



**COAL MINING RISK ASSESSMENT -
MARGAM GEP SOUTH SIDE**

GSL3228R01

VERSION 2

03 JUNE 2025

FINAL

Prepared for:

Axis Consulting Engineers

Prepared by: A Bell

GroundSolve Ltd

DOCUMENT CONTROL

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This report has been prepared by GroundSolve Ltd with all reasonable care and diligence, within the best practice and guidance current at the time of issue within the proposed redline boundary and proposed Site end use as presented by the Client.

This report is confidential to the Client and GroundSolve Ltd accepts no responsibility whatsoever to third parties to whom this report is presented.

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APPENDICES

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1 INTRODUCTION

1.1 Report Objectives

GroundSolve Ltd was commissioned by Axis Consultant Engineers to undertake a Coal Mining Risk Assessment (CMRA) for an area of land at the GEP power plant in Margram, off the A4241 near the M4 junction 38, referred to as the “site”. A site location plan is located within **Section 8 Drawings**

This report assesses the ground-based risks, constraints, and liabilities associated with former coal workings to the proposed development of the site. This is required in support of the discharge of contaminated land planning conditions assigned to the site.

1.2 Development Proposals

The proposed development comprises of a new Eco 2 car park, office blocks and walkway to the inspection gantry, contractor cabins and an LEMP area. See **Figure 1** below.

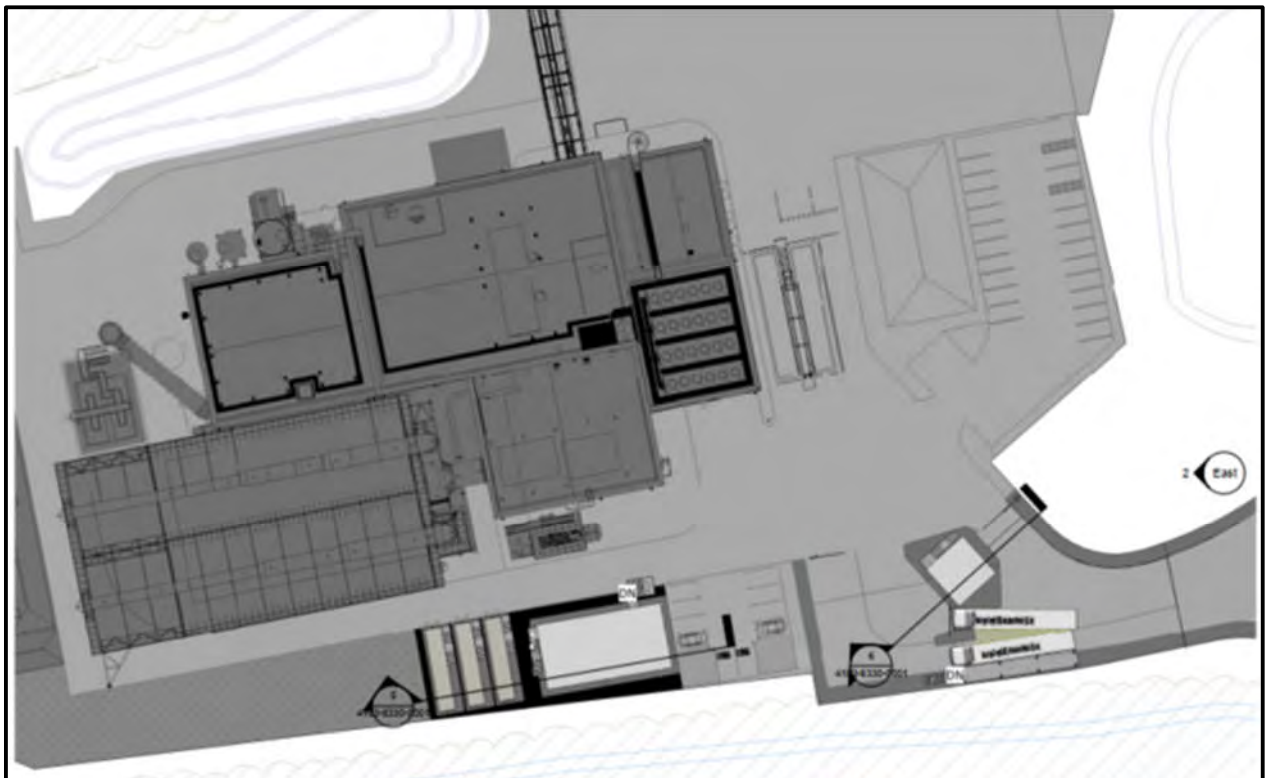


Figure 1-1 - Extract of proposed development

1.3 Legislative Context

The purpose of the Report is to present a desk-based review of all available information on the coal mining legacy relevant to the Site, and, if required, propose further investigation or mitigation measures that address the coal mining legacy.

This report has been devised to generally comply with the relevant principles and requirements of a range of guidance including:

- National Planning Policy Framework (HCA, February 2019).
- BS5930:2015: "Code of practice for site investigations".
- The Coal Authority 'Risk based approach to development management. Guidance for developers" Version 4 - 2017.
- The Building Regulations 2010. Part C (HM Government 2013).
- Coal Authority: 2019: Guidance on Managing the Risk of Hazardous Gases when Drilling or Piling Near Coal. Version 2 (April 2019). Written and published in conjunction with AGS, BDA, HSE and FPS.

1.4 Scope of the Preliminary Coal Mining Risk Assessment

The purpose of this Preliminary Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues.
- Set out any required mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

1.5 Sources of information

The following sources of information have been consulted and reviewed to assist in the preparation of this CMRA:

- Groundsure® Consultant Coal Mining Report, Ref.: 51003420736001,
- Sheet 247, geology plan at a scale of 1:50,000,
- Sheet SS 78 NE, geology plan at a scale of 1:10,560,
- Geology memoirs, Swansea Sheet 247, 1907,
- BGS Boreholes and mine plans obtained from web site,
- Site Location plan,
- Site Layout plan,
- Proposed elevations,
- Ground Investigation at development at Margam for Western Logs Group, Geotechnical Report No X071043, Quantum, November 2007,
- Groundsure Environmental Data Report June 2008,
- Groundsure Geology and Ground Stability Report, June 2008,
- Quantum Borehole logs and location plan, May 2008,
- Coal Authority Web site.

1.6 Planning Status & Requirements

This report is designed to comply with the requirements of The National Planning Policy Framework (NPPF, 2019) and is intended to be used by the developer as part of the submission to gain planning for the works.

2 SITE DETAILS AND DESCRIPTION

Table 2.1: Current Site Overview.

Site name	Margam Green Energy Plant (MGEP)
Site address	Margam Green Energy Plant (MGEP), Longlands Lane, Margam, Port Talbot, SA13 2NW
National Grid Reference (NGR)	278999, 186336
Approximate Site area	0.38ha
Site shape	Rectangle
General topography and ground levels	No topographical survey provided; the site is observed to lie mainly at grade.

Table 2.2: Summary of Description of the Site and its Environs

Current Use:	Margam Green Energy Power Plant
Access	Current access is via foot and/or vehicle access from Longlands Lane to the southeast of the site.
Existing Buildings& Structures	Structures on site comprise main warehouse and the power plant main buildings, several smaller buildings along the site boundaries.
Site Surface	The site largely comprises of a hardstanding surface.
Vegetation	None within the fence line boundary.
Storage Tanks	Tanks are present within the wider energy facility, but none are anticipated within the site area.
Services	No service plans have been provided to GroundSolve, however based on the site's current use as a green energy plant, it is anticipated that there will be numerous, significant services in the wider energy plant facility, which may intercept the site.
Asbestos	The Energy Plant was constructed after 2013, based on historic satellite mapping. Therefore, as asbestos ceased to be used in new developments post 2000, no asbestos will be present within the buildings. It could be present within any Made Ground soils on site.
Surrounding Area	Woodland to the north, west and south, with grassed areas and roads to the east.
Local / Background Knowledge	The site historically were agricultural/arable fields before construction for the power plant started in 2015.

3 PRELIMINARY CONCEPTUAL RISK ASSESSMENT

3.1 Site History

An assessment of the sites historical usage has been completed. A summary of the sites historical usage is presented below:

- The site was arable/agricultural land prior to 2013.
- The power plant was constructed post 2013 and has occupied the site to the present day

3.2 Site Geology

According to the BGS Geology of Britain Viewer and the relevant BGS Solid and Drift Sheets at a scale of 1:50,000, the following geological succession has been identified below in **Table 3.1**.

Table 3.1: Site Geology

Geology Type	Description
Superficial	Alluvium – Clays, sands, gravels, and silts.
Bedrock	South Wales Middle Coal Measures Formation – Interbedded mudstone, sandstone, and siltstone with coal seams.
Faults	Nearest fault situated onsite

3.3 Coal Mining Report

Based upon the information provided within the Groundsure® Consultant Coal Mining Report, (Ref.: GS-51003471360001), the following is of note:

- The shallowest coal seam is 24.40m below ground level.
- The site is located within a high-risk development area.
- Four coal seams are noted to outcrop on the site from the southwest corner trending northeast.
 - 2^{ft} 9"
 - Upper 4^{ft}
 - Lower 4^{ft}
 - 6^{ft}
- The site is in the likely influence from workings in two seams of coal at 220m to 350m, last worked in 1913.
- Any ground movements associated with these workings should have ceased.
- There are no known coal mine entries within 50m of the site.
- The site is not in an opencast area.
- No settlement claims have been received in the vicinity of the site.

A copy of the Groundsure® Consultant Coal Mining Report is presented in **Appendix A**.

A review of the Mining Remediation Authority (MRA) website, also shows that the site is located within a Coal Mining High Development Risk Area.

4 IDENTIFICATION AND ASSESSMENT OF SITE-SPECIFIC COAL MINING RISK

4.1 Introduction

Identification and assessment of the site's coal mining risks have been undertaken from existing desk-based information.

Assessing risks from coal mining is based upon guidance provided by the MRA following a 'risk-based' approach implemented through PPG14.

4.2 Potential Coal Mining Issues

The potential risks to the development of the site from historic coal workings and remediation to these features as identified within the Coal Authority Report are summarised below in **Table 4.1**.

Table 4.1: Potential Coal Mining Issues

Coal Mining Issues	Yes	No	Risk Assessment
Past underground coal mining		X	Not required
Probable unrecorded shallow workings		X	Not required
Mine Entries (shafts and adits)		X	Not required
Coal mining geology (outcrop)	X		see Section 4.3
Record of past mine gas emissions		X	Not required
Recorded coal mining surface hazard		X	Not required
Surface mining (opencast workings)		X	Not required

4.3 Detailed Discussion and Assessment Response

Coal Mining geology (Outcrop)

The MRA has identified four coal outcrops within the boundary of the site (see Consultants Coal Mining Report, 51003471360001). The coal outcrops are shown below in **Figure 4-1** and are presented within the Coal Consultants Report.

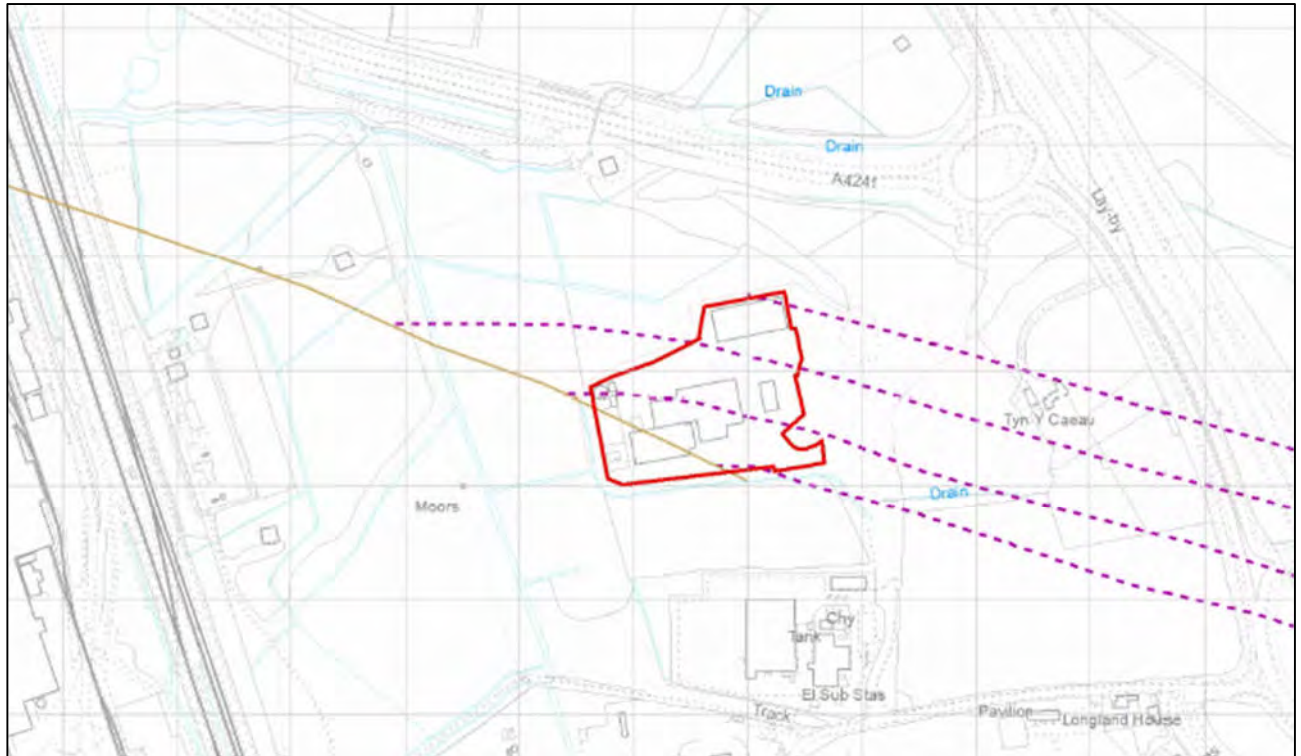


Figure 4-1: Extract from coal consultants report showing conjectured outcrops

Immediately south of these outcrops is the conjectural position of a thrust fault, which means that the above seams are also repeated to the south of the thrust fault. A thrust fault generally being a low angle fault. The dip of the strata is shown dipping at 19° to the north north west as obtained from workings in the 5 FT coal seam. **Table 4.2** summarises the sequence noted on site.

Table 4.2: Outcrop record on site from Coal Consultants report.

Seam Name	Mineral	Seam Workable	Distance to Outcrop (m)	Direction to Outcrop	Bearing of Outcrop
2 Ft Nine Mid Leaf	Coal	Yes	Within	N/A	284
Lower Four Foot	Coal	Yes	Within	N/A	90
Lower Four Foot	Coal	Yes	Within	N/A	284
Upper Four Foot	Coal	Yes	Within	N/A	98
Upper Four Foot	Coal	Yes	Within	N/A	284
Upper Six Foot	Coal	Yes	Within	N/A	288

The geology of the site has been assessed on the 1:50,000 geological map of Swansea (2011, Sheet No.: 247) and BGS Memoir – The Geology of the South Wales Coal-Field (1907). The memoirs record the above seams to have been worked in the Morfa Colliery (Grange Pit), which is 1.5km west of the site and on the other side of Morfa Fault, which downthrows the seams to the east. A summary of the pit sequence is presented in **Table 4.3** below.

Table 4.3: Summary of Pit Sequence

Strata	Thickness (m)	Depth below North Fawr Seam
Superficial Deposits	21.89	-
North Fawr Seam	2.5	-
Three feet Seam	0.76	24.92
South Fawr Seam	1.52	59.50
Clay Vein	1.60	77.80
Four feet Seam	1.21	94.56
Six feet Seam	1.83	120.31
Nine feet Seam	3.66	161.42
Cribbwr-Fawr Seam	2.59	215.82
Cribbwr-Fâch Seam	0.71	266.57

4.4 Previous Investigations

Previous boreholes were found on the BGS web site, which were drilled for coal exploration. These are summarised below and presented in Appendix B. The location of these boreholes is presented on **Figure 1**.

The Margam No 1 Boring drilled in 1934 is summarised in **Table 4.4** below, with the interpretation of seams from the logs.

Table 4.4: Margam No1 Boring, 1934

Strata	Depth (m)	Interpretation
Superficial Deposits	0.0- 15.24	-
Rock	15.24-24.40	-
Coal	24.40-25.40	North Fawr
Rock	25.40-36.60	-
Marine Band	36.6	-
Rock	36.60-54.05	-
Coal	54.05-54.35	Three Feet
Rock and MB	54.35-80.20	-
Coal	80.2-80.80	-South Fawr
Rock	80.80-91.60	-
Coal	91.6-92.1	Clay Vein
Rock	92.10-106.4	-
Coal	106.4-107	Clay Vein
Final Depth	115	-

The dip of the strata is recorded as between 15 and 20°.

The Morfa No 1 Borehole was drilled in 1894; the seam interpretation below has been conducted by GroundSolve:

Table 4.5: Morfa No1 Borehole, 1894

Strata	Depth (m)	Interpretation
Superficial Deposits	0.0 - 32.30	
Rock	32.30 - 50.00	
Coal	50.00 - 54.50	Three Feet
Final Depth	58.53	

Four shell and auger boreholes were drilled in May 2008 to a maximum depth of 10m. The borehole logs and a location plan are presented in **Appendix B**.

The boreholes revealed made ground overlying a thin layer of peat overlying alternating layers of sand/silt, sand, and gravel.

4.5 Risk Assessment and Mitigation Strategy

Based on the information obtained from this assessment, a risk assessment has been formulated, which identifies plausible risks at the site in the context of the end-use. These are detailed in **Table 4.6** below.

Table 4.6: Risk Assessment of Coal Mining Issues

1. Hazard Identification	2. Risk Estimation	3. Risk Evaluation	4. Managing the risk
Probable unrecorded shallow workings	Low	It is stated in the Consultant Coal Mining Report that no unrecorded shallow workings are likely to be present. All historical maps reviewed, and maps found within the Consultants Coal Mining Report indicate no recorded workings on site. The coal outcrop onsite dips southeast away from the site and potentially the outcrop is located to the south of the site.	Shallow ground investigation has encountered no evidence of shallow workings on the site.
Outcrops	Low	Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included	The geological plans indicate 4 No. coal seams outcropping within the wider energy facility site. 1 No.seam is shown to intersect the southeast corner of the proposed development area but is considered to be low risk due to it not being recorded as worked.

Geological Faults, Fissures and Break lines	Low	Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and break lines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or break lines have been known to contribute to surface subsidence damage as a consequence of underground coal mining	The fault does not impact the proposed development.
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5 CONCLUSIONS

5.1 Summary of Risk

The Coal Authority Consultant Coal Mining Report has shown that the shallowest recorded coal workings are 258m below ground level. There is no risk to the proposed development from these workings.

The Coal Authority Coal Mining report has indicated that the site is located within an area where probable unrecorded shallow workings are not present.

There is no evidence of open cast coal mining on the site.

The Coal Authority report has revealed that the site is in an area where coal is believed to be close to surface, which may have been worked in the past. It became law to deposit all mine plans after 1872, which means that:

- The Coal Authority do not have any plans of the shallow seams being worked,
- If worked, it would have been prior to 1872.

The geology plans record the conjectural outcrop of four coal seams across the site and immediate vicinity trending in a WNW – ESE direction, with the dip of the strata shown as 19° NNE. The thrust fault to the south also follows the same trend as the seams, with both following the strike of the beds, i.e. at right angles to the dip direction.

Whilst no boreholes have been drilled on the site to prove the underlying solid strata, two boreholes have been drilled to the east of the site, which are on the same line of strike and are therefore considered to have recorded similar geology as that expected beneath the site.

The No 1 Margam borehole drilled in 1934 proved the North Fawr Seam at a depth of 24.40m and the Three-Foot Seam at 54.05m depth. No workings were recorded in either seam. It should be noted that the Three Feet seam is considered to represent the 2 FT 9 seam of the geology plan.

The Morfa No 1 borehole drilled immediately southeast of the Margam No 1 borehole encountered a very thick coal seam at a depth 50.0m, which is considered to be the Three Feet seam. The North Fawr seam not being encountered, as it would have already cropped due to the greater thickness of superficial deposits. The increased thickness of the seam is probably due to it being within the thrust fault. No workings were encountered in this seam.

It can therefore be concluded that the geology plan is inaccurate and given a dip of 19° to the north the Three Feet seam would not outcrop, as it would run into the thrust fault.

In terms of presenting a risk to the site the Three Feet seam at a depth of 50m is considered to be at sufficient depth, so as not to present a risk to the site. However, the North Fawr seam was encountered at a depth of 24.40m, with a rock cover of 9.16m and a superficial cover of 15m. Consequently, even if workings had been pursued in this seam, then the risk to the development is considered to be very low.

We must then consider the potential for this seam to have been subject to earlier unrecorded workings. Early workings would typically work those seams that were easily accessible, i.e. they were at or near to crop. In addition, the mine drainage would have been an early consideration.

In this case, the site is covered in a substantial layer of superficial deposits, up to 30m thick, which would have been water bearing. Consequently, significant exploration would have been required to find the seams, which would not have been necessary given the extensive outcropping coal seams on the hills immediately east of the site. In addition, sinking shafts to depth in saturated granular soils would have been extremely difficult for early miners and would have required substantial de watering and expense.

The next consideration would be that the workings would have required substantial pumping to keep them dry. Finally, if coal had been worked, workings would have been short lived due to them quickly becoming uneconomical due to the thrust fault, which is immediately up dip of the site.

It must therefore be concluded that early unrecorded coal workings are highly unlikely. Finally for workings to have been undertaken some evidence of ground disturbance would have been recorded in the form of excavations for shafts etc.

5.2 Conclusions

Due to the depth of the coal seams present and absence of evidence for shallow workings, mitigation strategies are not considered necessary.

It is concluded that the risk to the site from abandoned shallow mine workings is as low as reasonably possible.

6 REFERENCES

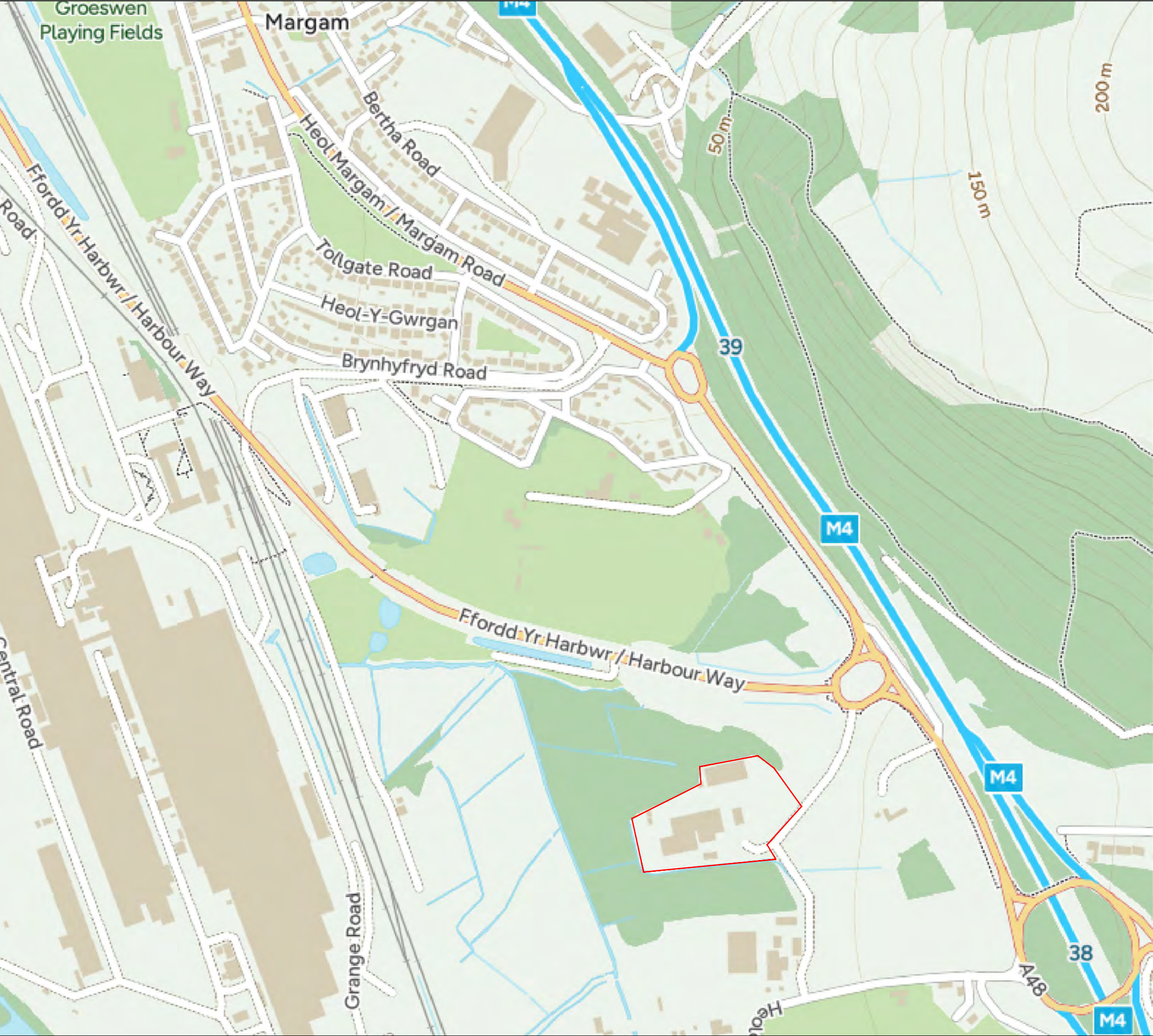
1. British Standards Institute, (BSI), BS5930:2015) Code of practice for ground investigations.
2. British Standards Institute, (BSI), BS 10175:2011+A1:2013, Investigation of Contaminated Sites – Code of Practice.
3. BS EN 1997-2: 2008 : Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and testing. British Standards Institution.
4. CIRIA Special Publication 32 Constriction over abandoned mine workings. 1984
5. Construction Industry Research and Information Association (CIRIA). 2007, Report C665, Assessing Risk Posed by on Hazardous Ground Gases to Buildings.
6. CIRIA C758D - Abandoned mine workings manual (2019)
7. COSHH : 2015 : Control of Substances Hazardous to Health Regulations.
8. Coal Authority: 2019: Guidance on Managing the Risk of Hazardous Gases when Drilling or Piling Near Coal. Version 2 (April 2019). Written and published in conjunction with AGS, BDA, HSE and FPS
9. British Drilling Association “Guidance for Safe Intrusive Activities on contaminated or Potentially Contaminated Land” (2008);
10. Department for Communities and Local Government: 2012 : National Planning Policy Framework, 27th March 2012.
11. National Planning Policy Framework (HCA, February 2019);
12. The Coal Authority ‘Risk based approach to development management. Guidance for developers” Version 4 - 2017;
13. The Building Regulations 2010. Part C (HM Government 2013)

7 DEFINITIONS

AOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GQRA	Generic Quantitative Risk Assessment
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
ppm	Parts per million
ppmv	Parts per million by volume
SAC	Special Area of Conservation
SPZ	Source Protection Zone
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest

8 DRAWINGS

1. GSL3228-DR-001 Site Location Plan
2. 4183-8310-0001 Proposed Development plan



Legend

Site Extents

A	Original Drawing	26.02.25
Revision	Description	Date

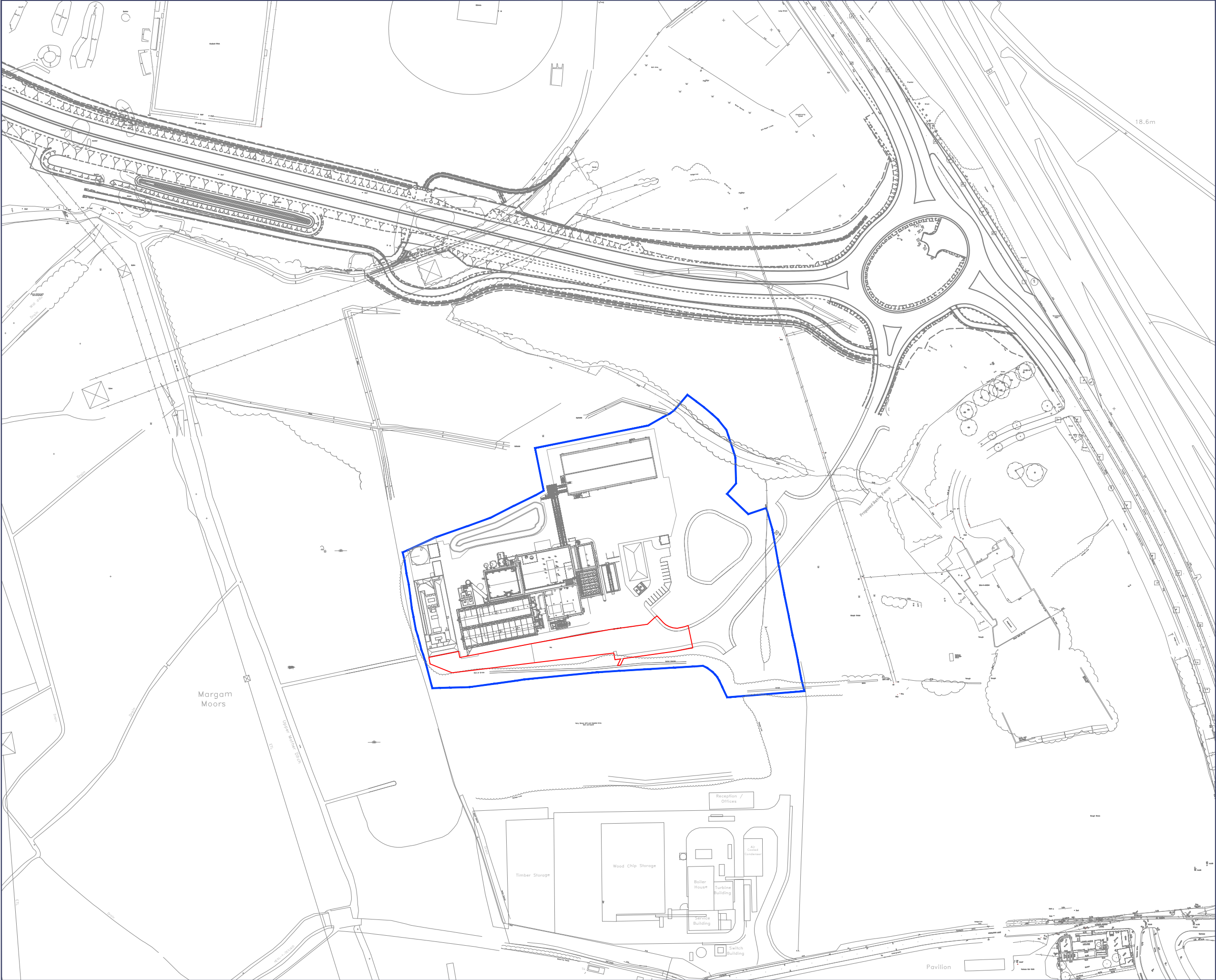
GroundSolve Ltd
Consulting Geotechnical Engineers

Unit 1, 85 Station Road
Queensferry
Flintshire CH5 2TB
Tel: 01244 592295

Job Title
Margam Energy Park

Drawing Title
Site Location Plan

Drawing Scale	Drawn By	Approved By
NTS	ALB	SF
Drawing Status		Date of Issue
Information		26.02.25
Drawing No		Revision
GSL3228-DR-001		A



 Application Boundary

 Ownership Boundary

0344 8700 007
axis.co.uk



Client

Eco 2

Project

Margam Spares Building

Drawing Title

Application Bounday Plan

Scale

1:2500 @A3

Date

June 2025

Dwg no

2774-04-01

Status

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Drawn

JD

Checked

CF

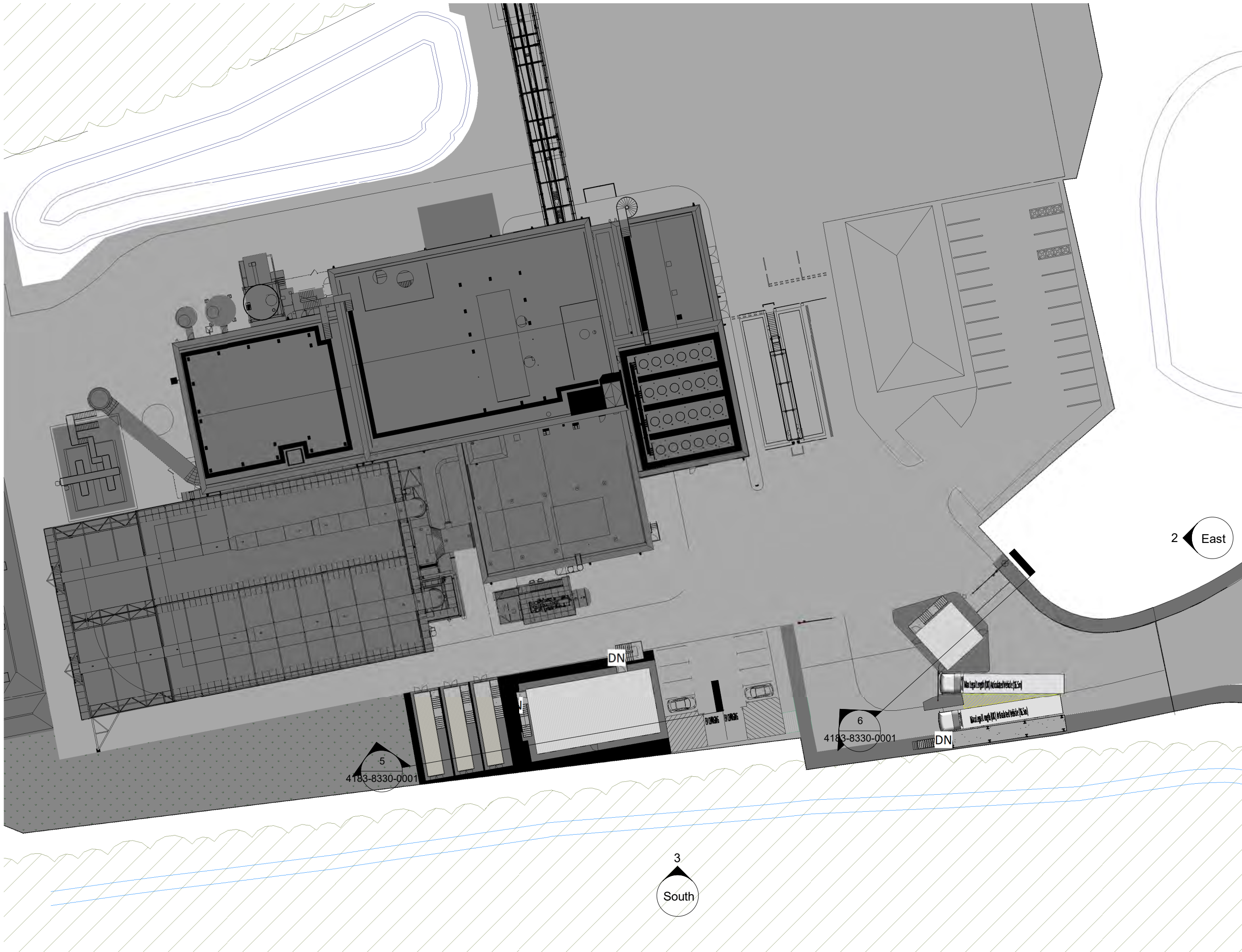
Rev



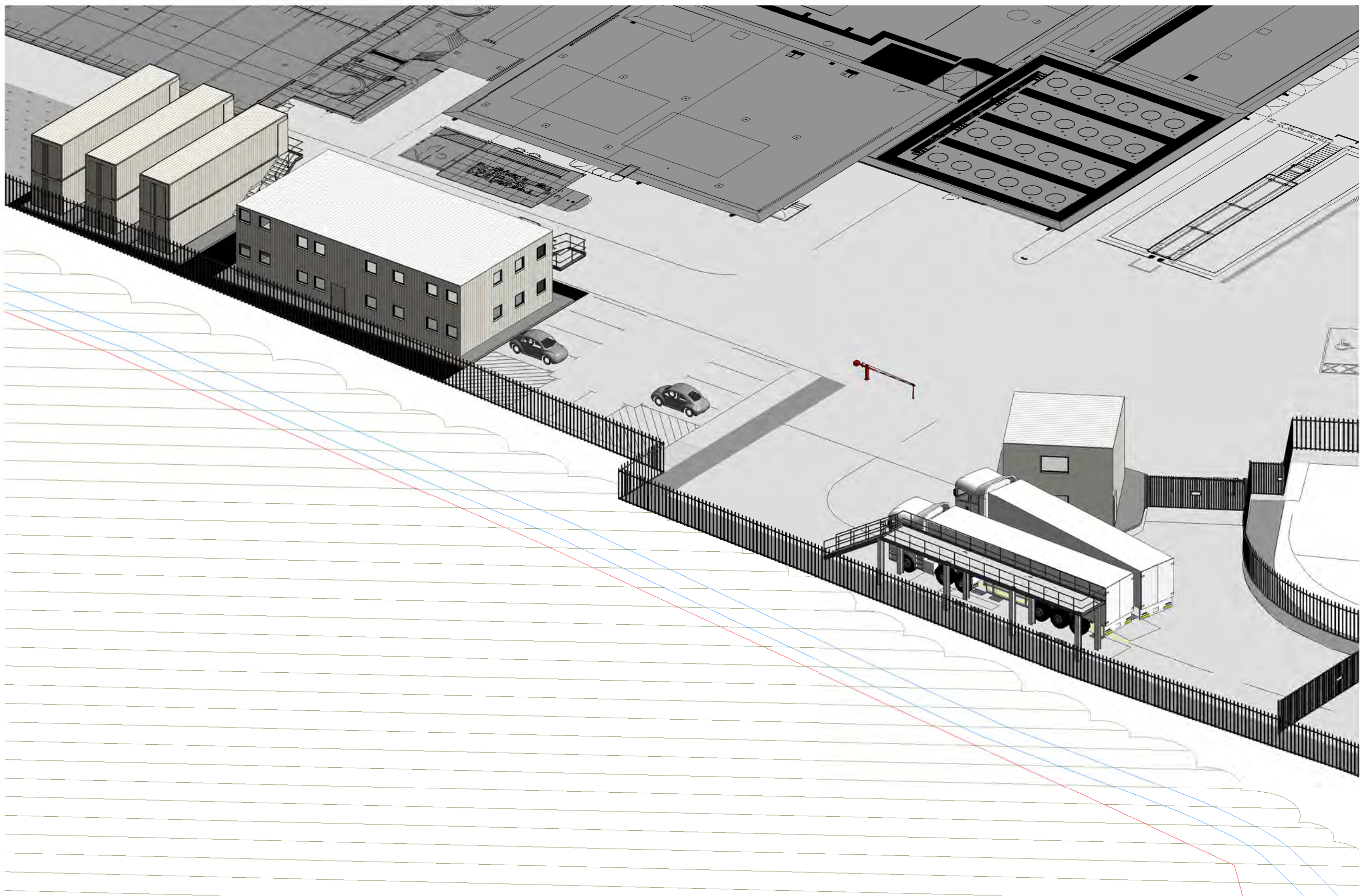
revision: desc:

date:





1 Key Plan
1 : 500



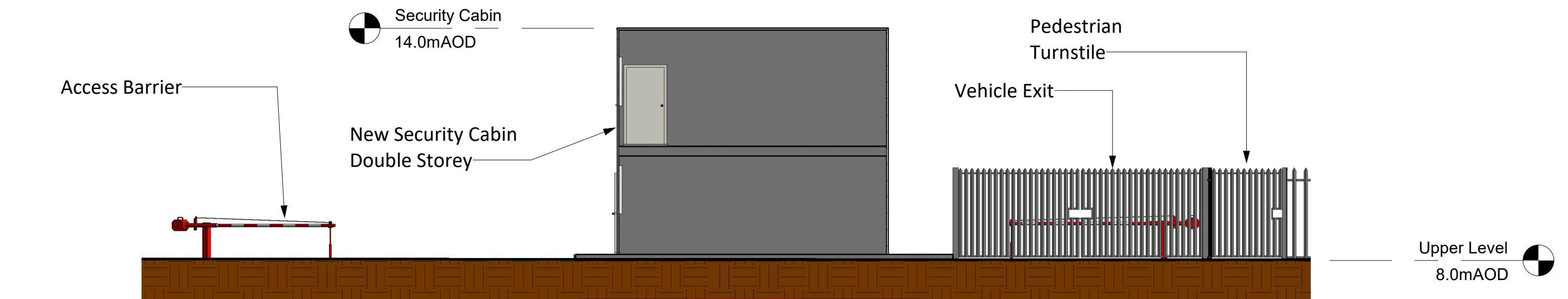
5 Section Through Offices
1 : 100



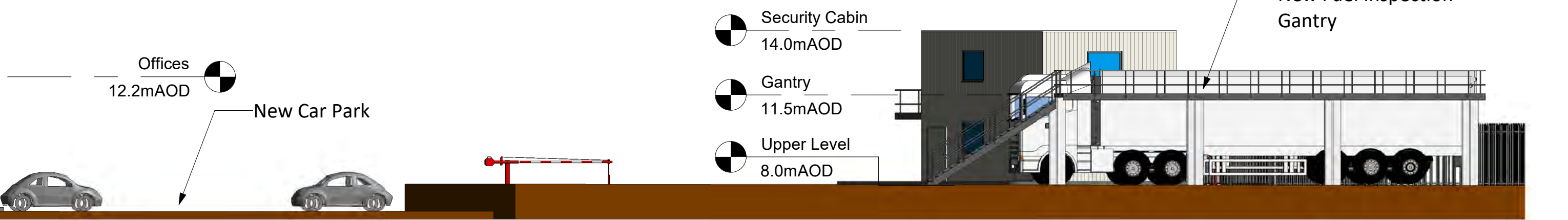
2 East Elevation
1 : 150



3 South Elevation
1 : 150



6 Section Through Security Cabin
1 : 100



ALL INFORMATION ON THIS DRAWING IS INDICATIVE ONLY, AND MAY BE SUBJECT TO FURTHER DESIGN DEVELOPMENT. DO NOT SCALE

NOTES:
All buildings to be RAL 7038 (Agate Grey)

R2.0	FOR PLANNING	DTW	AO1	DMM	15.05.25
R1.0	FOR PLANNING	DTW	AO1	DMM	14.03.25
REV.	DETAILS OF REVISION	DRAWN	CHKD	APR	DATE

FICHTNER
CONSULTING ENGINEERS LIMITED
Kingsgate, Wellington Road North,
Stockport, Cheshire, SK4 1LW, UKTel: 0161 476 0032
Website: www.fichtner.co.uk

CLIENT: SG ENGINEERING SERVICES
SITE: MARGAM ENERGY PARK
PROJECT: SITE ENTRANCE WORKS
TITLE: PROPOSED SITE ELEVATIONS

DRAWING STATUS:	FOR PLANNING	
DRAWN BY:	DTW	DATE:14.03.25
CHECKED BY:	AO1	DATE:14.03.25
APPROVED BY:	DMM	DATE:14.03.25
FILENAME:	4183-8330-0001DW Proposed Site Elevations	
OFFICE OF ISSUE:	STOCKPORT	
SHEET SIZE:	A1	SCALE:
DRAWING No.:	4183-8330-0001	REVISION:
	Sheet1 of1	R2.0

APPENDIX A– GROUNDSURE CONSULTANTS COAL MINING REPORT



Date of enquiry:	6 January 2025
Date enquiry received:	6 January 2025
Issue date:	6 January 2025
Our reference:	51003471360001
Your reference:	GS-A3D-P4C-6HG-6KH

Consultants

Coal Mining Report

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

Client name

GROUNDSURE LIMITED

Enquiry address

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Neath Port Talbot
SA13 2NF

How to contact us

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+44 (0)1623 637 000 (International)

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Mansfield
Nottinghamshire
NG18 4RG

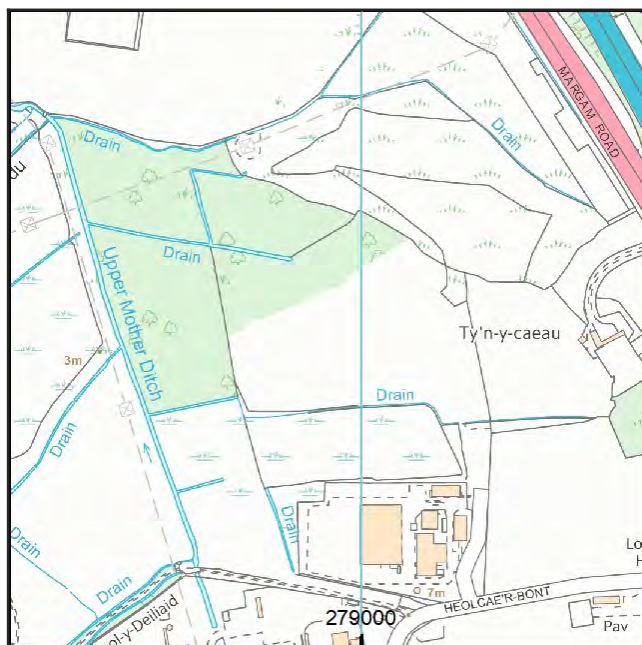
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	GELLIDEG	Coal	4Z2U	258	South-East	26.6	North-West	240	1913
unnamed	FIVE FOOT	Coal	4Z2P	298	South-West	21.5	North	330	1899
unnamed	GELLIDEG	Coal	4Z2W	313	Beneath Property	26.6	North-East	240	1913
unnamed	GELLIDEG	Coal	4Z2V	315	Beneath Property	26.6	North-West	240	1913

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

SWR3735	6252	PO0
3654	5851	

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
2FT NINE MID LEAF	Coal	Yes	Within	N/A	284
LOWER FOUR FOOT	Coal	Yes	Within	N/A	90
LOWER FOUR FOOT	Coal	Yes	Within	N/A	284
UPPER FOUR FOOT	Coal	Yes	Within	N/A	98
UPPER FOUR FOOT	Coal	Yes	Within	N/A	284
UPPER SIX FEET	Coal	Yes	Within	N/A	288

Geological faults, fissures and breaklines

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

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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

Payments to owners of former copyhold land

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

Section 4 – Further information

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

Future development

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

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

Development advice

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

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

Withdrawal of support notices

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

Payment to owners of former copyhold land

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

Key

- Approximate position of the enquiry boundary shown
- Outcrop (Conjectured)
- Geological faults

How to contact us
 0345 762 6848 (UK)
 +44 (0)1623 637 000 (International)
 www.groundstability.com

APPENDIX B– PREVIOUS BOREHOLE LOGS



**British
Geological Survey**

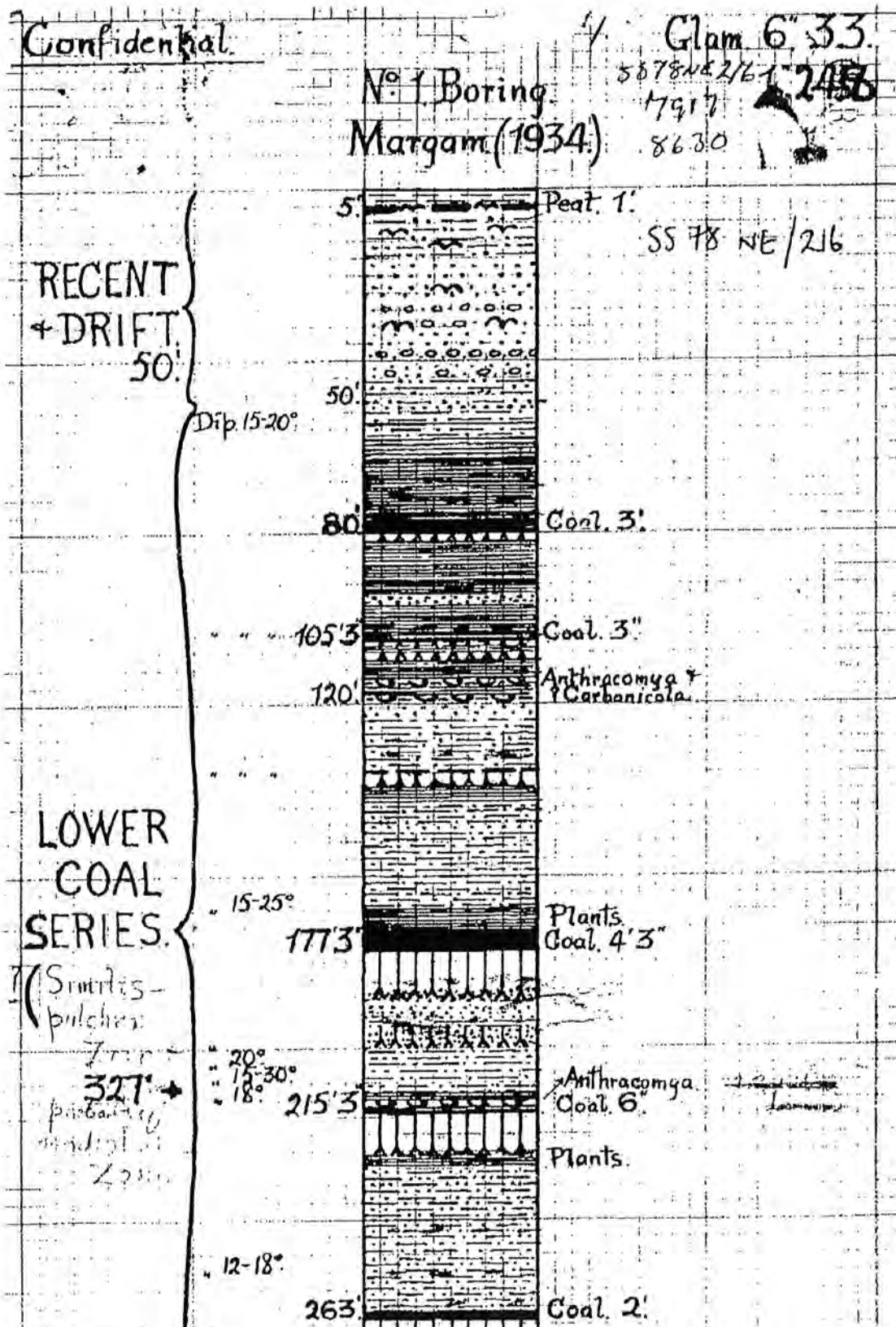
NATURAL ENVIRONMENT RESEARCH COUNCIL

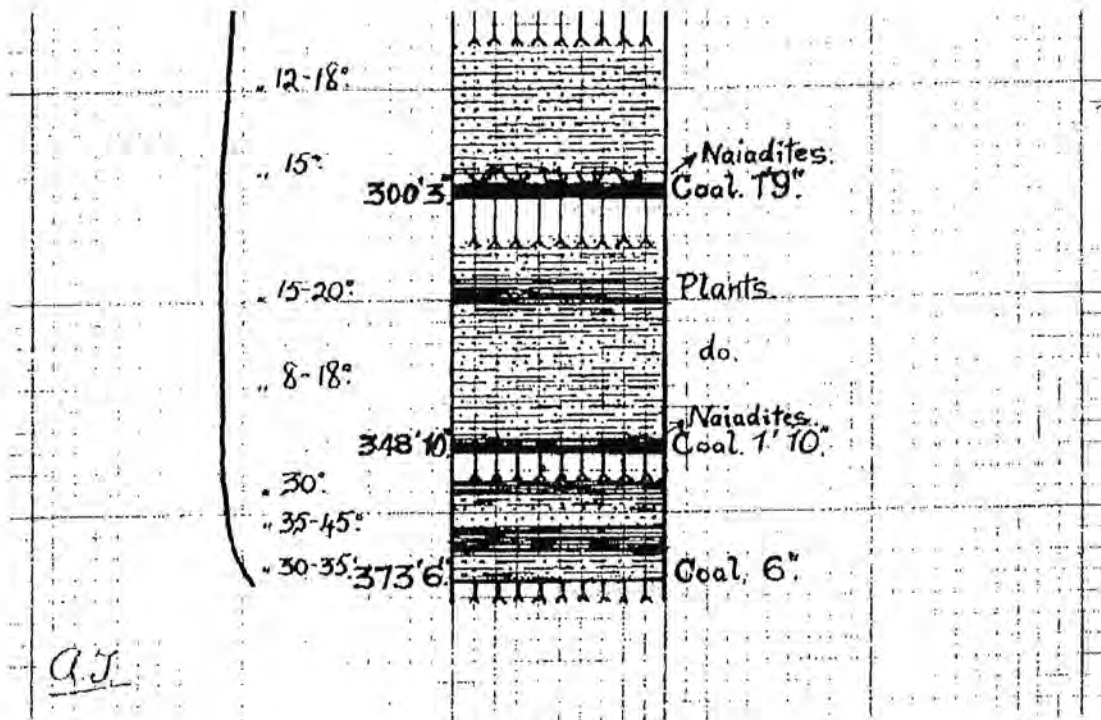
BGS ID: 370829 : BGS Reference: SS78NE216

British National Grid (27700) : 279170,186300

Report an issue with this borehole

<< < Prev Page 1 of 4 ☒ Next > >>







**British
Geological Survey**

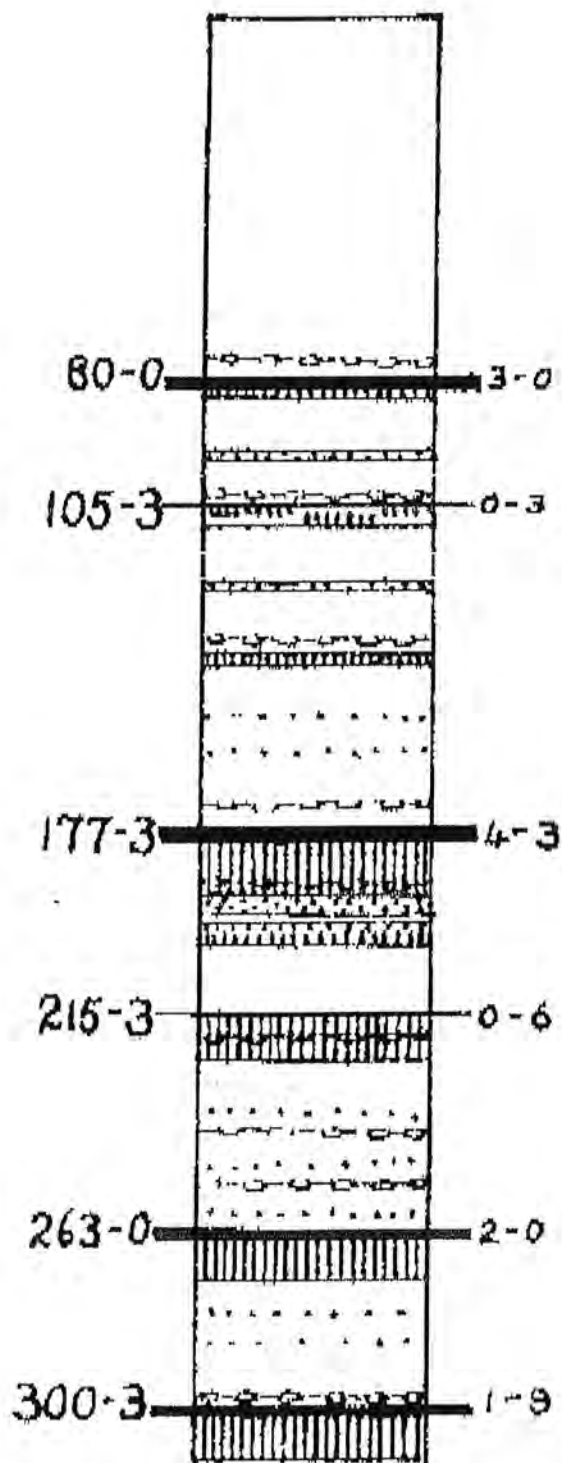
NATURAL ENVIRONMENT RESEARCH COUNCIL

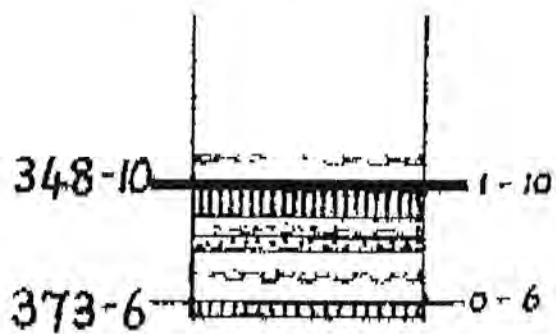
BGS ID: 370829 : BGS Reference: SS78NE216

British National Grid (27700) : 279170,186300

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GLAM *Confidential* 3378NE216

33 NW GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND MAPS **48**

County *Glam* 6-in. Map *33 NW* GSM *200/397*

BORE or ~~SHAFT~~ *N° 1. (Margam N° 1)*

130 yds SSW. of Llyn-y-caeau, Margam *Port Talbot*

Surface level _____ O.D. _____ One-inch Map *247 (SE edge)*

Communicated *21.9.34 + 1.10.34* by *Laribbwr Fawr Collieries, Ltd*

Date of sinking *July - Sept 1934* Borer *Francois cementation Co Ltd (Borer, Hudders)*

Specimens *B6.2687-2737.* Vert. Sect. drawn _____

Description.	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
<i>Not seen. But put from 2nd hole.</i>	4		4	
<i>Excavated by hand for 12 in. stand pipe</i>	1		5	
<i>Grey sandy clay</i>	11		16	
<i>Dark brown sand + gravel</i>	29		45	
<i>Light grey sandy clay</i>	5		50	
<i>Hard dark grey rock</i>	1		51	
<i>Broken dark grey sandy shale</i>	3		54	
<i>Rotten dark grey shale</i>	1		55	
<i>Dark grey sandy shale</i>	3		58	
<i>Mixture of shale, sand, + small gravel</i>	16		74	
<i>Grey shale with ironstone nodules</i>	3		77	
<i>Coal</i>	3		80	
<i>Grey shale</i>	2		82	
<i>Dark grey shale</i>	4		86	
<i>Dark grey sandy clay</i>	8		94	
<i>Hard dark grey rock with open veins</i>	2		96	
<i>Broken dk grey shale with ironst. nodules</i>	6		102	
<i>Dark grey shale</i>	3		105	
<i>Coal</i>	3		108	
<i>Dark grey shale + top of floor</i>	3	3	109	3
<i>Dark grey shale with ironst. nodules</i>	5	9	114	
<i>Dark grey shale</i>	7		121	
<i>Hard dark grey rock</i>	2		123	
<i>Dark grey shale</i>	13		136	
<i>Black rock with traces of coal</i>	3		136	3
<i>Grey fine clay with ironstone nodules</i>	2	9	139	
<i>Dark grey shale</i>	4		143	
<i>Hard dark grey rock</i>	2		145	
<i>Grey sandy shale</i>	5		150	
<i>Hard dark grey rock</i>	1		151	
<i>Grey sandy shale</i>	16		167	
<i>Grey shale with ironstone nodules</i>	2		169	
<i>Dark grey shale</i>	3		172	
<i>Grey shale (not far)</i>	1		173	
<i>Coal</i>	4	3	177	3
<i>Grey fine clay</i>	3	9	181	
<i>Dark grey shale with ironstone nodules</i>	8		189	
<i>Broken hard grey rock</i>	4		193	
<i>Dark grey shale</i>	2		195	

Notes: *See at 11/16 to 11/18. 11/18 to 11/20. 11/20 to 11/22. 11/22 to 11/24. 11/24 to 11/26. 11/26 to 11/28. 11/28 to 11/30. 12/1 to 12/3. 12/3 to 12/5. 12/5 to 12/7. 12/7 to 12/9. 12/9 to 12/11. 12/11 to 12/13. 12/13 to 12/15. 12/15 to 12/17. 12/17 to 12/19. 12/19 to 12/21. 12/21 to 12/23. 12/23 to 12/25. 12/25 to 12/27. 12/27 to 12/29. 12/29 to 12/31. 1/1 to 1/3. 1/3 to 1/5. 1/5 to 1/7. 1/7 to 1/9. 1/9 to 1/11. 1/11 to 1/13. 1/13 to 1/15. 1/15 to 1/17. 1/17 to 1/19. 1/19 to 1/21. 1/21 to 1/23. 1/23 to 1/25. 1/25 to 1/27. 1/27 to 1/29. 1/29 to 1/31. 2/1 to 2/3. 2/3 to 2/5. 2/5 to 2/7. 2/7 to 2/9. 2/9 to 2/11. 2/11 to 2/13. 2/13 to 2/15. 2/15 to 2/17. 2/17 to 2/19. 2/19 to 2/21. 2/21 to 2/23. 2/23 to 2/25. 2/25 to 2/27. 2/27 to 2/29. 2/29 to 2/31. 3/1 to 3/3. 3/3 to 3/5. 3/5 to 3/7. 3/7 to 3/9. 3/9 to 3/11. 3/11 to 3/13. 3/13 to 3/15. 3/15 to 3/17. 3/17 to 3/19. 3/19 to 3/21. 3/21 to 3/23. 3/23 to 3/25. 3/25 to 3/27. 3/27 to 3/29. 3/29 to 3/31. 4/1 to 4/3. 4/3 to 4/5. 4/5 to 4/7. 4/7 to 4/9. 4/9 to 4/11. 4/11 to 4/13. 4/13 to 4/15. 4/15 to 4/17. 4/17 to 4/19. 4/19 to 4/21. 4/21 to 4/23. 4/23 to 4/25. 4/25 to 4/27. 4/27 to 4/29. 4/29 to 4/31. 5/1 to 5/3. 5/3 to 5/5. 5/5 to 5/7. 5/7 to 5/9. 5/9 to 5/11. 5/11 to 5/13. 5/13 to 5/15. 5/15 to 5/17. 5/17 to 5/19. 5/19 to 5/21. 5/21 to 5/23. 5/23 to 5/25. 5/25 to 5/27. 5/27 to 5/29. 5/29 to 5/31. 6/1 to 6/3. 6/3 to 6/5. 6/5 to 6/7. 6/7 to 6/9. 6/9 to 6/11. 6/11 to 6/13. 6/13 to 6/15. 6/15 to 6/17. 6/17 to 6/19. 6/19 to 6/21. 6/21 to 6/23. 6/23 to 6/25. 6/25 to 6/27. 6/27 to 6/29. 6/29 to 6/31. 7/1 to 7/3. 7/3 to 7/5. 7/5 to 7/7. 7/7 to 7/9. 7/9 to 7/11. 7/11 to 7/13. 7/13 to 7/15. 7/15 to 7/17. 7/17 to 7/19. 7/19 to 7/21. 7/21 to 7/23. 7/23 to 7/25. 7/25 to 7/27. 7/27 to 7/29. 7/29 to 7/31. 8/1 to 8/3. 8/3 to 8/5. 8/5 to 8/7. 8/7 to 8/9. 8/9 to 8/11. 8/11 to 8/13. 8/13 to 8/15. 8/15 to 8/17. 8/17 to 8/19. 8/19 to 8/21. 8/21 to 8/23. 8/23 to 8/25. 8/25 to 8/27. 8/27 to 8/29. 8/29 to 8/31. 9/1 to 9/3. 9/3 to 9/5. 9/5 to 9/7. 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GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

SS78NE216

Margam B4. N° 1.

Folio

(cont)

County

Glam

6 in. Map

33 NE

Description.	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Prot. forward			195	
Hard grey rock	2		197	
Grey sandy shale	13		210	
Dark grey shale	4		214	
Very dark grey fine clay		6	214	6
Dark grey shale		3	217	
Coal		6	223	
Dark grey fine clay with iron nodules	9	9	232	
Strong dark grey sandy shale	35		267	
Strong dk. grey shaly sandstone	1		268	
Coal	2		270	
Soft dark grey fine clay	9		279	
Strong dark grey sandy shale	16		295	
Dark grey shale	3	6	298	6
Coal	1	9	300	3
Soft dark grey fine clay	9	9	310	
Dark grey sandy shale	5		315	
Dark grey shale	5		320	
Dark grey sandy shale & bands of hard grey rock	5		325	
Strong dark grey sandy shale	8		333	
Strong dk. grey sandy shale with bands of grey rock	7		340	
Dark grey sandy shale	6		346	
Very dark grey shale		2	348	2
Dark grey shale		10	358	
Coal	1	10	368	
Soft dark grey fine clay	5	2	373	
Dark grey shale	1		374	
Very dark grey shale	2		376	
Dark grey sandy shale	2		378	
Hard grey sandstone	3		381	
Dark grey shale	6		387	
Dark grey sandy shale	5		392	
Coal		6	398	6
Strong dk. grey shale w. iron nodules	3	6	401	

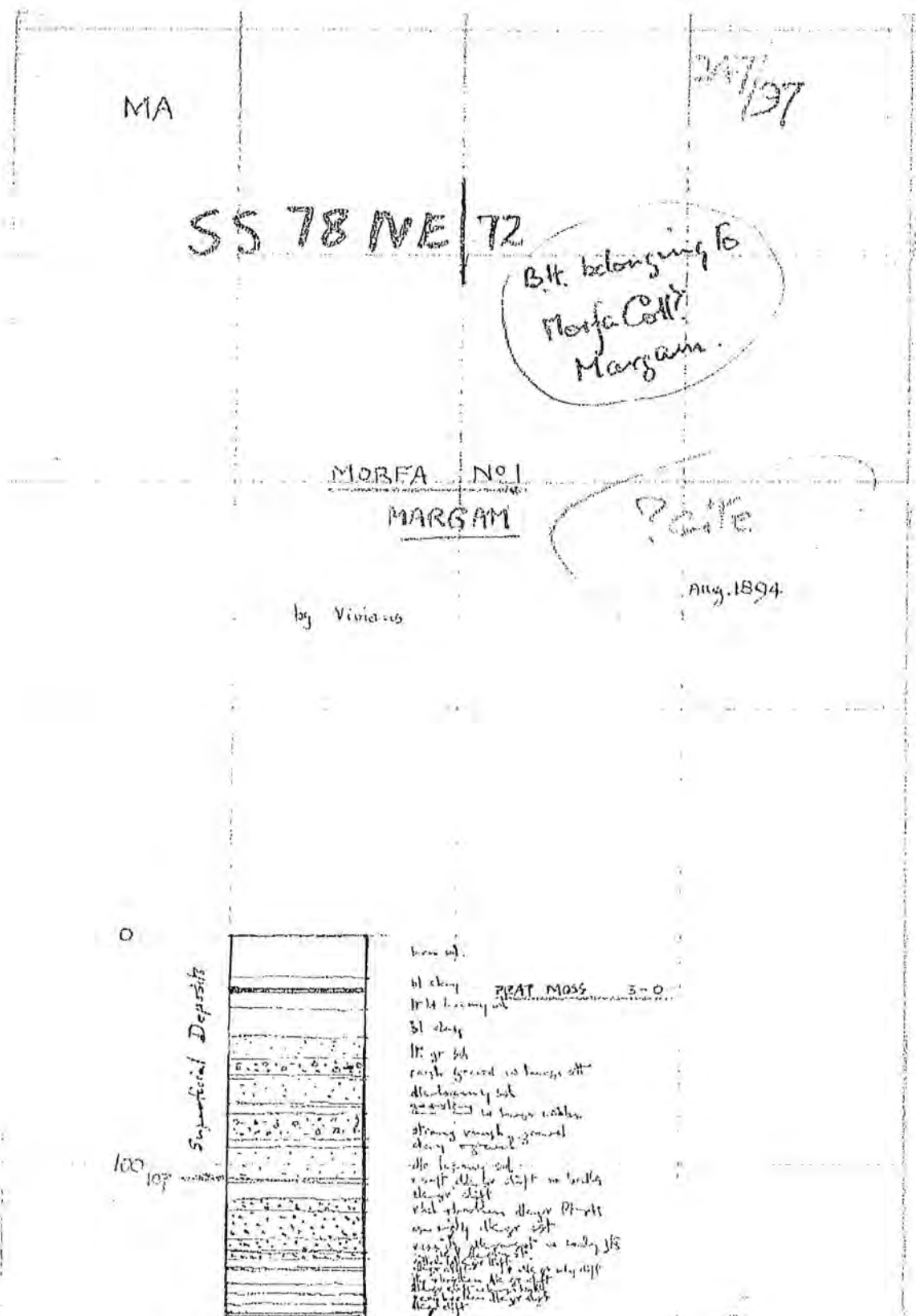


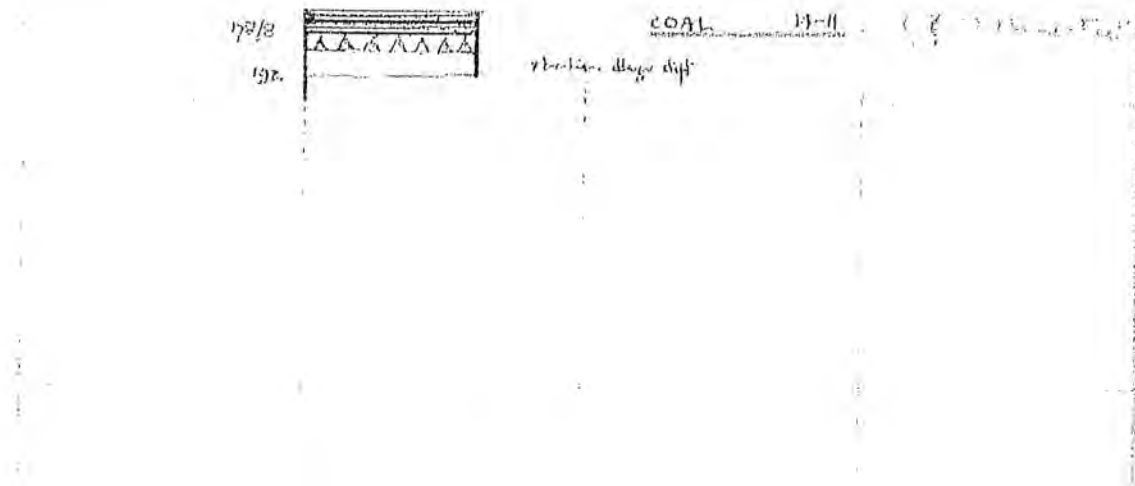
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British National Grid (27700) : 279260,186260

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NAR SS 1926 086260
 (*11932) WL50370/0370 10,000 0/39 A. & B.W. Ltd. Gp. 685

248/121

RECORD OF SHAFT OR BORE

Name and Number of Shaft or Bore given by Geological Survey:
~~XXXX~~ MORAFA No. 1, MARGAM

Name and Number given by owner (if different from above):
 Morfa (No. 1)

Town or Village ~~Knockmoy, KILKENNY~~ Date of sinking Aug. 1894

Exact site
 Belonging to Morfa Coll. Margam

Purpose for which made

Level at which bore commenced relative to O.D. If not down bore, state if horizontal or up

Made by VIVENS (Bk. 3 p. 269) for Messrs. Visions & Sons

Information from JOHN-ON & SONS Date received April 1941

Specimens Dip of strata

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		DEPTH	
		Faths	ft. in	Faths	ft. in
	Brown sand	2	5		17 0
	Blue clay		4		21 0
	Peat moss		3		24 0
	Light blue loamy sand	1	1		31 0
	Blue clay	2	1		44 0
	Light grey sand	1	4		54 0
	Rough gravel with large stones	1	3		63 0
			1		64 0
	Dark loamy sand	1	4		74 0
	Gravel & clay		2		76 0
	with large cobbles		3	13	79 0
	Strong rough gravel	1	5		90 0
	clay & gravel		3		93 0
	Dark loamy sand	2	1		106 0
	Very soft dark grey clift with balls of ironstone		1		107 0
	Dark grey clift	1	2		115 0
	Y. hard & broken dark grey basalt rock		5		120 0
	coarse & jointy dark grey sst.	2	1		133 0
	with thin joints of coal		5	25	138 0
	Very coarse & jointy dark grey sst.		1		139 0
	Rotten dark grey clift	2			141 0
	Dark grey clift		5		146 0
	sandy clift		1		147 0
	Very jointy & broken dark grey clift	1			153 0
	Dark grey clift with large balls of ironstone		4		157 0
	Y. broken dark grey clift		4 3		161 3
	Dark grey clift		2 6		163 9
	Coal	2	2 11		178 8
	Broken dark grey fireclay		4 3		182 11
	Very broken dark grey clift	1	3 1	33	192 0

GEOLOGICAL SURVEY AND MUSEUM,
 SOUTH KENSINGTON,
 LONDON, S.W.7.

G.S.M. Office File No.	Site marked on 6" Map by	Site marked on 1" Map by
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**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 370685 : BGS Reference: SS78NE72
British National Grid (27700) : 279260,186260

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(11002) WL0070/0170 10,000 8/70 A.B. & W.L.A. Op. 118

RECORD OF SHAFT OR BORE FOR MINERALS

W42 SS 79260 86260 **248/121** **SS78NE72**

Name and Number of Shaft or Bore given by Geological Survey:
MAREA No.1, MARGAM

Name and Number given by owner (if different from above): **248/121**

Town or Village **MARGAM** Date of sinking **Aug. 1894**

Exact site **Belonging to Morda Coll. Margam**

Purpose for which made _____

Level at which bore commenced relative to O.D. _____ If not down bore, state if horizontal or up _____

Made by **VIVIAN'S (R.L. 3 p. 269)** for Messrs. **Vivians & Sons**

Information from **JOHN CON & SONS** Date received **April 1941**

Specimens _____ Dip of strata _____

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		DEPTH	
		Feet	Feet	Feet	Feet
	Brown sand	2	5	17	0
	Blue clay		4	21	0
	Peat moss		3	24	0
	Light blue loamy sand	1	1	31	0
	Blue clay	2	1	44	0
	Light grey sand	1	4	54	0
	Rough gravel with large stones	1	3	63	0
			1	64	0
	Dark loamy sand	1	4	74	0
	Gravel & clay		2	76	0
	" " with large cobbles		3	79	0
	Strong rough gravel	1	5	90	0
	clay & gravel		3	93	0
	Dark loamy sand	2	1	106	0
	Very soft dark grey clift with balls of ironstone		1	107	0
	Dark grey clift	1	2	115	0
	V. hard & broken dark grey ferrug. rock		5	120	0
	coarse & jointy dk grey sat.	7	1	133	0
	" " with thin joint of coal		5	138	0
	Very coarse & jointy dark grey sat.		1	139	0
	Rotten dark grey clift		2	141	0
	Dark grey clift		5	146	0
	" " sandy clift		1	147	0
	Very jointy & broken dark grey clift	1		153	0
	Dark grey clift with large balls of ironstone		4	157	0
	V. broken dark grey clift		4	161	0
	Dark grey clift		2	163	0
	Coal	2	2	178	8
	Broken dark grey fireclay		4	182	11
	Very broken dark grey clift	1	3	192	0

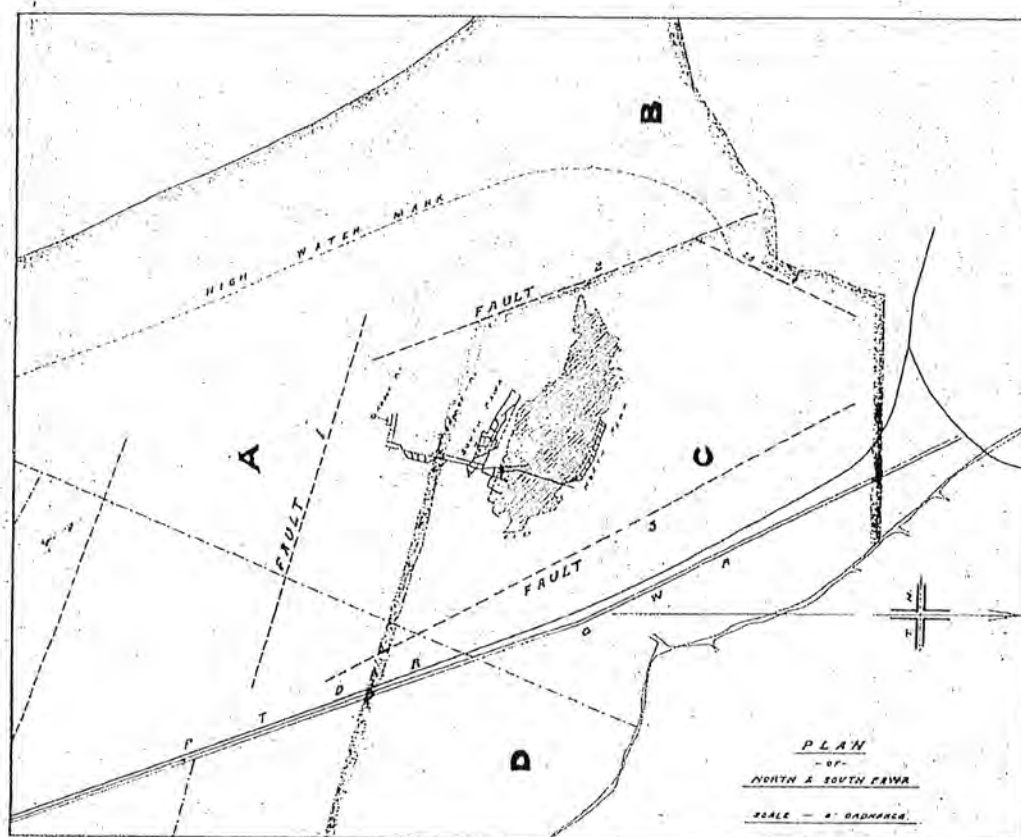


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Geological Survey**

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**British
Geological Survey**

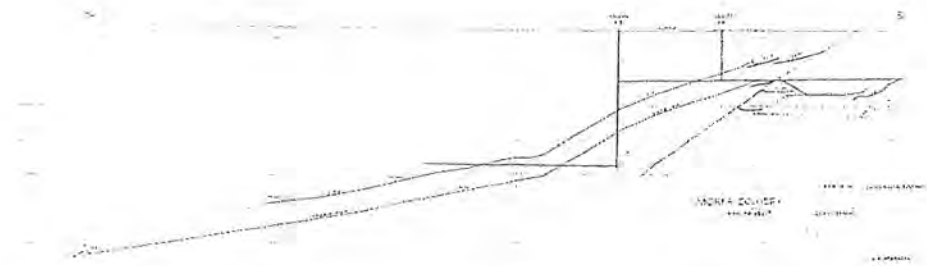
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**British
Geological Survey**

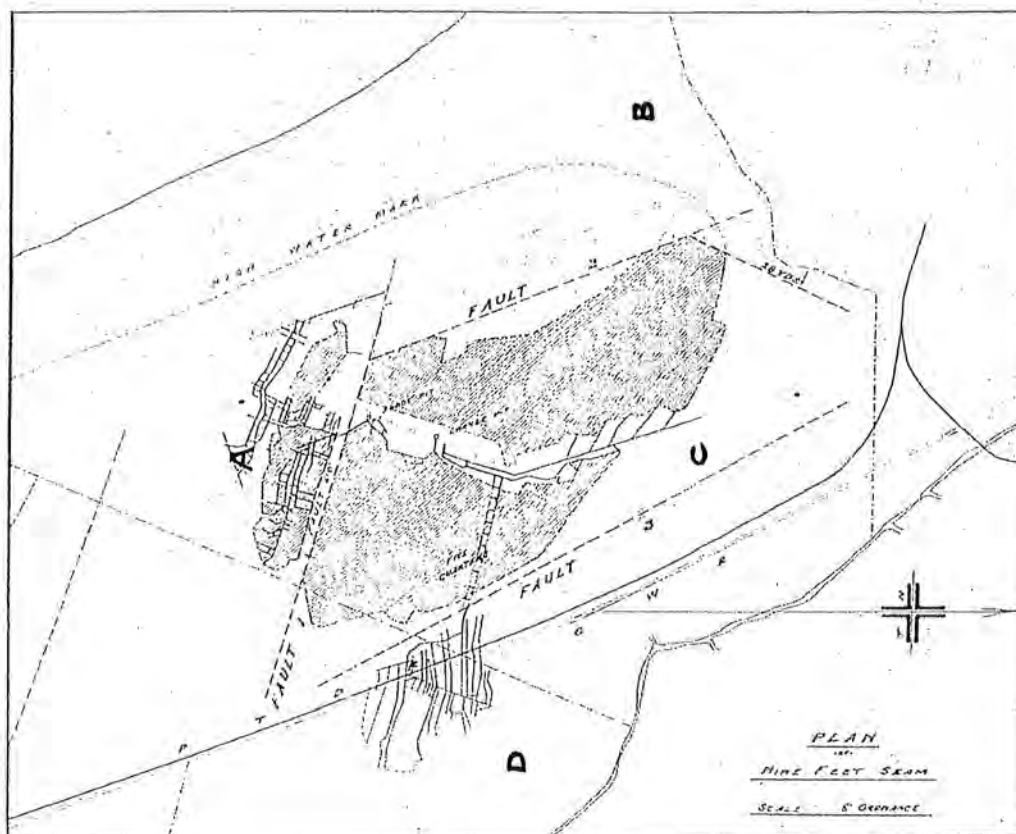
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**British
Geological Survey**

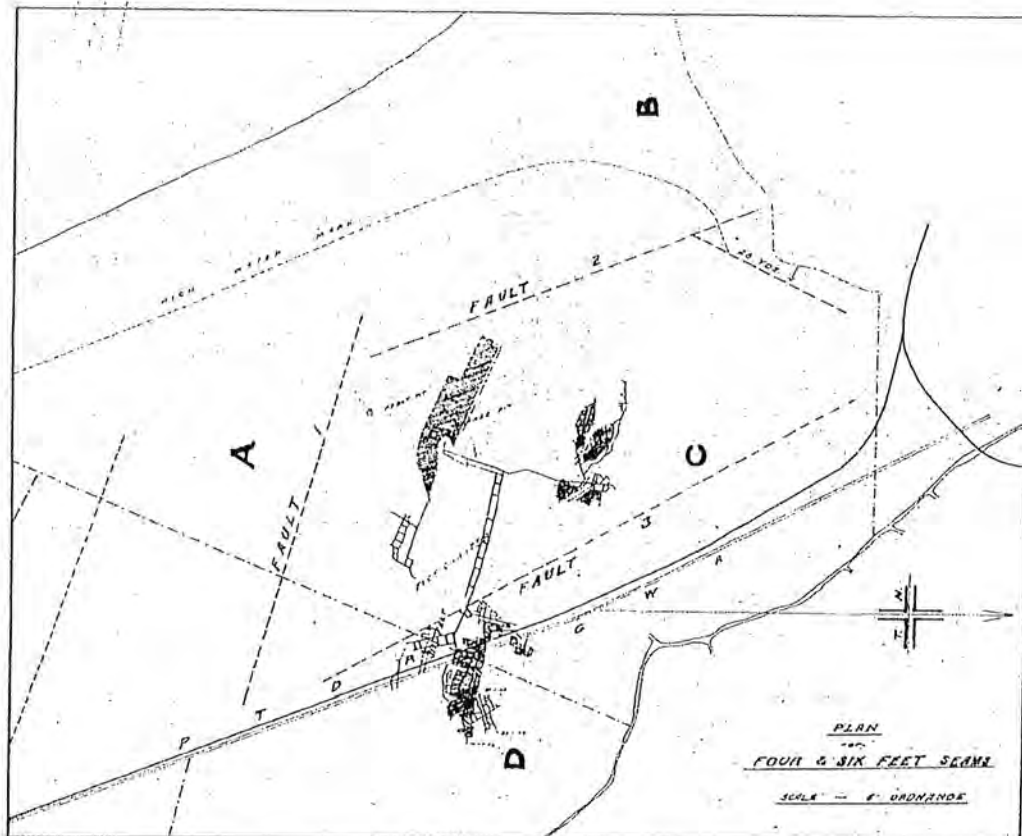
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British National Grid (27700) : 279260,186260

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Contract : Margam Biomass Plant								Borehole No.	
Client : Western Log Energy								BH1	
Dates : 15/05/08 - 19/05/08				Job Number : P081188		Ground Level :			
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	(Install/Backfill)
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
0.20 -	D1		(0.20)	TOPSOIL**		(0.20)			
0.65 -	D2		(0.45)	MADE GROUND - Compact, brown and grey, slightly sandy (medium) gravel of coarse, angular limestone and sandstone.		(0.45)			
1.00 - 1.50	D3		(1.65)	MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, timber and plastic.		(1.65)			
2.30 -	D4		(0.50)	Spongy, dark brown, slightly clayey fibrous PEAT - possible relic topsoil. Strong organic odour.		(0.50)			
2.80 -	D5		(0.70)	Slight blue grey, slightly gravelly slightly clayey fine SAND/ SILT with occasional pseudofibrous plant remains. Gravel of fine, angular and flat mudstone.		(0.70)			
3.50 -	D6		(4.00)	Brown, coarse SAND & GRAVEL. Gravel of fine to coarse, subrounded to rounded of mixed lithologies. Many rounded cobbles throughout.		(4.00)			
7.50 -	D7		(1.00)	Brown, slightly clayey silty fine to medium SAND.		(1.00)			
8.80 -	D8		(1.30)	Grey, slightly sandy (fine) clayey SILT with some pseudofibrous plant remains.		(1.30)			
9.80 -	D9		(0.20)	Brown and grey, slightly sandy (coarse) fine to coarse, rounded GRAVEL of sandstone and siltstone with many cobbles throughout.		(0.20)			
			10.00	End of Cable Percussive Borehole at 10.00m depth.		10.00			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
15/05/2008 17:00	2.50	DRY	10.00	200mm	3.50			0.65	0.90	00:45
19/05/2008 08:00	2.50	DRY						1.40	1.70	00:45
19/05/2008 17:00	10.00	DRY						3.70	3.90	00:45
								5.40	5.70	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description									
---	--	--	--	--	--	--	--	--	--

	Ty Berwig, Byscia Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator:	Logged By:	Sheet No	Scale:	All measurements in metres unless otherwise stated.	
		W P Osborn	RMCD	1 Of 1	1:67.07		

Library File: F:\GINTY\QUANTUM\LIBRARY\QUANTUM.GLB Form Name: SAVSPT, Version: 1.10.000 07/06/06 Output By: rmcdermoz

Contract : Margam Biomass Plant							Borehole No. BH2B		
Client : Western Log Energy				Dates : 20/05/08 - 21/05/08		Job Number : P081188		Ground Level :	
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA					Water	Install/Backfill	
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)				
				(0.20)	TOPSOIL**					(0.20)	
0.50 -	D1			0.20	MADE GROUND - Compact, brown and grey, slightly sandy (medium) gravel of coarse, angular limestone and sandstone.					0.20	
1				(2.30)						(2.30)	
2	2.00 -	D2									
3	2.50 -	D3		2.50	Spongy, dark brown, slightly clayey 'woody' fibrous PEAT.					2.50	
				(0.70)						(0.70)	
4	3.20 -	D4		3.20	Dark grey, slightly sandy (medium) silty clayey GRAVEL of fine to coarse, rounded siltstone and sandstone. Occasional rounded cobbles.					3.20	
				(1.80)						(1.80)	
5	5.00 -	D5		5.00	Grey and brown, slightly sandy (fine) GRAVEL of fine to coarse, rounded siltstone and sandstone.					5.00	
6				(1.80)						(1.80)	
7	6.80 -	D6		6.80	Grey, clayey gravelly SILT. Gravel of fine to coarse, rounded sandstone and siltstone and occasional cobbles.					6.80	
				(2.20)						(2.20)	
9				9.00	End of Cable Percussive Borehole at 9.00m depth.					9.00	

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
20/05/2008 17:00	1.50	1.20	9.00	200mm	1.20			0.60	0.80	00:45
21/05/2008 08:00	1.50	1.20						1.00	1.20	00:45
21/05/2008 17:00	9.00	-						1.50	1.80	00:45
								2.00	2.20	00:45
								7.00	7.20	00:45
								8.90	9.00	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description															
QUANTUM Ty Bervig, Bynca Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk				Operator: W P Osborn		Logged By: RMcD		Sheet No 1 Of 1		Scale 1:67.07		All measurements in metres unless otherwise stated		AGS	

Contract : Margam Biomass Plant										Borehole No. BH3	
Client : Western Log Energy											
Dates : 22/05/08 - 22/05/08				Job Number : P081188				Ground Level :			
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd				Coordinates:			

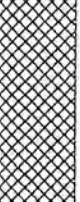
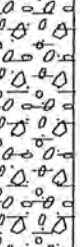
0m B.G.L.	Samples		NO TESTS PERFORMED	STRATA					Water	Install/Backfill	
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)				
				(0.20)	TOPSOIL**						
	0.50 -	D1		0.20	Clay, stone, concrete, brick, boulder fill**						
1				(1.30)							
				1.50	Concrete obstruction at 1.50m depth..... Borehole Terminated, moved and setup on BH3A						

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
22/05/2008 10:00	1.50	DRY						1.50	1.50	01:00

Remarks: Dando 150 using 200mm casing and tools **Driller's Description. Borehole terminated at 1.50m depth - concrete obstruction, moved position to BH3A									
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	Ty Borwig, Bynna Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator: W P Osborn	Logged By: RMcD	Sheet No: 1 Of 1	Scale: 1:57.07	All measurements in metres unless otherwise stated	
--	---	-------------------------	--------------------	---------------------	-------------------	--	--

Contract : Margam Biomass Plant Client : Western Log Energy							Borehole No. BH3A		
Dates : 22/05/08 - 23/05/08 Location : Proposed Area for New Biomass Plant				Job Number : P081188 Engineer : Quantum Geotechnical Ltd		Ground Level : Coordinates:			

cm B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	Install/Backfill
	Depth	Type No. - U/Blows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
				(0.20)	TOPSOIL**		(0.20)		
0.50 -	D1			0.20	MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, tarmac, timber and plastic.		0.20		
1.00 -	D2			(2.10)			(2.10)		
1.50 -	D3								
2.30 -	D4			2.30	Plastic, dark brown, clayey pseudofibrous PEAT.		2.30		
				(1.30)			(1.30)		
3.60 -	D5			3.60	Blue grey, slightly sandy (fine) silty clayey GRAVEL of fine to coarse, rounded sandstone and siltstone.		3.60		
				(2.60)			(2.60)		
6.20 -	D6			6.20	Brown, coarse SAND.		6.20		
				(1.10)			(1.10)		
7.50 -	D7			7.30	Brown, sandy (coarse) GRAVEL of fine to coarse, rounded sandstone and siltstone.		7.30		
				(2.70)			(2.70)		
10.00				10.00	End of Cable Percussive Borehole at 10.00m depth.		10.00		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
22/05/2008 17:00	10.00	3.60	10.00	200mm	3.60			1.50 8.80	1.80 9.00	01:00 00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description									
--	--	--	--	--	--	--	--	--	--

	Ty Denwig, Bynoa Llanelli, Carmarthenshire SA14 9ST Tel: 01554 743880 Fax: 01554 776150 email: enquiries@quantum-ge.co.uk	Operator: W P Osborn	Logged By: RMCD	Sheet No 1 Of 1	Scale 1:67.07	All measurements in metres unless otherwise stated	
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Contract : Margam Biomass Plant							Borehole No. BH4		
Client : Western Log Energy									
Dates : 23/05/08 - 27/05/08				Job Number : P081188		Ground Level :			
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA					Water	Install/Backfill
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)			
0				(0.20)	TOPSOIL**		(0.20)			
0.50	D1			0.20	MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, tarmac, timber and plastic.		0.20			
1				(2.80)			(2.80)			
2										
3	3.00	D2		3.00	Blue grey, slightly sandy (fine) clayey silty GRAVEL of fine to coarse, rounded sandstone and siltstone.		3.00			
4	4.00	D3		(1.00)			(1.00)			
5	5.00	D4		4.00	Grey and brown, slightly sandy (fine) silty very clayey GRAVEL of fine to coarse, rounded sandstone and siltstone, with many rounded cobbles. Bands of coarse sand and gravel throughout.		4.00			
6										
7	7.00	D5		(6.00)			(6.00)			
8										
9										
10	10.00	D6		10.00	End of Cable Percussive Borehole at 10.00m depth.		10.00			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
23/05/2008 16:30	4.00	DRY	10.00	200mm	1.00		3.00	0.60	0.90	01:00
27/05/2008 08:00	4.00	3.70						1.40	1.70	01:00
27/05/2008 13:00	10.00	-						3.80	4.00	01:00
								4.10	4.30	00:45
								5.00	5.10	00:45
								5.60	5.70	00:30
								7.80	8.10	00:45
								9.00	9.20	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description

	Ty Boreing, Bynna Llanelly, Carmarthenshire SA14 9ST Tel: 01554 743880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator: WP Osborn	Logged By: RMCD	Sheet No 1 Of 1	Scale 1:57.07	All measurements in metres unless otherwise stated	



**British
Geological Survey**

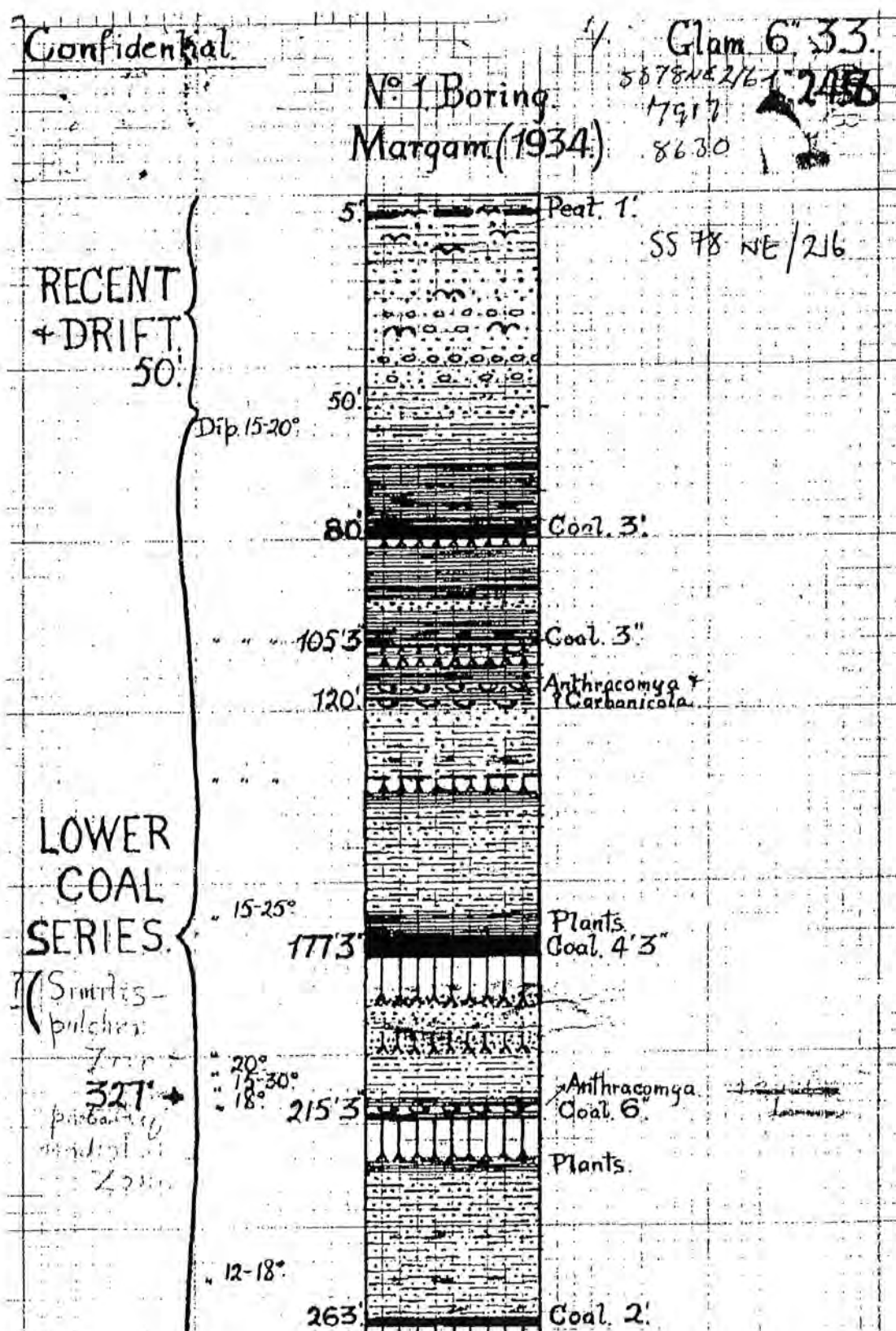
NATURAL ENVIRONMENT RESEARCH COUNCIL

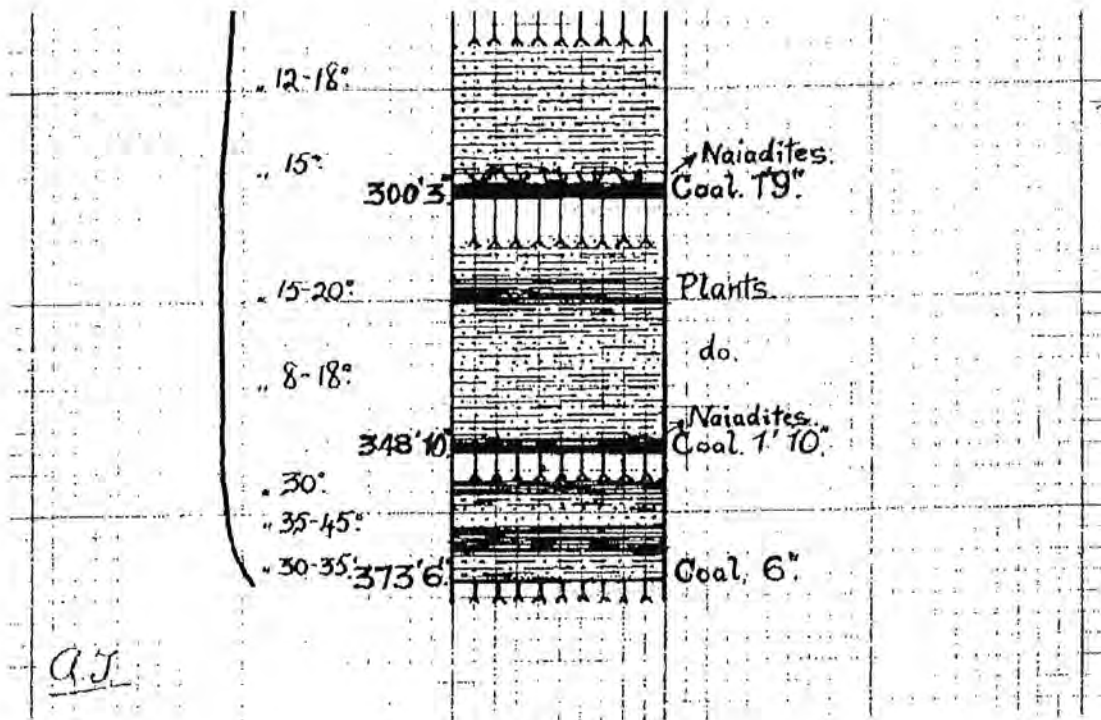
BGS ID: 370829 : BGS Reference: SS78NE216

British National Grid (27700) : 279170,186300

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**British
Geological Survey**

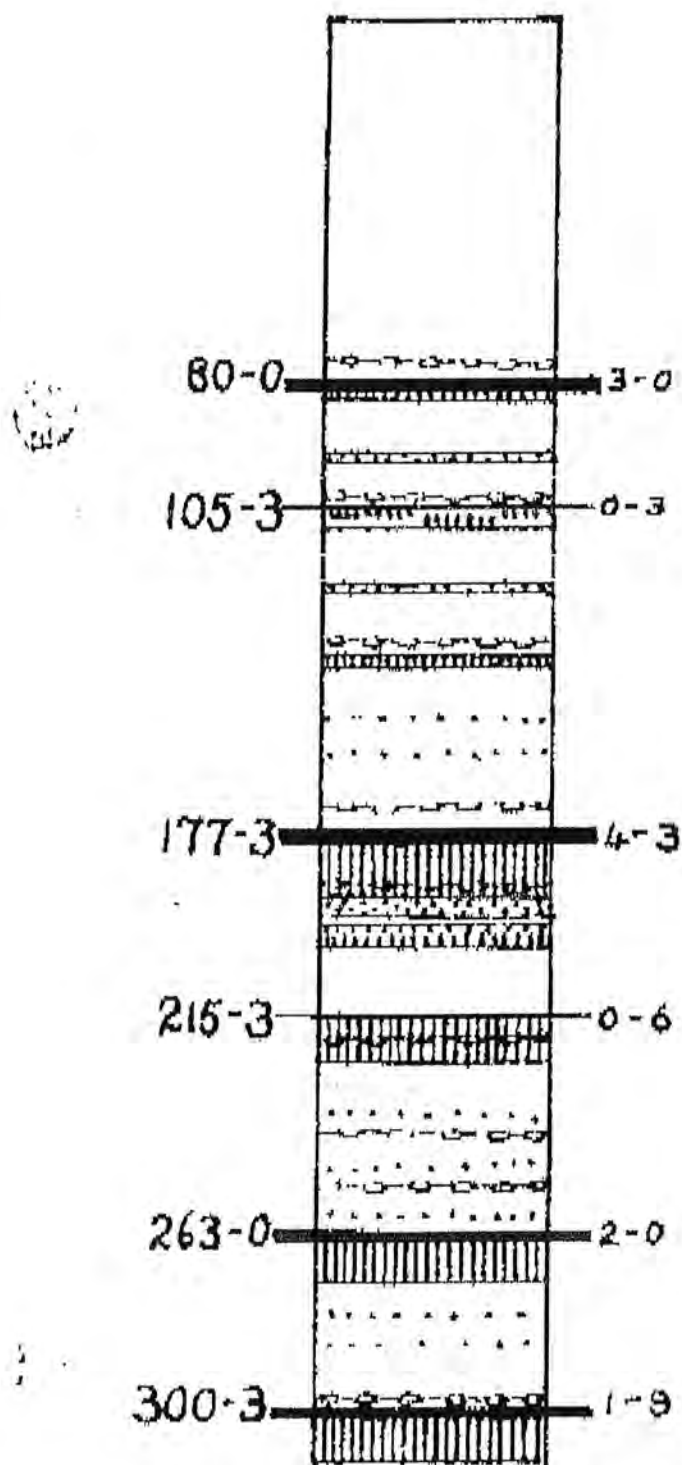
NATURAL ENVIRONMENT RESEARCH COUNCIL

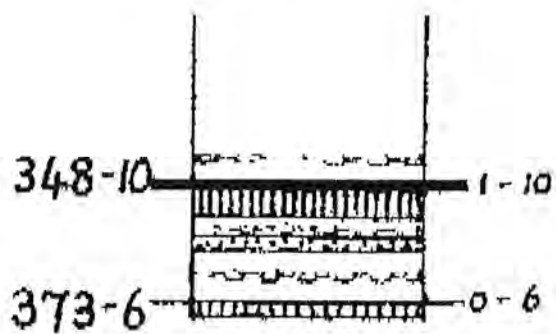
BGS ID: 370829 : BGS Reference: SS78NE216

British National Grid (27700) : 279170,186300

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GLAM *Confidential* *SS78NE216*

33 NW **GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND MAPS** **48**

County *Glam* 6-in. Map *33 NW* GSM *200/397*

BORE or ~~SHAFT~~ *N° 1. (Margam N° 1)*

130 yds SSW. of Llyn-y-caeau, Margam *Port Talbot*

Surface level _____ O.D. _____ One-inch Map *247 (SE edge)*

Communicated *21.9.34 + 1.10.34* by *Laribbwr Fawr Collieries, Ltd*

Date of sinking *July - Sept 1934* Borer *Francois cementation Co Ltd (Borer, Hudders)*

Specimens *B6.2687-2737.* Vert. Sect. drawn _____

Description.	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
<i>Not seen. But put from this hole.</i>	4		4	
<i>Excavated by hand for 12 in. stand pipe</i>	1		5	
<i>Grey sandy clay</i>	11		16	
<i>Dark brown sand + gravel</i>	29		45	
<i>Light grey sandy clay</i>	5		50	
<i>Hard dark grey rock</i>	1		51	
<i>Broken dark grey sandy shale</i>	3		54	
<i>Rotten dark grey shale</i>	1		55	
<i>Dark grey sandy shale</i>	3		58	
<i>Mixture of shale, sand, + small gravel</i>	16		74	
<i>Grey shale with ironstone nodules</i>	3		77	
<i>Coal</i>	3		80	
<i>Grey shale</i>	2		82	
<i>Dark grey shale</i>	4		86	
<i>Dark grey sandy clay</i>	8		94	
<i>Hard dark grey rock with iron veins</i>	2		96	
<i>Broken dk grey shale with ironstone nodules</i>	6		102	
<i>Dark grey shale</i>	3		105	
<i>Coal</i>	3		108	
<i>Dark grey shale with ironstone nodules</i>	5		113	
<i>Dark grey shale</i>	4		117	
<i>Hard dark grey rock</i>	1		118	
<i>Dark grey shale</i>	13		131	
<i>Black rock with traces of coal</i>	3		134	
<i>Grey fine clay with ironstone nodules</i>	2		136	
<i>Dark grey shale</i>	4		140	
<i>Hard dark grey rock</i>	2		142	
<i>Grey sandy shale</i>	5		147	
<i>Hard dark grey rock</i>	1		148	
<i>Grey sandy shale</i>	16		164	
<i>Grey shale with ironstone nodules</i>	2		166	
<i>Dark grey shale</i>	3		169	
<i>Grey shale (not fine)</i>	1		170	
<i>Coal</i>	4		174	
<i>Grey fine clay</i>	3		177	
<i>Dark grey shale with ironstone nodules</i>	8		185	
<i>Dark grey shale</i>	2		187	

Notes by G.S.M. at Margam Colliery, Glam (N° 1) 23.9.34
1. 1/4 to 1/2 ft. of brown sand + gravel
2. 1/4 to 1/2 ft. of light grey sandy clay
3. 1/4 to 1/2 ft. of hard dark grey rock
4. 1/4 to 1/2 ft. of broken dark grey sandy shale
5. 1/4 to 1/2 ft. of rotten dark grey shale
6. 1/4 to 1/2 ft. of dark grey sandy shale
7. 1/4 to 1/2 ft. of mixture of shale, sand, + small gravel
8. 1/4 to 1/2 ft. of grey shale with ironstone nodules
9. 1/4 to 1/2 ft. of coal
10. 1/4 to 1/2 ft. of grey shale
11. 1/4 to 1/2 ft. of dark grey shale
12. 1/4 to 1/2 ft. of dark grey sandy clay
13. 1/4 to 1/2 ft. of hard dark grey rock with iron veins
14. 1/4 to 1/2 ft. of broken dk grey shale with ironstone nodules
15. 1/4 to 1/2 ft. of dark grey shale
16. 1/4 to 1/2 ft. of coal
17. 1/4 to 1/2 ft. of dark grey shale with ironstone nodules
18. 1/4 to 1/2 ft. of dark grey shale
19. 1/4 to 1/2 ft. of hard dark grey rock
20. 1/4 to 1/2 ft. of dark grey shale
21. 1/4 to 1/2 ft. of black rock with traces of coal
22. 1/4 to 1/2 ft. of grey fine clay with ironstone nodules
23. 1/4 to 1/2 ft. of dark grey shale
24. 1/4 to 1/2 ft. of hard dark grey rock
25. 1/4 to 1/2 ft. of grey sandy shale
26. 1/4 to 1/2 ft. of hard dark grey rock
27. 1/4 to 1/2 ft. of grey sandy shale
28. 1/4 to 1/2 ft. of grey shale with ironstone nodules
29. 1/4 to 1/2 ft. of dark grey shale
30. 1/4 to 1/2 ft. of grey shale (not fine)
31. 1/4 to 1/2 ft. of coal
32. 1/4 to 1/2 ft. of grey fine clay
33. 1/4 to 1/2 ft. of dark grey shale with ironstone nodules
34. 1/4 to 1/2 ft. of dark grey shale

GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

SS78NE216

Margam B4. N° 1.

Folio

(cont)

County

Glam

6 in. Map

33 NE

Description.	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Prot. forward			195	
Hard grey rock	2		197	
Grey sandy shale	13		210	
Dark grey shale	4		214	
Very dark grey fine clay		6	214	6
Dark grey shale		3	217	
Coal		6	223	
Dark grey fine clay with iron nodules	9	9	232	
Strong dark grey sandy shale	35		267	
Strong dk. grey shaly sandstone	1		268	
Coal	2		270	
Soft dark grey fine clay	9		279	
Strong dark grey sandy shale	16		295	
Dark grey shale	3	6	298	6
Coal	1	9	300	3
Soft dark grey fine clay	9	9	310	
Dark grey sandy shale	5		315	
Dark grey shale	5		320	
Dark grey sandy shale & bands of hard grey rock	5		325	
Strong dark grey sandy shale	8		333	
Strong dk. grey sandy shale with bands of grey rock	7		340	
Dark grey sandy shale	6		346	
Very dark grey shale		2	348	2
Dark grey shale		10	358	
Coal	1	10	368	
Soft dark grey fine clay	5	2	373	
Dark grey shale	1		374	
Very dark grey shale	2		376	
Dark grey sandy shale	2		378	
Hard grey sandstone	3		381	
Dark grey shale	6		387	
Dark grey sandy shale	5		392	
Coal		6	398	6
Strong dk. grey shale w. iron nodules	3	6	404	

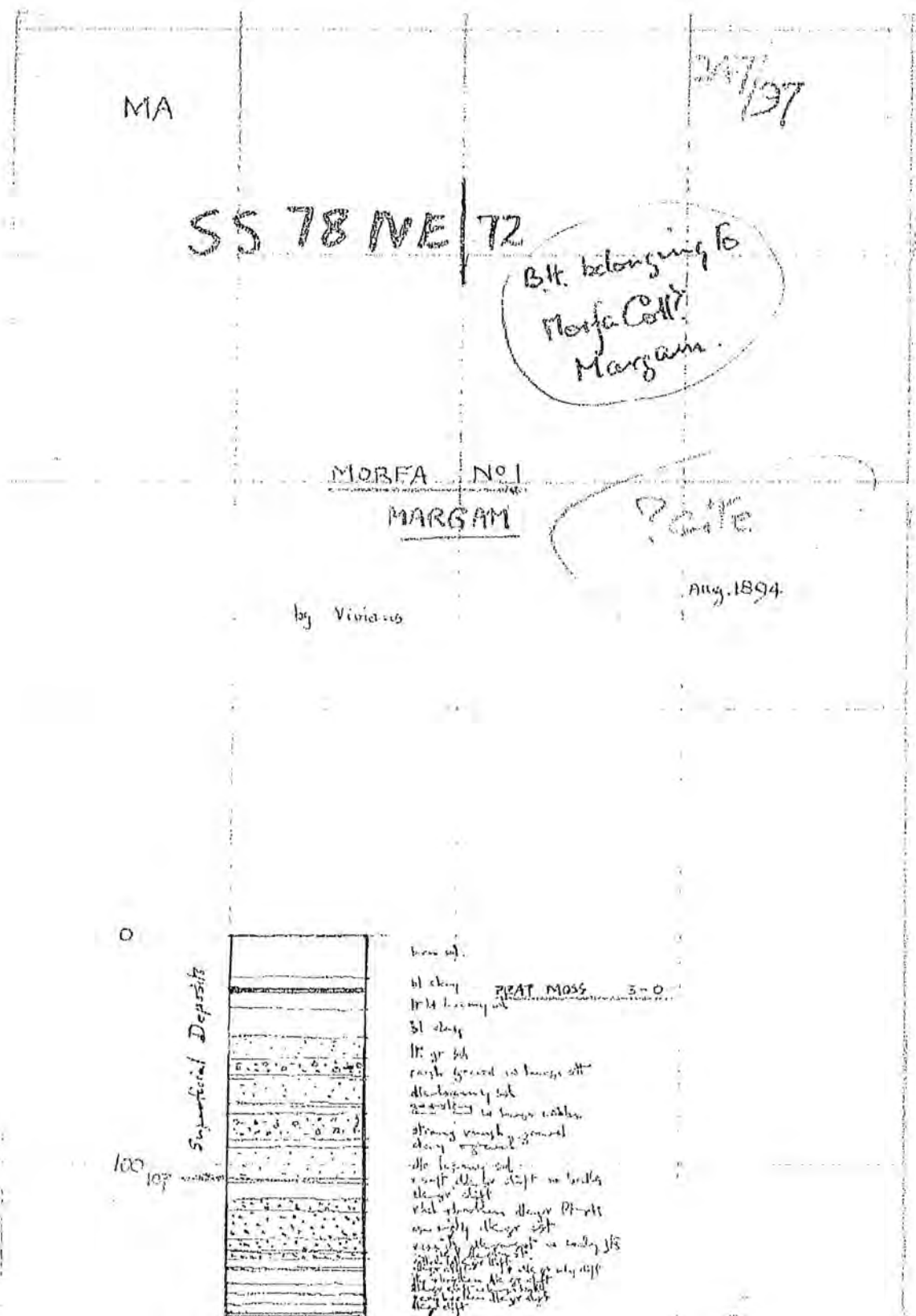


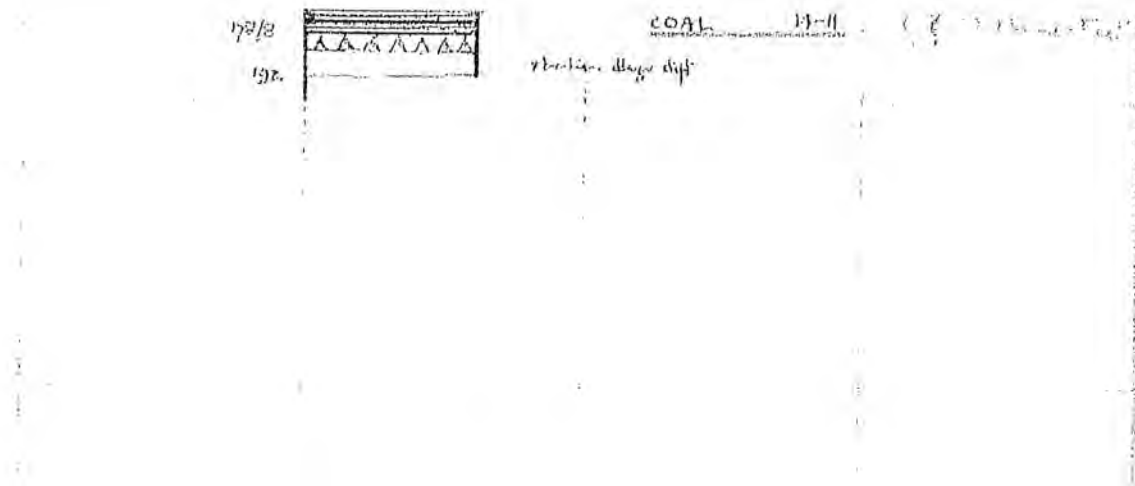
NATURAL ENVIRONMENT RESEARCH COUNCIL

British National Grid (27700) : 279260,186260

[Report an issue with this borehole](#)

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NAR SS 1926 086260
 (*11932) WL50370/0370 10,000 0/39 A. & B.W. Ltd. Gp. 685

248/121

RECORD OF SHAFT OR BORE

Name and Number of Shaft or Bore given by Geological Survey:
~~XXXX~~ MORAFA No. 1, MARGAM

Name and Number given by owner (if different from above):
 Morfa (No. 1), MARGAM

Town or Village ~~Knockmoy, KILKENNY~~ Date of sinking Aug. 1894

Exact site
 Belonging to Morfa Coll. Margam

Purpose for which made

Level at which bore commenced relative to O.D. If not down bore, state if horizontal or up

Made by VIVIAN (Bk. 3 p. 269) for Messrs. Vivians & Sons

Information from JOHN-ON & SONS Date received April 1941

Specimens Dip of strata

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		DEPTH	
		Faths	ft. in	Faths	ft. in
	Brown sand	2	5		17 0
	Blue clay		4		21 0
	Peat moss		3		24 0
	Light blue loamy sand	1	1		31 0
	Blue clay	2	1		44 0
	Light grey sand	1	4		54 0
	Rough gravel with large stones	1	3		63 0
			1		64 0
	Dark loamy sand	1	4		74 0
	Gravel & clay		2		76 0
	with large cobbles		3	13	79 0
	Strong rough gravel	1	5		90 0
	clay & gravel		3		93 0
	Dark loamy sand	2	1		106 0
	Very soft dark grey clift with balls of ironstone		1		107 0
	Dark grey clift	1	2		115 0
	Y. hard & broken dark grey basalt rock		5		120 0
	coarse & jointy dark grey sst.	2	1		133 0
	with thin joint of coal		5	25	138 0
	Very coarse & jointy dark grey sst.		1		139 0
	Rotten dark grey clift	2			141 0
	Dark grey clift		5		146 0
	sandy clift		1		147 0
	Very jointy & broken dark grey clift	1			153 0
	Dark grey clift with large balls of ironstone		4		157 0
	Y. broken dark grey clift		4	3	161 3
	Dark grey clift		2	6	163 9
	Coal	2	2	11	178 8
	Broken dark grey fireclay		4	3	182 11
	Very broken dark grey clift	1	3	1	192 0

GEOLOGICAL SURVEY AND MUSEUM,
 SOUTH KENSINGTON,
 LONDON, S.W.7.

G.S.M. Office File No.	Site marked on 6" Map by	Site marked on 1" Map by
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**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 370685 : BGS Reference: SS78NE72
British National Grid (27700) : 279260,186260

Report an issue with this borehole

<< < Prev Page 3 of 8 ☒ Next > >>

(11002) WLB0270/0170 10,000 8/70 A.B. & W.L.A. Op. 118

RECORD OF SHAFT OR BORE FOR MINERALS

WLR SS 79260 86260 **248/121** **SS78NE72**

Name and Number of Shaft or Bore given by Geological Survey: **MAREA No.1, MARGAM**

Name and Number given by owner (if different from above): **248/121**

Town or Village **MARGAM** Date of sinking **Aug. 1894**

Exact site **Belonging to Morda Coll. Margam**

Purpose for which made _____

Level at which bore commenced relative to O.D. _____ If not down bore, state if horizontal or up _____

Made by **VIVIAN (R23 p.269)** for Messrs. **Vivians & Sons**

Information from **JOHN CON & SONS** Date received **April 1941**

Specimens _____ Dip of strata _____

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		DEPTH	
		Feet	Feet	Feet	Feet
	Brown sand	2	5	17	0
	Blue clay		4	21	0
	Peat moss		3	24	0
	Light blue loamy sand	1	1	31	0
	Blue clay	2	1	44	0
	Light grey sand	1	4	54	0
	Rough gravel with large stones	1	3	63	0
			1	64	0
	Dark loamy sand	1	4	74	0
	Gravel & clay		2	76	0
	" " with large cobbles		3	79	0
	Strong rough gravel	1	5	90	0
	clay & gravel		3	93	0
	Dark loamy sand	2	1	106	0
	Very soft dark grey clift with balls of ironstone		1	107	0
	Dark grey clift	1	2	115	0
	V. hard & broken dark grey ferrug. rock		5	120	0
	coarse & jointy dk grey sat.	7	1	133	0
	" " with thin joint of coal		5	138	0
	Very coarse & jointy dark grey sat.		1	139	0
	Rotten dark grey clift		2	141	0
	Dark grey clift		5	146	0
	" " sandy clift		1	147	0
	Very jointy & broken dark grey clift	1		153	0
	Dark grey clift with large balls of ironstone		4	157	0
	V. broken dark grey clift		4	161	0
	Dark grey clift		2	163	0
	Coal	2	2	178	8
	Broken dark grey fireclay		4	182	11
	Very broken dark grey clift	1	3	192	0

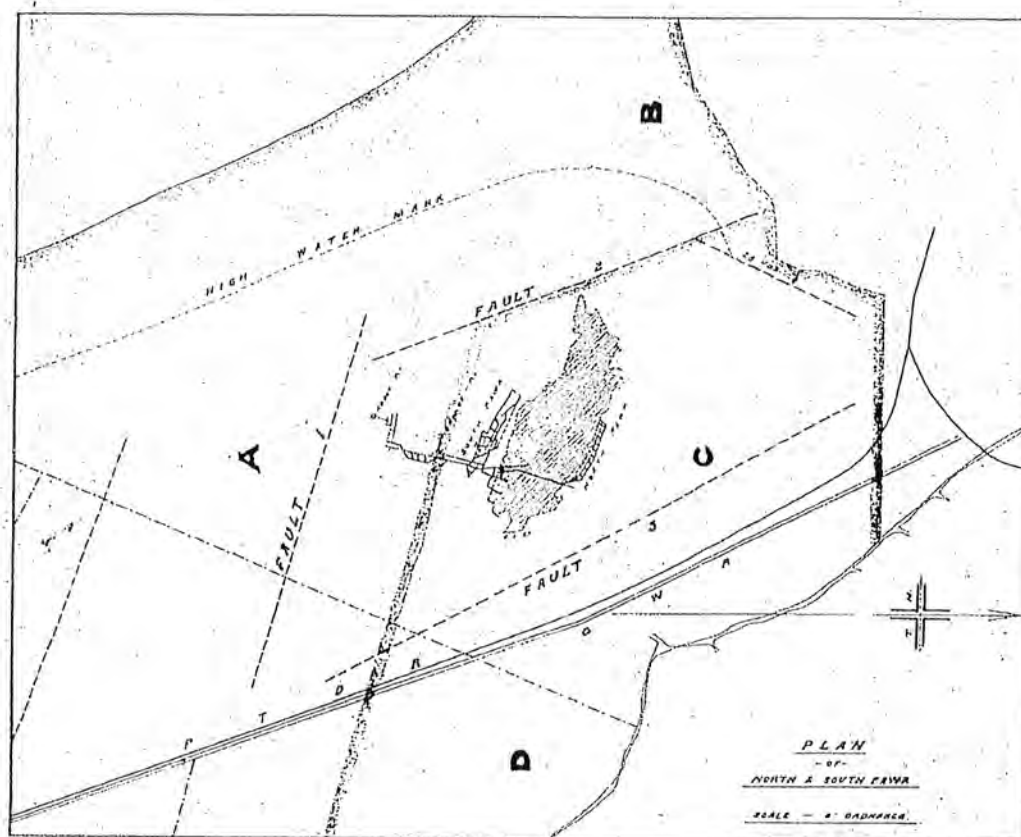


**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 370685 : BGS Reference: SS78NE72
British National Grid (27700) : 279260,186260
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**British
Geological Survey**

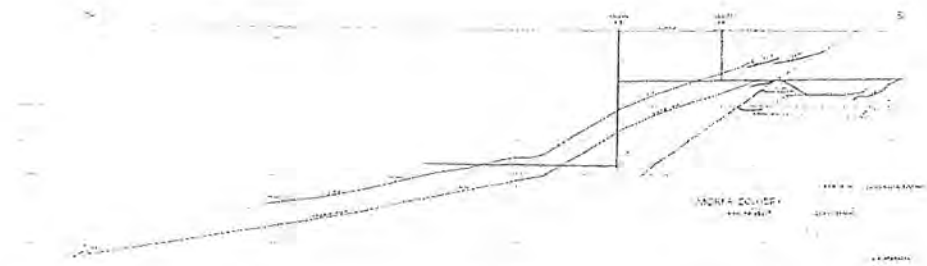
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 370685 : BGS Reference: SS78NE72

British National Grid (27700) : 279260,186260

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**British
Geological Survey**

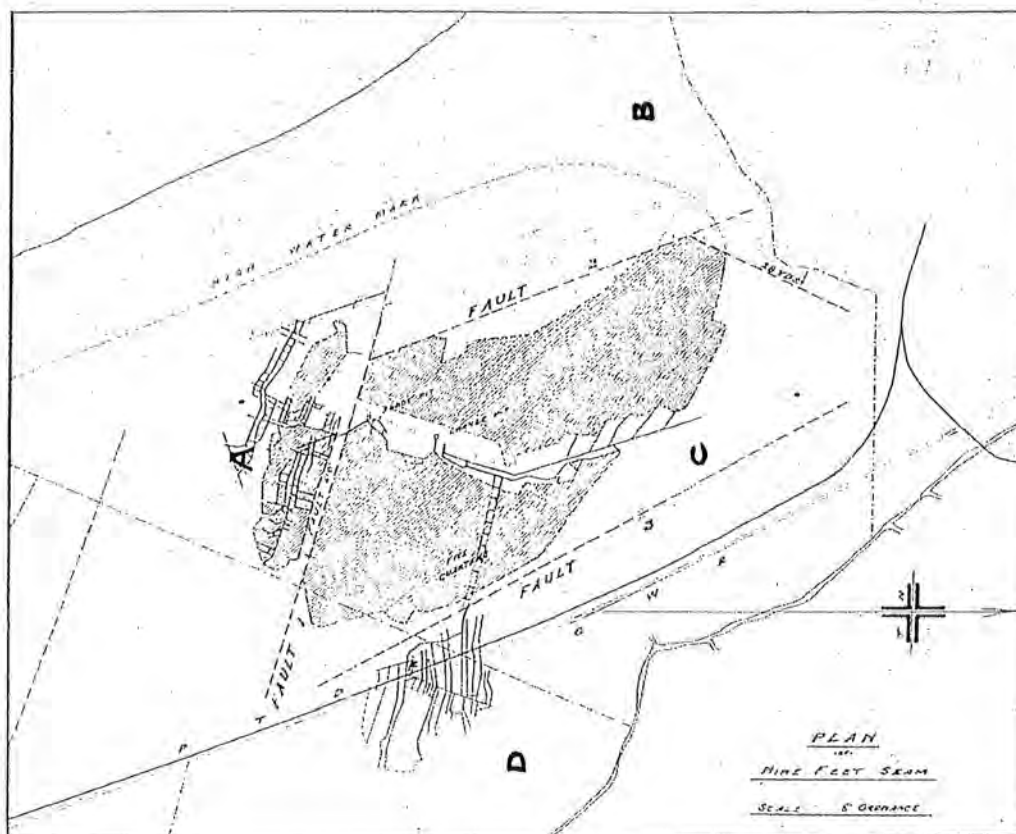
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 370685 : BGS Reference: SS78NE72

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**British
Geological Survey**

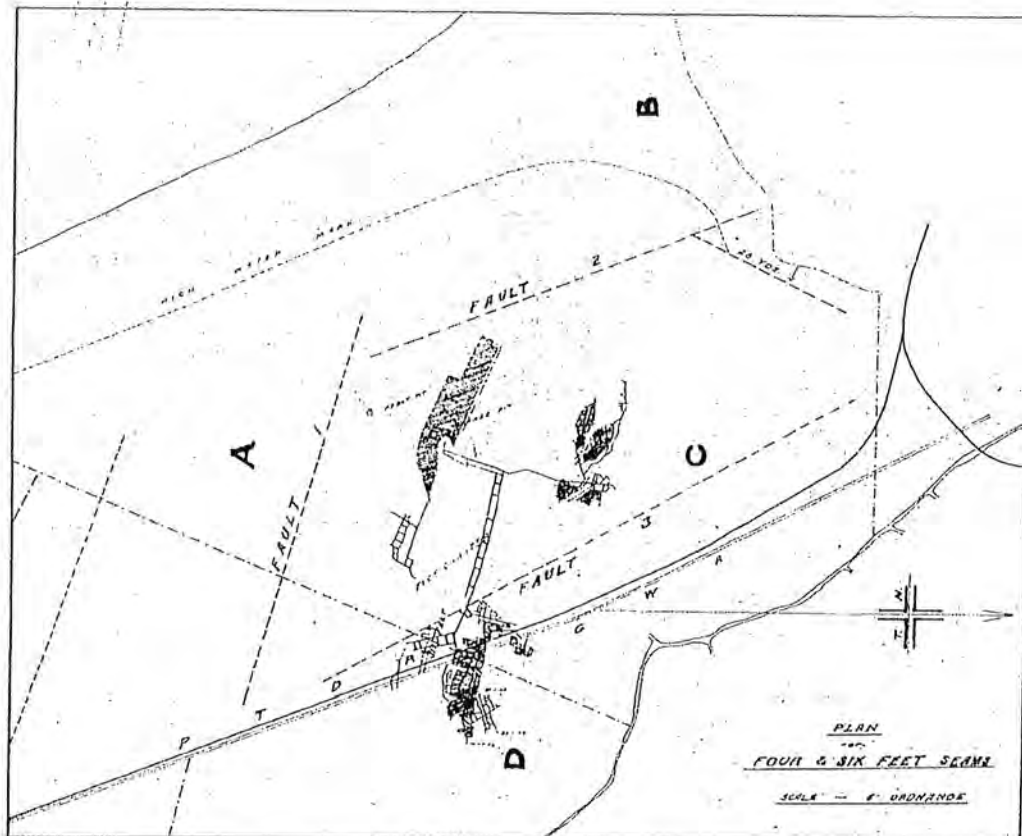
NATURAL ENVIRONMENT RESEARCH COUNCIL

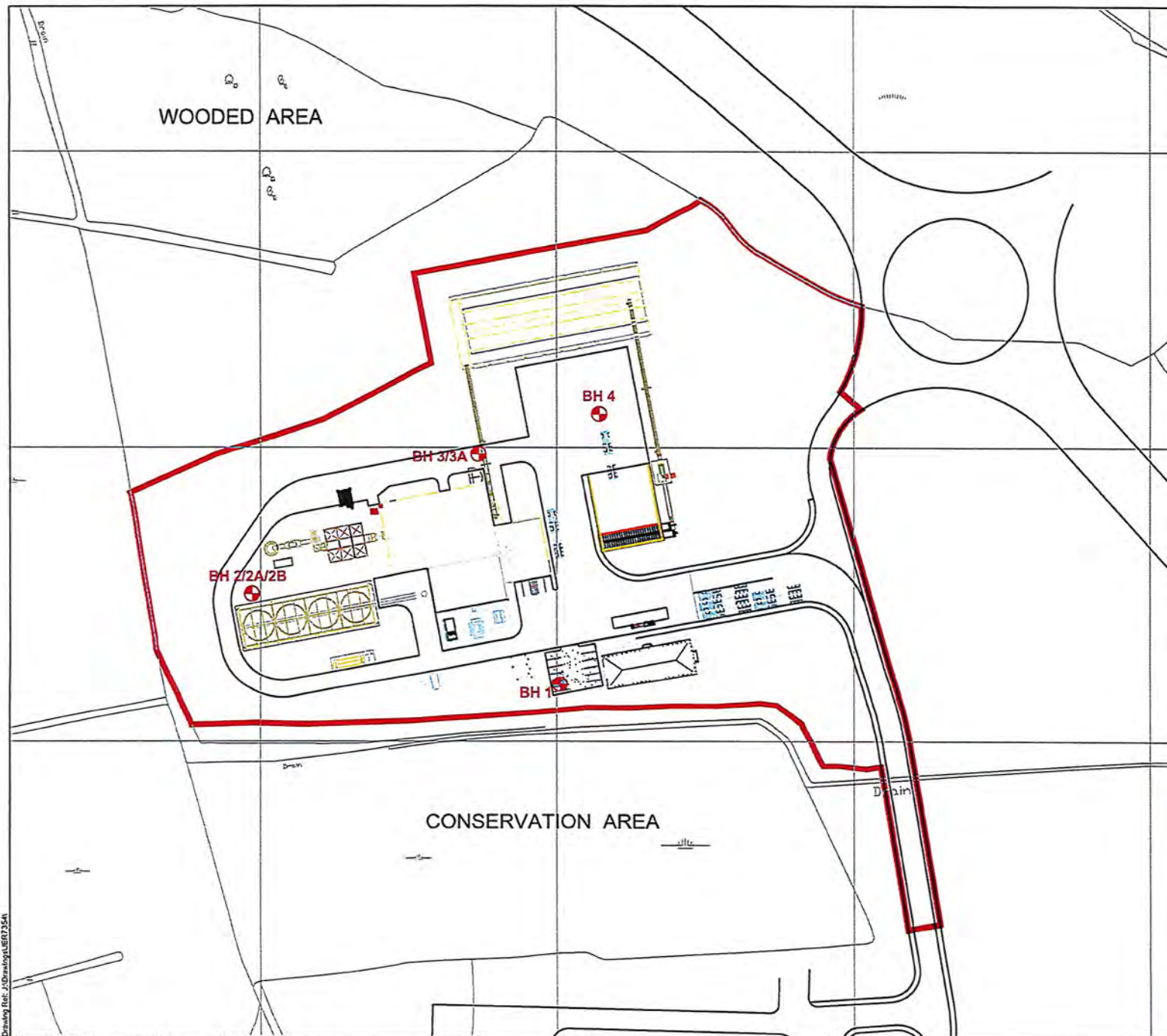
BGS ID: 370685 : BGS Reference: SS78NE72

British National Grid (27700) : 279260,186260

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Legend

Planning Application Boundary

Boreholes drilled May 2008 & added to drawing 24/07/2008 by Quantum Geotechnical Ltd

Rev:	Date:	Amendment:	Name:	Checked:

■ Drawing Based Upon: -

Status: Preliminary

Notes: Contractors are not to scale from this drawing. All dimensions to be checked on site and any discrepancies, ambiguities and/or omissions between this drawing and information given elsewhere must be reported to this office. If in doubt, ask.

RPS

Corrad House Beaumont Square Chesham Bucks HP8 4DP
 T: 01291 621821 F: 01291 627827 E: rps@rpsgroup.com W: www.rpsgroup.com

■ Client: Western Wood Energy

Project: Biomass 2

Title: Planning Application Boundary

Date: 21/07/08 Scale: 1:1250 Original Paper Size: A3

Drawn: SRM Checked: SJ Job Ref: JER7354

■ Figure Number: 003 Rev: -

www.rpsgroup.com

Drawing Ref: JER7354

Contract : Margam Biomass Plant								Borehole No.	
Client : Western Log Energy								BH1	
Dates : 15/05/08 - 19/05/08				Job Number : P081188		Ground Level :			
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	(Install/Backfill)
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
	0.20 -	D1	X	(0.20)	TOPSOIL**		(0.20)		
	0.65 -	D2		0.20	MADE GROUND - Compact, brown and grey, slightly sandy (medium) gravel of coarse, angular limestone and sandstone.		0.20		
1	1.00 - 1.50	D3		(0.45)			(0.45)		
				0.65	MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, timber and plastic.		0.65		
2				(1.65)			(1.65)		
	2.30 -	D4		2.30	Spongy, dark brown, slightly clayey fibrous PEAT - possible relic topsoil. Strong organic odour.		2.30		
3	2.80 -	D5		(0.50)			(0.50)		
				2.80	Slight blue grey, slightly gravelly slightly clayey fine SAND/ SILT with occasional pseudofibrous plant remains. Gravel of fine, angular and flat mudstone.		2.80		
	3.50 -	D6		(0.70)			(0.70)		
4			3.50	Brown, coarse SAND & GRAVEL. Gravel of fine to coarse, subrounded to rounded of mixed lithologies. Many rounded cobbles throughout.		3.50			
5			(4.00)			(4.00)			
6									
7									
8	7.50 -	D7		7.50	Brown, slightly clayey silty fine to medium SAND.		7.50		
			(1.00)			(1.00)			
9	8.80 -	D8		8.50	Grey, slightly sandy (fine) clayey SILT with some pseudofibrous plant remains.		8.50		
			(1.30)			(1.30)			
10	9.80 -	D9		9.80	Brown and grey, slightly sandy (coarse) fine to coarse, rounded GRAVEL of sandstone and siltstone with many cobbles throughout.		9.80		
			(0.20)			(0.20)			
			10.00	End of Cable Percussive Borehole at 10.00m depth.		10.00			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
15/05/2008 17:00	2.50	DRY	10.00	200mm	3.50			0.65	0.90	00:45
19/05/2008 08:00	2.50	DRY						1.40	1.70	00:45
19/05/2008 17:00	10.00	DRY						3.70	3.90	00:45
								5.40	5.70	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description									
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	Ty Berwig, Bystea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator: WP Osborn	Logged By: RMCD	Sheet No: 1 OF 1	Scale: 1:67.07	All measurements in metres unless otherwise stated.	
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Contract : Margam Biomass Plant										Borehole No. BH2	
Client : Western Log Energy											
Dates : 20/05/08 - 20/05/08					Job Number : P081188			Ground Level :			
Location : Proposed Area for New Biomass Plant					Engineer : Quantum Geotechnical Ltd			Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	Install/Backfill
	Depth	Type No. - 1/Blows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
0				(0.20)	TOPSOIL**		(0.20)		///
	0.50 -	D1		0.20	Stone, clay, brick, concrete and steel fill**		0.20		///
				(1.00)			(1.00)		///
1				1.20	Concrete obstruction at 1.20m depth..... Borehole Terminated, moved and setup on BH2A		1.20		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
20/05/2008 10:00	1.20	DRY						0.90	1.20	01:00

Remarks: Dando 150 using 200mm casing and tools **Driller's Description. Borehole terminated at 1.20m depth - concrete obstruction, moved position to BH2A									
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	Ty Bwrig, Bynae Llanelli, Carmarthenshire SA14 9ST Tel: 01554 741880 Fax: 01554 776150 email enquiries@quantum-gh.co.uk	Operator: W P Osborn	Logged By: RMcD	Sheet No 1 Of 1	Scale: 1:67.07	All measurements in metres unless otherwise stated	
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Contract : Margam Biomass Plant Client : Western Log Energy								Borehole No. BH2A	
Dates : 20/05/08 - 20/05/08 Location : Proposed Area for New Biomass Plant			Job Number : P081188 Engineer : Quantum Geotechnical Ltd			Ground Level : Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	Install/Backfill
	Depth	Type No. - U/Blows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
				(0.20)	TOPSOIL**		(0.20)		///
				0.20	Stone, clay, brick, concrete and steel fill**		0.20		///
				(1.30)			(1.30)		///
				1.50	Concrete obstruction at 1.50m depth..... Borehole Terminated, moved and setup on BH2B		1.50		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
20/05/2008 12:00	1.50	DRY						0.40 1.40	0.60 1.50	00:30 01:00

Remarks: Dando 150 using 200mm casing and tools **Driller's Description. Borehole terminated at 1.50m depth - concrete obstruction, moved position to BH2B									
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	Ty Berwig, Bynoe Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email enquiries@quantum-gb.co.uk	Operator: WP Osborn	Logged By: RMcD	Sheet No. 1 Of 1	Scale: 1:67.07	All measurements in metres unless otherwise stated	
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Contract : Margam Biomass Plant							Borehole No. BH2B		
Client : Western Log Energy				Dates : 20/05/08 - 21/05/08		Job Number : P081188		Ground Level :	
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)	Water	Install/Backfill
	Depth	Type No. - UBlows							
			X	(0.20)	TOPSOIL**		(0.20)		
	0.50 -	D1		0.20	MADE GROUND - Compact, brown and grey, slightly sandy (medium) gravel of coarse, angular limestone and sandstone.		0.20		
1				(2.30)			(2.30)		
2	2.00 -	D2							
	2.50 -	D3		2.50	Spongy, dark brown, slightly clayey 'woody' fibrous PEAT.		2.50		
3				(0.70)			(0.70)		
	3.20 -	D4		3.20	Dark grey, slightly sandy (medium) silty clayey GRAVEL of fine to coarse, rounded siltstone and sandstone. Occasional rounded cobbles.		3.20		
4				(1.80)			(1.80)		
5	5.00 -	D5		5.00	Grey and brown, slightly sandy (fine) GRAVEL of fine to coarse, rounded siltstone and sandstone.		5.00		
6				(1.80)			(1.80)		
7	6.80 -	D6	6.80	Grey, clayey gravelly SILT. Gravel of fine to coarse, rounded sandstone and siltstone and occasional cobbles.		6.80			
8			(2.20)			(2.20)			
9			9.00	End of Cable Percussive Borehole at 9.00m depth.			9.00		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
20/05/2008 17:00	1.50	1.20	9.00	200mm	1.20			0.60	0.80	00:45
21/05/2008 08:00	1.50	1.20						1.00	1.20	00:45
21/05/2008 17:00	9.00	-						1.50	1.80	00:45
								2.00	2.20	00:45
								7.00	7.20	00:45
								8.90	9.00	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description																	
				Ty Bervig, Bynca Llanelth, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk		Operator: W P Osborn		Logged By: R McD		Sheet No 1 Of 1		Scale 1:67.07		All measurements in metres unless otherwise stated			

Contract : Margam Biomass Plant Client : Western Log Energy							Borehole No. BH3		
Dates : 22/05/08 - 22/05/08 Location : Proposed Area for New Biomass Plant			Job Number : P081188 Engineer : Quantum Geotechnical Ltd			Ground Level : Coordinates:			

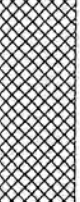
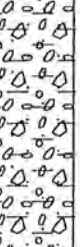
0m B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	Install/Backfill
	Depth	Type No. - UBlovs		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
	0.50 -	D1	X	(0.20)	TOPSOIL**		(0.20)		
		0.20		Clay, stone, concrete, brick, boulder fill**	0.20				
1		(1.30)			(1.30)				
		1.50		Concrete obstruction at 1.50m depth..... Borehole Terminated, moved and setup on BH3A	1.50				

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
22/05/2008 10:00	1.50	DRY						1.50	1.50	01:00

Remarks: Dando 150 using 200mm casing and tools **Driller's Description. Borehole terminated at 1.50m depth - concrete obstruction, moved position to BH3A									
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	Ty Borwig, Bynna Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator: W P Osborn	Logged By: RMcD	Sheet No: 1 Of 1	Scale: 1:57.07	All measurements in metres unless otherwise stated	
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Contract : Margam Biomass Plant Client : Western Log Energy							Borehole No. BH3A		
Dates : 22/05/08 - 23/05/08 Location : Proposed Area for New Biomass Plant				Job Number : P081188 Engineer : Quantum Geotechnical Ltd		Ground Level : Coordinates:			

cm B.G.L.	Samples		NO TESTS PERFORMED	STRATA				Water	Install/Backfill
	Depth	Type No. - U/Blows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)		
				(0.20)	TOPSOIL**		(0.20)		
0.50 -	D1			0.20	MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, tarmac, timber and plastic.		0.20		
1.00 -	D2			(2.10)			(2.10)		
1.50 -	D3								
2.30 -	D4			2.30	Plastic, dark brown, clayey pseudofibrous PEAT.		2.30		
				(1.30)			(1.30)		
3.60 -	D5			3.60	Blue grey, slightly sandy (fine) silty clayey GRAVEL of fine to coarse, rounded sandstone and siltstone.		3.60		
				(2.60)			(2.60)		
6.20 -	D6			6.20	Brown, coarse SAND.		6.20		
				(1.10)			(1.10)		
7.50 -	D7			7.30	Brown, sandy (coarse) GRAVEL of fine to coarse, rounded sandstone and siltstone.		7.30		
				(2.70)			(2.70)		
10.00				10.00	End of Cable Percussive Borehole at 10.00m depth.		10.00		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
22/05/2008 17:00	10.00	3.60	10.00	200mm	3.60			1.50 8.80	1.80 9.00	01:00 00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description									
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	Ty Denwig, Bynoa Llanelli, Carmarthenshire SA14 9ST Tel: 01554 743880 Fax: 01554 776150 email: enquiries@quantum-ge.co.uk	Operator: W P Osborn	Logged By: RMCD	Sheet No 1 Of 1	Scale 1:67.07	All measurements in metres unless otherwise stated	
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Contract : Margam Biomass Plant							Borehole No. BH4		
Client : Western Log Energy									
Dates : 23/05/08 - 27/05/08				Job Number : P081188		Ground Level :			
Location : Proposed Area for New Biomass Plant				Engineer : Quantum Geotechnical Ltd		Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	STRATA					Water	Install/Backfill
	Depth	Type No. - UBlows		Depth (Thickness)	DESCRIPTION	Legend	Depth (Thickness)			
0				(0.20)	0.20	TOPSOIL**		(0.20)		
1	0.50 -	D1		(2.80)		MADE GROUND - Compact, dark grey, slightly silty sandy (medium) clayey gravel of limestone (hardcore), siltstone and sandstone with fragments of brick, tarmac, timber and plastic.		(2.80)		
2										
3	3.00 -	D2		3.00	(1.00)	Blue grey, slightly sandy (fine) clayey silty GRAVEL of fine to coarse, rounded sandstone and siltstone.		3.00		
4	4.00 -	D3								
5	5.00 -	D4		4.00		Grey and brown, slightly sandy (fine) silty very clayey GRAVEL of fine to coarse, rounded sandstone and siltstone, with many rounded cobbles. Bands of coarse sand and gravel throughout.		4.00		
6										
7	7.00 -	D5		(6.00)				(6.00)		
8										
9										
10	10.00 -	D6		10.00		End of Cable Percussive Borehole at 10.00m depth.		10.00		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
23/05/2008 16:30	4.00	DRY	10.00	200mm	1.00		3.00	0.60	0.90	01:00
27/05/2008 08:00	4.00	3.70						1.40	1.70	01:00
27/05/2008 13:00	10.00	-						3.80	4.00	01:00
								4.10	4.30	00:45
								5.00	5.10	00:45
								5.60	5.70	00:30
								7.80	8.10	00:45
								9.00	9.20	00:45

Remarks: Dando 150 using 200mm casing and tools **Driller's Description

	Ty Boreing, Bynna Llanelly, Carmarthenshire SA14 9ST Tel: 01554 743880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator: WP Osborn	Logged By: RMCD	Sheet No 1 Of 1	Scale 1:57.07	All measurements in metres unless otherwise stated	