Derwentside Environmental Testing Services

Certificate of Analysis

Certificate Number 15-38290

25-Jun-15

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference	15-38290
Client Reference	PSL15/2904
Contract Title	DOWKER STREET, MILNSBRIDGE
Description	3 Soil samples.
Date Received	22-Jun-15
Date Started	22-Jun-15
Date Completed	25-Jun-15
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Rob Brown
Business Manager

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 15-38290
Client Ref PSL15/2904
Contract Title DOWKER STREET, MILNSBRIDGE

			Lab No	829068	829069	829070
			Sample ID	TP5	TP6	TP9
			Depth	0.60	0.90	2.00
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	n/s	n/s	n/s
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Inorganics						
pH	DETSC 2008#			4.7	6.5	7.3
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	170	420	26

Key: # -MCERTS (accreditation only implied if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 15-38290
Client Ref PSL15/2904
Contract DOWKER STREET, MILNSBRIDGE

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
829068	TP5 0.60 SOIL		PT 500ml	Sample date not supplied	
829069	TP6 0.90 SOIL		PT 500ml	Sample date not supplied	
829070	TP9 2.00 SOIL		PT 500ml	Sample date not supplied	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

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

Final Report

Report No.:	23-16276-1
Initial Date of Issue:	23-May-2023
Re-Issue Details:	
Client	ARP Geotechnical Ltd
Client Address:	5/6 Northwest Business Park Servia Hill Leeds Yorkshire LS6 2QH
Contact(s):	Owain Gwilym
Project	WSD/01 Dowker Street, Milnsbridge

Quotation No.:	Q23-30074	**Date Received:**	17-May-2023
Order No.:	WSD/01	**Date Instructed:**	17-May-2023
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	23-May-2023
Date Approved:	23-May-2023		

Approved By:

Details:	Stuart Henderson, Technical Manager

Results - Soil

Project: WSD/01 Dowker Street, Milnsbridge

Client: ARP Geotechnical Ltd			**Chemtest Job No.:**		23-16276	23-16276	23-16276	23-16276	23-16276
Quotation No.: Q23-30074			**Chemtest Sample ID.:**		1640402	1640403	1640404	1640405	1640406
			Sample Location:		WS1 (HP)	WS2	WS3	WS4	WS5
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.20	0.50	0.50	0.50
			Bottom Depth (m):		0.25	0.30	0.60	0.70	0.60
			Date Sampled:		15-May-2023	16-May-2023	17-May-2023	18-May-2023	19-May-2023
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
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	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	15	20	17	20	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0	8.7	8.6	8.3	8.5	8.6
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	0.015	0.11	0.24
Sulphate (Total)	U	2430	mg/kg	100	4600	4900	1200	3100	2700
Arsenic	M	2455	mg/kg	0.5	6.3	10	16	16	16
Cadmium	M	2455	mg/kg	0.10	0.15	< 0.10	0.18	0.21	0.21
Chromium	M	2455	mg/kg	0.5	14	34	21	17	17
Copper	M	2455	mg/kg	0.50	37	76	45	54	57
Mercury	M	2455	mg/kg	0.05	0.29	0.17	0.43	0.26	0.22
Nickel	M	2455	mg/kg	0.50	13	12	15	20	22
Lead	M	2455	mg/kg	0.50	150	69	340	130	140
Selenium	M	2455	mg/kg	0.25	0.34	1.3	0.75	0.54	0.63
Zinc	M	2455	mg/kg	0.50	410	43	49	75	79
Chromium (Trivalent)	N	2490	mg/kg	1.0	14	34	21	17	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	4.5	12	8.5	14	9.6
Total TPH >C6-C40	M	2670	mg/kg	10	640	94	170	460	150
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.52	0.77	0.85
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.4	1.9	1.0
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.55	0.82	0.75
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.7	2.1	0.62
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	6.4	8.3	4.2
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	3.0	4.8	1.9
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	1.7	8.8	14	7.8
Pyrene	M	2700	mg/kg	0.10	< 0.10	2.1	9.8	15	8.3
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	2.4	6.0	8.7	6.9
Chrysene	M	2700	mg/kg	0.10	< 0.10	1.9	5.5	8.3	8.0
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	5.3	8.9	9.3
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.9	3.3	3.8
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	4.5	7.6	7.3
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	2.4	4.4	6.2
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.86	2.1	2.0

Results - Soil

Project: WSD/01 Dowker Street, Milnsbridge

Client: ARP Geotechnical Ltd			**Chemtest Job No.:**		23-16276	23-16276	23-16276	23-16276	23-16276
Quotation No.: Q23-30074			**Chemtest Sample ID.:**		1640402	1640403	1640404	1640405	1640406
			Sample Location:		WS1 (HP)	WS2	WS3	WS4	WS5
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.20	0.50	0.50	0.50
			Bottom Depth (m):		0.25	0.30	0.60	0.70	0.60
			Date Sampled:		15-May-2023	16-May-2023	17-May-2023	18-May-2023	19-May-2023
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	2.3	3.3	5.0
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	8.1	61	94	74
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
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
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	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.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
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; Dibenz[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 TrimethylphenolsNote: 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

APPENDIX G

CONTAMINATION REMEDIATION STATEMENT

CONTAMINATION REMEDIATION STATEMENT

FOR

DOWKER STREET

MILSNBRIDGE

ON BEHALF OF

WESTSHIELD LIMITED

ARP GEOTECHNICAL LTD

CHARTERED CONSULTING ENGINEERS

Northwest House 5/6 Northwest Business Park Servia Hill Leeds LS6 2QH

0113 245 8498 leeds@arpgeotechnical.co.uk www.arpconsultingengineers.co.uk

CLIENT: WESTSHIELD LIMITED

JOB NUMBER: WSD/01

PROJECT: DOWKER STREET, MILNSBRIDGE

REPORT TYPE: CONTAMINATION REMEDIATION STATEMENT

REPORT REFERENCE: WSD/01rem1

	Name	**Signature**
Prepared By:	O Gwilym BSC MSc FGS	
Authorised By:	J Race BSc CGeol FGS EurGeol	

ISSUE	**DATE**	**STATUS**
1	29TH June 2023	V1 FINAL

1.0 Introduction

1.1 This document has been prepared to provide information for the Client and other interested parties, such as the regulatory authorities, outlining how contamination encountered on the site will be managed to ensure that the site is environmentally suitable for the intended residential use. The document should be agreed, prior to implementation, with the relevant regulatory authorities, usually the local planning authority and building control provider.

2.0 The Site

2.1 The ARP Geotechnical Ltd Stage 2 Geo-environmental Report, dated June 2023, under reference WSD/01r1, makes an assessment of contamination, along with other aspects.

2.2 The conceptual site model is for a residential development, including private gardens.

2.3 At the time of the ARP intrusive investigation in 2015, the factory buildings had been demolished and the resulting demolition rubble used to raise levels across parts of the site. Elsewhere, concrete slabs were present at ground level. A derelict house was located in the northeast of the site.

2.4 At the time of the supplementary investigation in 2023, the northern end of the site was under dense vegetation cover (large bushes and small trees), with only a small clearing in the northeastern corner. Much of the northern end of the site was impenetrable due to the density of the vegetation. A blanket of whole bricks was visible at the surface within the area of dense vegetation. A small concrete slab was present within the clearing in the northeast, likely to be associated with the house observed on site in 2015. The southern end of the site comprised surfacing of either concrete slabs, or demolition rubble with patches of vegetation. Evidence of fly tipping, including nappies, mattresses and general rubbish, was present across much of the site. A narrow stockpile, approximately 1.5m high, of whole bricks was present towards the north centre of the site, marking the boundary with the densely vegetated area of the site further north.

2.5 A culvert, aligned north - south, crosses the western flank of the site, and discharges to the River Colne, approximately 30m to the south. Ground levels across the site slope gradually downwards from north to south, with a total elevation difference of approximately 4.5m. The southeastern corner of the site is approximately 1m lower than the concrete slab to the south.

2.6 The geological maps show the site to be underlain by alluvium, which is in turn underlain by solid strata of the Millstone Grit Group. These are shown to comprise Huddersfield White Rock (sandstone) on most of the site, and the Midgley Grit on the northeast of the site. There are no faults shown to affect the site.

2.7 The Landmark Envirocheck Report indicates the Bedrock Aquifer Designation to be "Secondary A". The overlying superficial alluvium is also designated a "Secondary A" Aquifer. There is one active groundwater abstraction within 1km of the site, at 158m to the east. The abstraction is for general use in the textile and leather industry.

2.8 The nearest watercourse downslope is the River Colne, located approximately 30m to the south, and flowing from west to east. There are three surface water abstractions within 1km down gradient of the site, at approximately between 59m and 642m to the east. All three abstractions are for general use within the textile and leather industry.

2.9 There are no closed or currently licensed landfills within 250m of the site. No radon protective measures are stated to be necessary for new dwellings or extensions on the site, and the site is within a "lower probability radon area".

2.10 The review of Ordnance Survey archive maps by Faber Maunsell indicates that by 1896, the site was occupied by "Britannia Mills" and some residential buildings. The Stage 1 report states that "the Longwood Brook runs in a southerly direction in a culvert 35m to the west of the site". A railway, aligned east – west, is located approximately 90m to the north of the site, but at a much higher level. At that time, the site was located in an industrialised setting, with several mills, a dye works, and a gas works located within 200m.

2.11 The site remained in industrial use through the 20th century. By 1961, the site was annotated as a "Works", with a telephone exchange indicated in the southeast. Later, the site was used by Taylor Valves Ltd. According to internet sources, the factory burned down in 2011.

2.12 Ground conditions encountered made ground, locally greater than 3.35m thick, overlying alluvium. The alluvium is typically granular (sand and gravel with variable content of cobbles and boulders); locally an upper layer of clay is present. Sandstone bedrock between around 2.70m and 3.70m.

2.13 The conceptual model has identified risks from the made ground materials from contamination by arsenic, copper, and lead, at maximum concentrations of 91mg/kg, 8,200mg/kg and 990mg/kg respectively, and also PAH, including benzo(a)pyrene recorded at 15mg/kg in two samples. In addition, chrysotile asbestos fibres were detected in demolition rubble and also in the ash and clinker made ground. Leachability is negligible.

3.0 Remediation Strategy

3.1 Where any garden or landscape areas overlie the existing made ground, a minimum 0.6m thickness of uncontaminated soils (topsoil and subsoil) should be provided. Provision of a 0.1m thick hard break layer of coarse crushed stone or rock or robust geotextile/geogrid is also recommended, below the base of the 0.6m clean cover soils. The proposed profile is provided on the table below. In areas of hardstanding or building footprints, the cover blanket and hard break layer (and geotextile/geogrid) are not required.

Thickness (m)	Description
Minimum 0.1	Topsoil
Minimum 0.5	Subsoil
Minimum 0.1	Hard break layer or robust geotextile/geogrid

3.2 It is understood that, in order to protect the culvert that underlies the western flank of the site, it is proposed to install a protective barrier in back gardens in this area. Any existing made ground below this barrier will be effectively encapsulated and, therefore, the hard break layer could be omitted, and only 0.6m thickness of clean cover blanket placed, provided none of the original made ground is above the barrier. However, this will need to be agreed with the regulators.

3.3 Any soils used in the cover blanket, whether imported or site-won, will need to be verified as suitable by inspection and testing, in accordance with guidance supplied in the document produced by the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG): "Guidance on the Verification Requirements for Cover Systems". The measures described below will be required to ensure compliance with the document.

3.4 If removal of made ground from site is required to achieve the cover soil thickness, the waste receiver may require Waste Acceptance Criteria Testing (WAC) and asbestos quantification.

4.0 Validation

4.1 Following placement of the cover soils in residential garden areas and public open spaces, it will be necessary to confirm the required 0.6m cover of uncontaminated soil has been placed, by excavating trial pits to 0.6m depth across these areas on the basis of one pit per every two plots and a maximum 25m spacing of pits on public open space. The trial pits will be photographed, to include a reference scale, and the photographs included within any report to enable the location on site to be identified.

4.2 If the contaminated made ground is removed from site to form an uncontaminated area or site, then the surface will need to be inspected by an Engineer, and sampled and tested on a maximum 25m spacing to confirm its uncontaminated status. The area will be photographed and all the details included within a Validation Letter Report.

4.3 If any contaminated material is disposed off-site, the disposal/transfer documents should be retained for inclusion in the Validation Report.

5.0 Laboratory Testing

5.1 For any imported subsoil and topsoil used, or any site-won uncontaminated topsoil and subsoil to be reused on the site, the source will need to be confirmed, and the material tested for the attached suite of contaminants, to comply with the maximum screening values listed. The frequency of testing is given on the table below. Any samples already tested in the site investigation carried out to date can be considered part of the overall total required.

Material Type	**Number of Samples**
Topsoil or subsoil from greenfield / manufactured source	Minimum 3No. or 1 per 250m^3 (whichever is greater)
Topsoil or subsoil from brownfield / screened source.	Minimum 6No. or 1 per 100m^3 (whichever is greater)

5.2 When a potential source of soil is identified, the Client may provide ARP Geotechnical Ltd with supplier certificates, and we will comment on the apparent acceptability of the material. If no certificates are available, the Client may wish us to sample the material at source prior to import, or sample an example load delivered to site, to minimise potential for any problems later. The test results will be available approximately one week, or slightly more, after the site visit.

5.3 Provided the results of the above are acceptable, there are two options for validation:-

A. Import a stockpile of material to site sufficient to complete the required areas, and invite ARP to take sufficient further samples of the stockpile for testing to fully approve it as a source. The stockpile should be isolated from any other materials on the site (becoming a "Quarantined Stockpile"), fenced off to avoid any cross contamination, and must not be added to without further testing. The test results will be available approximately one week, or slightly more, after the site visit.

OR:

B. Import and place the material as and when required, and invite ARP to sample the material when in place, during the inspection pits noted in Section 4.1. The samples will issued to the laboratory for contamination testing to confirm acceptability. The test results will be available approximately one week, or slightly more, after the site visit. Our letter report will be available a day or two later. Therefore, Clients should allow for receiving the final letter report two weeks after the site visit.

5.4 Any cross contamination of materials should be avoided, and further testing carried out where any cross contamination is suspected to have occurred.

5.5 The results of all the laboratory analysis, excavation logs, plans, photographs, and import documents will form part of the Remediation Validation Report for the group of plots.

6.0 Timescales for Remediation and Validation

6.1 It is anticipated that the clean soil cover blankets will be placed progressively around a group of plots as their construction is nearing completion (usually following removal of scaffolding) and not sooner. This is to ensure that the soils will not be subjected to trafficking or cross contamination by construction activities once placed.

6.2 As soon as the soils are in place around a group of plots, validation can take place via inspection pits, as per Section 4.1 above.

6.3 Soils in any landscaped areas can be placed as soon as those areas are safe from any further construction trafficking.

6.4 If imported soils are to be used on the site then these can be imported at any time, for future use as quarantined stockpiles, provided there is sufficient space for storage.

6.5 The very latest a Validation Report for a group of plots should be issued is a week before the programmed Council of Mortgage Lenders "Finalling", and preferably before. The Planning Condition relating to contamination remediation validation cannot normally be discharged for a site until all the validation reports have been issued to the local authority, on completion of the development, or a combined Validation Report for the whole site is issued.

7.0 Unexpected Contamination

7.1 Any unexpected contamination uncovered during the works shall be inspected, sampled and analysed in laboratory for the suite of determinands appended to this Remediation Statement, and compared to the maximum concentration levels listed on the enclosure. Works on the affected materials shall cease until the appraisal is complete and, if necessary, a revised Remediation Statement is to be prepared and approved by the Planning Authority before work is recommenced.

8.0 Protection of Workers and the Public During Development Works

8.1 Damping down of the contaminated made ground must be implemented during dry periods, and timely placement of the contaminated material below barriers.

8.2 Washing facilities and a clean mess room from which work boots and overalls are excluded should be provided.

8.3 Site fencing will be provided to exclude access to members of the public, and contaminated material will be contained within the site boundary, and placed below barriers as soon as possible.

8.4 Workers will be educated to use adequate hygiene and PPE.

8.5 Movement of contamination off-site on vehicle wheels shall be minimised by cleaning of vehicle wheels and/or use of road sweeper, as required.

ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITH HOME-GROWN PRODUCE

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
Arsenic	37			37		
Cadmium	11			22		
Chromium (trivalent)	910					
Chromium (hexavalent)	6			21		
Copper	2400					
Lead				200		
Inorganic Mercury	40					
Nickel	180					
Selenium	250					
Zinc	3700					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	**2.5% SOM**	**6% SOM**	**1% SOM**	**2.5% SOM**	**6% SOM**
Naphthalene	2.3	5.6	13			
Acenaphthylene	170	420	920			
Acenaphthene	210	510	1,100			
Fluorene	170	400	860			
Phenanthrene	95	220	440			
Anthracene	2,400	5,400	11,000			
Fluoranthene	280	560	890			
Pyrene	620	1,200	2,000			
Benzo(a)anthracene	7.2	11	13			
Chrysene	15	22	27			
Benzo(b)fluoranthene	2.6	3.3	3.7			
Benzo(k)fluoranthene	77	93	100			
Benzo(a)pyrene	2.2	2.7	3			5
Indeno(1,2,3-cd)pyrene	27	36	41			
Dibenzo(a,h)anthracene	0.24	0.28	0.30			
Benzo(g,h,I)perylene	320	340	350			
Phenols	120	200	380			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	760			
C12 to C16 Aliphatic	1100	2,400	4,300			
C16 to C35 Aliphatic	65,000	92,000	110,000			
C35 TO C44 Aliphatic	65,000	92,000	110,000			
C5 to C7 Aromatic (Benzene)	70	140	300			
C7 to C8 Aromatic (Toluene)	130	290	660			
C8 to C10 Aromatic	34	83	190			
C10 to C12 Aromatic	74	180	380			
C12 to C16 Aromatic	140	330	660			
C16 to C21 Aromatic	260	540	930			
C21 TO C35 Aromatic	1100	1,500	1,700			
C35 TO C44 Aromatic	1100	1,500	1,700			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.