Report No	Date
22181/R2	**September 2024**

Project

BLAENDULAIS – SUPPLEMENTARY GROUND INVESTIGATION

Client

TRJ

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Issue Number	Status	Description of Amendments
1	**Draft**	
2	**Final**	Lab testing incorporated
3	**Final**	Remaining lab
4	**Final**	CMGRA Added
5	**Final**	Phase 1 redrafted on new data

Report prepared by:	
Signed 	September 2024

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CONTENTS

1.0 INTRODUCTION 5
1.1 Introduction 5
1.2 Scope of Works 5
1.3 Limitations 5

2.0 EXISTING SITE INFORMATION 7
2.1 Site Location 7
2.2 Published Geology 9
2.3 Hydrology 10
2.4 Hydrogeology 10

3.0 DESK STUDY 11
3.2 SGS Desk Study 12
3.3 Radon Report 12
3.4 Enviro Insight Report 13
3.5 Site Walkover 13

4.0 SGS SITE OPERATIONS 15
4.1 Site Works 15

5.0 SITE CONDITIONS ENCOUNTERED 16
5.1 Ground Conditions 16
5.2 Groundwater Conditions 16
5.3 Soakaway Testing 16

6.0 LABORATORY TESTING 17

7.0 PRELIMINARY CONCEPTUAL MODEL AND QUALITATIVE RISK ASSESSMENT .. 18
Source Characterisation 18

8.0 GEOTECHNICAL PARAMETERS 24
8.1 Introduction 24
8.1.1 Stiff CLAY 25

9.0 GEOTECHNICAL ASSESSMENT 25
9.1 Introduction 25
9.2 Foundation Options 25
9.3 Attack to Buried Concrete 26
9.4 Groundwater 26

10.0 CONTAMINATION TESTING 27

11.0 COAL INVESTIGATION ASSESSMENT 29

12.0 MINE GROUND GAS RISK ASSESSMENT 30

12.1 GROUND GAS RISK ASSESSMENT 30
12.2 Ground Gas Monitoring 32

13.0 REVISED CONCEPTUAL SITE MODEL 34

14.0 ADDITIONAL COMMENTS 36

15.0 CONCLUSIONS 37

APPENDIX A 38
Drawings 38

APPENDIX B 39

APPENDIX D 41

APPENDIX E 42

APPENDIX F 43

APPENDIX G 44

APPENDIX H 45

1.0 INTRODUCTION

1.1 Introduction

Spectrum Geo Services (SGS) were commissioned by TRJ Ltd. to complete a review of existing GI data at a site at Blaendulais, Seven Sisters, SA10 9DN. This review recommended further ground investigation operations, due to the fact that the building plans had required a change in footprint and Planning Red Line.

The site is approximately 0.228ha in area and is centred on National Grid Reference (NGR) 81942, 08914. The approximate postcode of the site being SA10 9DN.

SGS had completed a review of previous data (22181_R1) dated August 2023, which noted the requirement to undertake further window sampling, trial pitting and probe holes at the site to confirm the ground conditions and the potential presence of shallow coal seams/workings.

1.2 Scope of Works

The objectives of this assessment are to investigate the near surface deposits by window sampling and pitting, and to drill 2 No rotary probe holes with water flush, to determine/confirm the present of coals and the potential presence of broken ground or open workings which may influence the development. This assessment is augmented by the Socotec Desk Study and the Tetra Tech Ground Investigation report, each of which are appended for clarity. SGS also purchased additional Phase 1 data for the redline boundary of the target site, which is employed in the Risk Assessments.

1.3 Limitations

Subsoils are inherently variable and by their very nature are hidden from view such that no investigation can be exhaustive to the extent that all soil conditions are revealed. Conditions may therefore be present beneath the site that were not apparent from the data available for review.

Unless specifically noted to the contrary, it should be assumed that this report has not been submitted to any regulatory authorities for approval. Redevelopment sites in particular may have planning conditions attached in respect of contaminated land assessment. Where we are made aware of such conditions in advance of scoping the works, we can tailor the report to

the regulatory authority requirements. Where we are not made aware of any such requirements there can be no certainty that our investigation will meet any or all of the regulatory authority requirements.

2.0 EXISTING SITE INFORMATION

2.1 Site Location

The site is located at Blaendulais, Seven Sisters, SA10 9DN.

At the time of the investigation, the site comprised an open area of rough grass, as shown in Figure 01.

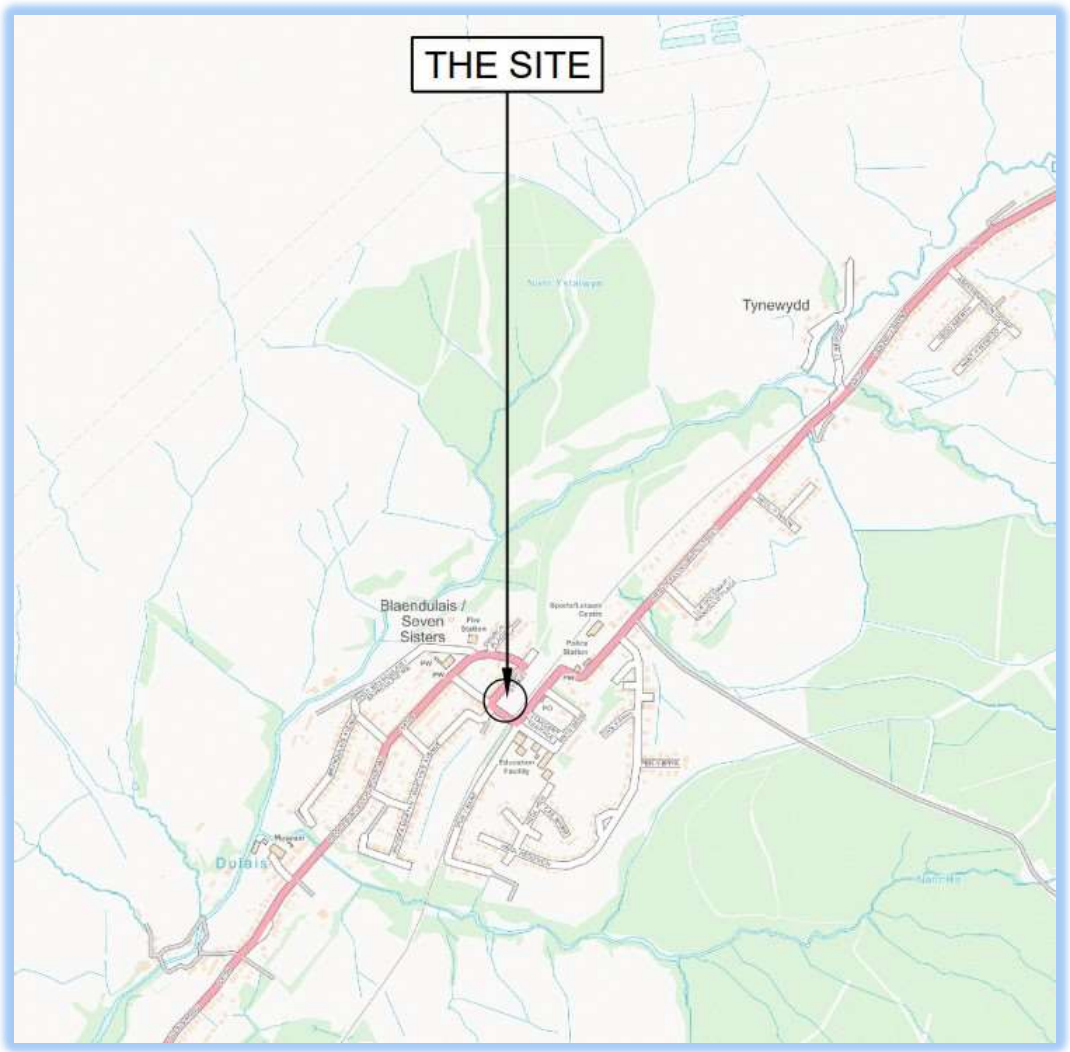


Figure 01.

The planning red line is shown in Figure 2.

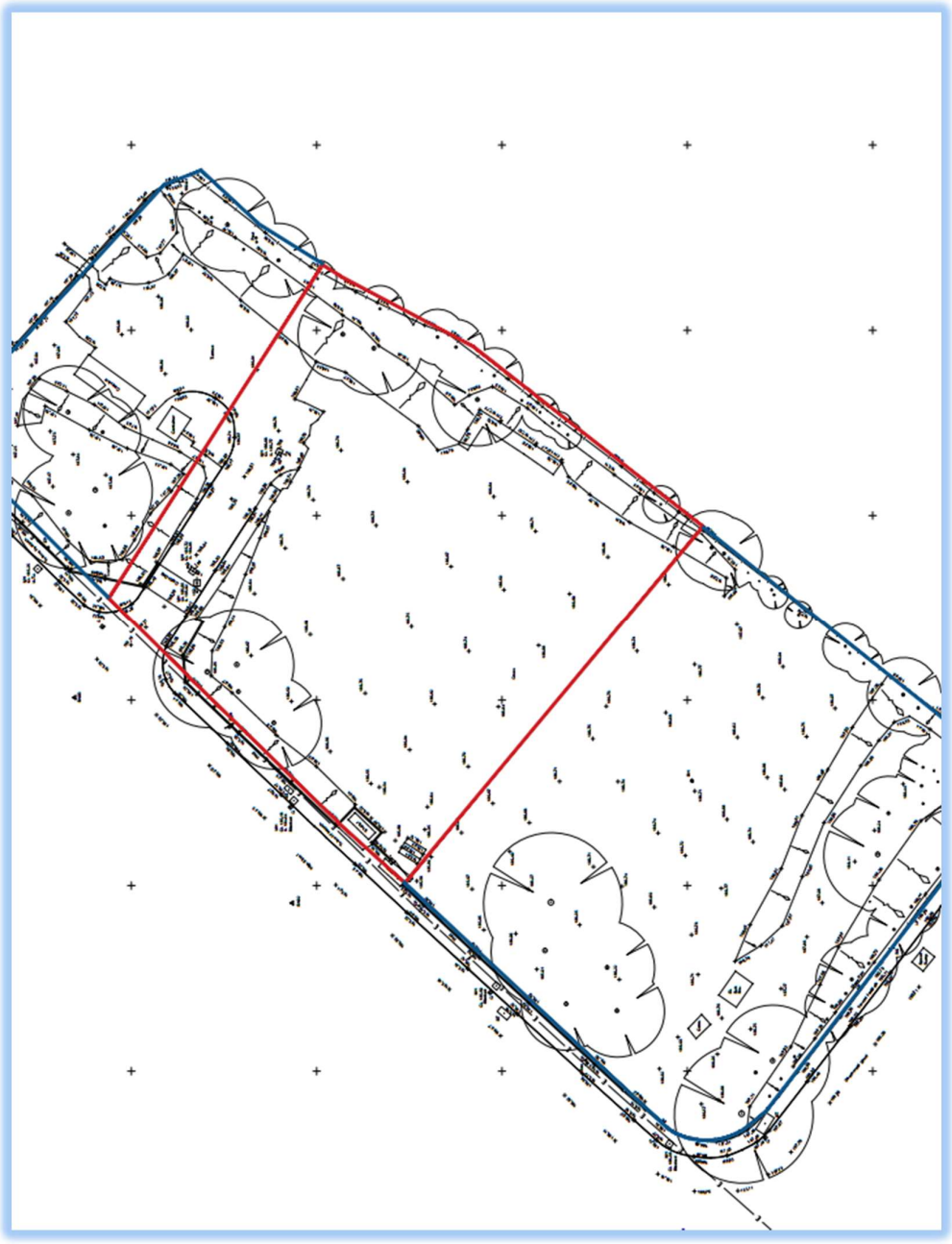


Figure 2

2.2 Published Geology

Information published by the British Geological Survey (BGS) suggests the site to be underlain by a sequence comprising;

Bedrock Geology

South Wales Middle Coal Measures Formation - Mudstone, siltstone and sandstone. Sedimentary bedrock formed between 318 and 309.5 million years ago during the Carboniferous period.

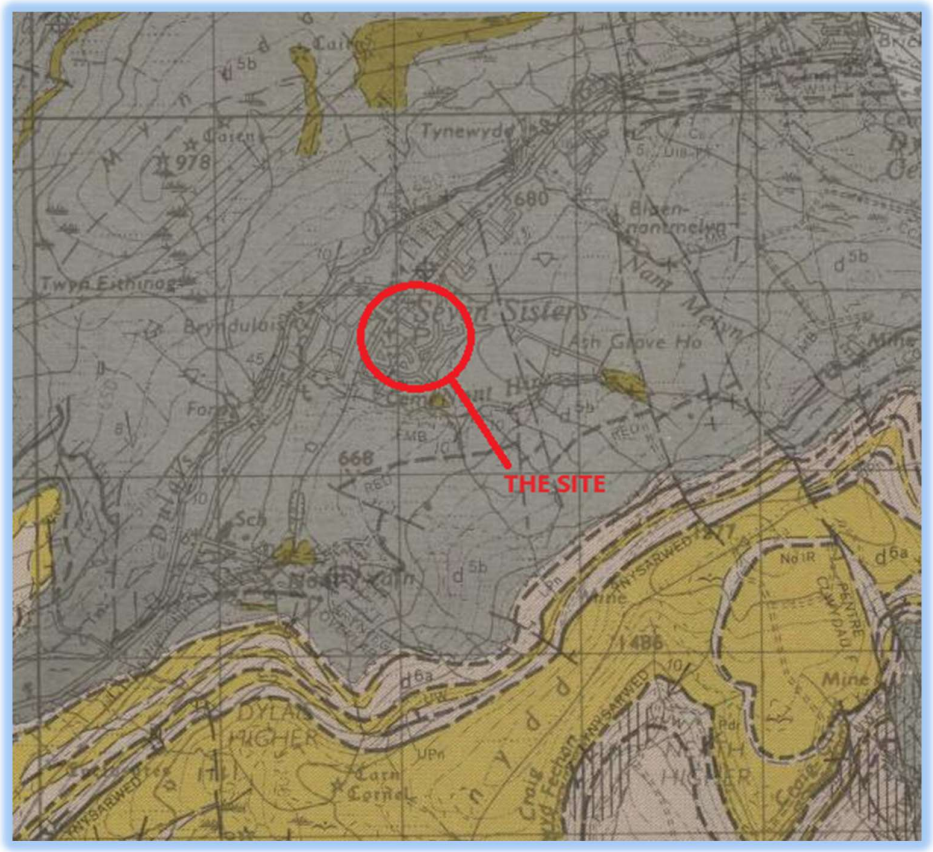


Figure 03: Geological Setting

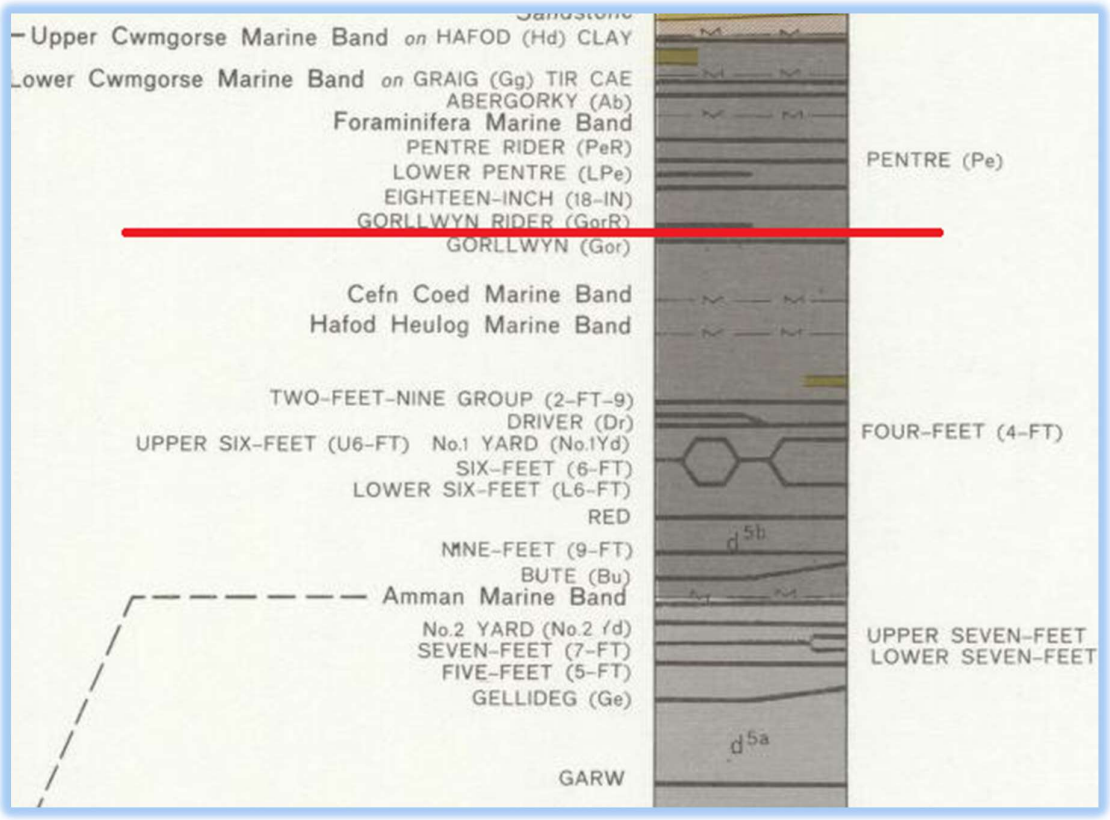


Figure 4: Geological Column

2.3 Hydrology

The site lies to the east of the River Avan, with elevated ground to the west.

Thus, it is anticipated that the predominant groundwater flow is in a westerly direction.

2.4 Hydrogeology

The superficial hydrogeology is as a secondary aquifer, the solid geology being secondary (a).

No abstraction point are local to the site.

3.0 DESK STUDY

3.1 Socotec Desk Study

A desk study adjacent to the site was previously undertaken by Socotec, as noted in 22181_R1.

The SOCOTEC desk top study (DTS) and field reconnaissance report (Report No. H1060- 21) supplied by Neath Port Talbot County Borough Council outlined the following summary of the sites and its key risks.

- *Geoenvironmental and geotechnical hazards may both be encountered on this site – geotechnical hazards are likely to be low but potentially high if the coals seam outcropping beneath the site has been worked, while geoenvironmental hazards may pose moderate risk. A ground investigation should be carried out to confirm the ground conditions, groundwater levels and ground gas at the proposed development locations to provide information to allow for the assessment of geotechnical parameters to be used for preliminary design of foundations along with an assessment of potential contamination on and beneath the site.*

- *The information available at this stage indicates there are potential current and historical sources of contamination on or beneath the site. The sources of these are the hard standing, past mining, former railway sidings and mill pond(s). There are likely to be contaminated soils beneath the site and as the use of soft verges has not been ruled out (neither has the production of edible plants) there is a clear pathway linkage for these to pose a risk to the end users and maintenance workers post development and construction workers during development. The potential for a thicknesses of Made Ground, to be present also means that there is potential for ground gases to also pose a risk.*

- *Further risks are also posed by the surrounding rail sidings further from the site, though the reduced likely pathways mean these pose a lower risk than those present on the site.*

- *A ground investigation should be carried out to confirm the ground conditions and allow assessment of the contamination potentially present at the site. Based on these finding a full*

geoenvironmental assessment will be required to assess the risks posed to the development and its receptors

- *The information at desk study stage indicates the site is underlain by coal bearing strata that has been subject to mining both in the area surrounding and directly beneath the site. There is a coal seam recorded as outcropping directly beneath the site and though this is not recorded as having been worked its shallow nature means it may have been worked but not recorded. Therefore, it may pose a potentially significant risk to the development. In addition the deeper worked and shallow seam are also potentially sources for the generation of ground gases.*

3.2 SGS Desk Study

A desk study was commissioned for the updated red line boundary shown in Figure 2.

The data is Appended. Timeline based upon available historic maps:

- 1877 to 1879: Railway Station is in the north eastern corner of the site. Rail line running along the eastern boundary, north/south. A terrace of houses is noted along the western boundary. Seven Sisters pit is noted 250m north.
- 1898: Standert Tce and Railway Tce. have been built to the east of the site.
- 1918: Railway sidings run through the site, in the eastern half, northwest to south east.
- 1962: Ditto. Lavs shown in the south western corner.
- 1989: Canolfan building at site.

3.3 Radon Report

The appended radon report indicates that the site is not within a radon affected area.

3.4 Enviro Insight Report

The Enviro Insight report assesses the recorded likelihood of occurrence of various environmental risks at the site.

a) Historic Landfill – none at site. Closest at 139m N.
b) Environmental Permits – not identified,
c) Landfill – not identified
d) Current land use – not identified
e) Former land use – on site sidings, station, coal pit, colliery, **though the CA report says no entries and colliery 100m to north.**
f) Abstraction Licences – not identified on site,
g) Surface Water abstraction Licences – not identified on site,
h) Flooding Groundwater – negligible to low,
i) Flooding Surface Water – 1 in 1000 year. 0.1m to 0.30m
j) Environmental Sensitivity – not identified
k) Natural Hazards – low (see Coal Mining Report)
l) Industrial Landuse – none
m) Hydrogeology – superficial aquifer, secondary undifferentiated, bedrock Secondary A.

Historic mapping shows that there were railway sidings running north south through the mid east of the site, during the period 1918 to 1962.

3.5 Site Walkover

A walkover was undertaken as part of the Phase 1, and is appended to this report. No sources or evidence of contamination were observed.

3.6 Previous Ground Investigation

Tetra Tech undertook a Phase2 Ground Investigation.

The site investigation was undertaken between 16th and 19th May 2022. The scope of the investigation specified by Neath Port Talbot Council is based on the desk top study undertaken by SOCOTEC Report No. H1060-21 and included the following:

• *Two combined dynamic sample and rotary open hole boreholes (BH01 and BH02) to a depth of 30metres, with sampling and SPTs in the upper 10metres.*

• Twelve windowless sample boreholes (WS01-WS12) to refusal at depths ranging between 0.4 and 2.9m bgl, with regular SPTs and samples taken.

• One day of soakaway testing in two trial pits (TP03 and TP04) at depths of 1.4m bgl and 1.1m bgl.

• Five TRL DCP locations to obtain indicative CBR values around the site.
• Installation of gas/groundwater monitoring standpipes within both boreholes and one windowless sample borehole (WS08).

• On-site inspection and logging of recovered samples.

• Representative soil samples taken and submitted for geotechnical classification testing. Representative soil samples submitted and tested for a suite of potential contaminants.

3.7 Coal Mining Risk Assessment (CMRA)

The Tetra Tech risk assessment indicates that there is a Low Risk of ground instability as a result of deep or shallow recorded/unrecorded mining and mining geology beneath the site. Following the drilling of two rotary openhole boreholes no workings were encountered in the Gorwllyn seam.

3.8 Ground Contamination

Laboratory testing to the south of the site has recorded a limited number of exceedances on beryllium and arsenic, however within the context of the proposed development and the predominant hard standing the recorded concentrations are not considered to pose a significant risk to site users. Elevated concentrations of PAH have also been recorded in the soil derived leachate samples, with a single PAH compound identified within groundwater. However, given the limited nature of the exceedances and the low permeability of the subsurface strata the recorded concentrations are not considered to pose a risk to controlled waters.

3.5 Ground Gas

Ground gas monitoring undertaken on the site has recorded limited concentrations of carbon dioxide and methane within the subsurface. The site has been defined as a Characteristic Situation 1 (Very Low risk) whereby no ground gas protection measures are considered necessary within the context of the proposed development.

4.0 SGS SITE OPERATIONS

4.1 Site Works

Site works comprised window sampling, machine dug trial pits and 2 rotary drilled probe holes, employing water flush and Klemm drill rig. These were drilled on 29 and 30 September 2023. The positions are shown on Drawing 22177/Locs.

100% water flush returns were noted by the driller during the rotary probing. On completion the holes were filled with bentonite grout, with no excessive take.

Borehole logs are shown in Appendix B. The results of previous ground investigations are appended.

5.0 SITE CONDITIONS ENCOUNTERED

5.1 Ground Conditions

During both ground investigations, a generalised succession as was noted, indicated in Table 5.1.

Stratum	Depth to base (m)	Remarks
MADE GROUND	0.30 to 0.70	
Stiff CLAY	0.70 to 2.90	Glacial Till
GRAVEL	(1.20)	SA01 only
MUDSTONE	(30.00)	
BH03 Coal	24.80 – 25.00	
BH04 Coal	22.20 – 22.50	

Table 5.1. Generalised Strata

5.2 Groundwater Conditions

Water strikes were noted at 1.50m as a seepage at SA01 and between 11.20m and 15.00m at BH03 and 04. Post site monitoring has noted groundwater levels in the standpipes within the upper 1.50m.

It should be noted that groundwater levels vary due to changes in climatic and other conditions and may therefore vary from those recorded during these operations.

5.3 Soakaway Testing

None of the soakaway testing produced an appropriate infiltration rate (If), as the ground was impermeable. The results are appended.

Thus, the values are not considered to be suitable for soakaway drainage solutions.

6.0 LABORATORY TESTING

Chemical laboratory testing was conducted to determine the concentrations of the following. As the Aquifers were undifferentiated and Secondary, and soakaway values were not suitable, leachate testing was not undertaken, though some data was developed within the Tetra Tech study immediately to the south;

- Metals
- Asbestos
- pH and SO4
- PAH MS
- TPH CWG
- WAC E 1 stage

Chemical soil analysis was undertaken at 4 locations across the accessible part of the site in broad accordance with the DOE Industrial Profile for "Railway Land". Samples were taken, both at the area of railway sidings and to the west of those. Further testing is considered to be necessary in the wooded area once landscaping plans are developed. The results are appended.

7.0 PRELIMINARY CONCEPTUAL MODEL AND QUALITATIVE RISK ASSESSMENT

Source Characterisation

All potential **on-site** and **off-site** sources of contamination identified are detailed in Table 7.1.1 below. The table also details any which have been discounted.

Table 7.1. 1: Identified Potential Sources of Contamination

Source		Distance (m)	Compass Direction	Identified by:	Comments
Probable Made Ground and Railway Sidings	On-Site	0		Possible	Suite of contamination testing required to negate source.
Mine Ground Gas	On-Site	0		Possible	MGRA and Gas Monitoring

It is not possible to discount all of the potential sources of contamination. Potential sources of contamination which cannot be discounted are carried forward to a preliminary qualitative risk assessment. The Contaminants of Concern (CoC) for the remaining potential sources of contamination are listed in Table 7.1.2.

Table 7.1. 2: Contaminants of Concern

CONTAMINANTS OF CONCERN									
Source	**Metals**	**Cadmium**	**PAH**	**Soil Organic Matter**	**SO_4, SO_3**	**pH**	**Asbestos**	**Chromium IV**	**Mine Gas**
ON-SITE									
Made Ground	X	X	X	X	X	X	X	X	
Mine Gas									x

Testing in broad accordance with DOE Industrial Profile for Railway Land

Pathway Characterisation

The potential pathways by which receptors might be exposed to contaminants (sources) at the site can vary depending on the proposed or current land use (e.g. residential properties, public open space, retail).
For humans, the three possible routes of exposure to contaminants are:

- Inhalation of dusts or vapours
- Ingestion of dusts or soil either by hand-to-mouth activity or by eating plants grown in contaminated soils
- Dermal (skin) contact with contaminated soils and waters and transfer of contaminants through the skin into the body

Buildings and service conduits can also be affected by contaminants in the following ways:

- Soil gas or vapour pooling in voids within or beneath structures
- By direct contact of building fabric with contaminated soils
- Service trenches acting as preferential migration pathways
- Ingress of contaminants into conduits, contaminating drinking water supplies

Finally, for the local water environment the following pathways may be present:

- Run-off from the site surface entering surface water courses near the site
- Leaching of contaminants from the soil to on-site groundwater
- Migration of contaminated on-site groundwater to off-site groundwater and/or surface water bodies

Receptor Characterisation

The receptors are the elements in the pollutant linkage that can potentially be harmed by the contaminants. These are as follows:

- Humans: site workers and residential users
- Buildings: building fabric and services; and
- The local water environment (surface water and groundwater)

Pollutant Linkages

The significance of potential pollutant linkages at the site is now qualitatively assessed by considering the magnitude of the hazard and the possibility of the linkages occurring based on the observations made, in Table 7.1.3 below.

Preliminary Qualitative Risk Assessment

The preliminary conceptual model outlined above has been used to undertake an initial qualitative risk assessment for the site to determine the possibility of significant risks that may exist following development of the site. The qualitative risk assessment will also investigate the risks to the wider environment as a result of contamination from on site sources.

Risk categories are presented in accordance with R&D66:2008 Volume 1.

Table 7.1.3: Preliminary Qualitative Environmental Risk Assessment for Identified sources of Contamination

Source	Potential contaminants	Potential Pathway(s)	Potential receptor(s)	Assessment	Consequence	Potential Probability	Risk Class	Investigation Required
Site soils/ Made Ground	Metals, PAHs, asbestos, SO_4, pH, TPH	Ingestion, inhalation, dermal contact	Humans (residents & end users)	Dermal contact, inhalation and ingestion pathways will be broken in areas covered by hardstanding. However the risk of humans coming into contact with potential contaminants at the site will remain in areas of soft landscaping. Contaminants could compromise the integrity of any water supply pipe and subsequently lead to consumption of contaminated water supply.	Severe	Low	Moderate	Yes
			Humans (site workers)	Construction and maintenance workers could come into contact with contaminated made ground. Excessive exposure may occur during some manual activities including working in service trenches.	Severe	Low	Moderate	Yes
		Direct contact, aggressive ground conditions,	Building fabric and services	The presence of contamination in shallow soils may pose a risk to buried concrete structures. Direct contact with this contamination in both soil and superficial groundwater (if present) can result in damage to concrete fabric and services in a similar fashion to that described above for water supply pipe.	Medium	Low	Moderate/ Low	Yes
		Leaching, migration.	Surface water environment	There is no surface water at the site. The majority of proposed development is to consist of tarmac and drained surfaces which will prevent surface water run-	Medium	Unlikely	Low	No

Source	Potential contaminants	Potential Pathway(s)	Potential receptor(s)	Assessment	Consequence	Potential Probability	Risk Class	Investigation Required
			Groundwater environment – Superficial Groundwater	off from coming into contact with any potentially contaminated made ground. Mobile contaminants that may be present on site, could migrate to surface water bodies by transportation via the bedrock aquifer, however the presence of hardcover to the site will reduce the infiltration of water through potentially contaminated soils therefore reducing the leaching potential. Soakaway values are too low to allow soakaways to be included. The superficial aquifer is secondary undifferentiated.				
			Groundwater environment – Bedrock Aquifer	The underlying bedrock is a Secondary (A) Aquifer – Low Permeability Layer	Medium	Unlikely	Low	No
Coal Mining Ground Gas	CH4/CO2	Migration to surface	Building structure, users	Groundgas testing required from a spread of 50mm gas installations across the probable line of coal subcrop, although proximal GI data suggests no risk	Severe	Low	Moderate	Yes

Table 7.1.3 contd: Preliminary Qualitative Environmental Risk Assessment for Identified sources of Contamination

8.0 GEOTECHNICAL PARAMETERS

8.1 Introduction

This section presents geotechnical parameters, which will be taken forward into the foundation options appraisals, and assigns parameters to the strata encountered. We have chosen not to assess geotechnical parameters of the Made Ground, as it is variable both laterally and vertically.

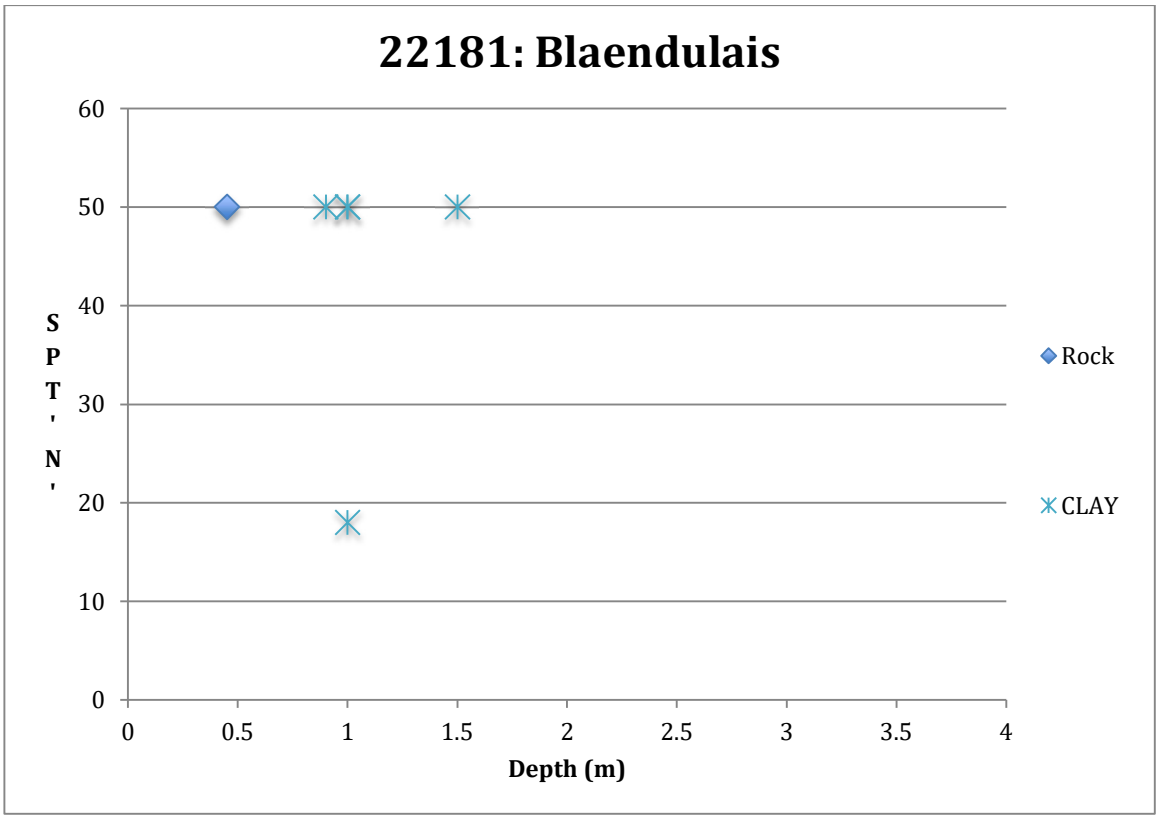


Figure 8.1. SPT N vs Depth

8.1.1 Stiff CLAY

What has been described as stiff gravelly CLAY, was noted beneath the Made Ground.

The upper surface was noted at depths of between 0.30m and 0.70m, below the Made Ground.

Uncorrected SPT N values of between 18 and refusal were recorded. Allowing for the effects of overburden and correcting accordingly suggests the strata to be stiff.

Employing correlations developed by Stroud et al, the following is recommended.

- *Undrained Shear Strength (c_u) – 100kN/m^2*
- *Coefficient of Volume Compressibility (m_v) – 0.09m^2/MN*

9.0 GEOTECHNICAL ASSESSMENT

9.1 Introduction

The following sections provide an assessment of the options relating to foundation options at site, making suggestions relating to potential options/assessment for bearing capacity and foundations and attack to buried concrete.

9.2 Foundation Options

At a depth of 1.00m to 1.50m the CLAY would provide an allowable bearing capacity (q_a) in the order of 100kN/m^2, however care must be taken to inspect the stratum for loose or waterlogged zones.

It should be noted that the upper surface of the weathered rock was noted at shallow depth in several exploratory holes, as shallow as 0.70m in TP05. Thus, there may be need to employ breakers to accomplish excavations for foundations and services.

Excavations in the Made Ground will degrade in wet conditions, and thus close support should be considered. Water was monitored as shallow as 1.50m depth, thus this may affect excavation depths. It is recommended that pumping from open sump is allowed for.

All formations must be inspected by a professional Geotechnical Engineer to confirm that the materials will accommodate the allowable bearing capacity calculated, and so that soft spots are identified, and removed.

9.3 Attack to Buried Concrete

Laboratory testing during, noted slightly acid to alkaline pH values, and a maximum water soluble sulphate value of 0.19g/l, indicating Sulphate Class DS-1, in accordance with BRE Special Digest 1.

9.4 Groundwater

Groundwater was monitored at around 1.50m at it's shallowest.

It is prudent to assume that there may be perched tables or standing water during periods of rainfall. Thus, pumping from open sumps should be accommodated for.

It should be noted that groundwater levels vary due to changes in climatic and other conditions and may therefore at times vary from those recorded during these operations.

10.0 CONTAMINATION TESTING

Contamination testing was undertaken on four soil samples, as shown in the Appendices.

Client Sample ID	Units	TP01	TP03	WS02	WS03			
Depth to Top		0.60	0.30	0.30	0.40			
Sample Type		Soil - ES	Soil - ES	Soil - ES	Soil - ES	S4UL/ C4SL Resi With	S4UL/ C4SL Resi Without	POS Resi
% Stones >10mm	% w/w	13.1	12.7	13.9	3.6			
pH	pH	6.24	9.63	9.02	8.26			
Sulphate (water sol 2:1)	g/l	0.04	0.19	0.07	<0.01			
Organic matter	% w/w	2.1	0.4	6.2	96.4			
Arsenic	mg/kg	3	26	15	5	37	40	79
Boron (water soluble)	mg/kg	<1.0	<1.0	<1.0	<1.0	290	11000	21000
Cadmium	mg/kg	<0.5	<0.5	1.3	<0.5	11	65	120
Copper	mg/kg	16	49	65	53	2400	7100	12000
Chromium	mg/kg	12	14	13	6	910	910	1500
Chromium Hex	mg/kg		<1	<1	<1	6	6	7.7
Lead	mg/kg	11	33	38	32	190	310	630
Mercury	mg/kg	<0.17	<0.17	<0.17	<0.17	40	56	120
Nickel	mg/kg	14	23	26	9	180	180	230
Selenium	mg/kg	<1	<1	<1	<1	250	430	1100
Zinc	mg/kg	31	126	2990	75	3700	40000	8100
TPH total (>C6-C40)	mg/kg	528	87	99	60	48000	64000	
Asbestos in Soil (inc. matrix)								
Asbestos in soil		NAD	NAD	NAD	NAD			
Asbestos ACM - Suitable for Water Absorption Test?		N/A	N/A	N/A	N/A	Non detected		
PAH-16MS								
Acenaphthene	mg/kg	0.01	<0.01	0.01	0.06	1100	6000	
Acenaphthylene	mg/kg	0.01	<0.01	<0.01	0.01	920	6000	
Anthracene	mg/kg	0.02	<0.02	<0.02	0.07	11000	37000	
Benzo(a)anthracene	mg/kg	<0.04	0.09	0.11	0.14	13	15	
Benzo(a)pyrene	mg/kg	<0.04	0.08	0.09	0.07	3	3.2	
Benzo(b)fluoranthene	mg/kg	<0.05	0.16	0.18	0.29	3.7	4	
Benzo(ghi)perylene	mg/kg	<0.05	0.07	0.08	<0.05	350	360	
Benzo(k)fluoranthene	mg/kg	<0.07	<0.07	<0.07	0.09	100	110	
Chrysene	mg/kg	<0.06	0.14	0.16	0.29	27	32	
Dibenzo(ah)anthracene	mg/kg	<0.04	<0.04	<0.04	<0.04	0.3	0.32	
Fluoranthene	mg/kg	<0.08	0.19	0.2	0.57	890	1600	
Fluorene	mg/kg	0.04	<0.01	<0.01	0.02	860	4500	
Indeno(123-cd)pyrene	mg/kg	<0.03	0.08	0.09	0.06	41	46	
Naphthalene	mg/kg	<0.03	<0.03	0.03	0.12	13	13	
Phenanthrene	mg/kg	<0.03	0.15	0.15	0.71	440	1500	
Pyrene	mg/kg	<0.07	0.13	0.16	0.27	2000	3800	
Total PAH-16MS	mg/kg	0.08	1.09	1.26	2.77	17761	60984	

Table 10.1: Soil Contamination Results

The results have been compared with current Environment Agency limits for Residential with and without homegrown produce and POS Resi Uses. Table 10.1 shows the recorded values, related to current Soil Guideline Values (SGVs)/S4UL, or other published values.

Thus, it is evident that all positions were within guidelines for Residential with and without plant uptake. Thus, no remediation strategy is required.

Waste Acceptance Criteria (WAC) Testing was undertaken on a single sample from WS04. No values exceeded inert landfill levels. It is likely that under the contractors Material Management Plans, further testing will be required for materials being removed from site.

11.0 COAL INVESTIGATION ASSESSMENT

The drilling operations noted in the original phase of investigations, noted no coal. The two boreholes during this phase noted a thin coal (200mm to 300mm thick) at 22m to 25m depths. No workings were noted and no loss of flush recorded in any of the holes.

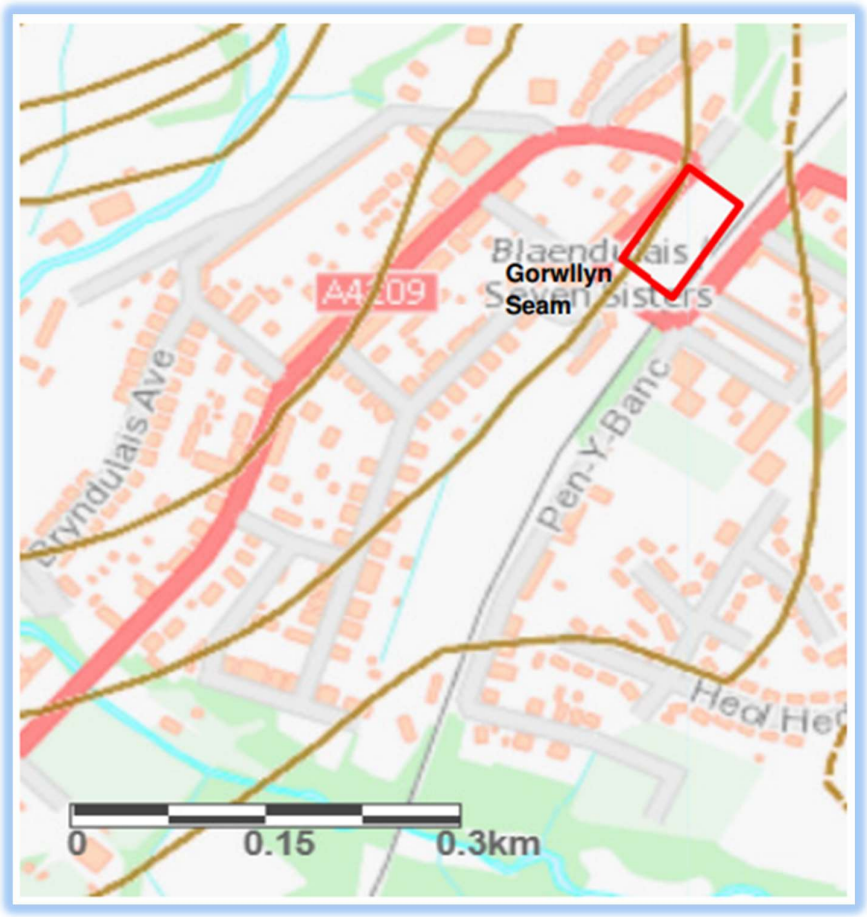


Fig 11: Geoindex Extract

This, combined with the knowledge that there was no flush take during the drilling, indicates that there are no workings within these seams, which would by their dimensions, likely to be non-economic for deep mining.

Thus, it is considered that no further investigation is required, and that no ground stabilisation is required for the development.

12.0 MINE GROUND GAS RISK ASSESSMENT

12.1 GROUND GAS RISK ASSESSMENT

12.1.1 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, with historical mine workings within the vicinity of 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 largely low permeability. Therefore, there is limited potential for horizontal and vertical migration of ground gas;

• Buried service runs and foundations, including sub-floor voids.

Receptors

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

• Structures and enclosed areas within proposed development.

This preliminary assessment has been completed in accordance with guidance published in CL:AIRE, 2021, Good practice for risk assessment for coal mine gas emissions. In the first instance, the risk assessment process requires the screening out of 'potentially at-risk sites' utilising the decision support tool for mine gas risk assessment, provided in Figure 13.1 - CLAIRE 2021. A summary of the decision tool and site outcome is presented in Table 12.1.

STEP	QUALIFIER	OUTCOME	COMMENT
1	Site within a coal authority defined coal mining reporting area?	Yes	Go to step 2
2	Are all these statements true? Mine entries >50m from site boundary. Workings >150m depth. No faults or other potential pathways connecting surface to deeper unflooded workings. Outside area of past or probable shallow workings on coal authority viewer	No	Go to step 3
3	Are all these statements true? Workings between 30m and 150m but permanently flooded or covered by 10m+ of low permeable superficial deposits. Mine entries > 50m from site boundary. Low permeability superficial deposits of sufficient thickness – <1x10-4m/s hydraulic conductivity	YES	Medium Risk Zone
4	Are any of these statements true? Mine entries on site or <20m from site boundary. Workings below site <30m depth and unflooded or variable water level. Faults or other pathways connecting surface to deeper unflooded workings. Within area of past or probable shallow workings on Coal Authority Viewer.	No	

Table 12.1: Ground Gas Decision Tool

It is determined the site is a medium risk of mine gas requiring a detailed mine gas risk assessment to establish whether suitable mitigation measures can be incorporated into the development.

The faulted local area congruent with the confirmed coal seams pose a risk. The faulting may act as preferential pathways for hazardous gasses, such as methane and carbon dioxide, to migrate vertically and horizontally from their reservoirs, up to the surface. Due to the risk from mine gas, following completion of drilling works, ground gas wells should be installed in the holes with response zone positioned within the unsaturated zone. This should be followed up with gas monitoring. The ground gas monitoring results and groundwater level monitoring results should be used to inform a mine gas risk assessment in accordance with CL:AIRE, 2021, Good practice for risk assessment for coal mine gas emissions.

12.2 Ground Gas Monitoring

Six return ground gas monitoring visits were undertaken over 25 months, at 4 No monitoring points, between the 2nd June 2022 and 05 July 2024. Full factual site records of the gas monitoring results are appended.

Ground gases were 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;

Where groundwater levels are noted to be above the screened sections of the boreholes the data is not considered to be representative of the ground gas regime and are therefore not used within the risk assessment process.

The key reference document which has been used to undertake the semi-quantitative land gas assessment presented in this report is CIRIA C665 (CIRIA, 2007). This provides a framework for assessment of land 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.

Monitoring was undertaken by TT and SGS over a 25 month period at varying atmospheric conditions and pressures – ranging from 995 to 1019 mb.

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 12-1 below.

Thus, a GSV for the highest flow (0.1l/hr) and highest CH4 (0.1%) is calculated as 0.0002l/hr, and for CO2 (0.9%) is calculated as 0.0018l/hr.

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. Based on the proposed development, a CS1, Very Low Risk classification is considered the most appropriate.

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	-

Table 12-1 –GSV Classification (Modified Wilson and Card Methodology)

12.2.1 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.

The worst-case values have been used within the risk assessment. Based on a maximum flow recorded of 0.2l/hr and the maximum recorded concentration of carbon dioxide (CO2) and methane (CH4) during the monitoring visits, the GSVs have been calculated as presented in Table 12-2.

Gas	Maximum Concentration (%)	Maximum Flow Rate (l/hr)	GSV (l/hr)	Characteristic Situation (Wilson and Card)
Carbon Dioxide				1 Very Low Risk
Methane				1 Very Low Risk

Table 12-2 – GSV Calculations

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

The monitoring rounds was undertaken during rising, falling and steady pressures with no discernible variation in ground gas monitoring results recorded.

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.

13.0 REVISED CONCEPTUAL SITE MODEL

Table 13.1 provides the Revised Conceptual Site Model, developed with the knowledge of the findings of the Phase 2 Ground Investigation. Risk categories are presented in accordance with R&D66:2008 Volume 1.

Table 13.1: Revised Quantitative Environmental Risk Assessment for Identified sources of Contamination

Source	Potential contaminants	Potential Pathway(s)	Potential receptor(s)	Assessment	Consequence	Potential Probability	Risk Class	Investigation Required
Site Soils/ Made Ground	Metals, PAHs, asbestos, SO_4, pH, TPH	Ingestion, inhalation, dermal contact	Humans (residents & end users)	No elevated concentrations were noted.	Medium	Very Low	Negligible	Undertaken
			Humans (site workers)	No elevated concentrations were noted.	Medium	Very Low	Negligible	Undertaken
		Direct contact, aggressive ground conditions,	Building fabric and services	Testing noted no elevations which would affect building fabric.	High	Very Low	Negligible	Undertaken
		Leaching, migration.	Surface water environment	There is no surface water at the site. The majority of proposed development is to consist of drained surfaces which will prevent surface water run-off from coming into contact with potentially contaminated made ground. Superficial aquifer is undifferentiated. Soakaway rates extremely low. No leachable contamination was noted by TT	Mild	Very Low	Negligible	No
			Groundwater environment – Superficial Groundwater					
			Groundwater environment – Bedrock Aquifer	The underlying bedrock is a Secondary (B) Aquifer – Low Permeability Layer	Medium	Very Low	Negligible	No
Coal Mining Ground Gas	CH4/CO2	Migration to surface	Building structure, users	Gas testing showed no deleterious concentrations. A CS1 situation has been calculated	Severe	Low	Very Low	Undertaken

14.0 ADDITIONAL COMMENTS

Reference should also be made to the Socotec Desk Top Study and Tetra Tech Geotechnical Interpretive reports. The recommendations given in these reports regarding foundation type, gas protection, made ground and potential hazardous materials should be considered, as ground conditions were consistent across the whole area.

Foundations are to be coordinated with any new or existing services and underground obstructions.

Any excavated material is to be WAC tested and WM3 assessed. Material that cannot be re-used for landscaping is to be removed off site for disposal at a suitable licenced facility.

15.0 CONCLUSIONS

Allowable bearing capacities have been provided for the natural strata encountered. The clays at site will need care during construction to ensure the formation is suitable for foundations. Formations, will need to be inspected for soft/loose spots and where those are found, treated accordingly. The granular strata will require care regarding trench stability.

Groundwater was noted as being within typical foundation depths, thus pumping from sumps and stabilization of excavations should be allowed for.

Soakaway values were extremely low. It would be worth undertaking further testing at depth within boreholes closer to the design stage.

Based upon the monitoring data indicating a zero flow and CO2 below 5%, a BS8485 classification of CS1 (Very Low Risk) is considered appropriate. Radon protection measures are not considered necessary.

Contamination testing has shown there to be no elevated concentrations. Thus, no source has been identified, with no Remediation Strategy Required. As it was not possible to access the wooded eastern zone, it is recommended that further testing is undertaken in that area, once felling has occurred, to check test within that proposed landscaped area.

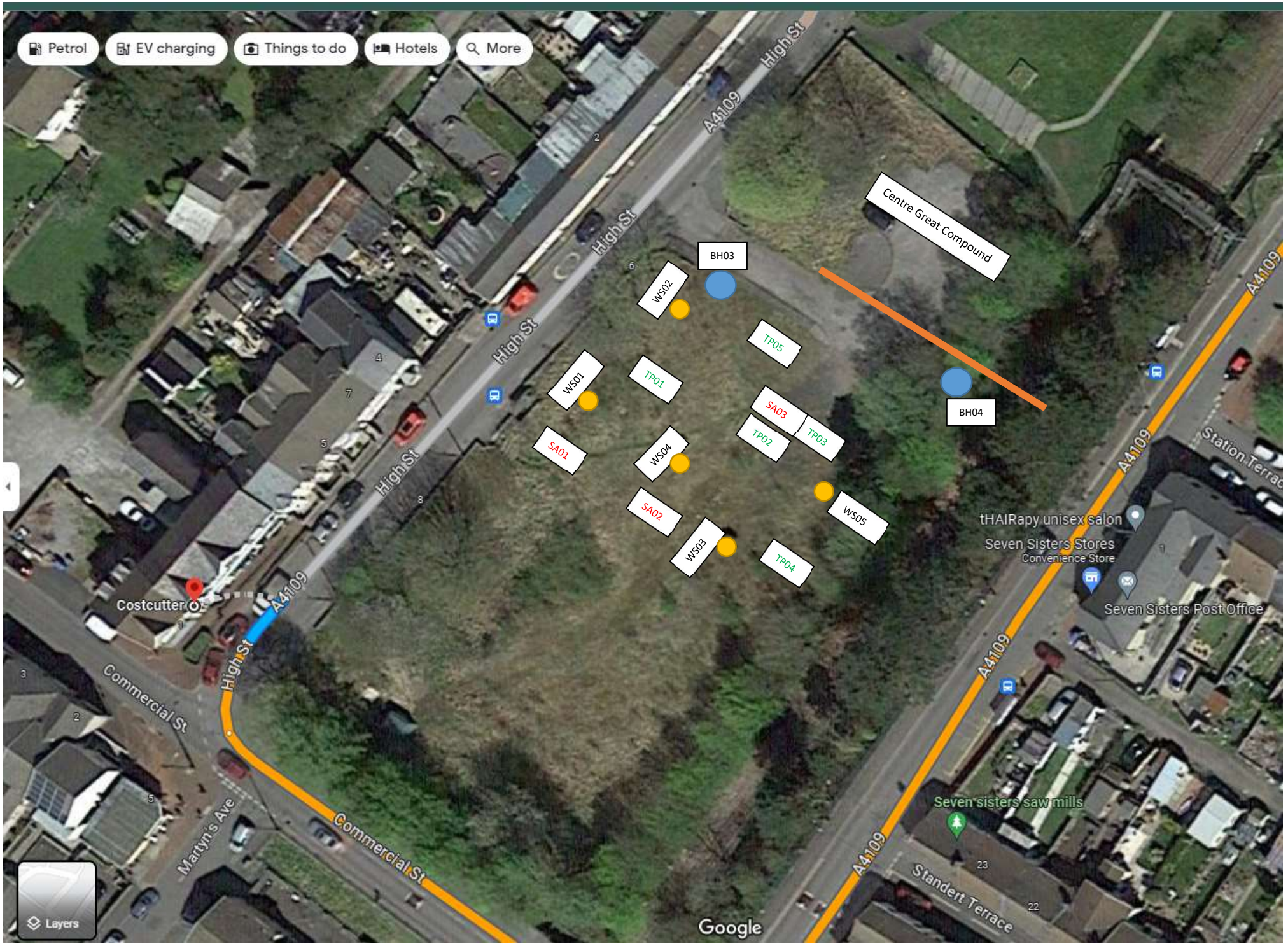
Slightly acidic soil results were noted, and Sulphate Class DS-1, in accordance with BRE Special Digest 1 is recommended for buried concrete.

It is evident that no subsidence claims have been drawn to the Coal Authority's attention.

APPENDIX A

Drawings

Borehole Location Plan	Drawing 22181_Locs
Planning Application Red Line.	


Petrol
EV charging
Things to do
Hotels
More
Centre Great Compound
BH03
BH04
WS01
WS02
WS03
WS04
WS05
TP01
TP02
TP03
TP04
TP05
SA01
SA02
SA03
High St
A4109
Commercial St
Martyn's Ave
Costcutter
tHAIRapy unisex salon
Seven Sisters Stores
Convenience Store
Seven Sisters Post Office
Seven sisters saw mills
Standert Terrace
Station Terrac
Layers
Google

EXISTING SITE PLAN - TOPO SURVEY

BLAENDULAIS, HIGH STREET, SEVEN SISTERS, NEATH, PORT TALBOT SA10 9DL



Existing Site Plan 1:200

Notes

This drawing is copyrighted and must not be reproduced or disclosed to third parties without the prior written permission of Prime Architecture Limited.

Do not scale from this drawing. Responsibility will not be accepted by Prime Architecture Limited for errors made by others scaling from the drawing. Use written dimensions only. Contractor to verify all dimensions before commencing work on site.

Prime Architecture Limited are to be notified immediately in writing of any discrepancies. All survey information incorporated within the drawings cannot be guaranteed as accurate unless confirmed by a fixed dimension.

All dimensions are in millimeters unless otherwise noted.

This drawing is to be read in conjunction with all relevant project drawings and specification prepared by Prime Architecture Limited and other relevant consultants, specialists, etc.

CDM notes are provided to assist the contractor in managing residual hazards identified during the design stage. Any such notes do not relieve the contractor of their duties and they must provide a safe system of work based on method statements, risk assessments, etc.

Revision:	Description:	Date:

Drawing Status:

BUILDING REGULATIONS

CHARTERED PRACTICE

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www.prime-arch.co.uk

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Client:
T Richard Jones (Betws) Ltd

Project Title:
The Proposal of Childcare Units at Blaendulais, High Street, Seven Sisters, Neath, Port Talbot SA10 9DL

Drawing Title:
Existing Site Plan - Topo Survey

Scale:	Drawn:	Date:
1:200 @ A1	MZ	June 2024

Job No:	Drawing No:	Rev:
1145	02	-

APPENDIX B

Borehole Logs

Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH03	RO		PL	1:50	Sheet 1 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
								0.40			BACKFILL **
								1.30			CLAY **
								2.90			CLAY and BOULDERS **
								4.30			WEATHERED MUDSTONE **
								5.30			SANDSTONE **
								5.90			MUDSTONE **
											SANDSTONE **

1 2 3 4 5 6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH03	RO		PL	1:50	Sheet 2 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
	▼							17.20			SANDSTONE **
											MUDSTONE **

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH03	RO		PL	1:50	Sheet 3 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
											MUDSTONE **
								23.80			SILTSTONE **
								24.80			COAL
								25.00			MUDSTONE **
								30.00			End of Borehole at 30.000m

21 22 23 24 25 26 27 28 29 30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH04	RO		PL	1:50	Sheet 1 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
								0.40			BACKFILL **
								1.10			WEATHERED MUDSTONE **
								8.70			SANDSTONE **
											SILTSTONE **

1 2 3 4 5 6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH04	RO		PL	1:50	Sheet 2 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
	▼							17.30			SILTSTONE **
											MUDSTONE **

11 12 13 14 15 16 17 18 19 20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Rotary Core Log

Project Name: Blaendulais	Client: TRJ	Date: 09/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: TD/JB	Drilling Equipment: Fraste PLG

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH04	RO		PL	1:50	Sheet 3 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
											MUDSTONE **
								22.20			COAL **
								22.50			MUDSTONE **
								25.10			SILTSTONE **
								30.00			End of Borehole at 30.000m

21 22 23 24 25 26 27 28 29 30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

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Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
SA01	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.50	ES					MADE GROUND: Multicoloured clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and concrete with low cobble content of angular brick, sandstone and concrete. Fill.
					0.50			Brown, orange and grey slightly sandy clayey subrounded fine to coarse GRAVEL of sandstone with low cobble content of subrounded sandstone. GLACIAL TILL.
					1.20			End of Borehole at 1.200m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

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Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
SA02	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10			Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse of brick and sandstone. TOPSOIL.
		0.50 - 1.00	ES		0.50			MADE GROUND: Multicoloured clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and concrete with low cobble content of angular brick, sandstone and concrete. Fill.
								Stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
					1.00			End of Borehole at 1.000m

1
2
3
4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

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Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
SA03	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.50	ES		0.10			Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse of brick and sandstone. TOPSOIL.
					0.50			MADE GROUND: Multicoloured clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and concrete with low cobble content of angular brick, sandstone and concrete. Fill.
					0.90			Stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
					0.91			Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION
								End of Borehole at 0.900m

1
2
3
4
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Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP01	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.60 - 0.90	ES		0.50			MADE GROUND: Multicoloured clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and concrete with low cobble content of angular brick, sandstone and concrete. Fill.
	▼				1.50			Stiff to very stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
								End of Borehole at 1.500m

1
2
3
4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP02	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Multicoloured angular to subangular COBBLES of sandstone, brick and concrete with a little sand and gravel. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. Fill.
					0.40			Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION
					0.41			End of Borehole at 0.400m

1
2
3
4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP03	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.60	ES		0.60 0.61			MADE GROUND: Multicoloured angular to subangular COBBLES of sandstone, brick and concrete with a little sand and gravel. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. Fill.
								Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION
								End of Borehole at 0.600m

1
2
3
4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP04	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
					0.40			Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION
					0.70			End of Borehole at 0.700m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Trial Pit Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Equipment: 2.5 ton excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP05	TP		PL	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
					0.30			Stiff to very stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subrounded sandstone. Gravel is subrounded fine to coarse of sandstone. GLACIAL TILL.
					0.70			Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION
					0.71			End of Borehole at 0.700m

1
2
3
4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

spectrum geo services

Percussion Drilling Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Drilling Equipment: DART

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS01	WS		PL	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.50			GL - 0.50: MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
		1.00	SPT	N=18 (4,2/2,4,7,5)	1.00			0.50 - 1.00: Stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
		1.50	SPT	N=50 (3,4/50 for 20mm)	1.50			No Recovery
					1.51			Probable Bedrock
								End of Borehole at 1.500m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

spectrum geo services

Percussion Drilling Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Drilling Equipment: DART

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS02	WS		PL	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.50	ES		0.50			GL - 0.50: MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
		0.70 - 1.00	ES					0.50 - 1.30: Stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
		1.00	SPT	N=50 (3,3/50 for 160mm)	1.30			Probable Bedrock
					1.31			End of Borehole at 1.300m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

spectrum geo services

Percussion Drilling Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Drilling Equipment: DART

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS03	WS		PL	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40 - 0.70	ES					GL - 0.70: MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
		0.70 - 1.00	ES		0.70			
		0.90	SPT	N=30 (1,1/30 for 5mm)	0.90 0.91			0.70 - 0.90: Stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL. Probable Bedrock End of Borehole at 0.900m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

spectrum geo services

Percussion Drilling Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Drilling Equipment: DART

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS04	WS		PL	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.50	ES					GL - 0.50: MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill.
		0.50 - 1.00	ES		0.50			0.50 - 1.00: Stiff to very stiff brown, orange and grey slightly sandy gravelly CLAY with low cobble content of subangular to subrounded sandstone. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL.
		1.00	SPT	N=50 (3,5/50 for 10mm)	1.00 1.10			Probable Bedrock
								End of Borehole at 1.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

spectrum geo services

Percussion Drilling Log

Project Name: Blaendulais	Client: TRJ	Date: 10/10/2023
Location: Blaendulais	Contractor: Apex Drilling Services	
Project No. : 22181	Crew Name: LJ	Drilling Equipment: DART

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS05	WS		PL	1:50	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.45	SPT	N=50 (25 for 15mm/50 for 10mm)	0.45 0.46			GL - 0.45: MADE GROUND: Black and grey slightly silty angular to subangular fine to coarse GRAVEL of sandstone and brick with medium cobble content of angular brick and sandstone. Fill. 0.45: Strong grey and dark grey SANDSTONE. Bedrock of the SOUTH WALES MIDDLE COAL MEASURES FORMATION End of Borehole at 0.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

spectrum geo services

Appendix C

Laboratory Testing

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/10186
Issue Number: 1 **Date:** 07 November, 2023

Client:
Spectrum Geo Services
Foxglove Cottage
Cwm Risca Lane
Tondu
Wales
CF32 0EH

Project Manager: Rob Griffiths
Project Name: Blaendulais
Project Ref: 22181
Order No: 22181/01
Date Samples Received: 16/10/23
Date Instructions Received: 16/10/23
Date Analysis Completed: 07/11/23

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 23/10186

Client Project Name: Blaendulais

Client Project Ref: 22181

Lab Sample ID	23/10186/1	23/10186/2	23/10186/3	23/10186/4	23/10186/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP03	WS02	WS03	WS04					
Depth to Top	0.60	0.30	0.30	0.40	0.20					
Depth To Bottom	0.90	0.60	1.00	0.70	0.50					
Date Sampled	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	3A	4AE	4AE	4AE	4AB					
% Stones >10mm$_A$	13.1	12.7	13.9	3.6	35.3			% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	6.24	9.63	9.02	8.26	9.01			pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.04	0.19	0.07	<0.01	-			g/l	0.01	A-T-026s
Organic Matter$_D$$^{M\#}$	2.1	0.4	6.2	96.4	-			% w/w	0.1	A-T-032s
Arsenic$_D$$^{M\#}$	3	26	15	5	-			mg/kg	1	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	<1.0	<1.0	<1.0	<1.0	-			mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	<0.5	<0.5	1.3	<0.5	-			mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	16	49	65	53	-			mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	12	14	13	6	-			mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	-			mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	11	33	38	32	-			mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17	-			mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	14	23	26	9	-			mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1	-			mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	31	126	2990	75	-			mg/kg	5	A-T-024s
TPH total (>C6-C40)$_A$$^{M\#}$	528	87	99	60	-			mg/kg	10	A-T-007s

Envirolab Job Number: 23/10186

Client Project Name: Blaendulais

Client Project Ref: 22181

Lab Sample ID	23/10186/1	23/10186/2	23/10186/3	23/10186/4	23/10186/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP03	WS02	WS03	WS04					
Depth to Top	0.60	0.30	0.30	0.40	0.20					
Depth To Bottom	0.90	0.60	1.00	0.70	0.50					
Date Sampled	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	3A	4AE	4AE	4AE	4AB					
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	-					A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	-					A-T-045

Envirolab Job Number: 23/10186

Client Project Name: Blaendulais

Client Project Ref: 22181

Lab Sample ID	23/10186/1	23/10186/2	23/10186/3	23/10186/4	23/10186/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP03	WS02	WS03	WS04					
Depth to Top	0.60	0.30	0.30	0.40	0.20					
Depth To Bottom	0.90	0.60	1.00	0.70	0.50					
Date Sampled	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23	11-Oct-23					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	3A	4AE	4AE	4AE	4AB					
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.01	<0.01	0.01	0.06	-			mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	0.01	<0.01	<0.01	0.01	-			mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.02	<0.02	<0.02	0.07	-			mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	<0.04	0.09	0.11	0.14	-			mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	<0.04	0.08	0.09	0.07	-			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	<0.05	0.16	0.18	0.29	-			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	<0.05	0.07	0.08	<0.05	-			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	<0.07	<0.07	<0.07	0.09	-			mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	<0.06	0.14	0.16	0.29	-			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}$	<0.04	<0.04	<0.04	<0.04	-			mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	<0.08	0.19	0.20	0.57	-			mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.04	<0.01	<0.01	0.02	-			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	<0.03	0.08	0.09	0.06	-			mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	<0.03	<0.03	0.03	0.12	-			mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	<0.03	0.15	0.15	0.71	-			mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	<0.07	0.13	0.16	0.27	-			mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}$	0.08	1.09	1.26	2.77	-			mg/kg	0.01	A-T-019s

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Spectrum Geo Services, Foxglove Cottage, Cwm Risca Lane, Tondu, Wales, CF32 0EH

Project: Blaendulais

Clients Project No: 22181

Project No: 23/10186

Date Received: 16/10/2023 (am)

Cool Box Temperatures (°C): 12.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/10186/1	23/10186/2	23/10186/3	23/10186/4	23/10186/5
Client Sample No					
Client Sample ID/Depth	TP01 0.60-0.90m	TP03 0.30-0.60m	WS02 0.30-1.00m	WS03 0.40-0.70m	WS04 0.20-0.50m
Date Sampled	11/10/23	11/10/23	11/10/23	11/10/23	11/10/23
A-T-004s					23/10/2023
A-T-007s	23/10/2023	23/10/2023	23/10/2023	23/10/2023	23/10/2023
A-T-019s	25/10/2023	25/10/2023	25/10/2023	25/10/2023	25/10/2023
A-T-022s					23/10/2023
A-T-024s	26/10/2023	26/10/2023	28/10/2023	26/10/2023	
A-T-025w					30/10/2023
A-T-026s	26/10/2023	26/10/2023	26/10/2023	26/10/2023	
A-T-026w					30/10/2023
A-T-026w (F)					30/10/2023
A-T-027s	27/10/2023	27/10/2023	27/10/2023	27/10/2023	
A-T-030s					26/10/2023
A-T-031s	26/10/2023	26/10/2023	26/10/2023	26/10/2023	26/10/2023
A-T-031w					30/10/2023
A-T-032s	02/11/2023	01/11/2023	01/11/2023	07/11/2023	02/11/2023
A-T-032w					30/10/2023
A-T-037w					30/10/2023
A-T-040s	02/11/2023	26/10/2023	26/10/2023	26/10/2023	
A-T-044	27/10/2023	27/10/2023	27/10/2023	27/10/2023	27/10/2023
A-T-045	20/10/2023	20/10/2023	20/10/2023	20/10/2023	
A-T-050w					30/10/2023
A-T-ANCs					26/10/2023
Calc-no stones					30/10/2023
Probe (w)					30/10/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	23/10186
Issue Number:	1
Date:	7-Nov-23

Client: Spectrum Geo Services
Foxglove Cottage
Cwm Risca Lane
Tondu
Wales
CF32 0EH

Project Manager:	Rob Griffiths
Project Name:	Blaendulais
Project Ref:	22181
Order No:	22181/01
Date Samples Received:	16-Oct-23
Date Instructions Received:	16-Oct-23
Date Analysis Completed:	7-Nov-23

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

HWOL TPH Code: EH_CU_1D_AL: Extractable hydrocarbons - i.e. everything extracted by the solvent(s), Clean-up - e.g. by florisil, silica gel, GC - Single coil gas chromatography, Aliphatics only

Approved by:



Richard Wong
Client Manager

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	23/10186/5				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS04				
Depth to Top				0.2				
Depth to Bottom				0.50				
Date Sampled				11/10/2023				
Sample Type				Soil - ES				
Sample Matrix Code				4AB				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.01**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.46**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.1**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**2.7**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.89**		3	5	6
PAH Sum of 17 (mg/kg)$_A$	A-T-019	N	N	**0.52**		100	-	-
Mineral Oil (mg/kg)$_{A\ EH\_CU\_1D\_AL}$	A-T-007	N	N	**64**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1 mg/l**	**10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.007	**0.070**	0.5	2	25
Barium	A-T-025	N	N	0.015	**0.150**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.003	**0.030**	0.5	10	70
Copper	A-T-025	N	N	0.006	**0.060**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.001	**0.010**	0.5	10	30
Nickel	A-T-025	N	N	<0.002	**<0.02**	0.4	10	40
Lead	A-T-025	N	N	<0.001	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.012	**0.120**	0.06	0.7	5
Selenium	A-T-025	N	N	0.001	**0.010**	0.1	0.5	7
Zinc	A-T-025	N	N	0.012	**0.120**	4	50	200
Chloride	A-T-026	N	N	1	**11**	800	15000	25000
Fluoride	A-T-026	N	N	0.2	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	51	**512**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	96	**960**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<2.0	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	9.4				
Conductivity (µS/cm)	A-T-037	N	N	192				
Mass Sample (kg)				0.205				
Dry Matter (%)	A-T-044	N	N	85.2				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

Results Summary

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Telephone: 01656 746762
E-mail: andrew.grogan@apex-drilling.com
laura.davis@apex-drilling.com

Reporting Details		**Key Information**	
Company Name:	Spectrum Geo	**Site Name:**	Blaendulais
Address:	Foxglove Cottage		
	Cwm Risca Lane	**Job Number:**	D23449
	Bridgend	**Date Received:**	16/10/2023
	CF32 0EH	**Job Coordinator:**	A. Grogan
Contact Name:	**Rob**		
Contact Number:			

Item No.	Tests Undertaken	Number of Tests
1	Atterburg Limits (4 point) - BS1377-2: 1990	3
2	# pH & sulphate (pH/SO4)	3
3	Courier Charge	3

Results Issued: 25/10/2023

Comments

Results herein relate only to samples received in the laboratory and where not sampled by Apex Testing Solutions personnel relate to the samples as received.
Where tests are UKAS accredited any Opinion and/or Interpretation expressed herein are outside the scope of the UKAS Accreditation. The reports shall not be reproduced in full without the written approval of the laboratory.

Please contact the job coordinator should any further information be required.

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend
ATS Sample No:	34755		CF32 0EH

Site Ref / Hole ID:	WS02	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Brown sandy gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	16 October 2023	**Date Tested:**	21 October 2023

Test Results

Moisture Content (%)	20.9

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	21/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

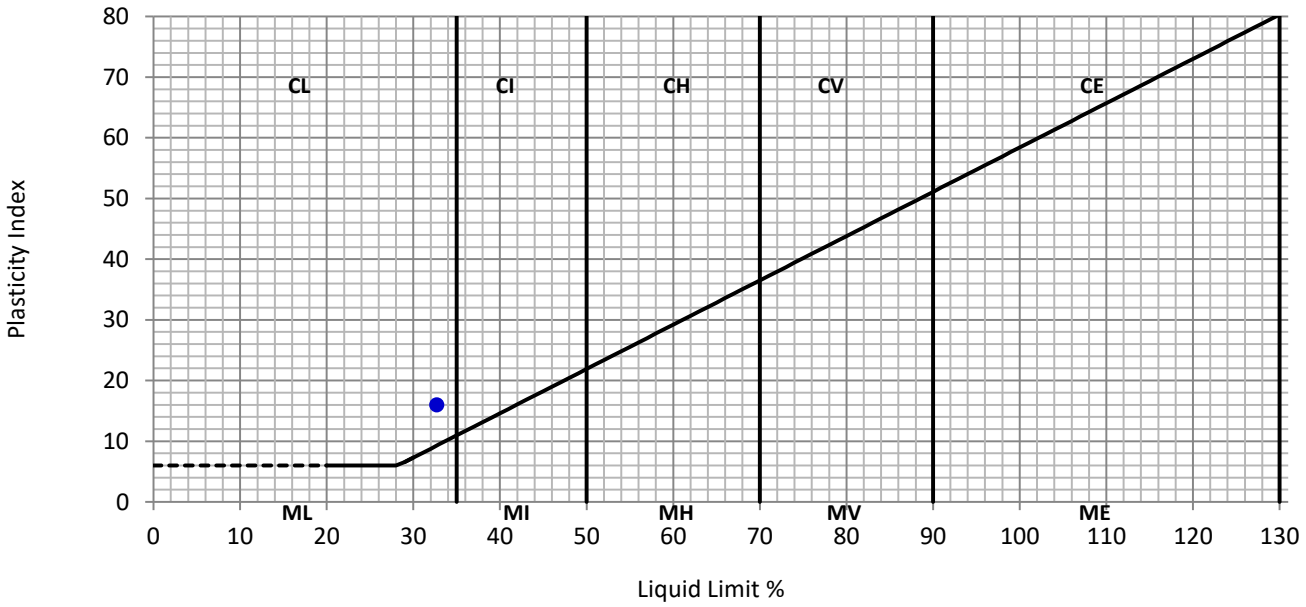
Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend CF32 0EH
ATS Sample No:	34755		

Site Ref / Hole ID:	WS02	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Brown sandy gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	16 October 2023	**Date Tested:**	19 October 2023

Test Results

Liquid Limit	33	%
Plastic Limit	17	%
Plasticity Index	16	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	35	%



Remarks:

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend
ATS Sample No:	34756		CF32 0EH

Site Ref / Hole ID:	WS03	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Dark grey very gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	16 October 2023	**Date Tested:**	18 October 2023

Test Results

Moisture Content (%)	17.6

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	21/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

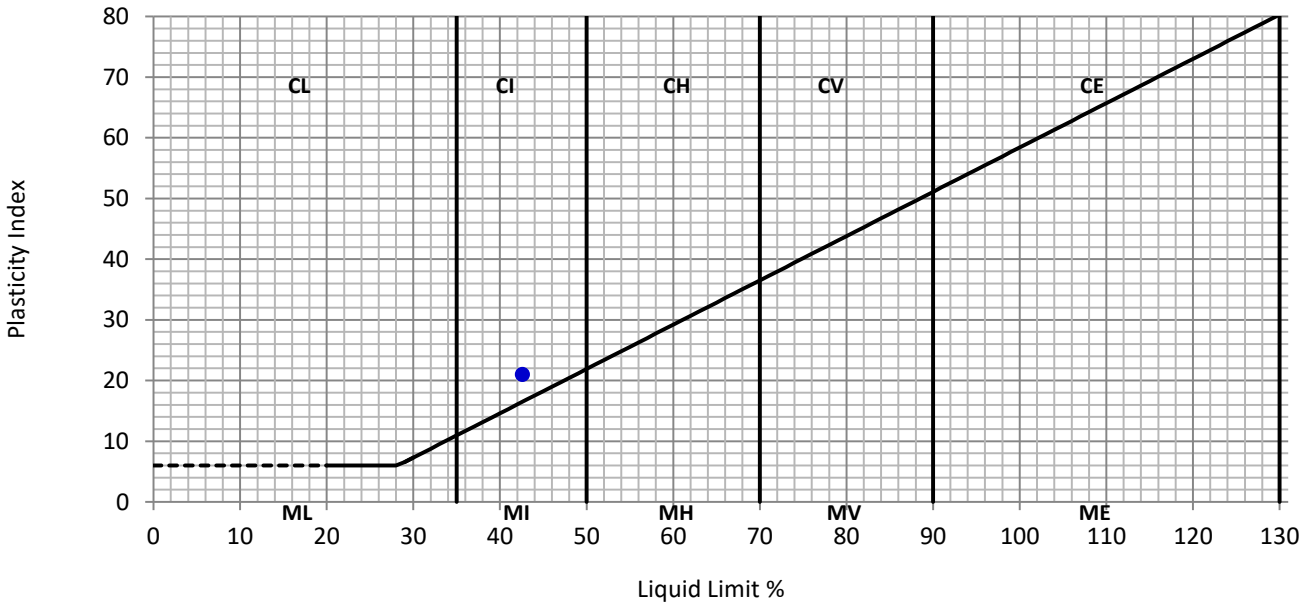
Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend CF32 0EH
ATS Sample No:	34756		

Site Ref / Hole ID:	WS03	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Dark grey very gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	16 October 2023	**Date Tested:**	19 October 2023

Test Results

Liquid Limit	43	%
Plastic Limit	22	%
Plasticity Index	21	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	76	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 21/10/2023	Fig. **ATT**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend
ATS Sample No:	34757		CF32 0EH

Site Ref / Hole ID:	WS04	**Depth (m):**	0.50 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Brown sandy gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	16 October 2023	**Date Tested:**	21 October 2023

Test Results

Moisture Content (%)	9.9

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	21/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

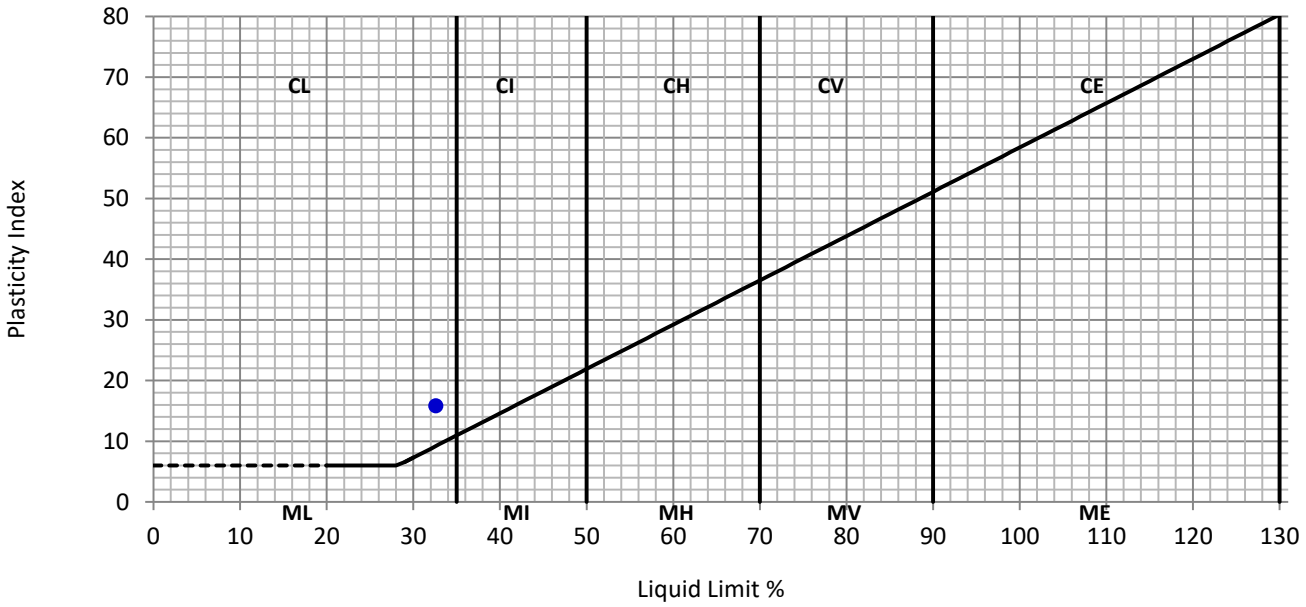
Project No:	D23449	**Client:**	Spectrum Geo
Project Name:	22181 - Blaendulais	**Address:**	Foxglove Cottage Cwm Risca Lane Bridgend CF32 0EH
ATS Sample No:	34757		

Site Ref / Hole ID:	WS04	**Depth (m):**	0.50 - 1.00
Sample No:		**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Brown sandy gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	16 October 2023	**Date Tested:**	19 October 2023

Test Results

Liquid Limit	33	%
Plastic Limit	17	%
Plasticity Index	16	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	32	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: A Grogan A Grogan, Laboratory Manager	Date: 21/10/2023	Fig. ATT

Unit 7-8 Hawarden Business Park
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Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Attention: Laura Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	25 October 2023
Customer:	Apex Testing Solutions Limited
Sample Delivery Group (SDG):	231019-54
Your Reference:	D23449
Location:	Blaendulais
Report No:	708685
Order Number:	ATS 1866

We received 3 samples on Thursday October 19, 2023 and 3 of these samples were scheduled for analysis which was completed on Wednesday October 25, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 231019-54 **Report Number:** 708685 **Superseded Report:**
Client Ref.: D23449 **Location:** Blaendulais

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
28808066	WS2		0.70 - 1.00	17/10/2023
28808069	WS3		0.70 - 1.00	17/10/2023
28808072	WS4		0.50 - 1.00	17/10/2023

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 231019-54 **Report Number:** 708685 **Superseded Report:**
Client Ref.: D23449 **Location:** Blaendulais

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			28808066	28808069	28808072
Customer Sample Reference			WS2	WS3	WS4
AGS Reference					
Depth (m)			0.70 - 1.00	0.70 - 1.00	0.50 - 1.00
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 3	X	X	X
Sample description	All	NDPs: 0 Tests: 3	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 231019-54 **Report Number:** 708685 **Superseded Report:**
Client Ref.: D23449 **Location:** Blaendulais

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
28808066	WS2	0.70 - 1.00	Dark Brown	Sandy Clay Loam	Stones	Vegetation
28808069	WS3	0.70 - 1.00	Dark Brown	Silt Loam	None	Stones
28808072	WS4	0.50 - 1.00	Dark Brown	Sandy Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 231019-54 **Report Number:** 708685 **Superseded Report:**
Client Ref.: D23449 **Location:** Blaendulais

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS2	WS3	WS4			
Depth (m)	0.70 - 1.00	0.70 - 1.00	0.50 - 1.00			
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled	17/10/2023	17/10/2023	17/10/2023			
Sample Time	.	.	.			
Date Received	19/10/2023	19/10/2023	19/10/2023			
SDG Ref	231019-54	231019-54	231019-54			
Lab Sample No.(s)	28808066	28808069	28808072			
AGS Reference						
Component	**LOD/Units**	**Method**				
Moisture Content Ratio (% of as received sample)	%	PM024	17	10	13	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0727 M	0.005 M	0.0635 M	

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM243	Mixed Anions In Soils By Kone

NA = not applicable.
Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 231019-54 **Report Number:** 708685 **Superseded Report:**
Client Ref.: D23449 **Location:** Blaendulais

Test Completion Dates

Lab Sample No(s)	28808066	28808069	28808072
Customer Sample Ref.	WS2	WS3	WS4
AGS Ref.			
Depth	0.70 - 1.00	0.70 - 1.00	0.50 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	25-Oct-2023	25-Oct-2023	25-Oct-2023
Sample description	19-Oct-2023	19-Oct-2023	19-Oct-2023

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX D

Gas and Groundwater Monitoring

Date :	**Meteorological and Site Conditions**	
02/06/2022	State of ground	
Operator:	Wind	Dty, warm
JTC	Wind Direction	
	Cloud Cover	
	Precipitation	None
	Temperature(deg.C)	14
	Barometric Presure (mb)	995

Equipment Used:	Dipmeter 30m	Multigas Analyser
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.	

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	14.30	0.00	0.00	0.00	0.90	0.00	995	0.10		3.30
BH02	8.20	14.10	0.00	0.00	0.00	0.80	0.00	995	0.10		3.40
WS08	2.50	14.30	0.00	0.00	0.00	0.60	0.00	995	0.10		DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

Gas Monitoring	**Blaendulias**	**Project No:** 22181

Date :	**Meteorological and Site Conditions**	
09/06/2022	State of ground	
Operator:	Wind	Overcast Warm
JTC	Wind Direction	
	Cloud Cover	
	Precipitation	None
	Temperature(deg.C)	16
	Barometric Presure (mb)	1017

Equipment Used:	Dipmeter Multigas Analyser 30m
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	20.80	0.00	0.00	0.10	0.20	0.00	1017	0.10		3.30
BH02	8.20	20.60	0.00	0.00	0.10	0.20	0.00	1017	0.10		3.40
WS08	2.50	20.40			0.10	0.50	0.00	1017	0.10		DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

Gas Monitoring	**Blaendulias**	**Project No:** 22181

Date :	**Meteorological and Site Conditions**	
15/06/2022	State of ground	
Operator:	Wind	Clear wearm
JTC	Wind Direction	
	Cloud Cover	
	Precipitation	None
	Temperature(deg.C)	16
	Barometric Presure (mb)	998

Equipment Used:	Dipmeter 30m	Multigas Analyser
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.	

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	20.80	0.00	0.00	0.10	0.20	0.00	998	0.10		4.12
BH02	8.20	16.90	0.00	0.00	0.10	0.40	0.00	998	0.20		DRY
WS08	2.50	20.40	0.00	0.00	0.10	0.50	0.00	998	0.20		DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

Gas Monitoring	**Blaendulias**	**Project No:** 22181

Date :	Meteorological and Site Conditions	
24/06/2024	State of ground	Dry
Operator:	Wind	Light
PL	Wind Direction	SW
	Cloud Cover	80%
	Precipitation	None
	Temperature(deg.C)	18
	Barometric Presure (mb)	1019

Equipment Used:	Dipmeter Multigas Analyser 30m
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	21.00			0.00	0.00	0.00	1019	0.00	0.00	1.36
BH03	1.30	20.90			0.00	0.00	0.00	1019	0.00	0.00	1.19
BH02	8.20	20.70			0.00	0.00	0.00	1019	0.00	0.00	2.61
WS08	2.50	20.90			0.00	0.20	0.00	1019	0.00	0.00	DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

Date :	Meteorological and Site Conditions	
01/07/2024	State of ground	Dry
Operator:	Wind	Light
PL	Wind Direction	SW
	Cloud Cover	80%
	Precipitation	None
	Temperature(deg.C)	21
	Barometric Presure (mb)	999

Equipment Used:	Dipmeter Multigas Analyser 30m
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	20.80			0.00	0.00	0.00	999	0.00	0.00	1.35
BH03	1.30	20.80			0.00	>>>>	0.00	999	0.00	0.00	1.20
BH02	8.20	20.60			0.00	0.20	0.00	999	0.00	0.00	2.60
WS08	2.50	20.70			0.00	0.30	0.00	999	0.00	0.00	DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

Date :	Meteorological and Site Conditions	
05/07/2024	State of ground	Dry
Operator:	Wind	Light
PL	Wind Direction	SW
	Cloud Cover	80%
	Precipitation	None
	Temperature(deg.C)	14
	Barometric Presure (mb)	1011

Equipment Used:	Dipmeter Multigas Analyser 30m
Survey Information:	BH01: Gas bung was on ground near to borehole. Repaced and sampled.

BH	Depth (m)	O_2 (%v/v)	H2S ppm	CO ppm	CH_4 (%v/v)	CO_2 (%v/v)	LEL (%)	AP mb	Flow (l/h)	DP (Pa)	Dip (m)
BH01	1.45	20.90			0.00	0.00	0.00	1011	0.00	0.00	1.32
BH03	1.30	20.80			0.00	>>>>	0.00	1011	0.00	0.00	1.10
BH02	8.20	20.70			0.00	0.10	0.00	1011	0.00	0.00	2.51
WS08	2.50	20.80			0.00	0.30	0.00	1011	0.00	0.00	DRY

Remarks:

The concentrations of gases recorded above are subject to the accuracy, as specified by the manufacturer, of the instrument adopted. If concentration accuracies of less than +/- 2% are required, it is recommended that gas samples are recovered and laboratory analyses are undertaken.

APPENDIX E

Photographic Plates


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
SA01
GL 1·20
200
300
400
600


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
SA02
DEPTH (M)
GL 1.00
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
SA03
DEPTH (M)
GL 0.90
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
TP01
DEPTH (M)
GL - 1.50
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP 02
DEPTH (M)
GL 0.40
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
2218
TP
TP03
DEPTH (M)
0-60
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
TP01
DEPTH (M)
GL - 0.70
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
TP05
DEPTH (M)
GL 0.70
FACE


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
WS01
DEPTH (M)
GL 1.50
FACE
NK 1.00 1.50


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
WS 02
DEPTH (M)
GL 1.30
FACE
100
200
300
400
500
600


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
WS03
DEPTH (M)
GL 0.90
FACE
100
200
300
500
600


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
WS 04
DEPTH (M)
GL 1.00
FACE
100
200
300
400
500
600


10/10/23
PROJECT
BLAENDULAIS
PROJECT NO
22181
TP
WS05
DEPTH (M)
GL 0.45
FACE
100
200
300
400
500
600

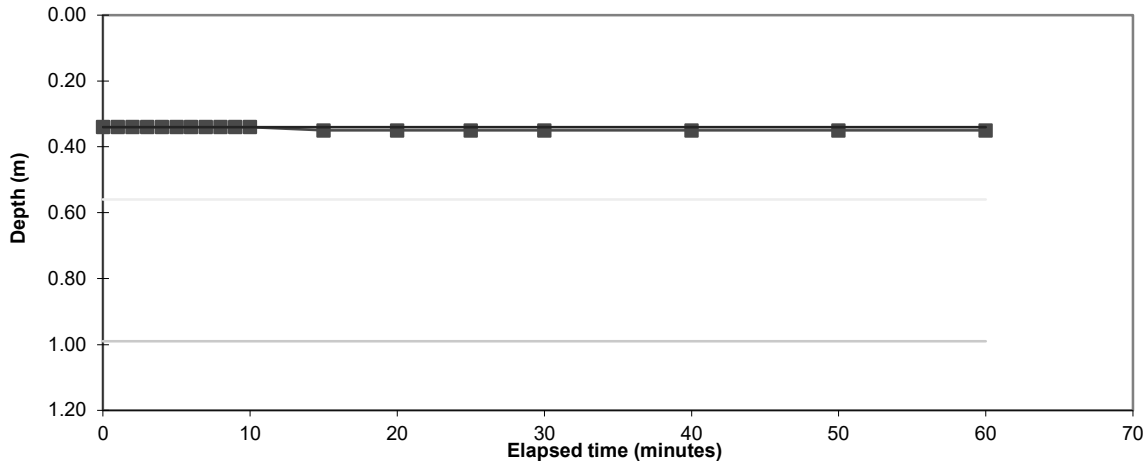
APPENDIX F

Soakaway Testing

Soakaway Test Results

Trial Pit No:	SA01	Test No:	1	Date:	10.10.2023
Length (m):	1.00				
Width (m):	0.30	Granular infill:	NA		
Depth (m):	1.20	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.34	30	0.35
1	0.34	40	0.35
2	0.34	50	0.35
3	0.34	60	0.35
4	0.34		
5	0.34		
6	0.34		
7	0.34		
8	0.34		
9	0.34		
10	0.34		
15	0.35		
20	0.35		
25	0.35		



Water depth at start of test (m):	0.34		
75% effective depth (m):	0.56	Elapsed time (mins):	#N/A
50% effective depth (m):	0.77		
25% effective depth (m):	0.99	Elapsed time (mins):	#N/A
Empty depth (m):	1.20		

Volume outflow between 75% and 25% effective depth (m^3):

Mean surface area of outflow (m^2): 1.42
(side area at 50% effective depth + base area)

Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

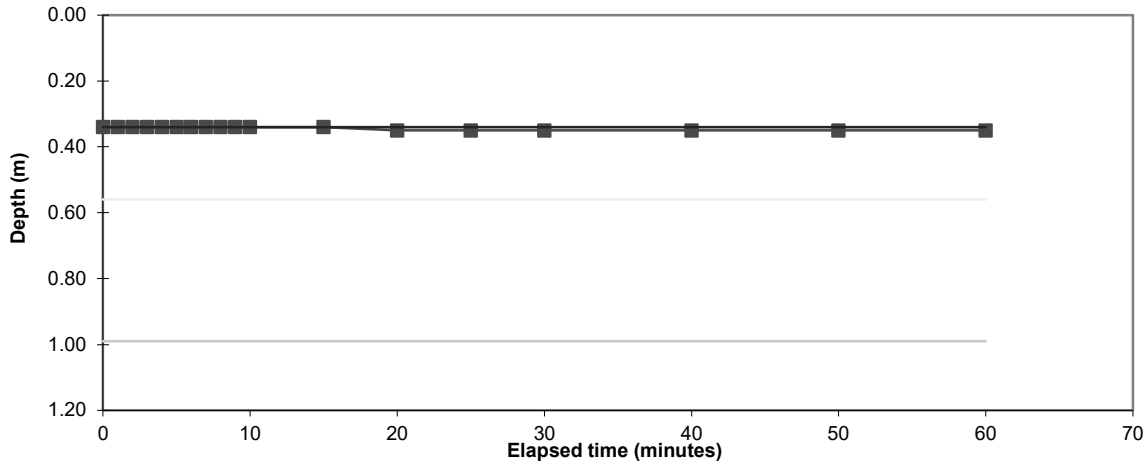
Notes: Results processed following BRE 365 (1991) Water depths measured below ground level	**Project**	Blaendulais	**Figure**
	Project No.	22181	**SA1_01**
	Carried out for	TRJ	

Soakaway Test Results

spectrum geo services

Trial Pit No: SA01 Test No: 2 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 1.20 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.34	30	0.35
1	0.34	40	0.35
2	0.34	50	0.35
3	0.34	60	0.35
4	0.34		
5	0.34		
6	0.34		
7	0.34		
8	0.34		
9	0.34		
10	0.34		
15	0.34		
20	0.35		
25	0.35		



Water depth at start of test (m): 0.34
75% effective depth (m): 0.56 Elapsed time (mins): #N/A
50% effective depth (m): 0.77
25% effective depth (m): 0.99 Elapsed time (mins): #N/A
Empty depth (m): 1.20

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.42
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

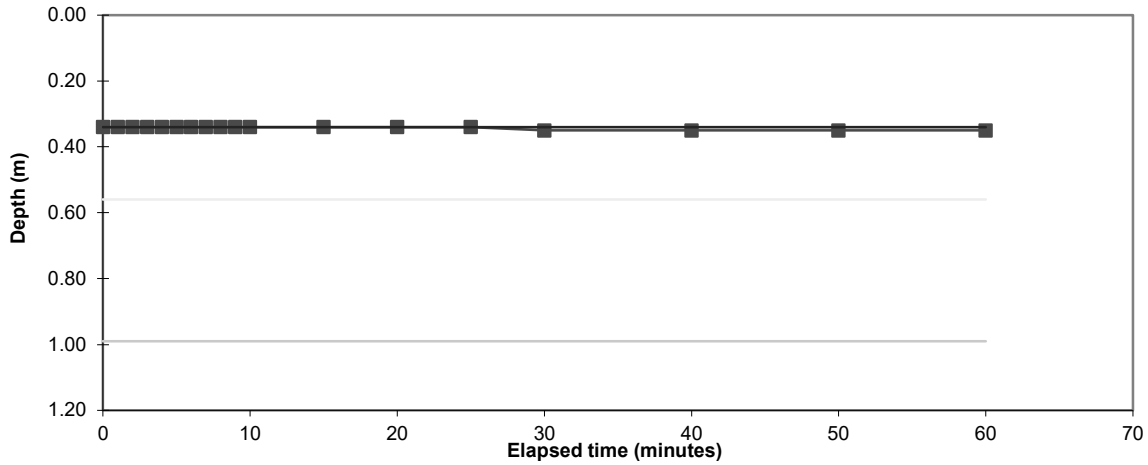
Project Blaendulais
Project No. 22181
Carried out for TRJ

Figure **SA1_02**

Soakaway Test Results

Trial Pit No:	SA01	Test No:	3	Date:	10.10.2023
Length (m):	1.00				
Width (m):	0.30	Granular infill:	NA		
Depth (m):	1.20	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.34	30	0.35
1	0.34	40	0.35
2	0.34	50	0.35
3	0.34	60	0.35
4	0.34		
5	0.34		
6	0.34		
7	0.34		
8	0.34		
9	0.34		
10	0.34		
15	0.34		
20	0.34		
25	0.34		



Water depth at start of test (m):	0.34		
75% effective depth (m):	0.56	Elapsed time (mins):	#N/A
50% effective depth (m):	0.77		
25% effective depth (m):	0.99	Elapsed time (mins):	#N/A
Empty depth (m):	1.20		

Volume outflow between 75% and 25% effective depth (m^3):

Mean surface area of outflow (m^2): 1.42
(side area at 50% effective depth + base area)

Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

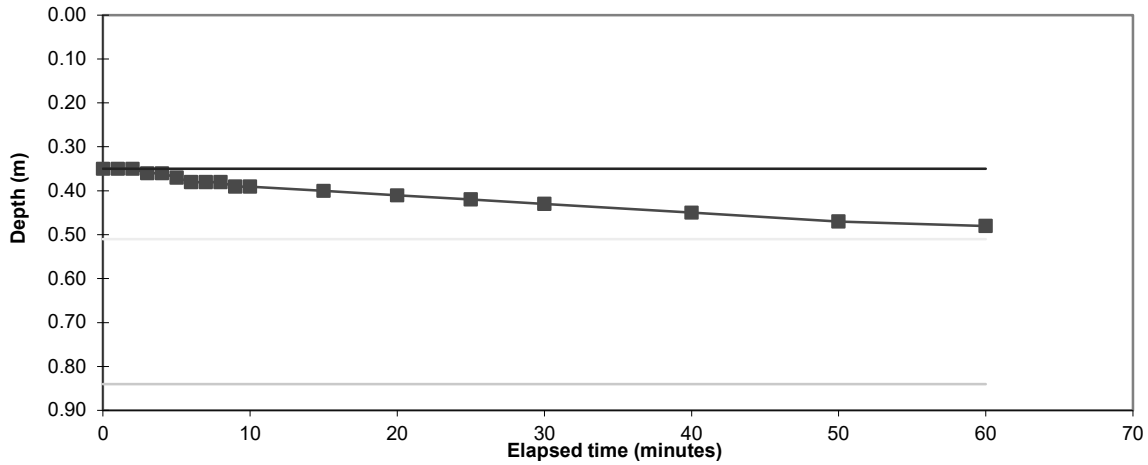
Notes: Results processed following BRE 365 (1991) Water depths measured below ground level	**Project**	Blaendulais	**Figure**
	Project No.	22181	**SA1_03**
	Carried out for	TRJ	

Soakaway Test Results

spectrum geo services

Trial Pit No: SA02 Test No: 1 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 1.00 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.35	30	0.43
1	0.35	40	0.45
2	0.35	50	0.47
3	0.36	60	0.48
4	0.36		
5	0.37		
6	0.38		
7	0.38		
8	0.38		
9	0.39		
10	0.39		
15	0.40		
20	0.41		
25	0.42		



Water depth at start of test (m): 0.35
75% effective depth (m): 0.51 Elapsed time (mins): #N/A
50% effective depth (m): 0.68
25% effective depth (m): 0.84 Elapsed time (mins): #N/A
Empty depth (m): 1.00

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.13
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

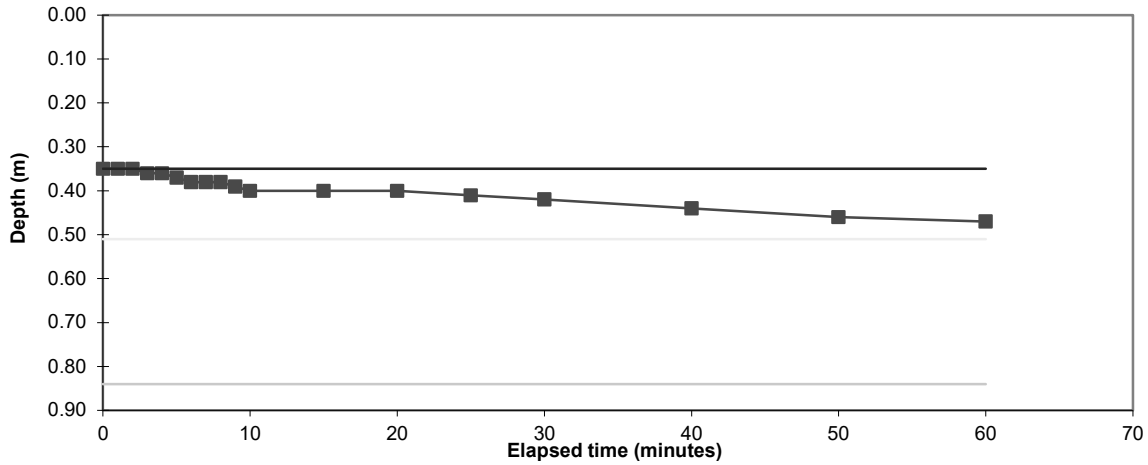
Figure **SA02_1**

Soakaway Test Results

spectrum geo services

Trial Pit No: SA02 Test No: 2 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 1.00 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.35	30	0.42
1	0.35	40	0.44
2	0.35	50	0.46
3	0.36	60	0.47
4	0.36		
5	0.37		
6	0.38		
7	0.38		
8	0.38		
9	0.39		
10	0.40		
15	0.40		
20	0.40		
25	0.41		



Water depth at start of test (m): 0.35
75% effective depth (m): 0.51 Elapsed time (mins): #N/A
50% effective depth (m): 0.68
25% effective depth (m): 0.84 Elapsed time (mins): #N/A
Empty depth (m): 1.00

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.13
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

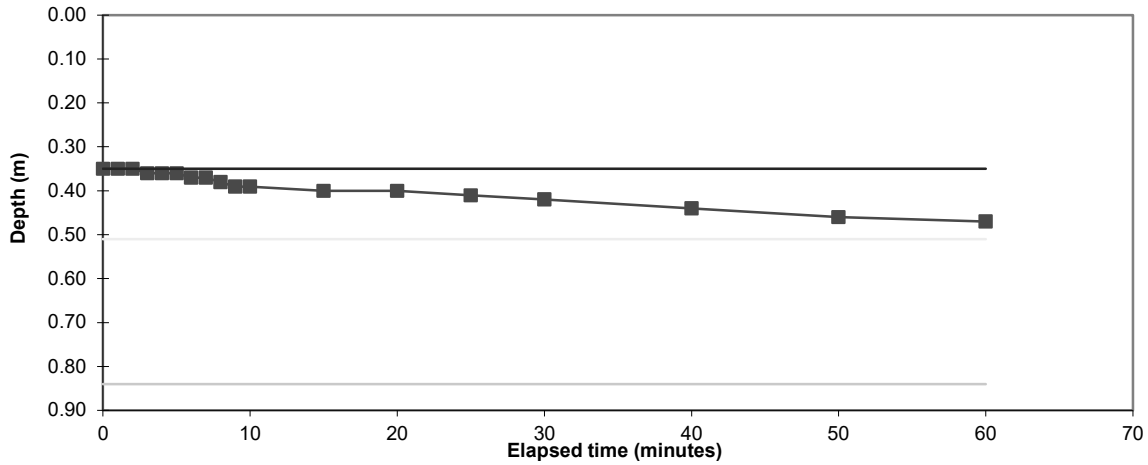
Figure **SA02_2**

Soakaway Test Results

spectrum geo services

Trial Pit No: SA02 Test No: 3 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 1.00 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.35	30	0.42
1	0.35	40	0.44
2	0.35	50	0.46
3	0.36	60	0.47
4	0.36		
5	0.36		
6	0.37		
7	0.37		
8	0.38		
9	0.39		
10	0.39		
15	0.40		
20	0.40		
25	0.41		



Water depth at start of test (m): 0.35
75% effective depth (m): 0.51 Elapsed time (mins): #N/A
50% effective depth (m): 0.68
25% effective depth (m): 0.84 Elapsed time (mins): #N/A
Empty depth (m): 1.00

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.13
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

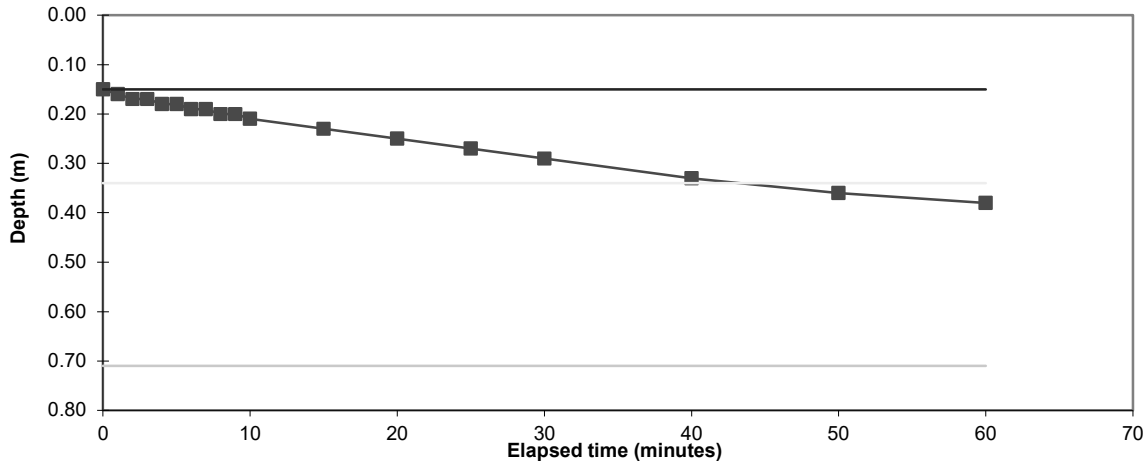
Figure **SA02_3**

Soakaway Test Results

spectrum geo services

Trial Pit No: SA03 Test No: 1 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 0.90 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.15	30	0.29
1	0.16	40	0.33
2	0.17	50	0.36
3	0.17	60	0.38
4	0.18		
5	0.18		
6	0.19		
7	0.19		
8	0.20		
9	0.20		
10	0.21		
15	0.23		
20	0.25		
25	0.27		



Water depth at start of test (m): 0.15
75% effective depth (m): 0.34 Elapsed time (mins): 43.3
50% effective depth (m): 0.53
25% effective depth (m): 0.71 Elapsed time (mins): #N/A
Empty depth (m): 0.90

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.26
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

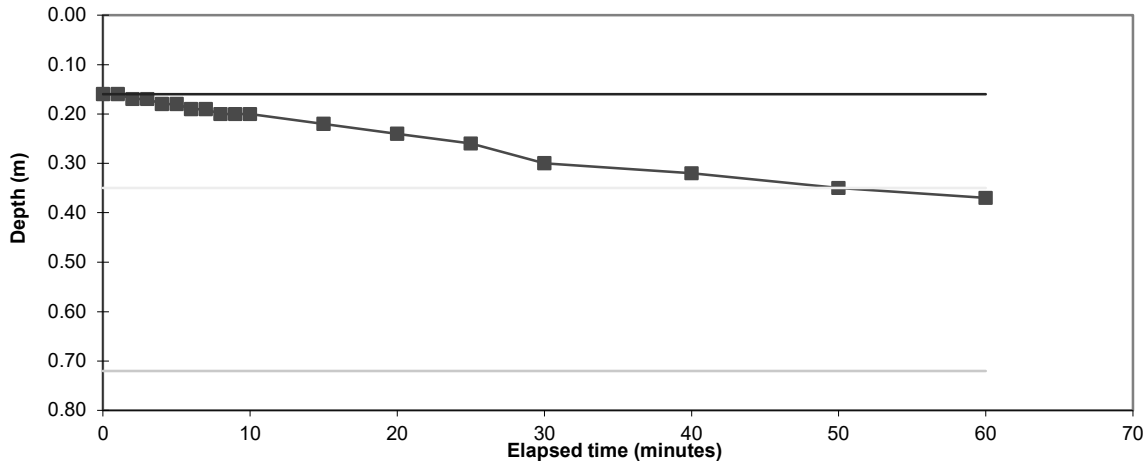
Figure **SA03_1**

Soakaway Test Results

spectrum geo services

Trial Pit No: SA03 Test No: 2 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 0.90 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.16	30	0.30
1	0.16	40	0.32
2	0.17	50	0.35
3	0.17	60	0.37
4	0.18		
5	0.18		
6	0.19		
7	0.19		
8	0.20		
9	0.20		
10	0.20		
15	0.22		
20	0.24		
25	0.26		



Water depth at start of test (m): 0.16
75% effective depth (m): 0.35 Elapsed time (mins): 50.0
50% effective depth (m): 0.53
25% effective depth (m): 0.72 Elapsed time (mins): #N/A
Empty depth (m): 0.90

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.26
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

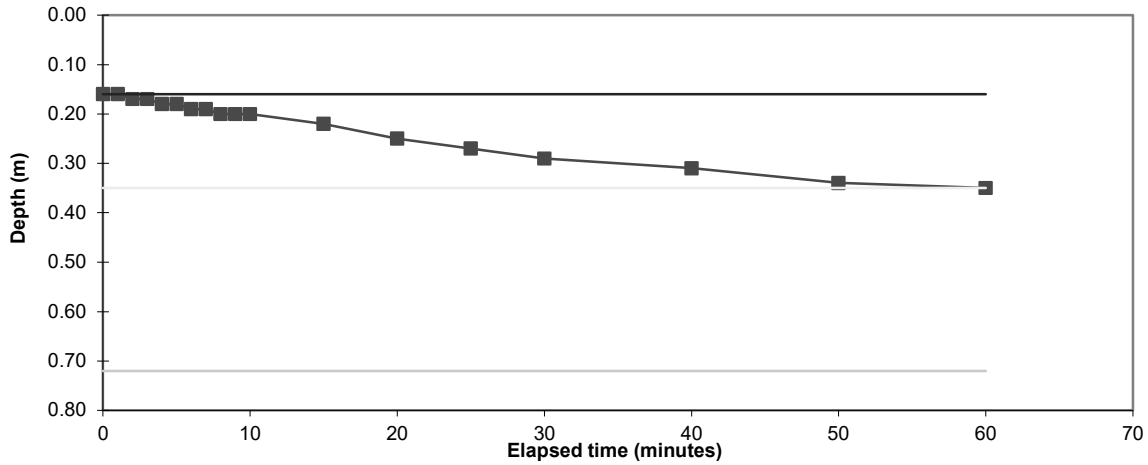
Figure **SA03_2**

Soakaway Test Results

spectrum geo services

Trial Pit No: SA03 Test No: 3 Date: 10.10.2023
Length (m): 1.00
Width (m): 0.30 Granular infill: NA
Depth (m): 0.90 Porosity of infill: 1 (assumed)

Elapsed time (minutes)	Water Depth (metres)	Elapsed time (minutes)	Water Depth (metres)
0	0.16	30	0.29
1	0.16	40	0.31
2	0.17	50	0.34
3	0.17	60	0.35
4	0.18		
5	0.18		
6	0.19		
7	0.19		
8	0.20		
9	0.20		
10	0.20		
15	0.22		
20	0.25		
25	0.27		



Water depth at start of test (m): 0.16
75% effective depth (m): 0.35 Elapsed time (mins): #N/A
50% effective depth (m): 0.53
25% effective depth (m): 0.72 Elapsed time (mins): #N/A
Empty depth (m): 0.90

Volume outflow between 75% and 25% effective depth (m^3):
Mean surface area of outflow (m^2): 1.26
(side area at 50% effective depth + base area)
Time for outflow between 75% and 25% effective depth (mins):

Soil infiltration rate (m/s): **Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate**

Remarks

Notes:
Results processed following BRE 365 (1991)
Water depths measured below ground level

Project Blaendulais
Project No. 22181
Carried out for TRJ

Figure **SA03_3**

APPENDIX G

Permit Closure Summary Form

The Coal Authority

Permit Closure Summary Form

Permit Ref.	27301	Project / Site Location	NPT Childcare Unit, High Street, Blaendulais, SA10 9DN

Please supply all relevant documents, including this completed form within 3 months of the permitted works being completed.

Where relevant the report should include; borehole logs and details of mine or mine entry treatment works carried out (incl. engineering drawings, grout takes etc.) and a scaled site layout plan (correlated to O.S N' Grid) showing all relevant mine entry positions, coal seams, voids and broken ground proved by the works.

Summary of works

Start date | **Finish date**

Have any variations occurred? ☐ No ☐ Yes **If so was the Authority notified?** ☐ No ☐ Yes

Please describe;

Did if any of the following incidents occur?

☐ Spontaneous combustion ☐ Water emission ☐ Gas emission (elevated or above action levels)

☐ Geotechnical instability ☐ Legal issues incl. damage or potential claims ☐ **None**

If yes, please detail each item;

Were any of the following encountered? Please give a brief summary of the works undertaken.

☐ Intact coal only ☐ Broken ground ☐ Backfilled ground ☐ Voids

Description;

Will further works be necessary that require a Permit? ☐ No ☐ Yes

If yes, please describe, including any recommendations;

Name:	Email:
Company:	Tel:

APPENDIX H

Phase 1 Data

Walkover Report

Previous Desk Study and Ground Investigation

Historic Maps

Environmental Report

Groundsure
LOCATION INTELLIGENCE

Enviro
Insight

Blaendulais Childcare Centre

Order Details

Date: 24/09/2024

Your ref: 22181 Blaendulais

Our Ref: GS-4XQ-XX4-V4Y-SOE

Site Details

Location: 281974 208954

Area: 0.22 ha

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



Summary of findings p. 2 >

Aerial image p. 6 >

OS MasterMap site plan p.11 >

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
12 >	1.1 >	Historical industrial land uses >	17	12	28	12	-
15 >	1.2 >	Historical tanks >	0	0	0	1	-
16	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
16 >	1.5 >	Historical garages >	0	0	0	3	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
18 >	2.1 >	Historical industrial land uses >	19	16	43	18	-
22 >	2.2 >	Historical tanks >	0	0	0	1	-
22	2.3	Historical energy features	0	0	0	0	-
23	2.4	Historical petrol stations	0	0	0	0	-
23 >	2.5 >	Historical garages >	0	0	0	3	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	Active or recent landfill	0	0	0	0	-
24	3.2	Historical landfill (BGS records)	0	0	0	0	-
25 >	3.3 >	Historical landfill (LA/mapping records) >	0	0	2	0	-
25	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
25	3.5	Historical waste sites	0	0	0	0	-
25	3.6	Licensed waste sites	0	0	0	0	-
26 >	3.7 >	Waste exemptions >	0	0	0	1	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
27 >	4.1 >	Recent industrial land uses >	0	0	3	-	-
28 >	4.2 >	Current or recent petrol stations >	0	0	1	0	-
28	4.3	Electricity cables	0	0	0	0	-
28	4.4	Gas pipelines	0	0	0	0	-
28	4.5	Sites determined as Contaminated Land	0	0	0	0	-

29	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
29	4.7	Regulated explosive sites	0	0	0	0	-
29	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
29	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
30	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
30	4.12	Radioactive Substance Authorisations	0	0	0	0	-
30	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
30	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
30	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
31 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	0	3	14	-
33	4.19	Pollution inventory substances	0	0	0	0	-
33	4.20	Pollution inventory waste transfers	0	0	0	0	-
34	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Geology (basic) >**					
35 >	**5.1 >**	**Superficial geology (625k) >**	Identified (within 500m)				
35 >	**5.2 >**	**Bedrock geology (625k) >**	Identified (within 500m)				
Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
36 >	**6.1 >**	**Superficial aquifer >**	Identified (within 500m)				
38 >	**6.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
39 >	**6.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
41	6.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	6.5	Groundwater vulnerability- local information	None (within 0m)				
42	6.6	Groundwater abstractions	0	0	0	0	0
43 >	**6.7 >**	**Surface water abstractions >**	0	0	0	0	2
43	6.8	Potable abstractions	0	0	0	0	0
44	6.9	Source Protection Zones	0	0	0	0	-

44	6.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
45 >	**7.1 >**	**Water Network (OS MasterMap) >**	0	0	10	-	-
46 >	**7.2 >**	**Surface water features >**	0	0	5	-	-
47 >	**7.3 >**	**WFD Surface water body catchments >**	1	-	-	-	-
47 >	**7.4 >**	**WFD Surface water bodies >**	0	0	1	-	-
47 >	**7.5 >**	**WFD Groundwater bodies >**	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
49	8.1	Risk of flooding from rivers and the sea	None (within 50m)				
49	8.2	Historical Flood Events	0	0	0	-	-
49	8.3	Flood Defences	0	0	0	-	-
50	8.4	Areas Benefiting from Flood Defences	0	0	0	-	-
50	8.5	Flood Storage Areas	0	0	0	-	-
51	8.6	Flood Zone 2	None (within 50m)				
51	8.7	Flood Zone 3	None (within 50m)				
Page	Section	**Surface water flooding >**					
52 >	**9.1 >**	**Surface water flooding >**	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	**Groundwater flooding >**					
54 >	**10.1 >**	**Groundwater flooding >**	Low (within 50m)				
Page	Section	**Environmental designations >**	On site	0-50m	50-250m	250-500m	500-2000m
55	11.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
56	11.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
56	11.3	Special Areas of Conservation (SAC)	0	0	0	0	0
56	11.4	Special Protection Areas (SPA)	0	0	0	0	0
56	11.5	National Nature Reserves (NNR)	0	0	0	0	0
57	11.6	Local Nature Reserves (LNR)	0	0	0	0	0
57 >	**11.7 >**	**Designated Ancient Woodland >**	0	0	1	3	9
58	11.8	Biosphere Reserves	0	0	0	0	0
58	11.9	Forest Parks	0	0	0	0	0

58	11.10	Marine Conservation Zones	0	0	0	0	0
58	11.11	Green Belt	0	0	0	0	0
58	11.12	Proposed Ramsar sites	0	0	0	0	0
59	11.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
59	11.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
59	11.15	Nitrate Sensitive Areas	0	0	0	0	0
59	11.16	Nitrate Vulnerable Zones	0	0	0	0	0
60	11.17	SSSI Impact Risk Zones	0	-	-	-	-
60	11.18	SSSI Units	0	0	0	0	0
Page	Section	**Visual and cultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
61	12.1	World Heritage Sites	0	0	0	-	-
62	12.2	Area of Outstanding Natural Beauty	0	0	0	-	-
62	12.3	National Parks	0	0	0	-	-
62 >	**12.4** >	**Listed Buildings** >	0	0	1	-	-
63	12.5	Conservation Areas	0	0	0	-	-
63	12.6	Scheduled Ancient Monuments	0	0	0	-	-
63	12.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
64 >	**13.1** >	**Agricultural Land Classification** >	Grade 4 (within 250m)				
65	13.2	Open Access Land	0	0	0	-	-
65	13.3	Tree Felling Licences	0	0	0	-	-
65	13.4	Environmental Stewardship Schemes	0	0	0	-	-
65	13.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
67	14.1	Priority Habitat Inventory	0	0	0	-	-
67	14.2	Habitat Networks	0	0	0	-	-
67	14.3	Open Mosaic Habitat	0	0	0	-	-
67	14.4	Limestone Pavement Orders	0	0	0	-	-

Recent aerial photograph



Capture Date: 14/04/2020

Site Area: 0.22ha

Recent site history - 2017 aerial photograph



Capture Date: 17/06/2017

Site Area: 0.22ha

Recent site history - 2013 aerial photograph



Capture Date: 14/07/2013

Site Area: 0.22ha

Recent site history - 2001 aerial photograph



Capture Date: 27/08/2001

Site Area: 0.22ha

Recent site history - 2000 aerial photograph



Capture Date: 18/06/2000

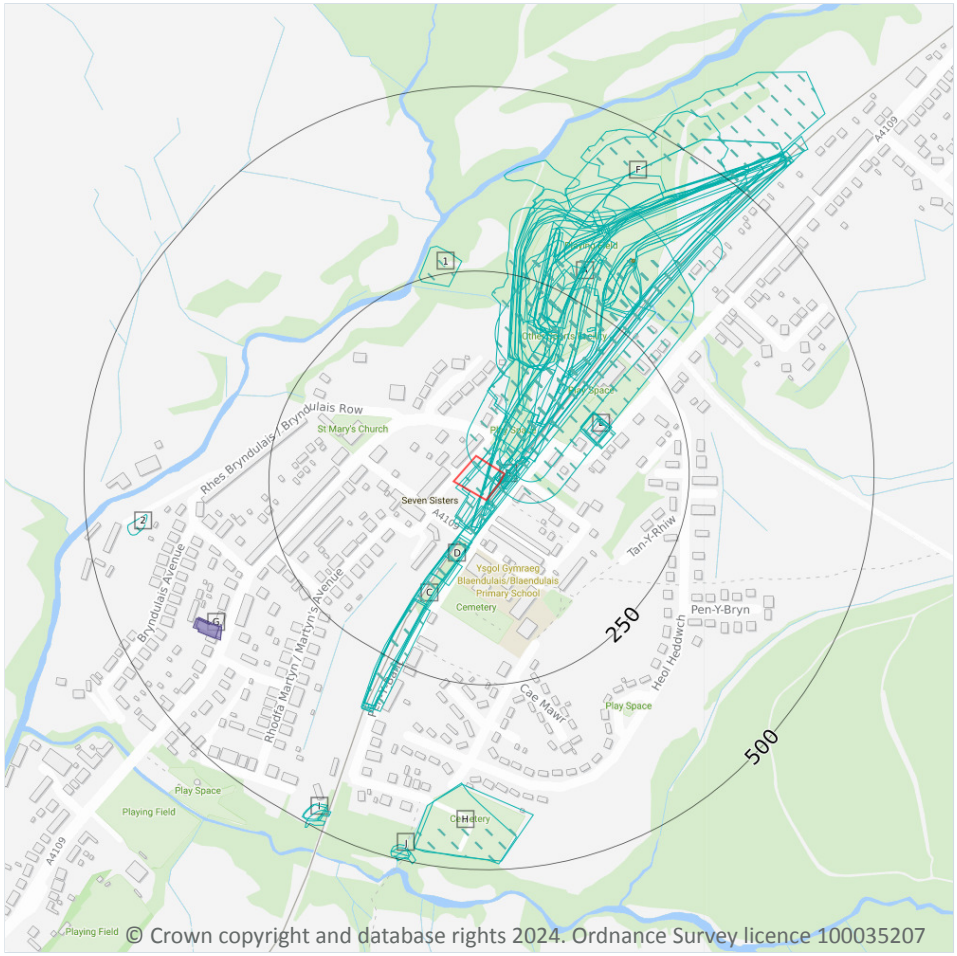
Site Area: 0.22ha

OS MasterMap site plan



Site Area: 0.22ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical garages

1.1 Historical industrial land uses

Records within 500m	69

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 12 >**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Mill Ponds**	**1921**	**265152**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Railway Sidings**	**1948**	**285557**
A	**On site**	**Coal Pit**	**1876**	**286211**
A	**On site**	**Colliery**	**1921**	**294127**
A	**On site**	**Railway Sidings**	**1914**	**297297**
A	**On site**	**Railway Sidings**	**1921**	**297936**
A	**On site**	**Railway Sidings**	**1964**	**300923**
A	**On site**	**Railway Sidings**	**1988**	**306752**
A	**On site**	**Railway Sidings**	**1914**	**314793**
A	**On site**	**Railway Sidings**	**1921**	**317427**
B	**On site**	**Railway Station**	**1903**	**286577**
B	**On site**	**Railway Station**	**1921 - 1948**	**291144**
B	**On site**	**Railway Station**	**1901**	**295489**
B	**On site**	**Railway Station**	**1914**	**299899**
B	**On site**	**Railway Station**	**1914**	**301821**
B	**On site**	**Railway Station**	**1877**	**319600**
B	**On site**	**Railway Station**	**1964 - 1988**	**326058**
B	1m E	Railway Station	1876	308972
B	1m SE	Railway Station	1921	324359
C	3m S	Cuttings	1876	317006
A	6m E	Colliery	1901 - 1903	318713
B	9m E	Railway Station	1921	313168
B	9m E	Railway Building	1921 - 1948	317069
C	10m S	Cuttings	1877	285515
A	23m NE	Railway Sidings	1876 - 1877	323242
A	23m NE	Unspecified Mine	1964 - 1988	303971
A	33m NE	Railway Sidings	1903	325891
A	36m NE	Colliery	1921	295147
A	42m NE	Tramway Sidings	1901 - 1903	322226

ID	Location	Land use	Dates present	Group ID
C	58m S	Cuttings	1914 - 1921	291419
D	62m S	Cuttings	1921	314360
A	66m NE	Colliery	1948	306471
C	67m S	Cuttings	1921	286386
A	81m NE	Railway Sidings	1921	314165
A	82m NE	Colliery	1914	323741
D	93m S	Cuttings	1921 - 1948	284742
E	118m NE	Police Station	1914 - 1921	311947
E	121m NE	Police Station	1948	289816
E	121m NE	Police Station	1921	290095
E	122m NE	Police Station	1921	290411
E	131m NE	Police Station	1964 - 1988	287000
A	132m NE	Railway Building	1948	280275
F	139m NE	Refuse Heap	1964 - 1988	290582
A	139m N	Refuse Heap	1921	300754
A	141m NE	Refuse Heap	1921	286926
A	142m NE	Refuse Heap	1921	305842
A	145m NE	Unspecified Heap	1901	274539
A	159m NE	Coal Pit	1877	292524
C	163m SW	Cuttings	1948	316506
C	166m SW	Cuttings	1921	294371
F	190m N	Refuse Heaps	1948	277098
A	190m NE	Railway Sidings	1921	310537
A	194m N	Refuse Heap	1914	328048
A	208m NE	Unspecified Shafts	1877	270756
A	211m NE	Unspecified Shaft	1876	266414
A	223m NE	Unspecified Shaft	1876 - 1877	308521
1	232m N	Refuse Heap	1964 - 1988	300539

ID	Location	Land use	Dates present	Group ID
A	259m NE	Refuse Heap	1921	291321
A	267m NE	Refuse Heap	1914	291293
A	310m NE	Cuttings	1876	266057
H	384m S	Cemetery	1964 - 1988	317879
H	386m S	Burial Ground	1948	281442
2	417m W	Unspecified Old Quarry	1901 - 1903	308480
I	465m SW	Unspecified Pit	1914	329076
I	469m SW	Unspecified Ground Workings	1921	310111
I	471m SW	Unspecified Ground Workings	1921	322039
J	480m S	Unspecified Pit	1948	316763
J	484m S	Unspecified Pit	1921	323336
J	486m S	Unspecified Ground Workings	1921	261593

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**1**

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 12 >**

ID	Location	Land use	Dates present	Group ID
A	335m NE	Unspecified Tank	1962	34736

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.4 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	3

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 12 >**

ID	Location	Land use	Dates present	Group ID
G	370m SW	Garage	1993	6974
G	371m SW	Garage	1962	6852
G	373m SW	Garage	1987	7028

This data is sourced from Ordnance Survey / Groundsure.

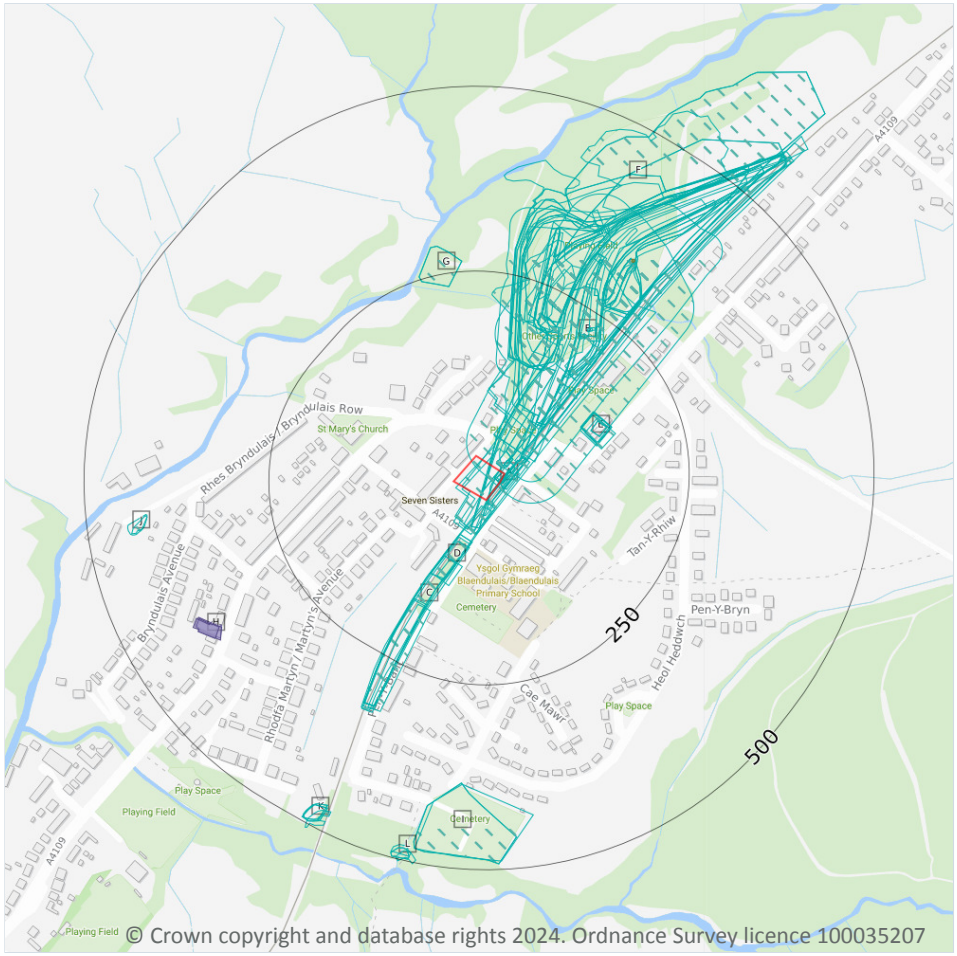
1.6 Historical military land

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 garages

2.1 Historical industrial land uses

Records within 500m	96

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

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

ID	Location	Land Use	Date	Group ID
A	**On site**	**Railway Station**	**1901**	**295489**
A	**On site**	**Railway Station**	**1914**	**301821**
A	**On site**	**Railway Station**	**1914**	**299899**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Railway Station**	**1948**	**291144**
A	**On site**	**Railway Station**	**1903**	**286577**
A	**On site**	**Railway Station**	**1877**	**319600**
A	**On site**	**Railway Station**	**1988**	**326058**
A	**On site**	**Railway Station**	**1964**	**326058**
A	**On site**	**Railway Station**	**1921**	**291144**
B	**On site**	**Coal Pit**	**1876**	**286211**
B	**On site**	**Railway Sidings**	**1921**	**317427**
B	**On site**	**Mill Ponds**	**1921**	**265152**
B	**On site**	**Colliery**	**1921**	**294127**
B	**On site**	**Railway Sidings**	**1914**	**314793**
B	**On site**	**Railway Sidings**	**1914**	**297297**
B	**On site**	**Railway Sidings**	**1948**	**285557**
B	**On site**	**Railway Sidings**	**1988**	**306752**
B	**On site**	**Railway Sidings**	**1964**	**300923**
B	**On site**	**Railway Sidings**	**1921**	**297936**
A	1m E	Railway Station	1876	308972
A	1m SE	Railway Station	1921	324359
C	3m S	Cuttings	1876	317006
B	6m E	Colliery	1903	318713
A	9m E	Railway Station	1921	313168
A	9m E	Railway Building	1948	317069
C	10m S	Cuttings	1877	285515
A	10m NE	Railway Building	1921	317069
B	23m NE	Railway Sidings	1877	323242
B	23m NE	Unspecified Mine	1988	303971
B	23m NE	Unspecified Mine	1964	303971
B	33m NE	Railway Sidings	1903	325891

ID	Location	Land Use	Date	Group ID
B	36m NE	Colliery	1921	295147
B	36m NE	Colliery	1921	295147
B	38m NE	Railway Sidings	1876	323242
B	42m NE	Tramway Sidings	1901	322226
C	58m S	Cuttings	1914	291419
C	58m S	Cuttings	1914	291419
D	62m S	Cuttings	1921	314360
B	66m NE	Colliery	1948	306471
C	67m S	Cuttings	1921	286386
B	76m NE	Colliery	1901	318713
B	81m NE	Railway Sidings	1921	314165
B	82m NE	Colliery	1914	323741
B	82m NE	Colliery	1914	323741
D	93m S	Cuttings	1921	284742
D	93m SW	Cuttings	1948	284742
E	118m NE	Police Station	1921	311947
E	121m NE	Police Station	1948	289816
E	121m NE	Police Station	1921	290095
E	122m NE	Police Station	1914	311947
E	122m NE	Police Station	1914	311947
E	122m NE	Police Station	1921	290411
E	131m NE	Police Station	1988	287000
E	131m NE	Police Station	1964	287000
B	132m NE	Railway Building	1948	280275
F	139m NE	Refuse Heap	1988	290582
F	139m NE	Refuse Heap	1964	290582
B	139m N	Refuse Heap	1921	300754
B	141m NE	Refuse Heap	1921	286926

ID	Location	Land Use	Date	Group ID
B	142m NE	Refuse Heap	1921	305842
B	142m NE	Refuse Heap	1921	305842
B	145m NE	Unspecified Heap	1901	274539
B	159m NE	Railway Sidings	1921	297936
B	159m NE	Coal Pit	1877	292524
C	163m SW	Cuttings	1948	316506
B	163m NE	Tramway Sidings	1903	322226
C	166m SW	Cuttings	1921	294371
C	168m S	Cuttings	1921	291419
F	190m N	Refuse Heaps	1948	277098
B	190m NE	Railway Sidings	1921	310537
B	194m N	Refuse Heap	1914	328048
B	194m N	Refuse Heap	1914	328048
B	208m NE	Unspecified Shafts	1877	270756
B	211m NE	Unspecified Shaft	1876	266414
B	223m NE	Unspecified Shaft	1877	308521
B	226m NE	Unspecified Shaft	1876	308521
G	232m N	Refuse Heap	1988	300539
G	232m N	Refuse Heap	1964	300539
B	259m NE	Refuse Heap	1921	291321
B	267m NE	Refuse Heap	1914	291293
B	267m NE	Refuse Heap	1914	291293
B	310m NE	Cuttings	1876	266057
I	384m S	Cemetery	1988	317879
I	384m S	Cemetery	1964	317879
I	386m S	Burial Ground	1948	281442
J	417m W	Unspecified Old Quarry	1901	308480
J	418m W	Unspecified Old Quarry	1903	308480

ID	Location	Land Use	Date	Group ID
K	465m SW	Unspecified Pit	1914	329076
K	465m SW	Unspecified Pit	1914	329076
K	469m SW	Unspecified Ground Workings	1921	310111
K	469m SW	Unspecified Ground Workings	1921	310111
K	471m SW	Unspecified Ground Workings	1921	322039
L	480m S	Unspecified Pit	1948	316763
L	484m S	Unspecified Pit	1921	323336
L	484m S	Unspecified Pit	1921	323336
L	486m S	Unspecified Ground Workings	1921	261593

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**1**

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

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

ID	Location	Land Use	Date	Group ID
B	335m NE	Unspecified Tank	1962	34736

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	3

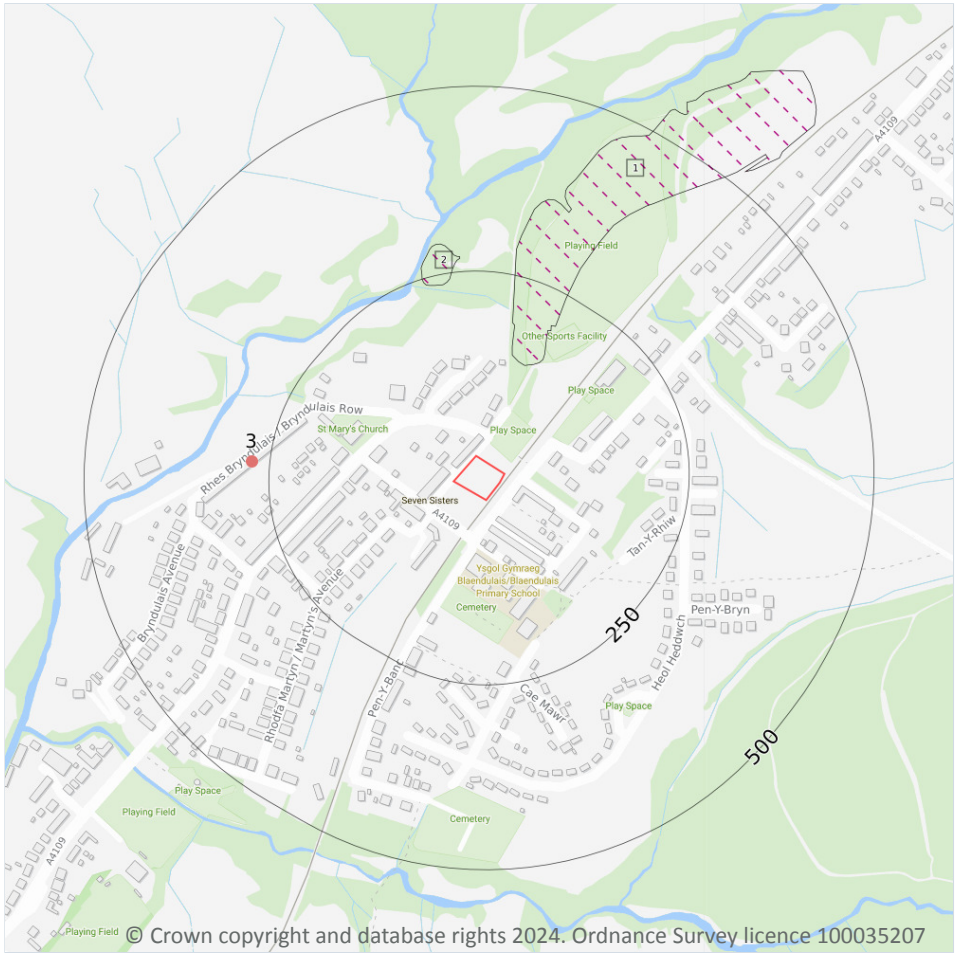
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

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

ID	Location	Land Use	Date	Group ID
H	370m SW	Garage	1993	6974
H	371m SW	Garage	1962	6852
H	373m SW	Garage	1987	7028

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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	2

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

Features are displayed on the Waste and landfill map on **page 24 >**

ID	Location	Site address	Source	Data type
1	139m N	Refuse Tip	1962 mapping	Polygon
2	236m N	Refuse Tip	1961 mapping	Polygon

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	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	1

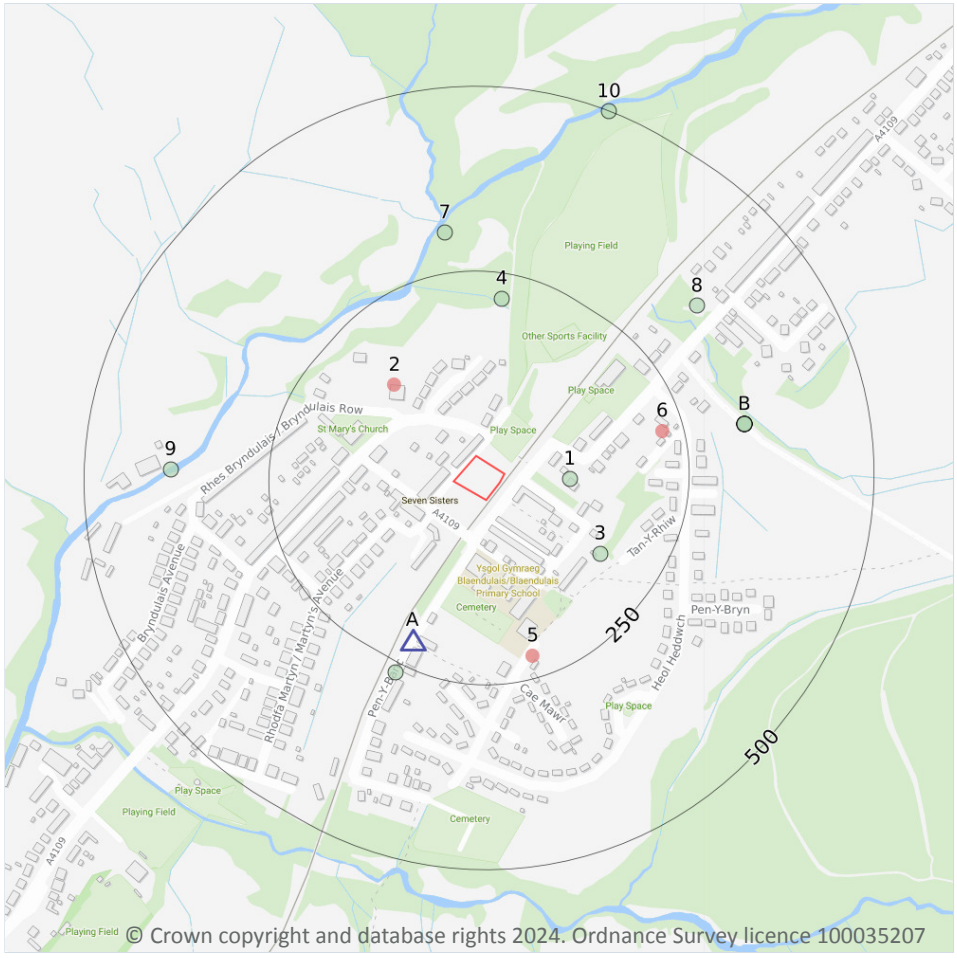
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 24 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
3	275m W	Land Opposite Bryndulias Row, Sa109eb	NRW-WME062807	Using waste exemption	On a farm	Use of waste in construction

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

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	3

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 27 >**

ID	Location	Company	Address	Activity	Category
2	146m NW	Seven Sisters Fire Station	Seven Sisters Fire Station, Bryndulais Row, Seven Sisters, West Glamorgan, SA10 9EA	Fire Brigade Stations	Central and Local Government
5	220m S	Electricity Sub Station	West Glamorgan, SA10	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
6	221m E	Electricity Sub Station	West Glamorgan, SA10	Electrical Features	Infrastructure and Facilities

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 27 >**

ID	Location	Company	Address	LPG	Status
A	214m SW	OBSOLETE	Church Road, Seven Sisters, Neath, Neath Port Talbot, SA10 9DT	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	0

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

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	17

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 27 >**

ID	Location	Details	
1	89m E	Incident Date: 03/01/2014 Incident Identification: 1189750 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
3	166m SE	Incident Date: 13/02/2003 Incident Identification: 136726 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
4	216m N	Incident Date: 12/06/2007 Incident Identification: 502566 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	264m SW	Incident Date: 18/10/2002 Incident Identification: 115533 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Location	Details	
7	305m N	Incident Date: 18/05/2001 Incident Identification: 5961 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Pollutant Description: Vehicles and Vehicle Parts	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 06/04/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Specific Waste Materials Specific Waste Materials Specific Waste Materials Specific Waste Materials Pollutant Description: Construction and Demolition Materials and Wastes Asbestos Commercial Waste Household Waste Tyres Vehicles and Vehicle Parts	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Pollutant Description: Asbestos	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Inert Materials and Wastes:Specific Waste Materials:Specific Waste Materials:Specific Waste Materials:Specific Waste Materials:Specific Waste Materials Pollutant Description: Construction and Demolition Materials and Wastes:Asbestos:Commercial Waste:Household Waste:Tyres:Vehicles and Vehicle Parts	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)

ID	Location	Details	
B	331m E	Incident Date: 06/04/2001 Incident Identification: 7402 Pollutant: Inert Materials and Wastes : Specific Waste Materials Pollutant Description: Construction and Demolition Materials and Wastes :Asbestos :Commercial Waste :Household Waste :Tyres :Vehicles and Vehicle Parts	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
B	331m E	Incident Date: 04/06/2001 Incident Identification: 7402 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
8	346m NE	Incident Date: 06/05/2015 Incident Identification: 1334992 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
9	383m W	Incident Date: 11/06/2007 Incident Identification: 502089 Pollutant: Inert Materials and Wastes Pollutant Description: Soils and Clay	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
10	499m N	Incident Date: 29/04/2002 Incident Identification: 75457 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) 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 Geology (basic)

5.1 Superficial geology (625k)

Records within 500m	1

Generalised geology data based on BGS's published poster maps of the UK (North and South). Superficial related themes digitised from 1977 first edition Quaternary map (North and South).

Location	Lex code	Description	Rock type
On site	**TILL-DMTN**	**TILL**	**DIAMICTON**

This data is sourced from the British Geological Survey.

5.2 Bedrock geology (625k)

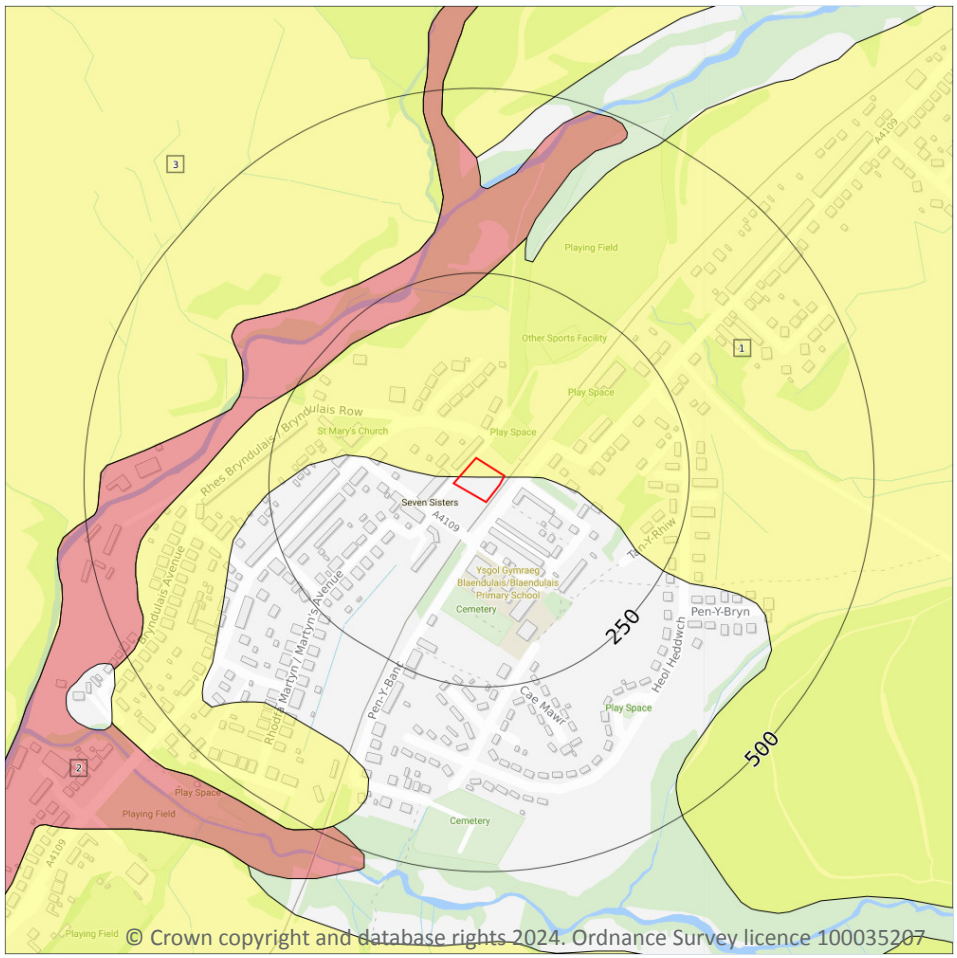
Records within 500m	1

Generalised geology data based on BGS's published poster maps of the UK (North and South). Bedrock related themes created through generalisation of 1:50,000 data.

Location	Lex code	Description	Rock type
On site	**PSMCM-MSCI**	**PENNINE MIDDLE COAL MEASURES FORMATION AND SOUTH WALES MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED)**	**MUDSTONE, SILTSTONE, SANDSTONE, COAL, IRONSTONE AND FERRICRETE**

This data is sourced from the British Geological Survey.

6 Hydrogeology - Superficial aquifer



6.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

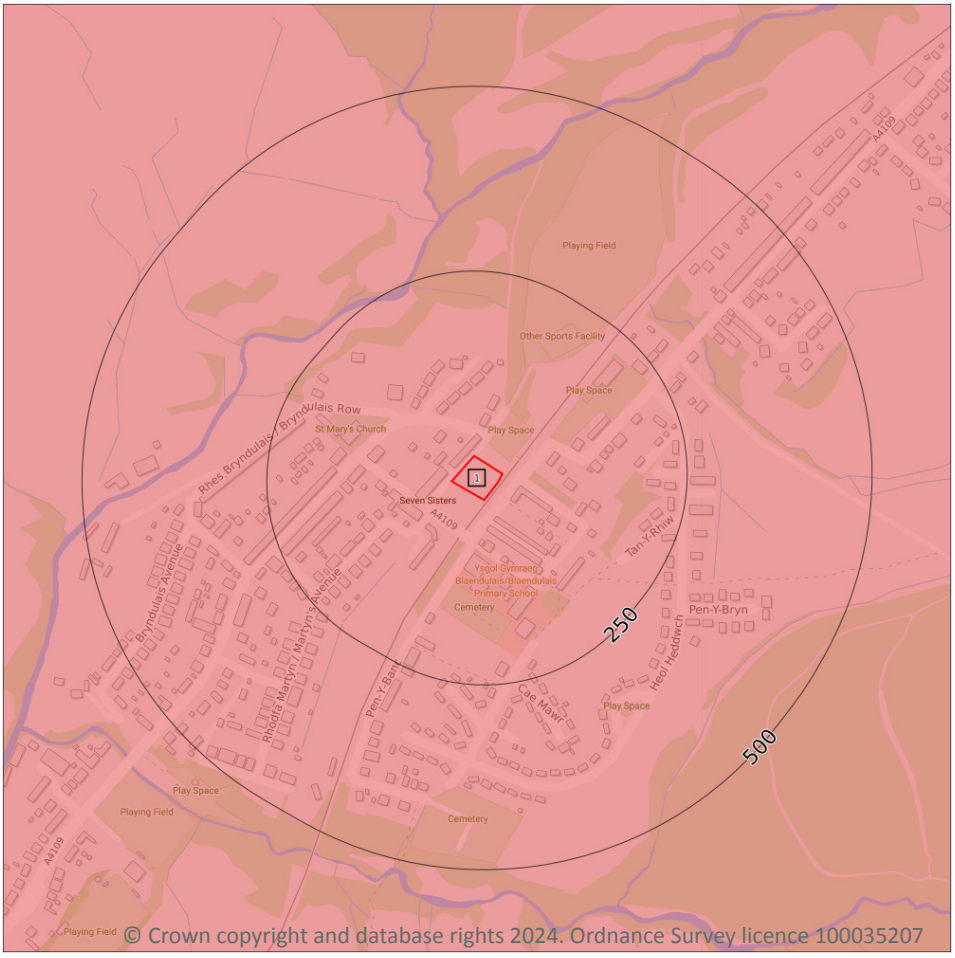
Features are displayed on the Hydrogeology map on **page 36 >**

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

ID	Location	Designation	Description
3	282m NW	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



Site Outline

Search buffers in metres (m)

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

6.2 Bedrock aquifer

Records within 500m	1

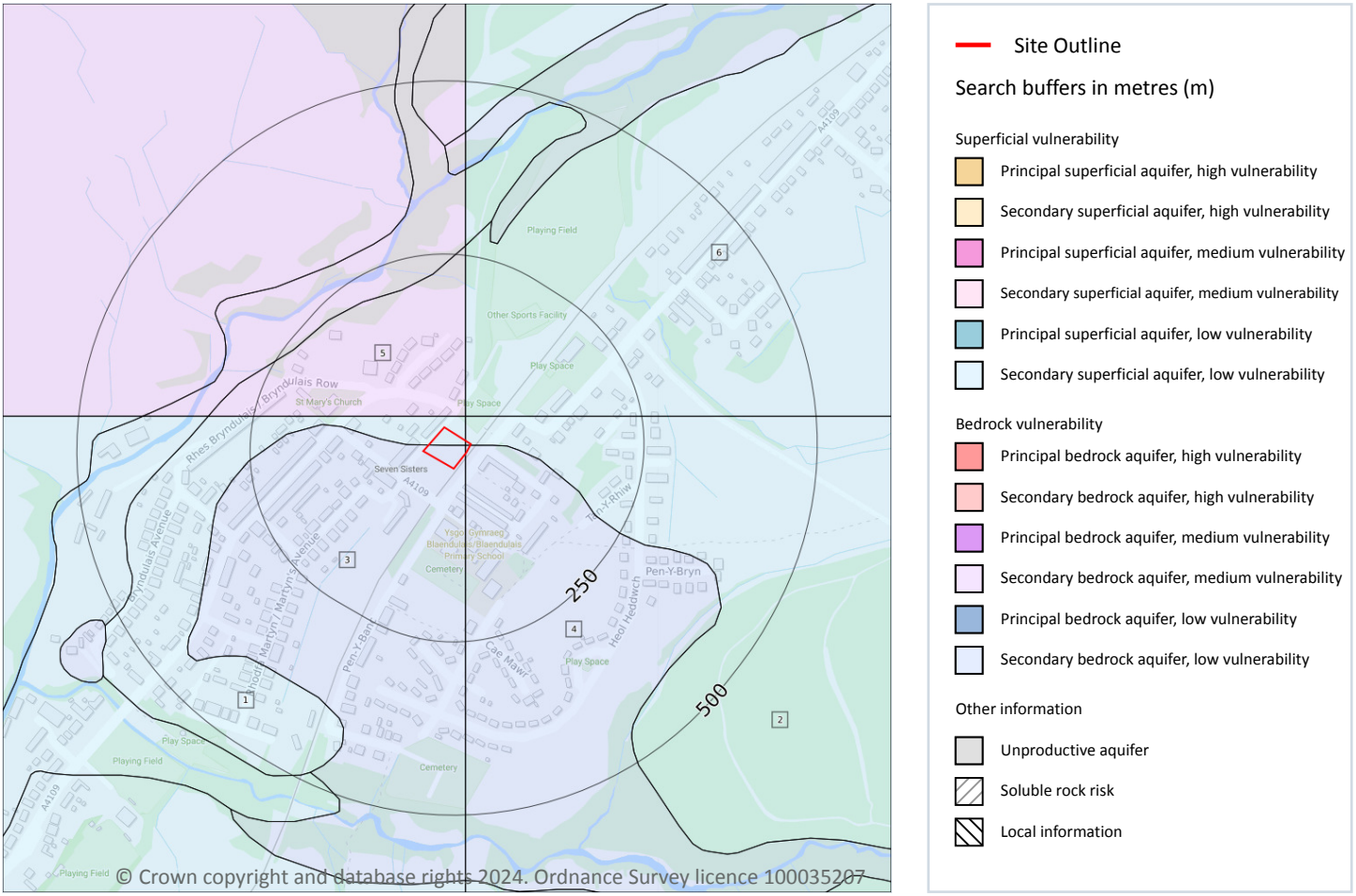
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 38 >**

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**

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

Groundwater vulnerability



6.3 Groundwater vulnerability

Records within 50m	6

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

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

Features are displayed on the Groundwater vulnerability map on **page 39 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Medium**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	**On site**	**Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: >90% Recharge potential: Medium**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
4	**On site**	**Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
5	16m N	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
6	30m NE	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

6.4 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.

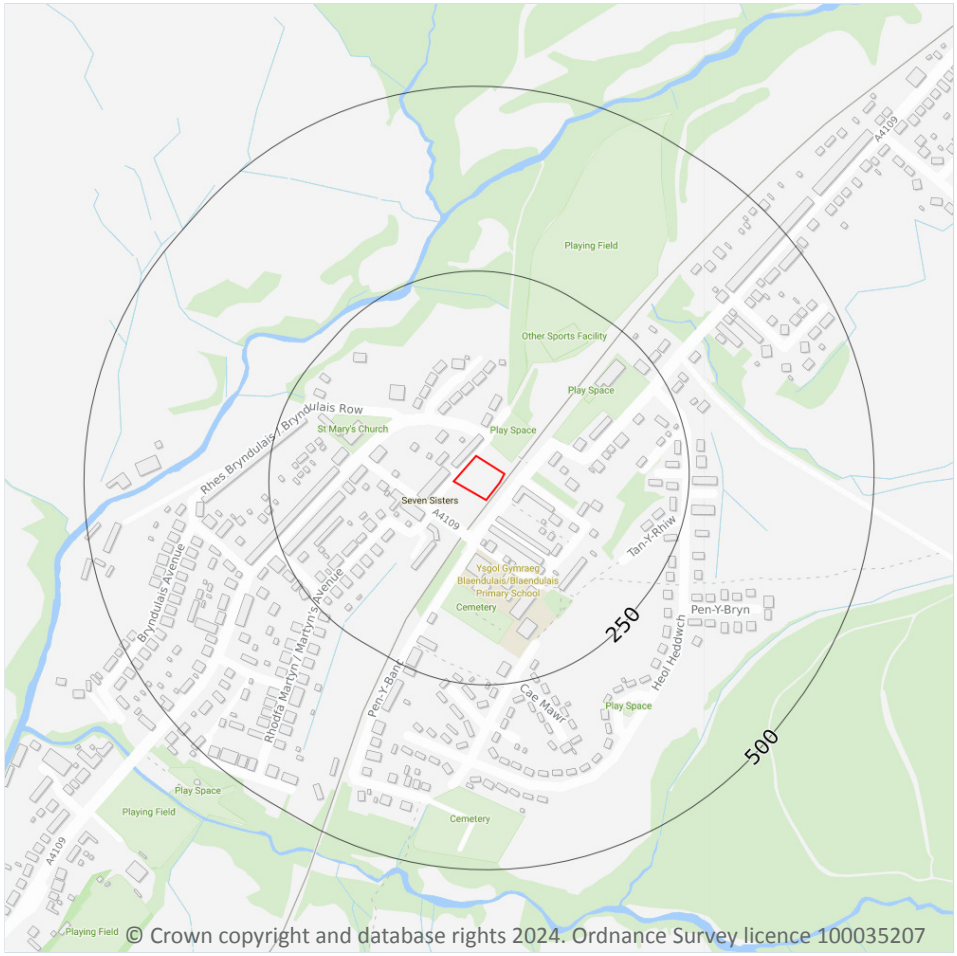
6.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- 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)

6.6 Groundwater abstractions

Records within 2000m	0

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

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

6.7 Surface water abstractions

Records within 2000m	2

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 42 >**

ID	Location	Details	
-	1445m S	Status: Historical Licence No: 21/58/73/0019 Details: Make-Up or Top Up Water Direct Source: EAW Surface Water Point: TRIBUTARY OF NANT-Y-CAFN Data Type: Point Name: 3J's Coal Trading Company Ltd Easting: 281950 Northing: 207480	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/05/1994 Expiry Date: 30/11/2007 Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -
-	1766m S	Status: Historical Licence No: 21/58/73/0019 Details: Make-Up or Top Up Water Direct Source: EAW Surface Water Point: TRIBUTARY OF NANT-Y-CAFN Data Type: Point Name: 3J's Coal Trading Company Ltd Easting: 282060 Northing: 207160	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/05/1994 Expiry Date: 30/11/2007 Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -

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

6.8 Potable abstractions

Records within 2000m	0

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

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

6.9 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.

6.10 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.

7 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

7.1 Water Network (OS MasterMap)

Records within 250m	10

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 45 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	135m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
C	203m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
1	204m N	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
D	233m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	240m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
E	241m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dulais
F	243m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	244m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dulais
E	244m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dulais
E	248m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dulais

This data is sourced from the Ordnance Survey.

7.2 Surface water features

Records within 250m	**5**

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 45 >**

This data is sourced from the Ordnance Survey.

7.3 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 45 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Dulais - headwaters to confluence with River Neath**	**GB110058032360**	**Neath**	**Tawe to Cadoxton**

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

7.4 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 45 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	241m NW	River	Dulais - headwaters to confluence with River Neath	GB110058032360	Good	Good	Good	2016

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

7.5 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 45 >**

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

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

8 River and coastal flooding

8.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

8.2 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.

8.3 Flood Defences

Records within 250m	0

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

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

8.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

8.5 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

8.6 Flood Zone 2

Records within 50m	0

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

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

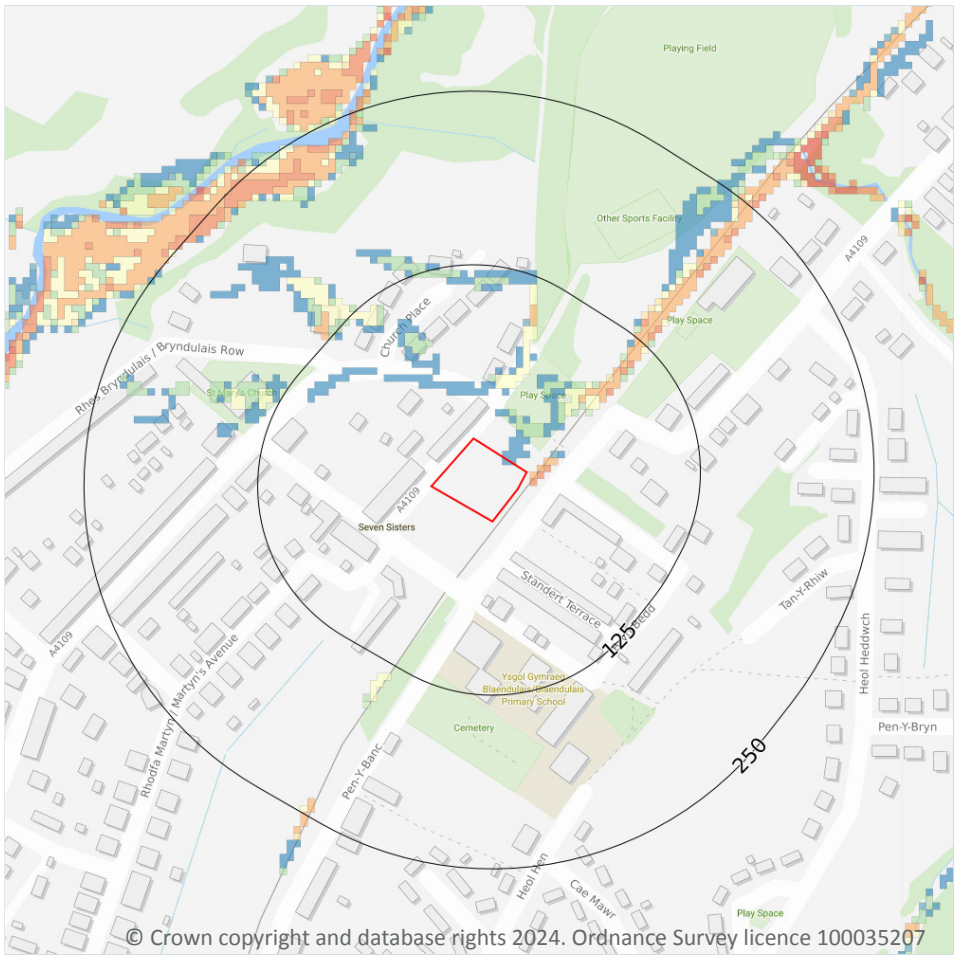
8.7 Flood Zone 3

Records within 50m	0

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

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

9 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

9.1 Surface water flooding

Highest risk on site	**1 in 1000 year, 0.1m - 0.3m**
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 52 >**

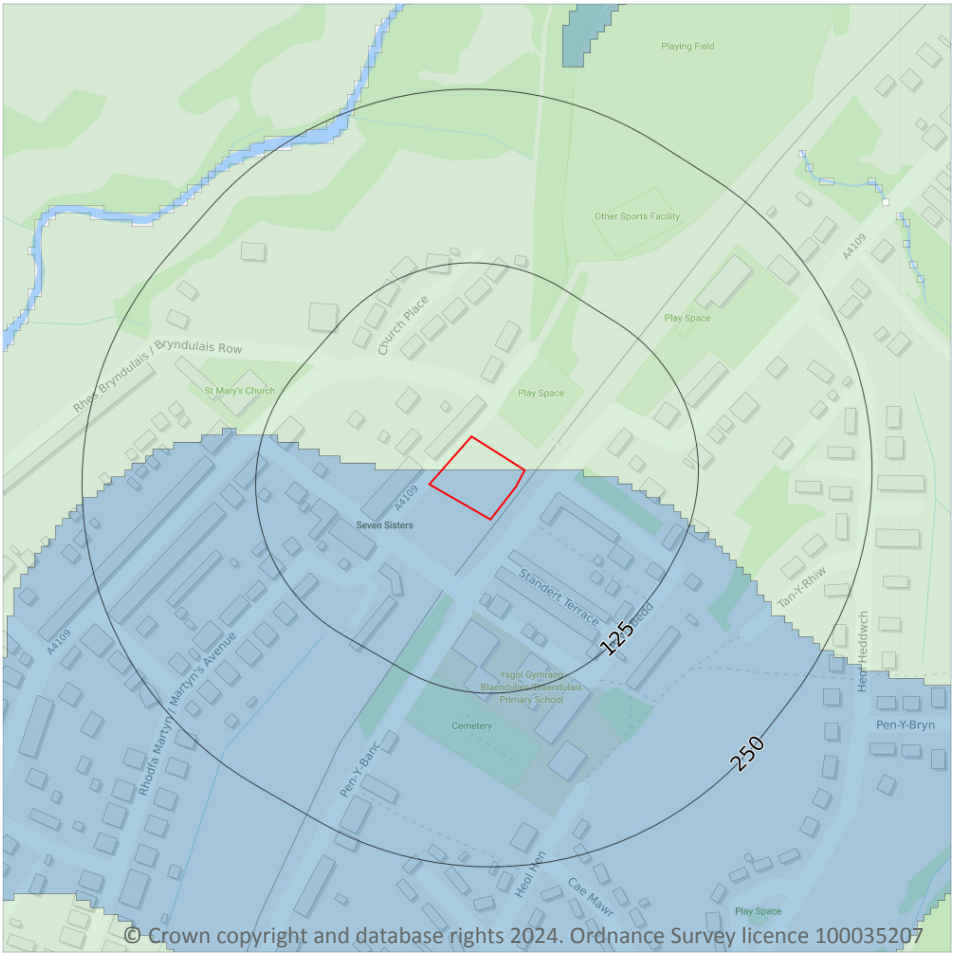
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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 0.1m and 0.3m
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

10 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

10.1 Groundwater flooding

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

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 54 >**

This data is sourced from Ambiental Risk Analytics.

11 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

11.1 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.

11.2 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.

11.3 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.

11.4 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.

11.5 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.

11.6 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.

11.7 Designated Ancient Woodland

Records within 2000m	13

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 55 >**

ID	Location	Name	Woodland Type
1	178m NW	Unknown	Ancient Semi Natural Woodland
2	317m N	Unknown	Ancient Semi Natural Woodland
3	446m N	Unknown	Ancient Semi Natural Woodland
4	468m N	Unknown	Ancient Semi Natural Woodland
5	590m S	Unknown	Ancient Semi Natural Woodland
6	703m SE	Unknown	Plantation on Ancient Woodland Site
7	969m SE	Unknown	Ancient Semi Natural Woodland
8	973m SE	Unknown	Ancient Semi Natural Woodland
9	1051m SE	Unknown	Plantation on Ancient Woodland Site
10	1374m SW	Unknown	Ancient Semi Natural Woodland
-	1507m S	Unknown	Plantation on Ancient Woodland Site
-	1547m S	Unknown	Ancient Semi Natural Woodland
-	1707m S	Unknown	Plantation on Ancient Woodland Site

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

11.8 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.

11.9 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.

11.10 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.

11.11 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.

11.12 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.

11.13 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.

11.14 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.

11.15 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.

11.16 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

11.17 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.

11.18 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.

12 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

12.1 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.

12.2 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.

12.3 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.

12.4 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 61 >**

ID	Location	Name	Grade	Reference Number	Listed date
1	110m NW	The War Memorial, In A Prominent Position On The N Side Of A Bend In The A4109 Near The Centre Of Seven Sisters.	II	82050	06/11/2003

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

12.5 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.

12.6 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.

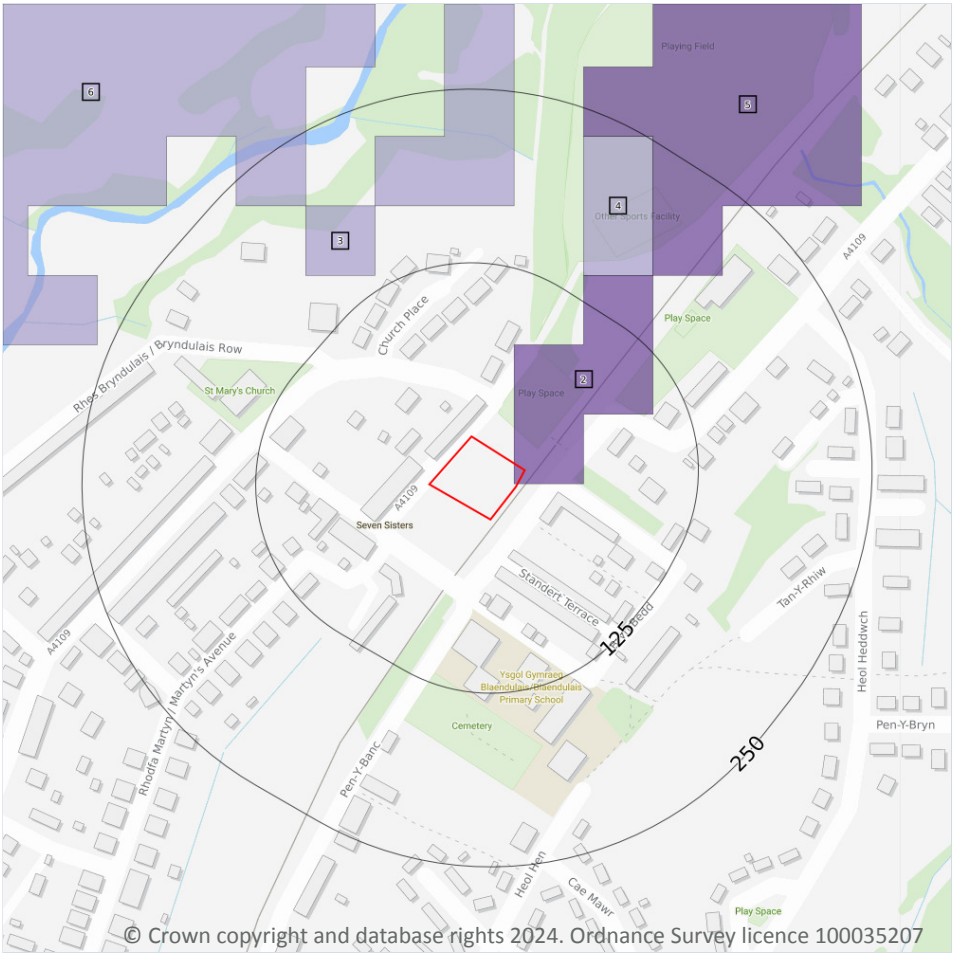
12.7 Registered Parks and Gardens

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.

13 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

13.1 Agricultural Land Classification

Records within 250m	6

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 64 >**

ID	Location	Classification	Description
2	**On site**	**Grade 5**	**Very poor quality agricultural land**
3	135m NW	Grade 4	Poor quality agricultural land
4	141m NE	Grade 4	Poor quality agricultural land

ID	Location	Classification	Description
A	166m N	Grade 4	Poor quality agricultural land
5	168m NE	Grade 5	Very poor quality agricultural land
6	205m NW	Grade 4	Poor quality agricultural land

This data is sourced from Natural Resources Wales.

13.2 Open Access Land

Records within 250m	0

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.

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

13.3 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.

13.4 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.

13.5 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.

14 Habitat designations

14.1 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.

14.2 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.

14.3 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.

14.4 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.

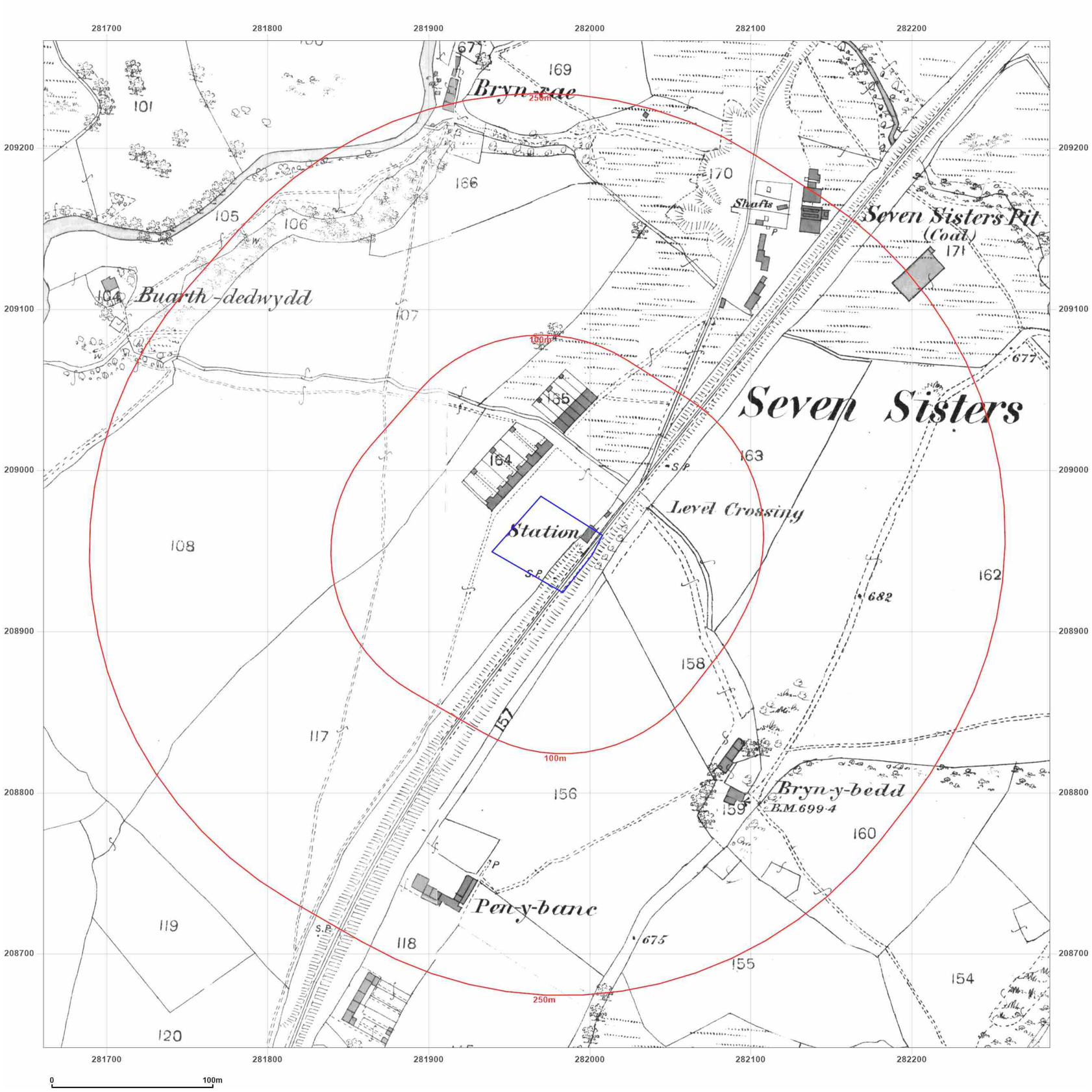
This data is sourced from Natural England.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



Groundsure INSIGHTS

Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: County Series

Map date: **1877**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A

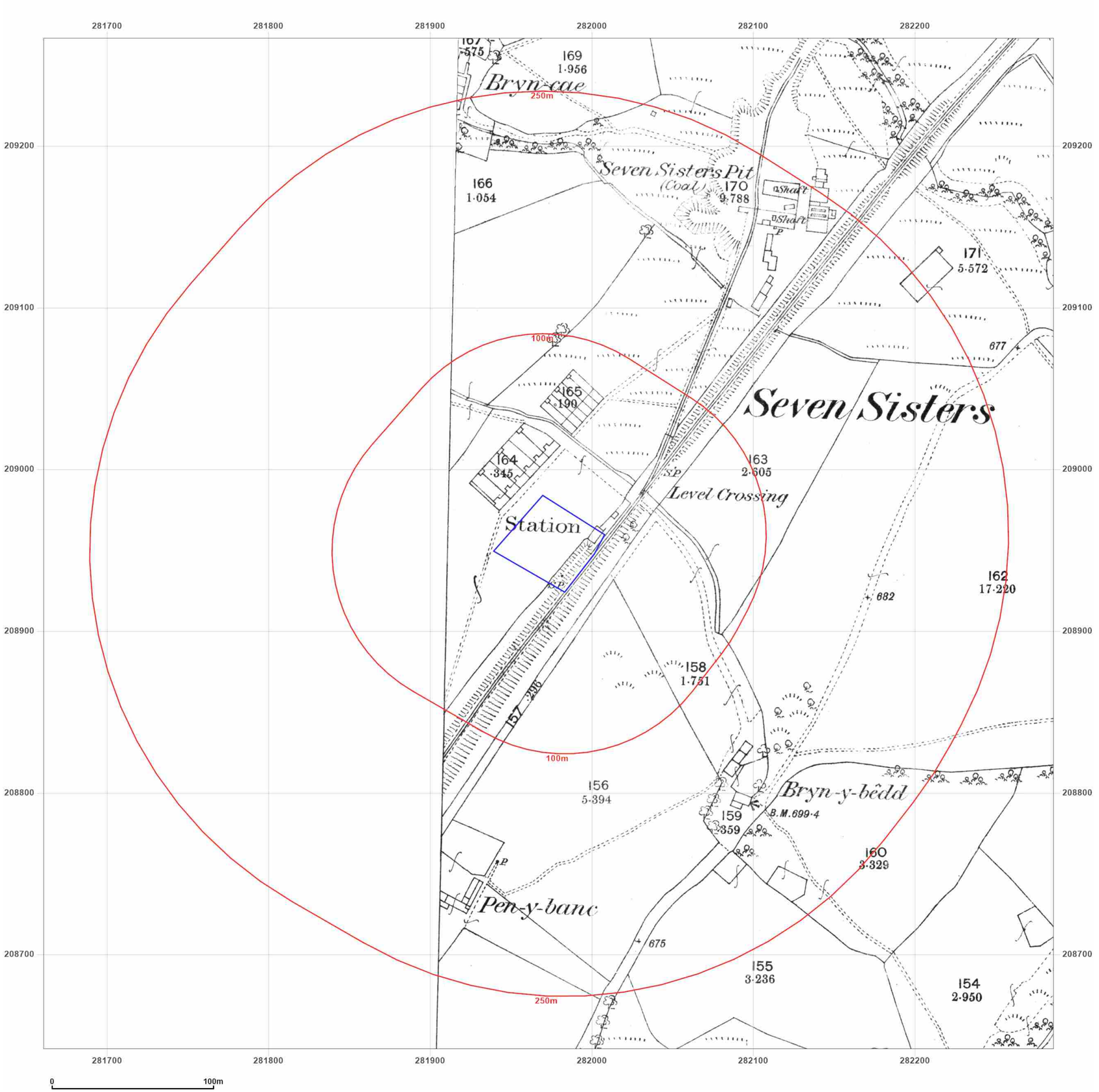
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

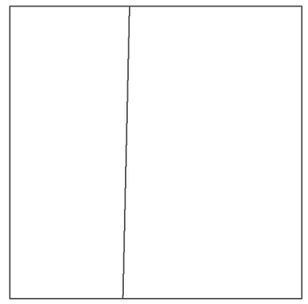
Map Name: County Series

Map date: **1879**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1879
Revised 1879
Edition N/A
Copyright N/A
Levelled N/A

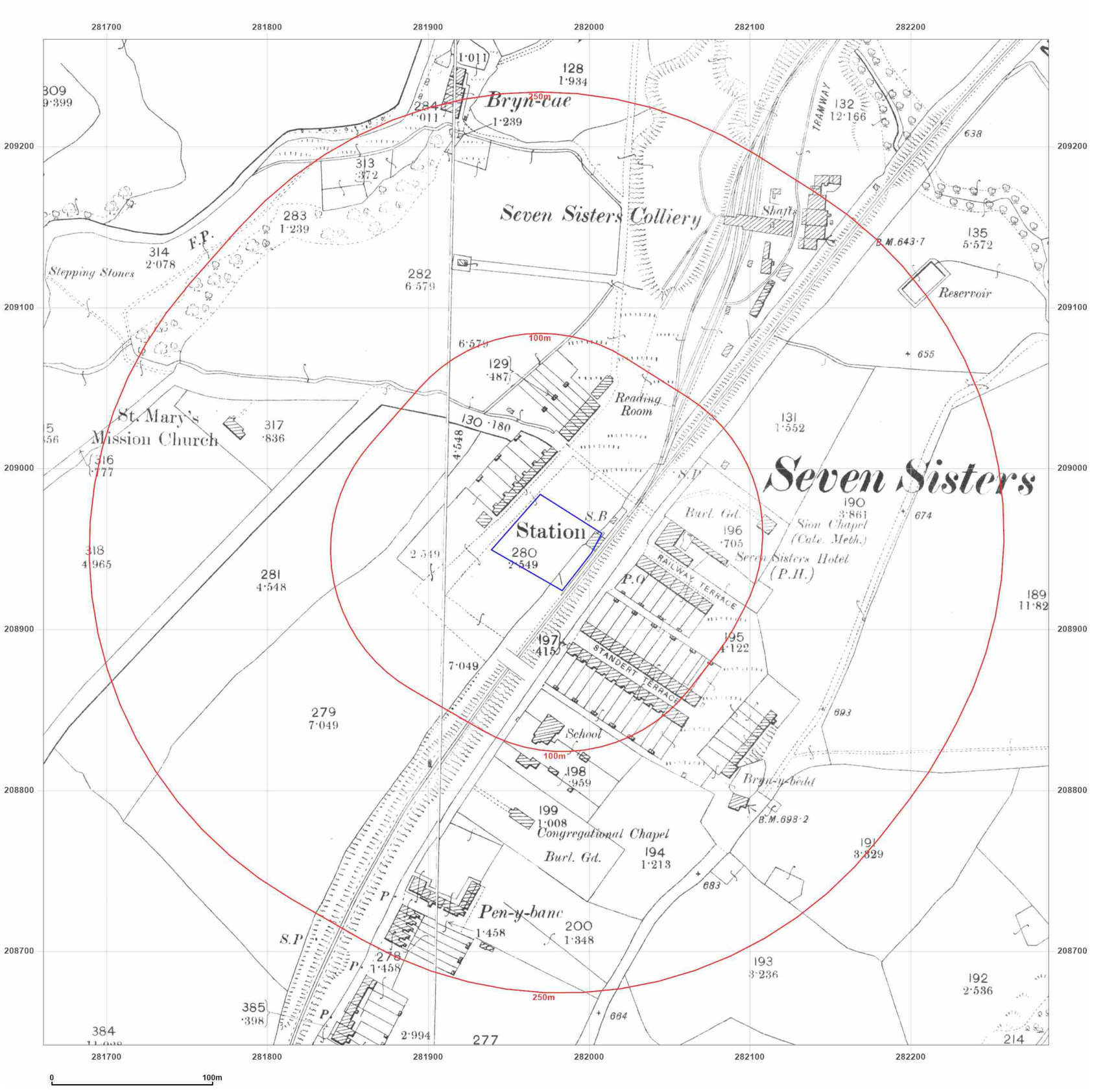
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: County Series

Map date: **1898-1899**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1898
Revised 1898
Edition N/A
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Levelled N/A

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

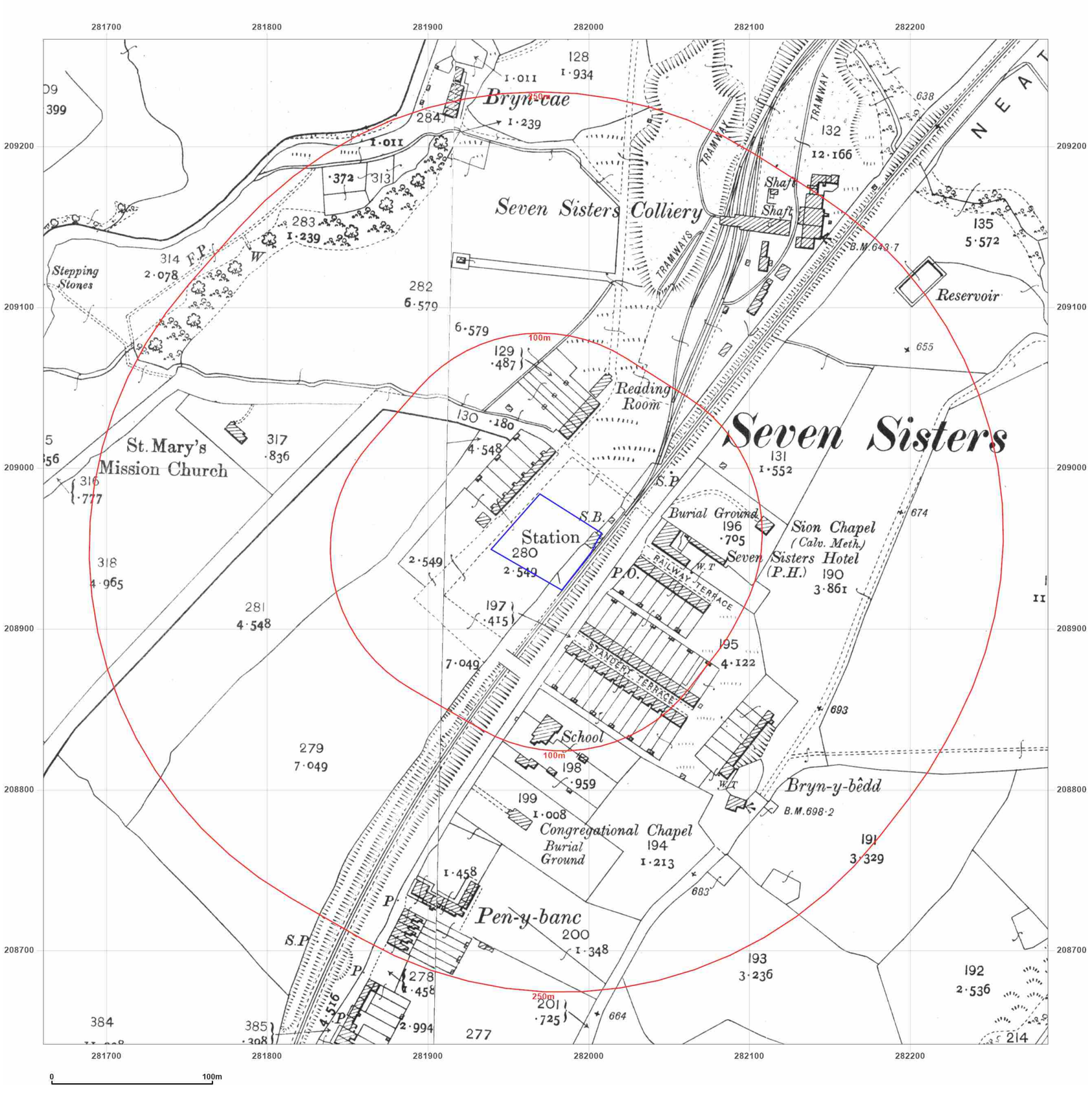
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: County Series

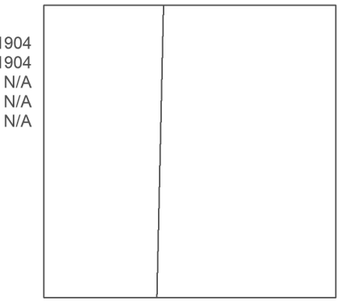
Map date: **1904**

Scale: 1:2,500

Printed at: 1:2,500

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Edition N/A
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Revised 1904
Edition N/A
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: County Series

Map date: **1918**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A

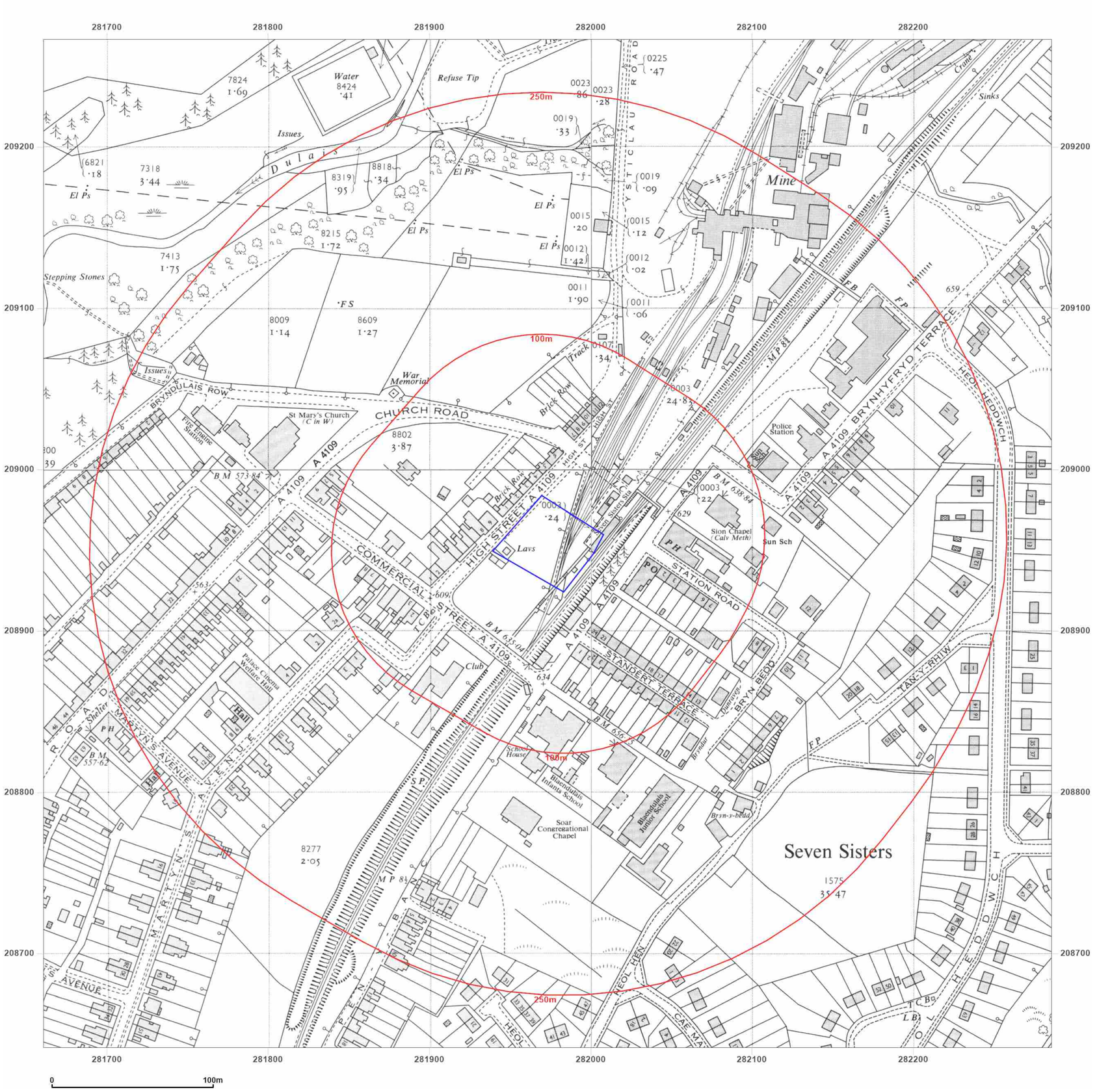
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: National Grid

Map date: **1962**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1961 Revised 1961 Edition N/A Copyright 1962 Levelled 1950	Surveyed 1962 Revised 1962 Edition N/A Copyright 1962 Levelled 1956
Surveyed 1962 Revised 1962 Edition N/A Copyright 1962 Levelled 1956	Surveyed 1962 Revised 1962 Edition N/A Copyright 1962 Levelled 1956

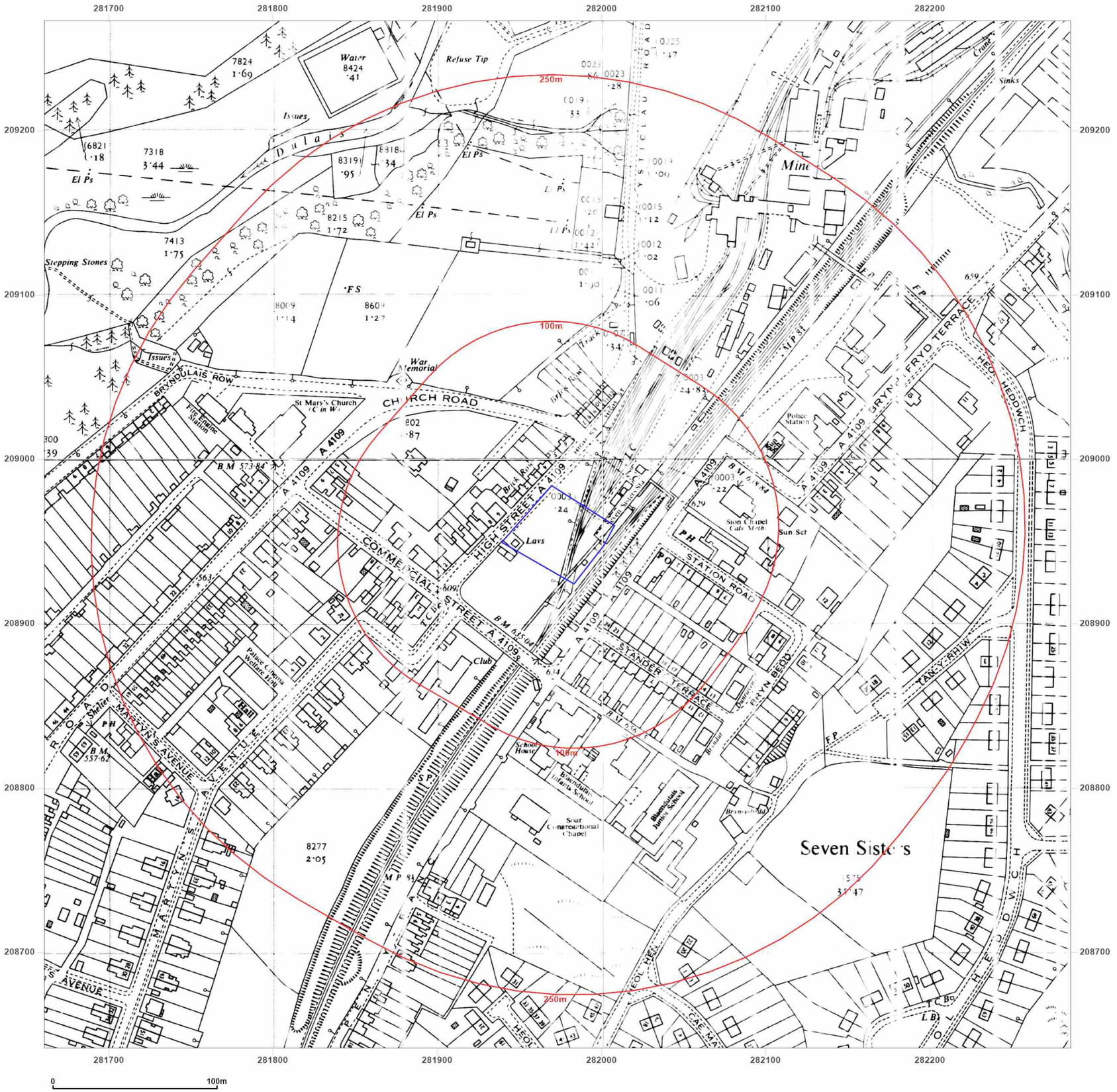
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: National Grid

Map date: **1962**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
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Edition N/A
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Levelled N/A

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Revised N/A
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Revised N/A
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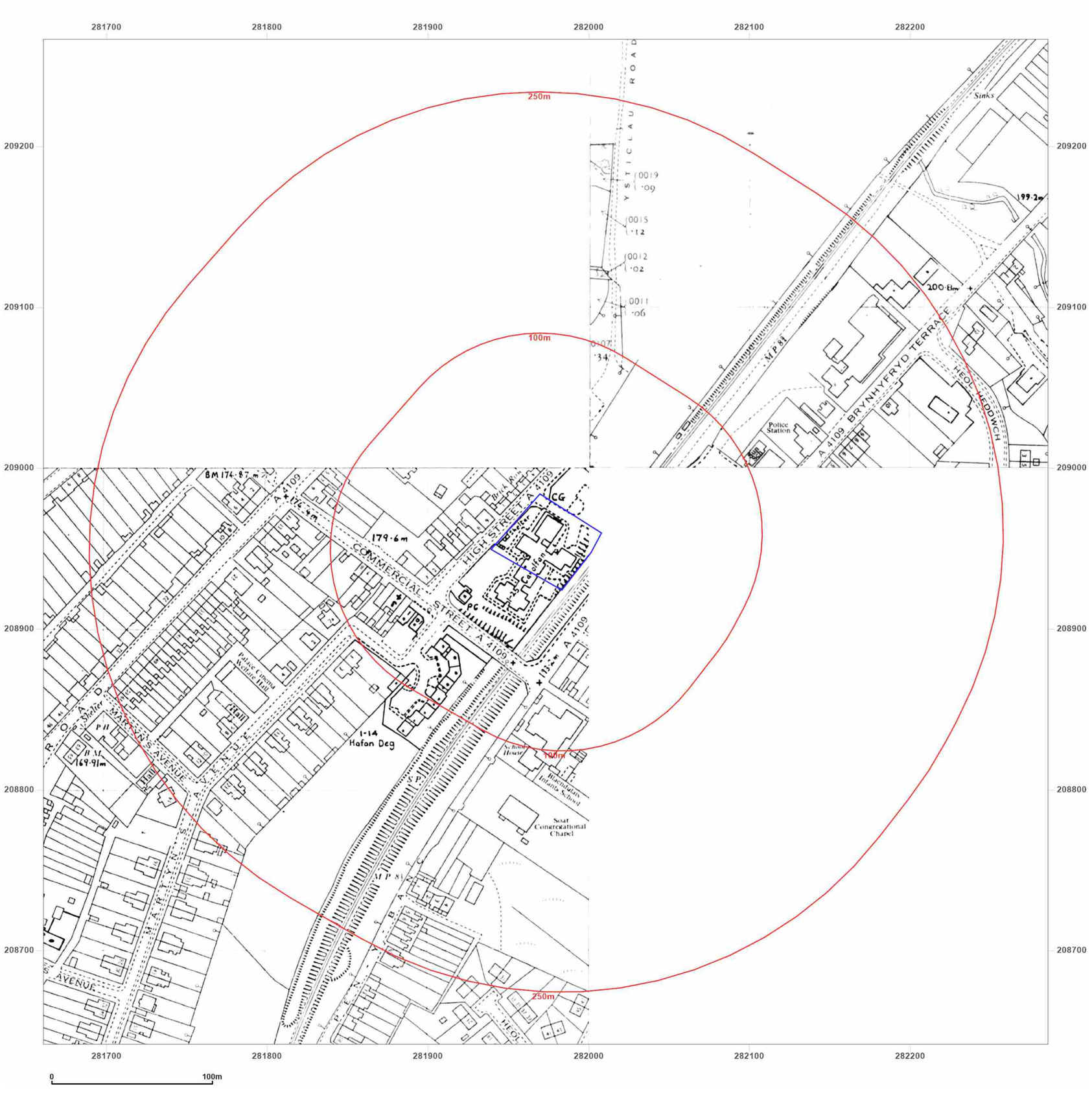
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: National Grid

Map date: **1987-1988**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1988
Edition N/A
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Levelled 1962

Surveyed 1963
Revised 1987
Edition N/A
Copyright 1987
Levelled 1963

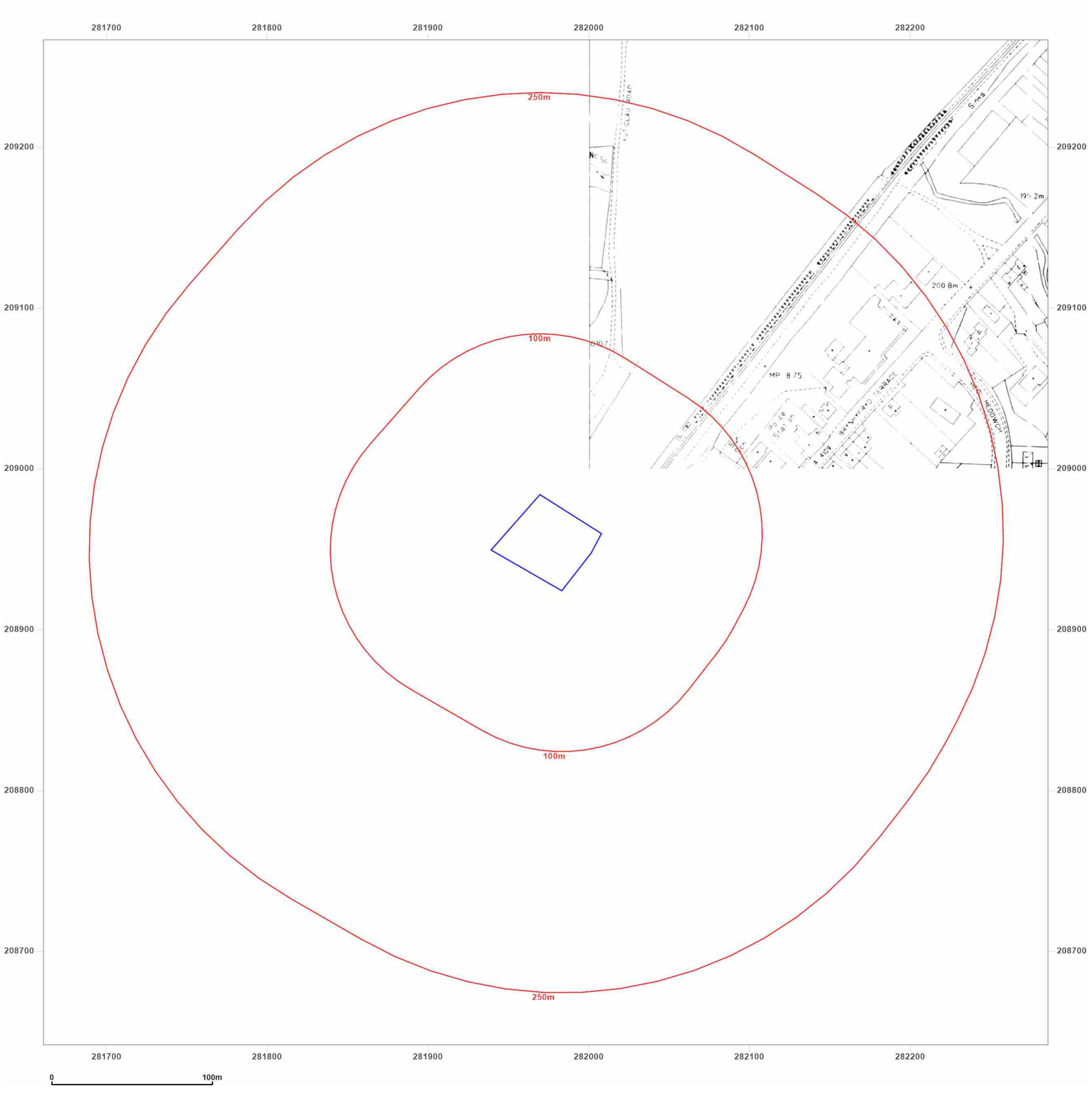
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: National Grid

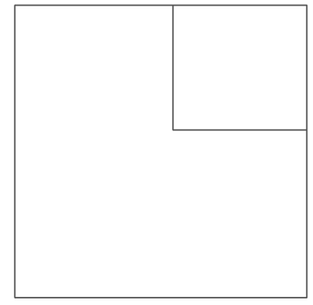
Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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



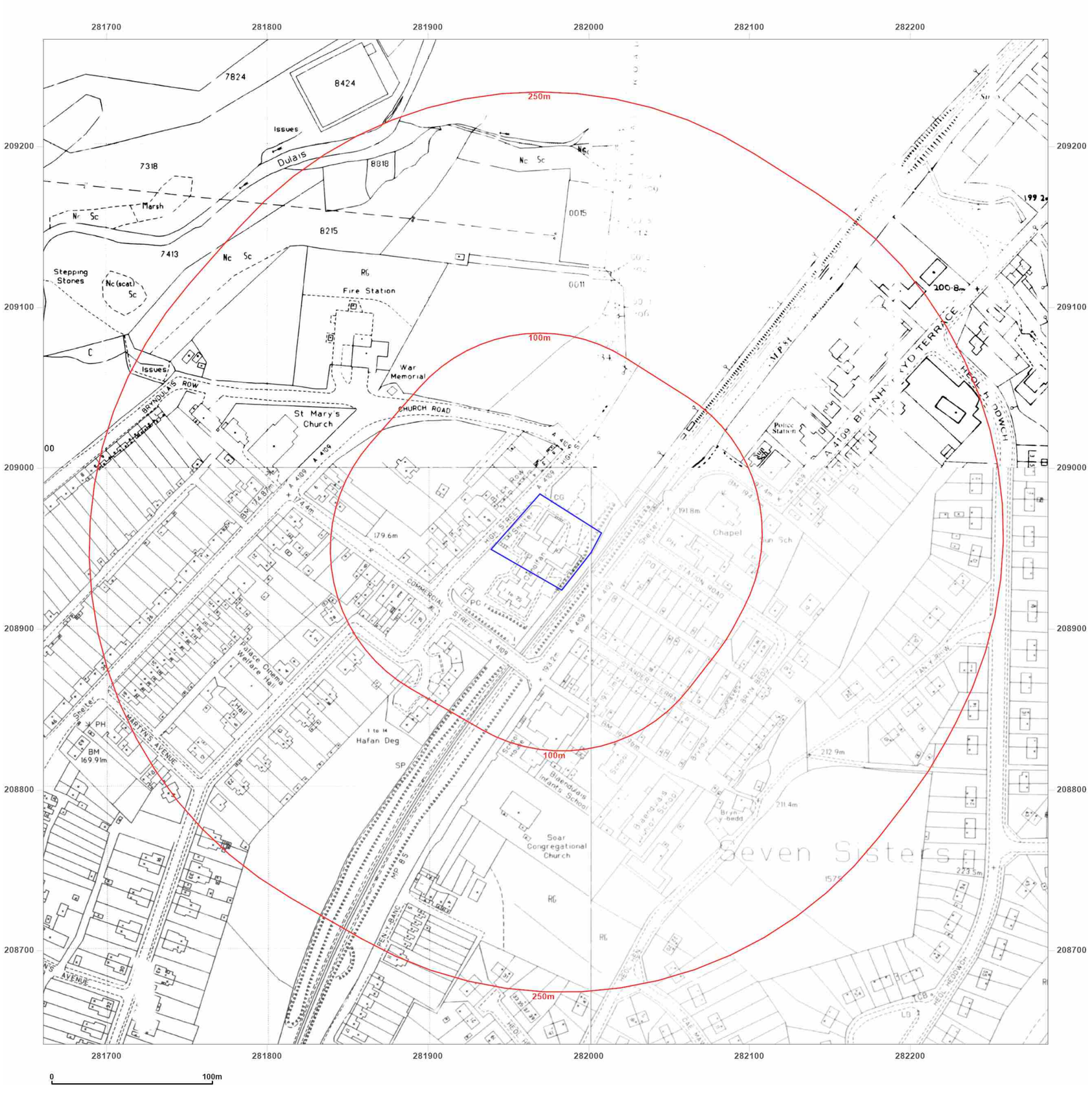
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: National Grid

Map date: **1989-1993**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
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Levelled N/A

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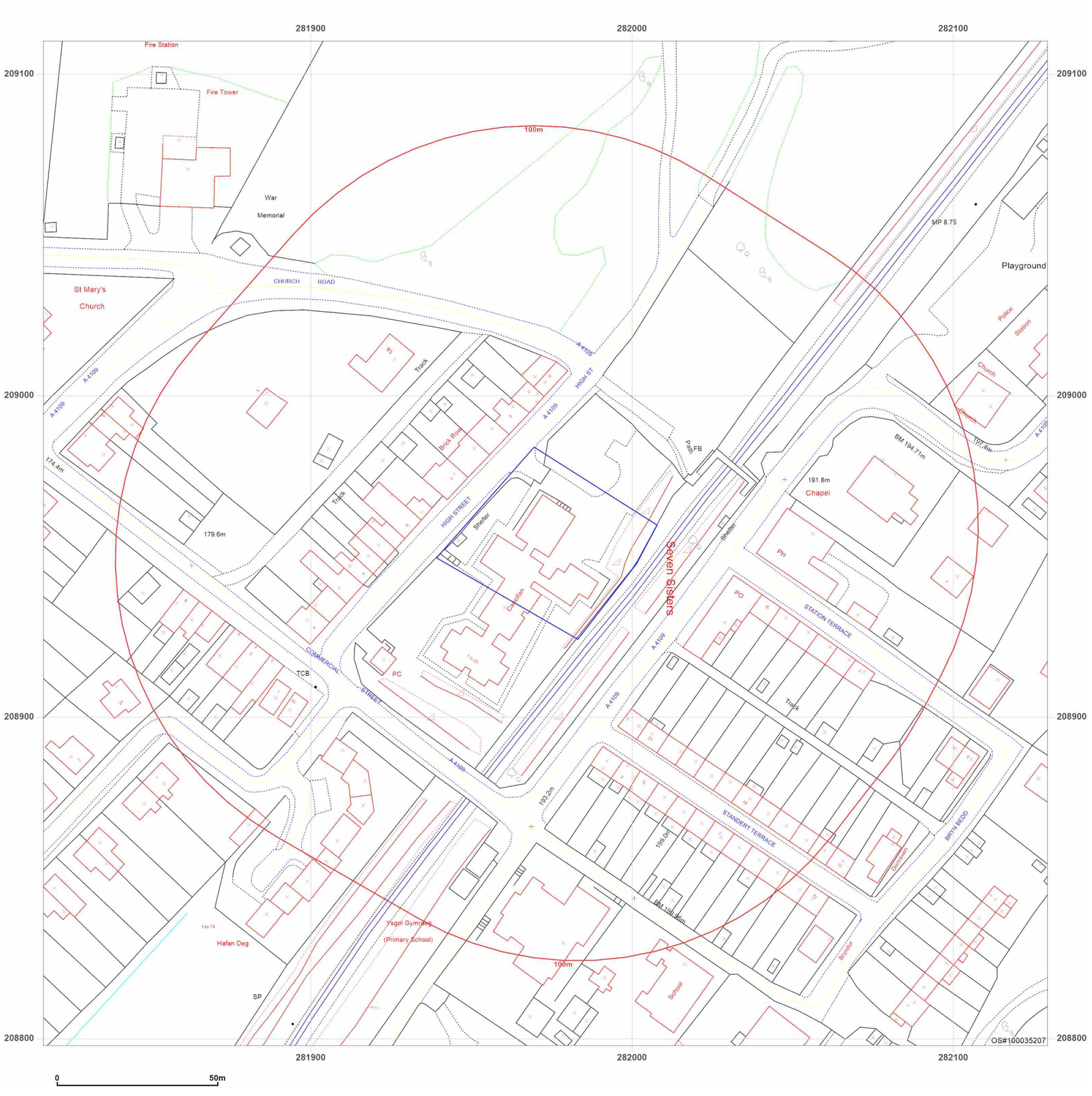
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

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

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2003

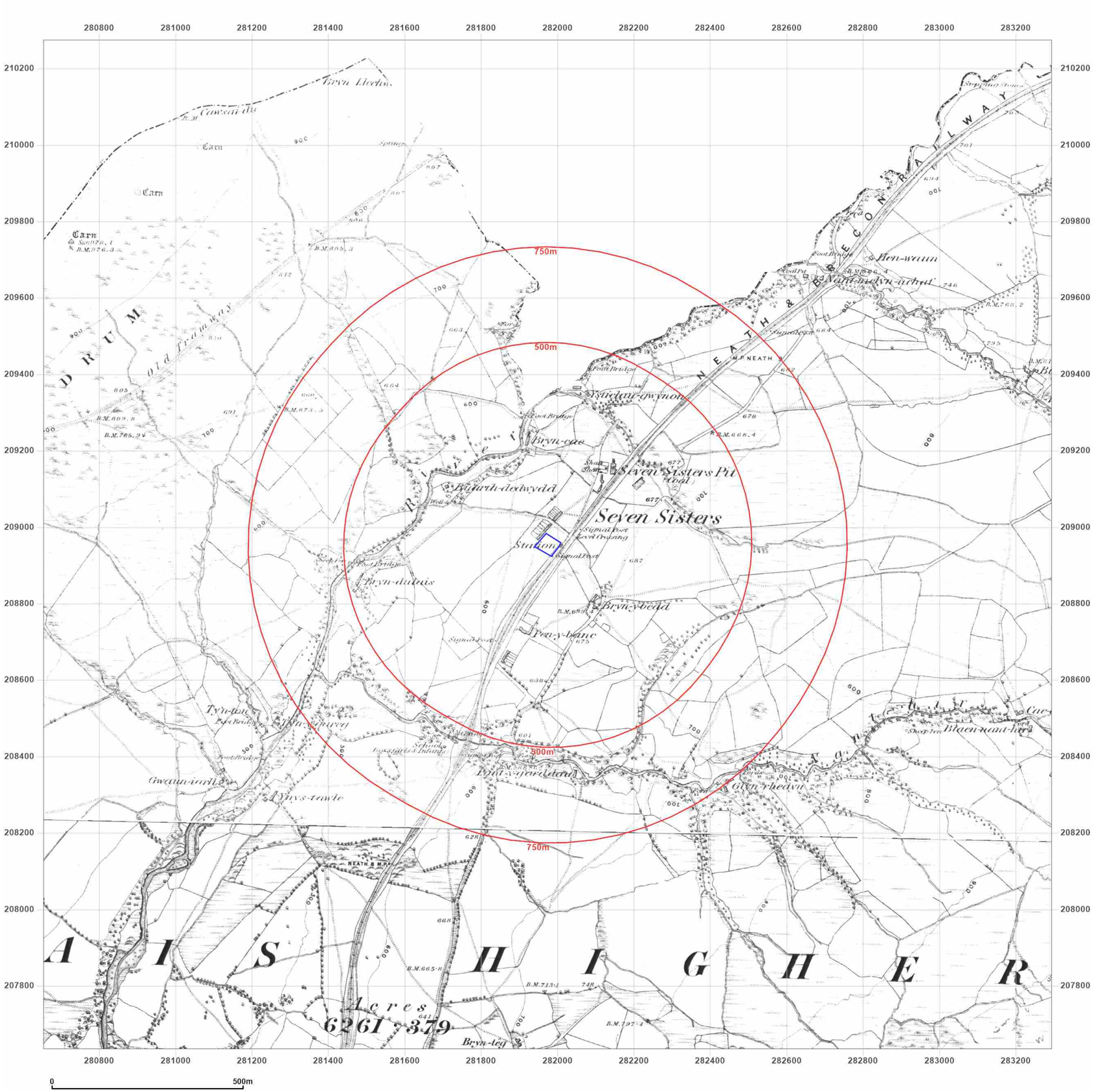
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Site Details:

Blaendulais Childcare Centre

Client Ref: 22181 Blaendulais
Report Ref: GS-RMJ-8A4-KAY-BSG
Grid Ref: 281973, 208954

Map Name: County Series

Map date: **1876-1877**

Scale: 1:10,560

Printed at: 1:10,560

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Revised 1876
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