

Old Oak and Park Royal Development Corporation

This paper sets out the Development Corporation's intended approach and strategy to address Land Contamination

OPDC Land Contamination – The proposed approach

Introduction

OPDC has identified a need to consider a strategic approach to dealing with potential contamination as this is likely to be an issue over much of the brownfield land in its area. It is recognised that dealing with land contamination can help contribute to achieving broad objectives regarding the health of people and the environment, and the creation of an exemplary, sustainable new community.

This paper outlines the approach that OPDC intends to apply to the identification, assessment and management of risks associated with the redevelopment of land affected by contamination within Old Oak and Park Royal Development Corporation administrative area.

The approach outlined refers to current regulatory requirements and industry best practice for sustainable management and clean up or remediation of contaminated land, and sets out the process for establishing the land contamination strategy for OPDC.



Figure 1 Old Oak & Park Royal Development Corporation boundary

Context

Government and Mayoral policy

The Government's policy is that works needed for a contaminated site should deal with any unacceptable risks to health, safety or the environment, taking into account its actual or intended uses.

The Mayor's London Plan (policies 5.21 and 5.22) addresses contaminated land and hazardous substances, encouraging the remediation of contaminated sites and sets out policy to deal with contamination.

Brownfield land

Brownfield, (or previously used) land has an important role in delivering housing and supporting economic growth. Given the potential that brownfield land holds it is important that central and local Government (and their agencies), developers and landowners work together to overcome potential obstacles to delivery.

Many brownfield development sites have contamination issues associated with previous land use and may require clean-up or remediation to deal with risks to a range of receptors including people, ecosystems, water quality, and property. Current and future use of the land may be adversely affected. Such potential risks, and uncertainty regarding risks, may inhibit the development or redevelopment of land, and in some cases contribute to long-term dereliction and increasing pressure to develop greenfield land.

Old Oak and Park Royal Development Corporation (OPDC) consists 650ha of brownfield land with a long industrial history. Due to their current and previous land use, much of this land is expected to be contaminated and remediation or clean up may be required. Many of the sites in OPDC will have significant land contamination issues and challenges.

OPDC approach

Within OPDC the opportunity exists to promote strategic and sustainable risk based approaches to land assessment and remediation based upon current best practice and guidance. OPDC wants to ensure the impacts of past and future land uses do not affect the health of people and the environment, or limits its aim to create an exemplary and sustainable new community.

Understanding Land Contamination

The key to understanding land contamination is the need to make judgements about the degree of risk and what to do about the contamination. Regulatory advice and guidance ⁽¹⁾ is available to set the framework, and to identify the principal matters which both Planning Authority and environmental regulator look to be undertaken when approaching redevelopment and land contamination.

The Environment Agency (EA) documents Model Procedures ⁽²⁾ and The Guiding Principles ⁽³⁾ are particularly useful, as they highlight the main stages in the process as well as key messages, best practice and guidance documents. So guided, land contamination projects are more likely to be managed successfully, risks will be reduced and legal responsibilities met.

Technical obstacles as well as potentially large costs mean that it is often neither feasible nor realistic to think in terms of total clean-up of past damage. Instead, the goal is to find solutions that identify and deal with risks from contamination in a sustainable way.

For any contaminated site or collection of sites there are generally two questions:

1. Does the contamination matter, or what is the risk?
2. What needs to be done about it, or how can the risk be managed?

Managing Risk

When dealing with land contamination the term risk refers to risks to health and the environment. There are three essential elements to any risk which make up the 'pollutant linkage'

- A **contaminant** – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution
- A **receptor** – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body; and
- A **pathway** – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a **pollutant linkage** see figure 2.

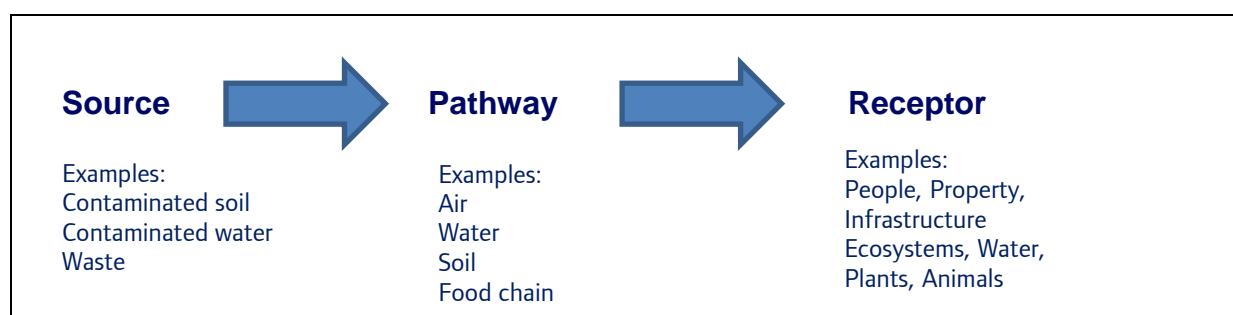


Figure 2. Pollutant linkage

The Risk Management Process

The basic risk management process that needs to be followed has three main components as illustrated in figure 3 and expanded upon below

Risk Assessment	Is the contamination a problem or could it become one?
Options Appraisal	Deciding what to do and how to do it
Implementation of Remediation	Dealing with contamination and proving you have

Figure 3. Key stages in contaminated land management

Risk Assessment

Risk assessments help you decide whether contamination is or is likely to be a problem. A site investigation is usually required to get information to be able to do

this. Understanding the risks from contamination is the first stage in the process of effectively managing it.

A critical first step in all assessments is to define what needs to be assessed and what the objectives are. This will help understand the purpose of the assessment and will strongly influence the following stages in the process. It is also essential that at an early stage an outline conceptual understanding or model of the site is drawn up. A **conceptual model** represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors. The key stages of risk assessment are illustrated in figure 4.

Stage	Activities
Preliminary Risk Assessment (PRA)	define project objectives desk study and site visits to identify pollutant linkages develop conceptual model
Generic Quantitative Risk Assessment (GQRA)	design and undertake site investigations and analysis undertake risk assessments using generic assumptions refine conceptual model
Detailed Quantitative Risk Assessment (DQRA)	design and undertake site investigations and analysis undertake risk assessments using site specific data refine conceptual model

Figure 4. Key stages in risk assessment

Options Appraisal

If the risk assessment demonstrates there are unacceptable risks that have to be managed, you need to decide what to do. Undertaking an options appraisal helps you decide what should be done and how, resulting in a remediation strategy. The UK approach to options appraisal for land contamination is described in Chapter 3 of the *Model Procedures*, which splits it into three main stages as shown in figure 5.

Stage	Activities
Identify feasible options	review and refine conceptual model identify management and technical objectives define remediation objectives and criteria identify a shortlist of feasible remediation options
Detailed evaluation of options	evaluate and analyse options individually and in combination decide which of the options is/are most appropriate
Develop Remediation Strategy	consider the zoning and timing of remediation decide how the strategy will be verified review costs and benefits develop a practical strategy for the remediation

Figure 5. Key stages options appraisal

Options should be identified that permanently break the identified pollutant linkages and mitigate any pollution or harm that has already occurred using the best practicable techniques. Sustainable options should be considered.

Implementation of remediation

Once you have established the general remediation strategy through your options appraisal, you need to decide how to implement it, show it has been successful and set in place any ongoing monitoring or maintenance.

Remediation should achieve the pre-defined objectives without harming human health or the wider environment or causing pollution.

Stage	Activities
Prepare implementation plan	identify management responsibilities consult with relevant parties (regulators, land owners, etc) confirm what regulatory permits you need develop phasing and timetable
Design, implement and verify remediation	complete pilot trials procure contractors obtain permits produce verification plan carry out remediation verify what has been done
Long-term monitoring and maintenance	monitor how well remediation has worked review and adjust monitoring programme as necessary analyse results and report them take action if results indicate a need

Figure 5. Key stages implementation of remediation

Strategic opportunities for sustainable remediation

Cleaning up large contaminated brownfield sites is perceived as expensive and difficult but the success of the scale of the sustainable remediation achieved on the Olympic Park has challenged this view.

Global Remediation Strategies

A Global Remediation Strategy (GRS) was developed and implemented for the regeneration of the 250ha Olympic Park. The GRS established the framework by which Site Specific Remediation Strategies (SSRS) were determined for each Olympic Park construction zone. Implementing this framework enabled sustainable soil and groundwater remediation techniques to be planned and delivered and enabled more than 90 per cent of one million cubic metres of contaminated soil to be cleaned and reused on site.

Brownfield land within a master planned area may have a combination of problems, including contamination that can be addressed more economically and sustainably with a strategic approach. Global Remediation Strategies for large multiple development sites can help strategically address land contamination issues at the planning stage and help deliver sustainable results on a strategic scale.

Identifying the land contamination constraints or large brownfield sites early in the master planning process can bring benefits of time and cost savings to brownfield redevelopment. A Global Remediation Strategy (GRS) helps to identify these constraints and establishes the framework to deal with any risks across the early in the planning process. A GRS for a large brownfield site sets out the site wide principles and technical procedures for establishing conceptual site models and

taking forward site specific remediation strategies for the improvement of land quality.

A Global Remediation Strategy will help to:

- identify the land quality constraints across multiple sites
- establish the framework to identify and deal with any risks
- speed up the planning process
- reduce costs
- help facilitate sustainable remediation options

Costs

Clean up costs associated with contaminated sites can be a significant obstacle for brownfield redevelopments. The Homes and Communities Agency has recently published guidance on how to estimate the cost of preparing a brownfield site for reuse including on estimates for the remediation of land affected by contamination based on 2014 prices⁽⁴⁾.

Establishing the framework for the assessment of risks and problems within a site helps developers to plan for any required remediation works early within the planning process. With problems identified early, more time is available to implement less expensive, sustainable, clean up technologies. With a GRS framework in place to address contamination issues, multiple brownfield sites are likely to have an easier and less expensive route through the planning process.

Most remediation technologies are more economically viable when larger development zones require treatment. Establishing a GRS for large master planned developments will bring significant cost savings. Establishing a GRS will enable clean up and waste management costs to be identified early, be targeted where required and planned through the life of the redevelopment programme.

Sending contaminated soils to landfill is no longer economic. Sustainable, economic and local alternatives are required.

Sustainable Remediation and Waste

The presence of contamination can have significant economic and regulatory implications to the cost of disposing of surplus excavated material which may be classed as waste. Under European legislation a waste is any substance or object which the holder discards or intends or is required to discard.

The Environment Agency has addressed this with the waste industry and has developed a Code of Practice which helps unlock waste constraints by assessing brownfield land a resource rather than a waste.

The CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP) ⁽⁵⁾ helps facilitate sustainable remediation for contaminated brownfield sites. It provides a clear, consistent and efficient process which enables the reuse of excavated materials on site, or movement between sites.

Use of the DoWCoP supports the sustainable and cost-effective redevelopment of brownfield land, and provides an alternative to regulatory environmental permits or waste exemptions. It allows industry to treat soils as a resource and sustainably

reuse materials initially classified as waste or contaminated, within an appropriately robust and lighter touch regulatory framework.

Brownfield sites may share similar or related contamination issues. These can be addressed strategically and economically by using the DoWCoP. By promoting and using the DoWCoP within OPDC, land contamination constraints can be turned into opportunities for developing economic and sustainable soil treatment centres. These centres could serve individual or clusters of brownfield sites and reduce the costs associated with land remediation.

The DoWCoP has recently been adopted by the Excavated Material and Waste Commitments of the Thames Tideway Tunnel ⁽⁶⁾

Proposed approach for Old Oak and Park Royal

OPDC's approach will be shaped by its role both as a local planning authority, and its potential future role as a land-owner.

In assessing the risks and the management of risks from contamination, OPDC as a local planning authority will assess the suitability of the proposed use for the conditions on that site, and will expect developers to assess their proposals.

As the planning system works alongside other legislative regimes in dealing with land affected by contamination, OPDC will work in collaboration with its partners and stakeholders to ensure that land contamination is dealt with. OPDC's emerging local plan will provide policy guidance for developers around protecting residents' health and the environment from contaminants and hazardous substances.

Additionally, depending upon the outcome of future conversations with the government about OPDC's land-owning function, OPDC may become a land-owning body. In that event, OPDC can be expected to assume further powers and responsibilities to assess site conditions, and support its role in tackling the effects of land contamination.

The proposed approach for OPDC can be summarised as:

- ensure remediation strategies are established for all contaminated brownfield sites that come forward for redevelopment within OPDC
- ensure the risk based approaches to contaminated land management outlined above are followed for redevelopment of potentially contaminated land in Old Oak and Park Royal.
- support sustainable remediation options and promote the use of the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP). OPDC will also explore with waste planners and industry how DoWCoP could be used to establish soil treatment centres to serve brownfield sites within Old Oak , Park Royal and neighbouring development and Opportunity Areas.
- OPDC will review the opportunities for establishing an overarching strategic Global Remediation Strategy, depending upon the outcome of discussions with government on land ownership.

References

- (1) Land Contamination: technical guidance
<https://www.gov.uk/government/collections/land-contamination-technical-guidance>
- (2) Model Procedures for land affected by contamination
<https://www.gov.uk/government/publications/managing-land-contamination>
- (3) Environment Agency Guiding Principles for Land Contamination
<https://www.gov.uk/government/publications/managing-and-reducing-land-contamination>
- (4) HCA Guidance on dereliction, demolition and remediation costs
<https://www.gov.uk/government/publications/guidance-on-dereliction-demolition-and-remediation-costs>
- (5) CL:AIRE Definition of Waste Code of Practice (DoW CoP)
http://www.claire.co.uk/index.php?option=com_content&view=category&id=977&Itemid=330
- (6) Excavated Materials and Waste Commitments: Alterations No 1. Thames Water Utilities Limited (Thames Tideway Tunnel) Order 2014. Doc Ref APP142 www.thamestidewaytunnel.co.uk/media/40033/APP142-Excavated-Material-and-Waste-Commitments.pdf

When dealing with land that may be affected by contamination, the planning system works alongside a number of other regimes including:

- The system for identifying and remediating statutorily defined contaminated land under [Part 2A of the Environmental Protection Act 1990](#). The government has published [statutory guidance](#) on Part 2A which concentrates on addressing contaminated land that meets the legal definition and cannot be dealt with through any other means, including through planning.
- [Building Regulations](#), which require reasonable precautions to be taken to avoid danger to health and safety caused by contaminants in ground to be covered by buildings and associated ground.
- [Environmental Permitting Regulations](#), under which an Environmental Permit from the Environment Agency is normally required to cover the treatment and/or redeposit of contaminated soils if the soils are 'waste'.

