

**BW Architecture**  
104 Great Lime Road  
Westmoor  
Newcastle Upon Tyne  
NE12 7DQ

6<sup>th</sup> April 2016

Dear Sirs,

**VERIFICATION REPORT, BELESFIELD GARDENS PLOTS 3 & 4 (30919)**

1. This document is to serve as a Verification Report for the development at Belesfield Gardens, Jarrow, to ensure that the development is fit for purpose and would not be classified as Contaminated Land under Part IIA (EPA, 1990). The development comprises five detached houses with associated hardstanding and landscaping / private gardens.
2. The letter follows our Report on Phase 2 Site Investigation, issued in April 2014, an Updated Risk Assessment dated 28<sup>th</sup> October 2015, a technical note entitled Excavated/Capping Soils dated 23<sup>rd</sup> November 2015 and our Detailed Remediation Strategy, dated 17<sup>th</sup> December 2015.

**Contamination Identified**

3. Slightly elevated levels of heavy metals and polycyclic aromatic hydrocarbons (PAH) in the near surface soil (the Made Ground layer) in a number of locations were identified, for which a 300mm clean cover layer was recommended in order to negate the risks to end users.
4. In addition, some material had been moved from part of the site where elevated concentrations had been observed (Plots 1 & 1A) to the locations of the rear gardens of Plots 3 & 4 in order to build up levels. Additional samples were recommended to be taken from this emplaced material to confirm that the recommended capping layer would still be sufficient in these gardens.
5. The proposed validation sampling locations are set out in the appended Figure 1. Recommendations in terms of the requirements for the imported material were set out within the Detailed Remediation Strategy.

### **Site Verification**

6. IFA attended site on the 8<sup>th</sup> January 2016 in order to obtain representative samples from the material moved to the gardens of Plots 3 & 4 (S1 to S5) which were dispatched to the laboratory for heavy metal and PAH testing. The results are appended in Test Report 16-55196 and when compared to the screening levels as set out in the Detailed Remediation Strategy (C4SL<sup>1</sup>/S4UL<sup>2</sup>), a slight arsenic exceedance was observed in S5. This does not impact on the proposed capping thickness and no changes are required.
7. Two additional samples (S6 & S7) were submitted for testing from two small stockpiles of material which had not been emplaced. It was confirmed that these would not be used within garden areas and no further consideration to these results is necessary.
8. IFA were provided with laboratory certificates for the proposed imported topsoil for Plots 3 & 4 in advance of its transportation to site and confirmed the material to be fit for purpose. The certificates are appended under reference 58219.
9. IFA attended site on the 24<sup>th</sup> March 2016 once the imported soils were emplaced to the rear of Plots 3 & 4, to confirm the thickness of emplacement and obtain independent samples (V1 & V2) for validation testing. The results of the testing are provided in Test Report 16-62089., together with photographic confirmation of the depth of emplacement (>300mm in both locations), as shown in Figure 2.

### **Verification**

10. IFA can confirm that the material emplaced within the gardens of Plots 3 & 4 is both sufficient and fit for purpose and as such, deem both properties fit for purpose.
11. This report will be updated in due course with data for the remainder of the development. There are no changes or deviations to the recommended remediation required based on the information to date.

This Verification Report must be approved by the Regulators and is written with specific regard to Plots 3 & 4 only.

We trust this is satisfactory to your requirements at this time, but should you have any queries please do not hesitate to contact us.

Yours Sincerely  
For Ian Farmer Associates (1998) Limited



A.C Owen  
Principal Environmental Geologist  
MEdSci(Hons.) MRes FGS

#### References

1. DEFRA. SP1010: Development of Category 4 Screening Levels for the Assessment of Land Affected by Contamination, published March 2014
2. Nathanail, C.P., McCaffery, C., Gillett A.G., Ogden R.C. and Nathanail J.F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Publication Number S4UL3208





#### Appendices

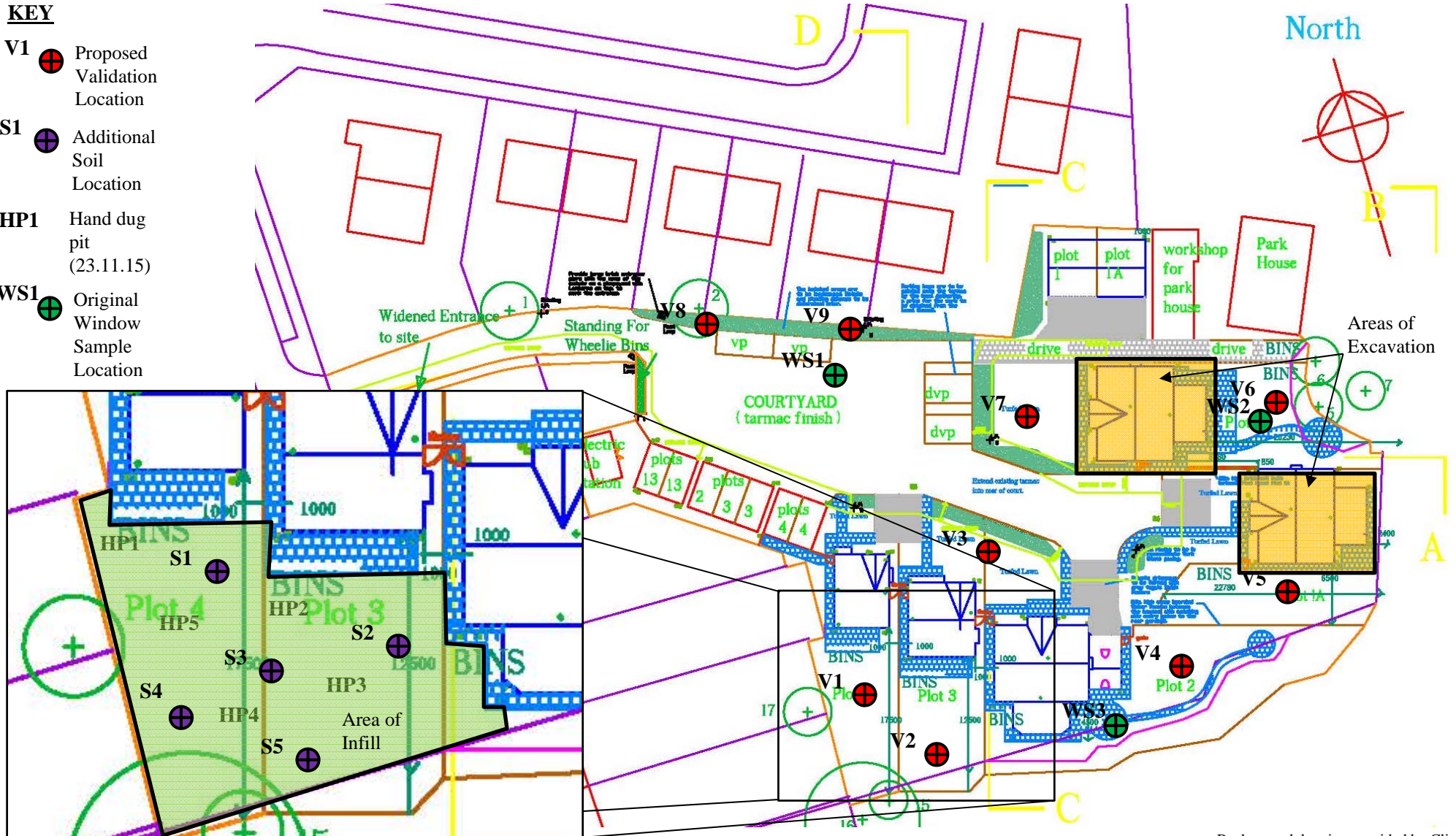
Figure 1	–	Site Plan (from Detailed Remediation Strategy)
Figure 2	–	Photographic records of clean cover
Test Report 16-55196	–	Results of Laboratory Testing (Material moved from Plots 1 & 1A)
Test Certificate 58219	–	Source data for proposed topsoil material
Test Report 16-62089	–	Results of Laboratory Testing (Verification for Plots 3 & 4)

30919

# Belesfield Gardens, Jarrow

## KEY

- V1  Proposed Validation Location
- S1  Additional Soil Location
- HP1  Hand dug pit (23.11.15)
- WS1  Original Window Sample Location



Background drawing provided by Client

## Site Plan

Scale: NTS

Figure 1



**30919**  
**Belesfield Gardens**



Photograph A: Location V1. Soil well in excess of 300mm



Photograph B: Location V2. Soil well in excess of 300mm

**Verification Photographs**

Scale: NTS

**Figure 2**





## Certificate of Analysis

Certificate Number 16-55196

15-Jan-16

*Client* Ian Farmer Associates  
Unit 1 Fairfield Court  
Seven Stars Industrial Estate  
Wheler Road  
Coventry  
West Midlands  
CV3 4LJ

*Our Reference* 16-55196

*Client Reference* 30919

*Order No* (not supplied)

*Contract Title* Belesfield Gardens

*Description* 7 Soil samples.

*Date Received* 12-Jan-16

*Date Started* 12-Jan-16

*Date Completed* 15-Jan-16

*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*

A handwritten signature in black ink, appearing to read 'Rob Brown'.

Rob Brown  
Business Manager



## Summary of Chemical Analysis

### Matrix Descriptions

*Our Ref* 16-55196

*Client Ref* 30919

*Contract Title* Belesfield Gardens

Sample ID	Other ID	Depth	Lab No	Completed	Matrix Description
Sample 1	1	0.4	925601	15/01/2016	Dark brown, gravelly, sandy CLAY
Sample 2	1	0.35	925602	15/01/2016	Dark brown, gravelly, sandy CLAY (Possible made ground - brick)
Sample 3	1	0.45	925603	15/01/2016	Dark brown, gravelly, sandy CLAY
Sample 4	1	0.3	925604	15/01/2016	Dark brown, gravelly, sandy CLAY including odd rootlets
Sample 5	1	0.2	925605	15/01/2016	Brown, gravelly, sandy CLAY
Sample 6	1		925606	15/01/2016	Brown, gravelly, sandy CLAY
Sample 7	1		925607	15/01/2016	Brown, gravelly, sandy CLAY

# Summary of Chemical Analysis

## Soil Samples

Our Ref 16-55196

Client Ref 30919

Contract Title Belesfield Gardens

Lab No	925601	925602	925603	925604
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4
Depth	0.40	0.35	0.45	0.30
Other ID	1	1	1	1
Sample Type	ES	ES	ES	ES
Sampling Date	08/01/16	08/01/16	08/01/16	08/01/16
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
<b>Metals</b>							
Arsenic	DETSC 2301#	0.2	mg/kg	12	9.8	11	14
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.4	0.5	0.7
Chromium	DETSC 2301#	0.15	mg/kg	20	16	16	21
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	38	32	47	55
Lead	DETSC 2301#	0.3	mg/kg	100	120	93	120
Mercury	DETSC 2325#	0.05	mg/kg	0.20	0.17	0.13	0.15
Nickel	DETSC 2301#	1	mg/kg	20	15	18	22
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	100	89	120	170
<b>PAHs</b>							
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	0.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.1	1.4
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.0	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.5	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.5	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.2	1.6
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.6	2.2
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.7	1.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.3	1.8
PAH	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	9.2	8.6



# Summary of Chemical Analysis

## Soil Samples

Our Ref 16-55196

Client Ref 30919

Contract Title Belesfield Gardens

<b>Lab No</b>	925605	925606	925607
<b>Sample ID</b>	Sample 5	Sample 6	Sample 7
<b>Depth</b>	0.20		
<b>Other ID</b>	1	1	1
<b>Sample Type</b>	ES	ES	ES
<b>Sampling Date</b>	08/01/16	08/01/16	08/01/16
<b>Sampling Time</b>	n/s	n/s	n/s

Test	Method	LOD	Units			
<b>Metals</b>						
Arsenic	DETSC 2301#	0.2	mg/kg	56	11	15
Cadmium	DETSC 2301#	0.1	mg/kg	0.7	0.2	0.4
Chromium	DETSC 2301#	0.15	mg/kg	23	39	22
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	64	22	38
Lead	DETSC 2301#	0.3	mg/kg	120	32	55
Mercury	DETSC 2325#	0.05	mg/kg	0.29	0.08	0.11
Nickel	DETSC 2301#	1	mg/kg	28	9.8	29
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	130	33	94
<b>PAHs</b>						
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.8
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	0.7	1.9
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	1.4	5.4
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	1.4	2.7
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	2.3	3.4
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.5
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	0.8	1.4
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	1.3	3.4
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4
Fluoranthene	DETSC 3301	0.1	mg/kg	0.5	2.5	6.8
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.3
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.8
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	2.1	6.5
Pyrene	DETSC 3301	0.1	mg/kg	0.4	2.1	5.0
PAH	DETSC 3301	1.6	mg/kg	< 1.6	15	43

## Information in Support of the Analytical Results

Our Ref 16-55196  
Client Ref 30919  
Contract Belesfield Gardens

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
925601	Sample 1 0.40 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925602	Sample 2 0.35 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925603	Sample 3 0.45 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925604	Sample 4 0.30 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925605	Sample 5 0.20 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925606	Sample 6 SOIL	08/01/16	GJ 250ml, GV, PT 1L		
925607	Sample 7 SOIL	08/01/16	GJ 250ml, GV, PT 1L		

Key: G-Glass P-Plastic J-Jar V-Vial 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

## Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

## Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.



## ANALYTICAL TEST REPORT

**Contract no:** 58219(2)A  
**Contract name:** Tunstall – Angram Drive, Sunderland  
**Client reference:** -  
**Clients name:** OPAL Testing Services  
**Clients address:** Marsden Quarry  
Whitburn, Sunderland  
Tyne & Wear  
SR6 7NG

**Samples received:** 19 January 2016  
**Analysis started:** 19 January 2016  
**Analysis completed** 18 February 2016  
**Report issued:** 25 February 2016

**Notes:** Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

**Key:** U UKAS accredited test  
M MCERTS & UKAS accredited test  
\$ Test carried out by an approved subcontractor  
I/S Insufficient sample to carry out test  
N/S Sample not suitable for testing

**Approved by:**

\_\_\_\_\_  
Dave Bowerbank  
Customer Services Co-ordinator

# Chemtech Environmental Limited

## SAMPLE INFORMATION

### MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.  
Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
58219-1	1594/5787	-	Sandy Loam with Roots	-	-	22.6
58219-2	1594/5788	-	Sandy Loamy Clay with Roots	-	-	22.5

# Chemtech Environmental Limited

## SOILS

Lab number			58219-1	58219-2
Sample id			1594/5787	1594/5788
Depth (m)			Top of Big Stockpile	Top of Small Stockpile
Date sampled			-	-
			18/01/2016	18/01/2016
Test	Method	Units		
Arsenic (total)	CE127 <sup>M</sup>	mg/kg As	11	11
Boron (water soluble)	CE063 <sup>M</sup>	mg/kg B	1.1	1.0
Cadmium (total)	CE127 <sup>M</sup>	mg/kg Cd	0.3	0.3
Chromium (total)	CE127 <sup>M</sup>	mg/kg Cr	67	73
Copper (total)	CE127 <sup>M</sup>	mg/kg Cu	44	42
Lead (total)	CE127 <sup>M</sup>	mg/kg Pb	82	82
Mercury (total)	CE127 <sup>M</sup>	mg/kg Hg	<0.5	<0.5
Nickel (total)	CE127 <sup>M</sup>	mg/kg Ni	21	20
Selenium (total)	CE127 <sup>M</sup>	mg/kg Se	0.9	1.0
Zinc (total)	CE127 <sup>M</sup>	mg/kg Zn	112	107
Sulphate (2:1 water soluble)	CE061 <sup>M</sup>	mg/l SO <sub>4</sub>	29	39
Sulphur (free)	CE034 <sup>M</sup>	mg/kg S	11	14
Sulphide	CE079	mg/kg S <sup>2-</sup>	<10	<10
Cyanide (total)	CE077 <sup>M</sup>	mg/kg CN	<1	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5	<0.5
<b>PAH</b>				
Naphthalene	CE087 <sup>M</sup>	mg/kg	0.12	0.03
Acenaphthylene	CE087 <sup>M</sup>	mg/kg	<0.01	<0.01
Acenaphthene	CE087 <sup>M</sup>	mg/kg	0.02	0.01
Fluorene	CE087 <sup>U</sup>	mg/kg	0.03	0.01
Phenanthrene	CE087 <sup>M</sup>	mg/kg	0.31	0.13
Anthracene	CE087 <sup>U</sup>	mg/kg	0.06	<0.02
Fluoranthene	CE087 <sup>M</sup>	mg/kg	0.56	0.16
Pyrene	CE087 <sup>M</sup>	mg/kg	0.46	0.14
Benzo(a)anthracene	CE087 <sup>U</sup>	mg/kg	0.25	0.07
Chrysene	CE087 <sup>M</sup>	mg/kg	0.26	0.08
Benzo(b)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.33	0.09
Benzo(k)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.13	0.04
Benzo(a)pyrene	CE087 <sup>U</sup>	mg/kg	0.24	0.07
Indeno(123cd)pyrene	CE087 <sup>M</sup>	mg/kg	0.17	0.05
Dibenz(ah)anthracene	CE087 <sup>M</sup>	mg/kg	0.05	<0.02
Benzo(ghi)perylene	CE087 <sup>M</sup>	mg/kg	0.16	0.05
PAH (total of USEPA 16)	CE087	mg/kg	3.15	0.93
<b>BTEX &amp; TPH</b>				
Benzene	CE066	mg/kg	<0.01	<0.01
Toluene	CE066	mg/kg	<0.01	<0.01
Ethylbenzene	CE066	mg/kg	<0.01	<0.01
m & p-Xylene	CE066	mg/kg	<0.01	<0.01
o-Xylene	CE066	mg/kg	<0.01	<0.01

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## SOILS

<b>Lab number</b>			58219-1	58219-2
<b>Sample id</b>			1594/5787	1594/5788
<b>Depth (m)</b>			Top of Big Stockpile	Top of Small Stockpile
<b>Date sampled</b>			-	-
			18/01/2016	18/01/2016
<b>Test</b>	<b>Method</b>	<b>Units</b>		
TPH Aromatic EC5-EC7	CE068	mg/kg	<0.01	<0.01
TPH Aromatic EC7-EC8	CE068	mg/kg	<0.01	<0.01
TPH Aromatic EC8-EC10	CE068	mg/kg	<0.01	<0.01
TPH Aromatic EC10-EC12	CE068	mg/kg	<1	<1
TPH Aromatic EC12-EC16	CE068	mg/kg	<1	<1
TPH Aromatic EC16-EC21	CE068	mg/kg	1	<1
TPH Aromatic EC21-EC35	CE068	mg/kg	1	<1
TPH Aromatic EC35-EC44	CE068	mg/kg	<1	<1
TPH Aliphatic EC5-EC6	CE068	mg/kg	<0.1	<0.1
TPH Aliphatic EC6-EC8	CE068	mg/kg	<0.1	<0.1
TPH Aliphatic EC8-EC10	CE068	mg/kg	<0.1	<0.1
TPH Aliphatic EC10-EC12	CE068	mg/kg	4	3
TPH Aliphatic EC12-EC16	CE068	mg/kg	7	6
TPH Aliphatic EC16-EC35	CE068	mg/kg	68	70
TPH Aliphatic EC35-EC44	CE068	mg/kg	9	8
<b>Subcontracted analysis</b>				
Asbestos (qualitative)	\$	-	NAD	NAD



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## METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry	M	0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO <sub>4</sub>
CE034	Sulphur (free)	Solvent extraction, HPLC	Dry	M	10	mg/kg S
CE079	Sulphide	Extraction, Continuous Flow Colorimetry	Wet		10	mg/kg S <sup>2-</sup>
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	Wet	M	1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	Wet		0.5	mg/kg PhOH
CE087	Naphthalene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	Wet	U	0.01	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	Wet		0.27	mg/kg
CE066	Benzene	Headspace GC-MS	Wet		0.01	mg/kg
CE066	Toluene	Headspace GC-MS	Wet		0.01	mg/kg
CE066	Ethylbenzene	Headspace GC-MS	Wet		0.01	mg/kg
CE066	m & p-Xylene	Headspace GC-MS	Wet		0.02	mg/kg
CE066	o-Xylene	Headspace GC-MS	Wet		0.01	mg/kg
CE068	TPH Aliphatic/Aromatic fractions (C5-C10)	Headspace GC-FID	Wet		0.01-0.1	mg/kg
CE068	TPH Aliphatic/Aromatic fractions (C10-C44)	Solvent extraction, GC-FID	Wet		1	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

# Chemtech Environmental Limited

## DEVIATING SAMPLE INFORMATION

### Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

### Key

- N No (not deviating sample)
- Y Yes (deviating sample)
- A Sampling date not provided
- B Sampling time not provided (waters only)
- C Sample exceeded holding time(s)
- D Sample not received in appropriate containers
- E Headspace present in sample container
- F Sample not chemically fixed (where appropriate)
- G Sample not cooled
- H Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
58219-1	1594/5787	-	N	
58219-2	1594/5788	-	N	

DECLARATION OF COMPLIANCE  
(BS3882:2015)



Lab ref	58219(1)-1	Date received	19 January 2016
Soil source	Tunstall - Angram Drive (Top of Big Stockpile)	Analysis started	19 January 2016
OS Grid reference	Not supplied	Analysis completed	26 January 2016
Date sampled	18 January 2016	Report issued	27 January 2016

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	21	Y	Y	Y	Y	Y	Y
Silt content	% w/w	18	Y	Y	Y	Y	Y	Y
Sand content	% w/w	61	Y	Y	Y	Y	Y	Y
Soil texture	class	Sandy Clay Loam						
Stone content								
>2mm	% w/w	6	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y
Mass loss on ignition								
Clay 5-20%	% w/w	-	-	-	-	-	-	-
Clay 20-35%	% w/w	7.35	Y	Y	Y	Y	Y	Y
pH	pH units	7.0	Y	N	N	Y	N	N
Carbonate (calcareous only)	% w/w	3.3			Y			Y
Nitrogen (total)	% w/w N	0.27	Y	Y	Y			
Carbon:Nitrogen ratio	-	15.2	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	106	Y	Y	Y	N	N	N
Potassium (extractable)	mg/l K	165	Y	Y	Y	Y	Y	Y
Magnesium (extractable)	mg/l Mg	182	Y	Y	Y	Y	Y	Y
Electrical conductivity	µS/cm	165	Y					
Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	40	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	33	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	102	Y	Y	Y	Y	Y	Y
VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	0	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	0	Y	Y	Y	Y	Y	Y

DECLARATION

I certify that this sample has been analysed in accordance with BS3882:2015.

Signature

Name	Karan Campbell	John Campbell	Dave Bowerbank
Position	Director	Director	Customer Services Co-ordinator

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB  
Tel 01207 528578 Fax 01207 529977 Email info@chemtech-env.co.uk  
Vat Reg No. 772 5703 18 Registered in England number 4284013

DECLARATION OF COMPLIANCE  
(BS3882:2015)



Lab ref	58219(1)-2	Date received	19 January 2016
Soil source	Tunstall - Angram Drive (Small Stockpile)	Analysis started	19 January 2016
OS Grid reference	Not supplied	Analysis completed	26 January 2016
Date sampled	18 January 2016	Report issued	27 January 2016

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	24	Y	Y	Y	Y	Y	Y
Silt content	% w/w	15	Y	Y	Y	Y	Y	Y
Sand content	% w/w	61	Y	Y	Y	Y	Y	Y
Soil texture	class	Sandy Clay Loam						
Stone content								
>2mm	% w/w	5	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y
Mass loss on ignition								
Clay 5-20%	% w/w	-	-	-	-	-	-	-
Clay 20-35%	% w/w	6.86	Y	Y	Y	Y	Y	Y
pH	pH units	7.3	Y	N	N	Y	N	N
Carbonate (calcareous only)	% w/w	3.0			Y			Y
Nitrogen (total)	% w/w N	0.24	Y	Y	Y			
Carbon:Nitrogen ratio	-	16.3	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	94	Y	Y	Y	N	N	N
Potassium (extractable)	mg/l K	175	Y	Y	Y	Y	Y	Y
Magnesium (extractable)	mg/l Mg	171	Y	Y	Y	Y	Y	Y
Electrical conductivity	µS/cm	123	Y					
Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	41	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	32	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	102	Y	Y	Y	Y	Y	Y
VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	0	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	0	Y	Y	Y	Y	Y	Y

DECLARATION

I certify that this sample has been analysed in accordance with BS3882:2015.

Signature

Name	Karan Campbell	John Campbell	Dave Bowerbank
Position	Director	Director	Customer Services Co-ordinator

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Vat Reg No. 772 5703 18 Registered in England number 4284013



## Certificate of Analysis

Certificate Number 16-62089

04-Apr-16

*Client* Ian Farmer Associates  
4 Faraday Close  
District 15  
Pattinson North Industrial Est  
Washington  
Tyne & Wear  
NE38 8QJ

*Our Reference* 16-62089

*Client Reference* 30919

*Order No* 91642

*Contract Title* Belesfield Gardens

*Description* 2 Soil samples.

*Date Received* 25-Mar-16

*Date Started* 25-Mar-16

*Date Completed* 04-Apr-16

*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*

A handwritten signature in black ink, appearing to read 'Rob Brown'.

Rob Brown  
Business Manager



## Summary of Chemical Analysis

### Matrix Descriptions

*Our Ref* 16-62089

*Client Ref* 30919

*Contract Title* Belesfield Gardens

Sample ID	Other ID	Depth	Lab No	Completed	Matrix Description
V1	Plot 3	0.3	964046	04/04/2016	Brown, gravelly, sandy CLAY including odd rootlets
V2	Plot 4	0.3	964047	04/04/2016	Brown, gravelly, sandy CLAY including odd rootlets

# Summary of Chemical Analysis

## Soil Samples

Our Ref 16-62089

Client Ref 30919

Contract Title Belesfield Gardens

Lab No	964046	964047
Sample ID	V1	V2
Depth	0.30	0.30
Other ID	Plot 3	Plot 4
Sample Type	SOIL	SOIL
Sampling Date	24/03/16	24/03/16
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>Metals</b>					
Arsenic	DETSC 2301#	0.2	mg/kg	11	10
Beryllium	DETSC 2301#	0.2	mg/kg	0.7	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.3
Chromium	DETSC 2301#	0.15	mg/kg	17	14
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	49	42
Lead	DETSC 2301#	0.3	mg/kg	78	75
Mercury	DETSC 2325#	0.05	mg/kg	0.19	0.17
Nickel	DETSC 2301#	1	mg/kg	17	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	110	97
<b>Inorganics</b>					
pH	DETSC 2008#			7.4	7.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	1.1	0.5
<b>Petroleum Hydrocarbons</b>					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	0.01	0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	0.02
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	0.01	0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01

## Summary of Chemical Analysis

### Soil Samples

Our Ref 16-62089

Client Ref 30919

Contract Title Belesfield Gardens

Lab No	964046	964047
Sample ID	V1	V2
Depth	0.30	0.30
Other ID	Plot 3	Plot 4
Sample Type	SOIL	SOIL
Sampling Date	24/03/16	24/03/16
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>PAHs</b>					
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.1	0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	1.5	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	0.7	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.5	0.5
Fluorene	DETSC 3301	0.1	mg/kg	0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Naphthalene	DETSC 3301	0.1	mg/kg	0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.3	0.3
Pyrene	DETSC 3301	0.1	mg/kg	0.5	0.4
PAH Total	DETSC 3301	1.6	mg/kg	4.1	< 1.6
<b>Phenols</b>					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.3	< 0.3



## Summary of Asbestos Analysis

### Soil Samples

*Our Ref* 16-62089

*Client Ref* 30919

*Contract Title* Belesfield Gardens

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
964046	V1 Plot 3 0.30	SOIL	NAD	none	Andrew Little
964047	V2 Plot 4 0.30	SOIL	NAD	none	Andrew Little

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* - not included in laboratory scope of accreditation.

## Information in Support of the Analytical Results

Our Ref 16-62089  
 Client Ref 30919  
 Contract Belesfield Gardens

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
964046	V1 0.30 SOIL	24/03/16	GJ 250ml, GJ 60ml, PT 1L		
964047	V2 0.30 SOIL	24/03/16	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar 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, inappropriate containers etc 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

## Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

## Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.