Appendix B6

East Herts Council

Contaminated Land Strategy

Environmental Management System

DECEMBER 2004

First published May 2001

Contents

1.0 Executive Summary

This Contaminated Land Strategy has been prepared for the East Herts Council, in accordance with the Environmental Protection Act 1990, (as amended by the Environment Act 1995). Under this legislation the Council is obliged to adopt and implement a contaminated land strategy.

The Council is under a statutory duty to secure the remediation of contaminated land where significant harm is being, or could be caused to the environment, human health or to structures. The strategy relates to land contaminated by past activities only.

This Strategy was reviewed in March 2004 and an action plan was developed to bring it in line with the Council's new Structure

The Council is the primary authority for the implementation of the strategy. It will consult with and take advice from other agencies, for example the Environment Agency, English Nature, the Countryside Agency, DEFRA, English Heritage and Hertfordshire County Council.

The strategy outlines the Council's approach to dealing with Contaminated Land within the District. Procedures have been developed to identify responsibilities within the Council and to ensure the Council deals with land that is contaminated, in a consistent and diligent manner. These procedures will be placed under an annual review to ensure the assumptions and methods of assessment built into the strategy are appropriate and reflect current scientific and Government advice.

The District has been characterised and the strategy points to where problems of land contamination are most likely to occur. It also details how land in the District will be reviewed and inspected according to a clear risk based approach to ensure those sites most likely to threaten vulnerable pollution receptors are dealt with first.

Procedures detail how the Council will identify and inspect land thought to be contaminated. They will also detail how sites that are found to be significantly contaminated such that they place people, the environment or structures at risk will be dealt with. The apportionment of liability for remediating contaminated sites is a complex matter and the Council is tasked with identifying who is responsible under a prescribed process of attributing liability between various groups or individuals who have an interest in the land. Where the land in question is in the ownership of the Council, it may be partly or wholly responsible for remediation.

The process of investigating land will generate large quantities of environmental information, which will become public information (unless it is declared commercially confidential). The strategy details how this information

will be handled to ensure those parties who need to know will have access to it under the Environmental Information Regulations 1992 (as amended).

The strategy was submitted to the Department of the Environment Food and Rural Affairs (DEFRA) in 2001 for approval, this updated strategy will also be submitted. Thereafter the Environment Agency will monitor it's implementation.

Sustainable Development

The main driver behind the regime for dealing with contaminated land is sustainable development and to address our legacy of contaminated land from past economic activity.

"The last hundred years have seen a massive increase in the wealth of this country and the well being of the people. But focussing solely on economic growth and ignoring it's impact on people and the environment, means we might have reduced or avoided the cost of contaminated land."
Tony Blair: "A Better Quality of Life", A Strategy for Sustainable Development in the UK, 1999.

The strategy identifies how the Council has addressed these issues within it's existing policy framework.

The Council is committed to implementing the strategy and enforcing statutory powers to deal with contaminated land.

2.0 Terms of Reference

2.1 Terms of Reference

The Terms of Reference for this project are drawn from the DETR Circular 02/2000, section B15. This section sets out the areas that local authorities should include in their strategy document. The East Herts strategy will therefore contain the following elements:

1.1 A description of the particular characteristics of East Herts including how this area characterisation influences the strategy.

1.2 The aims, objectives and priorities of the authority.

1.3 The time scales for the inspection of the various areas within the authority.

1.4 Consideration of land for which the authority itself is responsible. This will include current or former ownership or occupation.

1.5 Obtaining and evaluating information on actual harm or pollution of controlled waters.

1.6 The identification of receptors and assessing the possibility or likelihood that they are being, or could be, exposed to or affected by a contaminant.

1.7 Obtaining and evaluating existing information on the possible presence of contaminants and their effect.

1.8 Liaison with various statutory bodies.

1.9 Liaison with, and responding to information from, the owners and occupiers of land, and other relevant interested parties.

1.10 Responding to information, complaints or enquiries from members of the public, businesses and voluntary organisations.

1.11 Planning and reviewing a programme for inspecting particular areas of land.

1.12 Carrying out the detailed inspection of particular areas of land.

1.13 Reviewing and updating assumptions and information previously used to assess the need for detailed inspection of different areas and managing new information.

1.14 Managing information obtained and held in the course of carrying out its inspection duties.

3.0 Management System Structure

3.1 Contaminated Land Strategy and Management System Structure - Top Tier Strategy

3.1.1 The strategy itself will be a top tier management system document that is issued for consultation and regularly reviewed.

3.1.3 The strategy will guide the formation of procedures for operational issues.

3.2 Management System Structure - Procedures

3.2.1 A prime requirement of the provisions of Part IIA of the Environmental Protection Act 1990 is the development of management procedures to manage and address the contaminated land issues within East Herts Council. These management procedures set out how the system works. The procedures also detail how the various methodologies for identifying and dealing with contaminated land work.

3.2.2 Because these procedures set out the detail of how the Council's management system will operate, it is anticipated that they will not form part of the consultation process. The main procedures are set out in Table 1.

Table 1
SUMMARY OF PROCEDURES

P1 Authority Ownership of Land
P2 Controlled Waters
P3 Receptors in East Herts
P4 Potential Contaminants
P5 Liaison with Statutory Bodies
P6 Owners and Occupiers of Land
P7 Complaints and Enquiries
P8 Land Inspections
P9 Updating Assumptions
P10 Managing Information

3.2.3 These procedures have been developed during the first stage of the implementation process, and reviewed in December 2004.

3.2.4 Summary of Procedures

P1 Authority Ownership of Land
The local authority will assess its land ownership and identify if any is potentially contaminated land.

P2 Controlled Waters
All controlled waters in East Hertfordshire will be identified and this information will be used to assess the significance of sources of contamination.

P3 Receptors in East Herts
All potential receptors will be identified. This will include for example SSSIs, nature reserves and groundwater.

P4 Potential Contaminants
A systematic review of all land will be undertaken in East Herts. This will use historical information about land use to identify potential contamination.

P5 Liaison with Statutory Bodies
The Council will liaise and consult with statutory bodies when necessary in the implementation of the contaminated land strategy. Their comments will be incorporated where relevant in decisions relating to appropriate action.

P6 Owners and Occupiers of Land
Owners of land that might be contaminated will be consulted during the land evaluation process.

P7 Complaints and Enquiries
The Council will operate a formal system to deal with complaints and enquiries.

P8 Land Inspections
Where potential land contamination has been identified, on-site inspections will be carried out. Depending on the suspected contamination the inspection may range from a visual inspection through to a full ground investigation. Where necessary the Council will commission ground investigation works.

P9 Updating Assumptions
The Council will periodically review the assumptions that it has made and update the strategy in the light of any changes that may have occurred.

P10 Managing Information
The Council will implement a system for the management of contaminated land information. This will be on a computer database.

4.0 Contaminated Land Strategy and Management System

4.1 Introduction

4.1.1 This section is structured into 8 parts as follows,

4.2 Regulatory Context and Definitions.
4.3 Existing Council Strategies.
4.4 Strategic Issues.
4.5 Key features of East Herts.
4.6 Development of the Strategy.
4.7 Contaminated Land Policy Statements.
4.8 Management Team and Responsibilities.
4.9 Review Mechanisms.
4.10 Programme of Implementation.

4.1.2 Under the Local Government Act 2000 the Council has the responsibility to safeguard the economic, social and environmental well being of the district. The Council is committed to providing a sustainable future for the area under its responsibility. In this context the contaminated land strategy is an essential part of implementing the commitment and responsibility of the Council, as the remediation and re-use of contaminated land is a key step in moving forward into a sustainable future for the district.

4.2 Regulatory Context and Definitions

4.2.1 The responsibilities for dealing with Contaminated Land are prescribed in the Environmental Protection Act 1990 (Part IIA) as amended by the Environment Act 1995.

4.2.2 The contaminated land regime has been under development since the early 1990's. Following consultation on a 1993 White Paper entitled "Paying for our Past", the Environment Act 1995 inserted a new section (Part IIA) into section 78 of the Environment Protection Act 1990.

4.2.3 The Contaminated Land Regulations 2000 and DETR statutory guidance (Circular 02/2000), came into force in April 2000. It is the introduction of this new regulatory regime, generally referred to as the Part IIA regime that has placed the Council under an obligation to produce this strategy document.

4.2.4 East Herts Council duties:

The Council has the primary regulatory role under the Part IIA regime. This is because it has historically had responsibility for dealing with any statutory nuisance caused by land contamination. Further, the local authority is the primary authority for land use planning. It must however make reference to the Environment Agency for specific site guidance. The Environment Agency is the enforcing authority with regard to special sites. In respect of former landfill and/or mineral workings, which will be relevant as potentially contaminated sites, Hertfordshire County Council acts as the Minerals and Wastes Planning Authority.

4.2.5 The Council's duties are prescribed in Part IIA of the Environmental Protection Act 1990,

- To cause the District to be inspected for contaminated land.
- To determine whether conditions at any particular site meet the statutory definition of contaminated land.
- To ensure all 'statutory' contaminated land is remediated.
- To act as the enforcing authority for all contaminated land, unless the site meets the definition of a "special site" (in which case the Environment Agency will act as the enforcing authority).

4.2.6 Environment Agency duties

The Environment Agency has a secondary regulatory role in assisting local authorities, which includes,

- Provision of baseline information for the District for example in respect of controlled waters.
- Sharing site-specific information.
- Taking the lead and enforcing role when dealing with special sites.
- Monitoring the enforcement activity of Local Authorities.
- Monitoring the rate of clean up of contaminated sites.
- Publishing periodic reports on the state of land contamination nationally.

4.2.7 Defining contaminated land

A legal definition of contaminated land is given in Section 78A(2) of Part IIA of the Environmental Protection Act 1990:

Contaminated land is 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.

Section 78A(5) requires the regulatory authority to act in accordance with guidance issued by the Secretary of State in determining significance and likelihood.

4.2.8 Pollutant Linkages

For a site to meet the definition of contaminated land, a pollutant linkage must be established. A pollutant linkage consists of three parts:

a) A source of contamination in, on or under the ground.
b) A pathway by which the contaminant is causing significant harm (or which presents a significant possibility of such harm being caused).
c) A specified type of receptor.

4.2.9 The receptors recognised as being potentially affected by contaminated land include:

1. Human beings

2. Ecological systems or living organisms forming part of a system within certain protected locations, including:
- o Sites of Special Scientific Interest (SSSIs)
- o National Nature Reserves
- o Marine Nature Reserves
- o Nature Reserves
- o Special Areas of Conservation (SACs)
- o Special Protection Areas (SPAs)
- o Candidate SACs
- o RAMSAR sites
- o Areas of special protection for birds

3. Property in the form of structures, including
- o Ancient Monuments

4. Property in other forms
- o Crops
- o Livestock
- o Home-grown produce
- o Owned or domesticated animals
- o Wild animals subject to shooting or fishing rights

5. Controlled waters
- o Surface waters (e.g. rivers, lakes, streams)
- o Potable water supply
- o Source protection zones
- o Groundwater – private abstractions
- o Groundwater – major and minor aquifers

4.2.10 Risk Assessment

If the three components of the pollutant linkage are found or suspected to exist, a desktop risk assessment will be undertaken to determine the likelihood of harm being caused and the likely nature and extent of that harm. An area of land can only be designated contaminated land if a significant risk has been proven.

4.2.11 Dealing with contaminated land

If an area of contaminated land has been identified, the prescribed approach for dealing with it will be the same regardless of whether the local authority or the Environment Agency is the regulator. There are four main stages to this approach:

i. To establish who is the "appropriate person" to bear responsibility for remediation (or "clean-up") of the land.

ii. To decide what remediation is required and to ensure that this occurs, through:

- Reaching a voluntary agreement.
- Serving a remediation notice, if agreement cannot be reached.
- Carrying out work themselves, in certain circumstances.

iii. To determine who should bear what proportion of the liability for meeting the costs of the work.

iv. To record certain information about regulatory action on a public register.

4.2.12 Environmental Information Regulations 1992 (as amended**)**

The process of identifying and investigating land for potential contamination will generate a considerable quantity of environmental information. The Council has identified its responsibilities with regard to the proper storage and dissemination of the information on request.

4.2.13 In order to process requests for information held with respect to land, the Council has purchased a database linked to GIS. This will enable quick and accurate identification of information that may relate to a site under enquiry by a member of the public. The database will be operated and controlled by the Environmental Health Service with assistance from the Council's Information Technology Service.

4.3 Existing Council Strategies

4.3.1 The statutory duty for responding to the issue of contaminated land falls within the scope of the Council's Corporate Vision, Corporate Priorities and related strategies.

4.3.2 Corporate Vision and Priorities of the Council

The Council has a corporate vision that serves to guide the work of officers.

"To improve the quality of people's lives and preserve all that is best in East Herts."

4.3.3 There are seven corporate priorities, which support the overall vision.

Priority 1: Provide leadership to our work with others aimed at reducing people's fear of crime.

Priority 2: Improve the health and sustainability of the organisation.

Priority 3: Protect and provide support to the most vulnerable, in partnership with others.

Priority 4: Improve standards of neighbourhood management in our towns and villages.

Priority 5: Protect our natural assets through recycling and other initiatives that achieve economic and environmental balance.

Priority 6: Create opportunities for improving access to services and public involvement in Council business.

Priority 7: Preserve the unique mix of rural and urban communities, ensuring economic opportunities are generated for the benefit of all.

4.3.4 The Contaminated Land Strategy has important links with other Corporate policies and strategies.

These include the Council's Economic Development Strategy, Local Planning process, Environmental Policy and Housing Strategy.

The policies within these documents are reflected in and are consistent with those contained in the Contaminated Land Strategy.

4.3.5 Concordat for Open Government

The Council has adopted the Government's Concordat for Open Government, which details how the Council will deal with enforcement decisions, consultation with community groups and public requests for environmental information.

4.4 Strategic Issues

4.4.1 This policy sits within the context of Government targets for developing Brownfield Sites, that is sites previously used (ref. Planning For Communities For the Future, DETR). As there will be more pressure to redevelop former industrial land for other uses, the Contaminated Land Strategy and how the Council decides to deal with contaminated land will have increasing importance.

4.4.2 The Strategy will influence local land use decisions by providing a structured and concise declaration as to how potentially contaminated sites will be assessed and where necessary remediated. It is also the case that as there are pressures to redevelop these areas of brownfield sites, which may be contaminated, the Council will assess these areas as a matter of priority.

4.4.3 Water Resources

The Environment Agency under the Water Resources Act and Water Industry Act 1991, is responsible for the protection of the water environment. Contaminated land will have an impact on these natural resources. This will in turn place particular priorities for action to mitigate pollution from contaminated land that is or may be affecting vulnerable water resources.

4.4.5 The Council will place high priority on those sites, which are situated in areas of vulnerable major aquifers and/or source protection zones. The Council will liaise with the Environment Agency to ensure its approach to the assessment of the District relates to the potential risks to the water environment.

4.5 Key Features of East Herts in Relation to Contaminated Land

4.5.1 From an appraisal (see section 5.0 below) of Hertfordshire's environment and land use history a number of observations can be made.

a) The industrial history of East Herts does not suggest that major areas of ground contamination will be found.

b) Modern day land uses are more likely to have introduced contamination. These include the following types of land uses:-

- Petrol filling stations.
- Gas works.
- Railways.
- Electricity transformers.
- Landfill sites.
- Light and medium engineering facilities.
- Uncontrolled waste deposits.

c) The environment of East Herts is sensitive and this includes the following types of environmental feature.

- SSSIs, SAC, SPA and RAMSAR sites.
- Nature reserves.
- Vulnerable major water aquifers.
- Source protection zones.
- Surface waters.

The groundwater environment where major aquifers are exposed to the surface are likely to be very sensitive to contamination and priority needs to be given to their protection. Potential owners of contaminated land need to understand that their sites will require remediation particularly where they pose a risk to the groundwater environment.

d) The contaminated land evaluation will therefore concentrate on those high risk areas and sites first. This includes known high risks such as petrol filling stations and closed landfill sites, particularly;

- Sites which were tipped without the benefit of planning permission for that use, concentrating on those where non inert wastes are believed to have been deposited.

- Permitted sites that were carried out without the application of 'modern' design or licensing standards.

- Unlined or uncapped sites that may otherwise appear to have been adequately restored to a productive new land use such as agriculture.

4.6 Development of the Strategy

4.6.1 The Local Authority is required to take a strategic approach to inspecting land in its area for contamination. The statutory guidance requires that the approach adopted should:

- Be rational, ordered and efficient.
- Be proportionate to the seriousness of any actual or potential risk.

- Seek to ensure that the most pressing and serious problems are identified first.
- Ensure that resources are concentrated on investigating areas where the Council is most likely to identify contaminated land.
- Ensure that the Council efficiently identifies requirements for the detailed inspection of particular areas of land.

4.6.2 These principles will be developed in consultation with the Council's statutory consultees to meet these requirements. Particular reference will be made to "Contaminated Land Inspection Strategies - Technical Advice for Local Authorities" DEFRA.

4.6.3 External Consultation

The Environmental Health Manager – Environment will be responsible for the external liaison and communication with the Environment Agency and other statutory consultees. Existing mechanisms for public consultation such as statutory consultation through the planning process and public consultation through the Community Voice forum will provide a vehicle within which public comments will influence the strategy.

4.6.4 The Council's Contaminated Land Strategy will have an impact on a number of its services and in respect of land it owns. The following factors will guide the strategy.

a) Partnerships

By having clear procedures for dealing with contaminated land, the Council will be able to demonstrate to its' partners in the local community, the Environment Agency, Hertfordshire County Council, Government Office for the East of England, English Nature, English Heritage and the Countryside Agency its intentions. It will enable the Council to win support where external funding may provide leverage for remediation.

b) Economy

Through the principle of 'suitable for use' it is the intention of the Council to provide a climate of certainty and support for landowners and developers in securing the remediation of brown field sites in the District. The procedures will provide a clear picture for landowners and developers, of how it will investigate and assess sites thought to be contaminated. It is in the interest of all stakeholders in the local economy that contaminated land is remediated and otherwise neglected sites are brought back into use.

c) Social

Contaminated land also carries a social cost to the district. The social cost is visible in sites that are not reused and prevent the natural development of the community. This impact is presently mitigated by

the strength of the local economy but it will not facilitate the remediation of all sites.

d) Natural Environment

The cost to the natural environment will occur through many pathways as contaminants enter into receptors such as water and vegetation. The Council is committed to protecting sites of importance and enhancing the biodiversity of the district.

4.7 Contaminated Land Policy Statements

4.7.1 The Council recognises that it will be responsible for contaminated land it owns. In all cases it will ensure it is dealing with the issue corporately and thus accounting for its statutory responsibilities and potential and actual liabilities. The Council is committed to remediating land for which it has a statutory liability.

4.7.2 The Council's approach to dealing with contaminated land will be consistent with good environmental practice and current Government advice. It will evaluate land on the basis of the 'suitable for use' approach. It will require statutory enforcement to achieve preventive remedial action only where land falls within the scope of the Council's enforcement duties of Part IIA of the Environmental Protection Act or as a material consideration of the Town and Country Planning Acts.

4.7.3 The Council will seek to encourage the suitable redevelopment or reuse of contaminated land to ensure the viable economic and social use of land within the District. The Council will where possible seek to use the redevelopment of land as the means by which remediation can occur. However the Council recognises that reuse of slightly contaminated land for less sensitive end uses may be an appropriate course of action.

4.7.4 In reviewing land in the District, the Council will prioritise the review process to ensure areas of land most likely to cause harm are identified first and resources are concentrated on investigating those areas where the Council is most likely to identify contaminated land.

4.7.5 The Council will, in compiling information pertaining to land in the District endeavour to compile the information electronically, so that in the event of enquiries about contaminated land or information arising from its investigations, it may discharge its duties under the Environmental Information Regulations 1992 (as amended).

4.7.6 Concerning any information received with regard to contaminated land, the Council will develop systems to integrate any information received with current and nearby land uses, to efficiently identify the appropriate requirements for investigation of specific areas of land.

4.7.7 The Council will liaise with other statutory bodies, to receive information with regard to contaminated land and procedures to ensure an appropriate response is made in respect of information received. This will include reference to arrangements made under the Memorandum of Understanding between the Environment Agency, Local Government Association and DEFRA.

4.7.8 The Council has established a means by which to respond to information or complaints from members of the public, businesses and voluntary organisations. In doing so, the Council will ensure it is responsible in the communication of the understanding of contaminated land risks and will draw upon the advisory handbook, "Communicating the Understanding of Contaminated Land Risks", SEPA 1999.

4.7.9 The Council will provide for the periodic review of assumptions made and the information used with regard to contamination on specific sties. The Council will also provide for the management of new information being made available for land previously considered. The nature and frequency any review will be determined in relation to the nature of the area and the potential risks thought to be involved.

4.8 Management Team and Responsibilities

4.8.1 Management Team

The Contaminated Land Strategy was drafted by Enviro Management for East Herts Council (then Environmental Services Department), in liaison with senior managers of the Council in 2001.

4.8.2 Internal liaison was conducted with senior managers of,

Environmental Services	Environmental Health
Planning and Property	Development Control, Building Control, Local Plan, Property Services
Central Services	Legal (conveyancing), Land Charges
Chief Executives Department	Economic Development
Community Services	Housing

4.8.3 Representatives of these Departments formed the basis of the management review team.

4.8.4 In 2004 the strategy was full reviewed and a new Management Review Team was formed, to reflect changes in the structure of the Council. The Management Review Team is now made up of representatives of the following services; Environmental Health, Development Control, Building Control, Property, Local Land Charges, Economical Cultural

and Development, and Housing and Community Planning and Environmental Planning.

4.8.5 The Environmental Health Manager –Environment will convene the annual meetings of the Management Review Team and incorporate issues of operational and strategic significance into implementation of the strategy. At other times of the year informal consultation will take place between services.

4.8.6 Council Owned Land

a) The Council's land ownership comprises parks, open spaces and play areas, 5 swimming pools and other leisure facilities and community halls, 30 public car parks, administrative offices and several industrial units and commercial property. Some land in the ownership of the Council is currently used for processes which are the subject of control and regulation through the Environment Agency e.g. breakers yards. Other areas have been used in the past for the deposit of refuse and other materials. Where sites have had potentially contaminative land uses they will be reviewed within the site identification and investigation programme.

b) This Council is no longer in ownership of any residential dwellings. The housing stock has been transferred to two local Housing Associations; the Stort Valley and Riversmead Housing Associations. The transfer was of 6200 dwellings, 3000 garages and areas of amenity land. Play areas etc will continue to be owned by the Council.

c) At the time this strategy was first published the Council was not aware of any housing development within its ownership, which is built on land formerly used for industrial purposes. It is considered therefore that these sites will probably constitute low risk sites. This remains the case for that property which has since been sold.

4.8.7 In the event of land owned by the Council being found to be contaminated land (within the statutory definition), the site will be assessed and a remediation strategy to protect any relevant receptors will be produced in consultation with the Environmental Health Service and Environment Agency. On completion of the remediation strategy, a remediation plan based on the strategy, will be implemented by Property Services in consultation with the Environmental Health Service.

4.9 Review Mechanisms

4.9.1 Triggers for non-routine site investigations or inspections

These will be,

a) Unplanned events e.g. pollution incidents.
b) Introduction of new receptors e.g. new developments.
c) Supporting voluntary remediation e.g. landowners who wish to remediate their land in advance of any action by the Council.
d) Identification of localised health effects, which appear to relate to the use of a particular area of land.
e) Responding to information from other agencies, e.g. the Environment Agency.
f) As a result of planning applications or regeneration initiatives.

4.9.2 Inspection decisions

These may be reviewed in the following circumstances: -

a) Significant changes in legislation.
b) Establishment of significant case law or other precedent.
c) Revision of the guideline values for exposure assessment.
d) Previous remediation schemes considered insufficient.
e) New evidence of a pollutant linkage.

4.9.3 Strategy Review

The strategy will be reviewed by the management team on an annual basis in the light of current knowledge and expertise developed from the operation of the strategy.

4.10 Programme of Implementation

4.10.1 The programme to identify and seek remediation of potentially contaminated sites will be directed by a clear order of local priorities based upon the potential risk to receptors and local redevelopment pressures.

4.10.2 The priority areas for the strategy to address are as follows:

a)	Vulnerable receptors	i)	Major aquifers exposed at ground level or where hydraulic continuity is known to exist.
		ii)	Source protection zones.
		iii)	Water abstraction points e.g. boreholes.
		iv)	Surface waters.
		v)	Nature reserves, SSSI, SPA, SAC or RAMSAR sites likely to be affected by potentially contaminated land.
		vi)	Areas of residential use.
		vii)	Agricultural land close to potentially contaminated land.
b)	Areas of development pressure	These are currently around Bishops Stortford, Stansted Airport, Hertford and Ware.	

4.10.3 Identification of potentially contaminated sites

The Council will carry out an ordered and rational inspection of its district to identify all potentially contaminated land. This process will be by way of a desktop review of all reasonably available records containing historical information on land use. This process will be carried out in accordance with DEFRA guidance CLR 3 “Documentary research on Industrial Sites” and will entail the recording of all relevant current and historical information held within the Council and Hertfordshire County Council onto a computer database (‘Groundview’) linked to the GIS.

4.10.4 To ensure consistent data management the database will have restricted access. It will be available for the dissemination of information for the purposes of the public register and public requests for environmental information.

4.10.5 The Council has already carried out an extensive search of most commonly used data sources (historical maps and local records) and the early indications are that there are about 400 potentially contaminated land sites in the District. At the time of reviewing this Strategy this number remains the same.

4.10.6 The Council has contaminated land information where it relates to site remediation under the planning process and where as the site owner, the Council may have commissioned site investigations or remediation work. This information will be added to the database to ensure consistent data management.

4.10.7 Prioritising potentially contaminated sites

Sites identified as being potentially contaminated, are prioritised and subjected to further investigation by way of a desktop risk assessment and where appropriate, a walk over survey of the site. This will entail prioritising sites thought to be posing a risk to human health, water, the environment and structures for further investigation.

4.10.8 In order to carry out the task account will be taken of current advice, government guidance and industry best practice.

4.10.9 In addition publications from the following bodies and agencies will be considered.

DEFRA Industry Profiles

Environment Agency

NHBC

CIRIA Publications

BRE Publications

Agricultural Land Classification

Food Standards Agency

4.10.10 It is at this stage that the Council will contact current landowners concerning specific sites with regard to obtaining access and to ascertain whether further information is available concerning the condition of the site prior to site investigations.

4.10.11 Site investigations

The purpose of the site investigation is to satisfy the Council in the execution of its statutory duties that a site is “statutorily contaminated,” that is to say, it poses a significant risk to a receptor. This may include a request by the Council for the Environment Agency to undertake site

investigations to gather sufficient information on significant source – pathway – receptor linkages to enable the council to determine the site "contaminated land". The Agency would only consider undertaking investigations on behalf of the Council if the site in question would become a special site if the Council designated the land as contaminated land.

4.10.12 Site investigations will take place in strict priority unless factors such as site disturbance or redevelopment come into effect. Intrusive site investigations will only be made in the event of site condition information not being available and it is considered likely that contamination is present. Any site investigation would be conducted to ensure the minimum disturbance of the site and strictly limited to confirm whether or not the site is contaminated.

4.10.13 This process will be carried out in accordance with DEFRA guidance CLR 2 "Guidance on Preliminary Site Inspection of Contaminated Land". Where necessary the Council will refer to the CCDC services or environmental consultants to receive advice on the toxicological aspects of site contamination.

4.10.14 Site Remediation

Where it is established that a site is "statutorily contaminated" remediation action must be taken. This may first be through informal agreement with the land owner(s) or by way of service of remediation notices. In either case a remediation strategy must be agreed with the Council.

4.10.15 Action will be taken as soon as the Council is aware that a site is presenting a significant risk to a specified receptor. It is likely that enforcement action will occur at any stage of this process as it is unable to predict as and when such sites will become apparent. However, the early stages of the programme will identify the higher risk sites and thus it can be anticipated that the first stage of the programme may result in more sites requiring statutory action. Site remediation may thus occur, either under the enforcement of the strategy or through the redevelopment of land under the Town and Country Planning Acts. In either case, remediation of the land will be dictated by a risk-based approach in accordance with current Government advice and scientific knowledge and advice from the Environment Agency.

4.10.16 Sites identified as statutorily contaminated, may require remediation through the excavation of large quantities of material. In such cases Hertfordshire County Council as Minerals and Waste Planning Authority and the Environment Agency in its Waste Management capacity, will require consultation where;

- Remediation would require large quantities of mineral or mineral waste for infilling any void following removal of contaminated material.

- Remediation may involve the deposit of large quantities of inert or other waste. It may require a decision in such cases on whether development would be a “County Matter”.

- Remediation would produce large quantities of waste.

4.10.17 Apportioning Liability

When land has been declared contaminated, and all pollutant linkages have been established, the procedure for the apportionment of liability can begin.

4.10.18 There are 5 stages to follow before liability can be apportioned,

a) Identify potential appropriate persons and liability groups.
b) Characterise remediation actions.
c) Attribute responsibility to liability groups.
d) Exclude members of liability groups.
e) Apportion liability between members of a liability group.

4.10.19 These procedures are complex and once identified may be classified as either a “Class A” or “Class B” person:

Class A The polluter or persons who knowingly permit pollution.

Class B Where no class A person can be found, liability reverts to the owner or occupier.

4.10.20 Programme

The programme for the various outputs of the strategy are outlined below.

4.10.20 The programme provides a general outline of key milestones as it will be the case that as the work progresses, the management review mechanism will realign the work programme to relate to new information and practical experience about sensitive receptors and contaminated land.

4.10.22 The programme is as follows,

1. Publication of the strategy July 2001

2. Licensing Map Info GIS system and related databases to process land based information and to provide the public register	Commissioning from July 2001 and processing data from Autumn 2001
3. Formulate procedures for implementing the strategy	July 2001 onwards
4. Assessing urgent sites	Autumn 2001 onwards
5. Site identification	Autumn 2001 onwards
6. Desktop risk assessment	September 2002 onwards
7. Site inspections	April 2004 onwards
8. Detailed site inspection and risk assessment	Ongoing as sites are either; ➢ Revealed through stages 4 – 7 above, or ➢ As they enter the planning process for redevelopment
9. Service of Remediation Notices	Ongoing as a follow on from 8 above, where sites are found to be a significant risk to receptors

4.10.23 This programme has now been fully implemented and is ongoing with a rolling programme of site assessment, inspection and remediation.

5.0 East Herts Characterisation

5.1 Introduction

5.1.1 This section provides a description of the particular environmental and land use characteristics of the East Herts area. This is important in terms of seeing contamination source – pathway – target linkages and to enable contaminated land risk assessments to be made. This section is structured as follows;

5.2 The East Herts Environment.
5.3 Current Land Use.
5.4 Agriculture.
5.5 Demography.
5.6 Historic Land Use.
5.7 Features in Relation to Contaminated Land.

5.1.2 A source of contamination may exist, which may flow along a pathway to a target or receptor. For a risk to exist there needs to be a linkage between all three elements. If there is no pathway between a source of contamination and a target then the risk is low.

5.1.3 Sources of contamination*:* examples of sources of contamination include: petrol filling stations, chemical works, ordnance factories, metal works and other such industrial and land use activities. The common land uses leading to land contamination are listed in Appendix A.

5.1.4 It is therefore necessary to have an appreciation of the land use and industrial history of East Herts. It is these activities that will account for most of the sources of contamination in the county.

5.1.5 A large part of the United Kingdom's contaminated land liability stems from present activities. It is therefore important to understand these and to know where potential contaminants might be located in relation to important targets.

5.1.6 Pathways: Examples of pathways that contaminants might move along include: groundwater migration, gas migration, wind blown deposition, uptake from soils into plants and then to humans, leaching into watercourses and then to aquatic life.

5.1.7 Targets: examples of targets include Sites of Special Scientific Interest, high quality rivers, groundwater, human beings, and flora and fauna.

5.2 The East Herts Environment

5.2.1 Countryside

5.2.2 East Herts is characterised by attractive rolling countryside. The small towns and villages stand in an area of great natural beauty, with winding country lanes and shallow valleys through which flow the many rivers and streams that criss-cross the district.

5.2.3 The district's main tourist attractions are its historic market towns, museums, Hertford Castle, a ruined Norman Castle, gardens at Benington and Paradise Wildlife Park in Broxbourne. Various other leisure facilities including golf courses, swimming pools and sports centres are located across the district.

5.2.4 East Herts is much used by ramblers and has many peaceful riverside walks, boat travel on the rivers Lea and Stort and several nature reserves to visit.

5.2.5 Water Resources

5.2.6 The Environment Agency has provided comprehensive map based information to the Council which will form the basis of its approach in terms of prioritising and assessing potentially contaminated land in relation to water resources.

5.2.7 The presence and distribution of source protection zones and vulnerable major aquifers are clearly targets for prioritising action under the Contaminated Land Strategy. They are potential receptors but may also act as pathways for the further distribution of soil contamination.

5.2.8 The River Lea Catchment

East Herts forms part of the Upper Lea catchment and its tributaries. Water quality within the catchment varies, although most of the catchment is classed as being good or very good by the Environment Agency.

5.2.9 Groundwater

The Environment Agency general classification for the area is a major aquifer. Specifically the area around Hertford and Ware is classed as a major aquifer, which is also the major area of industrial activity. Other parts of Hertfordshire are classed as a non-aquifer.

5.2.10 Major aquifers are very sensitive to potential pollution and this applies particularly where hydraulic continuity exists between the ground and surface waters. A risk based assessment process will therefore be carried out taking account of the vulnerability of major aquifers. In East

Herts the vulnerable major aquifers occur where chalk outcrops appear at surface level, which is the case north of Bishops Stortford.

5.2.11 In addition the types of land use activity within source protection zones which have been established to protect public water supplies, are closely monitored by the Environment Agency. There are source protection zones in the North of the District and these areas will require prioritising within the site identification and inspection programme.

5.2.12 Private Water Supplies

There are some 200 private water supplies within the District. These are properties served from their own borehole or well supply. The Authority has a duty to check the safety of these supplies and has a programme of sampling. These abstraction points are both potential receptors and pathways for land contamination. All such abstraction points and non-potable groundwater abstractions licensed by the Environment Agency, will be reviewed with regard to their proximity to any land that is identified as potentially contaminated.

5.2.13 Geology

5.2.14 Solid Geology

The general geology for the East Herts area is shown on the British Geological map sheet 239. The dominant formation is the chalk overlain by London Clays. Where there is a chalk aquifer overlain by London Clay there will be some degree of protection to groundwater.

5.2.15 Drift Geology

The most common mineral deposits found in East Herts are sands and gravel's, known as aggregates. There are also deposits of chalk and brick clay. Aggregates fall into two broad types known as river gravels and glacial gravels. Drift cover can provide suitable protection to both the shallow sand and gravel and deep chalk aquifers.

5.2.16 River gravels are found in low lying valleys and have been deposited from rivers. Glacial gravels are much older and found on higher ground. Within East Herts there are a number of mineral extraction sites.

5.2.17 Nature Conservation

English Nature have been consulted concerning nature conservation within the boundary of East Herts District. Within the District there are a significant number of nature conservation interests and some of these are summarised in Table 2.

5.2.18 There are 15 Sites of Special Scientific Interest. Included in this figure are three sites of international importance comprising, one Special Protection Area (SPA), a RAMSAR site and a candidate Special Area of Conservation (SAC).

5.2.19 Key property types

Consultation with English Heritage has indicated that while there are many sites of historic and archaeological interest, there are no specific property types that warrant special attention within the context of the Contaminated Land Strategy. English Heritage has provided the Council with a full account of scheduled monuments in the District, which will be incorporated into the District review as potential receptors.

Table 2
NATURE CONSERVATION INTERESTS IN EAST HERTS

Site	Designation	Features
Amwell Quarry	EC Directive 79/409 Special Protection Area	Bitterns, Shoveler and Gadwell
	SSSI	Wintering wildfowl
	Ramsar Site	Water milfoil Water boatmen, Shoveler and Gadwall
Wormley Hoddesdon Park Woods North Wormley Hoddesdon Park Woods South	Special Area of Conservation	Oak hornbeam forests
	SSSI	Oak hornbeam forests
The Broxbourne Woods	NNR	Oak hornbeam forests
Tewinbury	SSSI	Alluvial meadows and marshes
Patmore Heath	SSSI	Dry grass heathland
Rye Meads	SSSI	Ancient flood meadows, breeding tufted duck and common tern
	EC Directive 79/409 Special Protection Area	Bitterns, Shoveler, Gadwell and wintering wildfowl
Plashes Wood	SSSI	Oak and Hornbeam woodland
Moor Hall Meadows	SSSI	Grazing meadows and grassland species
Great Hormead Park	SSSI	Ancient woodland
Hillcollins Pit	SSSI	Westland Green Gravel site
Hunsdon Mead	SSSI	Ancient flood meadows
Hertford Heath	SSSI	Lowland Heath
Downfield Pit	SSSI	Pleistocene Gravels
Benington High Wood	SSSI	Pedunculate Oak Hornbeam woodland of the Ash Maple variety
Sawbridgeworth Marsh	SSSI	River valley marsh
Thorley Flood Ponds	SSSI	Flooding marsh habitat

Source: English Nature 2001 **Updated 2004**

5.3 East Herts Current Land Use

5.3.1 East Herts has many resources that make it distinct amongst the districts of Hertfordshire. It is the major rural district in the County and has a great deal of natural and built heritage in the combination of villages and market towns in a predominantly rural setting. Although the district's rural character means it has an important agricultural base, the local economy is in fact dominated by the service sector with the majority of the firms being small and medium enterprises. In the main it is a prosperous district and enjoys higher than average earnings. This is due in part to its proximity to London.

5.3.2 Businesses in East Herts tend to be small or micro enterprises concentrating on the provision of services. However, there is a significant manufacturing base in the District, with an equally significant number of warehousing, distribution and real estate businesses, which the Council is keen to retain as part of a diverse local economy. These are often located in small industrial estates. There are also a number of major employers such as Glaxo Smith Kline at Ware, David Webster Lighting at Stanstead Abbotts, and Merck, Sharpe and Dohme. These companies all have large supply chains, many locally based.

5.3.3 The recent growth of Stansted Airport has also led to the creation of many new opportunities. This includes airport related service industries such as food preparation. The main activities of firms in East Herts are set out in Table 3:

Table 3
ECONOMIC ACTIVITIES IN EAST HERTS

Activity	% of Activity
Agriculture, hunting and forestry	2% of firms
Manufacturing	14% of firms
Construction (including mineral extraction)	8.5% of firms
Wholesale and retail trade	16% of firms
Real estate, renting and business activities	17% of firms
Hotels and restaurants	12% of firms
Other services	12% of firms
Other	18% of firms

Source: EHDC Economic Development Strategy 2000/2001 (revised 2002/2005)

5.3.4 The District Council has identified major employment sites at Mead Lane and Ware Road in Hertford and Stortford Hall Industrial Park in Bishops Stortford. Other employment sites exist within the district and are used variously for light industry and warehousing.

5.3.5 Within East Herts there are a variety of activities that might lead to potential ground contamination, including for example petroleum retailing. The Institute of Petroleum estimates that some 30% of petrol stations contaminate groundwater (ENDS Report 311 December 2000).

5.3.6 Mineral Extraction

The District is a strategically important area for its mineral reserves of sand and gravel, which have been extracted usually within the close proximity of watercourses. Many of the exhausted workings are required to be filled. This has usually resulted in their being used for landfill of controlled waste or special and hazardous waste. Both active and disused landfill sites represent potential sources of groundwater pollution.

5.3.7 Waste Management

Landfill sites are licensed by the Environment Agency under Part II of the Environmental Protection Act 1990. Those sites under current licences are the responsibility of the Environment Agency and will not be investigated under the Contaminated Land Strategy. However former landfill sites which were not licensed or are no longer under licence, and have been filled and closed for subsequent land uses will be of significant importance in the assessment of land that may be contaminated. Consultation will be necessary with the Environment Agency and Hertfordshire County Council as Waste Planning Authority to identify these sites.

5.3.8 Hertfordshire Waste Local Plan 1995 – 2005

The local plan does allow for the deposit of wastes into former mineral workings. However these will be subject to the licensing requirements of Part II of the Environmental Protection Act 1990, which are administered by the Environment Agency. These proposed sites will not therefore be considered by this Strategy. The active landfill sites within East Herts are summarised in Table 4 below.

5.3.9 Civic Amenity sites may act as potential sources of contamination. Current operational sites will be subject to the licensing requirements of Part II of the Environmental Protection Act 1990, which are administered by the Environment Agency. These sites will not be considered, however where former Civic Amenity sites are identified, which fall outside of Environment Agency control under Part II, they will be included within the scope of this Strategy.

Table 4

LANDFILL SITES IN EAST HERTS

Operator	Location
RMC Aggregates	Stansted Abbotts
Anstey Quarry Co Ltd	Anstey
Bedwell Plant Ltd	Essendon
Bedwell Park	Essendon
CJ Priory Plant Ltd	Hoe Lane, Ware
Frontmark	Ware
Greenham Construction	Waterford
Lyons Landfill Ltd	Gilston
Mr V Green	Colegreen
Pioneer Aggregates	Westmill Road, Ware
St Albans Sand and Gravel	Westmill Quarry, Ware
Star Quarries	Waterhall Quarry, Hertford
Star Quarry Products	Lower Hatfield Road, Hertford
Star Quarry Products	Bunkers Hill
Star Quarry Products	Water Hall Farm, Hertford

Source: Environment Agency 2001

5.3.10 Prescribed Processes under Pollution Prevention & Control Act 1999

Integrated Pollution Control (IPC) Part A Authorised process release emissions to air water and land. Part B Authorised processes release emissions to air only. Such emissions to water and land may stem from materials such as solvents, which are potential groundwater pollutants. There are a small number Part A processes situated in the District.

5.3.11 Within East Herts there are approximately 40 Part B Authorised processes (subject to a programme transferring to permits 2003 - 2006 as laid out by the Pollution Prevention and Control Act 1999). These will be systematically reviewed as part of the contaminated land assessment.

5.3.12 Hazardous Installations

Consultation with the Health and Safety Executive (HSE) Hazardous Installations Directorate (HID) has indicated a low incidence of industrial or commercial sites storing hazardous materials.

5.3.13 Sites are registered with the HSE Hazardous Installations Directorate under the Notification of Installations Handling Hazardous Substances Regulations 1982 and the Control of Major Accident Hazards Regulations 1999.

Table 5
NIHHS and COMAH sites in East Herts

NIHHS sites	Hertford Gas Holder Station Marshgate Drive Hertford
COMAH sites	None

Source: HSE Hazardous Installations Directorate 2001 (reviewed 2004)

5.4 Agriculture

5.4.1 Historically East Herts has enjoyed a strong agricultural economy with a thriving county town. An examination of the county map shows that much of the land is given over to agricultural use, with perhaps the greatest activity being arable production. The total land area in East Herts is 47,700 hectares, of which 34,641 hectares (72.6%) is farm land (MAFF, 1996). Land use is as follows:

Table 6
AGRICULTURAL LAND USE IN EAST HERTS

Agricultural Land Use Type	% of Agricultural Land Use
Total crops and fallow	64%
Set aside	12%
Permanent grassland	12%
Woodland	5%
Recent and temporary grassland	2%
Rough grazing	1%
All other land	3%

Source: MAFF 1996

5.4.2 There is a mixed use of agricultural land in East Herts, with cereal production being the main activity utilising 15,596 hectares of land in 1995, compared with just 142 acres for potatoes production. However

the amount of land turned over to cereal production has dropped by 20% since 1998. This change in land use can be attributed to the "set aside" policy of the European Union.

5.4.3 Livestock rearing, particularly fowls, has risen dramatically over the same period with a 30% rise in the numbers of birds being reared from 272,656 in 1995, to 391,722 in 1998.

5.4.4 There is a potential for arable or meat products raised on contaminated land now in agricultural use, to affect a wide range of consumers. This risk is limited but will be taken into account within the process of site prioritisation and annual review of the strategy in the event of new information being made available to the Council with regard to this potential risk.

5.5 Demography

5.5.1 The population of the district is currently around 128,000, nearly 70% of which live in the five main towns of Bishop's Stortford, Buntingford, Hertford, Sawbridgeworth and Ware.

5.5.2 The remainder live in over 100 villages and hamlets across the district. East Herts special character is largely due to its surviving mixture of historic buildings in their picturesque settings.

5.5.3 East Herts Council, to protect the local environment, has carefully controlled development and building and much of the area is either Green Belt or subject to landscape conservation.

5.5.4 There is little history of brownfield site redevelopment in East Herts and where this has occurred the land has been remediated prior to development under planning conditions enforced by the Development Control Team.

5.6 East Herts Historic Land Use

5.6.1 Hertfordshire has never been heavily industrialised, and even today parts of the county are still surprisingly rural. This is because since earliest times its economy has been shaped by three main factors – fertile soils, lack of mineral resources (such as coal or iron) and close proximity to London. Together these formed the basis of an agricultural economy, which remains the dominant land use activity.

5.6.2 Early Land Use

Hertfordshire has good evidence for prehistoric industry in the form of flint working and bronze working. Late Iron Age craftsmen minted gold, silver and bronze coins and made good quality wheel made pottery. The Romans exploited Hertfordshire's natural resources and produced pots, brick and tiles.

5.6.3 Nearly all Hertfordshire's post medieval (c1600-1900) industries have now disappeared. The most important were malting, brewing and paper making, but there were also less well known ones like brick making, silk throwing and barge building and also cottage industries such as straw plaiting. All these industries grew in size as London expanded, and the county's transport network was improved to carry agricultural produce, malt, building materials and other goods into the capital.

5.6.4 Hertfordshire's Major Historic Industries

Hertfordshire had a number of major industries that were based around the materials from an agricultural economy such as brewing and malting. These industries can be summarised as follows:

Table 7
HERTFORDSHIRE'S MAJOR HISTORIC INDUSTRIES

Industry	Location
Malting	Ware
Brewing	Hertford, Bishops Stortford
Mills and Milling	Many locations
Paper Mills and Paper Making	Hertford
Corn Mills	Hertford
Silk Mills and Silk Throwing	Various locations
Printing and Publishing	Hertford

5.6.5 Malting

The river valleys of the Lea and Stort have been described as the cradle of the malting industry in England and the region centred on Ware, Hoddesdon and Stanstead Abbotts as the oldest and most mature malting area in Britain.

5.6.6 Brewing

Hertfordshire has been home to many breweries. Of these the remaining McMullen's brewery in Hertford is perhaps the best known. This brewery continues to trade and now uses modern technology and equipment.

5.6.7 Mills and Milling

There are many types of milling activity that have taken place in East Herts. The most predominant has been flour milling from corn and Hertfordshire has been known for Herts White flour.

5.6.8 Paper Mills and Paper Making

After malting and brewing, paper making was Hertfordshire's most important post medieval industry and the county has been described as the birthplace of modern paper making in Britain. The industry was first recorded as early as the 1490's, when a Hertford mill supplied paper to William Caxton and also to Henry VII.

5.6.9 Corn Mills

At one time mills dotted the Hertfordshire landscape and of the many only a few now remain as reminders of Hertfordshire's past.

5.6.10 Silk Mills and Silk Throwing

Silk throwing was a significant Hertfordshire industry in the late 18th and 19th centuries.

5.6.11 Printing and Publishing

Stephen Austin and Sons Ltd are one of the few surviving printers and they operate in Hertford today.

5.6.12 Communications

The development of communications within Hertfordshire has followed the pattern across Britain in the Industrial Revolution with the construction of roads, canals and railways. There are two main canal systems, the Stort, and Lea Navigation canals. Often disused canals have been treated as convenient landfill sites and contain contaminated materials, which have then had to be excavated at considerable cost.

5.6.13 Utilities

There are a variety of utilities in Hertfordshire including the New River and New Gauge, the local water supply, gas works and electricity generation. The first electricity generating station was built in Hertford in 1900 at Spencer Street. The town also had a gas works and the site still survives, albeit vacant at present.

5.6.14 Of these activities gas production represent one of the greatest source of potential ground contamination and all gas works sites will require careful examination. Consultation will be required with the current owners of these sites as British Gas Properties have disposed of all these sites except for the Mead Lane site.

5.6.15 Other Industries

There are a variety of other industries that have been active in East Herts and these are set out in Table 8. Of these the location of extractive industries is important because the holes in the ground left by them have often been filled with waste materials. Those filled in before the introduction of tight waste management controls might contain potential contamination.

Table 8
HERTFORDSHIRES' OTHER HISTORIC INDUSTRIES

Industry
Straw plaiting and straw hat making
Charcoal, timber, wood turning, joinery and barge building
Brick and tile manufacture, pottery and terra cotta
Lime and gravel

5.7 Features in Relation to Contaminated Land

5.7.1 From this initial appraisal of Hertfordshire's environment and land use history a number of observations can be made that will need to be considered during implementation of the strategy.

5.7.2 Sources

The industrial history of East Herts does not point to major areas of ground contamination.

5.7.3 Modern day land uses are more likely to have introduced contamination. These include the following types of land uses.

- Petrol filling stations
- Gas works
- Railways
- Electricity transformers
- Landfill sites
- Light and medium engineering facilities
- Uncontrolled waste deposits

5.7.4 Pathways

The most important feature of the East Herts environment is the groundwater regime and the fact that this is both permeable and shallow. What this means is that potential pollutants will use groundwater as a pathway through which to escape quickly into the groundwater surface water environments.

5.7.5 Receptors

The environment of East Herts is sensitive and this includes the following types of environmental feature.

- SSSI, SAC, SPA and RAMSAR sites
- Nature reserves
- Vulnerable major water aquifers where they are exposed
- Source protection zones
- Surface waters
- Agriculture

5.7.6 The groundwater and major aquifers are sensitive pollutant receptors and priority will be given to assessment of sites likely to give rise to pollution of these receptors. Potential owners of contaminated land need to understand that their sites will require remediation particularly where they pose a risk to the groundwater environment. Although in the majority of cases groundwater will be regarded as a sensitive receptor, there may be instances where groundwater will be classed as a pathway.

5.7.7 The land use history of East Herts does not point to extensive brownfield redevelopment for residential use, which suggests that there will be very few sites where potentially, the principal receptor is human. Where brownfield sites have been redeveloped for residential use, those remediation strategies will be reviewed during the first phase of the strategy when ‘urgent sites’ will be reviewed.

5.7.8 The evaluation of contaminated land sites will therefore concentrate on protecting sensitive receptors and sites where there is a high risk of potential contamination based on land use history. When prioritising potential high risk sites, the following will be considered;

- Source protection zones
- Major aquifer
- Minor aquifer
- Non-aquifer

6.0 Appendices

APPENDIX A

POTENTIALLY CONTAMINATIVE INDUSTRIAL LAND USES

Airports.
Animal and animal products processing works.
Asbestos manufacturing works.
Ceramics, cement and asphalt manufacturing works.
Chemical works: coatings (paints and printing inks) manufacturing works.
Chemical works: cosmetics and toiletries manufacturing works.
Chemical works: disinfectants manufacturing works.
Chemical works: explosives, propellants and pyrotechnics manufacturing works.
Chemical works: fertiliser manufacturing works.
Chemical works: fine chemicals manufacturing works.
Chemical works: inorganic chemicals manufacturing works.
Chemical works: linoleum, vinyl and bitumen-based floor covering manufacturing works.
Chemical works: mastics, sealants, adhesives and roofing felt manufacturing works.
Chemical works: organic chemicals manufacturing works.
Chemical works: pesticides manufacturing works.
Chemical works: pharmaceuticals manufacturing works.
Chemical works: rubber processing works (including works manufacturing tyres or other rubber products).
Chemical works: soap and detergent manufacturing works.
Dockyards and dockland.
Engineering works: aircraft manufacturing works.
Engineering works: electrical and electronic equipment manufacturing works (including works manufacturing equipment containing PCBs).
Engineering works: mechanical engineering and ordnance works.
Engineering works: railway engineering works.
Engineering works: shipbuilding, repair and shipbreaking (including naval shipyards).
Engineering works: vehicle manufacturing works.
Gasworks, coke works and other coal carbonisation plants.
Metal manufacturing, refining and finishing works: electroplating and other metal finishing works.
Metal manufacturing, refining and finishing works: iron and steelworks.
Metal manufacturing, refining and finishing works: lead works.
Metal manufacturing, refining and finishing works: non-ferrous metal works (excluding lead works).

Metal manufacturing, refining and finishing works: precious metal recovery works.
Oil refineries and bulk storage of crude oil and petroleum products.
Power stations (excluding nuclear power stations).
Pulp and paper manufacturing works.
Railway land.
Road vehicle fuelling, service and repair: garages and filling stations.
Road vehicle fuelling, service and repair: transport and haulage centres.
Sewage works and sewage farms.
Textile works and dye works.
Timber products manufacturing works.
Timber treatment works.
Waste recycling, treatment and disposal sites: drum and tank cleaning and recycling plants.
Waste recycling, treatment and disposal sites: hazardous waste treatment plants.
Waste recycling, treatment and disposal sites: landfills and other waste treatment or waste disposal sites.
Waste recycling, treatment and disposal sites: metal recycling sites.
Waste recycling, treatment and disposal sites: solvent recovery works.
Profile of miscellaneous industries, incorporating:
Charcoal works, Dry-cleaners
Fibreglass and fibreglass resins manufacturing works
Glass manufacturing works
Photographic processing industry
Printing and bookbinding works

APPENDIX B

GLOSSARY OF TERMS

DETR Circular 02/2000 contains a detailed glossary of terms that provides legal definitions of terms that may be used in this Strategy. This Glossary provides an interpretation of terms used in the Strategy to aid reading by the layperson.

TERM/ ABBREVIATION	MEANING
AONB	Area of Outstanding Natural Beauty
Brownfield site	A site that has been generally abandoned or underused where redevelopment is complicated by actual or perceived environmental contamination. Only a small proportion of brownfield sites will meet the definition of contaminated land
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: 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
Controlled waters	These include a) inland waters (river, streams, underground streams, canals, lakes and reservoirs) b) groundwater's (any water contained in underground strata, wells or boreholes)) c) territorial waters (the sea within three miles of a baseline) d) coastal waters (the sea within the baseline up to the line of highest tide, and tidal waters up to the fresh water limit
DETR	Department of the Environment, Transport and the Regions
Drinking water abstraction	The taking of water from a source (in this case, primarily an underground source) for drinking water
EA	The Environment Agency
Eco-system	A biological system of interacting organisms and their physical Environment
FODDC	Forest of Dean District Council
GIS	Geographical Information System
Groundwater	Any water contained in underground strata, wells or boreholes

TERM/ ABBREVIATION	MEANING
ICRCL	Interdepartmental Committee on Redemption of Contaminated Land
NNR	National Nature Reserve
Pathway	One or more routes by which a receptor can be exposed to a contaminant
Pollutant linkage	The relationship between a contaminant, a pathway and a receptor
Ramsar site	A site protected under an international convention on protection of wetlands of international importance, especially as habitats for waterfowl, named after the city in Iran where the convention was signed
Receptor	Sometimes referred to as "a target "– the health of a person, waters, ecosystem or property type that could be affected by contamination
Redemption	Generally accepted as being the carrying out of works to prevent or minimize 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	The study of a) the probability, or frequency, of a hazard occurring; and b) the magnitude of the consequences
SAC	Special area of conservation
SGV	Soil Guideline Value – a Contaminant Specific Value based upon toxicological data above which remediation measures are necessary.
Source	A substance in, on or under the ground with the ability to cause Harm
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.
SPA	Special Protection Area for birds
Special site	Any contaminated land designated due to the presence of: • Waste acid tar lagoons • Oil refining • Explosives • Integrated pollution control sites • Nuclear sites
SSSI	Site of Special Scientific Interest

APPENDIX C

CONSULTEES

Countryside Agency
Ortega House
110 Hills Road
Cambridge
CB2 1LQ

English Heritage
62 – 74 Burleigh Street
Cambridge
Cambridgeshire
CB1 1DJ

English Nature
Harbour House
Hythe Quay
Colchester
Essex
CO2 8JF

Environment Agency
Dawn Halliday
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

Food Standards Agency
Dr Mat Barber
Chemical Contaminants and Animal Feed Division
Room 707c, Aviation house
Kingsway
London
WC2B 6NH

Government Office for Eastern England (Defra Representative)
Alan Bell – Rural Team
Eastbrook
Shaftesbury Road
Cambridge
CB2 2DF

Health & Safety Executive

Mrs Christine Marshall
Principal Inspector
Hazardous Installations Directorate
Belgrave Road
Greyfriars
Northampton
NN1 2BS

Hertfordshire County Council
Director Of Environment
Hertfordshire County Council
Pegs Lane
Hertford
SG13 8DN

APPENDIX D

REFERENCES (additions November 2004)

Groundwater: Our Hidden Asset, R.A. Downing, NERC (1998)

Communicating Understanding of Contaminated Land Risks, SNIFFER (2000)

Environmental Law (4th edition), Stuart Bell, Blackstone Press Ltd. (1997)

Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources, Environment Agency R&D Publication 20 (2000)

DEFRA

CLR 1 A framework for assessing the impact of contaminated land on groundwater and surface water. Volumes 1 & 2. DoE, 1994
CLR 2 Guidance on preliminary site inspection of contaminated land DoE, 1994
CLR 3 Documentary research on industrial sites DoE, 1994
CLR 4 Sampling strategies for contaminated land DoE, 1994
CLR 5 Information systems for land contamination DoE, 1994
CLR 6 Prioritisation & categorisation procedure for sites which may be contaminated DoE, 1995
CLR 11 Model Procedures for the Management of Land Contamination. Defra / Environmental Agency 2004

East Herts Council
Economic Development Strategy
Deposit Consultation Version of Local Plan for the District
Local Agenda 21 Action Plan (draft)
Profile of the Agricultural Industry in East Herts
Economic Profile of East Herts
A Guide to East Herts

Environment Agency
CD Containing water resource data to map form

Hertfordshire County Council
The Hertfordshire Waste Local Plan 1995 – 2005
The Industrial Archaeology of Hertfordshire
Annual Update 1999: A Report on the state of Hertfordshire's Environment

LEGISLATION AND GUIDANCE

The Environment Act 1995, HMSO (1995)

SI 2000/227, Environmental Protection, England, The Contaminated Land (England) Regulations 2000, HMSO (2000)

DETR Circular 02/2000, Environmental Protection Act 1990:Part IIA Contaminated Land, HMSO (2000)

Contaminated Land Inspection Strategies, Technical Advice for Local Authorities, DETR (Draft for comment April 2000).

APPENDIX E

SOURCES OF INFORMATION

Resource	District Specific	Use
Historic maps	Digital maps purchased from Ordnance Survey (through Landmark)	To identify sources
Historic land use database	Excel spreadsheet of all known historic industrial land uses based on old OS Sheet Maps, which require digitising to work with GIS.	To identify sources
Geological maps	1:50 000 solid and drift geology maps have been purchased from the British Geological Society (Sheet number 239)	To characterise sources and pathways
Hydrogeological Maps	The Groundwater Vulnerability Maps produced by the Environment Agency	To identify receptors (controlled waters)
Maps	Produced by the Environment Agency and the Soil Survey and Land Research Centre in 1993 will be used to assess the potential for contamination of groundwater (1:100 000).	(controlled waters)
Source Protection Zones	Areas of groundwater that receive special protection by the Environment Agency are identified on the EA website, and can be used with a GIS	To characterise receptors (controlled waters)
Environmental Health Records	The District Council maintains records of complaints and investigations	To identify known information on contamination
Planning records	The District Council holds detailed planning records of development in the area, including information on ground condition presented in surveys	To identify known information on contamination
District Local Plan	A new plan was prepared and agreed in December 2000 for public consultation during 2001. It is a valuable source of up-to-date information on land use	To identify receptors (particularly historic monuments and protected areas of the environment)
Local Authority Pollution Control (LAAPC) and Integrated Pollution Control (IPC) public register	The Council has maintained a public register containing details of authorised industrial processes in the District since 1990	To identify potential sources of Contamination

Resource	District Specific	Use
Waste Management Licences	The Environment Agency maintain a public register of sites licensed for waste management activities and have provided relevant information relating to sites in the District. This will include Civic Amenity sites, waste transfer sites and former landfill sites.	To identify sources of contamination
Register of closed landfill sites	The Environment Agency will provide a register of closed landfill sites.	To identify sources of contamination
The County Archive	The County Archivist will be able to identify a number of sources describing land-use in the District essential for researching site histories prior to WW2 when Town & Country Planning legislation came into force.	To identify sources of contamination
MAFF Agricultural Land Classification (ALC)	The ALC will identify areas of grazing land subjected to limitations resulting form contamination. This may be indicative of a potential problem but should not be regarded as evidence of a pollution linkage	To identify receptors and sources of contamination
Hertfordshire County Council Mineral and Waste Planning records, County Development Unit (CDU)	The County Council holds extensive records about a significant number of existing and former waste sites. This data will be valuable in the compilation of site information. This information will include current and former civic amenity sites.	To identify sources of contamination