

OUR REF: A4908/22 31<sup>st</sup> March 2023

YOUR REF:

31<sup>st</sup> March 2023

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**By Email ([rebecca.nedeljkovic@stockport.gov.uk](mailto:rebecca.nedeljkovic@stockport.gov.uk))**

Dear Rebecca,

**Buckingham Road, Heaton Moor**  
**Letter Report**

**Background and Terms of Reference**

This report provides a summary of the chemical analysis of the sub-base material below the existing derelict all-weather pitch at Peel Moat Public Open Space, off Buckingham Road, Heaton Moor.

It is understood that the client wished to test if this material is potentially hazardous.

The proposed end use of the site is to be public open space.

**Scope of Work**

A site visit was conducted on the 15<sup>th</sup> of March 2023 in order to take samples of the existing rubber sub-base below the turf of the all-weather pitch, for laboratory chemical testing, for the purpose of off-site disposal.

Chemical testing has been performed by DETs a MCERTS accredited laboratory. Appendix A provides a copy of the testing results.

Sample locations for the stockpile samples are shown in Figure 1 overleaf.

**Soil Horizons**

During the site visit the ground encountered comprised 50mm of old, all-weather turf, overlying 100mm of compacted rubber chippings, overlying compacted, grey sandy GRAVEL of concrete and limestone. For the purpose of this exercise, the thickness of the gravel material was not identified.

There was no visual and olfactory evidence of contamination during the site sampling process.

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**Figure 1: Sampling Location Plan**



Figure 2 below shows an image of the ground conditions observed during the sampling process.

**Figure 2: Observed Ground Conditions (T1)**



### **Chemical Testing**

Two samples of the rubber sub-base were obtained for chemical testing from the locations shown in Figure 1.

The samples were tested for a wide range of analytes including asbestos screen, pH, organic matter, total sulphate, sulphide, total cyanide, arsenic, chromium, hexavalent chromium, copper, lead, selenium, zinc, cadmium, mercury, nickel, vanadium, barium, beryllium, water soluble boron, phenols, speciated TPH and speciated PAH's.

At a Tier I stage the long term (chronic) human health toxicity of the soil has been assessed with reference to DEFRA/Environment Agency Contaminated Land Exposure Assessment (CLEA) Soil Guideline Values (SGV) for generic site land uses, soils, and exposure.

Where Environment Agency generic guidance is absent, reference has been made to the Chartered Institute of Environmental Health (CIEH) S4ULs for human health risk assessment.

In the case of arsenic, cadmium, hexavalent chromium, lead, benzene, naphthalene, and benzo(a)pyrene DEFRA Category 4 Screening Levels have been adopted.

The results are summarised in Table 2 overleaf and presented in full in Appendix A.

An assessment of the disposal characteristics of the soil in accordance with Environment Agency guidance WM3.1, edition of June 2018, “Guidance on the classification and assessment of waste” has been carried out on soils recovered from the site, using HazWasteOnline.

The results are summarised in Table 1 below and presented in full in Appendix B.

**Table 1: Waste Classification of Soils**

Location	Depth (m bgl)	WM3.1 Classification	Comments
T1	0.05	<b>Hazardous</b>	Elevated Zinc (Ecotoxic)
T2	0.05	<b>Hazardous</b>	Elevated TPH (Carcinogenic & Mutagenic)

The above table shows that both of the tested samples collected during this investigation have been classified as **Hazardous** in accordance with WM3.1, for the purpose of off-site removal.

**Table 2**  
**Assessment of Soil Chemical Data**

Determinand	C4SL/S4UL Levels POS Park SOM 6% (mg/kg)	T1 0.05m	T2 0.05m	No of Exceedances
<b>Metals</b>				
Arsenic	170	3	3	0
Beryllium	63	< 0.5	< 0.5	0
Boron	46000	< 1	< 1	0
Cadmium	880	1.8	0.2	0
Chromium	33000	< 2	< 2	0
Chromium VI	250	< 2	< 2	0
Copper	44000	< 4	< 4	0
Lead	1300	11	7	0
Mercury	240	< 1	< 1	0
Nickel	800	< 3	< 3	0
Selenium	1800	< 2	< 2	0
Vanadium	5000	2	2	0
Zinc	170000	3620	821	0
<b>Petroleum Hydrocarbons</b>				
Benzene	230	<0.002	<0.002	0
Toluene	100000	<0.005	<0.005	0
Ethylbenzene	27000	<0.002	<0.002	0
o-xylenes	33000	<0.002	<0.002	0
m-xylenes	32000	<0.002	<0.002	0
p-xylenes	31000	<0.002	<0.002	0
Aliphatic EC >5-6	180000	< 0.01	< 0.01	0
Aliphatic EC >6-8	320000	< 0.05	< 0.05	0
Aliphatic EC >8-10	21000	< 2	< 2	0
Aliphatic EC >10-12	24000	9	< 2	0
Aliphatic EC >12-16	26000	13	24	0
Aliphatic EC >16-21	490000	< 3	552	0
Aliphatic EC >21-35	490000	< 10	2538	0
Aromatic EC >5-7	92000	< 0.01	< 0.01	0
Aromatic EC >7-8	100000	< 0.05	< 0.05	0
Aromatic EC >8-10	9300	< 2	< 2	0
Aromatic EC >10-12	10000	< 2	< 2	0
Aromatic EC >12-16	10000	< 2	< 2	0
Aromatic EC >16-21	7800	< 3	149	0
Aromatic EC >21-35	7900	< 10	1852	0
<b>Polycyclic Aromatic Hydrocarbons</b>				
Naphthalene	3000	< 0.1	< 0.1	0
Acenaphthylene	30000	< 0.1	< 0.1	0
Acenaphthene	30000	< 0.1	< 0.1	0
Fluorene	20000	< 0.1	< 0.1	0
Phenanthrene	6300	< 0.1	< 0.1	0
Anthracene	150000	< 0.1	< 0.1	0
Fluoranthene	6400	< 0.1	< 0.1	0
Pyrene	15000	< 0.1	< 0.1	0
Benzo(a)anthracene	62	< 0.1	< 0.1	0
Chrysene	120	< 0.1	< 0.1	0
Benzo(a)pyrene	21	< 0.1	< 0.1	0
Benzo(b)fluoranthene	16	< 0.1	< 0.1	0
Benzo(k)fluoranthene	440	< 0.1	< 0.1	0
Indeno(1,2,3-cd)pyrene	180	< 0.1	< 0.1	0
Dibenz(a,h)anthracene	1.4	< 0.1	< 0.1	0
Benzo(ghi)perylene	1600	< 0.1	< 0.1	0
<b>Phenols</b>				
Phenol	1300	< 2	< 2	0

**Notes for Table 1**

All units in mg/kg.

Concentrations in **red** above assessment criteria for public open space.



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Based on the above table, none of samples tested contained concentrations of contaminants in exceedance of the screening criteria relevant to a Public Open Space Park end use.

Asbestos was not identified in any of the samples tested.

### **Conclusions & Recommendations**

The sub-base material below the existing all-weather turf has been sampled and tested. The testing identified an absence of potential contaminants of concern when compared to a Public Open Space Park assessment criteria.

However, both samples have been classified as Hazardous for the purpose of off-site disposal in accordance with the Environment Agency guidance WM3.1, due to elevated zinc (T1) and TPH (T2).

Yours sincerely,

**Adam Czarnecki**

**Director**

**For and on behalf of Earth Environmental & Geotechnical Ltd**

Appendix A    Soil Chemical Testing Results

Appendix B    Soil Waste Assessment



**APPENDIX A**

**SOIL CHEMICAL TESTING RESULTS**



**APPENDIX B**

**SOIL WASTE ASSESSMENT**