PORTWAY

REMEDIATION METHOD STRATEGY

AT

TRINITY PLOT D and C, REGENT ROAD, MANCHESTER, M3 4JW

CLIENT: RENAKER BUILD

Date: 16/08/2022

Ref: PTW22034/RMS

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1.0 PRE-AMBLE

Portway Remediation have been commissioned by Renaker Build to produce a Remediation Method Strategy (RMS), for land at Regent Road, Manchester, M3 4JW.

While this site would not normally have an RMS produced, due to the limited nonmobile metal contamination associated with the ashy made ground, a simple RMS has been produced to prevent difficulties in discharging the relevant planning conditions. In summary all made ground will be removed from this site to construct the basement carparking area.

This document has been produced in line with standards from BS 10175:2011, CLR11 and guidance for the Safe Development of Housing on Land Affected by Contamination, R & D 66, Environment Agency 2000 in order to address pre-commencement planning condition 08, 55, 103 and 147 decision notice 132429/FO/2021, presented below;

08) Notwithstanding the Phase I Preliminary Risk Assessment and the Phase II Ground Investigation prepared by WSP stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, prior to the commencement of phase C1 the following information shall be submitted for approval in writing by the City Council, as Local Planning Authority, to identify and evaluate all potential sources and impacts of any ground contamination, groundwater contamination and/or ground gas relevant to the site:

- Remediation strategy and materials management plan providing
- Asbestos management plan submitting
- Final gas risk assessment following completion of the last 2 rounds of gas monitoring. (This should include monitoring during occurrences of low and falling atmospheric pressure)
- UK Water supplier risk assessment.

The remediation of phase C1 shall be carried out in accordance with the approved strategy.

55) Notwithstanding the Phase I Preliminary Risk Assessment and the Phase II Ground Investigation prepared by WSP stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, prior to the commencement of phase C2 the following information shall be submitted for approval in writing by the City Council, as Local Planning Authority, to identify and evaluate all potential sources and impacts of any ground contamination, groundwater contamination and/or ground gas relevant to the site:

- Remediation strategy and materials management plan providing
- Asbestos management plan submitting
- Final gas risk assessment following completion of the last 2 rounds of gas monitoring. (This should include monitoring during occurrences of low and falling atmospheric pressure)
- UK Water supplier risk assessment.

The remediation of phase C2 shall be carried out in accordance with the approved strategy.

103) Notwithstanding the Phase I Preliminary Risk Assessment and the Phase II Ground Investigation prepared by WSP stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, prior to the commencement of phase D1 the following information shall be submitted for approval in writing by the City Council, as Local Planning Authority, to identify and evaluate all potential sources and impacts of any ground contamination, groundwater contamination and/or ground gas relevant to the site:
- Remediation strategy and materials management plan providing
- Asbestos management plan submitting
- Final gas risk assessment following completion of the last 2 rounds of gas monitoring. (This should include monitoring during occurrences of low and falling atmospheric pressure)
- UK Water supplier risk assessment.

The remediation of phase D1 shall be carried out in accordance with the approved strategy.

Reason – To ensure that the site has been appropriately remediated prior to the commencement of works associated with the redevelopment of the site, pursuant to policies EN17, EN18 and DM1 of the Manchester Core Strategy (2012).

147) Notwithstanding the Phase I Preliminary Risk Assessment and the Phase II Ground Investigation prepared by WSP stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021, prior to the commencement of phase D2 the following information shall be submitted for approval in writing by the City Council, as Local Planning Authority, to identify and evaluate all potential sources and impacts of any ground contamination, groundwater contamination and/or ground gas relevant to the site:

- Remediation strategy and materials management plan providing
- Asbestos management plan submitting
- Final gas risk assessment following completion of the last 2 rounds of gas monitoring. (This should include monitoring during occurrences of low and falling atmospheric pressure)
- UK Water supplier risk assessment.

The remediation of phase D2 shall be carried out in accordance with the approved strategy.

Reason - To ensure that the presence of or the potential for any contaminated land and/or groundwater is detected and appropriate remedial action is taken in the interests of public safety, pursuant to policies EN17, EN18 and DM1 of the Manchester Core Strategy (2012).

In compiling the Remediation Method Statement, previous phases of investigation have been reviewed.The reports listed below must be read in conjunction with the content of this report.

1. WSP UK Ltd, September 2021. Ground Investigation Report, Trinity Islands, Manchester, Ref. 70082598.
2. WSP UK Ltd. October 2021. Phase 1 Trinity Islands, Trinity Way, Manchester, ref. 70082598- 11789(3)).

2.0 INTRODUCTION

The client is seeking to develop the site for residential apartments within a tower block with basement carparking, hereafter referred to as the ‘proposed development”. The construction of the tower block will remove all Made Ground from the site together with any superficial deposits to a depth of approximately 7mbgl.

Any sources of contamination within the Made Ground will therefore be removed as part of the construction. Intrusive works undertaken by WSP detailed within the site investigation. The ground conditions encountered, made ground and natural strata. No remediation is likely to be required on this site due to low levels of contamination present and the fact that all the material is to be removed to facilitate the basement carparking.

WSP Preliminary Conceptual Site Model, concluded on the balance of probabilities that all risks are Moderate to Low, i.e. 'It is unlikely that either: Harm is being (or may be) caused to the receptors identified by the contamination source identified'. (Please see the table Figure 2)

3.0 SITE DETAILS AND DESCRIPTION

3.1 Site Location

The site, off Regent Road, Manchester is approximately 1m East of the River Irwell and is approximately 0.8ha in size for redevelopment. The site is currently a carpark at ground level and is lower than the main road section towards the South and East boundary.

Figure 1 - Site D & C with red boundary line.

3.2 Site Setting

The Geology is underlain by Glacial Till and Chester Formation (sandstone). The Hydrogeology is classed as a “Secondary Aquifer – Undifferentiated” within the superficial deposits and the bedrock is classed as a “Principal Aquifer”.

4.0 REMEDIATION STRATEGY

The remediation strategy is not required as only elevated levels of metals have been detected predominantly within the ashy made ground. This material will be removed as part of the works to construct the basement carpark. The resultant carpark and associated works will effectively seal the site and block all other pathways protecting the receptors (River Irwell and residents).

Due to the development requirement for basement car parking, all made ground and natural strata within the first 7mbgl will be removed off site for disposal. In order to facilitate this the made ground within the site will be segregated prior to disposal.

Please not that no asbestos was detected within Plot D when reviewing the Preliminary Conceptual Model below.
An isolated sample was found in 1 location BH on Plot C

4.1 Pollutant Linkages & Risks

Figure 2 - Extract from WSP Report Ref 70082598

Preliminary Conceptual Site Model

Source	Pathway	Receptor	Qualitative Comment	Risk Likelihood
Contamination (including asbestos) associated with Made Ground materials from previous industrial land use (both plots) and infilling of a basin Plot C). Contamination relating to former site uses (i.e. Plot D former chemical works) or adjacent industrial uses (e.g. spills, leaks)	Direct contact, ingestion of inhalation	Construction Workers during redevelopment	There is potential for soil chemical contamination including asbestos relating to the site previous uses. The potential for exposure can potentially be mitigated during redevelopment via good practice and the use of standard Personal Protective Equipment (PPE), Respiratory Protective Equipment (RPE) and good hygiene practices.	MODERATE - LOW
		Maintenance workers post development	Earthworks for the basements are likely to remove the majority of Made Ground. Any landscaped area post development would likely comprise imported clean soils. If residual contamination remains in Made Ground around periphery then good practice i.e. PPE etc would mitigate potential exposure during any short-term groundworks.	LOW
		Future Site Users (Residential Receptors)	Upon redevelopment the site will comprise building footprint, hardstanding or landscaped areas. The landscaped areas will likely be imported clean topsoil. The potential for direct contact, ingestion or inhalation is therefore likely to be low.	LOW
	Mobilisation of contamination into groundwater/ surface waters.	Groundwater within bedrock/ Surface Water in River Irwell	Potential for contamination in Made Ground or shallow soils. The presence of the current site wide hardstanding will potentially have limited surface water infiltration and vertical migration of contamination into the bedrock aquifer. A ground investigation will assess groundwater water quality. If contamination has impacted groundwater quality then source removal would be likely during basement earthworks dig which would provide significant betterment. Possibility of residual	MODERATE

Source	Pathway	Receptor	Qualitative Comment	Risk Likelihood
			secondary sources within bedrock.	MODERATE
Hazardous Ground Gas related to Made Ground or organic material in infilled dock sediments. Volatile contamination in groundwater causing vapour migration (i.e. Plot D from the former chemical works)	Migration into ground excavations / man-hole chambers	Construction Workers during redevelopment Maintenance workers post development Future Site Users	Potential for soil/ groundwater gas/ vapour. Ground investigation will assess for the potential presence of ground gas concentrations and volatile groundwater contamination/ non-aqueous phase liquid (NAPL).	

4.2 Remediation Options

As a basement forms part of this development, it is not possible to treat and retain the material on site. Therefore, the made ground is to be treated as waste, based on the findings from WSP and this material will be removed off site to a permitted waste facility. If clean inert natural material is discovered in a significant volume, then a materials management plan (MMP) will be obtained prior to excavation and removal of the material.

4.3 Regulatory controls, permits & deployments

- Planning Condition 08, 55, 103 and 147 decision notice 132429/FO/2021

4.4 Protection of Receptors

The proposed remediation is to and prevent any odour, dusts or any other fugitive emissions. Current monitoring being undertaken within the development site is constant noise monitoring, vapour monitoring with a PID meter and constant subjective monitoring for dust emissions.

Any relic services will be sealed to prevent off site migration. If an unexpected hotspot of contamination or asbestos is encountered, the area will be covered and held within its current location until tested and defined to ensure the correct measures are followed to facilitate the removal for offsite disposal.

4.5 Remediate Methodology & Effectiveness

The proposed remediation is to remove offsite the impacted ground and any trapped pockets. The impacted material cannot remain on site due to the required basement parking area, hence the excavated as waste, and it will be removed to a permitted waste facility.
By removing the source material no risk will remain to any receptors and the site will be sealed by the proposed redevelopment.

4.6 Compatibility with other works

The proposed remediation to remove the impacted ground interlocks with the development requirement to remove materials to construct the foundations and basement car parking.

4.7 Technical & scientific basis for the choice of remediation technology

The material cannot be treated and remain on site due to the development, if treated material was left under the foundation of the new development this could cause differential settlement and compromise the building.

4.8 Effectiveness of any combined options

To reduce the waste generated it might be possible to screen out bricks and hard surfaced materials near the surface, however this will be undertaken where possible when the works commences, and volumes of the materials will need to be assessed as encountered.

4.9 Sustainable approach

An assessment of nature ground if discovered will be made in case it can be reused under a Materials Management Plan.

4.10 Dealing with uncertainties

During the associated piling and later deep earthworks to remove the majority of the material within the footprint of the site to a depth of 2m below ground level a quarantine area will be set up to hold any material which exhibits any form of suspected contamination.
All materials inert or hazardous/contaminated are being tested throughout the project to ensure that the duty of care is being following and waste is being correctly handled and disposed of at permitted waste facilities.
The site also has CCTV. This could help in proving if an accident or malicious incident has occurred on site to explain any odd events.

5.0 VERIFICATION REPORT

Following the remediation, a verification report will be produced detailing the works undertake, explaining the results and findings to confirm that the risks have been reduced and a level of betterment has been achieved.

NOTE: The verification report is normally produced once remediation is complete, however a letter report will be produced where no contamination has been detected. If phased remediation occurs, then separate verification reports for each phase may be required Verification shall prove:

- Remediation has been successful if:
  - independent witnessing of samples obtained from the site to prove impacted materials have been removed via the clients (Renaker) consultant (WSP) and the works to be undertaken in conjunction with the remediation contractor (Portway Remediation).
  - Lines of evidence, including:
    i. Resting GWL – assumed vs actual
    ii. Historical projects completed by Renaker near to the current site
    iii. Removal of any relic items eg tanks
    iv. Soil sampling
    v. PID readings of pile arisings
    vi. Haulers controlled waste transfer note for soils or liquids
    vii. Verification of gas/vapour; protection using PID meter to check and track suspected sources of contamination where hotspots are discovered, where found.

- Remediation has met the objectives & criteria
  - Compliance criteria – This is defined as removing the impacted materials
  - Analytical data, sampling frequencies & methods. Water and soil samples collected will be sent directly to an accredited laboratory holding UKAS/MCERTS(i2).
  - Field monitoring data, level surveys; As the assessment criteria is based on visible free product recovery this will be jointly assessed in conjunction with the Client (Renaker).
  - Additional monthly soil/waste/water sampling will be undertaken to assess the amount of contamination present.

- Remediation has been verified

- This will be results based on the validation samples of the remaining materials/natural strata after the removal of unsuitable materials.

6.0 LONG TERM MONITORING & MAINTENANCE, IF REQUIRED

This will not be required as the impacted material is being removed off site to a permitted waste facility.

7.0 REFINED CONCEPTUAL MODEL

Refined Conceptual Model by WSP GIR-70082598

Source	Pathway	Receptor	Qualitative Comment	Risk Likelihood
Contamination (including asbestos) associated with Made Ground materials from previous industrial land use (both plots) and infilling of a basin Plot C). Contamination relating to former site uses (i.e. Plot D former chemical works) or adjacent industrial uses (e.g. spills, leaks)	Direct contact, ingestion of inhalation	Construction Workers during redevelopment	Limited soil contamination and a single asbestos identification has been recorded. Short term exposure potential can potentially be mitigated during redevelopment via good practice and the use of standard Personal Protective Equipment (PPE), Respiratory Protective Equipment (RPE) and good hygiene practices.	VERY LOW
		Maintenance workers post development	Earthworks for the basements are likely to remove the majority of Made Ground. Any landscaped area post development would likely comprise imported clean soils. If residual contamination remains in Made Ground around periphery then good practice i.e. PPE etc would mitigate potential exposure during any short-term groundworks.	VERY LOW
		Future Site Users (Residential Receptors)	Upon redevelopment the site will comprise building footprint, hardstanding or landscaped areas. The landscaped areas will need to be imported clean topsoil. The potential for direct contact, ingestion or inhalation is therefore likely to be very low.	VERY LOW
	Mobilisation of contamination into groundwater/ surface waters.	Groundwater within bedrock/ Surface Water in River Irwell	Limited groundwater contamination above the relevant quality standards. The limited marginal exceedances are of predominantly low mobility and low toxicity compounds. The removal of Made Ground during the redevelopment of the site would also remove the likely source of	LOW

Source	Pathway	Receptor	Qualitative Comment	Risk Likelihood
			contamination within the groundwater.	
Hazardous Ground Gas related to Made Ground or organic material in infilled dock sediments. Volatile contamination in groundwater causing vapour migration (i.e. Plot D from the former chemical works)	Migration into ground excavations / man-hole chambers	Construction Workers during redevelopment Maintenance workers post development Future Site Users	Recorded ground gas concentrations indicate the site is suitable for CS1 whereby no ground gas protection measures are required. This will need to be confirmed upon completion of all six of the proposed monitoring visits. During develop and during any maintenance all workers should, as is best practice, test any manhole chambers or excavations before entering.	LOW

All works to be undertaken in a controlled manner to reduce the volume of waste materials generated and removed form site. Where possible a materials management plan will be used if inert/natural materials are discovered and removed is required to facilitate the construction of the basement carpark.

Any hotspots discovered will be quarantined instiu and tested to confirm the contaminated type and volume present, then a revision to the RMS will be made to reflect the actual conditions encountered and to record the validation testing/recording also required to confirm that matter was correctly addressed. Environmental Health to be informed of any unexpected ground conditions and proposed solutions within 48 hours of discovery.