

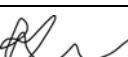
Validation Completion Report

For a site at the former

Alfred Morris Court, Wythenshawe

Undertaken for

Garden City Design and Build

Report Title:	Alfred Morris Court, Wythenshawe Validation Completion Report
Report Reference:	8340G-WML-XX-ZZ-RP-G-0004
Client:	Garden City Design and Build
Issue Date:	7th March 2022
Drafted By:	T P Booth 
Checked By:	P G Davies 
Authorised By:	P G Davies 

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Revision Status / History

Rev	Date	Issue	Prepared	Checked	Authorised
-	07/03/22	Final	TPB	PGD	PGD

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1.0 INTRODUCTION

Appointment

- 1.1 WML Consulting (WML) has been commissioned by Garden City Design and Build to prepare a Validation Report in relation to development of land located at the site of the former Alfred Morris Court, Wythenshawe.

Proposed Development

- 1.2 It is understood that the currently proposed development will comprise the construction of eleven low rise residential dwellings and two blocks of three-storey residential apartments, incorporating hardstanding for access and parking together with both private gardens and communal landscaped areas.
- 1.3 A drawing indicating the proposed layout by BTP Architects, referenced AM-BTP-00-SP-DR-A-3321_203, is presented in Appendix 01.

Background

- 1.4 WML were initially commissioned to undertake a Phase 1 Desk Study and Phase 2 Geoenvironmental Investigation and Assessment. This culminated in the following reports.
- Phase 1 Desk Study and Preliminary Geo-environmental Assessment, Reference 8340/G/01, dated August 2018.
 - Phase 2 Geo-environmental Investigation and Assessment, Reference 8340G-WML-00-XX-RP-G-0002, dated March 2019.
 - Updated Ground Gas Risk Assessment, Reference 8340G/SCS/001, dated 22nd May 2019.
- 1.5 Subsequently a Remediation Strategy was undertaken which culminated in the following report.
- Remediation Strategy, Reference 8340G-WML-00-XX RP-G-0003, dated March 2020.
- 1.6 The reports have been presented to Manchester City Council Planning Division in support of Planning Application No. 123541/FO/2019.

Verification

- 1.7 This report presents the compilation of the remediation / validation information obtained during the redevelopment programme associated with the capping of soft landscaping as identified within the Remediation Strategy.

2.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

- 2.1 The following paragraphs summarise the most relevant findings of the Phase 1 and Phase 2 report.
- 2.2 British Geological Survey (BGS) plans indicate the site to be underlain by Glaciofluvial Sheet Deposits which generally comprise horizons of sand and gravel locally with horizons of silt, clay and organic materials. The drift is underlain by Triassic Tarporley Siltstone of the Mercia Mudstone Group. These generally comprise siltstones, mudstones and sandstones.
- 2.3 In consideration of the underlying geology, risks of subsidence from coal mining can be discounted.
- 2.4 The property is not in a radon affected area as defined by the BGS/Public Health England where less than 1% of properties are above the action level of exposure. Therefore, no radon protection measures are necessary for new structures as described in publication BR211 by the Building Research Establishment.
- 2.5 The Glaciofluvial Sheet Deposits beneath the site are classified as a 'Secondary (A) Aquifer'. The underlying Tarporley Siltstone is classified as a "Secondary (Undifferentiated) Aquifer'.
- 2.6 The site is not in an Environment Agency (EA) Source Protection Zone (SPZ) and there are no groundwater abstractions located within 500m of the site.
- 2.7 There are no surface water features within 250m of the site.
- 2.8 There are no active, non-operational or historic landfills recorded within 500m of the site.
- 2.9 There are no petrol fuel sites recorded within 500m of the site boundary.
- 2.10 There are no records of historic IPC authorisations, Part A(1), Part A(2) or Part B authorised activities within 500m of the site.
- 2.11 There are no designated environmentally sensitive sites within 500m of the study site with the exception of designated Greenbelt Areas 132m and 208m north.
- 2.12 The earliest map dated 1874 indicate the site to comprise undeveloped land within the grounds of Myrtle Grove. Sometime prior to 1910 a small greenhouse was constructed in the east of the site. By the 1930's the site formed part of a nursery with several further greenhouses and by the 1950's had been cleared and was in use as allotment gardens. Alfred Morris Court was constructed on the site in the 1970's roughly in its current configuration.
- 2.13 The surrounding area had originally comprised rural / agricultural land with localised residential developments and nurseries. The area immediately surrounding the site underwent extensive residential development between the 1930's and 1950's.

Ground Conditions

- 2.14 Ground investigation work was undertaken by LOT Geotechnics Ltd on 4th January 2019. This comprised the formation of 7no window sample probeholes to a maximum depth of 5.00 metres below ground level (mbgl).
- 2.15 Ground conditions encountered during the intrusive investigation generally comprised a thin horizon of made ground or topsoil to depths of between 0.55m and 0.70mbgl, these being underlain by Glaciofluvial Sheet deposits to depths of between 1.80m and 2.50mbgl, but in excess of 4.00mbgl within the northern apex of the site. The superficial deposits were underlain by strata considered to represent completely weathered Tarporley Siltstone extended to depths in excess of 5.00mbgl beneath the majority of the site.

- 2.16 No significant visual and/or olfactory evidence of significant ground contamination was identified during the investigation.
- 2.17 Groundwater seepages were encountered during the formation of all exploratory holes within the Glaciofluvial deposits at depths of between 2.00m and 3.00mbgl. During the monitoring visits, standing groundwater levels were recorded at depths of 0.75m and 2.50mbgl. WS4 was noted to be dry on the first visit.
- 2.18 Chemical analysis confirmed that the site does not contain any significant sources of ground contamination with very localised exceedences of the PAH compound dibenzo[a,h]anthracene being the only analysed contaminant slightly elevated (0.27 & 0.38mg/kg) above its respective SL of 0.24mg/kg. No asbestos fibres were detected in any of the samples analysed.
- 2.19 However, in view of the restricted nature of the ground investigation it was recommended that further chemical analyses should be undertaken within proposed garden areas once the Alfred Morris Court building was demolished.
- 2.20 Risks to controlled waters from the site were considered low with no environmental remediation considered necessary.
- 2.21 Ground gas monitoring was undertaken, primarily for methane and carbon dioxide, with associated flow rates, on six occasions between 5th February and 21st May 2019, to confirm the low risk from ground gas. The results indicated methane concentrations generally below detectable limits with the exception of a single concentration of 1.2% by volume in air (v/v) being recorded in one standpipe on the first occasion. In consideration of the conceptual site model, the elevated level of methane was not considered of concern and may be the result of cross-contamination by surface organic material within the monitoring standpipe. Carbon dioxide concentrations range between 0.6 and 3.8% v/v. No detectable ground gas flows were recorded during the monitoring visits.
- 2.22 Therefore, discounting the single elevated concentration of methane, the maximum Q_{hg} value of <0.003l/hr classifies the site as Characteristic Situation (CS) 1 – 'Very Low Gas Risk' with no gas protection measures required.

Post Demolition Ground Conditions

- 2.23 Further ground investigation work was undertaken by WML on 1st May 2020. This comprised the formation of 6no hand excavated trial pits formed to a maximum depth of 0.30mbgl beneath the former building footprint and within the areas of proposed soft landscaping.
- 2.24 Chemical analysis confirmed that the site does not contain any significant sources of ground contamination with very localised exceedences of lead and the PAH compound dibenzo[a,h]anthracene being the only slightly elevated above the respective SL's. No asbestos fibres were detected in any of the samples analysed.
- 2.25 However, in consideration of the localised exceedences it is considered that Made Ground should not be exposed at ground level within gardens or areas of soft landscaping.

3.0 SUMMARY OF REMEDIATION OBJECTIVES

3.1 The following objectives were outlined in the Remediation Strategy.

Capping Requirements for Landscaped Areas

3.2 As the level of contamination in the Made Ground renders it unsuitable for direct use beneath proposed gardens and soft landscaped areas, the development will need to include the provision of a clean cover over the Made Ground to break the direct contact pollution linkage as set out below.

3.3 Therefore, new private garden and landscaped areas will need to be capped with a nominal 600mm clean cover over the existing Made Ground to break the direct contact pollution linkage. The make-up of the 600mm cover would be expected to consist of:

- 150mm of clean imported Topsoil;
- 450mm of clean imported sub-soil;

3.4 However, where formation level encounters natural Glaciofluvial Deposits capping thicknesses can be reduced to 300mm.

3.5 The following were also to be provided.

- Results of chemical analysis of imported Topsoil/sub-soil to confirm compliance with the Site Specific Assessment Criteria.
- Records of the volumes and suitability of all imported fill, Topsoil and sub-soil delivered to site in the form of certificates.
- Photographic evidence of suitable sub-soil/Topsoil cover in garden areas where underlain by Made Ground.

General

3.6 The following additional information was also to be provided.

- Details of any unexpected ground contamination and the measures undertaken to deal with this, to include records of excavation, the results of chemical analysis resulting from the removal of contaminated soil and / or groundwater.
- Sample waste management records confirming compliance with Duty of Care regulations.
- Confirmation of potable water supply pipe materials.

3.7 On completion of the Remediation Works, a Validation Report including the information as summarised above was to be submitted to the Local Planning Authority for approval.

4.0 VALIDATION

Unforeseen Ground Contamination

- 4.1 No evidence of unexpected ground or groundwater contamination were reported to WML during the construction phase of the works by Casey Group Ltd.
- 4.2 Waste transfer documentation for soils removed from site are presented in Appendix 05.

Imported Topsoil / Subsoil

- 4.3 No suitable site-won topsoil or subsoil was available for re-use at the site for the capping of proposed landscaped areas. Therefore, all topsoil required for use as capping soil was imported to site via PP O'Conner Ltd from a source referred to as in Northern Gateway, Deeside.
- 4.4 Chemical analysis carried out at source indicated the soils were suitable for reuse and is presented in Appendix 03.
- 4.5 3no samples of the imported topsoil (Plot 7 – 0.20m, Plot 9 – 0.10m, Plot 11 – 0.10m) and 6no samples of imported subsoil (Plot 8 – 0.50m, Plot 10 – 0.50m, Subsoil Stockpile 1, Subsoil Stockpile 2, Subsoil Stockpile 3, Subsoil Stockpile 4) were obtained by Casey Ltd on the 11th February 2022 from garden areas and stockpiles of imported soils.
- 4.6 The samples, were submitted for chemical analyses and the test results are presented on testing sheet 22-01571-1 in Appendix 04.
- 4.7 Comparison of these results with the most stringent Assessment Criteria for 'residential with home-grown produce' as provided within Appendix 06 indicates that none of the relevant criteria were exceeded.
- 4.8 It is concluded therefore that the imported topsoil and subsoil is suitable for its intended use in garden areas.

Capping Thickness

- 4.9 The capping thicknesses were also verified by Casey Ltd with the formation of validation pits on 21st January 2022.
- 4.10 Photographs of the validation pits are provided in Appendix 02 and generally indicate 600mm of capping soils comprising between 150mm and 200mm of topsoil and between 400 and 450mm of subsoil within garden areas.
- 4.11 A drawing showing the locations of the validation pits, referenced 8340G – SK02, is presented in Appendix 01.

Testing Volumes

- 4.12 It is understood that approximately 75m³ of topsoil and 200m³ of subsoil was imported to site for use in garden areas. This equates to a sampling regime of imported topsoil undertaken at a ratio of one sample per 25m³ and of imported subsoil undertaken at a ratio of one sample per 33m³.

Water Supply Pipes

- 4.13 Casey Ltd have confirmed that standard PE water pipework was installed during the development.
- 4.14 A copy of the United Utilities Risk Assessment is included within Appendix 07.

5.0 CONCLUSIONS

Capping Requirements for Landscaped Areas

- 5.1 Imported topsoil and subsoil have been proven to have been placed to depths of around 600mm where underlain by made ground. The Topsoil and subsoil has been confirmed by chemical analysis to be generally clean and to conform to appropriate site specific assessment criteria for the protection of human health.
- 5.2 Therefore it is considered that the pre-occupation works required in relation to the relevant Planning Conditions have been undertaken to a reasonable standard of workmanship and appropriately validated.

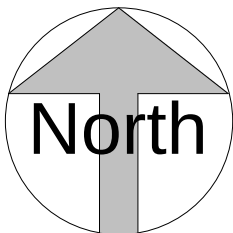
APPENDIX 01

Drawings

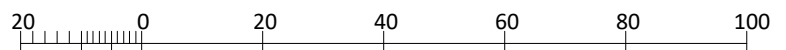


Location Plan

1 : 1250



— Site Edged Red



Rev	Date	Int	Description
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RIBA 
Chartered Practice

Client:
WCHG
Project:
Alfred Morris Court

Job No:
3321

Scale @ A4:
1 : 1250

Description:
Location Plan

Drawn By: Checked By: Date: Status Code: Drawing No: Rev:
ED MA 23.08.19 D2 **200**

Purpose of Issue:
Tender

File Identifier:
AM-BTP-00-LP-DR-A-3321_200

DO NOT SCALE FROM THIS DRAWING
ALL DIMENSIONS MUST BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION

Key

2400 x 4800mm
parking space to flats

3000 x 6000mm
parking space to
houses

Key

Pavement

Private
Garden

Lawn

Block
Paved
Parking
Space

Tarmac

Schedule of Accommdation

Affordable Rent

1B2P Flat @ 50m2- 7no
2B3P Flat @ 61m2 - 16no

Shared Ownership

3B5P House Semi-Detached @ 98m2 - 6no

Outright Sale

3B5P House @ 98m2- 3no
4B8P House @ 133m2 - 2no

Total: 34no

100% Car Parking provision for all flats.
2no visitor spaces to flats.

1no disabled space to flats.
200% Car Parking Provision for all houses.

 Validation Pit Location

4	01.10.21	ED	Drawing revised to omit brick piers due to proximity to trees.
3	15.09.21	ED	Drawing revised to add garden dimensions as per client request
2	30.06.20	ED	Drawing revised to amend plot 1 driveway as per comments from Casey
1	25.03.20	ED	Drawing revised inline with comments and mark up by KR of Casey
Rev	Date	Int	Description

btp
ARCHITECTS

RIBA 
Chartered Practice

CLIENT:
WCHG

PROJECT:
Alfred Morris Court

DESCRIPTION:
Proposed Site Plan

PURPOSE OF ISSUE:
Building Regulations

DRAWN BY: MA CHECKED BY: ED DATE: 13.03.20 SCALE: 1:200

JOB NO: 3321 STATUS CODE: S2 DRAWING NO: 203 REV: 4

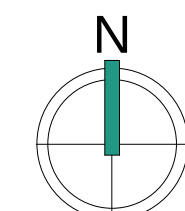
FILE IDENTIFIER:
AM-BTP-00-SP-DR-A-3321_203.4

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0161 443 1221 info@bernardtaylor.co.uk www.btparchitects.co.uk

WMLCONSULTING

Project: Alfred Morris Court
Drg Title: Validation Pit Locations
Job No: 8340G By: TPB
Drg No: SK-02 Rev: -
Date: 03/03/22 Scale: N.T.S.

2 0 2 4 6 8 10
SCALE
1:200
m



Proposed Site Plan
1 : 200

APPENDIX 02

Photographs



Photograph 1
Plot 1 showing 150mm of topsoil and 450mm of subsoil.



Photograph 2
View of Plot 1 showing location of validation pit.



Photograph 3
Plot 5 showing 200mm of topsoil and 400mm of subsoil.



Photograph 4
View of Plot 5 showing location of validation pit.



Photograph 5
Plot 8 showing 150mm of topsoil and 450mm of subsoil.



Photograph 6
View of Plot 8 showing location of validation pit.



Photograph 7
Plot 10 showing 200mm of topsoil and 400mm of subsoil.



Photograph 8
View of Plot 10 showing location of validation pit.

APPENDIX 03

Chemical Analyses from Source

DECLARATION OF COMPLIANCE (BS3882:2015)



Lab ref 99708-1
Contract name Northern Gateway Deeside
Sample ID Deeside 01
OS Grid reference Not supplied
Date sampled 17 August 2021

Date received 23 August 2021
Analysis started 23 August 2021
Analysis completed 31 August 2021
Report issued 31 August 2021

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	18	Y	Y	Y	Y	Y	Y
Silt content	% w/w	48	Y	Y	Y	Y	Y	Y
Sand content	% w/w	34	Y	Y	Y	Y	Y	Y
Soil texture	class	SANDY SILT LOAM						

Stone content								
>2mm	% w/w	2	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y

Mass loss on ignition								
Clay 5-20%	% w/w	3.3	Y	Y	Y	Y	Y	Y
Clay 20-35%	% w/w	-	-	-	-	-	-	-
pH	pH units	7.7	Y	N	Y	Y	N	Y
Carbonate (calcareous only)	% w/w	0.7			N			N
Nitrogen (total)	% w/w N	0.18	Y	Y	Y			
Carbon:Nitrogen ratio	-	9.5	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	22	Y	Y	Y	N	N	N
Potassium (extractable)	mg/l K	193	Y	Y	Y			
Magnesium (extractable)	mg/l Mg	340	Y	Y	Y			
Electrical conductivity	µS/cm	95	Y					

Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	50	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	22	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	134	Y	Y	Y	Y	Y	Y

VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	0	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	0	Y	Y	Y	Y	Y	Y

DECLARATION

I certify that this sample has been analysed in accordance with BS3882:2015.

Signature

Name

J. Campbell

Position

John Campbell
Director

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 Tel 01207 528578 Email customerservices@chemtech-env.co.uk
 Vat Reg No. 772 5703 18 Registered in England number 4284013

DECLARATION OF COMPLIANCE (BS3882:2015)



Lab ref 99708-2
Contract name Northern Gateway Deeside
Sample ID Deeside 02
OS Grid reference Not supplied
Date sampled 17 August 2021

Date received 23 August 2021
Analysis started 23 August 2021
Analysis completed 31 August 2021
Report issued 31 August 2021

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	19	Y	Y	Y	Y	Y	Y
Silt content	% w/w	49	Y	Y	Y	Y	Y	Y
Sand content	% w/w	32	Y	Y	Y	Y	Y	Y
Soil texture	class	SANDY SILT LOAM						

Stone content								
>2mm	% w/w	2	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y

Mass loss on ignition								
Clay 5-20%	% w/w	3.7	Y	Y	Y	Y	Y	Y
Clay 20-35%	% w/w	-	-	-	-	-	-	-
pH	pH units	7.8	Y	N	Y	Y	N	Y
Carbonate (calcareous only)	% w/w	1.0			Y			Y
Nitrogen (total)	% w/w N	0.19	Y	Y	Y			
Carbon:Nitrogen ratio	-	10.5	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	19	Y	Y	Y	Y	Y	Y
Potassium (extractable)	mg/l K	193	Y	Y	Y			
Magnesium (extractable)	mg/l Mg	326	Y	Y	Y			
Electrical conductivity	µS/cm	97	Y					

Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	27	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	24	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	125	Y	Y	Y	Y	Y	Y

VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	0	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	0	Y	Y	Y	Y	Y	Y

DECLARATION

I certify that this sample has been analysed in accordance with BS3882:2015.

Signature

Name

J. Campbell

Position

John Campbell
Director

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 Tel 01207 528578 Email customerservices@chemtech-env.co.uk
 Vat Reg No. 772 5703 18 Registered in England number 4284013



LABORATORY TEST CERTIFICATE

Contamination Analysis

Project :	Job No.:	
Client :	Lab Ref No.:	SA32484
	Date Received:	29/03/2018
	Date Tested:	16/04/2018
	Date Reported:	16/04/2018
Originator:	Material:	Analysed as Soil

ICRCL (Maxi)	Units	SA32484/1			
Arsenic	mg/kg	<1			
pH		6.8			
Boron (water-soluble)	mg/kg	<1			
Cadmium	mg/kg	<1			
Chromium	mg/kg	6			
Chromium VI	mg/kg	<1			
Cyanide(Total)	mg/kg	<1			
Cyanide(free)	mg/kg	<1			
Copper	mg/kg	6			
Nickel	mg/kg	7			
Lead	mg/kg	4			
Phenols(Mono)	mg/kg	<1			
Mercury	mg/kg	<1			
Sulphide	mg/kg	<10			
SO4(Total)	%	<0.01			
Sulphur(Free)	mg/kg	<500			
Selenium	mg/kg	<3			
Thiocyanate	mg/kg	<10			
Zinc	mg/kg	16			

K. Monks

Approved Signature

James Fisher Testing Services Ltd

☐ Karl Monks, Lab Team Leader

James Fisher and Sons plc



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James Fisher



James Fisher Testing Services Ltd

Ruby House,
40A Hardwick Grange
Warrington, WA1 4RF

LABORATORY TEST CERTIFICATE

Contamination Analysis

Project :		Job No.:	
Client :		Lab Ref No.:	SA32484
		Date Received:	29/03/2018
		Date Tested:	16/04/2018
		Date Reported:	16/04/2018
Originator:		Material:	Analysed as Soil

PAH US EPA 16 (B and K split)	Units	SA32484/1			
Naphthalene	mg/kg	<0.1			
Acenaphthylene	mg/kg	<0.1			
Acenaphthene	mg/kg	<0.1			
Fluorene	mg/kg	<0.1			
Phenanthrene	mg/kg	<0.1			
Anthracene	mg/kg	<0.1			
Fluoranthene	mg/kg	<0.1			
Pyrene	mg/kg	<0.1			
Benzo(a)Anthracene	mg/kg	<0.1			
Chrysene	mg/kg	<0.1			
Benzo(b)Fluoranthene	mg/kg	<0.1			
Benzo(k)Fluoranthene	mg/kg	<0.1			
Benzo(a)Pyrene	mg/kg	<0.1			
Indeno(123-cd)Pyrene	mg/kg	<0.1			
Dibenzo(ah)Anthracene	mg/kg	<0.1			
Benzo(ghi)Perylene	mg/kg	<0.1			
PAH(Total)	mg/kg	<0.1			

K. Monks

Approved Signature

James Fisher Testing Services Ltd

☐ Karl Monks, Lab Team Leader

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James Fisher



James Fisher Testing Services Ltd

Ruby House,
40A Hardwick Grange
Warrington, WA1 4RF

LABORATORY TEST CERTIFICATE

Contamination Analysis

Project :		Job No.:	
Client :		Lab Ref No.:	SA32484
		Date Received:	29/03/2018
		Date Tested:	16/04/2018
		Date Reported:	16/04/2018
Originator:		Material:	Analysed as Soil

Inorganics and Physical Testing	Units	SA32484/1			
Total Organic Carbon	%	<0.1			

K. Monks

Approved Signature

James Fisher Testing Services Ltd

☐ Karl Monks, Lab Team Leader

James Fisher and Sons plc



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APPENDIX 04

Chemical Analyses of Imported Soils

FINAL ANALYTICAL TEST REPORT

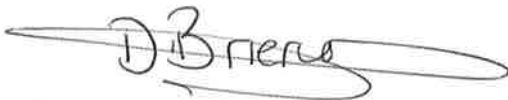
Envirolab Job Number: 22/01571
Issue Number: 1

Date: 03 March, 2022

Client: WML Construction
No 8 Oak Green
Earl Road
Stanley Green Business Park
Cheadle Hulme
Cheshire
SK8 6QL

Project Manager: Tom Booth
Project Name: Alfred Morris Court
Project Ref: 8340G
Order No: 8340G
Date Samples Received: 10/02/22
Date Instructions Received: 22/02/22
Date Analysis Completed: 03/03/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	4	5	6	7			
Client Sample ID	Plot 7	Plot 8	Plot 9	Plot 10	Plot 11	Subsoil Stockpile 1	Subsoil Stockpile 2			
Depth to Top	0.20	0.50	0.10	0.40	0.10	0.60	1.50			
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5AE	6AE	5AE	6AE	4A	4A			
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	8.14	8.17	8.23	8.01	7.84	8.08	7.90	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.03	0.01	<0.01	<0.01	<0.01	0.02	g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	350	400	410	470	<200	<200	<200	mg/kg	200	A-T-028s
Sulphur (total) _D	237	247	249	261	299	<50	<50	mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	2.6	2.8	2.9	2.7	3.7	0.7	0.4	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	8	7	8	8	8	2	1	mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium _D ^{M#}	0.6	0.6	0.6	0.6	0.6	<0.5	<0.5	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	15	15	19	15	19	7	6	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	67	66	69	69	73	6	5	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	19	18	19	19	18	11	11	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium _D ^{M#}	25	23	25	29	23	11	13	mg/kg	1	A-T-024s
Zinc _D ^{M#}	98	97	100	104	107	22	22	mg/kg	5	A-T-024s

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	4	5	6	7			
Client Sample ID	Plot 7	Plot 8	Plot 9	Plot 10	Plot 11	Subsoil Stockpile 1	Subsoil Stockpile 2			
Depth to Top	0.20	0.50	0.10	0.40	0.10	0.60	1.50			
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5AE	6AE	5AE	6AE	4A	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	4	5	6	7			
Client Sample ID	Plot 7	Plot 8	Plot 9	Plot 10	Plot 11	Subsoil Stockpile 1	Subsoil Stockpile 2			
Depth to Top	0.20	0.50	0.10	0.40	0.10	0.60	1.50			
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22	11-Feb-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5AE	6AE	5AE	6AE	4A	4A			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.01	0.03	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	0.05	0.04	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	0.05	0.05	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	0.14	0.16	<0.08	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	0.05	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.05	0.17	0.17	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	0.12	0.13	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	0.61	0.59	<0.08	<0.08	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/8	22/01571/9						Units	Limit of Detection	Method ref
Client Sample No	8	9								
Client Sample ID	Subsoil Stockpile 3	Subsoil Stockpile 4								
Depth to Top	1.80	1.00								
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4A								
% Stones >10mm _A	<0.1	<0.1						% w/w	0.1	A-T-044
pH _D ^{M#}	7.88	7.91						pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01						g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	<200						mg/kg	200	A-T-028s
Sulphur (total) _D	<50	<50						mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	<1	<1						mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2						mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	0.3	0.3						% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	2	1						mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	<1.0						mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	<0.5						mg/kg	0.5	A-T-024s
Copper _D ^{M#}	7	6						mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1						mg/kg	1	A-T-040s
Lead _D ^{M#}	5	5						mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17						mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	12	13						mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1						mg/kg	1	A-T-024s
Vanadium _D ^{M#}	12	12						mg/kg	1	A-T-024s
Zinc _D ^{M#}	24	23						mg/kg	5	A-T-024s

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/8	22/01571/9						Units	Limit of Detection	Method ref
Client Sample No	8	9								
Client Sample ID	Subsoil Stockpile 3	Subsoil Stockpile 4								
Depth to Top	1.80	1.00								
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD								A-T-045
Asbestos Matrix (visual) _D	-	-								A-T-045
Asbestos Matrix (microscope) _D	-	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A								A-T-045

Envirolab Job Number: 22/01571

Client Project Name: Alfred Morris Court

Client Project Ref: 8340G

Lab Sample ID	22/01571/8	22/01571/9						Units	Limit of Detection	Method ref
Client Sample No	8	9								
Client Sample ID	Subsoil Stockpile 3	Subsoil Stockpile 4								
Depth to Top	1.80	1.00								
Depth To Bottom										
Date Sampled	11-Feb-22	11-Feb-22								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4A								
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01						mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01						mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02						mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04						mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07						mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04						mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08						mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03						mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03						mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03						mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07						mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08						mg/kg	0.01	A-T-019s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: WML Construction , No 8 Oak Green, Earl Road, Stanley Green Business Park, Cheadle Hulme, Cheshire, SK8 6QL
Project: Alfred Morris Court
Clients Project No: 8340G
Project No: 22/01571
Date Received: 22/02/2022 (am)
Cool Box Temperatures (°C): 6.9

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	22/01571/8	22/01571/9
Client Sample No	1	2	3	4	5	6	7	8	9
Client Sample ID/Depth	Plot 7 0.20m	Plot 8 0.50m	Plot 9 0.10m	Plot 10 0.40m	Plot 11 0.10m	Subsoil Stockpile 1 0.60m	Subsoil Stockpile 2 1.50m	Subsoil Stockpile 3 1.80m	Subsoil Stockpile 4 1.00m
Date Sampled	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22
Deviation Code									
F	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key

F

Maximum holding time exceeded between sampling date and analysis for analytes listed below

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	22/01571/8	22/01571/9
Client Sample No	1	2	3	4	5	6	7	8	9
Client Sample ID/Depth	Plot 7 0.20m	Plot 8 0.50m	Plot 9 0.10m	Plot 10 0.40m	Plot 11 0.10m	Subsoil Stockpile 1 0.60m	Subsoil Stockpile 2 1.50m	Subsoil Stockpile 3 1.80m	Subsoil Stockpile 4 1.00m
Date Sampled	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22
Cyanide (total)	✓	✓	✓	✓	✓	✓	✓	✓	✓
PAH-16MS	✓	✓	✓	✓	✓	✓	✓	✓	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/01571/1	22/01571/2	22/01571/3	22/01571/4	22/01571/5	22/01571/6	22/01571/7	22/01571/8	22/01571/9
Client Sample No	1	2	3	4	5	6	7	8	9
Client Sample ID/Depth	Plot 7 0.20m	Plot 8 0.50m	Plot 9 0.10m	Plot 10 0.40m	Plot 11 0.10m	Subsoil Stockpile 1 0.60m	Subsoil Stockpile 2 1.50m	Subsoil Stockpile 3 1.80m	Subsoil Stockpile 4 1.00m
Date Sampled	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22	11/02/22
A-T-019s	03/03/2022	03/03/2022	03/03/2022	03/03/2022	03/03/2022	03/03/2022	03/03/2022	03/03/2022	03/03/2022
A-T-024s	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	02/03/2022	02/03/2022
A-T-026s	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022
A-T-027s	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022
A-T-028s	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	02/03/2022	02/03/2022
A-T-031s	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
A-T-032 OM	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
A-T-040s	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022
A-T-042sTCN	02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
A-T-044	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022
A-T-045	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
A-T-050s	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022	28/02/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX 05
Waste Transfer Notice

DUTY OF CARE: CONTROLLED WASTE TRANSFER NOTE

A	1 Description of the waste being transferred: <u>NON HAZARDOUS SOILS + STONES</u> List of Waste Regulations code(s): <u>17.05.04</u> 2 How is the waste contained? ☒ Loose ☐ Sacks ☐ Skip ☐ Drum ☐ Other (specify)..... 3 How much waste? For example, number of sacks, weight: <u>2800 m³</u> 4 Analysis attached / not attached / sent separately (delete as appropriate)
B	Current holder of the waste – Transferor: By signing in Section D or F below I 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 Yes ☒ 1 Full name (print): <u>P CASEY & CO. LTD</u> 2 Company name, address and postcode: <u>P CASEY & CO. LTD, RYDINGS ROAD, ROCHDALE, OL12 9PS</u> 3 SIC code (2007): <u>70100</u> 4 Which of the following are you? (please tick one or more boxes) A ☐ Waste producer ☐ Waste importer ☐ Collection/Disposal authority ☐ Broker B ☐ Env Permit holder (ref number): ☐ Registered waste carrier (ref number): C ☐ Waste exemption holder (exemption registration number): ☐ Exempt from carrier registration (give reason):
C	1 Full name (print): <u>EDWARDS EXCAVATIONS LTD</u> 2 Company name, address and postcode: <u>UNIT 6 WOODMAN WORKS, SOUTH LANE, ELLAND, HX5 0PA</u> 3 SIC code (2007): <u>43120</u> 4 Which of the following are you? (tick one box) A ☐ Waste collection authority..... B ☒ Registered waste carrier (ref number): <u>CBDU 239650</u> C ☐ Exempt from carrier registration (give reason):
D	1 Place of transfer: <u>ALF MORRIS COURT WYTHENSIAINE</u> 2 Date of transfer: <u>30/7/20 - 31/7/21</u> 3 Time(s) of transfer: <u>11810</u> Contract No: 4 Name and address of broker arranging transfer (if applicable): 5 Holder's representatives Carrier's representatives Name (print): <u>G. STURGEON</u> Name (print): <u>MARK DAVIES</u> Signed: <u>[Signature]</u> Signed: <u>[Signature]</u>
E	1 Full name (print): <u>BDOOTH VENTURES LTD</u> 2 Company name, address and postcode: <u>BROOKFOLD LANE, HARWOOD, BOLTON, BL2 4LT</u> 3 Which of the following are you? (tick one box) ☒ Holder of an Environmental Permit (ref number): <u>GPR/XP3796CW</u> ☐ Holder of a valid waste exemption (ref number):
F	1 Place of transfer: 2 Date of transfer: 3 Time(s) of transfer: Contract No: 4 Name and address of broker arranging transfer (if applicable): 5 Holder's representatives Disposer's / Recoverer's representatives Name (print): <u>AL STEVE KNOTTON</u> Name (print): <u>L. P. LACE</u> Signed: <u>[Signature]</u> Signed: <u>[Signature]</u>

Producer's / Holder's Copy

This note must be retained by you and held for at least two years (or longer period specified in your Environmental Permit) from the date of the last transfer to which this note applies.

White – Producer's copy

Green – Carrier's copy

Pink – Disposer's / recoverer's copy

APPENDIX 06

Soil Assessment Criteria

Site Specific Assessment Criteria for Residential (with homegrown produce) assuming a 1% SOM for Hydrocarbons

Contaminant	Assessment Criteria for Residential (mg/kg)
Metals	
Arsenic	37
Boron	290
Cadmium	26
Chromium III	910
Chromium VI	6
Copper	2,400
Lead*	200
Mercury	1.2
Nickel	130
Selenium	250
Vanadium	410
Zinc	3,700
Non – Metals	
Phenol	120
Polyaromatic Hydrocarbons (PAH)	
Benz[a]anthracene	7.2
Benzo[a]pyrene	2.2
Benzo[b]fluoranthene	2.6
Benzo[ghi]perylene	320
Benzo[k]fluoranthene	77
Chrysene	15
Dibenz[ah]anthracene	0.24
Fluoranthene	280
Indeno[123-cd]pyrene	27
Naphthalene	2.3
Pyrene	620

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* Where not included in the S4UL's criteria for a limited number of contaminants, namely lead, have been derived by DEFRA in their document entitled SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, April 2014.

Contaminant	Criteria for Residential End Use (mg/kg)
Volatile Organic Compounds (VOCs)	
Benzene	0.087
Ethylbenzene	47
Toluene	130
Xylene	56
1,2-Dichloroethane	0.0071
1,1,1-Trichloroethane	8.8
Tetrachloroethane	1.6
Tetrachloroethene (PCE)	0.18
Tetrachloromethane	0.026
Trichloroethene (TCE)	0.016
Trichloromethane	0.91
Vinyl Chloride	0.00064
Semi-Volatile Organic Compounds (SVOCs)	
1,2-Dichlorobenzene	23
1,4-Dichlorobenzene	61 ^f
1,2,4-Trichlorobenzene	2.6
Hexachlorobenzene	1.8 (0.2) ^{vap}
Total Petroleum Hydrocarbons (TPH)	
Aliphatic C5-6	42
Aliphatic C6-8	100
Aliphatic C8-10	27
Aliphatic C10-12	130(48) ^{vap}
Aliphatic C12-16	1,100(24) ^{sol}
Aliphatic C16-35	65,000(8.48) ^{f, sol}
Aliphatic C35 - 44	65,000(8.84) ^{f, sol}
Aromatic C5 – 7 (benzene)	70
Aromatic C7 – 8 (toluene)	130
Aromatic C8-10	34
Aromatic C10-12	74
Aromatic C12-16	140
Aromatic C16-21	260 ^f
Aromatic C21-35	1,100 ^f
Aromatic C35 - 44	1,100 ^f

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* Where not included in the S4UL's criteria for a limited number of contaminants, namely lead, have been derived by DEFRA in their document entitled SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, April 2014.

APPENDIX 07

UU Risk Assessment

Supplementary guidance for the selection of water pipes in land potentially affected by contamination

Introduction

In January 2011, UK Water Industry Research (UKWIR) published “Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites” (Ref 10/WM/03/21; the ‘UKWIR Guidance’). Its aim is to ensure that the correct materials are selected for water pipes and components to be used below ground in brownfield sites to protect the quality of drinking water whilst taking into account the service life of the water distribution system. It supersedes the Water Regulations Advisory Scheme (WRAS) Information and Guidance Note 9-04-03 “Laying Pipes in Contaminated Land” which has been withdrawn.

The UKWIR Guidance is for use by developers, self-lay organisations, water companies and consultants when planning, designing and constructing water mains and/or services in brownfield sites. It defines brownfield sites as “land or premises that have previously been used or developed. They may also be vacant or derelict. However, they are not necessarily contaminated.” The UKWIR Guidance states that it does not apply to greenfield sites; however, we consider this supplementary guidance and the relevant sections of the UKWIR guidance as being equally suitable for application to those greenfield sites considered to be potentially affected by contamination. Where greenfield sites are not affected by contamination a preliminary risk assessment (see below) will suffice.

The UKWIR Guidance also states that there should be no departure from its provisions “*except where formally approved by the Water Company, such departure being technically justifiable or representing advances in knowledge or product development*”.

We have adopted the UKWIR Guidance in principle and produced this company specific supplementary guidance (the ‘UUW Guidance’) which includes the Risk Assessment for Water Pipes (the ‘RA’).

This guidance does not cover operative safety, health exposure modelling or accidental pipe damage.

which the pipes are to be laid may be affected by contamination. The application of the source, pathway, receptor concept will be an integral part of any pipeline risk assessment. For each potential source (the contamination) and each potential receptor (the water pipe), consideration shall be given to whether a potential pathway between source and receptor exists, or may exist in the future, linking the two. There are normally only three pathways by which contamination may come into contact with water pipes. These are direct contact with the soil or backfill, an excessive vapour phase or a contaminated groundwater regime. If none of these conditions exist on site (adopting the source, pathway, receptor concept) then it is likely that extended and/or targeted soil testing will not be required and a simple risk assessment will suffice. For those sites where land may be affected by contamination appropriate testing shall be undertaken on the materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials. The testing requirements are as described in the following section.

The signatories of the Water Supply Application Form and the RA must ensure that all assessments of land condition have been carried out in accordance with applicable current standards and guidelines by or under the direction of a suitably qualified competent person.

We require the competent person to be a) a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, the Geological Society of London or the Royal Institution of Chartered Surveyors) with relevant experience of investigating contaminated sites or b) a Specialist in Land Condition (SiLC) with appropriate geo-environmental experience.

Risk Assessment for Water Pipes in Land Potentially Affected by Contamination

Any application for new water supplies to a development (construction of new properties, or renovation or conversion of existing buildings) in land potentially affected by contamination shall include a completed RA.

As a minimum a desk study (preliminary risk assessment) shall be provided with the RA in accordance with the framework in Environment Agency publication “Model Procedures for the Management of Land Contamination” (ref: CLR11) that sets out whether the land through

How to contact us about the information in this leaflet



DeveloperServicesWater@uuplc.co.uk



0345 072 6067

Opening hours:
8am-5pm Mon to Thurs
8am-4.30pm Fri

Testing Requirements

The soil, rock and if appropriate groundwater tests that are required on all sites where the potential for organic contamination has been identified in the desk study and where water pipes are proposed to be laid must be accredited by United Kingdom Accreditation Service (UKAS) as a minimum and where commercially available the Environment Agency's Monitoring Certification Service (MCERTS). These accredited tests should be undertaken for:

Banded hydrocarbons EC5-EC10, EC10-EC16, EC16-EC40 (Total aliphatic and aromatic hydrocarbons for each banding may be summed). Aliphatic/aromatic fractionation and subsequent banding may be required should a more detailed site specific risk assessment be undertaken. The bandings have been amended to take into account readily available laboratory tests. The equivalent carbon number (EC) is used to assess petroleum hydrocarbon mixtures rather than the actual number of carbon atoms in the molecule in line with guidance issued by the Environment Agency (2005).

Volatile organic compounds (VOCs) (method by head space or purge & trap GCMS) with tentative identification of compounds greater than 20µg/kg. The method used should be capable of detecting a wide range of compounds listed in US EPA Method 8260C or similar. The method should include analysis of naphthalene.

BTEX (Benzene, toluene, ethyl benzene and xylenes) plus MTBE (Methyl-tertiary butyl ether) (by head space GCMS)

Semi-Volatile Organic Compounds (SVOCs) (method by GCMS) with tentative identification of compounds greater than 20µg/kg The method used should be capable of detecting the compounds listed in US EPA Method 8270D or similar. The total concentration of SVOCs excludes polycyclic aromatic hydrocarbons, ethers, nitrobenzene, ketones, aldehydes, phenols, cresols and chlorinated phenols. Phenols, cresols and chlorinated phenols which are detected by the SVOC analysis are given their own assessment criteria.

We do not consider Table G1 and Table 3.1 of the UKWIR Guidance to be a definitive guide for assessing total concentrations. Table 1 in the RA below replaces Table 3.1 of the UKWIR Guidance.

Where previous site uses include the use, storage, treatment, disposal or manufacture of any of the following, appropriate testing for these substances will be required:

- Ethers, nitrobenzene, ketones, aldehydes and amines. Note that the presence of amines on any site at the proposed pipe depth +/- 1.0m precludes the use of polyethylene. The methods of analysis and method of calculation of total concentrations of these compounds will need to be agreed with UUW.

To comply with the testing requirements, the suites of tests that are required on all brownfield sites where wrapped steel, wrapped ductile iron or copper pipes are to be laid as minimum must include:

- pH, Conductivity and redox potential

Sufficiency of Testing

Water pipes are normally laid at between 0.75 and 1.35m from finished ground level to crown of pipe. Samples taken and tested must represent both a) the soil in which the water pipes are to be laid and b) the soil down to at least 500mm below the underside of the proposed pipe. Where the proposed depth of the pipes is unknown at the time of application, soil samples representative of the ground condition between surface level and 1.5m below finished ground level shall be taken as a minimum. Where appropriate (see UKWIR Guidance) groundwater sampling and groundwater monitoring will also be necessary. Photo-ionisation detection (PID) monitoring along the proposed route of the pipeline may be employed, though this does not provide a definitive guide to the suitability of water pipe materials.

Where required a sufficient number of test results should be obtained from the material in which the pipes are to be laid. CLAIRE/CIEH 2008 "Guidance on comparing soil contamination data with a critical concentration" may be used, where appropriate, to justify the number of soil samples tested; however, this statistical model should not be used on heterogeneous materials or used to average test results from different types of materials.

Further guidance on representative sampling is contained within BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites, the Department of the Environment's Contaminated Land Research Report "Sampling strategies for contaminated land" prepared by The Centre for Research into the Built Environment, Nottingham Trent University (Ref: CLR 4; 1994) and the Environment Agency's "Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination" (ref: R&D Technical Report P5-066/TR; 2000).

Where remediation has been carried out on the site, the test results obtained from validation samples will be used in the assessment. Where a horizontal capping system has been or will be employed using materials spread across a site, sufficient samples will need to be taken to characterise the capping material used and the results presented to UUW. However, the sufficiency of sampling on the horizontal capping system, in which the pipeline will be placed, may be assessed on the basis of the source, quantity and type of materials used.

Detection Limits

Only positive concentrations, ie those above the limit of detection should be used in summation of VOC and SVOC (or other test groups of compounds ie phenols, cresols and chlorinated phenols). Laboratory methods shall provide a minimum limit of detection of 10µg/kg for each individual VOC or SVOC (or other test groups of compounds) quantitatively detected in accordance with the methods described above. For tentatively identified compounds (TICs), only those compounds with a concentration of 20µg/kg or greater shall be used in the summation of VOC and SVOC (or other test groups of compounds).

Protective Measures

Where polyethylene, ductile iron, steel or copper pipes are to be laid on a brownfield site or other land potentially affected by contamination (whether or not it has been remediated) and where the concentrations exceed the generic guideline values set out in Table 1 of the RA, the developer shall provide either:

- a) a robust risk assessment to show how any contaminants will not significantly impact on proposed water supplies or buried assets over the lifetime of the assets; or
- b) more suitable pipe materials; or
- c) an engineering solution to protect the pipe work backed up by an adequate assessment of the risk.

Liquid free phase product (e.g. oil or free solvent layers) shall not remain in the ground or groundwater in the vicinity of water pipes, whether barrier pipe or any other pipe materials are used.

When designing pipe routes on land potentially affected by contamination, new preferential contamination pathways along the route of new water pipes shall not be created. Particular measures may be required to prevent the possible migration of contamination through pipe bedding and into controlled waters.

References

BS10175: 2011

"Investigation of Potentially Contaminated Sites Code of Practice"

CLAIRE/CIEH

"Guidance on comparing soil contamination data with a critical concentration" 2008

Department of the Environment Contaminated Land Research Report

"Sampling strategies for contaminated land"
prepared by The Centre for Research into the Built Environment, Nottingham Trent University (Ref: CLR 4) 1994

Environment Agency

"Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination"
(ref: R&D Technical Report P5-066/TR) 2000

Environment Agency

"Model Procedures for the Management of Land Contamination" (ref: CLR11), 2004

Environment Agency P5-080/TR3

"The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils", 2005

UK Water Industry Research (UKWIR)

"Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites" (Ref 10/WM/03/21) January 2011

Water Regulations Advisory Scheme (WRAS)

Information and Guidance Note 9-04-03

"Laying Pipes in Contaminated Land" 2002

Frequently asked questions

Why has UUW published supplementary guidance to the 'UKWIR Guidance for the Selection of Water Pipes to be used in Brownfield Sites'?

UUW agrees with the UKWIR Guidance in principle; we have published supplementary guidance to clarify some of the areas in which it will operate.

Does the UKWIR Guidance only apply to 'brownfield sites'?

Yes, the UKWIR Guidance does apply to brownfield sites; in addition United Utilities Water will apply this guidance and the UUW supplementary guidance to any greenfield sites which are potentially affected by contamination.

Who is responsible for completing/ signing the Risk Assessment for Water Pipes (RA)?

This may be the Developer, the Developers representative, or the competent person directing the land assessment. The signatory of the Risk Assessment for Water Pipes (RA) must ensure that all land assessments have been carried out in accordance with current standards and guidelines by or under the direction of a suitably qualified competent person. For water supply applications on land potentially affected by contamination, UUW requires the competent person to be either a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, the Geological Society of London or the Royal Institution of Chartered Surveyors) with relevant experience of investigating contaminated sites or a Specialist in Land Condition (SiLC). This level of competency is intended to promote good practice and high professional standards and is no greater than that required for planning purposes by Local Authorities.

Do we need to agree the number and location of soil samples with the Water Company as indicated by the UKWIR guidance following the Preliminary Risk Assessment (PRA)?

Where a preliminary risk assessment (PRA) highlights the need for a site investigation UUW considers it is a responsibility of the qualified competent person directing the land assessment to determine the location and frequency of sampling. UUW's role would be to confirm that the appropriate

choice of pipe material has been made on the basis of the information provided.

What do we do if the pipe route is not known when the Site Investigation report is commissioned?

Where the route of the pipe is not known at the site investigation stage, then any resultant pipe selection needs to take account of any contamination found on the site. Consideration should be given to identifying the route and depth of the pipeline at the site investigation stage to avoid unnecessary testing.

Is it acceptable not to undertake a site investigation and specify the use of barrier pipe which seems to be suitable for all conditions?

Not all brownfield land is contaminated, and because of that a default to barrier pipe is not an acceptable approach to UUW, due to the possibility of higher installation and future maintenance costs. The approach as to whether a site investigation is needed should be risk based. For those sites where land may be affected by contamination appropriate testing shall be undertaken on the ground materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials.

Examples where defaulting to barrier pipe would not be acceptable:

- Where a capping layer (non-contaminated) is introduced within which the pipes will be installed.
- Sites with a potential low risk for contamination.
- Where liquid free phase product (e.g. oil or free solvent layers) is in the ground or groundwater in the vicinity of water pipes.
- Where the route of the pipe could be diverted to another suitable location free from contamination.

Are UUW employees who will assess the Design Proposals for contaminated sites suitably qualified?

It is the role of the Developer's suitably qualified competent person to deal with or direct the assessment of land. UUW's role is to assess the Risk Assessment for Water

Pipes and supporting Site Assessment Report (SAR) which is provided with any new water supply application (ie. it has been provided in the correct format, proposals for pipe selection are included, the methodology is in line with the UKWIR Guidance and UUW Supplementary Guidance, it has been directed by a suitably qualified competent person etc.). If UUW do need to provide assistance or information in deciding pipe materials then the assessment would be carried out under the direction of a suitably qualified competent person.

What happens to existing PE that is in the ground under the "old" guidelines?

The latest UKWIR guidance and UUW's supplementary guidance are intended to be used to decide what pipe materials will be used for new water mains and services. It will have no effect for developers with regard to any parts of UUW's existing network.

Will the Developer be required to submit a fully completed Risk Assessment for Water Pipes (RA) and supporting Site Assessment Report (SAR), including pipe material recommendation, for both the option of a mains requisition application and the option of a self-lay application?

Yes, UUW expect the 'Developer', as defined in UUW Supplementary Guidance, to submit a Risk Assessment for Water Pipes (RA) and supporting Site Assessment Report (SAR), including pipe material recommendation, in respect of any water pipes being installed on the development irrespective of who is to install them.

Does Table 1 in UUW's Risk Assessment for Water Pipes (RA) replace any of the tables to be completed in the Site Assessment Report (SAR) as required in the UKWIR Guidance?

UUW does not consider Table G1 and Table 3.1 of the UKWIR Guidance to be a definitive guide for assessing total concentrations. Table 1 in UUW's RA replaces Table 3.1 of the UKWIR Guidance.

Have any other Water Companies adopted the UKWIR Guidance yet?

You will need to contact the water company concerned if you are intending to install water pipes outside UUW's licensed area.

About us

United Utilities is the North West's water company. We keep the taps flowing and toilets flushing for seven million customers every day. From Crewe to Carlisle, we work hard behind the scenes to help your life flow smoothly.

Risk assessment for water pipes (RA)

The risk assessment for water pipes will help you choose appropriate materials for your development. We are happy to deal with a risk assessment for water pipes in advance of any formal application for a new water supply.

If you need any help completing the form please call us on **0345 072 6067**.

Section 1: Development details	
Development name (if it has one)	
Development address	Alfred Morris Court, Sale Road, Wythenshawe, M23)EX
OS Grid reference (mid point)	381418E, 390732N
Developer's name	Casey
UUW reference number (for UU use only)	
Please provide details below of the current and historical use of the site and adjacent sites. If your supporting information has details of the current and historical site use, please reference below the relevant sections of your report.	
The site historically comprised undeveloped land within the grounds of Myrtle Grove until sometime prior to 1910 when a small greenhouse was constructed in the east. By the 1930's the site formed part of a nursery with several further greenhouses and by the 1950's had been cleared and was in use as allotment gardens. Alfred Morris Court was constructed on the site in the 1970's and was in use until its demoliton sometime in 2019. The surrounding area had originally comprised rural / agricultural land with localised residential developments and nurseries. The area immediately surrounding the site underwent extensive residential development between the 1930's and 1950's.	
Section 2: Preliminary risk assessment	
Has your desk study and site walkover identified any land potentially affected by contamination?	☐ Yes ☐ No
If the site is potentially affected by contamination but you have not completed any intrusive site investigation please provide details below of the rationale behind the intended pipe selection. If your supporting information has details of the rationale behind the intended pipe selection, please reference below the relevant sections of your report.	
Not Applicable, please refer to the Phase 2 report by WML. Phase 2 Geo-environmental Investigation and Assessment, referenced 8340G-WML-00-XX RP-G-0002, dated March 2019 and Addendum Investigations in the Remediation Strategy, referenced 8340G-WML-00-XX RP-G-0003, dated May 2020	

Section 3: Intrusive site investigation																																	
Have you completed any intrusive site investigation?					☐ Yes ☐ No																												
Have you completed any none intrusive site investigation?					☐ Yes ☐ No																												
Date(s) when the site investigation(s) undertaken					<table border="1"> <tr> <td>0</td><td>4</td> <td>0</td><td>1</td> <td>2</td><td>0</td><td>1</td><td>9</td> </tr> <tr> <td>0</td><td>1</td> <td>0</td><td>5</td> <td>2</td><td>0</td><td>2</td><td>0</td> </tr> <tr> <td>D</td><td>D</td> <td>M</td><td>M</td> <td>Y</td><td>Y</td><td>Y</td><td>Y</td> </tr> </table>					0	4	0	1	2	0	1	9	0	1	0	5	2	0	2	0	D	D	M	M	Y	Y	Y	Y
0	4	0	1	2	0	1	9																										
0	1	0	5	2	0	2	0																										
D	D	M	M	Y	Y	Y	Y																										
At what level has groundwater been encountered?					<table border="1"> <tr> <td>1.00</td> <td>metres below ground level or</td> </tr> <tr> <td colspan="2">☐ Not encountered</td> </tr> </table>					1.00	metres below ground level or	☐ Not encountered																					
1.00	metres below ground level or																																
☐ Not encountered																																	
Table 1 (Pipeline Selection Risk Assessment Summary (PSRAS)) below classifies testing required where the preliminary risk assessment has identified land potentially affected by contamination. Please provide details below of any test groups which have not been tested and the rationale for not testing. <i>If your supporting information has details of the rationale behind not testing any particular test groups, please reference below the relevant sections of your report.</i>																																	
Historical information does not identify any past industrial land use with the site only being developed for use as residential properties. No significant visual / olfactory evidence of contamination was noted during the site investigations. Therefore, chemical analysis was limited to speciated hydrocarbons.																																	
If the intrusive site investigation has identified concentrations above the PE threshold (see PSRAS) and your intended pipe selection is PE. Please provide details below of the rationale behind the intended pipe selection. <i>If your supporting information has details of the rationale behind the intended pipe selection, please reference below the relevant sections of your report.</i>																																	
Not Applicable																																	
Section 4: Site remediation																																	
Please provide details below of any site remediation (which may include a change in site levels) already completed. <i>If your supporting information has details of the site remediation already completed, please reference below the relevant sections of your report.</i>																																	
None required.																																	
Has the PSRAS (Table 1) been completed using appropriate data after remediation?								☐ Yes ☐ No ☐ N/A																									
Please provide details below of any proposed site remediation and an analysis of whether this will affect your intended pipe selection. <i>If your supporting information has details of any proposed site remediation and whether this will affect your intended pipe selection, please reference below the relevant sections of your report.</i>																																	
No specific remedial measures required with the exception of suitable capping to soft landscaped areas.																																	

Section 5: Final use of site

Please provide details below of any chemicals (including fuel) to be stored on site and any other future contamination risks which may affect your intended pipe selection.

If your supporting information has details of potential contamination risks which may affect your intended pipe selection, please reference below the relevant sections of your report.

The site is to be developed with residential housing with no storage of chemicals / hydrocarbons anticipated.

What water pipe materials are intended to be used on site?

☐ PE ☐ PE Barrier Pipe Type A ☐ PE Barrier Pipe Type B
Other (please specify):

Section 6: Additional information

Please use the section below to provide any additional details to support your intended pipe selection.

Not Applicable

Section 7: Risk assessor

Name and relevant qualifications of person directing the risk assessment for water pipes

Samantha Seddon BSc (Hons), MSc, EurGeol, CGeol, FGS

Name and address of risk assessor's company

WML Consulting, No. 8 Oak Green | Earl Road | Stanley Green Business Park | Cheadle Hulme | Cheshire | SK8 6QL

Date risk assessment performed

1 8 0 5 2 0 2 0

Section 8: Declaration

I confirm I have completed this form and provided supporting information in accordance with 'UKWIR Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' and UUW's Supplementary Guidance. I also confirm that if any further site investigation is needed and carried out, I will be required to submit an additional Risk Assessment for Water Pipes with the relevant supporting information. I understand that failure to supply any of the required information may delay my application being processed.

Name

Samantha Seddon

Company

WML Consulting

Telephone

01614820600

Date

1 8 0 2 2 0 2 0

Please email the completed form and supporting information to DeveloperServicesWater@uuplc.co.uk or post to us at United Utilities Water, Developer Services, Second floor Grasmere House, Lingley Mere, Warrington WA5 3LP.



About us

United Utilities is the North West's water company. We keep the taps flowing and toilets flushing for seven million customers every day. From Crewe to Carlisle, we work hard behind the scenes to help your life flow smoothly.

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Registered in England and Wales. Registered Number 2366678.

Table 1 - Pipe selection risk assessment summary (PSRAS)

1. Testing must be undertaken on the materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials. Please use the appropriate testing data to complete Table 1 below.

2. If more than one pipe selection is being made, for example, for pipes in different areas of a large site, a completed PSRAS is required for each selection.

What materials have been tested to populate Table 1 below?

☐ Existing ground materials ☐ Remediated materials ☐ Imported capping materials

All concentrations in mg/kg

Test Group	Testing Required?	PE threshold	Metal Pipes/ Barrier Pipe	Laboratory Detection Limit	Testing UKAS accredited Y/N	Maximum concentration at proposed pipeline depth See Note [2]	Maximum site concentration See Note [3]	Locations and depths where concentrations exceed proposed pipeline threshold
Total VOCs	Where Preliminary Risk Assessment (PRA) has identified land potentially affected by contamination	0.5	Pass	NA	NA	NA	NA	NA
Total BTEX & MTBE		0.1	Pass	NA	NA	NA	NA	NA
Total SVOCs (excluding PAHs and those substances marked with an *)		2	Pass	NA	NA	NA	NA	NA
EC5-EC10 aliphatic and aromatic hydrocarbons		2	Pass	NA	NA	NA	NA	NA
EC10-EC16 aliphatic and aromatic hydrocarbons		10	Pass	NA	NA	NA	NA	NA
EC16-EC40 aliphatic and aromatic hydrocarbons		500	Pass	NA	NA	NA	NA	NA
Phenols* (from SVOC analysis)		2	Pass	NA	NA	NA	NA	NA
Cresols and chlorinated phenols* (from SVOC analysis)		2	Pass	NA	NA	NA	NA	NA
Ethers*	Only where identified	0.5	Pass	NA	NA	NA	NA	NA
Nitrobenzene*		0.5	Pass	NA	NA	NA	NA	NA
Ketones*		0.5	Pass	NA	NA	NA	NA	NA
Aldehydes*		0.5	Pass	NA	NA	NA	NA	NA
Amines		Fail	Pass	NA	NA	NA	NA	NA
Corrosive	Conductivity, Redox and pH	Pass	See Note [1]	NA	NA	NA	NA	NA

Note [1] Threshold: For wrapped steel, corrosive if pH<7 and conductivity > 400µS/cm. For wrapped ductile iron corrosive if pH<5, Eh not neutral and conductivity > 400µS/cm. For copper, corrosive if pH<5 or >8 and Eh positive.

Note [2] Water pipes are normally laid at 0.75-1.35m below finished ground level.

Note [3] Also state if liquid free product is present in soil or groundwater.