

European Metal Recycling Ltd

Variation of Environmental Permit EPR/GP3292FT Site Condition Report

May 2023

European Metal Recycling Ltd
EMR Darlaston – Fridge Destruction
Bentley Road South
Darlaston
West Midlands
WS10 8LW

1.0 SITE DETAILS	
Name of the applicant	European Metal Recycling Limited EMR Darlaston – Fridge Destruction
Activity address	Bentley Road South, Darlaston, West Midlands, WS10 8LW
National grid reference	SO 98304 97743

Document reference and dates for Site Condition Report at permit application and surrender	Permit Application: EAWML 40099
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Document references for site plans (including location and boundaries)	129-001790-02 Site Plan
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Note:

In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

2.0 Condition of the land at permit issue	
Environmental setting including: <ul style="list-style-type: none"> • geology • hydrogeology • surface waters 	Geological records (British Geological Survey (BGS), Geology of Britain Viewer 1:50,000) indicate that the majority of the site overlies superficial deposits of Till, Devensian, comprising of diamicton (poorly sorted unconsolidated sediment). The south-west corner of the site overlies superficial Glaciofluvial Deposits, Devensian, comprising sand and gravel. Underlying the superficial deposits across the majority of the site is the Pennine Lower Coal Measures Formation comprising sandstone. Underlying the superficial deposits in the north-west corner is the Pennine Middle Coal Measures Formation comprising mudstone, siltstone and sandstone in the east of the site. The superficial Glaciofluvial Deposits, Devensian and Till, Devensian have been classified by the Environment Agency (EA) as Secondary A Aquifers. These are layers of rock or drift deposits that may be capable of supporting a local water supply and may aid river flow, these were formally designated as minor aquifers. The underlying Pennine Lower Coal Measures Formation and Pennine

	Middle Coal Measures Formation have been classified as Secondary A Aquifers.
<p>Pollution history including:</p> <ul style="list-style-type: none"> • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures 	<p>There have been no (zero) pollution incidences related to land at EMR Darlaston – Fridge Destruction facility since the issue of the IED permit on 24/02/2017.</p>
<p>Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)</p>	<p>In the context of assessing the reported soil contamination within a conceptual site model (source-pathway-receptor), the presence of concrete paving across the fridge recycling area and vast majority of the EMR Darlaston site breaks the contaminant linkage between the underlying soil and onsite human receptors. The soil contamination identified during the ground investigation would therefore be considered insignificant.</p> <p>When considering the continued commercial end use of the site, the industrial setting of the site, and the site's distance from the nearest surface water receptor, the marginal EQS and DWS exceedances and the reported groundwater concentrations of the organic and inorganic determinands would not be considered significant.</p> <p>The ground gas monitoring undertaken to date has not identified any significant levels of methane or carbon dioxide to be present. However, it should be noted that only one monitoring event has currently been undertaken.</p>
<p>Baseline soil and groundwater reference data</p>	<p>A previous investigation of the ground at Bentley Road South, specific to the fridge destruction permit was completed in October 2017.</p> <p>The investigation addressed condition 3.5.5 of IED permit (EPR/GP3292FT), which states: <i>'Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on the systematic appraisal of the risk of contamination'</i>.</p>
<p>Supporting information</p>	<ul style="list-style-type: none"> • Source information identifying environmental setting and pollution incidents • Historical Ordnance Survey plans • Site reconnaissance • Historical investigation / assessment / remediation / verification reports • Baseline soil and groundwater reference data

3.0 Permitted activities	
Permitted activities	Metal recycling and fridge destruction, as confirmed through EPR/GP3292FT/V009

Non-permitted activities undertaken	N/A
Document references for: <ul style="list-style-type: none"> • plan showing activity layout; and • environmental risk assessment. 	European Metal Recycling, EMR Darlaston Environmental Management Plan, May 2023 Rev 1 and European Metal Recycling, EMR Darlaston Environmental Risk Assessment, May 2023 Rev 1

Note:

In Part B of the application form you must tell us about the activities that you will undertake at the site. You must also give us an environmental risk assessment. This risk assessment must be based on our guidance (*Environmental Risk Assessment - EPR H1*) or use an equivalent approach.

It is essential that you identify in your environmental risk assessment all the substances used and produced that could pollute the soil or groundwater if there were an accident, or if measures to protect land fail.

These include substances that would be classified as 'dangerous' under the Control of Major Accident Hazards (COMAH) regulations and also raw materials, fuels, intermediates, products, wastes and effluents.

If your submitted environmental risk assessment does not adequately address the risks to soil and groundwater we may need to request further information from you or even refuse your permit application.

4.0 Changes to the activity	
Have there been any changes to the activity boundary?	Yes, there is a slight change to the site boundary, located within the north of the site plan, towards the 'lorry park'. This land is currently permitted under EPR/LP3492FA Site Plans have been included (129-001790-02 Site Plan)
Have there been any changes to the permitted activities?	There are no changes to the permitted activities. The application involves the processing and destruction of WTEE as per EPR/GP3292FT
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	None
Checklist of supporting information	<ul style="list-style-type: none"> • Plan showing any changes to the boundary (where relevant) • Description of the changes to the permitted activities (where relevant) • List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant)

5.0 Measures taken to protect land	
<p>Surveys of the ground were completed in 2017, at both the fridge destruction plant and the ferrous yard, both sites cover the entire land permitted at EMR Bentley Road South. The findings of these reports both identify that no adverse impact on the land quality has occurred at either location during operations of permitted activities.</p> <p>The ground is of sound condition, with no major cracks or disruption at the surface. The small area of land being incorporated into the fridge destruction permit variation has never been used to store and/or treat waste materials, therefore it is unlikely that the ground in this area has deteriorated since the operations began.</p>	
Checklist of supporting information	<ul style="list-style-type: none"> • Inspection records and summary of findings of inspections for all pollution prevention measures • Records of maintenance, repair and replacement of pollution prevention measures

6.0 Pollution incidents that may have had an impact on land, and their remediation	
There have been no (zero) pollution incidences related to land at EMR Darlaston – Fridge Destruction facility since the issue of the IED permit on 24/02/2017.	
Checklist of supporting information	<ul style="list-style-type: none"> • Records of pollution incidents that may have impacted on land • Records of their investigation and remediation

7.0 Soil gas and water quality monitoring (where undertaken)

A ground water monitoring report was recently completed (April 2023), as required by condition 3.5.5 of the environmental permit. The results from the chemical analysis for the groundwater samples have been compared against the environmental quality standards (EQSs). Where an EQS limit is not available, the results have been compared to other water quality standards, including the UK drinking water standards (UK DWSs) or the World Health Organisation (WHO) guideline values for drinking water.

The results of the ground water monitoring were compared to a previous study completed in 2017. In total, 5 key parameters were highlighted as having increased since the 2017 data. Boron (dissolved), chromium (dissolved), manganese (dissolved), nickel (dissolved) and chemical oxygen demand (COD) all reported concentrations higher than the 2017 dataset. However, these reported concentrations are unlikely to be considered significant. The phosphate, sulphide, dissolved cadmium and total phenols reported concentrations that were also higher but the reported concentrations were below the relevant limit of detection.

In comparison to previous groundwater analyses completed in 2017, the quality of the water has not deteriorated significantly and it can be assumed that there has been little impact to the local groundwater as a result of the activities on site.

Checklist of supporting information	<ul style="list-style-type: none">• 129-002635-02 Darlaston IED Groundwater monitoring report
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8.0 Decommissioning and removal of pollution risk

Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.

Checklist of supporting information	<ul style="list-style-type: none">• Site closure plan• List of potential sources of pollution risk• Investigation and remediation reports (where relevant)
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9.0 Reference data and remediation (where relevant)

Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not deteriorated.

If you did collect land and/or groundwater reference data, summarise what this entailed, and what your data found. Say whether the data shows that the condition of the land has deteriorated, or whether the land at the site is in a "satisfactory state". If it isn't, summarise what you did to remedy this. Confirm that the land is now in a "satisfactory state" at surrender.

Checklist of supporting information	<ul style="list-style-type: none">• Land and/or groundwater data collected at application (if collected)• Land and/or groundwater data collected at surrender (where needed)• Assessment of satisfactory state• Remediation and verification reports (where undertaken)
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10.0 Statement of site condition

Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that:

- the permitted activities have stopped
- decommissioning is complete, and the pollution risk has been removed
- the land is in a satisfactory condition.



EMR Darlaston, Bentley Road South, Walsall, WS10 8LW

IED Groundwater Monitoring Assessment Report

Report Reference: 129-002365-02

April 2023

Report for:
EMR



REPORT & VERSION CONTROL

Report Reference: 129-002365-02		Dated: March 2023
Prepared	Checked (Project Manager)	Authorised
Callum Sutcliffe Environmental Consultant BSc (Hons)	Rebecca Beddard Senior Environmental Consultant MIEnvSc, BSc (Hons)	David Pocklington Senior Environmental Consultant MCIWM, CEnv, BSc (Hons), BA (Hons)
Issued to	EMR	

Revision	Type	Section Changed	Comment
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1 INTRODUCTION

Mayer Environmental Ltd (MEL) was commissioned by European Metal Recycling Ltd (EMR) to undertake groundwater monitoring at the permitted metal recycling facility (the subject site) located at EMR Darlaston, Bentley Road South, Walsall, WS10 8LW. Authorisation to undertake the works was provided by EMR.

2 PURPOSE

The purpose of the monitoring was to provide an assessment of the groundwater conditions of the subject site and provide a comparison of the current groundwater conditions against previous conditions. The assessment addresses condition 3.5.5 of the IED permit (EPR/GP3292FT), which states:

'Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on the systematic appraisal of the risk of contamination'.

3 SCOPE

This report presents our observations and results relating to the groundwater monitoring. The scope of works was agreed with EMR prior to the monitoring being carried out.

On any site, and in particular on sites of potentially contaminative previous uses, ground conditions can change rapidly over short distances and there may be differences in ground conditions between exploratory positions. No responsibility can therefore be accepted for groundwater conditions that have not been revealed by the monitoring. Some degree of uncertainty will always exist.

No warranty is offered to any third party and no responsibility or liability will be accepted for any loss or damage in the event that this report is relied upon, either in its entirety or in part, by a third party or used in circumstances for which it was not originally intended. This report shall not be transferred to or relied upon by any other party without express written permission of MEL.

4 THE SITE

4.1 Site Description

The site is roughly cuboid in shape and is approximately 2.2 hectares.

The site is currently used as a fridge destruction and metal recycling facility, authorised by Environmental Permit EPR/GP3292FT. The site comprises a part of the larger EMR Darlaston site.

4.2 Site Location and Setting

The subject site is located within the IED permitted central, eastern and southern areas of the EMR Darlaston site. The subject site is bounded in the south and east by Walsall Canal, beyond which are industrial works. The west is bounded by the EMR Darlaston site including stockpiles of metal, site office, welfare facilities and weighbridges, beyond which is Bentley Road South. The north is bounded by the EMR Darlaston site including the steels division storage shed and lorry park, beyond which are industrial works. The National Grid Reference for the site is 398357, 297691.

A location plan with a red line boundary of the subject site is included in Appendix A.

5 ENVIRONMENTAL SETTING

5.1 Geology

Geological records (British Geological Survey (BGS), Geology of Britain Viewer 1:50 000) indicate that the majority of the site overlies superficial deposits of Till, Devensian comprising of diamicton (poorly sorted unconsolidated sediment). The south-west corner of the site overlies superficial Glaciofluvial Deposits, Devensian comprising sand and gravel. Underlying the superficial deposits across the majority of the site is the Pennine Lower Coal Measures Formation comprising sandstone. Underlying the superficial deposits in the north-west corner is the Pennine Middle Coal Measures Formation comprising mudstone, siltstone and sandstone in the east of the site.

5.2 Groundwater Vulnerability

The superficial Glaciofluvial Deposits and Till have been classified by the Environment Agency (EA) as Secondary A Aquifers. These are layers of rock or drift deposits that may be capable of supporting a local water supply and may aid river flow, these were formally designated as minor aquifers. The underlying Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation have been classified as Secondary A Aquifers.

In the assessment of groundwater vulnerability, a number of factors need to be taken into account. These include geology, hydrogeology and soil type. Details on the assessment of groundwater vulnerability are provided in Appendix C.

By way of illustration, groundwater vulnerability (to pollution from point or diffuse sources) would be high where a major aquifer lies below permeable soils with a high leaching potential and geology with little ability to restrict or attenuate contaminant migration. Conversely groundwater vulnerability would be low in regions where no aquifer exists or where an aquifer is protected by overlying impermeable geological strata or soils of low leaching potential.

The subject site overlies variably permeable glaciofluvial and till deposits, overlying permeable coal measure formations.

RISK RATING	
Groundwater Vulnerability	Moderate

6 PREVIOUS INVESTIGATION

The groundwater wells that have been monitored within this phase of works were installed as part of a baseline environmental assessment of existing ground conditions with respect to the fridge destruction and metal recycling facility becoming an installation as defined by the Industrial Emissions Directive (ID). The assessment was undertaken by MEL in August 2017 when a ground investigation was undertaken comprising of the drilling of three cable percussive boreholes, referenced BH101_IED and BH102_IED and BH103_IED. Both boreholes BH101_IED and BH103_IED were installed with groundwater monitoring wells. BH102_IED was ended at a depth of 1.4m due to a suspected impenetrable boulder being encountered during the dig meaning a groundwater monitoring well was not placed.

The borehole logs from this investigation are included in Appendix D for reference.

6.1 Ground Conditions Encountered - 2017

Made Ground was encountered at all three locations between depths of 0.5m bgl and 5.0m bgl. The concrete slab was laid upon plastic sheeting/membrane at all three locations. There were occasional observations of glass in the made ground in BH101_IED with an organic odour also noted in the vicinity of BH101_IED during drilling.

Groundwater was encountered at BH101_IED at a depth of 2.91m bgl. Groundwater was not encountered at either BH102_IED or BH103_IED.

7 METHOD OF GROUNDWATER MONITORING

MEL undertook the groundwater monitoring on the 16th February 2023. The locations sampled were determined by the previous investigation in 2017. A map of the locations from this investigation can be found in Appendix A. BH101_IED was the only location that could still be accessed for groundwater monitoring as BH102_IED did not have a monitoring well installed in 2017 and BH103_IED could not be located due to the volume of fridges within the fridge storage area.

The borehole was purged to extract at least 3 times the well volume before collecting water samples from the borehole for chemical analysis. Groundwater was encountered in BH101_IED at

2.4m bgl. The borehole was purged using a fixed volume purging method in order to ensure the groundwater sample was representative of the underlying aquifer. To calculate the correct volume to purge, the below calculation was used:

$$\text{Volume of Standing Water Column (m}^3\text{)} = [3.14 \times (d)^2 \times h] / 4$$

d = standpipe internal diameter (m)

h = height of standing water column in borehole standpipe (m)

Due to the steel protective lid being removed from the borehole there was some interference with the standpipe which meant an inertial pump was used with a 16mm diameter and a maximum flow rate of 2 litres per minute. The standpipe internal diameter was 50mm and the height of standing water column in the borehole was 5.5m.

The target purge volume is typically stated as 3 times the well volume: -

$$\text{Volume of Standing Water Column (m}^3\text{)} \times 3 = \text{Target Purge Volume (m}^3\text{)}$$

Following the above calculations the total volume of water that was purged from BH101_IED was 0.0324m³ or 32.4 litres.

The water purged from BH101_IED was generally noted to have a high proportion of sediment and brown in colour. No sheen or hydrocarbon odour were noted. A photo of the purged water can be found in Appendix B.

7.1 Scheduled Chemical Analysis

The groundwater sample collected from BH101_IED was submitted for a general water quality suite (WQ1), TPH/CWG, SVOCs, VOCs and PCBs (EC7). The WQ1 suite includes pH, electrical conductivity, dissolved metals (arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium and zinc), sulphide, sulphate, total phenols, total cyanide, nitrate, phosphate, COD, and alkalinity.

8 RESULTS OF WATER ANALYSIS

Water chemical analysis results are included in Appendix E. The groundwater sampling was conducted on the 16th February 2023.

8.1 Groundwater quality assessment

The results from the chemical analysis for the groundwater samples have been compared against the environmental quality standards (EQSs). Where an EQS limit is not available the results have been compared to other water quality standards, including the UK drinking water standards (IUK DWSs) or the World Health Organisation (WHO) guideline values for drinking water.

8.2 Inorganic Determinands

Of the inorganic determinands, only Boron and sulphate were reported at concentrations in excess of their respective EQS or UK DWS (where an EQS is unavailable).

Table 1: Inorganic determinands in excess of their adopted water quality standards.

Parameter	Borehole	Sample Date	Concentration (mg/l)	EQS Freshwater/ UK DWS (mg/l)
Boron	BH101_IED	16.02.2023	1.2	1.0
Sulphate	BH101_IED	16.02.2023	520	250

8.3 Organic Determinands

All of the organic compounds analysed were reported below the limit of detection and are therefore unlikely to be considered significant with regard to a commercial end use.

8.4 Comparison of groundwater data

In order to see whether the quality of the groundwater conditions have deteriorated over the past 6 years a comparison of the groundwater data for key parameters from BH101_IED in the 2017 investigation and BH101_IED in the 2023 investigation have been compared. This comparison can be seen in Table 2.

Parameter	2017 groundwater data	2023 groundwater data	Difference
Ammonia	1.124	<0.05	Lower
Phosphate	0.03	<0.2	Note that LOD in 2023 is higher than 2017
Sulphate	830	520	Lower
Sulphide	<0.005	<0.05	Both values below limit of detection
Arsenic (Dissolved)	0.0022	0.0018	Lower
Boron (Dissolved)	0.58	1.2	Higher
Cadmium (Dissolved)	<0.00002	<0.00011	Both values below limit of detection
Chromium (Dissolved)	<0.0002	0.0043	Higher
Copper (Dissolved)	0.0076	0.0061	Lower
Iron (Dissolved)	0.17	0.018	Lower
Mercury (Dissolved)	0.0001	<0.00005	Lower
Manganese (Dissolved)	0.0079	0.093	Higher
Nickel (Dissolved)	0.0026	0.0044	Higher
Lead (Dissolved)	0.0059	0.005	Lower
Selenium (Dissolved)	0.0039	0.0011	Lower
Zinc (Dissolved)	0.010	0.0076	Lower
Total TPH	120	<0.01	Lower
Total PAHs	91.3	<0.002	Lower
Chemical Oxygen Demand (mg O ₂ /l)	19	24	Higher
Total PCBs	<0.00014	<0.00001	Both values below limit of detection
Total Phenols	<0.01	<0.03	Both values below limit of detection

Table 2: Comparison of the groundwater data from 2017 to 2023. Data in mg/l unless otherwise stated.

When comparing the two datasets, 5 key parameters were highlighted as having increased since the 2017 data. Boron (dissolved), chromium (dissolved), manganese (dissolved), nickel (dissolved) and chemical oxygen demand (COD) all reported concentrations higher than the 2017 dataset. However, these reported concentrations are unlikely to be considered significant. The phosphate, sulphide, dissolved cadmium and total phenols reported concentrations that were also higher but the reported concentrations were below the relevant limit of detection.

9 SUMMARY

When considering the marginal EQSs and DWSs exceedances and the industrial setting of the site, the reported groundwater concentrations of the organic and inorganic determinands would not be considered significant when considering a continued commercial end use of the site.

In comparison to previous groundwater analyses done from BH101_IED in 2017 the quality of the water has not deteriorated significantly and it can be assumed that there has been little impact to the local groundwater as a result of the activities on site.

We trust this information meets your requirements. Please contact us if you need any further clarification on any of the matters raised.

Yours sincerely,

Handwritten signature of Callum Sutcliffe in black ink.

Callum Sutcliffe

Environmental Consultant

Handwritten signature of Rebecca Beddard in black ink.

Rebecca Beddard

Senior Environmental Consultant

Mayer Environmental Ltd

Appendix A




Site Plans

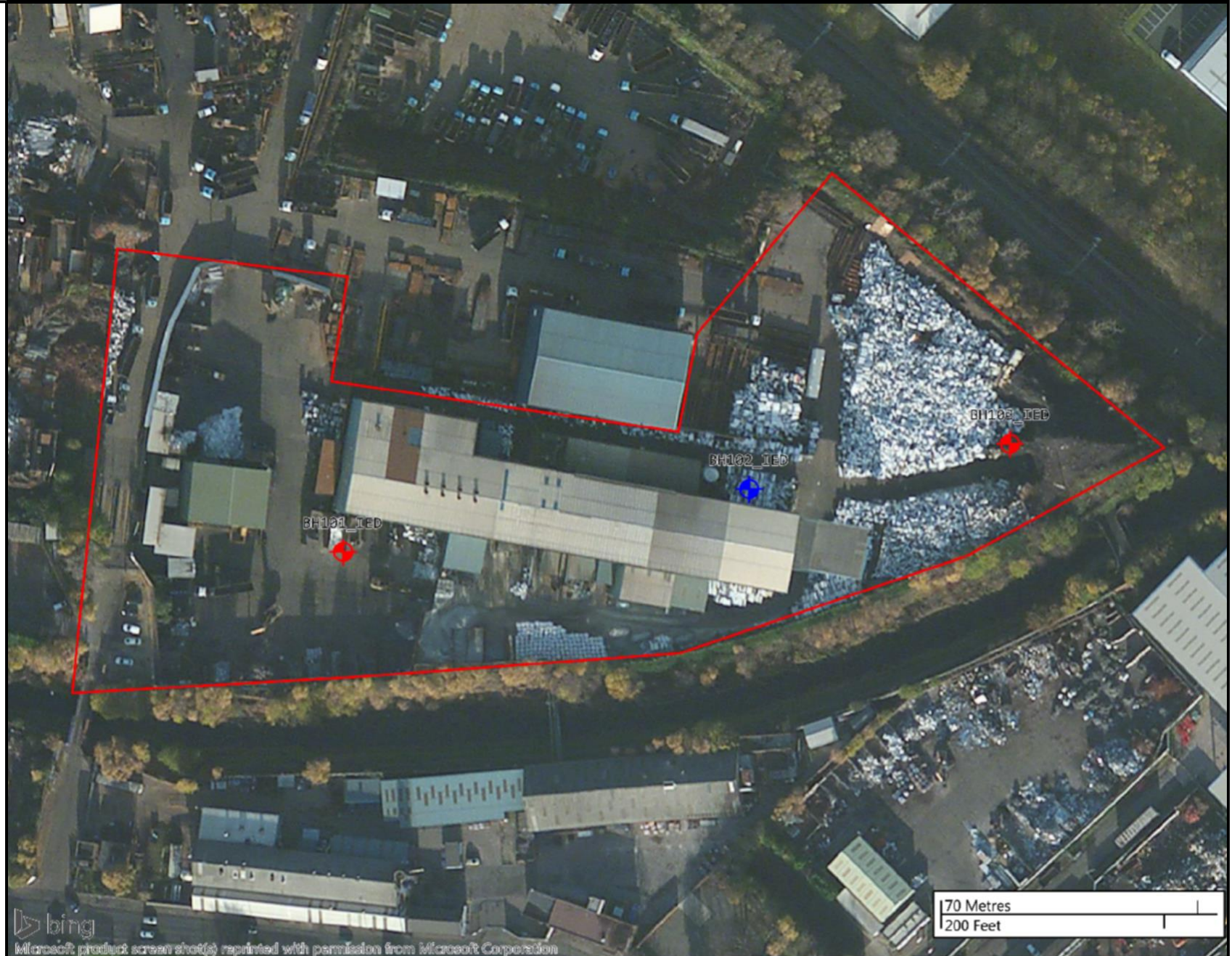
Project ID: 129-002365-02
Location: European Metal Recycling Ltd, Darlaston, Walsall, WS10 8LW
Project Title: Darlaston Groundwater Monitoring
Client: EMR Ltd

Title: Site Plan
Scale: 1:1500
Consultant: Callum Sutcliffe
Contractor: Mayer Environmental Ltd



Legend Key

-  Locations By Type - BH
-  Locations By Type - BH (Installed)
-  Project Bounds - Project Bounds



Appendix B
Site Photographs



Photograph 1: Location of BH101



Photograph 2: Photo of BH101 with no steel protective lid



Photograph 3: Photo of the purged water from BH101



Photograph 4: Photo of the sampled water from BH101 inside the sampling containers

Appendix C

Background to Water Sensitivity Assessment

Annex 2 of R&D 66 (NHBC) – Site sensitivity assessment for the water environment

(A) Groundwater:

Sensitivity assessment	Standard response	Implications/need for further work <i>(subject to nature of source and pathway)</i>
H1 (Very high)	Highly vulnerable aquifer, actively used in vicinity of site with short travel times to sources of supply or sensitive watercourses. Likely to be within an inner or outer groundwater protection zone (Zones I or II under EA protection policy). All contaminant releases to the ground environment of concern.	Extensive groundwater and soil clean-up or removal is likely to be needed if a source and pathway exist. Potential for major on-site and off-site liabilities. Further, detailed risk assessment essential and is likely to be required by the Regulators. Could be long-term residual liabilities with major cost implications and potential high risk of prosecution.
H2 (High)	Major or minor vulnerable aquifer with probable use nearby (either direct abstraction or baseflow to sensitive watercourses and springs). Likely to be within Outer or Source Catchment protection zones (Zones II or III). Most contaminant releases to the ground environment of concern.	Significant groundwater remediation measures may be required, after detailed risk assessment, which is likely to be required by the Regulators. Soil decontamination or isolation probably necessary. Potential for significant on-site and off-site liabilities, including treatment and/or replacement of local potable water supplies. Substantial cost implications and potential moderate/high risk of prosecution.
M1 (Moderately high)	Recognised major or minor aquifer, moderately vulnerable, with probable use (either direct or via baseflow to a sensitive watercourse). Within formal protection zone or catchment of authorised abstractions for potable or other high quality uses. Minor, short-term releases of contaminants may be tolerable.	Following risk assessment, soil decontamination or isolation may be required. Localised groundwater clean-up may be needed but large scale clean-up unlikely unless source is substantial and toxic. Possible off-site liabilities such as

		replacement/treatment of local potable water supplies. Moderate cost implications and potential moderate risk of prosecution.
M2 (Moderate)	Minor aquifer, low to moderately vulnerable, but with possible uses in general area, particularly for domestic supplies. May provide pathway to surface water.	Risk assessment may indicate need for localised clean up/isolation of soil and groundwater only, but may be some off-site liabilities e.g. local potable water supplies. Moderate to low cost implications. Potential prosecution less likely.
L1 (Low)	Permeable strata/minor aquifer near surface, but no apparent use and low vulnerability (may also be a significant aquifer but downgraded by longterm/permanent degradation of water quality). May provide pathway to surface watercourse at distance.	Localised clean-up/isolation of soil and groundwater only. Unlikely to be significant off-site liabilities or action by statutory authorities with respect to groundwater. Low cost implications.
L2 (Very low)	Not a recognised aquifer, but strata beneath site may retain a small amount of contaminated liquid but there is likely to be limited vertical penetration. High potential for surface runoff or ponding.	Clean-up/isolation of soil and contained groundwater only, in immediate vicinity of release. Unlikely to be off-site liabilities or action by statutory authorities with respect to groundwater. Low cost implications.

(B) Surface water (excluding coastal waters):

Sensitivity assessment	Standard response	Implications/need for further work <i>(subject to nature of source and pathway and no short circuiting by artificial drainage systems)</i>
H1 (Very high)	High quality watercourse (GQA A or B) within close proximity (less than 250m) of	Potential for major pollution incident with fish kills, risk to

	site or with potential for rapid transmission of pollutants to that watercourse via a fissured aquifer. Or interconnected unclassified drain or stream.	river users etc. Major cost implications for remediation measures and with respect to penalties on prosecution. Potential for major adverse publicity.
H2 (High)	Site within catchment and reasonable proximity (less than 500m) of high quality watercourse (GQA A/B) or with potential transmission of pollutants via baseflow from an aquifer with little subsurface attenuation or via an interconnected unclassified drain or stream.	Potential for significant pollution incident that requires remedial measures and likely to involve a prosecution and adverse publicity. Substantial cost implications.
M1 (Moderately high)	Site within catchment and reasonable proximity (less than 500m) of a moderate quality watercourse (GQA C/D) or 500-1000m of a high quality watercourse (GQA A/B). Also where there is potential transmission of pollutants via baseflow with little subsurface attenuation or via an interconnected unclassified drain or stream.	Potential for significant pollution incident that requires remediation measures. Possible prosecution, particularly if contamination is likely to be visible or result in public complaints.
M2 (Moderate)	Site within catchment of and relatively close (less than 1000m) to moderate or poor quality (GQA C to F) watercourse that may be subject to planned improvement by attainment of surface water quality objectives. May be potential for transmission of pollutants via baseflow from a highly permeable formation.	Minor incidents are unlikely to attract third party liabilities , but action by statutory authorities likely if contamination is visible or repeated.
L1 (Low)	Within catchment of and over 250m from generally poor quality watercourse (GQA E or F) that is unlikely to improved by current or foreseeable surface water quality objectives or at distance (over 1000m) from a good quality watercourse with no interconnecting drains or baseflow from fissured strata.	Unlikely to be third party liabilities or action from statutory authorities from surface water viewpoint.
L2 (Very low)	No surface water within general area of the site (at least 250m) or closed drainage within site. Little or no potential for	Liabilities restricted to site itself (localised soil contamination or ponding) or associated with

	significant transmission via baseflow and no interconnecting drains.	groundwater.
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(C) Coastal waters:

Sensitivity assessment	Standard response	Implications/need for further work <i>(subject to nature of source and pathway and no short circuiting by artificial drainage systems)</i>
H1 (Very high)	Within 100m of a sensitive coastal water, that is, a recognised bathing water, a “more sensitive area” (as defined under the Urban Wastewater Treatment Directive) or a marine SSSI or at a greater distance but with a direct connection via a stream or a highly fissured aquifer to such a coastal water with the potential for rapid flow to that water.	Potential for major environmental health risks and ecological damage. Probability of high remedial costs, prosecution and adverse publicity.
H2 (High)	As above, within 250m or with a relatively rapid route of transmission or within 100m of a “less sensitive area”.	
M1 (Moderately high)	Within 500m of a bathing water or a defined sensitive area (see above); with possibility of diffuse flow via groundwater seepages at coastline or with connection via nearby watercourses.	LESS DATA AVAILABLE FOR COASTAL SITES TO GIVE GENERALISED ASSESSMENTS OF POTENTIAL LIABILITIES.
M2 (Moderate)	Within 500m of a coastal water (undefined), with possibility of diffuse flow via groundwater seepages at coastline or with connection via nearby watercourses.	
L1 (Low)	No coastline nearby (within 1km), but with possibility of diffuse groundwater seepages at coastline or connection via nearby watercourses.	Liabilities initially associated with watercourses or groundwaters.
L2 (Very low)	No coastline nearby (within 1km) and/or no direct connection via surface or ground water.	No liabilities likely.

Appendix D
Borehole logs



Borehole Log

Project Name: Daralston Baseline - IED	Project No. 72670.017	Co-ords: 398288.04 - 297684.03	Hole Type BH (Installed)
Location: Darlaston, Walsall		Level: 240.31	Scale 1:50
Client: EMR Ltd		Dates: 09/08/2017 - 09/08/2017	Logged By J.C.

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50 - 0.80	ES		0.50	239.80		Strong light grey CONCRETE. 60-70% subangular to angular aggregate. Contains rebar. Plastic sheeting/membrane noted at 0.25m bgl.
					0.80	239.50		Dark brown SAND and GRAVEL. Sand is medium to coarse. Gravel is fine to coarse subrounded to subangular of concrete. Contains three cobbles of concrete (~10cm diameter). (MADE GROUND)
		2.00 - 2.30	ES		2.00	238.30		Dark brown very gravelly medium to coarse SAND. Gravel is fine to coarse subrounded to subangular of concrete. Contains occasional fragments of metal (~5cm in diameter) and five cobbles of concrete (~10cm diameter). (MADE GROUND)
								<i>Large concrete cobble noted at 0.8-0.9m bgl.</i>
					3.00	237.30		Dark brown and blueish grey slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium subrounded to subangular of concrete. Contains occasional fragments of metal (~5-8 cm in diameter). (MADE GROUND)
					4.00	236.30		Fine to coarse subangular concrete GRAVEL. (MADE GROUND)
		5.00 - 5.30	ES		5.00	235.30		Soft brown slightly gravelly silty CLAY. Gravel is fine to medium subangular of mudstone. (TILL)
					5.80	234.50		Soft brown silty CLAY. Contains occasional fine subangular gravel of mudstone. (TILL)
		6.50 - 7.00	ES		6.50	233.80		Soft light grey slightly sandy SILT. Sand is coarse of mudstone. Contains rare subangular gravel of weak mudstone. (TILL)
					7.50	232.80		End of borehole at 7.50 m

Remarks
Groundwater not encountered.
Location surveyed with MobileMapper 50.






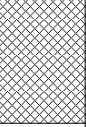
Mayer Environmental Ltd
 Transport Avenue
 Brentford
 TW8 9HA
 www.mayer-enviro.com

Borehole Log

Borehole No.
BH102_IED

Sheet 1 of 1

Project Name: Daralston Baseline - IED	Project No. 72670.017	Co-ords: 398399.56 - 297701.18	Hole Type BH
Location: Darlaston, Walsall		Level: 240.60	Scale 1:50
Client: EMR Ltd		Dates: 09/08/2017 - 09/08/2017	Logged By J.W.

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.21 - 1.40	ES		0.21	240.39	 Strong light grey CONCRETE. 60-70% subangular to angular aggregate. Contains rebar. Concrete slab laid upon plastic sheeting/membrane.	
					1.40	239.20	 Dark brown very gravelly medium to coarse SAND. Gravel is fine to coarse subrounded to subangular. Contains rare cobbles. (MADE GROUND)	
----- End of borehole at 1.40 m -----								



Remarks
 Refused on impenetrable boulder at 1.4m bgl.
 Groundwater not encountered.
 Location surveyed with MobileMapper 50.





Borehole Log

Project Name: Daralston Baseline - IED	Project No. 72670.017	Co-ords: 398471.29 - 297713.52	Hole Type BH (Installed)
Location: Darlaston, Walsall		Level: 230.10	Scale 1:50
Client: EMR Ltd		Dates: 09/08/2017 - 09/08/2017	Logged By J.W.

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15			0.15	229.95		Strong light grey CONCRETE. 60-70% subangular to angular aggregate. Contains rebar. Concrete slab laid upon plastic sheeting/membrane.
		0.50	ES					Blackish dark brown sandy fine to coarse subrounded to subangular GRAVEL. Sand is medium to coarse. Contains rare cobbles and five gravel sized fragments of red brick. (MADE GROUND). <i>Minimal recovery between 0.15-3.5m bgl</i>
		2.00	ES					
		3.50			3.50	226.60		Yellowish light brown slightly sandy fine to coarse angular shale GRAVEL. Contains rare coarse gravel of aggregate and pockets of coarse sand. (TILL)
		5.00	ES		5.00	225.10		End of borehole at 5.00 m

Remarks
 Refused on impenetrable sandstone at 5m bgl.
 Groundwater not encountered.
 Location surveyed with MobileMapper 50.



Appendix E

Laboratory Certificate of Analysis

Results - Water

Project: 129-002365-02 EMR Darlaston Groundwater Monitoring

Client: Mayer Environmental Ltd	Chemtest Job No.:				23-05873
Quotation No.: Q22-29316	Chemtest Sample ID.:				1594079
Order No.: 129004828	Client Sample Ref.:				Darlaston Groundwater
	Sample Location:				BH01_IED
	Sample Type:				WATER
	Date Sampled:				16-Feb-2023
Determinand	Accred.	SOP	Units	LOD	
pH	U	1010		N/A	8.1
Electrical Conductivity	U	1020	µS/cm	1.0	1700
Chemical Oxygen Demand	U	1100	mg O2/l	10	[B] 24
Alkalinity (Total)	U	1220	mg/l	10	210
Ammonia (Free)	N	1220	mg/l	0.050	< 0.050
Nitrate as NO3	U	1220	mg/l	0.50	< 0.50
Phosphate	U	1220	mg/l	0.200	< 0.20
Sulphate	U	1220	mg/l	1.0	520
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050
Sulphide	U	1325	mg/l	0.050	[B] < 0.050
Arsenic (Dissolved)	U	1455	µg/l	0.20	1.8
Boron (Dissolved)	U	1455	µg/l	10.0	1200
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11
Chromium (Dissolved)	U	1455	µg/l	0.50	4.3
Copper (Dissolved)	U	1455	µg/l	0.50	6.1
Iron (Dissolved)	N	1455	µg/l	5.0	18
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05
Manganese (Dissolved)	U	1455	µg/l	0.50	93
Nickel (Dissolved)	U	1455	µg/l	0.50	4.4
Lead (Dissolved)	U	1455	µg/l	0.50	5.0
Selenium (Dissolved)	U	1455	µg/l	0.50	1.1
Zinc (Dissolved)	U	1455	µg/l	2.5	7.6
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10

Results - Water

Project: 129-002365-02 EMR Darlaston Groundwater Monitoring

Client: Mayer Environmental Ltd		Chemtest Job No.:		23-05873	
Quotation No.: Q22-29316		Chemtest Sample ID.:		1594079	
Order No.: 129004828		Client Sample Ref.:		Darlaston Groundwater	
		Sample Location:		BH01_IED	
		Sample Type:		WATER	
		Date Sampled:		16-Feb-2023	
Determinand	Accred.	SOP	Units	LOD	
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10
Dichlorodifluoromethane	U	1760	µg/l	1.0	[C] < 1.0
Chloromethane	U	1760	µg/l	1.0	[C] < 1.0
Vinyl Chloride	N	1760	µg/l	1.0	[C] < 1.0
Bromomethane	U	1760	µg/l	5	[C] < 5
Chloroethane	U	1760	µg/l	2.0	[C] < 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	[C] < 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	[C] < 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	[C] < 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	[C] < 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	[C] < 1.0
Bromochloromethane	U	1760	µg/l	5	[C] < 5
Trichloromethane	U	1760	µg/l	1.0	[C] < 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	[C] < 1.0
Tetrachloromethane	U	1760	µg/l	1.0	[C] < 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	[C] < 1.0
Benzene	U	1760	µg/l	1.0	[C] < 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	[C] < 2.0
Trichloroethene	N	1760	µg/l	1.0	[C] < 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	[C] < 1.0
Dibromomethane	U	1760	µg/l	10	[C] < 10
Bromodichloromethane	U	1760	µg/l	5	[C] < 5
cis-1,3-Dichloropropene	N	1760	µg/l	10	[C] < 10
Toluene	U	1760	µg/l	1.0	[C] < 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	[C] < 10
1,1,2-Trichloroethane	U	1760	µg/l	10	[C] < 10
Tetrachloroethene	U	1760	µg/l	1.0	[C] < 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	[C] < 2.0
Dibromochloromethane	U	1760	µg/l	10	[C] < 10
1,2-Dibromoethane	U	1760	µg/l	5	[C] < 5
Chlorobenzene	N	1760	µg/l	1.0	[C] < 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	[C] < 2.0
Ethylbenzene	U	1760	µg/l	1.0	[C] < 1.0
m & p-Xylene	U	1760	µg/l	1.0	[C] < 1.0
o-Xylene	U	1760	µg/l	1.0	[C] < 1.0
Styrene	U	1760	µg/l	1.0	[C] < 1.0

Results - Water

Project: 129-002365-02 EMR Darlaston Groundwater Monitoring

Client: Mayer Environmental Ltd		Chemtest Job No.:			23-05873
Quotation No.: Q22-29316		Chemtest Sample ID.:			1594079
Order No.: 129004828		Client Sample Ref.:			Darlaston Groundwater
		Sample Location:			BH01_IED
		Sample Type:			WATER
		Date Sampled:			16-Feb-2023
Determinand	Accred.	SOP	Units	LOD	
Tribromomethane	U	1760	µg/l	1.0	[C] < 1.0
Isopropylbenzene	U	1760	µg/l	1.0	[C] < 1.0
Bromobenzene	U	1760	µg/l	1.0	[C] < 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	[C] < 50
N-Propylbenzene	U	1760	µg/l	1.0	[C] < 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	[C] < 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	[C] < 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	[C] < 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	[C] < 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	[C] < 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	[C] < 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	[C] < 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	[C] < 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	[C] < 1.0
N-Butylbenzene	U	1760	µg/l	1.0	[C] < 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	[C] < 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	[C] < 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	[C] < 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	[C] < 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	[C] < 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	[C] < 1.0
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
1,2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50
Hexachloroethane	N	1790	µg/l	0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50
4-Methylphenol	N	1790	µg/l	0.50	< 0.50
Nitrobenzene	N	1790	µg/l	0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50
2-Nitrophenol	N	1790	µg/l	0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50

Results - Water

Project: 129-002365-02 EMR Darlaston Groundwater Monitoring

Client: Mayer Environmental Ltd		Chemtest Job No.:			23-05873
Quotation No.: Q22-29316		Chemtest Sample ID.:			1594079
Order No.: 129004828		Client Sample Ref.:			Darlaston Groundwater
		Sample Location:			BH01_IED
		Sample Type:			WATER
		Date Sampled:			16-Feb-2023
Determinand	Accred.	SOP	Units	LOD	
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	< 0.50
4-Chloroaniline	N	1790	µg/l	0.50	< 0.50
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	µg/l	0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	µg/l	0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50
Acenaphthene	N	1790	µg/l	0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50
2,4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50

Results - Water

Project: 129-002365-02 EMR Darlaston Groundwater Monitoring

Client: Mayer Environmental Ltd		Chemtest Job No.:			23-05873
Quotation No.: Q22-29316		Chemtest Sample ID.:			1594079
Order No.: 129004828		Client Sample Ref.:			Darlaston Groundwater
		Sample Location:			BH01_IED
		Sample Type:			WATER
		Date Sampled:			16-Feb-2023
Determinand	Accred.	SOP	Units	LOD	
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50
Naphthalene	U	1800	µg/l	0.10	< 0.10
Acenaphthylene	U	1800	µg/l	0.10	< 0.10
Acenaphthene	U	1800	µg/l	0.10	< 0.10
Fluorene	U	1800	µg/l	0.10	< 0.10
Phenanthrene	U	1800	µg/l	0.10	< 0.10
Anthracene	U	1800	µg/l	0.10	< 0.10
Fluoranthene	U	1800	µg/l	0.10	< 0.10
Pyrene	U	1800	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1800	µg/l	0.10	< 0.10
Chrysene	U	1800	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1800	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1800	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1800	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1800	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1800	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1800	µg/l	0.10	< 0.10
Total Of 16 PAH's	U	1800	µg/l	2.0	< 2.0
PCB 28	N	1815	µg/l	0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010
Total Phenols	U	1920	mg/l	0.030	< 0.030

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1594079	Darlaston Groundwater		BH01_IED	16-Feb-2023	BC	Coloured Winchester 1000ml
1594079	Darlaston Groundwater		BH01_IED	16-Feb-2023	BC	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1100	Chemical Oxygen Demand	Chemical Oxygen demand (COD)	Dichromate oxidation of organic matter in sample followed by colorimetric determination of residual Cr[VI].
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N-dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5-C6, >C6-C8, >C8- C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	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	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

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 30 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