The Development of Potentially Contaminated Land – Guidance for Developers

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1. Introduction

It is London Borough of Tower Hamlets (LBTH) duty to ensure that Developers recognise their responsibilities when looking to re-develop potentially-contaminated land, and for ensuring that they carry out any necessary investigations and remediation for dealing with contamination in a responsible and effective manner. Therefore purpose of this document is to advise developers of the type of information LBHT require in order to assess an application for planning permission on land possibly affected by contamination.

Failure to comply with the requirements of the guidance may result in delays in processing your planning application or in your planning application being refused.

1.1 London Borough of Tower Hamlet's Heritage

In Tower Hamlets just like many parts of the UK, there is a legacy of land contamination across the borough as a result of widespread historic industrial activity, particularly around the former docks. Common industrial activities included shipbuilding and dock-associated activities, chemical works, metal works and gas works.

It should be noted that land contamination is not limited only to areas with former industrial land use but can generally be found in varying levels across the borough. This is largely due to differing depths of fill material that were produced during the different phases of redevelopment. Land contamination can be present in the soil, groundwater, or in the form of gas/vapour within the pore spaces in the soil and may, if left untreated, give rise to hazards that put at risk site occupiers, the environment and/or buildings and services.

2. Application

The primary objective of the planning process is to ensure that land is **made suitable for** its proposed end use. Land contamination, or the possibility of it, is therefore a material planning consideration in the preparation of development plans and the decisions of planning applications. All planning applications have to be considered for potential contamination issues to ensure compliance with the Town and Country Planning Act 1990 and with the National Planning Policy Framework (NPPF).

The NPPF was introduced in March 2012. This replaced former Planning Policy Guidance / Statements (including the withdrawn Planning Policy Statement 23 which specifically addressed matters relating to land contamination). NPPF refers to risks from pollution and land stability. Planning decisions must ensure that a site is suitable for its new use taking account of ground conditions and land stability, including natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation. It clearly states:

"…after remediation, as a minimum, the land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990…"

2.1 Part 2A of Environmental Protection Act 1990

The legislation placing duties on local authorities to identify sites that may potentially be contaminated in their area and ensure that they are assessed and, if necessary, cleaned up appropriately.
DEFRA Statutory Guidance defines `Contaminated Land` as land where significant harm is being caused to any receptor or significant pollution of Controlled Waters is being caused (or a significant possibility thereof, in both cases). Parts IIA aims to pro-actively, and systematically, address such unacceptable risks against current uses of any site; but where land is intended for re-development assessment for potential contamination is a key consideration in the development process.

LBTH therefore has an obligation to consider land contamination issues at all stages of the planning and development process and to consider how the planning system can identify and deal with unacceptable risks to human health, the environment and/or buildings and services.

2.2 Your role

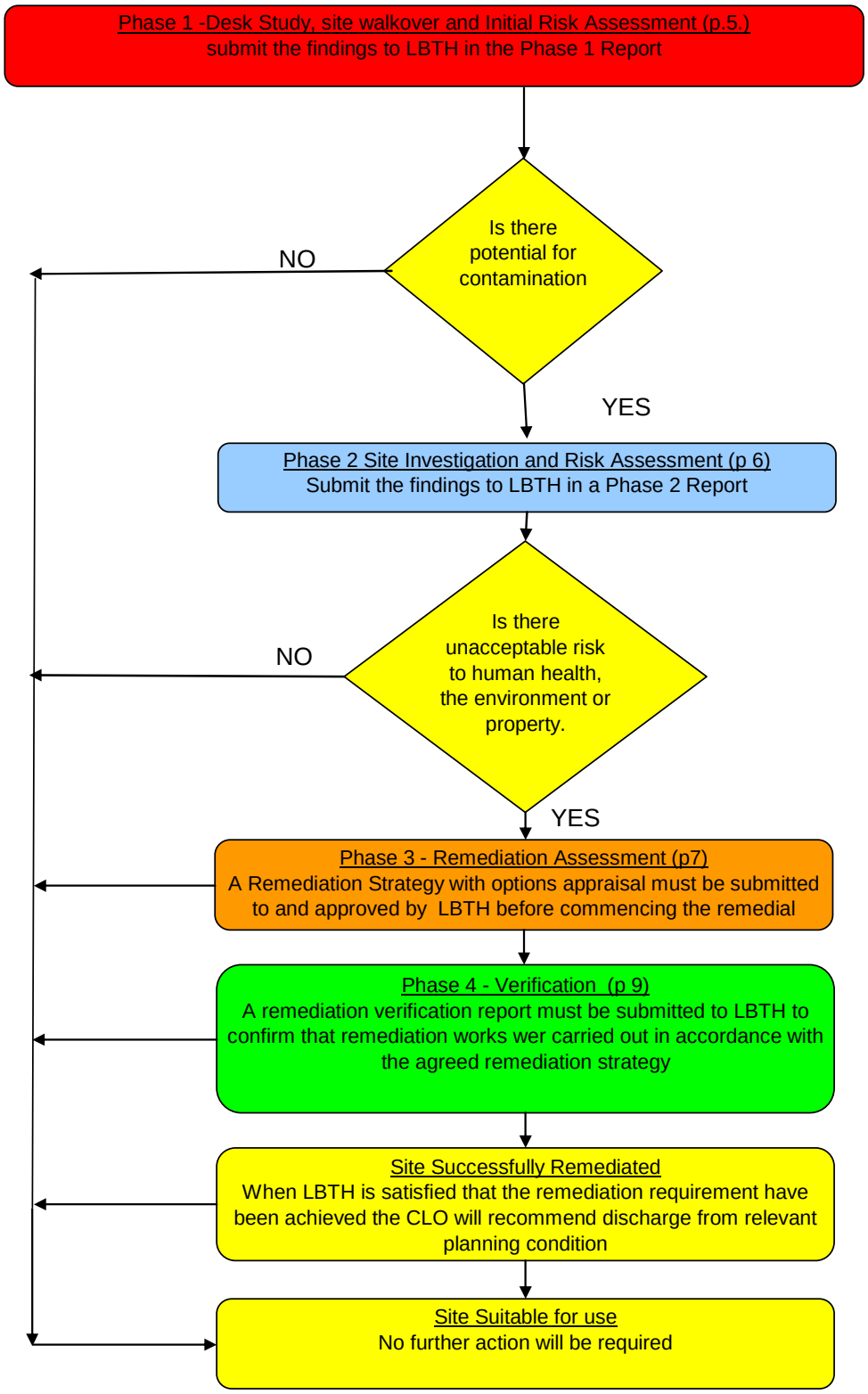
As a Developer it is your responsibility to ensure that a proposed development is safe and suitable for use. You need to demonstrate, to the satisfaction of all Local Authority, that unacceptable risks from land contamination are absent, or can be addressed through remediation.
Because of the potential serious nature of contaminated land issues it is an offence not to comply with all Contaminated Land conditions attached to a Planning Approval.

We strongly-recommend that appropriately-qualified Environmental Consultants are engaged at the earliest opportunity, at project planning stages, and that advice / recommendations are sought.

3. Phased Investigation

Assessment, investigation and remediation of a potentially contaminated site can be considered as containing four key stages or phases. The flow chart below gives an overview of these phases and what should be included in the reporting at each stage of the work. These phases should be followed in order to identify contamination and provide a basis for deciding what actions need to be taken to the make site 'suitable for use'.

Please note that a site specific approach is adopted by the risk assessment methodology and as such not every site will require every phase of the investigation to be carried out. As a minimum, a contamination assessment must include a Phase I investigation - desktop study, site walkover and initial risk assessment



Flow chart detailing the various stages of development of the land affected by contamination.

3.1 Phase 1 Desk based report - preliminary investigation.

The desk study should begin to characterise the site conditions by identifying all potential contamination sources (past and present), their likely hazards and possible risks. A site inspection and a formal desk study should be carried out for this purpose and should also involve obtaining information on the geology, hydrogeology and hydrology of the site and its surrounding area; gathering information on the site's history; an assessment of existing site investigations or surveys; and information relevant to ecological or archeological considerations. The result for this stage will be the production of a conceptual model. The conceptual model is a description and/or representation of the site, incorporating what is known about the ground and groundwater conditions; the actual and potential contamination; the physical conditions and environmental setting; the receptors; and potential pathway linkages between contamination sources and receptors.

The conceptual site model will enable an initial risk assessment to be made, which will indicate whether a Phase 2 investigation is required. The conceptual model should be reviewed and revised through the Phases as more information is gathered.

Phase 1 Desktop Study,
(Submitted prior to commencing development)

1. Purpose and aims of the study
2. Site location and layout plans
3. Appraisal of site history and previous surrounding land uses for at least 150yrs, where possible (to include copies of historic plans where possible)
4. Assessment of the environmental setting, including :
    - Geology, hydrogeology, hydrology
    - Information on coal workings and other mining or quarrying activities
    - Information from the Environment Agency on water abstractions, pollution incidents and landfill site, EPR permitted installations etc.
    - Information from the council on former landfill sites, private water supplies and land contamination etc.
5. Assessment of the current and proposed site uses, and surrounding land uses
6. Assessment of any previous land contamination reports (desk-based or intrusive) or remedial works.
7. Risk assessment based on proposed development, including:
    - An appraisal of actual and/or potential contaminant sources, pathways and receptors
    - Conceptual site model (visual/tabular and written).
8. Recommendation for intrusive investigation works if necessary, detailing rationale behind the proposed design of the investigation.

3.2. Phase 2 Site Investigations and Risk Assessment.

The site investigation(s) should be designed to confirm the presence or absence of the site's conditions suspected during stage 1, desk study. The investigation should aim to gather actual information on the locations, extent, degree and type of contamination, site specific ground conditions including the geology, hydrogeology and hydrology of the site. The information should then update and refine the risk assessment and conceptual model from stage 1.

The investigation should be designed to confirm the extent of contamination in areas where it is suspected. The analytical suite employed should include testing for contaminants that occur commonly and those that would be associated with the site's historical activities, information that will have been established during Phase 1.

Phase 2 Site Investigation and Risk Assessment
(Submitted prior to commencing development)

1. Review of any previous land contamination reports or remedial works

2. Site investigation methodology, including;
    - Methods of investigation and justification
    - Plan showing sampling locations and justification of locations
    - Sampling and analytical strategies
3. Results and findings of the investigation, including:
    - Ground conditions (soil, gas and water regimes, including made ground
    - Borehole/trial pit logs
    - Discussion of soil/gas/water contamination (inc visual, olfactory, analytical and monitoring data)
4. Updated conceptual site model, including comments on the revisions from Phase 1
5. Risk assessment based on contaminant –pathway-receptor model should take account of severity of consequences and likelihood of occurrence. Justification of any risk assessment model used. A detailed quantitative risk assessment may be required.
6. Recommendations for remediation- justification should relate to proposed site end use, risk assessment findings, technical and financial appraisal, and long term monitoring requirements
7. Recommendations for further investigation, if necessary.

3.3 Phase 3 Remediation Strategy

(Submitted and agreed before remediation is carried out)

Phase 3 works, known as remediation, involves the 'clean up' of the site to ensure that the finished development is suitable for use. Remediation can take many forms, e.g. removal of the source of contamination, breaking a pathway by inserting a barrier etc, and is entirely site specific.

Once all investigation and risk assessment work has been completed, if recommended in Phase 2, a remediation strategy is required to be submitted to the Local Planning Authority for approval, **prior to** remediation work commencing. The strategy must clearly state what is going to happen on site to address the contamination issues with definite undertakings as opposed to option proposals. It must also identify how the works will be verified to demonstrate how each pollutant linkage has been broken or controlled.

Remediation works can only commence once the Remediation Strategy has been submitted to and agreed by LBTH. The Remediation Strategy should include the information listed in the checklist below.

Remediation Strategy

1) Objectives for the remediation works.
2) Detailed outline of the works to be carried out, including:
 a) Description of ground conditions (soil and groundwater)
 b) Type, form and scale of contamination to be remediated
 c) Remediation methodology and justification for selection
 d) Ground gas / groundwater monitoring proposals
 e) Scaled site plans / drawings
 f) Phasing of works and approximate timescales. Justification should relate to the proposed end use, risk assessment findings, as well as a technical, financial and sustainability appraisal.
3) Consents and Licences (discharge consents, waste management licences etc...).
4) Site management procedures to protect site neighbours, environment and amenity during works. These should include, where appropriate:
 a) Health and Safety plans and procedures
 b) Dust (potentially including asbestos fibre release), noise and odour suppression/controls – including appropriate monitoring protocols
 c) Control of surface water run-off
 d) Site Waste Management Plan (SWMP).
5) Details of how any necessary variations from the approved Remediation Strategy (arising during the course of the works) will be dealt with, including notification to the Local Planning Authority /Environmental Protection Unit.
7) A 'post-remediation' CSM addressing the identified Pollutant Linkages.

3.4 Phase 4 Verification report

(Submitted following remediation)

The verification report must only be submitted after completion of the remediation works. The purpose is to identify the success or otherwise of these works and to identify whether any further remediation or risk management measures are necessary to ensure the site is suitable for its intended use.

On completion of the remediation works a verification report is required to be submitted to the Local Planning Authority. This will detail the remediation and verification carried out which will have already been agreed with the Local Planning Authority and the results to determine whether the remediation criteria have been achieved. Where longer term monitoring is required, e.g. groundwater or gas monitoring, an interim report must be submitted detailing all the verification work undertaken to date. Where the site's remediation criteria have not been met, the details of the contingency works must be included, this could comprise of further detailed quantitative risk assessment, physical remediation works or mitigation measures for example.

The report should detail whether all pollutant linkages have been broken or effectively controlled and whether the site is suitable for its intended use. An updated conceptual model should also be included.

Verification report

1) Supplementary documentation as per Phase III, Items 3 to 7 (detailed above).
2) Details of who carried out the work and when the works took place.
3) Details and justification of, and 'agreed' changes made to, the original Remediation Strategy.
4) Substantiating data - should include, where appropriate:
a) Laboratory analysis results for imported soils and in-situ verification purpose
b) Physical validation of remediation
c) Photographic evidence of key features. Further details of requirements are given in LBTH's Validation Guidance Note
d) Summary validation data and tables comparing against relevant Assessment Criteria
e) Scaled site plans - of the completed development/validation sample locations/de-lineating areas of remediation/differences from the original Remediation Strategy etc…
5) Confirmation of the 'post-remediation' CSM.
6) Confirmation that remediation objectives have been met.

4. Asbestos

The term ´asbestos' relates to several fibrous minerals regulated under UK law that are known to cause serious health effects (including mesothelioma and lung cancer) when inhaled. Asbestos containing materials (ACMs) were widely used in construction, therefore can be found on site during works.

If the presence of asbestos within made ground is suspected or within a building due for demolition then contact the Environmental Pollution Team immediately.

Key Reference Documents:

1. British Standards Institution (2013). BS 10175:2013: Investigation of Potentially Contaminated Sites - Code of Practice. BSI, London.
2. Chartered Institute of Environmental Health and CL: AIRE (2008). Guidance on Comparing Soil Contamination Data with a Critical Concentration. CIEH and CL: AIRE, London. Available from: www.cieh.org.uk.
3. Environmental Protection Act 1990 – Part 2A. DEFRA, London. Available from: http://www.legislation.gov.uk.
4. Contaminated Land Statutory Guidance. DEFRA. London. Available from: https://www.gov.uk/government/publications/contaminated-land-statutory-guidance
5. Environment Agency (2005). Science Report P5-080/TR3: UK Approach to Evaluating Human Health Risk from Petroleum Hydrocarbons in Soil. Environment Agency, Bristol. Available from: https://www.gov.uk/government/organisations/environment-agency.
6. Environment Agency (2004). CLR11: Model Procedures for the Management of Land Contamination. Environment Agency, Bristol. Available from: https://www.gov.uk/government/organisations/environment-agency.
7. Environment Agency (2009). Human Health Toxicological Assessment of Contaminants. Science Report –final SC050021/SR2
8. London Borough of Tower Hamlets. A Strategy for the Identification of Contaminated Land. 2001.
9. CIEH/LQM (2009), Generic Assessment Criteria for Human Health Risk Assessment, Nathanail et al, 2nd Edition, Land Quality Press.
10. CIRIA (2007) - C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings London CIRIA.
11. CIRIA (2009) - C682 The VOCs handbook: investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination London CIRIA.
12. DCLG (2013) – National Planning Practice Guidance – Land Remediation. Available at: http://planningguidance.planningportal.gov.uk/blog/guidance/land-remediation/why-should-local-planning-authorities-be-concerned-about-land-contamination.
13. NHBC/Environment Agency/CIEH (2008) - Guidance for the Safe Development of Housing on Land Affected by Contamination R&D Publication 66. Available at http://www.nhbc.co.uk/Builders/Technicaladviceandsupport/Publications/ContaminatedLandDevelopment/.

USEFUL WEB-SITES

Department For Environment, Food & Rural Affairs –
Legislation and statutory guidance **http://www.defra.gov.uk/environment/quality/land/**

Environment Agency - www.environment-agency.gov.uk/
Technical guidance on investigating, assessing and remediating contaminated land

Health Protection Agency - www.hpa.org.uk/
Health advice on land contamination

National House Building Council - www.nhbc.co.uk/
Warranty provider for new and newly-converted homes

Environmental Data Services - www.endsdirectory.com/
Directory of Environmental Consultants

Health & Safety Executive - www.hse.gov.uk/