

Ref: LR/NA/4328/-300622

30 June 2022

Joshua Rowlands
Connecting Dots Group

Dear Joshua

Re: Change of Land Use at land off 204 Dantzic Street

Further to our recent correspondence we have undertaken an assessment of contaminated land issues relating to the proposed temporary change of use at land off 204 Dantzic Street, Manchester.

The site comprises a vacant former commercial plot. It is understood that a temporary change of use is proposed, for art, music and cultural events over a period of up to two years.

Previous and Further Site Investigations

The site has been subject to a recent Phase 1 Site Investigation Report by RoC Consulting in April 2022 (ref. 4328-ROC-ZZ-XX-RP-ES-PH1DTS) in relation to a potential future residential end use. Furthermore, the site has been subject to extensive previous site investigations, including:

- Previous desk study report completed by Hydrock (2015) ref: R/151819/G001
- Previous site investigation report completed by Allied Exploration and Geotechnics Ltd (2019)
- Previous site investigation report completed by LK Group (2020) ref: CL-602-LKC 20 1060-01

These investigations have been assessed as part of the Phase 1 investigation and this assessment.

Finally, it is proposed that further intrusive site investigation would be undertaken prior to the proposed future residential development of the site with regards to potential geotechnical and contaminated land risks.

While this report does not constitute a formal Phase 1 or 2 Site Investigation Report, we consider it sufficient to advise on the suitability of the temporary change of use in light of these other assessments.

While it is assumed that the site will undergo extensive clearance of waste material and hazards, this assessment regards only to risks posed by below ground contamination, such as soil and groundwater. Similarly, assessment of the safety of any retained onsite structures is beyond the scope of this assessment.

The Site

The site comprises a light industrial building with several smaller buildings, associated access roads and areas of hardstanding. The boundaries of the site are formed by Dantzic Street to the north with an area occupied by caravans beyond, the adjacent Victoria Riverside development to the west, a road and Network Rail viaduct to the south and land to the east which is used for topsoil storage.

We understand eastern and southern portions of the site were recently occupied by Farlam Waste Management Ltd a skip hire, and waste handling company. The light industrial building was operated by Astra Signs Ltd; a sign making company and is now understood to be vacant.

The topography of the site is relatively flat with levels varying between 31.20mAOD at the interface with Dantzic Street and 34.80mAOD in the southern portion of the site. It is accessed by a gate on the northern site boundary onto Dantzic Street.

Site History

At the time of the earliest available historical maps in 1813 the site was occupied by small unlabelled buildings assumed to be residential. The Victoria Screw and Bolt works was first depicted as being present in the southern portion of the site on records from 1891 and was extended to incorporate the former Victoria Paint Works in 1908 covering the entirety of the southern portion of the site. The Victoria Paint works itself is indicated as being present between 1891 and 1908. Records dated 1948 to 1952 see the building converted to the Collyhurst Foundry up until some point between 1958 to 1968 when much of the building was demolished and an Asphalt Works and Tripe Works were constructed within its general footprint.

Records from 1958 to 1989 show the construction of a light industrial / warehousing building in the eastern portion of the site which became a part of the rubber works which had previously only operated adjacent the site's western boundary. Mapping dating from 2006 indicates much of this structure to have been demolished, leaving only the present-day light industrial building and a smaller building along the northern boundary of the site (now also demolished). The light industrial building is known to have previously been occupied by Astra Signs Ltd (a sign manufacturer) and is believed to have used solvents and paints. The previous Hydrock report states that the paints used on site were water based and therefore likely had low contaminative potential.

A waste management company known as Farlam Waste Management is also known to have operated in the eastern portion of the site only having ceased operation within the past decade.

Geology

Review of BGS geological map records (Sheet 85) indicate the site is underlain by the following:

- Drift Geology: Till, Devensian – Diamicton (close to the edge of the extent of this unit, it is anticipated to be thin if present)
- Solid Geology: Chester Formation (Sandstone). This is in turn underlain by the Manchester Marls Formation (mudstone) and Collyhurst Sandstone

Based on previous site investigations and published BGS borehole data, the below ground conditions have been encountered onsite.



Table 1: Encountered Ground Conditions

Strata	Description	Depth to Base
Made Ground	Gravelly sandy SILT / Sandy clayey GRAVEL with anthropogenic inclusions including brick, concrete, wood, metal, bitumen, ash clinker, pottery and glass.	0.50mbgl to 2.50mbgl
Devensian Till	Gravelly CLAY with sand bands.	2.60mbgl to 3.50mbgl
Weathered Bedrock	Reddish brown SAND occasionally gravelly.	~7.00mbgl
Solid Bedrock - Chester Formation	Weak reddish brown fine to coarse SANDSTONE (increasingly fine grained and muddy with depth). Depth to base becomes shallower eastwards.	8.06mbgl to 14.30mbgl
Solid bedrock – Manchester Marls Formation	Extremely to very weak thinly laminated red shaley MUDSTONE completely weathered in places & Weak thinly laminated red and grey SILTSTONE.	Not proven (Max depth of terminated borehole is 30m)

Previous Contaminated Land Assessments

LK Consult undertook a Phase II Site Investigation across the site (ref. ref: CL-602-LKC 20 1060-01). The intrusive works undertaken, and ground conditions encountered have been summarised above. This section provides a summary of the findings of the investigation from a Geo-environmental perspective.

Soil and groundwater samples were taken from exploratory hole locations and installed monitoring wells. These were tested for a number of potential contaminants associated with historic activity known to have occurred on site and in the local area.

Results from chemical testing of samples indicated the following issues regarding contamination:

- Elevated levels of Heavy Metals (Lead) in soil at WS104, SP1 and SP2 (Likely associated with ash, clinker and coal noted within made ground deposits)
- Trace fragments of asbestos in soil at TP105 and SP1 (Likely associated with the demolition of historic buildings)
- Elevated levels of PAHs - Benzo(a)pyrene and Naphthalene in soil at WS102, WS103, WS105, TP103, TP105 SP1 and WS205 (Likely associated with ash, clinker and coal noted within made ground deposits)
- Elevated levels of TPH – Aliphatic C12-C16, Aromatic C8-C10 and Aromatic C10-C12 in soil at WS205 (beneath the light industrial building and likely associated with the numerous historic industrial activities in this area of the site)
- Elevated levels of VOCs/SVOCs – Benzene and Trichloroethene in made ground and superficial deposits at WS205, WS201, WS202 and WS204. PID readings in the southwest of



the site also indicate the presence of volatile contamination with readings between 4.3ppm and 207ppm (Likely associated with the historic industrial activity in this area of the site); and

- Elevated concentrations of Vinyl chloride at RBH101 in water samples obtained from the bedrock aquifer and Trichloroethene in water samples obtained from the bedrock aquifer at RBH103 (Potentially associated with industrial activity on site but more likely a results of the local areas heavy industrial past and more specifically the contamination associated with nearby historic gas works)

It should be noted however, that the observed exceedances were with respect to residential assessment criteria which are significantly more onerous than those for commercial land uses.

Ground gas monitoring visits were undertaken on a total of seven wells. Slightly elevated levels of carbon dioxide were encountered with an absence of methane, carbon monoxide and hydrogen sulphide gases. Slightly depleted levels of oxygen were also encountered. The site was characterised as a Characteristic Situation 1 with no remedial measures envisaged.

On site soil and groundwater contamination encountered was believed to relate to previous industrial operations as well as the potential movement of gas works era contamination within the underlying principal aquifer beneath the site. A defined area of contamination was suspected in the southern and western portion of the plot beneath the existing building.

The report recommended that an area of contaminated soils, in the southwest of the site, should be excavated and either treated onsite or disposed of offsite. The use of a soil cover system was recommended in soft landscaping areas. Although exceedances of contaminants in groundwater were recorded, groundwater remediation was not recommended.

Contaminated Land Assessment

On the basis of the established site history and previous investigations, a simple conceptual model of the site can be constructed.

Historic industrial land uses, and potential sources of contamination have been identified including the historic screw and bolt works, paint works, foundry, asphalt works, tripe works, rubber works, waste management facility and sign manufacturers. Elevated concentrations of contaminants were observed in the previous site investigation and consequently limited remediation was recommended in hotspots and areas of soft landscaping. However, it should be noted that the criteria used for this assessment were for a residential land use for which more onerous criteria are applied. Generally, the potential onsite sources are comparable to the majority of previously developed city centre sites in Manchester.

The relevant receptors for this assessment are limited to proposed site users for art, music and cultural events over a period of up to two years. Potential pathways to such human health receptors include ingestion, direct contact and inhalation of contaminated dust, vapours or hazardous gas. The established contaminated land regime for human health, and the published assessment criteria, relate primarily to long term occupants who are subject to significantly higher exposure.

The presence of hardstanding across the majority of the site will significantly inhibit all of these pathways to human health receptors. Furthermore, the short duration of the land use, and the short duration of the stay of individual site users, further significantly reduce the likelihood of harm to these receptors. Consequently, we consider this risk to be low across the majority of the site. Areas of potential risk are limited to areas of broken concrete and tarmac where soils and other waste are exposed. However, we understand that these areas will be repaired prior to use

With regards to ground gas risks, it should be noted that, following monitoring, the previous site investigation did not recommend the implementation of ground gas protection measures and therefore we do not consider there to be a significant risk posed through the accumulation of ground gas in retained onsite buildings.

Potential long term contamination issues, primarily relating to future residential use and impacts on groundwater, should be assessed through a future Phase 2 Ground Investigation prior to such a development.

Conclusions and Recommendations

We consider the risks to proposed end users, during art, music and cultural events over a period of up to two years, to be low.

It is recommended that the site undergoes extensive clearance of surface waste materials. Any retained structures will require safety assessments that are beyond the scope of this assessment.

We trust that the foregoing meets with your approval, but should you have any queries whatsoever at any stage between now and the conclusion of the project, please do not hesitate to contact this office.

Yours sincerely



Linden Richardson
Senior Geo-environmental Engineer
 On behalf of R²C Consulting