



**STRUCTURAL INSPECTION REPORT
ON
MILL BUILDING 1, MANCHESTER ROAD, LINTHWAITE, HD7 5QS**



**ON BEHALF OF
REDWATER DEVELOPMENTS LTD & HIGHSTONE HOUSING ASSOCIATION LTD**

AUGUST 2021

ARP ASSOCIATES
CHARTERED CONSULTING ENGINEERS
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Structural Inspection Report on Mill Building 1, Manchester Road, Linthwaite

Revision/Date	Initial Issue	Revision A	Revision B	Revision C
	9 th July 2021	11 th August 2021		
Prepared By:	J Bye MEng	J Bye MEng		
Signature				
Reviewed By:	A Radcliffe BEng CEng MIStructE	A Radcliffe BEng CEng MIStructE		
Signature				

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Appendix A – Photographs

Appendix B – Site Investigation Plan

1.0 BRIEF

- 1.1 Acting on an instruction from Highstone Housing Association Ltd on behalf of Redwater Developments Ltd & Highstone Housing Association Ltd, ARP Associates visited the above property on 28th June 2021 to carry out a visual structural inspection.
- 1.2 The purpose of the visit was to carry out a visual structural survey and prepare a structural condition report identifying any major structural defects.
- 1.3 The report concentrates on the structural condition of the property and does not make any conclusion regarding its overall stability.
- 1.4 The weather at the time of the inspection was fine.
- 1.5 The building was inspected in daylight by visual means only and with no recourse to carry out intrusive investigation. The external inspection was from ground level. The scope of the inspection is therefore limited to those items which can be seen from ground level, and we are consequently unable to advise on any item that was hidden, inaccessible or unseen at the time of the inspection.
- 1.6 All reference to left or right is as viewed from the front of the property.
- 1.7 The report has been initially prepared for the use and reliance of the Client only. The report shall not be relied upon or transferred to any other parties without the written agreement of ARP Associates. For the avoidance of any doubt, where ARP Associates enters into a letter of reliance for the benefit of a third party, that third party will be permitted to rely on the report. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without ARP Associates consent. Observations noted herein are only applicable at the time of inspection, and to the areas visible only. There was no recourse to carry out intrusive investigation during this initial inspection.

2.0 GENERAL DESCRIPTION

2.1 The mill location is shown in the aerial image of the site below;



Figure 1 – Mill Building 1 location, plan view

2.2 The mill building formed part of the wider site noted historically as Hoyle Ing Dye Works. Based on a date stone on the west elevation the building appears to have been constructed in 1906. The mill building consists of two storeys and is constructed in traditional load bearing stone masonry. The existing scenario is of a traditional timber truss roof bearing on the masonry walls, transferring the loads onto the existing foundations. The first floor consists of a concrete floor spanning onto secondary steel beams, which are supported by primary steel beams spanning from north to south across the building.

2.3 The main site is approximately rectangular in shape, bordered by Manchester Road to the West, residential properties to the north and east, and Hoyle Ing to the south. The mill building occupies

an area in the centre of the site, bordering Manchester Road. The ground levels are relatively consistent around the east, north and west of the building. The ground levels are higher to the south of the property with a retaining wall in this location forming part of the ground floor walls to the building.

- 2.4 Access to the higher ground level to the south was not possible at the time of inspection due to the extensive vegetation growth in this area. There is also vegetation growth around the external areas at the lower level, part obscuring the condition of the building.

3.0 EXTERNAL OBSERVATIONS

- 3.1 The building is constructed in load bearing masonry supporting a duo-pitched roof. The building walls generally appeared plumb and in line. All the doors and windows are missing so the building is fully exposed to the weather which leads to the rapid deterioration of the structure.
- 3.2 The west elevation gable wall presented a number of masonry crack locations. There were masonry cracks above the right hand side, ground floor opening, together with further masonry cracks above the first floor windows. There were further masonry cracks to the left hand side at high level up to the roof line.
- 3.3 The south elevation presented a number of structural defects. There were masonry cracks evident to the left hand side, running from below first floor level to eaves. There were further masonry cracks on the elevation noted around the retained steel beams (which had been cut back to the wall face) and above the first floor openings. There were also areas of removed/missing masonry particularly apparent at eaves level and around the first floor openings.
- 3.4 The south facing roof showed signs of neglect and disrepair with missing ridge tiles, displaced roof slates and areas of damage to the glazed rooflights. There were also large shrubs/trees which had grown at the eaves level.
- 3.5 Access to the east elevation was limited due to extensive vegetation growth in this location. There were areas of weathered masonry apparent above the first floor windows together with signs of minor masonry cracks.
- 3.6 The north elevation roof showed some signs of neglect with missing ridge tiles, small areas of displaced roof slates and areas of damage to the glazed rooflights. There was also low level vegetation growth on the roof at the eaves level.
- 3.7 The north elevation was of stone masonry construction with a rendered finish outlining the historic roof lines of the structures that have previously been removed. There were several cracks noted in

the render above the first floor window lintels up to eaves level. The condition of the masonry behind the render was obscured.

- 3.8 There were pockets of masonry missing on the north elevation assumed to relate to historic roof beams/structures that have been removed. The elevation also had steel beams which had been cut back to the wall face and remained built into the wall.
- 3.9 The north elevation had a large opening at ground floor which was formed by two supporting steel posts. These were encased in brick masonry piers up to approximately 3m above ground level. One of the piers had been damaged at low level exposing the steel post in this location. The beam over this opening was supported on one end by the east elevation wall forming the retaining wall. The condition of the wall adjacent to this location appeared poor.

4.0 INTERNAL OBSERVATIONS

- 4.1 The internal walls consisted of a stone masonry construction at ground floor, and a brick masonry construction at first floor. The internal partition walls were of brick masonry construction and appeared to be load bearing, providing support to the steel beams over.
- 4.2 The internal condition of the masonry walls at ground floor appeared to be generally poor.
- 4.3 The ground floor construction was assumed to be a concrete/screed laid on hardcore. This floor appeared to be in reasonable condition with no obvious cracking/movement.
- 4.4 The first floor construction consists of a concrete floor spanning onto secondary steel beams, which are supported by primary steel beams spanning from north to south across the building. There are some localised areas of spalling to the underside of the concrete and the secondary steel beams appear to be badly corroded. Several of the primary steel beams are also showing signs of corrosion.
- 4.5 The internal condition of the masonry walls at first floor was poor. There were numerous masonry cracks evident, many of which corresponded to the location of the bearing of the timber trusses, and were observed above the window openings up to the underside of the truss bearings or to the eaves. There were also sections of masonry at high level which showed a degree of movement around the trusses, indicated by a bow in the wall in these locations.
- 4.6 A number of the timber roof trusses were showing signs of water damage and suspected wet rot also. This is likely due to the water ingress from the disrepair of the roof above these locations.

5.0 GEO-ENVIRONMENTAL CONSIDERATIONS

- 5.1 A geo-environmental ground investigation was carried out for the wider site in February 2021 and reported on in Former Hoyle Ing Dye Works Manchester Road, Linthwaite, Combined Stage 1/Stage 2 Geo-environmental Report; March 2021 by ARP (REF: HIG/01r1). The purpose of this investigation was to assess the sites contamination levels, with respect to human health to aid with planning discharge and to assess the general ground conditions for traditional foundations.
- 5.2 Part of this investigation included a trial pit inside Mill Building 1 (referred to as TP2 in the site investigation, and the Site Investigation Plan is included in Appendix B for reference). Visual and olfactory signs of contamination were identified in this trial pit, namely a tarry residue with a slight odour, which was detected directly beneath the floor slab.
- 5.3 Samples of the made ground were issued for testing for a broad suite of determinands, including metals, inorganics, asbestos, phenols, speciated PAH, and TPH. It was determined as part of the conceptual model that VOCs, SVOCs and PCBs should also be tested for, due to the historical presence of a dye works on the site. The results of the testing indicated many elevations of contaminants when compared to screening values for human health. One notable elevation was naphthalene with a concentration of 52mg/ kg in TP2, underneath the floor slab of Mill Building 1. Naphthalene was also found to be elevated in one other location on site (TP11) with a concentration of 11mg/kg. The tolerance level of naphthalene with respect for human health, with the tested organic matter levels is 5.6mg/kg. The main risk driver for naphthalene is vapour migration to indoor air.
- 5.4 Naphthalene is a liquid component used in the production of a chemical call phthalic anhydride, a product used in plastic production, chemical dyes, and plasters. As the building was previously used as a mill, it is concluded that the naphthalene has migrated into the ground through the floor slab of the building from spillages and drops during the life cycle of the mill. This is a common occurrence in mill buildings of this age that would not have had adequate chemical barriers applied to the slab. As the product is a liquid, a spill can be widespread.

5.5 The concentrations of naphthalene detected will pose excessive risk if present below building footprints and therefore remedial techniques need to be implemented in a manner that reduces this risk to a tolerable level with respect to human health. Two possible remedial options are available; removal of the affected made ground under the footprint of the building or the addition of a high grade hydrocarbon membrane under the footprint of the building.

5.5.1 If removal of affected ground is the preferred remedial solution, as it is the vapours that are harmful, remnants of the naphthalene cannot be left under any area of the footprint (including under walls). As such, to remove the effected material, the building will need to be demolished and the slab broken-out. As the naphthalene has migrated through the slab, the slab is likely to be affected as well, so this, along with soil will need to be removed in accordance with the remediation statement.

5.5.2 If a VOC membrane is the preferred remedial solution, the membrane will need to be placed under walls and columns on a specific slab design with a design life of at least 50 years. As the barrier cannot lap up on to the walls, and due to the age of the building and its condition, lower wall partition removal will not be possible. Furthermore, breaking out of the slab will generate vibrations that may destabilise many other areas of the building. As such, the building will require demolition to undertake this option.

6.0 CONCLUSIONS AND RECOMMENDATIONS

- 6.1 The building shows significant signs of neglect and is considered to be in a poor structural condition; The roof requires repairs to make good areas of missing tiles and glazing. The existing timber roof trusses appear to have suffered from water damage and wet rot. The concrete floor secondary steelwork is badly corroded. The external masonry walls would require a significant amount of repair/rebuild. All the doors and windows are missing so the building is fully exposed to the weather which leads to the rapid deterioration of the structure.
- 6.2 The Geo-environmental investigation found dangerously high levels of naphthalene, with regards to human health, under the building slab. Further treatment of the naphthalene would require the demolition of the building and removal of the potentially affected slab.
- 6.3 The demolition of the building should ideally be conducted before the removal of any further areas of the floor slab, to avoid the risk of the damaged roof and glazings falling from above.
- 6.4 Given the poor structural condition of the building and the findings of the geo-environmental ground investigation we recommend the building to be demolished.

Prepared by

J. BYE MEng

APPENDIX A

PHOTOGRAPHS



Photograph 1 – West elevation, masonry cracks



Photograph 2 – West elevation, masonry cracks



Photograph 3 – South elevation



Photograph 4 – South elevation



Photograph 5 – East elevation



Photograph 6 – North elevation



Photograph 7 -North elevation, render cracks



Photograph 8 -North elevation, built in steel beam



Photograph 9 -North elevation, roof



Photograph 10 -North elevation, beam bearing



Photograph 11 -Ground floor



Photograph 12 -Underside of first floor



Photograph 13 –First floor



Photograph 14 – Roof truss bearing



Photograph 15 – First floor masonry cracks




Photograph 16 – First floor masonry cracks


APPENDIX B

SITE INVESTIGATION PLAN

KEY

 Trial pits
TP6

 Area inaccessible with JCB

 Limited access at time of investigation



0m 30m
Approximate Scale



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Project
FORMER HOYLE ING
DYE WORKS, MANCHESTER RD,
LINTHWAITE

Client
HIGHSTONE BUILDING
SERVICES LTD

Title
SITE INVESTIGATION PLAN

Date
MARCH 2021

Drawn OG	Scale AS SHOWN
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Job No.
HIG/01



ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITHOUT HOME-GROWN PRODUCE

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Arsenic	40			40		
Cadmium	85			150		
Chromium (trivalent)	910					
Chromium (hexavalent)	6			21		
Copper	7100					
Lead				310		
Inorganic Mercury	56					
Nickel	180					
Selenium	430					
Zinc	40000					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13			
Acenaphthylene	2900	4600	6000			
Acenaphthene	3000	4700	6000			
Fluorene	2800	3800	4500			
Phenanthrene	1300	1500	1500			
Anthracene	31000	35000	37000			
Fluoranthene	1500	1600	1600			
Pyrene	3700	3800	3800			
Benzo(a)anthracene	11	14	15			
Chrysene	30	31	32			
Benzo(b)fluoranthene	3.9	4	4			
Benzo(k)fluoranthene	110	110	110			
Benzo(a)pyrene	3.2	3.2	3.2			5.3
Indeno(1,2,3-cd)pyrene	45	46	46			
Dibenzo(a,h)anthracene	0.31	0.32	0.32			
Benzo(g,h,i)perylene	360	360	360			
Phenols	440	690	1200			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	770			
C12 to C16 Aliphatic	1100	2400	4400			
C16 to C35 Aliphatic	65000	92000	110000			
C35 TO C44 Aliphatic	65000	92000	110000			
C5 to C7 Aromatic (Benzene)	370	690	1400			
C7 to C8 Aromatic (Toluene)	860	1800	3900			
C8 to C10 Aromatic	47	110	270			
C10 to C12 Aromatic	250	590	1200			
C12 to C16 Aromatic	1800	2300	2500			
C16 to C21 Aromatic	1900	1900	1900			
C21 TO C35 Aromatic	1900	1900	1900			
C35 TO C44 Aromatic	1900	1900	1900			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.

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Amended Report

Report No.:	21-04006-2	Date of Re-Issue:	25-Feb-2021
Initial Date of Issue:	17-Feb-2021		
Client	ARP Geotechnical Ltd		
Client Address:	5/6 Northwest Business Park Servia Hill Leeds Yorkshire LS6 2QH		
Contact(s):	Owain Gwilym		
Project	HIG/01 Manchester Road, Linthwaite		
Quotation No.:	Q20-21438	Date Received:	11-Feb-2021
Order No.:	HIG/01	Date Instructed:	11-Feb-2021
No. of Samples:	12		
Turnaround (Wkdays):	11	Results Due:	25-Feb-2021
Date Approved:	25-Feb-2021		
Approved By:			

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139506	1139515	
		Sample Location:		TP2	TP13	
		Sample Type:		SOIL	SOIL	
		Top Depth (m):		0.40	0.30	
		Bottom Depth (m):		0.50	0.40	
		Date Sampled:		09-Feb-2021	09-Feb-2021	
Determinand	Accred.	SOP	Type	Units	LOD	
Lead (Dissolved)	U	1455	10:1	µg/l	0.50	0.89
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139505	1139506	1139507	1139508	1139509	1139510	1139511	1139512	
Sample Location:		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8			
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Top Depth (m):		0.10	0.40	0.10	1.30	0.10	0.10	0.00	1.10			
Bottom Depth (m):		0.20	0.50	0.30	1.40	0.30	0.20	0.05	1.20			
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	Fibres/Clumps	Fibres/Clumps
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile	Chrysotile
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	Stereo Microscopy	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001							0.002	<0.001
Total Asbestos	U	2192	%	0.001							0.002	<0.001
Moisture	N	2030	%	0.020	14	16	15	13	11	14	13	25
pH	M	2010		4.0	8.3	8.2	10.7	9.8	10.2	9.9	10.7	9.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.022	1.7	0.35	0.077	0.45	0.21	0.47	0.090
Sulphate (Total)	M	2430	mg/kg	100	560	17000	3700	3900	4000	2200	3000	3800
Arsenic	M	2450	mg/kg	1.0	4.5	27	18	12	7.3	5.5	6.3	200
Cadmium	M	2450	mg/kg	0.10	0.19	0.41	0.21	0.29	0.25	0.32	0.49	0.31
Chromium	M	2450	mg/kg	1.0	27	180	510	90	73	28	49	34
Copper	M	2450	mg/kg	0.50	33	250	180	58	72	36	62	240
Mercury	M	2450	mg/kg	0.10	< 0.10	0.30	0.16	0.14	< 0.10	0.17	0.12	0.23
Nickel	M	2450	mg/kg	0.50	30	34	24	26	16	20	24	94
Lead	M	2450	mg/kg	0.50	24	520	88	250	250	110	300	85
Selenium	M	2450	mg/kg	0.20	0.37	0.62	0.21	< 0.20	< 0.20	0.26	< 0.20	4.1
Zinc	M	2450	mg/kg	0.50	81	150	130	160	120	120	150	56
Chromium (Trivalent)	N	2490	mg/kg	1.0	27	180	510	90	72	28	49	34
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	1.1	< 0.50	0.83	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	0.67	5.5	4.3	3.3	1.2	3.3	1.7	26
Total TPH >C6-C40	M	2670	mg/kg	10	110	1500	62	< 10	< 10	< 10	47	57
Naphthalene	M	2700	mg/kg	0.10	0.24	52	1.1	0.51	0.40	0.27	0.46	0.40
Acenaphthylene	M	2700	mg/kg	0.10	0.17	1.7	< 0.10	0.60	0.48	< 0.10	0.21	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	0.48	35	0.36	0.35	0.27	0.13	0.37	< 0.10
Fluorene	M	2700	mg/kg	0.10	0.16	25	0.39	0.31	0.10	0.16	0.29	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	1.6	80	2.5	2.4	1.1	0.78	5.5	0.47
Anthracene	M	2700	mg/kg	0.10	0.40	34	0.53	0.47	0.14	0.11	1.3	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	2.4	61	2.4	2.6	1.1	0.95	8.7	0.73
Pyrene	M	2700	mg/kg	0.10	2.3	62	2.4	2.5	1.1	0.87	8.6	0.70
Benzo[a]anthracene	M	2700	mg/kg	0.10	1.2	39	0.98	1.2	0.56	0.44	3.8	0.25
Chrysene	M	2700	mg/kg	0.10	0.97	38	0.82	1.0	0.47	0.39	3.7	0.67
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	1.5	46	1.2	1.5	0.80	0.29	5.0	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	0.59	17	0.44	0.54	0.25	< 0.10	1.8	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	1.1	36	0.70	0.95	0.47	0.33	3.3	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	0.68	21	< 0.10	< 0.10	< 0.10	< 0.10	1.9	< 0.10

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139505	1139506	1139507	1139508	1139509	1139510	1139511	1139512	
Sample Location:		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8			
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Top Depth (m):		0.10	0.40	0.10	1.30	0.10	0.10	0.00	1.10			
Bottom Depth (m):		0.20	0.50	0.30	1.40	0.30	0.20	0.05	1.20			
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	0.15	5.5	< 0.10	< 0.10	< 0.10	< 0.10	0.55	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	0.75	20	< 0.10	< 0.10	< 0.10	< 0.10	2.0	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	15	570	14	15	7.2	4.7	48	3.2
Dichlorodifluoromethane	U	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Chloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Vinyl Chloride	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Bromomethane	M	2760	µg/kg	20			< 20	< 20				< 20
Chloroethane	U	2760	µg/kg	2.0			< 2.0	< 2.0				< 2.0
Trichlorofluoromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,1-Dichloroethene	M	2760	mg/kg	1.0			< 1.0	< 1.0				< 1.0
Trans 1,2-Dichloroethene	M	2760	mg/kg	1.0			< 1.0	< 1.0				< 1.0
1,1-Dichloroethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Bromochloromethane	U	2760	µg/kg	5.0			< 5.0	< 5.0				< 5.0
Trichloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,1,1-Trichloroethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Tetrachloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,1-Dichloropropene	U	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Benzene	M	2760	µg/kg	1.0			< 1.0	< 1.0				5.2
1,2-Dichloroethane	M	2760	µg/kg	2.0			< 2.0	< 2.0				< 2.0
Trichloroethene	N	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,2-Dichloropropane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Dibromomethane	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
Bromodichloromethane	M	2760	µg/kg	5.0			< 5.0	< 5.0				< 5.0
cis-1,3-Dichloropropene	N	2760	µg/kg	10			< 10	< 10				< 10
Toluene	M	2760	µg/kg	1.0			< 1.0	< 1.0				19
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			< 10	< 10				< 10
1,1,2-Trichloroethane	M	2760	µg/kg	10			< 10	< 10				< 10
Tetrachloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,3-Dichloropropane	U	2760	µg/kg	2.0			< 2.0	< 2.0				< 2.0
Dibromochloromethane	U	2760	µg/kg	10			< 10	< 10				< 10
1,2-Dibromoethane	M	2760	µg/kg	5.0			< 5.0	< 5.0				< 5.0
Chlorobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0			< 2.0	< 2.0				< 2.0
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0				68
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0	< 1.0				23
o-Xylene	M	2760	µg/kg	1.0			< 1.0	< 1.0				7.9
Styrene	M	2760	µg/kg	1.0			< 1.0	< 1.0				< 1.0

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139505	1139506	1139507	1139508	1139509	1139510	1139511	1139512
Sample Location:		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8		
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
Top Depth (m):		0.10	0.40	0.10	1.30	0.10	0.10	0.00	1.10		
Bottom Depth (m):		0.20	0.50	0.30	1.40	0.30	0.20	0.05	1.20		
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD							
Tribromomethane	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
Isopropylbenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
Bromobenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,2,3-Trichloropropane	N	2760	µg/kg	50		< 50		< 50			< 50
N-Propylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
2-Chlorotoluene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
4-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
Tert-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
Sec-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,3-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
4-Isopropyltoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,4-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
N-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,2-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50		< 50		< 50			< 50
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
Hexachlorobutadiene	U	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0		< 2.0		< 2.0			< 2.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0		< 1.0		< 1.0			< 1.0
N-Nitrosodimethylamine	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Phenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Chlorophenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Bis-(2-Chloroethyl)Ether	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
1,3-Dichlorobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
1,2-Dichlorobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Methylphenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Bis(2-Chloroisopropyl)Ether	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Hexachloroethane	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
N-Nitrosodi-n-propylamine	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
4-Methylphenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Nitrobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Isophorone	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Bis(2-Chloroethoxy)Methane	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139505	1139506	1139507	1139508	1139509	1139510	1139511	1139512
Sample Location:		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8		
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Top Depth (m):		0.10	0.40	0.10	1.30	0.10	0.10	0.00	1.10		
Bottom Depth (m):		0.20	0.50	0.30	1.40	0.30	0.20	0.05	1.20		
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD							
2,4-Dichlorophenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
1,2,4-Trichlorobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Naphthalene	M	2790	mg/kg	0.50		200		< 0.50			< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Hexachlorobutadiene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
4-Chloro-3-Methylphenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Methylnaphthalene	M	2790	mg/kg	0.50		61		< 0.50			< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2,4,6-Trichlorophenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2,4,5-Trichlorophenol	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Chloronaphthalene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Nitroaniline	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Acenaphthylene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Dimethylphthalate	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2,6-Dinitrotoluene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Acenaphthene	M	2790	mg/kg	0.50		110		< 0.50			< 0.50
3-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Dibenzofuran	M	2790	mg/kg	0.50		77		< 0.50			< 0.50
4-Chlorophenylphenylether	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2,4-Dinitrotoluene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Fluorene	M	2790	mg/kg	0.50		70		< 0.50			< 0.50
Diethyl Phthalate	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
4-Nitroaniline	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Azobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
4-Bromophenylphenyl Ether	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Hexachlorobenzene	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Phenanthrene	M	2790	mg/kg	0.50		430		0.66			< 0.50
Anthracene	M	2790	mg/kg	0.50		92		< 0.50			< 0.50
Carbazole	M	2790	mg/kg	0.50		53		< 0.50			< 0.50
Di-N-Butyl Phthalate	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Fluoranthene	M	2790	mg/kg	0.50		280		0.93			0.90
Pyrene	M	2790	mg/kg	0.50		230		0.78			0.75
Butylbenzyl Phthalate	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Benzo[a]anthracene	M	2790	mg/kg	0.50		92		< 0.50			< 0.50
Chrysene	M	2790	mg/kg	0.50		89		< 0.50			< 0.50

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139505	1139506	1139507	1139508	1139509	1139510	1139511	1139512
Sample Location:		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8		
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
Top Depth (m):		0.10	0.40	0.10	1.30	0.10	0.10	0.00	1.10		
Bottom Depth (m):		0.20	0.50	0.30	1.40	0.30	0.20	0.05	1.20		
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021		
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD							
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Di-N-Octyl Phthalate	M	2790	mg/kg	0.50		< 0.50		< 0.50			< 0.50
Benzo[b]fluoranthene	M	2790	mg/kg	0.50		90		< 0.50			< 0.50
Benzo[k]fluoranthene	M	2790	mg/kg	0.50		33		< 0.50			< 0.50
Benzo[a]pyrene	M	2790	mg/kg	0.50		74		< 0.50			< 0.50
Indeno(1,2,3-c,d)Pyrene	M	2790	mg/kg	0.50		33		< 0.50			< 0.50
Dibenz(a,h)Anthracene	M	2790	mg/kg	0.50		9.0		< 0.50			< 0.50
Benzo[g,h,i]perylene	M	2790	mg/kg	0.50		33		< 0.50			< 0.50
PCB 28	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 52	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 90+101	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 118	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 153	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 138	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
PCB 180	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10		< 0.10		< 0.10			< 0.10
Total Phenols	M	2920	mg/kg	0.30	< 0.30	1.5	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139513	1139514	1139515	1139516	
	Sample Location:	TP9	TP11	TP13	TP8			
	Sample Type:	SOIL	SOIL	SOIL	SOIL			
	Top Depth (m):	0.10	0.30	0.30	2.10			
	Bottom Depth (m):	0.20	0.40	0.40	2.20			
	Date Sampled:	09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021			
	Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM			
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	Fibres/Clumps	-	-	-
Asbestos Identification	U	2192		N/A	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001	<0.001			
Total Asbestos	U	2192	%	0.001	<0.001			
Moisture	N	2030	%	0.020	13	19	15	23
pH	M	2010		4.0	9.4	8.9	9.6	7.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.32	1.2	0.20
Sulphate (Total)	M	2430	mg/kg	100	610	5800	8000	1500
Arsenic	M	2450	mg/kg	1.0	5.0	26	12	8.4
Cadmium	M	2450	mg/kg	0.10	0.44	0.39	1.5	0.12
Chromium	M	2450	mg/kg	1.0	17	24	150	22
Copper	M	2450	mg/kg	0.50	16	56	110	27
Mercury	M	2450	mg/kg	0.10	< 0.10	0.12	0.11	0.29
Nickel	M	2450	mg/kg	0.50	24	29	23	15
Lead	M	2450	mg/kg	0.50	17	330	560	51
Selenium	M	2450	mg/kg	0.20	0.26	0.44	0.25	0.59
Zinc	M	2450	mg/kg	0.50	84	330	910	72
Chromium (Trivalent)	N	2490	mg/kg	1.0	17	24	150	22
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	0.91	11	3.3	3.3
Total TPH >C6-C40	M	2670	mg/kg	10	96	210	640	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	11	0.63	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	2.1	0.22	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	13	0.87	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	7.6	0.69	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	68	5.2	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	10	1.2	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	62	6.3	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	56	6.4	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	20	3.1	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	19	2.4	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	24	4.7	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	8.9	1.1	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	17	2.2	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	12	1.1	< 0.10

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006	
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139513	1139514	1139515	1139516	
Sample Location:		TP9	TP11	TP13	TP8			
Sample Type:		SOIL	SOIL	SOIL	SOIL			
Top Depth (m):		0.10	0.30	0.30	2.10			
Bottom Depth (m):		0.20	0.40	0.40	2.20			
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021			
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM			
Determinand	Accred.	SOP	Units	LOD				
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	3.3	0.52	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	10	1.0	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	340	38	< 2.0
Dichlorodifluoromethane	U	2760	µg/kg	1.0				
Chloromethane	M	2760	µg/kg	1.0				
Vinyl Chloride	M	2760	µg/kg	1.0				
Bromomethane	M	2760	µg/kg	20				
Chloroethane	U	2760	µg/kg	2.0				
Trichlorofluoromethane	M	2760	µg/kg	1.0				
1,1-Dichloroethene	M	2760	mg/kg	1.0				
Trans 1,2-Dichloroethene	M	2760	mg/kg	1.0				
1,1-Dichloroethane	M	2760	µg/kg	1.0				
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0				
Bromochloromethane	U	2760	µg/kg	5.0				
Trichloromethane	M	2760	µg/kg	1.0				
1,1,1-Trichloroethane	M	2760	µg/kg	1.0				
Tetrachloromethane	M	2760	µg/kg	1.0				
1,1-Dichloropropene	U	2760	µg/kg	1.0				
Benzene	M	2760	µg/kg	1.0				
1,2-Dichloroethane	M	2760	µg/kg	2.0				
Trichloroethene	N	2760	µg/kg	1.0				
1,2-Dichloropropane	M	2760	µg/kg	1.0				
Dibromomethane	M	2760	µg/kg	1.0				
Bromodichloromethane	M	2760	µg/kg	5.0				
cis-1,3-Dichloropropene	N	2760	µg/kg	10				
Toluene	M	2760	µg/kg	1.0				
Trans-1,3-Dichloropropene	N	2760	µg/kg	10				
1,1,2-Trichloroethane	M	2760	µg/kg	10				
Tetrachloroethene	M	2760	µg/kg	1.0				
1,3-Dichloropropane	U	2760	µg/kg	2.0				
Dibromochloromethane	U	2760	µg/kg	10				
1,2-Dibromoethane	M	2760	µg/kg	5.0				
Chlorobenzene	M	2760	µg/kg	1.0				
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0				
Ethylbenzene	M	2760	µg/kg	1.0				
m & p-Xylene	M	2760	µg/kg	1.0				
o-Xylene	M	2760	µg/kg	1.0				
Styrene	M	2760	µg/kg	1.0				

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139513	1139514	1139515	1139516
Sample Location:		TP9	TP11	TP13	TP8		
Sample Type:		SOIL	SOIL	SOIL	SOIL		
Top Depth (m):		0.10	0.30	0.30	2.10		
Bottom Depth (m):		0.20	0.40	0.40	2.20		
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021		
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD			
Tribromomethane	U	2760	µg/kg	1.0			
Isopropylbenzene	M	2760	µg/kg	1.0			
Bromobenzene	M	2760	µg/kg	1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50			
N-Propylbenzene	U	2760	µg/kg	1.0			
2-Chlorotoluene	M	2760	µg/kg	1.0			
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0			
4-Chlorotoluene	U	2760	µg/kg	1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0			
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0			
Sec-Butylbenzene	U	2760	µg/kg	1.0			
1,3-Dichlorobenzene	M	2760	µg/kg	1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0			
1,4-Dichlorobenzene	M	2760	µg/kg	1.0			
N-Butylbenzene	U	2760	µg/kg	1.0			
1,2-Dichlorobenzene	M	2760	µg/kg	1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50			
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0			
Hexachlorobutadiene	U	2760	µg/kg	1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			
N-Nitrosodimethylamine	M	2790	mg/kg	0.50			
Phenol	M	2790	mg/kg	0.50			
2-Chlorophenol	M	2790	mg/kg	0.50			
Bis-(2-Chloroethyl)Ether	M	2790	mg/kg	0.50			
1,3-Dichlorobenzene	M	2790	mg/kg	0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50			
1,2-Dichlorobenzene	M	2790	mg/kg	0.50			
2-Methylphenol	M	2790	mg/kg	0.50			
Bis(2-Chloroisopropyl)Ether	M	2790	mg/kg	0.50			
Hexachloroethane	N	2790	mg/kg	0.50			
N-Nitrosodi-n-propylamine	M	2790	mg/kg	0.50			
4-Methylphenol	M	2790	mg/kg	0.50			
Nitrobenzene	M	2790	mg/kg	0.50			
Isophorone	M	2790	mg/kg	0.50			
2-Nitrophenol	N	2790	mg/kg	0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50			
Bis(2-Chloroethoxy)Methane	M	2790	mg/kg	0.50			

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:						
Quotation No.: Q20-21438		21-04006	21-04006	21-04006	21-04006			
Chemtest Sample ID.:		1139513	1139514	1139515	1139516			
Sample Location:		TP9	TP11	TP13	TP8			
Sample Type:		SOIL	SOIL	SOIL	SOIL			
Top Depth (m):		0.10	0.30	0.30	2.10			
Bottom Depth (m):		0.20	0.40	0.40	2.20			
Date Sampled:		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021			
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM			
Determinand	Accred.	SOP	Units	LOD				
2,4-Dichlorophenol	M	2790	mg/kg	0.50				
1,2,4-Trichlorobenzene	M	2790	mg/kg	0.50				
Naphthalene	M	2790	mg/kg	0.50				
4-Chloroaniline	N	2790	mg/kg	0.50				
Hexachlorobutadiene	M	2790	mg/kg	0.50				
4-Chloro-3-Methylphenol	M	2790	mg/kg	0.50				
2-Methylnaphthalene	M	2790	mg/kg	0.50				
4-Nitrophenol	N	2790	mg/kg	0.50				
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50				
2,4,6-Trichlorophenol	M	2790	mg/kg	0.50				
2,4,5-Trichlorophenol	M	2790	mg/kg	0.50				
2-Chloronaphthalene	M	2790	mg/kg	0.50				
2-Nitroaniline	M	2790	mg/kg	0.50				
Acenaphthylene	M	2790	mg/kg	0.50				
Dimethylphthalate	M	2790	mg/kg	0.50				
2,6-Dinitrotoluene	M	2790	mg/kg	0.50				
Acenaphthene	M	2790	mg/kg	0.50				
3-Nitroaniline	N	2790	mg/kg	0.50				
Dibenzofuran	M	2790	mg/kg	0.50				
4-Chlorophenylphenylether	M	2790	mg/kg	0.50				
2,4-Dinitrotoluene	M	2790	mg/kg	0.50				
Fluorene	M	2790	mg/kg	0.50				
Diethyl Phthalate	M	2790	mg/kg	0.50				
4-Nitroaniline	M	2790	mg/kg	0.50				
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50				
Azobenzene	M	2790	mg/kg	0.50				
4-Bromophenylphenyl Ether	M	2790	mg/kg	0.50				
Hexachlorobenzene	M	2790	mg/kg	0.50				
Pentachlorophenol	N	2790	mg/kg	0.50				
Phenanthrene	M	2790	mg/kg	0.50				
Anthracene	M	2790	mg/kg	0.50				
Carbazole	M	2790	mg/kg	0.50				
Di-N-Butyl Phthalate	M	2790	mg/kg	0.50				
Fluoranthene	M	2790	mg/kg	0.50				
Pyrene	M	2790	mg/kg	0.50				
Butylbenzyl Phthalate	M	2790	mg/kg	0.50				
Benzo[a]anthracene	M	2790	mg/kg	0.50				
Chrysene	M	2790	mg/kg	0.50				

Results - Soil

Project: HIG/01 Manchester Road, Linthwaite

Client: ARP Geotechnical Ltd		Chemtest Job No.:		21-04006	21-04006	21-04006	21-04006
Quotation No.: Q20-21438		Chemtest Sample ID.:		1139513	1139514	1139515	1139516
Sample Location:		TP9		TP11	TP13	TP8	
Sample Type:		SOIL		SOIL	SOIL	SOIL	SOIL
Top Depth (m):		0.10		0.30	0.30	2.10	
Bottom Depth (m):		0.20		0.40	0.40	2.20	
Date Sampled:		09-Feb-2021		09-Feb-2021	09-Feb-2021	09-Feb-2021	09-Feb-2021
Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50			
Di-N-Octyl Phthalate	M	2790	mg/kg	0.50			
Benzo[b]fluoranthene	M	2790	mg/kg	0.50			
Benzo[k]fluoranthene	M	2790	mg/kg	0.50			
Benzo[a]pyrene	M	2790	mg/kg	0.50			
Indeno(1,2,3-c,d)Pyrene	M	2790	mg/kg	0.50			
Dibenz(a,h)Anthracene	M	2790	mg/kg	0.50			
Benzo[g,h,i]perylene	M	2790	mg/kg	0.50			
PCB 28	U	2815	mg/kg	0.010			
PCB 52	U	2815	mg/kg	0.010			
PCB 90+101	U	2815	mg/kg	0.010			
PCB 118	U	2815	mg/kg	0.010			
PCB 153	U	2815	mg/kg	0.010			
PCB 138	U	2815	mg/kg	0.010			
PCB 180	U	2815	mg/kg	0.010			
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10			
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com