

14197/RJH

23 September 2025

Bellway Homes Limited (Wales)
Building One
Eastern Business Park
St. Mellons
Cardiff CF3 5EA

For the attention of Barrie Evans

Dear Sirs,

**Land Formally Part of, Llanwern Steelworks, Queensway Llanwern, NP19 4QZ (Alder Grove).
NHBC Outstanding Land Quality Conditions, Ref: 228471 LQ conditions LQ1 & LQ2.
Plots 190 to 193, Validation of Clean Cover to Private Garden Areas.**

Intégral Géotechnique were appointed by Bellway Homes Limited (Wales), to carry out the clean cover validation inspections to soft landscaped and garden areas within the above development as the site build program progresses. We can now report the clean cover soil validation works within the above development site as follows.

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This information is submitted in support of the discharge of conditions of the following consents and/or warranties.

Regulator	Reference
NHBC outstanding Land Quality Conditions Ref:	228471 LQ conditions LQ1 & LQ2

Requirements for remedial measures with regard to mitigate land contamination risks at the above site comprise the validation of an imported clean 600mm capping layer to be incorporated within the soft landscaped and garden areas of the new development

Remedial Measure Requirements (Clean Capping Layer)

1. 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 a UKAS MCERTS accredited laboratory analysis certificates supplied. The capping system is to comprise of imported 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. Samples of the topsoil and subsoil will be taken for laboratory analysis, at a frequency of 1 in every 4 gardens.
2. Topsoil imported to the site for garden infill and landscaping will require a laboratory analysis certificate confirming its suitability for use within the site prior to importation and placement within garden and landscaped areas to confirm its chemical suitability.
3. Subsoil imported to the site for garden infill and landscaping will require a laboratory analysis certificate confirming its suitability for use within the site prior to importation and placement within garden and landscaped areas to confirm its chemical suitability.
4. Following placement of the imported topsoil and subsoil within garden areas, a validation trial pit excavation depth check will be undertaken at a frequency of 1 in 4 plots, so as to confirm the sufficient depth of the clean capping layer, (minimum 600mm). A sample of topsoil and subsoil will also be taken from each trial pit excavated to further confirm the ongoing chemical quality of the topsoil and subsoil.

Imported Soils (Clean Capping Layer)

Topsoil

We understand the imported topsoil and subsoil sourced for use in soft landscaped areas and gardens at, Land Formally Part of, Llanwern Steelworks, Queensway Llanwern, NP19 4QZ (Alder Grove), has been imported from a surplus of topsoil and subsoil material at a current residential development site, 'Enzos Homes', Malthouse Lane, Llantarnam, NP44 3GB,

We understand these soils were stripped and stockpiled at this source site initially for further re-use within the Llantarnam residential development.

A chemical analysis report Ref:22-26481-1 undertaken on the topsoil and subsoils at the Llantarnam site and concluded the topsoil and subsoils indicated that all analyzed chemical elements or compounds were present at concentrations below the appropriate thresholds for residential soils with plant uptake.

Import of this surplus soil material to Land Formally Part of, Llanwern Steelworks, Queensway Llanwern, NP19 4QZ (Alder Grove), is accompanied with copies of the testing certificate confirming its suitability for use in a proposed residential with homegrown produce end use scenario.

Imported Soils Declaration Forms and imported clean capping soil materials chemical analysis reports for the topsoil and subsoil are presented in Appendix A.

Validation of Clean Capping Layer to Plots 190 to 193

An engineer from Intégral Géotechnique attended site on 11th September 2025 and instructed hand/machine dug validation trial pits within the rear garden of plot 193 to confirm the depth of the as placed topsoil and subsoil.

The topsoil used at site was found to comprise light brown sandy clay with occasional sub angular to subrounded gravel and many organic rootlets throughout. The subsoil was observed to comprise orange-brown gravelly clay.

Various photographs of capping depths and infilled constructed gardens are shown in Figures.

Samples of the ‘as placed’ topsoil and subsoil soil materials in the above garden areas inspected, (plot 180) have been further sampled and sent to the UKAS/MCERTS accredited laboratories of i2 Analytical for chemical analysis. The results of this in-situ soil analysis are now presented in Appendix B.

The results of the topsoil and subsoils sampled from within garden and landscaped areas above have been summarised and compared to the appropriate screening criteria for a residential end use. Therefore, the results will 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 reports is presented in Appendix C

Conclusion

This report based on the above information, therefore confirms that the remediation works regarding the clean capping layer depth requirements for plots 190 to 193 has been completed to satisfy the outstanding LQ conditions, LQ1 and LQ2.

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

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,

A handwritten signature in black ink, appearing to read 'R.J. Hawkins', with a long horizontal flourish extending to the right.

Roger J Hawkins
For
Intégral Géotechnique (Wales) Limited

c.c. Barrie Evans

Appendix A Imported Soils Declaration Forms and Imported Capping Soil Analysis Reports

Appendix B Results of In-Situ Soil Analysis

Appendix C A Summary of the In-Situ Soil Analysis

Figures

APPENDIX A

IMPORTED SOILS DECLARATION FORMS, COPIES OF THE SOIL TESTING CERTIFICATES

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address	
*	22/0224	*	ALDER GROVE, QUEENSWAY, LLANWERN 4H.	
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) Enzo's Homes, Malthouse Lane, Llantarnam. NP44 3GB			
☐	Brownfield Site (Please specify)			
☐	Recycling / Process supplier (Please specify)			
	Other (Please specify)			
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: <u>B. Evans</u> * Date: 15/7/24 *				
Name: <u>BARRI EVANS</u> * Position: <u>TECHNICAL</u> *				
Company Name and Address *				
BELLWAY HOMES, BUILDING 1, EASTERN BUSINESS PARK, WERN FAWR LANE, ST MELLONS, CARDIFF, CF3 5EA.				

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address	
*	22/0224	*	ALDER GROVE, QUEENSWAY, LLANWERN 4H.	
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) <u>Enzos Homes, Malthouse Lane, Llanbarnan NP44 3GB</u>			
☐	Brownfield Site (Please specify)			
☐	Recycling / Process supplier (Please specify)			
	Other (Please specify)			
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: <u>B. Evans</u> * Date: <u>15/7/24</u> *				
Name: <u>BARRI EVANS</u> * Position: <u>TECHNICAL</u> *				
Company Name and Address *				
<u>BELLWAY HOMES, BUILDING 1, EASTERN BUSINESS PARK, WERN FAWR LANE, ST MELLONS, CARDIFF, CF3 5EA.</u>				



2183



Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.: 22-26481-1
Initial Date of Issue: 18-Jul-2022
Client: AA Environmental Ltd
Client Address: Units 4 to 8
Cholswell Court
Shippon
Abingdon
Oxfordshire
OX136HX
Contact(s): Reporting
Project: 223255 Enzo Home CWMBRAN
Quotation No.: Date Received: 13-Jul-2022
Order No.: 223255 Date Instructed: 13-Jul-2022
No. of Samples: 6
Turnaround (Wkdays): 4 Results Due: 18-Jul-2022
Date Approved: 18-Jul-2022
Approved By:

Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: 223255 Enzo Home CWMBRAN

Client: AA Environmental Ltd	Chemtest Job No.:	22-26481	22-26481	22-26481	22-26481	22-26481	22-26481
Quotation No.:	Chemtest Sample ID.:	1466993	1466994	1466995	1466996	1466997	1466998
Order No.: 223255	Client Sample Ref.:	S1	S2	S3	S1	S2	S3
	Sample Location:	Topsoil	Topsoil	Topsoil	Subsoil	Subsoil	Subsoil
	Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022
	Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	22	21	22
pH	U	2010		4.0	8.5	7.2	7.3
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.97	0.62	0.60
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.032	0.071	0.11
Cyanide (Total)	U	2300	mg/kg	0.50	1.1	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.6	2.3	1.1
Arsenic	U	2455	mg/kg	0.5	4.0	3.8	7.2
Cadmium	U	2455	mg/kg	0.10	< 0.10	0.14	0.21
Chromium	U	2455	mg/kg	0.5	19	18	36
Copper	U	2455	mg/kg	0.50	7.8	7.9	15
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	0.06
Nickel	U	2455	mg/kg	0.50	16	17	35
Lead	U	2455	mg/kg	0.50	21	20	36
Selenium	U	2455	mg/kg	0.25	0.45	0.48	0.67
Vanadium	U	2455	mg/kg	0.5	25	25	48
Zinc	U	2455	mg/kg	0.50	40	43	80
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	2.8	1.7	1.4
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0

Results - Soil

Project: 223255 Enzo Home CWMBRAN

Client: AA Environmental Ltd	Chemtest Job No.:	22-26481	22-26481	22-26481	22-26481	22-26481	22-26481
Quotation No.:	Chemtest Sample ID.:	1466993	1466994	1466995	1466996	1466997	1466998
Order No.: 223255	Client Sample Ref.:	S1	S2	S3	S1	S2	S3
	Sample Location:	Topsoil	Topsoil	Topsoil	Subsoil	Subsoil	Subsoil
	Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022	11-Jul-2022
	Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.19
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.13
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.10	0.22	0.15	0.28

Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1468993
 Client Sample Ref.: S1
 Sample Location: Topsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture					Acid	Low F	Calc.
Clay content	%		6.5				
Silt content	%		4.8				
Sand content	%		89				
Soil texture class		See Attached Chart	Sand	NO			
Mass Loss on Ignition							
Clay 5-20%		3.0-20	4.3	YES	YES	YES	YES
Clay 20-35%		5.0-20					
Stone Content	% m/m						
>2mm		0-30	35	NO			
>20mm		0-10	14	NO			
>50mm		0	< 0.020	YES			
Soil pH value		5.5-8.5	8.5	YES	NO	YES	YES
Carbonate (Calcareous only)	%		< 0.10				NO
Electrical Conductivity	µS/cm	If >3300 do ESP	2200	YES			
Available Nutrient Content							
Nitrogen %		>0.15	0.20	YES	YES		YES
Extractable phosphorus	mg/l	16-140	15	NO	NO	YES	NO
Extractable potassium	mg/l	121-1500	18	NO	NO		NO
Extractable magnesium	mg/l	51-600	31	NO	NO		NO
Carbon : Nitrogen Ratio		<20:1	12.6/1	YES	YES	YES	YES
Exchangeable sodium	%	<15	1.7				
Available Calcium	mg/l		28				
Available Sodium	mg/l		3.9				
Phytotoxic Contaminants (by soil pH)		<6.0 6.0-7.0 >7.0					
Zinc (Nitric Acid extract)	mg/kg	<200 <200 <300	170	YES			
Copper (Nitric Acid extract)	mg/kg	<100 <135 <200	27	YES			
Nickel (Nitric Acid extract)	mg/kg	<60 <75 <110	39	YES			
Visible Contaminants	% mm						
>2mm		<0.5	0.000	YES			
..... of which plastics		<0.25	0.000	YES			
..... man-made sharps		zero in 1kg	0.000	YES			

Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1466994
 Client Sample Ref.: S2
 Sample Location: Topsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture					Acid:	Low F:	Calc:
Clay content	%		6.5				
Silt content	%		35				
Sand content	%		58				
Soil texture class		See Attached Chart	Sandy Loam	YES			
Mass Loss on Ignition							
Clay 5-20%		3.0-20	4.4	YES	YES	YES	YES
Clay 20-35%		5.0-20					
Stone Content	% m/m						
>2mm		0-30	45	NO			
>20mm		0-10	< 0.020	YES			
>50mm		0	< 0.020	YES			
Soil pH value		5.5-8.5	7.2	YES	NO	YES	NO
Carbonate (Calcareous only)	%		< 0.10				NO
Electrical Conductivity	µS/cm	If >3300 do ESP	2000	YES			
Available Nutrient Content							
Nitrogen %		>0.15	0.11	NO	NO		NO
Extractable phosphorus	mg/l	16-140	6.5	NO	NO	YES	NO
Extractable potassium	mg/l	121-1500	15	NO	NO		NO
Extractable magnesium	mg/l	51-600	21	NO	NO		NO
Carbon : Nitrogen Ratio		<20:1	23.5/1	NO	NO	YES	NO
Exchangeable sodium	%	<15	1.0				
Available Calcium	mg/l		77				
Available Sodium	mg/l		5.1				
Phytotoxic Contaminants (by soil pH)		< 6.0	6.0-7.0	> 7.0			
Zinc (Nitric Acid extract)	mg/kg	<200	<200	<300	120	YES	
Copper (Nitric Acid extract)	mg/kg	<100	<135	<200	22	YES	
Nickel (Nitric Acid extract)	mg/kg	<60	<75	<110	19	YES	
Visible Contaminants	% mm						
>2mm		<0.5	0.000	YES			
..... of which plastics		<0.25	0.000	YES			
..... man-made sharps		zero in 1kg	0.000	YES			

Results - Topsoil Report

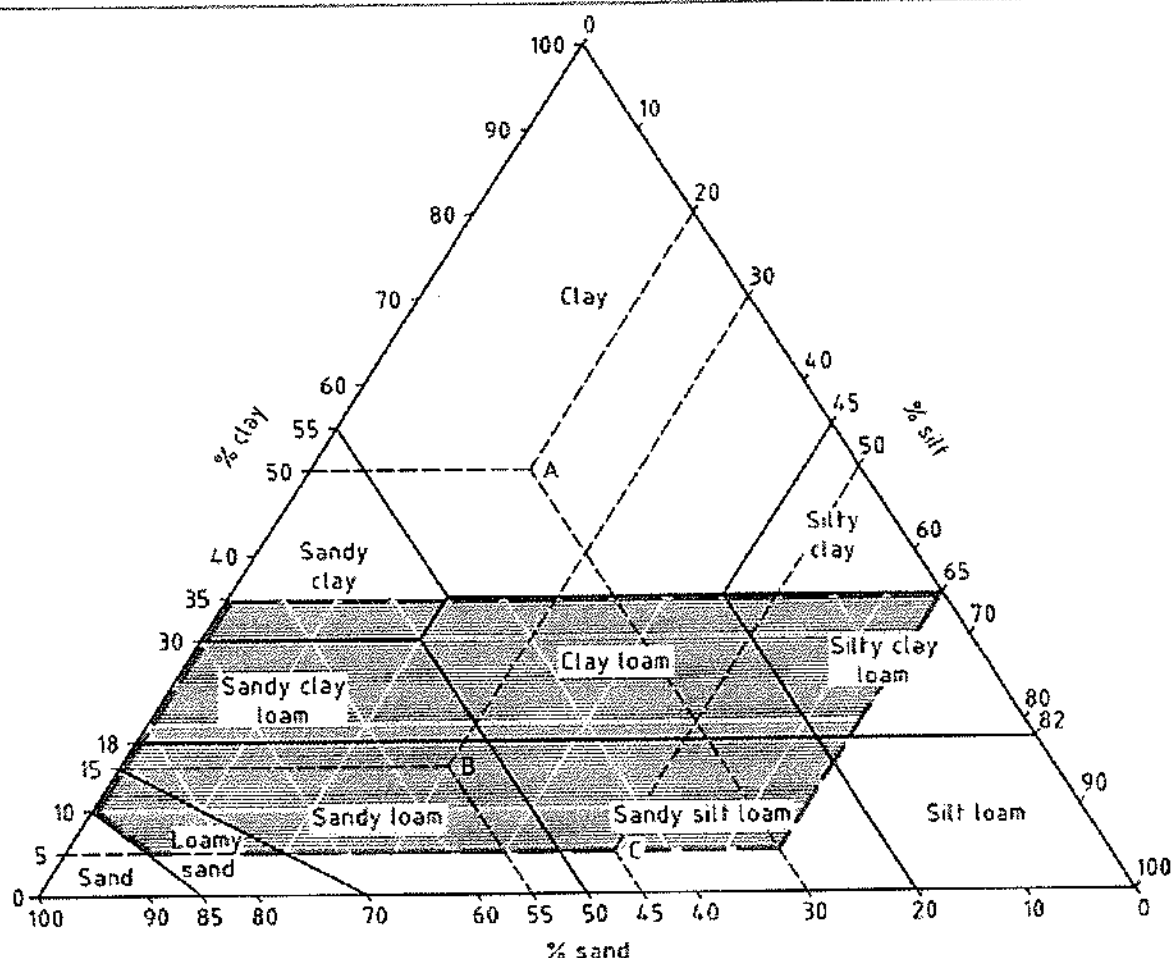
BS3882:2015

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1468995
 Client Sample Ref.: S3
 Sample Location: Topsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture					Acid	Low F	Calc.
Clay content	%		21				
Silt content	%		42				
Sand content	%		37				
Soil texture class		See Attached Chart	Clay Loam	YES			
Mass Loss on Ignition							
Clay 5-20%		3.0-20	4.4	NO	NO	YES	NO
Clay 20-35%		5.0-20					
Stone Content	% m/m						
>2mm		0-30	43	NO			
>20mm		0-10	< 0.020	YES			
>50mm		0	< 0.020	YES			
Soil pH value		5.5-8.5	7.3	YES	NO	YES	NO
Carbonate (Calcareous only)	%		0.54				NO
Electrical Conductivity	µS/cm	If >3300 do ESP	1800	YES			
Available Nutrient Content							
Nitrogen %		>0.15	0.10	NO	NO		NO
Extractable phosphorus	mg/l	16-140	6.5	NO	NO	YES	NO
Extractable potassium	mg/l	121-1500	14	NO	NO		NO
Extractable magnesium	mg/l	51-600	24	NO	NO		NO
Carbon : Nitrogen Ratio		<20:1	25.9/1	NO	NO	YES	NO
Exchangeable sodium	%	<15	1.1				
Available Calcium	mg/l		21				
Available Sodium	mg/l		<2.0				
Phytotoxic Contaminants (by soil pH)		< 6.0 6.0-7.0 > 7.0					
Zinc (Nitric Acid extract)	mg/kg	<200 <200 <300	93	YES			
Copper (Nitric Acid extract)	mg/kg	<100 <135 <200	15	YES			
Nickel (Nitric Acid extract)	mg/kg	<60 <75 <110	24	YES			
Visible Contaminants	% mm						
>2mm		<0.5	0.000	YES			
..... of which plastics		<0.25	0.000	YES			
..... man-made sharps		zero in 1kg	0.000	YES			

Topsoil: **Texture Classification Chart**

BS3882:2015



Key



Area within which the texture of topsoil is required to fall

NOTE Examples of textural classification are as follows.

- Soil A with 30% sand, 20% silt and 50% clay is in the "clay" textural class.
- Soil B with 55% sand, 30% silt and 15% clay is in the "sandy loam" textural class.
- Soil C with 45% sand, 50% silt and 5% clay is in the "sandy silt loam" textural class.

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Results - Subsoil Report

BS8601:2013

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1486996
 Client Sample Ref.: S1
 Sample Location: Subsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)	
Texture					Acid	Calc.
Clay content	%		23			
Silt content	%		50			
Sand content	%		27			
Soil texture class		See Attached Chart	Clay Loam	YES		
Mass Loss on Ignition						
	%	<2	0.60	YES		
Stone Content	% m/m					
>2mm		0-40	37	YES		
>20mm		0-20	8.6	YES		
>50mm		0	< 0.020	YES		
Soil pH value		5.5-8.5	9.2	NO	NO	NO
Carbonate (Calcareous only)	%		1.0			YES
Electrical Conductivity	µS/cm	If >2800 do ESP	2100	YES		
Exchangeable sodium	%	<15	1.0	YES		
Available Calcium	mg/l		57			
Available Sodium	mg/l		3.8			
Phytotoxic Contaminants (by soil pH)		< 6.0 6.0-7.0 > 7.0				
Zinc (Nitric Acid extract)	mg/kg	<200 <200 <300	73	YES		
Copper (Nitric Acid extract)	mg/kg	<100 <135 <200	11	YES		
Nickel (Nitric Acid extract)	mg/kg	<60 <75 <110	15	YES		
Visible Contaminants	% mm					
>2mm		<0.5	0.000	YES		
..... of which plastics		<0.25	0.000	YES		
..... man-made sharps		zero in 1kg	0.000	YES		

Results - Subsoil Report

BS8601:2013

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1466997
 Client Sample Ref.: S2
 Sample Location: Subsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)	
Texture					Acid	Calc.
Clay content	%		21			
Silt content	%		44			
Sand content	%		36			
Soil texture class		See Attached Chart	Clay Loam	YES		
Mass Loss on Ignition						
	%	<2	0.56	YES		
Stone Content	% m/m					
>2mm		0-40	61	NO		
>20mm		0-20	< 0.020	YES		
>50mm		0	< 0.020	YES		
Soil pH value		5.5-8.5	8.3	YES	NO	YES
Carbonate (Calcareous only)	%		< 0.10			NO
Electrical Conductivity	µS/cm	If >2800 do ESP	2000	YES		
Exchangeable sodium	%	<15	1.0	YES		
Available Calcium	mg/l		37			
Available Sodium	mg/l		2.9			
Phytotoxic Contaminants (by soil pH)		< 6.0 6.0-7.0 > 7.0				
Zinc (Nitric Acid extract)	mg/kg	<200 <200 <300	170	YES		
Copper (Nitric Acid extract)	mg/kg	<100 <135 <200	28	YES		
Nickel (Nitric Acid extract)	mg/kg	<60 <75 <110	13	YES		
Visible Contaminants	% mm					
>2mm		<0.5	0.000	YES		
..... of which plastics		<0.25	0.000	YES		
..... man-made sharps		zero in 1kg	0.000	YES		

Results - Subsoil Report

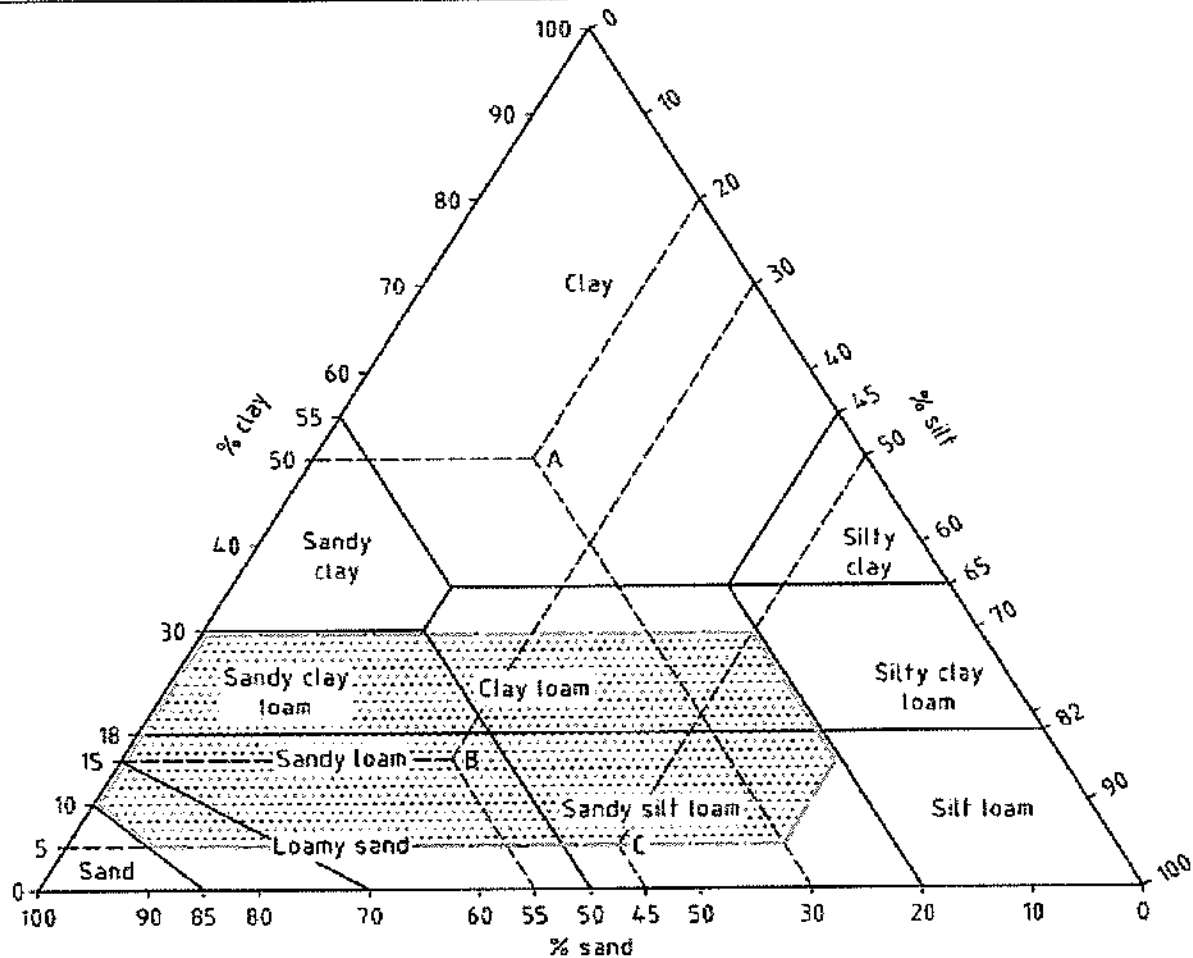
BS8601:2013

Chemtest Job No.: 22-26481
 Chemtest Sample ID.: 1466998
 Client Sample Ref.: S3
 Sample Location: Subsoil
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 11-Jul-2022
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)	
Texture					Acid	Calc.
Clay content	%		16			
Silt content	%		39			
Sand content	%		45			
Soil texture class		See Attached Chart	Sandy Silt Loam	YES		
Mass Loss on Ignition						
	%	<2	0.64	YES		
Stone Content	% m/m					
>2mm		0-40	50	NO		
>20mm		0-20	< 0.020	YES		
>50mm		0	< 0.020	YES		
Soil pH value		5.5-8.5	8.8	NO	NO	NO
Carbonate (Calcareous only)	%		4.6			YES
Electrical Conductivity	µS/cm	If >2800 do ESP	2000	YES		
Exchangeable sodium	%	<15	1.0	YES		
Available Calcium	mg/l		64			
Available Sodium	mg/l		4.4			
Phytotoxic Contaminants (by soil pH)		< 6.0 6.0-7.0 > 7.0				
Zinc (Nitric Acid extract)	mg/kg	<200 <200 <300	140	YES		
Copper (Nitric Acid extract)	mg/kg	<100 <135 <200	47	YES		
Nickel (Nitric Acid extract)	mg/kg	<60 <75 <110	25	YES		
Visible Contaminants	% mm					
>2mm		<0.5	0.000	YES		
..... of which plastics		<0.25	0.000	YES		
..... man-made sharps		zero in 1kg	0.000	YES		

Subsoil:
Texture Classification Chart

BS3882:2015



Key



Area within which the texture of subsoil is required to fall

NOTE Examples of textural classification are as follows.

- Soil A with 30% sand, 20% silt and 50% clay is in the "clay" textural class.
- Soil B with 55% sand, 30% silt and 15% clay is in the "sandy loam" textural class.
- Soil C with 45% sand, 50% silt and 5% clay is in the "sandy silt loam" textural class.

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Test Methods

SOP	Title	Parameters Included	Method summary
2010	pH Value of Soils	pH	pH Meter
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2115	Total Nitrogen in Soils	Nitrogen	Determination by elemental analyser
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2280	Carbonate	Carbonate	Titration
2300	Cyanides & Thiocyanate in Soils	Free (or easily liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2400	Cations	Cations	ICP-MS
2420	Phosphate	Phosphate	Spectrophotometry - Discrete analyser
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2620	LOI 440	LOI 440 Trommel Fines	Determination of the proportion by mass that is lost from a soil by ignition at 440°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44 Aromatics: >C5-C7, >C7-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



e

SAMPLING RECORD

Client	Enzo Homes	Project Number	223255
Project Address	Malthouse Lane, Ownbran	Date	11/07/2022
AAE Operative	S.Philp	Weather	Sunny

Scope of works				
Description of works completed	• Inspection and sampling of soil stockpile (topsoil/subsoil)		Grid Squares Worked	NA
OBSERVATIONS	There's no clear divide between the topsoil and subsoil in the stockpile. The stockpile is observed to be mixed, and is generated from a cut, or strip, of the site. There is some delineation though, subsoil to the north, topsoil to the south.			
	There is some anthropogenic 'waste' material butted against the topsoil / subsoil stockpile. (Tyres, wood, brick, plastic – see photo plates.)			
	Composite samples of topsoil and subsoil were taken.			
OBSERVATIONS	<u>Topsoil</u>			
	Brown slightly sandy slightly gravelly CLAY. Many rootlets. Gravels are subangular sandstone. No visual or olfactory evidence of contamination			
	<u>Subsoil</u>			
OBSERVATIONS	Reddish brown slightly sandy slightly gravelly SILT. Occasional cobbles. Gravels and Cobbles are subangular sandstone. No visual or olfactory evidence of contamination			
Sample Locations	Reference	X Co-ordinate	Y Co-ordinate	Comments
	Topsoil (S1, S2, S3) Composite Samples			See Photo Plates
	Subsoil (S1, S2, S3) Composite Samples			See Photo Plates
Comments	Analysis: AAe Soil Suite 1. BS3882. BS8601			



Comment
Topsoil / Subsoil

Project
223255 – Enzo Homes

Photo Plate
1

Date
11/07/22

Originator
SP



AA Environmental Limited
Units 4-8 Cholswell Court
Shippon, Abingdon
OX13 6HX
T: (01235) 536042
F: (01235) 523849
info@aae-ltd.co.uk
www.aae-ltd.co.uk



Comment
Topsoil / Subsoil Stockpile

Project
223255 – Enzo Homes

Photo Plate
2

Date
11/07/22

Originator
SP



**AA Environmental
Limited**
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www.aae-ltd.co.uk



Comment
Topsoil / Subsoil Stockpile

Project
223255 – Enzo Homes

Photo Plate
3

Date
11/07/22

Originator
SP



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Comment
Topsoil / Subsoil Stockpile

Project
223255 – Enzo Homes

Photo Plate
4

Date
11/07/22

Originator
SP



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Comment
Subsoil

Project
223255 – Enzo Homes

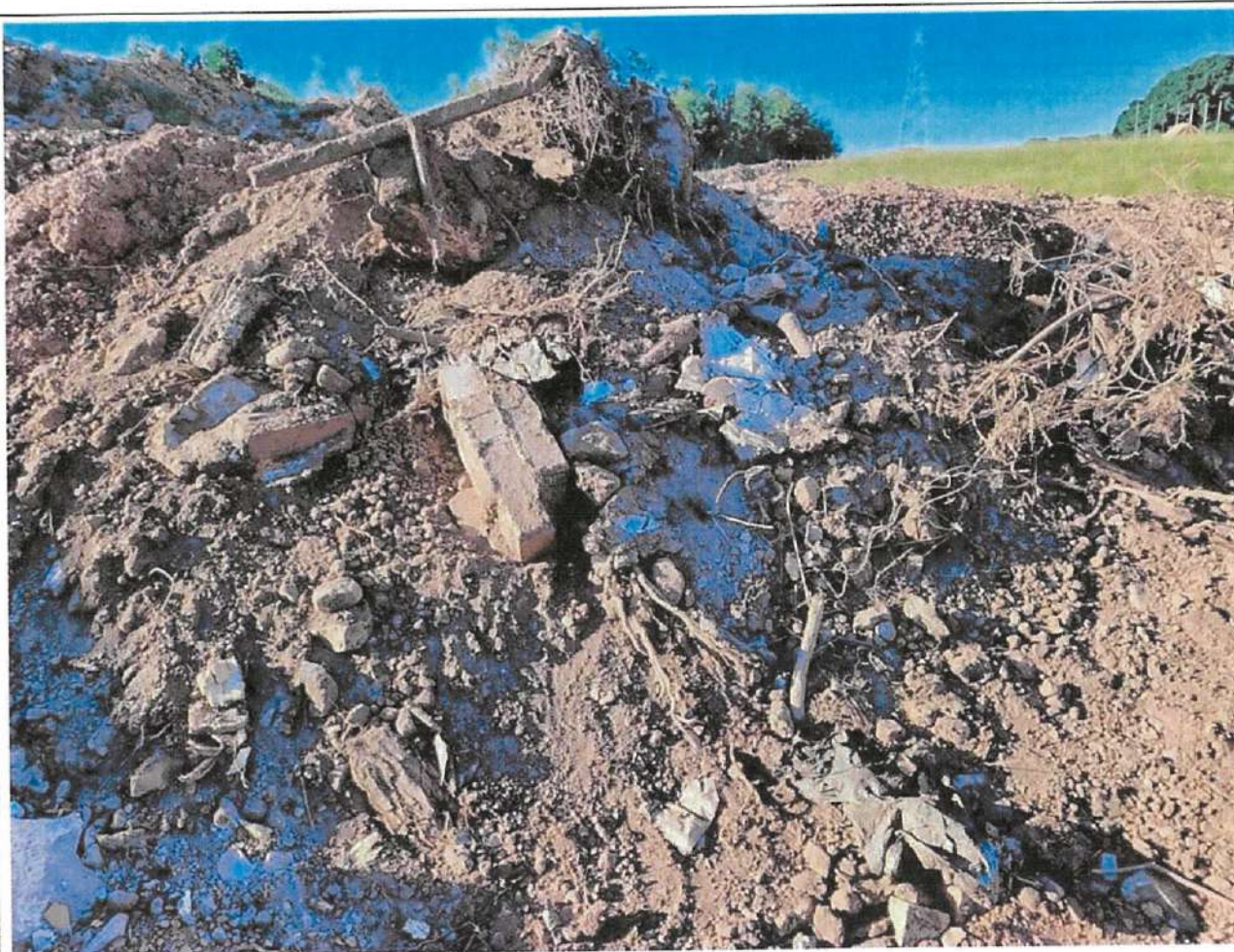
Photo Plate
5

Date
11/07/22

Originator
SP



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Comment

'Waste Material' butted against Topsoil / Subsoil stockpile.

Project

223255 – Enzo Homes

Photo Plate

6

Date

11/07/22

Originator

SP



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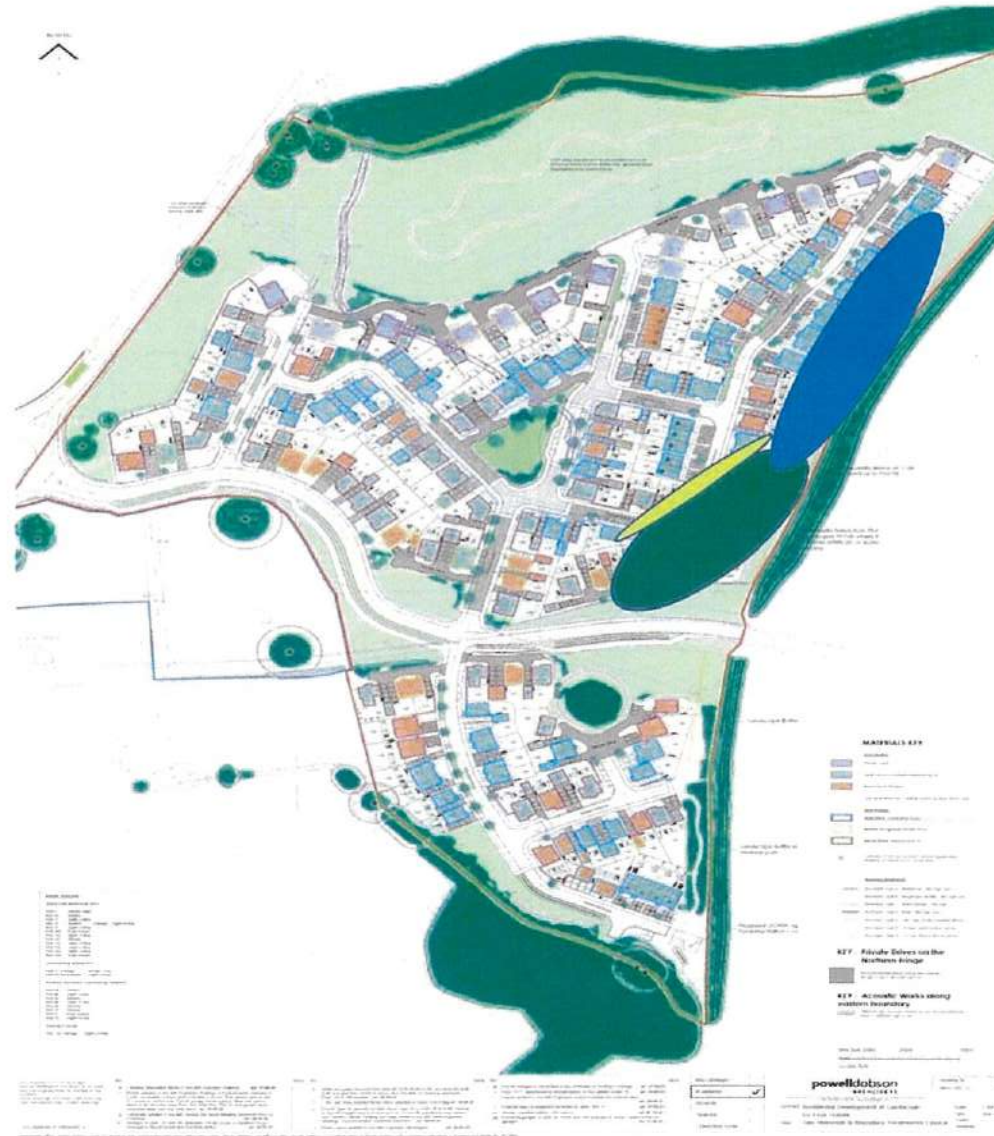


Comment 'Waste Material' butted against Topsoil / Subsoil stockpile.	Project 223255 – Enzo Homes
	Photo Plate 7
	Date 11/07/22
	Originator SP
	 AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

NP44 3GB

Malthouse Lane
Llantarnam.

-  'Waste' Material
-  'Subsoil'
-  'Topsoil'



APPENDIX B

RESULTS OF THE LABORATORY IN-SITU SOIL ANALYSIS

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

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

t: 2920807991

e: roger@integralgeotec.com

t: 01923 225404

f: 01923 237404

e: info-i2analytical@normecgroup.com

Analytical Report Number : 25-049120

Project / Site name:	Alder Grove, Llanwern	Samples received on:	15/09/2025
Your job number:	14197	Samples instructed on/ Analysis started on:	15/09/2025
Your order number:		Analysis completed by:	22/09/2025
Report Issue Number:	1	Report issued on:	22/09/2025
Samples Analysed:	2 soil samples		



Signed:

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

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

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

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

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

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

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

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

Analytical Report Number: 25-049120
Project / Site name: Alder Grove, Llanwern

Lab Sample Number				679632	679633			
Sample Reference				Plot 193 T/S	Plot 193 S/S			
Sample Number				None Supplied	None Supplied			
Water Matrix				N/A	N/A			
Depth (m)				0.10	0.50			
Date Sampled				11/09/2025	11/09/2025			
Time Taken				1200	1220			
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	24
Total mass of sample received	kg	0.1	NONE	0.1	0.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JWU	JWU
Analysis completed	N/A	N/A	N/A	22/09/2025	22/09/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.5	7.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	770	640
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	380	94
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.191	0.0469
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	191	46.9
Sulphide	mg/kg	1	MCERTS	4.1	< 1.0
Total Sulphur	mg/kg	50	MCERTS	330	290
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	1.9
Loss on Ignition @ 450°C	%	0.2	MCERTS	2.1	3.8

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
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	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.06	0.06
Pyrene	mg/kg	0.05	MCERTS	0.06	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.06	0.06
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80
-----------------------------	-------	-----	-----------	--------	--------

Analytical Report Number: 25-049120
Project / Site name: Alder Grove, Llanwern

Lab Sample Number				679632	679633
Sample Reference				Plot 193 T/S	Plot 193 S/S
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.10	0.50
Date Sampled				11/09/2025	11/09/2025
Time Taken				1200	1220
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.6	5.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.95	0.83
Boron (water soluble)	mg/kg	0.2	MCERTS	1	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	43	39
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	40	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	69

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	1	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10

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

Analytical Report Number : 25-049120

Project / Site name: Alder Grove, Llanwern

* 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 *
679632	Plot 193 T/S	None Supplied	0.1	Brown clay with gravel and vegetation
679633	Plot 193 S/S	None Supplied	0.5	Brown clay with gravel and vegetation

Analytical Report Number : 25-049120

Project / Site name: Alder Grove, Llanwern

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	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
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 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 25-049120

Project / Site name: Alder Grove, Llanwern

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

APPENDIX C

SUMMARY SHEETS OF THE IN-SITU SOIL ANALYSIS RESULTS

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 14197
 Site: Llanwern Phase 4 (Alder Grove)
 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)
15	Plot 193 T/S	N/A	4.6	1	0.95	1	43	< 1.8	26	28	< 0.3	36	< 1.0	40	110
16	Plot 193 S/S	N/A	5.2	0.9	0.83	0.3	39	< 1.8	16	20	< 0.3	27	< 1.0	37	69
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.: 14197
 Site: Llanwern Phase 4 (Alder Grove)
 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
15	Plot 193 T/S	N/A	< 1.0	2.10	20.00	< 1.0	7.50	0.19	770.00	4.10	330.00	0.90	1.55	Not-detected
16	Plot 193 S/S	N/A	< 1.0	3.80	24.00	< 1.0	7.30	0.05	640.00	< 1.0	290.00	1.90	3.27	Not-detected
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.: 14197
Site: Llanwern Phase 4 (Alder Grove)
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)
15	Plot 193 T/S	N/A	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.06
16	Plot 193 S/S	N/A	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.07
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.: 14197

Site: Llanwern Phase 4 (Alder Grove)

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)
15	Plot 193 T/S	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.020	1	< 2.0	< 10	< 10	< 10
16	Plot 193 S/S	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 10	< 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



Plot 193 Soil Capping Depth Check



Plot 193 Trial Pit Excavation

14197: Llanwern Phase 4 Alder Grove

Figure 3: Capping Validation Photographic Evendence

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Plot 193 Trial Pit & Membrane



Plot 191 Infilled Rear Garden

14197: Llanwern Phase 4 Alder Grove

Figure 3: Capping Validation Photographic Evendence

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