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Reference CL1018.060922.1
Website www.bury.gov.uk

Department for Operations

Jennie Townsend
Bury Council Planning Department

Dear Jennie

Land off Croft Lane, Bury. Planning Application: 68684 – Contaminated Land

The Environment Section has received copies of the following reports:

- Phase 1 Environmental Site Assessment Report, Assessment, Land adjacent to 129 Croft Lane, Bury, BL9 8QH, Enviro Solution Ltd, Reference: CL101, Report Version 2, 23 November 2021.
- Phase 2 Geo-Environmental Site Assessment Report, Assessment, Land adjacent to 129 Croft Lane, Bury, BL9 8QH, Enviro Solution Ltd, Reference: CL102, Report Version 2, 23 November 2021

1. The adequacy of the desk study information available for this site.
2. The adequacy of the site investigation.
3. The adequacy of the final risk assessment.
4. The acceptability of the proposed remediation strategy.
5. Whether the information submitted is sufficient to determine that the site presents a low risk to human health and the environment

The site is irregular in shape and covers an approximate area of 1,820 square metres. The site is currently vacant but is used as a small rear car park to the neighbouring public house and a permit holder car park which is fenced off. The majority of the site is covered in tarmac hardstanding with areas of landscaping around the perimeter. The site is generally flat but slopes gently towards the southwest towards the River Roch. The site is bounded by Croft Lane to the east, a chemist to the north, the River Roch to the west and residential housing to the south.

Historically the site has been an undeveloped piece of land until the 1950s when the site appeared to be in use as a car park. Surrounding historic uses have included a reservoir, a bleach works, a dye works, a perfume works, glue and gelatine works, engineering works, foam and rubber works and residential.

The underlying bedrock consists of the Trencherbone Sandstone Secondary A Aquifer on the south and the Pennine Lower Coal Measures Formation in the north, both overlain by Glacial Till. A geological fault runs across the site in the northern area of the site. The River Roch is situated 50m to the west of the site. The site is situated within 250m of a historical landfill.

It is understood that the development proposal includes the construction of a three-storey children's nursery which includes areas of soft landscaping to be used as a play area and paved areas for vehicle parking.

1. The adequacy of the desk study information available for this site

The report includes a description of the site including its past historical uses. An appraisal of the site environmental setting is presented including its geology, hydrogeology and hydrological regime, mining activities, waste management issues, and identification of additional environmental sources, pathways and receptors. This information has been used to compile a clear site conceptual model, which identifies potential sources, pathways and receptors and likely pollution linkages.

As the site has been levelled out in the past there is the potential for made ground. Additionally, there are off-site land uses with the potential to contaminate the shallow soils on site. The risks from the landfill site have been discounted due to the distance away and the fact that the landfill only accepted inert waste.

The Desk Study Report had identified possible pollutant linkages and a Moderate risk in terms of contamination. It is recommended that a Phase 2 investigation be carried out.

2. The adequacy of the site investigation

The site investigation was carried out between 1st and 4th March 2021:

Technique	No.	Comments
Cable percussion boreholes	3	CP1 – CP3 to depths of 17.0m bgl, gas and groundwater monitoring wells installed
Soil samples	4	Tested for a range of chemical parameters; metals, pH, asbestos ID, asbestos quantification, volatile and semi-volatile organic compounds (VOCs and SVOCs) and TPH criteria working group.
Groundwater samples	3	Chemical analysis for: VOCs, SVOCs, TPH, CWG, sulphates, hardness and pH.

Site Ground Conditions: Made Ground was encountered in all of the exploratory boreholes at the surface. The Made Ground has a maximum thickness of 3.60m in WS1. The breaking out of tarmacadam was required in CP2 and CP3. The Made Ground can generally be divided into two types: Brick Fill – Dark grey granular sandy gravelly fill with brick, plastic, sandstone blocks and roots. Reworked Clay Fill – Firm grey, brown laminated clay fill.

Alluvium deposits were found beneath the made ground and were found to depths of between 9.50m and 10.02m and consisted of firm grey / brown silty clay or clayey silt. Bedrock was not encountered.

Site Water Conditions: Groundwater monitoring was carried out on the first gas monitoring visit. Groundwater was encountered during the investigation in all borehole locations at depths of between 3.0m and 5.0m bgl.

Site Ground Gas Conditions: Three rounds of gas monitoring have been carried out between 12th and 26th March 2021. A maximum methane concentration of 0.9% v/v and a maximum carbon dioxide concentration of 3.7% v/v were found. Atmospheric pressure was less than 1000mb on one occasion.

3. The adequacy of the final risk assessment.

Ground Assessment: Soil analysis results were compared to the LQM 'Suitable 4 Use Levels' and Category 4 Screening Levels, GAC for residential with plant uptake as it is considered that this is a conservative approach and reflects high sensitivity of future site users.

A number of substances have been found to exceed GAC in the made ground including; Lead (410 mg/kg, CP3 at 0.30m), Benzo(a)anthracene (31mg/kg, CP3 at 0.30m), Chrysene (31mg/kg, CP3 at 0.30m), Benzo(b)fluoranthene (10mg/kg, CP3 at 0.30m) and Benzo(a)pyrene (2.7mg/kg, CP1 and 27mg/kg, CP3 at 0.30m).

Remedial measures have been recommended in areas of proposed soft landscaping.

Controlled Waters Assessment: The groundwater laboratory test results, the data has been compared with GAC comprising UK Drinking Water Standards (DWS) and Environmental Quality Standards for freshwater bodies (EQS). These GAC have been chosen based on the conceptual site model which has identified a Secondary A Aquifer and the River Roch as potential controlled water receptors.

A number of substances have been detected in the shallow groundwater at concentrations in excess of the GAC for Freshwater EQS including; Copper (at CP1, CP2 and CP3), Nickel (CP1 and CP2), Zinc (CP1 and CP2). A single exceedance of the UK Drinking Water Standards was recorded for nickel in CP2.

Although some GAC exceedances have been detected, the overall risk to controlled waters receptors from the substances present in the groundwater is considered to be low. This is because the EQS for freshwater is extremely conservative. Additionally, the ground investigation has shown the alluvial material to consist of generally low permeability clays and silts which will limit the migration of contaminants to the controlled surface waters and bedrock aquifer. Additionally, the site does not lie within a Source Protection Zone and there are no groundwater abstraction licenses held nearby.

Ground Gas Assessment: The potential for both made ground and peat deposits in the natural soils was found. The made ground was shown to contain no significant amount of putrescible material and no peat deposits were encountered in the alluvium.

The gas risk assessment presented below has been undertaken in general accordance with the British Standard BS8485:2015, "Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments".

The gas screening value has been calculated for the site using the highest detected carbon dioxide concentration for the site of 3.7% in CP2 and highest gas flow reading of 0.5 l/hr in CP3. The gas screening value for the site has been calculated as 0.0185 l/hr. This classifies the site as Characteristic Situation 1 (very low risk), as would be expected with ground conditions comprising generally cohesive deposits and a maximum carbon dioxide concentration of less than 5%. Therefore, no gas protection measures are required.

4. The acceptability of the proposed remediation strategy.

The following recommendations have been made in the report:

- Remedial action is required in any proposed soft landscaped areas.
- During the redevelopment of the site, it will be necessary to implement measures to protect construction workers, and adjacent site users from the soil contaminants identified at the site. In addition, to ensure that they do not come into contact with contaminated soils and / or groundwater, construction workers and site visitors should wear appropriate personal protective equipment (PPE). Health and safety procedures would ensure that ingestion of contaminated soils and / or groundwater is avoided (e.g. by washing hands prior to eating, drinking and smoking).
- A remediation strategy is to be prepared to detail remediation and validation requirements.

The above recommendations are acceptable however please also carry at potable water supply assessment and confirmation as to whether protective water supply pipes will be required.

Please note: All parties involved with waste and soil movement at the site should be aware that materials illegally deposited or deposited at inappropriate sites may be subject to relevant landfill taxes, payable by all parties. Only robust due diligence is a defence against joint liability. Illegal deposits can include moving waste soil material on sites, or between sites, without the appropriate permits, exemptions or duty of care.

5. Whether the information submitted is sufficient to determine that the site presents a low risk to human health and the environment

In order for this Section to be satisfied that this development does not pose a risk to human health or the environment, the following information needs to be submitted to the Council for approval:

- (i) A detailed Remediation Strategy and Validation Plan.
- (ii) After completion of site works, a verification report is required to validate that the work undertaken conforms to the remediation proposals received and agreed by this Section. The report would be expected to include the following:
 - Details of ground conditions and of any unforeseen contamination.
 - Substantiating validation data that should include where appropriate:
 - Laboratory and *in-situ* test results.

- Photographic and other media records.
- Waste management details and records.
- Confirmation that remediation objectives have been met.

The above information will be required by planning conditions if planning permission is granted.

Please do not hesitate to contact me if you require any clarification of the above.

Yours sincerely



Judith Scott
Environmental Protection Officer

Please Note:

The Environment Section has used all reasonable endeavours to determine the risk from contaminated land and ground gas based upon the information available to it. However, the comments made above should not be taken to imply that the land is safe or otherwise suitable for this or any other development. The responsibility for safe development rests with the developer.

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