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Department for Operations

Helen Pressley
Bury Council Planning Department

Dear Helen

474 Bolton Road, Bury, BL8 2DU, Planning Application: 67580 – Contaminated Land

I write regarding the above planning application. The Environment Section has received copies of the following reports:

- Phase 1 Environmental Desk Study Report & Coal Mining Assessment Report, 474 Bolton Road, Bury, BL8 2DU, RGS, Reference: C3018/22/E/4559, 15 September 2022.
- Phase 2 Geo-Environmental Report, 474 Bolton Road, Bury, BL8 2DU, RGS, Reference: C3018/22/E/4562, 24 March 2023.

The Environment Section has reviewed the above information in order to assess the following points:

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 has historically been in use as open fields followed by the development of houses on either side, followed by the development of a house on the site by 1957. A Brick Works and Coal Mining area was situated to the south in the late 19th Century. The site is not within 250m of a registered landfill and is situated above the Lower Coal Measures Secondary A Aquifer which is overlain by Glacial Till.

The proposal is to demolish the existing house and develop a new dwelling.

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.

A site walkover was carried out on 13 September 2022 and photographs of the existing house and garden are included in the desk study report. No visible signs of contamination were found.

The consultant concluded that further intrusive investigation was required to:

- Prove or disprove the presence of mining activity.
- Further investigate the possibility of a risk from ground gas.
- Further investigate the possibility of sources of contamination on-site.

2. The adequacy of the site investigation

The site investigation was carried out on 24 January 2023 and comprised the following:

Technique	No.	Comments
Windowless Boreholes	3	WS01 – WS04 (WS01 not completed due to services) to depths of between 0.6mbgl to 5.5mbgl. Gas monitoring standpipes in WS02 – WS04. With response zones in the made ground and clay.
Soil sampling	7	Metals – Cd, CrVI, Cu, Hg, Ni, Pb, V and Zn, Semi and Non-Metals - As, Se, Free CN- and Phenols, Polycyclic aromatic hydrocarbons (PAHs), Petroleum hydrocarbons (TPHs), pH, organic content and total/soluble SO ₄ , Asbestos

Site Ground Conditions: The site can be split into two main sections. The western portion is underlain by a thin capping of artificial ground overlying soft cohesive soils to 1.2m depth. This stratum was found to be underlain by stiff gravelly clay. Within the eastern portion of the site between 1.40m and 2.30m of made ground was found over soft to very soft silt with localised organic deposits to the base of WS03 and to 2.90m in WS04. From 2.90m in WS04, this material was underlain by soft to firm clay to the base of the borehole where refusal was met on an inferred cobble as the adjacent dynamic probe was advanced to depths exceeding 7m without obstruction.

A coal mining report has not been recieved.

Site Water Conditions: No groundwater strikes were observed during the site investigation, however the deposits recovered from WS03 at depths between 2.30m and 2.90m was recorded as “wet”. No groundwater testing has been carried out.

Site Ground Gas Conditions: Gas monitoring was carried out between 15 February and 8th March 2023 and consisted of four visits. Atmospheric pressure was below 1000mb on one occasion and was rising. A total of 4 visits have been carried out.

A maximum concentration of 0.2%v/v methane was found, and concentrations of carbon dioxide ranged from 0.5 to 5.8%v/v. A maximum flow rate of 0.4 l/hr was recorded.

The site investigation appears to be acceptable.

3. The adequacy of the final risk assessment

Ground Assessment: The soil analysis results have been compared to the ATRISK SSVs for residential with homegrown produce land use.

The following elevated concentrations of contaminants were found in the made ground:

- Lead – Samples WS02 0.20mbgl (660mg/kg), SSV of 200mg/kg.
- PAHs – Samples WS02 0.20mbgl (benzo(a)pyrene 1.7mg/kg), SSV 0.998mg/kg.

No asbestos was encountered.

The PAH levels are considered very marginal however remediation is deemed necessary for the lead contamination in the made ground.

Controlled Waters Assessment: A groundwater risk assessment has not been carried out.

Ground Gas Assessment: The consultant has used the methodology set out in CIRIA 665 and BS8485:2015 to assess the gas regime at the site.

A maximum concentration of 0.2%v/v methane was found and concentrations of carbon dioxide ranged from 0.5 to 5.8%v/v. A maximum flow rate of 0.4 l/hr was recorded.

The consultant has used the modified Wilson and Card methodology set out in CIRIA 665 to assess the gas regime at the site. A worst case Gas Screening Value of 0.0008 l/h has been calculated for methane and 0.0232 l/h carbon dioxide. Consequently, due to the levels of carbon dioxide exceeding 5%v/v, the consultant considers that the gas regime at the site is representative of Characteristic Situation 2.

The final risk assessment appears to be acceptable.

4. The acceptability of the proposed remediation strategy

The following measures are proposed so that the contamination identified on site no longer presents a risk:

- The provision of a clean cover system including a capping layer of 500mm of inert material. At the base of this layer, a granular capillary break of 100mm of free draining granular soil should be placed in order to prevent mobile contamination rising upward. This should also provide a suitable root barrier to isolate the plants from the underlying contaminated ground. The underlying

reworked cohesive material recovered from the boreholes on site has been generally shown to be below the Atkins Soil Screening Values (SSVs) for the proposed residential with plant uptake end use and subject to appropriate screening could be reused on site as sub soil.

- Any fill materials to be subject to validation testing as per the YALPAG guidance. Results of testing to be compared to Atrisk SSVs.
- Category 2 gas protection measures to include passive sub-floor void and gas resistant membrane. The installation to be verified in accordance with CIRIA C735:2014 and carried out by suitable personnel and in strict accordance with the manufacturers specifications. Verification to be carried out on each plot.
- Discussions with service providers regarding suitable materials for pipe work given the nature of chemical determinands found within the soils on site.
- Verification report to demonstrate that the remedial works have been sufficiently carried out.

The proposed outline remediation strategy is acceptable to this Section, however, the following items are also required for submission:

- A detailed remediation strategy and validation plan is required. This should include the specification of the gas membrane, foundation drawing and validation plan.
- Testing of imported or materials, please provide source details.
- If the CL:aire Definition of Waste Protocol is to be used, a copy of the Materials Management Plan will be required.
- If any material is taken off site waste transfer documentation will be required for submission.
- A watching brief be undertaken during the development to identify and deal with any previously unforeseen contamination.

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 Coal Mining Investigation / Report.
- (ii) A detailed Remediation Strategy to include further details of the gas protection measures as detailed above.
- (iii) A Material Management Plan if the CL:AIRE Definition of Waste Code of Practice is to be used.
- (iv) Pre-demolition asbestos survey report and confirmation asbestos containing materials have been removed.

- (v) 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:
- Summary of desk study, site investigation report and remediation strategy.
 - Details of who carried out the work.
 - Details and justification of any changes from original remediation strategy.
 - Substantiating validation data that should include where appropriate:
 - Laboratory and *in-situ* test results.
 - Monitoring results for groundwater and gases.
 - Summary data plots and tables relating to clean-up criteria.
 - Plans showing treatment areas and details of any differences from the original remediation strategy.
 - Photographic and other media records.
 - Waste management details and records.
 - Confirmation that remediation objectives have been met.

This Section cannot recommend discharge of Condition 10 until item (i) and (ii) above has been submitted and approved.

Condition 11 requires the submission of a validation report (items (iii) and (iv) above).

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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