertaken for a 500 m buffer around the Site. Groundsure data was ordered prior to design freeze, and this means that there is a slight deviation between the Site boundary as shown on **Figure 1** (**Annex A**) and the boundary applied in the Groundsure report. This only affects southern and central portions of the Site access road and the discussion below relates to the Site boundary as shown on **Figure 1**.

Table 2-3 – Summary of Regulatory Database Information

Item	Location and Distance from the Site and Date(s)	Additional Comment
Historical Industrial Land Uses	On-Site • Colliery (5 records) 1875-1948 • Disused Colliery (3 records) 1875-1948 • Old Trial Level (4 records) – 1897-1921 • Railway Sidings/Tramway Sidings (2&3 records) – 1875-1948 • Trial Level – 1876 • Unspecified Ground Workings – 1876 • Unspecified Heap (4 records) – 1875-1985 • Unspecified Heap (3 records) 1875-1985 • Unspecified Level (2 records) 1875-1948 • Unspecified Level (2 records) 1875-1948 • Unspecified Mine – 1948 • Unspecified Old Level (3 records) – 1875-1948 • Unspecified Old Level (3 records) – 1875-1948 • Unspecified Old Quarry (3 records) 1897-1921 • Unspecified Quarry -1948 There are 396 (un-grouped) off-Site historical industrial land uses within 500 m of the Site. These records include railway sidings, unspecified levels, refuse heaps, unspecified old levels, tramway sidings, trial levels, unspecified heaps, unspecified pits, old trial levels, unspecified ground workings, unspecified disused mines, unspecified old quarries, disused collieries, refuse heaps, unspecified disused levels, unspecified quarries, coal levels, old coal levels, unspecified disused tip, unspecified disused shafts, unspecified old shafts, old air shafts, railway buildings, unspecified old slants, cuttings, old tramway sidings, coal levels, disused air shafts and collieries.	Historical industrial land uses are concentrated in three main areas, associated with historical collieries. These collieries are located immediately south of the Site (West Rhondda), west of the Site (Llynfi Valley) and north-east of the Site (Gwarfechan).
Licensed Discharge to Controlled Waters	One record – on-Site. Unspecified discharge to land. Consent expired, issued and effective 13 January 1987. Revocation date 18 November 1992. Attributed to 2 Oaklands Drive, Bridgend.	The address attributed to the consent is not on-Site and appears to be located in Bridgend approximately 10 km south of the Site. It is unclear what the feature recorded in the Groundsure report is attributed to from satellite

Item	Location and Distance from the Site and Date(s)	Additional Comment
		imagery and mapping of the Site. This feature will be investigated when the Site walkover is undertaken.

2.3.2. No licensed industrial activities (Part 1(1)), licensed pollutant releases (Part A(2)/B) were recorded on-Site or within 500 m of the Site.

2.3.3. No active landfill, waste sites or waste exemptions are recorded on or within 500 m of the Site. One record is held for a historical landfill, as detailed in **Table 2-4** below.

Table 2-4 – Summary of Regulatory Database Information on Landfills and Other Waste Sites

Item	Location and Distance from the Site and Date(s)	Additional Comment
Historical landfill (EA/ NRW records)	One record 436 m south of the Site. First recorded 31 December 1964, last recorded 31 March 1993. Identified at Cwmcedfyw Farm, Llangynwyd	Licensed for inert, industrial, commercial and household waste. Licence issued 21 March 1986 and surrendered 31 December 1993. Located topographically downslope from the Site. To be considered further as a potential source of landfill gas. As the landfill is located topographically down-gradient from the Site and is at significant distance (>400 m) it is considered unlikely to have an impact and is not considered further.

2.4 LOCAL AUTHORITY ENVIRONMENTAL INFORMATION

2.4.1. A request for relevant environmental information and Petroleum Officer information has been made to BCBC. This is awaited at the time of writing.

2.4.2. BCBC was contacted to confirm whether any private water supplies are present in the study area. Their response is awaited at the time of writing.

2.5 MINING/ MINERAL EXTRACTION

2.5.1. This section summarises information from the Groundsure report (**Annex C**).

Table 2-5 – Summary of Mining and Mineral Extraction Information

Item (Search Radius)	Location and Distance from the Site and Date(s)	Additional Comment
BritPits Records (500 m)	On-Site - Six records attributed to Mynydd Moel-gilau Level (one record trial level) – deep coal workings - all ceased, wholly underground workings accessed by shaft, adit, drift or incline. - One record attributed to New Mountain Level - deep coal workings - ceased, wholly underground workings accessed by shaft, adit, drift or incline. - One record attributed to Mynydd Moelgilau – sandstone – surface mineral working – ceased.	Historical coal mining activities and sandstone quarrying may have impacted the Site and may require further investigation. Potential risks resulting from mine gas generation are considered in Section 2.7. The off-Site sandstone quarries are not considered further as potential sources of ground gas generation. It is not considered

Item (Search Radius)	Location and Distance from the Site and Date(s)	Additional Comment
	Off-Site - Eight records of sandstone extraction – all ceased. Closest is 113 m south-west of Site. 52 records of deep coal extraction – all ceased. 14 records within 100 m of Site to the south/ south-west related to West Rhondda Colliery features.	likely that other less mobile contaminants would be able to migrate to the subject Site due to the variable topography and expected groundwater flow directions.
Surface Ground Workings (250 m)	On-Site 37 records on-Site. Groundsure have grouped the features as follows: A: Trial level and unspecified ground workings – 1876 B: Colliery (2 records) – 1875, unspecified heaps (7 records) – 1875-1985, unspecified levels/ old levels (8 records) – 1875-1985 C: Old trial level/ unspecified old level (7 records) - 1875-1948 D: Unspecified quarry/ old quarry (4 records) – 1897-1948 E: Colliery/ disused colliery (5 records) – 1875-1948 F: Colliery – 1948 G: Old trial level – 1897 Off-Site 125 entries are recorded within 250 m of the search boundary. Entries include unspecified levels, refuse heaps, unspecified old levels, trial levels, unspecified heaps, unspecified pits, old trial levels, unspecified ground workings, unspecified old quarry, disused colliery, unspecified disused levels, unspecified quarries, coal levels and old coal levels. The majority of entries within 200 m of the Site are attributed to the West Rhondda Colliery to the south of the Site.	As noted above, the primary sources of potential contamination at the Site are associated with the West Rhondda colliery immediately south of the Site and its associated workings within the Site boundary.
Underground Workings (1 km)	On-Site 14 records of on-Site underground workings. Groundsure have grouped these features as below: A: Trial level – 1876 B: Unspecified old level/ level (3 records) – 1948 C: Old trial level/ unspecified old level (5 records) – 1897-1948 E: Colliery/ disused colliery (3 records) – 1914-1948 F: Colliery – 1948	

Item (Search Radius)	Location and Distance from the Site and Date(s)	Additional Comment
	H: Unspecified mine – 1948 319 entries are recorded within 1 km of the Site. 50 records are within 250 m of the Site and include: unspecified levels, air shafts, old trial levels, unspecified disused levels, unspecified old levels, coal levels and old coal levels and are primarily attributed to the West Rhondda Colliery immediately south of the Site.	
Non-Coal Mining (1 km)	Four records attributed to Class B iron ore mining. Closest is 508 m north-east of the Site.	The iron ore mining noted within the search area is not considered to be within influencing distance of the Site and is not considered further.

2.6 MINING REMEDIATION AUTHORITY DATA

2.6.1. The Groundsure report and the Mining Remediation Authority (MRA, formerly the Coal Authority) Interactive Map indicated that the Site is located within a Coal Mining Reporting Area, and Development High Risk Areas are present within the Site boundary. These areas are primarily confined to the valley between Mynydd Moelgeila and Moel Cynhordy and the southern-most spur of the Site boundary. Based on the drawing titled Sketch Site Layout provided by the Applicant it appears that two of the four turbines and substation 2 may lie within the Development High Risk Areas.

2.6.2. The following provides a preliminary review of a MRA Consultants Coal Mining Report (CCMR) obtained for the Site included in **Annex C**:

- The Site is directly underlain by recorded underground working in five seams of coal (related to the No.1 Rhondda, No.2 Rhondda, No.2 Rhondda Rider, No.3 Rhondda and Upper Six Feet seams) at depths ranging between 23 m and 548 m below ground level (bgl), last worked between 1892 and 1985.
- In addition, the MRA CCMR records off-Site underground mining within 0.7x the depth of the workings, which the MRA consider the zone of likely physical influence. Workings are recorded in proximity to the Site in nine seams of coal (related to the No.2 Rhondda, No.2 Rhondda Rider, No.3 Rhondda, Hafod, Lower Pinchin, Upper Six Feet, Bute, Lower Nine Foot and Five Foot Gellideg seams) at depths ranging between 98 m bgl and 751 m bgl, last worked between 1897 and 1982.
- Five shallow spine roadways (less than 30 m bgl) are recorded within the search area boundary.
- Twenty-five adits are recorded within 100 m of the search boundary, of which eleven are recorded within the search boundary. All associated with proven coal outcrops. The remaining fourteen adits are located outside the Site boundary; however, the mapping provided in the CCMR indicates that all are orientated towards the Site.
- Two mine shafts are recorded within 100 m of the search boundary.

- Nine abandoned mine plan catalogue references are identified within the CCMR as intersecting part or all of the Site boundary; however the MRA advises that additional abandonment plans than those referenced could affect the Site boundary
- There is no record of mine gas emissions requiring action within 500 m of the Site.
- There are no probable unrecorded shallow workings.
- Ten outcrops of coal seams are recorded within the search area, these seams relate to the No. 1 Rhondda, No. 2 Rhondda, No. 2 Rhondda Rider and the Tillery Brithdir. With the exception of the Tillery Brithdir (which outcrops within four locations in the Site boundary), all of the seams are noted to be workable.
- No record of opencast mines or Coal Authority managed tips are identified within 500 m of the Site boundary.
- Two geological faults are recorded in the MRA mapping provided with the CCMR. One located within the southern-most spur of the Site, aligned north-east to south-west. The other fault is noted in the north-west of Site, aligned north-north-west to south-south-east .

2.6.3. A detailed review of available abandonment plans and the preparation of a site-specific Coal Mining Risk Assessment (CMRA) will be required to determine the significance of these features and to assess the need for intrusive investigation and/ or remedial measures.

2.7 MINE GAS PRELIMINARY RISK SCREENING

2.7.1. Based on the information included above, there is potential for mine gas to be present on-Site.

2.7.2. Figure 13.1 of published CL:AIRE guidance 'Good Practice for the Risk Assessment for Mine Gas Emissions' (2021) presents a decision support tool to classify sites in accordance with five risk categories from no risk to high risk. In general, the decision support tool sorts sites into their relative risk categories based on the geological/ historical mining features.

2.7.3. **Table 2-6** provides a summary of the preliminary screening with respect to mine gas risks at the Site.

Table 2-6 – Qualitative Mine Gas Risk Designation

Stage	Item for Consideration	Yes/ No	Comments
Initial	Is the Site within a Coal Authority defined Coal Mining Reporting Area	Yes	Potential mine gas risk. Proceed with further assessment.
Are all of these statements true? (If 'Yes' – <i>Negligible Risk</i>)	Mine entries present >50 m from Site boundary	No	The CCMR indicates the presence of multiple adits within the Site boundary. Proceed with further assessment.
	Workings present >150 m depth	No	The CCMR indicates shallow workings to be present below or in proximity to the Site, with 18 seams at depths between ground level and 150 m bgl. Proceed with further assessment.
	No faults or other potential pathways	No	Faults are recorded as present on-Site in the CCMR.

Stage	Item for Consideration	Yes/ No	Comments
	connecting surface to deeper unflooded workings		Proceed with further assessment.
	Outside area of past or probable shallow workings on Coal Authority Viewer	Yes	The Site is not located within an area of probable shallow workings based on Coal Authority information. No further assessment of probable shallow workings required.
Are all of these statements true? (If 'Yes' – Low Risk)	Workings (only) between 30 m and 150 m but permanently flooded or covered by 10 m+ of low permeability superficial deposits	No	Shallow workings are recorded below the Site at a depth of 23 m bgl. 17 additional workings are present between 36 m bgl and 149 m bgl. No superficial deposits mapped on-Site on BGS geological mapping. BGS hydrogeological mapping for the area around Maesteg does not appear to include groundwater levels or contours. Limited information is available on local groundwater levels. It is assumed a water table is present due to the presence of springs on adjacent hillsides recorded on historical mapping, however at this juncture, it cannot be assumed that shallow workings are flooded. Proceed with further assessment.
	Mine entries present >50 m from Site boundary	No	See above text on mine entries. Proceed with further assessment.
Are any of these statements true? (If 'No' – Moderate Risk) (If 'Yes' – High Risk)	Mine entries on-Site or <20 m from Site boundary	Yes	See above text on mine entries. Proceed with further assessment.
	Workings below Site at <30 m depth and unflooded or variable water level (not permanently flooded)	Yes	See above text on workings and flooding status. Proceed with further assessment.
	Faults or other pathways connecting surface to deeper unflooded workings	Yes	See above text on faults and flooding of workings. Proceed with further assessment.
	Within area of past or probable shallow workings on Coal Authority viewer	No	No further assessment of probable shallow workings required.

- 2.7.4. Based on the above, the Site is considered to represent a High Risk in accordance with CL:AIRE guidance, principally based on the presence of recorded shallow workings, presence of mine entries, presence of faults, absence of superficial cover and uncertainties regarding flooding status.
- 2.7.5. A Detailed Mine Gas Risk Assessment (DMGRA) will be required to assess the likelihood of mine gas risks impacting the turbines, associated substations and cable routes.

2.8 RADON GAS

- 2.8.1. A radon map at 1:50,000 scale based on the Radon Potential dataset created jointly by the BGS and UK Health Security Agency (UKHSA) is included in the Groundsure report in **Annex C**. In general, the radon potential on the Site is recorded as less than 1% of properties within the grid square would be considered to be above the action level. The radon map also shows limited areas of between 1-3% of properties being at or above the action level. In areas where between 1-3% of properties are affected, basic radon protection measures are recommended by the UKHSA.

2.9 PLANNING HISTORY, PREVIOUS INVESTIGATIONS AND REMEDIATION

- 2.9.1. A search was made on the Bridgend Borough Council Planning Portal for applications related to “Cynhordy” and “Moelgelia” as no map-based search function is available and the Site holds no address.
- 2.9.2. Eight applications were noted associated with “Cynhordy”. Four applications relate to an anemometry mast to inform wind turbine development. One relates to the relocation of an overhead line. Three relate to development at Cynhordy Farm. No relevant ground investigation data was appended to these applications.
- 2.9.3. The search for Moelgelia returned no associated applications.

2.10 UNEXPLODED ORDANCE (UXO)

- 2.10.1. Based on the Zetica report, the Site is at a low risk from unexploded ordnance. The report is included in Annex D. A historic Spitfire crash was identified approximately 140 m west of the Site. No further UXO assessment was deemed necessary.

2.11 SENSITIVE LAND USES

ENVIRONMENTAL DESIGNATIONS

- 2.11.1. There are 78 recorded areas of designated ancient woodland between 0.3 km and 2 km of the Site; there are none on-Site or within 0.3 km of the Site boundary.
- 2.11.2. There is one recorded site of special scientific interest (SSSI) within 2 km of the Site, located approximately 580 m north-west of the Site at Cwm Du woodlands.
- 2.11.3. There are no conserved wetlands, special areas of conservation (SAC), special protection areas (SPA), national nature reserves (NNR), local nature reserves (LNR), biosphere reserves, forest parks, marine conservation zones, green belt areas, proposed Ramsar sites, possible special areas of conservation (pSAC), potential special protection areas (pSPA), nitrate sensitive areas, nitrate vulnerable zones, SSSI impact risk zones, or SSSI units within 2 km of the Site.
- 2.11.4. Additional information regarding ecological features on-Site and in the surrounding area are included in **Chapter 8: Biodiversity** and **Chapter 9: Ornithology** of the ES.

VISUAL AND CULTURAL DESIGNATIONS

- 2.11.5. There is one recorded scheduled ancient monument within 250 m of the site, Croes y Bwlchgwyn Round Cairn (approximately 170 m north of the Site).
- 2.11.6. There are no world heritage sites, areas of outstanding natural beauty, national parks, listed buildings, conservation areas, registered parks and gardens, recorded within 250 m of the Site.
- 2.11.7. Additional information regarding these features on-Site and in the surrounding area are included in **Chapter 7: Historic Environment** of the ES.

2.12 CLIMATE CHANGE

SEA LEVEL RISE/ FLOOD RISK

- 2.12.1. The Site is located approximately 12.25 km from the Bristol Channel and is at an elevation of between 146 AOD and 349 m AOD. Under UKCP18 sea level rise projections for the nearest city, Cardiff, shows a sea level rise in a high emissions scenario of 1.13 m by 2100 relative to 1981 – 2000 sea level. The Coastal Risk Screening Tool confirms that the Site is not at risk of flooding as a result of sea level rise.
- 2.12.2. As detailed in Section 2.2, select areas on-Site are at risk from surface water flooding. Note that climate change may result in changes to the frequency of extreme weather events and associated flooding.

PROJECTED CHANGES TO GROUNDWATER LEVEL

- 2.12.3. The Site is within the Swansea Carboniferous Coal Measures groundwater body (GB41002G201000), as defined by the Water Framework Directive (WFD), with an overall rating of poor. The eFLaG project far-future (2050-2079) projections for groundwater recharge within this catchment report a median 0.6 mm per day increase for the winter months for this groundwater body. In the other seasons lower groundwater recharge is indicated in the median and maximum scenarios. This indicates potential future increases in groundwater level, at least during winter, relative to the current baseline.

3 SITE HISTORICAL DEVELOPMENT

3.1 INTRODUCTION

- 3.1.1. A summary of the Site's historical development is presented below in **Table 3-1**. This is based on historical Ordnance Survey (OS) mapping in the Groundsure report (See **Annex B**), supplemented by publicly available aerial imagery on Google Earth Pro.
- 3.1.2. Groundsure data was ordered prior to design freeze, which means that there is a slight deviation between the Site boundary as shown on **Figure 1 (Annex A)** and the boundary applied in the Groundsure report. This only affects southern and central portions of the Site access road and the discussion below relates to the Site boundary as shown on Figure 1.

3.2 SITE HISTORICAL DEVELOPMENT

Table 3-1 – Site Historical Development

Map and Year	On-Site	Off-Site (within 500 m)
1875-1876 1:10,560 (Partial. Western-most extent not mapped)	The Site spans across two peaks, Mynydd moelgeila (meaning 'bare rocky mountain') to the east and Moel Cynhordy (meaning Cynhordy hill) to the west. The Site is comprised of bare land with Cwm No2 Rhondda Colliery located on-Site along the southern Site boundary. Footpaths are noted, aligned north-south in the eastern and western edges of the Site. A sheepfold is recorded in the eastern section of the Site, approximately 100 m east of the Rhondda Colliery. Two points are noted on the eastern map portion, denoting two markers of the old level and one marker for the new mountain level. A tramway aligned north-south is recorded in the central portion of the Site, associated with the Rhondda Colliery. Two unidentified surface water features are noted aligned north-south within the central area of the Site. The eastern feature issues from a spring within the Site boundary.	To the north of the Site a spring is recorded within 100 m of the northern-most extent of the search area. Two sheepfolds are located approximately 375 m north of the Site. North-east of the Site, a disused colliery and associated shafts, slants and tramway are recorded (Gwarferchan Colliery). To the west of the Site, additional tramways associated with nearby collieries are recorded linking back to the town of Ponty-y-rhyl. It should be noted that three additional collieries are recorded more than 500 m east of the Site, recorded as Duchy Colliery No3 (disused), Lluest Colliery (Disused) and Lluest Colliery No1. (disused). South of the Site, the West Rhondda Colliery (disused) is recorded between 100 m and 250 m, linking to the tramways recorded on-Site.
1876 1:10,560 County Series	A north-south aligned footpath is recorded in the Moel Cynhordy section of the Site.	Three springs are recorded between 100 m and 250 m west of the western Site boundary.

	A spring is recorded in the south-western portion of the Site, adjacent to Cynhordy. No coal mining features are recorded on this map edition.	No coal mining features are recorded on this map edition.
1876 1:2,500	A quarry is recorded in the position of the Rhondda Colliery. The Site is generally open rough pasture.	A quarry is recorded approximately 190 m north-west of the Site and approximately 220 m north-west of the mapped Cynhordy peak.
1877-1878 1:2,500	No significant change noted.	No significant change noted.
1897 1:10,560	No significant change noted.	Four records of old coal level and three air shafts recorded between 250 m and 500 m north-east of the Site. Two records of old coal levels, one coal level and four air shafts recorded between 250 m and 500 m west of the Site. Tramway recorded linking features, aligned north-east to south-west
1899 1:2,500	No significant change noted.	No significant change noted.
1914 1:10,560 (Partial scan, eastern half) 1914-1915 1:10,560 (Partial scan, western half)	No significant change noted.	Coal mining features now include Gwar-fechan Colliery (disused) 426 m north-east of the Site. West Rhondda Colliery recorded on mapping south of the Site, with associated tramway and air shafts.
1918-1919 1:2,500	No significant change noted.	No significant change noted.
1921 1:10,560	No significant change noted.	No significant change noted.
1939-1940 1:2,500	Cwm No.2 Rhondda Colliery recorded on southern Site boundary.	West Rhondda Colliery marked as disused. Air shafts no longer marked.
1947-1948 1:10,560	No significant change noted.	Gwarfechan Colliery to the north-east marked as disused. Associated features (shafts, tramways, levels, slants) all marked as old.
1948 1:10,560 Partial (southern half of Site only)	Cwm No.2 now marked as a mine.	No significant change noted.
1960-1965 (1:10,560) Partial (northern half of Site only)	No significant change noted.	Tramways west of Site recorded as dismantled.

		Mound recorded 177 m north of Site. Sheepfold north-east of Site marked as disused.
1962-1964 1:2,500	The Site is now subdivided plots marked by field parcel numbers. The on-Site mine is no longer marked, however excavations remain mapped. The on-Site tramway is marked as dismantled.	Areas north to north-east and south-east of the Site are marked as woodland.
1964 1:2,500 Partial (southern half only)	No significant change noted.	No significant change noted.
1970 1:10,560	No significant change noted.	No significant change noted.
1973 1:2,500 Partial (northern half only)	No significant change noted.	No significant change noted.
1975 1:10,000 Partial (northern half only)	No significant change noted.	No significant change noted.
1985 1:10,000 Partial (southern half only)	No significant change noted.	No mining features recorded to the west of the Site. Three tip (disused) areas are recorded in similar locations 280 m to 450 m west of the Site.
1988-1993 1:2,500	No significant change noted.	No significant change noted.
2001 1:10,000	No significant change noted.	Dismantled tramways recorded to the south, west and north-east of the Site. Tips recorded west and north-east of Site.
2010 1:10,000	No significant change noted.	New road infrastructure associated with Cynhordy Farm and surrounding structures mapped south-south-west of the Site. A surface water feature is mapped immediately north-east of the Site, aligned south-west to north-east. Tips to the north-east no longer recorded.
2015 1:10,000	No significant change noted.	No significant change noted.
2023 Aerial Photography (Groundsure Report)	Site is predominantly open scrubland. Field boundaries are occasionally visible and a footpath	Forested areas to the north and south-east are cut by footpaths.

	cut north-south across the western half of Site. Possible colliery spoil is noted on and around the Site in proximity to the former tramway location.	The area to the south of the Site is heathland on the steep valley sides. Occasional outcrops are visible surrounding the valley in the areas around the West Rhondda Colliery's location. The areas south and west of the Site are primarily undeveloped agricultural land, with Cynhordy Farm the only visible development in these areas to the south-west. The land to the north-west of the Site comprises heathland, marked by occasional footpaths.
2025 1:10,000	No significant change noted.	No significant change noted.

SUMMARY OF THE SITE'S HISTORICAL DEVELOPMENT

- 3.2.1. The majority of the Site has remained rough pasture since the earliest available historical mapping. Coal mining activity was present on-Site, localised to the south of the Site between the peaks of Mynydd Moelgeila and Moel Cynhordy, centred on the West Rhondda Colliery. In this area, a dismantled tramway and quarry features were noted. The Site was subdivided into field parcels from the 1962 mapping onwards, assumed to be for pastoral grazing, as indicated by the sheepfold recorded in the south-east of the Site.

4 INITIAL CONCEPTUAL SITE MODEL

4.1 INTRODUCTION

- 4.1.1. The Conceptual Site Model (CSM) is based upon the environmental conditions of the Site as described in the previous sections. The methods used in this assessment followed a risk-based approach with the potential environmental risk assessed qualitatively using the ‘source-pathway-receptor’ contaminant linkages concept introduced in relevant guidance documents, principally the UK LCRM Guidance (Environment Agency, 2025) on the practical implementation of the Environmental Protection Act 1990 and planning policy for developments on land affected by contamination (Welsh Government, 2024).
- 4.1.2. Environmental risk can be defined as the combination of the consequence of a harmful effect and the probability of its occurrence. For the purposes of the assessment, the risk assessment methodology is presented as **Annex F** and risk definitions following CIRIA 552 to be used, are presented in **Annex G**. The existence of a contaminant linkage is primarily dependant on site usage and environmental conditions.
- 4.1.3. The environmental risk assessment has been carried out identifying and evaluating the significance of the following:
- Potential sources of contamination: these include any current or historical activities of concern, located either on or in the vicinity of the Site.
 - Potential pathways: these are the routes or mechanisms by which contaminants of concern (CoC) may migrate from the source to the receptor.
 - Potential receptors: these could include current or future land users, controlled waters (groundwater or surface water) or property (e.g., built infrastructure or grazing livestock) at the Site that could be harmed by CoC.
- 4.1.4. It should be noted the initial CSM has been developed prior to a site walkover being completed at the Site. The CSM and subsequent initial environmental risk assessment will be updated following the walkover.

4.2 BACKGROUND TO THE INITIAL CSM

POTENTIAL SOURCES OF CONTAMINATION

- 4.2.1. **Table 4-1** provides a summary of the potential sources of contamination that may be present at the Site, as well as the likely distribution of such sources.

Table 4-1 – Potential Sources of Contamination

Potential Source	Potential Contaminants of Concern	Likely / Anticipated Distribution on Site
On-Site		
Made Ground associated with former colliery	Asbestos, heavy metals, inorganics, polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH),	Bordering the southern spur of the Site and in proximity to tramway and adits in central valley.

Potential Source	Potential Contaminants of Concern	Likely / Anticipated Distribution on Site
	volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and ground gases (e.g., methane, carbon dioxide, volatiles)	
Unspecified heaps of presumed colliery spoil/ Made Ground	pH (acidic), heavy metals, sulphates and PAH	Southern spur adjacent to colliery, valley adjacent to tramway and heaps in south-south-east of Site
Tramway – railway land associated with colliery works	PAH and heavy metals	South and central valley
Adits, shafts and workings associated with former colliery	PAH, heavy metals, acid mine drainage, iron, mine gas (carbon dioxide, methane, carbon monoxide, hydrogen sulphide)	Site-wide (but predominantly south and east)
Agricultural/ pastoral use (current and historical)	Herbicides/ pesticides, fertilisers, TPH, PAH and asbestos (ad hoc waste disposal)	Site-wide
Off-Site		
Made Ground associated with off-Site colliery	PAH, heavy metals, acid mine drainage, iron, ground gas and mine gas (carbon dioxide, methane, carbon monoxide, hydrogen sulphide)	Lletty-brongu Colliery to the south-west; Lluest and Duchy Collieries to the west; Gwar-fenchau and New Braichycymmer Collieries to the north-east
Heaps	pH (acidic), heavy metals, sulphates and PAH	Generally located immediately south, north-west and north-east of site, associated with workings
Adits/ workings	PAH, heavy metals, acid mine drainage and iron	Along the north-western and western slope of Moel Cynhordy, and throughout the Llynfi Valley ~250 m to the north-west and west of the Site; possible unrecorded adits on the slopes around the Site
Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and oils	Field parcels immediately adjacent to Site

POTENTIAL PATHWAYS

4.2.2. In the context of the Proposed Development the following potential exposure or migration pathways associated with the identified potential sources have been identified:

4.2.3. Pathways to human health receptors:

- Dermal/ direct contact with soils and groundwater.

- Ingestion of dusts/ soil particles.
- Inhalation of dusts and fibres.
- Inhalation of hazardous ground gases/ vapours – potential for enclosed space within the turbines or the cable routes.

4.2.4. Pathways to controlled waters receptors:

- Leaching of contaminants through the unsaturated zone and subsequent impact to groundwater within the underlying aquifers.
- Lateral migration of contaminants within groundwater and surface water runoff and subsequent impact of surface water receptors.

4.2.5. Pathways applicable to Site infrastructure:

- Direct contact with contaminants (e.g., sulphates) in the soil and groundwater with below ground structures (buried concrete).
- Accumulation of hazardous gases from shallow coal workings in the future development (explosive risk).

4.2.6. Pathways applicable to Site plant life:

- Direct contact with contaminants within soils and shallow groundwater.

POTENTIAL RECEPTORS

4.2.7. In the context of the Proposed Development of the Site, the following potential receptors were identified:

4.2.8. Human health:

- Future site users (wind turbine maintenance workers, the public, agricultural workers); and
- Adjacent site users (the public, residents, agricultural workers).

4.2.9. Controlled waters:

- Groundwater – Secondary A bedrock aquifer across the Site and within the surrounding area.
- Surface waters – Nant Cedfyw on-Site; Nant y Fforest at the north-west boundary of the Site, and Nant Cwm-du approximately 300 m north-east of the Site.

4.2.10. Services and built environment:

- Existing infrastructure (overhead lines)
- Future infrastructure (proposed wind turbines and associated underground connective cables, crane pads and storage areas, proposed substation)

4.2.11. Flora:

- Plant life in landscaped areas.

4.2.12. Note that no new landscaped areas are proposed however it is expected that localised reinstatement of vegetation will be required.

EXCLUSIONS FROM THE RISK ASSESSMENT

4.2.13. This section explains exclusions from the environmental risk assessment.

Redevelopment/ Construction Workers

- 4.2.14. The CSM does not consider risks to construction/ Site maintenance workers on the basis that risks to these workers will be dealt with under the Health and Safety at Work Act (1974) and regulations made under the Act. Site-specific contamination data obtained from all site investigations should be included in the pre-construction information (this is a requirement of the Construction Design and Management Regulations 2015) for the proposed works, to enable any contractors to address potential risks from contamination, as necessary, in their risk assessments and method statements. Moreover, as the exact details of the methods to be adopted are not currently known, it is not considered appropriate to provide a wide ranging and speculative risk assessment for redevelopment workers. Personal protective equipment (PPE) should always be the last line of defence, with methods selected that avoid or minimise risks to site workers.

Invasive Species

- 4.2.15. Invasive species (including but not limited to Japanese Knotweed and Giant Hogweed) are not considered within the risk assessment for contamination.

Unexploded Ordnance

- 4.2.16. Unexploded ordnance (UXO) risks are not assessed in the environmental risk assessment, however a UXO Desk Study and Risk Assessment has been commissioned for the Site and is included in **Annex D**. This found no records of the Site having been bombed in World Wars I or II and no records of military activity on the Site. A historical Spitfire crash was identified approximately 140 m west of the Site. No further UXO assessment was deemed necessary.

Aggressive Ground Conditions

- 4.2.17. Constraints including sulphate and ammonia attack of concrete are considered in Sections 5 and 6 of this report.

4.3 INITIAL ENVIRONMENTAL RISK ASSESSMENT

- 4.3.1. For land contamination risk to be realised, a 'contaminant linkage' must exist. A contaminant linkage requires the presence of a:
- source of contamination.
 - receptor capable of being harmed.
 - pathway capable of exposing a receptor to the contaminant.
- 4.3.2. An initial risk assessment has been undertaken for these potential contaminant linkages to identify potentially unacceptable risks on a qualitative basis. Risk is therefore based on a consideration of both:
- The likelihood of an event (probability – considers both the presence of the hazard and receptor and the integrity of the pathway).
 - The severity of the potential consequence (considers both the potential severity of the hazard and the sensitivity of the receptor).
- 4.3.3. Further information on the risk assessment methodology used is given in **Annex F**. The method of dealing with identified risks and the level of significance of those risks will be a function of Site use. The risk assessment is based on the future proposed land use and assumes no control measures to manage the risk (e.g., source removal or capping) have been incorporated in the development.

- 4.3.4. The CSM identifies the potential contamination sources, receptors, and the exposure pathways by which they may be linked. A source-pathway-receptor linkage (SPRL) is present if a viable pathway exists between a potential source and an identified receptor.
- 4.3.5. The CSM includes potential risks which may exist to the Site during the construction and maintenance. However, it is assumed that mitigation procedures during construction will be implemented in accordance with the Outline Construction Environmental Management Plan which forms **Appendix 4A** to the ES.
- 4.3.6. An explanation of the initial CSM and the risk characterisation process is presented in **Annex G**. The risk assessment of the potential contaminant linkages identified in the initial CSM is provided in **Table 4-2**.

Table 4-2 – Initial Environmental Risk Assessment

SPRL	Potential Source	Contaminants	Pathway	Receptor	Likelihood	Hazard (Severity)	Initial Risk Rating	Comments
On-Site								
SPRL1	Made Ground associated with former colliery	Asbestos, heavy metals, inorganics, PAH, TPH, VOCs, SVOCs, PCBs and ground gases (e.g., methane, carbon dioxide, volatiles)	Direct contact, inhalation	Future Site users	Unlikely	Medium	Low	While the main colliery structures are located immediately south of the Site, part of the southern Site boundary intersects mapped colliery features. It is generally considered unlikely that any potential contamination in this area will intersect with proposed turbines or associated infrastructure, however this cannot be entirely ruled out at this stage. Notwithstanding this, laboratory testing of soils at the location of turbines, substations and infrastructure is recommended to confirm low to moderate risks. This can be undertaken during ground investigation.
SPRL2	Made Ground associated with former colliery	pH (acidic), heavy metals, sulphates and PAH	Direct contact	Future infrastructure	Low	Medium	Moderate/Low	It is assumed that the proposed turbines will form enclosed spaces, along with the substation structure and will be accessible by future maintenance/ grid operatives. Potential Made Ground deposits associated with the former colliery pose a potential gas migration risk.
SPRL3	Made Ground associated with former colliery	Heavy metals, inorganics, PAH, TPH, VOCs, SVOCs and PCBs	Leaching, migration	Groundwater	Low	Medium	Moderate/Low	The underlying groundwater body is likely to have been affected by historical coal mining operations on and in proximity to the Site. Elevated sulphate, metals and PAH concentrations may be present in groundwater resources below the Site. Groundwater is assumed to be present at shallow depths due to the presence of springs within the Site boundary. Baseline testing of groundwater is recommended.
SPRL4	Made Ground associated with former colliery	Heavy metals, inorganics, PAH, TPH, VOCs, SVOCs and PCBs	Leaching, migration	Surface water	Low	Medium	Moderate/Low	Nant Cedfyw is aligned north-south, issuing from two springs in the northern area of the Site, running to the south. The separate bodies meet in proximity to the historical colliery immediately south of the Site and the eastern channel is located within the valley in close proximity to the historical tramway and adits. Surface water quality may be affected by historical coal mining activities. Surface water sampling is recommended to confirm baseline quality prior to development.
SPRL5	Made Ground associated with former colliery	Heavy metals, inorganics, PAH, TPH, VOCs, SVOCs and PCBs	Direct contact	Flora	Unlikely	Medium	Moderate/Low	It is not considered likely that the Nant y Fforest will have been affected by historical coal mining activities at the Site. The topography of the Site is likely to migrate any contaminants from coal mining activities to the south, rather than north-west of Site.
SPRL6	Made Ground associated with unspecified heaps – presumed colliery spoil	pH (acidic), heavy metals, sulphates and PAH	Direct contact, inhalation	Future Site users	Unlikely	Medium	Low	Considered to be confined to the south-east of the Site and areas in proximity to adits and tramways.
SPRL7	Made Ground associated with unspecified heaps – presumed colliery spoil	pH (acidic), heavy metals, sulphates and PAH	Leaching, migration	Groundwater, surface water, flora	Low	Medium	Moderate/Low	It is presumed that the heaps in proximity to colliery areas are predominantly for colliery spoil and associated tailings. Potential impacts to groundwater and surface water are likely to be spatially limited to areas identified as heaps on historical mapping.

SPRL	Potential Source	Contaminants	Pathway	Receptor	Likelihood	Hazard (Severity)	Initial Risk Rating	Comments
SPRL8	Made Ground associated with tramway	PAH and heavy metals	Direct contact, inhalation	Future Site Users	Unlikely	Medium	Low	Any impact is likely to be localised to the historical tramway route and fill material is unlikely to be disturbed during routine Site activities. Limited exposure potential for visitors to Site. Site workers and wind farm workers to use appropriate PPE for ground conditions encountered.
SPRL9	Made Ground associated with tramway	PAH and heavy metals	Leaching, migration	Groundwater, surface water	Likely	Medium	Moderate	It is considered possible that leachable contaminants may be present in Site soils at the locations of spoil heaps. If these locations intersect development areas, any perceived risk could be further investigated during future ground investigation. It is not likely to be necessary to investigate areas outside the turbine, substation and infrastructure development areas.
SPRL10	Made Ground associated with tramway	PAH and heavy metals	Leaching, migration	Flora	Unlikely	Medium	Low	
SPRL11	Adits, shafts and workings associated with former colliery	PAH, heavy metals, acid mine drainage, iron, mine gas (carbon dioxide, methane, carbon monoxide, hydrogen sulphide)	Advection, migration via mineworkings, fractured bedrock, service conduits	Future Site users	Likely	Severe	High	An initial assessment of mine gas risk to future Site users in enclosed spaces has identified the potential risk as high in line with CL:AIRE 2021 guidance. A Detailed Mine Gas Risk Assessment should be prepared for the development. This may require investigation of mine workings underlying the Site, particularly in proximity to the proposed substation, turbines and cable routes. It should be noted that the Mine Gas Risk Assessment, this CSM and any future CSM should be kept as 'live' documents and any risk assessments appropriately reviewed and potentially reassessed once turbine foundation design is confirmed.
SPRL12	Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and asbestos	Direct contact, inhalation, ingestion	Future Site users	Unlikely	Mild	Very Low	Any impact is likely to be highly localised/ diffuse and is unlikely to be disturbed during routine Site activities.
SPRL13	Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and asbestos	Direct contact	Future infrastructure	Unlikely	Medium	Low	Agricultural chemicals do not normally adversely affect building structures.
SPRL14	Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and asbestos	Leaching, migration	Groundwater	Low	Mild	Low	Depth to groundwater unknown however anticipated to be near surface due to presence of springs.
SPRL15	Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and asbestos	Leaching, migration	Surface water	Likely	Mild	Moderate/ Low	Potential for runoff and groundwater baseflow to affect watercourses. Contamination anticipated to be localised/ limited although unknown composition of Made Ground. Surface water courses present on-Site and within close proximity off-Site.
Off-Site								
SPRL16	Made Ground associated with off-Site colliery works, heaps and adits/ workings	PAH, heavy metals, acid mine drainage and iron	Migration	Future Site users	Unlikely	Medium	Low	As the Site is located up slope from any contaminant migration from off-Site coal mining sources is considered likely to flow away from the subject Site and therefore have minimal impact to resources below the Site.
SPRL17	Made Ground associated with off-Site colliery works, heaps and adits/ workings	PAH, heavy metals, acid mine drainage and iron	Migration	Future infrastructure	Unlikely	Medium	Low	

SPRL	Potential Source	Contaminants	Pathway	Receptor	Likelihood	Hazard (Severity)	Initial Risk Rating	Comments
SPRL18	Made Ground associated with off-Site colliery works, heaps and adits/ workings	PAH, heavy metals, acid mine drainage and iron	Migration	Surface water	Unlikely	Medium	Low	
SPRL19	Made Ground associated with off-Site colliery works, heaps and adits/ workings	PAH, heavy metals, acid mine drainage and iron	Migration	Groundwater	Low	Medium	Moderate/ Low	While topography is likely to carry contaminated groundwater away from the Site, the flooding status of underlying mine workings is not confirmed. As such, there is potential for migration of contaminated minewater to migrate from off-Site mineworkings to those below the Site.
SPRL20	Made Ground associated with off-Site colliery works, heaps and adits/ workings	Ground gas and mine gas (carbon dioxide, methane, carbon monoxide, hydrogen sulphide)	Migration	Future Site users, future infrastructure	Likely	Severe	High	Ground gas has potential to migrate upgradient and the potential for ground gas to migrate to proposed substation structures cannot be discounted at this stage. Mine gas migration is not limited by topography and should be considered further in a Detailed Mine Gas Risk Assessment.
SPRL21	Agricultural/ pastoral use	Herbicides/ pesticides, fertilisers, TPH, PAH and oils	Migration	Future Site users, future infrastructure, surface water	Unlikely	Medium	Low	Surrounding topography is likely to drive contaminant migration away from the Site due to groundwater flow direction.

5 PRELIMINARY GEOTECHNICAL CONSIDERATIONS

5.1.1. Following a review of the information presented in Sections 2 to 4, preliminary geotechnical constraints that may have an impact on the Proposed Development have been identified. A summary of these constraints is provided below:

- **Legacy mining features:** preliminary findings indicate extensive historical underground coal mining beneath the Site and surrounding area. Recorded mine entries are present within and adjacent to the Site, with five shallow (<30 m below ground level (bgl)) spine roadways recorded within the Site boundary, and historic workings beneath the Site, the shallowest quoted at approximately **23 m bgl**. These features may present geotechnical constraints to the Proposed Development and should be further assessed through a review of mine abandonment plans and any mitigation measures identified in the Coal Mining Risk Assessment.
- **Ground Gas:** the Site is located within an area of historical coal mining and contains recorded mine entries, shallow spine roadways and historical mine workings. Whilst no recorded mine gas incidents are identified within 500 m of the Site, the absence of recorded incidents does not preclude the presence of ground gases. Historical coal workings and mine entries may provide pathways for the migration of gases, including methane and carbon dioxide. It is likely that ground investigation comprising ground gas monitoring will be required to assess potential risks to construction activities and any permanent infrastructure.
- **Unknown ground conditions:** no intrusive ground investigation information is currently available for the Site. As such, the depth to bedrock, groundwater conditions, engineering properties of the soils and rock, extent of weathering, presence of mining-related disturbance, ground gas regime, contamination status and geotechnical design parameters remain uncertain. These uncertainties may influence the design, construction methodology and programme for the Proposed Development. A phased ground investigation should therefore be undertaken to characterise the ground conditions and inform the detailed design.
- **Geological faults:** geological faults have been recorded beneath and in the vicinity of the Site. These features may have influenced the geometry and depth of historical coal workings and could represent potential pathways for groundwater movement. Faults should be considered in the interpretation of ground conditions and mining-related hazards. Furthermore, geological faults may locally influence the propagation of mining-induced ground movement and, in some circumstances, may be associated with the development of mining-related instability at the surface.
- **Soil chemistry:** the underlying geology is known to contain iron sulphide (pyrite) minerals. Testing should be undertaken to assess the aggressivity of soils and groundwater towards buried concrete and metallic infrastructure and to determine any implications for underground cables and other buried assets.
- **Landslide/ mass movement:** the Site is generally classified as having a very low susceptibility to landslides. However, areas underlain by shallow coal seams are classified as having a moderate susceptibility. Proposed infrastructure should, where practicable, avoid

these areas. A programme of ground investigation should be undertaken to confirm ground conditions and inform a detailed slope stability assessment. The findings should be used to determine whether mitigation measures are required to ensure the stability of the Proposed Development.

- **Obstructions (shallow bedrock):** no superficial deposits are mapped beneath the Site and bedrock is anticipated to be at, or close to, the ground surface across much of the Site. Consequently, there is a risk that excavations for foundations, cable trenches and other buried infrastructure may encounter shallow bedrock. This may increase excavation difficulty, programme duration and construction costs, and should be confirmed through ground investigation.
- **Potential for shallow groundwater:** shallow groundwater may be encountered within weathered and fractured bedrock horizons, particularly following periods of prolonged rainfall. Groundwater ingress may affect the stability of excavations and increase construction complexity during installation of foundations and buried infrastructure. In areas affected by historical mining, groundwater may also influence the condition of infilled workings and other mining-related features. Groundwater conditions should therefore be assessed as part of the ground investigation programme.

6 PRELIMINARY GEOTECHNICAL RISK REGISTER

A preliminary geotechnical review of the Site has been carried out using the information available from this report. This section highlights the potential geotechnical risks associated with the Proposed Development. As the Proposed Development progresses, and as more information is obtained pertaining to geotechnical properties, design and construction sequences, this register should be updated. This Risk Register does not account for all project risks and only accounts for expected geotechnical risks identified at the date of this report.

Table 6-2 provides a risk register classification and Geotechnical Risk Register for the Site which has been prepared based on the available information. The scoring system used in this register is presented in Table 6-1.

Table 6-1 – Geotechnical Risk Register Scoring System

Probability (P)		Impact/Consequence (I)		Risk PxI=R		Impact/Consequence				
						1	2	3	4	5
Very Likely	5	Very High	5	Probability	1	1	2	3	4	5
Probable	4	High	4		2	2	4	6	8	10
Likely	3	Medium	3		3	3	6	9	12	15
Unlikely	2	Low	2		4	4	8	12	16	20
Negligible	1	Very Low	1		5	5	10	15	20	25

Table 6-2 – Preliminary Geotechnical Risk Register

Item	Hazard	Cause	Consequence	P	I	R	Design Control Measure	P	I	R
1	Collapsible ground	Legacy mine working, mine entries and spine roadways beneath the Site	Ground collapse, settlement and differential movement resulting in damage to infrastructure, construction delays, increased costs and potential health and safety risks.	5	5	25	Review mine abandonment plans to identify recorded depth of workings and locations of mining features. Complete Site specific Coal Mining Risk Assessment including a mitigation strategy of all findings.	2	5	10
2	Ground gas/ contaminated ground	Historical coal mining activity and natural contamination associated with Coal Measures strata	Harmful ground gases may accumulate within excavations or migrate through mining-related pathways. Contaminated soils and groundwater may pose risks to construction workers, buried infrastructure and the wider environment.	3	5	15	Undertake a geoenvironmental ground investigation, complete a contamination and ground gas risk assessment, and implement any identified remediation or gas protection measures.	2	5	10
3	Unknown ground conditions	No historical ground investigation	Inappropriate design assumptions, unforeseen ground conditions, variability in ground conditions, unexpected superficial deposits, weaker ground, increased construction costs, programme delays and requirements for redesign.	3	4	12	Undertake a targeted ground investigation to characterise the subsurface conditions and develop a geotechnical ground model. Use the findings to inform the detailed design of the Proposed Development.	1	4	4
4	Landslide/ mass movement	Steep topography, weak or weathered rock, shallow coal seams, geological discontinuities and historical mass movement deposits	Slope instability results in ground movement, damage to infrastructure, loss of access, construction delays and elevated health and safety risks.	3	4	12	Review available LiDAR data to identify and assess the extent of any historical or active mass movement features within and adjacent to the Site. Undertake a detailed Site walkover to verify and characterise observed features. Complete a targeted ground investigation and detailed slope stability assessment to establish ground conditions and assess the potential for slope instability. Site infrastructure should, where practicable, be located outside areas of moderate to high landslide susceptibility and mapped mass movement deposits. Appropriate drainage measures, earthworks design, stand-off distances and slope stabilisation measures should be incorporated into the design where required.	1	4	4

5	Aggressive ground conditions	Presence of pyrite-bearing Coal Measures strata and sulphate-bearing soils and groundwater	Sulphate attack on buried concrete and corrosion of buried infrastructure resulting in reduced service life, increased maintenance requirements and potential structural damage.	4	4	12	Undertake ground investigation works and test soil/rock and groundwater samples. Implement all recommendations of BRE Special Digest 1 ¹ .	1	4	4
6	Obstructions	Shallow bedrock	Increase in excavation difficulty, requirement for rock breaking or alternative excavation techniques. Impact on programme duration and costs.	3	3	9	Undertake a targeted ground investigation to determine bedrock depth and rockhead variability. Use the findings to optimise the layout and inform foundation, trench and excavation design.	2	3	6
7	Shallow groundwater	Groundwater levels are currently unknown due to the absence of Site-specific ground investigation data. Groundwater may be encountered within weathered bedrock, fractures, faults or localised superficial deposits	Groundwater ingress into excavations, reduced excavation stability, increased construction complexity, requirements for temporary dewatering, and impacts on the design of foundations and buried infrastructure.	3	3	9	Undertake a ground investigation including groundwater monitoring to establish groundwater levels and seasonal variability. Detailed design should account for anticipated groundwater conditions and incorporate appropriate drainage and construction measures where necessary.	1	3	3
8	Geological faults	Presence of mapped geological faults beneath and in the vicinity of the Site	Variation in rockhead depth, localised zones of weakened or fractured rock, preferential groundwater pathways and interaction with historic mine workings	3	3	9	Review geological and mining records and undertake targeted ground investigation to confirm the location and characteristics of faults and associated ground conditions. Incorporate faulting into the geotechnical ground model and detailed design of site infrastructure.	1	3	3

¹ BRE (2005) Concrete in aggressive ground (SD 1). Available at: <https://bregroup.com/store/bookshop/concrete-in-aggressive-ground-sd-1>.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

- 7.1.1. An initial land contamination risk assessment has been undertaken for the Site based on the available desk-based information, including historical mapping, environmental database information, publicly available environmental data, mining information and the initial Conceptual Site Model (CSM).
- 7.1.2. The Site has predominantly remained as rough pasture or marshy grassland, likely associated with agricultural grazing, throughout the period reviewed. However, historical mapping and regulatory information indicate that localised areas of the Site, and southern areas, have been affected by historical coal mining, quarrying, ground workings, pits, coal levels, dismantled tramways and associated spoil or refuse heaps. Similar historical mining and quarrying features are also present in the surrounding area, particularly to the north-west, north-east and south of the Site.
- 7.1.3. The key potential on-Site sources of contamination identified comprise:
- Current and historical farming activities.
 - Made Ground associated with potentially infilled quarries/colliery, adits, ground workings and dismantled tramways.
 - Made Ground associated with residual coal mining waste, including refuse heaps.
 - Mine gas associated with coal seams, mine entries and former workings.
- 7.1.4. Potential off-Site sources comprise contaminated groundwater associated with infilled quarries, pits, ground workings, dismantled tramways and residual coal mining waste (refuse heaps) within the surrounding area and mine gas.

Human Health

- 7.1.5. Risks to human health from current and historical farming activities, Made Ground and residual coal mining waste have generally been assessed as low. This reflects the anticipated localised or diffuse nature of potential contamination, limited exposure potential during routine operation of the wind farm, and the expectation that ground disturbance by routine future Site users would be limited.

Controlled Waters

- 7.1.6. Risks to controlled waters have generally been assessed as low or moderate to low. The Site is underlain by a Secondary A bedrock aquifer and contains surface watercourses, with additional watercourses present in the surrounding area. Although leaching and migration pathways may be present, potential contamination is expected to be localised and limited. The depth to groundwater is currently unknown however is anticipated to be shallow, due to the presence of springs on Site.

Infrastructure

- 7.1.7. Risks to future infrastructure have generally been assessed as low in relation to agricultural chemicals, and moderate to low in relation to Made Ground and residual coal mining waste given that the Proposed Development will introduce limited enclosed spaces where gas could accumulate, although these will be used infrequently. The risk level reflects the severity of consequence of a contaminant linkage being realised and may be lowered through further investigation including gas monitoring and a Detailed Mine Gas Risk Assessment in line with CL:AIRE 2021 'Good Practice for

Risk Assessment for Coal Mine Gas Emissions'. A standalone Coal Mining Risk Assessment is also to be undertaken.

- 7.1.8. The CSM does not consider risks to construction/ Site maintenance workers on the basis that risks to workers would be dealt with under the Health and Safety at Work Act (1974) and regulations made under the Act. Site-specific contamination data obtained through subsequent assessments of the Site should be included in the health and safety file for the proposed works, to enable any contractors to address as necessary in their risk assessments and method statements.

Geotechnical

- 7.1.9. Based on the current level of understanding of the ground conditions, the geotechnical risk associated with the proposed development is considered to be moderate. There is potential for historical coal mining features to influence the site and its development. Ground investigation is required to determine the engineering properties of the underlying material and groundwater conditions to determine an appropriate foundation type, earthworks strategy as well as any other geotechnical requirements for the Proposed Development.

7.2 RECOMMENDATIONS

- 7.2.1. The desk-based assessment has identified potential contamination constraints associated with the proposed future wind farm use of the Site. No ground investigation data is currently available for the Site.
- 7.2.2. The potential land contamination constraints can be mitigated through targeted ground investigation to include gas monitoring where buildings/ enclosed spaces are to be constructed and in proximity to proposed wind turbine foundations and crane bases. The investigation could also be used to confirm the presence/ absence of contamination in shallow soils in areas where development is proposed, method statements including procedures for encountering unexpected contamination, Environmental Management Plans, and health and safety plans for the works. The findings of these investigations and soil testing should inform the detailed design of the Proposed Development and the design of any required remedial measures. It is recommended that this report and all previous reports be thoroughly consulted and incorporated where required into the package of information for the Site for any groundworks.
- 7.2.3. A programme of intrusive investigation works with associated testing and monitoring for gas and groundwater should be undertaken at the proposed turbine and substation locations.
- 7.2.4. A Detailed Mine Gas Risk Assessment in line with CL:AIRE 2021 guidance should be prepared for the site, as the Site has been preliminarily assessed as a High Risk zone.
- 7.2.5. The geotechnical assessment has been based on the initial findings of the Mining Remediation Authority (MRA), with a detailed site-specific Coal Mining Risk Assessment (CMRA) to be completed at a later stage. The CMRA will include a comprehensive review of available information, including an assessment of mine abandonment plans and other relevant mining records for the area. Detailed geotechnical conclusions and recommendations will be presented within the completed CMRA.

8 REFERENCES

British Standard (2026) BS 10175:2026, Investigation of potentially contaminated sites – Code of practice.

British Geological Survey (BGS) Geoindex. Available at: [GeoIndex - British Geological Survey](#). Accessed: 09 June 2026.

CL:AIRE October 2021 'Good Practice for Risk Assessment for Coal Mine Gas Emissions'.

Department for Environment, Food & Rural Affairs (Defra) (2012) Statutory guidance: Contaminated land statutory guidance. (Online). Available at:

<https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>. Accessed: 12 March 2026.

Environment Agency (2025) Guidance: Land contamination risk management (LCRM). (Online). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>. Accessed: 12 March 2026.

Mining Remediation Authority (MRA) interactive viewer. Available at: [Mining Remediation Authority Map Viewer](#). Accessed: 09 June 2026.

National House Building Council (NHBC), Environment Agency, Chartered Institute of Environmental Health (CIEH) (2008) Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66:2008, Volume 1. (Online). Available at:

<https://webarchive.nationalarchives.gov.uk/ukgwa/20140328111055/http://www.environment-agency.gov.uk/static/documents/Leisure/SR-DPUB66-e-e.pdf>. Accessed: 12 March 2026.

National Resources Wales (NRW) (2023) Development of Land Affected by Contamination: A Guide for Developers. (Online). Available at:

<https://claire.co.uk/phocadownload/Development%20of%20Land%20Affected%20by%20Contamination%20Developers%20Guide%202023.pdf?%20download=960:developmentoflandaffectedbycontaminationdevelopersguidewlganrwandwelshgovernmentv4september2023>. Accessed: 12 March 2026.

UK Government (1990) Environmental Protection Act 1990. (Online). Available at:

<https://www.legislation.gov.uk/ukpga/1990/43/part/IIA>. Accessed: 12 March 2026.

Welsh Government (2024) Planning Policy Wales, Edition 12 | February 2024. (Online). Available at:

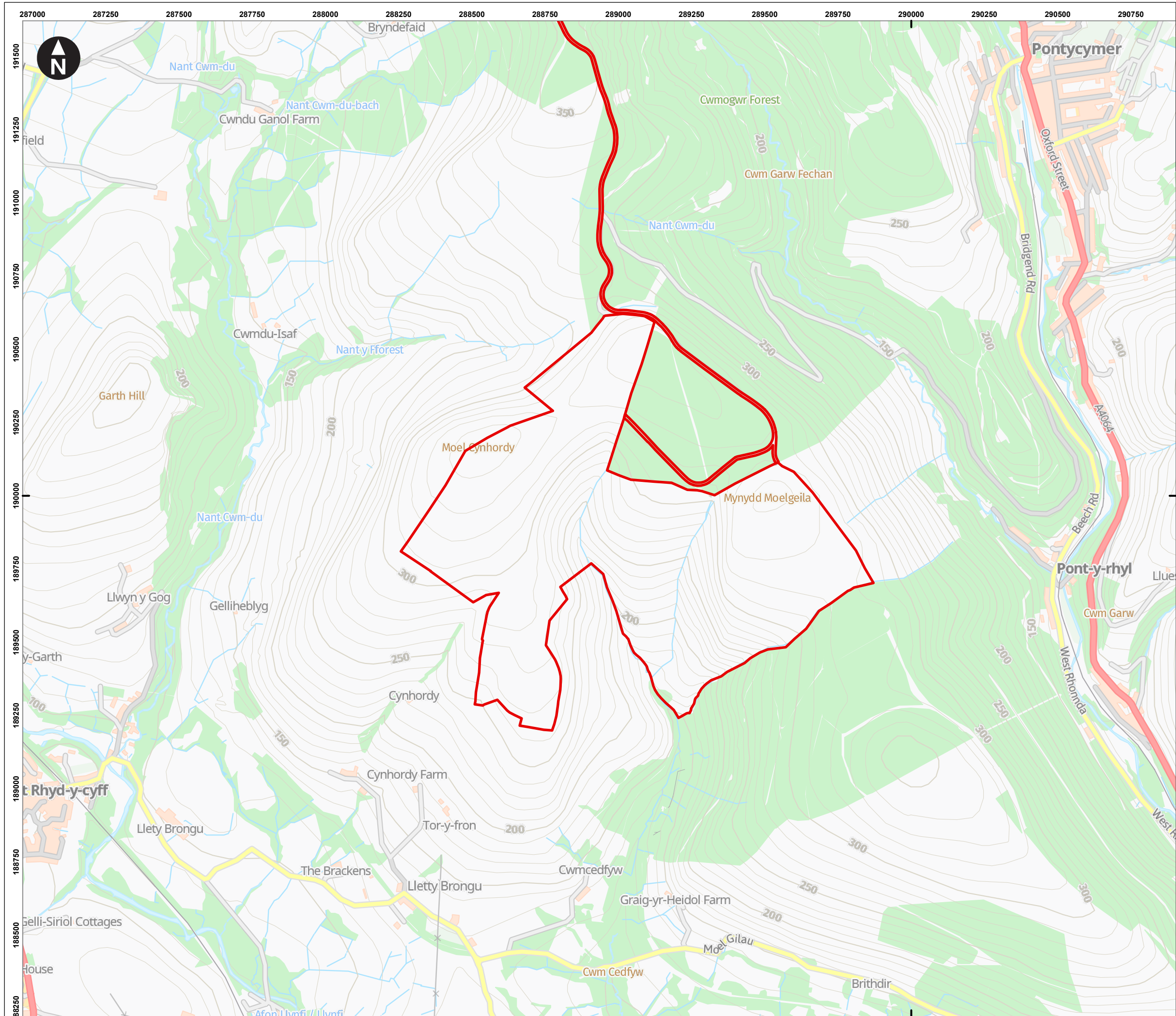
<https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf>. Accessed: 12 March 2026.

Annex A

FIGURES

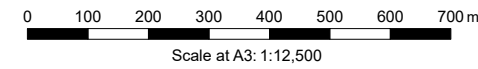


\\corp.pbwan.net\Global\GB\Projects\UK0044xxx\UK0044022.9334 - Gllanllyni Garth wind farm - EIA and Planning\03 WIP\Drawings\ArcPro\APRX\UK0044022.9334-WSPE-FG-OW-00002_P01.1.aprxOriginator: UKBLB775



Key

Gllanllyni Garth Wind Farm boundary



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Contains OS data © Crown Copyright and database right 2026. Contains data from OS Zoomstack

Client

PENNANT
WALTERS

Gllanllyni Garth Wind Farm
Preliminary Risk Assessment

Figure 1
Site location plan: Southern array

July 2026



Annex B

GROUNDSURE REPORT



Cynhordy - Southern Array

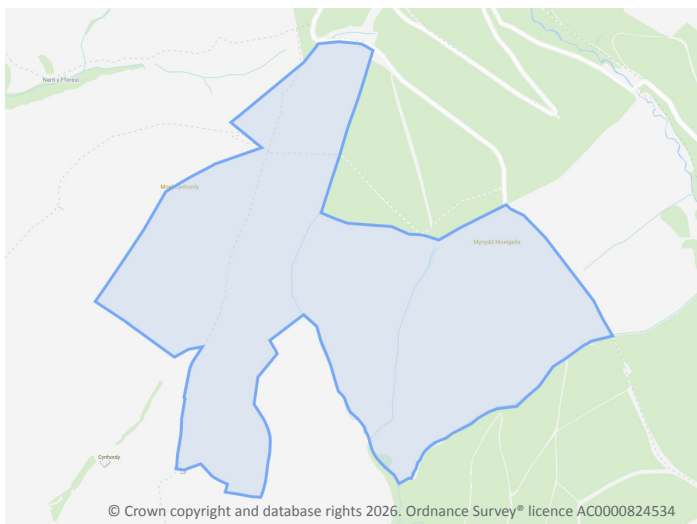
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Date: 18/06/2026
Your ref: P125020UK001
Our Ref: WSP-3ZB-8A9-1VC-8GU

Site Details

Location: 289017 189840
Area: 101.27 ha
Authority: [Pen-y-bont ar Ogwr - Bridgend County Borough Council](#) ↗

Site plan



Quick Links

Summary of findings [p. 2](#) >
OS MasterMap site plan N/A: >10ha
Aerial image [p. 9](#) >

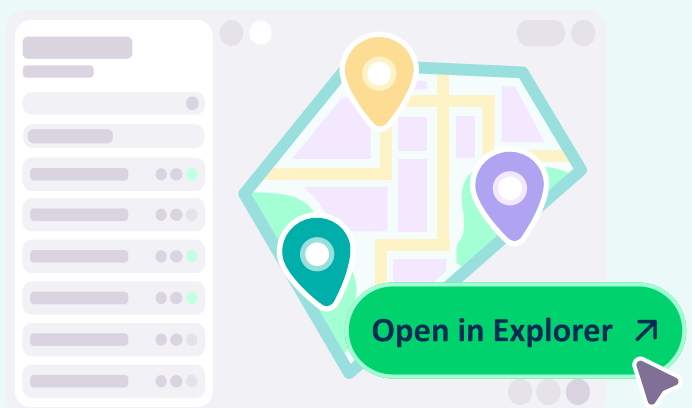
[Insight User Guide](#) ↗

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12 months access begins at purchase.



Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
14 >	1.1 >	Historical industrial land uses >	32	12	81	193	-
26	1.2	Historical tanks	0	0	0	0	-
26	1.3	Historical energy features	0	0	0	0	-
27	1.4	Historical petrol stations	0	0	0	0	-
27	1.5	Historical garages	0	0	0	0	-
27	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
28 >	2.1 >	Historical industrial land uses >	43	17	114	265	-
44	2.2	Historical tanks	0	0	0	0	-
44	2.3	Historical energy features	0	0	0	0	-
45	2.4	Historical petrol stations	0	0	0	0	-
45	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
46	3.1	Active or recent landfill	0	0	0	0	-
46	3.2	Historical landfill (BGS records)	0	0	0	0	-
47	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
47 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	0	1	-
47	3.5	Historical waste sites	0	0	0	0	-
47	3.6	Licensed waste sites	0	0	0	0	-
48	3.7	Waste exemptions	0	0	0	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
49	4.1	Recent industrial land uses	0	0	0	-	-
49	4.2	National Geographic Database (NGD) - Current or recent tanks	0	0	0	-	-
50	4.3	Current or recent petrol stations	0	0	0	0	-
50	4.4	Electricity cables	0	0	0	0	-
50	4.5	Gas pipelines	0	0	0	0	-



50	4.6	Sites determined as Contaminated Land	0	0	0	0	-
50	4.7	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
51	4.8	Regulated explosive sites	0	0	0	0	-
51	4.9	Hazardous substance storage/usage	0	0	0	0	-
51	4.10	Historical licensed industrial activities (IPC)	0	0	0	0	-
51	4.11	Licensed industrial activities (Part A(1))	0	0	0	0	-
51	4.12	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
52	4.13	Radioactive Substance Authorisations	0	0	0	0	-
52 >	4.14 >	<u>Licensed Discharges to controlled waters</u> >	1	0	0	0	-
52	4.15	Pollutant release to surface waters (Red List)	0	0	0	0	-
52	4.16	Pollutant release to public sewer	0	0	0	0	-
53	4.17	List 1 Dangerous Substances	0	0	0	0	-
53	4.18	List 2 Dangerous Substances	0	0	0	0	-
53	4.19	Pollution Incidents (EA/NRW)	0	0	0	0	-
53	4.20	Pollution inventory substances	0	0	0	0	-
53	4.21	Pollution inventory waste transfers	0	0	0	0	-
54	4.22	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	<u>Hydrogeology</u> >	On site	0-50m	50-250m	250-500m	500-2000m
55 >	5.1 >	<u>Superficial aquifer</u> >	Identified (within 500m)				
56 >	5.2 >	<u>Bedrock aquifer</u> >	Identified (within 500m)				
58 >	5.3 >	<u>Groundwater vulnerability</u> >	Identified (within 50m)				
59	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
59	5.5	Groundwater vulnerability- local information	None (within 0m)				
60	5.6	Groundwater abstractions	0	0	0	0	0
61 >	5.7 >	<u>Surface water abstractions</u> >	0	0	0	0	5
62 >	5.8 >	<u>Potable abstractions</u> >	0	0	0	0	1
62	5.9	Source Protection Zones	0	0	0	0	-
63	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	<u>Hydrology</u> >	On site	0-50m	50-250m	250-500m	500-2000m



64 >	6.1 >	Water Network (OS NGD) >	13	11	11	-	-
67 >	6.2 >	Surface water features >	1	6	8	-	-
68 >	6.3 >	WFD Surface water body catchments >	3	-	-	-	-
68 >	6.4 >	WFD Surface water bodies >	0	1	0	-	-
69 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
70	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
70	7.2	Historical Flood Events	0	0	0	-	-
70	7.3	Flood Defences	0	0	0	-	-
71	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
71	7.5	Flood Storage Areas	0	0	0	-	-
72	7.6	Flood Zone 2	None (within 50m)				
72	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
73 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
75 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
76 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	1
77	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
77	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
77	10.4	Special Protection Areas (SPA)	0	0	0	0	0
77	10.5	National Nature Reserves (NNR)	0	0	0	0	0
78	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
78 >	10.7 >	Designated Ancient Woodland >	0	0	0	8	70
81	10.8	Biosphere Reserves	0	0	0	0	0
81	10.9	Forest Parks	0	0	0	0	0
81	10.10	Marine Conservation Zones	0	0	0	0	0
82	10.11	Green Belt	0	0	0	0	0



82	10.12	Proposed Ramsar sites	0	0	0	0	0
82	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
82	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
82	10.15	Nitrate Sensitive Areas	0	0	0	0	0
83	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
84	10.17	SSSI Impact Risk Zones	0	-	-	-	-
84	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
85	11.1	World Heritage Sites	0	0	0	-	-
86	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
86	11.3	National Parks	0	0	0	-	-
86	11.4	Listed Buildings	0	0	0	-	-
86	11.5	Conservation Areas	0	0	0	-	-
87 >	11.6 >	Scheduled Ancient Monuments >	0	0	1	-	-
87	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
88 >	12.1 >	Agricultural Land Classification >	Grade 5 (within 250m)				
89 >	12.2 >	Open Access Land >	2	0	0	-	-
90	12.3	Tree Felling Licences	0	0	0	-	-
90	12.4	Environmental Stewardship Schemes	0	0	0	-	-
90	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
91	13.1	Priority Habitat Inventory	0	0	0	-	-
91	13.2	Habitat Networks	0	0	0	-	-
91	13.3	Open Mosaic Habitat	0	0	0	-	-
91	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
92 >	14.1 >	10k Availability >	Identified (within 500m)				
94	14.2	Artificial and made ground (10k)	0	0	0	0	-



95 >	14.3 >	Superficial geology (10k) >	0	0	0	1	-
96 >	14.4 >	Landslip (10k) >	1	1	1	3	-
97 >	14.5 >	Bedrock geology (10k) >	17	8	39	32	-
101 >	14.6 >	Bedrock faults and other linear features (10k) >	12	7	18	15	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
104 >	15.1 >	50k Availability >	Identified (within 500m)				
105	15.2	Artificial and made ground (50k)	0	0	0	0	-
105	15.3	Artificial ground permeability (50k)	0	0	-	-	-
106 >	15.4 >	Superficial geology (50k) >	0	0	0	1	-
107	15.5	Superficial permeability (50k)	None (within 50m)				
107 >	15.6 >	Landslip (50k) >	0	0	0	2	-
107	15.7	Landslip permeability (50k)	None (within 50m)				
108 >	15.8 >	Bedrock geology (50k) >	7	3	5	5	-
109 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
110 >	15.10 >	Bedrock faults and other linear features (50k) >	10	6	5	7	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
112	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence >					
113 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
115 >	17.2 >	Running sands >	Negligible (within 50m)				
116 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
117 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
118 >	17.5 >	Landslides >	Moderate (within 50m)				
120 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
122 >	18.1 >	BritPits >	9	4	18	38	-
146 >	18.2 >	Surface ground workings >	37	14	111	-	-
152 >	18.3 >	Underground workings >	14	5	45	114	155
164	18.4	Underground mining extents	0	0	0	0	-

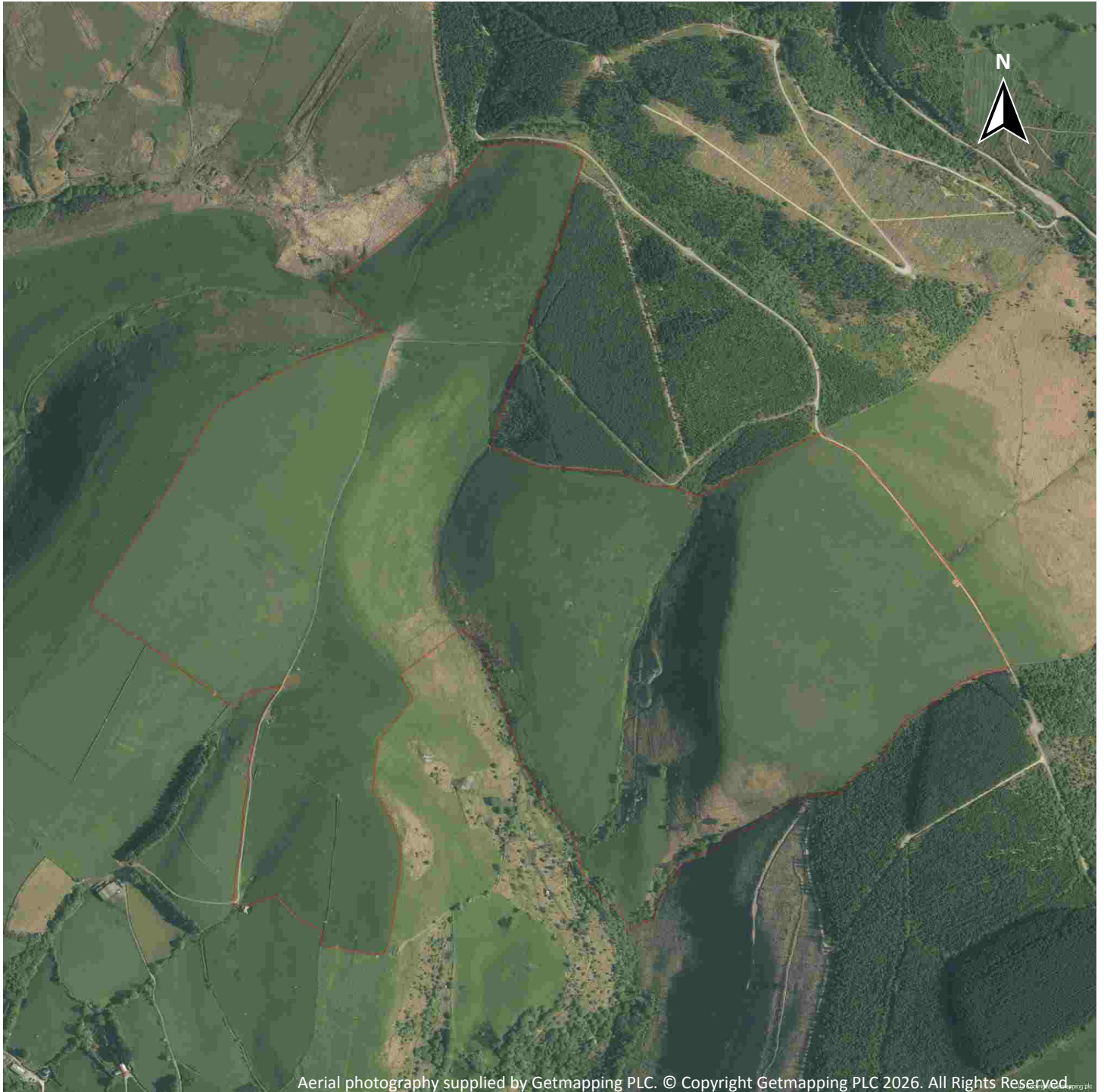


164	18.5	Historical Mineral Planning Areas	0	0	0	0	-
164 >	18.6 >	Non-coal mining >	0	0	0	0	4
165	18.7	JPB mining areas	None (within 0m)				
165	18.8	The Coal Authority non-coal mining	0	0	0	0	-
166	18.9	Researched mining	0	0	0	0	-
166	18.10	Mining record office plans	0	0	0	0	-
166	18.11	BGS mine plans	0	0	0	0	-
166 >	18.12 >	Coal mining >	Identified (within 0m)				
167	18.13	Brine areas	None (within 0m)				
167	18.14	Gypsum areas	None (within 0m)				
167	18.15	Tin mining	None (within 0m)				
167	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
168	19.1	Natural cavities	0	0	0	0	-
168	19.2	Mining cavities	0	0	0	0	0
168	19.3	Reported recent incidents	0	0	0	0	-
168	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
170 >	20.1 >	Radon >	Between 1% and 3% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
172 >	21.1 >	BGS Estimated Background Soil Chemistry >	36	9	-	-	-
175	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
175	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
176	22.1	Underground railways (London)	0	0	0	-	-
176	22.2	Underground railways (Non-London)	0	0	0	-	-
177	22.3	Railway tunnels	0	0	0	-	-
177 >	22.4 >	Historical railway and tunnel features >	5	4	4	-	-
178	22.5	Royal Mail tunnels	0	0	0	-	-



178	22.6	Historical railways	0	0	0	-	-
178 >	22.7 >	Railways >	0	0	1	-	-
178	22.8	Crossrail 2	0	0	0	0	-
179	22.9	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 21/05/2023

Site Area: 101.27ha



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 18 June 2026

Recent site history - 2020 aerial photograph



Capture Date: 14/04/2020

Site Area: 101.27ha



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 18 June 2026

Recent site history - 2014 aerial photograph



Capture Date: 23/07/2014

Site Area: 101.27ha



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 18 June 2026

An aerial photograph of a rural landscape. A red boundary line is drawn across the image, enclosing several large green fields and some brown plowed land. The landscape is a patchwork of different colors: vibrant green for grassy fields, brown for tilled soil, and dark green for dense forests. A winding road or path is visible, cutting through the fields. In the top right corner, there is a north arrow pointing upwards, labeled with 'N'. The overall scene depicts a typical agricultural or semi-rural environment.

Site Area: 101.27ha

Recent site history - 2000 aerial photograph



Capture Date: 18/06/2000

Site Area: 101.27ha



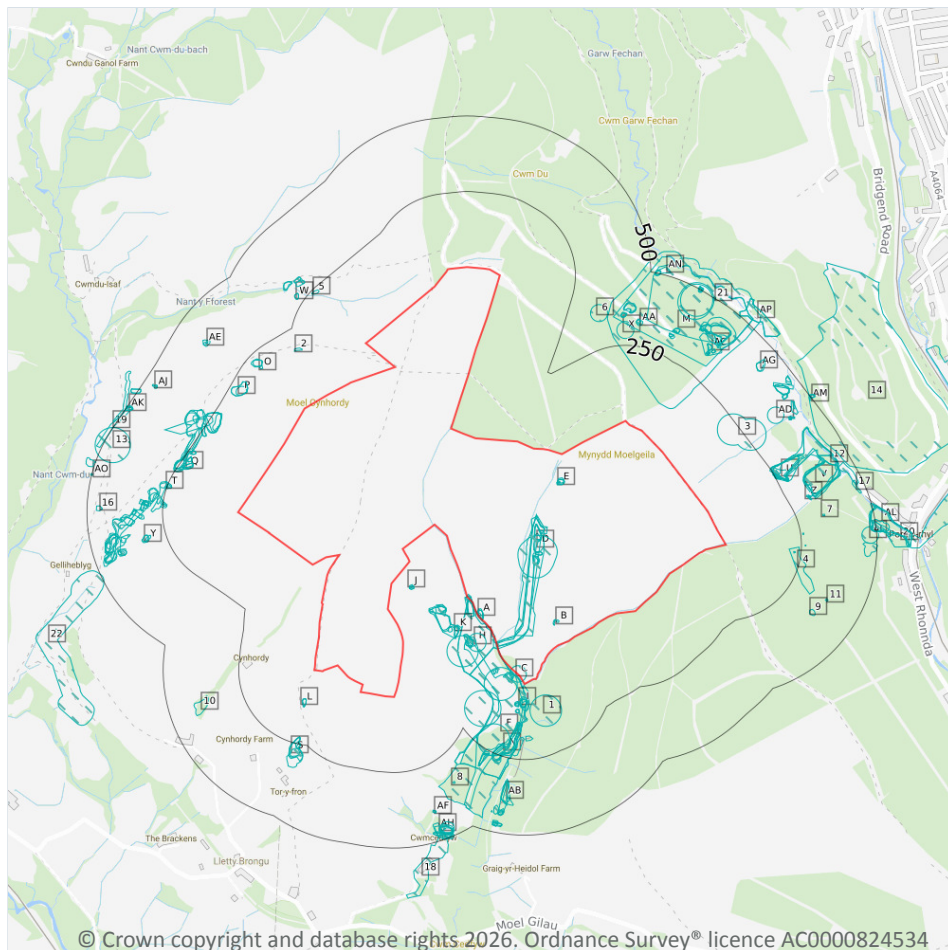
Contact us with any questions at:

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Date: 18 June 2026

1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses

1.1 Historical industrial land uses

Records within 500m

318

Potentially contaminative land use features digitised from historical Ordnance Survey® mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 14](#) >

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Quarry	1948	331180



ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Mine	1948	341782
A	On site	Railway Sidings	1948	355988
A	On site	Railway Sidings	1875	361189
A	On site	Unspecified Old Quarry	1897	364474
A	On site	Unspecified Old Quarry	1914 - 1921	377055
B	On site	Trial Level	1876	336009
B	On site	Unspecified Ground Workings	1876	346739
C	On site	Old Trial Level	1897	344692
D	On site	Unspecified Heap	1970 - 1985	350623
D	On site	Unspecified Level	1948	364591
D	On site	Unspecified Level	1875	367900
D	On site	Unspecified Old Level	1948	368807
D	On site	Unspecified Old Level	1875	369979
D	On site	Unspecified Level	1948	372841
D	On site	Unspecified Heap	1970 - 1985	377994
D	On site	Unspecified Heap	1875	378021
D	On site	Unspecified Old Level	1948	378045
D	On site	Unspecified Heap	1948	379401
E	On site	Unspecified Old Level	1875	351525
E	On site	Old Trial Level	1897	354117
E	On site	Old Trial Level	1914 - 1921	356834
E	On site	Unspecified Old Level	1948	364233
E	On site	Unspecified Old Level	1948	376652
F	On site	Disused Colliery	1875	356925
F	On site	Colliery	1914 - 1921	367648
F	On site	Disused Colliery	1948	371049
G	On site	Tramway Sidings	1875	362402
G	On site	Tramway Sidings	1948	375885



ID	Location	Land use	Dates present	Group ID
G	On site	Tramway Sidings	1948	376830
G	On site	Colliery	1875	390191
H	On site	Colliery	1948	376447
A	3m W	Railway Sidings	1948	355291
C	7m SW	Unspecified Level	1914 - 1921	365902
C	11m SW	Refuse Heap	1914	335075
C	14m SW	Unspecified Old Level	1948	372520
C	18m SW	Unspecified Old Level	1875	376611
F	25m SW	Tramway Sidings	1914 - 1921	382599
H	29m SW	Trial Level	1897	335991
C	37m SW	Unspecified Heap	1914	339647
I	42m S	Unspecified Heap	1970 - 1985	351228
I	46m S	Refuse Heap	1948	356135
C	47m SW	Unspecified Pit	1914	343873
I	49m S	Refuse Heap	1914	354214
J	51m SE	Unspecified Old Level	1948	350892
I	52m S	Refuse Heap	1875	359115
J	54m SE	Unspecified Old Level	1948	372633
J	54m SE	Unspecified Old Level	1875	368274
1	57m S	Old Trial Levels	1914	338381
I	58m S	Old Trial Levels	1921	338394
H	60m SW	Refuse Heap	1914 - 1921	354333
I	61m S	Unspecified Old Level	1948	334596
H	63m SW	Unspecified Levels	1914	339332
I	65m S	Unspecified Pit	1948	350549
I	66m S	Unspecified Pit	1875	375365
H	69m SW	Unspecified Level	1875	350593
H	69m SW	Unspecified Level	1948	379877



ID	Location	Land use	Dates present	Group ID
H	70m SW	Unspecified Level	1948	377207
K	70m SW	Unspecified Heap	1970 - 1985	353728
K	74m SW	Unspecified Ground Workings	1948	353132
K	76m SW	Unspecified Ground Workings	1875	370302
K	77m SW	Unspecified Heap	1948	365123
K	80m SW	Unspecified Heap	1970 - 1985	355136
K	82m SW	Unspecified Heap	1948	378297
I	86m S	Unspecified Old Level	1948	357307
I	87m S	Unspecified Old Level	1875	381504
K	88m SW	Unspecified Heap	1948	339646
K	96m SW	Unspecified Heap	1948	369453
L	99m S	Unspecified Pit	1947 - 1948	375097
F	100m SW	Unspecified Disused Mine	1948	332046
L	101m S	Unspecified Old Quarry	1914 - 1921	357782
M	108m NE	Disused Colliery	1948	354446
K	113m NE	Unspecified Pit	1948	344234
N	128m S	Refuse Heap	1948	364905
N	128m S	Refuse Heaps	1914	342582
N	129m S	Refuse Heap	1948	381874
N	131m S	Old Trial Levels	1921	338393
N	138m S	Refuse Heap	1875	352189
N	158m SW	Old Trial Level	1914	344691
2	171m NW	Unspecified Disused Level	1975	334684
N	173m S	Unspecified Level	1985	349061
N	176m S	Unspecified Level	1970	349062
3	179m NE	Trial Levels	1876	376214
O	192m NW	Unspecified Disused Level	1965	334685
P	192m NW	Unspecified Old Quarry	1897	355822



ID	Location	Land use	Dates present	Group ID
P	193m NW	Unspecified Quarry	1947	330258
P	193m NW	Unspecified Old Quarry	1914 - 1921	384783
O	201m NW	Unspecified Heap	1965	339884
O	202m NW	Unspecified Disused Level	1975	334683
Q	208m NW	Unspecified Old Levels	1947	386452
N	209m S	Unspecified Heap	1970 - 1985	364239
Q	209m NW	Unspecified Old Level	1947	334582
Q	209m NW	Coal Level	1914 - 1921	357746
Q	209m NW	Unspecified Quarry	1914 - 1921	356695
Q	210m NW	Coal Level	1897	347792
4	210m E	Railway Sidings	1876	334319
Q	212m NW	Unspecified Pit	1965 - 1975	389835
Q	212m NW	Unspecified Old Levels	1948	361987
Q	223m NW	Unspecified Old Levels	1947	359225
Q	223m NW	Old Coal Levels	1914 - 1921	378915
R	225m E	Coal Level	1876	347836
Q	226m NW	Unspecified Old Level	1947	334581
Q	226m NW	Old Coal Levels	1914 - 1921	387582
S	226m S	Unspecified Old Level	1948	334626
S	228m S	Coal Level	1914 - 1921	387796
S	228m S	Old Coal Level	1947	361022
Q	229m NW	Refuse Heap	1914 - 1921	372342
Q	229m NW	Old Coal Levels	1914 - 1921	375883
5	230m NW	Unspecified Pit	1914 - 1947	360353
Q	233m NW	Unspecified Ground Workings	1947	352933
T	234m W	Unspecified Old Level	1914 - 1947	368540
Q	236m NW	Unspecified Heap	1970	384404
T	236m W	Unspecified Old Level	1948	334585



ID	Location	Land use	Dates present	Group ID
T	236m W	Unspecified Old Level	1948	363401
T	237m W	Unspecified Ground Workings	1947	346150
Q	237m NW	Tramway Sidings	1897	335623
Q	238m NW	Unspecified Ground Workings	1965 - 1975	375700
Q	241m NW	Unspecified Heap	1985	379759
T	244m W	Old Coal Levels	1914 - 1921	382952
U	245m NE	Unspecified Ground Workings	1897	346746
U	246m NE	Unspecified Old Level	1960	355627
S	248m S	Old Coal Level	1914 - 1921	350933
U	248m NE	Unspecified Old Level	1897	367466
V	248m NE	Refuse Heaps	1914	378911
S	249m S	Refuse Heap	1914 - 1921	390911
V	250m NE	Refuse Heap	1875	367988
U	251m NE	Unspecified Old Level	1921	359866
U	251m NE	Unspecified Old Level	1914	388341
U	251m NE	Unspecified Old Level	1875	363700
U	252m NE	Unspecified Old Level	1948	357924
U	252m NE	Unspecified Disused Level	1970	334711
U	252m NE	Unspecified Heap	1993	339886
V	252m NE	Refuse Heaps	1921 - 1948	371802
T	253m W	Unspecified Heap	1970 - 1985	363276
N	253m SW	Unspecified Old Level	1948	360437
T	254m W	Refuse Heap	1914	335139
R	257m E	Trial Level	1876	335998
N	258m SW	Unspecified Old Level	1875	359096
N	260m SW	Unspecified Old Level	1948	363182
U	261m NE	Refuse Heap	1960	374249
R	263m E	Trial Level	1876	336010



ID	Location	Land use	Dates present	Group ID
S	265m S	Old Coal Level	1897	361670
W	268m NW	Unspecified Pit	1914	361669
W	268m NW	Unspecified Pit	1947	378496
Q	268m NW	Unspecified Heap	1947	353236
T	269m W	Unspecified Disused Tip	1985	332197
T	269m W	Unspecified Heap	1947 - 1948	387962
X	273m N	Old Trial Levels	1897	338376
T	274m W	Unspecified Heap	1970	371700
Q	278m NW	Unspecified Heap	1965 - 1975	380656
Q	279m NW	Unspecified Heap	1897	381043
W	285m NW	Unspecified Old Levels	1947	336080
W	285m NW	Old Coal Levels	1914 - 1921	355635
M	285m NE	Disused Colliery	1875	388890
T	290m W	Old Coal Levels	1897 - 1914	376303
T	296m W	Unspecified Ground Workings	1947	346148
T	297m W	Unspecified Pit	1948	343463
T	297m W	Old Coal Levels	1921	389444
Y	300m W	Unspecified Old Quarry	1897	337326
T	302m W	Unspecified Heaps	1948 - 1970	391324
Y	308m W	Refuse Heap	1914 - 1921	380086
Y	309m W	Refuse Heap	1947	389196
T	309m W	Unspecified Disused Level	1985	334687
Z	310m NE	Unspecified Old Level	1960	356667
T	312m W	Old Coal Level	1897	329384
M	312m NE	Old Trial Level	1914 - 1921	374054
Z	313m NE	Old Coal Level	1897 - 1914	386191
W	315m NW	Unspecified Ground Workings	1975	346143
M	315m NE	Unspecified Old Level	1875	353081



ID	Location	Land use	Dates present	Group ID
M	315m NE	Unspecified Old Level	1948	377619
W	315m NW	Refuse Heap	1914 - 1947	383796
Z	315m NE	Unspecified Old Level	1921	334628
Z	316m NE	Unspecified Old Level	1875	382262
Z	317m NE	Unspecified Old Level	1948	368717
T	318m W	Unspecified Pit	1914 - 1921	388387
AA	318m N	Old Trial Level	1914 - 1921	376801
AB	320m S	Unspecified Heap	1948	339649
6	322m E	Trial Level	1897	335972
AA	324m N	Unspecified Old Level	1875	372373
V	327m NE	Refuse Heap	1960	374984
AA	327m N	Unspecified Old Level	1948	358689
AC	327m NE	Tramway Sidings	1897	335622
AB	327m S	Unspecified Old Level	1948	362767
AB	328m S	Unspecified Ground Workings	1875	377284
V	330m NE	Unspecified Disused Level	1970	334712
V	330m NE	Unspecified Heap	1993	390843
M	331m N	Disused Colliery	1914 - 1921	387789
AC	332m NE	Unspecified Disused Shaft	1965	335748
AC	333m NE	Unspecified Disused Shafts	1975	334233
T	335m W	Old Coal Levels	1897	332621
7	335m E	Trial Level	1876	336000
AC	335m NE	Unspecified Old Shaft	1948	354267
AC	335m NE	Old Air Shaft	1914 - 1921	390011
M	335m NE	Unspecified Ground Workings	1875	374905
AC	336m NE	Unspecified Old Shaft	1875	385497
M	336m NE	Refuse Heap	1914 - 1921	378944
T	337m W	Unspecified Ground Workings	1947	381227



ID	Location	Land use	Dates present	Group ID
M	338m NE	Unspecified Heap	1948	340639
X	342m N	Unspecified Old Level	1914 - 1921	378772
8	343m SE	Trial Level	1876	335990
T	343m W	Unspecified Disused Tip	1985	332198
X	343m N	Unspecified Old Level	1875	354592
X	344m N	Unspecified Old Level	1948	363592
AD	344m NE	Old Coal Level	1897	329414
AC	345m NE	Unspecified Heap	1875	364226
AC	345m NE	Unspecified Level	1914 - 1921	352937
AC	347m NE	Unspecified Level	1948	385411
AC	348m NE	Unspecified Disused Levels	1975	349941
T	348m W	Unspecified Heap	1970	339888
AC	348m NE	Unspecified Disused Level	1965	334680
9	352m SE	Unspecified Ground Workings	1876	346210
X	357m N	Refuse Heap	1875	384874
X	357m N	Refuse Heap	1914	384790
X	360m N	Refuse Heap	1948	391259
10	362m W	Unspecified Quarry	1914 - 1921	357557
T	364m W	Unspecified Disused Tip	1985	332213
AC	373m NE	Unspecified Ground Workings	1897	367154
AC	373m NE	Unspecified Heap	1948	340180
11	377m SE	Railway Building	1876	348776
AC	378m NE	Unspecified Ground Workings	1875	353185
AC	379m NE	Unspecified Disused Tip	1975	332212
AB	379m S	Unspecified Disused Level	1985	334697
AE	381m NW	Unspecified Ground Workings	1947	346145
T	382m W	Unspecified Pit	1914 - 1948	356596
AC	383m NE	Unspecified Old Quarry	1914 - 1921	382632



ID	Location	Land use	Dates present	Group ID
AC	384m NE	Unspecified Quarry	1897	330257
AE	387m NW	Old Air Shaft	1897	335798
AC	388m NE	Unspecified Ground Workings	1948	357759
AE	389m NW	Old Air Shaft	1914 - 1947	363567
T	391m W	Unspecified Old Level	1947 - 1948	386309
T	392m W	Old Coal Level	1914 - 1921	354060
AF	396m S	Unspecified Old Level	1948	370400
AF	397m S	Unspecified Old Level	1875	364179
M	398m NE	Old Air Shaft	1921 - 1948	367649
AD	398m NE	Old Air Shaft	1914	335811
AD	399m NE	Unspecified Old Shaft	1875	358333
AD	399m NE	Unspecified Disused Shaft	1963 - 1965	350339
T	399m W	Old Coal Level	1897	370223
AD	400m NE	Unspecified Old Shaft	1948	378920
T	400m W	Refuse Heaps	1914 - 1921	357391
T	408m W	Unspecified Heap	1897	339887
12	409m NE	Unspecified Heap	1970 - 1993	350579
M	410m NE	Old Air Shaft	1914	350730
AB	412m S	Old Coal Level	1897	329401
13	412m NW	Trial Level	1876	335965
T	413m W	Unspecified Ground Workings	1948	361892
AG	414m NE	Unspecified Heap	1965	339885
AG	417m NE	Unspecified Disused Tip	1975	332158
AB	419m S	Unspecified Old Level	1948	375899
AD	422m NE	Unspecified Old Slant	1914	377779
AD	424m NE	Railway Sidings	1875	334349
AD	424m NE	Refuse Heap	1914	351761
AD	424m NE	Unspecified Heap	1921 - 1948	357418



ID	Location	Land use	Dates present	Group ID
AD	424m NE	Unspecified Heap	1963 - 1965	359514
AB	425m S	Old Coal Level	1914 - 1921	370288
AD	425m NE	Refuse Heap	1875	361396
AB	426m S	Unspecified Old Level	1875	377187
AD	426m NE	Refuse Heap	1948	369587
AD	432m NE	Unspecified Old Slant	1875	364864
AB	432m S	Trial Level	1876	335989
AH	441m S	Tramway Sidings	1914	374938
14	446m NE	Disused Colliery	1914 - 1921	384865
AH	446m S	Unspecified Heap	1970 - 1985	359673
15	448m NE	Cuttings	1960	333166
16	450m W	Unspecified Disused Level	1985	334686
AH	450m S	Railway Sidings	1921	334278
AH	451m S	Unspecified Old Level	1948	334597
AI	451m E	Old Coal Level	1897	329416
AJ	453m NW	Unspecified Disused Shaft	1965 - 1975	388501
AI	454m E	Unspecified Quarry	1876	331123
AJ	455m NW	Old Air Shaft	1897	335797
AH	456m S	Coal Level	1914	366325
AH	457m S	Refuse Heap	1948	355162
AH	458m S	Refuse Heap	1875	356285
AB	462m S	Unspecified Old Level	1948	385318
17	464m NE	Unspecified Ground Workings	1914	346663
AD	464m NE	Unspecified Old Quarries	1914 - 1921	361666
AJ	465m NW	Old Air Shaft	1921	335796
AB	465m S	Coal Level	1914 - 1921	378329
AH	466m S	Coal Level	1921	379760
18	467m S	Tramway Sidings	1921	364484



ID	Location	Land use	Dates present	Group ID
AH	468m S	Refuse Heap	1915	361438
AH	468m S	Refuse Heap	1948	385987
AB	468m S	Unspecified Old Level	1948	387293
AB	468m S	Unspecified Old Level	1875	389190
AD	468m NE	Unspecified Quarry	1875	331125
19	480m NW	Old Tramway Sidings	1897	349020
AK	481m NW	Old Coal Levels	1914	332617
AK	481m NW	Unspecified Pit	1947	343459
AL	481m E	Refuse Heap	1960	355083
20	482m E	Disused Collieries	1875	362864
AL	482m E	Refuse Heap	1875	364685
AK	483m NW	Unspecified Disused Level	1975	334682
AH	483m S	Refuse Heap	1921	360135
AL	487m E	Refuse Heap	1948	366058
AL	488m E	Coal Levels	1914 - 1921	382343
AM	490m NE	Old Trial Level	1914	344703
AL	490m E	Unspecified Heap	1897	340558
M	491m NE	Old Coal Level	1897	354392
AK	491m NW	Unspecified Pit	1947	343458
AK	491m NW	Old Coal Levels	1914 - 1921	370626
AN	491m N	Old Coal Level	1897	358400
M	493m NE	Old Coal Level	1914 - 1921	377158
AN	493m N	Old Coal Level	1914 - 1921	362757
21	494m NE	Disused Air Shaft	1975	349736
AN	494m N	Unspecified Pit	1875	364588
M	495m NE	Unspecified Old Level	1875	366195
AN	496m N	Unspecified Pit	1948	356951
22	496m SW	Tramway Sidings	1947 - 1948	366603



ID	Location	Land use	Dates present	Group ID
M	497m NE	Unspecified Old Level	1948	364832
AO	497m W	Unspecified Old Levels	1948	336082
AK	498m NW	Refuse Heap	1914 - 1921	364917
AM	499m NE	Unspecified Pit	1914	384579
AM	499m NE	Unspecified Pit	1875	372511
AO	499m W	Old Coal Level	1914 - 1921	360536
AP	500m NE	Colliery	1897	329550
AP	500m NE	Tramway Sidings	1897	335647
AM	500m NE	Unspecified Pit	1948	352734

This data is sourced from Ordnance Survey® / Groundsure.

1.2 Historical tanks

Records within 500m

0

Tank features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.3 Historical energy features

Records within 500m

0

Energy features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.



1.4 Historical petrol stations

Records within 500m**0**

Petrol stations digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.5 Historical garages

Records within 500m**0**

Garages digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.6 Historical military land

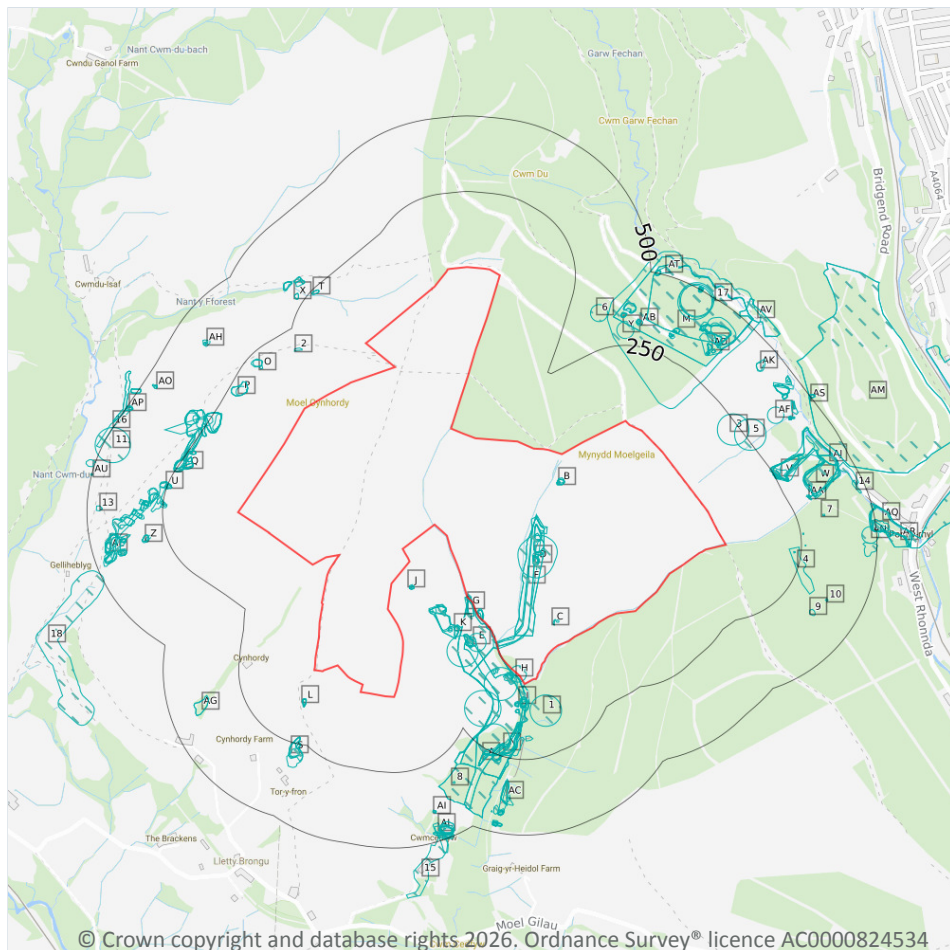
Records within 500m**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey® / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses

2.1 Historical industrial land uses

Records within 500m

439

Potentially contaminative land use features digitised from historical Ordnance Survey® mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 28](#) >

ID	Location	Land Use	Date	Group ID
A	On site	Colliery	1921	367648
A	On site	Disused Colliery	1948	371049
A	On site	Disused Colliery	1875	356925



ID	Location	Land Use	Date	Group ID
A	On site	Colliery	1914	367648
A	On site	Disused Colliery	1875	356925
B	On site	Old Trial Level	1921	356834
B	On site	Old Trial Level	1897	354117
B	On site	Unspecified Old Level	1948	364233
B	On site	Unspecified Old Level	1875	351525
B	On site	Old Trial Level	1914	356834
B	On site	Unspecified Old Level	1948	376652
B	On site	Unspecified Old Level	1875	351525
C	On site	Unspecified Ground Workings	1876	346739
C	On site	Trial Level	1876	336009
D	On site	Unspecified Heap	1948	379401
D	On site	Unspecified Old Level	1948	368807
D	On site	Unspecified Level	1948	372841
D	On site	Unspecified Old Level	1948	378045
D	On site	Unspecified Level	1875	367900
D	On site	Unspecified Old Level	1875	369979
D	On site	Unspecified Heap	1875	378021
D	On site	Unspecified Heap	1985	350623
D	On site	Unspecified Heap	1985	377994
D	On site	Unspecified Heap	1970	350623
D	On site	Unspecified Heap	1970	377994
D	On site	Unspecified Level	1948	364591
D	On site	Unspecified Level	1875	367900
D	On site	Unspecified Old Level	1875	369979
D	On site	Unspecified Heap	1875	378021
E	On site	Colliery	1948	376447
F	On site	Tramway Sidings	1948	376830



ID	Location	Land Use	Date	Group ID
F	On site	Tramway Sidings	1875	362402
F	On site	Colliery	1875	390191
F	On site	Tramway Sidings	1948	375885
F	On site	Colliery	1875	390191
G	On site	Railway Sidings	1948	355988
G	On site	Unspecified Old Quarry	1921	377055
G	On site	Unspecified Old Quarry	1914	377055
G	On site	Unspecified Quarry	1948	331180
G	On site	Railway Sidings	1875	361189
G	On site	Unspecified Mine	1948	341782
G	On site	Unspecified Old Quarry	1897	364474
H	On site	Old Trial Level	1897	344692
G	3m W	Railway Sidings	1948	355291
H	7m SW	Unspecified Level	1914	365902
H	11m SW	Refuse Heap	1914	335075
H	14m SW	Unspecified Old Level	1948	372520
H	15m SW	Unspecified Level	1921	365902
H	16m SW	Unspecified Old Level	1948	372520
H	18m SW	Unspecified Old Level	1875	376611
H	18m SW	Unspecified Old Level	1875	376611
A	25m SW	Tramway Sidings	1914	382599
A	27m SW	Tramway Sidings	1921	382599
E	29m SW	Trial Level	1897	335991
H	37m SW	Unspecified Heap	1914	339647
I	42m S	Unspecified Heap	1985	351228
I	43m S	Unspecified Heap	1970	351228
I	46m S	Refuse Heap	1948	356135
H	47m SW	Unspecified Pit	1914	343873



ID	Location	Land Use	Date	Group ID
I	49m S	Refuse Heap	1914	354214
I	51m S	Refuse Heap	1948	356135
J	51m SE	Unspecified Old Level	1948	350892
I	52m S	Refuse Heap	1875	359115
I	52m S	Refuse Heap	1875	359115
J	54m SE	Unspecified Old Level	1948	372633
J	54m SE	Unspecified Old Level	1875	368274
J	54m SE	Unspecified Old Level	1875	368274
1	57m S	Old Trial Levels	1914	338381
I	58m S	Old Trial Levels	1921	338394
E	60m SW	Refuse Heap	1921	354333
E	60m SW	Refuse Heap	1914	354333
I	61m S	Unspecified Old Level	1948	334596
E	63m SW	Unspecified Levels	1914	339332
I	65m S	Unspecified Pit	1948	350549
I	66m S	Unspecified Pit	1875	375365
I	66m S	Unspecified Pit	1875	375365
E	69m SW	Unspecified Level	1875	350593
E	69m SW	Unspecified Level	1875	350593
E	69m SW	Unspecified Level	1948	379877
E	70m SW	Unspecified Level	1948	377207
K	70m SW	Unspecified Heap	1985	353728
K	70m SW	Unspecified Heap	1970	353728
K	74m SW	Unspecified Ground Workings	1948	353132
K	76m SW	Unspecified Ground Workings	1875	370302
K	76m SW	Unspecified Ground Workings	1875	370302
K	77m SW	Unspecified Heap	1948	365123
K	80m SW	Unspecified Heap	1985	355136



ID	Location	Land Use	Date	Group ID
K	80m SW	Unspecified Heap	1970	355136
K	82m SW	Unspecified Heap	1948	378297
I	86m S	Unspecified Old Level	1948	357307
I	87m S	Unspecified Old Level	1875	381504
I	87m S	Unspecified Old Level	1875	381504
K	88m SW	Unspecified Heap	1948	339646
K	96m SW	Unspecified Heap	1948	369453
K	97m SW	Unspecified Heap	1948	369453
L	99m S	Unspecified Pit	1948	375097
A	100m SW	Unspecified Disused Mine	1948	332046
L	101m S	Unspecified Old Quarry	1914	357782
L	101m S	Unspecified Old Quarry	1921	357782
L	102m S	Unspecified Pit	1947	375097
M	108m NE	Disused Colliery	1948	354446
K	113m NE	Unspecified Pit	1948	344234
N	128m S	Refuse Heap	1948	364905
N	128m S	Refuse Heaps	1914	342582
N	129m S	Refuse Heap	1948	381874
N	131m S	Old Trial Levels	1921	338393
N	138m S	Refuse Heap	1875	352189
N	138m S	Refuse Heap	1875	352189
N	158m SW	Old Trial Level	1914	344691
2	171m NW	Unspecified Disused Level	1975	334684
N	173m S	Unspecified Level	1985	349061
N	176m S	Unspecified Level	1970	349062
3	179m NE	Trial Levels	1876	376214
O	192m NW	Unspecified Disused Level	1965	334685
P	192m NW	Unspecified Old Quarry	1897	355822



ID	Location	Land Use	Date	Group ID
P	193m NW	Unspecified Old Quarry	1914	384783
P	193m NW	Unspecified Old Quarry	1921	384783
P	193m NW	Unspecified Quarry	1947	330258
O	201m NW	Unspecified Heap	1965	339884
O	202m NW	Unspecified Disused Level	1975	334683
Q	208m NW	Unspecified Old Levels	1947	386452
N	209m S	Unspecified Heap	1970	364239
Q	209m NW	Unspecified Old Level	1947	334582
Q	209m NW	Coal Level	1914	357746
Q	209m NW	Coal Level	1921	357746
Q	209m NW	Unspecified Quarry	1914	356695
Q	209m NW	Unspecified Quarry	1921	356695
Q	210m NW	Coal Level	1897	347792
4	210m E	Railway Sidings	1876	334319
N	210m S	Unspecified Heap	1985	364239
Q	212m NW	Unspecified Pit	1975	389835
Q	212m NW	Unspecified Pit	1965	389835
Q	212m NW	Unspecified Old Levels	1948	361987
5	214m NE	Trial Levels	1876	376214
Q	223m NW	Old Coal Levels	1914	378915
Q	223m NW	Old Coal Levels	1921	378915
Q	223m NW	Unspecified Old Levels	1947	359225
R	225m E	Coal Level	1876	347836
Q	226m NW	Old Coal Levels	1914	387582
Q	226m NW	Old Coal Levels	1921	387582
Q	226m NW	Unspecified Old Level	1947	334581
S	226m S	Unspecified Old Level	1948	334626
S	228m S	Coal Level	1914	387796



ID	Location	Land Use	Date	Group ID
S	228m S	Coal Level	1921	387796
S	228m S	Old Coal Level	1947	361022
Q	229m NW	Refuse Heap	1914	372342
Q	229m NW	Refuse Heap	1921	372342
Q	229m NW	Old Coal Levels	1914	375883
Q	229m NW	Old Coal Levels	1921	375883
T	230m NW	Unspecified Pit	1914	360353
T	230m NW	Unspecified Pit	1921	360353
T	230m NW	Unspecified Pit	1947	360353
Q	233m NW	Unspecified Ground Workings	1947	352933
U	234m W	Unspecified Old Level	1914	368540
U	234m W	Unspecified Old Level	1921	368540
U	234m W	Unspecified Old Level	1947	368540
Q	236m NW	Unspecified Heap	1970	384404
U	236m W	Unspecified Old Level	1948	334585
U	236m W	Unspecified Old Level	1948	363401
U	237m W	Unspecified Ground Workings	1947	346150
Q	237m NW	Tramway Sidings	1897	335623
Q	238m NW	Unspecified Ground Workings	1975	375700
Q	240m NW	Unspecified Ground Workings	1965	375700
Q	241m NW	Unspecified Heap	1985	379759
U	244m W	Old Coal Levels	1914	382952
U	244m W	Old Coal Levels	1921	382952
V	245m NE	Unspecified Ground Workings	1897	346746
V	246m NE	Unspecified Old Level	1960	355627
S	248m S	Old Coal Level	1914	350933
S	248m S	Old Coal Level	1921	350933
V	248m NE	Unspecified Old Level	1897	367466



ID	Location	Land Use	Date	Group ID
W	248m NE	Refuse Heaps	1914	378911
S	249m S	Refuse Heap	1914	390911
S	249m S	Refuse Heap	1921	390911
W	250m NE	Refuse Heap	1875	367988
W	250m NE	Refuse Heap	1875	367988
V	251m NE	Unspecified Old Level	1921	359866
V	251m NE	Unspecified Old Level	1914	388341
V	251m NE	Unspecified Old Level	1875	363700
V	251m NE	Unspecified Old Level	1875	363700
V	252m NE	Unspecified Old Level	1948	357924
V	252m NE	Unspecified Disused Level	1970	334711
V	252m NE	Unspecified Heap	1993	339886
W	252m NE	Refuse Heaps	1921	371802
U	253m W	Unspecified Heap	1970	363276
N	253m SW	Unspecified Old Level	1948	360437
U	253m NW	Unspecified Heap	1985	363276
U	254m W	Refuse Heap	1914	335139
W	254m NE	Refuse Heaps	1948	371802
R	257m E	Trial Level	1876	335998
N	258m SW	Unspecified Old Level	1875	359096
N	258m SW	Unspecified Old Level	1875	359096
N	260m SW	Unspecified Old Level	1948	363182
V	261m NE	Refuse Heap	1960	374249
R	263m E	Trial Level	1876	336010
S	265m S	Old Coal Level	1897	361670
X	268m NW	Unspecified Pit	1914	361669
X	268m NW	Unspecified Pit	1947	378496
Q	268m NW	Unspecified Heap	1947	353236



ID	Location	Land Use	Date	Group ID
U	269m W	Unspecified Disused Tip	1985	332197
U	269m W	Unspecified Heap	1948	387962
U	271m W	Unspecified Heap	1947	387962
Y	273m N	Old Trial Levels	1897	338376
U	274m W	Unspecified Heap	1970	371700
Q	278m NW	Unspecified Heap	1975	380656
Q	278m NW	Unspecified Heap	1965	380656
Q	279m NW	Unspecified Heap	1897	381043
X	285m NW	Old Coal Levels	1914	355635
X	285m NW	Old Coal Levels	1921	355635
X	285m NW	Unspecified Old Levels	1947	336080
M	285m NE	Disused Colliery	1875	388890
M	285m NE	Disused Colliery	1875	388890
U	290m W	Old Coal Levels	1897	376303
U	296m W	Unspecified Ground Workings	1947	346148
U	297m W	Unspecified Pit	1948	343463
U	297m W	Old Coal Levels	1914	376303
U	297m W	Old Coal Levels	1921	389444
Z	300m W	Unspecified Old Quarry	1897	337326
U	302m W	Unspecified Heaps	1948	391324
Z	308m W	Refuse Heap	1914	380086
Z	308m W	Refuse Heap	1921	380086
Z	309m W	Refuse Heap	1947	389196
U	309m W	Unspecified Disused Level	1985	334687
AA	310m NE	Unspecified Old Level	1960	356667
U	312m W	Old Coal Level	1897	329384
M	312m NE	Old Trial Level	1921	374054
AA	313m NE	Old Coal Level	1897	386191



ID	Location	Land Use	Date	Group ID
AA	313m NE	Old Coal Level	1914	386191
X	315m NW	Unspecified Ground Workings	1975	346143
M	315m NE	Unspecified Old Level	1875	353081
M	315m NE	Unspecified Old Level	1875	353081
M	315m NE	Unspecified Old Level	1948	377619
X	315m NW	Refuse Heap	1914	383796
X	315m NW	Refuse Heap	1921	383796
X	315m NW	Refuse Heap	1947	383796
M	315m NE	Old Trial Level	1914	374054
AA	315m NE	Unspecified Old Level	1921	334628
AA	316m NE	Unspecified Old Level	1875	382262
AA	316m NE	Unspecified Old Level	1875	382262
AA	317m NE	Unspecified Old Level	1948	368717
U	318m W	Unspecified Pit	1914	388387
U	318m W	Unspecified Pit	1921	388387
AB	318m N	Old Trial Level	1921	376801
AC	320m S	Unspecified Heap	1948	339649
6	322m E	Trial Level	1897	335972
AB	323m N	Old Trial Level	1914	376801
AB	324m N	Unspecified Old Level	1875	372373
AB	324m N	Unspecified Old Level	1875	372373
W	327m NE	Refuse Heap	1960	374984
AB	327m N	Unspecified Old Level	1948	358689
AD	327m NE	Tramway Sidings	1897	335622
AC	327m S	Unspecified Old Level	1948	362767
AC	328m S	Unspecified Ground Workings	1875	377284
AC	328m S	Unspecified Ground Workings	1875	377284
W	330m NE	Unspecified Disused Level	1970	334712



ID	Location	Land Use	Date	Group ID
W	330m NE	Unspecified Heap	1993	390843
M	331m N	Disused Colliery	1921	387789
M	331m N	Disused Colliery	1914	387789
AD	332m NE	Unspecified Disused Shaft	1965	335748
AD	333m NE	Unspecified Disused Shafts	1975	334233
U	335m W	Old Coal Levels	1897	332621
7	335m E	Trial Level	1876	336000
AD	335m NE	Unspecified Old Shaft	1948	354267
AD	335m NE	Old Air Shaft	1921	390011
AD	335m NE	Old Air Shaft	1914	390011
M	335m NE	Unspecified Ground Workings	1875	374905
M	335m NE	Unspecified Ground Workings	1875	374905
AD	336m NE	Unspecified Old Shaft	1875	385497
AD	336m NE	Unspecified Old Shaft	1875	385497
M	336m NE	Refuse Heap	1921	378944
M	336m NE	Refuse Heap	1914	378944
AE	337m W	Unspecified Ground Workings	1947	381227
M	338m NE	Unspecified Heap	1948	340639
Y	342m N	Unspecified Old Level	1921	378772
Y	342m N	Unspecified Old Level	1914	378772
8	343m SE	Trial Level	1876	335990
U	343m W	Unspecified Disused Tip	1985	332198
Y	343m N	Unspecified Old Level	1875	354592
Y	343m N	Unspecified Old Level	1875	354592
Y	344m N	Unspecified Old Level	1948	363592
AF	344m NE	Old Coal Level	1897	329414
AD	345m NE	Unspecified Heap	1875	364226
AD	345m NE	Unspecified Heap	1875	364226



ID	Location	Land Use	Date	Group ID
AD	345m NE	Unspecified Level	1921	352937
AD	345m NE	Unspecified Level	1914	352937
AD	347m NE	Unspecified Level	1948	385411
AD	348m NE	Unspecified Disused Levels	1975	349941
U	348m W	Unspecified Heap	1970	339888
AD	348m NE	Unspecified Disused Level	1965	334680
9	352m SE	Unspecified Ground Workings	1876	346210
Y	357m N	Refuse Heap	1875	384874
Y	357m N	Refuse Heap	1875	384874
Y	357m N	Refuse Heap	1914	384790
Y	360m N	Refuse Heap	1948	391259
AG	362m W	Unspecified Quarry	1914	357557
AG	362m W	Unspecified Quarry	1921	357557
AE	364m W	Unspecified Disused Tip	1985	332213
AD	373m NE	Unspecified Ground Workings	1897	367154
AD	373m NE	Unspecified Heap	1948	340180
10	377m SE	Railway Building	1876	348776
AD	378m NE	Unspecified Ground Workings	1875	353185
AD	378m NE	Unspecified Ground Workings	1875	353185
AD	379m NE	Unspecified Disused Tip	1975	332212
AC	379m S	Unspecified Disused Level	1985	334697
AH	381m NW	Unspecified Ground Workings	1947	346145
AE	382m W	Unspecified Pit	1948	356596
AD	383m NE	Unspecified Old Quarry	1921	382632
AD	383m NE	Unspecified Old Quarry	1914	382632
AE	383m W	Unspecified Pit	1914	356596
AE	383m W	Unspecified Pit	1921	356596
AE	383m W	Unspecified Pit	1947	356596



ID	Location	Land Use	Date	Group ID
AD	384m NE	Unspecified Quarry	1897	330257
AH	387m NW	Old Air Shaft	1897	335798
AD	388m NE	Unspecified Ground Workings	1948	357759
AH	389m NW	Old Air Shaft	1914	363567
AH	389m NW	Old Air Shaft	1921	363567
AH	389m NW	Old Air Shaft	1947	363567
AE	391m W	Unspecified Old Level	1948	386309
AE	392m W	Old Coal Level	1914	354060
AE	392m W	Old Coal Level	1921	354060
AE	392m W	Unspecified Old Level	1947	386309
AI	396m S	Unspecified Old Level	1948	370400
AI	397m S	Unspecified Old Level	1875	364179
AI	397m S	Unspecified Old Level	1875	364179
M	398m NE	Old Air Shaft	1921	367649
AF	398m NE	Old Air Shaft	1914	335811
AF	399m NE	Unspecified Old Shaft	1875	358333
AF	399m NE	Unspecified Old Shaft	1875	358333
AF	399m NE	Unspecified Disused Shaft	1963	350339
AF	399m NE	Unspecified Disused Shaft	1965	350339
AE	399m W	Old Coal Level	1897	370223
AF	400m NE	Unspecified Old Shaft	1948	378920
AE	400m W	Refuse Heaps	1914	357391
AE	400m W	Refuse Heaps	1921	357391
AE	406m W	Unspecified Heaps	1970	391324
M	407m NE	Old Air Shaft	1948	367649
AE	408m W	Unspecified Heap	1897	339887
AJ	409m NE	Unspecified Heap	1970	350579
AJ	409m NE	Unspecified Heap	1993	350579



ID	Location	Land Use	Date	Group ID
M	410m NE	Old Air Shaft	1914	350730
AC	412m S	Old Coal Level	1897	329401
11	412m NW	Trial Level	1876	335965
AE	413m W	Unspecified Ground Workings	1948	361892
AK	414m NE	Unspecified Heap	1965	339885
AK	417m NE	Unspecified Disused Tip	1975	332158
AC	419m S	Unspecified Old Level	1948	375899
AF	422m NE	Unspecified Old Slant	1914	377779
AF	424m NE	Railway Sidings	1875	334349
AF	424m NE	Unspecified Heap	1921	357418
AF	424m NE	Refuse Heap	1914	351761
AF	424m NE	Unspecified Heap	1963	359514
AF	424m NE	Unspecified Heap	1965	359514
AC	425m S	Old Coal Level	1921	370288
AC	425m S	Old Coal Level	1914	370288
AF	425m NE	Unspecified Heap	1948	357418
AF	425m NE	Refuse Heap	1875	361396
AF	425m NE	Refuse Heap	1875	361396
AC	426m S	Unspecified Old Level	1875	377187
AC	426m S	Unspecified Old Level	1875	377187
AF	426m NE	Refuse Heap	1948	369587
AF	432m NE	Unspecified Old Slant	1875	364864
AF	432m NE	Unspecified Old Slant	1875	364864
AC	432m S	Trial Level	1876	335989
AL	441m S	Tramway Sidings	1914	374938
AM	446m NE	Disused Colliery	1921	384865
AM	446m NE	Disused Colliery	1914	384865
AL	446m S	Unspecified Heap	1985	359673



ID	Location	Land Use	Date	Group ID
AL	446m S	Unspecified Heap	1970	359673
12	448m NE	Cuttings	1960	333166
13	450m W	Unspecified Disused Level	1985	334686
AL	450m S	Railway Sidings	1921	334278
AL	451m S	Unspecified Old Level	1948	334597
AN	451m E	Old Coal Level	1897	329416
AO	453m NW	Unspecified Disused Shaft	1975	388501
AO	453m NW	Unspecified Disused Shaft	1965	388501
AN	454m E	Unspecified Quarry	1876	331123
AO	455m NW	Old Air Shaft	1897	335797
AL	456m S	Coal Level	1914	366325
AL	457m S	Refuse Heap	1948	355162
AL	458m S	Refuse Heap	1875	356285
AL	458m S	Refuse Heap	1875	356285
AC	462m S	Unspecified Old Level	1948	385318
14	464m NE	Unspecified Ground Workings	1914	346663
AF	464m NE	Unspecified Old Quarries	1921	361666
AO	465m NW	Old Air Shaft	1921	335796
AC	465m S	Coal Level	1921	378329
AC	465m S	Coal Level	1914	378329
AL	466m S	Coal Level	1921	379760
15	467m S	Tramway Sidings	1921	364484
AL	468m S	Refuse Heap	1948	385987
AL	468m S	Refuse Heap	1915	361438
AC	468m S	Unspecified Old Level	1948	387293
AC	468m S	Unspecified Old Level	1875	389190
AC	468m S	Unspecified Old Level	1875	389190
AF	468m NE	Unspecified Quarry	1875	331125



ID	Location	Land Use	Date	Group ID
AF	469m NE	Unspecified Old Quarries	1914	361666
AL	474m S	Tramway Sidings	1921	364484
16	480m NW	Old Tramway Sidings	1897	349020
AP	481m NW	Old Coal Levels	1914	332617
AP	481m NW	Unspecified Pit	1947	343459
AQ	481m E	Refuse Heap	1960	355083
AQ	482m E	Refuse Heap	1875	364685
AQ	482m E	Refuse Heap	1875	364685
AR	482m E	Disused Collieries	1875	362864
AR	482m E	Disused Collieries	1875	362864
AP	483m NW	Unspecified Disused Level	1975	334682
AL	483m S	Refuse Heap	1921	360135
AQ	487m E	Refuse Heap	1948	366058
AQ	488m E	Coal Levels	1921	382343
AQ	488m E	Coal Levels	1914	382343
AS	490m NE	Old Trial Level	1914	344703
AQ	490m E	Unspecified Heap	1897	340558
M	491m NE	Old Coal Level	1897	354392
AP	491m NW	Old Coal Levels	1914	370626
AP	491m NW	Old Coal Levels	1921	370626
AP	491m NW	Unspecified Pit	1947	343458
AT	491m N	Old Coal Level	1897	358400
M	493m NE	Old Coal Level	1921	377158
M	493m NE	Old Coal Level	1914	377158
AT	493m N	Old Coal Level	1921	362757
AT	493m N	Old Coal Level	1914	362757
17	494m NE	Disused Air Shaft	1975	349736
AT	494m N	Unspecified Pit	1875	364588



ID	Location	Land Use	Date	Group ID
AT	494m N	Unspecified Pit	1875	364588
M	495m NE	Unspecified Old Level	1875	366195
M	495m NE	Unspecified Old Level	1875	366195
AT	496m N	Unspecified Pit	1948	356951
18	496m SW	Tramway Sidings	1947	366603
M	497m NE	Unspecified Old Level	1948	364832
AU	497m W	Unspecified Old Levels	1948	336082
AP	498m NW	Refuse Heap	1914	364917
AP	498m NW	Refuse Heap	1921	364917
AS	499m NE	Unspecified Pit	1914	384579
AS	499m NE	Unspecified Pit	1875	372511
AS	499m NE	Unspecified Pit	1875	372511
AU	499m W	Old Coal Level	1921	360536
AV	500m NE	Colliery	1897	329550
AV	500m NE	Tramway Sidings	1897	335647
AS	500m NE	Unspecified Pit	1948	352734

This data is sourced from Ordnance Survey® / Groundsure.

2.2 Historical tanks

Records within 500m

0

Tank features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

2.3 Historical energy features

Records within 500m

0

Energy features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.



This data is sourced from Ordnance Survey® / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

2.5 Historical garages

Records within 500m

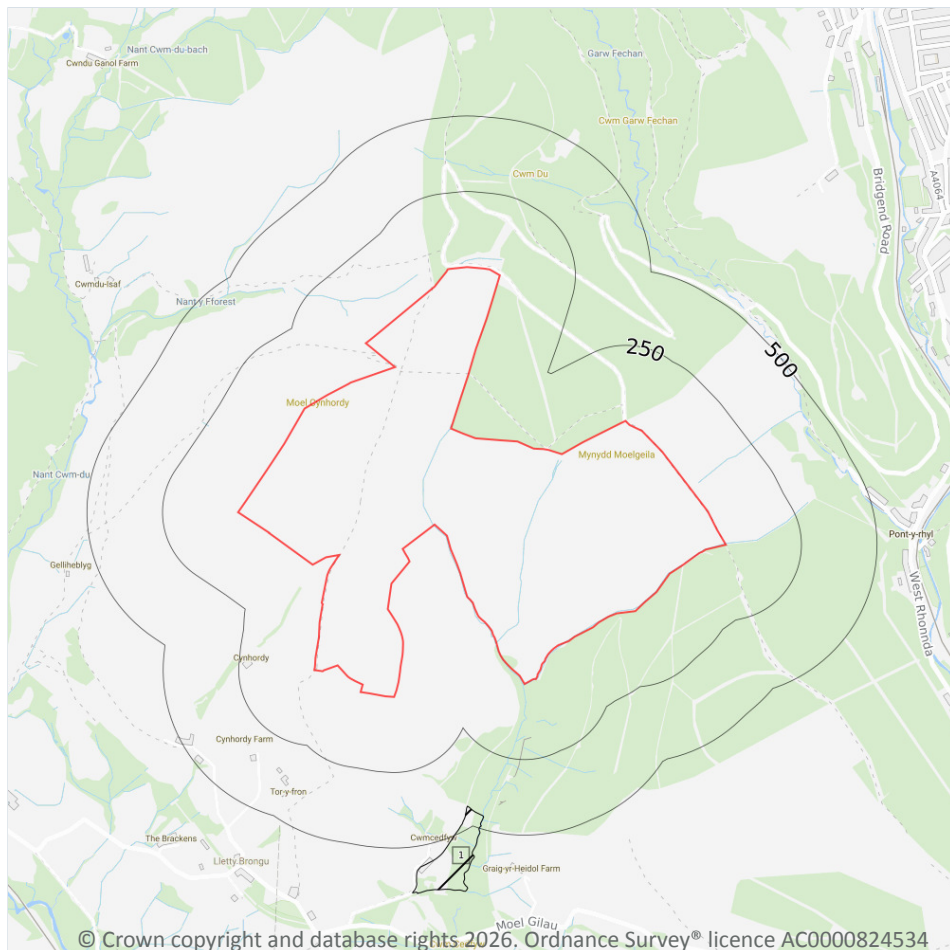
0

Garages digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey®/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

1

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on [page 46 >](#)

ID	Location	Details		
1	436m SE	Site Address: Cwmcedfyw Farm, Llangynwyd Licence Holder Address: -	Waste Licence: Yes Site Reference: 7 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 21/03/1986 Licence Surrender: 31/12/1993	Operator: - Licence Holder: W and E Carpenter First Recorded 31/12/1964 Last Recorded: 31/03/1993

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey®/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.



3.7 Waste exemptions

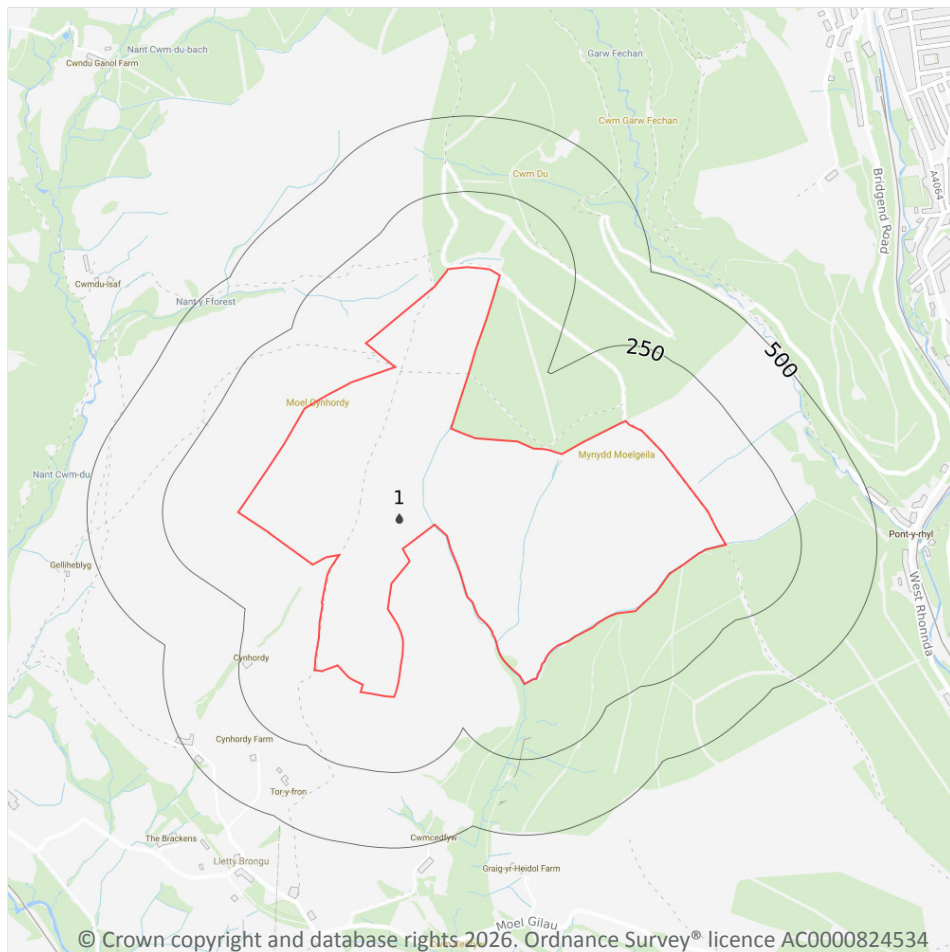
Records within 500m
0

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



— Site Outline

Search buffers in metres (m)

 Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m

0

Current potentially contaminative industrial sites.

This data is sourced from Ordnance Survey®.

4.2 National Geographic Database (NGD) - Current or recent tanks

Records within 250m

0

Current or recent tanks identified from the Ordnance Survey® NGD.

This data is sourced from Ordnance Survey®.

4.3 Current or recent petrol stations

Records within 500m**0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.4 Electricity cables

Records within 500m**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.5 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.6 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.7 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.8 Regulated explosive sites

Records within 500m

0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.9 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.10 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed industrial activities (Part A(1))

Records within 500m

0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.12 Licensed pollutant release (Part A(2)/B)

Records within 500m

0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.13 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Licensed Discharges to controlled waters

Records within 500m

1

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on [page 49](#) >

ID	Location	Address	Details	
1	On site	BRIDGEND2OAKLAN DSDRIVE,2OAKLAND SDRIVE	Effluent Type: UNSPECIFIED Permit Number: BP0034601 Permit Version: 1 Receiving Water: TO LAND	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 13/01/1987 Effective Date: 13/01/1987 Revocation Date: 18/11/1992

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to surface waters (Red List)

Records within 500m

0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.17 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution Incidents (EA/NRW)

Records within 500m**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.20 Pollution inventory substances

Records within 500m**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory waste transfers

Records within 500m**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.22 Pollution inventory radioactive waste

Records within 500m

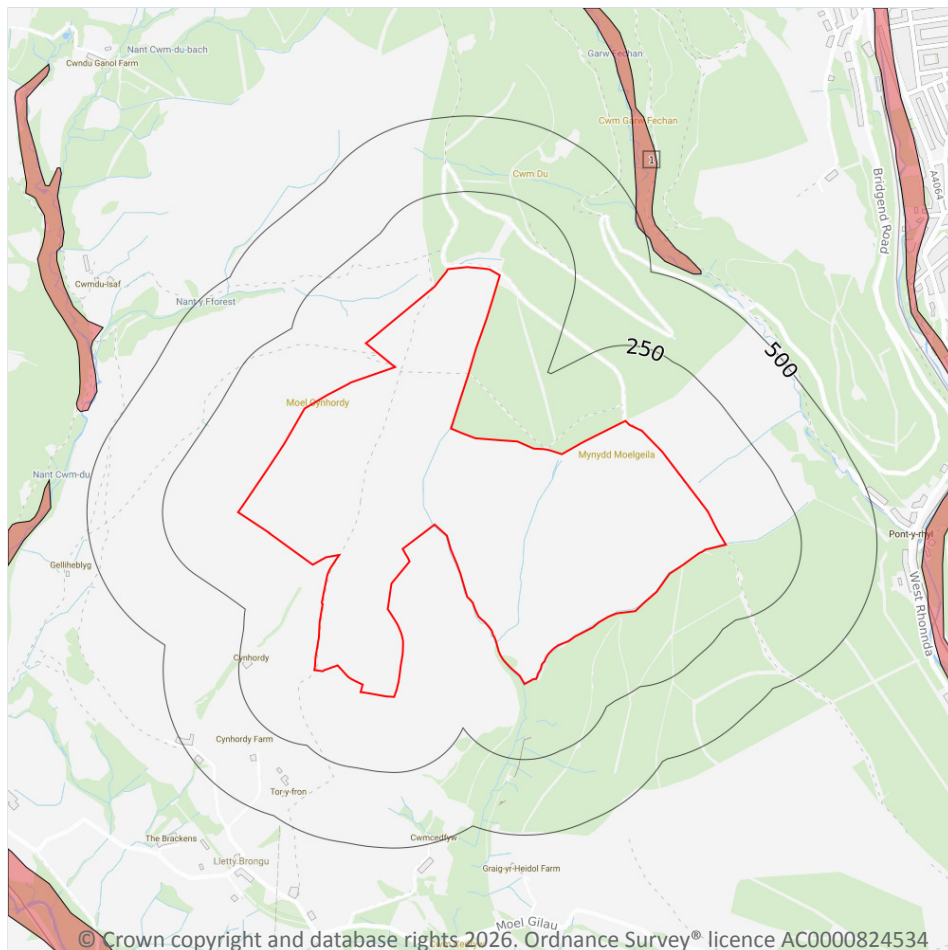
0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

1

Aquifer status of groundwater held within superficial geology.

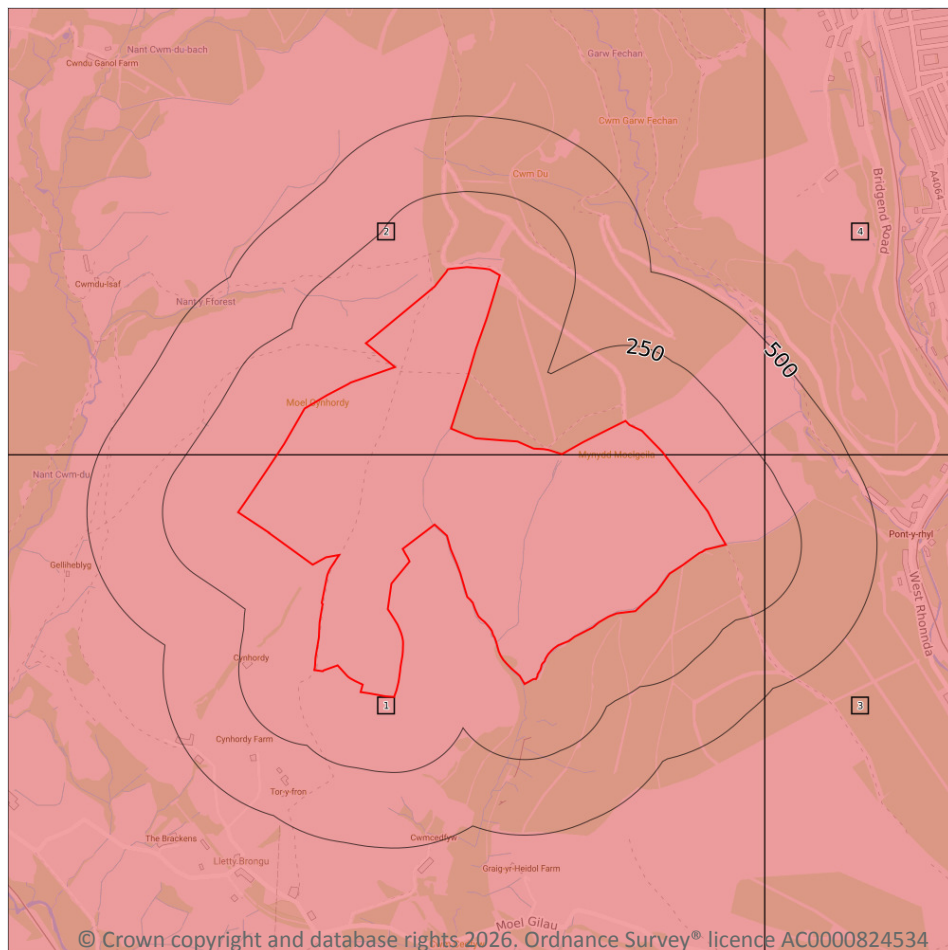
Features are displayed on the Hydrogeology map on [page 55 >](#)

ID	Location	Designation	Description
1	485m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

4

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 56 >](#)

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

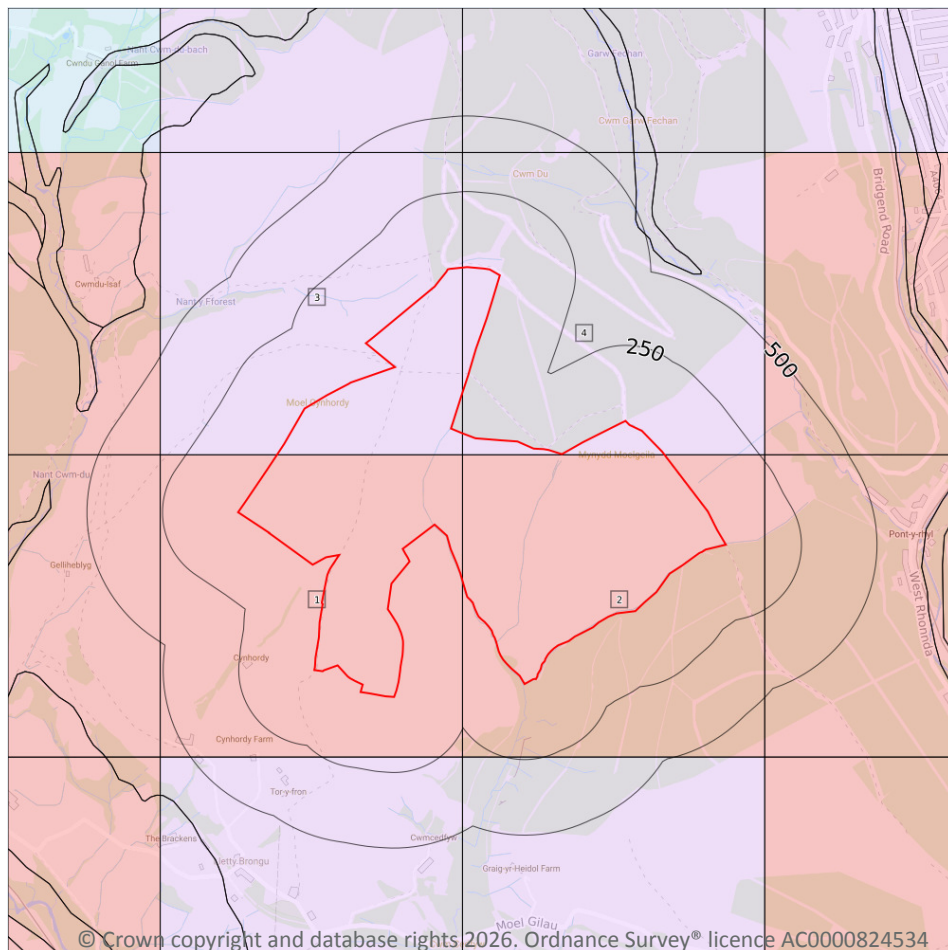


ID	Location	Designation	Description
3	129m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	264m NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m

4

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on [page 58](#) >



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site

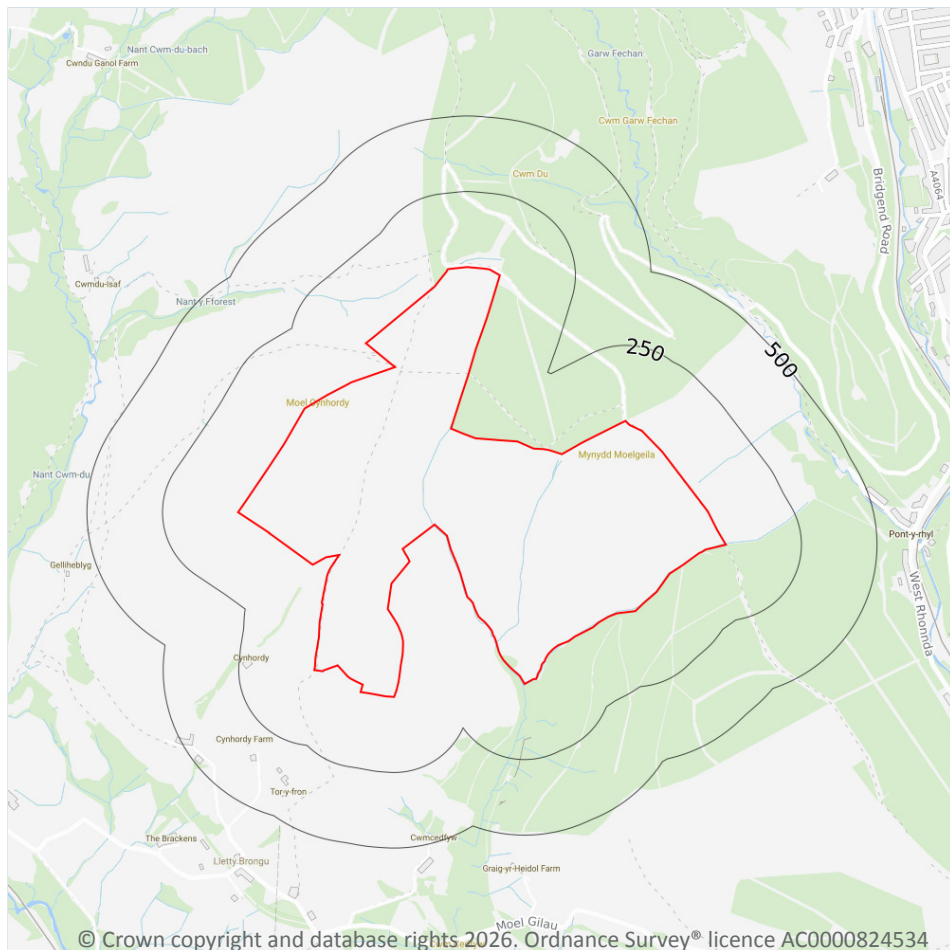
0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.



5.7 Surface water abstractions

Records within 2000m

5

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 60 >](#)

ID	Location	Details	
-	871m SW	Status: Historical Licence No: WA/058/0041/001 Details: Hydro-electric Power Generation - Very Low Direct Source: Afon Llynfi Point: - Data Type: Point Name: - Easting: 287459 Northing: 189463	Annual Volume (m ³): 4752000 Max Daily Volume (m ³): 21600 Original Application No: - Original Start Date: 03/10/2022 Expiry Date: 31/03/2029 Issue No: - Version Start Date: - Version End Date: -
-	871m SW	Status: Historical Licence No: WA/058/0041/003 Details: Hydro-electric Power Generation - Very Low Direct Source: Nant Cwm Du Point: - Data Type: Point Name: - Easting: 287459 Northing: 189463	Annual Volume (m ³): 0 Max Daily Volume (m ³): - Original Application No: - Original Start Date: 03/10/2022 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	871m SW	Status: Historical Licence No: WA/058/0041/001 Details: Hydro-electric Power Generation - Very Low Direct Source: Afon Llynfi Point: - Data Type: Point Name: - Easting: 287459 Northing: 189463	Annual Volume (m ³): 4752000 Max Daily Volume (m ³): - Original Application No: - Original Start Date: 03/10/2022 Expiry Date: 30/03/2029 Issue No: - Version Start Date: - Version End Date: -
-	871m SW	Status: Historical Licence No: WA/058/0041/001 Details: Hydroelectric Power Generation Direct Source: EAW Surface Water Point: NANT CWM DU AT MELIN PONT RHYD-Y-CYFF Data Type: Point Name: John Parry Jenkins Easting: 287459 Northing: 189463	Annual Volume (m ³): 4752000 Max Daily Volume (m ³): 21600 Original Application No: - Original Start Date: 22/03/2012 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 22/03/2012 Version End Date: -



ID	Location	Details	
-	1766m NE	Status: Historical Licence No: 21/58/42/0045 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: EAW Surface Water Point: INLAND/UNAMED SPRING IN FIELD NO 9332 GELLI'R ONN FARM Data Type: Point Name: Jenkins Easting: 290870 Northing: 191300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 22/03/1993 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

1

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 60 >](#)

ID	Location	Details	
-	1766m NE	Status: Historical Licence No: 21/58/42/0045 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: EAW Surface Water Point: INLAND/UNAMED SPRING IN FIELD NO 9332 GELLI'R ONN FARM Data Type: Point Name: Jenkins Easting: 290870 Northing: 191300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 22/03/1993 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m

0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.



5.10 Source Protection Zones (confined aquifer)

Records within 500m

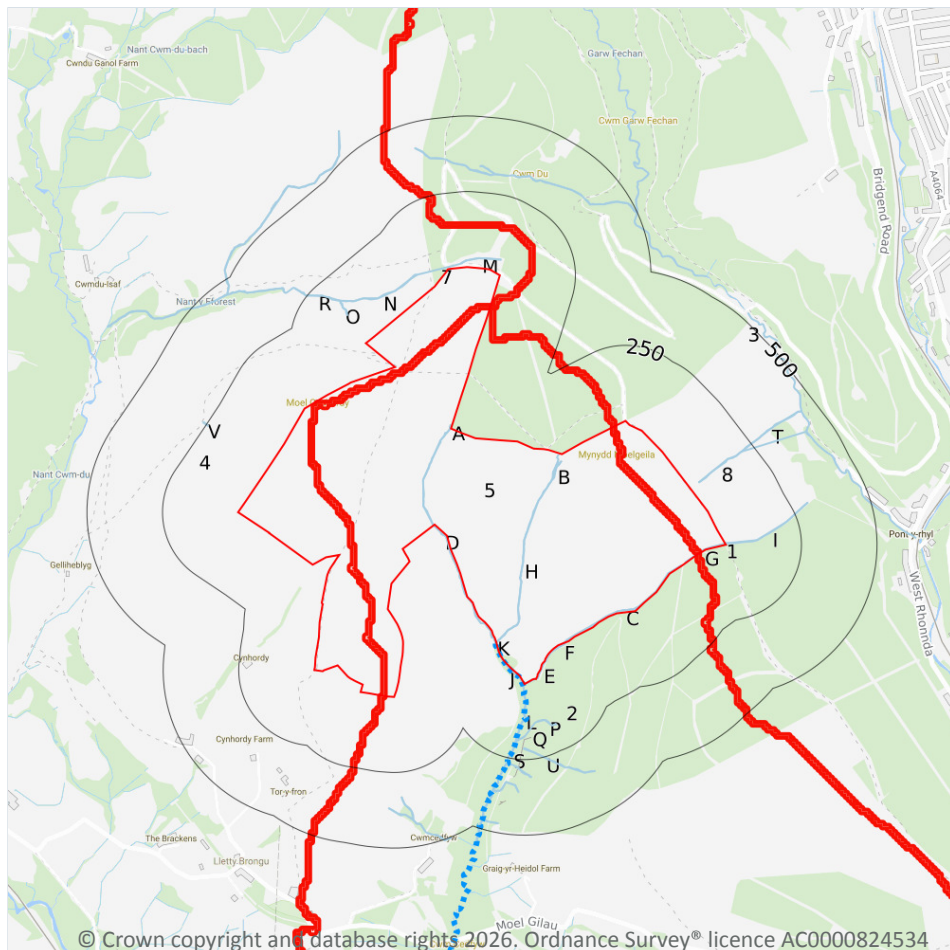
0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS NGD)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS NGD)

Records within 250m

35

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on [page 64](#) >

ID	Location	Type of water feature	Ground level	Permanence	Name
1	On site	Drain. A manmade watercourse for the removal of excess water from an area.	Underground	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
B	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
C	On site	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	On site	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
I	On site	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
J	1m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
K	1m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	3m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
K	3m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
F	4m SE	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	4m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
L	6m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
7	7m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
M	13m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	34m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	67m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	109m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	131m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
Q	131m S	Marsh. An area that is predominantly waterlogged by freshwater.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
R	163m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant y Fforest
Q	172m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
S	193m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Nant Cedfyw
T	207m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
T	207m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
U	211m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
V	241m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey®.

6.2 Surface water features

Records within 250m

15

Covering rivers, streams and lakes (some overlap with OS NGD Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on [page 64 >](#)

This data is sourced from the Ordnance Survey®.



6.3 WFD Surface water body catchments

Records on site	3
------------------------	----------

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on [page 64 >](#)

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	River	Llynfi - Lletty Brongu STW to conf with Ogmre	GB110058026332	Ogmre	Tawe to Cadoxton
3	On site	River	Garw - headwaters to confluence with Ogmre	GB110058026320	Ogmre	Tawe to Cadoxton
4	On site	River	Llynfi - headwaters to Lletty Brongu STW	GB110058026331	Ogmre	Tawe to Cadoxton

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	3
---------------------------	----------

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on [page 64 >](#)

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
6	1m SW	River	Llynfi - Lletty Brongu STW to conf with Ogmre	GB110058026332	Poor	High	Poor	2024
-	579m NW	River	Llynfi - headwaters to Lletty Brongu STW	GB110058026331	Moderate	High	Moderate	2024
-	644m E	River	Garw - headwaters to confluence with Ogmre	GB110058026320	Moderate	High	Moderate	2024



This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on [page 64 >](#)

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
5	On site	Swansea Carboniferous Coal Measures	GB41002G201000	Poor			2021

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m

0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m

0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m

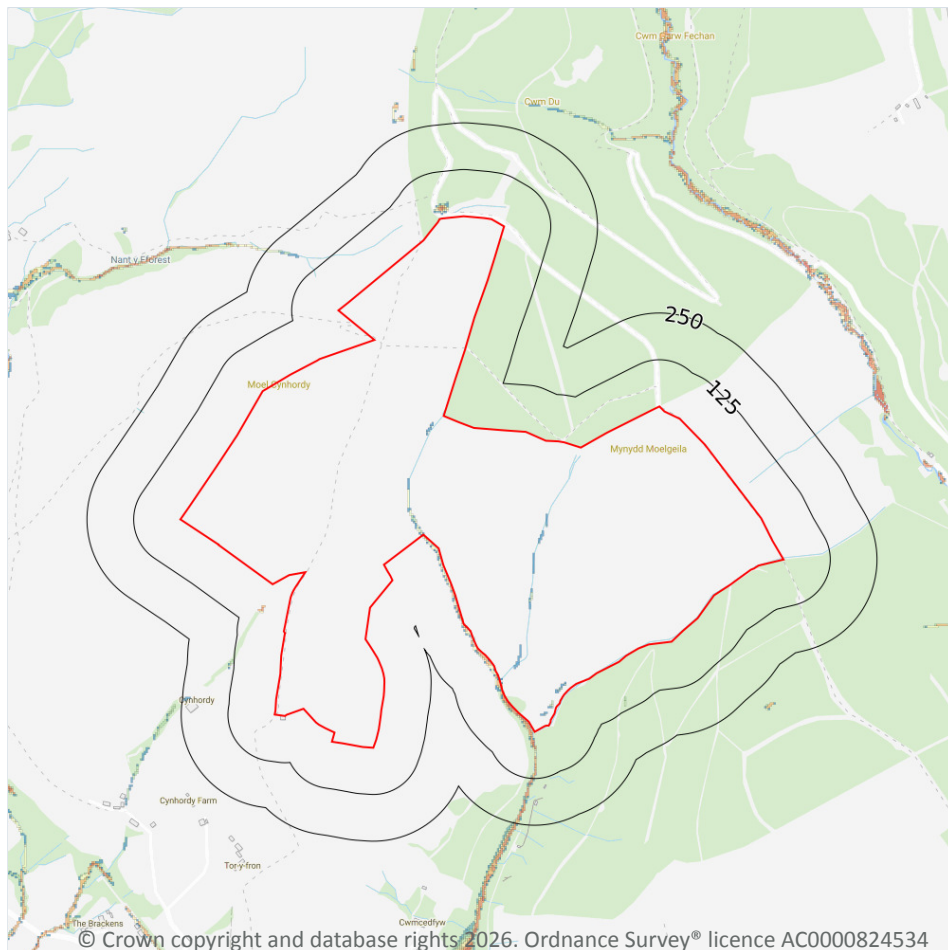
0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, Greater than 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on [page 73 >](#)

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

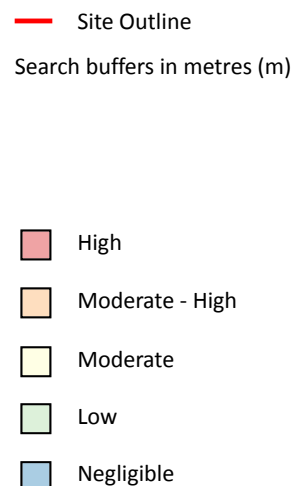
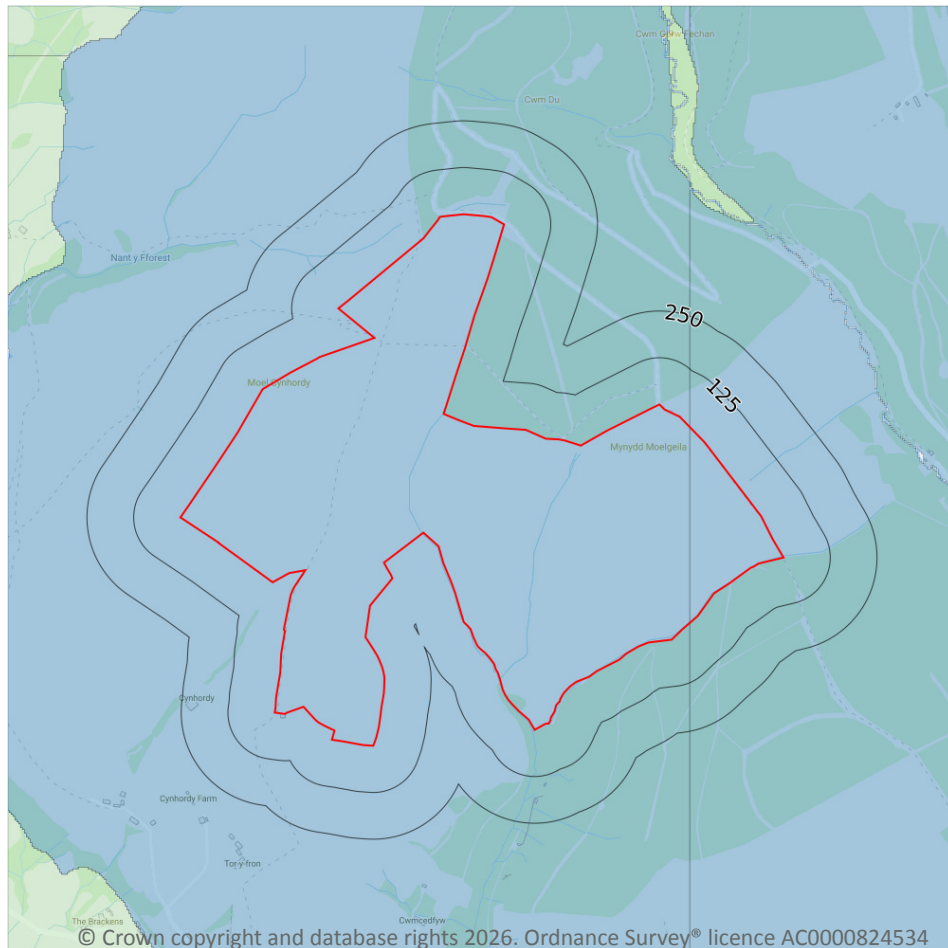
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Negligible

Highest risk within 50m

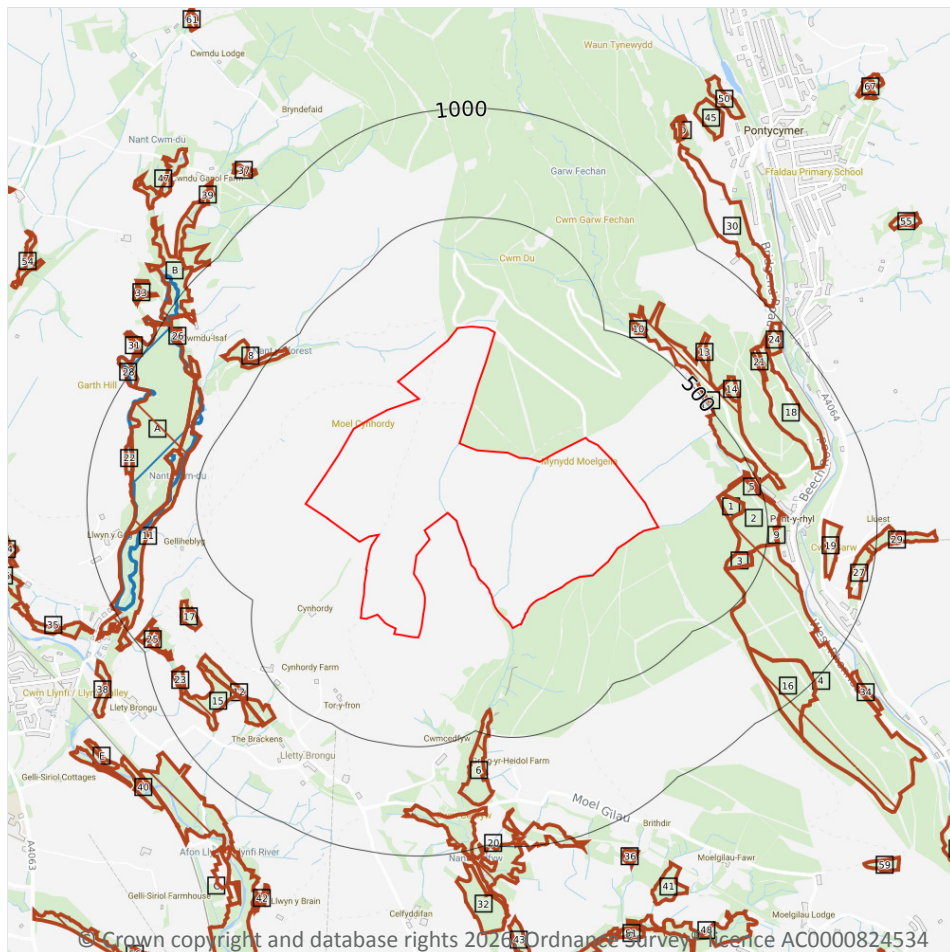
Negligible

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on [page 75 >](#)

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Sites of Special Scientific Interest (SSSI)
- Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

1

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on [page 76 >](#)

ID	Location	Name	Data source
A	581m NW	Cwm Du Woodlands	Natural Resources Wales



This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m

0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m

0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m

0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.6 Local Nature Reserves (LNR)

Records within 2000m

0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

78

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on [page 76 >](#)

ID	Location	Name	Woodland Type
1	305m NE	Unknown	Plantation on Ancient Woodland Site
2	331m E	Unknown	Plantation on Ancient Woodland Site
3	352m SE	Unknown	Ancient Semi Natural Woodland
4	363m SE	Unknown	Plantation on Ancient Woodland Site
5	365m NE	Unknown	Plantation on Ancient Woodland Site
6	390m S	Unknown	Ancient Semi Natural Woodland
7	433m NE	Unknown	Plantation on Ancient Woodland Site
8	458m NW	Unknown	Ancient Semi Natural Woodland
9	531m E	Unknown	Ancient Woodland Site of Unknown Category
10	532m NE	Unknown	Ancient Woodland Site of Unknown Category
11	571m NW	Unknown	Ancient Semi Natural Woodland
12	581m SW	Unknown	Ancient Semi Natural Woodland
13	602m NE	Unknown	Ancient Woodland Site of Unknown Category
14	603m NE	Unknown	Ancient Woodland Site of Unknown Category
A	623m W	Unknown	Ancient Semi Natural Woodland
15	650m SW	Unknown	Ancient Semi Natural Woodland



ID	Location	Name	Woodland Type
16	689m SE	Unknown	Plantation on Ancient Woodland Site
17	701m SW	Unknown	Ancient Semi Natural Woodland
18	703m NE	Unknown	Plantation on Ancient Woodland Site
19	756m E	Unknown	Plantation on Ancient Woodland Site
20	768m S	Unknown	Ancient Semi Natural Woodland
21	770m NE	Unknown	Plantation on Ancient Woodland Site
22	806m W	Unknown	Ancient Semi Natural Woodland
23	842m W	Unknown	Ancient Semi Natural Woodland
24	866m NE	Unknown	Ancient Semi Natural Woodland
25	873m SW	Unknown	Ancient Semi Natural Woodland
26	880m NW	Unknown	Ancient Semi Natural Woodland
B	880m NW	Unknown	Ancient Semi Natural Woodland
27	904m E	Unknown	Plantation on Ancient Woodland Site
28	945m NW	Unknown	Ancient Semi Natural Woodland
29	948m E	Unknown	Ancient Semi Natural Woodland
30	999m NE	Unknown	Plantation on Ancient Woodland Site
B	1001m NW	Unknown	Plantation on Ancient Woodland Site
31	1006m NW	Unknown	Ancient Semi Natural Woodland
C	1040m SW	Unknown	Ancient Semi Natural Woodland
32	1060m S	Unknown	Ancient Semi Natural Woodland
33	1088m NW	Unknown	Ancient Semi Natural Woodland
34	1110m SE	Unknown	Ancient Semi Natural Woodland
35	1134m SW	Unknown	Ancient Semi Natural Woodland
36	1135m SE	Unknown	Ancient Semi Natural Woodland
37	1147m NW	Unknown	Ancient Semi Natural Woodland
38	1180m W	Unknown	Ancient Semi Natural Woodland
39	1189m NW	Unknown	Plantation on Ancient Woodland Site
D	1215m NE	Unknown	Plantation on Ancient Woodland Site



ID	Location	Name	Woodland Type
D	1217m NE	Unknown	Restored Ancient Woodland Site
C	1225m SW	Unknown	Ancient Woodland Site of Unknown Category
40	1235m SW	Unknown	Ancient Semi Natural Woodland
41	1287m SE	Unknown	Ancient Semi Natural Woodland
42	1288m SW	Unknown	Ancient Semi Natural Woodland
E	1298m SW	Unknown	Ancient Semi Natural Woodland
E	1299m SW	Unknown	Ancient Semi Natural Woodland
43	1326m S	Unknown	Ancient Semi Natural Woodland
C	1331m SW	Unknown	Ancient Woodland Site of Unknown Category
44	1333m W	Unknown	Ancient Semi Natural Woodland
45	1340m NE	Unknown	Plantation on Ancient Woodland Site
46	1346m W	Unknown	Ancient Semi Natural Woodland
47	1358m NW	Unknown	Ancient Semi Natural Woodland
48	1437m S	Unknown	Ancient Semi Natural Woodland
49	1451m S	Unknown	Ancient Semi Natural Woodland
50	1466m NE	Unknown	Ancient Semi Natural Woodland
51	1467m S	Unknown	Ancient Semi Natural Woodland
-	1541m W	Unknown	Ancient Semi Natural Woodland
-	1573m S	Unknown	Ancient Semi Natural Woodland
54	1610m NW	Unknown	Ancient Semi Natural Woodland
55	1664m NE	Unknown	Ancient Semi Natural Woodland
56	1698m SW	Unknown	Ancient Semi Natural Woodland
-	1708m W	Unknown	Ancient Semi Natural Woodland
-	1764m W	Unknown	Restored Ancient Woodland Site
59	1804m SE	Unknown	Ancient Semi Natural Woodland
-	1819m W	Unknown	Ancient Semi Natural Woodland
61	1819m NW	Unknown	Ancient Semi Natural Woodland
-	1821m S	Unknown	Ancient Semi Natural Woodland



ID	Location	Name	Woodland Type
-	1878m SW	Unknown	Ancient Semi Natural Woodland
64	1880m SE	Unknown	Plantation on Ancient Woodland Site
-	1902m SW	Unknown	Ancient Semi Natural Woodland
66	1902m NW	Unknown	Ancient Semi Natural Woodland
67	1981m NE	Unknown	Ancient Semi Natural Woodland
-	1995m S	Unknown	Ancient Semi Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m

0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.11 Green Belt

Records within 2000m

0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m

0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was



closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site

0

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

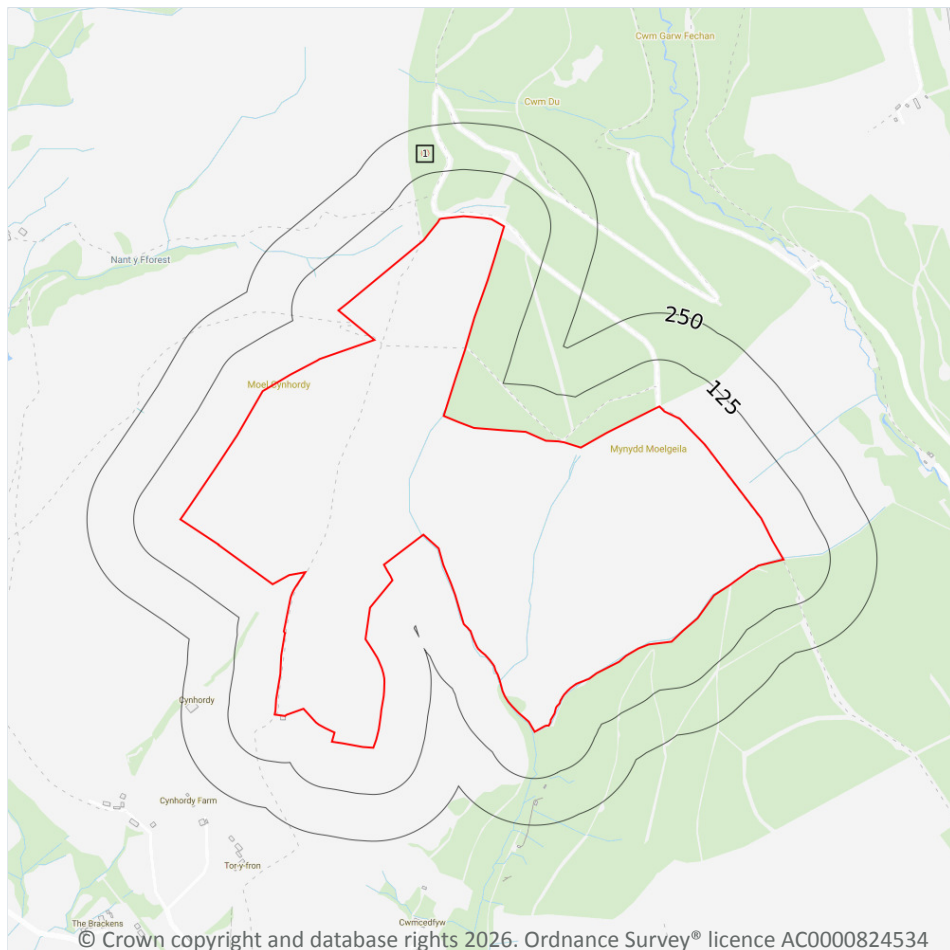
0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

1

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

Features are displayed on the Visual and cultural designations map on [page 85 >](#)

ID	Location	Ancient monument name	Reference number
1	170m N	Croes y Bwlchwyn Round Cairn	3112

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

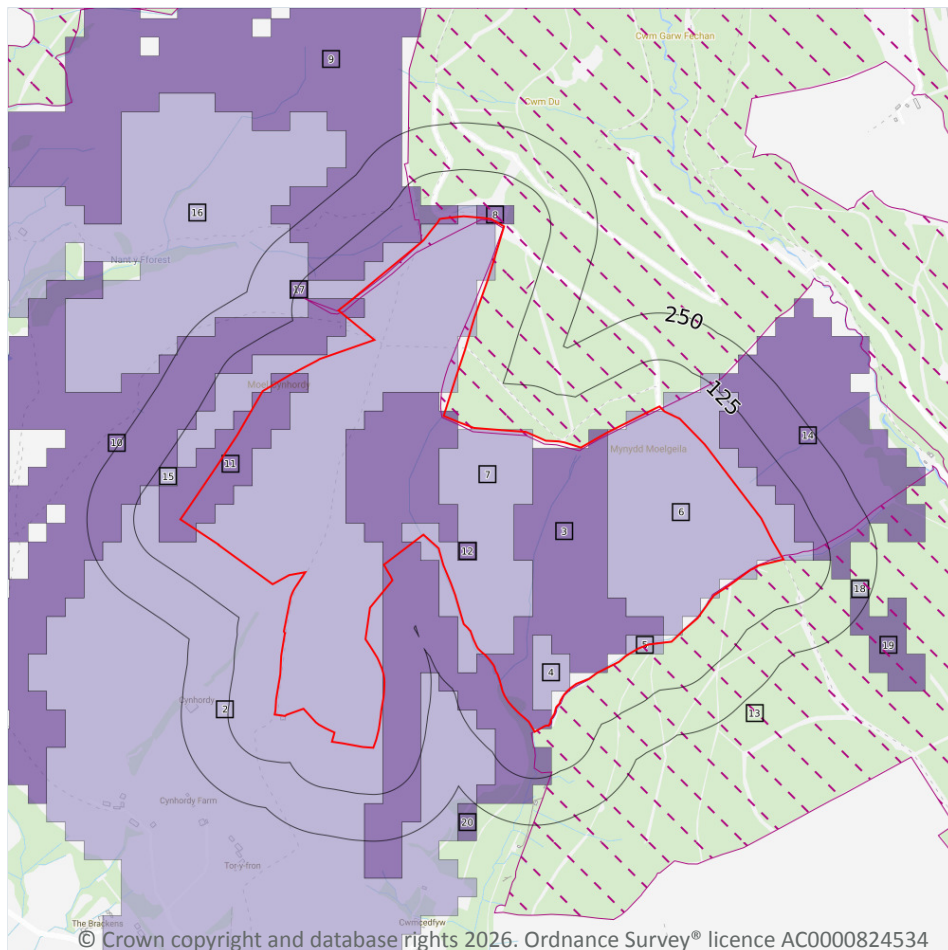
0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

18

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on [page 88](#) >

ID	Location	Classification	Description
2	On site	Grade 4	Poor quality agricultural land
3	On site	Grade 5	Very poor quality agricultural land
4	On site	Grade 4	Poor quality agricultural land



ID	Location	Classification	Description
5	On site	Grade 4	Poor quality agricultural land
6	On site	Grade 4	Poor quality agricultural land
7	On site	Grade 4	Poor quality agricultural land
8	On site	Grade 5	Very poor quality agricultural land
9	On site	Grade 5	Very poor quality agricultural land
10	On site	Grade 5	Very poor quality agricultural land
11	On site	Grade 5	Very poor quality agricultural land
12	On site	Grade 5	Very poor quality agricultural land
14	25m NE	Grade 5	Very poor quality agricultural land
15	57m NW	Grade 4	Poor quality agricultural land
16	80m W	Grade 4	Poor quality agricultural land
17	86m W	Grade 5	Very poor quality agricultural land
18	186m E	Grade 4	Poor quality agricultural land
19	206m SE	Grade 5	Very poor quality agricultural land
20	247m SW	Grade 5	Very poor quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m

2

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

Features are displayed on the Agricultural designations map on [page 88](#) >

ID	Location	Name	Classification	Other relevant legislation
13	On site	-	NRW Public Forest 2014	-
A	On site	-	NRW Public Forest 2014	-

This data is sourced from Natural England and Natural Resources Wales.



12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.



13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m

0

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

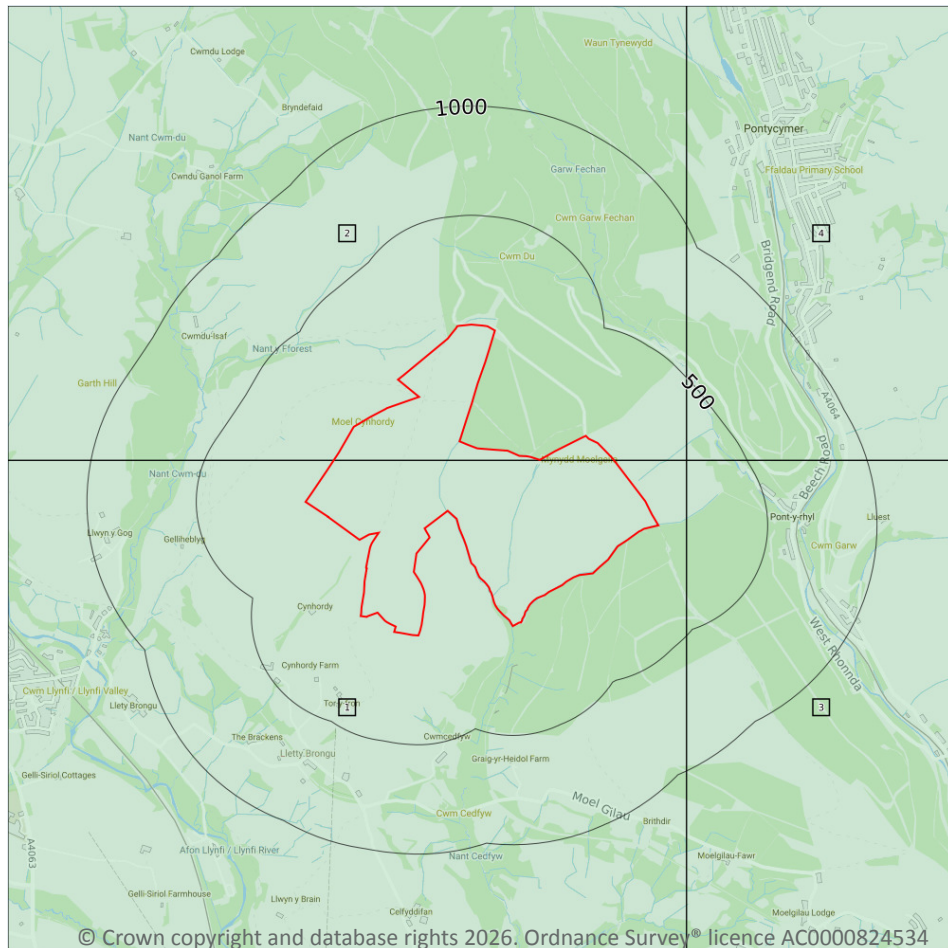
0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

4

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 92](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SS88NE
2	On site	No coverage	Full	Full	Full	SS89SE
3	129m E	Full	Full	Full	Full	SS98NW
4	264m NE	No coverage	Full	Full	Full	SS99SW



This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m

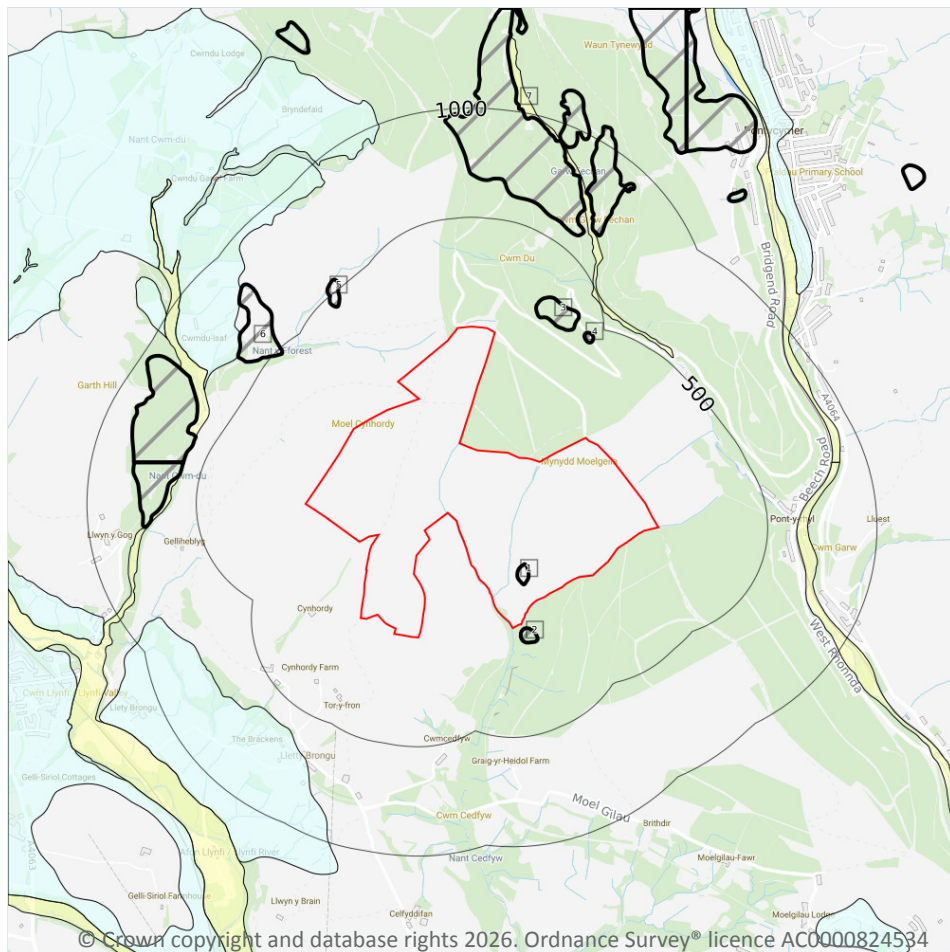
0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (10k)
- Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

1

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 95](#) >

ID	Location	LEX Code	Description	Rock description
7	477m E	ALV-XCZSV	Alluvium-Clay, Silt, Sand And Gravel	Clay, silt, sand and gravel

This data is sourced from the British Geological Survey.



14.4 Landslip (10k)

Records within 500m

6

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

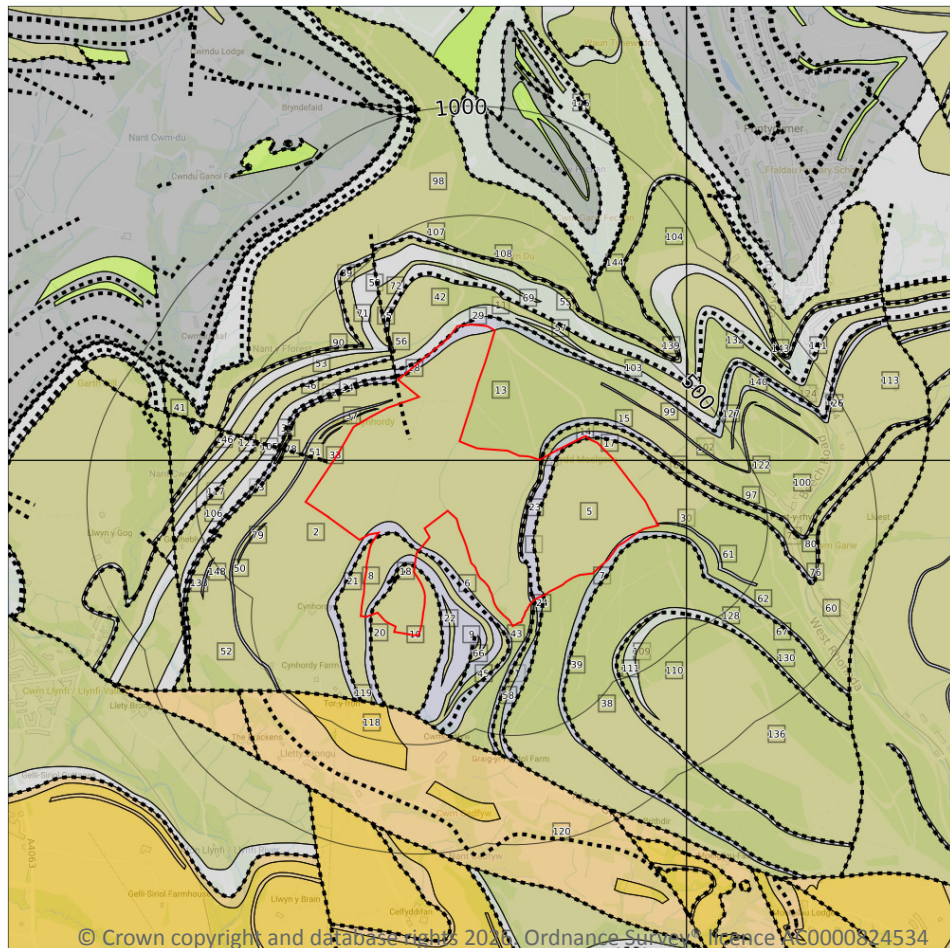
Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 95](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
2	24m SE	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
3	213m NE	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
4	410m E	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
5	440m NW	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
6	475m NW	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m

96

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 97](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
2	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
3	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
4	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian



ID	Location	LEX Code	Description	Rock age
5	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
6	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
7	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
8	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
9	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
10	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
11	On site	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
12	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
13	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
14	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
15	On site	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
16	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
17	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
30	2m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
32	9m W	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
35	16m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
37	17m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
38	23m SE	BD-SDST	Brithdir Member-Sandstone	Westphalian
40	24m N	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
42	43m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
44	49m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
45	51m SW	RA-SDST	Rhondda Member-Sandstone	Westphalian
46	52m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
47	81m E	RA-SDST	Rhondda Member-Sandstone	Westphalian
48	90m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
50	93m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
51	104m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
52	104m NW	RA-SDST	Rhondda Member-Sandstone	Westphalian



ID	Location	LEX Code	Description	Rock age
53	105m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
54	113m NW	RA-SDST	Rhondda Member-Sandstone	Westphalian
55	113m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
57	115m NE	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
59	124m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
60	129m E	RA-SDST	Rhondda Member-Sandstone	Westphalian
61	129m E	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
62	139m E	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
63	140m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
65	144m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
67	147m SE	BD-SDST	Brithdir Member-Sandstone	Westphalian
70	160m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
71	182m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
72	196m NE	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
73	203m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
75	204m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
78	204m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
79	206m SW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
80	210m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
81	210m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
83	211m NW	RA-SDST	Rhondda Member-Sandstone	Westphalian
84	212m NW	RA-SDST	Rhondda Member-Sandstone	Westphalian
87	220m NW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
88	223m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
89	223m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
91	227m NW	RA-SDST	Rhondda Member-Sandstone	Westphalian
92	229m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
95	232m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian



ID	Location	LEX Code	Description	Rock age
96	235m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
98	240m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
99	241m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
100	241m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
102	264m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
104	272m NE	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
105	285m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
106	286m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
107	294m NE	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
109	303m SE	BD-MDSS	Brithdir Member-Mudstone, Siltstone And Sandstone	Westphalian
110	321m SE	BD-SDST	Brithdir Member-Sandstone	Westphalian
112	324m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
113	332m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
114	333m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
117	338m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
118	339m S	H-SDST	Hughes Member-Sandstone	Westphalian
120	340m S	H-MDSS	Hughes Member-Mudstone, Siltstone And Sandstone	Westphalian
121	367m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
122	377m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
123	380m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
124	389m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
125	391m NE	RA-SDST	Rhondda Member-Sandstone	Westphalian
126	401m NE	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
128	402m S	BD-MDSS	Brithdir Member-Mudstone, Siltstone And Sandstone	Westphalian
131	429m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
132	431m NE	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
133	431m W	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
136	443m S	BD-SDST	Brithdir Member-Sandstone	Westphalian



ID	Location	LEX Code	Description	Rock age
137	446m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
138	452m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
140	463m NE	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian
141	476m NE	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
142	480m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
145	486m NE	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
146	490m NW	LLFB-MDSS	Llynfi Member-Mudstone, Siltstone And Sandstone	Westphalian
148	494m SW	RA-MDSS	Rhondda Member-Mudstone, Siltstone And Sandstone	Westphalian

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

52

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 97 >](#)

ID	Location	Category	Description
18	On site	FAULT	Fault, inferred, displacement unknown
19	On site	FAULT	Fault, inferred, displacement unknown
20	On site	ROCK	Coal seam, inferred
21	On site	ROCK	Coal seam, inferred
22	On site	ROCK	Coal seam, inferred
23	On site	ROCK	Coal seam, observed
24	On site	ROCK	Coal seam, inferred
25	On site	ROCK	Coal seam, inferred
26	On site	ROCK	Coal seam, inferred
27	On site	ROCK	Coal seam, observed
28	On site	ROCK	Coal seam, inferred
29	On site	ROCK	Coal seam, inferred



ID	Location	Category	Description
31	8m NW	ROCK	Coal seam, inferred
33	11m NW	FAULT	Fault, inferred, displacement unknown
34	13m SW	ROCK	Coal seam, inferred
36	16m NW	ROCK	Coal seam, inferred
39	23m SE	ROCK	Coal seam, inferred
41	41m NW	FAULT	Fault, inferred, displacement unknown
43	44m SE	ROCK	Coal seam, observed
49	90m NW	ROCK	Coal seam, inferred
56	113m NW	ROCK	Coal seam, observed
58	121m S	ROCK	Coal seam, observed
64	140m NE	ROCK	Coal seam, inferred
66	145m SW	FAULT	Fault, inferred, displacement unknown
68	147m SE	ROCK	Coal seam, inferred
69	154m NE	ROCK	Coal seam, inferred
74	203m NW	ROCK	Coal seam, inferred
76	204m NE	ROCK	Coal seam, inferred
77	204m NW	ROCK	Coal seam, inferred
82	210m NE	ROCK	Coal seam, inferred
85	212m NE	ROCK	Coal seam, observed
86	219m NW	ROCK	Coal seam, observed
90	223m NW	ROCK	Coal seam, inferred
93	229m NW	ROCK	Coal seam, inferred
94	232m NW	ROCK	Coal seam, inferred
97	235m NE	ROCK	Coal seam, observed
101	242m NW	ROCK	Coal seam, observed
103	272m E	ROCK	Coal seam, observed
108	294m NE	ROCK	Coal seam, inferred
111	321m SE	ROCK	Coal seam, inferred



ID	Location	Category	Description
115	333m NW	ROCK	Coal seam, inferred
116	338m NW	ROCK	Coal seam, inferred
119	339m S	FAULT	Fault, inferred, displacement unknown
127	401m NE	ROCK	Coal seam, observed
129	414m SW	FAULT	Fault, inferred, displacement unknown
130	426m S	ROCK	Coal seam, inferred
134	431m W	ROCK	Coal seam, inferred
135	440m W	ROCK	Coal seam, inferred
139	461m E	ROCK	Coal seam, observed
143	486m NE	ROCK	Coal seam, inferred
144	486m NE	ROCK	Coal seam, inferred
147	490m NW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



The map displays the Moel Cynhorby area in North Wales. A red boundary outlines a specific area, and a black box with the number '1' is placed within it. The map includes various geographical features like hills, valleys, and rivers, as well as place names and infrastructure. The 1000m and 500m contour lines are clearly marked. The map is sourced from Ordnance Survey, with a copyright notice at the bottom: "© Crown copyright and database rights 2026. Ordnance Survey® licence AC0000824534".

☐ Geological map tile

104

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m

0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

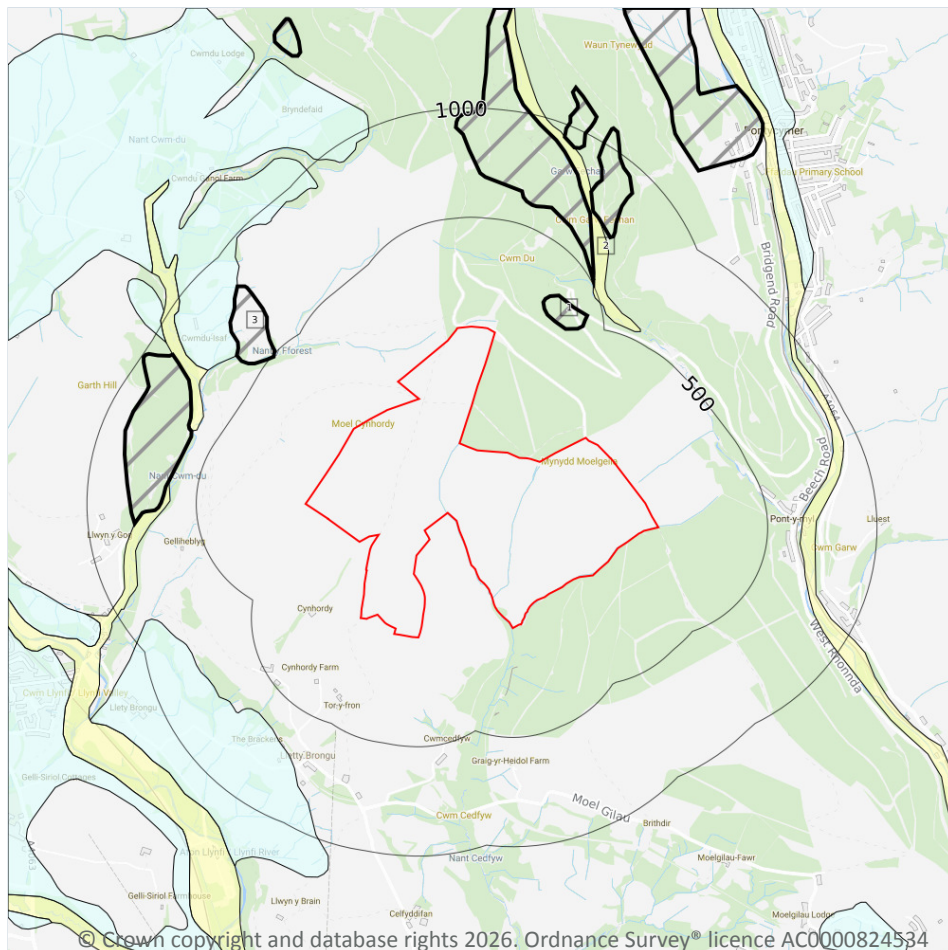
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (50k)
- Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

1

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 106](#) >

ID	Location	LEX Code	Description	Rock description
2	485m E	ALV-XCZSV	Alluvium	Clay, silt, sand and gravel

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**2**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 106 >](#)

ID	Location	LEX Code	Description	Rock description
1	251m NE	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry
3	493m NW	SLIP-UNKNOWN	Landslide deposits	Unknown/unclassified entry

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

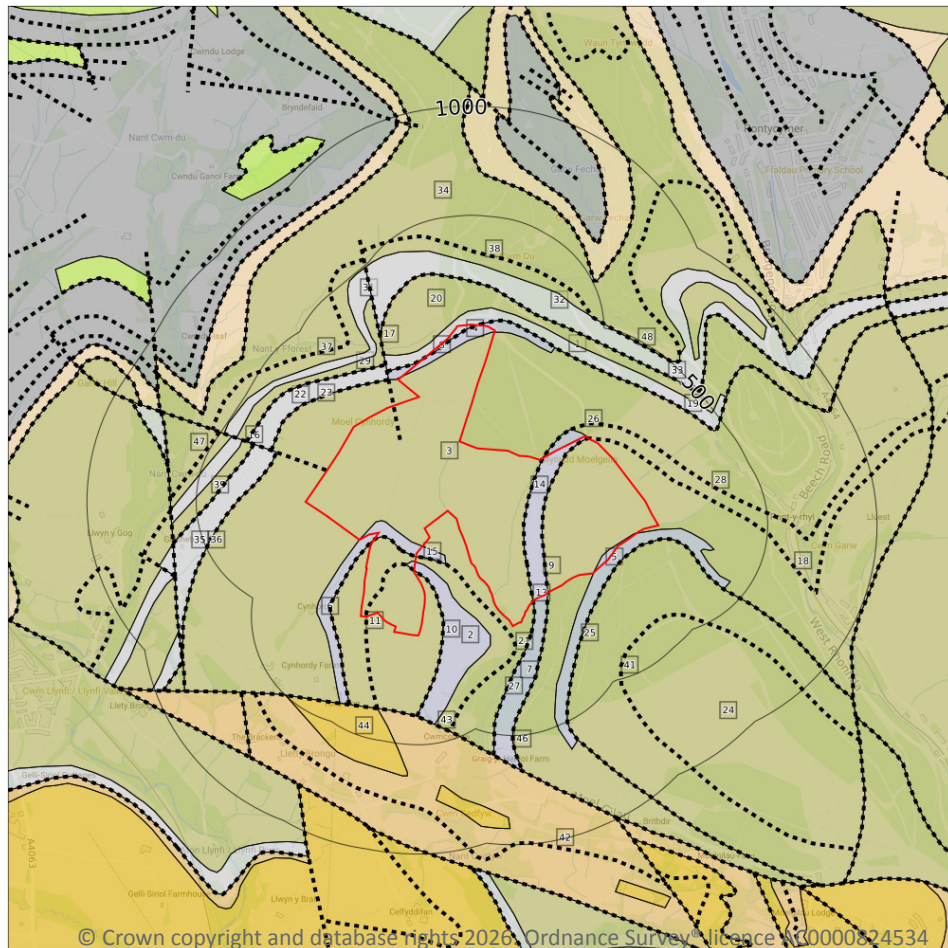
Records within 50m**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

20

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 108](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
2	On site	RA-MDSS	Rhondda Member-Mudstone, siltstone and sandstone	Westphalian
3	On site	RA-SDST	Rhondda Member-Sandstone	Westphalian
4	On site	RA-MDSS	Rhondda Member-Mudstone, siltstone and sandstone	Westphalian



ID	Location	LEX Code	Description	Rock age
5	On site	RA-MDSS	Rhondda Member-Mudstone, siltstone and sandstone	Westphalian
6	On site	RA-MDSS	Rhondda Member-Mudstone, siltstone and sandstone	Westphalian
7	On site	RA-MDSS	Rhondda Member-Mudstone, siltstone and sandstone	Westphalian
20	28m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
22	43m W	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
24	48m SE	BD-SDST	Brithdir Member-Sandstone	Westphalian
29	88m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
31	154m NW	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
32	161m NE	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
34	190m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
35	228m NW	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
39	340m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian
42	356m S	H-MDSS	Hughes Member-Mudstone, siltstone and sandstone	Westphalian
44	359m S	H-SDST	Hughes Member-Sandstone	Westphalian
45	391m NW	LLFB-MDSS	Llynfi Member-Mudstone, siltstone and sandstone	Westphalian
47	448m NW	LLFB-SDST	Llynfi Member-Sandstone	Westphalian

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

12

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low



Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate
28m NW	Fracture	High	Moderate
48m SE	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

28

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 108 >](#)

ID	Location	Category	Description
8	On site	ROCK	Coal seam, inferred
9	On site	ROCK	Coal seam, inferred
10	On site	ROCK	Coal seam, inferred
11	On site	ROCK	Coal seam, inferred
12	On site	ROCK	Coal seam, inferred
13	On site	ROCK	Coal seam, inferred
14	On site	ROCK	Coal seam, observed
15	On site	ROCK	Coal seam, observed
16	On site	FAULT	Fault, inferred, displacement unknown
17	On site	FAULT	Fault, inferred, displacement unknown
18	4m NE	ROCK	Coal seam, inferred
19	7m N	ROCK	Coal seam, observed
21	32m SW	ROCK	Coal seam, observed



ID	Location	Category	Description
23	43m W	ROCK	Coal seam, inferred
25	48m SE	ROCK	Coal seam, inferred
26	49m N	ROCK	Coal seam, inferred
27	67m SE	ROCK	Coal seam, observed
28	81m NE	ROCK	Coal seam, observed
30	88m NW	ROCK	Coal seam, inferred
33	161m NE	ROCK	Coal seam, inferred
36	228m NW	ROCK	Coal seam, inferred
37	284m NW	ROCK	Coal seam, inferred
38	316m N	ROCK	Coal seam, inferred
40	340m NW	ROCK	Coal seam, inferred
41	353m SE	ROCK	Coal seam, inferred
43	356m S	FAULT	Fault, inferred, displacement unknown
46	418m S	ROCK	Coal seam, observed
48	452m E	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes

16.1 BGS Boreholes

Records within 250m

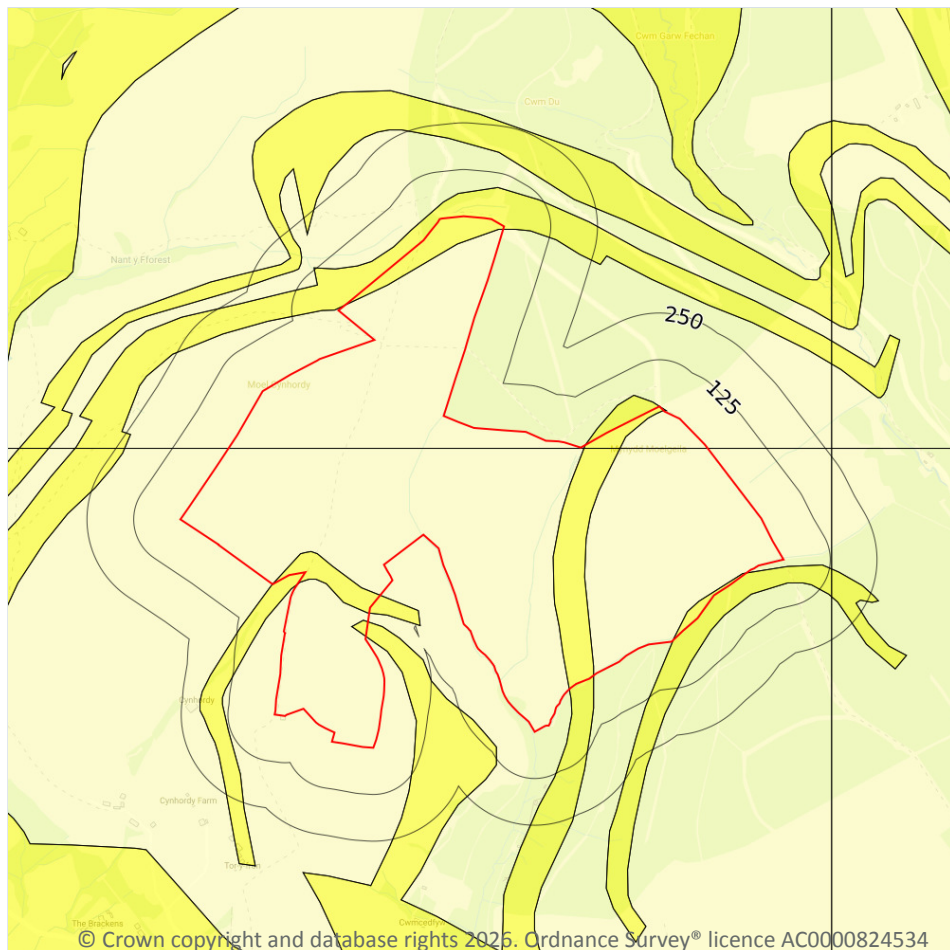
0

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

3

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 113](#) >

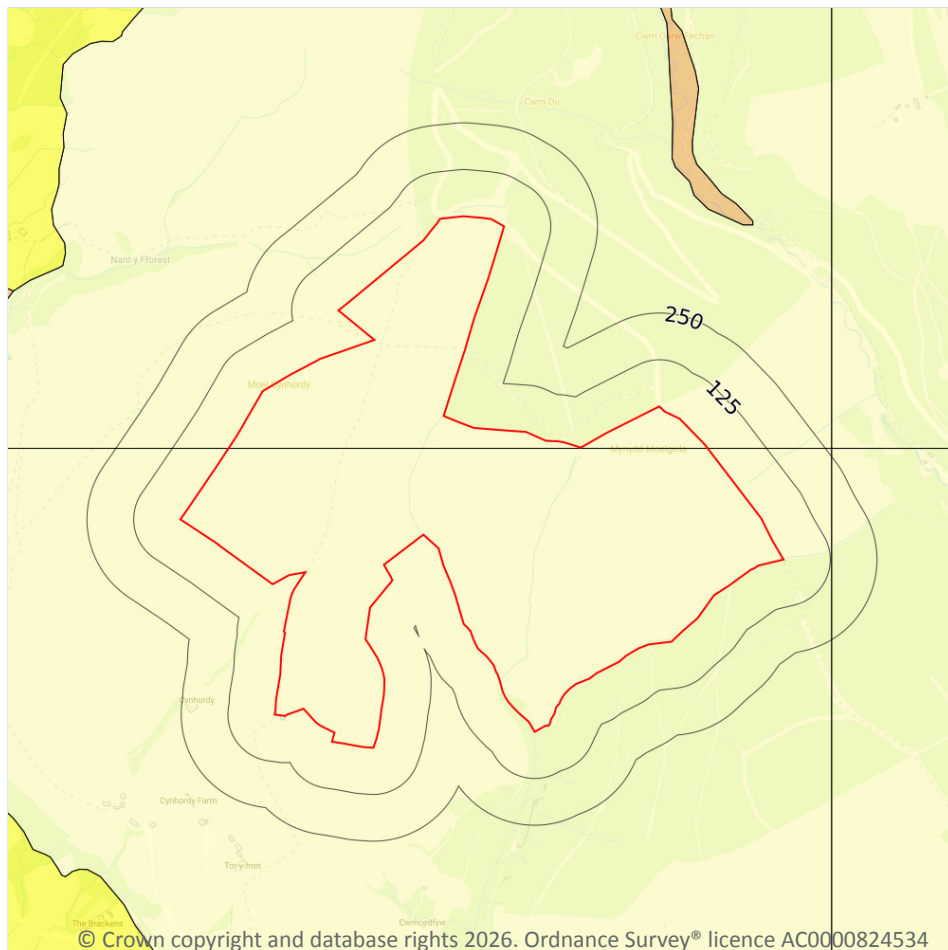
Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Very low	Ground conditions predominantly low plasticity.
28m NW	Negligible	Ground conditions predominantly non-plastic.



This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



— Site Outline

Search buffers in metres (m)

-  No data
 Negligible
 Very low
 Low
 Moderate
 High

17.2 Running sands

Records within 50m

1

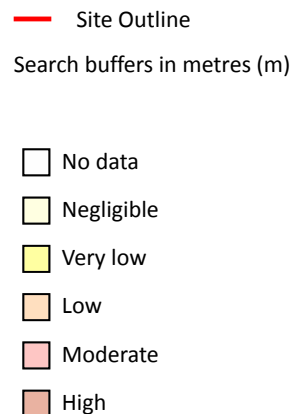
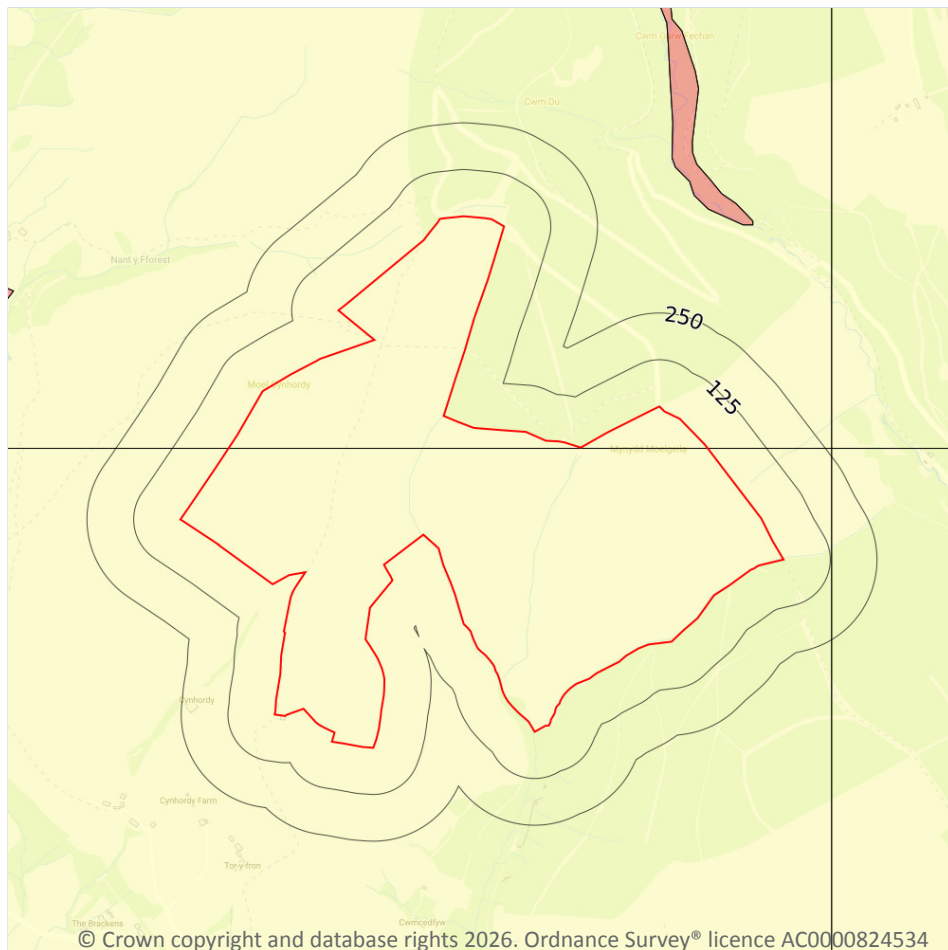
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on [page 115 >](#)

Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

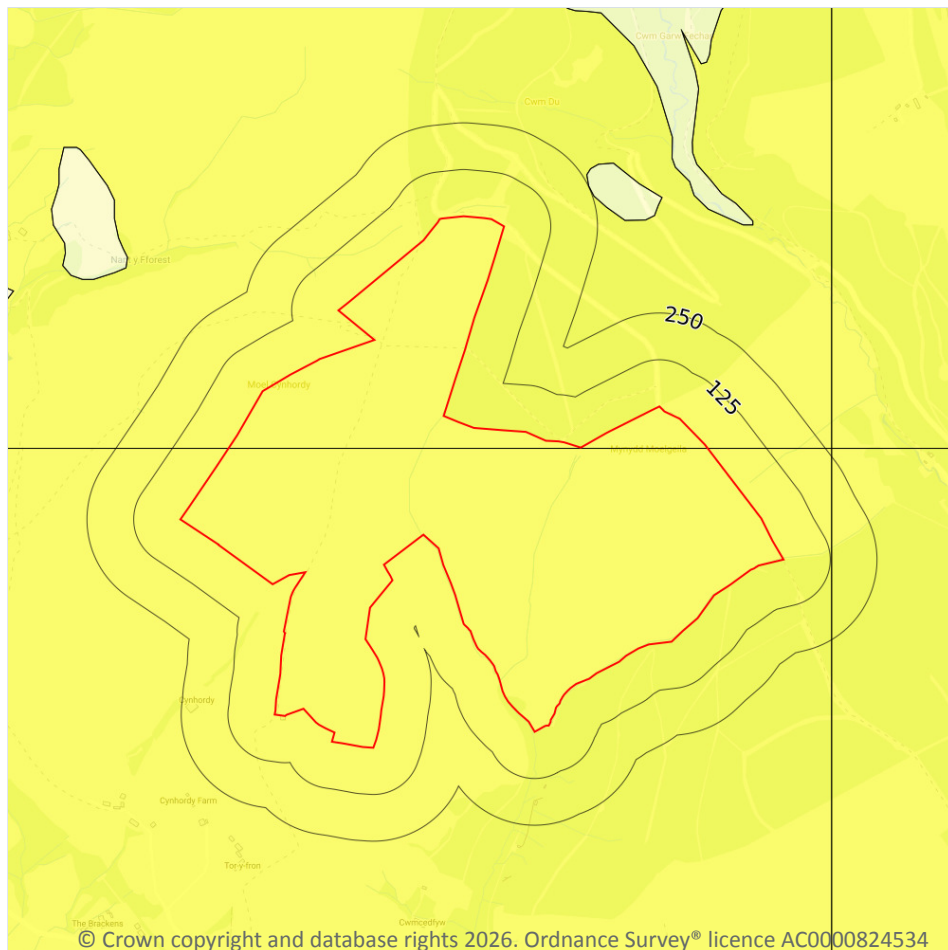
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 116](#) >

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

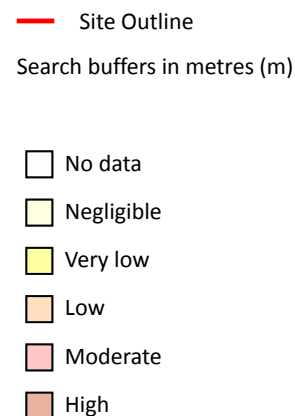
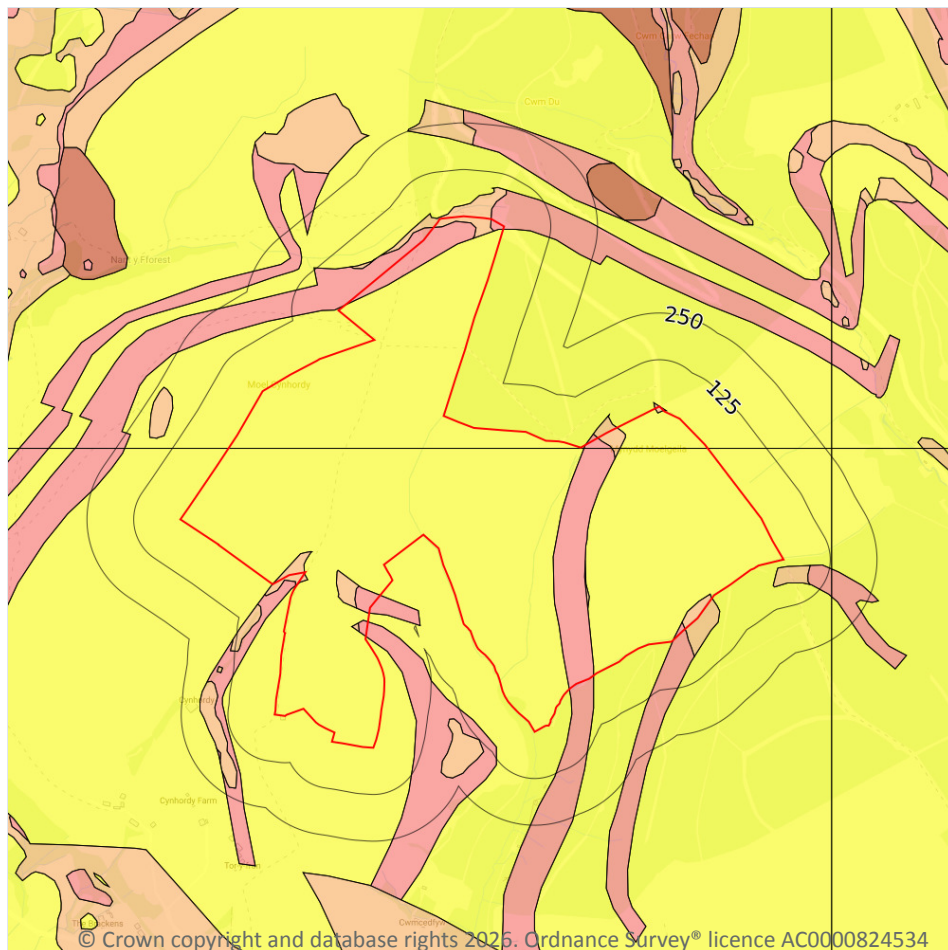
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 117 >](#)

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



17.5 Landslides

Records within 50m

7

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on [page 118](#) >

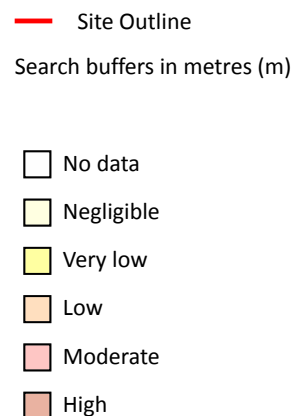
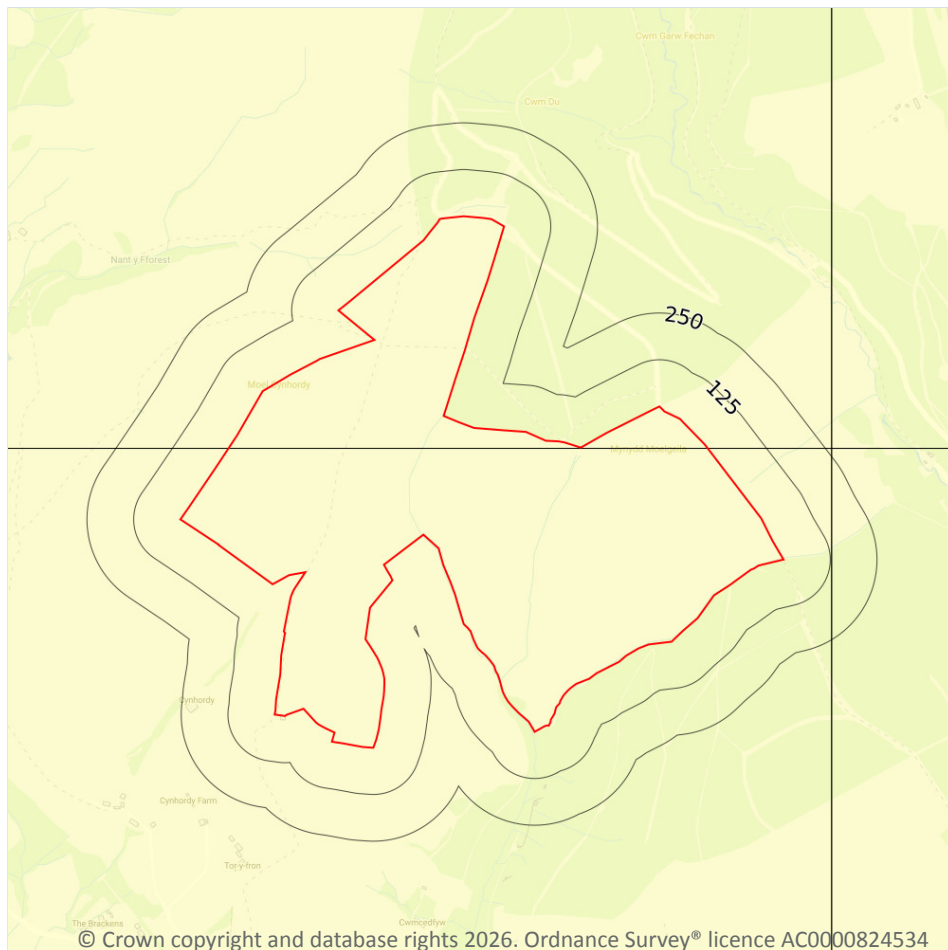
Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

Location	Hazard rating	Details
On site	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.
On site	Moderate	Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.
2m NW	Moderate	Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.
5m N	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.
19m S	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.
43m NW	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 120](#) >

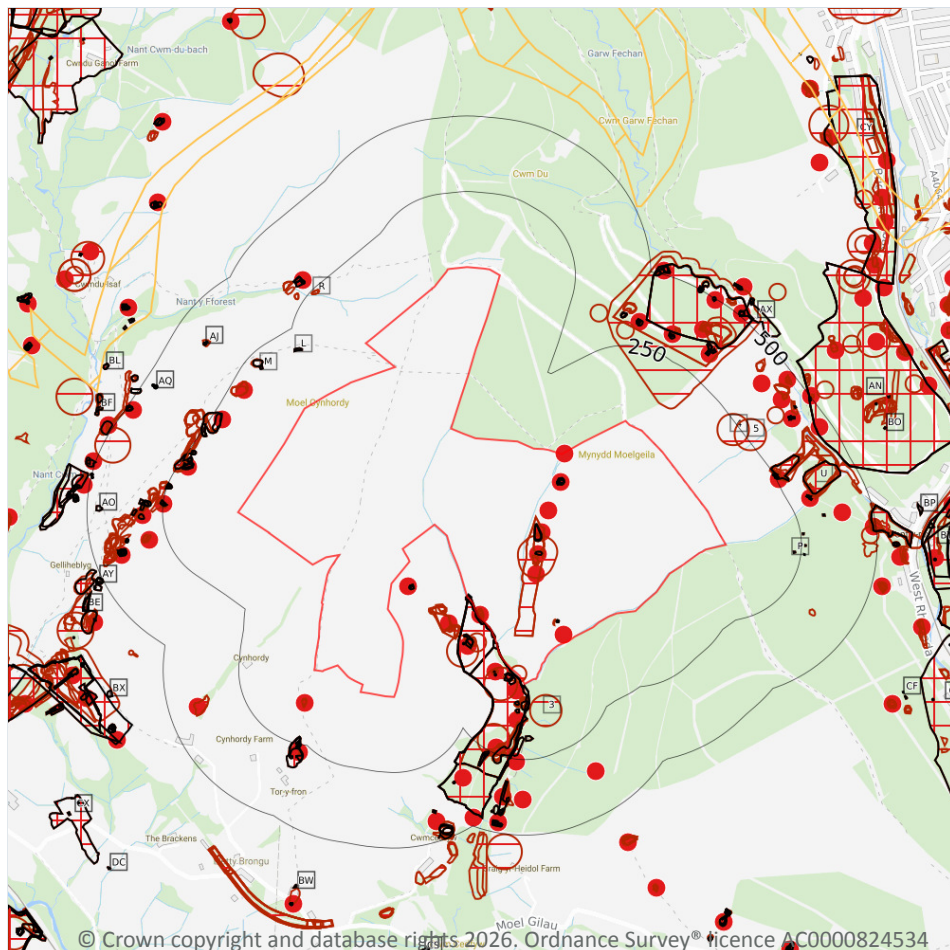
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 Mining and ground workings



- Site Outline
- Search buffers in metres (m)
- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining
- Non Coal Mining
 - Sporadic underground mining of restricted extent possible
 - Localised small scale underground mining possible
 - Small scale mining possible
 - Underground mining known or likely within or in close proximity
 - Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m

69

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on [page 122](#) >



ID	Location	Details	Description
1	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
2	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
A	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
B	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
B	On site	Name: New Mountain Level Address: Bettws, BRIDGEND, Mid Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
B	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
B	On site	Name: Mynydd Moel-gilau Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
C	On site	Name: Mynydd Moel-gilau Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
D	On site	Name: Mynydd Moelgilau Address: PONTYCYMER, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
H	5m SW	Name: Cwm Rhondda No 2 Colliery Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	35m SW	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	46m SW	Name: West Rhondda Colliery Air Shaft Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
I	48m SE	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	50m SW	Name: West Rhondda Colliery Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
F	73m W	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
G	75m S	Name: West Rhondda Colliery Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
F	90m SW	Name: West Rhondda Colliery Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
F	97m SW	Name: West Rhondda Colliery Air Shaft Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
F	99m SW	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
J	113m S	Name: Cynnhordy Address: MAESTEG, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
F	118m W	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
G	122m S	Name: West Rhondda Colliery Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	165m S	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	177m S	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
N	205m NW	Name: Moel Cynnhordy Address: Garth, MAESTEG, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
O	216m NW	Name: Moel Cynnhordy Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
O	221m NW	Name: Craig Ty'n-y-Daren Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
G	229m SW	Name: West Rhondda Colliery Trial Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
O	229m NW	Name: Craig Ty'n-y-Daren Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
O	247m NW	Name: Moel Cynnhordy Address: MAESTEG, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
S	247m W	Name: Craig Ty'n-y-Daren Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
T	258m NE	Name: Garw Fechan Level No 1 Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
6	259m S	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
Q	276m S	Name: Tor-y-fron Uchaf Address: Pont Rhyd-y-Cyff, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
V	295m NW	Name: Nant y Fforest Address: MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
S	296m W	Name: Craig Gelli-heblyg Address: Pont Rhyd-y-Cyff, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
X	306m W	Name: Craig Gelli-heblyg Address: Pont Rhyd-y-Cyff, MAESTEG, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
S	317m W	Name: Craig Gelli-heblyg Address: Pont Rhyd-y-Cyff, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
Y	317m NE	Name: Cwm Garw Fechan Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
K	327m NE	Name: Gwar-fechan Colliery Address: PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
Z	332m N	Name: Gwar-fechan Colliery Address: PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AB	338m NE	Name: Garw-fechan Colliery, Air Shaft Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
W	352m N	Name: Gwar-fechan Colliery Address: PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AE	353m SE	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AB	355m NE	Name: Garw-fechan Colliery, Level No. 2 Address: PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AH	364m SE	Name: Craig yr Hudol Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AH	365m SE	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AH	373m SE	Name: Craig yr Hudol Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AA	380m S	Name: Celtic Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AA	381m S	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AI	392m NE	Name: Graig Ddu Address: PONTYCYMER, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
9	400m NE	Name: West Rhondda No. 2 Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
10	400m E	Name: Cwm Garw Fechan Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AG	403m W	Name: Cynnhordy Address: MAESTEG, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AF	408m NE	Name: Graig Ddu Air Shaft Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AD	410m W	Name: Craig Gelli-heblyg Address: Pont Rhyd-y-Cyff, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AF	417m NE	Name: West Rhondda Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AA	425m S	Name: Celtic Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AK	435m S	Name: West Rhondda Colliery Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AF	436m NE	Name: Graig Ddu Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
13	462m NE	Name: Tynewydd Quarry Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AA	466m S	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
15	473m S	Name: Nant Cedfyw Level Address: Bettws, BRIDGEND, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AF	474m NE	Name: Graig Ddu Quarry Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AF	474m NE	Name: Rhyl Trial Levels Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AR	479m NW	Name: Craig Ty'n-y-Daren Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.



ID	Location	Details	Description
AP	492m E	Name: Cwm Garw Fechan Level Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AR	495m NW	Name: Craig Ty'n-y-Daren Address: Garth, MAESTEG, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AU	496m NE	Name: Garw-fechan Colliery, Air Shaft Address: Cwm Garw Fechan, PONTYCYMER, Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed 'Quarry' or 'Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.



18.2 Surface ground workings

Records within 250m

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Historical land uses identified from Ordnance Survey® mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on [page 122](#) >

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Trial Level	1876	1:10560
A	On site	Unspecified Ground Workings	1876	1:10560
B	On site	Unspecified Heap	1970	1:10560
B	On site	Unspecified Heap	1970	1:10560
B	On site	Unspecified Level	1948	1:10560
B	On site	Unspecified Heap	1948	1:10560
B	On site	Unspecified Old Level	1948	1:10560
B	On site	Unspecified Level	1948	1:10560
B	On site	Unspecified Level	1875	1:10560
B	On site	Unspecified Old Level	1875	1:10560
B	On site	Unspecified Heap	1875	1:10560
B	On site	Colliery	1875	1:10560
B	On site	Unspecified Level	1875	1:10560
B	On site	Unspecified Old Level	1875	1:10560
B	On site	Unspecified Heap	1875	1:10560
B	On site	Colliery	1875	1:10560
B	On site	Unspecified Old Level	1948	1:10560
B	On site	Unspecified Heap	1985	1:10000
B	On site	Unspecified Heap	1985	1:10000
C	On site	Old Trial Level	1914	1:10560
C	On site	Old Trial Level	1897	1:10560
C	On site	Unspecified Old Level	1948	1:10560
C	On site	Unspecified Old Level	1948	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
C	On site	Unspecified Old Level	1875	1:10560
C	On site	Unspecified Old Level	1875	1:10560
C	On site	Old Trial Level	1921	1:10560
D	On site	Unspecified Quarry	1948	1:10560
D	On site	Unspecified Old Quarry	1921	1:10560
D	On site	Unspecified Old Quarry	1897	1:10560
D	On site	Unspecified Old Quarry	1914	1:10560
E	On site	Colliery	1914	1:10560
E	On site	Disused Colliery	1948	1:10560
E	On site	Disused Colliery	1875	1:10560
E	On site	Disused Colliery	1875	1:10560
E	On site	Colliery	1921	1:10560
F	On site	Colliery	1948	1:10560
G	On site	Old Trial Level	1897	1:10560
G	7m SW	Unspecified Level	1914	1:10560
G	11m SW	Refuse Heap	1914	1:10560
G	14m SW	Unspecified Old Level	1948	1:10560
G	15m SW	Unspecified Level	1921	1:10560
G	16m SW	Unspecified Old Level	1948	1:10560
G	18m SW	Unspecified Old Level	1875	1:10560
G	18m SW	Unspecified Old Level	1875	1:10560
F	29m SW	Trial Level	1897	1:10560
G	37m SW	Unspecified Heap	1914	1:10560
G	42m S	Unspecified Heap	1985	1:10000
G	43m S	Unspecified Heap	1970	1:10560
G	46m S	Refuse Heap	1948	1:10560
G	47m SW	Unspecified Pit	1914	1:10560
G	49m S	Refuse Heap	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
G	51m S	Refuse Heap	1948	1:10560
I	51m SE	Unspecified Old Level	1948	1:10560
G	52m S	Refuse Heap	1875	1:10560
G	52m S	Refuse Heap	1875	1:10560
I	54m SE	Unspecified Old Level	1948	1:10560
I	54m SE	Unspecified Old Level	1875	1:10560
I	54m SE	Unspecified Old Level	1875	1:10560
3	57m S	Old Trial Levels	1914	1:10560
G	58m S	Old Trial Levels	1921	1:10560
F	60m SW	Refuse Heap	1914	1:10560
F	60m SW	Refuse Heap	1921	1:10560
G	61m S	Unspecified Old Level	1948	1:10560
F	63m SW	Unspecified Levels	1914	1:10560
G	65m S	Unspecified Pit	1948	1:10560
G	66m S	Unspecified Pit	1875	1:10560
G	66m S	Unspecified Pit	1875	1:10560
F	69m SW	Unspecified Level	1875	1:10560
F	69m SW	Unspecified Level	1875	1:10560
F	69m SW	Unspecified Level	1948	1:10560
F	70m SW	Unspecified Level	1948	1:10560
F	70m SW	Unspecified Heap	1970	1:10560
F	70m SW	Unspecified Heap	1985	1:10000
F	74m SW	Unspecified Ground Workings	1948	1:10560
F	76m SW	Unspecified Ground Workings	1875	1:10560
F	76m SW	Unspecified Ground Workings	1875	1:10560
F	77m SW	Unspecified Heap	1948	1:10560
F	80m SW	Unspecified Heap	1970	1:10560
F	80m SW	Unspecified Heap	1985	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
F	82m SW	Unspecified Heap	1948	1:10560
G	86m S	Unspecified Old Level	1948	1:10560
G	87m S	Unspecified Old Level	1875	1:10560
G	87m S	Unspecified Old Level	1875	1:10560
F	88m SW	Unspecified Heap	1948	1:10560
F	96m SW	Unspecified Heap	1948	1:10560
F	97m SW	Unspecified Heap	1948	1:10560
J	99m S	Unspecified Pit	1948	1:10560
J	101m S	Unspecified Old Quarry	1914	1:10560
J	101m S	Unspecified Old Quarry	1921	1:10560
J	102m S	Unspecified Pit	1947	1:10560
K	108m NE	Disused Colliery	1948	1:10560
F	113m NE	Unspecified Pit	1948	1:10560
G	128m S	Refuse Heap	1948	1:10560
G	128m S	Refuse Heaps	1914	1:10560
G	129m S	Refuse Heap	1948	1:10560
G	131m S	Old Trial Levels	1921	1:10560
G	138m S	Refuse Heap	1875	1:10560
G	138m S	Refuse Heap	1875	1:10560
G	158m SW	Old Trial Level	1914	1:10560
L	171m NW	Unspecified Disused Level	1975	1:10000
G	173m S	Unspecified Level	1985	1:10000
G	176m S	Unspecified Level	1970	1:10560
4	179m NE	Trial Levels	1876	1:10560
M	192m NW	Unspecified Disused Level	1965	1:10560
N	192m NW	Unspecified Old Quarry	1897	1:10560
N	193m NW	Unspecified Old Quarry	1914	1:10560
N	193m NW	Unspecified Old Quarry	1921	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
N	193m NW	Unspecified Quarry	1947	1:10560
M	201m NW	Unspecified Heap	1965	1:10560
M	202m NW	Unspecified Disused Level	1975	1:10000
O	208m NW	Unspecified Old Levels	1947	1:10560
G	209m S	Unspecified Heap	1970	1:10560
O	209m NW	Unspecified Old Level	1947	1:10560
O	209m NW	Coal Level	1914	1:10560
O	209m NW	Coal Level	1921	1:10560
O	209m NW	Unspecified Quarry	1914	1:10560
O	209m NW	Unspecified Quarry	1921	1:10560
O	210m NW	Coal Level	1897	1:10560
G	210m S	Unspecified Heap	1985	1:10000
O	212m NW	Unspecified Pit	1975	1:10000
O	212m NW	Unspecified Pit	1965	1:10560
O	212m NW	Unspecified Old Levels	1948	1:10560
5	214m NE	Trial Levels	1876	1:10560
O	223m NW	Unspecified Old Levels	1947	1:10560
O	223m NW	Old Coal Levels	1914	1:10560
O	223m NW	Old Coal Levels	1921	1:10560
P	225m E	Coal Level	1876	1:10560
O	226m NW	Unspecified Old Level	1947	1:10560
O	226m NW	Old Coal Levels	1914	1:10560
O	226m NW	Old Coal Levels	1921	1:10560
Q	226m S	Unspecified Old Level	1948	1:10560
Q	228m S	Coal Level	1914	1:10560
Q	228m S	Coal Level	1921	1:10560
Q	228m S	Old Coal Level	1947	1:10560
O	229m NW	Refuse Heap	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
O	229m NW	Refuse Heap	1921	1:10560
O	229m NW	Old Coal Levels	1914	1:10560
O	229m NW	Old Coal Levels	1921	1:10560
R	230m NW	Unspecified Pit	1947	1:10560
R	230m NW	Unspecified Pit	1914	1:10560
R	230m NW	Unspecified Pit	1921	1:10560
O	233m NW	Unspecified Ground Workings	1947	1:10560
S	234m W	Unspecified Old Level	1947	1:10560
S	234m W	Unspecified Old Level	1914	1:10560
S	234m W	Unspecified Old Level	1921	1:10560
O	236m NW	Unspecified Heap	1970	1:10560
S	236m W	Unspecified Old Level	1948	1:10560
S	236m W	Unspecified Old Level	1948	1:10560
S	237m W	Unspecified Ground Workings	1947	1:10560
O	238m NW	Unspecified Ground Workings	1975	1:10000
O	240m NW	Unspecified Ground Workings	1965	1:10560
O	241m NW	Unspecified Heap	1985	1:10000
S	244m W	Old Coal Levels	1914	1:10560
S	244m W	Old Coal Levels	1921	1:10560
T	245m NE	Unspecified Ground Workings	1897	1:10560
T	246m NE	Unspecified Old Level	1960	1:10560
Q	248m S	Old Coal Level	1914	1:10560
Q	248m S	Old Coal Level	1921	1:10560
T	248m NE	Unspecified Old Level	1897	1:10560
U	248m NE	Refuse Heaps	1914	1:10560
Q	249m S	Refuse Heap	1914	1:10560
Q	249m S	Refuse Heap	1921	1:10560

This is data is sourced from Ordnance Survey®/Groundsure.



18.3 Underground workings

Records within 1000m
333

Historical land uses identified from Ordnance Survey® mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining and ground workings map on [page 122 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Trial Level	1876	1:10560
B	On site	Unspecified Old Level	1948	1:10560
B	On site	Unspecified Level	1948	1:10560
B	On site	Unspecified Level	1948	1:10560
C	On site	Old Trial Level	1897	1:10560
C	On site	Unspecified Old Level	1948	1:10560
C	On site	Old Trial Level	1921	1:10560
C	On site	Old Trial Level	1914	1:10560
C	On site	Unspecified Old Level	1948	1:10560
E	On site	Disused Colliery	1948	1:10560
E	On site	Colliery	1921	1:10560
E	On site	Colliery	1914	1:10560
F	On site	Colliery	1948	1:10560
H	On site	Unspecified Mine	1948	1:10560
G	14m SW	Unspecified Old Level	1948	1:10560
G	15m SW	Unspecified Level	1921	1:10560
G	16m SW	Unspecified Old Level	1948	1:10560
G	46m SW	Air Shaft	1914	1:10560
G	50m SW	Air Shaft	1921	1:10560
I	51m SE	Unspecified Old Level	1948	1:10560
I	54m SE	Unspecified Old Level	1948	1:10560
G	58m S	Old Trial Levels	1921	1:10560
G	61m S	Unspecified Old Level	1948	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
F	69m SW	Unspecified Level	1948	1:10560
F	70m SW	Unspecified Level	1948	1:10560
G	86m S	Unspecified Old Level	1948	1:10560
F	97m SW	Air Shaft	1921	1:10560
F	97m SW	Air Shaft	1914	1:10560
G	131m S	Old Trial Levels	1921	1:10560
L	171m NW	Unspecified Disused Level	1975	1:10000
G	173m S	Unspecified Level	1985	1:10000
G	176m S	Unspecified Level	1970	1:10560
M	192m NW	Unspecified Disused Level	1965	1:10560
M	202m NW	Unspecified Disused Level	1975	1:10000
O	208m NW	Unspecified Old Levels	1947	1:10560
O	209m NW	Unspecified Old Level	1947	1:10560
O	209m NW	Coal Level	1914	1:10560
O	209m NW	Coal Level	1921	1:10560
O	210m NW	Coal Level	1897	1:10560
O	212m NW	Unspecified Old Levels	1948	1:10560
O	223m NW	Unspecified Old Levels	1947	1:10560
O	223m NW	Old Coal Levels	1914	1:10560
O	223m NW	Old Coal Levels	1921	1:10560
P	225m E	Coal Level	1876	1:10560
O	226m NW	Unspecified Old Level	1947	1:10560
O	226m NW	Old Coal Levels	1914	1:10560
O	226m NW	Old Coal Levels	1921	1:10560
Q	226m S	Unspecified Old Level	1948	1:10560
Q	228m S	Coal Level	1914	1:10560
Q	228m S	Coal Level	1921	1:10560
Q	228m S	Old Coal Level	1947	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
O	229m NW	Old Coal Levels	1914	1:10560
O	229m NW	Old Coal Levels	1921	1:10560
S	234m W	Unspecified Old Level	1947	1:10560
S	234m W	Unspecified Old Level	1914	1:10560
S	234m W	Unspecified Old Level	1921	1:10560
S	236m W	Unspecified Old Level	1948	1:10560
S	236m W	Unspecified Old Level	1948	1:10560
S	244m W	Old Coal Levels	1914	1:10560
S	244m W	Old Coal Levels	1921	1:10560
T	246m NE	Unspecified Old Level	1960	1:10560
Q	248m S	Old Coal Level	1914	1:10560
Q	248m S	Old Coal Level	1921	1:10560
T	248m NE	Unspecified Old Level	1897	1:10560
T	251m NE	Unspecified Old Level	1921	1:10560
T	251m NE	Unspecified Old Level	1914	1:10560
T	252m NE	Unspecified Old Level	1948	1:10560
T	252m NE	Unspecified Disused Level	1970	1:10560
G	253m SW	Unspecified Old Level	1948	1:10560
P	257m E	Trial Level	1876	1:10560
P	260m E	Air Shaft	1876	1:10560
G	260m SW	Unspecified Old Level	1948	1:10560
P	263m E	Trial Level	1876	1:10560
Q	265m S	Old Coal Level	1897	1:10560
V	285m NW	Unspecified Old Levels	1947	1:10560
V	285m NW	Old Coal Levels	1914	1:10560
V	285m NW	Old Coal Levels	1921	1:10560
S	290m W	Old Coal Levels	1897	1:10560
S	297m W	Old Coal Levels	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
S	297m W	Old Coal Levels	1921	1:10560
S	309m W	Unspecified Disused Level	1985	1:10000
Y	310m NE	Unspecified Old Level	1960	1:10560
S	312m W	Old Coal Level	1897	1:10560
K	312m NE	Old Trial Level	1921	1:10560
Y	313m NE	Old Coal Level	1897	1:10560
Y	313m NE	Old Coal Level	1914	1:10560
K	315m NE	Unspecified Old Level	1948	1:10560
K	315m NE	Old Trial Level	1914	1:10560
Y	315m NE	Unspecified Old Level	1921	1:10560
Y	317m NE	Unspecified Old Level	1948	1:10560
Z	318m N	Old Trial Level	1921	1:10560
Z	323m N	Old Trial Level	1914	1:10560
Z	327m N	Unspecified Old Level	1948	1:10560
AA	327m S	Unspecified Old Level	1948	1:10560
U	330m NE	Unspecified Disused Level	1970	1:10560
K	331m N	Disused Colliery	1921	1:10560
K	331m N	Disused Colliery	1914	1:10560
AB	332m NE	Unspecified Disused Shaft	1965	1:10560
AB	333m NE	Unspecified Disused Shafts	1975	1:10000
S	335m W	Old Coal Levels	1897	1:10560
AB	335m NE	Unspecified Old Shaft	1948	1:10560
AC	335m E	Trial Level	1876	1:10560
AB	335m NE	Old Air Shaft	1921	1:10560
AB	335m NE	Old Air Shaft	1914	1:10560
W	342m N	Unspecified Old Level	1921	1:10560
W	342m N	Unspecified Old Level	1914	1:10560
AE	343m SE	Trial Level	1876	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
W	344m N	Unspecified Old Level	1948	1:10560
AB	345m NE	Unspecified Level	1921	1:10560
AB	345m NE	Unspecified Level	1914	1:10560
AB	347m NE	Unspecified Level	1948	1:10560
AB	348m NE	Unspecified Disused Levels	1975	1:10000
AB	348m NE	Unspecified Disused Level	1965	1:10560
AD	374m W	Air Shaft	1897	1:10560
AD	374m W	Air Shaft	1948	1:10560
AD	377m W	Air Shaft	1947	1:10560
AD	377m W	Air Shaft	1914	1:10560
AD	377m W	Air Shaft	1921	1:10560
AA	379m S	Unspecified Disused Level	1985	1:10000
AJ	387m NW	Old Air Shaft	1897	1:10560
AJ	389m NW	Old Air Shaft	1947	1:10560
AJ	389m NW	Old Air Shaft	1914	1:10560
AJ	389m NW	Old Air Shaft	1921	1:10560
AD	391m W	Unspecified Old Level	1948	1:10560
AD	392m W	Unspecified Old Level	1947	1:10560
AD	392m W	Old Coal Level	1914	1:10560
AD	392m W	Old Coal Level	1921	1:10560
AK	396m S	Unspecified Old Level	1948	1:10560
AF	398m NE	Old Air Shaft	1914	1:10560
AF	399m NE	Unspecified Disused Shaft	1963	1:10000
AF	399m NE	Unspecified Disused Shaft	1965	1:10560
AD	399m W	Old Coal Level	1897	1:10560
AF	400m NE	Unspecified Old Shaft	1948	1:10560
AF	407m NE	Air Shaft	1921	1:10560
AF	407m NE	Air Shaft	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
AA	412m S	Old Coal Level	1897	1:10560
AA	419m S	Unspecified Old Level	1948	1:10560
AA	425m S	Old Coal Level	1921	1:10560
AA	425m S	Old Coal Level	1914	1:10560
AA	432m S	Trial Level	1876	1:10560
AF	437m NE	Air Shaft	1897	1:10560
AN	446m NE	Disused Colliery	1921	1:10560
AN	446m NE	Disused Colliery	1914	1:10560
AO	450m W	Unspecified Disused Level	1985	1:10000
AK	451m S	Unspecified Old Level	1948	1:10560
AQ	453m NW	Unspecified Disused Shaft	1975	1:10000
AQ	453m NW	Unspecified Disused Shaft	1965	1:10560
AQ	455m NW	Old air Shaft	1897	1:10560
AK	456m S	Coal Level	1914	1:10560
AA	462m S	Unspecified Old Level	1948	1:10560
AQ	465m NW	Air Shaft	1914	1:10560
AQ	465m NW	Old Air Shaft	1921	1:10560
AA	465m S	Coal Level	1921	1:10560
AA	465m S	Coal Level	1914	1:10560
AK	466m S	Coal Level	1921	1:10560
AA	468m S	Unspecified Old Level	1948	1:10560
AR	481m NW	Old Coal Levels	1914	1:10560
AR	483m NW	Unspecified Disused Level	1975	1:10000
AP	488m E	Coal Levels	1921	1:10560
AP	488m E	Coal Levels	1914	1:10560
AF	490m NE	Old Trial Level	1914	1:10560
AT	491m NE	Old Coal Level	1897	1:10560
AU	491m NE	Air Shaft	1897	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
AR	491m NW	Old Coal Levels	1914	1:10560
AR	491m NW	Old Coal Levels	1921	1:10560
AV	491m N	Old Coal Level	1897	1:10560
AW	493m W	Air Shaft	1921	1:10560
AT	493m NE	Old Coal Level	1921	1:10560
AT	493m NE	Old Coal Level	1914	1:10560
AV	493m N	Old Coal Level	1921	1:10560
AV	493m N	Old Coal Level	1914	1:10560
AU	494m NE	Disused Air Shaft	1975	1:10000
AW	496m W	Air Shaft	1897	1:10560
AW	497m W	Air Shaft	1914	1:10560
AT	497m NE	Unspecified Old Level	1948	1:10560
AW	497m W	Unspecified Old Levels	1948	1:10560
AW	499m W	Old Coal Level	1921	1:10560
AX	500m NE	Colliery	1897	1:10560
AY	501m SW	Unspecified Old Level	1948	1:10560
AZ	501m NE	Unspecified Level	1921	1:10560
AZ	501m NE	Unspecified Level	1914	1:10560
AY	502m SW	Unspecified Old Level	1947	1:10560
AY	502m SW	Old Coal Level	1921	1:10560
AZ	502m NE	Unspecified Old Level	1948	1:10560
BA	504m NW	Old Coal Levels	1897	1:10560
AV	508m N	Old Coal Level	1921	1:10560
AV	508m N	Old Coal Level	1914	1:10560
AY	509m SW	Coal Level	1947	1:10560
AW	511m W	Old Coal Levels	1914	1:10560
AT	512m NE	Old Coal Level	1914	1:10560
AY	515m SW	Unspecified Disused Level	1985	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
AW	516m W	Old Coal Level	1914	1:10560
AR	523m NW	Old Coal Levels	1897	1:10560
AW	527m W	Old Coal Levels	1921	1:10560
AW	530m W	Air Shaft	1921	1:10560
AW	530m W	Old Coal Levels	1921	1:10560
AW	530m W	Unspecified Old Levels	1947	1:10560
AW	530m W	Air Shaft	1897	1:10560
AW	531m W	Air Shaft	1947	1:10560
AY	532m SW	Unspecified Level	1948	1:10560
AW	532m W	Air Shaft	1914	1:10560
AW	533m W	Unspecified Old Levels	1948	1:10560
AW	533m W	Air Shaft	1948	1:10560
AY	534m SW	Old Coal Level	1914	1:10560
AP	552m E	Unspecified Old Level	1960	1:10560
AZ	553m NE	Unspecified Old Level	1948	1:10560
AZ	555m NE	Old Trial Level	1921	1:10560
AZ	555m NE	Old Trial Level	1914	1:10560
AW	557m W	Unspecified old levels	1948	1:10560
BE	558m SW	Unspecified Old Level	1914	1:10560
BE	558m SW	Unspecified Old Level	1921	1:10560
AP	559m E	Unspecified Old Level	1948	1:10560
AW	560m W	Old Coal Levels	1897	1:10560
BF	564m NW	Unspecified Old Level	1947	1:10560
AW	565m W	Old Coal Levels	1921	1:10560
AZ	567m NE	Old Trial Levels	1921	1:10560
BE	568m SW	Unspecified Old Level	1948	1:10560
AZ	570m NE	Unspecified Disused Levels	1975	1:10000
AZ	572m NE	Old Trial Levels	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
BE	575m SW	Unspecified Old Level	1947	1:10560
BF	581m NW	Unspecified Disused Level	1975	1:10000
AW	584m W	Old Coal Levels	1897	1:10560
BE	588m SW	Unspecified Old Level	1948	1:10560
BL	627m NW	Unspecified Level	1914	1:10560
BL	627m NW	Unspecified Level	1921	1:10560
BM	630m W	Unspecified Mine	1948	1:10560
BN	634m NW	Unspecified Disused Levels	1975	1:10000
BN	636m NW	Unspecified Level	1965	1:10560
BN	642m NW	Unspecified Disused Levels	1975	1:10000
BO	644m NE	Coal Levels	1876	1:10560
BP	647m E	Coal Level	1876	1:10560
BS	649m E	Colliery	1921	1:10560
BS	649m E	Collieries	1914	1:10560
BT	655m E	Disused Collieries	1948	1:10560
BK	659m NE	Air Shaft	1876	1:10560
BN	667m NW	Old Trial Level	1897	1:10560
BR	668m E	Colliery	1897	1:10560
BN	672m NW	Unspecified Disused Level	1975	1:10000
BW	673m S	Coal Level	1876	1:10560
BX	674m W	Coal Level	1876	1:10560
BT	675m E	Coal Level	1876	1:10560
BN	681m NW	Unspecified Disused Level	1965	1:10560
BE	681m SW	Air Shaft	1876	1:10560
BN	685m NW	Unspecified Old Level	1947	1:10560
BN	685m NW	Old Trial Level	1914	1:10560
BN	685m NW	Old Trial Level	1921	1:10560
BZ	685m W	Unspecified Old Level	1947	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
BZ	685m W	Old Trial Level	1914	1:10560
BZ	685m W	Old Trial Level	1921	1:10560
BZ	686m W	Unspecified Old Level	1948	1:10560
BM	688m W	Colliery	1947	1:10560
BR	690m E	Unspecified Old Shaft	1897	1:10560
BZ	691m W	Old Trial Level	1897	1:10560
BM	704m SW	Colliery	1914	1:10560
BM	704m SW	Colliery	1921	1:10560
BK	706m NE	Coal Level	1876	1:10560
BM	716m SW	Disused Air Shaft	1985	1:10000
BM	716m SW	Disused Air Shaft	1970	1:10560
BM	716m SW	Air Shaft	1948	1:10560
BM	719m SW	Air Shaft	1947	1:10560
BM	719m SW	Air Shaft	1914	1:10560
BM	719m SW	Air Shaft	1921	1:10560
BM	719m SW	Air Shaft	1897	1:10560
BM	725m W	Unspecified Disused Levels	1985	1:10000
BW	734m S	Old Coal Shaft	1921	1:10560
BW	734m S	Old Coal Shaft	1914	1:10560
BW	734m S	Old Coal Shaft	1897	1:10560
BW	734m S	Unspecified Old Shaft	1947	1:10560
BT	734m E	Unspecified Disused Shafts	1970	1:10560
BW	734m S	Unspecified Disused Shaft	1985	1:10000
BW	734m S	Unspecified Disused Shaft	1970	1:10560
BW	734m S	Unspecified Old Shaft	1948	1:10560
BM	745m SW	Unspecified Disused Level	1947	1:10560
BM	745m SW	Unspecified Disused Level	1914	1:10560
BM	745m SW	Unspecified Disused Level	1921	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
BM	753m W	Old Trial Level	1897	1:10560
CF	761m SE	Air Shaft	1876	1:10560
BT	762m E	Unspecified Disused Shafts	1970	1:10560
BM	766m SW	Unspecified Disused Level	1897	1:10560
CF	775m SE	Coal Level	1876	1:10560
CI	777m SE	Colliery	1876	1:10560
-	782m E	Unspecified Disused Shafts	1970	1:10560
26	810m SE	Unspecified Shaft	1876	1:10560
-	813m E	Unspecified Shaft	1897	1:10560
-	814m E	Unspecified Disused Shafts	1970	1:10560
CN	814m NW	Old Trial Level	1897	1:10560
-	817m E	Unspecified Disused Mine	1960	1:10560
CN	820m NW	Old Trial Level	1921	1:10560
CN	824m NW	Unspecified Old Level	1947	1:10560
CN	824m NW	Old Trial Level	1914	1:10560
BM	838m W	Unspecified Disused Level	1921	1:10560
BM	838m W	Unspecified Disused Level	1914	1:10560
CS	839m S	Old Coal Drift	1921	1:10560
CS	839m S	Unspecified Old Drift	1948	1:10560
CS	839m S	Unspecified Old Drift	1915	1:10560
CS	843m S	Unspecified Old Drift	1948	1:10560
CS	843m S	Coal Drift	1897	1:10560
CI	853m SE	Unspecified Shaft	1876	1:10560
BM	864m W	Unspecified Disused Level	1897	1:10560
-	864m SW	Unspecified Old Level	1914	1:10560
CV	866m SW	Disused Colliery	1947	1:10560
-	866m SW	Unspecified Old Level	1921	1:10560
CW	875m NW	Old Coal Level	1897	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
CW	876m NW	Unspecified Old Level	1947	1:10560
CW	876m NW	Old Coal Level	1914	1:10560
CW	876m NW	Old Coal Level	1921	1:10560
CW	877m NW	Unspecified Disused Level	1975	1:10000
CW	877m NW	Unspecified Disused Level	1965	1:10560
CV	878m SW	Unspecified Disused Mine	1948	1:10560
CX	882m SW	Colliery	1876	1:10560
CY	886m NE	Colliery	1921	1:10560
CY	886m NE	Colliery	1914	1:10560
CX	893m SW	Air Shaft	1876	1:10560
CO	897m NW	Unspecified Old Level	1947	1:10560
CO	897m NW	Old Trial Level	1914	1:10560
CO	897m NW	Old Trial Level	1921	1:10560
CX	937m SW	Unspecified Level	1876	1:10560
DC	941m SW	Trial Level	1876	1:10560
-	962m SW	Unspecified Old Level	1921	1:10560
DF	962m NW	Unspecified Disused Level	1975	1:10000
DF	962m NW	Unspecified Disused Level	1965	1:10560
DF	962m NW	Unspecified Old Level	1947	1:10560
DF	962m NW	Old Coal Level	1914	1:10560
DF	962m NW	Old Coal Level	1921	1:10560
DF	966m NW	Old Coal Level	1897	1:10560
DJ	988m SE	Old Coal Levels	1921	1:10560
DJ	988m SE	Unspecified Old Levels	1948	1:10560
DJ	988m SE	Unspecified Old Levels	1915	1:10560
DH	991m NW	Old Trial Level	1897	1:10560
DH	994m NW	Unspecified Old Level	1947	1:10560
DH	994m NW	Old Trial Level	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
DH	994m NW	Old Trial Level	1921	1:10560
DJ	994m SE	Unspecified Old Levels	1948	1:10560

This data is sourced from Ordnance Survey®/Groundsure.

18.4 Underground mining extents

Records within 500m

0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

4

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining and ground workings map on [page 122](#) >

ID	Location	Name	Commodity	Class	Likelihood
17	508m NE	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.



ID	Location	Name	Commodity	Class	Likelihood
18	600m NW	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
25	780m NW	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	949m N	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site

0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m

0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.



18.9 Researched mining

Records within 500m

0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m

0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m

0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site

1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.



18.13 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m

0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey® maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

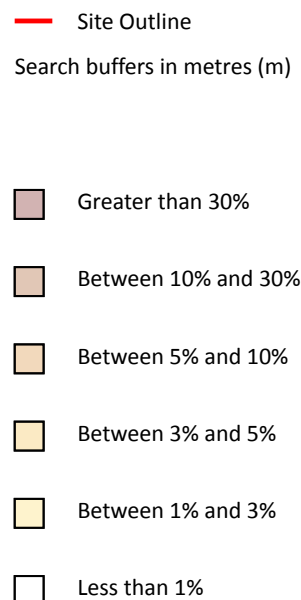
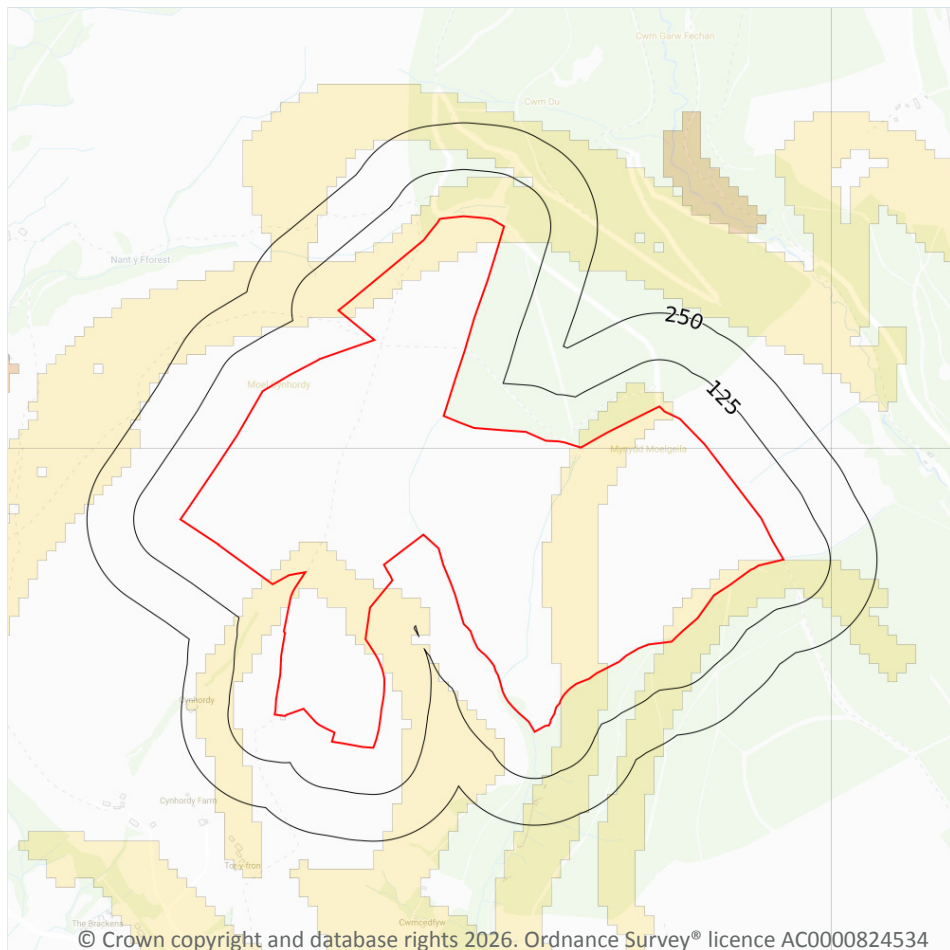
Not all 'holes' noted on Ordnance Survey® mapping will necessarily be present within this dataset.



This data is sourced from Groundsure.



20 Radon



20.1 Radon

Records on site

2

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 170 >](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 1% and 3%	None



Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None

This data is sourced from the British Geological Survey and UK Health Security Agency.



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

45

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
6m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
10m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
28m NW	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
32m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
32m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
34m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
43m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
45m NW	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
48m SE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m

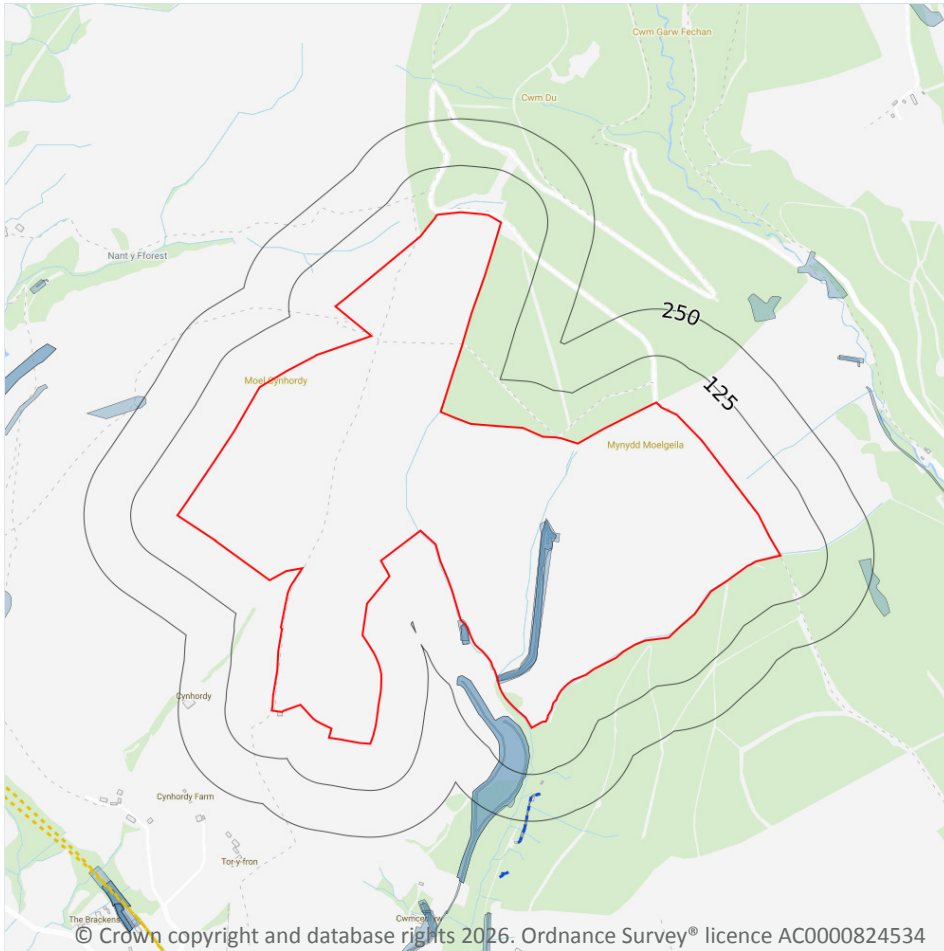
0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey® mapping.

This data is sourced from the Ordnance Survey®.

22.4 Historical railway and tunnel features

Records within 250m

13

Railways and tunnels digitised from historical Ordnance Survey® mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on [page 176 >](#)

Location	Land Use	Year of mapping	Mapping scale
On site	Tramway Sidings	1940	2500
On site	Railway Sidings	1948	10560
On site	Tramway Sidings	1948	10560
On site	Tramway Sidings	1875	10560
On site	Railway Sidings	1875	10560
3m W	Railway Sidings	1948	10560
25m SW	Tramway Sidings	1914	10560
27m SW	Tramway Sidings	1921	10560
36m SW	Tramway Sidings	1918	2500
176m S	Railway Sidings	1964	2500
210m E	Railway Sidings	1876	10560
237m NW	Tramway Sidings	1897	10560
242m S	Railway Sidings	1964	2500

This data is sourced from Ordnance Survey®/Groundsure.



22.5 Royal Mail tunnels

Records within 250m**0**

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m**0**

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m**1**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on [page 176 >](#)

Location	Name	Type
178m S	Not given	Narrow Gauge

This data is sourced from Ordnance Survey® and OpenStreetMap.

22.8 Crossrail 2

Records within 500m**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.



22.9 HS2

Records within 500m

0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference> ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-conditions-april-2026/ ↗.



Annex C

COAL AUTHORITY REPORT





Cynhordy - Southern Array

Bridgend

Our reference: 51003577454001
Your reference: WSP-GUV-QC7-KJR-A3Y

Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

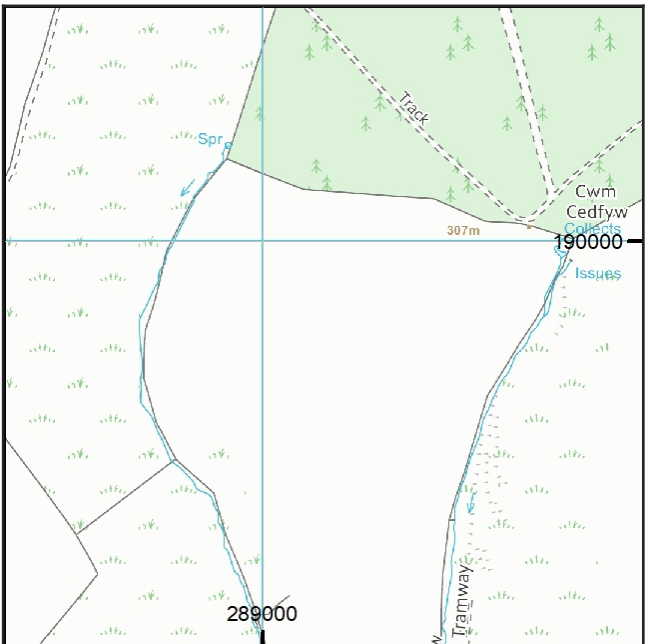
Cynhordy - Southern Array
Bridgend

How to contact us

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Mansfield
Nottinghamshire
NG18 4RG

reports@miningremediation.gov.uk



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
CEDFYW RHONDDA	NO.1 RHONDDA	Coal	4DNO	23	Beneath Property	10.4	South-East	183	1925
unnamed	NO.2 RHONDDA	Coal	4Z0Z	36	Beneath Property	16.1	South	137	1900
unnamed	NO.1 RHONDDA	Coal	4ZOM	46	Beneath Property	12.4	South	173	1956
unnamed	NO.2 RHONDDA	Coal	4YS4	78	Beneath Property	15.9	South-East	132	1944
unnamed	NO.1 RHONDDA	Coal	4DNQ	79	Beneath Property	10.4	South	173	1953
unnamed	NO.2 RHONDDA	Coal	4YS5	84	Beneath Property	14.1	South	132	1931
unnamed	NO.3 RHONDDA	Coal	4ZOT	89	Beneath Property	10.6	South	91	1901
unnamed	NO.2 RHONDDA RIDER	Coal	4DNJ	95	Beneath Property	8.2	South	216	1951
unnamed	NO.3 RHONDDA	Coal	4OIY	98	North-West	15.8	East	81	1905
unnamed	NO.1 RHONDDA	Coal	4DNS	104	Beneath Property	10.4	South	173	1945
unnamed	NO.1 RHONDDA	Coal	4DNR	116	Beneath Property	9.6	South	173	1892
unnamed	NO.2 RHONDDA	Coal	4ZOY	117	Beneath Property	8.8	South-East	97	1908
GELLI HIR	NO.2 RHONDDA	Coal	4DNF	122	Beneath Property	1.3	West	112	1927
GELLI HIR	NO.2 RHONDDA	Coal	4DNE	122	Beneath Property	1.3	West	112	1921
unnamed	NO.2 RHONDDA RIDER	Coal	4DNK	123	South-West	8.3	South	216	1921
CELTIC LOWER	NO.1 RHONDDA	Coal	4DNP	124	Beneath Property	6.7	South-East	57	1960
CWM RHONDDA	NO.2 RHONDDA	Coal	4DNG	133	Beneath Property	13.8	South	91	1908
unnamed	NO.2 RHONDDA	Coal	4Z0X	149	Beneath Property	15.1	South	137	1936
unnamed	NO.2 RHONDDA	Coal	4Z0W	200	Beneath Property	17.1	South	97	1907
unnamed	NO.3 RHONDDA	Coal	4DNI	214	Beneath Property	13.6	South-East	107	1897
unnamed	HAFOD	Coal	4ZOK	223	North-West	8.6	South	74	1901
unnamed	LOWER PINCHIN	Coal	4ZOP	233	North-West	0.0	East	107	1901

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	NO.2 RHONDDA	Coal	4EUK	270	North-East	13.7	South	97	1907
unnamed	NO.3 RHONDDA	Coal	4EPI	320	North-East	17.9	South	112	1897
unnamed	NO.3 RHONDDA	Coal	4EUR	374	North-East	16.8	South	107	1889
unnamed	UPPER SIX FEET	Coal	4DNN	493	Beneath Property	13.5	South	193	1930
unnamed	UPPER SIX FEET	Coal	4Z11	494	Beneath Property	19.6	South	183	1930
unnamed	UPPER SIX FEET	Coal	4Z13	520	North-West	10.4	South	193	1982
unnamed	UPPER SIX FEET	Coal	4EY1	521	North-West	14.2	South	182	1921
unnamed	UPPER SIX FEET	Coal	4EY2	521	North-West	15.0	South	182	1919
unnamed	UPPER SIX FEET	Coal	4EY6	529	North-West	16.7	South	200	1923
unnamed	UPPER SIX FEET	Coal	4EY7	536	North-West	15.9	South	200	1923
unnamed	UPPER SIX FEET	Coal	4E9T	544	West	16.8	South-East	193	1928
unnamed	UPPER SIX FEET	Coal	4Z12	548	Beneath Property	13.6	South	150	1985
unnamed	UPPER SIX FEET	Coal	4EY8	549	North-West	15.9	South	200	1923
unnamed	BUTE	Coal	4EYO	569	North-West	12.8	South	120	1913
unnamed	LOWER NINE FOOT	Coal	4EYM	582	North-West	12.8	South	157	1923
unnamed	FIVE FOOT GELLIDEG	Coal	4ZOS	639	North-East	17.4	South	145	1982
ST JOHNS	FIVE FOOT GELLIDEG	Coal	4E7T	675	North-East	11.8	South	191	1975
unnamed	FIVE FOOT GELLIDEG	Coal	4E7U	690	North	13.4	South	142	1979
unnamed	FIVE FOOT GELLIDEG	Coal	4ZOR	701	North	25.7	South	145	1980
unnamed	FIVE FOOT GELLIDEG	Coal	4E7W	736	North-West	21.0	South	168	1976
unnamed	FIVE FOOT GELLIDEG	Coal	4E7V	751	North-West	17.9	South	168	1976

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

Distance to spine roadway (m)	Direction to spine roadway
Within	N/A
Within	N/A
Within	N/A
Within	N/A
Within	N/A

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	288189-014	288837 189566	Treatment details unknown.*	Coal	
Adit	288189-028	288822 189544	Treatment details unknown.*	Coal	
Adit	288189-029	288827 189555	Treatment details unknown.*	Coal	
Adit	288189-037	288986 189395	Treatment details unknown.*	Coal	
Adit	288190-043	288817 190504	Treatment details unknown.*	Coal	
Adit	289189-001	289315 189915	Treatment details unknown.*	Coal	
Adit	289189-003	289127 189259	Records show that this entry has been filled at some time in the past There are no details on the material used or date of filling.	Coal	
Adit	289189-004	289178 189179	Records show that this entry has been filled at some time in the past There are no details on the material used or date of filling.	Coal	
Adit	289189-011	289252 189745	Treatment details unknown.*	Coal	
Adit	289189-012	289233 189671	Treatment details unknown.*	Coal	
Adit	289189-015	289181 189160	Records show that this entry has been filled at some time in the past There are no details on the material used or date of filling.	Coal	
Shaft	289189-019	289107 189283	Treatment details unknown.*	Coal	
Shaft	289189-020	289001 189378	Treatment details unknown.*	Coal	
Adit	289189-021	289318 189965	Treatment details unknown.*	Coal	
Adit	289189-022	289013 189372	Treatment details unknown.*	Coal	
Adit	289189-023	289105 189287	Records show that this entry has been filled at some time in the past There are no details on the material used or date of filling.	Coal	
Adit	289189-026	289030 189360	Treatment details unknown.*	Coal	
Adit	289189-030	289181 189220	Treatment details unknown.*	Coal	
Adit	289189-032	289224 189611	Treatment details unknown.*	Coal	
Adit	289189-033	289229 189681	Treatment details unknown.*	Coal	
Adit	289189-034	289266 189830	Treatment details unknown.*	Coal	
Adit	289189-035	289309 189876	Treatment details unknown.*	Coal	

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	289189-036	289104 189300	Treatment details unknown.*	Coal	
Adit	289189-038	289331 189390	Treatment details unknown.*	Coal	
Adit	289189-039	289265 189799	Treatment details unknown.*	Coal	
Adit	289189-040	289337 189371	Treatment details unknown.*	Coal	
Adit	289190-044	289202 190630	Treatment details unknown.*	Coal	

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

8039	SWR4111	SWR582 
SWR3282	SWA2274	5125
5072	12009	SWR 

Our records show we have more plans than those shown above which could affect the enquiry boundary.

For assistance in identifying the specific abandoned mine plans relevant to your requirements, **please contact us at InformationManagers@MiningRemediation.gov.uk**.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
NO.1 RHONDDA	Coal	Yes	Within	N/A	31
NO.1 RHONDDA	Coal	Yes	Within	N/A	62
NO.1 RHONDDA	Coal	Yes	Within	N/A	121
NO.1 RHONDDA	Coal	Yes	Within	N/A	173
NO.2 RHONDDA	Coal	Yes	Within	N/A	65
NO.2 RHONDDA RIDER	Coal	Yes	Within	N/A	76
TILLERY BRITHDIR	Coal	No	Within	N/A	6
TILLERY BRITHDIR	Coal	No	Within	N/A	80
TILLERY BRITHDIR	Coal	No	Within	N/A	126
TILLERY BRITHDIR	Coal	No	Within	N/A	152

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is in an area where notices to withdraw support were given in 1946, 1948, 1953, 1955, 1975 and 1977.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please email us at reports@miningremediation.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **email us at reports@miningremediation.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

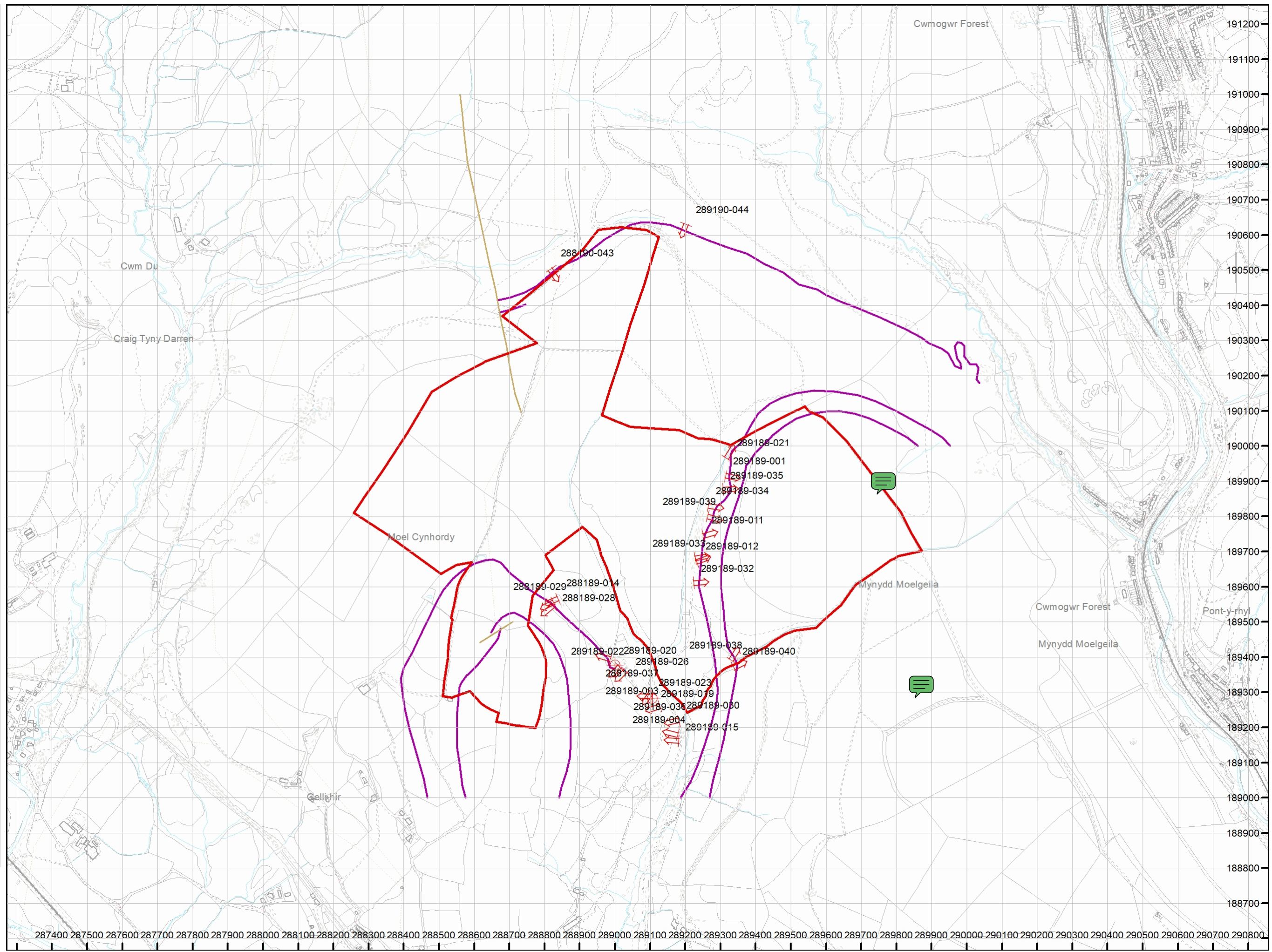
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown 
- Disused mine shaft 
- Disused adit 
- Outcrop (Proven) 
- Geological faults 

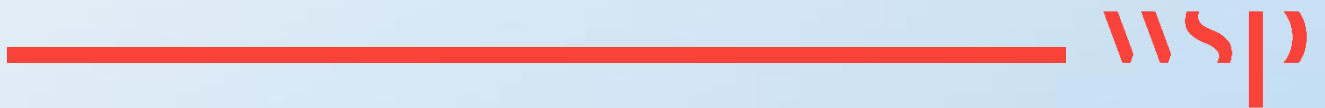
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Annex D

ZETICA DESK STUDY AND RISK ASSESSMENT





Desk Study & Risk Assessment

Document Ref. P17427-26-R1

Revision A

Project Title Maesteg

Client WSP

Date 5th June 2026

Drafted by: Grahame Johnson

Checked by: Harry Clayton

Authorised by: Stefan Lang

EXECUTIVE SUMMARY

Key findings: No significant sources of Unexploded Ordnance (UXO) hazard have been identified.

Key actions: Proceed with works. A UXO awareness briefing is prudent for staff involved in excavations.

UXO hazard assessment

No records have been found to indicate that the Site was bombed and no other significant sources of UXO hazard have been identified on the Site.

It is considered that the Site has a low UXO hazard level, as shown in the following Figure, reproduced as Figure 3 in the main report.

The UXO hazard zone plan of the Site is also given in the accompanying P17427-26-MAP01-A.

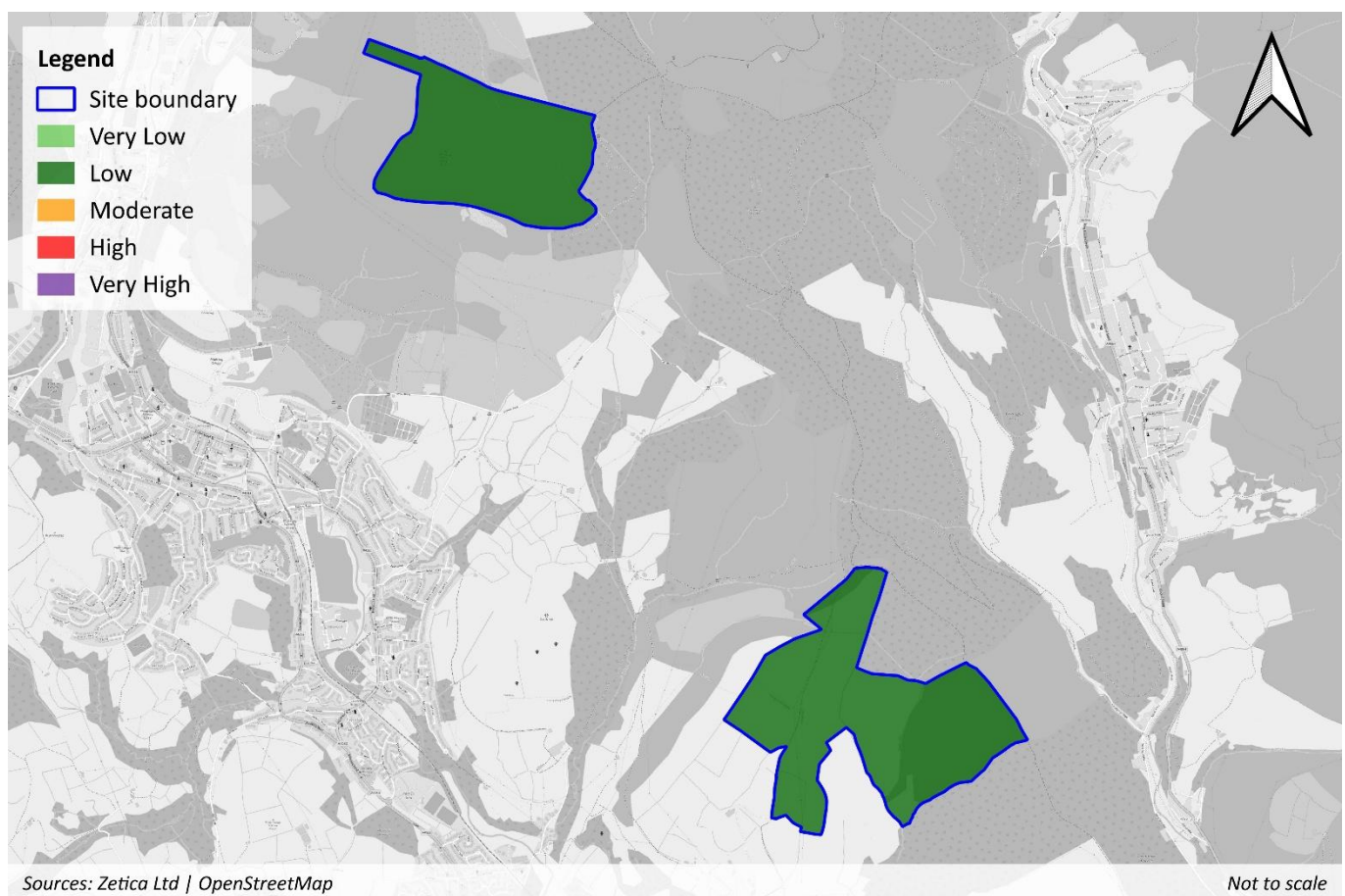


Figure UXO hazard zone plan of the Site

The main findings of the report are summarised below:

- On the 29th September 1942, 1No. Supermarine Spitfire VB (BM575) fighter aircraft crashed approximately 0.2km north-northwest of the Site.
- During World War Two (WWII) the main strategic target in the vicinity of the Site was Royal Ordnance Factory (ROF) Brackla.
- No records have been found to indicate that the Site was bombed during WWII. Records indicate that the nearest High Explosive (HE) bomb fell approximately 0.7km west of the Site.
- There were 2No. Anti-Aircraft (AA) batteries within 10km of the Site during WWII. The potential for an Unexploded AA (UXAA) shell to have fallen on the Site cannot be discounted.

Proposed works

At the time of writing no information on proposed works have been provided. For the purposes for this risk assessment it is assumed that works on the Site may include excavations, boreholes, and piling.

Risk assessment

The Table below, reproduced as Table 5 in the main report, provides a UXO risk assessment for the proposed works on the Site.

Potential UXO	Anticipated Works	PE	PD	L = PE x PD	Likelihood Rating	Severity	Risk Rating	UXO Risk Level
UXB	Excavations	1	1	1	1	5	5	Low
	Boreholes/Piling	1	1	1	1	4	4	Low
Other UXO	Excavations	1	1	1	1	4	4	Low
	Boreholes/Piling	1	1	1	1	3	3	Low

PE = Probability of Encounter, PD = Probability of Detonation, L = Likelihood

Table UXO risk assessment for the Site

Further details on the risk assessment methodology are given in Appendix 1.

Risk mitigation plan

The Table below, reproduced as Table 7 in the main report, summarises the UXO risk for proposed works on the Site and recommended actions.

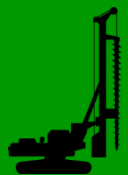
Proposed Works	UXO Risk	Recommended Mitigation
Excavations		Proceed with works – a UXO awareness briefing is prudent for staff involved in excavations.
Boreholes/Piling		Proceed with works

Table Summary of UXO risk mitigation recommendations

Further details on the risk mitigation techniques are given in Section 8.2 and Appendix 2.

What do I do next?

If you have any comments or require further assistance, contact us at uxo@zetica.com or 01993 886 682 and we can help. For more information about our other UXO services, visit www.zeticauxo.com.

If you have requirements to identify other buried hazards (such as mapping utilities, obstructions, or archaeology) we can provide these surveys.

If proposed works on the Site change, or additional works are planned, contact Zetica for a re-assessment of the UXO risk and the risk mitigation requirements.

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Accompanying geospatial data

P17427-26-MAP01-A (UXO Desk Study)

ABBREVIATIONS

AA	Anti-Aircraft
AAP	Aircraft Acceptance Park
ALARP	As Low As Reasonably Practicable
ARP	Air Raid Precaution
BCAC	British and Colonial Aeroplane Company
BGS	British Geological Survey
CIRIA	Construction Industry Research and Information Association
CRAPW	Central Register of Aerial Photography for Wales
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
GIS	Geographic Information System
HE	High Explosive
HER	Historic Environment Record
IB	Incendiary Bomb
IWM	Imperial War Museum
LSA	Land Service Ammunition
NARA	National Archives & Records Administration
NCAP	National Collection of Aerial Photography
OSNGR	Ordnance Survey National Grid Reference
RE	Royal Engineers
RFC	Royal Flying Corps
ROF	Royal Ordnance Factory
SAA	Small Arms Ammunition
UXAA	Unexploded Anti-Aircraft
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
WO	War Office
WWI	World War One
WWII	World War Two

UXO DESK STUDY & RISK ASSESSMENT

Please read: Zetica has colour coded each paragraph. Paragraphs with black text on a white background provide site-specific information or information specifically researched as part of this project.

Boxed paragraphs with grey text on a grey background provide general information and, where appropriate, links to online resources giving further detail. These are all available at www.zeticauxo.com. If you cannot access these resources, Zetica can forward them on request.

1 Introduction

1.1 Project outline

Zetica Ltd was commissioned by WSP to carry out a detailed Unexploded Ordnance (UXO) Desk Study and Risk Assessment for 2No. areas totalling approximately 171 hectares (ha) near Maesteg in Bridgend County Borough, Wales (the 'Site').

The aim of this report is to gain a fair and representative view of the potential UXO hazard on or affecting the Site in accordance with the Construction Industry Research and Information Association (CIRIA) C681 'Unexploded Ordnance (UXO), a Guide for the Construction Industry'.

This hazard assessment includes the likelihood and probable location of ordnance being present, and the type and quantity of ordnance anticipated.

It should be noted that some military activity providing a source of UXO hazard may not be recorded and therefore there cannot be any guarantee that all UXO hazards affecting the Site have been identified in this report.

1.2 Sources of information

The main sources of information are detailed in the following sections and referenced at the end of this report.

1.2.1 Zetica Ltd records

Zetica Ltd's in-house records, including the [Zetica Ltd bomb risk maps](#), previous requests for information from government bodies, reference books, and archive material from past work in the region, were consulted.

Relevant documents have been cited in the bibliography of this report.

1.2.2 Historical records, maps, and drawings

Numerous reference documents including historical maps, aerial photographs, and drawings have been consulted, from sources such as:

- The National Archives
- US National Archives & Records Administration (NARA)
- Imperial War Museum (IWM)
- National Collection of Aerial Photography (NCAP)
- The Defence of Britain Project
- Coflein
- National Library of Wales
- Central Register of Aerial Photography for Wales (CRAPW)
- British Geological Survey (BGS)

1.2.3 Local records

Bridgend County Borough Council, the Glamorgan Archives, local historical groups and archaeological bodies, and the Glamorgan-Gwent Historic Environment Record (HER) were consulted for records.

1.3 Data confidence level

In general, there is a high level of confidence in the information sources researched for this report, as defined in Table 1 below. Further detail is given in the text of the report where appropriate.

Historical aerial photography from WWII and immediately post-WWII was not available for the Site. Various other sources (including bomb damage reports and later historical aerial photography) have been used to provide a corroborative assessment of the UXO hazard level on the Site.

Data Confidence Level		Definition
Low		There are very few sources of information, and/or those available are lacking in detail.
Moderate		There is a limited range of available information sources, a key source of information is missing, and/or some sources may be contradictory or lack detail.
High	✓	There is a wide range of available sources of information, which are detailed and corroborate each other.

Table 1 Data confidence level definitions

2 The Site

2.1 Site location

The Site comprises 2No. areas in Bridgend County Borough between Maesteg and Pontycymer, centred on Ordnance Survey National Grid Reference (OSNGR) SS 883914.

The Site comprises upland moorland and trackways. It is bounded on all sides by a mixture of upland moorland, woodland, and trackways.

Figure 1 is a Site location map and Plate 1 is a recent aerial photograph of the Site.

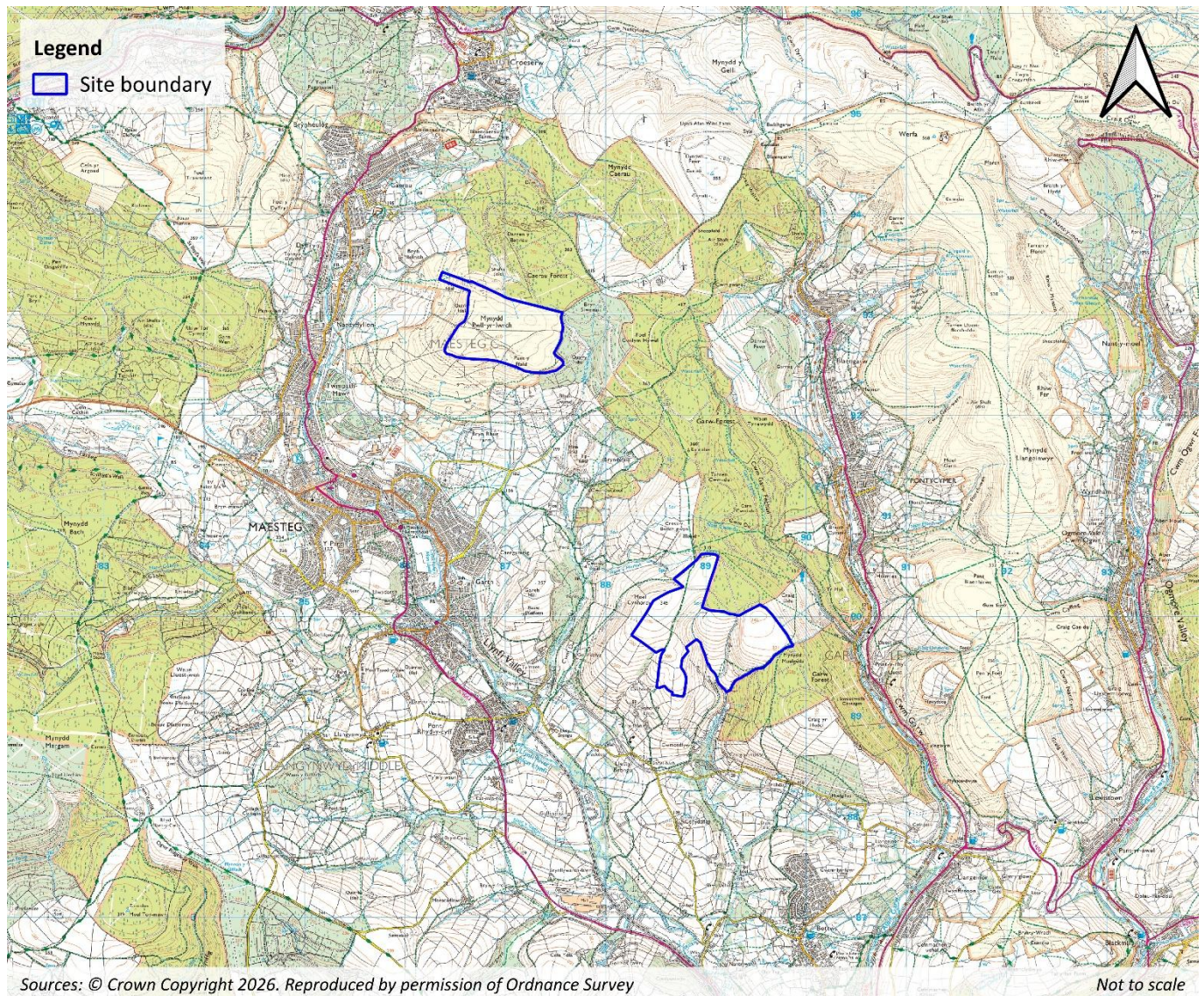


Figure 1 Site location map

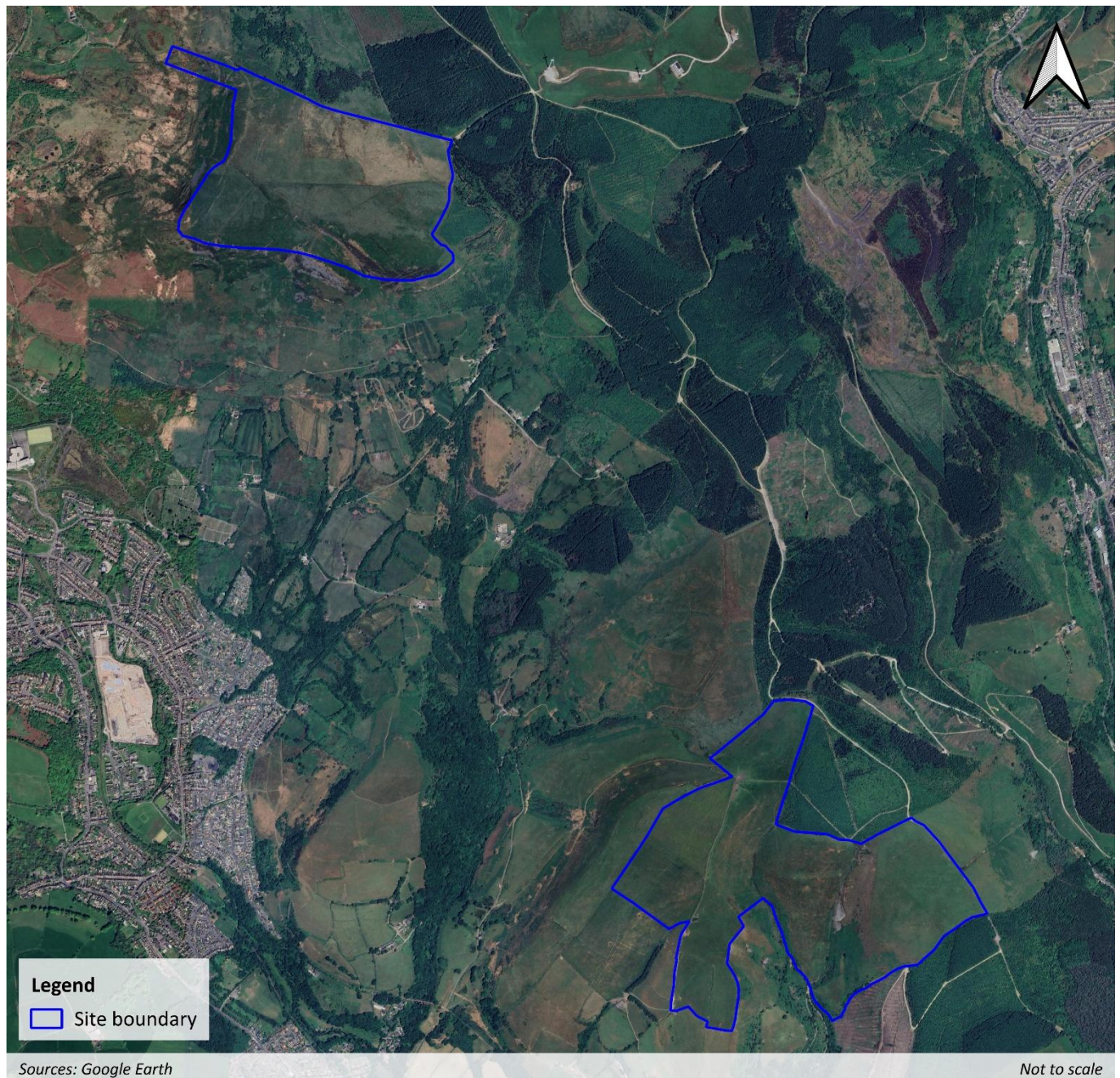


Plate 1 Recent aerial photograph of the Site

3 Military Activity

3.1 Aircraft crashes

Follow the link below for further information on aircraft crashes and their associated potential UXO hazards:

 [Aircraft crashes](#)

No records of any aircraft crashes on the Site have been found. The nearest is detailed below.

29th September 1942

1No. Supermarine Spitfire VB (BM575) fighter aircraft crashed in fog on the northern slope of Moel Cynhordy, near Cwmdul-Isaf Farm (SS 884903), approximately 0.2km north-northwest of the Site.

Records indicate the aircraft was flying a non-operational area sector reconnaissance and familiarisation sortie, and is unlikely to have been armed with a bombload.

Since World War Two (WWII), parts of the wreckage, including 0.303" Browning Small Arms Ammunition (SAA) belts, have been uncovered by souvenir hunters and local farming activity.

Potential UXO hazard

The above aircraft crash may have resulted in SAA and 20mm High Explosive (HE) cannon shells from the aircraft guns being scattered across a wide area, potentially including the Site.

SAA does not provide a significant source of UXO hazard (see Appendix 1).

Aircraft crashes are not considered to provide a significant source of UXO hazard to the Site.

3.2 Defences

Follow the links below for further information on military defences and their associated potential UXO hazards:

 [Anti-Aircraft batteries](#)

 [Home Guard](#)

 [Anti-invasion defences](#)

 [Mined locations](#)

 [Barrage balloons](#)

 [Mortar and gun emplacements](#)

 [Bombing decoys](#)

 [Pillboxes](#)

3.2.1 Anti-Aircraft (AA) batteries

During World War One (WWI), there were no AA batteries recorded within 20km of the Site.

During WWII, there were 2No. Heavy AA (HAA) batteries recorded within 10km of the Site. The nearest was located at Bryn (SS 801918), approximately 6.4km west-southwest of the Site. It was armed with 4No. 3.7" guns.

Potential UXO hazard

Given the presence of AA batteries in the surrounding area, the potential for an Unexploded AA (UXAA) shell to have fallen on the Site unnoticed, whilst unlikely, cannot be totally discounted.

3.3 Military airfields

Follow the link below for further information on military airfields and their associated potential UXO hazards:

 [Military airfields](#)

No records of any military airfields on or in close proximity to the Site have been found.

During WWI, the nearest operational airfield was Royal Flying Corps (RFC) Filton, approximately 70.8km east-southeast of the Site.

It was established in 1910 as a factory airfield for the British and Colonial Aeroplane Company (BCAC), which designed and manufacturing airframes and aero engines for various aircraft types. This included Bristol F.2 fighter aircraft.

During WWI, the BCAC airfield was requisitioned as RFC Filton. It was an Aircraft Acceptance Park (AAP), which received, assembled, and tested military aircraft from local manufacturers. In April 1918, RFC Filton became Royal Air Force (RAF) Filton.

After WWI, RAF Filton continued in use for flying training and as a factory airfield for the BCAC.

During WWII, the nearest operational airfield was RAF Stormy Down, approximately 10.5km southwest of the Site.

It was established in 1938 as No. 9 Armament Training Station, renamed as No. 7 Air Observer School in September 1939.

In November 1939, No. 7 Air Observers School became No. 7 Bombing & Gunnery School, before the airfield was renamed as RAF Stormy Down in 1940.

Throughout WWII, RAF Stormy Down continued to operate mainly as a training station with No. 7 Bombing & Gunnery School, flying several aircraft types. This included Avro Anson multi-role and Miles Martinet target tug aircraft.

In August 1944, operational flying from RAF Stormy Down ceased. The airfield continued in use for glider training until closure in 1947. The land has since been redeveloped for industrial use.

Military airfields are not considered to provide a source of UXO hazard to the Site.

3.4 Munitions factories, depots, and disposal areas

Follow the links below for further information on munitions factories, depots, disposal areas, and their associated potential UXO hazards:

 [Munitions factories](#)

 [Munitions depots](#)

 [Explosives factories](#)

 [Munitions disposal areas](#)

No records of any munitions factories, depots, or disposal areas on or in close proximity to the Site have been found.

3.5 Firing ranges and military training areas

Follow the links below for further information on firing ranges, military training areas, and their associated potential UXO hazards:

 [Artillery ranges](#)

 [Military training areas](#)

 [Bombing ranges](#)

 [Small arms ranges](#)

No records of any firing ranges or military training areas on or in close proximity to the Site have been found.

4 Bombing

4.1 WWI bombing

See Appendix 4.1 or click [here](#) for further information on WWI bombing and the associated potential UXO hazard.

No records have been found to indicate that the Site was bombed during WWI.

4.2 WWII bombing

See Appendix 4.3 or click [here](#) for further information on WWII bombing and the associated potential UXO hazard.

No records have been found to indicate that the Site was bombed during WWII. Further details are provided in the sections below.

4.2.1 Bombing in South Wales and Bridgend

The most significant strategic targets in South Wales were concentrated along the coast, and included Cardiff, Swansea, and Pembroke Dock, all over 10km from the Site. Between 1940 and 1943, these cities were subjected to multiple heavy air raids.

Air raids on Swansea and the Neath Valley commenced in June 1940 and continued until 1943. The heaviest air raids occurred between the 19th and 21st February 1941, the 'Swansea Blitz'. Approximately 900No. HE bombs and 30,000No. Incendiary Bombs (IBs) fell on Swansea and the surrounding area.

Bombing densities in the vicinity of the Site, which was predominantly rural, were typically low. Most incidents resulted from aircraft jettisoning unused bombloads enroute to and from significant strategic targets in nearby Port Talbot, Bridgend, and the Neath Valley.

It should be noted that, although rural areas were bombed less heavily than urban districts, Air Raid Precaution (ARP) records may under-represent the number and frequency with which bombs fell in rural areas.

4.2.2 Strategic targets

From the late 1930s, the Luftwaffe carried out reconnaissance flights over the UK to identify and photograph potential strategic targets. Bombing efforts were typically concentrated against these targets to disrupt vital industry and supply lines and weaken Britain's military force.

The Site was located in a predominantly rural area which contained few strategic targets. The nearest identified Luftwaffe target was Royal Ordnance Factory (ROF) Brackla, approximately 8.3km south-southeast of the Site.

4.2.3 Bombing densities and incidents

During WWII, official bombing statistics were recorded according to local authority districts. In England, Wales, and Northern Ireland, local authorities were categorised as Rural Districts (RD), Urban Districts (UD), Municipal Boroughs (MB), Metropolitan Boroughs (MetB), or County Boroughs (CB). Scotland used Landward Areas (LA), Large Burghs (LB), Small Burghs (SB), and Counties of the City (CC).

Official UK bombing statistics were compiled from a number of sources. Differences in the way the figures were originally reported and collated has led to discrepancies in the summary data.

Discrepancies between the data below and other records, such as bomb clearance records, suggest that these statistics are likely to under-represent actual bombing.

Zetica defines WWII bombing density as the number of HE bombs per 405ha, with the following level definitions:

Very Low

Low

Moderate

High

Very High

0 ≤ 5	5 ≤ 15	15 ≤ 50	50 ≤ 250	250+
-------	--------	---------	----------	------

Table 2 provides the overall bombing statistics recorded for local authorities relevant to the Site, where bold text indicates the local authorities in which the Site was located. Note that Table 2 excludes figures for IBs.

Local Authority	HE bombs	PMs	Other	Total	Bombs per 405ha
Pen Y Bont RD	128	4	0	132	3.2
Ogmore & Garew UD	8	0	0	8	0.4
Maesteg UD	0	0	0	0	0.0
Port Talbot MB	87	1	3	91	3.9
Rhondda UD	36	4	3	43	1.8
Glyncorwg UD	3	0	0	3	0.2
Bridgend UD	0	0	0	0	0.0

Table 2 Bombing statistics

Details of the nearest recorded bombing incidents to the Site are given below.

17th August 1940

Several HE bombs fell on Maesteg, approximately 1.9km southwest of the Site.

26th October 1940

Several IBs fell on the Maesteg area, within approximately 1.7km southwest of the Site.

10th January 1941

1No. HE bomb fell on open ground near Coegnant Colliery, approximately 0.7km west of the Site.

11th January 1941

1No. HE bomb fell on allotments at Caerau, approximately 0.9km northwest of the Site.

12th February 1941

Several HE bombs fell on Maesteg, within approximately 1.9km southwest of the Site.

31st May 1941

2No. HE bombs fell on Caerau, between approximately 1.0km and 1.1km west-northwest of the Site.

Figure 2 is a map showing the approximate location of recorded bomb impacts in the immediate vicinity of the Site. IBs shown are indicative of larger numbers of similar devices that fell within the given area.

The map has been compiled from multiple sources, including air raid incident reports, and bomb census maps.

The bomb map is also given in the accompanying P17427-26-MAP01-A.

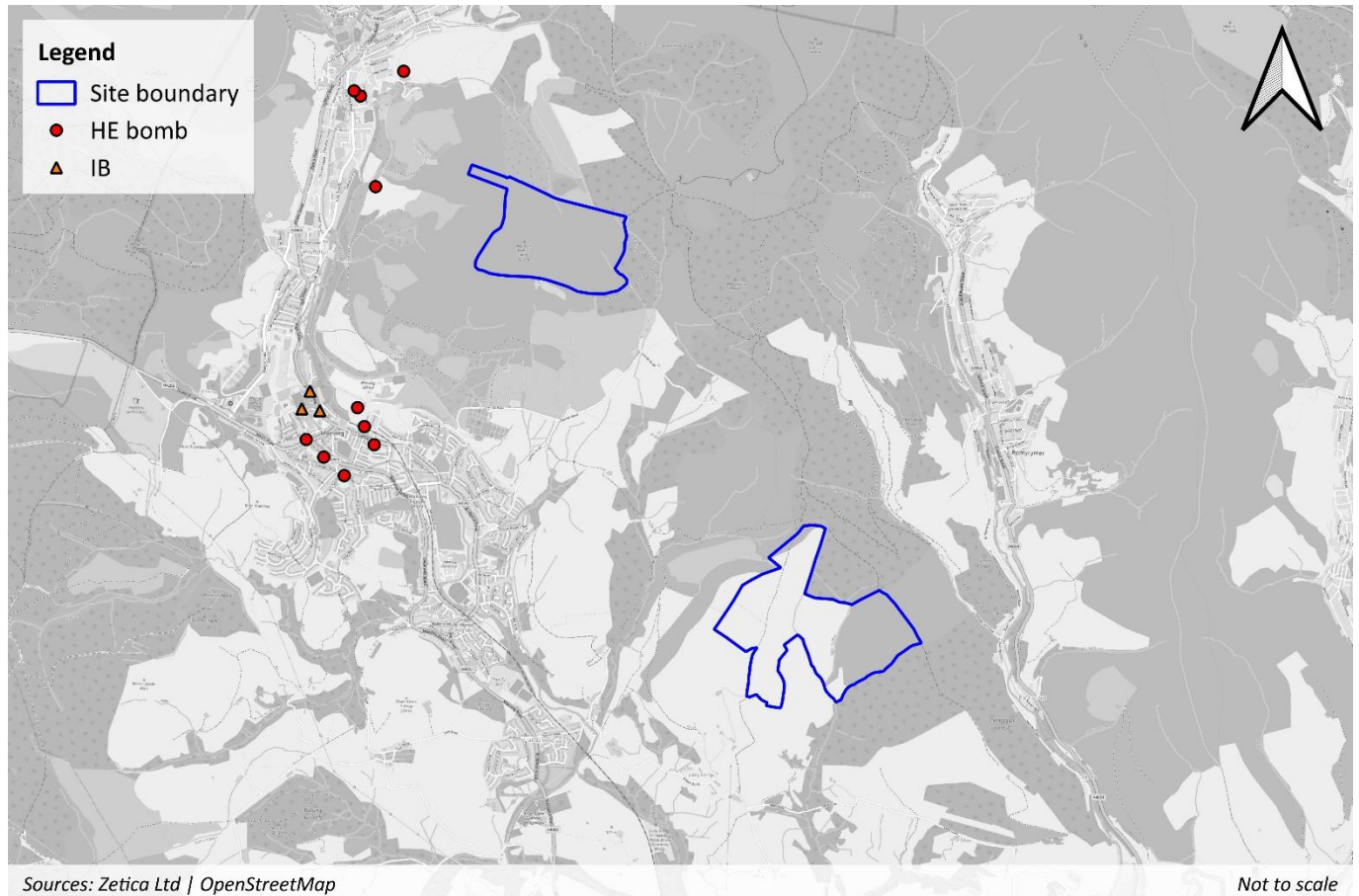


Figure 2 Compiled bomb impact map for the vicinity of the Site

Potential UXO hazard

No records have been found indicating that the Site was bombed.

It should be noted that historical aerial photography for the Site was not available (see Section 1.3). Given that the localised bombing density in the vicinity of the Site was low, it is considered that this would only confirm the conclusions above.

WWII bombing is not considered to provide a significant source of UXO hazard to the Site.

4.2.4 Abandoned bombs

Many Unexploded Bombs (UXBs) were mapped and removed during wartime, when conditions and demands on bomb disposal teams allowed.

War Office (WO) statistics show that between October 1940 and May 1941, 93% of UXBs were either 50kg or 250kg. Larger UXBs, whilst rarer, are often difficult to recover. This is due to both deeper penetration depths and the presence of two or more fuzes combined with more sensitive explosive fillings.

Royal Engineers (RE) records indicate that by the 27th February 1946, over 45,000No. UXBs had been disposed of.

Only a small number of UXBs were left in-situ and registered as officially abandoned bombs. There were several potential reasons for abandoning a UXB, including a lack of clarity on its exact location, deep penetration depth, and location away from populations and critical infrastructure.

Click [here](#) for further information on abandoned bombs and the associated potential UXO hazard.

No records have been found to indicate that any officially abandoned bombs are located on the Site.

4.2.5 Bomb penetration depths

At the time of writing, no Site-specific ground investigation data was provided.

BGS 1:50,000 Sheet 248 Pontypridd (Solid & Drift) and BGS borehole records from nearby investigations have been consulted to produce an indicative overview of the Site geology.

The WWII geology of the Mynydd Bach part of the Site is understood to consist of the Llynfi Member, Rhondda Member, or South Wales Middle Coal Measures Formation.

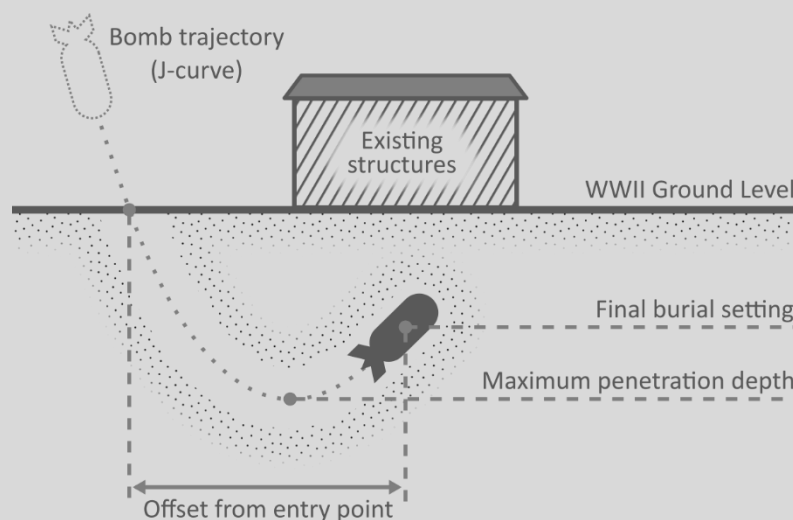
Table 3 provides an estimate of average maximum bomb penetration depths for the Site assuming WWII ground conditions of more than 20m of sandstone and mudstone, with intermittent coal seams. These depths are taken from [Zetica's unexploded bomb depth calculator](#).

Bomb weight	Estimated average maximum penetration depth
50kg	2.5m
250kg	3.5m
500kg	6.0m

Table 3 Estimated average maximum bomb penetration depths

These calculations can be refined on receipt of Site-specific information.

The estimated bomb penetration depths given in Table 3 are from WWII ground level, assuming that the bomb had no retarding units fitted, was stable in flight and penetration, and impacted homogenous soil at an angle of 10-15° from the vertical while travelling at approximately 260m/s.



Under these conditions, a bomb will enter the ground and travel on the same trajectory until momentum is nearly lost. The bomb will then turn abruptly to the horizontal before coming to rest. The horizontal distance between the centre of the entry hole and the centre of the bomb at rest is known as the 'offset'. A significant horizontal movement from the original point of entry is common.

Low-level attacks may have an impact angle of 45° or more from the vertical, which typically creates an even greater offset during soil penetration.

The average offset is one third of the penetration depth. If hardstanding or Made Ground were present during WWII, bomb penetration depths would have been significantly reduced but offset may have been up to four times greater.

5 Post-WWII Explosive Ordnance Clearance (EOC) & Disposal (EOD) Activities

Since the end of WWII, UXO has been routinely discovered across the UK. Often such finds are made during construction or by members of the public (e.g. through metal detecting, magnet fishing), resulting in the reactive call-out of EOC and EOD units. Other UXO finds are part of planned clearance activities by military and commercial EOC/EOD teams.

Most EOC/EOD tasks in the UK relate to the discovery of Land Service Ammunition (LSA), particularly grenades and mortars. This is reflective of their widespread use in military training activities and as defensive weapons around military establishments such as airfields. UXBs are less commonly found, though often cause more disruption because of their size.

Examples of recent UXO finds across the UK are given in Appendix 5.

5.1 EOC tasks

Zetica holds no records of post-WWII EOC tasks occurring in the vicinity of the Site.

6 UXO Hazard Assessment

6.1 UXO hazard level

Hazard Level	Definition
Very Low	There is positive evidence that UXO is not present (e.g. through physical constraints or removal).
Low	There is no positive evidence that UXO is present, but its occurrence cannot be totally discounted.
Moderate	There is positive evidence that ordnance was present or that other uncharted ordnance may be present as UXO.
High	There is positive evidence that UXO is present.
Very High	As high, but requires immediate attention due to the potential hazard.

Table 4 Hazard level definitions

No records have been found to indicate that the Site was bombed and no other significant sources of UXO hazard have been identified on the Site.

It is considered that the Site has a low UXO hazard level, as shown in Figure 3.

The UXO hazard zone plan of the Site is also given in the accompanying P17427-26-MAP01-A.

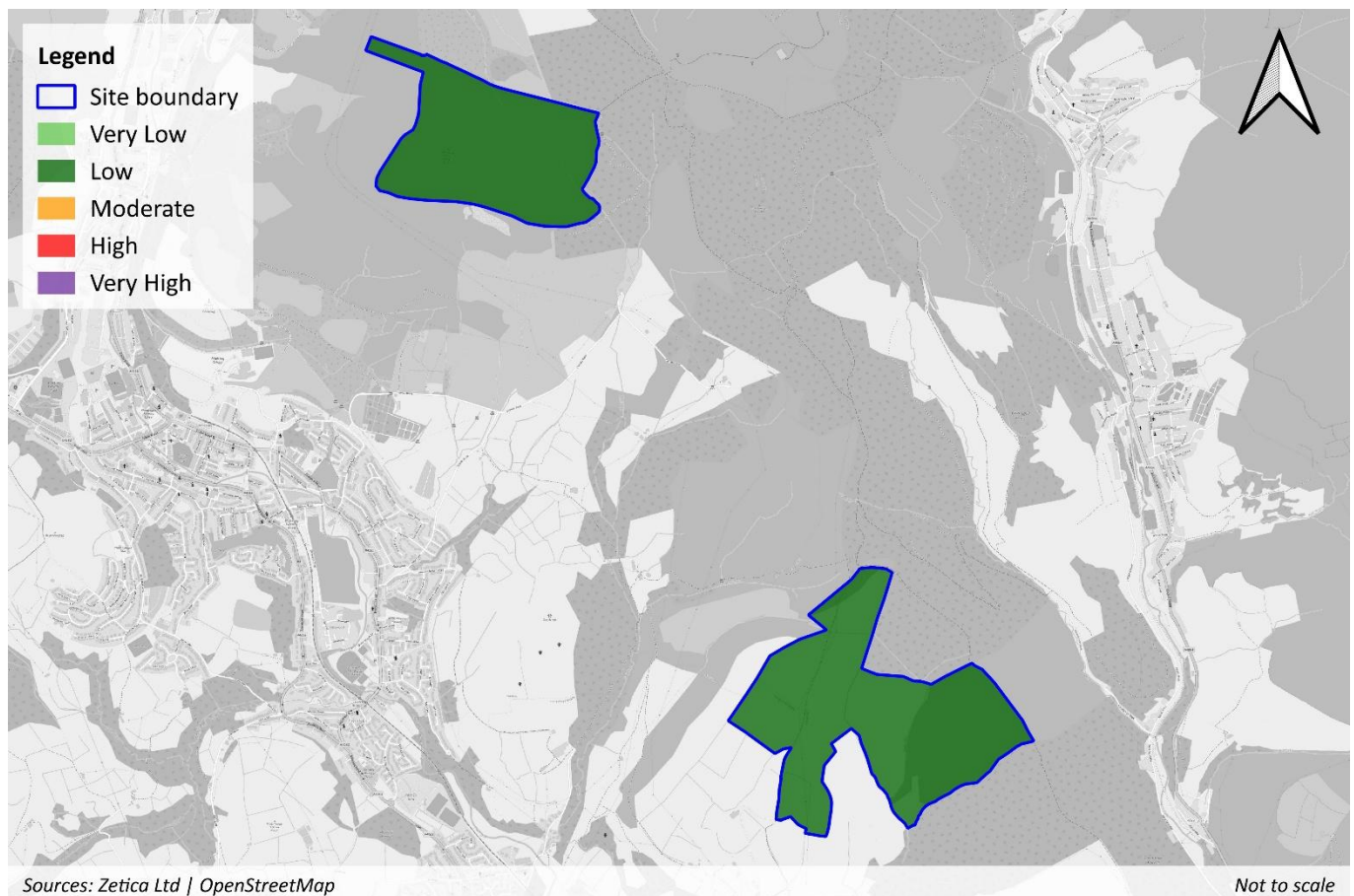


Figure 3 UXO hazard zone plan of the Site

7 UXO Risk Assessment

7.1 Proposed works

At the time of writing no information on proposed works have been provided. For the purposes for this risk assessment it is assumed that works on the Site may include excavations, boreholes, and piling.

7.2 UXO risk level

The UXO risk assessment for proposed works on the Site is given in Table 5.

Potential UXO	Anticipated Works	PE	PD	$L = PE \times PD$	Likelihood Rating	Severity	Risk Rating	UXO Risk Level
UXB	Excavations	1	1	1	1	5	5	Low
	Boreholes/Piling	1	1	1	1	4	4	Low
Other UXO	Excavations	1	1	1	1	4	4	Low
	Boreholes/Piling	1	1	1	1	3	3	Low

PE = Probability of Encounter, PD = Probability of Detonation, L = Likelihood

Table 5 UXO risk assessment for the Site

It is considered that there is a [RISK LEVEL] UXO risk to the proposed works, as defined in Table 6.

Risk Level	Risk Rating	Definition
Very Low	0-1	Little action is required, provided suitable procedures are in place to ensure appropriate action is taken should the risk level change.
Low	2-5	Tolerable. Engineering activity need not alter if procedures are in place to manage the residual UXO risk.
Moderate	6-15	Typically intolerable. Prudent for risk mitigation measures to be undertaken where practicable.
High	16-20	Intolerable, except in extraordinary circumstances. Essential that all practicable risk mitigation measures are undertaken.
Very High	21-25	Unacceptable. Imperative that all risk mitigation measures are undertaken.

Table 6 UXO risk level definitions

7.3 The As Low As Reasonably Practicable (ALARP) principle

Where a UXO risk is identified, it is the responsibility of clients, designers, and contractors to determine the tolerability of the identified risk and reduce that risk to ALARP.

The ALARP approach is a key principle of UK health and safety legislature. ALARP principles aim to protect those at risk, whilst ensuring the costs and benefits of the risk mitigation measures are proportional.

8 Risk Mitigation Plan

Key findings: No significant sources of UXO hazard have been identified.

Key actions: Proceed with works. A UXO awareness briefing is prudent for staff involved in excavations.

8.1 UXO risk summary

Table 7 summarises the UXO risk for proposed works on the Site and recommended actions.

Proposed Works	UXO Risk	Recommended Mitigation
Excavations		Proceed with works – a UXO awareness briefing is prudent for staff involved in excavations.
Boreholes/Piling		Proceed with works

Table 7 Summary of UXO risk mitigation recommendations

8.2 Risk mitigation techniques

Risk mitigation techniques for the Site are summarised below. Further details are given in Appendix 2.

8.2.1 UXO awareness briefing

It is prudent that all staff involved in intrusive works are provided with a formal UXO awareness briefing.

The briefing offers some recognition skills for typical UXO and suitably sensitise staff to be vigilant during site works.

8.3 What do I do next?

If you have any comments or require further assistance, contact us at uxo@zetica.com or 01993 886 682 and we can help. For more information about our other UXO services, visit www.zeticauxo.com.

If you need to identify other buried hazards (e.g. mapping utilities, obstructions, or archaeology) we can provide these surveys.

If proposed works on the Site change, or additional works are planned, contact Zetica for a re-assessment of the UXO risk and the risk mitigation requirements.

APPENDICES

Appendix 1 Risk assessment methodology

A UXO risk assessment has been undertaken for the proposed works, given in Section 7.2.

Firstly, the probability of encountering (PE) UXO and the probability of detonating (PD) an item of UXO have been considered and rated for the proposed construction techniques. These are defined in the Table below.

Probability of Encounter/Detonation	Rating
Frequent, highly likely, almost certain.	5
Probable, more likely to happen than not.	4
Occasional, increased chance or probability.	3
Remote, unlikely to happen but could.	2
Improbable, highly unlikely.	1
Impossible.	0

Table Probability rating definitions

Next, the probability of encounter and detonation (PE x PD) have been used to generate the likelihood (L) of encountering and detonating UXO, as shown in the Table below. This calculation is cumulative (i.e. if the PE is low then the PD is also considered low).

L ranges from 25, a certainty of UXO being encountered and detonated on the Site by engineering activity, to 0, a certainty that UXO does not occur on the Site and will not be detonated by engineering activity. An overall likelihood rating is determined from the range of L values.

L = PE x PD	Likelihood of Encounter and Detonation	Likelihood Rating
21 – 25	Frequent, highly likely, almost certain.	5
16 – 20	Probable, more likely to happen than not.	4
6 – 15	Occasional, increased chance or probability.	3
2 – 5	Remote, unlikely to happen but could.	2
1	Improbable, highly unlikely.	1
0	Impossible.	0

Table Likelihood value ranges, definitions, and ratings

The likelihood rating is then multiplied by the severity, as defined in the Table below.

Severity	Rating
Multiple fatalities.	5
Major injury, long term health issues, single fatality.	4
Minor injury, short term health issues, no fatalities.	3
First aid case but no lost time or ill health.	2
Minor injuries, no first aid.	1
No injuries.	0

Table Severity rating definitions

This calculation provides an overall risk rating, as shown in the Table below.

LIKELIHOOD RATING	SEVERITY						
		5	4	3	2	1	0
	5	25	20	15	10	5	0
	4	20	16	12	8	4	0
	3	15	12	9	6	3	0
	2	10	8	6	4	2	0
	1	5	4	3	2	1	0
	0	0	0	0	0	0	0

Table UXO risk rating matrix

UXO AWARENESS BRIEFING

This ensures that in the unlikely event that UXO is encountered:

- UXO awareness briefings can be provided to all site workers but can also be provided to key site staff and cascaded out to new staff using the provided hardcopy materials without Zetica's attendance.



Appendix 3 Ordnance datasheets

SMALL ARMS AMMUNITION



.303", 6.5mm, and .30-06 SAA



Spent SAA cartridges



Loose SAA



Belted 0.5" SAA

Typical Characteristics

Small Arms Ammunition (SAA) refers to a wide variety of cartridges with projectiles up to ~12.7mm (0.5") in calibre. Weapons using SAA may be man-portable or mounted on vehicles such as tanks and aircraft.

SAA may be found loose or in belts, magazines, or clips. Rounds may be spent (fired) or unspent (intact). Encounters with SAA are particularly common around military establishments such as ranges, training areas, and airfields. Aircraft crashes and shipwrecks are other common sources of SAA encounter.

Generally, SAA presents a kinetic hazard. Detonation typically requires striking the percussion cap with force, causing the propellant to burn and create gas that ejects the projectile. Some varieties of SAA may feature fuzes and explosive fillings (e.g., High Explosive/Incendiary). This is most common for SAA with projectiles over 10mm (0.4") in calibre.

Any SAA encountered should be treated with respect and advice sought from a UXO specialist.



The selection of common SAA calibres shown above is indicative. It is not exhaustive. The appearance of SAA can vary considerably depending on its origin and intended purpose.

AUTOCANNON ROUNDS



British 20mm autocannon rounds



20mm & 30mm projectiles



20mm projectile

Typical Characteristics

Autocannons or 'cannons' are commonly found in defensive emplacements or on vehicles such as tanks and aircraft. Their projectiles are typically ~15 – 60mm (0.6 – 2.4") in calibre and often feature fuzes and explosive fillings such as High Explosive/Incendiary. They should be treated with the same respect as other UXO such as shells and grenades.

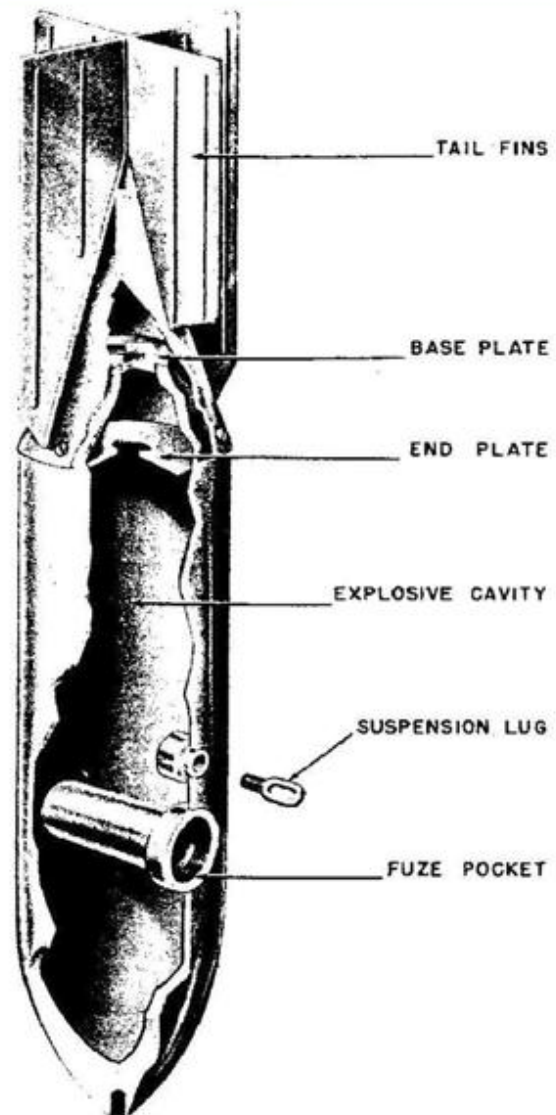
Cannon rounds may be found loose or in belts, magazines, or clips. They may be discovered spent (fired) or unspent (intact). In either case, the projectile may remain unexploded and dangerous.

Cannon rounds are often found around firing ranges, airfields, aircraft crashes, or shipwrecks, where Small Arms Ammunition (SAA) is also anticipated. It is important to maintain recognition skills so that SAA and cannon rounds are not misidentified.



The selection of common calibres shown above is indicative. It is not exhaustive. The appearance of autocannon rounds can vary considerably depending on its origin and intended purpose.

SPRENGBOMBE CYLINDRISCH SC-50 (High Explosive Bomb SC-50)



Typical Specifications

Description: Cylindrical with ogive nose and four-fin tail

Purpose: General purpose bomb (blast and fragmentation)

Colour: Body Dark grey or grey-beige
Marks Yellow stripes on tail cone

Filling: TNT, Amatol, or Trialen

Dimensions: Body 766mm x 200mm (30.2" x 7.9")
& Tail 1090mm x 280mm (42.9" x 11")

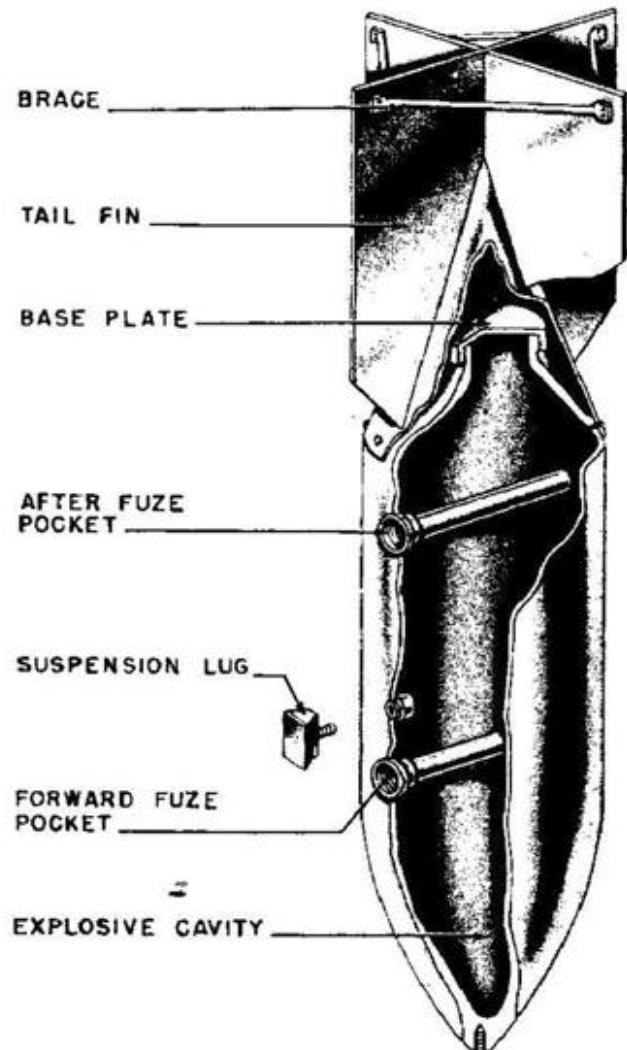
Charge Weight: 21 – 25kg

Construction: Body Forged, cast, or tubular steel
Tail Sheet steel

Fuze: Electrical (impact or delay)

Variations: Minor variations in construction & length, may have additional external features (see supplementary sheet)

SPRENGBOMBE CYLINDRISCH SC-250 (High Explosive Bomb SC-250)



Typical Specifications

Description: Cylindrical with ogive nose and braced four-fin tail

Colour: Body Dark grey or grey-beige
Marks Yellow stripes on tail cone

Dimensions: Body 1172mm x 368mm (46" x 14.5")
& Tail 1654mm x 512mm (65.1" x 20.2")

Construction: Body Forged, cast, or tubular steel
Tail Sheet steel

Variations: Minor variations in construction & length, may have additional external features (see supplementary sheet)

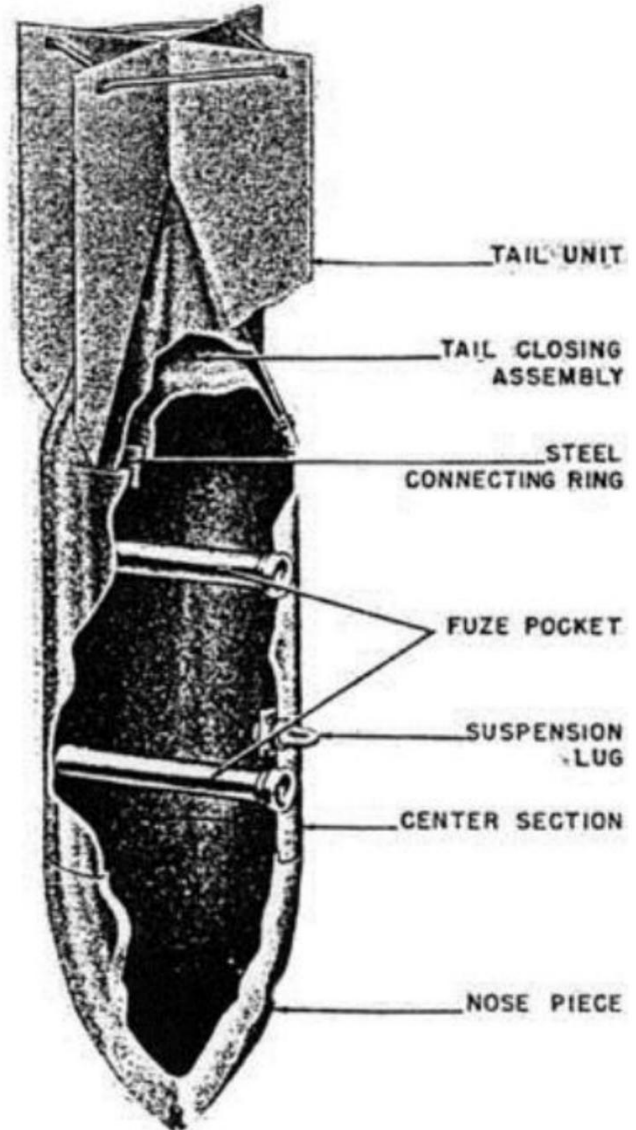
Purpose: General purpose bomb (blast and fragmentation)

Filling: TNT, Amatol, or Trialen

Charge Weight: 125 – 130kg

Fuze: Electrical (impact or delay)

SPRENGBOMBE CYLINDRISCH SC-500 (High Explosive Bomb SC-500)



Typical Specifications

Description: Cylindrical with ogive nose and braced or ring-bound four-fin tail

Colour: Body Dark grey or grey-beige
Marks Yellow stripes on tail cone

Dimensions: Body 1423mm x 470mm (56" x 18.5")
& Tail 1971mm x 640mm (77.6" x 25.2")

Construction: Body Forged, cast, or tubular steel
Tail Sheet steel

Variations: Minor variations in construction & length, may have additional external features (see supplementary sheet)

Purpose: General purpose bomb (blast and fragmentation)

Filling: TNT, Amatol, or Trialen

Charge Weight: 250kg

Fuze: Electrical (impact or delay)

ANTI-AIRCRAFT PROJECTILES



3" AA shell



3.7" AA shell



3.7" AA shell



4.5" AA shell



AA Fuze (No. 199)

Typical Characteristics

Anti-Aircraft (AA) guns are artillery pieces designed to engage aircraft. They may be categorised as Heavy AA (HAA) or Light AA (LAA) depending on their role. HAA guns are similar to conventional artillery pieces. LAA guns are typically autocannons.

AA rounds may be found spent (fired) or unspent (intact). Spent rounds are typically found in the vicinity of defended locations or firing ranges. Unspent rounds are most common near production, storage, and disposal facilities, and may have an attached propellant cartridge which is also hazardous. Whether spent or unspent, AA projectiles may remain unexploded and dangerous.

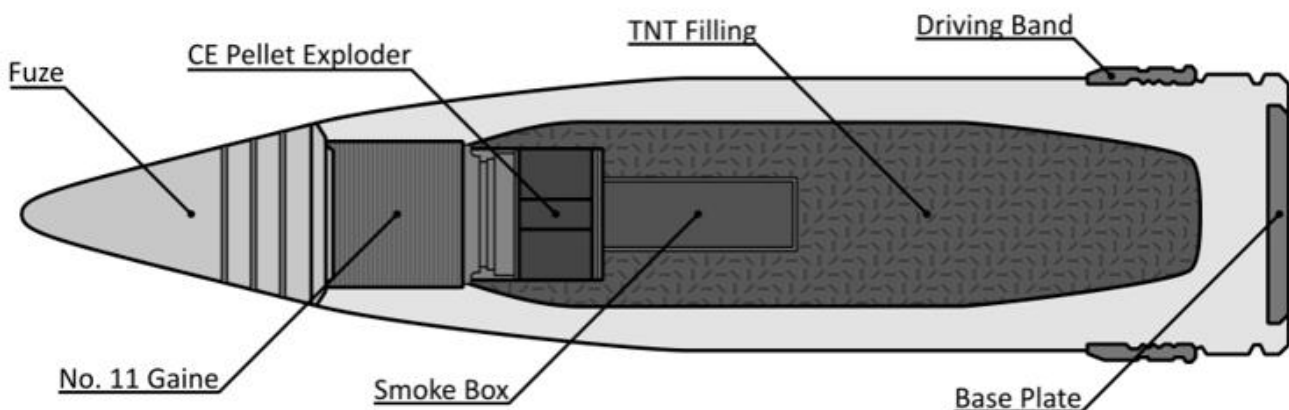
During WWI and WWII a range of HAA guns were used, each with specific projectiles. The first guns were often conversions of existing weapons, while later guns were designed specifically for the role. The typical specifications of a HAA projectile are provided below. Dimensions for the main calibres of WWI- and WWII-era British HAA projectile are provided overleaf.

Description: Cylindrical with ogive nose, one or more driving bands, and flat base

Filling: High Explosive (TNT, RDX, Amatol, etc...) or shrapnel

Construction: **Projectile** Forged or cast steel
Cartridge Sheet brass

Fuze: **WWI** Igniferous (time) and mechanical (impact)
WWII Mechanical or igniferous (time) or electrical (proximity)



Indicative cross-section of a British WWII-era 3.7" AA Shell (HE filling)

Appendix 4 Sources of UXO hazard

Appendix 4.1 Aircraft crashes

AIRCRAFT CRASHES

Military aircraft operations sometimes resulted in aircraft crashes, particularly during wartime when aerial activity was significantly higher.

Whilst many aircraft crashes occurred during take-off and landing at military airfields, they could occur anywhere across the country. Collisions, enemy engagements, aircraft faults, pilot error, and adverse weather conditions were all causes for crashes.

Depending on the nature of the crash, debris, including aircraft parts and any munitions onboard, could be scattered over a wide area around the crash site.



Wellington X3790 Mark III, 7th August 1943



Douglas A-20 Havoc, 28th May 1944



Consolidated B-24H Liberator, 5th October 1944

Determining the type of aircraft and the activity the aircraft was involved in at the time of crashing is important to understanding any potential Unexploded Ordnance (UXO) hazard it might present. A transport aircraft ferrying personnel between airfields is unlikely to have been armed, whilst a bomber aircraft on return from an unsuccessful mission could have been carrying a full bomb load.

Aircraft crash sites were generally cleared quickly where possible. Those in remote or inaccessible locations may not have been investigated or cleared during wartime.

Crashes outside of wartime were typically more thoroughly cleared of debris than those which occurred during wartime, reducing the potential for an associated UXO hazard to remain.

Hazard

Whether an aircraft crash provides a potential source of UXO hazard is dependent on the type of aircraft that crashed, its operational status, its ordnance load, and any clearance efforts.

Small Arms Ammunition (SAA) from the aircraft's defensive guns is the most common source of ordnance associated with aircraft crashes. Some later aircraft were armed with 20mm cannons which fired cannon shells instead of SAA. Cannon shells have High Explosive (HE) content and constitute a more significant potential UXO hazard than SAA. Both SAA and cannon shells could scatter over a wide area around a crash site.

Aircraft crashing with full or partial bomb loads may provide a potential Unexploded Bomb (UXB) hazard. Bombs may have been jettisoned prior crashing, thrown wide of the aircraft during the crash, or remained onboard.

Unless disturbed, there is no statutory requirement for the Ministry of Defence (MoD) to clear aircraft crash sites. The MoD advise that if crashed aircraft are found, they should be left undisturbed where possible. Where a fatal crash site is located, the disturbance of the site may be prohibited due to its status as a war grave.

Appendix 4.2 WWI bombing

WORLD WAR ONE (WWI) BOMBING

During WWI, strategic aerial bombardment of the UK took place for the first time. An estimated 9,000No. German bombs were dropped on Britain during the course of 51No. airship and 52No. aircraft raids.

Many of these raids were carried out on London and Southeast England, with areas along the East Coast also targeted regularly due to their proximity to the European continent. Raids further inland were rare and West England and Wales were out of reach for German aircraft of the time.



4.7l Incendiary (L) and
12.5kg Carbonit bombs (R)



12.5kg P.u.W bombs



300kg P.u.W bomb



Zeppelin LZ44 (LZ74) rigid airship



Zeppelin Staaken R.XIV ('Giant') bomber aircraft



12.5kg, 50kg, 100kg, and 300kg P.u.W bombs



Gotha G.IV bomber aircraft

Early aerial bombing in WWI was carried out by rigid airships known as Zeppelins, which were predominantly replaced by 1917 by bomber aircraft. Bombing initially relied on visual aiming, with bombsights not developed until later in the war. This inaccuracy meant that bombs often fell some way from their intended targets.

The first recorded raid against England was on the 21st December 1914 in Dover. Zeppelin raids intensified during 1915 and 1916, with aircraft raids becoming more frequent after 1917. The last aircraft raid of WWI took place on the 19th May 1918, when 41No. aircraft dropped over 2,500lbs of bombs on London and surrounding districts.

WWI aerial-dropped bombs range from small incendiary bombs up to 1,000kg Prufanstalt und Werft der Fliogertruppe (P.u.W) High Explosive (HE) bombs.

Hazard

Given the low bombing density of WWI raids, it is typically considered unlikely for a WWI Unexploded Bomb (UXB) to be encountered.

Areas subjected to sustained bombing raids in WWI may have recorded higher numbers of UXBs. In these areas, where there has been no significant development since WWI, the potential of a UXB remaining from WWI cannot be totally discounted.

Appendix 4.3 WWII bombing

WORLD WAR TWO (WWII) BOMBING

WWII bombing raids in the UK began in summer 1940. Bombing densities increased towards major cities, coastal towns, cathedral cities, or areas with strategic targets such as docks and harbours, industrial areas, and airfields.

German bombing campaigns extensively used High Explosive (HE) bombs. 50kg and 250kg HE bombs were most common, although 500kg and larger sizes were also used. Not all HE bombs were intended to explode on impact and some had timing mechanisms where detonation could occur over 70 hours after impact.

Incendiary Bombs (IBs) were dropped in large numbers, typically alongside HE bombs, to start fires to cause damage and hinder repair efforts. They ranged from small 1kg IBs to 250kg and 500kg Oil Bombs (OB). Some IBs were fitted with bursting charges or steel noses to cause additional damage.

Anti-Personnel (AP) bombs and Parachute Mines (PMs) were also deployed. AP bombs were 1kg and 2kg and could inflict damage up to 150m away. PMs could be up to 4m long and were typically detonated either magnetically or by noise/vibration. Anti-shipping PMs were commonly dropped over navigable rivers, dockland areas, and coastlines.

In 1944, use of the Flying Bomb (V1), a pilotless guided missile, and the Long-Range Rocket (V2), a ballistic missile rocket, began. They travelled at high speeds to avoid detection and caused significant damage on impact.



50kg and 500kg HE bombs



1,000kg magnetic PM



Luftwaffe Dornier bomber aircraft on a bombing raid over Woolwich Arsenal, 7th September 1940



Defusing of UXB in WWII

WWII bomb targeting could be inaccurate, especially in the first year of the war, and bomb loads could fall significantly off target. Bomb loads were also dropped in 'tip and run' raids, where crews would drop their bombs to avoid Anti-Aircraft (AA) fire or Allied aircraft, on route to or from the intended target.

Urban areas typically had systems for reporting bomb incidents and dealing with Unexploded Bombs (UXB). In more rural areas where fewer bombing raids occurred, it is known that Air Raid Precaution (ARP) records under-represent the number and frequency of bombs falling. However, it was possible for bombs to be unrecorded or recorded poorly in any area.

Of the ~75,000 tons of bombs dropped on Britain in WWII, an estimated 11% of them failed to detonate.

Hazard

Whether a UXB hazard exists on a site will depend on various factors: whether the Site was bombed, how heavy the raids in the area were and what were the raids targeting, and the potential for a UXB impact to have been missed or have gone unrecorded.

On any site the potential for UXBs cannot be totally discounted, and therefore it is essential that detailed local bombing records are obtained when assessing a UXB hazard.

Appendix 4.4 Anti-Aircraft batteries

ANTI-AIRCRAFT (AA) BATTERIES

In World War One (WWI) AA batteries were gradually established throughout England to counter German aerial bombardment. These defences were concentrated around London, coastal areas, and cities with significant industry. By June 1916, there were approximately 271No. AA guns and 258No. searchlight installations defending London alone.

Common WWI AA defences included 3", 75mm, 1-pounder (-pdr), and 6-pdr guns. Many of these guns were mobile, mounted on trucks or travelling platforms, to enable them to follow the course of an airship or aircraft.

WWI Unexploded AA (UXAA) shells could fall up to 13km from the AA gun, although they typically fell within 10km.



WWI 3" 20cwt AA gun



WWI 13-pdr 9cwt AA gun



A typical WWII HAA battery layout, with associated accommodation camp



WWII 3.7" AA guns in production



WWII 50-calibre Jeep-mounted AA gun

During World War Two (WWII), AA batteries were used extensively to counter enemy aircraft during bombing raids. Numerous AA guns were established in and around major cities and strategic targets throughout the UK.

3No. types of AA batteries in WWII existed:

- Heavy AA (HAA) – typically 3.7", 4.5", and 5.25" calibre guns designed to engage high flying bomber aircraft. These tended to be permanent gun emplacements.
- Rocket AA (ZAA) – fired 3" or 3.7" AA rockets with a maximum altitude of 5,800m and a ground range of 9km. These tended to be permanent gun emplacements.
- Light AA (LAA) – typically used 40mm shells and machine gun ammunition and designed to counter low flying aircraft. These were often mobile and moved periodically as required.

WWII UXAA shells could fall across a wide area and up to 27km from the AA gun, although they typically fell within 15km.

Hazard

AA batteries had munitions stores for shells used at the battery and Small Arms Ammunition (SAA) for troops manning the position. Stores were typically removed at the end of WWI/WWII, although spillage and disposal in the vicinity of the battery may have occurred and cannot be discounted.

In areas heavily defended by AA batteries, the potential for UXAA shells falling on a site should also be considered, accounting for the likely range of the AA batteries.

Appendix 5 Recent UXO finds

UXO finds in the UK are a regular occurrence, although they almost never result in an accidental detonation.

Zetica Ltd, and other commercial EOD companies, uncover and make safe thousands of items of UXO each year, though details rarely make it to public knowledge. Publicly recorded discoveries also occur regularly, as shown by the list of recent significant UXO finds in the UK below. Keep up to date with the latest UXO finds [here](#).

During construction works in January and February 2025, approximately 176No. practice bombs were discovered at a children's park in Wooler, Northumberland. The practice bombs were removed safely.

On the 3rd May 2025, 1No. 3" mortar was found on the banks of the River Arun, near Arundel. It was disposed of safely by a Royal Navy EOD team.

On the 11th and 12th June 2025, 2No. 8" naval shells were discovered at Bidnay Yard, in Appledore, Devon. They were relocated by an EOD team to Westward Ho! beach and disposed of in a controlled explosion.

On the 4th July 2025, 2No. WWI-era 18-pounder artillery shells were discovered in Charlesworth, Derbyshire. They were destroyed in a controlled explosion by an Army EOD unit.

On the 5th August 2025, 3No. Unexploded German IBs were unearthed in a garden on Plassey Street, Penarth. They were rendered safe by an EOD team.

On the 11th August 2025, a wildfire on Langdale Moor in North Yorkshire caused at least 18No. explosions of buried ordnance. The area has historically been used as a military training, including intensive live-fire battle training.

On the 18th September 2025, 76No. WWII-era practice bombs were excavated from a pit in a field off Longstowe Road, Cambridgeshire, near Gransden Lodge Airfield. The bombs were destroyed in controlled explosions by an EOD team.



Example of a practice bomb



Example of a WWII-era mortar

On the 7th October 2025, 18No. artillery shells washed up on Drigg Beach, Cumbria. They were identified and marked by the Coastguard and an EOD team, and safely detonated in controlled explosions.

On the 12th December 2025, an unexploded artillery shell was discovered during routine drainage work at Royal Liverpool Golf Club. It was detonated in a controlled explosion by an Army EOD team.

On the 14th January 2026, 1No. German SC50 HE bomb was dredged up in Exmouth Marina, and another was found on a building site in Millbay, Plymouth. Both were taken out to sea for detonation.

On the 12th March 2026, several smoke signals and small munition fragments were found on Medmerry Beach, near Chichester. The beach was historically used as a bombing and air-to-ground firing range. The items were detonated in controlled explosions.

Appendix 6 Glossary and definitions

Abandoned Explosive Ordnance (AXO)	Explosive ordnance that has not been used during an armed conflict, that has been left behind or disposed of by a party to an armed conflict, and which is no longer under control of that party. Abandoned explosive ordnance may or may not have been primed, fuzed, armed, or otherwise prepared for use.
Detonation	The high-speed chemical breakdown of an energetic material producing heat, pressure, flame, and a shock wave.
Device	Any component, sub-assembly or completed ordnance. It can apply to detonators, primers, gaines, fuzes, shells, or bombs.
Explosive	Compounds forming energetic materials that under certain conditions chemically react, rapidly producing gas, heat, and pressure.
Explosive Ordnance (EO)	All munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and Small Arms Ammunition; all mines, torpedoes, and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components that are explosive in nature.
Explosive Ordnance Clearance (EOC)	The operation of ordnance detection, investigation, identification, and removal, with Explosive Ordnance Disposal being a separate operation.
Explosive Ordnance Disposal (EOD)	The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of Unexploded Ordnance.
Explosive Ordnance Reconnaissance (EOR)	The detection, identification, and on-site evaluation of Unexploded Ordnance before Explosive Ordnance Disposal.
Explosive Remnants of War (ERW)	Unexploded Ordnance and Abandoned Explosive Ordnance, excluding landmines.
Explosive Substances & Articles (ESA)	Explosive substances are solid or liquid substances (or a mixture) which are either: capable by a chemical reaction of producing gas at a speed, temperature, and pressure to cause damage to the surroundings; or designed to produce an effect by heat, light, sound, gas, or smoke (or a combination) as a result of a non-detonative, self-sustaining, exothermic reaction. One or more explosive substances form an explosive article.
Fuze	The part of an explosive device that initiates the main explosive charge to function.
Gain	Small explosive charge that is sometimes placed between the detonator and the main charge of a munition to ensure ignition.
Geophysical survey	A range of methods that can be used to detect objects or identify ground conditions without the need for intrusive methods (such as excavation or drilling).
Hazard	A potential source of harm or adverse health effect on a person or persons.

High Explosive (HE)	Secondary explosives (commonly known as HE) make up the main charge or filling of an ordnance device. They are usually less sensitive than primary explosives. Examples of secondary explosives are Nitro-glycerine (NG), Trinitrotoluene (TNT), Amatol (Ammonium nitrate and TNT), gunpowder, and Cyclotrimethylenetrinitramine (RDX).
Land Service Ammunition (LSA)	Items of ordnance thrown, propelled, or placed during land warfare, to include SAA, grenades, mortar bombs, projectiles, rockets, and landmines.
Munition	A complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations, including demolitions. These fall into three categories: inert (contain no explosives), live (contain explosives but have not been fired), and blind (have fired but failed to function as intended.)
Primary Explosive	Explosives used to initiate less-sensitive explosives and usually extremely sensitive to friction, heat, and pressure. Primary explosives are commonly found in detonators. Examples of primary explosives are lead azide, lead styphnate, and mercury fulminate.
Propellants	A chemical substance – either solid, liquid, or gas – that produces energy through combustion or decomposition to generate thrust or force, but without detonating like a high explosive.
Pyrotechnic	An explosive article or substance designed to produce an effect by heat, light, sound, gas, or smoke (or a combination), because of non-detonative, self-sustaining, exothermic chemical reactions.
Risk	The likelihood that a person may be harmed or suffer adverse health effects if exposed to a hazard.
Small Arms Ammunition (SAA)	Projectiles around 12mm or less in calibre and no longer than approximately 100mm. They are fired from weapons including rifles, pistols, shotguns, and machine guns.
Unexploded Anti-Aircraft (UXAA) Shell	Ordnance containing High Explosives, although they can also contain pyrotechnic compounds that produce smoke. They ranged from 2" to 5.25" calibre, although most common were 3.7" and 4.5" HE shells. Typically fired from Anti-Aircraft guns.
Unexploded Bomb (UXB)	A common term for unexploded air-dropped munitions.
Unexploded Ordnance (UXO)	Explosive ordnance that has been primed, fuzed, armed, or otherwise prepared for use and subsequently fired, dropped, launched, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause.
V1	The Vergeltungswaffe-1 ('Reprisal Weapon 1'), known colloquially in English as the Flying Bomb, Pilotless Aircraft, Buzz Bomb, or Doodlebug. It was the first guided missile used in WWII and the forerunner of today's cruise missile.
V2	The Vergeltungswaffe-2 ('Reprisal Weapon 2') was the first ballistic missile. It was used primarily against Belgian and British targets during the later stages of WWII.

Appendix 7 Bibliography

- Bulloch G, Steeds J E, Green K, Sainsbury M G, Brockwell J S & Slade N J, Land Contamination: Technical Guidance on Special Sites: MoD Land
- Bulloch G, Steeds J E, Green K, Sainsbury M G, Brockwell J S & Slade N J, R&D Technical Report P5-042/TR/03, Land Contamination: Technical Guidance on Special Sites: Explosives Manufacturing & Processing Sites
- CIRIA, Unexploded Ordnance (UXO), a Guide for the Construction Industry, 2009
- Clarke N J, Luftwaffe Target Reconnaissance, German Aerial Photography 1939-1942, 1996
- Cocroft W D, Dangerous Energy, 2000
- Cocroft W D, Thomas R J, Cold War, 2003
- Deakin Q, Wales in World War 2, 2024
- Department of the Environment, Sampling Strategies for Contaminated Land, Department of the Environment: Contaminated Land Research Report, CLR Report No. 4, 1994
- Dobinson C S, Twentieth Century Fortifications in England, Vols I – XI, Council for British Archaeology, 1996
- Dobinson C S, Fields of Deception, Britain's Bombing Decoys of World War II, 2000
- Dobinson C S, AA Command, 2001
- McLelland T, Action Stations Revisited, Volume 5 : Wales and the Midlands, 2012.
- Morris J, German Air Raids on Britain 1914-1918, 1993
- Phillips A, Welsh military Airfields Through Time, 2012
- Price A, Blitz on Britain 1939-45, 2000
- Ramsey W, The Blitz Then and Now, Vol 1, 1987
- Ramsey W, The Blitz Then and Now, Vol 2, 1988
- Ramsey W, The Blitz Then and Now, Vol 3, 1990
- Zetica, ZeticaUXO Handbook: a guide to dealing with UXO during construction, 2018

Appendix 8 General notes

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Annex E

LIMITATIONS



REPORT LIMITATIONS - GROUND AND WATER

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.
3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.
4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.
6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.
7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.
8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND AND WATER

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:
 - i. The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
 - ii. Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.
10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.
11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.
12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.
13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.
14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.
15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.
16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values. Specific assumptions associated

REPORT LIMITATIONS - GROUND AND WATER

with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.
18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.
19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.
20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.
22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.



REPORT LIMITATIONS - GROUND AND WATER

- 24.** 24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.
- 25.** Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

- 26.** The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

- 27.** These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.
- 28.** The data is presented and will be compared with assessment criteria.

Annex F

RISK ASSESSMENT METHODOLOGY



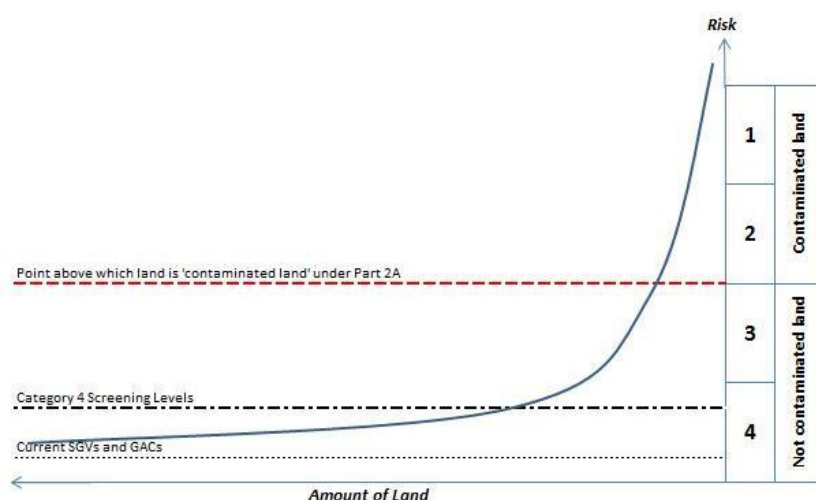
METHODOLOGY FOR THE DERIVATION OF GENERIC QUANTITATIVE ASSESSMENT CRITERIA TO EVALUATE RISKS TO HUMAN HEALTH FROM SOIL & GROUNDWATER CONTAMINATION

UK APPROACH

In the UK, the potential risks to human health from contamination in the ground are usually evaluated through a generic quantitative risk assessment (GQRA) approach. This allows generic and conservative exposure assumptions to be readily applied to risk assessments, and can be a useful tool for rapidly screening data and to identify those contaminants or scenarios that could benefit from further investigation and/or site-specific detailed quantitative risk assessment (DQRA). Current industry good practice is to use the approach presented in the Environment Agency (EA) publications SR2¹ and SR3². This approach allows the derivation of Generic Assessment Criteria (GACs), primarily for chronic exposure.

In April 2012, the Department of Environment, Food and Rural Affairs (Defra) published updated statutory guidance³ which introduced a four category approach to determining whether land in England and Wales is contaminated or not on the grounds of significant possibility of significant harm (SPOSH). **Figure 1** presents a graphical representation of the categories.

Figure 1: Four Categories for Determining if Land Represent a SPOSH



Cases classified as Category 1 are considered to be SPOSH based on actual evidence or an unacceptably high probability of harm existing. Category 4 cases are those where there is no risk, or a low risk of SPOSH.

¹ Environment Agency 'Human Health Toxicological Assessment of Contaminants in Soil', Report SC050021/SR2. January 2009.

² Environment Agency 'Updated Technical Background to the CLEA Model,' Report SC050021/SR3. January 2009.

³ Defra 'Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance'. April 2012.

GACs represent a minimal risk level, well within Category 4. A 2014 publication by Contaminated Land: Applications in Real Environments (CL:AIRE), SP1010⁴ and endorsed by Defra⁵ provided an approach to determine Category 4 Screening Levels (C4SLs) which are higher than the GACs whilst being “more pragmatic but still strongly precautionary”. It also provided C4SLs for six contaminants of concern. Although the C4SLs were designed to support Part 2A assessments to determine ‘contaminated land’ they are specifically mentioned, along with reference to the Part 2A statutory guidance, by the Department for Communities and Local Government (DCLG) for use in a planning context⁶.

An updated version the Contaminated Land Exposure Assessment (CLEA) Workbook (v1.071) was released by the EA in September 2015 to take into account the publication of SP1010. The updates comprised: additional toxicity data for the six chemicals for which C4SLs were derived; two new public open space land use scenarios; updated exposure parameters; options to run the model using C4SL exposure assumptions; and increased functionality. There were no changes to algorithms, so it is still possible to replicate the withdrawn SGVs using the input parameters held within v1.071.

It should be noted that the four category approach has not been adopted in Scotland under Part 2A or the planning regime. The Part 2A statutory guidance applicable in Scotland (Paper SE/2006/44 dated May 2006) does not reflect the changes introduced by Defra in April 2012 which allow for the use of C4SLs within Part 2A risk assessments. Additionally, it is considered that the principal of ‘minimal risk’ should still apply under planning in Scotland, based on current guidance.

WSP APPROACH

Following the withdrawal of the SGVs, and in the absence of an industry-wide, accepted set of GACs it is down to individual practitioners to derive their own soil assessment criteria. WSP has used the approach provided within SR2, SR3, SP1010, CLEA Workbook v1.071 and SR4⁷ to produce a set of minimal risk GACs. The chemical-specific data within two key publications were considered during their production: CL:AIRE 2010⁸ and LQM 2015⁹. Both documents provide comprehensive sets of GACs for different contaminants of concern.

The LQM Suitable For Use Levels (S4ULs) have selected exposure parameters consistent with the C4SL exposure scenarios. This approach was rejected by WSP as not representing minimal risk. However, the LQM S4UL document was critically reviewed and the approach and chemical input parameters were utilised where considered to be appropriate.

An industry-led C4SL Working Group is in the process of deriving a larger set of C4SLs in the near future, for approximately 20 contaminants. This will include a critical review of the chemical input data for all selected substances, and may therefore lead to further amendments to the chemical input data used in the WSP in-house screening values. It is considered likely that the contaminant list will

⁴ CL:AIRE ‘Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination’ SP1010, Final Project Report (Revision 2). September 2014.

⁵ Defra ‘SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document’. December 2014.

⁶ DCLG Planning Practice Guidance ‘Land Affected by Contamination’, particularly Paragraphs 001 and 007. Ref IDs: 33-001-20140306 & 33-007-20140612.

⁷ Environment Agency ‘CLEA Software (Version 1.05) Handbook (and Software)’, Report SC050021/SR4. September 2009.

⁸ CL:AIRE ‘The EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment’. ISBN 978-1-05046-20-1. January 2010.

⁹ Nathanail et al ‘The LQM/CIEH S4ULs for Human Health Risk Assessment’, Land Quality Press, ISBN 978-0-9931084-0-2. 2015.

crossover with the 2009 EIC/AGS/CL:AIRE GACs. As such, this document was not critically reviewed by WSP.

WSP's current approach to the assessment of risks to human health is to continue to evaluate minimal risk through the use of in-house derived GACs, and to use the published C4SLs as a secondary tier of assessment until such time as additional C4SLs are published and/or in-house values are derived.

EXPOSURE MODELS

LAND USES

WSP has largely adopted the exposure assumptions of the generic land use scenarios included within SR3, with two additional public open space scenarios included from within SP1010 and two bespoke exposure scenarios (highways):

- à Residential with homegrown produce consumption;
- à Residential without homegrown produce consumption;
- à Allotments;
- à Commercial;
- à Public open space near residential housing (POS_{resi});
- à Public park (POS_{park});
- à Highways (surface soils); and
- à Highways (subsurface soils).

Exceptions are described in the following Sections.

SOIL PROPERTIES

SR3 assumes a sandy loam soil with a pH of 7 and a Soil Organic Matter (SOM) content of 6% for its generic land uses, based on the geographical spread of topsoils in the UK. WSP has adopted these default values. In addition, GACs based on an SOM of 1% and 2.5% have been derived, based on common experience of the nature of Made Ground and lack of topsoil on many brownfield sites.

RECEPTOR CHARACTERISTICS AND BEHAVIOURS

SP1010 provides some updated exposure parameters for long-term inhalation rates¹⁰ and the consumption rates for homegrown produce¹¹ compared to those provided in SR3. This data was used to derived WSP's GACs.

The changes in inhalation rates do not apply to the allotment generic land use scenario, as these are based on the breathing rates for short-term exposure of light to moderate intensity activity which were derived from a study that was not updated in USEPA 2011, so the SR3 rates were retained.

¹⁰ USEPA, National Centre for Environmental Assessment 'Exposure Factors Handbook: 2011 Edition' EPA/600/R-09/052F. September 2011.

¹¹ National Diet and Nutrition Survey 2008/2009 to 2010/2011.

HIGHWAYS EXPOSURE SCENARIOS

Human health GAC for a Highways exposure scenario have been derived. The site area is defined by publicly accessible land adjacent to highways, comprising both hard and soft landscaped areas. Exposure is considered to be largely transitory.

There are no publicly available GAC for this exposure scenario. Consequently, WSP have derived GAC for the following exposure scenarios:

- à Highways (surface soils); and
- à Highways (sub-surface soils).

Surface soils GAC are for soil at ground level and within 300mm of the surface. Conversely, subsurface GAC are for soils at a depth exceeding 0.3m bgl. These GAC are not to be used as import criteria.

The critical receptor is a young female child, CLEA age classes 4-9. This is consistent with the critical receptor for the POS(resi) exposure scenario, and considered to be appropriate for a child potentially playing outside without direct adult supervision.

For all GAC, a sandy loam soil and a soil organic matter content of 1% is assumed. There is no building on site.

Exposure scenarios for surface and subsurface soils are detailed below. These are considered to be conservative estimates, due to the mostly transitory use of publically accessible lands adjacent to highways.

HIGHWAYS GAC (SURFACE SOILS)

The relevant exposure pathways include direct soil and dust ingestion, dermal contact (outdoors) and the inhalation of outdoor dust and vapour.

The exposure frequency is 170 days per annum, and the occupancy period outdoors is 1 hour per day (as per the POS (resi) exposure scenario). The soil and dust ingestion rate has been set at 50 mg/day, consistent with a POS(park) exposure scenario.

HIGHWAYS GAC (SUBSURFACE SOILS)

The single relevant exposure pathway is the inhalation of outdoor vapour. Direct exposure pathways are not viable due to the depth of the soils below ground level.

The exposure frequency is 170 days per annum, and the occupancy period outdoors is 1 hour per day (as per the POS (resi) exposure scenario). The soil and dust ingestion rate has been set to zero, as direct exposure pathways to soils at this depth are not viable.

CHEMICAL DATA

PHYSICO-CHEMICAL PARAMETERS

Physico-chemical properties for the contaminants for which GACs have been derived have been obtained following critical review of the following hierarchy of data sources:

1. Environment Agency/Defra SGV reports where available;
2. Environment Agency '*Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values*', Report SC050021/SR7, November 2008; and
3. Published fate and transport reviews within Nathanail et. al 2015 and CL:AIRE 2010.

Where appropriate, and where sufficient data is available, values were adjusted to reflect a UK soil temperature of 10°C (e.g. K_{aw}).

TOXICOLOGICAL DATA

Toxicological data for the derivation of minimal risk Health Criteria Values (HCV) for each contaminant was selected with due regard to the approach presented in SR2. Where appropriate, the following hierarchy of data sources was used:

1. UK toxicity reviews published by authoritative bodies including:
 - < EA;
 - < Public Health England (PHE);
 - < Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT); and
 - < Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC).
2. Authoritative European sources such as European Food Standards Agency (EFSA)
3. International organisations including:
 - < World Health Organisation (WHO); and
 - < Joint FAO/WHO Expert Committee on Food Additives (JECFA).
4. Authoritative country-specific sources including:
 - < United States Environmental Protection Agency (USEPA);
 - < US Agency for Toxic Substances and Disease Registry (ATSDR);
 - < US Integrated Risk Information System (IRIS); and
 - < Netherlands National Institute for Public Health and the Environment (RIVM).

Factors such as the applicability of the data to human health (e.g. epidemiological vs. animal studies), the quality of the data, the level of uncertainty in the results and the age of the data were also taken into account in the final selection. Details for specific substances are available on request.

MEAN DAILY INTAKES

Estimations of background exposure for each threshold substance have been updated. In line with the SR2 approach, the exposure from non-threshold substances in the soil does not take into account exposure from other sources, and as such GACs were derived without consideration of the Mean Daily Intake (MDI) for those substances.

The data published by the EA in its series of TOX reports between 2002 and 2009 was evaluated to determine whether the values were considered to remain valid today. Values from these current UK published sources were not amended unless they were considered to be significantly different so that the GACs remained as comparable as possible with the revoked SGVs.

ORAL MEAN DAILY INTAKES

Oral MDI were generally estimated as the sum of exposure via the ingestion of food and drinking water using the default adult physiological parameters presented in Table 3.3 of SR2.

Data on the exposure of substances from food ingestion was generally obtained from UK Total Diet Studies (TDS) published by the Food Standards Agency (FSA) and its predecessor the Ministry of Agriculture, Fisheries and Food (MAFF) and from studies commissioned by COT. Where no UK-specific data was available, MDI were derived from the European Food Safety Authority (EFSA), Health Canada and US sources. This was a rare occurrence, and in these instances, the data was evaluated to determine its applicability to the UK.

Data on the concentrations of substances in tap water was obtained from a variety of sources. UK data was used where available, with preference given to Drinking Water Inspectorate (DWI) 2014 data from water company tap water testing (LOD, 1st and 99th percentile data is available). Where the substance was not included in tap water testing, other UK sources of information were considered including:

- à DWI data from water company tap water testing from previous years;
- à COT; and
- à FSA.

Where UK data was not available, a number of other data sources were considered, largely WHO International Programme on Chemical Safety (IPCS) Concise International Chemical Assessment Documents (CICADs) and background documents for the development of Guidelines for Drinking Water Quality, using professional judgement on the relevance of the data to the UK. The final decision on the MDI from drinking water was made using professional judgement on the balance of relevance and probability, taking into account the detection limit where not detected, Koc and solubility, reduction in use of the substance, banned substances, tight controls (e.g. on explosives) and with due consideration to the SR2 instruction that “if no data or information in background exposure are available, background exposure should be assumed to be negligible and the MDI set to zero....”.

Data from other countries was generally not used because it was considered that the hydrogeology of these countries along with industrial practices were unlikely to be reflective of the UK.

INHALATION MEAN DAILY INTAKES

Inhalation MDIs were based on estimates of average daily exposure by the inhalation pathway and calculated using the default adult physiological parameters presented in Table 3.3 of SR2.

The inhalation MDIs were generally estimated using background exposure data from the UK, derived from Defra's UK-AIR: Air Information Resource¹², which provides ambient air quality data from a number of sites forming a UK-wide monitoring network. The MDIs for heavy metals were based on rolling annual average metal mass concentration data from Defra's UK Heavy Metals Monitoring Network from the period October 2009 to September 2010¹³.

Information for some substances was obtained from UK sources including Environment Agency TOX reports and data from the UK Expert Panel on Air Quality Standards (EPAQS). Where recent UK data was not available, data was sourced from the International Programme on Chemical Safety (IPCS), the World Health Organisation (WHO), the Agency for Toxic Substances and Diseases Registry (ATSDR), Health Canada, and various other peer-reviewed sources summarised by LQM/CIEH¹⁴.

For other substances, where no data or information on background exposure was available, background exposure was assumed to be negligible and the MDI set at 0.5*TDI in accordance with guidance in SR2.

PLANT UPTAKE

Soil to plant concentration factors are available in CLEA v1.071 for arsenic, cadmium, hexavalent chromium, lead, mercury, nickel and selenium. For all remaining inorganic chemicals, concentration factors were obtained using the PRISM model. Substance-specific correction factors have been selected in accordance with the guidance established within SR3. This is consistent to the approach utilised in the derivation of the LQM S4UL and the EIC/AGS/CL:AIRE GAC.

Where there is a lack of appropriate data to enable the derivation of specific soil to plant concentrations factors for organic chemicals, plant uptake was modelled within CLEA v1.071 using the generic equations recommended within SR3, as follows:

- à Green Vegetables – Ryan et al. (1988);
- à Root Vegetables – Trapp (2002);
- à Tuber Vegetables – Trapp et al. (2007); and
- à Tree Fruit – Trapp et al. (2003).

There are no suitable models available for modelling uptake for herbaceous fruit or shrub fruit. Exposure is considered negligible.

¹² Crown 2016 copyright Defra via uk-air.defra.gov.uk, licenced under the Open Government Licence (OGL).

¹³ Defra, 2013 Spreadsheet of historic data for multiple years for the Metals network. Available online at: <http://uk-air.defra.gov.uk/data/metals-data>. [Accessed 13/03/2016].

¹⁴ LQM/CIEH, 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment.

SOIL SATURATION LIMITS

GACs are not limited to their theoretical soil saturation within CLEA, although where either the aqueous or the vapour-based saturation is exceeded, this is highlighted within the Workbook (compared with the lower of the two values). This affects pathways which depend on partitioning calculations so in reality this only affects the vapour pathways and is relevant to organic substances and other substances, such as elemental mercury, that have a significant volatile component. However, the Workbook highlights saturation for direct contact pathways to indicate to the user where further qualitative consideration of free phase contamination at the surface may be required.

Where the lower of the two saturation limits is exceeded and the vapour pathway is the only exposure route being considered, the chronic risks to human health are likely to be negligible. Further evaluation could be undertaken using an alternative model suitable for evaluating non-aqueous phase liquids (NAPLs), such as the Johnson & Ettinger (J&E) approach described in USEPA 2003. However, WSP considers that if NAPLs are suspected, given the known limitations and over-simplifications of J&E, soil vapour monitoring is a more accurate way of assessing potential risks.

Where the lower saturation limit is exceeded for the vapour pathway and a number of exposure routes are being considered, then the contribution from the NAPL via vapour inhalation to the overall exposure can be evaluated using the procedure provided in SR4. WSP would evaluate this as part of a DQRA process or through soil vapour monitoring on-site to determine site-specific soil vapour concentrations.

CHEMICAL SPECIFIC ASSUMPTIONS

CYANIDES

Cyanide has high acute toxicity, and short term exposure is an important consideration when assessing the risks from soils contaminated with cyanide. The primary risk to human receptors from free cyanide in soils is an acute risk.

There is no current UK guidance available for calculating acute risks from free cyanide. Consequently, GAC for acute exposure were derived using the algorithms presented in MADEP 1992¹⁵ and assuming a one-off ingestion of 10g of soil (this conservative value has been taken as an upper bound estimate for a one-off soil ingestion rate amongst children). Receptor body weights have been selected according to the critical receptor for each exposure scenario. The lowest of the chronic and acute GAC for each land use scenario were adopted by WSP.

LEAD

The SGV for lead was withdrawn by the EA in 2009, and in 2011 the EA withdrew their published TOX report in light of new scientific evidence. The C4SL for lead was derived using the latest scientific evidence from a large human dataset. As such, no chemical-specific margin was applied in the derivation of the C4SL for lead. It may be possible for WSP to derive a GAC for lead using the same dataset and applying a chemical-specific margin, but the value is likely to be lower than UK natural background concentrations. Therefore, WSP has adopted the toxicological data used to derive the C4SLs in deriving the GAC for lead until such time as alternative GACs are published by an authoritative body. The relative bioavailability was set at 100% in line with the approach taken for other GACs, whereas the C4SL assumes 60% for soil and 64% for airborne dust. Thus, the WSP GAC are lower than the C4SLs.

¹⁵ MADEP 'Background Documentation for the Development of an "Available Cyanide" Benchmark Concentration' 1992. http://www.mass.gov/dep/toxics/cn_soil.htm

POLYCYCLIC AROMATIC HYDROCARBONS

WSP's approach to the assessment of polycyclic aromatic hydrocarbons (PAHs) uses the surrogate marker approach. BaP was used as a surrogate marker for all genotoxic PAHs in line with the Health Protection Agency 2010¹⁶ recommendations and SP1010. This assumes that the PAH profile of the data is similar to that of the coal tars used in the Culp *et al* oral carcinogenicity study from which the toxicity data for BaP was produced. In reality, this profile has been shown by HPA to be applicable on the majority of contaminated sites based on assessment of sites across the country.

The alternative is the Toxic Equivalency Factor (TEF) approach which uses a reference compound and assigns TEFs for other compounds based on estimates of potency. Key uncertainties with this approach include the assumption that all compounds have the same toxic mechanism of action within the body and that no compounds with a greater potency than the reference compound are present. It is considered by the HPA that the TEF approach is likely to under predict the true carcinogenicity of PAHs and therefore favours the surrogate marker approach.

For these reasons, WSP considers that the adoption of BaP as a surrogate marker for genotoxic PAHs, as opposed to the TEF approach, is reasonable. In rare cases where the PAH profile may differ from the wide definitions of the Culp *et al* study the user should discuss their project with an experienced risk assessor. In addition, WSP has derived a GAC for naphthalene, which is commonly a risk driver due to its high volatility, relative to other PAH compounds.

TRIMETHYLBENZENES

The GAC for trimethylbenzenes can be used for the assessment of any individual isomer (1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene or 1,3,5-trimethylbenzene), or a mixture of the three isomers.

CHEMICAL GROUPS

For a number of chemical groups, the available toxicity data is for combinations of chemicals. Given that the physico-chemical parameters may differ between the chemicals, the GACs for the chemicals within the groups have been calculated and then the lowest GAC selected to represent the entire group. This was the approach taken by the EA for m-, o- and p-xylenes, and has also been adopted by WSP for:

- à 2-chlorophenol, 2,4-dichlorophenol, 2,4,6-trichlorophenol and 2,3,4,6-tetrachlorophenol;
- à 2-, 3- and 4-methylphenol (total cresols);
- à aldrin and dieldrin; and
- à α - and β -endosulphan.

¹⁶ HPA Contaminated Land Information Sheet 'Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs) 2010

EXPOSURE TO VAPOURS

INHALATION OF MEASURED VAPOURS

WSP has derived a set of soil vapour GACs (GAC_{sv}) that allow for the assessment of measured site soil vapour concentrations, using J&E, in order to establish potential risks via indoor inhalation of vapours. This methodology enables a more robust assessment of exposure via the inhalation of soil vapours indoors than using CLEA-derived soil GAC, as it is based upon measured soil vapour concentrations beneath the site. It also allows for the assessment of vapours from all source terms (i.e. groundwater, soil or NAPL). Outdoor inhalation was not included. WSP considers that the indoor inhalation pathway is the significantly dominant risk-driver.

The generic land use scenarios within CLEA (residential and commercial) that were used to derive the soil GAC were used to define the receptor and building characteristics for the soil vapour GAC. Only residential and commercial generic land use scenarios include the indoor inhalation of vapours pathway.

The GAC_{sv} were derived for three different soil types; sand, sandy loam and clay, reflecting the importance of this parameter within the J&E model. A depth to contamination of 0.85 m below the base of the building foundation was assumed (i.e. 1 m below ground level). This differs from the depth assumed for the soil GAC (0.5 m bgl), but was selected by WSP as a reasonable worst case scenario.

It is acknowledged that the J&E commonly over-predicts indoor vapour concentrations. In particular, it will significantly over-predict vapour concentrations for suspended floor slabs, which many new builds are constructed with, it does not take into account lateral migration and assumes an infinite source of contamination at steady state conditions. In addition, it is common for soil gas/vapour wells to be installed with at least 1 m of plain riser at the surface and this equates to a total depth of 0.85 m below the building foundation plus a 0.15 m thick foundation, and so is more representative of the depth that samples will be taken from.

The TDSIs and IDs for each substance were converted from $\mu g kg^{-1} bw day^{-1}$ to $\mu g m^{-3}$ using the standard conversions quoted in Table 3.3 of SR2, thereby replacing the need to model C_{air} in the equation:

$$C_{air} = \alpha \cdot C_{vap} \cdot 1,000,000 cm^3 m^{-3}$$

Where:

C_{air} is the concentration of vapours within the building, $mg m^{-3}$

α is the steady state attenuation coefficient between soil and indoor air, dimensionless

C_{vap} is the soil vapour concentration, $mg cm^{-3}$

The target concentrations within indoor air for each substance (C_{air}) are a function of receptor inhalation rates and occupancy periods, as defined by the site conceptual exposure model (assuming standard CLEA occupancy periods and receptors).

The attenuation factor was calculated using J&E (Equation 10.4 in SR3) and the resulting C_{vap} is equivalent to the GAC_{sv} for the modelled exposure scenario.

Where reported soil vapour concentrations exceed the relevant saturated vapour concentration, free product may occur, and the user should discuss their project with an experienced risk assessor.

INHALATION OF GROUNDWATER-DERIVED VAPOURS

WSP has derived a set of groundwater GACs (GAC_{gw}) to evaluate the potential risks through the indoor inhalation of groundwater-derived vapours by first applying the approach described above for the derivation of the WSP GAC_{sv} to determine the acceptable concentration in soil vapour directly above the water table.

The depth to groundwater was assumed to be 1 m bgl (i.e. 0.85 m below the base of the building foundation). This depth was considered to be more representative of commonly encountered groundwater conditions than the 0.5 m below the base of the building foundation (i.e. 0.65 m bgl) that is used by CLEA for an unsaturated source present in the overlying soil.

The GAC_{gw} was then back-calculated from the GAC_{sv} using the air-water partition coefficient (K_{aw}) for each substance.

The WSP Groundwater Vapour GAC are protective against a dissolved phase contaminant source only. If the presence of NAPL is suspected, the risks from this source will need to be assessed. Where reported groundwater concentrations exceed the relevant solubility limit, free product may occur, and the user should discuss their project with an experienced risk assessor.

Annex G

CIRIA RISK DEFINITIONS



CIRIA RISK DEFINITIONS

Table A1 - Classifications of Probability

Classification	Definition
High Likelihood	There is a pollution linkage / identified geotechnical hazard and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term

Table A2 - Classifications of Consequence

Classification	Definition
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.
Medium	Chronic damage to Human Health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services (significant harm as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve, Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.). Easily repairable effects of damage to buildings, structures and services

The risk categories presented in this report, taking into account both probability and severity, are based on the matrix presented in **Table A3** below, following CIRIA C552.

Table A3 - Adopted Risk Categories / Comparison of Consequence Against Probability

Probability	Consequence			
	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low to Moderate Risk
Likely	High Risk	Moderate Risk	Low to Moderate Risk	Low Risk
Low Likelihood	Moderate Risk	Low to Moderate Risk	Low Risk	Very Low Risk
Unlikely	Low to Moderate Risk	Low Risk	Very Low Risk	Very Low Risk



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