APPENDIX D

Ivy House Environmental Ltd
72 Derby Rd,
Derby, DE72 3NJ

GroundSure Reference:	HMD-163-1068963
Your Reference:	IV.11.07.Kington
Report Date:	Nov 13, 2010
Report Delivery Method:	**xml**
Client Email:	rps@ivyhousenv.co.uk

GroundSure EnviroInsight

Address: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY

Dear Sir/Madam,

Thank you for placing your order with GroundSure. Please find enclosed the GroundSure EnviroInsight as requested

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above GroundSure reference number.

Yours faithfully,

[redacted]

Managing Director
Groundsure Limited

Enc.
GroundSure EnviroInsight

GroundSure EnviroInsight

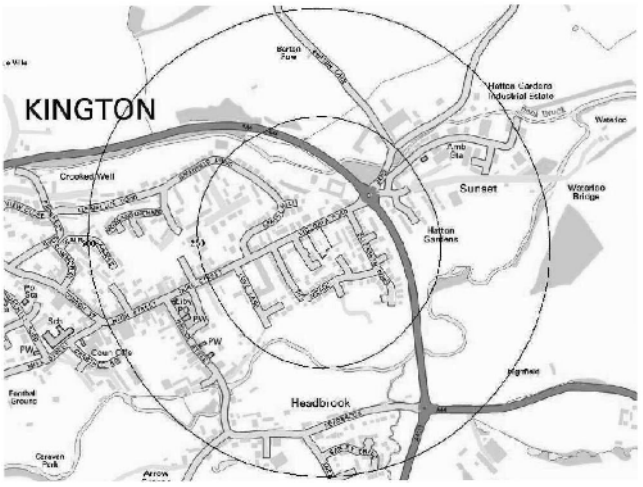
Address: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY

Date: Nov 13, 2010

GroundSure Reference: HMD-163-1068963

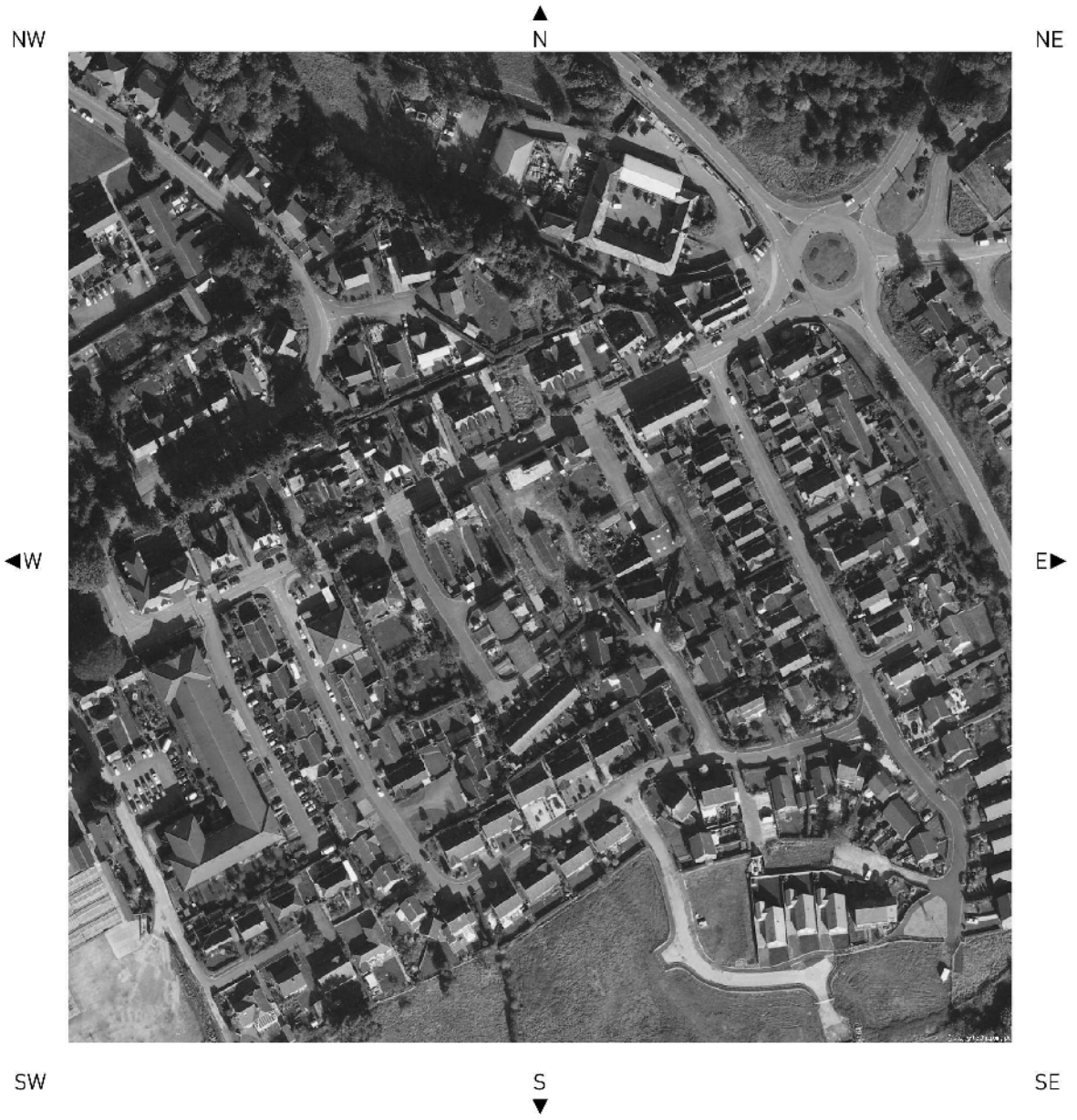
Your Reference: IV.11.07.Kington

Client: Ivy House Environmental Ltd



Brought to you by GroundSure

Aerial Photograph of Study Site



Site Name: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY
Grid Reference: 330126,256827
Size of Site: 0.21 ha

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Report Section	Number of records found within (X) m of the study site boundary					
1. Environmental Permits, Incidents and Registers	on-site	0-50	51-250	251-500	501-1000	1000-1500
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations						
Records of historic IPC Authorisations	0	0	0	0	-	-
Records of Part A(1) and IPPC Authorised Activities	0	0	0	0	-	-
Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0	-	-
Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0	-	-
Records of List 1 Dangerous Substances Inventory sites	0	0	0	0	-	-
Records of List 2 Dangerous Substances Inventory sites	0	0	1	0	-	-
Records of Part A(2) and Part B Activities and Enforcements	0	0	0	1	-	-
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0	-	-
Records of Licensed Discharge Consents	0	0	3	7	-	-
Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2 Records of COMAH and NIHHS sites	0	0	0	0	-	-
1.3 Environment Agency Recorded Pollution Incidents						
National Incidents Recording System, List 2	0	0	0	-	-	-
National Incidents Recording System, List 1	0	0	0	-	-	-
1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0	0	0	-	-
2. Landfill and Other Waste Sites	on-site	0-50	51-250	251-500	501-1000	1000-1500
2.1 Landfill Sites						
Environment Agency Registered Landfill Sites	0	0	0	0	0	-
Landfill Data - Operational Landfill Sites	0	0	0	0	0	-
Environment Agency Historic Landfill Sites	0	0	0	0	0	0
Landfill Data - Non-Operational Landfill Sites	0	0	0	0	0	-
BGS/DoE Landfill Site Survey	0	0	0	0	0	0
GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Environment Agency Licensed Waste Sites	0	0	0	0	1	0

3. Current Land Uses	on-site	0-50	51-250	251-500	501-1000	1000-1500
3.1 Current Industrial Sites Data	0	0	11	-	-	-
3.2 Records of Petrol and Fuel Sites	0	0	1	1	-	-
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0	-	-

4. Geology	Description
4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site? *	No
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site? *	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
Source: Scale: 1:50,000 BGS Sheet 197	

* This includes an automatically generated 50m buffer zone around the site.

5. Hydrogeology and Hydrology	on-site	0-50	51-250	251-500	501-1000	1001-2000
5.1 Environment Agency Groundwater Vulnerability and Soil Classification						
Is a Minor Aquifer present on site?	Yes	-	-	-	-	-
Is a Major Aquifer present on site?	No	-	-	-	-	-
Are there any Soil Classification records present on site?	Yes	-	-	-	-	-
5.2 Groundwater Abstraction Licences (within 1000m of the study site).	0	0	1	2	1	-
5.3 Surface Water Abstraction Licences (within 1000m of the study site).	0	0	0	0	2	-
5.4 Potable Water Abstraction Licences (within 2000m of the study site).	0	0	0	0	0	1
5.5 Are there any Source Protection Zones within 500m of the study site?			No			

5.6 River Quality	on-site	0-50	51-250	251-500	501-1000	1001-1500
Is there any Environment Agency information on river quality within 500m of the study site?	No	No	Yes	No	Yes	No
5.7 Detailed River Network entries within 500m of the site	0	0	6	29	-	-
5.8 Surface water features within 250m of the study site	No	No	Yes	-	-	-

6. Flooding	
6.1 Are there any Environment Agency indicative Zone 2 floodplains within 250m of the study site?	Yes
6.2 Are there any Environment Agency indicative Zone 3 floodplains within 250m of the study site?	Yes
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	High
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Moderately Low

7. Designated Environmentally Sensitive Sites	on-site	0-50	51-250	251-500	501-1000	1001-1500
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	-	-
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	-	-
7.3 Records of Local Nature Reserves (LNR)	0	0	0	0	-	-
7.4 Records of Special Areas of Conservation (SAC)	0	0	0	0	-	-
7.5 Records of Special Protection Areas (SPA)	0	0	0	0	-	-
7.6 Records of Ramsar sites	0	0	0	0	-	-
7.7 Records of World Heritage Sites	0	0	0	0	-	-
7.8 Records of Environmentally Sensitive Areas	0	0	0	0	-	-
7.9 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	-	-
7.10 Records of National Parks	0	0	0	0	-	-
7.11 Records of Nitrate Sensitive Areas	0	0	0	0	-	-
7.12 Records of Nitrate Vulnerable Zones	0	0	0	0	-	-

8. Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Very Low

9. Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Negligible
9.3 Are there any brine affected areas within 75m of the study site?	No

Ivy House Environmental Ltd
72 Derby Rd,
Derby, DE72 3NJ

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Report Delivery Method:	Email - pdf

GroundSure GeoInsight

Address: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY

Dear Sir/Madam,

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Yours faithfully,

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Managing Director
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Address: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY

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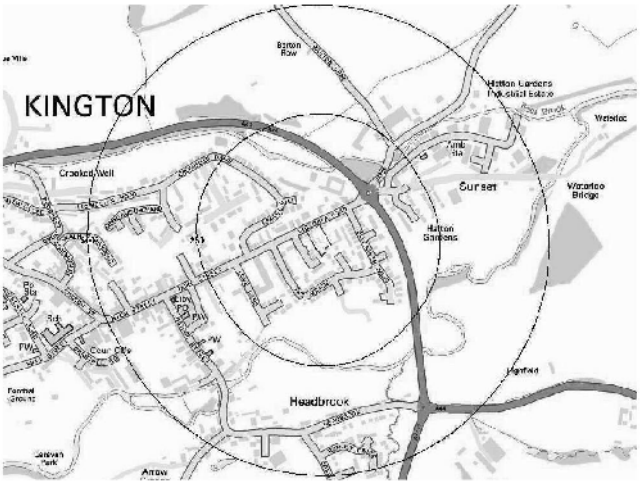


Brought to you by GroundSure

Aerial Photograph of Study Site

NW N NE

W E

SW S SE

Site Name: ERNEST DEACON LTD, VICTORIA ROAD, KINGTON, HR5 3BY
Grid Reference: 330126,256827
Size of Site: 0.21 ha

Overview of Findings

The GroundSure GeoInsight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and GroundSure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Report Section	Number of records found within (X) m of the study site boundary
1. Geology	**Description**
1.1 Artificial Ground,	
1.1.1 Is there any Artificial Ground /Made Ground present beneath the study site?*	No
1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology & Landslips	
1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
1.2.2 Are there any records relating to permeability of superficial geology within the study site* boundary?	Yes
1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
1.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No
1.3 Bedrock, Solid Geology & Faults	
1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
1.3.2 Are there any records relating to permeability of bedrock within the study site* boundary?	Yes
1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.3.4 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 5 and 10% of properties are above the Action Level
1.3.5 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	Basic radon protective measures are necessary

* This includes an automatically generated 50m buffer zone around the site

Source:Scale 1:50,000 BGS Sheet No:197

2. Ground Workings	on-site	0-50	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	3	-	-
2.2 Historical Underground Workings Features from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	1	1	1

3. Mining, Extraction & Natural Cavities	on-site	0-50	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining*	1	0	1	0	0
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

*This includes an automatically generated 50m buffer zone around the site

4. Natural Ground Subsidence	on-site*	0-50	51-250	251-500	501-1000
4.1 Shrink-Swell Clay	Very Low	-	-	-	-
4.2 Landslides	Very Low	-	-	-	-
4.3 Ground Dissolution of Soluble Rocks	Negligible	-	-	-	-
4.4 Compressible Deposits	Negligible	-	-	-	-
4.5 Collapsible Deposits	Negligible	-	-	-	-
4.6 Running Sand	Very Low	-	-	-	-

* This includes an automatically generated 50m buffer zone around the site

5. Borehole Records	on-site	0-50	51-250	251-500	501-1000
5.1 BGS Recorded Boreholes	0	0	5	-	-

6. Estimated Background Soil Chemistry	on-site	0-50	51-250	251-500	501-1000
6.1 Records of Background Soil Chemistry	1	1	0	-	-

APPENDIX E

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL
Health Protection Agency

Radon Risk Report

Ernest Deacon Ltd, Victoria Road, Kington, HR5 3BY

Numerical grid reference for this house:

330126 East

256828 North

Date of report: 14/07/2008

Guidance for existing properties

Is this property in a radon Affected Area? - YES

The answer to the standard enquiry on house purchase known as CON29 Standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area is: Yes, this property is in a Radon Affected Area as defined by the Health Protection Agency.

What is the estimated probability of the property being above the Action Level for radon? - 5-10%

The result covers a 75 metre zone around the grid references above to allow for uncertainties in locations.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Health Protection Agency, which advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so whether remedial measures were installed and whether the radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information is available in the Guide to Radon for Home Buyers and Sellers produced by the Department for Environment, Food and Rural Affairs, available as a PDF file from their website or by writing to Radon Studies Group, Health Protection Agency, Chilton, Didcot, Oxon OX11 0RQ.

Guidance for new buildings and extensions to existing properties

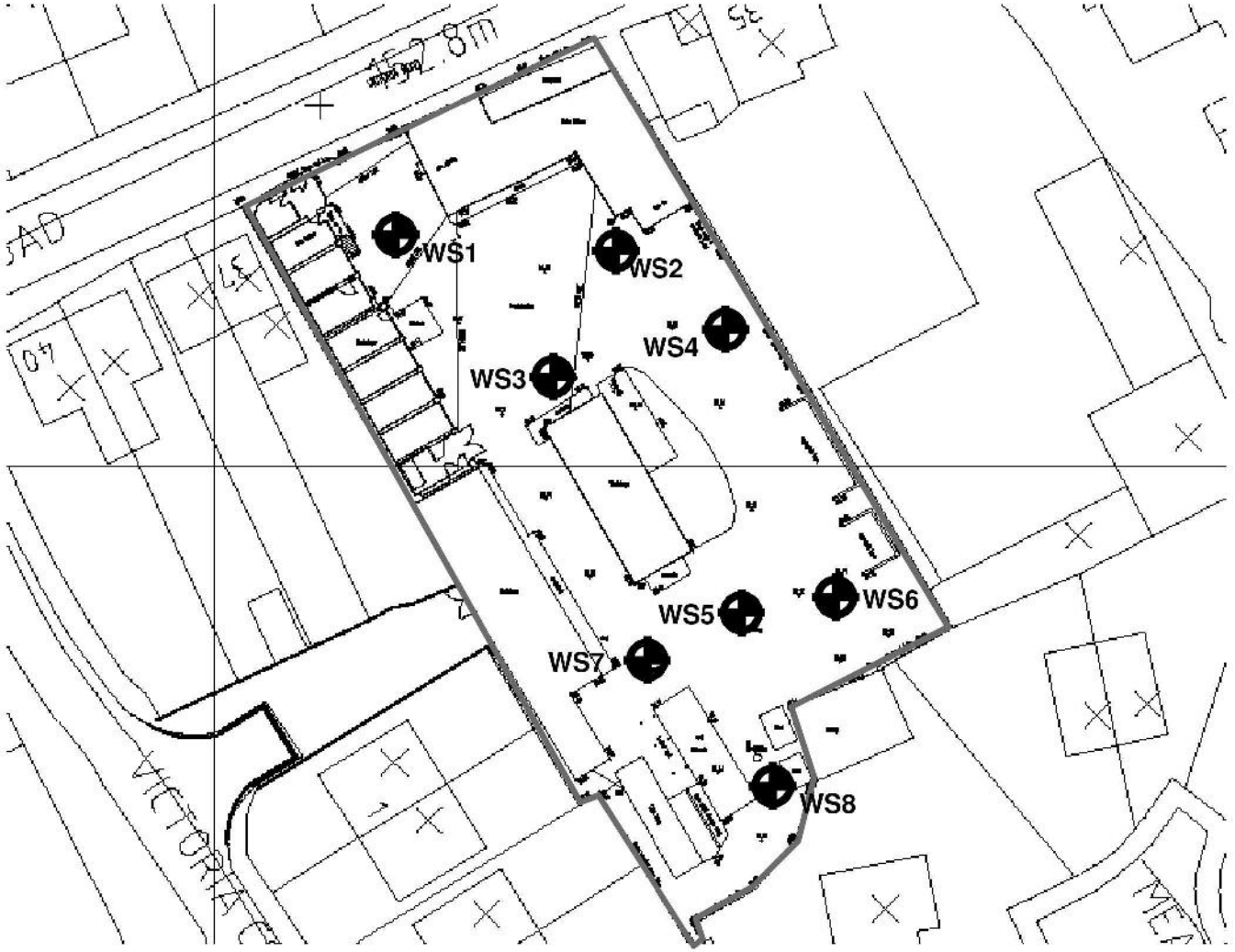
What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - Basic Protection

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

Issued by the Health Protection Agency and the British Geological Survey using AddressPoint version: 2008.5 - Report design 29 November 2007.

APPENDIX F



KEY:

Borehole Location

DO NOT SCALE

IVY HOUSE ENVIRONMENTAL

TITLE:	Exploratory Hole Location Plan
PROJECT:	Ernest Deacon Yard, Kington
PROJECT No: IV.1.07	DATE: 11/2010
SCALE: NTS	DRAWN: RPS
DWG No:	Figure 4

GED												Bore Hole No:	WS1 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat	Drive	Test		Drive		Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75	/n	M	
0.10													MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone, brick, concrete, occasional coal and clinker.
	0.30	J T											MADE GROUND: Loose dark grey sandy fine to medium, angular GRAVEL of ash clinker, coal, limestone, sandstone and brick.
0.40													
	0.60	J T											Medium dense brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
0.90													
	1.00	J T											Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.50	J T											
2.55													
													Sample tube refusal at 2.55m

Client: Auger	Remarks.
Driller: GED	1 BH drilled at entrance to site
Engineer: Grant	2 BH remained open and dry on completion
	3 BH backfilled with arisings on completion.
	4

GED												Bore Hole No:	WS2 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat	Drive	Test	Drive		Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	/n	M	
0.30												MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone, brick, concrete, occasional coal and clinker.
0.60	0.50	J T										MADE GROUND: Loose dark grey sandy fine to medium, angular GRAVEL of ash clinker, coal, limestone, sandstone and brick.
1.70	1.00	J T	SPT	1.00	4	5	5	6	6	5 22		Medium dense brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
	1.50	J T										
2.70	2.00	J T	SPT	2.00	4	5	6	6	6	5 23		Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	2.50	J T										
	2.90	J T	SPT	2.70	13	14	17	19	14	X 50		
									50	200		Sample tube refusal at 2.70m SPT refusal at 3.05m

Client:	Auger
Driller:	GED
Engineer:	Grant

Remarks.

1 BH drilled at front left corner
2 BH remained open and dry on completion
3 BH backfilled with arisings on completion.
4

GED												Bore Hole No:	WS3 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat	Drive	Test		Drive		Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75	/n	M	
													MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone. brick, concrete, occasional coal and clinker.
	0.50	J T											
0.60													
	0.80	J T											Medium dense brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
0.95	1.00	J T	SPT	1.00	4	4	4	5	5	4	18		Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.00	J T	SPT	2.00	4	4	5	5	5	5	20		
	2.50	J T											
2.90	2.90	J T	SPT	2.90	12	13	18	21	11 50	X	50 200		Sample tube refusal at 2.90m SPT refusal at 3.25m

Client: Auger	Remarks.
Driller: GED	1 BH drilled in front of central building.
Engineer: Grant	2 BH remained open and dry on completion
	3 BH backfilled with arisings on completion.
	4

GED												Bore Hole No:	WS4 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat Drive		Test Drive				Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75	/n	M	
													MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone. brick, concrete, occasional coal and clinker.
	0.30	J T											
0.50													
													Medium dense light brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
	0.70	J T											
1.00													
	1.00	J T											Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone. limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.00	J T											
	2.50	J T											
2.85													Sample tube refusal at 2.85m

Client: Auger	Remarks.
Driller: GED	1 BH drilled near left wall, in front of trees.
Engineer: Grant	2 BH remained open and dry on completion
	3 Installed 1.85m slotted, 1.50m plain 35mm pipe.
	4

GED												Bore Hole No:	WS5 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010

Depth	Sample		Test		Seat	Drive	Test Drive				Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75	/n	M	
													MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone. brick, concrete, occasional coal and clinker.
0.25													
	0.40	J T											MADE GROUND: Medium dense dark grey and brown very sandy fine to coarse, angular to sub-angular GRAVEL of ash clinker, coal, brick, limestone and sandstone.
0.50													Medium dense light brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
	0.70	J T											
0.90													
	1.00	J T	SPT	1.00	4	4	5	6	6	7	24		Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.00	J T	SPT	2.00	4	4	4	7	5	6	22		
	2.50	J T											
	3.00	J T	SPT	3.00	9	6	9	10	10	11	40		
												3.10	
3.40			SPT	3.40	11	13	15	17	18	X	50	WS +	
											225	SWL	Sample tube refusal at 3.40m

Client: Auger	Remarks.
Driller: GED	1 BH drilled at rear of central building
Engineer: Grant	2 Water strike and SWL at 3.10m
	3 BH backfilled with arisings on completion.
	4

GED												Bore Hole No:	WS 6 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat	Drive	Test		Drive		Cv	Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75	/n	M	
0.15													MADE GROUND: Loose grey and pinkish brown gravelly fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone, limestone and brick.
	0.20	J											MADE GROUND: Dark grey sandy fine to coarse, angular to sub-angular GRAVEL of ash clinker, brick, concrete, slate and rare coal.
0.25													
	0.50	J T											MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of sandstone, limestone, mudstone, brick, concrete, occasional coal and clinker.
0.60													
	0.80	J T											Medium dense light brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
0.90													
	1.00	J T											Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.00	J T											
	2.50	J T											
												2.95	
	3.00	J T										WS + SWL	
	3.50	J T											
3.60													
													Sample tube refusal at 3.60m

Client: Auger	Remarks.
Driller: GED	1 BH drilled at rear left corner of site
Engineer: Grant	2 Water strike and SWL at 2.95m
	3 BH installed with 2.50m slotted, 1.50m plain 35mm pipe.
	4

GED												Bore Hole No:	WS7 Job No: IVY 16 10
Bore Hole Log Sheet												Site:	Former builders Yard, Kington, Herefordshire
Tel: 07745 648578												Date:	11/11/2010
Depth	Sample		Test		Seat	Drive	Test		Drive	Cv		Water	Description
M	Depth M	Type	Type	Depth	75	75	75	75	75	75/n		M	
													MADE GROUND: Dense grey and brown sandy, slightly clayey fine to coarse, angular to sub angular GRAVEL of limestone and concrete.
	0.30	J T											
0.45													
	0.60	J T											Medium dense light brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
0.95													
	1.00	J T											Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse, angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.50	J T											
	2.00	J T											
	2.50	J T											
	3.00	J T										3.00	
												WS + SWL	
3.40													
													Sample tube refusal at 3.40m

Client:	Auger
Driller:	GED
Engineer:	Grant

Remarks.

1 BH drilled at rear. right of central building
2 Water strike and SWL at 3.00m
3 Installed with 2.50m slotted, 1.50m plain pipe.
4

GED

Bore Hole Log Sheet

Tel: 07745 648578

Bore Hole No:	WS8 Job No: IVY 16 10
Site:	Former builders Yard, Kington, Herefordshire
Date:	11/11/2010

Depth M	Sample Depth M	Sample Type	Test Type	Test Depth	Seat Drive 75	Seat Drive 75	Test Drive 75	Test Drive 75	Test Drive 75	Cv /n	Water M	Description
0.10												MADE GROUND: Loose brown fine to coarse SAND.
												MADE GROUND: Very dense grey sandy fine to coarse, angular to sub angular GRAVEL of limestone and concrete with rare brick.
	0.30	J T										
0.55												
												Medium dense light brown slightly gravelly, clayey fine to coarse SAND. Gravel is fine to medium and angular to sub-angular of sandstone and mudstone.
	0.70	J T										
0.85												
												Medium dense becoming very dense light brown and grey very sandy, slightly clayey fine to coarse. angular to sub-angular GRAVEL of sandstone, limestone, slate and occasional mudstone, with occasional sandstone cobbles.
	1.00	J T	SPT	1.00	5	7	6	7	6	6 25		
	1.50	J T										
	2.00	J T	SPT	2.00	5	5	5	6	6	9 26		
	2.50	J T										
2.65			SPT	2.65	21	4 15	27	23	X	X 50/150		Sample tube refusal at 2.65m

Client: Auger

Driller: GED

Engineer: Grant

Remarks.

1 BH drilled at rear, right corner of site.

2 BH remained open and dry on completion

3 BH backfilled with arisings.

4

APPENDIX G

Richard Sutton
Ivy House Environmental
52 Beech Avenue
Sandiacre
Notts, NG10 5EH

4480 4480

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QTS Environmental Report No: 4382

Site Reference: Victoria Road, Kington

Project / Job Ref: IV.11.07

Order No: None Supplied

Sample Receipt Date: 16/11/10

Sample Scheduled Date: 16/11/10

Report Issue Number: 1

Reporting Date: 22/11/2010

Authorised by:

Russell Jarvis
Director
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director
On behalf of QTS Environmental Ltd

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Soil Analysis Certificate							
QTS Environmental Report No: 4382	**Date Sampled**	11/11/10	11/11/10	11/11/10	11/11/10	11/11/10
Ivy House Environmental	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Victoria Road, Kington	**TP / BH No**	WS1	WS2	WS6	WS7	WS8
Project / Job Ref: IV.11.07	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.30	0.50	0.50	0.30	0.30
Reporting Date: 22/11/2010	**QTSE Sample No**	18181	18182	18183	18184	18185

Determinand	Unit	MDL	Accreditation					
Stone Content	%	<0.1	NONE	17.7	<0.1	<0.1	25.6	17.7
Moisture Content	%	<0.1	NONE	7.5	8.9	14.8	6.2	4.7

General Inorganics	Unit	MDL	Accreditation					
pH	pH Units	+ / - 0.1	MCERTS	8.2	7.7	7.7	7.8	7.9
Total Cyanide	mg/kg	<2	NONE	<2	<2	<2	<2	<2
Total Sulphate as SO_4	mg/kg	<200	NONE	476	<200	556	413	260
W/S Sulphate as SO_4 (2:1)	g/l	<0.01	NONE	0.03	0.01	0.03	0.01	0.01
Organic Matter	%	<0.1	NONE	0.9	1.1	1.6	0.7	0.9
Total Phenols (monohydric)	mg/kg	<2	NONE	<2	<2	<2	<2	<2

Metals	Unit	MDL	Accreditation					
Arsenic (As)	mg/kg	<2	MCERTS	8	5	6	7	6
Cadmium (Cd)	mg/kg	<0.5	MCERTS	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (hexavalent)	mg/kg	<2	NONE	<2	<2	<2	<2	<2
Chromium (Cr)	mg/kg	<2	MCERTS	17	14	25	20	44
Copper (Cu)	mg/kg	<4	MCERTS	16	15	37	59	25
Lead (Pb)	mg/kg	<3	MCERTS	121	274	196	319	75
Mercury (Hg)	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Nickel (Ni)	mg/kg	<3	MCERTS	18	19	26	17	29
Selenium (Se)	mg/kg	<3	NONE	<3	<3	<3	<3	<3
Zinc (Zn)	mg/kg	<3	MCERTS	40	202	73	213	58

Basic Hydrocarbons	Unit	MDL	Accreditation					
EPH (C10 - C40)	mg/kg	<6	MCERTS					

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

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Soil Analysis Certificate						
QTS Environmental Report No: 4382	**Date Sampled**	11/11/10	11/11/10			
Ivy House Environmental	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Victoria Road, Kington	**TP / BH No**	WS4	WS6			
Project / Job Ref: IV.11.07	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	2.00	3.00			
Reporting Date: 22/11/2010	**QTSE Sample No**	18186	18187			

Determinand	Unit	MDL	Accreditation					
Stone Content	%	<0.1	NONE					
Moisture Content	%	<0.1	NONE	6.1	7.7			

General Inorganics	Unit	MDL	Accreditation					
pH	pH Units	+ / - 0.1	MCERTS					
Total Cyanide	mg/kg	<2	NONE					
Total Sulphate as SO_4	mg/kg	<200	NONE					
W/S Sulphate as SO_4 (2:1)	g/l	<0.01	NONE					
Organic Matter	%	<0.1	NONE					
Total Phenols (monohydric)	mg/kg	<2	NONE					

Metals	Unit	MDL	Accreditation					
Arsenic (As)	mg/kg	<2	MCERTS					
Cadmium (Cd)	mg/kg	<0.5	MCERTS					
Chromium (hexavalent)	mg/kg	<2	NONE					
Chromium (Cr)	mg/kg	<2	MCERTS					
Copper (Cu)	mg/kg	<4	MCERTS					
Lead (Pb)	mg/kg	<3	MCERTS					
Mercury (Hg)	mg/kg	<1	NONE					
Nickel (Ni)	mg/kg	<3	MCERTS					
Selenium (Se)	mg/kg	<3	NONE					
Zinc (Zn)	mg/kg	<3	MCERTS					

Basic Hydrocarbons	Unit	MDL	Accreditation					
EPH (C10 - C40)	mg/kg	<6	MCERTS	<6	<6			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C
Analysis carried out on the dried sample is corrected for the stone content

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Soil Analysis Certificate - Speciated PAHs						
QTS Environmental Report No: 4382	**Date Sampled**	11/11/10	11/11/10	11/11/10	11/11/10	11/11/10
Ivy House Environmental	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Victoria Road, Kington	**TP / BH No**	WS1	WS2	WS6	WS7	WS8
Project / Job Ref: IV.11.07	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.30	0.50	0.50	0.30	0.30
Reporting Date: 22/11/2010	**QTSE Sample No**	18181	18182	18183	18184	18185

Determinand	Unit	MDL	Accreditation					
Naphthalene	mg/kg	<0.1	MCERTS	0.45	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	MCERTS	0.90	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	MCERTS	0.65	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	MCERTS	5.70	0.40	0.30	<0.1	0.40
Anthracene	mg/kg	<0.1	MCERTS	2.14	0.16	<0.1	<0.1	0.13
Fluoranthene	mg/kg	<0.1	MCERTS	9.86	0.96	0.84	<0.1	0.67
Pyrene	mg/kg	<0.1	MCERTS	7.94	0.82	0.72	<0.1	0.62
Benzo(a)anthracene	mg/kg	<0.1	MCERTS	9.04	0.90	0.51	<0.1	0.43
Chrysene	mg/kg	<0.1	MCERTS	8.74	0.94	0.51	<0.1	0.52
Benzo(b)fluoranthene	mg/kg	<0.1	MCERTS	8.15	1.02	0.46	<0.1	0.47
Benzo(k)fluoranthene	mg/kg	<0.1	MCERTS	8.60	0.94	0.51	<0.1	0.46
Benzo(a)pyrene	mg/kg	<0.1	MCERTS	9.83	1.05	0.48	<0.1	0.51
Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	MCERTS	6.12	1.01	0.70	<0.1	0.71
Dibenz(a,h)anthracene	mg/kg	<0.1	MCERTS	1.98	0.19	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	<0.1	MCERTS	4.88	0.57	0.29	<0.1	0.35
Total EPA-16 PAHs	mg/kg	<1.6	MCERTS	84.98	8.95	5.30	<1.6	5.27

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

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UKAS TESTING 4480 mCERTS THE ENVIRONMENT AGENCY'S 4480

Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 4382	**Date Sampled**	11/11/10	11/11/10			
Ivy House Environmental	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Victoria Road, Kington	**TP / BH No**	WS4	WS6			
Project / Job Ref: IV.11.07	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	2.00	3.00			
Reporting Date: 22/11/2010	**QTSE Sample No**	18186	18187			

Determinand	Unit	MDL	Accreditation					
Phenol	mg/kg	<0.1	NONE	<0.1	<0.1			
1,2,4-Trichlorobenzene	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
2-Nitrophenol	mg/kg	<0.1	NONE	<0.1	<0.1			
Nitrobenzene	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
0-Cresol	mg/kg	<0.1	NONE	<0.1	<0.1			
bis(2-chloroethoxy)methane	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
bis(2-chloroethyl)ether	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
2,4-Dichlorophenol	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
2-Chlorophenol	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
1,3-Dichlorobenzene	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
1,4-Dichlorobenzene	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
1,2-Dichlorobenzene	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
2,4-Dimethylphenol	mg/kg	<0.15	**ISO17025**	<0.15	<0.15			
Isophorone	mg/kg	<0.1	NONE	<0.1	<0.1			
Hexachloroethane	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
p-Cresol	mg/kg	<0.15	**MCERTS**	<0.15	<0.15			
2,4,6-Trichlorophenol	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
2,4,5-Trichlorophenol	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
2-Nitroaniline	mg/kg	<0.1	NONE	<0.1	<0.1			
4-Chloro-3-methylphenol	mg/kg	<0.1	NONE	<0.1	<0.1			
2-Methylnaphthalene	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Hexachlorocyclopentadiene	mg/kg	<0.1	NONE	<0.1	<0.1			
Hexachlorobutadiene	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
2,6-Dinitrotoluene	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Dimethyl phthalate	mg/kg	<0.1	NONE	<0.1	<0.1			
2-Chloronaphthalene	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
4-Nitrophenol	mg/kg	<0.1	NONE	<0.1	<0.1			
4-Chlorophenyl phenyl ether	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
3-Nitroaniline	mg/kg	<0.1	NONE	<0.1	<0.1			
4-Nitroaniline	mg/kg	<0.1	NONE	<0.1	<0.1			
4-Bromophenyl phenyl ether	mg/kg	<0.1	**MCERTS**	<0.15	<0.15			
Hexachlorobenzene	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Diethyl phthalate	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Dibenzofuran	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Azobenzene	mg/kg	<0.1	NONE	<0.1	<0.1			
Carbazole	mg/kg	<0.1	**ISO17025**	<0.1	<0.1			
bis(2-ethylhexyl)phthalate	mg/kg	<0.15	**MCERTS**	<0.1	<0.1			
Benzyl butyl phthalate	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			
Di-n-octyl phthalate	mg/kg	<0.1	**MCERTS**	<0.1	<0.1			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{0}C

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UKAS TESTING 4480 mCERTS THE ENVIRONMENT AGENCY'S 4480

Soil Analysis Certificate - Sample Descriptions	
QTS Environmental Report No: 4382	
Ivy House Environmental	
Site Reference: Victoria Road, Kington	
Project / Job Ref: IV.11.07	
Order No: None Supplied	
Reporting Date: 22/11/2010	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Sample Matrix Description
18181	WS1	None Supplied	0.30	Brown loamy clay with rubble
18182	WS2	None Supplied	0.50	Grey loamy sand with brick
18183	WS6	None Supplied	0.50	Brown loamy clay with vegetation and concrete
18184	WS7	None Supplied	0.30	Grey loamy sand
18185	WS8	None Supplied	0.30	Grey loamy sand with crystalline material and concrete
18186	WS4	None Supplied	2.00	Brown loamy clay with stones
18187	WS6	None Supplied	3.00	Brown loamy clay with stones

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UKAS TESTING 4480 mCERTS 4480

Soil Analysis Certificate - Methodology & Misceallaneous Information
QTS Environmental Report No: 4382
Ivy House Environmental
Site Reference: Victoria Road, Kington
Project / Job Ref: IV.11.07
Order No: None Supplied
Reporting Date: 22/11/2010

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	AR	Asbestos Screening	Visual screening of samples for fibrous material	E024
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water followed by titration using silver nitrate	E021
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by turbidimeter	E020
Soil	D	Fluoride - Water Soluble	Test Kit	E023
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	D	Phosphorus	Determination of phosphorus by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	AR	Sulphide	Determination of sulphide by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia, potassium iodide/iodate followed by ICP-OES	E002
Soil	AR	Thiocyanate (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	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E009
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	PAH - Speciated (EPA 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	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E009
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E010
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E009
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VPH (C6 - C10)	Determination of hydrocarbons C6-C10 by headspace GC-MS	E001
Soil	AR	EPH TEXAS	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	TPH CWG	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	TPH LQM	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	EPH (with florisil cleanup)	Determination of acetone/hexane extractable hydrocarbons with florisil cleanup step by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001

Key

D Dried
AR As Received

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QTS Environmental Report No: 4438

Site Reference: Victoria Road, Kington

Project / Job Ref: IV.11.07

Order No: None Supplied

Sample Receipt Date: 22/11/10

Sample Scheduled Date: 22/11/10

Report Issue Number: 1

Reporting Date: 26/11/2010

Authorised by:

Russell Jarvis
Director
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director
On behalf of QTS Environmental Ltd

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Water Analysis Certificate						
QTS Environmental Report No: 4438	**Date Sampled**	18/11/10				
Ivy House Environmental	**Time Sampled**	None Suppllied				
Site Reference: Victoria Road, Kington	**TP / BH No**	WS6				
Project / Job Ref: IV.11.07	**Additional Refs**	B				
Order No: None Supplied	**Depth (m)**	None Suppllied				
Reporting Date: 26/11/2010	**QTSE Sample No**	18494				

Determinand	Unit	MDL	Accreditation				
General Inorganics	**Unit**	**MDL**	**Accreditation**				
pH	pH Units	+ / - 0.1	NONE	7.3			

Metals (Dissolved)	Unit	MDL	Accreditation				
Arsenic	µg/l	<10	NONE	<10			
Boron	µg/l	<50	NONE	<50			
Cadmium	µg/l	<0.5	NONE	<0.5			
Chromium	µg/l	<5	NONE	5			
Copper	µg/l	<10	NONE	<10			
Lead	µg/l	<5	NONE	<5			
Mercury	µg/l	<0.05	NONE	<0.05			
Nickel	µg/l	<7	NONE	<7			
Selenium	µg/l	<5	NONE	<5			
Zinc	µg/l	<5	NONE	<5			

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Tel : 01622 851105

Water Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 4438	**Date Sampled**	18/11/10				
Ivy House Environmental	**Time Sampled**	None Supplied				
Site Reference: Victoria Road, Kington	**TP / BH No**	WS6				
Project / Job Ref: IV.11.07	**Additional Refs**	B				
Order No: None Supplied	**Depth (m)**	None Supplied				
Reporting Date: 26/11/2010	**QTSE Sample No**	18494				

Determinand	Unit	MDL	Accreditation				
Phenol	µg/l	<0.1	NONE	<0.1			
1,2,4-Trichlorobenzene	µg/l	<0.1	NONE	<0.1			
2-Nitrophenol	µg/l	<0.1	NONE	<0.1			
Nitrobenzene	µg/l	<0.1	NONE	<0.1			
0-Cresol	µg/l	<0.1	NONE	<0.1			
bis(2-chloroethoxy)methane	µg/l	<0.1	NONE	<0.1			
bis(2-chloroethyl)ether	µg/l	<0.1	NONE	<0.1			
2,4-Dichlorophenol	µg/l	<0.1	NONE	<0.1			
2-Chlorophenol	µg/l	<0.1	NONE	<0.1			
1,3-Dichlorobenzene	µg/l	<0.1	NONE	<0.1			
1,4-Dichlorobenzene	µg/l	<0.1	NONE	<0.1			
1,2-Dichlorobenzene	µg/l	<0.1	NONE	<0.1			
2,4-Dimethylphenol	µg/l	<0.1	NONE	<0.1			
Isophorone	µg/l	<0.1	NONE	<0.1			
Hexachloroethane	µg/l	<0.1	NONE	<0.1			
p-Cresol	µg/l	<0.1	NONE	<0.1			
2,4,6-Trichlorophenol	µg/l	<0.1	NONE	<0.1			
2,4,5-Trichlorophenol	µg/l	<0.1	NONE	<0.1			
2-Nitroaniline	µg/l	<0.1	NONE	<0.1			
4-Chloro-3-methylphenol	µg/l	<0.1	NONE	<0.1			
2-Methylnaphthalene	µg/l	<0.1	NONE	<0.1			
Hexachlorocyclopentadiene	µg/l	<0.1	NONE	<0.1			
Hexachlorobutadiene	µg/l	<0.1	NONE	<0.1			
2,6-Dinitrotoluene	µg/l	<0.1	NONE	<0.1			
Dimethyl phthalate	µg/l	<0.1	NONE	<0.1			
2-Chloronaphthalene	µg/l	<0.1	NONE	<0.1			
4-Nitrophenol	µg/l	<0.1	NONE	<0.1			
4-Chlorophenyl phenyl ether	µg/l	<0.1	NONE	<0.1			
3-Nitroaniline	µg/l	<0.1	NONE	<0.1			
4-Nitroaniline	µg/l	<0.1	NONE	<0.1			
4-Bromophenyl phenyl ether	µg/l	<0.1	NONE	<0.1			
2,4-Dinitrotoluene	µg/l	<0.1	NONE	<0.1			
Diethyl phthalate	µg/l	<0.1	NONE	<0.1			
Dibenzofuran	µg/l	<0.1	NONE	<0.1			
Azobenzene	µg/l	<0.1	NONE	<0.1			
Carbazole	µg/l	<0.1	NONE	<0.1			
bis(2-ethylhexyl)phthalate	µg/l	<0.1	NONE	<0.1			
Benzyl butyl phthalate	µg/l	<0.1	NONE	<0.1			
Di-n-octyl phthalate	µg/l	<0.1	NONE	<0.1			

Generic Assessment Criteria

	Residential With Plant Uptake	Residential Without Plant Uptake	Commercial/Industrial
Arsenic	32	35	640
Cadmium	10	17	230
Chromium (III)	2500	2700	29,000
Chromium (IV)	32	35	326
Lead	450	450	5000
Mercury	170	170	3600
Selenium	350	595	13000
Nickel	130	786	1800
Phenol	415	519	1,100,000
Acenaphthene	1,000	3,910	100,000
Acenaphthylene	850	3,870	100,000
Anthracene	9,200	23,000	500,000
Benzo(a)anthracene	5.90	6.00	97.00
Benzo(a)pyrene	1.00	1.04	14.00
Benzo(b)fluoranthene	7.00	7.30	100.00
Benzo(ghi)perylene	43	47	660
Benzo(k)fluoranthene	10.0	10.4	140.0
Chrysene	9	10	140
Copper	2,300	6,200	70,000
Free Cyanide	34	34	34
Dibenzo(ah)anthracene	0.90	0.93	13.00
Fluoranthene	670	1,000	23,000
Fluorene	780	2,800	71,000
Ideno(1,2,3-cd)pyrene	4.20	4.40	62.00
Napthalene	8.7	9.0	1,100
Phenanthrene	380	940	23,000
Pyrene	1,600	2,400	54,000
Zinc	3,700	40,000	600,000
PETROLEUM HYDROCARBONS			
Aliphatics			
C5-C8	110	113	13,000
C8-C10	370	370	42,000
C10-C12	110	110	12,000
C12-C16	540	540	49,000
C16-C21	3,000	3,000	91,000
C21-C35	76,000	89,000	1,800,000
Aromatics			
C5-C7	280	970	90,000
C7-C8	610	2,700	190,000
C8-C10	150	190	18,000
C10-C12	340	860	34,000
C12-C16	590	1,700	37,000
C16-C21	770	1,300	28,000
C21-C35	1,200	1,300	28,000

Note
All figures are in mg/Kg
Values calculated using CLEA v1.06
All organic determinands calculated using 6% SOM
SGV for Inorganic Hg quoted (ref SGV Pg5, para 4)

UK Drinking Water Standards (UKDWS)

Parameter	Concentration	Units
Acrylamide	0.1	µg/l
Aluminium	200	µgAl/l
Ammonium	0.5	mgNH4/l
Antimony	5	µgSb/l
Arsenic	10	µgAs/l
Benzene	1	µg/l
Benzo(a)pyrene	0.01	µg/l
Boron	1	mgB/l
Bromate	10	µgBrO3/l
Cadmium	5	µgCd/l
Chromium	50	µgCr/l
Chloride (i)	250	mgCl/l
Conductivity (i)	2500	µS/cm at 20 °C
Copper(ii)	2	mgCu/l
Cyanide	50	µgCN/l
1, 2 dichloroethane	3	µg/l
Epichlorohydrin	0.1	µg/l
Fluoride	1.5	mgF/l
Hydrogen ion	10	pH value
Iron	200	µgFe/l
Lead (ii)	25	µgPb/l
Manganese	50	µgMn/l
Mercury	1	µgHg/l
Mineral Oil (TPH)	10	µg/l
Nickel (ii)	20	µgNi/l
Nitrate (iii)	50	mgNO3/l
Nitrite (iii)	0.5	mgNO2/l
Phenol	0.5	µg/l
Polycyclic aromatic hydrocarbons (vii)	0.1	µg/l
Selenium	10	µgSe/l
Sodium	200	mgNa/l
Sulphate (i)	250	mgSO4/l
Tetrachloroethene and Trichloroethene (viii)	10	µg/l
Tetrachloromethane	3	µg/l
Trihalomethanes: Total (ix)	100	µg/l
Vinyl chloride	0.5	µg/l
Zinc	5000	µg/l

Pesticides		
Aldrin	0.03	µg/l
Dieldrin	0.03	µg/l
Heptachlor	0.03	µg/l
Heptachlor epoxide	0.03	µg/l
other pesticides	0.1	µg/l
Pesticides: Total (vi)	0.5	µg/l

Environmental Quality Standards (EQS) Groundwater thresholds for List 1 & 2 Substances

Table 1: Environmental Quality Standards (EQS) for List 1 Dangerous Substances	
Substance	All Freshwaters EQS (ug/l)
Mercury	1
Cadmium	5
Hexachlorocyclohexane	0.1
Dieldrin Heptachlor Total DDT	 0.025
pp'DDT Tetrachloroethene	0.01 -
Diuron	0.01
Isoproturon	0.025
Aldrin	0.01
Endrin	0.0005
Total Triazines	0.03
Hexachlorobenzene	0.03
Hexachlorobutadiene or Chloroform	0.1 12
1,2-Dichloroethane	10
Trichloroethene	10
Tetrachloromethane	0.1

Table 2a: Environmental Quality Standards (EQS) for List 2 Dangerous Substances					
Substance	EQS Type	All Freshwater EQS (ug/l)	Substance	EQS Type	All Freshwater EQS (ug/l)
1,1,1-Trichloroethane	Annual average	100	Fenitrothion	Annual average	0.01
1,1,2-Trichloroethane	Annual average	400	Fluoranthene	95 percentile	1
2,4-D (ester)	Annual average	1	Iron (dissolved)	Annual average	1.0
2,4-D (formulation)	Annual average	10	Lead (dissolved)	Annual average	Hardness related (see table 2b for details)
2,4-Dichlorophenol	Annual average	20	Linuron	Annual average	2
2-Chlorotoluol	Annual average	50	Malathion	Annual average	0.01
4-Chloro-3-methylphenol	Annual average	40	Mecoprop	Annual average	10
Arsenic (dissolved)	Annual average	50	Mevinphos	Maximum concentration	0.02
Atrazine & Simazine	Annual average	2	Naphthalene	Annual average	10
Anthracene Benzene	Annual average Annual average	0.1 600	Nickel (dissolved) Octylphenol	Annual average Annual average	Hardness related (see table 2b for details) 0.01
Benzene	Annual average	10	PCB's	95th percentile	0.05
Biphenyl	Annual average	25	Pentachlorophenol	95th percentile	0.01
Boron (dissolved)	Annual average	2000	pH	95th percentile	6 to 9
Chlorfenvinphos Chromium III (dissolved)	Annual average Annual average	10 Hardness related (see table 2b for details)	Polychlorinated biphenyls Toluene	95th percentile Annual average	0.5 50
Copper (dissolved)	Annual average	Hardness related (see table 2b for details)	Trifluralin	Annual average	0.005
Cyclodiene	95th percentile	0.005	Tributyltin	Maximum concentration	0.002
Demeton	Annual average	0.5	Trichlorobenzene	Annual average	0.4
Dichlorvos Dichlorvos	Annual average Maximum concentration	0.001 -	Triphenyltin Vanadium (dissolved)	Maximum concentration Annual average	0.002 Hardness related (see table 2b for details)
Dimethoate	Annual average	1	Xylene (mixed isomers)	Annual average	30
Endosulphan Ammonia (as N-H3)	Annual average	0.005 15	Zinc (dissolved)	Annual average	Hardness related (see table 2b for details)

Table 2b: Environmental Quality Standards (EQS) for hardness related List 2 dangerous substances							
		EQS (ug/l) for Hardness bands (mg/l CaCO3)					
Substance	EQS type	0-50	>50-100	>100-150	>150-200	>200-250	>250
Freshwaters, suitable for all fish life							
Copper (dissolved)	Annual average	1	6	10	10	10	28
Copper (dissolved)	95th percentile	6	22	40	40	40	112
Nickel (dissolved)	Annual average	8	50	100	150	200	300
Vanadium (dissolved)	Annual average	20	50	200	300	400	600
Freshwaters, suitable for Salmonid (game) fish							
Chromium III (dissolved)	Annual average	5	10	20	20	50	50
Lead (dissolved)	Annual average	4	10	50	20	50	250
Zinc (total)	Annual average	8	50	75	75	75	125
Zinc (total)	95th percentile	30	200	300	300	300	500
Freshwaters, suitable for Cyprinid (coarse) fish							
Chromium (dissolved)	Annual average	160	75	200	200	200	200
Lead (dissolved)	Annual average	50	125	125	250	250	250
Zinc (total)	Annual average	75	75	200	200	200	500
Zinc (total)	95th percentile	300	700	1000	1000	1000	3000

Contaminant Thresholds for Subsurface Water Pipes

Contaminant	Material selection Threshold Level (mg/kg dried soil)
Corrosion	
Sulphate (SO4)	2000
Sulphur (S)	5000
Sulphide (S)	250
pH	<pH5, >pH8
Toxic Substances	
Antimony (Sb)	10
Arsenic (As)	10*
Cadmium (Cd)	3
Chromium (hexavalent) (Cr)	25
Chromium (total)	600
Cyanide (free) (Cn)	25*
Cyanide (complexed) (Cn)	250*
Lead (Pb)	500
Mercury (Hg)	1
Selenium (Se)	3
Thiocyanate (SCN)	50
Organic Contaminants	
Coal Tar	50
Cyclohexane extractable	50
Phenol	5
Poly Aromatic Hydrocarbons	50
Toluene extractable	50
TPH DRO (diesel, kerosene)	100
Petrol	10
Mineral oils	1000

* It is not recommended that water pipes should be laid in sites where these substances are identified or suspected

Ref: Water Regulations Advisory Scheme (WRAS) (No. 9-04-03 Issue 1)