



E3P
Taylor Road
Trafford Park
Urmston
M41 7JQ

Manchester | London | Edinburgh

info@E3P.co.uk
www.E3P.co.uk

Ref: 15-018-L1
Date: August 2022

Lyndon Forshaw
Forshaw Group
14 Wood Street
Bolton
BL1 1DY

Dear Lyndon,

MERCURY SPECIATION LOOM STREET, MANCHESTER

BACKGROUND

E3P previously undertook an intrusive site investigation at Loom Street in Ancoats, central Manchester (Ref: 15-018-R1, dated February 2022). The Tier I Human Health Risk Assessment identified areas of elevated total mercury in the shallow Made Ground.

Elemental mercury presents a potential volatilisation to indoor air risk, therefore it was recommended that further samples were submitted for speciated mercury analysis to determine whether the concentrations will present a long term human health risk to the future site users through indoor volatilisation and inhalation.

SUPPLEMENTARY SAMPLING

E3P attended site on 22nd June 2022 to complete three hand pits where the elevated total mercury was identified previously surrounding WS104. The three further soil samples were submitted for the presence of total mercury analysis and where identified the soils were subject to mercury speciation to determine the mercury form.

The results of the mercury speciation are presented in Table 1.1 overleaf and within laboratory certificate Ref: 22-66779 dated July 2022 attached to this letter.

TABLE 1.1 MERCURY SPECIATION RESULTS

DETERMINANT	UNITS	GAC (Residential with Plant Uptake)	MC	LOC. OF EX	FURTHER ASSESSMENT
Inorganic Mercury	(mg/kg)	40	1.46	N/A	No Further Action
Elemental Mercury	(mg/kg)	1.2	0.087	N/A	No Further Action
Methyl Mercury	(mg/kg)	11	0.609	N/A	No Further Action

The testing has not identified any elevated concentrations of inorganic, elemental or methyl mercury, but has identified that the mercury present is likely to be in inorganic form and therefore not a vapour risk.

As such the human health tier 1 criteria value of 40kg/mg can be utilised in accordance with a non-volatile compound and the previously identified mercury should no longer be considered a risk.

CONCLUSIONS

The results of the supplementary sampling indicate that there are no concentrations of mercury that could generate a risk associated with vapour intrusion and ingress within the proposed development.

The soils are therefore suitable for re-use within the residential development. No further remedial works are considered necessary as the construction of a monolithic concrete floor slab within the building design will sever the potential for dermal contact and ingestion of soils with trace metalloid Mercury present.

I trust that the content of this letter is suitable for your requirements; however, should you require any additional information, please do not hesitate to contact me.

Yours sincerely,
For and on behalf of E3P Ltd

Roy Walker
Principal Geoenvironmental Consultant

Attached:

Laboratory Test Results
Exploratory Hole Location Plan



Roy Walker
e3p
Taylor Road
Urmston
Manchester
M41 7JQ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

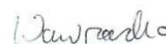
e: rwalker@e3p.co.uk

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 22-66779

Replaces Analytical Report Number: 22-66779, issue no. 1
Additional analysis undertaken.

Project / Site name:	Loom Street Ancoals	Samples received on:	22/06/2022
Your job number:	15 018	Samples instructed on/ Analysis started on:	22/06/2022
Your order number:	001966	Analysis completed by:	08/07/2022
Report Issue Number:	2	Report issued on:	12/07/2022
Samples Analysed:	3 soil samples		



Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-66779
 Project / Site name: Loom Street Ancoals
 Your Order No: 001966

Lab Sample Number				2324529	2324530	2324531
Sample Reference				W5104-M1	W5104-M2	W5104-M3
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30	0.30
Date Sampled				22/06/2022	22/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	21	20
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
---------------	-------	---	--------	-------	-------	-------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	41	39	52
Barium (aqua regia extractable)	mg/kg	1	MCERTS	190	170	540
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	3	2.6	3.4
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.6	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Copper (aqua regia extractable)	mg/kg	1	MCERTS	200	190	390
Lead (aqua regia extractable)	mg/kg	1	MCERTS	440	1300	720
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.2	2	1.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43	41	51
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	54	50	65
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	170	140	300

Speciated Mercury (Dry Weight)

Inorganic Mercury	mg/kg	0.005	NONE	1.46	-	-
Organo-Mercury Species (including Methyl Hg)	mg/kg	0.005	NONE	0.087	-	-
Elemental Mercury	mg/kg	0.005	NONE	0.609	-	-

Speciated Mercury (Dry Weight)

F1 - Water soluble	mg/kg	0.005	NONE	0.078	-	-
F2 - Weak acid	mg/kg	0.005	NONE	0.186	-	-
F3 - Organo- complexed	mg/kg	0.005	NONE	0.087	-	-
F4 - Strongly complexed	mg/kg	0.005	NONE	0.609	-	-
F5 - Mineral bound	mg/kg	0.005	NONE	1.196	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-66779

Project / Site name: Loom Street Ancoals

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2324529	W5104-M1	None Supplied	0.3	Brown loam and clay with gravel.
2324530	W5104-M2	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2324531	W5104-M3	None Supplied	0.3	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-66779

Project / Site name: Loom Street Ancoals

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Speciated Mercury in soil by Millennium Merlin Ana	Determination of Speciated Mercury in soil by Millennium Merlin Analyzer	In-house method	L085-PL	Dry	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

