

From: [Davies, Philip](#)
To: [Viktoriya Grygoryshchak](#)
Subject: RE: Abraham Moss Validation Report
Date: 29 June 2023 08:28:45
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[AMLC - Existing ground top surface to proposed ground top surface.pdf](#)

Hi Viktoriya,

Regarding final cut & fill drawings, other than what I've already submitted the only other drawings we have are the attached which is a model comparison drawing which was undertaken prior to arrival on site. One of our digital engineers undertook a comparison of the original topographical survey against the new proposed external levels. Noting the attached only shows the comparison of the old top surface against the new proposed top surface levels, so the cut volumes will have been greater than what is shown in the attached due to the requirement of road/ topsoil/ subsoil build ups. Within the attached negative values indicate that the existing surface was higher (Land colours), and positive value lower (Hydro colours) with the contours identifies how much. As noted above this was undertaken prior to us starting on site so exact volumes may have differed since then.

Upon review with my construction managers on site, I can confirm beneath the soft landscape areas, and beneath the 150mm of topsoil, and 150mm of type 1, approximately 200mm- 300mm of 6F5 material was used to build up the levels. Creating a total cover system thickness of between 500mm – 600mm. Within the attached this shows the existing levels of the now landscaped areas were higher and required cutting and material exporting from site. With the above build ups put back in place.

Regarding your other points below, I can confirm the Tunstead quarried material from Tarmac (6F5 and Type 1) were used across site for both construction beneath foundation bases, and also as fill beneath the landscaped areas. The material from water lane was solely used beneath the foundation build ups when we were required to reduce levels by 1m beneath the new structure, break out piles and install new material as part of the pile discovery remedials.

I hope the above clarifies everything you require. And thanks again for pushing to issue the report on Friday this week.

Thanks,

Phil Davies
Senior Engineer

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Classification: Confidential

From: Viktoriya Grygoryshchak <viktoriya.grygoryshchak@ramboll.co.uk>
Sent: 28 June 2023 21:02

Ramboll
1 Broad Gate
The Headrow
Leeds
United Kingdom
LS1 8EQ



4225



Attention : Viktoriya Grygoryshchak

Date : 21st June, 2023

Your reference :

Our reference : Test Report 23/9341 Batch 1

Location : Abraham Moss

Date samples received : 9th June, 2023

Status : Final Report

Issue : 1

Six samples were received for analysis on 9th June, 2023 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name:	Ramboll	Report :	Solid
Reference:			
Location:	Abraham Moss	Solids:	V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact:	Viktoriya Grygoryshchak		
EMT Job No:	23/9341		

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ramboll
Reference:
Location: Abraham Moss
Contact: Viktoriya Grygoryshchak
EMT Job No: 23/9341

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18					Please see attached notes for all abbreviations and acronyms		
Sample ID	HP01	HP02	HP03	HP04	HP05	HP06							
Depth	0.0-0.15	0.0-0.12	0.0-0.11	0.0-0.16	0.0-0.22	0.0-0.20							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	08/06/2023	08/06/2023	08/06/2023	08/06/2023	08/06/2023	08/06/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	09/06/2023	09/06/2023	09/06/2023	09/06/2023	09/06/2023	09/06/2023					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	34	69	68	<7	197	76					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	34	69	68	<19	197	76					<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}					<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	14	30	22	<7	31	18					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	213	322	236	23	534	235					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	227	352	258	23	565	253					<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics (C5-35) (EH+HS_CU_1D_Total)	261	421	326	<38	762	329					<38	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
Benzene #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
Toluene #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
Ethylbenzene #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
m/p-Xylene #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
o-Xylene #	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}					<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15					<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	17.2	18.3	14.9	17.4	18.9	26.6					<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.1291	0.1727	0.1741	0.1719	0.1765	0.1956					<0.0015	g/l	TM38/PM20
Chromium III	40.0	55.3	45.2	36.3	40.6	34.1					<0.5	mg/kg	NONE/NONE
Total Cyanide #	0.8	0.8	0.8	0.7	0.8	0.9					<0.5	mg/kg	TM89/PM45
pH #	8.04	7.93	7.99	7.86	7.75	7.64					<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	NAD	NAD	NAD	NAD	NAD						None	Subcontracted

Client Name: Ramboll
Reference:
Location: Abraham Moss
Contact: Viktoriya Grygoryshchak

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[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/9341

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/9341

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec.1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec.1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

EMT Job No: 23/9341

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

Client Name:

Ramboll

Reference:

LP44107

Location:

Abraham Moss

Sample ID			HP01	HP02	HP03	HP04	HP05	HP06		
Depth	Generic Assessment Criteria - Residential Without Plant Uptake	Generic Assessment Criteria - Commercial / Industrial	0.0-0.15	0.0-0.12	0.0-0.11	0.0-0.16	0.0-0.22	0.0-0.20		
Sample Date			08/06/2023	08/06/2023	08/06/2023	08/06/2023	08/06/2023	08/06/2023		
Date of Receipt			09/06/2023	09/06/2023	09/06/2023	09/06/2023	09/06/2023	09/06/2023	Limit of Detection	Units
Arsenic #	40	170	3.5	4.5	4.6	4.8	4.7	4.3	<0.5	mg/kg
Beryllium	1.7	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg
Cadmium #	150	410	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg
Chromium #	910	8600	40	55.3	45.2	36.3	40.6	34.1	<0.5	mg/kg
Copper #	710	68000	18	25	24	24	25	30	<1	mg/kg
Lead #	310	2300	26	35	36	42	38	31	<5	mg/kg
Mercury #	56	1100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg
Nickel #	180	980	10.6	11.1	11.8	11.1	10.3	13.5	<0.7	mg/kg
Selenium #	430	12000	<1	<1	<1	<1	<1	<1	<1	mg/kg
Vanadium	1200	9000	14	26	18	14	16	16	<1	mg/kg
Water Soluble Boron #	11000	240000	1.4	2.2	2	2.4	2.2	1.4	<0.1	mg/kg
Zinc #	40000	730000	54	88	64	110	64	63	<5	mg/kg
PAH MS										
Naphthalene #	0.99	110	<0.04	<0.04	<0.04	0.05	<0.04	0.08	<0.04	mg/kg
Acenaphthylene	2000	76000	<0.03	0.04	<0.03	0.05	0.05	<0.03	<0.03	mg/kg
Acenaphthene #	2000	75000	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	<0.05	mg/kg
Fluorene #	2200	60000	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	mg/kg
Phenanthrene #	1300	22000	0.19	0.31	0.21	0.29	0.32	0.62	<0.03	mg/kg
Anthracene #	30000	520000	0.07	0.09	0.08	0.12	0.18	0.19	<0.04	mg/kg
Fluoranthene #	1500	23000	0.47	0.72	0.53	0.73	1.46	1.11	<0.03	mg/kg
Pyrene #	3700	54000	0.42	0.62	0.47	0.65	1.25	0.91	<0.03	mg/kg
Benzo(a)anthracene #			0.28	0.39	0.29	0.39	0.76	0.53	<0.06	mg/kg
Chrysene #			0.28	0.41	0.31	0.41	0.74	0.54	<0.02	mg/kg
Benzo(bk)fluoranthene #			0.53	0.82	0.59	0.88	1.36	1.00	<0.07	mg/kg
Benzo(a)pyrene #	5.3	76	0.30	0.49	0.33	0.54	0.82	0.63	<0.04	mg/kg
Indeno(123cd)pyrene #			0.22	0.35	0.28	0.41	0.62	0.48	<0.04	mg/kg
Dibenzo(ah)anthracene #			<0.04	0.07	0.06	0.09	0.12	0.08	<0.04	mg/kg
Benzo(ghi)perylene #			0.23	0.32	0.28	0.41	0.56	0.44	<0.04	mg/kg
PAH 16 Total			3.0	4.6	3.4	5.0	8.2	6.8	<0.6	mg/kg
Benzo(b)fluoranthene			0.38	0.59	0.42	0.63	0.98	0.72	<0.05	mg/kg
Benzo(k)fluoranthene			0.15	0.23	0.17	0.25	0.38	0.28	<0.02	mg/kg
PAH Surrogate % Recovery			87	93	90	88	87	89	<0	%
TPH CWG										
Aliphatics										
>C5-C6 (HS_1D_AL) #			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>C6-C8 (HS_1D_AL) #			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>C8-C10 (HS_1D_AL)			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>C10-C12 (EH_CU_1D_AL) #			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg
>C12-C16 (EH_CU_1D_AL) #			<4	<4	<4	<4	<4	<4	<4	mg/kg
>C16-C21 (EH_CU_1D_AL) #			<7	<7	<7	<7	<7	<7	<7	mg/kg
>C21-C35 (EH_CU_1D_AL) #	42000	1000000	34	69	68	<7	197	76	<7	mg/kg
Total aliphatics C5-35 (EH+HS_CU_1D_Total)			34	69	68	<19	197	76	<19	mg/kg
Aromatics										
>C5-EC7 (HS_1D_AR) #			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>EC7-EC8 (HS_1D_AR) #			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>EC8-EC10 (HS_1D_AR) #			<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	mg/kg
>EC10-EC12 (EH_CU_1D_AR) #			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg
>EC12-EC16 (EH_CU_1D_AR) #			<4	<4	<4	<4	<4	<4	<4	mg/kg
>EC16-EC21 (EH_CU_1D_AR) #	1900	29000	14	30	22	<7	31	18	<7	mg/kg
>EC21-EC35 (EH_CU_1D_AR) #	1900	29000	213	322	236	23	534	235	<7	mg/kg
Total aromatics C5-35 (EH+HS_CU_1D_AR) #			227	352	258	23	565	253	<19	mg/kg
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)			261	421	326	<38	762	329	<38	mg/kg
MTBE #			<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg
Benzene #			<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg
Toluene #			<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg

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Ethylbenzene [#]		<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg
m/p-Xylene [#]		<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg
o-Xylene [#]		<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5 ^{SV}	<5	ug/kg
Total Phenols HPLC		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg
Natural Moisture Content		17.2	18.3	14.9	17.4	18.9	26.6	<0.1	%
Hexavalent Chromium [#]		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg
Sulphate as SO4 (2:1 Ext) [#]		0.1291	0.1727	0.1741	0.1719	0.1765	0.1956	<0.0015	g/l
Chromium III	910 8600	40.0	55.3	45.2	36.3	40.6	34.1	<0.5	mg/kg
Total Cyanide [#]	49 49	0.8	0.8	0.8	0.7	0.8	0.9	<0.5	mg/kg
pH [#]		8.04	7.93	7.99	7.86	7.75	7.64	<0.01	pH units
Asbestos Type*	Detection Detection	NAD	NAD	NAD	NAD	NAD	NAD		None

RECORD OF SITE VISIT

job title Abraham Moss Leisure Centre

job no. 1620005164

date 08/06/2023

type Topsoil Sampling and Verification Visit

visit to Abraham Moss Leisure Centre

by VG

met Philip Davies, Laing O'Rourke

purpose SITE VISIT TO SAMPLE AND VERIFY THE NEW SOFT LANDSCAPED AREAS

Notes

Ramboll attended site at the Abraham Moss Leisure Centre to sample and verify the installation of the clean capping layer system within the newly developed soft landscaped areas.

VG (of Ramboll) met with Philip Davies (of Laing O'Rourke) for the sampling and verification visit.

VG noted the sampling areas to consist of:

- A strip of soft landscaping along the south-eastern corner of the site;
- A small patch of soft landscaping approximately on the western boundary; and
- An 'island' in the north-west of the site designated for soft landscaping (however, at the time of the visit, paving works were undertaken in the area and no topsoil had been installed at the time).

Ramboll noted on several planters and installed trees present along the south-western wall of the building.

Ramboll recovered a total of six topsoil samples across the two areas of soft landscaping installed at the time (two samples taken from the area west of the site, and four samples taken along the strip of land along the south-eastern boundary).

The sample descriptions and depths are as follows:

Sample ID	Depth (m) and description
HP01	0.0-0.15: Brown fine to coarse sand with occasional fine sub-angular to sub-rounded gravel of limestone with occasional rootlets. [Topsoil] 0.15-: Light grey very gravelly fine to coarse sand. Gravel is sub-angular of limestone. [Type 1 Fill].
HP02	0.0-0.12: Brown to dark brown slightly gravelly fine to coarse sand with occasional rootlets and organic odour. Gravel is fine of natural lithologies. [Topsoil] 0.12-: Light grey very gravelly fine to coarse sand with fine to coarse sub-angular gravel of limestone. [Type 1 Fill]
HP03	0.0-0.12: Brown fine to coarse sand with occasional fine to medium sub-angular to sub-rounded gravel of limestone and sandstone and occasional rootlets. [Topsoil] 0.12-: Light grey very gravelly fine to coarse sand with fine to coarse sub-angular gravel of limestone. [Type 1 Fill]
HP04	0.0-0.16: Brown fine to coarse sand with occasional fine to medium sub-angular to sub-rounded gravel of limestone and sandstone and occasional rootlets. [Topsoil] 0.16-: Light grey very gravelly fine to coarse sand with fine to coarse sub-angular gravel of limestone. [Type 1 Fill]
HP05	0.0-0.22: Brown fine to coarse sand with occasional fine to medium sub-angular to

job title Abraham Moss Leisure Centre

job no. 1620005164

	sub-rounded gravel of limestone and sandstone and occasional rootlets. [Topsoil] 0.22-: Light grey very gravelly fine to coarse sand with fine to coarse sub-angular gravel of limestone. [Type 1 Fill]
HP06	0.0-0.20: Brown fine to coarse sand with occasional fine to medium sub-angular to sub-rounded gravel of limestone and sandstone and occasional rootlets. [Topsoil] 0.20-: Light grey very gravelly fine to coarse sand with fine to coarse sub-angular gravel of limestone. [Type 1 Fill]

An annotated plan depicting the sampling locations is provided below.



Ramboll noted that the topsoil thickness ranged between 0.12 m to 0.20 m. According to Laing O’Rourke, the topsoil has been underlain with a 150 mm (Type 1 sub-soil), and further with 200 mm to 300 mm of Class 6F5 fill material, providing an overall protection capping layer of between 470 mm and 650 mm.

Topsoil photographs, including the measured thicknesses are provided overleaf.

job title Abraham Moss Leisure Centre

job no. 1620005164



HP01 topsoil extending to 0.15 m (left) and HP02 topsoil extending to 0.12 m (right)



HP03 topsoil extending to 0.12 m (left) and HP04 topsoil extending to 0.16 m (right)

job title Abraham Moss Leisure Centre

job no. 1620005164



HP05 topsoil extending to 0.22 m (left) and HP06 topsoil extending to 0.20 m (right)

General site photographs at the time of the visit are provided below and overleaf.



View of the small landscaped area in the west of the site.

job title Abraham Moss Leisure Centre

job no. 1620005164



View of the landscaping area in the north-west of the site under development. No sampling was undertaken of the topsoils within this area.



View of the planters and the south-western site perimeter.

job title Abraham Moss Leisure Centre

job no. 1620005164



View of the installed tree with underground rooting system along the south-western site perimeter.



View of the strip of soft landscaping along the south-eastern perimeter of the new building.

APPENDIX E

V5: SELECT IMPORT MATERIAL RECORDS



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or be scaled. Dimensions are in
meters.



KEY

- Paving Type 1
Tobermore 'Fusion' concrete paving blocks. 300 x 200 x 80mm, colour - Rose. 'Stripes' in Sienna Graphite 208 x 173 x 80mm - 2 rows. External Works NBS Q24 & Q25
- Paving Type 2
Tobermore 'Sienna' concrete paving blocks. 208 x 173 x 80mm, colour - Silver. 'Stripes' in Sienna Graphite 208 x 173 x 80mm - 2 rows. External Works NBS Q24 & Q25
- Paving Type 3
Tobermore 'Sienna' concrete paving blocks. 240 x 160 x 80mm, colour - Silver. Laid on a rigid bed. External Works NBS Q24 & Q25
- Vehicular grade macadam to Engineers specification
- Pedestrian/MEWP access grade macadam to Engineers specification

Pcc blister paving 400 x 400 x 65mm. External Works NBS Q24 & Q25

Turf over 150-mm depth topsoil. External Works NBS Q28 & Q30

Semi Mature Tree 20 - 25cm girth, underground guyed in paving with Tobermore 125mm wide Country Kerb surround laid flush with resin bound gravel infill system. External Works NBS Q28 & Q31. See drawing Trees in Hard Paving Details LP44107-EWL-ZZ-ZZ-DR-L-94005

Standard tree 12 - 14cm girth, double staked in grass in 1m diameter circle of bark mulch. External Works NBS Q28 & Q31

Shrub planting in raised container - Europlanters - GRP planter, finished in RAL 7016. Spread 75mm layer bark mulch on completion. External Works NBS Q230A

Shrub planting into 450mm depth topsoil into ground. Spread 75mm layer bark mulch on completion. External Works NBS Q28 & Q31

Stainless Steel bollards sleeve fixed. External Works NBS Q30

Stainless Steel bollards baseplated. External Works NBS Q30

Sarah Bench colour Grey Granite Brushed from - Artform Urban Furniture Adlington Business Park London Road, Adlington SK10 4NL. External Works NBS Q50

4 stainless steel Sheffield parking hoops. External Works NBS Q50

Cellular structural Soil System to trees in paving. Below paving See Trees in Hard Paving Details drawing

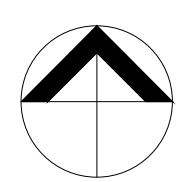
Existing levels

Proposed levels - bok stands for finished surface level

See Engineers Drawings for details of kerbs & drainage

Coordinate Schedule	65	384399446	401673047
Ref. Easting (X) Northing (Y)	66	384399971	401674737
1 384390998	401707947	67	384408023
2 384398802	401687236	68	384412972
3 384398862	401684934	69	384426541
4 384395151	401682700	70	384421592
5 384395224	401685323	71	384420255
6 384395845	401689402	72	384484896
7 384393243	401690988	73	384465745
8 384394052	401696397	74	384468940
9 384396977	401687000	75	384462498
10 384397217	401688723	76	384456511
11 384400350	401685971	77	384411205
12 384398914	401688904	78	384414645
13 384399971	401691370	79	384398528
14 384402395	401692048	80	384398047
15 384402997	401696190	81	384417133
16 384400767	401707595	82	384421249
17 384405879	401709167	83	384419404
18 384409228	401708321	84	384422560
19 384410955	401705001	85	384427798
20 384411069	401703514	86	384422845
21 384409698	401699508	87	384432849
22 384393865	401709956	88	384441429
23 384407347	401719270	89	384445048
24 384415080	401713892	90	384450488
25 384415824	401716996	91	384445215
26 384431239	401708355	92	384456536
27 384434356	401712765	93	384453477
28 384441583	401707798	94	384465233
29 384438458	401703279	95	384460117
30 384466673	401683851	96	384435278
31 384470159	401688930	97	384460634
32 384484669	401671465	98	384457019
33 384488043	401676850	99	384451667
34 384438463	401637860	100	384442999
35 384436794	401636191	101	384418165
36 384398369	401630397	102	384412104
37 384509166	401659908	103	384470147
38 384503255	401652602	104	384429129
39 384506597	401650298	105	384406170
40 384483078	401606842	106	384412756
41 384480680	401606529	107	384397288
42 384480583	401613008	108	384397540
43 384479656	401601999	109	384385296
44 384474324	401601491	110	384390847
45 384471169	401604523	111	384393674
46 384474486	401607992	112	384412797
47 384444159	401637941	113	384415918
48 384441714	401634549	114	384414940
49 384418708	401654864	115	384410897
50 384402579	401667518	116	384407115
51 384399965	401671355	117	384397988

COT 24.03.21	Revised notes, buildings, user points & building position, exits to earth with building	100%
COT 03.03.21	Notes added to gates	100%
COT 03.03.21	Notes added to ACP system	100%
COT 13.12.21	Can look moved, vert poles & roadway levels added, add cycle lanes (1750m)	100%
COT 11.11.21	Notes added to gate notes	100%
COT 02.08.21	Minor amendments - A1	100%
COT 01.10.21	STAGE 5	100%
REV DATE	REVISIONS NOTE	BY



elliswilliams
ARCHITECTS

ABRAHAM MOSS LIBRARY & LEISURE CENTRE
LANDSCAPE MASTERPLAN
2434_LG(90)00
STATUS: Stage 5
SCALE: 1:200 @ A0
DATE: 2021.03.21
LP44107-EWL-ZZ-ZZ-DR-L-94000

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Supplier	Date	Description	vol m3
J O'Shea and Sons Limited	10/06/2022	Type 1	9.1
J O'Shea and Sons Limited	10/06/2022	Type 1	9.1
J O'Shea and Sons Limited	10/06/2022	Type 1	9.1
J O'Shea and Sons Limited	10/06/2022	Type 1	9.1
J O'Shea and Sons Limited	15/06/2022	Type 1	9.1
J O'Shea and Sons Limited	15/06/2022	Type 1	9.1
J O'Shea and Sons Limited	12/10/2022	(20MM) 20MM PIPE BEDDING	9.1
J O'Shea and Sons Limited	14/10/2022	(20MM) 20MM PIPE BEDDING	9.1
J O'Shea and Sons Limited	18/10/2022	6F2	9.1
J O'Shea and Sons Limited	18/10/2022	6F2	9.1
J O'Shea and Sons Limited	18/10/2022	6F2	9.1
J O'Shea and Sons Limited	18/10/2022	6F2	9.1
J O'Shea and Sons Limited	24/10/2022	(20MM) 20MM PIPE BEDDING	9.1
Tarmac Trading Limited	27/10/2022	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Ltd	31/10/2022	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
J O'Shea and Sons Limited	31/10/2022	6F2	9.1
J O'Shea and Sons Limited	31/10/2022	6F2	9.1
J O'Shea and Sons Limited	01/11/2022	6F2	9.1
J O'Shea and Sons Limited	07/11/2022	6F2	9.1
J O'Shea and Sons Limited	07/11/2022	6F2	9.1
J O'Shea and Sons Limited	07/11/2022	6F2	9.1
Tarmac Ltd	10/11/2022	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
J O'Shea and Sons Limited	15/11/2022	6F2	9.1
Tarmac Trading Limited	17/11/2022	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	21/11/2022	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
J O'Shea and Sons Limited	22/11/2022	6F2	9.1
J O'Shea and Sons Limited	22/11/2022	6F2	9.1
J O'Shea and Sons Limited	22/11/2022	6F2	9.1
J O'Shea and Sons Limited	23/11/2022	6F2	9.1
J O'Shea and Sons Limited	29/11/2022	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	29/11/2022	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	29/11/2022	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	29/11/2022	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	29/11/2022	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	29/11/2022	6F2	9.1
J O'Shea and Sons Limited	29/11/2022	6F2	9.1
J O'Shea and Sons Limited	29/11/2022	6F2	9.1
Tarmac Trading Limited	09/12/2022	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	09/12/2022	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	13/12/2022	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	13/12/2022	(T1 P) TYPE 1 SUB BASE CL803	9.1
J O'Shea and Sons Limited	15/12/2022	(FS) FILL SAND	9.1
Tarmac Ltd	12/01/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Ltd	12/01/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Ltd	12/01/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	17/01/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	17/01/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
J O'Shea and Sons Limited	30/01/2023	(FS) FILL SAND	9.1
Tarmac Trading Limited	02/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	02/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	02/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	08/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	08/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/02/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
J O'Shea and Sons Limited	15/02/2023	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	17/02/2023	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	20/02/2023	(FS) FILL SAND	9.1
Tarmac Trading Limited	21/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	21/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	22/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	23/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	23/02/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
J O'Shea and Sons Limited	02/03/2023	(FS) FILL SAND	9.1
Tarmac Trading Limited	03/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	06/03/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Ltd	09/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	16/03/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	20/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	20/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	22/03/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	24/03/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	29/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	31/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1

Supplier	Date	Description	vol m3
Tarmac Trading Limited	31/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	31/03/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
J O'Shea and Sons Limited	04/04/2023	(FS) FILL SAND	9.1
J O'Shea and Sons Limited	11/04/2023	(FS) FILL SAND	9.1
Tarmac Trading Limited	13/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	13/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	13/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	14/04/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	24/04/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	26/04/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	27/04/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	03/05/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	09/05/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	12/05/2023	(T1 P) TYPE 1 SUB BASE CL803	9.1
Tarmac Trading Limited	15/05/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
Tarmac Trading Limited	25/05/2023	(10/20MM) 10/20MM SINGLE SIZE LIMESTONE	9.1
			6160.7 m3

Tarmac - Central

Stockport K046

SHW Series 800 ,Road Pavements Unbound , Cement and other Hydraulically Bound Materials

Clause 803 , Type 1 Unbound Mixture

Conformity Requirements, Table 8/2

	Requirements	Declared Value
Crushed or broken and totally rounded particles	C _{90/3}	C _{90/3}
Resistance to Fragmentation , Los Angeles Test	LA ₅₀	LA 27
Resistance to Wear , micro-Deval test	M _{DE} NR	M _{DE} 20
Resistance to Freezing and thawing - Magnesium Sulphate Soundness	MS ₃₅	MS 4
Water Absorption	WA ₂₄ NR	WA ₂₄ 3.8
Plasticity Index	Non-Plastic	Non-Plastic
Frost Heave	Less than 15	14.3
Volume Stability of BFS		
Volume Stability of steel BOF/EAF slags		
Constituent Parts	Rc	50.0%
	Ru	3.5%
	Rg	0.0%
	Rb	0.6%
	Ra	46.0%

Grading Requirements , Table 8/5

Sieve	Supplier Dec Value	Overall Specification	Typical Value
63mm	100	100	100
31.5mm	75 - 99	75 - 99	86
16mm	47 - 77	43 - 81	54
8mm	30 - 60	23 - 66	33
4mm	18 - 48	12 - 53	20
2mm	11 - 37	06 - 42	15
1mm	08 - 28	03 - 32	11
0.063mm	0 - 9	0 - 9	2.4
Percent Within Fraction 8/16mm		07-30	21
Percent Within Fraction 4/8mm		07-30	13

Chemical Test Data

			Typical Value
Acid Soluble Chlorides	% C	BS 1744-5	<0.01
Water Soluble Sulphate	mg/L SO ₄	TRL	100
Water Soluble Sulfate	% SO ₄	BS 1744-1 cl10	0.02% / 100mgL SO₄
Acid Soluble Sulphate	% SO ₃	BS EN 1744-1 cl12	0.2
Acid Soluble Sulfides	% SO ₄	BS EN 1744-1 cl13 Note 1	0.18
Oxidisable Sulphides	% SO ₄	TRL	0.15
Total Sulfur	% S	BS 1744-1 cl11	0.1
pH			11

Additional Test Data

CBR	%	48
Optimum MC	%	8.1
Max Dry Density	Mg/m ³	2.09

Note1 SHW requirement <0.06 % SO₄ - If deposited within 500mm of Metallic Structural Elements

- Notes
- The above data is provided in good faith as a guide to typical values and dose not constitute a specification
 - The company reserves the right to revise the data at any time
 - Individual Certification available on request

Issued By :

David St Dennis
Technical Systems Manager

Date of Issue : 22 December 2020

Tarmac - Central

Tunstead B140

SHW Series 800 ,Road Pavements Unbound , Cement and other Hydraulically Bound Materials

Clause 803 , Type 1 Unbound Mixture

Conformity Requirements, Table 8/2

	Requirements	Declared Value
Crushed or broken and totally rounded particles	C _{90/3}	C _{90/3}
Resistance to Fragmentation , Los Angeles Test	LA ₅₀	LA 26
Resistance to Wear , micro-Deval test	M _{DE} NR	M _{DE} 17
Resistance to Freezing and thawing - Magnesium Sulphate Soundness	MS ₃₅	MS 5
Water Absorption	WA ₂₄ NR	WA ₂₄ 0.7
Plasticity Index	CL803 / Non-Plastic	Non-Plastic
Frost Heave	Less than 15	3.5
Constituent Parts	NR	NR

Grading Requirements , Table 8/5

Sieve	Supplier Dec Grading	Overall Dec Grading	Supplier Target
63mm	100	100	100
31.5mm	75-100	75-100	89
16mm	44-74	43 - 81	59
8mm	25-55	23 - 66	40
4mm	14-44	12 - 53	29
2mm	10-36	06 - 42	23
1mm	8-28	03-32	18
0.063mm	0-9	0 - 9	7
Percent Within Fraction 8/16mm		07-30	18
Percent Within Fraction 4/8mm		07-30	11

Chemical Test Data

Water Soluble Sulfate	mg/L (SO ₄)	BS EN1744-1-CL10	Typical Value
Acid Soluble Sulfides	% SO ₄	BS EN1744-1-CL13	<50
Total Sulfur	% (S)	BS EN1744-1-CL11	Limestone NR
pH			<0.1
			8.6

Additional Test Data

Optimum MC	%	4.8
CBR		App 7/1 NPD
Max Dry Density	Mg/m3	2.37

Issued By :

David St Dennis

Technical Systems Manager

Date of Issue : 17 May 2022

Notes

1. The above data is provided in good faith as a guide to typical values and does not constitute a specification
2. The company reserves the right to revise the data at any time
3. Individual Certification available on request

Tarmac - Central

Tunstead Quarry B140

SHW Series 600 , Earthworks

Class 6F5 , Selected granular material (Coarse Grading) - imported onto the site.

Conformity Requirements, Table 6/2

	Requirements	Declared Value
Resistance to Fragmentation , Los Angeles Test	LA ₅₀	LA ₂₄
Volume Stability of Blast furnace Slag	Pass	NR
Volume Stability of Steel Slag	V ₅	NR
Other Aggregate Requirements BS EN 13242	NR	NR
Class A Asphalt Content Clause 710	< 50%	NR
Bitumen Content BS 598: Part 102	< 2.0%	NR

Grading Requirements , Table 6/5

	Requirements	Declared Value	Typical Value
125mm	100	100	100
80mm	75 - 99	75 - 100	90
40mm	50 - 90	50 - 90	67
20mm	30 - 75	30 - 75	44
10mm	15 - 60	15 - 60	29
2mm	0 - 35	0 - 35	13
0.063mm	0 - 12	0 - 12	5.2

Chemical Test Data 1744

		Typical Value
Water Soluble Sulfate	BS EN1744 - cl10	<50mg/L
Total Sulfur %	BS EN1744 - cl11	<0.1
Acid Soluble Sulfides %	BS EN1744 - cl13	Limestone NR
pH	BS 1377	8.6

Additional Test Data

Optimum MC	%	3.5
Max Dry Density	Mg/m ³	2.16

David St Dennis

Technical Systems Manager

Date of Issue : 01 March 2022

- Notes
1. The above data is provided in good faith as a guide to typical values and does not constitute a specification
 2. The company reserves the right to revise the data at any time
 3. Individual Certification available on request

APPENDIX F

V7: POTABLE WATER SUPPLY PIPE DOCUMENTATION

 Crown House	Crown House Technologies Management System Procedures	Section	Project Control Process		
		Status	Controlled Copy		
		Reference	CHT/ PCP/Tech Sub/ 01		
		Revision	1	Date:	Feb 09
		Sheet No	1	Of	2

Abraham Moss Leisure Centre - Technical Submission

Supplier:	D&G Utilities Puriton – MCWS Radius - Gas	CHt Technical Submittal No:	LP44107-CHT-B01-XX-TS-M-40017
Supplier Technical Submittal No:		Issue Date :	17/01/2022
Revision:	P01 / S-3 For Review & Comment	Approval of the Equipment is required by the following date:	Date Approval Required by: 31/01/2022
Equipment:	External Gas & Water Pipework	Make :	Puriton – MCWS Radius - Gas
Equipment References:	Gas – 250mm SDR17.6 SC80 – product code FA0796 (12m sticks) – Page 29 of the 'polyethylene pipes for all applications' brochure attached MCWS – 63mm SDR11 puriton PE80/AL – product code XQ2571 (50m coils) – Page 5 of the 'Puriton brochure 2020' attached	Areas Used:	External Gas & Water
Equipment Description:	Gas – 250mm SDR17.6 SC80 – product code FA0796 (12m sticks) – Page 29 of the 'polyethylene pipes for all applications' brochure attached MCWS – 63mm SDR11 puriton PE80/AL – product code XQ2571 (50m coils) – Page 5 of the 'Puriton brochure 2020' attached		
The equipment that is offered is FULLY Compliant with the requirements of the specification.		*Yes If NO refer to Section 7 for list of Noncompliance Items	
Assessed by: CHt Engineer (Print Name) Steven Shaw (Signed)		Approved & Submitted by: CHt Project Leader (Print Name) Jamie Talbot (Signed)	

 Crown House	Crown House Technologies Management System Procedures	Section	Project Control Process		
		Status	Controlled Copy		
		Reference	CHT/ PCP/Tech Sub/ 01		
		Revision	1	Date:	Feb 09
		Sheet No	2	Of	2

Attached detail documents:

(Tick if included and Insert references within boxes identifying supporting documentation that is included within this submission)

Description	Tick	Doc Ref		
1. Technical submission front sheet	✓			
2. Sections from Specifications		LP44107-BDP-XXX-XX-SP-P-00001_Public Health Services Specifiction_Ver1_T01 LP44107-BDP-XXX-XX-SP-M-00001_Library and Leisure Centre Mechanical Services Specification_Ver3_T03		
3. Schedules	N/A			
4. Certified Performance Levels	N/A			
5. Manufacturers Information	✓	Included as part of Tech Sub		
6. Certified Drawings	N/A			
7. Non-Compliance Schedule	N/A			
8. Design Calculations Check	N/A	As BDP design Data		
Approval Status ☐ Status A – Approved ☐ Status B – Approved Subject to comments ☐ Status C – Rejected		If using an electronic document management system (ASite or BIW etc...) Please upload scanned comments or log in and submit comments made electronically.		
Company	Sign	Date	Status	Comments

PURITON® BARRIER PIPE



Protecting your drinking water through contaminated land.

The barrier pipe system of choice for your new or replacement potable water supply, Puriton® is the cutting edge solution for the safe distribution of drinking water through contaminated land.

Designed to provide a high level of protection against soil contaminants commonly found in brownfield sites, Puriton® is a multi-layer composite structure pipe, combining the unique characteristics of polyethylene (PE) with the exceptional barrier properties of aluminium (Al).

Specifically designed to offer water companies and developers of new housing, warehouses and industrial buildings on brownfield sites an engineered pipe solution, Puriton® is lightweight, flexible, corrosion resistant and easy to install, without the need to post-wrap the finished joints. The pipe can be joined with our comprehensive range of approved electrofusion and mechanical fittings specifically developed for the Puriton® pipe, to give you the assurance of a safe and durable system that protects your drinking water.



Features and Benefits

- Multi-layer pipe construction PE-Al-PE.
- Brown stripes denote a multi-layer construction.
- Full barrier pipe system.
- Combines the flexibility of polyethylene with the barrier properties of aluminium.
- Safeguards drinking water quality.
- Easy to handle, flexible and lightweight.
- End load resistant system.
- Installation cost savings - no requirement for thrust blocks.
- No requirement to post-wrap the joints.
- Suitable for most installation techniques.
- Suitable for new and replacement drinking water supply systems.

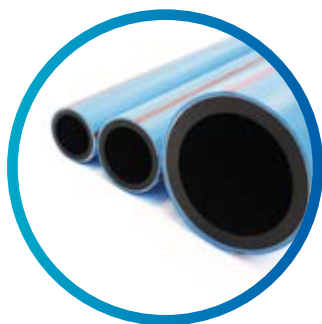


KM 592372
KM 672956

Approvals

- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000 for pipe diameters 90 to 180mm.
- WRAS approved PE80 material.
- BS 8588:2017 for 25 to 180mm pipe.
- WIS 4-32-19* for 25 to 180mm pipe.

Product Range

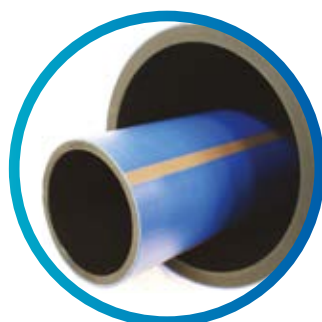


Puriton® service pipe

A 'Type A' pipe, as defined in BS8588 and WIS 4-32-19*.

Available in diameters 25 to 63 mm in coils or in straight lengths, our Puriton® service pipe is manufactured from a black PE80 core, an aluminium barrier layer and a light blue PE80 outer. Quick and easy to join without pipe surface preparation, the Puriton® service pipe uses our range of cutting edge mechanical fittings and Redman™ fittings for our 63 mm pipe.

Nominal diameter	SDR	Pressure rating	Product code straight pipe	Product code coiled pipe			Weight
mm		Bar	6m	25m	50m	100m	kg/m
25	11	12.5	-	-	XQ2528	-	0.3
32	11	12.5	-	-	XQ2535	-	0.5
63	11	12.5	XQ2568	XQ2570	XQ2571	XQ2572	1.5



Puriton® mains pipe

A 'Type A' pipe, as defined in BS8588 and WIS 4-32-19*.

Available in diameters 90 to 180 mm in coils or in straight lengths, our Puriton® mains pipe is manufactured from a black PE100 core, an aluminium barrier layer and a dark blue PE100 outer. Our Puriton® mains pipes are joined using our state-of-the-art range of Redman™ fittings and approved electrofusion fittings, or the butt-fusion jointing technique.

Nominal diameter	SDR	Pressure rating	Product code straight pipe		Product code coiled pipe		Weight
mm		Bar	6m	12m	50m	100m	kg/m
90	11	16	XQ0125	XQ0126	XQ0128	XQ0129	2.8
110	11	16	XQ0233	XQ0235	XQ0236	XQ0237	3.9
125	11	16	XQ0287	XQ0289	XQ0290	XQ0291	5.0
160	11	16	XQ0458	XQ0460	XQ0461	XQ0462	8.0
180	11	16	XQ0530	XQ0532	XQ0534	XQ0535	9.9
90	17	10	XQ0143	XQ0145	XQ0146	XQ0147	2.1
110	17	10	XQ0251	XQ0253	XQ0254	XQ0255	2.9
125	17	10	XQ0305	XQ0307	XQ0308	XQ0309	3.6
160	17	10	XQ0476	XQ0478	XQ0479	XQ0480	5.7
180	17	10	XQ0550	XQ0552	XQ0554	XQ0555	7.1

Note: Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS 8588.

To ensure that the barrier properties of the Puriton® system are maintained, approved Puriton® fittings must be used with Puriton® pipe. The use of non Puriton® fittings may compromise the contamination resistance of the system. Please refer to our Puriton® brochure on how to join Puriton® pipe using our approved fittings. For more details, please contact our customer services team.
e: sales@radius-systems.com or visit our website www.radius-systems.com.

* WIS 4-32-19 is now superseded by BS 8588:2017

Get in touch: t: +44 (0)1773 811112 e: Sales@radius-systems.com www.radius-systems.com

Polyethylene Pipes

9

RECORD OF SITE VISIT

job title Abraham Moss Leisure Centre

job no. 1620005164

date 06/04/2022

type Watching Brief Visit

visit to Abraham Moss Leisure Centre

by VG

met Philip Davies, Laing O'Rourke

purpose SITE VISIT TO INSPECT POTABLE WATER BARRIER PIPE INSTALLATION

Notes	Action
Ramboll attended site at the Abraham Moss Leisure Centre on the request by the Client to view the installation of the potable water barrier pipe along the proposed route. VG (of Ramboll) met with Philip Davies (of Laing O'Rourke) to walk around and inspect excavated trenches of the proposed route for the potable water supply pipe, and to provide verification of the installation of the barrier-type pipe. At the site of the visit, trenches for the pipe were excavated along the south-western site boundary, crossing the site in a north-easterly direction and running adjacent to the building footprint (north / north-west face). A gas pipe was concurrently laid with the water pipe in the south-western trenches (see Photographs below). Ramboll has identified the pipe to be a 63 mm Puriton® Barrier Pipe. The excavations appeared to be free of any visual and olfactory evidence of contamination. LOR did not note any visual or olfactory evidence of contamination during the excavation works. Towards the south-west of the site, the pipe was lain approximately 1.0 m below the ground level. LOR stated that the backfill will be brought up to become level with the former car park area. Along the building footprint, the pipe was placed approximately 0.5 m below the existing ground level. However, LOR noted that another 500 mm of level will be added. The backfill is expected to be of imported engineered pea gravel materials which were used to bring up levels across the site. Photographs from the site visit, are included overleaf.	LOR to provide product specification for the barrier pipe, and final drawing of the services route.

job title Abraham Moss Leisure Centre

job no. 1620005164



Photograph showing the laid down Puriton® Barrier Pipe (blue) and the gas pipe (yellow) along the south-western site boundary. Photograph taken facing the south-east.