

PHASE I ENVIRONMENTAL SITE ASSESSMENT

15-21 Deansgate, Manchester M3 4FN

Prepared for:

Manchester Property Holdings Ltd

Prepared by:

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Classification: CONFIDENTIAL

1. Executive Summary

Greenfield Environmental Consultants Ltd ("GEC") was commissioned by Manchester Property Holdings Ltd (the "Client") to undertake a Phase I Environmental Site Assessment of the property situated at 15-21 Deansgate, Manchester M3 4FN (the "Site"). The assessment was carried out in accordance with BS 10175:2011+A2:2017 (Investigation of Potentially Contaminated Sites — Code of Practice) and CIRIA C552 (Contaminated Land Risk Assessment: A Guide to Good Practice).

The Site comprises an area of approximately 0.28 hectares (0.69 acres) and is currently occupied by a vacant four-storey commercial building of brick construction dating from approximately 1920. Historical use of the Site includes textile warehousing (1920-1975), printing works (1975-2002), and general office accommodation (2002-2019). The Site has been vacant since 2019.

Based on the findings of this assessment, the overall risk classification for the Site is assessed as **LOW to MODERATE**. The principal areas of concern are: (i) potential soil and groundwater contamination associated with the former printing works use (solvents and inks); and (ii) an underground storage tank of unknown status identified from historical records. A Phase II intrusive investigation is recommended to further characterise these risks.

2. Site Description

2.1 The Site is located at 15-21 Deansgate, Manchester M3 4FN, in the city centre of Manchester, within the administrative boundary of Manchester City Council. The national grid reference for the approximate centre of the Site is SJ 8365 9812.

2.2 The Site has an approximate area of 0.28 hectares (0.69 acres) and is roughly rectangular in plan. It is bounded to the north by Deansgate, to the east by a six-storey office building, to the south by a service yard and rear elevations of properties fronting St Mary's Street, and to the west by a narrow pedestrian alleyway and a multi-storey car park.

2.3 The Site is currently occupied by a single four-storey building of load-bearing brick construction with a flat roof. The building dates from approximately 1920, with internal alterations carried out at various times (most recently in 2002). The gross internal area is approximately 2,400 square metres. The building has been vacant and secured since 2019.

2.4 The historical uses of the Site are summarised as follows:

- 1920 - 1975: Textile warehouse (storage and distribution of cotton and wool goods)
- 1975 - 2002: Printing works (commercial printing, lithographic and offset processes)
- 2002 - 2019: General office accommodation (occupied by various tenants)
- 2019 - present: Vacant

3. Environmental Setting

3.1 **Geology:** The published geological mapping (British Geological Survey 1:50,000 Sheet 85, Manchester) indicates that the Site is underlain by superficial deposits of glacial till (boulder clay) to a depth of approximately 5-8 metres, overlying bedrock of the Sherwood Sandstone Group (Chester Pebble Beds Formation). The glacial till typically comprises stiff to very stiff

brown sandy clay with occasional gravel and cobbles.

3.2 Hydrogeology: The Sherwood Sandstone Group is classified by the Environment Agency as a Principal Aquifer, representing a regionally significant groundwater resource. The overlying glacial till is classified as a Secondary (Undifferentiated) Aquifer, which may locally provide some protection to the underlying principal aquifer. Groundwater flow direction is anticipated to be generally westward towards the River Irwell.

3.3 Hydrology: The nearest significant surface watercourse is the River Irwell, located approximately 180 metres to the north-west of the Site. The River Irwell at this location is classified as a Main River under the jurisdiction of the Environment Agency. The Bridgewater Canal is located approximately 350 metres to the south of the Site.

3.4 Flood risk: The Environment Agency Flood Map for Planning indicates that the Site is located within Flood Zone 2, meaning that there is a medium probability of flooding (between 1 in 100 and 1 in 1,000 annual probability of river flooding). The Site is not within an area benefiting from flood defences.

4. Regulatory Review

4.1 Contaminated Land Register

4.1.1 A search of Manchester City Council's Contaminated Land Register (maintained under Part IIa of the Environmental Protection Act 1990) confirms that the Site has not been determined as contaminated land. No remediation notices, charging notices or appeals relating to the Site were identified.

4.2 Historical Pollution Incidents

4.2.1 A review of Environment Agency records identified two historical pollution incidents within a 250-metre radius of the Site:

(a) **Fuel spillage (1987):** A release of approximately 500 litres of diesel fuel from a road tanker on Deansgate, approximately 120 metres north-east of the Site. The incident was responded to by the then National Rivers Authority and the spillage was contained and cleaned up. The case was closed in 1988 with no further action required.

(b) **Solvent discharge (1993):** An unauthorised discharge of chlorinated solvents to surface water drainage from a dry cleaning premises on Bridge Street, approximately 200 metres north-west of the Site. Remedial action was taken by the operator under the supervision of the Environment Agency. Subsequent monitoring confirmed that groundwater quality had returned to acceptable levels. The case was closed in 1997.

4.3 Air Quality

4.3.1 The Site is located within the Greater Manchester Air Quality Management Area (AQMA), declared in 2016 for exceedances of annual mean nitrogen dioxide (NO₂) concentrations. The AQMA encompasses the majority of the city centre and major transport corridors. Manchester City Council has published an Air Quality Action Plan (updated 2022) setting out measures to achieve compliance with national air quality objectives.

4.4 Environmental Permits

4.4.1 A search of the Environment Agency's public register of environmental permits confirms that there are no current or historical environmental permits (including waste management licences, integrated pollution control authorisations, or pollution prevention and control permits) associated with the Site.

5. Historical Use Review

5.1 Ordnance Survey Map Regression

5.1.1 A review of historical Ordnance Survey maps from 1890 to the present day confirms that the Site and surrounding area have been in continuous commercial and mixed-use development since at least the late 19th century. Key observations from the map regression are:

- 1890 (1:2,500): Site shown occupied by commercial buildings. Surrounding area comprises dense urban development, predominantly warehouses and workshops.
- 1922 (1:2,500): Current building footprint visible. Annotated as 'Warehouse'. No significant changes to surrounding area.
- 1955 (1:2,500): No significant changes to Site. Former gasworks shown 400m to the south (now redeveloped).
- 1977 (1:1,250): Building annotated as 'Works'. Loading bay visible to the rear (south).
- 1995 (1:1,250): No change to building footprint. Adjacent multi-storey car park to the west now shown.
- 2010 (1:1,250): No change to building footprint. Significant new development in surrounding area.

5.2 Former Printing Works (1975-2002)

5.2.1 The use of the Site as a printing works between 1975 and 2002 represents the primary contamination concern identified in this assessment. Commercial printing operations of this era typically involved the use of a range of potentially contaminative substances, including:

- Petroleum-based inks and pigments (containing heavy metals including lead, chromium, cadmium and barium)
- Organic solvents used in cleaning and degreasing processes (including toluene, xylene, methyl ethyl ketone, and isopropanol)
- Chlorinated solvents (potentially including trichloroethylene and perchloroethylene)
- Photographic developing chemicals (silver, hydroquinone)
- Printing plate chemicals (aluminium, zinc, phosphoric acid)

5.2.2 Spillages and leaks of these substances during the 27-year period of printing operations may have resulted in contamination of the underlying soil and, potentially, groundwater.

5.3 Underground Storage Tank

5.3.1 A building survey report dated June 1985 (prepared by Hargreaves & Mitchell Chartered Surveyors in connection with a proposed extension to the building) makes reference to an

underground storage tank located in the rear yard area to the south of the building. The report describes the tank as being used for the storage of heating oil and having an estimated capacity of 5,000 litres.

5.3.2 No records have been identified to confirm whether the underground storage tank was decommissioned, removed or filled in situ. The current status of the tank is therefore unknown. Underground storage tanks, particularly those of this age, present a significant risk of leakage and soil and groundwater contamination from stored petroleum products.

6. Findings and Recommendations

6.1 Risk of Soil Contamination from Former Printing Works

6.1.1 There is a **moderate risk** that soil beneath and adjacent to the building has been contaminated by substances associated with the former printing works use (1975-2002). The risk is assessed as moderate rather than high because: (a) the building has a solid ground floor construction which may have limited direct infiltration; (b) the glacial till beneath the Site provides some attenuation and retardation of contaminant migration; and (c) there are no known specific incidents of significant spillage.

6.1.2 The potential contaminants of concern include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), heavy metals, and total petroleum hydrocarbons (TPH). These contaminants may present risks to human health (particularly via inhalation of vapours in enclosed spaces) and to controlled waters (via migration through the glacial till to the underlying principal aquifer).

6.2 Underground Storage Tank Investigation

6.2.1 The underground storage tank identified in the 1985 survey report requires further investigation to determine its current status (in situ or removed), its contents (if any), and whether leakage has occurred. If the tank remains in situ, it is likely to require decommissioning and removal in accordance with current best practice (CIRIA C736, Containment Systems for the Prevention of Pollution).

6.3 Recommendation: Phase II Intrusive Investigation

6.3.1 A Phase II intrusive investigation is recommended to characterise the nature and extent of any contamination at the Site. The investigation should include the following scope as a minimum:

- (a) Soil sampling from a minimum of six (6) boreholes drilled to a depth of at least 6 metres (to penetrate through the glacial till and into the upper Sherwood Sandstone). Boreholes should be targeted on areas of greatest potential contamination, including the former printing works area, the loading bay, and the vicinity of the underground storage tank.
- (b) Installation of two (2) groundwater monitoring wells (one up-gradient and one down-gradient of the Site) to enable assessment of groundwater quality and determination of groundwater flow direction and gradient.
- (c) Chemical analysis of soil and groundwater samples for a comprehensive suite of determinants including: heavy metals, VOCs, SVOCs, TPH (CWG banded), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pH.

- (d) Ground gas monitoring (minimum 3 rounds over 6 weeks) to assess risks from methane, carbon dioxide and volatile organic compounds.
- (e) Geophysical survey (ground penetrating radar) in the rear yard area to locate the underground storage tank.

6.4 Estimated Cost of Phase II Investigation

6.4.1 The estimated cost of the Phase II intrusive investigation as described in Section 6.3 above is in the range of **£15,000 to £25,000** (exclusive of VAT). This estimate is based on current market rates and includes: site investigation works (drilling, sampling, well installation), laboratory analysis, ground gas monitoring, geophysical survey, and the preparation of a Phase II investigation report with quantitative risk assessment.

6.4.2 The estimate does not include any costs associated with further assessment or remediation which may be required depending on the findings of the Phase II investigation.

6.5 Estimated Remediation Costs

6.5.1 In the event that the Phase II investigation confirms the presence of significant contamination, remediation works are likely to be required prior to any redevelopment of the Site. Based on the nature and scale of potential contamination identified in this Phase I assessment, remediation costs are estimated in the range of **£50,000 to £200,000** (exclusive of VAT), depending on the extent and severity of contamination.

6.5.2 The lower end of this range (£50,000) would apply if contamination is limited to localised hotspots (e.g., around the underground storage tank) and can be addressed by targeted excavation and off-site disposal. The upper end (£200,000) would apply if more widespread contamination is identified requiring extensive soil remediation (e.g., in situ treatment or large-scale excavation) and/or groundwater remediation.

6.5.3 These cost estimates are indicative only and should be refined following the completion of the Phase II intrusive investigation.

This report has been prepared by Greenfield Environmental Consultants Ltd for the sole use of Manchester Property Holdings Ltd in connection with the proposed acquisition and redevelopment of the Site. No liability is accepted to any third party for the whole or any part of the contents of this report.

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