STUART GUY CONSULTING

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Verification Report for Soil

applied to Rathkenny Close,

Holbeach, Spalding, PE12 7ER

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Report number 12-01-02 **26 February 2012**

Verification Report for Soil applied to Rathkenny Close, Holbeach, Spalding, PE12 7ER

1 Scope of the Verification Report

1.1 Under instructions from G R Merchant, of G R Merchant Ltd, 4 Wrights Mews, 12A Park Road, Holbeach, Spalding, PE12 7EE, I have sampled and analyzed samples of soil from the rear gardens of plot numbers 13, 14 and 15 (postal numbers 11, 12 and 13) and from a stockpile of similar soil on the site.

1.2 Roy Burton (the developer and constructor of the houses) informed me that the soil originated from silt removed from ditches and stockpiled by the drainage authority.

2 Sampling of Soil on Site

2.1 The soil was sampled on 9th February on a day when the temperature was just sub-zero, but dry and bright. Soil from a stockpile at the rear of the site had been applied to plots 13 and 14 and to less than half of plot 15. Therefore, two pairs of holes were excavated at the rear of the houses (photos 1 and 2) and small amounts were removed from each pair of samples and combined into two soil samples. The soil was brown silty clay that was very dry and friable with occasional small and medium sized stones.

2.2 The soil stockpile was located to the rear of the site (photo 3) and its appearance was exactly the same the that used in the rear gardens of the houses. This soil stockpile is to be used to complete the garden of plot 15 and for the next phase of houses to be constructed. The stockpile was excavated (photos 4, 5 & 6) to examine the soil from the interior and to obtain small samples from each of four sections of the pile and to combine them into four samples. The sections were designated W (west), MW (middle west), ME (middle east) and E (east). The soil looked to be very consistent all the way across and down through the pile. Hand digging reached within 0.5 m of the base of the pile when the soil still appeared to be consistent.

3 Assessment of the Analyses of the Soil Samples

3.1 The analyses (ELAB certificate no. AR3714, dated 23/02/12) indicated no significant concentrations of heavy metals, even arsenic which is elevated in many areas of Lincolnshire, PAHs or TPH

3.2 This soil is suitable for use in gardens for any purpose, although the lack of organic content may make growing many plants very difficult.

Stuart Guy, BSc, PhD, C Chem, MRSC, C Eng, MIMM

5 Willow Heights, Cradley Heath, West Midlands, B64 7PL tel 0121 602 3515, fax 0121 602 1062

Photo 1 Two holes hand-dug, plot 13, to rear (fork) and to front (spade)



Photo 2 Two holes hand-dug, plot 14, to rear (spade) and to front (fork)



Photo 3 Soil stockpile just before it was excavated from the west end



Photo 4 Excavating the pile from the east end



Photo 5 Excavating the pile in the middle



Photo 6 Looking at the pile from the east



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THE ENVIRONMENTAL LABORATORY LTD

F.A.O. Stuart Guy
Stuart Guy Consulting
5 Willow Heights
Cradley Heath, West Midlands
B64 7PL

Reporting Date: 23/02/12

ANALYTICAL REPORT No. AR37141

Samples Received By:-	Courier
Samples Received:-	10/02/12
Your Job No:	12-01-02
Site Location:	Holbeach
No Samples Received:-	6

Report Checked By:-

Steve Knight
Director

Authorised By:-

Mike Varley BSc, CChem, CSci, FRSC
Chief Chemist

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

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ANALYTICAL REPORT No. AR37141

Location: Holbeach

Your Job No: 12-01-02
Your Order No: 12.012-02
Reporting Date: 23/02/12

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5 Willow Heights
Cradley Heath, West Midlands
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Soils	Characteristic	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt
	Date Sampled	---	---	---	---	---	---
	TP/BH	Plot 13	Plot 14	Pile-W	Pile- MW	Pile- ME	Pile- ME
	Depth (m)	---	---	---	---	---	---
	Our ref	27801	27802	27803	27804	27805	27806
Stone Content	(%)	<1	<1	<1	<1	<1	<1
Arsenic**	(mg/kg)	10.6	11.3	10.6	10.9	11.8	11.4
Cadmium**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium**	(mg/kg)	17	19	17	18	18	18
Lead**	(mg/kg)	13	14	13	15	14	14
Mercury**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel**	(mg/kg)	16	17	16	17	17	17
Copper**	(mg/kg)	10	10	9	11	10	10
Zinc**	(mg/kg)	49	49	47	50	50	52
Selenium**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	1.2	0.9
Hexavalent Chromium	(mg/kg)	<2	<2	<2	<2	<2	<2
Water Soluble Boron	(mg/kg)	1.6	1.4	1.3	1.3	1.2	1.3

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

	Characteristic	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt
	Date Sampled	---	---	---	---	---	---
	TP/BH	Plot 13	Plot 14	Pile- W	Pile- MW	Pile- ME	Pile- ME
	Depth (m)	---	---	---	---	---	---
	Our ref	27801	27802	27803	27804	27805	27806
Naphthalene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene**	(mg/kg)	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene**	(mg/kg)	1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene**	(mg/kg)	0.8	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(123-cd)pyrene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(ah)anthracene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(ghi)perylene**	(mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAH**	(mg/kg)	3.1	<0.5	<0.5	<0.5	<0.5	<0.5

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

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ANALYTICAL REPORT No. AR37141

Location: Holbeach

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Your Job No: 12-01-02
Your Order No: 12.012-02
Reporting Date: 23/02/12

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B64 7PL

Soils

		Characteristic	Sandy Silt loam	Sandy Silt loam	Sandy Silt loam	Sandy Silt loam	Sandy Silt loam	Sandy Silt loam
		Date Sampled	---	---	---	---	---	---
		TP/BH	Plot 13	Plot 14	Pile- W	Pile- MW	Pile- ME	Pile- ME
		Depth (m)	---	---	---	---	---	---
		Our ref	27801	27802	27803	27804	27805	27806
C_8-C_{10}	(mg/kg)		<5	<5	<5	<5	<5	<5
>C_{10}-C_{12}	(mg/kg)		<5	<5	<5	<5	<5	<5
>C_{12}-C_{16}	(mg/kg)		<5	<5	<5	<5	<5	<5
>C_{16}-C_{21}	(mg/kg)		<5	<5	<5	<5	<5	7
>C_{21}-C_{35}	(mg/kg)		<5	<5	<5	<5	<5	28
Total Petroleum Hydrocarbons**	(mg/kg)		<5	<5	<5	<5	<5	35

Accredited for TPH only, not banding
** - MCERTS Accredited test
All results expressed on dry weight basis
sas

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SAMPLE RECEIPT AND TEST DATES

Our Analytical Report Number	AR37141
Your Job No:	12-01-02
Sample Receipt Date:	10/02/12
Reporting Date:	23/02/12
Registered:	10/02/12
Prepared:	11/02/12
Analysis complete:	23/02/12

TEST METHOD SUMMARY

PARAMETER	Analysis Undertaken on	Date Tested	Method Number	Technique
Arsenic**	Air dried sample	17/02/12	118	ICPMS
Cadmium**	Air dried sample	17/02/12	118	ICPMS
Chromium**	Air dried sample	17/02/12	118	ICPMS
Lead**	Air dried sample	17/02/12	118	ICPMS
Mercury**	Air dried sample	17/02/12	118	ICPMS
Nickel**	Air dried sample	17/02/12	118	ICPMS
Copper**	Air dried sample	17/02/12	118	ICPMS
Zinc**	Air dried sample	17/02/12	118	ICPMS
Selenium**	Air dried sample	17/02/12	118	ICPMS
Hexavalent Chromium	As submitted sample	13/02/12	110	Colorimetry
Water Soluble Boron	Air dried sample	17/02/12	202	Colorimetry
Speciated PAH**	As submitted sample	13/02/12	133	Gas Chromatography
Carbon Banding (TPH BCB)**	As submitted sample	13/02/12	117	Gas chromatography

* = 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

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