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FAO Matt Christensen
Taylor Wimpey North Thames
1st Floor, 2 Imperial Place
Maxwell Road
Borehamwood
WD6 1JN

Date: 19th July 2019
Your Ref:
Our Ref: R-STM3370A-G03

Dear Matt,

Soil leachate testing at Chequersfield, Welwyn Garden City

Further to your instructions, we confirm completion of ground investigations at Chequersfield. Our brief was to undertake leachate testing of soils samples from around and below the invert level of built soakaway chambers to allow an assessment of the potential for soakaway drainage to mobilise leachable contamination.

Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the manpower, resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

Fieldwork

Fieldwork was carried out on 23rd May 2019 and comprised the formation of six borehole using driven tube sampling techniques. Borehole logs and a plan detailing borehole locations are appended.

Ground conditions encountered

The boreholes encountered Made Ground overlying Glacial Deposits.

Made Ground was encountered in all locations to depths in the range of 1.4 to 2.3m where the full thickness was proven. Made Ground extended to beyond termination depths of boreholes DTS204 and DTS205 (>3m). Made Ground generally comprised soft gravelly clay or clayey gravelly sand with gravels of flint, brick, chalk, metal, concrete and bituminous coated material.

Glacial Deposits were encountered in boreholes DTS201, DTS202, DTS205 and DTS206 to depths exceeding 5m. Glacial Deposits generally comprised slightly clayey gravelly fine to coarse sand with gravels of fine to coarse sub-angular to rounded flint.

No visual or olfactory evidence for the presence of volatile contamination was encountered.

No groundwater was encountered.

Laboratory testing

Eight samples were scheduled for analysis of leachable concentrations of metals, polycyclic aromatic hydrocarbons (PAH), petroleum hydrocarbons (TPH) volatile organic compounds (VOC) and semi-volatile organic compounds (sVOC). A copy of the laboratory test certificate is appended.

Assessment of test data

For interpretation of test data, we have directly compared measured values with the Environmental Quality Standards (EQS) and UK Drinking Water Standards (UKDWS). In the absence of EQS or UKDWS we have adopted World Health Organisation Drinking Water Guidelines (WHODWG).

EQS values are published by the Environment Agency in their publication, "*Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part 11A of the Environmental Protection Act 1990*". EQS values for most inorganic contaminants in freshwater are dictated by the hardness of the receiving watercourse. The hardness of water is a measure of the concentration of calcium carbonate in the water. Although we have not sampled water from nearby watercourses, based on data published by DEFRA, water hardness in the local area is in the range of 201 – 300mg/l.

A table summarising comparison of test data with guideline values is appended.

Discussion

All results for leachable concentrations of contaminants are below corresponding guidelines values for the local environment (EQS values) or drinking water standards.

Based on the leachate test results and our observations of soils around the soakaway chambers and below chamber invert levels, stormwater discharged into the built soakaways poses a low risk of mobilisation of contamination.

We trust this provides the information required. If there are any queries, please contact the undersigned.

Yours sincerely,

Seb Crolla B.Sc., (Hons.), MIEnvSc., FGS
seb.crolla@soiltechnics.net
Associate Director, Soiltechnics Limited

Enc
Plan detailing exploratory locations
Borehole logs
Laboratory test certificate
Table summarising test results

Land at Chequersfield,
Welwyn Garden City

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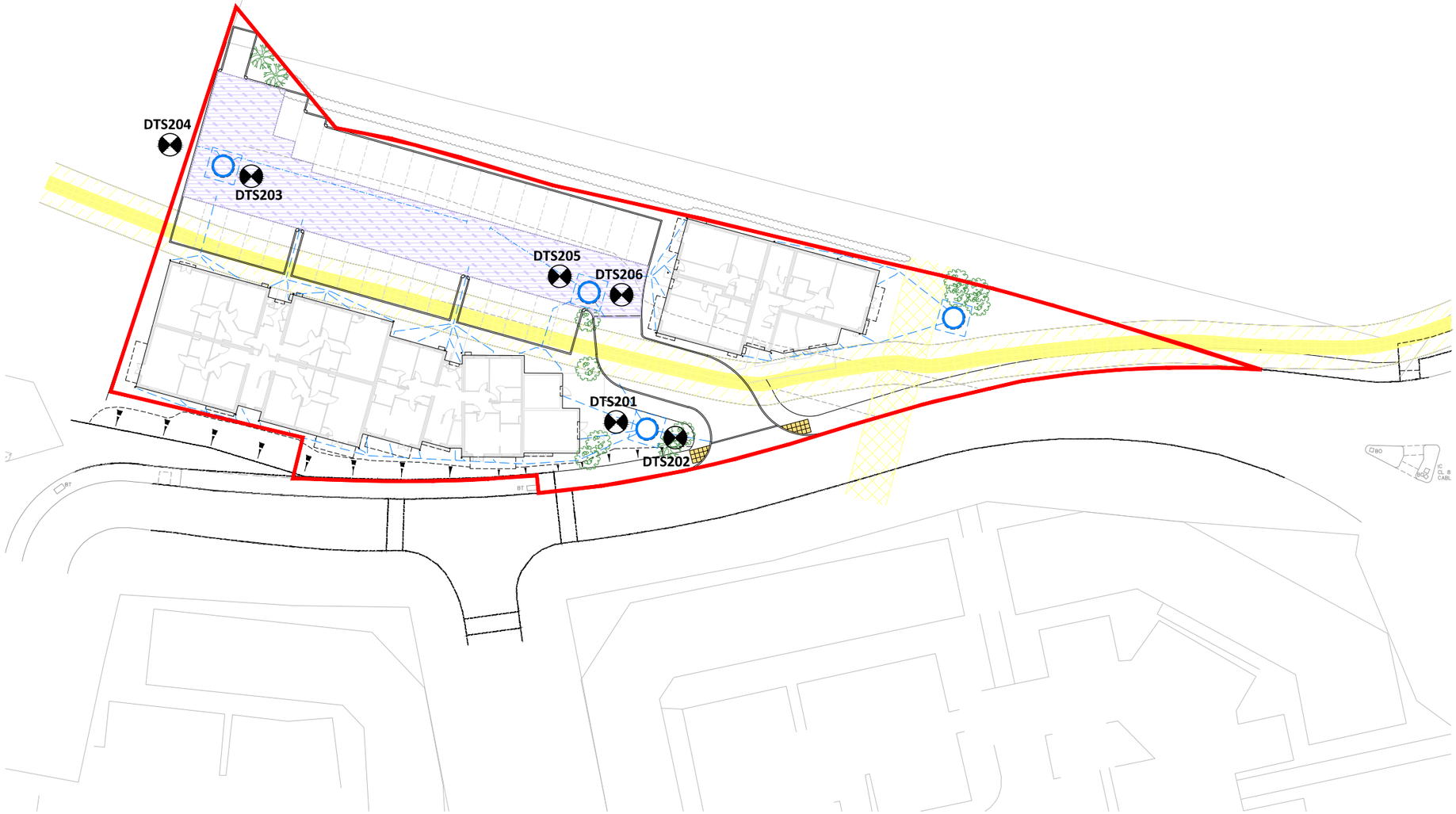
Key

DTS — Approximate location of borehole formed by Driven Tube Sampling techniques



Title	Scale	Drawing number
Plan showing development proposals and location of exploratory points	1:500 at A3	01

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Key to legends

Composite materials, soils and lithology

 Topsoil	 Made Ground	 Boulders
 Chalk	 Clay	 Coal
 Cobbles	 Cobbles & Boulders	 Concrete
 Gravel	 Limestone	 Mudstone
 Peat	 Sand	 Sand and Gravel
 Sandstone	 Silt	 Silt / Clay
		 Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
Result	PP – Pocket penetrometer result (kN/m^2) SV – Hand held shear vane result (kN/m^2) PP result converted to an equivalent undrained shear strength by applying a factor of 50. Where at least 3 results obtained at same depth then an average value may be reported.
	SPT – Standard Penetration Test result (uncorrected)[1,2,3] SPT(c) – Standard Penetration Test result (solid cone) (uncorrected)[1,2,3]
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample comprising plastic and/or glass container
	W	Water sample
	UT	Undisturbed sample 100mm diameter sampler

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ = water level observed after specified delay in drilling

▽ = water strike

Standpipe details

 Gravel filter

 Arisings

 Bentonite

 Slotted pipe

 Unslotted pipe

Density

Density recorded in brackets inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

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Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Soft brown gravelly slightly sandy silty CLAY. Gravel consists of fine to coarse angular to sub-angular brick, chalk and flint. (MADE GROUND)													
	...from 0.5m depth, becoming rare gravel.											0.80		D
	Brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse rounded to sub-rounded flint, bituminous containing material and charcoal. (MADE GROUND)	0.95										1.40		ES
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse flint. (GLACIAL DEPOSITS)	1.80										2.00		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of borehole to 2.9m depth.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** SC	**DTS201**

Report ref: STM3370A-L-001 **Revision:** 0

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Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse flint. (GLACIAL DEPOSITS)											3.00		D
	...from 3.9m depth, becoming clayey.											4.00		D
	Soft greyish greenish brown slightly sandy clayey SILT. (GLACIAL DEPOSITS)	4.50										4.70		ES
	BOREHOLE TERMINATED AT 5.00m	5.00												

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of borehole to 2.9m depth.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** SC	**DTS201**

Report ref: STM3370A-L-001 **Revision:** 0

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Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm brown gravelly slightly sandy silty CLAY. Gravel consists of fine to coarse rounded to sub-angular brick, flint and concrete. (MADE GROUND)											0.50		ES
	Dark brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-angular flint and bituminous coated gravels. (MADE GROUND)	0.90										1.20		ES
	Light orange brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse rounded to sub-angular flint. (GLACIAL DEPOSITS)	1.40										2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** SC	**DTS202**

Report ref: STM3370A-L-001 **Revision:** 0

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Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light orange brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse rounded to sub-angular flint. (GLACIAL DEPOSITS)											3.50		ES
	...from 3.7m depth, becoming slightly gravelly.											4.50		D
	...from 4.9m depth, becoming grey and silty.													
	BOREHOLE TERMINATED AT 5.00m	5.00												

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details		Method	Logged by	Date(s)
Range (m)	Recovery (%)	Driven tube sampler	LC	23/05/2019
		Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 2 of 2
		Co-ordinates -	**Checked by** SC	**DTS202**

Report ref: STM3370A-L-001 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BITUMINOUS BOUND MATERIAL. (MADE GROUND)	0.12												
	Greenish brown and grey slightly sandy GRAVEL. Gravel consists of fine to coarse rounded to sub-angular flint and granite. (MADE GROUND)											0.50		D
	Brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-angular brick, flint, sandstone and granite. (MADE GROUND)	0.60										0.80		D
	Chaotic mix of dark brown and grey brown soft gravelly very sandy CLAY and clayey gravelly fine to coarse SAND. Gravel consists of fine to coarse angular to sub-rounded flint, brick, metal, charcoal, bituminous coated gravel and concrete. (MADE GROUND)	0.90										1.50		ES
	Chaotic mix of brown soft to firm slightly gravelly sandy clay and slightly gravelly clayey SAND. Gravel consists of fine to coarse angular to sub-angular flint, brick and charcoal. (MADE GROUND)	2.00										2.60		ES
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details		Method	Logged by	Date(s)
Range (m)	Recovery (%)	Driven tube sampler	LC	23/05/2019
		Level (m OD)	**Compiled by**	**Sheet number**
		-	JJ	Sheet 1 of 2
		Co-ordinates	**Checked by**	**DTS203**
		-	SC	

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Chaotic mix of brown soft to firm slightly gravelly sandy clay and slightly gravelly clayey SAND. Gravel consists of fine to coarse angular to sub-angular flint, brick and charcoal. (MADE GROUND)	3.00												
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** SC	**DTS203**

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Cream and light brown sandy GRAVEL. Gravel consists of fine to coarse angular to sub-angular concrete, flint, brick and bituminous containing material. (MADE GROUND)											0.20		D
	Brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-angular flint, bituminous coated gravel, charcoal and breeze block. (MADE GROUND)	0.40										1.00		ES
	Soft grey silty slightly sandy CLAY. (MADE GROUND)	1.30										1.40		D
	Brown gravelly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-angular flint and metal. (MADE GROUND)	1.50										2.20		ES
	Soft to firm dark brown slightly gravelly sandy silty CLAY. Gravel consists of fine to coarse rounded to sub-angular flint, charcoal and organic matter. (MADE GROUND)	2.40												
	CONTINUED ON NEXT SHEET											2.90		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** SC	**DTS204**

Report ref: STM3370A-L-001 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Soft to firm dark brown slightly gravelly sandy silty CLAY. Gravel consists of fine to coarse rounded to sub-angular flint, charcoal and organic matter. (MADE GROUND)	3.00												
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** SC	**DTS204**

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Land at Chequersfield,
Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BITUMINOUS BOUND MATERIAL. (MADE GROUND)	0.12												
	Brown sandy GRAVEL. Gravel consists of fine to coarse rounded to sub-rounded flint. (MADE GROUND)	0.40												
	Brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-rounded flint, bituminous coated material, brick and lightweight concrete block. (MADE GROUND)											0.70		D
												1.30		D
												1.90		ES
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular to rounded flint. (GLACIAL DEPOSITS)	2.00												
												2.50		ES
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** SC	**DTS205**

Report ref: STM3370A-L-001 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular to rounded flint. (GLACIAL DEPOSITS)	3.00												
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method
Driven tube sampler

Level (m OD)
-

Co-ordinates
-

Logged by
LC

Compiled by
JJ

Checked by
SC

Date(s)
23/05/2019

Sheet number
Sheet 2 of 2

DTS205

Report ref: STM3370A-L-001

Revision: 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BITUMINOUS BOUND MATERIAL. (MADE GROUND)	0.12												
	Brown sandy GRAVEL. Gravel consists of fine to coarse rounded to sub-rounded flint. (MADE GROUND)	0.35												
	Brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse angular to sub-rounded flint, bituminous coated gravel, brick and breeze block. (MADE GROUND)											1.00		ES
	Grey brown gravelly very clayey fine to medium SAND. Gravel consists of fine to coarse sub-angular to rounded flint, charcoal and brick. (MADE GROUND)	1.40										1.50		D
												2.20		ES
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular to rounded flint. (GLACIAL DEPOSITS)	2.30										2.70		ES
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LC	**Date(s)** 23/05/2019
Level (m OD) -	**Compiled by** JJ	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** SC	**DTS206**

Report ref: STM3370A-L-001 **Revision:** 0

Land at Chequersfield,
Welwyn Garden City

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown gravelly slightly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular to rounded flint. (GLACIAL DEPOSITS)	3.00												
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Borehole remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method
Driven tube sampler

Level (m OD)
-

Co-ordinates
-

Logged by
LC

Compiled by
JJ

Checked by
SC

Date(s)
23/05/2019

Sheet number
Sheet 2 of 2

DTS206

Report ref: STM3370A-L-001

Revision: 0

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DETS Report No: 19-07525

Site Reference: Chequersfield, Welwyn Garden C

Project / Job Ref: STM3370A

Order No: POR005496

Sample Receipt Date: 29/05/2019

Sample Scheduled Date: 29/05/2019

Report Issue Number: 1

Reporting Date: 04/06/2019

Authorised by:

Dave Ashworth
Deputy Quality Manager

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Leachate Analysis Certificate								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	6.8	6.8	6.8	6.6	6.6
Total Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Complex Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Sulphate as SO_4	mg/l	< 1	ISO17025	2	3	< 1	< 1	3
Sulphide	mg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrate as NO_3	mg/l	< 0.5	ISO17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Arsenic	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Beryllium	ug/l	< 3	ISO17025	< 3	< 3	< 3	< 3	< 3
Boron	ug/l	< 5	ISO17025	7	63	7	33	14
Cadmium	ug/l	< 0.4	ISO17025	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	< 20	< 20	< 20
Copper	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Lead	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	5
Mercury	ug/l	< 0.05	ISO17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Selenium	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vanadium	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Zinc	ug/l	< 2	ISO17025	< 2	3	< 2	12	11
Total Phenols (monohydric)	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10

Subcontracted analysis (S)

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Leachate Analysis Certificate								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

Determinand	**Unit**	**RL**	**Accreditation**					
pH	pH Units	N/a	**ISO17025**	6.4	6.5	6.4		
Total Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5		
Complex Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5		
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5		
Sulphate as SO_4	mg/l	< 1	**ISO17025**	2	3	1		
Sulphide	mg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Nitrate as NO_3	mg/l	< 0.5	**ISO17025**	< 0.5	< 0.5	2.5		
Arsenic	ug/l	< 5	**ISO17025**	< 5	6	< 5		
Beryllium	ug/l	< 3	**ISO17025**	< 3	< 3	< 3		
Boron	ug/l	< 5	**ISO17025**	< 5	29	7		
Cadmium	ug/l	< 0.4	**ISO17025**	< 0.4	< 0.4	< 0.4		
Chromium	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	< 20		
Copper	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Lead	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Mercury	ug/l	< 0.05	**ISO17025**	< 0.05	< 0.05	< 0.05		
Nickel	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Selenium	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Vanadium	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Zinc	ug/l	< 2	**ISO17025**	21	4	5		
Total Phenols (monohydric)	ug/l	< 10	NONE	< 10	< 10	< 10		

Subcontracted analysis (S)

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Leachate Analysis Certificate - Speciated PAH								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	ug/l	< 0.01	NONE	0.04	0.04	0.03	0.02	0.03
Acenaphthylene	ug/l	< 0.01	NONE	0.03	< 0.01	< 0.01	< 0.01	0.04
Acenaphthene	ug/l	< 0.01	NONE	0.05	0.01	0.02	0.02	0.02
Fluorene	ug/l	< 0.01	NONE	0.03	0.03	0.03	0.04	< 0.01
Phenanthrene	ug/l	< 0.01	NONE	0.10	0.22	0.14	0.60	< 0.01
Anthracene	ug/l	< 0.01	NONE	0.02	0.03	0.03	0.03	< 0.01
Fluoranthene	ug/l	< 0.01	NONE	0.08	0.04	0.05	0.06	< 0.01
Pyrene	ug/l	< 0.01	NONE	0.04	0.02	0.03	0.04	< 0.01
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.39	0.39	0.33	0.81	0.09

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Leachate Analysis Certificate - Speciated PAH							
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	ug/l	< 0.01	NONE	< 0.01	0.02	0.04		
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	ug/l	< 0.01	NONE	0.02	0.01	0.02		
Fluorene	ug/l	< 0.01	NONE	0.03	0.01	0.04		
Phenanthrene	ug/l	< 0.01	NONE	0.12	0.06	0.12		
Anthracene	ug/l	< 0.01	NONE	0.03	0.01	0.03		
Fluoranthene	ug/l	< 0.01	NONE	0.04	0.03	0.03		
Pyrene	ug/l	< 0.01	NONE	0.03	0.02	0.02		
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008	< 0.008		
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.27	0.16	0.30		

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Leachate Analysis Certificate - TPH CWG Banded								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

Determinand	**Unit**	**RL**	**Accreditation**					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70
Total >C5 - C35	ug/l	< 140	NONE	< 140	< 140	< 140	< 140	< 140

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Leachate Analysis Certificate - TPH CWG Banded							
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

Determinand	**Unit**	**RL**	**Accreditation**					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70		
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	< 70	< 70		
Total >C5 - C35	ug/l	< 140	NONE	< 140	< 140	< 140		

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Leachate Analysis Certificate - BTEX / MTBE								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

Determinand	**Unit**	**RL**	**Accreditation**					
Benzene	ug/l	< 1	**ISO17025**	< 1	< 1	< 1	< 1	< 1
Toluene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5
p & m-xylene	ug/l	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10
o-xylene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5
MTBE	ug/l	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10

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Leachate Analysis Certificate - BTEX / MTBE								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

Determinand	Unit	RL	Accreditation					
Benzene	ug/l	< 1	**ISO17025**	< 1	< 1	< 1		
Toluene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
Ethylbenzene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
p & m-xylene	ug/l	< 10	**ISO17025**	< 10	< 10	< 10		
o-xylene	ug/l	< 5	**ISO17025**	< 5	< 5	< 5		
MTBE	ug/l	< 10	**ISO17025**	< 10	< 10	< 10		

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Leachate Analysis Certificate - Volatile Organic Compounds (VOC)								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
o-Xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Styrene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

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Leachate Analysis Certificate - Volatile Organic Compounds (VOC)								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Vinyl Chloride	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10		
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloroform	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromochloromethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1		
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Trichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromodichloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Dibromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
TAME	ug/l	< 5	ISO17025	< 5	< 5	< 5		
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Tetrachloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Dibromochloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Ethyl Benzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
m,p-Xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10		
o-Xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Styrene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromoform	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Isopropylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
n-Propylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
n-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5	< 5	< 5		

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	1.40
Reporting Date: 04/06/2019	**DETS Sample No**	411034

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	4.70
Reporting Date: 04/06/2019	**DETS Sample No**	411035

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS202
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	3.50
Reporting Date: 04/06/2019	**DETS Sample No**	411036

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS203
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	2.60
Reporting Date: 04/06/2019	**DETS Sample No**	411037

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411038

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	2.50
Reporting Date: 04/06/2019	**DETS Sample No**	411039

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS206
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411040

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 19-07525	**Date Sampled**	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS206
Project / Job Ref: STM3370A	**Additional Refs**	ES
Order No: POR005496	**Depth (m)**	2.70
Reporting Date: 04/06/2019	**DETS Sample No**	411041

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	N/A	µg/l	< 5	< 5
2	N/A	N/A	µg/l	< 5	< 5
3	N/A	N/A	µg/l	< 5	< 5
4	N/A	N/A	µg/l	< 5	< 5
5	N/A	N/A	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds (SVOC)								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19	23/05/19	23/05/19
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS201	DTS201	DTS202	DTS203	DTS204
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES	ES	ES
Order No: POR005496	**Depth (m)**	1.40	4.70	3.50	2.60	2.20
Reporting Date: 04/06/2019	**DETS Sample No**	411034	411035	411036	411037	411038

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

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Leachate Analysis Certificate - Semi Volatile Organic Compounds (SVOC)								
DETS Report No: 19-07525	**Date Sampled**	23/05/19	23/05/19	23/05/19		
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Chequersfield, Welwyn Garden C	**TP / BH No**	DTS205	DTS206	DTS206		
Project / Job Ref: STM3370A	**Additional Refs**	ES	ES	ES		
Order No: POR005496	**Depth (m)**	2.50	2.20	2.70		
Reporting Date: 04/06/2019	**DETS Sample No**	411039	411040	411041		

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

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS201
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	1.40
Reporting Date: 04/06/2019	DETS Sample No	411034

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS201
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	4.70
Reporting Date: 04/06/2019	DETS Sample No	411035

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS202
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	3.50
Reporting Date: 04/06/2019	DETS Sample No	411036

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS203
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	2.60
Reporting Date: 04/06/2019	DETS Sample No	411037

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS204
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	2.20
Reporting Date: 04/06/2019	DETS Sample No	411038

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS205
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	2.50
Reporting Date: 04/06/2019	DETS Sample No	411039

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS206
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	2.20
Reporting Date: 04/06/2019	DETS Sample No	411040

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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Leachate Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 19-07525	Date Sampled	23/05/19
Soiltechnics Ltd	Time Sampled	None Supplied
Site Reference: Chequersfield, Welwyn Garden C	TP / BH No	DTS206
Project / Job Ref: STM3370A	Additional Refs	ES
Order No: POR005496	Depth (m)	2.70
Reporting Date: 04/06/2019	DETS Sample No	411041

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

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4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 19-07525
Soiltechnics Ltd
Site Reference: Chequersfield, Welwyn Garden C
Project / Job Ref: STM3370A
Order No: POR005496
Reporting Date: 04/06/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by co	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detect	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

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Summary of leachate and water test results

Receptor	**Groundwater**	
Water type	**Freshwater**	
Fish type	**Cyprinid**	
Water hardness	**200-250**	**mg/l**

Contaminant	Guideline value (µg/l)	Guideline source	Location	DTS201	DTS201	DTS202	DTS203	DTS204	DTS205	DTS206	DTS206
			Depth (m)	1.4	4.7	3.5	2.6	2.2	2.5	2.2	2.7
			Sample type	Leachate	Leachate	Leachate	Leachate	Leachate	Leachate	Leachate	Leachate
Inorganics (µg/l)											
Arsenic	50	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	6	< 5
Boron	2000	EQS (f)		7	63	7	33	14	< 5	29	7
Cadmium	5	EQS (f)		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	250	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Copper	10	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Lead	250	EQS (f)		< 5	< 5	< 5	< 5	5	< 5	< 5	< 5
Mercury	1	EQS (f)		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	200	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Selenium[1]	10	UKDWS		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Vanadium[2]	60	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Zinc	250	EQS (f)		< 2	3	< 2	12	11	21	4	5
Free Cyanide[1]	50	UKDWS		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Nitrate as N	50000	UKDWS		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3
Sulphate as SO4	400000	EQS(f)		2	3	< 1	< 1	3	2	3	1
PAH (µg/l)											
Benzo(a)pyrene[1,4]	0.00017	EQS (f)		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene[2]	2	EQS (f)		0.04	0.04	0.03	0.02	0.03	< 0.01	0.0	0.0
1,2-dichloroethane	10	UKDWS		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH (µg/l)											
Aliphatic EC5-EC6	150000	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>6-EC8	150000	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>8-EC10	300	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>10-EC12	300	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>12-EC16	300	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>16-EC21	-	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic EC>21-EC34	-	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC5-EC6	10	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>6-EC8	700	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>8-EC10	500	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>10-EC12	90	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>12-EC16	90	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>16-EC21	90	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic EC>21-EC35	90	WHO		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	10	EQS (f)		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene[2]	740	EQS (f)		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethyl benzene[2]	300	WHO		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylene[2]	30	EQS (f)		< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Notes

1 EQS values not available
2 UKDWS not available
3 Lower detectable limit above UKDWS. Concentrations below detectable limits are not considered further.
* Taken as lower detection limit
# Taken as lower detection limit of a single compound

UKDWS UK Drinking Water Standard Guideline taken from "The Water Supply (Water Quality) Regulations 2000"
EQS (f) Environmental Quality Standard for freshwater published by the Environment Agency
EQS (s) Environmental Quality Standard for saltwater published by the Environment Agency
WHO World Health Organization (WHO) guideline values for fractions in drinking water

Title	Table number
Comparison of measured concentrations with guideline values for water receptors.	1