

Summary

A statutory regime for the identification and remediation of contaminated land came into effect from the 1st April 2000. This is a review of this strategy in accordance with the contaminated land guidance from DEFRA in 2012.

Under this regime each authority has a duty to produce a written review of the original strategy outlining how it will deal with contaminated land that is posing an unacceptable risk to human health or the water environment in a rational, ordered and efficient manner.

Barnet is primarily residential with some light industrial history and a number of small former landfill sites. The investigation for potentially contaminated sites concentrates on current or previously industrial areas, though information on past and present land use will be gathered for the whole borough. The underlying geology of the borough consists of London clay, which reduces the likelihood of off site migration of contaminants. The borough also has few ground water protection zones. Nonetheless, the council thoroughly investigated all potential issues of pollution linkage involving surface and ground water, and upward and lateral migration of contamination.

The strategy defines how the London Borough of Barnet intends to carry out the following duties:

- Inspection of land in the borough to identify Contaminated Land.
- Establishing appropriate persons to bear responsibility for remediation.
- Deciding what remediation is required, and ensuring this remediation takes place.
- Recording prescribed information about regulatory actions on a public register.

A program for inspection was undertaken from 2002-2009 and it involved consolidating and reviewing records held by the council, developing a corporate contaminated land database, risk assessing sites for further inspection and developing remediation strategies.

Sites may arise that pose an immediate risk to human health or the wider environment. Such sites will be and have been dealt with as a high priority.

The Council's policy framework is to create opportunity for all so as to ensure that everyone in Barnet has a chance to be involved and active in a Borough that is modern, attractive, safe and clean and is revitalised; a good place to live, work and visit. This Strategy has been developed to ensure that the land in the borough does not pose a significant risk to the people living and working in it.

London Borough of Barnet - Contaminated Land Strategy

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London Borough of Barnet Contaminated Land Strategy

1.0 Introduction

The contaminated land provisions inserted into the Environmental Protection Act (EPA) 1990 by Part IIA of the Environment Act 1995, require each local authority to "cause its area to be inspected from time to time for the purpose of identifying contaminated land".

As part of this duty the council produced a written strategy in 2001, outlining how it would inspect, identify and manage contaminated land. This document has now been updated in 2012 and provides a review of the 2001 Strategy.

The main objective of the Part IIA Contaminated Land regime is to provide an improved system for the identification, and remediation of land, where the contamination is causing an unacceptable risk to human health, or the water environment. This will be assessed in the context of the current use and circumstances of the land. The primary regulatory role under Part IIA rests with local authorities, and their role will be:

- i. To inspect their areas to identify Contaminated Land.
- ii. To establish appropriate persons to bear responsibility for remediation.
- iii. To decide what remediation is required, and to ensure that the remediation takes place. In some cases this will involve carrying out works in default.
- iv. To record certain prescribed information about their regulatory actions on a public register.

Producing and publishing the Strategy is a statutory obligation under the Environmental Protection Act 1990. The provisions were inserted into the 1990 Act by the Environment Act 1995 and enacted on the 1st April 2000.

The strategy is required to set out how the London Borough of Barnet identified and remediated areas of contaminated land within its boundaries. The strategy and review is a process to ensure that any associated unacceptable risks to human health or to the wider environment area is addressed in an appropriate and cost effective manner.

Strategic inspection 2002-12

The local authority has taken a strategic approach to carrying out its inspection. This approach was rational, ordered and efficient, and it reflected local circumstances. The local authority set out its approach as a written strategy in 2001 which it formally adopted and published in 2001-2. This Revised Strategy of 2012 produced in

accordance with previous versions of DEFRA Contaminated Land Guidance is published in Autumn 2012.

The local authority will keep its written strategy under periodic review to ensure it remains up to date. This will be reviewed in 2016-17.

1.1 General Policy

1.1.1 Environmental Issues

Barnet Council has already adopted policies that deal with a range of environmental issues including contaminated land.

The Council's Corporate Plan 2010-14 "A successful London suburb" - the vision

"We want Barnet to continue to be a successful, prosperous place where people want to live. We will ensure that the borough is clean and safe, preserve green spaces, provide excellent educational opportunities and facilitate housing choices that support residents' aspirations. We believe that good access to health and employment opportunities for all will help the borough to remain cohesive and at ease with its growing diversity."

The contaminated land strategy and review in 2012 supports the Corporate Plan. As the local planning authority Barnet Council deals with many former commercial sites which have had uses that may have led to contamination. The Local Development Framework outlines the role of town planning in maintaining and improving environmental quality.

The Framework states that "When considering application for the redevelopment of potentially contaminated land the council will need to be sure that the development proposed is suited to the constraints of the land and that the proposal takes proper account of any contamination. The council will have regard to the Planning Guidance which states that contamination is a material planning consideration and that the responsibility for the safe development and secure occupancy of a site lies with the developer.

The developers have been required to carry out a full site investigation of potentially contaminated sites, considering both the possible risks to future users of the site and threats to ground and surface water quality. Before development can start appropriate remedial measures are agreed with the planning authority and carried out in line with current guidelines, having regard to relevant legislation. The developer is required to provide a report verifying that the works have been carried out as agreed. This will normally be achieved by imposing conditions on planning permissions."

1.1.2 Enforcement

Until the introduction of the new contaminated land legislation it was possible for the local authority to use the nuisance provisions of the Environmental Protection Act 1990 Part III to require the remediation of a contaminated site. For action to be taken the council had to establish the existence of "land in such a state as to be prejudicial to health or a nuisance". To date, Barnet Council has rarely had to use these powers to require the remediation of any land. The regime provides specific legislation for the identification and remediation of contaminated land which local authorities must implement and enforce.

1.1.3 Public access to information

As part of the investigation in to potentially contaminated sites the council has gathered information such as previous land uses and site investigations. The council is maintaining a public register of any enforcement notices and related action taken in relation to contaminated land. It can be accessed by writing to the Manager of Scientific Services at the L.B.Barnet.

1.1.4 Consultation and involvement of community groups and businesses.

In 2001-2 Barnet Council had meetings and forums with the public and local organizations and published the Strategy on line. From Autumn 2012 www.barnet.gov.uk will contain information about the revised Strategy and a copy of the report.

2.0 Regulatory Context

2.1 Definition of Contaminated Land and Duties of the Local Authority

Part IIA of the 1990 Act established a specific contaminated land regulatory regime, including a definition of contaminated land and a procedure for securing remediation when such land is identified.

The primary regulatory role under Part IIA rests with local authorities, and their role will be to cause their areas to be inspected to identify contaminated land.

"Contaminated Land" is defined as:

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that-

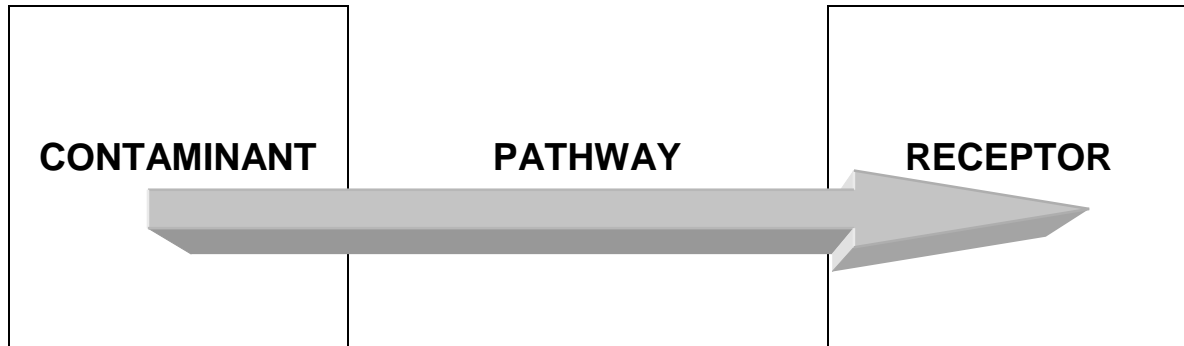
- a. SIGNIFICANT HARM is being caused or there is a SIGNIFICANT POSSIBILITY of such harm being caused; or
- b. Pollution of controlled waters is being, or is likely to be caused"

Before the local authority can make a judgement that any land appears to be Contaminated Land on the basis that SIGNIFICANT HARM is being caused, or that there is a SIGNIFICANT POSSIBILITY of such harm being caused, the authority

must identify a SIGNIFICANT POLLUTANT LINKAGE. This means that each of the following has to be identified:

- a. Contaminant;
- b. A relevant Receptor; and
- c. A Pathway.

Fig 1. 1.0 Significant Pollutant Linkage



Where a site represents a serious threat it may be designated as a Special Site and the enforcement is then passed on to the Environment Agency.

Enforcing authorities will establish the appropriate person(s) to bear responsibility for remediation.

For any piece of land identified as Contaminated Land, the local authority needs to establish:

- a. who is the owner of the land.
- b. who appears to be in occupation of all or part of the land; and
- c. who appears to be an appropriate person to bear responsibility for any remediation action, which might be necessary.

The local authority needs to notify, in writing, the persons set out above, as well as the Environment Agency, of the fact that the land has been identified as being Contaminated Land, and how they have been classified i.e. owner etc.

The issuing of a notice has the effect of starting a process of consultation on what remediation might be appropriate.

The notification of the Environment Agency enables the Agency to decide whether:

- It considers the land to be a special site, based on prescribed conditions.
- It wishes to provide site-specific guidance on remediation to the local authority.
- It requires further information on the land from the local authority, to prepare its national report.

Enforcing authorities will decide what remediation is required in any individual case and ensure that such remediation takes place, either through agreement with those responsible, or in certain circumstances, through themselves carrying out the work.

Once land is classified as "Contaminated Land" the relevant enforcing authority determines future action.

Under the provisions concerning liability, responsibility for paying for remediation required by a remediation notice will, where possible, follow the "Polluter Pays" principle. In the first instance, persons who caused or knowingly permitted the substances to be in, on or under the land will be liable. If none can be found, responsibility will pass to the current owner or occupier. Responsibility will be subject to limitations set out in Part IIA and the guidance.

Local Authorities will also record certain prescribed information about their regulatory actions on a Public Register.

- the authority has to set out its approach as a written strategy.

-

The authority needs to prepare a written record of any determination that land is contaminated land, providing a summary of the basis on which the land has been designated. This will include information on the Significant Pollutant Linkage(s) found.

Where land has been identified as being Contaminated Land, and consequent action taken, the authority has to include specified details about the condition of the land, and the remediation actions carried out on it in its Register. Having the information on its register makes it available to the public and those with an interest in the land.

The authority must also provide information on land that is not on its register, but that it has had cause to investigate to Local Searches.

2.2 Principles of Risk Assessment

The government has adopted a "suitable for use" approach to the remediation of contaminated land, as it considers that this is the most appropriate approach to achieving sustainable development in this field.

The suitable for use approach focuses on the risks caused by land contamination. It recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore need to be assessed on a site-by-site basis.

The suitable for use approach consists of three elements as follows:

- a) Ensuring that the land is suitable for its current use;

b) Ensuring that the land is made suitable for any new use, as planning permission is given for that new use; and

c) Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health, or the environment, in relation to the current use or future use of the land for which planning permission is being sought.

The definition of contaminated land is based on the principles of risk assessment. In the statutory guidance “risk” is defined as the combination of;

a) The probability or frequency of occurrence of a defined hazard (for example, exposure to a property off a substance with the potential to cause harm); and

b) The magnitude (including the seriousness) of the consequences.

2.3 Regulatory role of the Environment Agency

The Environment Agency will have a number of roles with respect to contaminated land. It will

- Assist local authorities in identifying contaminated land, particularly in cases where water pollution is involved;
- Provide site-specific guidance to local authorities on contaminated land;
- Act as the enforcing authority for any land designated as a “special site” ; these include cases where the land is affecting controlled waters and sites which have had certain industrial uses such as oil refining and explosives;
- Publish periodic reports on contaminated land; and
- Carry out research and provide scientific and technical advice to local authorities on the remediation of contaminated land.

2.4 Development of the Strategy

2.4.1 Internal team responsible

The production and implementation of the Strategy will be lead by the Scientific Services Team in Barnet council’s Environmental Health Section.

2.4.2 Internal Liaison

A contaminated land working group was set up with representatives from the following sections:

- | | | |
|---------------------|---------------|-----------------------|
| - Planning | -Highways | -Building Control |
| - Property Services | -Land Charges | - Policy Unit |
| - GIS | -Legal | -Landscape Architects |

- Survey Section

-Public Consultation

The group met to review progress in preparing the strategy and, once completed it will continue to meet to review the strategy's implementation.

Meetings were held on an as and when basis if a high priority site arises requiring urgent action. This will continue.

2.5 Objectives of the Strategy Document

This Strategy Document was produced to fulfil the statutory requirement for a local authority to publish a written strategy for the inspection of its area for contaminated land. It is designed to allow Barnet Council to take a strategic approach to the identification of potentially contaminated land. It ensured that the most serious problems are located first, that resources are used effectively and that any action is proportionate to the seriousness of any actual or potential risk.

The document outlines the steps that were taken by Barnet Council to identify any contaminated land.

The Revised strategy will also provide information to the Environment Agency and the DEFRA for its report on contaminated land.

3.0 Characteristics of the Local Authorities Area

The Borough of Barnet lies along the northern fringe of greater London, stretching from High Barnet and Monken Hadley in the North, to Cricklewood and Golders Green in the South. Barnet is one of the 32 London Boroughs created in 1965. It contains the former urban districts of Chipping Barnet and East Barnet (both previously in Hertfordshire), the urban district of Friern Barnet and the boroughs of Finchley and Hendon, which were previously in Middlesex.

Barnet lies within the Natural Area of the Northern Thames Basin, identified in recent study by the Countryside Commission and English Nature, which takes account of landscape and natural history interest. The London Borough of Barnet has a total area of 8,663 hectares. One third of the area is protected by Green Belt designation and this has had an important role in the development and growth of the borough. The total population of Barnet is estimated at 356,400 from 2011 census data.

Three main arterial roads cross the Borough. On the western boundary, the Edgware Road, Watling Street, and A5 are parts of a major Roman route. The main medieval route was put through further east and runs through Finchley, Whetstone, Chipping Barnet and Hadley. This was the Great North Road or A1, which after the bypass was built in the 1920s became the A1000. The M1, part of the next generation of main roads, also opened through the borough in 1966.

3.1 Land use characteristics.

Barnet is predominantly residential in character, although made up of a number of district communities. Commercial activity tends to be concentrated in High Streets and around individual town centres, with a small amount of light industrial development, especially near the Edgware Road.

There is a good deal of variation from one part to another and each district has its own identity. The villages of Arkley, Totteridge and Monken Hadley in the North of the Borough have retained a rural quality, with groups of houses set amongst a traditional English landscape of ancient commons, old hedgerows and open fields. The middle area of New Barnet, Whetstone and Finchley has more of a leafy suburban character, with family houses usually associated with good-sized gardens, small parks and plenty of trees. The southwestern areas from Colindale and West Hendon to North Cricklewood are more densely built up, with a more urban feel and are in the process of several regeneration projects.

3.2 Protected Locations

Barnet holds part of one Site of Special Scientific Interest (SSSI), Brent reservoir, and five sites have now been designated as Local Nature Reserves (LNRs). These are Rowley Green, Scratchwood and Moat Mount Countryside Park, Oakhill Woods Nature Reserve, Coppetts Wood and Glebelands nature Reserve and the Big Wood and Little Wood Nature Trail.

3.3 Details of Authority ownership of land

Land owned by the local authority in Barnet is extensive in its range and diversity. The majority of the land is public access and comprises much of the green areas situated in the North and the parks found throughout the borough. A further portion of the authority owned land is made up of land used by the various services operated by the Authority; education, environment, depots, municipal waste sites etc. and Health Authority land.

There are a number of Council owned residential sites, the details of which are held with the Property Services section of the council. A terrier exists of all sites and land owned by the Council. This includes a written commentary of the current and previous use of each plot.

3.4 Known information on contamination

Before 2001, contaminated sites in Barnet were investigated mainly through planning and development channels. As a result, issues of contamination were dealt with on a reactive basis depending on site investigations requested by the Planning section. A number of sites have been investigated and remedial works carried out in this way. Local Authority owned land has also been investigated using similar channels. Since 2001 the Strategy has led to a more proactive risk based approach to assessing contaminated land.

The Planning Section consults the Scientific Services Team within Environmental Health on contaminated land matters. The Planning Section keeps case files and

reports on site contamination have been provided in response to conditions. These files constitute the bulk of the known technical information on land contamination in the borough and remediation reports. Since 2006 the files of historical cases of contaminated land have been accumulated and kept in Environmental Health in alphabetical order, in the Council Environmental Health database Acolaid and GIS system.

3.5 Current and past industrial history

Hendon was one of the most important pioneering centres of aviation. Claude Graham-White founded his airport there in 1910 and staged spectacular, crowd pulling air displays. The airfield was requisitioned during the war and finally bought for the Royal Air Force, which held annual pageants there until 1937. Other nearby airfields and factories, at Cricklewood and just across the Edgware Road, also lasted from Britain's earliest pioneering days until the spread of housing.

Apart from early airfields the borough has never been heavily industrialised, but at the end of the 19th century significant concentrations of factories developed along the Edgware Road and at Barnet. Brit Acres was working for Elliotts's photographic printing works in Barnet when he shot Britain's first moving picture there in 1895.

Currently there are a number of light industrial sites scattered throughout the borough. Much of the previous industrial activity was related to railway sidings notably those at Cricklewood.

3.6 Broad geological and hydrogeological characteristics

Most of the borough lies over impervious London Clay, which is interspersed with pockets of boulder clay, sands and gravels, and finer Claygate Beds.

On higher ground including Mill Hill, Highwood Hill, Moat Mount and Rowley Green Claygate Beds overlie the London Clay. In the far North of the borough a sand and gravel formation occurs known as the Pebble Gravel deposits (or Stanmore Gravels). A deposit of boulder clay occurs in the Finchley district. Between the London Clay and Boulder Clay and spilling out around the edges of the Boulder Clay lies a narrow band of sands and gravels.

Where the three different strata of Boulder Clay, sands and gravels and London Clay meet, an interesting hydrological situation occurs. This can be seen at Glebelands Local Nature Reserve near the North Circular Road, where permeable strata meet the impervious London Clay, natural springs occur, supporting communities of wetland plants. On the better-drained sandy soils around the Boulder Clay, gorse and silver birch scrub have developed.

3.7 Redevelopment history and controls

The present character of Barnet owes much to the development of greenbelt legislation after the Second World War.

Redevelopment falls under the remit of the Local Development Framework, which was first incorporated into Barnet Policy in 1991 was reviewed in 2001 and 2011.

Policies relate to contaminated land and places controls in the context of site investigation and remediation by the developer.

3.8 Action already taken to deal with land contamination

Contamination has previously been dealt with through the Development Control process. Liaison between the planning section and the Scientific Services team lead to the development of a specific contaminated land planning condition for new development.

"The development hereby permitted shall not be implemented (other than for investigative work):

- Until a full site investigation, which shall include a geographical study and soil survey, has been carried out on the site in accordance with a recognised code of practice; and
- A risk assessment of any hazards identified thereby is provided to the local Planning Authority;
- A remediation strategy is submitted to and approved by the local Planning Authority; and
- A verification report and completion certificate has been produced to and accepted by the local Planning Authority to confirm that the remediation strategy has been completed".

Maps showing the Greater London Administrative area and the London Borough of Barnet are found on www.barnet.gov.uk.

4.0 Overall Aims / Priorities/ Timescales and progress

4.1 Aims of the revised strategy

The aims of Barnet Council's Inspection Strategy and review are to:

- Identify any new potentially contaminated sites.
- Identify the location of any sensitive receptors, either human or environmental.
- From this work, minimize the risk posed to human health or the wider environment as a result of land contamination.
- Review and reassess the risk of the already identified 420 known sites that are potentially contaminated.

In carrying out its inspection duty the borough will take a strategic approach to the identification of land that merits detailed individual inspection. This approach will be:

- a. Rational, ordered and efficient;
- b. Proportionate to the seriousness of any actual or potential risk;
- c. Seek to ensure that the most pressing and serious problems are located first;
- d. Ensure that resources are concentrated on investigating in areas where the authority is most likely to identify contaminated land; and
- e. Ensure that the local authority efficiently identifies requirements for the detailed inspection of particular areas of land.

Principle Concerns of the authority

- Protect inward investment
- Avoid blight
- Avoid public panic
- Fulfill statutory responsibilities
- Protect human health
- Protect environment
- Minimise liability

Authority priorities relating to the potential problem

The borough is primarily residential with some light industrial history and a number of small former landfill sites. The investigation for potentially contaminated sites will concentrate on the more industrial areas; however, information on past and present land use will be gathered for the entire borough.

The underlying geology of the borough consists of London clay, which reduces the likelihood of off site migration of contaminants. The borough also has few ground water protection zones. Nonetheless, the council will still thoroughly investigate all potential issues of pollution linkage involving surface and ground water, and upward and lateral migration of contamination.

Authority Priorities in dealing with contaminated land will be

1. To protect human health

2. To protect controlled waters
3. To protect designated ecosystems
4. To prevent damage to property
5. To prevent further any contamination of land
6. To encourage voluntary remediation
7. To encourage re-use of brownfield land

4.2 Building Blocks of the strategy

- A computer based information management system for contaminated land for corporate use was developed.
- The location and extent of industrial or other activities which may have lead to contamination in the borough were established.
- The location of any receptors (human or wider environment), present in the borough were determined using GIS systems and up to date Property gazetteer.
- Risk assessment of any sites where there was the potential for the receptors to be exposed to any contamination.
- The necessary interdepartmental liaison on contaminated land matters was developed from 2001 onwards.

4.3 Targets and information on progress

The original Strategy sets out the following targets in relation to the council's work under the strategy.

By end of June 2002

- To complete initial database analysis of all known potentially contaminated land sites and carry out a "desktop" review. This was - completed

By end of June 2003

- Complete a detailed risk assessment and prioritisation of sites.
- Identify Council owned land which, has had or has potentially contaminative uses.

By end of December 2003

- i. Identify the appropriate persons responsible for each site, which may require further investigation.
- ii. Carry out walk over inspections of the sites.
- iii. Ensure that the necessary site investigations are carried out (at the council's expense if necessary).
- iv. Risk assess the information gathered to determine whether the site is "contaminated" as defined in the guidelines.
- v. Ensure liaison with the Environment Agency and other appropriate authorities.

Identify the high-risk sites, which require remediation.- This was Completed 2003-2007

By end of December 2004

Identification and assessment of high-risk sites and commence identifying which medium risk sites require remediation. This was completed in 2006

By end of December 2005

Identification and assessment of medium risk sites and commence identifying which low risk sites require remediation. This was completed in 2007

By end of December 2006

Identification and assessment of low risk sites.- This was completed in 2008
This was reported in BVPI 216.

2006 Onwards improvements in Council GIS system to incorporate all the historical land use maps digitally on Environment Map and linked to information of former land fill sites and hydro geological data.

Since 2006 all files of historical cases of contaminated land have been accumulated and kept in Environmental Health and have not been culled due to the importance of the information about site conditions and remediation report of sites.

The Contaminated land Regulations were revised in 2006 and 2012 and the changes were incorporated in to the inspection process which included the changes in designation of special sites including those with Radioactive waste.

From 2005-9- the LB Barnet Scientific Services team carried out risk assessments of all known historical potentially contaminated sites, totaling around 420. This includes new sites identified by Development control work and complaints totaling 115 from 1990-2011 and former petrol stations. This also included former MOD land that had the potential to have low level radioactive waste.

The amount of sites assessed was reported in BVPI 216a **2006-8**

The risk assessments were initially done on paper, on historical maps case files and entered into MVM Northgate database.

This data was transferred to Acolaid Idox database in **2009** and the historical maps were transferred as a layer onto the Councils GIs database eye maps.

In 2012-13 work was done to reassess sites and to better describe the area of the sites spatially on the acolaid GIS system.

This Revised Strategy was updated on Barnet online in Autumn 2012.

This process of reassessing the risk of sites will continue from **2012-2015**

2012-13 Higher risk sites in Barnet to be reassessed. No sites currently in highest risk category 1 but there are Medium -2 category sites
2014-15 Medium – low risk sites 3-4 category will be reviewed

Any new complaints or sites to be redeveloped will be assessed in accordance with the strategy priorities.

A Revised Strategy will be undertaken in 2016-17.

5.0 Procedures

5.1 Internal Management Arrangements for Inspection and Identification

Within the London Borough of Barnet the responsibility for implementing Part IIA of the Environmental Protection Act 1990 falls to Environmental Health, and delegated to the Group Manager for Scientific Services.

The Group Manager will also be responsible for serving remediation notices where necessary.

Councillors will be informed at the earliest opportunity of any plans to designate an area of Council-owned land, or any land where the Council is the "Appropriate person" and may be liable for remediation costs.

5.2 Considering Local Authority Interests in Land

5.2.1 Identifying Council owned sites

Information was collected on previous land use, and the locations of any sensitive receptors. It was recognised that effective liaison with other sections in the council is key to ensuring that details of land which is or has been owned and used by the Council are included. Council owned land includes housing land, parks and land owned by the Council, which is leased, to businesses.

As with other sites it was found that areas of Council owned land required more detailed risk assessment and inspection to determine the nature and extent of any contamination, and possible risks to sensitive receptors.

5.2.2 Determining when London Borough of Barnet will be the “appropriate persons” for any land.

On finding a site that requires further investigation and possibly remediation work, the borough will decide who is responsible for carrying out these works, the 'appropriate persons'.

Some of this land will be owned by, or have previously been owned or used by the council, and therefore effective liaison will be needed between Environmental Services, Valuation, Legal and whichever section has the interest in the land. The determination of responsibility can be a very complicated procedure and will need to be carried out on a site by site basis.

The detailed guidance on determining who is the appropriate person is included in the Statutory Guidance issued by the Government: Annex 3, Chapter D - “Statutory Guidance on exclusion from, and apportionment of, liability for remediation”.

5.2.3 Inspection and assessment of Council owned sites

Sites belonging to the Council were identified as requiring a more detailed inspection, the service responsible for the land arranged this with help from the Scientific Services team. If the Council is found to be the appropriate person for a site that it no longer owns, the matter of further investigation works will be referred to the relevant section.

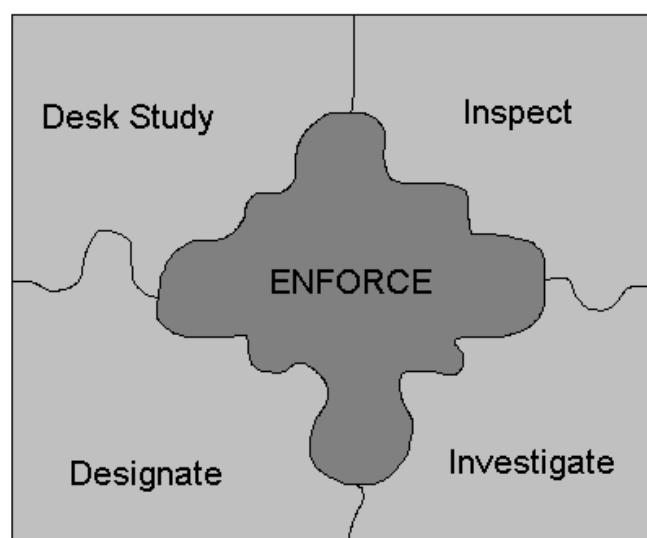
The relevant service will engage suitably qualified consultants when specialist advice is required and take the following steps

- Review the data already held by the Council;
- Carry out a walk over site inspection;
- Arrange for a risk assessment to determine whether any further investigation needs to be carried out;
- Arrange for a further site investigation and more detailed risk assessment to determine whether any remedial works are required. This was carried out by 2008 to existing sites and when any new development is proposed.

5.3 Components of a search strategy

The strategy offers a cost-effective methodology for the inspection of contaminated land sites. Initially this involved a sieve mapping technique followed by more detailed investigation of selected sites, and then on to site investigations if required.

Fig. 2 Components of a Search Strategy



5.4 Information Collection

5.4.1 Sources of information that were used to identify receptors and contaminated land sites.

Historic maps, historic land use database (landmark), Geological maps, Hydrogeological maps, Present day maps, Soil maps, Environment Agency water protection maps, Environmental Health Records, Planning records, Unitary Development Plan, Integrated Pollution Prevention and Control (IPPC) register, Waste Management Licenses, Register of Closed Landfill Sites, Borough Archives.

Contaminated land issues are dealt with by a number of different Sections within the council. As a result information about contaminated sites was until 2006 collected and stored by different Sections and Teams for different purposes. Much of this information is valuable and can be used when assessing sites for levels of risk.

The principal Services in Barnet that have been identified as having information about contaminated sites are listed below.

- **Environmental Health:**
Information regarding investigations, advice and enforcement carried out by this Section.
- **Planning and Development:**
Information about sites and developments are archived for long term storage.
- **Property Services:**
Information concerning Local Authority owned land is filed and stored by this section.
- **Legal Services:**
Information concerning enforcement action.
- **Land Charges:**
Information concerning land use types, enforcement action, historical land uses and current general information.
- **Heritage and Local Searches:**
Information specifically relating to historical land uses.

From 2006 Environmental Health collected all known information and stored this within paper and computerized such as acoaid files.

5.5 Information and Complaints

The Borough received 115 complaints from residents of potentially contaminated land from 1990 – 2011 which were investigated. This information may be concerning

a problem that is directly affecting residents or their property or not. These complaints therefore have an impact on the approach to inspection.

5.5.1 Complaints

Complaints concerning contaminated land are dealt with following the same procedure as currently used by the Environmental Health Department to deal with all other complaints.

5.5.2 Outline procedure:

- All complaints will be recorded.
- An appropriate officer will contact the complainant within 1- 5 days, depending on the seriousness of the complaint.
- Officers will keep complainants informed of the action taken in response to the complaint.
- Complainants will be asked to provide:-
 - their names,
 - addresses,
 - telephone numbers,
 - address of the site,
 - matters they are complaining about
- The identity of the complainant will remain confidential.

5.6 Information Evaluation

5.6.1 Risk Assessment

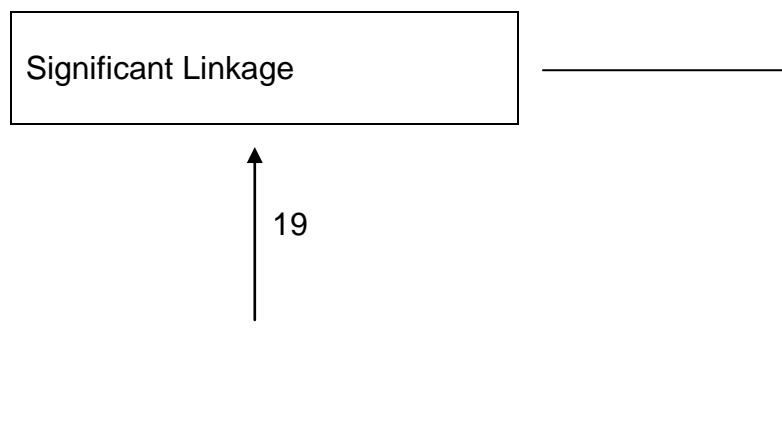
The Statutory guidance lists what is considered significant harm and what constitutes a significant possibility.

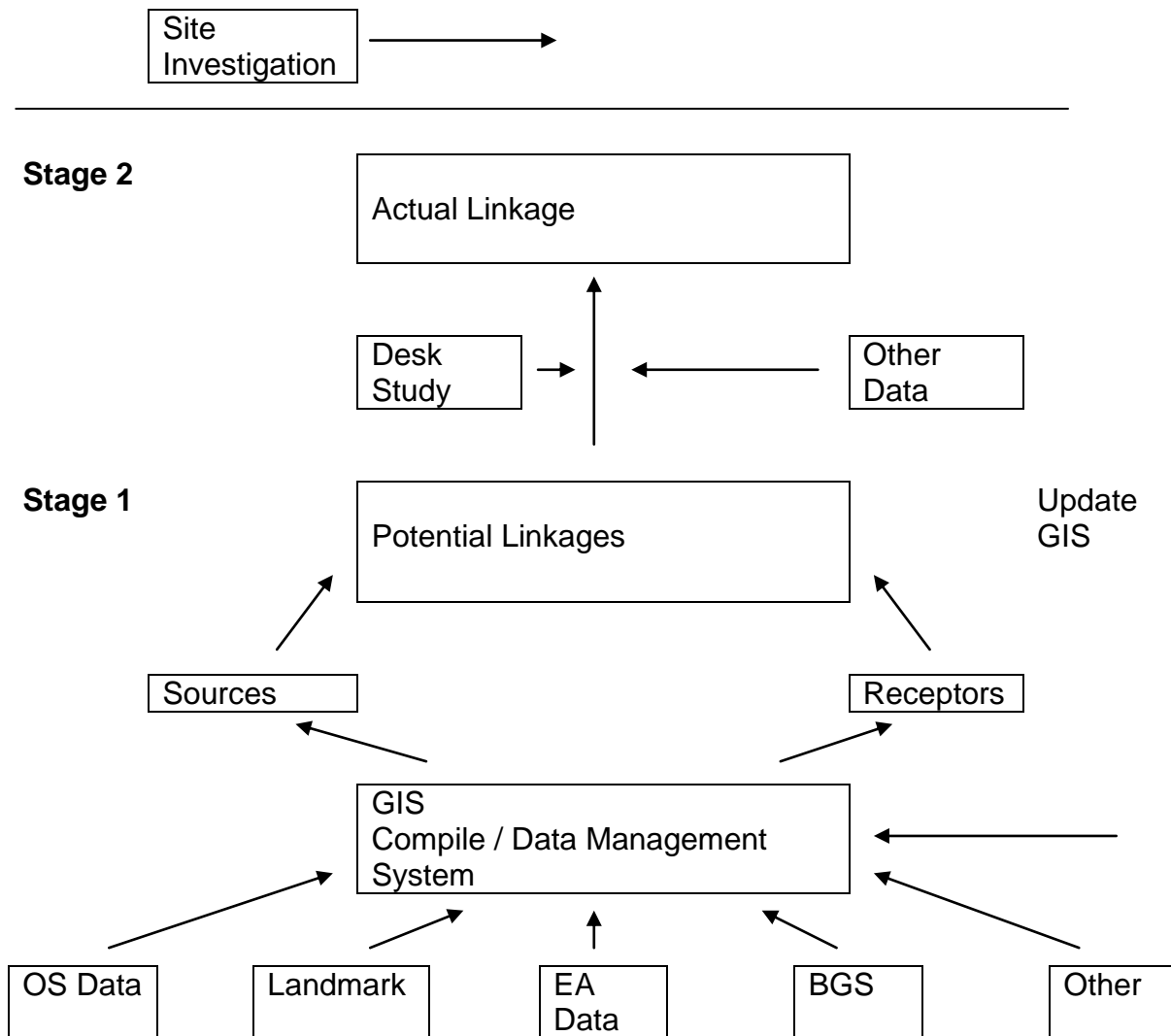
The term "Hazard" can be defined as something with the potential to cause harm, and "Risk" as the likelihood of that harm coming into effect. The site investigation procedure is vital at this stage, as it is the crucial data and information gathering exercise that is required to undertake both qualitative and quantitative assessment

Fig. 3 Three stage Model

A probabilistic risk assessment approach will be adopted, with stages corresponding to a number of sieving processes.

Stage 3





Stage 1 - Identify potential pollutant linkages

Stage 2 - Establish actual pollutant linkages (or a reasonable possibility of their existence)

Stage 3 - Establish significant pollutant linkages

5.6.2 Stage 1

This involved compiling all the information into a data management system and then investigating the relationship between potential contaminants (sources), and receptors.

A Geographic Information System is an efficient and systematic way of analysing distinct areas, or indeed the whole of the borough. However, a receptor and source being close to one another does not necessarily lead to land being designated as

contaminated. A pathway, or linkage between the two must be present for the designation to be made.

Typical Source Datasets

- Historical Mapping
- Environment Agency and Local Authority records
- Historical land use data
- Planning records

Typical Receptor Datasets

- Human
 - OS topographic mapping
 - UDP zones
 - Open spaces records, estate plans
 - Published land use data
 - Aerial photos
- Controlled Waters
 - Aquifer classification and vulnerability
 - Water abstraction points
 - Surface water quality classification
- Ecological
 - SSSI, Ramsar sites etc

Source datasets were classified into 3 hazard classes based on Industry profiles contained in the Department of Environment (DEFRA) guidance. These are set out at Appendix 2.

Receptor datasets took account of susceptibility and vulnerability, and will be based on whether the receptor is human, a controlled water, or ecological.

For each source / receptor pairing, the above classifications can be used to generate a matrix. The matrix was used to provide a preliminary rating for each receptor i.e. the likelihood of a significant pollutant linkage being present.

The output from this was a series of maps and a schedule showing classified sites and a score rating. The highest scores were prioritized for Stage 2.

Fig. 4 Significant Pollutant Linkage (SPL) Likelihood Matrix

	SPL Likelihood	Receptor Susceptibility		
		High	Med	Low
	High	1	2	3

Source Hazard	Med	2	3	4
	Low	3	4	5

5.6.3 Stage 2 Establish Actual Pollutant Linkages

Those sites highlighted from Stage 1 were considered at stage 2. There is a need here to identify an actual pollutant linkage, or a reasonable possibility that one exists. This involved an initial site visit to establish that a receptor is actually present, followed by a more detailed desk study.

5.6.4 Stage 3 Establish Significant Pollutant Linkages

A desk study and site visit may be sufficient to allow a determination on whether there is a Significant Pollutant Linkage, particularly if there has been a previous investigation, and the findings available.

An intrusive investigation (i.e. Trial pits/boreholes) needs to be justified, and must be limited to where

- i. there is a possibility of a pollutant linkage and the likelihood of a source and receptor, and
- ii. insufficient information is available to make the determination.

The scope will be limited to what is necessary to make the determination of contaminated land. Subsequent investigations may however need to be carried out under remediation notice powers.

5.7 Interaction with other Regulatory Regimes

5.7.1 Planning

With certain limited exceptions, most developments would require planning permission under the Town and Country Planning Act 1990. The Planning department will have a regard to contaminated land as a material consideration in determining planning applications. The planning department will take account of the risks posed by the presence of contamination, or potential contamination in the context of the proposed after-use of the site. Therefore while Part IIA of the Environmental Protection Act 1990 lead to the identification of contaminated land sites, the majority of sites' remediation is agreed as a planning condition under normal planning controls, and not under Part IIA.

5.7.2 Water Pollution

The Borough consulted with the Environment Agency

- i. when considering risk to controlled waters from contaminated land, or
- ii. when a site is designated as contaminated land and considered to be a special site for which the Environment Agency would be responsible).

If the Environment Agency identifies a risk to controlled waters from contaminated land, the borough will be notified to enable designation of the land and remedial action under Part IIA of the Environmental Protection Act. These matters are addressed in more detail at 7.2.

5.7.3 Integrated Pollution Prevention and Control (IPPC)

Regulations to deal with pollution from industrial processes require that site operators conduct a site condition survey. This forms part of the procedure for applying for one of the new IPPC permits. If the condition of the land meets the definition of contaminated land then action may be triggered under Part IIA. Existing processes will be brought under this legislation in stages over a period of time. The new regime will however, apply immediately to new processes and to any existing processes, which are to be substantially changed.

5.7.4 Health and Safety

In certain circumstances there may be some overlap between Part IIA and Health and Safety legislation. In these cases the contaminated land guidance states that liaison between the Local Authority and the Health and Safety Executive should ensure that the most appropriate statutory regime is used to deal with the situation.

6.0 General Liaison and Communication Strategies

The implementation of the strategy required effective liaison and communication with a number of bodies and interested partners.

6.1.1 Statutory Consultees

The Environment Agency
2 Bishop's Square Business Park
St Alban's Road West
Hatfield
AL10 9EX
Tel. 01707 6323000

Department of the Environment, Food and Rural Affairs
Land Quality Team
Marine, Land and Liability Division
3/B4Ashdown House
123 Victoria Street
London SW1E 6DE

Greater London Authority
City Hall
The Queen's Walk
More London
London SE1 2AA

Natural England
Natural England,
7th Floor, Hercules House,
Hercules Road,
Lambeth,
London, SE1 7DU
Tel: 0300 060 4911

Ministry of Agriculture, Fisheries and Food
South East Regional Service Centre
Government Buildings

Coley Park
Reading RG1 6DT

6.1.2 Neighbouring Local Authorities

London Boroughs

Brent

Environmental services
Brent House
349-357 High Road
Wembley HA9 6BX

Haringey

Civic Centre
PO Box 264
High Road
N22 4LE

Camden

Town Hall
Judd Street
WC1H 9JE

Enfield

Civic Centre
Silver Street
EN1 3XA

Harrow

Director of Environmental Services
Civic Centre
Harrow HA1 2XF

Hertfordshire

Hertsmere Borough Council

Civic Offices
Elstree Way
Borehamwood WD61WA

6.2 Non Statutory Consultees

As part of the review and on going development of the strategy this will be communicated to interested parties using the Pollution control information on the web pages of Barnet online

http://www.barnet.gov.uk/info/418/contaminated_land/73/contaminated_land

6.3 Owners, Occupiers and other interested parties

The previous stages of the strategy result in the identification of sites where a possible pollution linkage exists. The local authority then carried out a detailed inspection of any such area to obtain sufficient information for the authority to

- Determine whether the land appears to be 'contaminated land' in accordance with the guidelines;
- Decide whether the land would be classified as a 'special site', which can then be dealt with by the Environment Agency.

6.3.1 Site specific liaison with owners.

If a site has been found that requires more detailed investigation, steps were taken to identify, contact and liaise with the owners of the land. The reasons why the owners will need to be contacted are so that the Council can

- Obtain further information about the uses and layout of the site;
- Carry out a walk over survey of the site;
- Arrange for an intrusive investigation to be carried out if required.

The following sources of information can be used to identify owners of land:

- Land Registry search
- Electoral role
- Company search
- Local information
- Planning records

When the owners of the land were identified they were contacted in writing to explain why their co-operation is required. It will be explained that the Councils aim is to work with the site owners to gather the necessary information and to reach a voluntary agreement as to what remedial works may be required. If this is not successful the Council has powers under the Environmental Protection Act 1990 to authorise a person to exercise specific powers of entry to inspect a site, and to issue a remediation notice requiring works to be carried out.

6.3.2 Inspection of specific sites

If the information gathered and evaluated by the Council indicates that there is the potential for a pollution linkage, an inspection of the site is likely to be necessary. This will initially involve a walk over survey of the site. Further work may involve samples being taken.

The Council will liaise with the owners/occupiers of the land to try and arrange for them to carry out a site investigation and risk assessment. If the owners/occupiers say that they will carry out the works the Council must allow them a reasonable and specified time to complete the works.

If this work has not been carried out within the agreed time, the Council can exercise powers under the Environmental protection Act 1990 to ensure that the work is carried out. To exercise these powers the Council has to show that there is a reasonable possibility that a pollution linkage exists in relation to that specific site.

All site investigations, sampling and analysis will be carried out in line with current guidance such as British Standard 10175 Investigation of potentially contaminated sites.

6.3.3 Making arrangements for appointments of consultants.

For sites requiring more detailed investigations the borough has in the past and will in the future appoint suitably qualified consultants to carry out the works. The work may include any or all of the following:

- Intrusive site investigations
- Risk assessments of specific sites
- Recommending remedial works.

The borough will seek to appoint consultants in line with its standard purchasing procedures.

The main point of contact for this activity in the London Borough of Barnet will usually be the Scientific Services Team in Environmental Health.

6.4 The wider community

Liaison with the wider community will be a two way process. Members of the public can provide valuable local knowledge about the history of land uses in the borough. The council can provide the public with information on the progress of the inspection strategy and details of works that have been carried out under the planning process (i.e. as part of a development) or as a requirement of a remediation notice.

6.5 Gathering information from the public

Members of the public or the wider community may contact the London Borough of Barnet through various channels:

- Councillors,
- Environmental Health
- Planning.

Information will be taken following the borough's existing procedures for receiving complaints / service requests, and then passed to the Scientific Services team in Environmental Health.

6.6 Providing information to the community

6.6.1 Access to information

The Council has a statutory obligation to maintain a register containing information relating to regulatory action taken under Part IIA, which must be made available to the public. There is no statutory obligation to disclose non-register information that has been gathered as part of the inspection of the borough. This includes information held as paper records, site investigation reports and information held on computers. The council will have to comply with requirements of the Environmental Information Regulations and the Data Protection Act 1998, in relation to this information.

6.6.2 The Data Protection Act 1998

The Act applies to personal data processed automatically, but not manually, and aims to protect individuals in three main areas:

- Use of personal information that is inaccurate, incomplete or irrelevant.
- The possibility of access to personal information by unauthorised persons.
- Use of personal information in a context or for a purpose other than that for which the information was collected.

Personal data is defined as information relating to a subject or person who may be identified from that information, or from that and any other information that the user of the information has, in this case the London Borough of Barnet.

Virtually all information held on is considered to be automatically processed, and therefore subject to the Act.

Therefore there are obvious legal implications for holding computer information on the state of land or properties in relation to pollution and associated information concerning the owners and other interested parties of this land. Advice will be sought over this matter from the legal section.

6.6 The Public Register

The borough has maintained certain information regarding Statutory contaminated land on a public register. Scientific Services, Environmental Health Environment, Planning and Regeneration
London Borough of Barnet, North London Business Park, Oakleigh Road South, London N11 1NP hold the register.

The following information/documentation will be placed on the register

- Remediation notices.
- Details of site reports obtained by the borough relating to remediation notices.
- Remediation declarations, remediation statements and notifications of claimed remediation.
- Designation of sites as "special sites".
- Appeals lodged against remediation notices and charging notices.
- Convictions.

The register will be available for public inspection Monday - Friday during normal office hours.

The Scientific services team responds to regular requests for contaminated land search information. The details of how a search can be done are on http://www.barnet.gov.uk/info/418/contaminated_land/73/contaminated_land

7.0 A Program for Inspections

Barnet does not have a heavy industrial background and there is no clear delineation of industrial areas. There are however a number of distinct centres with unique histories of small-scale industry.

The following subsections set out the elements, which will be involved in the Council's programme for inspecting contaminated land and were detailed in the 2001 strategy and will provide a basis for the Reassessment of the sites in the review from 2012-2015.

7.1 Arrangements for Carrying out Detailed Inspection

The previous stages of the strategy will result in the identification of sites where possible pollution linkages exist. The local authority is then required to carry out a detailed inspection of any such area to obtain sufficient information for the authority to:

- Determine whether the land appears to be 'contaminated land' in accordance with the guidelines.
- Decide whether the land would be classified as a 'special site', which can then be dealt with by the Environment Agency.

7.11 Site Specific Liaison with Owners and Appropriate Persons **See section 6.3.1**

7.1.2 Site Specific Liaison

More detailed inspections may include liaison with the owners of the site, any other appropriate persons, the Environment Agency, English Nature, English Heritage and other relevant sections of the council.

7.2 Liaison with the Environment Agency

The Environment Agency becomes the enforcing authority in cases where there is or is likely to be pollution of controlled waters and Special sites. In cases where there is a water pollution issue or a designation of a Special Site is likely to be required the EA will be informed and their advice sought.

Controlled Waters - Advice will be sought from the EA in any case where investigations reveal the likelihood of or actual affects on controlled waters.

Special Sites – The full list of Special sites is contained in the Contaminated land Regulations 2006 revised in 2012.

7.3 Liaison with Natural England

A copy of this Strategy document will be sent to Natural England for comment. They will also be consulted on the designation of contaminated land in relation to ecological/ archaeological receptors.

7.4 Inspection Methods

These will include:

- Collection of documentary evidence and any other information available.
- A site visit (possibly with valuation section) and subsequent visual observations.

The evidence gained through the above methods may indicate that a more detailed investigation is needed to determine whether or not the land should be designated as Contaminated Land under Part IIA. This is likely to require intrusive sampling, which will require the appointment of a suitably qualified external consultant.

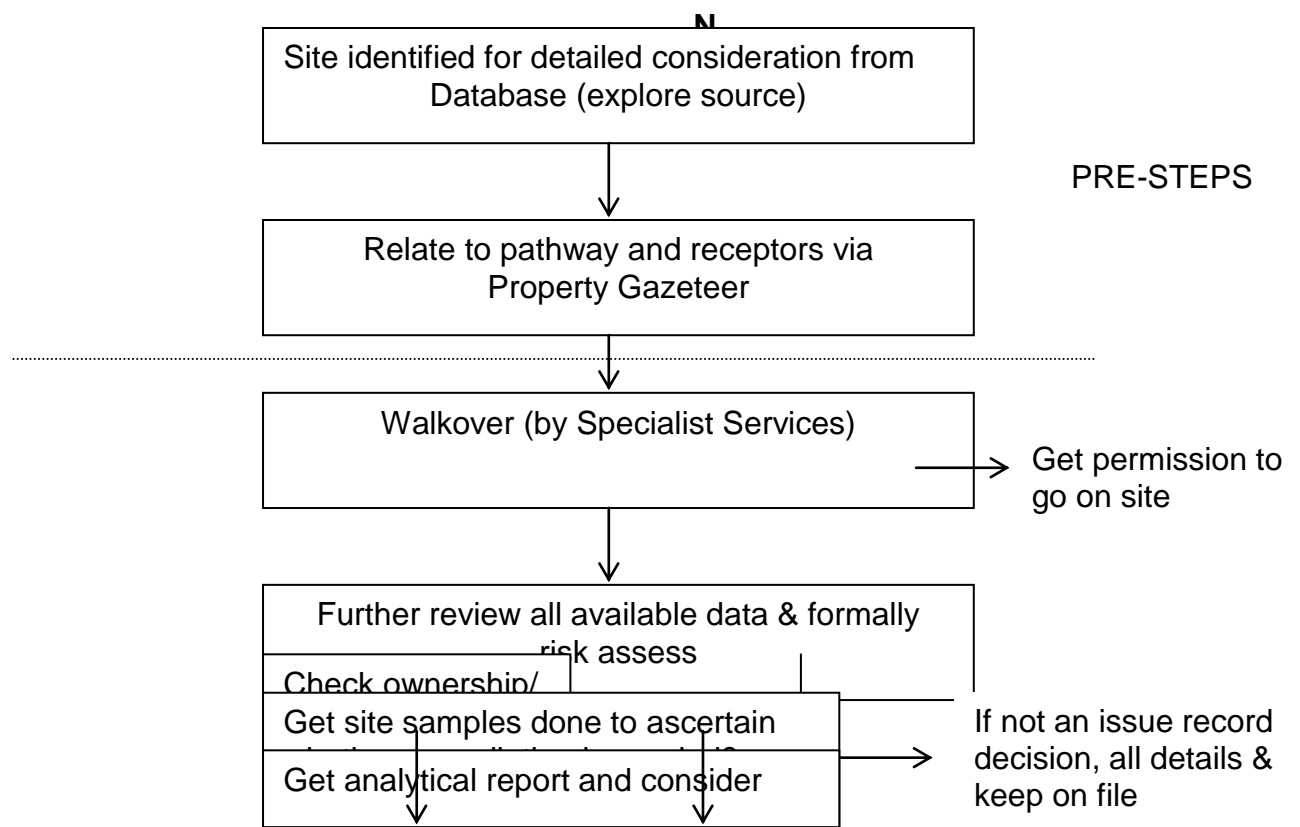
7.5 Health and Safety Procedures

Guidelines laid out in "Protection of Workers and the General Public during the development of Contaminated land" will be followed for any works or site visits on contaminated land by any appointed contractors and council staff.

7.6 Making Arrangements for the external appointments of consultants (See 6.3.3)

7.6.1 Inspection of specific sites (See 6.3.2)

Fig. 5 Overview of the Site Investigation and Remediation Process



Remediation Notice Justified
Y

**Figure 6- Site Investigation and Remediation Overview
Continued**

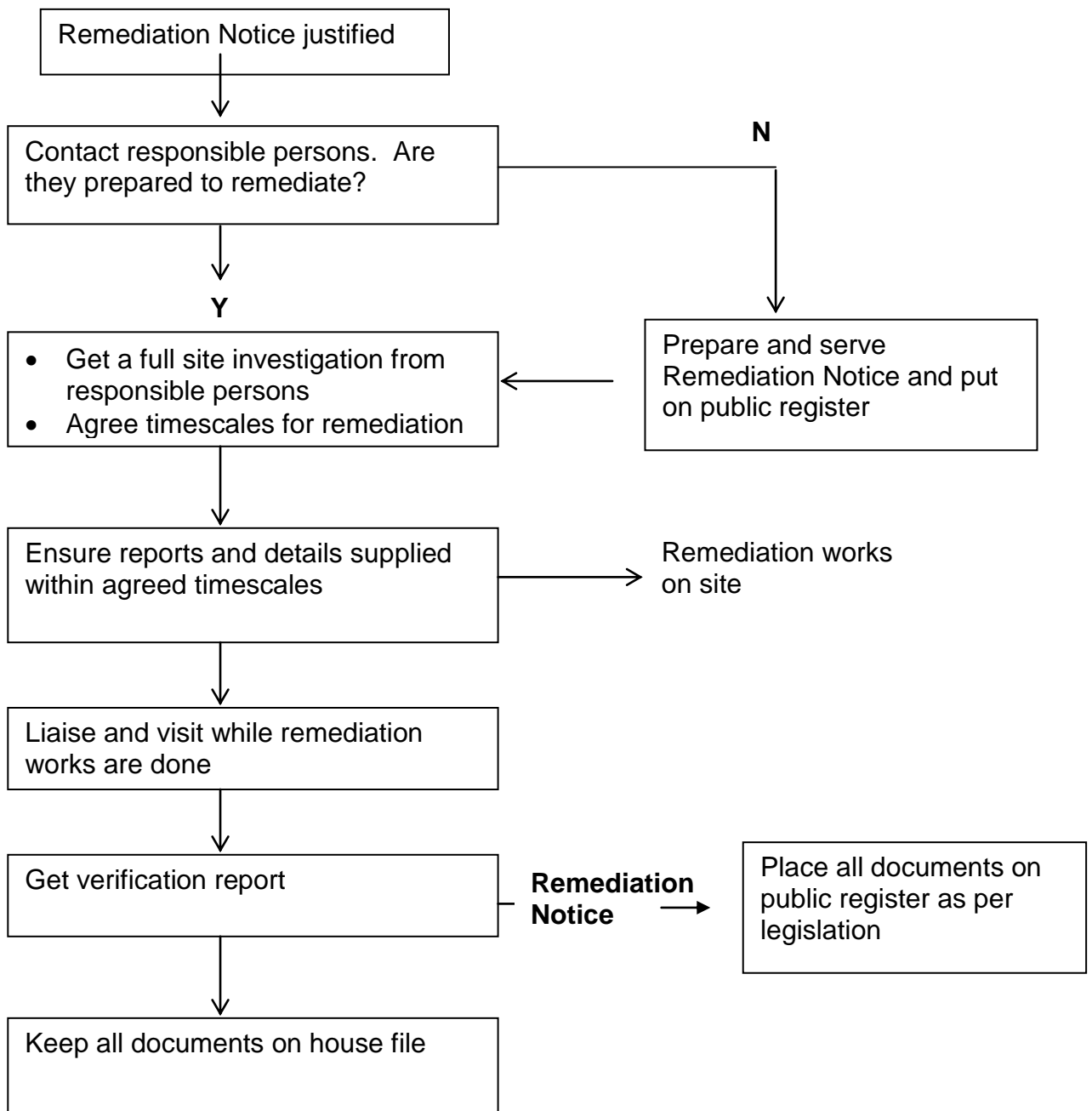
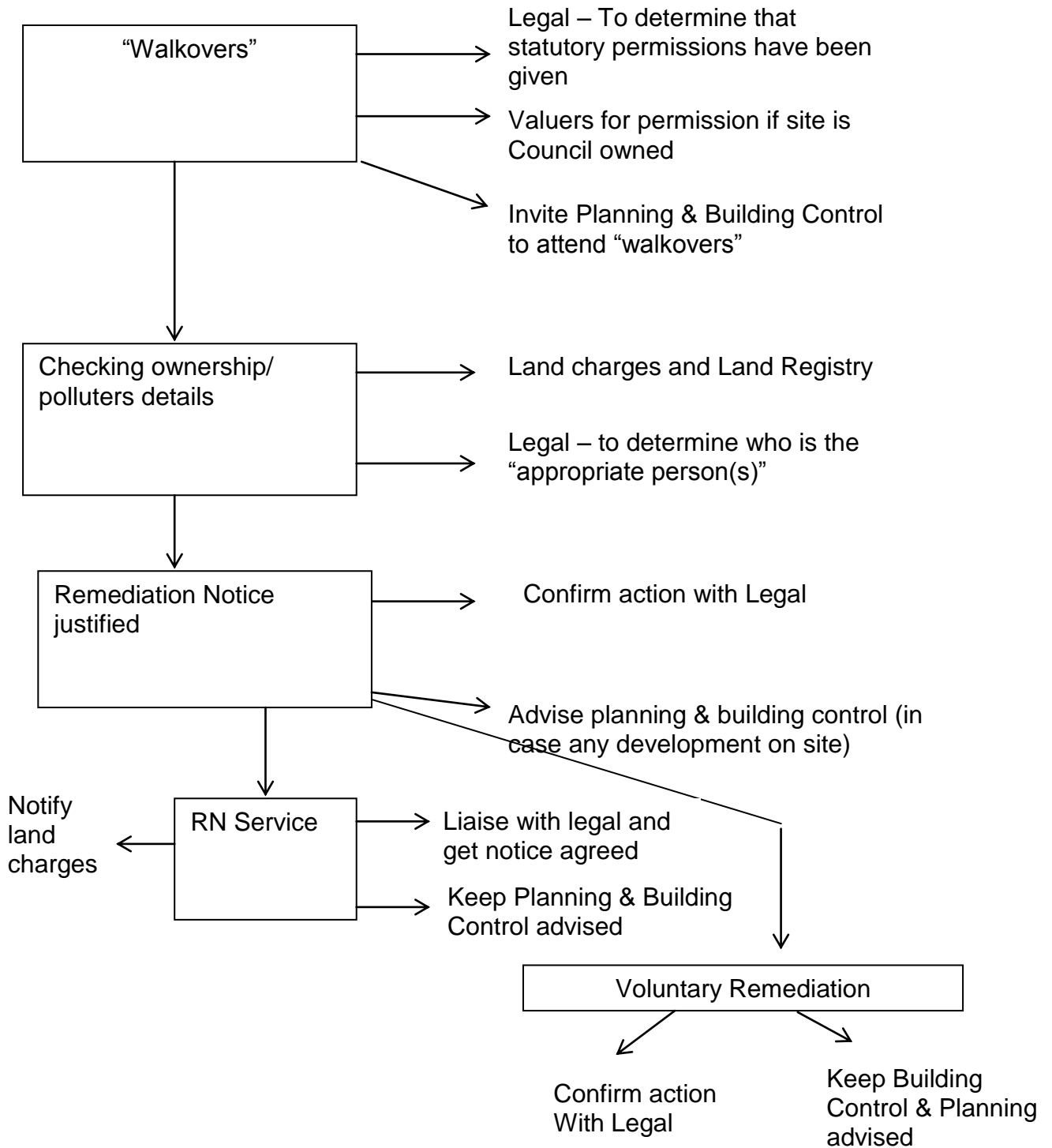


Fig. 7 Internal Consultation on Remediation of Contaminated Land

(Please read in conjunction with Figure 8)



7.7 Risk Communication

Advice will be sought from the Policy unit and Public Consultation unit before designating a future area of land as Contaminated Land. Two-way communication, and transparency to create trust in the regulatory body together with openness are clearly vital.

Local authorities have very specific powers relating to contaminated land and in particular to remediation. Therefore it is important to realise that there may be times when the expectations of members of the public may differ from what can actually be achieved under Part IIA. It will therefore be critical to communicate with interested parties the limits of the borough's role and limitations, and to try and overcome any lack of understanding that an individual or group may have.

7.8 Format of Information Resulting from Inspection

Information collected will be largely documentary, for example site inspection sheets, site survey reports, laboratory analyses, and remediation verification certificates.

8.0 Information Management

8.1 General

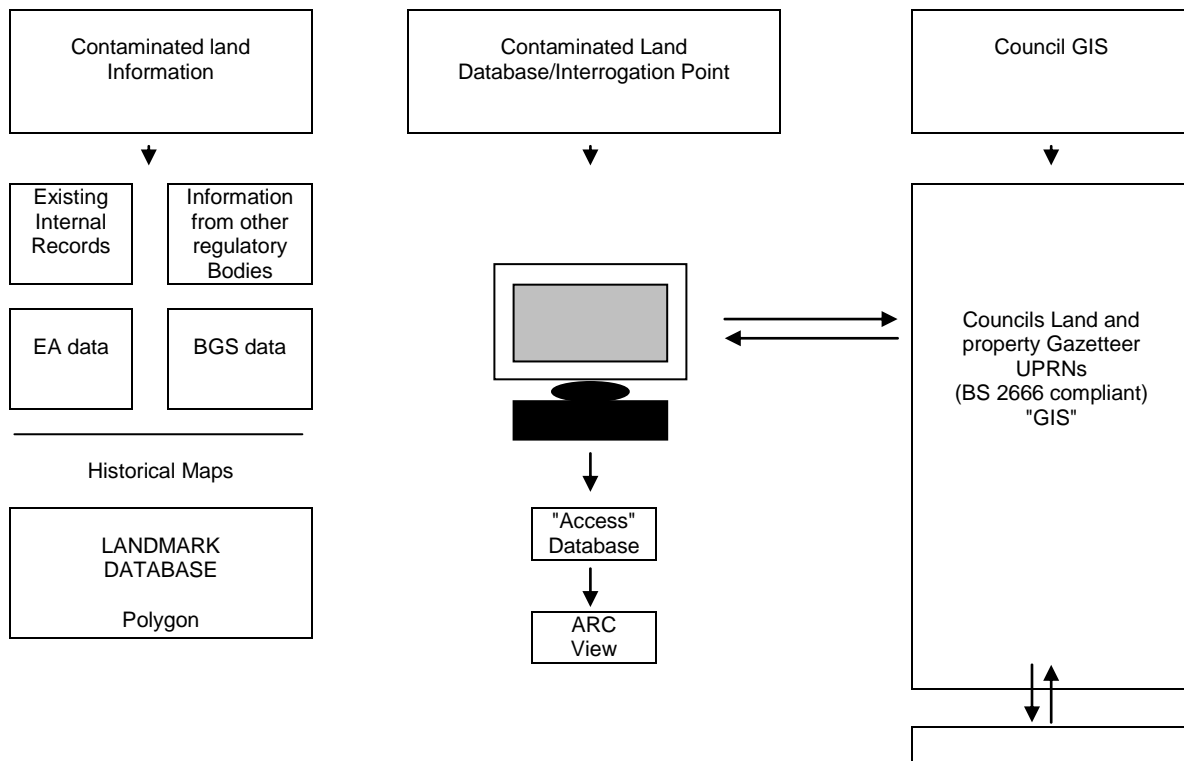
An Historical Land Use Database has been purchased from the Landmark Information Group. The database will be loaded onto a computer in Environmental Health and linked to the property Gazetteer system being developed by the Survey Section.

This system will allow the site boundaries of land uses, which may have resulted in land contamination, to be overlaid on the borough's digital Ordnance Survey maps and so related to where people, watercourses, and other sensitive situations are today. Data on uses in a number of historical periods ("epochs") will be available on the database: 1873-81, 1896-97, 1919-20, 1935-46, 1950-65, 1975-1990.

Information relating to the water environment supplied by the Environment Agency and geological data supplied by the British Geological Survey are also key elements of the system.

The database will allow information to be added. The data will need to be supplemented over time with information gathered from local knowledge and site investigation reports submitted over the years as part of the planning process. The system architecture is set out at figure 1.9 below.

Fig. 8 System Architecture / Data Management



The benefits of this type of computerised information management system include:

- Systematic, objective approach
- Speed of obtaining results
- Efficiency of handling information
- Flexibility
- Resource allocation tool
- Traceability
- Cost Effective

8.2 Administration

Contaminated Land contacts within the borough -

Lucy Robson, Principal Scientific Services Officer - 0208 3594706

Anna Cane, Principal Scientific Officer - 0208 359 7494

Property Services – 0208 359 7365

Local Land Charges, Principal Officer – 0208 359 5569

8.3 Use by other Council Services

The computerised Geographic Information System being developed will in time be a valuable corporate tool. Immediate uses for the contaminated land information will be:

- Planning applications
- Land charges

Land registry search questions on contaminated land will be dealt with by the land charges section. Other questions will be referred to Environmental Health in the first instance. The council can only supply information, which is in the public domain.

8.4 Provision of Information to the Environment Agency

The Environment Agency is required under Part IIA to produce a report on the state of contaminated land in England. This report will provide information on the nature of any contamination, its extent, what remediation measures have taken

place and any enforcement action taken under Part IIA. The report will enable an assessment of the contaminated land problems in England to be made and a system put in place to deal with them.

Local Authorities are required under Part IIA to provide the EA with the information necessary to produce the report. This information is limited to that which the authority holds or is expected to gain through implementation of Part IIA.

The London Borough of Barnet will follow the guidelines set out in the EA document 'Information exchange with Local Authorities for the state of contaminated land report', and will provide the following information:

- A copy of the borough's inspection strategy.

9.0 Review Mechanisms

This Strategy outlines the process for inspecting the borough's area with the purpose of identifying contaminated land. The strategy outlines targets and a timescale for this process. It is recognised that from time to time it may be necessary to review this timetable, or indeed conduct inspections outside of the framework outlined.

9.1 Triggers for reviewing inspection decisions

It may be necessary in the future to revisit and inspect areas of land to review previous decisions. Circumstances where this may be necessary include:

- | |
|---|
| <ul style="list-style-type: none">• Significant changes in legislation.• Establishment of case law or precedents.• Contaminant exposure guideline values being revised. |
|---|

9.2 Triggers for undertaking inspections outside the given framework

These include the following:

- | |
|---|
| <ul style="list-style-type: none">• Proposed changes in the use of land.• Unplanned changes in the use of land e.g. persistent, unauthorised use of land by children.• Unplanned events e.g. localised flooding/landslides, accidents/fires/spillages where consequences cannot be addressed through other environmental protection legislation.• Reports of localised health effects that appear to be related to a particular area.• Verifiable reports of unusual site conditions. |
|---|

- Responding to information from Statutory bodies.
- Responding to voluntary information provided by owners or occupiers of land.

9.3 Reviewing the Strategy Document

The aims and objectives laid out in this document will be reviewed on a periodic basis and the next review date will be 2016.

The strategy outlines an ongoing process for the identification and remediation of contaminated land and will be reviewed through the corporate working group.

10.0 References

Department of the Environment (various dates) DOE Industry Profiles, 48 Volumes HMSO, London.

Department of the Environment (1994) Planning and Pollution Control (PPG23) HMSO, London.

Department of the Environment, Transport and the Regions (2000) Draft DETR circular, Contaminated Land Inspection Strategies.

Department of the Environment, Transport and the Regions (2000) Contaminated Land (England) Regulations 2000, HMSO, London.

Department of the Environment, Transport and the Regions (February 2000 Circular) Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990, HMSO, London.

Environment Act 1995, HMSO London.

Scotland and Northern Ireland Forum for Environmental Research (1999) Communicating Understanding of Contaminated Land Risks. SNIFFER Project Number SR97 (11) F.

Town and Country Planning Act 1990, HMSO London

Health and Safety at Work Act 1974, HMSO, London

London Borough of Barnet Corporate Plan 1999-2003

London Borough of Barnet Unitary Development Plan 2001

British Standards Institution (2001) Code of Practice for Investigation of Potentially Contaminated Sites.

ICRCL (1987) Guidance on the Assessment and Redevelopment of Contaminated Land, ICRCL 59/83, Interdepartmental Committee on the Redevelopment of Contaminated Land, London.

Health and Safety Executive (1991) Protection of workers and the general public during the development of Contaminated Land, HMSO London

Contaminated land legislation

- [Part 2A of the Environmental Protection Act](#)
- [Part 2A Statutory Guidance](#) – April 2012
- [Contaminated Land \(England\) Regulations 2006](#). The regulations elaborate on various details of the Part 2A regime, such as dealing with issues like what qualifies as a “special site”; public registers; remediation notices; and the rules for how appeals can be made against decisions taken under the Part 2A regime.
- [The Contaminated Land \(England\) \(Amendment\) Regulations 2012](#)
- [The Water Act 2003 \(Commencement No.11\) Order 2012](#)

11.0 Glossary

Appropriate Person	-The person responsible for any thing which is to be done by way of remediation in any particular case.
BGS	-British Geological Survey
Brownfield Site	-A site that has been generally abandoned or underused where redevelopment is complicated by actual or perceived environmental contamination
CLEA	-Contaminated Land Exposure Assessment, a methodology for carrying out a risk assessment
Contaminated Land	-"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that- c. SIGNIFICANT HARM is being caused or there is a SIGNIFICANT POSSIBILITY of such harm being

	<p>caused; or</p> <p>d. Pollution of controlled waters is being, or is likely to be caused"</p>
Controlled waters	<p>These include</p> <p>a. Inland waters (rivers, streams, underground streams, canals, lakes and reservoirs)</p> <p>b. Groundwaters (any water contained in underground strata, wells or boreholes)</p> <p>c. Territorial waters (the sea within three miles of a baseline)</p> <p>d. Coastal waters (the sea within the baseline up to the line of highest tide, and tidal waters up to the fresh water limit)</p>
DEFRA	-Department of the Environment, Food and Rural affairs, previously Department of the Environment, Transport and the Regions (DETR).
DOE	-Department of the Environment
EA	-Environment Agency
Eco-system	-A biological system of interacting organisms and their physical environment.
GIS	-Geographical Information System
GLA	-Greater London Authority
HSE	-Health and Safety Executive
ICRCL	-Interdepartmental Committee on Remediation of Contaminated Land
IPC	-Integrated Pollution Control
LBB	-London Borough of Barnet
MAFF	-Ministry of Agriculture, Fisheries and Food
OS	-Ordnance Survey
PPG	-Planning Policy Guidance
Remediation	-Generally accepted as being the carrying out of works to prevent or minimise effects of contamination. In the case of this legislation the term also encompasses assessment of the condition of land, and subsequent monitoring of the land
Risk Assessment	<p>-The study of</p> <p>a. the probability, or frequency, of a hazard occurring; and</p> <p>b. the magnitude of the consequences</p>
Source Protection Zone	-Protection zones around certain sources of groundwater used for public water supply. Within these zones, certain activities and processes are prohibited or restricted
Special Site	-Any contaminated land designated due to the presence of for example:

	<ul style="list-style-type: none"> • Waste acid tar lagoons • Oil refining • Explosives • Integrated pollution control sites • Nuclear sites
SSSI	-Site of Special Scientific Interest
UDP	-Unitary Development Plan

Appendix 1

1.1 Effects of Contaminated Land

Land contamination can present hazards to people, buildings and services and to the environment. Thousands of chemicals are in everyday use throughout industry, and at home. Many of these have the potential to cause harm. Controls should be used in all stages of work with such substances to prevent their escape and to minimise the risks to health and prevent fire, explosion or unplanned reactions.

Substances used in the workplace should be under control, for example held in containers. When substances escape control, and are allowed to contaminate land, it becomes more difficult to prevent them causing harm. The loss of containment means that they may be free to move from one place to another. Predicting where and how contamination may migrate can be a complex problem, and may demand thorough and expensive investigations to establish the nature of the underlying soils, sediment, rocks and groundwater. Another problem with substances released to land is that they may encounter a range of chemical and physical conditions, and will therefore be subject to a complex range of chemical, physical and microbial actions. Together these influences may act to alter the nature of the substances and the hazards that they pose. Some substances may even degrade producing degradation products, each with different properties to the original substance.

1.2 Contaminative Uses

Land in the UK may have been used for a variety of purposes in the past. Industrialisation, mining, and agriculture can all have resulted in the contamination of land. The following table outlines some activities that may have lead to contamination of land.

•	Burial of diseased livestock.
•	Coal mines, coal preparation plants, oil refining and petrochemicals, mineral workings, mineral processing works.
•	Gas works; coal carbonisation plants, power stations.
•	Metal processing; heavy engineering; electroplating and metal finishing.
•	Asbestos works; cement works; lime and gypsum manufacture; brickworks and associated processes.
•	Glass making and ceramics.
•	Production and use of chemicals.
•	Engineering and manufacturing processes, storage and testing of explosives, propellants, small arms etc; electrical and electronic equipment manufacture and repair.
•	Food processing; pet foods and animal foodstuffs; processing of animal by-products including rendering and maggot farming.
•	Paper, pulp and printing.
•	Timber and timber products industry; chemical treatment and coating of timber.
•	Textile industry, tanning, fellmongering; dressing and other processes for preparing, treating or working leather, dyeing, fulling, bleaching or finishing fabrics or fibres; manufacture of carpets or textile floorcoverings.
•	Rubber industry, processing natural or synthetic rubber including tyre manufacture or retreading.
•	Infrastructure, marshalling, dismantling, repairing or maintenance of railway stock, dismantling, repairing or maintenance of road transport vehicles; dismantling, repairing or maintenance of aircraft.
•	Waste disposal, treating sewage or other effluent or storage, treatment or disposal of sludge (including sludge from waste water treatment), treating, keeping, depositing or disposing of waste including scrap, storage or disposal of radioactive materials.
•	Dry-cleaning operations, laboratories, demolition of buildings, plant or equipment for any of the purposes mentioned above.

Whilst environmental effects are obviously important, a primary concern associated with contaminated land is the possibility that people's health and safety may be jeopardised.

Contaminated land can present one or a number of different types of **hazards**, which can be summarised as follows: -

Hazardous Properties	Examples
Toxic solids	Lead and other toxic metals Cyanide salts Naphtha
Toxic liquids	Phenols and other organic substances
Toxic gases	Hydrogen sulphide Hydrogen cyanide
Corrosive liquids and solids	Mineral acids Alkalis Organic acids
Carcinogenic substances	Asbestos Coal tars and soot Benzene
Pathogenic agents	Leptospirosis Anthrax Medical wastes
Flammable or explosive substances	Methane gas Organic solvents and petroleum Hydrocarbons Sulphur
Asphyxiating gases	Carbon monoxide Carbon dioxide Oxygen deficient atmospheres
Harmful dusts	Silica Man-made mineral fibres
Physical safety hazards -slips and slumping -radiation -high temperatures	Oils and organic wastes Radium Burning colliery waste or domestic waste

Appendix 2: Potentially Contaminating Land Use Classes

The Department of the Environment produced a number of 'Industry Profiles' to provide regulators, developers and other interested parties with authoritative and researched advice on how best to identify and tackle the problems associated with land contamination.

'Industry Profiles' were produced for all potentially contaminating industries, providing information on the processes, materials, and waste associated with each individual industry.

The following list details the potentially contaminating processes that will be recorded on the database of potential contaminated land. The list also makes reference to the appropriate industry profile for the activity.

C.1 Agriculture

- (a) Burial of diseased livestock
(Profile: to be determined)

C.2 Extractive Industry

- (a) Extracting, handling and storage of carbonaceous materials such as coal, lignite, petroleum, natural gas, or bituminous shale (not including the underground workings).
(Profile: Coal mines and coal preparation plants, Oil refineries and petrochemicals).
- (b) Extracting, handling and storage of ores and their constituents.
(Profiles: Mineral Workings, Mineral Processing Works)

C.3 Energy Industry

- (a) Producing gas from coal, oil or other carbonaceous material (other than from sewage or other waste), or from mixtures of those materials.
(Profiles: Gasworks and other coal carbonisation plants, oil refineries).
- (b) Reforming, refining, purifying and odourising natural gas or any product of the processes outlined in C.3.a above.
(Profiles: Gasworks and other coal carbonisation plants, oil refineries)
- (c) Pyrolysis, carbonisation, distillation, liquefaction, partial oxidation, other heat treatment, conversion, purification, or refining coal. Lignite, oil or

other carbonaceous material or mixtures and products thereof, otherwise than new a view to gasification or making of charcoal.

(Profiles: Gasworks, and coal carbonisation plants, oil refineries, coal mines and coal preparation plants)

- (d) A thermal power station (including nuclear power stations and production, enrichment and reprocessing of nuclear fuels).
(Profiles: Power stations, radioactive materials, asbestos works)
- (e) Electricity sub-station.
(Profiles: Power stations and electrical equipment)

C.4 Production of Metals

- (a) Production, refining or recovery of metal by physical, chemical, thermal or electrolytic or other extraction processes.
(Profiles: Metal processing, Heavy Engineering)
- (b) Heating, melting or casting metals as part of an intermediate or final manufacturing process (including annealing, tempering or similar processes).
(Profiles: Metal processing, Heavy Engineering, miscellaneous (High Street) trades)
- (c) Cold forming processes (including pressing, rolling, extruding stamping forming or other similar processes).
(Profiles: Metal processing, heavy engineering; electroplating and metal finishing)
- (d) Finishing treatments, including anodising, pickling, coating and plating or similar processes.
(Profiles: Metal processing, heavy engineering, electroplating and metal finishing; miscellaneous (High Street) trades)
Note: Metals are taken to include metal scrap.

C.5 Production of Non-Metals and their Products

- (a) Production or refining of non-metals by treatment of the ore.
(Profiles: Mineral processing works)
- (b) Production or processing of mineral fibres by treatment of the ore.
(Profiles: Mineral processing works; Asbestos works)
- (c) Cement, lime, and gypsum manufacture, brick works and associated processes.
(Profiles: Mineral Processing works)

C.6 Glass Making and Ceramics

- (a) Manufacturing of glass and products based on glass.
(Profiles: Glass manufacturing)
- (b) Manufacture of ceramics and products based on ceramics, including glazes and vitreous enamel.
(Profiles: to be determined)

C.7 Production and Use of Chemicals

- (a) Production, refining, recovery or storage of petroleum or petrochemicals or their by-products, including tar and bitumen processes and manufacture of asphalt.
(Profiles: Oil refineries and petrochemicals; Mineral processing works; drum and tank cleaning)
- (b) Production, refining and bulk storage of organic or inorganic chemicals, including fertilisers, pesticides, pharmaceuticals, soaps, detergents, cosmetics, toiletries, dyestuffs, inks, paints, fireworks, pyrotechnic material or recovered chemicals.
(Profiles: Bulk inorganic or organic chemicals; fine chemicals; fertiliser manufacture; pesticides; pharmaceuticals; textile and dye industry; paint and ink manufacture; miscellaneous high street trades; drum and tank cleaning)
- (c) Production, refining bulk storage of industrial gases not otherwise covered.
(Profiles: Fine chemicals)

C.8 Engineering and Manufacturing Process

- (a) Manufacturing of metal goods, including mechanical engineering, industrial plant or steelwork, motor vehicles, ships, railway, or tramway vehicles, aircraft, aerospace equipment or similar equipment.
(Profiles: Heavy engineering works, engineering works, car manufacturing works, shipbuilding)
- (b) Storage, manufacturer or testing of explosives, propellants, ordnance, small arms or ammunition.
(Profiles: Heavy Engineering)
- (c) Manufacture and repair electrical and electronic components and equipment.

(Profiles: Electrical and electronic equipment manufacture, miscellaneous high street trades).

C.9 Food Processing Industry

- (a) Manufacture of pet foods or animal foodstuffs.
(Profiles: Food preparation and processing)
- (b) Processing of animal by-products (including rendering or maggot farming, but excluding slaughter houses and butchering)
(Profiles: Animal processing works, miscellaneous high street trades)

C.10 Paper, Pulp and Printing Industry

- (a) Making of paper pulp, paper or board, or paper or board products, including printing or de-inking.
(Profiles: Pulp and paper manufacture, printing works, miscellaneous high street trades)

C.11 Timber and Timber Products Industry

- (a) Chemical treatment and coating of timber and timber products.
(Profiles: Wood preservative industry and timber treatment works, miscellaneous high street trades)

C.12 Textile Industry

- (a) Tanning, dressing, fellmongering or other process for preparing, treating or working leather.
(Profiles: Animal processing works, miscellaneous high street trades)
- (b) Fulling, bleaching, dyeing or finishing fabrics or fibres.
(Profiles: Textiles and dye industry, miscellaneous high street trades)
- (c) Manufacture of carpets or other textile floor coverings (including Linoleum works)
(Profiles: Textiles and dye industry)

C.13 Rubber Industry

- (a) Processing of natural or synthetic rubber (including tyre manufacturing or retreading)
(Profiles: Fine chemicals; Tyre Manufacture)

C.14 Infrastructure

- (a) Marshalling, dismantling, repairing or maintenance of railway rolling stock.
(Profiles: Heavy engineering, docks, railway land)
- (b) Dismantling, repairing or maintenance of marine vessels, including hovercraft.
(Profiles: Shipbuilding and ship breaking, docks and railway land)
- (c) Dismantling, repairing or maintenance of road transport or road haulage vehicles.
(Profiles: Road transport and road haulage, garages and filling stations)
- (d) Dismantling, repairing or maintenance of air or space transport systems.
(Profiles: Engineering works, airports)

C.15 Waste Disposal

- (a) Treating of sewage or other effluent.
(Profiles: Sewage works and farms)
- (b) Storage, treatment or disposal of sludge including sludge from water treatment works.
(Profiles: To be determined)
- (c) Treating, keeping, depositing or disposing of waste, including scrap (to include infilled canal basins, docks or river courses)
(Profiles: Landfills and other waste treatment and disposal site, scrap yards, drum and tank cleaning)
- (d) Storage or disposal of radioactive materials.
(Profiles: Radioactive materials)

C.16 Miscellaneous

- (a) Premises housing dry cleaning operations.
(Profiles: Miscellaneous high street trades)
- (b) Laboratories for educational or research purposes.
(Profiles: Research laboratories, miscellaneous high street trades)
- (c) Demolition of buildings, plant or equipment used for any of the activities in this schedule.

Appendix 3 - Table A (Department of the Environment, Transport and the Regions (February 2000 Circular))

Table A – Categories of Significant Harm	
Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
<p>1. Human beings</p>	<p>Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.</p> <p>For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.</p> <p>In this Chapter, this description of significant harm is referred to as a “human health effect”.</p>
<p>2. Any ecological system, or living organism forming part of such a system, within a location which is:</p> <ul style="list-style-type: none"> ◆ An area notified as an area of special scientific interest under Section 28 of the Wildlife and Countryside Act 1981; ◆ Any land declared a national nature reserve under Section 35 of that Act; ◆ Any area designated as a marine nature reserve under Section 36 of that Act; ◆ An area of special protection for birds, established under Section 3 of that Act; ◆ Any European Site within the 	<p>For <u>any</u> protected location;</p> <ul style="list-style-type: none"> ◆ Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or ◆ Harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. <p>In addition, in the case of a protected location which is a</p>

Table A – Categories of Significant Harm	
Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
<p>meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (i.e. Special Areas of Conservation and Special Protection Areas);</p> <ul style="list-style-type: none"> ◆ Any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection; ◆ Any habitat or site afforded policy protection under paragraph 13 of Planning Policy Guidance Note 9 (PPG9) on nature conservation (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or ◆ Any nature reserve established under Section 21 of the National Parks and Access to the Countryside Act 1949. 	<p>European Site 9 or a candidate Special Area of Conservation (or a Potential Special Protection Area), harm which is incompatible with the favourable conservation status of natural habitats at that location or species found there.</p> <p>In determining what constitutes such harm, the local authority should have regard to the advice of English Nature and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994.</p> <p>In this Chapter, this description of significant harm is referred to as an “ecological system effect”.</p>
<p>3. Property in the form of:</p> <ul style="list-style-type: none"> ◆ Crops, including timber; ◆ Produce grown domestically, or on allotments, for consumption; ◆ Livestock; ◆ Other owned or domesticated animals; ◆ Wild animals which are the subject of shooting or fishing rights. 	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the</p>

Table A – Categories of Significant Harm	
Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
	<p>Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.</p> <p>In this Chapter, this description of significant harm is referred to as an “animal or crop effect” ,</p>
<p>4. Property in the form of buildings.</p> <p>For this purpose, “building” means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building.</p>	<p>Structural failure, substantial damage or substantial interference with any right of occupation.</p> <p>For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.</p> <p>Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.</p> <p>In this Chapter, this description of significant harm is referred to as a “building effect”.</p>

Appendix 3 - Table B (Department of the Environment, Transport and the Regions (February 2000 Circular))

Table B – Significant Possibility of Significant Harm	
Description of Significant Harm (As Defined in Table A)	Conditions For There Being a Significant Possibility of Significant Harm
<p>1. Human health effects arising from:</p> <ul style="list-style-type: none"> ◆ The intake of a contaminant, or ◆ Other direct bodily contact with a contaminant. 	<p>If the amount of the pollutant linkage in question:</p> <ul style="list-style-type: none"> ◆ Which a human receptor in that linkage might take in, or ◆ To which such a human might otherwise be exposed, <p>as a result of the pathway in that linkage, would represent an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant.</p> <p>Such an assessment should take into account:</p> <ul style="list-style-type: none"> ◆ The likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; ◆ The relative contribution of the pollutant linkage in question to the likely aggregate intake or, or exposure to, the relevant substance or substances; and ◆ The duration of intake or exposure resulting from the pollutant linkage in question. <p>The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure.</p> <p>Toxicological properties should be taken to include carcinogenic,</p>

Table B – Significant Possibility of Significant Harm	
Description of Significant Harm (As Defined in Table A)	Conditions For There Being a Significant Possibility of Significant Harm
	mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.
2. All other human health effects (particularly by way of explosion or fire).	<p>If the probability, or frequency, of occurrence of significant harm of that description is unacceptable, assessed on the basis of relevant information concerning:</p> <ul style="list-style-type: none"> ◆ That type of pollutant linkage, or ◆ That type of significant harm arising from other causes. <p>In making such an assessment, the local authority should take into account the levels of risk which have been judged unacceptable in other similar contexts and should give particular weight to cases where the pollutant linkage might cause significant harm which:</p> <ul style="list-style-type: none"> ◆ Would be irreversible or incapable of being treated; ◆ Would affect a substantial number of people; ◆ Would result from a single incident such as a fire or an explosion; or ◆ Would be likely to result from a short-term (that is, less than 24 hour) exposure to the pollutant.
3. All ecological system effects.	<p>If either:</p> <ul style="list-style-type: none"> ◆ Significant harm of that description is more likely that not to result from the pollutant linkage in question; or ◆ There is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the

Table B – Significant Possibility of Significant Harm	
Description of Significant Harm (As Defined in Table A)	Conditions For There Being a Significant Possibility of Significant Harm
	<p>location in question that they would be beyond any practicable possibility of restoration.</p> <p>Any assessment made for these purposes should take into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.</p>
4. All animal and crop effects.	If significant harm of that description is more likely than not to result from the pollutant linkage in question, taking into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.
5. All building effects	If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building (or, in the case of a scheduled Ancient Monument, for foreseeable future), taking into account relevant information for that type of pollutant linkage.