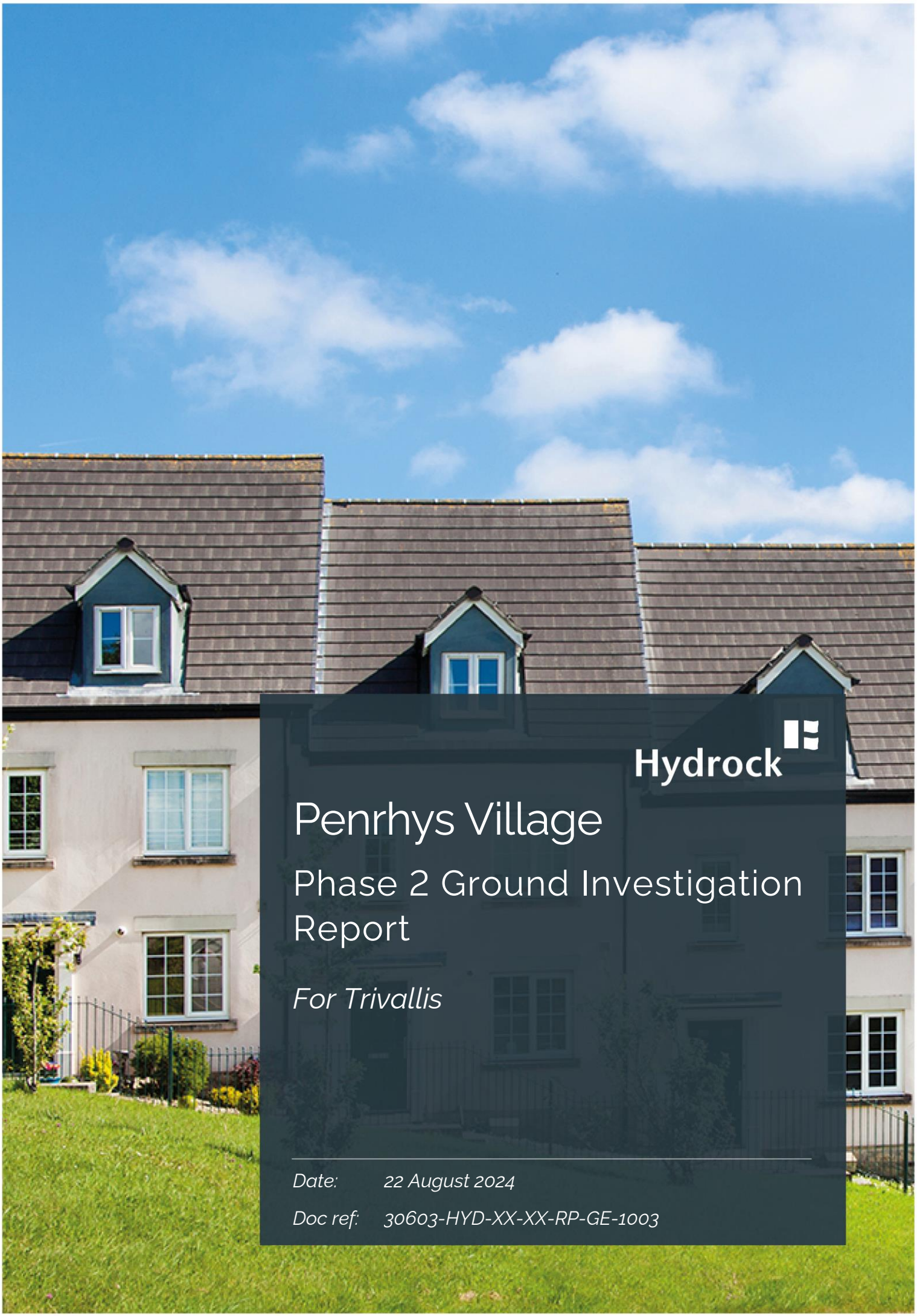


Hydrock

Penrhys Village

Phase 2 Ground Investigation Report

For Trivallis

Date: *22 August 2024*

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Contents

Executive summary **4**
1. Introduction **9**
2. Phase 1 Desk Study Summary **11**
3. Initial conceptual site model **12**
4. Ground investigations **15**
5. Ground investigation records and data **19**
6. Geotechnical assessment **26**
7. Geo-environmental assessment **31**
8. Waste and materials management **42**
9. Uncertainties and limitations **47**
10. Recommendations for further work **49**
11. References **50**

Tables

Table 4.1: Summary of site works 15
Table 4.2: Summary of monitoring installations 16
Table 4.3: Geo-environmental analyses of soils 17
Table 4.4: Geo-environmental analyses of soil leachates 17
Table 4.5: Summary of sample numbers for geotechnical tests 17
Table 5.1: Strata encountered 19
Table 5.2: Obstructions encountered 20
Table 5.3: Groundwater occurrence 22
Table 5.4: Groundwater level data summary 22
Table 5.5: Infiltration test results 22
Table 5.6: Range of ground gas data 23
Table 5.7: Volume change potential 24
Table 5.8: PSD results summary 24
Table 5.9: Relative density results and derived values 24
Table 5.10: CBR results and derived values 24
Table 5.11: Aggressive chemical environment concrete classification 25
Table 5.12: Intact rock strength results and derived values 25
Table 6.1: Characteristic geotechnical values 27
Table 7.1: CoPC in soils which require further assessment (human health) 32
Table 7.2: Visual evidence of Asbestos Containing Materials 33
Table 7.3: Summary of water quality risk assessment protocol 36
Table 7.4: CoPC which require further assessment (controlled waters) 37
Table 7.5: Ground gas risk assessment 38
Table 7.6: Residual risks following risk evaluation 39

Appendices

Appendix A Drawings

Appendix B Geotechnical Engineering Factual Ground Investigation Report

Appendix C Geotechnical Assessments

Appendix D Ground Gas Monitoring Assessments

Appendix E Contamination Assessments

Appendix F Waste assessment

Appendix G Preliminary geotechnical risk register

Appendix H Plausible source-pathway-receptor contaminant linkages

Executive summary

Site information and setting	
Objectives	The objectives of the initial Phase 2 Ground Investigation are; » to resolve any geotechnical and geoenvironmental uncertainties identified in the Phase 1 Desk Study by refining and updating the preliminary Ground Model, based on the conditions met in accordance with the principles of Environment Agency (EA) 'Land Contamination: Risk Management' (LCRM) (2023); » to identify any geo-environmental mitigation requirements to enable development to progress; and » to provide preliminary geotechnical recommendations for design.
Client	Trivallis.
Site name and location	Penrhys Village, Rhondda Cynon Taff, Penrhys Road, Penrhys, Ferndale, CF43 3RN.
Proposed development	Hydrock understands that the development proposals are on-going but it is expected to comprise nearly 900 homes with recreational and sports facilities, allotments, outdoor recreation trails, a new primary school, bio-swales, and a renewable energy infrastructure.
Site description	The site is irregular in shape, and has an approximate area of 29.86 hectares.
Desk study summary	
Topography	The site is located on Penrhys Hill, and slopes to the south.
Hydrology	The Rhondda River lies in the valley to the west of the site, and the Afon Rhondda Fach lies in the valley to the east of the site.
Site History	The northern area of the site was first occupied by a social housing estate circa 1974, but prior to this was open land. The land in the south of the site is undeveloped.
Geology	Superficial: None. Solid: Rhondda Member.
Anthropomorphic geotechnical hazards	The site is within an area of the South Wales Coalfield, and has been historically mined for coal at 181m below ground level (bgl) and at greater depths. Landslides have been recorded on the slopes in the area around the site, most significantly to the east of the village.
Hydrogeology	Solid: Rhondda Member, Secondary A Aquifer.
UXO risk	A non-specialist UXO assessment indicates a low bomb risk.
Preliminary conceptual site model based on desk study	
Potential contaminant sources	» Made Ground, associated with historical construction activities and imported fill, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons (S01).

	» PCBs and oils from transformers in the electricity sub-station on site (S02). » Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S03). » Asbestos within existing buildings / structures (S04). » Hydrocarbon fuels, lubricants, solvents and asbestos associated with the boiler house in the north of the site and potentially across the heating network area from leaking/damaged pipes (S05). » Fly tipped wastes potentially including solvents, metals, metalloids, asbestos and Asbestos Containing Materials (S06). » Made Ground containing asbestos and Asbestos Containing Materials associated with the demolition of former pipe work from the district heat network (S07). » Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons (S08).
Potential contaminant linkages (for receptors for which there is or will be a pathway)	» People (neighbours, site end users) (R01). » Development end use (buildings, utilities and landscaping) (R02). » Groundwater: Secondary A aquifer status of the Rhondda Member (R03). » Surface water bodies: River Rhondda and the Afon Rhondda Fach (R04).
Ground model proven by investigation	
Ground and groundwater conditions encountered by investigation	The ground conditions as proven by the investigation (s) undertaken at the site comprise: » Made Ground – recorded to depths of between 0.3m and 4.40m below ground level (bgl), comprising gravels and clays with builders' rubble, brick, concrete and metal. » Rhondda Member– recorded to a maximum depth of 9.80m comprising a medium strong grey fine to medium Sandstone. Groundwater was generally not encountered during the ground investigation and post investigation monitoring. TP215 recorded a minor seepage of perched water at 2.50m bgl within Made Ground. BH307 recorded groundwater at 2.50m – 7.00m bgl during post fieldwork monitoring. It is generally thought that the groundwater on site is present at significant depth. All other monitoring wells have been recorded as dry.
Final ground model contaminant sources	» Made Ground, associated with historical construction activities, possibly including PAH (S01). » Asbestos within existing buildings / structures (S04). » Asbestos associated with the boiler house in the north of the site (S05). » Fly tipped wastes potentially including solvents, metals, metalloids, asbestos and Asbestos Containing Materials (S06). » Asbestos Containing Materials associated with gaskets on the former pipe work of the district heat network (S07). » Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons (S08).

	» Petroleum hydrocarbons and VOC/SVOC in groundwater below the site (S09).
Summary of geotechnical conclusions	
Groundwork	Obstructions associated with the former / current Penrhys residential development, including foundations, floor slabs and services, should be anticipated. The extent of obstruction is expected to lessen south of the statue where there has been limited previous development. Excavation to proposed founding depth generally should be readily achievable with standard excavation plant. Heavy duty excavation plant/breaking equipment may be required to excavate the buried obstruction and where progression into intact rock strata is required. Trial pit faces were noted to remain generally vertical without collapse. Spalling and side wall collapses mainly occurred where an increase of demolition material was present within the Made Ground Water seepages into excavations are unlikely to be adequately controlled by sump pumping.
Foundations	Foundations are recommended to comprise: » Shallow foundations where Made Ground is less than 2.5m thick: » Where Made Ground is greater than 2.5m thick the use of concrete man hole rings placed onto the Rhondda member connected with ring beams; or » turn over specification to remove obstructions and remediate the Made Ground. A safe net bearing pressure Allowable net bearing pressure of 150 kN/m^2 should be available for shallow foundations up to 1m in width. When founding directly onto the Rhondda Member.
Roads and pavements	For road / pavement design, a design CBR of 3 % is recommended.
Sustainable drainage	Soakaway drainage is considered suitable when soakaways are placed into the natural Rhondda Member.
Buried concrete	Shallow soils (Made Ground) are classified as Design Sulfate Class DS-1 and ACEC Class AC-1.
Summary of geo-environmental assessment	
Human Health	Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(ah)anthracene, and Indeno(123cd)pyrene has been recorded within the Made Ground beneath the road and requires further assessment.
Phytotoxicity	No contaminants of potential concern identified for the PH7< scenario.
Controlled waters	For the majority of the site whilst there are concentrations of Chemicals of Potential Concern elevated above the water quality criteria in leachate testing, based on the remediation and investigation works undertaken to date and subject to agreement with Natural Resources Wales, Hydrock does not believe the majority of the site poses a significant risk to Controlled Waters. However, post investigation we have recorded elevated hydrocarbons in the recovered water samples from BH307 in the far south of the site. This monitoring and

	assessment are on-going and will be assessed and reported in a separate technical note once complete.
Radon:	The site is in a Radon Affected Area (1 to 3% of existing homes affected). No radon protection measures are required for new developments in this area.
Potable water supply pipes	Brownfield site and the presumption in the guidance is that barrier pipe will be used. However, the investigation and assessment has indicated no significant Contaminants of Concern and as such standard pipework may be suitable for the site following negotiations with the supply company.
Ground gases or vapours:	Low risk from ground gases, provisionally CS1 conditions across the majority of the site. Further assessment of VOC/SVOC risk is required in the far south as BH307 has recorded reduced oxygen percentage, however, at present there are no proposed occupied buildings in this part of the site and therefore no significant risk to end users. If the development layout changes then this would need to be revisited..
Enabling works	
Proposed mitigation measures	The mitigation measures proposed to remove unacceptable risks include: » Due to the exceedances recorded beneath existing roadways soils excavated from these areas should not be placed at surface within areas of soft landscaping. If Made Ground is placed beneath areas of proposed soft landscaping due to changes in the master-planning then allowance should be made for the installation of a 600mm cover system in gardens comprising a subsoil beneath a topsoil thickness of between 150mm and 300mm. However, in the first instance additional sampling of these materials is suggest to better understand the distribution across the site. (PL1) » Removal of fly tipped waste and bonfire remnants and additional testing to confirm no residual contamination (PL2 and PL5) » Asbestos Survey of existing housing and Boiler House (PL3) » Hand Picking of asbestos gaskets during the removal of the heating network (PL4) » Potentially installation of vapour protection membrane in new buildings if present in the far south of the site (PL6). The methodology for the remediation should be presented in a Remediation Strategy, which will need to be submitted to the warranty provider and the regulatory authorities for approval. Verification reports by a competent independent geo-environmental specialist will be required following completion of any remedial works.
Waste management	Excavated soils to be disposed of as waste, are likely to be classed as non-hazardous.
Future considerations	
Further work	Following the ground investigation works undertaken to date, the following further works will be required: » demolition asbestos survey; » additional ground investigation is recommended once the development layout is fully understood.

- discussion with specialists with regard to invasive species including Himalayan Balsam and Japanese Knotweed;
- completion of the on-going gas monitoring and groundwater sampling at BH307 to investigate the presence of petroleum hydrocarbons and SVOC/VOCs;
- discussion and agreement with utility providers regarding the materials suitable for pipework;
- discussions with regulatory bodies and the warranty provider regarding the conclusions of this report;
- Compilation of Remediation Strategy and Verification plan
- Compilation of material management plan
- Compilation of Geotechnical Design Report to include foundations (where deeper than 2.5m), earthworks, and retaining wall design.
- turn over method specification for dealing with obstructions across the site.
- remediation and mitigation works; and
- verification of the earthworks, remediation and mitigation works.

This Executive Summary forms part of Hydrock Consultants Limited report number 30603-HYD-XX-XX-RP-GE-1003 and should not be used as a separate document.

1. Introduction

1.1 Terms of reference

In September 2023, Hydrock Consultants Limited (Hydrock) was commissioned by Trivallis (the Client) to undertake site investigation, comprising a Phase 1 desk study and Phase 2 initial ground investigation at Penrhys Village. The site is located at Penrhys Road, Penrhys, Ferndale, CF43 3RN.

The site is currently separated into two areas; the northern area of the site comprises approximately 268 homes, most of which are social housing, a primary school, two play areas, a convenience store and a fast-food takeaway. The southern area of the site is open green space, that features the statue of Our Lady of Penrhys, and an open-air amphitheatre.

Hydrock has previously undertaken a Due Diligence Review for this site (30603-HYD-XX-XX-RP-GE-1000-S2-P1, dated 31 July 2023), a Phase 1 Ground Conditions Desk Study (30603-HYD-XX-XX-RP-GE-1001-S2-P2, dated 9 November 2023) and an Abnormal Costs Review (30603-HYD-XX-XX-RP-GE-1002-S2-P1, dated 8 March 2024).

Hydrock understands that the proposed development is to comprise 900 new homes, sport facilities and recreational areas and a new primary school. A proposed development layout (The Urbanists Drawing 2238-URB-XX-XX-DR-UD-001), is presented in Appendix A. Hydrock understands that development proposals are preliminary, and as such further site investigation and reassessment of the risk assessment in this report may be required following confirmation of site masterplans.

The investigation works have been undertaken in accordance with Hydrock's proposal referenced (30603 – Penrhys Village, Rhondda Cynon Taff – Fee proposal for Geo Consultancy Phase 1 and Initial Phase 2 Ground Investigation, dated 22 June 2023) and the Client's instructions to proceed (Ref: email from Rachel Leigh of Trivallis, dated 20 September 2023).

1.2 Objectives

The works have been commissioned to support development planning, and establish the extent of contamination (if present) at the site.

The objectives of the Phase 2 Ground Investigation are:

- to resolve any geotechnical and geoenvironmental uncertainties identified in the Phase 1 Desk Study by refining and updating the preliminary Ground Model, based on the conditions met in accordance with the principles of Environment Agency (EA) 'Land Contamination: Risk Management' (LCRM) (2023);
- to identify any geo-environmental mitigation requirements to enable development to progress; and
- to provide preliminary geotechnical recommendations for design.

1.3 Scope

The site investigation includes a Phase 2 Ground Investigation.

The scope of the Phase 2 Ground Investigation comprises:

- a preliminary ground investigation including trial pitting, and rotary drilling to:
  - obtain data on the ground and groundwater conditions of the site;
  - allow collection of samples for geotechnical and chemical laboratory analysis;
  - allow geotechnical field tests to be undertaken;
  - install gas and groundwater wells;

- gas concentration and groundwater level monitoring;
- geotechnical and chemical laboratory analysis;
- updating of the preliminary Ground Model;
- preparation of a geotechnical risk register;
- presentation of an initial geotechnical design recommendations;
- formulation of an updated Conceptual Site Model (CSM), including identification of any plausible contaminant linkages;
- completion of a generic quantitative risk assessment of any identified chemical contaminants to establish 'suitability for use' under the current planning regime;
- discussion of any potential environmental liabilities associated with land contamination (soil, water and gas); and
- identification of outline mitigation requirements to ensure the site is 'suitable for use'.

1.4 Regulatory context and guidance

The investigation work has been carried out in general compliance with recognised best practice, including (but not limited to) BS 5930:2015, BS 10175:2011+A2:2017 and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The geo-environmental section of this report is written in broad accordance with BS 10175:2011+A2:2017, EA LCRM (2023) and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The methods used follow a risk-based approach, the first stage of which is a Phase 1 desk study and field reconnaissance, with any potential geo-environmental risks assessed qualitatively. This is done using the 'source-pathway-receptor contaminant linkage' concept to assess risk as introduced in the Environmental Protection Act 1990 (EPA, 1990). Any potential geotechnical risks are also assessed from the Phase 1 desk study and site reconnaissance stage.

Phase 2 comprises intrusive ground investigation work and testing. The factual information from the desk study and the ground investigation are used to develop the Conceptual Site Model (CSM). This CSM is based on a ground model of the site physical conditions and an exposure model of the possible contaminant linkages. The CSM forms the basis for Generic Quantitative Risk Assessment (GQRA) in accordance with current guidelines. This GQRA might lead to more Detailed Quantitative Risk Assessment (DQRA).

Professional judgement is then used to evaluate the findings of the risk assessments and to provide recommendations for the development.

The geotechnical section of this report is prepared in general accordance with BS EN 1997-1+A1: 2013, BS EN 1997-2:2007 and BS 8004:2015. This report constitutes a Ground Investigation Report (GIR) as described in Part 2 of Eurocode 7 (BS EN 1997-2) (EC7). However, it is not intended to fulfil the requirements of a Geotechnical Design Report (GDR) as specified in EC7.

Where relevant the relevant requirements of the current edition of NHBC Standards have also been applied.

The geo-environmental and geotechnical aspects are discussed in separate sections. Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. Designers should take all aspects of the investigation into account.

Remaining uncertainties and recommendations for further work are listed in Section 9 and Section 10.

2. Phase 1 Desk Study Summary

2.1 Site History

The site is split into two areas; the northern area comprises the land within the ring road that surrounds the current housing estate, the southern area is open green space.

Historically, the north of the site was open fields and marshland, labelled as Erw Beddau, Site of Battle (c.1875). The existing housing estate was constructed c. 1974, and included the construction of a school and Police Station. Partial demolition of the housing estate is recorded on maps in 1974 in the north-east of the site, followed by further demolition, halving the number of homes on the site in 2010.

The southern area of the site has remained undeveloped.

2.2 Geology

The site is shown on British Geological Survey (BGS) maps reproduced as part of the Groundsure environmental report, which indicates the site is underlain by green-grey pennant sandstones of the Rhondda Member with thin interbedded mudstone and siltstone, and thin coal pairings.

2.3 Hydrogeology

The solid geology of the Rhondda Member is classed as a Secondary A Aquifer. There are no active groundwater abstraction licences within 1km of the site, and the site is not within a groundwater Source Protection Zone (SPZ).

Shallow groundwater is anticipated to be present within the Made Ground in the northern section of the site, with a deeper groundwater body in the Rhondda Member bedrock. Groundwater migration is expected to be influenced by topography, and flow southerly down Penrhys Hill. Regionally, groundwater is expected to be flowing south towards the Severn Estuary. Recharge to the groundwater body below the site is expected to be inhibited by the extensive hardstanding which spans much of the Penrhys housing estate.

The groundwater body beneath the site (South East Valleys Carboniferous Coal Measures) is currently (2021 Cycle 3) classified under the Water Framework Directive (WFD) as 'poor', due to 'chemical dependant groundwater body' conditions.

The environmental report indicates a negligible risk of groundwater flooding.

2.4 Hydrology

There are 3 records of inland rivers on site – these relate to surface water drains in the areas of existing and former housing. There are 7 further records of inland rivers within 10m of the site boundaries. A spring network which connects to the Rhondda River lies circa 60m to 248m south-west of the site. A further inland stream network lies circa 159m to 221m north-east of the site.

2.5 Mining

The site lies within a 'Coal Mining Reporting Area' but lies outside the Coal Authority's 'Development High Risk Area'. A Consultants Coal Mining Report was obtained by Hydrock from the Coal Authority which indicated there were no known shallow workings of the No.2 Rhondda and Two Ft Nine seam which run below the site at 181m and 402m below ground level respectively. Any past coal mining in the area below the site is at sufficient depth that it poses a low risk to new development.

3. Initial conceptual site model

3.1 Geotechnical hazard identification

3.1.1 Context

The Hydrock Phase 1 Ground Conditions Desk Study (2023) provides the identified plausible geotechnical hazards that may be present at this site, and the elements of the development potentially affected.

The preliminary geotechnical hazard identification has been undertaken in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents CS 641: Managing the maintenance of highway geotechnical assets and CD 622: Managing geotechnical risk.

3.1.2 Plausible geotechnical hazards

Plausible geotechnical hazards identified at the site are:

- Uncontrolled Made Ground (variable strength and compressibility).
- Soft / loose compressible ground (low strength and high settlement potential).
- Variable lateral and vertical changes in ground conditions.
- Attack of buried concrete by aggressive ground conditions.
- Adverse chemical ground conditions, (e.g. expansive slag).
- Obstructions.
- Loose Made Ground, leading to difficulty with excavation and collapse of side walls.
- Slope stability issues – general slopes.
- Slope stability issues – retaining walls.
- Earthworks – poor bearing capacity of new fill / unsuitability of site won material to be reused as fill.

3.1.3 Potential development elements affected

Development elements potentially affected by geotechnical hazards are:

- Buildings – foundations.
- Buildings – floor Slabs
- Roads and pavements.
- Services.
- General slopes.
- Retaining walls.
- Gardens.
- Construction staff, vehicles and plant operators.
- Concrete below ground.
- Earthworks control, inability to place and compact fill / insufficient fill to complete earthworks.

Health and safety risks to site Contractors and maintenance workers were not assessed during the desk study and will need to be considered separately during design.

3.2 Geo-environmental exposure model

3.2.1 Context

The initial Conceptual Site Model (iCSM) for Penrhys Village was presented in the Hydrock Phase 1 Ground Conditions Desk Study.

The preliminary exposure model is used to identify geo-environmental hazards and to establish potential contaminant linkages, based on the source-pathway-receptor (SPR) approach.

A viable contaminant linkage requires all the components of an SPR to be present. If only one or two are present, there is no linkage and no further assessment is required.

3.2.2 Potential contaminants

3.2.2.1 Potential on-site sources of contamination

- Made Ground, associated with historical construction activities and imported fill, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons (S01).
- PCBs and oils from transformers in the electricity sub-stations on site (S02).
- Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S03).
- Asbestos within existing buildings / structures (S04)
- Hydrocarbon fuels, lubricants, solvents and asbestos associated with the boiler house in the north of the site and potentially across the heating network area from leaking/damaged pipes (S05).
- Fly tipped wastes potentially including solvents, metals, metalloids, asbestos and Asbestos Containing Materials (S06).
- Made Ground containing asbestos and Asbestos Containing Materials associated with the demolition of former pipe work from the district heat network (S07).
- Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons (S08).

3.2.2.2 Potential off-site sources of contamination

No potential off-site sources of contamination were identified.

3.2.3 Potential receptors

The following potential receptors in relation to the proposed land use were identified.

- People (neighbours, site end users) (R01).
- Development end use (buildings, utilities and landscaping) (R02).
- Groundwater: Secondary A aquifer status of the Rhondda Member (R03).
- Surface water bodies: River Rhondda and the Afon Rhondda Fach (R04).

3.2.4 Potential pathways

The following potential pathways were identified in the desk study.

- Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).
- Methane/carbon dioxide (ground gas) ingress via permeable soils and/or construction gaps (P02).
- Surface water via overland flow (P03).
- Surface water, via drainage discharge (P04).

- Surface water via base flow from groundwater (P05).
- Migration of contaminant via leachate migration through the unsaturated zone into the Rhondda Member Sandstone (P06).

Health and safety risks to site development contractors and maintenance workers have not been assessed as part of this study and will need to be considered separately.

The above sources, pathways and receptors have been considered as part of the Preliminary Risk Assessment in accordance with LCRM (2023), are considered to be plausible in the context of this site and have been carried forward for investigation and assessment.

4. Ground investigations

4.1 Site works

The ground investigation works, including the rationale which was based on the findings of the preliminary risk assessment is summarised in Table 4.1.

The fieldwork took place between 15 April 2024 and 10 May 2024 and was completed by a sub-contractor; Geotechnical Engineering Ltd (GEL). The ground investigation locations were surveyed by GEL and is recorded within the appended Factual Report in Appendix B.

The logs, including details of ground conditions, soil sampling, in situ testing and any installations, are also presented in Appendix B.

Table 4.1: Summary of site works

Activity	Method	No.	Name	Depth Maximum / Range (m bgl)	In situ tests	Rationale
Drilling, Pitting and Probing						
Boreholes	Rotary cored	7	BH301-BH307	9.3 -9.8	SPT	To investigate strength profile of the Made Ground and natural strata.
Trial pits	Machine	3	TP101, TP102, TP107	0.6-1.0	-	To target the district heat network for collection of samples.
		20	TP201-TP220	0.5-3.5	-	For general site coverage and collection of samples.
	Hand-excavated	1	TP106	0.3	-	To undertake trial pits where service clearance could not be obtained.
Probes	TRL dynamic cone penetrometer	17	DCP 201-202, DCP 204-208, DCP 210-214, DCP 216-220	-	California Bearing Ratio (CBR)	-
Other in situ testing or monitoring						**Comment/s**
Infiltration	BRE 365	5	In 5.no trial pits.	-	BRE 365 infiltration	In TPs 201, 204, 212, 216, 219.

Wells for monitoring groundwater levels and ground gas concentrations were installed in a number of the boreholes. A summary of the monitoring well installations is presented in Table 4.2.

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Table 4.2: Summary of monitoring installations

Location	Ground level (m OD)	Standpipe / piezometer diameter	Screen top and base depth (m bgl)	Strata targeted
BH301	335.60	50mm	1.00 to 2.50	Made Ground
BH302B	345.35	50mm	2.80 to 9.30	Rhondda Member
BH303B	341.05	50mm	1.00 to 2.40	Made Ground
BH304	310.00	50mm	1.00 to 3.60	Made Ground
BH305	320.75	50mm	1.00 to 3.20	Made Ground
BH306	311.10	50mm	3.00 to 8.20	Rhondda Member
BH307	285.10	50mm	1.40 to 9.50	Rhondda Member

4.2 Geo-environmental testing

4.2.1 Sampling strategy and protocols

Exploratory hole positions were determined by reference to the site conditions and uncertainties identified in the Initial Conceptual Model.

Certain features, such as the district heating network in the roadway, were targeted for specific investigation, but a reasonably even spacing was used for the remainder of the site.

Samples were taken, stored and transported in general accordance with BS 10175:2011+A2:2017.

4.2.2 Geo-environmental monitoring

Gas monitoring of boreholes has been undertaken on 6 occasions. The results are presented in the Factual Report in Appendix B.

There is on-going gas and groundwater monitoring in BH307 in the far south of the site due to presence of hydrocarbons identified during monitoring rounds, a separate technical note will be produced once the monitoring is complete.

4.2.3 Geo-environmental laboratory analyses

The chemical test certificates for testing undertaken as part of the investigation undertaken by Geotechnical Engineering Ltd (GEL) are provided in Appendix B. and summarised in the table below. Wherever possible, UKAS and MCERTS accredited procedures have been used.

The chemical test certificates for testing undertaken as part of historical investigations are provided in the relevant reports in Appendix E.

The geo-environmental analyses undertaken on soils are summarised in Table 4.3.

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Table 4.3: Geo-environmental analyses of soils

Determinand Suite	Made Ground	Topsoil	Rhondda Member
Hydrock minimum suite of determinands for solids*	28	1	4

*Hydrock minimum soil suite comprises: As, B (water soluble), Be, Cd, Cr (total), Cr (VI), Cu, Hg, Ni, Pb, S (elemental), Se, V, Zn, cyanide (total), sulfide, pH, asbestos fibres, speciated polynuclear aromatic hydrocarbons (PAH, by GC-FID), total phenols and fraction of organic carbon

The soils chemical test data are interpreted and assessed in Section 7.

The geo-environmental analyses undertaken as part of the investigation on soil leachates are summarised in Table 4.4.

Table 4.4: Geo-environmental analyses of soil leachates

Determinand Suite	Soil leachates
Hydrock minimum suite of determinands for waters	12

4.3 Geotechnical testing

The geotechnical tests undertaken by GEL are summarised in Table 4.5 and the test certificates are provided in Appendix B. Wherever possible, UKAS accredited procedures have been used.

Table 4.5: Summary of sample numbers for geotechnical tests

Test	Made Ground	Topsoil	Rhondda Member
Natural moisture content	5	-	-
Atterberg limits	5	-	-
Particle size distribution (sieve/sedimentation)	30	1	5
Sulfate and aggressive chemical environment for buried concrete classification (full BRE SD1 suite)	10	-	-
Rock water content	-	-	4
Uniaxial compressive strength (UCS)	-	-	4
Point load strength	-	-	22

4.4 Constraints

The footprints of the existing houses / buildings could not be investigated as most buildings were still in use, preventing intrusive ground investigation in these areas. Access to the boiler house was not obtained by Trivallis, and therefore it is challenging to assess fully where the district heat network extends from in this area, and the extent of potentially localised ground contamination associated with fuel and solvent leaks from the time that the boiler house was in operation.

4 of the proposed trial pits which were intended to be undertaken in the roadway around the site, were abandoned – 3 of these were due to buried services, and these positions could not justifiably be relocated.

5. Ground investigation records and data

5.1 Physical ground conditions

5.1.1 Summary of strata encountered

The following presents a summary of the properties of the ground and groundwater conditions encountered, based on field observations, interpretation of the field data and laboratory test results, taking into account drilling, excavation and sampling methods, transport, handling and specimen preparation.

All relevant data from the GEL investigation discussed in Section 4 are used from this point forward for Hydrock's interpretation.

Details of the GEL ground investigation works are provided within the factual report in Appendix B . A summary of the ground model is presented in Table 5.1 and the individual strata are described in the sections below.

Table 5.1: Strata encountered

Stratum	Depth to top (m bgl)	Depth to base (m bgl)	Thickness (m) (range)	Thickness (m) (average)
General Made Ground	0.00	0.3 – 4.40	0.06 – 4.40	1.86
Topsoil	0.00	0.20 – 0.60	0.20 - 0.60	0.35
Rhondda Member	0.60 - 4.40	9.5 - 9.80	5.10 - 8.10	6.79

5.1.2 Surface covering

The following surface cover was identified during site works:

- Concrete hardstanding,
- Tarmacadam hardstanding,
- Structures (houses and garages)
- Vegetation (grass, trees, brambles),

5.1.3 Made Ground

Below the surface covering, Made Ground was recorded across the entirety of the northern portion of the site below the housing estate, to a maximum thickness of 4.40m below ground level. Made Ground generally comprised builders' rubble, brick, concrete and metal.

It should be noted that all grassed areas of the northern portion of the site recorded a darker more organic upper soil horizon. However due to the inclusion of anthropogenic material this should not be confused as topsoil and has therefore been considered as part of the General Made Ground.

5.1.4 Topsoil

Where the Made Ground was not encountered, in the southern area of the site, the exploratory holes encountered topsoil.

Topsoil was between 0.20m and 0.60m thick, with an average thickness of 0.35m. The topsoil comprised soft brown sandy silty clay with rootlets.

For the purposes of this report, topsoil is defined as the upper layer of an in-situ soil profile, usually darker in colour and more fertile than the layer below (subsoil), which is a product of natural chemical, physical, biological and environmental processes, but does not imply compliance with BS 3882:2015. Reuse of topsoil as a growing medium at the site should be determined by the landscape architect or the landscape Contractors.

5.1.5 *Rhondda Member*

The Rhondda Member was encountered underlying the Made Ground in the northern zone of the site, and underlying topsoil in the southern zone of the site. The Rhondda Member has a maximum recorded thickness of 8.10m (base unproven), with an average thickness of 6.06m.

5.2 Obstructions

Obstructions were encountered in a number of boreholes and trial pits during the investigation. These intrusive locations are summarised in Table 5.2.

Table 5.2: Obstructions encountered

Stratum	Location	Depth (m bgl)	Description
Made Ground	BH302	0.75	Hard man-made obstruction at base of pit, position relocated to BH302A.
Made Ground	BH302A	0.75	Hard man-made obstruction at base of pit, position relocated to BH302B.
Made Ground	BH303	0.30	Concrete at base of pit, position relocated to BH303A.
Made Ground	BH303A	0.30	Concrete at base of pit, position relocated to BH303B.
Made Ground	TP101	1.00	Hard natural strata at base of pit, position terminated.
Made Ground	TP102	0.70	Hard natural strata at base of pit, position terminated.
Made Ground	TP107	0.60	Hard natural strata at base of pit, position terminated.
Made Ground	TP201	3.00	Hard natural strata at base of pit, position terminated.
Made Ground	TP202	2.10	Hard natural strata at base of pit, position terminated.
Made Ground	TP204	2.40	Hard natural strata at base of pit, position terminated.
Made Ground	TP205	2.10	Hard natural strata at base of pit, position terminated.
Made Ground	TP206	0.60	Concrete and manhole chamber at base of pit, position relocated to TP206A.

Made Ground	TP206A	1.00	Hard natural strata at base of pit, position terminated.
Made Ground	TP207	1.40	Electricity cable strike, position relocated to TP207A.
Made Ground	TP207A	2.40	Hard natural strata at base of pit, position terminated.
Made Ground	TP208	1.10	Hard natural strata at base of pit, position terminated.
Made Ground	TP209	0.50	Manhole chamber in base of pit, position terminated.
Made Ground	TP210	2.90	Hard natural strata at base of pit, position terminated.
Made Ground	TP211	1.70	Hard natural strata at base of pit, position terminated.
Rhondda Member	TP212	2.20	Hard natural strata at base of pit, position terminated.
Made Ground	TP215	0.70	Yellow plastic 100mm gas main encountered; position terminated.
Made Ground	TP216	2.00	Hard natural strata at base of pit, position terminated.
Made Ground	TP217	2.90	Hard natural strata at base of pit, position terminated.
Rhondda Member	TP218	1.30	Hard natural strata at base of pit, position terminated.
Rhondda Member	TP219	1.30	Hard natural strata at base of pit, position terminated.
Rhondda Member	TP220	0.75	Hard natural strata at base of pit, position terminated.

5.3 Groundwater

5.3.1 Groundwater observations and levels

Groundwater encountered during the investigation is listed in Table 5.3. A groundwater observation represents the depth at which groundwater was first observed and is likely to be deeper than the actual water table level at that location. Groundwater was not encountered in any of the boreholes during the investigation.

Table 5.3: Groundwater occurrence

Stratum	Date	Location	Fieldwork		Comment
			Groundwater observation (m bgl)	Rose to after 20 mins (m bgl)	
Made Ground	29/04/24	TP214	2.50	-	Sidewalls of excavation collapsing at 2.50m bgl.

Groundwater levels recorded during post-fieldwork monitoring are summarised in Table 5.4.

Table 5.4: Groundwater level data summary

Stratum	Date range	Location	Post-fieldwork monitoring
			Depth to groundwater (range) (m bgl)
Made Ground	17/05/24 - 28/06/24	BH01	Dry
		BH303B	Dry
		BH304	Dry
		BH305	Dry
Rhondda Member	17/05/24 - 28/06/24	BH302B	Dry
		BH306	Dry
		BH307	2.50 – 6.99

5.3.2 *Infiltration tests*

The results of the infiltration testing undertaken are summarised in Table 5.5. The results sheets are presented in Appendix B.

Testing was carried out in general accordance with BRE Digest 365 (BRE DG365) (2016).

Table 5.5: Infiltration test results

Stratum	Location	Depth to base of pit (m bgl)	Infiltration rate (m/s)			
			Run 1	Run 2	Run 3	Range
Made Ground	TP201	3.00	Insufficient water intake to calculate infiltration.			
Made Ground	TP204	2.40	3.3×10^{-5}	1.0×10^{-5}	-	3.3×10^{-5} - 1.0×10^{-5}
Rhondda Member	TP212	2.20	2.5×10^{-5}	5.3×10^{-6}	3.3×10^{-6}	2.5×10^{-5} – 3.3×10^{-6}

Rhondda Member	TP216	2.20	Insufficient water intake to calculate infiltration.	3.5×10^{-5}	8.3×10^{-5}	8.3×10^{-5} - 3.5×10^{-5}
Rhondda Member	TP219	1.30	Water intake too quick to fill pit. 1000l added.			

*Where less than three tests were possible in a particular location the results provided should be considered indicative only and should not be used for design purposes. If infiltration is critical to the development of the site, multi-day infiltration testing should be undertaken.

5.3.3 *Groundwater summary*

During the investigation, groundwater was only encountered in one position: TP214 at 2.50m bgl. The water table is expected to be perched at this position, as this water level was not encountered in other locations at this depth.

Groundwater has only been encountered during monitoring at BH307 in the southern zone of the site, at a depth of circa 2.5m - 7m bgl.

Within the Rhondda Member, recorded infiltration rates were between 8.3×10^{-5} and 3.3×10^{-6}m/s.

5.4 Ground gases

Records from the gas monitoring boreholes are presented in Appendix D and summarised in Table 5.6.

6 monitoring visits have been undertaken, and as such monitoring across the majority of the site is complete. There is on-going monitoring in BH307. The data are assessed in Section 7.7.

Table 5.6: Range of ground gas data

Stratum	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Steady flow rate (l/hr)	Comment
Made Ground	0.0 – 0.0	0.0 – 7.4	8.6 – 20.7	0.1 – 0.3	Minimum flow has been assumed as 0.1l/hr where no flow was recorded, as per the limit of detection for the gas analyser.
Rhondda Member	0.0 - 0.0	1.2 – 2.4	0.9 – 18.8	0.1 – 0.1	

5.5 Geotechnical data

5.5.1 *Introduction*

Laboratory test results are contained in Appendix B with *in situ* test results shown on the relevant exploratory hole log or datasheet.. The following sections summarise the main findings and provide interpretation where appropriate.

5.5.2 *Plasticity*

The volume change potentials in terms of BRE Digest 298 with respect to building near trees have been determined from the results of plasticity index tests on samples of soil. These are summarised in Table 5.7.

Table 5.7: Volume change potential

Stratum	No. of tests	Plasticity Index			**Volume change potential**
		Min.	Max.	Av.	
Made Ground	5	10	13	12 (11.6 but always reported as an integer)	Low to medium

5.5.3 *Particle size distribution*

Particle Size Distribution test (PSDs) results are summarised in Table 5.8 and summary descriptions and PSD plots of the material analysed are presented in Appendix B.

Table 5.8: PSD results summary

Stratum	No. of tests	Silt/Clay %	Sand %	Gravel %	Cobbles & boulders %	General description
Made Ground*	30	2 - 25	6 - 32	31 - 91	0 - 54	Sandy/clayey GRAVEL with cobbles and boulders.
Topsoil	1	41	28	30	0	Sandy gravelly SILT.
Rhondda Member	5	3 - 16	3 - 23	25 - 44	38 - 63	Sandy GRAVEL with cobbles and boulders.

5.5.4 *Relative density*

Table 5.9 summarises information pertaining to the relative density of the granular soils according to geological stratum. Factual results are summarised for laboratory tests, field tests (e.g. SPT, dynamic probe correlation).

Table 5.9: Relative density results and derived values

Stratum	No. of tests	Method	SPT (N-value) (Range)	phi' (°)
Made Ground	15	SPT	<1 - 231	28
Rhondda Member	15	SPT	65 - 750	-

5.5.5 *Subgrade stiffness*

The subgrade stiffness (CBR) results are summarised in Table 5.10.

Table 5.10: CBR results and derived values

Stratum	No. tests	Method	CBR (%) (Range)
Made Ground	17	TRL-DCP	2 - 70

Note that where the CBR is recorded in excess of 100% this has been disregarded as this will reflect an obstruction not subgrade stiffness characteristics.

5.5.6 *Sulfate content*

In accordance with BRE (Special Digest 1), the Design Sulfate (DS) classification and the Aggressive Chemical Environment for Concrete (ACEC) classification are presented in Table 5.11. The assessment summary sheets are presented in Appendix B.

Table 5.11: Aggressive chemical environment concrete classification

Stratum	No. tests	DS	ACEC
Made Ground	10	DS-1	AC-1

5.5.7 *Intact material strength – rock*

Table 5.12 summarises information pertaining to the strength of the intact rock material (not rock mass) according to geological stratum and, if applicable, weathering zones or other variations within particular strata.

Factual results are summarised for laboratory and field tests. Where point load index tests are used to infer unconfined compressive strength (UCS), this is also tabulated. Rock strength terms follow the method of BS EN ISO 14689-1:2003.

Care should be exercised in using these assumed rock strength parameters for any purpose beyond the scope of this report because it may be that additional sampling and testing is required for certain purposes. The reader should refer to the original test results in Appendix B.. Note also that rock mass properties, rather than intact rock material properties, may be more suitable for design purposes.

Table 5.12: Intact rock strength results and derived values

Stratum	No. of tests	Point load index (Range)		UCS (MPa) (range)	Method
		Is	$Is_{(50)}$		
Rhondda Member	22	0.05 - >4.67	0.08 - >6.48	56.7 - 71.9	Point load correlation
	4	-	-	56.7 - 71.9	UCS test

6. Geotechnical assessment

6.1 Geotechnical categorization of the proposed development

Eurocode 7, Section 2 advocates the use of geotechnical categorization of the proposed structures to establish the design requirements.

The proposed development is to comprise low rise (2 to 3 storey) residential dwellings, with associated gardens, Public Open Space and infrastructure. A preliminary review of the levels indicates there may be requirements for up to 2.0m of cut and 2.5m of fill on sections of the site, with a significant number of retaining walls across the site. In addition, a review of the surface water drainage strategy indicates surface water will be retained in a surface water attenuation pond located in the south of the site.

Based on the above, for the purposes of this investigation, the proposed structures have been classed as Geotechnical Category 2, due to the significant earthworks and retaining walls proposed. If the extent of the earthworks is less than envisaged or the retaining walls are below 2m in height then it may be possible to reduce the site to a Geotechnical Category 1 rating.

Following ground investigation and as part of the assessment provided in the following section, the preliminary geotechnical hazard identification undertaken in Section 3.1 has been updated.

Assessment has been undertaken in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents CS 641 and CD 622. The preliminary Geotechnical Risk Register following investigation is provided in Appendix G (Table J.3) and will need to be updated during future design works.

6.2 Characteristic design values

In accordance with BS EN ISO 1997-1 (EC 7), Hydrock consider the proposed structures would be classified as Category 2 structures. As part of the separate geotechnical design, the designer should determine the geotechnical design values.

Table 6.1 provides characteristic geotechnical values to assist the designer. These are based on laboratory testing, *in situ* testing and by professional judgement using published data together with knowledge and experience of the ground conditions. Care should be exercised in using these assumed soil strength parameters for any purpose beyond the scope of this report because it may be that additional sampling and testing are required for certain purposes. The reader should refer to the original test results summarised in Section 4 and provided in Appendix B.

Table 6.1: Characteristic geotechnical values

Parameter Stratum	Bulk unit weight kN/m^3 γ [a]	Effective angle of internal friction ° ϕ' [b c]	Effective cohesion kN/m^2 c' [d]	Undrained shear strength kN/m^2 c_u [e]	Coefficient of compressibility m^2/MN m_v [f]	Modulus of subgrade reaction (IAN73/06) $MN/m^2/m$ k [g]
Made Ground	18	30	0	N/A	N/A	N/A
Rhondda Member	18-22	35-40	0	N/A	N/A	N/A

a. Estimated based on the recommendations of BS 8004-2015.

b. Internal friction (φ') values for the granular in situ material derived from SPT data following the recommendations of Peck et al., (1967).

c. Internal friction (φ') values for the cohesive in-situ material derived from BS 8004-2015, where φcv' is derived from plasticity index. The use of φcv' in the analysis is considered to provide a conservative estimate of φ'.

d. BS 8002:1994 Code of practice for Earth retaining structures, British Standards institution.

6.3 Groundwork

6.3.1 Site preparation

The redevelopment will involve demolition of the existing buildings. This should be undertaken to an appropriate Specification to ensure any asset materials generated are geotechnically suitable for use.

Buried obstructions were encountered during this investigation associated with foundations of old buildings, and services etc., and there is a possibility of further such obstructions being encountered.

A full investigation to delineate all obstructions on site was outside of the scope of this preliminary investigation . However, at this early stage it is expected that a phase of enabling works and a turnover specification would be the most efficient way of eliminating obstructions on site for the proposed development of housing stock.

Where Topsoil has been encountered this should be removed from beneath all building and hardstanding areas. Whilst not logged as topsoil, an organic surface layer was encountered in grass landscaped areas in the northern portion of the site, this should be removed from areas proposed to be building or hardstanding.

6.3.2 Groundworks

Following breaking out of hardstanding and obstructions, excavation of shallow soils should be readily undertaken by conventional plant and equipment. However, excavation through any buried construction and intact rock quality strata may require heavy-duty excavation plant or ripping plant.

Trial pit faces were noted to remain generally vertical without collapse. Spalling and side wall collapses mainly occurred where an increase of demolition material was present within the Made Ground

Random and sudden falls should be expected from the faces of near vertically sided excavations put down at the site.

Temporary trench support, or battering of excavation sides, is recommended for all excavations that are to be left open for any length of time and will definitely be required where man entry is

required. Particular attention should be paid to excavation at, or close to, site boundaries/adjoining existing roads/structures/buildings, where collapse of excavation faces could have a disproportionate effect.

A risk assessment of the stability of any open excavation should be undertaken by a competent person and appropriate measures adopted to ensure safe working practise in and around open excavations. Further guidance on responsibilities and requirements for working near, and in, excavations can be obtained from the Construction Design and Management Regulations (2015); Construction Information Sheet 47: Inspections and Reports (2005) and HSG47: Avoiding Danger from Underground Services.

To ensure no loads are imposed on the sides of the excavation, spoil should not be placed immediately adjacent to the excavation. Spoil should be placed a suitable distance from the side of the excavation (as assessed by a competent person).

Based on site observations, the rate of water ingress to the proposed excavations is likely to be slow. In these circumstances, groundwater control by sump pumping is likely to be sufficient.

6.3.3 Earthworks/reuse of site-won materials

Whilst no specific earthworks testing has been undertaken, it is understood cut to fill will be required across the site however, the full extent of this is unknown. Hydrock understand that there could be up to 2m of cut in and up to 2.5m fill in some places.

6.4 Slope stability

The site is currently a mixture of flat plateaus where the previous estate houses were located and slopes that are between 1:3, with a few locations increasing to 1:2. The use of retaining walls will be required to re-create the previous flat plateaus and to help deal with the slopes on site. No formal slope stability assessment is deemed necessary at this time but this should be reviewed once proposed slope angles are known and how they interact with proposed retaining walls.

Separate geotechnical design will be required to fully assess slope stability and design of retaining features.

6.5 Retaining walls

With regard to the proposed retaining walls, Hydrock understand there will be a number of small (i.e. <2.0m in height) walls across the site. Some retaining walls may be over 2m and would have to be assessed as part of a separate Geotechnical Design report and are not covered within this report.

The construction methods for retaining walls have not been decided at the time of writing this report. However, the following recommendations are suitable for the following styles of retaining wall

- reinforced concrete
- masonry
- gabions
- crib lock

A safe bearing pressure of 50 kN/m^2 is recommended if the retaining wall is founded at a depth of 1.0 to 2.5m bgl into the weathered Rhondda Member or onto competent bedrock of the Rhondda Member. Where the Made Ground thickness is in excess of 2.5m and prevents founding on natural soils/bedrock consideration to excavate and replace or ground improvement may be required.

Design parameters are provided in Table 6.1 and the retaining walls will need to be designed by a structural engineer OR by the design and build Contractor.

Allowance should be made in the design of the retaining walls for adequate drainage behind the structure, or for water seepage through the face of the wall. The stability of the retaining wall is not considered in this report and should be considered by the designer.

6.6 Foundation type

On the basis of the ground conditions encountered, which generally recorded less than 2.5m of Made Ground over a shallow bedrock of the Rhondda Member, shallow foundations in the form of pads or trench fill foundations are recommended.

Where Made Ground has been recorded in excess of 2.5m thick, alternative foundation methods should be considered, such as;

- excavate and replacement of the Made Ground with Structural fill, for which a specification would be required;
- the use of concrete man hole rings placed onto the Rhondda member connected with ring beams; or
- turn over specification for the Made Ground, to remove obstructions and remediate the Made Ground.

Given the obstructions and type of Made Ground encountered piling is unlikely to be a successful foundation solution, and given the previous housing estate was constructed using shallow foundations it would seem sensible and more sustainable to use shallow foundations for the proposed new development.

6.6.1 Shallow Strip or Pad Foundations

Strip or trench fill foundations are considered suitable where less than 2.5m of Made Ground has been recorded. The foundations should be placed below any Made Ground and at least 300mm into the undisturbed Rhondda Member.

A safe net bearing pressure of 150kN/m^2 is considered appropriate based on trench fill or pad foundations up to 1m wide placed into the Rhondda Member. This should limit any settlement to less than 25mm. It should be noted that in some areas of the site a weathered upper section of the Rhondda Member was encountered and recorded as a medium dense sandy GRAVEL, this is considered sufficient to support the above recommended bearing pressure. However, if foundations are placed directly onto competent medium strong Sandstone of the Rhondda Member then this safe net bearing pressure can be increased to 200kN/m^2

Where foundation depths are stepped, for instance to match changes in depths due to trees or changes in ground conditions/elevations, the steps should be designed in accordance with the requirements of the NHBC Standards.

If trees are to be removed, the roots should be grubbed out and foundations extended to below the zone of disturbance created by this activity and to below any remaining root hairs. In addition, deepening of foundations in accordance with NHBC Standards will be required where strip or trench fill foundations are within the zone of influence of existing, removed or proposed trees and proposed shrub planting. A tree survey should be undertaken by an arboriculturist in accordance with BS 5837:2012 to identify the type, and height of existing trees on the site and including any off-site trees, which could have an effect on foundation design.

Where foundations are within the zone of potential desiccation from trees and are deeper than 1.5m bgl, a suitable compressible material or void former will be required on the inside faces of foundations to external walls and beneath ground bearing floor slabs.

Excavation of trench fill foundations in excess of 2.5m bgl is unlikely to be economic and may be impracticable to undertake due to the variability of Made Ground. In addition, if foundations in excess of 2.5m depth are proposed, they should be designed by a Structural Engineer in

accordance with the requirements of the NHBC Standards (Chapter 4.2.8) and NHBC Technical Requirement R5. In addition, Hydrock recommends when trench fill foundations are deeper than 2.5m due to trees, the design should take into account soil desiccation risk from plot specific testing if within the influencing distance of trees.

Foundation formations should be inspected by a geotechnical engineer or other suitably competent person to ensure the founding conditions are suitable and as indicated in this report. Any formation materials deemed as unsuitable should be excavated and replaced with lean mix concrete or deepened to suitable strata. If this is not possible, alternative solutions (such as piling) should be undertaken.

Foundation excavations should be protected from rainfall, inflow of surface water, frost and freezing conditions. They should also be protected from drying out in hot dry weather.

Groundwater monitoring indicates a sporadic, low flow groundwater table. Any water that collects at the base of the foundation excavations should be removed by pumping from a sump in the base.

6.7 Roads and pavements

Based on the test results and Hydrock's experience and visual inspection of the soils on site and subject to *in situ* testing during construction, it is considered likely an equilibrium CBR of 3% will be achievable over the majority of the site when pavements or roads are placed directly onto Made Ground. Where roads or pavements are placed onto weathered bedrock or rock head a higher CBR value of 7% can be utilised.

Proof rolling of the formation level will be required and any loose or soft spots should be removed and replaced with an engineered fill, in accordance with a suitable Specification. The formation level will also need to be protected during inclement weather from deterioration; all slopes should be trimmed to falls to shed rain water and the surface sealed to limit infiltration.

Prior to the placement of the founding materials and the construction of the road pavement, the sub-formation and formation will need to be inspected and checked in accordance with a suitable specification to ensure the ground conditions are as expected. All testing should be carried out in accordance with DMRB IAN 73/06 to confirm that the ground conditions at time of construction are consistent with the previous design parameters.

6.8 Drainage

Indicative infiltration rates from the ground investigation are presented in Appendix B and are summarised in Table 5.5.

The indicative infiltration rates suggest that the Rhondda Member is suitable for soakaways and sustainable urban drainage features. Any infiltration features will need to be founded solely in the natural strata and may require lining when partially placed in any Made Ground if it remains in-situ.

Further targeted infiltration testing may be required to supported detailed drainage design and a SAB compliant submission, consultation with the drainage engineer should be made prior to instructing additional infiltration testing.

6.9 Buried concrete

Based on guidelines provided in BRE Special Digest 1 (BRE 2005) and the information presented in Section 5.5.6 (Table 5.11), the shallow soils (Made Ground) can be classified as Design Sulfate Class DS-1 and ACEC Class AC-1.

The designer should check and confirm the classification of concrete using the information presented in Appendix E during the design.

7. Geo-environmental assessment

7.1 Updated conceptual model

7.1.1 Updated ground model

The initial CSM developed from the desk study and field reconnaissance survey has been updated using the findings of the ground investigation and is presented in Section 5. The updated CSM is the basis for the geo-environmental assessment presented in this section.

7.1.2 Updated exposure model

Following the ground investigation, the plausible contaminant sources, receptors and pathways identified in the preliminary geo-environmental exposure model have been updated or confirmed as follows.

7.1.2.1 Sources

The following potential sources have been removed from the exposure model:

- PCBs and oils from transformers in the electricity sub-stations on site (S02).
- Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S03).

The following potential sources have been modified for the exposure model:

- Made Ground, associated with historical construction activities and imported fill including elevated concentrations of PAH (S01).
- Asbestos associated with the boiler house in the north of the site (S05).
- Asbestos Containing Materials associated with gaskets on former pipe work of the district heat network (S07).

The following potential sources have been added to the exposure model:

- Petroleum hydrocarbons and VOC/SVOC in groundwater below the site (S09).

7.1.2.2 Receptors

The following potential receptor has been removed from the exposure model.

- Development end-use (buildings, utilities and landscaping) (R02)

7.1.2.3 Pathways

The following potential pathway has been removed from the exposure model.

- Methane/carbon dioxide (ground gas) ingress via permeable soils and/or construction gaps (P02).

The following potential pathway has been added to the exposure model.

- Vapour (VOC/SVOC) release into outdoor air (P07).

Using the updated ground model and updated exposure model, generic risk assessment is undertaken as presented below.

7.2 Risk assessment approach

Using the updated CSM, a Tier 2 generic quantitative risk assessment (GQRA) for identified receptors based on all media sampled has been undertaken in accordance with the principles of LCRM.

Firstly, the risks associated with the identified potential contaminant linkages have been estimated using standardised methods (typically involving comparison of site data with published 'screening

values'). Secondly, where screening values are exceeded, the result has been evaluated in an authoritative review of the findings with other pertinent information to determine whether or not the exceedance is or is not acceptable in the site-specific circumstances.

The data sets used in the assessment comprise the analytical results obtained by Hydrock as listed in Section 5.

In cases where potentially unacceptable risks are indicated and/or the land is potentially unsuitable for its intended use, actions such as more advanced stages of risk assessment (Tier 3, detailed quantitative risk assessment (DQRA)) or remediation are proposed in Section 7.9.

7.3 Human health risk assessment

7.3.1 Soils Assessment

7.3.1.1 Generic Assessment Criteria

The soil screening values used are generic assessment criteria (GAC) (i.e. derived in accordance with EA CLEA guidance (2009) using the updated exposure model detailed in Defra SP1010 (2014), with the exception of published C4SLs. The term 'GAC' used in this report is inclusive of all generic soil screening values.

Based on the proposed development, generic assessment criteria (GAC) based on a default residential with homegrown produce CLEA land use scenarios have been adopted.

GAC are selected based on the following hierarchy:

- Category 4 Screening Levels (C4SL), where available.
- SoBRA Acute GAC for free cyanide, as acute dose toxicity is the primary risk driver.
- Hydrock GAC, derived by Hydrock as detailed in Appendix E

The results of the assessment are presented in Appendix E

7.3.1.2 Data sets

The data set(s) used in this report is based on the conceptual site model and the proposed development. Hydrock have spilt the data sets into three notable areas, General Made Ground (Site wide), Made Ground recorded beneath road ways, and Topsoil.

GAC based on a soil organic matter (SOM) of 2.5% have been adopted for all Made Ground soils based on laboratory results. This differs for Topsoil recorded in the south of the site and (SOM) of 6% has been adopted. This is shown on separate assessment sheets are presented in Appendix E.

7.3.1.3 Assessment Results

Based on individual test results that exceed the GAC, the chemicals of potential concern (CoPC) which require further assessment are summarised in Table 7.1.

Table 7.1: CoPC in soils which require further assessment (human health)

CoPC	GAC (mg/kg)	GAC Source	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples >GAC
General Made Ground						
Arsenic	37	Hydrock Derived	24	6.10	37	1
Benzo(b)fluoranthene	4.1	Hydrock Derived	24	0.05	4.2	1

Dibenz(ah)anthracene	0.29	Hydrock Derived	24	0.05	0.75	5
Made Ground (Roads)						
Benzo(a)anthracene	12	Hydrock Derived	2	6	93	1
Benzo(a)pyrene	5	C4SL: CL:AIRE 2014	2	8.3	97	2
Benzo(b)fluoranthene	3.3	Hydrock Derived	2	11	130	2
Chrysene	22	Hydrock Derived	2	6.8	100	1
Dibenz(ah)anthracene	0.29	Hydrock Derived	2	0.05	14	1
Indeno(123cd)pyrene	36	Hydrock Derived	2	5.2	38	1

The individual analytical results have been compared with the relevant GAC in the summary table in Appendix E. The presence of arsenic benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(ah)anthracene, and Indeno(123cd)pyrene in Made Ground, requires further consideration.

The phrase 'further assessment required' is used to denote soil concentrations that exceed a GAC. This does not necessarily mean that the soil is 'contaminated' or not otherwise suitable for use. The assessment and any mitigation required are to ensure the site does not pose an 'unacceptable risk' as defined under Planning and Part 2A of EPA 1990.

7.3.2 Asbestos

Asbestos Containing Materials (ACM) were suspected to underlie the northern (housing estate) area pf the site, associated with lagging and insulation of the redundant district heating network. Samples of lagging and gaskets along the pipes of the heating network were taken from below manhole covers (MH) spread across the site, the locations of which are summarised in Table 7.2.

Table 7.2: Visual evidence of Asbestos Containing Materials

Location	Comment	Results of laboratory testing
MH01	Insulation to pipe.	No asbestos detected.
MH01	Insulation to pipe.	No asbestos detected.
MH02	Possible asbestos pipe lagging.	No asbestos detected.
MH02	Possible asbestos pipe lagging.	No asbestos detected.
MH02	Insulation to orthogonal pipe.	No asbestos detected.
MH02	Loose gasket.	Asbestos detected – chrysotile.
MH03	Insulation to pipe.	No asbestos detected.
MH03	Insulation to pipe.	No asbestos detected.
MH03	Insulation to orthogonal pipe.	No asbestos detected.
MH04	Insulation to pipe.	No asbestos detected.

Location	Comment	Results of laboratory testing
MH04	Insulation to pipe.	No asbestos detected.
MH05	Insulation to pipe.	No asbestos detected.
MH05	Insulation to orthogonal pipe.	No asbestos detected.
MH05	Insulating board debris.	No asbestos detected.
MH06	Insulation to pipe.	No asbestos detected.
MH06	Insulation to pipe.	No asbestos detected.
MH07	Insulation to pipe.	No asbestos detected.
MH07	Insulation to pipe.	No asbestos detected.
MH08	Insulation to pipe.	No asbestos detected.
MH08	Insulation to pipe.	No asbestos detected.

Of the 33 soil samples analysed for asbestos across the site, none returned a positive asbestos ID. Note that the location of MH04 was not recorded by GEL during the ground investigation, and thus it is absent from the exploratory hole location plan.

7.3.3 *Risk evaluation*

The screening exercise has identified:

- Arsenic, benzo(b)fluoranthene, and dibenz(ah)anthracene, within the general Made Ground; and
- benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(ah)anthracene, and indeno(123cd)pyrene within the Made Ground beneath roads.

These are considered further here to assess if the exceedance may be acceptable with respect to the proposed development. The phrase 'further assessment' does not necessarily mean that the soil is 'contaminated' or not fit for use.

7.3.3.1 *General Made Ground*

One sample in BH302B recorded an arsenic occurrence of 37mg/kg which is at the GAC (37mg/kg) for residential with plant uptake. However, on statistical review the upper confidence level of the mean is below the GAC and no further consideration is required for arsenic.

There is 1 exceedance of benzo(b)fluoranthene of 4.2mg/kg compared to the GAC of 4.1mg/kg. This is considered a marginal exceedance of the GAC, and similar to arsenic the upper confidence level of the mean is below the GAC and no further consideration is required for benzo(b)fluoranthene.

There are 5 exceedances of dibenz(ah)anthracene ranging from 0.31mg/kg to 0.75mg/kg in comparison to the GAC of 0.29mg/kg. The 99th upper confidence limit is (0.31mg/kg) and only marginally in exceedance of the GAC (0.29mg/kg), Therefore, this can be considered a minor exceedance of the GAC and no further consideration is required for dibenz(ah)anthracene

7.3.3.2 *Made Ground beneath roadways*

The exceedances recorded within the Made Ground beneath the road are as follows:

- benz(a)anthracene (93mg/kg vs GAC of 12mg/kg),
- benzo(a)pyrene, (97mg/kg vs GAC of 5mg/kg),
- benzo(b)fluoranthene, (130mg/kg vs GAC of 3.3mg/kg),
- chrysene, (100mg/kg vs GAC of 22mg/kg),
- dibenz(ah)anthracene, (14mg/kg vs GAC of 0.29mg/kg),
- indeno(123cd)pyrene (38mg/kg vs GAC of 36mg/kg),

It is considered that at this early stage this is an unacceptable risk. However, due to the limited locations that were possible to complete in the roadways and the small size of the data set and additional sampling and testing of this stratum is recommended to understand the exceedances better.

7.3.3.3 Asbestos

Asbestos Containing Materials were only identified in manhole MH02, and comprised a fragment of loose chrysotile gasket along the length of an exposed pipe which forms part of the redundant district heating network. No fibres of asbestos were detected in any of the Made Ground samples analysed across the site.

Hydrock consider asbestos to be localised in association with the district heating network, and therefore does not foresee widespread asbestos fibres to be characteristic of any Made Ground on the site. However, sporadic fly tipping of asbestos cement board is still present in small areas of the site, which could pose a risk to the end user.

Overall, the risk associated with the identified presence of asbestos is considered to be low, however, mitigation will be required to ensure risks to site users remains negligible. It should be noted that this aspect of assessment does not account for any asbestos within existing above ground structures, which includes houses and the boiler house in the north of the site.

7.4 Phytotoxicity risk assessment

7.4.1 Risk estimation

Priority phytotoxic chemical concentrations have been screened against published values to determine the likely risk to plant growth (phytotoxic GAC). Phytotoxic GAC based on a pH of >7% have been adopted for all soils based on laboratory results.

As with human health, individual sample test results are compared directly with the phytotoxic GAC.

Results indicate that all CoPC are below the relevant phytotoxic GAC, therefore the contaminant linkage is incomplete.

7.4.2 Risk evaluation

Detriment to plant life is difficult to quantify and many of the GAC are based on agricultural crop yields rather than harm to particular plant species.

Hydrock does not believe there to be an unacceptable risk to plant life from contamination and no any additional consideration is required with regard to risks to plant life.

7.5 Pollution of controlled waters risk assessment

7.5.1 Risk estimation

The risks to groundwater and surface water from contaminants on site have been assessed in accordance with the Environment Agency (2006) Remedial Targets Methodology (RTM).

Site contaminant loadings are compared with relevant screening values (Water Quality Targets (WQTs), which are linked to the CSM.

Acceptable WQT are defined for protection of human health (based on Drinking Water Standards (DWS)) and for protection of aquatic ecosystems (Environmental Quality Standards (EQS)).

As related specifically to this site, the data are compared with criteria selected in accordance with the methodology presented in Appendix E. This methodology involves selecting which of several alternative risk scenarios apply in this case. The assessment is presented in Table 7.3 below, with the justification for the scenarios selected explained in the following text:

The Secondary A Aquifer of the Rhondda Member was not encountered in any exploratory hole location. Perched groundwater was only found to be present within the Made Ground in TP214 2.50m bgl A deeper groundwater body is anticipated to be present in the Rhondda Member beyond 10mbgl, in keeping with the water levels of the Afon Rhondda Fach and River Rhondda, and is thought to be flowing north to south, under the influence of topography. Transmission of identified CoPCs is likely to occur laterally between the strata, but expected to be significantly impeded by the hardstanding across the site, which will inhibit infiltration of surface water, and in turn lateral migration of contaminants.

Table 7.3: Summary of water quality risk assessment protocol

Hydrock scenario	Water body receptors	Secondary receptors	Example contaminant linkages	RTM level and data used	Water quality targets
B	Groundwater	Surface water – Afon Rhondda Fach and River Rhondda.	Contaminants from site leach or seep into a groundwater body that feeds inland surface water by base flow. The surface water may be an aquatic ecosystem.	RTM Level 1	EQS (inland)

Notes:

Some EQS are water hardness dependent. This is measured either in the receiving surface water or in groundwater (if it is part of the pathway), or is estimated from national maps.

Inland waters EQS applicable to freshwater, 'other' waters EQS applicable to coastal or transitional waters.

This table and the results of the assessment are considered as a first screening for potential risks of pollution of Controlled Waters. More specific requirements may be stipulated by the relevant Agency.

The results of the screening assessment are presented in Appendix E and are summarised in Table 7.4.

In some instances, the reporting limit (or detection limit) quoted by the laboratory may be greater than the WQT that it is being assessed against. As the current exercise is an initial screening assessment, further assessment of these elements has not been undertaken.

Table 7.4: CoPC which require further assessment (controlled waters)

CoPC	WQT (µg/l)	Basis for WQT	No. samples	No. samples above LoD	Min. (µg/l)	Max. (µg/l)	No. samples exceeding WQT and above LoD
Soil Leachate Data							
Copper	1	EQS (inland)	12	12	1.3	36.0	12
Lead	1.2	EQS (inland)	12	4	<1.0	2.5	3
Vanadium	20	EQS (inland)	12	4	<1.7	57	1
Fluoranthene	0.00017	EQS (inland)	12	1	<0.01	0.23	1

Note: the maximum recorded value is compared with the water quality target.

7.5.2 Risk evaluation

The EQS inland WQT for copper, lead vanadium and fluoranthene have been exceeded. However, the risk to groundwater is considered to be very low, due to the distance between contaminants and a deep groundwater body, (which was not identified during fieldwork investigation) which prevents transmission and leaching of contaminants.

Furthermore, the inland waters EQSs for copper, and lead are based on the bioavailable fraction and because bioavailability has not been calculated for these metals the assessment is conservative as it assumes 100% bioavailability.

Therefore, whilst there are concentrations of Chemicals of Potential Concern elevated above the water quality criteria in leachates, based on the remediation and investigation works undertaken to date and subject to agreement with Natural Resources Wales, Hydrock does not believe the majority of the site poses a significant risk to Controlled Waters, and no further remediation is required.

There is continued monitoring and sampling of groundwater samples from BH307 in the far south of the site and this will be assessed within a separate technical note once complete.

7.6 Ground gases risk assessment

7.6.1 Data

GEL (on behalf of the client and instructed by Hydrock) have undertaken the 6 readings required, including periods of falling atmospheric pressure. The conclusions of the ground gas risk assessment (excluding the ongoing monitoring at BH307) are presented below.

7.6.2 Assessment

The risks associated with the ground gases methane (CH_4) and carbon dioxide (CO_2) have been assessed using BS 8485:2015 +A1:2019,

The assessment guidelines set out in Table 2 of BS 8485 are based on interpretation of the gas concentrations and the gas flow rates. The quantitative assessment has been carried out by comparing the individual gas concentrations and gas screening values (GSV[1]) in Appendix D with

[1] Note: GSV is synonymous with 'site characteristic hazardous gas flow rate' (Q_{hgs}) of BS 8485:2015 +A1:2019 Table.

the published CS thresholds (BS 8485 Table 2), in addition to a worst-case GSV assessment in accordance with section 6.3.7 of BS 8485. The assessment is summarised in Table 7.5 and the full assessment is presented in Appendix D.

Table 7.5: Ground gas risk assessment

	Min	Max	Typical [i]	Comment
Carbon Monoxide (ppm)	0	25	0	Carbon monoxide has only been noted in two positions, on one occasion each.
Carbon Dioxide GSV (l/hr)	0	0.0074	0.002	CS1
Methane GSV (l/hr)	0	0	0	CS1
Plausible worst-case check		0.0222	-	CS1
For the purposes of the calculation, where the recorded gas flow rate is below the manufacturer's limit of detection for the instrument used, the detection limit has been adopted for the gas flow rate.				

As indicated in Table 7.5, the computed GSV for carbon dioxide and methane indicates CS1 conditions and methane and carbon dioxide at concentrations are 'typically' below 1% and 5% respectively. As such, the site is classified as Characteristic Situation 1.

A maximum concentration of 25ppm of Carbon Monoxide has been recorded. Health and Safety Executive guidance indicates that the long term exposure limit to carbon monoxide should not exceed 20ppm, and thus this recorded concentration may pose risks to the end user. As such, further gas monitoring for Carbon Monoxide is recommended.

Elevated concentrations of VOC have also been recorded in BH307 in the south of the site in the range of 99.2 - 108.6 ppm. The elevated carbon monoxide record of 25ppm also relates to this same borehole. As this is the only borehole which has recorded groundwater, it is possible that this contamination is derived from the water table, as there is a lack of Made Ground in this area. Further works have been agreed which will make assessment of the vapour risk to the development in a separate technical note.
Following the conclusion of the monitoring and update of the technical note, the characteristic situation may be upgraded to reflect these findings. As such the CS1 classification is considered preliminary.

7.7 Construction materials risk assessment

7.7.1 Water pipelines

A formal water pipe investigation and risk assessment is beyond the scope of this report. However, the findings of this investigation have been compared to the threshold values in Water UK HBF (2014), Table 1 as far as is practicable.

The site is brownfield and organic contamination (PAH) has been identified in exceedance of the threshold values and Hydrock believes barrier pipe is required. However, confirmation should be sought from the water supply company at the earliest opportunity.

7.7.2 Other construction materials

Plastic pipes for drains and sewers are manufactured from unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) or polyethylene (PE). These materials may be affected by the presence of organic compounds in the soil.

In accordance with the British Plastics Federation Guidance (August, 2018), as the concentrations of PAH, are below 100mg/kg, PVC-U, PP or PE pipework is considered suitable.

The implications for buried concrete are discussed in Section 6.9.

7.8 Findings of the generic contamination risk assessments

The potential sources, pathways and receptors identified in the desk study) have been investigated and assessed (Sections 7.2 to 7.7). A Source-Pathway-Receptor linkage assessment has been undertaken and is presented in Appendix H (Table H.2).

The final CSM will be provided on final issue of the report.

A summary of the Source-Pathway-Receptor (SPR) contaminant linkages for which the risks may be unacceptable and require mitigation (those that are moderate or higher) are discussed in Table 7.6.

Table 7.6: Residual risks following risk evaluation

Contaminant Linkage				Comments	
Pollutant Linkage	Sources	Pathways	Receptors	General	Mitigation
PL 1.	Made Ground beneath road with exceedances of PAHs.	Ingestion, inhalation or direct contact.	Human health.	Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(ah)anthracene, and Indeno(123cd)pyrene were recorded as exceeded. It is suggested at this time pending any further sampling that any Made Ground from beneath roads is not re-used in areas of soft landscaping such as gardens or public open spaces.	
PL 2.	Fly Tipped wastes including metals metalloids asbestos and asbestos containing materials	Ingestion, inhalation or direct contact.	Human health.	Fly tipped waste was noted during the desk study walkovers, and with new fly tipping on going during the site investigation. The removal of this waste should be undertaken, and additional testing of the soils in these local areas to confirm no residual contamination.	
PL 3.	Asbestos within existing buildings and boiler houses.	Ingestion, inhalation or direct contact.	Human health.	Asbestos surveys of the existing housing stock and the boiler house should be complete prior to demolition. If asbestos is recorded this should be stripped ahead of demolition by a licensed contractor and disposed of at a suitable licensed facility.	
PL 4.	Asbestos gaskets within district heating network	Ingestion, inhalation or direct contact.	Human health.	Only a gasket within the heating network was recorded as asbestos. Hand picking of gaskets should be allowed for by a suitable qualified asbestos surveyor during removal of the heating network.	

Contaminant Linkage				Comments	
Pollutant Linkage	Sources	Pathways	Receptors	General	Mitigation
PL 5.	Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons	Ingestion, inhalation or direct contact.	Human health	Bonfire remnants were noted during the walkover, and bonfires were on going during the site investigation. The removal of this waste should be undertaken, and additional testing of the soils in these local areas to confirm no residual contamination.	
PL 6.	TPH and VOC/SVOC in groundwater within monitoring wells.	Inhalation.	Human health.	Elevated VOCs have been recorded on 3 occasions in BH307, where no Made Ground is present. This is the only borehole which has recorded groundwater during the monitoring cycles, and the only borehole with elevated VOC concentrations. As such, it is assumed that contaminated groundwater is the sources of VOC and SVOC, but this should be confirmed by the on-going groundwater sampling and gas monitoring.	

7.9 Mitigation measures

The outline remediation strategy presented below is provided for guidance only, and does not represent a 'Remediation Options Appraisal', or a 'Remediation Strategy', prepared in accordance with LCRM (2021).

Once a development layout is available it would be worth reviewing to assess whether further sampling, testing and assessment could be carried out to zone the site for its specific uses more accurately. This may lead to less mitigation being required in less sensitive end use scenarios such as public open space. This is a preliminary assessment and therefore is for initial guidance only.

As shown in Table 7.6 (and subject to regulatory (and NHBC) agreement), Hydrock consider the following mitigation is required to ensure the site is suitable for use for the proposed end use. The mitigation measures include:

- Due to the exceedances recorded beneath road ways these soils should not be placed at surface within areas of soft landscaping. If these soils end up in areas of soft landscape due to changes in the master-planning then allowance should be made for the installation of a 600mm cover system in gardens comprising a subsoil beneath a topsoil thickness of between 150mm and 300mm. However, in the first instance additional sampling of these materials is suggest to better understand the distribution across the site. (PL1)
- Removal of fly tipped waste and bonfire remnants and additional testing to confirm no residual contamination (PL2 and PL5)
- Asbestos Survey of existing housing and Boiler House (PL3)
- Hand Picking of asbestos gaskets during the removal of the heating network (PL4)

- Gas and groundwater sampling/screening for TPH and SVOC/VOC is on-going in the southern part of the site. There is the potential requirement for the installation of a vapour protection membrane if buildings are to be constructed in this area of the site (at present buildings are not proposed). (PL6)

The methodology for the remediation should be set out in a Remediation Strategy (which will include the 'Implementation Plan', and 'Verification Plan' will need to be submitted to the warranty provider and the regulatory authorities for approval.

In addition, the production of a Materials Management Plan and its approval by a Qualified Person will be required to allow reuse of suitable material at the site in accordance with waste regulations.

Verification reports by a competent independent geo-environmental specialist will be required following completion of any remedial works (including radon membrane and ground gas membrane installation).

8. Waste and materials management

8.1 Introduction

The Waste Framework Directive (WFD) (2009/98/EC) defines waste as '*any substance which the holder discards or intends to discard.*' In a geo-environmental context, the waste is most often 'soil' and the two main scenarios are offsite disposal of the material as a waste and/or reuse of the material on site. For cost and sustainability reasons, reuse is preferred to off-site disposal.

Section 8.2 below describes the key issues relating to off-site disposal to landfill and Section 8.3 considers requirements relating to reuse of soils and materials management.

8.2 Waste disposal

8.2.1 Principles

Based on the WFD, any material excavated on site may be classified as waste and it is the responsibility of the producer of a material to determine whether or not it is waste. Where off-site disposal is undertaken, the following guidance applies.

Classification is a staged process:

- A hazardous waste is defined under the WFD as one which possesses one or more of fifteen defined hazardous properties. If a waste is not defined as hazardous, then it is non-hazardous.
- Where the materials are soil, it is then be assigned using the 'List of Waste Codes', which classifies the material as either:
  - hazardous (17-05-03), which is defined as "*soil and stones containing hazardous substances*"; or
  - non-hazardous (17-05-04), which is defined as "*soil and stones other than those mentioned in 17-05-03*".
  - Hydrock utilise the proprietary assessment tool, HazWasteOnline™ to undertake this assessment.
- Waste Acceptance Criteria (WAC) testing is then undertaken if required, and are only applicable following classification of the waste, and only where the waste is destined for disposal to landfill. The WAC are both qualitative and quantitative. The WAC and the associated laboratory analyses (leaching tests) are not suitable for use in the determination of whether a waste is hazardous or non-hazardous.

It should be noted that some non-hazardous wastes may be suitable for disposal at an inert landfill as non-hazardous waste, subject to meeting the appropriate waste acceptance criteria.

It should be noted that classification must be undertaken on the waste produced, by the waste producer. Necessary sampling frequency to adequately characterise a soil population is defined within WM3.

Further discussion with regards to the characterisation process for different scenarios and waste types is provided below.

Topsoil and Peat

Topsoil and peat are biodegradable, therefore if they are surplus to requirements and cannot be re-used in accordance with a Materials Management Plan, they cannot be classified as inert. As such, topsoil and peat need to be classified by a staged assessment and sampling process and would either be classified as hazardous or non-hazardous, depending upon the results of the assessment.

Contaminated or potentially contaminated sites

If the site is brownfield, contaminated or potentially contaminated, the waste must undergo an initial waste classification exercise using background information on the source and origin of the waste and assessment of chemical test data in accordance with Environment Agency Technical Guidance WM3.

If following the initial waste classification exercise, the soils are acceptable for disposal to a non-hazardous landfill, further qualitative Waste Acceptance Criteria (WAC) testing is not required.

However, if soils are potentially able to be disposed to an inert landfill as non-hazardous waste, or require testing to determine if they can be disposed of to a stable non-reactive hazardous or hazardous class of landfill, the next stage of assessment is to undertake qualitative WAC testing. This will determine the Basic Characterisation and the landfill category at which the soils can be accepted.

Hazardous material must be subjected to WAC testing to determine whether it requires treatment before it can be accepted at the hazardous landfill, while non-hazardous material can be tested to determine whether it may be suitable for placement in an inert landfill.

8.2.2 HazWasteOnline™ assessment

As the site is brownfield, in order to inform the preliminary waste characterisation process, Hydrock has undertaken an exercise using the proprietary web-based tool HazWasteOnline™. The output of the HazWasteOnline™ assessment is provided in Appendix F and a summary of the preliminary waste classification is provided below in Section 8.2.4.

8.2.3 WAC testing

The site is brownfield. However, WAC testing has not been undertaken to date but will be required on the excavated soils that are to be disposed of, to assist with waste disposal options prior to disposal. A summary of the preliminary waste disposal options is provided below in Section 9.2.4.

8.2.4 Preliminary waste disposal options

The site is brownfield and based on the site history and the HazWasteOnline™ assessment, if suitable segregation of different types of waste is put in place, for soils to be disposed of, it is considered that:

- The Made Ground is likely to be classified as non-hazardous waste.
- The natural un-contaminated soils are likely to be classified as non-hazardous waste. If WAC testing is undertaking at time of disposal it may be possible for this to be disposed of as inert.
- Any soils containing > 0.1% asbestos or visible asbestos containing materials would be considered as hazardous.
- It should be noted that there are three instances where high PH has caused the HazWaste to classify the Made Ground a Hazardous. In all of these instances the amount of concrete from previous developments has caused these elevations and they can therefore be discounted.

8.2.5 General waste comments

It should be noted that:

- It is the waste producer's responsibility to segregate the waste at source and waste producers must not mix waste materials/streams or dilute hazardous components, for example by mixing with less or non-hazardous waste on site to meet WAC limit values.
- The above preliminary assessment has been made on the basis of the soils tested as part of the ground investigation, using the HazWasteOnline™ assessment. However, the formal classification of waste can only be undertaken on the material to be disposed of, and by the waste producer and the receiving landfill as license conditions vary from landfill to landfill.
- Basic Characterisation should be undertaken in accordance with Environment Agency guidance by the waste producer. Hydrock can assist if required and this report will assist the characterisation. However, Basic Characterisation does not form part of the current commission and would require further assessment and testing on the wastes actually to be disposed.
- Once the waste producer has undertaken an initial Basic Characterisation on each waste stream, they can manage the soils as part of the on-site processing programme (for example, stockpiling, treatment, screening and separation). The waste producer and landfill operator will then need to agree the suite of compliance testing for regularly generated waste to demonstrate compliance with the initial Basic Characterisation prior to disposal.
- At the time of disposal, additional testing on the excavated soils to be disposed of, will likely be necessary.
- Non-hazardous and hazardous soils require pre-treatment (separation, sorting and screening) prior to disposal.
- The costs for disposal of non-hazardous and hazardous soils are significant compared to disposal of inert material.
- In addition to disposal costs, landfill tax will be applicable. Non-hazardous and hazardous waste will generally be subject to the Standard Rate Landfill Tax. Inert or inactive waste will generally be subject to the Lower Rate Landfill Tax. The landfill tax value changes each April and can be found at https://www.gov.uk/government/publications/rates-and-allowances-landfill-tax/landfill-tax-rates-from-1-april-2013.
- Before a waste producer can move waste to a landfill site for disposal, they need to check the landfill site has the appropriate permit and must have completed the following[2]:
  - Duty of care transfer note / Hazardous Waste consignment note, including comment as to if pre-treatment has been undertaken; and
  - Basic Characterisation of the waste, to include: description of the waste; waste code (using list of wastes); composition of the waste (by testing, if necessary) and; WAC testing (if required).

8.3 Materials management

8.3.1 Introduction

Soils that are to remain on site, should be managed and reused in accordance with a Materials Management Plan (MMP), prepared in accordance with 'The Definition of Waste: Development Industry Code of Practice', Version 2 (CL:AIRE), known as the DoWCoP. Where all aspects of the

[2] ENVIRONMENT AGENCY. November 2010. Guidance on waste acceptance procedures and criteria. Waste acceptance at landfills. The Environment Agency.

DoWCoP are followed the soils are considered not to be waste, because they were never discarded in the first place.

Version 2 of the DoWCoP clearly sets out the principles and an outline of the requirements of a MMP. The following compliance criteria must be seen to apply to the MMP for the site:

- Factor 1: Protection of human health and protection of the environment.
- Factor 2: Suitability for use, without further treatment.
- Factor 3: Certainty of Use.
- Factor 4: Fixed Quantity of Material.

The reuse of soils at sites should be considered during the planning and development design process so that compliance with issues such as fixed quantity and certainty of use clearly relate to agreed site levels. Suitability of Use is normally evident from the remediation strategy or the design statement, which form an integral part of a MMP. However, some soils may need to be tested post-excavation to prove they are suitable for use.

Once the MMP is finalised, it must be declared by a Qualified Person (QP). The Declaration is an on-line submission as part of which the QP is required to confirm that the declaration is being made before the relevant works have commenced (i.e. it is not a retrospective application).

Once all material movements have been completed in accordance with the MMP a verification report must be produced, kept for 2 years and provided to the EA on request.

It should be noted that failure to comply with the requirements of the DoWCoP when re-using materials has potentially significant consequences for the waste holder. The risk is that the reused materials are still regarded as a waste that has been illegally deposited. From 1 April 2018, the scope of Landfill Tax has been extended to sites operating without the appropriate environmental disposal permit, and operators of illegal waste sites will now be liable for Landfill Tax. Further information is available at: https://www.gov.uk/government/publications/landfill-tax-disposals-not-made-at-landfill-sites/landfill-tax-disposals-not-made-at-landfill-sites.

If soils are excavated and reused on sites (or moved to another site) without a MMP, exemption, or appropriate Permit in place, anyone who knowingly facilitates the disposal may be '*jointly and severally liable*' to any assessment of tax, fines or prosecution.

8.3.2 Materials management scenarios

The materials management scenarios present on site are discussed below.

It should be noted that more than one scenario may apply, dependent upon where the soils are proposed for reuse.

8.3.2.1 Clean, naturally occurring materials – reused on the site of origin

Where soils are naturally occurring, uncontaminated and are reused on the site they are excavated (i.e. greenfield site with documented site history, with no Made Ground), they will fall outside the Waste Framework Directive (WFD) (i.e. they will not be a waste when reused on the site of origin).

However, there needs to be certainty of that reuse, and evidence is necessary to support this strategy, for example through information provided during the planning process. The onus is on the developer to demonstrate that the materials are not a waste and will never become a waste. As such, a Materials Re-use Strategy is recommended to show certainty. Alternatively, if the volume of material is under 1,000 tonnes, then a U1 waste exemption may be applied for from the Environment Agency.

It may be noted that some 'clean naturally occurring materials' may still fail the 'suitable for use' test, for example, soils with a naturally high organic content may not be suitable for use because of their propensity to produce ground gases such as methane. Rules regarding other more unusual circumstances such as where natural soils contain an unacceptably high mineral content are described in the DoWCoP.

8.3.2.2 Made Ground and other contaminated soils

On sites where Made Ground or contaminated soils are present, any soils excavated will be a waste as soon as they are excavated (even if they are clean, naturally occurring materials), unless they are subject to reuse in accordance with the DoWCoP. As such, for any brownfield site or a site where Made Ground is present and soils are being moved and reused, the materials could be deemed a waste, subject to either:

- a Materials Management Plan (MMP), to prevent the material being classified as a waste following reuse; or
- an exemption (for limited volumes); or
- an environmental permit, dependant on its status.

8.3.2.3 Geotechnical improvement requirements

Construction activities carried out on uncontaminated soils solely for the purpose of improving geotechnical properties e.g. lime / cement modification, are not generally regarded as waste treatment operations and do not require a permit.

However, should processing be needed (such as screening, treatment or improvement), that would constitute a waste activity and require a mobile treatment permit. This may be as simple as removing oversize material with an excavator bucket, to using a riddle bucket to remove hardcore to full mechanical screening.

9. Uncertainties and limitations

9.1 Site-specific comments

The investigation undertaken to date has not included the houses which occupy the northern zone of the site, and there is potential that these may contain asbestos; the same is true of the boiler house in the north-west of the site. Additionally, soils have not been assessed or sampled below the sites of the bonfires as additional bonfires were being lit in the housing estate during the ground Investigation. Thus, these cannot be removed from the final CSM at this stage of investigation.

9.2 General comments

Hydrock Consultants Limited (Hydrock) has prepared this report in accordance with the instructions of Trivallis (the Client), by purchase order dated April 2024 under the terms of appointment for Hydrock, for the sole and specific use of the Client and parties commissioned by them to undertake work where reliance is placed on this report. Any third parties who use the information contained herein do so at their own risk. Hydrock shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared or for use of the report by any parties not defined in Hydrock's appointment.

This report details the findings of work carried out in May and June 2024. The report has been prepared by Hydrock on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed.

Hydrock has used reasonable skill, care and diligence in the design of the investigation of the site and in its interpretation of the information obtained. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of trial pits and boreholes at the time of the investigation. At intermediate locations, conditions can only be inferred.

Groundwater data are only representative of the dates on which they were obtained and both levels and quality may vary.

Unless otherwise stated, the recommendations in this report assume that ground levels will remain as existing. If there is to be any re-profiling (e.g. to create development platforms or for flood alleviation) then the recommendations may not apply.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock cannot guarantee its accuracy or completeness.

Where the existing report(s) prepared by others have been provided by the Client, it is assumed that these have been either commissioned by the Client, or can be assigned to the Client, and can be relied upon by Hydrock. Should this not be the case Hydrock should be informed immediately as additional work may be required. Hydrock is not responsible for any factual errors or omissions in the supplied data, or for the opinions and recommendations of others. It is possible that the conditions described may have since changed through natural processes or later activities.

The work has been carried out in general accordance with recognised best practice. Unless otherwise stated, no assessment has been made for the presence of radioactive substances or unexploded ordnance. Where the phrase 'suitable for use' is used in this report, it is in keeping with the terminology used in planning control and does not imply any specific warranty or guarantee offered by Hydrock.

The chemical analyses reported were scheduled for the purposes of risk assessment with respect to human health, plant life and controlled waters as discussed in the report. Whilst the results may be useful in applying the Hazardous Waste Assessment Methodology given in Environment Agency Technical Guidance WM3, they are not primarily intended for that purpose and additional

analysis will be required at the time of disposal to fully classify waste. Discussion and comment with regards to waste classification are preliminary and do not form the requirements of 'Basic Characterisation' as required.

Unless otherwise stated, at the time of this investigation the future routes of water supply pipes had not been established. This investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling and chemical testing may be required at a later date once the routes of the supply pipes are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

Whilst the preliminary risk assessment process has identified potential risks to construction workers, consideration of occupational health and safety issues is beyond the scope of this report.

The non-specialist UXO screening has been undertaken for the purposes of ground investigation only (i.e. low risk activity in accordance with CIRIA Report C681). Further assessment should be undertaken with regards to other higher risk activities e.g. construction.

Please note that notwithstanding any site observations concerning the presence or otherwise of archaeological sites, asbestos-containing materials or invasive weeds, this report does not constitute a formal survey of these potential constraints and specialist advice should be sought.

Any site boundary line depicted on plans does not imply legal ownership of land.

10. Recommendations for further work

Following the ground investigation works undertaken to date, the following further works will be required:

- demolition asbestos survey;
- additional ground investigation is recommended once the development layout is fully understood.
- discussion with specialists with regard to invasive species including Himalayan Balsam and Japanese Knotweed;
- completion of the gas monitoring and groundwater sampling at BH307 to investigate the presence of petroleum hydrocarbons and SVOC/VOCs;
- discussion and agreement with utility providers regarding the materials suitable for pipework;
- discussions with regulatory bodies and the warranty provider regarding the conclusions of this report;
- Compilation of Remediation Strategy and Verification plan
- Compilation of material management plan
- Compilation of Geotechnical Design Report to include foundations (where deeper than 2.5m), earthworks, and retaining wall design.
- turn over method specification for dealing with obstructions across the site.
- remediation and mitigation works; and
- verification of the earthworks, remediation and mitigation works.

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Appendix A Drawings



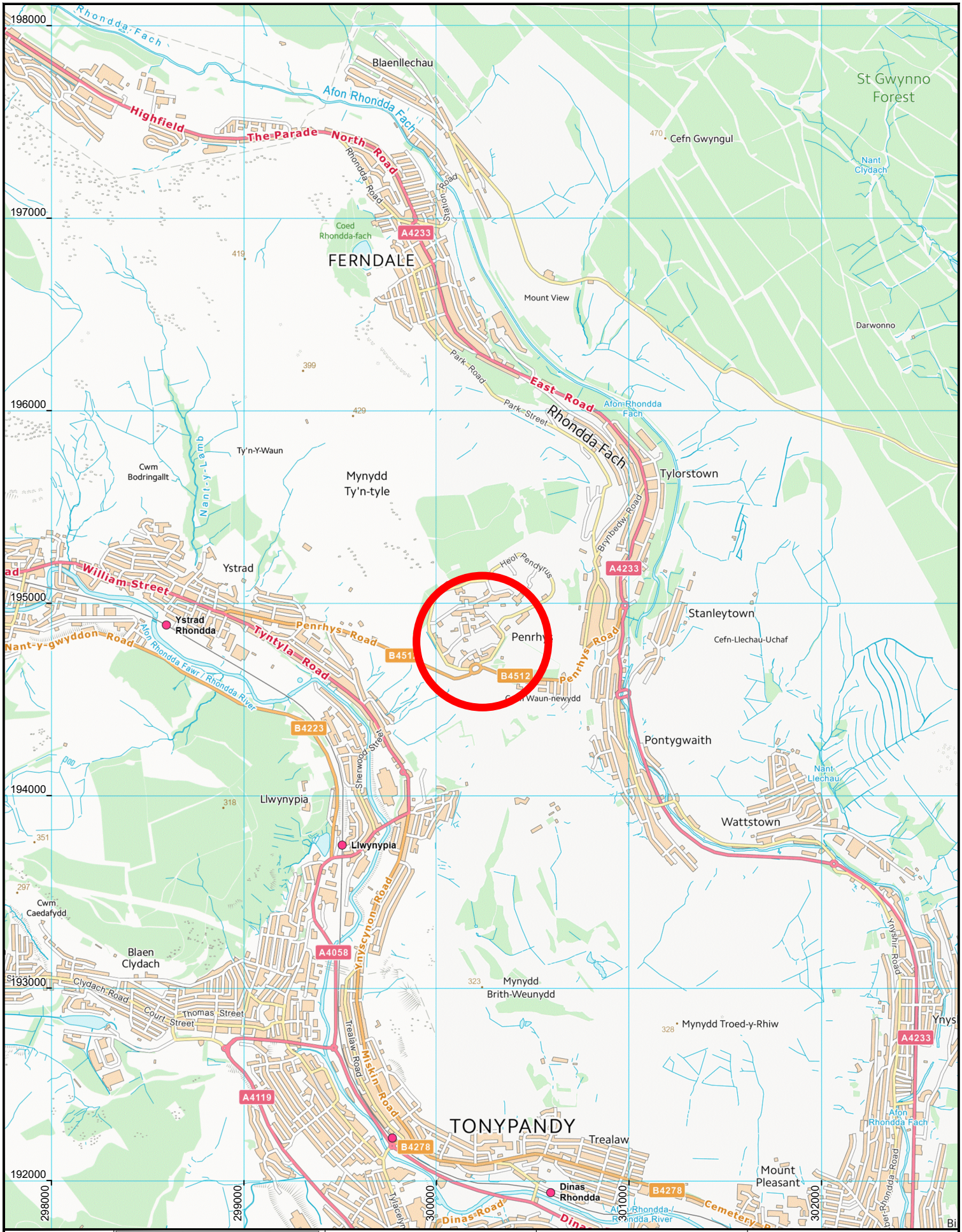
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Client	Trivallis
Project	Penrhys
Title	Framework Masterplan

Project ID	Organiser	Role	Block	Level	Type	Series	Dwg	Rev.	Status
2238	URB	UD	XX	XX	UD	90	001	D	Final

Drawn JD Date 14/06/2024 Checked JB Scale 1:2,5000 @A1

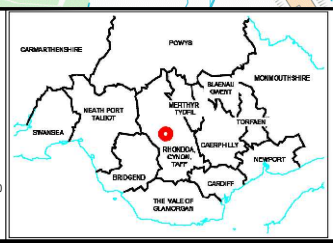
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OS NORTH

Site Ref: ST09

0 500 Metres



REV.	FIRST ISSUE					
P1	EP	12/07/24	EW	12/07/24	AE	17/07/24
	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

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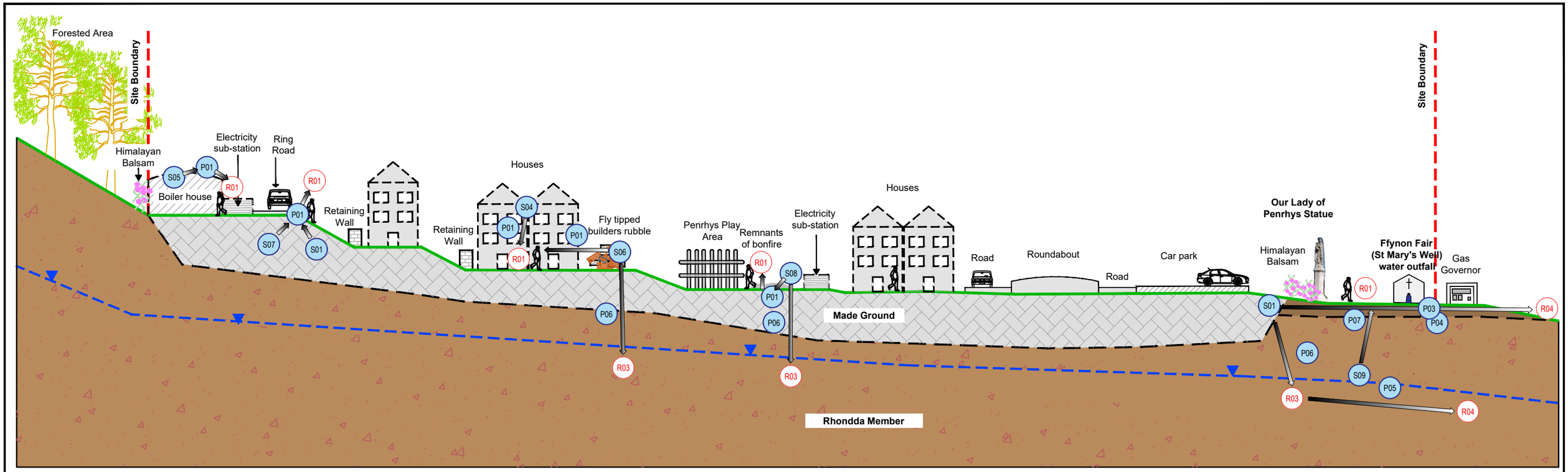
CLIENT: TRIVALLIS

PROJECT: PENRHYS VILLAGE, RHONDDA CYNON TAFF

TITLE: SITE LOCATION PLAN

HYDROCK PROJECT NO.	SCALE @ A4
C-30603	1:25,000

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2
DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
30603-HYD-XX-XX-DR-GE-1004	P1



Potential on-site sources of contamination

S01. Made Ground, associated with historical construction activities and imported fill, possibly including elevated concentrations of PAH.

~~S02. PCBs and oils from transformers in the electricity sub-stations on site.~~

~~S03. Ground gases (carbon dioxide and methane) from organic materials in the Made Ground.~~

S04. Asbestos within existing buildings / structures.

S05. Asbestos associated with the boiler house in the north of the site.

S06. Fly tipped wastes potentially including solvents, metals, metalloids, asbestos and Asbestos Containing Materials.

S07. Asbestos Containing Materials associated with gaskets on former pipe work of the district heat network.

S08. Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons.

S09. Petroleum Hydrocarbons and VOC/SVOC in groundwater below the site.

Potential off-site sources of contamination

No potential off-site sources of contamination have been identified.

Potential receptors

The following potential receptors in relation to the proposed land use have been identified.

R01. People (neighbours, site end users).

~~R02. Development end use (buildings, utilities and landscaping).~~

R03. Groundwater: Secondary A aquifer status of the Rhondda Member.

R04. Surface water bodies: River Rhondda and the Afon Rhondda Fach.

Potential pathways

The following potential pathways have been identified.

P01. Ingestion, skin contact, inhalation of dust and outdoor air by people.

~~P02. Methane/carbon dioxide (ground gas) ingress via permeable soils and/or construction gaps.~~

P03. Surface water via overland flow.

P04. Surface water, via drainage discharge.

P05. Surface water via base flow from groundwater.

P06. Migration of contaminant via leachate migration through the unsaturated zone into the Rhondda Member.

P07. Inhalation of VOC/SVOC and petroleum hydrocarbon vapours outdoors.

KEY

- Existing ground profile
- Conjectural geological boundary
- Groundwater elevation
- Made Ground
- Topsoil
- Rhondda Member

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

REV.	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
P01	FIRST ISSUE	EP	08/08/24	EW	14/08/24	AE	21/08/24

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CLIENT: TRIVALLIS

PROJECT: PENRHYS VILLAGE, RHONDDA CYNON TAFF

TITLE: FINAL CONCEPTUAL SITE MODEL

HYDROCK PROJECT NO.	SCALE @ A3
C-30603	NTS

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER): 30603-HYD-XX-XX-DR-GE-1016

REVISION: P01

Appendix B Geotechnical Engineering Factual Ground Investigations Report

PENRHYS VILLAGE, RHONDDA CYNON TAFF

FACTUAL GROUND INVESTIGATION REPORT

Prepared for TRIVALLIS

Report Ref: 38113

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PENRHYS VILLAGE, RHONDDA CYNON TAFF

FACTUAL GROUND INVESTIGATION REPORT

Prepared for TRIVALLIS

Report Ref: 38113

PROJECT: Residential redevelopment

CONSULTANT: Hydrock Consultants Limited

VOLUME - VERSION	STATUS	ORIGINATOR	CHECKER	APPROVED	DATE
1 of 1 – A	INTERIM	SP	JH	-	07/06/2024
1 of 1 – B	DRAFT	SP	EB	-	10/07/2024
1 of 1 – C	FINAL	SP	JH	JH	31/07/2024

ORIGINATOR	APPROVER
	
S PHELPSTEAD Senior Engineering Geologist	J HANSON Director

The report is not to be used for contractual or engineering purposes unless this sheet is signed and the report designated “Final”.
The report has been prepared for the sole use and reliance by Trivallis. GEL accepts no liability as a result of the use or reliance of this report by any other parties.

CONTENTS

REPORT **PAGE**

1. INTRODUCTION 1

2. SITE LOCATION AND GEOLOGY 1

3. GROUND INVESTIGATION 2

3.1 Fieldwork 2

3.2 Logging 5

3.3 Monitoring 6

3.4 Laboratory Testing 6

4. REFERENCES 8

FIGURES **Nos.**

EXPLORATORY HOLE LOCATION PLAN 1

APPENDICES

APPENDIX A FIELDWORK DATA

APPENDIX B MONITORING DATA

APPENDIX C LABORATORY TESTING

APPENDIX D CHEMICAL ANALYSES

1. INTRODUCTION

It is proposed to redevelop Penrhys Village, comprising around seven-hundred new homes with recreational and sports facilities, allotments, new primary school and renewable energy infrastructure. Geotechnical Engineering Limited (GEL) was instructed by Hydrock Consultants Limited (the Consultant) acting on behalf of Trivallis (the Client) to carry out an investigation to determine the ground conditions.

The scope of works and terms and conditions of appointment were specified by the Consultant and GEL correspondence reference T34877 dated 4th December 2023. The investigation was carried out under the direction and part-time supervision of the Consultant.

This report describes the investigation and presents the findings.

2. SITE LOCATION AND GEOLOGY

The site is located at Penrhys Village, Rhondda Cynon Taff and may be located by its National Grid co-ordinates ST 003 949.

British Geological Survey (BGS) England and Wales (Sheet No. 248, Pontypridd 1:50,000 1975) and the BGS online geology (1:50,000) indicate the site is underlain by the Rhondda Member, part of the Pennant Sandstone Formation. No superficial deposits are shown over most of the site, with a small area of peat mapped in the far north of the site and a small band of Glacial Till in the southeast of the site. Landslide deposits are shown on the eastern boundary of the site. Made Ground is anticipated across the site associated with the historic and existing land use.

3. GROUND INVESTIGATION

3.1 Fieldwork

The fieldwork was carried out in general accordance with BS5930:2015+A1:2020 during the period 15th April to 10th May 2024 and comprised seven boreholes, twenty-six trial pits, five soakaway tests, seventeen Dynamic Cone Penetrometer (DCP) tests and four inspection pits (attempted boreholes).

The exploratory hole locations were selected by the Consultant and set out by this Company and are shown on Figure 1. The ground level and co-ordinates at each exploratory hole (except TP207A) were established by this Company using GPS techniques.

The boreholes, referenced BH301, BH302B, BH303B, BH304, BH305, BH306 and BH307 (Appendix A), were formed using a track-mounted Geotechnical Pioneer Rig. Initially, an inspection pit was hand excavated at each borehole location to a maximum depth of 1.20m to check for buried services. Surface hardstanding in BH306 was rotary core drilled (300mm diam). Attempted boreholes BH302 and BH302A were terminated in the inspection pit at 0.75m and BH303 and BH303A at 0.30m due to hard strata. Disturbed samples were taken and retained in a combination of plastic tubs, bags and glass jars from within the inspection pits. Heavy duty dynamic sampling techniques were employed in boreholes BH301, BH302B, BH303B, BH304 and BH305 to produce a continuous disturbed sample of 112mm nominal diameter. The samples were recovered in semi-rigid plastic liner.

On refusal to dynamic sampling and from the base of the inspection pit in BH306 and BH307, the boreholes were continued by rotary core drilling techniques utilising a water or polymer flush. A double-tube swivel core barrel with semi-rigid plastic liner was utilised to recover a continuous sample of 120mm diameter (reducing to 90mm diameter in BH304).

The dynamic samples and rotary core were extracted horizontally from the sampler and core barrel respectively, the semi-rigid liner was cut to length and sealed at each end to retain moisture content. All samples and core were retained in sequence in labelled, wooden coreboxes.

Standard penetration tests (SPT) were carried out in general accordance with BS EN ISO 22476-3:2005+A1:2011. A split barrel or a solid cone was used depending upon the materials encountered and the split barrel samples retained in airtight jars. The SPT N value was taken as the number of blows to penetrate the 300mm test drive following a 150mm seating drive. Where low penetration was recorded the seating drive was terminated at 25 blows and the test drive completed after a further 50 blows. Detailed SPT results, together with the energy ratio (E_r), are presented in Appendix A and summarised as uncorrected N values on the borehole logs.

Boreholes were monitored for groundwater ingress as dynamic sampling proceeded. Water levels were also recorded at the start and finish of each day's work and on completion of the borehole and are presented on the relevant log.

On completion, gas and water monitoring standpipes were installed in each borehole. Each installation consisted of a 50mm ID HDPE slotted tube set in a filter response zone of non-calcareous pea gravel. The installation was sealed above (and below where necessary) with a bentonite plug and accessed via a valve assembly. The installations were protected at the surface by a lockable stopcock cover set in concrete. Installation details are given on the relevant borehole log.

The abandoned boreholes terminated within the inspection pit were backfilled with arisings.

The trial pits, referenced TP101, TP102 and TP107 (Appendix A), were formed by a tracked excavator with a 0.90m bucket, TP106 was hand excavated. These trial pits were excavated in the roadway to expose and sample possible asbestos lagged pipework from the historic heating network.

The trial pits, referenced TP201 to TP206, TP206A, TP207, TP207A and TP208 to TP220 (Appendix A), were formed by a tracked excavator with a 0.90m bucket or wheeled excavator with a 0.90m wide backactor bucket.

The ground surface at TP101, TP102, TP107 and TP203 consisted of hardstanding which was cut out by floor saw prior to excavation.

Representative disturbed samples were taken and retained in sealed plastic bags, tubs and glass jars. SOCOTEC were engaged by this Company to undertake air monitoring and sampling of potential asbestos containing material in trial pits TP101, TP102, TP106 and TP107. Samples for asbestos analysis were also taken from material surrounding the historic heating network within manhole covers MH01 to MH08. The results are presented in Appendix D.

Soakaway tests were carried out in trial pits TP201, TP204, TP212, TP216 and TP219 in general accordance with BRE DG 365 (2016). The excavation sides were squared as far as practicable, using the excavator bucket and the dimensions recorded within the test section. The trial pit was partially filled with clean water using a dedicated bowser with a 75mm diameter outlet and the fall in level recorded against time. The test was repeated 3 times where possible. The results are presented in Appendix A.

Photographs of the trial pit profile and spoil heap were taken and are presented separately as .jpg files.

On completion all trial pits were backfilled with arisings compacted in suitable layers by the excavator bucket. The ground surface was left slightly proud to accommodate the future inevitable settlement of the backfill. Where the trial pit was located in hardstanding, the surface was reinstated with concrete or tarmacadam.

Dynamic Cone Penetrometer tests (DCP), referenced DCP201, DCP202, DCP204 to DCP208, DCP210 to DCP214 and DCP216 to DCP220 (Appendix A), were carried out adjacent to the corresponding numbered trial pit using a CNS Farnell A2465 dynamic cone penetrometer. Probe depths were measured with respect to ground level and the number of blows for the penetration of the probe was recorded. Equivalent CBR values have been calculated and presented with the results in Appendix A.

Samples for chemical analyses were dispatched daily from site directly to i2 Analytical Ltd under a Chain of Custody. The remaining samples were brought to this Company's laboratory for testing and storage.

3.2 Logging

The logging of soils and rocks was carried out by an Engineering Geologist in general accordance with BS5930:2015+A1:2020. A key to the exploratory hole logs is presented in Appendix A.

Detailed descriptions of the core and samples are given in the borehole logs, Appendix A, along with details of sampling, in situ testing, groundwater ingress, installations and relevant comments on drilling techniques.

Suitable core subsamples were selected by GEL during logging. The core was carefully logged and prepared prior to preserving the subsample by wrapping in clingfilm and tinfoil, coating

with at least three layers of wax. The sample was further protected by a covering of waxed cheesecloth and labelled. Disturbed tub samples were also taken at regular intervals.

Prior to logging, photographs of the core were taken and are presented separately as .jpg files.

The trial pits were logged from the surface. Detailed descriptions are given in the trial pit logs, Appendix A, along with details of sampling and in situ testing, groundwater ingress and relevant comments on stability and excavatability.

3.3 Monitoring

The installations were monitored for gas flow and then tested for methane, carbon dioxide, oxygen, hydrogen sulphide, and carbon monoxide using a Gas Data GFM 435 gas analyser. The installations were further monitored for Volatile Organic Compounds (VOC's) using a MiniRAE Lite with a 10.6eV gas discharge lamp. The detector uses an ultra violet light source to break down the chemicals into positive and negative ions (ionisation). The detector measures the charge of the ionised gas and converts the signal into current. The current is then amplified and displayed as "ppm"; after measurement the ions reform the original gas or vapour allowing it to be sampled. Subsequent readings, along with water level records, are tabulated in Appendix B.

3.4 Laboratory Testing

Schedules of laboratory tests were prepared by the Consultant; the results are presented to Appendix C.

The natural water content was determined on five selected samples in accordance with BS EN ISO 17892-1:2014.

Liquid limit and plastic limit tests were carried out on five selected samples in accordance with BS EN ISO 17892-12:2018:5.3 & 5.5. An Atterberg line plot has also been presented.

Particle size distributions were determined in accordance with BS EN ISO 17892-4:2016 for thirty-six samples by wet sieving [5.2]. The fine fraction of one of these samples was further analysed by sedimentation using the pipette method [5.4]. The results are presented as grading curves.

The natural moisture content of rock was determined on four selected cores in accordance with ISRM (2007).

Four rock cores were tested for their unconfined compressive strength in accordance with ISRM (2007).

Point load index tests were carried out on seventeen selected lengths of core in accordance with ISRM (2007).

Selected samples were despatched to i2 Analytical Ltd, where chemical analyses were carried out to in-house methods for a suite of contaminants. The results are presented in Appendix D.

GEOTECHNICAL ENGINEERING LIMITED

4. REFERENCES

British Standards Institution (2015): Code of practice for ground investigations. BS 5930:2015+A1:2020.

British Standards Institution (2012): Geotechnical investigation and testing. Field testing. Standard penetration test. BS EN ISO 22476-3:2005+A1:2011.

British Standards Institution (2014): Geotechnical investigation and testing – Laboratory testing of soil. Part 1: Determination of water content. BS EN ISO 17892-1:2014.

British Standards Institution (2016): Geotechnical investigation and testing – Laboratory testing of soil. Part 4: Determination of particle size distribution. BS EN ISO 17892-4:2016.

British Standards Institution (2018): Geotechnical investigation and testing – Laboratory testing of soil. Part 12: Determination of liquid and plastic limits. BS EN ISO 17892-12:2018.

Building Research Establishment (2016): Soakaway Design. Digest DG 365.

International Society for Rock Mechanics (2007). The complete ISRM suggested methods for rock characterization, testing and monitoring: 1974-2006, edited by R Ulusay & J A Hudson. Ankara, Turkey: Turkish National Group of the International Society for Rock Mechanics.



Key.

- Borehole Location
- Manhole Sampling Location
- Trial Pit Location

North

Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Notes: Locations MH01, MH02, MH03, MH05, MH06, MH07 and MH08 are approximate. MH04 not shown.

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Client: TRIVALLIS

Site: PENRHYS VILLAGE, RHONDDA CYNON TAFF

Title: EXPLORATORY HOLE LOCATION PLAN

Drawn By:	AC	Checked By:	SP	Paper Size:	A3
Scale:	1:3500			Date:	August 2024
Contract:	38113			Figure:	1

APPENDIX A

FIELDWORK DATA

Geotechnical Engineering Limited

KEY TO EXPLORATORY HOLE LOGS

Sample type

D	Small disturbed	U	Undisturbed	L	Dynamic	ES	Environmental - soil	CS	Core subsample (prepared)
B	Bulk disturbed	UT	Undisturbed thin wall	C	Core	EW	Environmental - water	LS	Dynamic subsample (prepared)
LB	Large bulk disturbed	P	Piston	VC	Vibrocore	W	Water		

Test type

S SPT - Split spoon sampler followed by uncorrected SPT 'N' Value

C SPT - Solid cone followed by uncorrected SPT 'N' Value

(*250 - Where full test drive not completed, linearly extrapolated 'N' value reported, ** - Denotes no effective penetration). Arrow length reflects test depth range.

H Hand vane - direct reading in kPa - not corrected for BS1377 (1990). Re* denotes refusal. Where the limit of the equipment is reached during a test, the reported value is the minimum recorded shear strength of the material.

M Mackintosh probe - number of blows to achieve 100mm penetration

Mx Mexe cone - average reading of equivalent CBR value in %

PP Pocket penetrometer - calculated reading in kPa

Vo Headspace vapour reading, uncorrected peak values in ppm, using a PID (calibrated with isobutylene, using a 10.6eV bulb)

TR In situ thermal resistivity by needle probe in mK/W

Sample/core range/If

Dynamic sample

Undisturbed sample - open drive including thin wall. Symbol length reflects recovery

x = Total Core Recovery (TCR) as percentage of core run

y = Solid Core Recovery (SCR) as percentage of core run. Assessment of core is based on full diameter

z = Rock Quality Designation (RQD). The amount of solid core greater than 100mm expressed as percentage of core run

Where SPT has been carried out at the beginning of core run, disturbed section of core excluded from SCR and RQD assessment

If - fracture spacing - the modal fracture spacing (mm) over the indicated length of core. Where spacing varies significantly, the minimum, mode and maximum values are also given. NI = non-intact core NA = not applicable NR = no recovery

Instrumentation

Piezometer

Perforated standpipe

Inclinometer

Extensometer

Backfill

Granular response zone

Bentonite seal

Cement/ bentonite grout

Soil backfill

Concrete

Cover

Raised cover

Stopcock cover

Stratum boundaries

Estimated boundary

Grading boundary

Logging

The logging of soils and rocks has been carried out in general accordance with BS 5930:2015+A1:2020

Chalk is logged in general accordance with Lord et al (2002) CIRIA C574. Where possible, dynamic samples in chalk have been logged in accordance with CIRIA C574; descriptions and gradings (if presented) should be treated with caution given the potential for sample disturbance.

For rocks the term fracture has been used to identify a mechanical break within the core. Where possible incipient and drilling induced fractures have been excluded from the assessment of fracture state. Where doubt exists, a note has been made in the descriptions. All fractures are considered to be continuous unless otherwise reported.

Made Ground is readily identified when, within the natural make up, man made constituents are evident. Where Made Ground appears to be reworked natural material the differentiation between in situ natural deposits and Made Ground is much more difficult to ascertain. The interpretation of Made Ground within the logs should therefore be treated with caution.

The descriptors "topsoil" and "tarmacadam" are used as generic terms and do not imply conformation to any particular standard or composition.

Rootlets are defined as being less than 2mm in diameter, roots are defined as in excess of 2mm diameter.

General comments

The process of drilling and sampling will inevitably lead to sample disturbance, mixing or loss of material in some soil and rocks.

Indicated water levels are those recorded during the process of drilling or excavating exploratory holes and may not represent standing water levels.

All depths are measured along the axis of the borehole and are related to ground level at the point of entry. All inclinations are measured normal to the axis of the core.

Where provided, the stratigraphical names/geological rock units are for guidance only and may not be wholly accurate.

Geotechnical Engineering Limited

BOREHOLE LOG

BH301

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 15 April 2024 Easting 300035 Scale 1:50

End Date 17 April 2024 Northing 195026 Ground Level 335.60mOD Depth 9.80 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.00 - 0.10							Grass over soft brown slightly sandy slightly gravelly clayey SILT with frequent rootlets and rare roots (up to 6mm diam). Gravel is angular and subangular fine to coarse concrete. (MADE GROUND)	0.10	335.50	
1ES	0.00 - 0.10										
2D	0.00 - 0.10										
2ES	0.10 - 0.30										
3B	0.10 - 0.30										
4D	0.10 - 0.30										
3ES	0.50 - 0.70										
5B	0.50 - 0.70										
6D	0.50 - 0.70										
4ES	1.00 - 1.20		Nil				C 20	Greyish brown clayey sandy angular and subangular fine to coarse concrete, limestone, sandstone and rare brick GRAVEL with a low angular to subrounded concrete cobble content and rare fragments (up to 1x5x6mm) of plastic and 8mm diam steel rebar. (MADE GROUND)			
7B	1.00 - 1.20										
8D	1.00 - 1.20										
9L	1.20 - 2.00							1.20m: Medium dense.	1.50	334.10	
5ES	1.80 - 1.90							Dense brown silty very sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)			
10D	1.90 - 2.00										
11L	2.00 - 3.00		Nil				C 42				
12D	2.80 - 2.90										
6ES	2.90 - 3.00										
13L	3.00 - 3.35		Nil				C *83				
		3.00									
14C	3.35 - 4.00	3.00	100	NI				Medium strong highly fractured light greyish brown fine and medium SANDSTONE. Fractures are randomly orientated very closely and closely spaced undulating smooth stained dark grey, dark brown and orangish brown.	3.35	332.25	
15D	3.40 - 3.50		0								
7ES	3.50 - 3.60		0								
16C	4.00 - 5.50	3.00					C *500				
		3.30	100								
			53								
			33	NI							
17D	4.40 - 4.50			80				Medium strong locally moderately weak light grey fine and medium SANDSTONE. Fractures are subhorizontal to 15° locally subvertical very closely and closely spaced planar rough stained orangish brown rarely infilled (up to 5mm) with brown sandy silt.	4.30	331.30	
				190				5.30m: 60° planar smooth fracture stained dark brown.			
18C	5.50 - 7.00	3.30	100				C *188	5.50 - 7.00m: Frequent subvertical locally extremely closely and very closely spaced undulating rough fractures stained orangish brown.			
			13					5.75 - 6.10m: Frequent thin and thick laminae of black coal.			
			8								
19D	6.50 - 6.60							6.65m: Rare thin and thick laminae of black coal.			
20C	7.00 - 7.60	3.30	90				C *750	7.20 - 7.35m: 2 no. 60° planar rough fractures stained orangish brown.			
			58								
			18								
21C	7.60 - 8.30	3.30	93	NI				Weak thinly laminated dark grey MUDSTONE. Fractures are subhorizontal and subvertical very closely to medium spaced planar and undulating smooth locally stained orangish brown.	7.65	327.95	
22D	7.80 - 7.90		26	40							
			19								

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	1.20	Inspection Pit	Hand tools
1.20	3.35	Windowless Sample	Geotechnical Pioneer Rig
3.35	9.80	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	3.30

BARREL DIAMETER

DIAM (mm)	BASE (m)
128	3.35
146	9.80

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	1.00	Bentonite pellets
1.00	2.50	Gravel
2.50	9.80	Bentonite pellets

INSTRUMENTATION

DEPTH (m)	TYPE
2.50	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
15-04-2024 11:20	0.00	Nil	
15-04-2024 15:30	1.20	Nil	Dry
16-04-2024 10:00	1.20	Nil	Dry
16-04-2024 15:30	8.30	3.30	2.80
17-04-2024 10:00	8.30	3.30	5.45
17-04-2024 11:00	9.80	3.30	5.00

REMARKS

Water flush used 3.35-9.80m. Driller notes loss of flush returns 4.00-9.80m.

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH301

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 15 April 2024 Easting 300035 Scale 1:50

End Date 17 April 2024 Northing 195026 Ground Level 335.60mOD Depth 9.80 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
					230							
23C	8.30	9.80	3.30	100								
24D	8.65	8.75		81								
				30								
			3.30					C *333	Borehole Completed at 9.80m	9.80	325.80	

HOLE CONSTRUCTION
TOP (m) BASE (m) TYPE PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush
DEPTH (m) CASING (m) ROSE TO (m) AFTER (min) REMARKS

CASING DEPTH
DIAM (mm) BASE (m)

BARREL DIAMETER
DIAM (mm) BASE (m)

BACKFILL
TOP (m) BASE (m) MATERIAL

INSTRUMENTATION
DEPTH (m) TYPE

HOLE PROGRESS
DATE TIME DEPTH (m) CASING (m) WATER (m)

REMARKS

AGS

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Geotechnical Engineering Limited

BOREHOLE LOG

BH302

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 22 April 2024 Easting 300305 Scale 1:50

End Date 22 April 2024 Northing 195123 Ground Level 345.10mOD Depth 0.75 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10	0.30							Grass over soft dark brown slightly gravelly sandy clayey SILT with frequent roots (up to 5mm diam) and rootlets. Gravel is angular and subangular fine to coarse concrete, ceramic and sandstone. (MADE GROUND)	0.30	344.80	
1ES	0.10	0.30										
2D	0.10	0.30										
2ES	0.50	0.70							Dark brown sandy clayey angular and subangular fine to coarse sandstone, concrete and brick GRAVEL with frequent rootlets and frequent 12mm rebar. (MADE GROUND)	0.75	344.35	
3B	0.50	0.70							0.40 - 0.45m: Frequent metal wire mesh.			
4D	0.50	0.70							0.40 - 0.50m: Copper pipe wrapped in yellow plastic (35mm diam).			
									0.45 - 0.50m: Frequent dark grey wire wool.			
									0.50 - 0.55m: Frequent black plastic mesh sheet.			
									Borehole Completed at 0.75m			

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.75	Inspection Pit	Hand tools

WATER STRIKE Groundwater not encountered

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.75	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
22-04-2024 12:30	0.00	Nil	
22-04-2024 15:30	0.75	Nil	Dry

REMARKS

Borehole terminated at 0.75m due to hard strata. Relocated to BH302A.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH302A

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 22 April 2024 Easting 300303 Scale 1:50

End Date 23 April 2024 Northing 195124 Ground Level 345.20mOD Depth 0.75 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10	0.30							Grass over dark brown clayey very gravelly fine to coarse SAND with a low angular and subangular concrete cobble content, frequent roots (up to 5mm diam), rootlets and rare wood fragments (up to 30x40x50mm). Gravel is angular and subangular fine to coarse sandstone, concrete, brick, ceramic and mudstone. (MADE GROUND)			
1ES	0.10	0.30							0.40 - 0.60m: Frequent steel reinforcement bar (up to 10mm diam) and frequent black plastic mesh sheeting.			
2D	0.10	0.30							0.50 - 0.65m: Frequent aluminium sheets (up to 40x170x700mm) and rare redundant cables (8mm diam).			
2ES	0.50	0.70										
3B	0.50	0.70										
4D	0.50	0.70								0.75	344.45	
									Borehole Completed at 0.75m			

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.75	Inspection Pit	Hand tools

WATER STRIKE Groundwater not encountered

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.75	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
22-04-2024 15:50	0.00	Nil	
22-04-2024 16:30	0.50	Nil	Dry
23-04-2024 09:15	0.50	Nil	Dry
23-04-2024 11:00	0.75	Nil	Dry

REMARKS

Borehole terminated at 0.75m due to hard strata. Relocated to BH302B.

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH302B

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 23 April 2024 Easting 300304 Scale 1:50

End Date 25 April 2024 Northing 195125 Ground Level 345.35mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10 - 0.30							Grass over dark brown clayey sandy angular and subangular fine to coarse concrete, brick, and sandstone GRAVEL with a high subangular concrete and brick cobble content, frequent steel reinforcement bar (up to 10mm diam), frequent wood fragments (up to 80x120x300mm), rare copper cable wrapped in plastic (up to 12mm diam) and rare aluminium wire mesh. (MADE GROUND)			
1ES	0.10 - 0.30										
2D	0.10 - 0.30										
2ES	0.50 - 0.70										
3B	0.50 - 0.70										
4D	0.50 - 0.70										
3ES	1.00 - 1.20								0.90	344.45	
5B	1.00 - 1.20										
6D	1.00 - 1.20	Nil					S 11	0.10 - 0.20m: Steel fragment (160x300x450mm). 0.30 - 0.40m: Steel beam (60x170x900mm).			
7D	1.20 - 1.65										
8L	1.20 - 2.00										
4ES	1.50 - 1.60										
9D	1.60 - 1.70							Medium dense dark brown clayey sandy angular and subangular fine to coarse sandstone and concrete GRAVEL. (MADE GROUND)	1.85	343.50	
10D	2.00 - 2.45	Nil					S 25	Medium dense dark brown sandy very clayey angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)			
11L	2.00 - 3.00										
12D	2.20 - 2.30										
5ES	2.30 - 2.40										
13D	2.55 - 2.65								2.50	342.85	
6ES	2.65 - 2.75							Orangish brown very sandy very clayey angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)	2.80	342.55	
14D	3.00 - 3.31	Nil					S *94				
15C	3.00 - 4.00	2.90	100 3 0	NI NI 50				Weak grey SANDSTONE recovered non-intact. Where observed, fractures are subhorizontal to 10° very closely spaced and 80° to subvertical locally intersecting planar rough with orangish brown staining.			
16D	3.50 - 3.60										
17C	4.00 - 5.00	2.90	100 15 0				C *167				
18D	4.50 - 4.60										
19C	5.00 - 6.50	2.90	100 92 17	NI 45 100							
20D	5.40 - 5.50								5.20	340.15	
								Moderately weak and medium strong thinly bedded brownish grey fine and medium SANDSTONE. Fractures are 10° very closely and closely spaced and subvertical intersecting planar and undulating rough frequently stained orangish brown. 5.20 - 6.35m: Subvertical undulating rough fracture stained orangish brown. 5.85 - 5.90m: Frequent carbonaceous thin laminae. 6.20 - 6.25m: Frequent carbonaceous thin laminae.			
21C	6.50 - 8.00	2.90	100 71 59	NI 140 280					6.35	339.00	
22D	6.95 - 7.00							Moderately weak and medium strong grey fine and medium SANDSTONE. Fractures are subhorizontal to 10° closely and medium spaced and 80° to subvertical locally very closely spaced intersecting planar and undulating rough frequently stained dark grey and orangish brown.			
23C	8.00 - 9.50	2.90									

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	1.20	Inspection Pit	Hand tools
1.20	3.00	Windowless Sample	Geotechnical Pioneer Rig
3.00	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	2.90

BARREL DIAMETER

DIAM (mm)	BASE (m)
128	3.00
146	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	0.50	Gravel
0.50	2.80	Bentonite pellets
2.80	9.50	Gravel

INSTRUMENTATION

DEPTH (m)	TYPE
9.30	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
23-04-2024 11:00	0.00	Nil	
23-04-2024 14:30	1.20	Nil	Dry
24-04-2024 09:30	1.20	Nil	Dry
24-04-2024 16:30	5.00	2.90	2.50
25-04-2024 08:30	5.00	2.90	Dry
25-04-2024 11:35	9.50	2.90	7.89

REMARKS

Polymer flush used 3.00-5.00m. Water flush used 5.00-9.50m.
Driller notes loss of flush returns 4.00-9.50m.

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH302B

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 23 April 2024 Easting 300304 Scale 1:50

End Date 25 April 2024 Northing 195125 Ground Level 345.35mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				98 94 65								
24D	8.90	9.00							9.00 - 9.20m: Fractures are very closely spaced stained dark grey and dark orangish brown.			
									Borehole Completed at 9.50m	9.50	335.85	

HOLE CONSTRUCTION
TOP (m) BASE (m) TYPE PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush
DEPTH (m) CASING (m) ROSE TO (m) AFTER (min) REMARKS

CASING DEPTH
DIAM (mm) BASE (m)

BARREL DIAMETER
DIAM (mm) BASE (m)

BACKFILL
TOP (m) BASE (m) MATERIAL

INSTRUMENTATION
DEPTH (m) TYPE

HOLE PROGRESS
DATE TIME DEPTH (m) CASING (m) WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

BOREHOLE LOG

BH303

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 17 April 2024 Easting 300452 Scale 1:50

End Date 17 April 2024 Northing 195224 Ground Level 341.10mOD Depth 0.30 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B 1ES 2D	0.10 - 0.30 0.10 - 0.30 0.10 - 0.30							Grass over soft brown slightly sandy slightly gravelly silty CLAY with frequent rootlets and rare roots (up to 5mm diam). Gravel is angular to subrounded fine to coarse sandstone and rare red brick. (MADE GROUND) 0.30m: Concrete across base of pit. Borehole Completed at 0.30m	0.30	340.80	

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.30	Inspection Pit	Hand tools

WATER STRIKE Groundwater not encountered

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
17-04-2024 15:00	0.00	Nil	
17-04-2024 15:30	0.30	Nil	Dry

REMARKS

Borehole terminated at 0.30m due to concrete obstruction across base of pit and reattempted as BH303A.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH303A

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 17 April 2024 Easting 300450 Scale 1:50

End Date 17 April 2024 Northing 195222 Ground Level 341.10mOD Depth 0.30 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B 1ES 2D	0.10 - 0.30 0.10 - 0.30 0.10 - 0.30							Grass over very soft brown slightly sandy slightly gravelly silty CLAY with frequent rootlets and rare roots (up to 5mm diam). Gravel is angular to subrounded fine to coarse sandstone and rare red brick. (MADE GROUND) 0.30m: Concrete across base of pit. Borehole Completed at 0.30m	0.30	340.80	

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.30	Inspection Pit	Hand tools

WATER STRIKE Groundwater not encountered

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
17-04-2024 16:00	0.00	Nil	
17-04-2024 16:30	0.30	Nil	Dry

REMARKS

Borehole terminated at 0.30m due to concrete obstruction across base of pit and redrilled as BH303B.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH303B

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 01 May 2024 Easting 300442 Scale 1:50

End Date 03 May 2024 Northing 195213 Ground Level 341.05mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1ES	0.10 - 0.30							Grass over very soft dark brown slightly sandy slightly gravelly silty CLAY with frequent rootlets and rare polystyrene fragments (up to 40x60x80mm). Gravel is angular and subangular fine to coarse sandstone and concrete. (MADE GROUND)	0.30	340.75	
1B	0.15 - 0.30										
2D	0.15 - 0.30										
2ES	0.50 - 0.70										
3B	0.50 - 0.70										
4D	0.50 - 0.70								0.80	340.25	
3ES	1.00 - 1.20							Dark brown very sandy very clayey angular and subangular fine to coarse concrete, brick and sandstone GRAVEL with a medium concrete and brick cobble content, rare rootlets, white plastic sheets (up to 2x90x160mm) and aluminium wire mesh (up to 40x70x600mm). (MADE GROUND)			
5B	1.00 - 1.20										
6D	1.00 - 1.20	Nil					S *231				
7D	1.20 - 1.42								1.40	339.65	
8L	1.20 - 2.00							0.30 - 1.00m: 35mm diameter steel pipe orientated vertically.			
4ES	1.60 - 1.70										
9D	1.60 - 1.70										
10D	2.00 - 2.37	Nil	96				S *68	Dark brown slightly clayey sandy angular and subangular fine to coarse concrete, brick, ceramic and sandstone GRAVEL with rare wood fragments (up to 40x40x70mm) and polystyrene fragments (up to 30x30x40mm). (MADE GROUND)	2.00	339.05	
11C	2.00 - 3.00	2.00	58								
			11								
12D	2.40 - 2.50			Nl				1.00 - 1.20m: Concrete footing in edge of pit.			
				60							
				200							
								Brown silty sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)			
13C	3.00 - 3.50	2.00	100					Strong grey fine and medium SANDSTONE. Fractures are subhorizontal to 10° very closely and closely spaced undulating rough and rarely subvertical locally stained orangish brown.			
			100								
			0								
14C	3.50 - 4.00	2.00	100					2.00 - 2.30m: Recovered non intact.			
15D	3.60 - 3.70		80								
			0								
16C	4.00 - 5.00	2.00	98								
			86								
			11								
17D	4.55 - 4.65										
18C	5.00 - 6.50	2.00	97								
			81								
19D	5.25 - 5.30		38					5.50 - 5.70m: Intersecting subvertical and 20° planar rough fractures stained orangish brown.			
20CS	6.12 - 6.32										
21C	6.50 - 8.00	2.00	100	60				6.50 - 8.90m: Medium strong and strong. Fractures becoming closely and medium spaced.			
			100	100							
			59	260							
22CS	7.25 - 7.45										
23D	7.70 - 7.75										
24C	8.00 - 9.50	2.00									

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	1.20	Inspection Pit	Hand tools
1.20	2.00	Windowless Sample	Geotechnical Pioneer Rig
2.00	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	2.00

BARREL DIAMETER

DIAM (mm)	BASE (m)
128	2.00
146	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	0.50	Gravel
0.50	1.00	Bentonite pellets
1.00	2.40	Gravel

INSTRUMENTATION

DEPTH (m)	TYPE
2.40	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
01-05-2024 15:00	0.00	Nil	
01-05-2024 16:15	1.00	Nil	Dry
02-05-2024 12:20	1.00	Nil	Dry
02-05-2024 16:50	4.00	2.00	3.10
03-05-2024 08:40	4.00	2.00	Dry
03-05-2024 11:40	9.50	2.00	3.10

REMARKS

Polymer flush used 2.00-4.00m. Water flush used 4.00-9.50m. Driller notes reduced flush returns (40%) 3.00-3.50m. Driller notes loss of flush returns 3.50-9.50m.

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH303B

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 01 May 2024 Easting 300442 Scale 1:50

End Date 03 May 2024 Northing 195213 Ground Level 341.05mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				100 97 80								
					NI 130 170				Medium strong greyish brown locally orangish brown fine to coarse SANDSTONE with frequent quartz and carbonaceous clasts (up to 10mm) and vugs (up to 6x6x15mm). Fractures are subhorizontal to 15° closely spaced undulating rough stained orangish brown.	8.90	332.15	
25D	9.40	9.50							9.35 - 9.38m: Orangish brown silty clay.	9.50	331.55	
									Borehole Completed at 9.50m			

HOLE CONSTRUCTION
TOP (m) BASE (m) TYPE PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush
DEPTH (m) CASING (m) ROSE TO (m) AFTER (min) REMARKS

CASING DEPTH
DIAM (mm) BASE (m)

BARREL DIAMETER
DIAM (mm) BASE (m)

BACKFILL
TOP (m) BASE (m) MATERIAL
2.40 9.50 Bentonite pellets

INSTRUMENTATION
DEPTH (m) TYPE

HOLE PROGRESS
DATE TIME DEPTH (m) CASING (m) WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
38113	**JH**

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BOREHOLE LOG

BH304

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 25 April 2024 Easting 300063 Scale 1:50

End Date 29 April 2024 Northing 194811 Ground Level 310.00mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10 - 0.30							Grass over very soft dark brown slightly gravelly sandy clayey SILT with frequent rootlets and rare wood fragments (up to 30x30x40mm). Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.40	309.60	
1ES	0.10 - 0.30										
2D	0.10 - 0.30										
2ES	0.50 - 0.70							Soft yellowish brown slightly sandy gravelly silty CLAY. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.75	309.25	
3B	0.50 - 0.70										
4D	0.50 - 0.70										
3ES	0.90 - 1.10										
5B	0.90 - 1.10										
6D	0.90 - 1.10	1.10					S 18				
7D	1.10 - 1.55							Dark yellowish brown very silty very sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)	1.35	308.65	
8L	1.10 - 2.00										
9D	1.60 - 1.70										
4ES	1.70 - 1.80										
10D	2.00 - 2.45	1.10					S 23	Stiff orangish brown slightly sandy slightly gravelly silty CLAY. Gravel is angular fine to coarse sandstone. (MADE GROUND)			
11L	2.00 - 2.90										
12D	2.30 - 2.40								2.20	307.80	
5ES	2.40 - 2.50							Medium dense becoming dense brown slightly gravelly silty fine and medium SAND. Gravel is angular fine to coarse sandstone. (MADE GROUND)			
13L	2.90 - 3.60	1.10 2.90					C 39				
14D	3.40 - 3.50										
6ES	3.50 - 3.60										
15C	3.60 - 5.00	3.60	100 33 17	NI 60 170			C *188	Moderately weak and medium strong locally strong thinly bedded light grey fine and medium SANDSTONE. Fractures are subhorizontal to 10° very closely and closely spaced planar rough and 70° to 80° undulating rough stained orangish brown. 3.60 - 4.25m: Recovered non-intact as sandy gravel.	3.60	306.40	
16D	4.70 - 4.80										
17C	5.00 - 6.50	3.60	99 84 15				C *333				
18D	6.00 - 6.10										
19C	6.50 - 8.00	3.60	90 70 44				C *750	6.35 - 6.50m: Frequent very thin beds of extremely weak dark bluish grey mudstone.			
20D	7.40 - 7.50							7.55 - 7.60m: Weak greyish brown mudstone. 7.55 - 7.90m: Frequent thin laminae of black coal.			
21C	8.00 - 9.50	3.60						Weak very thinly bedded dark grey MUDSTONE recovered non-intact.	7.90	302.10	

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	1.10	Inspection Pit	Hand tools
1.10	3.60	Windowless Sample	Geotechnical Pioneer Rig
3.60	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	3.60

BARREL DIAMETER

DIAM (mm)	BASE (m)
128	3.60
146	6.50
116	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	0.50	Gravel
0.50	1.00	Bentonite pellets
1.00	3.60	Gravel

INSTRUMENTATION

DEPTH (m)	TYPE
3.60	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
25-04-2024 15:00	0.00	Nil	
25-04-2024 16:00	1.10	Nil	Dry
26-04-2024 11:05	1.10	Nil	Dry
26-04-2024 16:00	6.50	3.60	5.06
29-04-2024 09:30	6.50	3.60	6.50
29-04-2024 12:25	9.50	3.60	4.20

REMARKS

Water flush used 3.60-9.50m. Driller notes reduced flush returns (20%) 6.50-9.50m. Driller notes loss of flush returns 3.60-6.50m. On completion, borehole collapsed from 9.50 to 9.10m.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH304

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 25 April 2024 Easting 300063 Scale 1:50

End Date 29 April 2024 Northing 194811 Ground Level 310.00mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				89	NI							
				61								
				61								
22CS	8.45	8.65			120				Strong greyish brown fine and medium SANDSTONE. Fractures are subhorizontal closely and medium spaced planar rough stained orangish brown.	8.40	301.60	
					140							
					340				9.15 - 9.50m: Subvertical undulating rough fracture stained orangish brown.			
									Borehole Completed at 9.50m	9.50	300.50	

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
3.60	9.10	Bentonite pellets
9.10	9.50	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
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BOREHOLE LOG

BH305

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 30 April 2024 Easting 300341 Scale 1:50

End Date 01 May 2024 Northing 194945 Ground Level 320.75mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10 - 0.30							Grass over soft brown slightly sandy silty CLAY with frequent rootlets. (MADE GROUND)	0.10	320.65	
1ES	0.10 - 0.30										
2D	0.10 - 0.30										
2ES	0.50 - 0.70							Soft brown slightly sandy slightly gravelly silty CLAY with frequent pockets (up to 30x40x40mm) of stiff slightly gravelly silty clay. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)			
3B	0.50 - 0.70										
4D	0.50 - 0.70										
3ES	0.90 - 1.10										
5B	0.90 - 1.10										
6D	0.90 - 1.10								1.10	319.65	
4ES	1.20 - 1.30	Nil	80				C <1	Very loose grey subangular concrete COBBLES with some subangular fine to coarse concrete gravel and rare fragments of steel rebar and plywood. (MADE GROUND)			
7C	1.20 - 1.70										
8D	1.20 - 1.30										
9L	1.70 - 2.00	Nil							1.70	319.05	
10D	2.00 - 2.45	Nil					S 33	Dense brown sandy very clayey angular and subangular fine to coarse sandstone and rare concrete and limestone GRAVEL with a low tabular sandstone cobble content. (MADE GROUND)			
11L	2.00 - 3.00										
12D	2.50 - 2.60										
5ES	2.50 - 2.60										
13D	3.00 - 3.45	3.00					S 6				
14L	3.00 - 4.00							Loose brown very gravelly very clayey fine and medium SAND. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	3.10	317.65	
15D	3.80 - 3.90										
6ES	3.80 - 3.90										
16L	4.00 - 4.40	3.00					S *65	4.00m: Very dense.			
17C	4.40 - 5.00	4.40	100	NI				Medium strong light greyish brown fine and medium SANDSTONE. Fractures are subhorizontal to 20° very closely and closely spaced planar rough and 80° to subvertical undulating rough locally stained orangish brown.	4.40	316.35	
18D	4.50 - 4.60		87	90							
			18	180							
19C	5.00 - 6.50	4.40	93				C *750				
20D	5.20 - 5.30		85								
			68								
21C	6.50 - 7.50	4.40	100				C *167	6.50 - 9.00m: Subvertical fractures locally very closely spaced.			
			77								
			37								
22D	7.00 - 7.10										
23C	7.50 - 8.00	4.40	100								
			20								
			20								
24C	8.00 - 9.50	4.40									

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	1.20	Inspection Pit	Hand tools
1.20	1.70	Rotary Core	Geotechnical Pioneer Rig
1.70	4.40	Windowless Sample	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	4.40

BARREL DIAMETER

DIAM (mm)	BASE (m)
146	1.70
128	4.40
146	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	0.50	Gravel
0.50	1.00	Bentonite pellets
1.00	3.20	Gravel

INSTRUMENTATION

DEPTH (m)	TYPE
3.20	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
30-04-2024 12:10	0.00	Nil	
30-04-2024 15:00	4.40	4.40	1.74
01-05-2024 08:40	4.40	4.40	Dry
01-05-2024 13:00	9.50	4.40	7.40

REMARKS

Water flush used 1.20-1.70m and 4.40-9.50m. Driller notes reduced flush returns (40%) 5.00-6.50m. Driller notes loss of flush returns 1.20-1.70m, 4.40-5.00m and 6.50-9.50m. Driller notes borehole collapse back to 9.00m. On completion, borehole collapse from 9.50 to 9.00m.

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH305

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 30 April 2024 Easting 300341 Scale 1:50

End Date 01 May 2024 Northing 194945 Ground Level 320.75mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				91 23 19					8.00 - 8.25m: Extremely closely spaced 70° undulating rough fractures.			
25D	8.80	8.90										
									Borehole Completed at 9.50m	9.50	311.25	

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
4.40	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)

BARREL DIAMETER

DIAM (mm)	BASE (m)

BACKFILL

TOP (m)	BASE (m)	MATERIAL
3.20	9.00	Bentonite pellets
9.00	9.50	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH306

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 18 April 2024 Easting 300591 Scale 1:50

End Date 19 April 2024 Northing 195103 Ground Level 311.10mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
C	0.00 - 0.15		100					Grey CONCRETE. (MADE GROUND)	0.15	310.95	
1B	0.15 - 0.30							Soft brown slightly sandy gravelly silty CLAY. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.40	310.70	
1ES	0.15 - 0.30							Soft dark orangish brown slightly sandy gravelly clayey SILT. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.85	310.25	
2D	0.15 - 0.30							Very dense brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a low subangular sandstone cobble content. (MADE GROUND)	1.75	309.35	
2ES	0.50 - 0.70							Very weak and weak thinly bedded brownish grey fine and medium SANDSTONE. Fractures are subhorizontal and subvertical very closely and closely spaced planar rough stained orangish brown.			
3B	0.50 - 0.70							3.00 - 4.00m: Recovered largely non intact.			
4D	0.50 - 0.70							3.60 - 4.00m: Frequent intersecting 70° undulating rough fractures infilled with sandy clay.	4.00	307.10	
3ES	0.90 - 1.00							Medium strong locally strong grey fine and medium SANDSTONE. Fractures are subhorizontal to 20° very closely to medium spaced planar rough stained orangish brown.			
5B	0.90 - 1.00	Nil	78	NA			S *52	4.10 - 4.20m: Subvertical fracture stained orangish brown.			
6D	0.90 - 1.00		24								
7D	1.00 - 1.45		0								
8C	1.00 - 2.00										
9D	1.75 - 1.85			NI							
10C	2.00 - 3.00	Nil	90	NI			C *77				
			48	140							
			14								
11D	2.40 - 2.50										
12C	3.00 - 4.00	2.00	78				C *71				
			12								
			0								
13D	3.50 - 3.60										
14C	4.00 - 5.00	2.00	100	30							
15D	4.20 - 4.25		100	90							
			72	220							
16C	5.00 - 6.50	4.30	77								
			77								
			35								
17CS	5.50 - 5.70										
18D	6.05 - 6.10										
19C	6.50 - 8.00	4.30	100								
20CS	6.72 - 6.94		100								
			47								
								7.00 - 7.08m: Subvertical fracture stained orangish brown.			
				40					7.20	303.90	
				90				Moderately weak greyish brown fine to coarse SANDSTONE (tending to matrix supported breccia) with frequent quartz clasts (up to 10mm) and vugs (up to 2x10x20mm). Fractures are subhorizontal very closely and closely spaced undulating rough stained orangish brown.			
				190							
21D	7.90 - 8.00										
22C	8.00 - 9.50	4.30									

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.15	Rotary Core	Geotechnical Pioneer Rig
0.15	1.00	Inspection Pit	Hand Tools
1.00	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	4.30

BARREL DIAMETER

DIAM (mm)	BASE (m)
300	0.15
146	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.30	Concrete
0.30	3.00	Bentonite pellets
3.00	8.20	Gravel
8.20	9.50	Arisings

INSTRUMENTATION

DEPTH (m)	TYPE
8.20	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
18-04-2024 11:20	0.00	Nil	
18-04-2024 16:00	5.00	2.00	1.00
19-04-2024 08:30	5.00	2.00	4.90
19-04-2024 15:00	9.20	2.00	1.00

REMARKS

On completion, borehole collapsed from 9.50 to 8.20m.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH306

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 18 April 2024 Easting 300591 Scale 1:50

End Date 19 April 2024 Northing 195103 Ground Level 311.10mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				83								
				79								
				73								
					50							
23CS	8.50	8.80			140				Medium strong grey and greyish brown fine and medium SANDSTONE with rare quartz clasts (up to 5mm). Fractures are subhorizontal closely and medium spaced planar and undulating rough.	8.30	302.80	
					300							
					40				Medium strong light grey fine SANDSTONE. Fractures are subhorizontal and subvertical very closely and closely spaced planar rough stained dark grey.	9.00	302.10	
					90							
					200							
									Borehole Completed at 9.50m	9.50	301.60	

HOLE CONSTRUCTION
TOP (m) BASE (m) TYPE PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush
DEPTH (m) CASING (m) ROSE TO (m) AFTER (min) REMARKS

CASING DEPTH
DIAM (mm) BASE (m)

BARREL DIAMETER
DIAM (mm) BASE (m)

BACKFILL
TOP (m) BASE (m) MATERIAL

INSTRUMENTATION
DEPTH (m) TYPE

HOLE PROGRESS
DATE TIME DEPTH (m) CASING (m) WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

BOREHOLE LOG

BH307

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 2

Start Date 07 May 2024 Easting 300282 Scale 1:50

End Date 09 May 2024 Northing 194546 Ground Level 285.10mOD Depth 9.50 m

sample no & type	sample depth (m) from to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
1B	0.10 - 0.30							Grass over soft brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is angular and subangular fine to coarse sandstone.			
1ES	0.10 - 0.30										
2D	0.10 - 0.30										
2ES	0.30 - 0.50										
3B	0.30 - 0.50	Nil					S *300				
4D	0.30 - 0.50		100	NA				Brown silty very sandy angular and subangular fine to coarse sandstone GRAVEL with a low tabular sandstone cobble content.	0.60	284.50	
5C	0.60 - 1.00										
3ES	0.90 - 1.00										
6D	0.90 - 1.00	Nil					C *65				
7C	1.00 - 2.00		85					0.90 - 1.00m: Brown and dark grey silty very gravelly fine and medium sand. Gravel is angular and subangular fine to coarse sandstone.			
4ES	1.20 - 1.30										
8D	1.20 - 1.30			NI					1.40	283.70	
								Medium strong highly fractured light greyish brown fine and medium SANDSTONE recovered non intact as angular and subangular gravel.			
9C	2.00 - 3.00	1.90	84								
			14								
			0	NI					2.30	282.80	
				130				Moderately weak locally strong light grey fine and medium SANDSTONE. Fractures are subhorizontal to 10° closely and medium spaced undulating rough locally stained orangish brown.			
10D	2.70 - 2.80			570							
11C	3.00 - 4.00	1.90	100					2.30 - 3.00m: Recovered non intact.			
			100								
			0								
12C	4.00 - 5.00	2.90	100								
13CS	4.05 - 4.25		94								
			83					4.25 - 4.30m: Very weak thickly laminated dark greyish brown siltstone.			
								4.42 - 4.45m: 30° laminae of black coal.			
14D	4.80 - 4.85							4.80 - 5.00m: Subvertical planar rough fractures.			
15C	5.00 - 6.50	2.90	100								
			99								
			71								
16D	5.70 - 5.78										
17CS	5.80 - 6.10										
18C	6.50 - 8.00	2.90	91								
			89					6.63 - 6.65m: Subhorizontal laminae of black coal.			
			68								
19D	7.70 - 7.75							7.70 - 7.76m: 50° planar rough fracture stained orangish brown.			
20C	8.00 - 9.50	2.90									

Continued Next Page

HOLE CONSTRUCTION

TOP (m)	BASE (m)	TYPE	PLANT USED
0.00	0.60	Inspection Pit	Hand Tools
0.60	9.50	Rotary Core	Geotechnical Pioneer Rig

WATER STRIKE Groundwater not encountered prior to use of flush

DEPTH (m)	CASING (m)	ROSE TO (m)	AFTER (min)	REMARKS

CASING DEPTH

DIAM (mm)	BASE (m)
168	2.90

BARREL DIAMETER

DIAM (mm)	BASE (m)
146	9.50

BACKFILL

TOP (m)	BASE (m)	MATERIAL
0.00	0.50	Concrete
0.50	1.40	Bentonite pellets
1.40	9.50	Gravel

INSTRUMENTATION

DEPTH (m)	TYPE
9.50	Standpipe (50mm) with geosock

HOLE PROGRESS

DATE TIME	DEPTH (m)	CASING (m)	WATER (m)
07-05-2024 14:30	0.00	Nil	
07-05-2024 15:30	0.60	Nil	Dry
08-05-2024 11:20	0.60	Nil	Dry
08-05-2024 16:00	3.00	1.90	0.00
09-05-2024 09:30	3.00	1.90	2.00
09-05-2024 16:20	9.50	2.90	0.10

REMARKS

Water flush used 0.60-3.00m. Polymer flush used 3.00-9.50m.
Driller notes reduced flush returns (50%) 3.00-9.50m

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

BOREHOLE LOG

BH307

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 2 of 2

Start Date 07 May 2024 Easting 300282 Scale 1:50

End Date 09 May 2024 Northing 194546 Ground Level 285.10mOD Depth 9.50 m

sample no & type	sample depth (m) from	to	casing depth (m)	samp. /core range	If	water record depth (m)	instru-ment	test type & value	description	depth (m)	reduced level (m)	legend
				95 86 81					8.00 - 8.38m: Intersecting subvertical undulating rough fractures stained orangish brown.			
21CS	8.40	8.72										
22D	8.95	9.05										
									Borehole Completed at 9.50m	9.50	275.60	

HOLE CONSTRUCTION
TOP (m) BASE (m) TYPE PLANT USED

WATER STRIKE Groundwater not encountered prior to use of flush
DEPTH (m) CASING (m) ROSE TO (m) AFTER (min) REMARKS

CASING DEPTH
DIAM (mm) BASE (m)

BARREL DIAMETER
DIAM (mm) BASE (m)

BACKFILL
TOP (m) BASE (m) MATERIAL

INSTRUMENTATION
DEPTH (m) TYPE

HOLE PROGRESS
DATE TIME DEPTH (m) CASING (m) WATER (m)

REMARKS

AGS

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

STANDARD PENETRATION TEST

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole no.	borehole depth (m)	s.w.p (mm)	base depth (m)	casing depth (m)	water level (m)	seating drive		test drive				test type	N	energy ratio %
						blows	pen (mm)	blows				pen (mm)						
BH301	1.20		1.65	Nil	Dry	10 8	75 75	7	6	4	3	75 75 75 75	C	20	84
BH301	2.00		2.45	Nil	Dry	5 8	75 75	11	10	12	9	75 75 75 75	C	42	84
BH301	3.00		3.31	Nil	Dry	4 19	75 55	22	19	9		75 75 30	C	83	84
BH301	4.00		4.06	3.00	1.14	25	30	50				30	C	500	84
BH301	5.50		5.70	3.30	2.30	12 13	75 45	30	20			75 5	C	188	84
BH301	7.00		7.06	3.30	2.89	25	40	50				20	C	750	84
BH301	9.80		9.92	3.30	5.00	25	75	50				45	C	333	84
BH302B	1.20		1.65	Nil	Dry	1 2	75 75	1	2	3	5	75 75 75 75	S	11	74
BH302B	2.00		2.45	Nil	Dry	5 5	75 75	7	9	4	5	75 75 75 75	S	25	74
BH302B	3.00		3.31	Nil	Dry	1 7	75 75	19	21	10		75 75 10	S	94	74
BH302B	4.00		4.24	2.90	1.00	5 16	75 75	20	30			75 15	C	167	74
BH303B	1.20		1.42	Nil	Dry	1 3	75 75	50				65	S	231	84
BH303B	2.00		2.37	Nil	Dry	7 10	75 75	12	13	25		75 75 70	S	68	84
BH304	1.10		1.55	1.10	Dry	3 3	75 75	4	4	5	5	75 75 75 75	S	18	84
BH304	2.00		2.45	1.10	Dry	6 5	75 75	4	5	7	7	75 75 75 75	S	23	84
BH304	2.90		3.35	1.10	Dry	11 8	75 75	9	9	11	10	75 75 75 75	C	39	84
BH304	3.60		3.75	3.60	0.00	25	70	35	15			75 5	C	188	84
BH304	5.00		5.11	3.60	1.11	25	65	50				45	C	333	84
BH304	6.50		6.57	3.60	4.80	25	50	50				20	C	750	84
BH305	1.20		1.65	Nil	Dry	4 0	75 75	0	0	0	0	75 75 75 75	C	<1	84

notes:
1. Test carried out in general accordance with BS EN ISO 22476-3:2005 + A1:2011
2. s.w.p = self weight penetration.
3. N values have not been subjected to any correction.
4. Test carried out using split spoon S, solid cone C.
5. Where full test drive not completed, linearly extrapolated N value reported.
6. ** Denotes no effective penetration.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

STANDARD PENETRATION TEST

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole no.	borehole depth (m)	s.w.p (mm)	base depth (m)	casing depth (m)	water level (m)	seating drive		test drive				test type	N	energy ratio %
						blows	pen (mm)	blows				pen (mm)						
BH305	2.00		2.45	Nil	Dry	5 5	75 75	6 7 9 11				75 75 75 75				S	33	84
BH305	3.00		3.45	3.00	Dry	1 0	75 75	1 1 2 2				75 75 75 75				S	6	84
BH305	4.00		4.38	3.00	Dry	4 4	75 75	4 14 21 11				75 75 75 5				S	65	84
BH305	5.00		5.09	4.40	3.60	25	70	50				20				C	750	84
BH305	6.50		6.71	4.40	6.00	11 14	75 45	37 13				75 15				C	167	84
BH306	1.00		1.44	Nil	Dry	3 7	75 75	7 12 10 21				75 75 75 65				S	52	84
BH306	2.00		2.35	Nil	Dry	3 8	75 75	12 24 14				75 75 45				C	77	84
BH306	3.00		3.36	2.00	1.00	6 19	75 75	24 18 8				75 75 60				C	71	84
BH307	0.60		0.80	Nil	Dry	10 15	75 75	50				50				S	300	84
BH307	1.00		1.38	Nil	0.10	4 10	75 75	13 19 18 0				75 75 75 5				C	65	84

notes:
1. Test carried out in general accordance with BS EN ISO 22476-3:2005 + A1:2011
2. s.w.p = self weight penetration.
3. N values have not been subjected to any correction.
4. Test carried out using split spoon S, solid cone C.
5. Where full test drive not completed, linearly extrapolated N value reported.
6. ** Denotes no effective penetration.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

TRIAL PIT LOG

TP101

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 01 May 2024 Easting 300062 Scale 1:25

End Date 01 May 2024 Northing 195074 Ground Level 339.65mOD Depth 1.00 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Black TARMACADAM. (MADE GROUND)	0.08	339.57	
					Grey sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)	0.14	339.51	
					Black TARMACADAM. (MADE GROUND)	0.25	339.40	
1B 1ES	0.50 - 0.60 0.50				Reddish brown silty sandy angular and subangular fine to coarse sandstone GRAVEL with a low subangular sandstone cobble content. (MADE GROUND)	0.60	339.05	
					Brown silty sandy angular and subangular fine to coarse sandstone GRAVEL with a high subangular sandstone cobble content. (MADE GROUND)			
					Trial pit Completed at 1.00m	1.00	338.65	

Equipment: Pit excavated by Road Saw and CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.40m

Sidewall stability: Minor spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Tarmacadam 0.00 - 0.20m.
Arisings 0.20 - 1.00m.

Remarks: Trial pit terminated at 1.00m due to hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP102

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 02 May 2024 Easting 300394 Scale 1:25

End Date 02 May 2024 Northing 195237 Ground Level 347.20mOD Depth 0.70 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Black TARMACADAM. (MADE GROUND)	0.10	347.10	
					Grey sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)	0.40	346.80	
1B 1ES	0.50 - 0.70 0.50				Greyish brown slightly clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a medium angular and subangular sandstone cobble content. (MADE GROUND)	0.70	346.50	
					Trial pit Completed at 0.70m			

Equipment: Pit excavated by Road Saw and CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.40m

Sidewall stability: Minor spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Tarmacadam 0.00 - 0.20m.
Arisings 0.20 - 0.70m.

Remarks: Trial pit terminated at 0.70m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP106

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 08 May 2024 Easting 300174 Scale 1:25

End Date 08 May 2024 Northing 194736 Ground Level 296.10mOD Depth 0.30 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over brown silty gravelly fine and medium SAND with a low sandstone, brick and concrete cobble content. Gravel is angular and subangular fine to coarse sandstone, brick and concrete. Rare fragments of steel rebar and plastic. (MADE GROUND) 0.00 - 0.10m: Kerbstone in west face of pit 0.10 - 0.30m: Concrete beneath kerbstone Trial pit Completed at 0.30m	0.30	295.80	

Equipment: Pit excavated by Hand tools

Pit width x length: 0.80m x 1.50m

Sidewall stability: Stable

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 0.30m.

Remarks: Trial pit terminated at 0.30m as unable to dig horizontally towards assumed heating pipe without undermining adjacent pavement.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP107

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 02 May 2024 Easting 300266 Scale 1:25

End Date 02 May 2024 Northing 194878 Ground Level 311.85mOD Depth 0.60 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Black TARMACADAM. (MADE GROUND)	0.10	311.75	
					Grey sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND)	0.40	311.45	
1B 1ES	0.50 - 0.60 0.50				Greyish brown very clayey very sandy angular and subangular fine to coarse sandstone GRAVEL with a low angular and subangular sandstone cobble content. (MADE GROUND)	0.60	311.25	
					Trial pit Completed at 0.60m			

Equipment: Pit excavated by Road Saw and CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.40m

Sidewall stability: Minor spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Tarmacadam 0.00 - 0.20m.
Arisings 0.20 - 0.60m.

Remarks: Trial pit terminated at 0.60m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP201

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 24 April 2024 Easting 300000 Scale 1:25

End Date 24 April 2024 Northing 194996 Ground Level 334.65mOD Depth 3.00 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft brown slightly gravelly sandy silty CLAY with frequent roots (up to 5mm) and rootlets. Gravel is angular and subangular fine to coarse brick, concrete and sandstone (MADE GROUND)			
						0.30	334.35	
1B 1ES	0.50 - 0.70 0.50				Greyish brown clayey very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a low subangular brick, concrete and sandstone cobble content and low concrete boulder content. Rare fragments of steel rebar and metal. (MADE GROUND)			
2B 2ES	1.00 - 1.20 1.00							
3B 3ES	1.50 - 1.70 1.50							
4B 4ES	2.00 - 2.20 2.00							
						2.20	332.45	
5B 5ES	2.50 - 2.70 2.50				Orangish brown and greyish brown clayey very sandy angular and subangular fine to coarse sandstone GRAVEL with a medium angular and subangular sandstone cobble content and low sandstone boulder content. (MADE GROUND)			
					Trial pit Completed at 3.00m	3.00	331.65	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.10m x 2.70m

Sidewall stability: Minor spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 3.00m.

Remarks: Trial pit terminated at 3.00m on hard strata. Soakaway test undertaken, results presented separately.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP202

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 22 April 2024 Easting 300163 Scale 1:25

End Date 22 April 2024 Northing 195072 Ground Level 337.65mOD Depth 2.10 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft brown slightly gravelly sandy silty CLAY with a low angular sandstone, brick and concrete cobble content and frequent roots (up to 5mm diam) and rootlets. Gravel is angular fine to coarse brick, concrete and sandstone. (MADE GROUND)	0.20	337.45	
1B 1ES	0.50 - 0.70 0.50				Reddish brown sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a high angular and subangular sandstone, brick and concrete cobble content. (MADE GROUND) 0.40 - 0.90m: Brick wall in north face of pit (in situ).			
2B 2ES	1.00 - 1.20 1.00				Brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a high angular and subangular sandstone cobble content. (MADE GROUND) 0.90 - 1.20m: Concrete footing in north face of pit.	0.90	336.75	
3B 3ES	1.50 - 1.70 1.50							
4ES	2.00							
					Trial pit Completed at 2.10m	2.10	335.55	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 0.70m x 2.50m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.10m.

Remarks: Trial pit terminated at 2.10m on hard strata.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP203

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 03 May 2024 Easting 300300 Scale 1:25

End Date 03 May 2024 Northing 195162 Ground Level 348.65mOD Depth 0.60 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grey CONCRETE. (MADE GROUND)	0.15	348.50	
					Greyish brown sandy angular and subangular fine to coarse sandstone GRAVEL. (MADE GROUND) 0.20m: Steel reinforcement (5mm diam) grid.	0.40	348.25	
1B 1ES	0.50 - 0.60 0.50				Dark greyish brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a high angular sandstone cobble content and low sandstone and concrete boulder content. Rare fragments of metal, wood and kerbstones. (MADE GROUND) 0.40 - 0.60m: Concrete beam with 10mm diam steel reinforcement orientate east-west across pit extending under slab.	0.60	348.05	
					Trial pit Completed at 0.60m			

Equipment: Pit excavated by Floor Saw and CAT308-07 9T Tracked Excavator

Pit width x length: 1.20m x 2.30m

Sidewall stability: Spalling in sidewalls.

Groundwater: Groundwater not encountered

Backfill: Concrete 0.00 - 0.20m.
Arisings 0.20 - 0.60m.

Remarks: Trial pit terminated at 0.60m due to undermining concrete slab.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP204

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 23 April 2024 Easting 300395 Scale 1:25

End Date 23 April 2024 Northing 195203 Ground Level 344.25mOD Depth 2.40 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over dark greyish brown clayey sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium angular and subangular brick, concrete and sandstone cobble content and low concrete boulder content. Frequent fragments of wood, metal, wire, rags, plastic and steel rebar. (MADE GROUND)			
1B 1ES	0.50 - 0.70 0.50				0.00 - 0.50m: Frequent roots (up to 10mm diam) and rootlets.			
2B 2ES	1.00 - 1.20 1.00							
3B 3ES	1.50 - 1.70 1.50 - 1.70				Brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a medium angular and subangular sandstone cobble content. (MADE GROUND)	1.50	342.75	
4B 4ES	2.00 - 2.20 2.00							
					2.40m: Grey sandstone across base of pit.	2.40	341.85	
					Trial pit Completed at 2.40m			

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.00m x 2.20m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.40m.

Remarks: Trial pit terminated at 2.40m on hard strata. Soakaway test undertaken, results presented separately.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP205

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 25 April 2024 Easting 300376 Scale 1:25

End Date 25 April 2024 Northing 195158 Ground Level 343.60mOD Depth 2.10 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
1B 1ES	0.50 - 0.70 0.50				Grass over brown clayey sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium brick, concrete and sandstone cobble content and low concrete boulder content. Frequent fragments of steel rebar (10mm diam). (MADE GROUND)			
2B 2ES	1.00 - 1.20 1.00 - 1.20				Dark greyish brown slightly clayey very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium brick, concrete and sandstone cobble content and low concrete boulder content. Frequent fragments of steel rebar (10mm diam), wire, plastic bags, textiles, metal and wood. (MADE GROUND)	1.00	342.60	
3B 3ES	1.50 - 1.70 1.50							
4B 4ES	2.00 - 2.10 2.00				2.10m: Grey sandstone across base of pit. Trial pit Completed at 2.10m	2.10	341.50	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 0.90m x 2.20m

Sidewall stability: Slight spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.10m.

Remarks: Trial pit terminated at 2.10m on hard strata.

AGS

CONTRACT	CHECKED
38113	**JH**

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP206

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 23 April 2024 Easting 300494 Scale 1:25

End Date 23 April 2024 Northing 195174 Ground Level 330.25mOD Depth 0.60 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
1B 1ES	0.50 - 0.60 0.50				Grass over greyish brown silty very gravelly fine to coarse SAND with a medium angular and subangular brick, concrete and sandstone cobble content and low concrete boulder content. Gravel is angular and subangular fine to coarse brick, concrete and sandstone. Frequent roots (up to 5mm diam) and rootlets and rare fragments of wood, metal, wire, rags, plastic and steel rebar. (MADE GROUND)			
					0.60m: Concrete and man hole chamber across base of pit. Trial pit Completed at 0.60m	0.60	329.65	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.50m x 2.50m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 0.60m.

Remarks: Trial pit terminated at 0.60m due to concrete and man hole chamber across base of pit.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP206A

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 29 April 2024 Easting 300509 Scale 1:25

End Date 29 April 2024 Northing 195175 Ground Level 329.10mOD Depth 1.00 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
1B 1ES	0.50 - 0.70 0.50				Grass over brown clayey very sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a high angular and subangular sandstone, brick and concrete cobble content and high sandstone and concrete boulder content. Rare rootlets and fragments of plastic and textile rags. (MADE GROUND)			
					1.00m: Grey sandstone across base of pit. Trial pit Completed at 1.00m	1.00	328.10	

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.00m x 2.50m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.00m.

Remarks: Trial pit terminated at 1.00m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP207

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 24 April 2024 Easting 300019 Scale 1:25

End Date 24 April 2024 Northing 194946 Ground Level 325.25mOD Depth 1.40 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft brown slightly gravelly sandy CLAY with frequent roots (up to 5mm diam) and rootlets. Gravel is angular and subangular fine to coarse brick, concrete and sandstone. (MADE GROUND)			
1B 1ES	0.50 - 0.70 0.50				Firm light brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse brick, concrete and sandstone. (MADE GROUND)	0.40	324.85	
2B 2ES	1.00 - 1.20 1.00 - 1.20				Dark greyish brown clayey very sandy angular to subrounded fine to coarse brick, concrete and sandstone GRAVEL with a medium concrete, brick and tarmacadam cobble content and low concrete boulder content. Rare wire fragments. (MADE GROUND) 1.20m: 20mm diam electricity cable, damaged.	1.00	324.25	
					Trial pit Completed at 1.40m	1.40	323.85	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.00m x 2.50m

Sidewall stability: Spalling in side walls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.40m.

Remarks: Trial pit terminated at 1.40m due to uncovering electricity cable and relocated as TP207A.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP207A

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 01 May 2024 Easting 300022 Scale 1:25

End Date 01 May 2024 Northing 194954 Ground Level 325.85mOD Depth 2.40 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft reddish brown slightly sandy slightly gravelly clayey SILT with frequent roots (up to 5mm diam) and rootlets. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.20	325.65	
1B 1ES	0.50 - 0.70 0.50				Greyish brown clayey sandy angular and subangular fine to coarse sandstone, concrete and brick GRAVEL with a high angular and subangular concrete and brick cobble content and high concrete boulder content. Rare fragments of steel reinforcement bar, wire mesh and polystyrene. (MADE GROUND) 0.40 - 1.10m: Concrete footing in south face of pit			
2B 2ES	1.00 - 1.10 1.00					1.10	324.75	
					Brown clayey sandy angular and subangular fine to coarse sandstone, concrete and brick GRAVEL with a medium angular and subangular sandstone, concrete and brick cobble content. (MADE GROUND)			
3B 3ES	1.50 - 1.70 1.50							
4B 4ES	2.00 - 2.20 2.00							
					2.40m: Concrete across base of pit.	2.40	323.45	
					Trial pit Completed at 2.40m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.50m

Sidewall stability: Spalling in sidewalls.

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.40m.

Remarks: Trial pit terminated at 2.40m on hard strata.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP208

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 01 May 2024 Easting 300068 Scale 1:25

End Date 01 May 2024 Northing 194922 Ground Level 319.60mOD Depth 1.10 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.20	319.40	
1B 1ES	0.50 - 0.70 0.50				Brown clayey very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium concrete, sandstone and brick cobble content and low concrete boulder content. Rare fragments of metal and plastic pipe. (MADE GROUND) 0.60 - 1.10m: Brickwork structure in north, south and east faces of pit.			
2B 2ES	1.00 - 1.10 1.00				1.10m: Concrete slab across base of pit.	1.10	318.50	
					Trial pit Completed at 1.10m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.40m

Sidewall stability: Spalling in sidewalls.

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.10m.

Remarks: Trial pit terminated at 1.10m on concrete obstruction.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

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TRIAL PIT LOG

TP209

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 01 May 2024 Easting 300319 Scale 1:25

End Date 01 May 2024 Northing 194930 Ground Level 320.85mOD Depth 0.50 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.20	320.65	
					Brown clayey very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a low subangular sandstone cobble content. Rare fragments of metal. (MADE GROUND)			
					0.50m: Manhole chamber in base of pit (in situ).	0.50	320.35	
					Trial pit Completed at 0.50m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 0.90m x 2.20m

Sidewall stability: Spalling in sidewalls.

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 0.50m.

Remarks: Trial pit terminated at 0.50m due to manhole chamber in base of pit.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP210

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 23 April 2024 Easting 300482 Scale 1:25

End Date 23 April 2024 Northing 195071 Ground Level 321.25mOD Depth 2.90 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over greyish brown silty very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium angular brick, concrete and sandstone cobble content and low concrete boulder content. Frequent fragments of steel rebar and rare fragments of wood, metal, wire, rags and plastic. (MADE GROUND)			
1B 1ES	0.50 - 0.70 0.50				0.00 - 0.50m: Frequent roots (up to 5mm diam) and rootlets.			
2B 2ES	1.00 - 1.20 1.00							
3B 3ES	1.50 - 1.70 1.50							
4B 4ES	2.00 - 2.20 2.00							
5B 5ES	2.50 - 2.70 2.50							
					2.90m: Grey sandstone across base of pit.	2.90	318.35	
					Trial pit Completed at 2.90m			

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.00m x 2.50m

Sidewall stability: Spalling in side walls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.90m.

Remarks: Trial pit terminated at 2.90m due to hard strata.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP211

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 29 April 2024 Easting 300554 Scale 1:25

End Date 29 April 2024 Northing 195086 Ground Level 313.75mOD Depth 1.70 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over greyish brown clayey sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a high angular and subangular sandstone, brick and concrete cobble content and low sandstone and concrete boulder content. Rare fragments of plastic and textile rags. (MADE GROUND)			
1B 1ES	0.50 0.50	- 0.70			0.50m: Wire rope (20mm diam).			
2B 2ES	1.00 1.00	- 1.20 - 1.20			Brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a high angular tabular sandstone cobble content and low sandstone boulder content.	1.00	312.75	
3D 3ES	1.50 1.50	- 1.70			1.70m: Grey sandstone across base of pit.	1.70	312.05	
					Trial pit Completed at 1.70m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.50m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.70m.

Remarks: Trial pit terminated at 1.70m due to hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

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TRIAL PIT LOG

TP212

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 29 April 2024 Easting 300499 Scale 1:25

End Date 29 April 2024 Northing 195024 Ground Level 313.10mOD Depth 2.20 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over firm reddish brown slightly gravelly sandy silty CLAY with frequent roots (up to 20mm diam) and rootlets. Gravel is angular fine to coarse sandstone. (MADE GROUND)	0.20	312.90	
1B 1ES	0.50 - 0.70 0.50				Brown slightly clayey very sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a medium angular and subangular sandstone, brick and concrete cobble content and low sandstone and concrete boulder content. Rare fragments of plastic and textile rags. (MADE GROUND) 0.20 - 1.00m: Brick wall in west face of pit (in situ).			
2B 2ES	1.00 - 1.20 1.00				1.00 - 1.30m: Concrete footing in west face of pit			
					Brown and grey clayey very sandy angular and subangular fine to coarse sandstone GRAVEL with a high angular tabular sandstone cobble content.	1.30	311.80	
3B 3ES	1.50 - 1.70 1.50							
4B 4ES	2.00 - 2.20 2.00							
					2.20m: Probable sandstone across base of pit.	2.20	310.90	
					Trial pit Completed at 2.20m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.00m x 2.70m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.20m.

Remarks: Trial pit terminated at 2.20m due to hard strata, probable sandstone. Soakaway test undertaken, results presented separately.

AGS

CONTRACT	CHECKED
38113	**JH**

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP213

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 26 April 2024 Easting 300531 Scale 1:25

End Date 26 April 2024 Northing 194963 Ground Level 304.15mOD Depth 3.50 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark brown slightly gravelly sandy silty CLAY with frequent roots (up to 5mm diam) and rootlets. Gravel is angular to subrounded fine to coarse brick and sandstone. (MADE GROUND)	0.10	304.05	
1B 1ES	0.50 - 0.70 0.50				Greyish brown very clayey very sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a medium angular and subangular sandstone, brick and concrete cobble content. (MADE GROUND)			
2B 2ES	1.00 - 1.10 1.00							
					Soft grey and greyish brown slightly sandy gravelly CLAY with a low subangular sandstone cobble content. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	1.10	303.05	
3D 3ES	1.50 1.50							
4D 4ES	2.00 2.00							
5D 5ES	3.00 3.00							
					Trial pit Completed at 3.50m	3.50	300.65	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.20m x 3.00m

Sidewall stability: Sidewall collapse from 3.00m

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 3.50m.

AGS

CONTRACT	CHECKED
38113	**JH**

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP214

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 29 April 2024 Easting 300585 Scale 1:25

End Date 29 April 2024 Northing 195001 Ground Level 304.10mOD Depth 2.90 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft brown slightly gravelly sandy silty CLAY with frequent roots (up to 20mm diam) and rootlets. Gravel is angular and subangular fine to coarse sandstone. (MADE GROUND)	0.20	303.90	
1B 1ES	0.50 - 0.70 0.50				Greyish brown and brown very clayey very sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a medium sandstone, brick and concrete cobble content and low sandstone boulder content. (MADE GROUND)	0.80	303.30	
2B 2ES	1.00 - 1.20 1.00				Dark greyish brown very clayey very sandy angular and subangular fine to coarse sandstone GRAVEL with a medium angular sandstone cobble content. (MADE GROUND)			
3D 3ES	1.50 1.50							
4B 4ES	2.00 - 2.20 2.00							
5B 5ES	2.50 - 2.70 2.50			▼				
				2.50m	Trial pit Completed at 2.90m	2.90	301.20	

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.50m

Sidewall stability: Sidewalls collapsing from 2.50m

Groundwater: Groundwater flow encountered at 2.50m

Backfill: Arisings 0.00 - 2.90m.

Remarks: Trial pit terminated at 2.90m due to sidewall collapse.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP215

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 30 April 2024 Easting 300083 Scale 1:25

End Date 30 April 2024 Northing 194764 Ground Level 304.95mOD Depth 0.70 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft greyish brown slightly sandy gravelly silty CLAY with a low subangular sandstone cobble content and frequent rootlets. Gravel is angular and subangular fine to coarse sandstone, brick and concrete. (MADE GROUND)			
1B 1ES	0.50 0.50	- 0.70						
					0.70m: Top of yellow plastic 100mm diameter gas main orientated approx east-west across centre of pit.	0.70	304.25	
					Trial pit Completed at 0.70m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.00m x 2.20m

Sidewall stability: Minor spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 0.70m.

Remarks: Trial pit terminated at 0.70m due to encountering gas main.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP216

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 30 April 2024 Easting 300240 Scale 1:25

End Date 30 April 2024 Northing 194840 Ground Level 307.05mOD Depth 2.00 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark greyish brown slightly gravelly sandy clayey SILT with frequent roots (up to 20mm diam) and rootlets. Gravel is angular and subangular fine to coarse sandstone, brick and concrete. (MADE GROUND)			
					Greyish brown clayey very sandy angular and subangular fine to coarse sandstone, brick and concrete GRAVEL with a medium subangular sandstone, brick and concrete cobble content and low sandstone and concrete boulder content. (MADE GROUND)	0.30	306.75	
1B 1ES	0.50 - 0.70 0.50							
2B 2ES	1.00 - 1.20 1.00							
					Brown clayey sandy angular and subangular fine to coarse sandstone GRAVEL with a high subangular sandstone cobble content and low sandstone boulder content. (MADE GROUND)	1.20	305.85	
3D 3ES	1.50 1.50							
					2.00m: Probable sandstone across base of pit.	2.00	305.05	
					Trial pit Completed at 2.00m			

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.10m x 2.40m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.00m.

Remarks: Trial pit terminated at 2.00m due hard strata, probable sandstone. Soakaway test undertaken, results presented separately.

AGS

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP217

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 25 April 2024 Easting 300244 Scale 1:25

End Date 25 April 2024 Northing 194800 Ground Level 302.15mOD Depth 2.90 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark brown slightly sandy slightly gravelly silty CLAY with frequent roots (up to 5mm dam) and rootlets. Gravel is subangular and subrounded fine to coarse sandstone. (MADE GROUND)	0.10	302.05	
1B 1ES	0.50 - 0.70 0.50				Brown very clayey very sandy angular and subangular fine to coarse brick, concrete and sandstone GRAVEL with a medium angular and subangular brick, concrete and sandstone cobble content and medium concrete boulder content. (MADE GROUND) 0.20 - 0.70m: Grey brickwork in south and west face of pit (in situ). 0.70 - 1.00m: Concrete footing in west face of pit.			
2B 2ES	1.00 - 1.20 1.00				1.20 - 1.50m: Concrete footing in south face of pit.			
3B 3ES	1.50 - 1.70 1.50 - 1.70				Dark brown silty very sandy angular and subangular fine to coarse sandstone GRAVEL with a medium subangular sandstone cobble content and low subangular sandstone boulder content. (MADE GROUND)	1.50	300.65	
4B 4ES	2.00 - 2.20 2.00							
5B 5ES	2.50 - 2.70 2.50							
					2.90m: Grey sandstone across base of pit. Trial pit Completed at 2.90m	2.90	299.25	

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 1.10m x 2.70m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 2.90m.

Remarks: Trial pit terminated at 2.90m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP218

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 07 May 2024 Easting 300270 Scale 1:25

End Date 07 May 2024 Northing 194509 Ground Level 284.50mOD Depth 1.30 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft friable brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is angular and subangular fine to coarse sandstone.			
						0.30	284.20	
1B 1ES	0.50 - 0.70 0.50				Medium strong brown fine and medium SANDSTONE recovered as angular and subangular tabular sandstone cobbles with a low tabular sandstone boulder content with much slightly sandy angular and subangular fine to coarse sandstone gravel.			
2B 2ES	1.00 - 1.20 1.00							
					Trial pit Completed at 1.30m	1.30	283.20	

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 0.90m x 2.00m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.30m.

Remarks: Trial pit terminated at 1.30m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP219

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 07 May 2024 Easting 300264 Scale 1:25

End Date 07 May 2024 Northing 194585 Ground Level 285.75mOD Depth 1.30 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over stiff friable brown slightly sandy slightly gravelly clayey SILT with frequent roots (up to 5mm diam) and rootlets. Gravel is angular and subangular fine to coarse sandstone.			
					Medium strong brown fine and medium SANDSTONE recovered as angular and subangular tabular sandstone cobbles with a low tabular sandstone boulder content with much clayey sandy angular and subangular fine to coarse sandstone gravel.	0.30	285.45	
1B 1ES	0.50 - 0.70 0.50							
2B 2ES	1.00 - 1.20 1.00							
					1.30m: Brown sandstone across base of pit. Trial pit Completed at 1.30m	1.30	284.45	

Equipment: Pit excavated by CAT308-07 9T Tracked Excavator

Pit width x length: 1.00m x 2.00m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 1.30m.

Remarks: Trial pit terminated at 1.30m on hard strata. Soakaway test undertaken, results presented separately.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

TRIAL PIT LOG

TP220

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Sheet 1 of 1

Start Date 25 April 2024 Easting 300352 Scale 1:25

End Date 25 April 2024 Northing 194442 Ground Level 285.85mOD Depth 0.75 m

sample no & type	sample depth (m) from	to	test type & value	water record	description	depth (m)	reduced level (m)	legend
					Grass over soft dark brown sandy clayey SILT with frequent roots (up to 10mm diam) and rootlets.			
					Medium strong brown fine and medium SANDSTONE with rare rootlets recovered as angular and subangular tabular sandstone cobbles with a low tabular sandstone boulder content with much clayey very sandy angular and subangular fine to coarse sandstone gravel.	0.20	285.65	
1B 1ES	0.50 - 0.70 0.50				0.75m: Grey sandstone across base of pit.	0.75	285.10	
					Trial pit Completed at 0.75m			

Equipment: Pit excavated by Volvo EWR130E 14T Wheeled Excavator

Pit width x length: 0.90m x 2.00m

Sidewall stability: Spalling in sidewalls

Groundwater: Groundwater not encountered

Backfill: Arisings 0.00 - 0.75m.

Remarks: Trial pit terminated at 0.75m on hard strata.

CONTRACT	CHECKED
38113	JH

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

Geotechnical Engineering Limited

SOAKAWAY TEST

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNONTAFF TRIAL PIT **TP201**

DATE 24/04/2024

TEST 1

LENGTH	2.70 m
BREADTH	1.10 m
DEPTH	3.00 m
WATER LEVEL	Dry m
FILL LEVEL	2.14 m

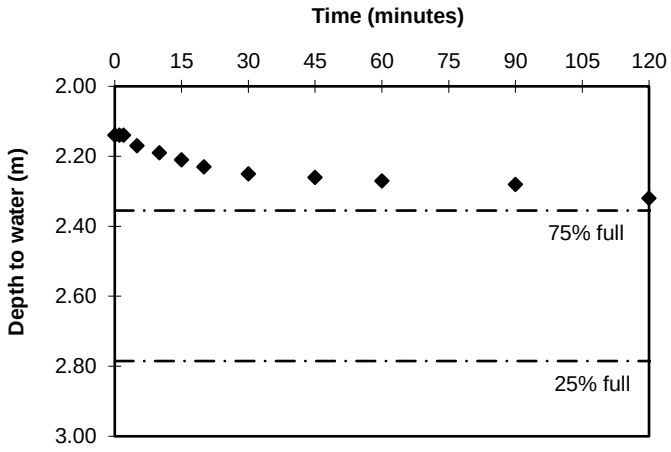
v_{p75-25}

a_{p50}

t_{p75-25}

soil infiltration rate, *f*

Insufficient water take to calculate infiltration rate.



TEST 2

LENGTH	2.70 m
BREADTH	1.10 m
DEPTH	3.00 m
WATER LEVEL	2.32 m
FILL LEVEL	1.81 m

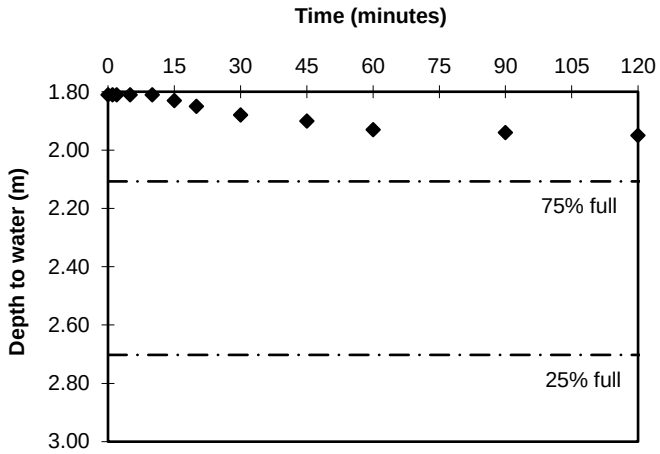
v_{p75-25}

a_{p50}

t_{p75-25}

soil infiltration rate, *f*

Insufficient water take to calculate infiltration rate.



TEST 3

LENGTH	2.70 m
BREADTH	1.10 m
DEPTH	3.00 m
WATER LEVEL	1.95 m
FILL LEVEL	1.53 m

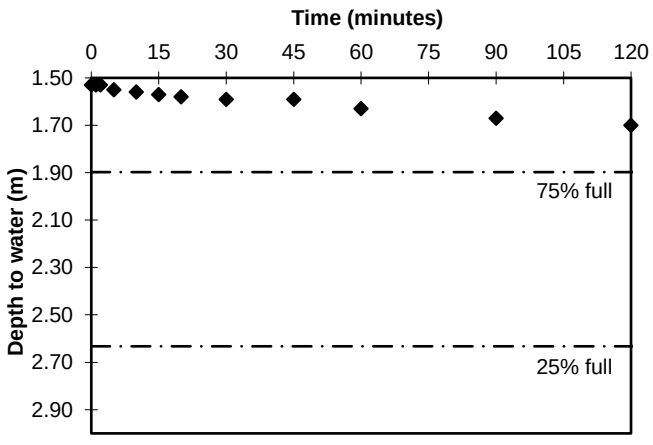
v_{p75-25}

a_{p50}

t_{p75-25}

soil infiltration rate, *f*

Insufficient water take to calculate infiltration rate.



Remarks Test carried out in accordance with BRE DG 365 (2016).

CONTRACT	CHECKED
38113	**JH**

JT / SP

Geotechnical Engineering Limited

SOAKAWAY TEST

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNONTAFF TRIAL PIT **TP204**

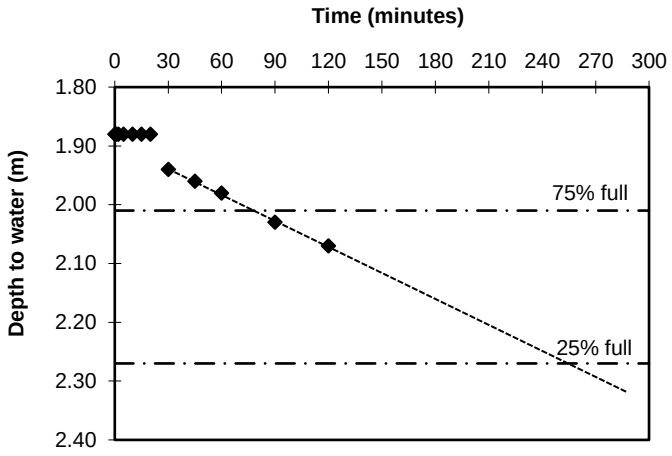
DATE 23/04/2024

TEST 1

LENGTH	2.20	m
BREADTH	1.00	m
DEPTH	2.40	m
WATER LEVEL	Dry	m
FILL LEVEL	1.88	m
v_{p75-25}	0.572	m^3
a_{p50}	3.864	m^2
t_{p75-25}	183	min

soil infiltration rate, *f* **3.3×10^{-5} ms^{-1}**

Calculated by extrapolating timeline

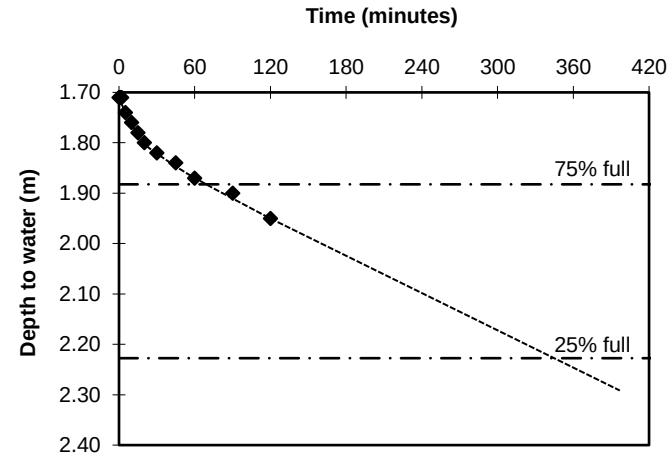


TEST 2

LENGTH	2.20	m
BREADTH	1.00	m
DEPTH	2.40	m
WATER LEVEL	2.07	m
FILL LEVEL	1.71	m
v_{p75-25}	0.759	m^3
a_{p50}	4.408	m^2
t_{p75-25}	276	min

soil infiltration rate, *f* **1.0×10^{-5} ms^{-1}**

Calculated by extrapolating timeline



TEST 3

LENGTH

BREADTH

DEPTH

WATER LEVEL

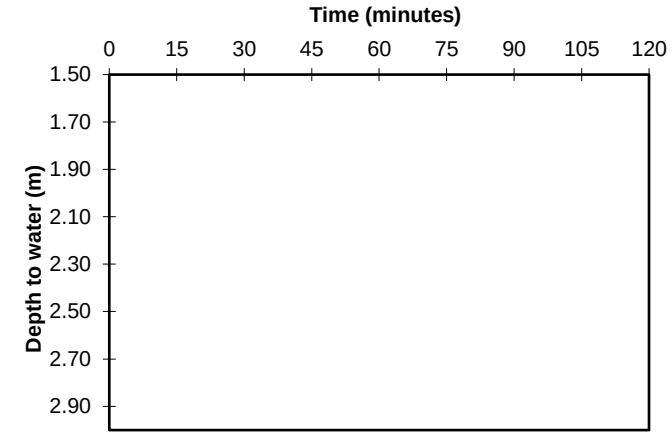
FILL LEVEL

v_{p75-25}

a_{p50}

t_{p75-25}

soil infiltration rate, *f*



Remarks Test carried out in accordance with BRE DG 365 (2016).

CONTRACT	CHECKED
38113	**JH**

JT / SP

Geotechnical Engineering Limited

SOAKAWAY TEST

CLIENT TRIVALLIS

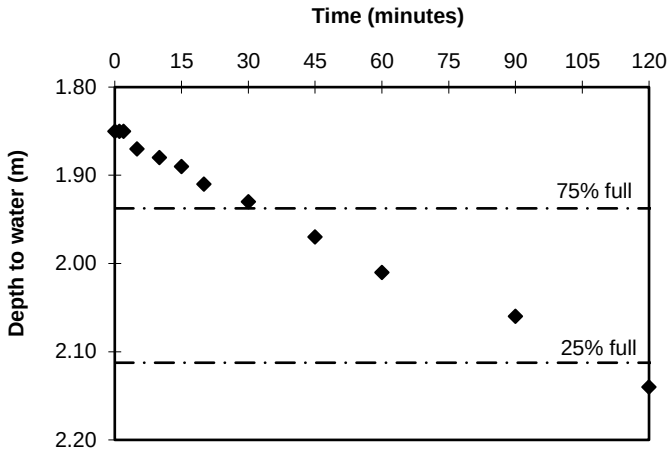
SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF TRIAL PIT **TP212**

DATE 29/04/2024

TEST 1

LENGTH	2.10	m
BREADTH	1.00	m
DEPTH	2.20	m
WATER LEVEL	Dry	m
FILL LEVEL	1.85	m
v_{p75-25}	0.368	m^3
a_{p50}	3.185	m^2
t_{p75-25}	77	min

soil infiltration rate, *f* **2.5×10^{-5} ms^{-1}**

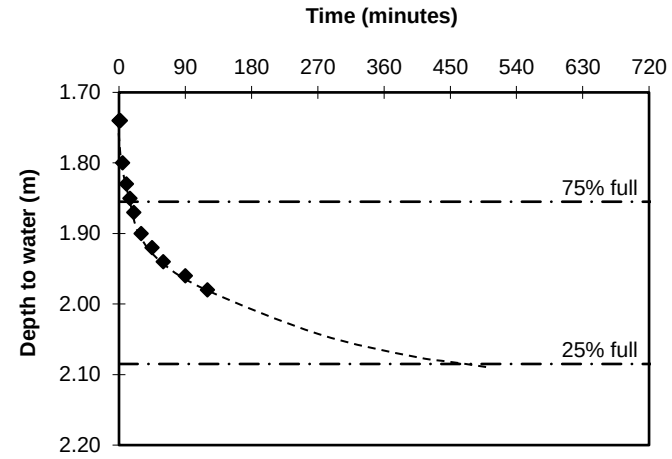


TEST 2

LENGTH	2.10	m
BREADTH	1.00	m
DEPTH	2.20	m
WATER LEVEL	2.14	m
FILL LEVEL	1.74	m
v_{p75-25}	0.483	m^3
a_{p50}	3.526	m^2
t_{p75-25}	435	min

soil infiltration rate, *f* **5.3×10^{-6} ms^{-1}**

Calculated by extrapolating timeline

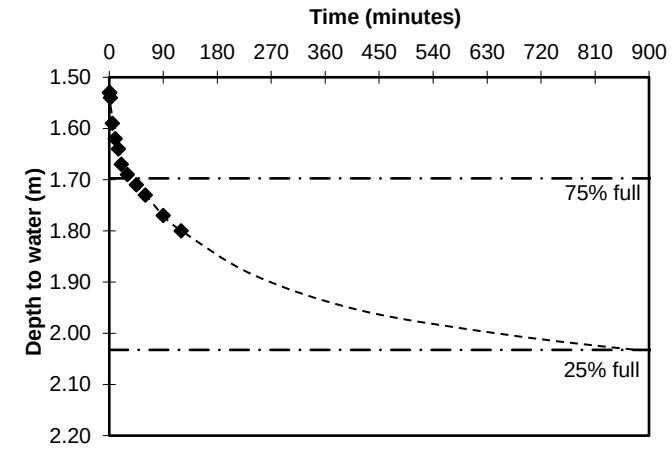


TEST 3

LENGTH	2.10	m
BREADTH	1.00	m
DEPTH	2.20	m
WATER LEVEL	1.98	m
FILL LEVEL	1.53	m
v_{p75-25}	0.704	m^3
a_{p50}	4.177	m^2
t_{p75-25}	845	min

soil infiltration rate, *f* **3.3×10^{-6} ms^{-1}**

Calculated by extrapolating timeline



Remarks Test carried out in accordance with BRE DG 365 (2016).

CONTRACT	CHECKED
38113	**JH**

JT / SP

rev08 22/08/16 JH

Geotechnical Engineering Limited

SOAKAWAY TEST

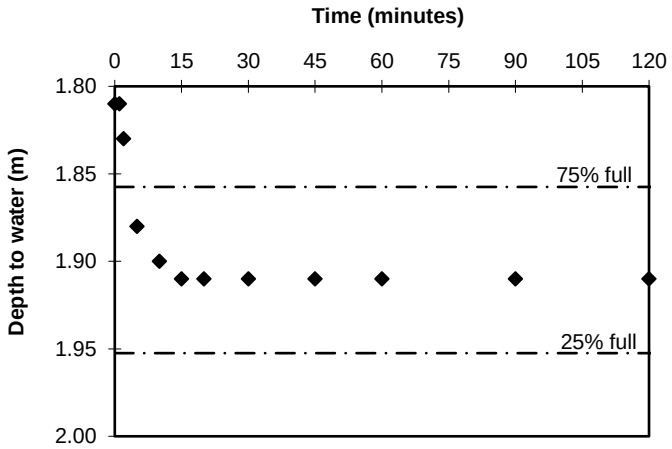
CLIENT	TRIVALLIS		
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	TRIAL PIT	**TP216**
DATE	30/04/2024		

TEST 1

LENGTH	2.00	m
BREADTH	1.10	m
DEPTH	2.00	m
WATER LEVEL	Dry	m
FILL LEVEL	1.81	m
v_{p75-25}		
a_{p50}		
t_{p75-25}		

soil infiltration rate, *f*

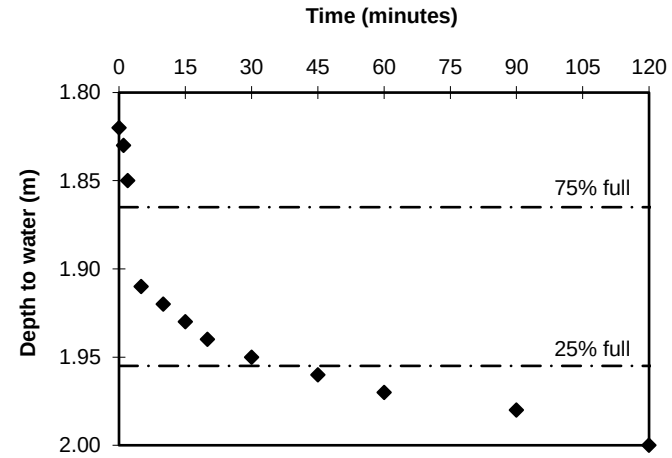
Insufficient water take to calculate infiltration rate



TEST 2

LENGTH	2.00	m
BREADTH	1.10	m
DEPTH	2.00	m
WATER LEVEL	1.91	m
FILL LEVEL	1.82	m
v_{p75-25}	0.198	m^3
a_{p50}	2.758	m^2
t_{p75-25}	34	min

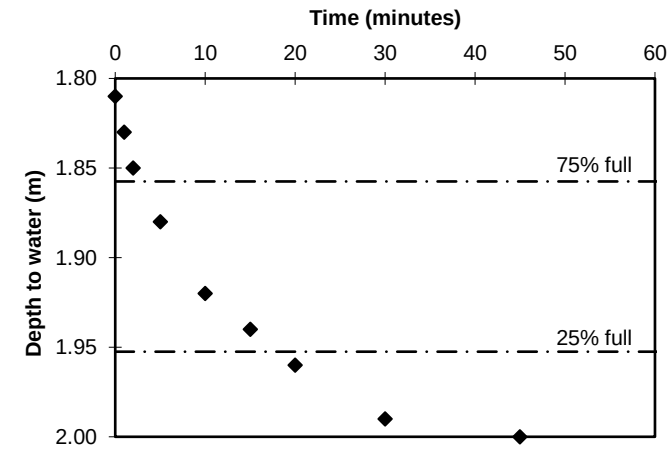
soil infiltration rate, *f* **3.5×10^{-5} ms^{-1}**



TEST 3

LENGTH	2.00	m
BREADTH	1.10	m
DEPTH	2.00	m
WATER LEVEL	Dry	m
FILL LEVEL	1.81	m
v_{p75-25}	0.209	m^3
a_{p50}	2.789	m^2
t_{p75-25}	15	min

soil infiltration rate, *f* **8.3×10^{-5} ms^{-1}**



Remarks	Test carried out in accordance with BRE DG 365 (2016).	CONTRACT	CHECKED
		38113	**JH**

JT / SP

Geotechnical Engineering Limited

SOAKAWAY TEST

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF TRIAL PIT **TP219**

DATE 07/05/2024

TEST 1

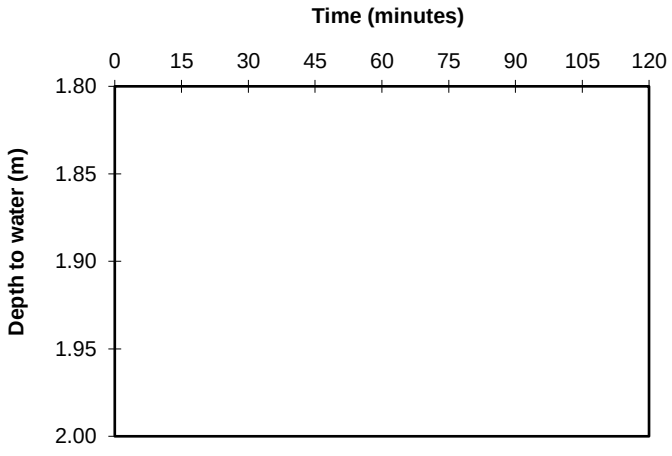
LENGTH	2.00	m
BREADTH	1.00	m
DEPTH	1.30	m
WATER LEVEL	Dry	m
FILL LEVEL		m

v_{p75-25}

a_{p50}

t_{p75-25}

Water take too quick to fill pit. 1000l added



TEST 2

LENGTH

BREADTH

DEPTH

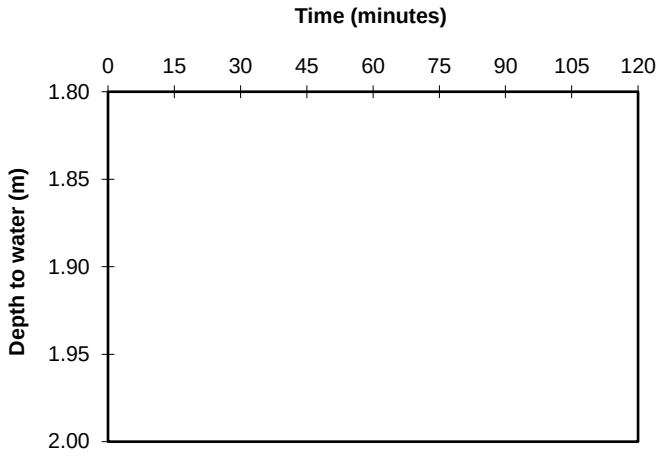
WATER LEVEL

FILL LEVEL

v_{p75-25}

a_{p50}

t_{p75-25}



TEST 3

LENGTH

BREADTH

DEPTH

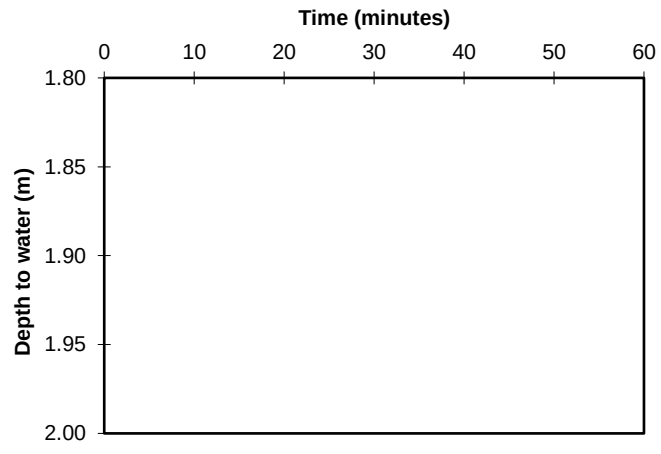
WATER LEVEL

FILL LEVEL

v_{p75-25}

a_{p50}

t_{p75-25}



Remarks Test carried out in accordance with BRE DG 365 (2016).

CONTRACT	CHECKED
38113	**JH**

JT / SP

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP201

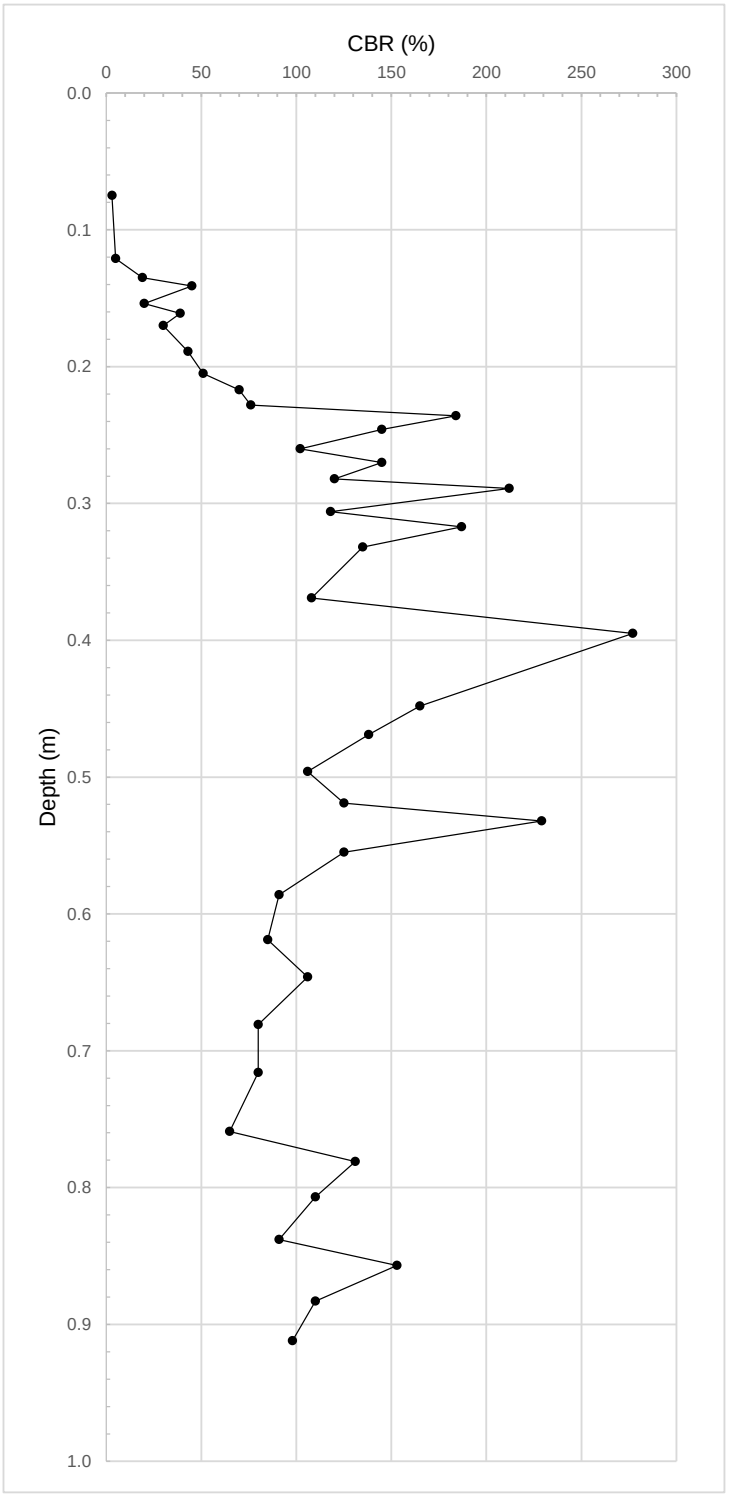
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 26/04/2024 Test No. 1

Initial Scale Reading (mm) 97 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	172	75	0.08	75	3
1	218	46	0.12	46	5
1	232	14	0.14	14	19
1	238	6	0.14	6	45
1	251	13	0.15	13	20
1	258	7	0.16	7	39
1	267	9	0.17	9	30
3	286	19	0.19	6	43
3	302	16	0.21	5	51
3	314	12	0.22	4	70
3	325	11	0.23	4	76
5	333	8	0.24	2	184
5	343	10	0.25	2	145
5	357	14	0.26	3	102
5	367	10	0.27	2	145
5	379	12	0.28	2	120
5	386	7	0.29	1	212
7	403	17	0.31	2	118
7	414	11	0.32	2	187
7	429	15	0.33	2	135
14	466	37	0.37	3	108
24	492	26	0.40	1	277
30	545	53	0.45	2	165
10	566	21	0.47	2	138
10	593	27	0.50	3	106
10	616	23	0.52	2	125
10	629	13	0.53	1	229
10	652	23	0.56	2	125
10	683	31	0.59	3	91
10	716	33	0.62	3	85
10	743	27	0.65	3	106
10	778	35	0.68	4	80
10	813	35	0.72	4	80
10	856	43	0.76	4	65
10	878	22	0.78	2	131
10	904	26	0.81	3	110
10	935	31	0.84	3	91
10	954	19	0.86	2	153
10	980	26	0.88	3	110
10	1009	29	0.91	3	98



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP202

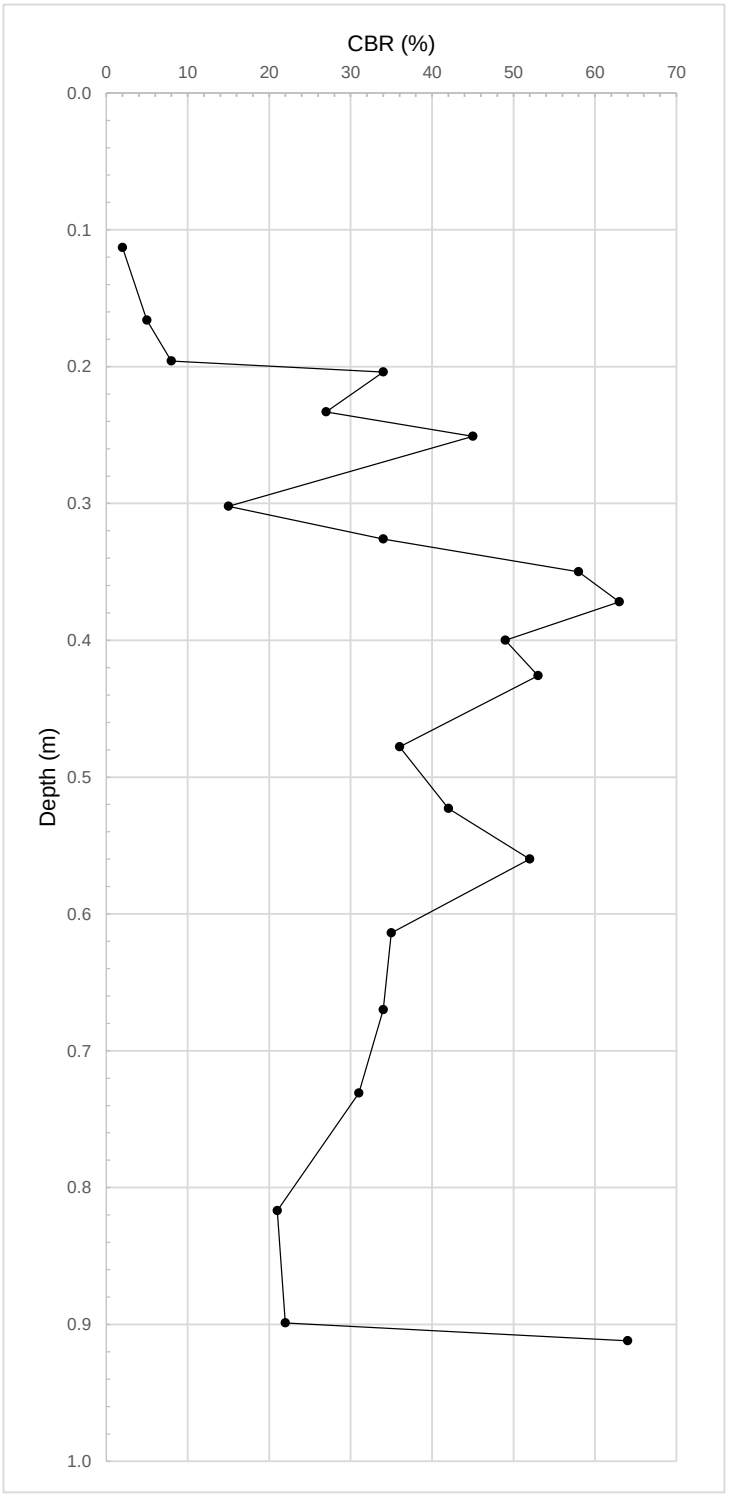
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 26/04/2024 Test No. 1

Initial Scale Reading (mm) 131 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	244	113	0.11	113	2
1	297	53	0.17	53	5
1	327	30	0.20	30	8
1	335	8	0.20	8	34
3	364	29	0.23	10	27
3	382	18	0.25	6	45
3	433	51	0.30	17	15
3	457	24	0.33	8	34
5	481	24	0.35	5	58
5	503	22	0.37	4	63
5	531	28	0.40	6	49
5	557	26	0.43	5	53
7	609	52	0.48	7	36
7	654	45	0.52	6	42
7	691	37	0.56	5	52
7	745	54	0.61	8	35
7	801	56	0.67	8	34
7	862	61	0.73	9	31
7	948	86	0.82	12	21
7	1030	82	0.90	12	22
3	1043	13	0.91	4	64



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

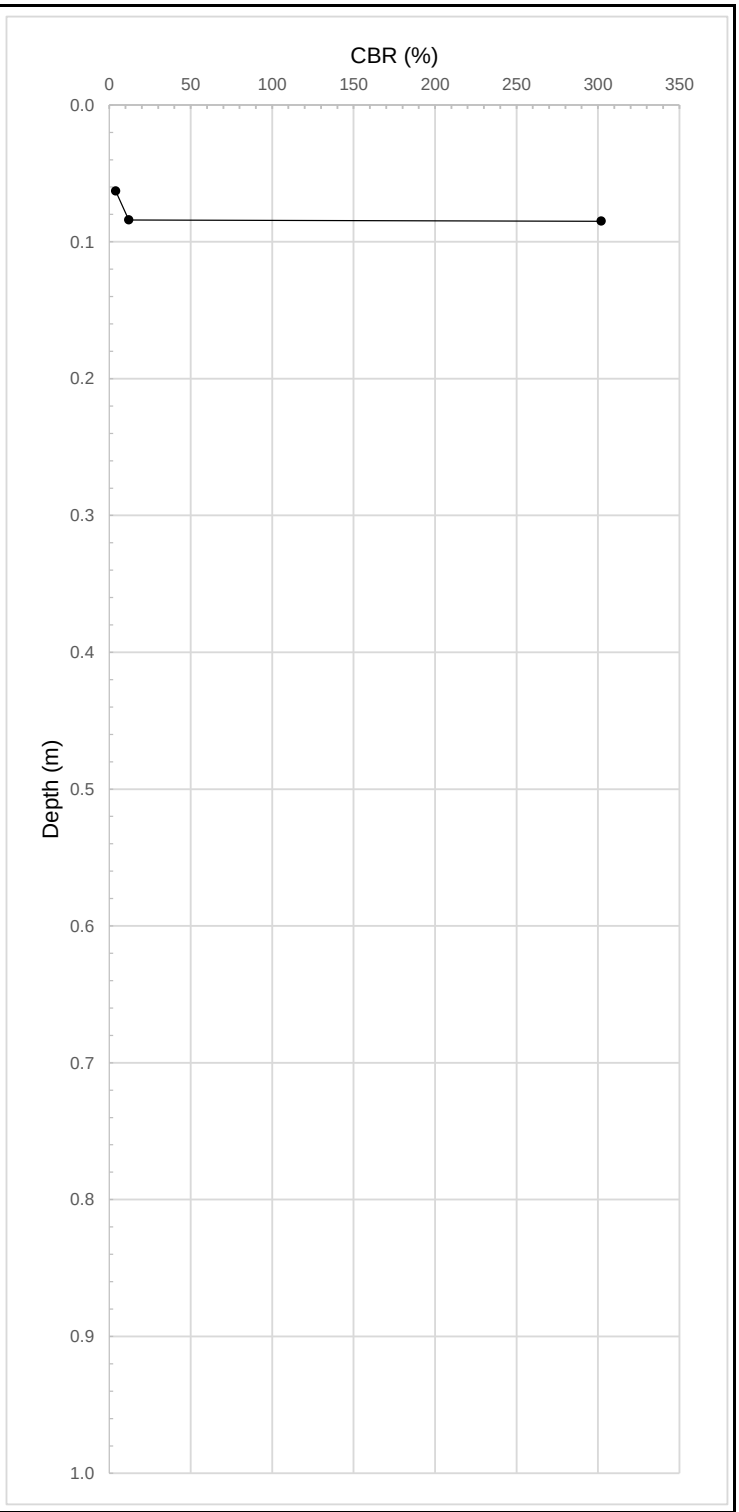
DCP204

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	26/04/2024	Test No.	1
Initial Scale Reading (mm)	125	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	188	63	0.06	63	4
1	209	21	0.08	21	12
1	210	1	0.09	1	302



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP204 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

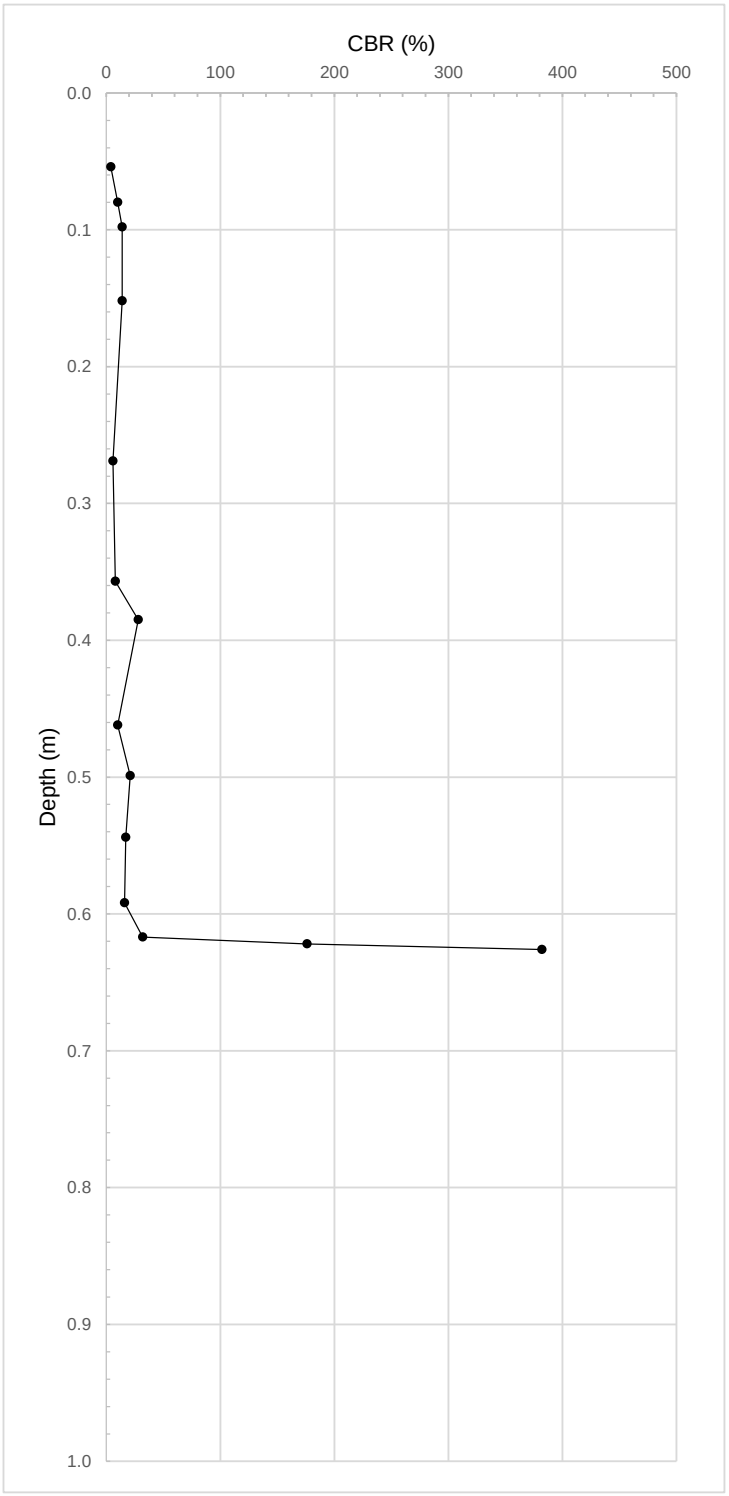
DCP204

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	26/04/2024	Test No.	2
Initial Scale Reading (mm)	125	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	179	54	0.05	54	4
1	205	26	0.08	26	10
1	223	18	0.10	18	14
3	277	54	0.15	18	14
3	394	117	0.27	39	6
3	482	88	0.36	29	8
3	510	28	0.39	9	28
3	587	77	0.46	26	10
3	624	37	0.50	12	21
3	669	45	0.54	15	17
3	717	48	0.59	16	16
3	742	25	0.62	8	32
3	747	5	0.62	2	176
5	751	4	0.63	1	382



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

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DYNAMIC CONE PENETROMETER TESTING

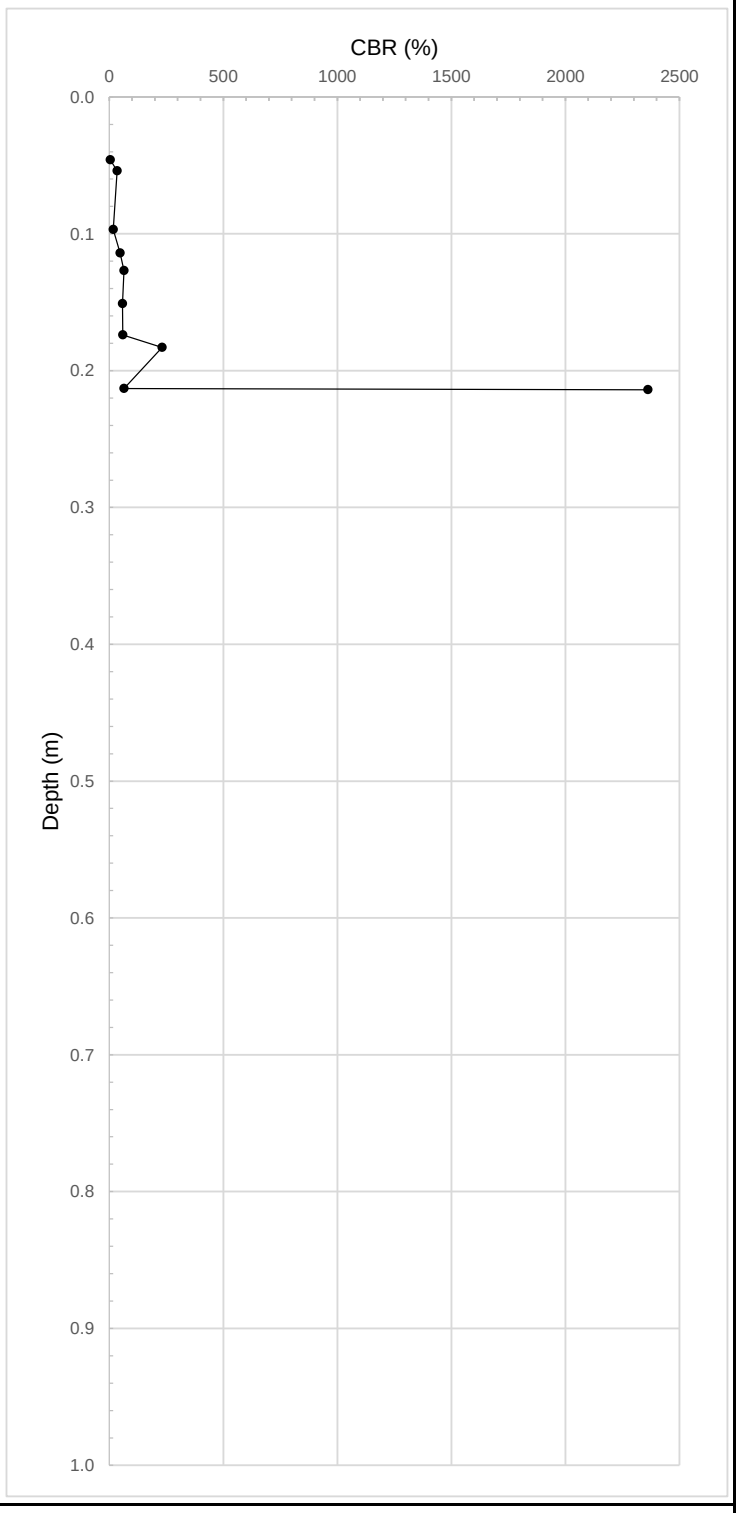
DCP205

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	26/04/2024	Test No.	1
Initial Scale Reading (mm)	108	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	154	46	0.05	46	5
1	162	8	0.05	8	34
3	205	43	0.10	14	18
3	222	17	0.11	6	48
3	235	13	0.13	4	64
5	259	24	0.15	5	58
5	282	23	0.17	5	60
7	291	9	0.18	1	232
7	321	30	0.21	4	65
7	322	1	0.21	0	2362



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP205 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

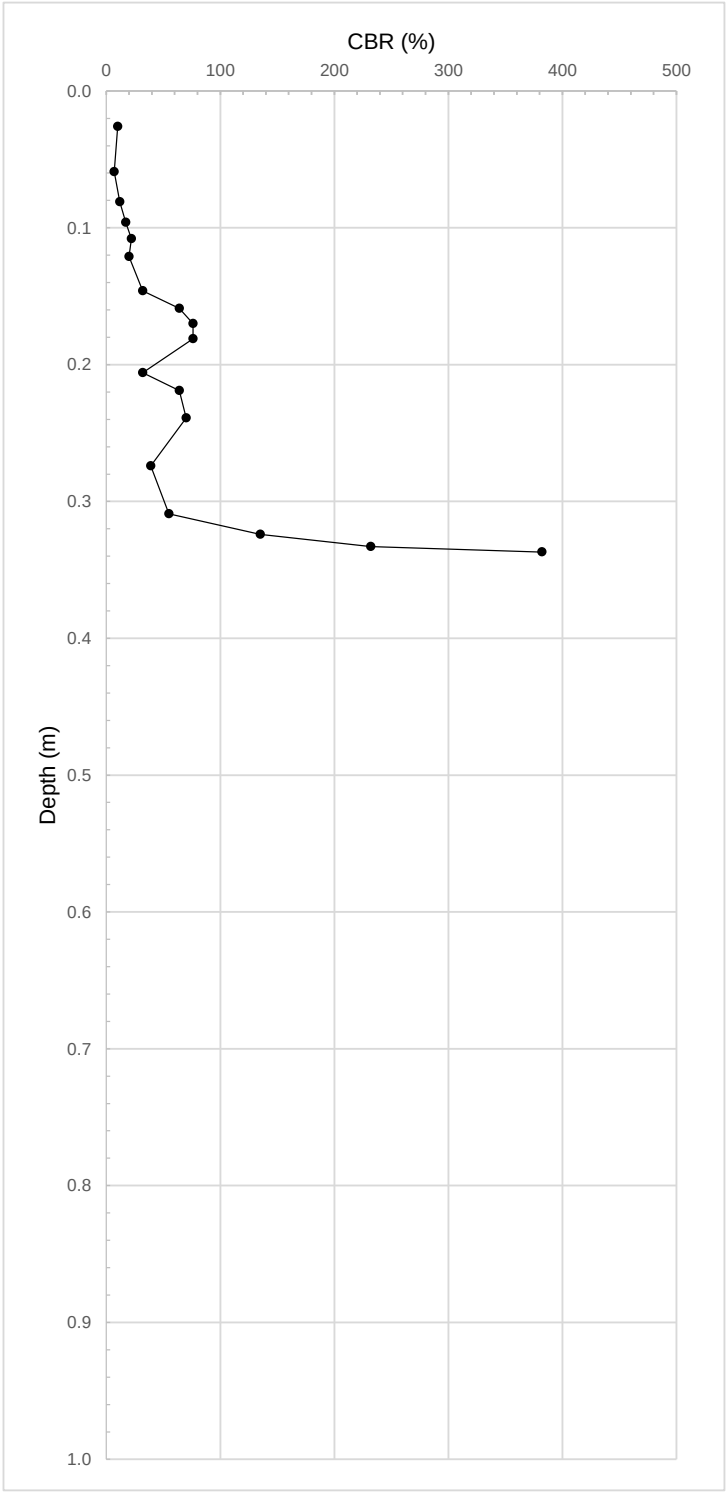
DCP205

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	26/04/2024	Test No.	2
Initial Scale Reading (mm)	113	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	139	26	0.03	26	10
1	172	33	0.06	33	7
1	194	22	0.08	22	12
1	209	15	0.10	15	17
1	221	12	0.11	12	22
1	234	13	0.12	13	20
3	259	25	0.15	8	32
3	272	13	0.16	4	64
3	283	11	0.17	4	76
3	294	11	0.18	4	76
3	319	25	0.21	8	32
3	332	13	0.22	4	64
5	352	20	0.24	4	70
5	387	35	0.27	7	39
7	422	35	0.31	5	55
7	437	15	0.32	2	135
7	446	9	0.33	1	232
5	450	4	0.34	1	382



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP206

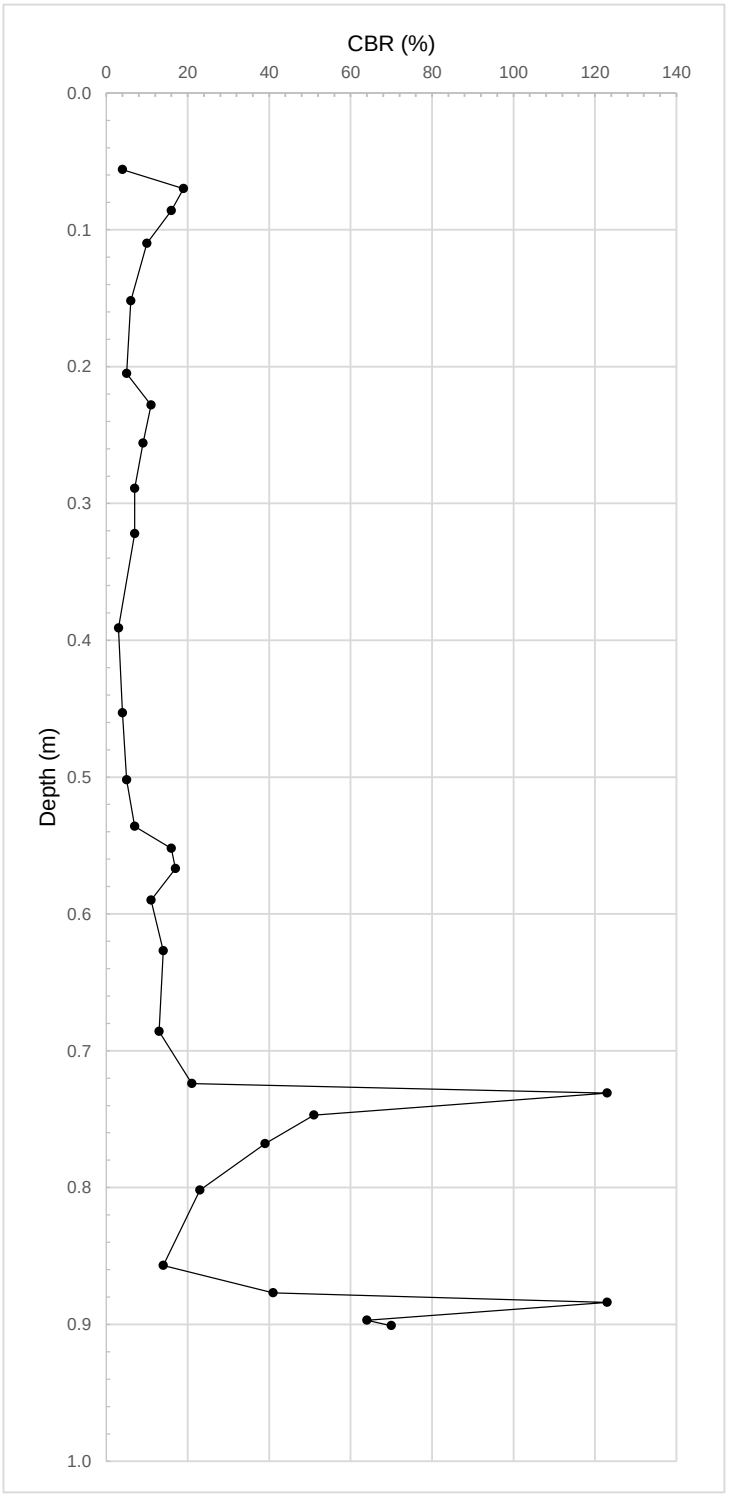
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 106 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	162	56	0.06	56	4
1	176	14	0.07	14	19
1	192	16	0.09	16	16
1	216	24	0.11	24	10
1	258	42	0.15	42	6
1	311	53	0.21	53	5
1	334	23	0.23	23	11
1	362	28	0.26	28	9
1	395	33	0.29	33	7
1	428	33	0.32	33	7
1	497	69	0.39	69	3
1	559	62	0.45	62	4
1	608	49	0.50	49	5
1	642	34	0.54	34	7
1	658	16	0.55	16	16
1	673	15	0.57	15	17
1	696	23	0.59	23	11
2	733	37	0.63	19	14
3	792	59	0.69	20	13
3	830	38	0.72	13	21
3	837	7	0.73	2	123
3	853	16	0.75	5	51
3	874	21	0.77	7	39
3	908	34	0.80	11	23
3	963	55	0.86	18	14
3	983	20	0.88	7	41
3	990	7	0.88	2	123
3	1003	13	0.90	4	64
1	1007	4	0.90	4	70



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

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DYNAMIC CONE PENETROMETER TESTING

DCP207

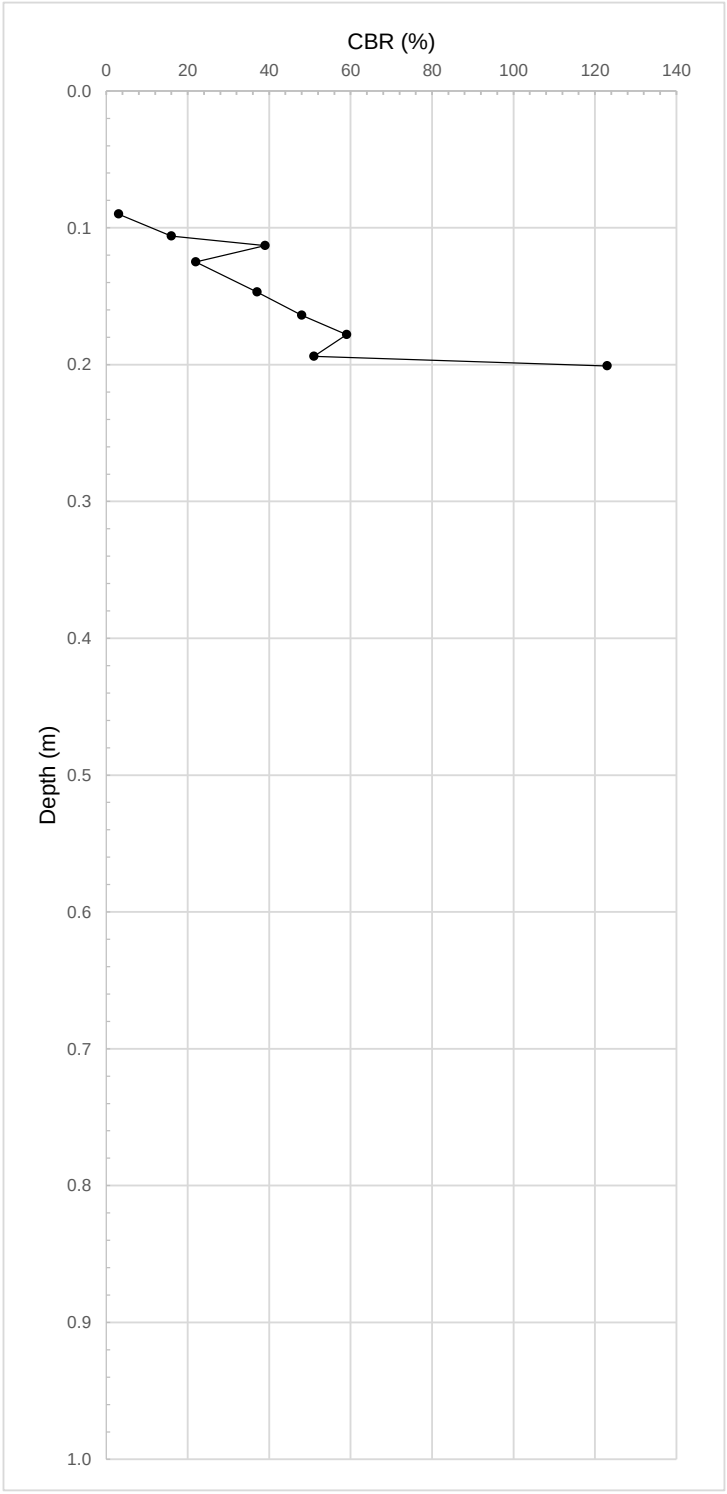
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 117 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	207	90	0.09	90	3
1	223	16	0.11	16	16
1	230	7	0.11	7	39
1	242	12	0.13	12	22
3	264	22	0.15	7	37
3	281	17	0.16	6	48
3	295	14	0.18	5	59
3	311	16	0.19	5	51
3	318	7	0.20	2	123



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP207 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

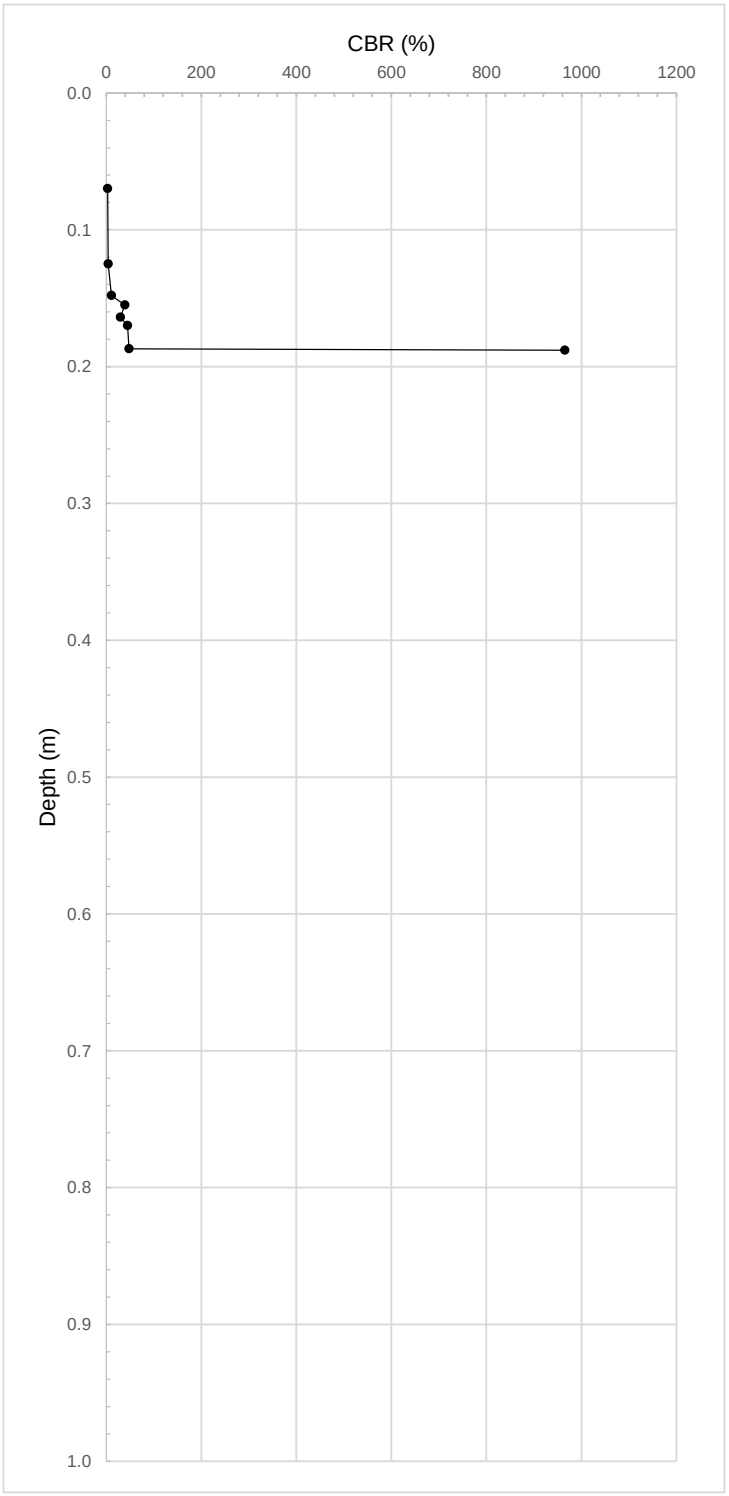
DCP207

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	114	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	184	70	0.07	70	3
1	239	55	0.13	55	4
1	262	23	0.15	23	11
1	269	7	0.16	7	39
1	278	9	0.16	9	30
1	284	6	0.17	6	45
3	301	17	0.19	6	48
3	302	1	0.19	0	965



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

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DYNAMIC CONE PENETROMETER TESTING

DCP208

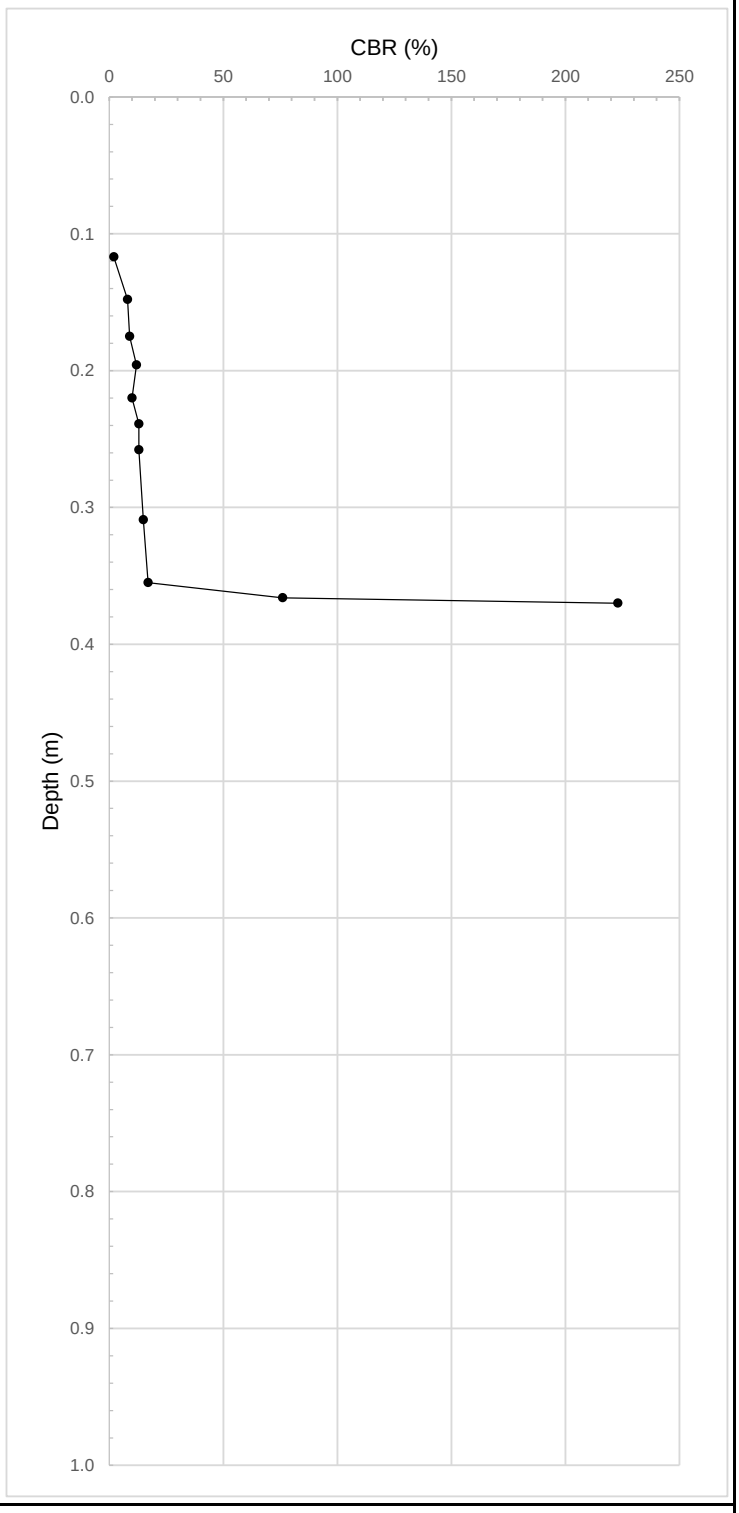
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 127 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	244	117	0.12	117	2
1	275	31	0.15	31	8
1	302	27	0.18	27	9
1	323	21	0.20	21	12
1	347	24	0.22	24	10
1	366	19	0.24	19	13
1	385	19	0.26	19	13
3	436	51	0.31	17	15
3	482	46	0.36	15	17
3	493	11	0.37	4	76
3	497	4	0.37	1	223



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP208 Test 2.

CONTRACT	CHECKED
38113	JH

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

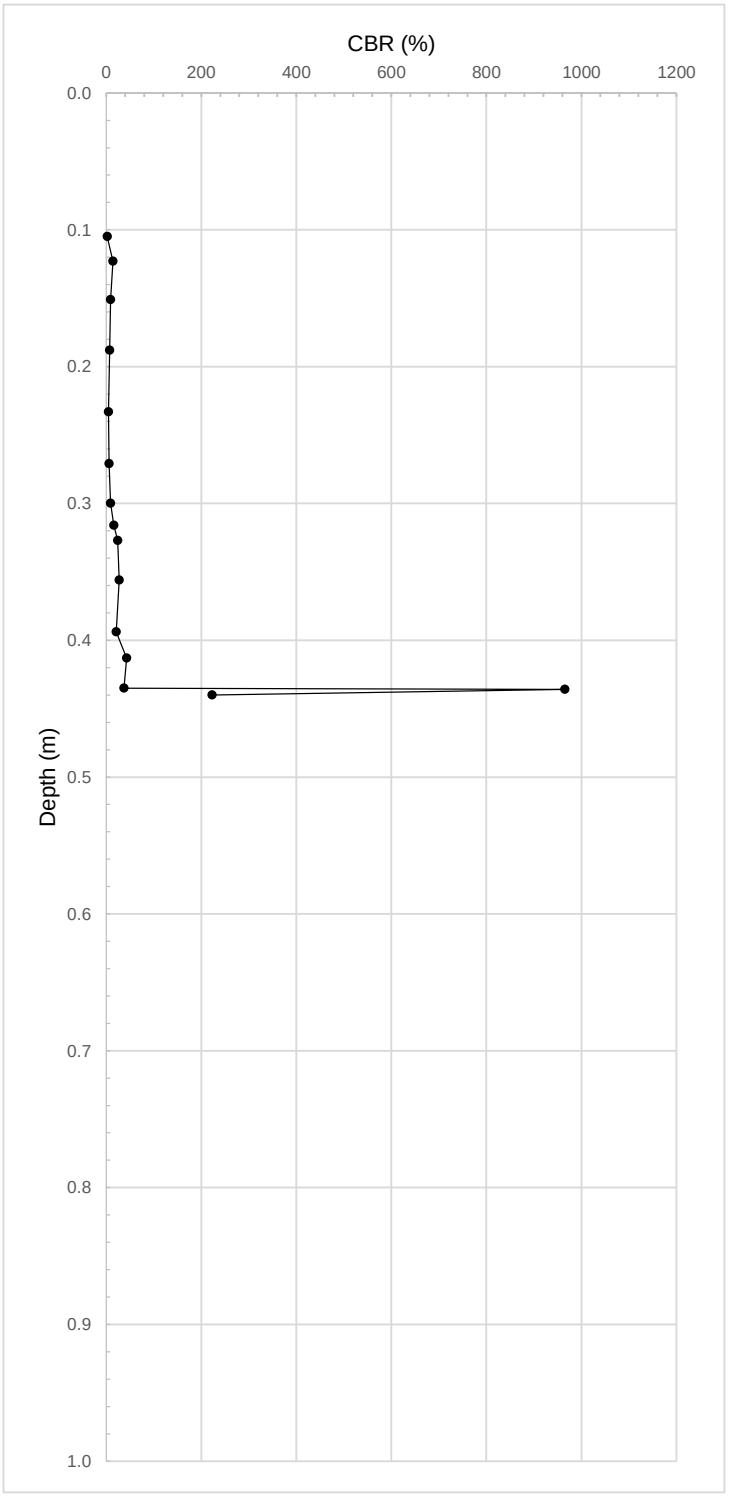
DCP208

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	131	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	236	105	0.11	105	2
1	254	18	0.12	18	14
1	282	28	0.15	28	9
1	319	37	0.19	37	7
1	364	45	0.23	45	5
1	402	38	0.27	38	6
1	431	29	0.30	29	9
1	447	16	0.32	16	16
1	458	11	0.33	11	24
3	487	29	0.36	10	27
3	525	38	0.39	13	21
3	544	19	0.41	6	43
3	566	22	0.44	7	37
3	567	1	0.44	0	965
3	571	4	0.44	1	223



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP210

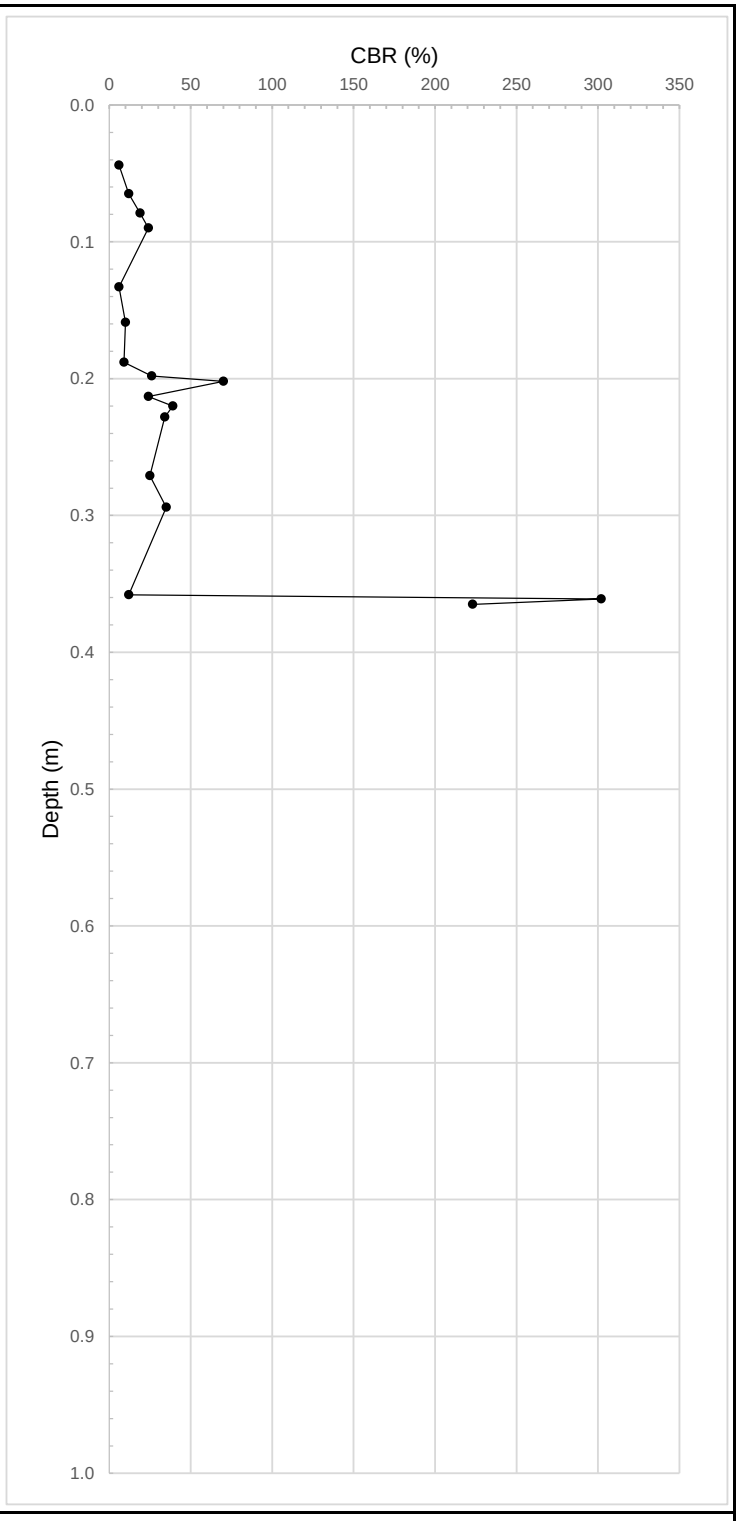
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 114 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	158	44	0.04	44	6
1	179	21	0.07	21	12
1	193	14	0.08	14	19
1	204	11	0.09	11	24
1	247	43	0.13	43	6
1	273	26	0.16	26	10
1	302	29	0.19	29	9
1	312	10	0.20	10	26
1	316	4	0.20	4	70
1	327	11	0.21	11	24
1	334	7	0.22	7	39
1	342	8	0.23	8	34
4	385	43	0.27	11	25
3	408	23	0.29	8	35
3	472	64	0.36	21	12
3	475	3	0.36	1	302
3	479	4	0.37	1	223



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP210 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP210

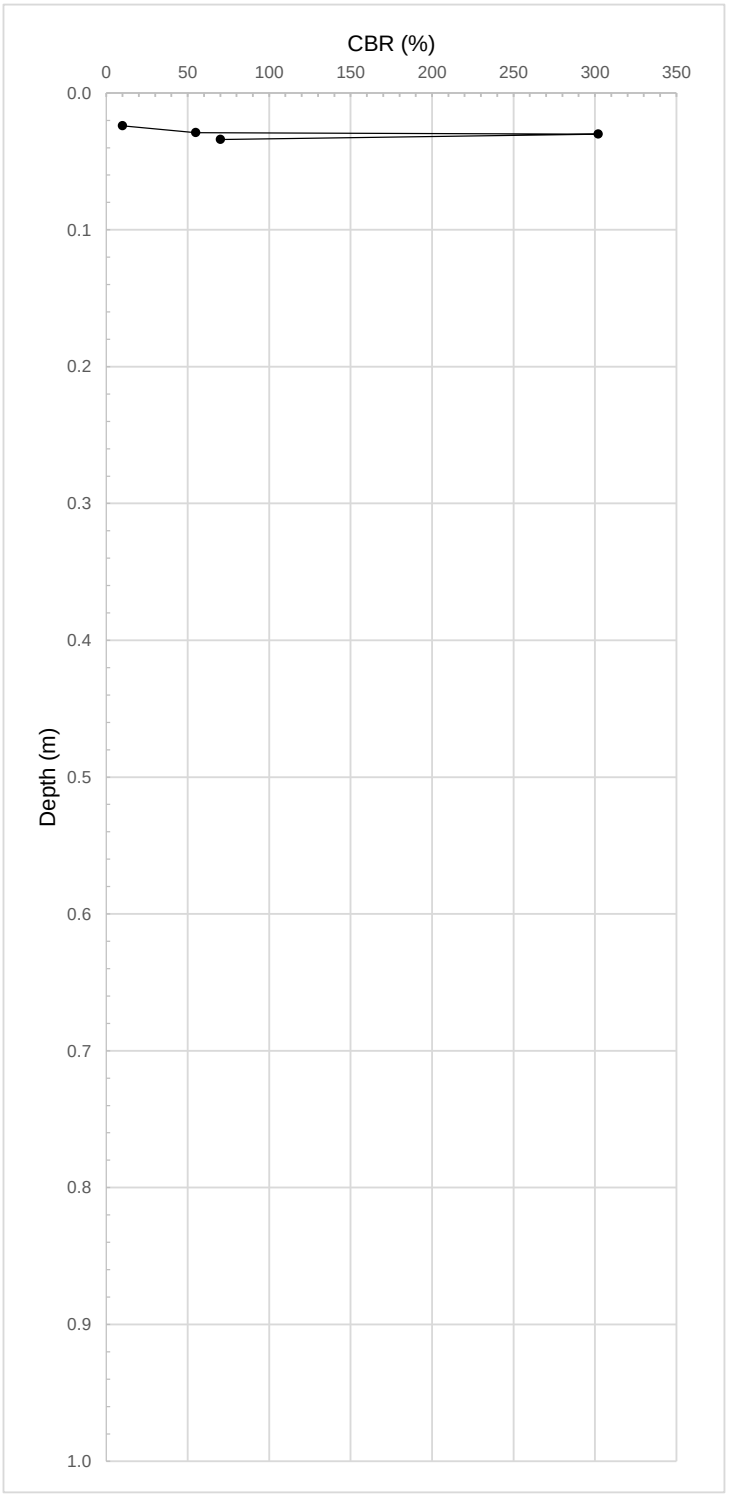
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 2

Initial Scale Reading (mm) 163 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	187	24	0.02	24	10
1	192	5	0.03	5	55
1	193	1	0.03	1	302
1	197	4	0.03	4	70



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

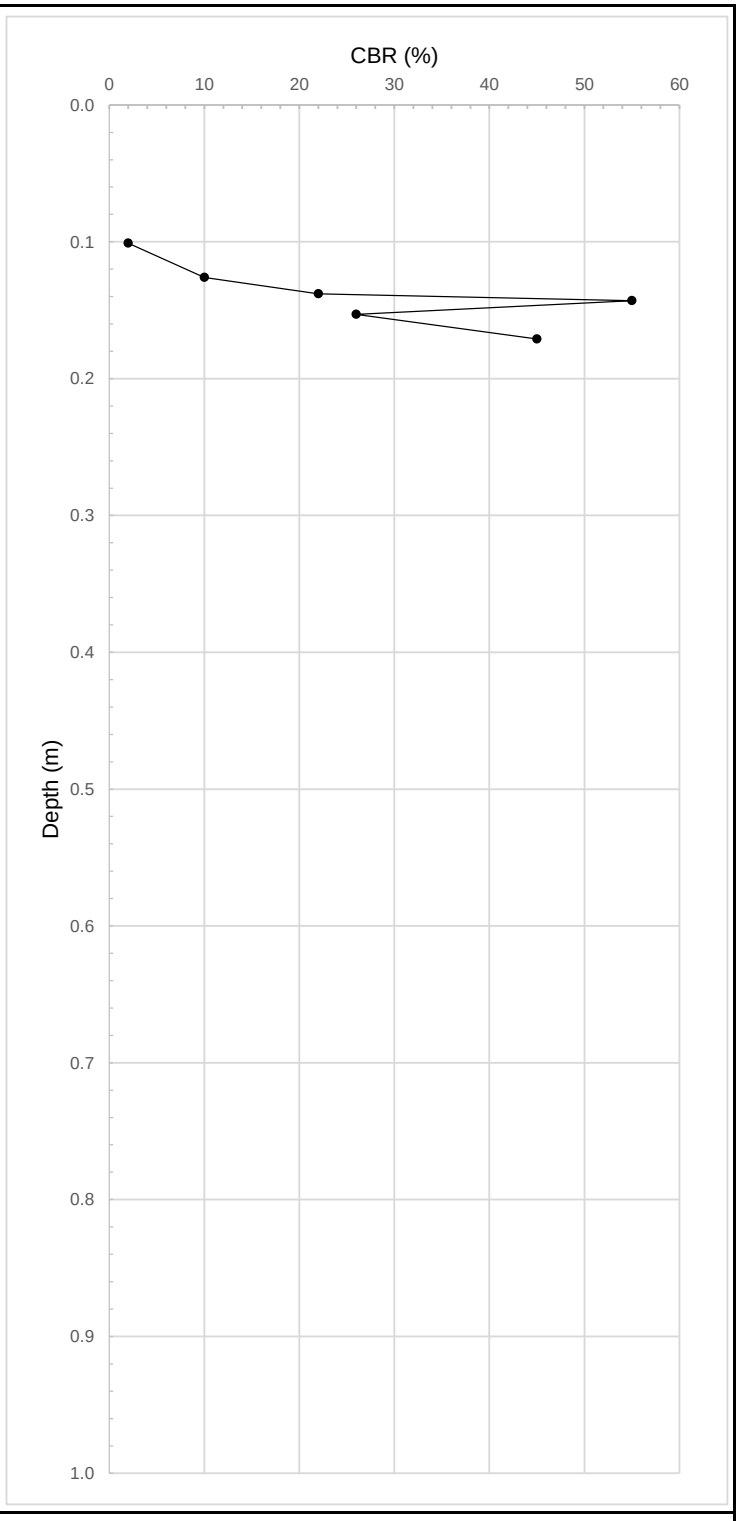
DCP211

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	1
Initial Scale Reading (mm)	123	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	224	101	0.10	101	2
1	249	25	0.13	25	10
1	261	12	0.14	12	22
1	266	5	0.14	5	55
1	276	10	0.15	10	26
3	294	18	0.17	6	45



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP211 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

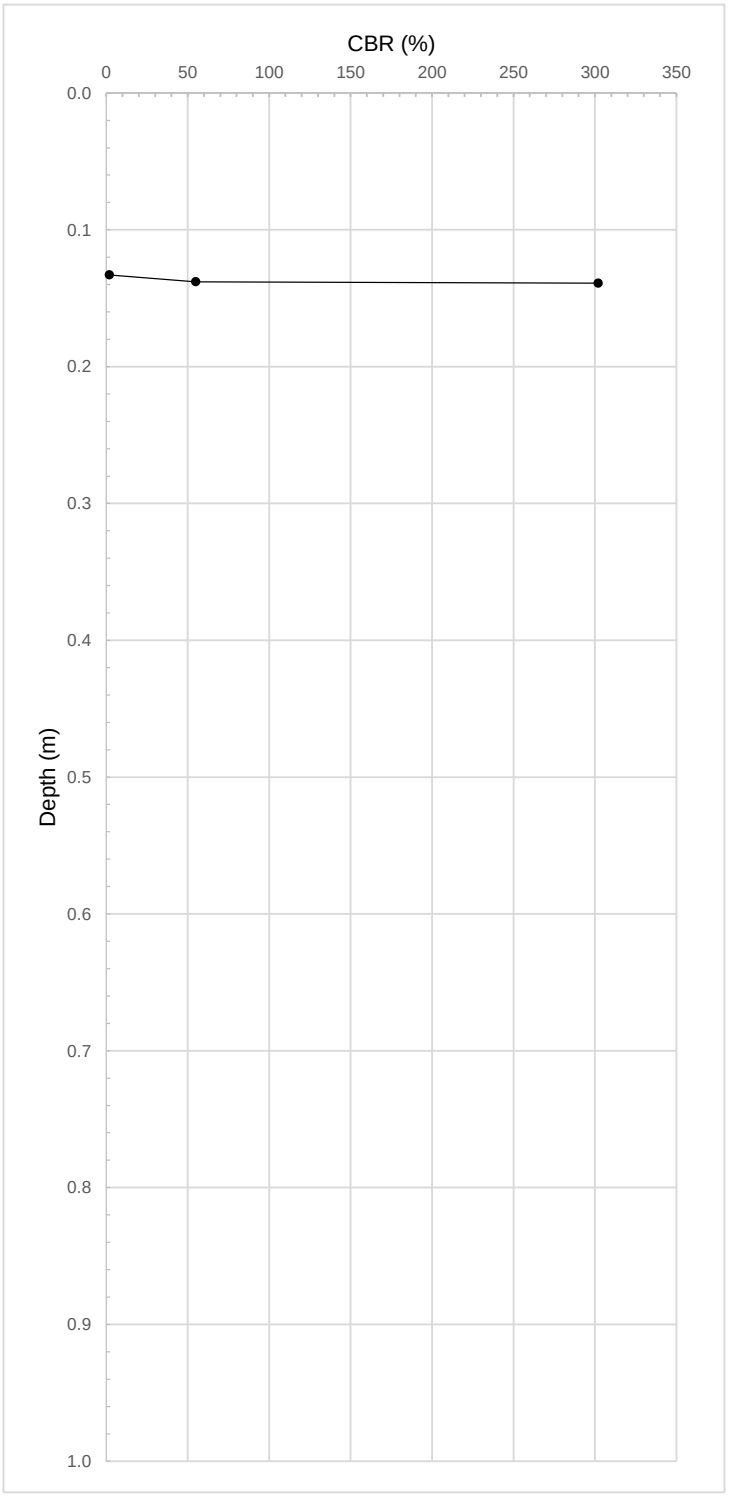
DCP211

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	114	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	247	133	0.13	133	2
1	252	5	0.14	5	55
1	253	1	0.14	1	302



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP212

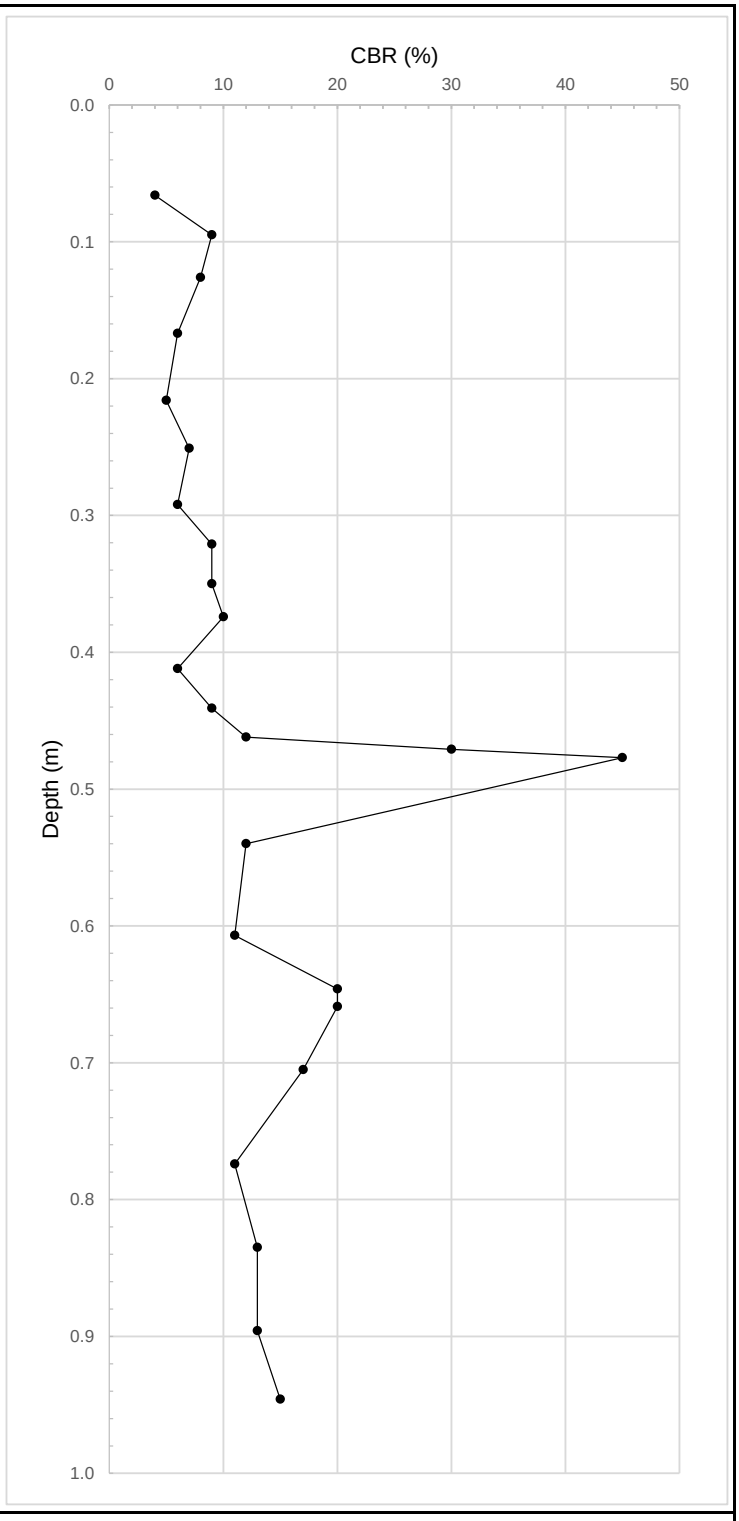
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 162 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	228	66	0.07	66	4
1	257	29	0.10	29	9
1	288	31	0.13	31	8
1	329	41	0.17	41	6
1	378	49	0.22	49	5
1	413	35	0.25	35	7
1	454	41	0.29	41	6
1	483	29	0.32	29	9
1	512	29	0.35	29	9
1	536	24	0.37	24	10
1	574	38	0.41	38	6
1	603	29	0.44	29	9
1	624	21	0.46	21	12
1	633	9	0.47	9	30
1	639	6	0.48	6	45
3	702	63	0.54	21	12
3	769	67	0.61	22	11
3	808	39	0.65	13	20
1	821	13	0.66	13	20
3	867	46	0.71	15	17
3	936	69	0.77	23	11
3	997	61	0.84	20	13
3	1058	61	0.90	20	13
3	1108	50	0.95	17	15



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

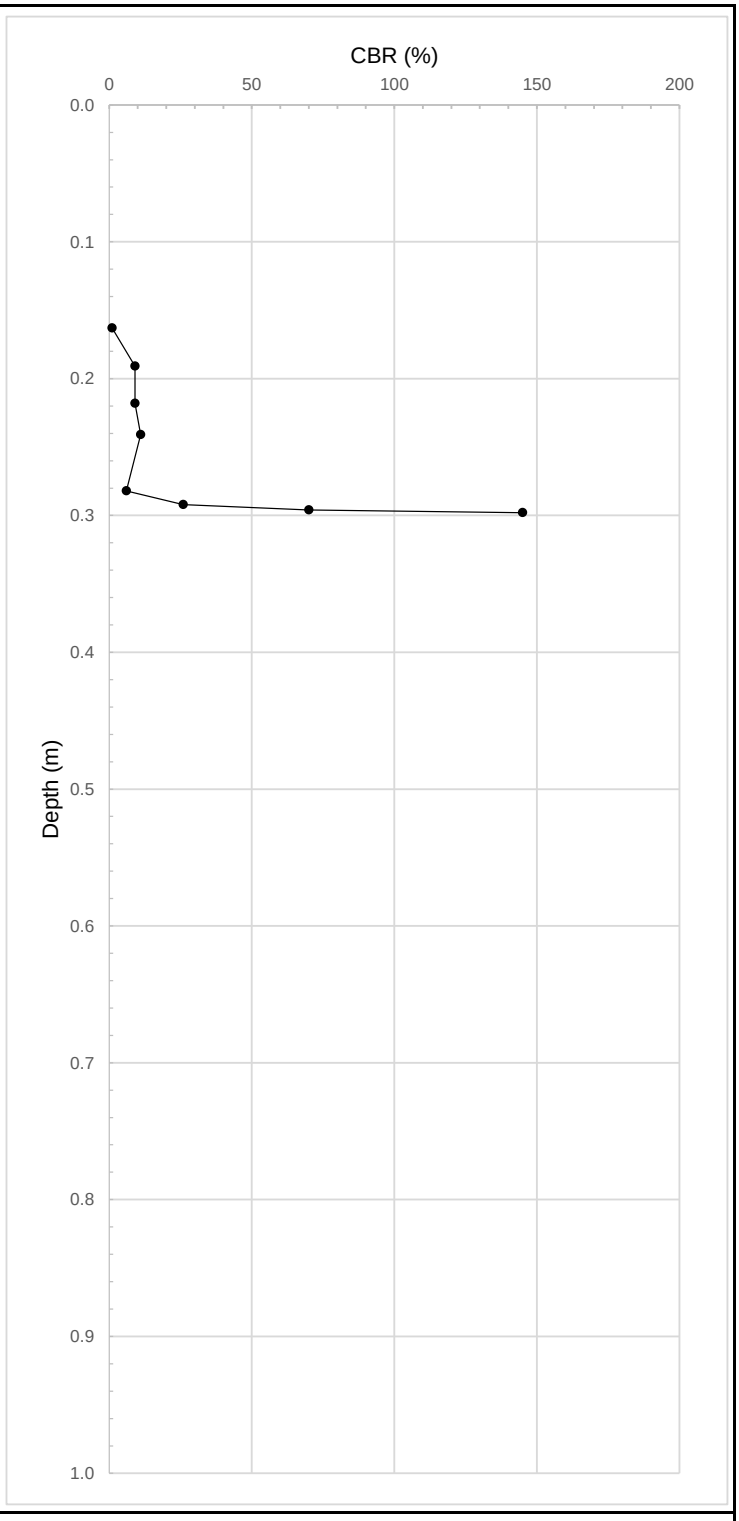
DCP213

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	1
Initial Scale Reading (mm)	131	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	294	163	0.16	163	1
1	322	28	0.19	28	9
1	349	27	0.22	27	9
1	372	23	0.24	23	11
1	413	41	0.28	41	6
1	423	10	0.29	10	26
1	427	4	0.30	4	70
1	429	2	0.30	2	145



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP213 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

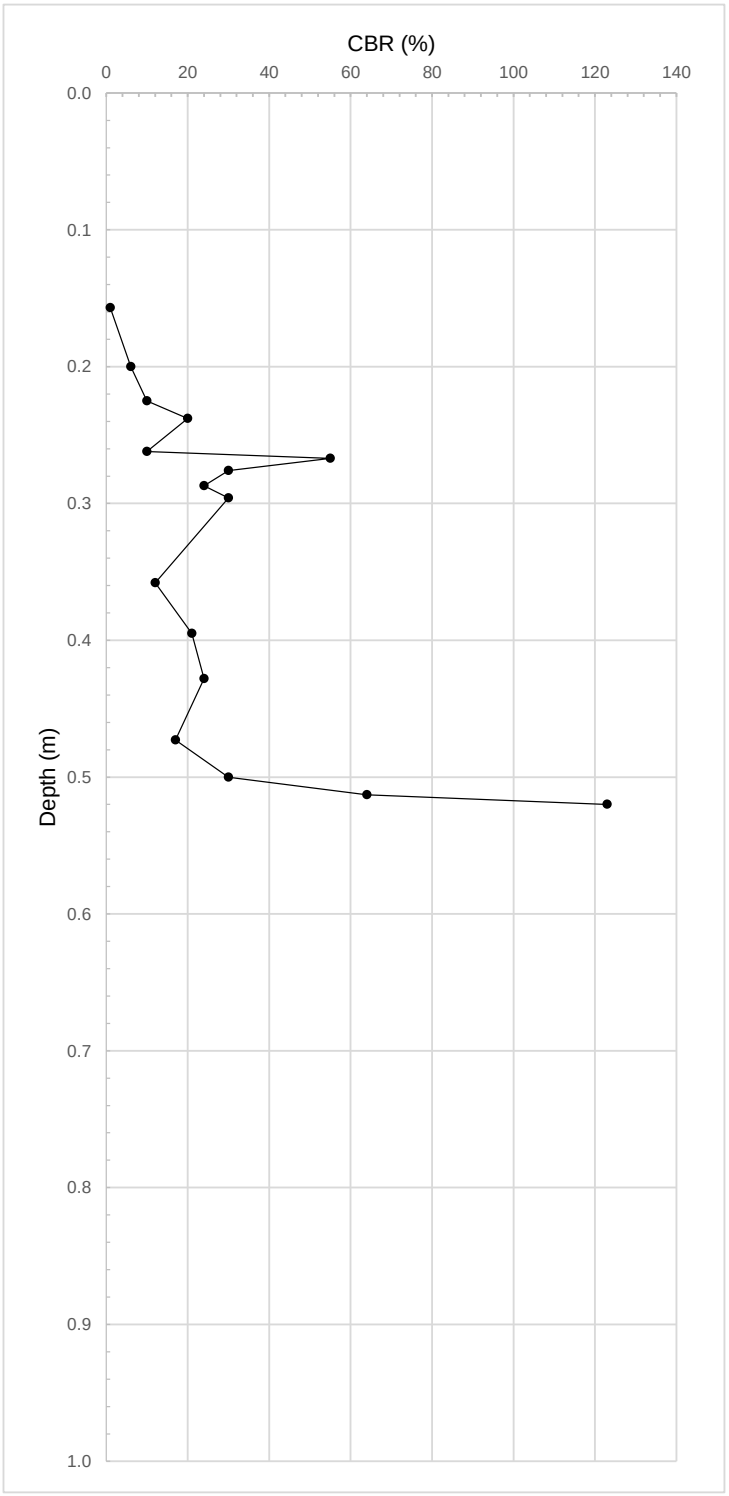
DCP213

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	114	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	271	157	0.16	157	1
1	314	43	0.20	43	6
1	339	25	0.23	25	10
1	352	13	0.24	13	20
1	376	24	0.26	24	10
1	381	5	0.27	5	55
1	390	9	0.28	9	30
1	401	11	0.29	11	24
1	410	9	0.30	9	30
3	472	62	0.36	21	12
3	509	37	0.40	12	21
3	542	33	0.43	11	24
3	587	45	0.47	15	17
3	614	27	0.50	9	30
3	627	13	0.51	4	64
3	634	7	0.52	2	123



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

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DYNAMIC CONE PENETROMETER TESTING

DCP214

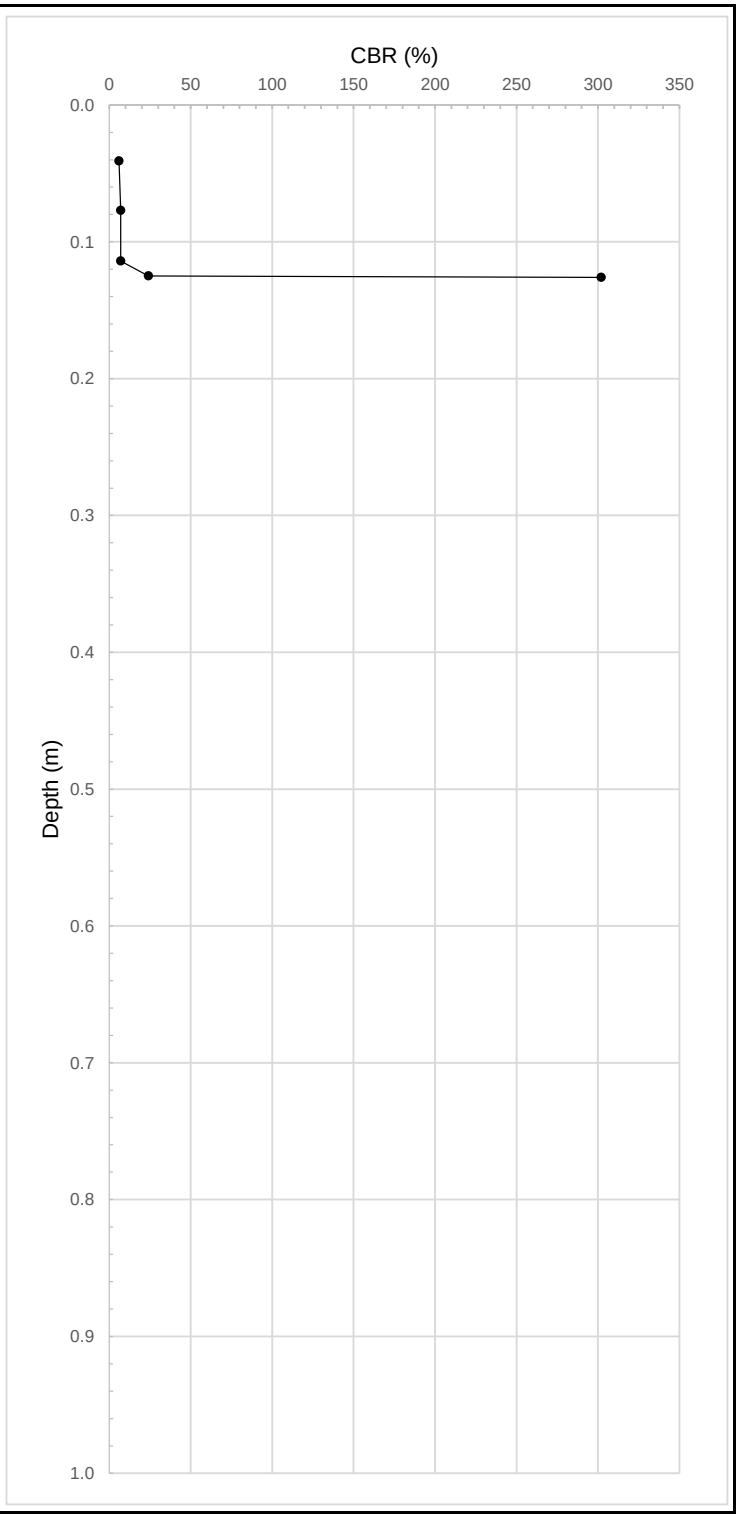
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 202 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	243	41	0.04	41	6
1	279	36	0.08	36	7
1	316	37	0.11	37	7
1	327	11	0.13	11	24
1	328	1	0.13	1	302



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP214 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

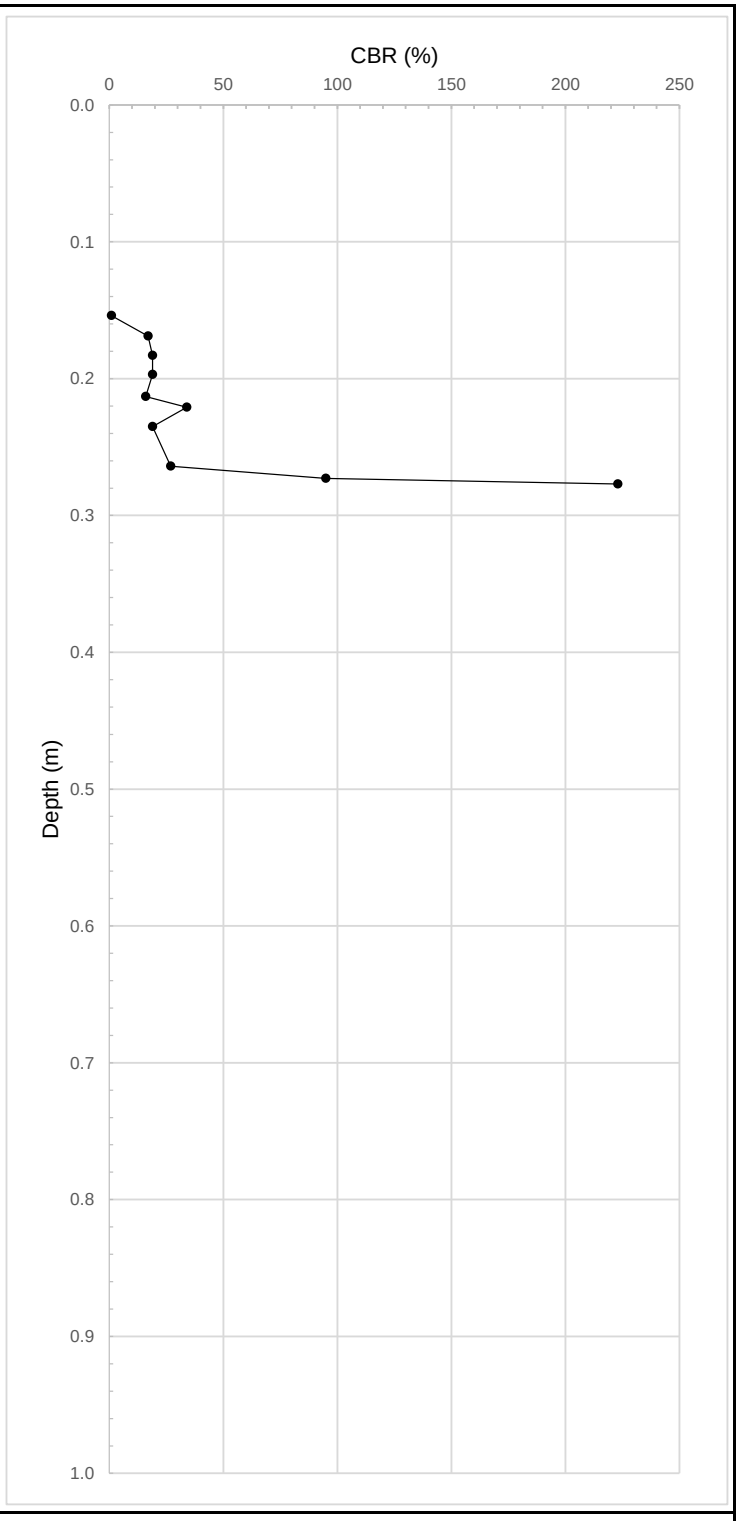
DCP214

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	154	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	308	154	0.15	154	1
1	323	15	0.17	15	17
1	337	14	0.18	14	19
1	351	14	0.20	14	19
1	367	16	0.21	16	16
1	375	8	0.22	8	34
1	389	14	0.24	14	19
3	418	29	0.26	10	27
3	427	9	0.27	3	95
3	431	4	0.28	1	223



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

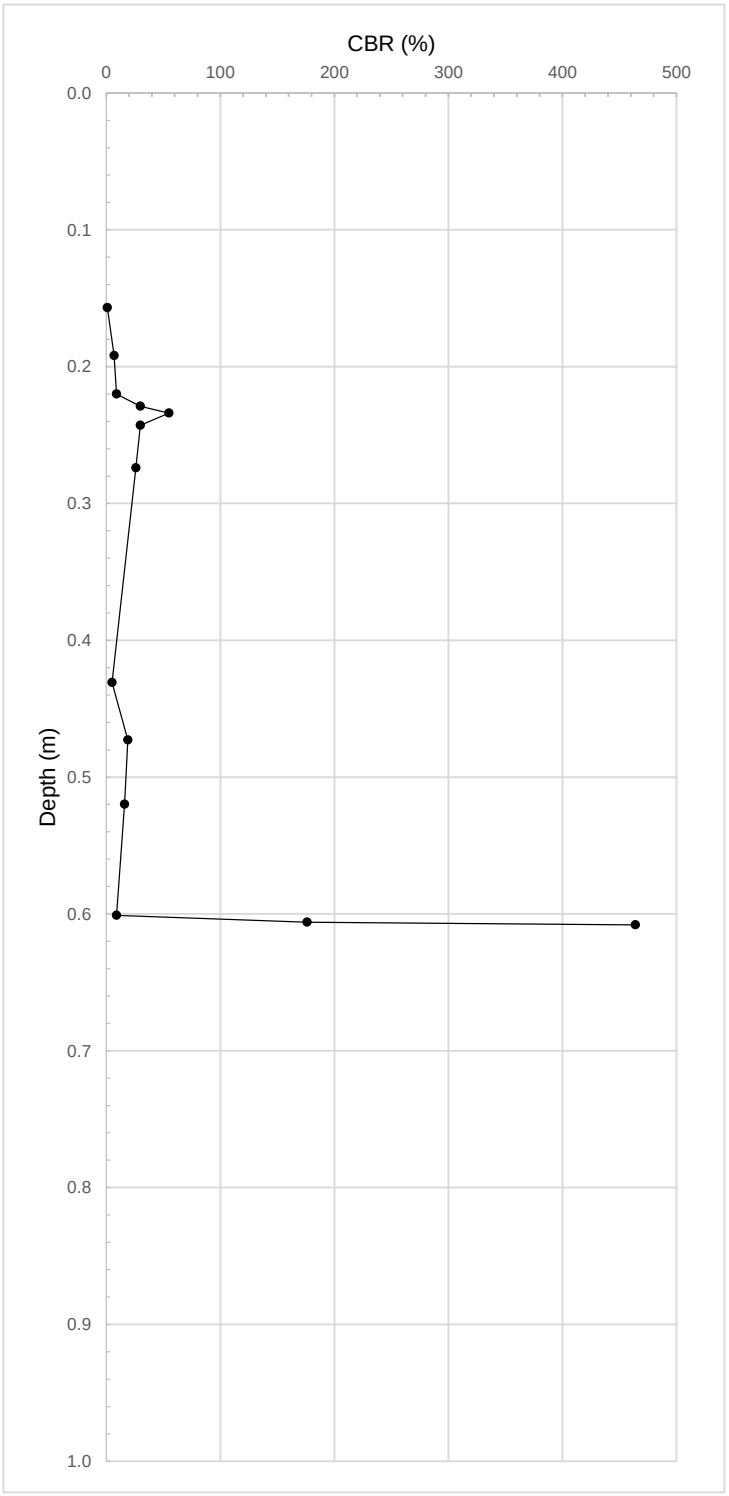
DCP216

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	1
Initial Scale Reading (mm)	115	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	272	157	0.16	157	1
1	307	35	0.19	35	7
1	335	28	0.22	28	9
1	344	9	0.23	9	30
1	349	5	0.23	5	55
1	358	9	0.24	9	30
3	389	31	0.27	10	26
3	546	157	0.43	52	5
3	588	42	0.47	14	19
3	635	47	0.52	16	16
3	716	81	0.60	27	9
3	721	5	0.61	2	176
3	723	2	0.61	1	464



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP216 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP216

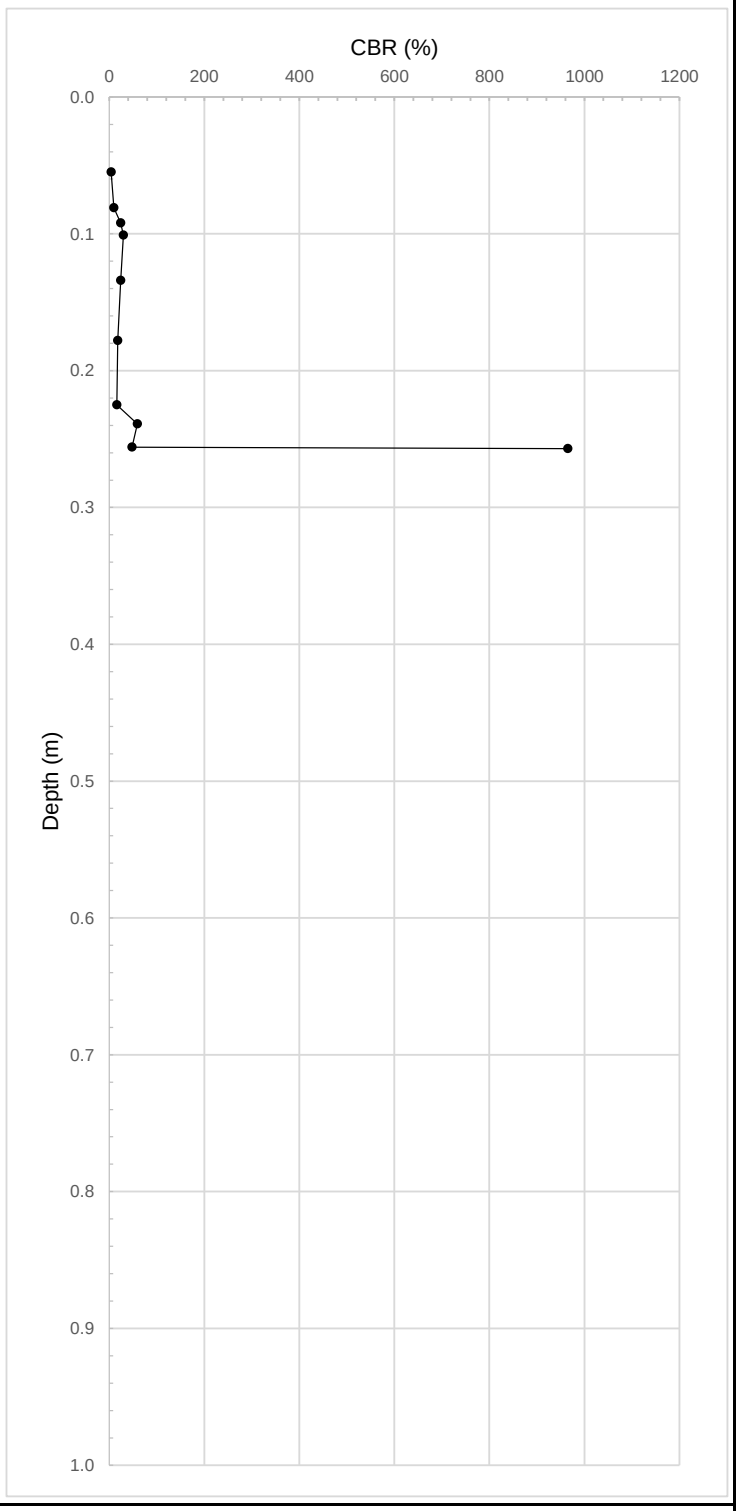
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 2

Initial Scale Reading (mm) 178 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	233	55	0.06	55	4
1	259	26	0.08	26	10
1	270	11	0.09	11	24
1	279	9	0.10	9	30
3	312	33	0.13	11	24
3	356	44	0.18	15	18
3	403	47	0.23	16	16
3	417	14	0.24	5	59
3	434	17	0.26	6	48
3	435	1	0.26	0	965



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

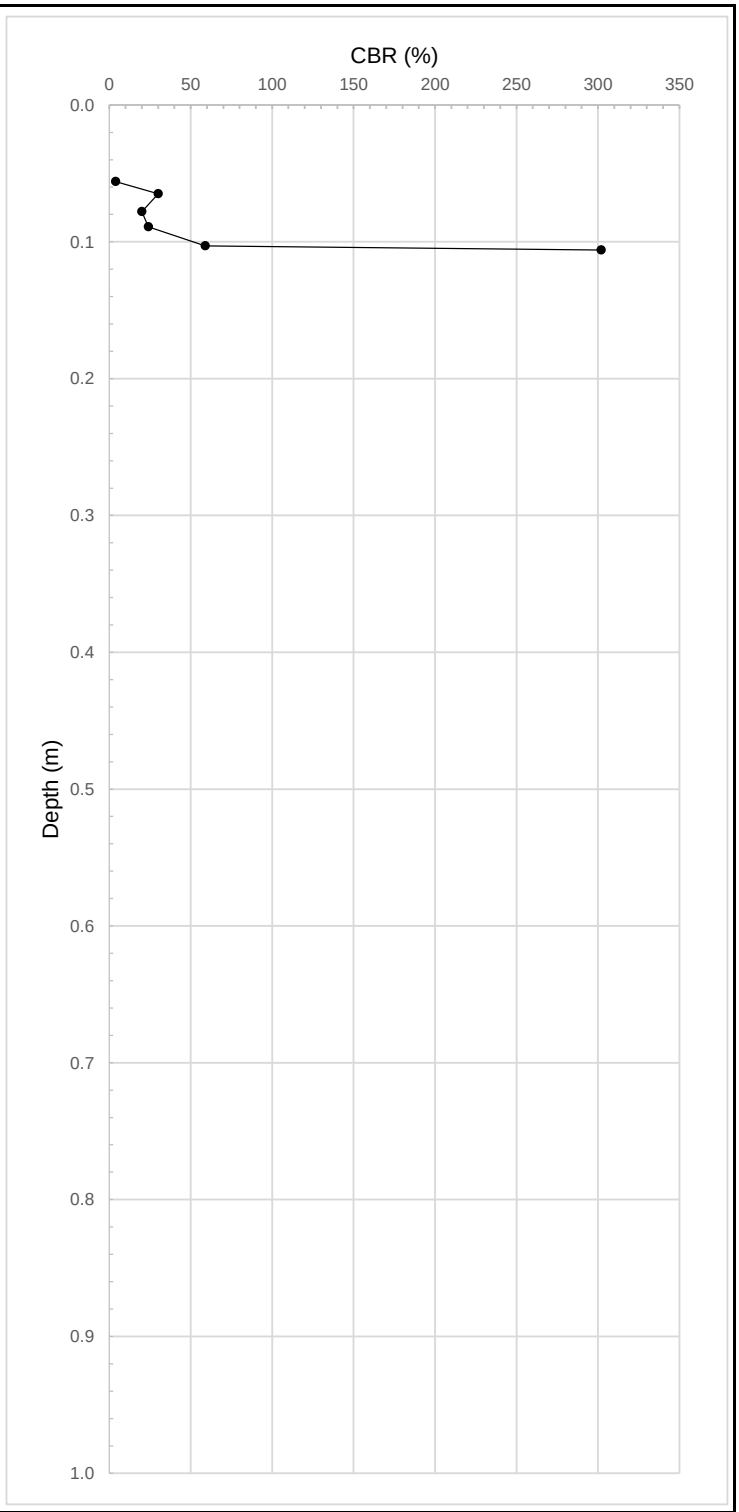
DCP217

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	1
Initial Scale Reading (mm)	116	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	172	56	0.06	56	4
1	181	9	0.07	9	30
1	194	13	0.08	13	20
1	205	11	0.09	11	24
3	219	14	0.10	5	59
3	222	3	0.11	1	302



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP217 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP217

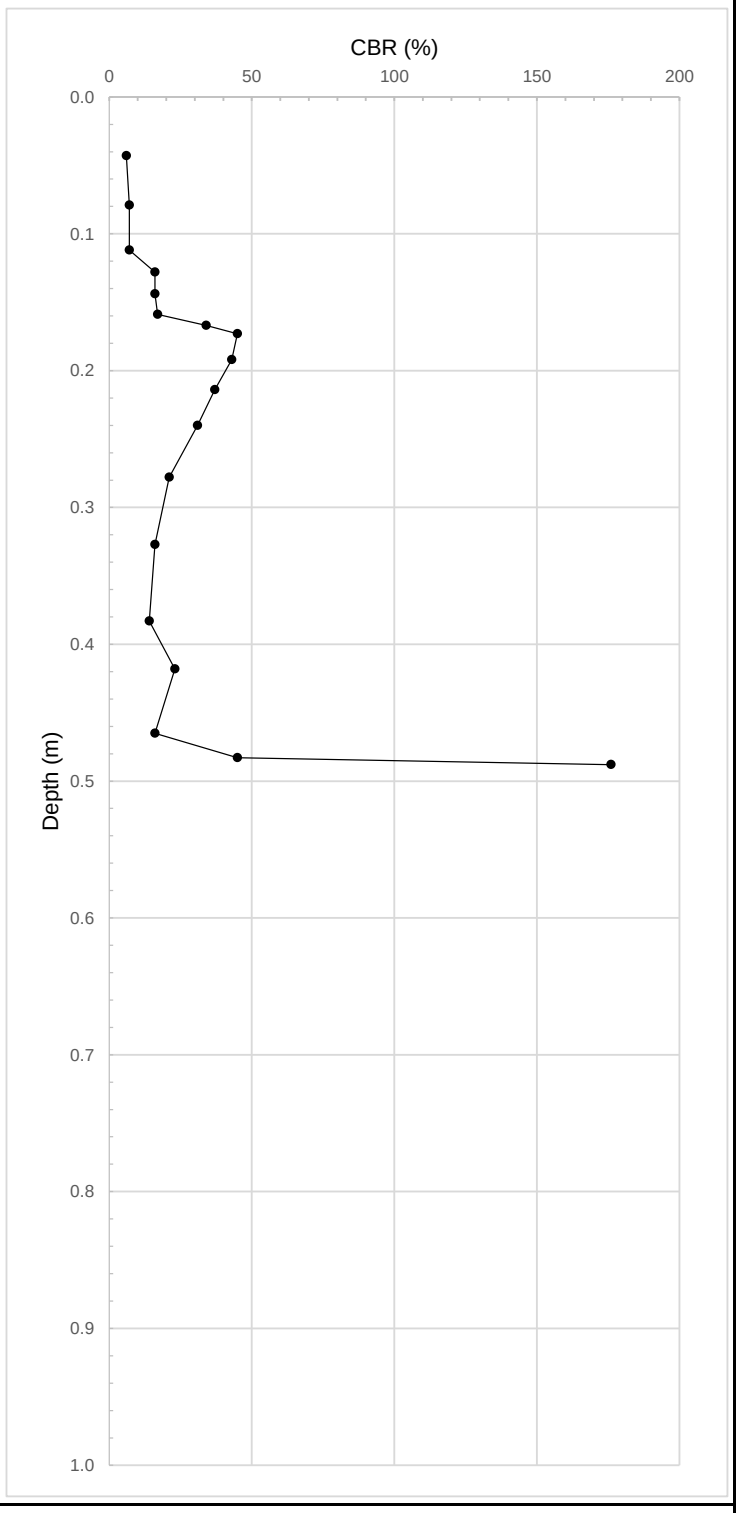
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 2

Initial Scale Reading (mm) 104 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	147	43	0.04	43	6
1	183	36	0.08	36	7
1	216	33	0.11	33	7
1	232	16	0.13	16	16
1	248	16	0.14	16	16
1	263	15	0.16	15	17
1	271	8	0.17	8	34
1	277	6	0.17	6	45
3	296	19	0.19	6	43
3	318	22	0.21	7	37
3	344	26	0.24	9	31
3	382	38	0.28	13	21
3	431	49	0.33	16	16
3	487	56	0.38	19	14
3	522	35	0.42	12	23
3	569	47	0.47	16	16
3	587	18	0.48	6	45
3	592	5	0.49	2	176



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP218

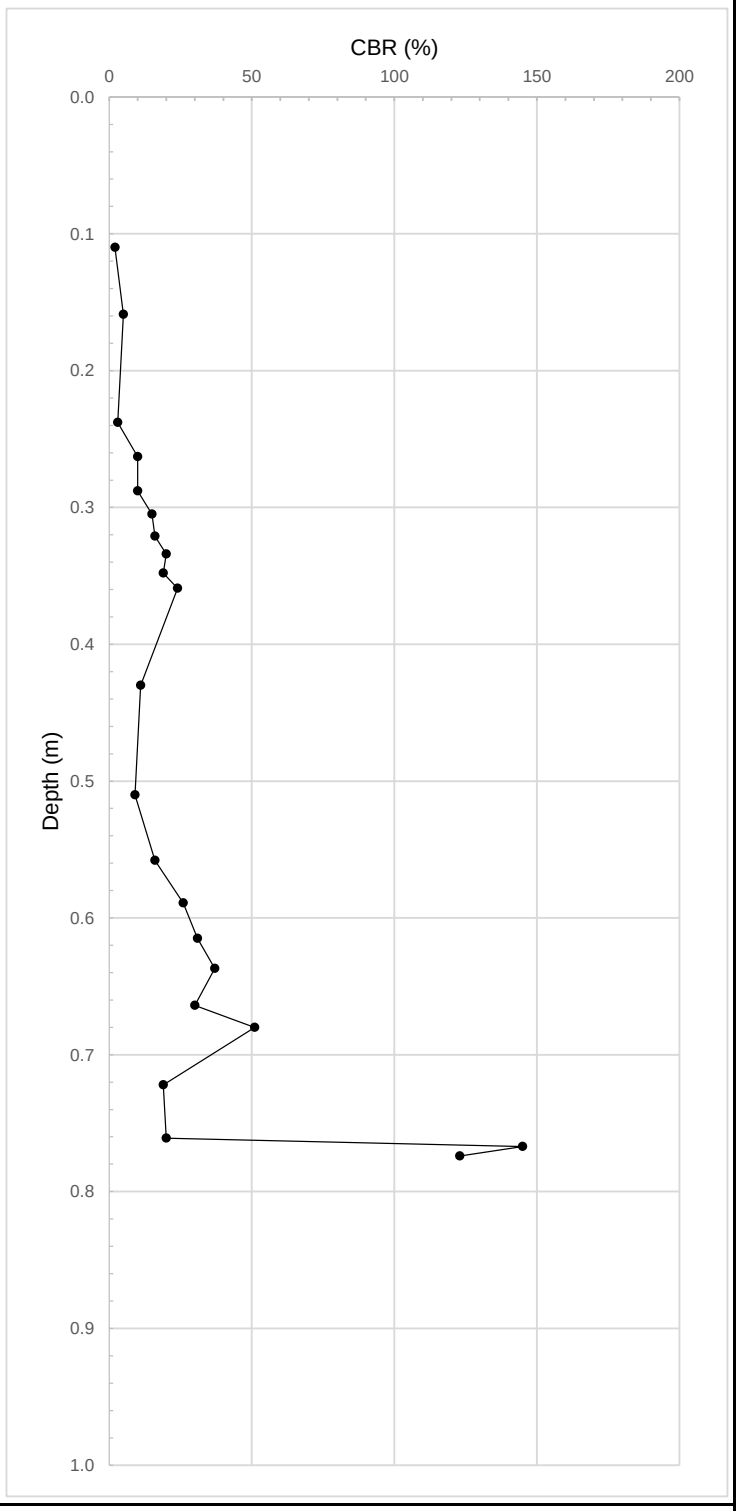
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 124 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	234	110	0.11	110	2
1	283	49	0.16	49	5
1	362	79	0.24	79	3
1	387	25	0.26	25	10
1	412	25	0.29	25	10
1	429	17	0.31	17	15
1	445	16	0.32	16	16
1	458	13	0.33	13	20
1	472	14	0.35	14	19
1	483	11	0.36	11	24
3	554	71	0.43	24	11
3	634	80	0.51	27	9
3	682	48	0.56	16	16
3	713	31	0.59	10	26
3	739	26	0.62	9	31
3	761	22	0.64	7	37
3	788	27	0.66	9	30
3	804	16	0.68	5	51
3	846	42	0.72	14	19
3	885	39	0.76	13	20
3	891	6	0.77	2	145
3	898	7	0.77	2	123



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP218 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

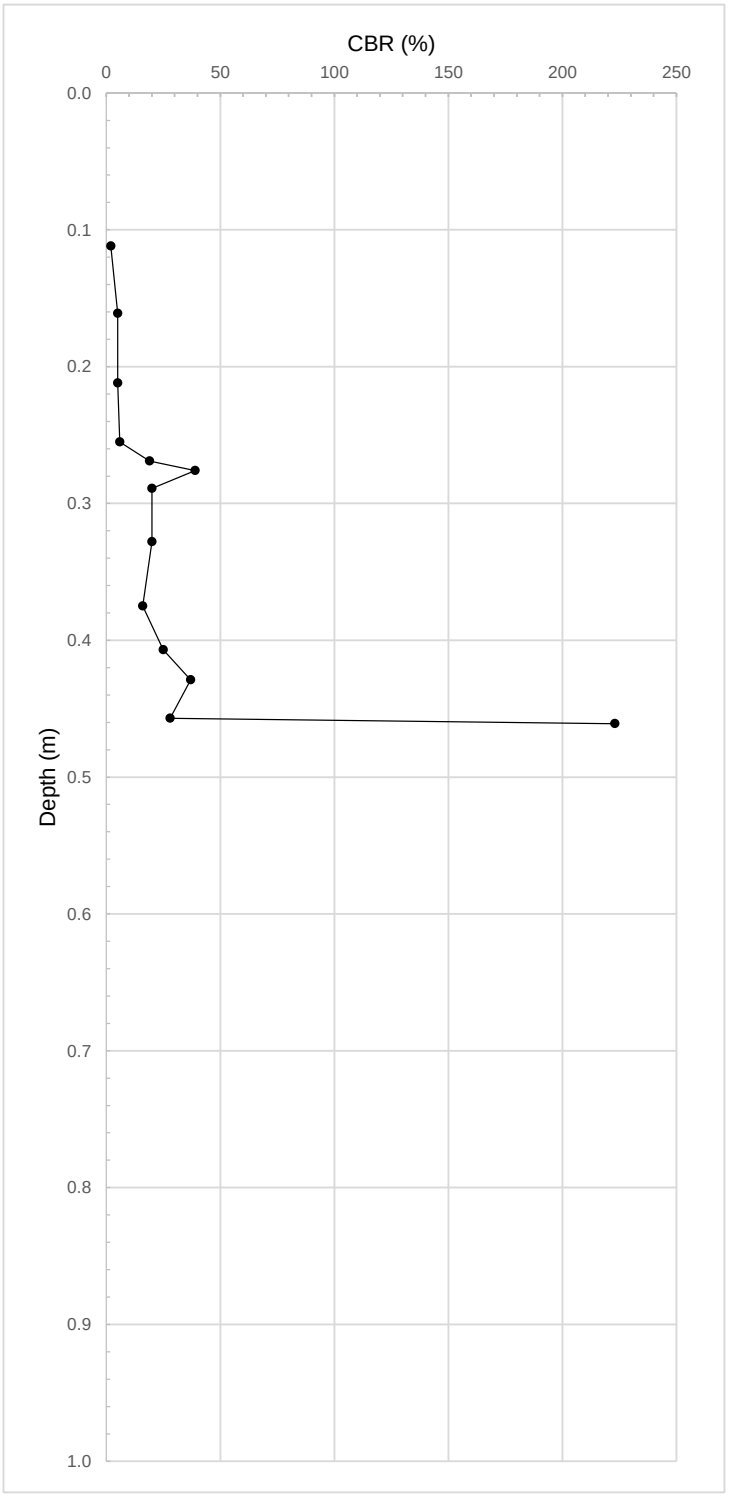
DCP218

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	2
Initial Scale Reading (mm)	147	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	259	112	0.11	112	2
1	308	49	0.16	49	5
1	359	51	0.21	51	5
1	402	43	0.26	43	6
1	416	14	0.27	14	19
1	423	7	0.28	7	39
1	436	13	0.29	13	20
3	475	39	0.33	13	20
3	522	47	0.38	16	16
3	554	32	0.41	11	25
3	576	22	0.43	7	37
3	604	28	0.46	9	28
3	608	4	0.46	1	223



Remarks:
CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP219

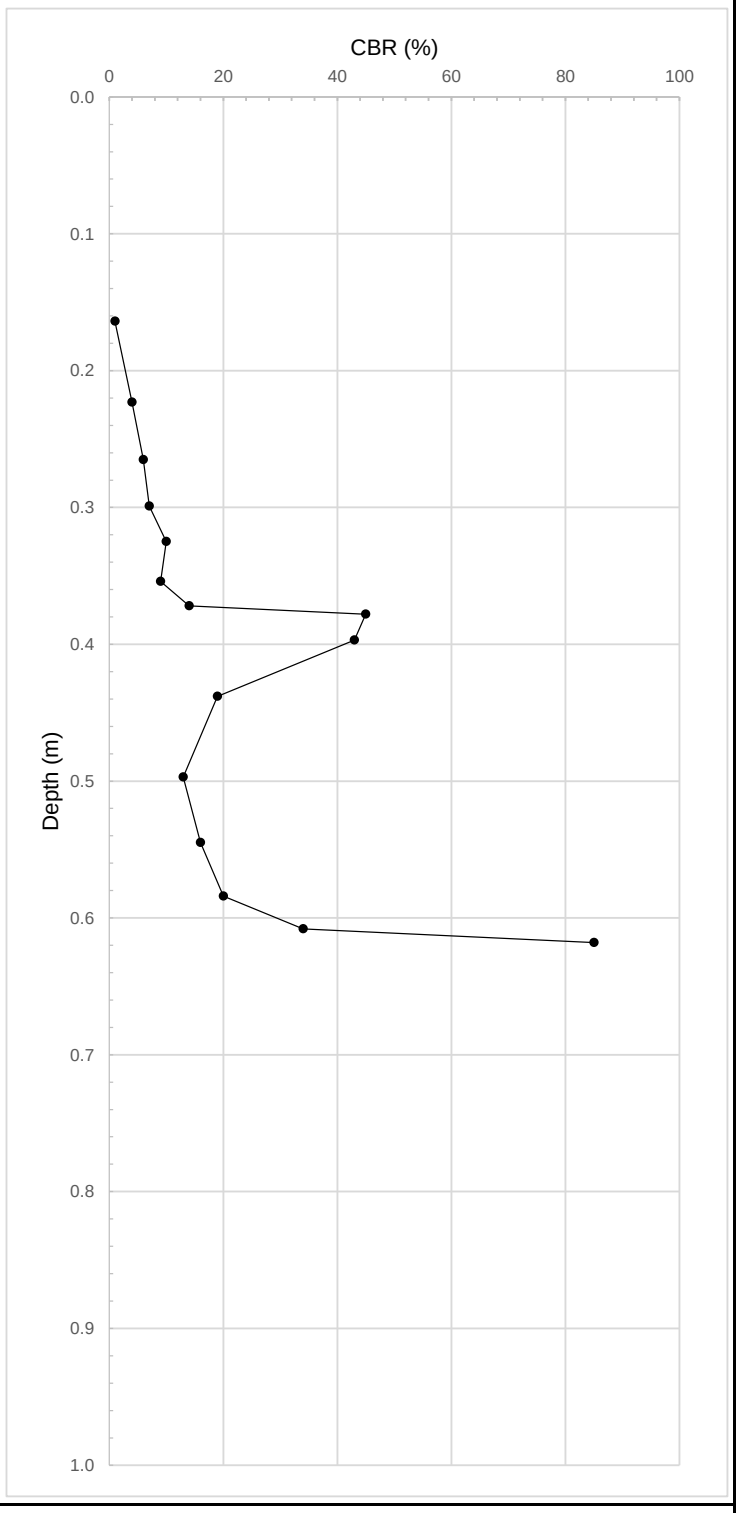
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 1

Initial Scale Reading (mm) 104 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	268	164	0.16	164	1
1	327	59	0.22	59	4
1	369	42	0.27	42	6
1	403	34	0.30	34	7
1	429	26	0.33	26	10
1	458	29	0.35	29	9
1	476	18	0.37	18	14
1	482	6	0.38	6	45
3	501	19	0.40	6	43
3	542	41	0.44	14	19
3	601	59	0.50	20	13
3	649	48	0.55	16	16
3	688	39	0.58	13	20
3	712	24	0.61	8	34
3	722	10	0.62	3	85



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP219 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP219

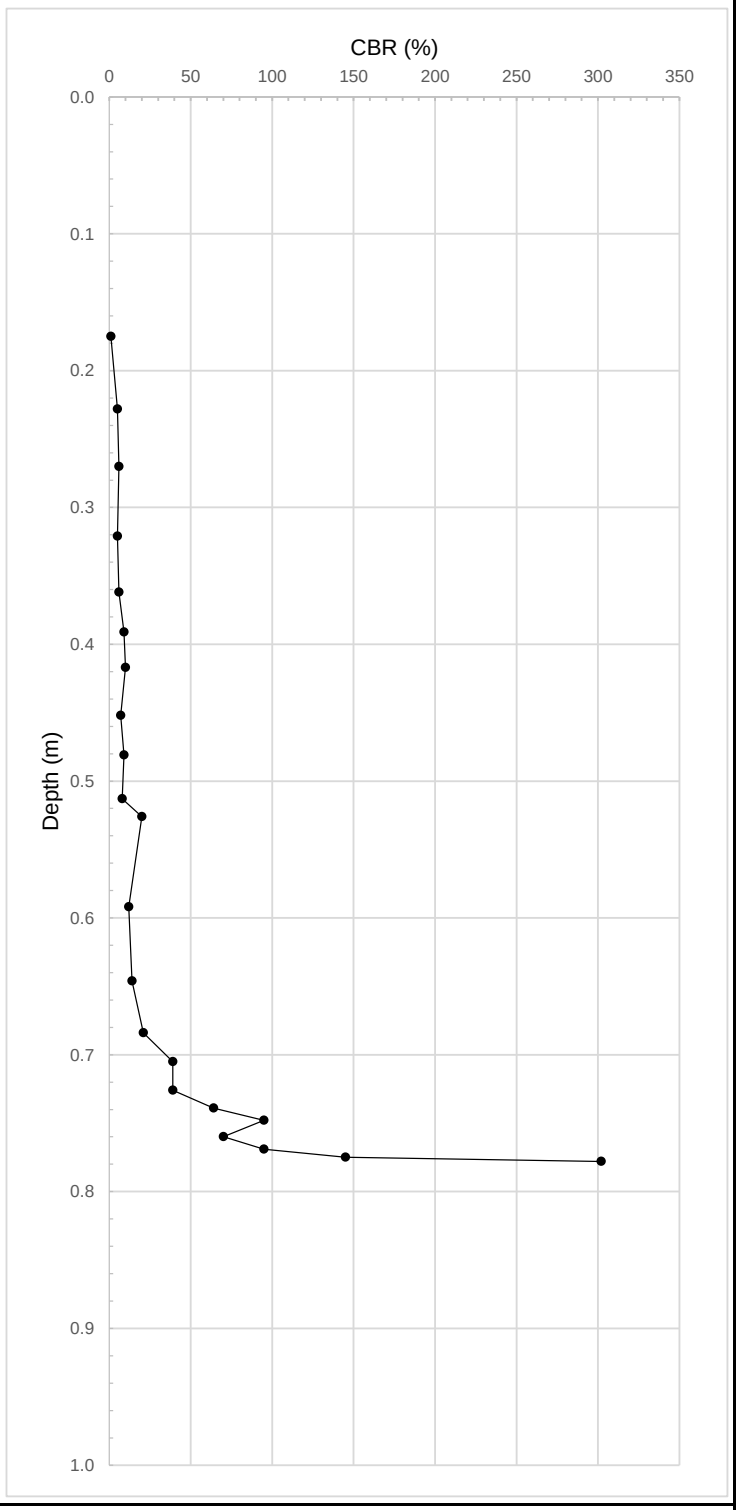
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 2

Initial Scale Reading (mm) 106 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	281	175	0.18	175	1
1	334	53	0.23	53	5
1	376	42	0.27	42	6
1	427	51	0.32	51	5
1	468	41	0.36	41	6
1	497	29	0.39	29	9
1	523	26	0.42	26	10
1	558	35	0.45	35	7
1	587	29	0.48	29	9
1	619	32	0.51	32	8
1	632	13	0.53	13	20
3	698	66	0.59	22	12
3	752	54	0.65	18	14
3	790	38	0.68	13	21
3	811	21	0.71	7	39
3	832	21	0.73	7	39
3	845	13	0.74	4	64
3	854	9	0.75	3	95
3	866	12	0.76	4	70
3	875	9	0.77	3	95
3	881	6	0.78	2	145
3	884	3	0.78	1	302



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

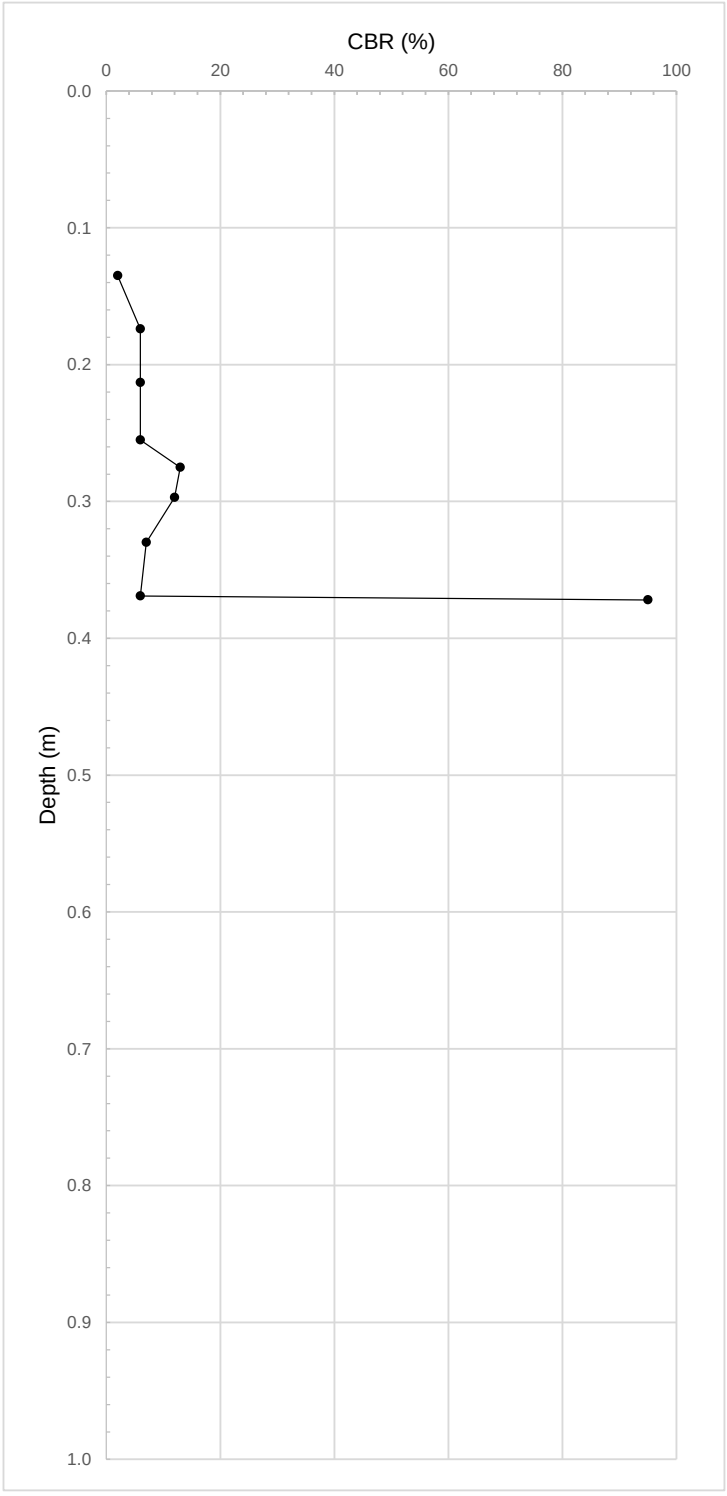
DCP220

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date	09/05/2024	Test No.	1
Initial Scale Reading (mm)	139	Datum bgl (mm)	0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	274	135	0.14	135	2
1	313	39	0.17	39	6
1	352	39	0.21	39	6
1	394	42	0.26	42	6
1	414	20	0.28	20	13
1	436	22	0.30	22	12
1	469	33	0.33	33	7
1	508	39	0.37	39	6
1	511	3	0.37	3	95



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

DCP terminated due to refusal, reattempted as DCP220 Test 2.

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

DYNAMIC CONE PENETROMETER TESTING

DCP220

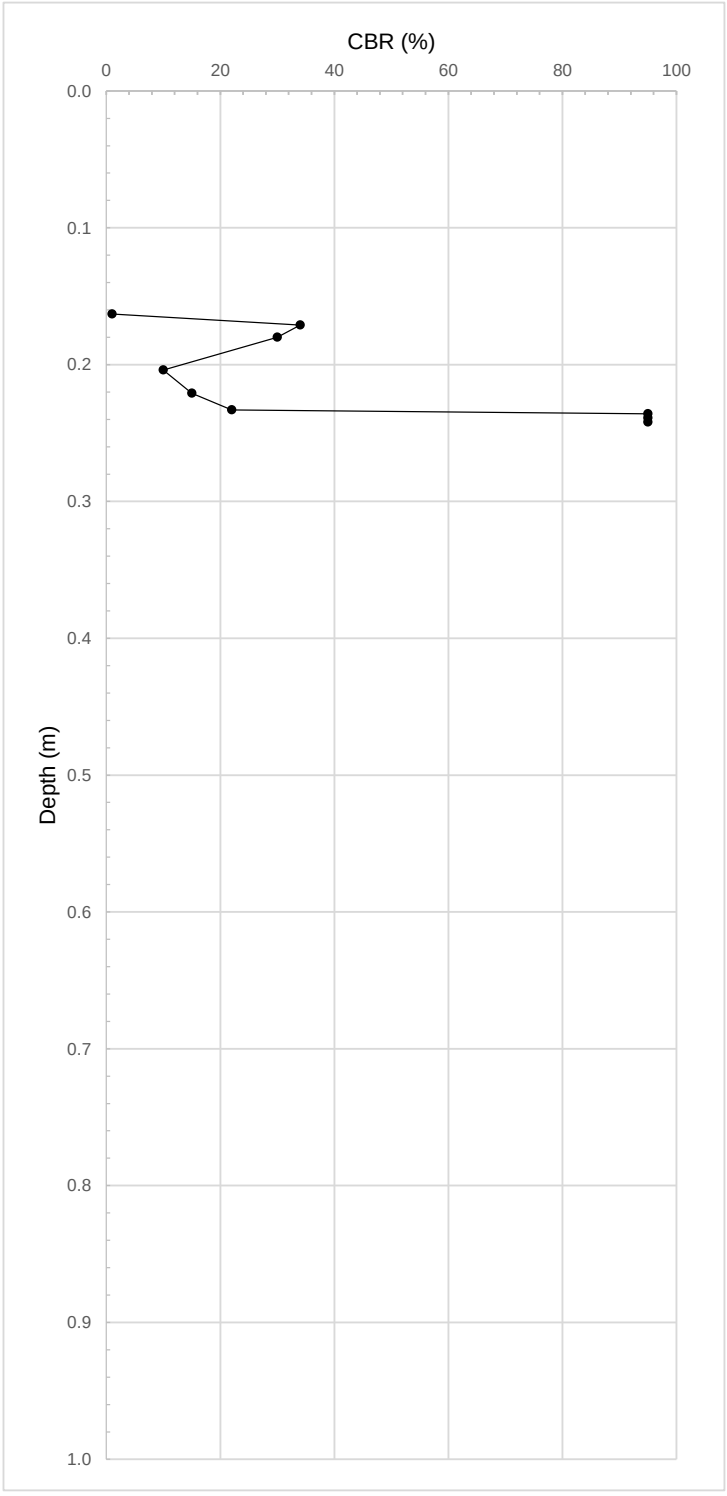
CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

Test date 09/05/2024 Test No. 2

Initial Scale Reading (mm) 98 Datum bgl (mm) 0

no. of blows	Scale reading (mm)	Penetration Increment (mm)	Depth bgl (m)	DCP (mm/blow)	CBR (%)
1	261	163	0.16	163	1
1	269	8	0.17	8	34
1	278	9	0.18	9	30
1	302	24	0.20	24	10
1	319	17	0.22	17	15
1	331	12	0.23	12	22
1	334	3	0.24	3	95
1	337	3	0.24	3	95
1	340	3	0.24	3	95



Remarks:

CBR correlation based on the relationship Log10 (CBR) = 2.48 - 1.057 * Log10 (mm/blow) developed by TRL taken from Highways England CS229: Data for Pavement Assessment (2020).

CONTRACT	CHECKED
38113	**JH**

APPENDIX B

MONITORING DATA

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH301**

INSTALLED PIPE DEPTH (m) 2.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 11:50	974 / 0.00	16								0.0		
17/05/2024 11:51	974 / 0.00									0.0		
17/05/2024 11:52	974 / 0.00									0.0		
17/05/2024 11:53	974 / 0.00									0.0		
17/05/2024 11:54	974 / 0.00									0.0		
17/05/2024 12:00			0.0	0.0	16.9	0.0	0.0	0.0				
17/05/2024 12:01			0.0	0.0	16.8	0.0	0.0	0.0				
17/05/2024 12:02			0.0	0.0	16.8	0.0	0.0	0.0				
17/05/2024 12:03			0.0	0.0	16.8	0.0	0.0	0.0				
17/05/2024 12:04			0.0	0.0	16.8	0.0	0.0	0.0				
17/05/2024 12:05												Dry
23/05/2024 11:48	976 / 0.00	12								0.0		
23/05/2024 11:49	976 / 0.00									0.0		
23/05/2024 11:50	976 / 0.00									0.0		
23/05/2024 11:51	976 / 0.00									0.0		
23/05/2024 11:52	976 / 0.00									0.0		
23/05/2024 11:53			0.1	0.0	17.8	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH301**

INSTALLED PIPE DEPTH (m) 2.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 11:54			0.1	0.0	17.8	0.0	0.0	0.0				
23/05/2024 11:55			0.1	0.0	17.8	0.0	0.0	0.0				
23/05/2024 11:56			0.1	0.0	17.9	0.0	0.0	0.0				
23/05/2024 11:57			0.0	0.0	17.9	0.0	0.0	0.0				
23/05/2024 11:58			0.0	0.0	17.9	0.0	0.0	0.0				
23/05/2024 11:59												Dry
31/05/2024 10:45	982 / 0.00	17								0.0		
31/05/2024 10:46	982 / 0.00									0.0		
31/05/2024 10:47	981 / 0.00									0.0		
31/05/2024 10:48	981 / 0.00									0.0		
31/05/2024 10:49	981 / 0.00									0.0		
31/05/2024 10:50	981 / 0.00									0.0		
31/05/2024 10:51			0.7	0.0	19.3	0.0	0.0	0.0				
31/05/2024 10:52			0.1	0.0	19.6	0.0	0.0	0.0				
31/05/2024 10:53			0.1	0.0	19.5	0.0	0.0	0.0				
31/05/2024 10:54			0.1	0.0	19.5	0.0	0.0	0.0				
31/05/2024 10:55			0.1	0.0	19.4	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH301**

INSTALLED PIPE DEPTH (m) 2.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 10:56			0.1	0.0	19.3	0.0	0.0	0.0				
31/05/2024 10:57			0.1	0.0	19.3	0.0	0.0	0.0				
31/05/2024 10:58			0.1	0.0	19.3	0.0	0.0	0.0				
31/05/2024 10:59												Dry
14/06/2024 11:00	961 / 0.01	14								0.0		
14/06/2024 11:01	961 / 0.01									0.0		
14/06/2024 11:02	961 / 0.01									0.0		
14/06/2024 11:03	961 / 0.01									0.0		
14/06/2024 11:04	961 / 0.01									0.0		
14/06/2024 11:05	961 / 0.01									0.0		
14/06/2024 11:06			0.0	0.0	19.6	0.0	0.0	0.0				
14/06/2024 11:07			0.0	0.0	19.4	0.0	0.0	0.0				
14/06/2024 11:08			0.0	0.0	19.3	0.0	0.0	0.0				
14/06/2024 11:09			0.0	0.0	19.3	0.0	0.0	0.0				
14/06/2024 11:10			0.0	0.0	19.3	0.0	0.0	0.0				
14/06/2024 11:11			0.0	0.0	19.3	0.0	0.0	0.0				
14/06/2024 11:12												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH301**

INSTALLED PIPE DEPTH (m) 2.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 10:03	974 / 0.00	14								0.0		
21/06/2024 10:04	974 / 0.00									0.0		
21/06/2024 10:05	974 / 0.00									0.0		
21/06/2024 10:06	974 / 0.00									0.0		
21/06/2024 10:07	974 / 0.00									0.0		
21/06/2024 10:08	974 / 0.00									0.0		
21/06/2024 10:09			0.5	0.0	20.4	0.0	0.0	0.0				
21/06/2024 10:10			0.0	0.0	18.8	0.0	0.0	0.0				
21/06/2024 10:11			0.0	0.0	18.7	0.0	0.0	0.0				
21/06/2024 10:12			0.0	0.0	18.7	0.0	0.0	0.0				
21/06/2024 10:13			0.0	0.0	18.7	0.0	0.0	0.0				
21/06/2024 10:14			0.0	0.0	18.7	0.0	0.0	0.0				
21/06/2024 10:15												Dry
28/06/2024 10:44	978 / 0.00	14								0.0		
28/06/2024 10:45	979 / 0.00									0.0		
28/06/2024 10:46	979 / 0.00									0.0		
28/06/2024 10:47	979 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH301**

INSTALLED PIPE DEPTH (m) 2.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
28/06/2024 10:48	979 / 0.00									0.0		
28/06/2024 10:49	979 / 0.00									0.0		
28/06/2024 10:50			0.1	0.0	20.5	0.0	0.0	0.0				
28/06/2024 10:51			0.0	0.0	20.4	0.0	0.0	0.0				
28/06/2024 10:52			0.0	0.0	20.4	0.0	0.0	0.0				
28/06/2024 10:53			0.0	0.0	20.4	0.0	0.0	0.0				
28/06/2024 10:54			0.0	0.0	20.5	0.0	0.0	0.0				
28/06/2024 10:55			0.0	0.0	20.5	0.0	0.0	0.0				
28/06/2024 10:56			0.0	0.0	20.5	0.0	0.0	0.0				
28/06/2024 10:57												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH302B**

INSTALLED PIPE DEPTH (m) 9.30

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 12:15	970 / 0.00	16								0.0		
17/05/2024 12:16	970 / 0.00									0.0		
17/05/2024 12:17	970 / 0.00									0.0		
17/05/2024 12:18	970 / 0.00									0.0		
17/05/2024 12:19	970 / 0.00									0.0		
17/05/2024 12:20			1.7	0.0	18.0	0.0	0.0	0.0				
17/05/2024 12:21			2.1	0.0	16.8	0.0	0.0	0.0				
17/05/2024 12:22			2.2	0.0	16.2	0.0	0.0	0.0				
17/05/2024 12:23			2.2	0.0	16.6	0.0	0.0	0.0				
17/05/2024 12:24			2.2	0.0	16.6	0.0	0.0	0.0				
17/05/2024 12:25			2.2	0.0	16.6	0.0	0.0	0.0				
17/05/2024 12:26												Dry
23/05/2024 12:04	974 / 0.00	13								0.0		
23/05/2024 12:05	974 / 0.00									0.0		
23/05/2024 12:06	974 / 0.00									0.0		
23/05/2024 12:07	974 / 0.00									0.0		
23/05/2024 12:08	974 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH302B**

INSTALLED PIPE DEPTH (m) 9.30

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 12:09			2.3	0.0	16.9	0.0	0.0	0.0				
23/05/2024 12:10			2.3	0.0	16.9	0.0	0.0	0.0				
23/05/2024 12:11			2.3	0.0	16.8	0.0	0.0	0.0				
23/05/2024 12:12			2.3	0.0	16.8	0.0	0.0	0.0				
23/05/2024 12:13			2.3	0.0	16.8	0.0	0.0	0.0				
23/05/2024 12:14												Dry
31/05/2024 11:11	981 / 0.00	18								0.0		
31/05/2024 11:12	982 / 0.00									0.0		
31/05/2024 11:13	982 / 0.00									0.0		
31/05/2024 11:14	982 / 0.00									0.0		
31/05/2024 11:15	982 / 0.00									0.0		
31/05/2024 11:16	982 / 0.00									0.0		
31/05/2024 11:17			2.1	0.0	18.2	0.0	0.0	0.0				
31/05/2024 11:18			2.4	0.0	17.3	0.0	0.0	0.0				
31/05/2024 11:19			2.4	0.0	17.3	0.0	0.0	0.0				
31/05/2024 11:20			2.4	0.0	17.3	0.0	0.0	0.0				
31/05/2024 11:21			2.4	0.0	17.3	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH302B**

INSTALLED PIPE DEPTH (m) 9.30

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 11:22			2.4	0.0	17.3	0.0	0.0	0.0				
31/05/2024 11:23												Dry
14/06/2024 11:30	958 / -0.02	14								-1.0		
14/06/2024 11:31	958 / 0.00									0.0		
14/06/2024 11:32	958 / -0.02									-0.1		
14/06/2024 11:33	958 / -0.02									-0.1		
14/06/2024 11:34	958 / -0.02									-0.1		
14/06/2024 11:35	958 / -0.02									-0.1		
14/06/2024 11:36			0.9	0.0	19.3	0.0	0.0	0.0				
14/06/2024 11:37			2.8	0.0	16.6	0.0	0.0	0.0				
14/06/2024 11:38			2.9	0.0	16.4	0.0	0.0	0.0				
14/06/2024 11:39			2.9	0.0	16.4	0.0	0.0	0.0				
14/06/2024 11:40			2.9	0.0	15.4	0.0	0.0	0.0				
14/06/2024 11:41			2.9	0.0	15.4	0.0	0.0	0.0				
14/06/2024 11:42												Dry
21/06/2024 10:25	974 / 0.00	14								0.0		
21/06/2024 10:26	974 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH302B**

INSTALLED PIPE DEPTH (m) 9.30

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 10:27	974 / 0.00									0.0		
21/06/2024 10:28	974 / 0.00									0.0		
21/06/2024 10:29	974 / 0.00									0.0		
21/06/2024 10:30	974 / 0.00									0.0		
21/06/2024 10:31			0.5	0.0	19.4	0.0	0.0	0.0				
21/06/2024 10:32			2.7	0.0	17.9	0.0	0.0	0.0				
21/06/2024 10:33			2.7	0.0	17.8	0.0	0.0	0.0				
21/06/2024 10:34			2.8	0.0	17.8	0.0	0.0	0.0				
21/06/2024 10:35			2.8	0.0	17.8	0.0	0.0	0.0				
21/06/2024 10:36			2.8	0.0	17.8	0.0	0.0	0.0				
21/06/2024 10:37												Dry
28/06/2024 11:10	976 / 0.00	14								0.0		
28/06/2024 11:11	975 / 0.00									0.0		
28/06/2024 11:12	975 / 0.00									0.0		
28/06/2024 11:13	975 / 0.00									0.0		
28/06/2024 11:14	975 / 0.00									0.0		
28/06/2024 11:15	975 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH302B**

INSTALLED PIPE DEPTH (m) 9.30

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
28/06/2024 11:16			0.5	0.0	20.8	0.0	0.0	0.0				
28/06/2024 11:17			2.4	0.0	18.3	0.0	0.0	0.0				
28/06/2024 11:18			2.4	0.0	18.1	0.0	0.0	0.0				
28/06/2024 11:19			2.4	0.0	18.1	0.0	0.0	0.0				
28/06/2024 11:20			2.4	0.0	18.1	0.0	0.0	0.0				
28/06/2024 11:21			2.5	0.0	18.0	0.0	0.0	0.0				
28/06/2024 11:22			2.5	0.0	18.0	0.0	0.0	0.0				
28/06/2024 11:23			2.5	0.0	18.0	0.0	0.0	0.0				
28/06/2024 11:24												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH303B**

INSTALLED PIPE DEPTH (m) 2.40

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 12:54	970 / 0.00	17								0.0		
17/05/2024 12:55	970 / 0.00									0.0		
17/05/2024 12:56	970 / 0.00									0.0		
17/05/2024 12:57	970 / 0.00									0.0		
17/05/2024 12:58	970 / 0.00									0.0		
17/05/2024 12:59			0.1	0.0	20.2	0.0	0.0	0.0				
17/05/2024 13:00			0.1	0.0	20.2	0.0	0.0	0.0				
17/05/2024 13:01			0.1	0.0	20.2	0.0	0.0	0.0				
17/05/2024 13:02			0.1	0.0	20.2	0.0	0.0	0.0				
17/05/2024 13:03			0.1	0.0	20.3	0.0	0.0	0.0				
17/05/2024 13:04												Dry
23/05/2024 12:25	975 / 0.00	13								0.0		
23/05/2024 12:26	975 / 0.00									0.0		
23/05/2024 12:27	975 / 0.00									0.0		
23/05/2024 12:28	975 / 0.00									0.0		
23/05/2024 12:29	975 / 0.00									0.0		
23/05/2024 12:30			0.1	0.0	19.7	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH303B**

INSTALLED PIPE DEPTH (m) 2.40

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 12:31			0.1	0.0	19.7	0.0	0.0	0.0				
23/05/2024 12:32			0.1	0.0	19.7	0.0	0.0	0.0				
23/05/2024 12:33			0.1	0.0	19.7	0.0	0.0	0.0				
23/05/2024 12:34			0.1	0.0	19.7	0.0	0.0	0.0				
23/05/2024 12:35												Dry
31/05/2024 11:34	981 / 0.00	17								0.0		
31/05/2024 11:35	981 / 0.00									0.0		
31/05/2024 11:36	981 / 0.00									0.0		
31/05/2024 11:37	980 / 0.00									0.0		
31/05/2024 11:38	980 / 0.00									0.0		
31/05/2024 11:39	980 / 0.00									0.0		
31/05/2024 11:40			0.7	0.0	20.3	0.0	0.0	0.0				
31/05/2024 11:41			0.1	0.0	20.7	0.0	0.0	0.0				
31/05/2024 11:42			0.1	0.0	20.7	0.0	0.0	0.0				
31/05/2024 11:43			0.1	0.0	20.7	0.0	0.0	0.0				
31/05/2024 11:44			0.1	0.0	20.7	0.0	0.0	0.0				
31/05/2024 11:45			1.0	0.0	20.7	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH303B**

INSTALLED PIPE DEPTH (m) 2.40

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 11:46												Dry
14/06/2024 12:05	961 / -0.02	15								-0.1		
14/06/2024 12:06	961 / 0.00									0.0		
14/06/2024 12:07	961 / 0.01									0.0		
14/06/2024 12:08	961 / 0.05									0.1		
14/06/2024 12:09	961 / 0.06									0.1		
14/06/2024 12:10	961 / 0.10									0.2		
14/06/2024 12:11	961 / 0.11									0.3		
14/06/2024 12:12	961 / 0.13									0.3		
14/06/2024 12:13	961 / 0.15									0.4		
14/06/2024 12:14	961 / 0.20									0.5		
14/06/2024 12:15	961 / 0.20									0.5		
14/06/2024 12:16			0.8	0.0	18.2	0.0	0.0	0.0				
14/06/2024 12:17			0.2	0.0	19.5	0.0	0.0	0.0				
14/06/2024 12:18			0.2	0.0	19.5	0.0	0.0	0.0				
14/06/2024 12:19			0.2	0.0	19.5	0.0	0.0	0.0				
14/06/2024 12:20			0.1	0.0	19.5	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH303B**

INSTALLED PIPE DEPTH (m) 2.40

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
14/06/2024 12:21			0.1	0.0	19.5	0.0	0.0	0.0				
14/06/2024 12:22												Dry
21/06/2024 10:46	974 / 0.00	14								0.0		
21/06/2024 10:47	974 / 0.00									0.0		
21/06/2024 10:48	974 / 0.00									0.0		
21/06/2024 10:49	974 / 0.00									0.0		
21/06/2024 10:50	974 / 0.00									0.0		
21/06/2024 10:51	974 / 0.00									0.0		
21/06/2024 10:52			1.0	0.0	18.8	0.0	0.0	0.0				
21/06/2024 10:53			0.2	0.0	20.4	0.0	0.0	0.0				
21/06/2024 10:54			0.2	0.0	20.3	0.0	0.0	0.0				
21/06/2024 10:55			0.2	0.0	20.4	0.0	0.0	0.0				
21/06/2024 10:56			0.2	0.0	20.4	0.0	0.0	0.0				
21/06/2024 10:57			0.2	0.0	20.3	0.0	0.0	0.0				
21/06/2024 10:58												Dry
28/06/2024 11:41	977 / 0.00	15								0.0		
28/06/2024 11:42	977 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH303B**

INSTALLED PIPE DEPTH (m) 2.40

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
28/06/2024 11:43	977 / 0.00									0.0		
28/06/2024 11:44	977 / 0.00									0.0		
28/06/2024 11:45	977 / 0.00									0.0		
28/06/2024 11:46	977 / 0.00									0.0		
28/06/2024 11:47			1.0	0.0	19.3	0.0	0.0	0.0				
28/06/2024 11:48			0.2	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:49			0.2	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:50			0.2	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:51			0.2	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:52			0.1	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:53			0.1	0.0	20.4	0.0	0.0	0.0				
28/06/2024 11:54												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 14:02	974 / 0.00	17								0.0		
17/05/2024 14:03	974 / 0.00									0.0		
17/05/2024 14:04	974 / 0.00									0.0		
17/05/2024 14:05	974 / 0.00									0.0		
17/05/2024 14:06	974 / 0.00									0.0		
17/05/2024 14:10			4.8	0.0	9.4	0.0	0.0	10.0				
17/05/2024 14:11			4.8	0.0	9.3	0.0	0.0	10.0				
17/05/2024 14:12			4.9	0.0	9.2	0.0	0.0	10.0				
17/05/2024 14:13			4.9	0.0	9.1	0.0	0.0	10.0				
17/05/2024 14:14			4.9	0.0	9.1	0.0	0.0	10.0				
17/05/2024 14:15			4.9	0.0	9.0	0.0	0.0	10.0				
17/05/2024 14:16			5.0	0.0	8.9	0.0	0.0	10.0				
17/05/2024 14:17			5.0	0.0	8.9	0.0	0.0	10.0				
17/05/2024 14:18			5.0	0.0	8.8	0.0	0.0	10.0				
17/05/2024 14:19			5.0	0.0	8.8	0.0	0.0	10.0				
17/05/2024 14:20												Dry
23/05/2024 13:31	980 / 0.00	13								0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 13:32	980 / 0.00									0.0		
23/05/2024 13:33	980 / 0.00									0.0		
23/05/2024 13:34	980 / 0.00									0.0		
23/05/2024 13:35	980 / 0.00									0.0		
23/05/2024 13:36			7.2	0.0	9.7	0.0	0.0	0.0				
23/05/2024 13:37			7.2	0.0	9.5	0.0	0.0	0.0				
23/05/2024 13:38			7.3	0.0	9.4	0.0	0.0	0.0				
23/05/2024 13:39			7.4	0.0	9.4	0.0	0.0	0.0				
23/05/2024 13:40			7.4	0.0	9.3	0.0	0.0	0.0				
23/05/2024 13:41			7.5	0.0	9.2	0.0	0.0	0.0				
23/05/2024 13:42			7.5	0.0	9.2	0.0	0.0	0.0				
23/05/2024 13:43			7.4	0.0	9.2	0.0	0.0	0.0				
23/05/2024 13:44			7.4	0.0	9.2	0.0	0.0	0.0				
23/05/2024 13:45			7.4	0.0	9.2	0.0	0.0	0.0				
23/05/2024 13:46												Dry
31/05/2024 13:06	984 / 0.00	18								0.0		
31/05/2024 13:07	984 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 13:08	984 / 0.00									0.0		
31/05/2024 13:09	984 / 0.00									0.0		
31/05/2024 13:10	984 / 0.00									0.0		
31/05/2024 13:11	984 / 0.00									0.0		
31/05/2024 13:12			0.1	0.0	21.1	0.0	0.0	0.0				
31/05/2024 13:13			7.0	0.0	8.7	0.0	0.0	0.0				
31/05/2024 13:14			7.0	0.0	8.5	0.0	0.0	0.0				
31/05/2024 13:15			7.0	0.0	8.5	0.0	0.0	0.0				
31/05/2024 13:16			6.9	0.0	8.6	0.0	0.0	0.0				
31/05/2024 13:17			6.9	0.0	8.6	0.0	0.0	0.0				
31/05/2024 13:18												Dry
14/06/2024 14:39	963 / 0.01	14								0.0		
14/06/2024 14:40	963 / 0.05									0.1		
14/06/2024 14:41	963 / 0.03									0.1		
14/06/2024 14:42	963 / 0.05									0.1		
14/06/2024 14:43	963 / 0.03									0.1		
14/06/2024 14:44	963 / 0.03									0.1		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
14/06/2024 14:45			1.2	0.0	3.5	0.0	0.0	0.0				
14/06/2024 14:46			5.0	0.0	15.2	0.0	0.0	0.0				
14/06/2024 14:47			5.1	0.0	15.3	0.0	0.0	0.0				
14/06/2024 14:48			5.1	0.0	15.2	0.0	0.0	0.0				
14/06/2024 14:49			5.5	0.0	15.0	0.0	0.0	0.0				
14/06/2024 14:50			5.8	0.0	14.7	0.0	0.0	0.0				
14/06/2024 14:51			5.9	0.0	14.6	0.0	0.0	0.0				
14/06/2024 14:52												Dry
21/06/2024 12:40	978 / 0.00	16								0.0		
21/06/2024 12:41	978 / 0.00									0.0		
21/06/2024 12:42	978 / 0.00									0.0		
21/06/2024 12:43	978 / 0.00									0.0		
21/06/2024 12:44	978 / 0.00									0.0		
21/06/2024 12:45	978 / 0.00									0.0		
21/06/2024 12:46			1.6	0.0	9.0	0.0	0.0	0.0				
21/06/2024 12:47			4.7	0.0	13.9	0.0	0.0	0.0				
21/06/2024 12:48			4.8	0.0	13.8	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 12:49			5.0	0.0	13.5	0.0	0.0	0.0				
21/06/2024 12:50			5.3	0.0	13.1	0.0	0.0	0.0				
21/06/2024 12:51			5.7	0.0	12.8	0.0	0.0	0.0				
21/06/2024 12:52			5.9	0.0	12.6	0.0	0.0	0.0				
21/06/2024 12:53												Dry
28/06/2024 13:15	979 / 0.00	15								0.0		
28/06/2024 13:16	979 / 0.00									0.0		
28/06/2024 13:17	979 / 0.00									0.0		
28/06/2024 13:18	979 / 0.00									0.0		
28/06/2024 13:19	979 / 0.00									0.0		
28/06/2024 13:20	979 / 0.00									0.0		
28/06/2024 13:21			1.5	0.0	8.4	0.0	0.0	0.0				
28/06/2024 13:22			5.6	0.0	15.2	0.0	0.0	0.0				
28/06/2024 13:23			5.9	0.0	15.1	0.0	0.0	0.0				
28/06/2024 13:24			6.0	0.0	15.0	0.0	0.0	0.0				
28/06/2024 13:25			6.1	0.0	14.9	0.0	0.0	0.0				
28/06/2024 13:26			6.2	0.0	14.7	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH304**

INSTALLED PIPE DEPTH (m) 3.60

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
28/06/2024 13:27												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH305**

INSTALLED PIPE DEPTH (m) 3.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 13:40	973 / -0.02	17								-0.3		
17/05/2024 13:41	973 / -0.02									-0.3		
17/05/2024 13:42	973 / -0.02									-0.3		
17/05/2024 13:43	973 / -0.02									-0.3		
17/05/2024 13:44	973 / -0.02									-0.3		
17/05/2024 13:45			0.6	0.0	19.9	0.0	0.0	0.0				
17/05/2024 13:46			0.6	0.0	19.8	0.0	0.0	0.0				
17/05/2024 13:47			0.6	0.0	19.8	0.0	0.0	0.0				
17/05/2024 13:48			0.6	0.0	19.8	0.0	0.0	0.0				
17/05/2024 13:49			0.6	0.0	19.8	0.0	0.0	0.0				
17/05/2024 13:50												Dry
23/05/2024 13:05	978 / 0.00	13								0.0		Peak DP =5, Peak flow = 0.3, lasted 2 seconds at start of monitoring
23/05/2024 13:06	978 / 0.00									0.0		
23/05/2024 13:07	978 / 0.00									0.0		
23/05/2024 13:08	978 / 0.00									0.0		
23/05/2024 13:09	978 / 0.00									0.0		
23/05/2024 13:10			0.5	0.0	19.8	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH305**

INSTALLED PIPE DEPTH (m) 3.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 13:11			0.5	0.0	19.8	0.0	0.0	0.0				
23/05/2024 13:12			0.5	0.0	19.8	0.0	0.0	0.0				
23/05/2024 13:13			0.5	0.0	19.8	0.0	0.0	0.0				
23/05/2024 13:14			0.5	0.0	19.8	0.0	0.0	0.0				
23/05/2024 13:15			0.5	0.0	19.8	0.0	0.0	0.0				
23/05/2024 13:16												Dry
31/05/2024 12:45	983 / 0.00	18								0.0		
31/05/2024 12:46	983 / 0.00									0.0		
31/05/2024 12:47	983 / 0.00									0.0		
31/05/2024 12:48	983 / 0.00									0.0		
31/05/2024 12:49	983 / 0.00									0.0		
31/05/2024 12:50	983 / 0.00									0.0		
31/05/2024 12:51			0.2	0.0	20.1	0.0	0.0	0.0				
31/05/2024 12:52			0.5	0.0	20.7	0.0	0.0	0.0				
31/05/2024 12:53			0.5	0.0	20.7	0.0	0.0	0.0				
31/05/2024 12:54			0.5	0.0	20.6	0.0	0.0	0.0				
31/05/2024 12:55			0.5	0.0	20.6	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH305**

INSTALLED PIPE DEPTH (m) 3.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 12:56			0.5	0.0	20.6	0.0	0.0	0.0				
31/05/2024 12:57												Dry
14/06/2024 13:30	966 / 0.00	14								0.0		
14/06/2024 13:31	965 / 0.04									0.1		
14/06/2024 13:32	965 / 0.07									0.1		
14/06/2024 13:33	965 / 0.10									0.3		
14/06/2024 13:34	965 / 0.12									0.3		
14/06/2024 13:35	965 / 0.12									0.3		
14/06/2024 13:36			0.5	0.0	18.6	0.0	0.0	0.0				
14/06/2024 13:37			0.5	0.0	19.5	0.0	0.0	0.0				
14/06/2024 13:38			0.5	0.0	19.5	0.0	0.0	0.0				
14/06/2024 13:39			0.5	0.0	19.5	0.0	0.0	0.0				
14/06/2024 13:40			0.4	0.0	19.5	0.0	0.0	0.0				
14/06/2024 13:41			0.4	0.0	19.5	0.0	0.0	0.0				
14/06/2024 13:42												Dry
21/06/2024 11:46	977 / 0.00	15								0.0		
21/06/2024 11:47	977 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH305**

INSTALLED PIPE DEPTH (m) 3.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 11:48	977 / 0.00									0.0		
21/06/2024 11:49	977 / 0.00									0.0		
21/06/2024 11:50	977 / 0.00									0.0		
21/06/2024 11:51	977 / 0.00									0.0		
21/06/2024 11:52			0.6	0.0	19.6	0.0	0.0	0.0				
21/06/2024 11:53			0.7	0.0	20.3	0.0	0.0	0.0				
21/06/2024 11:54			0.7	0.0	20.3	0.0	0.0	0.0				
21/06/2024 11:55			0.7	0.0	20.3	0.0	0.0	0.0				
21/06/2024 11:56			0.7	0.0	20.3	0.0	0.0	0.0				
21/06/2024 11:57			0.7	0.0	20.3	0.0	0.0	0.0				
21/06/2024 11:58												Dry
28/06/2024 12:29	979 / 0.00	16								0.0		
28/06/2024 12:30	979 / 0.00									0.0		
28/06/2024 12:31	979 / 0.00									0.0		
28/06/2024 12:32	979 / 0.00									0.0		
28/06/2024 12:33	979 / 0.00									0.0		
28/06/2024 12:34	979 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH305**

INSTALLED PIPE DEPTH (m) 3.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
28/06/2024 12:35			0.5	0.0	19.2	0.0	0.0	0.0				
28/06/2024 12:36			0.5	0.0	20.5	0.0	0.0	0.0				
28/06/2024 12:37			0.5	0.0	20.5	0.0	0.0	0.0				
28/06/2024 12:38			0.5	0.0	20.5	0.0	0.0	0.0				
28/06/2024 12:39			0.5	0.0	20.5	0.0	0.0	0.0				
28/06/2024 12:40			0.5	0.0	20.5	0.0	0.0	0.0				
28/06/2024 12:41			0.5	0.0	20.6	0.0	0.0	0.0				
28/06/2024 12:42												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH306**

INSTALLED PIPE DEPTH (m) 8.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 13:17	972 / 0.00	17								0.0		
17/05/2024 13:18	972 / 0.00									0.0		
17/05/2024 13:19	972 / 0.00									0.0		
17/05/2024 13:20	972 / 0.00									0.0		
17/05/2024 13:21	972 / 0.00									0.0		
17/05/2024 13:22			0.5	0.0	18.9	0.0	0.0	0.0				
17/05/2024 13:23			0.5	0.0	18.9	0.0	0.0	0.0				
17/05/2024 13:24			0.5	0.0	18.9	0.0	0.0	0.0				
17/05/2024 13:25			0.5	0.0	18.8	0.0	0.0	0.0				
17/05/2024 13:26			0.5	0.0	18.8	0.0	0.0	0.0				
17/05/2024 13:27												Dry
23/05/2024 12:00												Headworks flooded, gas monitoring terminated due to water uptake. Instllation pipe dry.
31/05/2024 12:06	985 / 0.00	18								0.0		
31/05/2024 12:07	985 / 0.00									0.0		
31/05/2024 12:08	985 / 0.00									0.0		
31/05/2024 12:09	985 / 0.00									0.0		
31/05/2024 12:10	985 / 0.00									0.0		

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH306**

INSTALLED PIPE DEPTH (m) 8.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 12:11	985 / 0.00									0.0		
31/05/2024 12:12			0.5	0.0	19.1	0.0	0.0	0.0				
31/05/2024 12:13			0.6	0.0	18.5	0.0	0.0	0.0				
31/05/2024 12:14			0.6	0.0	18.4	0.0	0.0	0.0				
31/05/2024 12:15			0.6	0.0	18.4	0.0	0.0	0.0				
31/05/2024 12:16			0.6	0.0	18.4	0.0	0.0	0.0				
31/05/2024 12:17			0.6	0.0	18.4	0.0	0.0	0.0				
31/05/2024 12:18			0.6	0.0	18.4	0.0	0.0	0.0				
31/05/2024 12:19												Dry
14/06/2024 12:42	962 / 0.04	13								0.1		
14/06/2024 12:43	963 / 0.02									0.0		
14/06/2024 12:44	963 / 0.02									0.0		
14/06/2024 12:45	963 / 0.02									0.0		
14/06/2024 12:46	963 / 0.02									0.0		
14/06/2024 12:47	963 / 0.02									0.0		
14/06/2024 12:48			0.5	0.0	19.7	0.0	0.0	0.0				
14/06/2024 12:49			0.7	0.0	17.6	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH306**

INSTALLED PIPE DEPTH (m) 8.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
14/06/2024 12:50			0.7	0.0	17.5	0.0	0.0	0.0				
14/06/2024 12:51			0.7	0.0	17.5	0.0	0.0	0.0				
14/06/2024 12:52			0.7	0.0	17.5	0.0	0.0	0.0				
14/06/2024 12:53			0.7	0.0	17.5	0.0	0.0	0.0				
14/06/2024 12:54												Dry
21/06/2024 11:24	978 / 0.00	15								0.0		
21/06/2024 11:25	978 / 0.00									0.0		
21/06/2024 11:26	978 / 0.00									0.0		
21/06/2024 11:27	978 / 0.00									0.0		
21/06/2024 11:28	978 / 0.00									0.0		
21/06/2024 11:29	978 / 0.00									0.0		
21/06/2024 11:30			0.2	0.0	21.0	0.0	0.0	0.0				
21/06/2024 11:31			0.7	0.0	19.2	0.0	0.0	0.0				
21/06/2024 11:32			0.7	0.0	19.1	0.0	0.0	0.0				
21/06/2024 11:33			0.7	0.0	19.1	0.0	0.0	0.0				
21/06/2024 11:34			0.7	0.0	19.1	0.0	0.0	0.0				
21/06/2024 11:35			0.7	0.0	19.0	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH306**

INSTALLED PIPE DEPTH (m) 8.20

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 11:36												Dry
28/06/2024 12:03	980 / 0.00	15								0.0		
28/06/2024 12:04	980 / 0.00									0.0		
28/06/2024 12:05	980 / 0.00									0.0		
28/06/2024 12:06	980 / 0.00									0.0		
28/06/2024 12:07	980 / 0.00									0.0		
28/06/2024 12:08	980 / 0.00									0.0		
28/06/2024 12:09			0.4	0.0	20.8	0.0	0.0	0.0				
28/06/2024 12:10			0.7	0.0	18.7	0.0	0.0	0.0				
28/06/2024 12:11			0.7	0.0	18.5	0.0	0.0	0.0				
28/06/2024 12:12			0.7	0.0	18.5	0.0	0.0	0.0				
28/06/2024 12:13			0.7	0.0	18.5	0.0	0.0	0.0				
28/06/2024 12:14			0.7	0.0	18.4	0.0	0.0	0.0				
28/06/2024 12:15												Dry

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH307**

INSTALLED PIPE DEPTH (m) 9.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
17/05/2024 15:00											2.50	Gas monitoring not undertaken, gas tap replaced due to damage.
23/05/2024 14:17	982 / 0.00	13								0.0		Headworks flooded, water bailed out.
23/05/2024 14:18	982 / 0.00									0.0		
23/05/2024 14:19	982 / 0.00									0.0		
23/05/2024 14:20	982 / 0.00									0.0		
23/05/2024 14:21	982 / 0.00									0.0		
23/05/2024 14:22			0.9	0.0	5.9	0.0	0.0	0.0				
23/05/2024 14:23			0.9	0.0	6.1	0.0	0.0	0.0				
23/05/2024 14:24			0.9	0.0	6.3	0.0	0.0	0.0				
23/05/2024 14:25			0.9	0.0	6.4	0.0	0.0	0.0				
23/05/2024 14:26			0.9	0.0	6.4	0.0	0.0	0.0				
23/05/2024 14:27			0.9	0.0	6.3	0.0	0.0	0.0				
23/05/2024 14:28			0.9	0.0	6.1	0.0	0.0	0.0				
23/05/2024 14:29			0.9	0.0	5.9	0.0	0.0	0.0				
23/05/2024 14:30			0.9	0.0	5.6	0.0	0.0	0.0				
23/05/2024 14:31			1.0	0.0	5.3	0.0	0.0	0.0				
23/05/2024 14:32			1.0	0.0	5.0	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH307**

INSTALLED PIPE DEPTH (m) 9.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
23/05/2024 14:33			1.0	0.0	4.7	0.0	0.0	0.0				
23/05/2024 14:34			1.0	0.0	4.9	0.0	0.0	0.0				
23/05/2024 14:35			1.1	0.0	4.1	0.0	0.0	0.0				
23/05/2024 14:36			1.2	0.0	3.9	0.0	0.0	0.0				
23/05/2024 14:37											2.58	
31/05/2024 13:24	989 / 0.00	18								0.0		
31/05/2024 13:25	989 / 0.00									0.0		
31/05/2024 13:26	989 / 0.00									0.0		
31/05/2024 13:27	989 / 0.00									0.0		
31/05/2024 13:28	989 / 0.00									0.0		
31/05/2024 13:29	989 / 0.00									0.0		
31/05/2024 13:30			1.2	0.0	4.6	0.0	0.0	0.0				
31/05/2024 13:31			1.1	0.0	1.3	0.0	0.0	0.0				
31/05/2024 13:32			1.1	0.0	1.3	0.0	0.0	0.0				
31/05/2024 13:33			1.1	0.0	1.3	0.0	0.0	0.0				
31/05/2024 13:34			1.1	0.0	1.2	0.0	0.0	0.0				
31/05/2024 13:35			1.2	0.0	1.0	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH307**

INSTALLED PIPE DEPTH (m) 9.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
31/05/2024 13:36			1.3	0.0	1.0	0.0	0.0	0.0				
31/05/2024 13:37			1.3	0.0	0.9	0.0	0.0	0.0				
31/05/2024 13:38			1.4	0.0	0.9	0.0	0.0	0.0				
31/05/2024 13:39			1.4	0.0	0.9	0.0	0.0	0.0				
31/05/2024 13:40											2.50	
14/06/2024 14:06	966 / 0.00	14								0.0		
14/06/2024 14:07	966 / 0.00									0.0		
14/06/2024 14:08	966 / 0.02									0.0		
14/06/2024 14:09	966 / 0.04									0.1		
14/06/2024 14:10	966 / 0.00									0.0		
14/06/2024 14:11	966 / 0.02									0.0		
14/06/2024 14:12			0.6	0.0	16.8	0.0	0.0	0.0				
14/06/2024 14:13			1.2	0.0	0.6	0.0	0.0	0.0				
14/06/2024 14:14			1.2	0.0	0.3	0.0	0.0	0.0				
14/06/2024 14:15			1.2	0.0	0.2	0.0	0.0	0.0				
14/06/2024 14:16			1.2	0.0	0.1	0.0	0.0	0.0				
14/06/2024 14:17			1.2	0.0	0.1	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH307**

INSTALLED PIPE DEPTH (m) 9.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
14/06/2024 14:18			1.2	0.0	0.0	0.0	0.0	0.0				
14/06/2024 14:19			1.2	0.0	0.0	0.0	0.0	0.0				
14/06/2024 14:20			1.2	0.0	0.0	0.0	0.0	0.0				
14/06/2024 14:21			1.2	0.0	0.0	0.0	0.0	0.0				
14/06/2024 14:22			1.2	0.0	0.0	0.0	0.0	0.0				
14/06/2024 14:23											4.31	
21/06/2024 12:08	981 / 0.00	14								0.0		
21/06/2024 12:09	981 / 0.00									0.0		
21/06/2024 12:10	981 / 0.00									0.0		
21/06/2024 12:11	981 / 0.00									0.0		
21/06/2024 12:12	981 / 0.00									0.0		
21/06/2024 12:13	981 / 0.00									0.0		
21/06/2024 12:14			0.6	0.0	20.1	0.0	0.0	0.0				
21/06/2024 12:15			1.0	0.0	2.5	0.0	0.0	0.0				
21/06/2024 12:16			1.1	0.0	0.5	0.0	0.0	0.0				
21/06/2024 12:17			1.1	0.0	0.2	0.0	0.0	0.0				
21/06/2024 12:18			1.1	0.0	0.2	0.0	0.0	0.0				

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: TRIVALLIS

SITE: PENRHYS VILLAGE, RHONDDA CYNON TAFF

LOCATION ID **BH307**

INSTALLED PIPE DEPTH (m) 9.50

PIPE DIAMETER (mm) 50

date and time	barometric pressure / differentiation (mb)	termperature (°C)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	water level (m - bgl)	remarks
21/06/2024 12:19			1.0	0.0	0.1	0.0	0.0	0.0				
21/06/2024 12:20			1.0	0.0	0.1	0.0	0.0	0.0				
21/06/2024 12:21											4.60	
28/06/2024 12:53	983 / 0.00	15								0.0		
28/06/2024 12:54	983 / 0.00									0.0		
28/06/2024 12:55	983 / 0.00									0.0		
28/06/2024 12:56	983 / 0.00									0.0		
28/06/2024 12:57	983 / 0.00									0.0		
28/06/2024 12:58	983 / 0.00									0.0		
28/06/2024 12:59			0.2	0.0	20.4	1.1	0.0	0.0				
28/06/2024 13:00			1.2	0.2	0.8	4.4	0.0	20.0				
28/06/2024 13:01			1.2	0.1	0.6	4.4	0.0	23.0				
28/06/2024 13:02			1.2	0.2	0.3	4.7	0.0	23.0				
28/06/2024 13:03			1.2	0.2	0.2	5.1	0.0	23.0				
28/06/2024 13:04			1.2	0.2	0.2	5.1	0.0	25.0				
28/06/2024 13:05											6.99	

remarks

# denotes results exceeding capacity of gas monitoring equipment

VOC - Photoionisation Detector Mini RAE Lite measures VOC vapours with 10.6eV lamp calibrated against isobutylene

CONTRACT	CHECKED
38113	**JH**

APPENDIX C

LABORATORY TESTING

UKAS TESTING
2718

GEOTECHNICAL ENGINEERING LIMITED

Version No.	1
Reason for update	N/A
For the attention of Brian Allen / Simon Phelpstead	Page No. 1 of 48
	Date of Issue 18/06/2024

TEST REPORT

PROJECT/SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	Samples received	17/04/2024
GEL REPORT NUMBER	38113	Schedule received	16/05/2024
Your ref/PO:		Testing commenced	20/05/2024
Test report refers to	Schedule 001	Status	Final

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION (S) denotes testing was subcontracted		QUANTITY	ACCREDITED TEST
BS EN ISO 17892-1: 2014:5, Water Content		5	YES
BS EN ISO 17892-12:2018, Liquid & Plastic Limits		5	YES
BS EN ISO 17892-4: 2016: 5.2, Particle Size Distribution - Wet Sieve		36	YES
BS EN ISO 17892-4: 2016: 5.4, Particle Size Distribution - Pipette		1	YES
ISRM: Suggested Methods: 2007: Water Content of Rock		4	NO
ISRM Suggested Methods: 1974-2006: Uniaxial Compressive Strength of Rock	(S)	4	YES
ISRM: Suggested Methods: 2007: Point Load Strength Test		16	YES
ISRM: Suggested Methods: 1974-2006: Point Load Strength Test	(S)	1	YES

General Remarks

This report may not be partially reproduced without written permission from this laboratory.
The results reported relate to samples received in the laboratory and the items tested.

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Approved Signatories:
W Jones (Laboratory Manager) J Hanson (Director)
T Best (Deputy Laboratory Manager) N Parry (Director)



Geotechnical Engineering Limited

LIQUID AND PLASTIC LIMITS

BS EN ISO 17892-12:2018

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	specimen preparation and test method	fraction >0.425 mm (%)	liquid limit (%)	plastic limit (%)	plasticity index (%)	description and remarks
BH304	4D	0.50	0.50	14.2	BYE	47	32	21	11	Brown slightly sandy gravelly silty CLAY
BH305	3B	0.50	0.50	17.5	BYE	25	31	19	12	Brown slightly sandy slightly gravelly silty CLAY
BH306	4D	0.50	0.50	18.7	BYE	83	50	40	10	Brown sandy silty GRAVEL
TP213	3D	1.50	1.50	16.7	BYE	52	35	23	12	Brown slightly sandy gravelly silty CLAY
TP215	1B	0.50	0.50	16.8	BYE	53	38	25	13	Brown slightly sandy gravelly silty CLAY

general remarks

natural water content determined in accordance with BS EN ISO 17892 - 1 : 2014 (unless specified)

NP denotes non plastic

# denotes sample tested is smaller than that which is recommended in accordance with BS EN ISO 17892 or BS1377

specimen preparation

A - as received
B - washed on 0.425mm sieve
C - air dried
D - oven dried (60oC)
E - oven dried (105oC)
F - not known

test method

X - cone penetrometer (4 point)
Y - cone penetrometer (1 point)
Z - casagrande apparatus

CONTRACT **38113**

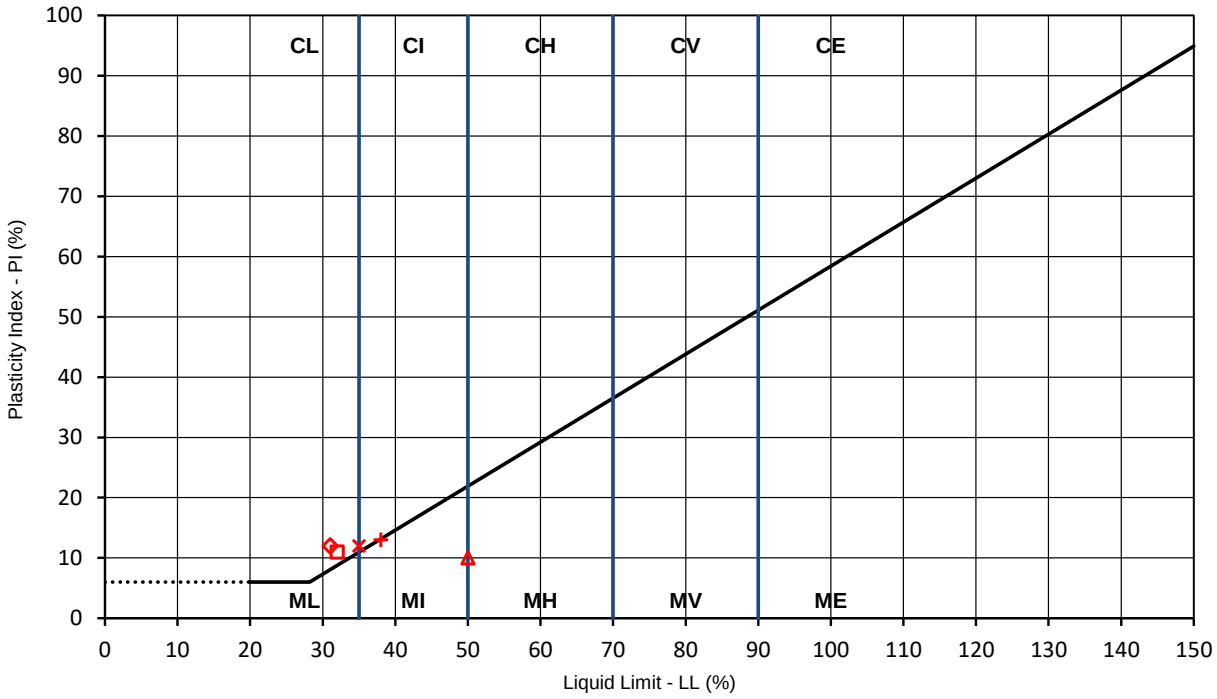
CHECKED **TB**

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ATTERBERG LINE PLOT

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF



	BH/TP No.	depth (m)	LL	PL	PI	remarks
□	BH304	0.50	32	21	11	
◇	BH305	0.50	31	19	12	
△	BH306	0.50	50	40	10	
×	TP213	1.50	35	23	12	
+	TP215	0.50	38	25	13	

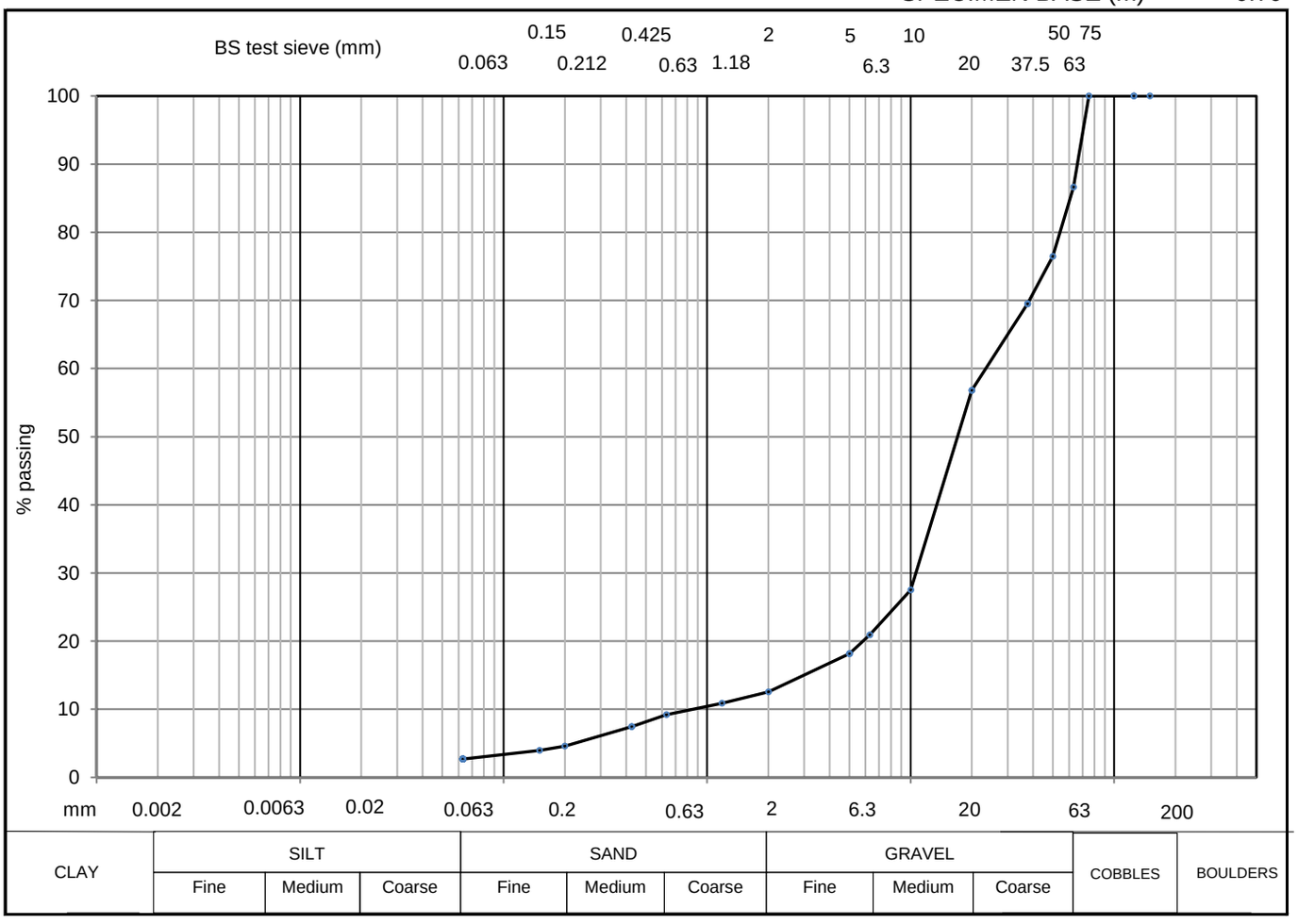
CONTRACT	CHECKED
38113	**TB**

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH301
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown slightly clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	10
GRAVEL	74
COBBLE & BOULDER	13
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	18	20	
75	100	2	13	6	
63	87	1.18	11	2	
50	76	0.63	9		
37.5	70	0.425	7		
20	57	0.2	5		
10	28	0.15	4		
6.3	21	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

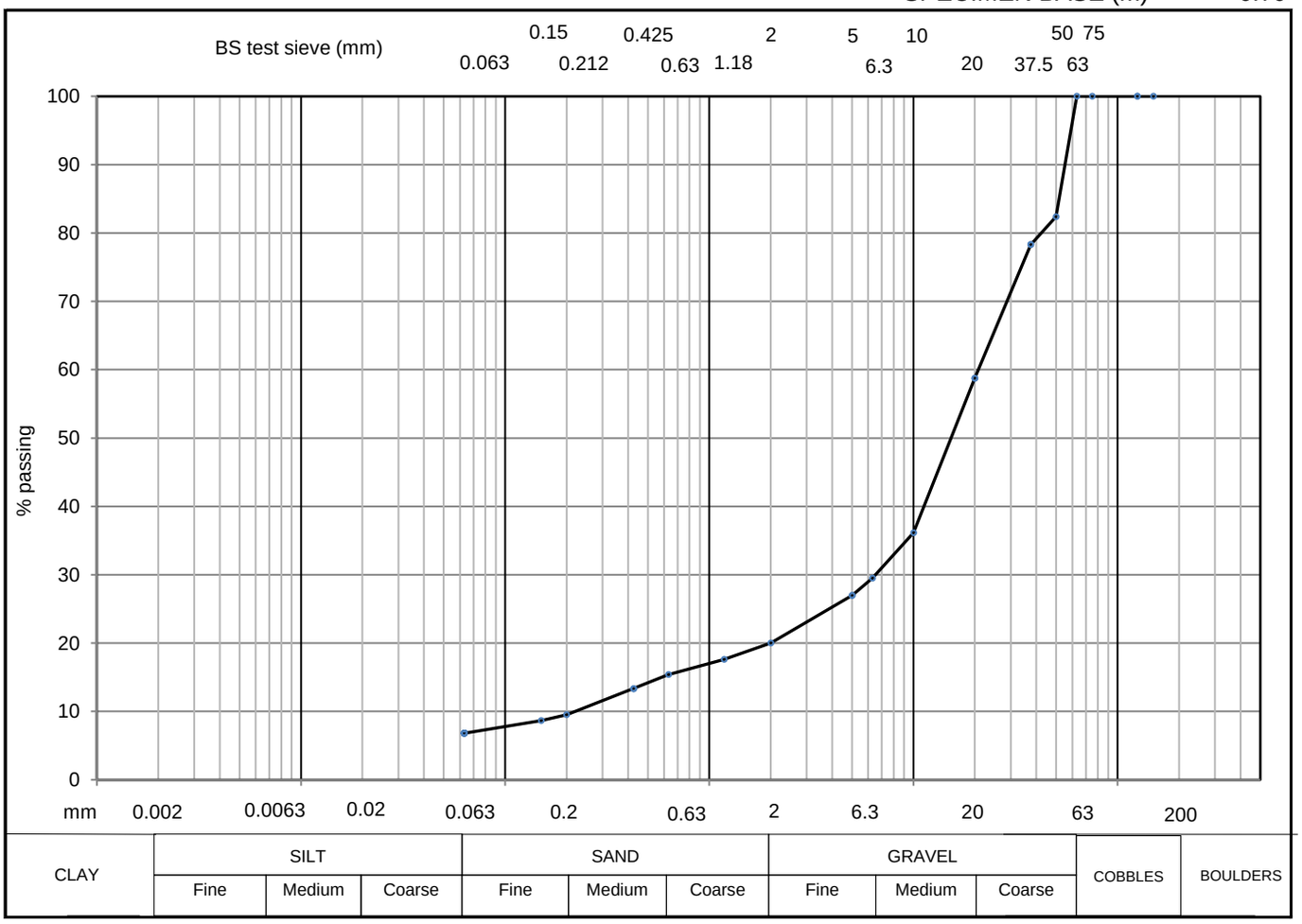
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH302B
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	13
GRAVEL	80
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	27	20	
75		2	20	6	
63	100	1.18	18	2	
50	82	0.63	15		
37.5	78	0.425	13		
20	59	0.2	10		
10	36	0.15	9		
6.3	30	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

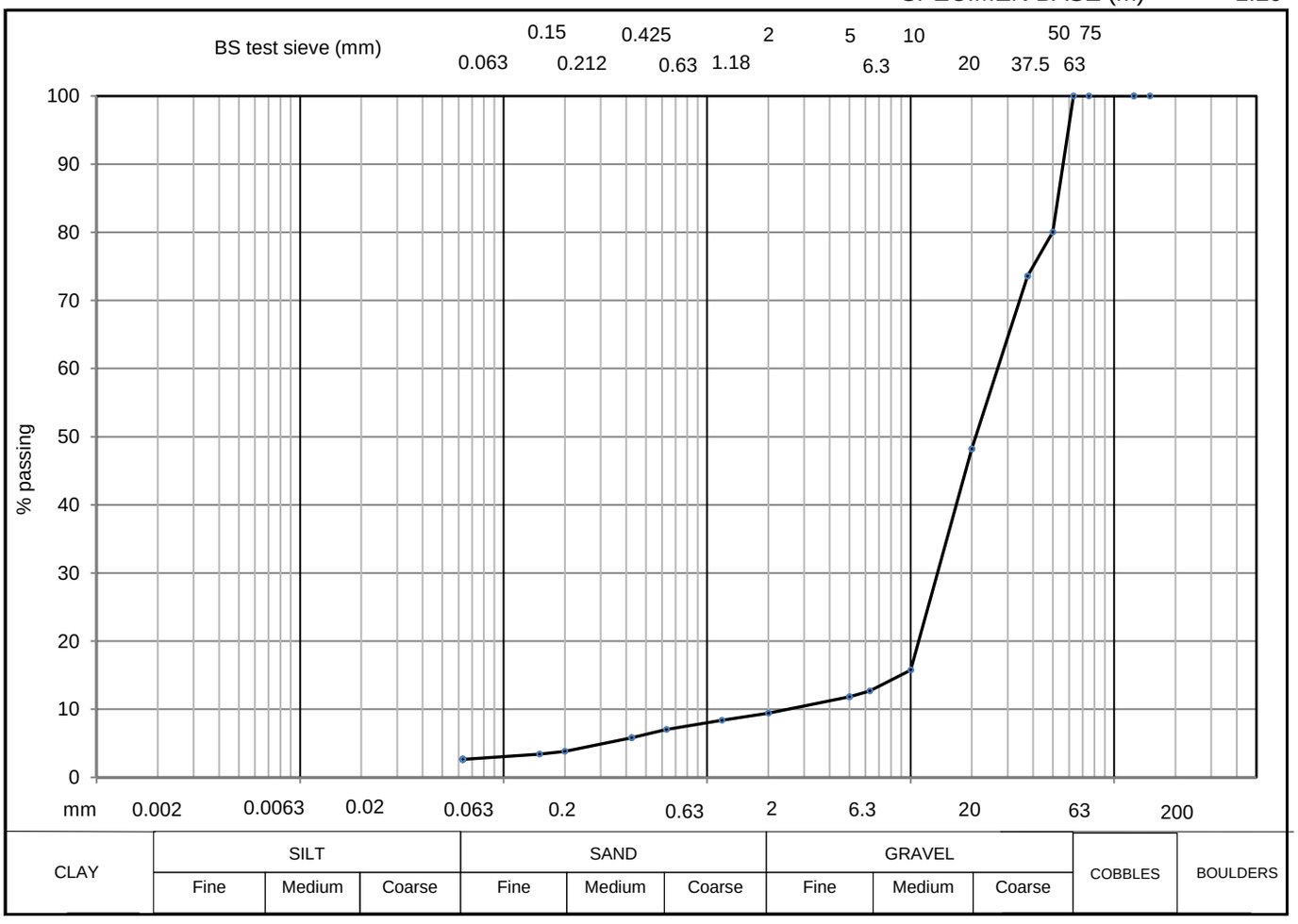
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH303B
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Grey slightly clayey sandy GRAVEL with rare wood fragments	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	7
GRAVEL	91
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	12	20	
75		2	9	6	
63	100	1.18	8	2	
50	80	0.63	7		
37.5	74	0.425	6		
20	48	0.2	4		
10	16	0.15	3		
6.3	13	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

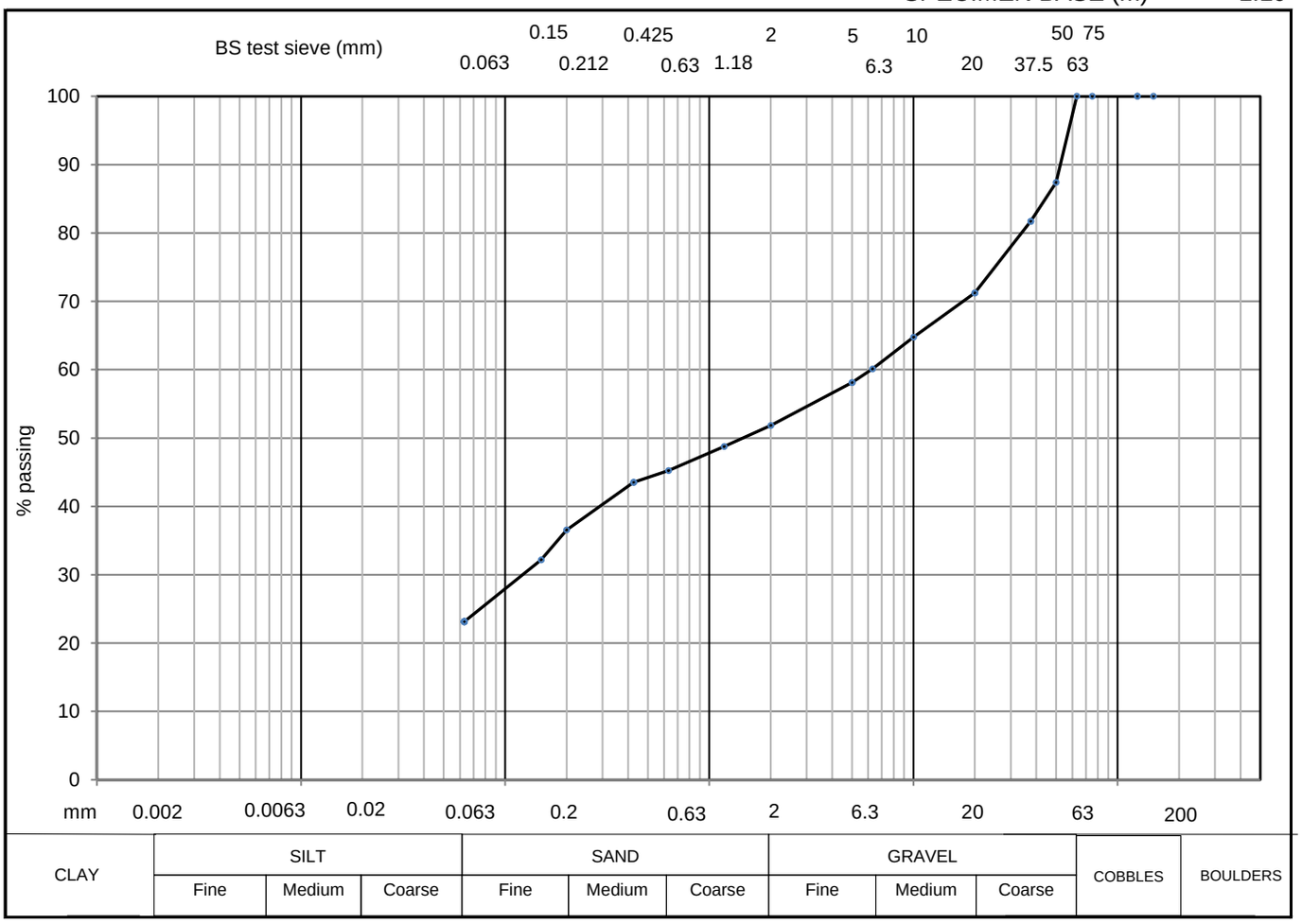
CONTRACT	CHECKED
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH304
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.90
DESCRIPTION	Brown very silty very sandy GRAVEL	SPECIMEN TOP (m)	0.90
		SPECIMEN BASE (m)	1.10



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	29
GRAVEL	48
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	58	20	
75		2	52	6	
63	100	1.18	49	2	
50	87	0.63	45		
37.5	82	0.425	44		
20	71	0.2	37		
10	65	0.15	32		
6.3	60	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

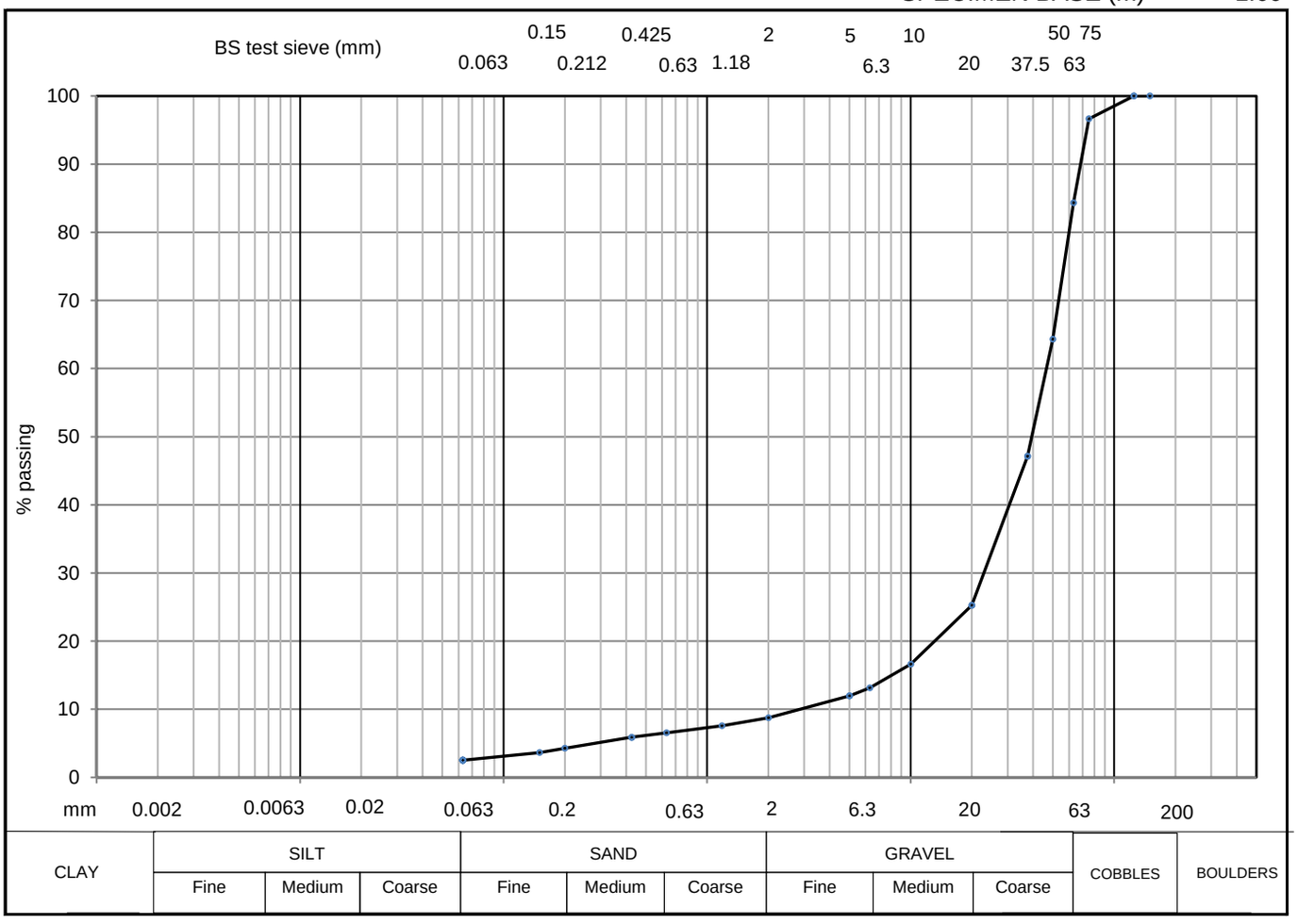
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH306
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.90
DESCRIPTION	Brown slightly silty sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.90
		SPECIMEN BASE (m)	1.00



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	6
GRAVEL	76
COBBLE & BOULDER	16
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	12	20	
75	97	2	9	6	
63	84	1.18	8	2	
50	64	0.63	7		
37.5	47	0.425	6		
20	25	0.2	4		
10	17	0.15	4		
6.3	13	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

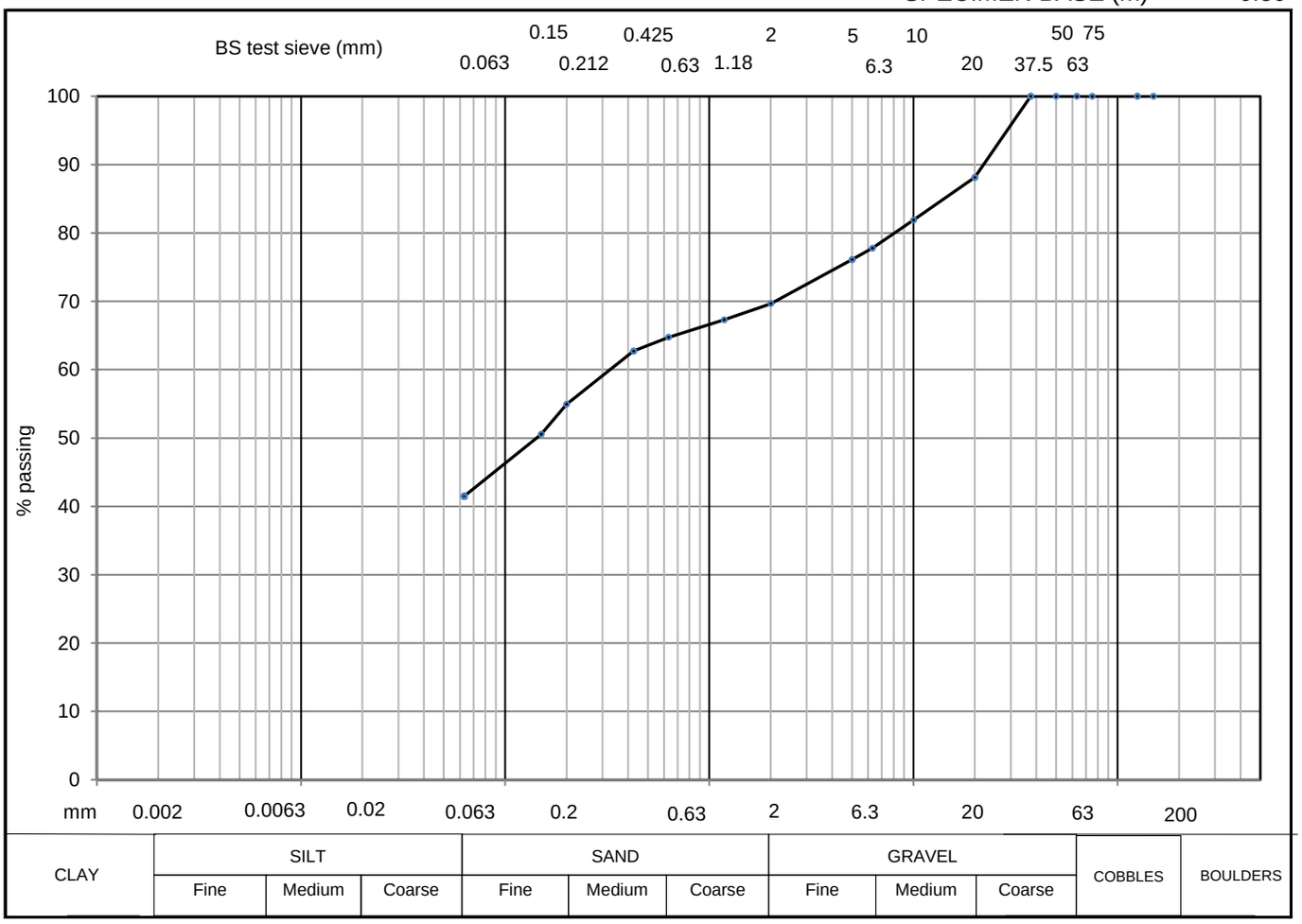
CONTRACT	CHECKED
38113	**TB**

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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH307
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	0.30
DESCRIPTION	Brown slightly sandy slightly gravelly CLAY	SPECIMEN TOP (m)	0.30
		SPECIMEN BASE (m)	0.50



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	41
SAND	28
GRAVEL	30
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	76	20	
75		2	70	6	
63		1.18	67	2	
50		0.63	65		
37.5	100	0.425	63		
20	88	0.2	55		
10	82	0.15	51		
6.3	78	0.063	41		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

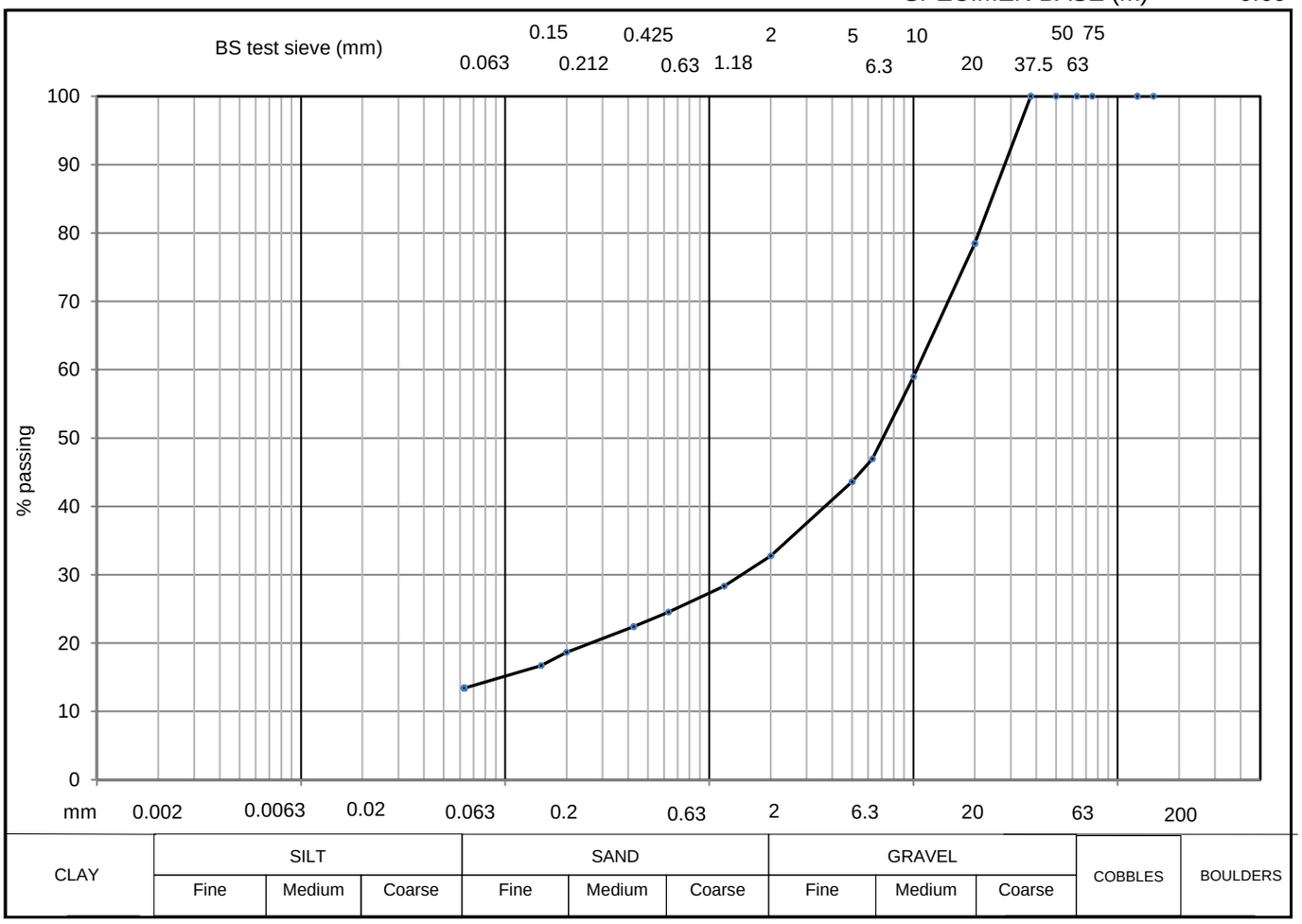
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP101
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown silty sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.60



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	13
SAND	19
GRAVEL	67
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	100
20	78
10	59
6.3	47

BS test sieve (mm)	% passing
5	44
2	33
1.18	28
0.63	25
0.425	22
0.2	19
0.15	17
0.063	13

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

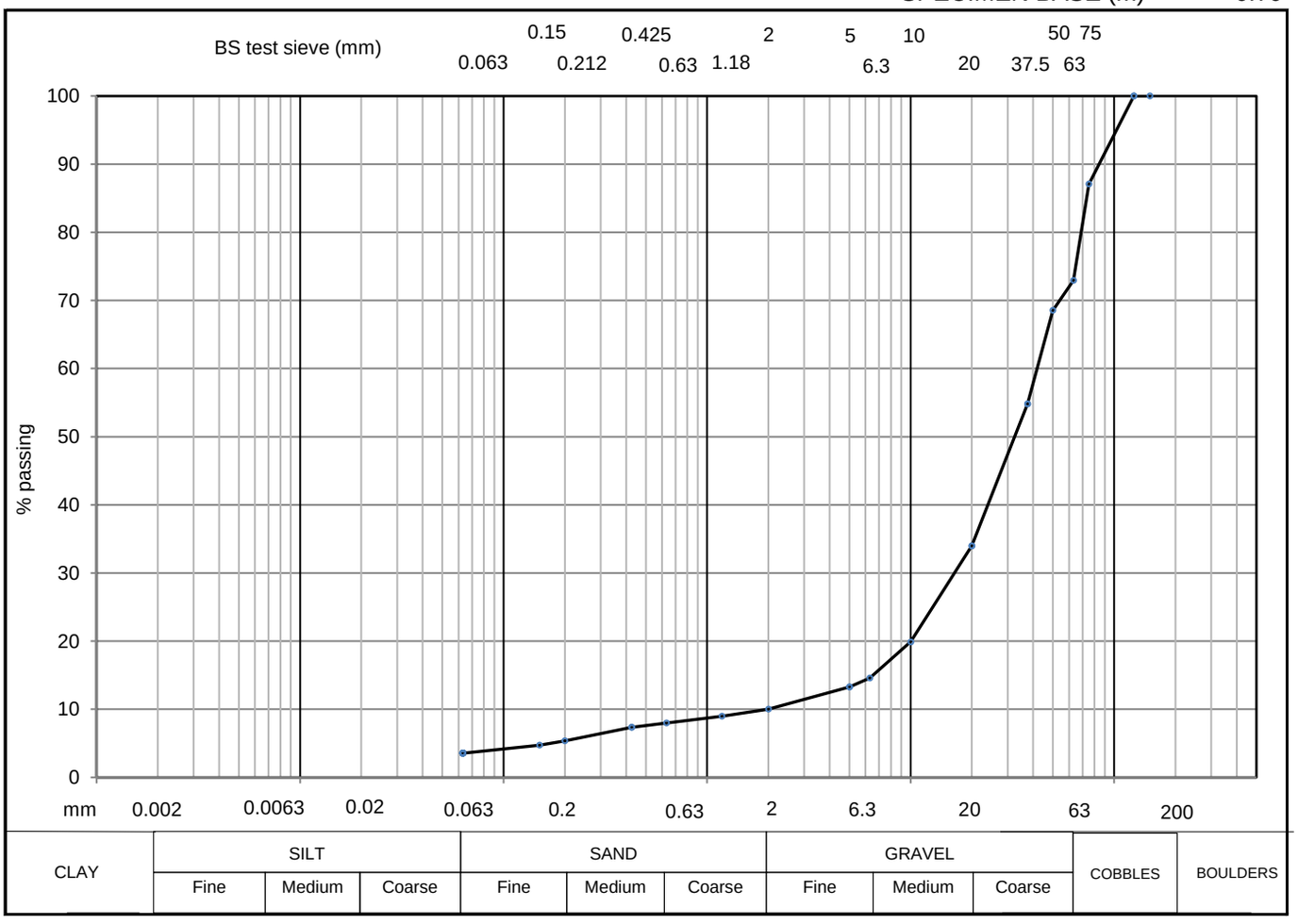
CONTRACT	CHECKED
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP102
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown slightly clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	4
SAND	6
GRAVEL	63
COBBLE & BOULDER	27
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	13	20	
75	87	2	10	6	
63	73	1.18	9	2	
50	69	0.63	8		
37.5	55	0.425	7		
20	34	0.2	5		
10	20	0.15	5		
6.3	15	0.063	4		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

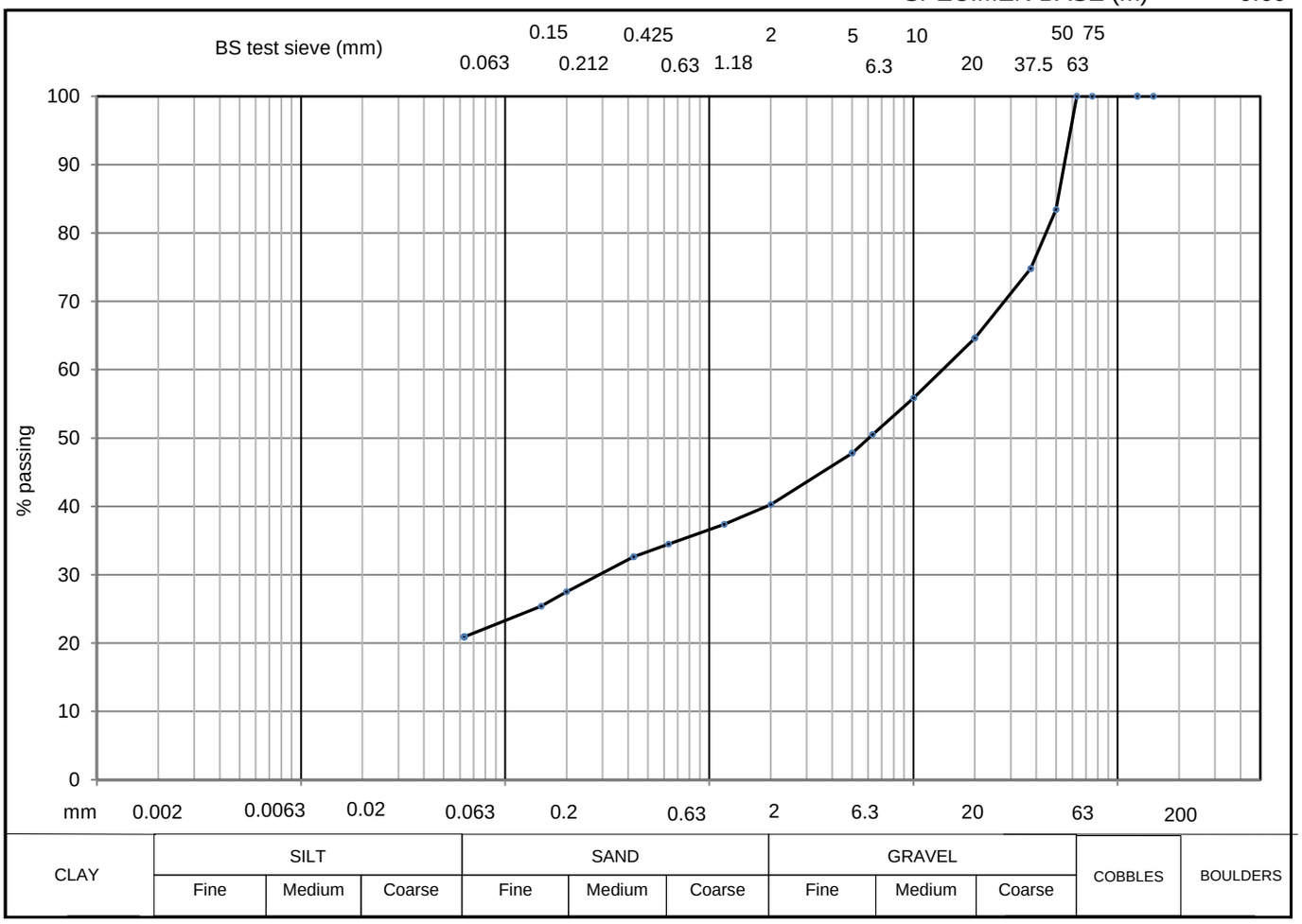
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP107
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown sandy very clayey GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.60



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	21
SAND	19
GRAVEL	60
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	48	20	
75		2	40	6	
63	100	1.18	37	2	
50	83	0.63	34		
37.5	75	0.425	33		
20	65	0.2	28		
10	56	0.15	25		
6.3	50	0.063	21		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

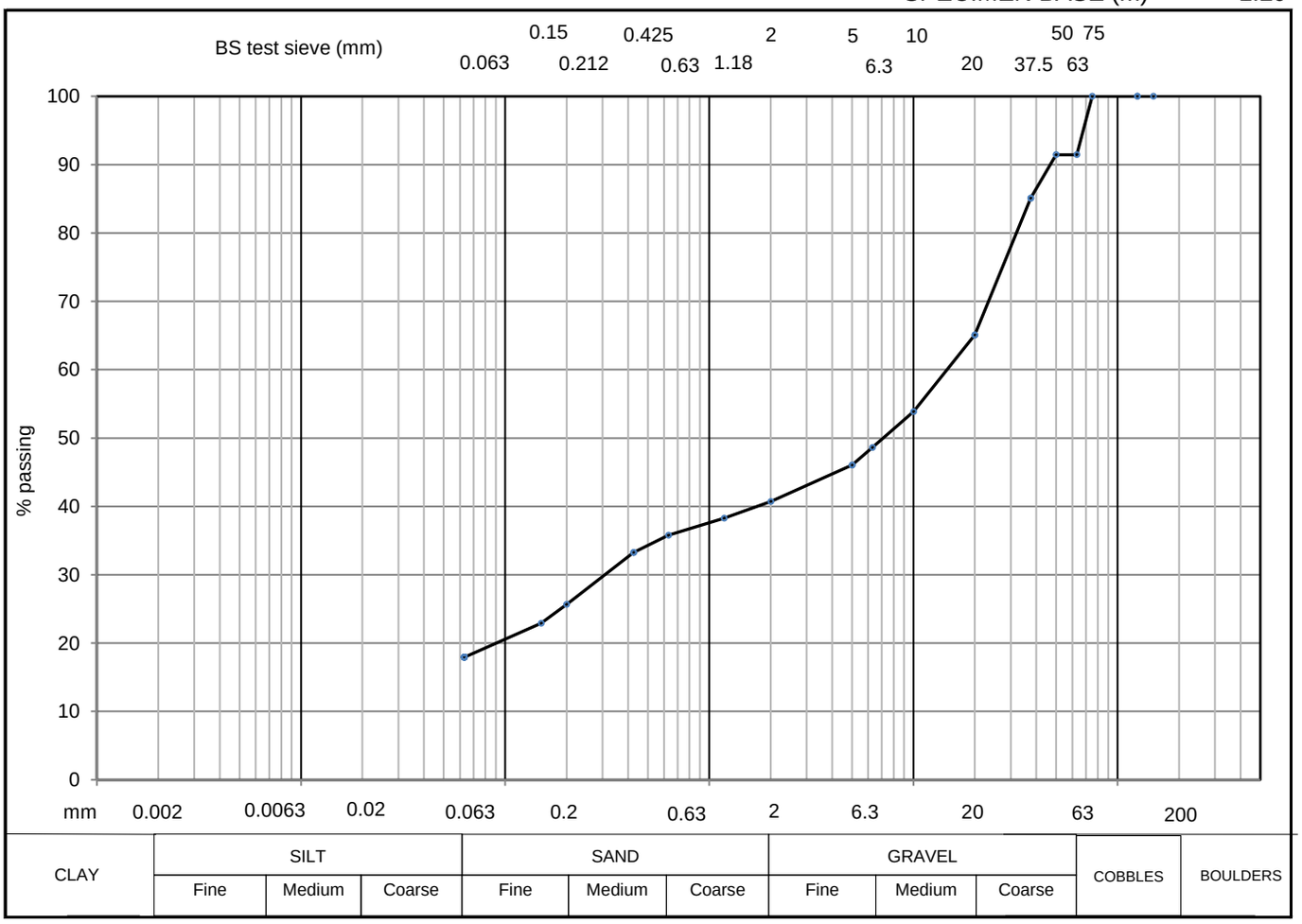
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP201
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey very sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	23
GRAVEL	51
COBBLE & BOULDER	9
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	46	20	
75	100	2	41	6	
63	91	1.18	38	2	
50	91	0.63	36		
37.5	85	0.425	33		
20	65	0.2	26		
10	54	0.15	23		
6.3	49	0.063	18		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

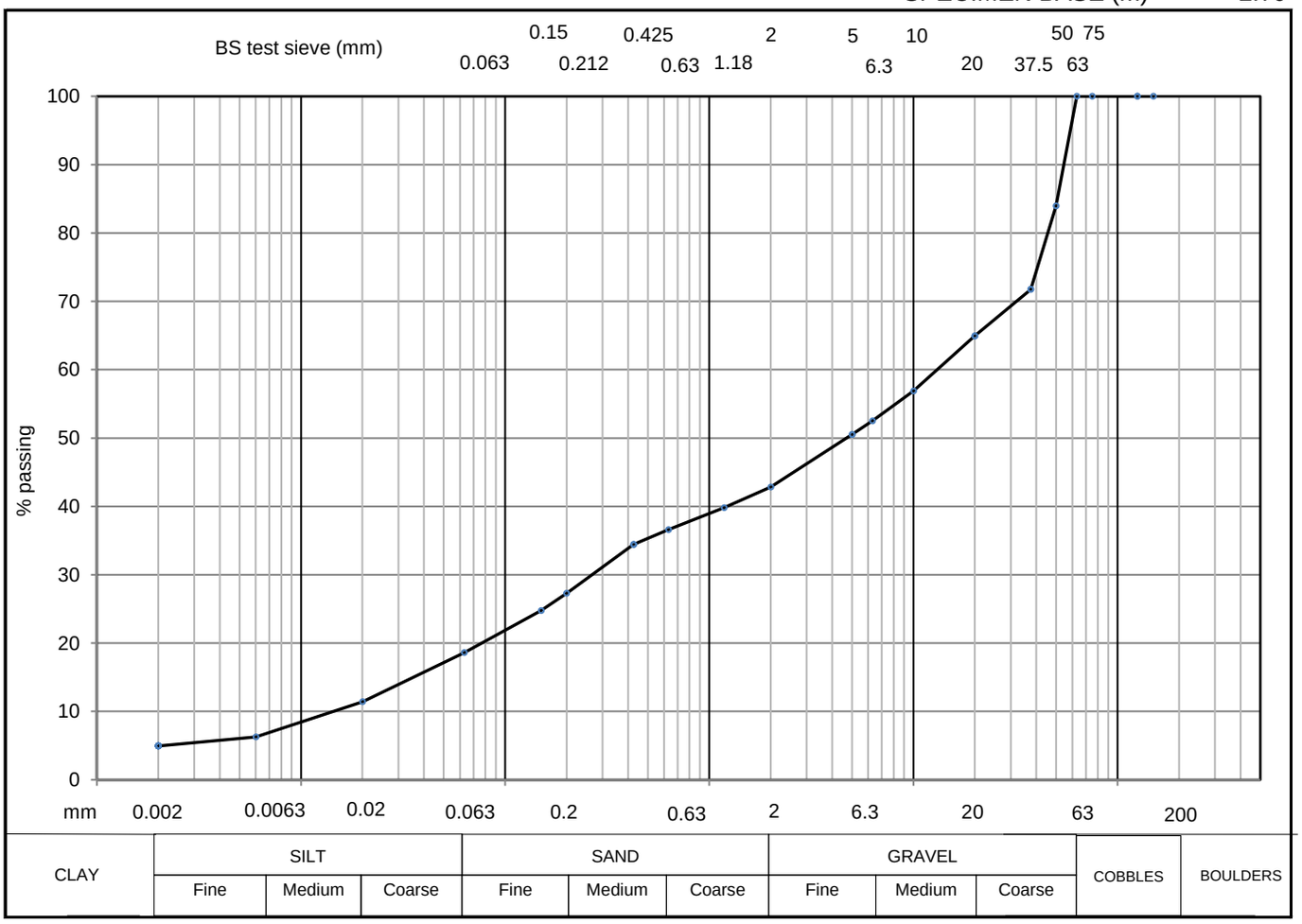
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP201
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	2.50
DESCRIPTION	Brown silty very sandy GRAVEL	SPECIMEN TOP (m)	2.50
		SPECIMEN BASE (m)	2.70



soil type	% fraction
CLAY	5
SILT	14
SILT & CLAY	19
SAND	24
GRAVEL	57
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	51	20	11
75		2	43	6	6
63	100	1.18	40	2	5
50	84	0.63	37		
37.5	72	0.425	34		
20	65	0.2	27		
10	57	0.15	25		
6.3	53	0.063	19		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

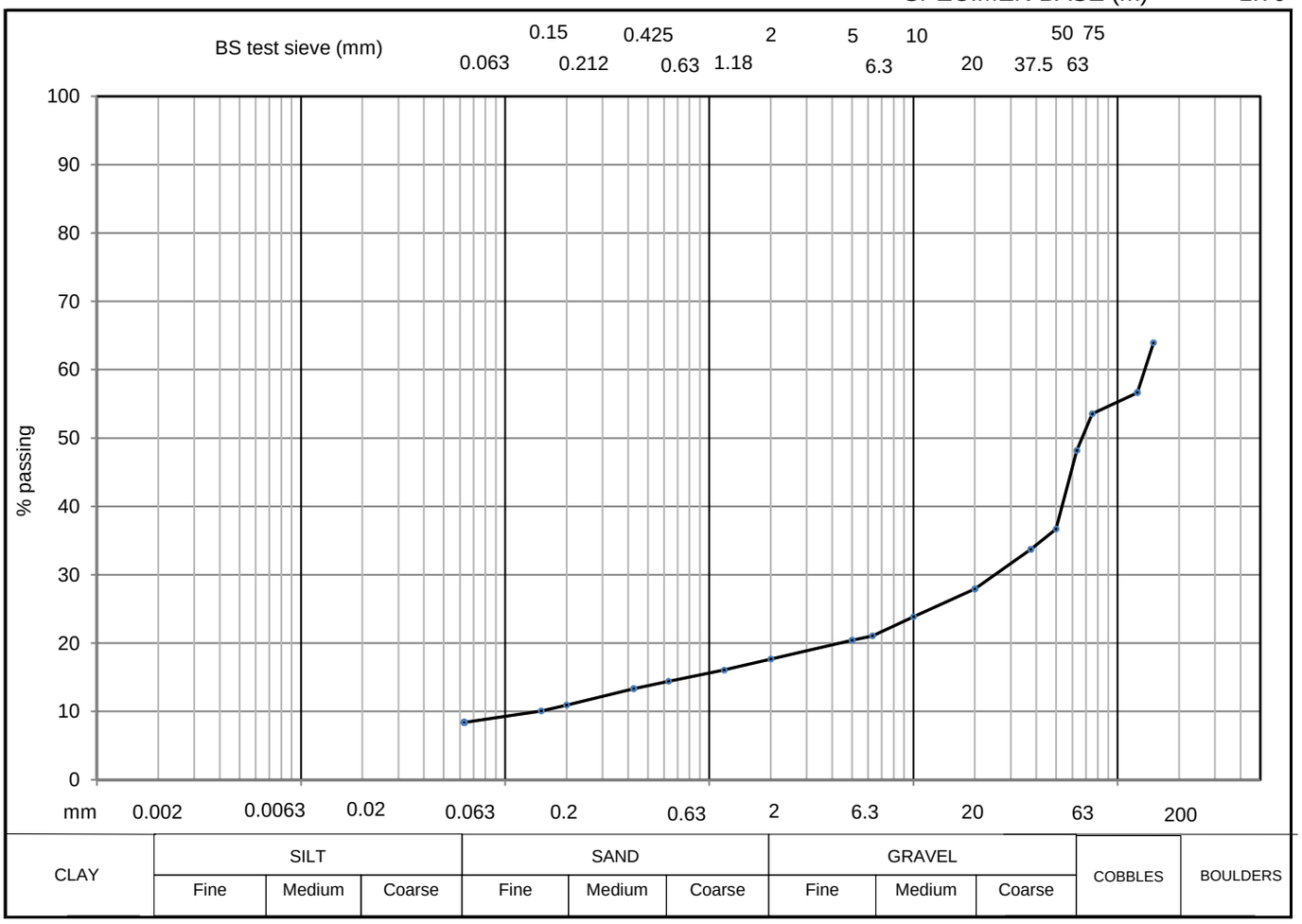
CONTRACT	CHECKED
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP202
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	1.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	8
SAND	9
GRAVEL	31
COBBLE & BOULDER	52
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	64	5	20	20	
75	54	2	18	6	
63	48	1.18	16	2	
50	37	0.63	14		
37.5	34	0.425	13		
20	28	0.2	11		
10	24	0.15	10		
6.3	21	0.063	8		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

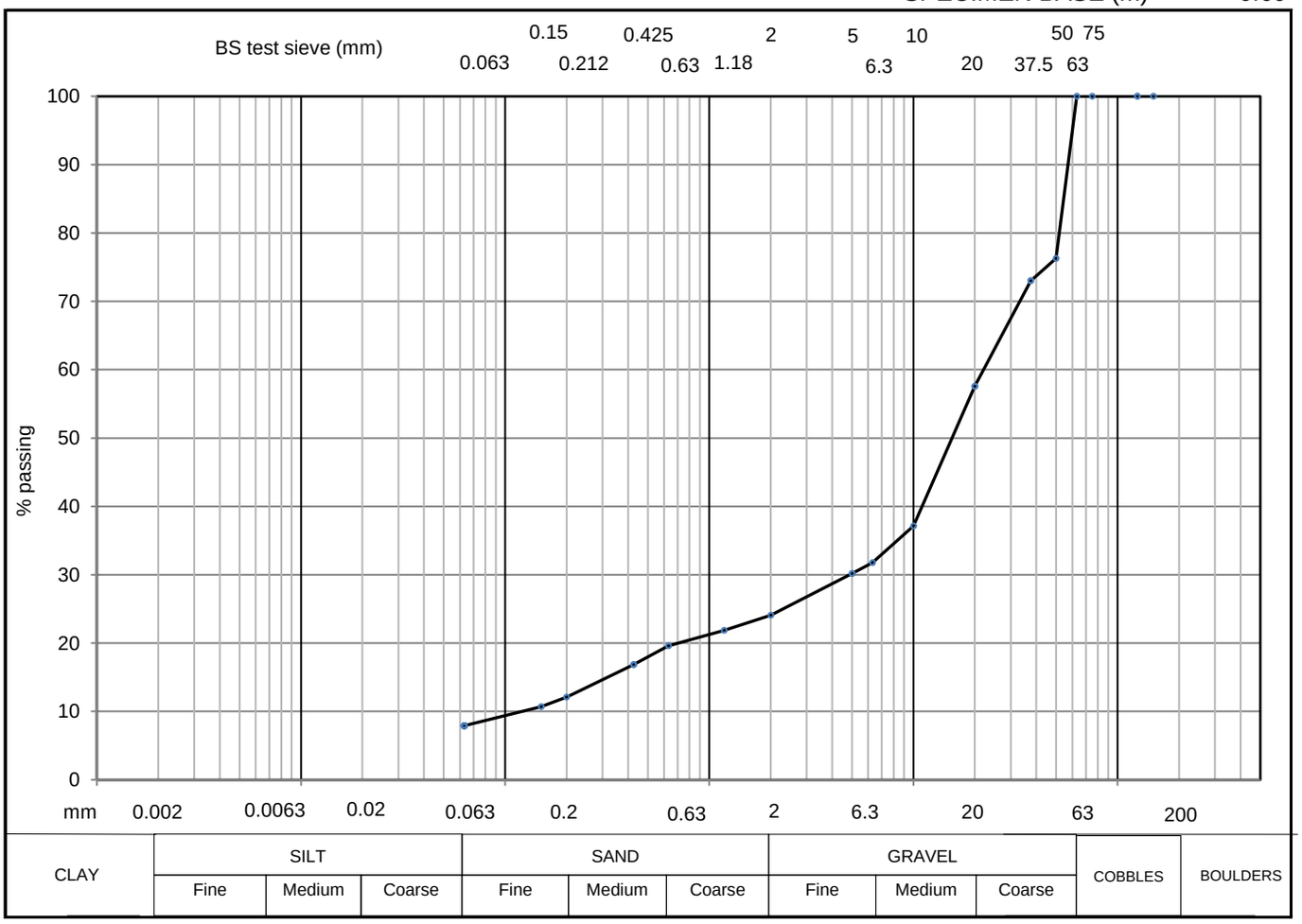
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP204
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.60



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	8
SAND	16
GRAVEL	76
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	30	20	
75		2	24	6	
63	100	1.18	22	2	
50	76	0.63	20		
37.5	73	0.425	17		
20	58	0.2	12		
10	37	0.15	11		
6.3	32	0.063	8		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

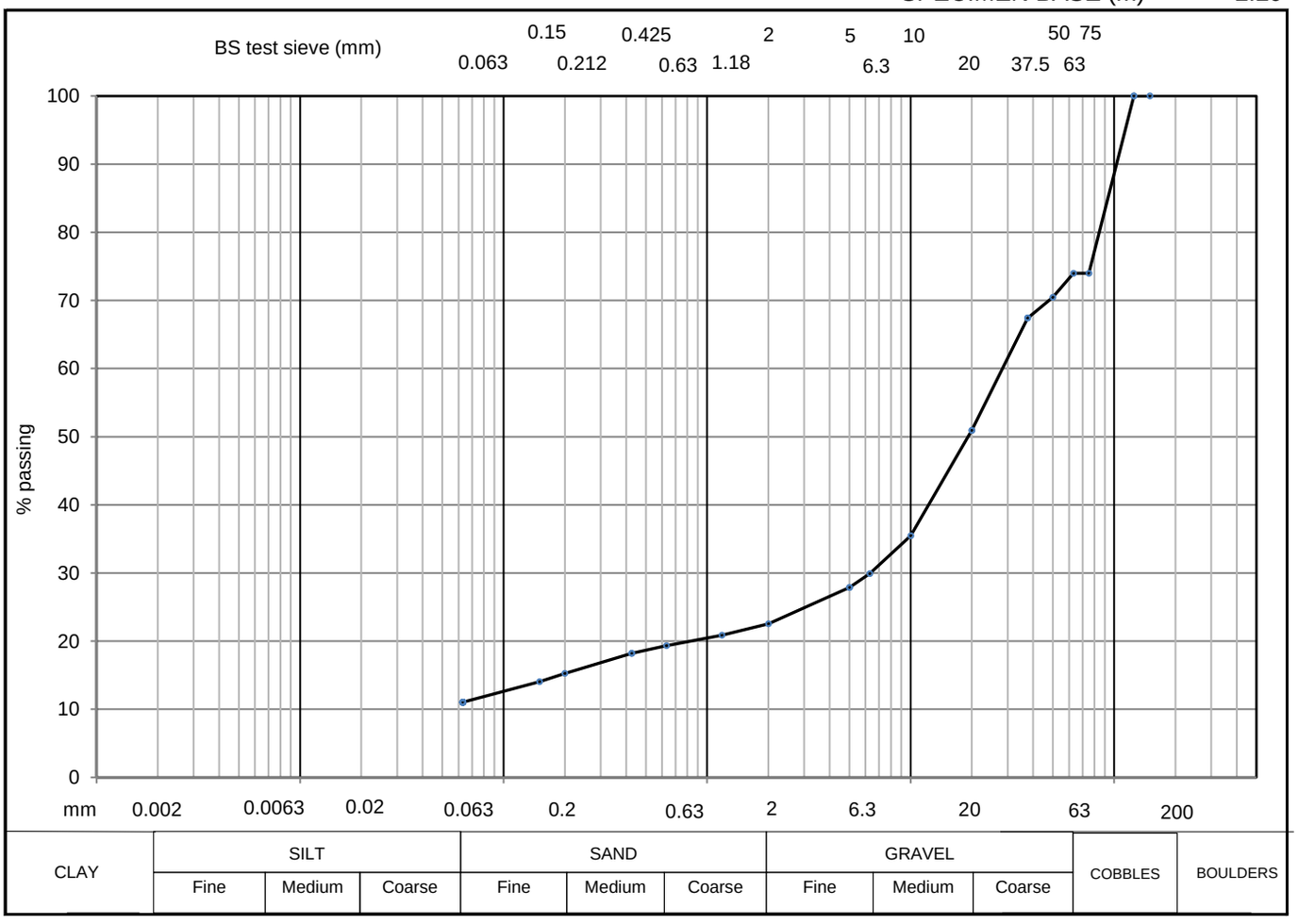
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP204
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	2.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	11
SAND	12
GRAVEL	51
COBBLE & BOULDER	26
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	28	20	
75	74	2	23	6	
63	74	1.18	21	2	
50	70	0.63	19		
37.5	67	0.425	18		
20	51	0.2	15		
10	35	0.15	14		
6.3	30	0.063	11		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

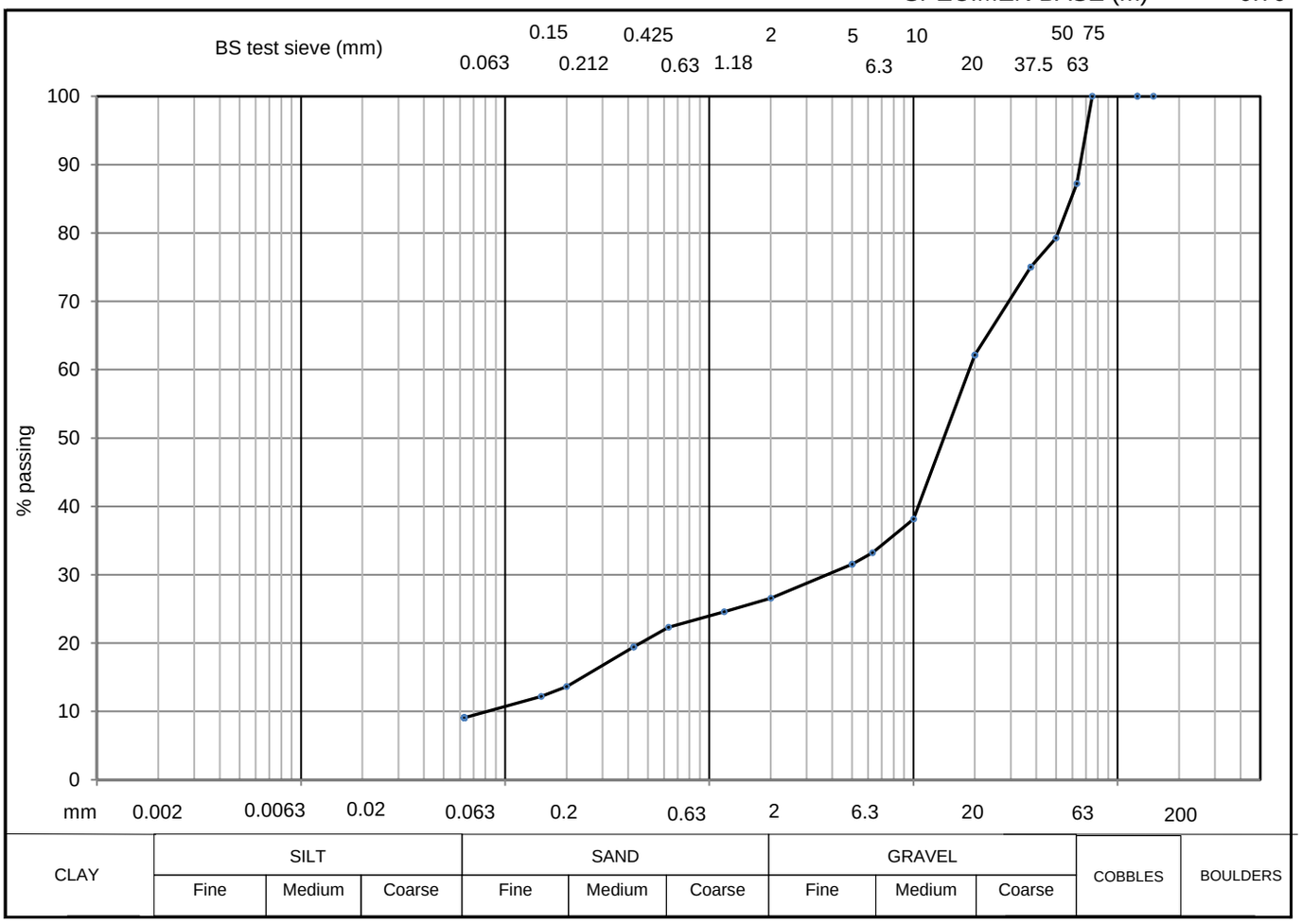
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP205
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	9
SAND	17
GRAVEL	61
COBBLE & BOULDER	13
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	32	20	
75	100	2	27	6	
63	87	1.18	25	2	
50	79	0.63	22		
37.5	75	0.425	19		
20	62	0.2	14		
10	38	0.15	12		
6.3	33	0.063	9		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

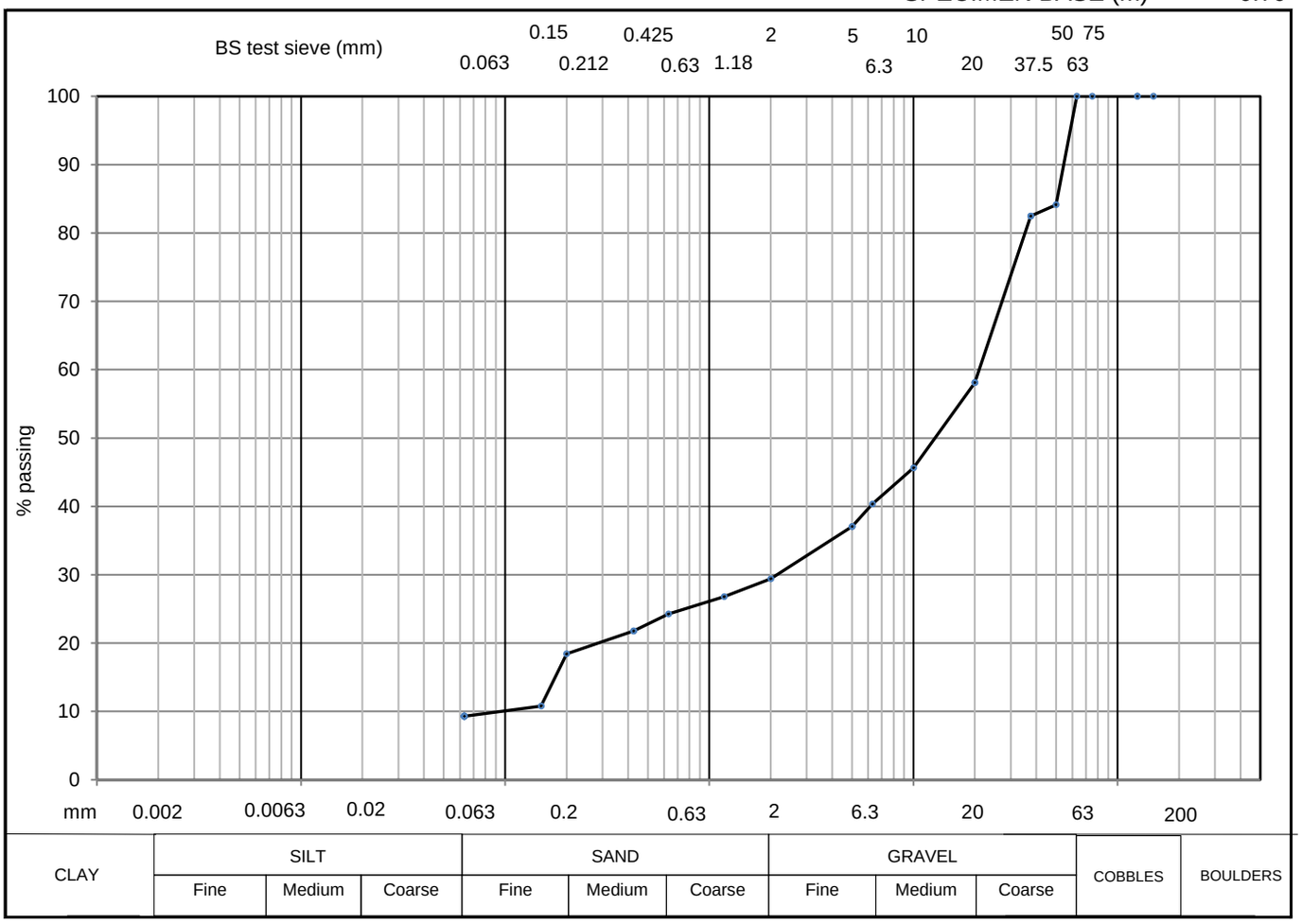
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP206A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	9
SAND	20
GRAVEL	71
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	100
50	84
37.5	82
20	58
10	46
6.3	40

BS test sieve (mm)	% passing
5	37
2	29
1.18	27
0.63	24
0.425	22
0.2	18
0.15	11
0.063	9

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

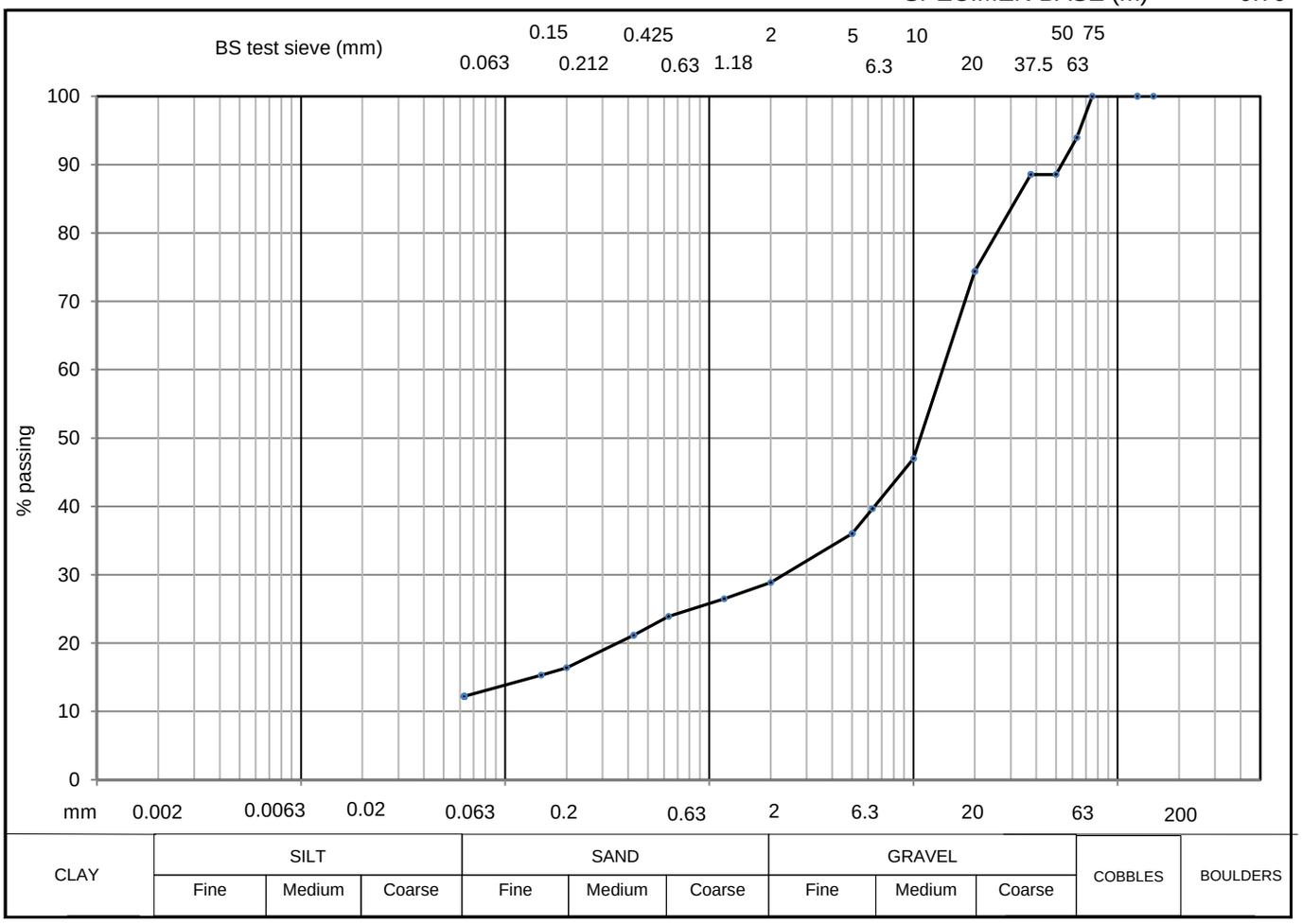
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP207A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	12
SAND	17
GRAVEL	65
COBBLE & BOULDER	6
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	36	20	
75	100	2	29	6	
63	94	1.18	26	2	
50	89	0.63	24		
37.5	89	0.425	21		
20	74	0.2	16		
10	47	0.15	15		
6.3	40	0.063	12		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

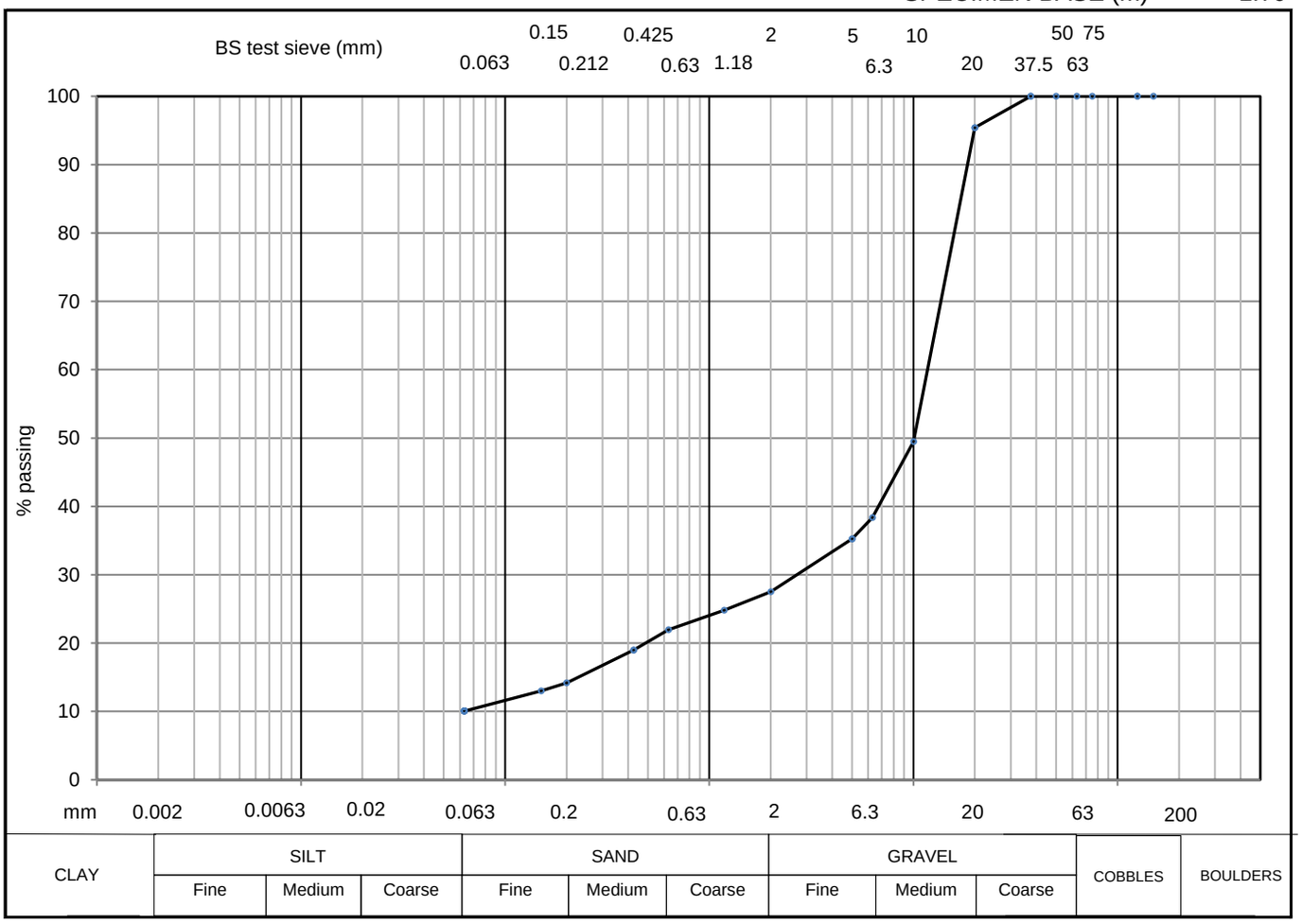
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP207A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	1.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	10
SAND	17
GRAVEL	72
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	35	20	
75		2	28	6	
63		1.18	25	2	
50		0.63	22		
37.5	100	0.425	19		
20	95	0.2	14		
10	49	0.15	13		
6.3	38	0.063	10		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

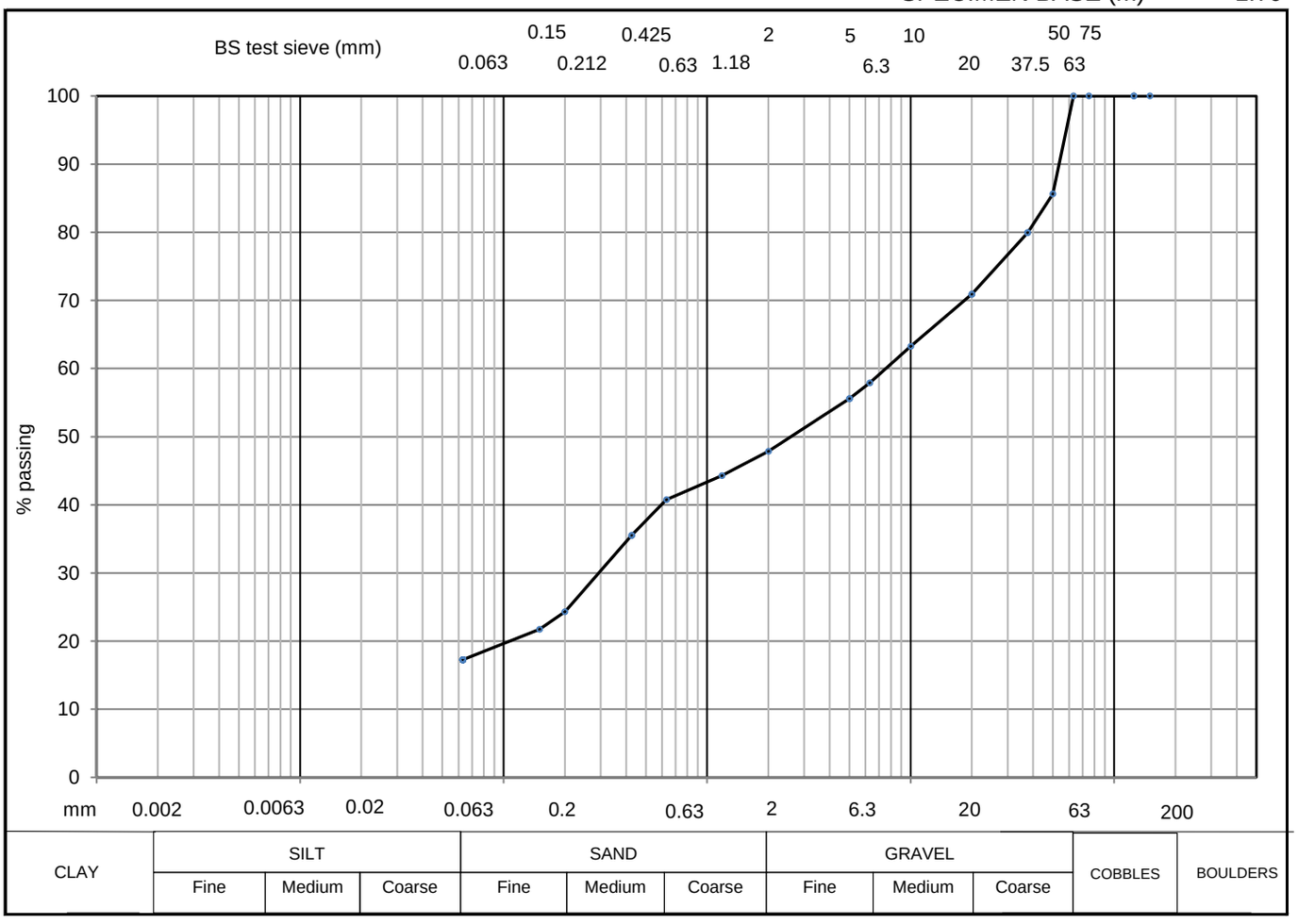
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP210
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	1.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	17
SAND	31
GRAVEL	52
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	56	20	
75		2	48	6	
63	100	1.18	44	2	
50	86	0.63	41		
37.5	80	0.425	35		
20	71	0.2	24		
10	63	0.15	22		
6.3	58	0.063	17		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

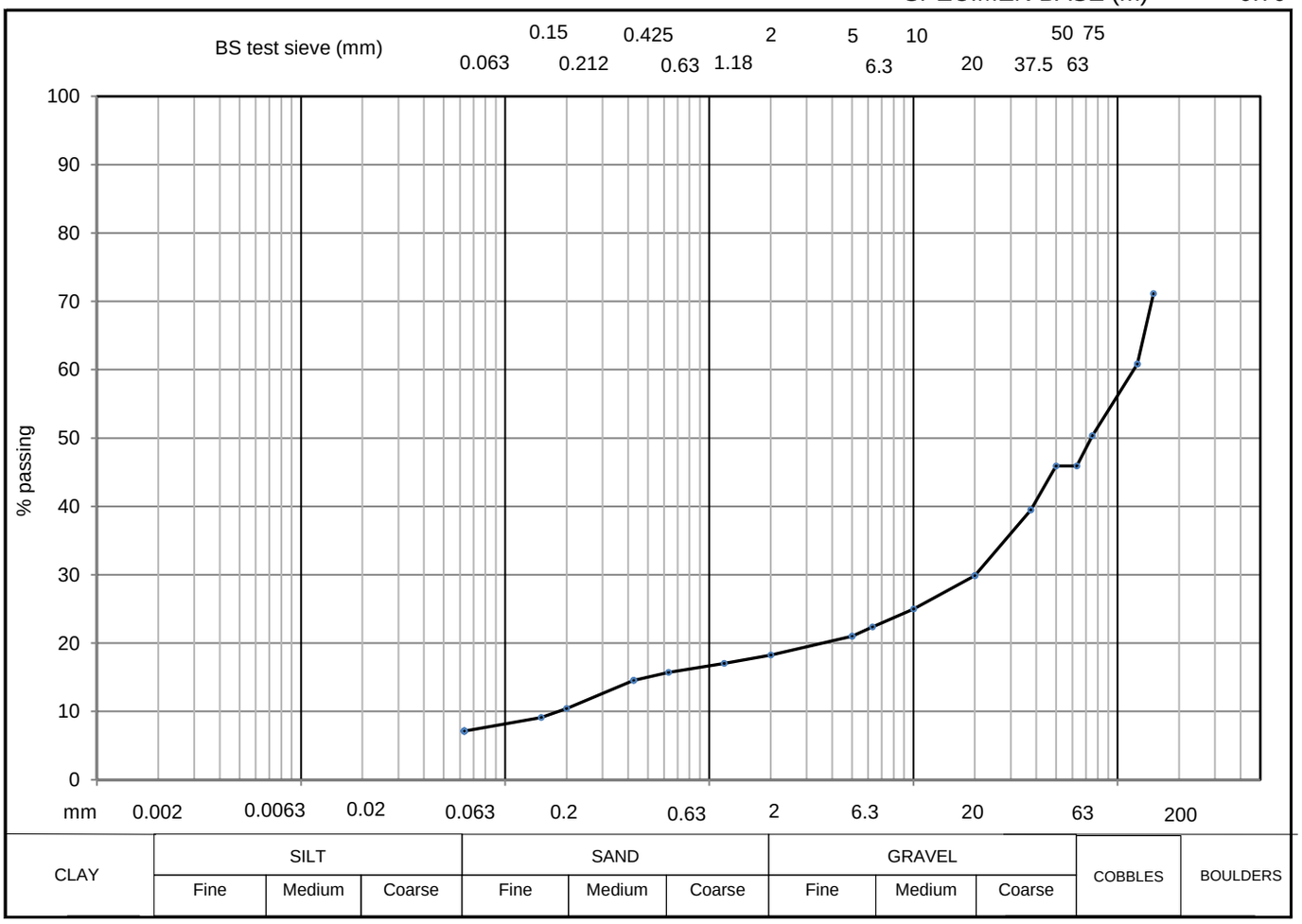
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP211
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	11
GRAVEL	28
COBBLE & BOULDER	54
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	71	5	21	20	
75	50	2	18	6	
63	46	1.18	17	2	
50	46	0.63	16		
37.5	39	0.425	15		
20	30	0.2	10		
10	25	0.15	9		
6.3	22	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

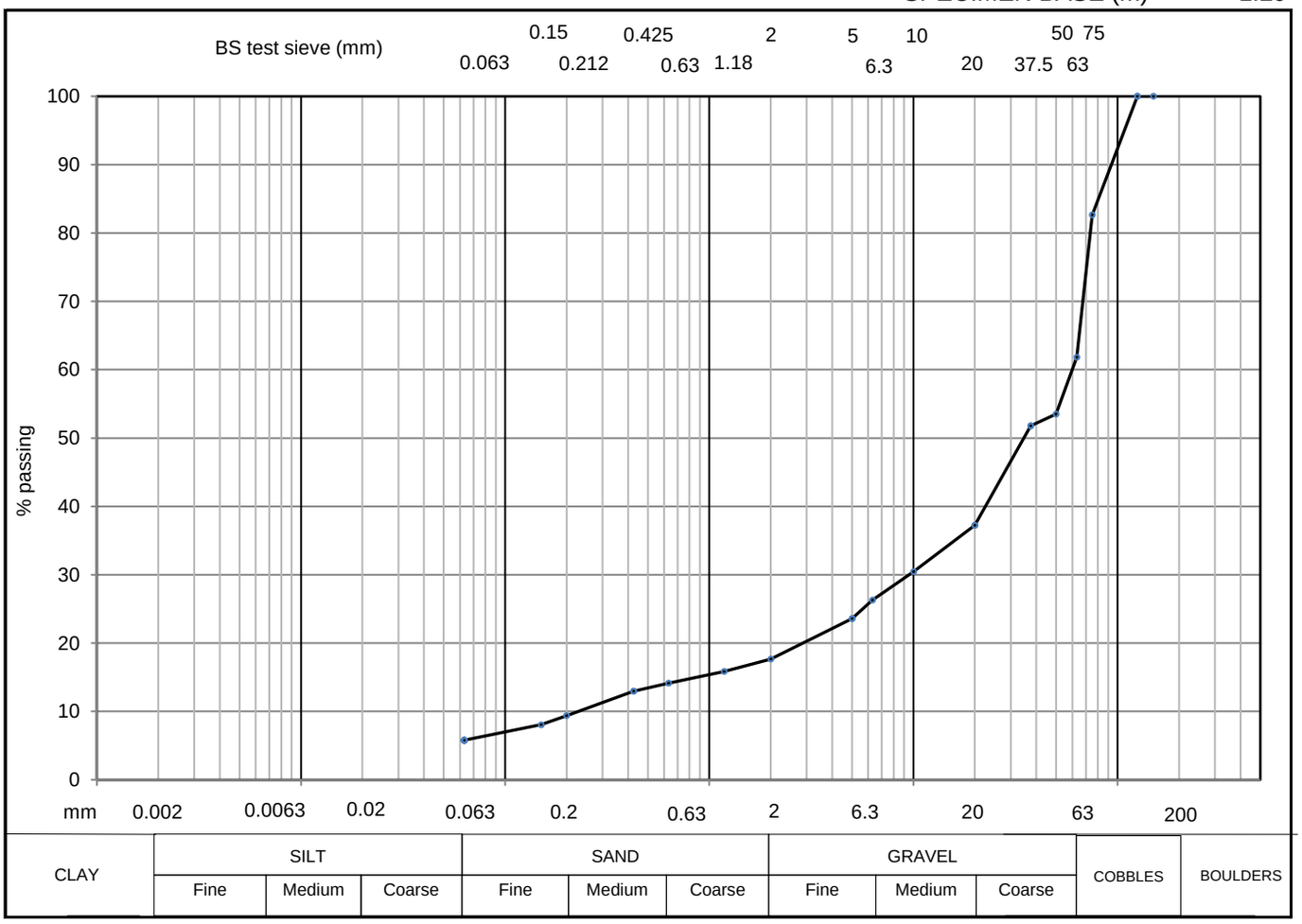
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

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CLIENT	TRIVALLIS	BH/TP No.	TP211
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	6
SAND	12
GRAVEL	44
COBBLE & BOULDER	38
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	24	20	
75	83	2	18	6	
63	62	1.18	16	2	
50	53	0.63	14		
37.5	52	0.425	13		
20	37	0.2	9		
10	30	0.15	8		
6.3	26	0.063	6		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

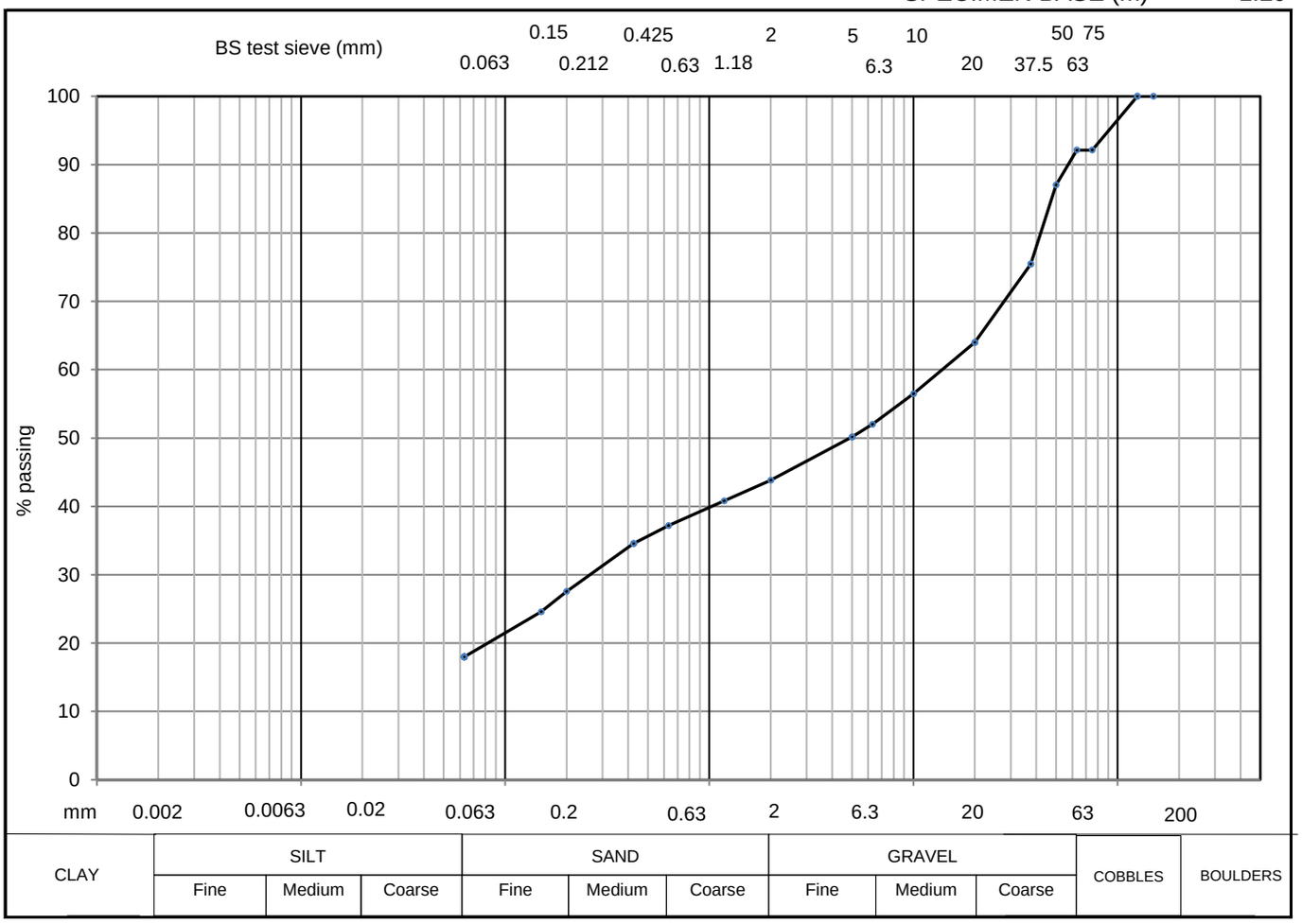
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey very sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	26
GRAVEL	48
COBBLE & BOULDER	8
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	50	20	
75	92	2	44	6	
63	92	1.18	41	2	
50	87	0.63	37		
37.5	75	0.425	35		
20	64	0.2	28		
10	56	0.15	25		
6.3	52	0.063	18		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

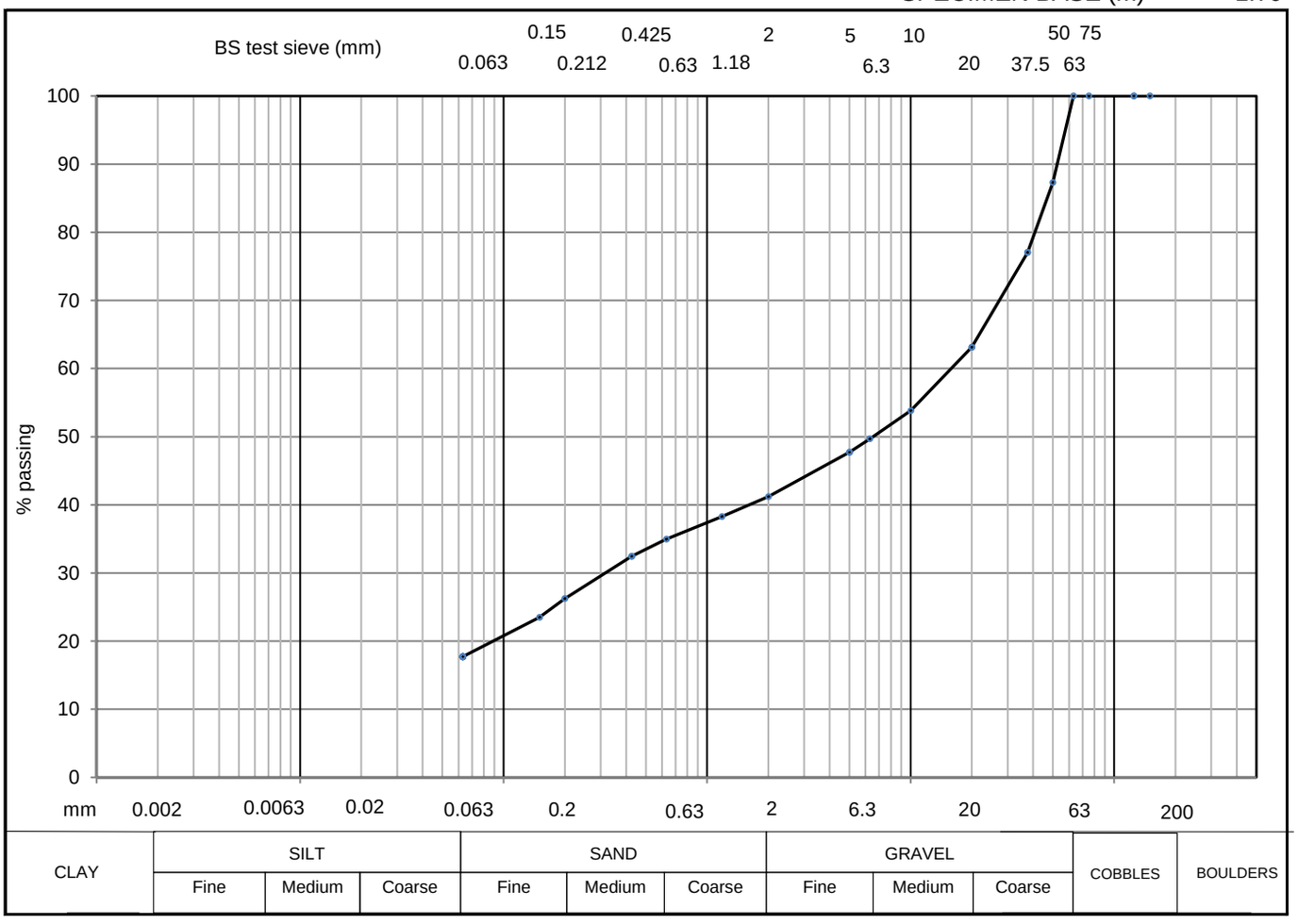
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	1.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	24
GRAVEL	59
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	48	20	
75		2	41	6	
63	100	1.18	38	2	
50	87	0.63	35		
37.5	77	0.425	32		
20	63	0.2	26		
10	54	0.15	23		
6.3	50	0.063	18		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

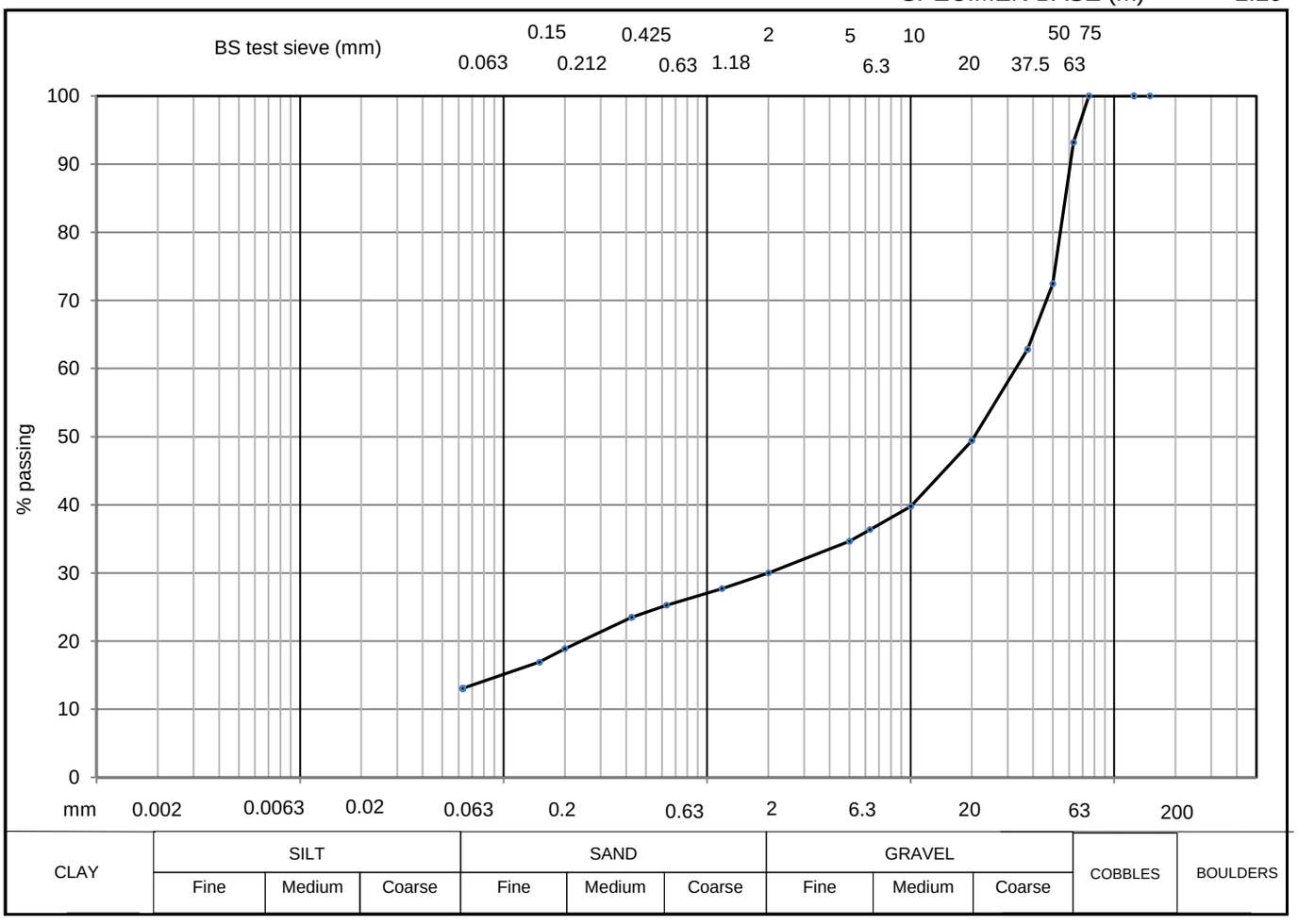
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	2.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	13
SAND	17
GRAVEL	63
COBBLE & BOULDER	7
test method(s)	5.2#

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	35	20	
75	100	2	30	6	
63	93	1.18	28	2	
50	72	0.63	25		
37.5	63	0.425	23		
20	49	0.2	19		
10	40	0.15	17		
6.3	36	0.063	13		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

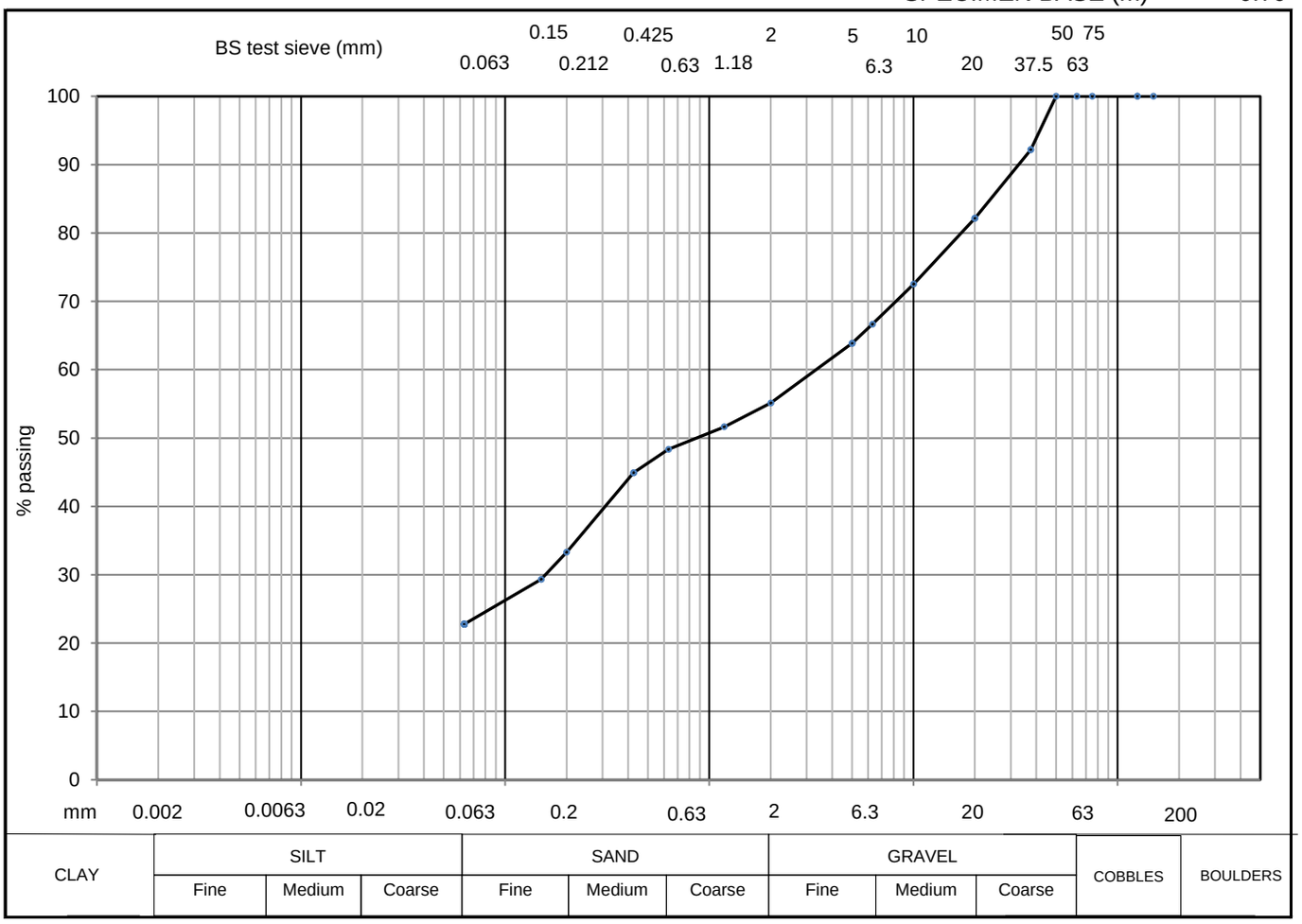
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP213
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown very clayey very sandy GRAVEL with rare rootets	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	32
GRAVEL	45
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	64	20	
75		2	55	6	
63		1.18	52	2	
50	100	0.63	48		
37.5	92	0.425	45		
20	82	0.2	33		
10	73	0.15	29		
6.3	67	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

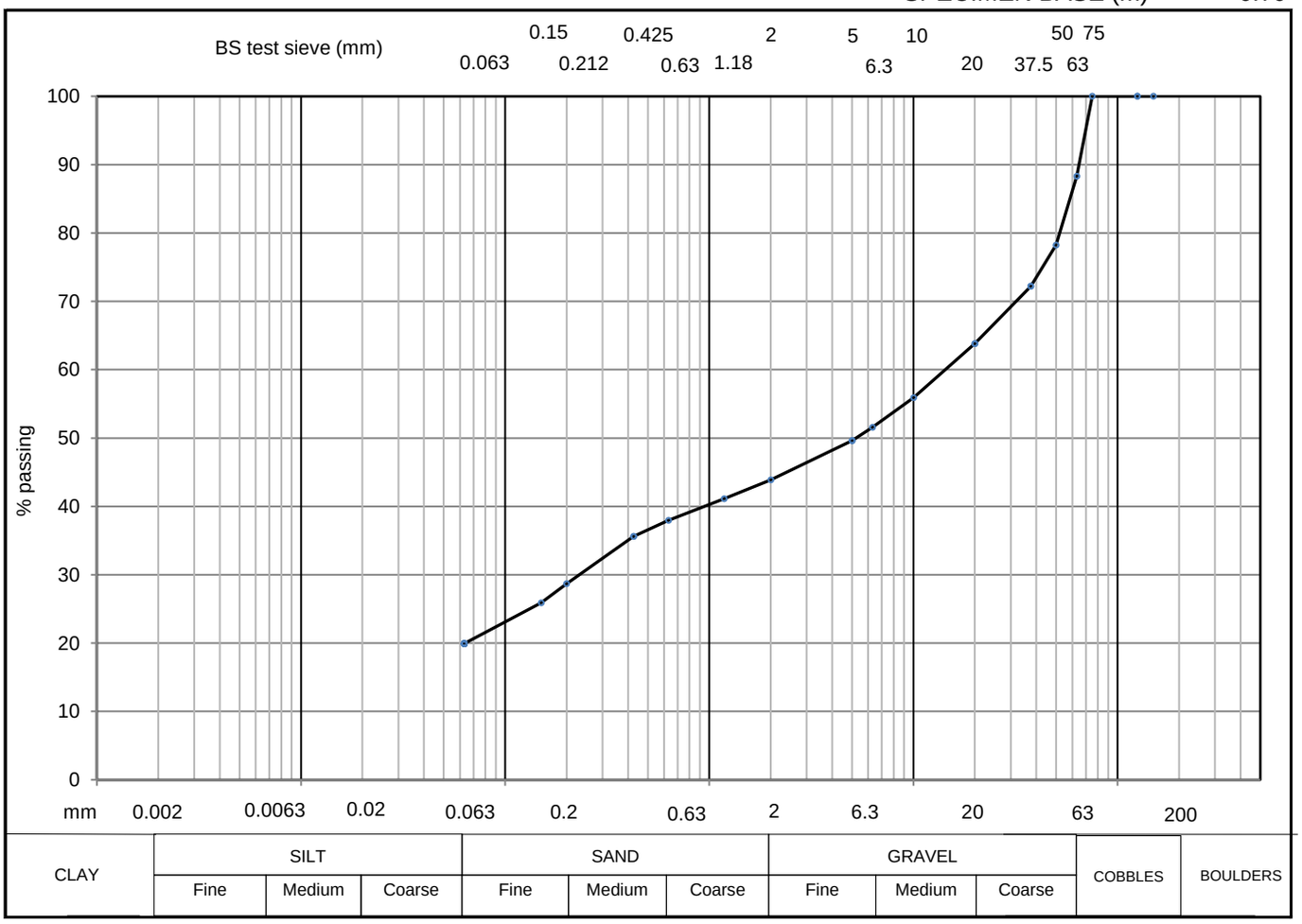
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP214
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey very sandy GRAVEL with meduim cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	20
SAND	24
GRAVEL	44
COBBLE & BOULDER	12
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	50	20	
75	100	2	44	6	
63	88	1.18	41	2	
50	78	0.63	38		
37.5	72	0.425	36		
20	64	0.2	29		
10	56	0.15	26		
6.3	52	0.063	20		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

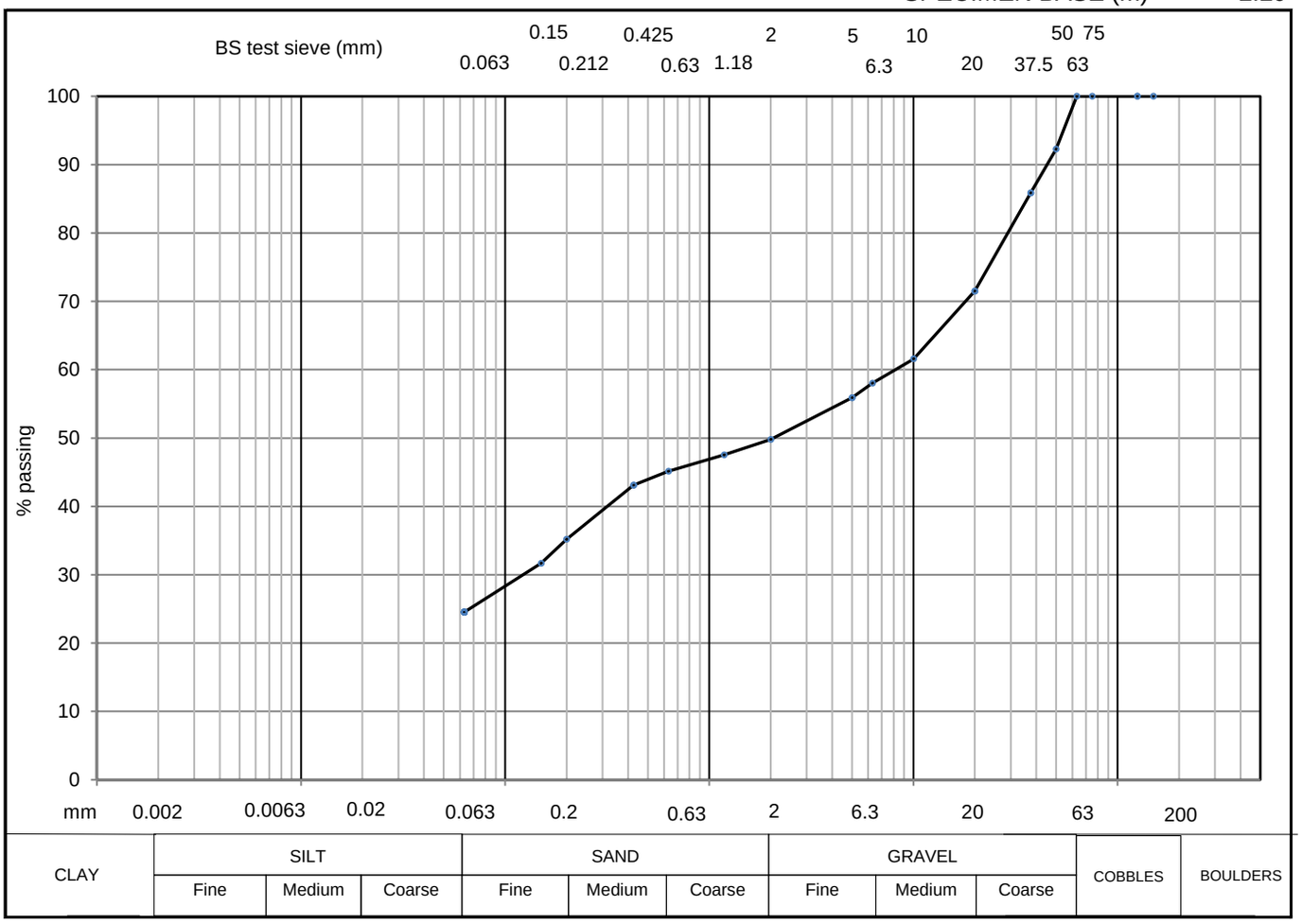
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP214
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown very clayey very sandy GRAVEL	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	2.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	25
SAND	25
GRAVEL	50
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	56	20	
75		2	50	6	
63	100	1.18	48	2	
50	92	0.63	45		
37.5	86	0.425	43		
20	72	0.2	35		
10	62	0.15	32		
6.3	58	0.063	25		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

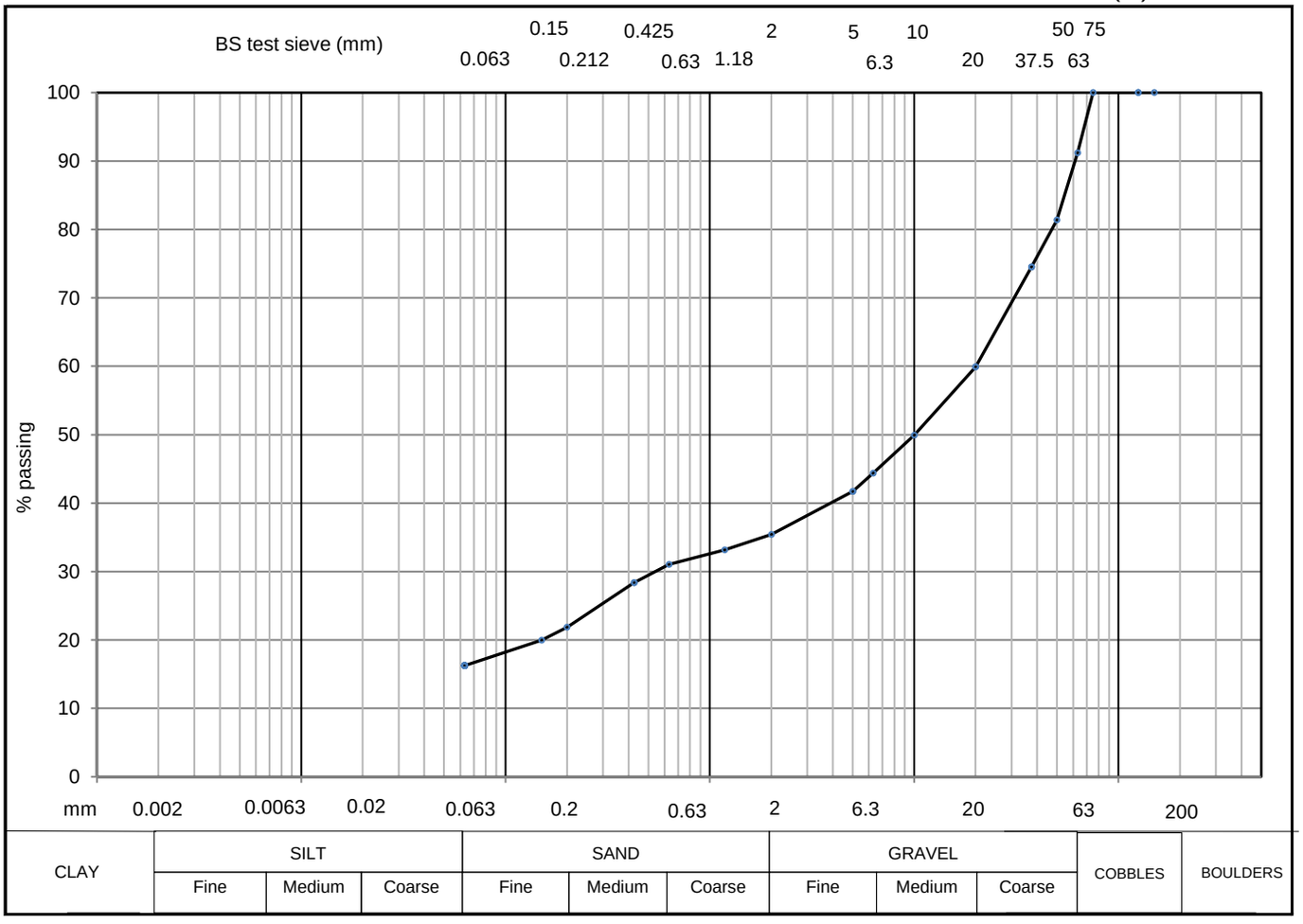
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP216
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	16
SAND	19
GRAVEL	56
COBBLE & BOULDER	9
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	42	20	
75	100	2	35	6	
63	91	1.18	33	2	
50	81	0.63	31		
37.5	75	0.425	28		
20	60	0.2	22		
10	50	0.15	20		
6.3	44	0.063	16		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

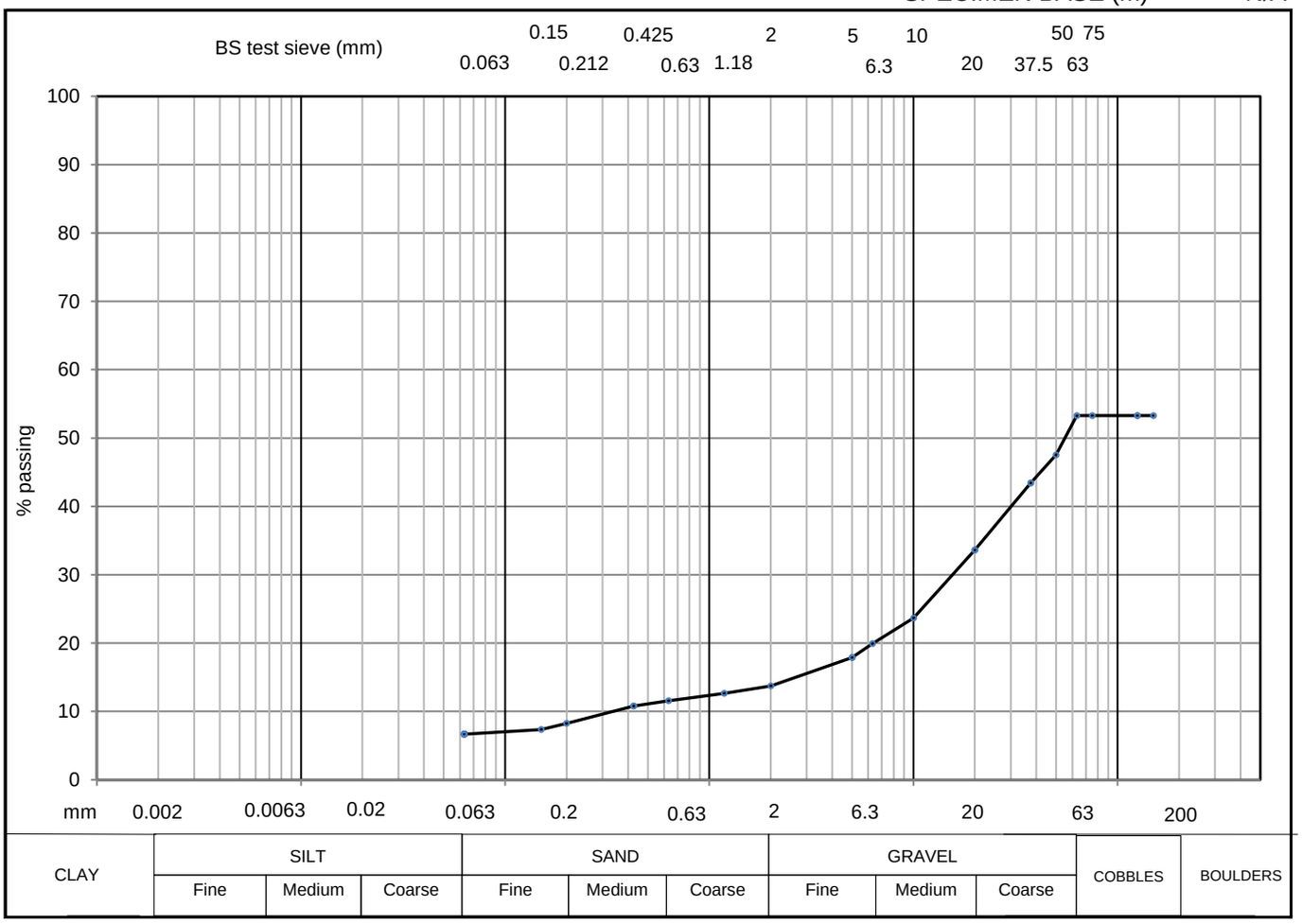
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP216
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3D
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	7
GRAVEL	40
COBBLE & BOULDER	47
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	53	5	18	20	
75	53	2	14	6	
63	53	1.18	13	2	
50	48	0.63	12		
37.5	43	0.425	11		
20	34	0.2	8		
10	24	0.15	7		
6.3	20	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

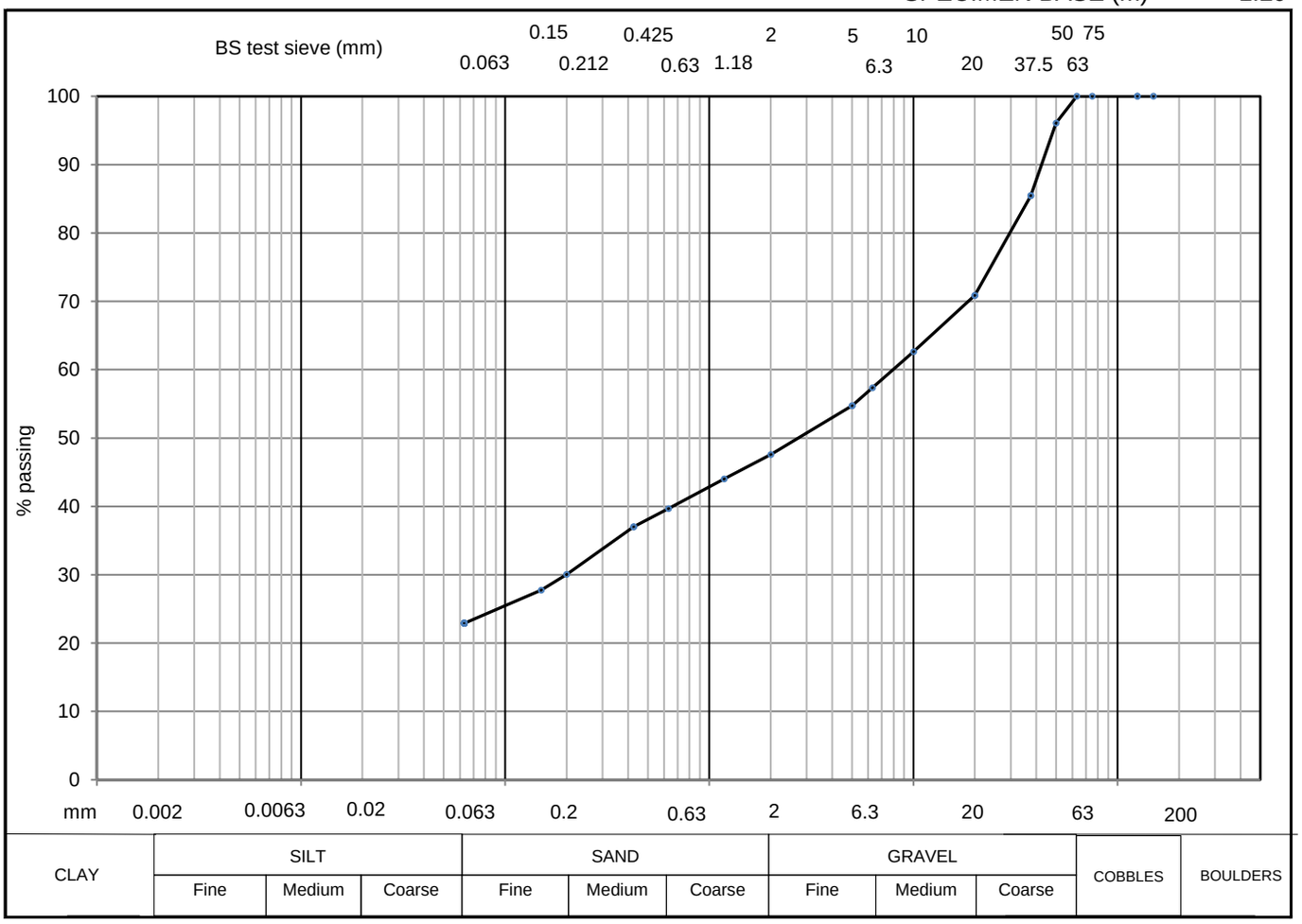
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP217
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown very clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	25
GRAVEL	52
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	55	20	
75		2	48	6	
63	100	1.18	44	2	
50	96	0.63	40		
37.5	85	0.425	37		
20	71	0.2	30		
10	63	0.15	28		
6.3	57	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

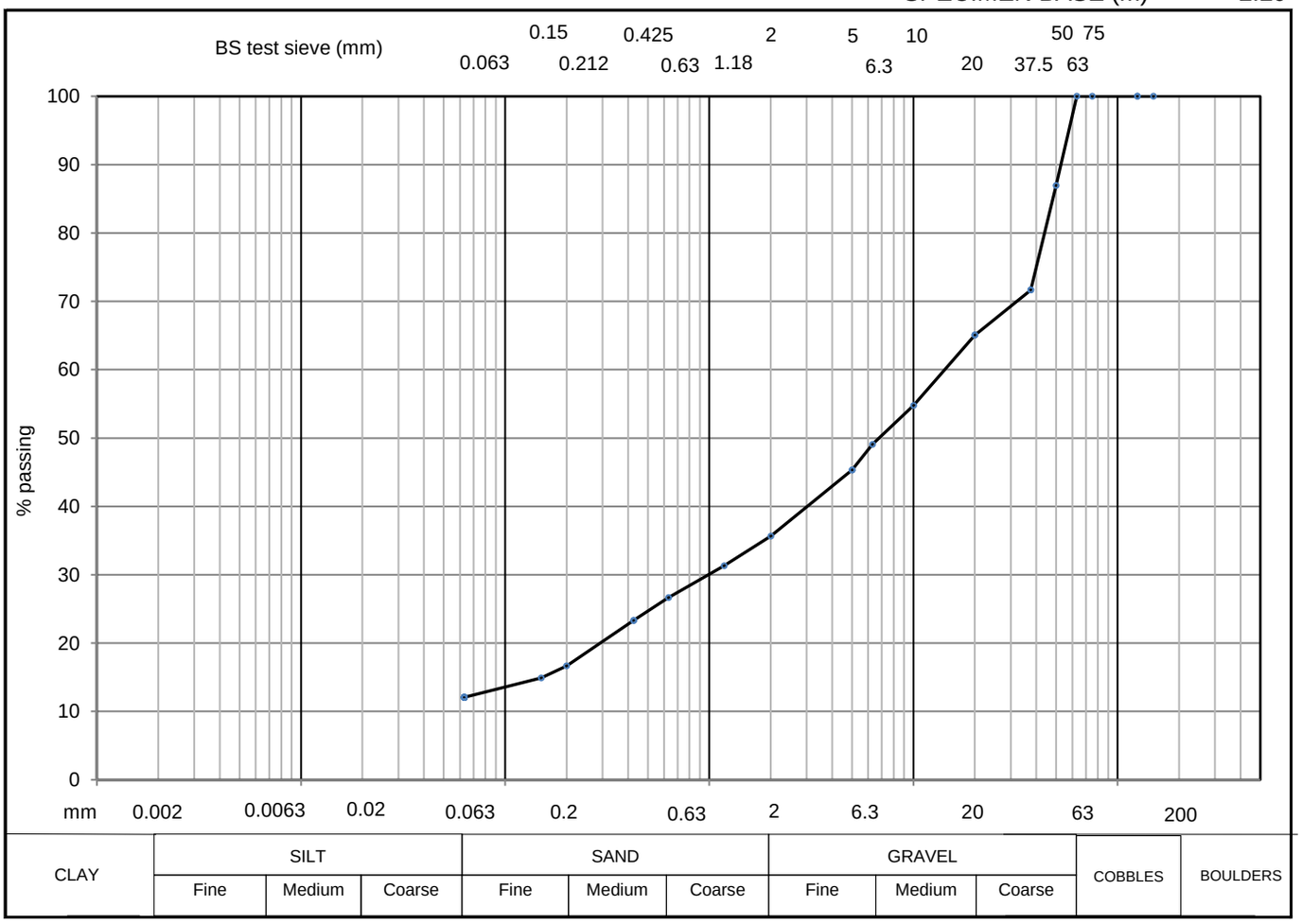
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP217
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	2.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	12
SAND	24
GRAVEL	64
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	100
50	87
37.5	72
20	65
10	55
6.3	49

BS test sieve (mm)	% passing
5	45
2	36
1.18	31
0.63	27
0.425	23
0.2	17
0.15	15
0.063	12

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

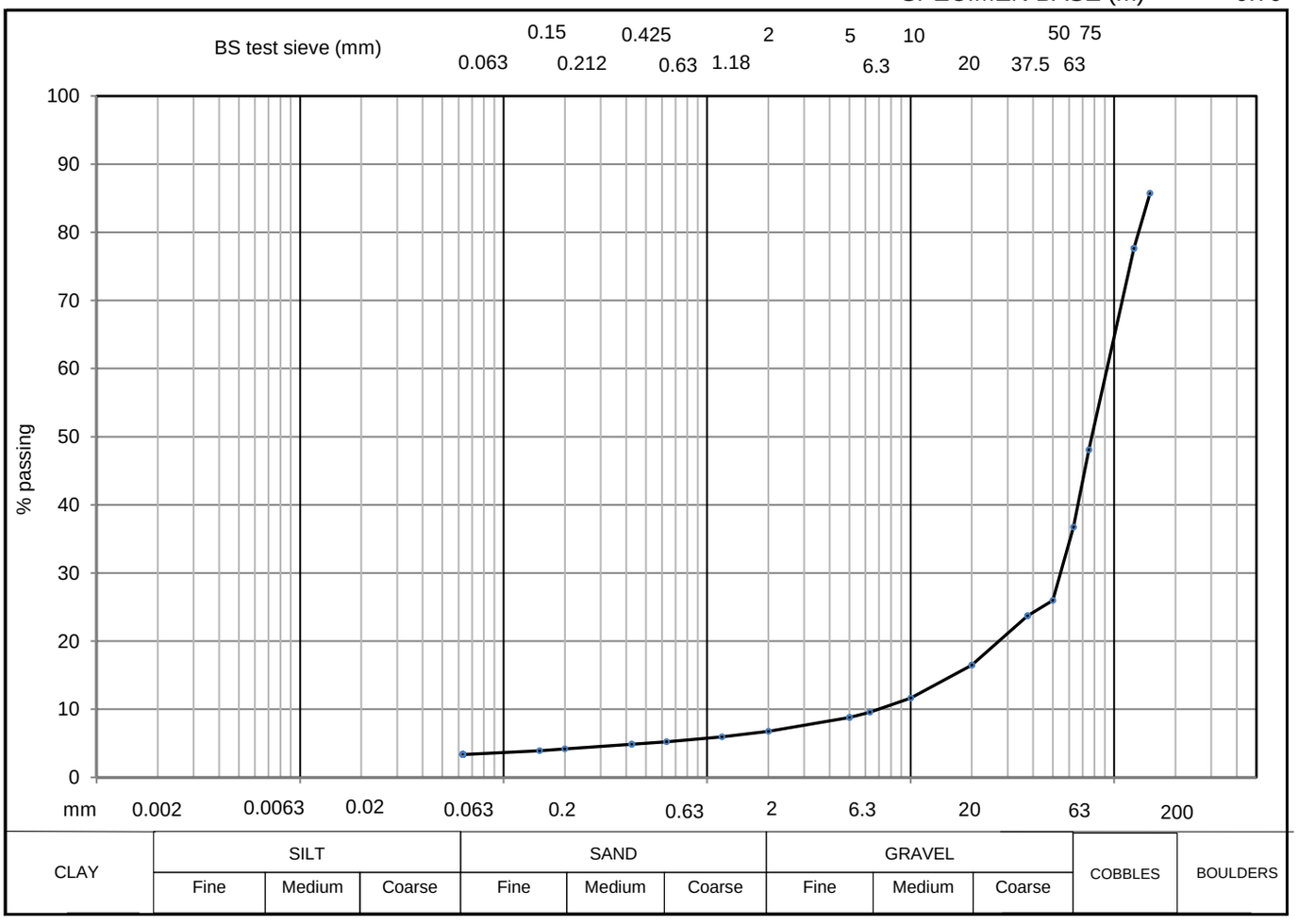
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP218
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with slightly clayey slightly sandy gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	3
GRAVEL	30
COBBLE & BOULDER	63
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	86	5	9	20	
75	48	2	7	6	
63	37	1.18	6	2	
50	26	0.63	5		
37.5	24	0.425	5		
20	16	0.2	4		
10	12	0.15	4		
6.3	10	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

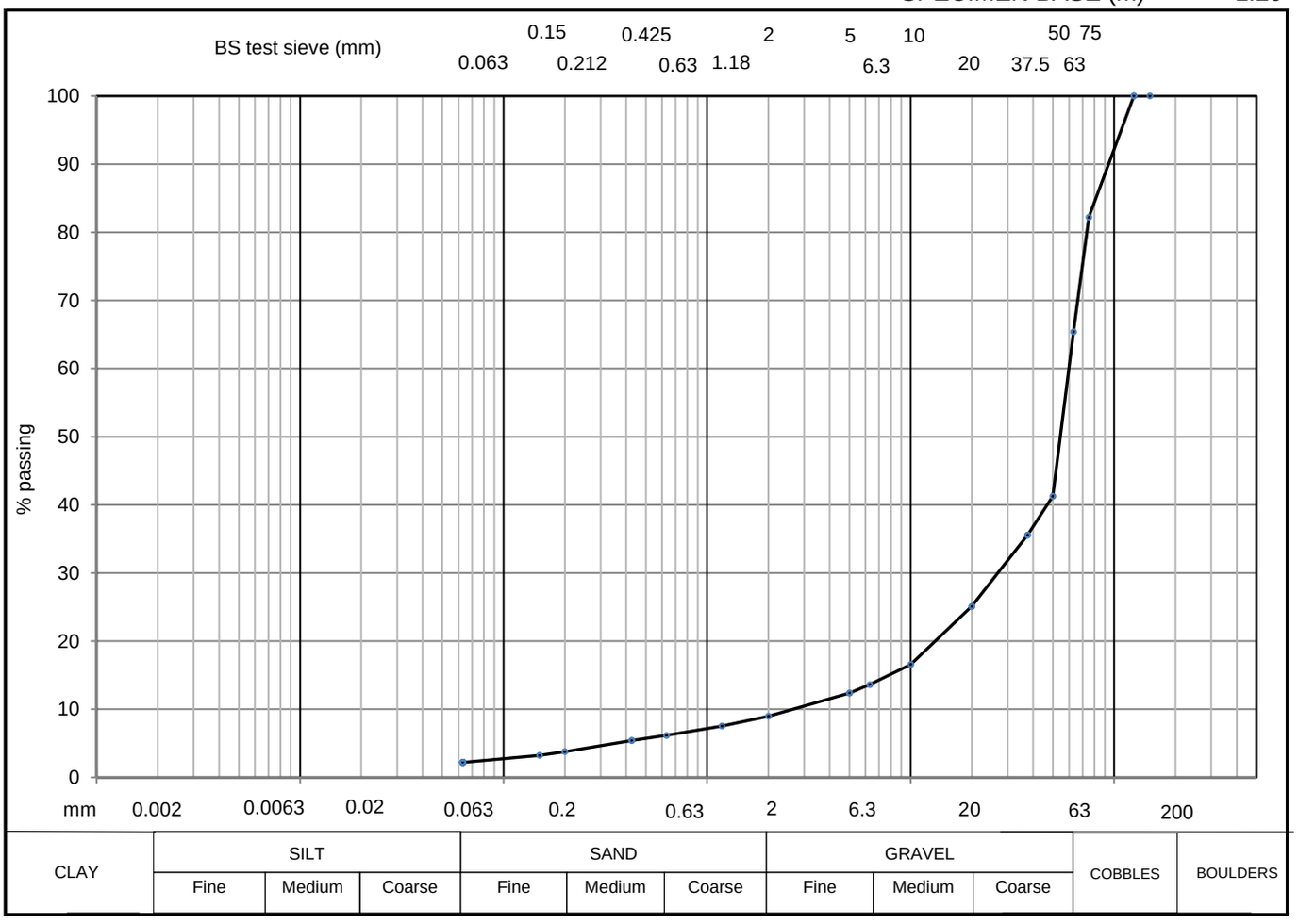
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP218
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown slightly clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	2
SAND	7
GRAVEL	56
COBBLE & BOULDER	35
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	12	20	
75	82	2	9	6	
63	65	1.18	8	2	
50	41	0.63	6		
37.5	36	0.425	5		
20	25	0.2	4		
10	17	0.15	3		
6.3	14	0.063	2		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

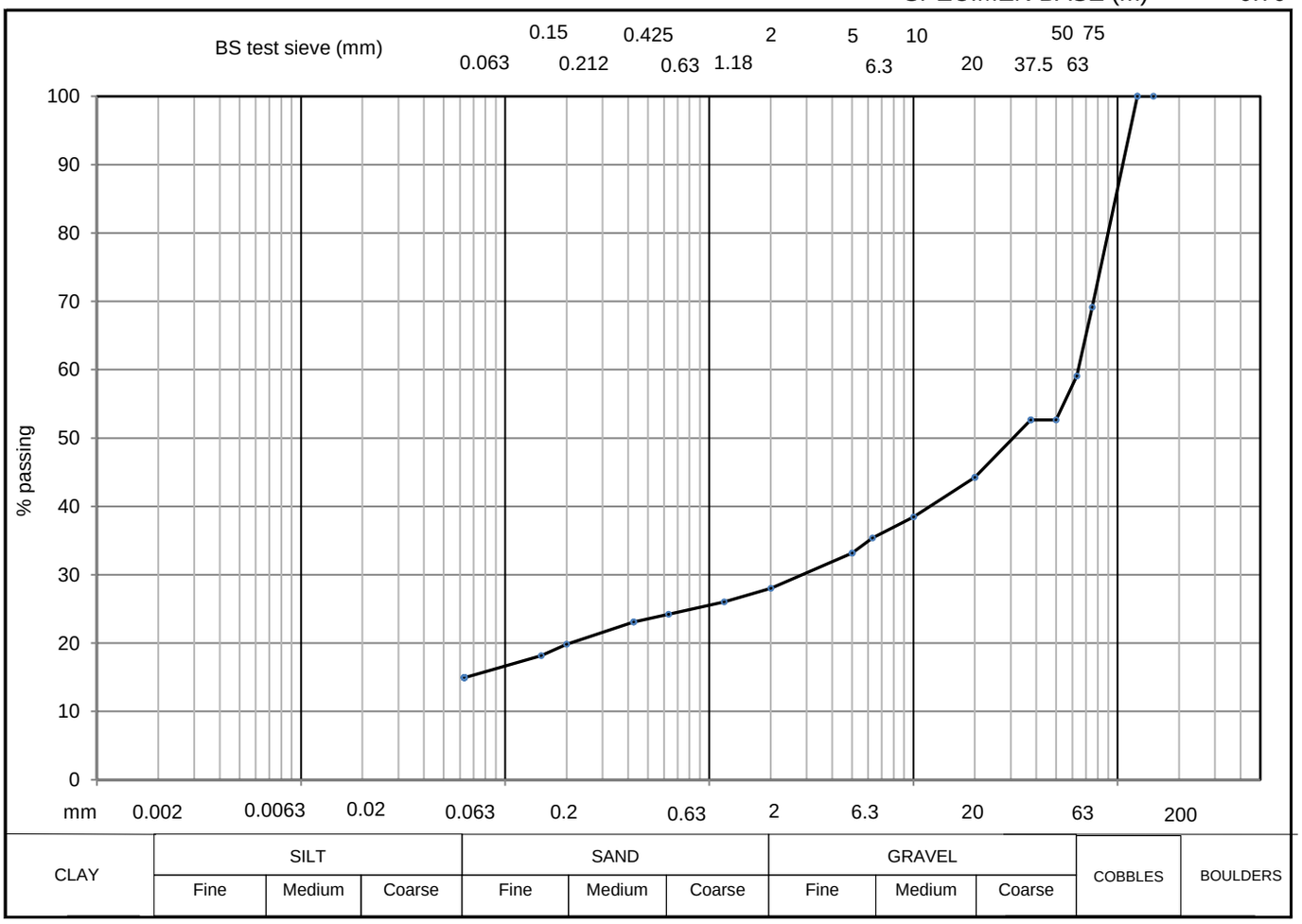
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP219
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with sandy clayey gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	15
SAND	13
GRAVEL	31
COBBLE & BOULDER	41
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	33	20	
75	69	2	28	6	
63	59	1.18	26	2	
50	53	0.63	24		
37.5	53	0.425	23		
20	44	0.2	20		
10	38	0.15	18		
6.3	35	0.063	15		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

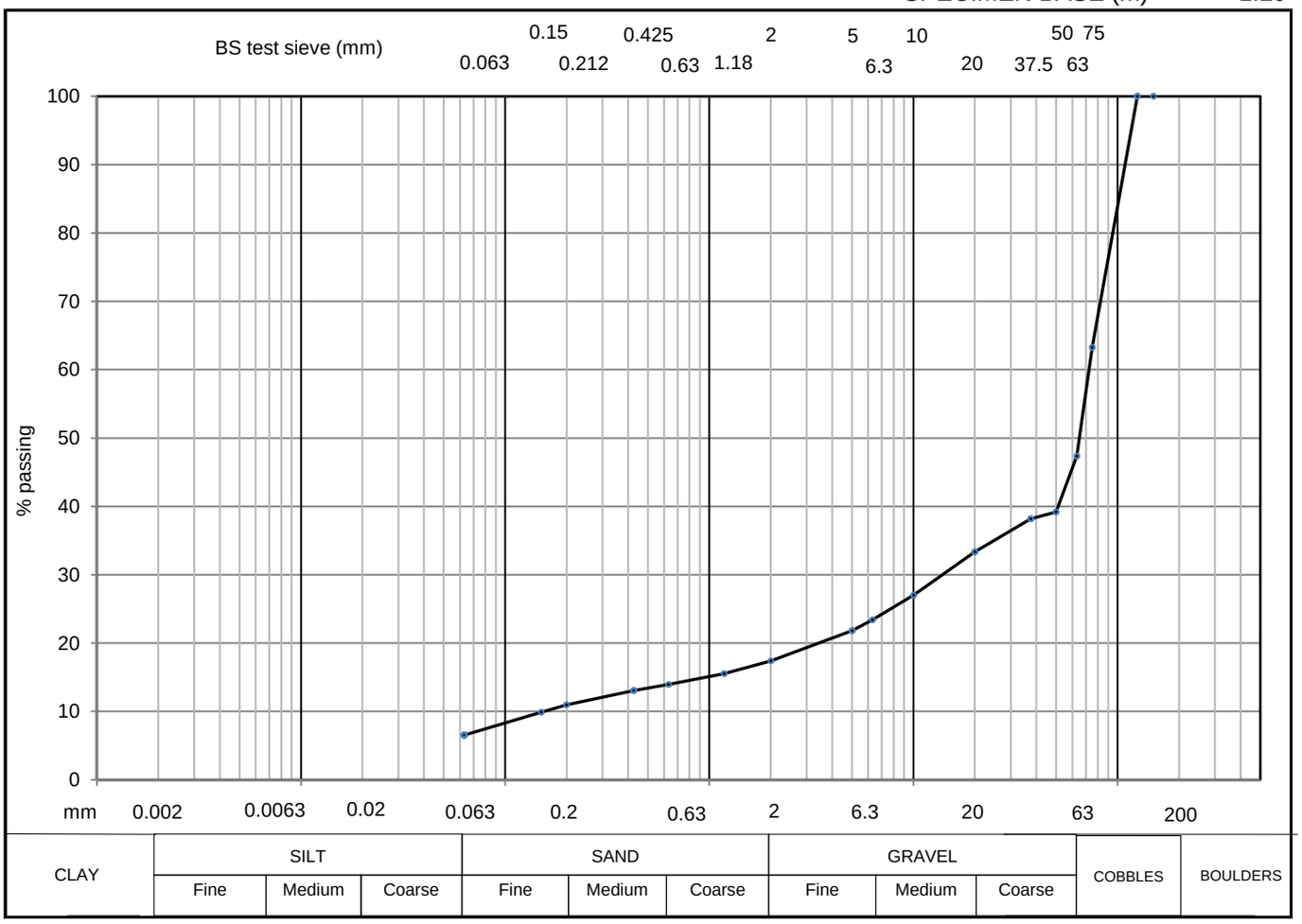
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP219
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	11
GRAVEL	30
COBBLE & BOULDER	53
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	22	20	
75	63	2	17	6	
63	47	1.18	16	2	
50	39	0.63	14		
37.5	38	0.425	13		
20	33	0.2	11		
10	27	0.15	10		
6.3	23	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

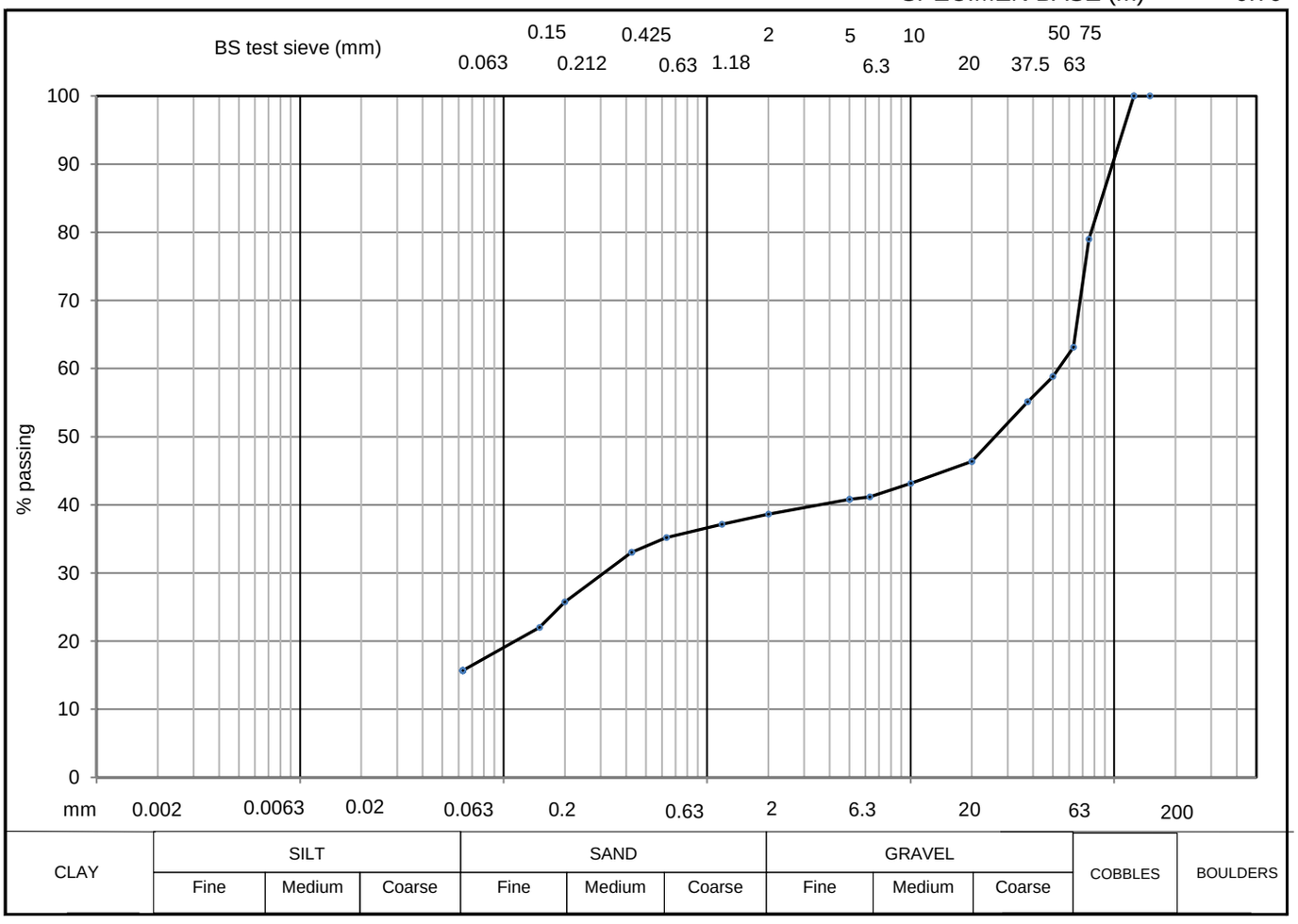
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP220
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with clayey very sandy gravel and rare rootlets	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	16
SAND	23
GRAVEL	25
COBBLE & BOULDER	37
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	41	20	
75	79	2	39	6	
63	63	1.18	37	2	
50	59	0.63	35		
37.5	55	0.425	33		
20	46	0.2	26		
10	43	0.15	22		
6.3	41	0.063	16		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

CONTRACT	CHECKED
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ROCK WATER CONTENT

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	description and remarks
BH302B	21C	6.50	6.80	1	Brown SANDSTONE
BH304	22CS	8.45	8.45	1	Grey SANDSTONE
BH305	19C	5.00	5.20	2	Grey SANDSTONE
BH307	12C	4.00	4.60	1.1	Brown SANDSTONE

general remarks
natural water content determined unless otherwise specified

test method
samples oven dried at 105°C

CONTRACT	CHECKED
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ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
								Mean after prep.							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Diameter (mm)	Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH303B		7.25-7.45	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	0.8	15.5	2.55	2.53	55.00	117.10	2.1	134.7	56.7		03/06/24	
BH306		5.50-5.70	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	1.5	34.3	2.61	2.57	54.40	141.60	2.6	146.0	62.8		03/06/24	
BH306		8.50-8.80	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	2.1	44.7	2.61	2.55	117.40	276.20	2.4	765.8	70.7		03/06/24	
BH307		5.80-6.10	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	0.9	12.7	2.43	2.41	117.20	236.10	2.0	775.6	71.9		03/06/24	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF

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UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH303B
Sample Ref.:	-
Depth (m):	7.25-7.45

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

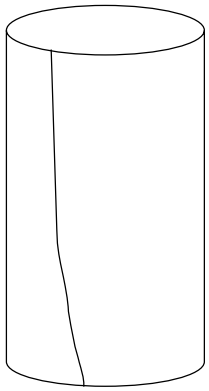
Diameter	55.00 mm
Height	117.10 mm
Bulk Density	2.55 Mg/m³
Dry Density	2.53 Mg/m³
Water Content	0.8 %

Degree of Saturation: 15.5 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 134.70	56.7 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
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ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH306
Sample Ref.:	-
Depth (m):	5.50-5.70

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

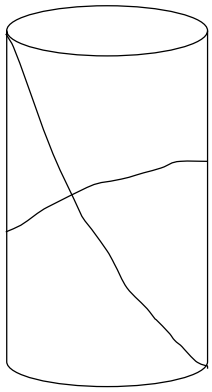
Diameter	54.40 mm
Height	141.60 mm
Bulk Density	2.61 Mg/m³
Dry Density	2.57 Mg/m³
Water Content	1.5 %

Degree of Saturation: 34.3 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Multiple fracturing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 146.00	62.8 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
38113

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UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH306
Sample Ref.:	-
Depth (m):	8.50-8.80

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

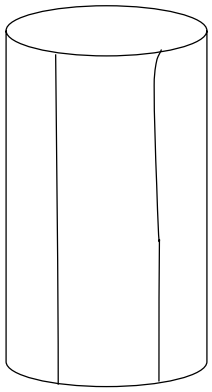
Diameter	117.40 mm
Height	276.20 mm
Bulk Density	2.61 Mg/m³
Dry Density	2.55 Mg/m³
Water Content	2.1 %

Degree of Saturation: 44.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 765.80	70.7 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
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ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH307
Sample Ref.:	-
Depth (m):	5.80-6.10

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

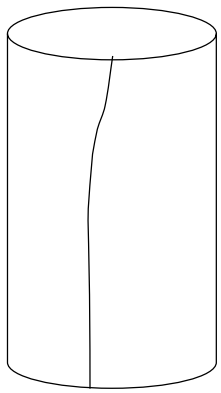
Diameter	117.20 mm
Height	236.10 mm
Bulk Density	2.43 Mg/m³
Dry Density	2.41 Mg/m³
Water Content	0.9 %

Degree of Saturation: 12.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 775.60	71.9 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
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POINT LOAD STRENGTH TEST

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample depth (m)	test type	test orien-tation	moisture condition	width W (mm)	length L (mm)	platen sep. D (mm)	failure load P (kN)	equiv. diam. De (mm)	Is (MPa)	size factor	Is(50) (MPa)	description and remarks
BH301	6.05	I	U	P	110	80	70	11.15	99.01	1.14	1.36	1.55	Brown SANDSTONE
BH301	7.35	I	U	P	110	90	50	14.55	83.68	2.08	1.26	2.62	Brown SANDSTONE
BH302B	6.40	I	U	P	110	80	90	7.71	112.27	0.61	1.44	0.88	Brown SANDSTONE
BH302B	6.80	I	U	P	90	80	70	9.24	89.56	1.15	1.30	1.50	Grey SANDSTONE
BH302B	8.60	I	U	P	120	50	70	20.47	103.42	1.91	1.39	2.65	Grey SANDSTONE
BH303B	5.25	A	X	P	120		50	34.80	87.40	4.56	1.29	5.86	Grey SANDSTONE
BH303B	5.25	D	Y	P		40	120	14.36	120.00	1.00	1.48	1.48	Grey SANDSTONE
BH304	4.40	A	X	P	120		50	16.46	87.40	2.15	1.29	2.77	Grey SANDSTONE
BH304	4.40	D	Y	P		40	120	31.17	120.00	2.16	1.48	3.21	Grey SANDSTONE
BH304	6.80	I	U	P	120	60	90	26.41	117.26	1.92	1.47	2.82	Grey SANDSTONE
BH304	8.45	A	X	N	120		100	46.07	123.61	3.02	1.50	4.53	Grey SANDSTONE
BH304	8.45	D	Y	N		100	120	45.09	120.00	3.13	1.48	4.64	Grey SANDSTONE
BH305	4.40	I	U	P	120	50	90	6.48	117.26	0.47	1.47	0.69	Grey SANDSTONE
BH305	5.20	I	U	P	120	40	70	24.35	103.42	2.28	1.39	3.16	Grey SANDSTONE
BH305	7.20	I	U	P	100	50	80	5.30	100.93	0.52	1.37	0.71	Grey SANDSTONE
BH306	4.60	A	X	P	120		70	>50	103.42	>4.67	1.39	>6.48	Grey SANDSTONE
BH306	4.60	D	Y	P		40	120	23.77	120.00	1.65	1.48	2.45	Grey SANDSTONE
BH307	4.60	A	X	P	120		40	20.01	78.18	3.27	1.22	4.00	Brown SANDSTONE
BH307	4.60	D	Y	P		40	120	0.75	120.00	0.05	1.48	0.08	Brown SANDSTONE

general remarks

tests carried out in accordance with I.S.R.M.(2007): Suggested Methods for Determining Point Load Strength

test machine PLM02

test type	test orientation relative to discontinuities		moisture condition	CONTRACT	CHECKED
A - axial	X - perpendicular	U - unknown	N - natural moisture content		
D - diametral	Y - parallel		P - partially air dried	**38113**	**TB**
I - irregular lump	Z - oblique		S - soaked		

Geotechnical Engineering Limited

POINT LOAD STRENGTH TEST

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample depth (m)	test type	test orien-tation	moisture condition	width W (mm)	length L (mm)	platen sep. D (mm)	failure load P (kN)	equiv. diam. De (mm)	Is (MPa)	size factor	Is(50) (MPa)	description and remarks
BH307	4.05	A	X	N	120		60	6.40	95.75	0.70	1.34	0.94	Grey SANDSTONE
BH307	4.05	D	Y	N		70	100	1.50	100.00	0.15	1.37	0.20	Grey SANDSTONE
BH307	5.60	A	X	P	120		40	22.86	78.18	3.74	1.22	4.57	Grey SANDSTONE
BH307	5.60	D	Y	P		40	120	8.73	120.00	0.61	1.48	0.90	Grey SANDSTONE

general remarks

tests carried out in accordance with I.S.R.M.(2007): Suggested Methods for Determining Point Load Strength

test machine PLM02

test type	test orientation relative to discontinuities		moisture condition	CONTRACT	CHECKED
A - axial	X - perpendicular	U - unknown	N - natural moisture content		
D - diametral	Y - parallel		P - partially air dried	**38113**	**TB**
I - irregular lump	Z - oblique		S - soaked		

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De^2 (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
								Start D	End D'						
BH301		4.00-5.50	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	04/06/24	I	U	77.1	71.5	71.5		83.8	10.27	1.46	1.26	1.84

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF

38113

GEOLABS®

UKAS TESTING 1982

APPENDIX D

CHEMICAL ANALYSES

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Analytical Report Number : 24-014999

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	18/04/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	19/04/2024
Your order number:		**Analysis completed by:**	24/04/2024
Report Issue Number:	1	**Report issued on:**	26/04/2024
Samples Analysed:	2 soil samples		

Signed: JSzwagrak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-014999
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				175137	175138
Sample Reference				BH301	BH301
Sample Number				5	7
Depth (m)				1.80-1.90	3.50-3.60
Date Sampled				16/04/2024	16/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	65.9	98.7
Moisture Content	%	0.01	NONE	7.8	3.1
Total mass of sample received	kg	0.1	NONE	1.4	1.4
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	PDO
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	8.1	7.7
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.026	0.034
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	72	230
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	35.8	117
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	117
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	0.7	1.6
Total Sulphur	mg/kg	50	MCERTS	120	170
Total Sulphur	%	0.005	MCERTS	0.012	0.017
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	< 0.5	< 0.5
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	-	0.5
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	< 0.80

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Analytical Report Number: 24-014999
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				175137	175138
Sample Reference				BH301	BH301
Sample Number				5	7
Depth (m)				1.80-1.90	3.50-3.60
Date Sampled				16/04/2024	16/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	8.7
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.6
Boron (water soluble)	mg/kg	0.2	MCERTS	-	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8
Chromium (III)	mg/kg	1	NONE	-	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	5.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	2.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	42
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	74
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	4.7
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	9.4

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-014999
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
175137	BH301	5	1.80-1.90	Brown loam and sand with stones
175138	BH301	7	3.50-3.60	Brown loam and sand with stones

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Analytical Report Number : 24-014999
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS

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Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-015003

Replaces Analytical Report Number: 24-015003, issue no. 1
Additional analysis undertaken.
Added missing pH and Monohydric Phenols to the sample 175145.

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	17/04/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	19/04/2024
Your order number:		**Analysis completed by:**	24/04/2024
Report Issue Number:	2	**Report issued on:**	01/05/2024
Samples Analysed:	2 soil samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

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soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 24-015003
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				175144	175145
Sample Reference				BH301	BH301
Sample Number				3	4
Depth (m)				0.50-0.70	1.00-1.20
Date Sampled				15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	87.7	< 0.1
Moisture Content	%	0.01	NONE	5.5	8.5
Total mass of sample received	kg	0.1	NONE	1.4	1.4
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	SSZ
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	11.4	10.8
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.518	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	260	710
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	132	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	356
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	18	-
Total Sulphur	mg/kg	50	MCERTS	2000	-
Total Sulphur	%	0.005	MCERTS	0.198	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	-	1.3
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	-	0.08
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.18
Fluorene	mg/kg	0.05	MCERTS	-	0.2
Phenanthrene	mg/kg	0.05	MCERTS	-	1.2
Anthracene	mg/kg	0.05	MCERTS	-	0.36
Fluoranthene	mg/kg	0.05	MCERTS	-	2
Pyrene	mg/kg	0.05	MCERTS	-	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.1
Chrysene	mg/kg	0.05	MCERTS	-	1.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	1.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	0.67
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.54
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.19
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.64
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	12.6
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.69
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1

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Analytical Report Number: 24-015003
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				175144	175145
Sample Reference				BH301	BH301
Sample Number				3	4
Depth (m)				0.50-0.70	1.00-1.20
Date Sampled				15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8
Chromium (III)	mg/kg	1	NONE	-	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	72
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	78

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-015003
Project / Site name: Penrhys Village, Rhondda Cynon Taff

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
175144	BH301	3	0.50-0.70	Brown loam and sand with stones
175145	BH301	4	1.00-1.20	Brown loam and gravel

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Analytical Report Number : 24-015003
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 24-015003
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 24-016507

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	26/04/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	26/04/2024
Your order number:		**Analysis completed by:**	02/05/2024
Report Issue Number:	1	**Report issued on:**	02/05/2024
Samples Analysed:	1 soil sample		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182361
Sample Reference				BH306
Sample Number				2
Depth (m)				0.50-0.70
Date Sampled				18/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	49.8
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.1	NONE	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.043
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	96
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	47.9
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	47.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.6
Total Sulphur	mg/kg	50	MCERTS	250
Total Sulphur	%	0.005	MCERTS	0.025
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	< 0.5
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	2.4
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80

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Analytical Report Number: 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182361
Sample Reference				BH306
Sample Number				2
Depth (m)				0.50-0.70
Date Sampled				18/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.47
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69
Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.9
Magnesium (water soluble)	mg/kg	5	NONE	12

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
182361	BH306	2	0.50-0.70	Brown loam and clay with gravel and stones

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Analytical Report Number : 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS

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Analytical Report Number : 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-016507
Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH306	2	S	182361	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-016568

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	25/04/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	26/04/2024
Your order number:		**Analysis completed by:**	02/05/2024
Report Issue Number:	1	**Report issued on:**	07/05/2024
Samples Analysed:	5 soil samples - 2 leachate samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Application of uncertainty of measurement would provide a range within which the true result lies.
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Analytical Report Number: 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182666	182667	182669	182670	182672
Sample Reference				BH302B	TP202	TP204	TP204	TP210
Sample Number				3	1	1	4	5
Depth (m)				1.00-1.20	0.50	0.50	2.00	2.50
Date Sampled				23/04/2024	22/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	71.4	56.2	51.8	40.2	55.5
Moisture Content	%	0.01	NONE	14	7.8	17	15	11
Total mass of sample received	kg	0.1	NONE	1.2	1.2	1.2	1.3	1.2
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	SPU
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	11.2	8.5	11.3	8.9	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	0.019	-	0.184	0.033
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	330	68	340	1000	110
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	34.1	-	521	54.3
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	167	34.1	171	521	54.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	33	-	7.2	1
Total Sulphur	mg/kg	50	MCERTS	-	220	-	810	180
Total Sulphur	%	0.005	MCERTS	-	0.022	-	0.081	0.018
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	< 0.5	-	< 0.5	< 0.5
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	3.5	1.3	5.5	2.8	1.6
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	-	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	-	< 2.0	< 2.0
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.12	0.07	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.09	< 0.05	0.12	0.06	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.64	< 0.05	0.94	0.38	0.2
Anthracene	mg/kg	0.05	MCERTS	0.18	< 0.05	0.2	0.06	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.6	0.22	1.4	0.63	0.6
Pyrene	mg/kg	0.05	MCERTS	1.3	0.13	0.99	0.52	0.53
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.2	0.1	0.91	0.46	0.43
Chrysene	mg/kg	0.05	MCERTS	1.4	0.13	1.1	0.59	0.57
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.8	0.14	1.5	0.75	0.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.63	0.07	0.53	0.28	0.32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.99	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.69	< 0.05	0.61	0.33	0.37
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.22	< 0.05	0.21	0.11	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.73	0.07	0.61	0.34	0.34
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	11.8	0.85	10.2	4.57	4.29

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182666	182667	182669	182670	182672
Sample Reference				BH302B	TP202	TP204	TP204	TP210
Sample Number				3	1	1	4	5
Depth (m)				1.00-1.20	0.50	0.50	2.00	2.50
Date Sampled				23/04/2024	22/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	37	11	33	23	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.41	0.41	0.57	0.68	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.2	1.8	1.1	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	38	14	37	30	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	14	37	30	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	8.6	50	30	9.7
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	12	69	28	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	8.6	19	23	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.3	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	11	34	28	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	280	47	200	170	53
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	9.6	-	< 2.5	4
Magnesium (water soluble)	mg/kg	5	NONE	-	19	-	< 5.0	8

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182668	182671
Sample Reference				TP202	TP210
Sample Number				3	3
Depth (m)				1.50	1.50
Date Sampled				22/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	7.4	7.8
Electrical Conductivity	µS/cm	10	ISO 17025	42	54
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	1.13	1.29
Chloride	mg/l	0.15	ISO 17025	0.97	1
Fluoride	µg/l	50	ISO 17025	80	180
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	80	76
Nitrate as NO_3	mg/l	0.05	NONE	0.6	0.86
Nitrite as NO_2	µg/l	5	ISO 17025	< 5.0	< 5.0
Hardness - Total	mgCaCO3/l	1	ISO 17025	17.8	37.6
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	1
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16

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Analytical Report Number: 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				182668	182671
Sample Reference				TP202	TP210
Sample Number				3	3
Depth (m)				1.50	1.50
Date Sampled				22/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Aluminium (dissolved)	µg/l	12	ISO 17025	28	720
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	1.3	2.2
Barium (dissolved)	µg/l	0.05	ISO 17025	3.4	13
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	1.2
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	3.9	11
Iron (dissolved)	mg/l	0.004	ISO 17025	0.008	0.49
Lead (dissolved)	µg/l	1	ISO 17025	1.9	2.5
Manganese (dissolved)	µg/l	0.06	ISO 17025	33	54
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	0.8	0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	0.9
Silver (dissolved)	µg/l	1	NONE	< 1.0	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Sodium (dissolved)	mg/l	0.01	ISO 17025	0.91	0.77

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
182666	BH302B	3	1.00-1.20	Brown loam and clay with stones and vegetation
182667	TP202	1	0.5	Brown loam and sand with gravel and stones
182669	TP204	1	0.5	Brown loam and sand with stones and plastic
182670	TP204	4	2	Brown loam and clay with stones and vegetation
182672	TP210	5	2.5	Brown loam and clay with stones and vegetation

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Analytical Report Number : 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

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Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

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Analytical Report Number : 24-016568
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-018446

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	07/05/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	15/05/2024
Report Issue Number:	1	**Report issued on:**	15/05/2024
Samples Analysed:	4 soil samples - 2 leachate samples		

Signed: JSzwagrak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192804	192805	192806	192807
Sample Reference				TP203	TP207A	TP207A	TP208
Sample Number				1	1	3	2
Depth (m)				0.50	0.50	1.50	1.00
Date Sampled				01/05/2024	01/05/2024	01/05/2024	01/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	34.7	65.5	85	< 0.1
Moisture Content	%	0.01	NONE	13	9.7	6.6	17
Total mass of sample received	kg	0.1	NONE	1.7	1.6	1.7	1.6
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	-	DSO
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	9.6	11.1	11.6	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	0.339	0.066
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	690	280	230	210
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	116	105
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	343	138	-	105
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	45	1.9
Total Sulphur	mg/kg	50	MCERTS	-	-	1100	310
Total Sulphur	%	0.005	MCERTS	-	-	0.115	0.031
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	-	< 0.5	< 0.5
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	< 0.05	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	2.4	1.2	-	2.7
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	-	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	< 2.0	< 2.0
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.14	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.2	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.58	0.08	-	0.07
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.61	0.09	-	0.21
Pyrene	mg/kg	0.05	MCERTS	0.54	< 0.05	-	0.22
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.33	0.08	-	0.23
Chrysene	mg/kg	0.05	MCERTS	0.41	0.1	-	0.37
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.5	0.14	-	0.6
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.15	< 0.05	-	0.19
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.34	0.08	-	0.41
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.23	0.09	-	0.28
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.08
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.25	0.09	-	0.3
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.27	< 0.80	-	2.96

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Analytical Report Number: 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192804	192805	192806	192807
Sample Reference				TP203	TP207A	TP207A	TP208
Sample Number				1	1	3	2
Depth (m)				0.50	0.50	1.50	1.00
Date Sampled				01/05/2024	01/05/2024	01/05/2024	01/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	9.4	-	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.39	0.45	-	0.57
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	< 0.2	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5	-	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8
Chromium (III)	mg/kg	1	NONE	22	15	-	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	15	-	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	18	-	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	20	-	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	9.7	-	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	20	-	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	100	-	61
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	< 2.5	4.1
Magnesium (water soluble)	mg/kg	5	NONE	-	-	< 5.0	8.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192804	192807
Sample Reference				TP203	TP208
Sample Number				1	2
Depth (m)				0.50	1.00
Date Sampled				01/05/2024	01/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	8.3	8.2
Electrical Conductivity	µS/cm	10	ISO 17025	250	100
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	74	4.2
Chloride	mg/l	0.15	ISO 17025	5.1	1
Fluoride	µg/l	50	ISO 17025	230	320
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	150	29
Nitrate as NO_3	mg/l	0.05	NONE	0.05	1.04
Nitrite as NO_2	µg/l	5	ISO 17025	< 5.0	25
Hardness - Total	mgCaCO3/l	1	ISO 17025	144	60.9
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	2.6	2
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16

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4041

Analytical Report Number: 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192804	192807
Sample Reference				TP203	TP208
Sample Number				1	2
Depth (m)				0.50	1.00
Date Sampled				01/05/2024	01/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Aluminium (dissolved)	µg/l	12	ISO 17025	830	62
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	4.1	1.8
Barium (dissolved)	µg/l	0.05	ISO 17025	14	9.3
Boron (dissolved)	µg/l	10	ISO 17025	41	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.3	1.2
Cobalt (dissolved)	µg/l	0.3	ISO 17025	0.6	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	35	8
Iron (dissolved)	mg/l	0.004	ISO 17025	0.42	0.19
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0
Manganese (dissolved)	µg/l	0.06	ISO 17025	190	57
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	3.6	1.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.5	< 0.3
Silver (dissolved)	µg/l	1	NONE	< 1.0	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Sodium (dissolved)	mg/l	0.01	ISO 17025	6.2	1.8

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192804	TP203	1	0.5	Brown sandy clay with gravel and stones
192805	TP207A	1	0.5	Brown loam and sand with vegetation and stones
192806	TP207A	3	1.5	Brown loam and clay with vegetation and stones
192807	TP208	2	1	Brown clay and loam with gravel and vegetation

Analytical Report Number : 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

Analytical Report Number : 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

Analytical Report Number : 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-018446
Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP203	1	S	192804	c	Total cyanide in soil	L080	c
TP207A	1	S	192805	c	Total cyanide in soil	L080	c
TP208	2	S	192807	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-018448

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	07/05/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	14/05/2024
Report Issue Number:	1	**Report issued on:**	16/05/2024
Samples Analysed:	4 soil samples - 2 leachate samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192810	192812	192813	192814
Sample Reference				BH305	BH305	BH305	TP216
Sample Number				1	3	5	1
Depth (m)				0.10-0.30	0.90-1.10	2.50-2.60	0.50
Date Sampled				30/04/2024	30/04/2024	01/05/2024	30/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	67.3
Moisture Content	%	0.01	NONE	21	16	10	10
Total mass of sample received	kg	0.1	NONE	1.7	1.8	1.1	1.6
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	-	DSO
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	7.6	9.7	9.2	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	0.066	0.079	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	210	290	42
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	103	146	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	14	103	-	20.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	16	20	-
Total Sulphur	mg/kg	50	MCERTS	-	280	300	-
Total Sulphur	%	0.005	MCERTS	-	0.028	0.03	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	3.1	1.6	-	1.2
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	< 2.0	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.22	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.07	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.8	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.65	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.58	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.78	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.96	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.35	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.65	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.13	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.51	< 0.05	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.19	< 0.80	-	< 0.80

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Analytical Report Number: 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192810	192812	192813	192814
Sample Reference				BH305	BH305	BH305	TP216
Sample Number				1	3	5	1
Depth (m)				0.10-0.30	0.90-1.10	2.50-2.60	0.50
Date Sampled				30/04/2024	30/04/2024	01/05/2024	30/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	11	-	6.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.75	0.65	-	0.7
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8
Chromium (III)	mg/kg	1	NONE	20	16	-	28
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	16	-	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	18	-	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	18	-	9.1
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	17	-	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	22	-	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	77	-	37

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	< 2.5	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	-	< 5.0	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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4041

Analytical Report Number: 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192811	192815
Sample Reference				BH305	TP216
Sample Number				2	2
Depth (m)				0.50-0.70	1.00
Date Sampled				30/04/2024	30/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	8	8.2
Electrical Conductivity	µS/cm	10	ISO 17025	86	76
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	1.81	1.98
Chloride	mg/l	0.15	ISO 17025	0.8	0.33
Fluoride	µg/l	50	ISO 17025	220	160
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	51	24
Nitrate as NO_3	mg/l	0.05	NONE	0.47	< 0.05
Nitrite as NO_2	µg/l	5	ISO 17025	15	< 5.0
Hardness - Total	mgCaCO3/l	1	ISO 17025	48.8	46.5
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	2.1	1.8
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16

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4041

Analytical Report Number: 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192811	192815
Sample Reference				BH305	TP216
Sample Number				2	2
Depth (m)				0.50-0.70	1.00
Date Sampled				30/04/2024	30/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Aluminium (dissolved)	µg/l	12	ISO 17025	1300	850
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	1.1
Barium (dissolved)	µg/l	0.05	ISO 17025	20	8.1
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2	1.2
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	12	7.8
Iron (dissolved)	mg/l	0.004	ISO 17025	1.1	0.61
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	1.9
Manganese (dissolved)	µg/l	0.06	ISO 17025	61	44
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.4	0.5
Silver (dissolved)	µg/l	1	NONE	< 1.0	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	4.4
Vanadium (dissolved)	µg/l	1.7	ISO 17025	3.1	< 1.7
Sodium (dissolved)	mg/l	0.01	ISO 17025	1.4	1.2

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192810	BH305	1	0.10-0.30	Brown loam and clay with gravel and vegetation
192812	BH305	3	0.90-1.10	Brown clay with gravel and vegetation
192813	BH305	5	2.50-2.60	Brown clay and sand with gravel
192814	TP216	1	0.5	Brown clay and sand with gravel and stones

Analytical Report Number : 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

Analytical Report Number : 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

Analytical Report Number : 24-018448
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-018448

Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH305	1	S	192810	c	Total cyanide in soil	L080	c
BH305	3	S	192812	c	Total cyanide in soil	L080	c
TP216	1	S	192814	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-018451

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	09/05/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	14/05/2024
Report Issue Number:	1	**Report issued on:**	14/05/2024
Samples Analysed:	3 soil samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018451
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192820	192821	192822
Sample Reference				BH307	TP218	TP219
Sample Number				1	1	2
Depth (m)				0.10-0.30	0.50	1.00
Date Sampled				07/05/2024	07/05/2024	07/05/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	30.4
Moisture Content	%	0.01	NONE	23	8.8	14
Total mass of sample received	kg	0.1	NONE	1.5	1.5	1.5
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	7.5	7	7.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	27	120	170
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	13.4	58.8	86.3
Organic Matter (automated)	%	0.1	MCERTS	5.9	0.9	2.1
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.13	< 0.05	0.07
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.23	< 0.05	0.08
Pyrene	mg/kg	0.05	MCERTS	0.18	< 0.05	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.23	< 0.05	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.27	< 0.05	0.09
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.1	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.2	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.9	< 0.80	< 0.80

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Analytical Report Number: 24-018451
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192820	192821	192822
Sample Reference				BH307	TP218	TP219
Sample Number				1	1	2
Depth (m)				0.10-0.30	0.50	1.00
Date Sampled				07/05/2024	07/05/2024	07/05/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	6.4	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.46	1.3	0.86
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	24	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	24	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	27	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44	11	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	37	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	25	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	73	76	95

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-018451
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192820	BH307	1	0.10-0.30	Brown loam with gravel and vegetation
192821	TP218	1	0.5	Brown clay and sand
192822	TP219	2	1	Brown sand with gravel and stones

Analytical Report Number : 24-018451
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-018460

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	07/05/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	15/05/2024
Report Issue Number:	1	**Report issued on:**	15/05/2024
Samples Analysed:	7 soil samples - 2 leachate samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192834	192835	192836	192837	192838
Sample Reference				TP205	TP205	TP213	TP217B	BH304
Sample Number				3	4	3	2	1
Depth (m)				1.50	2.00	1.50	1.00	0.10-0.30
Date Sampled				25/04/2024	25/04/2024	26/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	62.8	62.2	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.6	9.1	15	11	18
Total mass of sample received	kg	0.1	NONE	1.3	1.7	1.5	1.6	1.5
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	-	KSZ	KSZ	KSZ
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	10.5	10.4	8.5	8.3	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	0.444	-	0.021	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	890	710	190	16	19
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	354	-	8.22	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	447	-	94.5	8.22	9.49
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	15	-	1.7	-
Total Sulphur	mg/kg	50	MCERTS	-	1600	-	94	-
Total Sulphur	%	0.005	MCERTS	-	0.157	-	0.009	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	< 0.5	-	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	1.5	-	3	1.9	5.2
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	-	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	-	< 2.0	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.1	-	0.06	< 0.05	0.19
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.12
Acenaphthene	mg/kg	0.05	MCERTS	0.66	-	0.3	< 0.05	0.24
Fluorene	mg/kg	0.05	MCERTS	0.69	-	0.16	< 0.05	0.18
Phenanthrene	mg/kg	0.05	MCERTS	4	-	1.3	0.06	1.8
Anthracene	mg/kg	0.05	MCERTS	0.96	-	0.15	< 0.05	0.35
Fluoranthene	mg/kg	0.05	MCERTS	5.8	-	2.5	0.08	4.1
Pyrene	mg/kg	0.05	MCERTS	4.3	-	2.1	0.06	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3	-	1.4	< 0.05	2.2
Chrysene	mg/kg	0.05	MCERTS	3.5	-	2	0.09	2.6
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.2	-	2.7	< 0.05	3.3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.3	-	1	< 0.05	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.9	-	1.8	< 0.05	2.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.6	-	1.3	< 0.05	1.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.75	-	0.57	< 0.05	0.59
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6	-	1.5	< 0.05	1.5
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	35.2	-	18.7	< 0.80	25.6

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Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192834	192835	192836	192837	192838
Sample Reference				TP205	TP205	TP213	TP217B	BH304
Sample Number				3	4	3	2	1
Depth (m)				1.50	2.00	1.50	1.00	0.10-0.30
Date Sampled				25/04/2024	25/04/2024	26/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	-	14	14	24
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.45	-	0.87	0.75	0.91
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	-	< 0.2	< 0.2	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	-	19	19	37
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	-	19	19	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	-	36	19	61
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	-	34	17	100
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.5	-	23	24	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	-	25	25	50
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	-	86	73	230
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	< 2.5	-	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	-	< 5.0	-	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192839	192840
Sample Reference				BH304	BH304
Sample Number				2	3
Depth (m)				0.50-0.70	0.90-1.10
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	50.3	< 0.1
Moisture Content	%	0.01	NONE	11	8.7
Total mass of sample received	kg	0.1	NONE	1.6	1.7
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	KSZ
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	8.2	8.2
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.025	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	17	25
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.27	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	12.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.6	-
Total Sulphur	mg/kg	50	MCERTS	100	-
Total Sulphur	%	0.005	MCERTS	0.01	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	-	0.9
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.28
Fluorene	mg/kg	0.05	MCERTS	-	0.23
Phenanthrene	mg/kg	0.05	MCERTS	-	1.1
Anthracene	mg/kg	0.05	MCERTS	-	0.28
Fluoranthene	mg/kg	0.05	MCERTS	-	2.4
Pyrene	mg/kg	0.05	MCERTS	-	1.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.8
Chrysene	mg/kg	0.05	MCERTS	-	2.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	2.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	1.1
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	19.1

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Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192839	192840
Sample Reference				BH304	BH304
Sample Number				2	3
Depth (m)				0.50-0.70	0.90-1.10
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	8.8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.73
Boron (water soluble)	mg/kg	0.2	MCERTS	-	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8
Chromium (III)	mg/kg	1	NONE	-	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	63
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192834	192837
Sample Reference				TP205	TP217B
Sample Number				3	2
Depth (m)				1.50	1.00
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	10.3	8.2
Electrical Conductivity	µS/cm	10	ISO 17025	290	84
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	107	1.78
Chloride	mg/l	0.15	ISO 17025	1.7	0.49
Fluoride	µg/l	50	ISO 17025	310	210
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	27	25
Nitrate as NO_3	mg/l	0.05	NONE	0.05	0.47
Nitrite as NO_2	µg/l	5	ISO 17025	12	20
Hardness - Total	mgCaCO3/l	1	ISO 17025	165	50
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	2.5	2.2
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	0.1	0.12
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	0.69	< 0.01
Fluorene	µg/l	0.01	ISO 17025	0.18	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.33	0.15
Anthracene	µg/l	0.01	ISO 17025	0.09	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.23	< 0.01
Pyrene	µg/l	0.01	ISO 17025	0.14	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	1.76	0.27

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4041

Analytical Report Number: 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192834	192837
Sample Reference				TP205	TP217B
Sample Number				3	2
Depth (m)				1.50	1.00
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Aluminium (dissolved)	µg/l	12	ISO 17025	280	52
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	9.1	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	27	9.7
Boron (dissolved)	µg/l	10	ISO 17025	62	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	4.3	< 0.4
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	36	6.2
Iron (dissolved)	mg/l	0.004	ISO 17025	0.27	0.082
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0
Manganese (dissolved)	µg/l	0.06	ISO 17025	41	48
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	1.4	0.7
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.9	< 0.3
Silver (dissolved)	µg/l	1	NONE	< 1.0	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	57	< 1.7
Sodium (dissolved)	mg/l	0.01	ISO 17025	3.4	1.5

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192834	TP205	3	1.5	Brown sand with gravel and stones
192835	TP205	4	2	Brown sand with gravel and stones
192836	TP213	3	1.5	Brown loam and clay with gravel
192837	TP217B	2	1	Brown loam and sand with gravel and vegetation
192838	BH304	1	0.10-0.30	Brown sand with gravel and vegetation
192839	BH304	2	0.50-0.70	Brown sand with gravel and stones
192840	BH304	3	0.90-1.10	Brown sand with gravel

Analytical Report Number : 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

Analytical Report Number : 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

Analytical Report Number : 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-018460
Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH304	1	S	192838	c	Total cyanide in soil	L080	c
BH304	3	S	192840	c	Total cyanide in soil	L080	c
TP205	3	S	192834	c	Total cyanide in soil	L080	c
TP213	3	S	192836	c	Total cyanide in soil	L080	c
TP217B	2	S	192837	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-018462

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	07/05/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	14/05/2024
Report Issue Number:	1	**Report issued on:**	15/05/2024
Samples Analysed:	4 soil samples - 1 leachate sample		

Signed: JSzwagrak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192842	192843	192844	192845
Sample Reference				TP102	BH303B	BH303B	BH303B
Sample Number				1	1	2	3
Depth (m)				0.50	0.10-0.30	0.50-0.70	1.00-1.20
Date Sampled				02/05/2024	02/05/2024	02/05/2024	02/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	50.9	< 0.1	< 0.1	93.7
Moisture Content	%	0.01	NONE	5.8	16	15	12
Total mass of sample received	kg	0.1	NONE	1.8	1.4	1.6	1.6
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	-	PDO
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	9	8.5	11.7	12.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	0.338	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	510	61	360	18
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	179	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	256	30.4	-	9.19
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	56	-
Total Sulphur	mg/kg	50	MCERTS	-	-	1200	-
Total Sulphur	%	0.005	MCERTS	-	-	0.117	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	-	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	2.3	4.5	-	0.9
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	-	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	< 2.0	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	0.66	0.22	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.87	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	15	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	11	0.12	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	54	0.68	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	16	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	120	1.1	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	90	0.89	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	93	0.77	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	100	1.1	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	130	1.6	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	47	0.41	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	97	0.85	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	38	0.69	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	14	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	37	0.7	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	863	9.05	-	< 0.80

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Analytical Report Number: 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192842	192843	192844	192845
Sample Reference				TP102	BH303B	BH303B	BH303B
Sample Number				1	1	2	3
Depth (m)				0.50	0.10-0.30	0.50-0.70	1.00-1.20
Date Sampled				02/05/2024	02/05/2024	02/05/2024	02/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6	16	-	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.49	0.78	-	0.35
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.3	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8
Chromium (III)	mg/kg	1	NONE	14	16	-	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	16	-	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8	33	-	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	46	-	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	19	-	9.9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.3	1.4	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	17	23	-	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	97	-	74
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	-	-	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192845
Sample Reference				BH303B
Sample Number				3
Depth (m)				1.00-1.20
Date Sampled				02/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	8.3
Electrical Conductivity	µS/cm	10	ISO 17025	87
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	11.7
Chloride	mg/l	0.15	ISO 17025	0.2
Fluoride	µg/l	50	ISO 17025	120
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	30
Nitrate as NO_3	mg/l	0.05	NONE	< 0.05
Nitrite as NO_2	µg/l	5	ISO 17025	17
Hardness - Total	mgCaCO3/l	1	ISO 17025	45.9
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002
Total Phenols				
Total Phenols (monohydric) low level	µg/l	1	NONE	1.4
Speciated PAHs				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16

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Analytical Report Number: 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192845
Sample Reference				BH303B
Sample Number				3
Depth (m)				1.00-1.20
Date Sampled				02/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Aluminium (dissolved)	µg/l	12	ISO 17025	200
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	5.6
Barium (dissolved)	µg/l	0.05	ISO 17025	23
Boron (dissolved)	µg/l	10	ISO 17025	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.6
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	6.3
Iron (dissolved)	mg/l	0.004	ISO 17025	< 0.004
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0
Manganese (dissolved)	µg/l	0.06	ISO 17025	58
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0209
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3
Silver (dissolved)	µg/l	1	NONE	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	3
Sodium (dissolved)	mg/l	0.01	ISO 17025	1.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192842	TP102	1	0.5	Brown sand with gravel and stones
192843	BH303B	1	0.10-0.30	Brown clay and sand with gravel and vegetation
192844	BH303B	2	0.50-0.70	Brown clay and sand with gravel and vegetation
192845	BH303B	3	1.00-1.20	Non Soil. *b

Analytical Report Number : 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

Analytical Report Number : 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

Analytical Report Number : 24-018462
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

*b - Unaccredited sample matrix.

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Analytical Report Number : 24-018472

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	07/05/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	09/05/2024
Your order number:		**Analysis completed by:**	14/05/2024
Report Issue Number:	1	**Report issued on:**	15/05/2024
Samples Analysed:	6 soil samples - 2 leachate samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192889	192890	192891	192892	192893
Sample Reference				TP206A	TP211	TP212	TP212	TP214
Sample Number				1	3	2	4	1
Depth (m)				0.50	1.50	1.00	2.00	0.50
Date Sampled				29/04/2024	29/04/2024	29/04/2024	29/04/2024	29/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14	14	8.4	12
Total mass of sample received	kg	0.1	NONE	0.7	1.6	1.7	1.8	1.6
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.1	7.9	8	8	6.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	0.029	0.018	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	16	59	24	14	37
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	12.1	7.14	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	7.84	29.5	12.1	7.14	18.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	2	2.3	-
Total Sulphur	mg/kg	50	MCERTS	-	-	160	60	-
Total Sulphur	%	0.005	MCERTS	-	-	0.016	0.006	-
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	-	-	< 0.5	< 0.5	-
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	< 0.05	< 0.05	-
Organic Matter (automated)	%	0.1	MCERTS	2.4	2.4	2	1.6	2.4
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	-	< 2.0	< 2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	< 2.0	< 2.0	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

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Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192889	192890	192891	192892	192893
Sample Reference				TP206A	TP211	TP212	TP212	TP214
Sample Number				1	3	2	4	1
Depth (m)				0.50	1.50	1.00	2.00	0.50
Date Sampled				29/04/2024	29/04/2024	29/04/2024	29/04/2024	29/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	11	13	13	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.45	0.48	0.54	0.75	0.74
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	16	17	16	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	16	17	16	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	13	18	21	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	10	16	13	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	23	19	30	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	17	24	22	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	61	65	67	76
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	3	< 2.5	-
Magnesium (water soluble)	mg/kg	5	NONE	-	-	5.9	< 5.0	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192894
Sample Reference				TP214
Sample Number				5
Depth (m)				2.50
Date Sampled				29/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	21
Total mass of sample received	kg	0.1	NONE	1.7
Asbestos				
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	-
General Inorganics				
pH (L099)	pH Units	N/A	MCERTS	7.1
Total Cyanide	mg/kg	1	MCERTS	-
Total Sulphate as SO_4	%	0.005	MCERTS	0.028
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	67
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	33.2
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	19
Total Sulphur	mg/kg	50	MCERTS	250
Total Sulphur	%	0.005	MCERTS	0.025
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	4.7
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	0.29
Organic Matter (automated)	%	0.1	MCERTS	-
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	-
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-

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Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192894
Sample Reference				TP214
Sample Number				5
Depth (m)				2.50
Date Sampled				29/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-
Chromium (III)	mg/kg	1	NONE	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	2.9
Magnesium (water soluble)	mg/kg	5	NONE	5.7

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192890	192893
Sample Reference				TP211	TP214
Sample Number				3	1
Depth (m)				1.50	0.50
Date Sampled				29/04/2024	29/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	8.1	7.3
Electrical Conductivity	µS/cm	10	ISO 17025	100	17
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	3.66	3.91
Chloride	mg/l	0.15	ISO 17025	< 0.15	0.87
Fluoride	µg/l	50	ISO 17025	200	< 50
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	31	97
Nitrate as NO_3	mg/l	0.05	NONE	0.05	1.25
Nitrite as NO_2	µg/l	5	ISO 17025	< 5.0	15
Hardness - Total	mgCaCO3/l	1	ISO 17025	62.5	6.3
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	1.5	1.5
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16

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Analytical i2 Environmental Science

Analytical Report Number: 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				192890	192893
Sample Reference				TP211	TP214
Sample Number				3	1
Depth (m)				1.50	0.50
Date Sampled				29/04/2024	29/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Aluminium (dissolved)	µg/l	12	ISO 17025	580	26
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	9.9	1.4
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.3	0.5
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	11	8.4
Iron (dissolved)	mg/l	0.004	ISO 17025	0.36	0.008
Lead (dissolved)	µg/l	1	ISO 17025	1.2	< 1.0
Manganese (dissolved)	µg/l	0.06	ISO 17025	53	33
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.5	0.5
Silver (dissolved)	µg/l	1	NONE	< 1.0	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.2	< 1.7
Sodium (dissolved)	mg/l	0.01	ISO 17025	1	1.4

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
192889	TP206A	1	0.5	Brown loam and sand with gravel and stones
192890	TP211	3	1.5	Brown loam and sand with gravel and stones
192891	TP212	2	1	Brown sand with gravel and vegetation
192892	TP212	4	2	Brown sand with gravel and stones
192893	TP214	1	0.5	Brown sandy clay with gravel
192894	TP214	5	2.5	Brown sand with gravel and stones

Analytical Report Number : 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025

Analytical Report Number : 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

Analytical Report Number : 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-018472
Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP206A	1	S	192889	c	Total cyanide in soil	L080	c
TP211	3	S	192890	c	Total cyanide in soil	L080	c
TP212	2	S	192891	c	Total cyanide in soil	L080	c
TP212	4	S	192892	c	Total cyanide in soil	L080	c
TP214	1	S	192893	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-018668

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	10/05/2024
Your job number:	38113-BA	**Samples instructed on/ Analysis started on:**	10/05/2024
Your order number:		**Analysis completed by:**	16/05/2024
Report Issue Number:	1	**Report issued on:**	16/05/2024
Samples Analysed:	1 soil sample - 1 leachate sample		

Signed: 

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				194149
Sample Reference				BH307
Sample Number				3
Depth (m)				0.90-1.00
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	31
Moisture Content	%	0.01	NONE	8.4
Total mass of sample received	kg	0.1	NONE	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	25
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	12.3
Organic Matter (automated)	%	0.1	MCERTS	4.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80

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Analytical Report Number: 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				194149
Sample Reference				BH307
Sample Number				3
Depth (m)				0.90-1.00
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2.2
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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4041

Analytical Report Number: 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				194149
Sample Reference				BH307
Sample Number				3
Depth (m)				0.90-1.00
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	7.5
Electrical Conductivity	µS/cm	10	ISO 17025	< 10
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1
Sulphate as SO_4	mg/l	0.045	ISO 17025	1.14
Chloride	mg/l	0.15	ISO 17025	0.65
Fluoride	µg/l	50	ISO 17025	< 50
Ammonium - Exchangeable as NH_4^+	µg/l	15	NONE	22
Nitrate as NO_3	mg/l	0.05	NONE	< 0.05
Nitrite as NO_2	µg/l	5	ISO 17025	< 5.0
Hardness - Total	mgCaCO3/l	1	ISO 17025	1.7
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002
Total Phenols				
Total Phenols (monohydric) low level	µg/l	1	NONE	1.1
Speciated PAHs				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16

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4041

Analytical Report Number: 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				194149
Sample Reference				BH307
Sample Number				3
Depth (m)				0.90-1.00
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Aluminium (dissolved)	µg/l	12	ISO 17025	24
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	1.2
Barium (dissolved)	µg/l	0.05	ISO 17025	0.35
Boron (dissolved)	µg/l	10	ISO 17025	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.7
Cobalt (dissolved)	µg/l	0.3	ISO 17025	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	1.3
Iron (dissolved)	mg/l	0.004	ISO 17025	0.019
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0
Manganese (dissolved)	µg/l	0.06	ISO 17025	8.2
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.7
Silver (dissolved)	µg/l	1	NONE	< 1.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7

Sodium (dissolved)	mg/l	0.01	ISO 17025	0.91

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Analytical Report Number : 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
194149	BH307	3	0.90-1.00	Brown clay and loam with gravel and stones

Analytical Report Number : 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Bromate in leachate by IC	Determination of bromate in leachate based on ion chromatography	In-house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008B	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Electrical conductivity at 20°C of leachate	Determination of electrical conductivity in leachate by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride in leachate	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Exotic metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Nitrate, leachate soluble, in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Exchangeable Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025

Analytical Report Number : 24-018668
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Nitrite, leachate soluble, in leachate	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-019637

Project / Site name:	Penrhys Village, Rhondda Cynon Taff	**Samples received on:**	15/05/2024
Your job number:	38113 BA	**Samples instructed on/ Analysis started on:**	15/05/2024
Your order number:		**Analysis completed by:**	21/05/2024
Report Issue Number:	1	**Report issued on:**	21/05/2024
Samples Analysed:	2 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-019637
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				199158	199159
Sample Reference				TP215	TP101
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.50
Date Sampled				30/04/2024	30/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	64.5
Moisture Content	%	0.01	NONE	15	3.8
Total mass of sample received	kg	0.1	NONE	1.3	1.5
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	8	9.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	17	520
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	8.54	261
Organic Matter (automated)	%	0.1	MCERTS	2.8	0.9
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.12
Acenaphthene	mg/kg	0.05	MCERTS	0.17	1.3
Fluorene	mg/kg	0.05	MCERTS	0.15	0.93
Phenanthrene	mg/kg	0.05	MCERTS	0.89	5.6
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.4
Fluoranthene	mg/kg	0.05	MCERTS	1.9	11
Pyrene	mg/kg	0.05	MCERTS	1.4	9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4	6
Chrysene	mg/kg	0.05	MCERTS	1.8	6.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	11
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.92	4.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.5	8.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.91	5.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.31	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.95	6.1
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	14.4	76.5

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-019637
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Lab Sample Number				199158	199159
Sample Reference				TP215	TP101
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.50
Date Sampled				30/04/2024	30/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.45	0.56
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	14	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	8.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	22	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	7.1
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	39

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-019637
Project / Site name: Penrhys Village, Rhondda Cynon Taff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
199158	TP215	None Supplied	0.5	Brown clay and sand with gravel
199159	TP101	None Supplied	0.5	Brown sand with gravel and stones

Analytical Report Number : 24-019637
Project / Site name: Penrhys Village, Rhondda Cynon Taff

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-019637
Project / Site name: Penrhys Village, Rhondda Cynon Taff

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP101	N/A	S	199159	c	Total cyanide in soil	L080	c
TP215	N/A	S	199158	c	Total cyanide in soil	L080	c

CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

SOCOTEC Asbestos Limited

Unit 20, The Falcon Business Centre,
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Romford.
RM3 8UR

Telephone: 01708 330760
E-mail: ecs.romford@socotec.com

Client	Geotechnical Engineering Limited	Delivered/Collected	Collected
Address	Centurion House, Olympus Park, Quedgeley, Gloucestershire GL2 4NF	Analysis Report No	R172247
Attention	Brian Allen	Report Date	17/May/2024
Site Address	Penrhys, Heol Pendyrus, Ferndale, CF43 3RG	Site Ref No	278640-1041512
Date Sample Taken	01/05/2024	Page No	1 of 2
Date Sample Received	07/05/2024	No of Samples	20
Date of Analysis	17/05/2024		

SOCOTEC Asbestos SAMPLE No	CLIENT SAMPLE No	SAMPLE LOCATION & DESCRIPTION*	FIBRE TYPE DETECTED	ANALYSIS No
001		Ground Floor - Manhole 02 MH02 - Insulation to pipe (left)	NADIS	278640-1041512-0001-001
002		Ground Floor - Manhole 02 MH02 - Insulation to pipe (right)	NADIS	278640-1041512-0001-002
003		Ground Floor - Manhole 02 MH02 - Insulation to orthogonal pipe	NADIS	278640-1041512-0001-003
004		Ground Floor - Manhole 02 MH02 - Loose Gasket	CHRYSOTILE	278640-1041512-0001-004
005		Ground Floor - Manhole 01 MH01 - Insulation to pipe (left)	NADIS	278640-1041512-0001-005
006		Ground Floor - Manhole 01 MH01 - Insulation to pipe (right)	NADIS	278640-1041512-0001-006
007		Ground Floor - Manhole 03 MH03 - Insulation to pipe (right)	NADIS	278640-1041512-0001-007
008		Ground Floor - Manhole 03 MH03 - Insulation to pipe (left)	NADIS	278640-1041512-0001-008
009		Ground Floor - Manhole 03 MH03 - Insulation to orthogonal pipe	NADIS	278640-1041512-0001-009
010		Ground Floor - Manhole 04 MH04 - Insulation to pipe (left)	NADIS	278640-1041512-0001-010

KEY: NADIS - No Asbestos Detected in Sample.
All samples will be retained for a minimum of 6 Months.

Analysed by:	Name: David O'Flaherty	Authorised signatory:	Name: **JULIJA LUKASIOVA**
	Position: Laboratory Bulk Analyst		Position: **Contract Administrator**

BULK005-VER 17 25-AUG 2023

Samples of material referenced above have been examined using our internal procedure SCI/ASB/007, based on HSE's HSG248, Asbestos: The Analysts guide. If samples have been DELIVERED, the site address and actual sample location is as given by the client at the time of delivery. Where samples have been taken by a third party the results shall apply to the samples as received. SOCOTEC Asbestos Limited is not responsible for the accuracy or competence of the sampling by third parties, and can therefore not be held responsible for any interpretation of the results shown. The Test Report shall not be reproduced except in full without the approval of the inspection body and the client. *Please note that the sample description, material type and comments/observations are opinions and therefore not within the scope of UKAS accreditation. All samples will be retained for a minimum of 6 months whilst all certificates and supporting records are retained for a minimum of 6 years.

SOCOTEC Asbestos Limited is a wholly owned subsidiary of SOCOTEC, registered in England and Wales, registered company 04951688 at SOCOTEC House, Bretby Business Park, Ashby Road, Burton upon Trent, DE15 0YZ.

CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

SOCOTEC Asbestos Limited

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Telephone: 01708 330760
E-mail: ecs.romford@socotec.com

Client	Geotechnical Engineering Limited	Delivered/Collected	Collected
Address	Centurion House, Olympus Park, Quedgeley, Gloucestershire GL2 4NF	Analysis Report No	R172247
Attention	Brian Allen	Report Date	17/May/2024
Site Address	Penrhys, Heol Pendyrus, Ferndale, CF43 3RG	Site Ref No	278640-1041512
Date Sample Taken	01/05/2024	Page No	2 of 2
Date Sample Received	07/05/2024	No of Samples	20
Date of Analysis	17/05/2024		

SOCOTEC Asbestos SAMPLE No	CLIENT SAMPLE No	SAMPLE LOCATION & DESCRIPTION*	FIBRE TYPE DETECTED	ANALYSIS No
011		Ground Floor - Manhole 04 MH04 - Insulation to pipe (right)	NADIS	278640-1041512-0001-011
012		Ground Floor - Manhole 05 MH05 - Insulation to pipe (left)	NADIS	278640-1041512-0001-012
013		Ground Floor - Manhole 05 MH05 - Insulation to orthogonal pipe	NADIS	278640-1041512-0001-013
014		Ground Floor - Manhole 05 MH05 - Insulating board debris	NADIS	278640-1041512-0001-014
015		Ground Floor - Manhole 06 MH06 - Insulation to pipe (left)	NADIS	278640-1041512-0001-015
016		Ground Floor - Manhole 06 MH06 - Insulation to pipe (right)	NADIS	278640-1041512-0001-016
017		Ground Floor - Manhole 07 MH07 - Insulation to pipe (left)	NADIS	278640-1041512-0001-017
018		Ground Floor - Manhole 07 MH07 - Insulation to pipe (right)	NADIS	278640-1041512-0001-018
019		Ground Floor - Manhole 08 MH08 - Insulation to pipe (left)	NADIS	278640-1041512-0001-019
020		Ground Floor - Manhole 08 MH08 - Insulation to pipe (right)	NADIS	278640-1041512-0001-020

KEY: NADIS - No Asbestos Detected in Sample.
All samples will be retained for a minimum of 6 Months.

Analysed by:	Name:	David O'Flaherty	Authorised signatory:	Name:	**JULIJA LUKASIOVA**
	Position:	Laboratory Bulk Analyst		Position:	**Contract Administrator**

BULK005-VER 17 25-AUG 2023

Samples of material referenced above have been examined using our internal procedure SCI/ASB/007, based on HSE's HSG248, Asbestos: The Analysts guide. If samples have been DELIVERED, the site address and actual sample location is as given by the client at the time of delivery. Where samples have been taken by a third party the results shall apply to the samples as received. SOCOTEC Asbestos Limited is not responsible for the accuracy or competence of the sampling by third parties, and can therefore not be held responsible for any interpretation of the results shown. The Test Report shall not be reproduced except in full without the approval of the inspection body and the client. *Please note that the sample description, material type and comments/observations are opinions and therefore not within the scope of UKAS accreditation. All samples will be retained for a minimum of 6 months whilst all certificates and supporting records are retained for a minimum of 6 years.

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Appendix C Geotechnical Assessments

UKAS TESTING
2718

GEOTECHNICAL ENGINEERING LIMITED

Version No.	1
Reason for update	N/A
For the attention of Brian Allen / Simon Phelpstead	Page No. 1 of 48
	Date of Issue 18/06/2024

TEST REPORT

PROJECT/SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	Samples received	17/04/2024
GEL REPORT NUMBER	38113	Schedule received	16/05/2024
Your ref/PO:		Testing commenced	20/05/2024
Test report refers to	Schedule 001	Status	Final

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION (S) denotes testing was subcontracted		QUANTITY	ACCREDITED TEST
BS EN ISO 17892-1: 2014:5, Water Content		5	YES
BS EN ISO 17892-12:2018, Liquid & Plastic Limits		5	YES
BS EN ISO 17892-4: 2016: 5.2, Particle Size Distribution - Wet Sieve		36	YES
BS EN ISO 17892-4: 2016: 5.4, Particle Size Distribution - Pipette		1	YES
ISRM: Suggested Methods: 2007: Water Content of Rock		4	NO
ISRM Suggested Methods: 1974-2006: Uniaxial Compressive Strength of Rock	(S)	4	YES
ISRM: Suggested Methods: 2007: Point Load Strength Test		16	YES
ISRM: Suggested Methods: 1974-2006: Point Load Strength Test	(S)	1	YES

General Remarks

This report may not be partially reproduced without written permission from this laboratory.
The results reported relate to samples received in the laboratory and the items tested.

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Approved Signatories:
W Jones (Laboratory Manager) J Hanson (Director)
T Best (Deputy Laboratory Manager) N Parry (Director)



Geotechnical Engineering Limited

LIQUID AND PLASTIC LIMITS

BS EN ISO 17892-12:2018

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	specimen preparation and test method	fraction >0.425 mm (%)	liquid limit (%)	plastic limit (%)	plasticity index (%)	description and remarks
BH304	4D	0.50	0.50	14.2	BYE	47	32	21	11	Brown slightly sandy gravelly silty CLAY
BH305	3B	0.50	0.50	17.5	BYE	25	31	19	12	Brown slightly sandy slightly gravelly silty CLAY
BH306	4D	0.50	0.50	18.7	BYE	83	50	40	10	Brown sandy silty GRAVEL
TP213	3D	1.50	1.50	16.7	BYE	52	35	23	12	Brown slightly sandy gravelly silty CLAY
TP215	1B	0.50	0.50	16.8	BYE	53	38	25	13	Brown slightly sandy gravelly silty CLAY

general remarks

natural water content determined in accordance with BS EN ISO 17892 - 1 : 2014 (unless specified)

NP denotes non plastic

# denotes sample tested is smaller than that which is recommended in accordance with BS EN ISO 17892 or BS1377

specimen preparation

A - as received
B - washed on 0.425mm sieve
C - air dried
D - oven dried (60oC)
E - oven dried (105oC)
F - not known

test method

X - cone penetrometer (4 point)
Y - cone penetrometer (1 point)
Z - casagrande apparatus

CONTRACT **38113**

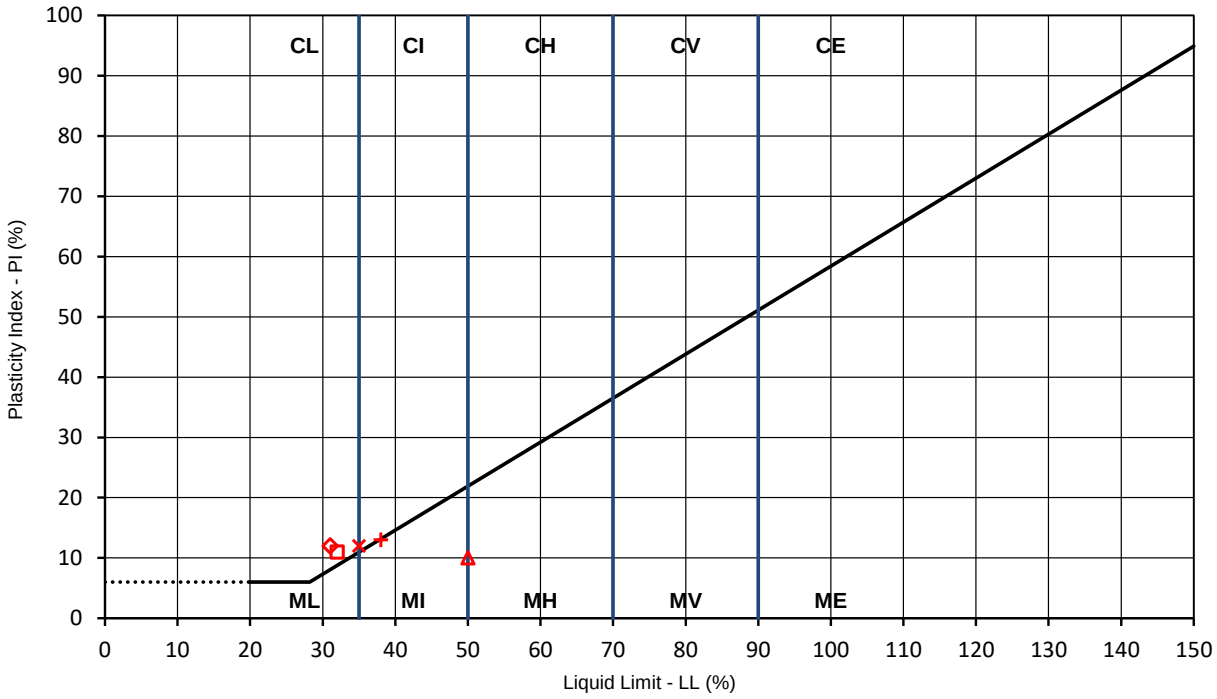
CHECKED **TB**

Geotechnical Engineering Limited

ATTERBERG LINE PLOT

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF



	BH/TP No.	depth (m)	LL	PL	PI	remarks
□	BH304	0.50	32	21	11	
◇	BH305	0.50	31	19	12	
△	BH306	0.50	50	40	10	
×	TP213	1.50	35	23	12	
+	TP215	0.50	38	25	13	

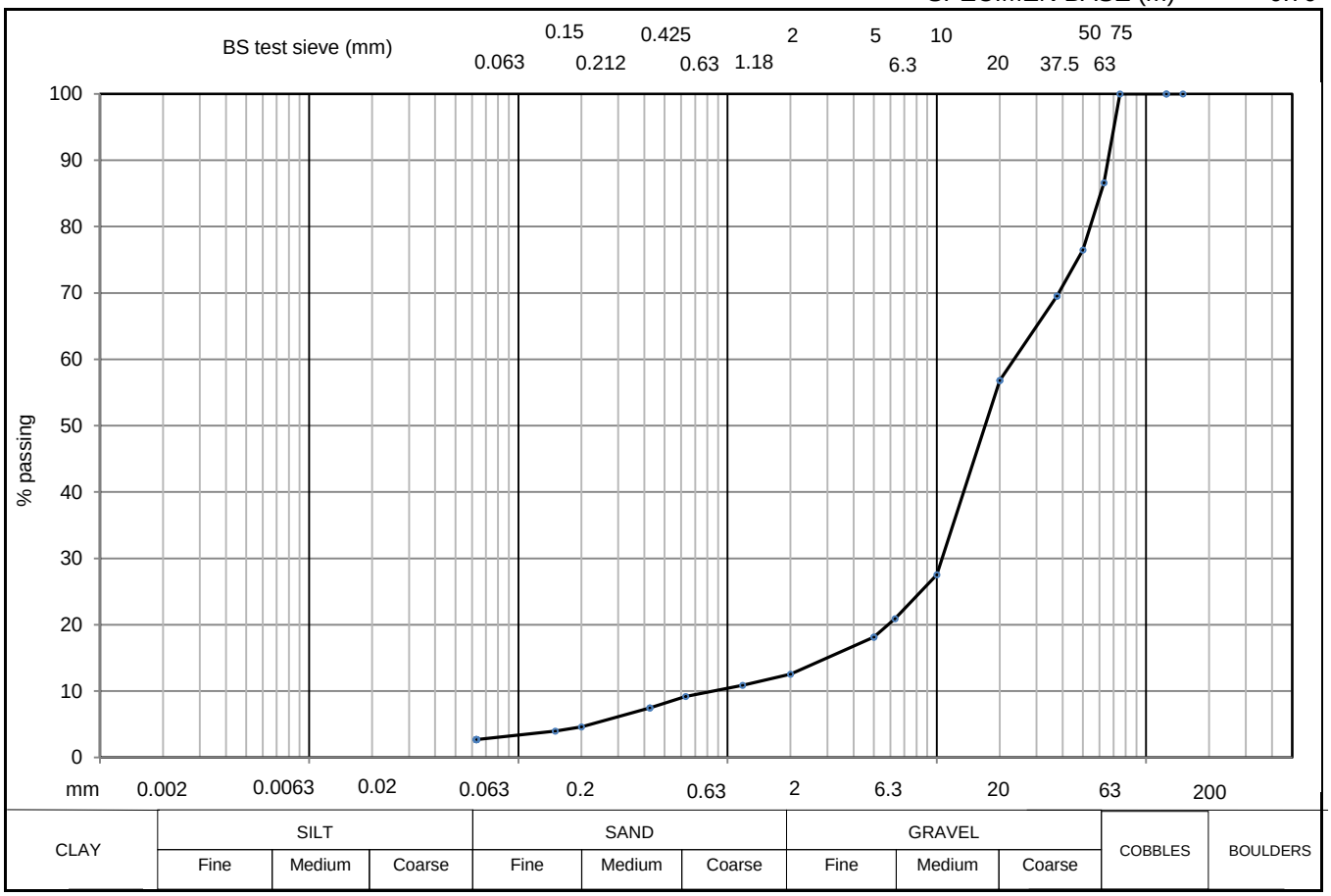
CONTRACT	CHECKED
38113	**TB**

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH301
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown slightly clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	10
GRAVEL	74
COBBLE & BOULDER	13
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	18	20	
75	100	2	13	6	
63	87	1.18	11	2	
50	76	0.63	9		
37.5	70	0.425	7		
20	57	0.2	5		
10	28	0.15	4		
6.3	21	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

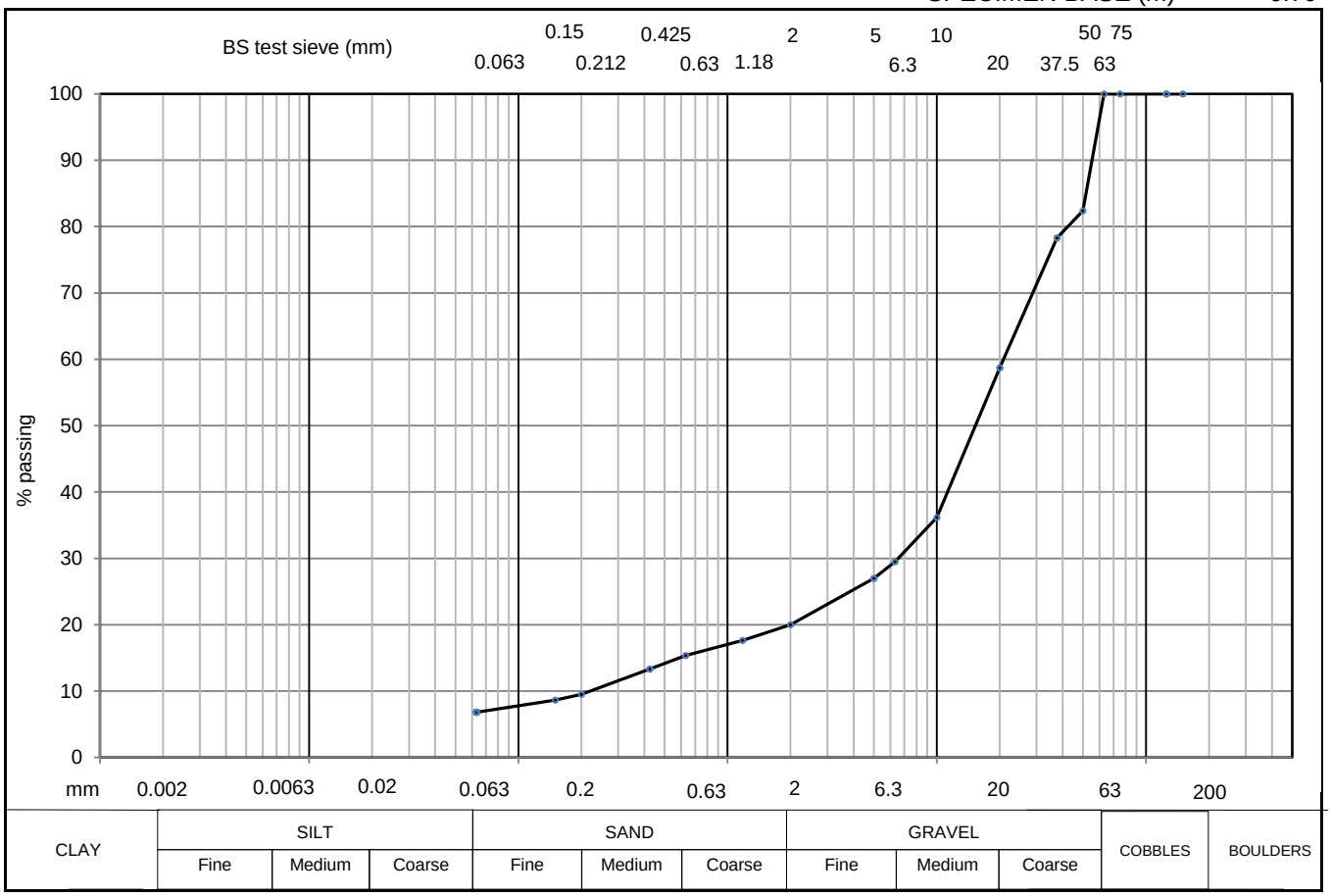
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH302B
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.70



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	13
GRAVEL	80
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	27	20	
75		2	20	6	
63	100	1.18	18	2	
50	82	0.63	15		
37.5	78	0.425	13		
20	59	0.2	10		
10	36	0.15	9		
6.3	30	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

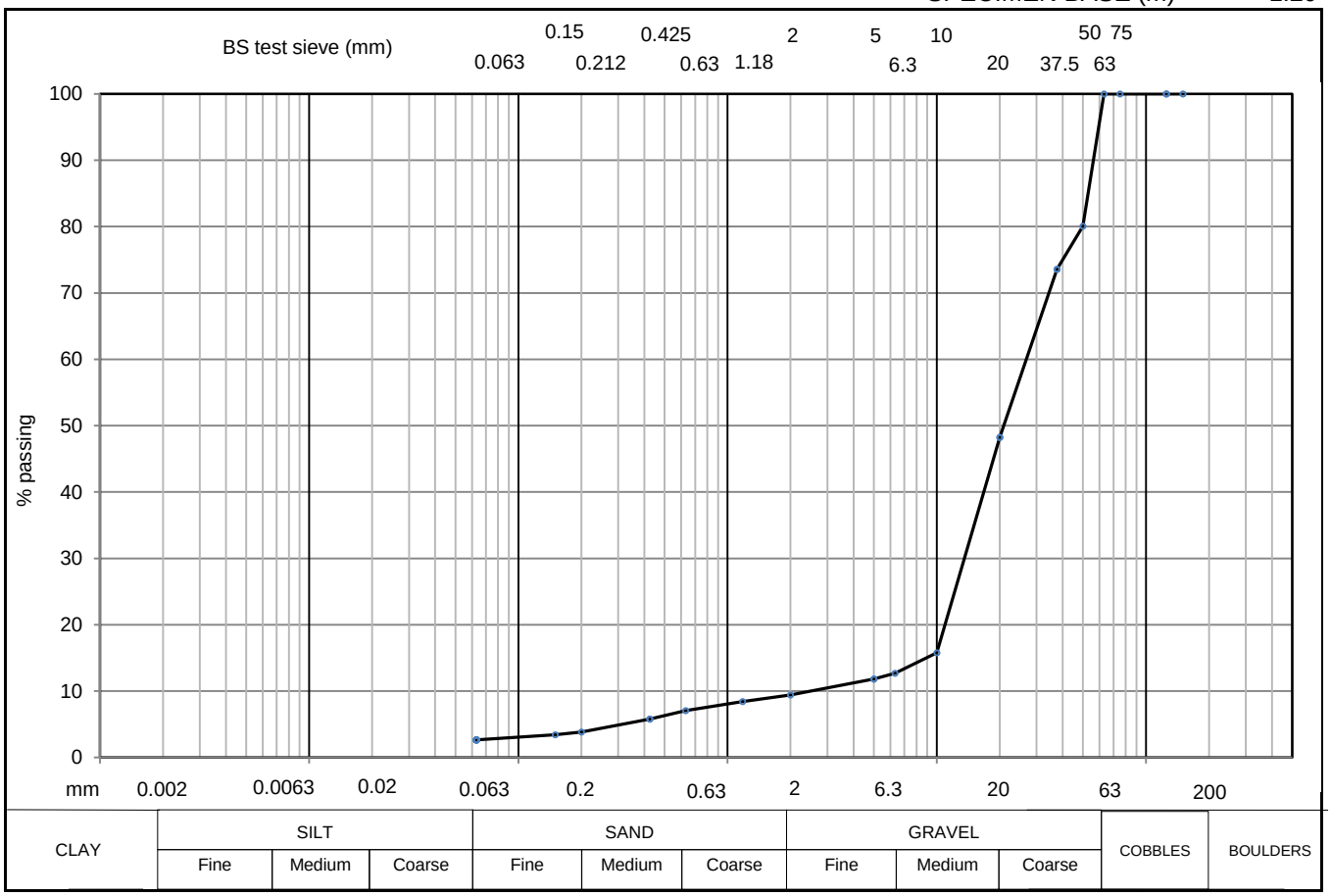
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH303B
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Grey slightly clayey sandy GRAVEL with rare wood fragments	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	7
GRAVEL	91
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	100
50	80
37.5	74
20	48
10	16
6.3	13

BS test sieve (mm)	% passing
5	12
2	9
1.18	8
0.63	7
0.425	6
0.2	4
0.15	3
0.063	3

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

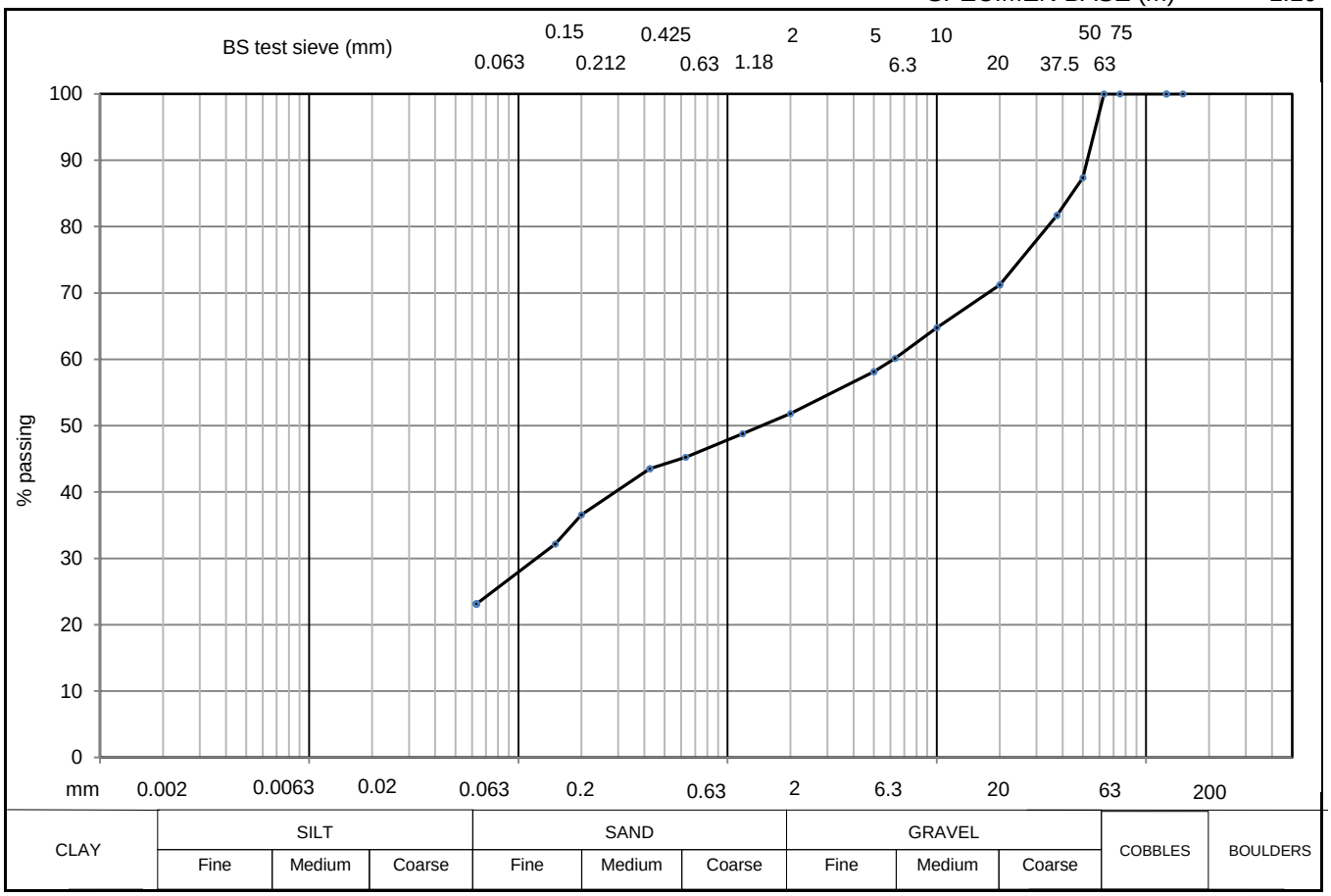
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH304
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.90
DESCRIPTION	Brown very silty very sandy GRAVEL	SPECIMEN TOP (m)	0.90
		SPECIMEN BASE (m)	1.10



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	29
GRAVEL	48
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	58	20	
75		2	52	6	
63	100	1.18	49	2	
50	87	0.63	45		
37.5	82	0.425	44		
20	71	0.2	37		
10	65	0.15	32		
6.3	60	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

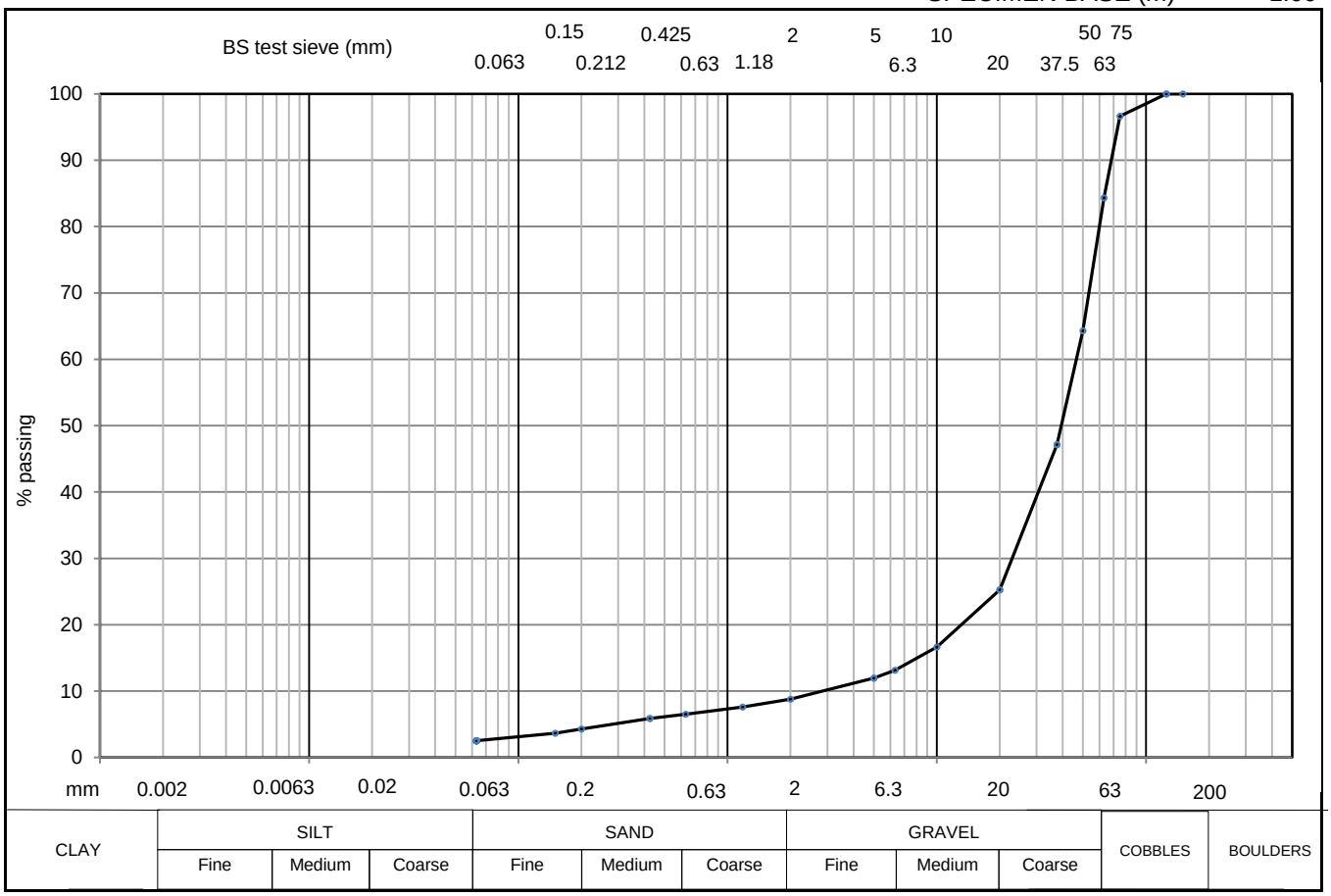
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	BH306
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	0.90
DESCRIPTION	Brown slightly silty sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.90
		SPECIMEN BASE (m)	1.00



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	6
GRAVEL	76
COBBLE & BOULDER	16
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	12	20	
75	97	2	9	6	
63	84	1.18	8	2	
50	64	0.63	7		
37.5	47	0.425	6		
20	25	0.2	4		
10	17	0.15	4		
6.3	13	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

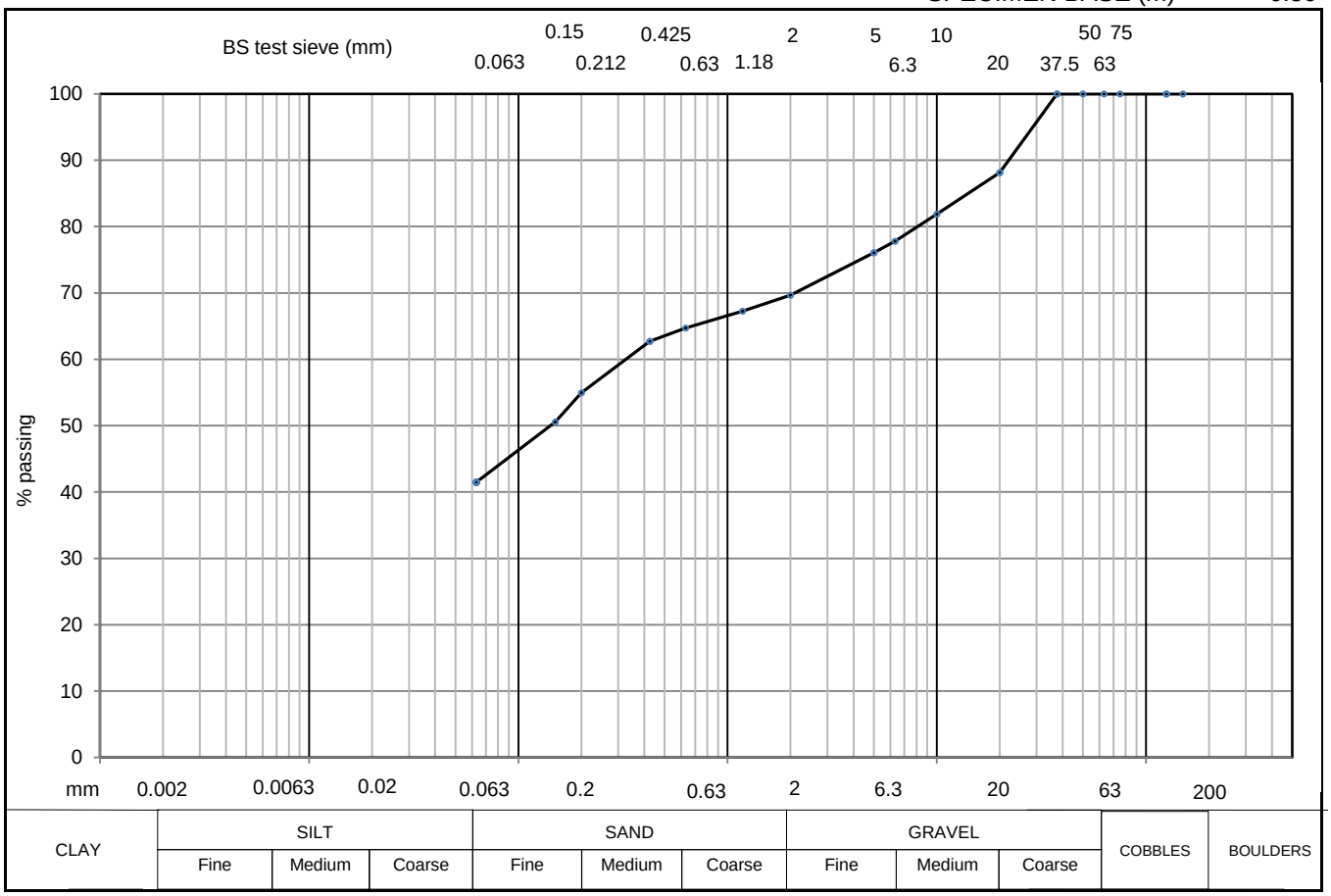
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CLIENT	TRIVALLIS	BH/TP No.	BH307
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	0.30
DESCRIPTION	Brown slightly sandy slightly gravelly CLAY	SPECIMEN TOP (m)	0.30
		SPECIMEN BASE (m)	0.50



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	41
SAND	28
GRAVEL	30
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	100
20	88
10	82
6.3	78

BS test sieve (mm)	% passing
5	76
2	70
1.18	67
0.63	65
0.425	63
0.2	55
0.15	51
0.063	41

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

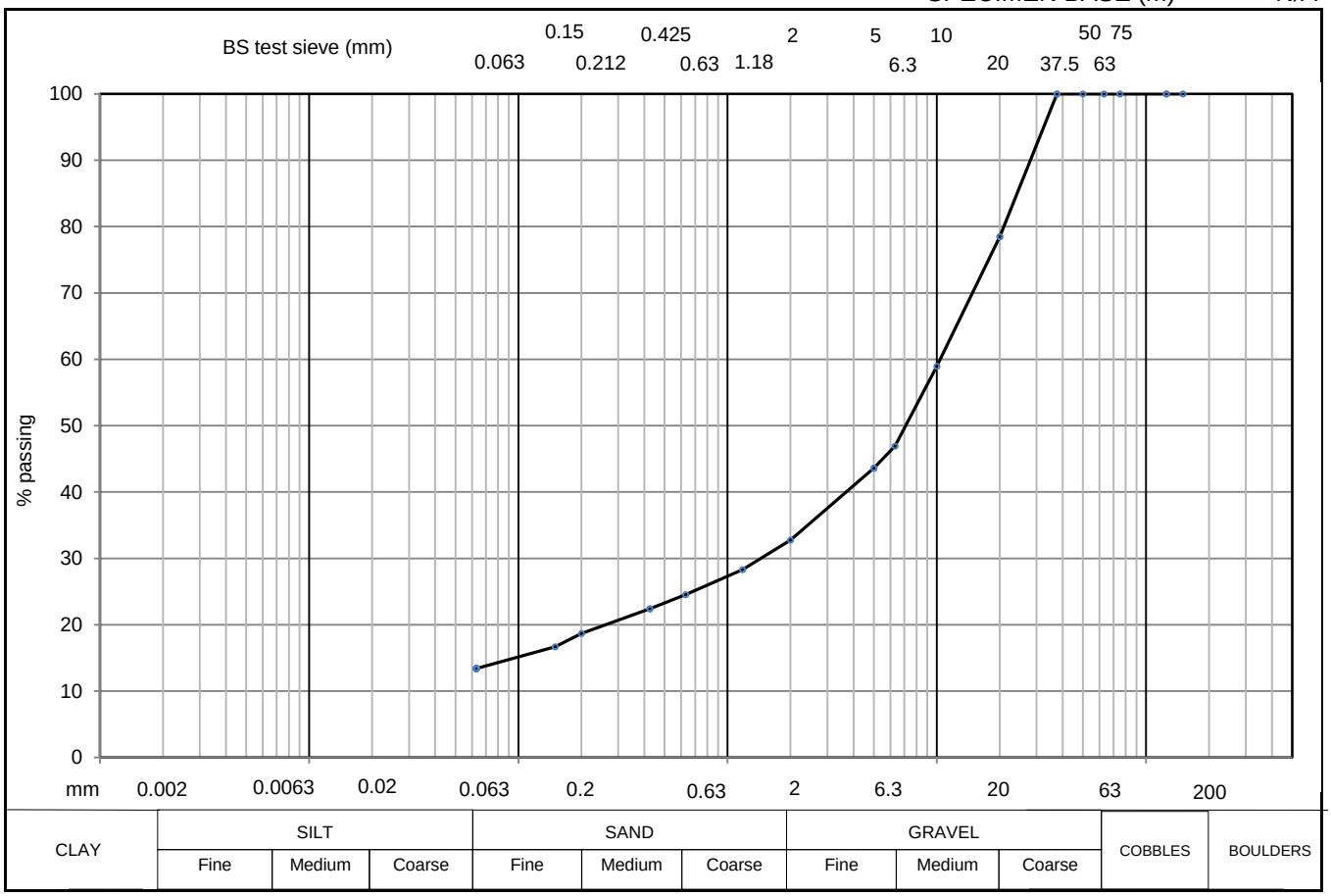
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CLIENT	TRIVALLIS	BH/TP No.	TP101
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown silty sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	13
SAND	19
GRAVEL	67
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	100
20	78
10	59
6.3	47

BS test sieve (mm)	% passing
5	44
2	33
1.18	28
0.63	25
0.425	22
0.2	19
0.15	17
0.063	13

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

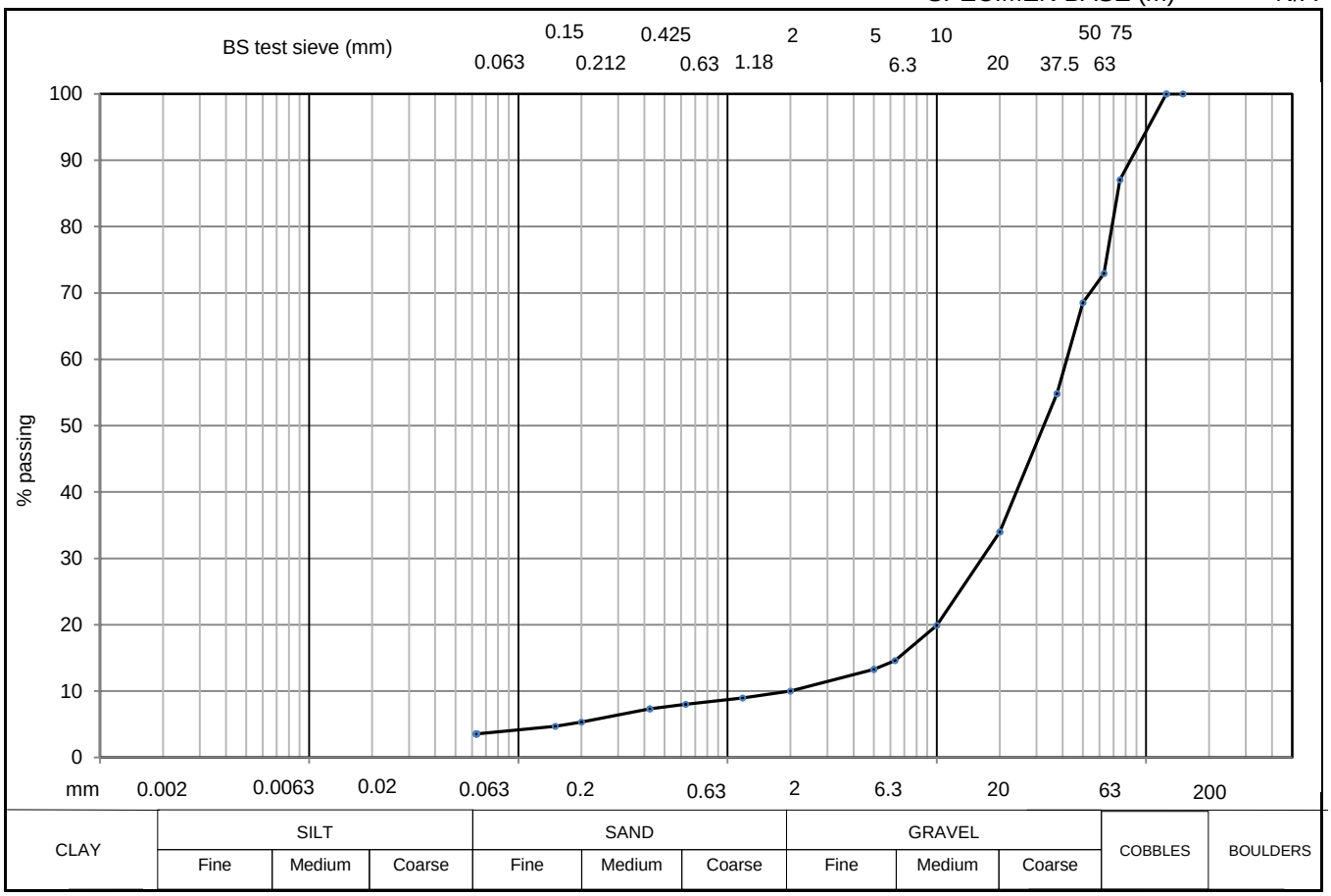
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CLIENT	TRIVALLIS	BH/TP No.	TP102
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown slightly clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	4
SAND	6
GRAVEL	63
COBBLE & BOULDER	27
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	13	20	
75	87	2	10	6	
63	73	1.18	9	2	
50	69	0.63	8		
37.5	55	0.425	7		
20	34	0.2	5		
10	20	0.15	5		
6.3	15	0.063	4		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

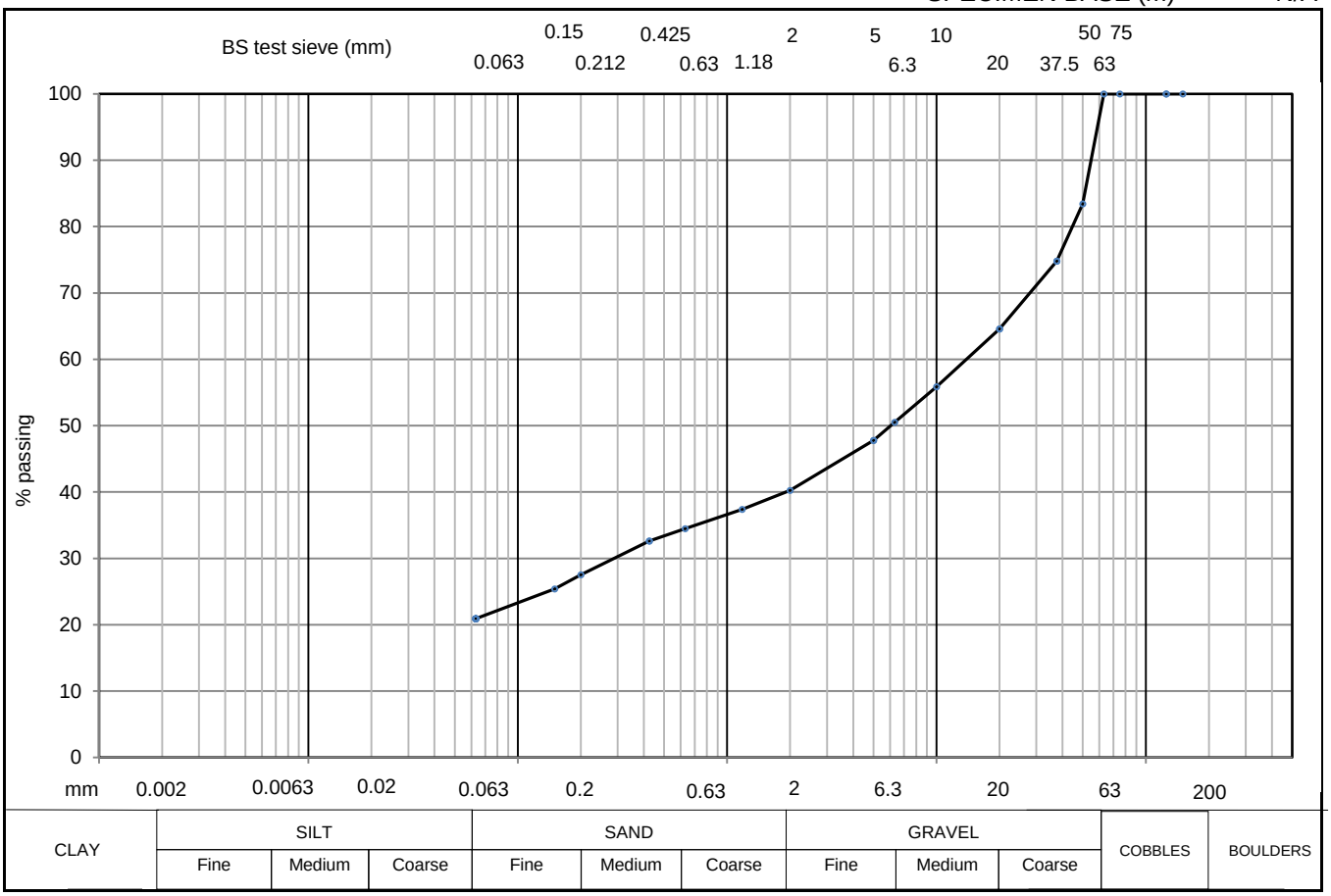
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CLIENT	TRIVALLIS	BH/TP No.	TP107
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown sandy very clayey GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	21
SAND	19
GRAVEL	60
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	48	20	
75		2	40	6	
63	100	1.18	37	2	
50	83	0.63	34		
37.5	75	0.425	33		
20	65	0.2	28		
10	56	0.15	25		
6.3	50	0.063	21		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

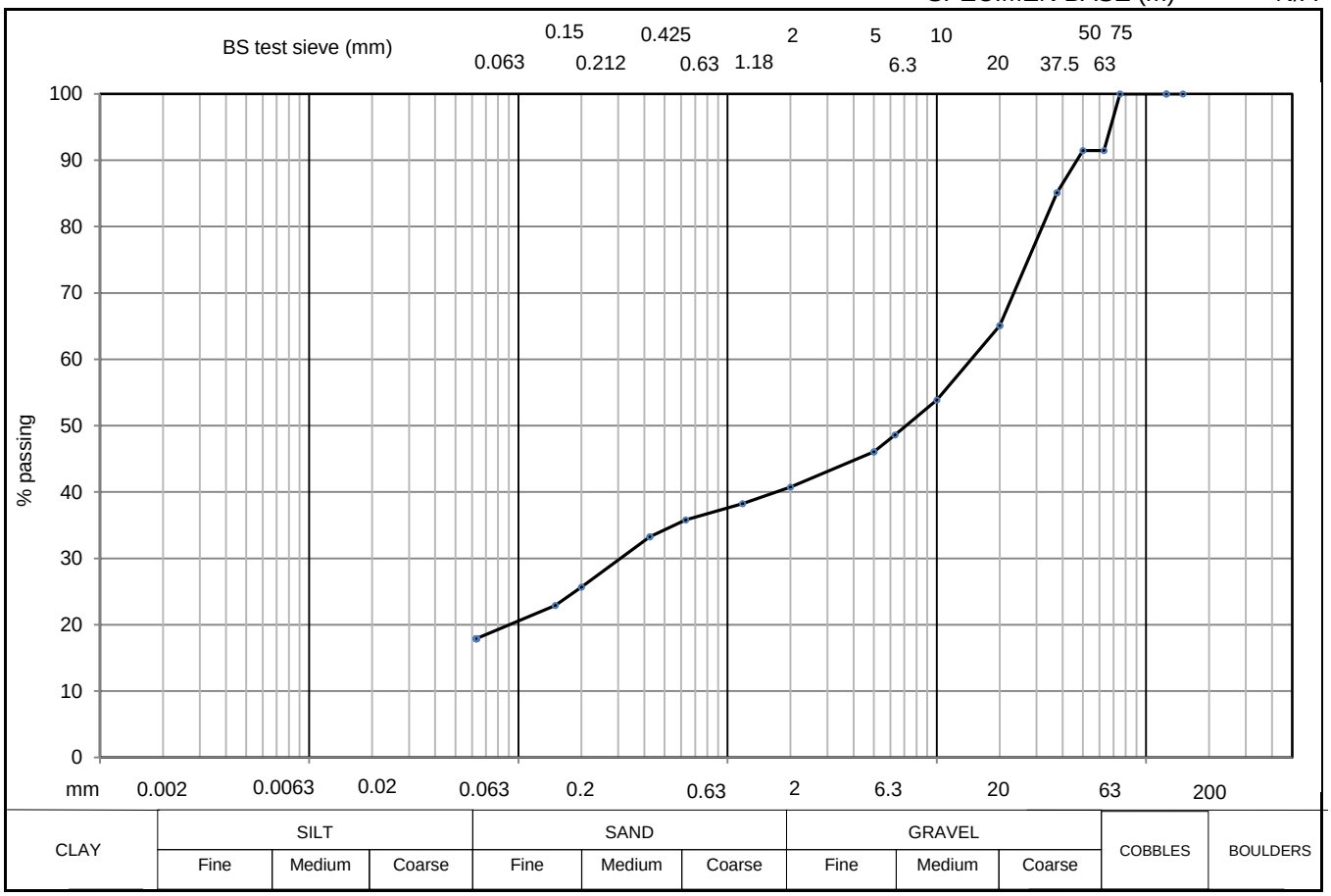
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP201
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey very sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	23
GRAVEL	51
COBBLE & BOULDER	9
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	100
63	91
50	91
37.5	85
20	65
10	54
6.3	49

BS test sieve (mm)	% passing
5	46
2	41
1.18	38
0.63	36
0.425	33
0.2	26
0.15	23
0.063	18

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

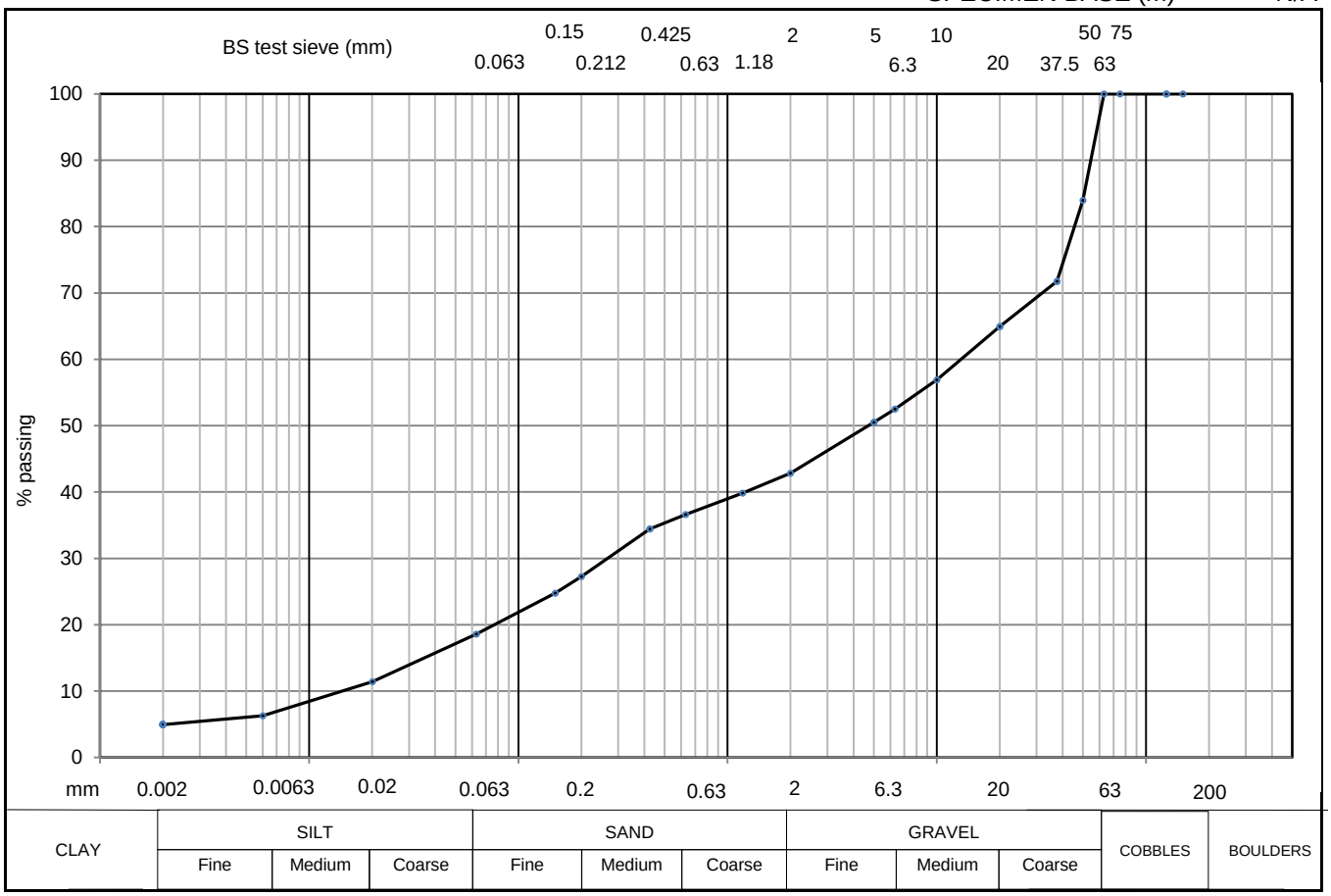
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CLIENT	TRIVALLIS	BH/TP No.	TP201
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	5B
		SAMPLE DEPTH (m)	2.50
DESCRIPTION	Brown silty very sandy GRAVEL	SPECIMEN TOP (m)	2.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	5
SILT	14
SILT & CLAY	19
SAND	24
GRAVEL	57
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	51	20	11
75		2	43	6	6
63	100	1.18	40	2	5
50	84	0.63	37		
37.5	72	0.425	34		
20	65	0.2	27		
10	57	0.15	25		
6.3	53	0.063	19		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

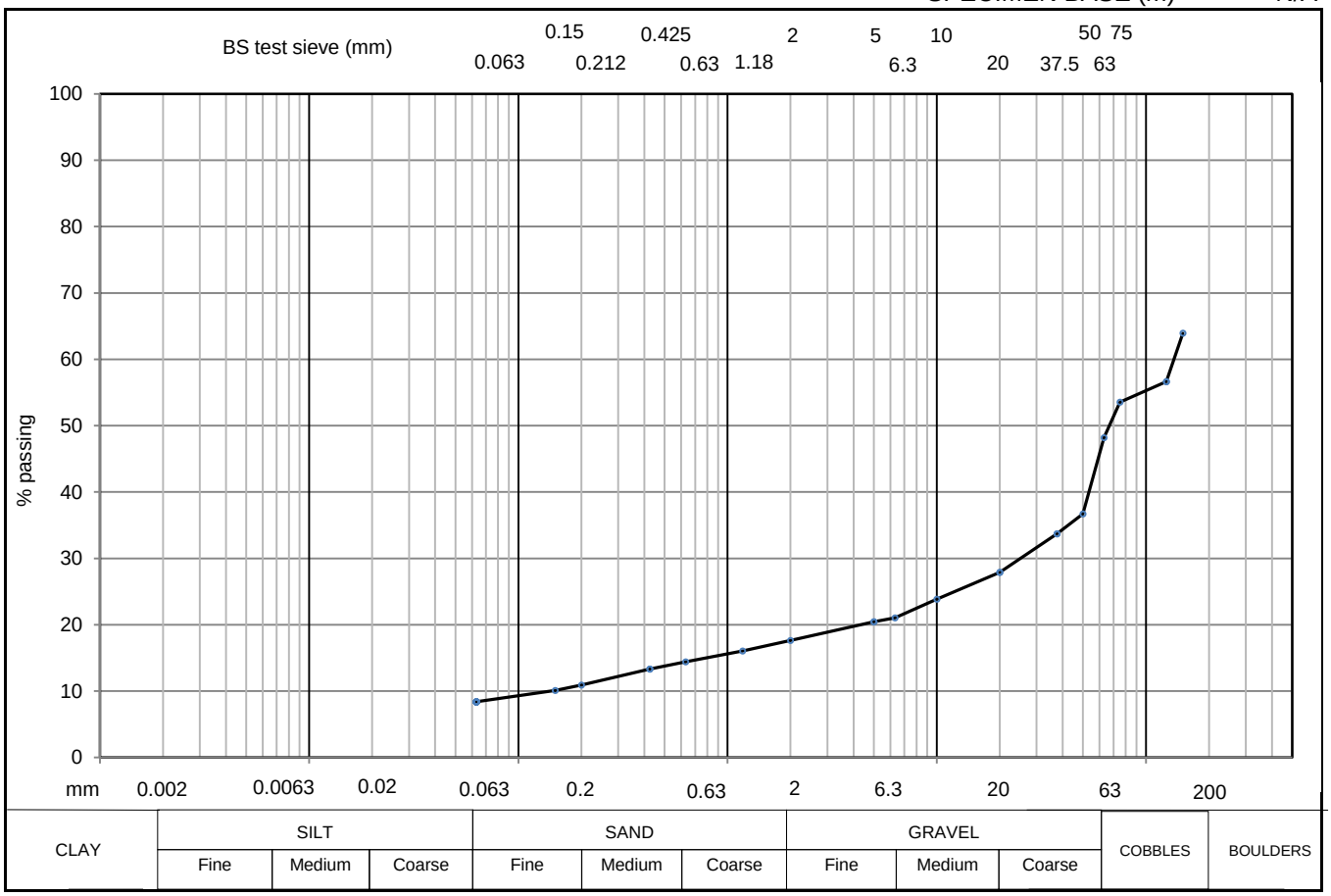
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CLIENT	TRIVALLIS	BH/TP No.	TP202
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	8
SAND	9
GRAVEL	31
COBBLE & BOULDER	52
test method(s)	5.2#

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	64	5	20	20	
75	54	2	18	6	
63	48	1.18	16	2	
50	37	0.63	14		
37.5	34	0.425	13		
20	28	0.2	11		
10	24	0.15	10		
6.3	21	0.063	8		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

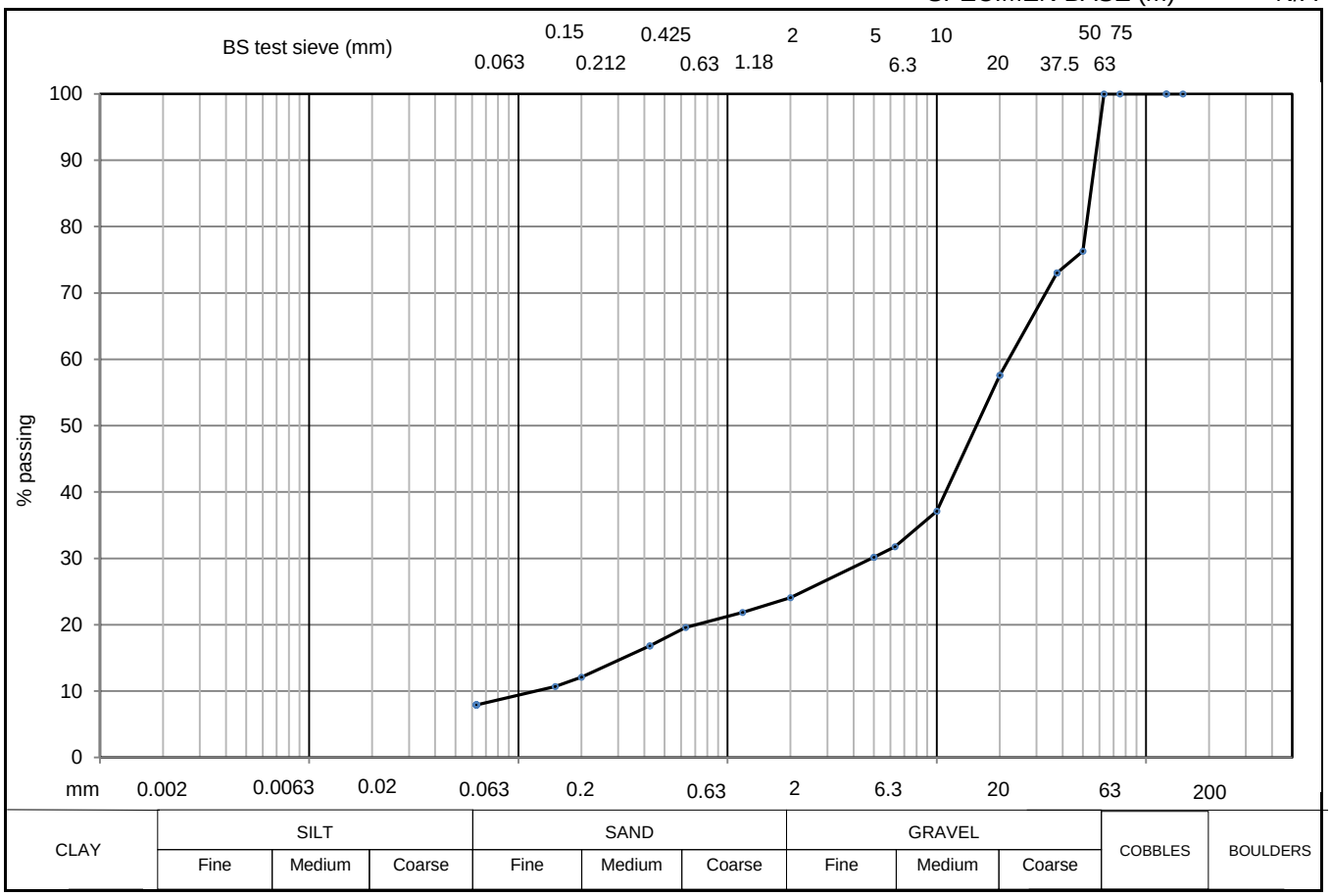
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP204
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	8
SAND	16
GRAVEL	76
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	30	20	
75		2	24	6	
63	100	1.18	22	2	
50	76	0.63	20		
37.5	73	0.425	17		
20	58	0.2	12		
10	37	0.15	11		
6.3	32	0.063	8		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

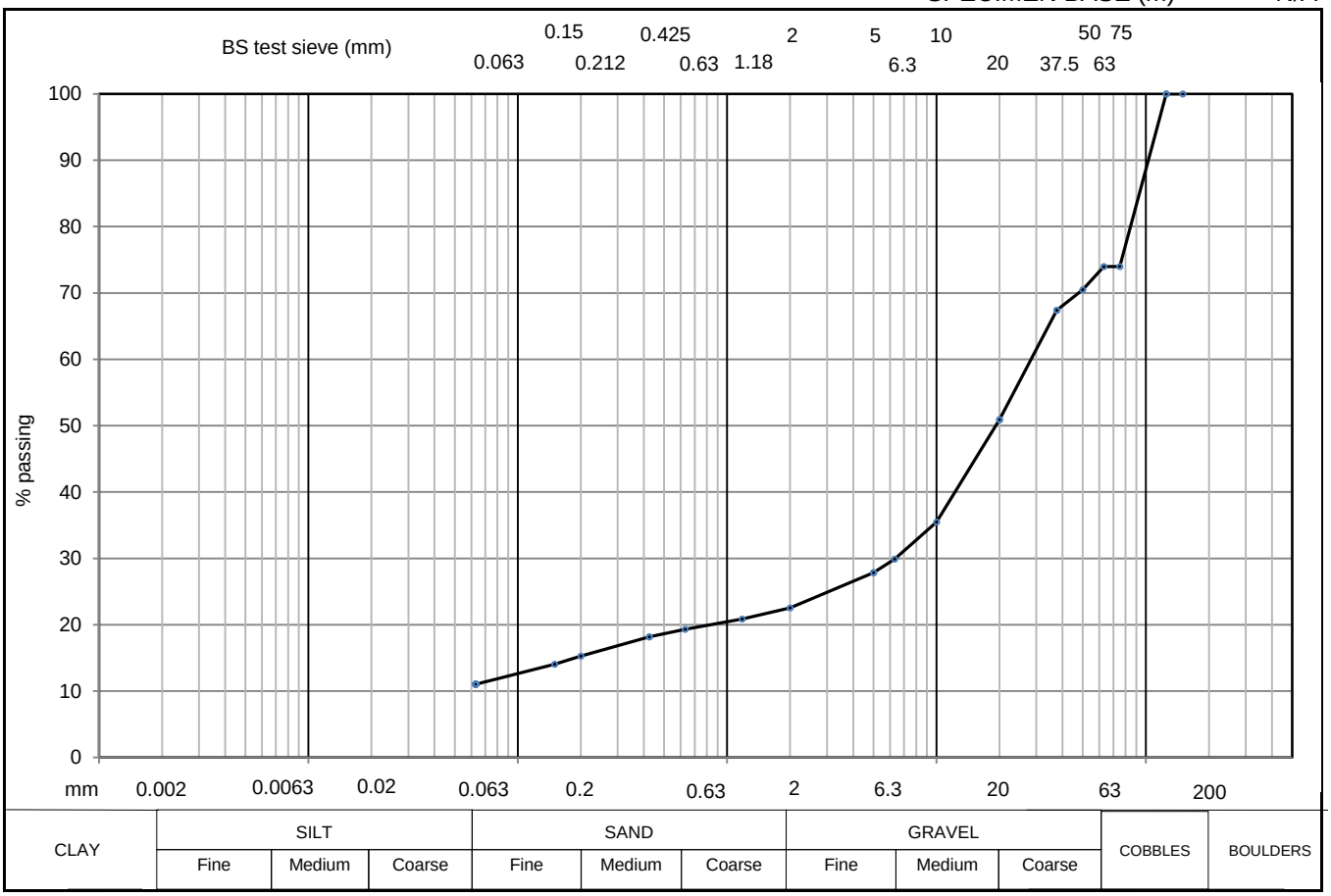
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP204
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	11
SAND	12
GRAVEL	51
COBBLE & BOULDER	26
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	28	20	
75	74	2	23	6	
63	74	1.18	21	2	
50	70	0.63	19		
37.5	67	0.425	18		
20	51	0.2	15		
10	35	0.15	14		
6.3	30	0.063	11		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

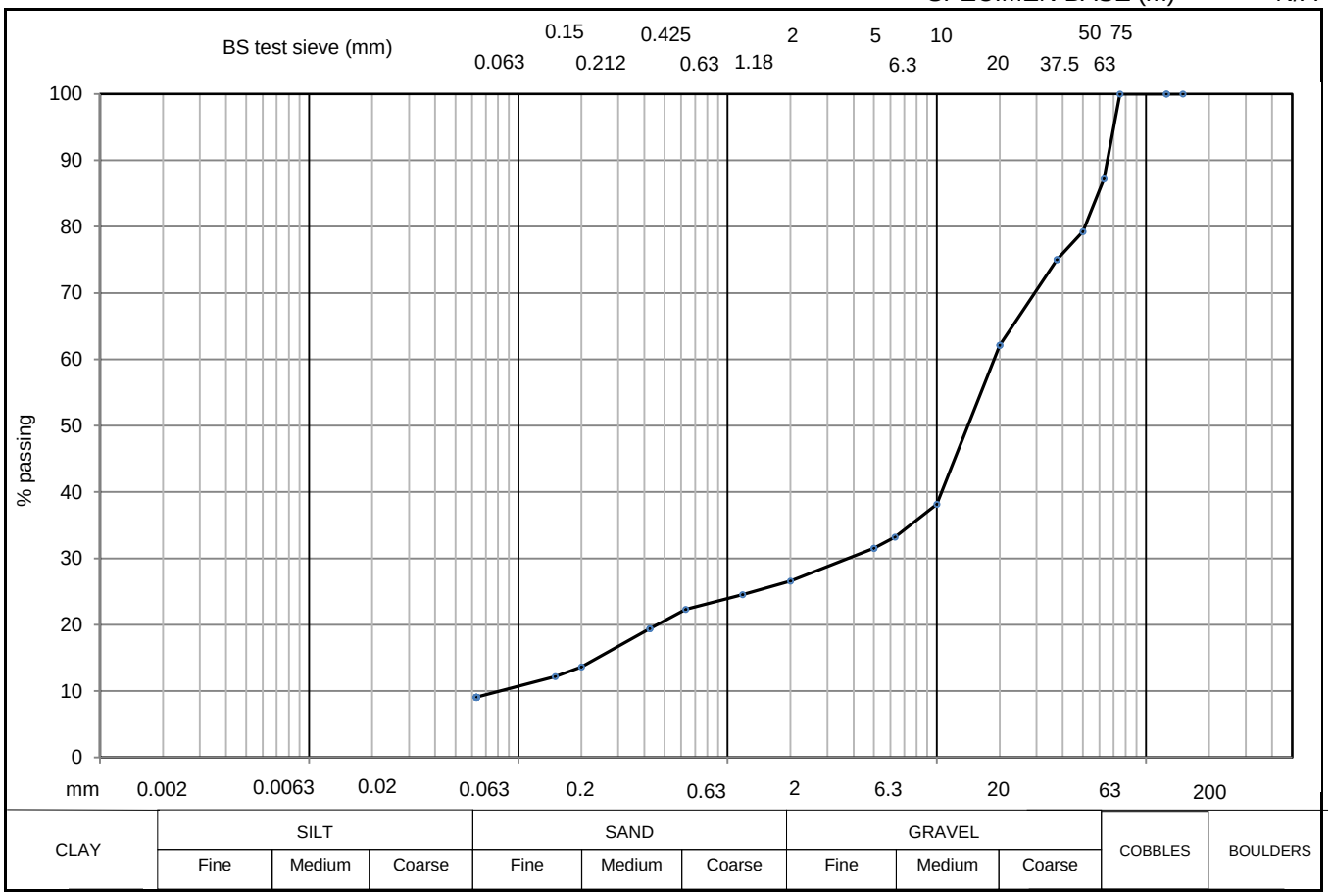
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BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP205
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	9
SAND	17
GRAVEL	61
COBBLE & BOULDER	13
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	32	20	
75	100	2	27	6	
63	87	1.18	25	2	
50	79	0.63	22		
37.5	75	0.425	19		
20	62	0.2	14		
10	38	0.15	12		
6.3	33	0.063	9		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

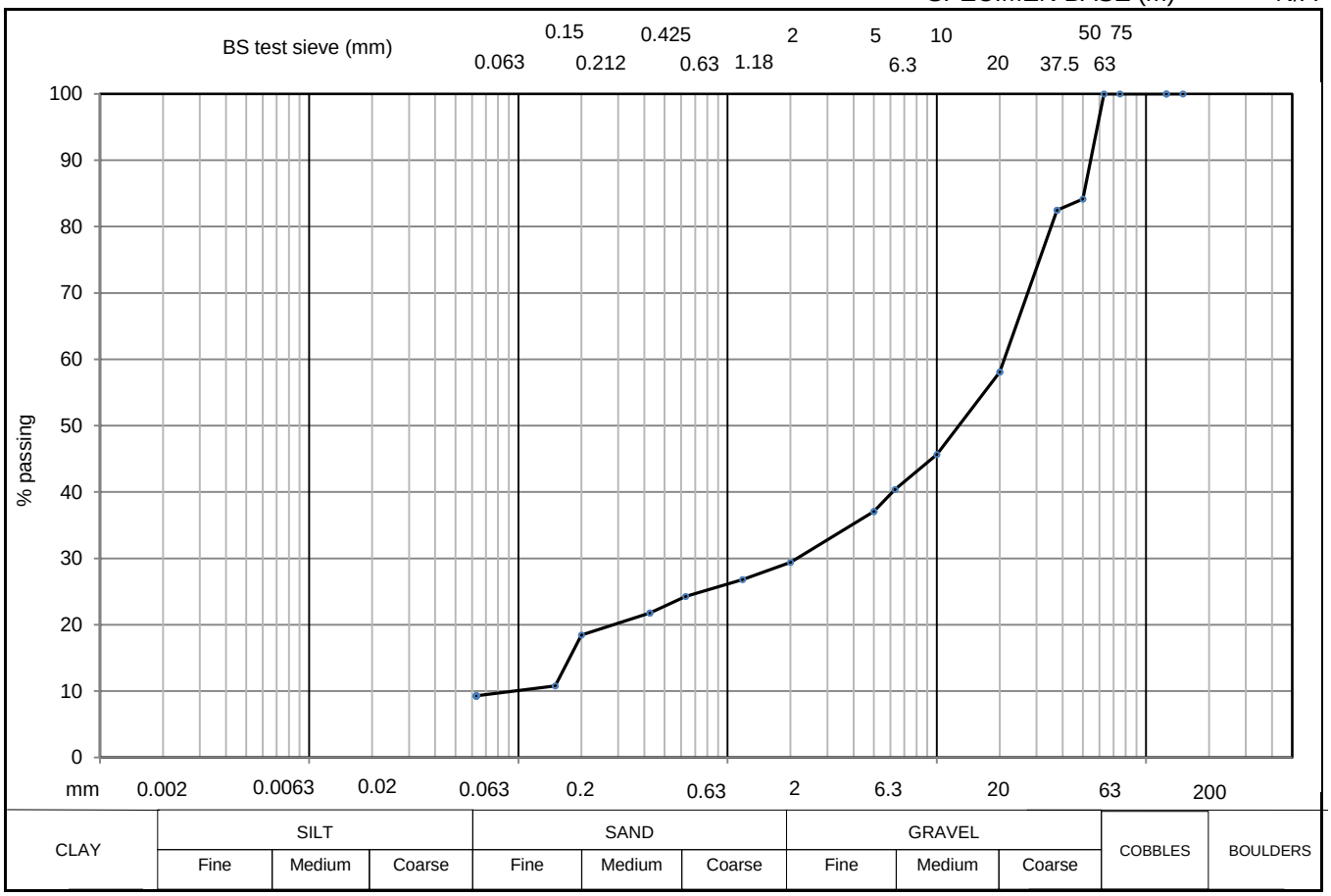
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP206A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	9
SAND	20
GRAVEL	71
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	100
50	84
37.5	82
20	58
10	46
6.3	40

BS test sieve (mm)	% passing
5	37
2	29
1.18	27
0.63	24
0.425	22
0.2	18
0.15	11
0.063	9

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

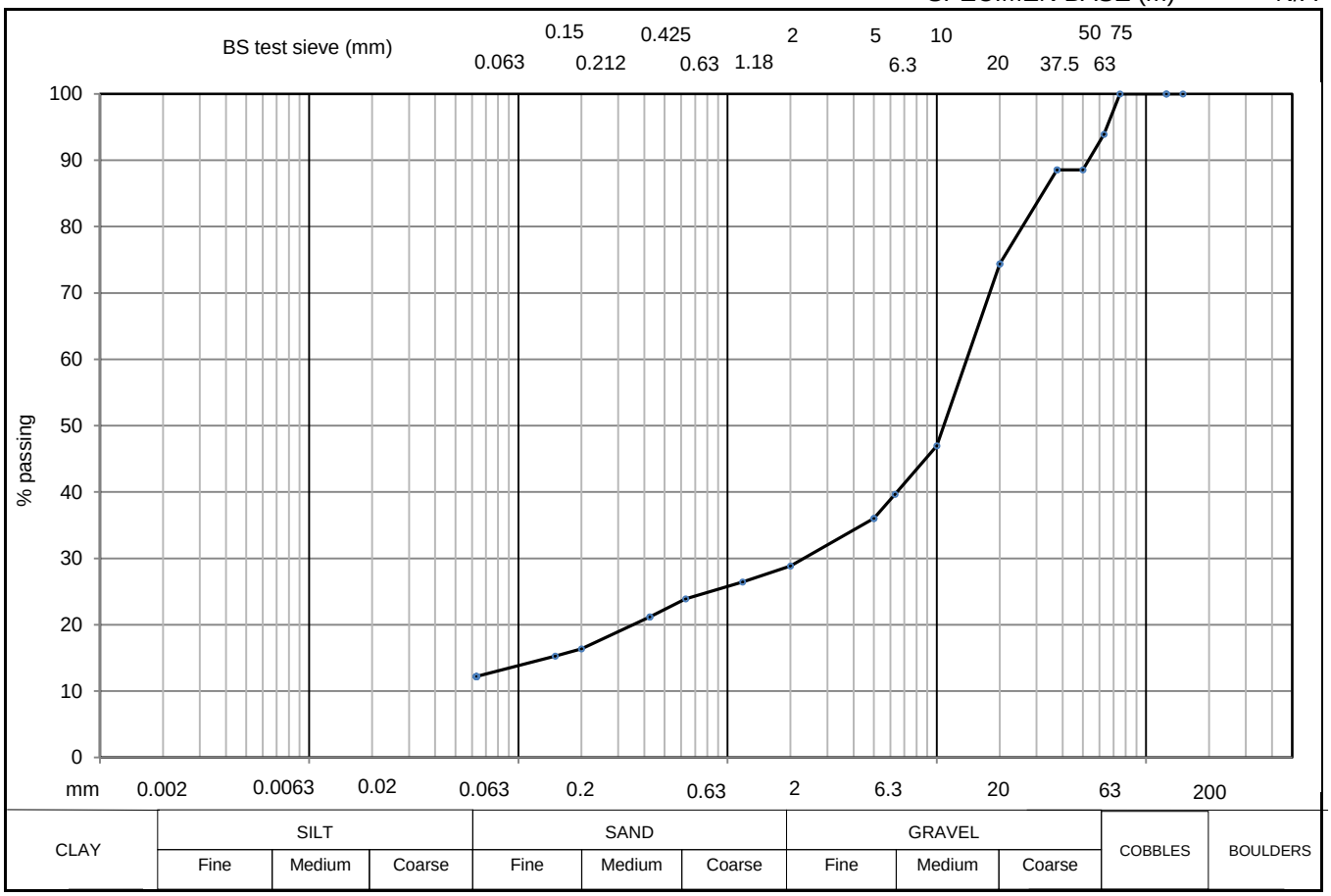
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP207A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	12
SAND	17
GRAVEL	65
COBBLE & BOULDER	6
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	36	20	
75	100	2	29	6	
63	94	1.18	26	2	
50	89	0.63	24		
37.5	89	0.425	21		
20	74	0.2	16		
10	47	0.15	15		
6.3	40	0.063	12		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

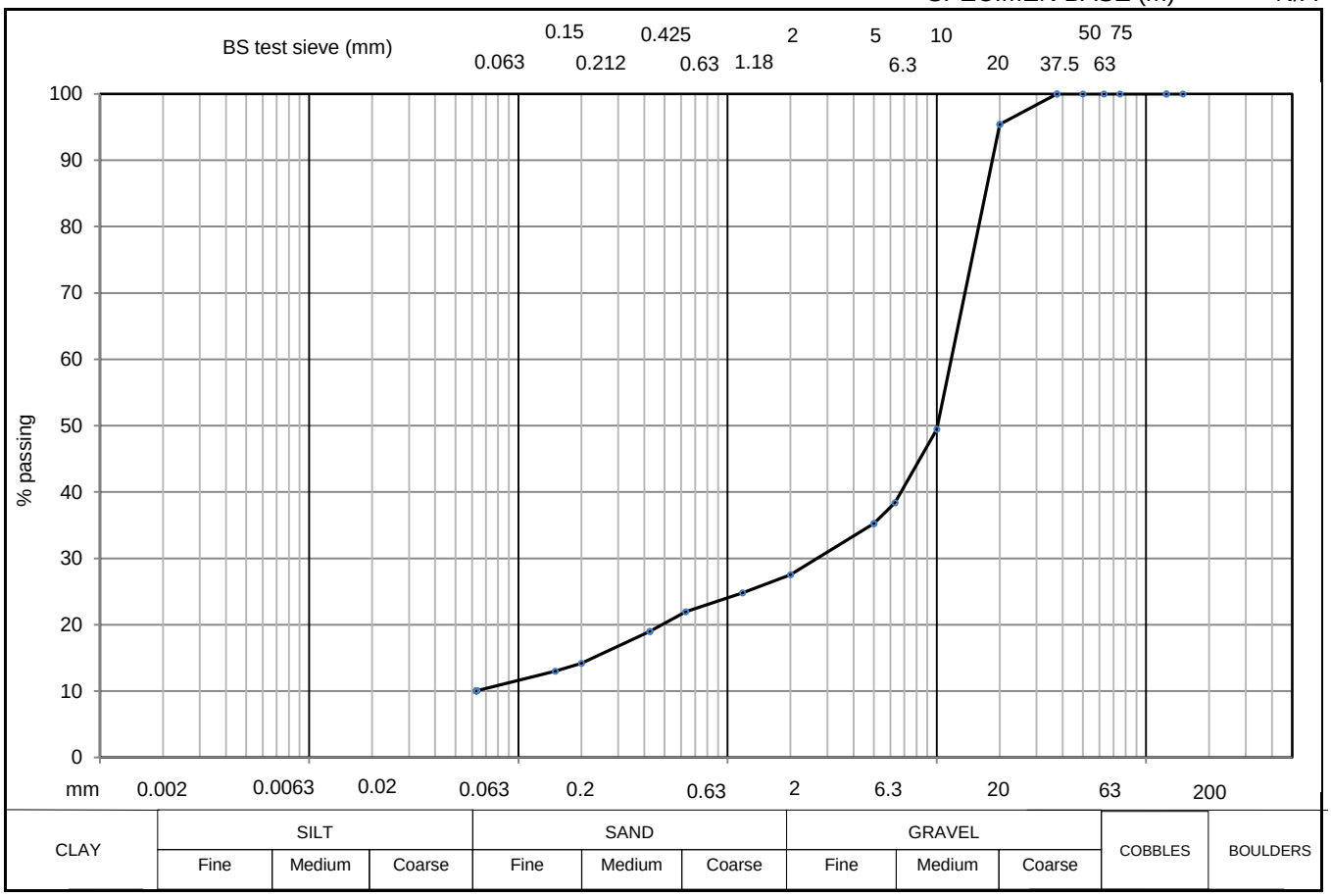
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP207A
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	10
SAND	17
GRAVEL	72
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	100
20	95
10	49
6.3	38

BS test sieve (mm)	% passing
5	35
2	28
1.18	25
0.63	22
0.425	19
0.2	14
0.15	13
0.063	10

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

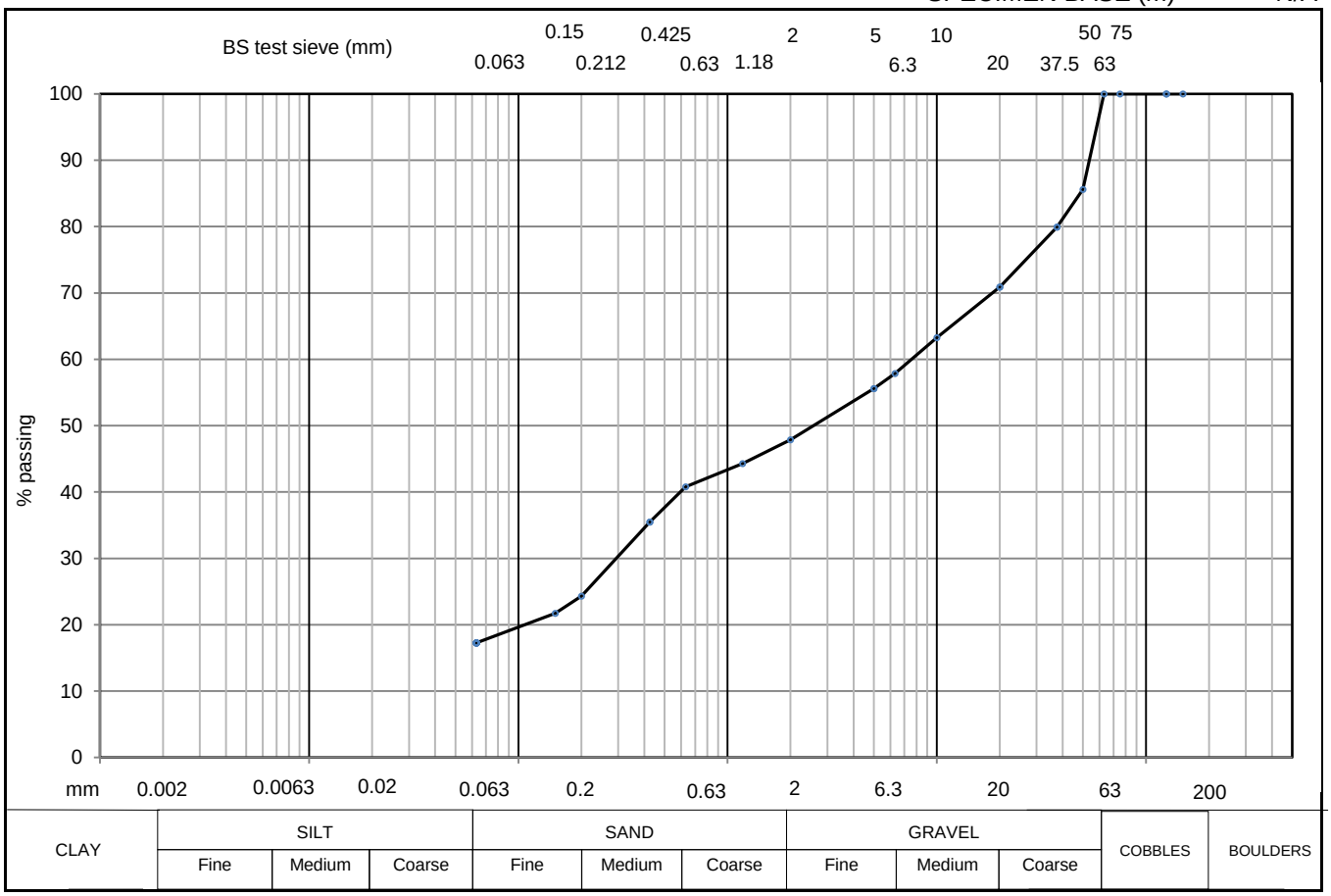
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP210
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3B
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	17
SAND	31
GRAVEL	52
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	56	20	
75		2	48	6	
63	100	1.18	44	2	
50	86	0.63	41		
37.5	80	0.425	35		
20	71	0.2	24		
10	63	0.15	22		
6.3	58	0.063	17		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

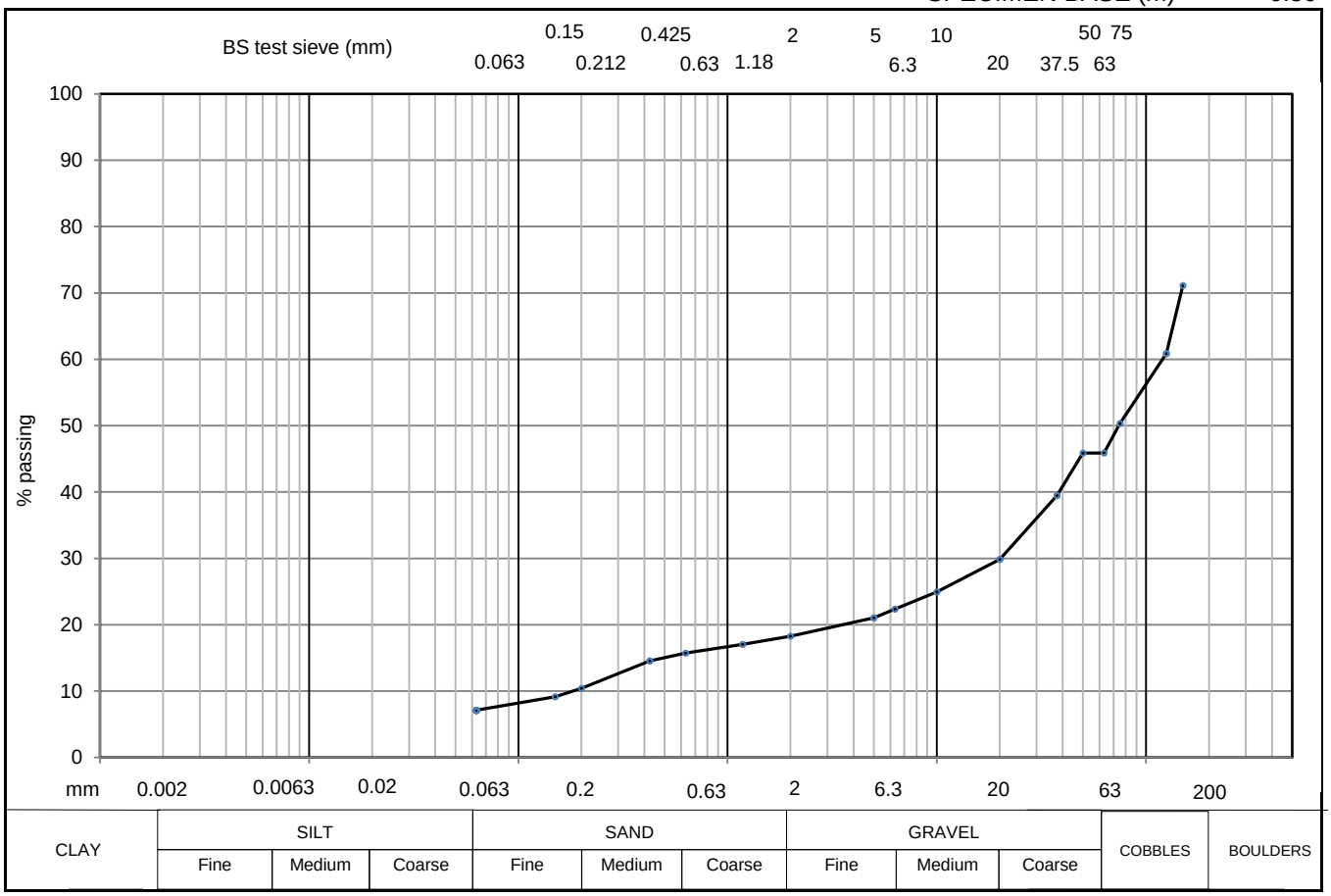
CONTRACT	CHECKED
38113	**TB**

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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP211
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.50



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	11
GRAVEL	28
COBBLE & BOULDER	54
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	71	5	21	20	
75	50	2	18	6	
63	46	1.18	17	2	
50	46	0.63	16		
37.5	39	0.425	15		
20	30	0.2	10		
10	25	0.15	9		
6.3	22	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

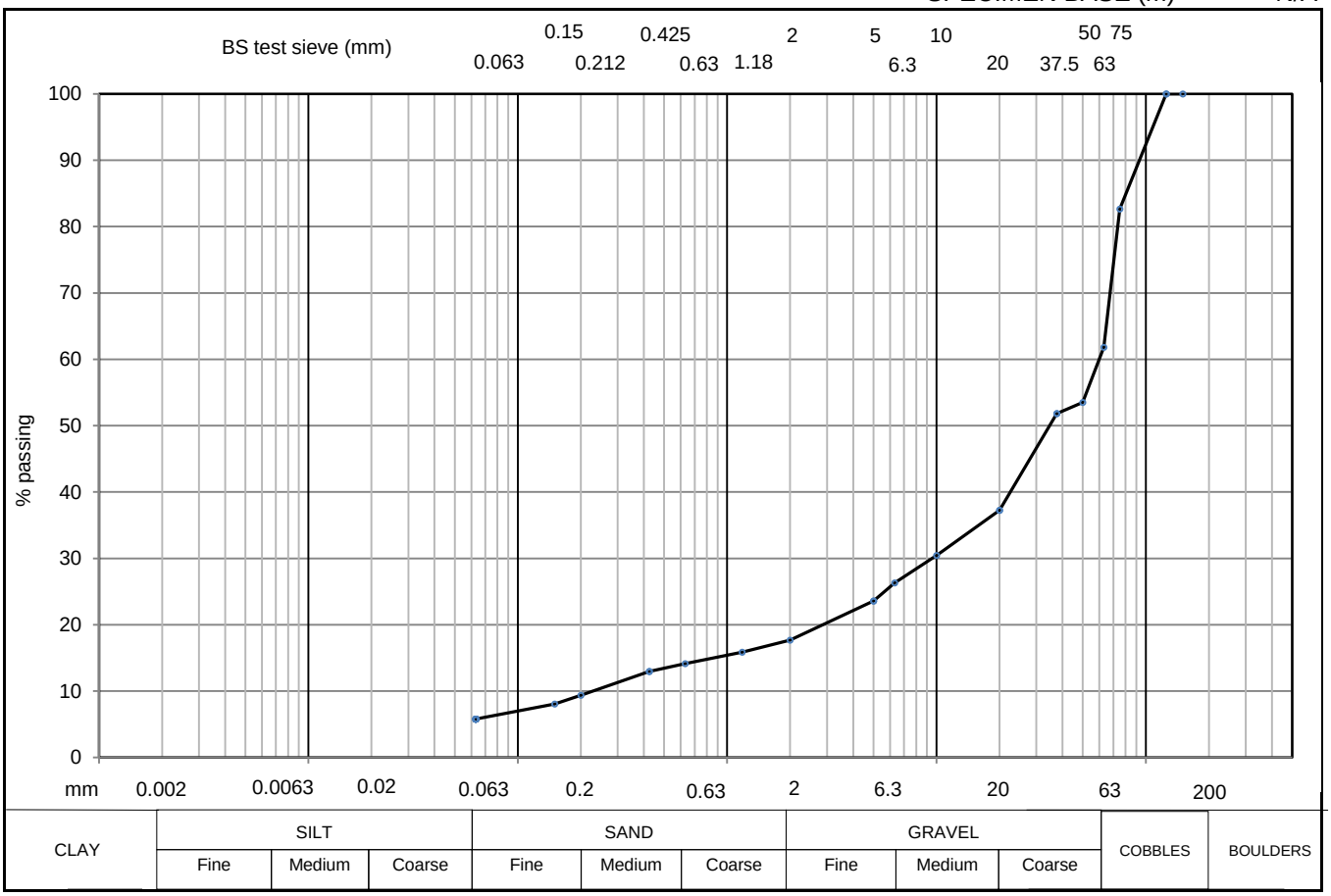
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP211
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	6
SAND	12
GRAVEL	44
COBBLE & BOULDER	38
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	24	20	
75	83	2	18	6	
63	62	1.18	16	2	
50	53	0.63	14		
37.5	52	0.425	13		
20	37	0.2	9		
10	30	0.15	8		
6.3	26	0.063	6		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

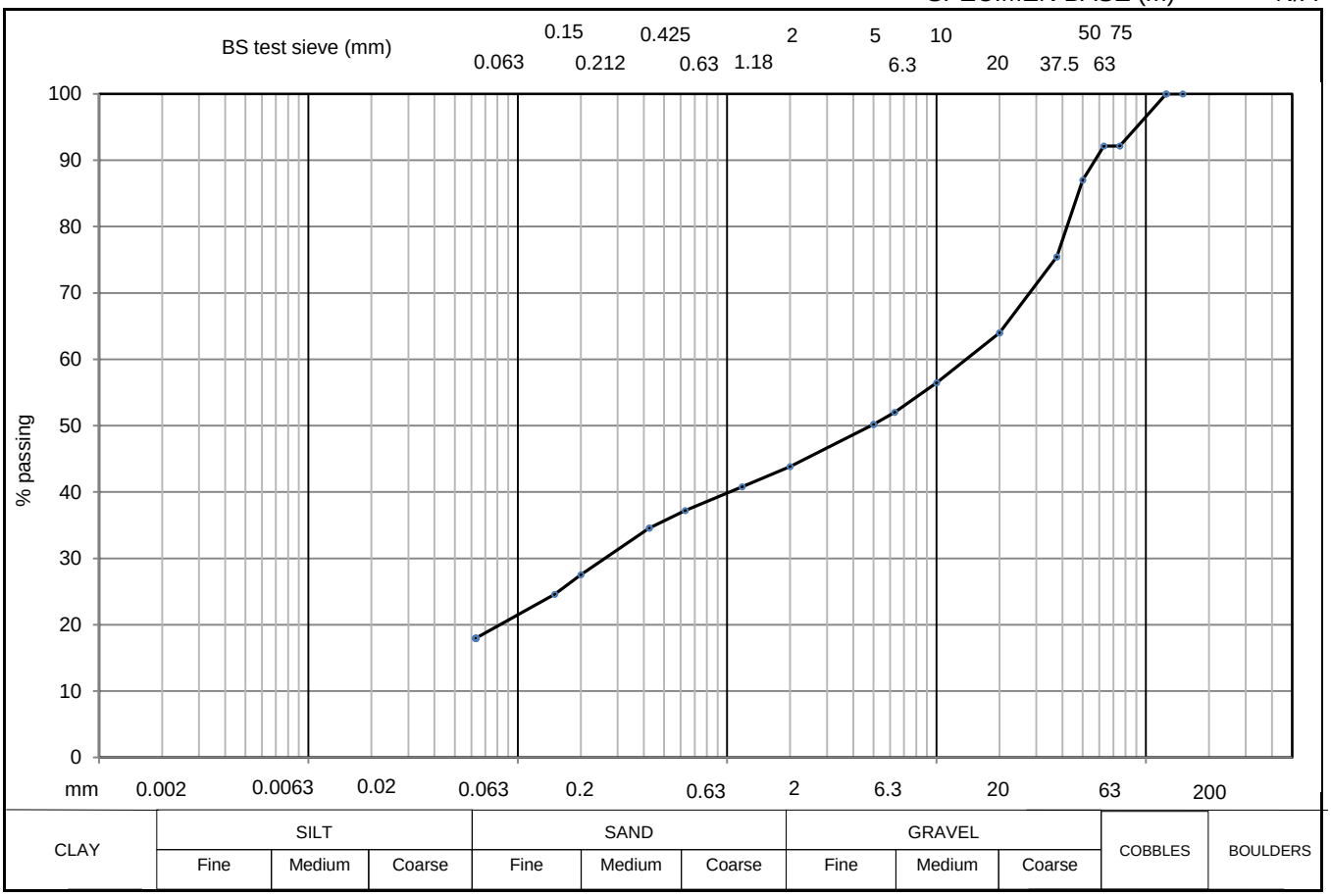
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown clayey very sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	26
GRAVEL	48
COBBLE & BOULDER	8
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	50	20	
75	92	2	44	6	
63	92	1.18	41	2	
50	87	0.63	37		
37.5	75	0.425	35		
20	64	0.2	28		
10	56	0.15	25		
6.3	52	0.063	18		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

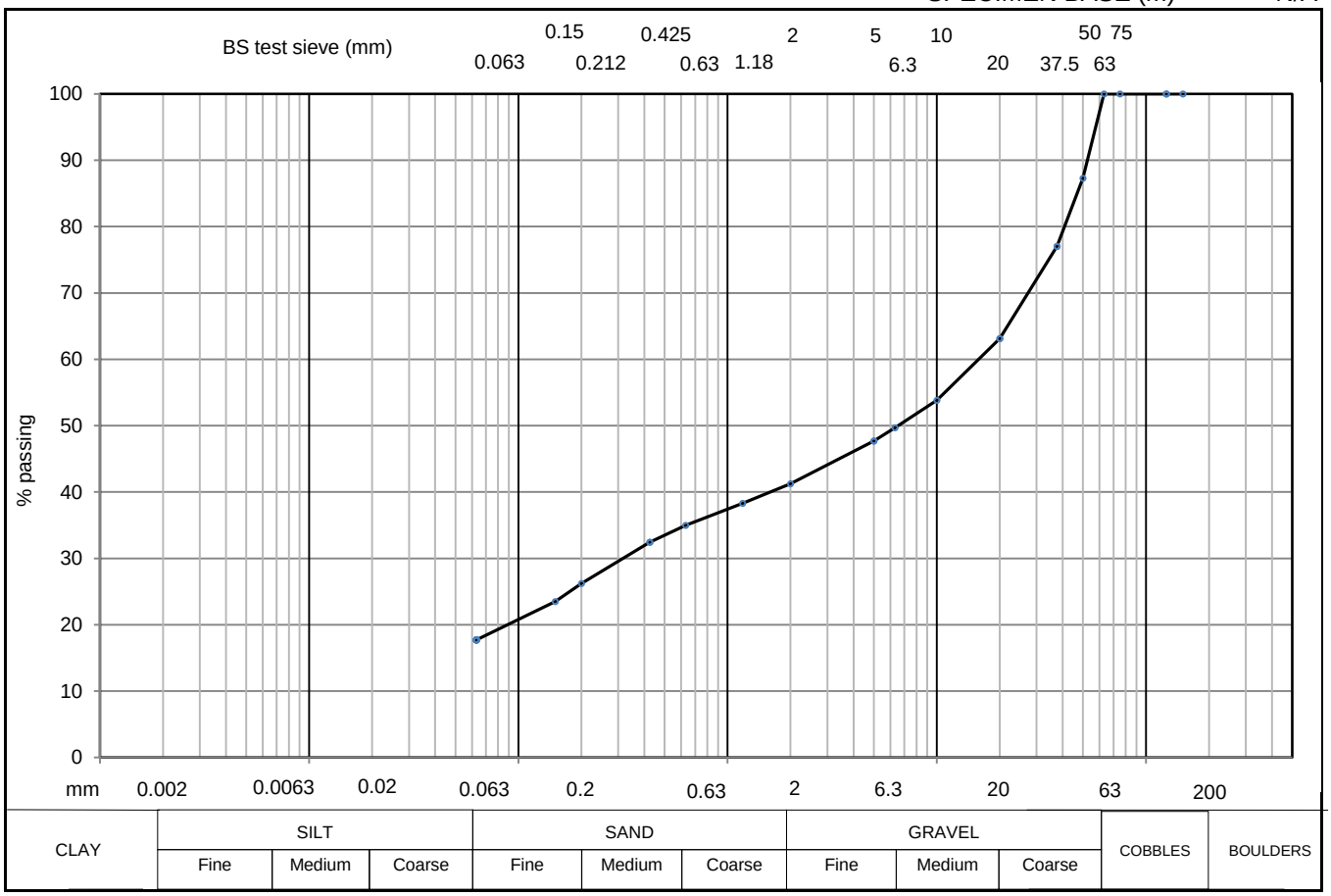
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3D
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	18
SAND	24
GRAVEL	59
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	48	20	
75		2	41	6	
63	100	1.18	38	2	
50	87	0.63	35		
37.5	77	0.425	32		
20	63	0.2	26		
10	54	0.15	23		
6.3	50	0.063	18		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

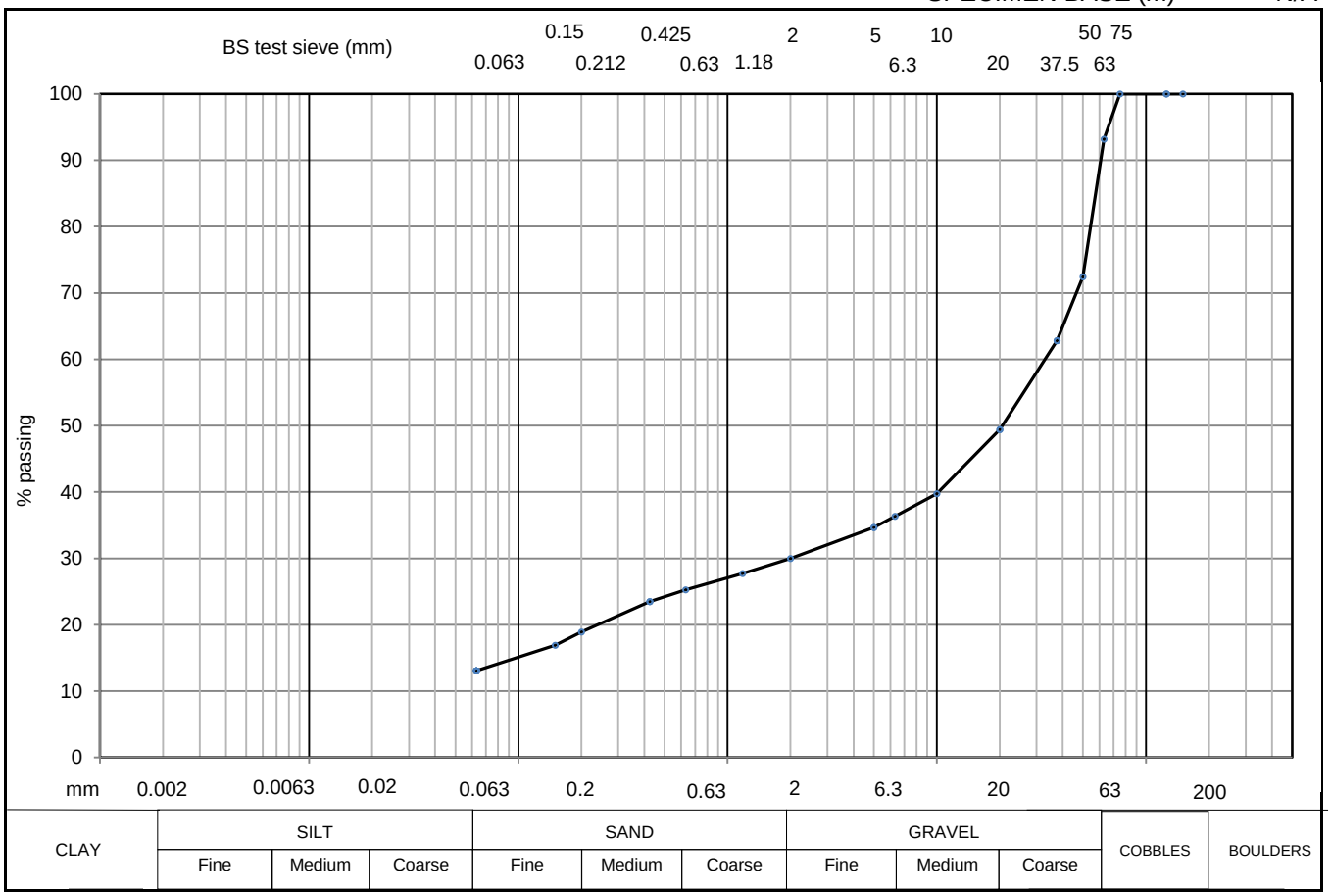
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP212
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4D
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	13
SAND	17
GRAVEL	63
COBBLE & BOULDER	7
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	35	20	
75	100	2	30	6	
63	93	1.18	28	2	
50	72	0.63	25		
37.5	63	0.425	23		
20	49	0.2	19		
10	40	0.15	17		
6.3	36	0.063	13		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

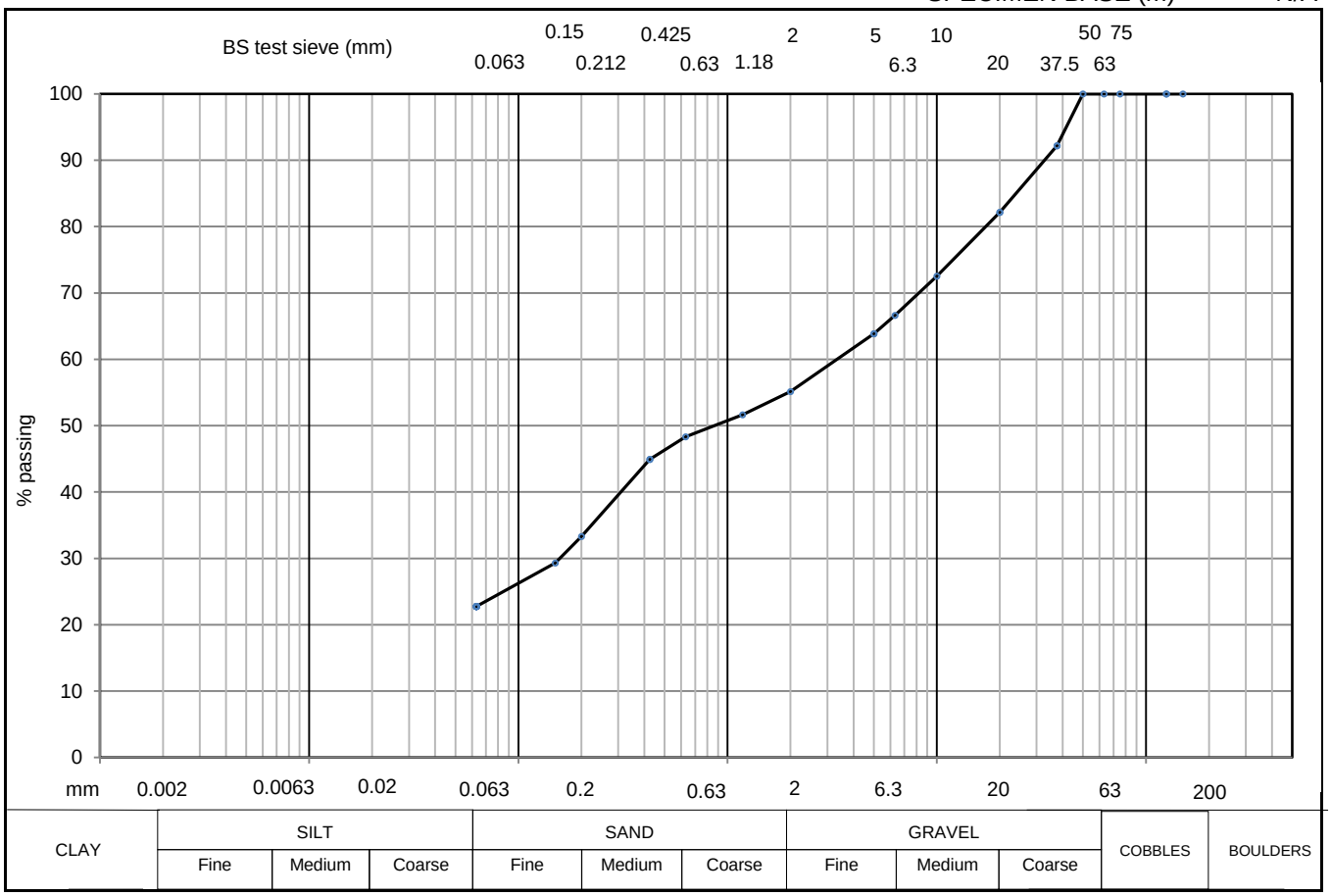
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP213
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown very clayey very sandy GRAVEL with rare rootets	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	32
GRAVEL	45
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	64	20	
75		2	55	6	
63		1.18	52	2	
50	100	0.63	48		
37.5	92	0.425	45		
20	82	0.2	33		
10	73	0.15	29		
6.3	67	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

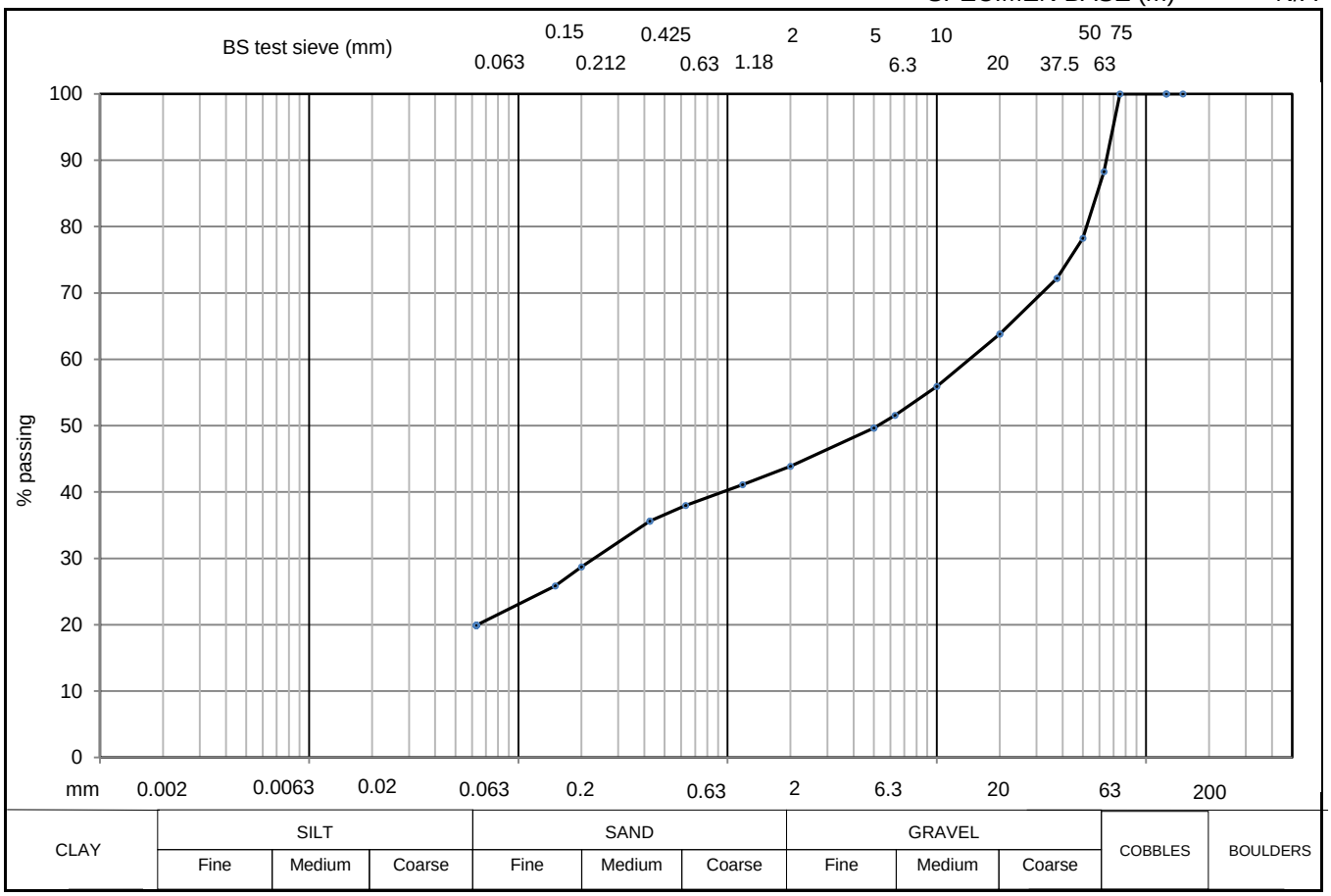
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP214
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey very sandy GRAVEL with meduim cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	20
SAND	24
GRAVEL	44
COBBLE & BOULDER	12
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	50	20	
75	100	2	44	6	
63	88	1.18	41	2	
50	78	0.63	38		
37.5	72	0.425	36		
20	64	0.2	29		
10	56	0.15	26		
6.3	52	0.063	20		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

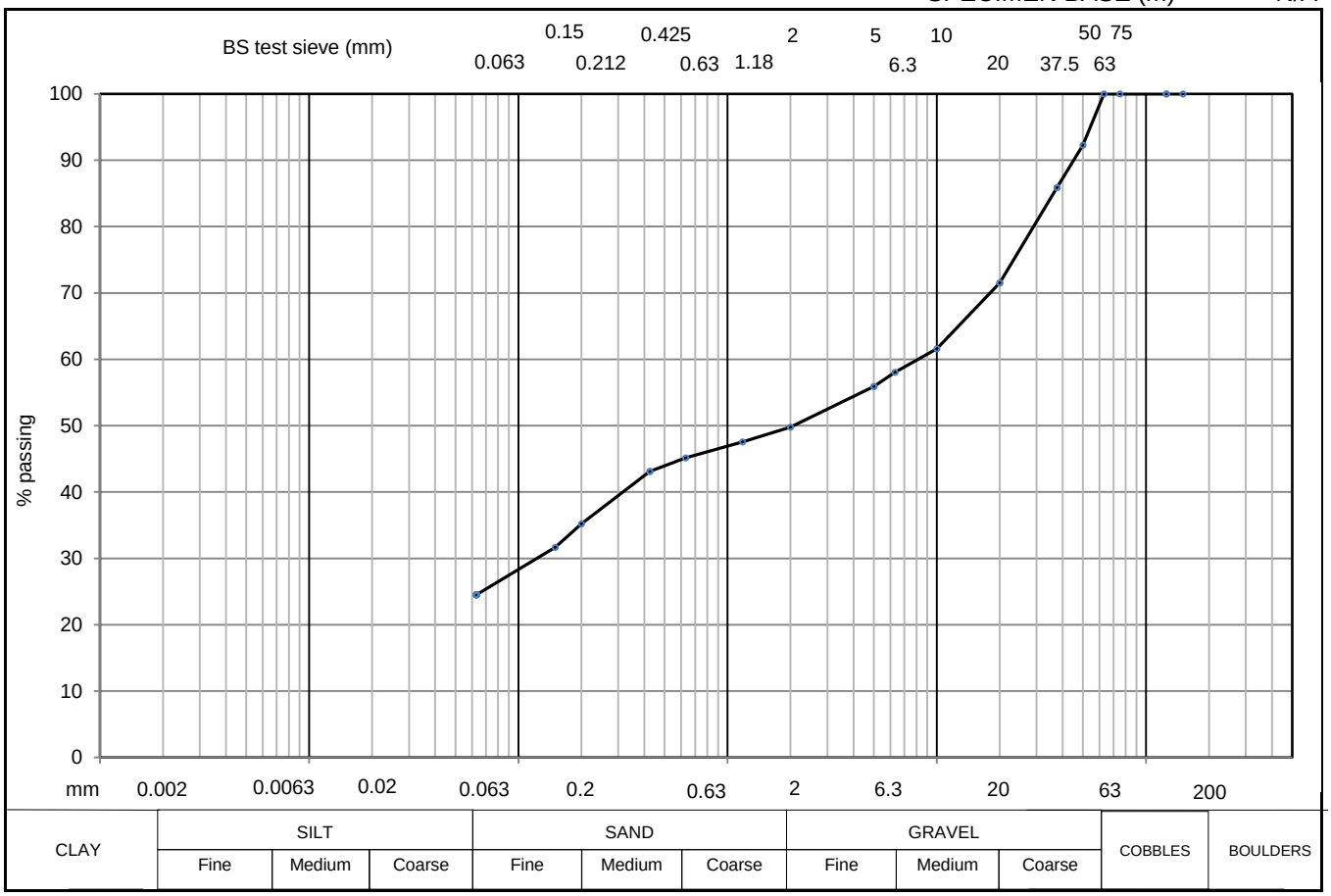
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP214
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown very clayey very sandy GRAVEL	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	25
SAND	25
GRAVEL	50
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	100
50	92
37.5	86
20	72
10	62
6.3	58

BS test sieve (mm)	% passing
5	56
2	50
1.18	48
0.63	45
0.425	43
0.2	35
0.15	32
0.063	25

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

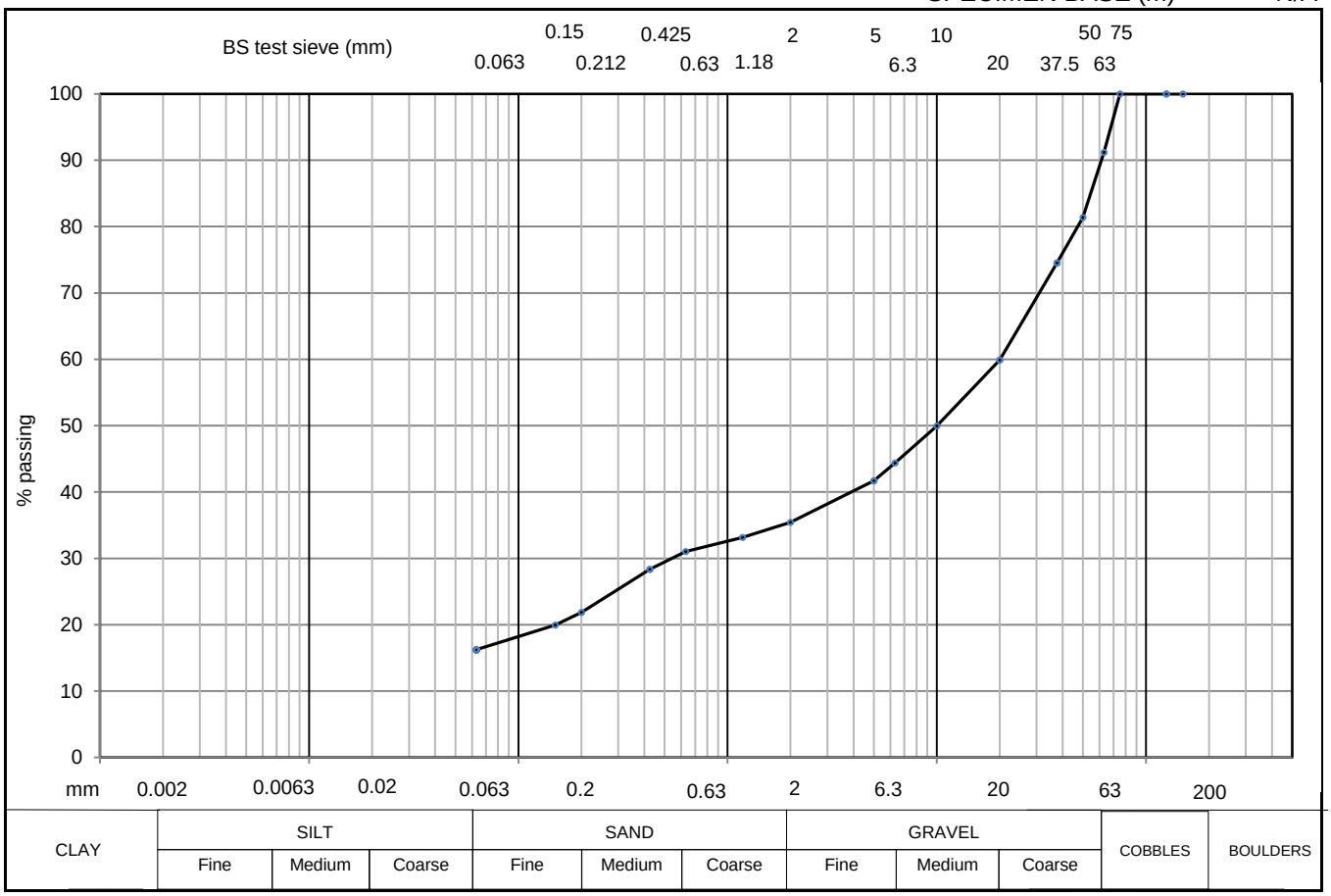
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP216
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown clayey sandy GRAVEL with medium cobble content	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	16
SAND	19
GRAVEL	56
COBBLE & BOULDER	9
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	42	20	
75	100	2	35	6	
63	91	1.18	33	2	
50	81	0.63	31		
37.5	75	0.425	28		
20	60	0.2	22		
10	50	0.15	20		
6.3	44	0.063	16		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

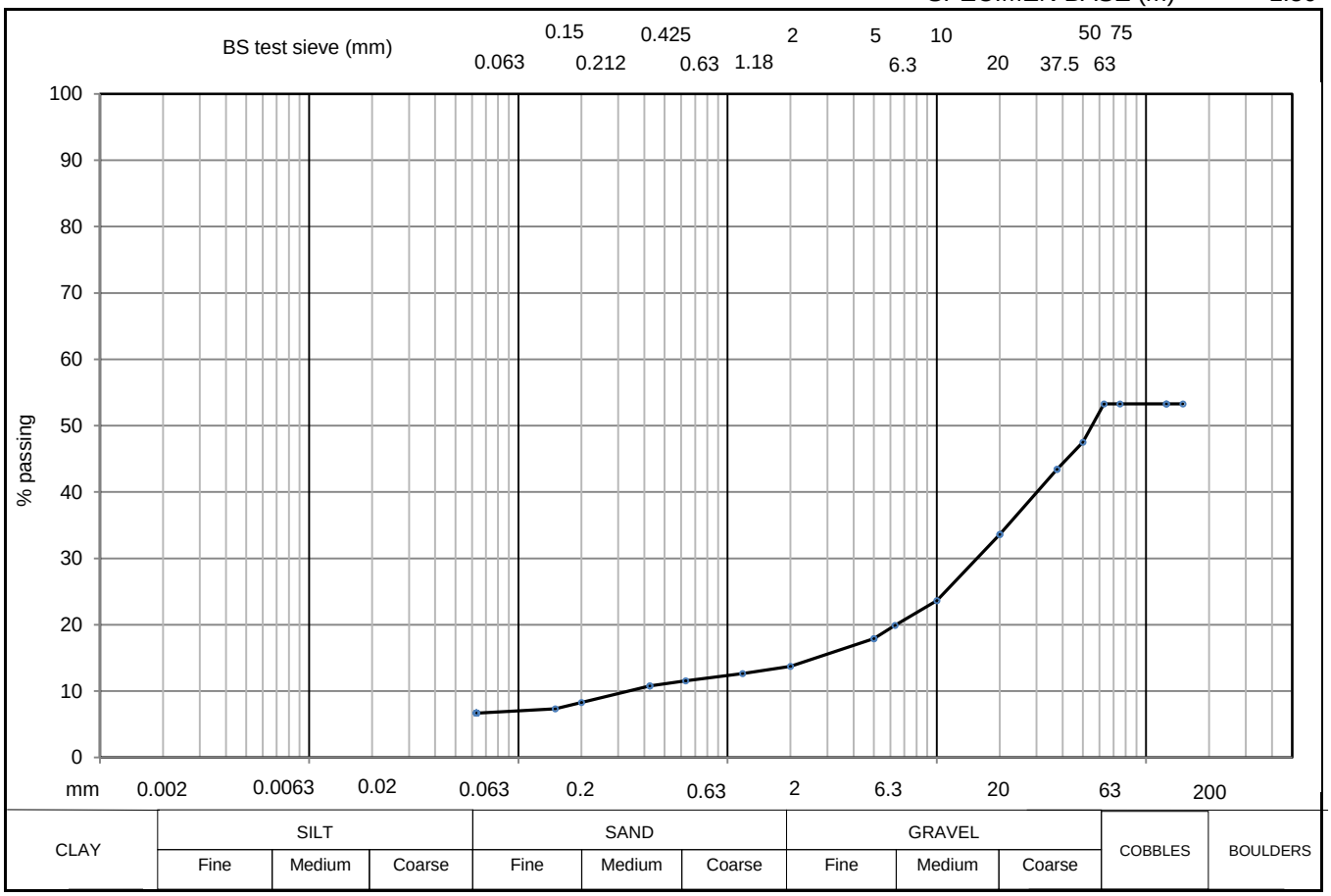
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP216
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	3D
		SAMPLE DEPTH (m)	1.50
DESCRIPTION	Brown clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.50
		SPECIMEN BASE (m)	1.50



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	7
GRAVEL	40
COBBLE & BOULDER	47
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	53	5	18	20	
75	53	2	14	6	
63	53	1.18	13	2	
50	48	0.63	12		
37.5	43	0.425	11		
20	34	0.2	8		
10	24	0.15	7		
6.3	20	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

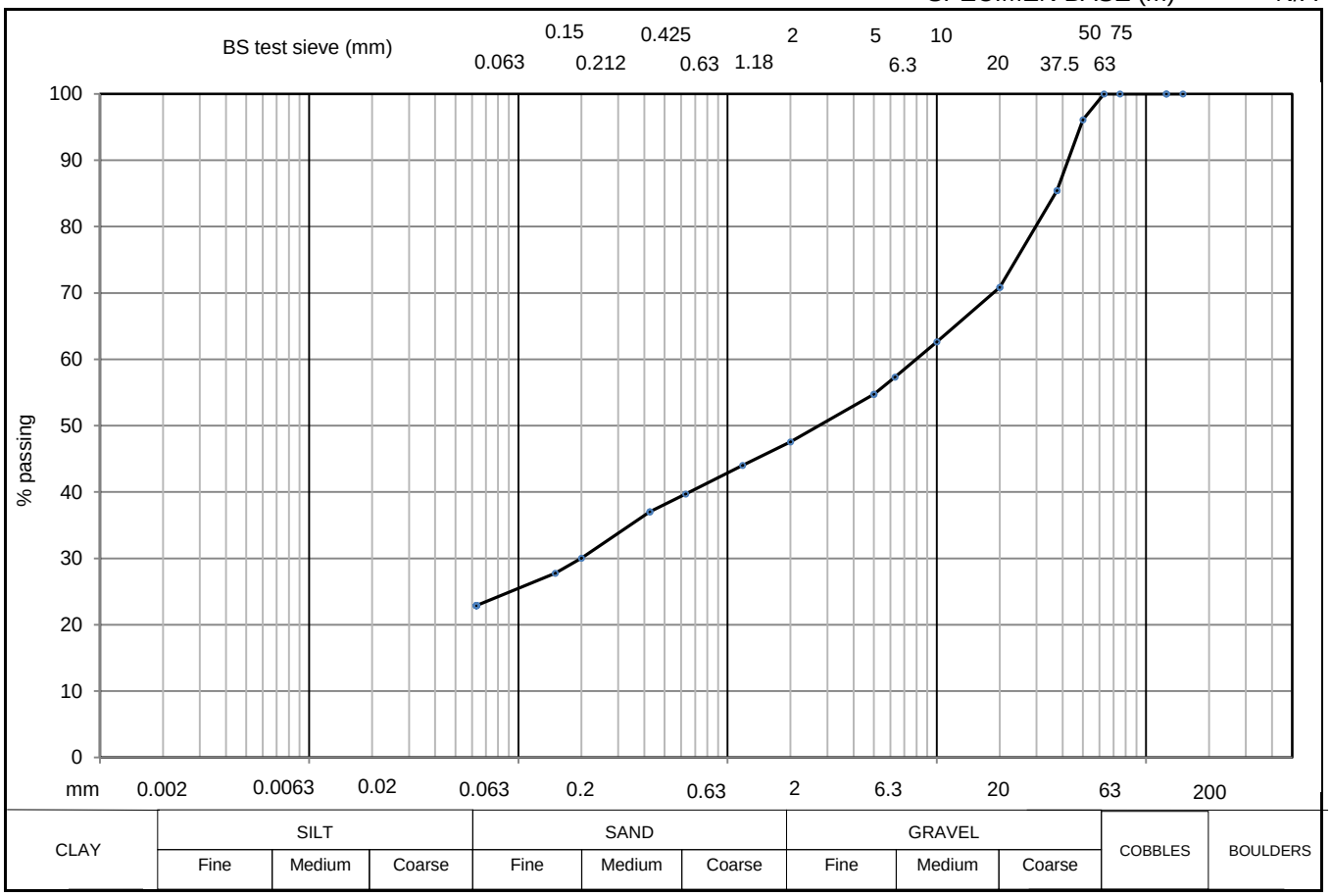
CONTRACT	CHECKED
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP217
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown very clayey very sandy GRAVEL	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	23
SAND	25
GRAVEL	52
COBBLE & BOULDER	0
test method(s)	5.2
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	55	20	
75		2	48	6	
63	100	1.18	44	2	
50	96	0.63	40		
37.5	85	0.425	37		
20	71	0.2	30		
10	63	0.15	28		
6.3	57	0.063	23		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

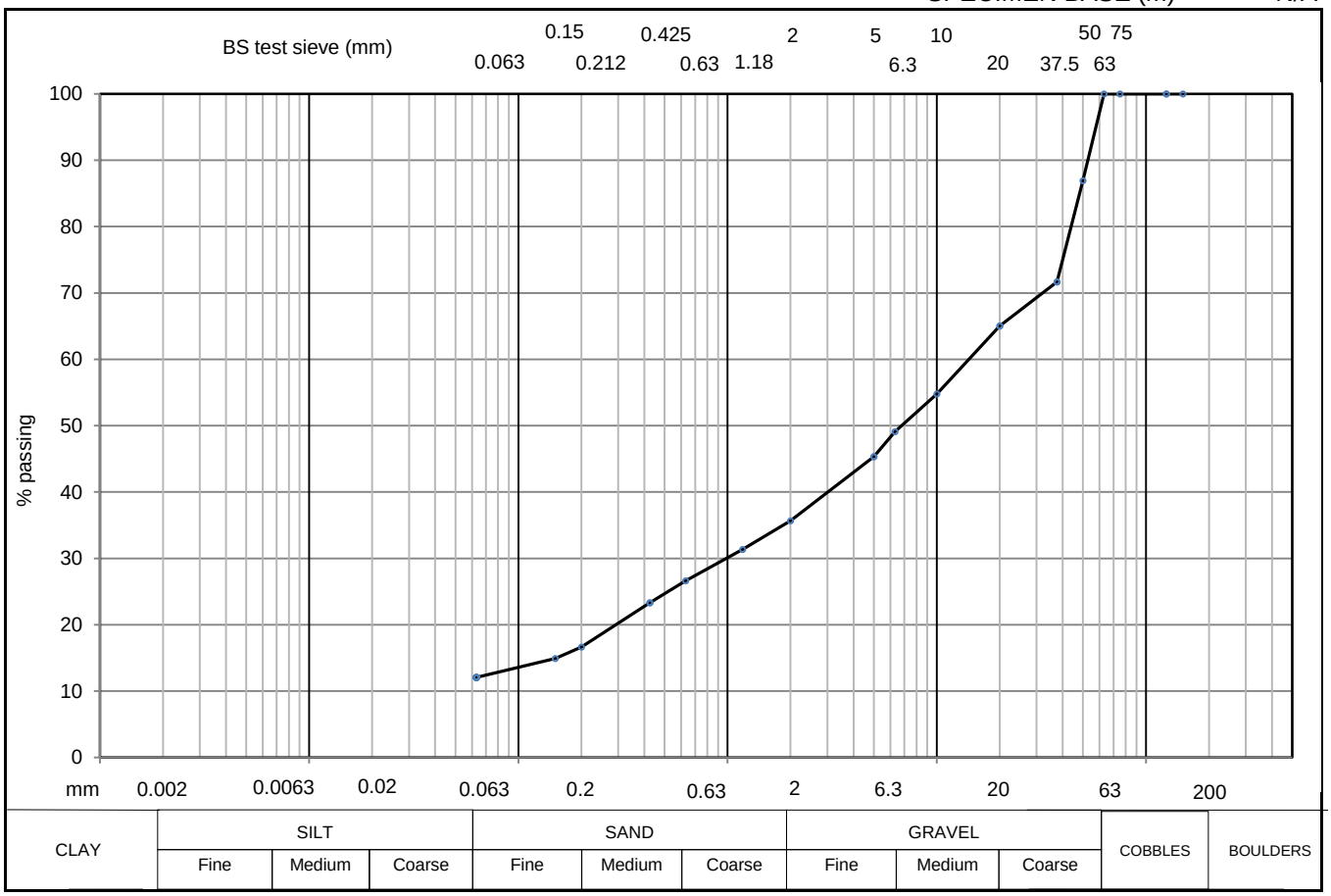
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP217
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	4B
		SAMPLE DEPTH (m)	2.00
DESCRIPTION	Brown clayey very sandy GRAVEL	SPECIMEN TOP (m)	2.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	12
SAND	24
GRAVEL	64
COBBLE & BOULDER	0
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	45	20	
75		2	36	6	
63	100	1.18	31	2	
50	87	0.63	27		
37.5	72	0.425	23		
20	65	0.2	17		
10	55	0.15	15		
6.3	49	0.063	12		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

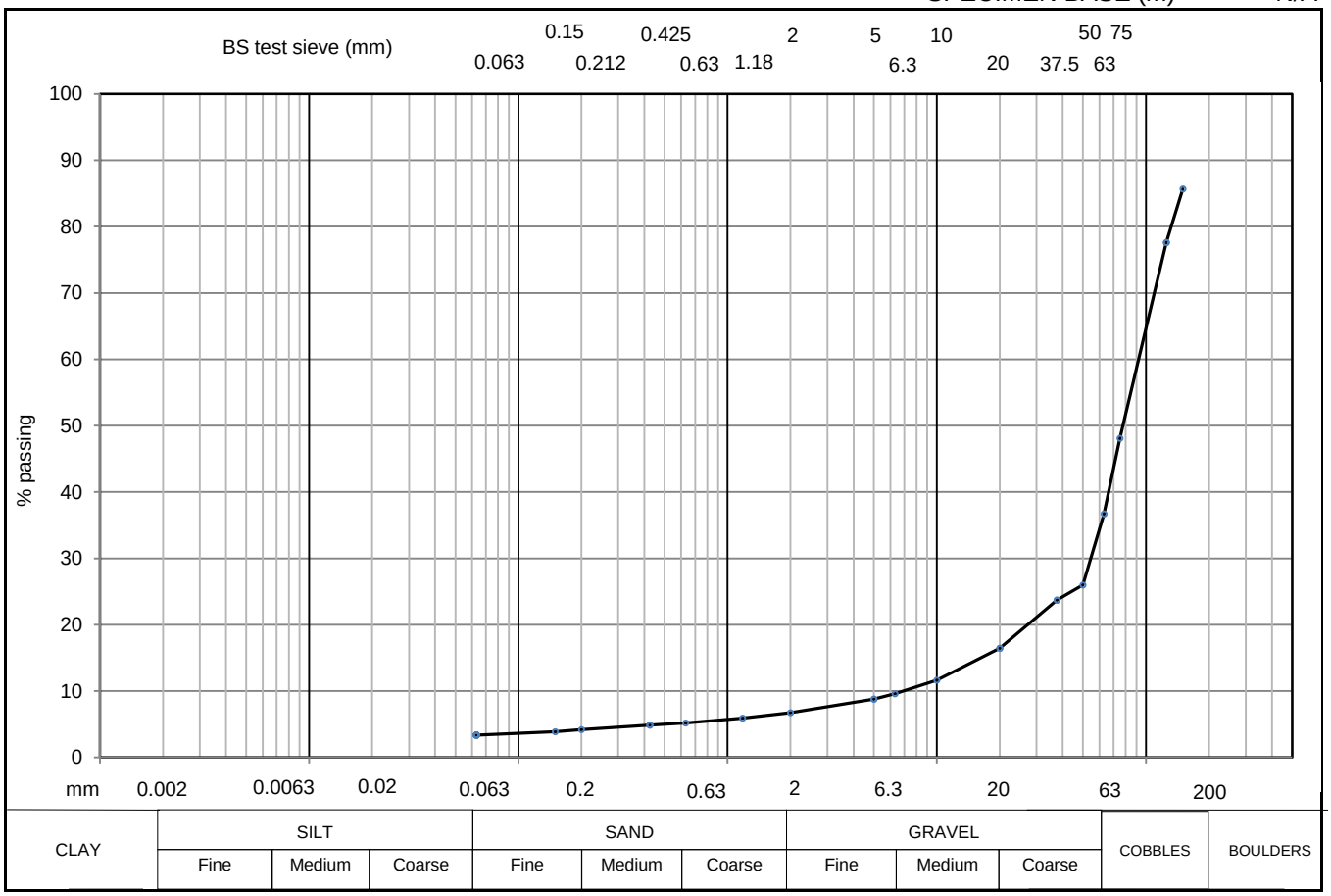
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP218
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with slightly clayey slightly sandy gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	3
SAND	3
GRAVEL	30
COBBLE & BOULDER	63
test method(s)	5.2#

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	86	5	9	20	
75	48	2	7	6	
63	37	1.18	6	2	
50	26	0.63	5		
37.5	24	0.425	5		
20	16	0.2	4		
10	12	0.15	4		
6.3	10	0.063	3		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

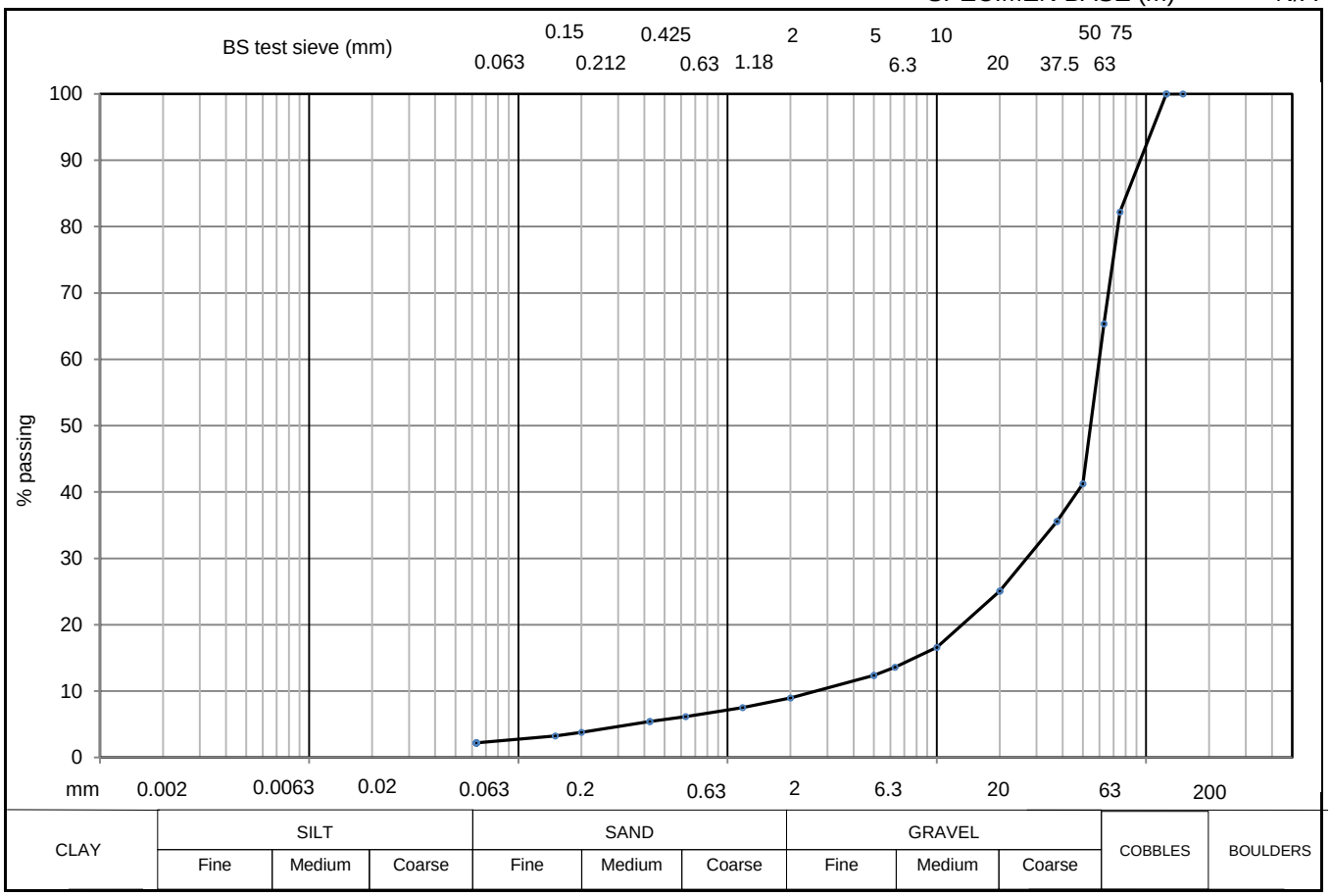
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP218
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown slightly clayey sandy GRAVEL with high cobble content	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	2
SAND	7
GRAVEL	56
COBBLE & BOULDER	35
test method(s)	5.2#

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	12	20	
75	82	2	9	6	
63	65	1.18	8	2	
50	41	0.63	6		
37.5	36	0.425	5		
20	25	0.2	4		
10	17	0.15	3		
6.3	14	0.063	2		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

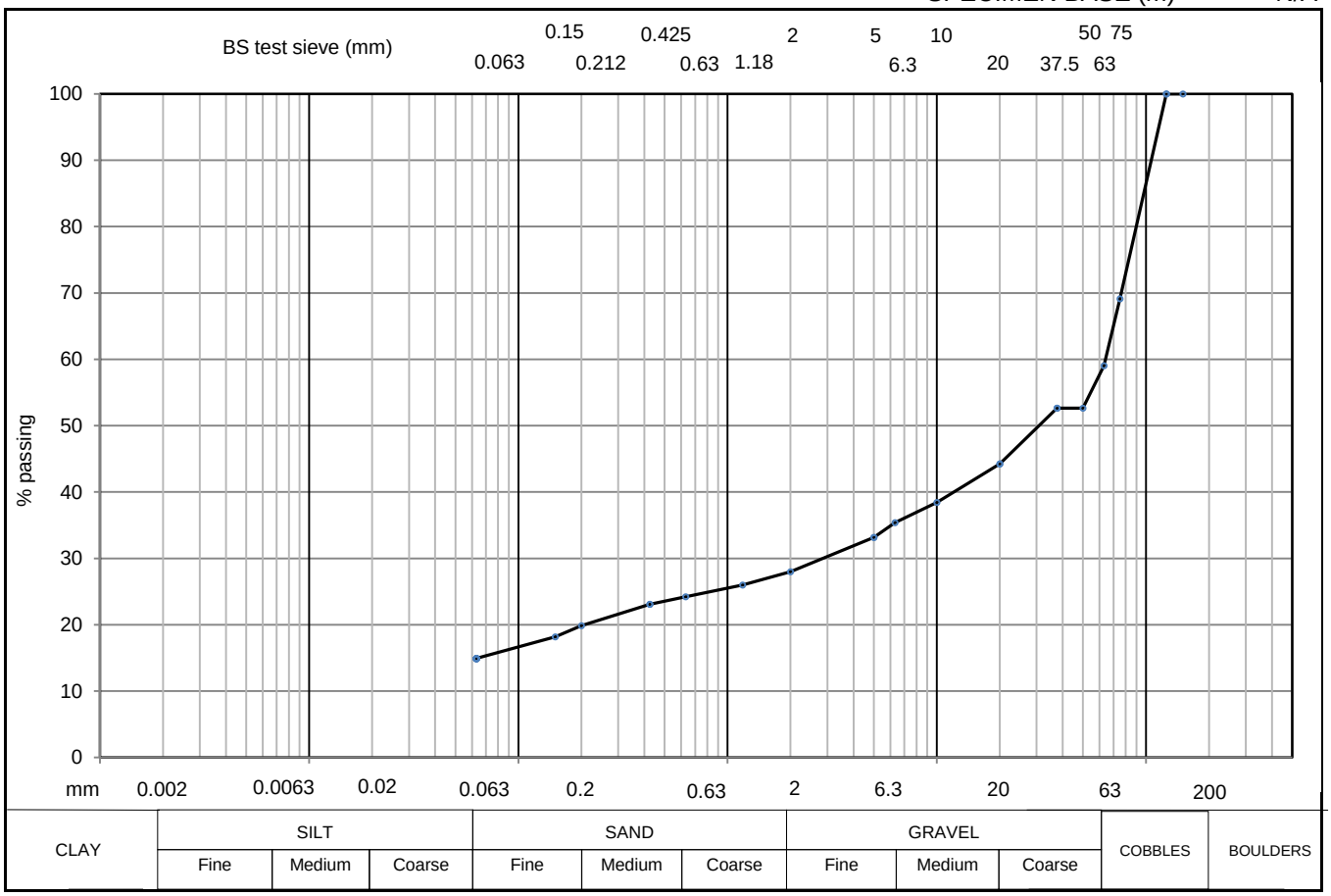
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP219
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with sandy clayey gravel	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	15
SAND	13
GRAVEL	31
COBBLE & BOULDER	41
test method(s)	5.2#
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	100
75	69
63	59
50	53
37.5	53
20	44
10	38
6.3	35

BS test sieve (mm)	% passing
5	33
2	28
1.18	26
0.63	24
0.425	23
0.2	20
0.15	18
0.063	15

BS test sieve (µm)	% finer
20	
6	
2	

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

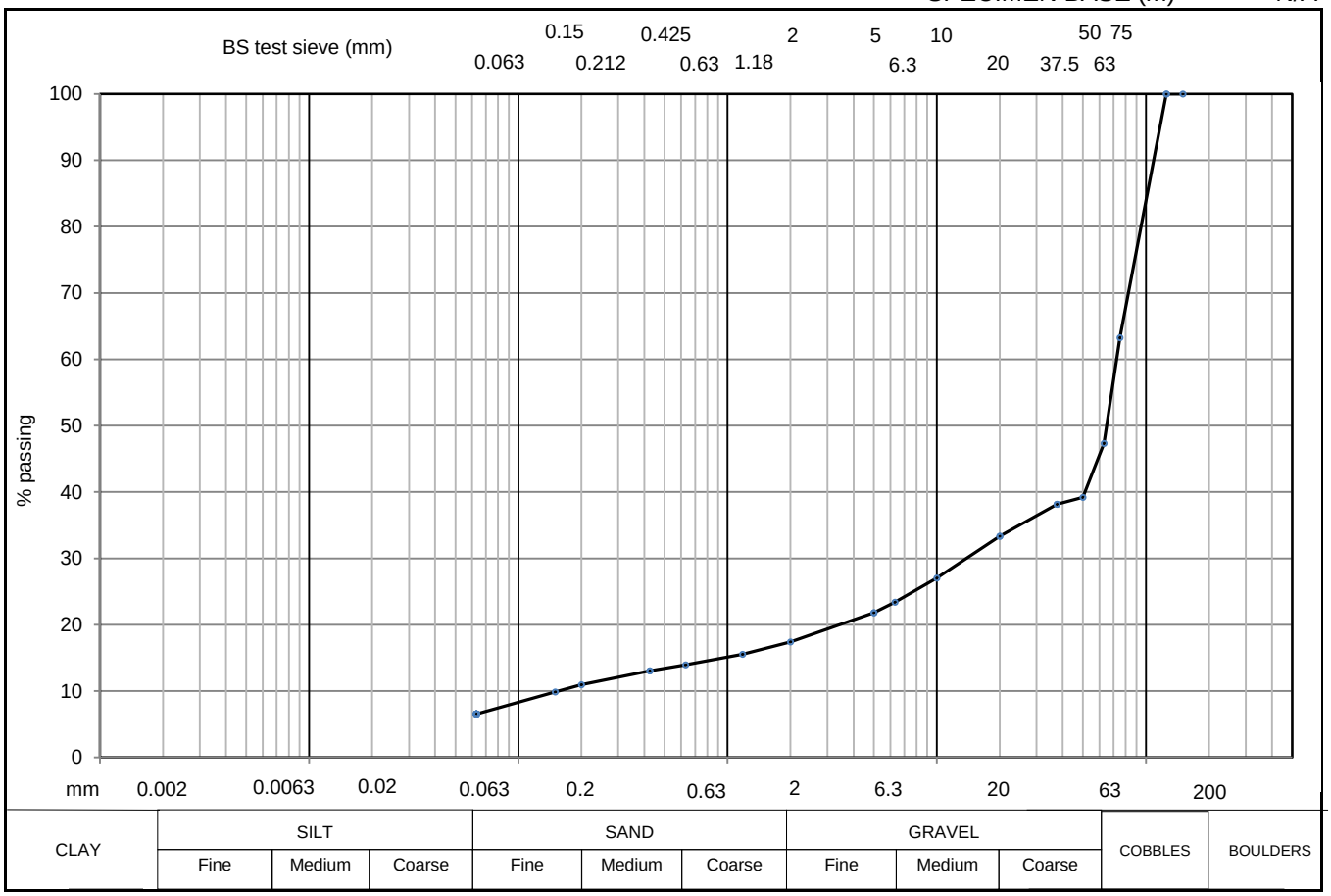
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP219
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	2B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Brown COBBLES with clayey sandy gravel	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	7
SAND	11
GRAVEL	30
COBBLE & BOULDER	53
test method(s)	5.2#

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	22	20	
75	63	2	17	6	
63	47	1.18	16	2	
50	39	0.63	14		
37.5	38	0.425	13		
20	33	0.2	11		
10	27	0.15	10		
6.3	23	0.063	7		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

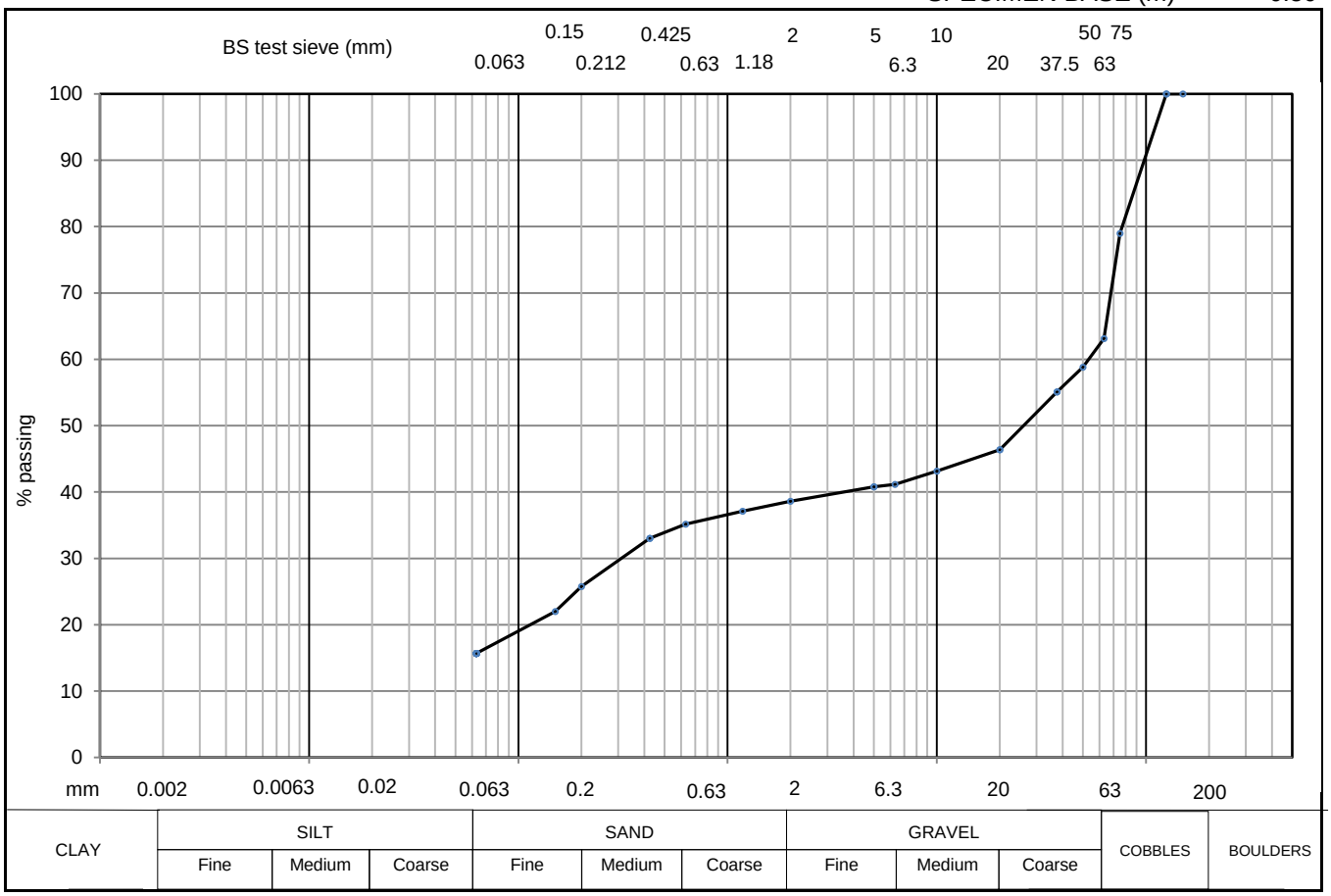
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PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	TRIVALLIS	BH/TP No.	TP220
SITE	PENRHYS VILLAGE, RHONDDA CYNON TAFF	SAMPLE No./TYPE	1B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown COBBLES with clayey very sandy gravel and rare rootlets	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	0.50



soil type	% fraction
CLAY	
SILT	
SILT & CLAY	16
SAND	23
GRAVEL	25
COBBLE & BOULDER	37
test method(s)	5.2

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150	100	5	41	20	
75	79	2	39	6	
63	63	1.18	37	2	
50	59	0.63	35		
37.5	55	0.425	33		
20	46	0.2	26		
10	43	0.15	22		
6.3	41	0.063	16		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

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Geotechnical Engineering Limited

ROCK WATER CONTENT

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	description and remarks
BH302B	21C	6.50	6.80	1	Brown SANDSTONE
BH304	22CS	8.45	8.45	1	Grey SANDSTONE
BH305	19C	5.00	5.20	2	Grey SANDSTONE
BH307	12C	4.00	4.60	1.1	Brown SANDSTONE

general remarks
natural water content determined unless otherwise specified

test method
samples oven dried at 105°C

CONTRACT	CHECKED
38113	**TB**

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
								Mean after prep.							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Diameter (mm)	Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH303B		7.25-7.45	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	0.8	15.5	2.55	2.53	55.00	117.10	2.1	134.7	56.7		03/06/24	
BH306		5.50-5.70	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	1.5	34.3	2.61	2.57	54.40	141.60	2.6	146.0	62.8		03/06/24	
BH306		8.50-8.80	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	2.1	44.7	2.61	2.55	117.40	276.20	2.4	765.8	70.7		03/06/24	
BH307		5.80-6.10	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	0.9	12.7	2.43	2.41	117.20	236.10	2.0	775.6	71.9		03/06/24	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF

38113

GEOLABS®

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH303B
Sample Ref.:	-
Depth (m):	7.25-7.45

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

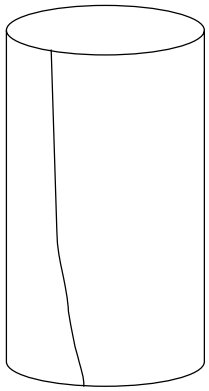
Diameter	55.00 mm
Height	117.10 mm
Bulk Density	2.55 Mg/m³
Dry Density	2.53 Mg/m³
Water Content	0.8 %

Degree of Saturation: 15.5 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 134.70	56.7 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
38113

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UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH306
Sample Ref.:	-
Depth (m):	5.50-5.70

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

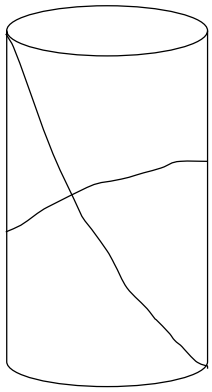
Diameter	54.40 mm
Height	141.60 mm
Bulk Density	2.61 Mg/m³
Dry Density	2.57 Mg/m³
Water Content	1.5 %

Degree of Saturation: 34.3 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Multiple fracturing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 146.00	62.8 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
38113

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH306
Sample Ref.:	-
Depth (m):	8.50-8.80

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

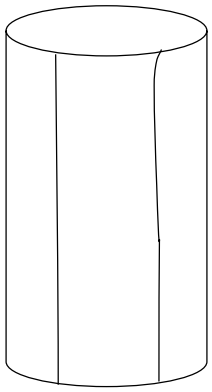
Diameter	117.40 mm
Height	276.20 mm
Bulk Density	2.61 Mg/m³
Dry Density	2.55 Mg/m³
Water Content	2.1 %

Degree of Saturation: 44.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 765.80	70.7 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
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UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH307
Sample Ref.:	-
Depth (m):	5.80-6.10

Description:
Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered

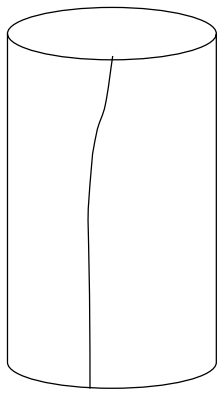
Diameter	117.20 mm
Height	236.10 mm
Bulk Density	2.43 Mg/m³
Dry Density	2.41 Mg/m³
Water Content	0.9 %

Degree of Saturation: 12.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 775.60	71.9 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF
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UKAS TESTING 1982

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POINT LOAD STRENGTH TEST

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample depth (m)	test type	test orien-tation	moisture condition	width W (mm)	length L (mm)	platen sep. D (mm)	failure load P (kN)	equiv. diam. De (mm)	Is (MPa)	size factor	Is(50) (MPa)	description and remarks
BH301	6.05	I	U	P	110	80	70	11.15	99.01	1.14	1.36	1.55	Brown SANDSTONE
BH301	7.35	I	U	P	110	90	50	14.55	83.68	2.08	1.26	2.62	Brown SANDSTONE
BH302B	6.40	I	U	P	110	80	90	7.71	112.27	0.61	1.44	0.88	Brown SANDSTONE
BH302B	6.80	I	U	P	90	80	70	9.24	89.56	1.15	1.30	1.50	Grey SANDSTONE
BH302B	8.60	I	U	P	120	50	70	20.47	103.42	1.91	1.39	2.65	Grey SANDSTONE
BH303B	5.25	A	X	P	120		50	34.80	87.40	4.56	1.29	5.86	Grey SANDSTONE
BH303B	5.25	D	Y	P		40	120	14.36	120.00	1.00	1.48	1.48	Grey SANDSTONE
BH304	4.40	A	X	P	120		50	16.46	87.40	2.15	1.29	2.77	Grey SANDSTONE
BH304	4.40	D	Y	P		40	120	31.17	120.00	2.16	1.48	3.21	Grey SANDSTONE
BH304	6.80	I	U	P	120	60	90	26.41	117.26	1.92	1.47	2.82	Grey SANDSTONE
BH304	8.45	A	X	N	120		100	46.07	123.61	3.02	1.50	4.53	Grey SANDSTONE
BH304	8.45	D	Y	N		100	120	45.09	120.00	3.13	1.48	4.64	Grey SANDSTONE
BH305	4.40	I	U	P	120	50	90	6.48	117.26	0.47	1.47	0.69	Grey SANDSTONE
BH305	5.20	I	U	P	120	40	70	24.35	103.42	2.28	1.39	3.16	Grey SANDSTONE
BH305	7.20	I	U	P	100	50	80	5.30	100.93	0.52	1.37	0.71	Grey SANDSTONE
BH306	4.60	A	X	P	120		70	>50	103.42	>4.67	1.39	>6.48	Grey SANDSTONE
BH306	4.60	D	Y	P		40	120	23.77	120.00	1.65	1.48	2.45	Grey SANDSTONE
BH307	4.60	A	X	P	120		40	20.01	78.18	3.27	1.22	4.00	Brown SANDSTONE
BH307	4.60	D	Y	P		40	120	0.75	120.00	0.05	1.48	0.08	Brown SANDSTONE

general remarks

tests carried out in accordance with I.S.R.M.(2007): Suggested Methods for Determining Point Load Strength

test machine PLM02

test type	test orientation relative to discontinuities		moisture condition	CONTRACT	CHECKED
A - axial	X - perpendicular	U - unknown	N - natural moisture content		
D - diametral	Y - parallel		P - partially air dried	**38113**	**TB**
I - irregular lump	Z - oblique		S - soaked		

Geotechnical Engineering Limited

POINT LOAD STRENGTH TEST

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT TRIVALLIS

SITE PENRHYS VILLAGE, RHONDDA CYNON TAFF

borehole /trial pit no.	sample depth (m)	test type	test orien-tation	moisture condition	width W (mm)	length L (mm)	platen sep. D (mm)	failure load P (kN)	equiv. diam. De (mm)	Is (MPa)	size factor	Is(50) (MPa)	description and remarks
BH307	4.05	A	X	N	120		60	6.40	95.75	0.70	1.34	0.94	Grey SANDSTONE
BH307	4.05	D	Y	N		70	100	1.50	100.00	0.15	1.37	0.20	Grey SANDSTONE
BH307	5.60	A	X	P	120		40	22.86	78.18	3.74	1.22	4.57	Grey SANDSTONE
BH307	5.60	D	Y	P		40	120	8.73	120.00	0.61	1.48	0.90	Grey SANDSTONE

general remarks

tests carried out in accordance with I.S.R.M.(2007): Suggested Methods for Determining Point Load Strength

test machine PLM02

test type	test orientation relative to discontinuities		moisture condition	CONTRACT	CHECKED
A - axial	X - perpendicular	U - unknown	N - natural moisture content		
D - diametral	Y - parallel		P - partially air dried	**38113**	**TB**
I - irregular lump	Z - oblique		S - soaked		

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De^2 (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
								Start D	End D'						
BH301		4.00-5.50	Strong grey fine to medium grained SANDSTONE. Fresh to slightly weathered	04/06/24	I	U	77.1	71.5	71.5		83.8	10.27	1.46	1.26	1.84

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40557

Project Name:

PENRHYS VILLAGE, RHONDDA CYNON TAFF

38113

GEOLABS®

UKAS TESTING 1982

Hydrock

Client	Location or material to which this assessment applies
Trivallis	Made Ground
Project	
Penrhys Village	
Job number	
30603	

Concrete in aggressive ground

After BRE Special Digest 1:2005 + 2017 3e

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	10	10	
No. tests in 20% data set	2	2	
No. tests with suspected pyrite		0	
Maximum value	521	0.2	
Mean of highest two values	319	0	
Mean of highest 20%	300	0	
Characteristic Value	**300**	**0.2**	
			Mg not required

	[no pyrite]	[pyrite suspected]
DS Class	**DS-1**	**DS-1**

If pyrite suspected, DS Class limited to **DS-1**

Is pyrite assumed to be present? No **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value (Maximum Level)	0	0 **Mg not required**

DS Class

pH data

	Soil	Water
Number of tests	10	0
No. tests in 20% data set	2	
Lowest pH	7.4	
Mean of lowest 20%	7.6	
Characteristic value	**7.6**	
Design value	**7.6**	

Number of soil pH results less than 5.5: 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Brownfield

Mobile groundwater **AC-1**

Appendix D Ground Gas Monitoring Assessments

Hydrock

Site: Penrhys Village, Rhondda Cynon Taff
Job number: C-30603
Client: Trivallis

Gas analyser: GFM 435
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: Geotechnical Engineering Ltd

Notes on site conditions:

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported. GSVs are rounded to 3 places.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations										GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases PID	Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady				
								Max. individual values:				**0.5**		**0.2**				**7.4**		**20.7**			**0.0002**	**0.0074**	**Summary statistics for this monitoring period.**
								Min. individual values:				0.1		0.0				0.0		0.0			0	0	
								Worst-case GSVs based on max. individual flow and max. individual conc. over the duration of this table:															**0.001**	**0.037**	
17/05/24	11:50	BH301	S	1.0 - 2.5	2.50	D	0.00878	974		0.00	0.1	0.1		0	0		0	0	16.9	16.8		0	0	Hole dry.
23/05/24	11:50	BH301	S	1.0 - 2.5	2.50	D	0.00878	976		0.00	0.1	0.1		0	0		0.1	0	17.8	17.9		0	0	Hole dry.
31/05/24	10:50	BH301	S	1.0 - 2.5	2.50	D	0.00878	981		0.00	0.1	0.1		0	0		0.7	0.1	19.3	19.3		0	0.0001	Hole dry.
14/06/24	11:00	BH301	S	1.0 - 2.5	2.50	D	0.00878	981		0.01	0.1	0.1	0.6	0.0	0.0		0.0	0.0	19.6	19.3		0	0	Hole dry.
21/06/24	10:00	BH301	S	1.0 - 2.5	2.50	D	0.00878	974		0.00	0.1	0.1	0	0.0	0.0		0.5	0.0	20.4	18.7		0	0	Hole dry.
28/06/24	10:45	BH301	S	1.0 - 2.5	2.50	D	0.00878	979		0.00	0.1	0.1	9.8	0.0	0.0		0.1	0.0	20.5	20.5		0	0	Hole dry.
17/05/24	12:15	BH302B	S	2.8 - 9.30	9.30	D	0.03504	970		0.00	0.1	0.1		0	0		1.7	2.2	18	16.6		0	0.0022	Hole dry.
23/05/24	12:05	BH302B	S	2.8 - 9.30	9.30	D	0.03504	974		0.00	0.1	0.1		0	0		2.3	2.3	16.9	16.8		0	0.0023	Hole dry.
31/05/24	11:10	BH302B	S	2.8 - 9.30	9.30	D	0.03504	982		0.00	0.1	0.1		0	0.0		2.1	2.4	18.2	17.3		0	0.0024	Hole dry.
14/06/24	10:00	BH302B	S	2.8 - 9.30	9.30	D	0.03504	958		-0.02	-0.1	0.1	1.8	0.0	0.0		0.9	2.9	19.3	15.4		0	0.0029	Hole dry.
21/06/24	10:25	BH302B	S	2.8 - 9.30	9.30	D	0.03504	974		0.00	0.1	0.1	2.2	0.0	0.0		0.5	2.8	19.4	17.8		0	0.0028	Hole dry.
28/06/24	11:10	BH302B	S	2.8 - 9.30	9.30	D	0.03504	976		0.00	0.1	0.1	6.1	0.0	0.0		0.5	2.5	20.8	18.0		0	0.0025	Hole dry.
17/05/24	12:55	BH303B	S	1.0 - 2.4	2.40	D	0.00833	970		0.00	0.1	0.1		0	0.0		0.1	0.1	20.2	20.3		0	0.0001	Hole dry.
23/05/24	12:25	BH303B	S	1.0 - 2.4	2.40	D	0.00833	975		0.00	0.1	0.1		0	0		0.1	0.1	19.7	19.7		0	0.0001	Hole dry.
31/05/24	11:35	BH303B	S	1.0 - 2.4	2.40	D	0.00833	981		0.00	0.1	0.1		0	0		0.7	1	20.3	20.7		0	0.001	Hole dry.
14/06/24	12:05	BH303B	S	1.0 - 2.4	2.40	D	0.00833	961		0.20	0.5	0.5	0.9	0.0	0.0		0.8	0.1	18.2	19.5		0	0.0005	Hole dry.
21/06/24	10:45	BH303B	S	1.0 - 2.4	2.40	D	0.00833	974		0.00	0.1	0.1	1.6	0.0	0.0		1	0.2	18.8	20.3		0	0.0002	Hole dry.
28/06/24	11:40	BH303B	S	1.0 - 2.4	2.40	D	0.00833	977		0.00	0.1	0.1	3.9	0.0	0.0		1	0.1	19.3	20.4		0	0.0001	Hole dry.
17/05/24	14:00	BH304	S	1.0 - 3.6	3.60	D	0.01378	974		0.00	0.1	0.1		0.0	0.0		4.9	5.0	9.4	8.8		0	0.005	Carbon monoxide recorded initial 10ppm, steady 10ppm
23/05/24	13:30	BH304	S	1.0 - 3.6	3.60	D	0.01378	980		0.00	0.1	0.1		0.0	0.0		7.2	7.4	9.7	9.2		0	0.0074	Hole dry.
31/05/24	13:05	BH304	S	1.0 - 3.6	3.60	D	0.01378	984		0.00	0.1	0.1		0	0		0.1	6.9	21.1	8.6		0	0.0069	Hole dry.
14/06/24	14:40	BH304	S	1.0 - 3.6	3.60	D	0.01378	963		0.03	0.1	0.1	4.5	0.0	0.0		1.2	5.9	3.5	14.6		0	0.0059	Hole dry.
21/06/24	12:40	BH304	S	1.0 - 3.6	3.60	D	0.01378	978		0.00	0.1	0.1	19.2	0.0	0.0		1.6	5.9	9.0	12.6		0	0.0059	Hole dry.
28/06/24	13:15	BH304	S	1.0 - 3.6	3.60	D	0.01378	979		0.00	0.1	0.1	14.3	0.0	0.0		1.5	6.2	8..4	14.7		0	0.0062	Hole dry.
17/05/24	13:40	BH305	S	1.0 - 3.2	3.20	D	0.01196	973		-0.02	-0.3	0.3		0.0	0.0		0.6	0.6	19.9	19.8		0	0.0018	Hole dry.
23/05/24	13:05	BH305	S	1.0 - 3.2	3.20	D	0.01196	978		0.00	0.1	0.1		0.0	0.0		0.5	0.5	19.8	19.8		0	0.0005	Hole dry.
31/05/24	12:45	BH305	S	1.0 - 3.2	3.20	D	0.01196	983		0.00	0.1	0.1		0	0		0.2	0.5	20.1	20.6		0	0.0005	Hole dry.
14/06/24	13:30	BH305	S	1.0 - 3.2	3.20	D	0.01196	965		0.12	0.2	0.3	0.4	0.0	0.0		0.5	0.4	18.6	19.5		0	0.0008	Hole dry.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations									GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases PID	Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady				
21/06/24	11:45	BH305	S	1.0 - 3.2	3.20	D	0.01196	977		0.00	0.1	0.1	8.0	0.0	0.0			0.6	0.7	19.6	20.3		0	0.0007	Hole dry.
28/06/24	12:30	BH305	S	1.0 - 3.2	3.20	D	0.01196	979		0.00	0.1	0.1	5.5	0.0	0.0			0.5	0.5	19.2	20.6		0	0.0005	Hole dry.
17/05/24	13:15	BH306	S	3.0 - 8.2	8.20	D	0.02952	972		0.00	0.1	0.1		0.0	0.0			0.5	0.5	18.9	18.8		0	0.0005	Hole dry.
23/05/24	12:00	BH306	S	3.0 - 8.2	8.20	D	0.02952																		Headworks flooded, gas monitoring terminated due to water uptake. Installation pipe dry.
31/05/24	12:05	BH306	S	3.0 - 8.2	8.20	D	0.02952	985		0.00	0.1	0.1		0	0.0			0.5	0.6	19.1	18.4		0	0.0006	Hole dry.
14/06/24	12:40	BH306	S	3.0 - 8.2	8.20	D	0.02952	963		0.02	0.1	0.1	3.6	0.0	0.0			0.5	0.7	19.7	17.5		0	0.0007	Hole dry.
21/06/24	11:25	BH306	S	3.0 - 8.2	8.20	D	0.02952	978		0.00	0.1	0.1	18.5	0.0	0.0			0.2	0.7	21.0	19.0		0	0.0007	Hole dry.
28/06/24	12:00	BH306	S	3.0 - 8.2	8.20	D	0.02952	980		0.00	0.1	0.1	4.8	0.0	0.0			0.4	0.7	20.8	18.4		0	0.0007	Hole dry.
17/05/24	15:00	BH307	S	1.4 - 9.5	2.50		0.00775																		Gas monitoring not undertaken, gas tap replaced due to damage.
23/05/24	14:15	BH307	S	1.4 - 9.5	2.58		0.00811	982		0.00	0.1	0.1		0	0.0			0.9	1.2	5.9	3.9		0	0.0012	Headworks flooded, water bailed out.
31/05/24	13:25	BH307	S	1.4 - 9.5	2.50		0.00775	989		0.00	0.1	0.1		0.0	0			1.2	1.4	4.6	0.9		0	0.0014	
14/06/24	14:05	BH307	S	1.4 - 9.5	4.31		0.01597	966		0.04	0.1	0.1	99.2	0.0	0.0			0.6	1.2	16.8	0.0		0	0.0012	
21/06/24	12:10	BH307	S	1.4 - 9.5	4.60		0.01729	981		0.00	0.1	0.1	103.0	0.0	0.0			0.6	1	20.1	0.1		0	0.001	
28/06/24	12:55	BH307	S	1.4 - 9.5	6.99		0.02816	983		0.00	0.1	0.1	108.6	0.0	0.2			0.2	1.2	20.4	0.2		0.0002	0.0012	Carbon monoxide recorded initial 0ppm, steady 25ppm.

Appendix E Contamination Assessments

GAC derivation

Background

Initially, the Hydrock GAC were derived following the publishing of soil guideline values (SGV), toxicological (TOX) reports and associated publications by the Environment Agency (EA) in 2009 referenced under Science Report SC050021 (EA, 2009a, b, c, d). The Hydrock GAC have then been periodically updated following publication of new information on toxicological, physico-chemical, land use or receptor parameters, namely:

- LQM/CIEH, 2009. LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment, second edition. Nathanial, C. P., McCaffrey, C., Ashmore, M., Cheng, Y., Gillet, A. G., Ogden, R. C. and Scott, D.
- CL:AIRE, 2010. 'The EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment'. Environmental Industries Commission, The Association of Geotechnical and Geoenvironmental Specialists and Contaminated Land: Applications in Real Environment.
- CL:AIRE, 2014. 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010. Contaminated Land: Applications in Real Environment.
- LQM/CIEH, 2015. 'The LQM/CIEH S4ULs for Human Health Risk Assessment'. Nathanial, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C. and Nathanial, J. F.
- CL:AIRE, 2021. 'C4SL Phase 2 Technical Reports'. Contaminated Land: Applications in Real Environment.

Land use scenarios

Hydrock has derived generic assessment criteria (GAC) for human health based on the six exposure scenarios defined in CL:AIRE (2014) using generic default assumptions from published guidance. GAC for each exposure scenario have been derived for three soil organic matter (SOM) contents, 1%, 2.5% and 6%.

All GAC have been rounded to two significant figures.

Exposure parameters

The exposure parameters used for the Hydrock GAC are the default parameters stated in SR3, unless updated in CL:AIRE (2014) where the CL:AIRE (2014) values have been adopted.

Approach to consumption rates

Hydrock have adopted the 90th percentile consumption rates from Table 3.4 of CL:AIRE (2014) for all produce types. This is noted to be more conservative than the "top two" approach taken in the derivation of C4SLs.

Approach to plant uptake for GAC omitted in CL:AIRE (2010)

Plant uptake factors were not identified in CL:AIRE (2010) for antimony, barium and molybdenum. Hydrock has sourced the required parameter values from ORNL (1984) in order to derive GAC that are inclusive of the homegrown produce exposure pathway.

Chemical and toxicity parameters

The chemical and toxicity parameters have been adopted based on the following documents:

- IRIS, 2016. 'Toxicological Review of Trimethylbenzenes'. Integrated Risk Information System, National Centre for Environmental Assessment, office of Research and Development, U.S. Environmental Protection Agency.
- LQM/CIEH, 2015.

- ORNL, 1984. 'ORNL-5786. A Review and Analysis of Parameters for Assessing Transport of Environmentally released Radionuclides through Agriculture'. Oak Ridge National Laboratory.
- CL:AIRE, 2010.
- RIVM, 2001. RIVM Report 711701 025 'HCV Re-evaluation of human-toxicological maximum-permissible risk levels'. National Institute of Public Health and the Environment.
- LQM/CIEH, 2009.
- EA, 2009a.

Approach to Cyanide GAC

The Hydrock GAC for free cyanide have been derived based on ingestion of a bolus of contaminated soil. The GAC are derived for acute exposure of a child (0-6 years old) for all land uses except commercial, where the GAC are derived for acute exposure of an adult (16-65 years old). For the purpose of GQRA, the child value may be adopted for all land use scenarios.

For complex cyanide, the GAC have been derived based on chronic exposure, using the default exposure scenarios but excluding the consumption of homegrown produce, soil attached to homegrown produce, indoor vapour and outdoor vapour pathways. The chronic health criteria value (HCV) for complex cyanide is based on the EA (2009a) HCV for free cyanide and the ratio of toxicity between free and complex cyanide proposed by RIVM (2001).

Approach to Phenol GAC

In accordance with the EA Science Report SC050021 / Phenol SGV, a $GAC_{ing/inh}$ has been derived for ingested and inhaled phenol using the CLEA model, with a GAC_{derm} derived for dermal contact using Equation 5.7 within SR3. The lower of the $GAC_{ing/inh}$ and GAC_{derm} has been adopted as the final GAC.

Approach to PCB GAC

GAC for assessing the non-dioxin-like risk from PCBs have been based on the "Dutch 7". As the TDI used by the authors of the Dutch guidance is for the sum of the 7 individual congeners, the TDI has been divided by 7 to create a TDI for each congener. The non-dioxin-like risk from PCBs is therefore assessed using a Hazard Index approach as for total petroleum hydrocarbons (TPH).

Sub-surface soil to indoor air correction factors

Reflecting the approach taken by the Environment Agency in the development of revised SGV in 2009 for BTEX, a sub-surface soil to indoor air correction factor of 10 has been applied for petroleum hydrocarbons in order to account for over-prediction of vapour intrusion into building using the Johnson and Ettinger approach.

The correction factor of 10 has been applied to the following petroleum hydrocarbons (it makes negligible difference to less volatile TPH and PAH compounds):

- TPHCWG fractions, namely aliphatic EC>5-44 and aromatic EC>6-44;
- PAHs (acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene), benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h,)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, pyrene);
- BTEX;
- Isopropylbenzene;
- Propylbenzene;
- 1,2,4- and 1,3,5-trimethylbenzene; and
- Styrene.

Approach to saturation limits

The CLEA model includes a traffic light colour system to highlight when saturated soil conditions have potentially been exceeded for the vapour pathways during calculation of assessment criteria. The colours represent:

- Green: the assessment criteria do not exceed the saturated soil concentration.
- Amber: the assessment criteria exceed the saturated soil concentration but the contribution of the indoor and outdoor vapour pathway to total exposure is less than 10% and will not significantly affect the assessment criteria.
- Red: the assessment criteria exceed the saturated soil concentration and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10% and will significantly affect the assessment criteria.

Hydrock have not applied any further calculations or assessment in relation to saturation limits during GAC derivation, with the CLEA-modelled GAC being presented as the GAC. Consideration of saturation limits is undertaken during the data assessment stage.

References

CL:AIRE, 2010. 'The EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment'. Environmental Industries Commission, The Association of Geotechnical and Geoenvironmental Specialists and Contaminated Land: Applications in Real Environment.

CL:AIRE, 2014. 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010. Contaminated Land: Applications in Real Environment

CL:AIRE, 2021. C4SL Phase 2 Technical Reports for tetrachloroethene, trichloroethene and vinyl chloride. Contaminated Land: Applications in Real Environment.

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Human health GQRA

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter: Default - Human Health - residential with home-grown produce (2.5%SOM)
Client: Trivallis
Site: Penrhys Village, Rhondda Cynon Taff
Job no.: 30603
Lab. report no(s).: 24-014999, 24-015003, 24-016507, 24-016568, 24-018446, 24-018448, 24-018451, 24-018460, 24-018462.

Data Filters
Zone: A
Strata: MG
Depth Min (m bgl): 0.2
Depth Max (m bgl): 3.55

Dataset mean SOM%: 2.42
Scenario SOM%: 2.5

All values in mg/kg unless otherwise stated

CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @2.5% SOM	GAC	GAC Source	Statistical Assessment?	Central Limit Theorem Statistical Assessment (after CL:AIRE 2020) Upper Confidence Limit 80%	95%	99%	Results of Significance Test
-	**Asbestos**																	
Ps020	Asbestos Identified	text	Y/N	33	-	-	-	-	No. of detects:	0	-	-	-		-	-	-	-
Ps889	Asbestos Screen Name	text		0	-	-	-	-	-		-		-					
Ps885	Asbestos Quant. (Stage 2)	%	0.001	0					No. > LOD:		-		-					
Ps935	Asbestos Quant. Total	%	0.001	0					No. > LOD:		-		-					
Ps826	Asbestos Quant. (Stage 3)	%	0.001	0					No. > LOD:		-		-					
-	Asbestos Quant. Total (Stages 2+3)	%	0.001	0					No. > LOD:		-		-					
Ps880	Asbestos Containing Material Types Detected (ACM)	text		0	-	-	-	-	-		-		-					
-	**Hydrock Default Suite - FOC / SOM / pH**										-							
Ps085	FOC (dimensionless)	|	0.001	0					-		-		-					
-	SOM (calculated)	%	0.1724	24	0.90	5.50	2.42	2.40	1.26		-	-	-		-	-	-	-
Ps334	pH (su)	pH Units	0.1	32	6.50	12.30	9.16	8.50	1.57		-	-	-		-	-	-	-
-	**Hydrock Default Suite - Metals & PAH**																	
7440-38-2	Arsenic	mg/kg	1	24	6.10	37.00	14.97	13.00	7.33	**1**	NR	37	C4SL - CL:AIRE 2014	Y	16.94	18.07	19.17	Potentially Suitable for Use
7440-41-7	Beryllium	mg/kg	0.06	24	0.35	0.91	0.60	0.59	0.16	0	NR	1.7	Hydrock Derived	Y	0.64	0.67	0.69	Potentially Suitable for Use
7440-42-8	Boron	mg/kg	0.2	24	0.20	1.80	0.44	0.20	0.46	0	NR	300	Hydrock Derived	Y	0.56	0.63	0.70	Potentially Suitable for Use
7440-43-9	Cadmium	mg/kg	0.2	24	0.20	0.50	0.23	0.20	0.08	0	NR	22	C4SL - CL:AIRE 2014	Y	0.26	0.27	0.28	Potentially Suitable for Use
16065-83-1	Chromium (III)	mg/kg	1	24	14.00	38.00	20.38	17.00	7.66	0	NR	890	Hydrock Derived	Y	22.44	23.61	24.76	Potentially Suitable for Use
18540-29-9	Chromium (VI)	mg/kg	1.8	24	1.80	1.80	1.80	1.80	0.00	0	NR	21	C4SL - CL:AIRE 2014	Y	1.80	1.80	1.80	Potentially Suitable for Use
7440-47-3	Chromium (Total)	mg/kg	1	0										N				
7440-50-8	Copper	mg/kg	1	24	8.60	61.00	22.68	18.00	13.42	0	NR	2500	Hydrock Derived	Y	26.29	28.35	30.37	Potentially Suitable for Use
7439-92-1	Lead	mg/kg	1	24	9.10	110.00	31.25	20.00	28.04	0	NR	200	C4SL - CL:AIRE 2014	Y	38.81	43.09	47.32	Potentially Suitable for Use
7439-97-6	Mercury, inorganic	mg/kg	0.3	24	0.30	0.30	0.30	0.30	0.00	0	NR	40	Hydrock Derived	Y	0.30	0.30	0.30	Potentially Suitable for Use
7440-02-0	Nickel	mg/kg	1	24	8.60	30.00	17.86	19.00	6.37	0	NR	130	Hydrock Derived	Y	19.58	20.55	21.51	Potentially Suitable for Use
7782-49-2	Selenium	mg/kg	1	24	1.00	2.30	1.07	1.00	0.27	0	NR	260	Hydrock Derived	Y	1.14	1.19	1.23	Potentially Suitable for Use
7440-62-2	Vanadium	mg/kg	1	24	11.00	50.00	23.67	21.50	7.65	0	NR	410	Hydrock Derived	Y	25.73	26.90	28.05	Potentially Suitable for Use
7440-66-6	Zinc	mg/kg	1	24	37.00	280.00	94.46	75.00	62.01	0	NR	3900	Hydrock Derived	Y	111.16	120.64	129.99	Potentially Suitable for Use
Ps095	Cyanide (free)	mg/kg	1	24	1.00	1.00	1.00	1.00	0.00	0	NR	24	Acute Risk - SoBRA 2020	Y	1.00	1.00	1.00	Potentially Suitable for Use
Ps186	Total Phenols (Monohydric)	mg/kg	1	24	1.00	1.00	1.00	1.00	0.00	0	38058	210	Hydrock Derived	Y	1.00	1.00	1.00	Potentially Suitable for Use
83-32-9	Acenaphthene	mg/kg	0.05	24	0.05	0.66	0.12	0.05	0.14	0	141	540	Hydrock Derived	Y	0.16	0.18	0.20	Potentially Suitable for Use
208-96-8	Acenaphthylene	mg/kg	0.05	24	0.05	0.12	0.05	0.05	0.01	0	212	440	Hydrock Derived	Y	0.06	0.06	0.06	Potentially Suitable for Use
120-12-7	Anthracene	mg/kg	0.05	24	0.05	0.96	0.14	0.05	0.20	0	2.91	5500	Hydrock Derived	Y	0.19	0.22	0.25	Potentially Suitable for Use
56-55-3	Benzo(a)anthracene	mg/kg	0.05	24	0.05	3.00	0.68	0.38	0.80	0	4.28	12	Hydrock Derived	Y	0.90	1.02	1.14	Potentially Suitable for Use
50-32-8	Benzo(a)pyrene	mg/kg	0.05	24	0.05	2.90	0.70	0.21	0.86	0	2.28	5	C4SL - CL:AIRE 2014	Y	0.93	1.06	1.19	Potentially Suitable for Use
205-99-2	Benzo(b)fluoranthene	mg/kg	0.05	24	0.05	**4.20**	1.07	0.68	1.20	**2**	3.04	3.3	Hydrock Derived	Y	1.39	1.58	1.76	Potentially Suitable for Use
191-24-2	Benzo(ghi)perylene	mg/kg	0.05	24	0.05	1.60	0.48	0.32	0.51	0	0.04	340	Hydrock Derived	Y	0.62	0.70	0.78	Potentially Suitable for Use
207-08-9	Benzo(k)fluoranthene	mg/kg	0.05	24	0.05	1.30	0.40	0.24	0.43	0	1.72	93	Hydrock Derived	Y	0.52	0.58	0.65	Potentially Suitable for Use
218-01-9	Chrysene	mg/kg	0.05	24	0.05	3.50	0.86	0.49	0.98	0	1.10	22	Hydrock Derived	Y	1.12	1.27	1.42	Potentially Suitable for Use
53-70-3	Dibenz(ah)anthracene	mg/kg	0.05	24	0.05	**0.75**	0.19	0.07	0.22	**5**	0.010	0.29	Hydrock Derived	Y	0.24	0.28	**0.31**	Borderline - Review Statistics
206-44-0	Fluoranthene	mg/kg	0.05	24	0.05	5.80	1.10	0.61	1.45	0	47	560	Hydrock Derived	Y	1.49	1.71	1.93	Potentially Suitable for Use
86-73-7	Fluorene	mg/kg	0.05	24	0.05	0.69	0.12	0.05	0.14	0	77	420	Hydrock Derived	Y	0.16	0.18	0.20	Potentially Suitable for Use
193-39-5	Indeno(123cd)pyrene	mg/kg	0.05	24	0.05	1.60	0.46	0.31	0.48	0	0.15	36	Hydrock Derived	Y	0.59	0.67	0.74	Potentially Suitable for Use
91-20-3	Naphthalene	mg/kg	0.05	24	0.05	0.22	0.07	0.05	0.04	0	183	30	Hydrock Derived	Y	0.08	0.09	0.09	Potentially Suitable for Use
85-01-8	Phenanthrene	mg/kg	0.05	24	0.05	4.00	0.61	0.21	0.88	0	90	220	Hydrock Derived	Y	0.84	0.98	1.11	Potentially Suitable for Use
129-00-0	Pyrene	mg/kg	0.05	24	0.05	4.30	0.88	0.53	1.14	0	5.5	1200	Hydrock Derived	Y	1.19	1.36	1.53	Potentially Suitable for Use
Ps310	PAH 16 Total	mg/kg	0.8	24	0.80	35.20	7.79	4.28	9.22			-		N	-	-	-	-

Date	15/01/24	18/01/24	23/01/24	22/01/24	23/01/24	23/01/24	23/01/24	23/01/24	01/05/24	01/05/24	01/05/24	30/01/24	30/01/24	30/01/24	25/01/24	25/01/24	25/01/24	25/01/24	25/01/24	25/01/24	02/05/24	02/05/24	29/01/24	29/01/24	29/01/24	30/01/24
Zone	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Location	BH301	BH306	BH302B	TP202	TP204	TP204	TP210	TP203	TP207A	TP208	BH305	BH305	TP216	TP205	TP213	TP217B	BH304	BH304	BH303B	BH303B	TP206A	TP212	TP214	TP215		
Depth (m bgl)	1.1	0.6	1.1	0.5	0.5	2	2.5	0.5	0.5	1	0.2	1	0.5	1.5	1.5	1	0.2	1	0.2	1.1	0.5	1	0.5	0.5		
Strata	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG		
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
	1.3	2.4	3.5	1.3	5.5	2.8	1.6	2.4	1.2	2.7	3.1	1.6	1.2	1.5	3	1.9	5.2	0.9	4.5	0.9	2.4	2	2.4	2.8		
	10.8	7.4	11.2	8.5	11.3	8.9	8.1	9.6	11.1	8.2	7.6	9.7	8.1	10.5	8.5	8.3	7.9	8.2	8.5	12.3	8.1	8	6.5	8		
7440-38-2	12	10	37	11	33	23	14	13	9.4	11	12	11	6.1	13	14	14	24	8.8	16	12	12	13	13	17		
7440-41-7	0.69	0.47	0.41	0.41	0.57	0.68	0.6	0.39	0.45	0.57	0.75	0.65	0.7	0.45	0.87	0.75	0.91	0.73	0.78	0.35	0.45	0.54	0.74	0.45		
7440-42-8	1	0.2	0.5	0.2	1.8	1.1	<0.2	0.4	<0.2	0.3	<0.2	<0.2	0.2	1.6	<0.2	<0.2	0.5	<0.2	0.3	0.3	<0.2	<0.2	<0.2	<0.2		
7440-43-9	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	0.3	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
16065-83-1	15	16	38	14	37	30	15	22	15	15	20	16	28	17	19	19	37	16	16	19	15	17	19	14		
18540-29-9	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8		
7440-47-3																										
7440-50-8	13	15	45	8.6	50	30	9.7	24	18	21	20	18	12	22	36	19	61	15	33	15	12	18	15	14		
7439-92-1	72	12	110	12	69	28	13	20	20	16	27	18	9.1	20	34	17	100	12	46	28	14	16	15	22		
7439-97-6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
7440-02-0	10	20	12	8.6	19	23	23	12	9.7	16	21	17	29	9.5	23	24	23	24	19	9.9	15	19	30	12		
7782-49-2	<1	<1	<1	2.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.4	<1	<1	<1	<1	1		
7440-62-2	21	18	21	11	34	28	19	20	20	19	28	22	35	18	25	25	50	19	23	26	20	24	23	19		
7440-66-6	78	69	280	47	200	170	53	54	100	61	100	77	37	78	86	73	230	63	97	74	52	65	76	47		
Ps095	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Ps186	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
83-32-9	0.18	<0.05	<0.05	<0.05	0.12	0.07	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	0.66	0.3	<0.05	0.24	0.28	<0.05	<0.05	<0.05	<0.05	<0.05	0.17		
208-96-8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
120-12-7	0.36	<0.05	0.18	<0.05	0.2	0.06	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	0.96	0.15	<0.05	0.35	0.28	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
56-55-3	1.1	<0.05	1.2	0.1	0.91	0.46	0.43	0.33	0.08	0.23	0.58	<0.05	<0.05	3	1.4	<0.05	2.2	1.8	0.77	<0.05	<0.05	<0.05	<0.05	1.4		
50-32-8	1	<0.05	1.3	<0.05	0.99	<0.05	<0.05	0.34	0.08	0.41	0.65	<0.05	<0.05	2.9	1.8	<0.05	2.4	2	0.85	<0.05	<0.05	<0.05	<0.05	1.5		
205-99-2	1.4	<0.05	1.8	0.14	1.5	0.75	0.8	0.5	0.14	0.6	0.96	<0.05	<0.05	4.2	2.7	<0.05	3.3	2.8	1.6	<0.05	<0.05	<0.05	<0.05	2.1		
191-24-2	0.64	<0.05	0.73	0.07	0.61	0.34	0.34	0.25	0.09	0.3	0.51	<0.05	<0.05	1.6	1.5	<0.05	1.5	1.1	0.7	<0.05	<0.05	<0.05	<0.05	0.95		
207-08-9	0.67	<0.05	0.63	0.07	0.53	0.28	0.32	0.15	<0.05	0.19	0.35	<0.05	<0.05	1.3	1	<0.05	1.3	1.1	0.41	<0.05	<0.05	<0.05	<0.05	0.92		
218-01-9	1.3	<0.05	1.4	0.13	1.1	0.59	0.57	0.41	0.1	0.37	0.78	<0.05	<0.05	3.5	2	0.09	2.6	2.4	1.1	<0.05	<0.05	<0.05	<0.05	1.8		
53-70-3	0.19	<0.05	0.22	<0.05	0.21	0.11	0.12	<0.05	<0.05	0.08	0.13	<0.05	<0.05	0.75	0.57	<0.05	0.59	0.6	<0.05	<0.05	<0.05	<0.05	<0.05	0.31		
206-44-0	2	<0.05	1.6	0.22	1.4	0.63	0.6	0.61	0.09	0.21	0.8	<0.05	<0.05	5.8	2.5	0.08	4.1	2.4	1.1	<0.05	<0.05	<0.05	<0.05	1.9		
86-73-7	0.2	<0.05	0.09	<0.05	0.12	0.06	<0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	0.69	0.16	<0.05	0.18	0.23	0.12	<0.05	<0.05	<0.05	<0.05	0.15		
193-39-5	0.54	<0.05	0.69	<0.05	0.61	0.33	0.37	0.23	0.09	0.28	0.49	<0.05	<0.05	1.6	1.3	<0.05	1.4	1.1	0.69	<0.05	<0.05	<0.05	<0.05	0.91		
91-20-3	0.08	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.06	<0.05	0.19	<0.05	0.22	<0.05	<0.05	<0.05	<0.05	<0.05		
85-01-8	1.2	<0.05	0.64	<0.05	0.94	0.38	0.2	0.58	0.08	0.07	0.22	<0.05	<0.05	4	1.3	0.06	1.8	1.1	0.68	<0.05	<0.05	<0.05	<0.05	0.89		
129-00-0	1.7	<0.05	1.3	0.13	0.99	0.52	0.53	0.54	<0.05	0.22	0.65	<0.05	<0.05	4.3	2.1	0.06	3.5	1.9	0.89	<0.05	<0.05	<0.05	<0.05	1.4		
Ps310	12.6	<0.8	11.8	0.85	10.2	4.57	4.29	4.27	<0.8	2.96	6.19	<0.8	<0.8	35.2	18.7	<0.8	25.6	19.1	9.05	<0.8	<0.8	<0.8	<0.8	14.4		

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:	**Default - Human Health - residential with home-grown produce (2.5%SOM)**
Client:	Trivallis
Site:	Penrhys Village, Rhondda Cynon Taff
Job no.:	30603
Lab. report no(s).:	24-014999, 24-015003, 24-016507, 24-016568, 24-018446, 24-018448, 24-018451, 24-018460, 24-018462,

Data Filters

Zone	B
Strata	MG
Depth Min (m bgl)	0.2
Depth Max (m bgl)	3.55
Dataset mean SOM%	1.60
Scenario SOM%	2.5

All values in mg/kg unless otherwise stated

CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @2.5% SOM	GAC	GAC Source	Central Limit Theorem Statistical Assessment	02/05/24	30/04/24
														Statistical Assessment?	B	B
															TP102	TP101
															0.5	0.5
															MG	MG
-	**Asbestos**															
P1020	Asbestos Identified	text	Y/N	33	-	-	-	-	No. of detects:	0	-	-	-		N	N
P1889	Asbestos Screen Name	text		0	-	-	-	-	-		-		-			
P1885	Asbestos Quant. (Stage 2)	%	0.001	0					No. > LOD:		-		-			
P1935	Asbestos Quant. Total	%	0.001	0					No. > LOD:		-		-			
P1826	Asbestos Quant. (Stage 3)	%	0.001	0					No. > LOD:		-		-			
-	Asbestos Quant. Total (Stages 2+3)	%	0.001	0					No. > LOD:		-		-			
P1880	Asbestos Containing Material Types Detected (ACM)	text		0	-	-	-	-	-		-		-			
-	**Hydrock Default Suite - FOC / SOM / pH**										-					
P1085	FOC (dimensionless)	fl	0.001	0							-		-			
-	SOM (calculated)	%	0.1724	2	0.90	2.30	1.60	1.60	0.99		-	-	-		2.3	0.9
P1334	pH (su)	pH Units	0.1	2	9.00	9.20	9.10	9.10	0.14		-	-	-		9	9.2
-	**Hydrock Default Suite - Metals & PAH**															
7440-38-2	Arsenic	mg/kg	1	2	6.00	8.00	7.00	7.00	1.41	0	NR	37	C4SL - CL:AIRE 2014	Y	6	8
7440-41-7	Beryllium	mg/kg	0.06	2	0.49	0.56	0.53	0.53	0.05	0	NR	1.7	Hydrock Derived	Y	0.49	0.56
7440-42-8	Boron	mg/kg	0.2	2	0.60	0.70	0.65	0.65	0.07	0	NR	300	Hydrock Derived	Y	0.7	0.6
7440-43-9	Cadmium	mg/kg	0.2	2	0.40	0.50	0.45	0.45	0.07	0	NR	22	C4SL - CL:AIRE 2014	Y	0.4	0.5
16065-83-1	Chromium (III)	mg/kg	1	2	14.00	19.00	16.50	16.50	3.54	0	NR	890	Hydrock Derived	Y	14	19
18540-29-9	Chromium (VI)	mg/kg	1.8	2	1.80	1.80	1.80	1.80	0.00	0	NR	21	C4SL - CL:AIRE 2014	Y	<1.8	<1.8
7440-47-3	Chromium (Total)	mg/kg	1	0										N		
7440-50-8	Copper	mg/kg	1	2	8.00	8.50	8.25	8.25	0.35	0	NR	2500	Hydrock Derived	Y	8	8.5
7439-92-1	Lead	mg/kg	1	2	13.00	19.00	16.00	16.00	4.24	0	NR	200	C4SL - CL:AIRE 2014	Y	13	19
7439-97-6	Mercury, inorganic	mg/kg	0.3	2	0.30	0.30	0.30	0.30	0.00	0	NR	40	Hydrock Derived	Y	<0.3	<0.3
7440-02-0	Nickel	mg/kg	1	2	7.10	13.00	10.05	10.05	4.17	0	NR	130	Hydrock Derived	Y	13	7.1
7782-49-2	Selenium	mg/kg	1	2	1.00	1.30	1.15	1.15	0.21	0	NR	260	Hydrock Derived	Y	1.3	<1
7440-62-2	Vanadium	mg/kg	1	2	17.00	24.00	20.50	20.50	4.95	0	NR	410	Hydrock Derived	Y	17	24
7440-66-6	Zinc	mg/kg	1	2	39.00	68.00	53.50	53.50	20.51	0	NR	3900	Hydrock Derived	Y	68	39
P1095	Cyanide (free)	mg/kg	1	2	1.00	1.00	1.00	1.00	0.00	0	NR	24	Acute Risk - SoBRA 2020	Y	<1	<1
P1186	Total Phenols (Monohydric)	mg/kg	1	2	1.00	1.00	1.00	1.00	0.00	0	38058	210	Hydrock Derived	Y	<1	<1
83-32-9	Acenaphthene	mg/kg	0.05	2	1.30	15.00	8.15	8.15	9.69	0	141	540	Hydrock Derived	Y	15	1.3
208-96-8	Acenaphthylene	mg/kg	0.05	2	0.12	0.87	0.50	0.50	0.53	0	212	440	Hydrock Derived	Y	0.87	0.12
120-12-7	Anthracene	mg/kg	0.05	2	1.40	16.00	8.70	8.70	10.32	0	2.91	5500	Hydrock Derived	Y	16	1.4
56-55-3	Benz(a)anthracene	mg/kg	0.05	2	6.00	**93.00**	**49.50**	**49.50**	61.52	**1**	4.28	12	Hydrock Derived	Y	93	6
50-32-8	Benzo(a)pyrene	mg/kg	0.05	2	**8.30**	**97.00**	**52.65**	**52.65**	62.72	**2**	2.28	5	C4SL - CL:AIRE 2014	Y	97	8.3
205-99-2	Benzo(b)fluoranthene	mg/kg	0.05	2	**11.00**	**130.00**	**70.50**	**70.50**	84.15	**2**	3.04	3.3	Hydrock Derived	Y	130	11
191-24-2	Benzo(ghi)perylene	mg/kg	0.05	2	6.10	37.00	21.55	21.55	21.85	0	0.04	340	Hydrock Derived	Y	37	6.1
207-08-9	Benzo(k)fluoranthene	mg/kg	0.05	2	4.10	47.00	25.55	25.55	30.33	0	1.72	93	Hydrock Derived	Y	47	4.1
218-01-9	Chrysene	mg/kg	0.05	2	6.80	**100.00**	**53.40**	**53.40**	65.90	**1**	1.10	22	Hydrock Derived	Y	100	6.8
53-70-3	Dibenz(ah)anthracene	mg/kg	0.05	2	0.05	**14.00**	**7.03**	**7.03**	9.86	**1**	0.010	0.29	Hydrock Derived	Y	14	<0.05
206-44-0	Fluoranthene	mg/kg	0.05	2	11.00	120.00	65.50	65.50	77.07	0	47	560	Hydrock Derived	Y	120	11
86-73-7	Fluorene	mg/kg	0.05	2	0.93	11.00	5.97	5.97	7.12	0	77	420	Hydrock Derived	Y	11	0.93
193-39-5	Indeno(123cd)pyrene	mg/kg	0.05	2	5.20	**38.00**	21.60	21.60	23.19	**1**	0.15	36	Hydrock Derived	Y	38	5.2
91-20-3	Naphthalene	mg/kg	0.05	2	0.05	0.66	0.36	0.36	0.43	0	183	30	Hydrock Derived	Y	0.66	<0.05
85-01-8	Phenanthrene	mg/kg	0.05	2	5.60	54.00	29.80	29.80	34.22	0	90	220	Hydrock Derived	Y	54	5.6
129-00-0	Pyrene	mg/kg	0.05	2	9.00	90.00	49.50	49.50	57.28	0	5.5	1200	Hydrock Derived	Y	90	9
P1310	PAH 16 Total	mg/kg	0.8	2	76.50	86.30	81.40	81.40	6.93			-		N	86.3	76.5

Phytotoxic GQRA

Assessment of Chemicals of Potential Concern to Plant Life

Risk parameter:	**Phytotoxic pH >7**
Client:	Trivallis
Site:	Penrhys Village, Rhondda Cynon Taff
Job no.:	30603
Lab. report no(s).:	24-014999, 24-015003, 24-016507, 24-016568, 24-018446, 24-018448, 24-018451, 24-018460, 24-018462, 24-018472, 24-018668,

Data Filters

Zone	**All**
Strata	**All**
Depth Min (m bgl)	**0.2**
Depth Max (m bgl)	**3.55**
Dataset mean pH	**8.84**
Scenario pH	**>7**

Hydrock

All values in mg/kg unless otherwise stated

CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	GAC	GAC Source	Strata	16/04/24	16/04/24	15/04/24	15/04/24	18/04/24	23/04/24	22/04/24	23/04/24	23/04/24	23/04/24	01/05/24	01/05/24	01/05/24	01/05/24	30/04/24	30/04/24	01/05/24	30/04/24	07/05/24	07/05/24	07/05/24
													Zone	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	C
													Location	BH301	BH301	BH301	BH301	BH306	BH302B	TP202	TP204	TP204	TP210	TP203	TP207A	TP207A	TP208	BH305	BH305	BH305	TP216	BH307	TP218	TP219
													Depth (bgl)	1.85	3.55	0.6	1.1	0.6	1.1	0.5	0.5	2	2.5	0.5	0.5	1.5	1	0.2	1	2.55	0.5	0.2	0.5	1
-	**Hydrock Default Suite - FOC / SOM / pH**																																
P1334	pH (su)	pH Units	0.1	41	6.10	12.30	8.84	8.20	1.57		-	-		8.1	7.7	11.4	10.8	7.4	11.2	8.5	11.3	8.9	8.1	9.6	11.1	11.6	8.2	7.6	9.7	9.2	8.1	7.5	7	7.1
-	**Hydrock Default Suite - Metals & PAH**																																
7440-38-2	Arsenic	mg/kg	1	33	6.00	37.00	14.04	13.00	6.93	0	250	MAFF 1998		-	8.7	-	12	10	37	11	33	23	14	13	9.4	-	11	12	11	-	6.1	23	6.4	15
7440-42-8	Boron	mg/kg	0.2	33	0.20	1.80	0.40	0.20	0.41	0	5	Nable, et al. 1997		-	<0.2	-	1	0.2	0.5	0.2	1.8	1.1	<0.2	0.4	<0.2	-	0.3	<0.2	<0.2	-	0.2	<0.2	<0.2	0.2
16065-83-1	Chromium (III)	mg/kg	1	33	14.00	38.00	19.94	17.00	6.76	0	400	MAFF 1998 (Cr(T))		-	16	-	15	16	38	14	37	30	15	22	15	-	15	20	16	-	28	20	24	21
18540-29-9	Chromium (VI)	mg/kg	1.8	33	1.80	1.80	1.80	1.80	0.00	0	25	ICRCL 70/90 1990		-	<1.8	-	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8	<1.8
7440-50-8	Copper	mg/kg	1	33	5.20	61.00	21.06	18.00	12.37	0	200	BS3882 2015		-	5.2	-	13	15	45	8.6	50	30	9.7	24	18	-	21	20	18	-	12	22	27	22
7440-02-0	Nickel	mg/kg	1	33	7.10	42.00	20.12	19.00	9.14	0	110	BS3882 2015		-	42	-	10	20	12	8.6	19	23	23	12	9.7	-	16	21	17	-	29	13	37	31
7440-66-6	Zinc	mg/kg	1	33	37.00	280.00	87.94	74.00	54.22	0	300	BS3882 2015		-	74	-	78	69	280	47	200	170	53	54	100	-	61	100	77	-	37	73	76	95

Legend:

MG	Made Ground
RM	Rhondda Member
TS	Topsoil

<0.02	Value below the laboratory reporting limit and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
0.02	Value greater than, or equal to, the generic assessment criterion (GAC).
64.00	Value exceed saturation limit and substance is liquid or solid at ambient temperature
'<10	Value excluded from statistical analysis
y	Text result
-	Represents a determinand that was not tested.
•	represents a data point that is not included in the current filter settings

Template Version:

1.09: 11/03/24

Assessment of Chemicals of Potential Concern to Plant Life

Risk parameter:	**Phytotoxic pH >7**
Client:	Trivallis
Site:	Penrhys Village, Rhondda Cynon Taff
Job no.:	30603
Lab. report no(s).:	24-014999, 24-015003, 24-016507, 24-016568, 24-018446, 24-018448, 24-018451, 24-018460, 24-018462, 24-018472, 24-018668,

Data Filters

Zone	**All**
Strata	**All**
Depth Min (m bgl)	**0.2**
Depth Max (m bgl)	**3.55**
Dataset mean pH	**8.84**
Scenario pH	**>7**

Hydrock

ng/kg unless otherwise stated

Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	GAC	GAC Source	25/04/24	25/04/24	26/04/24	25/04/24	25/04/24	25/04/24	25/04/24	02/05/24	02/05/24	02/05/24	02/05/24	29/04/24	29/04/24	29/04/24	29/04/24	29/04/24	29/04/24	08/05/24	30/04/24	30/04/24
												A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	C	A	B
												TP205	TP205	TP213	TP217B	BH304	BH304	BH304	TP102	BH303B	BH303B	BH303B	TP206A	TP211	TP212	TP212	TP214	TP214	BH307	TP215	TP101
												1.5	2	1.5	1	0.2	0.6	1	0.5	0.2	0.6	1.1	0.5	1.5	1	2	0.5	2.5	0.95	0.5	0.5
												MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	RM	MG	RM	MG	MG	RM	MG	MG
Hydrock Default Suite - FOC / SOM / pH																															
pH (su)	pH Units	0.1	41	6.10	12.30	8.84	8.20	1.57		-	-	10.5	10.4	8.5	8.3	7.9	8.2	8.2	9	8.5	11.7	12.3	8.1	7.9	8	8	6.5	7.1	6.1	8	9.2
Hydrock Default Suite - Metals & PAH																															
Arsenic	mg/kg	1	33	6.00	37.00	14.04	13.00	6.93	0	250	MAFF 1998	13	-	14	14	24	-	8.8	6	16	-	12	12	11	13	13	13	-	13	17	8
Boron	mg/kg	0.2	33	0.20	1.80	0.40	0.20	0.41	0	5	Nable, et al. 1997	1.6	-	<0.2	<0.2	0.5	-	<0.2	0.7	0.3	-	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	0.6
Chromium (III)	mg/kg	1	33	14.00	38.00	19.94	17.00	6.76	0	400	MAFF 1998 (Cr(T))	17	-	19	19	37	-	16	14	16	-	19	15	16	17	16	19	-	23	14	19
Chromium (VI)	mg/kg	1.8	33	1.80	1.80	1.80	1.80	0.00	0	25	ICRCL 70/90 1990	<1.8	-	<1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8
Copper	mg/kg	1	33	5.20	61.00	21.06	18.00	12.37	0	200	BS3882 2015	22	-	36	19	61	-	15	8	33	-	15	12	13	18	21	15	-	24	14	8.5
Nickel	mg/kg	1	33	7.10	42.00	20.12	19.00	9.14	0	110	BS3882 2015	9.5	-	23	24	23	-	24	13	19	-	9.9	15	23	19	30	30	-	39	12	7.1
Zinc	mg/kg	1	33	37.00	280.00	87.94	74.00	54.22	0	300	BS3882 2015	78	-	86	73	230	-	63	68	97	-	74	52	61	65	67	76	-	82	47	39

Legend:

MG	Made Ground
RM	Rhondda Member
TS	Topsoil

<0.02	Value below the laboratory reporting limit and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
0.02	Value greater than, or equal to, the generic assessment criterion (GAC).
64.00	Value exceed saturation limit and substance is liquid or solid at ambient temperature
***<10**	Value excluded from statistical analysis
y	Text result
-	Represents a determinand that was not tested.
*	represents a data point that is not included in the current filter settings

sion:

Controlled waters GQRA

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 1 - Soil Zone Assessment - leachate samples
Water body receptor(s): Groundwater
Secondary receptor(s):
Data set: Leachate
Client: Trivallis
Site: Penrhys Village, Rhondda Cynon Taff
Job no: C30603
Test Certificates(s): 24-016568, 24-018446, 24-018448, 24-018460, 24-018462, 24-018472, 24-018668
Dataset ALL ZONES

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant

JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water Quality		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-		-					Representative hardness of receiving surface water environment used in some inland EQS
7440-22-4	Silver (Ag) (dissolved)			12	0	1	0.9	0.999	0.999	0.999		0.05		12		0	Limit of Dectection
7429-90-5	Aluminium (Al) (dissolved)			12	12	12	24	1300	1052.5	1300		n/a					
7440-38-2	Arsenic (As) (dissolved)	SP	H	12	8	1	0.99	9.1	7.175	9.1		50		0		0	
7440-42-8	Boron (B) (dissolved)		NP	12	2	10	9.9	62	50.45	62		2000		0		0	
7440-39-3	Barium (Ba) (dissolved)			12	12	0.05	0.35	27	24.8	27		n/a					
7440-43-9	Cadmium (Cd) (dissolved)	PH	NP	12	0	0.08	0.079	0.0799	0.0799	0.0799		0.08		0		0	EQS (inland) dependent on hardness of receiving surface water environment
7440-48-4	Cobalt (Co) (dissolved)		NP	12	0	0.3	0.29	0.29999	0.299941	0.29999		3		0		0	
18540-29-9	Chromium (VI) (Cr) (dissolved)	SP	H	12	0	5	4.9	4.99	4.99	4.99		3.4		12		0	Limit of Dectection
16065-83-1	Chromium (III) (Cr) (dissolved)	SP		12	0	5	4.9	4.99	4.99	4.99		4.7		12		0	Limit of Dectection
7440-47-3	Chromium (Cr) (total) (dissolved)			12	10	0.4	0.399	4.3	3.035	4.3		n/a					
7440-50-8	Copper (Cu) (dissolved)	SP	NP	12	12	0.7	1.3	36	35.45	36		1		12		12	Bioavailable EQS (inland)
7439-89-6	Iron (Fe) (dissolved)	SP		12	11	0.004	0.00399	1.1	0.8305	1.1		1000		0		0	
7439-97-6	Mercury (Hg) (dissolved)	PH	H	12	1	0.007	0.0069	0.0209	0.01325	0.0209		0.07		0		0	
P1286	Manganese (Mn) (dissolved)	SP		12	12	0.06	8.2	190	119.05	190		123		1		1	Bioavailable EQS (inland)
7440-23-5	Sodium (Na) (dissolved)			12	12	0.01	0.77	6.2	4.66	6.2		n/a					
7440-02-0	Nickel (Ni) (dissolved)	*P*	NP	12	8	0.3	0.29	3.9	3.68	3.9		4		0		0	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	*P*	H	12	4	1	0.98	2.5	2.17	2.5		1.2		3		3	Bioavailable EQS (inland)
7440-36-0	Antimony (Sb) (dissolved)		NP	12	0	1.7	1.69	1.6999	1.6999	1.6999		n/a					
7782-49-2	Selenium (Se) (dissolved)		NP	12	1	4	3.9	4.4	4.17945	4.4		n/a					
7440-31-5	Tin (Sn) (dissolved)			0								25					
7440-62-2	Vanadium (V) (dissolved)			12	4	1.7	1.69	57	27.355	57		20		1		1	EQS (inland) dependent on hardness of receiving surface water environment
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	0								12.3					Bioavailable EQS (inland) + ambient background concentration (ABC)
P1095	Cyanide (free) (hydrogen cyanide)	SP	NP	12	0	1	0.99	0.999	0.999	0.999		1		0		0	
57-12-5	Cyanide (total)			12	0	1	0.99	0.999	0.999	0.999		n/a					
P1140	Ammonium (NH_4^+)		NP	12	12	15	22	150	120.85	150		n/a					
P1238	Ammnoniacal Nitrogen (as N)		NP	0								300					
P1720	Ammonia (unionised) (NH_3 as N) (free ammonia)	SP	NP	0								n/a					
15541-45-4	Bromate (BrO_3^-)			12	0	0.002	0.0019	0.00199	0.00199	0.00199		n/a					
16887-00-6	Chloride (Cl^-)			12	11	0.15	0.149	5.1	3.23	5.1		250000		0		0	
16984-48-8	Fluoride (F^-)			12	10	50	49.9	320	314.5	320		1000		0		0	EQS (inland) dependent on hardness of receiving surface water environment
P1348	Nitrate (NO_3^-)			12	6	0.05	0.049	1.25	1.1345	1.25		n/a					
P1349	Nitrite (NO_2^-)			12	6	5	4.9	25	22.25	25		n/a					
14808-79-8	Sulfate (SO_4^{2-})			12	12	0	1.13	107	88.85	107		400000		0		0	
P1134	pH (min.) (su)			0								6					
P1134	pH (max.) (su)			12	12	0	7.3	10.3	9.2	10.3		9		1		1	
P1287	Electrical conductivity (µS/cm)			12	11	10	9.99	290	268	290		n/a					
120-12-7	Anthracene	PH	H	12	1	0.01	0.009	0.09	0.045945	0.09		0.1		0		0	
50-32-8	Benzo(a)pyrene	PH	H	12	0	0.01	0.009	0.00999	0.00999	0.00999		0.00017		12		0	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	*P*	H	12	1	0.01	0.009	0.23	0.108945	0.23		0.0063		12		1	
91-20-3	Naphthalene	*P*	NP	12	2	0.01	0.009	0.12	0.109	0.12		2		0		0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	*P*	H	12	2	0.16	0.159	1.76	0.9405	1.76		n/a					
P1877	Phenol	SP	NP	12	10	1	0.99	2.6	2.545	2.6		7.7		0		0	

Appendix F Waste assessment

HazWasteOnline™ assessment

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

RBFS3-MJIJ5-2SPB9

Job name

Penrhys Village

Description/Comments

Project

30603-GSWC

Site

Penrhys Village

Classified by

Name:
Kurt Gilmore
Company:
Hydrock Consultants Ltd
Date:
19 Jun 2024 15:04 GMT
Telephone:

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:	-
Course	**Date**
Hazardous Waste Classification	08 Sep 2020
3 year Refresher overdue	-

Purpose of classification

2 - Material Characterisation

Address of the waste

enrhys Village, Rhondda Cynon Taff, Penrhys Road, Penrhys, Ferndale **Post Code** CF43 3RN

SIC for the process giving rise to the waste

43110 Demolition

Description of industry/producer giving rise to the waste

Site Investigation prior to demolition of residential houses

Description of the specific process, sub-process and/or activity that created the waste

Site Investigation

Description of the waste

Made ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH301	1.85	Non Hazardous		3
2	BH301[2]	3.55	Non Hazardous		4
3	BH301[3]	0.6	Non Hazardous		6
4	BH301[4]	1.1	Non Hazardous		7
5	BH306	0.6	Non Hazardous		9
6	BH302B	1.1	Non Hazardous		11
7	TP202	0.5	Non Hazardous		13
8	TP204	0.5	Non Hazardous		15
9	TP204[2]	2	Non Hazardous		17
10	TP210	2.5	Non Hazardous		19
11	TP203	0.5	Non Hazardous		21
12	TP207A	0.5	Non Hazardous		23
13	TP207A[2]	1.5	Hazardous	HP 8	25
14	TP208	1	Non Hazardous		26
15	BH305	0.2	Non Hazardous		28
16	BH305[2]	1	Non Hazardous		30
17	BH305[3]	2.55	Non Hazardous		32
18	TP216	0.5	Non Hazardous		33
19	BH307	0.2	Non Hazardous		35
20	TP218	0.5	Non Hazardous		37
21	TP219	1	Non Hazardous		39
22	TP205	1.5	Non Hazardous		41
23	TP205[2]	2	Non Hazardous		43
24	TP213	1.5	Non Hazardous		44
25	TP217B	1	Non Hazardous		46
26	BH304	0.2	Non Hazardous		48
27	BH304[2]	0.6	Non Hazardous		50
28	BH304[3]	1	Non Hazardous		51
29	TP102	0.5	Non Hazardous		53
30	BH303B	0.2	Non Hazardous		55
31	BH303B[2]	0.6	Hazardous	HP 8	57
32	BH303B[3]	1.1	Hazardous	HP 8	58
33	TP206A	0.5	Non Hazardous		60
34	TP211	1.5	Non Hazardous		62
35	TP212	1	Non Hazardous		64
36	TP212[2]	2	Non Hazardous		66
37	TP214	0.5	Non Hazardous		68
38	TP214[2]	2.5	Non Hazardous		70
39	BH307[2]	0.95	Non Hazardous		71
40	TP215	0.5	Non Hazardous		73
41	TP101	0.5	Non Hazardous		75

Related documents

#	Name	Description
1	Hydrock Standard plus Cresol (ammended Lead)	waste stream template used to create this Job

Report

Created by: Kurt Gilmore

Created date: 19 Jun 2024 15:04 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	77
Appendix B: Rationale for selection of metal species	78
Appendix C: Version	79

Classification of sample: BH301

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH301	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
1.85 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	●	pH				8.1 pH		8.1 pH	8.1 pH		
				PH							
								Total:	0%		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH301[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH301[2]
Sample Depth:
3.55 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.7 mg/kg	1.32	11.487 mg/kg	0.00115 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.6 mg/kg	2.775	4.441 mg/kg	0.000444 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				5.2	mg/kg	1.126	5.855	mg/kg	0.000585 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	2.8	mg/kg		2.8	mg/kg	0.00028 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				42	mg/kg	1.579	66.339	mg/kg	0.00663 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.7	pH		7.7	pH	7.7 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				74	mg/kg	1.245	92.109	mg/kg	0.00921 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0217 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH301[3]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH301[3]
Sample Depth:
0.6 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	•	pH				11.4 pH		11.4 pH	11.4 pH		
				PH							
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH301[4]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH301[4]
Sample Depth:
1.1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.18	mg/kg		0.18	mg/kg	0.000018 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		0.36	mg/kg		0.36	mg/kg	0.000036 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.1	mg/kg		1.1	mg/kg	0.00011 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1	mg/kg		1	mg/kg	0.0001 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.4	mg/kg		1.4	mg/kg	0.00014 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.64	mg/kg		0.64	mg/kg	0.000064 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.67	mg/kg		0.67	mg/kg	0.000067 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.69	mg/kg	2.775	1.915	mg/kg	0.000191 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.4	mg/kg	1.285	0.514	mg/kg	0.00004 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		1.3	mg/kg		1.3	mg/kg	0.00013 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				2	mg/kg		2	mg/kg	0.0002 %		
			205-912-4	206-44-0									
20		fluorene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.54	mg/kg		0.54	mg/kg	0.000054 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	72	mg/kg		72	mg/kg	0.0072 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				10	mg/kg	1.579	15.795	mg/kg	0.00158 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				10.8	pH		10.8	pH	10.8 pH		
				PH									
27		phenanthrene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				78	mg/kg	1.245	97.088	mg/kg	0.00971 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0272 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH306

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH306	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.6 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10 mg/kg	1.32	13.203 mg/kg	0.00132 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.47 mg/kg	2.775	1.304 mg/kg	0.00013 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2 mg/kg	13.43	2.686 mg/kg	0.000269 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	12	mg/kg		12	mg/kg	0.0012 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				20	mg/kg	1.579	31.59	mg/kg	0.00316 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.4	pH		7.4	pH	7.4 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				69	mg/kg	1.245	85.885	mg/kg	0.00859 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0195 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH302B

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
BH302B		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.1 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		0.18	mg/kg		0.18	mg/kg	0.000018 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		37	mg/kg	1.32	48.852	mg/kg	0.00489 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.2	mg/kg		1.2	mg/kg	0.00012 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.3	mg/kg		1.3	mg/kg	0.00013 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.8	mg/kg		1.8	mg/kg	0.00018 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.73	mg/kg		0.73	mg/kg	0.000073 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.63	mg/kg		0.63	mg/kg	0.000063 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.41	mg/kg	2.775	1.138	mg/kg	0.000114 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		38	mg/kg	1.462	55.539	mg/kg	0.00555 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		1.4	mg/kg		1.4	mg/kg	0.00014 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		45	mg/kg	1.126	50.665	mg/kg	0.00507 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.22	mg/kg		0.22	mg/kg	0.000022 %		
19		fluoranthene		205-912-4	206-44-0		1.6	mg/kg		1.6	mg/kg	0.00016 %		
20		fluorene		201-695-5	86-73-7		0.09	mg/kg		0.09	mg/kg	0.000009 %		
21		indeno[123-cd]pyrene		205-893-2	193-39-5		0.69	mg/kg		0.69	mg/kg	0.000069 %		
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	110	mg/kg		110	mg/kg	0.011 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.1	mg/kg		0.1	mg/kg	0.00001 %		
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		12	mg/kg	1.579	18.954	mg/kg	0.0019 %		
26		pH			PH		11.2	pH		11.2	pH	11.2 pH		
27		phenanthrene		201-581-5	85-01-8		0.64	mg/kg		0.64	mg/kg	0.000064 %		
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		1.3	mg/kg		1.3	mg/kg	0.00013 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		280	mg/kg	1.245	348.52	mg/kg	0.0349 %		
											Total:	0.0659 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP202

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP202	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.1 mg/kg		0.1 mg/kg	0.00001 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.14 mg/kg		0.14 mg/kg	0.000014 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.07 mg/kg		0.07 mg/kg	0.000007 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07 mg/kg		0.07 mg/kg	0.000007 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.41 mg/kg	2.775	1.138 mg/kg	0.000114 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2 mg/kg	13.43	2.686 mg/kg	0.000269 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.13 mg/kg		0.13 mg/kg	0.000013 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		8.6	mg/kg	1.126	9.683	mg/kg	0.000968 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		fluoranthene		205-912-4	206-44-0		0.22	mg/kg		0.22	mg/kg	0.000022 %		
20		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
21		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	12	mg/kg		12	mg/kg	0.0012 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		8.6	mg/kg	1.579	13.584	mg/kg	0.00136 %		
26		pH			PH		8.5	pH		8.5	pH	8.5 pH		
27		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		0.13	mg/kg		0.13	mg/kg	0.000013 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		47	mg/kg	1.245	58.502	mg/kg	0.00585 %		
											Total:	0.0141 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP204

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP204	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.12 mg/kg		0.12 mg/kg	0.000012 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		0.2 mg/kg		0.2 mg/kg	0.00002 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		33 mg/kg	1.32	43.571 mg/kg	0.00436 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.91 mg/kg		0.91 mg/kg	0.000091 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.99 mg/kg		0.99 mg/kg	0.000099 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.5 mg/kg		1.5 mg/kg	0.00015 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.61 mg/kg		0.61 mg/kg	0.000061 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.53 mg/kg		0.53 mg/kg	0.000053 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.57 mg/kg	2.775	1.582 mg/kg	0.000158 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		1.8 mg/kg	13.43	24.174 mg/kg	0.00242 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		37 mg/kg	1.462	54.078 mg/kg	0.00541 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		1.1 mg/kg		1.1 mg/kg	0.00011 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		50	mg/kg	1.126	56.294	mg/kg	0.00563 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.21	mg/kg		0.21	mg/kg	0.000021 %		
19		fluoranthene		205-912-4	206-44-0		1.4	mg/kg		1.4	mg/kg	0.00014 %		
20		fluorene		201-695-5	86-73-7		0.12	mg/kg		0.12	mg/kg	0.000012 %		
21		indeno[123-cd]pyrene		205-893-2	193-39-5		0.61	mg/kg		0.61	mg/kg	0.000061 %		
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	69	mg/kg		69	mg/kg	0.0069 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		19	mg/kg	1.579	30.01	mg/kg	0.003 %		
26		pH			PH		11.3	pH		11.3	pH	11.3 pH		
27		phenanthrene		201-581-5	85-01-8		0.94	mg/kg		0.94	mg/kg	0.000094 %		
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		0.99	mg/kg		0.99	mg/kg	0.000099 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		200	mg/kg	1.245	248.943	mg/kg	0.0249 %		
											Total:	0.0545 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP204[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
TP204[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
2 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.07 mg/kg		0.07 mg/kg	0.000007 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		0.06 mg/kg		0.06 mg/kg	0.000006 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		23 mg/kg	1.32	30.367 mg/kg	0.00304 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.46 mg/kg		0.46 mg/kg	0.000046 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.75 mg/kg		0.75 mg/kg	0.000075 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.34 mg/kg		0.34 mg/kg	0.000034 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.28 mg/kg		0.28 mg/kg	0.000028 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.68 mg/kg	2.775	1.887 mg/kg	0.000189 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		1.1 mg/kg	13.43	14.773 mg/kg	0.00148 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30 mg/kg	1.462	43.847 mg/kg	0.00438 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.59 mg/kg		0.59 mg/kg	0.000059 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				30	mg/kg	1.126	33.777	mg/kg	0.00338 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.63	mg/kg		0.63	mg/kg	0.000063 %		
			205-912-4	206-44-0									
20		fluorene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.33	mg/kg		0.33	mg/kg	0.000033 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	28	mg/kg		28	mg/kg	0.0028 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.9	pH		8.9	pH	8.9 pH		
				PH									
27		phenanthrene				0.38	mg/kg		0.38	mg/kg	0.000038 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.52	mg/kg		0.52	mg/kg	0.000052 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				170	mg/kg	1.245	211.601	mg/kg	0.0212 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0412 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP210

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP210	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
2.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.43 mg/kg		0.43 mg/kg	0.000043 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.8 mg/kg		0.8 mg/kg	0.00008 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.34 mg/kg		0.34 mg/kg	0.000034 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.32 mg/kg		0.32 mg/kg	0.000032 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.6 mg/kg	2.775	1.665 mg/kg	0.000167 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<**LOD**
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.57 mg/kg		0.57 mg/kg	0.000057 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				9.7	mg/kg	1.126	10.921	mg/kg	0.00109 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.6	mg/kg		0.6	mg/kg	0.00006 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.37	mg/kg		0.37	mg/kg	0.000037 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	13	mg/kg		13	mg/kg	0.0013 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
27		phenanthrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.53	mg/kg		0.53	mg/kg	0.000053 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				53	mg/kg	1.245	65.97	mg/kg	0.0066 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0183 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP203

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP203	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.14 mg/kg		0.14 mg/kg	0.000014 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.33 mg/kg		0.33 mg/kg	0.000033 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.34 mg/kg		0.34 mg/kg	0.000034 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.5 mg/kg		0.5 mg/kg	0.00005 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.25 mg/kg		0.25 mg/kg	0.000025 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.15 mg/kg		0.15 mg/kg	0.000015 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.39 mg/kg	2.775	1.082 mg/kg	0.000108 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.4 mg/kg	13.43	5.372 mg/kg	0.000537 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.41 mg/kg		0.41 mg/kg	0.000041 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24	mg/kg	1.126	27.021	mg/kg	0.0027 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		fluoranthene		205-912-4	206-44-0		0.61	mg/kg		0.61	mg/kg	0.000061 %		
20		fluorene		201-695-5	86-73-7		0.2	mg/kg		0.2	mg/kg	0.00002 %		
21		indeno[123-cd]pyrene		205-893-2	193-39-5		0.23	mg/kg		0.23	mg/kg	0.000023 %		
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	20	mg/kg		20	mg/kg	0.002 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		12	mg/kg	1.579	18.954	mg/kg	0.0019 %		
26		pH			PH		9.6	pH		9.6	pH	9.6 pH		
27		phenanthrene		201-581-5	85-01-8		0.58	mg/kg		0.58	mg/kg	0.000058 %		
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		0.54	mg/kg		0.54	mg/kg	0.000054 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		54	mg/kg	1.245	67.215	mg/kg	0.00672 %		
											Total:	0.02 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP207A

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP207A
Sample Depth:
0.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.4 mg/kg	1.32	12.411 mg/kg	0.00124 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.08 mg/kg		0.08 mg/kg	0.000008 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.08 mg/kg		0.08 mg/kg	0.000008 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.14 mg/kg		0.14 mg/kg	0.000014 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.09 mg/kg		0.09 mg/kg	0.000009 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.45 mg/kg	2.775	1.249 mg/kg	0.000125 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.5 mg/kg	1.285	0.643 mg/kg	0.00005 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.1 mg/kg		0.1 mg/kg	0.00001 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	20	mg/kg		20	mg/kg	0.002 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				9.7	mg/kg	1.579	15.321	mg/kg	0.00153 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				11.1	pH		11.1	pH	11.1 pH		
				PH									
27		phenanthrene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				100	mg/kg	1.245	124.471	mg/kg	0.0124 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0227 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP207A[2]

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP207A[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
1.5 m	Entry:	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.6 pH)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	●	pH				11.6 pH		11.6 pH	11.6 pH		
				PH							
								Total:	0%		

Key

	User supplied data
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: TP208

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP208
Sample Depth:
1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.23 mg/kg		0.23 mg/kg	0.000023 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.41 mg/kg		0.41 mg/kg	0.000041 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.6 mg/kg		0.6 mg/kg	0.00006 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.3 mg/kg		0.3 mg/kg	0.00003 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.19 mg/kg		0.19 mg/kg	0.000019 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.57 mg/kg	2.775	1.582 mg/kg	0.000158 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3 mg/kg	13.43	4.029 mg/kg	0.000403 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.3 mg/kg	1.285	0.386 mg/kg	0.00003 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.37 mg/kg		0.37 mg/kg	0.000037 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				21	mg/kg	1.126	23.644	mg/kg	0.00236 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.21	mg/kg		0.21	mg/kg	0.000021 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	16	mg/kg		16	mg/kg	0.0016 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				16	mg/kg	1.579	25.272	mg/kg	0.00253 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
27		phenanthrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				61	mg/kg	1.245	75.928	mg/kg	0.00759 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0193 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH305

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH305
Sample Depth:
0.2 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		0.07 mg/kg		0.07 mg/kg	0.000007 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.58 mg/kg		0.58 mg/kg	0.000058 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.65 mg/kg		0.65 mg/kg	0.000065 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.96 mg/kg		0.96 mg/kg	0.000096 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.51 mg/kg		0.51 mg/kg	0.000051 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.35 mg/kg		0.35 mg/kg	0.000035 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.75 mg/kg	2.775	2.082 mg/kg	0.000208 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.4 mg/kg	1.285	0.514 mg/kg	0.00004 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.78 mg/kg		0.78 mg/kg	0.000078 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	22.518	mg/kg	0.00225 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.8	mg/kg		0.8	mg/kg	0.00008 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.49	mg/kg		0.49	mg/kg	0.000049 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	27	mg/kg		27	mg/kg	0.0027 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				21	mg/kg	1.579	33.169	mg/kg	0.00332 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.6	pH		7.6	pH	7.6 pH		
				PH									
27		phenanthrene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.65	mg/kg		0.65	mg/kg	0.000065 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				100	mg/kg	1.245	124.471	mg/kg	0.0124 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0271 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH305[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH305[2]
Sample Depth:
1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.65 mg/kg	2.775	1.804 mg/kg	0.00018 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
20		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
21		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	18	mg/kg		18	mg/kg	0.0018 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		17	mg/kg	1.579	26.851	mg/kg	0.00269 %		
26		pH			PH		9.7	pH		9.7	pH	9.7 pH		
27		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		77	mg/kg	1.245	95.843	mg/kg	0.00958 %		
											Total:	0.0211 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH305[3]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH305[3]
Sample Depth:
2.55 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	•	pH		PH		9.2 pH		9.2 pH	9.2 pH		
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: TP216

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP216	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.1	mg/kg	1.32	8.054	mg/kg	0.000805 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.7	mg/kg	2.775	1.943	mg/kg	0.000194 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2	mg/kg	13.43	2.686	mg/kg	0.000269 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28	mg/kg	1.462	40.924	mg/kg	0.00409 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				12	mg/kg	1.126	13.511	mg/kg	0.00135 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	9.1	mg/kg		9.1	mg/kg	0.00091 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				29	mg/kg	1.579	45.805	mg/kg	0.00458 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				37	mg/kg	1.245	46.054	mg/kg	0.00461 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0176 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH307

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH307	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.2 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		23 mg/kg	1.32	30.367 mg/kg	0.00304 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.15 mg/kg		0.15 mg/kg	0.000015 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.2 mg/kg		0.2 mg/kg	0.00002 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.27 mg/kg		0.27 mg/kg	0.000027 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.15 mg/kg		0.15 mg/kg	0.000015 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.1 mg/kg		0.1 mg/kg	0.00001 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.46 mg/kg	2.775	1.277 mg/kg	0.000128 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<**LOD**
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.23 mg/kg		0.23 mg/kg	0.000023 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	24.77	mg/kg	0.00248 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	44	mg/kg		44	mg/kg	0.0044 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				13	mg/kg	1.579	20.533	mg/kg	0.00205 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.5	pH		7.5	pH	7.5 pH		
				PH									
27		phenanthrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				73	mg/kg	1.245	90.864	mg/kg	0.00909 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0253 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP218

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP218	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.4	mg/kg	1.32	8.45	mg/kg	0.000845 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.3	mg/kg	2.775	3.608	mg/kg	0.000361 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				27	mg/kg	1.126	30.399	mg/kg	0.00304 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	11	mg/kg		11	mg/kg	0.0011 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				37	mg/kg	1.579	58.441	mg/kg	0.00584 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7	pH		7	pH	7pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				76	mg/kg	1.245	94.598	mg/kg	0.00946 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0252 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP219

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP219	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
1 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.09 mg/kg		0.09 mg/kg	0.000009 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.86 mg/kg	2.775	2.387 mg/kg	0.000239 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2 mg/kg	13.43	2.686 mg/kg	0.000269 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.1 mg/kg		0.1 mg/kg	0.00001 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	24.77	mg/kg	0.00248 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	21	mg/kg		21	mg/kg	0.0021 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				31	mg/kg	1.579	48.964	mg/kg	0.0049 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.1	pH		7.1	pH	7.1 pH		
				PH									
27		phenanthrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				95	mg/kg	1.245	118.248	mg/kg	0.0118 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0276 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP205

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP205
Sample Depth:
1.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.66	mg/kg		0.66	mg/kg	0.000066 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		0.96	mg/kg		0.96	mg/kg	0.000096 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		3	mg/kg		3	mg/kg	0.0003 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		2.9	mg/kg		2.9	mg/kg	0.00029 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		4.2	mg/kg		4.2	mg/kg	0.00042 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		1.6	mg/kg		1.6	mg/kg	0.00016 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.3	mg/kg		1.3	mg/kg	0.00013 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.45	mg/kg	2.775	1.249	mg/kg	0.000125 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		1.6	mg/kg	13.43	21.488	mg/kg	0.00215 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		3.5	mg/kg		3.5	mg/kg	0.00035 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	24.77	mg/kg	0.00248 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.75	mg/kg		0.75	mg/kg	0.000075 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				5.8	mg/kg		5.8	mg/kg	0.00058 %		
			205-912-4	206-44-0									
20		fluorene				0.69	mg/kg		0.69	mg/kg	0.000069 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	20	mg/kg		20	mg/kg	0.002 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				9.5	mg/kg	1.579	15.005	mg/kg	0.0015 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				10.5	pH		10.5	pH	10.5 pH		
				PH									
27		phenanthrene				4	mg/kg		4	mg/kg	0.0004 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				4.3	mg/kg		4.3	mg/kg	0.00043 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				78	mg/kg	1.245	97.088	mg/kg	0.00971 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0264 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP205[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP205[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
2 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	•	pH		PH		10.4 pH		10.4 pH	10.4 pH		
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: TP213

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP213
Sample Depth:
1.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.3 mg/kg		0.3 mg/kg	0.00003 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		0.15 mg/kg		0.15 mg/kg	0.000015 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.4 mg/kg		1.4 mg/kg	0.00014 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.8 mg/kg		1.8 mg/kg	0.00018 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2.7 mg/kg		2.7 mg/kg	0.00027 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		1.5 mg/kg		1.5 mg/kg	0.00015 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1 mg/kg		1 mg/kg	0.0001 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.87 mg/kg	2.775	2.415 mg/kg	0.000241 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		2 mg/kg		2 mg/kg	0.0002 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				36	mg/kg	1.126	40.532	mg/kg	0.00405 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.57	mg/kg		0.57	mg/kg	0.000057 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				2.5	mg/kg		2.5	mg/kg	0.00025 %		
			205-912-4	206-44-0									
20		fluorene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	34	mg/kg		34	mg/kg	0.0034 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
27		phenanthrene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				2.1	mg/kg		2.1	mg/kg	0.00021 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				86	mg/kg	1.245	107.045	mg/kg	0.0107 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0295 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP217B

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP217B
Sample Depth:
1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.75 mg/kg	2.775	2.082 mg/kg	0.000208 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		0.09 mg/kg		0.09 mg/kg	0.000009 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	21.392	mg/kg	0.00214 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	17	mg/kg		17	mg/kg	0.0017 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				24	mg/kg	1.579	37.908	mg/kg	0.00379 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
27		phenanthrene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				73	mg/kg	1.245	90.864	mg/kg	0.00909 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0226 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH304

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH304
Sample Depth:
0.2 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.24 mg/kg		0.24 mg/kg	0.000024 %		
2	acenaphthylene		205-917-1	208-96-8		0.12 mg/kg		0.12 mg/kg	0.000012 %		
3	anthracene		204-371-1	120-12-7		0.35 mg/kg		0.35 mg/kg	0.000035 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		2.2 mg/kg		2.2 mg/kg	0.00022 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		2.4 mg/kg		2.4 mg/kg	0.00024 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		3.3 mg/kg		3.3 mg/kg	0.00033 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		1.5 mg/kg		1.5 mg/kg	0.00015 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.3 mg/kg		1.3 mg/kg	0.00013 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.91 mg/kg	2.775	2.526 mg/kg	0.000253 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.5 mg/kg	13.43	6.715 mg/kg	0.000672 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		37 mg/kg	1.462	54.078 mg/kg	0.00541 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		2.6 mg/kg		2.6 mg/kg	0.00026 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				61	mg/kg	1.126	68.679	mg/kg	0.00687 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.59	mg/kg		0.59	mg/kg	0.000059 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				4.1	mg/kg		4.1	mg/kg	0.00041 %		
			205-912-4	206-44-0									
20		fluorene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	100	mg/kg		100	mg/kg	0.01 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.9	pH		7.9	pH	7.9 pH		
				PH									
27		phenanthrene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				3.5	mg/kg		3.5	mg/kg	0.00035 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				230	mg/kg	1.245	286.284	mg/kg	0.0286 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0619 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH304[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH304[2]
Sample Depth:
0.6 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	•	pH		PH		8.2 pH		8.2 pH	8.2 pH		
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH304[3]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH304[3]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
1 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.28 mg/kg		0.28 mg/kg	0.000028 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		0.28 mg/kg		0.28 mg/kg	0.000028 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.8 mg/kg	1.32	11.619 mg/kg	0.00116 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.8 mg/kg		1.8 mg/kg	0.00018 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		2 mg/kg		2 mg/kg	0.0002 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2.8 mg/kg		2.8 mg/kg	0.00028 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		1.1 mg/kg		1.1 mg/kg	0.00011 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.1 mg/kg		1.1 mg/kg	0.00011 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.73 mg/kg	2.775	2.026 mg/kg	0.000203 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		2.4 mg/kg		2.4 mg/kg	0.00024 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.6	mg/kg		0.6	mg/kg	0.00006 %		
19		fluoranthene		205-912-4	206-44-0		2.4	mg/kg		2.4	mg/kg	0.00024 %		
20		fluorene		201-695-5	86-73-7		0.23	mg/kg		0.23	mg/kg	0.000023 %		
21		indeno[123-cd]pyrene		205-893-2	193-39-5		1.1	mg/kg		1.1	mg/kg	0.00011 %		
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	12	mg/kg		12	mg/kg	0.0012 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		24	mg/kg	1.579	37.908	mg/kg	0.00379 %		
26		pH			PH		8.2	pH		8.2	pH	8.2 pH		
27		phenanthrene		201-581-5	85-01-8		1.1	mg/kg		1.1	mg/kg	0.00011 %		
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		1.9	mg/kg		1.9	mg/kg	0.00019 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		63	mg/kg	1.245	78.417	mg/kg	0.00784 %		
											Total:	0.0211 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP102

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP102	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		15	mg/kg		15	mg/kg	0.0015 %		
2	acenaphthylene		205-917-1	208-96-8		0.87	mg/kg		0.87	mg/kg	0.000087 %		
3	anthracene		204-371-1	120-12-7		16	mg/kg		16	mg/kg	0.0016 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6	mg/kg	1.32	7.922	mg/kg	0.000792 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		93	mg/kg		93	mg/kg	0.0093 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		97	mg/kg		97	mg/kg	0.0097 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		130	mg/kg		130	mg/kg	0.013 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		37	mg/kg		37	mg/kg	0.0037 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		47	mg/kg		47	mg/kg	0.0047 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.49	mg/kg	2.775	1.36	mg/kg	0.000136 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.7	mg/kg	13.43	9.401	mg/kg	0.00094 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.4	mg/kg	1.285	0.514	mg/kg	0.00004 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		**<LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		100	mg/kg		100	mg/kg	0.01 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		8	mg/kg	1.126	9.007	mg/kg	0.000901 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		14	mg/kg		14	mg/kg	0.0014 %		
19		fluoranthene		205-912-4	206-44-0		120	mg/kg		120	mg/kg	0.012 %		
20		fluorene		201-695-5	86-73-7		11	mg/kg		11	mg/kg	0.0011 %		
21		indeno[123-cd]pyrene		205-893-2	193-39-5		38	mg/kg		38	mg/kg	0.0038 %		
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	13	mg/kg		13	mg/kg	0.0013 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.66	mg/kg		0.66	mg/kg	0.000066 %		
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		13	mg/kg	1.579	20.533	mg/kg	0.00205 %		
26		pH			PH		9	pH		9	pH	9pH		
27		phenanthrene		201-581-5	85-01-8		54	mg/kg		54	mg/kg	0.0054 %		
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		90	mg/kg		90	mg/kg	0.009 %		
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		68	mg/kg	1.245	84.641	mg/kg	0.00846 %		
											Total:	0.104 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH303B

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
BH303B		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.2 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.77	mg/kg		0.77	mg/kg	0.000077 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.85	mg/kg		0.85	mg/kg	0.000085 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.6	mg/kg		1.6	mg/kg	0.00016 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.7	mg/kg		0.7	mg/kg	0.00007 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.41	mg/kg		0.41	mg/kg	0.000041 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.78	mg/kg	2.775	2.165	mg/kg	0.000216 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3	mg/kg	13.43	4.029	mg/kg	0.000403 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		1.1	mg/kg		1.1	mg/kg	0.00011 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				33	mg/kg	1.126	37.154	mg/kg	0.00372 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
			205-912-4	206-44-0									
20		fluorene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.69	mg/kg		0.69	mg/kg	0.000069 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	46	mg/kg		46	mg/kg	0.0046 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				19	mg/kg	1.579	30.01	mg/kg	0.003 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
27		phenanthrene				0.68	mg/kg		0.68	mg/kg	0.000068 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				0.89	mg/kg		0.89	mg/kg	0.000089 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				97	mg/kg	1.245	120.737	mg/kg	0.0121 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0301 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH303B[2]

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH303B[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.6 m	Entry:	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.7 pH)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	●	pH				11.7 pH		11.7 pH	11.7 pH		
				PH							
								Total:	0%		

Key

	User supplied data
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH303B[3]

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
BH303B[3]
Sample Depth:
1.1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12.3 pH)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.35 mg/kg	2.775	0.971 mg/kg	0.0000971 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3 mg/kg	13.43	4.029 mg/kg	0.000403 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
15		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
20		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
21		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	28	mg/kg		28	mg/kg	0.0028 %		
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		9.9	mg/kg	1.579	15.637	mg/kg	0.00156 %		
26		pH			PH		12.3	pH		12.3	pH	12.3 pH		
27		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
28		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
29		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		74	mg/kg	1.245	92.109	mg/kg	0.00921 %		
											Total:	0.0209 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP206A

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP206A
Sample Depth:
0.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.45 mg/kg	2.775	1.249 mg/kg	0.000125 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				12	mg/kg	1.126	13.511	mg/kg	0.00135 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	14	mg/kg		14	mg/kg	0.0014 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				15	mg/kg	1.579	23.692	mg/kg	0.00237 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				52	mg/kg	1.245	64.725	mg/kg	0.00647 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0165 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP211

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP211
Sample Depth:
1.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.48 mg/kg	2.775	1.332 mg/kg	0.000133 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	10	mg/kg		10	mg/kg	0.001 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				7.9	pH		7.9	pH	7.9 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				61	mg/kg	1.245	75.928	mg/kg	0.00759 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0187 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP212

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP212
Sample Depth:
1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.54 mg/kg	2.775	1.499 mg/kg	0.00015 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	16	mg/kg		16	mg/kg	0.0016 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				19	mg/kg	1.579	30.01	mg/kg	0.003 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8	pH		8	pH	8pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				65	mg/kg	1.245	80.906	mg/kg	0.00809 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0201 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP212[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP212[2]
Sample Depth:
2 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.75 mg/kg	2.775	2.082 mg/kg	0.000208 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				21	mg/kg	1.126	23.644	mg/kg	0.00236 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	13	mg/kg		13	mg/kg	0.0013 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				30	mg/kg	1.579	47.385	mg/kg	0.00474 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8	pH		8	pH	8pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				67	mg/kg	1.245	83.396	mg/kg	0.00834 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.022 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP214

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP214
Sample Depth:
0.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.74 mg/kg	2.775	2.054 mg/kg	0.000205 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	15	mg/kg		15	mg/kg	0.0015 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				30	mg/kg	1.579	47.385	mg/kg	0.00474 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				6.5	pH		6.5	pH	6.5 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				76	mg/kg	1.245	94.598	mg/kg	0.00946 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0231 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP214[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP214[2]
Sample Depth:
2.5 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1	•	pH				7.1 pH		7.1 pH	7.1 pH		
				PH							
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH307[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
BH307[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.95 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		2.2	mg/kg	2.775	6.106	mg/kg	0.000611 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	33.616	mg/kg	0.00336 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<LOD
15	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	27.021	mg/kg	0.0027 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-912-4	206-44-0									
20		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	20	mg/kg		20	mg/kg	0.002 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				39	mg/kg	1.579	61.6	mg/kg	0.00616 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				6.1	pH		6.1	pH	6.1 pH		
				PH									
27		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-927-3	129-00-0									
30		zinc { zinc oxide }				82	mg/kg	1.245	102.067	mg/kg	0.0102 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0278 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP215

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP215	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		0.17 mg/kg		0.17 mg/kg	0.000017 %		
2	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.4 mg/kg		1.4 mg/kg	0.00014 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.5 mg/kg		1.5 mg/kg	0.00015 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2.1 mg/kg		2.1 mg/kg	0.00021 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		0.95 mg/kg		0.95 mg/kg	0.000095 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.92 mg/kg		0.92 mg/kg	0.000092 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.45 mg/kg	2.775	1.249 mg/kg	0.000125 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<**LOD**
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<**LOD**
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		1.8 mg/kg		1.8 mg/kg	0.00018 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				1.9	mg/kg		1.9	mg/kg	0.00019 %		
			205-912-4	206-44-0									
20		fluorene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				0.91	mg/kg		0.91	mg/kg	0.000091 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	22	mg/kg		22	mg/kg	0.0022 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				12	mg/kg	1.579	18.954	mg/kg	0.0019 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8	pH		8	pH	8pH		
				PH									
27		phenanthrene				0.89	mg/kg		0.89	mg/kg	0.000089 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				47	mg/kg	1.245	58.502	mg/kg	0.00585 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.0184 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP101

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP101	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	acenaphthene		201-469-6	83-32-9		1.3 mg/kg		1.3 mg/kg	0.00013 %		
2	acenaphthylene		205-917-1	208-96-8		0.12 mg/kg		0.12 mg/kg	0.000012 %		
3	anthracene		204-371-1	120-12-7		1.4 mg/kg		1.4 mg/kg	0.00014 %		
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8 mg/kg	1.32	10.563 mg/kg	0.00106 %		
5	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		6 mg/kg		6 mg/kg	0.0006 %		
6	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		8.3 mg/kg		8.3 mg/kg	0.00083 %		
7	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		11 mg/kg		11 mg/kg	0.0011 %		
8	benzo[ghi]perylene		205-883-8	191-24-2		6.1 mg/kg		6.1 mg/kg	0.00061 %		
9	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		4.1 mg/kg		4.1 mg/kg	0.00041 %		
10	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.56 mg/kg	2.775	1.554 mg/kg	0.000155 %		
11	boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.6 mg/kg	13.43	8.058 mg/kg	0.000806 %		
12	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.5 mg/kg	1.285	0.643 mg/kg	0.00005 %		
13	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
14	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		**<LOD**
15	chrysene	601-048-00-0	205-923-4	218-01-9		6.8 mg/kg		6.8 mg/kg	0.00068 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		copper { dicopper oxide; copper (I) oxide }				8.5	mg/kg	1.126	9.57	mg/kg	0.000957 %		
		029-002-00-X	215-270-7	1317-39-1									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				11	mg/kg		11	mg/kg	0.0011 %		
			205-912-4	206-44-0									
20		fluorene				0.93	mg/kg		0.93	mg/kg	0.000093 %		
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				5.2	mg/kg		5.2	mg/kg	0.00052 %		
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	19	mg/kg		19	mg/kg	0.0019 %		
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				7.1	mg/kg	1.579	11.214	mg/kg	0.00112 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				9.2	pH		9.2	pH	9.2 pH		
				PH									
27		phenanthrene				5.6	mg/kg		5.6	mg/kg	0.00056 %		
			201-581-5	85-01-8									
28		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
29		pyrene				9	mg/kg		9	mg/kg	0.0009 %		
			204-927-3	129-00-0									
30		zinc { zinc oxide }				39	mg/kg	1.245	48.544	mg/kg	0.00485 %		
		030-013-00-7	215-222-5	1314-13-2									
										Total:	0.022 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

boron tribromide/trichloride/trifluoride (combined) (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: EUH014 , Acute Tox. 2; H330 , Acute Tox. 2; H300 , Skin Corr. 1A; H314 , Skin Corr. 1B; H314

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

lead compounds with the exception of those specified elsewhere in this Annex

GB MCL index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

beryllium {beryllium oxide}

Worst case species based on hazard statements

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

zinc {zinc oxide}

Worst case species based on hazard statements

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.158.6092.11254 (06 Jun 2024)
HazWasteOnline Database: 2024.158.6092.11254 (06 Jun 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024

Appendix G Preliminary geotechnical risk register

Geotechnical Hazard Identification – Following Ground Investigation

The probability and impact of a hazard have been judged on a qualitative scale as set out in Table G.2. The degree of risk (R) is determined by combining tan assessment of the probability (P) of the hazard occurring with an assessment of the impact (I) of the hazard and associated mitigation it will require if it occurs (R = P x I).

Table G.1: Qualitative assessment of hazards and risks

P = Probability			I = Impact			R = Risk Rating (P x I)	
1	Very unlikely (VU)		1	Very Low		1 – 4	None / negligible
2	Unlikely (U)		2	Low		5 – 9	Minor
3	Plausible (P)		3	Medium		10 – 14	Moderate
4	Likely (Lk)		4	High		15 – 19	Substantial
5	Very Likely (VLk)		5	Very High		20 - 25	Severe

Table G.2: Hazard identification

Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
Uncontrolled Made Ground (variable strength and compressibility).	There is Made Ground due to historical construction activity at the site.	Residential Dwellings.	Bearing capacity failure, settlement (total and differential).	3	4	12	Design foundations to found below Made Ground or on Made Ground which has been improved.
			Floor slab failure.	3	4	12	Design floor slabs as suspended.
		Roads and Pavements.	Settlement (total and differential) of roads and pavements.	2	2	4	Design roads and pavements using suitable geotechnical parameters.
		Services.	Settlement (differential), causing damage to services.	1	2	2	Anticipated settlements are unlikely to be significant with regard to services. There is a requirement to improve the Made Ground prior to installation of services.
		Gardens.	Settlement (differential), in gardens.	1	2	2	It is unlikely that settlements will be significant with regard to gardens.
		Constructio n staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	2	3	6	Where soft spots encountered, over-excavation and replacement with suitable fill. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Variable lateral and vertical changes in	The Made Ground soils vary laterally and vertically, both	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	2	4	8	Design foundations to found below Made Ground or on Made Ground which has been improved.

ground conditions.	in composition and strength.		Floor slab failure.	2	4	8	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential), of roads and pavements.	2	3	6	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate. If anticipated settlements are significant, and cannot be mitigated by design, over-excavate and replace unsuitable soils.
		Services.	Settlement (differential), causing damage to services.	1	3	3	Settlements are not anticipated to be significant with regard to services. No additional design requirements envisaged.
		Gardens.	Settlement (differential), in gardens.	1	3	3	It is unlikely that settlements will be significant with respect to gardens.
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	2	3	6	Where soft spots encountered, over-excavate and replace with suitable fill. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Sulfates present in the soils.	The ground investigation has proven that there is the potential for sulfate bearing soils to be present.	Attack of buried concrete.	Damage to concrete and reduction in strength.	3	4	12	Design concrete according to BRE sulfate classification of Made Ground.
Obstructions.	Obstructions have been proven by the investigation and there is a potential for additional	Construction staff, vehicles and plant operators.	Risk of collapse of excavation as obstructions are pulled out.	3	3	9	Allow for a breaker to be present during construction and remove obstructions where encountered during construction.

	obstructions to be present due to historical construction activity, or unknown fill in Made Ground.	Roads and Pavements.	Hard spots in externals and roads / pavements.	3	2	6	
Slope stability issues – General Slopes.	The site is on sloping ground and the proposed development requires slopes to be formed as part of the cut to fill.	Residential Dwellings.	Serviceability issues.	2	4	8	Safe slope angles to be assessed during design. Engineered fill requirements to be defined at outline design stage. Drainage requirements to be assessed during design. Slopes to be constructed at a safe angle.
		Roads and Pavements.	Serviceability issues.	2	3	6	
		Gardens.	Serviceability issues.	1	2	2	
Slope stability issues – retaining walls.	The site is on sloping ground and the proposed development requires removal and replacement of existing retaining walls	Residential Dwellings.	Serviceability issues.	2	4	8	Design of the retaining to be undertaken in accordance with EC7. Adequate drainage to be designed behind the structure, or for water seepage through the face of the wall. Lateral earth pressure parameters to be characterised during investigation and design.
		Pavement construction and long-term durability highways and external areas.	Serviceability issues.	2	3	6	
		Gardens.	Serviceability issues.	1	2	2	
Unforeseen ground conditions - risk associated with limited data.	Ground investigation has been undertaken. However, additional information will be obtained during	All aspects of the development.		3	4	12	Designers to be contacted if conditions encountered are different to those identified during investigation. Regular inspections of excavations and earthworks for evidence of stability.

	construction. Ground conditions are only defined at exploratory hole locations.				Adequate investigation required to characterise the site and understand the potential risks.

Whilst the probability and impact of the hazard occurring can be reduced to a minimum by geotechnical design, the impact cannot be reduced below very low. The risk register will need to be up-dated, as necessary, to reflect design, additional information, data and experience as it is gained through the construction process.

Impacts of the design with regard to health and Safety considerations will need to be included by the designer at design stage.

Appendix H Plausible source-pathway-receptor contaminant linkages

Summary of potential contaminant linkages

Table H.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2019) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland et al 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table H.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table H.1: Consequence versus probability assessment.

		Consequence			
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table H.2: Consequence versus probability assessment.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Made Ground, associated with historical construction activities, possibly including PAH (S01).	Ingestion, skin contact, inhalation by people (P01).	Site end users (R01).	Likely.	Medium.	Moderate.	PAH has been identified in Made Ground in the northern residential area of the site.
	Surface water via overland flow (P03).	Groundwater: Secondary A aquifer status of the Rhondda Member (R03).	Low likelihood.	Medium.	Low.	Elevated concentrations of PAH have been recorded in Made Ground in the roadways around the site. Mobilisation of contaminants is expected to be limited due to surface hard standing inhibiting interaction between surface water and PAH below the surface.
	Surface water, via drainage discharge (P04).		Low likelihood.	Medium.	Low.	
	Downward leachate migration (P06).		Low likelihood.	Medium	Low.	Groundwater was only encountered in borehole BH307 after the investigation in the range of 2.5 – 6.99m bgl. Therefore, the likelihood of PAH infiltrating to groundwater at depth is low.
	Surface water via base flow from groundwater (P05).		Low likelihood.	Medium	Low	
~~PCBs and oils from transformers in the electricity sub-stations on site (S02).~~	Source not encountered.					
~~Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S03).~~	Ground gas at the site has been categorised as CS1, and therefore this is not deemed a source of contaminant.					

Asbestos within existing buildings / structures (S04).	Inhalation (P01).	Site end users (R01).	Likely.	Severe.	High.	The properties on the Penrhys estate were constructed prior to 2000 and are likely to contain asbestos. Building interiors were not within the scope of the Ground Investigation works, and thus this remains a risk to development.
Asbestos associated with the boiler house in the north of the site (S05).	Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).	Site end users (R01).	Likely.	Severe.	High.	The boiler house was not accessible at the time of the ground investigation for assessment; however it has been assumed to contain asbestos due to the age of the construction.
Fly tipped wastes potentially including solvents, metals, metalloids, asbestos and Asbestos Containing Materials (S06).	Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).	Site end users (R01).	Likely.	Severe.	High.	Fly tipped waste was identified on site during the initial walkover and Ground Investigation works. These areas of fly-tipped waste have not been screened for contaminants during the investigation, and thus cannot be discounted as a risk to the end user.
Asbestos Containing Materials associated with gaskets on the former pipe work of the district heat network (S07).	Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).	Site end users (R01).	Low likelihood.	Severe.	Moderate.	Lagging and gaskets were sampled below manhole covers that were lifted during the Ground Investigation. Of the 20 samples screened for asbestos, only one sample returned a positive ID for chrysotile in a piece of loose gasket.
Bonfire rubble including metalloids, metals, PAHs and petroleum hydrocarbons (S08).	Ingestion, skin contact (P01).	Site end users (R01).	Likely.	Medium,	Moderate.	Waste fires have been identified the residential zone of the site, and burnt rubble which may feature from the fires remains in situ, Fires have not been investigated in the package of works due to safety constraints.
	Downward leachate migration (P06).	Groundwater: Secondary A aquifer status of the Rhondda Member (R03).	Low likelihood	Medium	Low.	Groundwater was only encountered in borehole BH307 between 2.5m and 6.99m bgl. Therefore it is likely that most of the potential contaminants will naturally attenuate before reaching the groundwater.

Petroleum hydrocarbons and VOC/SVOC in groundwater below the site (S09).	Inhalation (P01) / VOC/SVOC release to outdoor air (P07).	Site end users (R01).	Likely.	Severe.	Moderate.	Elevated VOC concentrations circa 100ppm were detected in gas monitoring cycles at borehole BH307.