Forest of Dean
DISTRICT COUNCIL

A Contaminated Land Inspection Strategy for the Forest of Dean

Periodic Review and Update

October 2010

Introduction

The Inspection Strategy Periodic Review

In May 2007, the Forest of Dean District Council produced a Draft Update and Review of the Contaminated Land Inspection Strategy, first adopted in June 2001.

The purpose of this review is to move the Strategy forward and make further refinements based on legislative changes and guidance updates. This review also details the progress made in implementing the Strategy in the District so far and replaces the previous Strategy (June 2001) and the Draft Review (May 2007).

The Inspection Strategy

Part IIA of the Environmental Protection Act 1990[1] (EPA 1990) came into force on 1st April 2000 (more specifically described at 3.1) and introduced a regulatory framework for contaminated land identification and remediation in England. The purpose was to create a regulatory mechanism for contaminated land consistent across the country, to encourage a strategic approach and to allow issues associated with contaminated land to be dealt with using a single regulatory process.

The legislation places a duty on all local authorities as the enforcing authority to inspect their areas and to identify 'Contaminated Land'. The Contaminated Land Strategy details how the Council will go about this.

The Forest of Dean District Council published its first Strategy in June 2001. The Act was amended in 2006[2] (including changing Part IIA to read Part 2A) to include land contaminated by radioactivity and other significant changes in technical guidance and procedures have changed since then.

Consultation Process

The Strategy has been prepared by the Contaminated Land Officer, based in the Environmental Protection and Licensing Team, responsible for implementing the requirements of the legislation pertaining to Part 2A of the EPA 1990.

The Council's approach to local government consistently emphasizes the need to be open and accountable for its actions. This document has been presented as a consultation draft and made available to all interested sections of the community, businesses and developers. The Strategy will also be available for viewing on the Council's website for public comment. The comments received will be considered before finalising the Strategy.

The Strategy will then be submitted for approval to the Council.

[1] Department of the Environment, Transport and the Regions (March 2000) DETR Circular 02/2000 Environmental Protection Act 2 1990: Part IIA – Contaminated Land

[2] Department for Environment, Food and Rural Affairs (September 2006) DEFRA Circular 01/2006 Environmental Protection Act 1990: Part 2A – Contaminated Land

Contaminated Land

A legal definition of contaminated land is given in Section 78A(2) of Part 2A 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.*

Inspection Process

Local authorities are required to take a strategic approach to inspecting land in its area for contamination and ensure that significant problems are dealt with on a priority basis to prevent harm or pollution being caused.

A review has been undertaken that looks at the available information to assess the potential risks from contamination at sites in the district. The sites have been prioritised in terms of risk to human health to assess whether a pollutant linkage exists comprising a source, pathway and receptor.

Information from historical maps and land use indicates the presence of around 1,600 potentially contaminated sites in the district. The potentially contaminated sites will be identified first, then the site and surrounding area surveyed for contamination receptors. Those sites that are known to be contaminated will be the first to undergo preliminary investigation. The protection of human health is the main priority of the strategy. Therefore where the potential for contamination exists, areas such as residential property and children's play areas will be given a higher priority for more detailed investigation. An effective Geographical Information System and linked database system is utilised to carry out map based surveys and manage site information.

Regulation

Where necessary, the local authority must use its regulatory powers to enforce remediation by the liable party; typically the original polluter or the current landowner. Such enforcement can be complex and resource intensive. Where possible however, it is preferable to secure voluntary remediation through constructive engagement with the relevant stakeholders.

The Council's policy for inspecting sites is detailed in Chapter 5.

Contaminated land is a major concern for the general public and communication with all interested parties plays an important role in dealing with issues relating to land contamination. Details of communication and liaison with the Environment Agency and other stakeholders are contained within Chapter 9.

Progress to Date

Significant progress has been made in recent years in implementing the Strategy and details are provided in Chapter 6.

Since publication of the original strategy in 2001, the national Best Value Performance Indicators (BVPIs) have been both introduced and withdrawn by Central Government and therefore, alternative means of measuring progress have been considered.

Additionally, several sites in the District have been dealt with through the planning process. Redevelopment of the sites in this way has negated the need for progressing them along the Part 2A route.

Storage of Information

Each local authority has a duty to maintain a Public Register (under Section 78R of the EPA 1990) to include details of remediation notices which have been served and other information in relation to each area of Contaminated Land for which the authority is responsible.

At the time of publication of this strategy, there are no sites that have been determined as contaminated land in the district, however, upon entry of sites onto the register, it will be made available for viewing at the Forest of Dean District Council's main office and online at www.fdean.gov.uk.

Amended timetable for the implementation of Part 2A of the EPA 1990 to identify and remediate contaminated land

Activity	Year completed
Production and publication of statutory contaminated land strategy	2001
Draft update and review of Contaminated Land Strategy	2007
Update and review of Strategy and publication	2010
Inspection of the district, identification of potentially contaminated sites, prioritisation for further investigation	2010
Detailed inspection and assessment of priority category 1 sites identified in 2010	2014
Detailed inspection and assessment of remaining potentially contaminated sites	estimate 2025

Enquiries

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1 National and Local Policy

1.1 Objectives of the Regime

Part 2A of the EPA 1990 creates a framework for the identification and remediation of land where contamination is causing unacceptable risks to human health and the wider environment as a result of historic contamination. It is considered that existing pollution prevention control legislation suitably controls the prevention of new contamination.

The regime follows 'the polluter pays principle' and 'suitable for use' approach. The 'suitable for use' approach seeks to ensure that risk can only be satisfactorily assessed in the context of a specific use with the aim of maintaining an acceptable level of risk at a minimum cost, thereby not disturbing social, economic and environmental priorities.

The stated objectives for the regime are to:

- improve the focus and transparency of the controls, ensuring Local Authorities take a strategic approach to problems of land contamination;
- enable all problems resulting from contamination to be handled as part of the same process (for both human health and water);
- increase the consistency of approach taken by different regulatory authorities; and
- provide a more tailored regulatory mechanism, including liability rules, better able to reflect the complexity and range of circumstances found on individual sites.

The Government also felt that the improved clarity and consistency of the regime would result in:

- more remediation being carried out on a voluntary basis. In fact the regime provides an incentive to undertake voluntary remediation, in that material that requires disposal as a result of voluntary remediation will be exempt from landfill taxes. This exemption does not apply to materials generated as a result of a remediation notice having been served;
- responsible parties being able to plan investment in remediation in advance of any regulatory intervention; and
- greater certainty on the part of developers and others about any residual liabilities associated with the redevelopment of former industrial or similar land.

1.2 Regulatory Context

Contaminated land regulations have 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 the EPA 1990.

Another period of detailed consultation followed this enabling legislation, and the regulations and statutory guidance finally came into force in April 2000. It was the introduction of this regulatory regime, generally referred to as the Part 2A regime, that has prompted the production of the original Contaminated Land Strategy.

The Governments objectives in introducing Part 2A were:

- to ensure that risks associated with land contamination are reduced to an acceptable level;

- to bring contaminated land back into beneficial use; and
- to make sure that the cost burdens of doing so are proportionate, manageable and economically sustainable.

It is considered that the most appropriate and cost effective methods of undertaking remediation of contaminated land is during redevelopment and therefore, Part 2A becomes necessary when no immediate prospects for development exist.

1.3 Interaction with Other Regulatory Regimes

There are several regimes that deal with land contamination as described below:

Planning and Development Control

The vast majority of contaminated land issues are currently addressed through the planning regime, where contamination is a material consideration. The Part 2A regime deals with a sites current use, therefore, development of brownfield sites, and the associated planning controls, remains the primary mechanism for dealing with contaminated land. Any remediation agreed as a planning condition will be dealt with under planning controls and not under Part 2A.

The Contaminated Land Officer at the Forest of Dean District Council works closely with Development Control and Building Control for inter-departmental consultation on contaminated land issues.

The framework governing the interaction of planning and contaminated land is set out in Planning Policy Statement (PPS) 23 (2004).

The Forest of Dean District Council has also published a guidance leaflet for developers of potentially contaminated land, which is also available on the website.

Building Regulations

Approved Document C of the Building Regulations (2004)[3] requires builders to ensure that ground to be covered with buildings is reasonably free from any material that might damage the building or affect its stability, including vegetable matter, topsoil and pre-existing foundations.

The Environmental Permitting (England and Wales) Regulations 2010

This legislation is designed to regulate pollution from industrial processes. Site operators are required to undertake a site condition survey prior to receiving a license to operate. Part 2A is not applicable where the Environment Agency has the ability to remedy contamination arising from a breach of a process authorisation under this legislation.

Waste Management Licensing

Irresponsible practices in the disposal of waste onto or into land may lead to contamination. A strict regime of waste management licensing is, however, already in place and rigorously enforced by the Environment Agency. A site cannot be subjected to regulatory action under the Part 2A regime unless the waste is clearly unrelated to the licensed activity on site.

[3] Approved Document C of the Building Regulations (2000), ODPM, 2004 Edition.

In addition, the contaminated land regime cannot be used to address problems in illegal dumping of waste onto land as this is already subject to regulation by the Environment Agency.

It is important to ensure that any contaminated material generated by remediation of sites is disposed of in an appropriate manner, to ensure that the problem is not moved from one site to another and that the requirements of waste management regulations are observed in this type of operation.

Water Resources Act 1991

The Environment Agency has powers under this Act to prevent or remediate pollution to controlled waters. This Act is separate to Part 2A and therefore, the regimes overlap. After consultation with the Environment Agency or the Local Authority, the appropriate regime can be applied to the site in question.

Water Framework Directive

The Water Framework Directive (WFD) aims to provide a simpler approach to aspects of water management and looks at the ecological health of surface water bodies (defined as a slight variation from undisturbed natural conditions), as well as achieving traditional chemical standards. In particular, it will help deal with diffuse pollution which remains a big issue. The Directive came into force in 2000 and became part of UK law in 2003.

The aim of the Directive is to deliver a better water environment, focusing on ecology and to help protect and enhance the quality of:

- surface freshwater (including lakes, streams and rivers);
- groundwaters;
- groundwater dependant ecosystems;
- estuaries; and
- coastal waters out to one mile from low-water.

Environmental Damage (Prevention and Remediation) Regulations

In March 2009, the European Unions (EU) Environmental Liability Directive was enacted through English legislation as the Environmental Damage Regulations (EDR), with Local Authorities being the enforcing authority for land damage. The regulations only apply to land damage caused after 1st March 2009 and impose liability on an operator to prevent and remediate environmental damage caused by its activities. The regulations include a legal requirement for operators to notify the enforcing authority of possible land damage and the powers to require the responsible operator to provide all necessary information to assess the possible land damage. The regulations take legal precedent over Part 2A.

In progress

The EU are also writing the EU Soil Framework Directive which is currently in its draft form. If enacted, this Directive could have significant impacts on the regulation of Contaminated Land in the UK.

1.4 Sustainable Development

Sustainable development has been defined in many ways, but the most frequently quoted definition is from *Our Common Future*, also known as the Brundtland Report[4] *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:*

- *the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."*

The UK Government, Scottish Executive, Welsh Assembly Government and the Northern Ireland Administration have agreed upon a set of principles that provide a basis for sustainable development policy in the UK.

The existence of contamination presents its own threats to sustainable development in that:

- it impedes social progress, depriving local people of a clean and healthy environment;
- it threatens wider damage to the environment and wildlife;
- it inhibits the prudent use of our land and soil resources, particularly obstructing the recycling of previously developed land and increasing development pressures on greenfield areas; and
- the cost of remediation represents a high burden on individual companies, home and other landowners, and the economy as a whole.

The Governments objectives with respect to contaminated land are:

- to identify and remove unacceptable risks to human health and the environment;
- to seek to bring damaged land back into beneficial use; and
- to seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

These objectives underlie the 'suitable for use' approach to remediation of contaminated land, which the Government considers is the most appropriate approach to achieving sustainable development in this field.

The 'suitable for use' approach consists of three elements:

- ensuring land is suitable for its current use;
- ensuring that land is made suitable for any new use, as planning permission is given for that new use; and
- 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.

[4] World Commission on Environment and Development (WCED). *Our common future.* Oxford: Oxford University Press, 1987 p. 43.

1.5 Local Objectives

The Forest of Dean District Council's Vision for the district is:

We want the Forest of Dean District to be a thriving community where people are proud to live

In translating the values, and from results of consultation, the following priorities have been identified:

- Provide value for money services
- Promote thriving communities
- Encourage a thriving economy
- Protect and improve our environment

Land contamination has significant impacts on both the environment and the economy so these policy areas are, therefore, key considerations in developing this Inspection Strategy.

Under the Part 2A regime, the progressive assessment of homes, schools and businesses where there are land contamination concerns, is the only way to address public anxiety, remove property blight and address risks to health, where present.

1.5.1 District Local Plan

The District wide Local Plan adopted in November 2005 sets out policies and proposals to guide development in the Forest of Dean up to 2011. The Local Plan contains policies which are derived directly from and reflect government guidance.

The Plan states that priority must be given, wherever possible, to the use of land other than greenfield sites for new housing. This will be achieved by making allocations where possible on land that has already been developed and which is suitable and available for an alternative new use.

1.5.2 Sustainable Community Plan (2008-2020)

The Local Government Act 2000 places a duty on Local Authorities to prepare sustainable community plans for promoting or improving the economic, social and environmental well being of their areas and contribute to the achievement of sustainable development.

Our Forest: Our Future is the Forest of Dean District Council's plan that is supplemented by a delivery plan which will be updated every two years which focuses on making these aims a reality by setting out specific actions to be addressed.

1.5.3 National Planning Policy Guidance (PPG23)

Planning and pollution control sets standards and objectives for the redevelopment of land that may be subject to contamination. Specifically, it states that land should be incapable of being determined as contaminated land following re-development.

2 Contaminated Land

2.1 Definition of Contaminated Land

A legal definition of contaminated land is given in Section 78A (2) of Part 2A of the EPA 1990 as:

> *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, either:*
>
> - *Significant harm is being caused or there is significant possibility of such harm being caused; or*
> - *Pollution of controlled waters is being, or is likely to be, caused.*

For radioactive contamination, the definition is:

> *Any land that 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*
>
> - *Harm is being caused; or*
> - *There is a significant possibility of such harm being caused.*

Section 78A(4) defines 'harm' as meaning 'harm to the health of living organisms or other interference with the ecological systems of which they form part and, in the case of man, includes harm to his property'.

Section 78A(5) defines what harm is to be regarded as 'significant' and the local authority should regard as significant only harm which is both:

- to a receptor (see 2.4) of a type listed in Table A (Annex 3 of the Statutory Guidance); and
- within the description of harm specified for that type of receptor in that Table.

Table A (Categories of Significant Harm) is presented as Appendix B in this strategy.

2.2 Significant Possibility of Significant Harm

In deciding whether the possibility of significant harm being caused is significant, the Council must take into account the following factors:

- The nature and degree of harm;
- The sustainability of the receptors to which the harm might be caused; and
- The timescale within which the harm might occur.

The statutory guidance states that the Local Authority should regard any possibility of significant harm which meets the conditions set out in Table B for the description of significant harm under consideration. This table refers to 'relevant information' which is information that is;

- scientifically based;
- authoritative;
- relevant to the assessment of risks arising from the presence of contaminants in soil; and
- appropriate to the determination of whether any land is contaminated land for the purposes of Part 2A, in that the use of the information is consistent with providing a level of protection of risk in line with the qualitative criteria set out in Tables A and B.

Table B (Significant possibility of significant harm) is presented as Appendix B in this strategy.

2.3 Pollution of Controlled Waters

Controlled waters are defined in Section 78A(9) by reference to Part III of the Water Resources Act 1991, which embraces territorial and coastal waters, inland fresh waters and ground waters.

The pollution of controlled waters is defined as:

'the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'

Before determining that pollution of controlled waters is being, or is likely to be, caused, the Council will need to be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. The Council will regard something as being 'likely' when they judge it to be more likely, than not, to occur.

2.4 Pollutant Linkages and Risk Assessment

Applying the strategic approach to carry out the inspection duty will result in the identification of particular areas of land where it is possible that a pollutant linkage exists.

A pollutant linkage consists of three parts:

1. A source of contamination in, on or under the ground;
2. A pathway by which the contaminant is causing significant harm (or which presents a significant possibility of such harm being caused); and
3. A receptor of a type specified in the regulations.

A **source** is a substance which is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.

A **pathway** is one or more routes or means by, or through, which a receptor;

a) is being exposed to, or affected by, a contaminant; or
b) could be so exposed or affected.

A **receptor** is either:

a) a living organism, a group of living organisms, an ecological system or a piece of property which;
   i. is in a category listed in Table A (mentioned in Section 2.1 above) as a type of receptor; and
   ii. is being, or could be, harmed, by a contaminant; or
b) controlled waters which are being, or likely to be, polluted by a contaminant; or
c) any person who is, or could be, subject to lasting exposure so far as attributable to radioactivity.

Unless all three elements of the pollutant linkage are identified in respect of a piece of land, that land will not be identified as contaminated land. There may be more than one pollutant linkage on any given piece of land.

Even when a pollutant linkage is present, the level of risk may not be considered to present 'significant harm' or a 'significant possibility of significant harm' and therefore, the land would not be considered to be contaminated land.

In order to determine whether risks are unacceptable, a risk assessment is required which involves scientific and technical analysis of the risks but also decisions by appropriate persons.

There are many published technical guidance documents to aid in the decision making process including the Environment Agency's publication entitled 'Model Procedures for the Management of Land Contamination (CLR11)'.

3 Aims and Objectives of the Inspection Strategy

3.1 Requirements of Part 2A

Part 2A of the Environmental Protection Act 1990 was introduced by Section 57 of the Environment Act 1995 and came into force on 1 April 2000. It defines contaminated land, places a duty of inspection on Local Authorities to inspect their areas and, where contaminated land is identified, enforce satisfactory remediation.

In April 2006, the legislation was extended to include land contaminated by radioactivity. In addition, other legislation has amended the arrangements for appeals to remediation notices, with appeals now being made to the Secretary of State, instead of magistrates' courts.

In order for the Forest of Dean District Council to fulfil its duties under this legislation, it is obliged to:

- Prepare an Inspection Strategy setting out how the Council will inspect its area with the aim of identifying contaminated land;
- Determine if any area of land is contaminated land, as defined by the legislation;
- Determine if contaminated land is to be designated as a 'Special Site' (for definition see Appendix A);
- Undertake immediate remedial action if there is an imminent danger of serious harm;
- Consider the application of alternative statutory regimes to the site;
- Identify and notify those who may need to take action on the land or who have a specific interest in it;
- Determine responsibility for the remediation of the land;
- Consult with the relevant parties regarding the remediation actions to be carried out;
- Serve Remediation Notices, where necessary;
- Monitor the effectiveness of remediation carried out;
- Maintain a public register of details of regulatory action taken under the Act; and
- Report progress made under Part 2A to the Environment Agency to allow them to fulfil their statutory reporting function.

The Environment Agency's role is to:

- Assist the Local Authorities in identifying contaminated land;
- Provide site-specific guidance to Local Authorities;
- Act as the enforcing authority for designated 'Special Sites'; and
- Publish summary reports on contaminated land.

3.2 Development of the Strategy

The Forest of Dean District Council is required by Section 78B(2) of the EPA 1990to act in accordance with guidance issued by the Secretary of State for identifying and regulating contaminated land, which imposes a duty on Local Authorities to take a strategic approach when identifying land that may merit detailed inspection.

The strategy 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 the most pressing and serious problems are located first;
- Ensure that resources are concentrated on investigating areas where the authority is most likely to identify contaminated land; and
- Ensure that the local authority efficiently identifies requirements for detailed inspection of particular areas of land.

The strategy is also required to reflect local circumstances, including:

- Available evidence of significant harm or pollution of controlled waters and any available information on land contamination;
- The prevalence of each defined receptor within the District;
- The extent to which these receptors are likely to be exposed to defined contaminants;
- The history, scale and nature of industrial or other activities which may have contaminated the land in the District;
- The nature and timing of past development in the District;
- The extent to which remedial action has already been taken to deal with land contamination or is likely to be taken as part of impending redevelopment; and
- The extent to which other regulatory authorities might consider harm is being or may be caused to particular receptors, or pollution of controlled waters is being or may be caused, within the District.

The original strategy, prepared in 2001, and this revision of the Council's strategy, have been undertaken to satisfy these requirements. Consultation with a number of other departments and functions within the Council has also been undertaken, including Development Control, Building Control, Legal Services, Engineering Services and the Directorate.

It should be noted that there is no formal mechanism in place for approval of local authority strategies, although the Environment Agency, Gloucestershire County Council, Natural England, English Heritage, DEFRA and any statutory regeneration bodies, should be consulted (see Appendix C for details of consultees). As part of the formal consultation process the Environment Agency will assess compliance with statutory guidance and provide appropriate comments.

3.3 Objectives of the Strategy

3.3.1 The Council's Priorities

For each site, the importance of any complex issues that may arise must be balanced in order to move forward in dealing with the problem. A prioritised list of the Council's aims has therefore, been devised to aid decision-making.

The Council's priorities when 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 and designated historic sites;
5. To prevent any further contamination of land;
6. To encourage voluntary remediation; and
7. To encourage voluntary re-use of brownfield land.

The list is presented in priority order and in all cases will have regards to significance and likelihood, as required by the regulations.

The Council will at all stages seek to comply with the Regulators Compliance Code (2007) and the Enforcement Concordat (1998).

3.3.2 Revision of the Strategy

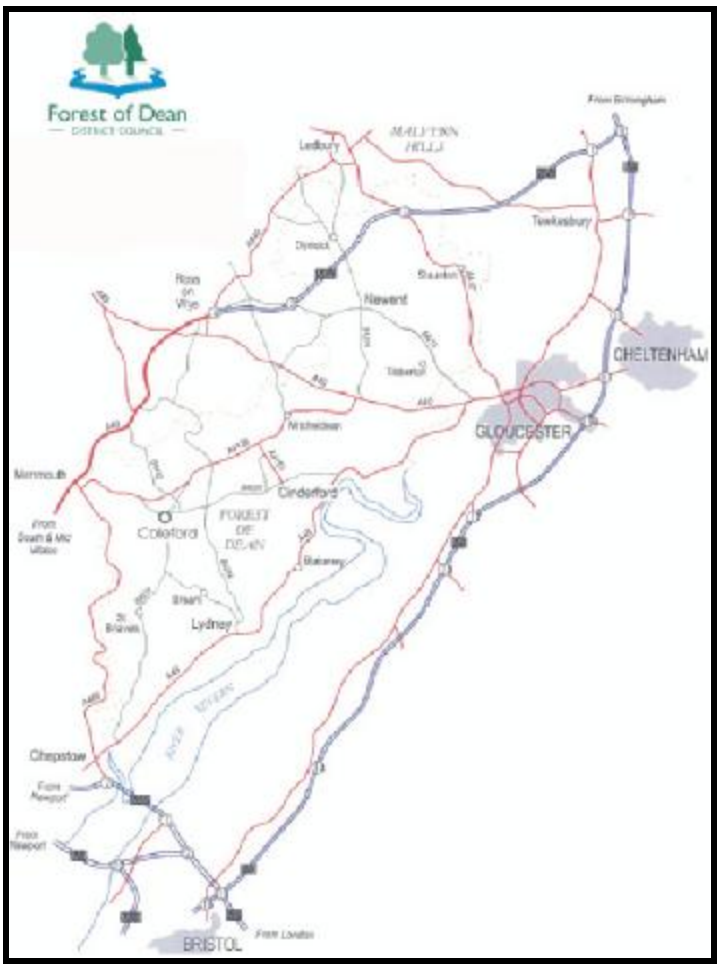
This revision of the strategy sets out the strategic approach to identifying and inspecting potential contaminated land. It also explains how the Council will respond to the challenges of contaminated land and, in particular, how it will:

- Inspect any land which may be contaminated;
- Notify any affected person, the Environment Agency and other relevant stake holders of contaminated land;
- Decide whether any particular area of land is designated as a 'Special Site' in consultation with the Environment Agency;
- Identify the 'Appropriate Person' (for definition see Appendix A) responsible for the remediation of the land;
- Issue a Remediation Notice to ensure remediation of the land, if deemed necessary;
- Take enforcement action against any person who fails to comply with the terms of the Remediation Notice;
- Exercise its power to carry out remediation and recover the costs of the work, if necessary; and
- Maintain a public register in relation to contaminated land.

4 Characteristics of the Forest of Dean District

4.1 Geographical Location

The Forest of Dean District lies on the boundary between England and Wales. It occupies the western part of Gloucestershire, bounded by the Malvern Hills in the north, the River Wye to the west and the River Severn to the south and east.



4.2 Brief Description/History

The character of the Forest of Dean District is inexorably linked to the character of its land. The District is a predominantly rural area with four main towns. The statutory Forest of Dean forms the centre of the District lying on the Dean plateau in the south.

The District's inhabitants have historically exploited the rich natural resources of the area, particularly for timber, water, stone, coal, mineral ores and soils. Sites of historic heavy industrial use are scattered throughout the District, as are much smaller scale sites where stone, coal and minerals have been exploited.

4.3 Size

The District Council's boundaries encompass a much wider area than just the statutory Forest of Dean. The District covers an area of 203 square miles or 526 square kilometres. Over 8,094 hectares of this is woodland managed by the Forestry Commission.

4.4 Population Distribution

The Forest of Dean district has a population of 81,900. This district has four main towns and many smaller, rural settlements. Approximately 40% of the inhabitants live in the four major towns, which are:

- Newent to the north, which is an attractive, lively market town;
- Coleford, which is located at the southern end of the district and is the administrative centre;
- Cinderford, which sits in the heart of the Forest, has a long industrial history and is currently the focus of a large regeneration programme; and
- Lydney, situated on the banks of the River Severn, which is the largest town in the Forest of Dean and designated as the major growth area for the district.

4.5 Land owned by the District Council

The District Council has limited land holdings in the District, mostly held by the Council's Land and Property department within the finance department. In specific instances, the Council may actively pursue the purchase of derelict land and redevelop this to improve the overall quality of an area.

At the time of writing, the Council's Land and Property department owns 85 individual areas of land.

4.6 Current Land Use Characteristics

The main use of land in the District, other than for residential use, is for agriculture and forestry. Current industrial activity is generally restricted to a number of small-medium sized industrial estates with a handful of large manufacturing operations. The large-scale coal and mineral exploration of the past has run down in recent times and superseded in importance by the rock quarries operating in the area.

4.7 Regional Geology

The geological strata of the Forest of Dean lies like a nest of saucers with smaller ones resting on top of larger ones. The saucers are not all circular. At the northeast end, they appear to be pulled outwards, as they are also to the west. Furthermore, to the west, the River Wye cuts down through some of the strata, exposing them as cliffs and beds.

Most of the rocks found in the Forest of Dean are carboniferous (or coal-bearing). The layers of coal are overlain by sandstone and mud layers. The sandstones make concentric ridges in the Forest of Dean, whilst the thick mass of coal seams between them tends to form a valley. The coal measures produce poor soils and this is probably the reason why the Forest of Dean has never been extensively farmed.

Carboniferous limestone occurs beneath the coal measures. These layers contain no coal, but have a top band of sandstone (the Drybrook Sandstone) and are important because of their high iron content.

Old red sandstones lie beneath the limestone, giving rise to the deep red soils of Blakeney and Lydney.

Beneath the sandstone, lie banks of conglomerate – large pebbles in a sandstone matrix – which can be traced all around the edge of the Forest of Dean, except where it is buried by younger coal measures in the southeast and limestones in the southwest.

A simplified order of layers could be presented as:

Supra-pennant sandstones	
Thick belt of coal seams	
Pennant sandstones	
Coleford High Delf coal seam	**Carboniferous**
Trenchard Sandstones and shales	**Rocks**
A break in the succession occurs here	
Drybrook Sandstone	
Iron	
Limestones	
Thin Sandstones	**Devonian**
Conglomerate	**Rocks**
Old red sandstones, clays and marls	

The regional geology is detailed in the British Geological Survey Solid and Drift 1:50,000 scale maps 'Monmouth, Sheet 233', 'Gloucester, Sheet 234', 'Chepstow, Sheet 250' and 'Tewkesbury, Sheet 216'.

4.8 Hydrogeology

The Environment Agency Groundwater Vulnerability Maps provide information on the water beneath the land in the District. These indicate that there is a major aquifer of high vulnerability running through the district from Staunton, through south Coleford and St Briavels down to the River Wye at Chepstow. The remainder of the District is classified as having a minor aquifer, but with a high vulnerability.

Within the District a number of Source Protection Zones (SPZs) exist, as designated by the Environment Agency. These are sections of the aquifer which are considered to form catchments to public water supplies and certain other private abstractions.

There are five areas in the District comprising SPZs, located at Hewelsfield, Milkwall, Ruspidge, Oxenhall and Redmarley.

4.9 Hydrology

The Forest of Dean is sandwiched between two major rivers, the River Wye on the west and the Severn Estuary on the east. Cannop Brook and Cinderford Brook feed down into the lower Severn Estuary. The River Leadon runs through the north of the District, fed by Kempley Brook, Ell Brook, Glynch Brook, Colliers Brook and Red Brook.

From sampling carried out by the Environment Agency, the river quality of the Wye is predominantly categorised as 'good' to 'very good'. The protection of these high standards of river quality from contamination is a major objective of the inspection strategy.

4.10 Protected Locations

The biodiversity of the District is one of its major natural assets. The District boasts:

- Parts of two Areas of Outstanding Natural Beauty (AONB), the Wye Valley and the Malvern Hills;
- Two Ramsar sites (Wetlands sites of International Importance, designated the Ramsar Convention), namely, Walmore Common and the Severn Estuary, which are also classified as Special Protection Areas (SPA) under the European Community Directive on the Conservation of Wild Birds;

- Four Special Areas of Conservation (SACs) under the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora – namely the Wye Valley Woodlands, the Wye Valley and Forest of Dean Bats Sites, the River Wye and the Severn Estuary;
- Three National Nature Reserves (NNRs) declared under National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 – namely Highbury Wood, The Hudnalls and part of Lady Park Wood; and
- Forty seven Sites of Special Scientific Interest (SSSIs).

In addition to these sites that have received statutory designations, Gloucestershire Wildlife Trust list 60 nature reserves within the county, many of which are situated in the Forest of Dean. In Gloucestershire, there are also over 700 Key Wildlife Sites (KWS), often referred to as non-statutory sites to distinguish them from SSSIs, many of which are in the District. There are also 64 Regionally Important Geological sites (RIGs). There are also a number of historical parks and gardens.

Natural England have previously expressed particular concern regarding the potential for contaminated land investigation and remediation to impact:

- The underground mine sites which are home to internationally important populations of greater and lesser horseshoe bats; and
- Important grassland habitats which have developed through natural colonisation of former industrial sites, particularly long-standing waste ground and spoil heaps.

Good levels of consultation have been established with Natural England in dealing with contamination problems in mine workings and it is envisaged that these will continue throughout this inspection process. The issue of rare species flourishing in contaminated areas (e.g. containing high levels of heavy metals) is not unique to this District and in dealing with such sites, the Council will follow examples of good practice established in other parts of the UK.

4.11 Key Property Types

As well as its rich natural environment, the District has a rich historic environment, with 1,470 Listed Buildings, 93 Ancient Monuments and 27 designated Conservation Areas. The Forest of Dean Archaeological Survey lists 10,930 County Sites and Monuments Records (SMR) sites for surveying in 2004.

The industrial heritage of the area is particularly rich and there are a number of industrial buildings and conservation areas, which enjoy statutory protection principally because of their past industrial use. However, investigation of past industrial use forms a key part of the contaminated land inspection strategy. It is recognised that investigation of a site which may include valuable historic assets will have to be tailored on a site-specific basis to minimise disruption and ensure that no new pathways are created by the investigation process. These factors will also need to be taken into account when designing any remedial work that may be required.

4.12 Key Water Resource/Protection Issues

The water companies that supply the majority of the Districts drinking water are Severn Trent and Welsh Water.

The District Council is required to regularly inspect the quality of approximately 150 private drinking water supplies in its area. Of these, around 30 residences and 2 commercial premises are concentrated in the Aylburton area, supplied by the privately owned Aylburton Reservoir.

4.13 Known Information on Contamination

During the extensive consultation process period before the Part 2A regulations came into force, the Council worked closely with Forest Enterprise and the Environment Agency in correlating information on potentially contaminated sites within the statutory Forest. The information gathered provided an important information source.

The Council holds some information on contamination in the District, primarily submitted as part of the development control process. If development is proposed on an area of land where past site use may have resulted in contamination, the Council will often request a site investigation as part of a planning condition. If development proceeds on these sites, remedial works will often have to be carried out to improve the site conditions to an acceptable level. Planning records form a valuable resource during the investigation process.

The Council currently holds over 100 site investigation and remediation reports on file. Most of these are in hardcopy form only. However, the Council now makes electronic copies of all reports submitted to the Council.

The majority of this information is stored on a dedicated land condition database that is linked to the Council's GIS system. Hence, sites that are subject to planning and building control applications are now screened for potential land contamination issues.

In March 2000, the Council purchased a set of ordnance survey maps, in a digital format, along with a database of historic land uses from Landmark Information Group Ltd. These are also installed as part of the Council's GIS system.

Since then, additional appropriate GIS layers have been purchased or downloaded from various sources.

All available information has been considered during development of the Inspection Strategy and has proved significant when compiling the list of sites for prioritisation.

A public register of all regulatory action taken by the Council in respect of remediation of contaminated land, has been set up. At the time of writing, there are no sites that have been formerly determined to be contaminated land.

When the public register has entries, it will be made available to view at the District Council's main office in Coleford, or online on the Council's website.

4.14 Current and Past Industrial History

The Forest of Dean has a unique industrial history. A casual visitor to the area would probably be unaware that the Forest of Dean had been a centre of large-scale industrial activity in fairly recent history. Towns such as Cinderford, have grown out of industries that have exploited the land resources. The past one hundred years has seen a decline in the traditional heavy industries of mining and manufacturing, replaced by smaller scale light industry. Tourism is now the basis of a large part of

the local economy and many key tourist attractions are based on former industrial activity.

4.14.1 Coal Mining

Coal deposits underlie much of the core forest sandwiched between sandstone and clays. The seams lie close to the surface, cropping out in various locations and often running at shallow angles to the surface. Exploitation of these seams is believed to have occurred in the Forest on a small scale since Roman times and rose in importance during the 18th century.

In the early days of the industrial revolution, small pits proliferated and shafts were initially only of shallow depth or dug into the sides of hills (drift mining) as the coal seams (or 'delfs' as they were known locally) rose to the surface.

An individual known as 'The Gaveller' was responsible for leasing mining rights on behalf of the Crown. Specific areas of land allocated for mining within the Forest boundaries are known as 'gales'.

Larger pits became more common throughout the 19th century. In 1904, the Gaveller was authorised to amalgamate gales and forty-four were grouped into seven large areas to be exploited on a large scale. Deeper shafts were sunk and mined for steam coal but as depths increased so did the cost of pumping out groundwater from the mine workings. After the Second World War, the coalfield became less economically viable and the last big pit closed in 1965.

The majority of the coal reserves are now believed to have been worked out. The Forestry Commission has taken on the role of the Gaveller in the area and the Deputy Gaveller deals with day-to-day mining issues. Free mining continues on a small scale with around a dozen small pits still being worked, generally as a part-time activity.

4.14.2 Iron Ore Mining

Mining of iron ore is likely to have begun in the District as early as 500BC as the surface outcrops of ore bearing limestone would have allowed mining by hand. Evidence of iron working by the Romans has been uncovered in and around Lydney dating from around 300AD. In medieval times, the region was regarded as the largest iron-working district in Britain. The pits left on the surface from small-scale iron ore extraction are known as 'scowles'. Many of these scowles are alleged to have been infilled with various materials and this is an important issue when dealing with the Council's investigations.

During the 17th century, blast furnaces using charcoal from Forest of Dean timber operated at locations where water could be used to power the bellows. By the end of the century, eleven of the twenty-four furnaces working in England and Wales were located in the area.

The ore of the District did not easily lend itself to the coke-blast furnaces being introduced by 1800 leading to a downturn in the local iron industry. The problem was solved by the 1920s leading to large coke blast furnaces being built at Parkend and Cinderford. Deeper shafts were sunk and output rose rapidly to a peak in 1879. The industry eventually declined due to the gradual exhaustion of economically viable deposits and the importation of cheap foreign ores.

As well as the scowles on the surface of the land, extensive underground mines exist beneath the centre of the Forest of Dean, which support important populations of horseshoe bats (designated as SSSI's and SACs).

4.14.3 Stone and Lime

The earliest use of stone in the District was probably for buildings and roads. The Old Red Sandstone, the Drybrook Sandstone and the lower beds of Pennant Sandstone in the coal measures provide building stone. Road stone is provided by carboniferous limestone occurring near the edge of the Forest of Dean.

Burning limestone with coal in kilns to produce quicklime and slaked lime was an important business before the introduction of cement and artificial fertilisers. As well as their agricultural use, these products were widely used for mortar and plaster. The kilns were located primarily around the limestone outcrop and around 150 sites are believed to have survived, often with several kilns together.

Quarrying remains an important activity in the District with large quarries currently operating in Clearwell, Stowefield and Drybrook. Wilderness Quarry and other smaller operations can also be found in the District.

4.14.4 Other Heavy Industries

TINPLATE WORKS are known to have operated around Redbrook before the end of the 18th century at a site believed to have initially been a copper works. Other tinplate works were located at Hawkwell, Parkend, Lydbrook and Lydney.

FOUNDRIES AND ENGINEERING WORKS supported the rail infrastructure of the Districts heavy industries.

Lydbrook is known to have had a WIREWORKS factory where cable making occurred prior to the First World War.

CHEMICAL FACTORIES, where wood was distilled to form acids and alcohols, were widespread throughout the Forest of Dean, with a large site at Cannop Crossroads.

Charcoal burning and tanning have also occurred throughout the District at various times.

Railways once networked the District, providing an infrastructure to transport goods produced by the heavy industries. Only the Chepstow to Gloucester line (via Lydney) is currently operational and some of the old railway lines have been converted to cycle paths, particularly in the core Forest of Dean. The Dean Forest Railway is based in Norchard near Lydney, which runs between Parkend and Lydney and is run by volunteers. Their objective was to preserve the last remaining section of the Severn & Wye Railway.

4.15 Known Local Conditions

From assessment of submitted investigation reports, The Forest of Dean can be seen to have elevated heavy metal concentrations in various areas, including arsenic, copper, lead, nickel and zinc.

Arsenic is considered to be naturally occurring in the area and although arsenic is considered to be toxic, naturally occurring arsenic is likely to have limited bioavailability, which is the fraction of the substance that can be absorbed by the

body. Therefore, in some areas, arsenic is unlikely to pose significant health concerns.

The Forest of Deans industrial heritage has resulted in localised areas of contamination. In particular, lead and Polycyclic Aromatic Hydrocarbons (PAHs) may be elevated compared to non industrial areas, however, they are frequently below the UK Soil Guideline Values (SGVs) or Generic Assessment Criteria (GACs).

4.16 Radioactive Contamination

The Part 2A legislation was amended in 2006 to include land contaminated by radioactivity and extended the duties and powers of local authorities to include radioactive contamination, as legally defined by Part 2A.

The scope of the extension to the Part 2A regime:

- provides for the identification and remediation of radioactive contaminated land, which is causing lasting exposure to human beings. Harm to the wider environment of pollution is not included at this time;
- applies only to radioactivity arising from the after effects of a radiological emergency and substances, which have been processed as part of a past practice or past work activity. This includes substances containing artificial radionuclides (see definition of Radioactive Contaminated Land at Appendix A) or processed natural radionuclides. It is not applicable to current practices and natural background radiation is excluded;
- does not apply to radioactive contamination where the operator of a nuclear installation is liable under the Nuclear Installations Act 1965; and
- does not apply to radon gas and its short lived decay products which are only a matter of concern within buildings and for which other policy exists.

The trigger activity level necessary for a site to be determined to be Radioactively Contaminated Land is 3 millisieverts (mSv) above the background level. It is considered unlikely that any sites in the Forest of Dean District might be radioactively contaminated to this extent.

4.17 Radon Gas

Radon gas was not initially included in the Part 2A regime, however, the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2010 came into force on 30th September 2010 and these regulations state that radon should be considered if it has resulted from the after effects of a radiological emergency or has been processed as part of a past practice or past work activity. However, naturally occurring radon is still not included in the Part 2A regime.

5 Contaminated Land Inspection in the Forest of Dean

5.1 Progress with the Inspection Strategy

The Forest of Dean District Council employs a Contaminated Land Officer, who is the lead officer that deals with land contamination issues in the District. The role is to implement the Contaminated Land Strategy, provide advice to the Local Planning Authority and Building Control regarding developments on potentially contaminated

land, respond to land quality searches and other requests for environmental information, respond to urgent and emergency incidents and advise Council landowning departments on asset and liability management.

The original Inspection Strategy was produced in June 2001 and following consultation, a copy was forwarded to the Environment Agency.

Several factors have since affected the progress of the strategy and these include the various legislative changes that have come into force since the initial strategy was produced. These are explained elsewhere in this document. Problems with the GIS system, two changes in staff and a period of time with no officer in post, have also affected progress of the strategy.

A review of historic mapping and other available information has identified 2,207 sites that have been subject to a current or previous potentially contaminative use. Initial screening was undertaken to remove sites that were not considered to affect human health and the environment creating a new total of 1,606 sites. However, further screening was undertaken to remove small areas such as small infilled ponds etc, and this reduced the total number of sites to **875.**

It is likely that most of the sites on the sites priority list will NOT be considered as 'Contaminated Land'.

In some cases, a simple desktop study and site reconnaissance will be sufficient to assess the risks posed and to establish that there is no real risk present. Other sites may require site investigation works to ascertain the condition of the land in question.

Additional sites may be added to the list when further information comes to light.

5.1.1 Summary of recent activity relating to the contaminated land strategy

- Site prioritisation list completed;
- Voluntary remediation agreed for a potential 'Special site' in Sling;
- Voluntary remediation agreed for a developed site in Ruardean;
- Inspection and assessment of Council owned land: Wye Valley Garage in Redbrook for hydrocarbon contamination in conjunction with the Environment Agency's requirements, due to the proximity of the River Wye. The site has been deemed as 'suitable for use' as a car park;
- Desk top study of a priority site in Newent, concluding that it is unlikely that significant harm is being or is likely to be caused to human receptors; and
- Inspections of several oil tank leaks, resulting in both indoor and outdoor impacts.

In addition to the above, there has been a significant amount of development on contaminated sites in the District. These have been developed through the planning process, with the Contaminated Land Officer providing advice and support.

5.1.2 Summary of recent activity relating to the planning process

- Residential development of a derelict/disused haulage depot in Mitcheldean;
- Residential development of a former sawmills, foundry and factory site in Cinderford;
- Residential development of an engineering works and depot in Sedbury;
- Residential development of a filling station in Newent;
- Numerous small infill developments on other former petrol filling stations in

Tutshill, Highleadon and Newent, and other former industrial sites;
- Development of several former railway land sites for residential and commercial use;
- Development of several dwellings in garden areas; and
- Providing advice and support to the South West of England Development Agency.

Over 100 site investigation and remediation reports have been received and reviewed by the Council in connection with development control and building control applications within the last five years.

5.1.3 Other contaminated land activities

The Forest of Dean District Council is an active member of the Gloucestershire Contaminated Land Officers Group (CLOG). Numerous speakers have been invited to present to the group including the Health Protection Agency (HPA), the Environment Agency (EA), and various consultants and specialists on a variety of relevant topics.

A successful half day training event was run by CLOG in 2006 for local conveyancing solicitors and Council legal staff involved in land transfers and the chair of the UK Environmental Law Association also attended and presented at the event.

Regular external liaison takes place with a number of other bodies including the EA, HPA and Health and Safety Executive (HSE).

A close working relationship is maintained with other Council Departments, including Development Control, Building Control, Land and Property, Legal Services and IT/GIS.

A large number of land quality enquiries have been received since the original Strategy was produced, mainly by land search consultants and conveyancing solicitors. Many of these required a detailed written response. Furthermore, enquiries from the general public and local businesses were also received on a weekly basis, requesting advice and information. Work was undertaken in response to several urgent incident reports including the:

- Inspection of a historical spillage of tetrachloroethene affecting drinking water to a neighbouring property in Lydney;
- Inspection of a private water supply following a kerosene spillage after a flooding in Rudford; and
- Inspection and sampling of a dwelling in Parkend reported to be exhibiting hydrocarbon odours.

Guidance relating to general contaminated land matters has also been produced as follows:

- Publication of guidance documents to assist homebuyers, home purchasers and developers in understanding the contaminated land regime; and
- Production of Frequently Asked Questions leaflet for all parties interested in Contaminated Land.

5.2 Data and Software Used to Identify Sites

The Forest of Dean District Council uses a Geographic Information System (GIS) along with a linked database to store the information relating to land contamination issues.

The Council purchased Groundview™ Data Management and Site Prioritisation software provided by AEA Technology. This database is linked to the Council's ESRI ArcMap GIS system.

The database is updated with reports obtained through the submission of planning applications, desktop studies undertaken for Part 2A purposes and any information provided by other authorities, regulators and the general public.

In order to identify sites of potential concern, several datasets were obtained by the Council to identify sources and receptors. Statutory guidance states that there must be a pollutant linkage (source, pathway and receptor) to allow a site to be determined as Contaminated Land. In practice, it is often not possible to ascertain whether a pathway between source and receptor exists, therefore, in the initial stages of the prioritisation process, only sources and receptors have been identified.

5.2.1 Datasets used to identify Potential Sources of Contamination

- Landmark Information Group Historical Landuse Data
- Ordnance Survey Historical Maps 1:2,500 Epochs 1-4
- Aerial Photographs from Getmapping (2000 and 2007)
- Current OS base mapping
- Data received from Forestry Commission
- Data received from the County Council
- Data received from the Environment Agency relating to landfill sites
- Books and maps of the Forest of Dean
- Previously submitted reports and information

5.2.2 Datasets used to identify Potential Receptors

- Current OS Basemapping
- Aerial Photography (2007)
- Environment Agency – Groundwater Vulnerability Maps 1:100,000 (2001)
- Forest of Dean District Council Forward Plan Department
- Natural England GIS layers including Site of Special Scientific Interest (SSSIs), Special Areas of Conservation (SAC), Special Protection Areas(SPA), Regionally Important Geological Sites (RIGS), Ramsar sites and Areas of Outstanding Natural Beauty (AONB).
- Environment Agency - Source Protection Zones (SPZ)

GIS layers have been created from these datasets including *Sites of Potentially Contaminated Land, Land currently used as Residential Housing with Gardens, Historical Landfill Sites* and others.

Other sources of information include trade directories, pollution incidents and industrial records, among others. A source of historical industrial information is the Dean Heritage Museum in Soudley. Anecdotal information, particularly from current and former employees of industrial sites, can also be a valuable source of information.

The Council uses these datasets and other sources of information to compile a prioritisation list of sites for inspection.

In order to carry out the duties of Contaminated Land Officer, it is paramount that the supporting IT and GIS systems operate smoothly at all times.

5.3 Former Prioritisation Methodology

The original Contaminated Land Strategy released in June 2001 stated that the land in the District would be investigated in order of population density. This strategy stated that the largest towns were to be given priority due to the largest number of receptors (humans) being present and the likelihood of a pollutant linkage being present. This would mean that the four main towns of Cinderford, Coleford, Lydney and Newent were to be investigated first.

This population based approach would also take into account the Council owned land, either currently or historically owned by the Council. However, the strategy stated that these areas were to be investigated as a priority, thereby following the approach of 'putting its own house in order' before expecting others to follow suit.

However, the Statutory Guidance states that the prioritisation of sites is based on risk, hence the investigation process will deal with those sites that are considered to be potentially contaminated.

It is proposed that the updated and revised strategy identifies the sites of highest priority first, where the sites may be in smaller areas such as villages and more rural areas, if necessary. It is considered that this approach conforms to the approach outlined in the Statutory Guidance and identifies the highest priority sites first.

5.4 Revised Prioritisation Methodology

Preliminary prioritisation was undertaken to assess sites for future inspection and was achieved through the use of a scoring system. Scores were given for highly contaminative land uses (Hazard scores) and for highly sensitive receptors (Vulnerability scores).

The protection of human health will be the main priority of the strategy, however, sites which are located on land above Source Protection Zones (SPZ) or where ecosystems may be impacted upon, will also be considered. Therefore, it is anticipated that where the potential for contamination exists, more detailed investigation of sites will take place in the following order of priority according to the current land use:

- residential property;
- schools;
- allotments;
- public open space and playing fields;
- other open space;
- woodland;
- offices and retail;
- warehouses and commercial premises;
- industrial land; and
- other areas.

The Vulnerability scores reflect the land uses above and take into account the sensitivity of the receptor to allow for the prioritisation of sites to be established.

An overall combined risk was calculated by multiplying the Hazard score (1-20) with the Vulnerability score (1-10) using the information available to the Council at the time of writing. The highest scores represent the highest potential risk to receptors and at this initial stage, no consideration is given to land ownership or liability issues or the number of receptors potentially affected. Council owned land will be included within this process and will not be treated differently to any other land.

If further information becomes available pertaining to the sites highlighted in the priority list, the scoring will be adjusted to reflect the changes in circumstances.

Hazard Scores

Airports	**15**
Air Shafts	**12**
Animal & Animal Waste Products Processing Works	**13**
Burial Pit	**10**
Slaughterhouse / Rendering	**8**
Tannery	**14**
Asbestos Works	**19**
Cement Works / Brickworks / Asphalt Works	**14**
Charcoal Works / Coal Depots	**10**
Chemical Works	**18**
Coatings Works (Inks / Paints / Dyeworks)	**15**
Cosmetics Works (Soap / Detergents / Toiletries)	**15**
Disinfectant Works	**15**
Explosives Works (Ordnance / Fireworks / Flammables)	**18**
Fertiliser Works	**15**
Fine Chemicals Works	**15**
Inorganic Chemicals Works	**15**
Linoleum / Bitumen Works	**15**
Glue Works (Mastics / Adhesives / Sealants)	**15**
Organic Chemicals Works	**15**
Pesticides Works	**15**
Pharmaceuticals Works	**15**
Rubber Works (Tyre Works)	**15**
Coal Mine	**18**
Dockyards	**12**
Dry-Cleaners	**14**
Engineering Works	**13**
Aircraft Manufacturing Works	**15**
Electrical / Electronic Manufacturing Works	**13**
Railway Engineering Works	**14**
Shipbuilding / Boatbuilding Works	**14**
Smithy	**10**
Vehicle manufacturing Works	**14**
Excavation (Pit / Reservoir / Canal / Well etc)	**20**
Food Industries	**8**
Malthouse	**8**
Gasworks / Cokeworks / Coal Carbonisation	**20**
Glassworks	**18**
Graveyard (Cemetary/ Burial Ground / Plague Pit)	**12**
Laundry	**11**
Metal Works and Processing	**13**
Electroplating and Finishing Works (Anodising and Pickling)	**13**
Iron / Steelworks	**15**
Lead Works	**18**
Non-Ferrous Metal Works	**15**
Precious Metal Works	**12**
Processing Works (Stamping / Forming / Rolling)	**12**
Scrap Yards	**13**
Military Sites (Airfields / Barracks / Depots)	**20**
Military Office	**10**
Mineral Workings (Sand / Gravel / Clay Pits)	**15**
Oil Refineries / Bulk Oil Storage	**18**
Small Oil Storage Tanks	**15**
Paper Mills and Works (inc Pulpworks)	**18**
Power Stations (all Thermal Combustion)	**20**
Printing Works / Bookbinders	**11**
Quarries	**15**
Railway Land	**14**
Railway Depots	**14**
Railway Station	**11**
Tracks - Rail	**13**
Tracks - Tram	**5**
Road Vehicle Facilities	**12**
Petrol Filling Station	**18**
Road Vehicle Depot	**12**
Road Vehicle Haulage Centre	**12**
Road Vehicle Repair Garage	**15**
Sewage Works (Filter Beds and Sludge Lagoons)	**15**
Substations / Transformers	**14**
Textile Works / Clothes Manufacturing	**11**
Timber Works	**13**
Timber Manufacturing Works / Sawmills / Timber Yards	**13**
Timber Treatment Works	**17**
Waste Operations and Disposal	**17**
Drum & Tank Cleaning & Recycling Works	**17**
Harzardous Waste Treatment Plants	**17**
Landfill (engineered site)	**20**
Landfill (made ground and non-engineered site)	**20**
Solvent Recovery Works	**17**
Waste Transfer Station	**17**
Water Treatment Works	**13**

Vulnerability Scores

Housing with gardens	10
Allotments	7
Schools	7
Houses without gardens	5
Public open space and playing fields	4
Vacant Land	3
Woodland	3
Offices and retail	2
Warehouses and commercial	2
Industrial land	1

Example

An area of land used for housing comprising dwellings with private gardens and several commercial properties was formerly used as railway land for tram tracks and a gasworks site before being developed.

Hazard Scores

Tram lines	5
Gasworks	20

Vulnerability Scores

Housing with gardens	10
Commercial properties	2

The site would be assessed for prioritisation as a worst case scenario as follows:

Worst case Hazard score (20) x Worst case Vulnerability Score (10) = 200

The inspection undertaken may require the housing with gardens area of a site to be determined as contaminated land but the commercial properties may not be deemed to be contaminated land. Therefore, remediation may only be necessary in the residential areas. This is due to a risk assessment being undertaken to assess whether there is significant harm to health being caused and this takes into account many factors including age of the receptor, exposure duration, body weight, exposure pathways, etc.

6 Programme of Works

6.1 Inspection

Following the initial risk assessment and prioritisation process, it may be considered that there is insufficient information to allow a site to be determined as contaminated land. In this case, it may be necessary to undertake intrusive investigations to collect enough information to confirm or deny the presence of pollutant linkages that would represent significant harm or the potential for significant harm to be caused.

Preliminary site investigation will be undertaken to identify the nature and extent of the contamination present. Additional, more comprehensive investigations may be required if more data is considered necessary in order to assess the risks posed by the site to receptors.

The site investigations will be undertaken in accordance with both statutory guidance and good practice guidance including BS10175, BS5930 and CLR11 documents.

6.2 Timetable for Inspections

There are a number of potential circumstances that can affect the timescale of works for inspections. Initially, the number of sites requiring intrusive works is unknown, whether those sites will be determined as contaminated land and whether the funding will actually be available to undertake the works.

Determination of a site as contaminated land will result in significant resources being allocated in order to undertake appropriate remediation. Contaminated Land Officers are also responsible for participating in other activities in achieving the Council's aims and objectives and may need to prioritise when more pressing or urgent situations arise. Therefore, officer time allocated to investigation work is often unknown.

However, an indicative timescale has been provided below:

Duty	Year completed
Production and publication of statutory contaminated land strategy	2001
Draft update and review of strategy	2007
Review and publication of strategy	2010
Inspection of the district, identification of potentially contaminated sites and prioritisation for further investigation	2010
Detailed inspection and assessment of priority category 1 sites	2014
Detailed inspection and assessment of remaining potentially contaminated sites	estimate 2025

This timescale is similar to many local authorities and as the Forest of Dean has a long and varied industrial heritage, it will take some time to deal with, although 15 years is not unreasonable. Many sites will be dealt with through the planning process.

The government introduced two key performance indicators in 2005 relating to progress with contaminated land inspections;

BV216a : The number of sites of potential concern, with respect to land contamination

BV216b : The percentage of potential sites which have been assessed/inspected during the previous 12 months.

However due to inconsistency in reporting and interpretation of the indicators by authorities, these performance indicators were withdrawn by the Government in 2008. To date, no replacement performance indicators have been identified specifically for the contaminated land regime.

6.3 Environment Agency funding

When the contaminated land regime first came into force in 2000, the government identified that implementation of this highly complex piece of legislation would involve considerable expenditure for Local Authorities. As a result some £95 million was made available over three years through the standard spending assessment and through a contaminated land supplementary credit approval programme (SCA).

DEFRA then began operating a capital grant scheme with funding available for certain circumstances for investigation and remediation work. The funding was allocated through an annual competitive bidding process.

As of 7th July 2010, the Environment Agency has been delegated to approve and pay grants under the capital grant programme. There are two application windows per financial year and the overall budget for the programme has been reduced from an initial allocation of £17.5m to a revised allocation of £10m for 2010-2011.

6.4 Council funding

Currently the contaminated land function within the Council is resourced with a single Contaminated Land Officer and a budget of approximately £3000 per year for initial investigation of potentially contaminated sites. The officer also benefits from a share of the Environmental Protection and Licensing budget for provision of equipment, guidance and training. Should land in possession of the Council be identified as contaminated land, funding of remediation will be considered on a case-by-case basis. In the event of significant costs being involved, it is likely that an application will also be made via the Environment Agency contaminated land scheme as detailed above.
The grants available have been de-ringfenced and authorities are no longer able to 'recharge' up to 10% of project costs to administer and manage projects for which funding has been provided. De-ringfencing does, however, allow any underspend to be kept by the Authority for equipment or additional soil sampling, a pre-requisite for Capital Support Grant applications, thereby assisting Council sources in the funding needed for initial site investigation.

7 Data and Information Management

7.1 Obtaining desktop information

As has been explained in the introduction to this strategy, the suggestion that land may be contaminated can have a significant impact on the way others view it, and in particular, it's perceived value. The Council will, therefore, seek to obtain as much information as possible about potentially contaminated and suspected sites without causing unnecessary alarm. This may involve detailed inspection of historical data in its possession such as historical maps, planning files, building control files and the

national land use database. Also, consultation will be undertaken with others who may possess information such as:

- The Environment Agency
- Department for Environment, Food and Rural Affairs
- The Health & Safety Executive
- Developers
- Previous occupiers
- Others

Details of several sources of information are also listed in Section 6.2.

In the course of undertaking the inspection work, the Council will obtain a great deal of information from a wide variety of different sources. This information, which may be in the form of bound documents, reports, letters, maps or electronic records, needs to be collated and managed efficiently. Therefore, information about particular sites will also be stored using the database linked to the GIS system. This will enable information to be viewed easily with reference to an accurate plan of the site and surrounding land. It will be possible to view a potentially contaminated area, identify potential sensitive receptors, possibly human, groundwater or surface water, and have fast access to relevant information such as reports, photos, and other data. This system makes accessing and processing contaminated land information as efficient as possible.

The information is updated and maintained by the Contaminated Land Officer who acts in compliance with the Council's corporate procedures on data management. Selected information is held on the Council's information communication system and accessible to other Council departments such as Development Control.

7.2 Arrangements for Potential 'Special Sites'

If a site is potentially determined as a Special Site, the Environment Agency will be consulted as soon as practicable. If the site is designated as a Special Site, the Agency will become the enforcing authority for that land. In this case, the Council will endeavour to assist the Agency and provide all available information.

If the Council and the Agency cannot agree on designation of a Special Site, the matter will be referred to the Secretary of State for decision.

Where the Environment Agency is to carry out inspection on behalf of the Council, the Council will authorise a person nominated by the Agency to exercise its powers of entry conferred by section 108 of the Environment Act 1995.

7.3 Public Register of Contaminated Land

The Council will prepare and maintain a Public Register of Contaminated Land, which comprises a written record of any determination of all land that has been determined as statutory contaminated land. The Public Register will include:

- The identity of the site and the site owner(s)/occupier(s);
- A description of the particular significant pollutant linkage or linkages;
- A summary of the evidence upon which the determination is based;
- A summary of the relevant assessment of this evidence;
- A summary of the way in which the authority considers that the requirements of Chapter A of the guidance have been met; and

- Any remediation statements.

No other information will be included on the public register although additional information held by the Council is likely to be available for inspection.

7.4 Requests for Information

The release of information on potentially or actually contaminated land is a sensitive issue as it may give rise to undue anxiety and property blight if handled in an inappropriate or uncontrolled manner.

The Council is subject to the requirements of the Environmental Information Regulations 2004, the Freedom of Information Act 2000, the Data Protection Act 1998 and several other pieces of legislation governing the storage and provision of information, such as the requirements of the Town and Country Planning Act 1990.

A significant amount of data is produced through implementation of the strategy, which is held on computer databases, GIS and in paper form. The Council is committed to transparency and openness in relation to all information held in relation to potentially contaminated land. It will make records freely available for inspection to an appropriate person for a proper purpose unless there is a legally valid reason not to do so. Such records may not be provided:

- Where held for judicial purposes;
- Where disclosure would affect legal proceedings;
- Where disclosure would affect international relations, national defence or public security;
- Where disclosure would affect the confidentiality of deliberations by a relevant person, or the confidentiality of commercially sensitive matters;
- Where it would involve the supply of a document or a record which is still in the course of completion; or
- Where the information is not accessible.

In all circumstances, where there is doubt, the Council's solicitor will be consulted.

The Council may impose a reasonable charge to cover its costs in providing requested information in accordance with Council policy and statutory requirements. Where specific property search requests are received from developers or their agents for commercial reasons regarding potentially contaminated land, a standard fee of £80 + VAT is currently charged for the supply of requested information.

The Council also makes available helpful information and guidance concerning contaminated land to all interested parties and stakeholders and several documents are available to download from the Council's website:

- The Contaminated Land Inspection Strategy
- Development of Potentially Contaminated Land – Guidance Note for Developers, Agents and Consultants
- Homeowners Guide to Contaminated Land
- Contaminated Land Frequently Asked Questions

7.5 Complaints and Confidentiality

- Any complaint received regarding contaminated or potentially contaminated land will be dealt with in accordance with the Council's complaint procedure.

If the complainant is still not happy with the response, the Local Government Ombudsman can be contacted at the address below:

The Local Government Ombudsman
PO Box 4771
Coventry CV4 0EH
Tel: 0300 061 0614

All complainants will be asked to supply their names and addresses although the identity of the complainant will remain confidential. The Council will not normally undertake any investigation based on anonymously supplied information.

If information is provided relating to contaminated land that is not directly affecting the complainant's property or health, it will not be treated as a formal complaint. The information will be noted and acted upon, however, there will be no obligation to inform the complainant of the progress made towards resolution.

8 Liaison and Communication

8.1 Internal communication

The Environmental Services Group Manager has delegated powers to determine a site as contaminated land, as stated in Part III, Section B of the Constitution, under the technical guidance of the Contaminated Land Officer. Relevant departments within the Council will be consulted for their views and a brief will be produced to inform senior management, the Corporate Policy Team and Legal Services. Elected members, in whose area the site is located, will also be informed of the planned works.

Members of the Cabinet will also be informed at the earliest opportunity of any plans to determine Council owned land where the Council might be considered the Appropriate Person and liable for remediation costs.

8.2 Communication with other statutory bodies

A *Memorandum of Understanding* has been drawn up between the Environment Agency and the Local Government Association to identify how information will be exchanged between the Environment Agency offices and Local Authorities. The Forest of Dean District Council will provide information to the Environment Agency in accordance with these agreed guidelines.

The Council will also contact the Environment Agency on designation of a site as contaminated land and whenever a remediation notice, statement or declaration is issued or agreed.

The Environment Agency is also required to report annually to the Secretary of State on the state of contaminated land in England and Wales. This includes:

- A summary of local authority inspection strategies, including progress and effectiveness;
- The amount of identified contaminated land and the nature of contamination; and
- Measures taken to remediate contaminated land.

The Council will provide information, upon request, to the Environment Agency to allow it to fulfil its reporting obligations to the Secretary of State.

When considering determination of a potentially contaminated site, the Council will engage in consultation with any other organisations that might have an interest in the site or that might be able to provide help and assistance. Such organisations include other affected Local Authorities, The HPA, the Foods Standards Agency (FSA), Gloucestershire County Council, the HSE and DEFRA.

8.3 Communication with Stakeholders

The Council aims to proceed with the process of investigating sites in a transparent and open manner. It will act to keep interested parties informed and updated regarding progress with the site inspection, as required by the statutory guidance.

The Council is required to follow the procedures detailed in the statutory guidance when considering determination of a site as contaminated land. When requiring remediation of a contaminated site, the regulations provide an incentive for voluntary

action. Voluntary remediation is also often more likely to achieve a higher level of improvement in comparison to the minimum that can be statutorily required.

The Council will therefore seek voluntary action wherever possible, only considering subsequent enforcement action if voluntary action is refused or considered unlikely to satisfactorily remediate the site.

8.4 Risk communication

Reference should be made to the publication *Communicating Understanding of Contaminated Land Risks - SNIFFER (May 2010)* The Council will be involved in the assessment of risks associated with contaminated land and ensuring that unacceptable risks from contamination are appropriately managed.

Hence, there is a need to carefully assess how to anticipate and respond to the concerns, anxieties and expectations that may arise in response to land contamination. It is not possible or practical to eliminate each and every risk, i.e. it is not practical or financially viable to remove all risks from contamination, and in some cases it is not technically possible to do so. However, public perception and concerns are very real and should be addressed seriously and with sensitivity as part of the risk management programme.

Managing the potential conflict around the risk issues requires attention to the content of risk information, and to the appropriate procedures at relevant stages in the decision making process. The procedures should address the following:

- The need for two-way communication;
- Transparency to create trust in the regulatory role; and
- Openness to enhance the legitimacy of the overall process to the stakeholder.

Risk communication should include the overall rationale and methods behind the assessment and management process. Risk communication for a site should be flexible in terms of procedures and reflect the content and history around a particular contaminated site.

8.5 Consultation on the Inspection Strategy

Consultation on the original 'Strategy for Contaminated Land Inspection (2001)' occurred with Council members, the Parish Councils, other Council departments, relevant organisations and the public. This revised strategy has also been circulated for consultation and the revised list of consultees for this strategy is listed in Appendix C.

9 Remediation and Liability

9.1 Apportionment of Liability

Where remediation notices are to be issued, or where the Council is otherwise required to apportion liability for intrusive investigations or remediation, it will do so in compliance with the legislation and statutory guidance.

The steps in undertaking such an assessment are:

1. Identify all potential Appropriate Persons and liability groups;
2. Characterise remediation actions required;
3. Attribute remediation to liability groups;
4. Exclude members of liability groups based on exclusion tests; and
5. Apportion liability between remaining members of liability group.

There are two types of liability groups:

Class A	The polluter, or person who knowingly permitted the pollution
Class B	Where no liable Class A person can be found, liability reverts to the current owner or occupier of the land

The polluter may be someone who introduced the significant pollutant linkage, not necessarily the person responsible for the contamination being present at a site.

The Council will make all reasonable enquiries to identify Class A persons before liability reverts to owner/occupiers.

The matter of appropriate persons must be considered for each significant pollutant linkage. Therefore, where a site has had a series of contaminative uses over the years, each significant pollutant linkage will be identified separately and liability considered for each.

In making any cost recovery decision, the Council will have regard to the following principles:

- The authority should aim for an overall result which is fair and equitable as possible to all who may have to meet the costs of remediation, including national and local taxpayers; and
- The 'polluter pays' principle, by virtue of which the costs of remediating pollution are to be borne by the polluter. The authority should therefore consider the degree and nature of responsibility of the Appropriate Person for creation, or continued existence, of the circumstances, which lead to the land in question being identified as contaminated land.

In general, this will mean that the Council will seek to recover, in full, its reasonable costs unless it waives or reduces the recovery of costs to:

- Avoid any hardship which the recovery may cause to the appropriate person; or
- To reflect one or more of the specific considerations set out in the Statutory Guidance.

9.2 Cost Recovery Considerations by the Council

The Council should have regard to several considerations when making cost recovery decisions, which apply to the general issue of hardship for:

- **Commercial Enterprises** – the threat of business closure or insolvency
- **Trusts** – The extent to which costs may be recovered from the trustees
- **Charities** – the extent to which cost recovery would jeopardize that charity's ability to continue to provide benefit or amenity in the public interest
- **Social Housing Landlords** – the extent to which cost recovery would lead to difficulties in provision or upkeep of social housing
- **Class A Persons**- the extent to which another Class A person who cannot now be found was responsible for the contamination
- **Class B Persons** – the extent to which remediation costs might exceed land value and to which reasonable steps were undertaken to establish the condition of the land prior to obtaining the freehold
- **Class B Owner-Occupiers of Dwellings –** the extent to which the owner-occupier might reasonably have been expected to be aware of the potential for contamination to exist.

Any decisions to be made regarding hardship or liability will be made by the Cabinet.

9.3 Remediation Notices

If the Council considers that remediation actions are required as part of a remediation scheme, it may serve a remediation notice on the appropriate persons if those actions:

- Have not been, are not being and will not be carried out without the service of a remediation notice; and
- In respect of which the Council has no powers to carry out itself and for which it is not, itself, the Appropriate Person.

Except in a case of urgency, at least three months must elapse between the date of the notification to the person concerned and the service of a remediation notice on that person.

The remediation notice must contain particular information about the contaminated land, the remediation, the Appropriate Person(s) and the rights of appeal against the notice.

Any person who receives a Remediation Notice has twenty-one days within which they may appeal against the notice. This appeal is to be made to the Secretary of State and once an appeal has been made the remediation notice is suspended until final determination by the Secretary of State, or abandonment of the appeal.

Part 2A makes it an offence for any person to fail to comply with a remediation notice 'without reasonable excuse'.

Copies of remediation notices served will be placed on the Council's Public Register of Contaminated Land.

If voluntary remediation takes place without the serving of a remediation notice, a remediation statement is required, which states that appropriate remediation works

have been undertaken so that the site can no longer be determined as Contaminated Land. This will also be placed in the register.

9.4 Remediation

Remediation measures will be specified in the remediation notice. These will be both appropriate and cost effective, employing best practicable techniques, as defined by the statutory guidance. The aim of the remediation will be to ensure that the land is no longer contaminated, taking the shortest and lowest cost route. This means, in most cases, attention will be focused on the pathway, rather than the contaminant or receptor. Assistance from external contractors may be required from time to time for peer review purposes.

The reasonableness of the requirements are, however, paramount, a concept which is considered at some length in the statutory guidance. It is determined in relation to the cost of carrying out the remediation against the cost of failing to (that is, the costs, or potential costs, resulting from the continuing pollution).

Before the Council can serve a remediation notice, it will first determine whether it has the power to carry out any of the remediation actions itself. There are five specified circumstances where this may be the case:

- Where urgent action is required (see Section 10.6 below);
- Where no Appropriate Person can be found;
- Where one or more Appropriate Persons are excluded (on grounds of hardship);
- Where the local authority has made an agreement with the Appropriate Person(s) that it should carry out the remediation; or
- In default of a remediation notice.

The Local Authority will undertake remediation only where the statutory guidance requires it.

9.5 Orphan Sites

Orphan sites are those where it is not possible, after reasonable enquiries, to find anyone responsible for them (Class A or Class B persons), or where persons can be found but they are exempted from liability for specified reasons. These are described in the statutory guidance as orphan linkages. In such cases, the enforcing authority should bear the cost of the remediation in accordance with the Secretary of State's guidance.

9.6 Urgent action

Urgent action must be authorised where the Council is satisfied that there is imminent danger of serious harm or serious pollution of controlled waters being caused as a result of contaminated land. In such circumstances, the procedures identified in the statutory guidance will be followed which may involve the forced entry into the premises.

The terms 'imminent' and 'serious' are unfortunately not defined and therefore, Local Authorities are advised to use the normal meaning of the words. There is, however, guidance on what may constitute seriousness when assessing the reasonableness of remediation.

The Council will undertake the remediation in urgent cases, where it is the enforcing authority, if it is of the opinion that the risk would not be mitigated by enforcement action. In the case of a Special Site, the Council will declare the land as contaminated land in accordance with the statutory procedure, and then notify the Environment Agency who will then be responsible for the remediation.

In all appropriate cases, the Council will seek to recover costs of remediation works it has completed, according to the statutory guidance.

Appendix A

Glossary

Appropriate Person	Defined in Section 78A(9) as 'Any person who is an appropriate person, determined in accordance with Section 78F, to bear responsibility for any thing which is to be done by way of remediation in any particular case'.
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 risk assessment model for determining the chronic human health effects.
CLR documents	Contaminated Land Reports produced by DEFRA used to assess the risks arising from the presence of contamination in soils.
Contaminated Land	Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land that: (a) significant harm is being caused or there is a significant possibility of significant harm being caused; or (b) pollution of controlled waters is being or is likely to be caused.
Controlled Waters	These include (a) inland waters (rivers, streams, underground streams, canals, lakes, reservoirs); (b) groundwaters (any water contained in underground strata, wells or boreholes); (c) territorial waters (the sea within three miles of a baseline); and (d) coastal waters (the sea within the baseline up to the line of highest tide, and tidal waters up to the fresh water limit).
GIS	Geographic Information Systems. A system of hardware and software used for storage, retrieval, mapping, and analysis of geographic data.
Part 2A	Part 2A of the Environmental Protection Act 1990.
Public Register	The register is kept by the enforcing Authority relating to contaminated land and details contaminated land that has been remediated as well as any enforcement action undertaken by the Authority.
Radioactive Contaminated Land	Elevated concentrations of radio-nuclides resulting in elevated levels of radiation above a certain level.
Remediation Notice	Defined by Section 78E(1) of the EPA 1990 as a notice

	specifying what an appropriate person is to do by way of remediation and the periods within which he is required to do each of the things specified.
Risk Assessment	The study of (a) the probability, or frequency, of a hazard occurring; and (b) the magnitude of the consequences.
Site investigation	The process of undertaking investigation on land to determine the condition of that land. The staged approach usually includes a desk study including a review of historical data and a site reconnaissance, and an intrusive investigation which includes trial pitting or drilling works, soil sampling, risk assessment and remediation works.
SGV	Soil Guideline Values (SGVs) are published by DEFRA and the EA and represent a minimal level of risk and depend on the current use of the land. They do not represent significant possibility of significant harm).
Special Site	Contaminated Land which meets one of the criteria laid out in the guidance for regulation by the EA.
Suitable for Use	Defined in PPS23 as a use of land which is not subject to unacceptable risk resulting from contamination.

Appendix B

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
1	Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. 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. In this Chapter, this description of significant harm is referred to as a "human health effect".
2	Any ecological system, or living organism forming part of such a system, within a location which is: • an area notified as an area of special scientific interest (commonly called a Site of Special Scientific Interest - SSSI) 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 meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (ie Special Areas of Conservation and Special Protection Areas); • any candidate Special Areas of Conservation (see Scottish Office Circular 6/1995) or potential Special Protection Areas given equivalent protection; • any habitat or site afforded policy protection (ie candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); • any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949; or • any National Park designated under the National Parks (Scotland) Act 2000.	For any protected location: • 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. In addition, in the case of a protected location which is a European Site (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 typically found there. In determining what constitutes such harm, the local authority should have regard to the advice of Scottish Natural Heritage and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994. In this Chapter, this description of significant harm is referred to as an "ecological system effect".

3	Property in the form of: • 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.	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. 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 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. In this Chapter, this description of significant harm is referred to as an "animal or crop effect".
4	Property in the form of buildings. 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".	Structural failure, substantial damage or substantial interference with any right of occupation. 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. 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. In this Chapter, this description of significant harm is referred to as a "building effect".

Table B - Significant Possibility of Significant Harm

	Descriptions of Significant Harm (as Defined in Table A)	Conditions for there Being a Significant Possibility of Significant Harm
1	Human health effects arising from • the intake of a contaminant, or • other direct bodily contact with a contaminant (exposure).	If the amount of the pollutant in the pollutant linkage in question: • which a human receptor in that linkage might take in, or • to which such a human might otherwise be exposed, as a result of the pathway in that linkage, would represent an unacceptable intake or exposure, assessed on the basis of relevant information on the toxicological properties of that pollutant. Such an assessment should take into account: • 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 of, or exposure to, the relevant substance or substances; and • the duration of intake or exposure resulting from the pollutant linkage in question. • 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. Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.
2	All other human health effects (particularly by way of explosion or fire).	If the probability, or frequency, of occurrence of significant harm of that description is unacceptable, assessed on the basis of relevant information concerning: • that type of pollutant linkage, or • that type of significant harm arising from other causes. Such an assessment should take into account the levels of risk which have been judged unacceptable in other similar contexts.
3	All ecological system 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.
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, the foreseeable future), taking into account relevant information for that type of pollutant linkage.

Appendix C

List of Consultees

The following consultees were consulted on the draft of this Strategy.

Cheltenham Borough Council

Paul Scott
Environmental Health
Municipal Offices
Promenade
Cheltenham
Glos
GL50 1PP

Tel: 01242 264358
Email: paul.scott@cheltenham.gov.uk
Web: www.cheltenham.gov.uk

Cotswold District Council

Louise Siddorn
Environmental Health
Trinity House
Cirencester
Glos
GL7 1PX

Tel: 01285 623000
Email: louise.siddorn@cotswold.gov.uk
Web: www.cotswold.gov.uk

Department of the Environment, Food and the Regions (DEFRA) – Contaminated Land

Contaminated Land Branch
DEFRA
Area 3C, Nobel House
17 Smith Square
London
SW1P 3JR

Tel: 0207 238 6285
Email: contaminatedland.enquiries@defra.gsi.gov.uk
Web: www.defra.gov.uk

Environment Agency (Lower Severn) – Contaminated Land and Groundwater

Helen Pickering
Riversmeet House
Newtown Industrial Estate
Northway Lane
Tewkesbury
Glos
GL20 8JG

Tel: 01684 864310
Email: helen.pickering@environment-agency.gov.uk
Web: www.environment-agency.gov.uk

Food Standards Agency

Alan Dowding
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Aviation House
125 Kingsway
London
WC2B 6NH

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Web: foodstandards.gov.uk

Gloucester City Council

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GL1 2EP

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Gloucestershire County Council – Trading Standards

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Denmark Road
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Gloucestershire Health Protection Agency – Consultant in Communicable Disease Control

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National House Builders Council (NHBC) – Contaminated Land

Karen Thornton
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Natural England

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South Gloucestershire Council

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South West of England Regional Development Agency

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Stroud District Council

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Tewkesbury District Council

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