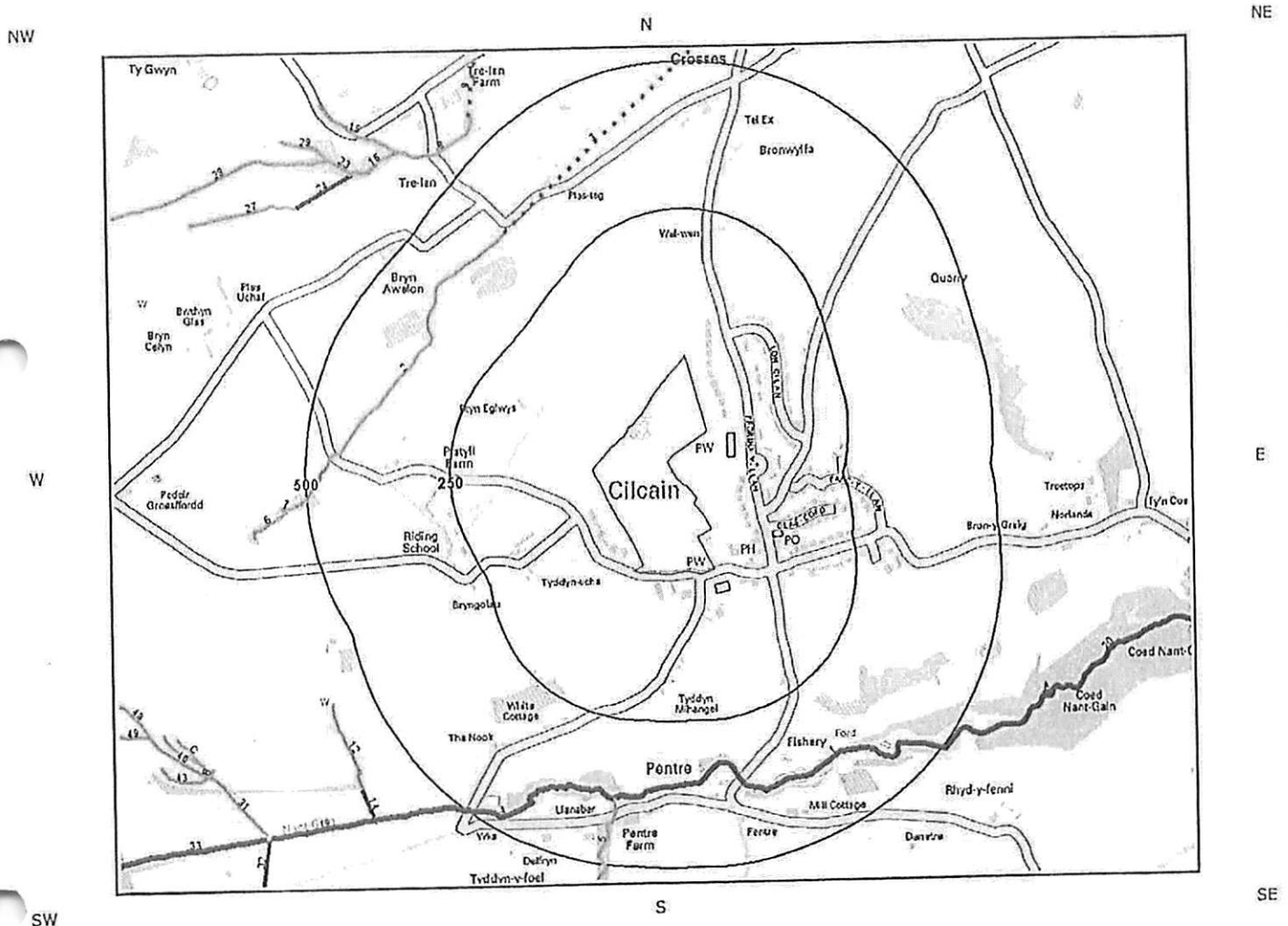


6d. Hydrology – Detailed River Network and River Quality



Hydrology Legend

- | | | | | | |
|--|------------------------|--|---------------------------------------|--|-------------------------------------|
| | Site Outline | | Primary River | | Canal |
| | 250 Search Buffers (m) | | Secondary River | | Canal Tunnel |
| | 500 Search Buffers (m) | | Tertiary River | | Extended Culvert (greater than 50m) |
| | | | Lake/Reservoir | | D/S of High Water Mark |
| | | | Underground River (inferred) | | D/S seaward extension |
| | | | General Quality Assessment: Chemistry | | General Quality Assessment: Biology |



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of productive strata within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance [m]	Direction On Site	Designation	Description
8	0.0		Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
9	181.0	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
10	255.0	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
1	333.0	S	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	333.0	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
11	383.0	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.2 Aquifer within Bedrock Deposits

Are there records of productive strata within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance [m]	Direction On Site	Designation	Description
1	0.0		Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
3	56.0	SW	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
4	181.0	S	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
2	182.0	S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 1000m of the study site? **No**

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 1000m of the study site? **Yes**

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance	Direction	NGR	Details	
5	498.0	SW	317250, 364750	Licence No: 24/67/8/0056 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Mill Pond Data Type: Point	Annual Volume (m ³): 1363800 Max Daily Volume (m ³): 4546 Application No: 4/35A Original Start Date: 14/6/1968 Expiry Date: - Issue No: 100 Version Start Date: 14/6/1968 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? **Yes**

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance	Direction	NGR	Details	
1	498.0	SW	317250, 364750	Licence No: 24/67/8/0056 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Mill Pond Data Type: Point	Annual Volume (m ³): 1363800 Max Daily Volume (m ³): 4546 Original Application No: 4/35A Original Start Date: 14/6/1968 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1303.0	SW	316350, 364550	Licence No: 24/67/8/0056 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Reservoir No. 2 Data Type: Point	Annual Volume (m ³): 1363800 Max Daily Volume (m ³): 4546 Original Application No: 4/35A Original Start Date: 14/6/1968 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1375.0	SW	316620, 364120	Licence No: 24/67/8/0056 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Reservoir No. 3 Data Type: Point	Annual Volume (m ³): 1363800 Max Daily Volume (m ³): 4546 Original Application No: 4/35A Original Start Date: 14/6/1968 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

Report Reference: 11400684

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Not shown	1413.0	SW	316200, 364601	Licence No: 24/67/8/0056 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Reservoir No 1 Data Type: Point	Annual Volume (m ³): 1363800 Max Daily Volume (m ³): 4546 Original Application No: 4/35A Original Start Date: 14/6/1968 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
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6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

6.7 River Quality

Is there any Environment Agency Information on river quality within 1500m of the study site? No

Biological Quality:

Database searched and no data found.

Chemical Quality:

Database searched and no data found.

6.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6d):

ID	Distance	Direction	Details
1	324.0	S	River Name: Nant Gain Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
2	354.0	NW	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
3	368.0	NW	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Underground River (Inferred) Catchment: - Drain: NO Main River Status: Currently Undefined
4	375.0	S	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
5	386.0	S	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined

Report Reference: 11400684

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 TM Group on (T) 0844 249 9202, email: helpdesk@tmgroup.co.uk



6.9 Surface Water Features

Are there any surface water features within 250m of the study site?

No

Database searched and no data found.

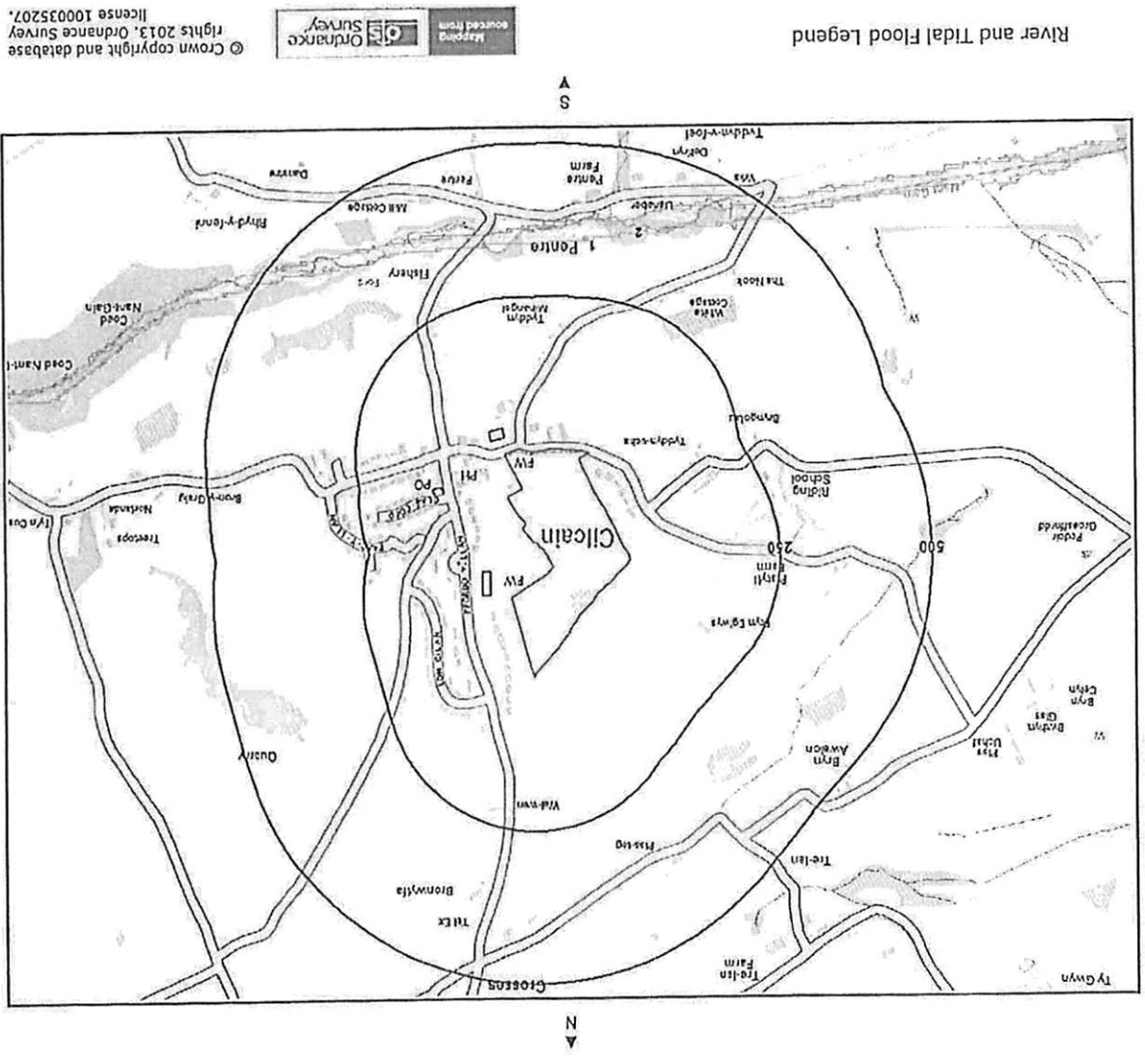
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7. River and Tidal Flood Map



River and Tidal Flood Legend

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Site Outline

Search Buffers (m)
— 250
— 500

Zone 2 Floodplain

Zone 3 Floodplain

Flood Storage Area

Area Benefiting from Flood Defences

Flood Defences

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7. Flooding

7.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency Indicative Zone 2 floodplain? **No**

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

Database searched and no data found.

7.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency Indicative Zone 3 floodplain? **No**

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

Database searched and no data found.

7.3 Flood Defences

Are there any Flood Defences within 250m of the study site? **No**

7.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? **No**

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

7.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? **No**

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

7.6 Groundwater Flooding Susceptibility Areas

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Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site? Yes

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions? Very Low

Guidance:
Where very low susceptibility is indicated this means that you need take no further action in relation to groundwater hazard in this area.

7.7 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

Notes:

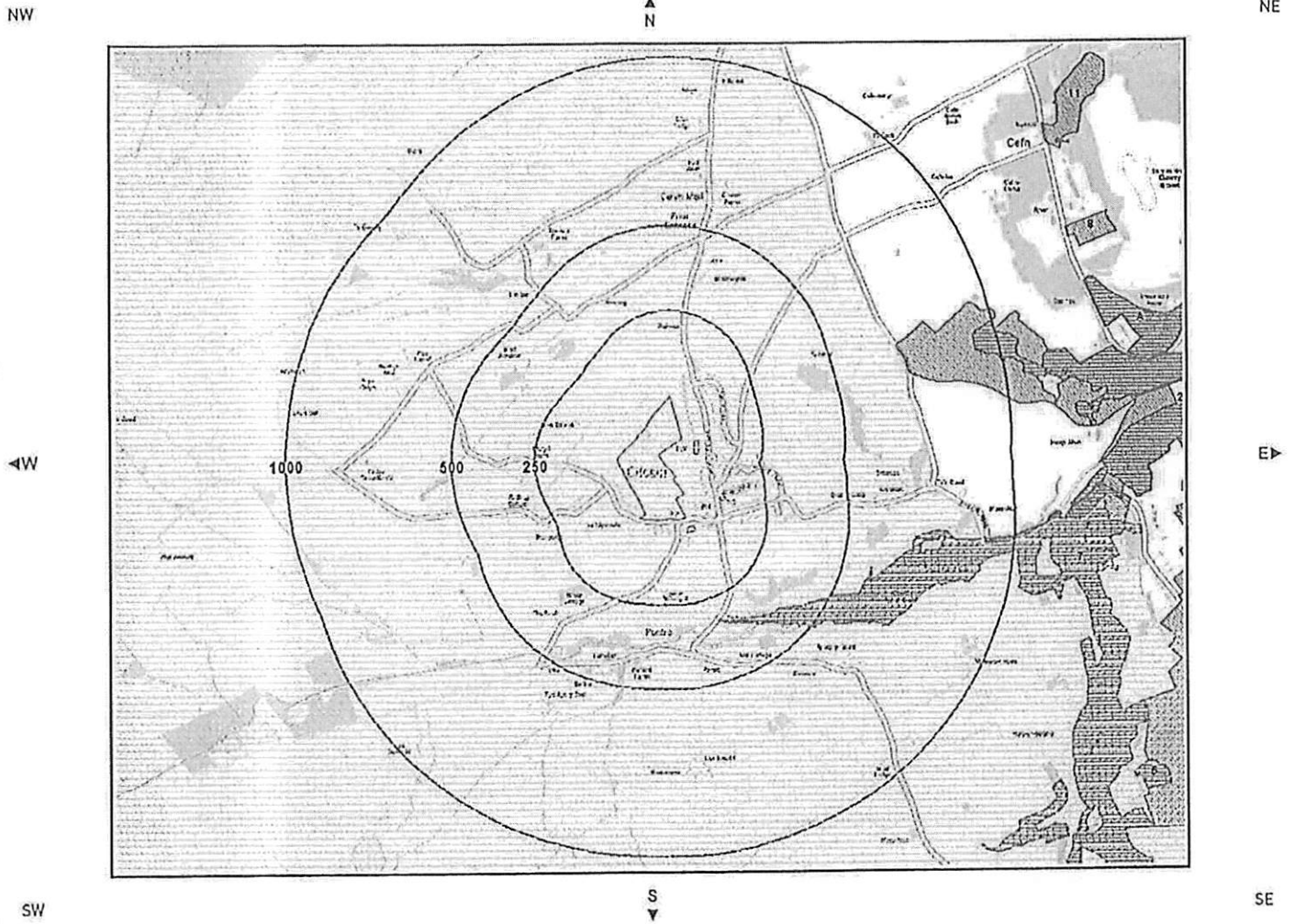
Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

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8. Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Legend

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- | | | | | | | | | | |
|--|--------------------|--|-------------------------------------|--|-------------------------|--|----------------|--|---------------------------------|
| | Site Outline | | SAC | | SSSI | | NNR | | World Heritage Sites |
| | Search Buffers (m) | | SPA | | Ramsar | | LNR | | Environmentally Sensitive Areas |
| | | | Areas of Outstanding Natural Beauty | | Nitrate Sensitive Areas | | National Parks | | |

Report Reference: 11400684

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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site: **Yes**

Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site: **7**

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance [m]	Direction	SSSI Name	Data Source
7	317.0	S	Alyn Valley Woods And Alyn Gorge Caves	CCW
8	1295.0	E	Cefn Meadow	CCW
9A	1302.0	E	Alyn Valley Woods And Alyn Gorge Caves	CCW
10B	1328.0	SE	Alyn Valley Woods And Alyn Gorge Caves	CCW
11	1362.0	NE	Pen-y-cefn Pasture	CCW
Not shown	1937.0	E	Alyn Valley Woods And Alyn Gorge Caves	CCW
Not shown	1975.0	NE	Tyddyn-y-barcut	CCW

Records of National Nature Reserves (NNR) within 2000m of the study site: **0**

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 2000m of the study site: **6**

The following Special Area of Conservation (SAC) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance [m]	Direction	SAC Name	Data Source
1	318.0	S	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales
2	927.0	E	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales
3A	1302.0	E	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales
4B	1328.0	SE	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales
5	1564.0	SE	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales
Not shown	1938.0	E	Alyn Valley Woods / Coedwigoedd Dyffryn Alun	Countryside Council For Wales

Records of Special Protection Areas (SPA) within 2000m of the study site: **0**

Database searched and no data found.

Records of Ramsar sites within 2000m of the study site: **0**

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 2000m of the study site: **0**

Database searched and no data found.

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Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

1

The following Area of Outstanding Natural Beauty (AONB) records and Scottish National Scenic Area (NSA) records provided by Natural England/Countryside Council for Wales/Scottish Government are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance [m]	Direction	AONB/NSA Name	Data Source
14	0.0	On Site	Clwydian Range	Countryside Council for Wales

Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

Report Reference: 11400684

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9. Additional Information

9.1 Mobile Phone Transmitter Locations

GroundSure's unique mobile phone transmitter database.

Have any mobile phone transmitters been identified within 250m of the study site? **No**

Database searched and no data found.

9.2 Existing and potential OfCom Telecommunication Mast Locations

OfCom telecommunication base station and mast data, which details the height and proposed location of masts over 30 metres in height or with a power level exceeding 17dBW.

Have any OfCom telecommunication masts been identified within 250m of the study site? **No**

Database searched and no data found.

9.3 Pylons and Electricity Transmission Lines

Have any overhead transmission lines or pylons been identified in proximity to the study site? **No**

Database searched and no data found.

Guidance:None required.

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10. Natural Hazards Findings

10.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information, please obtain a GroundSure Geology and Ground Stability Report. Available from our website. The following information has been found:

10.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

10.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

10.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? **High**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Very significant soluble rocks are present, with a high possibility of localised subsidence occurring naturally or in adverse conditions such as high surface or subsurface water flow. Obtain specialist advice to advise on need for stabilisation work and/or land management plan to maintain stability. Do not dispose of drainage into the ground. For new build a specialist land stability assessment is necessary. Investigation, remediation and/or mitigation works may be necessary to stabilise the area. Construction work may cause subsidence. Surface drainage must not affect the karst system or groundwater. Increased construction costs are likely. For existing property increase in insurance risk due to potential soluble rocks hazards. Potential of groundwater pollution.

10.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? **Negligible**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

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Hazard

No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

10.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

10.1.6 Running Sand

What is the maximum Running Sand* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

10.2 Radon

What is the maximum radon potential at the study site?
The property is in a Radon Affected Area, as between 10 and 30% of properties are above the Action Level

Is the property in an area where radon protection measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?
Full radon protective measures are necessary

Guidance: The responses given on the level of radon protective measures required are based on a joint radon potential dataset from the Health Protection Agency (HPA) and the British Geological Survey (BGS). Full radon protective measures need to be installed for new dwellings or extensions to existing dwellings, where 10% or more of homes are estimated to exceed the Action Level. The joint HPA-BGS radon potential data forms the basis for the Building Research Establishment guidance on radon protective measures for new dwellings (BR211 2007).

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11. Mining

11.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

No

Database searched and no data found.

11.2 Shallow Mining

What is the hazard of subsidence relating to shallow mining on site (including a 150m buffer)?

Low-Moderate

Guidance: Where low-moderate potential is indicated, this means that the rocks underlying the area are of a type known to have been mined at shallow depth in some parts of the UK, and that such working may be possible in your area. In these cases it is recommended that you seek further advice from a Royal Institute Chartered Surveyor (RICS), the local Building Control Officer, or by ordering a Geological Report from the BGS. It is also recommended that you obtain a Coal Authority mining search, which will provide a comprehensive search of former mining activity, including coal mining at deeper levels.

11.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Report Reference: 11400684

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