



**ENVIRONMENTAL PROTECTION ACT 1990 : Part 2A**

**NOTICE IN RESPECT OF LAND THAT IS CONTAMINATED LAND**

To : Mr T.P. & Mrs K.A. Rose

Chelmsford Borough Council hereby gives you **NOTICE** that it has determined that land at 42 Chichester Drive Chelmsford is contaminated land, as defined by section 78A(2) of the Environmental Protection Act 1990, and that you, as joint owner-occupiers, have been identified as the Appropriate Persons liable for the remediation of that contaminated land.

A Record of Determination (ref: CL- 42CHI- RD01) is attached to this notification. A copy will also be placed on the Public Register held by Chelmsford Borough Council.

The full report, detailing the investigation and the technical assessment of the data on which the above determination is based, is available for inspection at the above address during normal office hours.

In accordance with section 78F of the above Act and Chapter D of Annexe 3 to the statutory guidance, Chelmsford Borough Council (the enforcing authority) has carried out an investigation to find all those who have caused or knowingly permitted the pollutant to be in, on or under the land at 42 Chichester Drive Chelmsford. These are referred to as 'class A' liable persons.

No 'class A' liable persons could be found and you, as current owner-occupiers of the contaminated land in question, have therefore been identified as the appropriate persons liable for the remediation of that contaminated land (referred to as 'class B' liable persons).

Under section 78H of the above legislation, there will now follow a period of three months from the serving of this notification that land is contaminated land, to allow for consultation between the enforcing authority, the appropriate liable persons and any other relevant agencies (such as the Environment Agency) concerning what is to be done by way of remediation.

Dated 26<sup>th</sup> June 2009

.....  
Paul Brookes  
Environmental Services Manager  
Chelmsford Borough Council  
Civic Centre  
Duke Street  
Chelmsford CM1 1JE



**ENVIRONMENTAL PROTECTION ACT 1990, SECTION 78B**

**RECORD OF DETERMINATION THAT LAND IS CONTAMINATED  
LAND**

In accordance with Part 2A of the Environmental Protection Act 1990, Chelmsford Borough Council has determined that the land at :

**42 Chichester Drive, Chelmsford CM1 7RY**

National Grid Reference : 571437, 207857

Is **Contaminated Land**, as defined by section 78A(2) of the Environmental Protection Act 1990, because :

**Chelmsford Borough Council has identified the presence of a contamination source, a pathway and a receptor with respect to the current use of the land. The Council is satisfied that, as a result of this pollution linkage, a significant possibility of significant harm exists, with no suitable and sufficient risk management arrangements in place to prevent such harm.**

A summary of the basis on which this determination has been made is set out in the Schedule to this record.

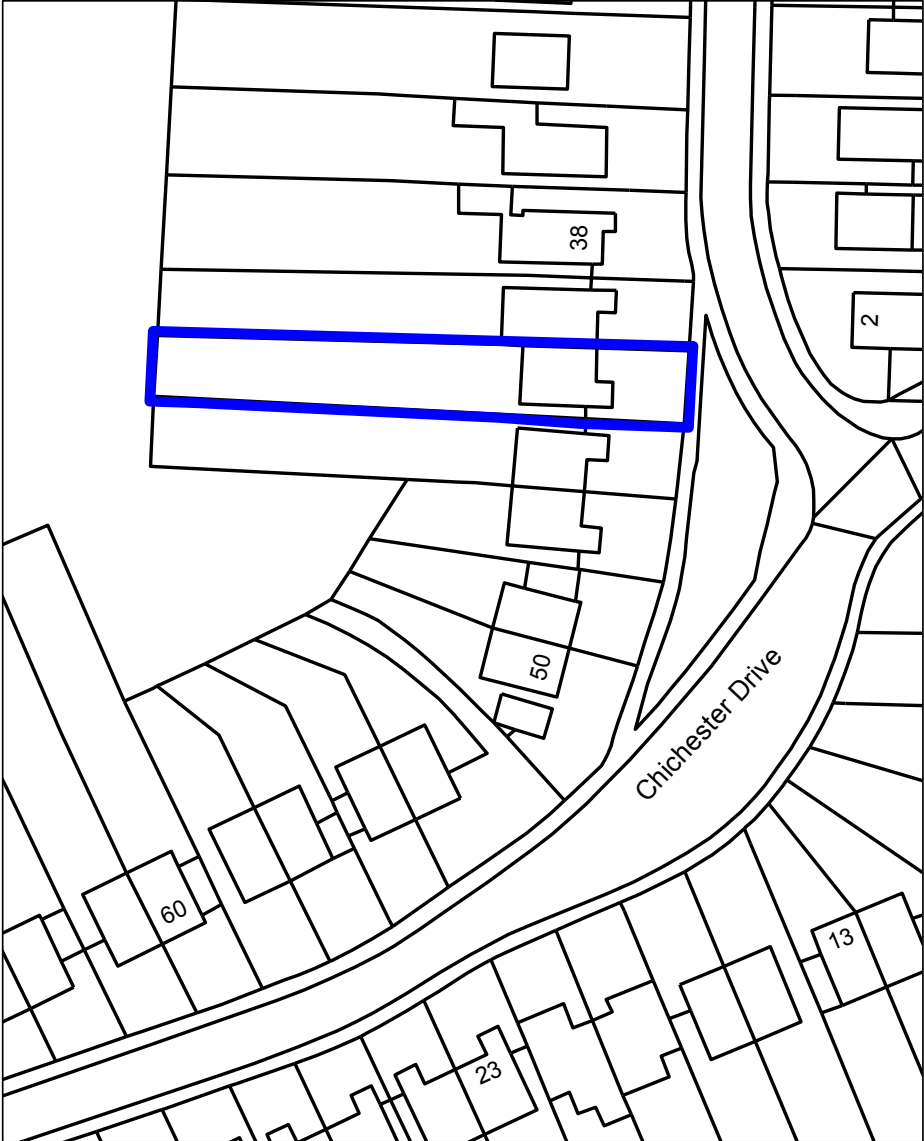
Dated 26<sup>th</sup> June 2009

.....

Paul Brookes  
Environmental Services Manager  
Chelmsford Borough Council  
Civic Centre  
Duke Street  
Chelmsford CM1 1JE

Figure 1.

42 Chichester Drive, Chelmsford CMI 7RY  
(identified on the plan below as land within the blue boundary)



Based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationary Office, Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Chelmsford BC licence No. 100023562 2006.

## SCHEDULE

### I. DESCRIPTION OF THE SIGNIFICANT POLLUTION LINKAGE

**Pollutants :** Cyanide ( complex + free ) in garden soils.

**Pathways :** Direct dermal contact  
 Ingestion – direct ingestion of soil  
 Ingestion - via plant uptake in home grown produce  
 Inhalation of dust  
 Inhalation of vapours

**Receptors :** Human beings ( residents and visitors at the property)

### 2. SUMMARY OF EVIDENCE UPON WHICH THE DETERMINATION HAS BEEN MADE

At **42 Chichester Drive**, a total of 17 soil samples were taken for analysis and the results compared to Site Specific Assessment Criteria (SSAC) derived to aid interpretation of the soil analysis for a range of substances.

For cyanide, an SSAC of 23.6mg/kg was derived for Total Cyanide concentration and the analysis results that exceeded this value are presented in table I below.

Table I. Results that exceed the Site Specific Assessment Criteria of 23.6 mg/kg derived for total cyanide \*

Sample Reference No.	Sample Depth (m)	Total Cyanide Concentration ( mg/kg)
42CHB	0.25 – 0.32	2300
42CHB	0.0 – 0.10	50
42CHC	0.40 – 0.43	910
42CHD	0.45 – 0.50	4500
42CHD	0.50 – 0.55	2700
42CHE	0.45 – 0.50	71
42CHF	0.40 – 0.50	4900
42CHG	0.40 – 0.50	500
42CHG	0.0 – 0.10	35
42CHH	0.40 – 0.45	120

\* From ENVIRON report – see references.

### **3. SUMMARY OF THE RELEVANT ASSESSMENT OF THE EVIDENCE**

#### **3.1 General**

ENVIRON UK Limited (ENVIRON) was commissioned by Chelmsford Borough Council to undertake an environmental site investigation at the Land off Chichester Drive, Chelmsford in support of the Council's obligations in relation to 'contaminated land' under Part 2A of the Environmental Protection Act (1990).

A statistical approach to sampling and data analysis offers an effective way of supporting decisions about the condition of land and how it should be regarded in both technical and legal terms. The design of the sampling strategy, therefore, was based on the conceptual model identified in the Tier 1 Risk Assessment and in accordance with CLR II (2004) to ensure that the sampling is relevant, sufficient, reliable and transparent, within the limitations of the site conditions.

Samples were collected systematically in an unbiased manner with a grid type pattern throughout the gardens of 37 properties in the vicinity of Chichester Drive. Furthermore, the land use is consistent across the site without any significant historical features to differentiate sampling data sets.

#### **3.2 Derivation of Site Specific Assessment Criteria (SSAC)**

In accordance with UK statutory guidance (including Part 2A of the Environmental Protection Act 1990) and based on the principles of risk assessment, ENVIRON has derived site specific assessment criteria (SSAC) for the interpretation of soil chemical analysis. The SSAC are based on the ENVIRON Generic Assessment Criteria (ENVIRON GAC), but have been amended to reflect site conditions (e.g. pH, soil type).

[ Note : Chelmsford Borough Council recognises that the SSAC derived are considered to be threshold based screening concentrations and that concentrations that exceed these values does not necessarily equate to an unacceptable level of risk.]

The ENVIRON GAC, on which the SSAC are based, have been derived from the generic scenarios outlined in the Contaminated Land Exposure Assessment (CLEA) methodology and guidance documents, and include inhalation, ingestion, dermal contact of soil and dust and ingestion of vegetables as pathways in the residential with gardens scenario.

For soil chemical analysis, this has been achieved via the use of two proprietary risk assessment models (CLEA Version 1.04 and the ASTM RBCA2 Tool Kit Version 2 for Chemical Releases) which have been altered, where necessary, to reflect the current UK approach to human health risk assessment as set out in the Contaminated Land Report (CLR) II and the CLEA guidance documents (incorporating Science Reports SC050021/SR2, SR3 and SR4 published in January 2009).

The physiochemical data has been taken from or derived using the methodology detailed in SR7 (November 2008), where feasible. The toxicology data has been taken from the current published Environment Agency toxicology documents. This approach by ENVIRON follows the withdrawal of CLR 7-10 and CLEA UK (beta) – by the Environment Agency and DEFRA – which were the basis of previous Soil Guideline Values (SGV).

The input parameters and assumptions used in the derivation of SSAC are contained within Annex F of the ENVIRON report referenced above.

### **3.3 Application of Statistics**

A statistical approach to sampling and data analysis offers an effective way of supporting decisions about the condition of land and how it should be regarded in both technical and legal terms.

In accordance with UK statutory guidance and based on the principles outlined in 'Guidance on Comparing Soil Contamination Data with a Critical Concentration' by the Chartered Institute of Environmental Health and CL:AIRE (2008), ENVIRON has undertaken statistical analysis of the analytical data. Statistical tests have been achieved via the use of a proprietary statistical analysis tool (ESI Ltd. Contaminated Land Statistical Calculator v1 2008) which has been quality assured to ensure that it meets all the tests from the national guidance. The calculator has been designed to facilitate users to conduct statistical techniques in the context of either the land use planning system or Part 2A of the Environmental Protection Act (1990) when comparing soil contamination data to a critical concentration as a part of a contaminated land risk assessment.

Total Cyanide was detected at concentrations exceeding the SSAC in 11 samples in the garden soils at **42 Chichester Drive**. On the balance of probabilities, the mean concentration will exceed the SSAC at an 84% confidence level.

Part 2A clearly makes Local Authorities responsible for deciding whether or not land is contaminated land ( see part B31 of the statutory guidance) and allows them to exercise their judgement, so long as decisions are based on sound science and reasonable consideration of the site and local circumstances.

**Considering the results of the soil investigations and the statistical treatment of the results, Chelmsford Borough Council believes that the magnitude of cyanide concentrations in the garden soils, when compared to the Site Specific Acceptance Criteria, at 42 Chichester Drive represent a significant possibility of significant harm.**

#### **4. Requirements of the Guidance (Summary)**

Chelmsford Borough Council believes that the requirements of the statutory guidance have been satisfied and, in particular :

- 4.1 A strategic approach to identifying potentially contaminated land, in line with Chelmsford Borough Councils published Contaminated Land Strategy and parts B.9- B.14 of the guidance, has been followed.
- 4.2 Chelmsford Borough Council has carried out a detailed inspection of particular areas of land in accordance with parts B18 – B22 and B24 of the guidance.
- 4.3 Based upon the principles of risk assessment (parts A9 - A21 of the guidance) Chelmsford Borough Council believes that it has identified a significant contaminant-pathway-receptor linkage and that there is a Significant Possibility of Significant Harm (parts A22 – A30 of the guidance).
- 4.4 In making this determination, Chelmsford Borough Council has acted in accordance with parts B37 & B39 of the guidance and has made the determination because the requirements of parts B38(b), B40 & parts B44 – B49 of the guidance have been met.
- 4.5 This Record of Determination follows the requirements of part B52 of the statutory guidance.

## **5. References**

### **5.1 Site Specific**

ENVIRON, Kings Langley, UK :  
*'Part 2A Environmental Investigation – Land off Chichester Drive' Report reference 61-  
C13984, Issue 3 (June 2009)*

### **5.2 Statutory Guidance**

Defra :  
*Circular 01/2006 Environmental Protection Act 1990: Part 2A (September 2006)*

### **5.3 General Guidance**

CL:AIRE :  
*Guidance on Comparing Soil Contamination Data with a Critical Concentration (May 2008)*

Chartered Institute of Environmental Health :  
*Local Authority Guide to the Application of Part 2A of the Environmental Protection Act  
1990 (July 2001)*

Environment Agency:  
*CLEA Model publications (various)*

Chelmsford Borough Council  
*Contaminated Land Strategy*





42 Chichester Drive, Chelmsford, Essex


Client: Chelmsford Borough Council

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Verification Report for  
Rear Garden Remedial Works

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19<sup>th</sup> April 2010  
REV.01


	<b>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</b>	<b>19<sup>th</sup> April 2010 REV.01</b>
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- 1.0 Site Plan**
- 2.0 Remedial Works**
- 3.0 Backfilling Operations**
- 4.0 Fencing Re-instatement**
- 5.0 Conclusion**

## **Appendices**

- Appendix A Photographic Records (pre/during/post)**
- Appendix B Test Results**
- Appendix C Fencing Details**

 <p><b>EDSR</b></p>	<p><b>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</b></p>	<p><b>19<sup>th</sup> April 2010 REV.01</b></p>
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**1.0 Site Plan**

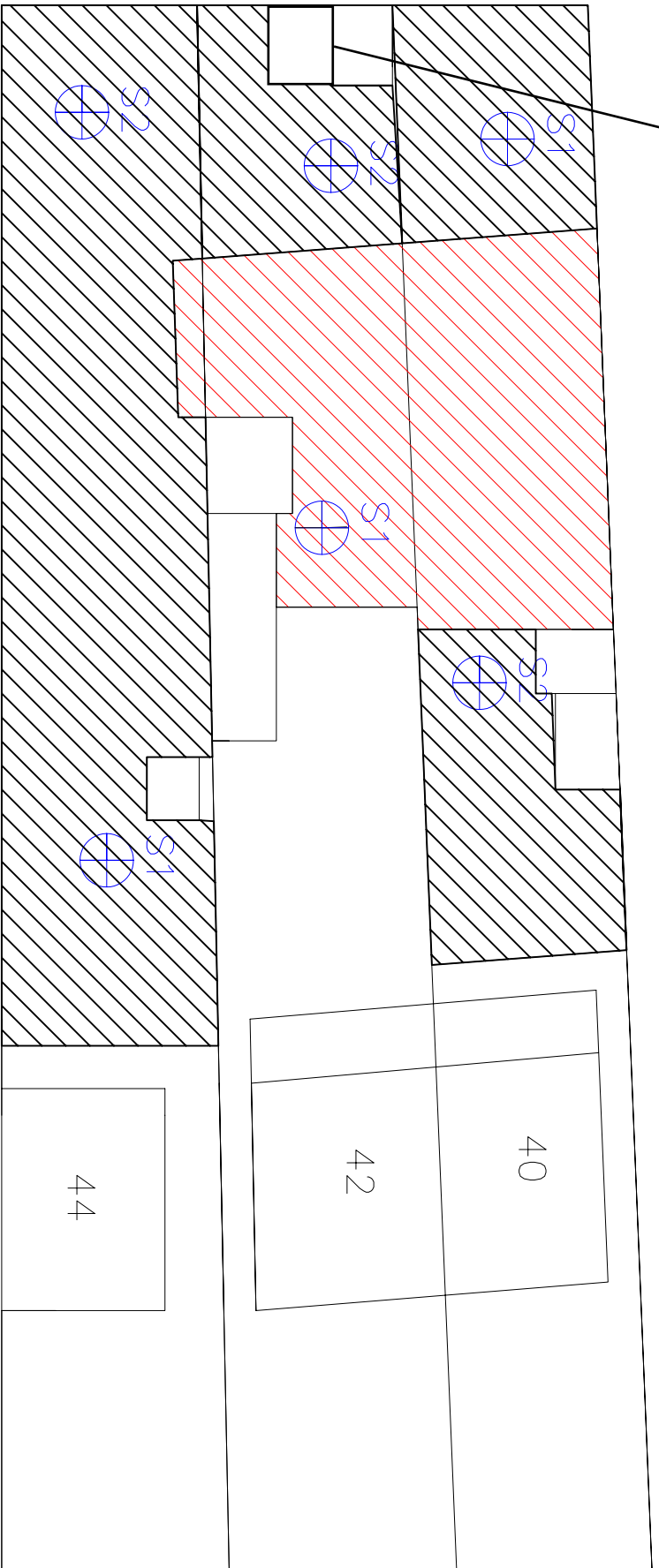
Notes:

 Excavation  
800mm  
below  
existing  
ground  
level

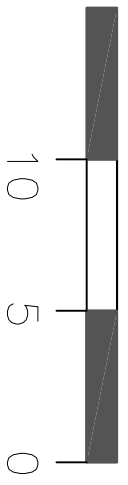
 S1 Validation  
Sample  
Location

 Excavation  
600mm  
below  
existing  
ground  
level

Tree location




Scale  
Bar



Revision	Date
070410	070410
Prepared by: [Name]	
Checked by: [Name]	
Date: 070410	
Title: Site Plan, validation samples and Deeper Excavation Location	
Dwg No:	Scale
RS38	No Scale
Drawn by:	Checked by:
Liam Dalby	Liam Dalby



Malvern Town, Chichester Business Park  
Tel: +44 (0) 1252 800257 Fax: +44 (0) 1252 777282  
Web: www.edsr.com/edsltd/eng/edsltd.htm

	<b>42 Chichester Drive, Chelmsford, Essex</b> <b>Verification Report for Rear Garden</b> <b>Remedial Works</b>	<b>19<sup>th</sup> April 2010</b> <b>REV.01</b>
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## **2.0 Remedial Works**

Prior to any intrusive remedial works, a pre-condition survey was undertaken of the rear garden.

A site clearance procedure was undertaken, removing all existing fencing, shrubbery and any general waste present within the garden to meet the resident's requirements.

Any services present within the garden were protected prior to any excavations taking place.

The garden was excavated to a depth of 600mm below the original level. Due to the clear delineation 'seam' of the impacted material ('blue billy') a further 200mm in depth was excavated in the contaminated area as shown on the Site Plan. R536\_DWG007\_070410 Excavated material from the garden excavation was segregated into different waste streams and disposed of to licensed landfill facilities in accordance with waste management legislation.

The excavation was battered around any structures, such as sheds and walls to prevent disturbance. Batters were generally formed at a slope of 1:1. No excavation was undertaken in the location of the patio area, and it was noted that visually contaminated material was present at the west edge of the patio, at the edge of the remedial excavation, which could not be removed.


The tree located at the bottom end of the garden was requested to be left in-situ by the resident. A trial excavation was undertaken approximately 2 metres from the trees trunk to investigate for any contamination within close proximity. A visual inspection of the side walls was undertaken by the EDSR Site Manager and the material was deemed clean. An agreement on site was made between the EDSR Site Manager and the Chelmsford Borough Councils Representative for no further excavation works around the tree to ensure no damage was made to the trees roots.

## **3.0 Backfilling Operations**

A black woven geotextile material (Aztec 609) layer was installed at the finished excavation formation surface. A break layer was then placed on top of the geotextile to a depth of 150mm, using imported washed crush concrete material of a nominal size of 20mm to 40mm. A representative sample was taken of the imported material and submitted to an accredited laboratory to ensure it complied with the Chelmsford Borough Council Specification (see laboratory report AR25653-10eds in Appendix B). A further layer of black woven geotextile material (Aztec 609) was installed on top of the break layer to prevent downward migration of the topsoil to be placed above.

In the area of garden excavated to a depth of 800mm (additional 200mm), clean sub-soil material was then placed to a thickness of 200mm (see laboratory report AR25653-10eds in Appendix B). The top of the subsoil was 450mm below the finished level of the garden.

The remaining 450mm depth was made up of imported topsoil and turf to reinstate the garden to its' original level. Certified topsoil was imported from British Sugar and backfilled up to underside of turf finish level (see Topsoil\_L20 certification in Appendix B). The certified topsoil was tracked in with an excavator in two layers to reduce future compression defects in the finished surface.

	<b>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</b>	<b>19<sup>th</sup> April 2010 REV.01</b>
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Two in-situ verification soil samples were taken of the imported topsoil within the remediated garden and submitted to an accredited laboratory at the locations marked on the site plan in section 1.0. The laboratory report AR25975-10eds included in Appendix B confirms that the topsoil is clean and complies with the Chelmsford Borough Council Specification.

Turfmaster Direct Turf was imported and laid up to existing boundaries and structures within the garden.


#### **4.0 Fencing Re-instatement**

The detailed requirements for replacement fencing at the boundaries of the garden were agreed with residents prior to commencement. EDSR employed a specialist fencing sub-contractor (C&W Fencing Limited) to supply and erect the new fence lines for the garden. See below R536\_DWG004\_260310 42 Chichester Drive included in Appendix C for details of the fencing reinstatement.

#### **5.0 Conclusion**

The remediation works within the soft landscaped area of the rear garden of No. 42, Chichester Drive has been completed in accordance with Chelmsford Borough Council's Specification ref. CLRS3 issue 1, 25/09/2009.

It should be noted that visually contaminated soil is still present at a depth greater than 600mm below the finished level of the garden (800mm in the area of deeper excavation), The areas immediately adjacent to and underneath the swimming pool base and patio/raised bed area has known contamination, which could not be removed without affecting the integrity of these structures.

 The logo for EDSR (Environmental Data Service Report) features the letters 'EDSR' in a bold, dark blue sans-serif font. To the right of the text is a stylized blue graphic consisting of two curved, overlapping shapes that resemble a partial circle or a bracket.	<p><b>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</b></p>	<p><b>19<sup>th</sup> April 2010 REV.01</b></p>
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**Appendix A Photographic Record**



**Pre**




**During**





Post

 The logo for EDSR (Environmental Data Services Research) features the letters 'EDSR' in a bold, dark blue sans-serif font. To the right of the text is a stylized blue graphic consisting of two curved, overlapping shapes that resemble a partial circle or a bracket.	<p>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</p>	<p>19<sup>th</sup> April 2010 REV.01</p>
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**Appendix B Test Results**



Unit A2  
Windmill Road  
Ponswood Industrial Estate  
St Leonards on Sea  
East Sussex  
TN38 9BY  
Telephone (01424) 718618  
Facsimile (01424) 729911

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## THE ENVIRONMENTAL LABORATORY LTD

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F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Reporting Date: 15/03/10

### ANALYTICAL REPORT No. AR25653

Samples Received By:-	Courier
Samples Received:-	09/03/10
Your Job No:	R536
Site Location:	Chelmsford
No Samples Received:-	2
Date of Sampling	05/03/10

Report Checked By:-

Steve Knight  
Director

Authorised By:-

Cliff P.V. Knight BSc, EurChem, CChem FRSC  
Managing Director

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Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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2683

F.A.O. Liam Disbury  
 EDS Remediation Limited  
 Victory House, Quayside  
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 ME4 4QU

# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY  
 Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR256653

Location: Chelmsford



Your Job No: R536  
 Your Batch No: 1  
 Reporting Date: 15/03/10

### Soils

	Date Sampled	05/03/10	05/03/10
	Sample Reference	R536/SP001/S 1/050310	R536/CC02/S1 /050310
	Our ref	51194	51196
Arsenic**	(mg/kg)	10.2	<5
Cadmium**	(mg/kg)	<0.5	<0.5
Chromium**	(mg/kg)	30	10
Lead**	(mg/kg)	39	6
Mercury**	(mg/kg)	<0.5	<0.5
Nickel**	(mg/kg)	18	6
Copper**	(mg/kg)	23	5
Zinc**	(mg/kg)	64	19
Selenium	(mg/kg)	<0.5	<0.5
pH Value**	(Units)	7.1	12.9
Total Cyanide**	(mg/kg)	2.8	<1
Thiocyanate	(mg/kg)	<2	<2
Total Monohydric Phenols**	(mg/kg)	<1	<1

All results expressed on dry weight basis  
 \*\* - MCERTS accredited test  
 \* = UKAS accredited test

JM



2683



MCERTS  
UKAS TESTING

2683

F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR256653

Location: Chelmsford



Your Job No: R536  
Your Batch No: 1  
Reporting Date: 15/03/10

### Soils

	Date Sampled	05/03/10	05/03/10
	R536/SP001/S	R536/CC02/S1	
	Sample Reference	1/050310	/050310
	Our ref	51194	51196
Naphthalene**	(mg/kg)	<0.5	<0.5
Acenaphthylene**	(mg/kg)	<0.5	<0.5
Acenaphthene**	(mg/kg)	<0.5	<0.5
Fluorene**	(mg/kg)	<0.5	<0.5
Phenanthrene**	(mg/kg)	<0.5	<0.5
Anthracene**	(mg/kg)	<0.5	<0.5
Fluoranthene**	(mg/kg)	<0.5	<0.5
Pyrene**	(mg/kg)	<0.5	<0.5
Benz(a)anthracene**	(mg/kg)	<0.5	<0.5
Chrysene**	(mg/kg)	<0.5	<0.5
Benz(b)fluoranthene**	(mg/kg)	<0.5	<0.5
Benz(k)fluoranthene**	(mg/kg)	<0.5	<0.5
Benzo(a)pyrene**	(mg/kg)	<0.5	<0.5
Indeno(1,2,3-cd)pyrene**	(mg/kg)	<0.5	<0.5
Dibenz(ah)anthracene**	(mg/kg)	<0.5	<0.5
Benzo(ghi)perylene**	(mg/kg)	<0.5	<0.5
Total PAH**	(mg/kg)	<0.5	<0.5

All results expressed on dry weight basis

\*\* - MCERTS accredited test

PH



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F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY  
Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR25653

Location: Chelmsford



Your Job No: R536  
Your Batch No: 1  
Reporting Date: 15/03/10

### TPH CWG - Soil

Date Sampled	05/03/10	05/03/10
Sample Reference	R536/SP001/S 1/050310	R536/0002/S 1/050310
Our ref	51194	51196

#### Aromatic

>EC <sub>5</sub> -EC <sub>7</sub>	(mg/kg)	<0.01	<0.01
>EC <sub>7</sub> -EC <sub>9</sub>	(mg/kg)	<0.01	<0.01
>EC <sub>9</sub> -EC <sub>10</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>10</sub> -EC <sub>12</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>12</sub> -EC <sub>16</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>16</sub> -EC <sub>21</sub>	(mg/kg)	0.7	1.4
>EC <sub>21</sub> -EC <sub>35</sub>	(mg/kg)	4.0	5.0

#### Aliphatic

>EC <sub>5</sub> -EC <sub>6</sub>	(mg/kg)	<0.01	<0.01
>EC <sub>6</sub> -EC <sub>8</sub>	(mg/kg)	<0.01	<0.01
>EC <sub>8</sub> -EC <sub>10</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>10</sub> -EC <sub>12</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>12</sub> -EC <sub>16</sub>	(mg/kg)	<0.1	<0.1
>EC <sub>16</sub> -EC <sub>21</sub>	(mg/kg)	0.4	2.1
>EC <sub>21</sub> -EC <sub>35</sub>	(mg/kg)	0.6	2.5

#### TPH (C<sub>6</sub> - C<sub>40</sub>)

(mg/kg)	6	11
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#### Benzene\*\*

(µg/kg)	<10	<10
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#### Toluene\*\*

(µg/kg)	<10	<10
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#### Ethyl Benzene\*\*

(µg/kg)	<10	<10
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#### Xylenes\*\*

(µg/kg)	<10	<10
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All results expressed on dry weight basis

\*\* - MCERTS accredited test

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# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR25653

Location: Chelmsford



F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Your Job No: R536  
Your Batch No: 1  
Reporting Date: 15/03/10

## Asbestos Identification

Sample ref:	R536/SP001/S
Our ref:	1/050310
#Description of Sample Matrix:	51194
Result	Soil
	No asbestos identified

Sample ref:	R536/CC02/S
Our ref:	1/050310
#Description of Sample Matrix:	51196
Result	Concrete
	No asbestos identified



# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR25653

Location: Chelmsford



F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Your Job No: R536  
Your Batch No: 1  
Reporting Date: 15/03/10

## Asbestos Identification

\* = UKAS accredited

Analytical result only applies to the sample as submitted by the client

Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client





# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR25653

Location: Chelmsford

F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Your Job No: R536  
Your Batch No: 1  
Reporting Date: 15/03/10

## VOC ANALYSIS

Soils	Date Sampled	05/03/10	05/03/10
		R536/SP001/S	R536/CC02/S
	Sample Reference	1/050310	1/050310
	Our ref	51194	51196
Benzene**	(µg/kg)	<10	<10
Toluene**	(µg/kg)	<10	<10
Ethyl Benzene**	(µg/kg)	<10	<10
mpXylene**	(µg/kg)	<10	<10
oXylene**	(µg/kg)	<10	<10
1, 2-Dichloroethene**	(µg/kg)	<10	<10
Carbontetrachloride**	(µg/kg)	<10	<10
1, 1, 1-Trichloroethane**	(µg/kg)	<10	<10
Trichloroethylene**	(µg/kg)	<10	<10
1, 1, 1, 2-Tetrachloroethane**	(µg/kg)	<10	<10
1, 1, 2, 2-Tetrachloroethane**	(µg/kg)	<10	<10
Chlorobenzene**	(µg/kg)	<10	<10
1, 2-Dibromo-3-chloropropane	(µg/kg)	<10	<10
Hexachlorobutadiene	(µg/kg)	<10	<10
Vinyl Chloride	(µg/kg)	<10	<10

\*\* - MCERTS accredited test



Unit A2  
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 Ponswood Industrial Estate  
 St Leonards on Sea  
 East Sussex  
 TN38 9BY  
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**THE ENVIRONMENTAL LABORATORY LTD**

**SAMPLE RECEIPT AND TEST DATES**

Our Analytical Report Number      AR25653  
 Your Job No:                                R536  
 Sample Receipt Date:                 09/03/10  
 Reporting Date:                          15/03/10  
  
 Registered:                                 09/03/10  
 Prepared:                                    10/03/10  
 Analysis complete:                      15/03/10

**TEST METHOD SUMMARY**

PARAMETER	Analysis Undertaken on	Date Tested	Method Number	Technique
Arsenic**	Air dried sample	12/03/10	118	ICPMS
Cadmium**	Air dried sample	12/03/10	118	ICPMS
Chromium**	Air dried sample	12/03/10	118	ICPMS
Lead**	Air dried sample	12/03/10	118	ICPMS
Mercury**	Air dried sample	12/03/10	118	ICPMS
Nickel**	Air dried sample	12/03/10	118	ICPMS
Copper**	Air dried sample	12/03/10	118	ICPMS
Zinc**	Air dried sample	12/03/10	118	ICPMS
Selenium	Air dried sample	12/03/10	118	ICPMS
pH Value**	Air dried sample	12/03/10	113	Probe
Total Cyanide**	As submitted sample	15/03/10	204	Automated Flow Digital Colorimetry
Thiocyanate	As submitted sample	12/03/10	146	Colorimetry
Total Monohydric Phenols**	As submitted sample	13/03/10	121	HPLC
VOC**	As submitted sample	10/03/10	181	GCMS
Speciated PAH**	As submitted sample	11/03/10	133	Gas Chromatography
Carbon Banding (TPH)	As submitted sample	11/03/10	117	Gas chromatography
BTEX**	As submitted sample	10/03/10	154	GCMS
Asbestos*	As submitted sample	15/03/10	179	Microscopy

Asbestos analysis qualitative only

\* = UKAS Accredited test

\*\* - MCERTS Accredited test

Determinands not marked with \* or \*\* are not accredited

MCERTS accreditation covers samples which are predominantly sand, clay, loam or combinations of these three soil types

Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



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## THE ENVIRONMENTAL LABORATORY LTD

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F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Reporting Date: 01/04/10

### ANALYTICAL REPORT No. AR25975

Samples Received By:-	Courier
Samples Received:-	24/03/10
Your Job No:	R536
Site Location:	Chelmsford
No Samples Received:-	6
Date of Sampling	23/03/10

Report Checked By:-

Steve Knight  
Director

Authorised By:-

Cliff P.V. Knight BSc, EurChem, CChem FRSC  
Managing Director

---

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---



F.A.O. Liam Disbury  
 EDS Remediation Limited  
 Victory House, Quayside  
 Chatham Maritime, Chatham  
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Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY  
 Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR25975

Location: Chelmsford



Your Job No: R536  
 Your Batch No: 7  
 Reporting Date: 01/04/10

### Soils

Characteristic	Sandy Silt Loam	23/03/10 R536_G40_S1 _230310	Sandy Silt Loam	23/03/10 R536_G40_S2 _230310	Sandy Silt Loam	23/03/10 R536_G42_S1 _230310	Sandy Silt Loam	23/03/10 R536_G42_S2 _230310	Sandy Silt Loam	23/03/10 R536_G44_S1 _230310	Sandy Silt Loam	23/03/10 R536_G44_S2 _230310
Date Sampled	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10
TP/BH	R536_G40_S1 _230310	R536_G40_S2 _230310	R536_G42_S1 _230310	R536_G42_S2 _230310	R536_G44_S1 _230310	R536_G44_S2 _230310						
Our ref	53097	53098	53099	53100	53101	53102						
Arsenic**	8.8	7.7	8.0	8.1	8.3	7.2						
Cadmium**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
Chromium**	22	19	20	20	20	26						
Lead**	294	28	22	20	21	19						
Mercury**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
Nickel**	13	12	13	14	14	12						
Copper**	14	12	12	12	12	11						
Zinc**	49	41	42	43	44	38						
Selenium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
Total Cyanide**	<1	<1	<1	<1	<1	<1						
Free Cyanide	<1	<1	<1	<1	<1	<1						
Total PCB	<10	<10	<10	<10	<10	<10						
Total Sulphate (% as SO4)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						
Total Monohydric Phenols**	<1	<1	<1	<1	<1	<1						

All results expressed on dry weight basis

\*\* - MCERTS accredited test

\* = UKAS accredited test

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F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
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ME4 4QU

# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Poniswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY  
Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR25975

Location: Chelmsford



Your Job No: R536  
Your Batch No: 7  
Reporting Date: 01/04/10

Characteristic	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam
Date Sampled	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10
TP/BH	R536_G40_S1 _230310	R536_G40_S2 _230310	R536_G42_S1 _230310	R536_G42_S2 _230310	R536_G44_S1 _230310	R536_G44_S2 _230310
Our ref	53097	53098	53099	53100	53101	53102
Naphthalene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(b)fluoranthene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(k)fluoranthene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,23-cd)pyrene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(ah)anthracene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(ghi)perylene**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAH**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

All results expressed on dry weight basis

\*\* - MCERTS accredited test

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F.A.O. Liam Disbury  
 EDS Remediation Limited  
 Victory House, Quayside  
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 ME4 4QU

# THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY  
 Tel: 01424 718618 Fax: 01424 729911

## ANALYTICAL REPORT No. AR25975

Location: Chelmsford



Your Job No: R536  
 Your Batch No: 7  
 Reporting Date: 01/04/10

### IPH CWG - Soil

Characteristic	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam
Date Sampled	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10	23/03/10
TP/BH	R536_G40_S1 _230310	R536_G40_S2 _230310	R536_G42_S1 _230310	R536_G42_S2 _230310	R536_G44_S1 _230310	R536_G44_S2 _230310
Our ref	53097	53098	53099	53100	53101	53102
>EC <sub>5</sub> -EC <sub>7</sub> (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>EC <sub>7</sub> -EC <sub>8</sub> (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>EC <sub>8</sub> -EC <sub>10</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>10</sub> -EC <sub>12</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>12</sub> -EC <sub>16</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>16</sub> -EC <sub>21</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>21</sub> -EC <sub>35</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
<b>Aliphatic</b>						
>EC <sub>5</sub> -EC <sub>6</sub> (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>EC <sub>6</sub> -EC <sub>8</sub> (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>EC <sub>8</sub> -EC <sub>10</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>10</sub> -EC <sub>12</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>12</sub> -EC <sub>16</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>16</sub> -EC <sub>21</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
>EC <sub>21</sub> -EC <sub>35</sub> (mg/kg)	<5	<5	<5	<5	<5	<5
TPH (C <sub>6</sub> - C <sub>40</sub> ) (mg/kg)	<5	<5	<5	<5	<5	<5

All results expressed on dry weight basis  
 \*\* - MCERTS accredited test

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Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR25975

Location: Chelmsford



F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Your Job No: R536  
Your Batch No: 7  
Reporting Date: 01/04/10

## Asbestos Identification

Sample ref: R536\_G40\_S1\_230310  
Our ref: 53097  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified

Sample ref: R536\_G40\_S2\_230310  
Our ref: 53098  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified

Sample ref: R536\_G42\_S1\_230310  
Our ref: 53099  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified

Sample ref: R536\_G42\_S2\_230310  
Our ref: 53100  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified

Sample ref: R536\_G44\_S1\_230310  
Our ref: 53101  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified

Sample ref: R536\_G44\_S2\_230310  
Our ref: 53102  
#Description of Sample Matrix: Sandy Silt Loam  
Result: No asbestos identified



# THE ENVIRONMENTAL LABORATORY LTD

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Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR25975

Location: Chelmsford



F.A.O. Liam Disbury  
EDS Remediation Limited  
Victory House, Quayside  
Chatham Maritime, Chatham  
ME4 4QU

Your Job No: R536  
Your Batch No: 7  
Reporting Date: 01/04/10

## Asbestos Identification

\*= UKAS accredited

Analytical result only applies to the sample as submitted by the client

Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client

\*\*\*





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**THE ENVIRONMENTAL LABORATORY LTD**

**SAMPLE RECEIPT AND TEST DATES**

Our Analytical Report Number      AR25975  
 Your Job No:                                R536  
 Sample Receipt Date:                24/03/10  
 Reporting Date:                         01/04/10  
  
 Registered:                                24/03/10  
 Prepared:                                 25/03/10  
 Analysis complete:                    01/04/10

**TEST METHOD SUMMARY**

PARAMETER	Analysis Undertaken on	Date Tested	Method Number	Technique
Arsenic**	Air dried sample	30/03/10	118	ICPMS
Cadmium**	Air dried sample	30/03/10	118	ICPMS
Chromium**	Air dried sample	30/03/10	118	ICPMS
Lead**	Air dried sample	30/03/10	118	ICPMS
Mercury**	Air dried sample	30/03/10	118	ICPMS
Nickel**	Air dried sample	30/03/10	118	ICPMS
Copper**	Air dried sample	30/03/10	118	ICPMS
Zinc**	Air dried sample	30/03/10	118	ICPMS
Selenium	Air dried sample	30/03/10	118	ICPMS
pH Value**	Air dried sample	31/03/10	113	Probe
Total Cyanide**	As submitted sample	31/03/10	204	Automated Flow Digital Colorimetry
Total Monohydric Phenols**	As submitted sample	01/04/10	121	HPLC
Total PCB**	Air dried sample	30/03/10	167	GCMS
Speciated PAH**	As submitted sample	30/03/10	133	Gas Chromatography
Carbon Banding (TPH)	As submitted sample	26/03/10	117	Gas chromatography
Asbestos*	As submitted sample	01/04/10	179	Microscopy

Asbestos analysis qualitative only

\* = UKAS Accredited test

\*\* - MCERTS Accredited test

Determinands not marked with \* or \*\* are not accredited

MCERTS accreditation covers samples which are predominantly sand, clay, loam or combinations of these three soil types

Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



## Declaration of Compliance BS3882:2007

**Soil source:** British Sugar TOPSOIL

This declaration confirms that the topsoil represented by the attached Topsoil Analysis Report conforms to the requirements of the British Standard for Topsoil (BS3882:2007).

The sample was sampled and tested in accordance with the requirements of BS3882:2007

- Samples are taken for analysis every 8000 tonnes (5000 m3) of product
- Samples are taken from all TOPSOIL products ready for despatch
- *Landscape 20* is sampled after screening
- Analysis certificates are retained for a period of 5 years
  
- Laboratory analysis is undertaken at a **UKAS** and **MCERTS** accredited laboratory
- All laboratory methods are in accordance with BS3882:2007
- All British Sugar TOPSOIL products are produced to a **Quality Management System** approved by Lloyd's Register Quality Assurance to **ISO 9001:2000** standard

Signed

A handwritten signature in black ink, appearing to read "A Spetch".

Andy Spetch  
British Sugar TOPSOIL, National TOPSOIL Manager  
Sugar Way, Peterborough, PE2 9AY  
Telephone 0870 2402314



TIM O'HARE ASSOCIATES  
SOIL & LANDSCAPE CONSULTANCY

Mr Andy Spetch  
British Sugar plc Co-Products  
Oundle Road  
Peterborough  
PE2 9QU

11<sup>th</sup> January 2010

Our Ref: TOHA/09/3541/CS  
Your Ref: as below

Dear Mr Spetch

**RE: Topsoil Analysis Report : Bury St Edmunds – BU/L20/1209**

We have completed the analysis of the LANDSCAPE 20 TOPSOIL sample recently submitted and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the LANDSCAPE 20 TOPSOIL sample for general landscaping purposes.

This report presents the results of analysis for the LANDSCAPE 20 sample submitted to our offices on 17<sup>th</sup> December 2009. This report relates to the sample submitted and should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by 3<sup>rd</sup> parties as a means of verification or validation testing, especially after the topsoil has left the British Sugar factory.

**SAMPLE EXAMINATION**

The soil was described as a dark greyish brown, slightly moist, friable SANDY LOAM with a moderately developed fine to medium granular structure. The sample was stone-free and no deleterious materials, roots or rhizomes of pernicious weeds were observed.

**ANALYTICAL SCHEDULE**

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the absence of potential contaminants. The following parameters were determined:

- particle size analysis and stone content;
- pH value;
- electrical conductivity values (CaSO<sub>4</sub> and water extracts);
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- heavy metals (As, Ba, Br, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn, B);
- soluble sulphate, elemental sulphur, acid volatile sulphide;
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite).

---

Tim O'Hare Associates LLP  
Howbery Park Wallingford Oxfordshire OX10 8BA  
T:01491 822653 F:01491 822644 E:info@toha.co.uk  
www.toha.co.uk

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below. The interpretation considers the use of the LANDSCAPE 20 TOPSOIL for general landscaping purposes and its compliance/non-compliance with our general landscape specification.

In the absence of site-specific criteria, the concentrations of the potential contaminants that affect human health have been assessed against a number of references, including the Soil Guideline Values (SGVs) for residential end-use (Contaminated Land Exposure Assessment (CLEA) (EA/DEFRA: 2009). The SGVs currently consider a limited range of parameters so where a potential contaminant is not covered by the CLEA Model other relevant schedules and guidelines for contamination assessment have been used, for example the CIEH/LQM Generic Assessment Criteria (2<sup>nd</sup> Edition, 2009), as well as professional judgement.

## **RESULTS OF ANALYSIS**

### **Particle Size Analysis and Stone Content**

The sample fell into the *sandy loam* texture class. This particle size distribution is considered suitable for general landscaping purposes, including tree and shrub planting, native transplants, amenity grass turfing and seeding.

The sample was stone-free and, as such, the use of this soil is not restricted for any landscaping purposes.

### **pH and Electrical Conductivity Values**

The sample was alkaline in reaction (pH 8.1) with a pH value that would be suitable for general landscaping purposes, providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting.

The electrical conductivity (salinity) and the calcium sulphate extract (BS3882 requirement) values of the sample were low, indicating that soluble salts were not present at levels that would be considered harmful to plants. The sample has a low Exchangeable Sodium Percentage (ESP), indicating a low sodium risk.

### **Organic Matter and Fertility Status**

The sample was adequately supplied with organic matter and all major plant nutrients.

The C:N ratio was low and suitable for general landscaping purposes.

### **Potential Contaminants**

Of the potential contaminants determined, none was found at levels that would indicate significant contamination.

## **CONCLUSION**

The purpose of the analysis was to determine the suitability of the LANDSCAPE 20 TOPSOIL sample for general landscaping purposes. From the soil examination and laboratory analysis, the sample is described as an alkaline, stone-free sandy loam with an adequate structure. The fertility status was moderately high and no potential contamination was found with respect to the parameters determined.

To conclude, based on our findings, the LANDSCAPE 20 TOPSOIL sample is considered suitable for a broad range of general landscaping applications, including tree and shrub planting and amenity grass, provided its physical condition is maintained.

The topsoil also meets the requirements of the *British Standard for Topsoil (BS3882:2007) – Multipurpose Grade*.

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### **Soil Handling Recommendations**

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall, and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of the soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

---

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours sincerely

**Jennifer Ashton**  
BA MA  
Landscape Scientist

**Ceri Spears**  
BSc MSc  
Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Client:	British Sugar plc Co-Products
Client Ref:	Topsoil Analysis - Bury St Edmunds
Date:	January 2010
Job Ref No:	TOHA/09/3541/CS

**Sample Reference**

Clay (<0.002mm)	%	U
Silt (0.002-0.063mm)	%	U
Sand (0.063-2.0mm)	%	U
Texture Class (UK Classification)	--	U
Stones (2-20mm)	% DW	G
Stones (20-50mm)	% DW	G
Stones (>50mm)	% DW	G

pH Value (1:2.5 water extract)	units	G
Electrical Conductivity (1:2.5 water extract)	uS/cm	U
Electrical Conductivity (1:2 CaSO4 extract)	uS/cm	U
Exchangeable Sodium Percentage	%	G
Moisture Content	%	G
Organic Matter (WB)	%	U
Total Nitrogen (Dumas)	%	U
C : N Ratio	ratio	G
Extractable Phosphorus	mg/l	U
Extractable Potassium	mg/l	U
Extractable Magnesium	mg/l	U

Total Arsenic (As)	mg/kg	M
Total Barium (Ba)	mg/kg	M
Total Beryllium (Be)	mg/kg	M
Total Cadmium (Cd)	mg/kg	M
Total Chromium (Cr)	mg/kg	M
Total Copper (Cu)	mg/kg	M
Total Lead (Pb)	mg/kg	M
Total Mercury (Hg)	mg/kg	M
Total Nickel (Ni)	mg/kg	M
Total Selenium (Se)	mg/kg	M
Total Vanadium (V)	mg/kg	M
Total Zinc (Zn)	mg/kg	M
Water Soluble Boron (B)	mg/kg	M
Total Cyanide (CN)	mg/kg	M
Total (mono) Phenols	mg/kg	U
Elemental Sulphur (S)	mg/kg	M
Acid Volatile Sulphide (S)	mg/kg	U
Water Soluble Sulphate (SO4)	g/l	M

Naphthalene	mg/kg	M
Acenaphthylene	mg/kg	M
Acenaphthene	mg/kg	M
Fluorene	mg/kg	M
Phenanthrene	mg/kg	M
Anthracene	mg/kg	M
Fluoranthene	mg/kg	M
Pyrene	mg/kg	M
Benzo(a)anthracene	mg/kg	M
Chrysene	mg/kg	M
Benzo(b)fluoranthene	mg/kg	M
Benzo(k)fluoranthene	mg/kg	M
Benzo(a)pyrene	mg/kg	M
Indeno(1,2,3-cd)pyrene	mg/kg	M
Dibenzo(a,h)anthracene	mg/kg	M
Benzo(g,h,i)perylene	mg/kg	M
Total PAHs (sum USEPA16)	mg/kg	M

Aliphatic TPH (C5-C6)	mg/kg	U
Aliphatic TPH (C6-C8)	mg/kg	U
Aliphatic TPH (C8-C10)	mg/kg	U
Aliphatic TPH (C10-C12)	mg/kg	M
Aliphatic TPH (C12-C16)	mg/kg	M
Aliphatic TPH (C16-C21)	mg/kg	M
Aliphatic TPH (C21-C35)	mg/kg	M
Aromatic TPH (C6-C7)	mg/kg	U
Aromatic TPH (C7-C8)	mg/kg	U
Aromatic TPH (C8-C10)	mg/kg	U
Aromatic TPH (C10-C12)	mg/kg	M
Aromatic TPH (C12-C16)	mg/kg	M
Aromatic TPH (C16-C21)	mg/kg	M
Aromatic TPH (C21-C35)	mg/kg	M
TPH (C5-C35)	mg/kg	M

**BU/L20/1209**

13	✓
22	✓
65	✓
SL	✓
0	✓
0	✓
0	✓

8.1	✓
641	✓
2415	✓
2	✓
16	✓
3.9	✓
0.22	✓
10	✓
63	✓
562	✓
104	✓

8	✓
42	✓
0.4	✓
0.2	✓
23	✓
11	✓
17	✓
0.04	✓
11.4	✓
0.3	✓
28	✓
35	✓
1.6	✓
<1	✓
<1	✓
<20	✓
2	✓
0.17	✓

<0.4	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.2	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<0.1	✓
<2	✓


<1	✓
<2.5	✓
<1.5	✓
<2	✓
<3	✓
<5	✓
<15	✓
<0.1	✓
<0.2	✓
<0.4	✓
<5	✓
<15	✓
<15	✓
<35	✓
<50	✓

**Visual Examination**

Dark greyish brown, slightly moist, friable sandy loam with a moderately developed fine to medium granular structure. Stone-free, no observable deleterious materials, including foreign matter (brick concrete glass metal plastic) and roots or rhizomes of pernicious weeds (including couch grass and Japanese Knotweed)

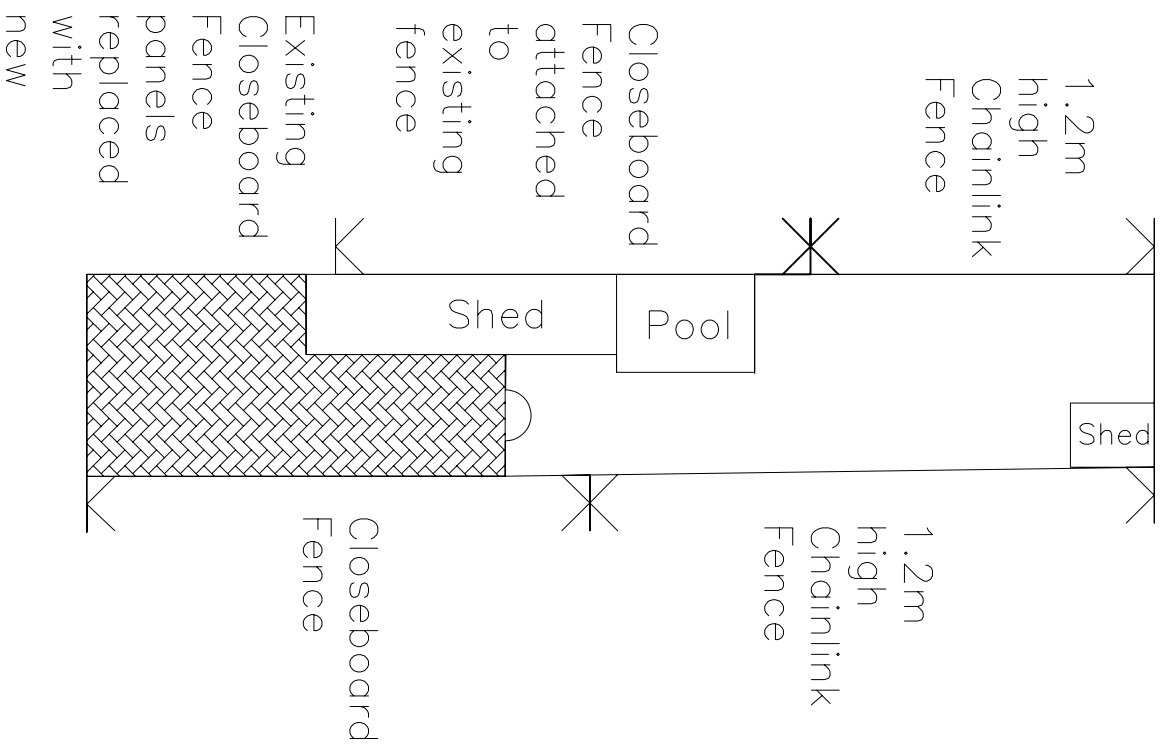
✓	Meets General Landscape Specification
X	Fails General Landscape Specification
*	See report comments
SL	Sandy Loam Texture Class
M	MCERTS accredited method (& UKAS accredited method)
U	UKAS accredited method
G	GLP accredited method

This report presents the results of analysis for the LANDSCAPE 20 sample submitted to our offices on 17/12/2009. The report relates to the sample submitted and should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by 3rd parties as a means of verification or validation testing

 The logo for EDSR (Environmental Data Service Report) features the letters 'EDSR' in a bold, dark blue font. To the right of the text is a stylized blue graphic consisting of two curved lines that form a partial circle or a bracket shape.	<p>42 Chichester Drive, Chelmsford, Essex Verification Report for Rear Garden Remedial Works</p>	<p>19<sup>th</sup> April 2010 REV.01</p>
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**Appendix C Fencing Details**

# 42 Chichester Drive



Notes:

Revision	Date	2003/10
Prepared by		
Site		
Chichester Drive		
Project		
R598		
Date		
2003/10		
Title		
42 Chichester Drive Fencing Replacement		
DWG No.	R598_Plan_01.dwg	
Scale	No Scale	
Drawn by	Liam Dinsbury	
Checked by		



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