DTR15083 06 th December 2016

Dunton ENVIRONMENTAL Restoring Our Environment

> Dunton Environmental Unit 1, Tamebridge Industrial Estate Aldridge Road, Perry Barr West Midlands, B42 2TX, UK

Telephone: +44 (0)121 356 4360 Facsimile: +44 (0)121 356 1274

Thomas Hunter

Senior Quantity Surveyor St James Group Limited Marlborough House 298 Regents Park Road Finchley London, N3 2UA

Dear Thomas,

RE: DTR15083 Factual Validation Report for the MOL land at Twickenham Contamination hotspot removal

INTRODUCTION

Dunton Environmental (DE) was instructed in May 2015 by St James to remediate three hotspot locations by a means of material excavation offsite disposal to landfill, validation and backfill at MOL land, London Road Twickenham.

Three contamination hotspots were identified from ground investigation boreholes carried out by RSK which are presented in the RSK technical report. The hotspots included two asbestos (chrysotile cemented sheeted fragments) hotspots (WS214 and WS215) and one elevated lead hotspot (WS216). The hotspot locations are detailed on a plan in Appendix A. The remedial objective was to target and excavate impacted soils for disposal off site at an appropriate licensed facility.

Material from WS214 and WS215 was classified as hazardous waste and WS216 as non hazardous. Waste transfer notes have been included within the appendices.

Verification testing was undertaken to confirm the removal of the hotspots prior to the pits being backfilled. Soil samples tested where compared to a validation criteria provided in the RSK Remediation Method Statement report (Table 4, Pg 13 and table 5, Pg 15).

Methodology

Localised excavations were undertaken in the areas where asbestos containing materials and elevated levels of lead were identified which included WS214, WS215 (asbestos) and WS216 (lead). Each excavation approximately covered a plan area of 3x3m with a depth of 1.00m. A 360 machine excavator was used to remove the material with the supervision of a suitably accredited asbestos surveyor and banks man. Material that was removed was damped down to reduce the risk of asbestos fibres from becoming airborne and any stockpiles were covered up to minimise the spread of contaminants. Photos of the pits are included within the appendices.



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Following the removal of the material, samples were taken of the exposed sides and base of the pits for validation testing to confirm the removal of all impacted soils. 5 no. soil samples were taken from each pit, listed A to E (diagrams included in the appendices), and compared against the validation criteria contained in Table 4 and Table 5 of the RSK RMS report attached in the appendices. Once the testing confirmed the extent of the contamination had been excavated, the pits were backfilled with clean material and reinstated.

Validation

Initially, three samples were taken from locations WS214, WS215 and WS216 on 11th November 2015 at about 0.50m deep to establish the levels of determinants within these localities to be able to provide certificates for material disposal.

The results (report No.15-37610) showed that no asbestos was identified and that levels of lead were high in excavations WS215 and WS216, being above the validation assessment criteria. A 3x3m 0.50m deep trench was dug in these three areas with the material excavated being disposed off site. 5 sample tests were carried out on the exposed sides and bases of the pits to determine whether or not the contamination of lead / asbestos had been removed. No asbestos was detected in WS214 or WS215 so these pits were backfilled with clean material on site.

Lead levels in the side walls and base of pit WS216 all exceeded the validation criteria required. (Report No 15-37858). As a result Pit WS216 was widened by 1.00m and deepened by 0.50m and tested again to further validate on the 20th November 2015 in the same way (Report No. 15-38038). The results showed that the base of the pit had lead levels below the required validation criteria but the side wall levels were still elevated.

The pit was extended outwards 1.00m for a final time and tested on the 27th November 2015 (Report No. 15-38288).Pit face B was unable to be extended and tested due to the site boundary. Lead levels had reduced but they were still above the required criteria in two of the three side walls of the pit. Pit faces were terminated due to the river in the north, surface asbestos in the south and allotments to the west.



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Backfilling

Clean backfill material was put back into pits WS214 and WS215. The testing certificate for this material from the shallow soils within the vicinity is included in the appendices (report No: 15-38667).

Conclusion

No asbestos fibres were recorded in any of the test samples taken from the validation pits although ACM was noted on the surface across the entirety of the site. The testing proved that the upper 1.00m of the material around hotspot WS216 contained elevated levels of lead. The full extent of the hotspot of the further elevated lead values are unknown due to obstructions and boundaries limiting access for excavation.

Dunton are scheduled to do further works in early 2016 to backfill pit WS216 with imported clean material and to possibly pick surface ACM from the site.

Please feel free to contact me should you have any questions.

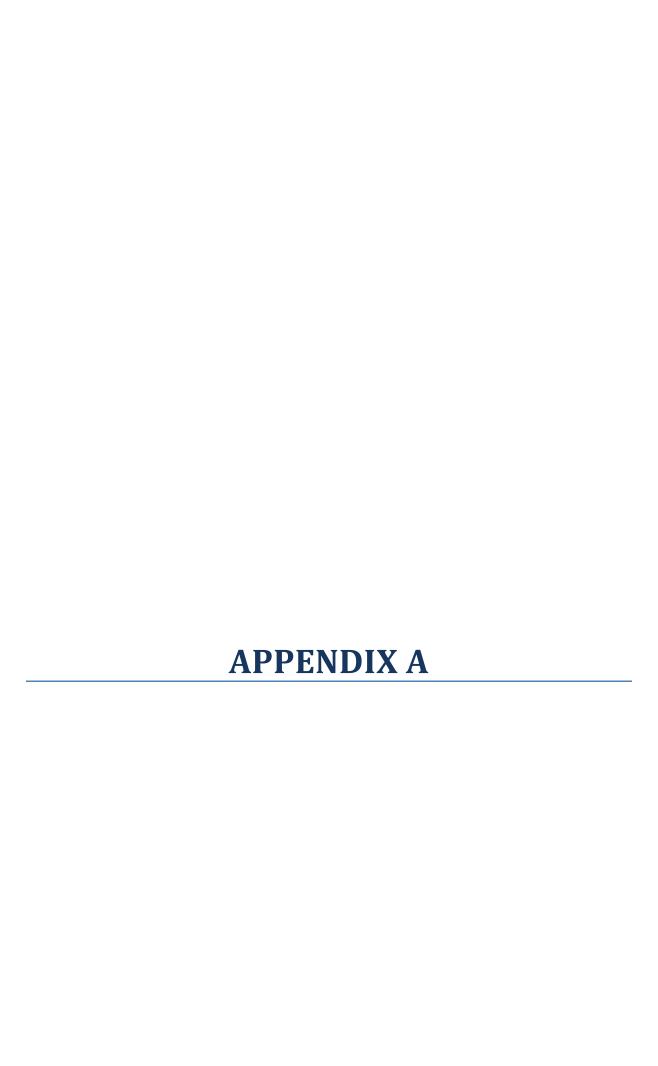
Yours Sincerely,

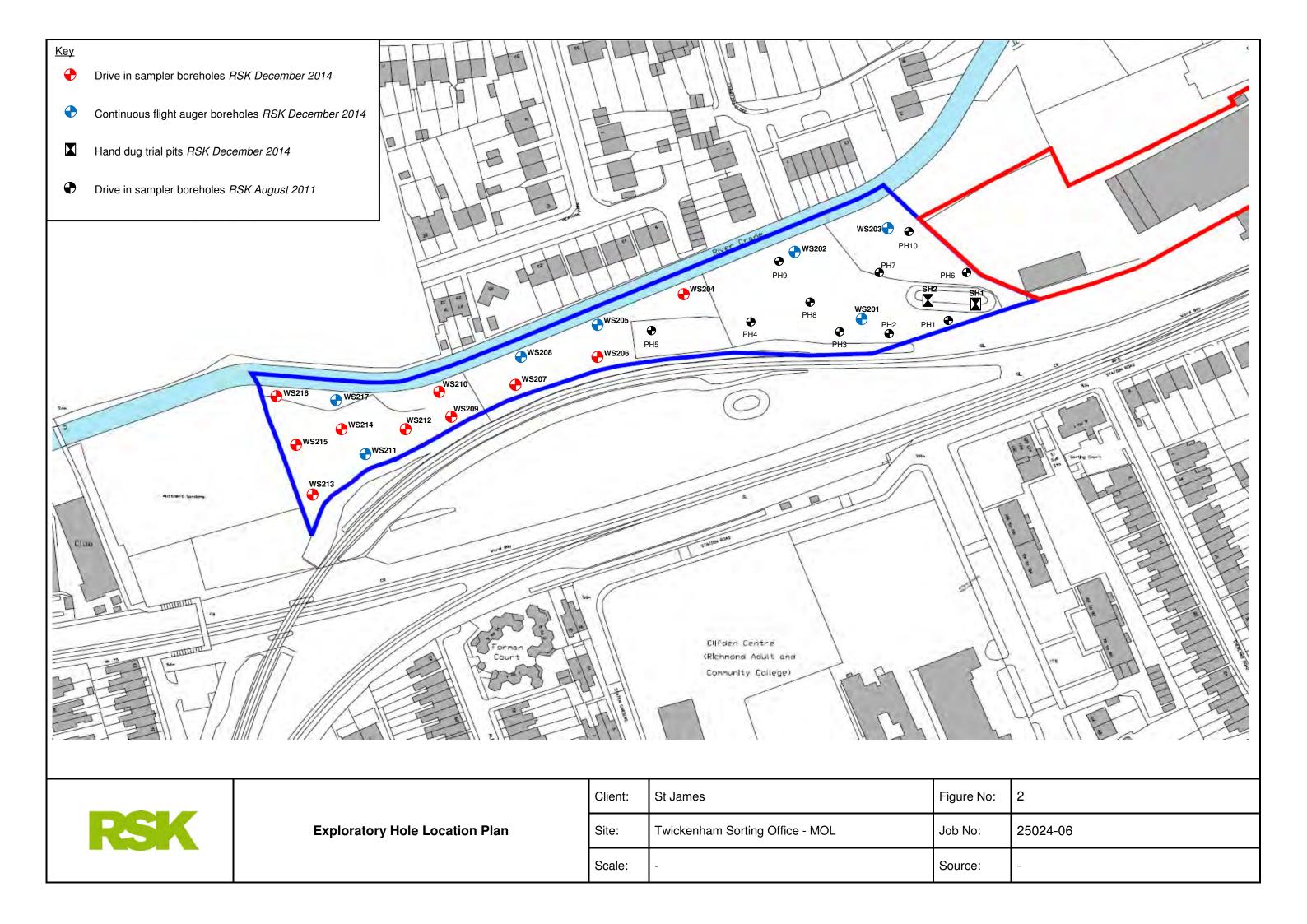
Michael Gillman

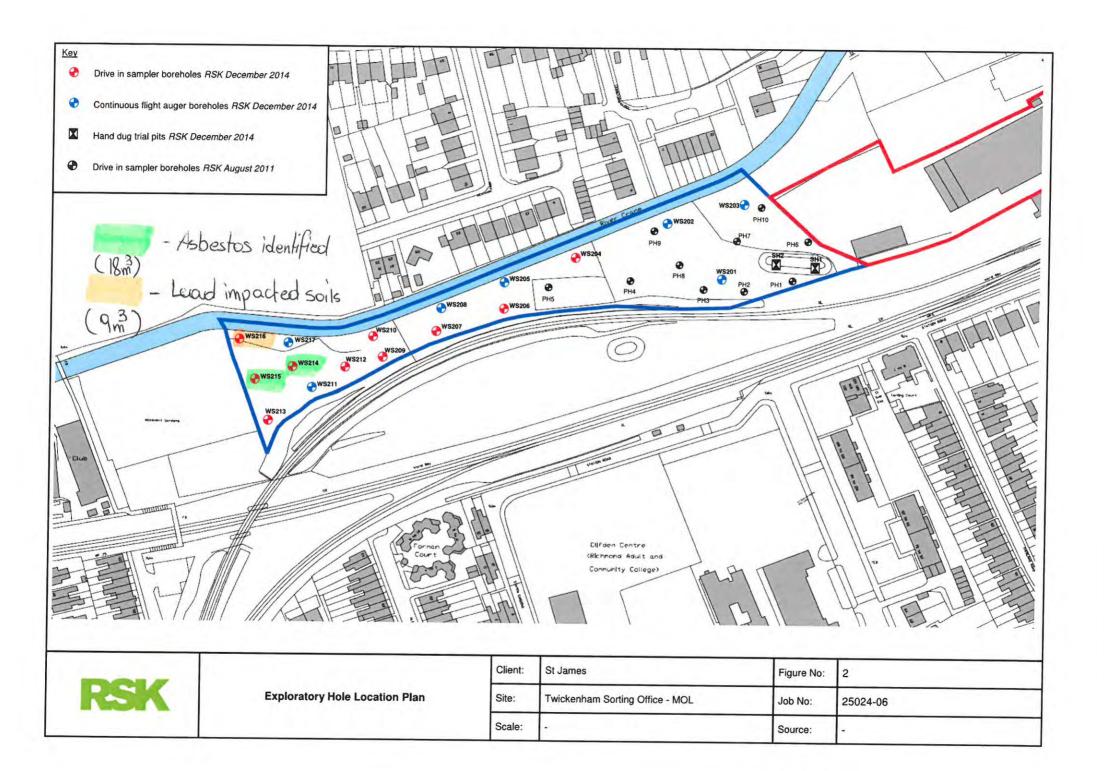
Technical Assistant

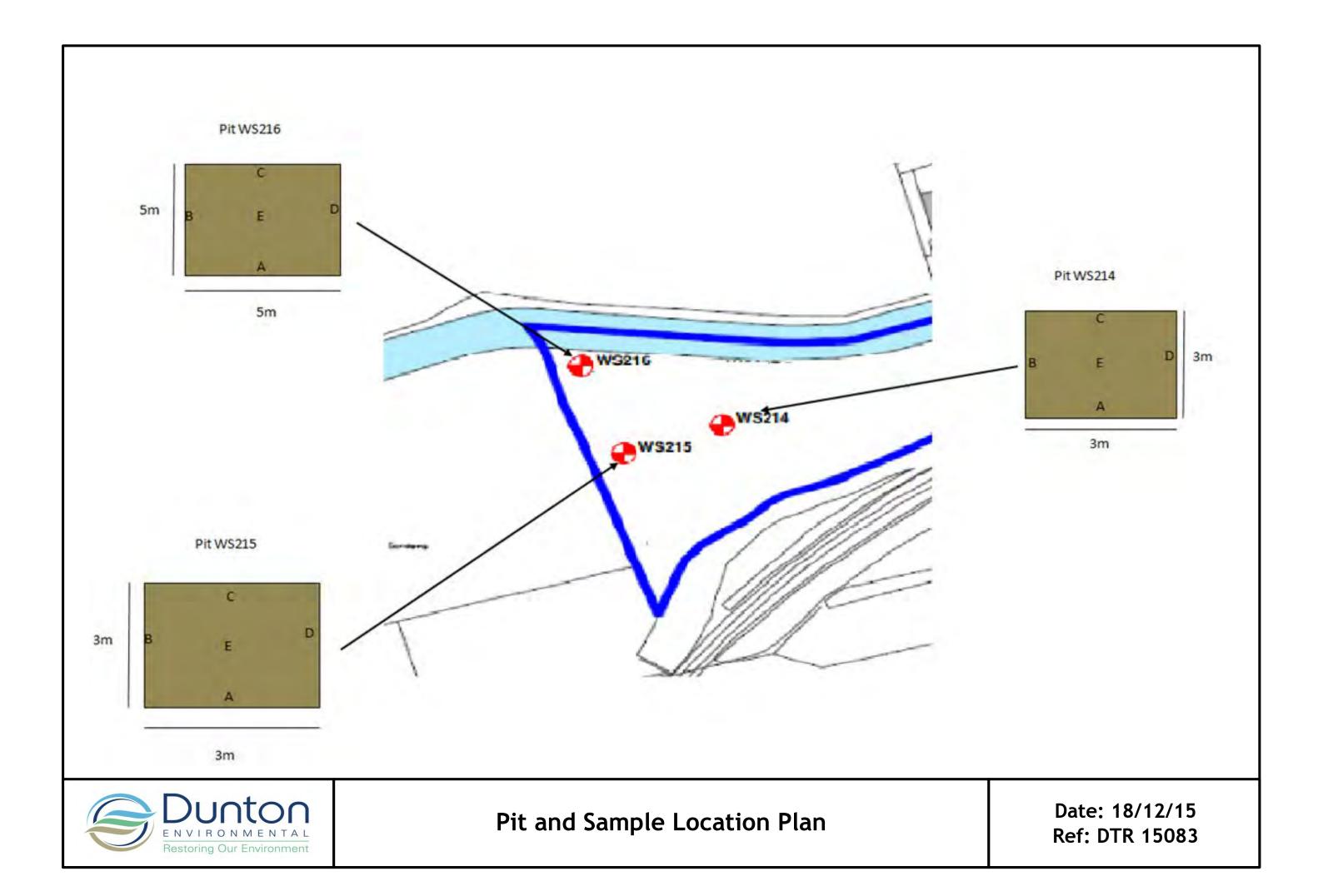
Appendices

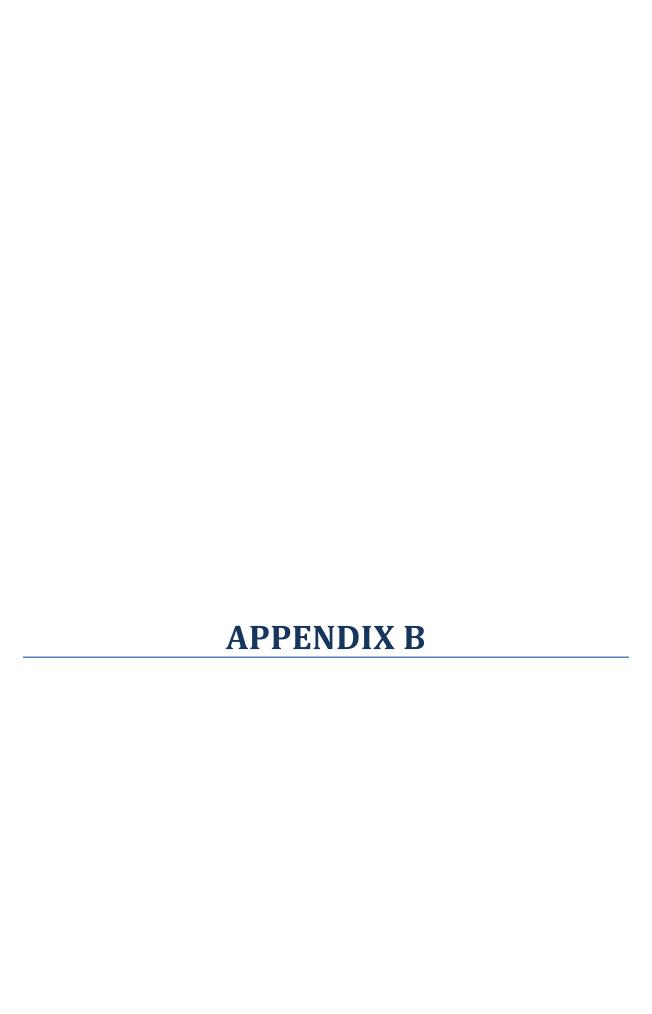
- A Drawings
- B Site Photographs
- C Test Certificates
- D Consignment and Controlled Waste Notes
- E Extracts from RSK Remediation Method Statement













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russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-37610

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Sample Receipt Date: 12/11/2015

Sample Scheduled Date: 12/11/2015

Report Issue Number: 2

Reporting Date: 17/11/2015

Authorised by:

Russell Jarvis Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old Director

On behalf of QTS Environmental Ltd





Soil Analysis Certificate					
QTS Environmental Report No: 15-37610	Date Sampled	11/11/15	11/11/15	11/11/15	
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Twickenham	TP / BH No	WS214	WS216	WS215	
Project / Job Ref: DTR 15083	Additional Refs	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	
Reporting Date: 17/11/2015	QTSE Sample No	177336	177337	177338	

Determinand	Unit	RL	Accreditation				
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	
Arsenic (As)	mg/kg	< 2	MCERTS	11	18	12	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	14	16	18	
Copper (Cu)	mg/kg	< 4	MCERTS	28	218	30	
Lead (Pb)	mg/kg	< 3	MCERTS	175	1990	347	
Mercury (Hg)	mg/kg	< 1	NONE	< 1	2.4	< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	16	33	14	
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	131	728	118	

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

Analysis carried out on the dried sample is corrected for the stone content





Soil Analysis Certificate - Speciated PAHs											
QTS Environmental Report No: 15-37610	Date Sampled	11/11/15	11/11/15	11/11/15							
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied	None Supplied							
Site Reference: Twickenham	TP / BH No	WS214	WS216	WS215							
Project / Job Ref: DTR 15083	Additional Refs	None Supplied	None Supplied	None Supplied							
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied							
Reporting Date: 17/11/2015	QTSE Sample No	177336	177337	177338							

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	< 0.1	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	0.12	0.69	0.14	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	0.32	1.26	0.29	
Pyrene	mg/kg	< 0.1	MCERTS	0.26	1.04	0.24	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.15	0.58	0.13	
Chrysene	mg/kg	< 0.1	MCERTS	0.17	0.78	0.16	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.20	0.91	0.17	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.33	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.13	0.58	0.14	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.37	< 0.1	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.31	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	7	< 1.6	

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





Soil Analysis Certificate - TPH CWG Banded											
QTS Environmental Report No: 15-37610	Date Sampled	11/11/15	11/11/15	11/11/15							
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied	None Supplied							
Site Reference: Twickenham	TP / BH No	WS214	WS216	WS215							
Project / Job Ref: DTR 15083	Additional Refs	None Supplied	None Supplied	None Supplied							
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied							
Reporting Date: 17/11/2015	QTSE Sample No	177336	177337	177338							

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	2	< 2	
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	5	< 3	
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	20	< 10	
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	28	< 21	
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	

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





Soil Analysis Certificate - BTEX / MTBE											
QTS Environmental Report No: 15-37610	Date Sampled	11/11/15	11/11/15	11/11/15							
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied	None Supplied							
Site Reference: Twickenham	TP / BH No	WS214	WS216	WS215							
Project / Job Ref: DTR 15083	Additional Refs	None Supplied	None Supplied	None Supplied							
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied							
Reporting Date: 17/11/2015	QTSE Sample No	177336	177337	177338							

Determinand	Unit	RL	Accreditation				
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	

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





Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 15-37610

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Reporting Date: 17/11/2015

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
& 177336	WS214	None Supplied	None Supplied	11.9	Brown sandy clay with rubble
& 177337	WS216	None Supplied	None Supplied	5.7	Grey gravelly sand with rubble and ash
& 177338	WS215	None Supplied	None Supplied	6.9	Brown gravelly sand with stones

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample ^{I/S}

& samples received in inappropriate containers for hydrocarbon analysis





Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 15-37610

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Reporting Date: 17/11/2015

Matrix	Analysed On	Determinand	Brief Method Description	Method No
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		Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D		Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of	E016
Soil	AR	Cvanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR		Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D		Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	use of surrogate and internal standards	E005
Soil	AR		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	E011
Soil	AR	рН	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013
Soil	D		Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
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	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	C5-C7, C7-C8, C8-C10, C10-C12, C12- C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received







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QTS Environmental Report No: 15-37858

Site Reference: Twickenham

Project / Job Ref: DTR15083

Order No: 5531

Sample Receipt Date: 18/11/2015

Sample Scheduled Date: 18/11/2015

Report Issue Number: 2

Reporting Date: 20/11/2015

Authorised by:

Russell Jarvis Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old Director

On behalf of QTS Environmental Ltd





Soil Analysis Certificate						
QTS Environmental Report No: 15-37858	Date Sampled	18/11/15	18/11/15	18/11/15	18/11/15	18/11/15
Dunton Environmental Ltd	Time Sampled	None Supplied				
Site Reference: Twickenham	TP / BH No	WS214 - A	WS214 - B	WS214 - C	WS214 - D	WS214 - E
Project / Job Ref: DTR15083	Additional Refs	None Supplied				
Order No: 5531	Depth (m)	0.60	0.60	0.60	0.60	0.60
Reporting Date: 20/11/2015	QTSE Sample No	178516	178517	178518	178519	178520

Determinand	Unit	RL	Accreditation					
Asbestos Screen	N/a	N/a	ISO17025	Not Detected				
Lead (Pb)	mg/kg	< 3	MCERTS					

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

Analysis carried out on the dried sample is corrected for the stone content

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

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

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

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

Asbestos Analyst: Wioletta Goral

RL: Reporting Limit

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





Soil Analysis Certificate						
QTS Environmental Report No: 15-37858	Date Sampled	18/11/15	18/11/15	18/11/15	18/11/15	18/11/15
Dunton Environmental Ltd	Time Sampled	None Supplied				
Site Reference: Twickenham	TP / BH No	WS215 - A	WS215 - B	WS215 - C	WS215 - D	WS215 - E
Project / Job Ref: DTR15083	Additional Refs	None Supplied				
Order No: 5531	Depth (m)	0.50	0.50	0.50	0.50	0.50
Reporting Date: 20/11/2015	QTSE Sample No	178521	178522	178523	178524	178525

Determinand	Unit	RL	Accreditation					
Asbestos Screen	N/a	N/a	ISO17025	Not Detected				
Lead (Pb)	mg/kg	< 3	MCERTS					

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

Analysis carried out on the dried sample is corrected for the stone content

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

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

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

Asbestos Analyst: Wioletta Goral

RL: Reporting Limit

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





Soil Analysis Certificate						
QTS Environmental Report No: 15-37858	Date Sampled	18/11/15	18/11/15	18/11/15	18/11/15	18/11/15
Dunton Environmental Ltd	Time Sampled	None Supplied				
Site Reference: Twickenham	TP / BH No	WS216 - A	WS216 - B	WS216 - C	WS216 - D	WS216 - E
Project / Job Ref: DTR15083	Additional Refs	None Supplied				
Order No: 5531	Depth (m)	0.40	0.40	0.40	0.40	0.40
Reporting Date: 20/11/2015	QTSE Sample No	178526	178527	178528	178529	178530

Determinand	Unit	RL	Accreditation				
Asbestos Screen	N/a	N/a	ISO17025				
Lead (Pb)	mg/kg	< 3	MCERTS	1970	62000	2860	886

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

Analysis carried out on the dried sample is corrected for the stone content

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

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

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

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

Asbestos Analyst: Wioletta Goral

RL: Reporting Limit

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





Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 15-37858

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR15083

Order No: 5531

Reporting Date: 20/11/2015

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
178526	WS216 - A	None Supplied	0.40	7.6	Brown sandy clay with vegetation
178527	WS216 - B	None Supplied	0.40	10.9	Brown clayey gravel with vegetation
178528	WS216 - C	None Supplied	0.40	15.6	Brown sandy clay
178529	WS216 - D	None Supplied	0.40	6.8	Brown sandy clay with vegetation and rubble
178530	WS216 - E	None Supplied	0.40	12.3	Brown sand with vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample ^{I/S} Unsuitable Sample ^{U/S}





Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 15-37858

Dunton Environmental Ltd

Site Reference: Twickenham Project / Job Ref: DTR15083

Order No: 5531

Reporting Date: 20/11/2015

Matrix	Analysed On	Determinand	Brief Method Description	Method No
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		Determination of BTEX by headspace GC-MS	E001
Soil	D		Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
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	AR	3	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		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D		Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with notassium dichromate followed by	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by grayimetrically with the sample being ignited in a muffle	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D		Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D		Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with notassium dichromate followed by titration with iron	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acctone and beyone followed by GC-MS with the	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D		Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	рН	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013
Soil	D		Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
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	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with notassium dichromate followed by titration with iron	E010
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	C5-C7, C7-C8, C8-C10, C10-C12, C12- C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received







QTS Environmental Ltd

Unit 1
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t: 01622 850410 russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-38038

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Sample Receipt Date: 20/11/2015

Sample Scheduled Date: 23/11/2015

Report Issue Number: 2

Reporting Date: 25/11/2015

Authorised by:

Russell Jarvis Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old Director

On behalf of QTS Environmental Ltd





Soil Analysis Certificate						
QTS Environmental Report No: 15-38038	Date Sampled	None Supplied				
Dunton Environmental Ltd	Time Sampled	None Supplied				
Site Reference: Twickenham	TP / BH No	WS216	WS216	WS216	WS216	WS216
Project / Job Ref: DTR 15083	Additional Refs	Deep A	Deep B	Deep C	Deep D	Deep E
Order No: None Supplied	Depth (m)	0.70	0.80	0.70	0.80	1.00
Reporting Date: 25/11/2015	QTSE Sample No	179350	179351	179352	179353	179354

Determinand	Unit	RL	Accreditation					
Lead (Pb)	mg/kg	< 3	MCERTS	31000	445	23600	1130	66

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





Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 15-38038

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Reporting Date: 25/11/2015

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
^ 179350	WS216	Deep A	0.70	15.6	Brown sandy clay with brick
^ 179351	WS216	Deep B	0.80	11.4	Brown sandy clay
^ 179352	WS216	Deep C	0.70	14.8	Brown sandy clay with stones
^ 179353	WS216	Deep D	0.80	13.4	Brown sandy clay
^ 179354	WS216	Deep E	1.00	14.1	Brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm I/S}$

Unsuitable Sample U/S

 $^{^{\}wedge}$ no sampling date provided; unable to confirm if samples are within acceptable holding times





Soil Analysis Certificate - Methodology & Miscellaneous Information
QTS Environmental Report No: 15-38038

Dunton Environmental Ltd
Site Reference: Twickenham
Project / Job Ref: DTR 15083

Order No: None Supplied
Reporting Date: 25/11/2015

Matrix	Analysed On	Determinand	Brief Method Description	Method No
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		Determination of BTEX by headspace GC-MS	E001
Soil	D		Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D		Determination of chloride by extraction with water & analysed by ion chromatography	E009
	_		Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of	
Soil	AR	Chromium - Hexavalent	1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR		Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
3011	AIX		Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	L004
Soil	AR	C12-C16, C16-C21, C21-C40)	headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by grayimetrically with the sample being ignited in a muffle	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D		Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR		Moisture content; determined gravimetrically	E003
Soil Soil	D D	Nitrate - Water Soluble (2:1) Organic Matter	Determination of nitrate by extraction with water & analysed by ion chromatography Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E009 E010
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		Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR		Determination of phenols by distillation followed by colorimetry	E021
Soil	D		Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D		Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018
Soil	D		Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of total sulphur by extraction with aqua-regia followed by for -olds Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by	E017
C = !!	2		addition of Terric nitrate followed by colorimetry	F011
Soil	D	roluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	C5-C7, C7-C8, C8-C10, C10-C12, C12- C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received







QTS Environmental Ltd

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t: 01622 850410 russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-38288

Site Reference: Twickenham

Project / Job Ref: DTR15083

Order No: None Supplied

Sample Receipt Date: 27/11/2015

Sample Scheduled Date: 30/11/2015

Report Issue Number: 1

Reporting Date: 01/12/2015

Authorised by:

Russell Jarvis Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old Director

On behalf of QTS Environmental Ltd





Soil Analysis Certificate					
QTS Environmental Report No: 15-38288	Date Sampled	None Supplied	None Supplied	None Supplied	
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Twickenham	TP / BH No	SW216	SW216	SW216	
Project / Job Ref: DTR15083	Additional Refs	А	С	D	
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	
Reporting Date: 01/12/2015	QTSE Sample No	180560	180561	180562	

Determinand	Unit	RL	Accreditation				
Lead (Pb)	mg/kg	< 3	MCERTS	1200	2940	176	

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





Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 15-38288

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR15083

Order No: None Supplied

Reporting Date: 01/12/2015

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
^ 180560	SW216	А	None Supplied	9.8	Light brown clayey gravel with vegetation
^ 180561	SW216	С	None Supplied	2.6	Light brown clayey gravel with vegetation
^ 180562	SW216	D	None Supplied	13.2	Light brown clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm I/S}$

Unsuitable Sample U/S

[^] no sampling date provided; unable to confirm if samples are within acceptable holding times





Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 15-38288

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR15083

Order No: None Supplied

Reporting Date: 01/12/2015

Matrix	Analysed On	Determinand	Brief Method Description		
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		Determination of BTEX by headspace GC-MS	E001	
Soil	D		Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002	
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009	
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	AR		Determination of complex cyanide by distillation followed by colorimetry	E015	
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015	
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015	
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011	
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004	
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022	
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023	
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020	
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004	
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004	
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	F004	
5011	AR	C12-C16, C16-C21, C21-C40)	headspace GC-MS	E004	
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009	
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010	
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019	
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025	
Soil	D		Determination of metals by aqua-regia digestion followed by ICP-OES	E002	
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004	
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003	
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009	
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010	
Soil	AR	PAH - Speciated (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		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	E011	
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007	
Soil	AR		Determination of phenols by distillation followed by colorimetry	E021	
Soil	D		Determination of phosphate by extraction with water & analysed by ion chromatography	E009	
Soil	D		Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013	
Soil	D		Determination of sulphate by extraction with water & analysed by ion chromatography	E009	
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014	
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018	
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024	
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006	
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	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011	
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010	
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004	
Soil	AR	C5-C7, C7-C8, C8-C10, C10-C12, C12- C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004	
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001	
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001	

D Dried AR As Received







QTS Environmental Ltd

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t: 01622 850410 russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-38667

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Sample Receipt Date: 11/12/2015

Sample Scheduled Date: 11/12/2015

Report Issue Number: 1

Reporting Date: 11/12/2015

Authorised by:

Russell Jarvis

Associate Director of Client Services

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old

Associate Director of Laboratory

On behalf of QTS Environmental Ltd





Soil Analysis Certificate							
QTS Environmental Report No: 15-38667	Date Sampled	10/12/15	10/12/15				
Dunton Environmental Ltd	Time Sampled	None Supplied	None Supplied				
Site Reference: Twickenham	TP / BH No	Backfill for	Backfill for				
		WS214	WS215				
Project / Job Ref: DTR 15083	Additional Refs	None Supplied	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied	None Supplied				
Reporting Date: 11/12/2015	QTSE Sample No	182453	182454				

Determinand	Unit	RL	Accreditation				
Asbestos Screen	N/a	N/a	ISO17025	Not Detected	Not Detected		
Lead (Pb)	mg/kg	< 3	MCERTS	37	134		

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

Analysis carried out on the dried sample is corrected for the stone content

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

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

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

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

Asbestos Analyst: Javeed Malik

RL: Reporting Limit

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





Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 15-38667

Dunton Environmental Ltd

Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Reporting Date: 11/12/2015

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
182453	Backfill for WS214	None Supplied	None Supplied	31.7	Brown sandy clay with stones
182454	Backfill for WS215	None Supplied	None Supplied	28.1	Brown sandy clay with concrete and vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample I/S
Unsuitable Sample U/S



Reporting Date: 11/12/2015

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



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 15-38667

Dunton Environmental Ltd

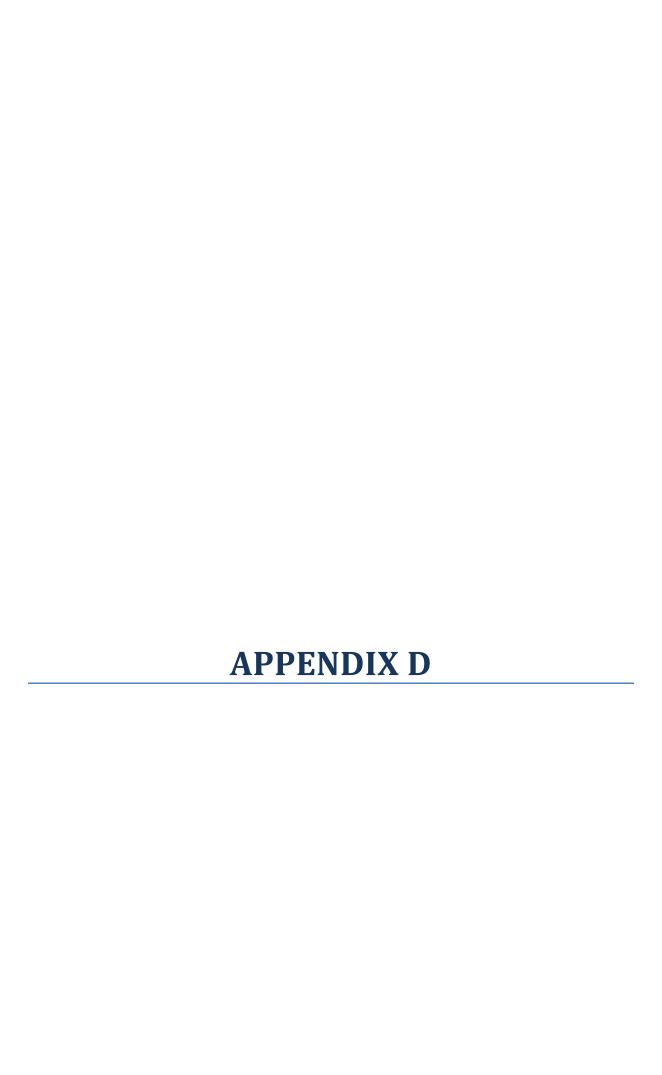
Site Reference: Twickenham

Project / Job Ref: DTR 15083

Order No: None Supplied

Matrix	Analysed On	Determinand	Brief Method Description	Method No
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		Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D		Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by	E022
Soil	AR	Electrical Conductivity	electrometric measurement Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Flemental Sulnbur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
3011	7413		Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	L004
Soil	AR	C12-C16, C16-C21, C21-C40)		E004
Soil	D		Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
			Determination of fraction of organic carbon by oxidising with potassium dichromate followed by	
Soil	D	FOC (Fraction Organic Carbon)	titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D		Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (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		Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018
Soil	D		Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	
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	Toluene Extractable Matter (TFM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron	E010
		TPH CWG (ali: C5- C6, C6-C8, C8-C10,	(II) sulphate	
Soil	AR	C10-C12, C12-C16, C16-C21, C21-C34,	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	C5-C7, C7-C8, C8-C10, C10-C12, C12- C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
			Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received





CONTROLLED WASTE TRANSFER 311848

NOTE No:

REGISTRATION OF VEHICLE

REGISTERED WASTE CARRIER:

DISPOSAL FACILITY (For receiving site use only)

NAME

SIGNATURE

11034

F515 OUN

Dunton Environmental Ltd Unit 1 Tamebridge Industrial Estate Aldridge Road, Perry Barr B42 2TX Waste Carrier Licence No. CB/MP3291BT issued by the Environment Agency CUSTOMER (Current holder of the waste) SITE ADDRESS (Place of transfer) NAME: ST JAMES MOL PARKLAND (Dunton's) London Road TwickenHum Scol DESCRIPTION OF WASTE COLLECTED 17 01 01 CONCRETE SOIL & STONES 17 01 07 MIXED CONCRETE/BRICKS/TILES/CERAMICS 17 01 02 BRICKS BITUMINOUS MIXTURES (TARMAC/ASPHALT) 17 01 07 MIXED CONSTRUCTION & DEMO WASTE 17 09 04 OTHER.... MIXED METALS 20 03 01 MIXED GENERAL REFUSE DISPOSAL FACILITY CLASSIFICATION NAME: 16 UNION MILL STEEL INERT wolverhampton NON-HAZARDOUS HAZARDOUS (if hazardous, the load will require a consignment note also) SIC Number: HOW IS THE WASTE CONTAINED? Loose 38.2 Waste treatment & disposal 8 WHCGLER 39.0 Remediation activities 41.20/1 Construction of commercial buildings 41.202/2 Construction of domestic buildings IF NOT LOOSE SACKS DRUMS OTHER-DESCRIBE: LOAD VOLUME Arctic 14m3 Other Grab 8m3 8-Wheeler 9m3 6-Wheeler 7m HAULIER NAME: DRIVER NAME Killouthery TIME OFF SITE: SIGNATURE: * CUSTOMER (Holder of waste collected) I confirm that the above is an accurate description transferred and that Dunton Environmental have considered the waste hierarchy (as required by regulation 12 of the waste (England and Wales) Regulations 2011) in deciding the most appropriate option for this PRINT NAME ANDY Boukna SIGNATURE A

ADDRESS

PRINT NAME

DATE

No.

4. 11.

S.I.C. Code (2007): 49.41



GEORGE KILLOUGHERY LTD.

MITCHAM 43A Willow Lane Mitcham Surrey CR4 4NA Tel: 020 8648 3737 PURFLEET
Beacon Hill Ind. Est. **Botany Quarry** Purfleet, Essex RM19 1SR Tel: 01708 860 601

SHEPPERTON

C/o Brett Aggregates Littleton Lane Shepperton, Surrey TW17 0NF

Tel: 020 8648 3737	Tel: 01708 860 601 Tel:	01932 563571 /5
Name of Person in charge of Vehicle / Driver	Cost	Vehicle Reg. No.
	aviromental	Time on Site
La	wickenham	Time off Site
I can confirm that I have fulfilled my duty to app as required by regulation 12 of the Waste (England)	oly the waste hierarchy and and Wales) Regulations 2011.	Waiting Time Signature
Description of Material		Gross
Subsoils & Stones: 17.05.04	Wood: 17.02.01	Gross
Clean Concrete: 17.01.01	Plastic: 17.02.03	Tare
Tarmac & Asphalt: 17.03.02	Bricks: 17.01.02	Net
Mixed Construction & Demolition: 17.09	0.04 Tiles: 17.01.03	Cubic Metres
Clean Hardcore-Mixed Concrete, Bricks & Tiles: 17.01.07	Paper and Cardboard: 15.01.01	How is the material contained?
Other Mode Mury	EWC Code(s) / Load	Sacks
Notes	Life Code(s)	Skip
		Other
SIGNED BY PRODUCER / SITE PRIN	DATE	
HE A	ndy Boulle	23/11/15

CONCRETE AND MUCK AWAY - PLANT HIRE - READY MIX CONCRETE - DEMOLITION - LABOUR HIRE WASTE MANAGEMENT - SKIP HIRE

Customers ordering vehicles off the public highway do so entirely at their own responsibility

Dunton Environmental Li Unit 1 Tamebridge Maste Carrier Licence No. CUSTOMER (Currier Licence No. CUSTOMER (Currier Licence No. DESCRIPTION OF WARDS AS TONES BRICKS MIXED CONSTRUCTION &	STE COLLECTED 17 05 04 17 01 02 DEMO WASTE 17 00 04 DEMO WASTE 17 00 04 DEMO WASTE 17 00 04 MIXED OCCUPANTIAL TO THE COLLECTED MIXED OCCUPANTIAL TO THE COLLECTED MIXED OCCUPANTIAL TO T
LIVERAL DE-	20 02 02 BITLIMING TORICKS/THE TO
CLASSIFICATION INERT	C/ASPHAL -
- WERT	DISPOSAL E
NON-HAZARDOUS	DISPOSAL FACILITY NAME:
HAZARDOUS (if hazardous, the load require a consignment note also)	X Boot
	JMS OTHER-DESCRIPT
DRIVER NAME:	41.202/2 Construction of commercial buildings Other Grab 8m3
* MANGE	Grab 8m3 Arctic 14m3
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GIGNATURE.	HAULIER NAME:
	Cilloulittery
COSTOMER (Holder of w	
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DISPOSALEA	PRIATE PROPERTY OF THE PROPERT
DISPOSAL FACILITY (For receiving site us	Only) NAME A NOV BOULD TO See the waste hierarchy (as required by
SIGNATURE	" Pour ?
OKE	ADDRESS
	DDW
	PRINT NAME
	DATE

ON VEYANCE NOTE / CONTROLLED WASTE TRANSFER NOTE Reg. Waste Carrier Licence No. CB/KP3095LY

No.

311846

S.I.C. Code (2007): 49.41

GEORGE KILLOUGHERY LTD. MITCHAM 43A Willow Lane Mitcham Surrey CR4 4NA

PURFLEET
Beacon Hill Ind. Est. Botany Quarry Purfleet, Essex RM19 1SR

SHEPPERTON C/o Brett Aggregates
Littleton Lane

Name of Person in Purificet, Essex RM19 1SR	C/o Brett Aggregates Littleton Lane
	Littleton Lane
Tel: 01708 860 601	
W. Concle / Driver	TW17 ONF
waste Holder / Delivery	Tel: 01932 563571
Waste Holder / Delivery Address	Vehicle Reg. No.
Duntan En	Reg. No.
	TIMEN TIMEN
Landen Wiroment	Time on Site
	- I
as required by regulation 12 of the Waste (England and Wales) Regulations 2011. Subsoils & Stones: 17.8	Tim
Descrition 12 of the W.	Time off Site
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Sub Wales) Regulations 2011	Waiting Tr
Subsoils & Stones: 17.05.04	Waiting Time Signature
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Clean Concrete: 17.01.01	Gross
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Tarmac & Asphalt: 17.03.02 Plastic: 17.02.03	Tare
Mixed Cones	-are
Mixed Construction & Demolition: 17.09.04 Clean Hardcore-Mixed C. Tilegram Tilegra	Net
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Other Model Manager 15.01.01 Notes	Loose
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TAIN ATA	
NAME O	ther
Mary 7	ACTIVITY
CONCRETE AND A	ATE
MUCK AWAY - PLANS	> /
Customers order: WASTE - READY MAN	-8/6/65
CONCRETE AND MUCK AWAY - PLANT HIRE - READY MIX CONCRETE - DEMOLITION WAS TE MANAGEMENT - SKIP HIRE Customers ordering vehicles off the public highway do so entirely at their own response	(())
Public highway do so enti-	N - LAROUN
charlely at their own reco-	OUR HIRE
- cspon	Sibility



CONTROLLED WASTE TRANSFER

NOTE No:

CILITY (For receiving site use only)

REGISTERED WASTE CARRIER:
Dunton Environmental Ltd
Unit 1 Tamebridge Industrial Estate
Aldridge Road, Perry Barr B42 2TX
Waste Carrier Licence No. CB/MP3291BT issued by the Environment Agency

11037

REGISTI	RATION OF VEHICL	.E	

DATE

CUSTOMER (Current holder of	the waste)		
NAME: ST James	London	VKLand	
DESCRIPTION OF WASTE COLI	LECTED		
SOIL & STONES BRICKS MIXED CONSTRUCTION & DEMO WAS MIXED METALS MIXED GENERAL REFUSE	17 05 04 CONCR 17 01 02 MIXED 0 STE 17 09 04 BITUMIN	ETE CONCRETE/BRICKS/TILES/CERAMICS NOUS MIXTURES (TARMAC/ASPHALT)EWC CODE	17 01 01 17 01 07 17 01 07
CLASSIFICATION	DISPOSAL FACILITY		
☐ INERT ☐ NON-HAZARDOUS ☐ HAZARDOUS (if hazardous, the load will require a consignment note also)	NAME: WOLU	es hempto	v2 .
HOW IS THE WASTE CONTAINED? Sheeler FNOT LOOSE SACKS DRUM	Loose OTHER-DESCRIBE:	SIC Number: 38.2 Waste treatment & disposal 39.0 Remediation activities 41.20/1 Construction of commerci 41.202/2 Construction of domestic	
OAD VOLUME		Other	
8-Wheeler 9m3 6-Wheeler 7m	Grab 8m3 Arc	tic 14m3 Other	
DRIVER NAME: MANN COS TIME OFF SITE:	HAULIER I	NAME:	
SIGNATURE:	will.		
CUSTOMER (Holder of waste collected	ed)		
confirm that the above is an accurate description to agulation 12 of the waste (England and Wales) Re SIGNATURE	transferred and that Dunton Environme gulations 2011) in deciding the most ap PRINT NAME	propriate option for this waste	equired by

ADDRESS

PRINT NAME

CONVEYANCE NOTE / CONTROLLED WASTE TRANSFER NOTE Reg. Waste Carrier Licence No. CB/KP3095LY

No.

295605

S.I.C. Code (2007): 49.41



GEORGE KILLOUGHERY LTD.

MITCHAM 43A Willow Lane Mitcham Surrey CR4 4NA

PURFLEET Beacon Hill Ind. Est. Botany Quarry Purfleet, Essex RM19 1SR

SHEPPERTON C/o Brett Aggregates Littleton Lane

Tel: 020 8648 3737	RM19 ISR	Shepperton, S	urrev
Name of Person in charge of Vivi	Tel: 01708 860 601	TAATIONE	
Name of Person in charge of Vehicle / Driver		Tel: 01932 563	3571
war	-07	Vehicle	e Reg. No.
Waste Holder / Delivery Address	200_		1/-
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Dintar E.	1011onn	Time or	n Site
handa	1	aced.	
		Time	
I can confirm that I have fulfilled my duty to apply the as required by regulation 12 of the Waste (England an	Twideon	Time of	Site
as required by regulation 12 of the Waste (England an Description of Material	1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	neur	
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Description of Material	Regulations 2011.		and Signature
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	Wood: 170201	Gross	
Clean Concrete: 17.01.01	Wood: 17.02.01		
	Plastic: 17 02 02	Tare	
Tarmac & Asphalt: 17.03.02	Plastic: 17.02.03		
	Bricks: 17.01.02	Net	
Mixed Construction & Demolition: 17.09.04	77.01.02		
Cican Hardage 14:	Tiles: 17.01.03	Cubic	
& Tiles: 17.01.07		Metres	A A
	Paper and Cardboard: 15	5.01.01 How is the mate	rial as the
Musica Cont	.)		and contained?
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CONCRETE AND MUCK AWAY - PLANT HIRE - RE WASTE MANAG Customers ordering vehicles off the public h		2011	115
AND MUCK AWAY - PLANT HIRE DE	ADV	1-111	(1)
Customers ordering vehicles off the public h	EMENT CONCRETE - DE	EMOLITION .	
wentcles off the public h	ighway do so entirel	LABOUI	R HIRE

WASTE MANAGEMENT - SKIP HIRE

Customers ordering vehicles off the public highway do so entirely at their own responsibility

CONVEYANCE NOTE / CONTROLLED WASTE TRANSFER NOTE

295615

S.I.C. Code (2007): 49.41



GEORGE KILLOUGHERY LTD.

MITCHAM 43A Willow Lane Mitcham Surrey CR4 4NA Tel: 020 8648 3737

PURFLEET Beacon Hill Ind. Est. Botany Quarry Purfleet, Essex RM19 ISR

SHEPPERTON C/o Brett Aggregates Littleton Lane

Name of Person in charge of Vehicle / Driver	RM19 1SR Tel: 01708 860 601	Sheppertor TW17 ONF	n, Surrey
	or sel		563571 icle Reg. No.
I can confirm that I have fulfilled my duty to apply to as required by regulation 12 of the Waste (England a Description of Material Subsoils & Stones: 17.05.04			off Site
Clean Concrete: 17.01.01 Tarmac & Asphalt: 17.03.02 Mixed Construction & Demolision	Wood: 17.02.0 Plastic: 17.02.0 Bricks: 17.01.02	3 Tare	
Other Other	11	Cubic Metres 15.01.01 How is the mate Loose	erial contained?
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CONCRETE AND MUCK AWAY - PLANT HIRE - REA WASTE MANAGE Customers ordering vehicles off the public hig	DY MIX CONCRETE - DE MENT - SKIP HIRE	EMOLITION - LAROUP	115
	uo so entirely at their	own responsibility	HIRE

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Addis 1 Tames Office WAS
Duniton Environmental Ltd Vaste Carry Industria
NAME: NO CBANP320 1 1
Ounton Environmental WASTE CARRIER: Ounton Environmental Ltd Waste Carrier Licence No CB/MP3291BT issued by the Environment holder of the
Addition Tamberlingen Lity Was TE CARRIER: NOTE No: NOTE No: REGISTRATION OF VEHICLE DESCRIPTION STEADDRESS: NOTE ADDRESS: NOTE NO: NOTE NO: REGISTRATION OF VEHICLE
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NON-HAZARDOUS PAZARDOUS DISD MIXED CONCRETE/BRICKS/TILES/C
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NON-HAZARDOUS THAZARDOUS THAZARDOUS THE WASTE CONTAINED? NAME: NAME: CONCRETE/BRICKS/TILES/CERAMICS 17 01 01 NAME: NAME
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LOAD VOLUME SACKS DOWN
DRIVER DRUMS OTHER
DRUMS OTHER-DESCRIBE: OTHER-DESCRIBE: 139.0 Remediation activities 41.20/1 constructivities
TIME: Wheeler 7m 39.0 Remediation & di
OTHER-DESCRIBE: 38.2 Waste treatment & disposal 41.20/1 construction of cons
TIME OFF SITE: Grab 8m3 Grab 9m3
CUSTOMER (V) Arctic 14m3 Arctic 14m3 HAULIED Other Onstruction of commercial buildings
DRUMS OTHER-DESCRIBE: Jag. 2 Waste treatment & disposal A1.2017 construction of commercial buildings SIGNATURE: Arctic 14m3 Confirm that the above is an accurate waste (England and Westerbloop) ACCURATIONS ACCURATIONS DRUMS OTHER-DESCRIBE: Jag. 2 Waste treatment & disposal 41.202/2 construction of commercial buildings Other Other Other Other SIGNATURE: SIGNATU
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ORE Waste (England described)
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ME FACILITY Surface and that Discourse and the surface and that Discourse and the surface and t
(For received
ATURE Site Use
DISPOSAL FACILITY (For receiving site use only) ATURE Congland and Wales) Sequilations 2011) In deciding the most appropriate option for this waste piece.
CUSTOMER (Holder of Waste Collected) HAULIER NAME: SIGNATURE SIGNATURE DISPOSAL FACILITY (For receiving site use only) ADDRESS Arctic 14m3 Other Other HAULIER NAME: SIGNATURE HAULIER NAME: Other Arctic 14m3 Other Other Arctic 14m3 Other Arctic 14m3 Other Arctic 14m3 Other Arctic 14m3 Other And Wales Signature of Waste Collected of Waste Collected of Waste Collected of Waste (England and Wales) Begulations 2011) in deciding the most appropriate option for this waste hierarchy (as required by ADDRESS
ADDRESS CO Co required by
ADDRESS PRINT
PRINT NAME
DATE

The Hazardous Waste Regulations 2005: Consignment Note



PART	A Notific	ation de	tails											Aasto	ing Oor Se
2 The pos	waste desc tcode, telep	ribed below	w is to t	oe ren		from (830 (name, addr	O I	5 1	Hors WVI The wast	te will be tak beley Fie 3DH e producer v	elds, H	drerho	imp ton	
3 Pren	nises code (where app	licable)	0	RE	3	48			JUSICUUE	e, telephone,	e-mail, fact	simile):		
PART	B Descrip	tion of th	he was	te)f	continuat	ion shoot	sed, tick her
1 The p	orocess givii TE DETAILS (ng rise to the	he wast	e(s) w	as: aste ty	Exc pe is	avation collected at	l of the info	2 S	IC for the	e process giv	ing rise to t	he waste.	20	12/01/1
Co					The chem	ical/biolo and their	gical concent	nponents in rations are: entration mg/kg)	Physical (gas, liqu powder, s or mixed)	form iid, solid, sludge	Hazard code(s)	Container type, num and size			
boil &	Stone		17	0	50	3	ILoad	Lead			malka	Golid		HP14	Tipper
The infor	mation give	n bolow is		Ц			Every V				0 3				
EWC code	e e	UN ident	tificatio	_			EWC identi ping name(s		UN clas	ss(es)	Packing gr	oup(s)		handling	
													requirer	ments	
PART C	Carrier's														
B42 Carrier re	ame: Kilf of (name, hon En 2 TX gistration n	o./reason	for exer	notion	ol n:		ail, facsimili	e):		x:	I confirm tha hierarchy as (England and 1 Consignor On behalf of acsimile):	Wales) Reg	Regulation sulations 2	12 of the 1 011,	Vaste
ignature Date		- Cer		me						N	ignature •	4 3		Time	П
dividual EV de(s) rece	onsignee's NC Quived	certifica antity of ea	ate (wh	ere m	ore tha receiv	n one ed (k	waste type g)	EVV	all of the ir C code epted/reje		on given belo Waste mana	w must be c	ompleted eration (R	for each EW	9)
Vehicle reg	this waste a	. (or mode	of trans	sport	f not re	Dat		П			me:				
	te is rejecte									On fac:	behalf of (na simile):	ame, addres	ss, postcoo	de, telephor	ne, e-mail,
rtify that w	aste permit	/exempt wa													
re the con	manageme signment fo Part C, I cer	ent of the w	aste de	scribe	ed in B	at the	e address			Sign	ature				



CONTROLLED WASTE TRANSFER

NOTE No:

12765

REGISTRATION OF VEHICLE

REGISTERED WASTE CARRIER: Dunton Environmental Ltd Unit 1 Tamebridge Industrial Estate Aldridge Road, Perry Barr B42 2TX Waste Carrier Licence No. CB/MP3291BT issue EJIS OUN

CUSTOMER (Current holder or		
NAME:	SITE ADDRESS (Place of transfer)	
DUNTON	TWICHENHAM	
· ·		

DESCRIPTION OF WASTE COLLEC	TED								
SOIL & STONES	7 05 04	CONCRET	E	17 01 01					
☐ BRICKS	7 01 02	CERAMICS 17 01 07							
MIXED CONSTRUCTION & DEMO WASTE	17 09 04	BITUMINO	US MIXTURES (TARMAC	/ASPHALT) 17 01 07					
MIXED METALS 2									
MIXED GENERAL REFUSE 2	0 03 01	17	osc3						
CLASSIFICATION	DISPOSA	L FACILITY							
☐ INERT	NAME:	1 11-	11 0						
NON-HAZARDOUS		W,201	U Itub						
HAZARDOUS (if hazardous, the load will require a consignment note also)		MVI3	SOW						
HOW IS THE WASTE CONTAINED?	oose		SIC Number:						
_			38.2 Waste treatmen	nt & disposal					
			39.0 Remediation a	ctivities					
			41.20/1 Construction	n of commercial buildings					
IF NOT LOOSE SACKS DRUMS	OTHER-D	DESCRIBE:	41.202/2 Constructi	on of domestic buildings					
LOAD VOLUME			Other						
LOAD VOLUME 8-Wheeler 9m3 6-Wheeler 7m	Contract on								
	Grab 8	m3 Arctic	: 14m3 Other						
DRIVER NAME:		HAULIER N.	AME:	11.0					
			Killou	r HERLY					
TIME OFF SITE:									
SIGNATURE:									
CUSTOMER (Holder of waste collected)			1						
I confirm that the above is an accurate description transi regulation 12 of the waste (England and Wales) Regulation	ferred and that	Dunton Environment	have considered the waste	hierarchy (as required by					
SIGNATURE	10/13 20 11) 111 00	PRINT NAME	optiate option for this waste.						
INOVERWAL									
DISPOSAL FACILITY (For receiving site to	use only)		1						
NAME		ADDRESS							
DURTON			NTON	22.0					
SIGNATURE		PRINT NAME	200	DATE					
		7	1115	03/1/15					

CONVENIMENDIE, COMMULLED WASTE TRANSFER NOTE Reg. Waste Carrier Licence No. CB/KP3095LY

No.

296170

S.J.C. Code (2007): 49.41



GEORGE KILLOUGHERY LTD.

MITCHAM 43A Willow Lane Mitcham Surrey CR4 4NA

Tel: 020 8648 3737

PURFLEET Beacon Hill Ind. Est. **Botany Quarry** Purfleet, Essex **RM19 1SR** Tel: 01708 860 601

SHEPPERTON

C/o Brett Aggregates Littleton Lane Shepperton, Surrey TW17 ONF Tel: 01932 563571

Name of Person in charge of Vehicle / Driver	Vehicle Reg. No.
MAUL HELERMAN	= 212 BARM
Waste Holder / Delivery Address Dunton Environment	Time on Site
16 UNION MICE ST	
WOCVERHAMPTON	Time off Site
I can confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste (England and Wales) Regulations 2011.	Waiting Time Signature
Description of Material	Gross
Subsoils & Stones: 17.05.04 Wood: 17.02.01	Tare
Clean Concrete: 17.01.01 Plastic: 17.02.03	
Tarmac & Asphalt: 17.03.02 Bricks: 17.01.02	Net
Mixed Construction & Demolition: 17.09.04 Tiles: 17.01.03	Cubic Metres
Clean Hardcore-Mixed Concrete, Bricks Paper and Cardboard: 15.01.01	How is the material contained?
	Loose
OtherEWC Code(s)	Sacks
Notes	Skip
Notes	Other
SIGNED BY PRODUCER / SITE PRINT NAME	DATE
D'BOMS	25/11/15

CONCRETE AND MUCK AWAY - PLANT HIRE - READY MIX CONCRETE - DEMOLITION - LABOUR HIRE WASTE MANAGEMENT - SKIP HIRE

Customers ordering vehicles off the public highway do so entirely at their own responsibility

The Hazardous Waste Regulations 2005: Consignment Note



PART A Notification details		-											
1 Consignment note code:	- 21	6	0/	00	- 0	(#)				Section	2		
	14	5	0 /		0 2			will be taker					
2 The waste described below is to postcode, telephone, e-mail, fac	HOK	Secey	, fice	DS,	Mou	ELHAMTICA							
postcode, telephone, e-mail, fac	MO.	TN	21, 10	EE		5 Th	e waste	30 W producer wa telephone, e	s (if differer	nt from 2) mile):	(name, add	dress,	
3 Premises code (where applicable	e): 0	R	03	48		TI	NIC	henite	ton. L	NOV.	120	TNI ICE	
PART B Description of the wa	aste			-						-	-	sed, tick here	
1 The process giving rise to the wa	ste(s) w	vas.	GX	0.10-		2 510	for the	process givi					
3 WASTE DETAILS (where more tha											0 3	22/	
	t of was		турс 13										
	VC code		igits)	Quantity (kg)				nponents in rations are:	Physical fo (gas, liqui	d, solid,	Hazard code(s)	Container type, number	
					Componen	it		entration mg/kg)	powder, s or mixed)	ludge		and size	
SOILISTONE 1	70	S	03	LORD	LEA	0		ome/kg	Sau	.0	H24	TIPPER	
								0110/10	0.0	110	111 -1	TIPPOS	
The information given below is to b	e comp	leted	for eac	h EWC ident	ified								
EWC code UN identifica				ping name(UN clas	s(es)	Packing gr	roup(s)	Specia	l handling		
number(s)						-				require	ements		
			_										
PART C Carrier's certificate		-		~				PART D	Consignor	c cortif	icato		
(If more than one carrier is used, ple carriers is attached tick here.	ease att	ach s	chedul	e for subseq	uent carriers	s. If sched	ule of	I certify tha	t the inform	ation in A	A, B and Ch	as been registered or	
I certify that I today collected the cor	nsignme	ent ar	nd that	the details in	n A2, A4 and	B3 are		exempt and	was advise	d of the	appropriate	precautionary	
correct and I have been advised of a Where this note comprises part of a m						tion numb	or are.	correctly an	d the carrie	has bee	ckaged and n advised o	f any special	
The tribute to the process part of a fin	uttipic	onec	tion the	/	Tand conec	don namb	er are.		quirements. at I have fulf		duty to appl	v the waste	
1 Carrier name: KILLOUG	Aca:	~		,				hierarchy as	required by	Regulati	on 12 of the	e Waste	
On behalf of (name, address, pos-	tcode, t	eleph	none, e	mail, facsim	ile):			(England and Wales) Regulations 2011. 1 Consignor name:					
DUNTON ENU	WO	NA	TES	TAC			On behalf of (name, address, postcode, telephone, e-mail, facsimile):						
2 Carrier registration no./reason for	exempt	tion:					UNION MILL STORE						
3 Vehicle registration no. (or mode of	of transi	port.	if not ro	ad):				Woll	CRITAT	NOTO	N h	V130L)	
Signature								Signature		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Date 2 4 1 1 2 0 1 3	Tim	e	60										
PART E Consignee's certificate		1.	1 -		ne is collected	d all of the	informa	4.	-			1000	
Individual EWC Quantity of each code(s) received	i EWC c	ode r	eceived	(kg)	EV	WC code ccepted/re		Waste ma					
170503 25:	30					ACC		TK	CEAT				
13.0													
1 received this waste at the address	22 s given	in A4	on:	Date 25	11/2	015	Time	101	0				
2 Vehicle registration no. (or mode o	f transp	ort if	not roa	d):				Name: D		i.			
E 515 GUN 3 Where waste is rejected please pro	vide de	etails:									tcode, telep	ohone, e-mail,	
								WITC	on t	tub			
I certify that waste permit/exempt was			numb	er:				WVI	301)			
10100	30	1	R.						50				
authorises the management of the wa given in A4.	ste des	cribe	d in B a	t the addres	SS				7				
Where the consignment forms part of a as identified in Part C, I certify that the	a multip	ole co umbe	llection er of					Signature Date 7			C Time	1000	

The Hazardous Waste Regulations 2005: Consignment Note



PART A Notification details										nestor	ing Our Environ	1
1 Consignment note code:		1			47.1.3.			131				
O I K	1150	01/	8 30	02	4 T		te will be take					
The waste described below is to be repostcode, telephone, e-mail, facsimil	le):			ress,		Ho	BELLES	y fie	LDS	WOU	DEZHAMIZ	
TWICLENHAM ROAD	TN	1 1	ee.		5 Th	WILL	11 hille	1				
Г	1				po	ostcod	te producer w e, telephone,	e-mail, facsi	mile):	(name, ad	dress,	
3 Premises code (where applicable):	0 40	13	48		-1	WII	chensh	AM I	n. n.	1 7-	TNI ICE	
PART B Description of the waste		73			- In		- Crorr	IF c	ontinuat	M KO	INI ICE	
1 The process giving rise to the waste(s)) was:	M .			2 (1	C. F II.					sed, tick here	l
		EA (CAUAT	100	2 510	Cforth	ie process givi	ing rise to th	e waste:	38.	221	
3 WASTE DETAILS (where more than one Description of waste		pe is						mpleted for	each EW	C identified)	
2.01.01.11	de)(6 digi	its)	Quantity (kg)		ical/biolog	concen	mponents in trations are:	Physical fo		Hazard	Container	
				Compone		Con	centration	powder, sl or mixed)		code(s)	type, number and size	
Som 15,000 170	300	0	1 - 0				or mg/kg)					
31001	7 3 0	1 5	LOAD	LEA	0	11-4-	HOME/VC	SOL	110	1154	TIMER	
The information given below is to be com	plated for		FINE									
EWC code UN identification			ping name		Luniates	1.	Ta ve					
number(s)	· roper	Jinp	ping name	(5)	UN clas	s(es)	Packing gr	roup(s)	Special require	handling ments		1
PART C Carrier's certificate			MIL		T T	91	PART D C	onsignor'	s certifi	cate	THE WAY	
(If more than one carrier is used, please at carriers is attached tick here.)	ttach sche	edule	for subsec	quent carrier	s. If schedu	ule of	I certify that	the informa	tion in A,	B and C ha	s been	
I certify that I today collected the consignm	nent and t	hat th	he details i	n A2. A4 and	B3 are		exempt and	and is correct was advised	t, that the	e carrier is r	egistered or	
correct and i have been advised of any spe	ecific hand	dling	requiremen	nts.			measures. A	All of the was	te is nac	caged and I	shallad	
Where this note comprises part of a multiple	collection	the r	round numb	per and collec	tion numbe	er are:	nandling red	quirements.				
1 Carrier name:			/				I confirm that hierarchy as	required by	Regulatio	n 12 of the	the waste	
On behalf of (name, address, postcode,	telephone	e. e-n	nail, facsim	ile).			(England and	d Wales) Reg	ulations :	2011.	- ruste	
DUNTON ENVIRE	NATE		Tal				1 Consignor On behalf of		ress nos	trode telen	hone, e-mail,	
2 Carrier registration no./reason for exemp							racsimile):					
M. COCK							0010	N M	4	STIZEC-	1	
3 Vehicle registration no. (or mode of trans	port, if no	ot roa	id):				MOTO	CRHAN	かしい	W C	V130U	
Signature							Signature					
Date 2 4 1 1 2 6 1 5 Tim	1 0	0	d				Date 2	4112	01	S Time	Itan	
PART E Consignee's certificate (wher	e more tha	an on	ne waste typ	e is collected	all of the in	nforma	tion given belo	ow must be c	ompleted	for each EV	VC)	
Individual EWC code(s) received Quantity of each EWC c	ode receiv	ved ((kg)	EV	VC code cepted/reje		Waste man	agement ope	eration (R	or D code)		
70503 25.30						ceted						
13.00		_			ACC		IK	EAT				
1 I received this west and 12: 22		Г	П									
1 I received this waste at the address given			ate 25	112	0115	Time	1010	5				
2 Vehicle registration no. (or mode of transp	ort if not i	road)):			١	Name:	MICA)			
3 Where waste is rejected please provide de	tails:						On behalf of (racsimile):	name, addres	ss, postco	ode, telepho	one, e-mail,	
									0			
I certify that waste permit/exempt waste open	ration nun	nber:					WITO	OH				
EPBLEB 37 30							Mri	20 m	,			
authorises the management of the waste designed in A4.			the address	;								
Where the consignment forms part of a multip	le collection	on				S	ignature 🔪	+				
as identified in Part C, I certify that the total nu consignments forming the collection are:	imber of	J11,				F	Date 7	110	1118	Time		

0	Dunton
0	ENVIRONMENTAL POSTOVEY OUS ENVIRONMENT

DISPOSAL FACILITY (For receiving site use only)

SIGNATURE

CONTROLLED WASTE TRANSFER

REGISTRATION OF VEHICLE

NOTE No:

11733 REGISTERED WASTE CARRIER: Dunton Environmental Ltd. Unit 1 Tamebridge Industrial Estate Aldridge Road, Perry Barr B42 2TX Waste Carrier Licence No. CB/MP3291BT issued by the Environment Agency **CUSTOMER** (Current holder of the waste) SITE ADDRESS (Place of transfer) DUNTON TWICKENHAM ENVIRONMENTAL CAD MOCKOL **DESCRIPTION OF WASTE COLLECTED** SOIL & STONES CONCRETE MIXED CONCRETE/BRICKS/TILES/CERAMICS 17 01 02 BRICKS MIXED CONSTRUCTION & DEMO WASTE 17 09 04 BITUMINOUS MIXTURES (TARMAC/ASPHALT)EWC CODE.... MIXED METALS MIXED GENERAL REFUSE 20 03 01 **DISPOSAL FACILITY** CLASSIFICATION INERT WION WASTE HUB NON-HAZARDOUS WV1 30h HAZARDOUS (if hazardous, the load will require a consignment note also) SIC Number: **HOW IS THE WASTE CONTAINED?** Loose 38.2 Waste treatment & disposal 39.0 Remediation activities 41.20/1 Construction of commercial buildings 41.202/2 Construction of domestic buildings IF NOT LOOSE SACKS DRUMS OTHER-DESCRIBE: LOAD VOLUME Arctic 14m3 Other 8-Wheeler 9m3 6-Wheeler 7m DRIVER NAME: HAULIER NAME: TIME OFF SITE: SIGNATURE: CUSTOMER (Holder of waste collected) I confirm that the above is an accurate description transferred and that Dunton Environmental have considered the waste hierarchy (as required by regulation 12 of the waste (England and Wales) Regulations 2011) in deciding the most appropriate option for this waste. PRINT NAME SIGNATURE

ADDRESS

PRINT NAME

DATE

Reg. Waste Carrier Licence No. CB/KP3095LY

296169

S.I.C. Code (2007): 49.41



GEORGE KILLOUGHERY LTD.

MITCHAM 43A Willow Lane Mitcham Surrey

CR4 4NA Tel: 020 8648 3737

"INOTE

PURFLEET
Beacon Hill Ind. Est. **Botany Quarry** Purfleet, Essex RM19 1SR Tel: 01708 860 601

SHEPPERTON

C/o Brett Aggregates Littleton Lane Shepperton, Surrey TW17 0NF Tel: 01932 563571

Name of Person in charge of Vehicle / Driver	Vehicle Reg. No.
MULITERE RUMAN	= 21200M
Waste Holder / Delivery Address	Time on Site
Luccusthauptor	Time off Site
I can confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste (England and Wales) Regulations 2011.	Waiting Time Signature
Description of Material	Gross
Subsoils & Stones: 17.05.04 Wood: 17.02.01	Tare
Clean Concrete: 17.01.01 Plastic: 17.02.03	Net
Tarmac & Asphalt: 17.03.02 Bricks: 17.01.02	Cubic
Mixed Construction & Demolition: 17.09.04 Tiles: 17.01.03	Metres
Clean Hardcore-Mixed Concrete, Bricks & Tiles: 17.01.07	How is the material contained? Loose
Other EWC Code(s)	Sacks
Notes	Other
SIGNED BY PRODUCER / SITE PRINT NAME OBOLA	DATE Z A LISTON LABOUR HIRE

CONCRETE AND MUCK AWAY - PLANT HIRE - READY MIX CONCRETE - DEMOLITION - LAB WASTE MANAGEMENT - SKIP HIRE

Customers ordering vehicles off the public highway do so entirely at their own responsibility

1

The Hazardous Waste Regulations 2005: Consignment Note



PART A Notificat	ion details	5									3/5-5/			
1 Consignment not	e code: D	1 12		5	0/	830	01			e will be take			and the ease of	de):
2 The waste describ postcode, telepho				ved	from (name, addre	255,		Horse	eley Fiel	ds, Ho	verha	mpton	
Twickenha	im, Lond	lon 1	Rd	, T	WI	IEE		5 Th	e waste	producer wa	s (if differer	it from 2)	(name, ad	dress,
	V 1			٠.				po Tu	stcode,	telephone, on ham	-mail, facsin	mile): Rd,	THILL	EE
3 Premises code (w				41	03	4 8			10.00					
PART B Descript	ion of the v	waste	е		=						If c	ontinuati	on sheet u	sed, tick here
1 The process giving 3 WASTE DETAILS (w						uavation collected al	l of the inform			process givi w must be co			39.)
Description of waste	11.70	ist of EWC o			igits)	Quantity (kg)		and their o	Conc	nponents in rations are: entration r mg/kg)	Physical for (gas, liquing powder, si or mixed)	d, solid,	Hazard code(s)	Container type, number and size
Soil & Stone		7	0 !	5	0 3	iLoad	Lead		-	2 mg l kg	Golid		HP14	Tipper
7						7,000				9.1.3				
The information give	n below is to	be co	mple	ted	for eac	ch EWC iden	tified							
EWC code	UN identifi number(s)	cation	1 1	Prop	er shi	pping name	(s)	UN clas	s(es)	Packing gr	roup(s)	Specia require	l handling ments	
			-			_								
PART C Carrier's	certificate		4				9, 100			PART D (onsignor'	s certifi	icate	
arriers is attached till certify that I today cocorrect and I have been where this note comprise to the compri	llougher, address, ponvironme	onsig fanys fanys multip My ostcod on For exe of tra	pecification in the period of	eph lol more	one, e	g requirements of round number of round number of round number of rounds.	nts. ber and collect nile):	tion numb		exempt and measures. correctly an handling re l confirm the hierarchy as (England an x1 Consignor x0n behalf of facsimile): MIL Consignor x0n behalf of facsimile x1 Consignor x2 Consignor x2 Consignor x4 Consigno	d was advised all of the ward the carrier quirements. at I have fulf to required by d Wales) Reformance: A f (name, add	d of the asset is pace has bee islled my confidence in the state of th	appropriate kaged and n advised of duty to apply on 12 of the 2011. Bould stoode, tele of the local field o	of any special by the waste a Waste phone, e-mail, a Waste c I S O Z
code(s) received				20.10	ceive	u (NS)		cepted/re	*//					-)
170503	27							ACC		7	REA	TME	M	
		.20										-7.11	1.11	
1 I received this waste	at the addre	ess giv	en in	A4	on:	Date 24	+112	015	Time	e 1 0 2	0			
Vehicle registration Where waste is reject I certify that waste permanents	cted please p	rovide	deta	ils:						facsimile):	(name, add	ress, pos		phone, e-mail,
authorises the manage	ment of the v	vaste	descr	j ibe	d in B	at the addre	SS							
given in A4. Where the consignment as identified in Part C. I.						n,				Signature				
as identified in Part C, I	be collection	ie tota	nun	nbei	101					Date 2	+ 1112	101	5 Time	1020



CONTROLLED WASTE TRANSFER

NOTE No:

REGISTRATION OF VEHICLE

Dunton Environmental Ltd Unit 1 Tamebridge Industrial Estate Aldridge Road, Perry Barr B42 2TX

12811

ESI50UN

Waste Carrier Licence No. CB/MP3291BT issue	d by the En	vironment Agency		
CUSTOMER (Current holder of the	ne waste)		
NAME:				
		SITE ADDRESS (Place		
DONTON		TONDON	120 Twicker	SHAM
	1			
		12	1 166	
DESCRIPTION OF WASTE COLLE	CTED			
SOIL & STONES				
BRICKS	17 05 04	CONCRETE		17 01 01
	17 01 02	MIXED CON	CRETE/BRICKS/TILES/CERAMICS	17 01 07
MIXED CONSTRUCTION & DEMO WASTE	17 09 04		S MIXTURES (TARMAC/ASPHALT)	
MIXED METALS	20 03 01	OTHER	EWC CODE	17 01 07
MIXED GENERAL REFUSE	20 03 01		LEWC CODE	***************************************
CLASSIFICATION			170SC3	
	DISPO	SAL FACILITY		
☐ INERT	NAME:	11-	1	
NON-HAZARDOUS		MION	HUB	
HAZARDOUS (if hazardous, the load will require a consignment note also)		WV1 30	S	
HOW IS THE WASTE CONTAINED?				
THE THREE CONTAINED?	oose		SIC Number:	
			38.2 Waste treatment & disposal	
			39.0 Remediation activities	- 4

41.20/1 Construction of commercial buildings IF NOT LOOSE SACKS DRUMS OTHER-DESCRIBE: 41.202/2 Construction of domestic buildings Other LOAD VOLUME 8-Wheeler 9m3

6-Wheeler 7m Grab 8m3 Arctic 14m3 Other

DRIVER NAME: HAULIER NAME:

TIME OFF SITE: SIGNATURE:

CUSTOMER (Holder of waste collected)

I confirm that the above is an accurate description transferred and that Dunton Environmental have considered the waste hierarchy (as required by regulation 12 of the waste (England and Wales) Regulations 2011) in deciding the most appropriate option for this waste.

PRINT NAME

DISPOSAL FACILITY (For receiving site use only)

DURION SIGNATURE

ADDRESS PRINT NAME

DATE

TON

27/11/15

The Hazardous Waste Regulations 2005: Consignment Note

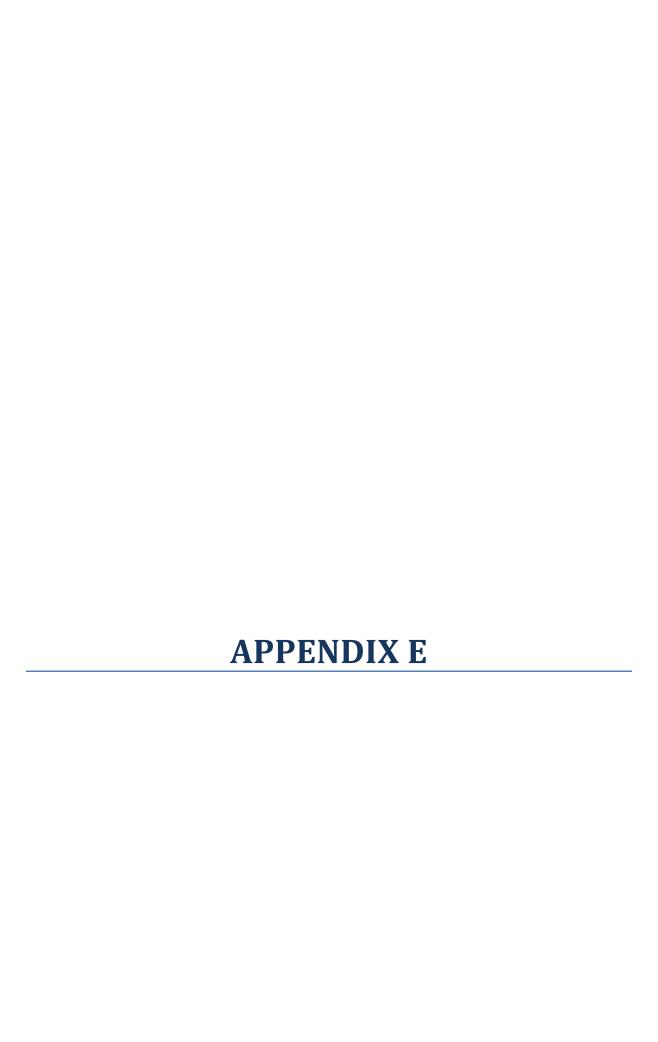


PART A Notifica	tion det	ails												
1 Consignment not	e code:	D.	TR	15	0/	830	03	4 Th	ne waste	e will be take	n to (name	addross	and postcoo	10).
2 The waste describ	L									يحلاح				
postcode, telephi	one, e-ma	il, fa	acsimile)	:			.33,		WVI	30W	11000	-, "	100	
TWICKEN	ROAD	7	1 16	6				5 Th	e waste	producer wa	ıs (if differer	t from 2)	(name, add	dress,
3 Premises code (w					0 3	10				telephone, e				
				1	0 3	48	L	2000	2	en -	TWICL	ienit	Am T	NILEE
PART B Descript											If c	ontinuati	ion sheet us	sed, tick here
1 The process giving										process givi			00	221
3 WASTE DETAILS (v	vhere mor	e th	an one v	vaste	type is	collected all	of the inform	ation giv	en belo	w must be co	mpleted for	each EW	C identified)
Description of waste			st of wa		igits)	Quantity (kg)	The chemic	al/biolog	ical cor	nponents in	Physical fo		Hazard	Container
		,,_	we cou	c)(o u	51(3)	(Ng)	Component		Conc	entration	(gas, liqui powder, sl	a, solia, udge	code(s)	type, number and size
		-	-							r mg/kg)	or mixed)			
Soiltsto	NE.	1	70	5	03	LORD	LER	P	199	omalka	Sa	GI	HP14	TIPPER
				Ш	Ш		Carlo V							
The information give	UN ider	_				th EWC ident		I ON also		I positive	//	1		
	number		ution.	1101	ici siiil	oping name(5)	UN clas	is (es)	Packing gr	oup(s)	require	l handling ements	
										1				
PART C Carrier's	Target State									PART D (onsignor'	s certif	icate	
(If more than one carr carriers is attached ti	ier is use ck here.	d, pl	lease att	ach s	chedul	e for subseq	uent carriers	. If sched	ule of	I certify that	t the informa	ation in A	B and Cha	as been registered or
I certify that I today co correct and I have bee	llected th	e co	nsignm	ent an	d that	the details in	A2, A4 and I	B3 are		exempt and	I was advise All of the wa	d of the a	appropriate	precautionary
Where this note compr								ion numb	er are:	correctly an		has bee		f any special
						1				I confirm tha	at I have fulf	illed my o	duty to apply	the waste
1 Carrier name:	KILL	00	640	EXL)					hierarchy as (England an				Waste
On behalf of (name							ile):			1 Consigno				
BUNTON BUZ 2	TX				601	AL				facsimile):				phone, e-mail,
2 Carrier registration	no./reason	n for		tion:						UN	100	mill	L 5118	CET
3 Vehicle registration	no. (or mo	ode	of trans	port, i	f not ro	ad):				W'-	ON	WV	130h	7
Signature										Signature -				
Date			Tim	e	1					Date	H	T	Time	
PART E Consignee	's certifi	cat	e (where	e more	than (one waste typ	e is collected	all of the	informa	tion given be	low must be	complete	ed for each E	WC)
	uantity of						EW	VC code cepted/re	100		nagement op			
170503	2	2	1.5	2				Acc		15	LEAT			
		13	· 06	,				1.00			cesti			
1 received this waste	at the ad	dres	s given	in A4	on:	Date 2 7	112	115	Time	103	0			
2 Vehicle registration	no. (or mo	de d	of transp	ort if	not roa	d):					UNTUR	0		
3 Where waste is reject	OUA	0	ovida da	taile						On behalf of			tcode, telep	hone, e-mail,
y where waste is reject	iteu pieasi	e più	ovide de	lans:						facsimile):				
I certify that waste pern	nit/avamn	+ 141-	cta ana	ration	numb	05.				N 10	in F	SON		
-0-1		_				e11				MVI	301	2		
authorises the manager	ろう ment of th	_				it the addres	S							
given in A4.									9	Signature	7			
Where the consignment as identified in Part C, I	certify tha	t the	e total ni	ne col umber	ection of					Date 2	1110	01	5 Time	1020

The Hazardous Waste Regulations 2005: Consignment Note



PART A Notification details					Tolled S	14.4	3,50		
1 Consignment note code: 7 7 1 5 0 / 8 3 0 0 3 4 The waste will be taken to (name, address and postcode):									
The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):	2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):								
Thousand SCAD CARLON CO. 11									
postcode, telephone, e-mail, facsimile):									
3 Premises code (where applicable): 0 × 0 3 48 London 20 TWICKENHAM TNITE									
PART B Description of the waste		170	HOW.	T. Mark	If co	ntinuati	on sheet us	ed, tick here	
1 The process giving rise to the waste(s) was: 2 SIC for the process giving rise to the waste: 3 2 . 2 7 / 3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)									
Description of waste List of wastes Quantity	The chemic	al/biologi	ical com	ponents in	Physical fo		Hazard	Container	
	the waste a Component			ations are:	(gas, liquic powder, sli		code(s)	type, number and size	
			1	mg/kg)	or mixed)	*******		Maria de la compansión de	
SOLL+ STONE 170503 LOND	Len	2	1991	omeire	SOL	()	HP14	TREER	
The information given below is to be completed for each EWC identifie	ed								
EWC code UN identification Proper shipping name(s)	cu	UN clas	s(es)	Packing g	roup(s)	Specia	l handling		
number(s)		-				require	ments		
PART C Carrier's certificate	750	II.V-E		PART D	Consignor's	s certifi	cate	NEW YORK	
(If more than one carrier is used, please attach schedule for subseque carriers is attached tick here.	ent carriers.	. If sched	ule of	I certify tha	t the informa	tion in A	, B and C ha	as been	
I certify that I today collected the consignment and that the details in A	A2, A4 and E	33 are		exempt and	d was advised	d of the a	appropriate	registered or precautionary	
correct and I have been advised of any specific handling requirements. Where this note comprises part of a multiple collection the round number		ion numb	er are-	correctly ar	All of the was d the carrier quirements.			f any special	
/		ion name	cr dic.	I confirm th	at I have fulfi	lled my c	luty to apply	the waste	
1 Carrier name: KILLOUCHELD					required by degree (water) Reg			Waste	
On behalf of (name, address, postcode, telephone, e-mail, facsimile)	e):			1 Consigno					
B42 274				facsimile):			area appropria	phone, e-mail,	
2 Carrier registration no./reason for exemption:				UN.	ION:	WILL	- 571	EET	
3 Vehicle registration no. (or mode of transport, if not road):				VO	,00	MV	130h)	
Signature				Signature		-			
Date Time Time	W U W	The second second		Date	= 1		Time		
PART E Consignee's certificate (where more than one waste type Individual EWC Quantity of each EWC code received (kg)		all of the I/C code	informa		low must be nagement or				
code(s) received	acc	cepted/re	jected						
170503 27.52		AKE		1	16A1	_	_		
13 06			1						
1 I received this waste at the address given in A4 on: Date 7	1 1 2	0 1 5	Time	111010	0				
Vehicle registration no. (or mode of transport if not road): Where waste is rejected please provide details:					(name, addr		tcode, telep	hone, e-mail,	
3 Where waste is rejected please provide details:			f	acsimile):					
Leartify that waste permit/exempt waste energian numbers					in) t				
Certify that waste permit/exempt waste operation number:				MVI	301	2			
authorises the management of the waste described in B at the address									
given in A4. Where the consignment forms part of a multiple collection,			9	Signature	0				
as identified in Part C, I certify that the total number of consignments forming the collection are:				Date 2	7112	0 1	5 Time	1030	





4 REMEDIAL STRATEGY

4.1 Introduction

This Remediation Method Statement has been designed to break or remove the potential pollutant linkages identified on site from preceding investigation works. Essentially these comprise:

- Risks to end users of the site attributable to the presence of localised asbestos containing materials and elevated concentrations of Lead; and
- Risk to groundworkers and adjacent site users during redevelopment works.

4.2 Remedial objectives

The objectives of the remediation are to produce a site that is suitable for its intended purposes whilst providing a safe working environment with respect to site workers and adjacent users. This will involve the following measures:

- Targeted excavation of impacted soils (identified contamination hotspots) for disposal off-site at an appropriate licensed facility;
- The placement of a 300mm clean cover layer along the 1.0m wide landscaped strip to be created along the flanks of the footpath; and
- Adoption of safe working procedures with respect to the identified presence of asbestos containing materials.

4.3 Implementation plan

4.3.1 Introduction

The overall remediation strategy for the site may be divided into the enabling phase, i.e. those works required to produce a suitable development platform, and the subsequent construction phase. The sequence of works required under both phases is outlined in the following sections.

4.3.2 Enabling phase

4.3.2.1 Removal of identified Asbestos impacted soils

Localised excavation of soils identified to contain asbestos containing materials should be conducted before further disturbance of the ground. This will require localised excavation in the vicinity of WS214 and WS215. In each instance excavation works should cover a plan area of 3m by 3m extending at least 0.2m beyond the depth at which asbestos containing materials were confirmed (0.60mbgl and 0.50mbgl respectively).

Excavation works should be conducted under the supervision of a suitably accredited asbestos surveyor or similar. Soils to be excavated should be suitably damped down before being disturbed, and ideally removed off site without delay or temporary



stockpiling which, depending upon the weather and soil moisture, may require covering if temporary stockpiling is necessary. The full control measures to be implemented during these works should be detailed within the contractors working method statements.

Where these works are conducted during dry weather, air monitoring should be undertaken for the duration of the excavation works with an appropriate number of monitoring points targeting the works face and site boundaries. Copies of the monitoring records should be made available for inclusions within the site verification report.

Whilst these excavation works will effectively remove soils proven to contain asbestos containing materials, similar occurrence may and are likely to occur in the surrounding materials and therefore adjacent excavation works should be conducted under a careful watching brief.

Following excavation of the soils, the exposed sides and base of the excavation should be validated by means of analytical testing to confirm the removal of all impacted soils. A minimum of five soil samples should be analysed for comparison against the validation criteria contained in **Table 4**.

Where validation testing confirms the extent of the excavation works to be appropriate, backfilling of the resultant void should be conducted using certified clean soils complying with the validation criteria contained in **Table 4**.

4.3.2.2 Removal of identified Lead impacted soils

Localised excavation of soils identified to contain elevated concentrations of Lead should be conducted before further disturbance of the ground. This will require localised excavation in the vicinity of WS216 at a depth of 0.2m. In this area, excavation works should cover a plan area of 3m by 3m extending at least 0.2m beyond the depth at which contamination was encountered.

Soils to be excavated should ideally be removed off site without delay or temporary stockpiling which, depending upon the weather and soil moisture, may require covering if temporary stockpiling is necessary. The full control measures to be implemented during these works should be detailed within the contractors working method statements.

Following excavation of the soils, the exposed sides and base of the excavation should be validated by means of analytical testing to confirm the removal of all impacted soils. A minimum of five soil samples should be analysed for comparison against the validation criteria contained in **Table 4**.

Where validation testing confirms the extent of the excavation works to be appropriate, backfilling of the resultant void should be conducted using certified clean soils complying with the validation criteria contained in **Tables 4** and **5**.

4.3.3 Construction phase

The principal objectives of the remedial strategy for the construction phase is to break pathways via which end users of the site may be exposed to contaminants within the shallow made ground deposits identified on site.



In addition, the strategy aims to provide a suitable growing medium in areas of soft landscaping to be created along the flanks of the proposed footpath.

4.3.3.1 Placement of clean cover soils

Where it is proposed to create a 1.0m wide maintained grass strip along either side of the proposed footpath (with a fence beyond preventing access to the adjoining areas) it will be necessary to place a 300mm clean cover horizon to break potential pollutant linkages.

Where ground levels are to remain unaltered, construction of the clean cover horizon will generally require made ground deposits to be removed to the corresponding depths (i.e. 300mm) and replaced with suitably clean and certified soils. As a minimum, the cover layer should include for at least 150mm of certified clean topsoil.

Made ground excavated during the construction of the clean cover horizon should be removed off-site to a suitably licensed or exempt facility.

4.3.4 Validation of clean cover soils

The requirements for the validation of cover systems are outlined in NHBC Standards Chapter 4.1 'Land Quality – Managing Ground Conditions'. The two main aspects to consider when validating cover systems are:

- a) Confirmation that the designed thickness of the material has been placed
- b) Confirmation that the materials comprising the cover system are themselves not contaminated, i.e. suitable for residential use

To assess the thickness of the cover layer, it will be necessary to dig through the cover layer at selected locations to verify the required thickness of topsoil and subsoil.

In addition, the topsoil and subsoil (whether imported or site derived during earthworks or the subsequent construction phase) will be chemically validated by the collection and analysis of representative soil samples. The frequency of testing for any site-derived or imported materials stockpiled for re-use should be a minimum of one sample for every $50m^3$ for the following parameters:

- Metals: arsenic, cadmium, chromium, copper, nickel, lead, mercury, selenium and zinc and pH;
- Speciated TPH CWG (split into aliphatic and aromatic carbon bands) with BTEX compounds;
- Speciated 16 No. PAH; and
- Asbestos in soil with ID.

It is acceptable to test stockpiled topsoil/subsoil intended for use in gardens and soft landscaped areas before placement, however the cover layer thickness will still require validation at a later date.

The groundworks contractor shall provide details of the provenance of any imported soil and evidence of compliance (i.e. chemical testing certificates representative of the type and volume of material) to the Environmental Consultant whose written approval will be required **before** importation and use of the material.



4.3.5 Validation assessment criteria (VAC)

To assess human health risks via the soil ingestion, dermal contact and inhalation, results of validation sampling will be compared directly with the validation criteria detailed in **Table 4** below. The validation criteria are a combination of RSK derived GAC's suitable for a communal soft landscaping end land use, and recently published DEFRA C4SL. Assessment criteria suitable for 6% soil organic matter (SOM) have been selected since topsoil and subsoil are likely to be high in organic content. Should lower SOM be present, the RSK GAC appendix within **Appendix B** provides alternative criteria for 1% and 2% SOM.

The Category 4 Screening Levels (C4SLs) have recently been issued by DEFRA in March 2014 and are intended for use as a technical tool for defining which land is suitable for use and is definitely not contaminated land and therefore requires no further assessment with respect to Part 2a. C4SLs provide a more pragmatic approach than SGVs/GACs, yet are still strongly precautionary, and have been developed using the CLEA model, which is the same framework used for the development of the SGVs/GACs.

C4SL's have been derived using a newly termed 'Low Level of Toxicological Concern (LLTC)' which represents an intake of low concern that remains suitably protective of health, instead of the minimal risk Health Criteria Values (HCV) which have been used in the development of the SGV/GACs. The C4SLs also take into account a number of updated exposure parameters which have been selected following several stakeholder engagement workshops.

There is some debate within industry as to the applicability of C4SL's within the planning scenario, however RSK is of the opinion that they provide very pragmatic yet still strongly precautionary targets which demonstrate the site is suitable for use, therefore it is considered appropriate to use them, where available, as validation criteria.

The RSK GAC appendix which details the generation of the GAC's is presented as **Appendix B**. The proposed screening criteria for the site are shown in the following table.

Table 4: Validation Assessment Criteria

Compound	Validation Assessment Criteria (VAC) 6% SOM (mg/kg)	Justification
Arsenic	37	C4SL
Cadmium	26	C4SL
Chromium (III) - oxide	3,000	RSK GAC
Chromium (VI)	21	C4SL
Copper	6,200	RSK GAC
Lead	310	C4SL
Elemental Mercury (Hg0)	1.0	RSK GAC
Inorganic Mercury (Hg2+)	240	RSK GAC
Methyl Mercury (Hg4+)	14	RSK GAC

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Compound	Validation Assessment Criteria (VAC) 6% SOM (mg/kg)	Justification
Nickel	130	RSK GAC
Selenium	600	RSK GAC
Zinc	41,000	RSK GAC
	BTEX Compounds	
Benzene	0.87	C4SL
Toluene	2,700	RSK GAC
Ethylbenzene	840	RSK GAC
Xylene - m	300	RSK GAC
Xylene - o	320	RSK GAC
Xylene - p	290	RSK GAC
Total xylene	300	RSK GAC
Semi-volatile organic co	mpounds (Polycyclic Aromatic Hydroca	arbons)
Acenaphthene	3,900	RSK GAC
Acenaphthylene	3,900	RSK GAC
Anthracene	23,000	RSK GAC
Benzo(a)anthracene	6.2	RSK GAC
Benzo(b)fluoranthene	7.4	RSK GAC
Benzo(g,h,i)perylene	48	RSK GAC
Benzo(k)fluoranthene	10	RSK GAC
Chrysene	10	RSK GAC
Dibenzo(a,h)anthracene	0.93	RSK GAC
Fluoranthene	1,000	RSK GAC
Fluorene	2,900	RSK GAC
Indeno(1,2,3-cd)pyrene	4.4	RSK GAC
Phenanthrene	970	RSK GAC
Pyrene	2,400	RSK GAC
Benzo(a)pyrene	5.3	C4SL
Naphthalene	9.2	RSK GAC
Tota	l Petroleum Hydrocarbons	
Aliphatic hydrocarbons EC ₅ –EC ₆	110	RSK GAC
Aliphatic hydrocarbons >EC6-EC8	370	RSK GAC
Aliphatic hydrocarbons >EC ₈ -EC ₁₀	110	RSK GAC
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂	540	RSK GAC
Aliphatic hydrocarbons >EC ₁₂ –EC ₁₆	3,000	RSK GAC
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	77,000	RSK GAC
Aromatic hydrocarbons >EC ₈ –EC ₉	1,400	RSK GAC
Aromatic hydrocarbons >EC ₉ –EC ₁₀	190	RSK GAC
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂	870	RSK GAC
Aromatic hydrocarbons >EC ₁₂ -EC ₁₆	1,700	RSK GAC



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Compound	Validation Assessment Criteria (VAC) 6% SOM (mg/kg)	Justification				
Aromatic hydrocarbons >EC ₁₆ —EC ₂₁	1,300	RSK GAC				
Aromatic hydrocarbons >EC ₂₁ -EC ₃₅	1,300	RSK GAC				
	Other					
Asbestos	Not observed in asbestos in soil with ID analysis	Laboratory analysis LOD				
Highlighted cells indicate where C4SL values are being used for validation.						

In addition, where deeper tree/shrub pits are dug, the following validation criteria protective of phytotoxic risks presented within **Table 5** should be used as a supplement to the VAC above.

Table 5: Phytotoxic Validation Assessment Criteria

Determinant	Gen	eric assessmen	t criteria (mg/kg))
	pH 5.0 < 5.5	pH 5.5 < 6.0	pH 6.0 < 7.0	pH >7.0
Zinc	200	200	200	300
Copper	80	100	135	200
Nickel	50	60	75	110

Note: Only compounds within BS3882:2007 and BS8601:2013 for topsoil and subsoil specification have been included. There are additional criteria regarding the suitability of a subsoil and topsoil which should be referred to in these documents.

4.3.6 Inspection and testing

Responsibility for the correct implementation of the remediation strategy lies with the Principal Contractor (PC). However, the remedial works shall be monitored, inspected and validated by the Environmental Consultant's experienced Geoenvironmental Engineers with part time attendance on-site dependent on the operations being undertaken.

During periods of part time supervision, it will be the PC's responsibility to provide adequate notice (at least three days) of any key activities that will require the attendance of the Environmental Consultant.

Validation testing shall be conducted as specified in the relevant sections. Laboratory analysis shall be carried out at an MCERTS and UKAS-accredited laboratory.

4.3.7 Discovery strategy

Whilst the investigations undertaken to date have been thorough, it remains possible that previously unexpected soil conditions may be encountered during the enabling and construction process (e.g. the presence of discrete/visually identifiable asbestos, soils exhibiting strong odours, former structures of brickwork).



Where unexpected ground conditions or potentially suspect materials are encountered, the following course of action should be adhered to:

- The contractor shall immediately inform the Environmental Consultant who shall then carry out an inspection as soon as is reasonably practical;
- Following the inspection, the Environmental Consultant shall advise the Client of any requirements for additional investigations or possible modifications to the remediation works; and
- The Regulatory Authorities shall be consulted if any substantially different conditions are encountered or modifications to the remedial works are required.

Should disturbance of the made ground result in the identification of suspected asbestos containing materials, any exposed materials/soils should be damped down and covered over with plastic sheeting and advice be sought from a suitably accredited asbestos surveyor or similar.