

12662/RJH

8 April 2025

Ian Thomas Construction Services Ltd
Brynawelon
Llanfynydd
Carmarthenshire
SA32 7TG

For the attention of Peter Rees

Dear Sirs,

**Phase 2 Heritage Gate, Coed Darcy- Clean Capping Cover System Phased Validation Report
Plots 1 to 8, 12 to 21 and 24 to 32.
Discharge of Condition 13 of Planning Permission P2019/0021
LPA Reference: P2025/0128**

Intégral Géotechnique were appointed by Ian Thomas Construction Services Ltd, to undertake the clean cover validation inspections to soft landscaped and garden areas within the above development site and we can report as follows.

The clean capping cover system validation inspections for gardens and landscaped areas within the referenced development—Plots 1 to 8, 12 to 21, and 24 to 32—are presently in partial completion.

The inspections form a critical aspect of the site's compliance with specified clean cover system requirements, ensuring adherence to established environmental and construction standards, and we can report as follows.

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Background

The required remedial measures in relation to the clean cover capping layer within garden and landscaped areas were set out in URS Corporation Limited BP Area 1 Remediation Validation Report dated 18th January 2010 Issue No 144382729/BRRP0004 which was agreed with the Local Planning Authority.

Remediation Requirements of the URS Validation Report:

1. The upper 500 mm of fill to landscaped areas and private gardens is to comprise of a minimum of 500mm of imported clean soils.
2. Confirmation of depth of the as placed 500mm is to be validated by an approved consultant.
3. Following placement of the soil materials in garden areas, capping works are to be subject to compliance testing, risk assessment and independent geotechnical consultancy certification. Samples of the as placed soil materials will require laboratory chemical testing at a ratio of one in four plots to confirm ongoing suitability.

Remedial Mitigation Measures - Clean Capping Layer to plots 1 to 8, 12 to 21 and 24 to 32

Intégral Géotechnique have attended site on 22nd November 2023 and 28th January 2025 and instructed hand dug validation trial pits within plots 5, 12, 21, 24, 28 and 31 the trial pits were found to have the required total of a minimum 500mm of clean cover soil material, placed within garden areas.

The developer/ground works contractor have chosen to placed **topsoil only** within all garden areas currently completed. As a result there is no requirement to sample and test subsoil garden capping soils.

Photographs of capping depths shown in the attached figures.

It is understood from yourselves the source of the imported topsoil has been imported from a current housing development located at Pennard Drive, Pennard, Gower Swansea. An imported Materials Declaration Form completed by Ian Thomas Construction Services Ltd is included in Appendix A.

Samples of the in-situ soil materials from the specified garden areas above have been collected and dispatched to the accredited laboratories of i2 Analytical for comprehensive chemical analysis. The resulting data from this analysis is now available and appended to this report.

The analytical results indicate that the as-placed topsoil materials, upon sampling and rigorous testing, have been confirmed to meet all specified criteria for contaminants of concern. The concentrations of these contaminants are all below the established threshold limits for residential use with plant uptake, including scenarios involving homegrown produce. This comprehensive testing underscores the suitability of the soil for its intended application, ensuring compliance with safety standards for residential environments.

In -situ chemical soil test reports are attached in Appendix B.

The results of the soils sampled from within plots 5, 12, 21, 24, 28 and 31 above have been summarised and compared to the appropriate screening criteria for a residential end use. The results have been compared to appropriate Category 4 Screening Levels (C4SL) in the first instance. In their absence, the results will have been compared to the Suitable 4 Use Levels (S4ULs) derived by LQM, 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.

Summary of In-situ chemical testing results are attached in Appendix C.

Validation of Clean Capping Layer - Plots 1 to 8, 12 to 21 and 24 to 32

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

Upon arrival at site the engineer has instructed hand dug validation trial pits within rear gardens of plots presented at the agreed frequency to confirm the depth of the as placed topsoil (500mm), and to take representative samples of the placed soils for laboratory analysis.

The topsoil used at site was found to comprise dark brown sandy clay with occasional sub angular to subrounded gravel and many organic rootlets throughout.

Various photographs of the garden capping depths with the use of a staff for measurement placed at the base of the trial pits and further infilled constructed gardens have been obtained on each site visit for the plots presented for validation. These photographs are collated and are shown in Figure 1.

The as placed topsoil materials placed in the above garden areas inspected have been further sampled and these have been sent to the UKAS/MCERTS accredited laboratories of i2 Analytical for chemical analysis.

During the two completed phases of validation, a total of seven topsoil samples were collected and submitted to i2 Analytical, an accredited laboratory, for analysis. Given the site's operational practice of exclusively utilising topsoil as a capping medium, these seven samples represent compliance with the one-in-four plot sampling ratio.

A drawing showing the site layout area within the vicinity of plots currently validated are shown within the blue hatched areas as shown in Figure 2.

Conclusion – Garden Validation

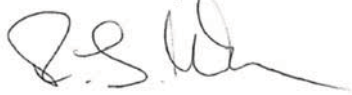
This report confirms that the remediation works regarding the placement of the clean capping layer thickness requirements and the in-situ soil laboratory analysis with regard to plots 1 to 8, 12 to 21 and 24 to 32 have been completed in accordance with remedial measures in relation to the clean cover capping layer placed within garden and landscaped areas at site.

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

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

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

Yours faithfully,

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

Enc.

Appendix A – Imported Soils Declaration Forms

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

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

Figures

APPENDIX A

IMPORTED MATERIALS DECLARATION FORM

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address	
*	P2019/5698	*	HERITAGE GATE COED JARCY. LLANDARCY.	
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) PENNARD, SWANSEA, SA3 2BP			
☐	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 ^(*) 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: D. Be * Date: 30-11-19				
Name: DAI BEAN * Position: SITE MANAGER *				
Company Name and Address *				
IAN THOMAS CONSTRUCTION SERVICES LTD				
BRYN AELON				
LLANFYNYDD				
SA32 7TG.				

APPENDIX B

LABORATORY IN-SITU CHEMICAL TEST RESULTS



Roger Hawkins
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CF83 2AX

t: 02920807991
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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 23-71355

Project / Site name:	Coed Darcy Phase 2	Samples received on:	27/11/2023
Your job number:	12662	Samples instructed on/ Analysis started on:	27/11/2023
Your order number:		Analysis completed by:	04/12/2023
Report Issue Number:	1	Report issued on:	04/12/2023
Samples Analysed:	6 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 23-71355
Project / Site name: Coed Darcy Phase 2

Lab Sample Number				2891339	2891340	2891341	2891342	2891343
Sample Reference				Plot 5 T/S	Plot 12 T/S	Plot 15 T/S	Plot 21 T/S	Plot 24 T/S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.30	0.30	0.20
Date Sampled				22/11/2023	22/11/2024	22/11/2025	22/11/2026	22/11/2027
Time Taken				1135	1155	1225	1255	1315
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	17	22	21	19	18
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

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	MLO	MLO	MLO	MLO	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	7.5	7.4	7.6	7.1
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	540	480	360	400	340
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.0079	0.0073	0.0413	0.0193
Sulphide	mg/kg	1	MCERTS	2	< 1.0	< 1.0	16	19
Total Sulphur	mg/kg	50	MCERTS	280	280	260	290	340
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	1.7	1.7	1.5	1.5
Loss on Ignition @ 450oC	%	0.2	MCERTS	4	4.6	3.9	5.4	4.1

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	0.47	0.61
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	0.12	< 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	0.08	< 0.05	0.2	0.07	0.08
Pyrene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.14	0.05	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.1	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.1	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.08	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.07	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06	< 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	ISO 17025	< 0.80	< 0.80	0.87	< 0.80	0.81
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Analytical Report Number: 23-71355
Project / Site name: Coed Darcy Phase 2

Lab Sample Number	2891339	2891340	2891341	2891342	2891343
Sample Reference	Plot 5 T/S	Plot 12 T/S	Plot 15 T/S	Plot 21 T/S	Plot 24 T/S
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.20	0.30	0.30	0.20
Date Sampled	22/11/2023	22/11/2024	22/11/2025	22/11/2026	22/11/2027
Time Taken	1135	1155	1225	1255	1315
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	18	18	17	18
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	0.72	0.73	0.68	0.78
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.8	0.7	0.7	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	1	1	1	1.1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	23	23	22	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	19	19	18	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	35	34	34	43
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	19	19	19	19	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.8	< 1.0	< 1.0	2	1.7
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	33	34	32	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	90	91	90	170

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH Total C5 - C44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-71355
Project / Site name: Coed Darcy Phase 2

Lab Sample Number				2891344
Sample Reference				Plot 28 T/S
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				22/11/2028
Time Taken				1345
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	17
Total mass of sample received	kg	0.001	NONE	0.4

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	510
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0126
Sulphide	mg/kg	1	MCERTS	< 1.0
Total Sulphur	mg/kg	50	MCERTS	270
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6
Loss on Ignition @ 450oC	%	0.2	MCERTS	4.4

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.35
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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Analytical Report Number: 23-71355
Project / Site name: Coed Darcy Phase 2

Lab Sample Number				2891344
Sample Reference				Plot 28 T/S
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				22/11/2028
Time Taken				1345
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.8
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	92

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aliphatic > EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10
TPH-CWG - Aliphatic (EC5 - EC44) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10
TPH-CWG - Aromatic > EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10
TPH-CWG - Aromatic (EC5 - EC44) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

TPH Total C5 - C44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-71355
Project / Site name: Coed Darcy Phase 2

* 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 *
2891339	Plot 5 T/S	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2891340	Plot 12 T/S	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2891341	Plot 15 T/S	None Supplied	0.3	Brown clay and loam with gravel and vegetation.
2891342	Plot 21 T/S	None Supplied	0.3	Brown clay and loam with gravel and vegetation.
2891343	Plot 24 T/S	None Supplied	0.2	Brown clay and loam with gravel and vegetation.
2891344	Plot 28 T/S	None Supplied	0.2	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 23-71355
Project / Site name: Coed Darcy Phase 2

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 dispersion 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
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. Refer to CoA for analyte specific accreditation.	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
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 23-71355
Project / Site name: Coed Darcy Phase 2

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
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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Analytical Report Number : 25-004032

Project / Site name:	Coed Darcy Phase 2	Samples received on:	30/01/2025
Your job number:	12662	Samples instructed on/ Analysis started on:	30/01/2025
Your order number:		Analysis completed by:	04/02/2025
Report Issue Number:	1	Report issued on:	04/02/2025
Samples Analysed:	2 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
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: 25-004032
Project / Site name: Coed Darcy Phase 2

Lab Sample Number				437205	437206
Sample Reference				Plot 32 T/S	Plot 32 S/S
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.10	0.40
Date Sampled				28/01/2025	28/01/2025
Time Taken				1135	1155
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	24	37
Total mass of sample received	kg	0.1	NONE	0.3	0.3

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	DOC	DOC

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.6	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	470	800
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	180	150
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0908	0.0726
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	90.8	72.6
Sulphide	mg/kg	1	MCERTS	8.6	1.1
Total Sulphur	mg/kg	50	MCERTS	650	760
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.2	5.6
Loss on Ignition @ 450°C	%	0.2	MCERTS	8.1	10

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	0.64	0.17
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	0.06
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	0.06	0.1
Phenanthrene	mg/kg	0.05	MCERTS	0.13	0.39
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.11
Fluoranthene	mg/kg	0.05	MCERTS	0.1	0.56
Pyrene	mg/kg	0.05	MCERTS	0.08	0.42
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.06	0.31
Chrysene	mg/kg	0.05	MCERTS	0.09	0.35
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.1	0.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.14
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.31
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.17
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.16

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.31	3.72
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Analytical Report Number: 25-004032
Project / Site name: Coed Darcy Phase 2

Lab Sample Number				437205	437206
Sample Reference				Plot 32 T/S	Plot 32 S/S
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.10	0.40
Date Sampled				28/01/2025	28/01/2025
Time Taken				1135	1155
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.7	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.49	0.55
Boron (water soluble)	mg/kg	0.2	MCERTS	2.4	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	13	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	75

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	< 1.0	1.9
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	4.8
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	17
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	17

TPH Total >EC5 - EC44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10	17
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 25-004032
Project / Site name: Coed Darcy Phase 2

* 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 *
437205	Plot 32 T/S	None Supplied	0.1	Brown loam and sand with gravel and vegetation
437206	Plot 32 S/S	None Supplied	0.4	Brown loam and clay with vegetation

Analytical Report Number : 25-004032

Project / Site name: Coed Darcy Phase 2

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/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS



Analytical Report Number : 25-004032
Project / Site name: Coed Darcy Phase 2

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
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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 OF IN-SITU CHEMICAL RESULTS – SOILS

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 12662
Site: Coed Darcy
Soil Type: Capping Soils
Soil Organic Matter: 1%

No.	Location	Depth (m)	Arsenic (mg/kg)	Boron (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (Elemental) (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
1	Plot 5 T/S	0.30	18	0.4	0.73	1.1	23	< 1.8	19	36	< 0.3	19	1.8	33	100
2	Plot 12 T/S	0.20	18	0.8	0.72	1	23	< 1.8	19	35	< 0.3	19	< 1.0	33	90
3	Plot 15 T/S	0.30	18	0.7	0.73	1	23	< 1.8	19	34	< 0.3	19	< 1.0	34	91
4	Plot 21 T/S	0.30	17	0.7	0.68	1	22	< 1.8	18	34	< 0.3	19	2	32	90
5	Plot 24 T/S	0.20	18	0.3	0.78	1.1	23	< 1.8	21	43	< 0.3	19	1.7	34	170
6	Plot 28 T/S	0.20	17	0.7	0.72	1	23	< 1.8	19	34	< 0.3	19	1.8	33	92
7	Plot 32 T/S	N/A	6.7	2.4	0.49	0.2	14	< 1.8	19	24	< 0.3	23	< 1.0	13	82
8	Plot 32 S/S	N/A	17	1	0.55	< 0.2	20	< 1.8	14	33	< 0.3	17	< 1.0	29	75
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.: 12662
 Site: Coed Darcy
 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	Asbestos Quantification (%)
1	Plot 5 T/S	0.30	< 1.0	4.00	17.00	< 1.0	7.80	0.02	540.00	2.00	280.00	1.60	2.75	Not-detected	#N/A
2	Plot 12 T/S	0.20	< 1.0	4.60	22.00	< 1.0	7.50	0.01	480.00	< 1.0	280.00	1.70	2.92	Not-detected	#N/A
3	Plot 15 T/S	0.30	< 1.0	3.90	21.00	< 1.0	7.40	0.01	360.00	< 1.0	260.00	1.70	2.92	Not-detected	#N/A
4	Plot 21 T/S	0.30	< 1.0	5.40	19.00	< 1.0	7.60	0.04	400.00	16.00	290.00	1.50	2.58	Not-detected	#N/A
5	Plot 24 T/S	0.20	< 1.0	4.10	18.00	< 1.0	7.10	0.02	340.00	19.00	340.00	1.50	2.58	Not-detected	#N/A
6	Plot 28 T/S	0.20	< 1.0	4.40	17.00	< 1.0	7.90	0.01	510.00	< 1.0	270.00	1.60	2.75	Not-detected	#N/A
7	Plot 32 T/S	N/A	< 1.0	8.10	24.00	< 1.0	8.60	0.09	470.00	8.60	650.00	4.20	7.22	Not-detected	#N/A
8	Plot 32 S/S	N/A	< 1.0	10.00	37.00	< 1.0	7.20	0.07	800.00	1.10	760.00	5.60	9.63	Not-detected	#N/A
Screening Criteria Value			34.0	-	-	120.0	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	ICM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 12662
 Site: Coed Darcy
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
1	Plot 5 T/S	0.30	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	0.06
2	Plot 12 T/S	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
3	Plot 15 T/S	0.30	< 0.05	< 0.05	< 0.05	0.1	0.06	0.08	< 0.05	0.07	0.1	< 0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	0.12
4	Plot 21 T/S	0.30	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.47	< 0.05	0.05
5	Plot 24 T/S	0.20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	0.61	< 0.05	0.07
6	Plot 28 T/S	0.20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.35	< 0.05	< 0.05
7	Plot 32 T/S	N/A	< 0.05	0.05	< 0.05	0.06	< 0.05	0.1	< 0.05	< 0.05	0.09	< 0.05	0.1	0.06	< 0.05	0.64	0.13	0.08
8	Plot 32 S/S	N/A	0.06	0.06	0.11	0.31	0.31	0.4	0.16	0.14	0.35	< 0.05	0.56	0.1	0.17	0.17	0.39	0.42
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.: 12662
 Site: Coed Darcy
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Aliphatic C5-C6 (mg/kg)	Aliphatic C6-C8 (mg/kg)	Aliphatic C8-C10 (mg/kg)	Aliphatic C10- C12 EPH (mg/kg)	Aliphatic C12- C16 EPH (mg/kg)	Aliphatic C16-C35 EPH (mg/kg)	Aliphatic C35- C44 EPH (mg/kg)	Aromatic C5-C7 (mg/kg)	Aromatic C7-C8 (mg/kg)	Aromatic C8-C10 (mg/kg)	Aromatic C10- C12 EPH (mg/kg)	Aromatic C12- C16 EPH (mg/kg)	Aromatic C16- C21 EPH (mg/kg)	Aromatic C21- C35 EPH (mg/kg)	Aromatic C35- C40 EPH (mg/kg)
1	Plot 5 T/S	0.30	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
2	Plot 12 T/S	0.20	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
3	Plot 15 T/S	0.30	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
4	Plot 21 T/S	0.30	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
5	Plot 24 T/S	0.20	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
6	Plot 28 T/S	0.20	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 10	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
7	Plot 32 T/S	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 8.0	< 8.4	< 0.010	< 0.010	< 0.020	< 1.0	< 2.0	< 10	< 10	< 10
8	Plot 32 S/S	N/A	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 8.0	< 8.4	< 0.010	< 0.010	< 0.020	1.9	4.8	< 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 5 Capping Validation Depth Check



Plot 5 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

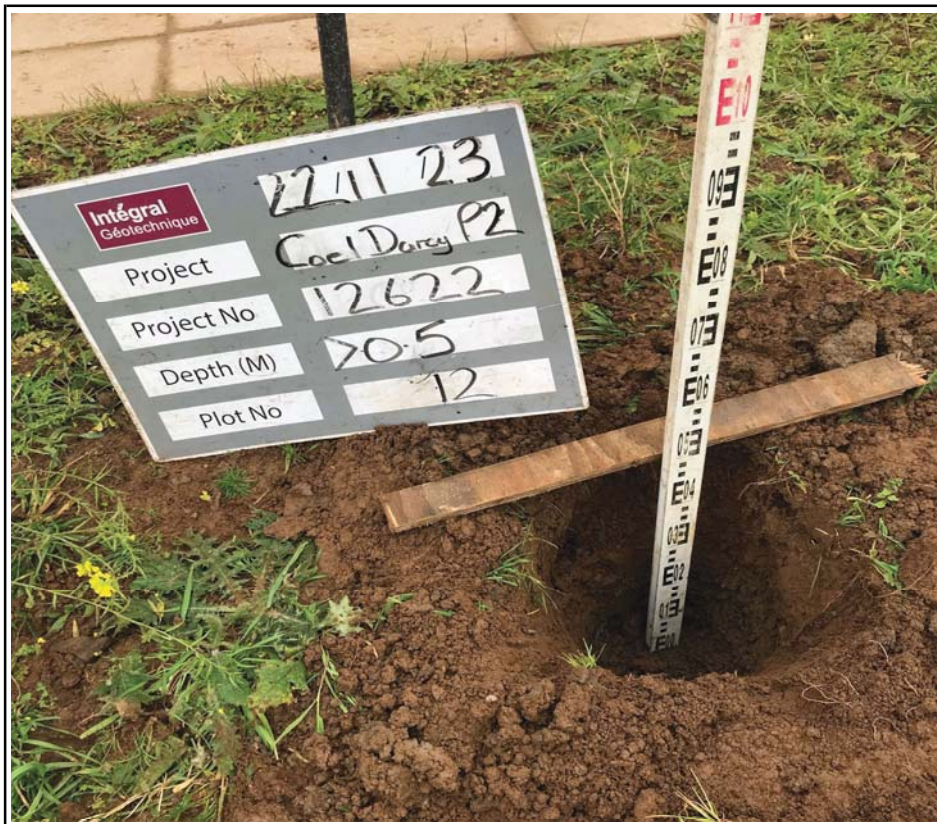
Garden Capping Soil Validation Job No: 12662

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Plot 12 Capping Validation Depth Check



Plot 12 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

Garden Capping Soil Validation Job No: 12662

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Plot 15 Capping Validation Depth Check



Plot 15 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

Garden Capping Soil Validation Job No: 12662

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Plot 21 Capping Validation Depth Check



Plot 21 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

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Plot 24 Capping Validation Depth Check



Plot 24 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

Garden Capping Soil Validation Job No: 12662

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Plot 28 Capping Validation Depth Check



Plot 28 Excavation Trial Pit

Phase 2 Heritage Gate, Coed Darcy

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Plots 1 to 6 Infilled Rear Gardens



Plots 25 to 30 Infilled Rear Gardens

Phase 2 Heritage Gate, Coed Darcy

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Plot 31 Infilled Rear Garden Area



Plot 31 Infilled Front Garden Area

Phase 2 Heritage Gate, Coed Darcy

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Plot 32 Capping Depth Check



Plot 32 Trial Pit Excavation

Phase 2 Heritage Gate, Coed Darcy

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Plot 32 Trial Pit Depth Verification



Plot 32 Infilled Front Garden Area

Phase 2 Heritage Gate, Coed Darcy

Garden Capping Soil Validation Job No: 12662

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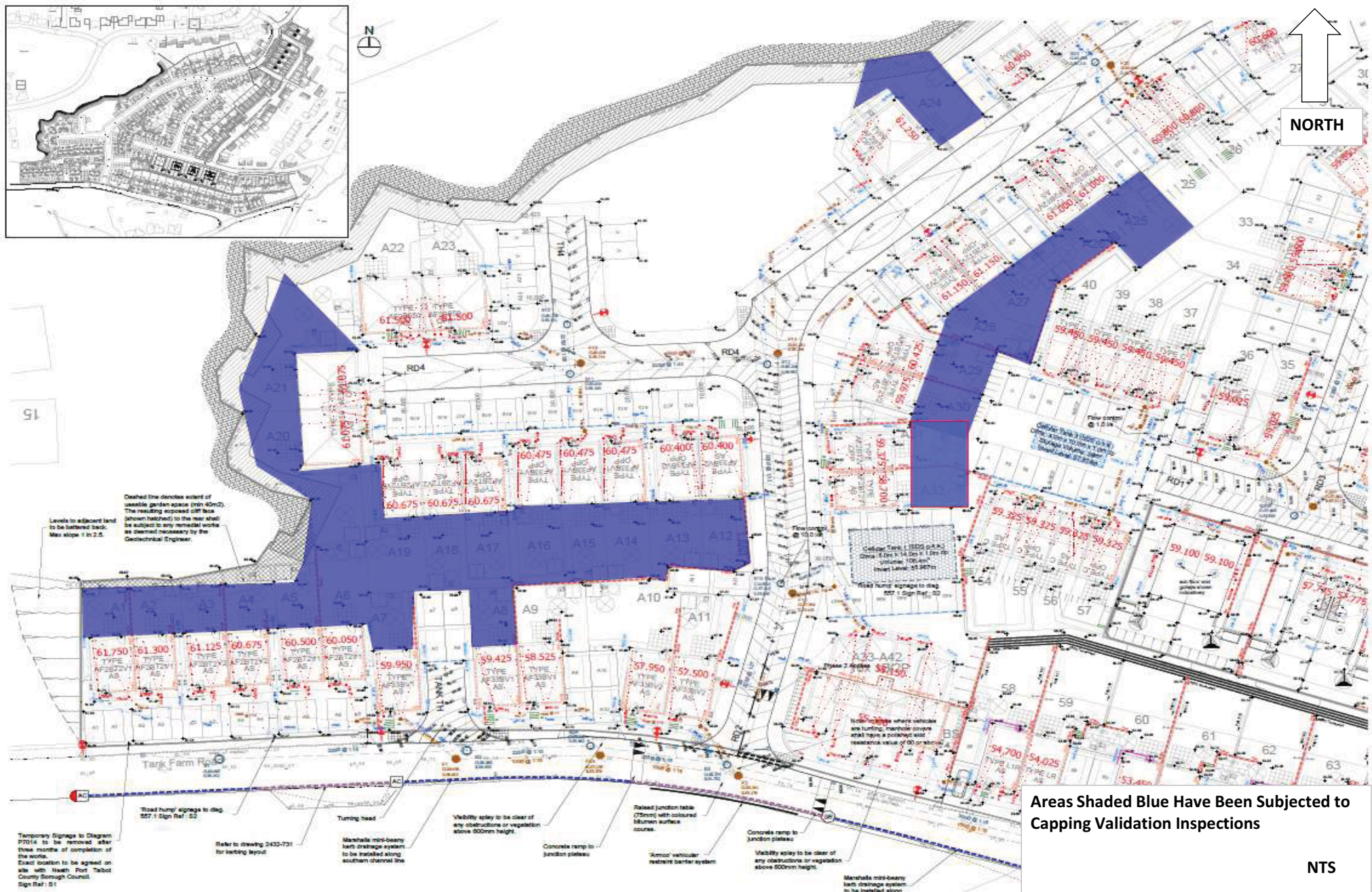


FIGURE 2 - Plots Subjected to Capping Validation

12662 - Phase 2 Heritage Gate, Coed Darcy

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