

12722/PD/HP

09 February 2022

Jones Brothers (Henllan) Ltd
Heol Parc Mawr,
Parc Busnes Cross Hands,
Cross Hands,
Llanelli SA14 6RE

For the attention of James Player

Supplemental Soils Contamination Assessment - Eaglebush, Neath

Intégral Géotechnique (Wales) Limited were instructed by Jones Brothers to carry out supplemental contamination testing on the previously identified areas of made ground and topsoil across the above site. These works are now complete and we can report as follows:

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Background

Jones Brothers (Henllan) Ltd are proposing to develop the above site for residential housing.

Previously Intégral Géotechnique carried out an intrusive site investigation on the above site, as was reported in site investigation report reference 12722/LW/20/SI Rev C. This report identified two areas of made ground on site covering approximately a third of the site along the site's western boundary and a significantly smaller area at the sites eastern boundary as defined in blue on the enclosed Figure 1.

Fieldworks

The supplemental site investigation works were carried out on 13th January 2022 and comprised excavation of twelve shallow trial pits using a JCB wheeled back hoe excavator. The trial pits were used to obtain representative soil samples from the made ground for soil contamination testing and an additional six topsoil samples were obtained for bio-available arsenic testing across the entire site. The approximate sample locations are shown on Figure 1 enclosed.

The trial pitting established grass overlying topsoil ranging from approximately 0.1 to 0.2mg/l over typically soft to firm brown sandy silty clay with some to many gravels or clayey sandy gravels and cobbles. In the western part of the site in S1 to S10 to approximately 0.5 to 2.0mg/l these soils often appeared to be reworked virgin soils, overlying virgin soils in the form of firm granular soils or occasional weathered rocky outcrop.

Whereas, in the smaller eastern area of made ground S12 encountered topsoil over dark grey ash with fragments of brick, metal and mortar to approximately 0.5mg/l.

The trial pit logs are presented in Appendix A, and their approximate locations shown on Figure 1

Chemical Testing

Twelve representative soil samples were taken from the trial pits S1 to S12 from the made ground materials underlying the topsoil, stored at the appropriate temperature and dispatched to the laboratories of i2 Analytical for laboratory chemical testing within 24 hours.

The samples were tested for a range of contaminants that reflects the historical use of the site, the findings of the desk study and the preliminary conceptual site model/conceptual exposure model. A list of the soil testing carried out is given below:

Beryllium	Cadmium
Total Chromium	Hexavalent Chromium (VI)
Copper	Lead
Mercury	Nickel
Vanadium	Zinc
Arsenic	Boron
Selenium	Elemental Sulphur
Total Cyanide	Total Sulphate
Sulphide	Water Soluble Sulphate
pH	Monohydric Phenol
Polyaromatic Hydrocarbons (PAH)	Asbestos

The results of the laboratory chemical testing are presented in Appendix B.

The results of the contamination laboratory testing indicate that most of the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds for residential end-use with home grown produce. However, the initial screening indicates exceedances of arsenic and, lead within one sample of made ground. Asbestos was not detected within any of the samples tested.

The ashy made ground sample taken from S12 at 0.5m depth recorded an elevated level for arsenic of 66mg/kg, an elevated level for lead of 340mg/kg which are above the suggested trigger concentration levels of 37mg/kg and 200mg/kg respectively.

In addition, elevated levels for arsenic of 44 and 68mg/kg were recorded in TS1 @ 0.5m and TS6 @ 0.1m respectfully. The elevated levels of arsenic on site are discussed further below.

Copies of the chemical summary tables are enclosed in Appendix C

Previously Identified Elevated Arsenic

During the previous site investigation carried out in 2020, elevated concentrations of arsenic were recorded above the adopted soil screening criteria value of 37mg/kg (C4SL/S4UL) for a proposed residential end use with homegrown produce, within one shallow topsoil sample obtained from across

the site of 87 mg/kg. An additional elevated arsenic concentration of 160mg/kg was identified in the made ground from 0.5m depth at TP11 in the eastern part of the site.

It should be noted that the elevated concentration of arsenic within the topsoil is considered to be representative of the background levels of arsenic within the near surface within the Swansea, Neath and Port Talbot area resulted from a historic windborne deposition of metals, including arsenic in the shallow soils across the region.

The previous site investigation report recommended that follow-up testing arsenic testing should be carried out in order to assess if the site topsoil is suitable for re-use in garden areas of the proposed residential development.

The results of the bio-accessible arsenic testing have been used to derive a 'site-specific screening level' for arsenic which has in turn allowed for a revised human health risk assessment in relation to this potential contaminant of concern.

A total of six supplemental topsoil samples (referenced TS1, to TS6 respectfully) were taken from the approximate locations shown on Figure 1 enclosed.

The samples were tested for arsenic contamination (comprising aqua regia extractable and bio-accessible) at the UKAS and MCERTS accredited laboratories of i2 Analytical.

The sampling works were carried by a qualified Geotechnical Engineer from Intégral Géotechnique (Wales) Limited.

The bio accessible laboratory chemical test results are presented in Appendix B and sample locations on Figure 1.

Bio Available Arsenic

The results of the supplemental laboratory chemical testing carried out on the six samples recorded arsenic to be present at concentrations ranging between 67mg/kg and 130mg/kg.

In order to further assess the potential risk posed to future residential end users, bio-accessibility testing was carried out on the above supplemental topsoil samples.

The bio-accessibility test simulates the effect of potentially contaminated soil on the human digestive system and determines the percentage of arsenic within the soil sample that is in a form that is available for uptake into the human body.

The results recorded a maximum bio-accessible arsenic fraction (via soil ingestion) of 11%.

The published soil screening value of 37mg/kg for arsenic assumes that 100% of the arsenic in the soil is available for uptake by the human body (i.e. a 100% bio-accessible fraction is assumed).

The CLEA model has been used to generate a site-specific screening level for arsenic which accounts for the laboratory determined bi-accessible fraction (via soil ingestion) of 11%.

A copy of the CLEA derived results and model settings are presented in Appendix D.

A site-specific screening level for arsenic of 209mg/kg has been determined.

Recommendations

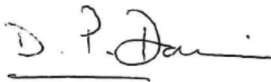
The above contamination testing has shown that the areas of made ground are in general not considered to pose a human health risk to the proposed residential development, and are in general typically reworked natural soils.

Apart from in the vicinity of S12 and TP11 located in the eastern part of the site where elevated levels of arsenic of 66mg/kg and 160mg/kg and concentrations of lead of 340mg/kg and 420mg/kg were recorded. In this area of the site, in the vicinity of S12 and TP11 it is recommended that where any ashy materials are encountered in garden areas that 600mm of clean capping materials are placed over it. Alternatively, the ashy materials can be removed and suitably placed beneath an area of hard standing.

In addition, the bio-accessible arsenic testing of the topsoil has also shown that the topsoil is not considered to pose a human health risk to the proposed residential development.

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

Yours faithfully,



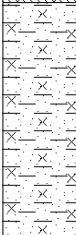
D P Davies
For
Intégral Géotechnique (Wales) Limited

Enc.

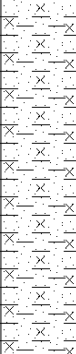
Appendix A

Trial Pit Logs

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S01 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 2CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 0.70m 0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.20			Topsoil			
					Soft to firm brown sandy silty CLAY with some angular gravel (Possible reworked natural ground)				
			0.50		Firm brown sandy silty CLAY with some to many gravel and occasional cobbles				
			0.70		End of Trialpit at 0.70 m				
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

Intégral Géotechnique Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S02 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 1.20m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.20			Topsoil			
						Soft brown sandy silty CLAY with some angular gravel (Possible reworked natural ground)			
						Firm/medium dense brown sandy silty CLAY with some to many gravel and occasional cobbles			
					End of Trialpit at 1.20 m				
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

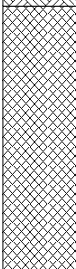
Intégral Géotechnique Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S03 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 0.80m			
Date Excavated: 13/01/2022			Level:			Depth : 1.10m 2.00m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10			Topsoil			
					Soft to firm brown sandy silty CLAY with some angular gravel (Possible reworked natural ground)				
			0.80			Firm brown silty sandy CLAY with some to many gravel and occasional cobbles			
			1.10			End of Trialpit at 1.10 m			
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S04 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.20m			
Date Excavated: 13/01/2022			Level:			Depth : 1.60m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.20			Topsoil			
					Soft to firm brown sandy silty CLAY with some angular gravel occasional boulders of sandstone (Possible reworked natural ground)				
			1.40		Firm brown sandy silty CLAY with some to many gravel and occasional cobbles				
			1.60		End of Trialpit at 1.60 m				
Remarks: Seepage at 1.5mbgl			Groundwater: Stability: Stable			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

Intégral Géotechnique Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S05 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 0.80m 0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10			Topsoil			
					Soft to firm brown sandy silty CLAY with some angular gravel occasional boulders of sandstone (Possible reworked natural ground)				
					Highly weathered sandstone/boulder excavated as gravels cobbles and boulders				
					End of Trialpit at 0.80 m				
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

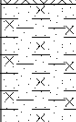
			Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S06 Sheet 1 of 1	
Location: Neath				Client: Jones Brothers (Henllan) Ltd and Tai Tarian				Logged By: PD		Scale 1:25		
Equipment: JCB 3CX				Coordinates:				Dimensions 0.30m				
Date Excavated: 13/01/2022				Level:				Depth : 0.20m 0.30m				
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description						
Depth (m)	Type	Results										
0.10	ES		0.20			Topsoil						
								End of Trialpit at 0.20 m				
							1					
							2					
							3					
							4					
							5					
Remarks: Hand dug trial pit. Trial pit dry				Groundwater: Stability: Stable				Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample				

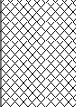
Intégral Géotechnique Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S07 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 2.10m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10			Topsoil			
						Made Ground loose sandy silty clayey angular GRAVELS and COBBLES			
			2.00			Firm brown sandy silty CLAY with some to many gravel and occasional cobbles			
			2.10			End of Trialpit at 2.10 m			
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Sides prone to collapse 2.0mbgl						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S08 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 1.50m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10			Topsoil			
						Made Ground loose sandy silty clayey angular GRAVELS and COBBLES			
			1.00			Soft to firm brown sandy silty CLAY with some angular gravel			
			1.30			Firm brown sandy silty CLAY with some to many gravel and occasional cobbles			
			1.50			End of Trialpit at 1.50 m			
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Sides prone to collapse in top 1.0mbgl						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S09 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 2.10m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10		 Topsoil  Soft to firm brown sandy silty CLAY with some to many gravels				
			1.90		 Possible dense strata				
			2.10		End of Trialpit at 2.10 m				
Remarks:			Groundwater:			Key:			
Water seepage below 1.2mbgl 			Stability: Sides prone to collapse in top 1.9mbgl			D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

Intégral Géotechnique Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S10 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By:		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.20m			
Date Excavated: 13/01/2022			Level:			Depth : 1.80m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.50	ES		0.10			Topsoil			
					Soft to firm grey/brown sandy silty CLAY with some angular gravel				
					Firm brown sandy silty CLAY with some to many gravel and occasional cobbles				
			1.50						
			1.80			End of Trialpit at 1.80 m			
Remarks: Seepage at 1.0mbgl			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S11 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.20m			
Date Excavated: 13/01/2022			Level:			Depth : 0.50m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.20	ES		0.10		 Topsoil				
			0.50		 Soft to firm brown sandy silty CLAY with some angular gravel				
						End of Trialpit at 0.50 m			
						1			
						2			
						3			
						4			
						5			
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Eaglebush House			Project No.: 12722		Trial Pit No.: S12 Sheet 1 of 1	
Location: Neath			Client: Jones Brothers (Henllan) Ltd and Tai Tarian			Logged By: PD		Scale 1:25	
Equipment: JCB 3CX			Coordinates:			Dimensions 2.00m			
Date Excavated: 13/01/2022			Level:			Depth : 0.70m 0.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.40	ES		0.10			Topsoil			
						Made Ground soft to firm grey ashy with fragments of brick metal and mortar			
			0.50			Soft to firm brown sandy silty CLAY with some angular gravel			
			0.70			End of Trialpit at 0.70 m			
Remarks: Trial pit dry			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Stable						

Appendix B

Chemical Test Results

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

t: 02920807991
f: 02920862176
e: peterd@integralgeotec.com

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

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

Analytical Report Number : 22-33030

Project / Site name:	Eaglebush, Neath	Samples received on:	17/01/2022
Your job number:	12722-PD	Samples instructed on/ Analysis started on:	17/01/2022
Your order number:		Analysis completed by:	25/01/2022
Report Issue Number:	1	Report issued on:	25/01/2022
Samples Analysed:	12 soil samples		

Signed: *Karolina Marek*

Karolina Marek
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: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136909	2136910	2136911	2136912	2136913
Sample Reference				S1	S2	S3	S4	S5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	35	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	16	13	13	17
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.40	0.40

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZ5	SZ5	SZ5	SZ5	SZ5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	6.7	6.8	7.3	6.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	350	150	400	120	320
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0082	0.0054	0.0056	0.0027	0.0046
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	240	110	120	110	200
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.8	1.4	1.5	0.8	1.8
Loss on Ignition @ 450°C	%	0.2	MCERTS	5.8	3.4	3.3	3.8	4.5

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	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136909	2136910	2136911	2136912	2136913
Sample Reference				S1	S2	S3	S4	S5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	44	14	13	11	20
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.87	0.72	0.71	1.4	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	< 0.2	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	20	18	23	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	38	42	64	54
Lead (aqua regia extractable)	mg/kg	1	MCERTS	83	20	18	27	31
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	27	29	51	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	22	19	24	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	80	85	120	97

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

Analytical Report Number: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136914	2136915	2136916	2136917	2136918
Sample Reference				S6	S7	S8	S9	S10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	27	19	20	22	18
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.40	0.40

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SPU	SPU	SPU	SPU

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.3	5.3	7.2	7.2	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	700	430	110	260	160
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.0065	0.0039	0.012	0.021
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	41
Total Sulphur	mg/kg	50	MCERTS	430	260	160	310	320
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.8	2.7	1.9	3.0	1.1
Loss on Ignition @ 450°C	%	0.2	MCERTS	10.6	5.5	4.1	5.2	2.5

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	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136914	2136915	2136916	2136917	2136918
Sample Reference				S6	S7	S8	S9	S10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	68	39	12	29	9.8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.63	0.64	0.69	0.47
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.4	0.3	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.3	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	20	18	12	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	150	180	36	77	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	44	22	61	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	23	16	20	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	24	23	15	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	190	71	72	260	69

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

Analytical Report Number: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136919	2136920
Sample Reference				S11	S12
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.40
Date Sampled				13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	31
Moisture Content	%	0.01	NONE	16	18
Total mass of sample received	kg	0.001	NONE	0.40	0.40

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	300	880
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0058	0.011
Sulphide	mg/kg	1	MCERTS	< 1.0	1.5
Total Sulphur	mg/kg	50	MCERTS	200	580
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	3.7
Loss on Ignition @ 450°C	%	0.2	MCERTS	4.3	10.6

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
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	0.85
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.5
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.1
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.98
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.2
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.59
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.88
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.44
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.53

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	9.22
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Analytical Report Number: 22-33030
Project / Site name: Eaglebush, Neath

Lab Sample Number				2136919	2136920
Sample Reference				S11	S12
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.40
Date Sampled				13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	66
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.74	0.86
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	48	240
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	340
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	450

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

Analytical Report Number : 22-33030
Project / Site name: Eaglebush, Neath

* 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 *
2136909	S1	None Supplied	0.5	Brown loam and clay with stones and vegetation.
2136910	S2	None Supplied	0.5	Brown clay and loam with vegetation and gravel
2136911	S3	None Supplied	0.5	Brown loam and clay with gravel.
2136912	S4	None Supplied	0.5	Brown loam and clay with gravel and vegetation.
2136913	S5	None Supplied	0.5	Brown loam and clay with gravel and vegetation.
2136914	S6	None Supplied	0.5	Brown loam and clay with vegetation.
2136915	S7	None Supplied	0.5	Brown loam and clay with vegetation and gravel
2136916	S8	None Supplied	0.5	Brown loam and clay with vegetation and gravel
2136917	S9	None Supplied	0.5	Brown clay and loam with vegetation and gravel
2136918	S10	None Supplied	0.5	Brown clay and loam with vegetation and gravel
2136919	S11	None Supplied	0.2	Brown loam and clay with vegetation and gravel
2136920	S12	None Supplied	0.4	Brown loam and clay with vegetation and gravel

Analytical Report Number : 22-33030
Project / Site name: Eaglebush, Neath

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
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	L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Loss on ignition of soil @ 450oC	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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	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
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	NONE
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.	L038-PL	D	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 (Skalar)	L080-PL	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.	In house method.	L009-PL	D	MCERTS

Analytical Report Number : 22-33030
Project / Site name: Eaglebush, Neath

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
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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



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Analytical Report Number : 22-33042

Project / Site name:	Eaglebush, Neath	Samples received on:	17/01/2022
Your job number:	12722-PD	Samples instructed on/ Analysis started on:	17/01/2022
Your order number:		Analysis completed by:	28/01/2022
Report Issue Number:	1	Report issued on:	28/01/2022
Samples Analysed:	6 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Technical Reviewer (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: 22-33042
Project / Site name: Eaglebush, Neath

Lab Sample Number				2137011	2137012	2137013	2137014	2137015
Sample Reference				TS1	TS2	TS3	TS4	TS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	58	52	39	42	49
Moisture Content	%	0.01	NONE	25	21	53	20	19
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.40	0.40

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	79	130	77	92	100
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Stomach Phase

Arsenic (Bioaccessible)	mg/kg	0.1	NONE	8.6	6	8.5	3.6	5.8
Arsenic Bioaccessible Fraction	%	-	NONE	10.9	4.6	11	3.9	5.8

Stomach and Intestine Phase

Arsenic (Bioaccessible)	mg/kg	0.1	NONE	8.1	3.6	8	1.6	5.9
Arsenic Bioaccessible Fraction	%	-	NONE	10.3	2.8	10.41	1.71	5.85

Bioaccessibility Summary Data (Maximum value) Stomach Phase (S) or Stomach and Intestine Phase (SI)

Arsenic Bioaccessible Fraction	%	-	NONE	10.9 % (S)	4.6 % (S)	11 % (S)	3.9 % (S)	5.9 % (SI)
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-33042
Project / Site name: Eaglebush, Neath

Lab Sample Number				2137016
Sample Reference				TS6
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				13/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	53
Moisture Content	%	0.01	NONE	17
Total mass of sample received	kg	0.001	NONE	0.40

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	67
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Stomach Phase

Arsenic (Bioaccessible)	mg/kg	0.1	NONE	7
Arsenic Bioaccessible Fraction	%	-	NONE	10.5

Stomach and Intestine Phase

Arsenic (Bioaccessible)	mg/kg	0.1	NONE	5,4
Arsenic Bioaccessible Fraction	%	-	NONE	8

Bioaccessibility Summary Data (Maximum value) Stomach Phase (S) or Stomach

Arsenic Bioaccessible Fraction	%	-	NONE	10.5 % (S)
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-33042
Project / Site name: Eaglebush, Neath

* 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 *
2137011	TS1	None Supplied	0.5	Brown loam and clay with vegetation and gravel
2137012	TS2	None Supplied	0.5	Brown loam and clay with vegetation and gravel
2137013	TS3	None Supplied	0.5	Brown loam and clay with vegetation and gravel
2137014	TS4	None Supplied	0.5	Brown loam and sand with vegetation and gravel.
2137015	TS5	None Supplied	0.5	Brown loam and sand with vegetation and gravel.
2137016	TS6	None Supplied	0.5	Brown loam and sand with vegetation and gravel.

Analytical Report Number : 22-33042
Project / Site name: Eaglebush, Neath

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
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.	L038-PL	D	MCERTS
BARGE-UBM Bioaccessibility Test for Metals	Bioaccessibility extraction method for metals. Test portion sieved to < 250 um. All analysis including aqua regia extractable are determined on this test portion. Material > 250um reported as oversize (stones).	ISO 17924: 2018 Soil quality for the assessment of human exposure from ingestion of soil and soil material	UBM-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	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.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

Appendix C

Summary Chemical Testing Tables

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 12722PD
 Site: Eaglebush Neath
 Soil Type: Made Ground
 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	S1	0.50	44	0.4	0.87	< 0.2	21	< 4.0	110	83	< 0.3	28	< 1.0	25	140
2	S2	0.50	14	< 0.2	0.72	< 0.2	20	< 4.0	38	20	< 0.3	27	< 1.0	22	80
3	S3	0.50	13	< 0.2	0.71	< 0.2	18	< 4.0	42	18	< 0.3	29	< 1.0	19	85
4	S4	0.50	11	< 0.2	1.4	< 0.2	23	< 4.0	64	27	< 0.3	51	< 1.0	24	120
5	S5	0.50	20	0.3	0.75	< 0.2	22	< 4.0	54	31	< 0.3	26	< 1.0	26	97
6	S6	0.10	68	0.3	0.78	< 0.2	18	< 4.0	150	120	< 0.3	27	< 1.0	29	190
7	S7	0.50	39	< 0.2	0.63	< 0.2	20	< 4.0	180	44	< 0.3	23	< 1.0	24	71
8	S8	0.50	12	0.4	0.64	< 0.2	18	< 4.0	36	22	< 0.3	16	< 1.0	23	72
9	S9	0.50	29	0.3	0.69	0.3	12	< 4.0	77	61	< 0.3	20	< 1.0	15	260
10	S10	0.50	9.8	0.2	0.47	< 0.2	13	< 4.0	26	26	< 0.3	21	< 1.0	16	69
11	S11	0.20	19	< 0.2	0.74	< 0.2	23	< 4.0	48	33	< 0.3	32	< 1.0	27	100
12	S12	0.40	66	0.6	0.86	< 0.2	19	< 4.0	240	340	0.5	26	< 1.0	29	450
Screening Criteria Value			40.0	11000.0	1.7	85.0	-	6.0	7100.0	310.0	1.2	180.0	430.0	1200.0	40000.0
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.: 12722PD
 Site: Eaglebush Neath
 Soil Type: Made Ground
 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	Asbestos Quantification (%)
1	S1	0.50	< 1.0	5.8	14	< 1.0	6.8	0.0082	350	< 1.0	240	2.8	4.82	Not-detected	#N/A
2	S2	0.50	< 1.0	3.4	16	< 1.0	6.7	0.0054	150	< 1.0	110	1.4	2.41	Not-detected	#N/A
3	S3	0.50	< 1.0	3.3	13	< 1.0	6.8	0.0056	400	< 1.0	120	1.5	2.58	Not-detected	#N/A
4	S4	0.50	< 1.0	3.8	13	< 1.0	7.3	0.0027	120	< 1.0	110	0.8	1.38	Not-detected	#N/A
5	S5	0.50	< 1.0	4.5	17	< 1.0	6.7	0.0046	320	< 1.0	200	1.8	3.10	Not-detected	#N/A
6	S6	0.10	< 1.0	10.6	27	< 1.0	6.3	0.018	700	< 1.0	430	4.8	8.26	Not-detected	#N/A
7	S7	0.50	< 1.0	5.5	19	< 1.0	5.3	0.0065	430	< 1.0	260	2.7	4.64	Not-detected	#N/A
8	S8	0.50	< 1.0	4.1	20	< 1.0	7.2	0.0039	110	< 1.0	160	1.9	3.27	Not-detected	#N/A
9	S9	0.50	< 1.0	5.2	22	< 1.0	7.2	0.012	260	< 1.0	310	3.0	5.16	Not-detected	#N/A
10	S10	0.50	< 1.0	2.5	18	< 1.0	7.5	0.021	160	41	320	1.1	1.89	Not-detected	#N/A
11	S11	0.20	< 1.0	4.3	16	< 1.0	7.2	0.0058	300	< 1.0	200	1.6	2.75	Not-detected	#N/A
12	S12	0.40	< 1.0	10.6	18	< 1.0	7.7	0.011	880	1.5	580	3.7	6.36	Not-detected	#N/A
Screening Criteria Value			34.0	-	-	440.0	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 12722PD
Site: Eaglebush Neath
Soil Type: Made Ground
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	S1	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2	S2	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3	S3	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4	S4	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
5	S5	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	S6	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
7	S7	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
8	S8	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
9	S9	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
10	S10	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
11	S11	0.20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
12	S12	0.40	< 0.05	< 0.05	< 0.05	1.1	0.88	1.2	0.53	0.59	0.98	< 0.05	1.5	< 0.05	0.44	< 0.05	0.85	1.2
Screening Criteria Value			3000.0	2900.0	31000.0	11.0	3.2	3.9	360.0	110.0	30.0	0.31	1500.0	2800.0	45.0	2.3	1300.0	3700.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

Appendix D

CLEA Derived Results and Model Settings

CLEA Software Version 1.071

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Report generated 07-Feb-22

Report title Eaglebush, Neath - Bioaccessible Arsenic SSTL

Created by JJ at Integral Geotechnique



RESULTS

[illegible]

[illegible]

[illegible]

[illegible]

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[illegible]

CLEA Software Version 1.071

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Report generated 07/02/2022

Report title Eaglebush, Neath - Bioaccessible Arsenic SSTL

Created by JJ at Integral Geotechnique

BASIC SETTINGS

Land Use Residential with produce (C4SL)

Building Small terraced house

Receptor Female (res C4SL)

Start age class 1

End age class 6

Exposure Duration 6 years

Soil Sandy loam

Exposure Pathways

Direct soil and dust ingestion



Consumption of homegrown produce



Soil attached to homegrown produce



Dermal contact with indoor dust



Dermal contact with soil



Inhalation of indoor dust



Inhalation of soil dust



Inhalation of indoor vapour



Inhalation of outdoor vapour





Land Use Residential with produce (C4SL)

Receptor Female (res C4SL)

Age Class	Exposure Frequencies (days yr ⁻¹)						Occupation Periods (hr day ⁻¹)		Soil to skin adherence factors (mg cm ²)		Direct soil ingestion rate (g day ⁻¹)	Body weight (kg)	Body height (m)	Inhalation rate (m ³ day ⁻¹)	Max exposed skin factor		Total skin area (m ²)
	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with indoor dust	Dermal contact with soil	Inhalation of dust and vapour, indoor	Inhalation of dust and vapour, outdoor	Indoors	Outdoors	Indoor	Outdoor					Indoor (m ² m ⁻²)	Outdoor (m ² m ⁻²)	
1	180	180	180	170	365	365	23.0	1.0	0.06	0.10	0.10	5.60	0.7	5.4	0.32	0.26	3.43E-01
2	365	365	365	170	365	365	23.0	1.0	0.06	0.10	0.10	9.80	0.8	8.0	0.33	0.26	4.84E-01
3	365	365	365	170	365	365	23.0	1.0	0.06	0.10	0.10	12.70	0.9	8.9	0.32	0.25	5.82E-01
4	365	365	365	170	365	365	23.0	1.0	0.06	0.10	0.10	15.10	0.9	10.1	0.35	0.28	6.36E-01
5	365	365	365	170	365	365	19.0	1.0	0.06	0.10	0.10	16.90	1.0	10.1	0.35	0.28	7.04E-01
6	365	365	365	170	365	365	19.0	1.0	0.06	0.10	0.10	19.70	1.1	10.1	0.33	0.26	7.94E-01
7	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	22.10	1.2	12.0	0.22	0.15	8.73E-01
8	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	25.30	1.2	12.0	0.22	0.15	9.36E-01
9	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	27.50	1.3	12.0	0.22	0.15	1.01E+00
10	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	31.40	1.3	12.0	0.22	0.15	1.08E+00
11	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	35.70	1.4	12.0	0.22	0.14	1.19E+00
12	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	41.30	1.4	15.2	0.22	0.14	1.29E+00
13	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	47.20	1.5	15.2	0.22	0.14	1.42E+00
14	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	51.20	1.6	15.2	0.22	0.14	1.52E+00
15	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	56.70	1.6	15.2	0.21	0.14	1.60E+00
16	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	59.00	1.6	15.2	0.21	0.14	1.63E+00
17	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	70.00	1.6	15.7	0.33	0.27	1.78E+00
18	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00	70.90	1.6	13.6	0.33	0.27	1.80E+00

Consumption Rates

Consumption rates (g FW kg⁻¹ bodyweight day⁻¹) by Produce Group

Age Class	MEAN RATES						90TH PERCENTILE RATES					
	Green veg	Root veg	Tuber veg	Herb. Fruit	Shrub fruit	Tree fruit	Green veg	Root veg	Tuber veg	Herb. Fruit	Shrub fruit	Tree fruit
1	3.47E+00	5.22E+00	9.22E+00	8.90E-01	1.07E+00	1.87E+00	7.12E+00	1.07E+01	1.60E+01	1.83E+00	2.23E+00	3.82E+00
2	3.34E+00	1.61E+00	3.14E+00	1.93E+00	2.60E-01	5.84E+00	5.87E+00	2.83E+00	6.60E+00	3.39E+00	4.60E-01	1.03E+01
3	3.34E+00	1.61E+00	3.14E+00	1.93E+00	2.60E-01	5.84E+00	5.87E+00	2.83E+00	6.60E+00	3.39E+00	4.60E-01	1.03E+01
4	3.34E+00	1.61E+00	3.14E+00	1.93E+00	2.60E-01	5.84E+00	5.87E+00	2.83E+00	6.60E+00	3.39E+00	4.60E-01	1.03E+01
5	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
6	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
7	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
8	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
9	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
10	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
11	2.54E+00	1.20E+00	2.65E+00	1.25E+00	1.10E-01	2.89E+00	4.53E+00	2.14E+00	4.95E+00	2.24E+00	1.90E-01	5.16E+00
12	1.03E+00	4.90E-01	1.60E+00	5.10E-01	4.00E-02	1.18E+00	1.87E+00	8.90E-01	3.05E+00	9.30E-01	8.00E-02	2.13E+00
13	1.03E+00	4.90E-01	1.60E+00	5.10E-01	4.00E-02	1.18E+00	1.87E+00	8.90E-01	3.05E+00	9.30E-01	8.00E-02	2.13E+00
14	1.03E+00	4.90E-01	1.60E+00	5.10E-01	4.00E-02	1.18E+00	1.87E+00	8.90E-01	3.05E+00	9.30E-01	8.00E-02	2.13E+00
15	1.03E+00	4.90E-01	1.60E+00	5.10E-01	4.00E-02	1.18E+00	1.87E+00	8.90E-01	3.05E+00	9.30E-01	8.00E-02	2.13E+00
16	1.03E+00	4.90E-01	1.60E+00	5.10E-01	4.00E-02	1.18E+00	1.87E+00	8.90E-01	3.05E+00	9.30E-01	8.00E-02	2.13E+00
17	1.26E+00	6.00E-01	1.18E+00	6.90E-01	9.00E-02	1.27E+00	2.36E+00	1.12E+00	2.35E+00	1.29E+00	1.80E-01	2.38E+00
18	1.35E+00	6.40E-01	1.25E+00	7.40E-01	1.00E-01	1.36E+00	2.34E+00	1.12E+00	2.36E+00	1.28E+00	1.80E-01	2.37E+00

Top 2 applied? Yes

Where top 2 method is applied, two produce categories use 90th percentile rates, while the remainder use the mean. Produce categories vary on a chemical-by-chemical basis. Where top 2 method is not used, all produce categories for all chemicals assume 90th percentile rates.

Building Small terraced house

Building footprint (m ²)	2.80E+01
Living space air exchange rate (hr ⁻¹)	5.00E-01
Living space height (above ground, m)	4.80E+00
Living space height (below ground, m)	0.00E+00
Pressure difference (soil to enclosed space, Pa)	3.10E+00
Foundation thickness (m)	1.50E-01
Floor crack area (cm ²)	4.23E+02
Dust loading factor (µg m ⁻³)	5.00E+01

Soil Sandy loam

Porosity, Total (cm ³ cm ⁻³)	5.30E-01
Porosity, Air-Filled (cm ³ cm ⁻³)	2.00E-01
Porosity, Water-Filled (cm ³ cm ⁻³)	3.30E-01
Residual soil water content (cm ³ cm ⁻³)	1.20E-01
Saturated hydraulic conductivity (cm s ⁻¹)	3.56E-03
van Genuchten shape parameter <i>m</i> (dimensionless)	3.20E-01
Bulk density (g cm ⁻³)	1.21E+00
Threshold value of wind speed at 10m (m s ⁻¹)	7.20E+00
Empirical function (F _x) for dust model (dimensionless)	1.22E+00
Ambient soil temperature (K)	2.83E+02
Soil pH	7.00E+00
Soil Organic Matter content (%)	6.00E+00
Fraction of organic carbon (g g ⁻¹)	3.48E-02
Effective total fluid saturation (unitless)	5.12E-01
Intrinsic soil permeability (cm ²)	4.75E-08
Relative soil air permeability (unitless)	6.42E-01
Effective air permeability (cm ²)	3.05E-08

Soil - Vapour Model

Depth to top of source (no building) (cm)	0
Depth to top of source (beneath building) (cm)	65
Default soil gas ingress rate?	Yes
Soil gas ingress rate ($\text{cm}^3 \text{s}^{-1}$)	2.50E+01
Building ventilation rate ($\text{cm}^3 \text{s}^{-1}$)	1.87E+04
Averaging time surface emissions (yr)	6
Finite vapour source model?	No
Thickness of contaminated layer (cm)	200

Air Dispersion Model

Mean annual windspeed at 10m (m s^{-1})	5.00
Air dispersion factor at height of 0.8m *	2400.00
Air dispersion factor at height of 1.6m *	0.00
Fraction of site cover ($\text{m}^2 \text{m}^{-2}$)	0.75

* Air dispersion factor in $\text{g m}^{-2} \text{s}^{-1}$ per kg m^{-3}

Soil - Plant Model

	Dry weight conversion factor	Homegrown fraction		Soil loading factor	Preparation correction factor
	g DW g^{-1} FW	Average	High		
		dimensionless		g g^{-1} DW	dimensionless
Green vegetables	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	0.103	0.06	0.40	1.00E-03	1.00E+00
Tuber vegetables	0.210	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	0.058	0.06	0.40	1.00E-03	6.00E-01
Shrub fruit	0.166	0.09	0.60	1.00E-03	6.00E-01
Tree fruit	0.157	0.04	0.27	1.00E-03	6.00E-01

Gardener type Average

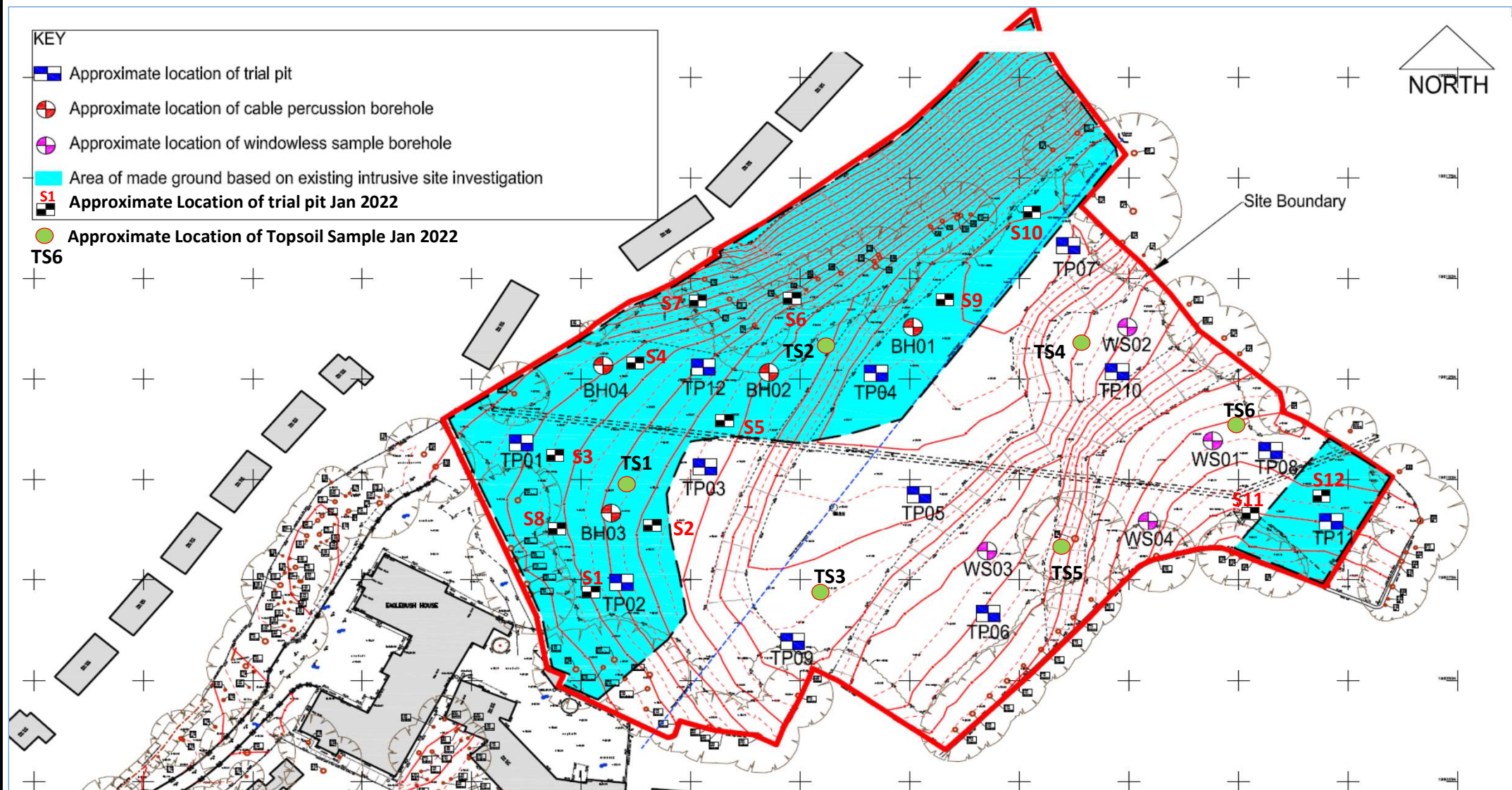


FIGURE 1: SITE LAYOUT

Eaglebush House, Neath

Feb-22 12722PD

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