

Phase 2 Ground Investigation

Client: Lidl Great Britain
Ltd

Cwmann, Lampeter

Report No: 1304.02.03

July 2025





Executive Summary

Remada Ltd was commissioned by Lidl Great Britain Ltd to conduct a Phase 2 Ground Investigation for a proposed store at Pen-y-Bont, Cwmann, Lampeter. This report follows a Phase 1 Preliminary Risk Assessment (Remada report reference 1304.01.01 dated August 2024).

This Phase 2 Report has been updated due a revised site layout, the requirements of the Local Authority Contaminated Land Officer and receipt a flood model assessment.

Summary of Phase 1 Desk Study

The earliest available historical mapping of 1887 and 1888 shows the site to be predominantly occupied by north-east to south-west orientated fields, although several residential-related buildings labelled 'Pen-y-bont' are present adjacent to the eastern boundary. By 1905, an additional building appears to have been constructed in the eastern area of the site. These buildings on-site appear to have been partially removed from-site after 1964, with all having disappeared by the mapping of 1992. By 1995, a rectangular structure (possibly an agricultural building) had been constructed near the centre of the site although (as of August 2024) this appears to be no longer present.

Published geological maps record that the site is predominantly underlain by superficial Alluvium deposits (a Secondary A Aquifer), although Till deposits (a Secondary Aquifer – Undifferentiated) are indicated to be present adjacent to the south and east of the study site. The bedrock geology is indicated

Intrusive Investigation

Remada's initial investigation comprised the drilling of nine (9 No) window sample holes (WS1 – WS9), execution of four (4 No) plate bearing tests and four (4 No) CBR tests at locations on 4th and 19th September 2024 and 7th October 2024. Remada's supplementary investigation comprised the drilling of five (5 No.) window sample boreholes (WS101 – WS105) targeting the revised store footprint on 16th May 2025.

Made Ground was encountered within five (5 No.) of the fourteen window sample boreholes (WS7, WS8, WS101, WS102 and WS104) to depths of between 0.22m (WS8) and 0.95m bgl (WS104). Natural topsoil was encountered within the remaining nine (9 No.) window sample boreholes to depths of between 0.18m and 0.27m bgl, with a mean thickness of 0.24m.

The made ground and topsoil on-site were underlain by heterogeneous natural deposits, comprising granular and cohesive strata dependent upon location. In the northern areas of the site (WS1, WS2 and WS3) topsoil was underlain by brown locally gravelly, silty and clayey fine to medium SAND. Further westwards (WS4 and WS5), the topsoil was directly underlain by firm brown sandy and silty CLAY.

Deposits of soft brown and grey SILT were encountered in nine (9 No.) boreholes (WS5 to WS9, WS102 – WS105), predominantly in the central, eastern and southern areas of the study site. The depth to the top of the silt ranged between 0.25m and 1.1m bgl and typically deepened towards the south, corresponding with the increasing topographic elevation. The thickness of the silt ranged from 0.2m in WS5 to 2.05m in WS104, indicating a thickening eastwards / south-eastward across the site.

Medium dense and dense, blueish grey / dark grey, sandy, angular to subangular GRAVEL of mudstone and siltstone was encountered near the base of ten (10 No.) exploratory boreholes (all except WS3, WS4, WS104 and WS105) from depths of 0.88m (WS1) and 2.48m bgl (WS102 and WS103).

Bedrock was not recovered within any of Remada's boreholes. However, SPT refusals (uncorrected N-value > 50) were encountered within thirteen borehole locations (all except WS6) at depths of between 1.0m and 4.0m bgl. These refusals are considered potentially representative of the depth to potential rockhead beneath the study site, although they may also represent very dense superficial GRAVEL deposits.

Human Health Assessment

The results of soil chemical analysis were compared to Human Health Generic Assessment Criteria for commercial land use. None of the analytes tested were detected at concentrations that exceeded the human health GAC protective of on-site workers.



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 and natural soils. 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. In addition, it should be noted that the site will be predominantly covered with the building and areas of hardstanding. Therefore, the risk of leaching of contaminants as a result of infiltration of groundwater is likely to be limited. Therefore, the risk to groundwater from contaminants within the made ground at the site is considered to be low and does not warrant further consideration.

Waste Classification

In general, the results of the assessment indicated that contaminant concentrations within the made ground, topsoil and natural soils were generally low and would typically classify the soils as non-hazardous with LoW Code 17 05 04 (soils and stones other than those mentioned in 17 05 03).

Two (2 No.) samples of asphalt were scheduled for PAH-17 analysis. The concentration of benzo(a)pyrene was very low (<1mg/kg) and ranged between 0.31mg/kg in Asphalt 2 and 0.78mg/kg in 'Asphalt 1', below the 50mg/kg limit defined in WM3. Therefore, the bituminous surfacing represented by these samples 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.

Geotechnical Assessment – Lidl Store

Remada initially understood that an earthworks fill exercise was required to achieve the required formation levels and hence that ground improvement would be necessary to ensure the required bearing capacity for a raft foundation.

However, the Updated Lampeter Fluvial Flood Model Technical Note Project: 4112 states that

'the building is placed on top of a 0.5 m thick slab with a void beneath where ground levels remain largely untouched. The finished flood level atop the slab is at 115.05 mODN'.

Consequently, it is understood that the Lidl store will be constructed on a raft bearing on piles that transfer the foundation load to competent strata beneath the required void space. Details of pile loads are not known and this report has been updated and reissued to align with the flood model requirements.

All samples of CLAY / SILT were reported as being HIGH and VERY INTERMEDIATE plasticity with 100% passing a 0.425mm sieve. The modified plasticity index equates to a Medium Volume Change Potential. No evidence of soil desiccation was identified within the underlying cohesive soils.

Excavation side walls may not be 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.

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.

Ground Gas

The results of six rounds of gas monitoring visits placed the site into Characteristic Situation 2 and therefore ground gas protection measures will not be required within the proposed buildings.

The site is located in an Intermediate Probability Radon Area as between 5% and 10% of properties are above the Action Level, therefore basic protective measures are necessary.



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Issue No	Date	Prepared By	Technical Review	Authorised
01	09.10.2024	P Dickinson 	G Jones 	G Jones 
02	24.06.2025	P Dickinson 	G Jones 	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 store at Pen-y-Bont, Cwmann, Lampeter at the location indicated in **Figure 1**.

This Phase 2 Report has been updated due a revised site layout, the requirements of the Local Authority Contaminated Land Officer and receipt a flood model assessment.

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 BS10175:2011+A2 2017 and the Environment Agency's Land Contamination Risk Management guidance for land contamination reports.

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 scope of work comprised:

- 5 No window samples 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 minimum depth of 3.0m 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
- Suite of geotechnical classification and strength 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.
- 3 No WAC tests
- Combined Factual & Interpretative Geoenvironmental Report.

Due to a revision of the site layout the Local Authority Contaminated Land Officer requested additional ground investigation. The scope of work was proposed in Remada's letter reference 1304.03.01 and approved by the Local Authority (with increased ground gas monitoring visits) on 6th May 2025. The scope of work comprised.

- 5 No window sample boreholes to target depths of 4m including SPTs;
- 5 No soil sample suites for contaminants associated with an animal and animal products processing works / tannery (with reference to DoE Industry Profiles and EA R&D 66) comprising CLEA metals, Sulphur, Sulphide, Phenol, Aromatic Hydrocarbons, Polyaromatic Hydrocarbons, Chlorinated Aliphatic Hydrocarbons (VOCs) and dieldrin. These samples also to be analysed for contaminants associated with a garage land use incorporating asbestos and Aliphatic hydrocarbons.
- 5 No gas / groundwater monitoring wells.
- 6 No rounds of gas/groundwater monitoring at different atmospheric pressures.
- Update to the Combined Factual & Interpretative Geoenvironmental Report.

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

1.3 Proposed Development

It is understood that the proposed site use for the site will be a Lidl retail store with associated car park and soft landscaping. The proposed indicative site layout plan is presented as **Figure 2**.

At the time Remada's intrusive investigation was instructed, the proposed store footprint was indicated to be in the north-western area of the site, with the remaining areas being a combination of car parking, HGV access and soft landscaping. However, a revision to the proposed site layout plan was received after the initial 2024 intrusive investigation had commenced on-site. The supplementary investigation in May 2025 targeted the revised store footprint.

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: 1304.01.01 issued in August 2024.

Remada is also in receipt of

- Updating the NRW Lampeter Fluvial Flood Model for a Proposed Lidl Store, Technical Note Project: 4112 – Lidl, Lampeter, Herrington Consulting, Rev 3, April 2025.

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 broadly rectangular plot of land to the west side of the junction of the A482 & A485. A wooden post and rail fence appears to separate the pedestrian footpaths to the roads from the site. The site itself is a more or less flat field except for the northeastern corner adjacent to the road junction where an unpaved car park has been constructed from a capping or subbase material. The car park is accessed via a bell mouth on the A485 approximately 50m south the junction.

Site History

The earliest available historical mapping of 1887 and 1888 shows the site to be predominantly occupied by north-east to south-west orientated fields, although several residential-related buildings labelled 'Pen-y-bont' are present adjacent to the eastern boundary. By 1905, an additional building appears to have been constructed in the eastern area of the site. These buildings on-site appear to have been partially removed from-site after 1964, with all having disappeared by the mapping of 1992. By 1995, a rectangular structure (possibly an agricultural building) had been constructed near the centre of the site although (as of August 2024) this appears to be no longer present.

Geology / Hydrogeology

Published geological maps record that the site is predominantly underlain by superficial Alluvium deposits (a Secondary A Aquifer), although Till deposits (a Secondary Aquifer – Undifferentiated) are indicated to be present adjacent to the south and east of the study site. The bedrock geology is indicated to comprise mudstone, siltstone and sandstone of the Devil's Bridge Formation (a Secondary B Aquifer).

Mining

The site is located within an area which might not be affected by coal mining activity.

Radon

The site is located in an Intermediate Probability Radon Area as between 5% and 10% of properties are above the Action Level, therefore basic 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 any made ground/fill beneath the proposed store footprint;*
- *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
<u>On-site Sources</u>				• Direct Soil Ingestion	• No	N/A	None	N/A	N/A
Made Ground Cars / Parking		Disturbance due to construction plant causing direct contact, dusts, vapours.		• Indoor Dust ingestion	• Yes	(To be assessed (TBA)	Potential risk	(To be assessed (TBA)	(To be assessed (TBA)
				• Skin Contact with Soils	• Yes	As above	Potential risk	TBA	TBA
				• Skin Contact with Dust	• Yes	As above	Potential risk	TBA	TBA
<u>Off-site Sources</u>				• Inhalation of Outdoor Dust	• Yes	As above	Potential risk	TBA	TBA
Tannery Garage Pumping Station Residential Housing Railway Line	Asbestos / Metals As, Be, Cd, Cu, Cr (VI), Cr (III) Hg, Ni, Se, Va, Zn, Boron, TPH /PAHs.	Direct Contact with occupants of the proposed development	Occupants of the development / building fabric	• Inhalation of Outdoor Vapours	• Yes	As above	Potential risk	TBA	TBA
		Inhalation of fibres / vapours / gases by occupants of proposed development		• Inhalation of Indoor Vapours	• Yes	As above	Potential risk	TBA	TBA
				• Inhalation of ground gas	• Yes	As above	Potential risk	TBA	TBA
				• Inhalation of radon gas	• No	Intermediate Probability Area	Potential risk	Basic radon protection measures	Low
		Permeation of water supply pipework	Adjacent residents during construction	• Ingestion via permeated water supply pipework	• Yes	As above	Potential risk	TBA	TBA
				• Direct contact with Secondary Aquifers in Superficial Deposits	• Yes	As above	Potential risk	TBA	TBA
		Leachate	Secondary Aquifers	• In-direct contact with Secondary (B) Aquifer in bedrock	• Yes	As above	Potential risk	TBA	TBA
			River Teifi						

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

3.1 Remada's Initial Investigation – September 2024

The opportunity was taken to inspect the proposed Lidl store site by Peter Dickinson of Remada Ltd on 3rd September 2024. This visit was undertaken the day prior to the intrusive investigation commencing on-site, as recorded in **Photographs 1 - 8** below. There were no visual or olfactory indicators of contamination.



Photo 1: The southern boundary marked by the fencing, view showing the existing car park on site.



Photo 2: View showing the fencing along the south of the site which marks the site boundary along the south of the site, with a gentle slope from the rising from the south towards the north.



Photo 3: Detail of the southern wall of the existing site boundary.



Photo 4: A view northward, the western boundary of the site is marked by the far trees. Majority of the site is greenfield as shown in the photograph.



Photo 5: Detail of the car park currently situated on the site, which is located in the southeast of the site, car park is used as a customer parking area for the burger box (white cart shown in photograph).



Photo 6: A view northward depicting the fencing which marks the eastern boundary of the site. The car park shown in the photograph is situated within the southeastern corner of the study area.



Photo 7: Detail of the south eastern section of the site, view taken from the eastern boundary portraying the car park.



Photo 8: A view southward along eastern boundary, houses shown are situated directly adjacent to the south east corner of the site.

3.2 Remada's Supplementary Investigation – May 2025

The opportunity was taken to inspect the proposed Lidl store site by Peter Dickinson of Remada Ltd during the supplementary investigation on 15th May 2025. A photographic record is presented in **Photos 9 – 12** overleaf. There were no visual or olfactory indicators of contamination.



Photo 9: A view northward across the existing car park area on 15/05/25, as a comparison view to Photo 6.



Photo 10: View eastwards from the eastern side boundary, towards the existing garage and site of the former tannery.



Photo 11: View southwards along the eastern boundary, with the junction of the A482 and A485 in the background.



Photo 12: View southwards across the existing car park area.



Photo 11: Existing portable toilet in the eastern half of the site. The course of the buried electricity cable supplying the Burger Box is roughly marked by the toilet and the picnic bench.



Photo 12: View westward along the southern wall of the existing site boundary.



4 ENVIRONMENTAL & GEOTECHNICAL INVESTIGATION METHODOLOGY

4.1 Investigation Strategy

4.1.1 Remada's Initial Investigation (2024)

In accordance with Lidl Ground Investigation standard 05.2023, four (4 No.) window sample holes were required beneath the proposed store footprint to a depth of 7m or refusal, and four (4 No.) beneath the delivery bay, HGV access and car park. Four (4 No.) plate bearing tests were required beneath the store footprint for raft foundation 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 C665.

The investigation comprised the drilling of nine (9 No.) window sample boreholes (WS1 – WS9), execution of four (4 No.) plate bearing tests and four (4 No.) CBR tests at locations indicated on **Figure 2** on 4th and 19th September 2024 and 7th October 2024.

At the time of Remada's intrusive investigation on-site on 4th September 2024, boreholes WS1 to WS5 were positioned within the proposed store footprint. However, on 17th September 2024, the client supplied Remada with a revised site layout plan, resulting in boreholes WS6 to WS9 being located within the proposed store footprint. The scheduled timing of the plate load and DCP testing on-site enabled this revised layout to be accommodated, as per **Figure 2**.

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.

4.1.2 Remada's Supplementary Investigation (2025)

Remada's supplementary investigation comprised the drilling of five (5 No.) window sample boreholes (WS101 – WS105) targeting the revised store footprint, at locations indicated on **Figure 2** on 16th May 2025.

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 hot and dry, with no standing water nor slippery ground conditions being noted.

4.2 Intrusive Investigation

Five of the window samples (WS1 – WS5) were advanced to a target depth of 7m, five to a target depth of 4m bgl (WS101 – WS105) and four to a target depth of 3m bgl (WS6 – WS9). However, as suspected bedrock was encountered at relatively shallow depths, the window samples holes were drilled to refusal which was typically between 1.0m and 4.0m bgl. Only WS6 achieved its target depth of 3.0m bgl during Remada's initial investigation on-site.

Combined Groundwater and Ground Gas monitoring standpipes were installed in WS2, WS3 and WS5 during the initial investigation and in WS101 to WS105 during the supplementary investigation.

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 69% and 64% for the SPT hammer on the window sampling rig during both phases of intrusive investigation on-site. The SPT Hammer Energy Test Reports, undertaken in accordance with BS EN ISO 22476-3:2005 are presented in **Appendix A**.

4.3.2 Hand Shear Vane

Hand shear vane tests were undertaken using an Impact SL810 and in general accordance with the manufacturer's instructions on selected samples of cohesive soils.

4.3.3 Dynamic Probing

Super Heavy Dynamic Probing (DPSH-B) was carried out in four locations (WS6 – WS9) to 1m depth, in accordance with BS EN ISO 22476-2 and BS EN 1997-2. Dynamic probing is a method of site investigation allowing a rapid assessment of ground conditions where sample recovery is not required, typically carried out as a precursor to more intrusive forms of investigation. The 'Blow Count' i.e., the number of hammer blows required to drive the cone into the ground by 100mm, are recorded to give a relative assessment of 'ground strength' but cannot be used to definitively confirm the actual composition of the geological strata. Therefore, any reference to strata composition is an interpretation, subject to confirmatory testing at a later date.

The positions of all the exploratory hole locations are recorded on **Figure 2** and the results of the DP tests are presented as **Appendix B**.

4.3.4 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 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 C**.

4.3.5 Plate Bearing Tests

Four (4 No.) plate bearing tests (PBT1 – PBT4) were carried in general accordance with BS EN 1997:2007 Annex K or IAN 73/06 to a minimum pressure of 300kN/m² using a 450mm diameter plate, at the locations in **Figure 2**. A wheeled backhoe excavator provided the reaction load. 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 window sample logs with samples retrieved from within a sleeve line. 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 0.5 – 1.0m 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 a GasData GFM436 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 (4 No.) ground gas monitoring visits were initially undertaken as a minimum required for a commercial development in accordance with CIRIA C665. Ground gas concentrations were recorded on 10th and 19th September 2024, and 3rd and 7th October 2024 at WS2, WS3 and WS5 and the results are presented in **Table 2a**.

Following the intrusive investigation in May 2025, a further six (6 No.) ground gas monitoring visits were undertaken in the five standpipes targeting the revised store footprint (WS101 – WS105). Ground gas concentrations were recorded on 19th and 27th May 2025, and 2nd, 9th, 16th and 23rd June 2025, and the results are presented in **Table 2b**.

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 initially 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.

Two (2 No.) samples were scheduled for Waste Acceptance Criteria (WAC) analysis. In addition, one topsoil sample was scheduled for BS3882:2015 topsoil analysis.



During the subsequent investigation, an additional five (5 No.) soil samples were scheduled for asbestos, arsenic, barium, beryllium, cadmium, chromium (III & VI), copper, mercury, nickel, lead, selenium, zinc, fraction of organic carbon, TPHCWG, PAH-16, BTEX compounds, phenols. Volatile Organic Compounds (VOCs), Semi-Volatile Organic Carbons (SVOCs) and pesticides.

The results of laboratory chemical analyses are presented at **Appendix E**.

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:

- 5 No Natural Moisture Contents
- 5 No Plasticity Indices
- 3 No Particle Size Distribution (PSD) tests; and
- 4 No BRE SD1 suites.

The results of the geotechnical testing are presented at **Appendix F**.

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 geological mapping indicates that the site is underlain by superficial Alluvium deposits. The BGS describe these as typically comprising *'soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present'*.

Immediately to the south and east of the study site, the superficial deposits are indicated to comprise Devensian Till. The BGS describe these deposits as typically comprising *'a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape'*.

The superficial Alluvium deposits are designated as a Secondary A Aquifer, which the Environment Agency define as comprising *'permeable layers that can support local water supplies, and may form an important source of base flow to rivers'*.

The bedrock underlying the superficial deposits on-site are formed of the Devil's Bridge Formation. The BGS' *'The Geology of the Area around Lampeter, Llangybi and Llanfair Clydogau'* 2004 describes the Devil's Bridge Formation as typically comprising *'clean, bouma-type laminated and rippled thin, tabular turbidite siltstones and fine sandstones alternating with thick, structureless turbidite mudstones on a decimetre scale'*.

5.1.2 Made Ground

Made ground was encountered within five (5 No.) of the fourteen window sample boreholes (WS7, WS8, WS101, WS102 and WS104) to depths of between 0.22m (WS8) and 0.95m bgl (WS104).

Topsoil was encountered within three locations, comprising locally gravelly, sandy clay and was present to depths of between 0.18m (WS7), 0.22m (WS8) and 0.3m (WS104). Within WS8, the topsoil comprised the entirety of the made ground and was delineated based upon occasional brick and coal fragments encountered within the recovered soils. Within WS7, the topsoil was underlain by brownish grey sandy gravel predominantly of mudstone and siltstone, with occasional fine brick and coal fragments. Within WS104, the topsoil was underlain by firm to stiff gravelly clay containing shale and occasional coal fragments.

Two of the boreholes (WS101 and WS102) were located within the existing car park in the site's south-eastern quadrant. Asphalt surfacing was encountered in WS101 to a depth of 0.1m bgl and was underlain by grey gravelly sand containing rare brick fragments to 0.62m bgl. Concrete gravel was encountered in WS102 to a depth of 0.29m bgl and was underlain by dark grey sandy gravel with a slight hydrocarbon odour to 0.67m bgl.

5.1.3 Topsoil

Natural topsoil was encountered within nine (9 No.) of the fourteen window sample boreholes to depths of between 0.18m and 0.27m bgl, with a mean thickness of 0.24m. 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.



5.1.3 Superficial Deposits

The made ground and topsoil on-site were underlain by heterogeneous natural deposits, comprising granular and cohesive strata dependent upon location.

In the northern areas of the site (WS1, WS2 and WS3) topsoil was underlain by brown locally gravelly, silty and clayey fine to medium SAND. Further westwards (WS4 and WS5), the topsoil was directly underlain by firm brown sandy and silty CLAY.

Deposits of soft brown and grey SILT were encountered in nine (9 No.) boreholes (WS5 to WS9, WS102 – WS105), predominantly in the central, eastern and southern areas of the study site. The depth to the top of the silt ranged between 0.25m and 1.1m bgl and typically deepened towards the south, corresponding with the increasing topographic elevation. The thickness of the silt ranged from 0.2m in WS5 to 2.05m in WS104, indicating a thickening eastwards / south-eastward across the site.

Medium dense and dense, blueish grey / dark grey, sandy, angular to subangular GRAVEL of mudstone and siltstone was encountered near the base of ten (10 No.) exploratory boreholes (all except WS3, WS4, WS104 and WS105) from depths of 0.88m (WS1) and 2.48m bgl (WS102 and WS103).

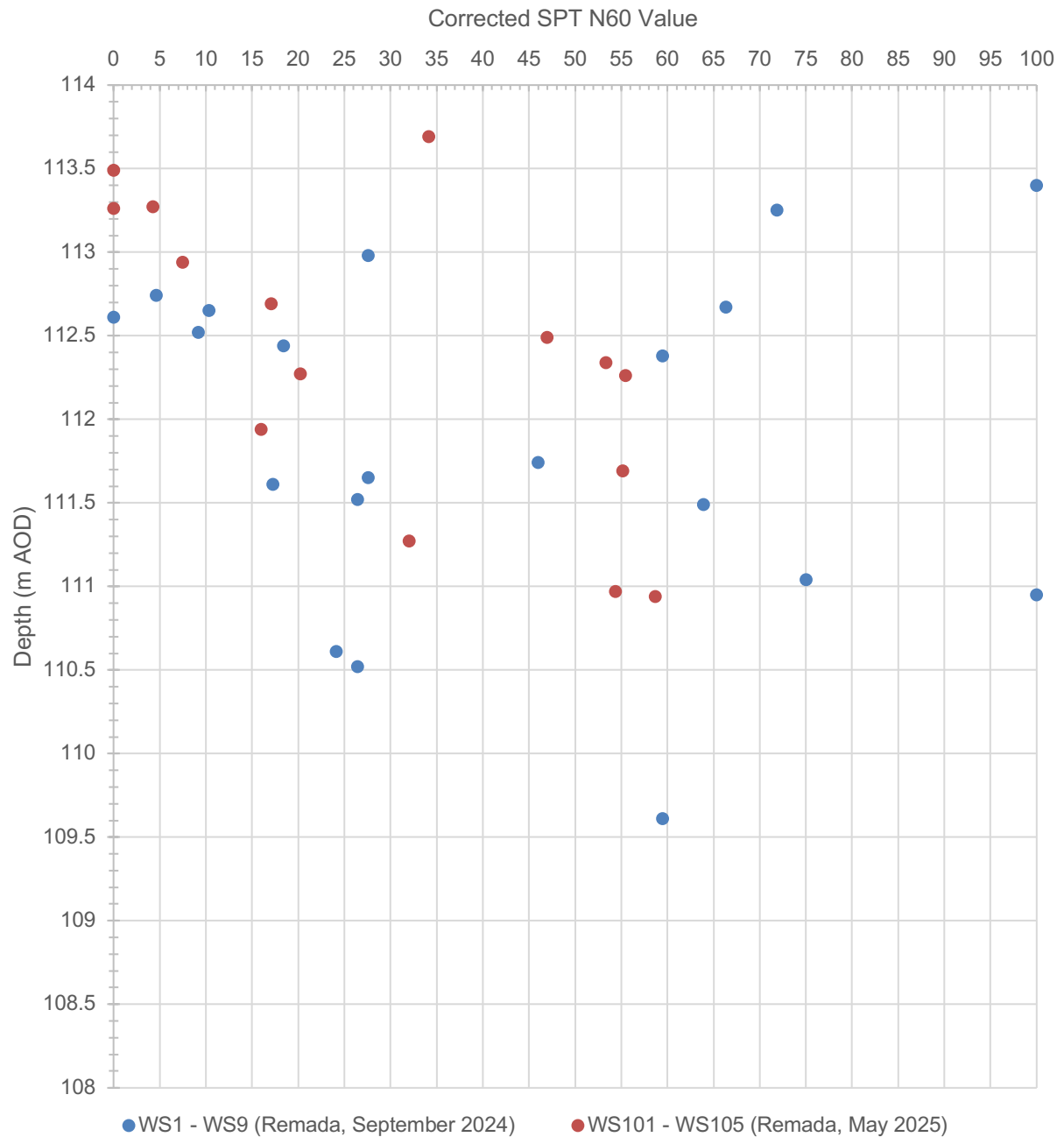
5.1.4 Bedrock

Bedrock was not recovered within any of Remada's boreholes. However, SPT refusals (uncorrected N-value > 50) were encountered within thirteen borehole locations (all except WS6) at depths of between 1.0m and 4.0m bgl. These refusals are considered potentially representative of the depth to potential rockhead beneath the study site, although they may also represent very dense superficial GRAVEL deposits.

5.2 In-situ Testing

5.2.1 Standard Penetration Tests (SPTs)

In-situ SPTs were undertaken to assist with the interpretation of strata encountered. The results of corrected N-values versus depth are plotted in the graph below:



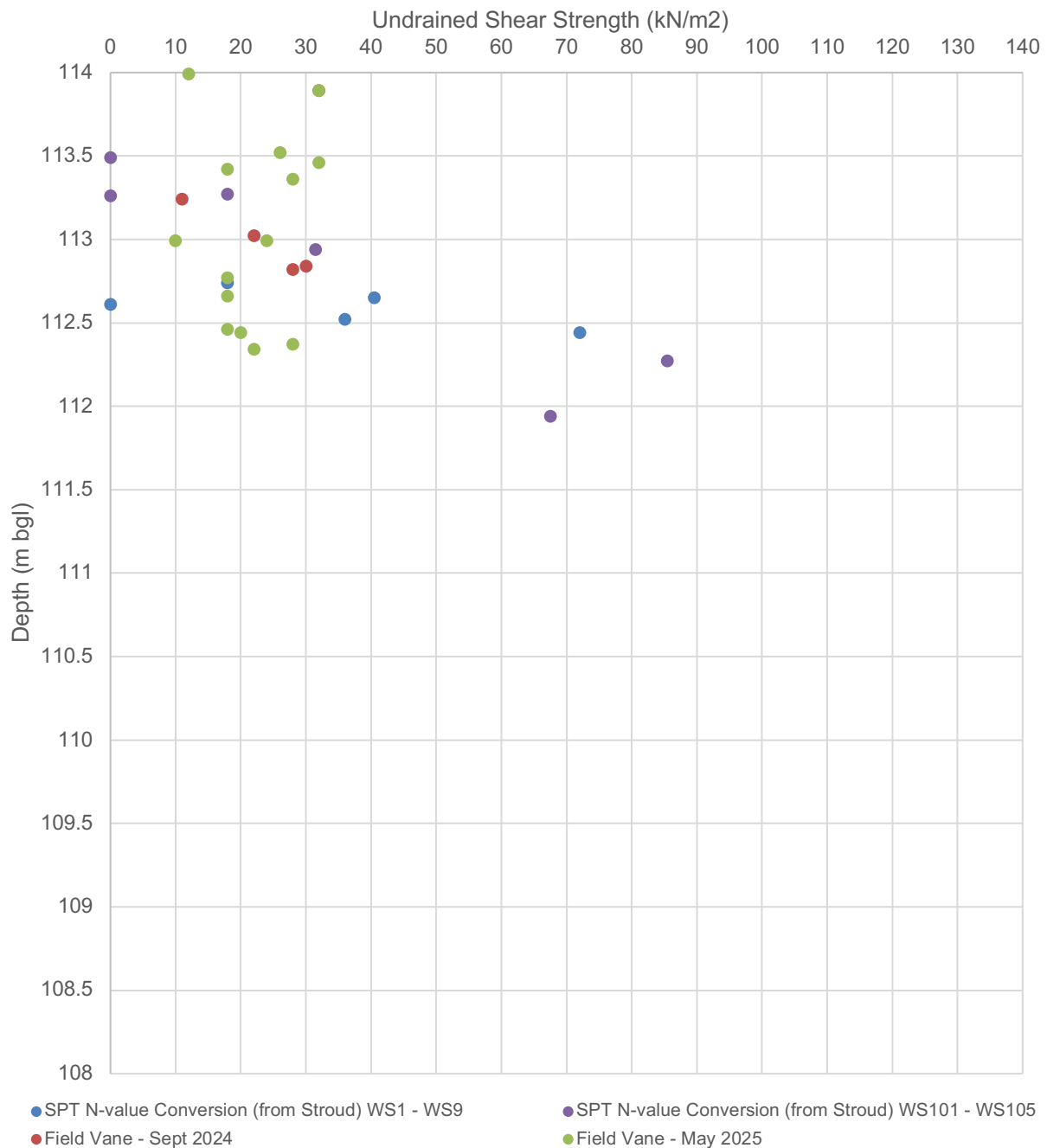
Graph 1: Plot of Corrected SPT N-Values Versus Depth

Undrained shear strengths have been estimated from SPT N values using the relationship developed by Stroud (*The standard penetration test in incentive clays and soft rocks*) and summarised in Tomlinson where:

$$\text{Mass shear strength} = f_1 \times N$$

Where f_1 is based on the plasticity index.

A Plasticity Index of 32% has been assumed (based on geotechnical laboratory testing) which equates to an f_1 factor of 4.5.



Graph 2: Plot of Mass Shear Strength Versus Depth

5.2.2 Hand Shear Vane

The results ranged between 10kPa (in WS104 at 2.5m) and 32kPa (in WS101 at 0.8m and WS105 at 0.8m bgl). The hand shear vane test results have been plotted along with the results interpreted from the SPT N values in **Graph 2**.

5.2.3 Plate Bearing Test

The results of the four plate bearing tests on shallow natural strata produced equivalent CBR values <1%. The results are presented in **Appendix B**.



5.2.4 CBR Tests

The results of the four DCP tests within the proposed car park area produced values <10% within the upper 500mm. The results of the DCP tests are presented in **Appendix C**.

5.3 Soil Observations

Made Ground was recovered in two locations (WS7 and WS8) in the eastern and south-eastern areas of the site and was differentiated based upon gravel-sized fragments of coal and brick.

There were no visible or olfactory indicators of contamination within the sampled soils.

5.4 Groundwater Observations

5.4.1 Remada's Initial Investigation (2024)

Groundwater strikes were recorded within six of the nine exploratory holes during Remada's initial 2024 investigation. Groundwater levels were also recorded in the monitoring wells in WS2, WS3 and WS5, as summarised in **Table 3** below:

Position	Depth of Groundwater Strike (m AOD)	Standing Water Level in Monitoring Standpipes (m AOD)				
		Visit 1	Visit 2	Visit 3	Visit 4	Average
WS1	None detected	-	-	-	-	-
WS2	112.45	113.29	113.05	113.28	113.14	113.19
WS3	None detected	DRY	DRY	113.29	DRY	<113.29
WS4	None detected	-	-	-	-	-
WS5	112.04	112.77	112.51	112.78	112.69	112.69
WS6	112.12	-	-	-	-	-
WS7	111.76	-	-	-	-	-
WS8	111.94	-	-	-	-	-
WS9	111.85	-	-	-	-	-

Table 3a: Summary of Groundwater Observations (2024 Investigation)

5.4.2 Remada's Supplementary Investigation (2025)

Groundwater strikes were recorded within three of the five exploratory holes during Remada's supplementary 2025 investigation. Groundwater levels were also recorded in the monitoring wells in WS101 – WS105, as summarised in **Table 3b** below:

Position	Depth of Groundwater Strike (m AOD)	Standing Water Level in Monitoring Standpipes (m AOD)						Average
		Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6	
WS101	112.65	113.02	113.06	113.23	113.15	113.52	113.91	113.32
WS102	111.79	112.82	112.86	112.61	112.93	113.20	112.98	112.98
WS103	111.46	112.62	112.64	112.59	112.69	112.99	112.75	112.71
WS104	None detected	113.92	113.89	113.92	114.00	114.43	114.12	114.12
WS105	None detected	112.15	112.12	112.10	112.19	112.56	112.36	112.25

Table 3b: Summary of Groundwater Observations (2025 Investigation)

5.5 Chemical Analysis

5.5.1 Remada's Initial Investigation (2024)

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

The average Fraction of Organic Carbon (FOC) and pH were 0.01 and 7.7 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 for the made ground and natural soils.

Concentrations of Total Petroleum Hydrocarbons (TPH) were below the method detection limit (MDL) within all five samples analysed.

Concentrations of Polyaromatic Hydrocarbons (PAHs) were detected above MDL in one of the five soil samples analysed; recording a concentration of 6.79mg/kg in WS7 at 0.3 – 0.4m bgl.

A sample of topsoil from the site was analysed for chemical comparison with BS3882:2015. The results of chemical analysis on this sample from WS5 at 0.1 – 0.2m depth is presented in **Table 5** below:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)
Mass Loss on Ignition: Clay 5% - 20%	-	3.0 – 20	4.5	YES
Mass Loss on Ignition: Clay 20% - 35%	-	5.0 – 20		
Soil pH value	-	5.5 – 8.5	7.3	YES
Carbonate (Calcareous only)	%	-	2.6	
Electrical Conductivity	µs/cm	If >3300 do ESP	1700	YES
Nitrogen %	-	>0.15	0.17	YES
Extractable phosphate (as P)	mg/l	16 – 140	110	YES
Extractable potassium	mg/l	121 – 1500	38.4	NO
Extractable magnesium	mg/l	51 – 600	52	YES
Carbon: Nitrogen Ratio	-	<20:1	15.71:1	YES
Zinc (Nitric Acid extract)	mg/kg	<200 to <300	100	YES
Copper (Nitric Acid extract)	mg/kg	<100 to <200	17	YES
Nickel (Nitric Acid extract)	mg/kg	<60 to <110	29	YES

Table 5: Summary of BS3882:2015 Topsoil Chemical Analysis

5.5.2 Remada's Supplementary Investigation (May 2025)

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

The average Fraction of Organic Carbon (FOC) and pH were 0.008 and 8.18 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 for the made ground and natural soils.

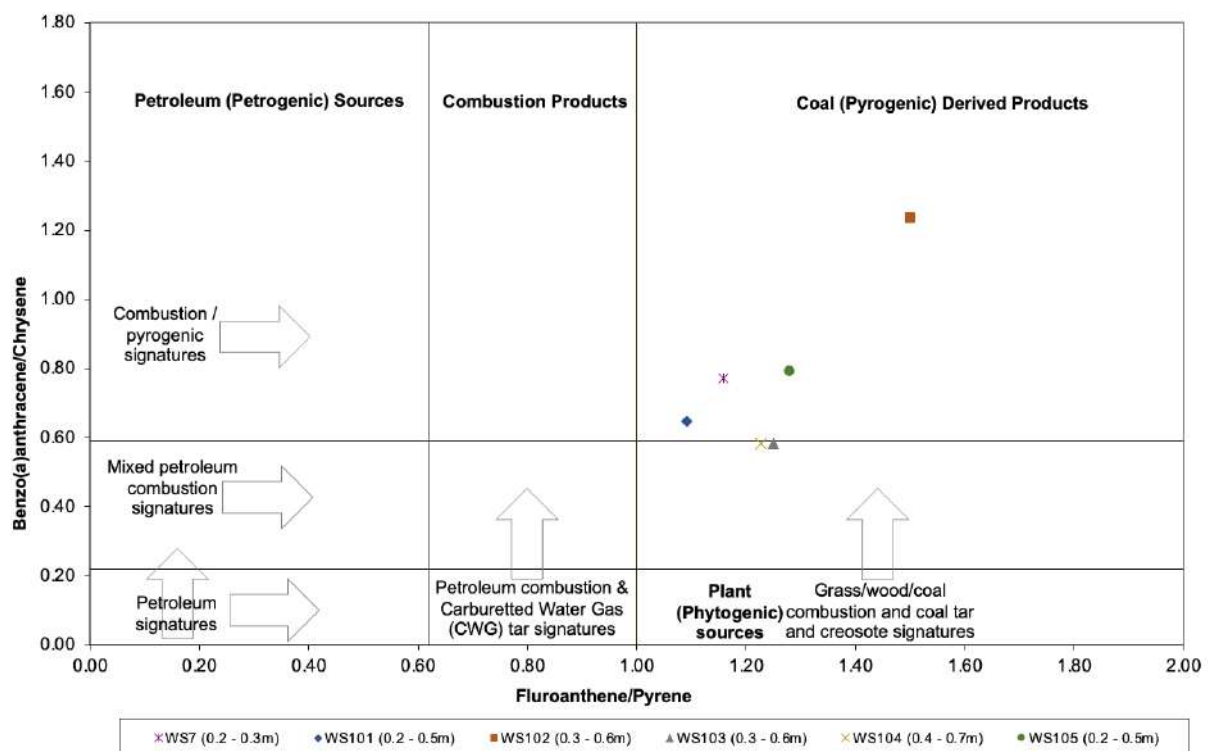
Concentrations of Total Petroleum Hydrocarbons (TPH) were identified above the method detection limit (MDL) within all three of the five samples analysed (from WS101, WS102 and WS104). A maximum concentration of 153 mg/kg was recorded in the sample from WS102 at 0.3 – 0.6m bgl.

Concentrations of Polyaromatic Hydrocarbons (PAHs) were detected above MDL in four of the five soil samples analysed, with a maximum concentration of 98.3mg/kg in WS102 at 0.3 – 0.6m bgl.

Concentrations of SVOCs, VOCs and pesticides were typically below MDL in the five soil samples analysed. In the made ground sample from WS102 at 0.3 – 0.6m bgl, detectable concentrations of 2-Methylnaphthalene, Dibenzofuran and Carbazole were identified, albeit each <3mg/kg.

5.5.3 PAH Double Ratio Plots

The PAH concentrations have been plotted on a double ratio plot to provide an indication of the likely source of the PAHs. The samples that had detections of the four PAHs used have been plotted on **Graph 3** below. The sample is indicated to be predominantly combustion related PAHs which could be associated with urban background sources.



Graph 3: PAH Double Ratio Plot

Two samples of the existing asphalt surfacing were recovered from site and tested for the presence of PAH-17. Sample 'Asphalt 1' recorded a total PAH-17 concentration of 7.29 mg/kg, whilst sample 'Asphalt 2' had a concentration of 7.15 mg/kg.

5.6 Geotechnical Testing

Results of the geotechnical testing are summarised below.

5.6.1 Plasticity Testing

Plasticity testing was undertaken on five (5 No.) samples of cohesive soils recovered from the window sample boreholes, with the results ranging between 25% and 38%. These indicate the soils to be of both high plasticity and very high plasticity, and medium volume change potential as summarised in **Table 6** below:

Location	Depth (m)	Plasticity Index (%)	Passing .425mm (%)	Modified Plasticity Index	Volume Change Potential
WS3	0.7 – 0.8	38	100	38	Medium
WS4	0.9 – 1.0	25	100	25	Medium
WS5	1.0 – 1.2	36	100	36	Medium
WS6	0.8 – 0.9	33	100	33	Medium
WS7	0.7 – 0.8	30	100	30	Medium

Table 6: 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 WS2 at 1.0 – 1.5m comprised brown sandy, silty/clayey fine to coarse GRAVEL.
- Natural deposits in WS4 at 0.3 – 1.0m comprised brown sandy gravelly SILT / CLAY.
- Natural deposits in WS6 at 1.5 – 2.5m comprised grey silty/clayey sandy fine to coarse GRAVEL.

5.6.3 BRE SD1 Analysis

The water-soluble sulphate contents varied from 1.72 to 36.3 mg/l in the four soil samples analysed with pH varying from 7.2 to 8.1. The total sulphur content varied from 0.01 to 0.041% and total sulphate varied from 0.026 to 0.07%.

5.7 Ground Gas Monitoring Results

5.7.1 Remada's Initial Investigation (2024)

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

- The maximum steady state concentration of methane was recorded as less than the instrument detection limit (MDL) in all three monitoring wells throughout the monitoring programme.
- A maximum steady state concentration of Carbon Dioxide was recorded as 3.2% v/v in WS3 on 10th September 2024. Detectable concentrations of carbon dioxide were recorded in all the monitoring wells.
- A minimum steady state concentration of Oxygen was recorded as 17.7 % v/v in WS5 on 3rd October 2024.
- No positive ground gas flow rates were recorded in any of the three monitoring wells throughout the monitoring programme.
- Groundwater was encountered within all three monitoring wells over the course of the monitoring programme, ranging in depths of between 0.69m and 0.96m bgl. However, the monitoring well in WS3 was recorded as being dry during the first, second and fourth monitoring visit.
- Atmospheric pressure at the time of sampling varied between a high of 1024 millibar (mbar) on 19th September 2024 and a low of 980 mbar on 7th October 2024. The monitoring visits were undertaken during periods of rising and falling pressure trends over the preceding forty-eight hours.



5.7.2 Remada's Supplementary Investigation (2025)

The results of the supplementary ground gas and groundwater monitoring programme in May and June 2025 are summarised below:

- The maximum steady state concentration of methane was recorded as 1.5% v/v in WS102 on 27th May 2025. Detectable concentrations of carbon dioxide were also recorded in monitoring wells WS105 & 105.
- A maximum steady state concentration of Carbon Dioxide was recorded as 12.8% v/v in WS105 on 16th June 2025. Detectable concentrations of carbon dioxide were recorded in all the monitoring wells.
- A minimum steady state concentration of Oxygen was recorded as 1.1 % v/v in WS102 on 23rd June 2025.
- The maximum flow rate was recorded as 0.6 l/s at WS105 on 2nd June 2025. Positive flow rates were recorded at all monitoring wells on that date.
- Groundwater was encountered within all three monitoring wells over the course of the monitoring programme at between 0.95m and 1.70m bgl (112.10 and 114.40mAOD).
- Atmospheric pressure at the time of sampling varied between a high of 1015 millibar (mbar) on 16th June 2025 and a low of 996 mbar on 27th May 2025. The monitoring visits were undertaken during periods of rising 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. Fraction of Organic Carbon (FOC) ranged from 0.003 to 0.014 giving a Soil Organic Matter (SOM) content range of between 0.52 to 2.41% with an average result of 1.66%. In order to present a conservative assessment, the SOM content of 1% 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.

6.2 Comparison of Soil Analysis Results with Human Health GAC

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

TPH, PAH & BTEX

None of the analytes tested were detected at concentrations that exceeded the human health GAC protective of on-site workers.

Metals & Inorganics Excluding Asbestos

None of the analytes tested were detected at concentrations that exceeded the human health GAC protective of on-site workers.

Asbestos

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

6.3 Controlled Waters Risk Assessment

6.3.1 Sensitivity – Groundwater

The site is not indicated to be within a groundwater Source Protection Zone. The superficial Alluvium deposits are designated as a Secondary A Aquifer, whilst the Till deposits mapped immediately to the east and south are designated as a Secondary Aquifer – Undifferentiated. The Devil's Bridge Formation bedrock underlying the site is designated as a Secondary B Aquifer. There is one (1 No.) groundwater



abstraction recorded within 1km of the site; this being located 392m to the north and pertains to the abstraction from a well at Brongest Farm for 'general farming and domestic' use.

6.3.2 Sensitivity – Surface Waters

The nearest surface water feature is unnamed brook or ditch encroaching into the western perimeter of the site. The water course flows to the Afon Teifi which is situated approximately 200m to the west of the site. The nearest point of the Afon Teifi is the northside of the A482 which forms the northern perimeter to the site. There are no surface water abstraction licences recorded within 1km of the study site.

6.3.3 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 for 'typical' natural strata and made ground. Detectable concentrations of 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.

Groundwater was encountered during the initial intrusive investigation on 4th September 2024 in six of the nine window sample boreholes (WS2, WS5 to WS9) at depths of between 1.4m and 1.85m bgl (111.76 – 112.47m AOD). During the subsequent monitoring programme, standing water was encountered within all three monitoring wells, ranging in depths of between 0.69m and 0.96m bgl.

Groundwater was also encountered during Remada's supplementary investigation in three of the five boreholes (WS101 – WS103) at depths of between 2.05m and 2.48m bgl (111.46 – 112.65m AOD). During the subsequent monitoring programme, standing water was encountered within all five monitoring wells, ranging in depths between 112.10 and 114.40m AOD.

Consequently, it is considered likely that the groundwater encountered below the site has lateral connectivity through the dense granular deposits and should be considered mobile.

Post-development, the site will continue to be predominantly covered by a retail building and areas of hardstanding. Consequently, the risk of 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.

6.4 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 = 1.5 % x 0.6 l/hr = 0.009 l/hr (methane concentration taken as equal to the instrument detection limit of 0.1%).
- Carbon Dioxide GSV = 12.8 % x 0.6 l/hr = 0.0768 l/hr

The calculated GSV of greater than 0.07 but less 0.7 l/hr for carbon dioxide and concentration of greater than 5% places the site into Characteristic Situation 2. BS 8485:2015+A1:2019 states that gas protection measures should be considered for the proposed development.

For a commercial building of this type (Type C) at a site classified as Characteristic Situation 2 the required minimum gas protection score for a low risk site in accordance with BS 8485:2015+A1:2019 (Table 4) is 2.5. Appropriate forms of floor and substructure designs are listed Table 5 of BS 8485:2015+A1:2019; it is likely that structural barriers, ventilation and a ground gas membrane would comprise suitable mitigation measures.

6.5 Revised Conceptual Site Model

A revised Conceptual Site Model is presented as **Table 7** below.

6.6 Waste Classification & Waste Acceptance

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.

6.6.1 Waste Classification

Soils

The results of the assessment indicated that contaminant concentrations within the made ground, topsoil and natural soils were generally low and would classify the soils as non-hazardous with LoW Code 17 05 04 (soils and stones other than those mentioned in 17 05 03).

Bitumen / Coal Tars

Two (2 No.) samples of asphalt were scheduled for PAH-17 analysis. The concentration of benzo(a)pyrene was very low (<1mg/kg) and ranged between 0.31mg/kg in Asphalt 2 and 0.78mg/kg in 'Asphalt 1', below the 50mg/kg limit defined in WM3. Coronene was also scheduled as an indicator



compound, with a maximum concentration of 2.2mg/kg being recorded in the sample 'Asphalt 2'.

Therefore, the bituminous surfacing represented by these samples 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.

6.6.2 Waste Acceptance

Waste Acceptance Criteria (WAC) analysis was undertaken on a sample of Made Ground (WS7 at 0.3 – 0.4m) and a sample of natural soil (WS2 at 0.5 – 0.6m). The assessment of both samples indicated that both samples met the requirements for disposal in an Inert landfill.

As a significant proportion of the soils likely to be generated on site are clean it is recommended that where possible that the soils could be recycled at a suitable local waste treatment plant or transfer station rather than a landfill disposal route.

6.7 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
<u>On-site Sources</u>				Direct Soil Ingestion	No	N/A	None	N/A	N/A
Made Ground Cars / Parking		Disturbance due to construction plant causing direct contact, dusts, vapours.		Indoor Dust ingestion	Yes	Soils analysed < GAC	Low	Hardstanding to cover retail site minimising direct contact.	Low
<u>Off-site Sources</u>				Skin Contact with Soils	Yes	As above	Low	As above	Low
				Skin Contact with Dust	Yes	As above	Low	As above	Low
Tannery Garage Pumping Station Residential Housing Railway Line	Asbestos / Metals As, Be, Cd, Cu, Cr (VI), Cr (III) Hg, Ni, Se, Va, Zn, Boron, TPH /PAHs.	Direct Contact with occupants of the proposed development	Occupants of the development / building fabric	- Inhalation of Outdoor Dust - Inhalation of Outdoor Vapours	- Yes - Yes	As above	Low	As above	Low
		Inhalation of fibres / vapours / gases by occupants of proposed development	Adjacent residents during construction	- Inhalation of Indoor Vapours - Inhalation of ground gas - Inhalation of radon gas	- Yes - Yes - No	As above	Low	As above	Low
		Permeation of water supply pipework		Ingestion via permeated water supply pipework	Yes	CS1	Low	None	Low
				Intermediate Probability Area		Potential risk		Basic radon protection measures	Low
				Soils analysed < GAC	Low	Hardstanding to cover retail site minimising direct contact.	Low	As above	Low
		Leachate	Secondary Aquifers	Direct contact with Secondary Aquifers in Superficial Deposits	Yes	As above	Low	As above	Low
			River Teifi	In-direct contact with Secondary (B) Aquifer in bedrock	Yes	As above	Low	As above	Low

Table 7: 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

A proposed indicative site layout plan is presented as **Figure 2**, with the site being accessed from the A482 to the north. The proposed store footprint is indicated to be located in the eastern area of the site, with the delivery bay located adjacent to the south-western façade. The southern area of the site is indicated to be *'surplus land for flood mitigation measures'* whilst the remaining areas are a combination of car parking, HGV access and soft landscaping.

Topographically the site ranges between circa 113.5m AOD along the north-western / western boundary and circa 115.5m AOD along the southern / south-eastern boundary. At the time of writing, the store's finished floor level (FFL) is indicated to be 115.05m AOD. In order to achieve the proposed FFL it is anticipated that ground levels will need to be raised by up to approximately 2m, once the existing topsoil has been stripped from the site. Imported fill material will be required for this purpose and could form a capping layer for the car park and formation for the store footprint.

At the time of Remada's intrusive investigation on-site on 4th September, boreholes WS1 to WS5 were positioned within the proposed store footprint. However, on 17th September 2024, the client supplied Remada with a revised site layout plan, resulting in boreholes WS6 to WS9 being located within the proposed store footprint. The scheduled timing of the plate load and DCP testing on-site enabled this revised layout to be accommodated, as per **Figure 2**. Boreholes WS101 to WS105 were also positioned targeting the proposed store footprint during Remada's supplementary investigation in May 2025.

Within the proposed store footprint (WS6 – WS9 and WS101 – WS105), localised made ground was encountered associated with the existing hard standing on-site and the site's historical residential / agricultural use in the eastern area of the site. Made ground was encountered within two (2 No.) of the nine window sample boreholes to depths up to 0.95m bgl (WS104). Elsewhere, topsoil was encountered (<0.3m thick) underlain by a combination of sandy GRAVEL and soft SILT. Medium dense and dense, blueish grey / dark grey, sandy, angular to subangular GRAVEL of mudstone and siltstone was encountered near the base of seven boreholes (all except WS104) from depths of 1.4m (WS6) and 2.48m bgl (WS102 and WS103).

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 Foundation Design

Remada initially understood that an earthworks fill exercise was required to achieve the required formation levels and hence that ground improvement would be necessary to ensure the required bearing capacity for a raft foundation.

However, the Updated Lampeter Fluvial Flood Model Technical Note Project: 4112 states that

'the building is placed on top of a 0.5 m thick slab with a void beneath where ground levels remain largely untouched. The finished flood level atop the slab is at 115.05 mODN'.

Consequently, it is understood that the Lidl store will be constructed on a raft bearing on piles that transfer the foundation load to competent strata beneath the required void space. Details of pile loads are not known and this report has been updated and reissued to align with the flood model requirements.



7.3 Shrinkage and Swelling

All samples of CLAY were reported as being HIGH and VERY INTERMEDIATE plasticity with 100% passing a 0.425mm sieve. The modified plasticity index equates to a Medium Volume Change Potential.

BRE 412 states that where the natural moisture content is less than 0.4 times the Liquid Limit ($w < 0.4 w_L$) it is indicative of desiccation. Within all five samples analysed, the natural moisture content remained higher than 0.4 wL. Consequently, there is no evidence of soil desiccation within the underlying cohesive soils.

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 Table 4 Minimum Foundation Depths

7.4 Floor Slab

It is anticipated that a ground bearing floor slab may be suitable provided that it is placed on suitable thickness of engineered fill as specified by the engineer. Based on the ground conditions encountered, it is considered likely that a raft foundation would also be suitable for the site.

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

Excavation side walls may not be 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.

Groundwater was encountered during the intrusive investigation in nine of the fourteen window sample boreholes (WS2, WS5 - WS9, WS101 - WS103) at depths of between 1.4m and 2.48m bgl (111.76 - 112.65m AOD), with resting water levels in the monitoring wells at depths of between 0.95m and 1.70m bgl.

7.7 External Car Park Construction

CBR values estimated from the DCP tests indicated that, near surface the CBR values were variable with values <10% being recorded.

It should be noted that cohesive material could be susceptible to changes in moisture content due to prevailing weather conditions, trafficking by construction plant etc. Care should be taken to ensure the formation is protected from such changes.



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 36.3 mg/l and pH >7.2. A total potential sulphate value of 0.123% 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 General Construction Advice

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 occupies a broadly rectangular plot of land to the west side of the junction of the A482 & A485. A wooden post and rail fence appears to separate the pedestrian footpaths to the roads from the site. The site itself is a more or less flat field except for the northeastern corner adjacent to the road junction where an unpaved car park has been constructed from a capping or subbase material. The car park is accessed via a bell mouth on the A485 approximately 50m south the junction.

Made Ground was encountered within five (5 No.) of the fourteen window sample boreholes (WS7, WS8, WS101, WS102 and WS104) to depths of between 0.22m (WS8) and 0.95m bgl (WS104). Natural topsoil was encountered within the remaining nine (9 No.) window sample boreholes to depths of between 0.18m and 0.27m bgl, with a mean thickness of 0.24m.

The Made Ground and topsoil on-site were underlain by heterogeneous natural deposits, comprising granular and cohesive strata dependent upon location. In the northern areas of the site (WS1, WS2 and WS3) topsoil was underlain by brown locally gravelly, silty and clayey fine to medium SAND. Further westwards (WS4 and WS5), the topsoil was directly underlain by firm brown sandy and silty CLAY.

Deposits of soft brown and grey SILT were encountered in nine (9 No.) boreholes (WS5 to WS9, WS102 – WS105), predominantly in the central, eastern and southern areas of the study site. The depth to the top of the silt ranged between 0.25m and 1.1m bgl and typically deepened towards the south, corresponding with the increasing topographic elevation. The thickness of the silt ranged from 0.2m in WS5 to 2.05m in WS104, indicating a thickening eastwards / south-eastward across the site.

Medium dense and dense, blueish grey / dark grey, sandy, angular to subangular GRAVEL of mudstone and siltstone was encountered near the base of ten (10 No.) exploratory boreholes (all except WS3, WS4, WS104 and WS105) from depths of 0.88m (WS1) and 2.48m bgl (WS102 and WS103).

Bedrock was not recovered within any of Remada's boreholes. However, SPT refusals (uncorrected N-value > 50) were encountered within thirteen borehole locations (all except WS6) at depths of between 1.0m and 4.0m bgl. These refusals are considered potentially representative of the depth to potential rockhead beneath the study site, although they may also represent very dense superficial GRAVEL deposits.

8.1.2 Human Health Risk Assessment

The results of soil chemical analysis were compared to Human Health Generic Assessment Criteria for commercial land use. None of the analytes tested were detected at concentrations that exceeded the human health GAC protective of on-site workers.

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 that would be expected for 'typical' made ground. Detectable concentrations of 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.

Groundwater was encountered during the intrusive investigation in six of the nine window sample boreholes (WS2, WS5 to WS9) at depths of between 1.4m and 1.85m bgl (111.76 – 112.47m AOD), with



resting water levels in the monitoring wells at depths of between 0.69m and 0.96m bgl.

In addition, it should be noted that the site will be predominantly covered with the building and areas of hardstanding. Therefore, the risk of leaching of contaminants as a result of infiltration of groundwater is likely to be limited. Therefore, the risk to groundwater from contaminants within the made ground at the site is considered to be low and does not warrant further consideration.

8.1.4 Waste Classification

In general, the results of the assessment indicated that contaminant concentrations within the made ground, topsoil and natural soils were generally low and would typically classify the soils as non-hazardous with LoW Code 17 05 04 (soils and stones other than those mentioned in 17 05 03).

Two (2 No.) samples of asphalt were scheduled for PAH-17 analysis. The concentration of benzo(a)pyrene was very low (<1mg/kg) and ranged between 0.31mg/kg in Asphalt 2 and 0.78mg/kg in 'Asphalt 1', below the 50mg/kg limit defined in WM3. Therefore, the bituminous surfacing represented by these samples 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.

8.2 Recommendations

Remada initially understood that an earthworks fill exercise was required to achieve the required formation levels and hence that ground improvement would be necessary to ensure the required bearing capacity for a raft foundation.

However, the Updated Lampeter Fluvial Flood Model Technical Note Project: 4112 states that

'the building is placed on top of a 0.5 m thick slab with a void beneath where ground levels remain largely untouched. The finished flood level atop the slab is at 115.05 mODN'.

Consequently, it is understood that the Lidl store will be constructed on a raft bearing on piles that transfer the foundation load to competent strata beneath the required void space. Details of pile loads are not known and this report has been updated and reissued to align with the flood model requirements.

All samples of CLAY / SILT were reported as being HIGH and VERY INTERMEDIATE plasticity with 100% passing a 0.425mm sieve. The modified plasticity index equates to a Medium Volume Change Potential. No evidence of soil desiccation was identified within the underlying cohesive soils.

Excavation side walls may not be 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.

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.

8.3 Ground Gas

The results of six 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.

The site is located in an Intermediate Probability Radon Area as between 5% and 10% of properties are above the Action Level, therefore basic radon protective measures are necessary within the design of the proposed store building.



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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 in main report text)

Table 2A: Gas Groundwater Monitoring Data (initial 2024 Investigation)

GAS & GROUNDWATER MONITORING DATA																							
SITE		Lampeter																					
PROJECT No.		1304.02			Atmospheric & Ground Conditions																		
Visit 1 of 4				Atmospheric Pressure Variations During Visit												Ground Surface Conditions							
Carried Out by:		Lewis Hillman			993mb												Wet						
Date:		10.09.2024			Atmospheric Pressure Trend Over Previous 48hrs												Weather Conditions						
Instrument Details	GFM436 14048			Rising													Overcast, Wet						
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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS02	113.980	50	0.0	0.0	0.0	1.7	1.7	18.2	18.9	-	-	-	-	60	0.0	-	-	-	993	0.690	113.290	1.600	
WS03	114.250	50	0.0	0.0	0.0	3.4	3.2	17.6	17.8	-	-	-	-	60	0.0	-	-	-	993	DRY	DRY	1.000	
WS05	113.490	50	0.0	0.0	0.0	1.6	0.7	19.1	19.5	-	-	-	-	60	0.0	-	-	-	993	0.720	112.770	2.000	

NR = Not Recorded

^ For measurement of gas concentrations

> = Above LEL

WST = Water Sample Taken

GL = Ground Level

GAS & GROUNDWATER MONITORING DATA																								
SITE		Lampeter																						
PROJECT No.		1304.02			Atmospheric & Ground Conditions																			
Visit 2 of 4				Atmospheric Pressure Variations During Visit													Ground Surface Conditions							
Carried Out by:		Usamah Khan			1024mb													Dry						
Date:		19.09.24			Atmospheric Pressure Trend Over Previous 48hrs													Weather Conditions						
Instrument Details	GFM436 14048			Falling														Sunny, Chilly, Clear						
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	Minimum	Steady	Minimum	Steady				Peak	Steady						
WS02	113.980	50	0.0	0.0	0.0	2.3	0.9	18.6	19.4	-	-	-	-	60	0.0	-	-	-	1010	0.930	113.050	1.600		
WS03	114.250	50	0.0	0.0	0.0	2.3	2.3	18.4	18.4	-	-	-	-	60	0.0	-	-	-	1010	DRY	DRY	1.000		
WS05	113.490	50	6.7	0.0	0.0	2.1	2.1	18.9	18.9	-	-	-	-	60	0.0	-	-	-	1010	0.980	112.510	2.000		

Notes: NR = Not Recorded

^ For measurement of gas concentrations

> = Above LEL

WST = Water Sample Taken

GL = Ground Level

Table 2: Gas and Groundwater Monitoring Data

Table 2A: Gas Groundwater Monitoring Data (initial 2024 Investigation)

GAS & GROUNDWATER MONITORING DATA																								
SITE		Lampeter																						
PROJECT No.		1304.02																						
Visit 3 of 4				Atmospheric Pressure Variations During Visit													Ground Surface Conditions							
Carried Out by:		Usamah Khan			1021mb													Wet						
Date:		03.10.24			Atmospheric Pressure Trend Over Previous 48hrs													Weather Conditions						
Instrument Details		GFM436 14048			Rising													Sunny, Chilly, Clear						
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)		H ₂ S (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	Minimum	Steady	Minimum	Steady				Peak	Steady						
WS02	113.980	50	0.0	0.0	0.0	2.2	0.4	18.5	19.6	-	-	-	-	60	0.0	-	-	-	1009	0.700	113.280	1.600		
WS03	114.250	50	0.0	0.0	0.0	2.5	2.3	18.1	18.3	-	-	-	-	60	0.0	-	-	-	1009	0.960	113.290	1.000		
WS05	113.490	50	0.0	0.0	0.0	2.9	2.9	17.7	17.7	-	-	-	-	60	0.0	-	-	-	1007	0.710	112.780	2.000		

Notes: 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		Lampeter																					
PROJECT No.		1304.02		Atmospheric & Ground Conditions																			
Visit 4 of 4				Atmospheric Pressure Variations During Visit													Ground Surface Conditions						
Carried Out by:		Usamah Khan		980 - 981mb													Wet						
Date:		07.10.2024																					
Instrument Details	GFM436 14048			Atmospheric Pressure Trend Over Previous 48hrs													Weather Conditions						
				Falling													Clear, light rain						
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)		H ₂ S (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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS02	113.980	50	0.0	0.0	0.0	1.8	1.8	18.5	18.5	-	-	-	-	60	0.0	-	-	-	980	0.840	113.140	1.600	
WS03	114.250	50	0.0	0.0	0.0	2.3	2.3	18.4	18.4	-	-	-	-	60	0.0	-	-	-	981	DRY	DRY	1.000	
WS05	113.490	50	0.0	0.0	0.0	2.7	2.7	18.1	18.1	-	-	-	-	60	0.0	-	-	-	981	0.800	112.690	2.000	

Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level

Table 2: Gas and Groundwater Monitoring Data

Table 2B: Gas Groundwater Monitoring Data (Supplementary 2025 Investigation)

GAS & GROUNDWATER MONITORING DATA																	REMADA GEO CONSULTANTS															
SITE		Cwmann, Lampeter																														
PROJECT No.		1304.03		Atmospheric & Ground Conditions																												
Visit 1 of 6		Atmospheric Pressure Variations During Visit															Ground Surface Conditions															
Carried Out by:		Vince Williams		1007mb															Dry													
Date:		19.05.2025		Atmospheric Pressure Trend Over Previous 48hrs Rising															Weather Conditions													
Instrument Details	GA5000																									Sunny, Warm						
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)		H ₂ S (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	Minimum	Steady	Minimum	Steady				Peak	Steady														
WS101	114.690	50	0.0	0.0	0.0	6.7	6.7	7.8	7.8	0.0	-	2.0	-	30	0.0	0.15	-	-	1007	1.670	113.020	2.500										
WS102	114.270	50	0.3	0.3	6.0	5.1	5.1	4.6	4.6	1.0	-	20.0	-	30	0.1	-0.10	-	-	1007	1.450	112.820	1.700										
WS103	113.940	50	0.0	0.0	0.0	2.6	2.6	18.6	18.6	0.0	-	3.0	-	30	0.0	-0.09	-	-	1007	1.320	112.620	2.000										
WS104	115.490	50	0.0	0.0	0.0	11.5	11.5	9.4	9.4	1.0	-	4.0	-	30	0.1	-0.02	-	-	1007	1.570	113.920	3.000										
WS105	114.260	50	0.2	0.2	4.0	7.3	7.3	14.1	14.1	0.0	-	12.0	-	30	0.1	-0.48	-	-	1007	2.110	112.150	2.000										

NR = Not Recorded

^ For measurement of gas concentrations

> = Above LEL

WST = Water Sample Taken

GL = Ground Level

GAS & GROUNDWATER MONITORING DATA																							
SITE		Cwmann, Lampeter																					
PROJECT No.		1304.03			Atmospheric & Ground Conditions																		
Visit 2 of 6					Atmospheric Pressure Variations During Visit												Ground Surface Conditions						
Carried Out by:		Vince Williams			996mb												Wet						
Date:		27.05.2025																					
Instrument Details	GA5000				Atmospheric Pressure Trend Over Previous 48hrs												Weather Conditions						
					Falling												Raining						
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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS101	114.690	50	0.1	0.1	0.1	7.0	7.0	8.2	8.2	0.0	0.0	1.0	1.0	30	0.5	-0.17	-	-	996	1.630	113.060	2.500	
WS102	114.270	50	1.5	1.5	1.5	7.4	7.4	0.2	0.2	0.0	0.0	4.0	4.0	30	0.4	-0.08	-	-	996	1.410	112.860	1.700	
WS103	113.940	50	0.2	0.2	0.2	3.2	3.2	19.1	19.1	0.0	0.0	0.0	0.0	30	0.4	-0.09	-	-	996	1.300	112.640	2.000	
WS104	115.490	50	0.1	0.1	0.1	7.0	7.0	15.5	15.5	0.0	0.0	1.0	1.0	30	0.5	-0.10	-	-	996	1.600	113.890	3.000	
WS105	114.260	50	0.1	0.1	0.1	0.2	0.1	21.6	21.6	0.0	0.0	0.0	0.0	30	0.5	-0.10	-	-	996	2.140	112.120	2.000	

Notes: NR = Not Recorded

^ For measurement of gas concentrations

> = Above LEL

WST = Water Sample Taken

GL = Ground Level

Table 2: Gas and Groundwater Monitoring Data

Table 2B: Gas Groundwater Monitoring Data (Supplementary 2025 Investigation)

GAS & GROUNDWATER MONITORING DATA																							
SITE		Cwmann, Lampeter																					
PROJECT No.		1304.03																					
Visit 3 of 6		Atmospheric Pressure Variations During Visit															Ground Surface Conditions						
Carried Out by:																							
Date:		02.06.2025																					
Instrument Details	GFM436 14048																Atmospheric Pressure Trend Over Previous 48hrs						
					Steady											Sunny, Warm							
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)		H ₂ S (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	Minimum	Steady	Minimum	Steady				Minimum	Steady					
WS101	114.690	50	0.0	0.0	0.0	6.8	6.8	4.6	4.6	0.0	0.0	4.0	4.0	30	0.1	-0.02	-	-	1004	1.460	113.230	2.500	
WS102	114.270	50	0.0	0.0	0.0	7.5	7.5	10.1	10.1	0.0	0.0	1.0	1.0	30	0.1	0.03	-	-	1004	1.660	112.610	1.700	
WS103	113.940	50	0.0	0.0	0.0	2.6	2.6	18.6	18.6	0.0	0.0	1.0	1.0	30	0.0	-0.03	-	-	1004	1.350	112.590	2.000	
WS104	115.490	50	0.0	0.0	0.0	5.9	5.9	15.5	15.5	0.0	0.0	2.0	2.0	30	0.0	0.09	-	-	1004	1.570	113.920	3.000	
WS105	114.260	50	0.0	0.0	0.0	11.9	11.9	10.3	10.3	0.0	0.0	3.0	3.0	30	0.0	0.02	-	-	1004	2.160	112.100	2.000	

Notes: 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		Cwmann, Lampeter																					
PROJECT No.		1304.03																					
Visit 4 of 6		PROJECT No.		1304.03		Atmospheric & Ground Conditions											Ground Surface Conditions						
Carried Out by:						Atmospheric Pressure Variations During Visit																	
Date:		Vince Williams		1008mb													Dry						
Instrument Details		09.06.2025		GFM436 14048		Atmospheric Pressure Trend Over Previous 48hrs											Weather Conditions						
						Rising											Clear						
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)		H ₂ S (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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS101	114.690	50	0.0	0.0	0.0	7.4	7.4	10.9	10.9	0.0	0.0	1.0	1.0	30	0.0	-0.05	-	-	1008	1.540	113.150	2.500	
WS102	114.270	50	0.1	0.1	0.1	6.0	6.0	4.2	4.2	0.0	0.0	2.0	2.0	30	0.1	0.03	-	-	1008	1.340	112.930	1.700	
WS103	113.940	50	0.0	0.0	0.0	2.3	2.3	19.4	19.4	0.0	0.0	2.0	2.0	30	0.0	0.09	-	-	1008	1.250	112.690	2.000	
WS104	115.490	50	0.0	0.0	0.0	6.5	6.5	15.1	15.1	0.0	0.0	1.0	1.0	30	0.0	0.09	-	-	1008	1.490	114.000	3.000	
WS105	114.260	50	0.0	0.0	0.0	12.5	12.5	9.1	9.1	0.0	0.0	1.0	1.0	30	0.0	0.12	-	-	1008	2.070	112.190	2.000	

Notes: NR = Not Recorded

^ For measurement of gas concentrations

> = Above LEL

WST = Water Sample Taken

GL = Ground Level

Table 2: Gas and Groundwater Monitoring Data

Table 2B: Gas Groundwater Monitoring Data (Supplementary 2025 Investigation)

GAS & GROUNDWATER MONITORING DATA																							
SITE		Cwmann, Lampeter																					
PROJECT No.		1304.03		Atmospheric & Ground Conditions																			
Visit 5 of 6				Atmospheric Pressure Variations During Visit												Ground Surface Conditions							
Carried Out by:		Vince Williams		1015mb												Dry							
Date:		16.06.2025																					
Instrument Details	GFM436 14048			Atmospheric Pressure Trend Over Previous 48hrs												Weather Conditions							
				Rising												Sunny, Warm							
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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS101	114.690	50	0.0	0.0	0.0	7.5	7.5	8.6	8.6	0.0	0.0	3.0	3.0	30	0.0	0.05	-	-	1015	1.170	113.520	2.500	
WS102	114.270	50	0.0	0.0	0.0	5.5	5.5	4.8	4.8	0.0	0.0	3.0	3.0	30	0.2	-0.12	-	-	1015	1.070	113.200	1.700	
WS103	113.940	50	0.0	0.0	0.0	2.4	2.4	18.2	18.2	1.0	1.0	2.0	2.0	30	0.0	0.07	-	-	1015	0.950	112.990	2.000	
WS104	115.490	50	0.0	0.0	0.0	0.5	0.5	19.7	19.7	1.0	1.0	3.0	3.0	30	0.0	0.05	-	-	1015	1.060	114.430	3.000	
WS105	114.260	50	0.0	0.0	0.0	12.8	12.8	4.9	4.9	1.0	1.0	4.0	4.0	30	0.0	0.17	-	-	1015	1.700	112.560	2.000	

Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level

GAS & GROUNDWATER MONITORING DATA																							
SITE		Cwmann, Lampeter																					
PROJECT No.		1304.03		Atmospheric & Ground Conditions																			
Visit 6 of 6				Atmospheric Pressure Variations During Visit												Ground Surface Conditions							
Carried Out by:		Vince Williams		1002mb												Damp							
Date:		23-Jun-25																					
Instrument Details	GFM436 14048			Atmospheric Pressure Trend Over Previous 48hrs												Weather Conditions							
				Atmospheric Pressure Trend Over Previous 48hrs												Raining							
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	Minimum	Steady	Minimum	Steady				Peak	Steady					
WS101	114.690	50	0.0	0.0	0.0	8.7	8.7	8.2	8.2	0.0	0.0	1.0	1.0	30	0.6	0.02	-	-	1002	1.500	113.190	2.500	
WS102	114.270	50	0.1	0.1	0.1	7.4	7.4	1.1	1.1	0.0	0.0	2.0	2.0	30	0.5	0.03	-	-	1002	1.310	112.960	1.700	
WS103	113.940	50	0.1	0.1	0.1	2.7	2.7	19.2	19.2	0.0	0.0	0.0	0.0	30	0.5	0.14	-	-	1002	1.190	112.750	2.000	
WS104	115.490	50	0.0	0.0	0.0	2.0	2.0	14.8	14.8	0.0	0.0	2.0	2.0	30	0.5	0.09	-	-	1002	1.370	114.120	3.000	
WS105	114.260	50	0.0	0.0	0.0	5.1	5.1	13.9	13.9	0.0	0.0	2.0	2.0	30	0.6	0.07	-	-	1002	1.900	112.360	2.000	

Notes: NR = Not Recorded ^ For measurement of gas concentrations > = Above LEL WST = Water Sample Taken GL = Ground Level

Table 2: Gas and Groundwater Monitoring Data

Table 4: Comparison of Soil Chemical Analyses with GAC

Lab Sample Number:				Commercial GAC 1.0% SOM	309885	309887	309888	309890	309893	549759	549760	549761	549762	549763
Sample Reference:					WS1	WS2	WS3	WS4	WS7	WS101	WS102	WS103	WS104	WS105
Borehole:					-	-	-	-	-	-	-	-	-	-
Top Depth (m):					0.4	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.2
Basal Depth (m):					0.5	0.6	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.50
Date Sampled:					04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024	15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Determinand	Units	Limit of detection	Accreditation Status	[mg/kg unless stated]										
Moisture	%	0.01	NONE		23	25	25	25	7.2	4.6	4	2.3	8.7	5.2
Asbestos in Soil	Type	N/A	ISO 17025		Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-	-
pH	pH Units	N/A	MCERTS		6.5	8.2	6.6	7.2	7.7	8.2	8	8.3	8	8.3
Arsenic	mg/kg	1.00	MCERTS	640	16	16	16	17	16	12	12	13	11	10
Beryllium	mg/kg	0.06	MCERTS	12	0.72	0.74	0.81	0.82	0.69	0.65	0.94	0.32	0.63	0.48
Boron	mg/kg	0.20	MCERTS	240000	0.4	0.5	0.4	0.4	0.4	0.9	0.5	< 0.2	0.6	0.4
Cadmium	mg/kg	0.20	MCERTS	190	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.5	< 0.2
Chromium (Hexavalent)	mg/kg	1.80	MCERTS	33	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (Trivalent)	mg/kg	1.00	NONE	8600	31	31	34	30	26	23	28	18	26	25
Chromium (aqua regia extractable)	mg/kg	1.00	MCERTS	31	31	31	34	30	26	23	28	19	27	26
Copper	mg/kg	1.00	MCERTS	68000	25	16	16	15	39	28	42	25	30	24
Lead	mg/kg	1.00	MCERTS	NC	35	37	39	39	64	85	32	89	48	40
Mercury	mg/kg	0.30	MCERTS	58 ^{***} (25.8)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel	mg/kg	1.00	MCERTS	990	30	29	30	28	30	29	32	28	28	36
Selenium	mg/kg	1.00	MCERTS	12000	3.9	3.6	4.5	5.3	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	mg/kg	1.00	MCERTS	9000	34	34	36	34	29	28	26	21	28	27
Zinc	mg/kg	1.00	MCERTS	730000	100	94	100	99	130	110	110	81	140	110
Total Cyanide	mg/kg	1.00	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS		0.0096	0.012	0.013	0.0094	0.014	0.0062	0.0067	0.003	0.014	0.009
Calculated SOM from FOC					1.66	2.07	2.24	1.62	2.41	1.07	1.16	0.52	2.41	1.47
Calculated TOC from FOC					0.96	1.20	1.30	0.94	1.40	0.62	0.67	0.30	1.40	0.85
Aliphatic TPH >C5-C6	mg/kg	0.00	NONE	3200 ^{***} (304)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	mg/kg	0.00	NONE	7800 ^{***} (144)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	mg/kg	0.00	NONE	2000 ^{***} (76)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C10-C12	mg/kg	1.00	MCERTS	9700 ^{***} (48)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Aliphatic TPH >C12-C16	mg/kg	2.00	MCERTS	59000 ^{***} (24)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic TPH >C16-C21	mg/kg	8.00	MCERTS	1600000	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Aliphatic TPH >C21-C35	mg/kg	8.00	MCERTS		< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	23	< 8.0	< 8.0	15
Total Aliphatic Hydrocarbons:	mg/kg	10.00	NONE		< 10	< 10	< 10	< 10	< 10	< 10	23	< 10	< 10	16
Aromatic TPH >C5-C7	mg/kg	0.00	NONE	26000 ^{***} (1220)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	mg/kg	0.00	NONE	96000 ^{***} (869)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	mg/kg	0.00	NONE	3500 ^{***} (613)	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aromatic TPH >C10-C12	mg/kg	1.00	MCERTS	18000 ^{***} (364)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	mg/kg	2.00	MCERTS	36000 ^{***} (166)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	14	< 2.0	< 2.0	< 2.0
Aromatic TPH >C16-C21	mg/kg	10.00	MCERTS	28000	< 10	< 10	< 10	< 10	< 10	< 10	37	< 10	11	< 10
Aromatic TPH >C21-C35	mg/kg	10.00	MCERTS	28000	< 10	< 10	< 10	< 10	< 10	< 10	13	< 10	43	29
Total Aromatic Hydrocarbons	mg/kg	10.00	NONE		< 10	< 10	< 10	< 10	< 10	< 10	13	< 10	53	29
Naphthalene	mg/kg	0.05	MCERTS	199 ^{***} (76.4)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.95	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	63000 ^{***} (86.1)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.13	< 0.05	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	64000 ^{***} (67)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.2	< 0.05	0.19	< 0.05
Fluorene	mg/kg	0.05	MCERTS	63000 ^{***} (30.9)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.3	< 0.05	0.18	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	22000	< 0.05	< 0.05	< 0.05	< 0.05	0.35	0.11	13	< 0.05	2.1	0.09
Anthracene	mg/kg	0.05	MCERTS	520000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	3.5	< 0.05	0.66	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	23000	< 0.05	0.05	< 0.05	< 0.05	1.1	0.96	15	0.15	7	0.32
Pyrene	mg/kg	0.05	MCERTS	54000	< 0.05	0.05	< 0.05	< 0.05	0.95	0.88	10	0.12	5.7	0.25
Benzo(a)anthracene	mg/kg	0.05	MCERTS	170	< 0.05	< 0.05	< 0.05	< 0.05	0.64	0.84	9.5	0.07	4.1	0.19
Chrysene	mg/kg	0.05	MCERTS	350	< 0.05	< 0.05	< 0.05	< 0.05	0.83	1.3	7.7	0.12	4.2	0.24
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	44	< 0.05	0.08	< 0.05	< 0.05	0.77	1.5	9.7	0.12	5.7	0.27
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1200	< 0.05	< 0.05	< 0.05	< 0.05	0.51	0.65	3.8	< 0.05	2.1	0.12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	35	< 0.05	< 0.05	< 0.05	< 0.05	0.75	1.2	7.2	0.09	4.4	0.22
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.05	MCERTS	500	< 0.05	< 0.05	< 0.05	< 0.05	0.41	0.72	3.2	< 0.05	2.3	0.11
Dibenzo(a,h)Anthracene	mg/kg	0.05	MCERTS	3.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.16	1	< 0.05	0.62	< 0.05
Benzo(a,h)perylene	mg/kg	0.05	MCERTS	3900	< 0.05	< 0.05	< 0.05	< 0.05	0.48	0.74	3	< 0.05	2.3	0.13
Total Of 16 PAH's	mg/kg	0.8	ISO 17025		< 0.80	< 0.80	< 0.80	< 0.80	6.79	9.08	98.3	< 0.80	41.7	1.95
Benzene	µg/kg	5.00	MCERTS	27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5.00	MCERTS	59000 ^{***} (869)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5.00	MCERTS	5700 ^{***} (516)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5.00	MCERTS	5900 ^{***} (576)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-xylene	µg/kg	5.00	MCERTS	6900 ^{***} (476)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5.00	NONE		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Phenols	mg/kg	1.00	MCERTS	449 ^{***} (2600)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 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, US: 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.

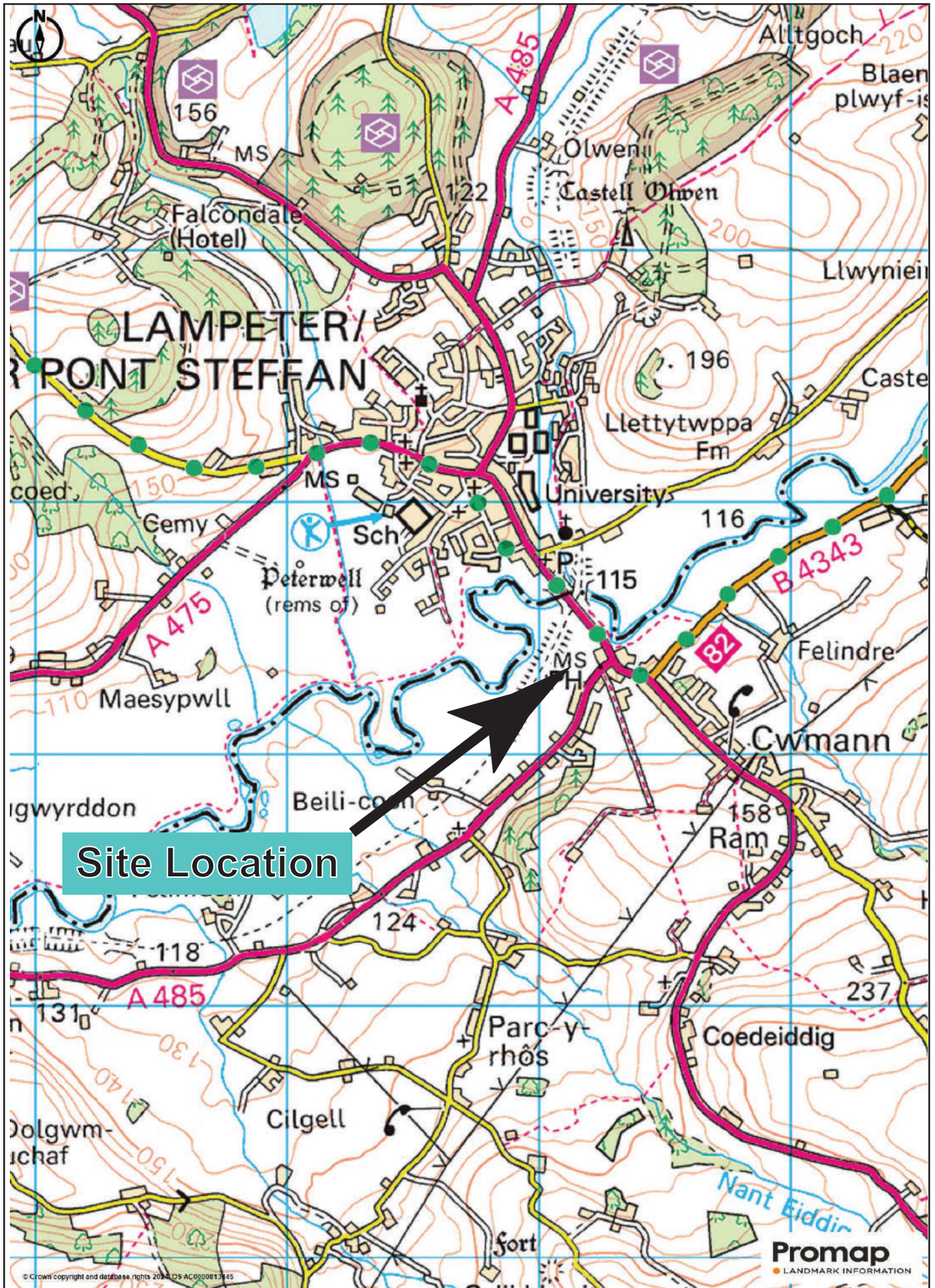
dr: Screening criteria based on threshold protective of direct skin contact (guideline in brackets based on health effects following long term exposure provided for illustration only).

(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
				Cwmman, Lampeter	as shown	PD	A4
				Drawing Title	Date	Job No.	Figure No.
				Site Location Plan	13.08.24	1304	01
				Client			
				Lidl Great Britain Ltd			
					 		



Legend

Remada's September 2024 Investigation

-  WS01 Window Sample & Installation
-  WS02 Window Sample
-  PBT01 Plate Bearing Test
-  Asphalt Asphalt Surfacing Sample
-  CBR1 DCP CBR test

Remada's May 2025 Supplementary Investigation

-  WS101 Window Sample & Installation

Notes

Positions of the boreholes WS1 - WS9 were set out on-site on 4th September 2024 in accordance with HTC Architects' Proposed Setting Out Site Plan, drawing ref: 3384_F400 Rev B dated February 2024.

However, on 17th September 2024, Remada received a revised site layout plan from the client. This exploratory hole plan reproduces this latter plan, HTC Architects' Proposed GA Site Plan, drawing ref: 3384_F411 dated September 2024.

Plate bearing tests undertaken by Remada on 19th September 2024 accommodated the change of proposed layout on-site.

Existing site plan reproduced from EMP Drainage Ltd's Topographic & Utility Survey drawing, ref: 1118/T&S/01-04 dated August 2024.

Revision	Approved	Date
-	PD	04/09/24
A	PD	07/10/24
B	PD	16/05/25

Project Title
Cymann, Lampeter

Drawing Title
Exploratory Hole Location Plan

Client
Lidl Great Britain Ltd 

Scale	Drawn	Size
as shown	PD	A4
Date	Job No.	Figure No.
16.05.25	1304	02

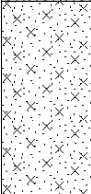




EXPLORATORY HOLE LOGS

Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258222.00 N247426.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS1	Hole Type WS	Level 114.40m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40 - 0.50	ES	50 (4,13/50 for 130mm)	0.22	114.18		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
								Loose brown very silty fine SAND.	
		0.90 - 1.00 1.00	ES SPT		0.88 1.00	113.52 113.40		Dense brown sandy clayey angular to subrounded fine to coarse GRAVEL predominantly of mudstone and siltstone. End of Borehole at 1.000m	
									2
									3
									4
									5

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

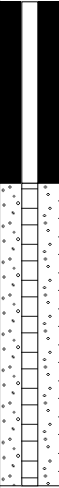
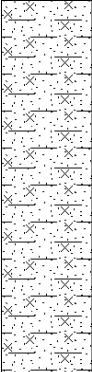
Remarks

- No groundwater encountered.
- Terminated upon SPT refusal (N-value >50).
- Backfilled with arisings upon completion.



Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258238.00 N247409.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment:	
Borehole Number WS2	Hole Type WS	Level 113.98m AoD	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 - 0.60	ES		0.27	113.71		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
		1.00 - 1.50 1.00	B SPT	N=24 (1,1/2,6,7,9)				Loose becoming medium dense brown slightly gravelly silty clayey fine SAND. Gravel is angular to subrounded fine to coarse of mixed lithologies including mudstone and siltstone.	
		1.60	SPT	N=50 (7,11/50 for 290mm)	1.51 1.60	112.47 112.38		Dense blueish grey mottled brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of mudstone and siltstone. End of Borehole at 1.600m	
									2
									3
									4
									5

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

Remarks 1. Groundwater encountered below 1.5m bgl. 2. Terminated upon SPT refusal (N-value >50). 3. Installation to 1.6m bgl: 0.6m plain pipe, 1.0m slotted pipe.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258214.00 N247404.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS3	Hole Type WS	Level 114.25m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.40	ES		0.25	114.00		Grass over brown sandy clay TOPSOIL with occasional rootlets.	
		0.70 - 0.80	D					Brown very silty / clayey fine to medium SAND.	
		0.90 - 1.00	ES					Becoming very sandy CLAY between 0.55m and 0.85m bgl.	
		1.00	SPT	N=50 (1,3/50 for 240mm)	1.00	113.25		End of Borehole at 1.000m	1
									2
									3
									4
									5

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

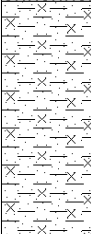
Remarks

- No groundwater encountered.
- Terminated upon SPT refusal (N-value >50).
- Installation to 1.0m bgl: 0.5m plain pipe, 0.5m slotted pipe.



Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258188.00 N247394.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS4	Hole Type WS	Level 113.67m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.40	ES B		0.22	113.45		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
		0.30 - 1.00						Firm brown very sandy silty CLAY.	
		0.90 - 1.00	D ES SPT	N=50 (2,10/50 for 260mm)	1.00	112.67		End of Borehole at 1.000m	2
		0.90 - 1.00							3
		1.00							4
									5

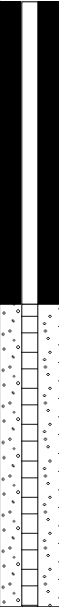
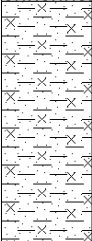
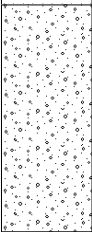
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

- No groundwater encountered.
- Terminated upon SPT refusal (N-value >50).
- Backfilled with arisings upon completion.

Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258200.00 N247372.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS5	Hole Type WS	Level 113.49m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

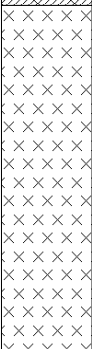
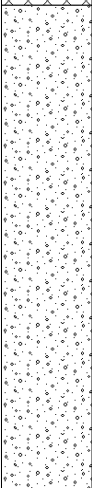
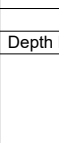
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.20	ES		0.22	113.27		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
								Firm friable brown silty sandy CLAY.	
		1.00 - 1.20 1.00	D SPT	N=16 (3,4/4,4,4,4)	1.05	112.44		Very soft to soft light bluish grey SILT.	
					1.25	112.24		Medium dense becoming dense brown sandy angular to subangular fine to coarse GRAVEL of mudstone and siltstone.	
		1.50 - 1.60	ES						2
		2.00	SPT	N=50 (5,10/50 for 270mm)	2.00	111.49		End of Borehole at 2.000m	
									3
									4
									5

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

Remarks 1. Groundwater encountered below 1.45m bgl. 2. Terminated upon SPT refusal (N-value >50). 3. Installation to 2.0m bgl: 1.0m plain pipe, 1.0m slotted pipe.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258216.00 N247353.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS6	Hole Type WS	Level 113.52m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25			0.25	113.27		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
		0.50		HVP=22				Soft light grey mottled brown slightly sandy SILT.	
		0.70		HVP=28					
		0.80 - 0.90	D						
		1.00	SPT	N=8 (1,1/2,2,2,2)					
		1.40	B		1.40	112.12		Wet medium dense becoming dense dark grey sandy angular to subangular fine to coarse GRAVEL of mudstone and siltstone.	2
		2.00	SPT	N=23 (2,3/3,5,7,8)					
		3.00	SPT	N=23 (2,4/5,6,6,6)	3.00	110.52		End of Borehole at 3.000m	3
									4
									5

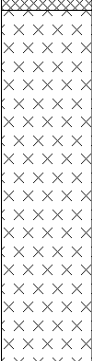
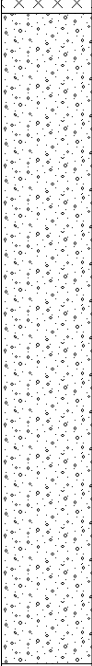
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

- Groundwater encountered below 1.4m bgl.
- Backfilled with arisings upon completion.

Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258233.00 N247336.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS7	Hole Type WS	Level 113.61m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.40	ES		0.18	113.43		MADE GROUND: Grass over brown sandy clay topsoil with occasional rootlets.	1
		0.70 - 0.80	D		0.65	112.96		MADE GROUND: Brownish grey sandy angular to subangular fine to coarse gravel predominantly of mudstone and siltstone, with occasional fine brick and coal fragments.	
		1.00	SPT	N=0 (0,0/0,0,0,0)				Soft light grey slightly sandy SILT.	
		2.00	SPT	N=15 (2,3/3,4,4,4)	1.85	111.76		Wet medium dense becoming dense dark grey sandy angular to subangular fine to coarse GRAVEL of mudstone and siltstone.	2
		3.00	SPT	N=21 (3,5/4,5,5,7)					3
		4.00	SPT	N=50 (7,9/50 for 290mm)	4.00	109.61		End of Borehole at 4.000m	4
									5

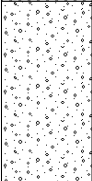
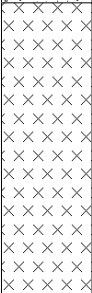
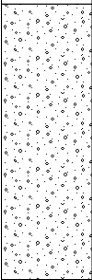
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

- Groundwater encountered below 1.85m bgl.
- Terminated upon SPT refusal (N-value >50).
- Backfilled with arisings upon completion.

Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258252.00 N247382.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS8	Hole Type WS	Level 113.74m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

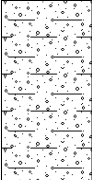
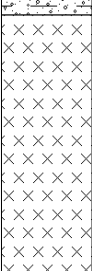
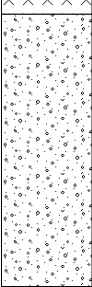
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.22	113.52		MADE GROUND: Grass over brown sandy clay topsoil with occasional rootlets.	
								Brown mottled grey slightly clayey sandy angular to subangular fine to coarse GRAVEL predominantly of mudstone and siltstone.	
		0.90 1.00	SPT	HVP=30 N=4 (0,0/0,0,2,2)	0.82	112.92		Soft brown mottled grey SILT.	1
		1.50		HVP=11					
		2.00	SPT	N=40 (1,4/10,7,10,13)	1.79	111.95		Wet dense dark grey sandy angular to subangular fine to medium GRAVEL of mudstone and siltstone.	2
		2.70	SPT	N=50 (1,2/50 for 230mm)	2.70	111.04		End of Borehole at 2.700m	3
									4
									5

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

Remarks 1. Groundwater encountered below 1.8m bgl. 2. Terminated upon SPT refusal (N-value >50). 3. Backfilled with arisings upon completion.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 04/09/2024	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258258.00 N247353.00	
Project No. : 1304.02		Crew Name:		Drilling Equipment: Tracked Rig	
Borehole Number WS9	Hole Type WS	Level 113.65m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

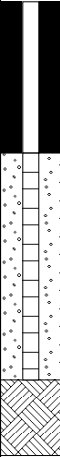
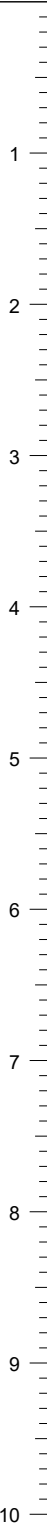
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.27			0.27	113.38		Grass over brown sandy clay TOPSOIL with occasional rootlets.	1
								Brown mottled grey clayey sandy angular to subangular fine to coarse GRAVEL predominantly of mudstone and siltstone.	
		1.00	SPT	N=9 (2,2/2,2,2,3)	0.91	112.74		Soft brown mottled grey SILT.	
		2.00	SPT	N=24 (3,4/5,6,6,7)	1.80	111.85		Wet medium dense becoming dense dark grey sandy angular to subangular fine to medium GRAVEL of mudstone and siltstone.	2
		2.70	SPT	50 (25 for 80mm/50 for 10mm)	2.70	110.95		End of Borehole at 2.700m	3
									4
									5

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

Remarks 1. Groundwater encountered below 1.8m bgl. 2. Terminated upon SPT refusal (N-value >50). 3. Backfilled with arisings upon completion.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 15/05/2025	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258277.00 N247361.00	
Project No. : 1304.03		Crew Name:		Drilling Equipment: Archway Dart	
Borehole Number WS101	Hole Type WS	Level 114.69m AoD	Logged By PD	Scale 1:50	Page Number Sheet 1 of 1

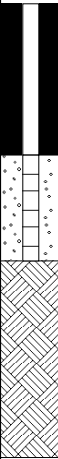
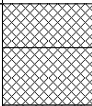
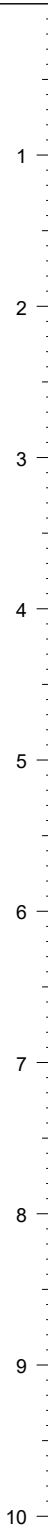
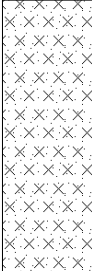
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.50	ES		0.10	114.59		MADE GROUND: Asphalt.	
		0.80		HVP=32	0.62	114.07		MADE GROUND: Grey gravelly fine to medium sand. Gravel is angular to subangular fine to coarse of mudstone and siltstone with rare brick fragments.	
		1.00 - 1.20	ES		0.95	113.74		Soft to firm light brown mottled orange sandy CLAY.	
		1.00	SPT	N=32 (2,6/7,8,9,8)				Dense brownish grey gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse of mudstone and siltstone.	
		2.00	SPT	N=16 (1,0/2,4,4,6)	1.90	112.79		Soft to firm bluish grey mottled yellowish brown slightly gravelly silty CLAY. Gravel is angular to subangular fine to coarse of siltstone.	
					2.05	112.64		Damp becoming wet medium dense becoming dense grey sandy angular to subangular fine to coarse GRAVEL predominantly of siltstone.	
		3.00	SPT	N=50 (3,3/50 for 290mm)	3.00	111.69		End of Borehole at 3.000m	

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

Remarks 1. Groundwater encountered below 2.05m bgl, rising to 1.7m after 20 minutes. 2. Terminated upon SPT refusal (uncorrected N-value >50). 3. Installation to 2.5m bgl; 1.0m plain pipe, 1.5m slotted pipe.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 15/05/2025	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258269.00 N247380.00	
Project No. : 1304.03		Crew Name:		Drilling Equipment: Archway Dart	
Borehole Number WS102	Hole Type WS	Level 114.27m AoD	Logged By PD	Scale 1:50	Page Number Sheet 1 of 1

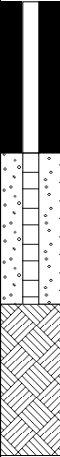
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.30 - 0.60	ES		0.29	113.98		MADE GROUND: Concrete gravel.		
		0.75 0.85 1.00	SPT	HVP=26 HVP=18 N=4 (0,0/0,0,2,2)	0.67	113.60		MADE GROUND: Dark grey sandy angular to subangular fine to coarse gravel predominantly with siltstone and shale. Slight hydrocarbon odour. Soft light grey sandy SILT.		
		1.50		HVP=18						
		1.90 2.00		SPT				HVP=28 N=19 (4,5/5,5,4)		
		2.48	111.79			Wet medium dense to dense grey sandy angular to subangular GRAVEL predominantly of siltstone.				
		3.00	SPT	N=30 (3,5/6,6,8,10)	3.00	111.27		End of Borehole at 3.000m		
		3.30	SPT	N=51 (6,8/10,12,14,15)						

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

Remarks 1. Groundwater encountered below 2.48m bgl. 2. Terminated upon SPT refusal (uncorrected N-value >50), with continuous SPT drive below 3.0m bgl. 3. Installation to 1.7m bgl; 1.0m plain pipe, 0.7m slotted pipe due to collapsing.										
--	--	--	--	--	--	--	--	--	--	---

Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 15/05/2025	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258249.00 N247374.00	
Project No. : 1304.03		Crew Name:		Drilling Equipment: Archway Dart	
Borehole Number WS103	Hole Type WS	Level 113.94m AoD	Logged By PD	Scale 1:50	Page Number Sheet 1 of 1

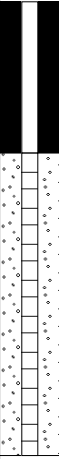
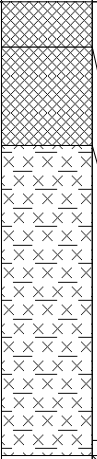
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.60	ES		0.20	113.74		Grass over dark brown gravelly sand TOPSOIL with occasional rootlets. Gravel is angular to subangular fine to coarse of mudstone and siltstone.	1
		0.95 1.00	SPT	HVP=24 N=7 (1,0/1,0,2,4)	0.90	113.04		Firm brown mottled reddish brown and grey clayey gravelly SILT. Gravel is angular to subangular fine to coarse predominantly of mudstone and siltstone. Soft light grey slightly sandy SILT.	
		1.50 1.60		HVP=20 HVP=22	1.70	112.24		Soft to firm grey mottled dark brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone and siltstone.	2
		2.00	SPT	N=15 (4,4/4,3,4,4)	2.48	111.46		Wet dense grey slightly clayey sandy angular to subangular fine to coarse GRAVEL predominantly of mudstone and siltstone.	3
		3.00	SPT	N=55 (2,6/11,14,12,18)	3.00	110.94		End of Borehole at 3.000m	
									4
									5
									6
									7
									8
									9
									10

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

Remarks 1. Groundwater encountered below 2.48m bgl. 2. Terminated upon SPT refusal (uncorrected N-value >50). 3. Installation to 2.0m bgl; 1.0m plain pipe, 1.0m slotted pipe due to collapsing.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 15/05/2025	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258256.00 N247342.00	
Project No. : 1304.03		Crew Name:		Drilling Equipment: Archway Dart	
Borehole Number WS104	Hole Type WS	Level 115.49m AoD	Logged By PD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40 - 0.70	ES		0.30	115.19		MADE GROUND: Grass over dark brown gravelly sand topsoil with occasional rootlets. Gravel is angular to subangular fine to coarse of mixed lithologies including shale and siltstone. MADE GROUND: Firm to stiff brown mottled grey gravelly clay. Gravel is angular to subangular fine to coarse of siltstone, shale and occasional coal fragments. Soft brownish grey slightly sandy clayey SILT.	1
		1.00	SPT	N=6 (2,1/2,1,2,1)	0.95	114.54			
		1.50		HVP=12					
		2.00	SPT	N=0 (0,0/0,0,0,0)					
		2.50		HVP=10					
		3.00 3.15	SPT SPT	N=44 (6,8/10,9,12,13) N=50 (10,9/12,13,15,10)	3.00	112.49			
								Becoming gravelly below 2.9m bgl. End of Borehole at 3.000m	3
									4
									5
									6
									7
									8
									9
									10

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

Remarks 1. No groundwater encountered. 2. Terminated upon SPT refusal (uncorrected N-value = 50), with continuous SPT drive below 3.0m bgl. 3. Installation to 3.0m bgl; 1.0m plain pipe, 2.0m slotted pipe.										
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Percussion Drilling Log

Project Name: LAMPETER		Client: LIDL GREAT BRITAIN LTD		Date: 15/05/2025	
Location: CWMANN, LAMPETER		Contractor:		Co-ords: E258250.00 N247351.00	
Project No. : 1304.03		Crew Name:		Drilling Equipment: Archway Dart	
Borehole Number WS105	Hole Type WS	Level 114.26m AoD	Logged By PD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.50	ES		0.18	114.08		Grass over dark brown gravelly sand TOPSOIL with occasional rootlets. Gravel is angular to subangular fine to coarse of mudstone and siltstone.	1
		0.80		HVP=32	0.66	113.60		Grey mottled brown slightly clayey sandy angular to subangular fine to coarse GRAVEL predominantly of mudstone and siltstone.	
		0.90		HVP=28				Soft to firm grey silty CLAY.	
		1.00	SPT	N=0 (0,0/0,0,0,0)	1.10	113.16		Soft brownish grey slightly sandy SILT.	
		1.60		HVP=18					2
		1.80		HVP=18					
		2.00	SPT	N=52 (0,3/10,12,14,16)	2.00	112.26		Becoming bluish grey below 1.9m bgl. End of Borehole at 2.000m	2
									3
									4
									5
									6
									7
									8
									9
									10

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

Remarks 1. No groundwater encountered. 2. Terminated upon SPT refusal (uncorrected N-value >50) 3. Installation to 2.0m bgl; 1.0m plain pipe, 1.0m slotted pipe.										
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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: 110 80
Test Date: 01/12/2023
Report Date: 01/12/2023
File Name: 110 80.spt
Test Operator: MT

Instrumented Rod Data

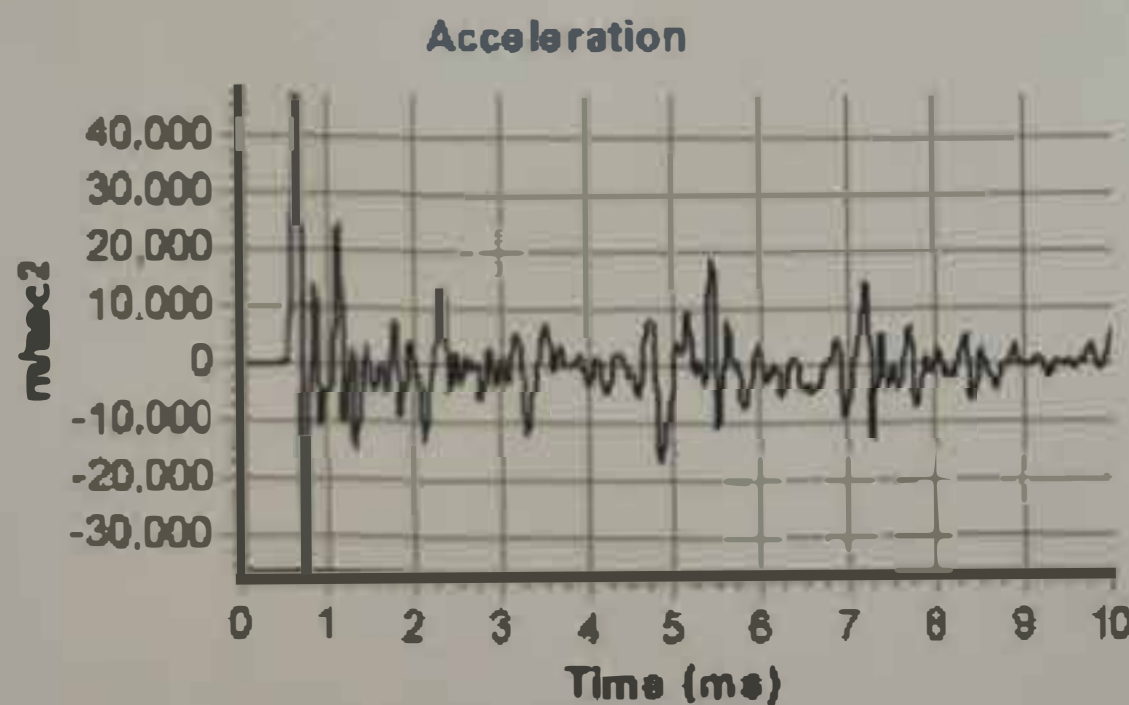
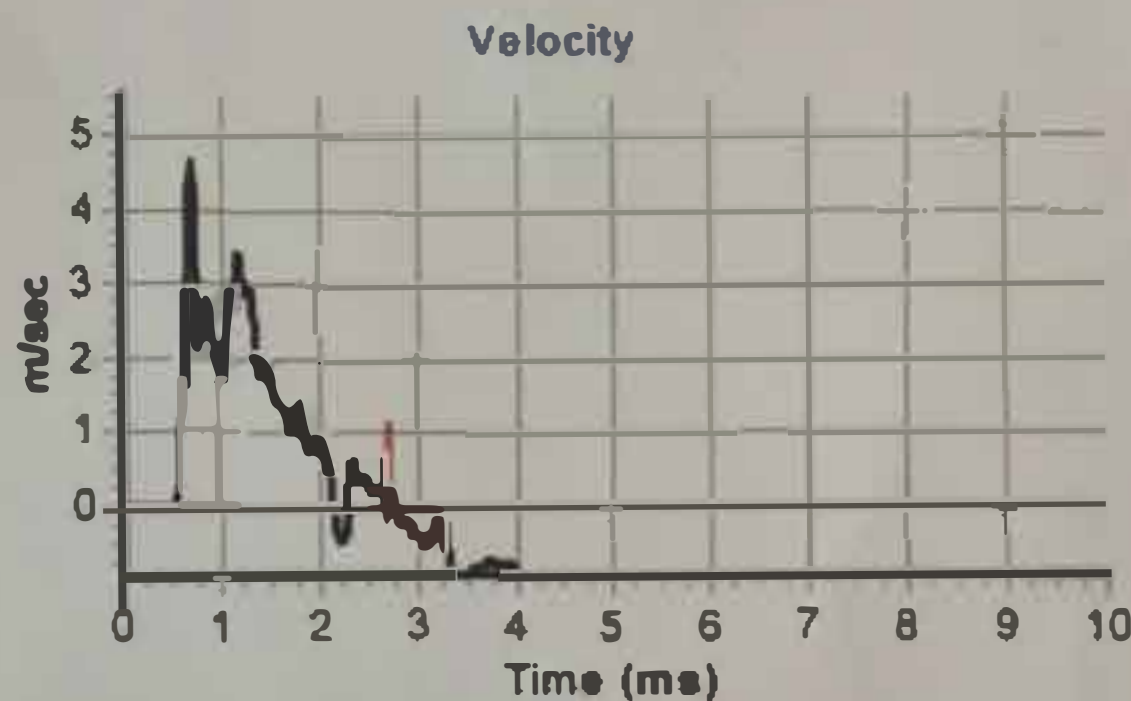
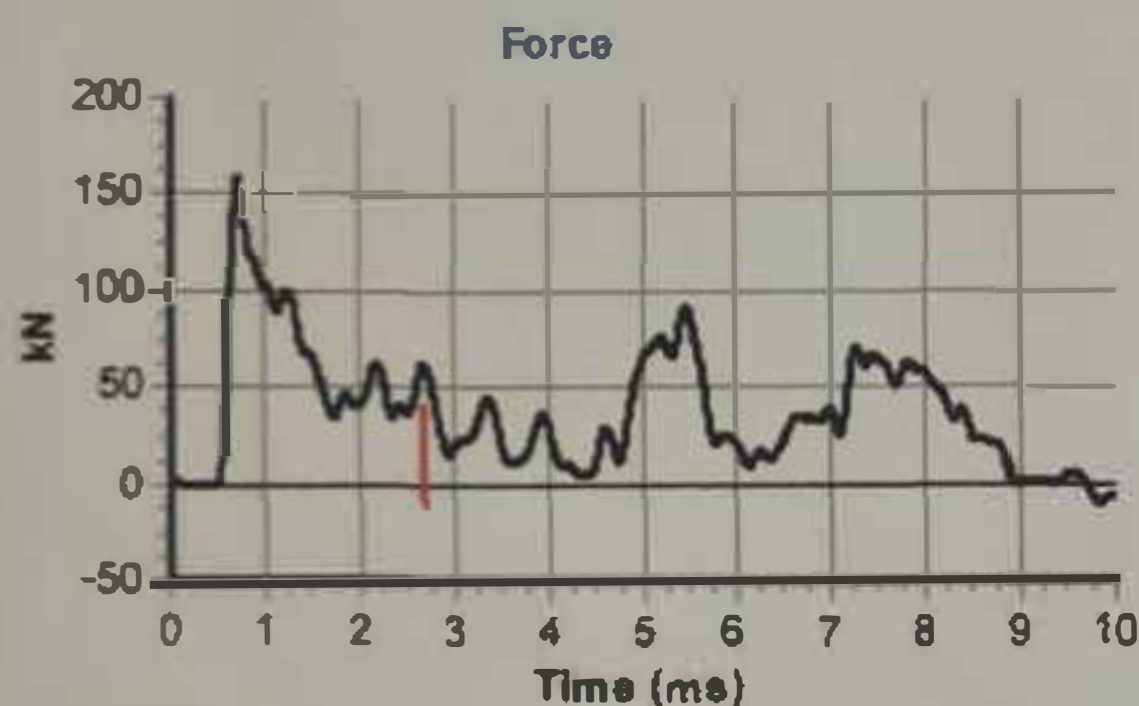
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 7080
Accelerometer No.2: 11609

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 78341



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 325

Energy Ratio E_r (%): **69**

Signed: C. McCLUSKEY
Title: FITTER

The recommended calibration interval is 12 months

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: DART594
Test Date: 24/07/2024
Report Date: 24/07/2024
File Name: DART594.spt
Test Operator: JL

Instrumented Rod Data

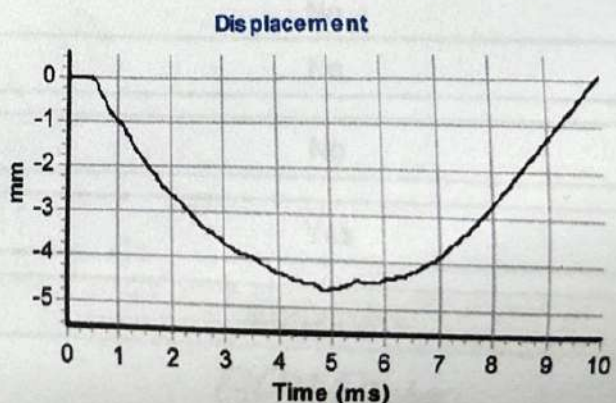
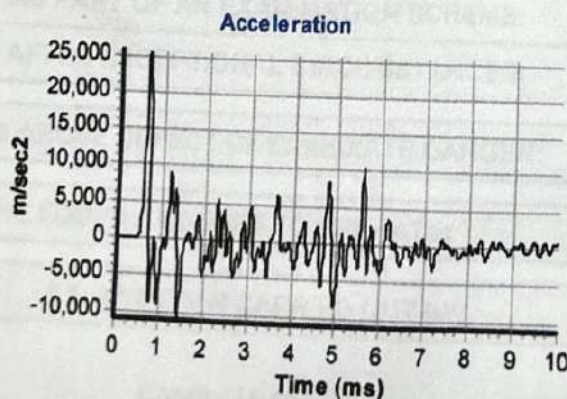
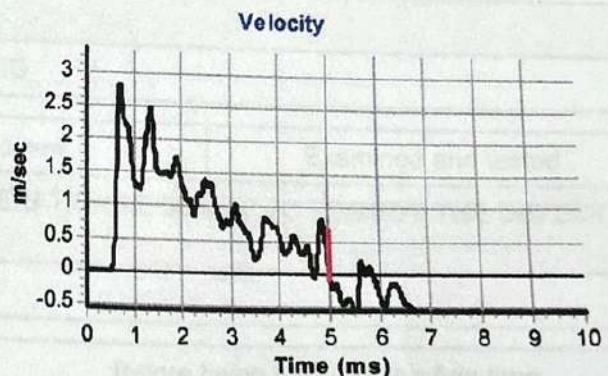
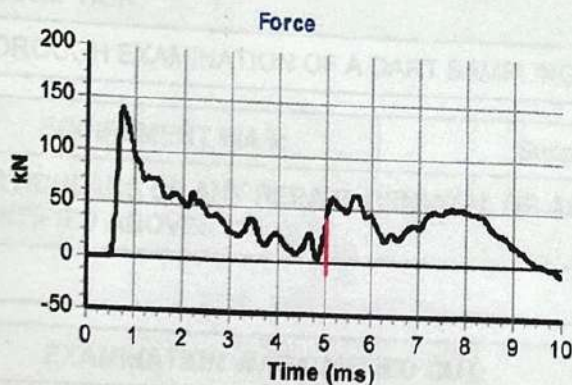
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.4
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 72572
Accelerometer No.2: 72572

SPT Hammer Information

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

Comments / Location

GSTL -



Calculations

Area of Rod A (mm^2): 957
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 304

Energy Ratio E_r (%): **64**

Signed: C. McCLUSKEY
Title: FITTER



APPENDIX B

Dynamic Probing Results

REMADA
GEO CONSULTANTS

Scatter plot showing the relationship between m_{bgl} (Y-axis) and Blows/100mm (X-axis). The X-axis ranges from 0 to 20, and the Y-axis ranges from 0.0 to -1.0. The data points are clustered around the Y-axis, indicating a strong negative correlation between the two variables.

REMADA
GEO CONSULTANTS

Blows/100mm

m_{bgl}

Blows/100mm	m _{bgl}
0	0.0
0	-0.8
0	-0.9
0	-1.0
2	-0.1
2	-0.5
2	-0.6
2	-0.7
4	-0.2
4	-0.3
4	-0.4
4	-1.0

REMADA
GEO CONSULTANTS

A scatter plot showing the relationship between m_{bgl} (Y-axis) and Blows/100mm (X-axis). The X-axis ranges from 0 to 20 with major grid lines every 2 units. The Y-axis ranges from 0.0 to -1.0 with major grid lines every 0.1 units. There are 10 data points plotted as blue dots.

Blows/100mm	m_{bgl}
0	0.0
2	-0.3
2	-0.9
3	-0.7
4	-0.1
4	-0.2
4	-0.6
4	-0.8
4	-0.9
4	-1.0

REMADA
GEO CONSULTANTS

A scatter plot showing the relationship between Blows/100mm (x-axis) and m_{bgl} (y-axis). The x-axis ranges from 0 to 20 with major ticks every 2 units. The y-axis ranges from 0.0 to -1.0 with major ticks every 0.1 units. The data points are clustered at two x-values: 0 and 4. At x=0, there is one point at y=0.0 and one at y=-1.0. At x=4, there are eight points at y-values of -0.1, -0.2, -0.3, -0.4, -0.5, -0.6, -0.7, and -0.8. There is also a point at x=2, y=-0.9.

Blows/100mm	m_{bgl}
0	0.0
0	-1.0
2	-0.9
4	-0.1
4	-0.2
4	-0.3
4	-0.4
4	-0.5
4	-0.6
4	-0.7
4	-0.8



APPENDIX C

Dynamic Cone Penetrometer (DCP) Results

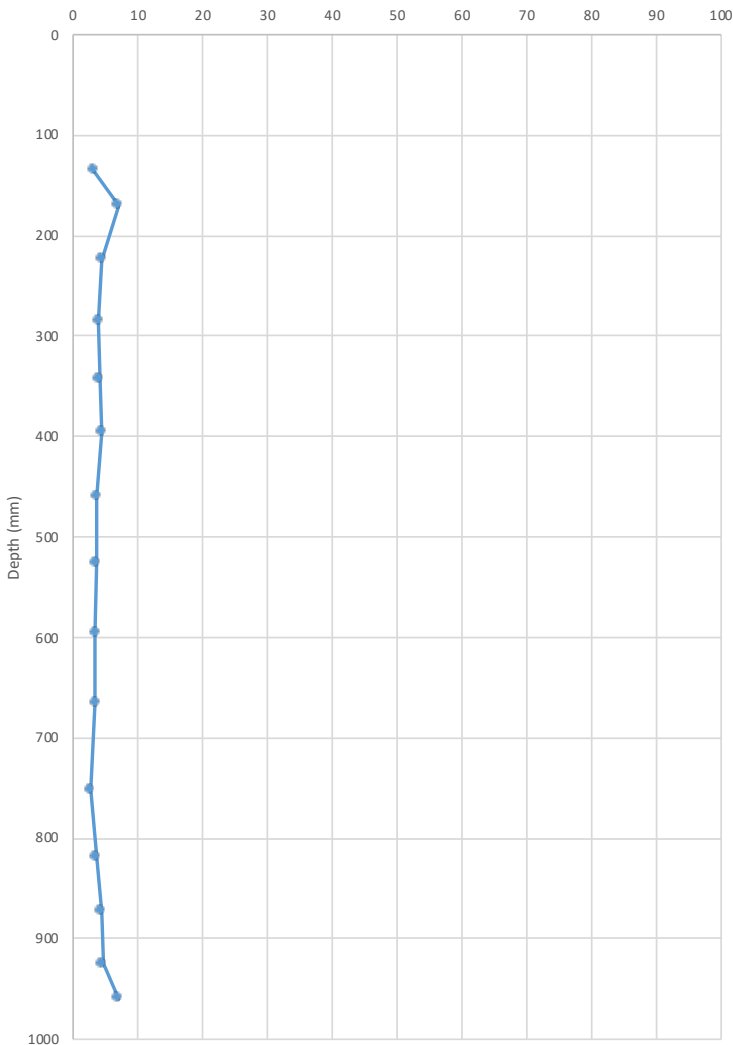
TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Lampeter	Test No:	CBR1	Location:	258233 247437
Project No:	1304.02	Date:	07/10/2024	Start Depth:	Surface	Test Strata:	Topsoil
$\text{Log10(CBR)} = 2.480 - 1.057 \times \text{Log10(mm/blow)}$						Weather:	Dry , Light rain

No of Blows	Depth Reading mm	Penetration/ Blow mm	CBR %	Estimated CBR %
0	55	0		
1	161	106.0	2.2	
2	225	64.0	3.7	
3	290	65.0	3.7	
4	353	63.0	3.8	
5	404	51.0	4.7	
6	437	33.0	7.5	
7	488	51.0	4.7	
8	542	54.0	4.5	
9	593	51.0	4.7	
10	651	58.0	4.1	
11	706	55.0	4.4	
12	777	71.0	3.3	
13	844	67.0	3.5	
14	916	72.0	3.3	
15	960	44.0	5.5	

Notes:	
Tested by U Khan Date: 08.10.24	Checked by: P Dickinson Date: 08.10.2024

TRL Dynamic Cone Penetrometer Test Results						REMADA GEO CONSULTANTS	
Client:	Lidl Great Britain Ltd	Site Location:	Lampeter	Test No:	CBR2	Location:	258232 247413
Project No:	1304.02	Date:	07/10/2024	Start Depth:	Surface	Test Strata:	Topsoil
Log10(CBR) = 2.480-1.057 x Log10(mm/blow)						Weather:	Dry , Light rain
No of Blows	Depth Reading mm	Penetration/ Blow mm	CBR %	Estimated CBR % 			
0	60	0					
1	135	75.0	3.1				
2	170	35.0	7.0				
3	224	54.0	4.5				
4	285	61.0	3.9				
5	343	58.0	4.1				
6	396	53.0	4.5				
7	460	64.0	3.7				
8	526	66.0	3.6				
9	596	70.0	3.4				
10	666	70.0	3.4				
11	752	86.0	2.7				
12	818	66.0	3.6				
13	873	55.0	4.4				
14	925	52.0	4.6				
15	960	35.0	7.0				
Notes:							
Tested by U Khan Date: 08.10.24				Checked by: P Dickinson Date: 08.10.2024			

TRL Dynamic Cone Penetrometer Test Results



Client:	Lidl Great Britain Ltd	Site Location:	Lampeter	Test No:	CBR3	Location:	258216 247371
Project No:	1304.02	Date:	07/10/2024	Start Depth:	Surface	Test Strata:	Topsoil
$\text{Log10(CBR)} = 2.480 - 1.057 \times \text{Log10(mm/blow)}$						Weather:	Dry , Light rain

No of Blows	Depth Reading mm	Penetration/ Blow mm	CBR %	Estimated CBR %
0	65	0		
1	165	100.0	2.3	
2	222	57.0	4.2	
3	275	53.0	4.5	
4	311	36.0	6.8	
5	345	34.0	7.3	
6	374	29.0	8.6	
7	406	32.0	7.7	
8	462	56.0	4.3	
9	516	54.0	4.5	
10	573	57.0	4.2	
11	665	92.0	2.5	
12	760	95.0	2.5	
13	854	94.0	2.5	
14	915	61.0	3.9	
15	940	25.0	10.1	

Notes:

Tested by U Khan
Date: 08.10.24

Checked by: P Dickinson
Date: 08.10.2024

TRL Dynamic Cone Penetrometer Test Results							REMADA GEO CONSULTANTS																																
Client:	Lidl Great Britain Ltd	Site Location:	Lampeter	Test No:	CBR4	Location:	258198 247387																																
Project No:	1304.02	Date:	07/10/2024	Start Depth:	Surface	Test Strata:	Topsoil																																
Log10(CBR) = 2.480-1.057 x Log10(mm/blow)						Weather:	Dry , Light rain																																
No of Blows	Depth Reading mm	Penetration/ Blow mm	CBR %	Estimated CBR % <table><thead><tr><th>Depth (mm)</th><th>Estimated CBR %</th></tr></thead><tbody><tr><td>0</td><td>0</td></tr><tr><td>75</td><td>1.8</td></tr><tr><td>202</td><td>5.4</td></tr><tr><td>247</td><td>7.5</td></tr><tr><td>280</td><td>4.5</td></tr><tr><td>333</td><td>4.6</td></tr><tr><td>385</td><td>3.8</td></tr><tr><td>448</td><td>3.8</td></tr><tr><td>510</td><td>2.9</td></tr><tr><td>592</td><td>2.7</td></tr><tr><td>679</td><td>1.9</td></tr><tr><td>799</td><td>5.3</td></tr><tr><td>845</td><td>3.6</td></tr><tr><td>911</td><td>4.9</td></tr><tr><td>960</td><td>4.9</td></tr></tbody></table>				Depth (mm)	Estimated CBR %	0	0	75	1.8	202	5.4	247	7.5	280	4.5	333	4.6	385	3.8	448	3.8	510	2.9	592	2.7	679	1.9	799	5.3	845	3.6	911	4.9	960	4.9
Depth (mm)	Estimated CBR %																																						
0	0																																						
75	1.8																																						
202	5.4																																						
247	7.5																																						
280	4.5																																						
333	4.6																																						
385	3.8																																						
448	3.8																																						
510	2.9																																						
592	2.7																																						
679	1.9																																						
799	5.3																																						
845	3.6																																						
911	4.9																																						
960	4.9																																						
0	75	0																																					
1	202	127.0	1.8																																				
2	247	45.0	5.4																																				
3	280	33.0	7.5																																				
4	333	53.0	4.5																																				
5	385	52.0	4.6																																				
6	448	63.0	3.8																																				
7	510	62.0	3.8																																				
8	592	82.0	2.9																																				
9	679	87.0	2.7																																				
10	799	120.0	1.9																																				
11	845	46.0	5.3																																				
12	911	66.0	3.6																																				
13	960	49.0	4.9																																				

Notes:

Tested by U Khan	Checked by: P Dickinson
Date: 08.10.2024	Date: 08.10.2024



APPENDIX D

Plate Bearing Test Results

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and IAN 73/06 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Lampeter
Job Number	1304.02
Site	Cymann, Lampeter

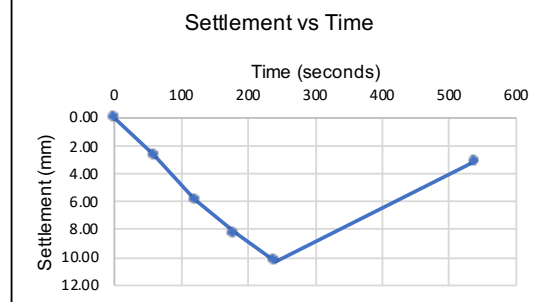
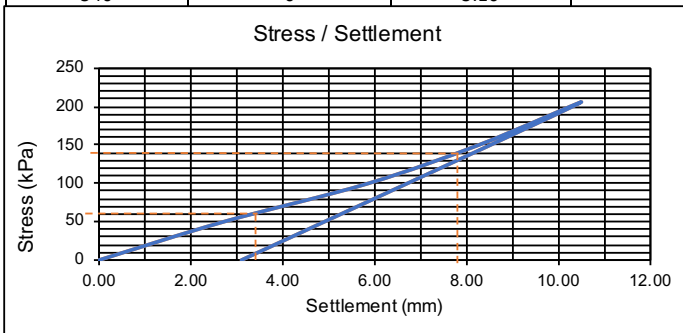
Test Date:	19.09.24
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	200

Test Location	PBT1
Test Strata	From Surface
Ground Condition	Dry
Material	Asphalt
Weather	Dry Sunny

Equivalent CBR Value (%)	0.6
Maximum Applied Stress (kPa)	200.0
Maximum Settlement (mm)	10.30
Bearing Pressure at 1.25mm Settlement (kPa)	22.0
K762 (at 1.25mm settlement) kN/m2/m	10.97

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
60	50	2.71
120	100	5.86
180	150	8.26
240	200	10.30
540	0	3.10

Remarks:
Unable to reach gather readings exceeding 200 kPa due to jack maximuming out.



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	200.0	60.00	140.00	3.34	7.78	6.08

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

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.

Report Prepared By: Usamah Khan
Approved By: G Jones

Date: 23.09.24
Date: 24.09.24

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and IAN 73/06 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Lampeter
Job Number	1304.02
Site	Cymann, Lampeter

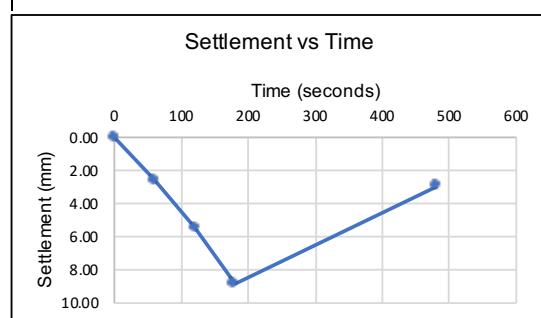
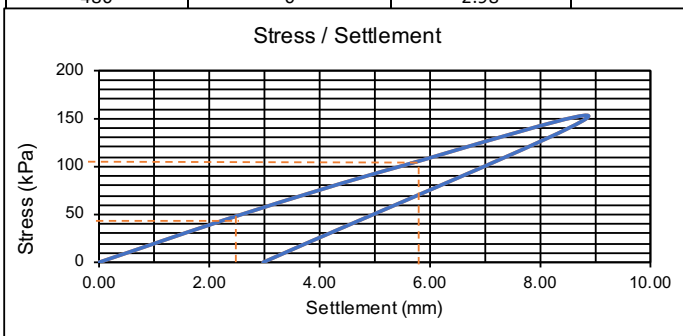
Test Date:	19.09.24
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	200

Test Location	PBT2
Test Strata	From Surface
Ground Condition	Dry
Material	Topsoil
Weather	Dry Sunny

Equivalent CBR Value (%)	0.8
Maximum Applied Stress (kPa)	150.0
Maximum Settlement (mm)	8.84
Bearing Pressure at 1.25mm Settlement (kPa)	25.0
K762 (at 1.25mm settlement) kN/m2/m	12.46

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
60	50	2.59
120	100	5.46
180	150	8.84
480	0	2.98

Remarks:
Unable to reach gather readings exceeding 200 kPa due to jack maximuming out.



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	150.0	45.00	105.00	2.33	5.79	5.84

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

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.

Report Prepared By: Usamah Khan Date: 23.09.24
Approved By: G Jones Date: 24.09.24

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and IAN 73/06 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Lampeter
Job Number	1304.02
Site	Cymann, Lampeter

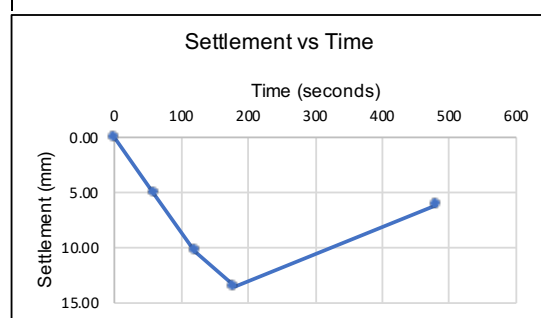
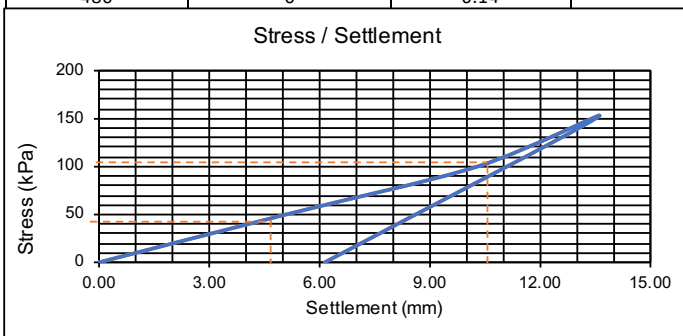
Test Date:	19.09.24
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	200

Test Location	PBT3
Test Strata	From Surface
Ground Condition	Dry
Material	Asphalt
Weather	Dry Sunny

Equivalent CBR Value (%)	0.2
Maximum Applied Stress (kPa)	150.0
Maximum Settlement (mm)	13.50
Bearing Pressure at 1.25mm Settlement (kPa)	12.0
K762 (at 1.25mm settlement) kN/m2/m	5.98

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
60	50	5.10
120	100	10.30
180	150	13.50
480	0	6.14

Remarks:
Unable to reach gather readings exceeding 200 kPa due to jack maximuming out.



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	150.0	45.00	105.00	4.59	10.62	3.36

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

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.

Report Prepared By: Usamah Khan Date: 23.09.24
Approved By: G Jones Date: 24.09.24

Plate Bearing Test Report

In-house Plate Bearing Test procedure based on BS1377 Part 9:1990 and IAN 73/06 (Incremental Loading)

Client :	Lidl Great Britain Ltd
Job Name:	Lampeter
Job Number	1304.02
Site	Cymann, Lampeter

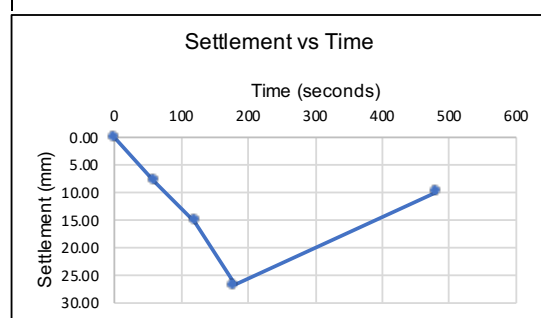
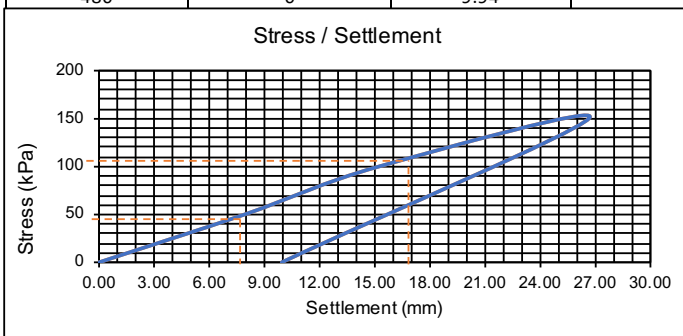
Test Date:	19.09.24
Reaction Load	JCB 3CX
Plate Diameter (mm)	450
Layer Thickness (mm)	200

Test Location	PBT4
Test Strata	From Surface
Ground Condition	Dry
Material	Topsoil
Weather	Dry Sunny

Equivalent CBR Value (%)	0.11
Maximum Applied Stress (kPa)	150.0
Maximum Settlement (mm)	26.65
Bearing Pressure at 1.25mm Settlement (kPa)	8.0
K762 (at 1.25mm settlement) kN/m2/m	3.99

Time (s)	Stress (kPa)	Settlement (mm)
0	0	0.00
60	50	7.93
120	100	15.23
180	150	26.65
480	0	9.94

Remarks:
Unable to obtain settlement values exceeding 150 kPa due to measuring gauges maxing out.



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	150.0	45.00	105.00	7.14	16.38	2.19

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

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.

Report Prepared By: Usamah Khan Date: 23.09.24
Approved By: G Jones Date: 24.09.24



APPENDIX E

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,
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e: peter.dickinson@remada.co.uk
info@remada.co.uk

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-040752

Project / Site name:	Lampeter	Samples received on:	06/09/2024
Your job number:	1304.02	Samples instructed on/ Analysis started on:	06/09/2024
Your order number:	1304.02	Analysis completed by:	17/09/2024
Report Issue Number:	1	Report issued on:	17/09/2024
Samples Analysed:	10 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

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

Analytical Report Number: 24-040752

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309885	309886	309887	309888	309889
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40-0.50	0.90-1.00	0.50-0.60	0.30-0.40	0.90-1.00
Date Sampled				04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	35.5	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	9.2	25	25	28
Total mass of sample received	kg	0.1	NONE	0.7	0.8	1.4	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MBI	-	MBI	MBI	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.5	7.2	8.2	6.6	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.037	-	-	0.064
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	73	-	-	3.4
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	36.3	-	-	1.72
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	2.9	-	-	1.5
Total Sulphur	mg/kg	50	MCERTS	-	140	-	-	410
Total Sulphur	%	0.005	MCERTS	-	0.014	-	-	0.041
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	-	< 0.5	-	-	< 0.5
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0096	-	0.012	0.013	-
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	-	-	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	-	-	< 2.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	0.05	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	0.08	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Coronene	mg/kg	0.05	NONE	-	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	-	< 0.80	< 0.80	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-	-	-

Analytical Report Number: 24-040752

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309885	309886	309887	309888	309889
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40-0.50	0.90-1.00	0.50-0.60	0.30-0.40	0.90-1.00
Date Sampled				04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
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	16	-	16	16	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72	-	0.74	0.81	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	-	0.5	0.4	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	< 1.8	< 1.8	-
Chromium (III)	mg/kg	1	NONE	31	-	31	34	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	-	31	34	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	-	16	16	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35	-	37	39	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	-	29	30	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	3.9	-	3.6	4.5	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	-	34	36	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	-	94	100	-

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	5	-	-	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	-	10	-	-	< 5.0

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	-
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	-	< 10	< 10	-

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	-	< 0.020	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	< 10	< 10	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	< 10	< 10	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	-	< 10	< 10	-

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	-
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	-

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

Analytical Report Number: 24-040752

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309890	309891	309892	309893	309894
Sample Reference				WS4	WS4	WS5	WS7	Asphalt 2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.40	0.90-1.00	1.50-1.60	0.30-0.40	None Supplied
Date Sampled				04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	34.9	68.2	< 0.1
Moisture Content	%	0.01	NONE	25	29	16	7.2	13
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.2	1.4	0.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MBI	-	-	MBI	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.2	8.1	7.7	7.7	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.07	0.026	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	6.8	33	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	3.42	16.7	-	-
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	1.2	4.3	-	-
Total Sulphur	mg/kg	50	MCERTS	-	340	98	-	-
Total Sulphur	%	0.005	MCERTS	-	0.034	0.01	-	-
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	-	-
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0094	-	-	0.014	-
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	< 2.0	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	< 2.0	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.35	0.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.77
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	0.66
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.95	0.72
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.64	0.34
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.83	0.64
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	-	0.77	0.34
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	-	0.51	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.75	0.31
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.41	0.19
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.48	0.46
Coronene	mg/kg	0.05	NONE	-	-	-	-	2.2

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	-	-	6.79	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-	-	7.15

Analytical Report Number: 24-040752

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309890	309891	309892	309893	309894
Sample Reference				WS4	WS4	WS5	WS7	Asphalt 2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.40	0.90-1.00	1.50-1.60	0.30-0.40	None Supplied
Date Sampled				04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
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	17	-	-	16	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.82	-	-	0.69	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	-	-	0.4	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	-	< 1.8	-
Chromium (III)	mg/kg	1	NONE	30	-	-	26	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	-	-	26	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	-	-	39	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	-	-	64	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	-	-	30	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	5.3	-	-	1.6	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	-	-	29	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	99	-	-	130	-

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

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	-	-	< 10	-

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	-	-	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	-	-	< 10	-

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-

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

Analytical Report Number : 24-040752
Project / Site name: Lampeter

* 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 *
309885	WS1	None Supplied	0.40-0.50	Brown clay and loam with gravel and vegetation
309886	WS1	None Supplied	0.90-1.00	Brown loam and clay with gravel and vegetation
309887	WS2	None Supplied	0.50-0.60	Brown clay and loam with gravel and vegetation
309888	WS3	None Supplied	0.30-0.40	Brown loam and clay with gravel and vegetation
309889	WS3	None Supplied	0.90-1.00	Brown loam and clay with gravel and vegetation
309890	WS4	None Supplied	0.30-0.40	Brown clay and loam with gravel and vegetation
309891	WS4	None Supplied	0.90-1.00	Brown clay and loam with vegetation
309892	WS5	None Supplied	1.50-1.60	Brown loam and gravel with vegetation and stones
309893	WS7	None Supplied	0.30-0.40	Brown loam and sand with gravel and vegetation
309894	Asphalt 2	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-040752

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as 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
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL	W	NONE

Analytical Report Number : 24-040752

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-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, 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
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

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).

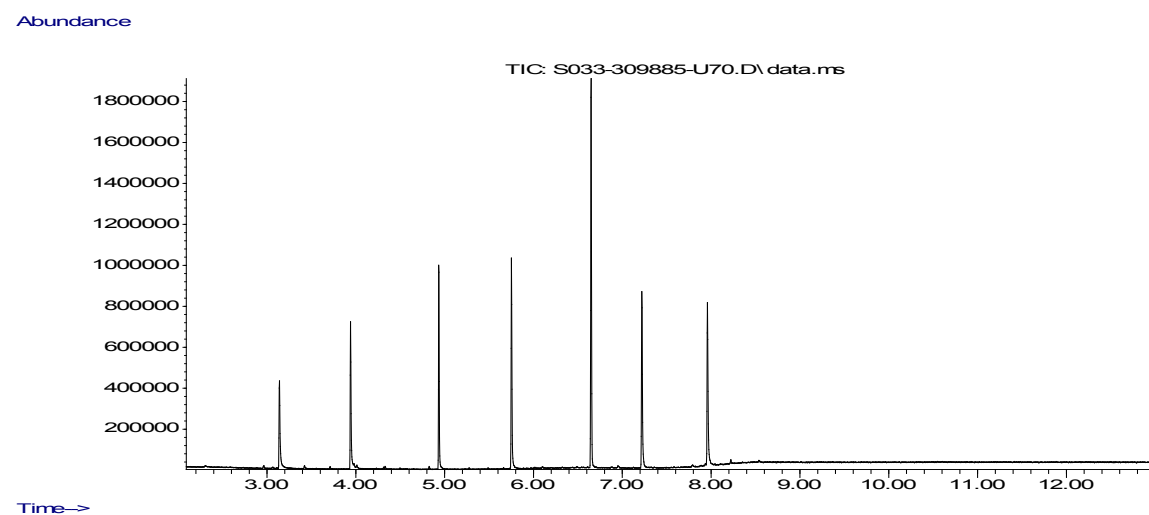
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

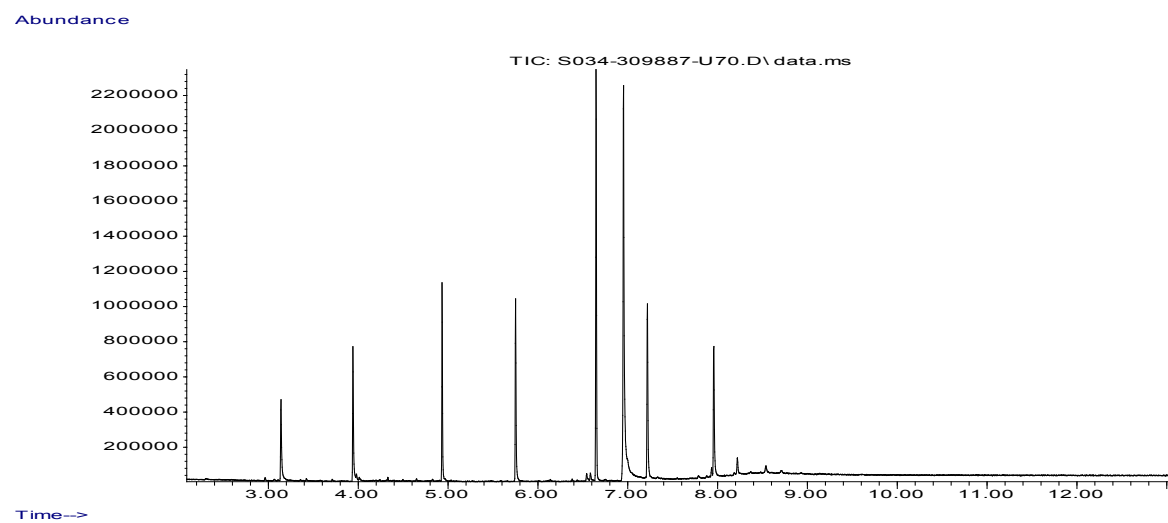
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

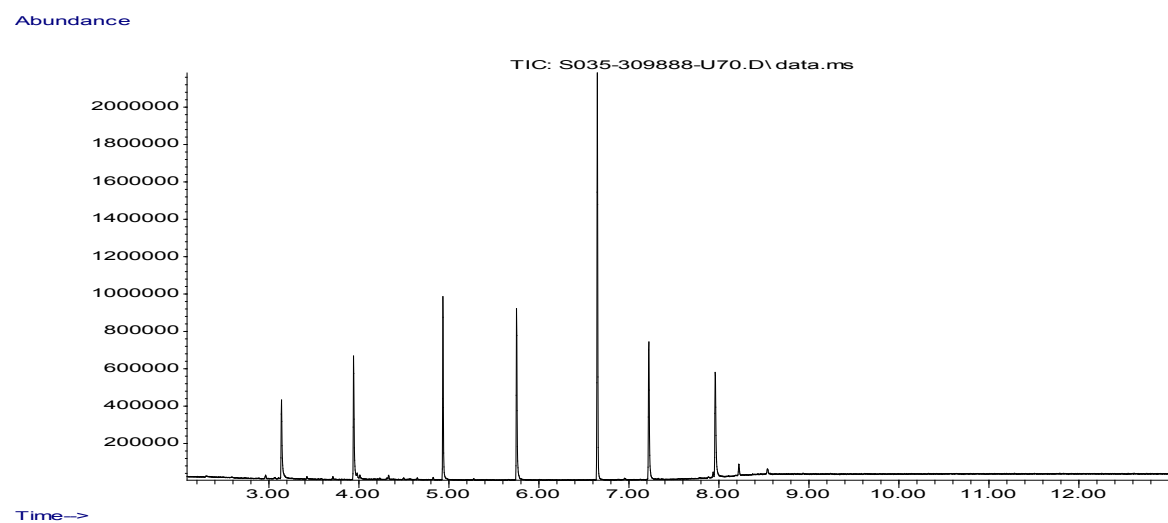
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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

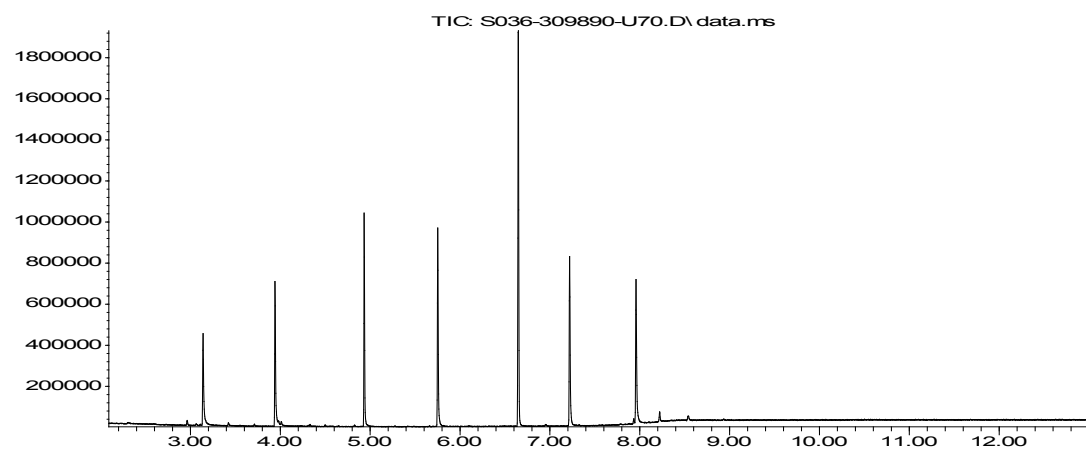
The result for sum should be interpreted with caution



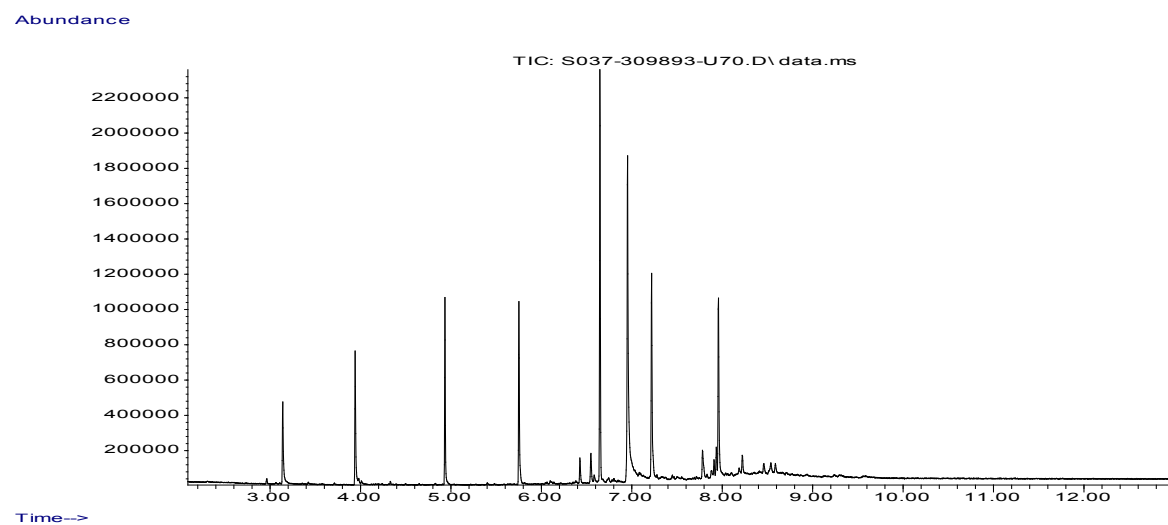




Abundance



Time→





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Analytical Report Number : 24-040759

Project / Site name:	Lampeter	Samples received on:	06/09/2024
Your job number:	1304.02	Samples instructed on/ Analysis started on:	06/09/2024
Your order number:	1304.02	Analysis completed by:	13/09/2024
Report Issue Number:	1	Report issued on:	16/09/2024
Samples Analysed:	2 10:1 WAC samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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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: 24-040759

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309943	309944
Sample Reference				WS2	WS7
Sample Number				None Supplied	None Supplied
Depth (m)				0.50-0.60	0.30-0.40
Date Sampled				04/09/2024	04/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	68.2
Moisture Content	%	0.01	NONE	25	7.2
Total mass of sample received	kg	0.1	NONE	1.4	1.4

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	7.7	7.8
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.2	1.4
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.5	3.3
Acid Neutralisation Capacity	mmol/kg	N/A	NONE	0.59	5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.36
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.06
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.1
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.92
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.63
Chrysene	mg/kg	0.05	MCERTS	0.12	0.84
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.9
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.39
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.75
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.42
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.47
Coronene	mg/kg	0.05	NONE	< 0.05	0.31

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	6.98
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	7.29

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_10_AL	mg/kg	10	NONE	< 10	< 10
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VOCs

Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

Total BTEX	µg/kg	5	MCERTS	< 5.0	< 5.0
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Analytical Report Number: 24-040759

Project / Site name: Lampeter

Your Order No: 1304.02

Lab Sample Number				309943	309944
Sample Reference				WS2	WS7
Sample Number				None Supplied	None Supplied
Depth (m)				0.50-0.60	0.30-0.40
Date Sampled				04/09/2024	04/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

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Waste Acceptance Criteria Analytical Results

Report No:	24-040759			
				Client: REMADALT
Location	Lampeter			
Lab Reference (Sample Number)	309943			Landfill Waste Acceptance Criteria
				Limits
Sampling Date	04/09/2024			
Sample ID	WS2			
Depth (m)	0.50-0.60			
				Inert Waste Landfill
				Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill
				Hazardous Waste Landfill
Solid Waste Analysis				
TOC (%)**	1.2			3%
Loss on Ignition (%) **	3.5			5%
BTEX (µg/kg) **	< 5.0			6%
Sum of PCBs (mg/kg) **	< 0.007			10%
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10			6000
Total PAH (WAC-17) (mg/kg)	< 0.85			1
pH (units)**	7.7			500
Acid Neutralisation Capacity (mmol / kg)	0.59			100
				--
				>6
				--
				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)				using BS EN 12457-2 at L/S 10 l/kg (mg/kg)
	mg/l		mg/kg	
Arsenic *	0.00137		0.0137	0.5
Barium *	0.0101		0.101	2
Cadmium *	< 0.000100		< 0.00100	25
Chromium *	0.0017		0.017	0.5
Copper *	0.013		0.13	2
Mercury *	< 0.000500		< 0.00500	0.01
Molybdenum *	0.000401		0.00401	0.5
Nickel *	0.00065		0.0065	0.4
Lead *	0.0027		0.027	0.5
Antimony *	< 0.0017		< 0.017	0.06
Selenium *	< 0.0040		< 0.040	0.1
Zinc *	0.0064		0.064	4
Chloride *	0.42		4.2	800
Fluoride*	0.074		0.74	10
Sulphate *	0.97		9.7	1000
TDS*	7.9		79	4000
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1
DOC	11.8		118	500
				800
				1000
Leach Test Information				
Stone Content (%)	< 0.1			
Sample Mass (kg)	1.4			
Dry Matter (%)	75			
Moisture (%)	25			
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				
* = UKAS accredited (liquid eluate analysis only)				
** = MCERTS accredited				

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.

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Waste Acceptance Criteria Analytical Results

Report No:	24-040759						
				Client: REMADALT			
Location	Lampeter						
Lab Reference (Sample Number)	309944			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	04/09/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	WS7						
Depth (m)	0.30-0.40						
Solid Waste Analysis							
TOC (%)**	1.4			3%	5%	6%	
Loss on Ignition (%) **	3.3			--	--	10%	
BTEX (µg/kg) **	< 5.0			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)	7.29			100	--	--	
pH (units)**	7.8			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	5.0			--	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)				using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
	mg/l			mg/kg			
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0176			0.176	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0011			0.011	0.5	10	70
Copper *	0.030			0.30	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00213			0.0213	0.5	10	30
Nickel *	0.0014			0.014	0.4	10	40
Lead *	0.0050			0.050	0.5	10	50
Antimony *	0.0032			0.032	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.018			0.18	4	50	200
Chloride *	1.6			16	800	15000	25000
Fluoride*	0.17			1.7	10	150	500
Sulphate *	3.4			34	1000	20000	50000
TDS*	8.2			82	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	12.2			122	500	800	1000
Leach Test Information							
Stone Content (%)	68.2						
Sample Mass (kg)	1.4						
Dry Matter (%)	93						
Moisture (%)	7.2						
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							
* = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

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 : 24-040759

Project / Site name: Lampeter

* 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 *
309943	WS2	None Supplied	0.50-0.60	Brown clay and loam with gravel and vegetation
309944	WS7	None Supplied	0.30-0.40	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-040759

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
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 1:1 ratio 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 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
Sample Preparation		In-house method	L043B	W	NONE
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
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in 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 by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE

Analytical Report Number : 24-040759

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

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

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

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

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

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

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

The result for sum should be interpreted with caution

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Analytical Report Number : 24-040763

Project / Site name:	Lampeter	Samples received on:	06/09/2024
Your job number:	1304.02	Samples instructed on/ Analysis started on:	06/09/2024
Your order number:	1304.02	Analysis completed by:	16/09/2024
Report Issue Number:	1	Report issued on:	16/09/2024
Samples Analysed:	1 soil sample		



Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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

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

i2 Analytical

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Watford, WD18 8YS

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Certificate of Analysis									
BS 3882:2015 Specification For Topsoil									
	Fail BS 3882						client		
Report No:	24-040763					Remada Ltd			
Location	Lampeter								
Lab Reference (Sample Number)	309961								
Sampling Date	09/04/2024								
Sample ID	WS5								
Depth (m)	0.10			Compliant with range (Y/N)					
		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY SILT LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	3.10	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	4.50						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	7.30	Y	N	N	Y	N	N
Carbonate:		%m/m	2.60	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.17	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	110.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	38.40	N	N	N	-	-	-
	Extractable Magnesium	mg/l	52.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	15.71	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1700.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	100.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	17.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	29.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail
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									

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

** = MCERTS accredited

Analytical Report Number : 24-040763

Project / Site name: Lampeter

* 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 *
309961	WS5	None Supplied	0.10-0.20	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-040763

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L019B	D	NONE
Density of available extract	Gravimetric determination of density of dried sample up to 2 mm	In-house method	L019B	D	NONE
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Conductivity (BS 3882/BS 8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L031B	D	NONE
Carbonate (Topsoil - BS 3882)	Determination of Carbonate as per BS 3882:2015	Method based on BS 3882:2015	L034-PL	D	NONE
Extractable/Available Metals (BS 3882/BS 8601)	Determination of the extractable metals in soil, in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L038B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition	BS3882:2015	L047-PL/L087B	W	NONE
Mass loss on ignition (Topsoil - BS 3882)	Determination of Loss on Ignition as per BS 3882:2015	Method based on BS 3882:2015	L047-PL	D	NONE
Phosphorus as PO ₄ (BS 3882/BS 8601)	Determination of the extractable phosphorus in soil, in accordance with BS 3882:2007 methodology	Method based on BS 3882:2015 & BS 8601:2013	L048B	D	NONE
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and ion selective electrode	In-house method based on BS 7755-3.7:1995	L087B	D	NONE
pH (BS 3882/BS 8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L099-PL	D	NONE
Topsoil (BS 3882:2015)	Specification for topsoil	BS 3882:2015	PL		NONE
Textural Classification Diagram (BS 3882:2015)	BS 3882:2015	BS 3882:2015	PL		NONE

Analytical Report Number : 24-040763

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Geotechnical Testing	See attached geotechnical report	See attached geotechnical report	PL		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

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
In-house method based on: BS 3882: 2015

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



Client: Remada Ltd
Client Address: Forward House, 17 High Street,
Henley-in-Arden, Warwickshire,
B955AA
Contact: Peter Dickinson
Site Address: Lampeter

Client Reference: 1304
Job Number: 24-040763-1
Date Sampled: 04/09/2024
Date Received: 06/09/2024
Date Tested: 11/09/2024
Sampled By: Not Given

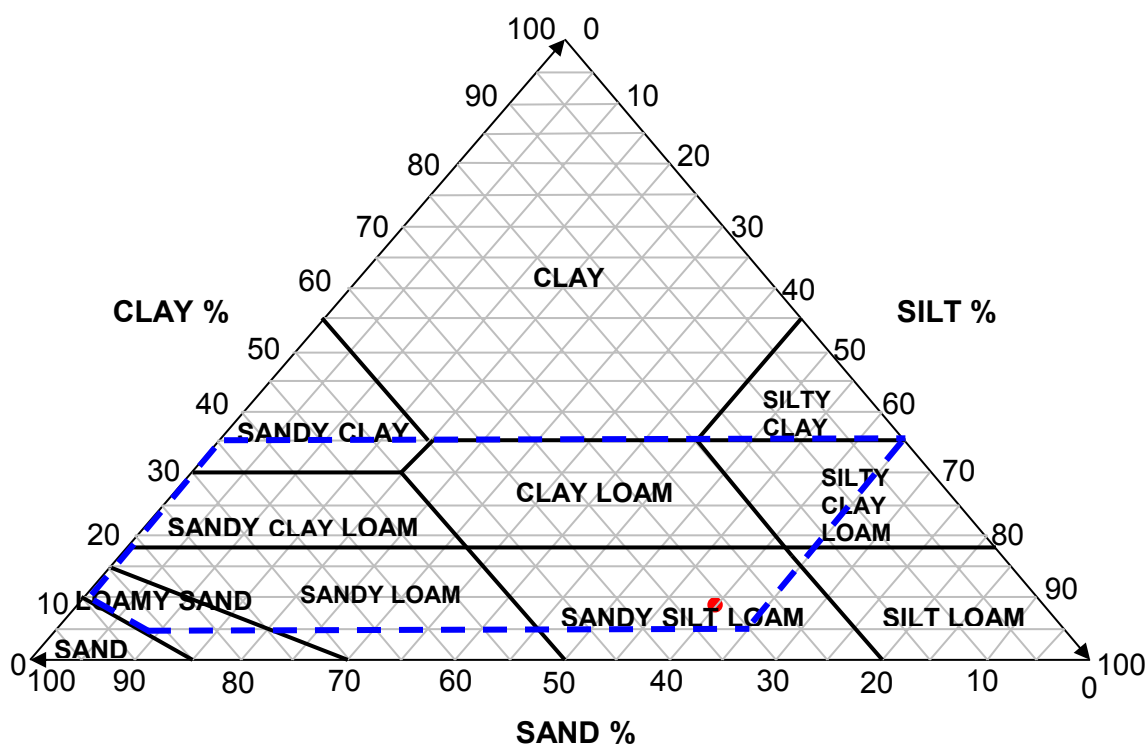
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 309961
Hole No.: WS5
Sample Reference: Not Given
Sample Description: SANDY SILT LOAM

Depth Top [m]: 0.10
Depth Base [m]: 0.20
Sample Type: D

Soil Texture Triangle



Sample Proportion	% dry mass
Sand	31.5
Silt	58.6
Clay	9.9

Texture within acceptable area (Y/N)

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Katarzyna Banys

Katarzyna Banys
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Analytical Report Number : 24-042353

Project / Site name:	Lampeter	Samples received on:	16/09/2024
Your job number:	1304.02	Samples instructed on/ Analysis started on:	16/09/2024
Your order number:	1304.02	Analysis completed by:	20/09/2024
Report Issue Number:	1	Report issued on:	26/09/2024
Samples Analysed:	1 soil sample		


Signed:

Charlotte Andrew
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

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

Analytical Report Number: 24-042353
 Project / Site name: Lampeter
 Your Order No: 1304.02

Lab Sample Number				317844
Sample Reference				Asphalt 1
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				04/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	60.6
Moisture Content	%	0.01	NONE	3.6
Total mass of sample received	kg	0.1	NONE	0.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.44
Anthracene	mg/kg	0.05	MCERTS	0.12
Fluoranthene	mg/kg	0.05	MCERTS	0.86
Pyrene	mg/kg	0.05	MCERTS	0.74
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.55
Chrysene	mg/kg	0.05	MCERTS	0.86
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.61
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.78
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.49
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	7.29
Total WAC-17 PAHs	mg/kg	0.85	NONE	7.29

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

Analytical Report Number : 24-042353

Project / Site name: Lampeter

* 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 *
317844	Asphalt 1	None Supplied	None Supplied	Brown clay and sand with gravel and stones

Analytical Report Number : 24-042353

Project / Site name: Lampeter

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
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

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

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Analytical Report Number : 25-025633

Project / Site name:	Lampeter	Samples received on:	16/05/2025
Your job number:	1304.03	Samples instructed on/ Analysis started on:	16/05/2025
Your order number:	1304.03	Analysis completed by:	29/05/2025
Report Issue Number:	1	Report issued on:	29/05/2025
Samples Analysed:	5 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: 25-025633
Project / Site name: Lampeter
Your Order No: 1304.03

Lab Sample Number	549759	549760	549761	549762	549763
Sample Reference	WS101	WS102	WS103	WS104	WS105
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)	0.20-0.50	0.30-0.60	0.30-0.60	0.40-0.70	0.20-0.50
Date Sampled	15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	22.8	< 0.1	88.8	65.4	42.4
Moisture Content	%	0.01	NONE	4.6	4	2.3	8.7	5.2
Total mass of sample received	kg	0.1	NONE	2	2	2	2	2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DKI	DKI	DKI	DKI	DKI
Analysis completed	N/A	N/A	N/A	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	8	8.3	8	8.3
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	0.0062	0.0067	0.003	0.014	0.0085

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.95	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	5.2	< 0.05	0.19	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	5.3	< 0.05	0.18	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.11	13	< 0.05	2.1	0.09
Anthracene	mg/kg	0.05	MCERTS	0.07	3.5	< 0.05	0.66	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.96	15	0.15	7	0.32
Pyrene	mg/kg	0.05	MCERTS	0.88	10	0.12	5.7	0.25
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.84	9.5	0.07	4.1	0.19
Chrysene	mg/kg	0.05	MCERTS	1.3	7.7	0.12	4.2	0.24
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.5	9.7	0.12	5.7	0.27
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.65	3.8	< 0.05	2.1	0.12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2	7.2	0.09	4.4	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.72	3.2	< 0.05	2.3	0.11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	1	< 0.05	0.62	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.74	3	< 0.05	2.3	0.13

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	9.08	98.3	< 0.80	41.7	1.95
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	12	13	11	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	0.94	0.32	0.63	0.48
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	0.5	< 0.2	0.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.5	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	23	28	18	26	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	28	19	27	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	42	25	30	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	85	32	89	48	40
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analytical Report Number: 25-025633
Project / Site name: Lampeter
Your Order No: 1304.03

Lab Sample Number	549759	549760	549761	549762	549763
Sample Reference	WS101	WS102	WS103	WS104	WS105
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)	0.20-0.50	0.30-0.60	0.30-0.60	0.40-0.70	0.20-0.50
Date Sampled	15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	110

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 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	< 8.0	23	< 8.0	< 8.0	15
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	23	< 10	< 10	16

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	1.2	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	14	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	37	< 10	11	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	13	74	< 10	43	29
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	13	130	< 10	53	29

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	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
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0

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Project / Site name: Lampeter
Your Order No: 1304.03

Lab Sample Number				549759	549760	549761	549762	549763
Sample Reference				WS101	WS102	WS103	WS104	WS105
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)				0.20-0.50	0.30-0.60	0.30-0.60	0.40-0.70	0.20-0.50
Date Sampled				15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical Report Number: 25-025633
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Lab Sample Number				549759	549760	549761	549762	549763
Sample Reference				WS101	WS102	WS103	WS104	WS105
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)				0.20-0.50	0.30-0.60	0.30-0.60	0.40-0.70	0.20-0.50
Date Sampled				15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	1.3	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	2.9	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	1.5	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Pesticides (GC-MS)

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Alachlor	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Bifenthrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Cyhalothrin (Lambda)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Omethoate	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3,5-Trichlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Dimethylvinphos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Demeton-O	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Demeton-S	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endrin Aldehyde	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endrin Ketone	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Phosphamidon (Sum)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Cis-Permethrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endosulfan sulfate	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Etrimfos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Fenvalerate (Sum)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Hexachlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Mevinphos, E+Z	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Pentachlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Pirimiphos-ethyl	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propetamphos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Tecnazene	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triadimefon	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Trans-Permethrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Analytical Report Number: 25-025633
 Project / Site name: Lampeter
 Your Order No: 1304.03

Lab Sample Number				549759	549760	549761	549762	549763
Sample Reference				WS101	WS102	WS103	WS104	WS105
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)				0.20-0.50	0.30-0.60	0.30-0.60	0.40-0.70	0.20-0.50
Date Sampled				15/05/2025	15/05/2025	15/05/2025	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Aldrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Azinphos-methyl	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Beta-BHC	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Cis-Chlordane	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Chlorfenvinphos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Chlorpyrifos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Chlorothalonil	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Carbophenothion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Cyfluthrin (Sum)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Delta-BHC	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Dieldrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Deltamethrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Heptachlor Exo-epoxide	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endosulfan I (alpha isomer)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Endosulfan II (beta isomer)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Fenthion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Isodrin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Methacrifos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
O,p'-DDD	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
O,p'-DDE	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
O,p'-DDT	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Parathion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Parathion-methyl	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Pendimethalin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Phorate	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Phosalone	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
P,p'-DDD	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
P,p'-DDE	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
P,p'-DDT	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
P,p'-Methoxychlor	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propyzamide	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triazophos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Trans-Chlordane	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Cypermethrin (Sum)	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Dichlorvos	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Dimethoate	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Diazinon	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Ethion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Fenitrothion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Malathion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Phosphorothion	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Trifluralin	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Azinphos-ethyl	µg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

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

Analytical Report Number : 25-025633

Project / Site name: Lampeter

* 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 *
549759	WS101	None Supplied	0.20-0.50	Brown sandy loam with vegetation and stones
549760	WS102	None Supplied	0.30-0.60	Non Soil. ⁹
549761	WS103	None Supplied	0.30-0.60	Brown clay and sand with stones
549762	WS104	None Supplied	0.40-0.70	Brown clay and sand with stones
549763	WS105	None Supplied	0.20-0.50	Brown clay and sand with stones

Analytical Report Number : 25-025633

Project / Site name: Lampeter

Water matrix abbreviations:

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

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
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
Pesticides by GC-MS/MS	Determination of Pesticides in soil by GC MS/MS	In-house method	L055B	W	NONE
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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
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 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
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

Analytical Report Number : 25-025633

Project / Site name: Lampeter

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
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

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.

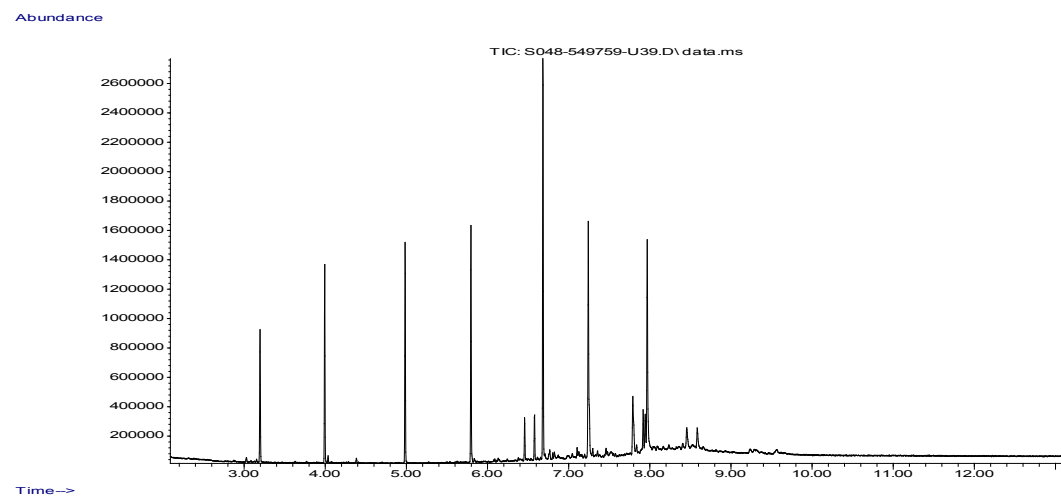
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

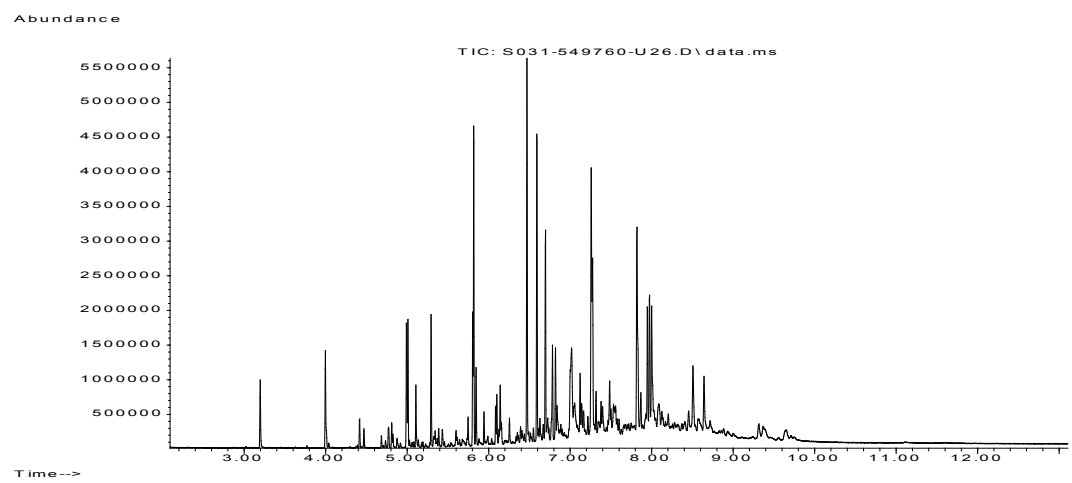
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

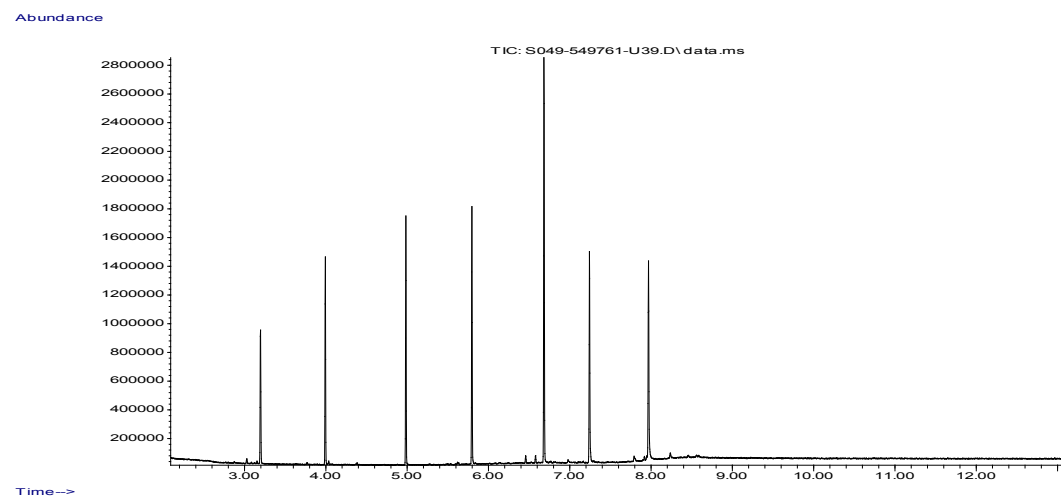
Quality control parameter failure associated with individual result applies to calculated sum of individuals.

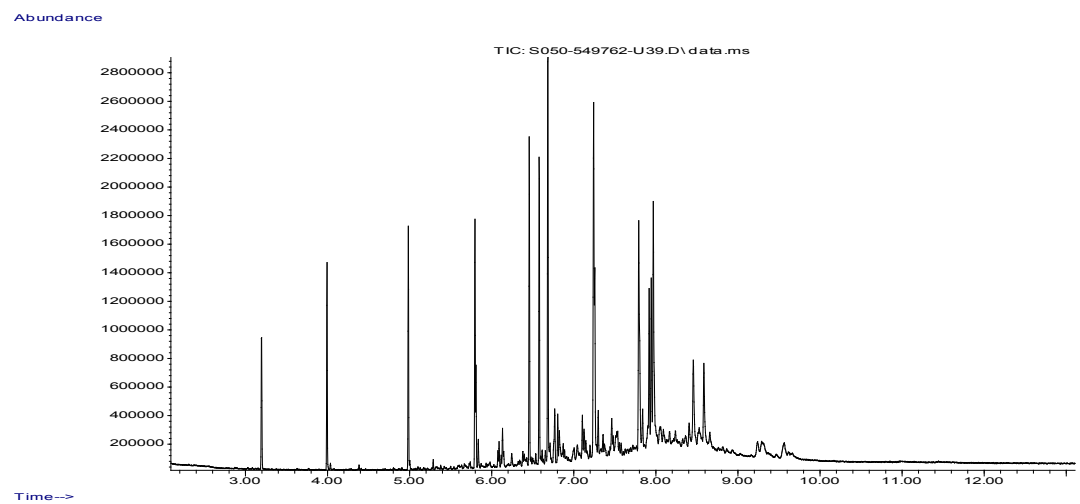
The result for sum should be interpreted with caution

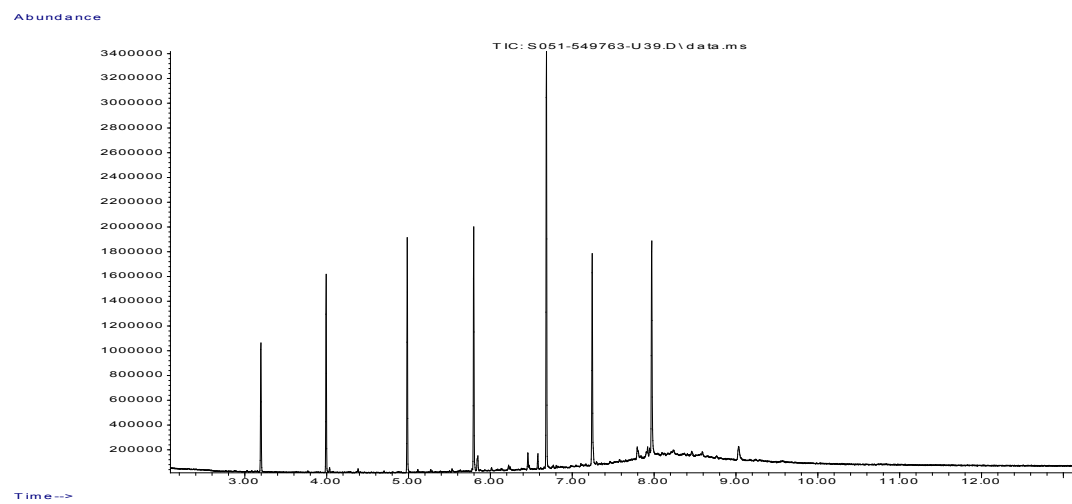
*g - Unaccredited sample matrix.













APPENDIX F

Laboratory Geotechnical Tests



Laboratory Report



Contract Number: 74573

Client Ref: **1304.02**

Client PO: **1304.02**

Date Received: **05-09-2024**

Date Completed: **12-09-2024**

Report Date: **12-09-2024**

Client: **Remada Limited**

This report has been checked and approved by:

Contract Title: **Lampeter**

For the attention of: **Peter Dickinson**

Brendan Evans
Office Administrator

Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	5
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	5
Particle Size Distribution BS EN ISO 17892-4 : 5.1 - * UKAS	3
Disposal of samples for job	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 (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (HR & HSE Manager)

PARTICLE SIZE DISTRIBUTION
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

74573

Borehole/Pit No.

WS2

Project Name

Lampeter

Sample No.

Sample Description

Brown fine to coarse sandy silty/clayey fine to coarse GRAVEL

Depth Top

1.00

Depth Base

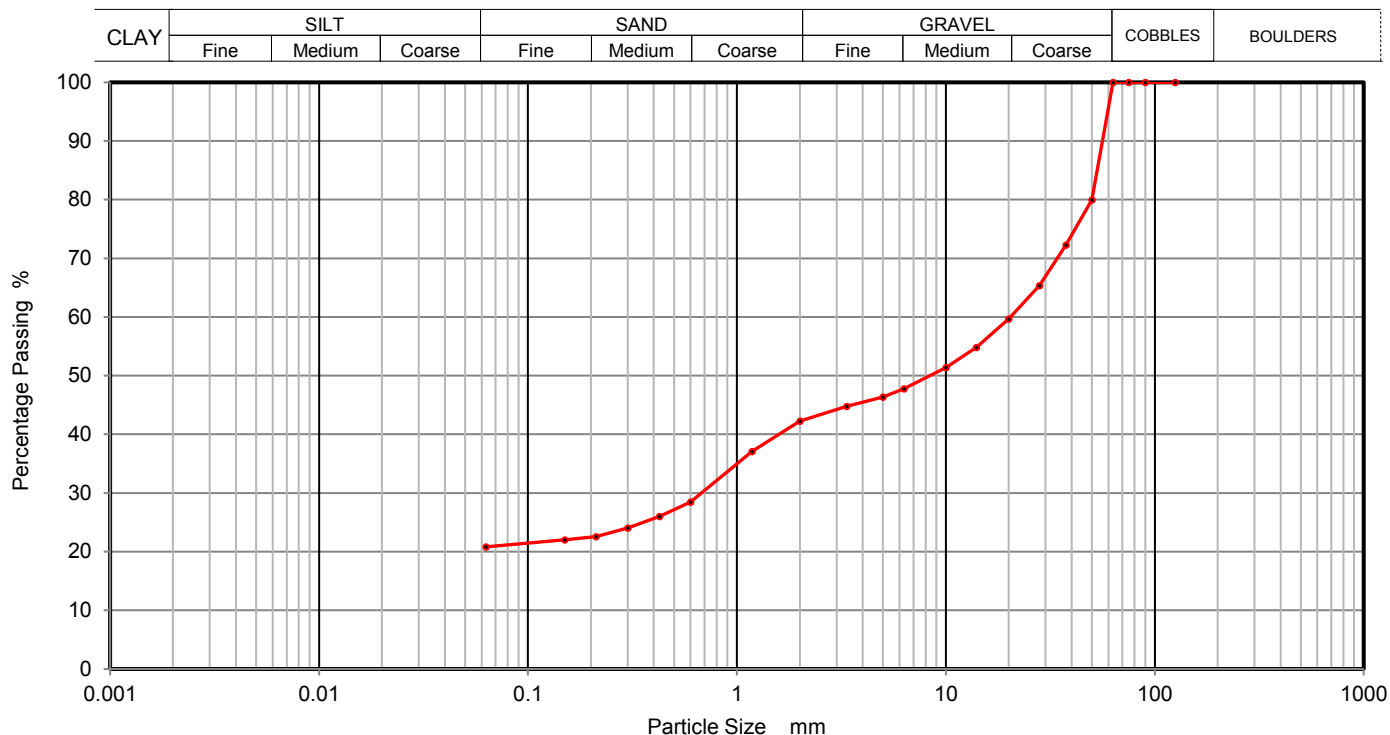
1.50

Date Tested

10/09/2024

Sample Type

B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	72		
28	65		
20	60		
14	55		
10	51		
6.3	48		
5	46		
3.35	45		
2	42		
1.18	37		
0.63	28		
0.425	26		
0.30	24		
0.20	23		
0.15	22		
0.063	21		

Sample Proportions	% dry mass
Cobbles	0
Gravel	58
Sand	21
Silt and Clay	21

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Cameron

PARTICLE SIZE DISTRIBUTION
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number **74573**

Borehole/Pit No. **WS4**

Project Name **Lampeter**

Sample No.

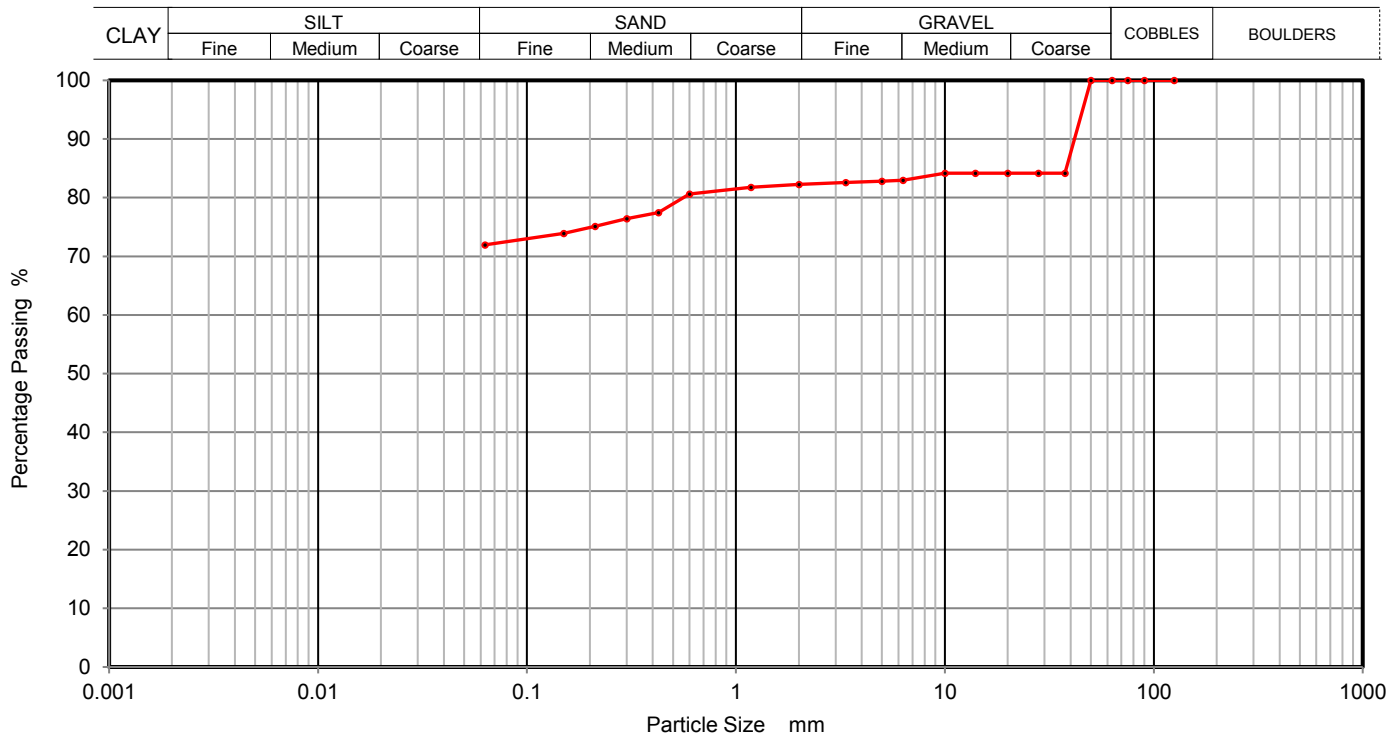
Sample Description **Brown fine to coarse sandy fine to coarse gravelly SILT/CLAY**

Depth Top **0.30**

Depth Base **1.00**

Date Tested **10/09/2024**

Sample Type **B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	84		
28	84		
20	84		
14	84		
10	84		
6.3	83		
5	83		
3.35	83		
2	82		
1.18	82		
0.63	81		
0.425	77		
0.30	76		
0.20	75		
0.15	74		
0.063	72		

Sample Proportions	% dry mass
Cobbles	0
Gravel	18
Sand	10
Silt and Clay	72

Remarks

Preparation and testing in accordance with BS17892 unless noted below

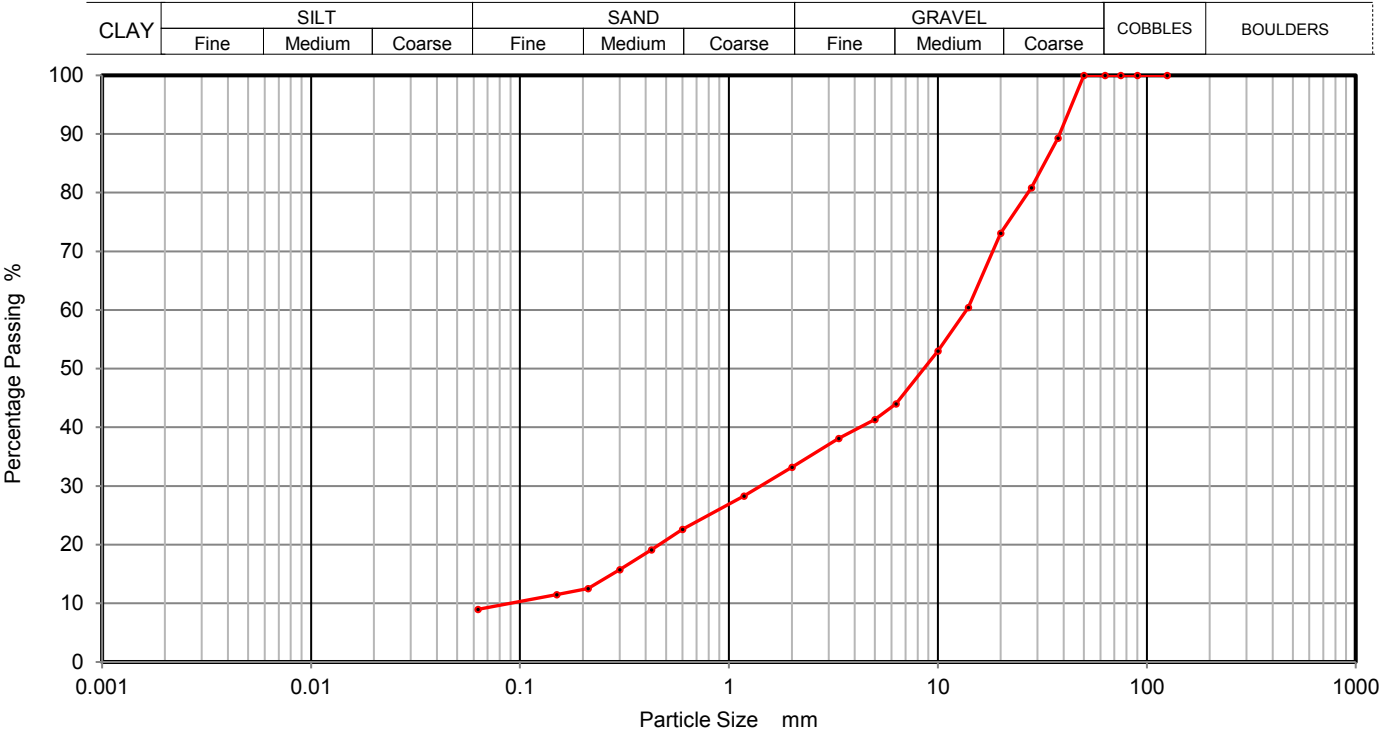
Operator

Cameron

PARTICLE SIZE DISTRIBUTION
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number	74573
Borehole/Pit No.	WS6

Project Name	Lampeter	Sample No.	
Sample Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.50
		Depth Base	2.50
Date Tested	10/09/2024	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	81		
20	73		
14	60		
10	53		
6.3	44		
5	41		
3.35	38		
2	33		
1.18	28		
0.63	23		
0.425	19		
0.30	16		
0.20	13		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	67
Sand	24
Silt and Clay	9

Remarks
Preparation and testing in accordance with BS17892 unless noted below

Operator
Cameron

