

PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT

Cardiff and Vale College

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CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

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Phase I Geo-Environmental Desk Study Report

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Executive Summary

HSP Consulting has been commissioned by Gleeds Management Services Ltd to provide technical studies to inform the feasibility study to enable design of a new college at site. The geo-environmental desk study (Phase I) is one of a series of studies providing information on likely constraints to the development of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination and stability matters within Planning Policy Guidance.

The site is irregular in shape and approximately 9.05Ha in area. The majority of the site comprises agricultural land accessed off Blackton Lane to the north. In the centre of the site an 'L' shaped agricultural field can also be accessed from the larger field via its south east boundary.

The site is recorded as part of five fields on the 1st Edition mapping (1884), with a small development noted in the east of the site from 1938 until the mid 1960's. Historically, the surrounding land use is predominantly agricultural, with limited development until the mid 1960's when the airport is recorded to the west of the site. There is moderate expansion to the airport and surroundings noted in the 1970's, 80's and 90's when the Business park immediately adjacent to the west of the site is noted. With no significant changes to the latest editions of mapping.

Bedrock geology of the Porthkerry Member comprising interbedded Mudstone and Limestone is expected on site. Superficial deposits are not expected. The bedrock geology is designated as a Secondary A Aquifer.

The Preliminary Conceptual Site Model indicates a low possibility that harm could arise to a designated receptor from identified hazards.

A ground investigation is recommended to provide information as part of the feasibility study and assess the geo-environmental constraints identified on site by this desk study.

The executive summary contains an overview of key findings and conclusions. However no reliance should be placed on the executive summary until the whole of the report has been read. Other sections of the report may contain information which puts into context the findings noted within the executive summary.



1. Introduction

1.1 Background

A new College with associated hard/soft landscaping is proposed at the site.

1.2 Scope and Limitations

HSP Consulting has been commissioned by Gleeds Management Services Ltd to provide technical studies to inform the feasibility study to enable design of a new education facility on the site. The geo-environmental desk study (Phase I) is one of a series of studies providing information on likely constraints to the development of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination and stability matters within Planning Policy Guidance.

The recommendations made in this report are based on the assessment of the published information and information provided by the Client.

1.3 Report Objectives

The objectives of this report are to:

- Establish the geological and hydrogeological conditions using existing available/published information;
- Summarise available information and identify site specific geotechnical and environmental hazards which may place a constraint upon the proposed site use;
- Produce a Conceptual Site Model and preliminary qualitative environmental risk assessment identifying potential pollution linkages between sources of contamination, pathways and receptors;
- Provide recommendations for Phase II Ground Investigation and any other assessments required.

1.4 Sources of Information

The following sources of information were used during the preparation of this report.

- EmapSite Historical Mapping ref. EMS-608216_812597
- EmapSite Geoinsight & Enviroinsight Report ref. EMS-608216_812598
- British Geological Survey. Geology of Britain Map Viewer www.bgs.ac.uk
- DEFRA Magic Map: <http://defra.gov.uk/magicmap.aspx>
- Department of the Environment. Industry Profiles.
- Vale of Glamorgan Council Environmental Health Department.

A walkover was undertaken by HSP Consulting on 21st May 2020. The purpose of the walkover was to record the current land use, topography and principal physical features and to identify, where possible, visual and olfactory indicators of contamination. Photographs can be found within Appendix V.

2. Site Setting

2.1 The Site

2.1.1 Location

The site is located immediately east of Cardiff Airport Business Park, approximately 1.85km north east of Rhoose village centre. The approximate National Grid Reference for the centre of the site is (NGR) 307473, 167768. A Site Location Plan is included in Appendix I.

2.1.2 Description

The site is irregular in shape and approximately 9.05Ha in area. The majority of the site comprises agricultural land accessed off Blackton Lane to the north. The fields have a range of semi mature and mature trees/hedgerows at the boundaries and during the May walkover the vegetation was dense, making it difficult to determine if there are other viable access points to the fields. At the time of the walkover the fields had recently been planted with maize crop that was beginning to germinate. The northern two thirds of the site generally falls towards the north from a low ridge which strikes east west, within the southern third of the site levels fall slightly adjacent to Port Road.

The most southerly field has been left fallow and is overgrown with the exception of the boundaries. The southeast, southwest, and north western boundaries of this area have been landscaped with bunds which vary in height with a number of sparse semi mature trees adjacent to the highway (airport / business park access).

2.1.3 Surrounding Land Use

The main features of interest identified are:

North: Residential dwellings, the A4226 and agricultural land beyond.

East: Agricultural land, hotel, caravan park and airport parking.

South: Cardiff Airport parking, hotel and Agricultural land beyond.

West: Cardiff Airport.

2.1.4 Proposed End Use

No development options are currently available for the site. It is understood that part of the site will be developed as an educational facility, at this stage it is not known where on the site the new development would be positioned.

2.2 Geology

2.2.1 Made Ground

The BGS mapping does not indicate any made ground on the site. However, a development is shown in the east of the site on historical mapping from the 1940's to the 1960's. Therefore it is likely that limited Made Ground will be present in this are of the site, any Made Ground encountered would be of an unknown composition.

2.2.2 Superficial Deposits

The BGS mapping does not indicate any superficial deposits on the site.

2.2.3 Bedrock Geology

BGS bedrock mapping indicates the site is underlain by the Porthkerry Member – Limestone and Mudstone, Interbedded of the Jurassic Period, there is no current BGS description of the unit. The BGS description of the Blue Lias Parent Unit is as follows ‘*Thinly interbedded limestone (laminated, nodular, or massive and persistent) and calcareous mudstone or siltstone (locally laminated). Individual limestones are typically 0.10-0.30m thick. In some areas, intervening mudstone units with relatively few limestone beds. Also includes littoral limestone facies of the Radstock Shelf - Mendip area and South Wales.*’

2.2.4 Structural Geology

No faults have been identified within 250m of the site boundary.

2.2.5 Historical Boreholes

There are no BGS borehole records within 250m of the site.

2.2.6 Geological Hazard Ratings

The Emapsite GeolInsight™ Report provides ground stability data for the site and surrounding area, a summary is provided in Table 2.2 below.

Table 2.2 - Summary of BGS Hazard Ratings

Hazard	Located	Direction	Hazard Potential
Potential for Collapsible Rocks Stability Hazards	On-site	-	Very Low
Potential for Landslide Ground Stability Hazards	On-site	-	Very Low
Potential for Ground Dissolution Stability Hazards	On-site	-	Very Low
Potential for Compressible Ground Stability Hazards	On-Site	-	Negligible
Potential for Running Sand Ground Stability Hazards	On-site	-	Negligible
Potential for Shrinking or Swelling Clay Ground Stability Hazards	On-site	-	Negligible

2.3 Mining

2.3.1 BGS Mineral Sites

There are four records of mineral workings within a 250m radius of the site, relating to Limestone quarries, the closest of which is located 47m south of the site with the remaining records located 201m south west, 244m south west and 247m west of the site. All four records are recorded as ceased.

2.3.2 Brine Extraction

No Brine Extraction Areas have been identified within a 250m radius of the site.

2.3.3 Coal Mining

The site does not lie within a Coal Authority standing advice or reporting area

2.4 Hydrogeology

2.4.1 Aquifer Units

The Porthkerry Member bedrock deposits are classified as a Secondary A Aquifer, defined by the Environment Agency as *'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.'*

2.4.2 Groundwater Vulnerability

No Source Protection Zones have been identified within 500m radius of the site.

The soils on site are recorded to be of high vulnerability which is described as 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.

2.4.3 Groundwater Abstractions

No groundwater abstraction licences have been identified within 250m of the site.

2.5 Hydrology

2.5.1 Nearest Surface Water Course

There are nine Surface Water Courses recorded within 250m of the site. The nearest water feature is an inland river, a tributary of the River Waycock, 63m to the north east of the site.

2.5.2 Surface Water Quality

No Environment Agency River Quality Records have been identified within 250m of the site.

2.5.3 Surface Water Abstractions

No licensed surface water abstraction points are recorded within a 250m radius of the site.

2.5.4 Surface Water Discharge Consents

A single Surface Water Discharge Consents are recorded within a 250m of the site relating to a Trade Discharge consent 242m to the west.

2.6 Flood Risk

The site does not lie within an Environment Agency Zone 2 or Zone 3 floodplain.

The site does not lie within an area benefitting from flood defences or within an area used for flood storage.

The risk for surface water flooding on site is recorded to be within a 1 in 30 year with a flood range between 0.30m and 1.0m depth.

The risk of groundwater flooding on site is recorded to be negligible.

Although the report provides information on flood risk this does not constitute a flood risk assessment for the site. The flood risk information provided only relates to flooding from Rivers or Seas and does not account for flooding from other sources such as groundwater, blockages

in drainage systems, artificial water features and overland flow. A separate Flood Risk Assessment may be required for the site.

2.7 Radon

The west of the site is not recorded to be within a Radon Affected Area as less than 1% of the properties are above the Action Level, therefore radon protective measures are not required.

2.8 Sensitive Land Uses, Ecological and Statutory Designations

The site is located within a Nitrate Vulnerable Zone for surface water.

No other records of sensitive land use (SSSI, SAC, Nature Reserves, Environmentally Sensitive Areas, etc) have been identified within a 250m radius of the site.

3. Site History

The following section details the historical development of the site, with reference to historical Ordnance Survey maps. All distances are approximate and given from the site boundary. Descriptions in italics are as identified on the historical plans. For a complete list of maps consulted refer to the Emapsite Historical Maps presented in Appendix III.

Table 3.1 - Summary of Historical Maps

Published Map Date & Scale	Land Use on Site	Surrounding Land Use
Date : 1879 - 1880 Scale: 1:2,500 1:10,560 County Series	The site is shown as part of five open fields.	The surrounding land use is mainly agricultural. Roads are located adjacent to the eastern and south eastern boundary of the site with a junction adjacent to the eastern corner of the site. A Quarry and building and are located approximately 30m to the south of the site.
Date : 1898 - 1936 Scale: 1:2,500 1:10,560 County Series	No significant change.	<i>The Vale of Glamorgan Railway Loop Line</i> is shown from 1898 approximately 25m east of the site. It is no longer present on mapping from 1914. The quarry 30m to the south of the site, is no longer recorded.
Date : 1938 - 1972 Scale: 1:2,500 1:10,000 County Series Provisional	Buildings are shown in the eastern field	<i>Cardiff (Rhoose) Airport</i> is recorded approximately 550m west of the site from 1965.
Date : 1973- 1981 Scale: 1:2,500 1:10,000 National Grid	The buildings in the east of the site are no longer shown, with the area shown as a field once more.	Two residential dwellings are shown adjacent to the north east boundary (1975 onwards). Expansion of <i>Cardiff (Rhoose) Airport</i> (Now named <i>Glamorgan (Rhoose) Airport</i>) is noted from 1975. The A4226 is recorded (1981 onwards) approximately 100m to the north of the site.
Date : 1993- 2020 Scale: 1:1,250 1:2,500 1:10,000 National Grid	No significant change.	Further expansion of <i>Glamorgan (Rhoose) Airport</i> (Now named <i>Cardiff Wales Airport</i>). Inclusive of car parks and terminal buildings is noted from 1994. The <i>Airport Business Park</i> is noted adjacent to the western boundary of the site (1994 mapping). With further development noted from 2001.

4. Environmental Data

4.1 Polluting Activity

4.1.1 Pollution Incidents to Controlled Water

No Environment Agency Recorded Pollution Incidents to Controlled Water have been recorded within a 250m radius of the site.

4.2 Licensed Industrial Activity

4.2.1 Licensed Sites

No Integrated Pollution Prevention and Control from the Environment Agency are recorded within 250m of the site.

No Local Authority Integrated Pollution Controls, Environmental Permits or Enforcements are recorded within a 250m radius of the site.

There are no Environment Agency Pollution Incidents recorded within 250m of the site.

There are no Registered Radioactive Substance Licences recorded within 250m of the site.

There are no records of Licensed Industrial Activities Part A (1) within 250m of the site.

No Part A (2) or Part B Activities have been identified within a 250m radius of the site.

4.2.2 Industrial Activities

Six current industrial activities are recorded within a 250m radius of the site. The closest of which relates to Construction and Tool Hire 27m north east of the site. The remaining records relate to a Business Parks and Industrial Estate activity 112m west, a Gas Distribution activity 144m south west, Vehicle Hire and Rental 184m south west, a Telecommunications feature 212m south west and a single record of an electrical substation 240m south west of the site.

Eight historical industrial activities are recorded within a 250m radius of the site. The closest of which relates to an Unspecified Old Quarries recorded during 1898 approximately 33m south. The remaining records relate to six records of Unspecified Old Quarries 186m – 229m south to west with a single record of an airport 215m south west of the site present from 1981 to 1994.

4.2.3 Fuel Stations & Tanks

No fuel station entries have been identified within a 250m radius of the site.

There are no records of tanks identified within a 250m radius of the site

There are no records of high-pressure underground pipelines (oil and gas) within 250m of the site.

4.3 Waste and Material Storage Locations

4.3.1 Landfill

There are no Historical Landfill Sites within a 250m radius of the site.

There are no Licensed Waste Management Facilities recorded within a 250m radius of the site.

4.3.2 Waste Transfer Stations

No operational or non-operational Registered Waste Treatment, Transfer or Disposal sites have been identified within a 250m radius of the site.

4.4 Local Authority Environmental Search

A request for a Local Authority Environmental Search has been submitted to the Vale of Glamorgan Council. This report will be updated accordingly once a response has been received.

4.5 Summary

Based on the information collated for the desk study, the geo-environmental setting of the site is summarised as follows:

- The site is recorded as part of five fields on the 1st Edition mapping (1884), with a small development noted in the east of the site from 1938 until the mid 1960's where it is no longer present. With no significant changes noted to the present day.
- Historically, the surrounding land use is predominantly agricultural. With limited development until the mid 1960's where the airport is recorded to the west of the site, with moderate expansion noted through the 1970's and 1980's until the 1990's where the Business park immediately adjacent to the west of the site is noted.
- The site is underlain by bedrock geology of the Porthkerry Member and is generally expected to comprise interbedded Limestone and Mudstones.
- The BGS mapping does not indicate any made ground on the site. However, limited made ground may be present associated with the development in the east of the site as shown on historical mapping from the 1940's to the 1960's. Any Made Ground encountered would be of an unknown composition.
- The bedrock geology is designated as a Secondary A Aquifer.

Based on the above, the environmental sensitivity of the site can be considered to be Low at this stage.

5. Preliminary Conceptual Site Model (PCSM)

5.1 Introduction

The UK approach to risk assessment for both 'Contaminated Land' as defined by Part 2A of the Environmental Protection Act 1990 (EPA 1990) and for 'land affected by contamination' as defined in National Planning Policy Framework Planning Practice Guidance follows a risk-based tiered framework published by Defra and the Environment Agency in their guidance document '*CLR11 Model Procedures for the Management of Land Contamination*'.

The basis of CLR11 is the development of the conceptual site model (CSM) which is the representation of the source-pathway-receptor (pollutant) linkages upon which the assessment of risk can be based.

5.2 Risk Assessment Approach

The approach to the human health risk assessment reported here follows the principals given in CLR 11, i.e. application of the following assessment hierarchy:

- Tier 1 risk screening by establishment of potential pollutant linkages, i.e. the preliminary conceptual site model (PCSM), or
- Tier 2 generic quantitative assessment using generic assessment criteria (GACs) that represent 'acceptably low' risk, or
- Tier 3 quantitative risk assessment using site specific assessment criteria (SSACs) that represent 'unacceptable risk', or where generic assessment criteria are not available or they are not applicable to the CSM.

At this stage there is no site-specific data available. The potential sources of contamination based on historical and current land uses were identified using the Emapsite™ Geoinsight and Enviroinsight (Appendix II) and Department of the Environment Industry Profiles. In the absence of a standard exposure scenario for a school environment, a conservative standard exposure scenario of residential without home-grown produce has been used to identify potential exposure pathways for human health receptors. Controlled water, flora and fauna and property receptors have also been included within the PCSM. We believe this to be appropriate at this stage based on the precautionary principle advocated by the CLR guidance.

5.3 Preliminary Conceptual Site Model

The PCSM was produced by undertaking a Source-Pathway-Receptor analysis of the site:

Sources (**S**) are potential or known contaminant sources, e.g. a former land use:

Pathways (**P**) are environmental systems through which a contaminant could migrate, e.g. air, groundwater;

Receptors (**R**) are sensitive environmental receptors that could be adversely affected by a contaminant, e.g. Site Occupiers, groundwater resources.

For a pollutant linkage to exist between a contaminant source and a receptor, a pathway must be present.

5.3.1 Sources

The potential sources of contamination within 250m of the site and associated groups of potentially contaminative substances are outlined below. The list of potential contaminants was derived from the Department of the Environment Industry Profiles. The activities and substances listed below should not be considered exhaustive and provides a guide to the likely range of contaminants which may be present.

On Site

S1: Historical and Contemporary land use: Agricultural land, Historical Development in the east of the site
Inorganic and organic contaminants including heavy metals, metalloids, acids/alkalis, TPH, PAHs, asbestos and ground gases.

Off Site

S2: Historical and Contemporary land use: Agricultural land, Nearby Quarries.
Inorganic and organic contaminants including heavy metals, metalloids, acids/alkalis, TPH, PAHs and ground gases.

5.3.2 Pathways

The site is underlain by Secondary A Aquifer.

P1: Human uptake;

- Dermal contact with soils and dust
- Ingestion of soils and dust
- Inhalation of soils, dust and vapour

P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks

P3: Migration along preferential pathways via underground services and drainage runs (pipes, culverts and granular material)

P4: Overland flow / surface runoff

P5: Vertical and lateral migration of ground gases and/or vapour

P6: Root uptake

5.3.3 Receptors

R1: End Users: Staff, pupils and visitors to the Educational Facilities

R2: Construction and maintenance workers

R3: Controlled Water, Secondary A Aquifer.

R4: Controlled Water, Surface Water

R5: Property: Services (e.g. drinking water supply pipes) and structures/buildings (concrete used in foundations)

R6: Adjacent residential properties

R7: Proposed flora and fauna

5.3.4 Preliminary Qualitative Risk Assessment

For each potential pollutant linkage identified within the PCSM, the potential risk has been assessed on the probability of a pollution event and the severity it may have on the identified receptors. The results are presented in Table 5.1 below. The methodology for the assessment is presented in Appendix IV.

Table 5.1 Preliminary Conceptual Site Model and Qualitative Risk Assessment

Source	Pathway	Receptor	Consequence	Probability	Risk	Comments
<p>On site</p> <p>S1: Historical and Contemporary land use: Agricultural land, Historical Development in the east of the site</p> <p>Off Site (within 250m)</p> <p>S2: Historical and Contemporary land use: Agricultural land, Nearby Quarries.</p>	P1: Human uptake pathways	R1: End Users R2: Construction and maintenance workers	Minor	Low	Low	It is possible that end users / construction workers will come into contact with the soils across the site, however given the limited potential for contamination, the risk is considered to be LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. P3: Migration of contaminants along preferential pathways (man- made). P4: Surface runoff.	R3: Controlled Water: Groundwater & Surface Water	Mild	Low	Low	The bedrock geology is classified as a Secondary A Aquifer. Based on the lack of plausible source on and within the immediate vicinity of the site plus the distance of possible sources from the site, the risk to surface water and groundwater is considered to be LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. P3: Migration of contaminants along preferential pathways (man- made). P4: Surface runoff.	R1: End Users R2: Construction and maintenance workers	Mild	Low	Low	Due to the lack of plausible source on and within the immediate vicinity of the site plus the distance of potential off site sources, the risk is considered to be LOW.
	P5: Vertical and lateral migration of ground gases and/or vapour.	R1: End Users	Mild	Low	Low	Deeper made ground may be present on site but is considered unlikely at this stage. No landfills are recorded within a 250m radius of the site. Historical quarries locally were small scale and are not indicated as backfilled. Based on the information available at this stage the risk is considered to be LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. P3: Migration of contaminants along preferential pathways (man- made). P4: Surface runoff. P5: Vertical and lateral migration of ground gases and/or vapour.	R4: Property, services and substructures R5: Adjacent Residential Properties	Mild	Low	Low	Shallow Made Ground and natural deposits may be aggressive to concrete and underground utilities. Until the potential has been investigated further, the risk is considered to be LOW.
	P6: Root uptake.	R6: Proposed Flora and fauna	Mild	Low	Low	There is unlikely to be any vegetable planting or fruit bearing trees. Provided this remains the case the risk of uptake to proposed flora and fauna is LOW.

6. Preliminary Engineering Constraints and Recommendations

No development options are currently available for the site. It is understood that the site will be developed as an educational facility, at this stage it is not known where on the site the new development will be positioned.

6.1 Geotechnical Constraints

It is considered that limited Made Ground is likely to be encountered within the area of the former buildings in the east of site, any made ground encountered would have an unknown composition and strength.

Trees were observed adjacent to / on site. Testing of the soils will be necessary to determine the plasticity and its potential effects on foundations. Reference should be made to NHBC Standards Chapter 4.2 to confirm foundation design should the soils be of a fine nature.

The groundwater regime on site is unknown and should be assessed further if possible.

It is likely that levels will need to be altered to accommodate the new college and the suitability of soils for reuse as engineered fill at the site should be considered during any ground investigation.

6.2 Environmental Constraints

Any made ground on site may contain elevated concentrations of potentially harmful contaminants which may present a risk to the receptors identified in the PCSM including end users, adjacent residential properties or construction workers.

Should Made Ground materials be encountered in depths in excess of 1.00m on site, this could potentially present a risk of ground gas, therefore the risk should be assessed and monitoring wells installed where required.

The Preliminary Conceptual Site Model indicates a low possibility that harm could arise to a designated receptor from identified hazards.

6.3 Recommendations

A ground investigation is recommended to provide information as part of the feasibility study and assess the geo-environmental constraints identified on site by this desk study. The objectives of the investigation should be as follows:

- To establish the ground conditions laterally and vertically across the site, including the presence, distribution and composition of any made ground.
 - To obtain soil samples for contamination analysis in order to refine the PCSM and undertake generic quantitative risk assessment.
 - To obtain data on the groundwater and ground gas regime (if made ground >1m in depth or organic soils are recorded during ground investigation).
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- To obtain geotechnical design parameters for the proposed building including in-situ and laboratory testing.
- To assess if the soils and groundwater on site are likely to be aggressive to buried/surface concrete and proposed utilities.

Appendix I



Appendix II



Appendix III



Appendix IV



Appendix IV Basis for Contaminated Land Qualitative Risk Assessment

The following Contaminated Land Risk Assessment methodology is based on CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*, in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I (Desk Study) stage. This will then determine an overall risk category which can be used to identify potential investigation or remedial actions. This methodology uses qualitative descriptors and therefore is a qualitative approach based on desk information. The risk assessment should be refined following receipt of ground investigation data.

The methodology requires the classification of:

- the magnitude of the **consequence** (severity) of a risk occurring, and
- the magnitude of the **probability** (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this Site are classified in accordance with Table VI-1 below, which is adapted from the CIRIA guidance.

Table IV-1: Classification of Consequence

Classification	Definition of Consequence
Severe	Short-term (acute) risks to human health likely to result in “significant harm” as defined by the Environmental 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 an ecosystem.
Medium	Chronic damage to Human Health (significant harm as defined in DEFRA, 2012). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such an ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services (“significant harm” as defined in the DEFRA, 2012). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, though 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.

Source: CIRIA C552

The probability of contamination risks occurring at this Site will be classified in accordance with Table VI-2 below from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table IV-2: Classification of Probability

Classification	Definition of Probability
High Likelihood	There is a pollutant linkage and an event that 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 pollutant 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 an event would take place, and is less likely in the shorter term.
Unlikely	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated based upon the following probability x consequence matrix shown in Table VI-3.



Table IV-3: Overall Contamination Risk Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Moderate/Low risk
	Likely	High risk	Moderate risk	Moderate/Low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/Low risk	Low risk	Very low risk	Very low risk

Based upon this, CIRIA C552 present definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each case, as in Table VI-4. These risk categories apply to each pollutant linkage, not simply to each hazard or receptor.

Table IV-4: Definition of Risk Categories and Likely Actions Required

Risk Category	Definition and likely actions required
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, if [it] is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised would at worst be relatively mild.
Very Low	There is a low possibility that harm could rise to a receptor. In the event of such harm being realised it is not likely to be severe.



Appendix V



Appendix I





DO NOT SCALE
NOTES:



Lawrence House, Meadowbank Way,
Eastwood, Nottingham, NG16 3SB
Tel: 01773 535 555 Fax: 0870 600 6091
www.hspconsulting.com

CLIENT:
Gleeds Management Services Ltd

PROJECT:
Cardiff Airport Business Park

TITLE:
Site Investigation Layout Plan

SCALE@SIZE :
NTS

ISSUE:
FINAL

DESIGN/DRAWN:
DRS

DATE:
June 2020

PROJECT No:
CABP

DRAWING No:
502

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Appendix II



307453 167744

Order Details

Date: 05/05/2020
Your ref: EMS_608216_812598
Our Ref: EMS-608216_812598
Client: emapsite

Site Details

Location: 307453 167744
Area: 9.05 ha
Authority: [Bro Morgannwg - Vale of Glamorgan Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.13

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	<u>Historical industrial land uses</u>	0	1	7	4	-
15	1.2	<u>Historical tanks</u>	0	0	0	4	-
16	1.3	<u>Historical energy features</u>	0	0	0	6	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
17	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
18	2.1	<u>Historical industrial land uses</u>	0	1	9	7	-
19	2.2	<u>Historical tanks</u>	0	0	0	5	-
20	2.3	<u>Historical energy features</u>	0	0	0	10	-
20	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	<u>Historical landfill (EA/NRW records)</u>	0	0	0	1	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
24	3.7	<u>Waste exemptions</u>	0	0	0	3	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
25	4.1	<u>Recent industrial land uses</u>	0	1	5	-	-
26	4.2	Current or recent petrol stations	0	0	0	0	-
26	4.3	Electricity cables	0	0	0	0	-
26	4.4	Gas pipelines	0	0	0	0	-
26	4.5	Sites determined as Contaminated Land	0	0	0	0	-



27	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
27	4.7	Regulated explosive sites	0	0	0	0	-
27	4.8	Hazardous substance storage/usage	0	0	0	0	-
27	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
27	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
28	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
28	4.12	Radioactive Substance Authorisations	0	0	0	0	-
28	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	1	20	-
32	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
32	4.15	Pollutant release to public sewer	0	0	0	0	-
32	4.16	List 1 Dangerous Substances	0	0	0	0	-
32	4.17	List 2 Dangerous Substances	0	0	0	0	-
32	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	3	-
33	4.19	Pollution inventory substances	0	0	0	0	-
33	4.20	Pollution inventory waste transfers	0	0	0	0	-
33	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
35	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
37	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
39	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
40	5.4	<u>Groundwater vulnerability- soluble rock risk</u>	Identified (within 0m)				
40	5.5	Groundwater vulnerability- local information	None (within 0m)				
41	5.6	<u>Groundwater abstractions</u>	0	0	0	0	1
42	5.7	Surface water abstractions	0	0	0	0	0
42	5.8	Potable abstractions	0	0	0	0	0
42	5.9	Source Protection Zones	0	0	0	0	-
43	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
44	6.1	<u>Water Network (OS MasterMap)</u>	0	0	9	-	-



45	6.2	<u>Surface water features</u>	0	0	6	-	-
46	6.3	<u>WFD Surface water body catchments</u>	2	-	-	-	-
46	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
47	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
48	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
48	7.2	Historical Flood Events	0	0	0	-	-
48	7.3	Flood Defences	0	0	0	-	-
48	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
49	7.5	Flood Storage Areas	0	0	0	-	-
50	7.6	Flood Zone 2	None (within 50m)				
50	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
51	8.1	<u>Surface water flooding</u>	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
53	9.1	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
54	10.1	<u>Sites of Special Scientific Interest (SSSI)</u>	0	0	0	0	7
55	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
55	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
55	10.4	Special Protection Areas (SPA)	0	0	0	0	0
56	10.5	National Nature Reserves (NNR)	0	0	0	0	0
56	10.6	<u>Local Nature Reserves (LNR)</u>	0	0	0	0	1
56	10.7	<u>Designated Ancient Woodland</u>	0	0	1	1	51
58	10.8	Biosphere Reserves	0	0	0	0	0
59	10.9	Forest Parks	0	0	0	0	0
59	10.10	Marine Conservation Zones	0	0	0	0	0
59	10.11	Green Belt	0	0	0	0	0
59	10.12	Proposed Ramsar sites	0	0	0	0	0



59	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
60	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
60	10.15	Nitrate Sensitive Areas	0	0	0	0	0
60	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
61	10.17	SSSI Impact Risk Zones	0	-	-	-	-
61	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
62	11.1	World Heritage Sites	0	0	0	-	-
62	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
62	11.3	National Parks	0	0	0	-	-
62	11.4	Listed Buildings	0	0	0	-	-
63	11.5	Conservation Areas	0	0	0	-	-
63	11.6	Scheduled Ancient Monuments	0	0	0	-	-
63	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
64	12.1	<u>Agricultural Land Classification</u>	Grade 4 (within 250m)				
65	12.2	Open Access Land	0	0	0	-	-
65	12.3	Tree Felling Licences	0	0	0	-	-
65	12.4	Environmental Stewardship Schemes	0	0	0	-	-
66	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
67	13.1	Priority Habitat Inventory	0	0	0	-	-
67	13.2	Habitat Networks	0	0	0	-	-
67	13.3	Open Mosaic Habitat	0	0	0	-	-
67	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
68	14.1	<u>10k Availability</u>	Identified (within 500m)				
69	14.2	<u>Artificial and made ground (10k)</u>	0	0	0	2	-
70	14.3	<u>Superficial geology (10k)</u>	0	0	1	1	-



71	14.4	Landslip (10k)	0	0	0	0	-
72	14.5	<u>Bedrock geology (10k)</u>	1	0	1	3	-
73	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
74	15.1	<u>50k Availability</u>	Identified (within 500m)				
75	15.2	<u>Artificial and made ground (50k)</u>	0	0	0	2	-
76	15.3	Artificial ground permeability (50k)	0	0	-	-	-
77	15.4	<u>Superficial geology (50k)</u>	0	0	1	1	-
78	15.5	Superficial permeability (50k)	None (within 50m)				
78	15.6	Landslip (50k)	0	0	0	0	-
78	15.7	Landslip permeability (50k)	None (within 50m)				
79	15.8	<u>Bedrock geology (50k)</u>	1	0	2	5	-
80	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
80	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
81	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
82	17.1	<u>Shrink swell clays</u>	Negligible (within 50m)				
83	17.2	<u>Running sands</u>	Negligible (within 50m)				
84	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
85	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
86	17.5	<u>Landslides</u>	Very low (within 50m)				
87	17.6	<u>Ground dissolution of soluble rocks</u>	Very low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
89	18.1	Natural cavities	0	0	0	0	-
90	18.2	<u>BritPits</u>	0	1	3	1	-
91	18.3	<u>Surface ground workings</u>	0	2	9	-	-
91	18.4	Underground workings	0	0	0	0	0
91	18.5	Historical Mineral Planning Areas	0	0	0	0	-



92	18.6	Non-coal mining	0	0	0	0	0
92	18.7	Mining cavities	0	0	0	0	0
92	18.8	JPB mining areas	None (within 0m)				
92	18.9	Coal mining	None (within 0m)				
92	18.10	Brine areas	None (within 0m)				
93	18.11	Gypsum areas	None (within 0m)				
93	18.12	Tin mining	None (within 0m)				
93	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
94	19.1	Radon	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
95	20.1	BGS Estimated Background Soil Chemistry	2	3	-	-	-
95	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
96	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
97	21.1	Underground railways (London)	0	0	0	-	-
97	21.2	Underground railways (Non-London)	0	0	0	-	-
97	21.3	Railway tunnels	0	0	0	-	-
97	21.4	Historical railway and tunnel features	0	0	0	-	-
97	21.5	Royal Mail tunnels	0	0	0	-	-
98	21.6	Historical railways	0	0	0	-	-
98	21.7	Railways	0	0	0	-	-
98	21.8	Crossrail 1	0	0	0	0	-
98	21.9	Crossrail 2	0	0	0	0	-
98	21.10	HS2	0	0	0	0	-



Recent aerial photograph



Capture Date: 18/09/2019

Site Area: 9.05ha



Recent site history - 2016 aerial photograph



Capture Date: 19/07/2016

Site Area: 9.05ha



Recent site history - 2013 aerial photograph

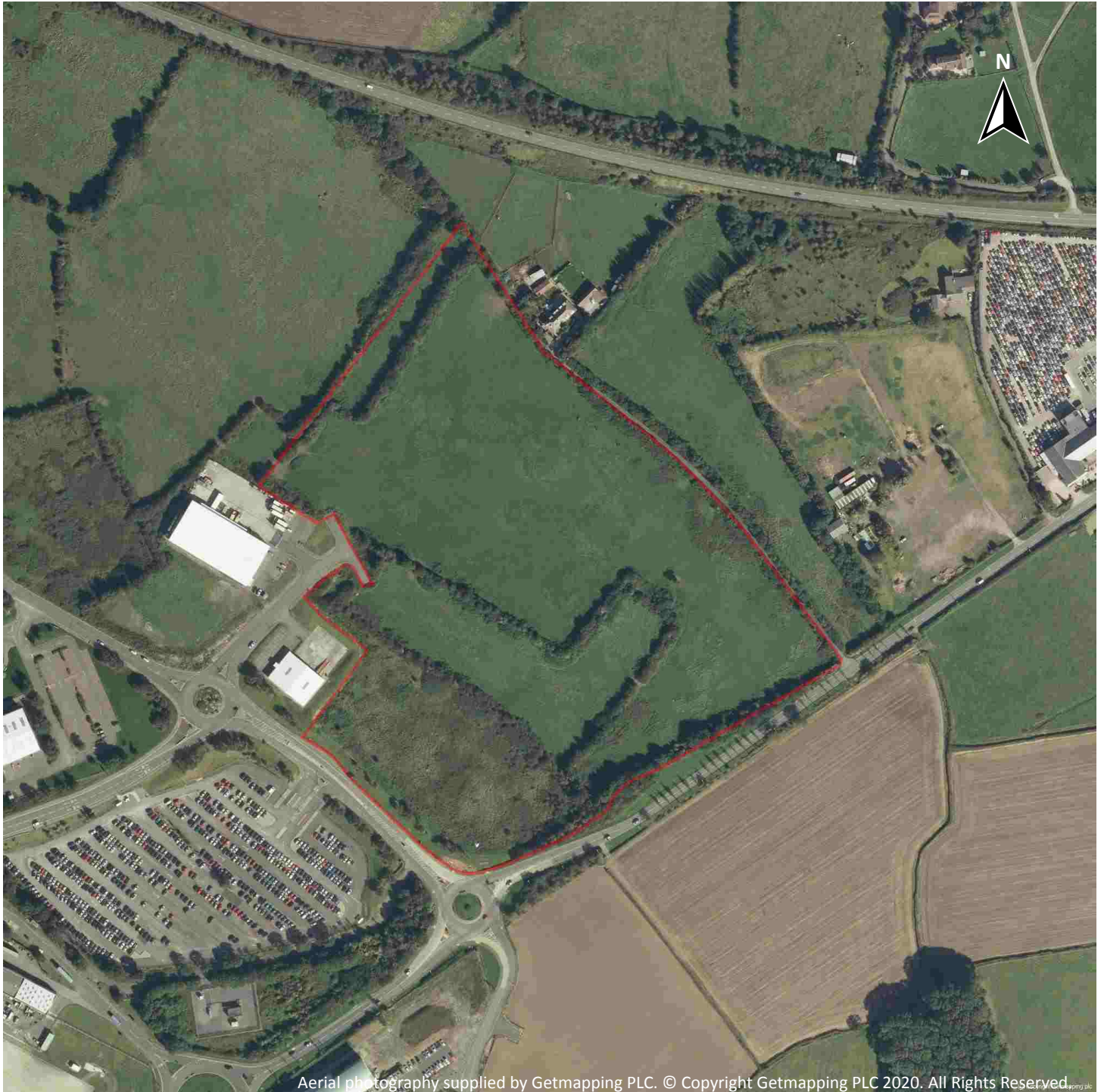


Capture Date: 14/07/2013

Site Area: 9.05ha



Recent site history - 2009 aerial photograph



Capture Date: 13/09/2009

Site Area: 9.05ha



Recent site history - 2000 aerial photograph

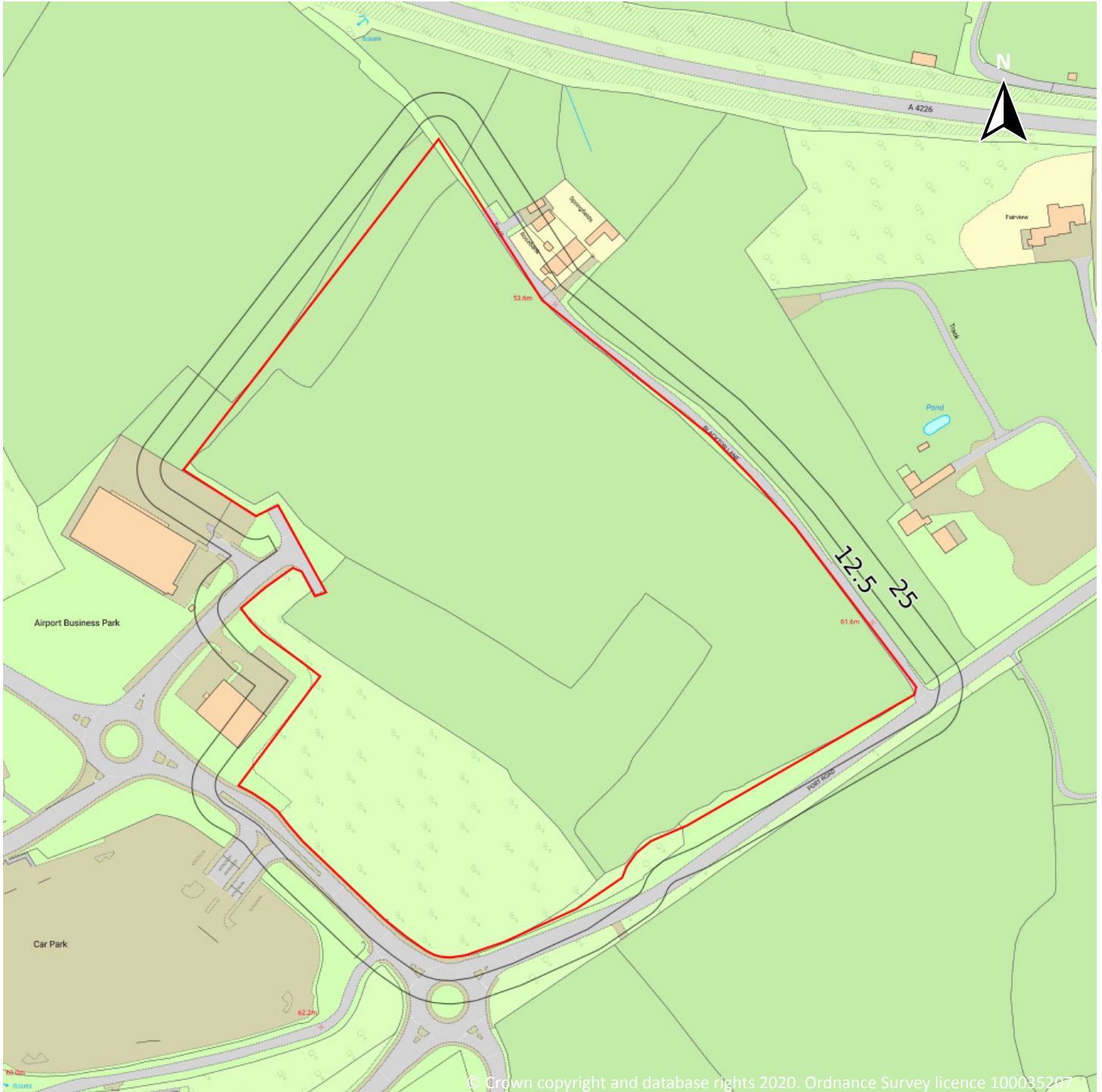


Capture Date: 06/10/2000

Site Area: 9.05ha



OS MasterMap site plan

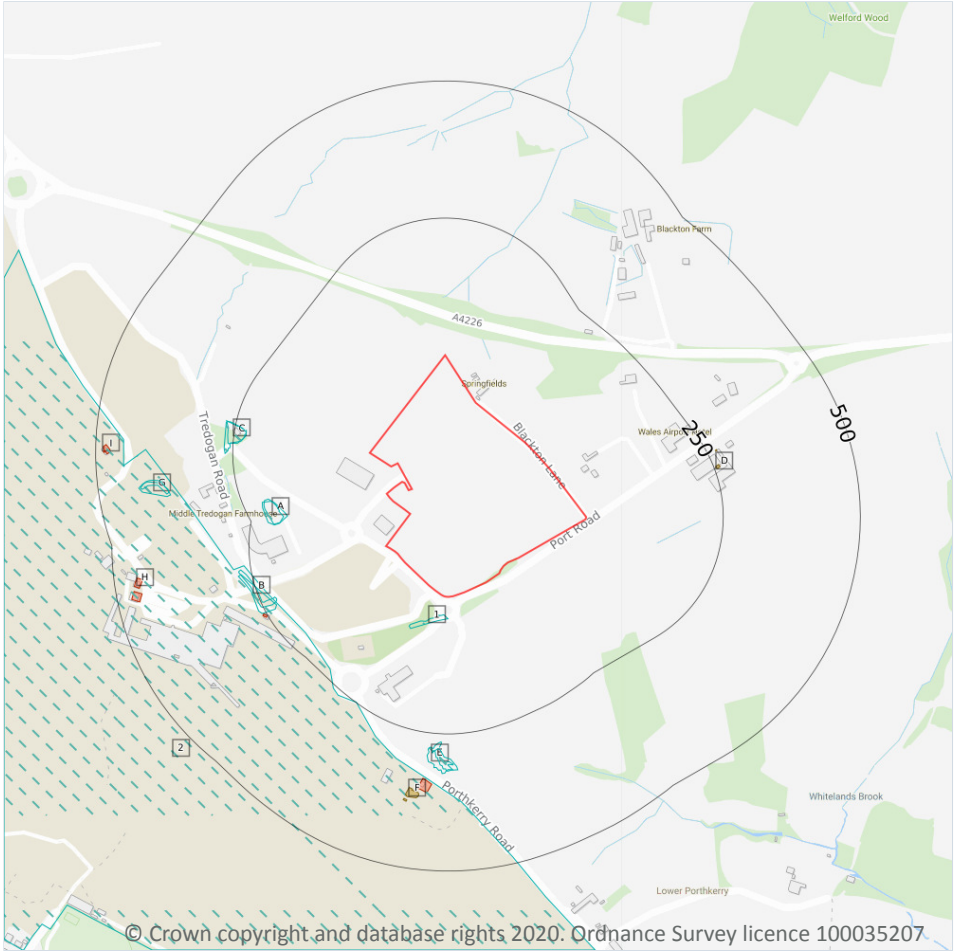


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Site Area: 9.05ha



1 Past land use



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

1.1 Historical industrial land uses

Records within 500m **12**

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
1	33m S	Unspecified Old Quarries	1898	1166323



ID	Location	Land use	Dates present	Group ID
A	186m W	Unspecified Quarry	1878	1169425
A	193m W	Unspecified Old Quarry	1898	1180685
2	215m SW	Airport	1981 - 1994	1230462
B	221m SW	Unspecified Old Quarry	1914 - 1921	1247643
B	227m SW	Unspecified Old Quarry	1898	1201764
C	228m W	Unspecified Quarry	1878	1169427
C	229m W	Unspecified Old Quarry	1898	1180684
E	265m S	Unspecified Old Quarry	1914 - 1921	1269881
E	277m S	Unspecified Quarry	1898	1169422
G	371m W	Unspecified Pit	1953	1185509
G	373m W	Unspecified Ground Workings	1914 - 1947	1233136

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

4

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'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
D	253m E	Unspecified Tank	1935	172284
D	265m NE	Unspecified Tank	1935	172285
F	354m S	Tanks	1972 - 1993	184680
F	376m S	Tanks	1993	169036

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m**6**

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'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
B	251m SW	Electricity Substation	1972 - 1993	112056
F	334m S	Electricity Substation	1972 - 1993	112752
H	448m W	Electricity Substation	1988 - 1995	107593
H	453m W	Electricity Substation	1972	97102
I	473m W	Electricity Substation	1972 - 1995	106447
I	483m W	Electricity Substation	1988	97105

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

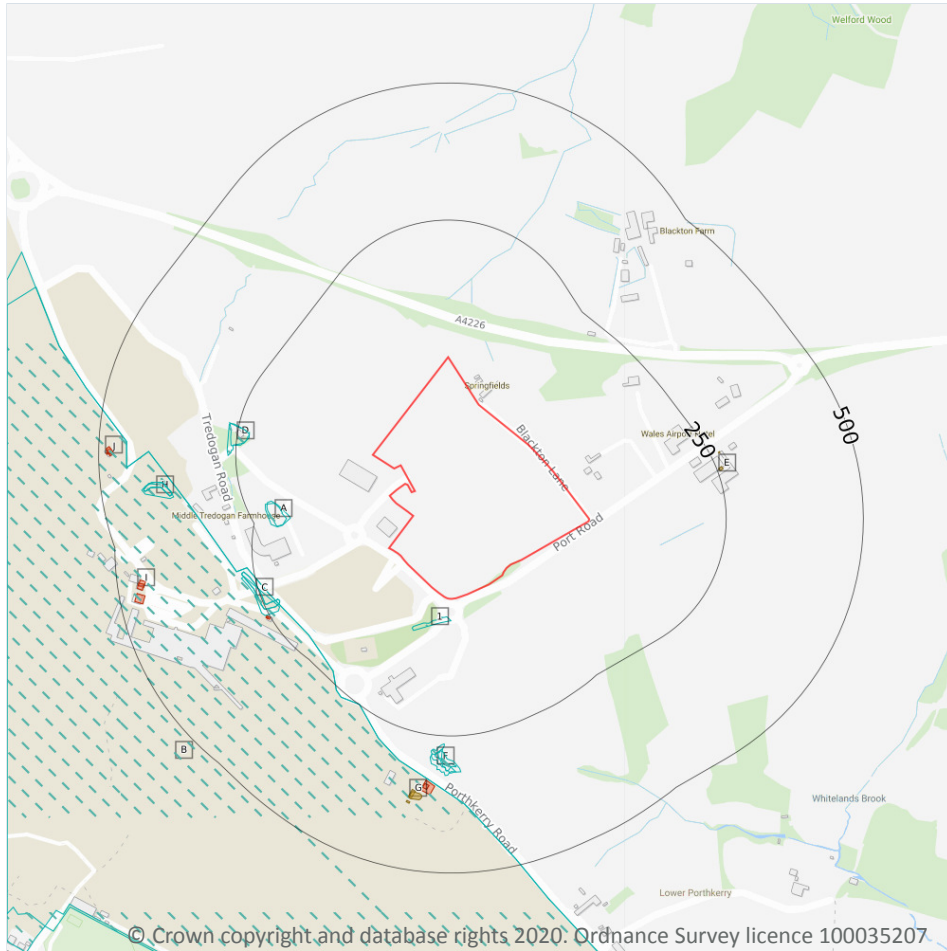
0

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
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m **17**

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 18**

ID	Location	Land Use	Date	Group ID
1	33m S	Unspecified Old Quarries	1898	1166323
A	186m W	Unspecified Quarry	1878	1169425
A	193m W	Unspecified Old Quarry	1898	1180685

ID	Location	Land Use	Date	Group ID
B	215m SW	Airport	1994	1230462
B	215m SW	Airport	1981	1230462
C	221m SW	Unspecified Old Quarry	1914	1247643
C	221m SW	Unspecified Old Quarry	1921	1247643
C	227m SW	Unspecified Old Quarry	1898	1201764
D	228m W	Unspecified Quarry	1878	1169427
D	229m W	Unspecified Old Quarry	1898	1180684
F	265m S	Unspecified Old Quarry	1914	1269881
F	274m S	Unspecified Old Quarry	1921	1269881
F	277m S	Unspecified Quarry	1898	1169422
H	371m W	Unspecified Pit	1953	1185509
H	373m W	Unspecified Ground Workings	1947	1233136
H	373m W	Unspecified Ground Workings	1914	1233136
H	373m W	Unspecified Ground Workings	1921	1233136

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

5

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'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
E	253m E	Unspecified Tank	1935	172284
E	265m NE	Unspecified Tank	1935	172285
G	354m S	Tanks	1972	184680
G	358m S	Tanks	1993	184680
G	376m S	Tanks	1993	169036

This data is sourced from Ordnance Survey / Groundsure.



2.3 Historical energy features

Records within 500m
10

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'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	251m SW	Electricity Substation	1993	112056
C	253m SW	Electricity Substation	1972	112056
G	334m S	Electricity Substation	1993	112752
G	340m S	Electricity Substation	1972	112752
I	448m W	Electricity Substation	1995	107593
I	451m W	Electricity Substation	1988	107593
I	453m W	Electricity Substation	1972	97102
J	473m W	Electricity Substation	1972	106447
J	474m W	Electricity Substation	1995	106447
J	483m W	Electricity Substation	1988	97105

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)
- Waste exemptions

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 22**

ID	Location	Details		
1	283m S	Site Address: Model Farm Licence Holder Address: -	Waste Licence: Yes Site Reference: 45 Waste Type: Inert, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 10/12/1991 Licence Surrender: 14/03/1997	Operator: Mr G B Jenkins Licence Holder: Mr G B Jenkins First Recorded 31/12/1991 Last Recorded: 27/03/1995

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

3

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.

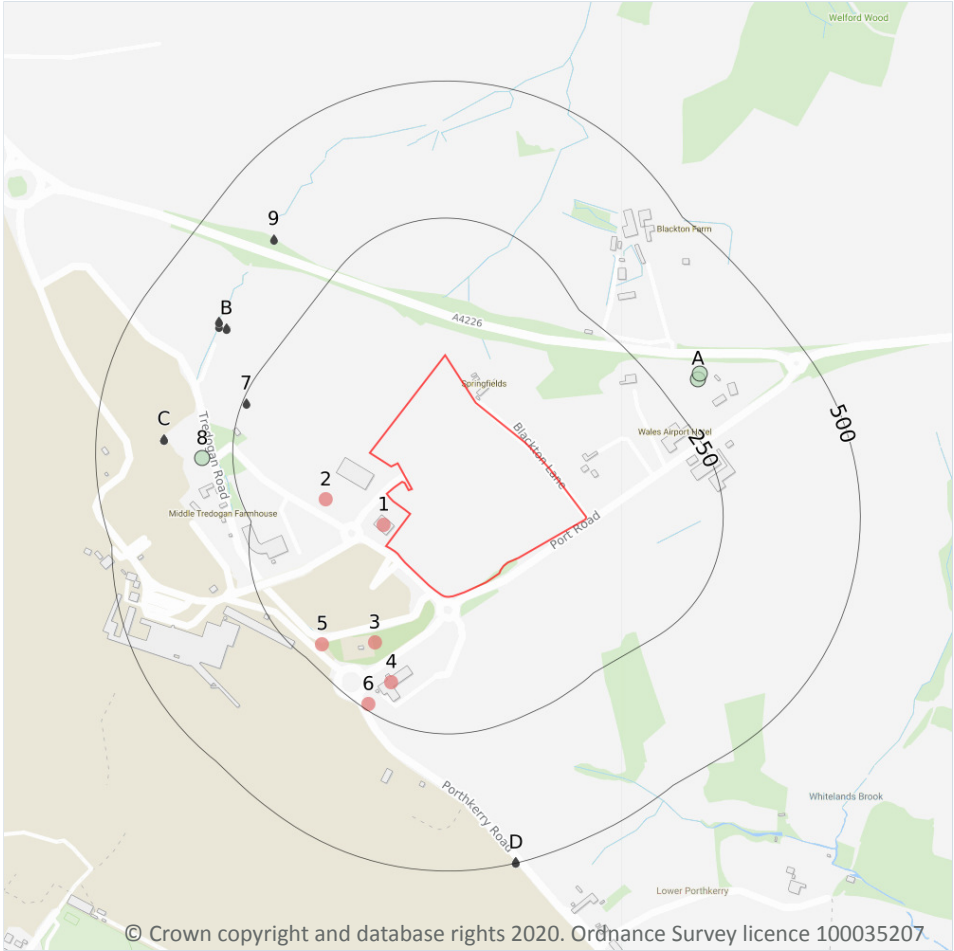
Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	405m SW	Cardiff Airport Services Ltd, Main Terminal Building, Cardiff International Airport, Rhoose, Barry, Vale of Glamorgan, CF62 3BD	NRW-WME044013	Using waste exemption	Not on a farm	Use of waste in construction
A	405m SW	Cardiff Airport Services Ltd, Main Terminal Building, Cardiff International Airport, Rhoose, Barry, Vale of Glamorgan, CF623BD	NRW-WME035057	Treating waste exemption	Not on a farm	Aerobic composting and associated prior treatment
A	405m SW	Cardiff Airport Services Ltd, Main Terminal Building, Cardiff International Airport, Rhoose, Barry, Vale of Glamorgan, CF623BD	NRW-WME035057	Using waste exemption	Not on a farm	Spreading waste on non-agricultural land to confer benefit

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m **6**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Company	Address	Activity	Category
1	27m NW	Aircraft Tool Hire Ltd	Unit 1 Cardiff International Airport, Rhoose, Barry, South Glamorgan, CF62 3BD	Construction and Tool Hire	Hire Services
2	112m W	Airport Business Park	South Glamorgan, CF62	Business Parks and Industrial Estates	Industrial Features

ID	Location	Company	Address	Activity	Category
3	144m SW	Gas Distribution	South Glamorgan, CF62	Gas Features	Infrastructure and Facilities
4	184m SW	Easirent Car Hire	Holiday Inn Express, Port Road, Rhoose, Barry, South Glamorgan, CF62 3BT	Vehicle Hire and Rental	Hire Services
5	212m SW	Mast	South Glamorgan, CF62	Telecommunications Features	Infrastructure and Facilities
6	240m SW	Electricity Sub Station	South Glamorgan, CF62	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m **0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m **0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 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.



4.6 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.

4.7 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.

4.8 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.

4.9 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.

4.10 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.



4.11 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.

4.12 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.

4.13 Licensed Discharges to controlled waters

Records within 500m
21

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 25**

ID	Location	Address	Details	
7	242m W	CARDIFF WALES AIRPORT NEAR CARDIFF, CARDIFF WALES AIRPORT NEAR CARDI, NEAR CARDIFF PT A CARDIFF , PT A CARDIFF , CARDIFF	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: AN0249001 Permit Version: 1 Receiving Water: TREDOGAN BROOK	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 03/10/1994 Effective Date: 03/10/1994 Revocation Date: -
B	345m NW	Tredogan SPS, Nr Cardiff Wales Airport, RHOOSE, BARRY, CF64 5RP	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: AN0228601 Permit Version: 3 Receiving Water: Tredogan Stream	Status: Effective Issue date: 17/12/2019 Effective Date: 17/12/2019 Revocation Date: -
B	345m NW	Tredogan SPS, Nr Cardiff Wales Airport, RHOOSE, BARRY, CF64 5RP	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0228601 Permit Version: 3 Receiving Water: Tredogan Stream	Status: Effective Issue date: 17/12/2019 Effective Date: 17/12/2019 Revocation Date: -



ID	Location	Address	Details	
B	358m NW	TREDOGAN PS TREDOGAN ROAD CARDIFF W, TREDOGAN PS, TREDOGAN ROAD, CARDIFF WALES AIRPORT CARDIFF, CARDIFF	Effluent Type: UNSPECIFIED Permit Number: AN0228601 Permit Version: 1 Receiving Water: TRIB OF WEYCOCK	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 13/11/1991 Effective Date: 30/06/1992 Revocation Date: 03/09/2004
B	364m NW	A SEWAGE PS TREDOGAN ASSET NO33586, A SEWAGE PS, TREDOGAN, ASSET NO33586, TREDOGAN BARRY	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0228601 Permit Version: 2 Receiving Water: THE TREDOGAN STREAM	Status: Effective Issue date: 03/09/2004 Effective Date: 04/09/2004 Revocation Date: -
B	364m NW	A SEWAGE PS TREDOGAN ASSET NO33586, A SEWAGE PS, TREDOGAN, ASSET NO33586, TREDOGAN BARRY	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0228601 Permit Version: 2 Receiving Water: THE TREDOGAN STREAM	Status: Effective Issue date: 03/09/2004 Effective Date: 04/09/2004 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -



ID	Location	Address	Details	
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SITE Permit Number: EPRFB3190HP Permit Version: 1 Receiving Water: VARIOUS TRIBUTARIES AND GROUND	Status: NEW ISSUED UNDER EPR 2010 Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
C	376m W	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SITE Permit Number: EPRFB3190HP Permit Version: 1 Receiving Water: VARIOUS TRIBUTARIES AND GROUND	Status: NEW ISSUED UNDER EPR 2010 Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
9	377m NW	747 MAINTAINANCE HANGAR DEVMT RHOOS, 747 MAINTAINANCE HANGAR DEVMT RH, RHOOSE AIRPORT ,	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: AN0225102 Permit Version: 2 Receiving Water: TREDOGAN BROOK	Status: Effective Issue date: 22/01/1996 Effective Date: 23/01/1996 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -



ID	Location	Address	Details	
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: FB3190HP Permit Version: 1 Receiving Water: Various tributaries and groundwater via infiltration system	Status: Effective Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SITE Permit Number: EPRFB3190HP Permit Version: 1 Receiving Water: VARIOUS TRIBUTARIES AND GROUND	Status: NEW ISSUED UNDER EPR 2010 Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -
D	499m S	CARDIFF AIRPORT, RHOOSE, VALE OF GLAMORGAN, SOUTH EAST WALES, CF62 3BD	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SITE Permit Number: EPRFB3190HP Permit Version: 1 Receiving Water: VARIOUS TRIBUTARIES AND GROUND	Status: NEW ISSUED UNDER EPR 2010 Issue date: 16/02/2016 Effective Date: 16/02/2016 Revocation Date: -

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



4.14 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.

4.15 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.

4.16 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.

4.17 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.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

3

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

Features are displayed on the Current industrial land use map on **page 25**



ID	Location	Details	
8	305m W	Incident Date: 22/05/2001 Incident Identification: 6292 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	314m NE	Incident Date: 25/08/2002 Incident Identification: 103019 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	323m NE	Incident Date: 26/09/2002 Incident Identification: 110694 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 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.

4.20 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.

4.21 Pollution inventory radioactive waste

Records within 500m

0

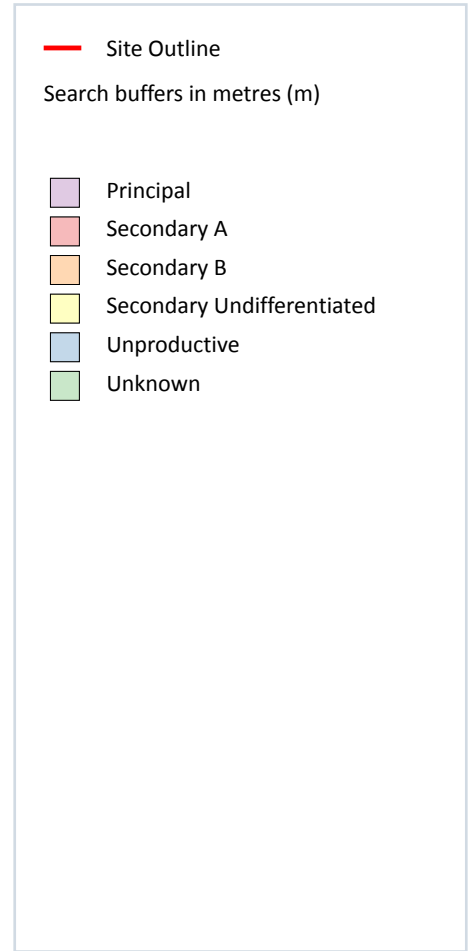
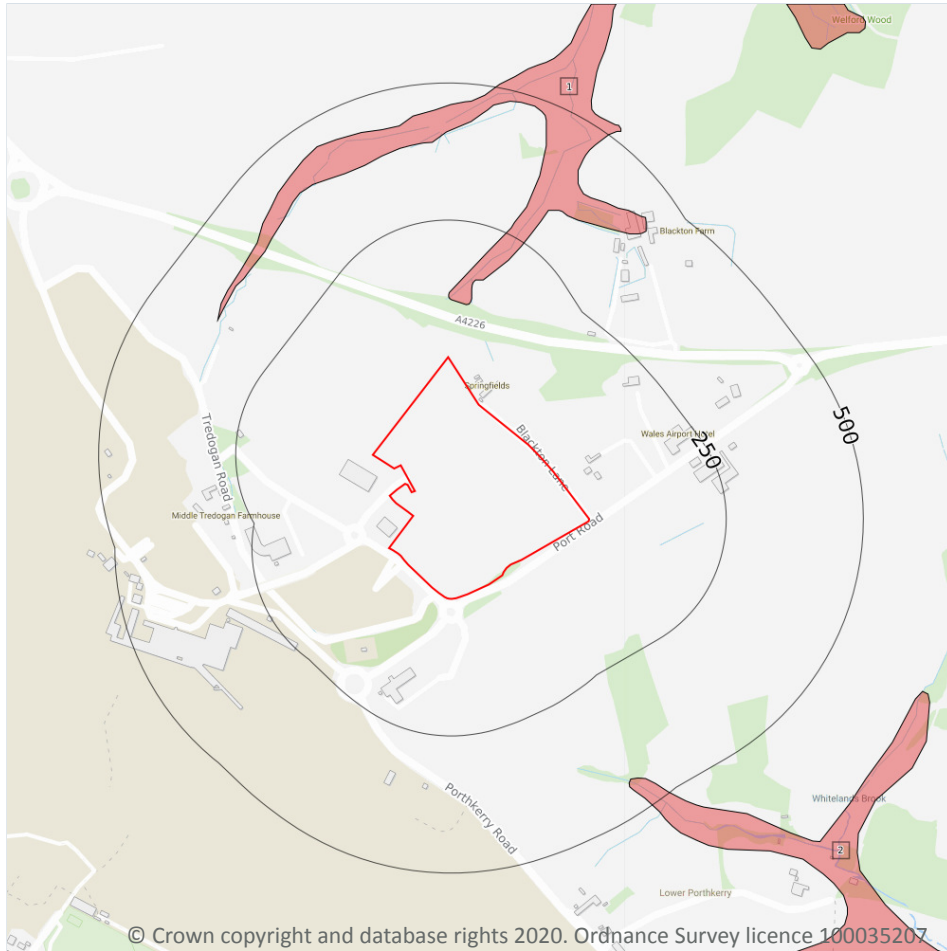
The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.



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



5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

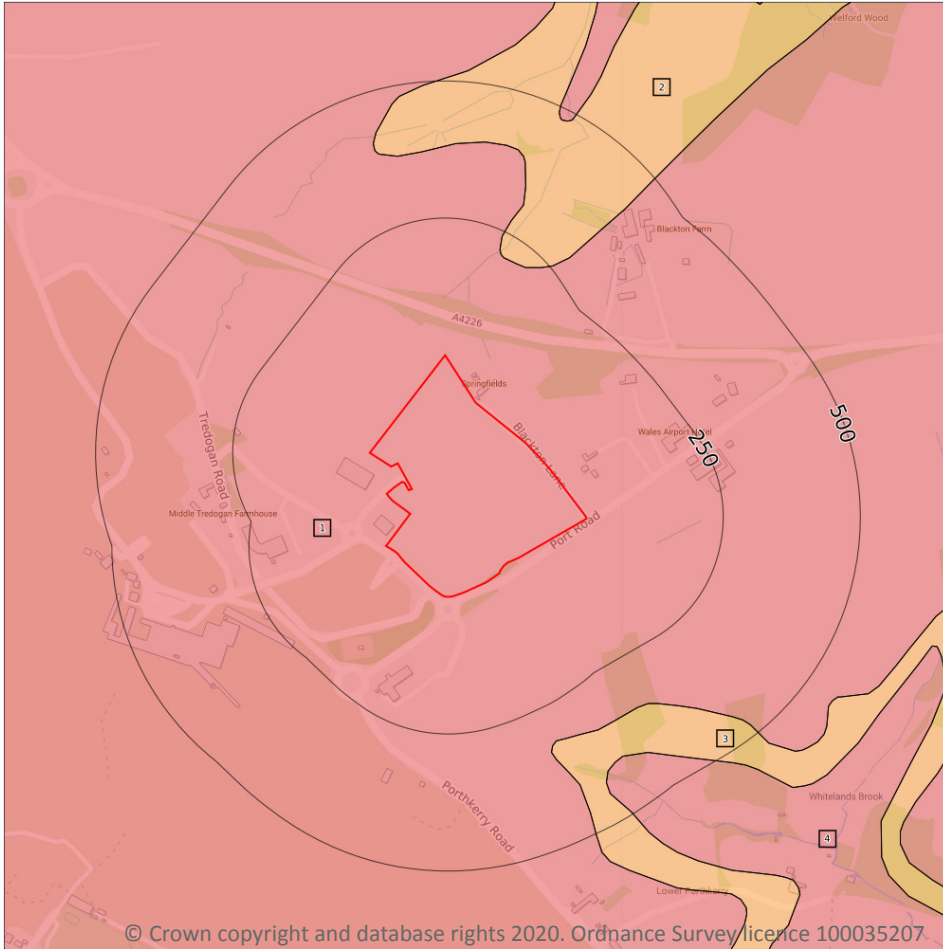
Features are displayed on the Hydrogeology map on **page 35**

ID	Location	Designation	Description
1	101m N	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	439m SE	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 37**

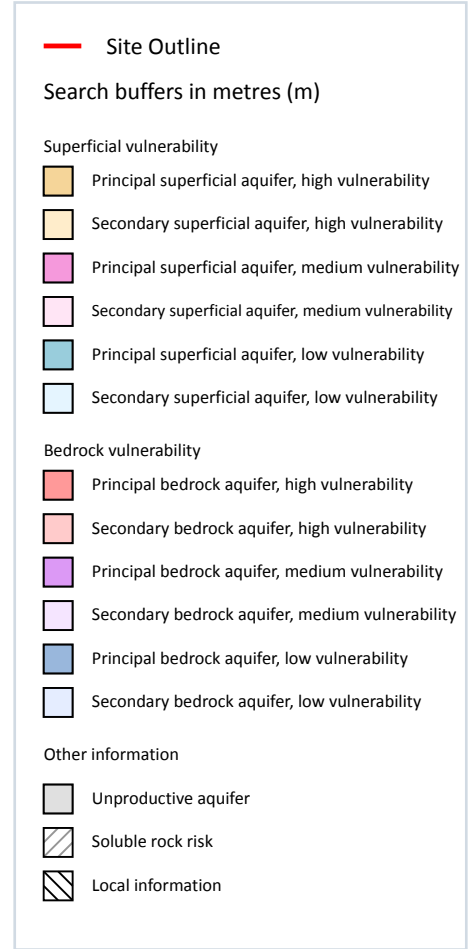
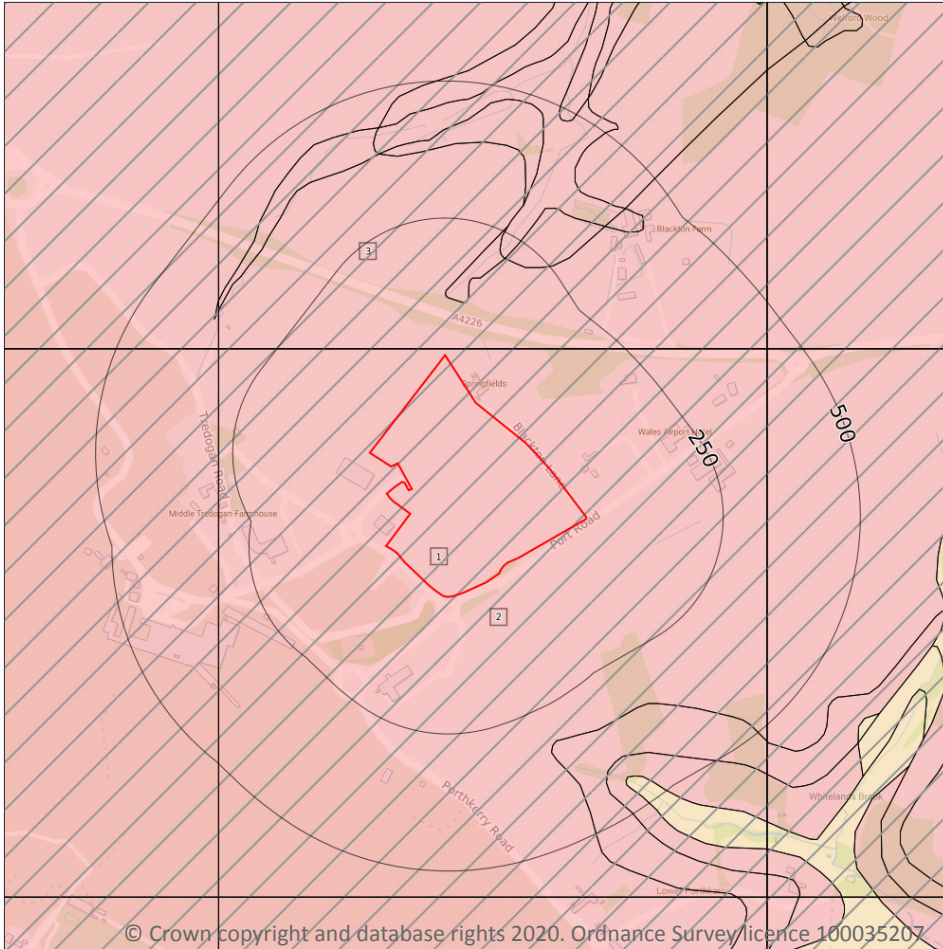
ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	207m NE	Secondary 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

ID	Location	Designation	Description
3	316m SE	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	402m SE	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



5.3 Groundwater vulnerability

Records within 50m

2

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 39**

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: >70% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
3	11m N	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: 40-70% 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

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	1
------------------------	----------

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	94.0%

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

5.5 Groundwater vulnerability- local information

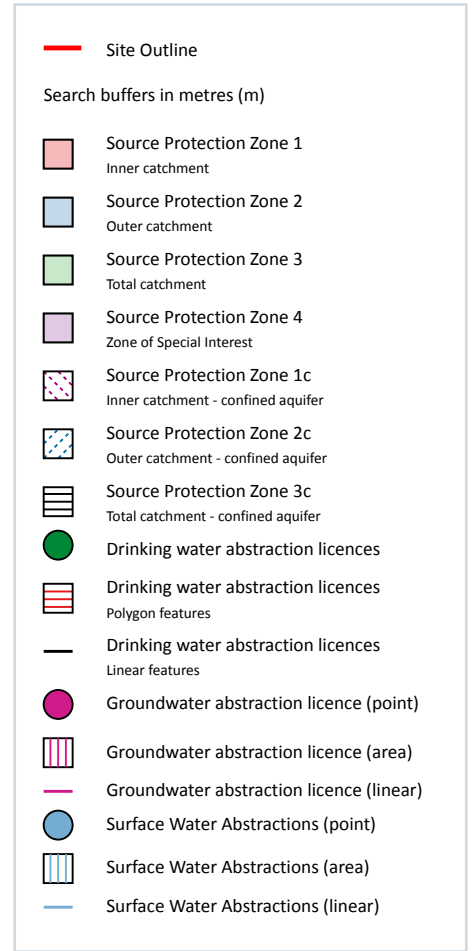
Records on site	0
------------------------	----------

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



5.6 Groundwater abstractions

Records within 2000m

1

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
-	1432m SW	Status: Historical Licence No: 21/58/21/0013 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL AT LOWER FARM Data Type: Point Name: Reader Easting: 306320 Northing: 166600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/03/1966 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	0
-----------------------------	----------

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.

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

5.8 Potable abstractions

Records within 2000m	0
-----------------------------	----------

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.

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

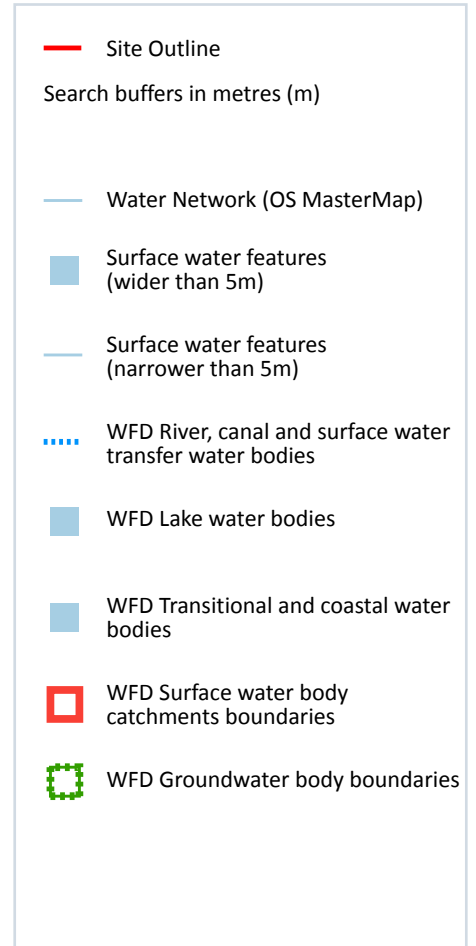
0

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



6.1 Water Network (OS MasterMap)

Records within 250m

9

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 44**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	65m NE	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
3	73m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	75m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	75m NW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
C	105m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	108m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	137m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	149m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	204m SW	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

6

Covering rivers, streams and lakes (some overlap with OS MasterMap 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 44**

This data is sourced from the Ordnance Survey.



6.3 WFD Surface water body catchments

Records on site

2

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 44**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	Coastal catchment	Not part of a river WB catchment	333	Thaw and Cadoxton	Tawe to Cadoxton
A	On site	River WB catchment	Waycock - headwaters to confluence with Kenson	GB110058026400	Thaw and Cadoxton	Tawe to Cadoxton

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

6.4 WFD Surface water bodies

Records identified

1

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 44**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	867m N	River	Waycock - headwaters to confluence with Kenson	GB110058026400	Moderate	Good	Moderate	2016

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 44**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Thaw & Cadoxtan Jurassic Lias	GB41002G201400	Good	Good	Good	2016

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 Sea (RoFRaS)

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

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.

