ASHBURNHAM HOUSE

1 MAITLAND ROAD

LION BARN ESTATE

NEEDHAM MARKET

SUFFOLK

IP6 8NZ

Our Ref CJS/13804GI2/PJB

16 November 2015

1 7 NOV 2015

RECEIVED

Telephone (01449) 723 723

Fax (01449) 723 907

www.rsa-geotechnics.co.uk

Higgins Construction 1 Langston Road Loughton Essex IG10 3SD

By Email and Post - shawn.nudd@higginsconstruction.co.uk

For the attention of Mr Shawn Nudd

Dear Shawn

PLENDER STREET, CAMDEN, LONDON NW1 0LB - SUPPLEMENTARY ASBESTOS INVESTIGATION

1. Introduction

Following RSA Geotechnics' reports (13804SI and 13804GI) dated March and May 2014, further investigation was required due to significant presence of asbestos identified at the north eastern half of the site. The original site investigation reported in March 2014 encountered asbestos at WS8. It was requested that further investigation of this area was carried out and a further six trial pits and eleven window sample boreholes were undertaken as part of the supplementary investigation (report number 13804GI).

Goad Insurance maps dating from 1966 indicated a structure comprising an asbestos roof was located in the area of WS8 as shown on drawing number 13804GI/1. The supplementary investigation identified asbestos in eighteen of the forty nine samples including loose fibres of chrysotile, amosite and crocidolite. The asbestos was present within the made ground extending to a depth of 2.0 m. The amount of asbestos encountered is considered to originate from more than the identified shed on drawing number 13804GI/1.

At the time of the most recent investigation demolition had yet to occur along the western half of the site and access was not possible to the southern area of the site. It was recommended that further investigation was undertaken post-demolition when the area could be accessed. The made ground comprised brick rubble and included former foundations in-situ. The site was known to have suffered severe bomb damage during WWII and it is believed the made ground comprises the remnants of the demolished houses caused by the bombing.

13804GI2 - Letter Report, Higgins Construction, CJS,PAG - 16-11-15

Page 1

This letter report (13804GI2) covers the further window sample boreholes to assess the risk posed by asbestos across the remainder of the site.

The brief for the second supplementary investigation was developed by RSA Geotechnics and included items detailed in RSA Geotechnics' quotation CJS/Quo20 dated 17 June 2015. The Clients' request was for an assessment of potential asbestos contamination only, as other contaminants had been risk assessed previously in RSA Geotechnics' report number 13804SI dated March 2014.

This report has been prepared for the sole internal use and reliance of Higgins Construction Plc. It shall not be relied upon by other parties without the express written authority of RSA Geotechnics Limited. If an unauthorised third party comes into possession of this report they rely on it at their own risk and the authors owe them no duty of care and skill.

The investigation was authorised by Shawn Nudd of Higgins Construction Plc in a completed RSA order form within an email dated 18 June 2015 with reference 62083.

2. Site Settings

2.1 Site Location

The site was located south of Plender Street, about 900 m north west of London St Pancras railway station. It can be approximately located by National Grid Reference TQ 293 835.

2.2 Site Description

The site was situated in a predominantly residential area although the northwest portion of the site comprised a row of low rise commercial properties. The site comprised a 'T' shaped parcel of land measuring approximately 85 m northeast to southwest and 80 m northwest to southeast, bounded by Plender Street to the north, Camden Street to the east and a former public house with a beer cellar to the west. The southern portion of the site extended along Bayham Place adjacent to existing tennis courts/school playground to the east and Rainham House, a high rise block of flats, to the west.

previous the fieldwork Since 2014 the in undertaken proposed development had constructed across the north of the site. The southern portion of the 'T' was undergoing development and at the time of the site visit an excavator was removing soil in the southern area (Figure 1). container was also located towards the southern boundary (Figure 2). Service drawings were provided by the Client on-site for the 'as-built'



Figure 1

services. The main service runs were at the proposed locations of WS101 and WS102 with an electrical substation located adjacent to proposed WS101 (Figure 3).



Figure 2



Figure 3

3. Ground Investigation

3.1 Fieldwork

Asbestos was found in the vicinity of WS8 during the original site investigation and a supplementary investigation encountered further asbestos across the north eastern half of the site.

Five further window samples were proposed targeting areas of soft landscaping and to provide coverage across the southern limb to the site. The proposed window sample locations are shown on drawing number 13804Gl2/1 appended to this report. Due to the presence of services it was not safe to undertake the proposed boreholes at WS101 and WS102. The site foreman, Keith Fisher, informed the site technicians that WS102 was in an area that had previously been remediated due to its proximity to the north eastern half of the site.

Ongoing groundworks prevented access to WS105 as the area was been used to store spoil. Therefore only two window sample boreholes (WS103 and WS104) were undertaken as part of the investigation.

The window sampling was carried out on 20 October 2015 using a compact, rubber track mounted, percussive window sampling rig which utilised a sliding hammer to drive steel tubes into the ground. Disturbed 'D' samples were retrieved at approximately 0.5 m intervals from the soil core. The soils were logged on site by a geotechnical engineer.

The contamination sampling was carried out generally in accordance with BS 10175: 2011, 'Investigation of Potentially Contaminated Sites – Code of Practice'.

Full details of the fieldwork and ground conditions encountered are shown on the window sample logs later in this report.

3.2 Laboratory Testing

The programme of laboratory testing was designed to screen soils for the presence of asbestos fibres. Six samples of shallow soil were tested for the presence of ACM.

The asbestos screening was carried out between 22 and 27 October 2015 on selected samples to determine whether any contamination was evident from previous uses of the site. The screening was undertaken by QTS Analytical Ltd, which has both UKAS and MCERTS accreditation.

The results of the laboratory testing are given on the test reports later.

4. Ground Conditions

4.1 Ground Investigation Data

This aspect of investigation was only concerned with the made ground on site and the window sample boreholes were only extended to the base of made ground on site.

An upper layer of made ground extending to approximately 0.6 m depth comprised light brown medium to coarse sand with much fine to coarse concrete, a little subangular fine to medium brick and flint gravel, rare fine to medium gravel size flexible surfacing and rare rootlets.

This was underlain in both window samples by a former cobble road The cobbles are 100 mm thick. shown in Figure 4. Underlying the cobbles in WS103 was medium to sand with coarse brown some subangular fine to coarse flint gravel and rare fine gravel size brick extending to 0.8 m probably road representing the former subbase.



Figure 4

In WS104 the soil below the cobblestones comprised soft brown very sandy silty clay with some subangular fine to coarse flint gravel and occasional concrete with rare nails, and rare gravel size fragments of glass and ceramic pipes. The lower layer of made ground extending to 1.8 m in WS103 comprised similar material to that encountered beneath the cobbles in WS104, but without the glass, nails and ceramic fragments.

Natural ground interpreted to be the London Clay Formation was encountered beneath the made ground and comprised firm orange brown silty clay with occasional orange grey layers of silt.

No groundwater was encountered during the investigation.

5. Geoenvironmental Considerations

5.1 Asbestos Testing

Six samples of made ground were inspected for the presence of asbestos fibres using an optical microscope.

Potential asbestos containing materials (ACM) were not identified in the soils during the logging of the exploratory holes. Of the six samples sent for asbestos screening two were found to contain asbestos. Amosite and chrysotile within insulation lagging board were identified in WS103 at a depth of 0.4 m and loose fibres of amosite were identified in WS104 at 0.5 m depth.

Full details of the asbestos results can be found in the appended test reports.

5.2 Recommendations

The asbestos identified is likely to have originated from buildings in the area that were destroyed during WWII. Asbestos cement sheeting was also identified within the roof of terraced garages previously located along the central-south area of the site (13804GI/1), close to WS103 and WS104. The greatest hazard will be for groundworkers and off-site receptors due to windblown dust.

The made ground in WS103 and WS104 was distinctively different from that encountered previously in the north eastern area of the site which comprised brick rubble. At a depth of 0.55 m an old cobble road was encountered in the southern area of the site and it is possible that material beneath this pre-dates bulk production and use of asbestos in the UK. The road was identified on historic maps dating back to 1851.

The development had been built at the time of the second supplementary site investigation and the final landscaping works and hard surfacing were being prepared in the southern area of the site. The locations of WS103 and WS104 are in areas of proposed hard surfacing and therefore any asbestos within the soil will be capped during the construction process breaking a link to end users of the development.

The presence of loose fibres prevents visual identification of ACM directly on site. It is therefore recommended that the remaining areas of groundwork are undertaken with the assumption that asbestos may be present above the cobblestone road construction. The proposed development includes limited soft landscaping approximately 5 m west of WS103 and WS104. In these locations a clean cover system should be installed to the top of the cobblestone road or an equivalent depth, approximately 0.55 m. A deter-to-dig membrane should be placed beneath the clean cover system to prevent further excavation into potentially contaminated soils.

Once the results of the asbestos testing in WS103 and WS104 had been received an engineer from RSA Geotechnics Ltd informed the site manager of the positive ACM identification to ensure further works progressed in a manner which would not create dust.

It is understood that asbestos air monitors had been installed around the site prior to construction of the development and these should remain in place until all groundworks are complete. Groundworks should progress in such a manner that no dust is created by dampening down the soils. All site workers should be made aware of the potential to come into contact with loose asbestos fibres and appropriate PPE should be adopted.

Construction workers are likely to be exposed to the made ground on site. Groundworkers should be made aware of the sitewide elevated lead concentrations identified in RSA Geotechnics report number 13804SI dated March 2014. They should also be made aware of the asbestos fibres and insulation board found in the upper 0.5 m of made ground at the southern area of the site as identified on drawing number 13804GI2/1. The relevant levels of personal protective equipment will be required to mitigate the risk of adverse effects. Any groundworkers in the area of asbestos contamination should wear Tyvek® overalls, disposable shoe covers and be fitted with a face mask including P3 filter. Any asbestos containing materials identified should be appropriately removed and disposed of by a specialist contractor. The disposable overalls, covers and used masks should be dispossed of as hazardous waste and used only once.

The area around the identified asbestos should be regularly dampened down and only disturbed when necessary for site-works. It is recommended that air monitoring is undertaken around the perimeter of the site and any gaps within the perimeter hoarding are fully enclosed between the site and the general public.

5.3 Waste Disposal

The remediation of the contaminated soils in areas of proposed soft landscaping will generate volumes of contaminated soils to be removed from the site.

Any asbestos containing materials (ACM), or soils containing asbestos containing materials, will need to be regarded as Hazardous Waste and therefore will be subject to the consignment note procedures given in the Hazardous Waste Regulations. Asbestos containing materials will generally be considered to be 'Stable Non-Reactive Hazardous' (SNRH) waste and will therefore need to be disposed of at a Hazardous landfill or a Non-Hazardous landfill which has separate cells to take SNRH waste. However, if the amount of asbestos present as fibres within the soils constitutes less than 0.1% by weight, the soils can potentially be classed as Non Hazardous.

Further recommendations on the disposal of waste can be found in RSA Geotechnics report number 13804SI dated March 2014. Further advice can also be sought from the local waste regulatory authority, who should also be able to offer advice on which landfills are available to accept the waste.

6. Conclusions

It is concluded that the proposed final development will cap the majority of asbestos containing soils on-site with hard pavements however some remediation will be required in the areas of soft landscaping. A clean cover system to the top of the

former cobblestone road or equivalent depth (0.55 m) should be installed with a deter-to-dig membrane or 150 mm layer of clean crushed concrete at the base.

We trust the above letter report will fulfil your present requirements but should you need further advice or investigation, please contact us again.

Yours sincerely RSA Geotechnics Ltd

Chris Steward, BSc, FGS Geotechnical Engineer

Phil Gawne, BSc, MSc, DIC, FGS Technical Director

Encs Window Sample Hole Logs
Chemical Contamination Analyses Results
Plan Showing Potential Asbestos Source – Drawing Number 13804GI/1

Proposed Window Sample Hole Location Plan – Drawing Number

13804GI2/1

Particle Control March					,																V.					_		
Concinues Conc	•	~ 1		ES									_	e at												_		
Conclusions of the control of the	3 - 5	4GI,		Ö N									ntered	omplet												Sh	· · · · ·	
Concritations Concritation	٥ و و	380		SAN		jug			ing				encou	ole c)/10/1	ä
Conclusions of the control of the	* ,, *	····		TEST		screen			screen				water	mple h												۷.		
Conclusions of the control of the	et et	No		HH.		stos			setos				pround	Jow sa												dwor		Dates
Conclination Concentration Conclination Con	She	Job			1	Aspe			Asbe				2	Έ'ς Σ.ο.								1				E i	<u>6</u>	
Coordinates				o.š																								تار ک
Coordinates			DN.	0.6 m/6,m/3																							seating	drive
Coordinates Coordinates Coordinates STRATA			TES																								ve after	seating
Coordinates Coordinates Coordinates STRATA	E		LAB	₹%]	nm, dri	whole of
Coordinates Coordinates Coordinates STRATA	v SAMP			1 .																				·		HE	or 150r	 5.* blows for part or whole 6) U sample blow count 2 Vano Strongh 150 m²
Engineer	WINDO			۸ 44 24 25																		w.·				STREN	Je Jows, f	ws for p mple bl
Coordinates	SSIVE		TEST	Blows/ Strengti																						Ows /	=N val 5/150 b	26", blows for part or whole of seating drive only (25) U sample blow count - Ness Separath - INIM 2
Decordinates Deco	PERCU		SITU .		1	01			<u></u>			4		LO.						· · ·						7 🕷	2 %	\$ ē >
Engineer			G/IN	Ž,å	T =	ř	1		ਬ T			d T	- 1	ř	Т	1		<u> </u>	- 1	T			1	T	· I	-	on test est	
Engineer	Meth		NPLIN	η T L																							enetration tration t	y test test
Engineer Coordinates STRATA Coordinates STRATA Beeging in Water in tree. Third Good (1/Fie/N) is surfacing) The Good (1/Fie/N) is surfacing and the Good (1/Fie/N) is surfacing) The Good (1/Fie/N) is surfa	Ţ	'n. N.	SAN	De.	0.20	0.40			1.00			1.50		2.00												<u>ن</u> ۆ	ndard p	K Permeability test V In situ vane test
Engineer Coordinates Coo				pth n	0	77.	35.53	.80		*			- 88.	9.3												TEST	S Star	K Per Vi⊓si
ATER Coordinates Coordinates STRATA Signify of Depth to Inter. Bade Ground (Light brown medium-coarse sand with much filter gravel.) filter-endium filting area of the coarse concrete. a little fine-coarse form of the coarse concrete. a little fine-medium filting area of the coarse filting gravel and filting gravel. filter-medium filting gravel and rare fine protectives. Rade Ground (Cobbles) Rade Ground (Cobb				ă°.	+		+	_				+		-		-						1	<u></u>	+	+		able Sle	•
ATER Coordinates Coordinates STRATA Signify of Depth to Inter. Bade Ground (Light brown medium-coarse sand with much filter gravel.) filter-endium filting area of the coarse concrete. a little fine-coarse form of the coarse concrete. a little fine-medium filting area of the coarse filting gravel and filting gravel. filter-medium filting gravel and rare fine protectives. Rade Ground (Cobbles) Rade Ground (Cobb				-evel																							bed san	W Water sample U Undisturbed sample P Pieton sample
ATER Supply of Deeth to lives. Coordinates Coordinates STRATA Supply of Deeth to lives. Bade Ground (Light brown medium-coarse sand with much filter gravel.) frie-medium flowing and filter gravel. frie-medium flowing and some subangular filter coarse filting gravel and rare frie brick). Made ground (Cobbles) Nacie ground (Cobbles) Clordon (Clay Formation) Nater		ĿĒ.				***		**	***	**	***			××					· ····						1	LE KEY	III distur disturb	W Water sample U Undisturbed sa Pieron sample
ATER STRATA Goordinates Coordinates Coordinates STRATA Bade Ground (flexible surfacting) The coarse concrete, a little fine-coarse Drick and occasional subangular fine-medium rare fine rock flexible surfacting and rare fine rock flexible surfacting and rare fine rock flexible surfacting and rare fine prick) Rade Ground (Light brown medium-coarse sand with rare fine rock flexible surfacting and rare fine prick) Rade Ground (Brown Silty medium-coarse sand with rare fine prick) Rade Ground (Light brown silty clay with some subangular flint gravel) DRY C Firm orange brown silty CLW with occasional subangular flint gravel) Clondon (Clay Formation) ANATER WATER WATER WATER WATER WATER S 2 Subangular Sine A 1 First Stree WATER S 2 First Stree STRATA Brown WATER WATER		E		Legen		$\overset{**}{\otimes}$			※	$\overset{\infty}{\otimes}$		***	\bigotimes	- 1											; ; ;	SAMP	D Sma B Bulk	W War U Undi
Seing m Water m inst. DRY C DRY C I observations during boring, d Depth Depth of Depth to Depth of					i	ي جي	se and /		Ī		ae ue			ers											;			
ATER Seling in Water in Inst. DRY C I observations during boring, d Depth C Depth To Dept			4TA			nd with	Hirm Hirm Scina	,	od wit	and	ith so sk and			ام! أد أفر											1 3 1			
ATER Soling in Water m Inst. DRY C I observations during boring, d Depth C Depth Topont Depth T			STR			Se sar	ne-med surfa		se sar	grave	:layw⊓ kebrid		ŀ	casion											; ;			
Seing m Water m inst. DRY C I observations during boring, d Depth C Depth of Depth to inst.					: 1	m-coar	lar fi exible		m-coar	1111	ilty o re fir			ith og brown											1			
Soling m Water m Inst. DRY C I observations during boring, d Depth of Depth to Inst.	, h	ates		tion	rfacin	mediu	ubangu ium fi		mediu	odrse	rown s and ra	<u></u>		Şaş Arş													t Strike	epth Depth delpg
Seing m Water m inst. DRY C I observations during boring, d Depth C Depth of Depth to inst.	ginee	oordir		Descrip	le sur	brown	nalsi malsi e-med	(5)	sitty	- Le-	lark bi skets	grave		s and strion											1		t Strike sequen	night D oletion (
Seing m Water m inst. DRY C I observations during boring, d Depth C Depth of Depth to inst.	<u> </u>	Ū			Flexib	Light	ccasic	conlet	Brown	를 를 를 등 상	Soft (nic pod	flint		rown . . Tayer .v Forr												WATER	Z 1 Firs Z 2 Sut	N - Overnight Depth C- Completion Depth S. Seesage out rision
Seing m Water m inst. DRY C DRY C I observations during boring, d Depth C Depth of Depth to inst.) punc	onud (and o	fine r) puno	fine b	ound (organ	gular		ange b e silt on Cla														
Seing m Water m inst. DRY C I observations during boring, d Depth C Depth of Depth to inst.					de Gr	ide Gr	A Price	rare	3de G	rare rare	ade Gr black	suban		orang Orang (Lond											!	below 6	20 m	
MATER Casing m Water m Inst. DRY C DRY C wel observations during boring, well observations during boring.	}	}			iΣ	ž		<u> </u>			ž															depths	after 15 min	
NATER Casing m Water m Casing m Water m DRY C Net observations during Obs. Famin 10				inst.	1 1 1																				:	boring,	Depth min	
NATER Casing in Water Casing i				3 E										<u></u>											<u> </u>	during	nin 10	ŀ
VATER Orașing in the lobser of			- [<u>`</u>												vations	s Sn	
			ATER	Depth o asing m										,		,		t		1		ı		1		el obser	O G	
11 Lev	.	Ground Level					1					1		<u>. </u>			, Tan	1		1		1		1		iter Lev	Strike	
Ground L. 20/10/15 Water	, [round		Date/Tir at Dep									:	0/10/1												× ×		

	ı	RSA	GEÇ)TECHNICS	LTO
--	---	-----	-----	-----------	-----

		T		Υ		······································						 	U		100 (50 (6)	(01449) /2	
(8		TES					d te at								WS104 Sheet 1	
-	13804GI2		S S					untere comple									T
l of	138(OTHER TESTS AND NOTES	ning	aning	aning	ening	No groundwater encountered Window sample hole complete at								LG 20/10/15	
•			TEST	Asbestos screening	Asbestos screening	Asbestos screening	Asbestos screening	dwater ample									
Sheet	Job No		EHT.	Sestos	sestos	oestos	pestos	groun ndow s	5							Fieldwork By Dates	
র্চ	<u>ક</u>			Ast	Ast		Asi	S Z	<u>.</u>						<u> </u>		L
			N N N					······								Śwo	<u>.</u>
		JING	Mg/m ³													ar seatin	·
		LAB TESTING	₹,%													rive after	
F T		l	₹ %				·									BLOWS / STRENGTH N = N value 26/150 blows, for 150mm, drive after seating 26*, blows for part or whole of seating drive only	i tin
MOV MOV		l	% W <425 %													ENGTH for 15s	(26) U sample blow count
 ≱		1.	yth <4													BLOWS / STRENGTH N=N value 26/150 blows, for 15 26** blows for part o	sample
PERCUSSIVE WINDOW SAMPLEK) TES	Blows/ Strength							<u> </u>						BLOWS / S' BLOWS / S' N = N value 26/150 blo 26*, blows	(186)
		SAMPLING/IN SITU TEST	A No.	15	D2	8	Z	92								Į v	
Netrods		ING/II		T	1	1	1	1		1	Γ					ration te	ζ.
Š	<u>۔</u>	AMPL	Depth m	0.15	0.50	1.00	1.50	2.00								d peneti enetratio	ane test
	E.	-	_								,-					TEST KEY S Standard penetration test C Cone penetration test K Permeability test	o situs
			Depth m	0.20	0.60	1.20	4	1.75						ŧ	1	# wox	>
			le	+	·		1	·····			1	···				SAMPLE KEY SAMPLE KEY D Small disturbed sample B Bulk disturbed sample W Water sample	alon
			Level	IXXXI	××××××	XXXXXXX	XXXXX	× II					_		 	CEY isturbed turbed s	rbed sa
	m.E.		Legend					፠∐∤		,						SAMPLE KEY D Small disturbed B Bulk disturbed W Water sample	U Undisturbed sample
			٦.	1	SOSSOS]_ >>>>>>	<u>د</u>	×								Ø □ m ≥	7
		ΤĀ		} 1 (with e- rare s)	ay with int ete, es)	na angula	orang on)								1 1 1 1	
		STRATA		[s sand al fin el and d root	Tty cl rse fl concr c piec	ay who	siona] ormati								} ((t	
					coars(ndy si ne-coal coarse	and rai	d occa:								f 1 1	
	tes		uo	Made Ground (Flexible surfacing)	Made Ground (Light brown medium-coarse sand with much fine-coarse concrete, occasional fine-medium brick, subangular flint gravel and rare medium-coarse flexible surfacing and roots) - concrete from 0.35 to 0.50m	ed fired fired and a	<pre>made bround (Soft dark brown Slity clay with a little black organic pockets and rare subangular fine brick)</pre>	Firm orange brown silty CLAY and occasional orange and grey silt layers (London Clay Formation)								Strike	ţ
Engineer	Coordinates		Description	e surf	rown moncret concret ngular ible s	own verbround	7.5 200 200	lty or								Strike equent	C- Completion Denth
Ē	გ			lexibl	ight barse carse c	off brong of the succession of	ort de	own si t laye								WATER I First Strike I 2 Subsequent Strike N - Overnight Depth	G.
				und (F	und (L ine-co brick -coars te fro	und (S und (S ubangu and o edium-	und black rick)	nge br ey sil								·	ن -
				le Groi	de Gro much f medium concre	Je Gro Je Gro Some Si gravel	ne oro little fine b	rm ora								elow GI	
				Ma.	ğ)		E .	15						··· <u> </u>		epths b	_
			Inst.	! ! !												ng boring, depths below GL. Depth after 10 min 15 min 20 min	
		_		!				U								during b	
		I [Depth to Water m					DRY C					***			/ations duri	
		WATER	Depth of Casing m											,		Water Level observations during boring, depths below GL. Strike Obs. Smin 10 min 15 min 20 min	
	Ground Level		- 1	+		-								+		tter Leve Strike	
ļ	und		Date/Time at Depth					20/10/15								Wa	





Chris Steward RSA Geotechnics Ltd Ashburnham House 1 Maitland Road Lion Barn Estate Needham Market Suffolk IP6 8NZ

QTS Environmental Ltd

Unit 1

Rose Lane Industrial Estate

Rose Lane

Lenham Heath Kent

ME17 2JN

t: 01622 850410

russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-36825

Site Reference:

Plender Street, Camden, London NW1 0LG

Project / Job Ref:

13804GI2 Schedule 1

Order No:

None Supplied

Sample Receipt Date:

22/10/2015

Sample Scheduled Date:

22/10/2015

Report Issue Number:

Reporting Date:

27/10/2015

Authorised by:

Russell Jarvis

Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old Director

On behalf of QTS Environmental Ltd



QTS Environmental Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane** Lenham Heath Maidstone Kent ME17 2JN Tel: 01622 850410



Soil Analysis Certificate						
OTS Environmental Report No: 15-36825	Date Sampled	20/10/15	20/10/15	20/10/15	20/10/15	20/10/15
RSA Geotechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Plender Street, Camden, London	TP / BH No	WS3	WS3	WS4	WS4	WS4
NW1 OLG						
Project / Job Ref: 13804GI2 Schedule 1	Additional Refs	D2	D3	D1	D2	D3
Order No: None Supplied	Depth (m)	0.40	1.00	0.15	0.50	1.00
Reporting Date: 27/10/2015	QTSE Sample No	173760	173761	173762	173763	173764

Determinand	Unit	RL	Accreditation					
Asbestos Screen	N/a	N/a	ISO17025	Detected	Not Detected	Not Detected	Detected	Not Detected
Sample Matrix	Material Type	N/a	NONE	Insulation lagging in soll			Loose fibres	
Asbestos Type	PLM Result	N/a	ISO17025	Amosite & Chrysotile			Amosite	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
The samples have been examined to identify the presence of asbestiform minerals by polarising light microscopy and dispersion staining technique to In-House Procedures QTSE600 Determination of Asbestos in Bulk Materials; Asbestos in Solis/Sediments (fibre screening and identification)

This report refers to samples as received, and QTS Environmental Ltd, takes no responsibility for the accuracy or competence of sampling by others.

The material description shall be regarded as tentative and is not included in our scope of UKAS Accreditation.

Opinions and Interpretations expressed herein are outside the scope of UKAS Accreditation.

Asbestos Analyst: Graham Revell

RL: Reporting Limit

5

Pinch Test: Where pinch test is positive it is reported "Loose Fibres - PT" with type(s).

Subcontracted analysis (5)



QTS Environmental Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane Lenham Heath** Maidstone Kent ME17 2JN



Tei: 01622 850410

Soil Analysis Certificate											
QTS Environmental Report No: 15-36825	Date Sampled	20/10/15									
RSA Geotechnics Ltd	Time Sampled	None Supplied									
Site Reference: Plender Street, Camden, London	TP / BH No	WS4									
NW1 OLG						<u> </u>					
Project / Job Ref: 13804GI2 Schedule 1	Additional Refs	D4									
Order No: None Supplied	Depth (m)	1.50									
Reporting Date: 27/10/2015	QTSE Sample No	173765									

Determinand	Unit	RL	Accreditation			
Asbestos Screen	N/a	N/a	15017025	Not Detected		
Sample Matrix	Material Type	N/a	NONE		 	
Asbestos Type	PLM Result	N/a	ISO17025			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C Analysis carried out on the dried sample is corrected for the stone content

The samples have been examined to identify the presence of asbestiform minerals by polarising light microscopy and dispersion staining technique to In-House Procedures QTSE600 Determination of Asbestos in Bulk Materials; Asbestos in Solls/Sediments (fibre screening and identification)

This report refers to samples as received, and QTS Environmental Ltd, takes no responsibility for the accuracy or competence of sampling by others.

The material description shall be regarded as tentative and is not included in our scope of UKAS Accreditation.

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.

Asbestos Analyst: Graham Revell RL: Reporting Limit

Pinch Test: Where pinch test is positive it is reported "Loose Fibres - PT" with type(s).

Subcontracted analysis (5)



QTS Environmental Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN Tel: 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information
QTS Environmental Report No: 15-36825
RSA Geotechnics Ltd
Site Reference: Plender Street, Camden, London NW1 0LG
Project / Job Ref: 13804GI2 Schedule 1
Order No: None Supplied
Reporting Date: 27/10/2015

Matrix	Analysed On	Determinand	Brief Method Description	Method
Soil	D	Boron - Mater Colubia	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	No
Soil	AR	BOIOII - YVAREE SOUDRE	Determination of water soluble boron in soil by 2:1 not water extract rollowed by 1CP-OES	E012
Soil	D	Cations	Determination of BTEX by headspace GC-MS Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E001
Soil	D	Chlorida - Water Soluble (2:1)	Determination of cations in soil by aqua-regia digestion followed by ICF-OES Determination of chloride by extraction with water & analysed by ion chromatography	E002
		Chloride - Water Soldble (2:1)		E009
Soil	AR	Chromium - Hexavalent	11,5 dipnenyicarbazide followed by colorimetry	E016
Soil	AR		Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soli	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	
3011	AL	C12-C16, C16-C21, C21-C40)	headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D		Determination of metals by aqua-regia digestion followed by ICP-OES	E002
			Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	
Soil	AR	Mineral Oil (C10 - C40)	cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (FPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenois - Total (monohydric)	Determination of phenois by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	Ď	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soll	AR		Determination of sulphide by distillation followed by colorimetry	E014
Soil	D	Sulphur - Total	Determination of total suinbur by extraction with aqua-regia followed by ICP-OES	E024
	i		Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by	
Soil	AR		GC-MS	E006
Soil	AR	THIOCYAHALE (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	roluene extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D		Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	aro: C5-C7, C7-C8, C8-C10, C10-C12, CC12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received



