

3.4.03 Land Contamination

Introduction: why is this important?

Bradford's rich industrial heritage provided the foundations for the economic development and redevelopment of the District, however, part of that legacy is the potential for contamination of sites across the District.

Land contamination may cause illness and in extreme circumstances it can cause death. Health effects range from headaches, skin and respiratory irritation through to cancer and birth defects.

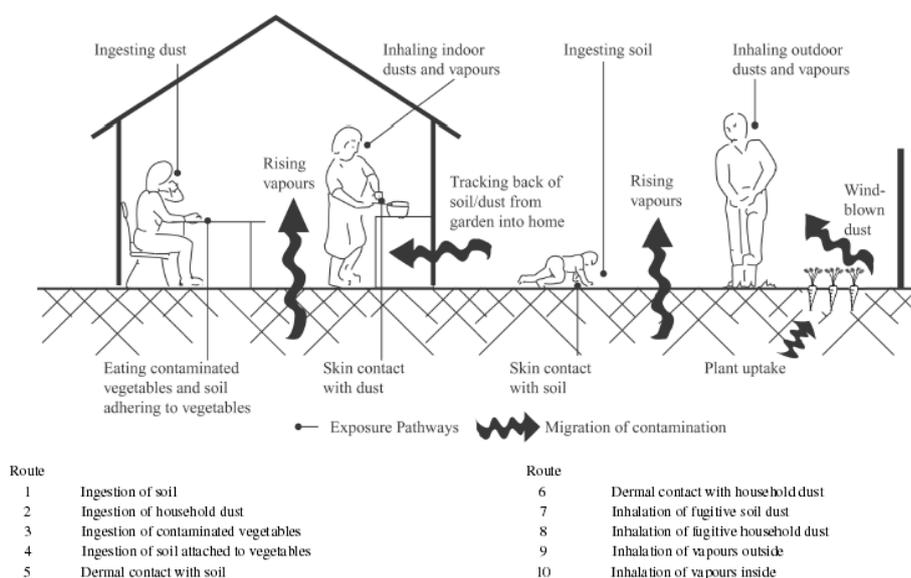
Contamination takes a variety of forms and can be found in soil, water and ground gases. Dependent upon the concentration and nature of the substances present, harm may also be caused to the ground and surface water, plants, wildlife, crops, property or ecological systems as a whole.

The highest risk from land contamination is when people are in contact with polluted soil or water, or where the pollution causes gases and vapours to get into buildings and concentrations reach dangerous levels. Contaminants can get into the human body through the mouth, for example when contaminated dust and soil is on hands when eating food, where contaminated soil and dust has not been cleaned off vegetables during preparation or when crops have been grown in contaminated ground. Some contaminants can also enter the body through skin contact with soil and dust and through inhalation.

In addition to the potential physical impact of land contamination, there are also financial and social implications during property sales if environmental searches identify potentially contaminating historical land uses and mortgage companies may refuse to lend.

Summary conceptual model of ways that humans may be exposed to land contamination

Figure 3.2 An illustration of the potential human exposure pathways considered by the CLEA model



Source: Environment Agency, 2004

What do the facts and figures tell us?

Nationally, contaminated land sector activity was examined by Coulon et al (2015). This study confirmed that, based on the data available, 92% of land contamination is dealt with through the planning system, 4% being dealt with through Part 2A and 4% through voluntary action. Some 91% of Local Authorities have established a list of potentially contaminating sites, suggesting that over 230,099 sites may be affected nationally, with remediation costs in the region of £42,200,000.

The study identified that 511 sites have been determined under Part 2A by 66 Local Authorities. Arsenic, lead and nickel were the top three metal and metalloid contaminants. Benzo(a)pyrene, polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPHs) were the most common organic contaminants which were cited as the issue requiring determination.

In the year 2014-15, Environmental Health dealt with 364 planning consultations relating to land contamination and 69 environmental searches and due diligence enquiries. The number of sites in Bradford determined as contaminated land under the provisions of Part 2A of the Environmental Protection Act 1990 is 2. The cost of remediation of the two Part 2A sites in question was £5,673,397 over 12 years, not including Local Authority officer costs. The number of sites known to have been dealt with through voluntary action by the land owner is 8.

When local historic maps for eras ranging from 1852 to the 1990s were examined in the early 2000s, 57,000 sites across Bradford District were identified as having potentially contaminating historic land uses. Some of these land uses appeared on maps for many of the years examined so the actual number of sites requiring inspection is significantly less, but equally many other sites may not yet have been identified.

There are many sites across the District which may have some ground contamination present, but which can be safely remediated and redeveloped to provide safe and affordable domestic and commercial properties.

What strategies, policies and best practice have been developed locally and nationally?

The National Planning Policy Framework (paragraphs 120 and 121) requires land contamination to be resolved dealt with through the planning process. Most polluted land is remediated by developers during redevelopment for new land uses. Each Local Planning Authority requires the appropriate investigation of land contamination and assessment of the potential risks associated with the previous land uses.

The Environmental Health Service is consulted as part of this process, ensuring that the subsequent development of sites is carried out in a way which protects the health, safety and welfare of future site users. This is necessary whether they are residents of new housing or occupants of new commercial facilities. Any remediation work must also protect ecology and controlled waters such as rivers and groundwater. Sustainable redevelopment and remediation of sites is encouraged.

Where sites are currently in use, for example as houses with gardens, and there is likely to be a significant risk of contamination in the ground from historic use of the land, Local Authorities can use Part 2A of the Environmental Protection Act 1990, which is also known as the 'Contaminated Land Regime'. This legislation enables local authorities to investigate and deal with contamination, ensuring protection of public health and the environment.

Locally, the City of Bradford Metropolitan District Council Draft Core Strategy includes the policy which states:

'Proposals for development of land which may be contaminated or unstable must incorporate appropriate investigation into the quality of the land. Where there is evidence of contamination, remedial measures must be identified to ensure that the development will not pose a risk to human health, public safety and the environment. Investigation of land quality must be carried out in accordance with the principles of best practice.'

Developers submitting planning applications for sites in the District must ensure that they comply with this policy.

In order to assist developers in understanding the requirements of the planning regime with regard to land contamination, advice is provided in a regional document 'Development on Land Affected

by Contamination Technical Guidance for Developers, Landowners and Consultants' (Yorkshire and Humber Pollution Advisory Council [YAHPAC], 2016) which is updated annually. This guidance was developed by Local Authority Contaminated Land Officers and it is used by most Local Authorities in the region. It is acknowledged as being 'best practice guidance for the North of England' by the Planning Inspectorate.

Best practice guidance in the management of land contamination is provided in the 'Contaminated Land Report 11 'Model Procedures for the Management of Land Contamination' (Environment Agency, 2004) and other associated procedural and technical guidance.

Implementation of Part 2A of the Environmental Protection Act 1990 must follow the requirements of the 'Contaminated Land Statutory Guidance' (DEFRA, 2012) and associated guidance. There is a large body of regional and national scientific and technical guidance on land contamination issues.

Most of the key documents can be accessed online at:

http://www.claire.co.uk/index.php?option=com_content&view=article&id=877&Itemid=357

What challenges have been identified in a local context?

The redevelopment of land for new property must be undertaken in a way which ensures that health is not adversely affected. Consultation on land quality issues during the planning process provides quality control of both the investigation and remediation work undertaken, ensuring that new developments are fit for use. This helps to achieve the aims of the New Deal and the wider Council priorities for Bradford in relation to providing decent, affordable homes, better health, better lives and safe, clean and active communities.

Access to affordable food is identified under Priority 14 of the Bradford Health and Wellbeing Strategy and land quality can be an issue in relation to allotments and community gardens sites. With the increasing emphasis and popularity of 'grow your own' vegetables and fruit, the quality of land has to be a consideration to avoid exposure to unacceptable concentrations of contaminants. The low quality of land sometimes used for informal cultivation or 'guerrilla gardening', for example on derelict sites, road verges and near busy roads, may also pose a risk to health.

Mine gas can also be an issue, especially in the south of the District, where coal mines were historically located. Ground gas, whether from mines, landfills or other biodegradable material, can include methane which is explosive, flammable and toxic, carbon dioxide which causes suffocation and is toxic, and/or other vapours such as solvents which are toxic and may be carcinogenic. Even agricultural land and farms may be affected by chemicals, such as herbicides and pesticides, as well as asbestos from building materials, leaks of fuel and lubrication from tanks and vehicles and imported contaminated fill used for levelling sites.

Climate change effects, including flooding, can have an impact on land quality. Higher groundwater levels may cause mobilisation of historic industrial contamination within the ground. Major flood events may result in sewage treatment works being overwhelmed and raw sewage being deposited on previously cultivated land such as fields, allotments and gardens. Landfill sites have often been located in former gravel pits on river floodplains and in quarries. Where these are affected by flood waters it can result in contaminated water (leachate) overflow from the waste onto adjacent land and rivers.

Radon gas is emitted by naturally occurring minerals in some of the rocks in Bradford District. Radon becomes a problem when it gets into houses as it can cause lung cancer. Building Regulations require protection to be included in new houses in areas where there is a probability that greater than 3% of properties may have radon present at above the current Action Level (200Bq for residential, 400Bq for working environments).

House owners, house purchasers and their solicitors often contact Environmental Health with concerns when potentially contaminating historic land uses are identified by the environmental searches which are carried out during property sales. Environmental Health provides a free service supplying information about the Part 2A status of properties. Environmental Health also provides chargeable information on other environmental concerns relating to property transactions. This information may include: location of landfills, records of pollution incidents, reviews of planning history to identify previous investigation reports and land quality information, radon category etc.

Whilst dealing with environmental searches Environmental Health also makes an assessment whether the property may require a future inspection under the provisions of Part 2A of the Environmental Protection Act 1990, the 'Contaminated Land Regime'.

What do our stakeholders tell us?

Stakeholders with an active interest in land contamination are developers, consultants, the Local Planning Authority and Regeneration organisations. The Environment Agency may be involved where sites meet their consultation criteria e.g. for potential major impact on controlled waters. Others with site specific interests include householders during property transactions, housing providers, Yorkshire Water, land agents and financial institutions.

Levels of dereliction in a locality have long been identified as a material factor in the quality of life for residents. However, there is a lack of awareness about the sources and extent of land contamination amongst the general public until it becomes an issue during house sales, redevelopment or where a site may be inspected under Part 2A.

Recommendations: What do we need to do? How do we ensure this remains a priority?

Environmental Health will continue to respond proportionately to planning consultations that incorporate land quality considerations. This will include providing support to the Local Planning Authority in relation to pre-application discussions to ensure that developers are clear about their responsibilities to address land contamination, e.g. advising on the reports that they need to commission and submit.

Environmental Health will continue to provide land quality information to local residents and companies during house sales and property transactions. Within the Local Authority, departments need to work together to promote the regeneration of the District in a way which ensures that land contamination does not adversely affect health and the environment.

Environmental Health promotes a consistent approach to redevelopment of land which may be affected by contamination by using guidance developed by the regional officer group, YAHPAC. For example, YAHPAC (2016) provides clear understanding of how contamination is dealt with in the planning process. Technical consistency in local authority officer decision making is also addressed by YAHPAC procedural guidance on dealing with issues such as verifying installation of gas protection systems. This approach enables Bradford to provide developers with a 'level playing field' for sustainable redevelopment using current best practice and agreed protocols.

Environmental Health ensures a consistent approach to the redevelopment of land which may be affected by contamination through the use of guidance developed by a regional officer group, YAHPAC. For example, the annually updated YAHPAC (2016) details how contamination is dealt with in the planning process. Technical consistency in Local Authority officer decision making is addressed by YAHPAC procedural guidance on issues such as verifying installation of gas protection systems. This provides confidence in a regional 'level playing field', which is a critical element in the attraction of sustainable redevelopment within Bradford District.

The continued development of new guidance, and refinement of existing guidance, reflecting changes in subject knowledge and industry practice is required to ensure the continued delivery of high and consistent quality services by Local Authorities.

References

DEFRA (2012) *Contaminated Land Statutory Guidance*. HM Government

Environment Agency (2004) *Model Procedures for the Management of Land Contamination*. Environment Agency

Frédéric Coulon et al (2015) *Examination of contaminated land sector activity in England Defra – Science Project 1011 Final Project Report*. Cranfield University and CL:AIRE

YAHPAC (2016) *Development on Land Affected by Contamination Technical Guidance for Developers, Landowners and Consultants. Version 7.2*. Yorkshire & Humberside Pollution Advisory Council