

Phase 2
Ground Investigation

Client: Lidl Great Britain
Ltd

A470/A40 Brecon

Report No: 1522.02.01

May 2026





Executive Summary

Remada Ltd was commissioned by Lidl Great Britain Ltd to conduct a Phase 2 Ground Investigation for a proposed new store at the land off the corner of A470/A40, Brecon, LD3 8LQ. This report follows a Phase 1 Preliminary Risk Assessment (Remada report reference 1522.01 dated April 2026).

Summary of Phase 1 Desk Study

The earliest available historical mapping from 1887-1889 indicates records the site to comprise part of two larger agricultural fields. A road (later identified as A470) trending approximately north-east to south-west is mapped in the south of the site. A Mill Race trending approximately north-east to south-west is mapped in the central area of the site. In 1964 the Mill Race is no longer mapped in the central area. A drain is mapped trending approximately north-east to south-west is mapped along the A470 in the south-western area. Between 1984 to 1989 the A470 has been rerouted to the north-west of the site, a partial section of the old road is still mapped in the south-eastern area.

Published geological maps record that the site is underlain by Glaciofluvial Sheet Deposits, a Secondary (A) Aquifer and the St Maughans Formation, designated as a Secondary (A) Aquifer.

Intrusive Investigation

The investigation comprised the drilling of three (3 No) cable tool boreholes (BH01-BH03), five (5 No.) window sample holes (WS01-WS05) and execution of four (4 No) CBR tests between 16th and 20th March 2026. Four (4 No) soakaway tests and four (4 No) plate bearing tests were conducted between the 16th and 17th April 2026.

Made Ground was encountered at the site underlying surface asphalt in two of the exploratory locations to 0.5m bgl with an average thickness of 0.35m. A slight hydrocarbon odour was noted in both boreholes. Possible Made Ground was encountered within BH02 between 0.30m and 1.20m bgl.

Natural topsoil was encountered within ten (10 No.) of the exploratory hole locations to depths between 0.10m (WS01 and WS08) and 0.30m (BH02 and BH02A) bgl, with an average thickness of 0.19m.

The natural deposits within eight (8 No.) of the exploratory locations consisted of a gravelly clayey silty SAND to a maximum depth of 1.60m (SA01) where proven. A reddish brown locally sandy clayey silty cobbly GRAVEL was encountered within ten (10 No.) of the exploratory locations to a maximum depth of 7.0m bgl (BH01) where proven. A soft to stiff locally silty locally gravelly sandy CLAY was encountered in four (4 No.) of the exploratory locations (WS01, WS02 WS05 and BH02A), at depths between 0.3-1.40 bgl where proven. The gravel and cobbles comprised subangular to rounded fine to coarse mudstone, sandstone and quartzite.

Below the superficial deposits at depths within boreholes BH01 and BH02A a very stiff sandy CLAY with mudstone lithorelics was encountered to the base of both boreholes, 7.45m bgl. This material is considered representative of weathered bedrock of the St Maughans Formation.

Human Health Assessment

The results of the soil chemical analysis undertaken has identified that a concentration of PAHs exceeded the human health GAC for a commercial end use from BH01 at 0.3m bgl. Post-development, this area will be covered by a retail building and consequently, the risk to human health is considered to be low. In addition, the material in which the contamination was encountered in is the subbase of the former road. If the subbase is removed as part of the development works, the remaining risk would be negligible as the source will have been removed.

Water Resources Assessment

The results of the soil chemical analysis undertaken has identified that concentrations of metals and inorganic contaminants are within the range of typical made ground. Detectable concentrations of TPH and PAHs were encountered in some samples. However, the contaminants identified are of low solubility and



mobility and as such are unlikely to present a risk to groundwater beneath the site. Post-development, the site will continue to be predominantly covered by a retail building and areas of hardstanding. Consequently, the risk of surface water runoff and lateral migration of contaminants and leaching of contaminants, as a result of infiltration of groundwater is limited. Therefore, the risk to controlled waters from contaminants within the made ground at the site is considered to be low and does not warrant further consideration at this stage.

Waste Classification and Acceptance

In general, the results of the chemical analysis indicate that the material would be classified as non-hazardous waste. Waste Acceptance Criteria (WAC) analysis was undertaken on two samples of Made Ground and one sample of natural soil. The samples from BH01 exceed the limits for PAH to go to an inert Landfill, as such the material from this location should go to non-hazardous landfill. Sample from WS02 and WS03 met requirements for inert landfill. The sample from WS05 at a depth of 0.1m produced a TOC of 3.9% greater than the inert landfill threshold of 3% and as such should be disposed of at a non-hazardous landfill

Two samples of bituminous surfacing were analysed for concentrations of PAH compounds. The results indicated that while the concentrations of PAHs were high (total PAH concentration of 458.6mg/kg) the highest concentration of benzo(a)pyrene of 32 mg/kg was below the 50mg/kg limit defined in WM3. Therefore, the bituminous surfacing represented by this sample would be classified as non-hazardous waste and assigned the List of Wastes code 17 03 02 for bituminous mixtures other than those mentioned in 17 03 01. It should be noted that past experience has found that the concentration of benzo(a)pyrene in bituminous surfacing is normally either very low (<10mg/kg) or very high (>50mg/kg) and as such the distinction between non-hazardous and hazardous waste is very clear. This sample was found to have a detectable concentration of benzo(a)pyrene. It is therefore recommended that further samples are analysed in order to confirm the non-hazardous classification.

Geotechnical Assessment

Preliminary calculations indicate that for a traditional pad foundation or raft downstand (up to 1.5m wide) at a minimum of 1.5m depth, bearing within the medium dense granular materials a design bearing capacity of 200 kN/m² will be appropriate in order to satisfy the ultimate and serviceable limit states in accordance with BS EN 1997-1: 2004. This is only applicable for foundations with loads that are applied vertically and centrally. To satisfy the serviceable limit state settlement has been limited to 25mm. Foundations will need to fully penetrate any made ground including fill material used to raise site levels and extend a minimum of 150mm into the bearing stratum.

If pad foundations are selected as described above then a layer of compacted 6F₂ capping overlying the existing but re-compacted natural soils to a minimum specified bearing capacity is considered to be suitable beneath a ground bearing floor slab.

A Design Sulphate Class DS-1 is considered appropriate for buried concrete and an ACEC Class of AC-1 is considered appropriate for the location.

A CBR value of 8.9% is should be adopted at a depth of 0.5m.

Four soakaway tests were conducted within trial pits located across the proposed Lidl car park area. The results show that the slowest infiltration rate from the tests run in SA1 was 7.62×10^{-5} m/s, SA2 was 1.50×10^{-4} m/s, SA3 was 4.79×10^{-4} m/s and SA4 was 7.14×10^{-5} m/s. As such, an infiltration rate 7.14×10^{-5} m/s should be used.

Collapse of the sides of the trial pits were observed and as such the side slopes are unlikely to be stable even in the short term.

Ground Gas



The results of four rounds of gas monitoring visits placed the site into Characteristic Situation 1 and therefore ground gas protection measures shall not be required within the proposed buildings.

Basic radon protection measures shall be required.



Contents

1	INTRODUCTION	5
1.1	OBJECTIVES	5
1.2	SCOPE OF WORK	5
1.3	PROPOSED DEVELOPMENT	6
1.4	PREVIOUS REPORTS	6
1.5	LIMITATIONS	6
2	SUMMARY OF PHASE 1 DESK STUDY	7
3	SITE WALKOVER.....	9
4	ENVIRONMENTAL & GEOTECHNICAL INVESTIGATION METHODOLOGY	11
4.1	INVESTIGATION STRATEGY	11
4.2	INTRUSIVE INVESTIGATION	11
4.3	IN-SITU TESTING.....	11
4.4	SOIL SAMPLING.....	12
4.5	GAS & GROUNDWATER	12
4.6	QUALITY ASSURANCE AND QUALITY CONTROL.....	13
4.7	LABORATORY ANALYSIS & TESTING	13
5	GEOTECHNICAL & ENVIRONMENTAL INVESTIGATION FINDINGS.....	14
5.1	GROUND CONDITIONS	14
5.2	IN-SITU TESTING	15
5.3	SOIL OBSERVATIONS.....	17
5.4	GROUNDWATER OBSERVATIONS	17
5.5	CHEMICAL ANALYSIS	17
5.6	GEOTECHNICAL TESTING.....	18
5.7	GROUND GAS MONITORING RESULTS	19
6	GENERIC QUANTITATIVE RISK ASSESSMENT	20
6.1	HUMAN HEALTH RISK ASSESSMENT	20
6.2	CONTROLLED WATERS RISK ASSESSMENT.....	21
6.3	GROUND GAS ASSESSMENT	21
6.4	WATER PIPES.....	22
6.5	REVISED CONCEPTUAL SITE MODEL	22
6.6	WASTE CLASSIFICATION & WASTE ACCEPTANCE	22
6.7	HEALTH & SAFETY CONSIDERATIONS	23
7	GEOTECHNICAL SITE ASSESSMENT	25
7.1	GEOTECHNICAL CONSIDERATIONS	25
7.2	DESIGN APPROACH.....	25
7.3	SHRINKAGE AND SWELLING	26
7.4	FLOOR SLAB.....	27
7.5	IMPORTED FILL	27
7.6	EXCAVATIONS AND TEMPORARY WORKS	27
7.7	EXTERNAL CAR PARK CONSTRUCTION	27
7.8	PROTECTION OF BURIED CONCRETE	27
7.9	SOAKAWAY TESTS	27
7.10	GENERAL CONSTRUCTION ADVICE.....	27
8	CONCLUSIONS & RECOMMENDATIONS	29
8.1	CONCLUSIONS	29
8.2	RECOMMENDATIONS	30
8.3	GROUND GAS.....	30
	STUDY LIMITATIONS	32

TABLES

Table 1	Outline Conceptual Site Model
Table 2	Gas & Groundwater Monitoring Data



Table 3	Summary of Soakaway Results
Table 4	Comparison of Soil Chemical Analyses with GAC
Table 5	Plasticity Indices and Volume Change Potentials of the Cohesive Strata
Table 6	Refined Conceptual Site Model
Table 7	Summary of Partial Factors Applied to Actions, Soil Parameters and Resistance Factors
Table 8	NHBC 2023 Minimum Foundation Depths

GRAPHS

Graph 1	Plot of Corrected SPT N Values vs Depth
Graph 2	Plot of Uncorrected SPT N-Values Versus Depth for Granular Materials
Graph 3	Plot of Mass Shear Strength vs Depth
Graph 4	PAH Double Ratio Plots

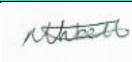
FIGURES

Figure 1	Site Location Plan
Figure 2	Existing Layout and Exploratory Location Plan
Figure 3	Proposed Layout and Exploratory Location Plan

EXPLORATORY HOLE LOGS

APPENDICES

Appendix A	SPT Hammer Energy Test Certificate
Appendix B	Soakage Test Results
Appendix C	Plate Bearing Test Results
Appendix D	Dynamic Cone Penetrometer Test Results
Appendix E	Gas Analyser Calibration Certificate
Appendix F	Laboratory Chemical Analyses
Appendix G	Laboratory Geotechnical Tests

Issue No	Date	Prepared By	Technical Review	Authorised
01	19.05.2026	M Bell 	P Searing 	G Jones 



1 INTRODUCTION

Remada Ltd was commissioned by Lidl Great Britain Ltd (hereafter 'the Client') to undertake a Phase 2 Ground Investigation for a proposed new store at the land off the A470/A40, Brecon, LD3 8LQ at the location indicated in **Figure 1**.

1.1 Objectives

The objectives of this assessment are as follows:

- to examine whether there have been any potentially contaminative uses on the site or nearby land;
- to develop a conceptual model of the site to identify plausible pollutant linkages;
- to assess ground conditions in relation to the proposed development in relation to construction design issues including the presence, nature, likely severity and extent of soil and groundwater contamination, which may be present, its potential environmental impact and likely requirement for further work; and
- Provide preliminary foundation design recommendations for the proposed development.

1.2 Scope of Work

The scope and layout of this investigation and report is generally in accordance with BS10175:2026 and the Environment Agency's Land Contamination Risk Management guidance for land contamination reports.

The scope of work comprised:

- 3 No cable tool boreholes with SPTs to a depth of 10m within the proposed store footprint.
- 1 No. Window sample with SPTs at 1m intervals to a target depth of 7.0m within the footprint of the store and delivery pod area to prove competent natural strata.
- 4 No window samples including SPTs at 1m intervals to a target depth of 5.0m within the car park/delivery bay area to prove natural strata.
- 3 No. gas/groundwater monitoring wells.
- 4 No. rounds of gas/groundwater monitoring at different atmospheric pressures.
- 4 No. CBR tests within the car park area on Made Ground or natural soil that will be at the development formation level. In the absence of any specific information the pavement formation level shall be considered to be a maximum of 500mm below the existing ground level or below organic topsoil.
- 4 No. Plate Bearing to tests to 300kPa for raft foundation design.
- 4 No. Soakaway tests in general accordance with BRE 365.
- Suite of geotechnical classification tests as appropriate to the soils and 4 No BRE Sulphate suites in accordance with BRE SD1.
- 5 No Chemical Analysis for asbestos (quantitative), pH, Arsenic, Beryllium, Cadmium, Chromium (trivalent & hexavalent), Copper, Mercury, Nickel, Lead, Selenium, Vanadium, Zinc, Fraction of Organic Carbon, TPHCWG, PAH(16) and Phenol, VOCs and SVOCs.
- 3 No WAC tests.
- 2 No bitumen suites on asphalt samples for waste classification.
- Combined Factual & Interpretative Geoenvironmental Report.



Due to the study site's positioning within Wales, the scope was also designed in line with the Welsh Land Contamination Working Group's Development of Land Affected by Contamination: A Guide for Developers version 3: May 2017. This guidance represents the culmination of a co-operative effort involving the Welsh Local Government Association (WLGA) and Natural Resources Wales (NRW). For the purpose of this report, any references to the Environment Agency (EA) should be seen as interchangeable with NRW.

The investigation methodology is presented in Section 4, Findings in Section 5 and the Exploratory Locations are indicated on **Figure 2**

1.3 Proposed Development

It is understood that the proposed site use will be a Lidl retail store with associated car park and soft landscaping. A proposed indicative site layout plan is presented as **Figure 3**, with site being access from A470 along the north-western boundary.

1.4 Previous Reports

The following Phase 1 Desk Study had been previously prepared for the site:

- Phase 1 Site Investigation & Preliminary Risk Assessment. Remada Ltd Report ref: 1522.01.01, dated April 2026.

1.5 Limitations

The comments given in this report and the opinions expressed are based on the information reviewed and observations during site work. However, there may be conditions pertaining to the site that have not been disclosed by this assessment and therefore could not be taken into account.



2 SUMMARY OF PHASE 1 DESK STUDY

The Executive Summary and Conceptual Site Model presented within the Phase 1 Desk Study are reproduced below:

Site Setting

The site occupies a roughly triangular plot of land to the south-west of A40 and south-east of A470. At present the site is undeveloped land. A drain is present in the south-western area of the site, extending from the north-western boundary into the central area and trending approximately north-east to south-west. A partial surface road is present in the south-eastern area of the site, extending from the north-eastern boundary into the central area and trending approximately north-east to south-west. The north-western boundary is marked by the A470, the north-eastern boundary is marked by the A40 and the south-eastern boundary is marked by the Afon Tarell approximately 10m bgl, with the site surrounded by semi-mature and mature vegetation.

Site History

The earliest available historical mapping from 1887-1889 indicates records the site to comprise part of two larger agricultural fields. A road (later identified as A470) trending approximately north-east to south-west is mapped in the south of the site. A Mill Race trending approximately north-east to south-west is mapped in the central area of the site. In 1964 the Mill Race is no longer mapped in the central area. A drain is mapped trending approximately north-east to south-west is mapped along the A470 in the south-western area. Between 1984 to 1989 the A470 has been rerouted to the north-west of the site, a partial section of the old road is still mapped in the south-eastern area.

Geology / Hydrogeology

Published geological maps record that the site is underlain by Glaciofluvial Sheet Deposits, a Secondary (A) Aquifer and the St Maughans Formation, designated as a Secondary (A) Aquifer.

Mining

The site is located within an area which 'might not be' affected by coal mining activity and is not located within a Coal Authority designated Coal Mining Reporting Area. Consequently, no further action is considered necessary at this stage relating to coal mining at and beneath the site.

Radon

The site is located in an Intermediate Probability Radon Area as 5 to 10% of homes are estimated to be at or above the Action Level, therefore basic radon protective measures are necessary.

Environmental Risk Assessment

The desk study has identified a number of on-site and off-site potential sources of contamination that would require further investigation. The following is recommended:

- *Investigation of the lateral and vertical extent of made ground/fill beneath the proposed store;*
- *Collection of soil and groundwater samples from the areas identified above for contaminants of concern; and*
- *Ground gas monitoring.*

Geotechnical Assessment

It is recommended that a ground investigation is undertaken to enable preliminary foundation design.



Potential Source Areas	Potential Contaminant of Concern	Pathways	Potential Receptor	Exposure Route (Human unless otherwise stated)	Potential Identified Linkage (unmitigated)	Findings of Ground investigation	Risk (Un-mitigated)	Proposed Remediation (Mitigation) Measures	Residual Risk Estimation
On-site Sources				Direct Soil Ingestion	N/A	Not Applicable (N/A)	N/A	N/A	N/A
Made Ground associated with A470 and infilling of Mill Race.		Disturbance due to construction plant causing direct contact, dusts, vapours.		Indoor Dust Ingestion	Yes	To be assessed (TBA)	Potential risk	TBA	TBA
				Skin Contact with Soils	Yes	As above	Potential risk	TBA	TBA
				Skin Contact with Dust	Yes	As above	Potential risk	TBA	TBA
Off-site Sources		Direct Contact with occupants of the proposed development and building fabric.	Occupants of the development / building fabric	Inhalation of Outdoor Dust	Yes	As above	Potential risk	TBA	TBA
Construction of A470 and A40	Asbestos / Metals As, Be, Cd, Cu, Cr (VI), Cr (III) Hg, Ni, Se, Va, Zn, Boron, TPH /PAH			Ingestion of home grown produce	N/A	Commercial end-use - devoid of garden	N/A	N/A	N/A
Saw Mill		Inhalation of fibres / vapours / gases by occupants of proposed development	Adjacent residents during construction	Inhalation of Outdoor Vapours	Yes	TBA	Potential risk	TBA	TBA
				Inhalation of Indoor Vapours	Yes	As above	Potential risk	TBA	TBA
Brecon Enterprise Park				Inhalation of ground gas	Yes	As above	Potential risk	TBA	TBA
				Inhalation of radon gas	Yes	Intermediate Probability Area	Potential risk	Basic radon protective measures	Negligible
Electrical substations		Permeation of water supply pipework	Afon Tarell.	Direct contact - building materials	Yes	TBA	Potential risk	TBA	TBA
		Surface water runoff	Secondary (A) Aquifers	Ingestion via permeated water supply pipework	Yes	TBA	Potential risk	TBA	TBA
				Surface water runoff	Yes	TBA	Potential risk	TBA	TBA
				Direct contact with Secondary (A) Aquifer in Superficial Deposits	Yes	As above	Potential risk	TBA	TBA
		Leachate		In-direct contact with Secondary (A) Aquifer in bedrock	Yes	As above	Potential risk	TBA	TBA

Table 1: Outline Conceptual Site Model

Direct contact with subsurface soil and/or groundwater during redevelopment works are not assessed as part of the CSM. It is considered that risks to workers will be managed as part of any the redevelopment works at the site through the application of health and safety procedures, where required.

3 SITE WALKOVER

The opportunity was taken to inspect the proposed Lidl store extension site between 16th March 2026 and 20th March 2026 by Megan Bell of Remada Ltd during the intrusive works, as recorded in the photographs below. There were no visual or olfactory indicators of contamination.



Photo 1: A view towards the current site entrance.



Photo 2: A view north-eastward from the current site entrance.



Photo 3: A view along the south-eastern boundary.



Photo 4: A view of the Afon Tarrell from the centre of the south-eastern boundary.



Photo 5: A view towards the moss covered abandoned road surface



Photo 6: A view towards the north-eastern corner of the site.



Photo 7: A view of drain cover along the north-eastern boundary.

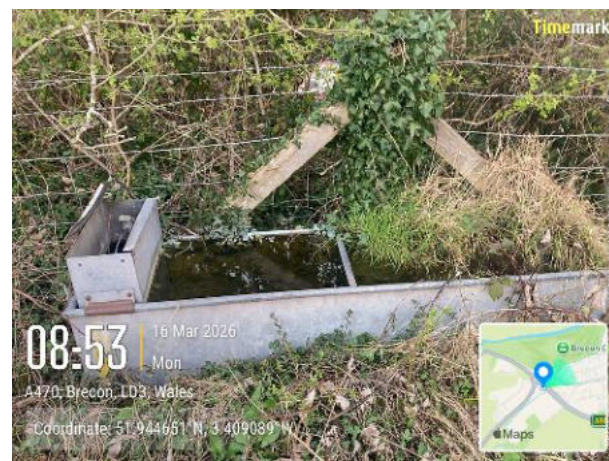


Photo 8: A view of water trough along the north-eastern boundary.



4 ENVIRONMENTAL & GEOTECHNICAL INVESTIGATION METHODOLOGY

4.1 Investigation Strategy

A published historical BGS borehole log, situated on the A40 east of the site, records the Glaciofluvial Sheet Deposits as comprising of sand and gravel overlying cobbles and boulders with clay to a depth of 8.70m bgl at which depth sandstone is logged. As Lidl's Ground Investigation standard 05/2023, utilises window sample drilling and would not prove the depth to the sandstone and or the presence of possible soft clay deposits at depth it was considered necessary to substitute window samples with cable tool boreholes. Three (3 No.) cable tool boreholes were advanced beneath the proposed store footprint to a depth of 10m, one (1 No.) window sample hole was advanced beneath the proposed store footprint to a depth 7.0m and four (4 No.) window sample holes were advanced beneath the delivery bay, HGV access and car park. Four (4 No.) plate bearing tests were conducted beneath the store footprint for raft foundation design, four (4 No.) soakaway tests within the car park area for drainage design and four (4 No) CBR tests were conducted in the proposed car park. Four (4 No) ground gas monitoring visits were scheduled for the site to provide the minimum required by BS8475.

The investigation comprised the drilling of three (3 No.) cable tool boreholes (BH01-BH03), five (5 No.) window sample holes (WS01-WS05) and execution of four (4 No.) CBR tests between 16th and 20th March 2026. Four (4 No) soakaway tests and four (4 No) plate bearing tests were conducted between the 16th and 17th April 2026. All locations are indicated on **Figure 2**.

Exploratory locations were selected to enable an investigation of ground conditions beneath the proposed retail store and car park.

All exploratory holes were logged by a suitably qualified Geo-environmental Engineer in general accordance with the recommendations of BS5930:2015+A1:2020. Detailed descriptions, together with relevant comments, are given in the **Exploratory Hole Logs**.

The weather conditions at the site during the fieldwork period were generally warm and dry, with no standing water nor slippery ground conditions being noted.

4.2 Intrusive Investigation

4.2.1 Window Sample Holes

Four (4 No.) of the window samples were advanced to a target depth of 5m and one to a target depth of 7m. However, all window sample holes encountered refusals at between 1.0m and 2.6m bgl. Combined Groundwater and Ground Gas monitoring standpipes were installed in WS01, WS03 and WS05.

4.2.2 Cable Percussive Boreholes

Due to a delay in getting the rig in position due to soft ground in the southern area of the site, causing the need to mobilise a tracked dumper to site, only two cable percussive boreholes (BH01 – BH02) were advanced to a target depth of 10m within the footprint of the proposed Lidl store car park. An obstruction was encountered at 2.0m in BH02, which resulted in the borehole being redrilled approximately 5m south (BH02A). BH01 and BH02A were advanced to refusal to a depth of 7.45m bgl.

4.3 In-Situ Testing

4.3.1 Standard Penetration Tests

Standard Penetration Tests (SPTs) in the window samples were carried out at 1.0m intervals as recorded on the borehole logs to assess the relative density and consistency of soils.



SPTs were conducted in accordance with BS EN ISO 22476-3 and the recorded SPT N-values are summarised on the borehole logs.

The SPT N-values have been corrected based on the Energy Ratio of 71% for the SPT hammer on the window sampling rig and 73% on the Dando cable rig. The SPT Hammer Energy Test Reports, undertaken in accordance with BS EN ISO 22476-3:2005 are presented in **Appendix A**.

4.3.2 Continuous SPTs

One (1 No.) continuous SPT was carried out at the location of the proposed third cable percussive borehole using the window sampling rig to assess the near-surface soil properties following the delay, the SPT results are displayed as part of **Graph 1** below.

4.3.3 Soakage Tests

Four (4 No.) soakaway tests were undertaken in general in accordance with BRE Digest DG365, Soakaway Design, 2016, at the locations shown in **Figure 2**.

Test results are presented in **Appendix B**.

4.3.4 Plate Bearing Tests

Four (4 No.) plate bearing tests were carried in general accordance with BS EN 1997:2007 Annex K or IAN 73/06 to a minimum pressure of 150kN/m² using a 450mm diameter plate, at the locations shown in **Figure 2**. A JCB 3CX excavator provided the reaction load. Test results are presented in **Appendix C**.

4.3.5 Dynamic Cone Penetrometer (DCP) Tests

Four (4 No.) DCP tests were conducted in order to determine California Bearing Ratio (CBR) values for near surface soils, at the locations shown in **Figure 2**. A known mass is dropped through a known distance to drive a cone into the ground. The penetration distance per blow is recorded in order to enable the CBR value to be calculated. Test results are presented in **Appendix D**.

4.4 Soil Sampling

4.4.1 Environmental

Made Ground and natural soils were selected by visual and olfactory means for subsequent analysis. Samples for chemical laboratory testing purposes were collected in amber glass jars, amber glass vials and plastic tubs and retained in a cool box for transport to the laboratory.

4.4.2 Geotechnical

Geotechnical samples were collected at depths indicated on the cable borehole logs and window sample logs with samples retrieved either from within a sleeve line or as disturbed arisings. The disturbed samples were placed in sealed and correctly labelled plastic tubs or bags as appropriate. All geotechnical samples were dispatched to the laboratory for testing with a completed chain of custody.

4.5 Gas & Groundwater

4.5.1 Installations

Combined ground gas and groundwater monitoring standpipes were installed in selected wells with a 50mm diameter slotted HDPE pipe and packed with gravel surround as recorded on the exploratory logs. Wells were completed with 0.5m of plain HDPE pipe and bentonite seal, with a gas bung and tap being installed at the top of the pipe.



4.5.2 Monitoring

Ground gas monitoring was undertaken using either a GasData GFM436 or a GA5000 gas analyser for the parameters reported below. Groundwater levels were measured with a GeoSense OWP30 oil water interface probe.

Permanent ground gas monitoring involved the measurement of the following in the prescribed order:

- Pressure difference between the monitoring well and the atmosphere,
- Peak and steady flow rates of gas into or out of the monitoring well;
- Peak and steady concentrations of carbon dioxide, methane, oxygen (minimum and steady recorded), carbon monoxide, hydrogen sulphide; and
- Depth to groundwater.

Four ground gas monitoring visits were undertaken as a minimum required for a commercial development in accordance with BS8476. Ground gas concentrations were recorded on 27th March and 2nd, 9th and 16th April 2026 at WS01, WS03 and WS05 and the results are presented in **Table 2**. The corresponding Calibration Certificates for the GA5000 and GFM436 gas analysers are presented in **Appendix E**.

4.6 Quality Assurance and Quality Control

All samples were submitted to a United Kingdom Accredited Laboratory (UKAS) under a completed chain of custody. The laboratory carried out its own QA/QC programme to ensure that the quality of the analytical data conformed to the appropriate test method protocols.

4.7 Laboratory Analysis & Testing

4.7.1 Chemical Analysis – Soil

Five (5 No) soil samples were scheduled for the analysis of asbestos, arsenic, barium, beryllium, cadmium, chromium (III & VI), copper, mercury, nickel, lead, selenium, zinc, fraction of organic carbon, Total Petroleum Hydrocarbons (TPHCWG), Polyaromatic Hydrocarbons (PAH), BTEX compounds (benzene, toluene, ethylbenzene and xylene) and phenols.

In addition, two samples of bituminous surfacing were analysed for PAH compounds and three (3 No) soil samples subjected to Waste Acceptance Criteria (WAC) testing.

The results of laboratory chemical analyses are presented in **Appendix F**.

4.7.2 Geotechnical

Samples recovered from the boreholes were submitted to an accredited laboratory for the following tests in general accordance with BS1377:1990:

- 4 No Natural Moisture Contents
- 4 No Plasticity Indices
- 3 No Particle Size Distribution tests
- 1 No Sedimentation test; and
- 4 No BRE SD1 suites

The results of the geotechnical testing are presented in **Appendix G**.



5 GEOTECHNICAL & ENVIRONMENTAL INVESTIGATION FINDINGS

5.1 Ground Conditions

A brief description of the published geology is provided together with a summary of the ground conditions encountered during the intrusive investigation. Exploratory logs are presented at the end of the report.

5.1.1 Published Geology

The superficial deposits underlying the site are indicated to comprise Glaciofluvial Sheet Deposits. The BGS describe these as typically comprising *'sand and gravel, locally with lenses of silt, clay or organic material; characteristic 'sandur' (sheet) and valley train form; of glaciofluvial origin'*

The bedrock directly underlying the site is formed of the St Maughans Formation. The BGS describes this Formation as typically comprising *'Interbedded purple, brown and green sandstones and red mudstones with intraformational conglomerates containing calcrete clasts.'*

The Glaciofluvial Sheet Deposits is classified as a Secondary A aquifer and the St Maughans Formation is classified as a Secondary (A) Aquifer. The site is located within an Environment Agency designated Zone II (Outer Protection Zone) Source Protection Zone.

5.1.2 Made Ground

Asphalt surfacing was encountered within two (2 No.) locations (WS02 and BH01) located within the south-eastern area of the site. This surfacing ranged in thickness between 0.11m (WS02) and 0.18m (BH01) with an average thickness of 0.15m.

Below the surfacing, a subbase Made Ground was encountered within the two boreholes (WS02 and BH01). The Made Ground consisted of either a sandy gravel or a gravelly sand to 0.50m bgl with an average thickness of 0.35m. Gravel comprised sandstone. A slight hydrocarbon odour was noted in both boreholes.

Possible Made Ground was encountered within BH02 between 0.30m and 1.20m bgl. The Made Ground consisted of a sandy gravelly cobbly clay. Gravel and cobbles comprised sandstone and quartzite. A cobble of slag was recovered at 0.40m.

5.1.3 Topsoil

Natural topsoil was encountered within ten (10 No.) of the exploratory hole locations to depths between 0.10m (WS01 and WS08) and 0.30m (BH02 and BH02A) bgl, with an average thickness of 0.19m. The topsoil comprised a locally silty, locally gravelly sandy CLAY or a gravelly clayey silty SAND. Gravel was quartzite and sandstone.

For the purpose of this assessment, topsoil is defined as the upper darker and more fertile layer of the soil profile which is a product of natural chemical, physical, biological and environmental processes. This does not imply compliance with BS 3882:2015.

5.1.4 Natural Deposits

Natural deposits were encountered underlying the topsoil and Made Ground within all twelve (12 No.) exploratory hole locations.

The natural deposits within eight (8 No.) of the exploratory locations consisted of a gravelly clayey silty SAND to a maximum depth of 1.60m (SA01) where proven. A reddish brown locally sandy clayey silty cobbly GRAVEL was encountered within ten (10 No.) of the exploratory locations to a maximum depth of 7.0m bgl (BH01) where proven. A soft to stiff locally silty locally gravelly sandy CLAY was encountered in four (4 No.) of the exploratory locations (WS01, WS02 WS05 and BH02A), at depths



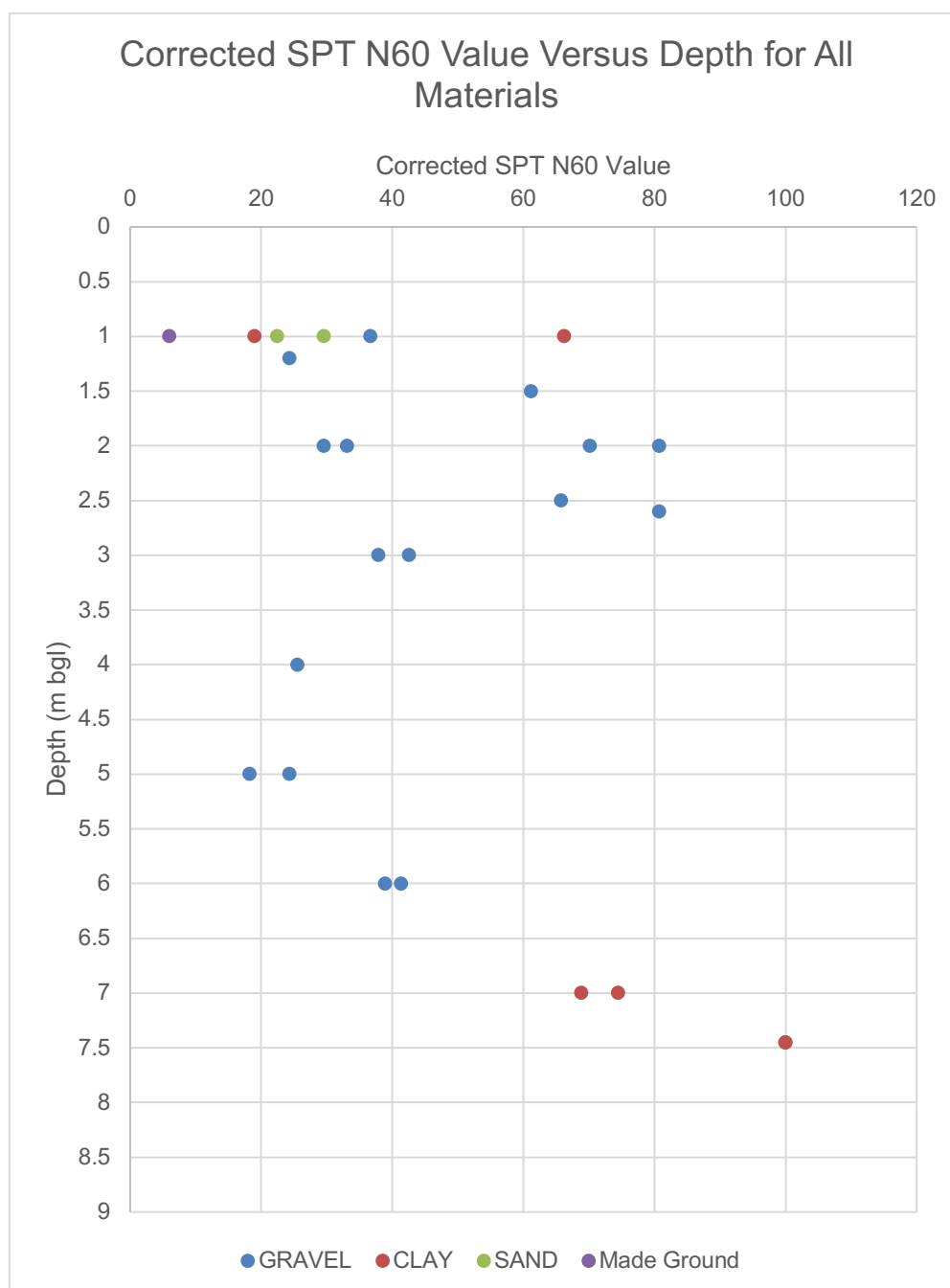
between 0.3-1.40 bgl where proven. The gravel and cobbles comprised subangular to rounded fine to coarse mudstone, sandstone and quartzite.

These deposits are considered representative of the superficial Glaciofluvial Sheet Deposits. Superficial deposits were encountered to a maximum depth of 7.00m bgl (BH01), though the base was not encountered with any of the window sample locations.

Very stiff sandy CLAY with mudstone lithorelicts was encountered to the base of boreholes BH01 and BH02a at depths of between 6.45 and 7.45m bgl. This material is considered representative of weathered bedrock of the St Maughans Formation.

5.2 In-situ Testing

In-situ SPTs were undertaken to assist with the interpretation of strata encountered. As well as the SPT data, a continuous SPT test was undertaken from ground level until a refusal was encountered. The combined results of corrected N60-values versus depth are plotted in the graph below: SPT plots which have a N60 value of >100 have been modified to N=100.



Graph 1: Plot of Corrected SPT N-Values Versus Depth

5.2.1 Plate Bearing Test

The results of four plate bearing tests on natural soils below the topsoil produced values between 21.4 and 55.3 kPa at 1.25mm settlement. The results of the plate bearing tests are presented in **Appendix C**.

5.2.2 Infiltration / Soakaway Test

The results of the soakaway testing undertaken in accordance with BRE Digest 365 are summarised in **Table 3** below. The full soakaway test results are found in **Appendix D**.



Location / Test No.	Pit Depth (m)	Test Strata	Test Duration (mins)	Soil Infiltration Rate (m/s)
SA01 Test 1	2.10	Sandy cobbly silty GRAVEL.	31	1.50×10^{-4}
SA01 Test 2	1.92	Sandy cobbly silty GRAVEL.	50	1.16×10^{-4}
SA01 Test 3	1.95	Sandy cobbly silty GRAVEL.	90	7.62×10^{-5}
SA02 Test 1	1.80	Sandy cobbly silty GRAVEL.	17	2.82×10^{-4}
SA02 Test 2	1.71	Sandy cobbly silty GRAVEL.	32	1.67×10^{-4}
SA02 Test 3	1.71	Sandy cobbly silty GRAVEL.	45	1.50×10^{-4}
SA03 Test 1	1.50	Sandy cobbly silty GRAVEL.	6	2.17×10^{-3}
SA03 Test 2	1.30	Sandy cobbly silty GRAVEL.	9	4.79×10^{-4}
SA03 Test 3	1.23	Sandy cobbly silty GRAVEL.	11	5.89×10^{-4}
SA04 Test 1	2.00	Sandy cobbly silty GRAVEL.	31	1.21×10^{-4}
SA04 Test 2	1.90	Sandy cobbly silty GRAVEL.	50	1.27×10^{-4}
SA04 Test 3	1.89	Sandy cobbly silty GRAVEL.	80	7.14×10^{-5}

Table 3: Summary of Soakaway Results

5.2.3 CBR Tests

The results of the four DCP tests within the proposed car park area produced values of 2.0% and >100% within the upper 500mm. The full DCP test results are found in **Appendix D**.

5.3 Soil Observations

Made Ground was recovered at three locations as a heterogeneous granular material containing a variety of man-made materials including asphalt and slag.

There was a slight hydrocarbon odour noted within the sampled soils from BH01 0.11-0.50m bgl and WS02 0.18-0.50m bgl.

5.4 Groundwater Observations

No groundwater was encountered during the course of the site investigation or monitoring program.

5.5 Chemical Analysis

5.5.1 Soils

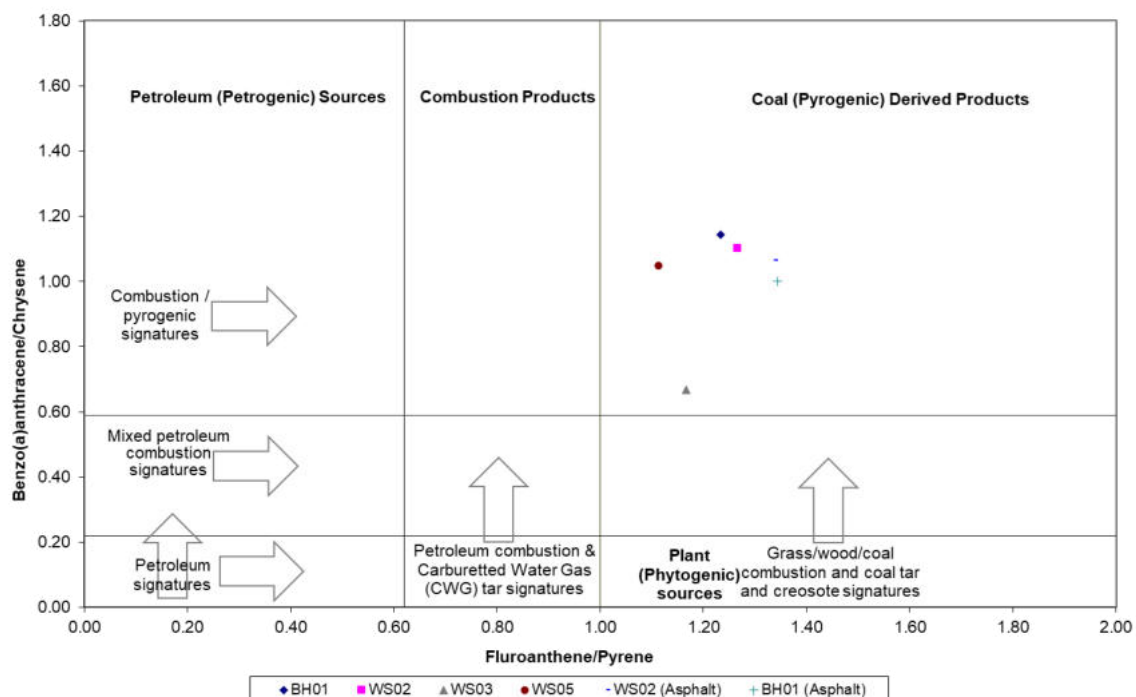
Results of the soil chemical analysis are presented in **Table 4** and summarised as follows.

The average FOC and pH were 0.02 and 8.1 respectively. Asbestos was not detected in the samples analysed. Detectable concentrations of metals were identified, although these are generally within the range that would typically be expected.

Concentrations of TPH were detected above method detection limit (MDL) in two of the samples analysed (from BH01 and WS02). The hydrocarbons were generally heavy end hydrocarbons within the range C16 to C35 carbon range. However, hydrocarbons in the C10 to C16 carbon range were also encountered in both samples at 0.3m and 0.4m depth. These samples were taken from Made Ground associated with the former road and a slight hydrocarbon odour was noted.

Concentrations of PAHs varied across the site. Concentrations were generally low (<2 mg/kg) within the topsoil or natural subsoil within WS01, WS03 and WS05. Concentrations were generally moderate (<20mg/kg) within the subbase beneath the former road at BH01 and WS02. A maximum concentration (excluding bituminous surfacing sample) of 382 mg/kg was encountered in BH01 at 0.1m.

In addition, the PAH concentrations have been plotted on a double ratio plot to provide an indication of the likely source of the PAHs as presented in **Graph 2**. All of the samples that had detections of the four PAHs used have been plotted and all are indicated to be pyrogenic related PAHs which could be associated with urban background sources, though for the asphalt samples could be representative of coal tar.



Graph 2: PAH Double Ratio Plot

Two samples of the compacted asphalt surfacing from BH01 and WS02 were tested for the presence of PAH 17. These samples recorded a total PAH 17 concentration of 213.9mg/kg and 458.6mg/kg respectively and indicate that coal tar could be present within this surfacing.

5.6 Geotechnical Testing

Results of the geotechnical testing are summarised below.

5.6.1 Plasticity Testing

Plasticity testing was undertaken on four (4 No.) samples of soils recovered from the window sample and cable tool boreholes, with results ranging between 16% and 20%. These indicate the soils to be of low plasticity (CL), low/intermediate plasticity (CL/I) and intermediate plasticity (CI), and low volume change potential as summarised in **Table 5** below:



Location	Depth (m)	Plasticity Index (%)	Passing .425mm (%)	Modified Plasticity Index	Volume Change Potential
BH01	1.65-1.80	16	51	8.2	None
WS01	0.60	20	98	19.6	Low
WS02	0.80	18	92	16.6	Low
WS05	1.20	17	94	16.0	Low

Table 5: Plasticity Indices and Volume Change Potentials of the Cohesive Strata

5.6.2 Particle Size Distribution (PSD) Analysis

The PSD tests revealed the following:

- Natural deposits in BH01 at 1.65-1.80m comprised red silty clay fine to coarse sandy fine to coarse GRAVEL.
- Natural deposits in BH02A at 2.10 – 3.00m comprised red/brown fine to coarse sandy fine to coarse GRAVEL (with cobbles).

5.6.3 BRE SD1 Analysis

The water-soluble sulphate contents varied from 8.33 to 70 mg/l in the four soil samples analysed with pH varying from 8.1 to 9.9 and the total sulphur content varied from <0.005 to 0.01%.

5.7 Ground Gas Monitoring Results

The results of the ground gas and groundwater monitoring programme are summarised below:

- A maximum steady state concentration of methane was recorded as of 0.2% v/v in WS01 on 2nd April 2026. Detectable concentrations of methane were recorded in all the monitoring wells;
- A maximum steady state concentration of Carbon Dioxide was recorded as 4.6% v/v in WS05 on 27th March 2026. Detectable concentrations of carbon dioxide were recorded in all the monitoring wells;
- A minimum steady stated concentration of Oxygen was recorded 14.9 % v/v in WS05 on 27th March 2026;
- Ground gas flow rates were recorded at a maximum of 0.6 litres per hour (l/hr) in WS01 and WS05 on 9th April 2026;
- No groundwater was encountered within any of the standpipes over the course of the monitoring programme; and,
- Atmospheric pressure at the time of sampling varied between a high of 1003 millibar (mbar) on 2nd April 2026 and a low of 998 mbar on 16th April 2026. The monitoring visits were undertaken during periods of rising, steady and falling pressure trends over the preceding forty-eight hours.



6 GENERIC QUANTITATIVE RISK ASSESSMENT

6.1 Human Health Risk Assessment

In order to provide an up to date assessment of the risks to human health, Remada has adopted the most recent Generic Assessment Criteria (GAC) published by LQM/CIEH (S4ULs) and CL:AIRE/EIC/AGS for the assessment of potential risks to human health. The derivation of GAC, methodology, input parameters and technical guidance (CLEA) may be obtained upon request.

The proposed site layout retail store and car park is presented in **Figure 3**.

Default parameters have been adopted for sandy loam of pH 7 and commercial land use. FOC ranged from 0.005 to 0.04 giving a Soil Organic Matter (SOM) content range of between 0.86 to 6.72% with an average result of 2.93%. In order to present a conservative assessment, the SOM content of 2.5% has been adopted for the assessment.

The depth to potential sources of contamination for indoor air pathways has been assumed to be 0.5m below building foundation level. The source has been conservatively assumed to be at ground level for outdoor air and direct contact pathways.

For commercial land use the CLEA version 1.06 critical receptor is conservatively modelled as a female working adult with an exposure duration of 49 years. In accordance with the default parameters, it was assumed that employees spend most of their time indoors and that 80% of outdoor area is covered by hardstanding. As such, the potential exposure pathways have been assumed to be:

- Direct Soil and Indoor Dust Ingestion;
- Skin contact with soils and dusts;
- Inhalation of indoor and outdoor dusts and vapours.

Where GAC values for individual TPH fractions are not exceeded, the potential additive effect has been assessed by calculating overall TPH hazard index for each sample.

6.1.1 Comparison of Soil Analysis Results with Human Health GAC

A comparison of soil chemical analysis with GAC is presented as **Table 4**.

TPH & BTEX

None of the analytes tested were detected at concentrations that exceeded the human health GAC for a commercial end use.

PAH

The 3.9mg/kg concentration of dibenz(a,h)anthracene was marginally above the respective human health GAC (3.6mg/kg) within the sample from BH01 at 0.3m bgl.

Metals & Inorganics Excluding Asbestos

None of the analytes tested were detected at concentrations that exceeded the human health GAC for a commercial end use.

Asbestos

There was no asbestos detected in the samples selected for analysis.

6.1.2 Risk Assessment

The results of the soil chemical analysis undertaken has identified that a concentration of dibenz(a,h)anthracene exceeded the human health GAC for a commercial end use, from BH01 at 0.3m bgl, which presents a risk via the direct contact pathway. Post-development, this area will be covered by a retail building, consequently, the risk to human health is considered to be low due to the absence



of a pathway. In addition, the material in which the contamination was encountered in is the subbase of the former road and it is recommended all Made Ground is removed from the area of development

6.2 Controlled Waters Risk Assessment

6.2.1 Sensitivity – Groundwater

The site is located within an Environment Agency designated Zone II (Outer Protection Zone) Source Protection Zone. The superficial Glaciofluvial Sheet Deposits underlying the site are designated as a Secondary (A) Aquifer. The St Maughans Formation bedrock underlaying the site is designated as a Secondary 'A' Aquifer.

There is one (1 No.) groundwater abstraction point within 500m of the site. This is located 169m south-west of the site, operated by Dwr Cymru Cyfyngedig at Fennifach Road, Fennifach, Brecon for Public Water Supply: Potable Water Supply - Direct.

Groundwater was not encountered during the investigation and it is considered that it is likely to be found at >10m bgl at a similar level to the river adjacent to the site.

6.2.2 Sensitivity – Surface Waters

The nearest surface water feature is an unnamed drain present on the site and the Afon Tarell is directly south of the site. There are four (4 No.) surface water abstraction points within 500m of the site. The nearest is located 169m south-west operated by Dwr Cymru Cyfyngedig at Fennifach, Brecon for Public Water Supply: Potable Water Supply - Direct.

6.2.3 Risk Assessment

The results of the soil chemical analysis undertaken has identified that concentrations of metals and inorganic contaminants are within the range that would be expected. Detectable concentrations of TPH and PAHs were encountered in some samples. However, the contaminants identified are of low solubility and mobility and as such are unlikely to present a risk to groundwater beneath the site.

No groundwater was encountered within any of the standpipes over the course of the monitoring programme

Post-development, the site will be predominantly covered by a retail building and areas of hardstanding. Consequently, the risk of surface water runoff and lateral migration of contaminants and leaching of contaminants, as a result of infiltration of groundwater is limited. Therefore, the risk to controlled waters from contaminants within the Made Ground at the site is considered to be low and does not warrant further consideration at this stage.

6.3 Ground Gas Assessment

In order to understand the gassing regime at the site, a Characteristic Situation (as defined in CIRIA C665 and BS8576:2013) is determined for the site. CIRIA C665 and BS8576 provides definitions for each Characteristic Situation based on Gas Screening Values (GSV) which are calculated as follows:

- $GSV = \text{Gas Concentration (\% v/v)} \times \text{Measured Borehole Flow Rate (l/hr)}$

BS8576 makes a distinction between the GSV and the Hazardous Gas Flow Rate (Q_{hg}) which is also calculated using the above calculation. BS8576 states that Q_{hg} is calculated for each individual borehole for each monitoring visit, whereas the GSV is taken as the representative value for the site or site zone.



As a worst case assessment, the GSV for the site is therefore taken as the maximum steady-state carbon dioxide/methane concentration recorded in the boreholes which is multiplied by the maximum flow rate recorded during the same monitoring event.

- Methane GSV = 0.2 % x 0.6 l/hr = 0.0012 l/hr
- Carbon Dioxide GSV = 4.6 % x 0.6 l/hr = 0.028 l/hr

The calculated GSV of less than 0.07 l/hr for methane and carbon dioxide places the site into Characteristic Situation 1. BS 8485:2015+A1:2019 states that for Characteristic Situation 1 the methane concentration would typically be less than 1% and carbon dioxide less than 5% and that if concentrations are above these limits then consideration should be given to placing the site into Characteristic Situation 2. As the concentrations of methane and carbon dioxide were both within these typical limits it is considered that the Characteristic Situation 1 classification is appropriate for the site. Therefore, gas protection measures are not deemed necessary for the proposed development.

6.4 Revised Conceptual Site Model

A revised Conceptual Site Model is presented as **Table 6** below.

6.5 Waste Classification & Waste Acceptance

A Preliminary waste classification has been undertaken following guidance set out in WM3 EA Technical Guidance 'Guidance on the classification and assessment of waste', 1st Edition, Version 1.2GB, October 2021. The results of this assessment determine the appropriate List of Waste (LoW) Code and whether the waste should be classified as hazardous or non-hazardous. Classification is undertaken using the results of solid (total) analyses and not on the results of the WAC analyses.

Once the waste has been classified as either hazardous or non-hazardous then the WAC testing determines if the waste meets the requirements for disposal in the required landfill. Therefore, if the waste is classified as hazardous waste, then the waste would also need to meet the hazardous waste WAC requirements to be disposed of in a hazardous waste landfill. However, if the final destination of the waste is not to landfill then WAC analysis is not required.

The WAC testing also allows for a distinction to be made between inert and non-hazardous waste. Waste that does not fall within the hazardous waste category and meets the requirements for disposal in an inert landfill can therefore be disposed of in an inert landfill. However, waste that does not meet the requirements for inert landfill will need to be disposed of in a non-hazardous landfill. In certain circumstances hazardous waste can be disposed of in a designated cell within a non-hazardous landfill. In this case the waste would need to meet more stringent leachate requirements for stable non-reactive hazardous waste.

6.5.1 Waste Classification

pH

With respect to pH there is no limit for inert waste but for non-hazardous waste pH >6.

Asbestos

Asbestos was not detected.

Metals

A full assessment of metal concentrations has not been undertaken however the results of the chemical analysis indicate that the Made Ground would be classified as non-hazardous waste.



Hydrocarbons/PAHs

The levels of hydrocarbons and PAHs are below the 0.1% threshold for hazardous waste.

Bitumen / Coal Tars

The results indicated that while the concentrations of PAHs were generally high (total PAH concentration of 458.6mg/kg) the highest concentration of benzo(a)pyrene of 32 mg/kg was below the 50mg/kg limit defined in WM3. Therefore, the bituminous surfacing represented by this sample would be classified as non hazardous waste and assigned the List of Wastes code 17 03 02 for bituminous mixtures other than those mentioned in 17 03 01.

It should be noted that past experience has found that the concentration of benzo(a)pyrene in bituminous surfacing is normally either very low (<10mg/kg) or very high (>50mg/kg) and as such the distinction between non-hazardous and hazardous waste is very clear. This sample was found to have a detectable concentration of benzo(a)pyrene. It is therefore recommended that further samples are analysed in order to confirm the non-hazardous classification.

6.5.2 Waste Acceptance

Waste Acceptance Criteria (WAC) analysis was undertaken on two samples of Made Ground and a sample of natural soil.

- Within sample from BH01, the concentration of Total PAH (382mg/kg) exceeded the 100mg/kg threshold for acceptance as Inert Waste respectively and as such meets the criteria for disposal in a non-hazardous landfill.
- The assessment of the sample from WS02 indicated the sample met the requirements for disposal in an Inert landfill
- The assessment of the sample from WS03 indicated the sample met the requirements for disposal in an Inert landfill

TOC

The assessment has included determination of the fraction of organic carbon (FOC) which can be converted to TOC by multiplying the result by 100. A TOC limit of 3% is placed on waste destined for disposal in an inert landfill. Soil sampled from WS05 at a depth of 0.1m produced a TOC of 3.9% and as such should be disposed of at a non-hazardous landfill.

6.6 Health & Safety Considerations

To ensure direct exposure of construction workers involved in the site redevelopment to any impacted contaminated shallow soils is minimised, the guidance stated in HSG 66 "Protection of Workers and the General Public During Redevelopment of Contaminated Land" should be followed.



Potential Source Areas	Potential Contaminant of Concern	Pathways	Potential Receptor	Exposure Route (Human unless otherwise stated)	Potential Identified Linkage (unmitigated)	Findings of Ground investigation	Risk (Un-mitigated)	Proposed Remediation (Mitigation) Measures	Residual Risk Estimation
On-site Sources				Direct Soil Ingestion	Yes	<GAC except Dibenz(a,h)Anthracene in Made Ground at BH1	Moderate	Hardstanding to cover retail site minimising direct contact.	Very low
Made Ground associated with A470 and infilling of MILL Race.		Disturbance due to construction plant causing direct contact, dusts, vapours.		Indoor Dust ingestion	Yes	As above	As above	As above	As above
				Skin Contact with Soils	Yes	As above	As above	As above	As above
				Skin Contact with Dust	Yes	As above	As above	As above	As above
Off-site Sources				Inhalation of Outdoor Dust	Yes	As above	As above	As above	As above
Construction of A470 and A40	Asbestos / Metals As, Be, Cd, Cu, Cr (VI), Cr (III) Hg, Ni, Se, Va, Zn, Boron, TPH /PAH	Direct Contact with occupants of the proposed development and building fabric.	Occupants of the development / building fabric	Inhalation of Outdoor Vapours	Yes	As above	As above	As above	As above
Saw Mill		Inhalation of fibres / vapours / gases by occupants of proposed development	Adjacent residents during construction	Inhalation of Indoor Vapours	Yes	As above	As above	As above	As above
Brecon Enterprise Park				Inhalation of ground gas	Yes	CS1	Very low	None required	Very low
				Inhalation of radon gas	Yes	Intermediate Probability Area	Moderate risk	Basic radon protective measures	Negligible
Electrical substations				Surface water runoff	Yes	<GAC except Dibenz(a,h)Anthracene in Made Ground at BH1	Very Low	Hardstanding to cover retail site minimising infiltration	Negligible
		Permeation of water supply pipework	Afon Tarell.	Direct contact with Secondary (A) Aquifer in Superficial Deposits	Yes	As above	Very Low	As above and bedrock >10m bgl.	Negligible
		Surface water runoff	Secondary (A) Aquifers	In-direct contact with Secondary (A) Aquifer in bedrock	Yes	As above	As above	As above and bedrock >10m bgl.	As above
		Leachate							

Table 6: Refined Conceptual Site Model

Direct contact with subsurface soil and/or groundwater during redevelopment works are not assessed as part of the CSM. It is considered that risks to workers will be managed as part of any the redevelopment works at the site through the application of health and safety procedures, where required.



7 GEOTECHNICAL SITE ASSESSMENT

7.1 Geotechnical Considerations

An indicative site layout is indicated in **Figure 3**, with the Lidl store zone being north of the overall site area, with parking to the south of the site.

Existing topographic levels in the location of the proposed store footprint range from 140.62m aOD (metres above ordnance datum) in the north-east to 140.12m aOD in the south-east.

Remada's boreholes WS01 and BH01 to BH02A were located within the footprint of the proposed store. Ground conditions were locally observed to comprise Made Ground to depths ranging between 0.50 and 1.20m or Topsoil to depths ranging between 0.1 and 0.3m. Made Ground or Topsoil is underlain by predominantly medium dense to dense sandy silty GRAVEL to a maximum depth of 7.0m bgl. Within WS01 a gravelly clayey silty SAND was encountered between 0.1m to 0.5m bgl. Horizons of initially soft to stiff locally silty locally gravelly sandy CLAY was encountered in three (3 No.) of the exploratory locations (WS01, WS05 and BH02A), at depths between 0.3-1.40 bgl. Very stiff sandy CLAY with mudstone lithorelics was encountered to the base of boreholes BH01 and BH02a to depths of between 6.45 and 7.45m bgl.

SPT N 60 values range from between N=19 and SPT refusal at 1.0m and between N=30 and SPT refusal at 2.0m. For an SPT value of N = 19 at 1m the estimated angle of Internal friction ϕ' from Barnes Figure 11.11 is 33°.

No groundwater was encountered during the course of the site investigation.

Details of the proposed permanent and variable design loads (actions) are not currently known although an indicative column load of 400kN has been provided.

7.2 Design Approach

Design calculations in accordance with BS EN 1997-1: 2004 require the establishment of design values for actions, ground properties and ground resistances, definition of the limits that must not be exceeded (usually a serviceability limit state), the setting up of calculation models for the relevant ultimate or serviceability limit state, and the showing by such calculation that these limits will not be exceeded.

Design values for such calculations are derived by applying partial factors to characteristic values for actions, ground properties and ground resistances, and based upon the geotechnical model and following requirements of Design Approach 1, Combination 2 calculations have been undertaken. Table 7 provides a summary of the partial factors applied to actions, soil parameters and resistance factors. To satisfy the serviceable limit state settlement has been limited to 25mm.

Geotechnical parameter			Symbol	Combination 1		Combination 2	
Partial factors ¹ on actions (γ_f) or effects of actions (γ_E)	Permanent	Unfavourable ²	γ_G	A1	1.35	A2	1.0
		Favourable ³			1.0		1.0
	Variable ⁴	Unfavourable	γ_Q		1.5		1.3
		Favourable ⁵			0		0
Partial factors on soil parameters (γ_M)	Angle of shearing resistance ⁶		$\gamma_{\phi'}$	M1	1.0	M2	1.25
	Effective cohesion		$\gamma_{c'}$		1.0		1.25
	Undrained shear strength		γ_{cu}		1.0		1.4
	Unconfined strength		γ_{qu}		1.0		1.4
	Weight density		$\gamma_{\gamma'}$		1.0		1.0
Partial resistance factors (γ_R) for spread foundations	Bearing		$\gamma_{R,v}$	R1	1.0	R1	1.0
	Slidings		$\gamma_{R,h}$		1.0		1.0

¹These factors are given for buildings only. Different factors apply to bridges and other structures

²In this case the upper characteristic value ($G_{k,sup}$) of the permanent action is used

³In this case the lower characteristic value ($G_{k,inf}$) of the permanent action is used

⁴There may be more than one variable action. The partial factor is applied to the leading variable action and modified (reduced) values

⁵The UK National Annex states that when variable actions are favourable Q_k is zero, rather than g_Q is zero

⁶This is applied to $\tan\phi'$ or $\tan\phi_{cv}'$ although it might be more appropriate to determine the design value ϕ_{cv} directly

Table 7: Summary of Partial Factors Applied to Actions, Soil Parameters and Resistance Factors

In the absence of design loads the bearing capacity assessment has been undertaken for Design Approach 1, Combination 2 only, and a further assessment taking account of anticipated loadings (permanent and variable) will be required during detailed design in order to confirm the limit states are satisfied.

Preliminary calculations indicate that for a traditional pad foundation or raft downstand (up to 1.5m wide) at a minimum of 1.5m depth, bearing within the medium dense granular materials a design bearing capacity of 200 kN/m² will be appropriate in order to satisfy the ultimate and serviceable limit states in accordance with BS EN 1997-1: 2004. This is only applicable for foundations with loads that are applied vertically and centrally. To satisfy the serviceable limit state settlement has been limited to 25mm. Foundations will need to fully penetrate any made ground including fill material used to raise site levels and extend a minimum of 150mm into the bearing stratum.

7.3 Shrinkage and Swelling

All samples of material were reported as being LOW and INTERMEDIATE plasticity with between 51% and 98% passing a 0.425mm sieve. The modified plasticity index equates to a Low Volume Change Potential.

The minimum foundation depths outside the zone of tree influence as specified by the NHBC have been reproduced in **Table 8** below, however:

Volume Change Potential	A) Minimum foundation depth (m) (allowing for restricted new planting)	B) Minimum foundation depth (m) (where planting is outside the zone of influence of trees)
High	1.50	1.0
Medium	1.25	0.9
Low	0.9	0.75

Table 8: NHBC 2023 Minimum Foundation Depths



7.4 Floor Slab

If pad foundations are selected as described above then a layer of compacted 6F₂ capping overlying the existing but re-compacted natural soils to a minimum specified bearing capacity is considered to be suitable beneath a ground bearing floor slab.

7.5 Imported Fill

All imported fill material should comply with an earthworks specification to be prepared by the engineer and not contain concentrations of contaminants at greater than the Generic Assessment Criteria (GAC) presented in **Table 4**.

7.6 Excavations and Temporary Works

During the excavation of the trial pits, collapse of the sides were noted within the granular superficial deposits. Side slopes within the Made Ground and the underlying natural soils are therefore unlikely to remain stable even in the short term without support or without being battered back to a safe slope gradient. A detailed inspection of the side slopes should be made during excavation and a risk assessment carried out to fully assess the support measures required.

7.7 External Car Park Construction

A CBR value of 6% is should be adopted at a depth of 0.3m.

7.8 Protection of Buried Concrete

In accordance with BRE SD1 for buried concrete in a brownfield site with mobile groundwater, analyse of selected samples for water soluble sulphate returned values of up to 70 mg/l and pH >8.1. A total potential sulphate value of 0.03% was also calculated from the total sulphur results. Therefore, a Design Sulphate Class DS-1 is considered appropriate for buried concrete and an ACEC Class of AC-1 is considered appropriate for the location.

7.9 Soakaway Tests

Four soakaway tests were conducted within trial pits located across the proposed Lidl car park area. The results show that the slowest infiltration rate from the tests run in SA1 was 7.62×10^{-5} m/s, SA2 was 1.50×10^{-4} m/s, SA3 was 4.79×10^{-4} m/s and SA4 was 7.14×10^{-5} m/s. As such, an infiltration rate 7.14×10^{-5} m/s should be used.

7.10 General Construction Advice

Topsoil should be stripped from proposed zones of construction.

All formations should be cleaned, and subsequently inspected, by a suitably qualified engineer prior to placing concrete. Should any soft, compressible or otherwise unsuitable materials be encountered they should be removed and replaced by blinding concrete.

Foundation concrete, or alternatively, a blinding layer of concrete, should be placed immediately after excavation and inspection in order to protect the formation against softening and disturbance.

Generally, all formations should be placed wholly within the same material type, unless specific geotechnical inspection and assessment have been undertaken.

Where applicable ground beneath the proposed building footprint and potentially car parking may require to be stripped to reveal localised areas of made ground and structures. Excavations should be backfilled with suitably re-compacted materials to achieve formation level.



During foundation excavation works arisings should be constantly monitored for the presence of contamination.



8 CONCLUSIONS & RECOMMENDATIONS

8.1 Conclusions

The following conclusions have been made based on the findings of this investigation.

8.1.1 Phase 2 Site Investigation

The site was previously occupied by the route of the A470 and a mill race. At the time of the investigation the A470 had been rerouted with only a partial section of the former road remaining, and the mill race had been infilled.

Made Ground was encountered at the site underlying surface asphalt in two of the exploratory locations to 0.5m bgl with an average thickness of 0.35m. A slight hydrocarbon odour was noted in both boreholes. Possible Made Ground was encountered within BH02 between 0.30m and 1.20m bgl.

Natural topsoil was encountered within ten (10 No.) of the exploratory hole locations to depths between 0.10m (WS01 and WS08) and 0.30m (BH02 and BH02A) bgl, with an average thickness of 0.19m.

The natural deposits within eight (8 No.) of the exploratory locations consisted of a gravelly clayey silty SAND to a maximum depth of 1.60m (SA01) where proven. A reddish brown locally sandy clayey silty cobbly GRAVEL was encountered within ten (10 No.) of the exploratory locations to a maximum depth of 7.0m bgl (BH01) where proven. A soft to stiff locally silty locally gravelly sandy CLAY was encountered in four (4 No.) of the exploratory locations (WS01, WS02 WS05 and BH02A), at depths between 0.3-1.40 bgl where proven. The gravel and cobbles comprised subangular to rounded fine to coarse mudstone, sandstone and quartzite.

Very stiff sandy CLAY with mudstone lithorelicts was encountered to the base of boreholes BH01 and BH02 at depths of between 6.45 and 7.45m bgl. This material is considered representative of weathered bedrock of the St Maughans Formation.

8.1.2 Human Health Risk Assessment

The results of the soil chemical analysis undertaken has identified that a concentration of PAHs exceeded the human health GAC for a commercial end use from BH01 at 0.3m bgl. Post-development, this area will be covered by a retail building and consequently, the risk to human health is considered to be low. In addition, the material in which the contamination was encountered in is the subbase of the former road. If the subbase is removed as part of the development works, the remaining risk would be negligible as the source will have been removed.

8.1.3 Water Resources Risk Assessment

The results of the soil chemical analysis undertaken has identified that concentrations of metals and inorganic contaminants are within the range of typical made ground. Detectable concentrations of TPH and PAHs were encountered in some samples. However, the contaminants identified are of low solubility and mobility and as such are unlikely to present a risk to groundwater beneath the site. Post-development, the site will continue to be predominantly covered by a retail building and areas of hardstanding. Consequently, the risk of surface water runoff and lateral migration of contaminants and leaching of contaminants, as a result of infiltration of groundwater is limited. Therefore, the risk to controlled waters from contaminants within the made ground at the site is considered to be low and does not warrant further consideration at this stage.

8.1.4 Waste Classification and Acceptance

In general, the results of the chemical analysis indicate that the material would be classified as non-hazardous waste. Waste Acceptance Criteria (WAC) analysis was undertaken on two samples of Made

Ground and one sample of natural soil. The samples from BH01 exceed the limits for PAH to go to an inert Landfill, as such the material from this location should go to non-hazardous landfill. Sample from WS02 and WS03 met requirements for inert landfill. The sample from WS05 at a depth of 0.1m produced a TOC of 3.9% greater than the inert landfill threshold of 3% and as such should be disposed of at a non-hazardous landfill

Two samples of bituminous surfacing were analysed for concentrations of PAH compounds. The results indicated that while the concentrations of PAHs were high (total PAH concentration of 458.6mg/kg) the highest concentration of benzo(a)pyrene of 32 mg/kg was below the 50mg/kg limit defined in WM3. Therefore, the bituminous surfacing represented by this sample would be classified as non-hazardous waste and assigned the List of Wastes code 17 03 02 for bituminous mixtures other than those mentioned in 17 03 01. It should be noted that past experience has found that the concentration of benzo(a)pyrene in bituminous surfacing is normally either very low (<10mg/kg) or very high (>50mg/kg) and as such the distinction between non-hazardous and hazardous waste is very clear. This sample was found to have a detectable concentration of benzo(a)pyrene. It is therefore recommended that further samples are analysed in order to confirm the non-hazardous classification.

8.2 Recommendations

Preliminary calculations indicate that for a traditional pad foundation or raft downstand (up to 1.5m wide) at a minimum of 1.5m depth, bearing within the medium dense granular materials a design bearing capacity of 200 kN/m² will be appropriate in order to satisfy the ultimate and serviceable limit states in accordance with BS EN 1997-1: 2004. This is only applicable for foundations with loads that are applied vertically and centrally. To satisfy the serviceable limit state settlement has been limited to 25mm. Foundations will need to fully penetrate any made ground including fill material used to raise site levels and extend a minimum of 150mm into the bearing stratum.

If pad foundations are selected as described above then a layer of compacted 6F₂ capping overlying the existing but re-compacted natural soils to a minimum specified bearing capacity is considered to be suitable beneath a ground bearing floor slab.

A Design Sulphate Class DS-1 is considered appropriate for buried concrete and an ACEC Class of AC-1 is considered appropriate for the location.

A CBR value of 8.9% should be adopted at a depth of 0.5m.

Four soakaway tests were conducted within trial pits located across the proposed Lidl car park area. The results show that the slowest infiltration rate from the tests run in SA1 was 7.62×10^{-5} m/s, SA2 was 1.50×10^{-4} m/s, SA3 was 4.79×10^{-4} m/s and SA4 was 7.14×10^{-5} m/s. As such, an infiltration rate 7.14×10^{-5} m/s should be used.

Collapse of the sides of the trial pits were observed and as such the side slopes are unlikely to be stable even in the short term.

8.3 Ground Gas

The results of four rounds of gas monitoring visits placed the site into Characteristic Situation 1 and therefore ground gas protection measures will not be required within the proposed buildings.

Basic radon protection measures will be required.



REFERENCES & GUIDANCE

- AGS, *Guidance on the Waste Classification for Soils – A Practitioners' Guide* 2019.
- Barnes, G. 2010, *Soil Mechanics Principles and Practice*. 3rd Edition.
- BRE, *Special Digest 1:2005 (3rd Edition), Concrete in Aggressive Ground*. 2005.
- BR 211, *Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects)*, 2023.
- BRE Digest 365 *Soakaway Design*, 2003.
- BRE Digest 412 *Desiccation in Clay Soils* 1996
- BRE465 *Cover Systems for Land Regeneration* 2004.
- BS 10175:2026, *Investigation of potentially contaminated sites: Code of practice*.
- BS 1377-2:2022. *Methods of test for soils for civil engineering purposes*.
- BS 5930:2015+A1:2020, *Code of practice for site investigations*.
- BS 8485:2015+A1 2019, *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*.
- BS 8576:2013, *Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)*.
- BS EN ISO 17892 *Geotechnical Investigation & Testing. Laboratory Testing of Soil*.
- BS EN ISO 22476-3:2005, *Geotechnical investigation and testing: Field testing - Standard penetration test*.
- CIRIA, C504, *Engineering in glacial tills*, 1999.
- CIRIA 574 *Engineering in Chalk*, 2002
- CIRIA, C665, *Assessing risks posed by hazardous ground gases to buildings*, 2007.
- CIRIA, C682, *The VOCs Handbook: Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination*, 2009.
- CIRIA, C716, *Remediating and mitigating risks from volatile organic compound (VOC) vapours from land affected by contamination*, 2012.
- CIRIA C733, *Asbestos in Soil and Made Ground: A Guide to Understanding & Managing Risks*.
- CL:AIRE/EIC/AGS, *The Soil Generic Assessment Criteria for Human Health Risk Assessment*, 2009.
- CL:AIRE, SP1010, *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination -Final Project Report*. 2013.
- CL:AIRE, *The Definition of Waste: Development Industry Code of Practice Version 2*
- DEFRA, Circular 01/2006, *Contaminated Land Environmental Protection Act 1990, Part 2A*. 2006.
- DEFRA, SP1010, *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document*. March 2014.
- Environment Agency, *Verification of Remediation of Land Contamination Science Report – NC/DD/38/SR*
- Environment Agency, *Waste Classification, Guidance on the classification and assessment of waste (1st Edition V1.2GB) Technical Guidance WM3*. October 2021.
- EN 1997-1: 2004 & EN 1997-2 *Geotechnical Design Part 1 - General Rules, Part 2 – Ground Investigation & Testing*
- Health & Safety Executive, HSG 66, *Protection of Workers and the General Public During Redevelopment of Contaminated Land*. 1991.
- Highways Agency, IAN 73/06 Rev 1, *Design of Pavement Foundations*, 2009.
- Land Contamination Risk Management www.gov.uk 08.10.2020.
- LCM/CIEH, *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Land Quality Press, S4UL3146, 2015.
- NHBC Standards, 2025.
- Tomlinson, M.J., 2001, *Foundation Design and Construction*, 7th Edition.
- The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- The Definition of Waste: Development Industry Code of Practice, CL:AIRE 2011.
- UKWIR, *Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites*. 2011
- Welsh Land Contamination Working Group's *Development of Land Affected by Contamination: A Guide for Developers version 4*: September 2023.



STUDY LIMITATIONS

IMPORTANT. This section should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1. This report has been prepared by Remada, Ltd with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with (the 'Client'). Remada does not accept responsibility for any matters outside the agreed scope.

2. This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing.

3. Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Remada is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have published, more stringent objectives. Further work may be required by these parties.

4. All work carried out in preparing this report has used, and is based on, Remada's professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice pending changes in legislation, of which Remada is aware, have been considered. Following delivery of the report Remada has no obligation to advise the Client or any other party of such changes or their repercussions.

5. This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.

6. Whilst this report and the opinions made are to the best of Remada's belief, Remada cannot guarantee the accuracy or completeness of any information provided by third parties.

7. This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have received.

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

9. The content of this report represents the professional opinion of experienced environmental consultants. Remada does not provide specialist legal or other professional advice. The advice of other professionals may be required.

10. Where intrusive investigation techniques have been employed they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases the investigation is further limited by site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the site have not been investigated.

11. If below ground intrusive investigations have been conducted as part of the scope, service tracing for safe location of exploratory holes has been carried out. The location of underground services shown on any drawing in this report has been determined by visual observations and electromagnetic techniques. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on site.

12. Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.

13. Unless otherwise stated, samples from the site (soil, groundwater, building fabric or other samples) have NOT been analysed or assessed for waste classification purposes.



TABLES (not presented within text).

Table 2: Gas Groundwater Monitoring Data

GAS & GROUNDWATER MONITORING DATA																							
SITE		Brecon																					
PROJECT No.		1522.02			Atmospheric & Ground Conditions																		
Visit 1 of 4					Atmospheric Pressure Variations During Visit												Ground Surface Conditions						
Carried Out by:		Vince Williams			1000												Damp						
Date:		27-Mar-26																					
Instrument Details	GA5000				Atmospheric Pressure Trend Over Previous 48hrs												Weather Conditions						
					Falling												Overcast/Showers						
Well No.	Cover Height (m AOD)	Well Diameter (mm)	CH ₄ (%v/v)		CH ₄ Steady LEL (%)	CO ₂ (%v/v)		O ₂ (%v/v)		H2S (ppm)		CO (ppm)		Duration (secs)^	Flow Rate (l/hr)	Relative Pressure (mb)	PID (ppm)		Atmospheric Pressure (mb)	Water Level (m bgl)	Water Level (m AoD)	Depth of Pipe (m bgl)	Comments
Peak	Steady	Peak	Steady	Minimum		Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak				Steady	Peak					
WS01	140.62	50	0.0	0.0	0.0	0.4	0.4	20.3	20.3	0.0	0.0	0.0	0.0	60	-0.1	0.00	NR	NR	1000	DRY	DRY	2.650	TAP OPEN ON ARRIVAL
WS03	140.88	50	0.0	0.0	0.0	3.3	3.3	16.4	16.4	0.0	0.0	0.0	0.0	60	-0.1	0.12	NR	NR	1000	DRY	DRY	2.400	TAP OPEN ON ARRIVAL
WS05	141.75	50	0.0	0.0	0.0	4.6	4.6	14.9	14.9	0.0	0.0	0.0	0.0	60	0.0	0.1	NR	NR	1000	DRY	DRY	1.650	TAP OPEN ON ARRIVAL
NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level																							

GAS & GROUNDWATER MONITORING DATA																	REMADA GEO CONSULTANTS							
SITE		Brecon																						
PROJECT No.		1522.02			Atmospheric & Ground Conditions																			
Visit 2 of 4					Atmospheric Pressure Variations During Visit											Ground Surface Conditions								
Carried Out by:		Vince Williams			1003											Dry								
Date:		02-Apr-26			Atmospheric Pressure Trend Over Previous 48hrs											Weather Conditions								
Instrument Details		GA5000																				Falling		
Well No.	Cover Height (m AOD)	Well Diameter (mm)	CH ₄ (%v/v)		CH ₄ Steady LEL (%)	CO ₂ (%v/v)		O ₂ (%v/v)		H2S (ppm)		CO (ppm)		Duration (secs)^	Flow Rate (l/hr)	Relative Pressure (mb)	PID (ppm)		Atmospheric Pressure (mb)	Water Level (m bgl)	Water Level (m AoD)	Depth of Pipe (m bgl)	Comments	
			Peak	Steady		Peak	Steady	Minimum	Steady	Peak	Steady	Peak	Steady				Peak	Steady						Peak
WS01	140.62	50	2.0	0.2	4.0	1.1	1.0	19.5	19.5	0.0	0.0	0.0	0.0	60	0.0	-0.02	NR	NR	1003	DRY	DRY	2.600		
WS03	140.88	50	0.1	0.1	2.0	2.5	2.5	17.9	17.9	0.0	0.0	1.0	0.0	60	0.0	0.02	NR	NR	1003	DRY	DRY	2.400		
WS05	141.75	50	0.1	0.1	2.0	4.0	4.0	16.4	16.4	0.0	0.0	2.0	0.0	60	0.2	-0.04	NR	NR	1003	DRY	DRY	1.650		
Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level																								

GAS & GROUNDWATER MONITORING DATA																										
SITE		Brecon																								
PROJECT No.		1522.02				Atmospheric & Ground Conditions																				
Visit 3 of 4						Atmospheric Pressure Variations During Visit														Ground Surface Conditions						
Carried Out by:		Vince Williams				1001														Dry						
Date:		09-Apr-26																								
Instrument Details	GA5000					Atmospheric Pressure Trend Over Previous 48hrs														Weather Conditions						
						Falling														Overcast - Light Drizzle						
Well No.	Cover Height (m AOD)	Well Diameter (mm)	CH ₄ (%v/v)		CH ₄ Steady LEL (%)	CO ₂ (%v/v)		O ₂ (%v/v)		H2S (ppm)		CO (ppm)		Duration (secs)^	Flow Rate (l/hr)	Relative Pressure (mb)	PID (ppm)		Atmospheric Pressure (mb)	Water Level (m bgl)	Water Level (m AoD)	Depth of Pipe (m bgl)	Comments			
			Peak	Steady		Peak	Steady	Minimum	Steady	Peak	Steady	Peak	Steady				Peak	Steady						Peak	Steady	
WS01	140.62	50	0.1	0.1	2.0	1.0	1.0	17.9	17.9	0.0	0.0	0.0	0.0	60	0.6	-0.04	NR	NR	1001	DRY	DRY	2.650				
WS03	140.88	50	0.1	0.1	2.0	2.9	2.9	17.5	17.5	0.0	0.0	0.0	0.0	60	0.5	-0.04	NR	NR	1001	DRY	DRY	2.430				
WS05	141.75	50	0.1	0.1	2.0	3.9	3.9	16.7	16.7	0.0	0.0	0.0	0.0	60	0.6	0.02	NR	NR	1001	DRY	DRY	1.650				
Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level																										

GAS & GROUNDWATER MONITORING DATA																								
SITE		Brecon																						
PROJECT No.		1522.02			Atmospheric & Ground Conditions																			
Visit 4 of 4					Atmospheric Pressure Variations During Visit												Ground Surface Conditions							
Carried Out by:		Megan Bell			998												Damp							
Date:		16-Apr-26																						
Instrument Details	GFM436				Atmospheric Pressure Trend Over Previous 48hrs										Weather Conditions									
					Rising										Intermittent clouds									
Well No.	Cover Height (m AOD)	Well Diameter (mm)	CH ₄ (% v/v)		CH ₄ Steady LEL (%)	CO ₂ (% v/v)		O ₂ (% v/v)		H2S (ppm)		CO (ppm)		Duration (secs)^	Flow Rate (l/hr)	Relative Pressure (mb)	PID (ppm)		Atmospheric Pressure (mb)	Water Level (m bgl)	Water Level (m AoD)	Depth of Pipe (m bgl)	Comments	
			Peak	Steady		Peak	Steady	Minimum	Steady	Peak	Steady	Peak	Steady				Peak	Steady						Peak
WS01	140.62	50	0.0	0.0	0.0	0.5	0.5	20.1	20.1	0.0	0.0	0.0	0.0	60	0.0	NR	NR	NR	998	DRY	DRY	2.650		
WS03	140.88	50	0.0	0.0	0.0	2.8	2.8	16.7	17.2	0.0	0.0	0.0	0.0	60	0.0	NR	NR	NR	998	DRY	DRY	2.430		
WS05	141.75	50	0.0	0.0	0.0	4.5	4.5	15.5	15.5	0.0	0.0	0.0	0.0	60	0.0	NR	NR	NR	998	DRY	DRY	1.650		
Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level																								

Table 4: Comparison of Soil Chemical Analyses with GAC

Lab Sample Number:				Commercial GAC 2.5% SOM	866352	866353	866354	866355	866356
Sample Reference:					BH01	WS02	WS03	WS01	WS05
Top Depth (m):					0.3	0.4	0.3	0.1	0.1
Basal Depth (m):					None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Strata/Material Type					MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND
Date Sampled:					19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Determinand	Units	Limit of detection	Accreditation Status	[mg/kg unless stated]					
Stones	%	0.01	NONE		76.20	53.20	19.10	45.90	< 0.1
Moisture	%	0.01	NONE	-	2.8	1.5	14	8.5	36
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos % by hand picking/weighing	%				-	-	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type				-	-	-	-	-
pH	pH Units	N/A	MCERTS	-	8.4	8.5	7.3	7.3	6
Arsenic	mg/kg	1.00	MCERTS	640	1.7	2.5	8.1	4.2	9
Beryllium	mg/kg	0.06	MCERTS	12	0.29	0.18	0.49	0.45	0.56
Boron	mg/kg	0.20	MCERTS	240000	0.3	< 0.2	0.7	< 0.2	0.4
Cadmium	mg/kg	0.20	MCERTS	190	0.9	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (Hexavalent)	mg/kg	1.80	MCERTS	33	< 1.8	< 1.8	< 1.80	< 1.8	< 1.80
Chromium (Trivalent)	mg/kg	1.00	NONE	8600	12	13	29	21	29
Chromium (aqua regia extractable)	mg/kg	1.00	MCERTS	-	12	13	29	21	29
Copper	mg/kg	1.00	MCERTS	68000	8.1	12	26	12	19
Lead	mg/kg	1.00	MCERTS	2330	4.8	11	23	13	42
Mercury	mg/kg	0.30	MCERTS	58 ^{vap} (25.8)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel	mg/kg	1.00	MCERTS	980	10	8.2	23	18	23
Selenium	mg/kg	1.00	MCERTS	12000	1.2	< 1.0	1.3	< 1.0	1.1
Vanadium	mg/kg	1.00	MCERTS	9000	24	27	31	26	35
Zinc	mg/kg	1.00	MCERTS	730000	35	21	64	51	78
Total Cyanide	mg/kg	1.00	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	0.0071	0.018	0.016	0.005	0.039
Calculated TOC from FOC	-	-	-	-	0.71	1.80	1.60	0.50	3.90
Calculated SOM from FOC	-	-	-	-	1.22	3.10	2.76	0.86	6.72
Aliphatic TPH >C5-C6	mg/kg	0.01	NONE	5900sol (558)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	mg/kg	0.01	NONE	17000sol (322)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	mg/kg	0.01	NONE	4800vap (190)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C10-C12	mg/kg	1.00	MCERTS	23000vap (118)	2.1	13	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	mg/kg	2.00	MCERTS	82000sol (59)	3.7	39	< 2.0	< 2.0	< 2.0
Aliphatic TPH >C16-C21	mg/kg	8.00	MCERTS	1700000	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Aliphatic TPH >C21-C35	mg/kg	8.00	MCERTS		27	84	< 8.0	< 8.0	< 8.0
Total Aliphatic Hydrocarbons:	mg/kg	10.00	NONE	-	33	140	< 10	< 10	< 10
Aromatic TPH >C5-C7	mg/kg	0.01	NONE	46000sol (2260)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	mg/kg	0.01	NONE	110000sol (1920)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	mg/kg	0.02	NONE	8100vap (1500)	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aromatic TPH >C10-C12	mg/kg	1.00	MCERTS	28000sol (899)	< 1.0	8.7	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	mg/kg	2.00	MCERTS	37000	27	33	< 2.0	< 2.0	< 2.0
Aromatic TPH >C16-C21	mg/kg	10.00	MCERTS	28000	170	44	< 10	< 10	< 10
Aromatic TPH >C21-C35	mg/kg	10.00	MCERTS	28000	420	250	< 10	< 10	< 10
Total Aromatic Hydrocarbons	mg/kg	10.00	NONE	-	620	330	< 10	< 10	< 10
Calculated Sum TPH (sum Aliphatic + sum Aromatic)					653	470	20	20	20
Naphthalene	mg/kg	0.05	MCERTS	460sol (183)	0.97	2.4	< 0.05	0.18	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	97000sol (212)	0.5	0.18	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	97000sol (141)	11	2.3	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	68000	10	1.7	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	22000	38	10	< 0.05	< 0.05	0.18
Anthracene	mg/kg	0.05	MCERTS	540000	13	2.3	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	23000	58	19	0.07	< 0.05	0.39
Pyrene	mg/kg	0.05	MCERTS	54000	47	15	0.06	< 0.05	0.35
Benzo[a]anthracene	mg/kg	0.05	MCERTS	170	40	7.6	0.06	< 0.05	0.22
Chrysene	mg/kg	0.05	MCERTS	350	35	6.9	0.09	< 0.05	0.21
Benzo[b]fluoranthene	mg/kg	0.05	ISO 17025	45	44	10	0.1	< 0.05	0.35
Benzo[k]fluoranthene	mg/kg	0.05	ISO 17025	1200	18	3.1	< 0.05	< 0.05	< 0.05
Benzo[a]pyrene	mg/kg	0.05	MCERTS	35	31	6.9	0.05	< 0.05	0.22
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.05	MCERTS	510	14	4.3	< 0.05	< 0.05	0.13
Dibenz(a,h)Anthracene	mg/kg	0.05	MCERTS	3.6	3.9	1	< 0.05	< 0.05	0.05
Benzo(g,h,i)perylene	mg/kg	0.05	MCERTS	4000	15	4.7	< 0.05	< 0.05	0.17
Coronene	mg/kg	0.05	NONE	-	3.2	0.11	< 0.05	-	-
Total Of 16 PAH's	mg/kg	0.8	ISO 17025	-	378	97.2	< 0.80	< 0.80	2.26
Total Of 17 PAH's	mg/kg	0.85	ISO 17025	-	382	97.3	< 0.85	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5.00	MCERTS	13000000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5.00	MCERTS	47000*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5.00	MCERTS	11000000vap (1920000)*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5.00	MCERTS	13000000vap (1220000)*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8.00	MCERTS	14000000sol (1350000)*	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5.00	MCERTS	15000000sol (1120000)*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Phenols	mg/kg	1.00	MCERTS	690dir (30000)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Determinand concentration below the GAC

Determinand concentration in exceedance of GAC

Determinand concentration in exceedance of the vapour/solubility saturation limit.

NC: No published criteria, U/S: Unsuitable sample.

vap: Screening criteria presented exceed the vapour saturation limit, which is presented in brackets.

sol: Screening criteria presented exceed the solubility saturation limit, which is presented in brackets.

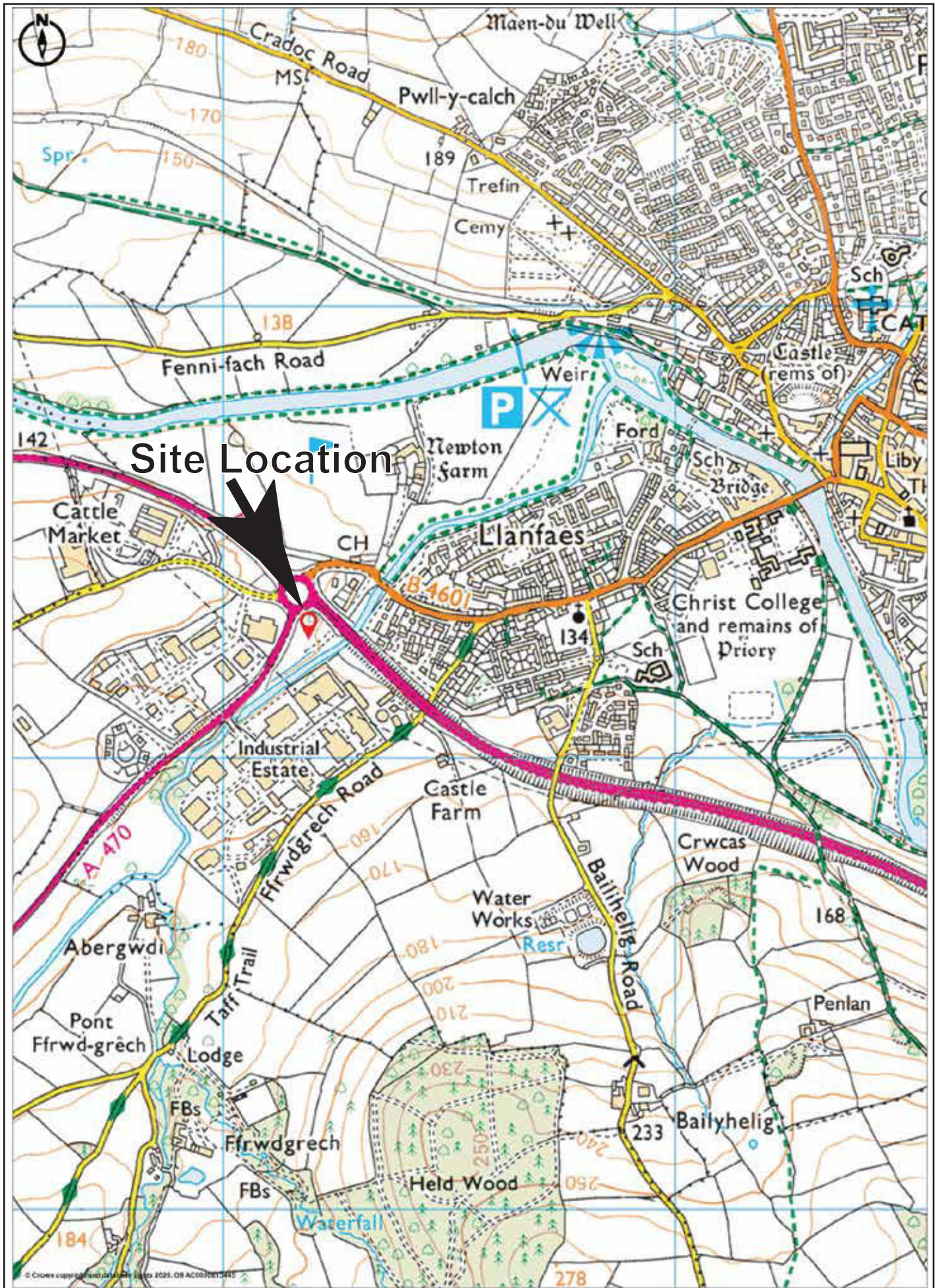
dir: Screening criteria based on threshold protective of direct skin contact (guideline in brackets based on health effects following long term exposure provided for illustration only).

(1): For assessment based on the use of the surrogate marker approach the GAC for Coal Tar must be used instead of benzo[a]pyrene.

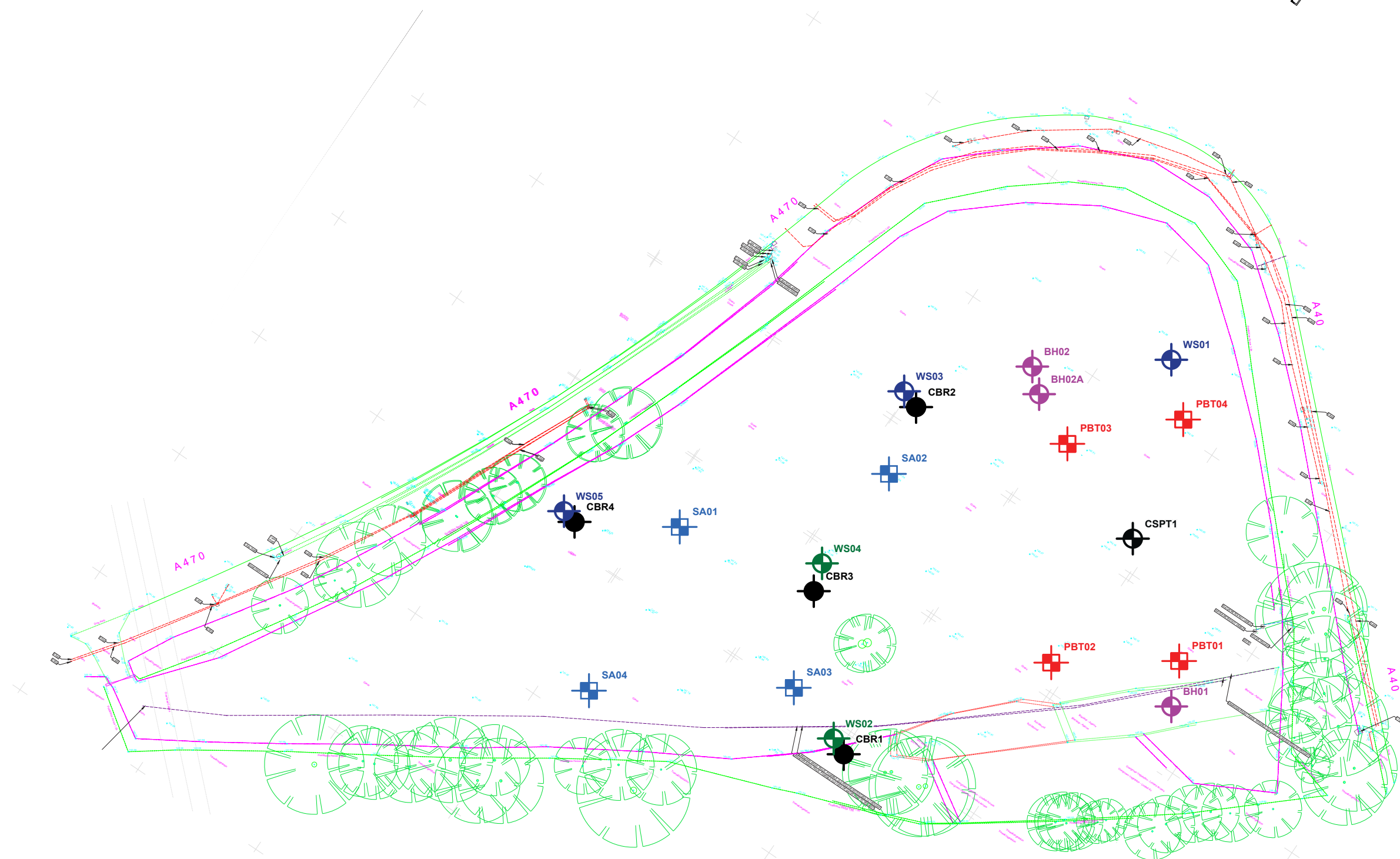
* Value presented in mg/kg



FIGURES



Notes				Revision	Approved	Date	Project Title	Scale	Drawn	Size
	 © Crown Copyright and database rights 2026. OS AC00000813445 Plotted Scale - 1:15000, Paper Size - A4						A470/A40 Brecon	as shown	MB	A4
							Drawing Title	Date	Job No.	Figure No.
							Site Location Plan	25.03.26	1522	01
							Client			
							Lidl Great Britain Ltd			



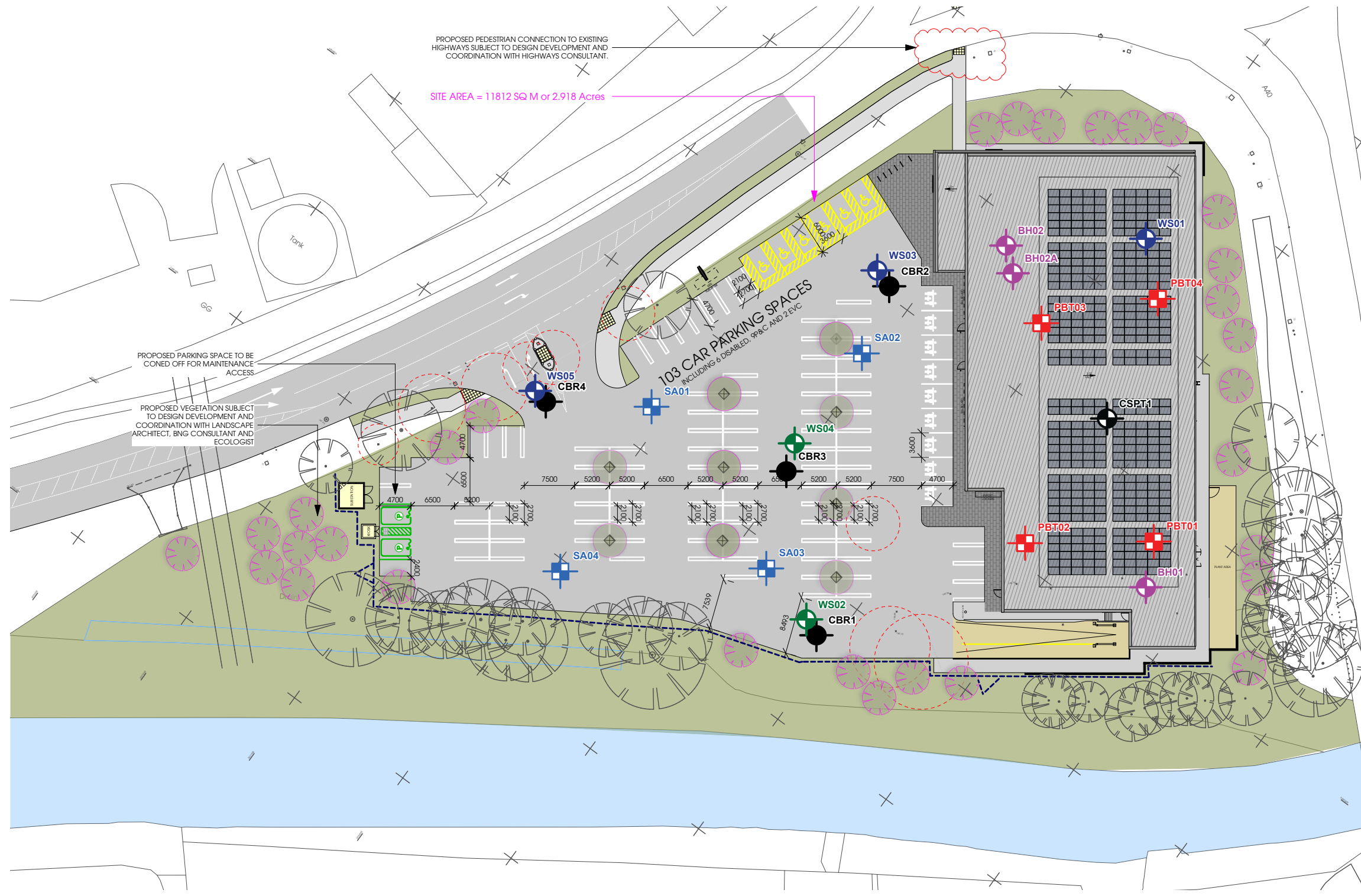
- Legend
- WSxx Window Sample & Installation
 - WSxx Window Sample
 - BHxx Cable tool hole
 - CBRxx CBR Test
 - CSPTxx Continuous SPT
 - PBTxx Plate Bearing Test
 - SAxx Soakaway Test

Notes

Existing site plan reproduced from Cube Surveys Utility Survey PAS-128B Land off A470/A40, drawing ref: CUB-L-050-Brecon dated March 2026.

Revision	Approved	Date
Project Title		
A470/A40 Brecon		
Drawing Title		
Exploratory Hole Plan - Existing Site Layout		
Client		
Lidl Great Britain Ltd		
Scale	Drawn	Size
NTS	MB	A4
Date	Job No.	Figure No.
20.04.26	1522	02





- Legend
- WSxx Window Sample & Installation
 - WSxx Window Sample
 - BHxx Cable tool hole
 - CBRxx CBR Test
 - CSPTxx Continuous SPT
 - PBTxx Plate Bearing Test
 - SAxx Soakaway Test

Notes

Proposed layout plan reproduced from HTC Architects Proposed Setting Out Site Plan, drawing ref: 3223 P410 rev F dated April 2026.

The proposed site layout is indicative only and subject to change.

Revision	Approved	Date

Project Title
A470/A40 Brecon

Drawing Title
Exploratory Hole Plan - Proposed Site Layout

Client
Lidl Great Britain Ltd



Scale	Drawn	Size
NTS	JS	A4
Date	Job No.	Figure No.
25.09.26	1522	03





EXPLORATORY HOLE LOGS

Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample		

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

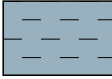
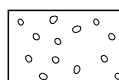
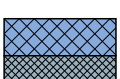
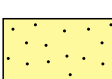
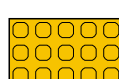
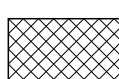
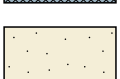
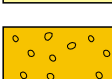
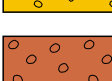
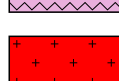
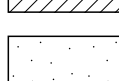
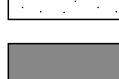
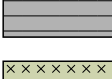
GROUNDWATER

 Groundwater strike	 Groundwater rest level
--	--

ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground [cohesive]	 Sand	 Conglomerate	 Arisings
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		



Trial Pit

SA02
Sheet 1 of 1

Hole Type TP	Easting 303177.00	Northing 228271.00	Ground Level (m) 141.04	Scale 1:25
Project Name Brecon	Project No. 1522.02	Start Date 2026-04-16	End Date 2026-04-17	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
					140.84	(0.20) 0.20		Grass over TOPSOIL: Reddish brown gravelly clayey silty SAND. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.
						(0.50) 0.50		Reddish brown gravelly clayey silty SAND with occasional cobbles. Gravel is subangular to subrounded fine to coarse sandstone, mudstone and quartzite. Cobbles are subangular to rounded sandstone and mudstone.
					140.34	0.70		Reddish brown sandy cobbly silty GRAVEL. Gravel is subangular to rounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to rounded mudstone and sandstone.
						(1.10) 1.80		
					139.24	1.80		End of Trial Pit at 1.80m

Remarks 1) Trial pit utilised as a soakaway; see separate sheet for details. 2) Groundwater not encountered. 3) Backfilled with arisings upon completion	Method, Plant, Stability, Dimensions 0.00 - 1.80m TP JCB 3CX Unstable along all sides and at 0.9m bgl. L = 3.00m W = 0.60m	Logger MB
---	---	--------------



Trial Pit

SA03
Sheet 1 of 1

Hole Type TP	Easting 303188.00	Northing 228230.00	Ground Level (m) 140.94	Scale 1:25
Project Name Brecon	Project No. 1522.02	Start Date 2026-04-16	End Date 2026-04-17	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
					140.79	(0.15) 0.15		Grass over TOPSOIL: Soft reddish brown gravelly very sandy silty CLAY. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.	0.5

Remarks 1) Trial pit utilised as a soakaway; see separate sheet for details. 2) Groundwater not encountered. 3) Backfilled with arisings upon completion	Method, Plant, Stability, Dimensions 0.00 - 1.50m TP JCB 3CX Unstable along all sides and at 0.6m bgl. L = 3.00m W = 0.60m	Logger MB
---	---	--------------



Remarks	Method, Plant, Stability, Dimensions	Logger
1) Trial pit utilised as a soakaway; see separate sheet for details.	0.00 - 2.00m TP JCB 3CX	MB
2) Groundwater not encountered.	Unstable along western side and at 1.0m bgl.	
3) Backfilled with arisings upon completion	L = 3.00m	

Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample	T - Tub sample	JT - Jar and Tub sample

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

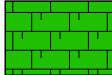
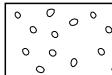
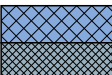
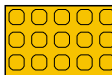
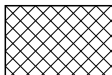
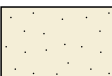
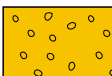
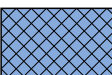
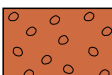
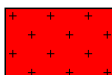
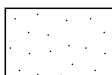
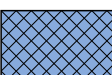
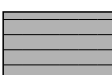
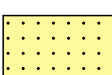
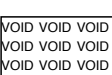
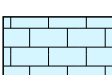
GROUNDWATER

 Groundwater strike	 Groundwater rest level
--	--

ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground [cohesive]	 Sand	 Conglomerate	 Arisings
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		

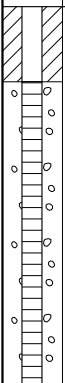
Dynamic (Windowless) Sampler

WS01

Sheet 1 of 1

Hole Type WLS	Easting 303207.00	Northing 228313.00	Ground Level (m) 140.38	Scale 1:50
Project Name Brecon	Project No. 1522.02	Start Date 2026-03-18	End Date 2026-03-18	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
---	---------------------------------	-------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	ES		140.28	(0.10) 0.10		Grass over TOPSOIL: Soft reddish brown sandy CLAY.	
						(0.40)		Reddish brown gravelly clayey silty SAND with occasional cobbles.	
		0.60	D		139.88	0.50		Gravel is subangular to rounded fine to coarse sandstone and quartzite.	0.5
						(0.30)		Cobbles are subangular to subrounded quartzite and sandstone.	
		1.00	SPT	N=31 (7,7/7,6,8,10) N60=37	139.58	0.80		Rootlets to 0.2m (0.20m)	
		1.40	D					Firm reddish brown slightly gravelly sandy silty CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.	1.0
		2.00	SPT	N=28 (6,9/7,7,7,7) N60=33		(1.70)		Medium dense to dense reddish brown sandy silty GRAVEL with occasional cobbles. Gravel is subangular to subrounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to subrounded sandstone and quartzite.	1.5
		2.00-2.50	B						2.0
		2.50	SPT	N=50 for 270mm (7,11/13,14,14,9 for 45mm) N60=59	137.88	2.50		End of Borehole at 2.50m	2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Installation to 2.5m bgl; 0.5m plain pipe, 2.0m slotted pipe.	Method, Plant, Stability, Dimensions 0.00 - 2.50m WLS Tracked rig	Logger MB
--	---	---------------------



Dynamic (Windowless) Sampler

WS02
Sheet 1 of 1

Hole Type WLS	Easting 303195.00	Northing 228236.00	Ground Level (m) 141.00	Scale 1:50
Project Name Brecon	Project No. 1522.02	Start Date 2026-03-18	End Date 2026-03-18	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.01	J		140.82	(0.18) 0.18		MADE GROUND: Asphalt.	
		0.40	ES		140.50	(0.32) 0.50		MADE GROUND: Light grey gravelly sand. Gravel is subangular to subrounded fine to coarse sandstone. Slight hydrocarbon odour.	0.5
		0.80	D			(0.50)		Firm reddish brown slightly gravelly sandy silty CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.	
		1.00	SPT	N=50 for 295mm (7,11/12,12,14,17 for 70mm) N60=65	140.00	1.00		End of Borehole at 1.00m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Borehole backfilled with arising upon completion	Method, Plant, Stability, Dimensions 0.00 - 1.00m WLS Tracked rig	Logger MB
--	--	--------------

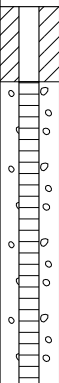
Dynamic (Windowless) Sampler

WS03

Sheet 1 of 1

Hole Type WLS	Easting 303173.00	Northing 228278.00	Ground Level (m) 141.25	Scale 1:50
Project Name Brecon	Project No. 1522.02		Start Date 2026-03-18	End Date 2026-03-18

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
---	---------------------------------	-------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	ES		141.05	(0.20) 0.20		Grass over TOPSOIL: Soft to firm reddish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite.	
						(0.80)		Reddish brown gravelly clayey silty SAND with occasional cobbles. Gravel is subangular to rounded fine to coarse sandstone and quartzite. Cobbles are subangular to subrounded quartzite and sandstone.	0.5
		1.00	SPT	N=19 (2,3/4,4,5,6) N60=22	140.25	1.00		Rootlets to 0.2m (0.20m)	1.0
						(0.60)		No recovery.	1.5
		1.80	D		139.65	1.60		Medium dense to dense reddish brown sandy slightly silty GRAVEL with occasional cobbles. Gravel is subangular to rounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to subrounded mudstone, sandstone and quartzite.	2.0
		2.00	SPT	N=25 (3,4/4,6,7,8) N60=30		(1.00)			2.5
		2.60	SPT	N=50 for 220mm (8,10/14,16,20 for 70mm) N60=59	138.65	2.60		End of Borehole at 2.60m	2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Installation to 2.5m bgl; 0.5m plain pipe, 2.0m slotted pipe.	Method, Plant, Stability, Dimensions 0.00 - 2.60m WLS Tracked rig	Logger MB
--	---	---------------------



Dynamic (Windowless) Sampler

WS04
Sheet 1 of 1

Hole Type WLS	Easting 303183.00	Northing 228255.00	Ground Level (m) 141.04	Scale 1:50
Project Name Brecon	Project No. 1522.02	Start Date 2026-03-18	End Date 2026-03-18	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.90 1.00	D SPT	N=50 for 290mm (7,9/9,13,15,13 for 65mm) N60=59	140.84	(0.20) 0.20		Grass over TOPSOIL: Soft to firm reddish brown slightly gravelly sandy silty CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.	0.5
					140.04	(0.80) 1.00		Rootlets to 0.15m (0.15m) Reddish brown gravelly clayey silty SAND with occasional cobbles. Gravel is subangular to rounded fine to coarse sandstone and quartzite. Cobbles are subangular to subrounded quartzite and sandstone.	1.0
								End of Borehole at 1.00m	1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Borehole backfilled with arising upon completion	Method, Plant, Stability, Dimensions 0.00 - 1.00m WLS Tracked rig	Logger MB
--	--	--------------

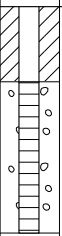
Dynamic (Windowless) Sampler

WS05

Sheet 1 of 1

Hole Type WLS	Easting 303145.00	Northing 228227.00	Ground Level (m) 141.75	Scale 1:50
Project Name Brecon		Project No. 1522.02	Start Date 2026-03-18	End Date 2026-03-18

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
---	---------------------------------	-------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	ES		141.60	(0.15) 0.15		Grass over TOPSOIL: Soft to reddish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite.	
		0.70	D			(0.85)		Reddish brown gravelly clayey silty SAND with occasional cobbles. Gravel is subangular to rounded fine to coarse sandstone and quartzite. Cobbles are subangular to subrounded quartzite and sandstone.	0.5
		1.00	SPT	N=16 (2,3/4,3,4,5) N60=19	140.75	1.00		Rootlets to 0.7m (0.70m)	1.0
		1.20	D			(0.40)		Stiff reddish brown slightly gravelly sandy silty CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.	
		1.30	D		140.35	1.40		Medium dense to dense reddish brown sandy silty GRAVEL with occasional cobbles. Gravel is subangular to subrounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to subrounded sandstone and quartzite.	1.5
		1.50	SPT	N=50 for 290mm (8,11/13,14,13,10 for 65mm) N60=59	140.25	(0.10) 1.50		End of Borehole at 1.50m	2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Installation to 1.5m bgl; 0.5m plain pipe, 1.5m slotted pipe.	Method, Plant, Stability, Dimensions 0.00 - 1.50m WLS Tracked rig	Logger MB
--	---	---------------------

Cable Percussion Log

BH01

Sheet 1 of 1

Hole Type CP	Easting 303243.00	Northing 228272.00	Ground Level (m) 140.20	Scale 1:50
Project Name Brecon	Project No. 1522.02	Start Date 2026-03-18	End Date 2026-03-18	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.01	J		140.09	(0.11)		MADE GROUND: Asphalt.	
		0.30	ES			0.11			
		0.50-1.20	B		139.70	0.50		MADE GROUND: Greyish brown sandy gravel. Gravel is subangular to subrounded fine to coarse sandstone. Slight hydrocarbon odour.	0.5
								Medium dense to dense reddish brown sandy silty GRAVEL with occasional cobbles. Gravel is subangular to subrounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to subrounded sandstone and quartzite.	1.0
		1.20	SPT(C)	N=20 (3,7/5,5,5,5) N60=24		(1.30)			1.5
		1.65-1.80	B						
		1.80-2.00	D		138.40	1.80		Medium dense to dense reddish brown sandy silty clay GRAVEL. Gravel is subangular to rounded fine to coarse sandstone, mudstone and quartzite.	2.0
		2.00	SPT(C)	N=50 for 260mm (6,12/14,15,15,6 for 35mm) N60=61					2.5
		3.00	SPT(C)	N=35 (3,3/9,9,7,10) N60=43					3.0
		3.45-4.00	D						3.5
		4.00	SPT(C)	N=21 (3,3/5,3,5,8) N60=26					4.0
		4.45-5.00	D			(5.20)			4.5
		5.00	SPT(C)	N=20 (5,4/4,4,6,6) N60=24					5.0
		5.45-6.00	D						5.5
		6.00	SPT(C)	N=34 (7,9/10,8,8,8) N60=41					6.0
									6.5
		7.00	SPT(C)	N=50 for 245mm (8,14/15,14,16,5 for 20mm) N60=61	133.20	7.00		Very stiff reddish brown sandy CLAY with mudstone lithorelics.	7.0
		7.00-7.45	B						
		7.45	SPT(C)	N=50 for 55mm (25 for 70mm/50 for 55mm) N60=61	132.75	7.45		End of Borehole at 7.45m	7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks	Method, Plant, Stability, Dimensions	Logger
1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Borehole backfilled with arising upon completion.	0.00 - 7.45m CP Dando 2000	MB

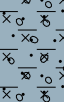
Cable Percussion Log

BH02A

Sheet 1 of 1

Hole Type CP	Easting 303188.00	Northing 228295.00	Ground Level (m) 140.59	Scale 1:50
Project Name Brecon	Project No. 1522.02	Start Date 2026-03-19	End Date 2026-03-19	

Client Lidl Great Britain Ltd	Consultant Remada Ltd	Contractor
----------------------------------	--------------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30-1.20	B		140.29	(0.30) 0.30		Grass over TOPSOIL: Soft reddish brown slightly gravelly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.	0.5
		1.20-1.60	D		139.39	(0.90) 1.20 (0.20)		Soft to firm reddish brown sandy gravelly silty CLAY with occasional cobbles. Gravel is subangular to rounded fine to coarse sandstone, mudstone and quartzite. Cobbles are subangular to rounded sandstone and quartzite.	1.0
		2.00 2.10-3.00	D B		139.19	1.20 (0.20) 1.40		Medium dense to dense reddish brown sandy silty GRAVEL with occasional cobbles. Gravel is subangular to subrounded fine to coarse mudstone, sandstone and quartzite. Cobbles are subangular to subrounded sandstone and quartzite.	1.5
								Medium dense to dense reddish brown sandy cobbly GRAVEL. Gravel is subangular to rounded fine to coarse sandstone and quartzite. Cobbles are subangular to subrounded sandstone and quartzite.	2.0
		3.00	SPT(C)	N=32 (4,5/7,7,9,9) N60=39					2.5
		3.45-4.00	D						3.0
									3.5
									4.0
									4.5
		5.00	SPT(C)	N=15 (1,1/3,4,3,5) N60=18					5.0
		5.45-6.00	D						5.5
		6.00	SPT(C)	N=32 (6,10/8,8,8,8) N60=39					6.0
		6.45-7.00	D		134.14	6.45		Very stiff reddish brown sandy CLAY with mudstone lithorelics.	6.5
		7.00	SPT(C)	N=50 for 265mm (4,8/12,12,13,13 for 40mm) N60=61		(1.00)			7.0
		7.00-7.45 7.45	D SPT(C)	N=50 for 70mm (25 for 55mm/50 for 70mm) N60=61	133.14	7.45		End of Borehole at 7.45m	7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1) Borehole CAT scanned prior to drilling. 2) No groundwater encountered during drilling. 3) Terminated due to SPT refusal (N > 50). 4) Borehole backfilled with arising upon completion.	Method, Plant, Stability, Dimensions 0.00 - 7.45m CP Dando 2000	Logger MB
--	---	---------------------



APPENDIX A

SPT Hammer Energy Test Certificate

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: PB
Test Date: 11/07/2025
Report Date: 11/07/2025
File Name: PB.spt
Test Operator: MT



Instrumented Rod Data

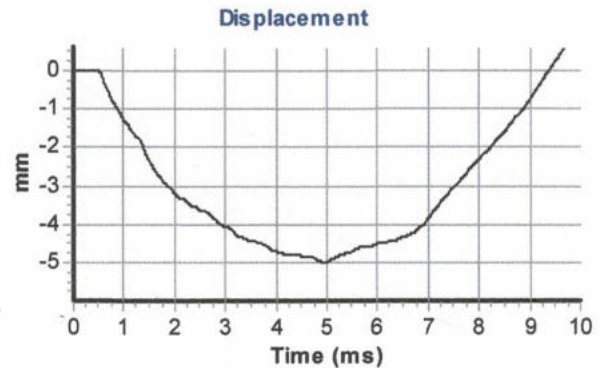
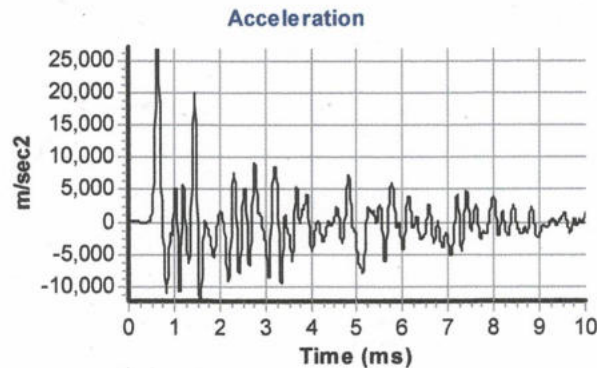
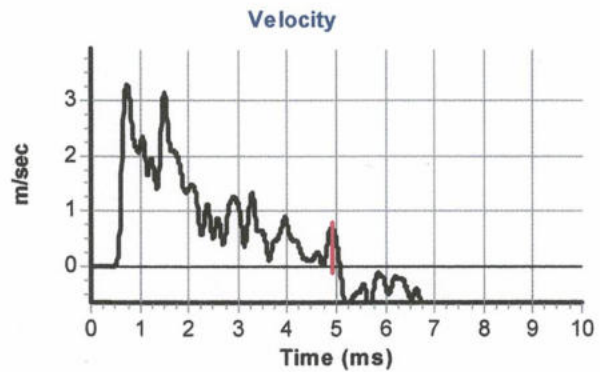
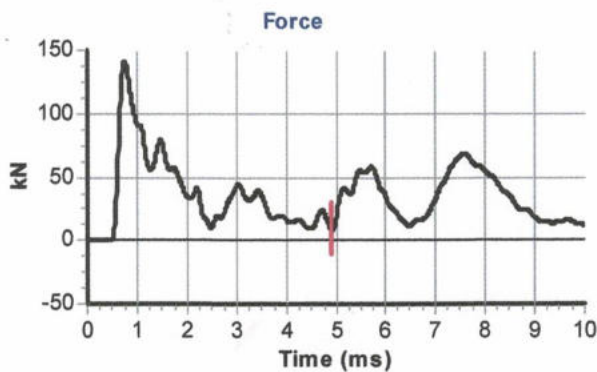
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Rod Length l_r (m): 1.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

REGIONAL DRILLING LIMITED - 95085



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 345

Energy Ratio E_r (%): **73**


Signed: M.TONER
Title: FITTER

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: 110.41
Test Date: 01/12/2025
Report Date: 01/12/2025
File Name: 110.41.spt
Test Operator: TW



Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Rod Length l_r (m): 1.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 7080
Accelerometer No.2: 11609

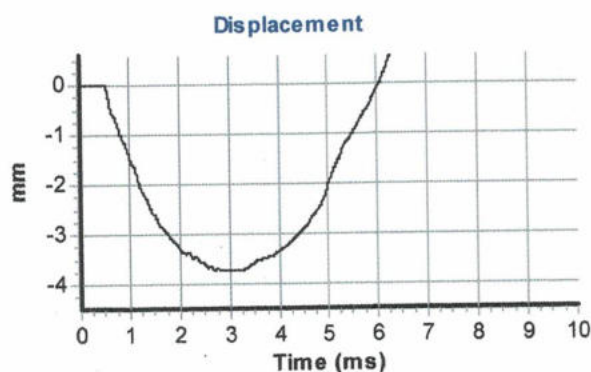
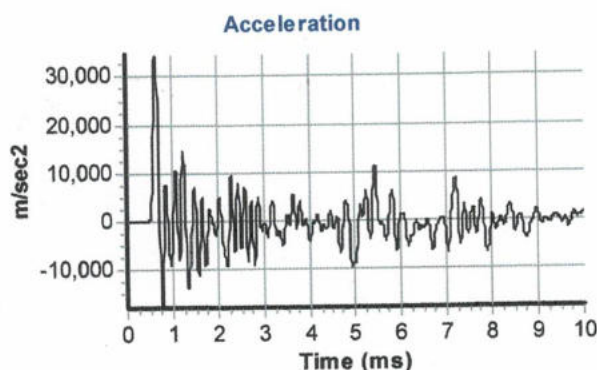
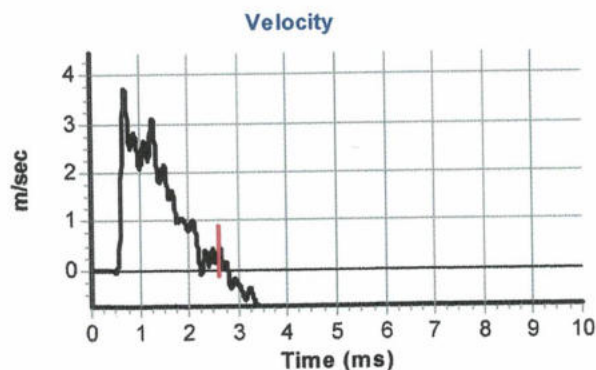
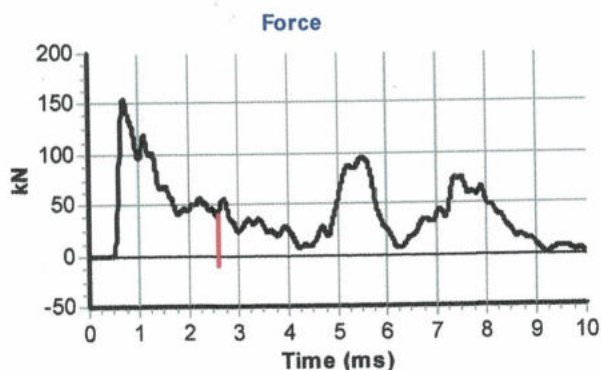
SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

REGIONAL DRILLING LIMITED

97243



Calculations

Area of Rod A (mm^2): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 338

Energy Ratio E_r (%):

71

Signed: T.WILKINSON

Title: FITTER



APPENDIX B

Soakaway Test Results

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-1.6m Gravelly very clayey SAND with occasional cobbles,
1.6-2.1m Sandy cobbly silty GRAVEL.

Trial Pit No.	SA01
Test No.	1
Coordinates:	303163, 228241

Weather Conditions: Dry & sunny

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:18	0	0.550	550
11:19	1	0.730	730
11:20	2	0.840	840
11:21	3	0.920	920
11:22	4	1.000	1000
11:23	5	1.010	1010
11:25	7	1.180	1180
11:27	9	1.300	1300
11:29	11	1.350	1350
11:31	13	1.420	1420
11:33	15	1.490	1490
11:35	17	1.550	1550
11:37	19	1.600	1600
11:39	21	1.630	1630
11:41	23	1.680	1680
11:43	25	1.720	1720
11:45	27	1.750	1750
11:47	29	1.780	1780
11:49	31	1.810	1810

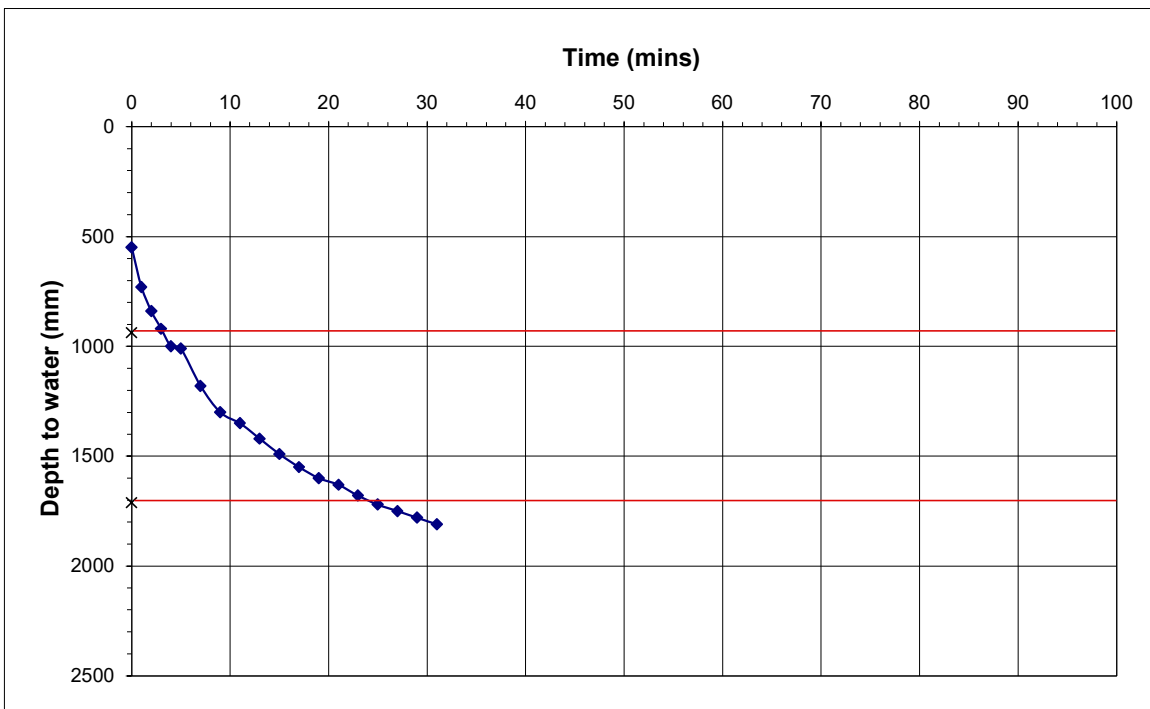
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	2.10	2100

Effective depth (full)		m	mm
25%	=	1.71	1712.5
50%	=	1.33	1325.0
75%	=	0.94	937.5

Depth at start of test (mm)	=	550
Depth at end of test (mm)	=	1810

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	7.380
V_{p75-25} - Volume 75 - 25%	=	1.395

t_{p75} (min) = (Read from graph)	3.5
t_{p25} (min) = (Read from graph)	24.5
t_p values extrapolated from graph data =	21
t_p value (seconds) =	1260



Soil infiltration rate, f , (m/s) = 1.50E-04

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-1.6m Gravelly very clayey SAND with occasional
cobbles, 1.6-2.1m Sandy cobbly silty GRAVEL.

Trial Pit No.	SA01
Test No.	2
Coordinates:	303163, 228241

Weather Conditions: Dry & sunny

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
15:28	0	0.500	500
15:29	1	0.61	610
15:30	2	0.65	650
15:31	3	0.71	710
15:32	4	0.78	780
15:33	5	0.84	840
15:38	10	1.02	1020
15:43	15	1.22	1220
15:48	20	1.39	1390
15:58	30	1.47	1470
16:03	35	1.64	1640
16:08	40	1.7	1700
16:13	45	1.78	1780
16:18	50	1.82	1820

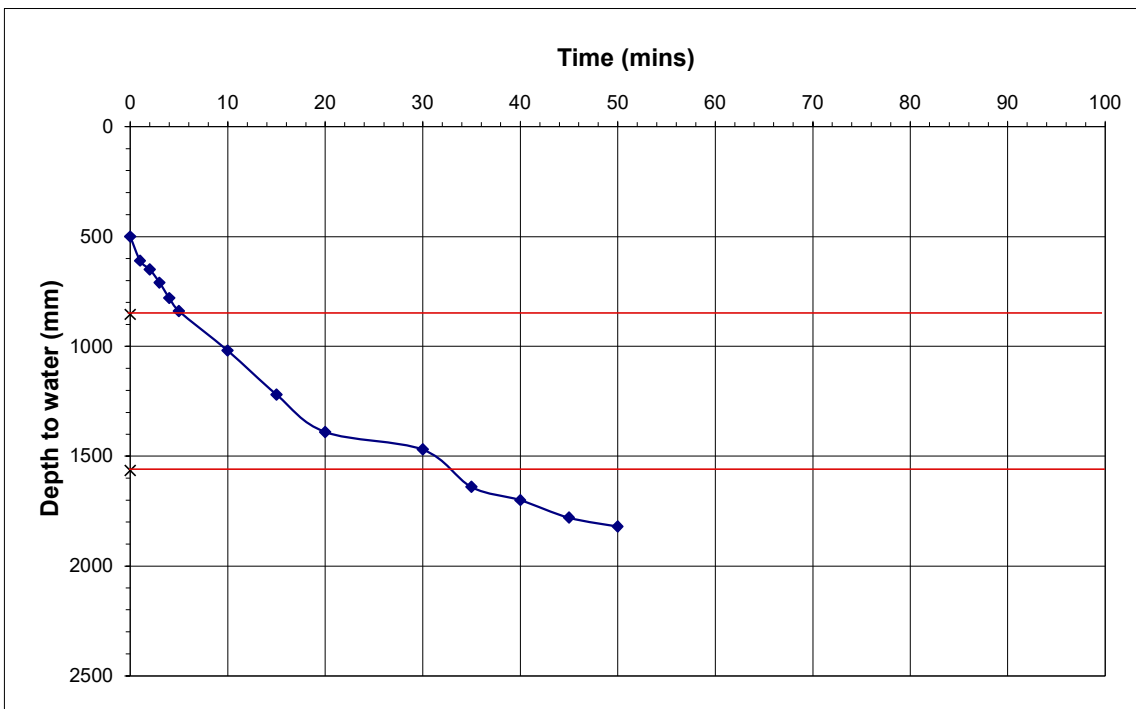
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	1.92	1920

Effective depth (full)		m	mm
25%	=	1.57	1565.0
50%	=	1.21	1210.0
75%	=	0.86	855.0

Depth at start of test (mm)	=	500
Depth at end of test (mm)	=	1820

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	6.912
V_{p75-25} - Volume 75 - 25%	=	1.278

t_{p75} (min) = (Read from graph)	5.5
t_{p25} (min) = (Read from graph)	32
t_p values extrapolated from graph data	26.5
t_p value (seconds) =	1590



Soil infiltration rate, f , (m/s) = 1.16E-04

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 17.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-1.6m Gravelly very clayey SAND with occasional cobbles,
1.6-2.1m Sandy cobbly silty GRAVEL.

Trial Pit No.	SA01
Test No.	3
Coordinates:	303163, 228241

Weather Conditions: Damp & intermittent rain

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:44	0	0.520	520
09:45	1	0.590	590
09:46	2	0.620	620
09:47	3	0.660	660
09:48	4	0.700	700
09:49	5	0.750	750
09:51	7	0.810	810
09:53	9	0.890	890
09:55	11	0.930	930
09:57	13	1.000	1000
09:59	15	1.040	1040
10:04	20	1.160	1160
10:09	25	1.260	1260
10:14	30	1.340	1340
10:24	40	1.480	1480
10:34	50	1.600	1600
10:39	55	1.640	1640
10:54	70	1.690	1690
11:04	80	1.820	1820
11:14	90	1.940	1940

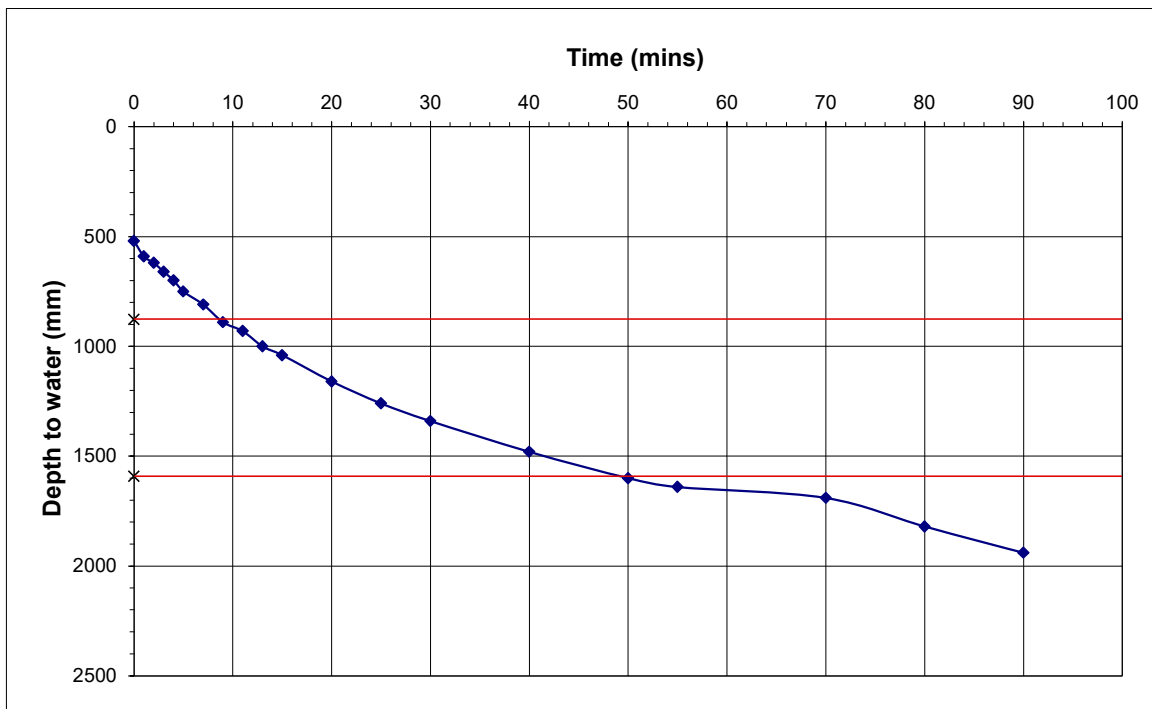
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	1.95	1950

Effective depth (full)		m	mm
25%	=	1.59	1592.5
50%	=	1.24	1235.0
75%	=	0.88	877.5

Depth at start of test (mm)	=	520
Depth at end of test (mm)	=	1940

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	6.948
V_{p75-25} - Volume 75 - 25%	=	1.287

t_{p75} (min) = (Read from graph)	8.5
t_{p25} (min) = (Read from graph)	49
t_p values extrapolated from graph data =	40.5
t_p value (seconds) =	2430



Soil infiltration rate, f , (m/s) = 7.62E-05

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.2m TS: Gravelly clayey silty SAND,
0.2-0.7m Gravelly clayey silty SAND with occasional
cobbles, 0.7-1.8m Sandy cobbly silty GRAVEL.

Weather Conditions: Dry & sunny

Trial Pit No.	SA02
Test No.	1
Coordinates:	303177, 228271

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:01	0	1.350	1350
10:02	1	1.400	1400
10:03	2	1.430	1430
10:04	3	1.500	1500
10:05	4	1.530	1530
10:06	5	1.580	1580
10:07	6	1.620	1620
10:08	7	1.640	1640
10:09	8	1.660	1660
10:10	9	1.680	1680
10:11	10	1.710	1710
10:12	11	1.750	1750
10:13	12	1.760	1760
10:14	13	1.790	1790
10:15	14	1.790	1790
10:16	15	1.790	1790
10:17	16	1.790	1790
10:18	17	1.800	1800

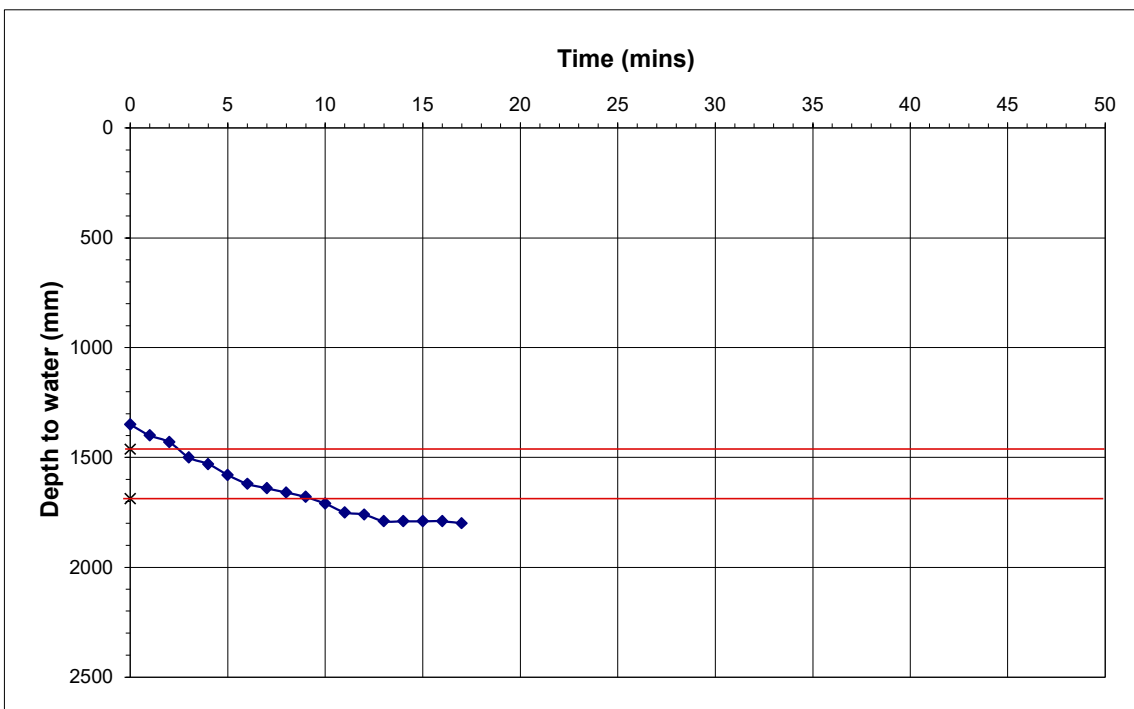
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	1.80	1800

Effective depth (full)		m	mm
25%	=	1.69	1687.5
50%	=	1.58	1575.0
75%	=	1.46	1462.5

Depth at start of test (mm)	=	1350
Depth at end of test (mm)	=	1800

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	3.420
V_{p75-25} - Volume 75 - 25%	=	0.405

t_{p75} (min) = (Read from graph)	2.5
t_{p25} (min) = (Read from graph)	9.5
t_p values extrapolated from graph data	7
t_p value (seconds) =	420



Soil infiltration rate, f , (m/s) = 2.82E-04

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.2m TS: Gravelly clayey silty SAND,
0.2-0.7m Gravelly clayey silty SAND with occasional cobbles,
0.7-1.8m Sandy cobbly silty GRAVEL.

Trial Pit No.: SA02
Test No.: 2
Coordinates: 303177, 228271

Weather Conditions: Dry & sunny

Time	Elapsed Time (min)	Depth to water from ground level (m)	(mm)
11:54	0	0.810	810
11:55	1	0.900	900
11:56	2	0.950	950
11:57	3	1.020	1020
11:58	4	1.080	1080
11:59	5	1.130	1130
12:00	6	1.160	1160
12:01	7	1.220	1220
12:02	8	1.240	1240
12:03	9	1.280	1280
12:04	10	1.310	1310
12:05	11	1.330	1330
12:06	12	1.370	1370
12:08	14	1.400	1400
12:10	16	1.420	1420
12:11	17	1.450	1450
12:12	18	1.480	1480
12:13	19	1.490	1490
12:14	20	1.500	1500
12:16	22	1.520	1520
12:17	23	1.540	1540
12:18	24	1.560	1560
12:21	27	1.600	1600
12:24	30	1.640	1640
12:26	32	1.670	1670

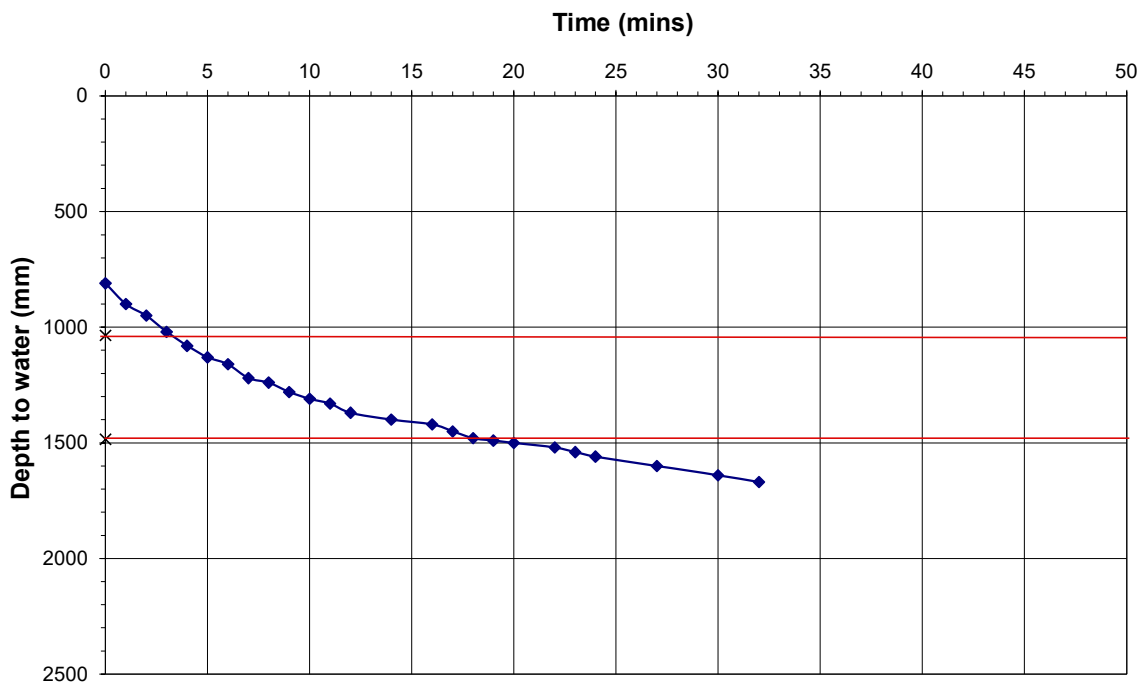
Soakaway Dimensions	(m)	(mm)
Length =	3.00	3000
Width =	0.60	600
Depth =	1.71	1710

Effective depth (full)	m	mm
25% =	1.49	1485.0
50% =	1.26	1260.0
75% =	1.04	1035.0

Depth at start of test (mm)	=	810
Depth at end of test (mm)	=	1670

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	5.040
V_{p75-25} - Volume 75 - 25%	=	0.810

t_{p75} (min) = (Read from graph)	3
t_{p25} (min) = (Read from graph)	19
t_p values extrapolated from graph data	16
t_p value (seconds) =	960



Soil infiltration rate, f , (m/s) =

1.67E-04

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 17.04.26

Soil Description: 0-0.2m TS: Gravelly clayey silty SAND,
0.2-0.7m Gravelly clayey silty SAND with occasional
cobbles, 0.7-1.8m Sandy cobbly silty GRAVEL.

Weather Conditions: Damp & intermittent rain

Trial Pit No.	SA02
Test No.	3
Coordinates:	303177, 228271

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
08:39	0	0.41	410
08:40	1	0.52	520
08:41	2	0.56	560
08:42	3	0.62	620
08:43	4	0.7	700
08:44	5	0.72	720
08:46	7	0.87	870
08:48	9	0.96	960
08:50	11	1.05	1050
08:53	14	1.15	1150
08:55	16	1.21	1210
08:57	18	1.25	1250
08:59	20	1.29	1290
09:01	22	1.32	1320
09:04	25	1.37	1370
09:09	30	1.44	1440
09:14	35	1.5	1500
09:19	40	1.55	1550
09:22	43	1.58	1580
09:24	45	1.63	1630

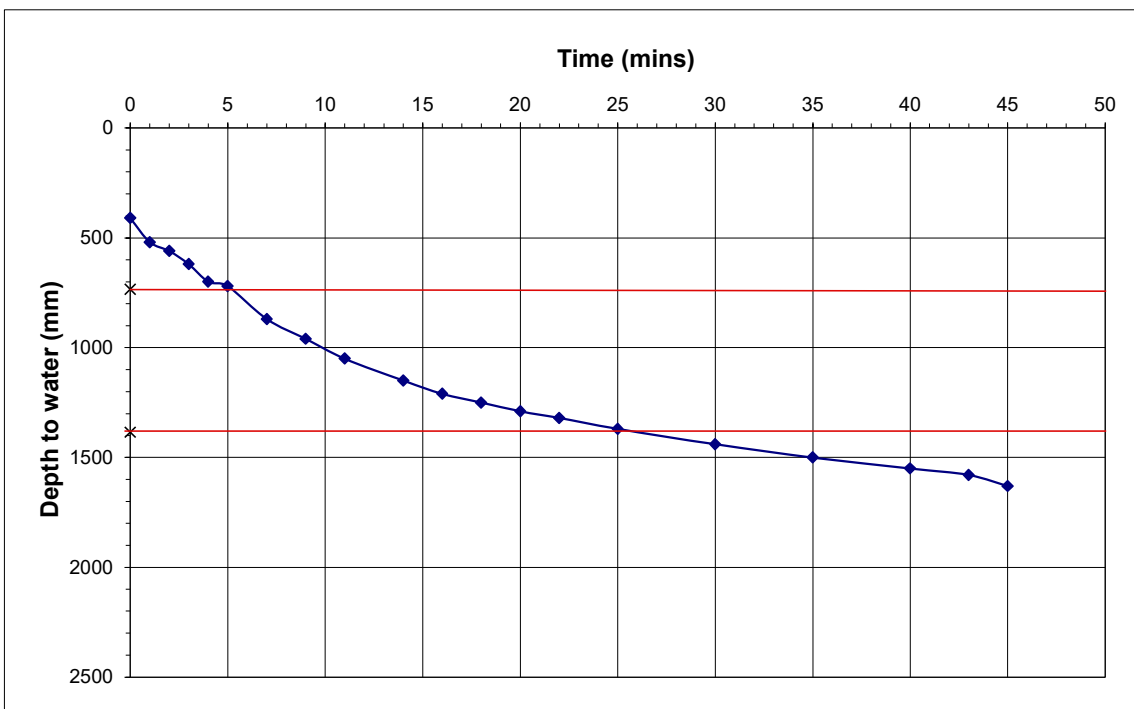
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	1.71	1710

Effective depth (full)		m	mm
25%	=	1.39	1385.0
50%	=	1.06	1060.0
75%	=	0.74	735.0

Depth at start of test (mm)	=	410
Depth at end of test (mm)	=	1630

Base area of pit	=	1.800
a _{p50} - 50% internal surface area inc. base	=	6.480
V _{p75-25} - Volume 75 - 25%	=	1.170

t _{p 75} (min) = (Read from graph)	5.5
t _{p 25} (min) = (Read from graph)	25.5
t _p values extrapolated from graph data	20
t _p value (seconds) =	1200



Soil infiltration rate, f, (m/s) = 1.50E-04

Notes:

Logged By

MB

Checked by

PGS

PGS

PGS

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-0.9m Gravelly clayey silty SAND with occasional
cobbles, 0.9-2.0m Sandy cobbly silty GRAVEL.

Weather Conditions: Dry & sunny

Trial Pit No.: SA04
Test No.: 1
Coordinates: 303165, 228216

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:41	0	1.100	1100
10:42	1	1.200	1200
10:43	2	1.250	1250
10:44	3	1.310	1310
10:45	4	1.350	1350
10:46	5	1.400	1400
10:47	6	1.440	1440
10:48	7	1.490	1490
10:49	8	1.500	1500
10:50	9	1.510	1510
10:51	10	1.540	1540
10:52	11	1.560	1560
10:53	12	1.600	1600
10:54	13	1.620	1620
10:55	14	1.660	1660
10:56	15	1.670	1670
10:58	17	1.690	1690
11:00	19	1.730	1730
11:01	20	1.750	1750
11:06	25	1.810	1810
11:12	31	1.960	1960

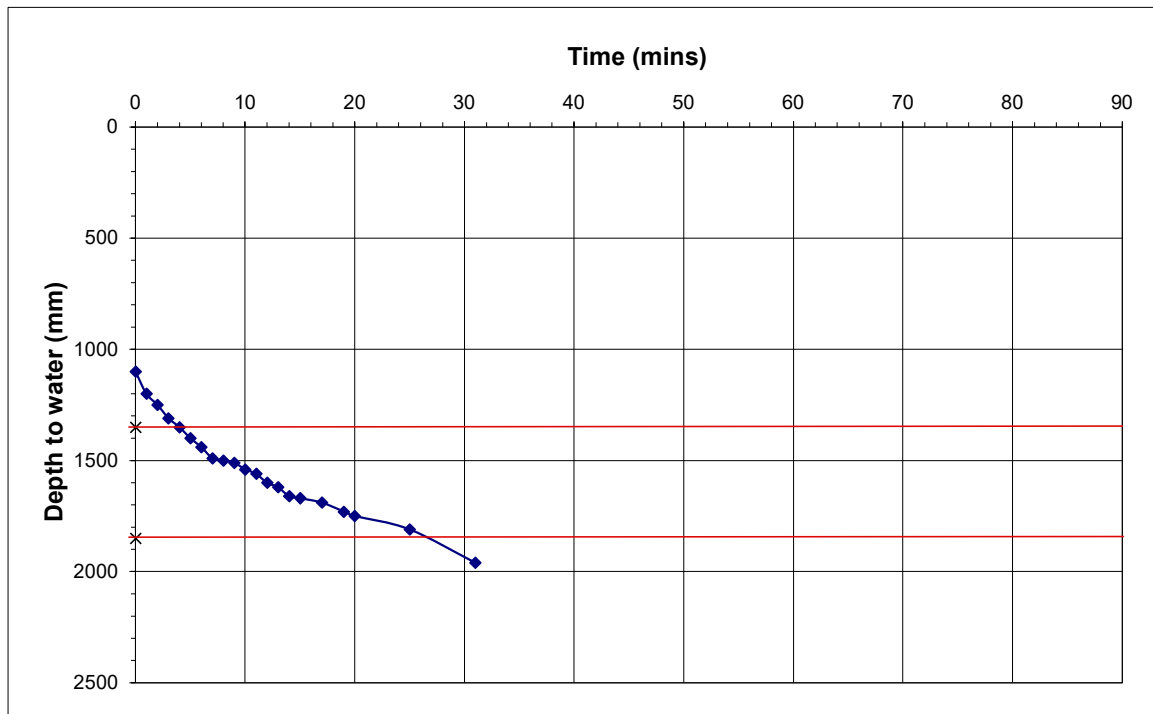
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	2.10	2100

Effective depth (full)		m	mm
25%	=	1.85	1850.0
50%	=	1.60	1600.0
75%	=	1.35	1350.0

Depth at start of test (mm)	=	1100
Depth at end of test (mm)	=	1960

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	5.400
V_{p75-25} - Volume 75 - 25%	=	0.900

t_{p75} (min) = (Read from graph)	4
t_{p25} (min) = (Read from graph)	27
t_p values extrapolated from graph data	23
t_p value (seconds) =	1380



Soil infiltration rate, f , (m/s) = 1.21E-04 **(normal test)**
Soil infiltration rate, f , (m/s) = **(pit filled with stone)**

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 16.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-0.9m Gravelly clayey silty SAND with occasional
cobbles, 0.9-2.0m Sandy cobbly silty GRAVEL.

Weather Conditions: Dry & sunny

Trial Pit No.: SA04
Test No.: 2
Coordinates: 303165, 228216

Time	Elapsed Time (min)	Depth to water from ground level (m)	(mm)
14:49	0	0.800	800
14:50	1	0.840	840
14:51	2	0.890	890
14:52	3	0.930	930
14:53	4	0.990	990
14:54	5	1.050	1050
14:55	6	1.100	1100
14:57	8	1.200	1200
14:59	10	1.250	1250
15:01	12	1.330	1330
15:03	14	1.400	1400
15:05	16	1.450	1450
15:09	20	1.510	1510
15:14	25	1.570	1570
15:19	30	1.650	1650
15:24	35	1.710	1710
15:34	45	1.880	1880
15:39	50	1.890	1890

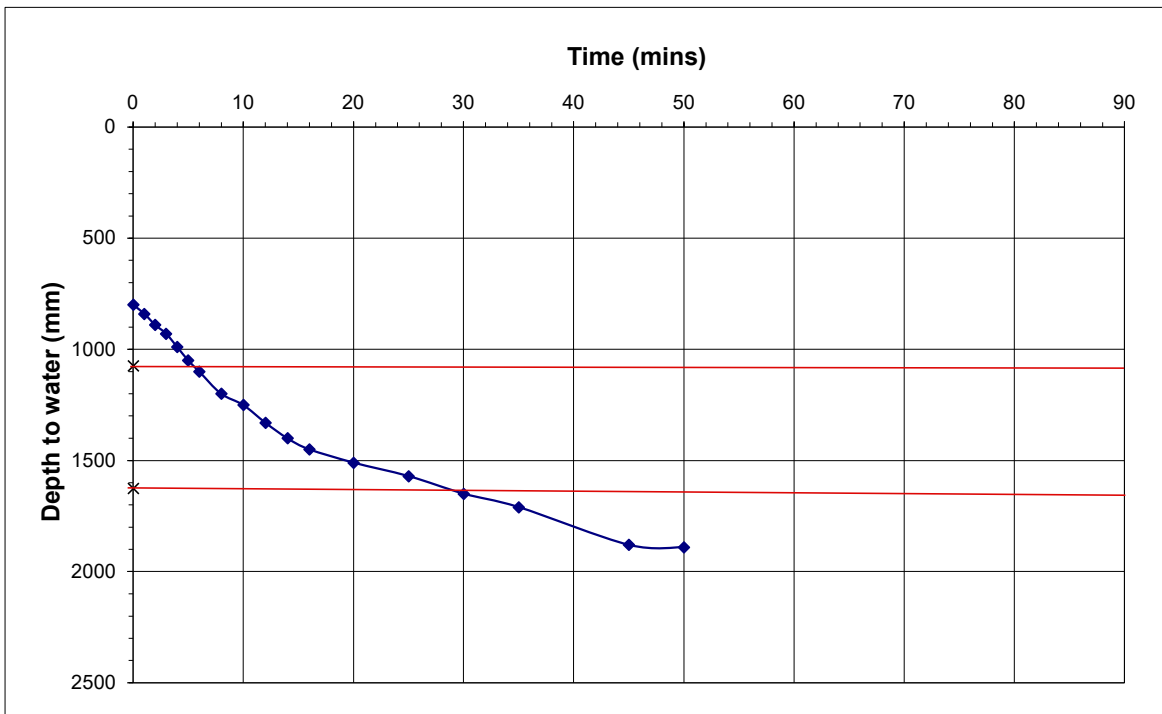
Soakaway Dimensions	(m)	(mm)
Length	= 3.00	3000
Width	= 0.60	600
Depth	= 1.90	1900

Effective depth (full)	m	mm
25%	= 1.63	1625.0
50%	= 1.35	1350.0
75%	= 1.08	1075.0

Depth at start of test (mm)	= 800
Depth at end of test (mm)	= 1890

Base area of pit	= 1.800
a_{p50} - 50% internal surface area inc. base	= 5.760
V_{p75-25} - Volume 75 - 25%	= 0.990

t_{p75} (min) = (Read from graph)	7
t_{p25} (min) = (Read from graph)	27
t_p values extrapolated from graph data	20
t_p value (seconds) =	1200



Soil infiltration rate, f , (m/s) = 1.43E-04 **(normal test)**
Soil infiltration rate, f , (m/s) = **(pit filled with stone)**

Notes:

Logged By

MB

Checked by

PGS

Soakaway Test Report

Client: Lidl Great Britain Ltd
Job Name: Brecon
Job No.: 1522.02

Test Date: 17.04.26

Soil Description: 0-0.15m TS: Sandy gravelly silty CLAY,
0.15-0.9m Gravelly clayey silty SAND with occasional
cobbles, 0.9-2.0m Sandy cobbly silty GRAVEL.

Weather Conditions: Damp & intermittent rain

Trial Pit No.: SA04
Test No.: 3
Coordinates: 303165, 228216

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:47	0	0.660	660
10:48	1	0.700	700
10:49	2	0.770	770
10:50	3	0.820	820
10:51	4	0.870	870
10:52	5	0.910	910
10:57	10	1.040	1040
11:02	15	1.150	1150
11:07	20	1.230	1230
11:12	25	1.320	1320
11:17	30	1.390	1390
11:22	35	1.450	1450
11:27	40	1.500	1500
11:32	45	1.550	1550
11:37	50	1.590	1590
11:47	60	1.650	1650
11:57	70	1.720	1720
12:07	80	1.890	1890

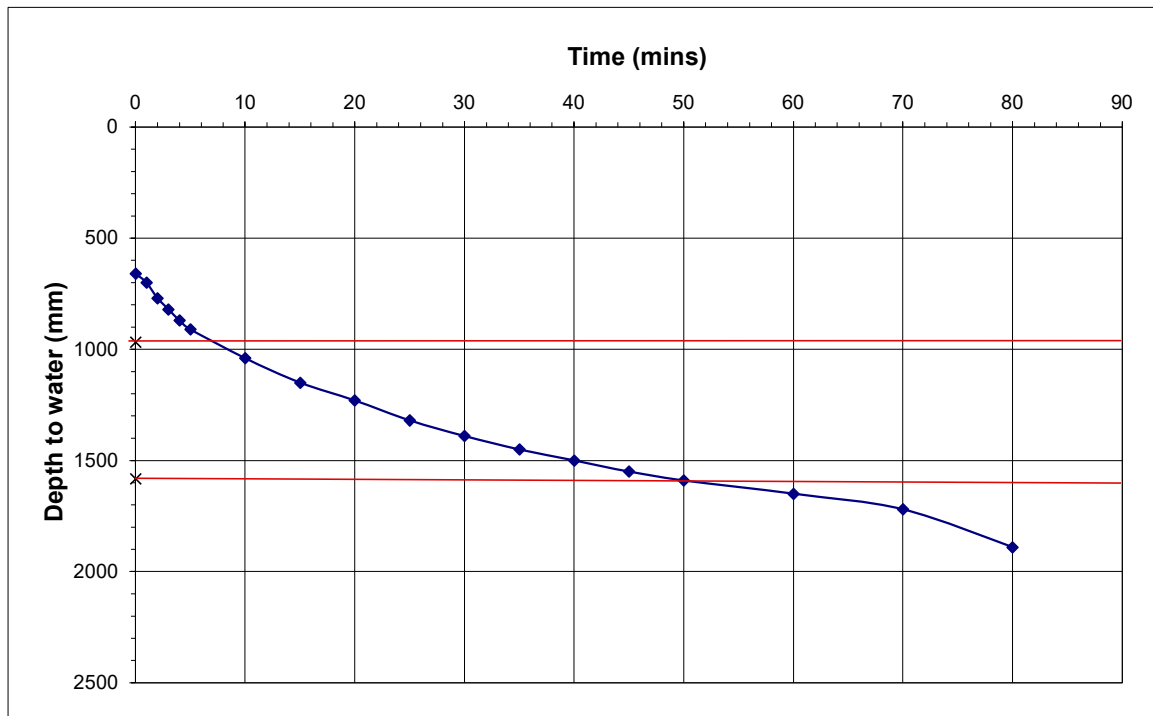
Soakaway Dimensions		(m)	(mm)
Length	=	3.00	3000
Width	=	0.60	600
Depth	=	1.89	1890

Effective depth (full)		m	mm
25%	=	1.58	1582.5
50%	=	1.28	1275.0
75%	=	0.97	967.5

Depth at start of test (mm)	=	660
Depth at end of test (mm)	=	1890

Base area of pit	=	1.800
a_{p50} - 50% internal surface area inc. base	=	6.228
V_{p75-25} - Volume 75 - 25%	=	1.107

t_{p75} (min) = (Read from graph)	7
t_{p25} (min) = (Read from graph)	50
t_p values extrapolated from graph data	43
t_p value (seconds) =	2580



Soil infiltration rate, f , (m/s) = 6.89E-05 **(normal test)**
Soil infiltration rate, f , (m/s) = ~~(pit filled with stone)~~

Notes:

Logged By

MB

Checked by

PGS



APPENDIX C

Plate Bearing Test Results

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and CD225 (Incremental Loading)

Client :	Lidl Great Britian Ltd
Job Name:	Brecon
Job Number	1522.02
Site	Land on corner of A470/A40

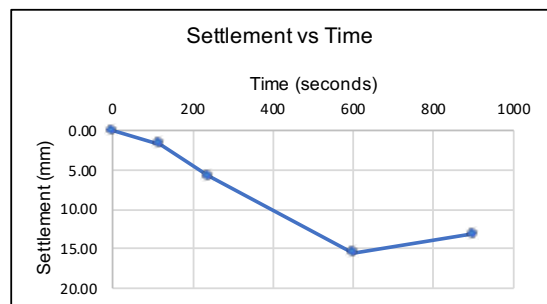
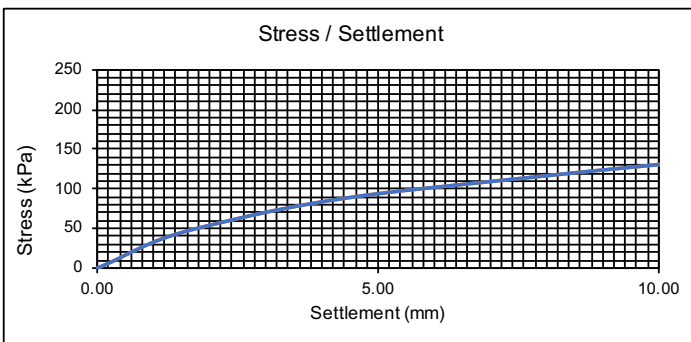
Test Date:	16.04.26
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	-

Test Location	PBT01
Test Strata	Subsoil
Ground Condition	Damp
Material	SAND
Weather	Overcast / dry

Equivalent CBR Value (%)	1.3
Maximum Applied Stress (kPa)	150
Maximum Settlement (mm)	15.55
Bearing Pressure at 1.25mm Settlement (kPa)	33.9
K762 (at 1.25mm settlement) kN/m2/m	16.92

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
120	50	1.77
240	100	5.75
600	150	15.55
900	0	13.19

Remarks:
All test locations selected by Remada Ltd.



Deformation Modulus (EV) Calculation

Plate Diameter (mm)	Maximum σ [kN/m ²]	0.3 σ [kN/m ²]	0.7 σ [kN/m ²]	s1 (mm)	s2 (mm)	Ev [MN/m ²]
450	150	45	105	N/A	N/A	N/A

$$E_v = 1.5 \cdot r \cdot \frac{\Delta \sigma}{\Delta s} \quad (4)$$

where r is the radius of the loading plate (mm), Δs is the difference in the settlement amount between the points with 30% and 70% of the maximum stress, and $\Delta \sigma$ is the difference in the stress.

Technician	Lewis Hillman	Date:	16.04.26
Approved By:	P Searing	Date:	01.05.26

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and CD225 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Brecon
Job Number	1522.02
Site	Land on corner of A470/A40

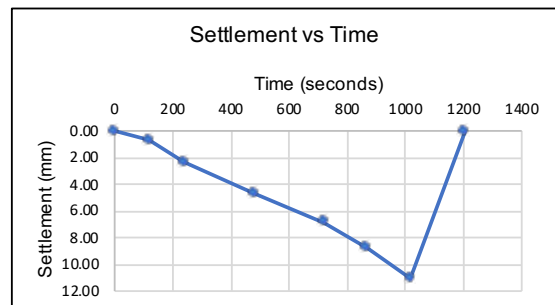
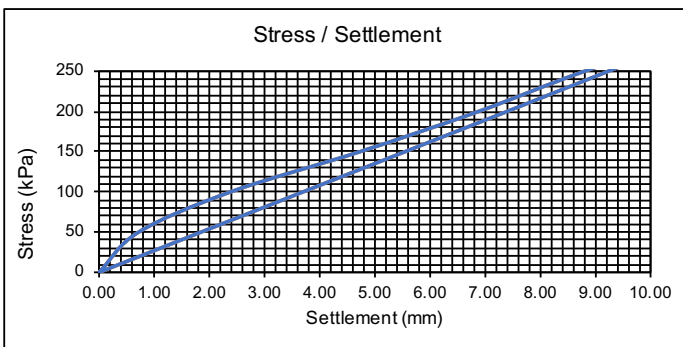
Test Date:	16.04.26
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	-

Test Location	PBT02
Test Strata	Subsoil
Ground Condition	Damp
Material	SAND
Weather	Overcast / dry

Equivalent CBR Value (%)	3.0
Maximum Applied Stress (kPa)	300
Maximum Settlement (mm)	17.78
Bearing Pressure at 1.25mm Settlement (kPa)	55.3
K762 (at 1.25mm settlement) kN/m2/m	27.59

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
120	50	0.72
240	100	2.38
480	150	4.73
720	200	6.88
870	250	8.80
1020	300	11.05
1206	0	0.00

Remarks:
All test locations selected by Remada Ltd.



Deformation Modulus (EV) Calculation

Plate Diameter (mm)	Maximum σ [kN/m ²]	0.3 σ [kN/m ²]	0.7 σ [kN/m ²]	s1 (mm)	s2 (mm)	Ev [MN/m ²]
450	300	90	210	N/A	N/A	N/A

$$E_v = 1.5 \cdot r \cdot \frac{\Delta \sigma}{\Delta s} \quad (4)$$

where r is the radius of the loading plate (mm), Δs is the difference in the settlement amount between the points with 30% and 70% of the maximum stress, and $\Delta \sigma$ is the difference in the stress.

Technician	Lewis Hillman	Date:	16.04.26
Approved By:	P Searing	Date:	01.05.26

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and CD225 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Brecon
Job Number	1522.02
Site	Land on corner of A470/A40

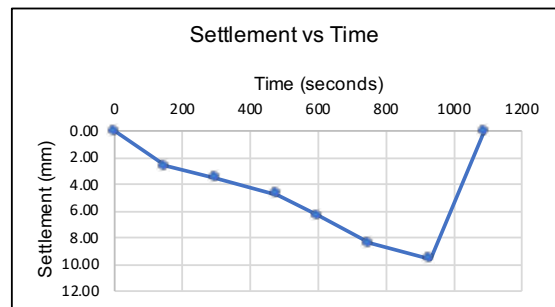
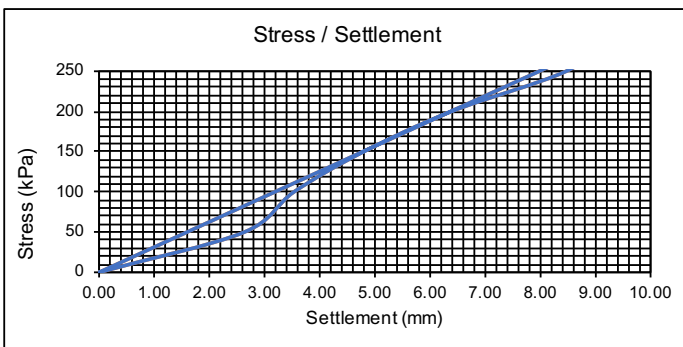
Test Date:	16.04.26
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	-

Test Location	PBT03
Test Strata	Subsoil
Ground Condition	Damp
Material	SAND
Weather	Overcast / dry

Equivalent CBR Value (%)	1.0
Maximum Applied Stress (kPa)	300
Maximum Settlement (mm)	21.43
Bearing Pressure at 1.25mm Settlement (kPa)	28.5
K762 (at 1.25mm settlement) kN/m²/m	14.19

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
150	50	2.63
300	100	3.53
480	150	4.80
600	200	6.39
750	250	8.47
930	300	9.61
1090	0	0.00

Remarks:
All test locations selected by Remada Ltd.



Deformation Modulus (EV) Calculation

Plate Diameter (mm)	Maximum σ [kN/m ²]	0.3 σ [kN/m ²]	0.7 σ [kN/m ²]	s1 (mm)	s2 (mm)	Ev [MN/m ²]
450	300	90	210	N/A	N/A	N/A

$$E_v = 1.5 \cdot r \cdot \frac{\Delta \sigma}{\Delta s} \quad (4)$$

where r is the radius of the loading plate (mm), Δs is the difference in the settlement amount between the points with 30% and 70% of the maximum stress, and $\Delta \sigma$ is the difference in the stress.

Technician	Lewis Hillman	Date:	16.04.26
Approved By:	P Searing	Date:	01.05.26

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and CD225 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Brecon
Job Number	1522.02
Site	Land on corner of A470/A40

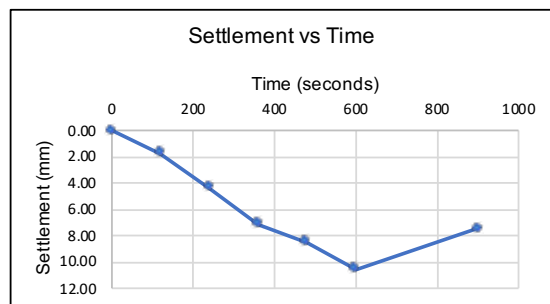
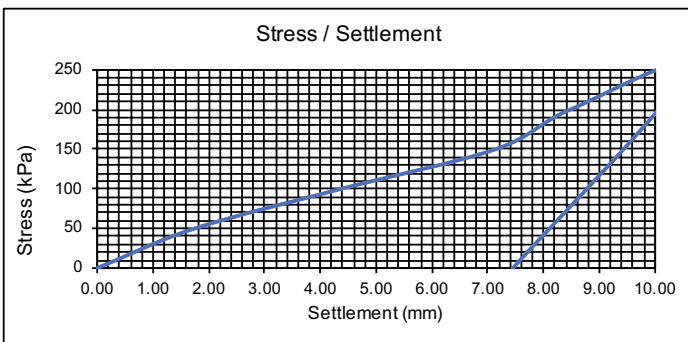
Test Date:	16.04.26
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	-

Test Location	PBT04
Test Strata	Subsoil
Ground Condition	Damp
Material	SAND
Weather	Overcast / dry

Equivalent CBR Value (%)	0.6
Maximum Applied Stress (kPa)	250
Maximum Settlement (mm)	22.37
Bearing Pressure at 1.25mm Settlement (kPa)	21.4
K762 (at 1.25mm settlement) kN/m2/m	10.65

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
120	50	1.75
240	100	4.37
360	150	7.14
480	200	8.48
600	250	10.58
900	0	7.45

Remarks:
All test locations selected by Remada Ltd.



Deformation Modulus (EV) Calculation

Plate Diameter (mm)	Maximum σ [kN/m ²]	0.3 σ [kN/m ²]	0.7 σ [kN/m ²]	s1 (mm)	s2 (mm)	Ev [MN/m ²]
450	250	75	175	N/A	N/A	N/A

$$E_v = 1.5 \cdot r \cdot \frac{\Delta \sigma}{\Delta s} \quad (4)$$

where r is the radius of the loading plate (mm), Δs is the difference in the settlement amount between the points with 30% and 70% of the maximum stress, and $\Delta \sigma$ is the difference in the stress.

Technician	Lewis Hillman	Date:	16.04.26
Approved By:	P Searing	Date:	01.05.26



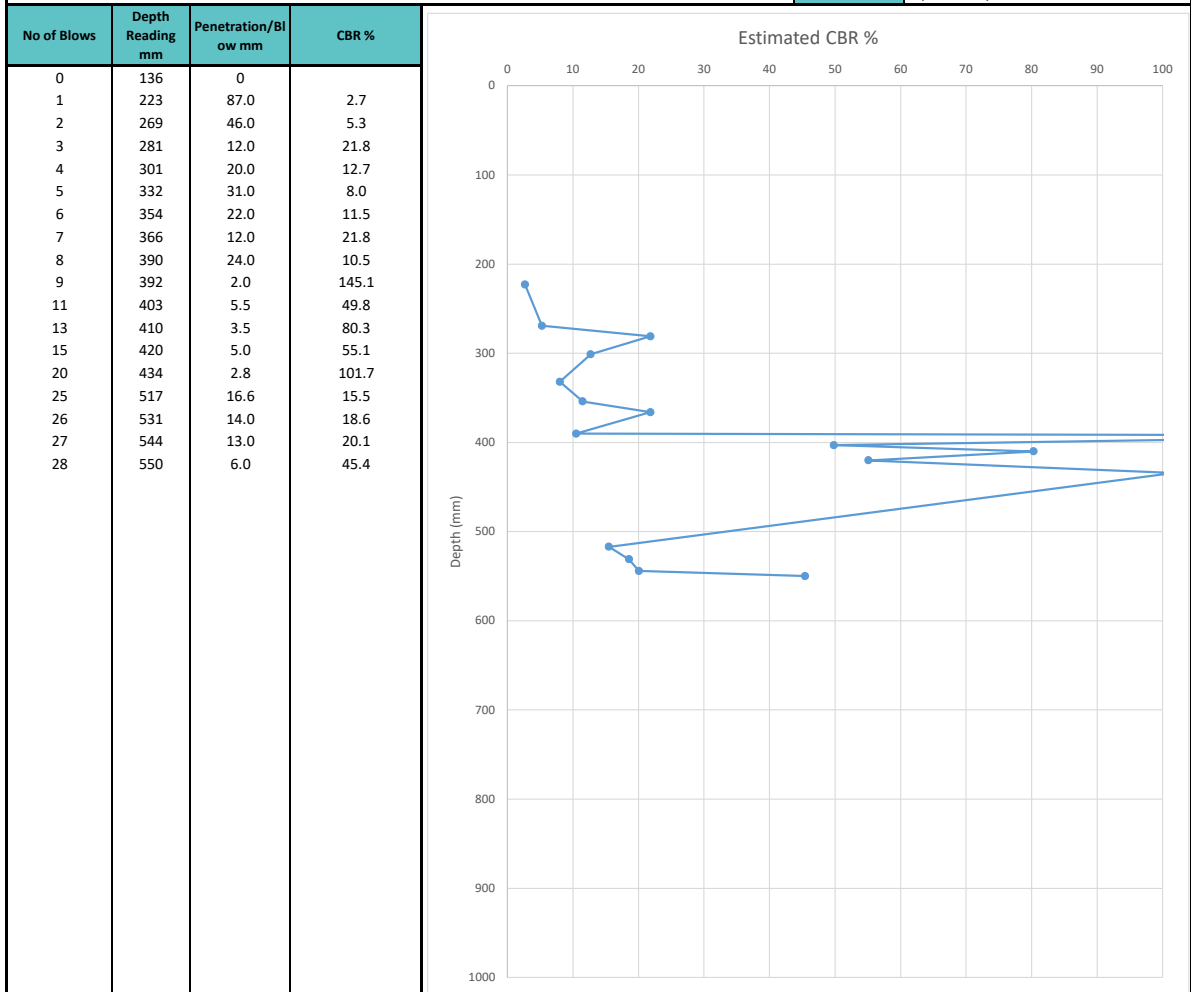
APPENDIX D

Dynamic Cone Penetrometer (DCP) Test Results

TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Brecon	Test No:	CBR1	Location:	303195 228236
Project No:	1522.02	Date:	18.03.2026	Start Depth:	Surface	Test Strata:	Made Ground/silty sandy slightly gravelly clay.
$Log10(CBR) = 2.480 - 1.057 \times Log10(mm/blow)$						Weather:	Dry and sunny



Notes: Stopped due to lean

Tested by : M Bell
Date: 14.04.26

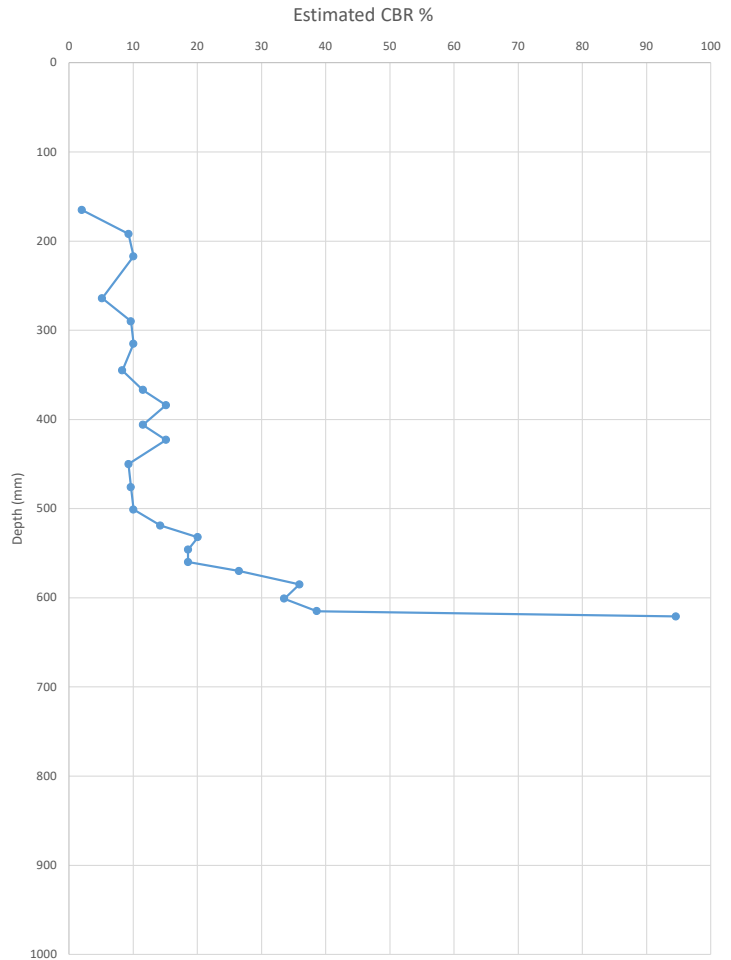
Checked by: P Searing
Date: 01.05.26

TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Brecon	Test No:	CBR3	Location:	303183 228255
Project No:	1522.02	Date:	18.03.2026	Start Depth:	Surface	Test Strata:	Topsoil/clayey silty gravelly sand
$Log10(CBR) = 2.480 - 1.057 \times Log10(mm/blow)$						Weather:	Dry and sunny

No of Blows	Depth Reading mm	Penetration/Blow mm	CBR %	Estimated CBR %
0	50	0		
1	165	115.0	2.0	
2	192	27.0	9.3	
3	217	25.0	10.1	
4	264	47.0	5.2	
5	290	26.0	9.6	
6	315	25.0	10.1	
7	345	30.0	8.3	
8	367	22.0	11.5	
9	384	17.0	15.1	
10	406	22.0	11.5	
11	423	17.0	15.1	
12	450	27.0	9.3	
13	476	26.0	9.6	
14	501	25.0	10.1	
15	519	18.0	14.2	
16	532	13.0	20.1	
17	546	14.0	18.6	
18	560	14.0	18.6	
19	570	10.0	26.5	
21	585	7.5	35.9	
23	601	8.0	33.5	
25	615	7.0	38.6	
27	621	3.0	94.6	



Notes: Stopped due to lean

Tested by : M Bell
Date: 14.04.26

Checked by: P Searing
Date: 01.05.26

TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Brecon	Test No:	CBR2	Location:	303173 228278
Project No:	1522.02	Date:	18.03.2026	Start Depth:	Surface	Test Strata:	Topsoil/clayey silty gravelly sand
$Log10(CBR) = 2.480 - 1.057 \times Log10(mm/blow)$						Weather:	Dry and sunny

No of Blows	Depth Reading mm	Penetration/Blow mm	CBR %	Estimated CBR %
0	100	0		
1	182	82.0	2.9	
2	240	58.0	4.1	
3	284	44.0	5.5	
4	323	39.0	6.3	
5	356	33.0	7.5	
6	391	35.0	7.0	
7	406	15.0	17.3	
8	424	18.0	14.2	
9	442	18.0	14.2	
10	461	19.0	13.4	
11	480	19.0	13.4	
12	493	13.0	20.1	
13	509	16.0	16.1	
14	528	19.0	13.4	
15	550	22.0	11.5	
16	573	23.0	11.0	
17	587	14.0	18.6	
18	606	19.0	13.4	
19	621	15.0	17.3	
20	630	9.0	29.6	
21	640	10.0	26.5	
23	655	7.5	35.9	
25	677	11.0	23.9	
27	732	27.5	9.1	
28	753	21.0	12.1	
29	774	21.0	12.1	
30	798	24.0	10.5	
31	823	25.0	10.1	
32	842	19.0	13.4	
33	861	19.0	13.4	
34	872	11.0	23.9	
35	885	13.0	20.1	
36	901	16.0	16.1	
37	911	10.0	26.5	
38	925	14.0	18.6	
39	940	15.0	17.3	
40	952	12.0	21.8	
41	967	15.0	17.3	
42	968	1.0	302.0	

Notes:	
Tested by : M Bell	Checked by: P Searing
Date: 14.04.26	Date: 01.05.26

TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Brecon	Test No:	CBR4	Location:	303145 228227
Project No:	1522.02	Date:	18.03.2026	Start Depth:	Surface	Test Strata:	Topsoil/clayey silty gravelly sand
$Log10(CBR) = 2.480 - 1.057 \times Log10(mm/blow)$						Weather:	Dry Sunny

No of Blows	Depth Reading mm	Penetration/Blow mm	CBR %	Estimated CBR %
0	104	0		
1	209	105.0	2.2	
2	261	52.0	4.6	
3	317	56.0	4.3	
4	373	56.0	4.3	
5	403	30.0	8.3	
6	409	6.0	45.4	
7	412	3.0	94.6	
9	437	12.5	20.9	
11	475	19.0	13.4	
13	531	28.0	8.9	
14	574	43.0	5.7	
15	616	42.0	5.8	
16	652	36.0	6.8	
17	684	32.0	7.7	
18	712	28.0	8.9	
19	736	24.0	10.5	
20	752	16.0	16.1	
21	765	13.0	20.1	
22	781	16.0	16.1	
23	795	14.0	18.6	
24	815	20.0	12.7	
25	832	17.0	15.1	
26	846	14.0	18.6	
27	864	18.0	14.2	
28	880	16.0	16.1	
29	884	4.0	69.8	
30	893	9.0	29.6	
31	904	11.0	23.9	
33	930	13.0	20.1	
35	963	16.5	15.6	

Notes:

Tested by : M Bell	Checked by: P Searing
Date: 14.04.26	Date: 01.05.26



APPENDIX E

Gas Analyser Calibration Certificate

CERTIFICATE OF CALIBRATION

Serial Number
12735

Job Number
WO31987

Date of Calibration
09 February 2026

Model & Variant
GFM436

Next Calibration Due
06 February 2027

For
Gas Data Ltd

Environmental Conditions

Ambient temperature: 20.2C

Ambient pressure: 970mb

Gas Sensors

Gas	CH4(%)			CO2(%)			O2(%)		
	Applied	Reading	Tol	Applied	Reading	Tol	Applied	Reading	Tol
20.9% O2							20.9	20.9	±0.5
100% N2	0.0	0.0	±0.0	0.0	0.0	±0.0	0.0	0.0	±0.5
5% CO2				5.0	5.0	±0.3			
40% CO2				40.0	39.9	±3.0			
5% CH4	5.0	4.8	±0.3						
60% CH4	60.0	60.0	±3.0						

Gas	H2S(ppm)			CO(ppm)			C6H14(%)		
	Applied	Reading	Tol	Applied	Reading	Tol	Applied	Reading	Tol
20.9% O2	0.0	0.0	±0.0	0.0	0.0	±2.0			
1500ppm H2S	1500.0	1500.0	±75.0						
1000ppm CO				1000.0	1008.0	±50.0			
1% C6H14							1.0	1.0	±5.0
2% C6H14							2.0	2.1	±10.0

Pressure Sensors

AP(mb)		
Applied	Reading	Tol
969.0	968.0	±2
800.0	798.0	±5
1200.0	1201.0	±5

CERTIFICATE OF CALIBRATION

Serial Number
12735

Job Number
WO31987

Date of Calibration
09 February 2026

Temperature Probe

Temp(C)		
Applied	Reading	Tol
100.0	99.5	±1
60.0	60.0	±1
30.0	30.0	±1
0.0	0.0	±1
-10.0	-10.5	±2

Flow Transducer

Applied		Reading			
Flow(L/hr)	DP(Pa)	Flow(L/hr)	Tol	DP(Pa)	Tol
-30.0	-340.0	-29.7	±3	-338.0	±50
-3.0	-18.0	-3.0	±1	-17.0	±6
0.0	0.0	0.0	±0.5	0.0	±6
3.0	16.0	3.0	±0.5	15.0	±3
30.0	318.0	29.8	±3	316.0	±50
60.0	942.0	59.1	±6	925.0	±130
90.0	1863.0	90.4	±9	1912.0	±250

CERTIFICATE OF CALIBRATION

Serial Number
12735

Job Number
WO31987

Date of Calibration
09 February 2026

Calibration Facility

Gas Data Ltd: Unit D, Earlplace Business Park, Fletchamstead Highway, Coventry, CV4 9XL, UK

This instrument has been calibrated by Gas Data Ltd in accordance with the manufacturer's requirements and procedures. The results found are within the manufacturer's specification limits on the required ranges and/or measurement points. Gas Data Ltd is compliant to BS EN ISO 9001:2015, BS EN ISO 14001:2015 and BS EN ISO 45001:2018. This provides internal traceability of the measurements realised and ensures compliant workshop procedures were followed.

Copyright of this certificate is owned by the issuing manufacturer and may not be reproduced except with the prior written approval of the manufacturer.

- End of Certificate -

CERTIFICATION OF CALIBRATION

Date Of Calibration: 19-Nov-2025

Issued by: QED Environmental Systems Inc.

Customer: CADMUS PRODUCTS LIMITED
UNIT 5, SUFFOLK DRIVE CHELMSFORD, CM2 6UN GB



Certificate Number: G511063_9/40106



Description:

Model: GA5000

Serial Number: G511063

Accredited Results:

Methane (CH4)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.42
15.0	14.9	0.66
60.0	59.6	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.43
15.0	14.8	0.71
40.0	39.9	1.19

Oxygen (O2)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.2	21.2	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.8 °C/89.3 °F

O2 readings recorded at: 21.8 °C/71.2 °F

Barometric Pressure: 0989 mbar/29.20 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 118

IGC Instance: N/A

Page 1 of 3 | LP015LNANIST-1.1

www.qedenv.com (800) 624-2026 info@qedenv.com

QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130

G511063_9/40106

CERTIFICATION OF CALIBRATION



No. 66916



Certificate Number: G511063_9/40106

Date Of Calibration: 19-Nov-2025

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	Certified (Low)	Reading (Low)	Certified (High)	Reading (High)	Accuracy
Relative	0"	0"	40"	40.65"	2.0"

Barometer (mbar)	
Reference	Instrument Reading
0989 mbar / 29.20 "Hg	0990 mbar / 29.22 "Hg

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
H ₂ S	261	261

Internal Flow	
Applied	Measured
25.2	25.2
10	10.1
5	5.0

Linda Ostrowski

Date of Issue : 04 Dec 2025

Approved By Signatory

Linda Ostrowski

Laboratory Inspection

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the Issuing laboratory.

Calibration Instance: 118 IGC Instance: N/A

Page 3 of 3 | LP015LNANIST-1.1

www.qedenv.com (800) 624-2026 info@qedenv.com

QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130



APPENDIX F

Laboratory Chemical Analysis

Remada Ltd
Forward House
17 High Street
Henley-in-Arden
Warwickshire
B955AA

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t:
e: megan.bell@remada.co.uk
info@remada.co.uk

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-015356

Project / Site name:	Brecon	Samples received on:	24/03/2026
Your job number:	1522.02	Samples instructed on/ Analysis started on:	24/03/2026
Your order number:	1522.02	Analysis completed by:	31/03/2026
Report Issue Number:	1	Report issued on:	31/03/2026
Samples Analysed:	4 soil 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
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 26-015356

Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number	869326	869327	869328	869329
Sample Reference	WS01	BH01	BH02A	BH02A
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	1.40	1.80-2.00	1.50-1.70	2.00
Date Sampled	18/03/2026	18/03/2026	19/03/2026	19/03/2026
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Mass of stone >10mm	%	0.1	NONE	70.5	48.4	32.2	89.5
Moisture Content	%	0.01	NONE	7.1	7.4	14	4.9
Total mass of sample received	kg	0.1	NONE	1.1	0.8	1	1.3
Whole Sample Crushed	N/A	N/A	NONE	Crushed	-	-	Crushed

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.1	8.2	9.9	9.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.014	0.011	0.025	0.018
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	17	50	140	25
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.33	24.8	70	12.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.2	6.8	4.6	1.3
Total Sulphur	mg/kg	50	MCERTS	< 50	< 50	96	63
Total Sulphur	%	0.005	MCERTS	< 0.005	< 0.005	0.01	0.006
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	< 0.5	< 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	< 0.05
Nitrate as NO ₃ (Water Soluble) (2:1)	mg/kg	0.9	NONE	< 0.90	4.77	1.1	< 0.90
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	0.9	N/A	< 0.90	2.38	< 0.90	< 0.90

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 26-015356

Project / Site name: Brecon

* 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 *
869326	WS01	None Supplied	1.4	Brown sand with gravel and stones
869327	BH01	None Supplied	1.80-2.00	Brown sand with gravel and stones
869328	BH02A	None Supplied	1.50-1.70	Brown sand with gravel and stones
869329	BH02A	None Supplied	2	Non Soil. ⁹

Analytical Report Number : 26-015356

Project / Site name: Brecon

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Whole Sample Crushed	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis	In house method, applicable to dry samples only	L019B	D	NONE
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	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
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 SO ₄ 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
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH ₄ 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-PL	D	MCERTS
Water Soluble Nitrate (2:1) as NO ₃ in soil	Determination of nitrate as NO ₃ in soil by discrete method	In-house method by discrete analyzer based on TON as N, Total Oxidized Nitrogen (Vanadium Chloride reduction), Thermo Fisher Scientific, MANUAL 2015-0	L082B	W	NONE
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Remada Ltd
Forward House
17 High Street
Henley-in-Arden
Warwickshire
B955AA

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t:

e: megan.bell@remada.co.uk
info@remada.co.uk

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-014730

Project / Site name:	Brecon	Samples received on:	19/03/2026
Your job number:	1522.02	Samples instructed on/ Analysis started on:	20/03/2026
Your order number:	1522.02	Analysis completed by:	01/04/2026
Report Issue Number:	1	Report issued on:	01/04/2026
Samples Analysed:	5 soil samples - 3 leachate samples - 2 other 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
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 26-014730

Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number	866352	866353	866354	866355	866356
Sample Reference	BH01	WS02	WS03	WS01	WS05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.40	0.30	0.10	0.10
Date Sampled	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Mass of stone >10mm	%	0.1	NONE	76.2	53.2	19.1	45.9	< 0.1
Moisture Content	%	0.01	NONE	2.8	1.5	14	8.5	36
Total mass of sample received	kg	0.1	NONE	2	2	2	1.3	0.6
Whole Sample Crushed	N/A	N/A	NONE	Crushed	Crushed	-	-	-

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	MWI	MWI	MWI	MWI	MWI
Analysis completed	N/A	N/A	N/A	31/03/2026	31/03/2026	31/03/2026	31/03/2026	31/03/2026

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	7.6	8.6	7.4	-	-
pH (L099)	pH Units	N/A	MCERTS	8.4	8.5	7.3	7.3	6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0071	0.018	0.016	0.005	0.039
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.7	1.8 [†]	1.6	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	1.2	1.5 [†]	3.4	-	-
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	18	25	1.3	-	-

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	0.97	2.4	< 0.05	0.18	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.5	0.18	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	11	2.3	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	10	1.7	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	38	10	< 0.05	< 0.05	0.18
Anthracene	mg/kg	0.05	MCERTS	13	2.3	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	58	19	0.07	< 0.05	0.39
Pyrene	mg/kg	0.05	MCERTS	47	15	0.06	< 0.05	0.35
Benzo(a)anthracene	mg/kg	0.05	MCERTS	40	7.6	0.06	< 0.05	0.22
Chrysene	mg/kg	0.05	MCERTS	35	6.9	0.09	< 0.05	0.21
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	44	10	0.1	< 0.05	0.35
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	18	3.1	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	31	6.9	0.05	< 0.05	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	14	4.3	< 0.05	< 0.05	0.13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	3.9	1	< 0.05	< 0.05	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	15	4.7	< 0.05	< 0.05	0.17
Coronene	mg/kg	0.05	NONE	3.2	0.11	< 0.05	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	378	97.2	< 0.80	< 0.80	2.26
Total WAC-17 PAHs	mg/kg	0.85	NONE	382	97.3	< 0.85	-	-

Analytical Report Number: 26-014730

Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number	866352	866353	866354	866355	866356
Sample Reference	BH01	WS02	WS03	WS01	WS05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.40	0.30	0.10	0.10
Date Sampled	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	1.7	2.5	8.1	4.2	9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.29	0.18	0.49	0.45	0.56
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.7	< 0.2	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	U/S ^{*U/S g}	< 1.8	U/S ^{*U/S g}
Chromium (III)	mg/kg	1	NONE	12	13	U/S ^{*U/S g}	21	U/S ^{*U/S g}
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	-	-	< 1.80	-	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	-	-	29	-	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	13	29	21	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.1	12	26	12	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	4.8	11	23	13	42
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	10	8.2	23	18	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.2	< 1.0	1.3	< 1.0	1.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	27	31	26	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	35	21	64	51	78

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	2.1	13	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	3.7	39	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	27	84	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	33	140	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	8.7	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	27	33	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	170	44	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	420	250	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	620	330	< 10	< 10	< 10

Mineral Oil (EC10 - EC40) _{EH_CU_1D_AL}	mg/kg	10	NONE	48	200	< 10	-	-
--	-------	----	------	----	-----	------	---	---

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Total BTEX	µg/kg	10	MCERTS	< 10	< 10	< 10	-	-
------------	-------	----	--------	------	------	------	---	---

PCBs by GC-MS

Analytical Report Number: 26-014730

Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number				866352	866353	866354	866355	866356
Sample Reference				BH01	WS02	WS03	WS01	WS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.40	0.30	0.10	0.10
Date Sampled				19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007	< 0.007	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 26-014730
Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number	866352	866353	866354
Sample Reference	BH01	WS02	WS03
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.30	0.40	0.30
Date Sampled	19/03/2026	19/03/2026	19/03/2026
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status

10:1 WAC Leachate

Arsenic	mg/l	0.001	ISO 17025	0.00188	0.00231	0.00274
Barium	mg/l	0.00005	ISO 17025	0.0161	0.0398	0.00552
Cadmium	mg/l	0.0001	ISO 17025	< 0.000100	< 0.000100	< 0.000100
Chromium	mg/l	0.0004	ISO 17025	< 0.00040	< 0.00040	< 0.00040
Copper	mg/l	0.0007	ISO 17025	0.0018	0.0019	0.0023
Mercury	mg/l	0.0005	ISO 17025	< 0.000500	< 0.000500	< 0.000500
Molybdenum	mg/l	0.0004	ISO 17025	0.000838	0.00357	< 0.000400
Nickel	mg/l	0.0003	ISO 17025	0.00071	< 0.00030	0.00061
Lead	mg/l	0.001	ISO 17025	< 0.0010	0.0017	0.001
Antimony	mg/l	0.0017	ISO 17025	< 0.0017	< 0.0017	< 0.0017
Selenium	mg/l	0.004	ISO 17025	< 0.0040	< 0.0040	< 0.0040
Zinc	mg/l	0.0004	ISO 17025	0.001	0.021	0.0052
Chloride	mg/l	0.15	ISO 17025	2.5	3.7	1.1
Fluoride	mg/l	0.05	ISO 17025	0.1	0.14	0.32
Sulphate	mg/l	0.045	ISO 17025	6.3	5.4	1.8
Total dissolved solids	mg/l	6	ISO 17025	50	44	24
Total monohydric phenols	mg/l	0.01	ISO 17025	< 0.010	< 0.010	< 0.010
Dissolved organic carbon	mg/l	0.1	NONE	6.84	6.88	3.56

10:1 WAC Leachate

Arsenic	mg/kg	0.01	NONE	0.0188	0.0231	0.0274
Barium	mg/kg	0.0005	NONE	0.161	0.398	0.0552
Cadmium	mg/kg	0.001	NONE	< 0.00100	< 0.00100	< 0.00100
Chromium	mg/kg	0.004	NONE	< 0.0040	< 0.0040	< 0.0040
Copper	mg/kg	0.007	NONE	0.018	0.019	0.023
Mercury	mg/kg	0.005	NONE	< 0.00500	< 0.00500	< 0.00500
Molybdenum	mg/kg	0.004	NONE	0.00838	0.0357	< 0.00400
Nickel	mg/kg	0.003	NONE	0.0071	< 0.0030	0.0061
Lead	mg/kg	0.01	NONE	< 0.010	0.017	0.01
Antimony	mg/kg	0.017	NONE	< 0.017	< 0.017	< 0.017
Selenium	mg/kg	0.04	NONE	< 0.040	< 0.040	< 0.040
Zinc	mg/kg	0.004	NONE	0.01	0.21	0.052
Chloride	mg/kg	1.5	NONE	25	37	11
Fluoride	mg/kg	0.5	NONE	1	1.4	3.2
Sulphate	mg/kg	0.45	NONE	63	54	18
Total dissolved solids	mg/kg	60	NONE	500	440	240
Total monohydric phenols	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10
Dissolved organic carbon	mg/kg	1	NONE	68.4	68.8	35.5

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 26-014730

Project / Site name: Brecon

Your Order No: 1522.02

Lab Sample Number	866357	866358
Sample Reference	BH01	WS02
Sample Number	None Supplied	None Supplied
Water Matrix	N/A	N/A
Depth (m)	0.01	0.01
Date Sampled	19/03/2026	19/03/2026
Time Taken	None Supplied	None Supplied
Analytical Parameter	Units	Test Limit of detection
		Test Accreditation Status

General Organics

Naphthalene in bituminous material	mg/kg	0.5	NONE	5.3	2.7
Acenaphthylene in bituminous material	mg/kg	0.5	NONE	< 0.5	< 0.5
Acenaphthene in bituminous material	mg/kg	0.5	NONE	13	7
Fluorene in bituminous material	mg/kg	0.5	NONE	11	6.5
Phenanthrene in bituminous material	mg/kg	0.5	NONE	35	56
Anthracene in bituminous material	mg/kg	0.5	NONE	9.4	14
Fluoranthene in bituminous material	mg/kg	0.5	NONE	39	95
Pyrene in bituminous material	mg/kg	0.5	NONE	29	71
Benzo(a)anthracene in bituminous material	mg/kg	0.5	NONE	14	33
Chrysene in bituminous material	mg/kg	0.5	NONE	14	31
Benzo(b)fluoranthene in bituminous material	mg/kg	0.5	NONE	15	47
Benzo(k)fluoranthene in bituminous material	mg/kg	0.5	NONE	5.5	13
Benzo(a)pyrene in bituminous material	mg/kg	0.5	NONE	10	32
Indeno(1,2,3-cd)pyrene in bituminous material	mg/kg	0.5	NONE	5.5	20
Di-benzo(a,h)anthracene in bituminous material	mg/kg	0.5	NONE	1.8	4.6
Benzo(ghi)perylene in bituminous material	mg/kg	0.5	NONE	5.3	21
Coronene in bituminous material	mg/kg	0.5	NONE	1.1	4.8

U/S = Unsuitable Sample I/S = Insufficient Sample

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:		26-014730					
					Client: Remada Ltd		
Location		Brecon					
Lab Reference (Sample Number)		866352			Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date		19/03/2026			Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Sample ID		BH01					
Depth (m)		0.30					
Solid Waste Analysis							
TOC (%)**		0.7			3%	5%	6%
Loss on Ignition (%) **		1.2			--	--	10%
BTEX (µg/kg) **		< 10			6000	--	--
Sum of PCBs (mg/kg) **		< 0.007			1	--	--
Mineral Oil (mg/kg) EH, 1D, CU, AL		48			500	--	--
Total PAH (WAC-17) (mg/kg)		382			100	--	--
pH (units)**		7.6			--	>6	--
Acid Neutralisation Capacity (mmol / kg)		18			--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg		
					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.00188		0.0188	0.5	2	25
Barium *		0.0161		0.161	20	100	300
Cadmium *		< 0.000100		< 0.00100	0.04	1	5
Chromium *		< 0.00040		< 0.0040	0.5	10	70
Copper *		0.0018		0.018	2	50	100
Mercury *		< 0.000500		< 0.00500	0.01	0.2	2
Molybdenum *		0.000838		0.00838	0.5	10	30
Nickel *		0.00071		0.0071	0.4	10	40
Lead *		< 0.0010		< 0.010	0.5	10	50
Antimony *		< 0.0017		< 0.017	0.06	0.7	5
Selenium *		< 0.0040		< 0.040	0.1	0.5	7
Zinc *		0.001		0.01	4	50	200
Chloride *		2.5		25	800	15000	25000
Fluoride*		0.1		1	10	150	500
Sulphate *		6.3		63	1000	20000	50000
TDS*		50		500	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010		< 0.10	1	-	-
DOC		6.84		68.4	500	800	1000
Leach Test Information							
Stone Content (%)		76.2					
Sample Mass (kg)		2					
Dry Matter (%)		97					
Moisture (%)		2.8					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Waste Acceptance Criteria Analysis Results				26-014730						
Report No:										
						Client: Remada Ltd				
Location				Brecon						
Lab Reference (Sample Number)				866353		Landfill Waste Acceptance Criteria				
						Limits				
Sampling Date				19/03/2026		Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfil		
Sample ID				WS02						
Depth (m)				0.40						
Solid Waste Analysis										
TOC (%)**				1.8 [†]		3% 5% 6%				
Loss on Ignition (%) **				1.5 [†]		-- -- 10%				
BTEX (µg/kg) **				< 10		6000 -- --				
Sum of PCBs (mg/kg) **				< 0.007		1 -- --				
Mineral Oil (mg/kg) EH, 1D, CU, AL				200		500 -- --				
Total PAH (WAC-17) (mg/kg)				97.3		100 -- --				
pH (units)**				8.6		-- >6 --				
Acid Neutralisation Capacity (mmol / kg)				25		-- To be evaluated To be evaluated				
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)				10:1		Limit values for compliance leaching test				
				mg/l		mg/kg		using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *				0.00231	0.0231	0.5	2	25		
Barium *				0.0398	0.398	20	100	300		
Cadmium *				< 0.000100	< 0.00100	0.04	1	5		
Chromium *				< 0.00040	< 0.0040	0.5	10	70		
Copper *				0.0019	0.019	2	50	100		
Mercury *				< 0.000500	< 0.00500	0.01	0.2	2		
Molybdenum *				0.00357	0.0357	0.5	10	30		
Nickel *				< 0.00030	< 0.0030	0.4	10	40		
Lead *				0.0017	0.017	0.5	10	50		
Antimony *				< 0.0017	< 0.017	0.06	0.7	5		
Selenium *				< 0.0040	< 0.040	0.1	0.5	7		
Zinc *				0.021	0.21	4	50	200		
Chloride *				3.7	37	800	15000	25000		
Fluoride*				0.14	1.4	10	150	500		
Sulphate *				5.4	54	1000	20000	50000		
TDS*				44	440	4000	60000	100000		
Phenol Index (Monohydric Phenols) *				< 0.010	< 0.10	1	-	-		
DOC				6.88	68.8	500	800	1000		
Leach Test Information										
Stone Content (%)				53.2						
Sample Mass (kg)				2						
Dry Matter (%)				99						
Moisture (%)				1.5						

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Waste Acceptance Criteria Analysis Results				26-014730				
Report No:								
						Client: Remada Ltd		
Location				Brecon				
Lab Reference (Sample Number)				866354		Landfill Waste Acceptance Criteria		
						Limits		
Sampling Date				19/03/2026		Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfil
Sample ID				WS03				
Depth (m)				0.30				
Solid Waste Analysis								
TOC (%)**				1.6		3%		
Loss on Ignition (%) **				3.4		--		
BTEX (µg/kg) **				< 10		6000		
Sum of PCBs (mg/kg) **				< 0.007		1		
Mineral Oil (mg/kg) EH, 1D, CU, AL				< 10		500		
Total PAH (WAC-17) (mg/kg)				< 0.85		100		
pH (units)**				7.4		--		
Acid Neutralisation Capacity (mmol / kg)				1.3		--		
						To be evaluated		
						To be evaluated		
Eluate Analysis				10:1		Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)				mg/l		using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
				mg/kg				
Arsenic *				0.00274		0.5		
Barium *				0.00552		20		
Cadmium *				< 0.000100		0.04		
Chromium *				< 0.00040		0.5		
Copper *				0.0023		2		
Mercury *				< 0.000500		0.01		
Molybdenum *				< 0.000400		0.5		
Nickel *				0.00061		0.4		
Lead *				0.001		0.5		
Antimony *				< 0.0017		0.06		
Selenium *				< 0.0040		0.1		
Zinc *				0.0052		4		
Chloride *				1.1		800		
Fluoride*				0.32		10		
Sulphate *				1.8		1000		
TDS*				24		4000		
Phenol Index (Monohydric Phenols) *				< 0.010		1		
DOC				3.56		500		
						800		
						1000		
Leach Test Information								
Stone Content (%)				19.1				
Sample Mass (kg)				2				
Dry Matter (%)				86				
Moisture (%)				14				

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 26-014730

Project / Site name: Brecon

* 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 *
866352	BH01	None Supplied	0.3	Brown sand with gravel and stones
866353	WS02	None Supplied	0.4	Grey loam and sand with gravel and stones
866354	WS03	None Supplied	0.3	Brown clay and sand with vegetation and stones
866355	WS01	None Supplied	0.1	Brown clay and sand with stones
866356	WS05	None Supplied	0.1	Brown clay and sand with vegetation

Analytical Report Number : 26-014730

Project / Site name: Brecon

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Whole Sample Crushed	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis	In house method, applicable to dry samples only	L019B	D	NONE
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (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 (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	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
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	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
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Metals in leachate by ICP-OES	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
One stage WAC 10:1 leachate preparation	One stage batch test at a liquid to solid ratio of 10 L/kg	BS EN 12457-2:2002	L043B	W	ISO 17025
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS

Analytical Report Number : 26-014730

Project / Site name: Brecon

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated PAHs and/or Semi-volatile organic compounds in 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
TPH Chromatogram in soil	TPH Chromatogram in soil	In-house method	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Total petroleum hydrocarbons by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID	In-house method	L076B	D	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in 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-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate	In-house method	L009B	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

Analytical Report Number : 26-014730

Project / Site name: Brecon

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil by Ion Chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Speciated USEPA PAH target compounds (+ coronene) in bituminous material	Determination of USEPA PAH target compounds (+ coronene) in bituminous material by extraction in DCM and analysis by GCMS, following sample preparation in accordance with ADEPT guidance.	In-house procedure with detection by GC-MS (L064B).	TN_ORG_33	D	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

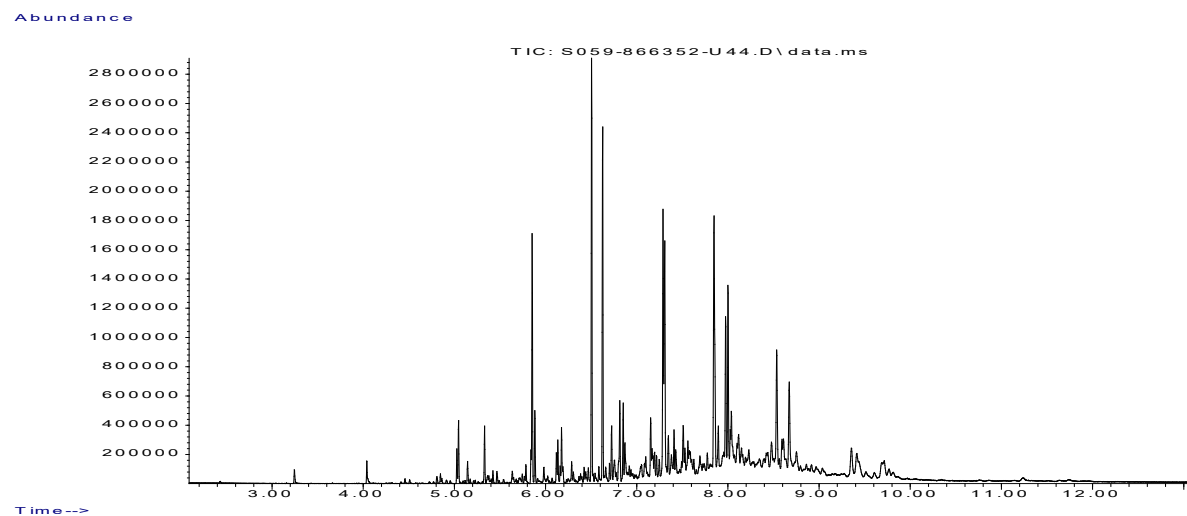
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

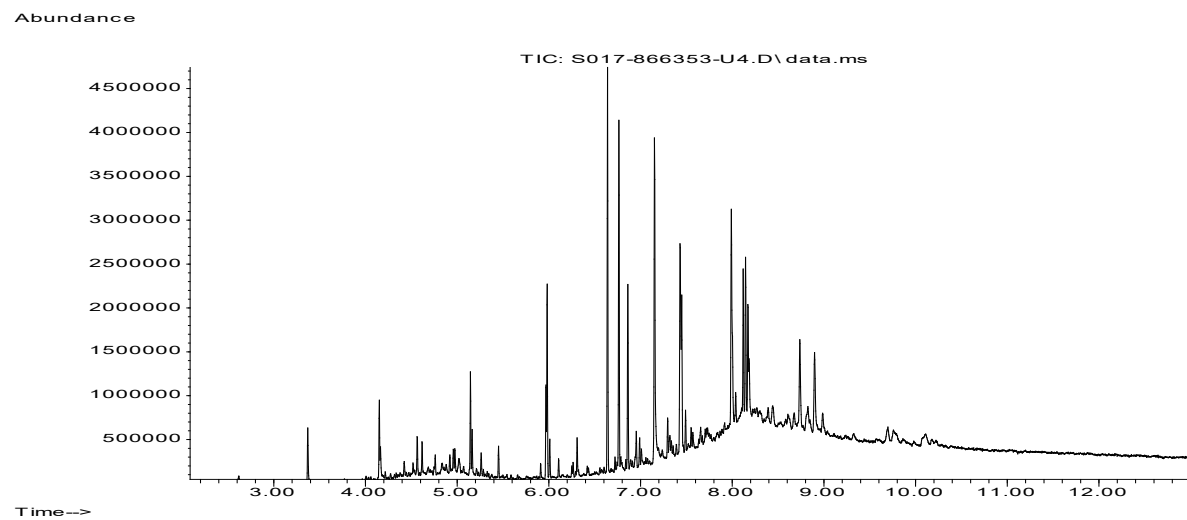
Quality control parameter failure associated with individual result applies to calculated sum of individuals.

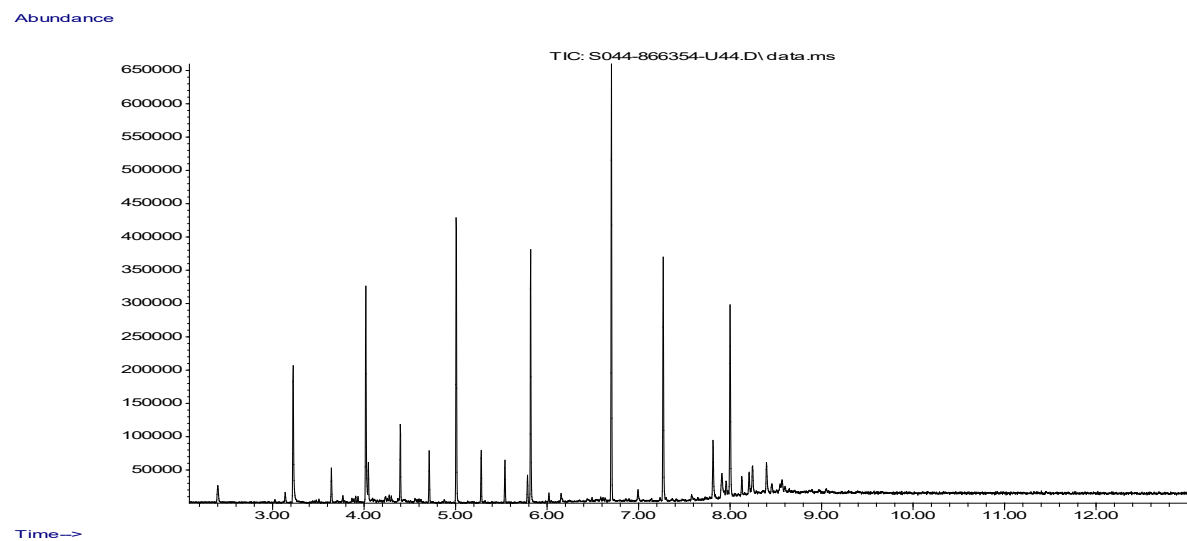
The result for sum should be interpreted with caution

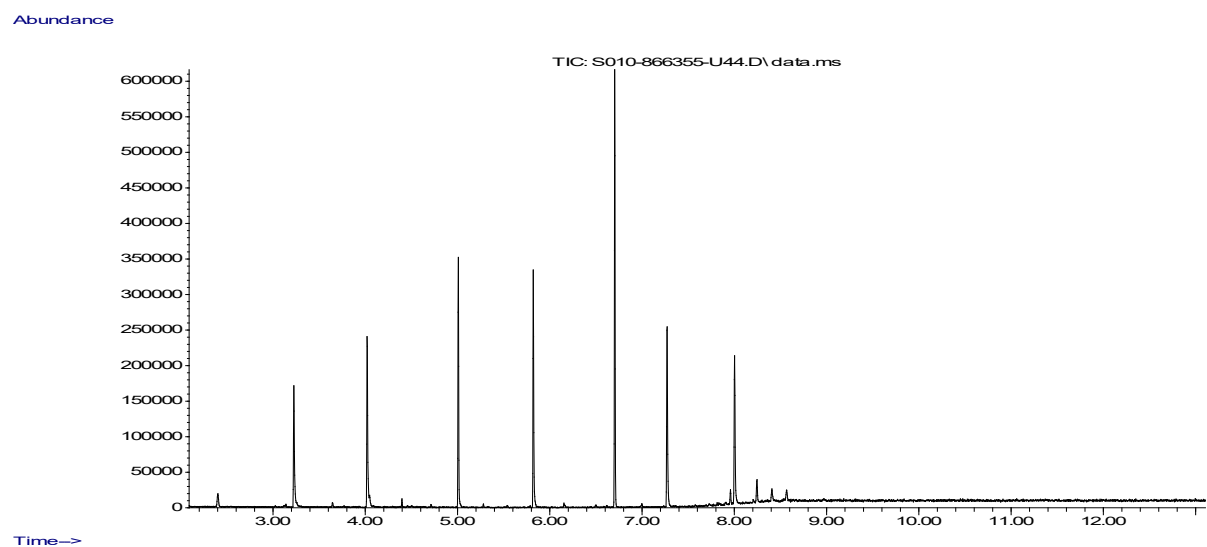
*U/S g- Unsuitable for analysis due to high colour intensity.

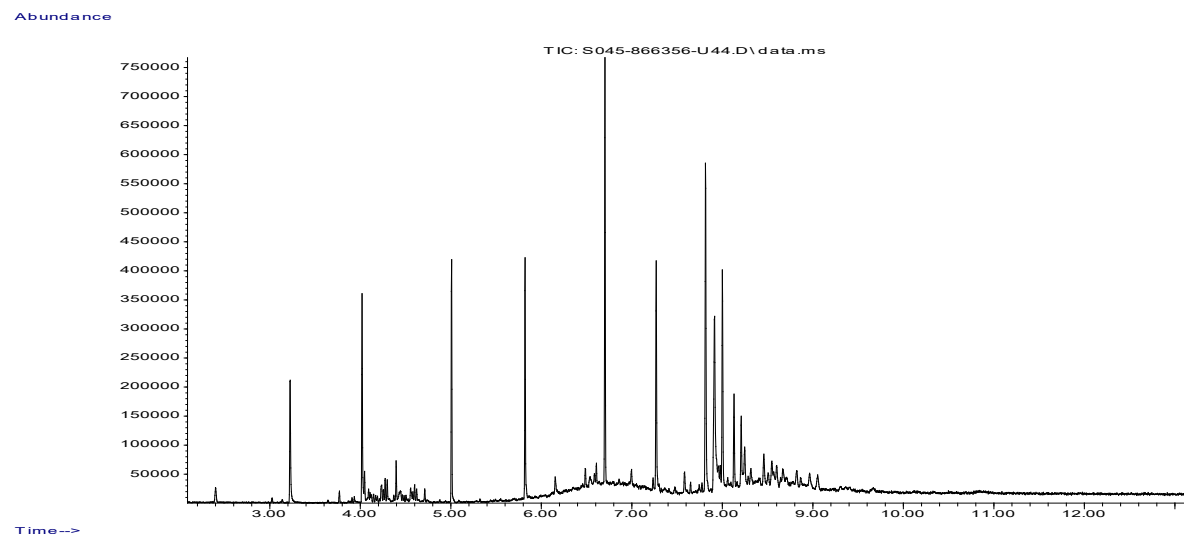
*j- Due to sample matrix, results for TOC and Loss on Ignition do not agree.













APPENDIX G

Laboratory Geotechnical Tests



Laboratory Report



Contract Number: 85627

Client Ref: **1522.02**

Client PO: **1522.02**

Date Received: **30-03-2026**

Date Completed: **16-04-2026**

Report Date: **16-04-2026**

Client: **Remada Limited**

This report has been checked and approved by:

Contract Title: **1522.02**

For the attention of: **Megan Bell**

Shaun Jones

Laboratory manager

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - * UKAS	4
1 point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	4
Particle Size Distribution BS EN ISO 17892-4 : 5.1 - * UKAS	2
Sedimentation by Pipette Method BS EN ISO 17892-4 : 5.4 - @ Non Accredited Test	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

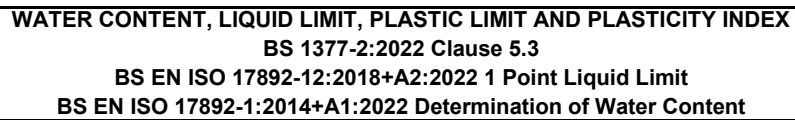
- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

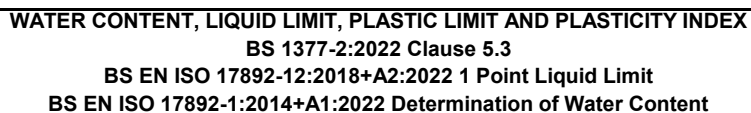
Brendan Evans (Business Support Co-ordinator) - Darren Bourne (Quality Senior Technician) - Jason Jenkins (Business Development Manager)
Luke Williams (Senior Laboratory Technician) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Vince Williams (Site Technician)
Wayne Honey (HR & HSE Manager)



Contract Number	85627	
Project Name	1522.02	
Date Tested	13/04/2026	
	DESCRIPTIONS	

[illegible]

Operator
Jason S.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve & Pipette Analysis, Clause 5.2 & 5.4

Contract Number

85627

Borehole/Pit No.

BH01

Project Name

1522.02

Sample No.

Depth Top

1.65

Depth Base

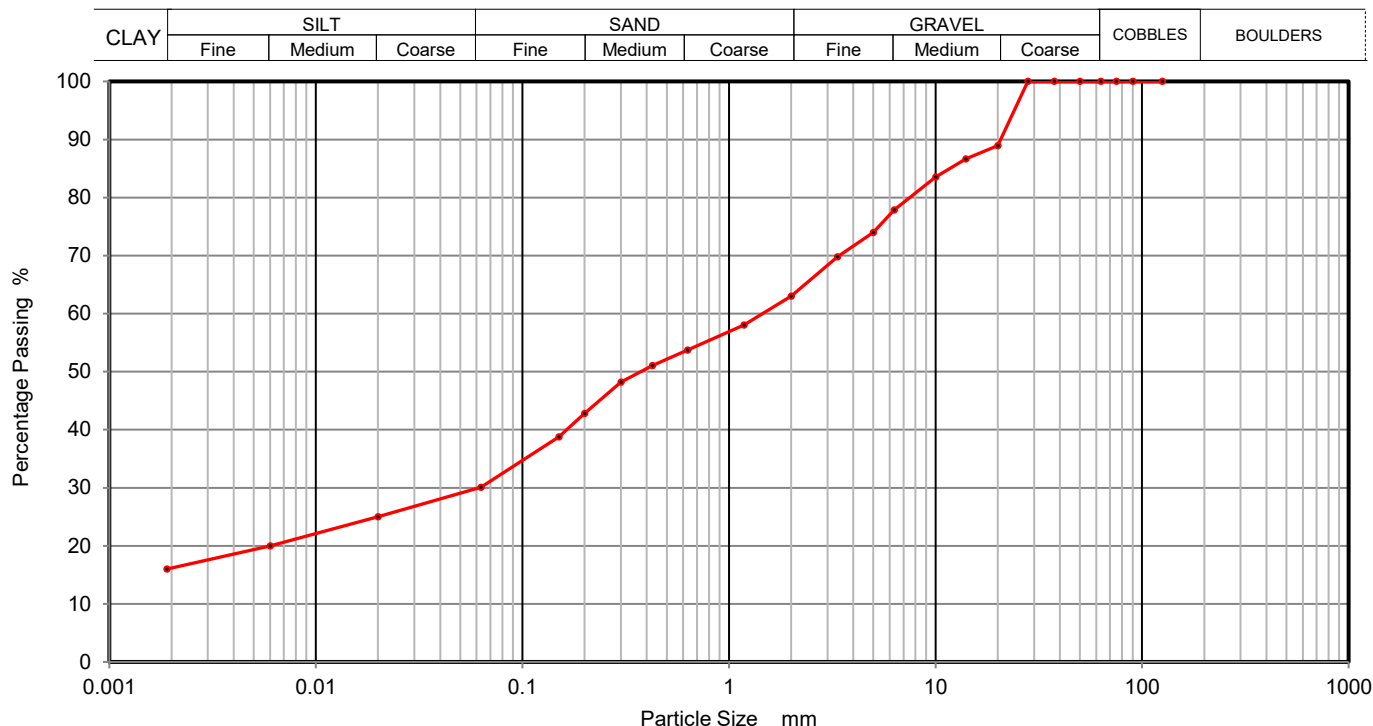
1.80

Date Tested

14/04/2026

Sample Type

B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	25
90	100	0.0060	20
75	100	0.0020	16
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	87		
10	84		
6.3	78		
5	74		
3.35	70		
2	63		
1.18	58		
0.63	54		
0.425	51		
0.30	48		
0.20	43		
0.15	39		
0.063	30		

Sample Proportions	% dry mass
Cobbles	0
Gravel	37
Sand	33
Silt	14
Clay	16

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

85627

Borehole/Pit No.

BH02A

Project Name

1522.02

Sample No.

Sample Description

Red/brown fine to coarse sandy fine to coarse GRAVEL (with cobbles)

Depth Top

2.10

Depth Base

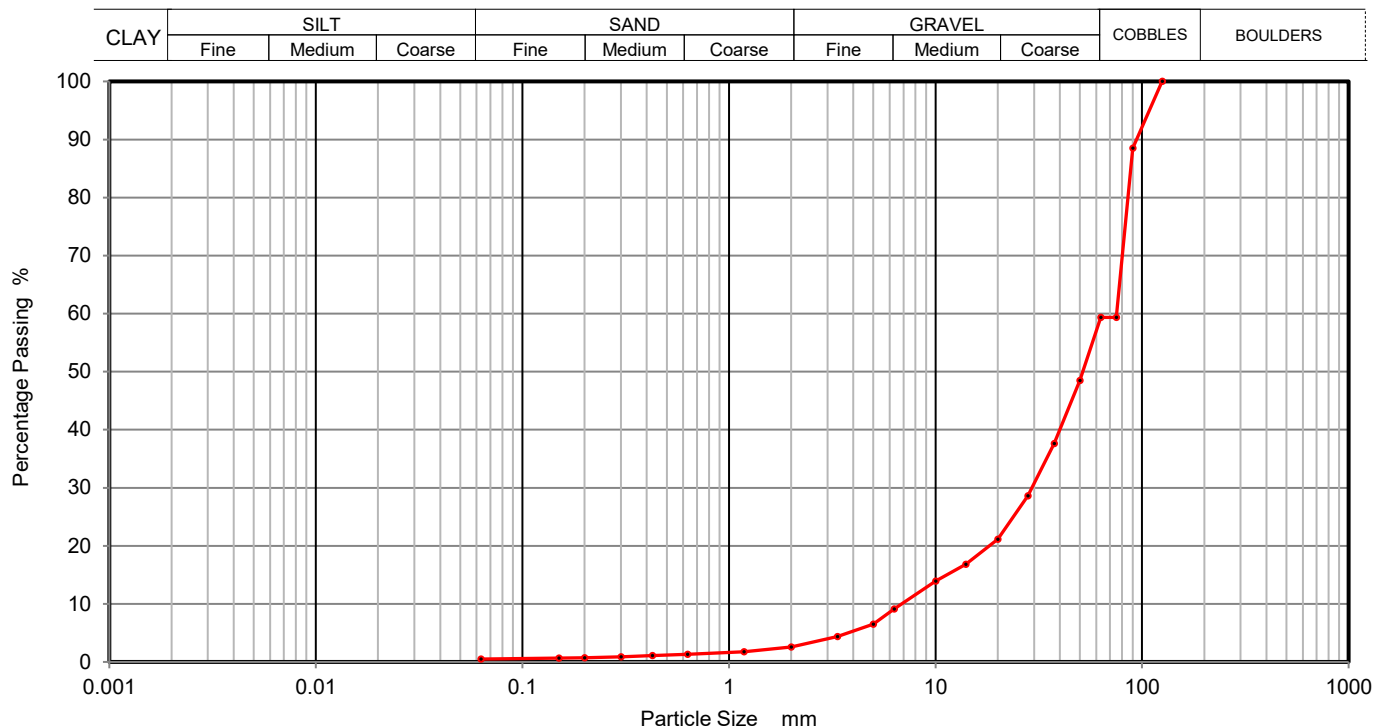
3.00

Date Tested

14/04/2026

Sample Type

B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	89		
75	59		
63	59		
50	48		
37.5	38		
28	29		
20	21		
14	17		
10	14		
6.3	9		
5	7		
3.35	4		
2	3		
1.18	2		
0.63	1		
0.425	1		
0.30	1		
0.20	1		
0.15	1		
0.063	0		

Sample Proportions	% dry mass
Cobbles	41
Gravel	56
Sand	3
Silt and Clay	0

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.

