ELRS Port Talbot

784-B071864





Desk Top Study & Ground Investigation Report

Draft

Tilbury Douglas

July 2025

Document prepared by Tetra Tech Limited. Registered in England number: 01959704

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DOCUMENT CONTROL

Document:	Desk Top Study & Ground Investigation Report
Project:	ELRS Port Talbot
Client:	Tilbury Douglas
Project Number:	784-B071864
File Origin:	\\lds-dc-vm-101\Data\Projects\784-B071864_ELRS_Port_Talbot\60_Output\61_WIP

Revision:	V1.0	**Prepared by:**	Sion Way / Calum Stringer
Date:	July 2025	**Checked by:**	Nicholas Bool
Status:	DRAFT	**Approved By:**	Sarah Roberts/Paul Vincent
Description of Revision:	First Draft for comment		

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

EXECUTIVE SUMMARY

The Site	The site is located on Reginald Street, Port Talbot, Neath Port Talbot (NPT), South Wales. The site is approximately 0.41ha in area and is centered on National Grid Reference (NGR) 277038 190347. The approximate postcode of the site is SA13 1YY. The proposed development comprises the refurbishment and renewal of the external hard surfaces and installation of a new sprinkler tank.
Site History	The site area in 1876 comprised agricultural land. Two tin plate works were located within 250m of the site to the Northeast and Southwest. By 1899 both tinplate works were disused, and residential housing began to be constructed in the area surrounding the site boundary. A school (Glanafan Comprehensive Lower School) was built within the site boundary between 1899 and 1914. The school remains on the site to this day. Two adjacent buildings to the northeast and west within the site area were built between 1917 and 1937 and were labelled “Club Building”. These buildings were demolished between 2003 and 2009. The area the club buildings stood on, west of the school site are currently used to store shipping containers. By 1939 the surrounding land was predominantly residential in nature and no major land usage change/development is recorded from this point.
Geology	BGS mapping shows that the site is underlain by superficial deposits of Alluvial Fan Deposits. These are expected to be coarse grained with occasional clays along with the possibility of both cobbles and boulders. The bedrock geology of the site consists of the Swansea Member. These strata are described as “Green-grey, lithic arenites ('Pennant sandstones') with thin mudstone/siltstone and seatearth interbeds and mainly thin coals. Bolsovian to Asturian. The geology can be identified within British Geological Survey (BGS) Sheet No. 247 Swansea Solid and Drift Edition 1:50 000 scale.
Hydrogeology and Hydrology	The bedrock deposits are designated as a Secondary A Aquifer, high vulnerability. The superficial deposits are classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone and no groundwater abstractions have been identified within 500m of the site. The nearest surface water body is the River Afan located approximately 80m south of the site.
Radon	UK Radon coverage for the site (UK Radon , 2025) was consulted and indicates that the site is located within an area where the maximum radon potential for the 1km grid square indicates 10-30% of properties are above the action level for radon. However mapping included within the Groundsure report is based on a finer resolution mapping from the BGS and UK Health Security Agency mapping and shows the site boundary is defined as 1%-3% of properties being above the action level and as such no protection measures are considered necessary. .
Unexploded Ordnance	Freely available mapping from Zetica UXO indicates that the site is located within a Low Risk Area with regard to unexploded ordnance (UXO).
Environmental Database Search	No significant areas of concern have been identified on site. The most significant finding is that relating to a historic scrapyard 107m SE of the site disused in 1991. The site has been identified as being at risk of surface water flooding of between 0.30-1.00m at 1 in 100-year events.
Site Investigation	The site investigation was undertaken on 16th June 18th June 2025. Three groundwater and ground gas monitoring visits were undertaken between the 26th June and 10th July 2025 following the completion of the ground investigation. The scope of the site investigation included the following: • One cable percussive borehole to 7.00m bgl; • Three windowless sampler boreholes to a maximum depth of 1.60m bgl;

	• Three machine excavated trial pits to a maximum depth of 2.00mbgl to allow for infiltration testing to BRE365 and CBR Testing via DCP method. • Five hand dug pits to investigate the existing foundations of the main school building, small outbuilding in the southwest site corner and the party wall along the western boundary; • Installation of four ground gas and groundwater monitoring wells; • On-site inspection and logging of recovered samples; • Representative soil samples taken and submitted for geotechnical classification testing; • Representative soil samples taken, submitted and tested for a suite of potential contaminants; • Three return visits to monitor ground gas and groundwater levels.
Ground Conditions	The sequence of strata encountered beneath the site was; • Asphalt • Made Ground; • Alluvial Fan deposits. Groundwater was encountered during the site investigation at 3.30m bgl rising to as high as 2.77m bgl.
Geotechnical Assessment	Based on the above ground conditions it is considered that shallow spread foundations, strip or pads, placed within the shallow coarse-grained Alluvial Fan deposits, at a minimum depth of 0.75m bgl, would be a suitable foundation option for the proposed building. Shallow footings may be designed to an allowable net bearing pressure of 300kPa, giving a factor of safety greater than 3 against ultimate bearing capacity failure, and should result in settlement less that 25mm for a strip footing of no greater than 1m wide or a pad of no more than $2m^2$. For buried concrete the Design Sulphate Class for the site can be taken as DS-1 and the Aggressive Chemical Environment for Concrete (ACEC) site classification can be taken as AC-1. A conservative CBR value of 6% is recommended for preliminary pavement design.
Ground Contamination Assessment	Elevated concentrations of potential contaminants have been recorded in soil samples obtained from the site when compared to a public open space end user scenario. However, it is noted that the proposed development consists of a building and areas of hard standing and as such the interaction with the near surface soils will be limited. If areas of soft landscaping are incorporated into the design, to which the pupils will have access, consideration should be given to the importation of clean soil or surfacing in these areas. With regards to the risk to controlled waters the recorded exceedances in soil derived leachate samples are not considered to represent a significant risk to the wider environment and as such further risk management procedures are not considered necessary.
Ground Gas Assessment	The site has been classified as Characteristic Situation 1 (Very Low Risk) based on the worst-case recorded concentrations of carbon dioxide and methane and maximum flow rates. Site classification of a Characteristic Situation 1 indicates gas protection measures are not required within new developments.
Conclusions and Recommendations	As with all brownfield developments a proactive approach should be adopted to identify and assess any previously unidentified ground contamination which may be encountered during the development phase. Due to the site falling within two radon risk designations, a site-specific radon report obtained from the BGS is recommended.

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AOD	above Ordnance Datum
bgl	below ground level
BGS	British Geological Survey
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
C4SL	Category 4 Screening Levels
CIEH	Chartered Institute of Environmental Health
CLEA	Contaminated Land Exposure Assessment
CoC	Constituent of Concern
CSM	Conceptual Site Model
DEFRA	Department of Environment, food and Rural Affairs
DQRA	Detailed Quantitative Risk Assessment
DTS	Desktop Study
DRO	Diesel Range Organics
DWS	Drinking Water Standard
EA	Environment Agency (England)
EPH	Extractable Petroleum Hydrocarbons
EQS	Environmental Quality Standards
FOC	Fraction Organic Carbon
GPR	Ground Penetrating Radar
LOD	Limit of detection
LQM	Land Quality Management
NRW	Natural Resources Wales
OS	Ordnance Survey
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PPE	Personal Protection Equipment
ppm	parts per million
PRO	Petroleum Range Organics
SGV	Soil Guideline Values
SOM	Soil Organic Matter
SVOC	Semi-volatile organic compounds
TPH	Total Petroleum Hydrocarbon
TSV	Tier 1 Screening Values
VOC	Volatile Organic Carbon
VPH	Volatile Petroleum Hydrocarbons

1.0 INTRODUCTION

1.1 INSTRUCTION

Tetra Tech Ltd (Tetra Tech) was commissioned by Tilbury Douglas (the client) to undertake a Geo-Environmental Desk Top Study and Ground Investigation for a site known as ELRS Port Talbot (known hereafter as “the site”).

The location of the site is shown on Figure 1.

1.2 BRIEF

The brief was to provide a Phase 1, 2 & 3 Geo-environmental ground investigation report including a qualitative geotechnical and contamination risk assessment to support the design of a refurbishment and extension to an existing two storey education building in Port Talbot.

1.3 PROPOSED DEVELOPMENT

It is understood that the proposed development will involve the redevelopment of an old primary school building into a new skills hub.

1.4 REPORT SCOPE

This report includes the following key elements:

- A record of the site visit and visual inspection walkover;
- A discussion of the current site status and key associated environmental influences observable by general visual inspection around the site;
- An historical site and area review, primarily referring to past editions of Ordnance Survey Maps;
- A discussion of the general expected ground and groundwater conditions within the topographical and area context referring to our own geological and hydrogeological maps library.
- Details of an Environmental database search (Groundsure report) of key relevant agencies, including Local and Statutory Authorities such as Natural Resources Wales;
- A baseline UXO risk assessment using on-line databases to classify the site with regards to UXO risk;
- Full factual records of the site works carried out;
- Summary of the ground conditions encountered;
- In-Situ testing results;
- Environmental laboratory testing results;
- Geotechnical laboratory testing results;

- Interpretation of Geotechnical and Environmental laboratory data, including a qualitative ground contamination risk assessment (compliant with CIRIA 552 (CIRIA, 2001) methodology);
- An executive summary of the report to allow a rapid, layman's overview.

1.5 LIMITATIONS

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study or provided by others. Information provided from other sources is taken in good faith and Tetra Tech cannot guarantee its accuracy.

This report is subject to the report conditions presented in Appendix A.

The information contained in this report is intended for the use of the Tilbury Douglas and Tetra Tech can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2.0 SITE INFORMATION

2.1 LOCATION

The site is located on Reginald Street, Port Talbot, Neath Port Talbot County (NPTC), South Wales. The site is approximately 0.41ha in area and is centred on National Grid Reference (NGR) 277038 190347.

The site address is: Educational Library and Resource Centre, Reginald Street, Port Talbot, SA13 1YY.

A site location plan is presented in Figure 1.

2.2 GENERAL AREA CONTEXT

Table 2-1 - Surrounding land uses

Direction	Description
North	Villers Street followed by Residential Housing
East	Ysgol Gymenedol Felindre/Velindre Community School 15metres, Residential Housing 50 metres, River Afan 70 metres
South	Reginald Street followed by Residential Housing, River Afan 40 metres, M4 Motorway Flyover 75 metres
West	Residential Housing, River Afan 120 metres

2.2.1 Site Description

A site walkover inspection was undertaken by Tetra Tech on 29th May 2025. A series of photographs are presented at the end of this report that show the general make-up of the site area.

2.2.2 Current Site Usage

The site is currently occupied by a derelict primary school surrounded by HERAS fencing with scaffolding present around the structure. The area surrounding the building is entirely hardstanding acting as both a car park and yard area. A shipping container is also currently being stored on site.

2.2.3 Access and Boundaries

The site can be accessed from Reginald Street via a field style gate that opens onto the existing car park area. There is also a smaller double gated access from Villiers Street.

The site is lined by a metre tall pedestrian fence.

2.2.4 Topography

The site is flat and has an elevation of 15mAOD.

2.2.5 Ground Cover and Vegetation

The site has a number of mature trees along its boundary with the majority of the site consisting of asphalt hardstanding.

2.2.6 Drainage

The site has a network of on site drainage associated with the current land use. . No areas of standing water were identified during the walkover.

2.2.7 Services

The site has an up to date buried utilities survey which has highlighted several services associated with electricity, gas, foul and clean water all present within the site boundary feeding the existing buildings.

2.2.8 On-Site Structures and Fuel Tanks

The site is mainly taken up with an early 20th century school building, a shed and stored shipping container.

2.2.9 Electrical Substations

There are four substations within 250 meters of site, with them being 124m south east , 184 south east , 203 north and 244m south respectively. There were no substations found on site.

2.2.10 Asbestos Containing Materials

No signs of asbestos containing materials were encountered in the external site areas. Possible ACM present in building fabric given the age of the property.

2.2.11 Signs of Contamination

No signs of contamination were encountered during the site inspection.

2.3 PREVIOUS INVESTIGATIONS

No previous geo-environmental assessment reports relating to the site have been provided to Tetra Tech for review as part of this assessment.

3.0 GEOLOGY, HYDROGEOLOGY, HYDROLOGY & RADON

3.1 GEOLOGY

Details of the geology underlying the site have been obtained from the following sources:

- British Geological Survey (BGS) Sheet No. 247 Swansea Solid and Drift Edition, 1:50 000 scale;
- BGS website (British Geological Survey, 2025), accessed 27/05/2025.
- Environmental database (Groundsure™) presented in Appendix B.
- UK Radon Mapping (UK Radon , 2025), accessed 27/05/2025
- Mine Remediation Authority Interactive Mapper (Mining Remediation Authority, 2025)accessed 27/05/25.

3.1.1 Made Ground

No artificial or Made Ground is shown within site area on mapping resources. However, localised Made Ground is to be anticipated due to the current development on site.

3.1.2 Superficial Geology

The site is underlain by Alluvial Fan Deposits and as such are anticipated to be encountered during investigation works.

Alluvial Fan Deposits comprise sands & gravels which are low, outspread, relatively flat to gently sloping masses of loose rock material, shaped like a fan or segment of a cone. They are deposited by streams at the mouths of tributary valleys onto a plain or broad valley.

3.1.3 Solid Geology

The site in its entirety is mapped as mudstone, siltstone and sandstone of the Rhondda Member. These are described as "*Green-grey, lithic arenites ('Pennant sandstones') with thin mudstone/siltstone and seatearth interbeds and mainly thin coals. Bolsovian to Asturian*.

Three inferred normal faults are shown within the site boundary.

3.1.4 Historical Borehole Logs

British Geological Survey (BGS) logs have been referred to for information only. A number of the closest logs to site are confidential. Only those readily available to the public have been summarised below.

Table 3-1 – Summary of BGS Borehole Logs

Reference Number	Hole Type and Depth	Distance and Direction from Site	Details
SS79SE284	Unknown, 5m	260m West	Made Ground was encountered to 0.80mbgl overlying dense angular to rounded fine to coarse GRAVEL with numerous cobbles of sandstone.
SS79SE15	Cable Percussive with Rotary Core Follow On, 7.5m	300m West	Made Ground was encountered overlying soft brown silty CLAY and compact brown silty sandy GRAVEL & BOULDERS. Sandstone bedrock was encountered at 4.19m bgl

3.1.5 BGS Soil Chemistry

The Groundsure Report also provides Urban Soil Chemistry Averages for the site (source: Urban Soil and Soil Chemistry data provided by the British Geological Survey). The information is summarised in the table below.

Table 3-2 – Urban Soil Chemistry Averages

Determinand	Soil Concentration Range	
	Minimum (mg/kg)	Max (mg.kg)
Arsenic	36	37
Cadmium	1	1
Chromium	74	74
Lead	229	238
Nickel	63	64

3.2 HYDROGEOLOGY

3.2.1 Aquifer Classification

The bedrock deposits are designated as a Secondary A Aquifer, high vulnerability. These are 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.

The superficial deposits are classified as a Secondary A Aquifer. These are 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.

3.2.2 Groundwater Vulnerability

Guidance released by the EA (Envionment Agency , March 2017) states that activities that have the potential to affect the quality or quantity of groundwater must prevent groundwater pollution. All

groundwater is vulnerable to pollution, and some geological formations are more vulnerable than others. The risks of groundwater pollution from any given activity depend in part on:

- The physical, chemical and biological properties of the underlying soil and rocks;
- Depth and quality of soil;
- The presence of glacial sediment and other materials – known as 'drift' deposits; and,
- Depth of the unsaturated zone.

All of the above affect how groundwater is more or less vulnerable to pollution, with type of vulnerability generally one of the following:

- Intrinsic vulnerability – this relates to the physical characteristics, it includes soil type, presence of superficial soils, or rock type; and,
- Specific vulnerability – this relates to the effect of the proposed activity including any contaminant and consequent risk to groundwater.

A review of the Groundwater Vulnerability Maps for England has revealed that the superficial deposits are categorised as 'Secondary A Aquifer' and the bedrock deposits are also categorised as 'Secondary A Aquifer', both of which are regarded as 'High vulnerability'.

High vulnerability aquifers are defined as being able to *"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"*. EA guidance document[1] goes on to state that high vulnerability aquifers are *"…resources that have a high degree of natural protection. This reduces their overall risk of pollution from surface activities. However, activities in these areas may be a risk to surface water due to increased run-off from lower permeability soils and near-surface deposits. Activities in these areas should be adequately managed to ensure they do not cause either surface or groundwater pollution."*

3.2.3 Groundwater Source Protection Zones

The EA defines groundwater Source Protection Zones (SPZs) around identified abstractions to aid the assessment of risk to groundwater or abstraction sources from development. SPZs have three subdivisions and bespoke SPZs are defined for all major abstraction sources intended for human consumption or food use, e.g. boreholes and springs. These sub-divisions are defined as follows:

- SPZ1 – Inner protection zone - defined as the 50-day travel time from any point below the water table to the abstraction source. This zone has a minimum radius of 50 metres;
- SPZ2 – Outer protection zone - defined by a 400-day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the abstraction source, depending on the size of the abstraction;
- SPZ3 – Source catchment protection zone - defined as the area around an abstraction source within which all groundwater recharge is presumed to be discharged at the abstraction source.

The site is not shown to be situated within an EA/NRW defined groundwater SPZ.

3.2.4 Depth to Groundwater and Anticipated Groundwater Flow Direction

Groundwater has not been identified within any borehole records within 300m of the site. The nearest surface waterbody is the River Afan so groundwater flow direction is anticipated to be southeasterly towards the river.

3.2.5 Groundwater Abstractions

No groundwater abstractions have been identified within 1km of the site boundary.

3.3 HYDROLOGY

Details of the hydrology of the area have been obtained from the following sources:

- MAGIC interactive mapping website (DEFRA, 2025), accessed 27/05/2025; and,
- Environmental database (Groundsure™).

3.3.1 Watercourses

The River Afan is located approximately 85m south of the site boundary.

3.3.2 Surface Water Abstractions

No surface water abstractions have been identified within 1km of the site boundary.

3.3.3 Discharge Consents

The table below outlines the surface water discharge consents recorded within 250m of the site.

Table 3-3 – Summary of Surface Water Discharge Consents within 250m of the site.

Location	Details
52m SE	SEWAGE DISCHARGES - SEWER STORM OVERFLOW INTO RIVER AFAN. Status: Effective Issue date: 07/03/2005 Effective Date: 31/03/2009
81m SE	SEWAGE DISCHARGES - SEWER STORM OVERFLOW INTO RIVER AFAN. Status: Effective Issue date: 07/10/2019 Effective Date: 07/10/2019
184m W	SEWAGE DISCHARGES - SEWER STORM OVERFLOW INTO RIVER AFAN. Status: Effective Issue date: 21/08/2019 Effective Date: 21/08/2019
190m W	SEWAGE DISCHARGES - SEWER STORM OVERFLOW INTO RIVER AFAN. Status: Effective Issue date: 29/01/2003 Effective Date: 29/01/2003

3.3.4 Pollution Incidents and Prosecutions

A summary of recorded Pollution Incidents and Prosecutions are presented in the table below.

Table 3-4 – Summary of Pollution Incidents and Prosecutions within 250m of the site

Location	Details
31m E	Incident Date: 23/01/2015, Incident Identification: 1308557
49m S	Incident Date: 07/04/2014, Incident Identification: 1224994 Pollutant: Oils and Fuel. Pollutant Description: Unidentified Oil

3.4 RADON

UK Radon coverage for the site (UK Radon , 2025) was consulted and indicates that the site is located within an area where the maximum radon potential for the 1km grid square indicates 10-30% of properties are above the action level for radon.

However mapping included within the Groundsure report is based on a finer resolution mapping from the BGS and UK Health Security Agency mapping and shows the site boundary is defined as 1%-3% of properties being above the action level and as such no protection measures are considered necessary.

Therefore, a site-specific radon report obtained from the BGS is recommended, this will then indicate if radon protection measures are required for any new developments on the site.

3.5 HISTORICAL MINING

According to the Mining Remediation Authority Interactive Viewer (Mining Remediation Authority, 2025) the site is located within a Coal Mining Reporting Area, however, is not located within a Development High Risk Area. As such a site-specific Mining & Remediation Authority Report and Coal Mining Risk Assessment is not needed.

3.5.1 Non-Coal Related Mining

With reference to the Environmental Database (Groundsure™) and the BGS GeoIndex database the site no instances of non-coal related mining have been identified on site, the nearest instances reported are a sandstone quarry located 233m NW and 271m SE.

3.6 BGS RECORDED MINERAL SITES

BGS doesn't record any mineral sites within the site area.

4.0 UNEXPLODED ORDNANCE

Based on freely available mapping data from Zetica UXO (Zetica UXO, 2025), the site is located within a Low-Risk Area with regards to Unexploded Ordnance (UXO). A 'Low Risk' area is defined by Zetica as:

'Low risk regions are those with a bomb density of up to 10 bombs per 1000 acres. These areas are considered to have a significant but low UXB risk. In general, further action to mitigate the risk is considered prudent, although not essential. Care is required when assessing the risk for specific sites where the risk may be higher because of local wartime activity'.

5.0 SITE HISTORY

5.1 INTRODUCTION

The historical development of the site and surrounding area has been assessed using information available from historical Ordnance Survey (OS) maps within the Groundsure Report for the site which is presented in Appendix B of this report.

In the context of the summary of historical development of the surrounding area, the descriptions are limited to within approximately 500m of the site boundary, unless specified in the following section.

5.2 SITE HISTORY

5.2.1 Detailed Analysis of Site History

The table below provides a detailed account of the review of available OS mapping coverage and historical aerial imagery for the site and general area dating back to 1876.

Table 5-1 – Summary of Historical Data

Map Date & Scale	Within Site Boundary	Surrounding Area
1876 1:2500	Agricultural Land.	Margam Tin Plate Works Upper Forge (Northeast, 250M) and Margam Tin Plate Works Lower Forge (Southwest 150M).
1884 1:10560	No further significant changes.	No further significant changes.
1897-1900	No further significant changes.	Both tinplate works now disused.
1899 1:2500	No further significant changes.	Villiers Road created. More residential housing is seen around the area.
1914 1:10560	School buildings are now recorded within the site boundary.	Residential Houses shown on the West and North of School.
1917 1:2500	No further significant changes.	Expansion of residential properties on Villers Street and Jersey Street as well as residential properties built to the west of the school.
1921 1:10560	No further significant changes.	Ongoing expansion of Port Talbot particularly to the south of the site.
1937-1939 1:2500	Smaller club buildings built on the Northeast and West.	Many residential houses built within 250 metres radius.

Map Date & Scale	Within Site Boundary	Surrounding Area
1949-1950 1:2500	No further significant changes.	No further significant changes.
1952 1:2500	No further significant changes.	No further significant changes.
1953 1:2500	No further significant changes.	No further significant changes.
1951-1956 1:2500	No further significant changes.	No further significant changes.
1967-1968 1:2500	School now labelled as Glanafan Comprehensive Lower School.	The M4 Motorway replaces the Railway Viaduct 100m South.
1969 1:2500	No further significant changes.	No further significant changes.
1991-1993 1:1250	No further significant changes.	No further significant changes.
1992-1993 1:1250	No further significant changes.	No further significant changes.
1993 1:1250	No further significant changes.	No further significant changes.
2003 & 1:2500	No further significant changes.	No further significant changes.
2009 Aerial Photography	Club building on the West and the building on Northeast of site are no longer recorded.	No further significant changes.

5.2.2 Summary of Site History

The site area in 1876 comprised agricultural land. Two tin plate works were located within 250m of the site to the Northeast and Southwest. By 1899 both tinplate works were disused, and residential housing began to be constructed in the area surrounding the site boundary.

A school (Glanafan Comprehensive Lower School) was built within the site boundary between 1899 and 1914. The school buildings remains on the site to this day. Two adjacent buildings to the northeast and west within the site area were built between 1917 and 1937 and were labelled “Club Building”. These buildings were knocked down between 2003 and 2009.

By 1939 the remaining land around the site was almost entirely occupied by residential properties. The surrounding land does then not go through any major land usage change/development from this point.

6.0 ENVIRONMENTAL DATABASE SEARCH

6.1 INTRODUCTION

Regulatory authority information relevant to the site and its surroundings has been obtained from the undertaking of an environmental database search (Groundsure™). The information is summarised below, and the environmental database records are enclosed in Appendix B. Distances stated are approximate and are taken from the boundary of the site to the database recorded entries.

The following summary is generally limited to locations within 250m of the site boundaries unless it is considered that installations or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

6.2 POLLUTION CONTROLS

The Groundsure report does not identify any Pollution Controls within 250m of the site.

6.3 WASTE

The Groundsure report indicate there was no waste (landfills) found at site. 107m to the Southeast of the site there is a historic scrapyard recorded which closed in 1991.

6.4 HAZARDOUS SUBSTANCES

There are no recorded pertaining to the use or storage of hazardous materials within 250m of the site.

6.5 ENVIRONMENTALLY SENSITIVE AREAS

There are no environmentally sensisitve areas recorded within 250m of the site.

6.6 FLOODING

The absence or presence of flooding potential at the site is summarised in the table below.

Table 6-1 - Summary of Flooding Potential

Designation	On Site	Detail
Flooding at Surface (from Groundwater)	No	Low risk
Flooding below Ground Level (from Groundwater)	No	Low risk
Flooding from Surface Waters	Yes	1 in 100 year between 0.30 and 1.00m. Highest risk 50m from site is 1 in 30 year between 0.30 and 1.00m.

6.7 INDUSTRIAL LAND USE

The following section outlines the surrounding industrial land use within 250m and considered to be relevant to the site and the proposed development.

Table 6-2 - Summary of Industrial Land Use

Land Use	Detail
Contemporary Trade Directory Entries (on site)	None
Contemporary Trade Directory Entries (surrounding area)	Electricity Substation present 124m SE, 63m and 203m N. An electricity substation is located 184m NE. Electricity Poles are present 184m SE. Lynx Security Systems are 244m S.
Fuel Station Entries	None

6.8 SUMMARY OF ENVIRONMENTAL SETTING

No significant areas of concern have been identified on site. The most significant finding is that relating to a historic scrapyard 107m SE of the site disused in 1991. The site has been identified as being at risk of surface water flooding of between 0.30-1.00m at 1 in 100-year events.

7.0 SITE INVESTIGATION

7.1 INTRODUCTION

The site investigation was undertaken on 16th January to 18th June 2025. Three groundwater and ground gas monitoring visits were undertaken between the 26thJune and 10th July 2025 following the completion of the ground investigation.

Details of the fieldwork methods are given in the notes section at the end of this report.

7.2 SCOPE

The scope of the site investigation included the following:

- One cable percussive borehole to 7.00m bgl;
- Three windowless sampler boreholes to a maximum depth of 1.60m bgl;
- Three machine excavated trial pits to a maximum depth of 2.00mbgl to allow for infiltration testing to BRE365 and CBR Testing via DCP method.
- Five hand dug pits to investigate the existing foundations of the main school building, small outbuilding in the southwest site corner and the party wall along the western boundary;
- Installation of four ground gas and groundwater monitoring wells;
- On-site inspection and logging of recovered samples;
- Representative soil samples taken and submitted for geotechnical classification testing;
- Representative soil samples taken, submitted and tested for a suite of potential contaminants;
- Three return visits to monitor ground gas and groundwater levels.

The ground investigation was designed by Austin Partnership to provide an overall assessment of ground conditions.

Figure 2 shows the layout of the exploratory holes advanced during the site investigation. Exploratory hole logs are presented in Appendix C.

8.0 GROUND CONDITIONS ENCOUNTERED

8.1 STRATA ENCOUNTERED

The sequence of strata encountered beneath the site was;

- Asphalt
- Made Ground
- Alluvial Fan Deposits

A summary of each stratum depth is provided in the table below, with descriptions of each stratum detailed in the subsequent sections. Exploratory hole logs including photographic plates can also be seen in Appendix C.

Table 8-1 – Summary of Ground Conditions Encountered

Location	Depth to base of strata (m bgl)			
	Asphalt	Made Ground	Alluvial Fan Deposits	
			Fine grained	Coarse grained
CP01	0.02	0.50	Ne	7.00*
HP01	0.05	0.40	0.45*	Ne
HP02	0.05	0.35	0.75*	Ne
HP03	0.05	0.48	Ne	0.65
HP04	0.05	0.30	Ne	1.15*
HP05	0.05	0.50	0.90	1.30*
HP06	0.05	0.40	0.70	1.20*
SA01	0.02	0.45	1.22	1.90*
SA02	0.02	0.60	Ne	1.60*
SA03	0.02	0.25	1.12	2.00*
WS01	0.02	0.90	1.27	1.60*
WS02	0.02	0.60	Ne	1.50*
WS03	0.02	0.60	0.90	1.45*

*Base of exploratory hole (Base of strata not encountered).

Ne – not encountered

8.1.1 Asphalt

A thin veneer of asphalt was encountered in all exploratory hole locations.

8.1.2 Made Ground

Made Ground was encountered in all exploratory hole locations across the site to a maximum depth of 0.90mbgl. It generally consisted of a black sandy fine to medium angular GRAVEL of sandstone brick, clay pipe fragments and asphalt.

8.1.3 Alluvial Fan Deposits

8.1.3.1 Fine-Grained

Fine-grained Alluvial Fan deposits were encountered in eight exploratory hole locations to a maximum depth of 1.27m. It was generally described as soft brown slightly sandy gravelly CLAY with a low cobble content. Sand is medium to coarse. Gravel is generally medium to coarse subrounded sandstone.

8.1.3.2 Coarse-Grained

Coarse-grained Alluvial Fan Deposits were encountered across the site with the exception of HP01 and HP02 to a maximum depth of 7.00m bgl. It was generally encountered as a brown sandy medium to coarse sandstone GRAVEL or a clayey slightly gravelly medium to coarse SAND.

8.2 GROUNDWATER

Groundwater was encountered within one location during the site investigation, as summarised below:

- CP01, struck at 3.30m bgl, rose to 2.77m after 20 minutes.

8.3 IN SITU TESTING

8.3.1 Standard Penetration Testing

Stand Penetration Testing was conducted within windowless locations from 1.2mbgl at 1.00m intervals until refusal and in cable percussive borehole locations at 1.00m intervals to 5m bgl and at 1.50m intervals thereafter. Additionally, SPT testing was conducted upon windowless sampler refusal, until SPT refusal in accordance with BS EN ISO 22476-3 (2005) and BS5930 (2015) to assess the relative density of the superficial deposits encountered within the borehole. The results of which are displayed in Appendix C.

8.3.2 TRL probes

TRL probes were conducted in HP03, HP04, HP05 and WS03 to provide a general understanding of CBR values present at the site. The results of which are displayed in Appendix D.

8.3.3 Soil Infiltration Testing

Three soil infiltration tests were carried out, designated as SA01 to SA03 to the requirements of BRE365.The tests were undertaken within the Alluvial Fan Deposits.

The findings of the soil infiltration testing are discussed further in Section 12.0. The results of these tests can be found in Appendix E.

8.4 VISUAL OR OLFACTORY EVIDENCE OF CONTAMINATION

No visual or olfactory evidence was encountered in the Made Ground or Alluvial Fan deposits on site.

8.5 OBSTRUCTIONS

No obstructions were directly found on site, however given the geology encountered within the machine excavated pits, it is likely that the cobble content found resulted in the shallow refusals experienced utilising the windowless sampler.

9.0 LABORATORY TESTING

9.1 GEOTECHNICAL TESTING

A programme of laboratory testing was carried out on samples taken from the various strata encountered during the site investigation. Geotechnical testing was scheduled by Tetra Tech and carried out by GSTL Ltd, an approved supplier in accordance with the requirements of Tetra Tech quality system and UKAS accredited for a range of geotechnical tests. The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 9-1. Laboratory geotechnical test results are given in Appendix F.

Table 9-1 - Summary of Geotechnical Testing

Test	No.	Test Method
Moisture Content	3	BS1377:1990 Part 2:3.2
4 Point Liquid & Plastic Limit	3	BS1377:1990 Part 2:4.3&5.3
PSD: Wet Sieve method	10	BS1377:1990 Part 2:9.2
PSD: Sedimentation by Pipette	1	BS1377:1990 Part 2:9.4
BRE Suite D	5	BS1377:1990 Part 3 & BRE CP2/79 (non-accredited test)

9.2 ENVIRONMENTAL TESTING

Environmental chemistry was investigated by specialist chemical analysis of selected soil samples carried out by ALS Environmental Laboratories, an approved supplier in accordance with the requirements of Tetra Tech quality system and UKAS and MCERTS accredited for a range of chemical analyses. The testing was scheduled by Tetra Tech and is summarised in Table 9-2 for soil samples. The test results are included in Appendix G.

Table 9-2 - Summary of Environmental Testing

Test suite	No.
Soil Samples: • Tetra Tech Suite C o Heavy metals including Chromium (Hexavalent), Boron (water soluble), Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium and Zinc; o Inorganics – including pH, Water soluble Sulphate as SO4 (2:1 Extract), Cyanide (Easily liberatable- low level); o Speciated Petroleum Hydrocarbons (TPH CWG); o Speciated Polyaromatic Hydrocarbons (USEPA 16); o BTEX and MTBE; o Asbestos Screen; and, o Phenol.	7
Soil Derived Leachate Samples and Groundwater Suites • Tetra Tech Leachate Suite C o Heavy metals including Antimony, Boron, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium and Zinc; o Inorganics – including pH, Sulphate, Chloride, Nitrite, Nitrate, Total Cyanide, Ammoniacal Nitrogen and NH3 and NH4 and Total Alkalinity o Speciated Petroleum Hydrocarbons (TPH CWG); o Speciated Polyaromatic Hydrocarbons (USEPA 16); o BTEX and MTBE; o Phenol.	3 Leachate 1 Groundwater

10.0 GROUNDWATER AND GAS MONITORING

10.1 GROUNDWATER MONITORING

Groundwater levels were monitored on 3 No. occasions following the completion of the ground investigation, between 26th June and 10th July 2025. The monitoring data is presented in Appendix H and summarised in Table 10-1 below.

Table 10-1- Summary of groundwater levels

Location	Base of borehole (m bgl)	Depth to water (m bgl)		
		26/06/25	02/07/25	10/07/25
CP01	5.28	3.43	3.26	3.23
WS01	1.28	DRY	DRY	DRY
WS02	1.27	DRY	DRY	DRY
WS03	0.95	DRY	DRY	DRY

10.2 GROUND GAS MONITORING

Ground gas levels were monitored on three occasions following the completion of the ground investigation, between 26th June and 10th July 2025. The monitoring data is presented in Appendix H and in Table 10-2 below.

Table 10-2 – Summary of Round 1 Ground Gas monitoring

Location	Max. Methane (peak) (% vol)	Max. Carbon Dioxide (peak) (% vol)	Min. Oxygen (steady) (% vol)	Max. Carbon Monoxide (steady) (ppm)	Max. Hydrogen Sulphide (steady) (ppm)	Max. Borehole flow (peak) (l/h)
CP01	0.1	2.3	16.9	1	1	0.30
WS01	0.1	1.2	19.5	1	<1	0.30
WS02	0.2	1.0	16.1	1	4	0.50
WS03	0.2	1.2	17.8	1	<1	0.40

The results indicate measurable concentrations of carbon dioxide (maximum of 2.3%/vol) and methane (maximum 0.2%/vol).

The maximum gas flow recorded across the monitoring round was a flow of 0.50l/hr, recorded at WS02.

The monitoring rounds were undertaken during atmospheric pressure conditions ranging from 1008mb to 1022mb. A review of atmospheric pressure graphs on timeanddate.com indicates that monitoring was undertaken during periods of raising and falling pressure. In addition, the ground gas monitoring results

indicate hydrogen sulphide concentrations of 4 ppm across all monitoring rounds. Maximum concentrations of carbon monoxide of 1 ppm were recorded.

11.0 SOIL INFILTRATION TESTING

11.1 BACKGROUND

On 7th January 2019, the Welsh Government introduced Schedule 3 of the Flood and Water Management Act 2010 which requires new developments to consider the feasibility of Sustainable Drainage Systems (SuDS) at the design stage. New developments over 100m^2 or including more than one property must obtain approval of the drainage system from the SuDS Approval Body (SAB) prior to the commencement of construction.

To support the assessment study, preliminary soil infiltration testing has been undertaken as part of the site investigation to provide information on the potential infiltration rates within the sub-strata on the site.

Soil infiltration tests have been undertaken in line with BRE 365 (2016) methodology and any deviations from this approach are documented within the following section. Where possible, locations and depths of test pits were determined based on the proposed drainage design.

11.2 TEST LOCATIONS

Infiltration tests were conducted within the Alluvial Fan Deposits within pits SA01, SA02 and SA03.

11.3 SOIL INFILTRATION TESTS

3 No. soil infiltration tests were undertaken within a machine excavated trial pit as summarised in the following table.

Table 11-1 Summary of Soil Infiltration Test Locations

Test Location	Depth to Base (m bgl)	Top of Target Strata (m bgl)	Target strata
SA01	1.90	0.45	Alluvial Fan deposits
SA02	1.60	0.60	Alluvial Fan deposits
SA03	2.00	0.25	Alluvial Fan deposits

Three repeat tests were undertaken within the test locations SA01, SA02 and SA03 in a day. Test locations were securely fenced and covered until the testing period was completed and excavations backfilled on completion.

The results of the soil infiltration tests are presented in the following table. Full test results are included in Appendix E of this report.

Table 11-2 Summary of Soil Infiltration Test Results

Location	Depth (mbgl)	Strata	Hydraulic Conductivity (m/sec)		
			Test 1	Test 2	Test 3
SA01	1.90	Alluvial Fan Deposits	2.63×10^{-2}	2.63×10^{-2}	6.00×10^{-4}
SA02	1.60	Alluvial Fan Deposits	1.69×10^{-4}	1.50×10^{-4}	1.21×10^{-4}
SA03	2.00	Alluvial Fan Deposits	6.00×10^{-4}	4.02×10^{-4}	2.92×10^{-4}

11.4 GROUND CONDITIONS

11.4.1 Depth to groundwater

The cable percussive borehole undertaken during the ground investigation encountered a groundwater strike at 3.00m bgl. Subsequent groundwater monitoring has also encountered groundwater between 3.23m bgl and 3.43m bgl.

11.4.2 Strata Type

The testing was undertaken in the Alluvial Fan deposits which comprised slightly clayey sandy sandstone gravels and cobbles. Full draft logs of the exploratory pits are included in Appendix C.

11.4.3 Ground Contamination

Significant ground contamination was not identified as part of the ground investigation, a contamination assessment is presented in Sections 15.0 and 16.0.

11.5 CONSTRAINTS AND LIMITATIONS

The information presented above is intended to assess the feasibility of soakaway drainage in order to support the development of the drainage strategy. Further testing, groundwater monitoring and ground investigation may be required to support a full SAB application or to inform the development of the final design process.

Ground conditions can vary throughout the year, including the location of the groundwater table. Consideration should be given to the potential effects of seasonal variation when reviewing the data above.

12.0 GEOTECHNICAL ASSESSMENT

12.1 SOIL PROPERTIES

The ranges of the various soil properties measured are discussed below, to aid in the selection of design values. However, the appropriate choice of characteristic and design values will depend on the particular analysis and design philosophy used and should be selected by the designer.

Where characteristic values are given, these are reasonably conservative estimates of a measured or assessed property that may be used to represent the overall behaviour of the material. Design values are similar but also take into account the ground-structure interaction for a given structure so need to be selected by the designer. It is recommended, however, that design values used do not exceed the characteristic values given in this report.

12.1.1 Made Ground

All locations were undertaken through asphalt hardstanding. Made Ground was encountered across the site in all locations, where no specific indications of anthropogenic alteration to the ground was identified. Made Ground was encountered to a maximum depth of 0.90mbgl. As no SPTs were undertaken in the Made Ground and it's relatively thin veneer across the site it has not been considered as a founding medium.

12.1.2 Alluvial Fan Deposits

The Alluvial Fan Deposits encountered on site were almost entirely coarse grained in nature with discreet shallow clays. 4-point liquid plastic limit testing undertaken on soils with higher clay contents suggest low plasticity material that based on percentage of fines passing are likely to still be considered granular in nature. A summary of the laboratory and in-situ testing on the Alluvial Fan Deposits is presented in the table below.

Table 12-1 - Summary of test results within the fine-grained glacial till deposits

	No. of results	Range (min-max)	Average	Lower quartile	Upper quartile	Charact-eristic value+
Natural moisture content (m - %)	3	11 – 16.8	14.1	12.8	15.7	16
Liquid limit (LL)	3	27 – 34	31	30	33	33
Plastic limit (PL)	3	15 – 16	16	15	16	16
Plasticity index (PI)	3	11 – 18	15	14	18	18
Modified Plasticity Index[1]	3	4 – 11	8	6	10	10
SPT N Values	12	35 – 50	49	50	50	35
Angle of shearing resistance, ϕ*	12	37 – 41	41	41	41	37

Notes:
+ suggested characteristic values are appropriate for most normal applications but designers should satisfy themselves that they are suitable for the specific application and design method they are using;
* Estimated from a correlation from Peck, Hansen and Thornburn, Foundation Engineering, Wiley, 2nd ed., (1974)(6)
1 Modified Plasticity Index (I'P) is defined as: I'P = (PI x %passing 425um)/100%

Based on the above, it is recommended that the following values are taken as design/characteristic values for this material:

- SPT N Value 35
- Angle of shearing resistance, ϕ 37°

13.0 GEOTECHNICAL DESIGN CONSIDERATIONS

13.1 PROPOSED DEVELOPMENT

The proposed development comprises the refurbishment and extension of the existing building, secured by design fencing and a new sprinkler tank and screening.

13.2 EARTHWORKS

Given the current levels of the site in the area of the proposed development, significant earthworks (cut and fill) are not anticipated at this stage.

13.3 FOUNDATIONS

The entirety of the site area consists of a thin veneer of Made Ground including asphalt hardstanding overlying shallow coarse grained Alluvial Fan deposits.

Based on the above ground conditions it is considered that shallow spread foundations, strip or pads, placed within the shallow coarse-grained Alluvial Fan Deposits, at a minimum depth of 0.75m bgl, would be a suitable foundation option for the proposed building. Shallow footings may be design to an allowable net bearing pressure of 300kPa, giving a factor of safety greater than 3 against ultimate bearing capacity failure, and should result in settlement less that 25mm for a strip footing of no greater than 1m wide or a pad of no more than $2m^2$.

If foundations cross from a fine to a coarse-grained soil, reinforcement of the foundation may be required to prevent differential settlement. Foundation excavations should be extended where deeper Made Ground is encountered.

Foundation excavations should be inspected by a suitably experienced engineer or inspector to ensure the founding material is suitable natural deposits. Any soft, loose or otherwise unsuitable material should be excavated and replaced by compacted granular backfill or lean concrete.

13.4 FLOOR SLABS

Floor slabs may be ground bearing to combined dead and live loads of $20kNm^2$. Any localised Made Ground should be excavated and replaced with compacted granular fill. The formation should be proof rolled and inspected by a suitably qualified engineer.

13.5 CHEMICAL ATTACK ON BURIED CONCRETE

Chemical tests undertaken on representative samples from the site show low levels of water-soluble sulphates and generally neutral conditions (in places up to pH7.3). Based on these conditions, it is recommended that for foundations the Design Sulphate Class for the site, as defined in BRE Special Digest 1, be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1.

13.6 TEMPORARY WORKS

Trial pits were generally stable during excavations and infiltration testing, however there is a potential for instability given the coarse-grained Alluvial Fan Deposits encountered on site. It is considered that shoring or battering of even shallow excavations in the short term will be required. Groundwater is likely to be encountered at 3m bgl downwards dewatering of excavations is unlikely to be required however seasonal variation should be taken into consideration.

13.7 PAVEMENTS

Based on the 4 No. results gathered within Alluvial Fan Deposits, CBR values were in the range of 6% to 31% (average 22%). Given the very variable nature of the results obtained it is recommended a conservative value of 6% is adopted for pavement design within this stratum.

Proof rolling of the formation level will be required, and any loose or soft spots should be removed and replaced with an engineer fill, in accordance with a suitable specification. The formation level will also need to be protected during inclement weather from deterioration.

Prior to placement of the founding material and the construction of the road pavement, the sub-formation and formation will need to be inspected and checked in accordance with a suitable specification to ensure the ground conditions are as expected. All testing should be carried out in accordance with CSS 226 to confirm that the ground conditions at the time of construction are consistent with the previous design parameters.

13.8 DRAINAGE

Soakaway testing within the shallow Alluvial Fan Deposits at SA01, SA102 and SA03 yielded soil infiltration values between 2.63×10^{-2} and 6.00×10^{-4}. Therefore, soakaway drainage is deemed feasible for the development.

14.0 GEOTECHNICAL RISK REGISTER

14.1 INTRODUCTION

The following Geotechnical Risk Register has been considered with regard to the details of other construction related risks known at this time. The risks have been evaluated using the risk evaluation matrix suggested in CD622 'Managing Geotechnical Risk, which is reproduced as Table 14-1.

For the purposes of this report, risk has been assessed with reference to 'probability', 'impact' and 'risk rating'. Risk rating I = Probability (P) x Impact (I) as detailed in Table 14-1.

Table 14-1 - Risk Evaluation Matrix

Probability (P)		Impact (I)					Risk Rating (R = P x I)	Response to Risk
Very Likely	5	Very High	5	Potential to halt project	OR	Potential for major claim or similar	17 to 25	Unacceptable: act now to prevent
Likely	4	High	4	Significant delay on overall project		Major impact on cost	13 to 16	Unacceptable: act now to prevent
Probable	3	Medium	3	Major delay on this task, significant impact on overall project unlikely		Significant impact on cost	9 to 12	Early attention required
Unlikely	2	Low	2	Minor delay on this task, significant impact on overall project unlikely		Minor impact on cost	5 to 8	Regular attention required
Negligible	1	Very Low	1	No significant impact on task or project		Negligible impact on cost	1 to 4	Monitor

14.2 RISK MATRIX

Table 14-2 - Geotechnical Risk Register

Identified Geotechnical Hazard	Consequence	Risk before control			Risk Level	Control Measures	Residual Risk			Risk Level
		P	I	R			P	I	R	
Striking unrecorded services (including drainage)	Delay to programme of works and associated cost implication.	4	4	16	High	Buried services are present across the site and surrounding areas the Contractor should obtain from the Employer the latest statutory service plans and positively identify all services prior to commencing any excavations. Any works undertaken in the vicinity of existing buried services shall be undertaken in accordance with the statutory undertakers' requirements and the recommendations of HSG 47 'avoiding danger from underground services'.	3	4	12	Medium
Lack of groundwater information	Conservative and inefficient design Uncertainty as to requirement for dewatering or excavation stability	4	4	16	High	Design to assume ground water level is equal to 3m below ground level. Design to assume excavations will require support. Design to consider need for ground water control.	1	4	4	Negligible
Differential settlement due to the variable Alluvial Fan Deposits	Loss of serviceability to structures Repairs required, entailing costs and legal preceding	4	4	16	High	Foundation subgrade material to be of a uniform soil with uniform mechanical properties Excavations and foundation sub-grade to be inspected and approved by qualified foundation engineer.	1	4	4	Negligible

Identified Geotechnical Hazard	Consequence	Risk before control			Risk Level	Control Measures	Residual Risk			Risk Level
		P	I	R			P	I	R	
						Contractor to make allowance for over excavation of foundation and replacement of overburden with imported structural fill.				
Poor ground conditions (e.g.: soft ground, running sands, excessive groundwater ingress, etc.)	Poor ground Conditions may result in further time and cost of installing a gravity wall due to the requirement for shoring temporary works or the creation of lifting or piling platforms.	4	4	16	High	Excavations and earthworks to be overseen by a qualified person who can identify poor ground conditions and advise on remedial measures or appropriate actions. Designer and client to consider to the use of ground improvement to enable safe site work. Include contractors and sub-contractors at early stage of project and brief them on any possible poor ground conditions encountered.	1	4	4	Negligible
Site workers exposed to contamination or reduced quality Made Ground	Illness or death of site operatives. Delays to site works. Requirement for further contamination assessment.	3	3	9	Medium	Food and drink to be consumed in designated areas. Uphold a strict hygiene routine on site prior to smoking, eating or drinking. Site operatives issued with appropriate PPE under CDM regulations.	2	3	6	Low
Soft sub-soil conditions	Toppling of equipment, damage to plant, injury or death of workers. Excessive differential settlement of foundations	4	5	20	Very high	Ground conditions on site to be inspected by a qualified engineer and soft ground to be subsequently identified so that they may be avoided, excavated and replaced, or treated. Contractor to adopt safe method of working. Location of heavy plant and crane bases away from edges of excavations. Accurate understanding of soft soil from GI to plan working platforms.	1	5	5	Low

Identified Geotechnical Hazard	Consequence	Risk before control			Risk Level	Control Measures	Residual Risk			Risk Level
		P	I	R			P	I	R	
						Appropriate design to be undertaken to minimise/eliminate risk from excessive/differential settlement. Designer to specify the removal of any soft ground encountered at formation/foundation levels. Designer to specify lift platforms, as required.				
Aggressive chemical ground conditions	Chemical attack on buried concrete, weakening of structure, structural failure of foundations	4	4	16	High	Design to consider soil aggressivity classification DS-1 and AC-1.	1	4	4	Negligible

15.0 GROUND CONTAMINATION ASSESSMENT – HUMAN HEALTH

15.1 INTRODUCTION

The UK Contaminated Land Regime (CLR) is outlined in the Land Contamination Risk Management procedures (Gov.uk, 2025)and allows for a tiered approach to the assessment of ground contamination which is designed to allow increasingly site-specific assessment. In order to assess the potential risk posed by contaminants contained within the soils at the study area a generic quantitative risk assessment (gQRA) has been undertaken by comparing recorded concentrations of chemical constituents in soil with Generic Assessment Criteria (GAC) to identify whether, at the concentrations recorded, the presence of the constituent has the potential to adversely affect the health of site users (a Tier 1 assessment). GAC are set at levels where potential exposure is deemed to be within acceptable limits.

If the recorded concentrations of a particular constituent are below the GAC then the risk is generally considered to be acceptable and further assessment / or mitigation measures are not required. Where a substance is recorded at concentrations higher than GAC this does not necessarily indicate that a particular risk is present, however, it does typically signify the requirement to undertake further assessment in line with the UK tiered risk assessment framework.

15.2 ASSESSMENT CRITERIA

15.2.1 Generic Assessment Criteria

The following GAC for soils have been utilised for the screening process, in order of preference:

- CL:AIRE published C4SL (DEFRA, 2014);
- CIEH/LQM published S4UL (LQM/CIEH, 2015);
- Tetra Tech internal Tier 1 Screening Criteria (issue 15) derived using the derivation tool CLEA version 1.06, in line with the current UK Contaminated Land Regime.

C4SL are currently available for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead[1]. The C4SL were originally developed to support the categorisation of sites in accordance with Part 2A are also, based on DEFRA guidance, considered suitable for use during the assessment of sites as part of the planning process.

Where C4SLs are not available, 'Suitable for Use Levels' (S4UL) developed by CIEH/LQM have been used. The S4UL provide GAC based on minimal or tolerable risk intended to be protective of human health for individual or mixtures of substances. It is considered conservative and appropriate to use these values for contaminants for which C4SL are unavailable. GAC for volatile and semi-volatile organic compounds (VOC and SVOC) not presented in the S4UL document are sourced from CL:AIRE (CL:AIRE, January 2010).

Where no published screening values are available Tetra Tech have derived their own values (easily liberatable cyanide).

The CLEA model states that "For most exposure pathways, the contamination is assumed to be at or within one metre of the surface" (Environment Agency, 2009). It is considered that at depths greater than

[1] Arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI, lead assuming 6% SOM (1% SOM C4SL also published for benzene).

1.0m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway with regard to human health risks. Typically, volatile compounds only significantly affect the indoor inhalation pathway. The same screening concentrations have been used for all depths at this stage, though it is noted that these are highly conservative for depths below 1.00m bgl.

15.2.2 Proposed End Use

Screening criteria have been developed for the following land use scenarios:

- Residential with plant uptake;
- Residential without plant uptake;
- Allotments;
- Public open space (park and residential);
- Commercial / Industrial.

The proposed development on site will consist of the construction of a single storey building, at the time of this report it is understood no outdoor learning areas or vegetable growing is planned as a result of the development. As such the following screening assessment has been undertaken against a residential without plant uptake end use scenario to provide a conservative assessment, however if the development design changes to incorporate outdoor learning area or vegetable growing then this assessment should be reviewed to reflect such changes.

15.2.3 Soil Organic Matter

For organic contaminants, the generic soil screening values have been derived for a range of concentrations of soil organic matter (1%, 2.5%, 6%). In order to provide a conservative assessment the GAC derived for a 1% SOM have been adopted.

15.3 TIER 1 – SOIL SCREENING

A total of three soil samples collected from across the site were submitted for chemical laboratory analysis. Full copies of laboratory certificates for all soil analysis are included in Appendix G.

Screening Criteria are not available for a school setting, however given the exclusion of any outdoor educational space within the proposed development, the data have been screened against a Public Open Space – Park end use scenario as this enables a conservative comparison that can be justified given the development plan. If the development plan were to change to include outdoor spaces with soft landscaping, then this assessment should be reviewed.

Comparison of the chemical analysis results with the generic assessment criteria for a Public Open Space – Park end use has identified the following exceedances, as detailed in Table 15-1.

Table 15-1 - Summary of Constituents of Concern

Constituent of Concern	No. of Samples	Min	Max	SSV	Exceedances	
					No. of exceedances	Location
Benzo(b)fluoranthene	7	0.63	56	13	2	WS03, 0.20mbgl; HP06, 0.30mbgl
Benzo(a)pyrene	7	0.49	37	21	1	WS03, 0.20mbgl
Dibenz(a,h)anthracene	7	0.09	7.1	1.1	2	WS03, 0.20mbgl; HP06, 0.30mbgl

A summary table of all the data is also presented in Appendix G.

Two concentrations of Benzo(b)fluoranthene and Dibenz(a,h)anthracene were found in exceedance of the nominated screening criteria, within the samples collected at 0.20mbgl in WS03 and 0.30mbgl in HP06, and one concentration of Benzo(a)pyrene with the sample 0.20mbgl from WS03.

15.4 ASBESTOS

All samples submitted for environmental testing were subject to asbestos screening, of which no samples returned a positive result for the presence of asbestos.

16.0 GROUND CONTAMINATION ASSESSMENT – WIDER ENVIRONMENT

16.1 INTRODUCTION

The potential for contaminated groundwater on site to adversely affect controlled water receptors (groundwater and surface water bodies) has been assessed at this stage by direct comparison of analytical data from the Tetra Tech ground investigation with relevant Water Quality Standards (WQS).

Similarly, the potential for soil contamination to impact controlled waters has been assessed by comparing analytical data from soil derived leachate tests directly against WQS.

16.2 ASSESSMENT CRITERIA

In light of the environmental setting of the site under consideration. The following water quality standards have been adopted, in order of preference.

- Water Framework Directive (WFD),
- Environmental Quality Standards (EQS);2
- WHO 2008 - Petroleum Products in Drinking Water (WHO 2008)
- UK Drinking Water Standards3.

16.2.1 Bioavailability

For certain heavy metals (copper, zinc, manganese, nickel and lead) the bioavailability of the metal within the water can be calculated to generate a bespoke screening criteria based on other groundwater parameters. This assessment is undertaken utilising the Metal Bioavailability Assessment Tool (M-BAT) which was developed using the $EQS_{(bioavailable)}$ developed in line with the Water Framework Directive.

In the case of copper, zinc, manganese and nickel the assessment takes into account the concentration of calcium, Dissolved Organic Carbon (DOC) and pH of the water sample. The assessment for lead only takes the DOC of the sample into account. A spreadsheet has been developed for the assessment by the UK Technical Advisory Group on the Water Framework Directive.

16.3 SOIL DERIVED LEACHATE METHODOLOGY

Soil derived leachate samples can be used to identify potentially mobile contamination within soil samples collected from the site. It should be noted that the laboratory test methodology indicates a potential mobility of contaminants and is usually considered to reflect a worst-case situation and unlikely to represent on-site conditions.

The laboratory preparation of leachate samples is likely to produce higher concentrations of leachable components than conditions encountered on site and as such the following assessment is considered to be inherently conservative in nature. Furthermore, the resulting data are screened against criteria

[2] Where WFD 2015 are not presented revoked WFD 2010 standards are used
[3] WHO 2005; WHO 2008; UK Water Supply Regulations 2010 and 1989 Regulations. Priority given to UK drinking water standards

intended to be protective of water bodies and drinking water supplies and are not intended to assess the potential significance of contaminant mobility.

16.4 TIER 1 SCREENING ASSESSMENT – SOIL DERIVED LEACHATE

3 No. soil derived leachate samples were screened against a suite of determinants outlined in Section 16.2.

The following table summarises the determinants which have been identified at concentrations in excess of the adopted screening value.

Table 16-1 – Summary of Exceedances within Soil Derived Leachate Samples

Determinant	Units	Maximum	Minimum	Screening Value	*Exceedances*	
					No.	Location
Fluoranthene	µg/l	0.08 (WS01)	<0.01	0.01#	*3*	*SA02, 0.30m; SA03, 0.15m; WS01, 0.70m*
Copper (dissolved)	µg/l	30 (SA03)	18	1*	*3*	*SA02, 0.30m; SA03, 0.15m; WS01, 0.70m*
Lead (dissolved)	µg/l	2.7 (SA02)	1.4	1.2*	*3*	*SA02, 0.30m; SA03, 0.15m; WS01, 0.70m*
Zinc (dissolved)	µg/l	20 (SA02)	12	14.3*	*1*	*SA02, 0.30m;*

** Freshwater waters EQS 2015*
laboratory Limit of Detection
N.B the screening value for zinc takes into account the ambient background concentrations (ABC) for the river catchment. The site is located within the River Afan catchment and as such a ABC value of 3.4 is added to the freshwater EQS.

Six determinants were identified within soil derived leachate samples at concentrations in excess of the adopted screening criteria.

Given the proximity of the site to the River Afan concentrations of these heavy metals can be considered within the context of the bioavailability of the heavy metal based on other soil parameters. The M-BAT tool has been used to calculate site specific screening criteria for these determinants, with the results presented in the table below.

Table 16-2 – M-BAT adjusted Screening Values for Heavy Metals – Soil Derived Leachate

Determinant	Sample	Concentration (µg/l)	Screening Value (µg/l)	M-BAT Screening Value (µg/l)	Exceedances
Copper	*SA02, 0.30m*	18	1*	14.19	Yes
	SA03, 0.15m	30		17.54	Yes
	WS01, 0.70m	24		25.32	No
Zinc	*SA02, 0.30m*	20	14.3	22.02	No

** Freshwater waters EQS 2015*
N.B the screening value for zinc takes into account the ambient background concentrations (ABC) for the river catchment. The site is located within the River Afan catchment and as such a ABC value of 3.4 is added to the freshwater EQS.

As presented in the table above, when bioavailability is taken into consideration there are two samples where heavy metals have been identified above the adjusted screening criteria

The recorded concentrations of compounds in exceedance are considered further within the risk assessment presented in Section 18.0.

16.5 TIER 1 SCREENING ASSESSMENT – GROUNDWATER

One groundwater sample (CP01) was obtained from the monitoring installations on the site and analysed for the suite of determinants outlined in Section 9.2. The results were screened against a suite of determinants outlined in Section 16.2.

The following table summarises the determinants which have been identified at concentrations in excess of the relevant WQS screening criteria.

Table 16-3 – Summary of Exceedances within Groundwater Samples

Determinant	Units	CP01 concentration	Screening Value	Exceedances	
				No.	Location
Cadmium	µg/l	0.09	0.08*	1	CP01, 3.20m
Copper	µg/l	1.5	1*	1	CP01, 3.20m
Zinc	µg/l	28	14.3*	1	CP01, 3.20m

** Freshwater waters EQS 2015*
N.B the screening value for zinc takes into account the ambient background concentrations (ABC) for the river catchment. The site is located within the River Afan catchment and as such a ABC value of 3.4 is added to the freshwater EQS.

As can be seen in the table above, Cadmium, Copper and Zinc have been identified at concentrations in excess of the relevant screening criteria within the sample collected at 3.20m within CP01.

As outlined in Section 16.2.1, the bioavailability of certain heavy metals can be taken into account within water samples. The M-BAT assessment tool has been used to determine a screening value taking into account the bioavailability of copper and zinc within the groundwater sample and the results are presented in the following table.

Table 16-4 – M-BAT adjusted Screening Values for Heavy Metals – Groundwater

Determinant	Sample	Concentration (µg/l)	Screening Value (µg/l)	M-BAT Screening Value (µg/l)	Exceedances
Copper	CP01, 3.20m	1.5	1	4.58	No
Zinc	CP01, 3.20m	28	14.3	14.48	Yes

When bioavailability is taken into account, copper is no longer considered to pose a risk to the wider environment. The recorded concentration of zinc is considered further within the risk assessment presented in Section 18.0.

17.0 PRELIMINARY GROUND GAS ASSESSMENT

17.1 INTRODUCTION

3 No. return ground gas monitoring visits were undertaken between the 26th June and 10th July 2025. Full factual site records of the gas monitoring results are presented in Appendix H and summarised in Section 10.2.

17.1.1 Ground Gas Monitoring

Ground gases are monitored within boreholes on the site recording the following parameters.

- Concentrations of ground gases;
  - Methane (%v/v);
  - Carbon dioxide (%v/v);
  - Oxygen (%v/v);
  - Carbon monoxide (ppm);
  - Hydrogen sulphide (ppm);
- Borehole flow rate (l/hr);
- Depth to groundwater;
- Atmospheric pressure trends;

Atmospheric pressure trends are recorded on site during the monitoring process, but are also noted in the preceding three days, and one day after each monitoring visit. Falls in atmospheric pressure are generally considered to indicate a higher potential for ground gas migration from the sub surface and as such monitoring during periods of falling pressure are considered to represent worst case scenarios as outlined in the CL:AIRE Technical Bulletin TB17 (CL:AIRE, August 2018).

17.1.2 Ground Gas Risk Assessment Methodology

The key reference document which has been used to undertake the semi-quantitative ground gas assessment presented in this report is CIRIA C665 (CIRIA, 2007). This provides a framework for assessment of ground gas risk to buildings/structures with foundations (i.e. houses and/or commercial properties).

The risk assessment process is based on a Source-Pathway-Receptor Conceptual Site Model Methodology, with consideration given to the potential sources likely to be present on the site and the ground gas monitoring regime designed to reflect the scale of the source potential.

The collected data has been used for the purposes of undertaking a semi-quantitative assessment in accordance with the CIRIA 665 methodology. The calculation used to calculate the gas screening value (GSV) for the site, together with the relevant definition of units, is as follows:

GSV (litres of gas/hr) = borehole flow rate (l/hr) x gas concentration (volume/100)

The calculated GSV values are used to determine the Characteristic Situation (CS) for the site in terms of methane and carbon dioxide, based on the conditions outlined in Table 17-1 below.

CS classification is applicable to all buildings, with the exception of low-rise housing with a ventilated underfloor void, in these situations, the NHBC Traffic Light System is adopted, but not considered to be applicable in relation to this assessment.

Table 17-1 –GSV Classification (Modified Wilson and Card Methodology)

Characteristic Situation	Risk Classification	Gas Screening Value Threshold (l/hr)	Additional Considerations
1	Very Low Risk	<0.07	Methane concentration <1% Carbon dioxide <5%
2	Low Risk	<0.7	Borehole flow rate <70 l/hr
3	Moderate Risk	<3.5	-
4	Moderate to High Risk	<15	Quantitative risk assessment required to evaluate scope of protective measures
5	High Risk	<70	-
6	Very High Risk	>70	-

17.2 PRELIMINARY GROUND GAS RISK ASSESSMENT

17.2.1 Conceptual Site Model

The following sections outline the anticipated Source-Pathway- Receptor model associated with the proposed development on site.

Sources

The following potential sources have been identified on and off site.

- Made Ground deposits
- The site is also located within the South Wales Coalfield, although shallow mine workings are not anticipated beneath the site.

Pathways

The following potential pathways have been identified which may act as preferential pathways for ground gas migration:

- The underlying strata have been classified as predominantly sands and gravels with varying components of clays and silts also present. Therefore, there is potential for some horizontal and vertical migration of ground gas;

Receptors

Within the context of ground gases, the following enclosed structures are considered to represent potential receptors.

- The existing structure adjacent to the site
- Structures and enclosed areas within proposed development.

17.2.2 Risk Assessment – Methane and Carbon Dioxide

In order to assess the significance of ground gases at the site, measured concentrations and flow rates have been used to derive Gas Screening Values (GSVs). GSVs are the product of gas concentration and gas flow measured in a borehole and provide an indication of the flow of the particular gas in question out of the ground.

Due to the limited data obtained from the site the worst-case values have been used within the risk assessment.

Based on a maximum flow recorded of 0.50l/hr and the maximum recorded concentration of carbon dioxide (CO_2) and methane (CH_4) during the three monitoring visits, the GSVs have been calculated as presented in Table 17-2.

Table 17-2 – Initial GSV Calculations

	Maximum Concentration (%)	Maximum Flow Rate (l/hr)	GSV (l/hr)	Characteristic Situation (Wilson and Card)
Carbon Dioxide	2.3	0.50	0.0115	Very Low Risk
Methane	0.2	0.50	0.001	Very Low Risk

These values have been compared with the Revised Wilson and Card Classification presented in Table 17-1.

The risk assessment process indicates the site is representative of Characteristic Situation 1 (Very Low Risk) based on the recorded concentrations of carbon dioxide and methane and maximum flow rates within the sub surface.

17.2.3 Carbon Monoxide and Hydrogen Sulphide

Maximum concentrations of carbon monoxide and hydrogen sulphide were recorded at 1ppm and 4ppm throughout the monitoring period. The recorded concentrations are considered to be suitably low to negate the requirement for additional risk assessment.

17.2.4 Atmospheric Pressure Trends

In days surrounding monitoring visits atmospheric pressure were falling and rising.

17.3 SUMMARY AND DISCUSSION

The site has been classified as Characteristic Situation 1 (Very Low Risk) based on the worst-case recorded concentrations of carbon dioxide and methane and maximum flow rates. Site classification of a Characteristic Situation 1 indicates gas protection measures are not required within new developments.

18.0 CONCEPTUAL SITE MODEL & PRELIMINARY GROUND CONTAMINATION RISK ASSESSMENT

18.1 OVERVIEW

The information presented in the previous sections of this report have been collated and evaluated to establish an initial qualitative risk assessment for the site. A conceptual model of the site has been generated based on information derived from this Phase 1 Geo-environmental Assessment, supplemented by information attained during the Tetra Tech site walkover.

The site has been considered with regard to current UK legislation and guidance, namely Part 2A of the Environmental Protection Act 1990 and the Contaminated Land (England) Regulations 2006, as amended, and in accordance with current UK good practice guidelines (for example BS10175:2011).

In general, ground contamination can occur through several causes, particularly from historical operations and activities. Contamination can result from either on-site sources or from on-site migration from off-site sources, leading to long term liabilities under recent legislation for any site owner.

For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- Source, i.e. a substance that is capable of causing pollution or harm;
- Pathway, i.e. a route by which the contaminant can reach a target; and
- Receptor (target), i.e. something which could be adversely affected by the contaminant.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

18.2 CURRENT SITE USAGE AND PROPOSED DEVELOPMENT

The site is currently occupied by a derelict primary school. The area surrounding the building is entirely hardstanding acting as both a car park and yard area. The proposed development involves renovation works to the existing structure and the construction of additional structures for use as a skills development hub. The site is currently not utilised by anyone, and the proposed development will be utilised by premise staff and those utilising the education hub.

18.3 CONCEPTUAL SITE MODEL

The key source, pathways and receptor model is outlined below within the context of potential development of the site.

As the proposed development is for a for a building to be utilised as classroom space, the following risk assessment is undertaken in the context of a residential without plant uptake end use scenario to provide a conservative approach given the extended periods of time it is to be occupied by staff and students during term time.

18.3.1 Potential Sources of Contamination

The main potential sources of contamination on the site are associated with existing features as well as historical land uses on the site as summarised below.

On site Sources

- Made Ground associated with existing development on the site.

Off Site Sources

- Mobile contaminants from Made Ground associated with surrounding developments;

18.3.2 Potential Contaminant Pathways

The following contaminant pathways are considered to potentially be active based on the current site use and proposed development:

Human Exposure Pathways

- Direct dermal contact or ingestion of soils, or inhalation of dust and/or vapours (i.e. human interaction with surface and sub-surface materials).

Environmental Pathways

- Leaching and horizontal or vertical migration through the unsaturated ground, either through permeable sub-surface materials and/or preferential pathways;
- Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways;
- Leaching to surface water run-off/drainage;
- The migration and accumulation of gases or vapours through permeable sub-surface materials and/ or preferential pathways.

18.3.3 Potential Receptors at Risk

The following potential receptors have been identified:

Human Health

- Future site users (school staff and students);
- Site workers during the redevelopment of the site;
- Adjacent site users (residential/commercial)

Wider Environment

- Secondary A Aquifer within both superficial and bedrock deposits;
- Surface waters – water course is located C. 85m south of the site boundary;
- Plant uptake; and
- Building Infrastructure and supply pipes.
- Adjacent Properties

18.4 GROUND CONDITIONS RISK ASSESSMENT

The source, pathway, receptor linkages identified in the previous section are outlined and a qualitative risk assessment shown in the following tables.

The risk assessment considers the site within an area context and assesses potential risks to identified receptors in relation to the existing site setting and the proposed development. CIRIA C552 has been used to define the risk rating presented in the Qualitative Risk Assessment matrix, the methodology for which is presented in Appendix I.

Table 18-1 – CIRIA C552 Qualitative Risk Assessment

This matrix is based on CIRIA C552 risk evaluation methodology, definitions for risk ratings is presented in Appendix I.						
Source	Pathway	Receptor	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Made ground associated with existing development on wider site including mobile contamination	Direct dermal contact or ingestion of soils or inhalation of dust	Site workers during redevelopment of the site	Medium	Low likelihood	Moderate / Low Risk	Made Ground has been identified as present on site, when concentrations are compared against nominated screening values the total risk posed to human health is considered to be limited. Further to this the proposed development largely consist of indoor space and hard standing with no significant areas of soft landscaping proposed. Increased risks are noted for site workers during the redevelopment of the site resultant from direct contact with potentially contaminated soils, this risk can be mitigated by the suitable implementation of personal protective equipment and good hygiene practices which should be managed through the Health and Safety at work regulations. .
		Future site users (School staff and students)	Medium	Unlikely	Low Risk	
		Adjacent site users	Medium	Unlikely	Low Risk	
	Leaching and horizontal or vertical migration of groundwater	Groundwater	Mild	Low likelihood	Low Risk	Elevated concentrations of Copper, Lead, Zinc, and Fluoranthene were recorded in soil derived leachate samples from shallow soils. Elevated concentrations of Cadmium, Copper and

		Secondary A Aquifer within superficial and bedrock deposits,				Lead were recorded in groundwater samples. Concentrations of Copper and Zinc have been assessed taking bioavailability into account utilising the M-BAT assessment tool to provide site specific screening values. While concentrations are elevated relative to the respective the EQS values once the aggressive nature of the leachate testing and marginal nature of the exceedances are considered along with the predominantly hardstanding present across the site, no further risk management procedures are considered necessary.
		Plant uptake (post development)	Mild	Low likelihood	Low risk	While there is potential for contaminants to be hazardous to plant health such as copper, the risk posed within this development is mitigated as the proposed development contains no soft landscaping. Risk exists if the development plan changes to include soft landscaping or planting, especially areas for education including the growing of plants for human consumption. These risks can be mitigated but the utilisation of clean imported top soils and raised beds, however, should be considered.

	Leaching to surface waters	Water course located C.7m north of site boundary	Medium	Low likelihood	Moderate / Low risk	There is a watercourse located c.85m from the site boundary, as such a relevant distance separates soils which act as potential sources and the potential receptor, this pathway is deemed of low likelihood of realisation at the concentrations encountered.
Ground gasses associated with made ground and migration	Migration and accumulation of ground gases or vapours	Proposed development users – school staff and students	Severe	Unlikely	Moderate /Low Risk	The site has been classified as Characteristic Situation 1 (Very Low Risk) based on the worst-case recorded concentrations of carbon dioxide and methane and maximum flow rates. Site classification of a Characteristic Situation 1 indicates gas protection measures are not required within new developments
Asbestos Containing Materials	Direct dermal contact or ingestion of soils or inhalation of free fibres		Medium	Low likelihood	Moderate / Low risk	No ACM was reported within samples submitted for testing, and no indications of presence were noted on site during the walkover or intrusive investigations. However, given the age of the existing nearby developments and the presence of Made Ground there is an inherent potential risk of presence.

19.0 CONCLUSIONS AND RECOMMENDATIONS

19.1 CONCLUSIONS

19.1.1 Ground Contamination

Elevated concentrations of potential contaminants have been recorded in soil samples obtained from the site when compared to a public open space end user scenario. However, it is noted that the proposed development consists of a building and areas of hard standing and as such the interaction with the near surface soils will be limited.

If areas of soft landscaping are incorporated into the design, to which the pupils will have access, consideration should be given to the importation of clean soil or surfacing in these areas.

With regards to the risk to controlled waters the recorded exceedances in soil derived leachate samples are not considered to represent a significant risk to the wider environment and as such further risk management procedures are not considered necessary.

19.1.2 Ground Gas

The site has been classified as Characteristic Situation 1 (Very Low Risk) based on the worst-case recorded concentrations of carbon dioxide and methane and maximum flow rates. Site classification of a Characteristic Situation 1 indicates gas protection measures are not required within new developments.

19.1.3 Asbestos

Asbestos containing materials have not been identified within samples obtained from the site and were not noted during the ground investigation. However, given the age of the development and presence of Made Ground, the presence of asbestos containing materials cannot be discounted and a proactive approach should be adopted during the development phase.

19.1.4 Geotechnical

Based on the above ground conditions it is considered that shallow spread foundations, strip or pads, placed within the shallow coarse-grained Alluvial Fan Deposits, at a minimum depth of 1.00m bgl, would be a suitable foundation option for the proposed building. Shallow footings may be design to an allowable net bearing pressure of 400kPa, giving a factor of safety greater than 3 against ultimate bearing capacity failure, and should result in settlement less that 25mm for a strip footing of no greater than 1m wide or a pad of no more than $2m^2$.

For buried concrete the Design Sulphate Class for the site can be taken as DS-1 and the Aggressive Chemical Environment for Concrete (ACEC) site classification can be taken as AC-1.

A conservative CBR value of 6% is recommended for preliminary pavement design.

19.2 RECOMMENDATIONS

- As with all brownfield developments a proactive approach should be adopted to identify and assess any previously unidentified ground contamination which may be encountered during the development phase.

- Obtain site specific Radon report to confirm risk designation for site.

20.0 NOTES

1. Standards

All boring operations, sampling of soils, *in situ* testing and geotechnical laboratory testing have been carried out in accordance with the recommendations of the British Standards BS 5930(2015)[1], BS 1377 (1990)[2] and BS10175 (2001)[3].

Soil and rock descriptions follow the recommendations of BS 593. Where descriptions or classifications are based on other documents (e.g. BS 8004 (1986) or CIRIA Project Report 11 (1993)), this is stated in the report text.

2. Site methods

Unless specifically stated otherwise, the following methods are used for exploratory holes.

- Holes described as cable percussive are bored using a light cable percussive rig. Standard penetration tests are carried out where appropriate, as shown in the logs. Disturbed and undisturbed samples are taken from the exploratory holes at the depths on the records.
- Window sampling generally uses the windowless sampling method, using a tracked Geotool.
- Dynamic probes are usually heavy dynamic probes, using the same tracked Geotool used for window sampling.

3. Definitions and abbreviations

The following terms are used in the exploratory hole logs

Samples

U	Undisturbed 102mm dia. sample
TW	Thin Walled undisturbed 102mm dia. sample
B	Bulk sample
D	Small disturbed sample
W	Water sample
CBR	California Bearing Ratio test or CBR value obtained from Mexiprobe test

In situ tests

S	Standard penetration test (SPT)
N	SPT N value (blows/300mm)
HP	Hand penetrometer – shear strength
SV	Hand shear vane – shear strength
VOC	Volatile organic compounds (ppm)
PID	Photo-ionisation detector – used to detect the presence of VOCs.

Core recovery and rock quality

TCR	Total core recovery (%)
SCR	Solid core recovery (%)
RQD	Rock quality designation (%)
FI	Fracture index
NR	No recovery
NI	Not intact

Rotary drilling sizes

	Nominal diameter (mm)	
Index letter	**Borehole**	**Core**
N	75	54
H	99	76
P	120	92
S	146	113

Water strikes

▽	Level of water strike
▼	Water level rose to this level (see Remarks at foot of log for details)

Depth means depth below existing ground level unless otherwise specified. Values specified in soil descriptions given in the exploratory hole logs are depths unless otherwise specified.

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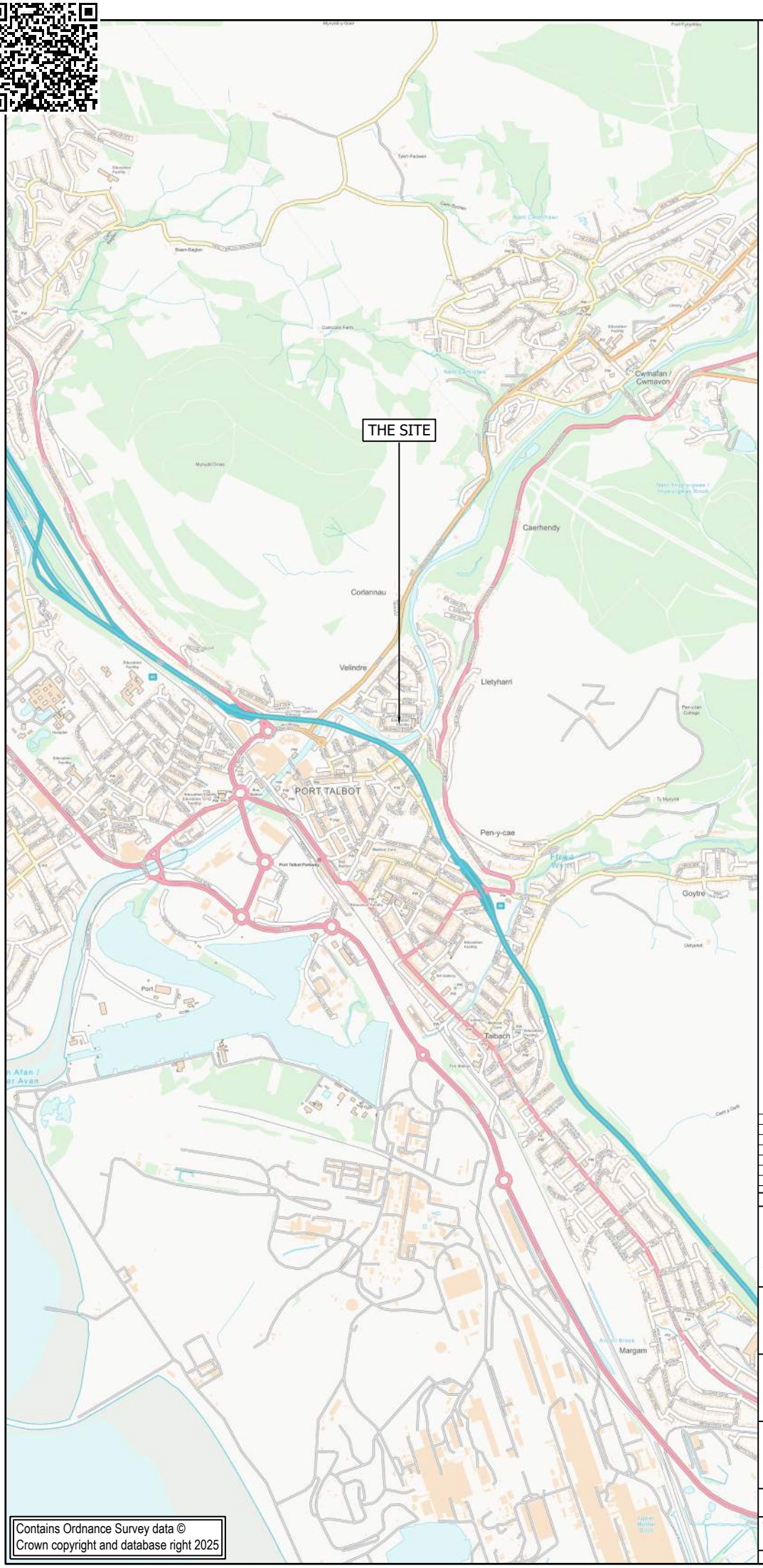
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FIGURES

Figure 1 – Site Location Plan



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Rev	Description	Date	Drn / Chk / App
P01	PRELIMINARY FIRST ISSUE	17.06.2025	PP

Document Control

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Sheet Title

SITE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
784-B071864	PP	17.06.25					1:25,000	S0

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B071864	TTE	00	XX	DR	U	0001	P01

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Figure 2 – Site Investigation Layout Plan



LEGEND:

- HAND DUG PIT
- SOAKAWAY TEST PIT
- BOREHOLE
- WINDOW SAMPLE

PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App
P01	PRELIMINARY FIRST ISSUE	01.07.2025	PP

Document Control

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Client
NEATH PORT TALBOT COUNCIL

Project Name
ELRS PORT TALBOT

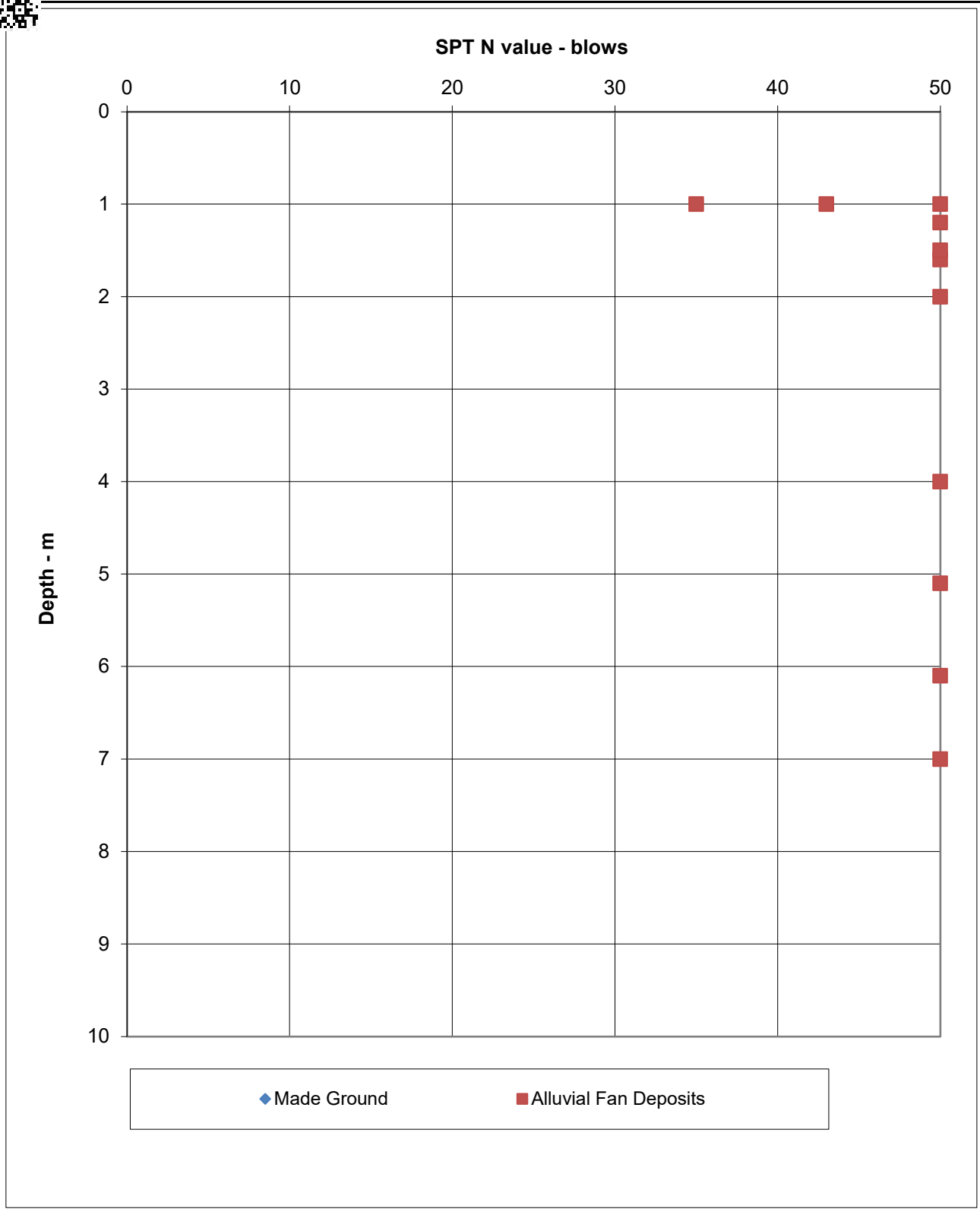
Sheet Title
SITE INVESTIGATION LAYOUT PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
784-B071864	PP	01.07.25	-		-		1:500	S0

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B071864	TTE	00	XX	DR	U	0002	P01

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Figure 3 – SPT N Value Plot



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Project	Drawing Title
ELRS PORT TALBOT	SPT vs Depth Plot
Client	**Drawing No.**
TILBURY DOUGLAS	FIGURE 3

PLATES



Plate 1 SA02 - GL - 1.60m bgl



Plate 2 SA02 - GL - 1.60m bgl

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Plate 3 SA02 - SPOIL



Plate 4 SA01 - GL to 1.95m bgl

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Plate 5 SA01 - SPOIL



Plate 6 SA03 - GL to 2.00m bgl

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Plate 7 SA03 - SPOIL



Plate 8 HP03 - GL to 0.80m bgl

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Plate 9 HP04 - GL to 1.15m bgl



Plate 10 HP05 - GL to 1.32m bgl

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Plate 11 HP06 - GL to 1.20m bgl



Plate 12 HP02 - GL to 0.75m bgl

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Plate 13 HP01 - GL - 0.45m bgl



Plate 14 WS02 - 1.00 - 1.50m bgl

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Plate 15 WS01 - 1.00 - 1.50m bgl



Plate 16 WS03 hand pit - GL - 1.00m bgl

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Plate 1 Photo of site looking East



Plate 2 Photo of site looking North

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Plate 3 Photo of site looking North



Plate 4 Photo of site looking South East

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Plate 5 Photo of site looking South West



Plate 6 Photo of site looking North West

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Plate 7 Photo of site looking North

Plate 8

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APPENDIX A: REPORT CONDITIONS

APPENDIX A – REPORT CONDITIONS

GROUND INVESTIGATION

This report is produced solely for the benefit of Tilbury Douglas *and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.*

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, reference to accessible referenced historical records, information supplied by those parties referenced in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. Where ground contamination is suspected but no physical site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question as such bodies often have unpublished, more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Tetra Tech. In time improved practices or amended legislation may necessitate a re-assessment.

The assessment of ground conditions within this report is based upon the findings of the study undertaken. We have interpreted the ground conditions in between locations on the assumption that conditions do not vary significantly. However, no investigation can inspect each and every part of the site and therefore changes or variances in the physical and chemical site conditions as described in this report cannot be discounted.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists further extensive research will be required before the effects can be better determined.

APPENDIX B: GROUNDSURE REPORT

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

ELRS, Reginald Street, SA13 1YY

Order Details

Date: 27/05/2025

Your ref: 3026420

Our Ref: GS-7U4-Q8K-6K4-UX4

Site Details

Location: 277038 190347

Area: 0.41 ha

Authority: Castell-nedd Port Talbot - Neath Port Talbot County Borough ↗



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Summary of findings p. 2 >

Aerial image p. 9 >

OS MasterMap site plan p.14 >

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	2	0	41	76	-
20 >	1.2 >	Historical tanks >	0	0	3	20	-
21 >	1.3 >	Historical energy features >	0	0	7	3	-
22	1.4	Historical petrol stations	0	0	0	0	-
22 >	1.5 >	Historical garages >	0	0	4	5	-
23	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
24 >	2.1 >	Historical industrial land uses >	2	0	48	82	-
29 >	2.2 >	Historical tanks >	0	0	4	28	-
31 >	2.3 >	Historical energy features >	0	0	8	4	-
31	2.4	Historical petrol stations	0	0	0	0	-
32 >	2.5 >	Historical garages >	0	0	6	8	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
33	3.1	Active or recent landfill	0	0	0	0	-
33	3.2	Historical landfill (BGS records)	0	0	0	0	-
34	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
34	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
34 >	3.5 >	Historical waste sites >	0	0	1	0	-
34	3.6	Licensed waste sites	0	0	0	0	-
35	3.7	Waste exemptions	0	0	0	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
36 >	4.1 >	Recent industrial land uses >	0	0	4	-	-
37 >	4.2 >	Current or recent petrol stations >	0	0	0	1	-
37	4.3	Electricity cables	0	0	0	0	-
37	4.4	Gas pipelines	0	0	0	0	-
37	4.5	Sites determined as Contaminated Land	0	0	0	0	-

38	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
38	4.7	Regulated explosive sites	0	0	0	0	-
38	4.8	Hazardous substance storage/usage	0	0	0	0	-
38	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
38	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
39 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	0	1	-
39	4.12	Radioactive Substance Authorisations	0	0	0	0	-
39 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	4	3	-
40	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
41	4.15	Pollutant release to public sewer	0	0	0	0	-
41	4.16	List 1 Dangerous Substances	0	0	0	0	-
41	4.17	List 2 Dangerous Substances	0	0	0	0	-
41 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	2	0	5	-
42	4.19	Pollution inventory substances	0	0	0	0	-
42	4.20	Pollution inventory waste transfers	0	0	0	0	-
43	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
44 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
46 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
48 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
49	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
49	5.5	Groundwater vulnerability- local information	None (within 0m)				
50 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	0	1
51 >	**5.7 >**	**Surface water abstractions >**	0	0	0	0	26
56 >	**5.8 >**	**Potable abstractions >**	0	0	0	0	1
57	5.9	Source Protection Zones	0	0	0	0	-
57	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
58 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	1	2	-	-

59 >	6.2 >	Surface water features >	0	1	2	-	-
59 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
60 >	6.4 >	WFD Surface water bodies >	0	1	0	-	-
60 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	**River and coastal flooding >**	On site	0-50m	50-250m	250-500m	500-2000m
61 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
62	7.2	Historical Flood Events	0	0	0	-	-
62 >	7.3 >	Flood Defences >	0	0	4	-	-
62 >	7.4 >	Areas Benefiting from Flood Defences >	1	0	4	-	-
63	7.5	Flood Storage Areas	0	0	0	-	-
64 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
65 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	**Surface water flooding >**					
66 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	**Groundwater flooding >**					
68 >	9.1 >	Groundwater flooding >	Moderate (within 50m)				
Page	Section	**Environmental designations >**	On site	0-50m	50-250m	250-500m	500-2000m
69	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
70	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
70	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
70	10.4	Special Protection Areas (SPA)	0	0	0	0	0
70	10.5	National Nature Reserves (NNR)	0	0	0	0	0
71	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
71 >	10.7 >	Designated Ancient Woodland >	0	0	0	1	39
73	10.8	Biosphere Reserves	0	0	0	0	0
73	10.9	Forest Parks	0	0	0	0	0
73	10.10	Marine Conservation Zones	0	0	0	0	0
73	10.11	Green Belt	0	0	0	0	0
73	10.12	Proposed Ramsar sites	0	0	0	0	0

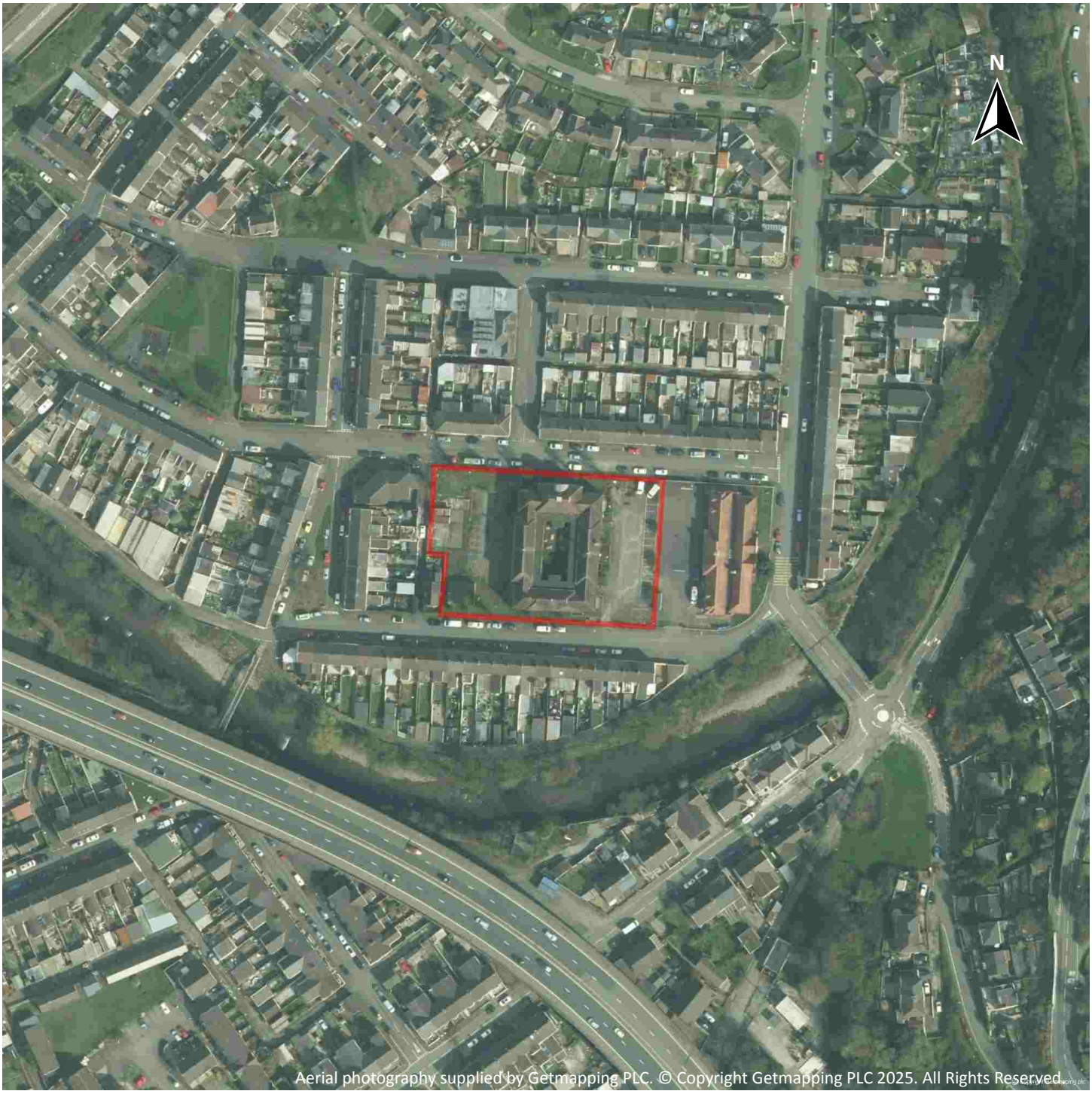
74	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
74	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
74	10.15	Nitrate Sensitive Areas	0	0	0	0	0
74	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
75	10.17	SSSI Impact Risk Zones	0	-	-	-	-
75	10.18	SSSI Units	0	0	0	0	0
Page	Section	**Visual and cultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
76	11.1	World Heritage Sites	0	0	0	-	-
77	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
77	11.3	National Parks	0	0	0	-	-
77 >	**11.4** >	**Listed Buildings** >	0	0	1	-	-
78	11.5	Conservation Areas	0	0	0	-	-
78	11.6	Scheduled Ancient Monuments	0	0	0	-	-
78	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
79 >	**12.1** >	**Agricultural Land Classification** >	Grade 4 (within 250m)				
80 >	**12.2** >	**Open Access Land** >	0	0	1	-	-
80	12.3	Tree Felling Licences	0	0	0	-	-
80	12.4	Environmental Stewardship Schemes	0	0	0	-	-
81	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
82	13.1	Priority Habitat Inventory	0	0	0	-	-
82	13.2	Habitat Networks	0	0	0	-	-
82	13.3	Open Mosaic Habitat	0	0	0	-	-
82	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
83 >	**14.1** >	**10k Availability** >	Identified (within 500m)				
84 >	**14.2** >	**Artificial and made ground (10k)** >	0	0	2	9	-
86 >	**14.3** >	**Superficial geology (10k)** >	1	1	4	6	-

87 >	14.4 >	Landslip (10k) >	0	0	0	1	-
88 >	14.5 >	Bedrock geology (10k) >	4	1	6	19	-
90 >	14.6 >	Bedrock faults and other linear features (10k) >	3	1	7	12	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
92 >	15.1 >	50k Availability >	Identified (within 500m)				
93 >	15.2 >	Artificial and made ground (50k) >	0	1	1	2	-
94 >	15.3 >	Artificial ground permeability (50k) >	0	1	-	-	-
95 >	15.4 >	Superficial geology (50k) >	1	0	2	3	-
96 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
96 >	15.6 >	Landslip (50k) >	0	0	0	1	-
96	15.7	Landslip permeability (50k)	None (within 50m)				
97 >	15.8 >	Bedrock geology (50k) >	4	1	9	7	-
99 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
99 >	15.10 >	Bedrock faults and other linear features (50k) >	3	1	7	6	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
101 >	16.1 >	BGS Boreholes >	0	1	20	-	-
Page	Section	Natural ground subsidence >					
103 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
105 >	17.2 >	Running sands >	Very low (within 50m)				
106 >	17.3 >	Compressible deposits >	Very low (within 50m)				
108 >	17.4 >	Collapsible deposits >	Negligible (within 50m)				
109 >	17.5 >	Landslides >	Very low (within 50m)				
110 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
112 >	18.1 >	BritPits >	0	0	1	9	-
115 >	18.2 >	Surface ground workings >	2	0	21	-	-
116 >	18.3 >	Underground workings >	0	0	0	0	2
117	18.4	Underground mining extents	0	0	0	0	-
117	18.5	Historical Mineral Planning Areas	0	0	0	0	-

117	18.6	Non-coal mining	0	0	0	0	0
117	18.7	JPB mining areas	None (within 0m)				
117	18.8	The Coal Authority non-coal mining	0	0	0	0	-
118	18.9	Researched mining	0	0	0	0	-
118	18.10	Mining record office plans	0	0	0	0	-
118	18.11	BGS mine plans	0	0	0	0	-
118 >	18.12 >	Coal mining >	Identified (within 0m)				
119	18.13	Brine areas	None (within 0m)				
119	18.14	Gypsum areas	None (within 0m)				
119	18.15	Tin mining	None (within 0m)				
119	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
120	19.1	Natural cavities	0	0	0	0	-
120	19.2	Mining cavities	0	0	0	0	0
120	19.3	Reported recent incidents	0	0	0	0	-
120	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
122 >	20.1 >	Radon >	Between 10% and 30% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
124 >	21.1 >	BGS Estimated Background Soil Chemistry >	7	0	-	-	-
124 >	21.2 >	BGS Estimated Urban Soil Chemistry >	2	7	-	-	-
125	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
126	22.1	Underground railways (London)	0	0	0	-	-
126	22.2	Underground railways (Non-London)	0	0	0	-	-
127	22.3	Railway tunnels	0	0	0	-	-
127 >	22.4 >	Historical railway and tunnel features >	0	0	32	-	-
128	22.5	Royal Mail tunnels	0	0	0	-	-
128 >	22.6 >	Historical railways >	0	0	10	-	-

129	22.7	Railways	0	0	0	-	-
129	22.8	Crossrail 2	0	0	0	0	-
129	22.9	HS2	0	0	0	0	-

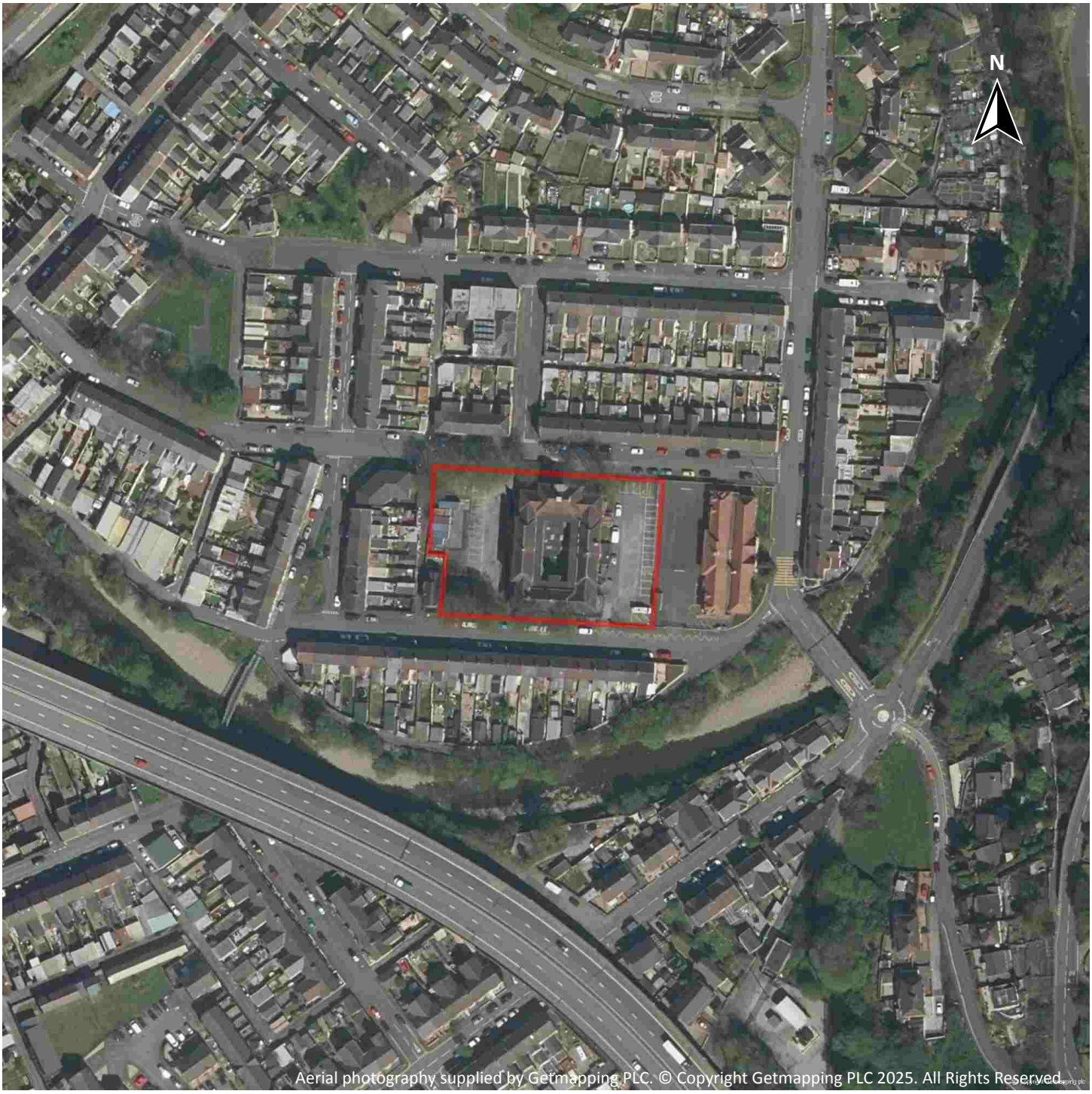
Recent aerial photograph



Capture Date: 08/04/2023

Site Area: 0.41ha

Recent site history - 2020 aerial photograph



Capture Date: 14/04/2020

Site Area: 0.41ha

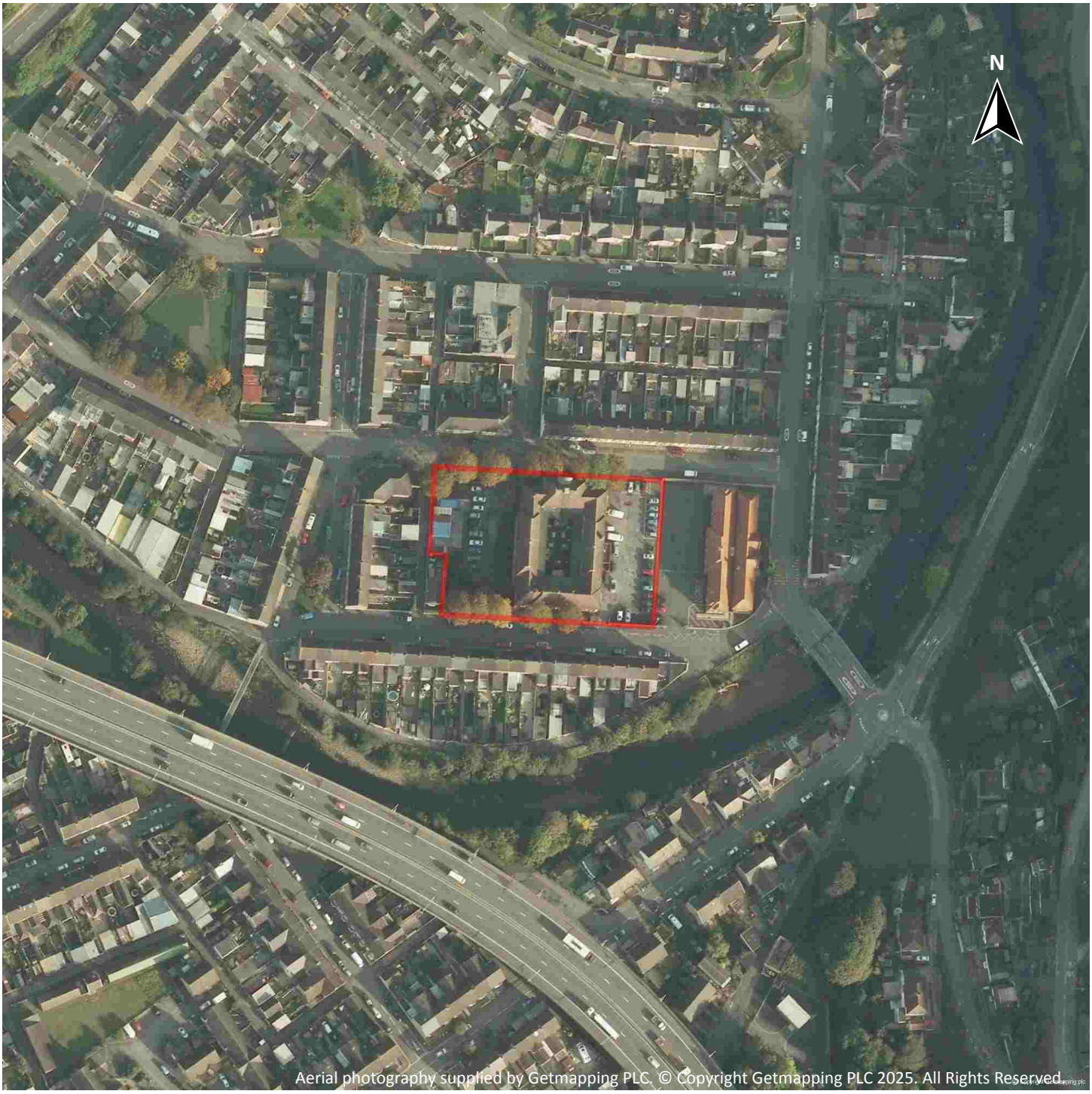
Recent site history - 2014 aerial photograph



Capture Date: 23/07/2014

Site Area: 0.41ha

Recent site history - 2009 aerial photograph



Capture Date: 12/10/2009

Site Area: 0.41ha

Recent site history - 2000 aerial photograph



Capture Date: 18/06/2000

Site Area: 0.41ha

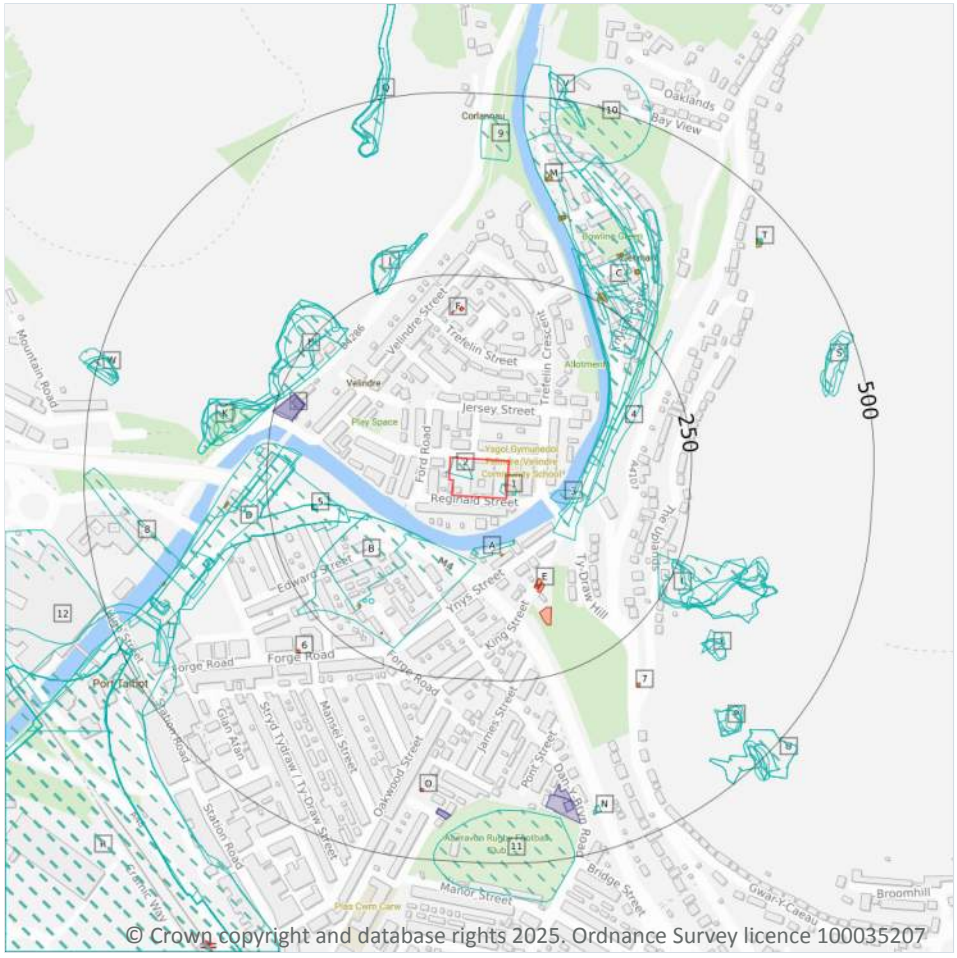
OS MasterMap site plan



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Site Area: 0.41ha

1 Past land use



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	119

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 15 >**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Cuttings**	**1884**	**333089**

ID	Location	Land use	Dates present	Group ID
2	**On site**	**Unspecified Pit**	**1884**	**343004**
A	57m SE	Railway Buildings	1897	336257
3	60m E	Unspecified Quarry	1884	330885
B	70m SW	Disused Tin Plate Works	1897	333653
B	70m SW	Railway Sidings	1897	376409
C	75m SE	Unspecified Commercial/Industrial	1947 - 1957	357189
C	78m SE	Railway Sidings	1921	357589
C	107m E	Railway Sidings	1957	387494
4	109m E	Unspecified Ground Workings	1947	346417
D	117m W	Railway Sidings	1921	353084
D	117m W	Railway Sidings	1914	389729
C	120m E	Railway Sidings	1947	386017
C	140m E	Railway Sidings	1914	367943
D	145m W	Railway Sidings	1947	380230
D	153m W	Railway Sidings	1957	380687
B	179m SW	Unspecified Tank	1897	338795
5	184m W	Railway Building	1921	348139
B	185m SW	Unspecified Tank	1897	338796
C	207m NE	Railway Building	1914 - 1921	354455
C	210m NE	Disused Tin Plate Works	1897	333655
D	211m W	Railway Sidings	1897	361359
H	212m NW	Unspecified Quarries	1914	350444
D	219m W	Railway Buildings	1897	336191
H	221m NW	Unspecified Quarry	1995	373991
H	221m NW	Unspecified Quarry	1980	380680
I	221m SE	Unspecified Old Quarries	1914	358657
H	229m NW	Unspecified Quarries	1897	372844
H	232m NW	Unspecified Quarries	1921 - 1947	355663

ID	Location	Land use	Dates present	Group ID
C	233m NE	Railway Buildings	1914 - 1921	360561
H	236m NW	Unspecified Old Quarries	1957	347273
C	240m NE	Railway Building	1914 - 1921	360137
I	243m SE	Unspecified Quarry	1897	330886
D	243m W	Railway Building	1914 - 1921	373559
J	243m NW	Unspecified Old Quarries	1914	374372
J	243m NW	Unspecified Old Quarries	1921 - 1947	376786
I	244m SE	Unspecified Ground Workings	1921 - 1947	384428
I	244m SE	Unspecified Ground Workings	1921	386806
J	244m NW	Unspecified Old Quarries	1957	358205
J	244m NW	Unspecified Quarry	1980	330040
J	244m NW	Unspecified Ground Workings	1995	345678
K	245m W	Unspecified Old Quarries	1957	347272
C	248m NE	Railway Sidings	1897	365625
D	256m W	Railway Building	1897	348137
I	256m SE	Unspecified Old Quarries	1957	365315
K	257m W	Unspecified Quarries	1897	356313
C	260m NE	Railway Building	1921	348617
I	273m SE	Unspecified Ground Workings	1980	356254
I	273m SE	Unspecified Ground Workings	1995	357048
I	288m SE	Unspecified Old Quarries	1947	385307
C	302m NE	Railway Building	1921 - 1947	357319
C	315m NE	Unspecified Ground Workings	1947	346416
C	315m NE	Unspecified Heap	1957	340358
I	329m E	Unspecified Old Quarries	1914	382540
I	329m E	Unspecified Old Quarries	1921	389854
L	333m SE	Unspecified Old Quarries	1914 - 1921	352230
L	333m SE	Unspecified Old Quarries	1957	391008

ID	Location	Land use	Dates present	Group ID
L	334m SE	Unspecified Old Quarries	1947	383293
D	336m W	Railway Building	1914 - 1921	384475
L	336m SE	Unspecified Quarry	1897	330034
D	338m W	Railway Buildings	1957	336193
D	339m W	Police Station	1897	347517
8	359m W	Cuttings	1884	332906
P	406m SE	Unspecified Quarry	1921	382934
9	410m N	Cuttings	1914 - 1947	388008
P	411m SE	Unspecified Old Quarries	1947	347270
D	414m W	Railway Station	1897 - 1921	377932
D	415m SW	Railway Station	1947	371690
D	416m SW	Railway Station	1957	351948
D	419m SW	Railway Building	1914 - 1921	371533
P	419m SE	Unspecified Quarry	1995	359618
P	419m SE	Unspecified Quarry	1957 - 1980	382935
10	424m N	Unspecified Old Quarry	1897	354269
11	427m S	Unspecified Pit	1965	343060
Q	427m N	Unspecified Old Quarries	1921	363354
Q	427m N	Unspecified Old Quarries	1897	369024
Q	428m N	Unspecified Old Quarries	1947	378293
Q	429m N	Unspecified Old Quarries	1914	354749
Q	429m N	Unspecified Old Quarries	1957	386177
R	437m SW	Old Dock	1947	361467
N	439m S	Railway Building	1914	348228
S	441m E	Unspecified Old Quarry	1914 - 1947	355487
R	442m SW	Dock	1914 - 1921	376378
S	442m E	Unspecified Old Quarry	1897	350654
S	444m E	Unspecified Old Quarry	1957	378038

ID	Location	Land use	Dates present	Group ID
T	452m NE	Unspecified Tank	1957	372409
T	453m NE	Unspecified Tank	1914 - 1947	372107
U	453m SE	Unspecified Ground Workings	1965	382562
U	453m SE	Unspecified Ground Workings	1982 - 1993	388405
D	460m SW	Railway Building	1957	348140
V	466m N	Unspecified Old Quarry	1914	371181
W	467m W	Unspecified Pit	1947	377144
W	468m W	Unspecified Quarry	1897	330039
U	468m SE	Unspecified Quarries	1897	349281
W	469m W	Unspecified Pit	1995	372039
W	469m W	Unspecified Pit	1957 - 1980	377431
V	469m N	Unspecified Old Quarry	1921 - 1947	356973
W	470m W	Unspecified Old Quarry	1914 - 1921	355589
U	474m SE	Unspecified Quarry	1921	330035
U	475m SE	Unspecified Old Quarries	1947	347271
V	487m N	Unspecified Old Quarry	1957	362907
R	487m SW	Railway Sidings	1947	379722
D	488m SW	Railway Building	1897	348138
12	491m SW	Unspecified Commercial/Industrial	1980	331654
R	492m SW	Railway Sidings	1921	349984
R	492m SW	Railway Sidings	1914	349985
R	492m SW	Railway Sidings	1921	349986
R	492m SW	Railway Sidings	1921	349987
R	492m SW	Railway Sidings	1914	349988
R	492m SW	Railway Sidings	1914	349989
R	492m SW	Railway Sidings	1914	349990
R	492m SW	Railway Sidings	1921	349991
R	492m SW	Railway Sidings	1921	349992

ID	Location	Land use	Dates present	Group ID
R	492m SW	Railway Sidings	1921	349993
R	492m SW	Railway Sidings	1921	349994
R	492m SW	Railway Sidings	1914	349995
R	492m SW	Railway Sidings	1914	349996
R	492m SW	Railway Sidings	1914	376857
D	495m SW	Railway Building	1957	348141

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**23**

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 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 15 >**

ID	Location	Land use	Dates present	Group ID
A	76m S	Unspecified Tank	1949 - 1952	41752
B	195m SW	Unspecified Tank	1876	40520
B	210m SW	Unspecified Tank	1876	40521
C	252m NE	Unspecified Tank	1899	39989
C	255m NE	Tanks	1876	41082
D	303m W	Unspecified Tank	1950	40189
D	306m W	Unspecified Tank	1917 - 1939	43642
C	309m NE	Tanks	1969 - 1992	42640
C	309m NE	Tanks	1968	44850
C	317m NE	Unspecified Tank	1937	39979
C	320m NE	Unspecified Tank	1952	41389
C	320m NE	Unspecified Tank	1949	44788

ID	Location	Land use	Dates present	Group ID
C	336m N	Unspecified Tank	1937	42886
C	338m N	Unspecified Tank	1949 - 1968	46321
C	339m N	Unspecified Tank	1952	44667
C	339m N	Unspecified Tank	1969	44678
C	339m N	Unspecified Tank	1992	40522
M	387m N	Unspecified Tank	1937	39978
M	388m N	Unspecified Tank	1952 - 1969	45778
D	410m W	Unspecified Tank	1917	40186
D	424m SW	Unspecified Tank	1967	41648
D	425m SW	Unspecified Tank	1969	45475
T	448m NE	Unspecified Tank	1937	39980

This data is sourced from Ordnance Survey / Groundsure.

1.3 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, 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 15 >**

ID	Location	Land use	Dates present	Group ID
E	118m SE	Electricity Substation	1952	20443
E	125m SE	Electricity Substation	1991	20450
E	126m SE	Electricity Substation	1949 - 1952	24406
E	159m SE	Electricity Substation	1991	20449
F	197m N	Electricity Transformer	1968	21164
F	201m N	Electricity Substation	1992	20453
F	201m N	Electricity Transformer	1969	21166

ID	Location	Land use	Dates present	Group ID
6	297m SW	Electricity Substation	1993 - 1999	24682
7	310m SE	Electricity Substation	1991	20451
O	403m S	Electricity Substation	1988	20445

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 un-grouped 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	9

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 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 15 >**

ID	Location	Land use	Dates present	Group ID
G	211m NW	Garage	1969	8516
G	212m NW	Garage	1967	7531
G	213m NW	Garage	1993 - 1999	7782
G	213m NW	Garage	1988 - 1992	8315
N	398m S	Garage	1949 - 1952	7536
N	410m S	Garage	1967 - 1969	7729
N	423m S	Garage	1991	8830
O	429m S	Garage	1996	8027

ID	Location	Land use	Dates present	Group ID
O	430m S	Garage	1988 - 1991	8241

This data is sourced from Ordnance Survey / Groundsure.

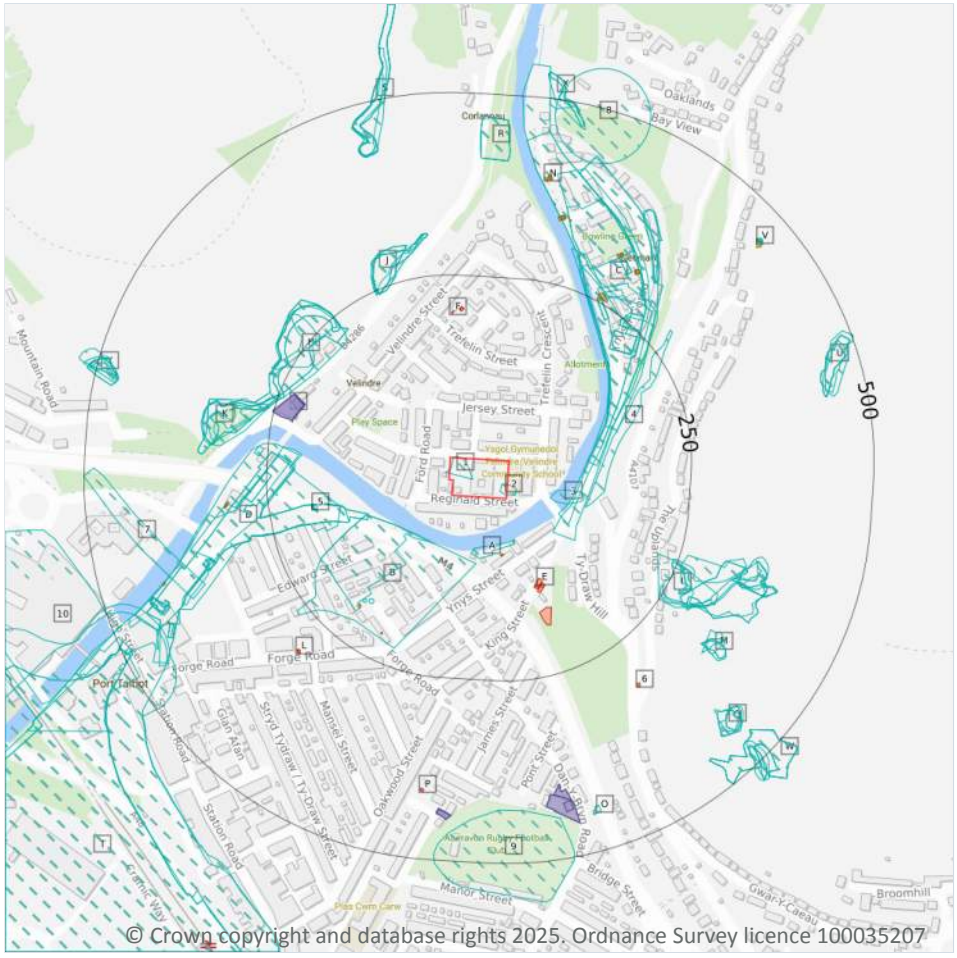
1.6 Historical military land

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

Historical garages

2.1 Historical industrial land uses

Records within 500m	132

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 24 >**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Unspecified Pit**	**1884**	**343004**
2	**On site**	**Cuttings**	**1884**	**333089**
A	57m SE	Railway Buildings	1897	336257

ID	Location	Land Use	Date	Group ID
3	60m E	Unspecified Quarry	1884	330885
B	70m SW	Railway Sidings	1897	376409
B	70m SW	Disused Tin Plate Works	1897	333653
C	75m SE	Unspecified Commercial/Industrial	1947	357189
C	78m SE	Railway Sidings	1921	357589
C	107m E	Railway Sidings	1957	387494
4	109m E	Unspecified Ground Workings	1947	346417
D	117m W	Railway Sidings	1914	389729
D	117m W	Railway Sidings	1921	353084
C	120m E	Railway Sidings	1947	386017
C	140m E	Railway Sidings	1914	367943
D	145m W	Railway Sidings	1947	380230
C	151m NE	Unspecified Commercial/Industrial	1957	357189
D	153m W	Railway Sidings	1957	380687
B	179m SW	Unspecified Tank	1897	338795
5	184m W	Railway Building	1921	348139
B	185m SW	Unspecified Tank	1897	338796
C	207m NE	Railway Building	1914	354455
C	207m NE	Railway Building	1921	354455
C	210m NE	Disused Tin Plate Works	1897	333655
D	211m W	Railway Sidings	1897	361359
H	212m NW	Unspecified Quarries	1914	350444
D	219m W	Railway Buildings	1897	336191
H	221m NW	Unspecified Quarry	1980	380680
H	221m NW	Unspecified Quarry	1995	373991
I	221m SE	Unspecified Old Quarries	1914	358657
H	229m NW	Unspecified Quarries	1897	372844
H	232m NW	Unspecified Quarries	1947	355663

ID	Location	Land Use	Date	Group ID
H	232m NW	Unspecified Quarries	1921	355663
C	233m NE	Railway Buildings	1914	360561
C	233m NE	Railway Buildings	1921	360561
H	236m NW	Unspecified Old Quarries	1957	347273
C	240m NE	Railway Building	1914	360137
C	240m NE	Railway Building	1921	360137
I	243m SE	Unspecified Quarry	1897	330886
D	243m W	Railway Building	1914	373559
D	243m W	Railway Building	1921	373559
J	243m NW	Unspecified Old Quarries	1947	376786
J	243m NW	Unspecified Old Quarries	1914	374372
J	243m NW	Unspecified Old Quarries	1921	376786
I	244m SE	Unspecified Ground Workings	1921	384428
I	244m SE	Unspecified Ground Workings	1921	386806
J	244m NW	Unspecified Old Quarries	1957	358205
J	244m NW	Unspecified Quarry	1980	330040
J	244m NW	Unspecified Ground Workings	1995	345678
K	245m W	Unspecified Old Quarries	1957	347272
C	248m NE	Railway Sidings	1897	365625
D	256m W	Railway Building	1897	348137
I	256m SE	Unspecified Old Quarries	1957	365315
K	257m W	Unspecified Quarries	1897	356313
I	260m SE	Unspecified Ground Workings	1947	384428
C	260m NE	Railway Building	1921	348617
I	273m SE	Unspecified Ground Workings	1980	356254
I	273m SE	Unspecified Ground Workings	1995	357048
I	288m SE	Unspecified Old Quarries	1947	385307
C	302m NE	Railway Building	1947	357319

ID	Location	Land Use	Date	Group ID
C	302m NE	Railway Building	1921	357319
C	315m NE	Unspecified Ground Workings	1947	346416
C	315m NE	Unspecified Heap	1957	340358
I	329m E	Unspecified Old Quarries	1914	382540
I	329m E	Unspecified Old Quarries	1921	389854
M	333m SE	Unspecified Old Quarries	1914	352230
M	333m SE	Unspecified Old Quarries	1921	352230
M	333m SE	Unspecified Old Quarries	1957	391008
M	334m SE	Unspecified Old Quarries	1947	383293
D	336m W	Railway Building	1914	384475
D	336m W	Railway Building	1921	384475
M	336m SE	Unspecified Quarry	1897	330034
D	338m W	Railway Buildings	1957	336193
D	339m W	Police Station	1897	347517
7	359m W	Cuttings	1884	332906
Q	406m SE	Unspecified Quarry	1921	382934
R	410m N	Cuttings	1947	388008
R	410m N	Cuttings	1914	388008
R	410m N	Cuttings	1921	388008
Q	411m SE	Unspecified Old Quarries	1947	347270
D	414m W	Railway Station	1897	377932
D	414m W	Railway Station	1914	377932
D	414m W	Railway Station	1921	377932
D	415m SW	Railway Station	1947	371690
D	416m SW	Railway Station	1957	351948
D	419m SW	Railway Building	1921	371533
D	419m SW	Railway Building	1914	371533
Q	419m SE	Unspecified Quarry	1980	382935

ID	Location	Land Use	Date	Group ID
Q	419m SE	Unspecified Quarry	1995	359618
Q	421m SE	Unspecified Quarry	1957	382935
8	424m N	Unspecified Old Quarry	1897	354269
9	427m S	Unspecified Pit	1965	343060
S	427m N	Unspecified Old Quarries	1897	369024
S	427m N	Unspecified Old Quarries	1921	363354
S	428m N	Unspecified Old Quarries	1947	378293
S	429m N	Unspecified Old Quarries	1914	354749
S	429m N	Unspecified Old Quarries	1957	386177
T	437m SW	Old Dock	1947	361467
O	439m S	Railway Building	1914	348228
U	441m E	Unspecified Old Quarry	1947	355487
U	441m E	Unspecified Old Quarry	1914	355487
U	441m E	Unspecified Old Quarry	1921	355487
T	442m SW	Dock	1921	376378
U	442m E	Unspecified Old Quarry	1897	350654
U	444m E	Unspecified Old Quarry	1957	378038
V	452m NE	Unspecified Tank	1957	372409
V	453m NE	Unspecified Tank	1914	372107
V	453m NE	Unspecified Tank	1921	372107
W	453m SE	Unspecified Ground Workings	1993	388405
W	453m SE	Unspecified Ground Workings	1982	388405
W	453m SE	Unspecified Ground Workings	1965	382562
V	454m NE	Unspecified Tank	1947	372107
D	460m SW	Railway Building	1957	348140
X	466m N	Unspecified Old Quarry	1914	371181
Y	467m W	Unspecified Pit	1947	377144
Y	468m W	Unspecified Quarry	1897	330039

ID	Location	Land Use	Date	Group ID
W	468m SE	Unspecified Quarries	1897	349281
Y	469m W	Unspecified Pit	1957	377431
Y	469m W	Unspecified Pit	1995	372039
X	469m N	Unspecified Old Quarry	1947	356973
X	469m N	Unspecified Old Quarry	1921	356973
Y	470m W	Unspecified Old Quarry	1914	355589
Y	470m W	Unspecified Old Quarry	1921	355589
W	474m SE	Unspecified Quarry	1921	330035
W	475m SE	Unspecified Old Quarries	1947	347271
Y	482m W	Unspecified Pit	1980	377431
X	487m N	Unspecified Old Quarry	1957	362907
T	487m SW	Railway Sidings	1947	379722
D	488m SW	Railway Building	1897	348138
10	491m SW	Unspecified Commercial/Industrial	1980	331654
T	492m SW	Railway Sidings	1914	376857
T	492m SW	Railway Sidings	1921	349984
D	495m SW	Railway Building	1957	348141

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**32**

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 24 >**

ID	Location	Land Use	Date	Group ID
A	76m S	Unspecified Tank	1949	41752
A	76m S	Unspecified Tank	1952	41752
B	195m SW	Unspecified Tank	1876	40520

ID	Location	Land Use	Date	Group ID
B	210m SW	Unspecified Tank	1876	40521
C	252m NE	Unspecified Tank	1899	39989
C	255m NE	Tanks	1876	41082
D	303m W	Unspecified Tank	1950	40189
D	306m W	Unspecified Tank	1917	43642
D	306m W	Unspecified Tank	1939	43642
C	309m NE	Tanks	1992	42640
C	309m NE	Tanks	1968	44850
C	310m NE	Tanks	1969	42640
C	317m NE	Unspecified Tank	1937	39979
C	320m NE	Unspecified Tank	1952	41389
C	320m NE	Unspecified Tank	1949	44788
C	320m NE	Unspecified Tank	1952	41389
C	336m N	Unspecified Tank	1937	42886
C	338m N	Unspecified Tank	1968	46321
C	338m N	Unspecified Tank	1952	46321
C	338m N	Unspecified Tank	1949	46321
C	339m N	Unspecified Tank	1969	44678
C	339m N	Unspecified Tank	1952	44667
C	339m N	Unspecified Tank	1992	40522
N	387m N	Unspecified Tank	1937	39978
N	388m N	Unspecified Tank	1969	45778
N	388m N	Unspecified Tank	1952	45778
N	389m N	Unspecified Tank	1968	45778
N	389m N	Unspecified Tank	1952	45778
D	410m W	Unspecified Tank	1917	40186
D	424m SW	Unspecified Tank	1967	41648
D	425m SW	Unspecified Tank	1969	45475

ID	Location	Land Use	Date	Group ID
V	448m NE	Unspecified Tank	1937	39980

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	12

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 24 >**

ID	Location	Land Use	Date	Group ID
E	118m SE	Electricity Substation	1952	20443
E	125m SE	Electricity Substation	1991	20450
E	126m SE	Electricity Substation	1952	24406
E	126m SE	Electricity Substation	1949	24406
E	159m SE	Electricity Substation	1991	20449
F	197m N	Electricity Transformer	1968	21164
F	201m N	Electricity Substation	1992	20453
F	201m N	Electricity Transformer	1969	21166
L	297m SW	Electricity Substation	1993	24682
L	297m SW	Electricity Substation	1999	24682
6	310m SE	Electricity Substation	1991	20451
P	403m S	Electricity Substation	1988	20445

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	14

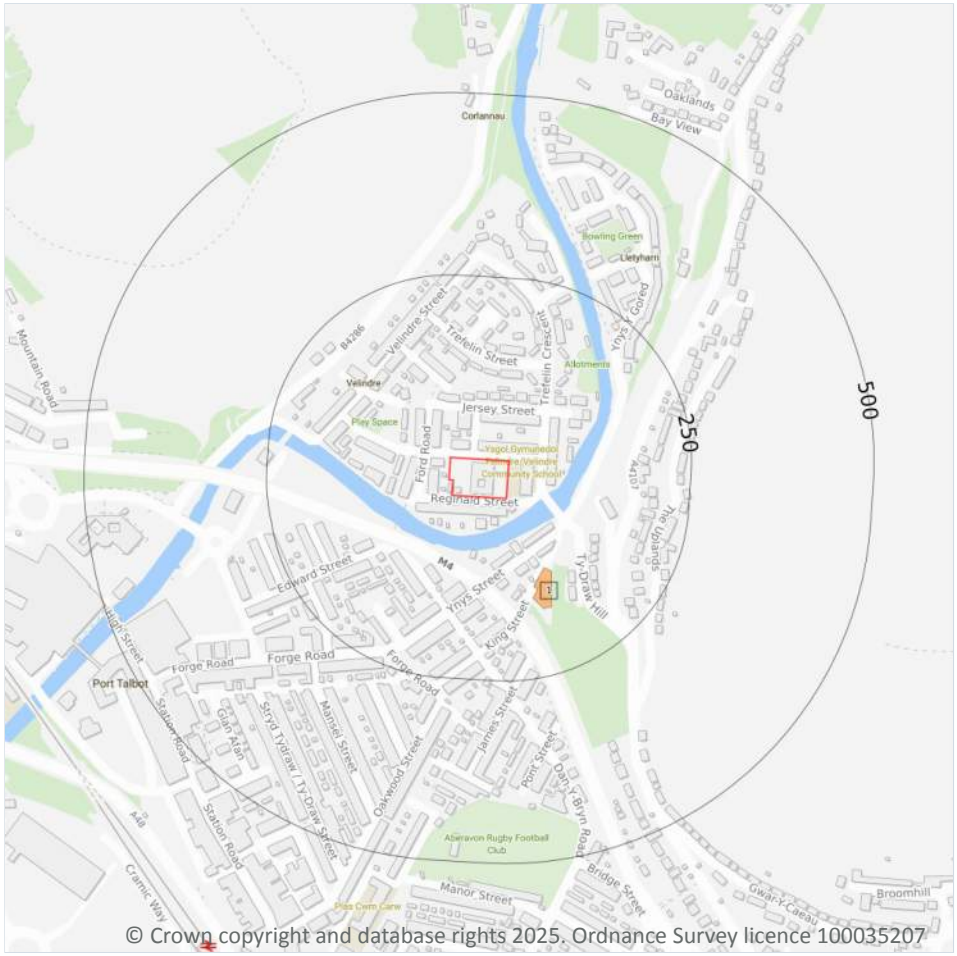
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 24 >**

ID	Location	Land Use	Date	Group ID
G	211m NW	Garage	1969	8516
G	212m NW	Garage	1967	7531
G	213m NW	Garage	1999	7782
G	213m NW	Garage	1993	7782
G	213m NW	Garage	1988	8315
G	213m NW	Garage	1992	8315
O	398m S	Garage	1952	7536
O	398m S	Garage	1949	7536
O	410m S	Garage	1967	7729
O	410m S	Garage	1969	7729
O	423m S	Garage	1991	8830
P	429m S	Garage	1996	8027
P	430m S	Garage	1988	8241
P	430m S	Garage	1991	8241

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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Site Outline

Search buffers in metres (m)

Historical waste sites

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	0

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.

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

3.5 Historical waste sites

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 33 >**

ID	Location	Address	Further Details	Date
1	107m SE	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1991

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

3.6 Licensed waste sites

Records within 500m	0

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

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

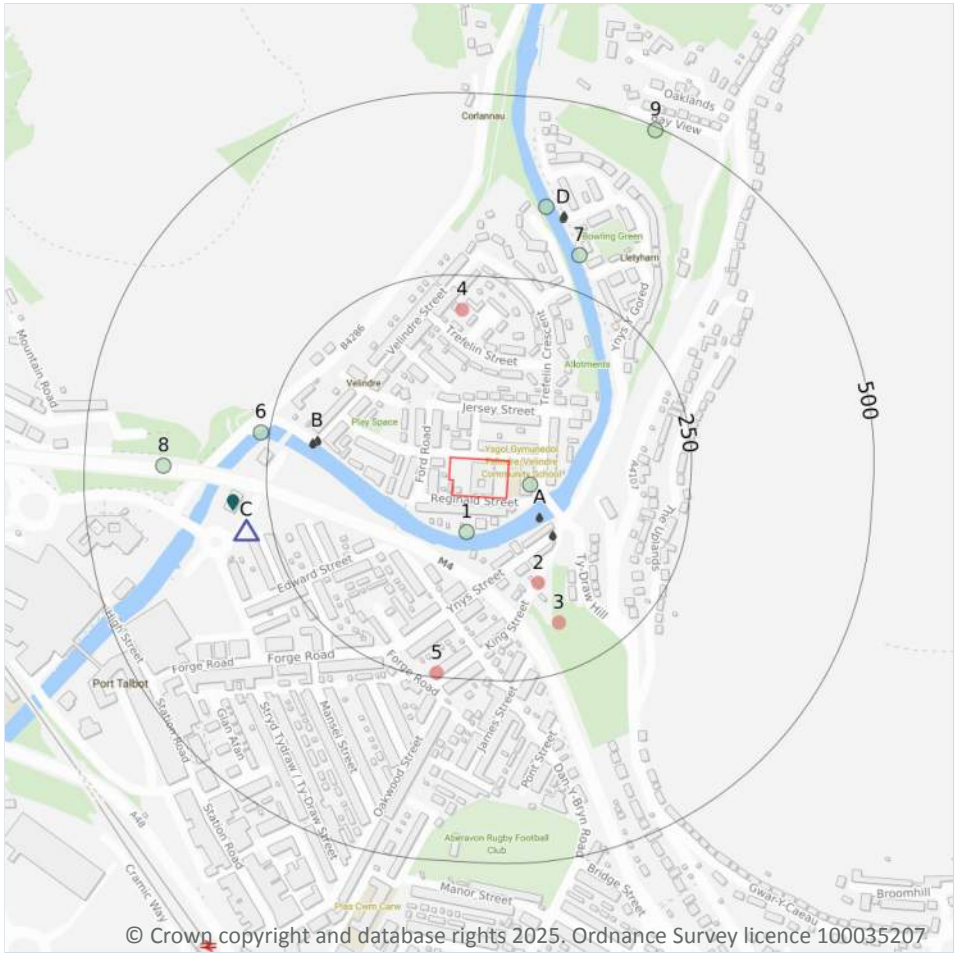
3.7 Waste exemptions

Records within 500m	0

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

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

4 Current industrial land use



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Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

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

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	4

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 36 >**

ID	Location	Company	Address	Activity	Category
2	124m SE	Electricity Sub Station	West Glamorgan, SA13	Electrical Features	Infrastructure and Facilities
3	184m SE	Electricity Poles	West Glamorgan, SA13	Electrical Features	Infrastructure and Facilities
4	203m N	Electricity Sub Station	West Glamorgan, SA13	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
5	244m S	Lynx Security Systems	1, King Street, Port Talbot, West Glamorgan, SA13 1AY	Electronic Equipment	Industrial Products

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 36 >**

ID	Location	Company	Address	LPG	Status
C	286m W	TESCO	Prior Street, Port Talbot, Neath Port Talbot, SA13 1YA	No	Open

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	1

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.

Features are displayed on the Current industrial land use map on **page 36 >**

ID	Location	Address	Details	
C	299m W	Tesco Stores Limited, Prior Street, Port Talbot, SA13 1YA	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No enforcements issued Date of enforcement: No enforcements issued Comment: No enforcements issued

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	7

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 36 >**

ID	Location	Address	Details	
A	52m SE	OS54YNYSSTREET,PORTTALBOT, NEATHPORTTALBOT	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BP0322001 Permit Version: 1 Receiving Water: RIVER AFAN	Status: Effective Issue date: 07/03/2005 Effective Date: 31/03/2009 Revocation Date: -
A	81m SE	CSOatOS54YNYSSTREET,YnysStreet,Velindre,PortTalbot,SA131YW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BP0322001 Permit Version: 0 Receiving Water: RIVER AFAN	Status: Effective Issue date: 07/10/2019 Effective Date: 07/10/2019 Revocation Date: -

ID	Location	Address	Details	
B	184m W	AfanStCSO,EndofAfanSt,PortTalbot,PortTalbot,SA131AX	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: BP0304101 Permit Version: 0 Receiving Water: AFON AFAN	Status: Effective Issue date: 21/08/2019 Effective Date: 21/08/2019 Revocation Date: -
B	190m W	CSO136AFANSTREETVELINDREAFAN,CSO136,AFANSTREET,VELINDRE,AFAN	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: BP0304101 Permit Version: 1 Receiving Water: THE AFON AFAN	Status: Effective Issue date: 29/01/2003 Effective Date: 29/01/2003 Revocation Date: -
D	342m N	SWOREARSCOTTSYDPT1ANDREW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BW0200101 Permit Version: 1 Receiving Water: RIVER AFAN	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 11/03/2003
D	342m N	CSONO115SCOTTSYARDCWMAFAN,CSONO115,SCOTTSYARD,CWMAFAN,NEATHPORTTALBOTCBC	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BW0200101 Permit Version: 2 Receiving Water: THE AFON AFAN	Status: Effective Issue date: 11/03/2003 Effective Date: 12/03/2003 Revocation Date: -
D	344m N	CSONo115ScottsYardCwmafan,Opp40LlettyHarri,Velindre,PortTalbot,SA132ES	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BW0200101 Permit Version: 0 Receiving Water: THE AFON AFAN	Status: Effective Issue date: 08/10/2019 Effective Date: 08/10/2019 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	7

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 36 >**

ID	Location	Details	
A	31m E	Incident Date: 23/01/2015 Incident Identification: 1308557 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
1	49m S	Incident Date: 07/04/2014 Incident Identification: 1224994 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
6	262m W	Incident Date: 18/07/2002 Incident Identification: 92569 Pollutant: Inorganic Chemicals/Products Pollutant Description: Cement	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	298m NE	Incident Date: 10/03/2024 Incident Identification: 2403179 Pollutant: Sewage Material Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: No Details Air Impact: No Details
D	351m N	Incident Date: 30/03/2015 Incident Identification: 1324506 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
8	392m W	Incident Date: 15/10/2014 Incident Identification: 1287019 Pollutant: Multiple Pollutants Pollutant Description: 2 Pollutants Including Smoke	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
9	496m NE	Incident Date: 27/06/2003 Incident Identification: 169269 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)

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.

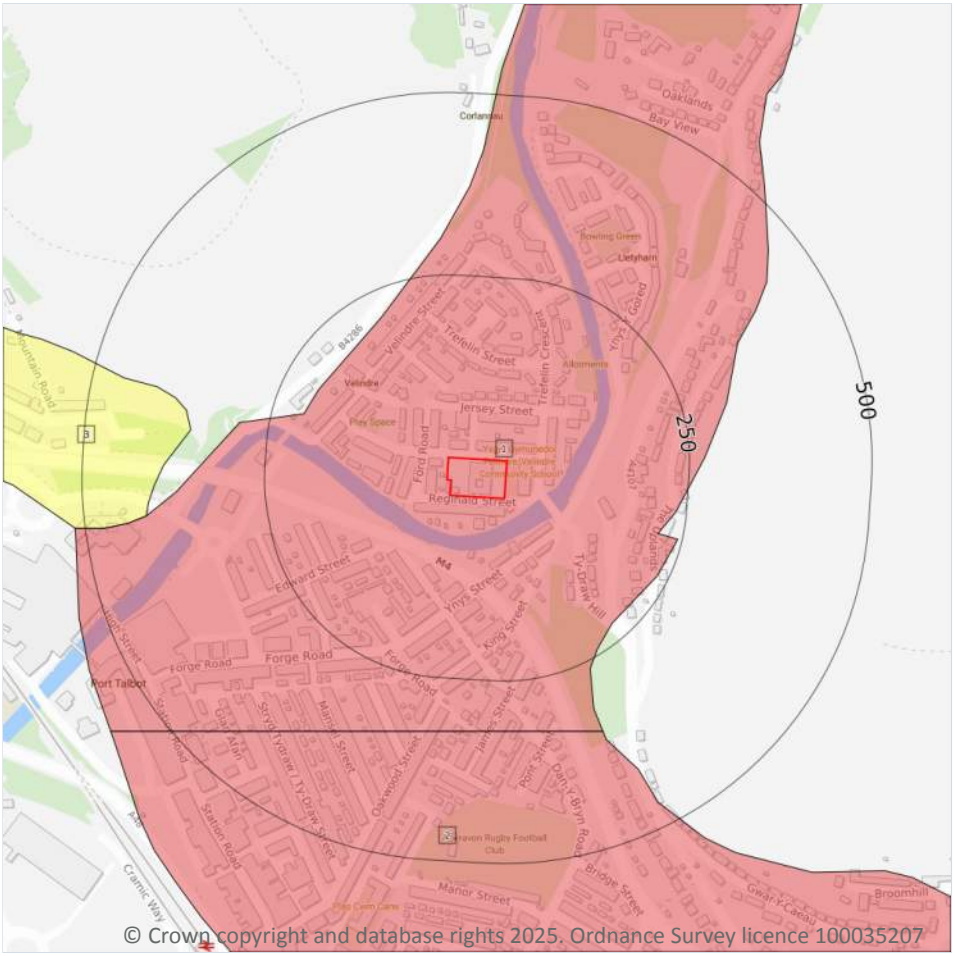
4.21 Pollution inventory radioactive waste

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



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

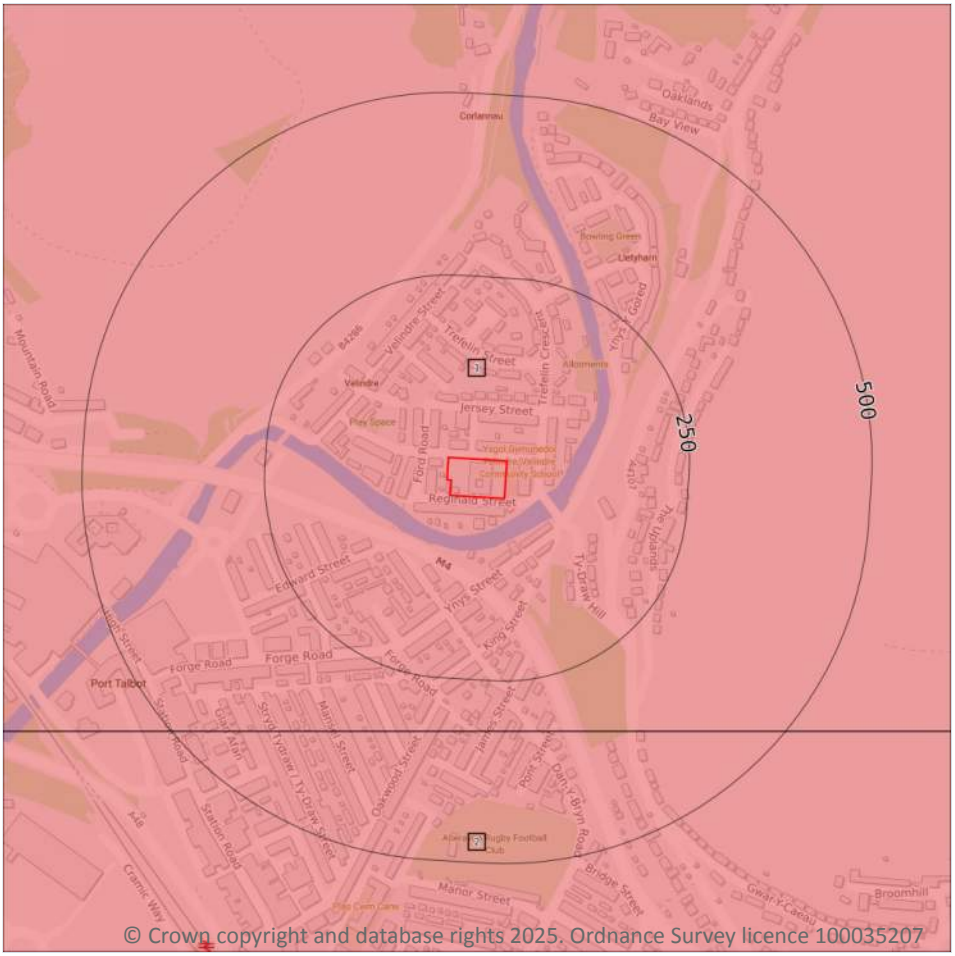
Features are displayed on the Hydrogeology map on **page 44 >**

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	319m 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

ID	Location	Designation	Description
3	355m W	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

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

Bedrock aquifer



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5.2 Bedrock aquifer

Records within 500m **2**

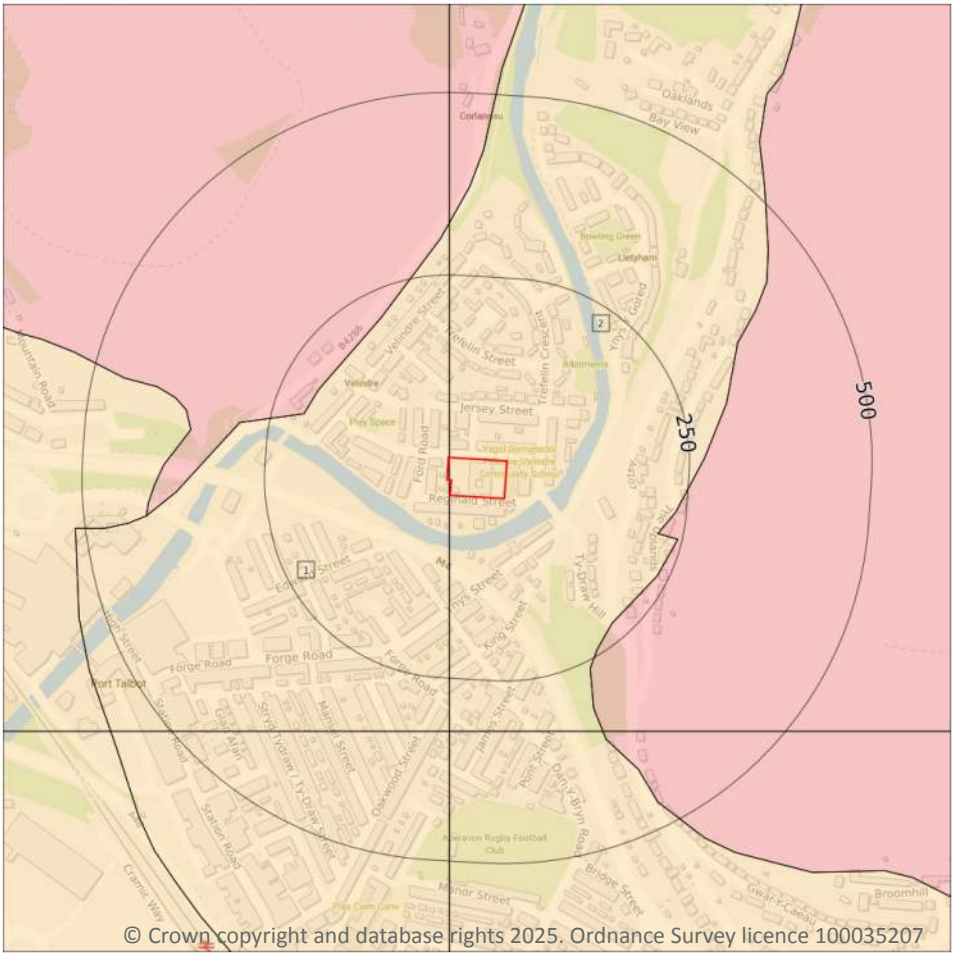
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 46 >**

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	319m 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

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

Groundwater vulnerability



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Site Outline

Search buffers in metres (m)

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

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

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	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 48 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: >550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: >550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m 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	0

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

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

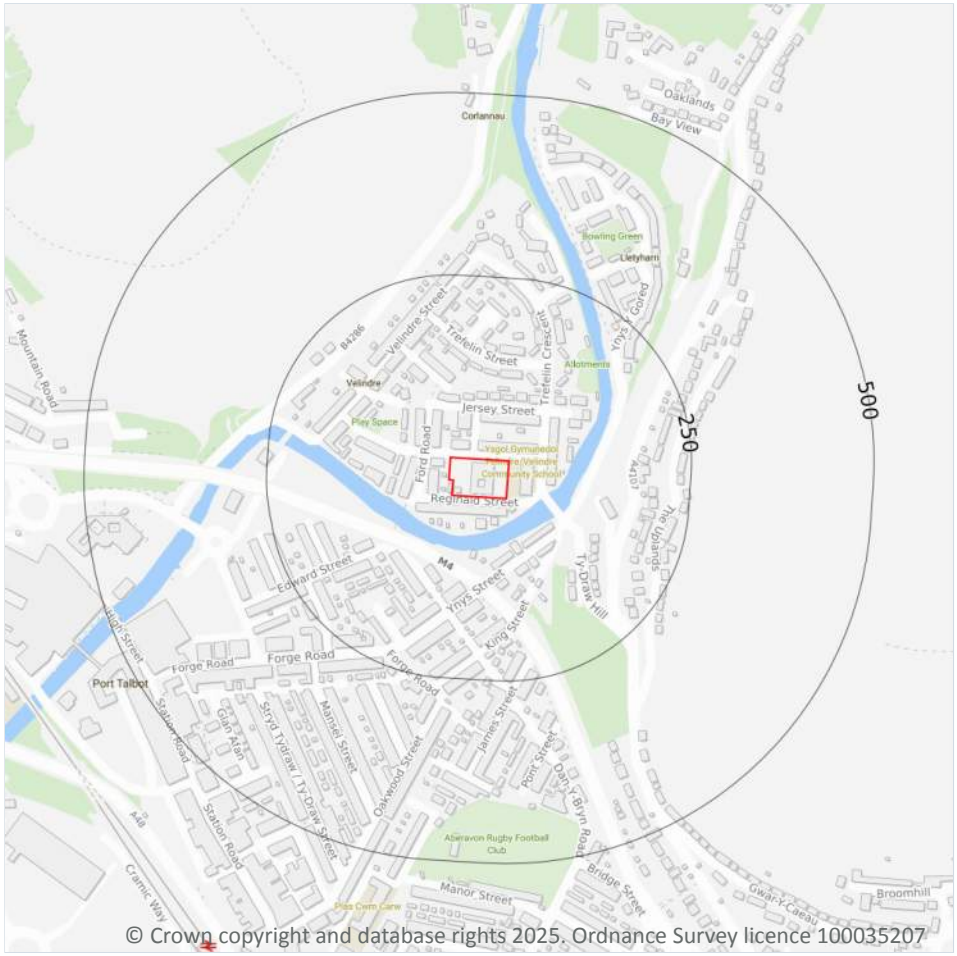
5.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones



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- Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	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 50 >**

ID	Location	Details	
-	1512m N	Status: Historical Licence No: 21/58/61/0043 Details: Water Bottling Direct Source: EAW Groundwater Point: UNNAMED SPRING Data Type: Point Name: Ms Powell & Mr Spackman Easting: 277170 Northing: 191880	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2017 Issue No: 1 Version Start Date: 20/11/2004 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**26**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 50 >**

ID	Location	Details	
-	1104m SW	Status: Active Licence No: WA/058/0061/007 Details: Unknown (Impounding) - Direct Source: - Point: - Data Type: Point Name: - Easting: 276054 Northing: 189756	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 29/05/2012 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1142m SW	Status: Historical Licence No: WA/058/0061/0060 Details: Transfer between Sources (Post Water Act 2003) - Very Low Direct Source: Green Park Weir Point: - Data Type: Point Name: - Easting: 276039 Northing: 189707	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/09/2022 Expiry Date: 31/03/2029 Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1201m SW	Status: Historical Licence No: 21/58/61/0009 Details: Process Water Direct Source: EAW Surface Water Point: RIVER AFAN TO PORT TALBOT DOCKS Data Type: Point Name: Tata Steel UK Limited Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40914 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -
-	1201m SW	Status: Historical Licence No: 21/58/61/0009 Details: Evaporative Cooling Direct Source: EAW Surface Water Point: RIVER AFAN TO PORT TALBOT DOCKS Data Type: Point Name: Tata Steel UK Limited Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40914 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -
-	1201m SW	Status: Historical Licence No: 21/58/61/0009 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40912.8 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1201m SW	Status: Historical Licence No: 21/58/61/0009 Details: Evaporative Cooling - High Direct Source: - Point: - Data Type: Point Name: - Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40912.8 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1201m SW	Status: Active Licence No: 21/58/61/0009 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40914 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1201m SW	Status: Active Licence No: 21/58/61/0009 Details: Evaporative Cooling - High Direct Source: - Point: - Data Type: Point Name: - Easting: 275980 Northing: 189690	Annual Volume (m^3): 14933610 Max Daily Volume (m^3): 40914 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1390m S	Status: Historical Licence No: WA/058/0061/004 Details: Dust Suppression Direct Source: EAW Surface Water Point: PORT TALBOT DOCK AT MARGAM MOORS Data Type: Point Name: Costain Limited Easting: 276967 Northing: 188933	Annual Volume (m^3): 36800 Max Daily Volume (m^3): 200 Original Application No: - Original Start Date: 05/08/2011 Expiry Date: 31/12/2014 Issue No: 1 Version Start Date: 05/08/2011 Version End Date: -
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Evaporative Cooling - High Direct Source: - Point: - Data Type: Point Name: - Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Evaporative Cooling Direct Source: EAW Surface Water Point: RIVER FFRWDWYLLT Data Type: Point Name: Tata Steel UK Limited Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): 9819.36 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -

ID	Location	Details	
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Process Water Direct Source: EAW Surface Water Point: RIVER FFRWDWYLLT Data Type: Point Name: Tata Steel UK Limited Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): 9819.36 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Evaporative Cooling - High Direct Source: - Point: - Data Type: Point Name: - Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): 9819.36 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1451m S	Status: Historical Licence No: 21/58/61/0024 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 277150 Northing: 188870	Annual Volume (m^3): 2273000 Max Daily Volume (m^3): 9819.4 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1636m SW	Status: Historical Licence No: 21/58/61/0042 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 276230 Northing: 188880	Annual Volume (m^3): 8000 Max Daily Volume (m^3): 397.44 Original Application No: - Original Start Date: 01/05/2014 Expiry Date: 31/03/2029 Issue No: - Version Start Date: - Version End Date: -
-	1636m SW	Status: Historical Licence No: 21/58/61/0042 Details: Dust Suppression Direct Source: EAW Surface Water Point: PORT TALBOT DOCKS PORT TALBOT Data Type: Point Name: Civil and Marine Ltd Easting: 276230 Northing: 188880	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 49.68 Original Application No: - Original Start Date: 15/04/2002 Expiry Date: 14/04/2017 Issue No: 4 Version Start Date: 21/05/2010 Version End Date: -

ID	Location	Details	
-	1636m SW	Status: Historical Licence No: 21/58/61/0042 Details: Process Water Direct Source: EAW Surface Water Point: PORT TALBOT DOCKS PORT TALBOT Data Type: Point Name: Civil and Marine Ltd Easting: 276230 Northing: 188880	Annual Volume (m^3): 8000 Max Daily Volume (m^3): 49.68 Original Application No: - Original Start Date: 15/04/2002 Expiry Date: 31/03/2029 Issue No: 5 Version Start Date: 01/05/2014 Version End Date: -
-	1636m SW	Status: Active Licence No: 21/58/61/0042 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 276230 Northing: 188880	Annual Volume (m^3): 8000 Max Daily Volume (m^3): 49.68 Original Application No: - Original Start Date: 01/05/2014 Expiry Date: 31/03/2029 Issue No: - Version Start Date: - Version End Date: -
-	1649m SW	Status: Historical Licence No: 21/58/61/0042 Details: Dust Suppression Direct Source: EAW Surface Water Point: CIVIL & MARINE SLAG CEMENT LTD QUAY AT PORT TALBOT DOCKS Data Type: Point Name: Civil and Marine Ltd Easting: 276240 Northing: 188860	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 49.68 Original Application No: - Original Start Date: 15/04/2002 Expiry Date: 14/04/2017 Issue No: 3 Version Start Date: 12/09/2008 Version End Date: -
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Non Evaporative Cooling - Low Direct Source: - Point: - Data Type: Point Name: - Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Non-Evaporative Cooling Direct Source: EAW Surface Water Point: PORT TALBOT DOCKS Data Type: Point Name: Tata Steel UK Limited Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): 590980 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -

ID	Location	Details	
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Process Water Direct Source: EAW Surface Water Point: PORT TALBOT DOCKS Data Type: Point Name: Tata Steel UK Limited Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): 590980 Original Application No: - Original Start Date: 25/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 12/11/2010 Version End Date: -
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Non Evaporative Cooling - Low Direct Source: - Point: - Data Type: Point Name: - Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): 590980 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1737m S	Status: Historical Licence No: 21/58/61/0012 Details: Process Water - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 276890 Northing: 188590	Annual Volume (m^3): 206615700 Max Daily Volume (m^3): 590980 Original Application No: - Original Start Date: 12/11/2010 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	1

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 50 >**

ID	Location	Details	
-	1512m N	Status: Historical Licence No: 21/58/61/0043 Details: Water Bottling Direct Source: EAW Groundwater Point: UNNAMED SPRING Data Type: Point Name: Ms Powell & Mr Spackman Easting: 277170 Northing: 191880	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2017 Issue No: 1 Version Start Date: 20/11/2004 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	0

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

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

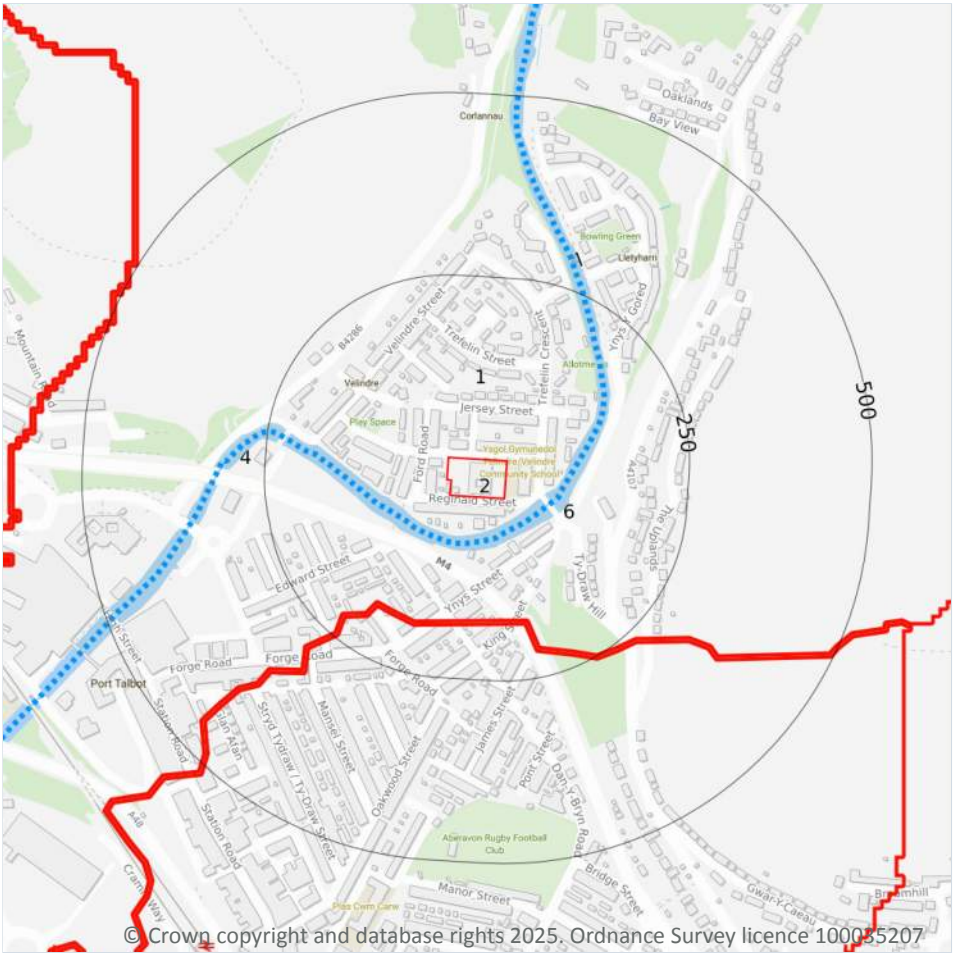
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	3

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 58 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
4	42m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Afan

ID	Location	Type of water feature	Ground level	Permanence	Name
6	74m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	74m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Afan

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**3**

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 58 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

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 58 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River WB catchment**	**Afan - confluence with Pelenna to tidal limit**	**GB110058026110**	**Afan**	**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 58 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
5	42m SE	River	Afan - confluence with Pelenna to tidal limit	GB110058026110	Good	Good	Good	2016

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

6.5 WFD Groundwater bodies

Records on site	1

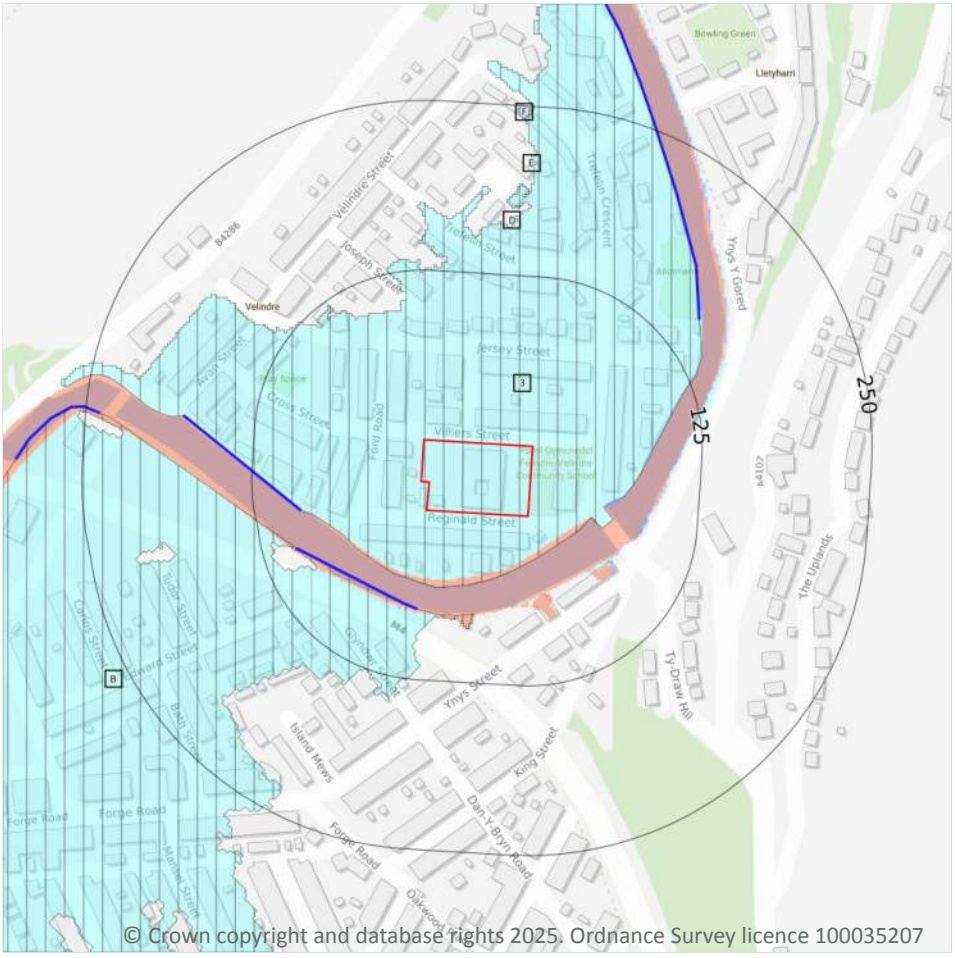
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 58 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Swansea Carboniferous Coal Measures**	**GB41002G201000**	**Poor**	**Poor**	**Good**	**2017**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	15

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

Features are displayed on the River and coastal flooding map on **page 61 >**

Distance	Flood risk category
On site	**Low**
0 - 50m	High

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	**4**

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.

Features are displayed on the River and coastal flooding map on **page 61 >**

ID	Location	Update
A	69m SW	08/11/2022
A	91m W	08/11/2022
A	154m NE	08/11/2022
A	239m W	08/11/2022

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	**5**

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.

Features are displayed on the River and coastal flooding map on **page 61 >**

ID	Location	
3	**On site**	**Area benefiting from flood defences**
B	69m SW	Area benefiting from flood defences
D	164m N	Area benefiting from flood defences
E	207m N	Area benefiting from flood defences
F	241m N	Area benefiting from flood defences

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

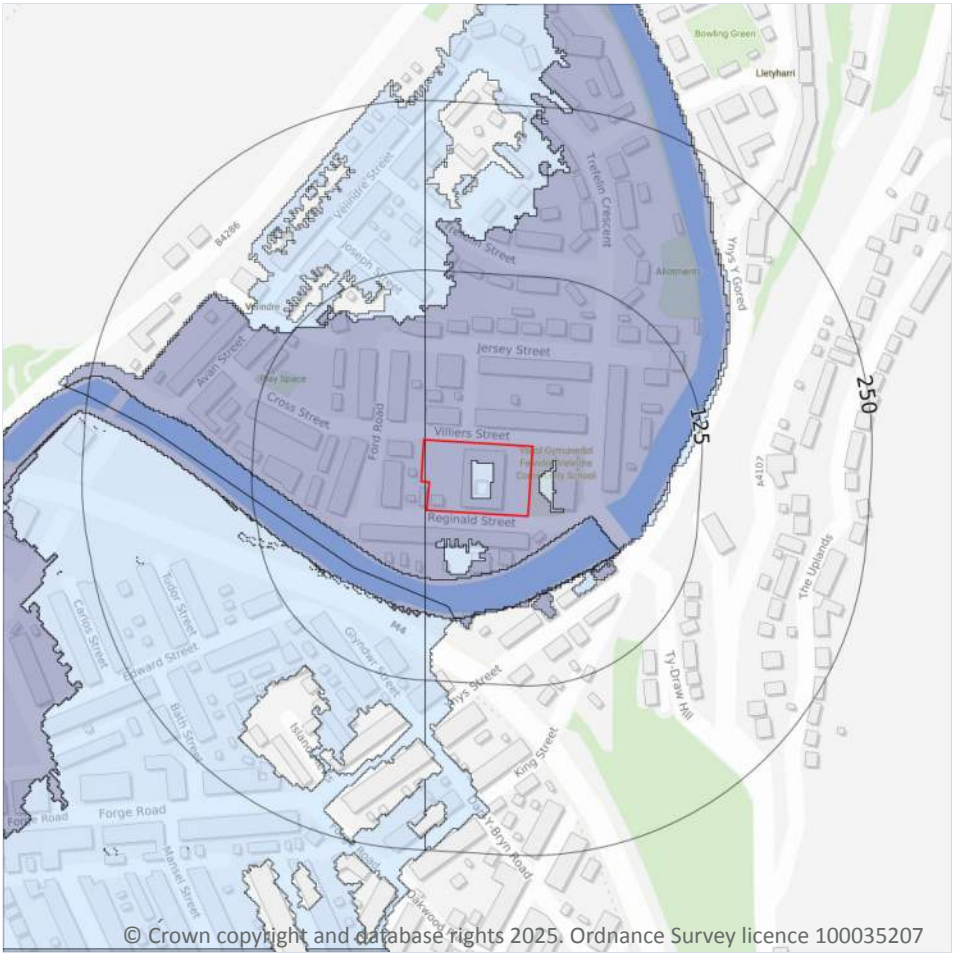
7.5 Flood Storage Areas

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	1

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.

Features are displayed on the River and coastal flooding map on **page 61 >**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

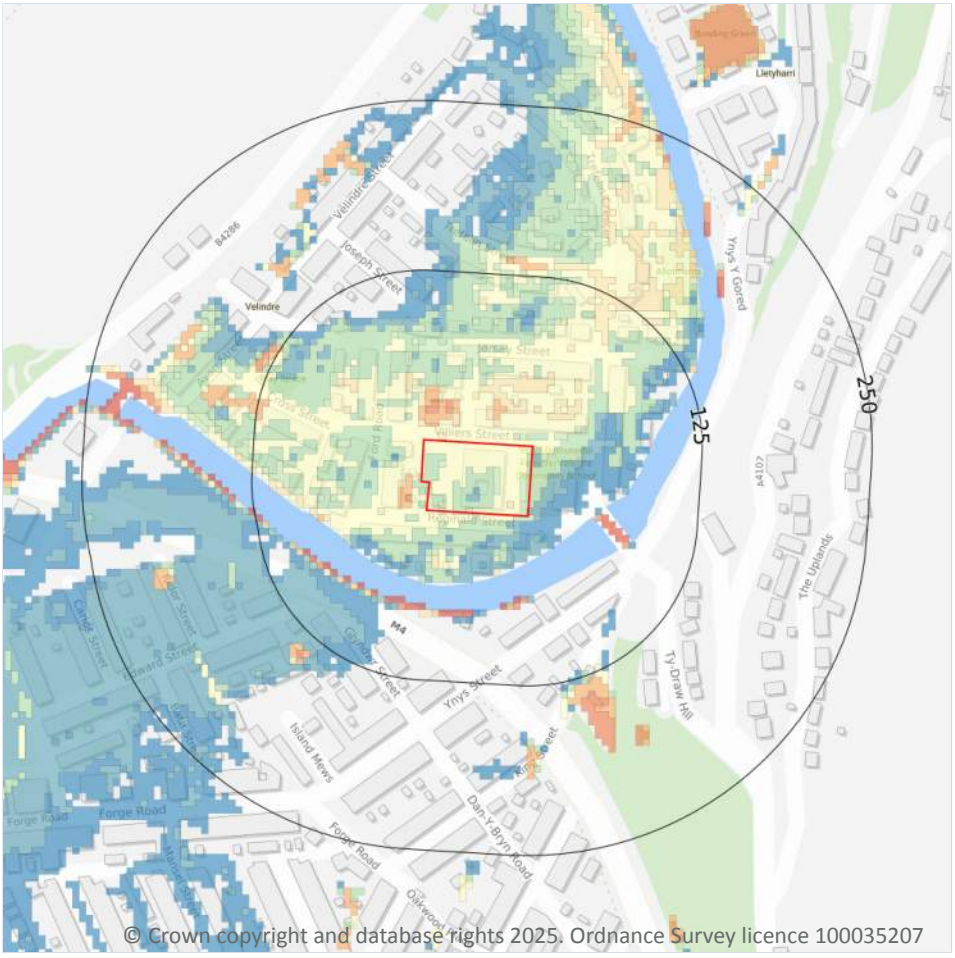
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 61 >**

Location	Type
On site	**Zone 3 - (Fluvial /Tidal Models)**

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 100 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 66 >**

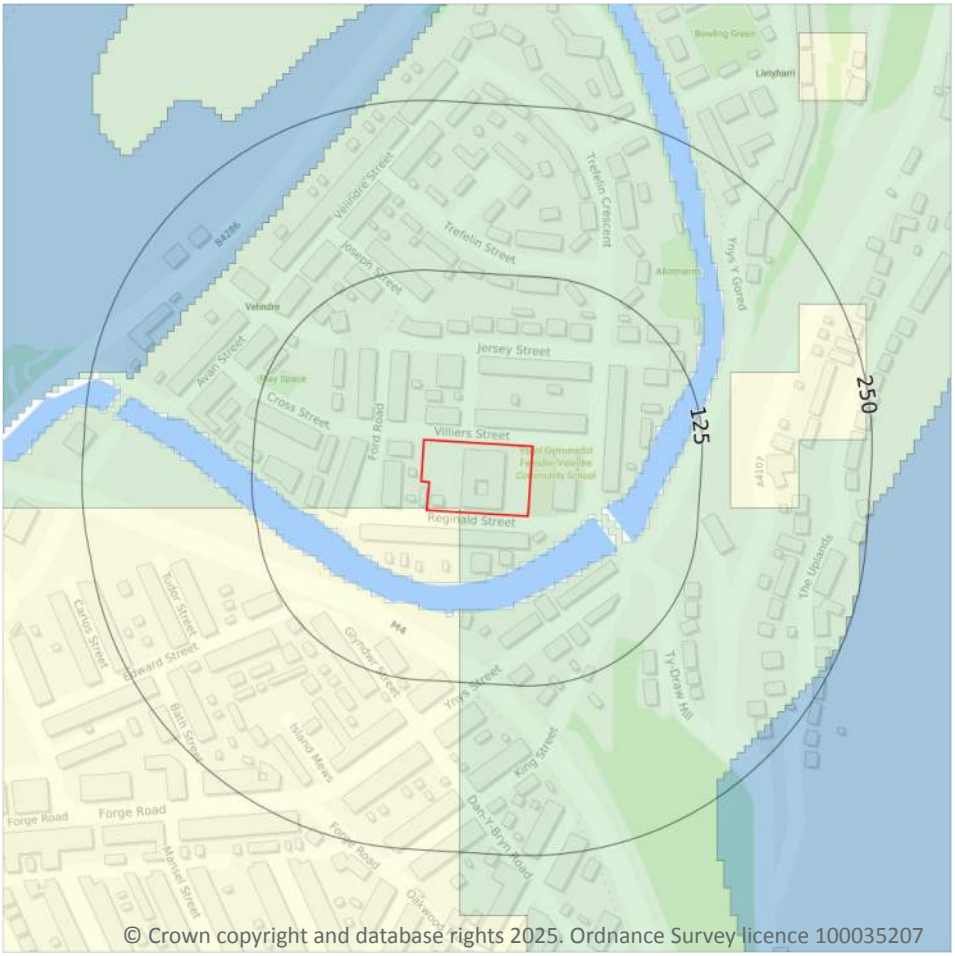
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

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

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

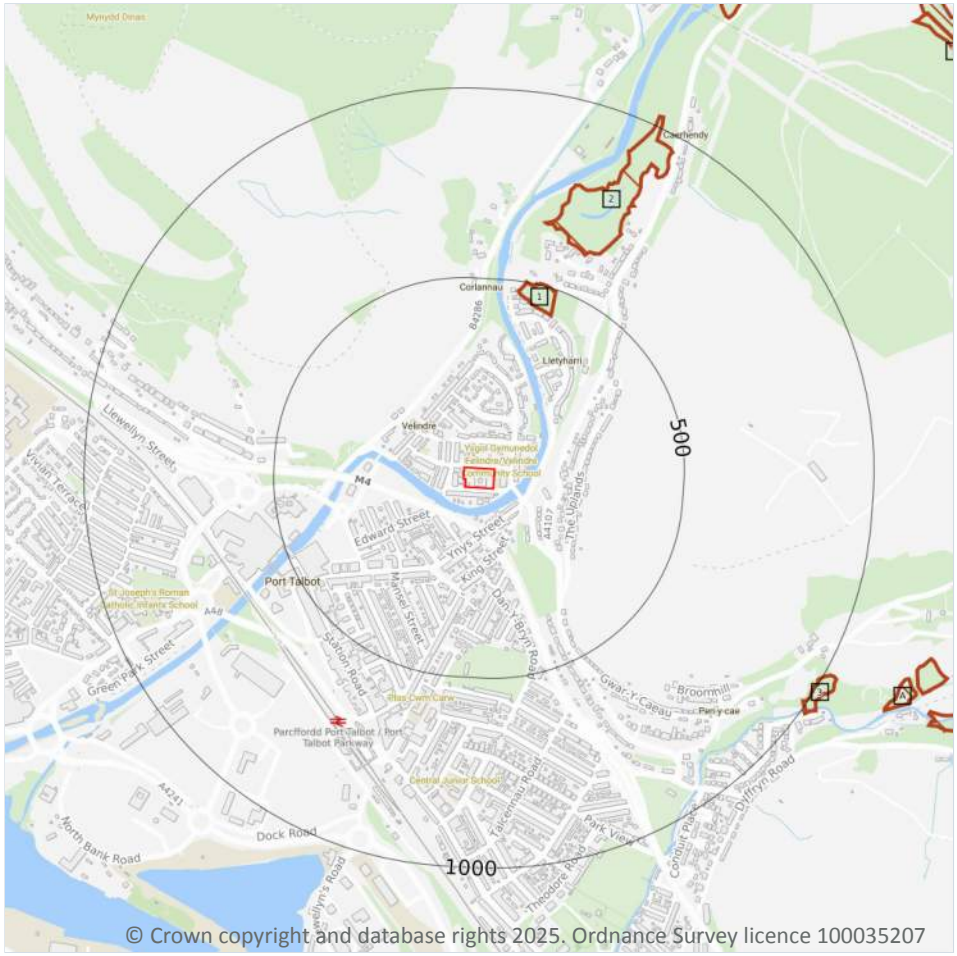
Highest risk on site	**Moderate**
Highest risk within 50m	**Moderate**

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

Features are displayed on the Groundwater flooding map on **page 68 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	40

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

Features are displayed on the Environmental designations map on **page 69 >**

ID	Location	Name	Woodland Type
1	432m NE	Unknown	Ancient Semi Natural Woodland
2	613m NE	Unknown	Ancient Semi Natural Woodland
3	990m SE	Unknown	Ancient Semi Natural Woodland
A	1183m SE	Unknown	Ancient Semi Natural Woodland
A	1216m SE	Unknown	Ancient Semi Natural Woodland
-	1276m N	Unknown	Ancient Semi Natural Woodland
5	1293m SE	Unknown	Ancient Semi Natural Woodland
6	1340m NE	Unknown	Ancient Semi Natural Woodland
-	1407m N	Unknown	Ancient Semi Natural Woodland
-	1413m E	Unknown	Ancient Semi Natural Woodland
-	1420m E	Unknown	Plantation on Ancient Woodland Site
-	1524m E	Unknown	Ancient Semi Natural Woodland
-	1550m E	Unknown	Plantation on Ancient Woodland Site
-	1554m N	Unknown	Ancient Semi Natural Woodland
-	1561m NE	Unknown	Plantation on Ancient Woodland Site
-	1562m NE	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
-	1587m N	Unknown	Ancient Semi Natural Woodland
-	1596m E	Unknown	Plantation on Ancient Woodland Site
-	1604m N	Unknown	Ancient Semi Natural Woodland
F	1616m NE	Unknown	Plantation on Ancient Woodland Site
F	1635m NE	Unknown	Ancient Semi Natural Woodland
-	1638m E	Unknown	Ancient Semi Natural Woodland
-	1647m E	Unknown	Ancient Semi Natural Woodland
-	1657m E	Unknown	Ancient Semi Natural Woodland
-	1766m E	Unknown	Ancient Semi Natural Woodland
-	1773m N	Unknown	Ancient Semi Natural Woodland
-	1779m E	Unknown	Plantation on Ancient Woodland Site
-	1823m NE	Unknown	Ancient Semi Natural Woodland
-	1839m NE	Unknown	Plantation on Ancient Woodland Site
-	1839m E	Unknown	Ancient Semi Natural Woodland
-	1840m NE	Unknown	Ancient Semi Natural Woodland
-	1868m E	Unknown	Plantation on Ancient Woodland Site
-	1889m NE	Unknown	Ancient Semi Natural Woodland
-	1899m E	Unknown	Plantation on Ancient Woodland Site
-	1924m NE	Unknown	Restored Ancient Woodland Site
-	1948m E	Unknown	Ancient Semi Natural Woodland
-	1952m NE	Unknown	Plantation on Ancient Woodland Site
-	1989m NE	Unknown	Ancient Semi Natural Woodland
-	1989m SE	Unknown	Ancient Semi Natural Woodland
-	1993m NE	Unknown	Ancient Semi Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

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

This data is sourced from Natural England.

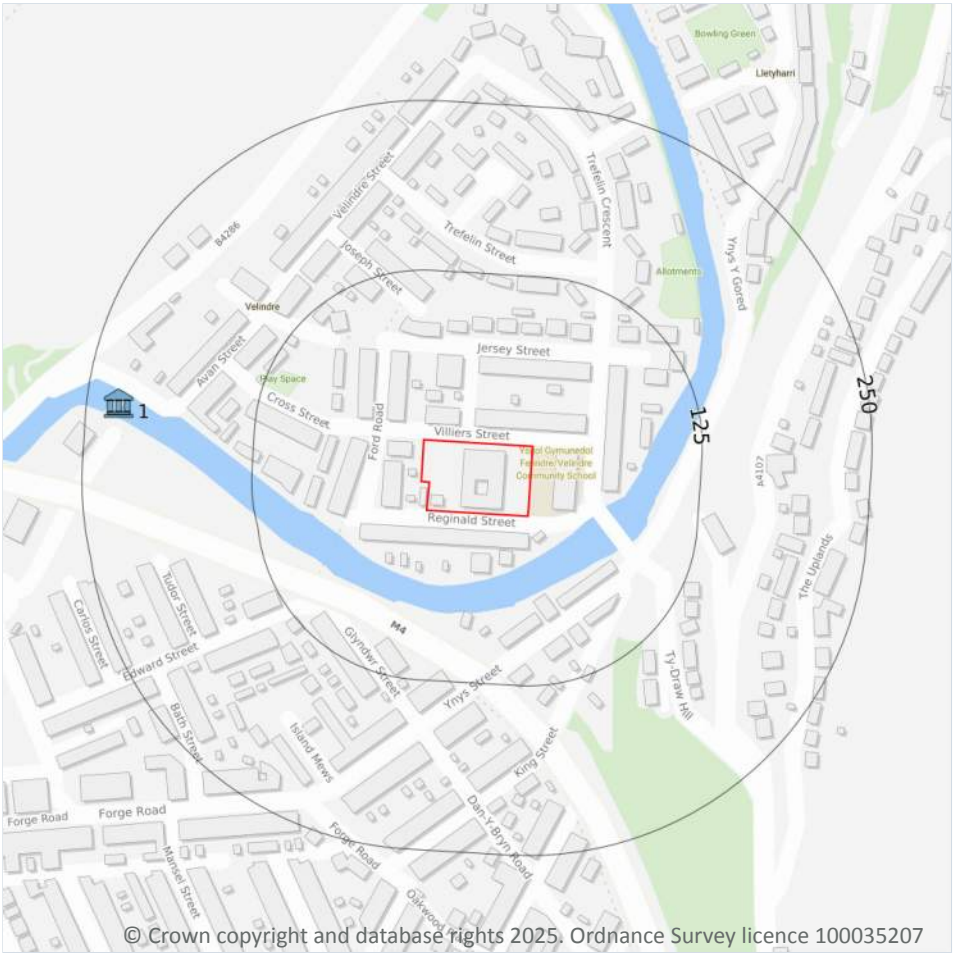
10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations



11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	1

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

Features are displayed on the Visual and cultural designations map on **page 76 >**

ID	Location	Name	Grade	Reference Number	Listed date
1	226m W	Velindre Bridge, Located At The Sw Corner Of The Settlement Of Velindre And Now Carrying A Path Which Runs Parallel With Cwmavon Road.	II	23250	28/04/2000

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

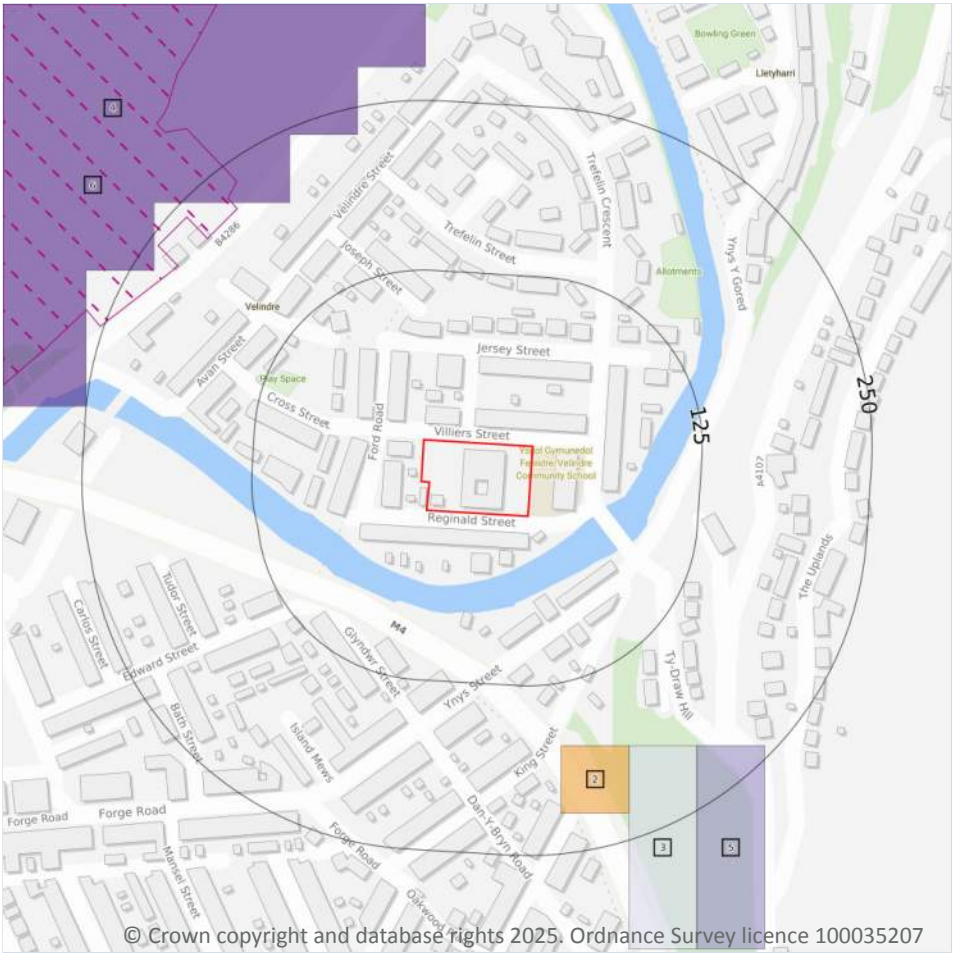
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



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12.1 Agricultural Land Classification

Records within 250m	4

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

Features are displayed on the Agricultural designations map on **page 79 >**

ID	Location	Classification	Description
2	171m S	Grade 2	Good quality agricultural land
3	185m SE	Grade 3b	Moderate quality agricultural land
4	201m NW	Grade 5	Very poor quality agricultural land

ID	Location	Classification	Description
5	210m SE	Grade 4	Poor quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	1

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

Features are displayed on the Agricultural designations map on **page 79 >**

ID	Location	Name	Classification	Other relevant legislation
6	218m NW	-	NRW Public Forest 2014	-

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

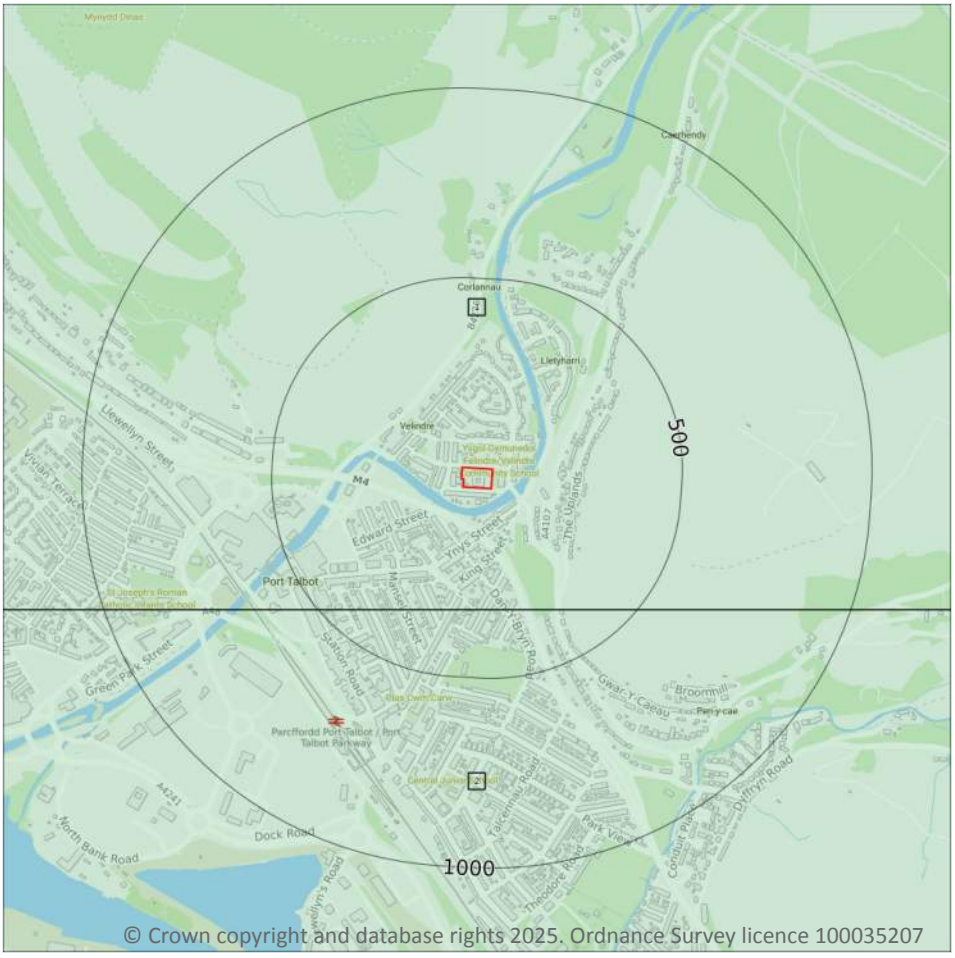
13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	2

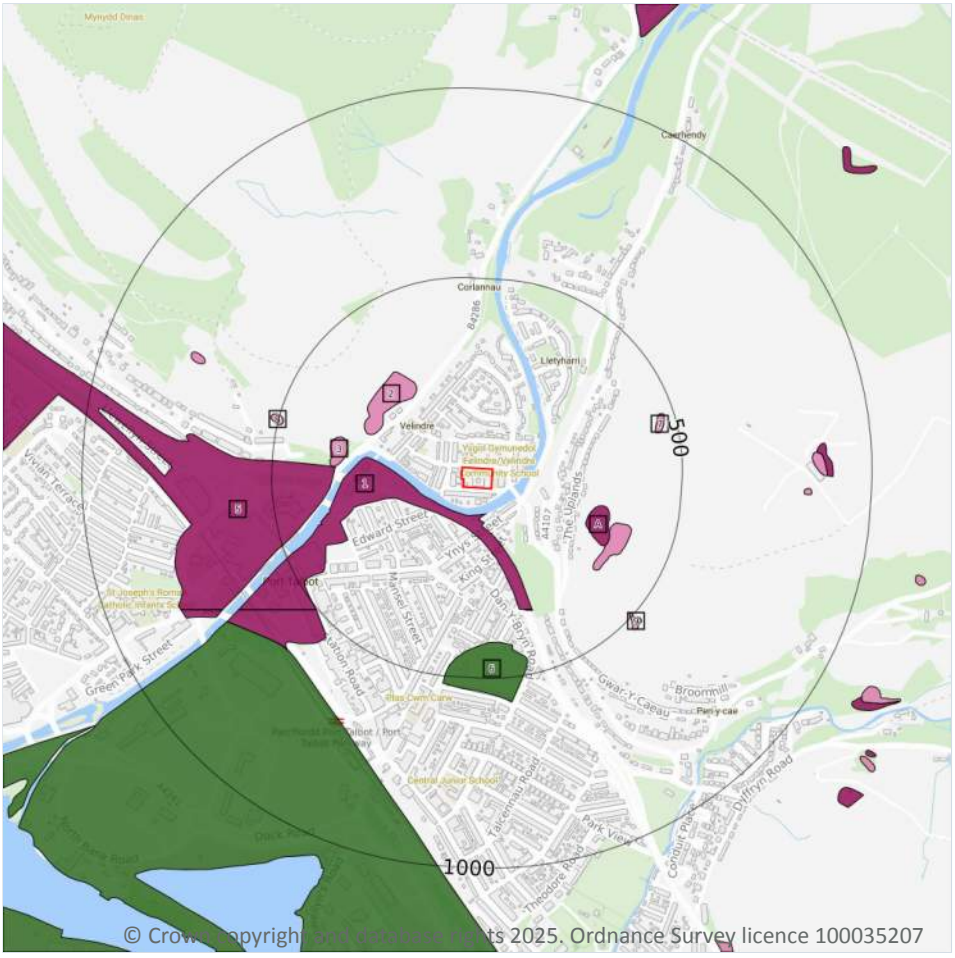
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 83 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SS79SE**
2	319m S	Full	Full	Full	Full	SS78NE

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	11

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

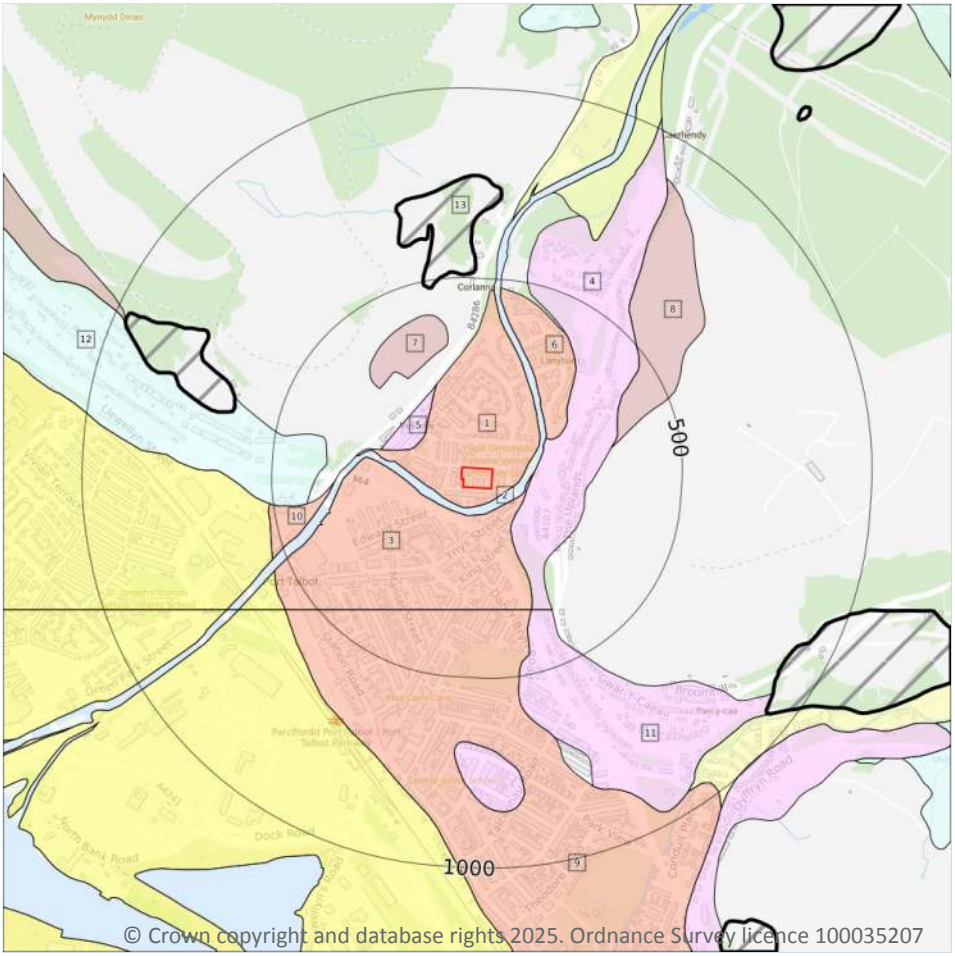
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 84 >**

ID	Location	LEX Code	Description	Rock description
1	68m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	225m NW	WGR-VOID	Worked Ground (Undivided)	Void
A	264m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	307m W	WGR-VOID	Worked Ground (Undivided)	Void

ID	Location	LEX Code	Description	Rock description
A	331m E	WGR-VOID	Worked Ground (Undivided)	Void
4	332m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	334m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	405m S	LSGR-UKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry
7	440m E	WGR-VOID	Worked Ground (Undivided)	Void
8	486m W	WGR-VOID	Worked Ground (Undivided)	Void
9	490m SE	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **12**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 86 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALF-XSV**	**Alluvial Fan Deposits - Sand And Gravel**	**Sand And Gravel**
2	28m SE	SUPNM-UKNOWN	Superficial Theme Not Mapped [for Digital Map Use Only] - Unknown/unclassified Entry	Unknown/unclassified Entry
3	53m SE	ALF-XSV	Alluvial Fan Deposits - Sand And Gravel	Sand And Gravel

ID	Location	LEX Code	Description	Rock description
4	90m SE	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
5	129m NW	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
6	163m NE	ALF-XSV	Alluvial Fan Deposits - Sand And Gravel	Sand And Gravel
7	274m NW	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
8	318m E	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
9	319m S	ALF-XSV	Alluvial Fan Deposits - Sand And Gravel	Sand And Gravel
10	336m W	ALF-XSV	Alluvial Fan Deposits - Sand And Gravel	Sand And Gravel
11	336m S	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
12	356m W	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	**1**

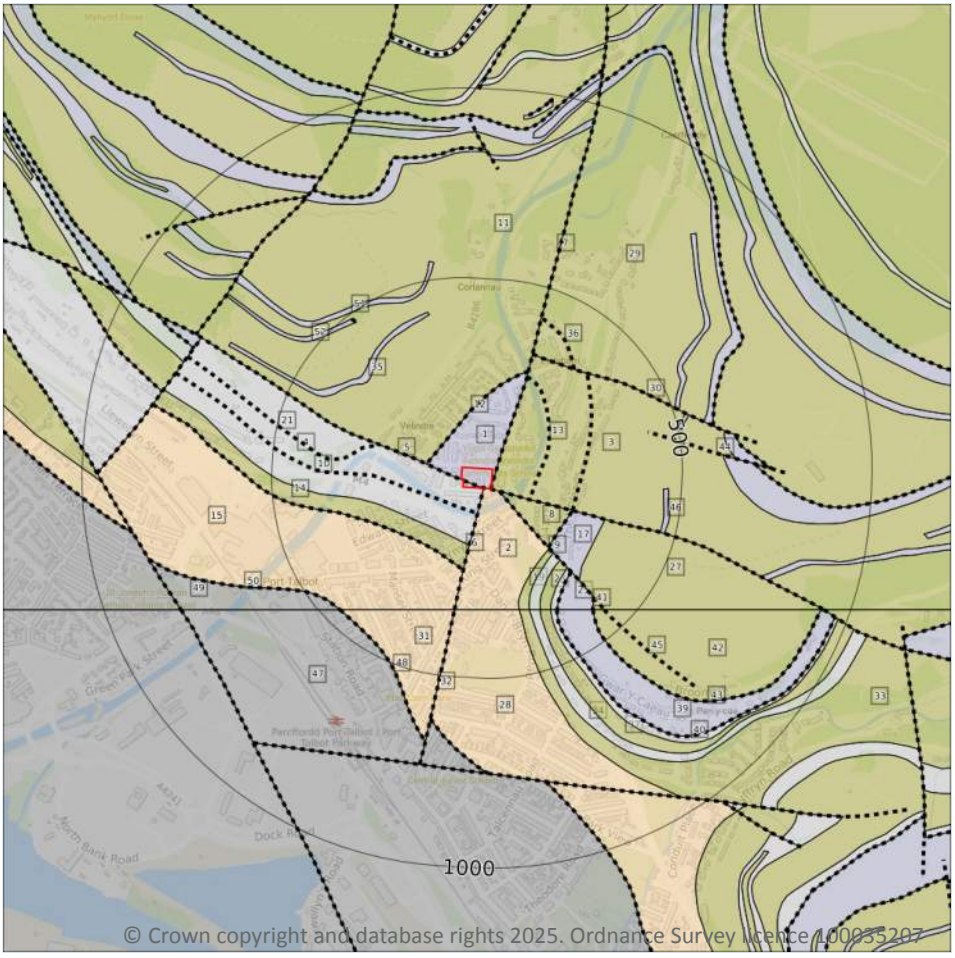
Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 86 >**

ID	Location	LEX Code	Description	Rock description
13	480m N	SLIP-UKNOWN	Landslide Deposits	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	30

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 88 >**

ID	Location	LEX Code	Description	Rock age
1	On site	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
2	On site	SWUCM-MDSS	South Wales Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age

ID	Location	LEX Code	Description	Rock age
3	**On site**	**RA-SDST**	**Rhondda Member - Sandstone**	**Westphalian D Sub-age - Bolsovian Sub-age**
4	**On site**	**LLFB-MDSS**	**Llynfi Member - Mudstone, Siltstone And Sandstone**	**Bolsovian Sub-age**
8	22m SE	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
11	78m NW	RA-SDST	Rhondda Member - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
14	131m SW	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
15	181m SW	SWUCM-MDSS	South Wales Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
17	210m SE	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
19	219m SE	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
22	236m SE	LLFB-MDSS	Llynfi Member - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age
23	262m SE	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
24	288m SE	LLFB-MDSS	Llynfi Member - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age
25	304m SE	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
27	304m SE	RA-SDST	Rhondda Member - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
28	319m S	SWUCM-MDSS	South Wales Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
29	320m NE	RA-SDST	Rhondda Member - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
31	324m S	SWUCM-MDSS	South Wales Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
33	327m S	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
34	334m S	LLFB-MDSS	Llynfi Member - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age
35	337m NW	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
37	344m SE	LLFB-SDST	Llynfi Member - Sandstone	Bolsovian Sub-age
38	355m SE	LLFB-MDSS	Llynfi Member - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age
39	363m SE	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age

ID	Location	LEX Code	Description	Rock age
42	417m SE	RA-SDST	Rhondda Member - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
46	453m E	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
47	457m SW	SWMCM-MDSS	South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
49	458m SW	SWMCM-MDSS	South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
51	461m N	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
52	474m NW	RA-MDSS	Rhondda Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m **23**

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

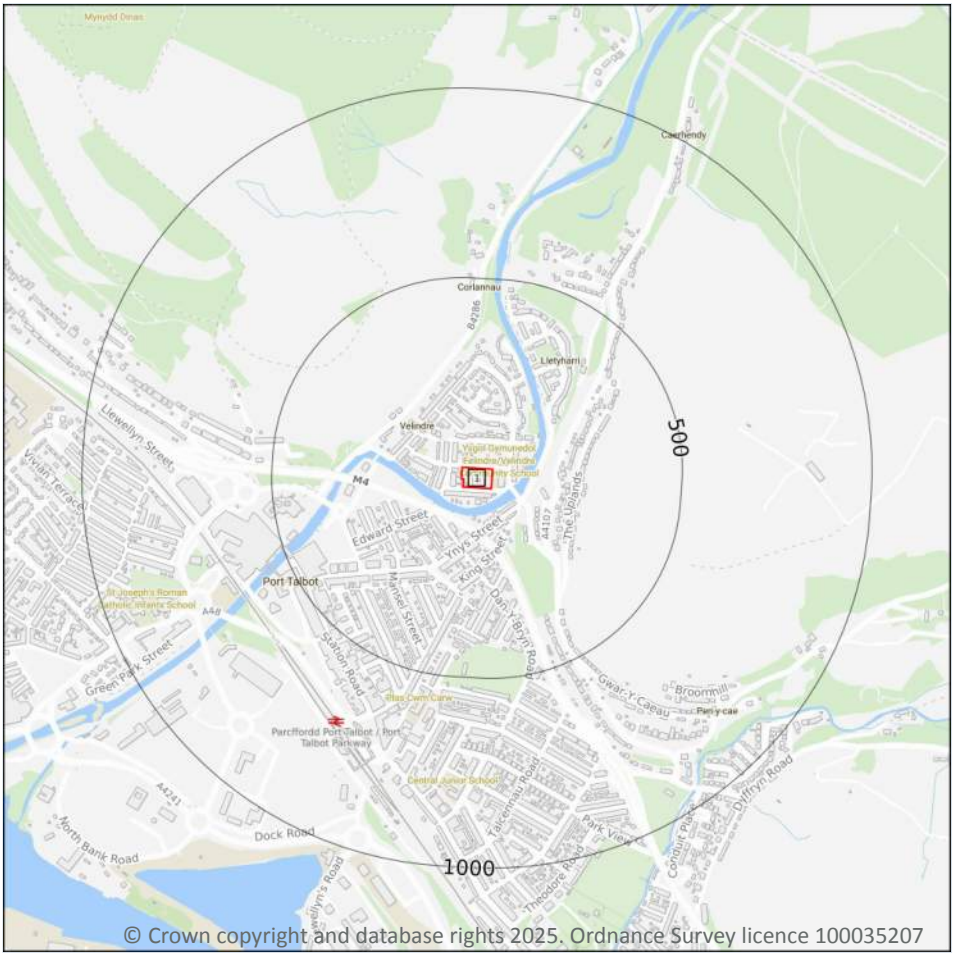
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 88 >**

ID	Location	Category	Description
5	**On site**	**FAULT**	**Normal fault, inferred**
6	**On site**	**FAULT**	**Normal fault, inferred**
7	**On site**	**FAULT**	**Normal fault, inferred**
9	22m SE	FAULT	Normal fault, inferred
10	54m SW	ROCK	Coal seam, inferred (WERNDDU (CONJECTURAL))
12	78m NW	ROCK	Coal seam, inferred (FIELD CONJECTURAL)
13	106m E	ROCK	Coal seam, inferred (WERNDDU)
16	181m SW	ROCK	Coal seam, inferred ()
18	210m SE	ROCK	Coal seam, inferred ()
20	222m E	ROCK	Coal seam, inferred (FIELD)

ID	Location	Category	Description
21	225m W	ROCK	Coal seam, inferred (FIELD)
26	304m SE	ROCK	Coal seam, inferred (WERNDDU)
30	320m NE	FAULT	Normal fault, inferred
32	324m S	FAULT	Normal fault, inferred
36	340m NE	ROCK	Coal seam, inferred ()
40	363m SE	ROCK	Coal seam, inferred (WERNDDU)
41	393m SE	ROCK	Coal seam, inferred (FIELD)
43	417m SE	ROCK	Coal seam, inferred (FIELD)
44	421m E	FAULT	Normal fault, inferred
45	436m SE	FAULT	Normal fault, inferred
48	457m SW	FOSSIL_HORIZON	Fossil horizon, marine band (UCGMB (CONJECTURAL))
50	458m SW	FOSSIL_HORIZON	Fossil horizon, marine band (UCGMB (CONJECTURAL))
53	474m NW	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

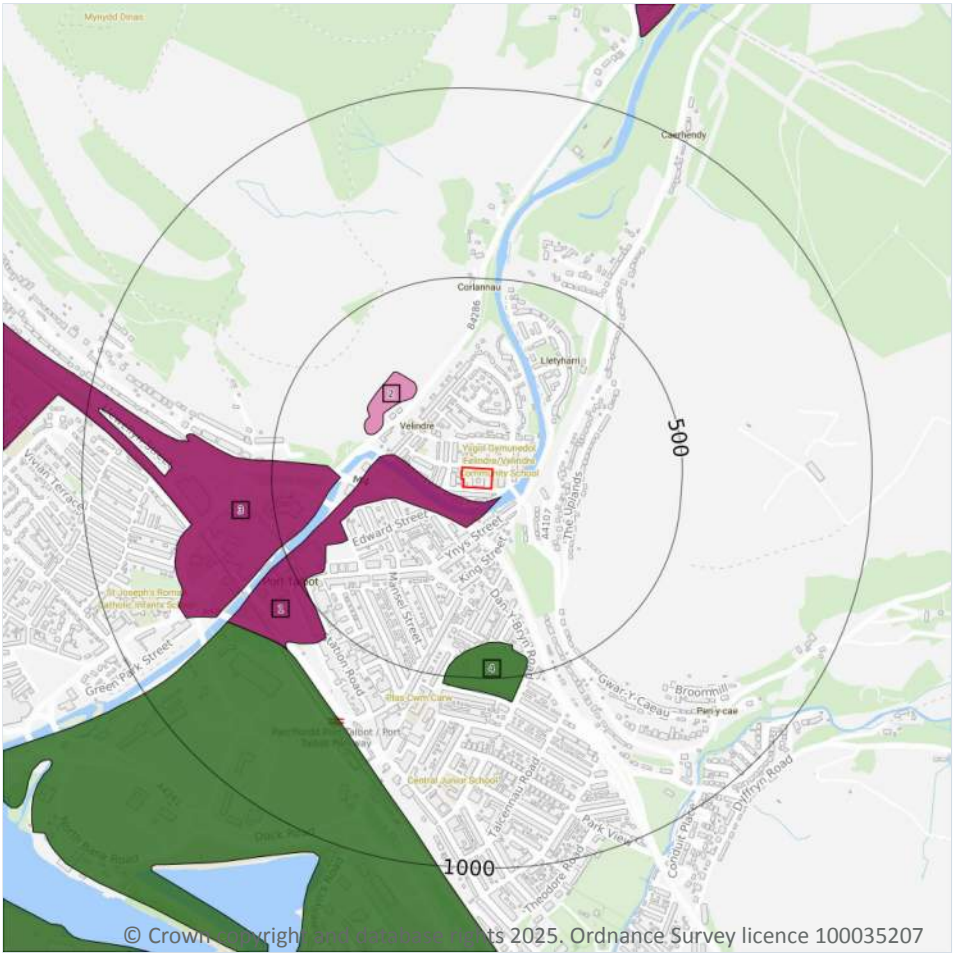
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 92 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW247_swansea_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m **4**

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 93 >**

ID	Location	LEX Code	Description	Rock description
1	27m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	225m NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
3	319m W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	405m S	LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

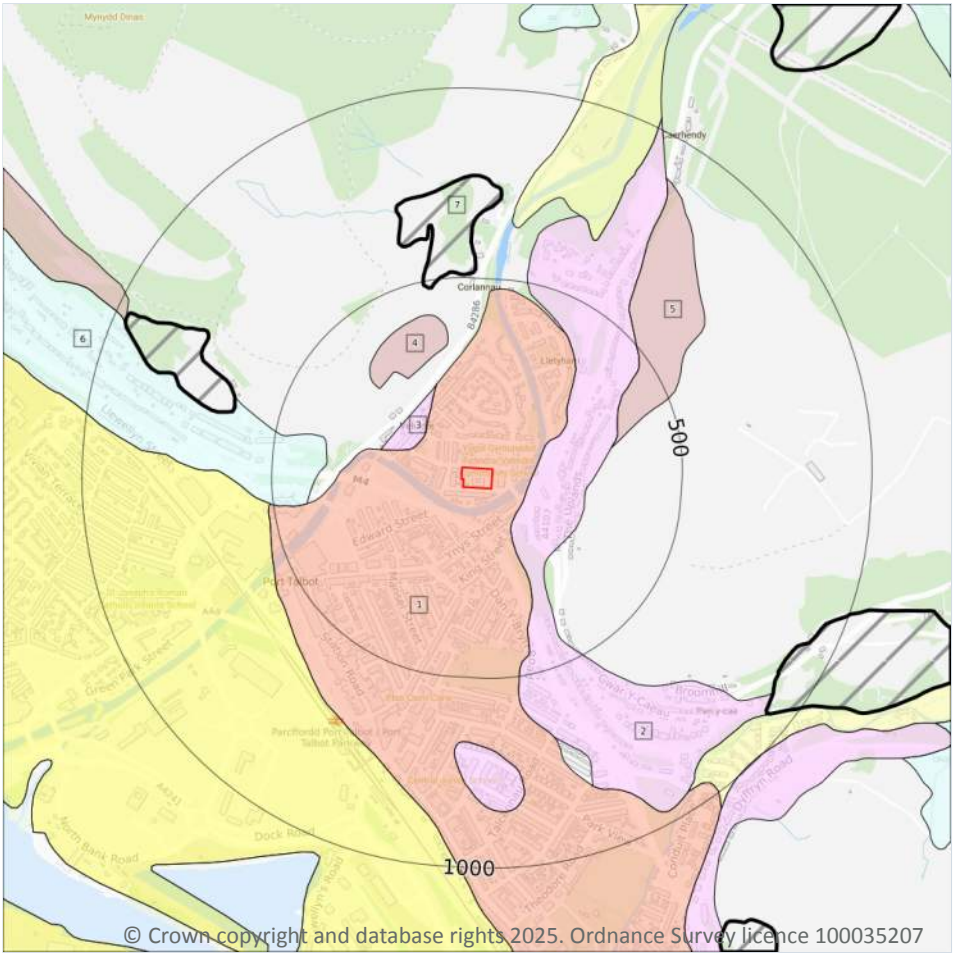
Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
27m S	Mixed	Very High	Low

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **6**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 95 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALF-XSV**	**ALLUVIAL FAN DEPOSITS**	**SAND AND GRAVEL**
2	90m SE	GFICD-XSV	GLACIOFLUVIAL ICE CONTACT DEPOSITS, DEVENSIAN	SAND AND GRAVEL
3	129m NW	GFICD-XSV	GLACIOFLUVIAL ICE CONTACT DEPOSITS, DEVENSIAN	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
4	274m NW	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
5	318m E	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
6	356m W	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m **1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Very High**	**High**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m **1**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 95 >**

ID	Location	LEX Code	Description	Rock description
7	480m N	SLIP-UKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

This data is sourced from the British Geological Survey.

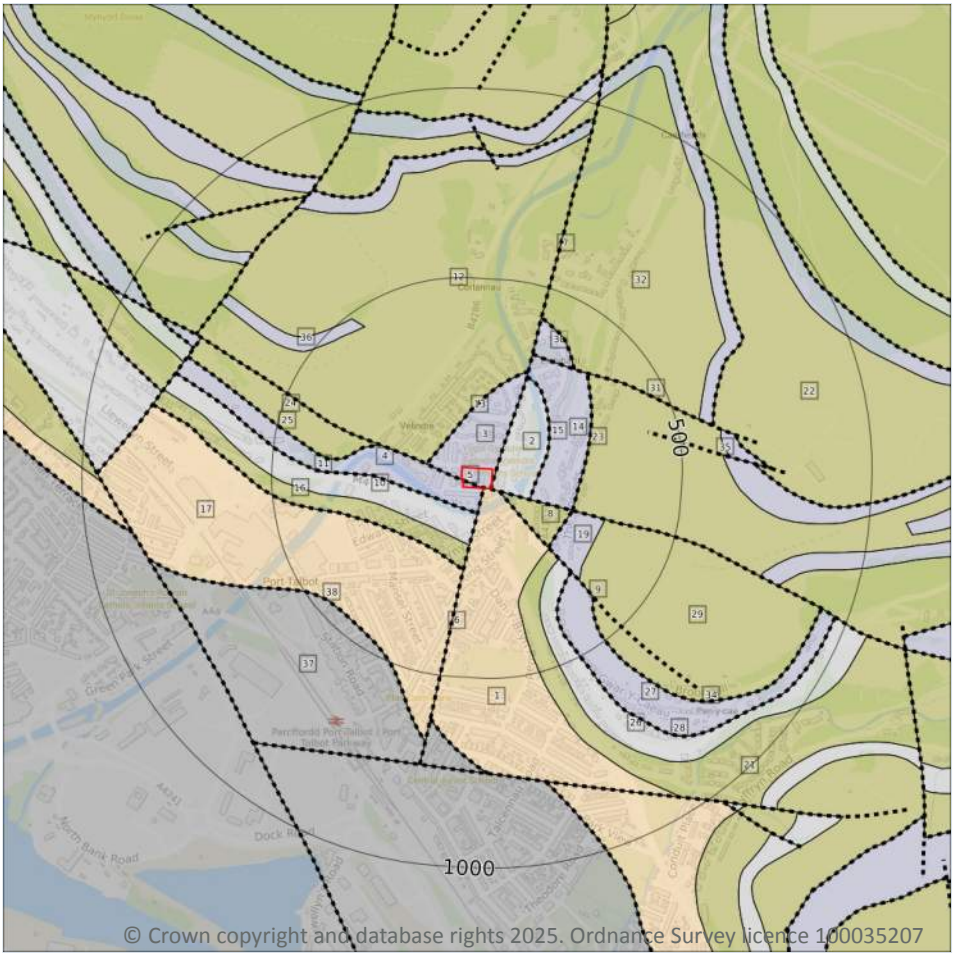
15.7 Landslip permeability (50k)

Records within 50m **0**

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **21**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 97 >**

ID	Location	LEX Code	Description	Rock age
1	On site	SWUCM-MDSS	SOUTH WALES UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	On site	LLFB-MDSS	LLYNFI MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
3	**On site**	**RA-MDSS**	**RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
4	**On site**	**RA-MDSS**	**RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
8	22m SE	LLFB-SDST	LLYNFI MEMBER - SANDSTONE	WESTPHALIAN
10	54m SW	LLFB-MDSS	LLYNFI MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	78m NW	RA-SDST	RHONDDA MEMBER - SANDSTONE	WESTPHALIAN
14	106m E	RA-MDSS	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16	131m SW	LLFB-SDST	LLYNFI MEMBER - SANDSTONE	WESTPHALIAN
17	181m SW	SWUCM-MDSS	SOUTH WALES UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
19	210m SE	RA-MDSS	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	219m SE	LLFB-SDST	LLYNFI MEMBER - SANDSTONE	WESTPHALIAN
22	222m E	RA-SDST	RHONDDA MEMBER - SANDSTONE	WESTPHALIAN
24	225m W	RA-SDST	RHONDDA MEMBER - SANDSTONE	WESTPHALIAN
26	257m SE	LLFB-MDSS	LLYNFI MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
27	304m SE	RA-MDSS	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
29	304m SE	RA-SDST	RHONDDA MEMBER - SANDSTONE	WESTPHALIAN
30	320m NE	RA-MDSS	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
32	340m NE	RA-SDST	RHONDDA MEMBER - SANDSTONE	WESTPHALIAN
36	451m NW	RA-MDSS	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
37	457m SW	SWMCM-MDSS	SOUTH WALES MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**
22m E	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	17

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

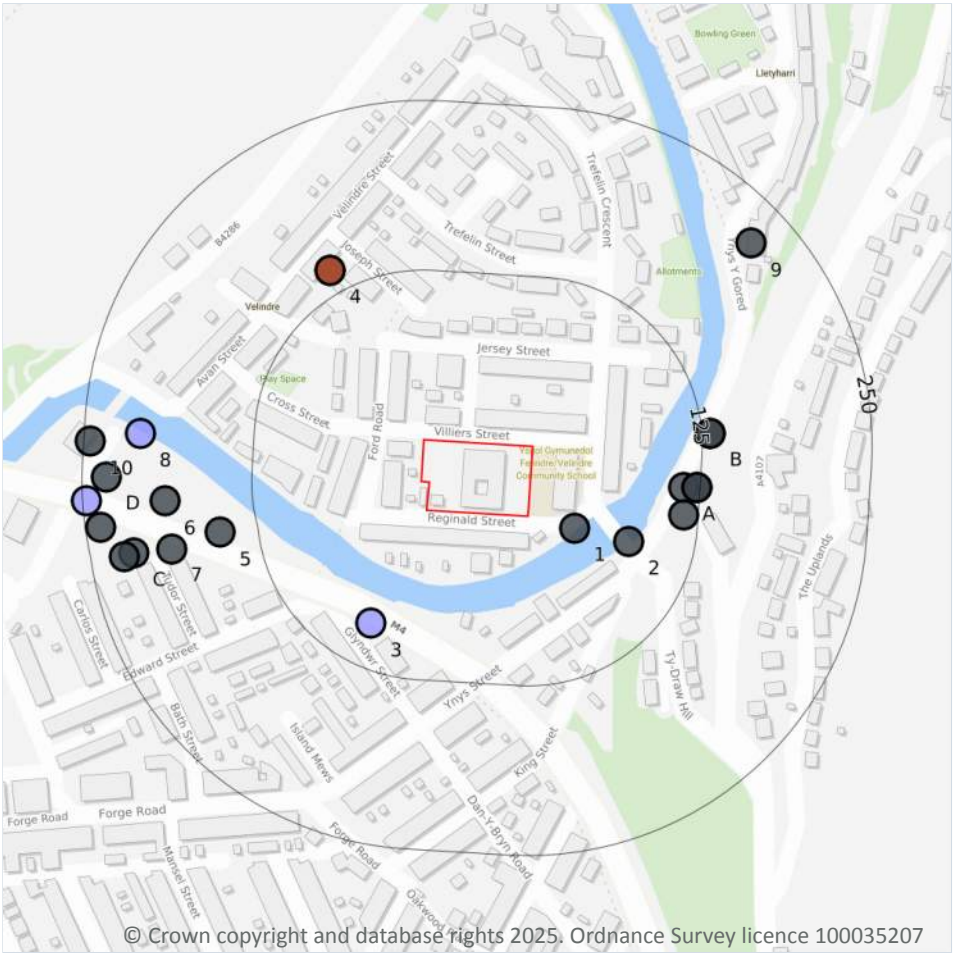
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 97 >**

ID	Location	Category	Description
5	**On site**	**FAULT**	**Fault, inferred, displacement unknown**
6	**On site**	**FAULT**	**Fault, inferred, displacement unknown**
7	**On site**	**FAULT**	**Fault, inferred, displacement unknown**
9	22m SE	FAULT	Fault, inferred, displacement unknown
11	54m SW	ROCK	Coal seam, inferred
13	78m NW	ROCK	Coal seam, inferred
15	106m E	ROCK	Coal seam, inferred
18	181m SW	ROCK	Coal seam, inferred
20	210m SE	ROCK	Coal seam, inferred
23	222m E	ROCK	Coal seam, inferred
25	225m W	ROCK	Coal seam, inferred
28	304m SE	ROCK	Coal seam, inferred
31	320m NE	FAULT	Fault, inferred, displacement unknown

ID	Location	Category	Description
33	340m NE	ROCK	Coal seam, inferred
34	393m SE	ROCK	Coal seam, inferred
35	421m E	FAULT	Fault, inferred, displacement unknown
38	457m SW	FOSSIL_HORIZON	Marine band

This data is sourced from the British Geological Survey.

16 Boreholes



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16.1 BGS Boreholes

Records within 250m	21

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

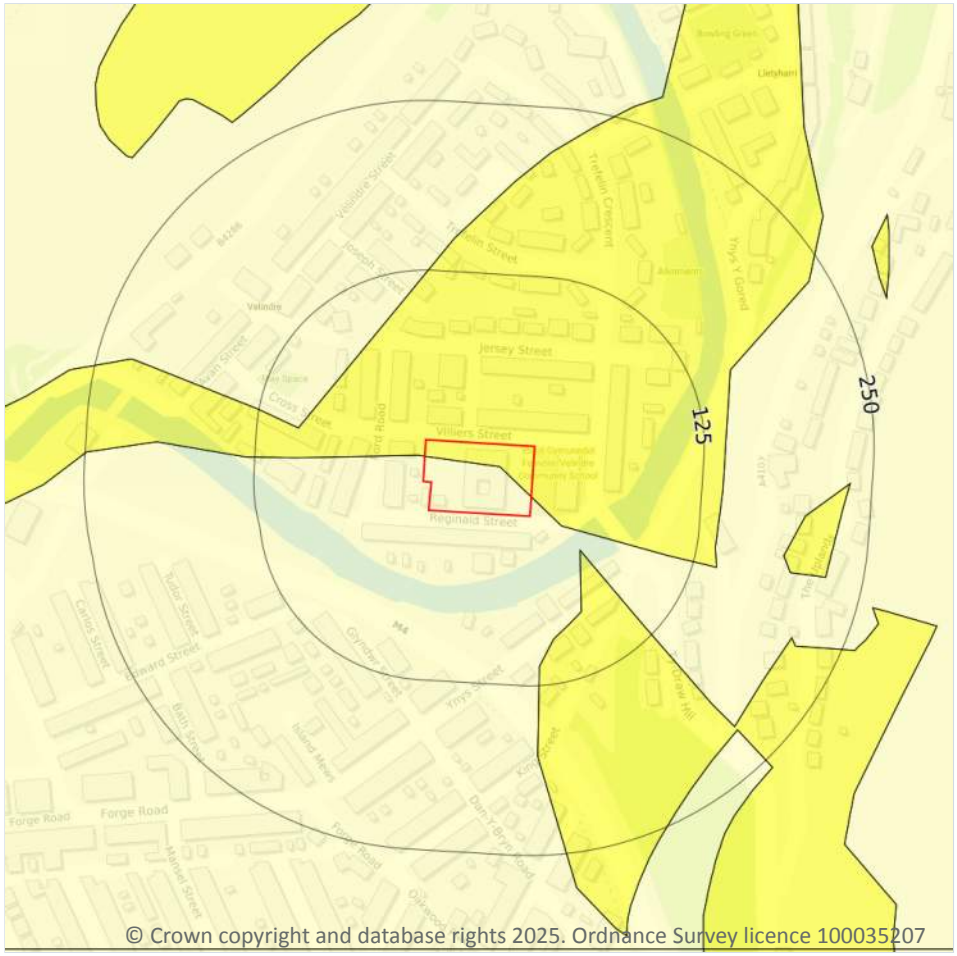
Features are displayed on the Boreholes map on **page 101 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	36m SE	277110 190310	VELINDRE BRIDGE PORT TALBOT 1	-	Y	N/A
2	77m SE	277150 190300	VELINDRE BRIDGE PORT TALBOT 2	-	Y	N/A
3	93m SW	276960 190240	PORT TALBOT BYPASS. 230	7.19	N	371533 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	113m E	277190 190340	RUTHERGLEN YARD PORT TALBOT TP A16	-	Y	N/A
A	114m E	277190 190320	RUTHERGLEN YARD PORT TALBOT P4	-	Y	N/A
A	123m E	277200 190340	RUTHERGLEN YARD PORT TALBOT P6	-	Y	N/A
A	123m E	277200 190340	RUTHERGLEN YARD PORT TALBOT P3	-	Y	N/A
B	131m E	277210 190380	RUTHERGLEN YARD PORT TALBOT TP A15	-	Y	N/A
B	131m E	277210 190380	RUTHERGLEN YARD PORT TALBOT P1	-	Y	N/A
4	143m NW	276930 190500	LAUNDRY, PORT TALBOT	-1.0	N	372029 ↗
5	153m W	276849 190307	EAST BANK HIGH STREET PORT TALBOT TP 17	-	Y	N/A
6	190m W	276808 190330	EAST BANK HIGH STREET PORT TALBOT TP 16	-	Y	N/A
7	190m W	276813 190295	EAST BANK HIGH STREET PORT TALBOT TP 13	-	Y	N/A
8	209m W	276790 190380	RIVER AFAN PORT TALBOT 6	5.0	N	371801 ↗
C	218m W	276785 190292	EAST BANK HIGH STREET PORT TALBOT 6	-	Y	N/A
9	220m NE	277240 190520	RUTHERGLEN YARD PORT TALBOT TP A14	-	Y	N/A
C	226m W	276778 190289	EAST BANK HIGH STREET PORT TALBOT DH 6	-	Y	N/A
D	232m W	276765 190348	EAST BANK HIGH STREET PORT TALBOT TP 15	-	Y	N/A
D	238m W	276761 190311	EAST BANK HIGH STREET PORT TALBOT TP 12	-	Y	N/A
10	245m W	276753 190374	EAST BANK HIGH STREET PORT TALBOT TP 14	-	Y	N/A
D	247m W	276750 190330	PORT TALBOT BYPASS. 229	7.5	N	371532 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	3

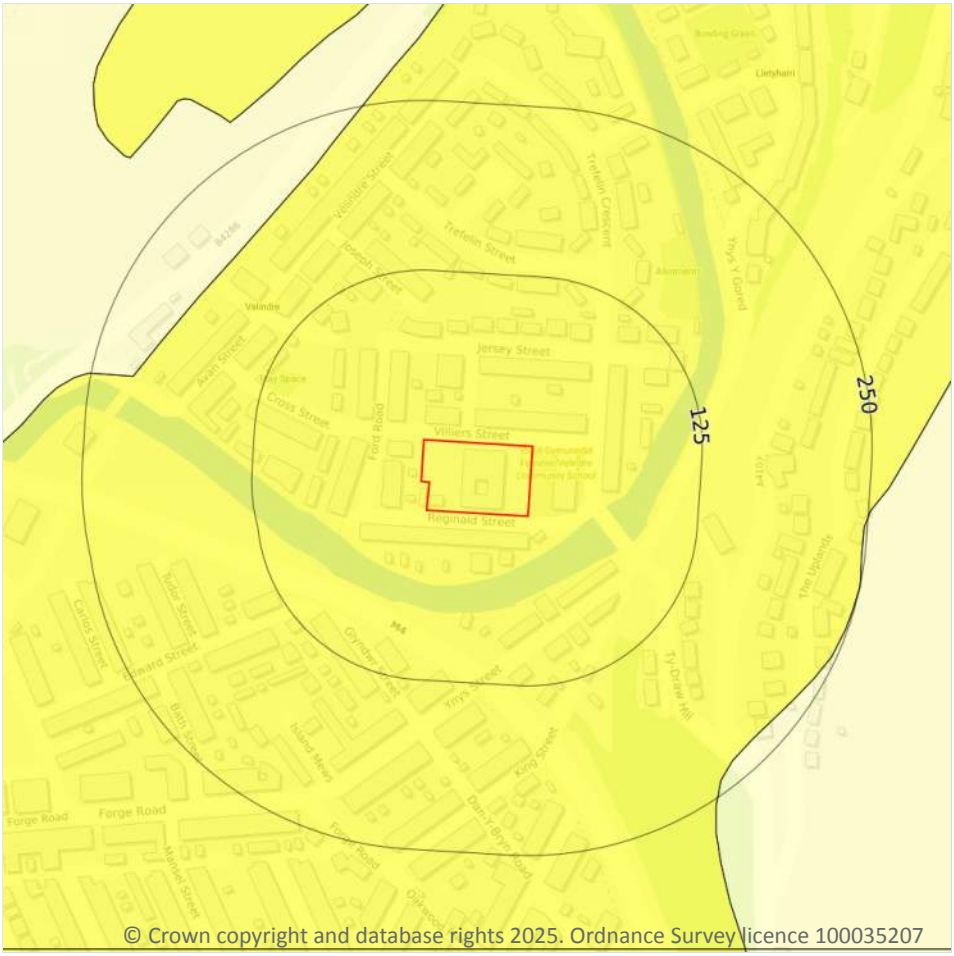
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 103 >**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Very low**	**Ground conditions predominantly low plasticity.**
45m SE	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

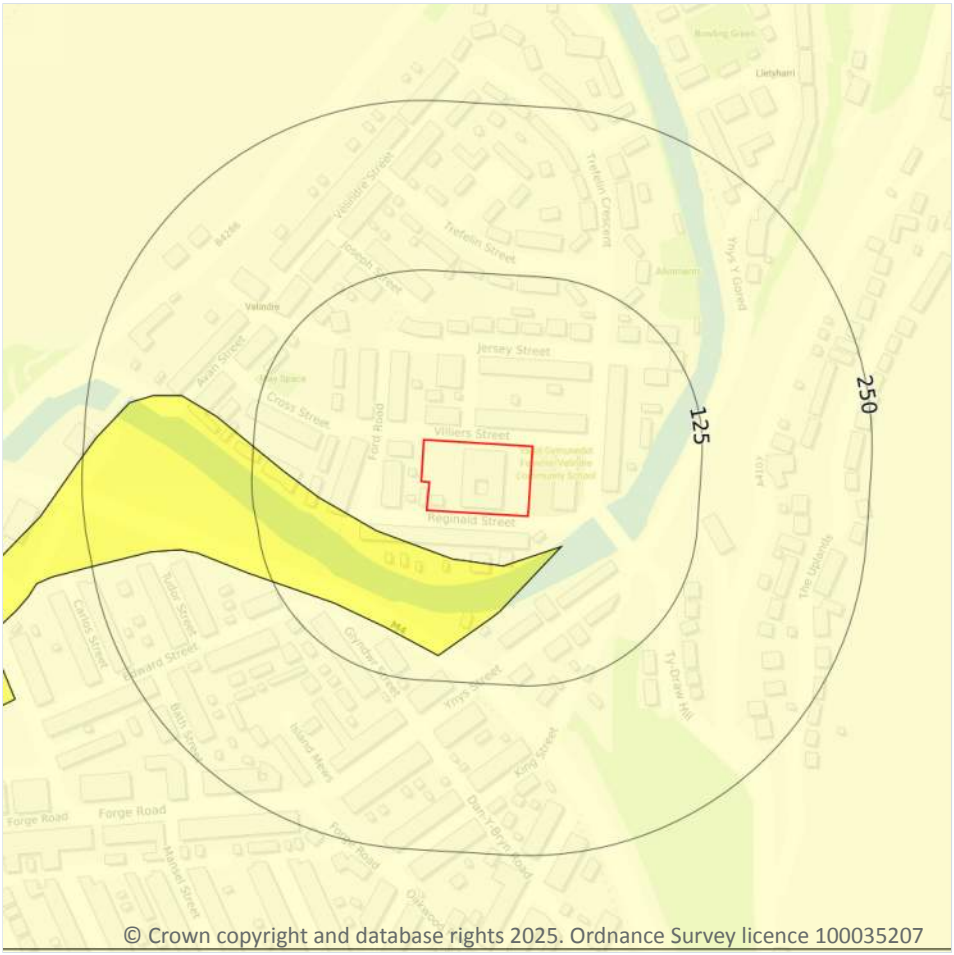
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 105 >**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	2

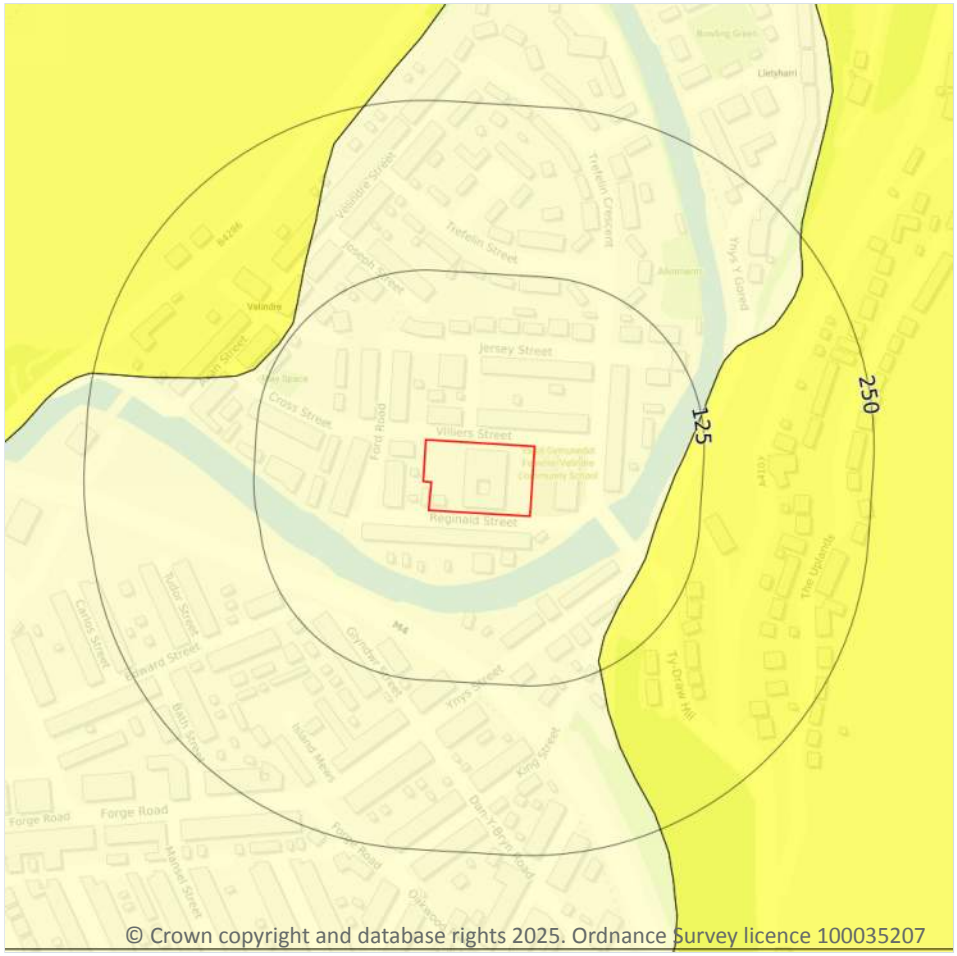
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 106 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
27m SW	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

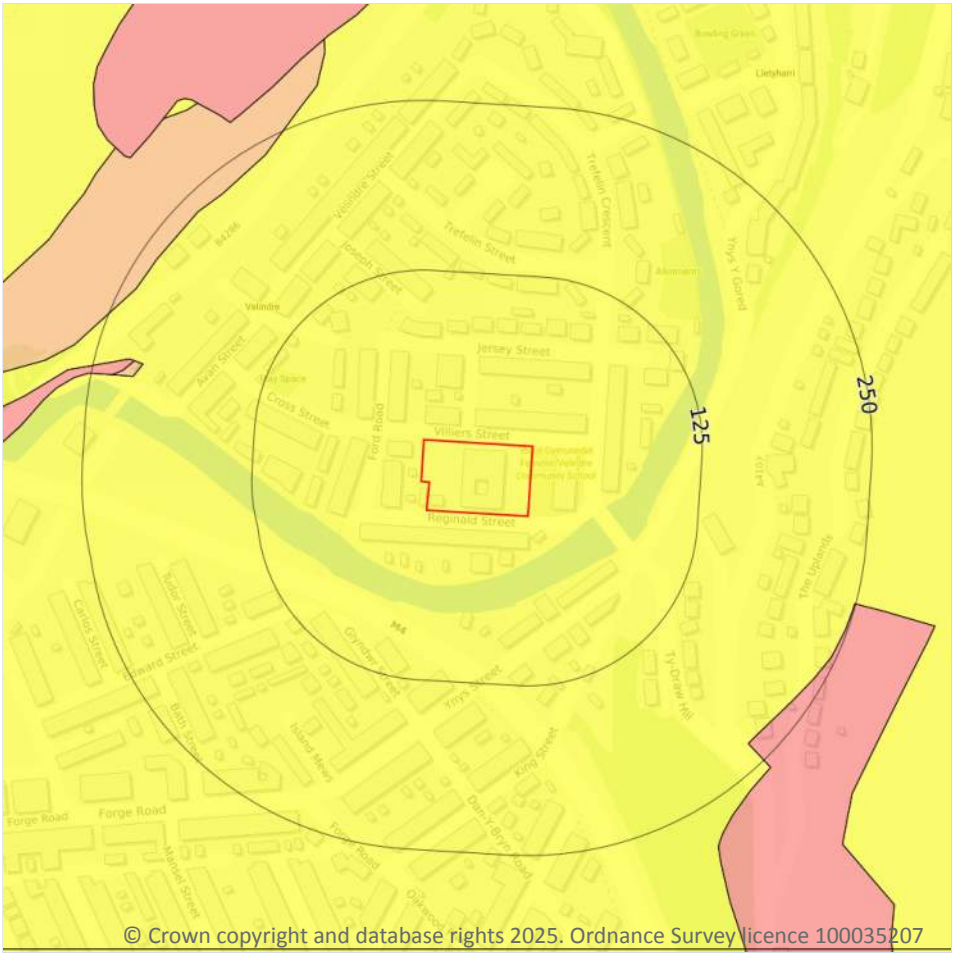
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 108 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

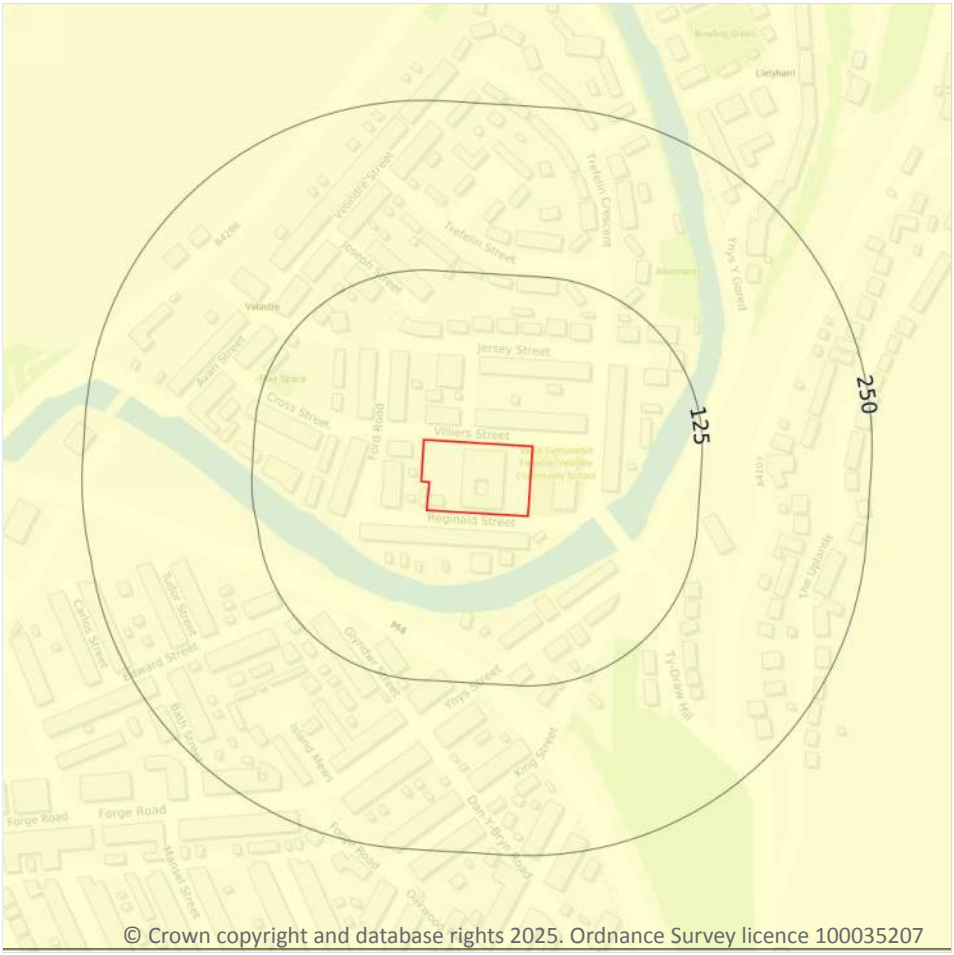
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 109 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

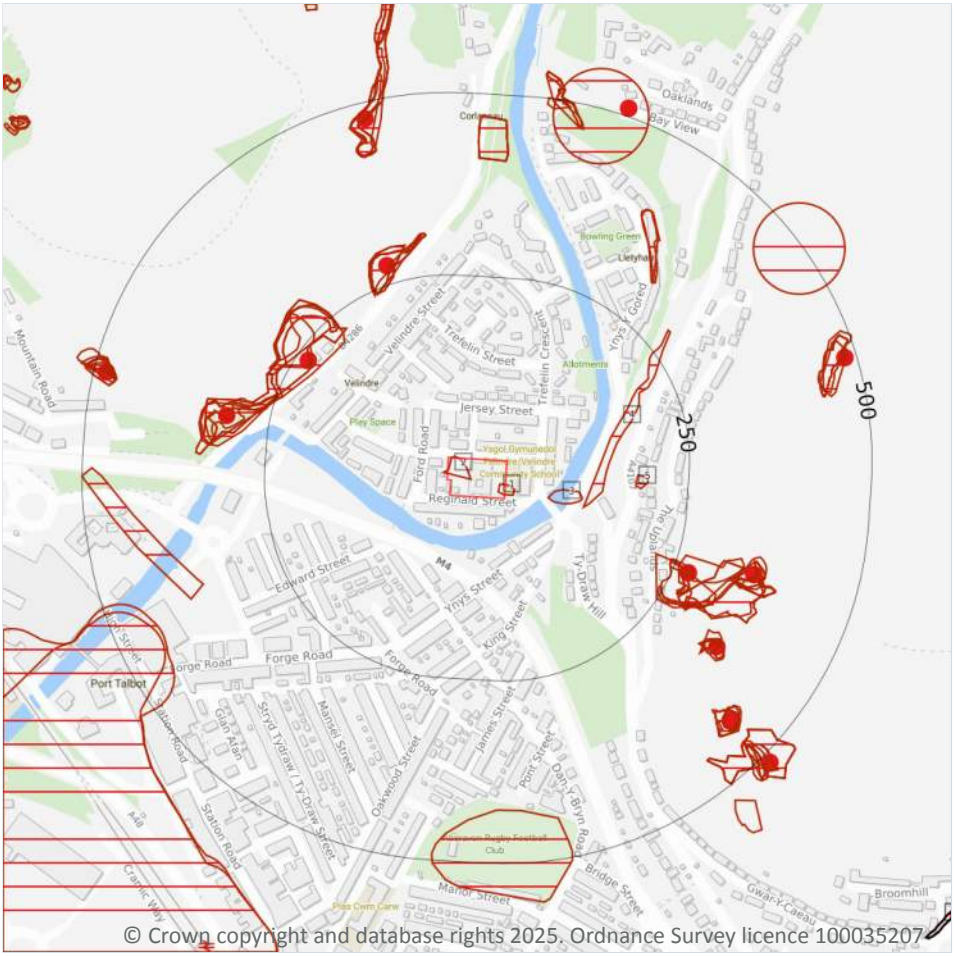
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 110 >**

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

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	10

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

Features are displayed on the Mining and ground workings map on **page 112 >**

ID	Location	Details	Description
A	233m NW	Name: Mount Pleasant Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
B	271m SE	Name: Pen-y-cae Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
C	276m NW	Name: Myrtlehill Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
D	309m W	Name: Velindre Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

ID	Location	Details	Description
F	355m SE	Name: Pen-y-cae Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
B	357m E	Name: Pen-y-cae Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
G	433m SE	Name: Pen-y-cae Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
J	478m N	Name: Corlanau Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

ID	Location	Details	Description
O	483m W	Name: Mount Pleasant Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
L	484m E	Name: Pen-y-cae Quarries Address: PORT TALBOT, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	**23**

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

Features are displayed on the Mining and ground workings map on **page 112 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	**On site**	**Cuttings**	**1884**	**1:10560**
2	**On site**	**Unspecified Pit**	**1884**	**1:10560**
3	60m E	Unspecified Quarry	1884	1:10560
4	109m E	Unspecified Ground Workings	1947	1:10560
5	178m E	Unspecified Pit	1884	1:10560
A	212m NW	Unspecified Quarries	1914	1:10560
A	221m NW	Unspecified Quarry	1980	1:10000
A	221m NW	Unspecified Quarry	1995	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
B	221m SE	Unspecified Old Quarries	1914	1:10560
A	229m NW	Unspecified Quarries	1897	1:10560
A	232m NW	Unspecified Quarries	1947	1:10560
A	232m NW	Unspecified Quarries	1921	1:10560
A	236m NW	Unspecified Old Quarries	1957	1:10560
B	243m SE	Unspecified Quarry	1897	1:10560
C	243m NW	Unspecified Old Quarries	1947	1:10560
C	243m NW	Unspecified Old Quarries	1914	1:10560
C	243m NW	Unspecified Old Quarries	1921	1:10560
B	244m SE	Unspecified Ground Workings	1921	1:10560
B	244m SE	Unspecified Ground Workings	1921	1:10560
C	244m NW	Unspecified Old Quarries	1957	1:10560
C	244m NW	Unspecified Quarry	1980	1:10000
C	244m NW	Unspecified Ground Workings	1995	1:10000
D	245m W	Unspecified Old Quarries	1957	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m **2**

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

Features are displayed on the Mining and ground workings map on **page 112 >**

ID	Location	Land Use	Year of mapping	Mapping scale
T	833m SE	Unspecified Old Level	1914	1:10560
T	833m SE	Unspecified Old Level	1921	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

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

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

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

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

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

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

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

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

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

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

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

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

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

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

This data is sourced from Groundsure.

19.4 Historical incidents

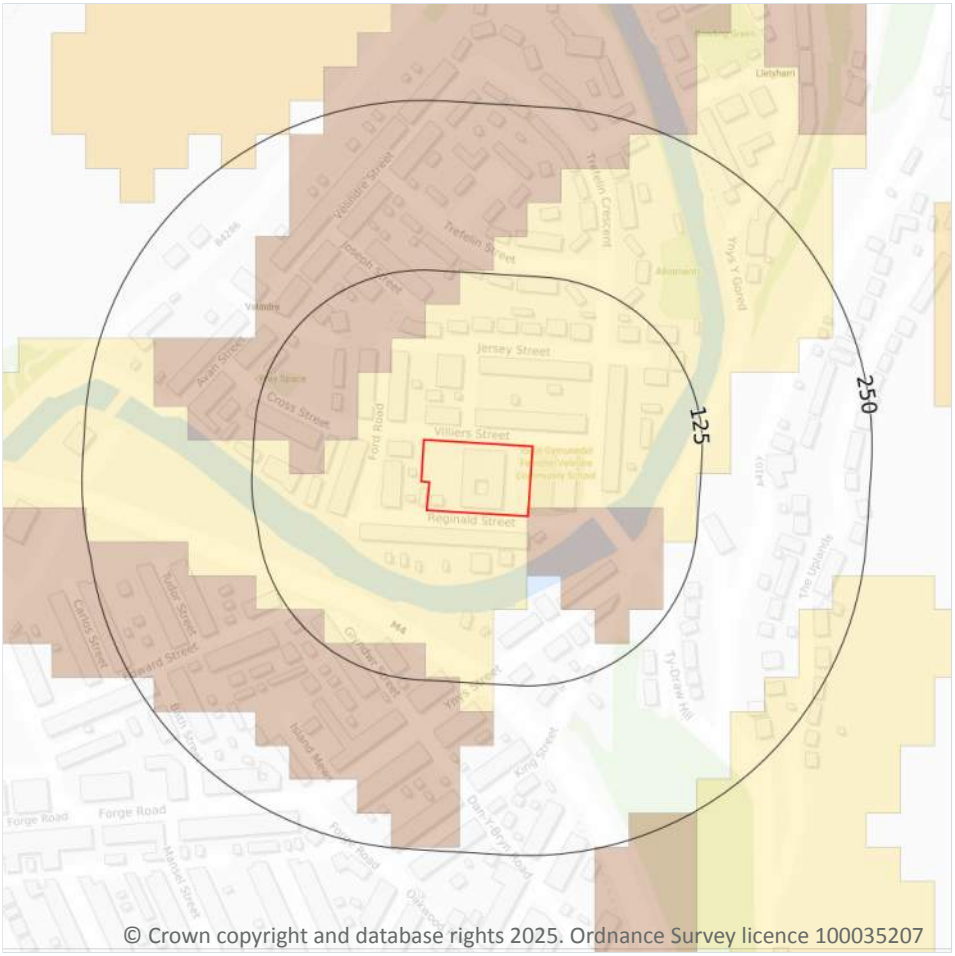
Records within 500m	0

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

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

This data is sourced from Groundsure.

20 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

20.1 Radon

Records on site	2

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

Features are displayed on the Radon map on **page 122 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 10% and 30%**	**Full**

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

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

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m **7**

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m **9**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**36**	**6.3**	**238**	**164**	**1**	**74**	**217**	**64**	**86**
On site	**37**	**6.5**	**229**	**157**	**1**	**74**	**222**	**63**	**87**
19m S	36	6.3	237	163	1	74	218	64	87
21m E	36	6.3	245	168	1	75	211	64	86
23m S	37	6.5	228	157	1	74	224	63	87
25m N	36	6.3	235	161	1	74	218	64	87
25m N	36	6.3	241	166	1	75	213	64	86
31m SE	36	6.3	245	168	1	75	212	64	86
36m NE	36	6.3	247	170	1.1	75	207	64	85

This data is sourced from the British Geological Survey.

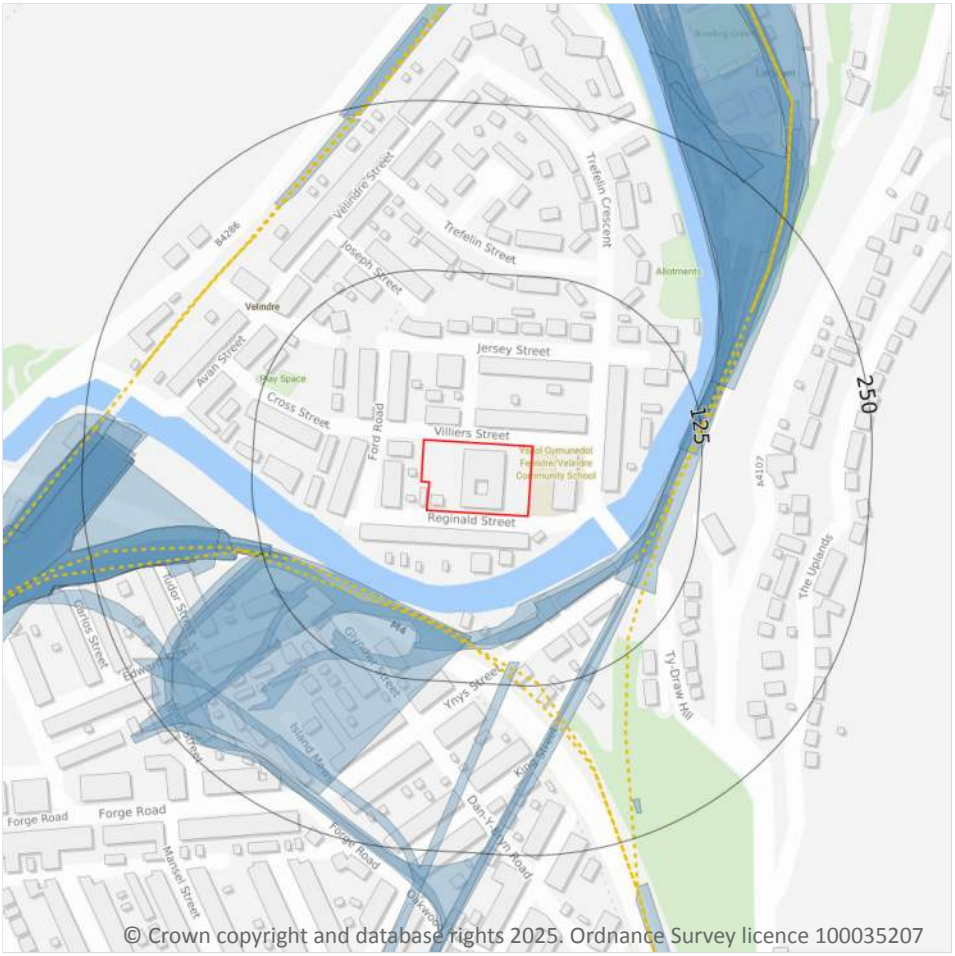
21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	32

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

Features are displayed on the Railway infrastructure and projects map on **page 126 >**

Location	Land Use	Year of mapping	Mapping scale
56m SE	Railway Sidings	1876	2500
61m SE	Railway Sidings	1899	2500
70m SW	Railway Sidings	1897	10560
78m SE	Railway Sidings	1921	10560
86m SE	Railway Sidings	1917	2500
107m E	Railway Sidings	1957	10560
108m S	Railway	0	-
110m W	Railway Sidings	1917	2500
117m W	Railway Sidings	1914	10560
117m W	Railway Sidings	1921	10560
120m E	Railway Sidings	1939	2500
120m E	Railway Sidings	1947	10560
126m E	Railway Sidings	1949	1250
126m E	Railway Sidings	1952	1250
127m E	Railway Sidings	1952	2500
140m E	Railway Sidings	1914	10560
145m W	Railway Sidings	1947	10560

Location	Land Use	Year of mapping	Mapping scale
153m W	Railway Sidings	1957	10560
158m NE	Railway Sidings	1899	2500
167m W	Railway Sidings	1950	1250
175m W	Railway Sidings	1939	2500
191m NE	Railway Sidings	1952	1250
191m NE	Railway Sidings	1949	1250
197m NE	Railway Sidings	1949	1250
202m NW	Railway Sidings	1939	2500
211m W	Railway Sidings	1897	10560
223m SE	Railway Sidings	1952	1250
238m NE	Railway Sidings	1917	2500
240m NE	Railway Sidings	1899	2500
242m N	Railway Sidings	1899	2500
244m N	Railway Sidings	1937	2500
248m NE	Railway Sidings	1897	10560

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	10

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

Features are displayed on the Railway infrastructure and projects map on **page 126 >**

Location	Description
73m SW	Razed
76m SW	Historical OSM
85m SE	Historical OSM
97m SE	Razed
192m NE	Abandoned
192m NE	Historical OSM
194m NW	Abandoned
194m NW	Historical OSM
195m NW	Historical OSM
242m W	Razed

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m	0

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

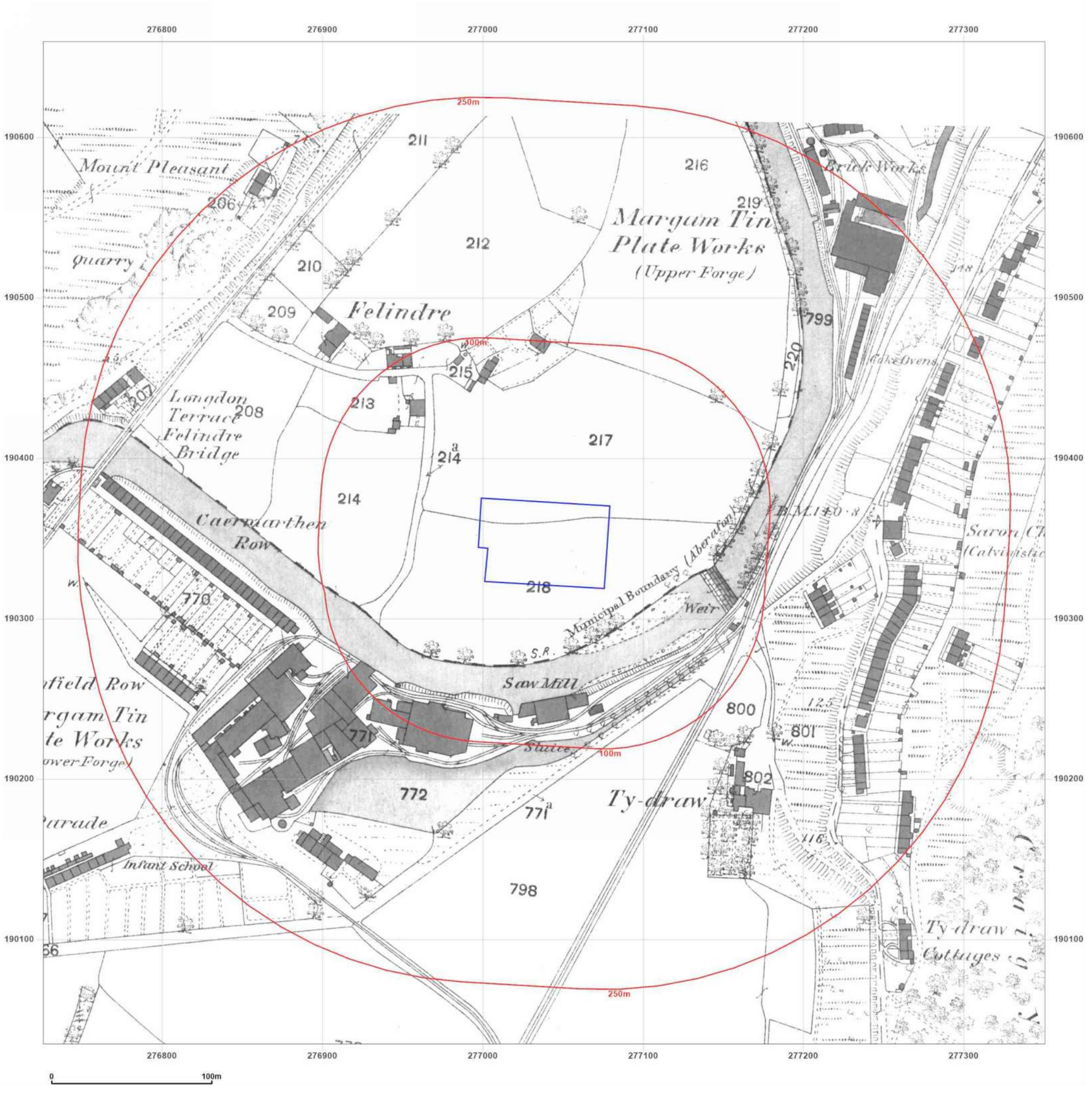
This data is sourced from HS2 ltd.

Data providers

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

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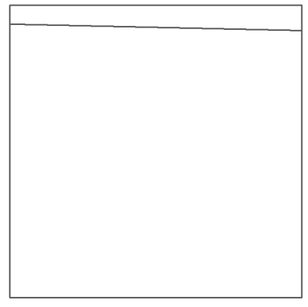
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Grid Ref: 277038, 190347

Map Name: County Series
Map date: **1876**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1876
Revised 1876
Edition N/A
Copyright N/A
Levelled N/A

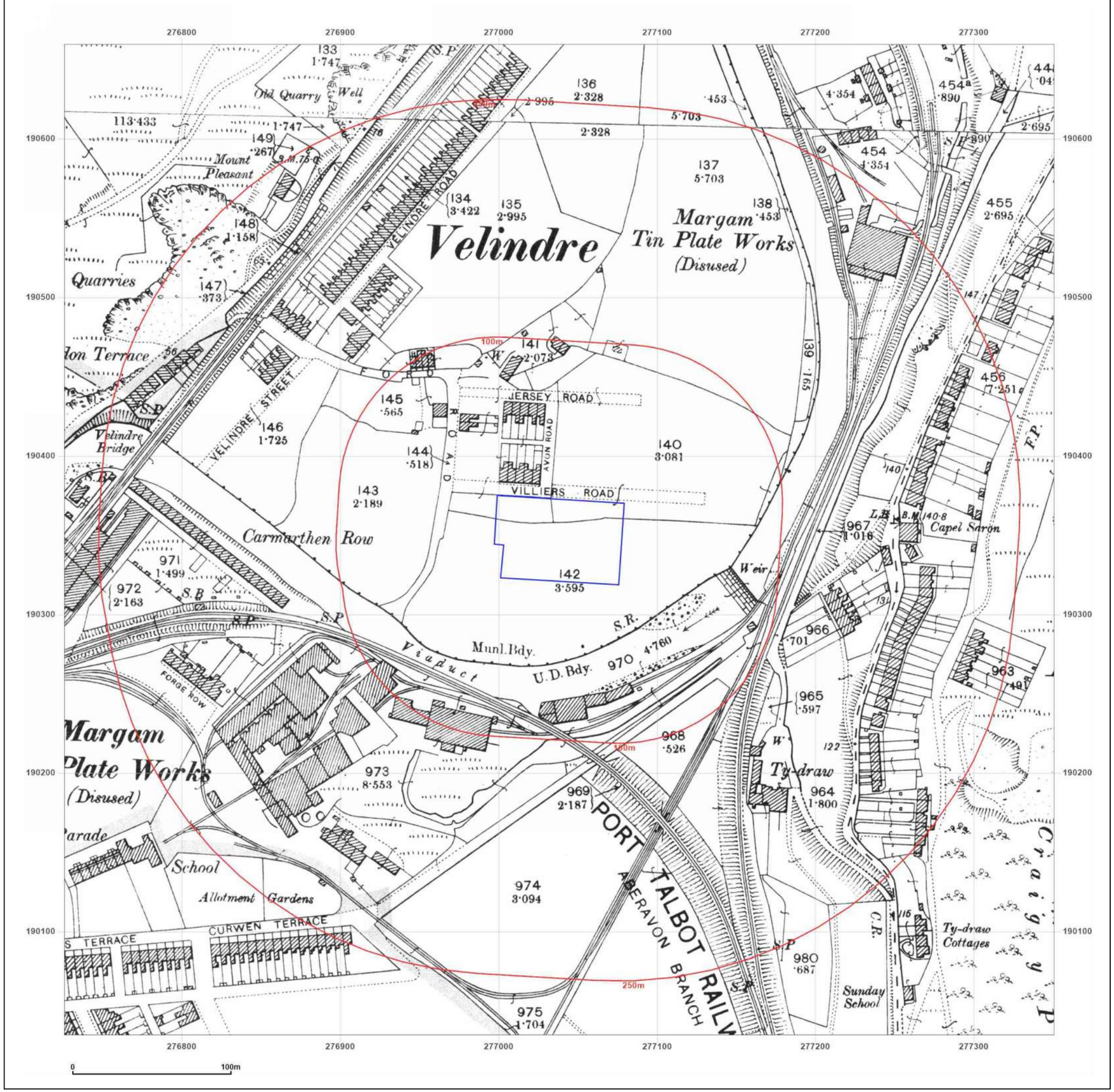
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Map Name: County Series

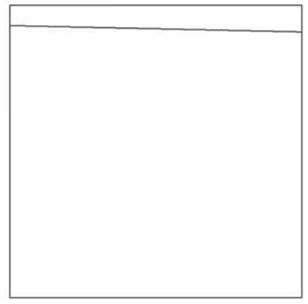
Map date: **1899**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

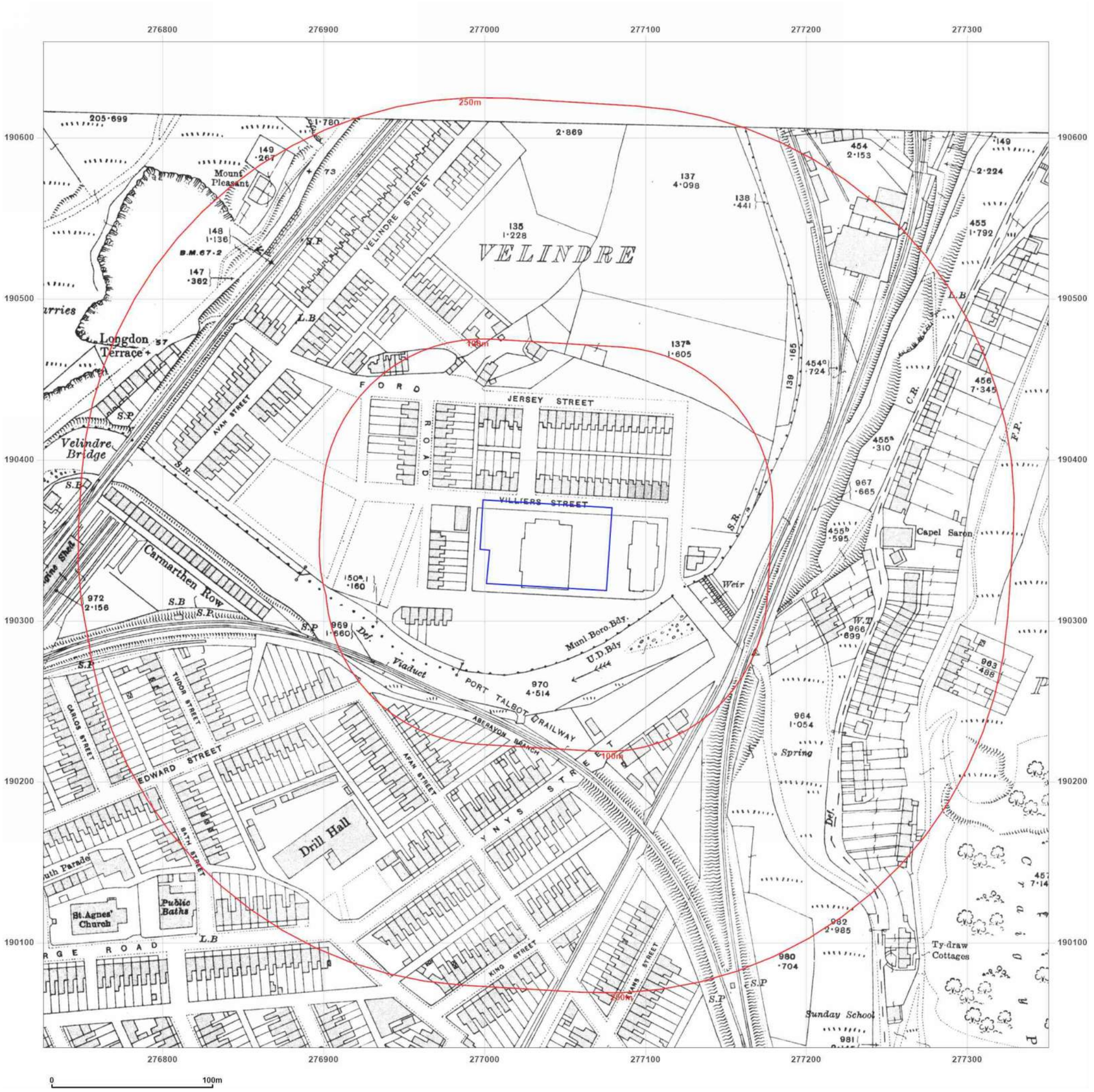
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Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1917**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1917
Revised 1917
Edition N/A
Copyright N/A
Levelled N/A

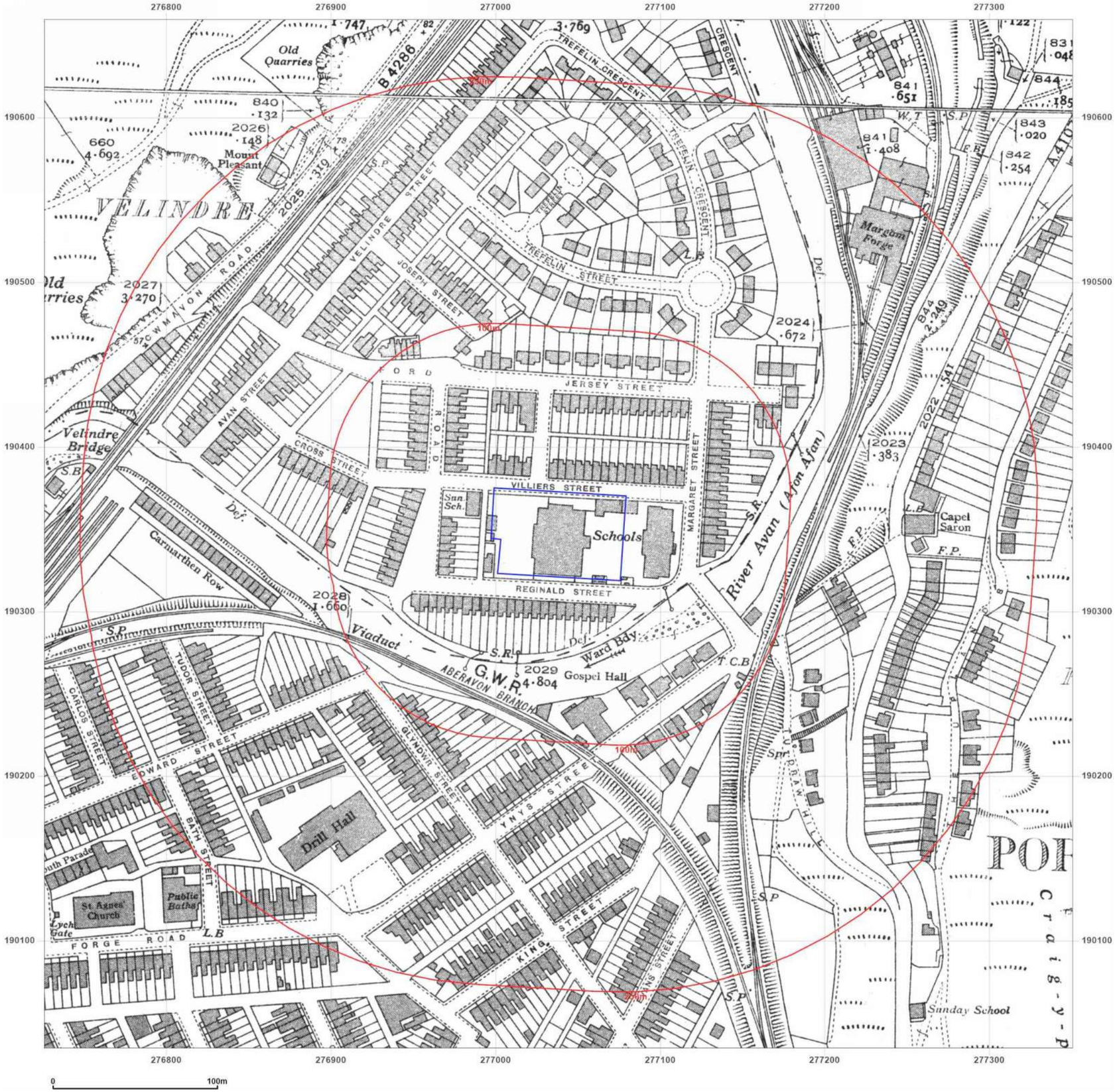
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Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1937-1939**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1937
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Revised 1939
Edition N/A
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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1949-1950**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1949
Revised 1949
Edition N/A
Copyright N/A
Levelled 1949

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
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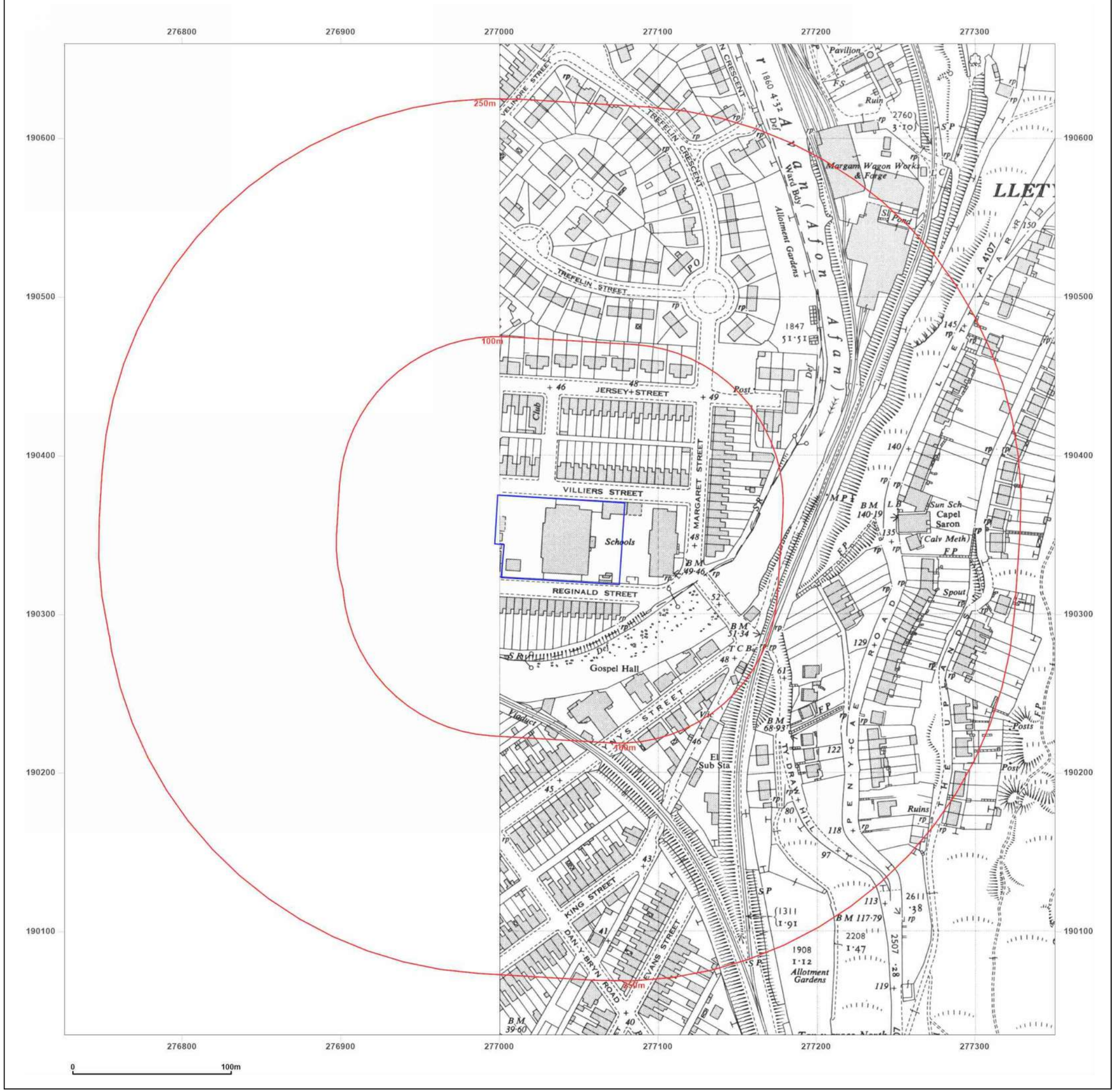
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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1952**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1952
Edition N/A
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Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1953**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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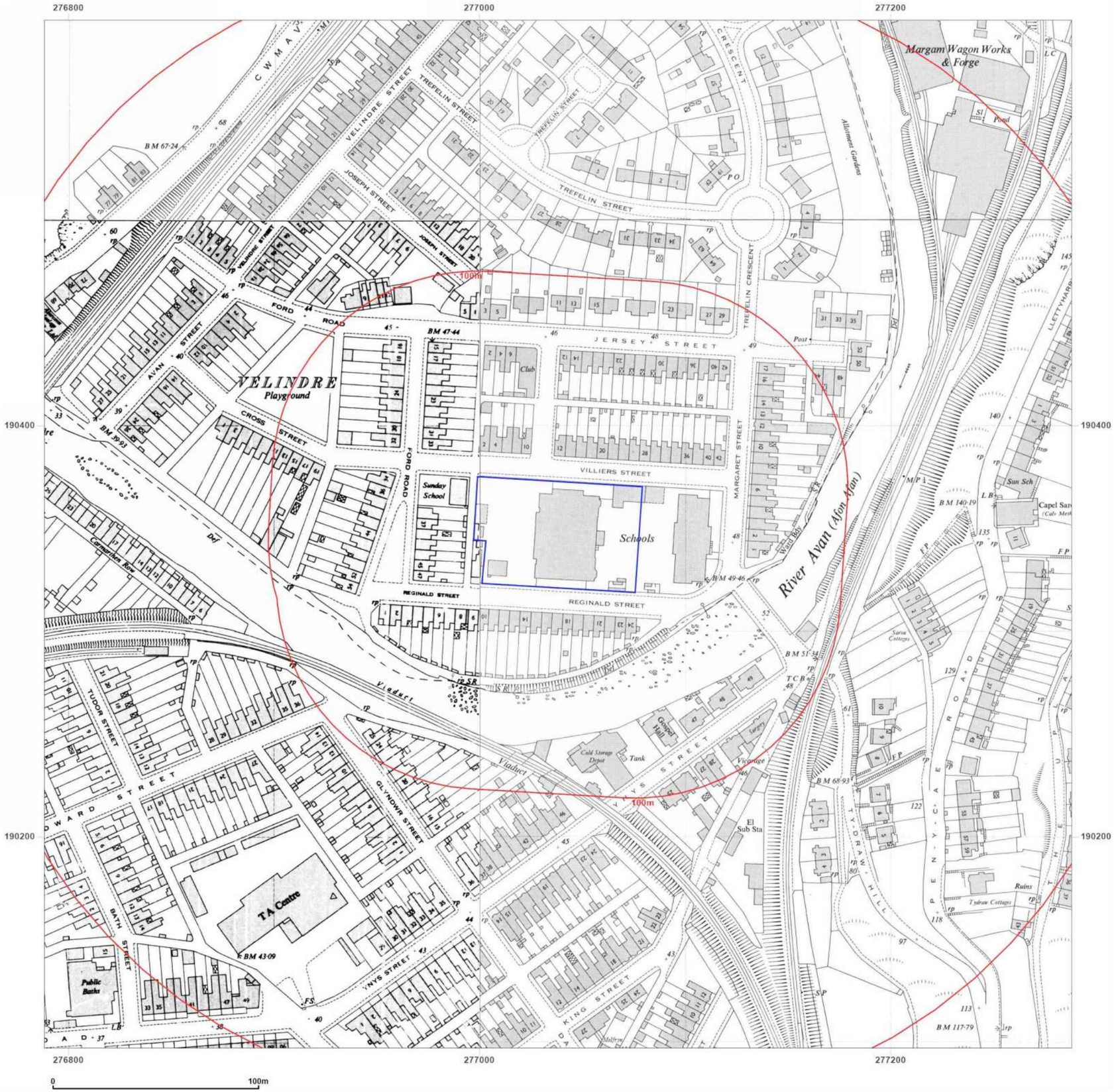
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Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1951-1956**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1949

Surveyed 1952
Revised 1952
Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
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Revised 1952
Edition N/A
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Levelled 1949

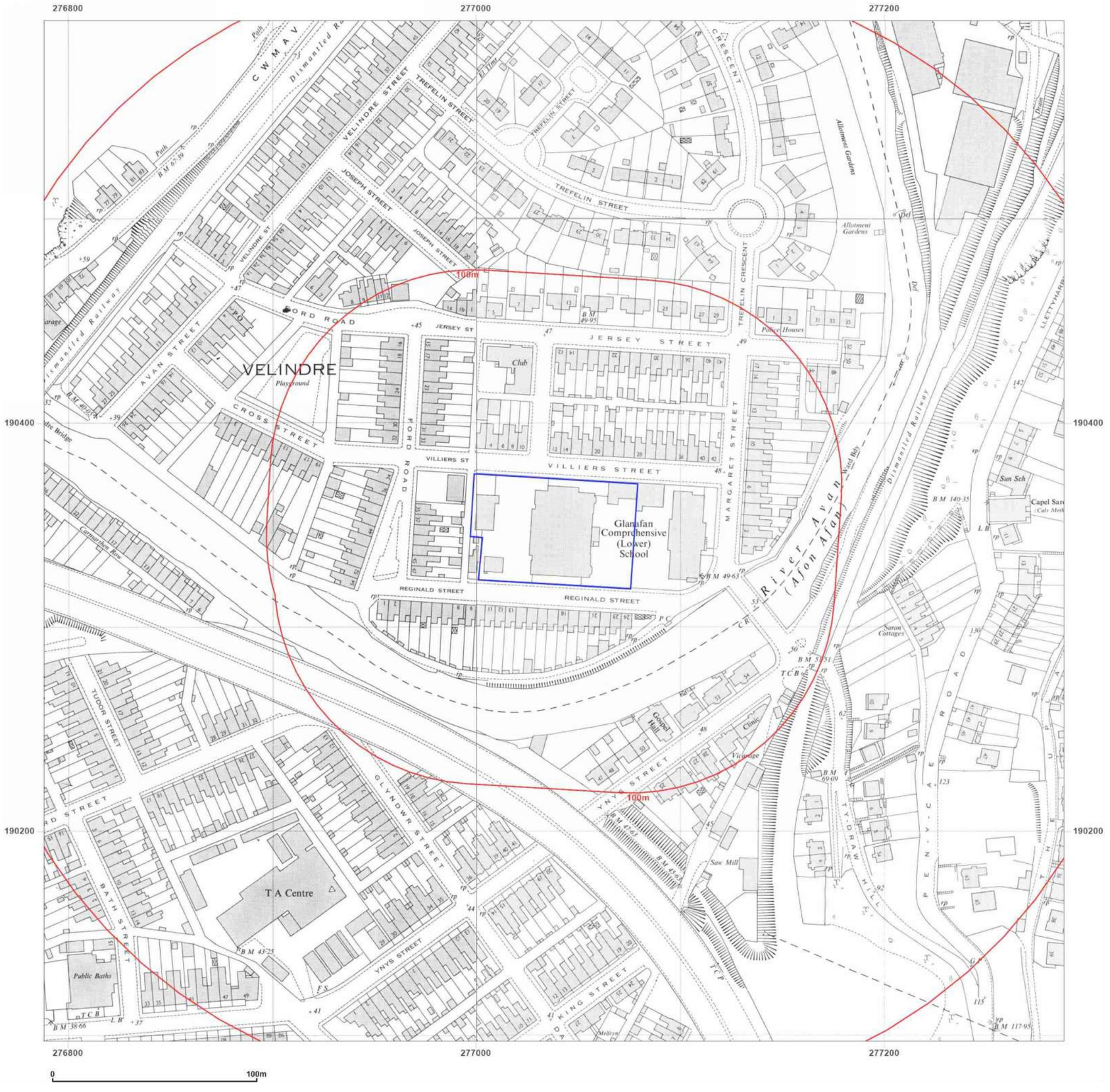
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Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1967-1968**

Scale: 1:1,250

Printed at: 1:2,000

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Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1949
Revised 1967
Edition N/A
Copyright 1968
Levelled 1964

Surveyed 1950
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Surveyed 1949
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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1968
Revised 1968
Edition N/A
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

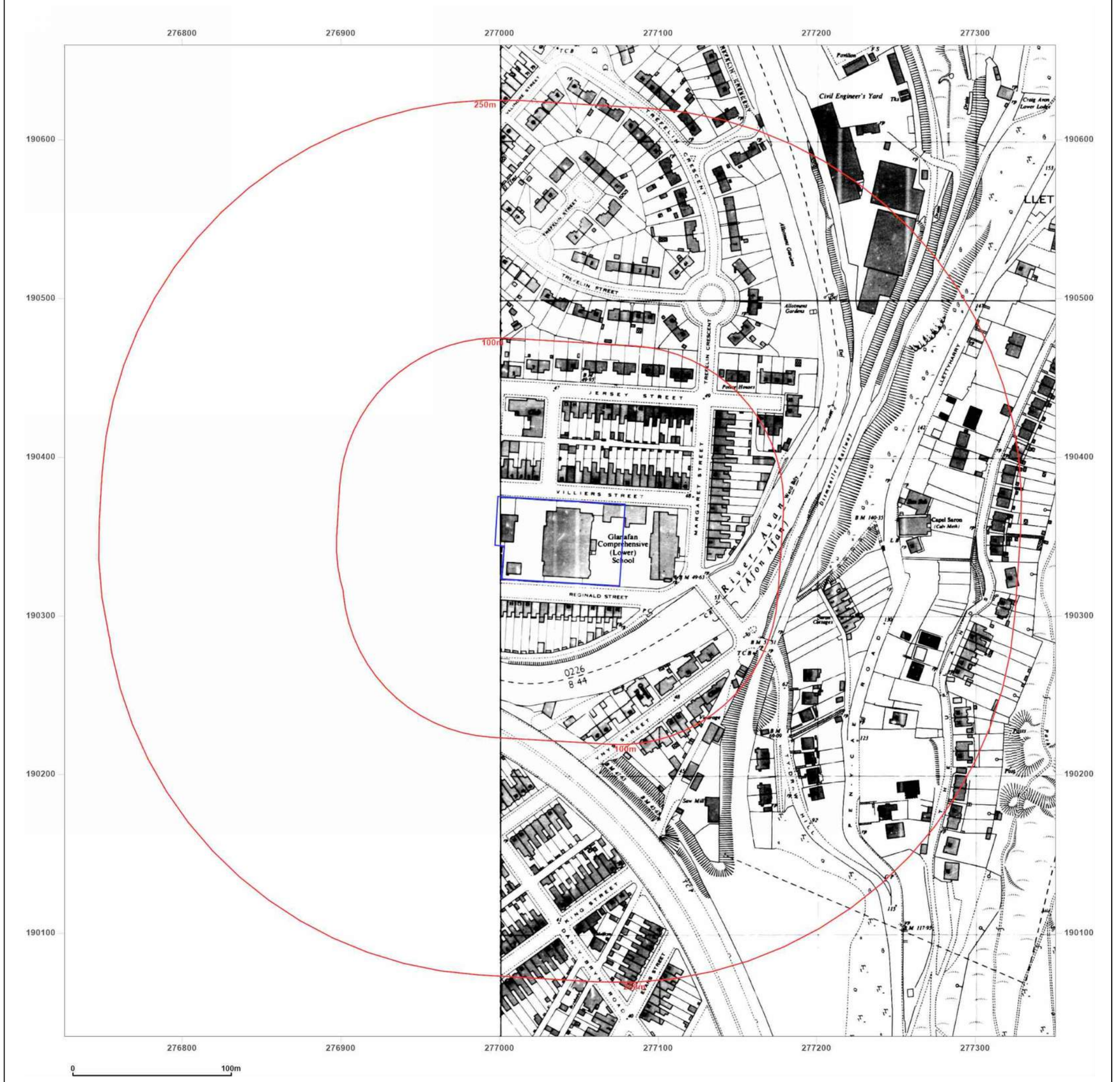
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

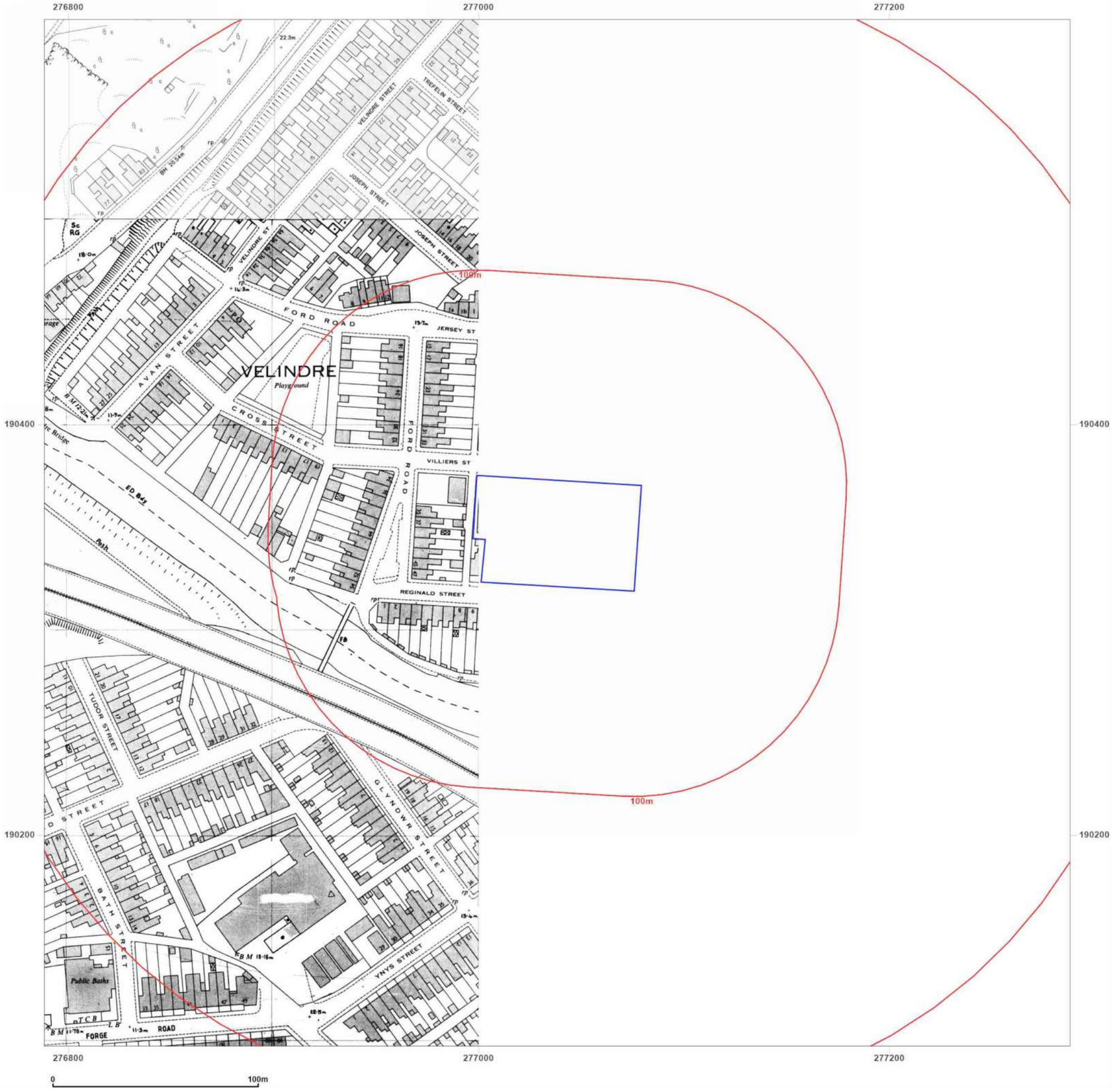
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1985-1988**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1958
Revised 1984
Edition N/A
Copyright 1985
Levelled 1964

Surveyed 1988
Revised 1988
Edition N/A
Copyright 1988
Levelled N/A



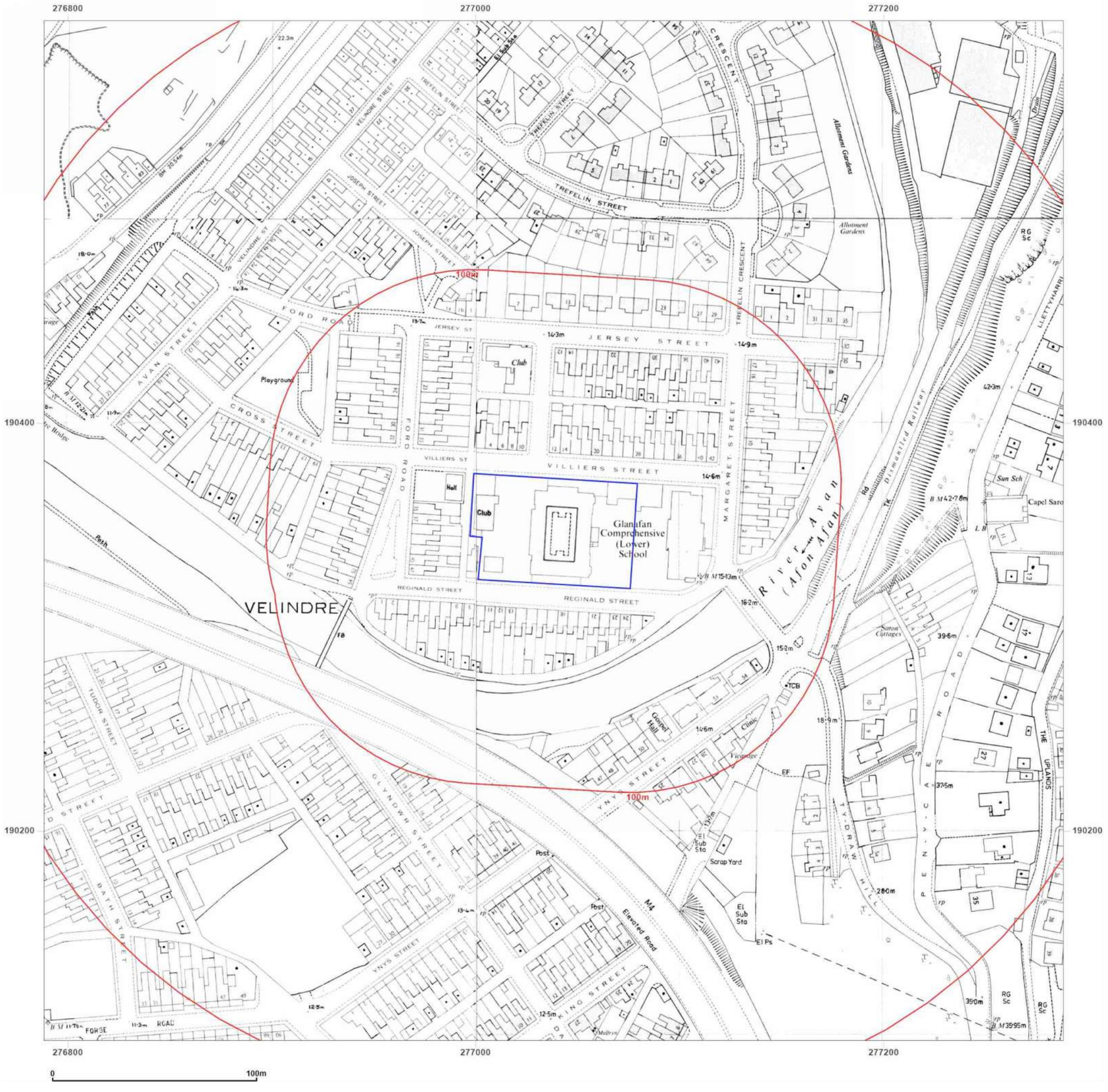
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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1991-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1993
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1991
Revised 1991
Edition N/A
Copyright 1991
Levelled N/A

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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1992-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

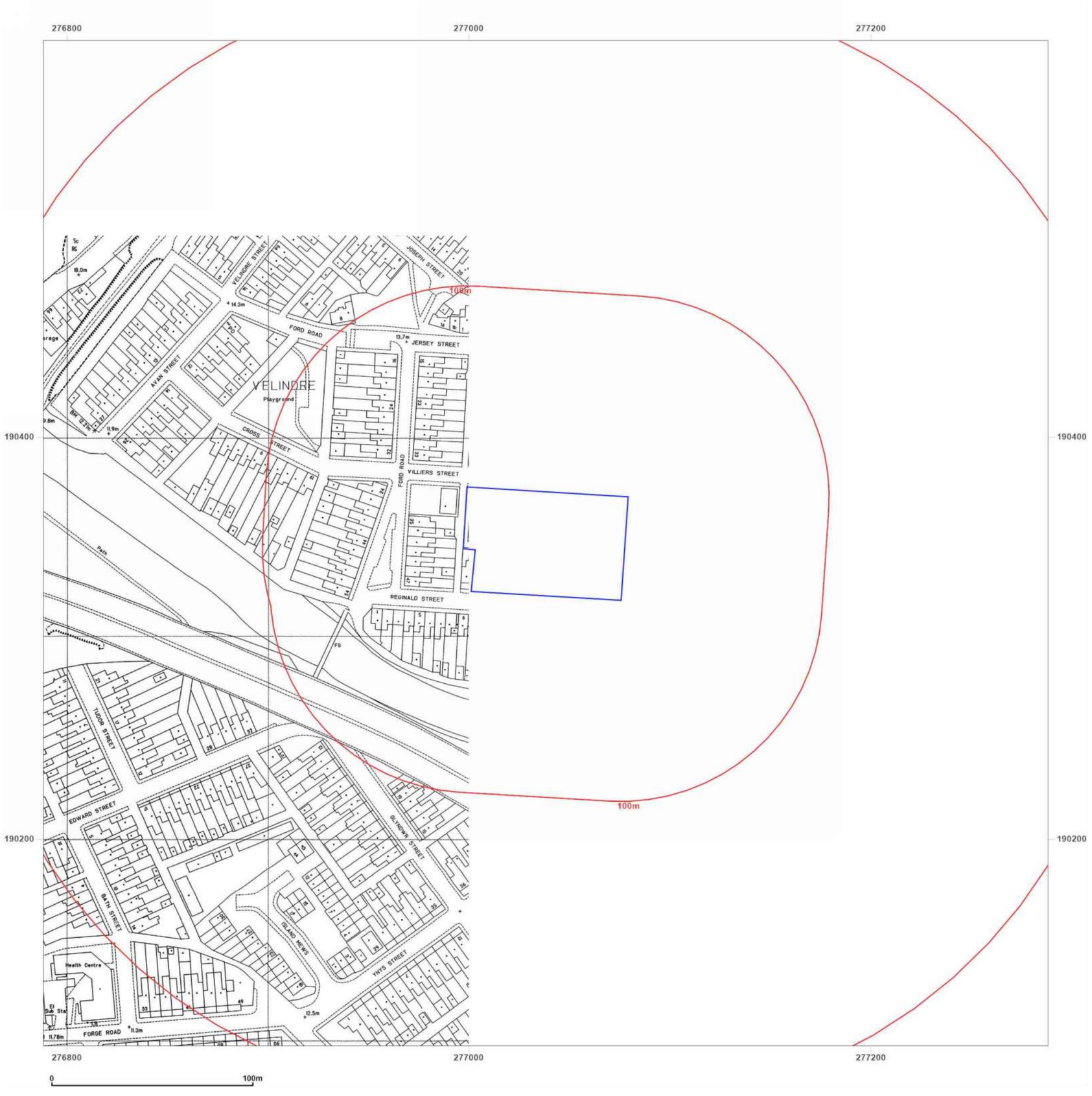
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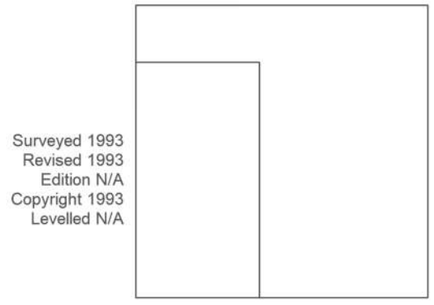
Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid
Map date: **1993**
Scale: 1:1,250
Printed at: 1:2,000

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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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2003

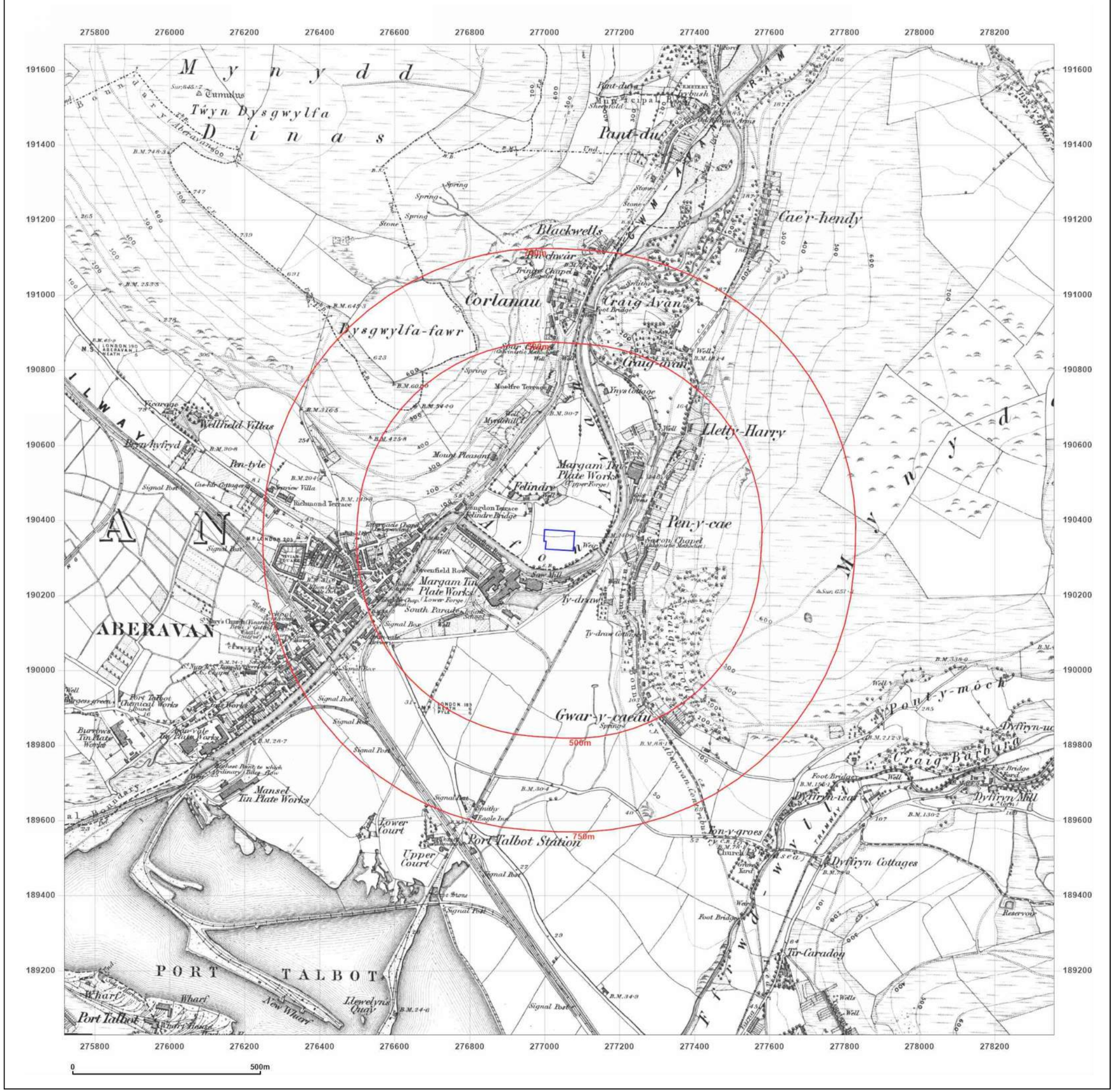
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1884-1885**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1877
Revised N/A
Edition 1884
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1876
Edition N/A
Copyright 1885
Levelled N/A

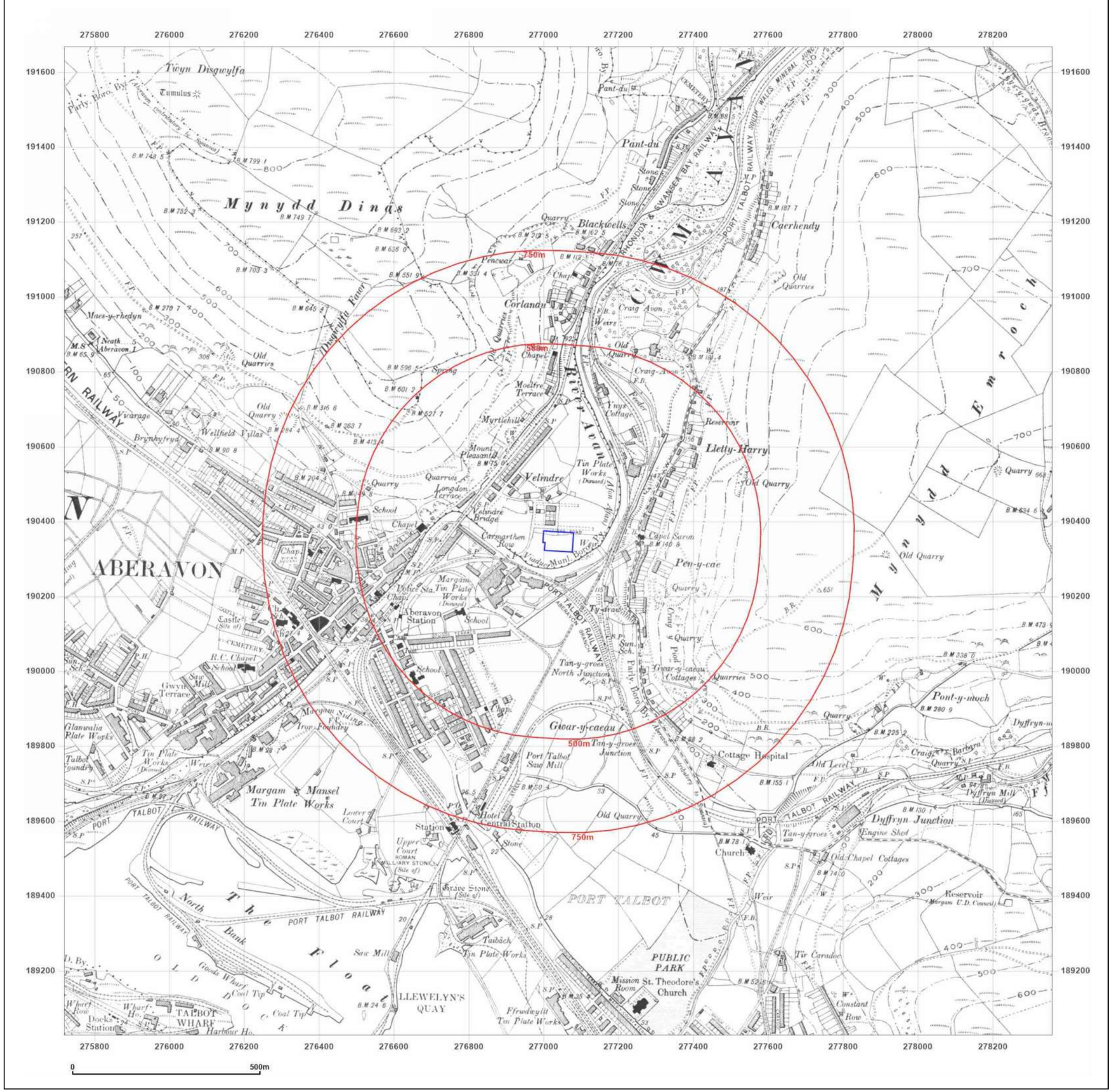
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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1897-1900**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1876
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1900
Edition N/A
Copyright N/A
Levelled N/A

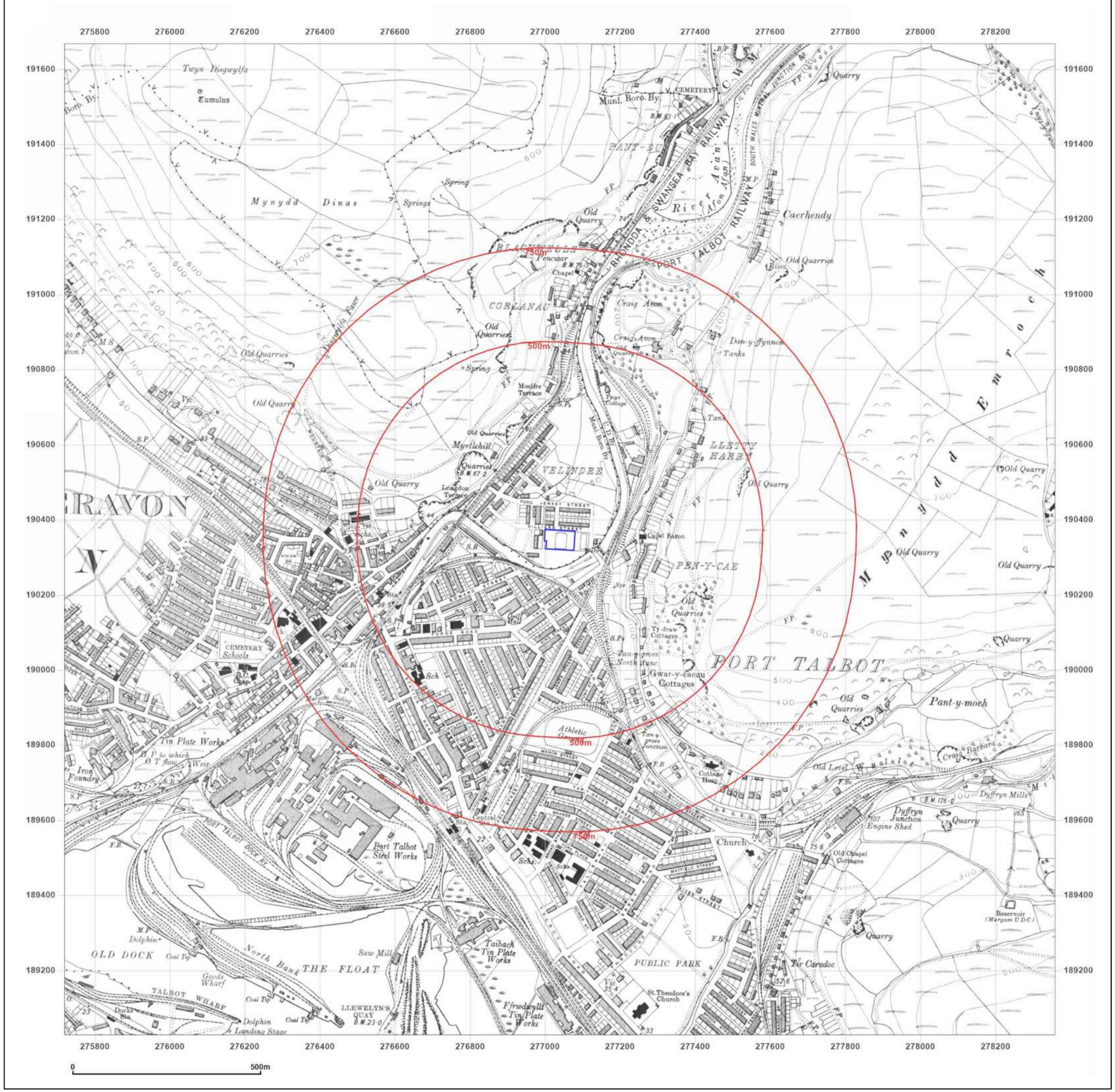
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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1914**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1875
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1875
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

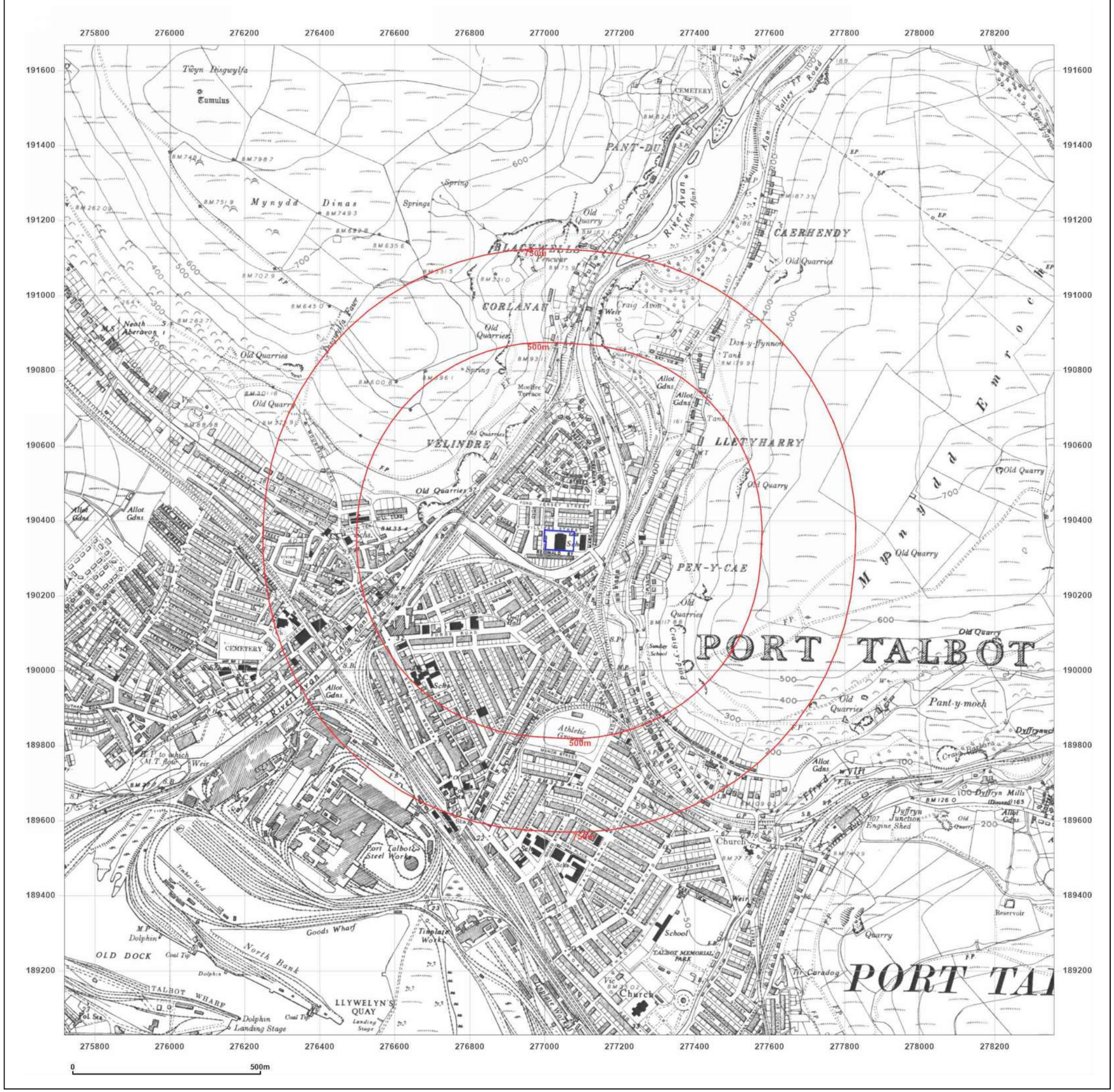
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Production date: 27 May 2025

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Site Details:

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Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: County Series

Map date: **1947**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1875
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1947
Edition N/A
Copyright N/A
Levelled 1934

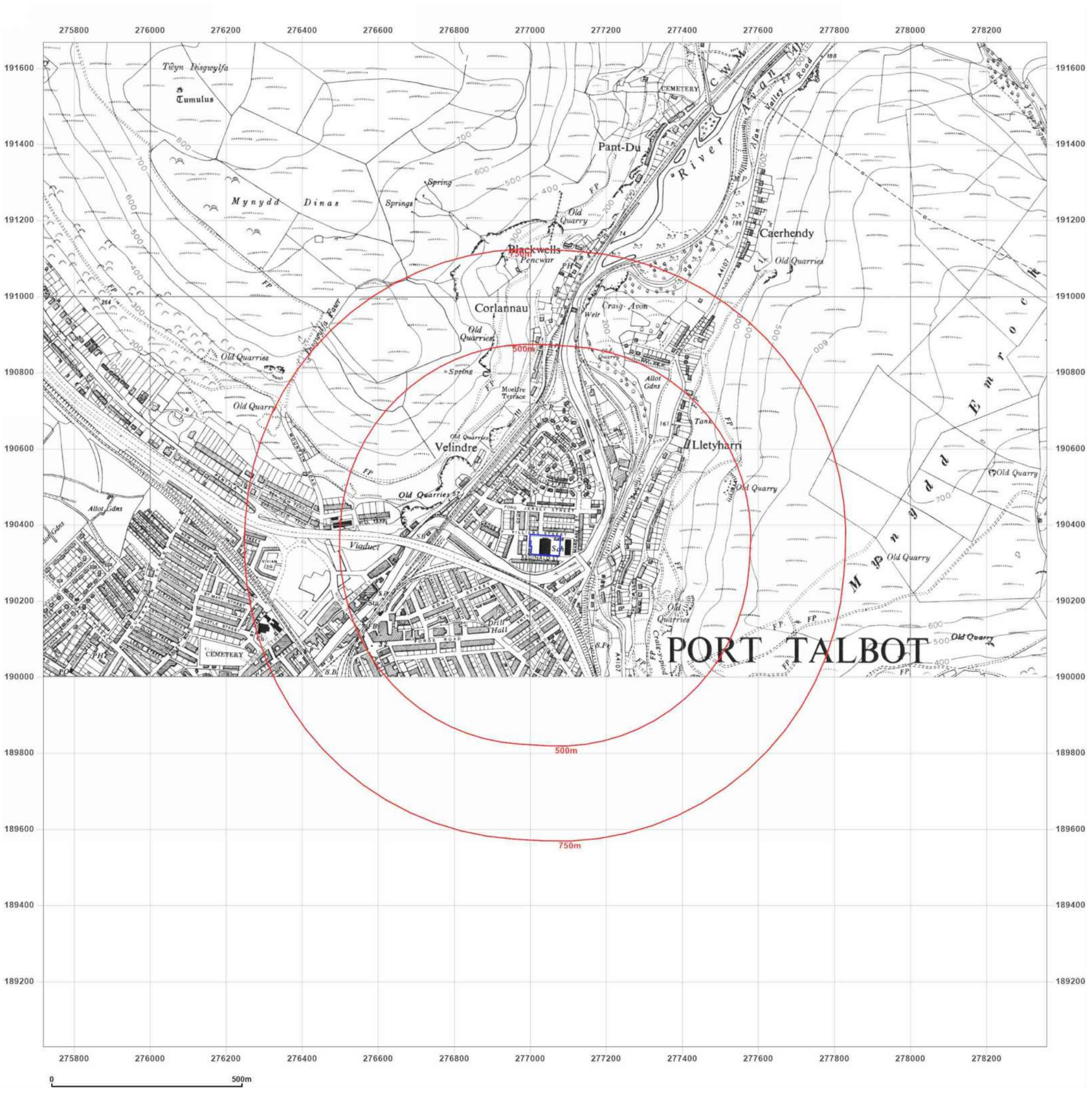
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Production date: 27 May 2025

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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: Provisional
Map date: **1957**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A

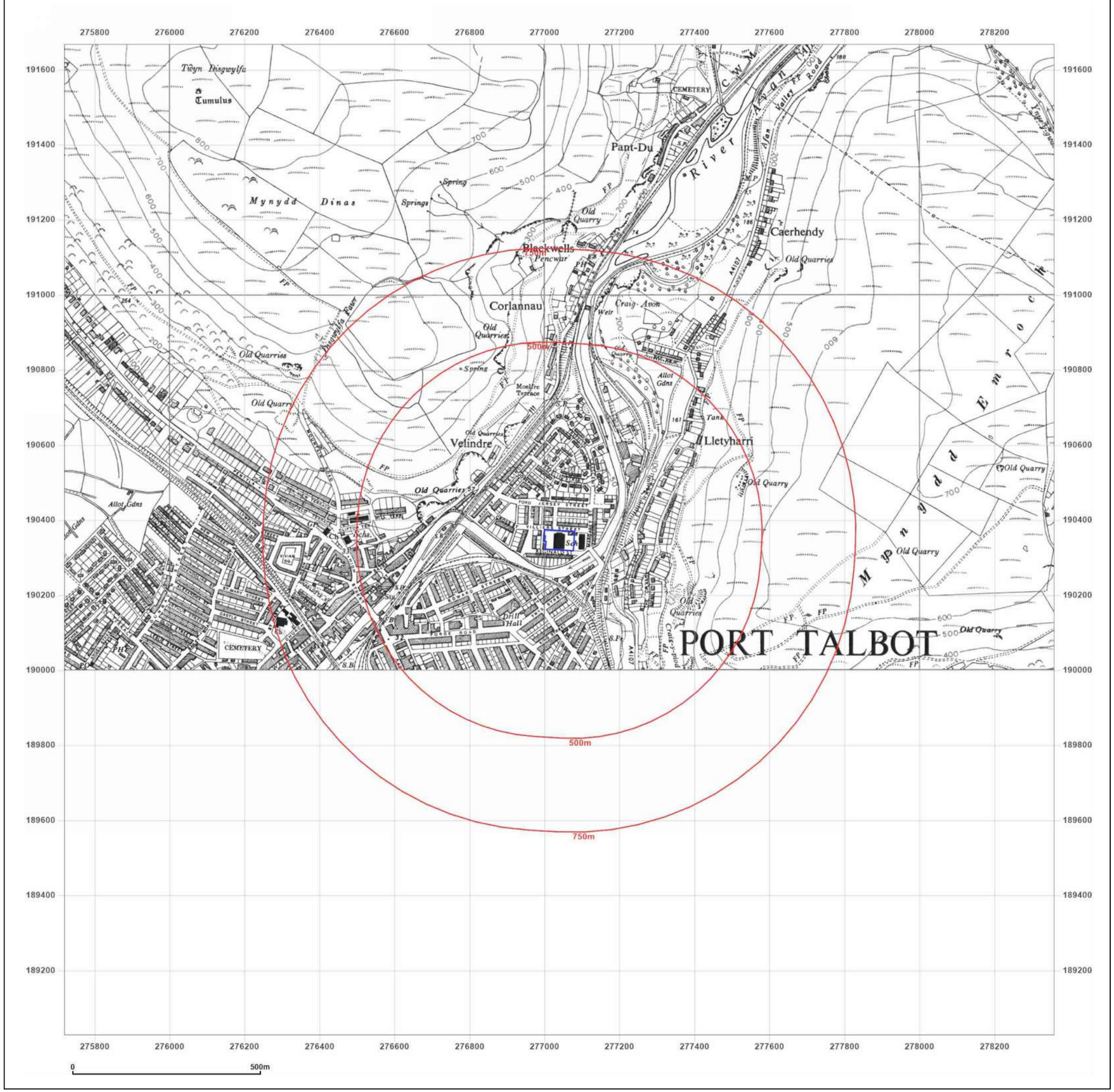
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: Provisional
Map date: **1957**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
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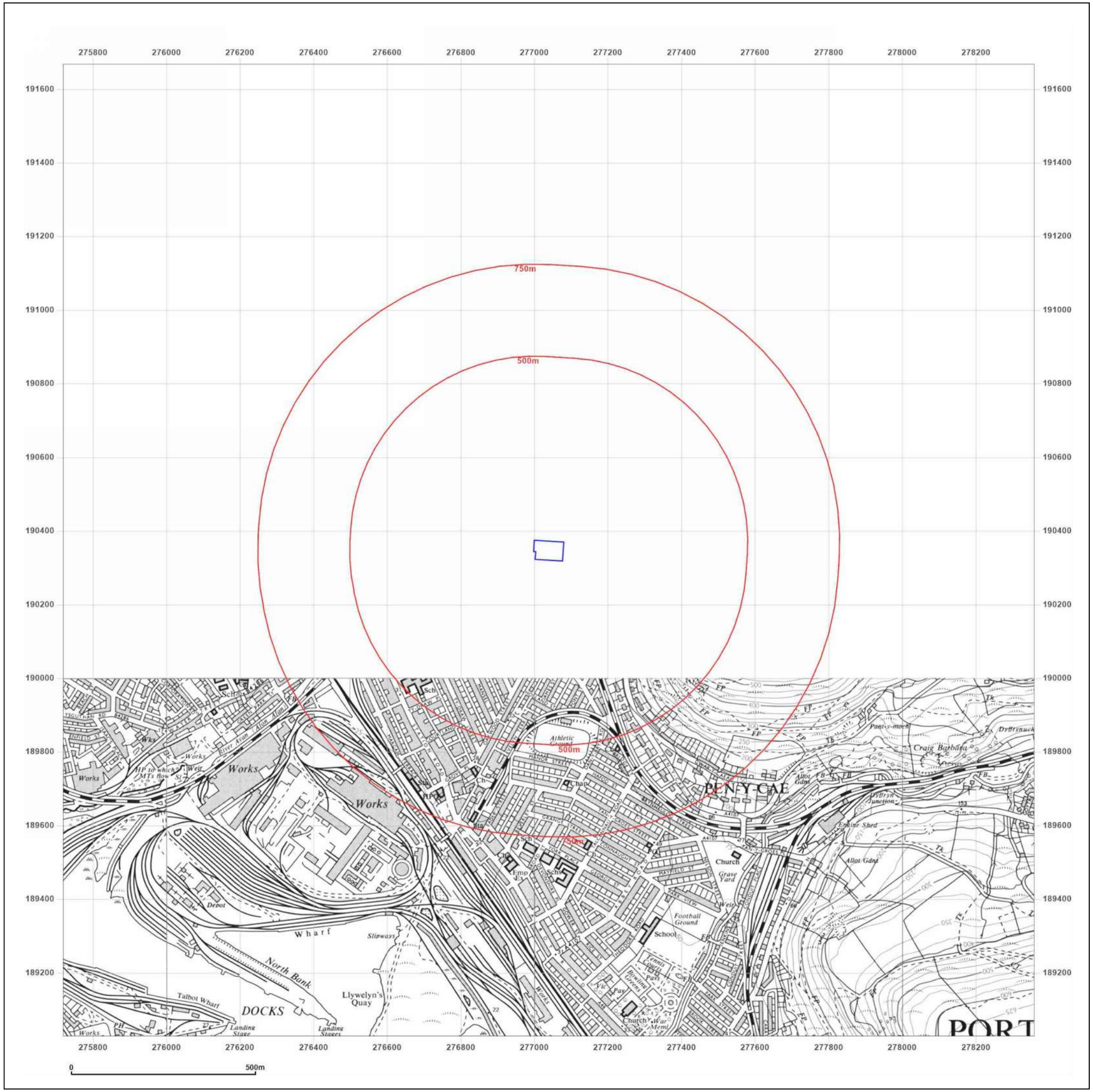
Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: Provisional
Map date: **1965**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1965
Revised 1965
Edition N/A
Copyright N/A
Levelled N/A

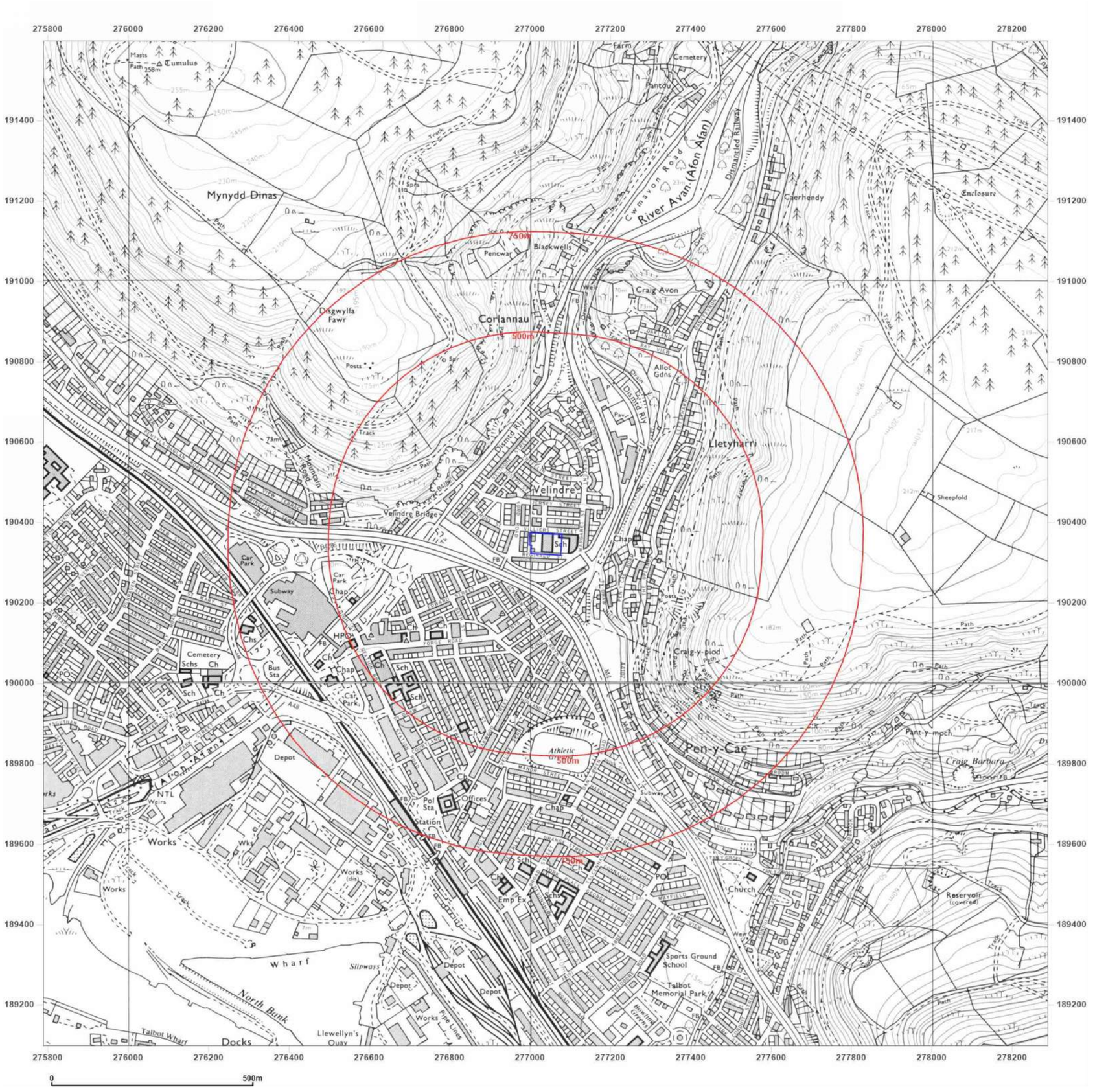
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1980-1982**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1977
Revised 1979
Edition N/A
Copyright 1980
Levelled 1978

Surveyed 1977
Revised 1982
Edition N/A
Copyright 1982
Levelled 1978

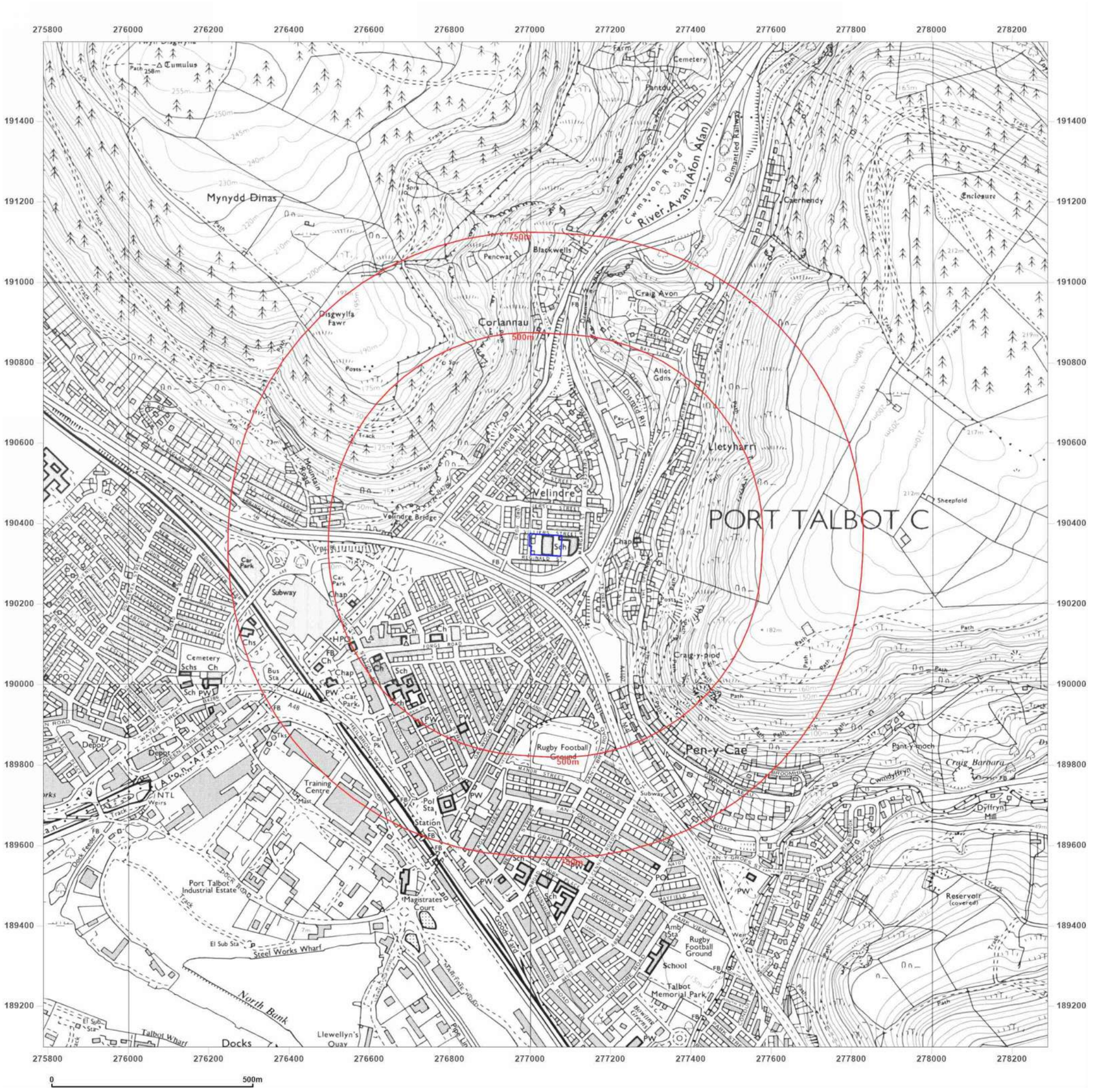
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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid

Map date: **1993-1995**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1977
Revised 1995
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1991
Revised 1991
Edition N/A
Copyright 1993
Levelled N/A

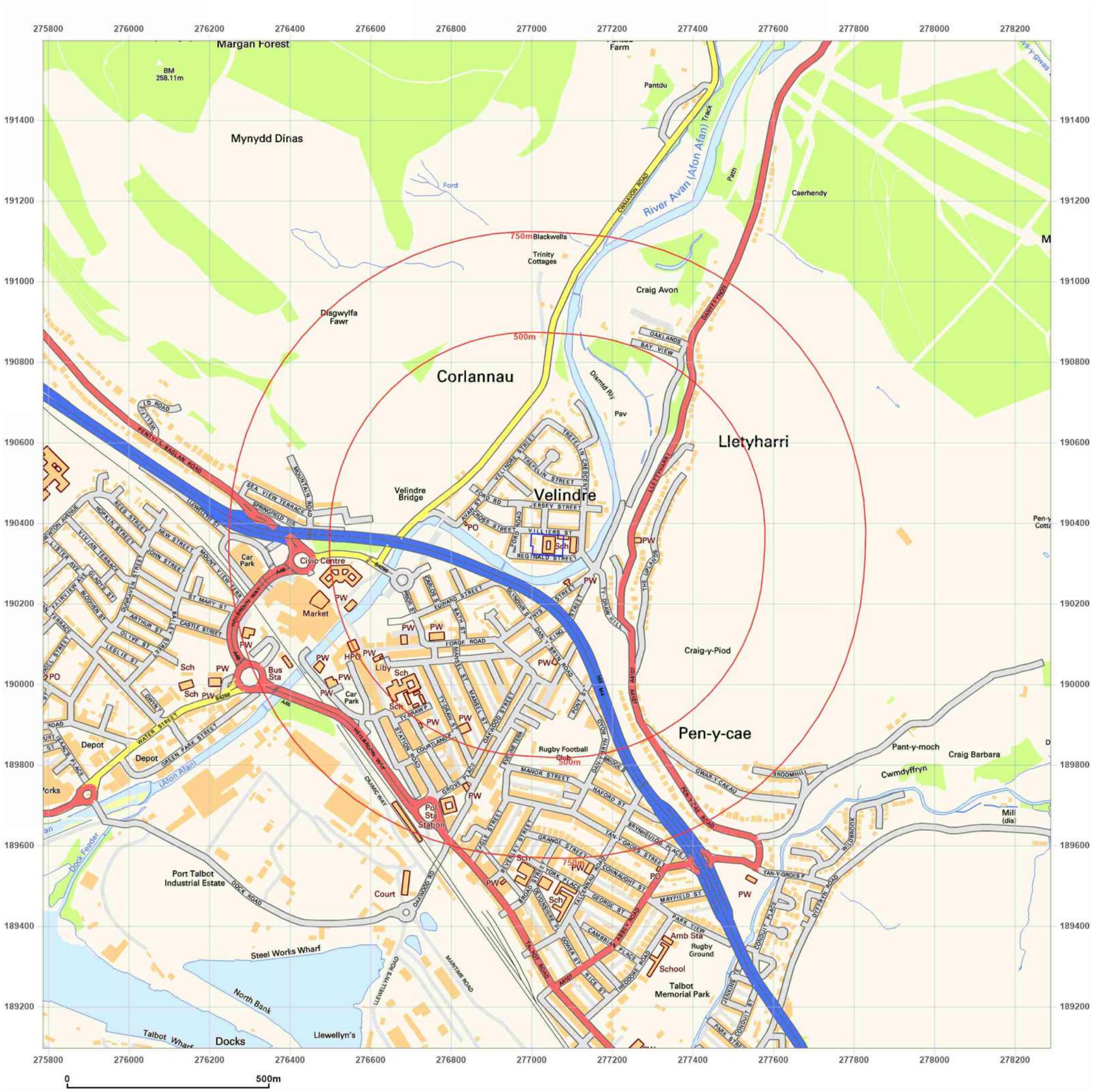
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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid
Map date: **2001**
Scale: 1:10,000
Printed at: 1:10,000

N
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2001

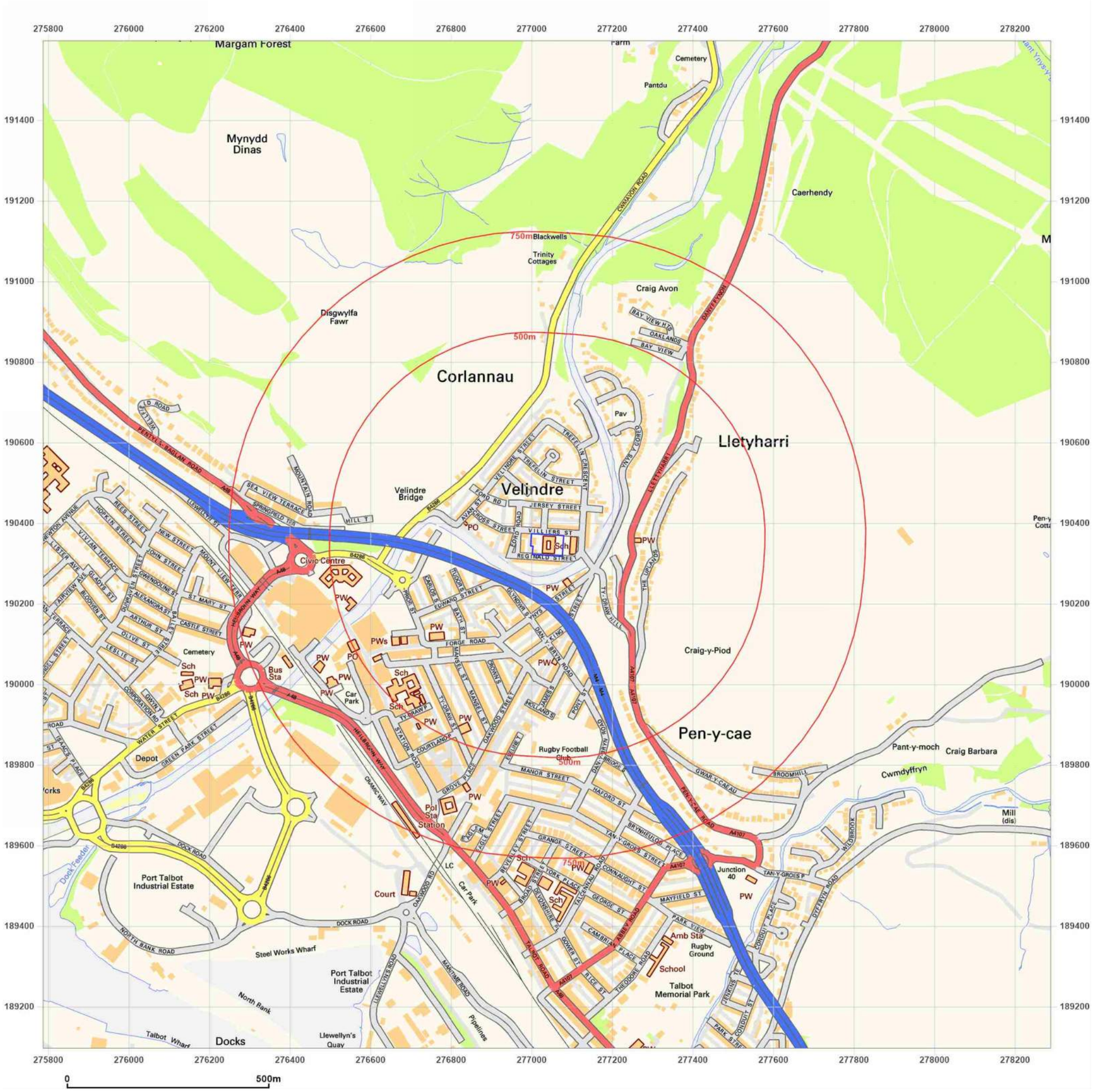
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Groundsure INSIGHTS

Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

N
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2010

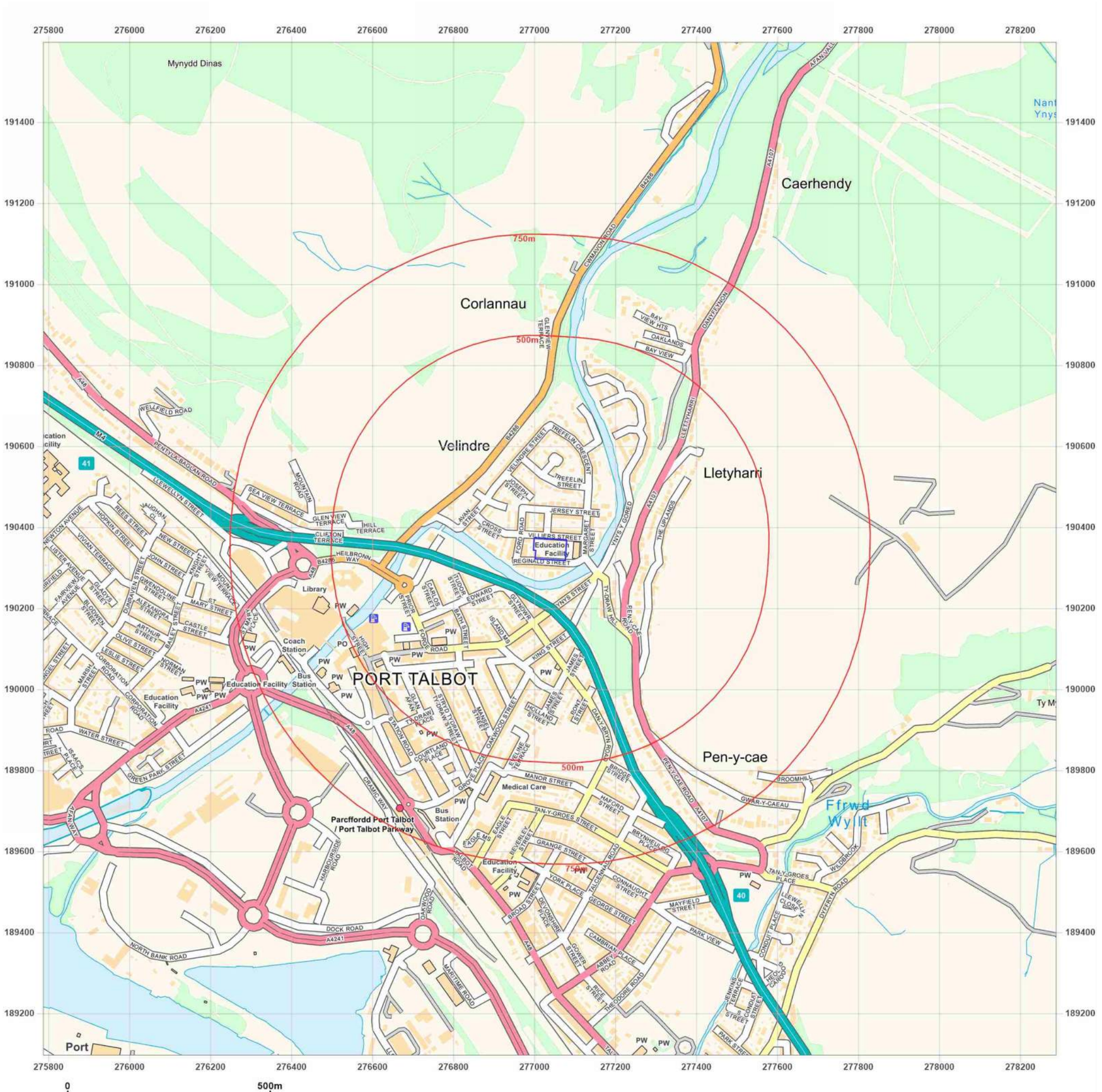
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Site Details:

ELRS, Reginald Street, SA13 1YY

Client Ref: 3026420
Report Ref: GS-KBE-QMG-NA5-ZFR
Grid Ref: 277038, 190347

Map Name: National Grid
Map date: **2025**
Scale: 1:10,000
Printed at: 1:10,000

N W E S

2025

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Production date: 27 May 2025

Map legend available at:
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APPENDIX C: EXPLORATORY HOLE LOGS

Project: **ELRS Port Talbot**	Location Details	Status	Borehole Number
Location: **Port Talbot**	Easting: 277018.88 Northing: 190346.76	FINAL	**CP01**
Client: **Tilbury Douglas**	Level: 13.64mAOD Depth: 7.00m		Sheet 1 of 2
	Logger: Type: CP		
	Inclination: °		

Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	
0.00	1.20	Inspection Pit	Cable Percussive Rig	CJs			7.00	200	16/06	17:00	6.50	6.50	4.10	
1.20	7.10	Cable Percussion	Cable Percussive Rig	CJs					17/06	13:00	7.00	7.00		

Scale:	1:50
Checked By:	JC
Approved By:	NEB
Start Date:	16/06/2025
Finish Date:	17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac.		0.02	13.62			0.00 - 0.50	B5	
MGR						0.20	ES1	
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse.		0.50	13.14			0.50	ES2	
						0.60 - 1.20	B6	
MGR								
Brown sandy slightly clay GRAVEL. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse.		1.00	12.64			1.20	ES3	SPT(S) 1.20m, N=51 (4,11/51 for 285mm)
						1.20 - 1.65	D19	
ALLUVIAL FAN DEPOSITS								
Very dense greyish brown slightly sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse.						1.60 - 2.00	B7	
						2.00 - 2.38	D17	SPT(S) 2.00m, N=50 (11,9/50 for 225mm)
ALLUVIAL FAN DEPOSITS								
						2.50 - 3.10	B12	
						2.50 - 3.10	B8	
						3.00	ES4	
						3.10 - 3.55	D16	SPT(S) 3.10m, N=57 (6,7/13,24,11,9)
Very dense greyish brown sandy fine to coarse subrounded GRAVEL. Sand is coarse.		3.30	10.34					
						3.60 - 4.00	B10	
ALLUVIAL FAN DEPOSITS								
						4.00 - 4.38	D20	SPT(S) 4.00m, N=50 (5,9/50 for 225mm)
						4.50 - 5.10	B13	
						5.10 - 5.36	D15	SPT(S) 5.10m, N=50 (25 for 130mm/50 for 235mm)
						5.50 - 6.10	B11	
						6.10 - 6.48	D18	SPT(S) 6.10m, N=50 (11,14/50 for 225mm)
Very dense greyish brown sandy fine to coarse subrounded GRAVEL AND COBBLES. Sand is coarse.		6.50	7.14			6.50 - 6.80	B9	
		6.80	6.84			6.80 - 7.00	B14	
ALLUVIAL FAN DEPOSITS								SPT(S) 7.00m, N=50 (25 for 45mm/50 for 40mm)
EOH at 7.00m -								

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. Groundwater Encountered at 3.00m bgl.

Chiselling

From (m)	To (m)	Time (mins)
2.50	2.70	15
4.60	4.90	45
5.80	6.10	30

Water Added

From (m)	To (m)

Hammer Information

Serial No.	Energy Ratio %
AR4110	70

Groundwater

Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks
3.30	3	-	20	2.77	

Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277013.99 Northing: 190334.56 Level: 13.54mAOD Depth: 0.45m Logger: Type: IP	Status FINAL	Pit Number **HP01** Sheet 1 of 1

Hole Information		Groundwater				
Pit Dimensions 0.30m × 0.30m	Orientation: ° Shoring: Stability: Plant: Hand Tools	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:10 Checked By: JC Approved By: NEB Start Date: 17/06/2025 Finish Date: 17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.05	13.49					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone, brick fragments, clay pipe fragments and asphalt. Sand is coarse. MGR								
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.40	13.14					
EOH at 0.45m -		0.45	13.09					

1

2

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

Hodge House, 114-116 St Mary Street, Cardiff, CF10 1DY

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Project Number

784-B071864

Project:	**ELRS Port Talbot**	Location Details				Status	Pit Number
Location:	**Port Talbot**	Easting:	277007.06	Northing:	190335.07	FINAL	**HP02**
Client:	**Tilbury Douglas**	Level:	13.45mAOD	Depth:	0.75m		Sheet 1 of 1
		Logger:		Type:	IP		

Hole Information		Groundwater				Scale:	1:10
Pit Dimensions	Orientation: °	Strike (m)	Rose To (m)	After (mins)	Remarks	Checked By:	JC
0.30m x 0.30m	Shoring:					Approved By:	NEB
	Stability:					Start Date:	17/06/2025
	Plant: Hand Tools					Finish Date:	17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.05	13.40					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone, brick fragments, clay pipe fragments and asphalt. Sand is coarse. MGR								
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.35	13.10					
EOH at 0.75m -		0.75	12.70					

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

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Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277046.27 Northing: 190346.34 Level: 22.48mAOD Depth: 0.80m Logger: Type: IP	Status FINAL	Pit Number **HP03** Sheet 1 of 1

Hole Information		Groundwater				
Pit Dimensions 0.30m 0.30m	Orientation: ° Shoring: Stability: Plant: Hand Tools	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:10 Checked By: JC Approved By: NEB Start Date: 17/06/2025 Finish Date: 17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Floor tile. MGR		0.05	22.43					
MADE GROUND: Dark brown slightly clayey gravelly medium SAND. Gravel of brick fragments, sandstone and glass. MGR						0.20	ES1	
Pale brown sandy medium to coarse sub-rounded GRAVEL of sandstone. ALLUVIAL FAN DEPOSITS		0.48	22.00			0.60	ES2	
Light brown clayey slightly gravally medium to coarse SAND. Gravel of fine to medium subrounded to rounded sandstone. ALLUVIAL FAN DEPOSITS		0.65	21.83					
EOH at 0.80m -		0.80	21.68			0.80	ES3	

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

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Project Number
784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277040.40 Northing: 190337.90 Level: 14.18mAOD Depth: 1.15m Logger: Type: IP	Status FINAL	Pit Number **HP04** Sheet 1 of 1

Hole Information		Groundwater				
Pit Dimensions 0.30m × 0.30m	Orientation: ° Shoring: Stability: Plant: Hand Tools	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:10 Checked By: JC Approved By: NEB Start Date: 17/06/2025 Finish Date: 17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Floor tile. MGR		0.05	14.12					
MADE GROUND: Dark brown slightly clayey gravelly medium SAND. Gravel of brick fragments, sandstone and glass. MGR						0.20	ES1	
Pale brown sandy medium to coarse sub-rounded GRAVEL of sandstone. ALLUVIAL FAN DEPOSITS		0.30	13.88			0.70	ES2	
Light brown clayey slightly gravally medium to coarse SAND. Gravel of fine to medium subrounded to rounded sandstone. ALLUVIAL FAN DEPOSITS		0.80	13.38					1
EOH at 1.15m -		1.15	13.02					2

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

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Project Number

784-B071864

Project:	ELRS Port Talbot	Location Details				Status	Pit Number
Location:	Port Talbot	Easting:	277059.00	Northing:	190348.87	FINAL	HP05
Client:	Tilbury Douglas	Level:	13.89mAOD	Depth:	1.32m		Sheet 1 of 1
		Logger:		Type:	IP		

Hole Information		Groundwater				Scale:	1:10
Pit Dimensions	Orientation: °	Strike (m)	Rose To (m)	After (mins)	Remarks	Checked By:	JC
0.30m / 0.30m	Shoring:					Approved By:	NEB
	Stability:					Start Date:	17/06/2025
	Plant: Hand Tools					Finish Date:	17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.05	13.84					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone, brick fragments, clay pipe fragments and asphalt. Sand is coarse. MGR						0.15	ES1	
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.50	13.39					
Greyish brown sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		0.90	12.99			0.90	ES2	
EOH at 1.32m - Trial pit collapse.		1.32	12.57					

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

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Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277051.46 Northing: 190366.62 Level: 13.85mAOD Depth: 1.20m Logger: Type: IP	Status FINAL	Pit Number **HP06** Sheet 1 of 1

Hole Information		Groundwater				
Pit Dimensions 0.30m × 0.30m	Orientation: ° Shoring: Stability: Plant: Hand Tool	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:10 Checked By: JC Approved By: NEB Start Date: 17/06/2025 Finish Date: 17/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.05	13.80					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone, brick fragments, clay pipe fragments and asphalt. Sand is coarse. MGR						0.30	ES1	
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.40	13.45			0.50	ES2	
Greyish brown sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		0.70	13.15			1.00	ES3	1
EOH at 1.20m -		1.20	12.65					2

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

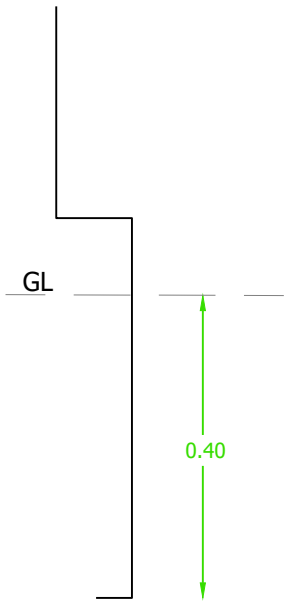
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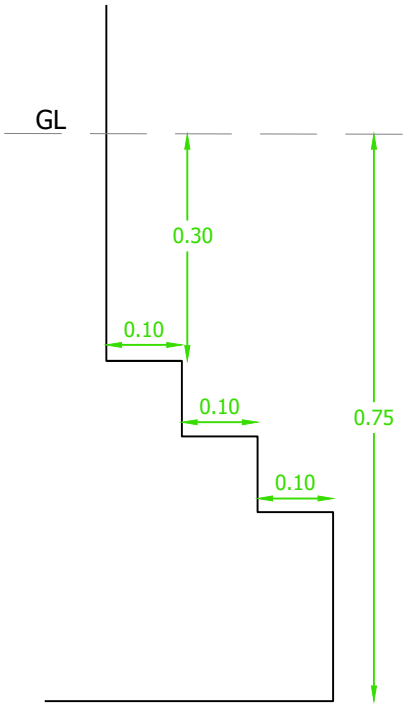
Project Number

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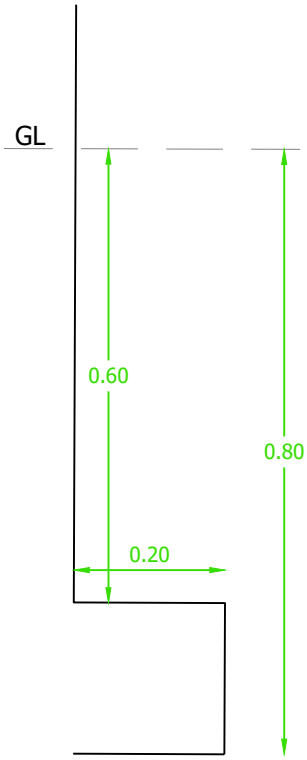
P01 - CROSS SECTION



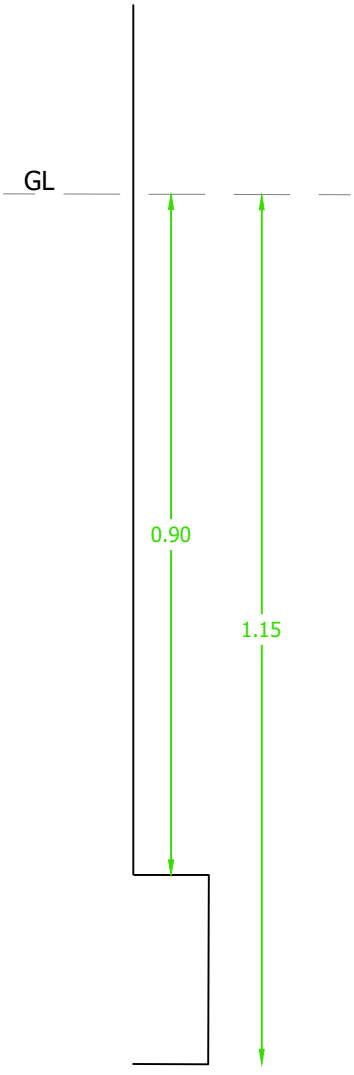
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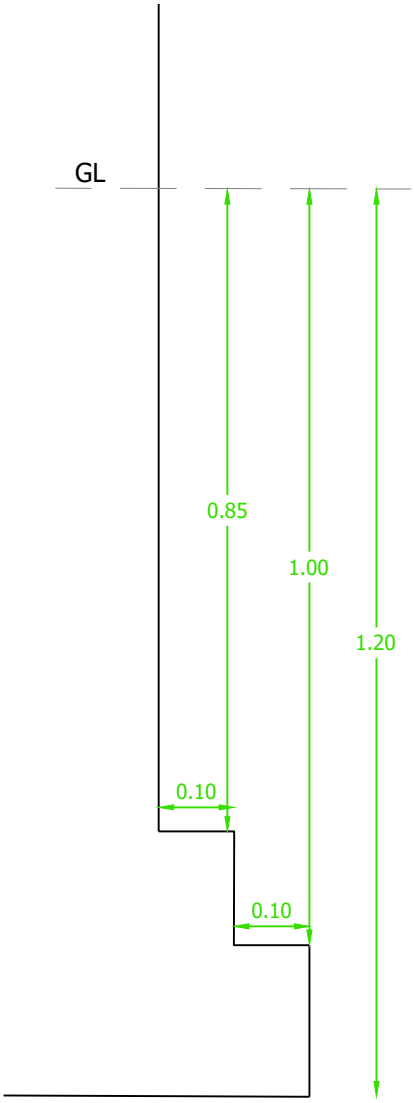
HP03 - CROSS SECTION



HP04 - CROSS SECTION



HP06 - CROSS SECTION



0 100 200 300 400 500 mm

SCALE 1:10

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P01	PRELIMINARY FIRST ISSUE	30.06.2025	PP	RW	

Document Control

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TETRA TECH

Client

NEATH PORT TALBOT COUNCIL

Project Name

ELRS PORT TALBOT

Sheet Title

PIT SKETCHES

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
784-B071864	PP	30.06.25	RW	30.06.25	-			S0

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B071864	TTE	00	XX	DR	U	HPS	P01

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TTE_MT_v1

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277015.75 Northing: 190365.07 Level: 13.70mAOD Depth: 1.90m Logger: Type: TP	Status FINAL	Pit Number **SA01** Sheet 1 of 1

Hole Information		Groundwater				
Pit Dimensions	Orientation: 0°	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:25
0.60m / 1.50m	Shoring:					Checked By: JC
	Stability: Collapse at 1.4m bgl.					Approved By: NEB
	Plant: 3CX					Start Date: 16/06/2025
						Finish Date: 16/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.02	13.68			0.10 - 0.40	B4	
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR						0.20	ES1	
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.45	13.24			0.60	ES2	
Very dense greyish brown fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		1.22	12.48			1.20 - 1.60	ES5	
						1.40	ES3	
EOH at 1.90m -		1.90	11.80					

1 2 3 4 5

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

Hodge House, 114-116 St Mary Street, Cardiff, CF10 1DY

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Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277010.40 Northing: 190345.10 Level: 13.60mAOD Depth: 1.60m Logger: Type: TP	Status FINAL	Pit Number **SA02** Sheet 1 of 1

Hole Information		Groundwater				Scale: 1:25
Pit Dimensions	Orientation: 0°	Strike (m)	Rose To (m)	After (mins)	Remarks	Checked By: JC
0.60m / 1.50m	Shoring:					Approved By: NEB
	Stability: collapse at 1.4m bgl.					Start Date: 16/06/2025
	Plant: 3CX					Finish Date: 16/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.02	13.58					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR						0.30	ES1	
Brown gravelly slightly clayey SAND. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.60	13.00			0.70 - 0.90 0.80	B4 ES2	
Greyish brown slightly sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		1.00	12.60			1.10 - 1.40 1.40	B5 ES3	
EOH at 1.60m -		1.60	12.00					

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

Hodge House, 114-116 St Mary Street, Cardiff, CF10 1DY

029 2082 9200

Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277069.59 Northing: 190362.62 Level: 14.00mAOD Depth: 2.00m Logger: Type: TP	Status FINAL	Pit Number **SA03** Sheet 1 of 1

Hole Information		Groundwater				Scale: 1:25
Pit Dimensions	Orientation: 90°	Strike (m)	Rose To (m)	After (mins)	Remarks	Checked By: JC
0.60m / 1.50m	Shoring:					Approved By: NEB
	Stability: Stable					Start Date: 16/06/2025
	Plant: 3CX					Finish Date: 16/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MG-R		0.02	13.98			0.15	ES1	
MADE GROUND: Light grey slightly sandy fine to medium angular GRAVEL (6F1 or similar). MGR		0.25	13.75					
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS								
Greyish brown sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		1.12	12.88			1.20 1.20 - 1.50	ES2 B3	
EOH at 2.00m -		2.00	12.00					

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

Hodge House, 114-116 St Mary Street, Cardiff, CF10 1DY

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Project Number

784-B071864

Project: **ELRS Port Talbot** Location: **Port Talbot** Client: **Tilbury Douglas**	Location Details Easting: 277012.79 Northing: 190368.77 Level: 13.78mAOD Depth: 1.60m Logger: Type: WLS Inclination: °	Status FINAL	Borehole Number **WS01** Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: JC Approved By: NEB Start Date: 18/06/2025 Finish Date: 18/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MGR		0.02	13.76					
MADE GROUND: Black sandy medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR						0.20	ES1	
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR		0.36	13.42			0.70	ES2	
Brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.90	12.88			1.00	ES3	SPT(C) 1.00m, N=35 (1,1/4,10,10,11)
Very dense greyish brown sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		1.27	12.51					
EOH at 1.60m -		1.60	12.18					SPT(C) 1.60m, N=50 (10,16/50 for 155mm)

1 2 3 4 5

Observations / Remarks	Sampling Runs					Hammer Information	
1. All locations scanned using GPR, CAT and signal generator prior to excavation. 2. No Groundwater Encountered.	From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %
						DART554	63
						Project Number **784-B071864**	

Project: **ELRS Port Talbot**	Location Details	Status	Borehole Number
Location: **Port Talbot**	Easting: 277020.84 Northing: 190329.75	FINAL	**WS02**
Client: **Tilbury Douglas**	Level: 13.66mAOD Depth: 1.50m		Sheet 1 of 1
	Logger: Type: WLS		
	Inclination: °		

Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: JC
															Approved By: NEB
															Start Date: 18/06/2025
															Finish Date: 18/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MGR		0.02	13.64					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR								
Brown sandy slightly clayey medium to coarse subrounded sandstone GRAVEL with low cobble content. Sand is medium to coarse. ALLUVIAL FAN DEPOSITS		0.60	13.06			1.00 - 1.20	B1	SPT(C) 1.00m, N=43 (3,6/7,10,12,14)
Very dense greyish brown sandy fine to coarse subrounded Gravels of sandstone with medium cobble content and occasional boulders. Sand is coarse. ALLUVIAL FAN DEPOSITS		1.20	12.46					
EOH at 1.50m -		1.50	12.16					SPT(C) 1.50m, N=50 (13,20/50 for 85mm)

1 2 3 4 5

Observations / Remarks	Sampling Runs					Hammer Information	
1. All locations scanned using GPR, CAT and signal generator prior to excavation. 2. No Groundwater Encountered.	From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %
						DART554	63
						Project Number	
						784-B071864	

Project:	**ELRS Port Talbot**
Location:	**Port Talbot**
Client:	**Tilbury Douglas**

Location Details			
Easting:	277068.27	Northing:	190332.59
Level:	13.78mAOD	Depth:	1.45m
Logger:		Type:	WLS
		Inclination:	°

Status: FINAL

Borehole Number: **WS03**

Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						Remarks
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)		

Scale:	1:25
Checked By:	JC
Approved By:	NEB
Start Date:	18/06/2025
Finish Date:	18/06/2025

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Tarmac. MGR		0.02	13.76					
MADE GROUND: Black sandy fine to medium angular GRAVEL of sandstone and asphalt. Sand is coarse. MGR								
Soft brown sandy slightly gravely CLAY with low cobble content. Gravel is of medium to coarse subrounded sandstone. Sand is medium to coarse.		0.60	13.18					
ALLUVIAL FAN DEPOSITS		0.90	12.88					
Very dense greyish brown sandy fine to coarse subrounded GRAVEL of sandstone with medium cobble content and occasional boulders. Sand is coarse.								SPT(C) 1.00m, N=50 (4,10/50 for 210mm)
ALLUVIAL FAN DEPOSITS								
EOH at 1.45m -		1.45	12.32					

1
2
3
4
5

Observations / Remarks

1. All locations scanned using GPR, CAT and signal generator prior to excavation.
2. No Groundwater Encountered.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks

Hammer Information

Serial No.	Energy Ratio %
DART554	63

Project Number: **784-B071864**

APPENDIX D: TRL PROBE TEST RESULTS

DCP w. In Situ CBR v1.1 (03/09/2018)

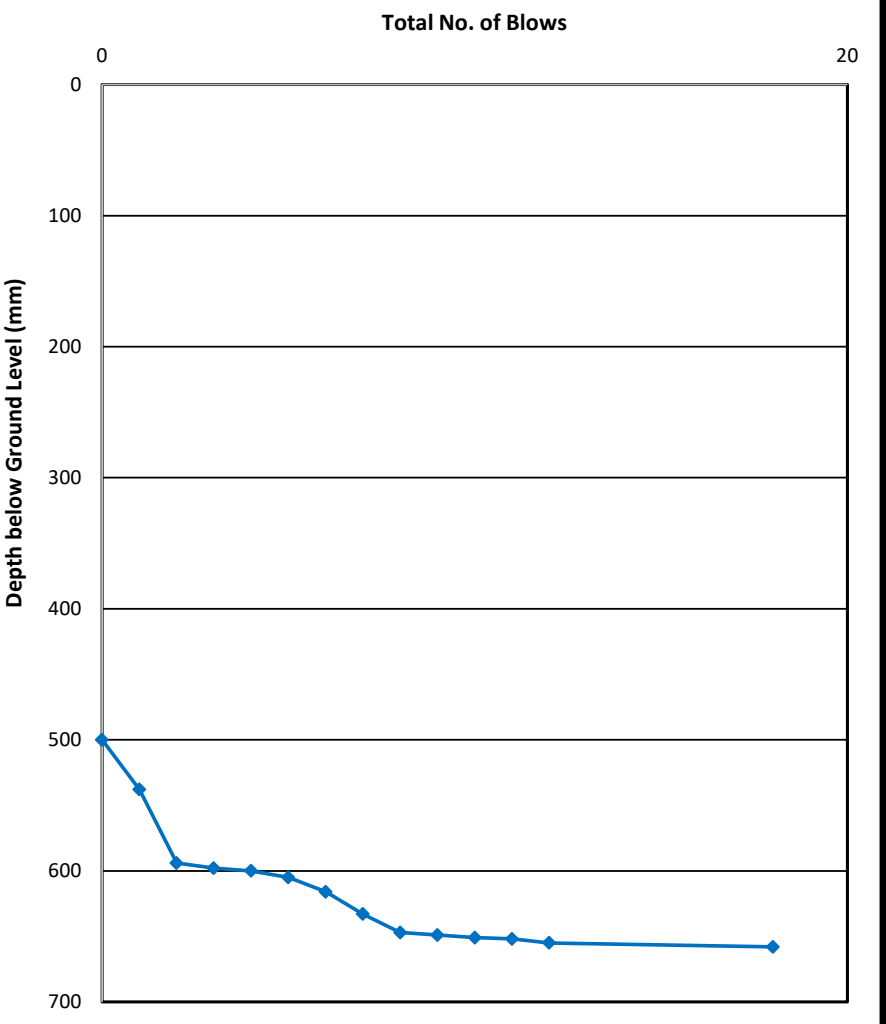
Client	Tilbury Douglas
Project No:	784-B071864
Hole Number:	HP03
Final Depth (m):	0.66
Easting (x):	277046.27
Northing (y):	190346.34
Elevation (m AOD):	22.48
Weather:	Warm Sunny

Tetra Tech Ltd

Hodge House, 114-116 St Mary Street,
Cardiff, CF10 1DY

TETRA TECH

Start Depth (mm)	500	Zero Reading (mm)	146	Test Number	1
Logged by:	Ross Wright				
Logged Date:	17/06/2025				



Data

No Blows	Total Blows	Reading (mm)	Penetration (mm)
0	0	146	0
1	1	184	38
1	2	240	56
1	3	244	4
1	4	246	2
1	5	251	5
1	6	262	11
1	7	279	17
1	8	293	14
1	9	295	2
1	10	297	2
1	11	298	1
1	12	301	3
6	18	304	3

Depth Range Start (mm BGL)	Depth Range End (mm BGL)	Average penetration / blow (mm)	Average CBR value (%)
500	658	11.96	21.917

Checked by : NEB Complete

CBR values derived from DCP by Highways specification: Log10 (CBR) = 2.48 - 1.057 (Log10 (mm/blow))

Test Remarks:

DCP w. In Situ CBR v1.1 (03/09/2018)

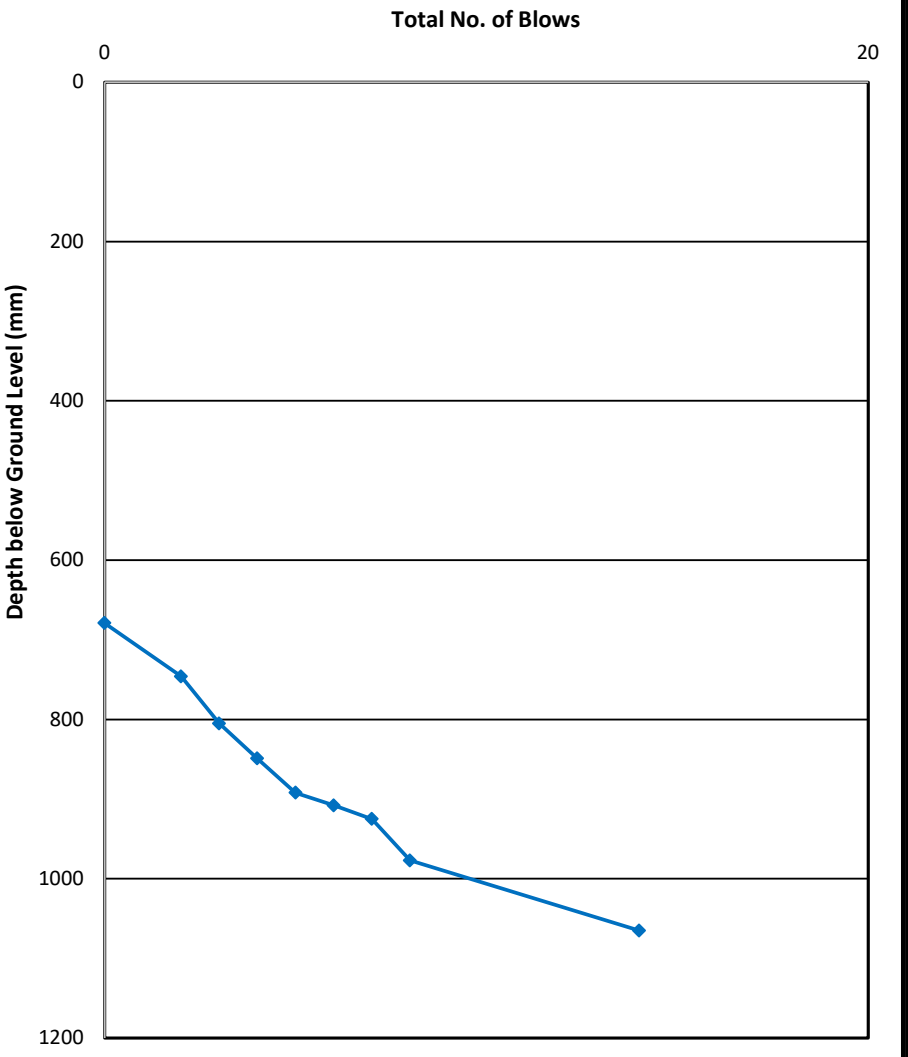
Client	784-B071864
Project No:	784-B071864
Hole Number:	HP04
Final Depth (m):	1.07
Easting (x):	277040.4
Northing (y):	190337.90
Elevation (m AOD):	14.18
Weather:	Warm Sunny

Tetra Tech Ltd

Hodge House, 114-116 St Mary Street,
Cardiff, CF10 1DY

TETRA TECH

Start Depth (mm)	540	Zero Reading (mm)	107	Test Number	1
Logged by:	Ross Wright				
Logged Date:	17/06/2025				



Depth Range Start (mm BGL)	Depth Range End (mm BGL)	Average penetration / blow (mm)	Average CBR value (%)
679	1065	39.08	6.270

Checked by : NEB Complete

CBR values derived from DCP by Highways specification: Log10 (CBR) = 2.48 - 1.057 (Log10 (mm/blow))

Data

No Blows	Total Blows	Reading (mm)	Penetration (mm)
1	0	246	139
1	2	313	67
1	3	372	59
1	4	416	44
1	5	459	43
1	6	475	16
1	7	492	17
1	8	544	52
6	14	632	88

DCP w. In Situ CBR v1.1 (03/09/2018)

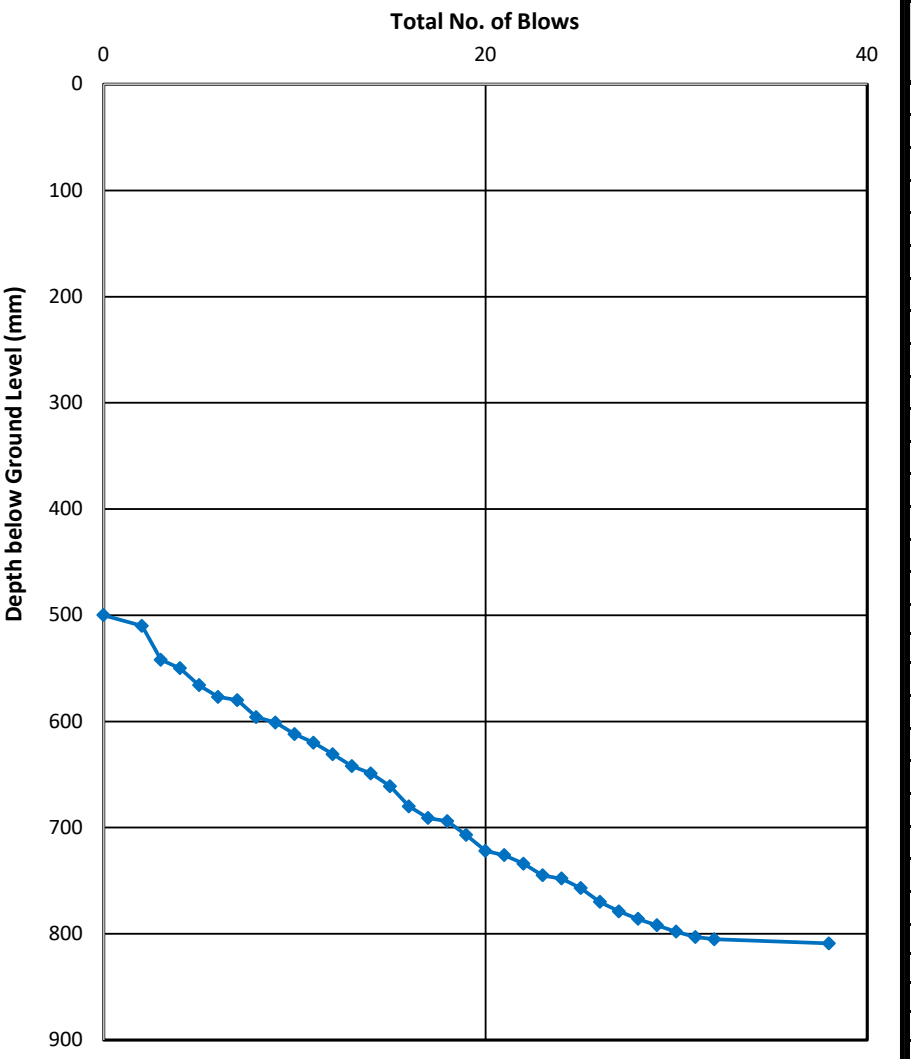
Client	Tilbury Douglas
Project No:	784-B071864
Hole Number:	HP05
Final Depth (m):	0.81
Easting (x):	277059
Northing (y):	190348.87
Elevation (m AOD):	13.89
Weather:	Overcast

Tetra Tech Ltd

Hodge House, 114-116 St Mary Street,
Cardiff, CF10 1DY

TETRA TECH

Start Depth (mm)	500	Zero Reading (mm)	214	Test Number	1
Logged by:	RW				
Logged Date:	17/06/2025				



Depth Range Start (mm BGL)	Depth Range End (mm BGL)	Average penetration / blow (mm)	Average CBR value (%)
500	809	9.55	27.799

Checked by : NEB Complete

CBR values derived from DCP by Highways specification: Log10 (CBR) = 2.48 - 1.057 (Log10 (mm/blow))

Data			
1	Total Blows	Reading (mm)	Penetration (mm)
1	0	214	0
1	2	224	10
1	3	256	32
1	4	264	8
1	5	280	16
1	6	291	11
1	7	294	3
1	8	310	16
1	9	315	5
1	10	326	11
1	11	334	8
1	12	345	11
1	13	356	11
1	14	363	7
1	15	375	12
1	16	394	19
1	17	405	11
1	18	408	3
1	19	421	13
1	20	436	15
1	21	440	4
1	22	448	8
1	23	459	11
1	24	462	3
1	25	471	9
1	26	484	13
1	27	493	9
1	28	500	7
1	29	506	6
1	30	512	6
1	31	517	5
1	32	519	2
6	38	523	4

DCP w. In Situ CBR v1.1 (03/09/2018)

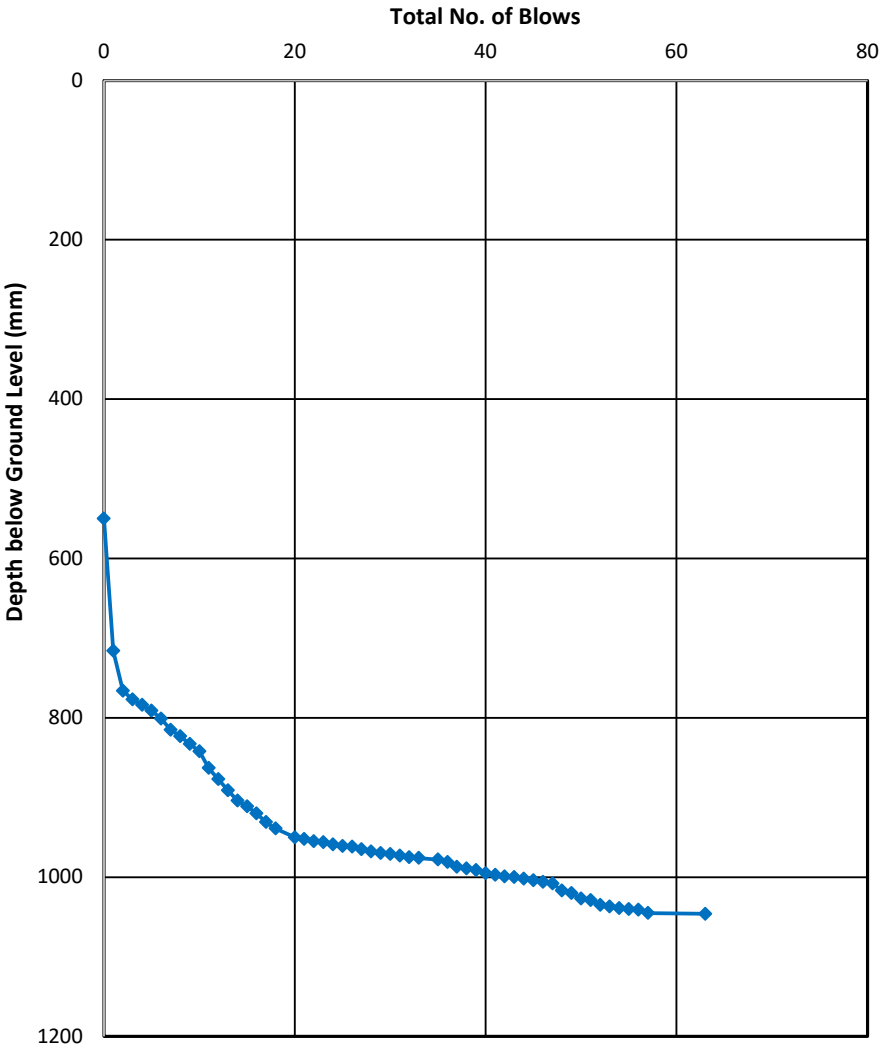
Client	784-B071864
Project No:	B071864
Hole Number:	WS03
Final Depth (m):	1.05
Easting (x):	277068.27
Northing (y):	190332.59
Elevation (m AOD):	13.78
Weather:	Overcast

Tetra Tech Ltd

Longcross Court,
Cardiff,
CF24 0AD
Tel: 029 2082 9200

TETRA TECH

Start Depth (mm)	550	Zero Reading (mm)	135	Test Number	1
Logged by:	Joe Bloggs				
Logged Date:	17/06/2025				



Depth Range Start (mm BGL)	Depth Range End (mm BGL)	Average penetration / blow (mm)	Average CBR value (%)
550	1046	8.73	30.588
Checked by :		NEB	Complete

CBR values derived from DCP by Highways specification: Log10 (CBR) = 2.48 - 1.057

Data			
No Blows	Total Blows	Reading (mm)	Penetration (mm)
0	0	135	0
1	1	301	166
1	2	351	50
1	3	362	11
1	4	369	7
1	5	376	7
1	6	386	10
1	7	400	14
1	8	408	8
1	9	418	10
1	10	427	9
1	11	448	21
1	12	462	14
1	13	476	14
1	14	489	13
1	15	496	7
1	16	505	9
1	17	516	11
1	18	524	8
2	20	535	11
1	21	537	2
1	22	540	3
1	23	541	1
1	24	544	3
1	25	546	2
1	26	547	1
1	27	550	3
1	28	553	3
1	29	555	2
1	30	556	1
1	31	558	2
1	32	560	2
1	33	561	1
2	35	563	2
1	36	566	3
1	37	572	6
1	38	574	2
1	39	576	2
1	40	580	4
1	41	582	2
1	42	584	2
1	43	585	1
1	44	587	2
1	45	589	2

APPENDIX E: SOIL INFILTRATION TEST

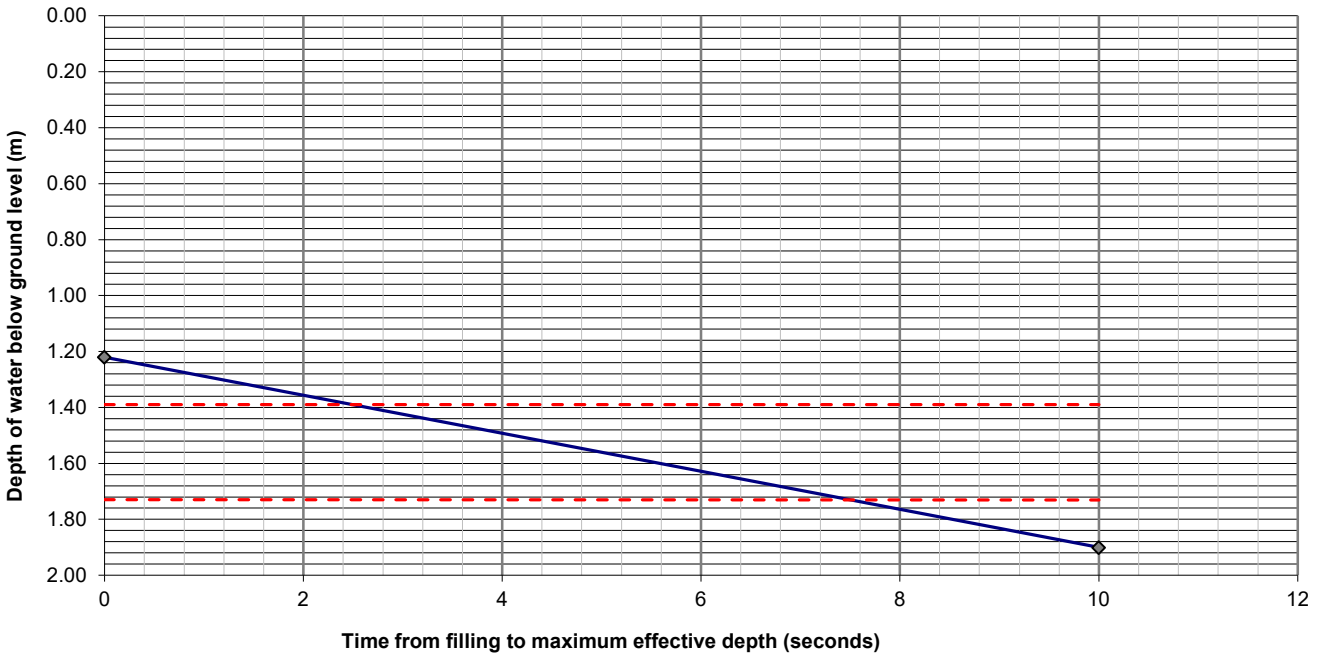
Tetra Tech

Environmental Consultancy
Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA01
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.220
10	0.10	1.900

PIT LENGTH (m):	1.50	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	1.90	

INPUT PARAMETERS:		
Total volume of pit	(m^3)	0.61
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.31
Effective depth of Pit	(m)	0.68
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.61
Level of water in pit at 75% effective depth (p_{75})	(m)	0.17
Level of water in pit at 25% effective depth (p_{25})	(m)	0.51
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.31
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	2.33
Time at 75% effective depth (p_{75})	(s)	3
Time at 25% effective depth (p_{25})	(s)	8
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	5

OUTPUT:			
SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**2.63E-02**

WATER INPUT:	500	l	4

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by:	RW
Checked by:	NEB

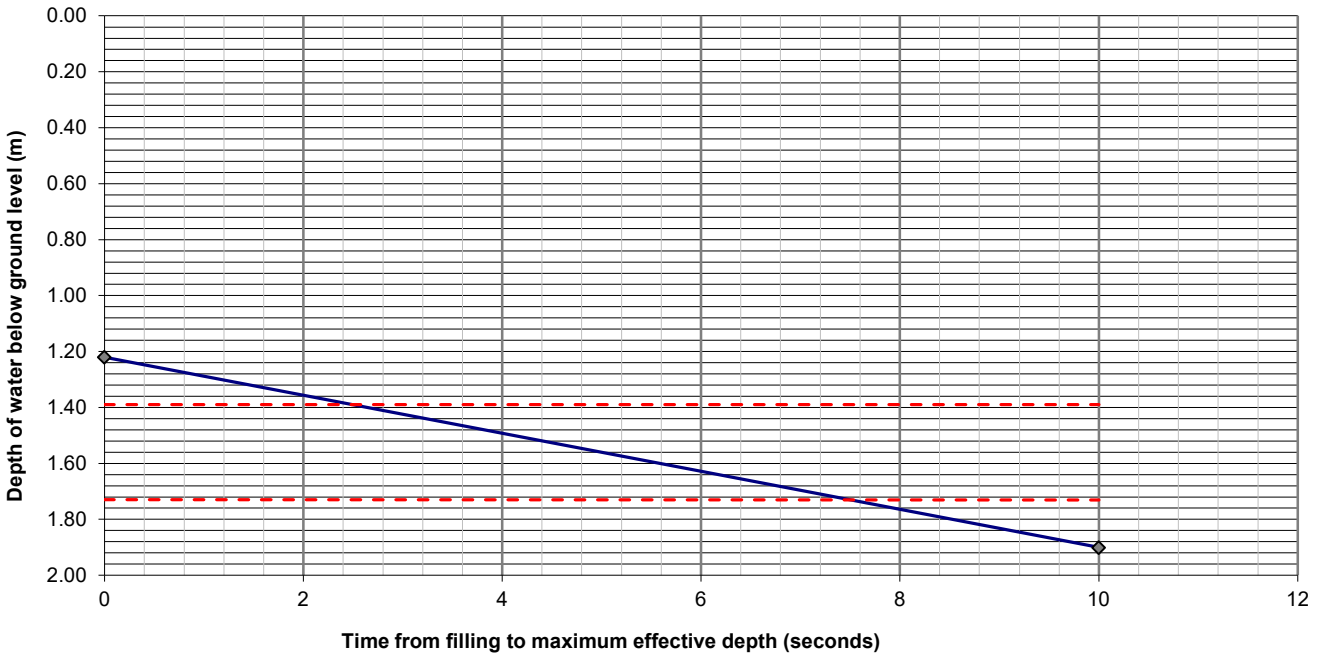
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Environmental Consultancy
Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA01
TEST NUMBER:	2

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.220
10	0.10	1.900

PIT LENGTH (m):	1.50
PIT WIDTH (m):	0.60
PIT DEPTH (m):	1.90

Pit construction

INPUT PARAMETERS:

Total volume of pit	(m^3)	0.61
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.31
Effective depth of Pit	(m)	0.68
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.61
Level of water in pit at 75% effective depth (p_{75})	(m)	0.17
Level of water in pit at 25% effective depth (p_{25})	(m)	0.51
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.31
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	2.33
Time at 75% effective depth (p_{75})	(s)	3
Time at 25% effective depth (p_{25})	(s)	8
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	5

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**2.63E-02**

WATER INPUT:	500	l	4

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by:	RW
Checked by:	NEB

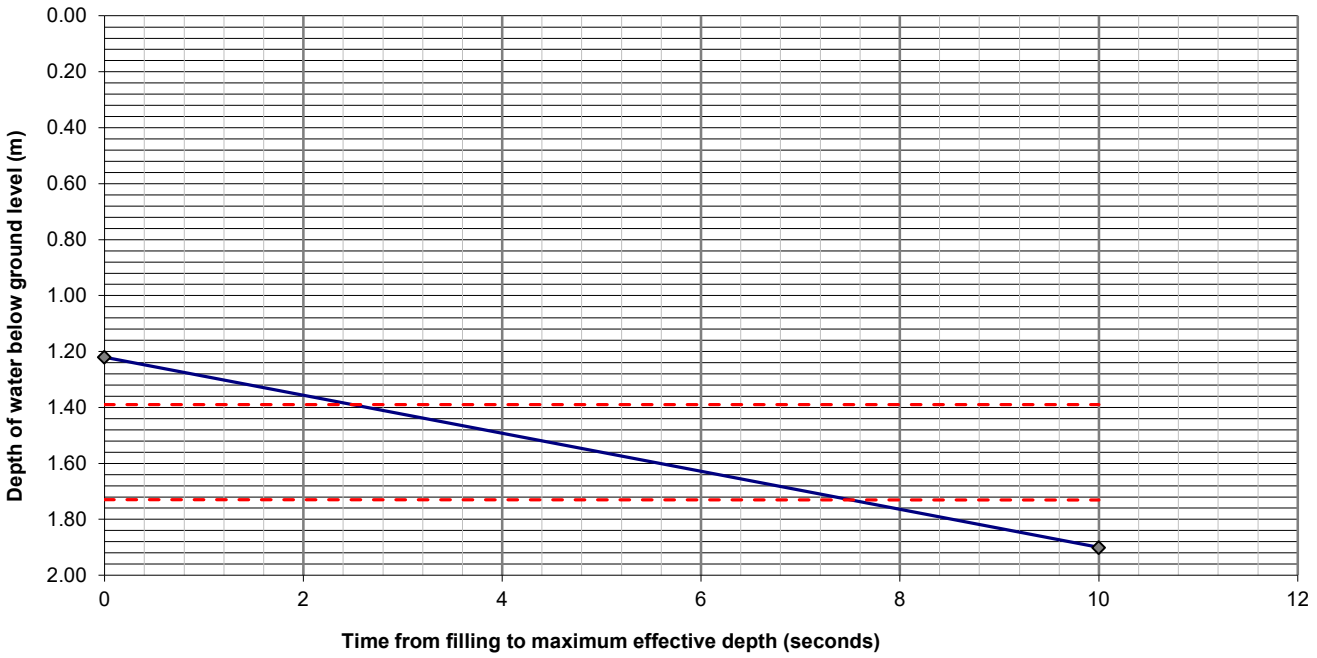
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Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA01
TEST NUMBER:	3

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.220
10	0.10	1.900

PIT LENGTH (m):	1.50
PIT WIDTH (m):	0.60
PIT DEPTH (m):	1.90

Pit construction

INPUT PARAMETERS:		
Total volume of pit	(m^3)	0.61
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.31
Effective depth of Pit	(m)	0.68
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.61
Level of water in pit at 75% effective depth (p_{75})	(m)	0.17
Level of water in pit at 25% effective depth (p_{25})	(m)	0.51
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.31
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	2.33
Time at 75% effective depth (p_{75})	(s)	3
Time at 25% effective depth (p_{25})	(s)	8
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	5

OUTPUT:			
SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**2.63E-02**

WATER INPUT:	500	l	4

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by: RW
Checked by:

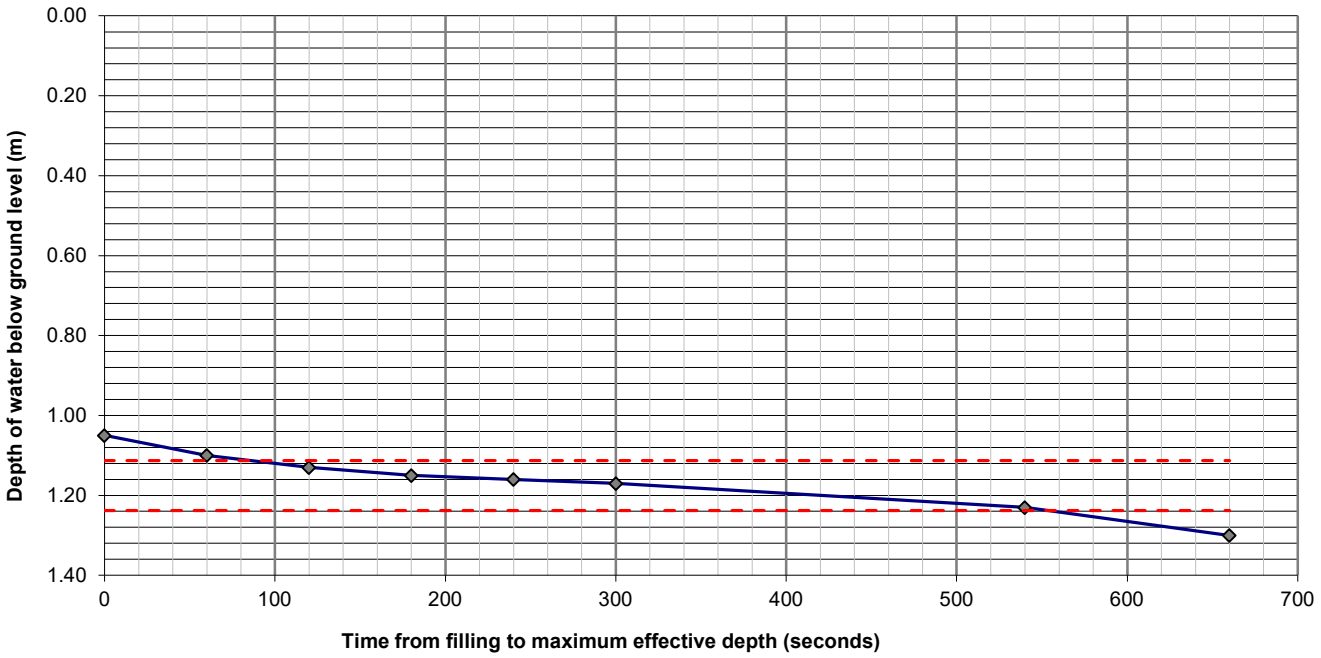
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Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA02
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.050
60	1.00	1.100
120	2.00	1.130
180	3.00	1.150
240	4.00	1.160
300	5.00	1.170
540	9.00	1.230
660	11.00	1.300

PIT LENGTH (m):	1.50	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	1.30	

INPUT PARAMETERS:		
Total volume of pit	(m^3)	0.23
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.11
Effective depth of Pit	(m)	0.25
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.23
Level of water in pit at 75% effective depth (p_{75})	(m)	0.06
Level of water in pit at 25% effective depth (p_{25})	(m)	0.19
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.11
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.43
Time at 75% effective depth (p_{75})	(s)	85
Time at 25% effective depth (p_{25})	(s)	553
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	468

OUTPUT:			
SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**1.69E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by: RW
Checked by: NEB

After BRE Digest 365, Soakaway Design, 2016

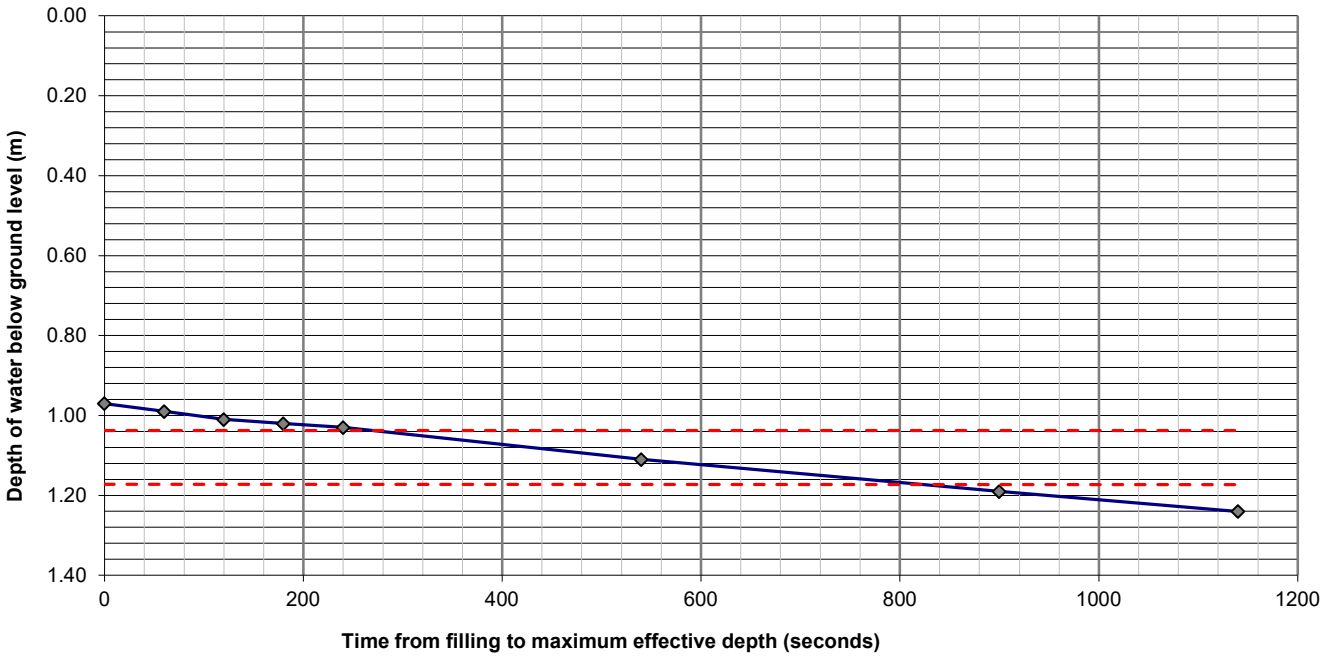
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Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA02
TEST NUMBER:	2

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	0.970
60	1.00	0.990
120	2.00	1.010
180	3.00	1.020
240	4.00	1.030
540	9.00	1.110
900	15.00	1.190
1140	19.00	1.240

PIT LENGTH (m):	1.50	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	1.24	

INPUT PARAMETERS:

Total volume of pit	(m^3)	0.24
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.12
Effective depth of Pit	(m)	0.27
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.24
Level of water in pit at 75% effective depth (p_{75})	(m)	0.07
Level of water in pit at 25% effective depth (p_{25})	(m)	0.20
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.12
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.47
Time at 75% effective depth (p_{75})	(s)	268
Time at 25% effective depth (p_{25})	(s)	822
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	553

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**1.50E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by: RW
Checked by: NEB

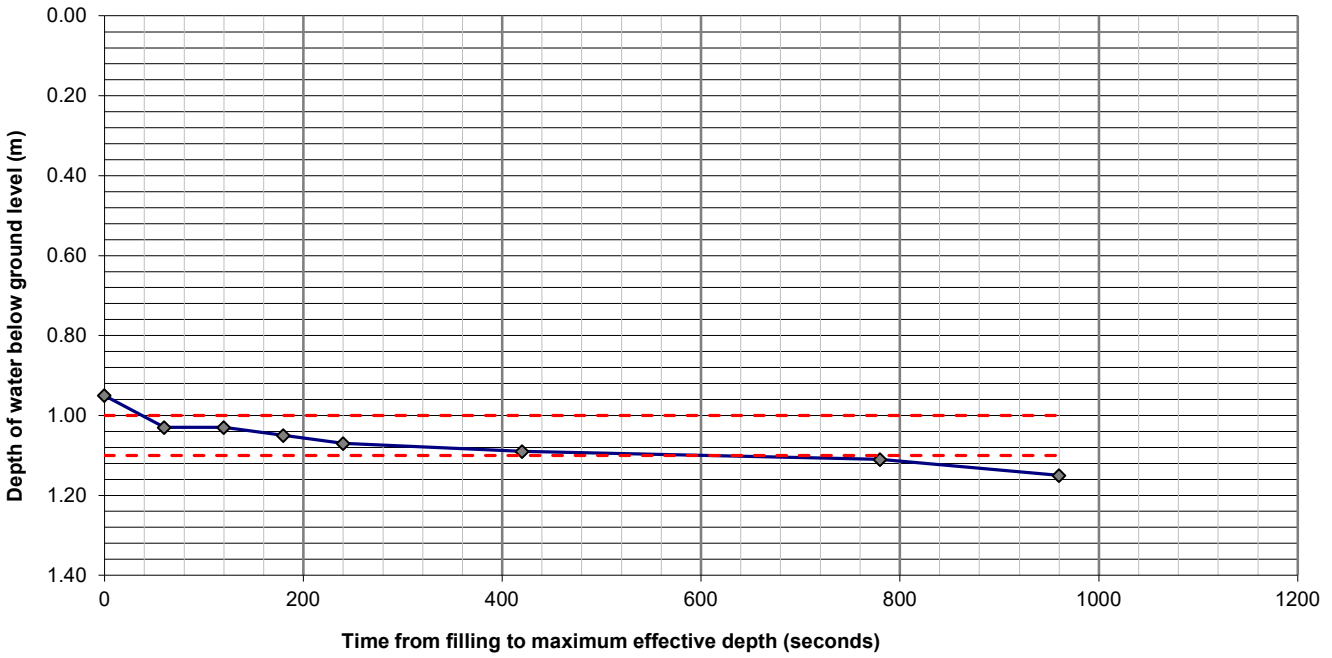
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Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA02
TEST NUMBER:	3

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	0.950
60	1.00	1.030
120	2.00	1.030
180	3.00	1.050
240	4.00	1.070
420	7.00	1.090
780	13.00	1.110
960	16.00	1.150

PIT LENGTH (m):	1.50	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	1.15	

INPUT PARAMETERS:		
Total volume of pit	(m^3)	0.18
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.09
Effective depth of Pit	(m)	0.20
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.18
Level of water in pit at 75% effective depth (p_{75})	(m)	0.05
Level of water in pit at 25% effective depth (p_{25})	(m)	0.15
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.09
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.32
Time at 75% effective depth (p_{75})	(s)	38
Time at 25% effective depth (p_{25})	(s)	601
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	563

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**1.21E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by: RW
Checked by: NEB

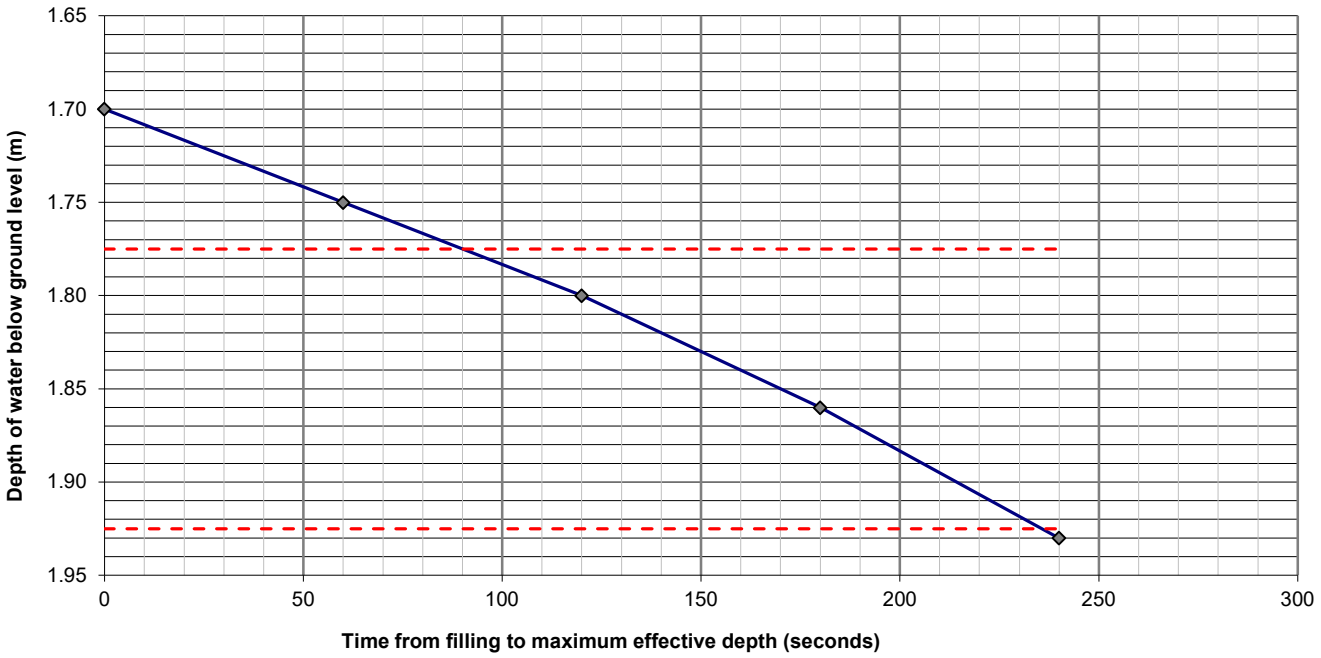
Tetra Tech

Environmental Consultancy
Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA03
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.700
60	1.00	1.750
120	2.00	1.800
180	3.00	1.860
240	4.00	1.930

PIT LENGTH (m):	1.40	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	2.00	

INPUT PARAMETERS:

Total volume of pit	(m^3)	0.25
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.13
Effective depth of Pit	(m)	0.30
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.25
Level of water in pit at 75% effective depth (p_{75})	(m)	0.08
Level of water in pit at 25% effective depth (p_{25})	(m)	0.23
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.13
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.44
Time at 75% effective depth (p_{75})	(s)	90
Time at 25% effective depth (p_{25})	(s)	236
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	146

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**6.00E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by:	RW
Checked by:	NEB

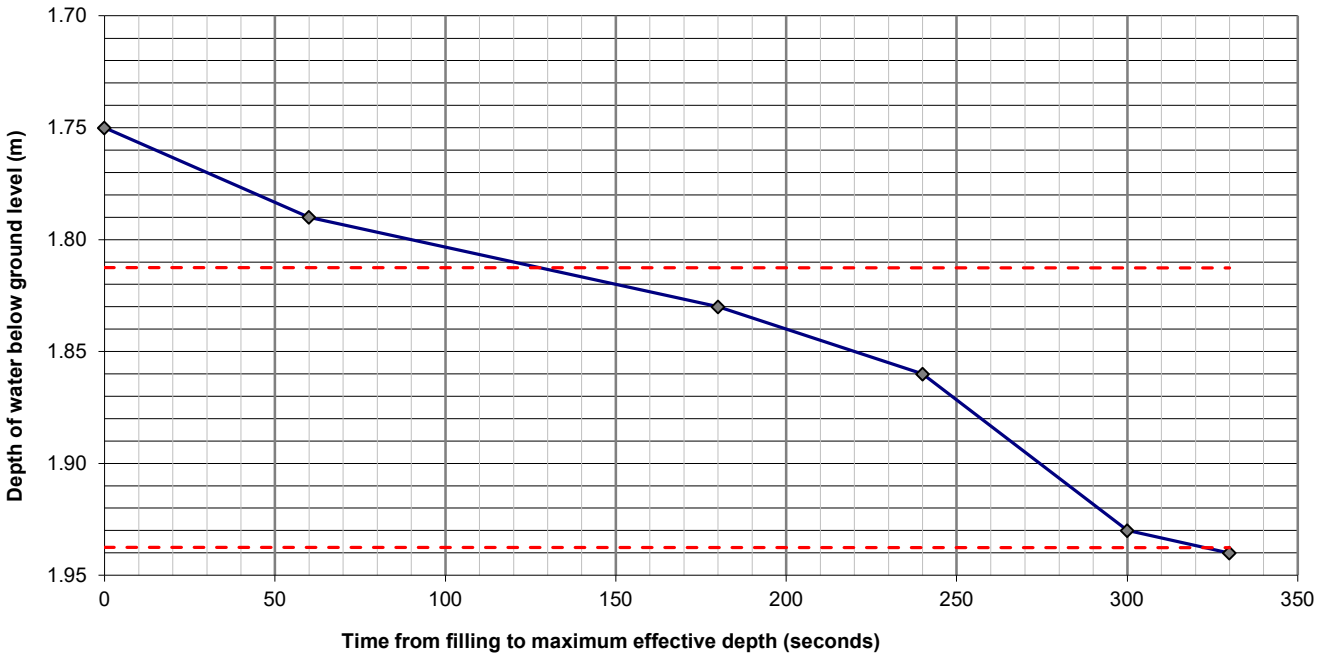
Tetra Tech

Environmental Consultancy
Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA03
TEST NUMBER:	2

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.750
60	1.00	1.790
180	3.00	1.830
240	4.00	1.860
300	5.00	1.930
330	5.50	1.940

PIT LENGTH (m):	1.40
PIT WIDTH (m):	0.60
PIT DEPTH (m):	2.00

Pit construction

INPUT PARAMETERS:

Total volume of pit	(m^3)	0.21
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.11
Effective depth of Pit	(m)	0.25
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.21
Level of water in pit at 75% effective depth (p_{75})	(m)	0.06
Level of water in pit at 25% effective depth (p_{25})	(m)	0.19
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.11
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.34
Time at 75% effective depth (p_{75})	(s)	128
Time at 25% effective depth (p_{25})	(s)	323
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	195

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**4.02E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by: RW
Checked by: NEB

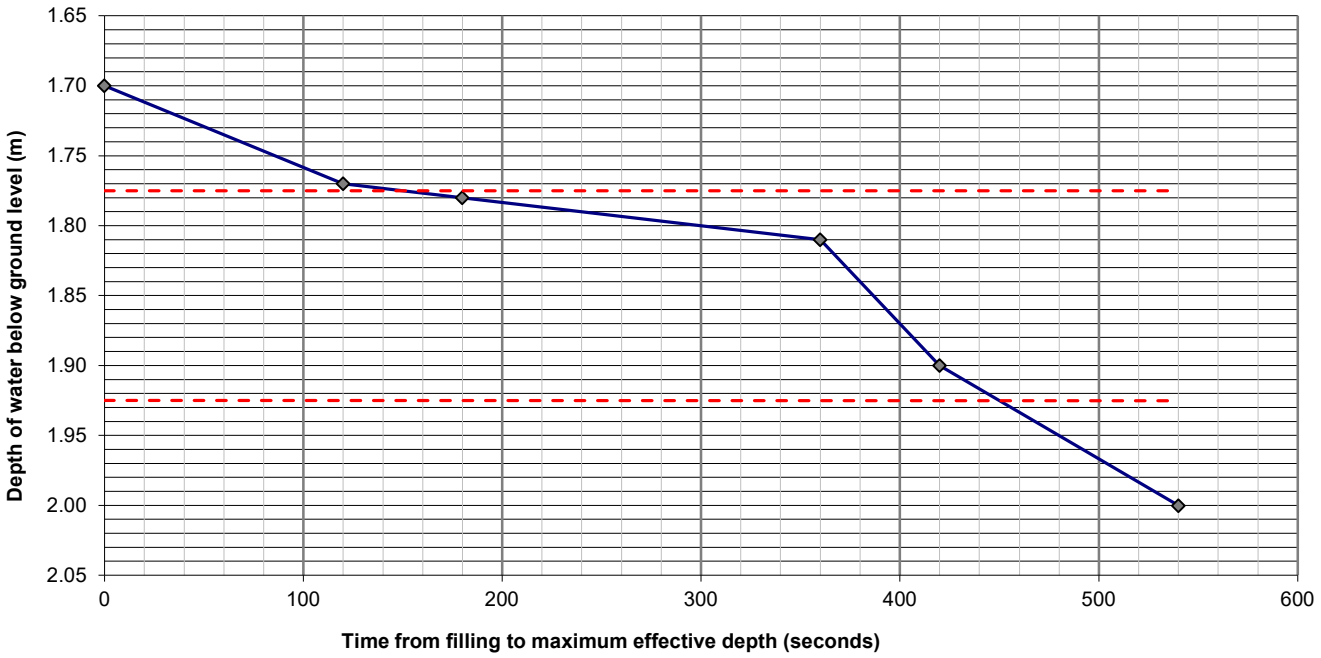
Tetra Tech

Environmental Consultancy
Ground Engineering Services

TETRA TECH

DATE:	16/06/2025
PROJECT No:	784-B071864
PROJECT NAME:	ELRS Port Talbort
CLIENT:	Tilbury Douglas
TRIAL PIT ID:	SA03
TEST NUMBER:	3

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
	0.00	1.700
120	2.00	1.770
180	3.00	1.780
360	6.00	1.810
420	7.00	1.900
540	9.00	2.000

PIT LENGTH (m):	1.40	**Pit construction**
PIT WIDTH (m):	0.60	
PIT DEPTH (m):	2.00	

INPUT PARAMETERS:

Total volume of pit	(m^3)	0.25
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	0.13
Effective depth of Pit	(m)	0.30
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	0.25
Level of water in pit at 75% effective depth (p_{75})	(m)	0.08
Level of water in pit at 25% effective depth (p_{25})	(m)	0.23
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	0.13
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	1.44
Time at 75% effective depth (p_{75})	(s)	150
Time at 25% effective depth (p_{25})	(s)	450
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	300

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**2.92E-04**

WATER INPUT:	300	l	2

GEOLOGY OF TEST SECTION:

Dense sandy gravel with medium cobble content.

Compiled by:	RW
Checked by:	NEB

APPENDIX F: GEOTECHNICAL TEST DATA

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 79439

Client Ref: **784-B071864**
Client PO:

Client: **Tetra Tech**

Contract Title: **ELRS Port Talbot**
For the attention of: **Paul Vincent**

Date Received: **25-06-2025**
Date Completed: **11-07-2025**
Report Date: **11-07-2025**

This report has been checked and approved by:

B. Evans

Brendan Evans
Senior Office Administrator

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - @ Non Accredited Test	3
4 Point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	3
Particle Size Distribution BS EN ISO 17892-4 : 5.1 - * UKAS	10
Sedimentation by Pipette Method BS EN ISO 17892-4 : 5.4 - @ Non Accredited Test	1
BRE Suite D Brownfield Site (pyrite present) **includes pH, water & acid soluble sulphate, total sulphur, magnesium, chloride and nitrate** Sub-contracted Test#	5

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:
Brendan Evans (Senior Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (HR & HSE Manager)

GEO Site & Testing Services Ltd
Unit 3-4 Heol Aur, Dafen Ind Est, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784 040 Fax: 01554 784 040 info@gstl.co.uk https://gstl.co.uk

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
BS EN ISO 17892-12:2018+A2:2022 4 Point Liquid Limit
BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content

Contract Number	79439
Project Name	ELRS Port Talbot
Date Tested	02/07/2025

DESCRIPTIONS

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
SA02		B	0.70	-	0.90	Brown silty clayey fine to coarse gravelly fine to coarse SAND
CP01		B	0.60	-	1.20	Grey slightly silty clayey fine to coarse sandy fine to coarse GRAVEL
WS02		B	1.00	-	1.20	Brown slightly silty clyey fine to coarse sandy fine to coarse GRAVEL
				-		
				-		
				-		
				-		
				-		
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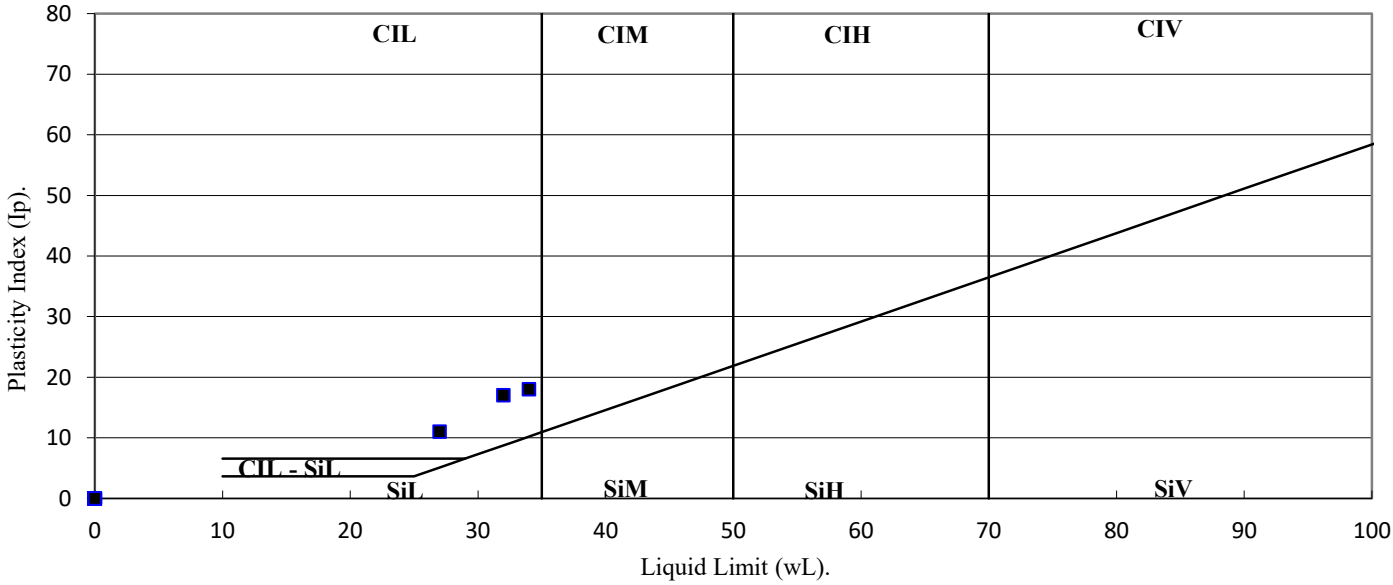
Operator
Aaron. H

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX** **BS EN ISO 17892-12:2018+A2:2022 4 Point Liquid Limit** **BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content**	
Contract Number	79439	
Project Name	ELRS Port Talbot	
Date Tested	02/07/2025	
Test Comments	80g/30° Fall cone used with increasing water content	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Water Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
SA02		B	0.70	-	0.90	16.8	32	15	17	65	CL Low Plasticity
CP01		B	0.60	-	1.20	11.0	27	16	11	34	CL Low Plasticity
WS02		B	1.00	-	1.20	14.5	34	16	18	49	CL Low Plasticity
				-							
				-							
				-							
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SYMBOLS : NP = Non Plastic **NB: All liquid limits are 4 point and wet sieved**

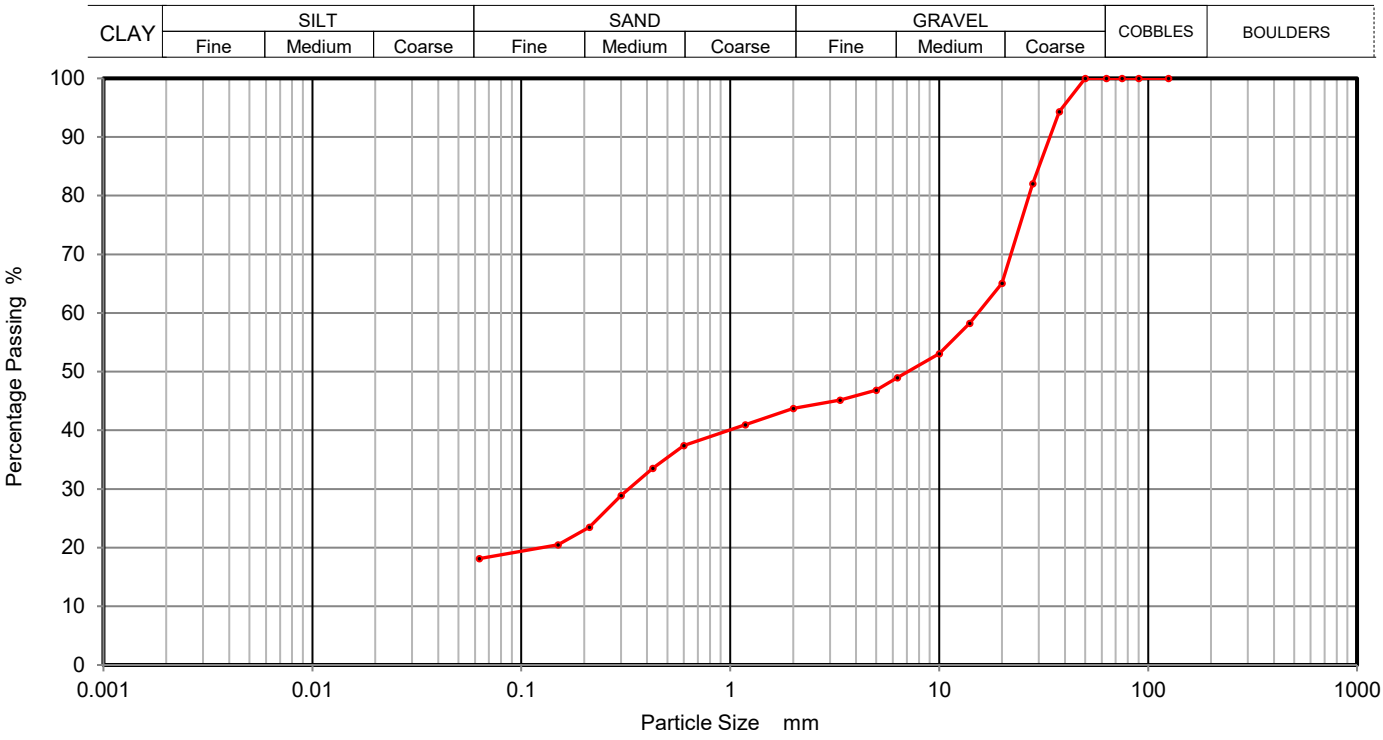
PLASTICITY CHART
BS EN ISO 14688-2:2018 Clause 4.4



***For sample descriptions please see sample descriptions sheet**

Operator
Aaron. H

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**CP01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Grey slightly silty clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	**0.60**
		Depth Base	**1.20**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	82		
20	65		
14	58		
10	53		
6.3	49		
5	47		
3.35	45		
2	44		
1.18	41		
0.63	37		
0.425	34		
0.30	29		
0.20	24		
0.15	21		
0.063	18		

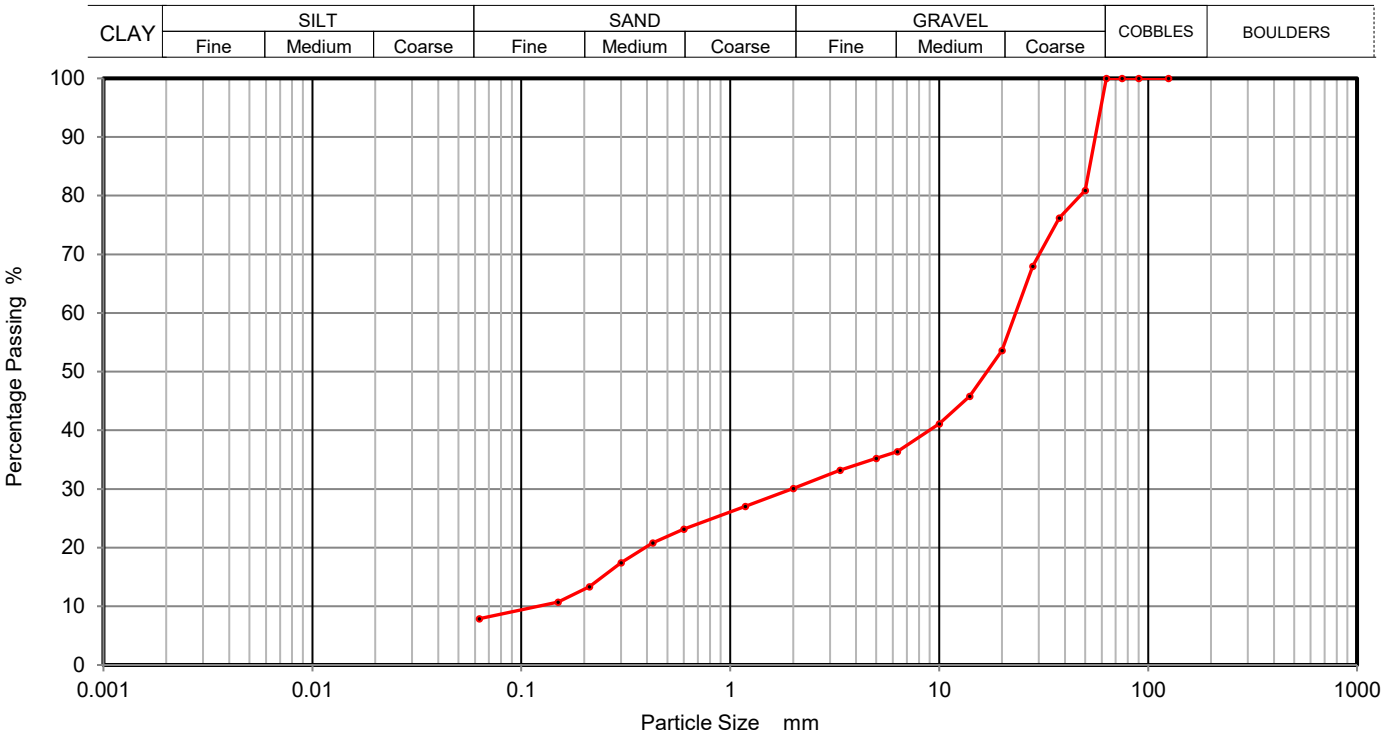
Sample Proportions	% dry mass
Cobbles	0
Gravel	56
Sand	26
Silt and Clay	18

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**CP01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Brown slightly silty/ clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	**2.50**
		Depth Base	**3.10**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	81		
37.5	76		
28	68		
20	54		
14	46		
10	41		
6.3	36		
5	35		
3.35	33		
2	30		
1.18	27		
0.63	23		
0.425	21		
0.30	17		
0.20	13		
0.15	11		
0.063	8		

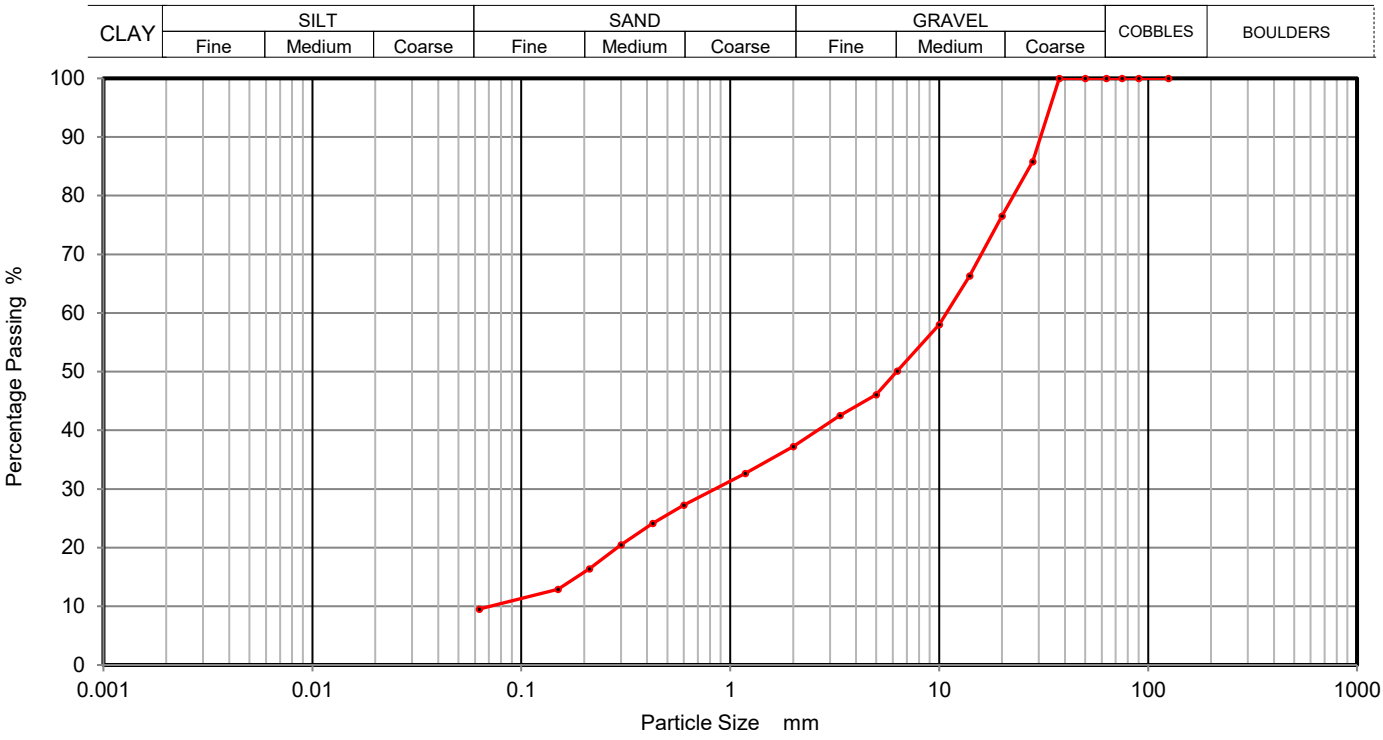
Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	22
Silt and Clay	8

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**CP01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Brown silty/ clayey fine to coarse sandy fin to coarse GRAVEL	Depth Top	**4.00**
		Depth Base	**4.38**
Date Tested	02/07/2025	Sample Type	**SPTLS**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	77		
14	66		
10	58		
6.3	50		
5	46		
3.35	43		
2	37		
1.18	33		
0.63	27		
0.425	24		
0.30	21		
0.20	16		
0.15	13		
0.063	10		

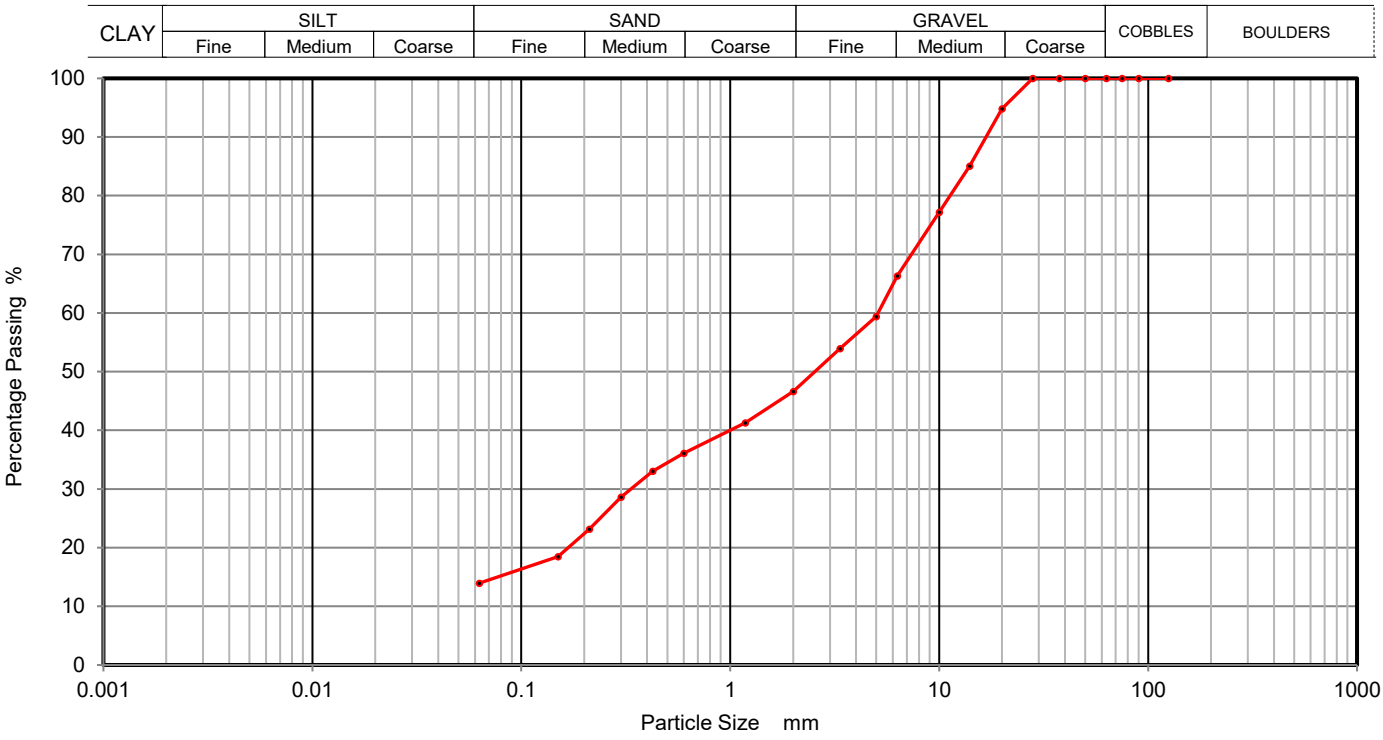
Sample Proportions	% dry mass
Cobbles	0
Gravel	63
Sand	27
Silt and Clay	10

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**CP01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Brown silty/ clayey fine to coarse sandy fin to coarse GRAVEL	Depth Top	**5.10**
		Depth Base	**5.37**
Date Tested	02/07/2025	Sample Type	**SPTLS**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	85		
10	77		
6.3	66		
5	59		
3.35	54		
2	47		
1.18	41		
0.63	36		
0.425	33		
0.30	29		
0.20	23		
0.15	18		
0.063	14		

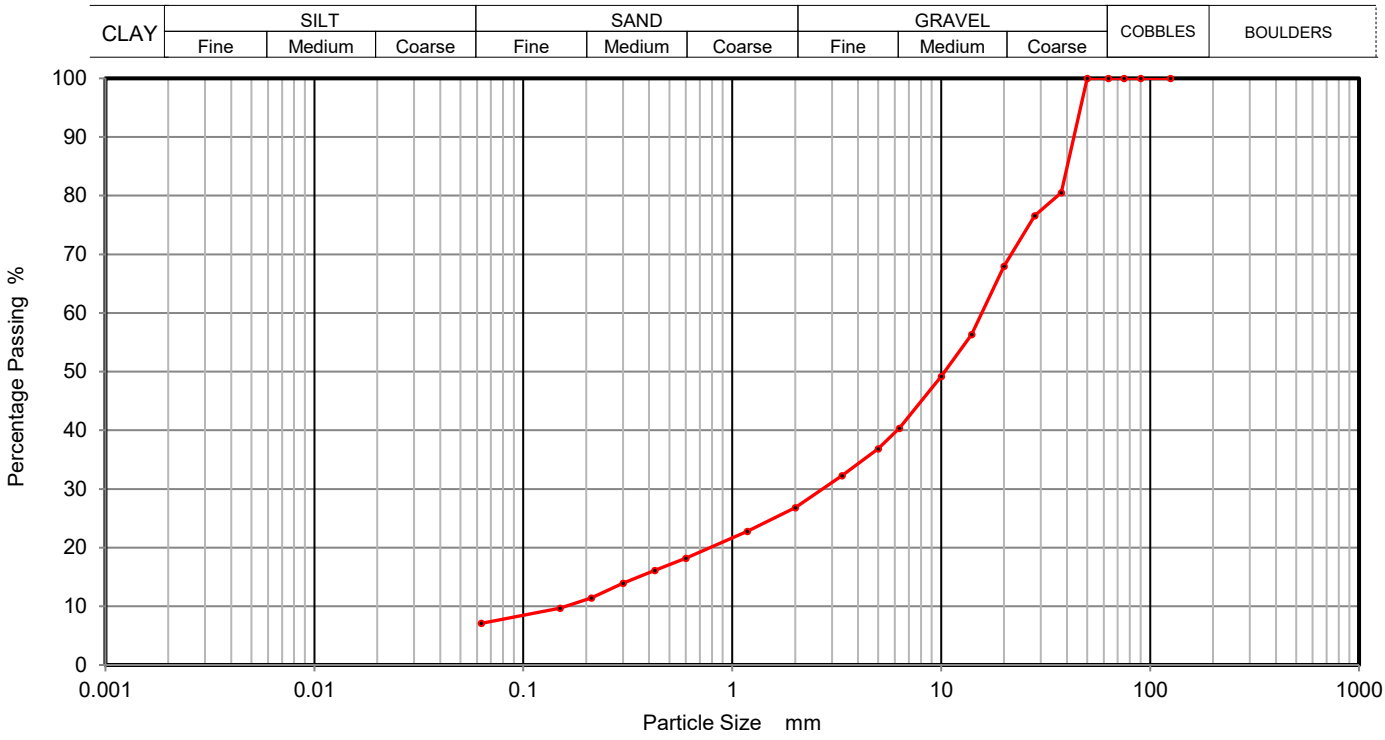
Sample Proportions	% dry mass
Cobbles	0
Gravel	53
Sand	33
Silt and Clay	14

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**SA01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Black slightly silty/ clayey fine to coarse sandy fine to coarse GRAVEL (ashfill)	Depth Top	**0.10**
		Depth Base	**0.40**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	81		
28	77		
20	68		
14	56		
10	49		
6.3	40		
5	37		
3.35	32		
2	27		
1.18	23		
0.63	18		
0.425	16		
0.30	14		
0.20	11		
0.15	10		
0.063	7		

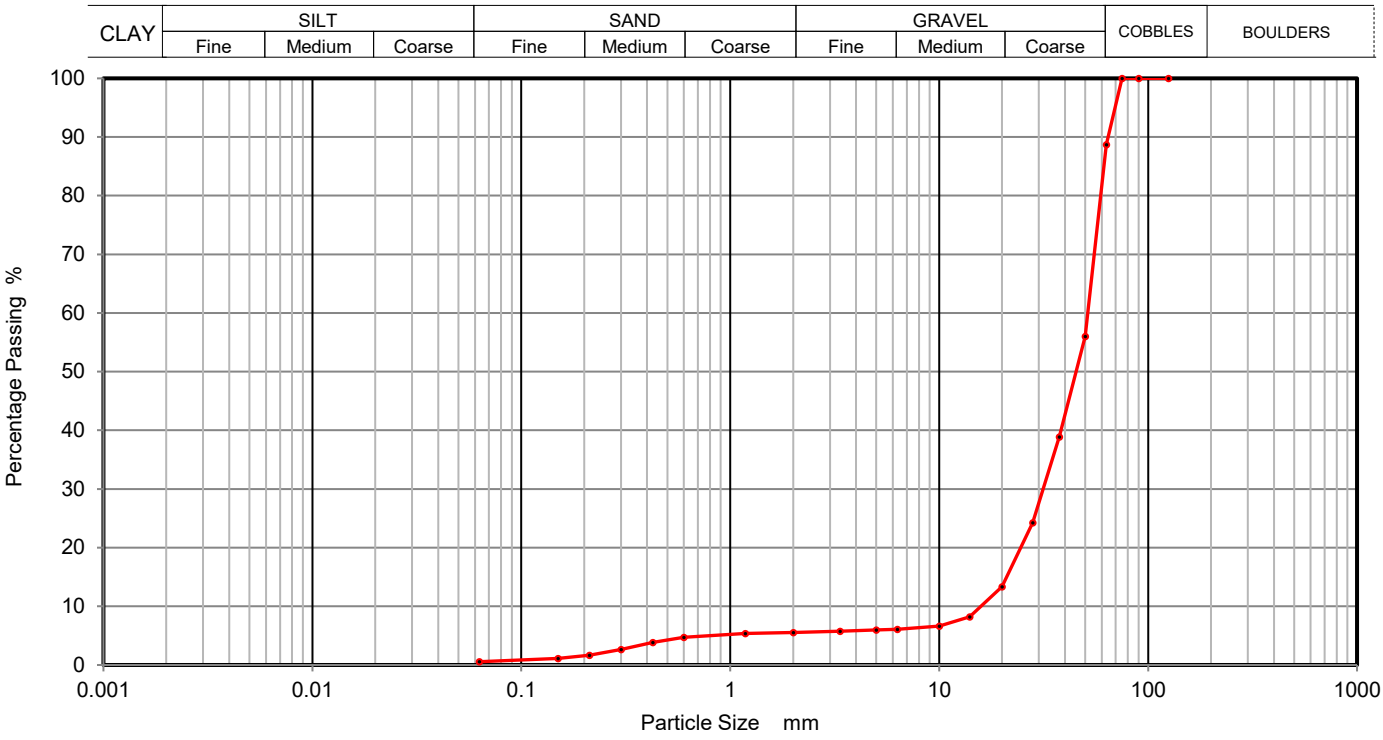
Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	20
Silt and Clay	7

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**SA01**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Grey slightly silty/ clayey slightly sandy fine to coarse GRAVEL with cobbles	Depth Top	**1.20**
		Depth Base	**1.60**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	89		
50	56		
37.5	39		
28	24		
20	13		
14	8		
10	7		
6.3	6		
5	6		
3.35	6		
2	6		
1.18	5		
0.63	5		
0.425	4		
0.30	3		
0.20	2		
0.15	1		
0.063	1		

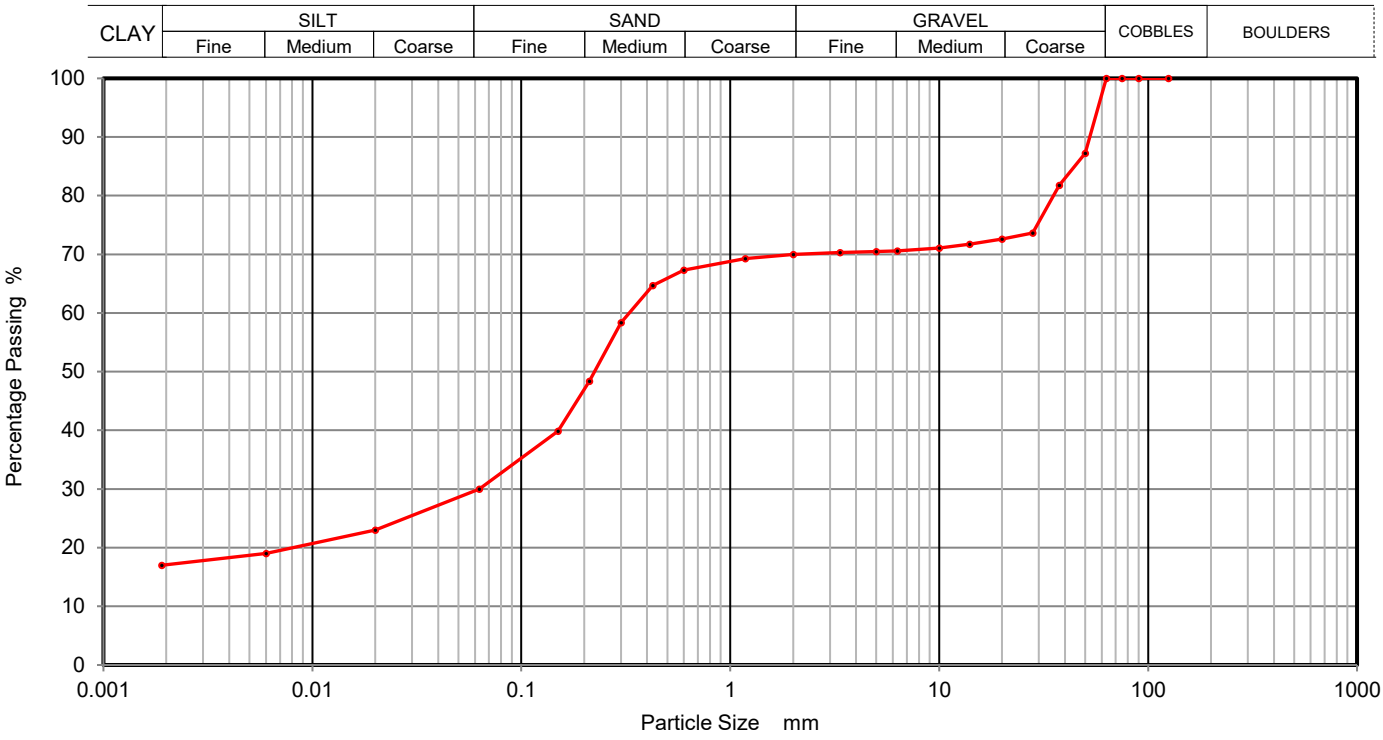
Sample Proportions	% dry mass
Cobbles	11
Gravel	83
Sand	5
Silt and Clay	1

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve & Pipette Analysis, Clause 5.2 & 5.4**	Contract Number	**79439**
		Borehole/Pit No.	**SA02**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Brown silty clayey fine to coarse gravelly fine to coarse SAND	Depth Top	**0.70**
		Depth Base	**0.90**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	23
90	100	0.0060	19
75	100	0.0020	17
63	100		
50	87		
37.5	82		
28	74		
20	73		
14	72		
10	71		
6.3	71		
5	70		
3.35	70		
2	70		
1.18	69		
0.63	67		
0.425	65		
0.30	58		
0.20	48		
0.15	40		
0.063	30		

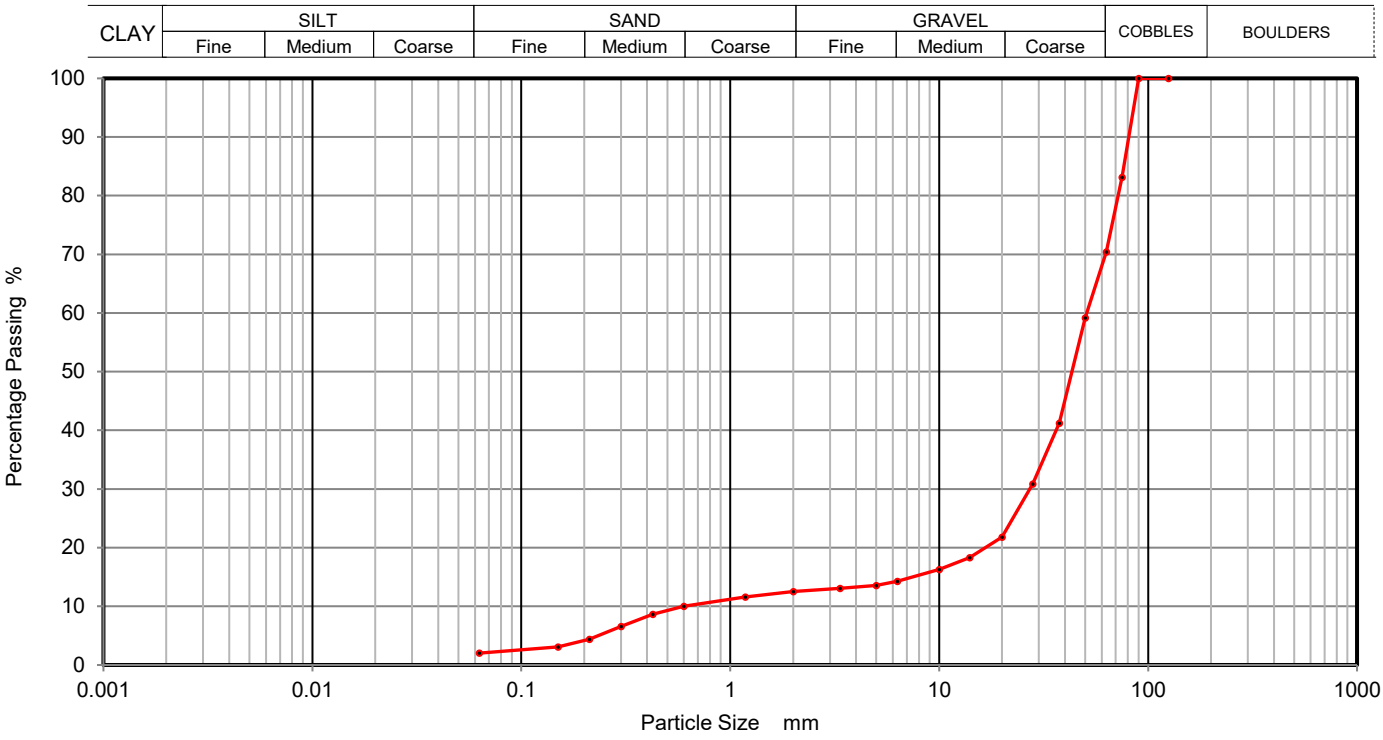
Sample Proportions	% dry mass
Cobbles	0
Gravel	30
Sand	40
Silt	13
Clay	17

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**SA02**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Grey slightly silty/ clayey fine to coarse sandy fine to coarse GRAVEL with cobbles	Depth Top	**1.10**
		Depth Base	**1.40**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	83		
63	70		
50	59		
37.5	41		
28	31		
20	22		
14	18		
10	16		
6.3	14		
5	14		
3.35	13		
2	13		
1.18	12		
0.63	10		
0.425	9		
0.30	7		
0.20	4		
0.15	3		
0.063	2		

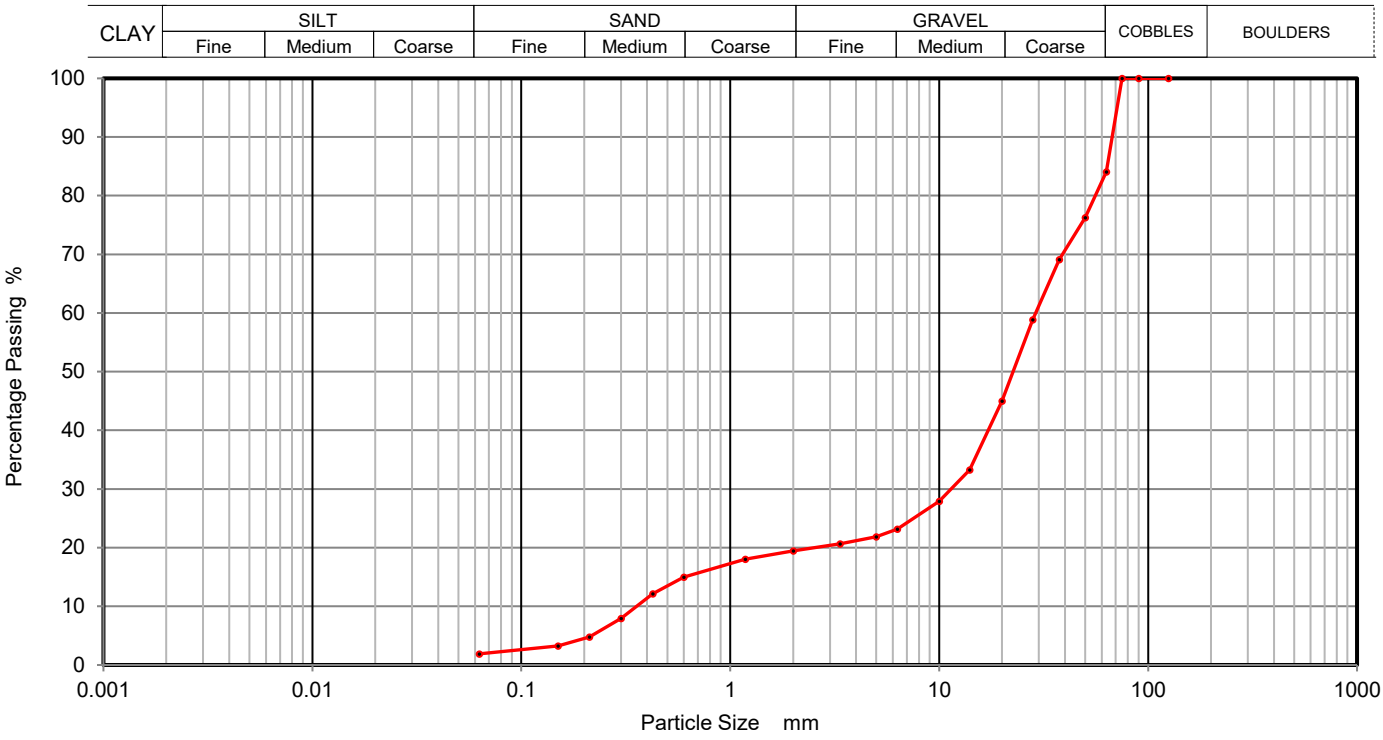
Sample Proportions	% dry mass
Cobbles	30
Gravel	57
Sand	11
Silt and Clay	2

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**SA03**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Grey slightly silty/ clayey fine to coarse sandy fine to coarse GRAVEL with cobbles	Depth Top	**1.20**
		Depth Base	**1.50**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	84		
50	76		
37.5	69		
28	59		
20	45		
14	33		
10	28		
6.3	23		
5	22		
3.35	21		
2	19		
1.18	18		
0.63	15		
0.425	12		
0.30	8		
0.20	5		
0.15	3		
0.063	2		

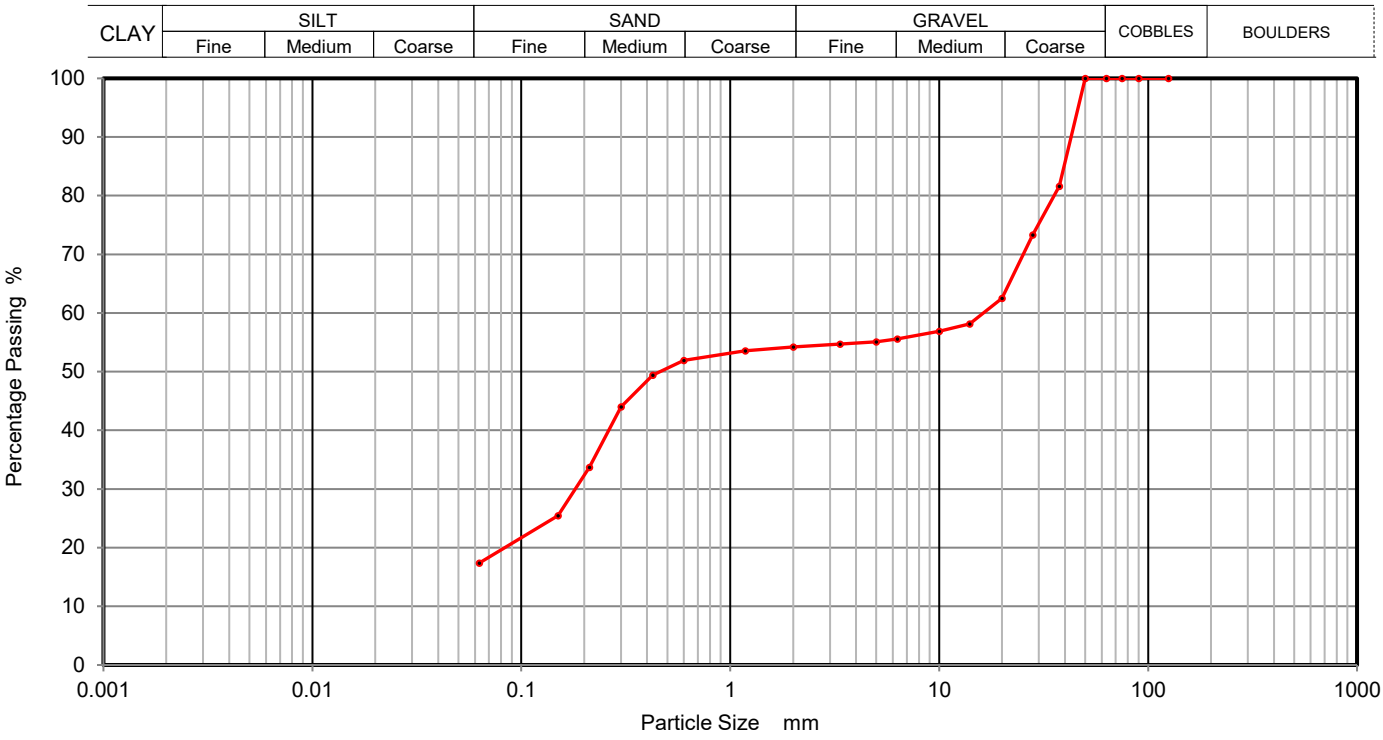
Sample Proportions	% dry mass
Cobbles	16
Gravel	65
Sand	17
Silt and Clay	2

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**79439**
		Borehole/Pit No.	**WS02**
Project Name	**ELRS Port Talbot**	Sample No.	
Sample Description	Brown slightly silty clyey fine to coarse sandy fine to coarse GRAVEL	Depth Top	**1.00**
		Depth Base	**1.20**
Date Tested	02/07/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	82		
28	73		
20	63		
14	58		
10	57		
6.3	56		
5	55		
3.35	55		
2	54		
1.18	54		
0.63	52		
0.425	49		
0.30	44		
0.20	34		
0.15	25		
0.063	17		

Sample Proportions	% dry mass
Cobbles	0
Gravel	46
Sand	37
Silt and Clay	17

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Jordan. W

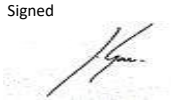
7 - 11 Harding Street
Leicester
LE1 4DH

GSTL
Unit 3-4 Heol Aur
Dafen Ind Estate
Dafen
SA14 8QN

Analytical Test Report:	**L25/06574/GSL - 25-71682**

Your Project Reference:	**Elrs Port Talbot 784-B071864**		
Your Order Number:	79439	Samples Received / Instructed:	30/06/2025 / 30/06/2025
Report Issue Number:	1	Sample Tested:	30/06 to 10/07/2025
Samples Analysed:	5 sample(s)	Report issued:	10/07/2025

Signed



James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 21.05.25

Issued by: J. Gane

Issue No: 4

Rev No: 27

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Leicester
LE1 4DH

L25/06574/GSL - 25-71682

Project Reference - Elrs Port Talbot 784-B071864

Analytical Test Results - Chemical Analysis

Lab Reference			538181	538182	538183	538184	538185
Client Sample ID			-	-	-	-	-
Client Sample Location			SA02	SA03	CP01	CP01	WS02
Client Sample Type			B	B	B	B	B
Client Sample Number			-	-	-	-	-
Depth - Top (m)			0.70	1.20	0.00	1.60	1.00
Depth - Bottom (m)			0.90	1.50	0.50	2.00	1.20
Date of Sampling			-	16/06/2025	16/06/2025	16/06/2025	18/06/2025
Time of Sampling			-	-	-	-	-
Sample Matrix			Clay	Sand	Sand	Sand	Clay
Determinant	**Units**	**Accreditation**					
Water soluble sulphate (as SO_4)	(mg/l)	u	26	47	16	27	22
Acid Soluble Sulphate	(%)	u	0.02	0.01	0.08	< 0.01	0.02
Total Sulphur	(%)	UKAS	0.03	0.02	0.16	0.02	0.02
pH Value	pH Units	MCERTS	7.3	8.0	8.0	8.2	8.0
Water Soluble Chloride	(mg/l)	u	9.8	4.2	2.7	5.2	10
Water Soluble Nitrate (As NO_3)	(mg/l)	u	10	4.4	5.3	< 1.0	1.8
Water Soluble Magnesium	(mg/l)	u	2.7	< 1.5	5.3	1.8	3.3

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L25/06574/GSL - 25-71682

Project Reference - Elrs Port Talbot 784-B071864

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
538181	-	SA02	B	-	Brown gravelly slightly sandy silty clay	-	-	100
538182	-	SA03	B	-	Brown gravelly silty sand	-	-	44
538183	-	CP01	B	-	Dark grey gravelly silty sand	-	-	80
538184	-	CP01	B	-	Brown gravelly slightly clayey silty sand	-	-	73
538185	-	WS02	B	-	Brown gravelly slightly sandy silty clay	-	-	97

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L25/06574/GSL - 25-71682

Project Reference - Elrs Port Talbot 784-B071864

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
538181	-	SA02	B	-	
538182	-	SA03	B	-	
538183	-	CP01	B	-	
538184	-	CP01	B	-	
538185	-	WS02	B	-	

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L25/06574/GSL - 25-71682

Project Reference - Elrs Port Talbot 784-B071864

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)
1377MGICP	BS1377 WS Magnesium (ICP)	Oven dried	Passing 2mm test sieve	Water Soluble Magnesium testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 10.

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L25/06574/GSL - 25-71682

Project Reference - Elrs Port Talbot 784-B071864

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
W - No time of sampling provided for water sample
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
538181	-	SA02	B	-		A
538182	-	SA03	B	-	MS - CL - pH in Soils	RX
538183	-	CP01	B	-	MS - CL - pH in Soils	RX
538184	-	CP01	B	-	MS - CL - pH in Soils	RX
538185	-	WS02	B	-	MS - CL - pH in Soils	RX

APPENDIX G: CHEMICAL LABORATORY TEST RESULTS

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Longscross Court
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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-032617

Project / Site name:	ELRS Port Talbot	**Samples received on:**	20/06/2025
Your job number:	B07164	**Samples instructed on/ Analysis started on:**	20/06/2025
Your order number:	7020469	**Analysis completed by:**	01/07/2025
Report Issue Number:	1	**Report issued on:**	01/07/2025
Samples Analysed:	7 soil samples - 3 leachate samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589029	589030	589031	589032	589033
Sample Reference				SA02	SA03	HP03	WS03	HP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.3	0.15	0.2	0.2	0.3
Date Sampled				16/06/2025	16/06/2025	17/06/2025	17/06/2025	17/06/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	66.5	< 0.1	49.4	< 0.1	78.8
Moisture Content	%	0.01	NONE	9.9	2.1	15	8.9	2.4
Total mass of sample received	kg	0.1	NONE	1.5	1	0.5	0.6	0.6
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WIK	MBI	MBI	MBI	MBI
Analysis completed	N/A	N/A	N/A	30/06/2025	30/06/2025	30/06/2025	30/06/2025	30/06/2025
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.4	8.3	8.1	8.7	8.2
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	42	92	47	28	52
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	21.1	46.1	23.5	13.9	26
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.043	0.0037	0.053	0.024	0.038
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.15	0.07	0.37	0.45	0.22
Acenaphthylene	mg/kg	0.05	MCERTS	0.09	0.08	0.16	6.3	2.2
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.35	0.78	0.49
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.35	5.7	2.8
Phenanthrene	mg/kg	0.05	MCERTS	0.46	0.4	3.7	50	28
Anthracene	mg/kg	0.05	MCERTS	0.12	0.5	0.72	15	7.5
Fluoranthene	mg/kg	0.05	MCERTS	1.1	2.7	5.4	75	36
Pyrene	mg/kg	0.05	MCERTS	0.94	2.3	4.6	51	21
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.64	1.4	2.9	47	15
Chrysene	mg/kg	0.05	MCERTS	0.75	1.6	2.9	47	14
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.95	1.8	4.4	56	16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.43	0.7	1.3	23	4.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.73	1.5	3.1	37	9.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.44	0.73	2.2	17	5.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.12	0.2	0.43	7.1	1.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.47	0.8	2.4	16	4.7
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	7.35	14.8	35	455	168

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589029	589030	589031	589032	589033
Sample Reference				SA02	SA03	HP03	WS03	HP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.3	0.15	0.2	0.2	0.3
Date Sampled				16/06/2025	16/06/2025	17/06/2025	17/06/2025	17/06/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	30	4.9	26	6.7	8.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.89	0.3	1.5	1.9	0.69
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.5	1.2	0.7	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.3	2.3	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	9.4	9.4	37	9.6	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.4	9.4	37	9.6	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	87	12	160	62	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	12	1200	20	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	6.7	55	42	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.5	< 1.0	2.5	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	6.8	66	27	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	190	33	690	110	120
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	8.6	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	14	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	38	12	130
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	9.1	12	350
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	38	34	130
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	47	46	480
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	2.2	8.2	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	93	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	23	22	31	240	260
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	36	630
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	23	22	33	340	260
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	23	22	33	370	890
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589034	589035
Sample Reference				WS01	CP01
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.7	0.5
Date Sampled				17/06/2025	16/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	17
Total mass of sample received	kg	0.1	NONE	0.6	0.6
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI
Analysis completed	N/A	N/A	N/A	30/06/2025	30/06/2025
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	8.6	8.3
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	72	31
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	35.9	15.3
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.02	0.047
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	0.19	0.38
Acenaphthylene	mg/kg	0.05	MCERTS	0.22	0.11
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.61	0.33
Anthracene	mg/kg	0.05	MCERTS	0.23	0.07
Fluoranthene	mg/kg	0.05	MCERTS	1.8	0.3
Pyrene	mg/kg	0.05	MCERTS	1.6	0.29
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	0.28
Chrysene	mg/kg	0.05	MCERTS	1.3	0.38
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.9	0.63
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.85	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.5	0.49
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.88	0.35
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.21	0.09
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.87	0.41
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	13.3	4.39

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Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589034	589035
Sample Reference				WS01	CP01
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.7	0.5
Date Sampled				17/06/2025	16/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	4	3.7
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	33
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	95
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	91	94
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	2	2.5
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	52	72
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77	54
Petroleum Hydrocarbons					
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	12	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	77	36
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	12	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	89	36
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	55	78
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	100	110
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	55	78
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	160	190
VOCs					
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589029	589030	589034
Sample Reference				SA02	SA03	WS01
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				0.3	0.15	0.7
Date Sampled				16/06/2025	16/06/2025	17/06/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
General Inorganics						
pH (automated)	pH Units	N/A	ISO 17025	7.9	8.2	7.6
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Sulphate as SO_4	mg/l	0.045	ISO 17025	3.19	2.01	1.49
Chloride	mg/l	0.15	ISO 17025	0.21	< 0.15	0.17
Ammoniacal Nitrogen as NH_3	µg/l	15	NONE	39	150	48
Ammoniacal Nitrogen as NH_4^+	µg/l	15	NONE	41	160	50
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	4.1	6.6	6
Nitrate as NO_3	mg/l	0.05	NONE	0.1	< 0.05	< 0.05
Nitrite as NO_2	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Alkalinity as $CaCO_3$	mgCaCO 3/l	3	ISO 17025	9.6	18	9.8
Total Phenols						
Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	0.05
Acenaphthene	µg/l	0.01	NONE	0.03	0.03	0.03
Fluorene	µg/l	0.01	NONE	0.03	0.03	0.03
Phenanthrene	µg/l	0.01	NONE	0.08	0.1	0.1
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	0.08
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	0.07
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	0.36

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Analytical Report Number: 25-032617
Project / Site name: ELRS Port Talbot

Lab Sample Number				589029	589030	589034
Sample Reference				SA02	SA03	WS01
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				0.3	0.15	0.7
Date Sampled				16/06/2025	16/06/2025	17/06/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	3.3	2.9	3.9
Barium (dissolved)	µg/l	0.05	ISO 17025	20	11	23
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	22	18	24
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.2	3.4	1.5
Copper (dissolved)	µg/l	0.7	ISO 17025	18	30	24
Lead (dissolved)	µg/l	1	ISO 17025	2.7	2.6	1.4
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	1.3	0.7	0.8
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.6	1.1	3.4
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	20	14	12
Petroleum Hydrocarbons						
TPH - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
Total TPH Aliphatic >EC10 - EC35 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 $_{EH\_1D\_AR\_MS}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10 ##	< 10	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
Total TPH Aromatic >EC10 - EC35 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Benzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 25-032617
Project / Site name: ELRS Port Talbot

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
589029	SA02	None Supplied	0.3	Brown loam and sand with gravel and stones
589030	SA03	None Supplied	0.15	Brown sand with gravel and tar
589031	HP03	None Supplied	0.2	Brown loam and sand with gravel and stones
589032	WS03	None Supplied	0.2	Brown sand with gravel and tar
589033	HP06	None Supplied	0.3	Non Soil. *g
589034	WS01	None Supplied	0.7	Brown sand with clinker and gravel
589035	CP01	None Supplied	0.5	Brown sand with clinker and gravel

Analytical Report Number : 25-032617
Project / Site name: ELRS Port Talbot

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in leachate	Determination of volatile organic compounds in leachate by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 25-032617
Project / Site name: ELRS Port Talbot

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Alkalinity in leachate	Determination of Alkalinity by discrete analyser (colorimetry)	In-house method based on MEWAM & USEPA Method 310.2	L082B	W	ISO 17025
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Ammonia as NH3 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Total petroleum hydrocarbons with carbon banding by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B/L088-PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GCxGC-FID	Determination of total petroleum hydrocarbons in leachte by GC x GC FID with carbon banding aliphatic and aromatic C10-C35	In-house method	L101B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate	In-house method	L009B	D	MCERTS

Analytical Report Number : 25-032617
Project / Site name: ELRS Port Talbot

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

##- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
*g - Unaccredited sample matrix.

Sample Deviation Report

Analytical Report Number : 25-032617
Project / Site name: ELRS Port Talbot

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
CP01	N/A	S	589035	b	Asbestos identification in Soil	A001B	b
HP03	N/A	S	589031	b	Asbestos identification in Soil	A001B	b
HP06	N/A	S	589033	b	Asbestos identification in Soil	A001B	b
SA02	N/A	S	589029	b	Asbestos identification in Soil	A001B	b
SA03	N/A	S	589030	b	Asbestos identification in Soil	A001B	b
WS01	N/A	S	589034	b	Asbestos identification in Soil	A001B	b
WS03	N/A	S	589032	b	Asbestos identification in Soil	A001B	b

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Analytical Report Number : 25-036002

Project / Site name:	ELRS Port Talbot	**Samples received on:**	03/07/2025
Your job number:	784-B071864	**Samples instructed on/ Analysis started on:**	08/07/2025
Your order number:	7020469	**Analysis completed by:**	16/07/2025
Report Issue Number:	1	**Report issued on:**	16/07/2025
Samples Analysed:	1 water sample		

Signed:

Rafał Szczepańczyk
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-036002
Project / Site name: ELRS Port Talbot

Your Order No: 7020469

Lab Sample Number				607304
Sample Reference				CP01
Sample Number				None Supplied
Water Matrix				Other water
Depth (m)				3.20
Date Sampled				02/07/2025
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
General Inorganics				
pH (L099)	pH Units	N/A	NONE	7.1
Total Cyanide	µg/l	10	NONE	< 10
Sulphate as SO_4	mg/l	0.045	NONE	18
Chloride	mg/l	0.15	NONE	17
Ammoniacal Nitrogen as NH_3	µg/l	15	NONE	49
Ammoniacal Nitrogen as NH_4^+	µg/l	15	NONE	52
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	1.21
Nitrate as N	mg/l	0.01	NONE	4.61
Nitrate as NO_3	mg/l	0.05	NONE	20.4
Nitrite as NO_2	mgCaCO3/l	3	NONE	27
Alkalinity as $CaCO_3$				76
Total Phenols				
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0
Speciated PAHs				
Naphthalene	µg/l	0.01	NONE	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16

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Analytical Report Number: 25-036002
Project / Site name: ELRS Port Talbot

Your Order No: 7020469

Lab Sample Number				607304
Sample Reference				CP01
Sample Number				None Supplied
Water Matrix				Other water
Depth (m)				3.20
Date Sampled				02/07/2025
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (dissolved)	µg/l	0.4	NONE	< 0.4
Arsenic (dissolved)	µg/l	0.15	NONE	0.27
Barium (dissolved)	µg/l	0.06	NONE	26
Beryllium (dissolved)	µg/l	0.1	NONE	< 0.1
Cadmium (dissolved)	µg/l	0.02	NONE	0.09
Chromium (dissolved)	µg/l	0.2	NONE	< 0.2
Copper (dissolved)	µg/l	0.5	NONE	1.5
Lead (dissolved)	µg/l	0.2	NONE	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05
Molybdenum (dissolved)	µg/l	0.05	NONE	0.17
Nickel (dissolved)	µg/l	0.5	NONE	0.9
Selenium (dissolved)	µg/l	0.6	NONE	1.4
Zinc (dissolved)	µg/l	0.5	NONE	28
Boron (dissolved)	µg/l	10	NONE	27
Petroleum Hydrocarbons				
TPH - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC10 - EC12 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC12 - EC16 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC16 - EC21 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC21 - EC35 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10
Total TPH Aliphatic >EC10 - EC35 $_{EH\_2D\_AL\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC16 - EC21 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC21 - EC35 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10
Total TPH Aromatic >EC10 - EC35 $_{EH\_2D\_AR\_\#1\_\#2}$	µg/l	10	NONE	< 10
VOCs				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	NONE	< 3.0
Benzene	µg/l	1	NONE	< 1.0
Toluene	µg/l	1	NONE	< 1.0
Ethylbenzene	µg/l	1	NONE	< 1.0
p & m-xylene	µg/l	1	NONE	< 1.0
o-xylene	µg/l	1	NONE	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 25-036002
Project / Site name: ELRS Port Talbot

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	NONE
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Nitrate in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide in water	Determination of total cyanide in water by distillation followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Alkalinity of water (discrete analyser)	Determination of alkalinity of water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on MEWAM & USEPA Method 310.2	L082B	W	NONE
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	NONE
Ammonia as NH3 in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	NONE
Total Petroleum Hydrocarbons with carbon banding in water by GCxGC-FID	Determination of total petroleum hydrocarbons in water by GCxGC FID with carbon banding aliphatic and aromatic C10-C35. Accredited matrices: SW, PW, GW	In-house method	L101B	W	NONE

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Analytical Report Number : 25-036002
Project / Site name: ELRS Port Talbot

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Sample Deviation Report

Analytical Report Number : 25-036002
Project / Site name: ELRS Port Talbot

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
CP01	N/A	W	607304	c	Ammonia as NH3 in water	L082B	c
CP01	N/A	W	607304	c	Ammonium as NH4 in water	L082B	c
CP01	N/A	W	607304	c	BTEX and/or Volatile Organic Compounds in water	L073B	c
CP01	N/A	W	607304	c	Nitrite in water	L082B	c
CP01	N/A	W	607304	c	Total Petroleum Hydrocarbons in water by HS-GC-MS	L088-PL	c
CP01	N/A	W	607304	c	Total cyanide in water	L080-PL	c
CP01	N/A	W	607304	c	pH of water at 20°C (automated)	L099-PL	c

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APPENDIX H: GROUNDWATER AND GROUND GAS MONITORING RESULTS

tra Tech
IDGAS AND GROUNDWATER MONITORING RESULTS

ic House, Greenwood Close, Cardiff Gate Business Park, Pontprennau, Cardiff, CF23 8RD.

TETRA TECH

Site Name: ELRS Port Talbot
Job No.: 784-B071864
Client: Neath Port Talbot County Borough Council

Date Monitored: 26/06/25
Monitoring Engineer: TR
Weather: Sun

EQUIPMENT USED

Type	Make	Serial	Last Calibrated
Gas Analyser	**Landtec GA5000**	**G502044**	**May-25**
Interface Meter	**Solinst**	**122-004988-1**	**n/a**

LANDGAS CONCENTRATIONS - INSTALLATION CONDITIONS

Exploratory Hole No	Peak		Steady									
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	BAL (%)	PID (ppm)	H_2S (ppm)	HCN (ppm)	CO (ppm)	Time	Remarks
WS01	0.0	0.8	0.0	0.8	20.1	79.1	nt	<1	nt	1	09:05	
WS02	0.0	3.6	0.0	3.6	16.1	80.3	nt	<1	nt	1	09:32	
WS03	0.0	2.0	0.0	2.0	17.8	80.1	nt	<1	nt	1	09:46	
CP01	0.0	0.6	0.0	0.6	20.0	79.4	nt	<1	nt	1	09:20	

LANDGAS - PHYSICAL PARAMETERS

Exploratory Hole No	Atmos Pressure (m bar)	Atmos Temp (°C)	BH Flow		BH Pressure		Remarks
			Peak (L/hr)	Steady (L/hr)	Peak (mbar)	Steady (mbar)	
WS01	1008	16.0	0.30	0.30	-0.10	-0.10	
WS02	1008	16.0	0.40	0.40	0.12	0.03	
WS03	1008	16.0	0.40	0.40	0.00	0.00	
CP01	1008	16.0	0.3	0.3	-0.05	-0.05	

AMBIENT ATMOSPHERIC CONDITIONS

Parameter	Before Monitoring	After Monitoring
CH_4 (% vol)	0.0	0.0
CO_2 (% vol)	0.1	0.1
O_2 (% vol)	21.1	21.0
PID (ppm)	nt	nt
Atmos Press. (m bar)	1008	1009

ATMOSPHERIC PRESSURE CONDITIONS

3 days prior (m bar)	1015
2 days prior (m bar)	1012
1 day prior (m bar)	1012
during (m bar) am,midday,pm	1008/1014/1017
1 day post (m bar)	1018

GROUNDWATER / NAPL - PHYSIO-CHEMICAL PARAMETERS

Exploratory Hole No	Water Surface (mbgl)	Base Depth (mbgl)	LNAPL Surface (mbgl)	DNAPL Surface (mbgl)	Water Quality Indicators								Remarks
					ORP (mV)	SPC (µs/cm)	C (µs/cm)	Ph (value)	DO (mg/L)	Dissolved Solids (ppt)	Resistivity (Ω·cm)	Temp (°C)	
WS01	DRY	1.28	nd	nd									
WS02	DRY	1.27	nd	nd									
WS03	DRY	0.95	nd	nd									
CP01	3.43	5.28	nd	nd									

Notes nt = not tested
nd = not detected

Data Compiled by: TR
Data Checked by: NEB

tra Tech

IDGAS AND GROUNDWATER MONITORING RESULTS

ic House, Greenwood Close, Cardiff Gate Business Park, Pontprennau, Cardiff, CF23 8RD.

TETRA TECH

Site Name: ELRS Port Talbot
Job No.: 784-B071864
Client: Neath Port Talbot County Borough Council

Date Monitored: 02/07/25
Monitoring Engineer: RW
Weather: Sun

EQUIPMENT USED

Type	Make	Serial	Last Calibrated
Gas Analyser	**Landtec GA5000**	**G502044**	**May-25**
Interface Meter	**Solinst**	**122-004988-1**	**n/a**

LANDGAS CONCENTRATIONS - INSTALLATION CONDITIONS

Exploratory Hole No	Peak		Steady									
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	BAL (%)	PID (ppm)	H_2S (ppm)	HCN (ppm)	CO (ppm)	Time	Remarks
WS01	0.1	1.0	0.1	1.0	19.8	79.1	nt	<1	nt	<1	10:35	
WS02	0.1	2.6	0.1	2.4	18.4	79.2	nt	4	nt	<1	10:45	
WS03	0.1	2.6	0.1	1.8	19.8	79	nt	<1	nt	<1	11:00	
CP01	0.1	1.0	0.1	0.3	20.3	79.3	nt	1	nt	<1	10:50	

LANDGAS - PHYSICAL PARAMETERS

Exploratory Hole No	Atmos Pressure (m bar)	Atmos Temp (°C)	BH Flow		BH Pressure		Remarks
			Peak (L/hr)	Steady (L/hr)	Peak (mbar)	Steady (mbar)	
WS01	1018	20.0	0.2	0.2	0.07	0.05	
WS02	1018	20.0	0.2	0.2	-0.09	-0.03	
WS03	1020	20.0	0.1	0.1	0.02	0.02	
CP01	1020	20.0	0.2	0.2	0.03	0.03	

AMBIENT ATMOSPHERIC CONDITIONS

Parameter	Before Monitoring	After Monitoring
CH_4 (% vol)	0.1	0.0
CO_2 (% vol)	0.1	0.1
O_2 (% vol)	20.9	20.9
PID (ppm)	nt	nt
Atmos Press. (m bar)	1018	1020

ATMOSPHERIC PRESSURE CONDITIONS

3 days prior (m bar)	1025
2 days prior (m bar)	1016
1 day prior (m bar)	1016
during (m bar) am,midday,pm	1020,1022,1020
1 day post (m bar)	1028

GROUNDWATER / NAPL - PHYSIO-CHEMICAL PARAMETERS

Exploratory Hole No	Water Surface (mbgl)	Base Depth (mbgl)	LNAPL Surface (mbgl)	DNAPL Surface (mbgl)	Water Quality Indicators								Remarks
					ORP (mV)	SPC (µs/cm)	C (µs/cm)	Ph (value)	DO (mg/L)	Dissolved Solids (ppt)	Resistivity (Ω·cm)	Temp (°C)	
WS01	DRY	1.28	nd	nd									
WS02	DRY	1.27	nd	nd									
WS03	DRY	0.95	nd	nd									
CP01	3.26	5.28	nd	nd									

Notes nt = not tested
nd = not detected

Data Compiled by: RW
Data Checked by: NEB

tra Tech
IDGAS AND GROUNDWATER MONITORING RESULTS

ic House, Greenwood Close, Cardiff Gate Business Park, Pontprennau, Cardiff, CF23 8RD.

TETRA TECH

Site Name: ELRS Port Talbot
Job No.: 784-B071864
Client: Neath Port Talbot County Borough Council

Date Monitored: 10/07/25
Monitoring Engineer: RW
Weather: Sun

EQUIPMENT USED

Type	Make	Serial	Last Calibrated
Gas Analyser	**Landtec GA5000**	**G502044**	**May-25**
Interface Meter	**Solinst**	**122-004988-1**	**n/a**

LANDGAS CONCENTRATIONS - INSTALLATION CONDITIONS

Exploratory Hole No	Peak		Steady									
	CH_4 (% vol)	CO_2 (% vol)	CH_4 (% vol)	CO_2 (% vol)	O_2 (% vol)	BAL (%)	PID (ppm)	H_2S (ppm)	HCN (ppm)	CO (ppm)	Time	Remarks
WS01	0.1	1.2	0.1	1.2	19.5	79.2	nt	<1	nt	1	10:15	
WS02	0.2	3.4	0.1	3.4	16.6	80	nt	<1	nt	<1	10:35	
WS03	0.2	1.3	0.1	1.3	20.3	79.5	nt	<1	nt	1	10:05	
CP01	0.1	2.3	0.1	2.3	16.9	80.7	nt	<1	nt	<1	10:25	

LANDGAS - PHYSICAL PARAMETERS

Exploratory Hole No	Atmos Pressure (m bar)	Atmos Temp (°C)	BH Flow		BH Pressure		Remarks
			Peak (L/hr)	Steady (L/hr)	Peak (mbar)	Steady (mbar)	
WS01	1022	22.0	-0.3	-0.3	-0.10	-0.1	
WS02	1022	22.0	0.5	0.5	0.09	0.09	
WS03	1022	22.0	0.0	0.0	-0.15	-0.15	
CP01	1022	22.0	-0.1	-0.1	0.02	0.02	

AMBIENT ATMOSPHERIC CONDITIONS

Parameter	Before Monitoring	After Monitoring
CH_4 (% vol)	0.0	0.0
CO_2 (% vol)	0.1	0.1
O_2 (% vol)	20.3	20.3
PID (ppm)	nt	nt
Atmos Press. (m bar)	1022	1022

ATMOSPHERIC PRESSURE CONDITIONS

3 days prior (m bar)	1015
2 days prior (m bar)	1020
1 day prior (m bar)	1022
during (m bar) am,midday,pm	1023/1023/1023
1 day post (m bar)	1021

GROUNDWATER / NAPL - PHYSIO-CHEMICAL PARAMETERS

Exploratory Hole No	Water Surface (mbgl)	Base Depth (mbgl)	LNAPL Surface (mbgl)	DNAPL Surface (mbgl)	Water Quality Indicators								Remarks
					ORP (mV)	SPC (µs/cm)	C (µs/cm)	Ph (value)	DO (mg/L)	Dissolved Solids (ppt)	Resistivity (Ω·cm)	Temp (°C)	
WS01	DRY	1.28	nd	nd									
WS02	DRY	1.27	nd	nd									
WS03	DRY	0.95	nd	nd									
CP01	3.23	5.28	nd	nd									

Notes nt = not tested
nd = not detected

Data Compiled by: RW
Data Checked by: NEB

APPENDIX I: CIRIA C552 RISK METHODOLOGY

The following tables are derived from CIRIA C552 and have been used to define the risk rating presented in the Qualitative Risk Assessment matrix.

Classification of consequence

Classification	Definition
Severe	Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution (note; Water Resources Act contains no scope for considering significant pollution) of sensitive water resource. Catastrophic damage to building/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Medium	Chronic damage to human health ('significant harm', as defined In DETR, 2000). Pollution of sensitive water resources (note; Water Resources Act contains no scope for considering significant pollution). A significant change in a particular ecosystem, or an organism forming part of such an ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm', as defined In DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Classification of probability

Classification	**Definition**
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period that such an event would take place, and is even less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Matrix of consequence against probability to gain a risk classification

		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