

14023/RJH

27 April 2026

C J Construction (Wales) Limited
The Builders Yard
Somerset Lane
Port Talbot SA13 1UA

For the attention of Mr Lee Bamford

Dear Sirs,

***Remediation and Validation Measures Regarding the Redevelopment at Heol Crwys in Cwmavon
Validation Report (Build Phase 1 of 2, Plots 1 to 21 and 40 to 43).
ICW Insurance Services Limited Reference: 50080/29
Planning Permission Number P2023/0369***

Intégral Géotechnique were appointed by C J Construction (Wales) Limited to undertake the clean cover validation inspections to soft landscaped and garden areas within the above redeveloped residential properties.

We have now completed the first phase of the clean capping cover system validation inspections to gardens and landscaped areas, referenced Build Phase 1 of 2, Plots 1 to 21 and 40 to 43, and we can report as follows.

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Background

Following detailed review of Intégral Géotechnique (Wales) Limited, Outline Remediation Strategy Report, Report No. 14023/LW/24/ORS/RevB dated April 2025 the report detailed given the contamination recorded in the made ground encountered across the site, it was considered that a potential risk to human health may exist.

The report made reference to proposed remedial and mitigating measures to deal with identified potential risk from the made ground, therefore, a capping system to interrupt the link between the source and receptor for the site should be implemented. The capping system for the site should consist of the proposed buildings, hard standings, soft finished garden areas and soft finished landscaped areas to the impacted soils identified.

In light of the identified contaminant linkages associated within the made ground at the site, implementation of a remedial capping strategy within gardens and landscaped areas is recommended to mitigate potential risks to human health.

The proposed capping system shall serve as a barrier to interrupt the source-pathway-receptor linkage, in accordance with established risk assessment frameworks.

The engineered capping solution should comprise the following elements:

- **Permanent Structures:** The footprint of proposed residential buildings will act as an impermeable cap, preventing direct contact with underlying impacted soils.
- **Hard Landscaping (Hardstandings):** Surfaces such as roads, pavements, and patios will provide an effective physical separation, minimizing risks of dermal contact and dust inhalation.
- **Soft Landscaping and Garden Areas:** These shall be underlain by a geotextile separation layer and overlaid with a minimum thickness of 600mm of clean certified topsoil in all private garden areas and Public Open Space (POS) areas.

This clean cover system will prevent direct exposure and ingestion of contaminated material, with depth contingent on proposed end use, 600 mm for private gardens and public open space.

The validation of the chemistry and thickness of the 600mm thick capping layer to be placed within gardens, landscaped areas and public open spaces and validation of the placement of the anti-dig/anti-mixing membrane at the base of the capping soils is to be undertaken by Intégral Géotechnique.

Remedial Mitigation Measures

As discussed above, the remedial mitigation measures considered as part of this report are as follows:

- Placement of a minimum 600mm thick, clean capping layer of imported subsoil and/or topsoil in all gardens and areas of soft landscaping, placed on top of a visibility-geotextile separation membrane.

Remedial Mitigation Measures - Clean Capping Layer

- The Intégral Géotechnique (Wales) Limited, Outline Remediation Strategy Report, Report No. 14023/LW/24/ORS/RevB dated April 2025, produced by Intégral Géotechnique, requires private garden and soft finished areas which fall within the former developed part of the site and are to be addressed with clean capping soils placed over a geotextile separation/alert membrane.
- The upper 600 mm of fill used in the clean capping layer in all garden and soft finished areas are to be chemically tested and UKAS MCERTS accredited laboratory analysis certificates supplied. The capping system is to comprise of clean inert materials conforming to the Requirements for the Chemical Testing of Imported Materials for Various End Uses and Validation of Cover Systems prepared by Welsh Land Contamination Working Group and to satisfy appropriate soil guideline values for residential developments with gardens assuming that home-grown vegetables are consumed.
- Topsoil imported for use at site for garden infill and landscaping will require a laboratory analysis certificate confirming its suitability for use within the site prior to placement within garden and landscaped areas to confirm its chemical suitability.
- Subsoil imported for use at the site for garden infill and landscaping will require a laboratory analysis certificate confirming its suitability for use within the site prior to placement within garden and landscaped areas to confirm its chemical suitability.
- All capping soils laid within garden and landscape areas are to be placed on a suitable geotextile membrane. Further samples of the topsoil and if used subsoil will be taken from garden areas for laboratory analysis, at a frequency of 1 in every 4 gardens to confirm on going chemical suitability of clean capping soils.
- Following placement of the suitable topsoil and or if used subsoil within garden areas, confirmation of the integrity and depth of the placed clean soils, validation trial pit excavations should be carried out at a frequency of 1 in every 4 residential plots or similar to POS areas.
- A measure of the vertical strata within the trial pit to confirm the minimum of 600mm clean capping material, comprising topsoil and or if used subsoil, with the use of a graduated measuring staff for accurate depth validation will be made.
- Visual inspection of the base of each trial pit/inspection mechanism will be undertaken to confirm the presence and integrity of the geotextile demarcation membrane, collect representative composite samples of both topsoil and or if used subsoil from each trial pit and submit samples for laboratory chemical analysis (e.g., metals, hydrocarbons, PAHs, asbestos screening) to verify compliance with applicable site-specific assessment criteria or relevant regulatory thresholds (e.g., Category 4 Screening Levels).
- Provide trial pit logs including photographic evidence, depth measurements, sampling records, and membrane placement verification.

Geotextile Membrane (Below Capping Layer)

CJ Construction (Wales) Ltd groundworks contractor is installing a suitable geotextile membrane across the surface of the prepared subbase material in all garden and soft landscaping areas. The geotextile membrane serves as a separation layer between the underlying subbase and the clean imported capping soils, preventing intermixing of materials and maintaining the integrity of the clean cover system.

This approach ensures that the clean imported soils remain uncontaminated and suitable for use in private gardens, in accordance with the site's remediation strategy and relevant environmental guidance.

The selected geotextile is appropriate for use in soft landscaping applications, providing adequate permeability to allow for natural drainage while offering sufficient tensile strength and durability to withstand placement activities.

Imported Soils (Clean Capping Layer)

Topsoil

We understand topsoil only is to be used at the outset of the development within a dedicated areas as a capping medium within soft finished areas of the redevelopment at Heol Crwys in Cwmavon development site. These imported topsoil materials have been imported from a commercial soil supplier, Freeland Horticulture Limited, Main Rd, Cadoxton, Neath, Port Talbot, SA10 8AP.

The imported topsoil material is supplied with a soil analysis report, confirming that all analyzed chemical elements or compounds are present at concentrations below the appropriate thresholds based on a proposed residential with homegrown produce end use.

Appended to this report are Imported Soils Declaration Form (topsoil), soil analysis reports produced for the imported topsoil and an order/delivery ticket for the imported topsoil are presented in Appendix A.

Validation of Clean Capping Layer - Build Phase 1 of 2, Plots 1 to 21 and 40 to 43

An engineer from Intégral Géotechnique has attended site on several occasions when requested by the site management team on site to carry out the inspection and validation of the final mitigation measures within completed landscape and garden areas.

Upon arrival at site the engineer has instructed hand dug validation trial pits within rear gardens of plots presented at the agreed frequency to confirm the depth of the as placed topsoil and verify the placement of the geotextile membrane at the base of the capping soils.

A drawing showing the site layout area within the vicinity of the plots under validation and the plots chosen for trial pit excavations is shown in Figure 2.

The topsoil soil materials placed within the plots inspected were found to comprise dark brown sandy clay with occasional gravel and many organic rootlets throughout.

Various photographs of the garden capping depths with the use of a staff for measurement, membrane placement at the base of the trial pits and further infilled constructed gardens have been obtained on each site visit for the plots presented for validation. These photographs are collated and are shown in Figure 3.

The as placed topsoil materials placed in the above garden areas inspected have been further sampled and these sent to the UKAS/MCERTS accredited laboratories of i2 Analytical for chemical analysis. During this phase of validation 8 No. samples of topsoil have been sampled and sent to the laboratory for analysis. The results of the in-situ soil analysis are presented in Appendix B.

The results of the testing of topsoil sampled from within garden and landscaped areas above have been summarised and compared to the appropriate screening criteria for a residential end use. The results have been compared to appropriate Suitable 4 Use Levels (S4ULs) derived by LQM, in the first instance. In their absence, the results will have been compared to the Category 4 Screening Levels (C4SL) and the Soil Guideline Values (SGVs) and Soil Screening Values (SSVs) derived by Atkins ATRISKsoil for residential with the consumption of home grown produce end use, to assess the potential risk to human health.

A summary of the as placed in-situ soil analysis results is presented in Appendix C.

Conclusion – Garden Validation

This report confirms that the remediation works regarding the placement of the clean capping layer thickness requirements, geotextile membrane placement and in-situ soil laboratory analysis with regard to Build Phase 1 of 2, Plots 1 to 21 and 40 to 43, have been completed in accordance with the approved Outline Remediation Strategy Report, Report No. 14023/LW/24/ORS/RevB dated April 2025.

Provision of clean cover validation to the remaining plots at the required inspection frequency will be provided in due course.

This report should be submitted to the Local Authority with the intention of partial discharge of the relevant planning conditions specific to garden capping.

We trust the above and enclosed are to your satisfaction. However, if you have any queries or require any further information, please do not hesitate to contact us.

Yours faithfully,

Roger J Hawkins

Intégral Géotechnique (Wales) Limited

Enc.

Appendix A – Imported Soils Declaration Form (topsoil), soil analysis reports produced for the imported topsoil and an order/delivery ticket

Appendix B – Results of the Laboratory In-situ Soil Analysis Results

Appendix C – Summary Sheets of the In-situ Soil Analysis Results
Figures

APPENDIX A

**IMPORTED SOILS DECLARATION FORM (TOPSOIL), SOIL ANALYSIS REPORTS PRODUCED FOR THE
IMPORTED TOPSOIL AND AN ORDER/DELIVERY TICKET FOR THE IMPORTED TOPSOIL**

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address	
*	P2023/0369	*	Plots 1-43 Heol Crwys Cwmavon Port Talbot	
3.	Proposed use(s) of ALL imported material(s)	4.	Description of material imported	British Standard Certification supplied
				Yes No
☐	Engineering use/works (e.g. backfill, sub formation, foundation)	☒	Topsoil	☐ ☒
☒	Domestic Garden use (inc. crop growing)	☐	Subsoil	☐ ☐
☒	Landscaping (play areas, communal areas, roadside)	☐	Aggregate	☐ ☐
☐	Other Please specify	☐	Quarry stone	☐ ☐
			Other (Please specify) _____	☐ ☐
5.	Origin of Imported Material(s) ☐			
☐	Greenfield Site (Please specify) _____			
☐	Brownfield Site (Please specify) _____			
☐	Recycling / Process supplier (Please specify) _____			
	Other (Please specify) Freeland Horticulture - Gilfach Top soil			
6.	Volume(s) of Material to be Imported	7.	No of samples taken (per source)	
☐	Less than 20m ³	☐	2-3	
☐	Between 20m ³ - 100m ³	☐	4-6	
☒	More than 100m ³	☐	More than 6 (please specify) (NB: All analyses (where applicable) must be subject to MCERTS accreditation ⁽¹⁾ at a certified laboratory)	
8.	Suitability of Use			
Confirmation that soil imported does not contain any evidence of Japanese Knotweed stems, leaves and rhizomes. YES ☒ NO ☐				
Confirmation the imported soil does not contain any unprocessed / unsorted demolition waste YES ☒ NO ☐				
Confirmation that the soil imported does not contain contaminated or potentially contaminated by chemical or radioactive substances YES ☒ NO ☐				
Confirmation that the soils imported is suitable for use for the intended purpose on site YES ☒ NO ☐				
Signed: Lee Bamford * Date: 4 Nov 25 *				
Name: Lee Bamford * Position: Site Manager *				
Company Name and Address *				



Freeland Horticulture Ltd
Rosedale Nursery
College Road
Hextable
Kent BR8 7LT

Attention: Philippa Lambourne

Our Ref: SLC-1407-SA

16 July 2025

Dear Philippa

Topsoil Analysis Report: Giffach Topsoil – July 2025

We have completed the analysis of the topsoil sample recently taken from the above site and it has been forwarded to an approved laboratory for analysis and have the pleasure of reporting our findings. The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes and its compliance with the current British Standard for topsoil (BS3882).

SOIL SAMPLING & EXAMINATION

At the time of our sampling visit the topsoil was stored in a stockpile. A series of 10 hand augered trial holes were constructed across the stockpile for the purpose of soil examination and sample collection. As the soil examination confirmed a consistent topsoil composition, the ten samples were combined together to form one composite sample for analysis purposes. The soil was described as dark brown, slightly moist and friable with a well-developed, fine to medium granular structure. The soil contained a low fraction of small stones and no deleterious materials (eg. building waste materials, glass, roots or rhizomes of pernicious weeds) or unusual odours (eg. hydrocarbons) were recorded.

LABORATORY ANALYSIS

The topsoil sample was submitted to a UKAS and MCERTS accredited laboratory for routine physical and chemical parameters to confirm the composition and fertility of the soil. The following parameters were determined:

- ⊕ pH & electrical conductivity values;
- ⊕ major plant nutrients (N, P, K, Mg) & organic matter content;
- ⊕ particle size distribution and stone content;
- ⊕ heavy metals & potentially toxic elements (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- ⊕ sulphate, sulphur, sulphide;
- ⊕ total cyanide and total (mono) phenols;
- ⊕ speciated PAHs (US EPA16)
- ⊕ banded aromatic and aliphatic petroleum hydrocarbons (C₅-C₃₅).
- ⊕ Asbestos

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

Phone: 01322 619161;

COMMENTS

pH & Electrical Conductivity (salinity) Values

The sample was alkaline in nature (pH 8.5) with a pH value that would be considered suitable for general landscaping purposes.

The electrical conductivity (salinity) value using the soil:water extract was (1369 μ S/cm) indicating that soluble salts are not present at levels that would be harmful to plants.

The electrical conductivity values by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 μ S/cm) given in BS3882:2015.

Organic Matter & Nutrient Status

The sample was rich in organic matter and all major plant nutrients. No further additions of compost or fertiliser are required, or indeed recommended, for at least the first growing season.

The C:N ratio of the sample was acceptable for general landscape purposes

Particle Size Distribution & Stone Content

The sample contained 85% sand and fell into the loamy sand texture class. This particle size distribution is considered suitable for a broad range of landscape applications, including tree and shrub planting, turfing and seeding.

The sample was Virtually free from stones of 50 mm and upwards in diameter and only contained a slight fraction of smaller stones (34.6%). As such, stones will not restrict the use of the soil for landscaping purposes.

Potential Contaminants

We are not aware of any specified contaminant levels set for the proposed end-use of this topsoil. This includes human health, environmental protection and metals considered toxic to plants. In the absence of any site-specific assessment criteria, the concentrations that affect human health have been compared with the 'residential with homegrown produce' land use in the Suitable For Use Levels presented in, 'The LQM/CIEH S4UIs' for Human Health Risk Assessment (2015) and DEFRA SP1010: 'Development of Category 4 Screening Levels' for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that would exceed their respective guideline values.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes. From the soil examination and laboratory analysis, the soil is described as an alkaline, non-saline, loamy sand. The organic matter and nutrient levels are acceptable, and no significant contamination was found with respect to the parameters determined. This soil would adhere to the current BS3882 specification for 'multipurpose grade'.

To conclude, based on our findings, the topsoil would be considered well-suited to general landscaping purposes provided the physical condition of the soil is maintained.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if you have any queries or comments.

George Longmuir MSc Soil Sci. M.I Soil Sci.

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Gilfach, Neath
Month/Year	July 25
Our Ref	1407-SA
Date	16 July 2025

pH Value & Salinity

pH value (1:2.5 soil/water ext)	units
Electrical Conductivity (1:2.5 soil/water ext)	µS/cm
Electrical Conductivity (1:2.5 soil/CaSO4 ext)	µS/cm

Composite sample

8.5
1369
3134

Organic Matter & Nutrient Status

Organic Matter (LOI)	%
Organic Carbon (Derived)	%
Total Nitrogen	%
Carbon:Nitrogen Ratio	:1
Available Phosphorus	mg/l
Available Potassium	mg/l
Available Magnesium	mg/l

7.9
4.6
0.418
11.0
58.7
1486
257

Particle Size Analysis & Stones

Clay (<0.002mm)	%
Silt (0.063-0.002mm)	%
Sand (2.0-0.063mm)	%
Texture Class	UK Class

7
16
77
Sandy Loam

Stones 2-20mm	% by DW
Stones 20-50mm	% by DW
Stones >50mm	% by DW

34.6
0.0
0.0

Potential Contaminants

Total Arsenic (As)	mg/kg
Total Cadmium (Cd)	mg/kg
Total Chromium (Cr)	mg/kg
Hexavalent Chromium (Cr ^{VI})	mg/kg
Total Copper (Cu)	mg/kg
Total Lead (Pb)	mg/kg
Total Mercury (Hg)	mg/kg
Total Nickel (Ni)	mg/kg
Total Selenium (Se)	mg/kg
Total Zinc (Zn)	mg/kg
Total Beryllium (Be)	mg/kg
Total Barium (Ba)	mg/kg
Total Vanadium (V)	mg/kg
Hot Water Soluble Boron (B)	mg/kg
Total Cyanide (CN)	mg/kg
Elemental Sulphur (S)	mg/kg
Easily Liberated Sulphide (S ²⁻)	mg/kg
Water Soluble Sulphate (SO ₄ ²⁻)	mg/l
Total Phenol Index	mg/kg
Asbestos Screen	-

6.1
0.40
60.7
<0.2
21.5
24.7
<0.2
30.3
0.18
96.1
<1
66.7
10.6
2.1
<1
<5
<1
66.2
<1
N.D.

Polyaromatic Hydrocarbons

Naphthalene	mg/kg
Acenaphthylene	mg/kg
Acenaphthene	mg/kg
Fluorene	mg/kg
Phenanthrene	mg/kg

<0.05
<0.05
<0.05
<0.05
<0.1

Client	Freeland Horticulture Ltd	
Job Name	Topsoil Analysis	
Site	Gilfach, Neath	
Month/Year	July 25	
Our Ref	1407-SA	
Date	16 July 2025	
Anthracene	mg/kg	<0.05
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo[a]anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo[b]fluoranthene	mg/kg	<0.1
Benzo[k]fluoranthene	mg/kg	<0.1
Benzo[a]pyrene	mg/kg	<0.1
Indeno[1,2,3-cd]pyrene	mg/kg	<0.1
Dibenzo[a,h]anthracene	mg/kg	<0.1
Benzo[g,h,i]perylene	mg/kg	<0.1
Total PAHs sum US EPA 16	mg/kg	<1

Banded Petroleum Hydrocarbons

Aliphatic TPH >C ₅ -C ₈	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₈	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aliphatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aliphatic TPH >C ₁₂ -C ₁₆	mg/kg	<10
Aliphatic TPH >C ₁₆ -C ₂₁	mg/kg	<10
Aliphatic TPH >C ₂₁ -C ₃₅	mg/kg	19.0
Aliphatic TPH >C ₃₅ -C ₄₄	mg/kg	<12

Aromatic TPH >C ₅ -C ₇	mg/kg	<0.05
Aromatic TPH >C ₇ -C ₈	mg/kg	0.09
Aromatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aromatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aromatic TPH >C ₁₂ -C ₁₆	mg/kg	<10
Aromatic TPH >C ₁₆ -C ₂₁	mg/kg	<10
Aromatic TPH >C ₂₁ -C ₃₅	mg/kg	78.0
Aromatic TPH >C ₃₅ -C ₄₄	mg/kg	14.0

Total Petroleum Hydrocarbons (C ₅ -C ₄₄)	mg/kg	122
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BTEX

Benzene	mg/kg	<0.02
Toluene	mg/kg	<0.2
Ethyl Benzene	mg/kg	<0.04
m- & p- Xylene	mg/kg	<0.2
o-Xylene	mg/kg	<0.1



Rosedale Nursery
College Road
Hexham
Northumberland
NE45 7LT

Tel: 01322 619181
Fax: 01322 619135

Email: eng.ires@freelandhorticulture.co.uk

ORDER NOTE

Customer/Delivery Address

LBS Builders Merchants Limited
Delivery To
LBS Builders Merchants - SA12 9PA
CJ Construction
Heol Crwys
Cwmafon
SA12 9PA

Customer Order No **252546**

Delivery Ticket No **273134**

Vehicle Registration **CN24WUX**

Driver **Chris**

Special Instructions

Delivery Date & Time Required

16/10/2025

QTY	Unit	Description
-----	------	-------------

20.00	Tonne	Tn Topsoil - Gilfach
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Gross: **3190**
Tare: **1294**
Nett: **1896**

Weighbridge Signature

Traders Signature

Haulage Company **McCarthy's**

Received the above in good order and condition

Signed _____

Print Name _____

Customer ordering Vehicle off the Public Road do so entirely at their Own risk and will be liable for any damages incurred

APPENDIX B

RESULTS OF ALL IN-SITU SOIL ANALYSIS

Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
CF83 2AX

t: 2920807991

e: roger@integralgeotec.com

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

t: 01923 225404

f: 01923 237404

e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-007736

Project / Site name:	Heol Crwys	Samples received on:	17/02/2026
Your job number:	14023 RJH	Samples instructed on/ Analysis started on:	17/02/2026
Your order number:		Analysis completed by:	26/02/2026
Report Issue Number:	1	Report issued on:	26/02/2026
Samples Analysed:	4 soil samples		



Signed:

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

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

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

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

Analytical Report Number: 26-007736

Project / Site name: Heol Crwys

Lab Sample Number	832033	832034	832035	832036
Sample Reference	Plot 1 to 4	POS A	Plot 6	Plot 9
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.30	0.50	0.20
Date Sampled	13/02/2026	13/02/2026	13/02/2026	13/02/2026
Time Taken	1150	1215	1245	1315
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	21	18	18
Total mass of sample received	kg	0.1	NONE	0.9	1	0.7	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI	MBI	MBI
Analysis completed	N/A	N/A	N/A	24/02/2026	24/02/2026	24/02/2026	24/02/2026

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.7	8.5	8.5	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	390	480	420	460
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	130	250	170	170
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0667	0.126	0.0864	0.0874
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	66.7	126	86.4	87.4
Sulphide	mg/kg	1	MCERTS	5	18	6.3	13
Total Sulphur	mg/kg	50	MCERTS	590	720	660	570
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.9	4	5.1	4.7
Loss on Ignition @ 450°C	%	0.2	MCERTS	10	8.5	9.3	9

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	1.4	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.86	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.66	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.12	1.9	0.12	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.37	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.14	0.65	0.15	0.16
Pyrene	mg/kg	0.05	MCERTS	0.12	0.72	0.12	0.12
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.21	0.08	0.1
Chrysene	mg/kg	0.05	MCERTS	0.12	0.26	0.11	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.15	0.2	0.15	0.11
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.07	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.07	0.16	0.07	0.07
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.06	0.08	0.06	0.06
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.06	0.06

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	8.76	0.92	0.88
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Analytical Report Number: 26-007736

Project / Site name: Heol Crwys

Lab Sample Number	832033	832034	832035	832036
Sample Reference	Plot 1 to 4	POS A	Plot 6	Plot 9
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.30	0.50	0.20
Date Sampled	13/02/2026	13/02/2026	13/02/2026	13/02/2026
Time Taken	1150	1215	1245	1315
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.2	7.8	6.4	6.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.56	0.46	0.53	0.57
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	6.5	1.8	2.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	13	15	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	34	26	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	24	29	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	25	26	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	13	15	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	86	100	95

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 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
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 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
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 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
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10	26	22	12
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	26	22	12
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	26	22	12
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	26	22	12

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	0.011	< 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
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	6.3	2.3	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	19	30	24	30
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	19	36	26	30
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	19	36	26	30

TPH Total >EC5 - EC44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	19	62	48	42
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 26-007736

Project / Site name: Heol Crwys

* 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 *
832033	Plot 1 to 4	None Supplied	0.1	Brown clay and sand
832034	POS A	None Supplied	0.3	Brown loam and clay with gravel and vegetation
832035	Plot 6	None Supplied	0.5	Brown sand with gravel
832036	Plot 9	None Supplied	0.2	Brown clay and sand with gravel

Analytical Report Number : 26-007736

Project / Site name: Heol Crwys

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
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
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
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
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
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
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
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

Analytical Report Number : 26-007736

Project / Site name: Heol Crwys

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
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
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
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 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 : 26-019229

Project / Site name:	Heol Crwys	Samples received on:	15/04/2026
Your job number:	14023 RJH	Samples instructed on/ Analysis started on:	15/04/2026
Your order number:		Analysis completed by:	23/04/2026
Report Issue Number:	1	Report issued on:	23/04/2026
Samples Analysed:	4 soil samples		



Signed:

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

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

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

Analytical Report Number: 26-019229

Project / Site name: Heol Crwys

Lab Sample Number	888060	888061	888062	888063
Sample Reference	Plot 10	Plot 13	Plot 15	Plot 16-21
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.30	0.50	0.20
Date Sampled	13/04/2026	13/04/2026	13/04/2026	13/04/2026
Time Taken	1150	1215	1245	1315
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Mass of stone >10mm	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	21	22	22
Total mass of sample received	kg	0.1	NONE	0.6	1	1.1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA
Analysis completed	N/A	N/A	N/A	22/04/2026	22/04/2026	22/04/2026	22/04/2026

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	8	7.7	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	420	340	380	390
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	86	81	110
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	67.9	42.8	40.3	56
Sulphide	mg/kg	1	MCERTS	3.7	4.9	5.6	3.6
Elemental Sulphur	mg/kg	5	MCERTS	8.6	6.1	6.4	6.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4	3.9	4.8	3.5
Loss on Ignition @ 450°C	%	0.2	MCERTS	8.4	8.5	8.3	8.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.35	0.24	0.06	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.09	0.06	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.43	0.28	0.09	0.07
Anthracene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.34	0.23	0.07	0.07
Pyrene	mg/kg	0.05	MCERTS	0.29	0.19	0.06	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.16	0.12	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.19	0.18	0.06	0.06
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.22	0.23	0.09	0.09
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.09	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.13	0.15	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	0.09	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.09	0.11	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.48	1.98	< 0.80	< 0.80
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Analytical Report Number: 26-019229

Project / Site name: Heol Crwys

Lab Sample Number	888060	888061	888062	888063
Sample Reference	Plot 10	Plot 13	Plot 15	Plot 16-21
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.30	0.50	0.20
Date Sampled	13/04/2026	13/04/2026	13/04/2026	13/04/2026
Time Taken	1150	1215	1245	1315
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.4	6.7	8.7	6.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.57	0.6	0.61	0.58
Boron (total)	mg/kg	1	MCERTS	5.7	6.1	6.4	7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	15	16	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	24	24	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	22	23	25	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	28	28	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	14	15	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	91	100	100	100

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 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
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 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
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 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
TPHCWG - Aliphatic >EC16 - EC35 EH_CU_1D_AL	mg/kg	10	MCERTS	28	32	12	27
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	28	32	12	27
TPHCWG - Aliphatic >EC35 - EC44 EH_CU_1D_AL	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	28	32	12	27
TPHCWG - Aliphatic >EC5 - EC44 EH_CU+HS_1D_AL	mg/kg	10	NONE	28	32	12	27

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 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
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	16	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	16	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 EH_CU+HS_1D_AR	mg/kg	10	NONE	16	< 10	< 10	< 10

TPH Total >EC5 - EC44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	43	32	12	27
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 26-019229

Project / Site name: Heol Crwys

* 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 *
888060	Plot 10	None Supplied	0.1	Brown loam and sand with gravel and vegetation
888061	Plot 13	None Supplied	0.3	Brown loam and sand with gravel and vegetation
888062	Plot 15	None Supplied	0.5	Brown loam and sand with gravel and vegetation
888063	Plot 16-21	None Supplied	0.2	Brown loam and sand with gravel and vegetation

Analytical Report Number : 26-019229

Project / Site name: Heol Crwys

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
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
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC	In-house method: Sample is extracted in acetonitrile prior to analysis by HPLC	L021B	D	MCERTS
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
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
Hexavalent chromium in soil by Ion Chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
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
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
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

Analytical Report Number : 26-019229

Project / Site name: Heol Crwys

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
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
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
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 30oC.

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

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

The result for sum should be interpreted with caution

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

APPENDIX C

A SUMMARY OF ALL AS PLACED IN-SITU SOIL ANALYSIS REPORTS

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 14023
Site: Heol Crwys
Soil Type: Capping Soils
Soil Organic Matter: 1%

No.	Location	Depth (m)	Arsenic (mg/kg)	Boron (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (Elemental) (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
1	Plot 1 to 4	N/A	7.2	3.1	0.56	< 0.2	16	< 1.8	33	28	< 0.3	27	< 1.0	16	110
2	POS A	N/A	7.8	6.5	0.46	< 0.2	13	< 1.8	34	24	< 0.3	25	< 1.0	13	86
3	Plot 6	N/A	6.4	1.8	0.53	< 0.2	15	< 1.8	26	29	< 0.3	26	< 1.0	15	100
4	Plot 9	N/A	6.5	2.3	0.57	< 0.2	15	< 1.8	22	23	< 0.3	27	< 1.0	15	95
5	Plot 10	N/A	6.4	5.7	0.57	< 0.2	14	< 1.80	21	22	< 0.3	27	< 1.0	14	91
6	Plot 13	N/A	6.7	6.1	0.6	< 0.2	15	< 1.80	24	23	< 0.3	28	< 1.0	14	100
7	Plot 15	N/A	8.7	6.4	0.61	< 0.2	16	< 1.80	24	25	< 0.3	28	< 1.0	15	100
8	Plot 16-21	N/A	6.2	7	0.58	< 0.2	18	< 1.80	27	26	< 0.3	29	< 1.0	15	100
Screening Criteria Value			37.0	290.0	1.7	11.0	-	6.0	2400.0	200.0	1.2	130.0	250.0	410.0	3700.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	-	S4UL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

INORGANIC CHEMICALS & OTHERS

Job No.: 14023
 Site: Heol Crwys
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Cyanide (mg/kg)	Loss on ignition, dried solids (%)	Moisture content at 30 C (%)	Phenol (mg/kg)	pH (pH units)	Water Soluble Sulphate (g/l)	Sulphate Total as SO4 (mg/kg)	Sulphide (mg/kg)	Total Sulphur (mg/kg)	TOC by Ignition in O2 (%)	Equivalent SOM (%)	Asbestos in Soil
1	Plot 1 to 4	N/A	< 1.0	10.00	22.00	< 1.0	8.70	0.07	390.00	5.00	590.00	4.90	8.43	Not-detected
2	POS A	N/A	< 1.0	8.50	21.00	< 1.0	8.50	0.13	480.00	18.00	720.00	4.00	6.88	Not-detected
3	Plot 6	N/A	< 1.0	9.30	18.00	< 1.0	8.50	0.09	420.00	6.30	660.00	5.10	8.77	Not-detected
4	Plot 9	N/A	< 1.0	9.00	18.00	< 1.0	8.50	0.09	460.00	13.00	570.00	4.70	8.08	Not-detected
5	Plot 10	N/A	< 1.0	8.40	17.00	< 1.0	8.20	0.00	420.00	3.70	8.60	4.00	6.88	#N/A
6	Plot 13	N/A	< 1.0	8.50	21.00	< 1.0	8.00	0.00	340.00	4.90	6.10	3.90	6.71	#N/A
7	Plot 15	N/A	< 1.0	8.30	22.00	< 1.0	7.70	0.00	380.00	5.60	6.40	4.80	8.26	#N/A
8	Plot 16-21	N/A	< 1.0	8.10	22.00	< 1.0	8.60	0.00	390.00	3.60	6.60	3.50	6.02	#N/A
Screening Criteria Value			34.0	-	-	120.0	-	-	-	-	-	-	-	-
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 14023
Site: Heol Crwys
Soil Type: Capping Soils
Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
1	Plot 1 to 4	N/A	< 0.05	< 0.05	< 0.05	< 0.05	0.07	0.15	< 0.05	< 0.05	0.12	< 0.05	0.14	< 0.05	0.06	< 0.05	0.12	0.12
2	POS A	N/A	0.86	0.13	0.37	0.21	0.16	0.2	0.09	0.07	0.26	< 0.05	0.65	0.66	0.08	1.4	1.9	0.72
3	Plot 6	N/A	< 0.05	< 0.05	< 0.05	0.08	0.07	0.15	0.06	< 0.05	0.11	< 0.05	0.15	< 0.05	0.06	< 0.05	0.12	0.12
4	Plot 9	N/A	< 0.05	< 0.05	< 0.05	0.1	0.07	0.11	0.06	< 0.05	0.1	< 0.05	0.16	< 0.05	0.06	< 0.05	0.11	0.12
5	Plot 10	N/A	< 0.05	0.05	0.07	0.16	0.13	0.22	0.09	< 0.05	0.19	< 0.05	0.34	0.09	0.07	0.35	0.43	0.29
6	Plot 13	N/A	< 0.05	< 0.05	< 0.05	0.12	0.15	0.23	0.11	0.09	0.18	< 0.05	0.23	0.06	0.09	0.24	0.28	0.19
7	Plot 15	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	0.06	< 0.05	0.07	< 0.05	< 0.05	0.06	0.09	0.06
8	Plot 16-21	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	0.06	< 0.05	0.07	< 0.05	< 0.05	0.06	0.07	0.05
Screening Criteria Value			210.0	170.0	2400.0	7.2	2.2	2.6	320.0	77.0	15.0	0.24	280.0	170.0	27.0	2.3	95.0	620.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 14023
 Site: Heol Crwys
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Aliphatic C5-C6 (mg/kg)	Aliphatic C6-C8 (mg/kg)	Aliphatic C8-C10 (mg/kg)	Aliphatic C10- C12 EPH (mg/kg)	Aliphatic C12- C16 EPH (mg/kg)	Aliphatic C16-C35 EPH (mg/kg)	Aliphatic C35- C44 EPH (mg/kg)	Aromatic C5-C7 (mg/kg)	Aromatic C7-C8 (mg/kg)	Aromatic C8-C10 (mg/kg)	Aromatic C10- C12 EPH (mg/kg)	Aromatic C12- C16 EPH (mg/kg)	Aromatic C16- C21 EPH (mg/kg)	Aromatic C21- C35 EPH (mg/kg)	Aromatic C35- C40 EPH (mg/kg)
1	Plot 1 to 4	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 10	< 8.4	< 0.010	0.011	< 0.020	< 1.0	< 2.0	< 10	19	< 10
2	POS A	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	26	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	6.3	< 10	30	< 10
3	Plot 6	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	22	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	2.3	< 10	24	< 10
4	Plot 9	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	12	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	30	< 10
5	Plot 10	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	28	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	16	< 10
6	Plot 13	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	32	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	< 10	< 10
7	Plot 15	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	12	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	< 10	< 10
8	Plot 16-21	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	27	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	< 10	< 10
Screening Criteria Value			42.0	100.0	27.0	130.0	1100.0	65000.0	65000.0	0.1	130.0	34.0	74.0	140.0	260.0	1100.0	1100.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

FIGURES

Site Location

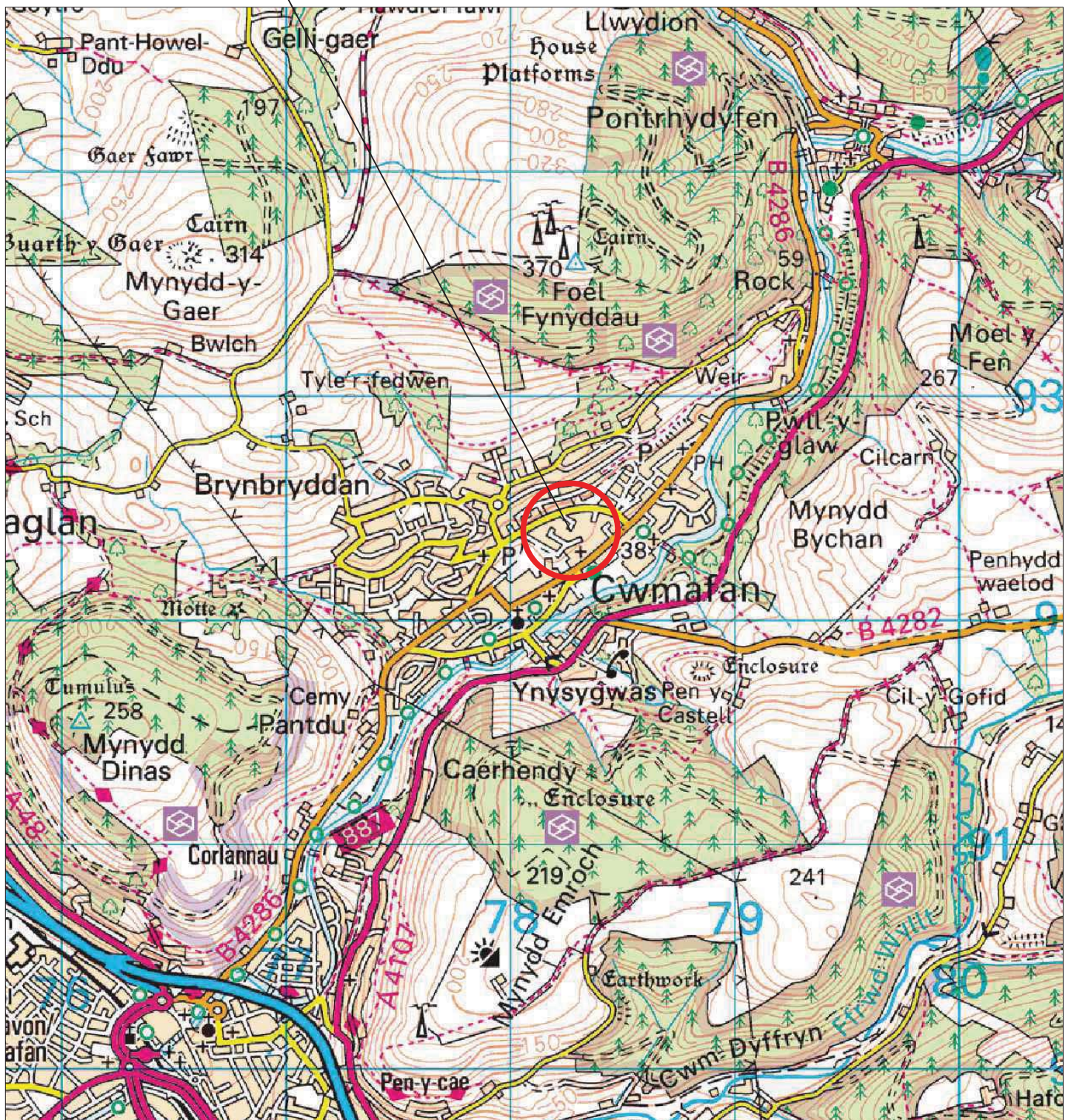


Figure 1: Site Location Plan

Project: Heol Crwys, Cwmavon

Job no.: 14023

Client: Tai Tarian Ltd.

Scale: 1:25,000 at A4

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Integral House,
7 Beddau Way,
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Plot 1 to 4 Rain Garden Areas



Plot 1 to 4 Parking Areas

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 1 to 4 Bin Store Areas



Plot 1 to 4 Rear POS Areas Capping Depth Check

14023: Heol Crwys, Cwmavon

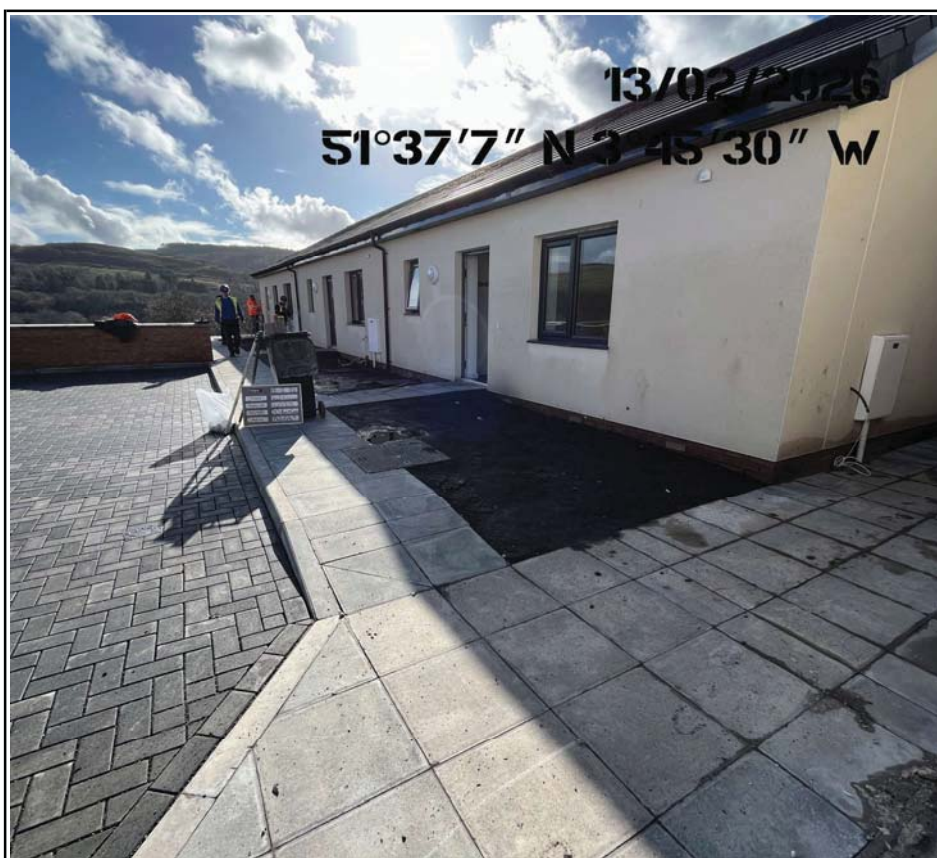
Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 1 to 4 POS Area Excavation Membrane Placement



Plot 5 to 9 Front Garden Areas

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 5 Infilled Rear Garden



Plot 6 Capping Depth Check

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 6 Excavation Showing Membrane Placement



Plot 9 Capping Depth Check

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 9 Trial Pit Excavation



Plot 9 Excavation Showing Membrane Placement

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plots 10 to 12 Rain Garden Areas Front Elevation



Plot 10 Infilled Rear Garden

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 10 Capping Depth Check Soils



Plot 10 membrane Placement at Base of Soils

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 11 Infilled Rear Garden



Plot 12 Infilled Rear Garden

14023: Heol Crwys, Cwmavon

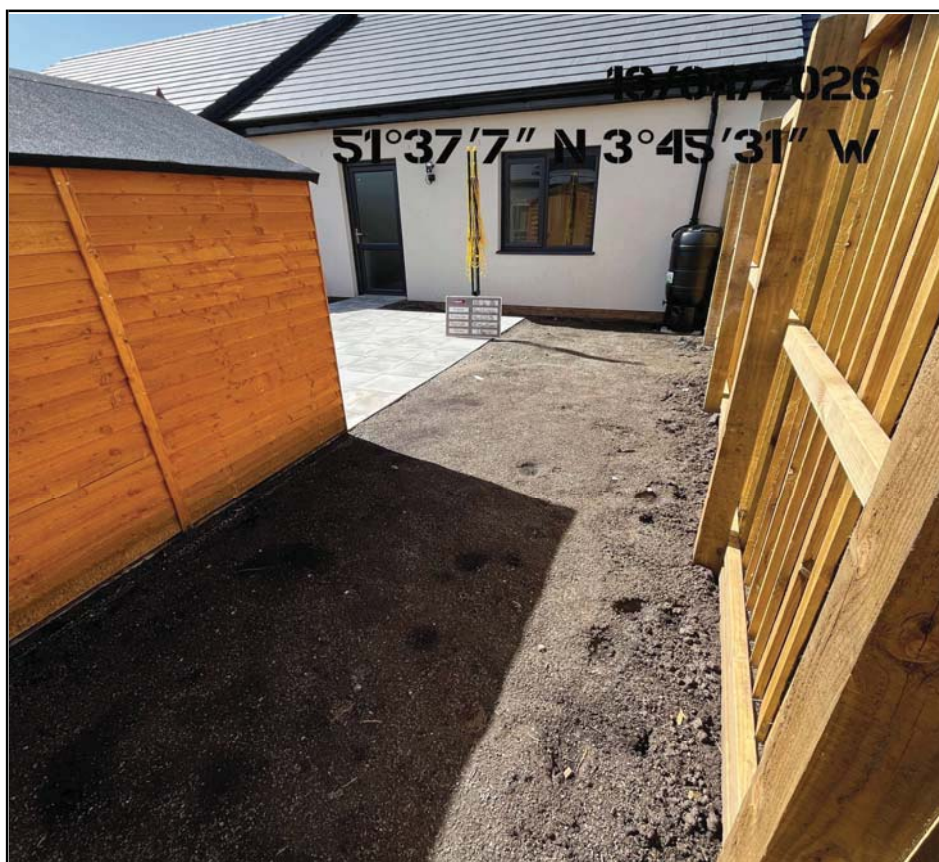
Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 13 Infilled Rear Garden



Plot 14 Infilled Rear Garden

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 15 Infilled Rear Garden



Plot 15 Capping Depth Check Soils

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 15 Membrane Placement at Base of Soils



Plots 16 to 21 Car Parking Areas (Under Construction)

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 16 to 21 Rear Decorative Planting Area



Plot 16 to 21 Rear Decorative Planting Area

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 16 to 21 Rear Decorative Planting Area



Plot 16 to 21 Rain Garden System (Under Construction)

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 40 to 43 Residential Unit



Plot 40 to 43 Rain Garden System Area

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 40 to 43 Rain Garden System Area



Plot 40 to 43 Parking Bays to the East of the Unit

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Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 40 to 43 Permeable Paving Blocks East Area



Plot 40 to 43 Parking Bays to The West of the Unit

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 40 to 43 Permeable Paving Blocks West Area



Plot 40 to 43 Hard Finished Patio Slabbed Areas Continuing Around the Rear of the Residential Unit.

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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Plot 40 to 43 Hard Finished Patio Slabbed Areas Continuing Around the Rear of the Residential Unit.



Plot 40 to 43 Hard Finished Patio Slabbed Areas Continuing Around the Rear of the Residential Unit.

14023: Heol Crwys, Cwmavon

Figure 3: Capping Validation Detailed Soft Landscaped Areas

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