

MIDDLESBROUGH COUNCIL

**MIDDLESBROUGH'S
CONTAMINATED LAND STRATEGY**



COMMUNITY PROTECTION SERVICE

**PREPARED AS PART OF THE STATUTORY REGIME FOR DEALING
WITH CONTAMINATED LAND UNDER PART IIA OF THE
ENVIRONMENTAL PROTECTION ACT 1990**

REVISED July 2017

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EXECUTIVE SUMMARY

This Strategy Document was published in accordance with the requirements of the Statutory Guidance that accompanies Part IIA of the Environmental Protection Act 1990.

The purpose of the Contaminated Land Strategy review is to bring the current document up to date by highlighting any changes in legislation and guidance, reporting the progress made since the original document was published in June 2001 and reviewed in 2004, reporting on the achievements' made in implementing the strategy and identifying the work that remains to be completed.

The strategy review is not a replacement document but should be read in conjunction with the 2001, 2004 and 2010 strategy. This strategy will replace the current strategy and is a complete rewriting of the strategy due to revised statutory guidance issued in 2012. The strategy will be reviewed again following any changes to legislation or guidance, or five years after adoption, whichever is sooner.

The purpose of the contaminated land regime is to provide a system for the identification and remediation of sites where contamination is causing unacceptable risk to human health or the environment. This document sets out the statutory framework for dealing with contaminated land, and sets out Middlesbrough Council's programme for inspecting land within the Borough in accordance with it.

The Document describes:

- **Why** we are doing this,
- **What** we are doing,
- **What** we have done so far,
- **How** we carry out inspections, and
- **What** has been achieved.

In implementing this strategy and in accordance with the Government's Statutory Guidance issued 2012, we give high priority to protecting human health and the environment by identification of potentially contaminated sites that require detailed inspection. This is undertaken in a rational, ordered and efficient manner in order to ensure that we provide a proportionate response to contamination and remediation using a risk-based approach. The priorities of the strategy are:

- To protect human health
- To protect controlled waters
- To protect designated ecosystems
- To prevent damage to property
- To prevent any further contamination of land
- To encourage voluntary remediation of land
- To encourage reuse of brownfield land

To ensure that Middlesbrough Council is able to carry out its duties in an effective manner, a specialist 'Contaminated Land Officer' with a background in geology, environmental sampling and pollution control currently leads in implementing the requirements of the Strategy under the management of a Principal Health Officer with specialist scientific and legal knowledge.

Middlesbrough Council is represented on the Contaminated Land Officers North East Region Group (CLANNERS), together with the Environment Agency and representatives of our neighbouring local authorities in the Tees Valley area. This Group has contaminated land as a standing issue for its meetings, and facilitates external consultation and exchange of information in order to develop best practice and consistency of approach.

Middlesbrough Council is also represented at each 'North East Contaminated Land Forum' meeting, which acts as the regional discussion group for Local Authorities, academics, and industry professionals.

In implementing this Strategy and carrying out our duties for the identification of contaminated land, in accordance with the statutory guidance, Middlesbrough Council, as far as is reasonably practicable, takes all appropriate measures to protect and conserve wildlife and geology, in liaison with nature conservation agencies.

CONTEXT

This Strategy Document sets out Middlesbrough Council's policy for the identification and remediation of contaminated land.

The Strategy has been prepared in accordance with the statutory requirements of Part IIA of the Environmental Protection Act 1990 and its associated documents, in order to remediate land affected by contamination to a standard "suitable for use".

The Strategy has been drawn up with regard to Part IIA of the Environmental Protection Act 1990, accompanying statutory guidance (Defra 2012), the requirements of the Contaminated Land (England) Regulations 2012 and to technical guidance prepared by the Environment Agency.

This Strategy sets out:

Why we are doing this,

What we are doing,

What we have done so far,

How we carry out inspections, and

What has been achieved?

CHAPTER 1

**Why are we
doing this?**

In this section of the Strategy we 'set the scene' for the rest of the document by explaining:

- How land becomes contaminated;
- How has the law changed over time to help us deal with land contamination;
- Who has the responsibility of dealing with contaminated land; and,
- How this Strategy fits in with Middlesbrough Council's work to ensure that residents of Middlesbrough can enjoy a healthy, and sustainable future;

The law on contaminated land

- 1.1 The law came into force on April 1st 2000 which amongst other things requires all Councils to inspect their land to see if it is contaminated.
- 1.2 Contaminated land is an aspect of environmental pollution that can have a significant impact on human health, and on the well being of the environment, and it is important that it is dealt with properly, so that the health of present and future generations is protected.
- 1.3 In order to understand how this regime came into being, we need to look at some history....

Setting the scene

- 1.4 Middlesbrough is a town with a heritage as one of the powerhouses of industrial Britain. In the early years of the 19th century the development of the iron and steel industry and the establishment of one of the largest ports in Britain, followed by the more recent growth of the petrochemicals sector, led to the rapid expansion of Teesside, assuring its place as one of Britain's great industrial centres.
- 1.5 An inevitable legacy of this heritage has been the pollution which accompanied rapid industrial expansion in the years before modern legislative controls. Air and water pollution from industrial installations and smoke pollution from domestic fires have since been brought under control by a variety of environmental protection and public health legislation, including the Public Health Acts, the Environmental Protection Act and the Clean Air Acts, but pollution of land continues to be a sensitive issue.

How does land become contaminated?

- 1.6 Land contamination may arise from many different sources and actions. Uncontrolled dumping of waste materials, process waste streams, accidents and even natural phenomena can lead to high concentrations of potentially harmful substances on a site.
- 1.7 Land contamination may also result in the blighting of properties and their surroundings, and harm to the environment or wildlife, which may have a severe impact on future regeneration unless properly managed.
- 1.8 This Strategy Document sets out the way in which Middlesbrough Council will fulfil our statutory duty under Part IIA of the Environmental Protection Act 1990, for the identification and remediation of such contaminated land.

Contaminated land law

The Past...

- 1.9 The origins of regulatory powers to deal with land contamination lie with the mid-19th century legislation which created the concept of *statutory nuisance*. These were consolidated in the Public Health Act 1936, and were more recently brought up to date in Part IIA of the Environmental Protection Act 1990.
- 1.10 Formal guidance on dealing with contaminated land was issued prior to the Environmental Protection Act 1990, in Circular 21/87, "Development of Contaminated Land", which made the issue of land contamination a material consideration in the planning process.
- 1.11 To address specific concerns over contaminated land, section 143 of the Environmental Protection Act provided for the compiling of a public register of contaminated land. Section 143 defined a "contaminative use", as being "...any use of land which may cause it to be contaminated with noxious substances".
- 1.12 No such statutory public registers were actually kept, however, as section 143 was repealed. One reason for this concerned the possibility of blight of land appearing on the register.

...The Present

- 1.13 The Environment Act 1995 inserted Part IIA into the Environmental Protection Act 1990, to define and deal with contaminated land. After a number of rounds of consultation on the new regime and its associated statutory guidance, it came into force on 1st April 2000. At the same time, a change was made to the existing law so that statutory nuisance powers could no longer be applied to contaminated land as defined under Part IIA. Planning considerations are dealt with under The National Planning Policy Framework (NPPF).

1.14 **Definition of contaminated land under Part IIA**

The legal definition of contaminated land is defined under Part IIA of the Environmental Protection Act 1990, 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 being caused; or

(b) Significant pollution of controlled waters is being caused, or there is significant possibility of such pollution being caused'.

Where “harm” means 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.

The April 2012 statutory guidance states that local authorities must start from the assumption that land does not pose a significant risk of significant harm unless there is a reason to consider otherwise (supported by robust science based evidence). Local authorities must search their area/districts which has both sensitive receptors and sources of potential contamination. Relevant types of receptor are defined in Tables 1 and 2 of the April 2012 statutory guidance. Where they have good reason to believe these both exist, they must undertake a formal risk assessment in accordance with established scientific principles in order to establish whether there is the potential for them coming together and causing harm or pollution as described. **This is known as a pollutant linkage.**

The April 2012 statutory guidance also replaces the former YES/NO classification of assessing contaminated land with a system whereby land is sorted into **4 Categories:**

This takes into account the fact there will be sites which do not fall into definitely contaminated or uncontaminated; for example because the evidence is inconclusive or because the state of scientific knowledge is uncertain:

Category 1	Sites where there is an unacceptably high probability of a 'significant risk' of significant harm or there is a strong and compelling case that there is a 'significant risk' of significant water pollution
Category 2	Sites where there is a strong case such that the risks arising from the land are of sufficient enough concern that the land poses a significant possibility of significant harm and therefore the site is capable of being determined as contaminated land
Category 3	Sites where there is not as strong a case in that land may be contaminated but the legal test for significant possibility of significant harm is not met
Category 4	Sites where there is no risk or the level of risk is low

The legal definition of contaminated land is slightly different if harm is due to radioactivity, as defined in Regulation 5(1) of The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006:

“ 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) Harm is being caused; or
- (b) There is a significant possibility of such harm being caused.”

With regard to radioactivity, “harm” means lasting exposure to any human being resulting from the after effects of a radiological emergency, past practice or past work activity.

In summary, a site can only be determined as contaminated land for one (or more) of the following reasons:

- Significant harm is being caused
- There is a significant possibility that significant harm could be caused.
- Significant pollution of controlled waters is likely to be caused.
- Harm attributable to radioactivity is being caused.
- There is a significant possibility that harm attributable to radioactivity could be caused.

Identifying Contaminated Land – Contaminant Linkages

In line with established approaches to risk assessment, Part 2A requires that the first step in determining whether a site is Contaminated Land is to identify “contaminated linkages” associated with that land.

Defra Statutory Guidance April 2012 states that:

A **CONTAMINANT LINKAGE** is a connection between a contaminant and a receptor by means of a pathway.



A “**contaminant**” is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, significant pollution of controlled waters, or harm attributable to radioactivity. Please see Appendix 1 for a list of possible sources of contamination.

A “**receptor**” is something that could be adversely affected by a contaminant e.g. a person, an organism, an ecosystem, property, or controlled waters. Please see Appendix 5 for a list of the receptors covered by Part 2A.

A “**pathway**” is a route by which a receptor is or might be affected by a contaminant e.g. the ingestion of vegetables grown in contaminated soil. Please see Appendix 5 for a list of possible contaminant pathways.

1.15 The Polluter Pays Principle

An important task of the enforcing authority under the Part 2A regime is to establish who should bear responsibility for remediating a site where there are unacceptable risks from land contamination. In general, this will follow the ‘polluter pays’ principle, where the person who caused or knowingly permitted the contamination will be the appropriate person to cover the cost of remediation. However, if it is not possible to find such a person, the statutory guidance states that the cost may fall to the owner or occupier of the land. In most cases, contaminated land will be voluntarily remediated through the planning system by developers and landowners looking to bring a contaminated site back into beneficial use.

1.16 Planning Regime and Building Regulations

All planning applications have to be considered for potential contamination issues to ensure compliance with the Town and Country Planning Act 1990, the National Planning Policy Framework (NPPF) and the Council’s Local Plan. Contaminated land issues that arise through planning applications will be controlled through the planning regime, as opposed to Part 2A. It is the responsibility of the developer to ensure that a site can and will be made suitable for its proposed future use and that there are no unacceptable risks to human health, the environment, property and/or controlled waters. The developer must carry out site investigation and remediation works as necessary, and the Council will impose planning conditions to this effect. The vast majority of contaminated land issues in the district are currently dealt with through the planning regime. Many sites have already been investigated and remediated through this route, so no further action will be required with regard to these sites under Part 2A. In addition to the planning regime, building regulations (made under the Building Act 1984) require developers to take measures to protect new buildings and their future residents from the effects of contamination. An example of this would be the installation of gas protection measures into properties.

1.17 Other Regulatory Regimes

The Part 2A regime is one of several ways in which land contamination can be addressed. Other legislative regimes include; Environmental Damage (Prevention and Remediation) Regulations 2009, Environmental Permitting (England and Wales) Regulations 2010, Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009.

The statutory guidance states that enforcing authorities should seek to use Part 2A only where no appropriate alternative solution exists. Therefore, Part 2A should not be used where existing legislation may be enforced or where contamination has arisen due to a breach of an existing license or permit.

Who is responsible for dealing with contaminated land in Middlesbrough?

1.18 Middlesbrough Council has the sole responsibility for determining whether any land appears to be contaminated land. There are some special exceptions which are dealt with by the Environment Agency. These are called 'Special Sites', and may include the following:

- Land which causes certain 'controlled waters' to be polluted;
- Authorised prescribed processes;
- Land used for making or processing explosives;
- Nuclear sites;
- Ministry of Defence sites;
- Land used for making chemical or biological weapons;
- Land used for oil refining;
- Land contaminated with waste acid tars / certain prescribed chemicals, including hydrocarbons, waste acid tars, organophosphates and others, which are in, or above, certain major-aquifer rock strata.

AIMS AND OBJECTIVES OF THE INSPECTION STRATEGY

1.19 AIMS

- To ensure compliance with and enforcement of Part 2A of the Environmental Protection Act 1990 to protect human health controlled waters, ecosystems, property crops and livestock from significant harm caused by exposure to historic land contamination.
- To protect controlled waters from significant pollution derived from historic land contamination.
- To ensure that the planning process deals effectively with any land contamination so that is suitable for its proposed use.
- To adopt a strategic approach for dealing with contaminated land.
- To encourage the remediation and redevelopment of brownfield sites.
- To ensure that remedial action is reasonable, practicable, effective and durable.
- To encourage the voluntary remediation of sites.

1.20 OBJECTIVES

The objectives of this strategy are:

- To provide a strategic inspection programme for the identification, inspection and determination of contaminated land.
- To assess planning applications to ensure that land contamination issues are investigated and remediated appropriately by developers.
- To identify any areas of land within Middlesbrough's boundary, including land owned by Middlesbrough Council, where contamination presents unacceptable risks to human health or the environment and ensure that remediation and/or mitigation of these areas is carried out.

- To prepare written records of determination and risk summaries for land that is found to be contaminated land (as defined by Part 2A) and written statements for land that is not.
- Encourage voluntary investigation and remediation by land owners.
- To inspect any site that comes to light as requiring urgent action following the discovery of an imminent risk to health from the land.
- To compile and maintain a statutory public register and produce risk summaries when necessary.
- To inform the public and stakeholders of the council's responsibilities and intentions in relation to contaminated land.

Part 2A should only be used where no appropriate alternative to address land contamination is available. This includes dealing with land contamination as part of the development process (planning and building control), voluntary action, or other proactive regimes such as Environmental Permitting.

How will these targets be achieved

- 1.21 Firstly, **new contamination must be prevented from occurring**, and this is being achieved through the Environmental Permitting (England and Wales) Regulations 2010.
- 1.22 These systems of pollution control are concerned with industrial processes and the contamination of land that can arise from poorly run plants and factories.
- 1.23 Secondly, land which has already become contaminated must be dealt with, and it is to address this issue that the statutory regime under Part IIA of the Environmental Protection Act was introduced to work in conjunction with other existing environmental legislation.

How contaminated land links to Middlesbrough's Strategic Priorities

- 1.24 Middlesbrough Council, along with our partners in the public, private and voluntary sectors, has set out clear strategic priorities for the economic growth and development of the town.
- 1.25 The Council will deliver its long-term vision through its medium term priorities. These priorities are articulated in the Strategic Plan.

- 1.26 Middlesbrough Council's priorities are underpinned by the Mayor's 2025 Vision - Fairer, Stronger, Safer. The priorities are:

A Fairer Middlesbrough

- Fairness and reduced inequalities in income and health
- Fair access to secure, well-paid jobs and meaningful training
- Fair access to high-quality homes

A Safer Middlesbrough

- Safer communities - further reducing crime and anti-social behaviour
- Safer, independent lives - ensuring our children and vulnerable adults are protected
- Safer environment - ensuring our town is cleaner and more resilient to a changing climate

A Stronger Middlesbrough

- Strengthening and diversifying our local economy
- Strengthening our city through bold and innovative regeneration
- Strengthening our cultural sector
- Strengthening our transport links

- 1.27 Central to Middlesbrough's 2025 Vision is a comprehensive Investment Prospectus which outlines the innovative, city-scale developments that will transform the town and its economy over the coming decade. This strategic document sets out how we will help to achieve the economic growth priorities and new employment opportunities within Middlesbrough; by targeting the strategic use of the most suitable land assets.

How contaminated land links to Middlesbrough Council's Strategic Plan

- 1.28 The Strategic Plan documents the key actions that the Council will deliver each year in order to deliver its Strategic Priorities.
- 1.29 The Strategic Plan does not prescribe the use of land, rather it provides a framework against which council resources and investments are strategically aligned; and land is but one aspect of this.
- 1.30 The preparation, publication and implementation of this Strategy forms a key action in the Strategic Plan.

How contaminated land links to regeneration initiatives in Middlesbrough

- 1.31 Land is a valuable resource, which is vital for the attraction of new investment. However, Middlesbrough is a densely populated urban area and space is limited. There is therefore a need to maximise the use of land that is in use presently along with brownfield sites, in order to relieve pressure on our green spaces and promote economic vitality. This approach does not discount the need for development on undeveloped sites where a compelling socio-economic case can be made to support the development.
- 1.32 Middlesbrough has a population of 140,000 making it the most urbanised of the Tees Valley districts, with only 20% of its area in agricultural use and with by far the highest overall population density, with 25.9 persons per hectare (based on mid-2015 population figures). There are 2,584 persons per square km in Middlesbrough, in comparison to 840 persons per square km in Tees Valley.
- 1.33 The use of brownfield sites, or previously developed land, is therefore seen as being of vital importance in contributing towards the delivery of a sustainable future. It is through proactive regeneration policies that Middlesbrough Council aims to maintain and enhance the position of the town as the sub-regional centre at the heart of the Tees Valley economy. The use of 'Green Infrastructure' will also play an important part in this.
- 1.34 Some of the brownfield or previously developed land within Middlesbrough is associated with the legacy of heavy industry; from which the town first grew. The importance of achieving high-quality environments has long been recognised in Middlesbrough, both to enhance the quality of life for the local community, and as a means of promoting economic vitality by improving the perception and investment appeal of the area. Contaminated land is in direct contradiction with these aims.
- 1.35 Through this strategic approach we can ensure that the Economic Growth activities of Middlesbrough Council are focused, and are designed from the outset, to have the maximum positive impact practicable, on the town's social and economic sustainability. The strategic framework is outlined in the Economic Development Plan.

Development actions

- 1.36 Within Economic Growth disciplines, there are various activities undertaken by a full range of partners in all sectors, which all contribute to the betterment of Middlesbrough and the wider Tees Valley.
- 1.37 Partnership working provides a broad foundation from which Middlesbrough will deliver its regeneration objectives, pilots and initiatives.
- 1.38 The activities of the Council's Development teams (allied to other services within the Council) can be summarised under the following headings:

- **Physical Developments** - various ambitious activities are underway which aim to strengthen the town's economic base by improving the quality of the built environment, the range of facilities available, and enhancing the image of the town.
- **Promotion and Marketing** - promoting the development of the town and enhancing the area's appeal as a leisure and tourism base.
- **External Funding** - securing public and private funding to support economic growth objectives.
- **Rebalance the Town Centre economy** - by increasing the proportion of commercial floor space, relative to retail floor space; to reach a sustainable equilibrium.
- **Attract city-scale investment** - that will grow Middlesbrough's economy and that of the wider Tees Valley.
- **Generate significant income** - through a targeted programme of strategic investment and the enablement of housebuilding and business creation.
- **Enabling development of strategic brownfield sites** - including TAMP (Tees Advanced Manufacturing Park) and the remaining Middlehaven sites.

How contaminated land links to Middlesbrough Council's Local Plan

- 1.39 To meet many of the Council's objectives, notably the creation of employment opportunities, the provision of sufficient and affordable housing, and the creation of new leisure and recreation facilities, development will be required and may come forward on sites including contaminated land.

1.40 The National Planning Policy Framework (NPPF) advises that the planning system should contribute to and enhance the natural and local environment by remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. It advises that where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

1.41 A number of sites which were and were not identified in the Contaminated Land Strategy as potential sources of contamination, have received planning permission for redevelopment. Where necessary they have been remediated outside the Environmental Protection Act regulatory regime and at no cost to Middlesbrough Council.

Proposals for the development of potentially contaminated land will be subject to the following requirements:

- i) the nature and degree of contamination and risk must be established by the developer before development is approved in full;*
- ii) proposals must include measures which effectively deal with any risks, or show that there is no significant risk identified in relation to the development; and*
- iii) there should be no detrimental effect on the environment as a result of the disturbance or removal of contaminants during or after development*

1.42 In terms of local planning policy, the Planning and Compulsory Purchase Act 2004 requires local planning authorities to produce a Local Plan for their area.

1.43 The Local Plan consists of:

- Housing Local Plan (2014);
- Core Strategy (2008);
- Regeneration Development Plan Document (2009); and,
- Local Plan Saved Policies (1999)

1.44 There is a dedicated sustainable development policy (Policy CS4) contained in the Core Strategy. This specifies, in criterion h, that all development will be required to contribute to achieving sustainable development principles. This includes, where appropriate, making the most efficient use of land, with priority given to development on previously developed land (PDL), in particular vacant and derelict sites and buildings. This is to ensure that there is a sufficient supply of land of a suitable quality in the right locations to meet the development needs of the people of Middlesbrough.

- 1.45 Core Strategy Policy DC1 requires that the effect on levels of air, water, land or noise pollution of the environment is limited both during and after completion.
- 1.46 The Council has recently commenced a review of the above four Local Plan documents in order to produce a single comprehensive and up-to-date Local Plan. The review provides an opportunity to include generic policies on contaminated land and/or site specific policies for development sites as appropriate. The review will take approximately two years to complete.

It is clear that in planning for the future, the problems of the past must be identified and dealt with, to ensure that the sustainable development of Middlesbrough as a thriving regional centre continues long into the future. The issue of contaminated land is a central theme running throughout the planning and development process.

CHAPTER 2

What we are doing

In this section of the Strategy we explain what we are doing in order to carry out our duties for dealing with contaminated land.

In particular, we define some of the important terms used in the new statutory regime.

CHAPTER 2 WHAT WE ARE DOING

2.1 We are currently inspecting land in Middlesbrough to see if it is 'contaminated land' according to the legal definition.

Contaminant linkage

2.2 Central to Part IIA statutory regime is the concept of the contaminant linkage. This consists of three components:

- A **receptor**, something that could be adversely affected by a contaminant
- A **pathway**, the route by which a receptor is or might be affected by a contaminant
- A **contaminant**, which is in, or under the land and which has the potential to cause significant harm to a relevant receptor

For land to be determined as contaminated there needs to be one or more contaminant-pathway-receptor linkages (contaminant linkages) by which a relevant receptor might be affected by the contaminant in question.

2.3 Having established the existence of a contaminant linkage, the next step is to assess whether, as a result of the linkage;

- Significant harm is being caused to the receptor, or there is a significant possibility of such harm being caused; or
- Significant pollution of controlled waters is being, or is likely to be, caused.

Only if this is the case can the land in question be designated as being contaminated land as defined by Part IIA of the Environmental Protection Act 1990. It is important to note that this only applies to the present use of the land – future uses are dealt with through the application of appropriate planning conditions to secure remediation.

2.4 It can be seen from this definition of contaminated land that the mere presence of a contaminant on a site, no matter at what concentration, **is not sufficient for the site to be called 'contaminated land'** – the context is all-important.

2.5 This statutory regime is based on the extent of significant harm being caused by a contaminant to a sensitive receptor. In order to determine the extent of such significant harm, actual or likely, a process of risk assessment is required.

Risk assessment

- 2.6 A risk assessment of a site will be required in order to determine if it is contaminated land under the terms of the legislation.
- 2.7 A risk assessment is basically a study of the danger to health, or damage to the environment or wildlife that is presented by a site, and the likelihood of that danger becoming a reality.
- 2.8 Risk assessments must proceed on a site-specific basis, due to the range of variables involved.
- 2.9 A detailed site-specific risk assessment will need to take into account the following matters;

Past site history and land use;

Current (and/or intended) land use;

Physical characteristics of the site, including geology and hydrogeology;

Receptors on the site and its surroundings;

Likely pathways for contact between receptors and contaminants;

Nature and concentrations of potentially harmful contaminants in, on or under the land.

Past site history and land use

- 2.10 Land contamination arises mainly as a result of the activities carried out on that land. The previous history of a site will therefore be very important in the risk assessment. Historic ordnance survey maps, trade directories and local knowledge all come into play to build up a picture of what went on.

Current and intended land Use

- 2.11 The present use of a piece of land is relevant to contamination in two ways. Firstly, the use itself may be contaminating the site. Secondly, the present or known intended use may open up a contaminant linkage involving substances deposited on the land at some time in the past.

Physical characteristics of the site

- 2.12 The geology, hydrogeology and soil characteristics of a site will have a great effect on the mobility of harmful substances throughout the land.

- 2.13 In general, soils with a high clay content will reduce the risk from pollutant movement, Sandy soils do not generally absorb pollutants, and as a result dissolved pollutants may flow easily through such soils.
- 2.14 Solid rock tends not to interact with contaminants to any significant degree, other than in the corrosion of carbonate-based rocks by acids, but dissolved pollutants can migrate through fractures and pore spaces in the rock structure.

Physical and Chemical Characteristics of Contaminants

- 2.15 The likelihood of land becoming contaminated by a particular contaminant will depend not only on the ground conditions, but also on the nature of the contaminant itself.
- 2.16 For example: petroleum hydrocarbons will normally partition between an immobile phase and a mobile phase. The mobile phase flows in the direction of groundwater flow, this is always true for Light Non-Aqueous Phase Liquids (LNAPLs). Dense Non-Aqueous liquids (DNAPLs), which are not very soluble in water, can actually flow up gradient if the bedrock happens to slope in the right direction. .

Identity of Receptors

- 2.17 A receptor is defined under the legislation as being something that could be adversely affected by a contaminant e.g. a person, an organism, property, or controlled waters. The statutory guidance, which accompanies the legislation, gives a full list of receptors. Please see appendix 3 for a list of the receptors covered by contaminated land regime, and the categories of significant harm which apply to each. In the case of human receptors, for example, significant harm is defined as being:

Death, life threatening diseases, (e.g. cancer); other diseases likely to have serious impacts on health; serious injury; birth defects; and impairment of reproductive functions.

Potential Pathways

- 2.18 Possibly the most important part of the risk assessment is the identification of the ways in which any potential contaminants can come into contact with identified receptors. Land cannot be regarded as contaminated if no pathway exists, even if both contaminant and receptors are present. Such pathways, however, may be using scientific reasoning if need be – they do not always have to be directly observed.
- 2.19 Pathways will vary with circumstances – e.g. the nature of the substances giving rise to the contamination, the mobility of these

substances, the geological and hydrological aspects of the site, and the identity of the receptor(s).

- 2.20 Examples of pathways include inhalation of vapours, ingestion of contaminants contained within foodstuffs and water, and absorption through skin.

Substances In, On or Under the Land

- 2.21 A contaminant is defined as being a substance present in, on or under land and which has the potential to cause harm or to cause pollution of controlled waters. In terms of harm to receptors, the governing factor of the likelihood that a substance will cause harm is its toxicity, but in addition the mobility, solubility and reactivity of a substance under different conditions must be considered.

Determining that land is 'contaminated land'

- 2.22 Local authorities have the sole responsibility for determining whether any land appears to be contaminated land and cannot delegate this responsibility (except in accordance with section 101 of the Local Government Act 1972). In making such decisions local authorities may rely on information or advice provided by another body such as the Environment Agency, or a suitably qualified experienced practitioner appointed for that purpose.
- 2.23 There are four possible grounds for the determination of land as contaminated land (with regard to non-radioactive contamination):
- a) Significant harm is being caused to a human, or relevant non-human, receptor.
 - b) There is a significant possibility of significant harm being caused to a human, or relevant
 - c) Significant pollution of controlled waters is being caused.
 - d) There is a significant possibility of significant pollution of controlled waters being caused.

In order to make a determination of contaminated land, Middlesbrough Council will need to identify one or more significant contaminant linkage(s), and have carried out a robust, appropriate, scientific and technical assessment of all the relevant and available evidence.

In the case of any land which, following determination as contaminated land, would be likely to meet one or more of the descriptions of a 'Special Site' set out in the Contaminated Land Regulations 2006, Middlesbrough Council will consult the Environment Agency before deciding whether or

not to determine the land, providing the Environment Agency with a draft record of the determination.

Local authorities should take the Environment Agency's views into full consideration and should strive to ensure it has the Environment Agency's agreement to its decision (although the decision is for the local authority to make, subject to the provisions of Part 2A.

(Contaminated Land Statutory Guidance, 2012

<https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>

2.24 Informing interested parties

In accordance with the Statutory Guidance, before we make a determination we will inform the owners and occupiers of the land and any other person who appears to be liable to pay for remediation of our intention to determine the land (to the extent that we are aware of these parties at the time) unless it is considered there is an overriding reason for not doing so.

Consideration will also be given as to:

- Whether to give identified persons time to make representations, or to propose a solution that might avoid the need for formal determination, taking into account: the broad aims of regime; the urgency of the situation; any need to avoid unwarranted delay; and any other factor that we consider to be appropriate.
- Whether to inform other interested parties as it considers necessary, for example owners and occupiers of neighbouring land.

If we determine land as contaminated land, we shall give notice of that fact to (a) the Environment Agency; (b) the owner of the land; (c) any person who appears to the authority to be in occupation of the whole or any part of the land; and (d) each person who appears to the authority to be an appropriate person; in accordance with section 78B (3) of Part 2A. In respect of point (d) this Guidance recognises that in some cases the authority may not have identified the appropriate person(s) at the time the determination is made, in which case the requirement to give notice to such persons would not apply.

(Contaminated Land Statutory Guidance, 2012

<https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>

2.25 Record of the determination of contaminated land

Following a determination of contaminated land we will prepare a written record in accordance with Sections 5.17 to 5.19 of the Statutory Guidance.

2.26 Reconsideration, revocation and variation of determinations

The introduction of the revised Statutory Guidance in April 2012 allows a local authority to reconsider any determination of contaminated land if it becomes aware of additional information, which it considers significantly alters the basis for its original decision, allowing for the retention, variation or revocation of the determination in accordance with Sections 5.21 and 5.22 of the Statutory Guidance.

It should however be noted that this is only intended to apply to those determinations made after the introduction of the revised Statutory Guidance in April 2012 or to those sites that have not yet been remediated but were determined before April 2012.

2.27 Making determinations in urgent cases

If we consider there is an urgent need to determine particular land, we will make the determination in a timescale considered appropriate to the urgency of the situation.

2.28 Urgent action

Urgent action must be authorised where Middlesbrough 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 use of powers of entry.

Middlesbrough Council will initiate 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 potential special site Middlesbrough Council will notify and consult with the Environment Agency.

In appropriate cases Middlesbrough Council will seek to recover costs of remediation works it has completed. We will carry out all investigations thoroughly to identify persons responsible for causing contamination, so that as far as is possible the polluter pays, in accordance with the statutory guidance.

(Contaminated Land Statutory Guidance, 2012
<https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>)

2.29 Liability and costs

Land may be declared contaminated land with the identification of only one significant contaminant linkage. Full liability cannot therefore be determined until all significant contaminant linkages on the site have been identified. When all significant contaminant linkages have been identified liability must be apportioned. This has five distinct stages as follows:

- Identifying potential appropriate persons and liability groups;
- Characterising remediation actions;
- Attributing responsibility to liability groups;
- Excluding members of liability groups;
- Apportioning liability between members of a liability group.

The process starts with establishing liability groups. All appropriate persons for any one linkage are a, 'liability group'. These may be Class 'A' or Class 'B' persons.

APPROPRIATE PERSONS - Class 'A' - These are, generally the polluters, but can also include those who 'knowingly permitted'.

APPROPRIATE PERSONS - Class 'B' - Where no Class 'A' persons can be found liability reverts to the owner or the occupier of the land. These are known as Class 'B' persons. The matter of appropriate persons must be considered for each significant contaminant linkage. Therefore where a site has had a series of contaminative uses over the years, each significant contaminant linkage will be identified separately and liability considered for each.

The cost of each remediation action will normally be apportioned between those who remain liable after any exclusion. Section 78F (6) and (7) of the 1990 Act, which provides that:

Section 78F(6): Where two or more persons would, apart from this subsection, be appropriate persons in relation to any particular thing which is to be done by way of remediation, the enforcing authority shall determine in accordance with guidance issued for the purpose by the Secretary of State whether any, and if so which, of them is to be treated as not being an appropriate person in relation to that thing.

Section 78F (7): Where two or more persons are appropriate persons in relation to any particular thing which is to be done by way of remediation, they shall be liable to bear the cost of doing that thing in proportions

determined by the enforcing authority in accordance with guidance issued for the purpose by the Secretary of State.”
(Contaminated Land Statutory Guidance, www.gov.uk).

The main provisions for the establishment of liability are set out in the Environmental Protection Act 1990; Part 2A and further information can be found within Section 7 of the Contaminated Land Statutory Guidance.

CHAPTER 3

What have we done so far

In this section of the Strategy we describe the work which we have done so far in dealing with contaminated land in Middlesbrough.

Firstly, we outline some of the history and geology of the town. Both of these have played major roles in determining the extent of land contamination in Middlesbrough.

In addition, the foremost pollutants of concern will be described. These include dioxins, PCBs, heavy metals and radionuclides. All can have an impact on health.

CHAPTER 3 WHAT HAVE WE DONE SO FAR?

Middlesbrough – putting contaminated land in context

- 3.1 Middlesbrough lies on the south bank of the River Tees in the north-east of England. The town, which covers an area of 5390 hectares, is situated at the hub of the Teesside conurbation, and has a population of 140,000 in 57,704 households, total dwellings 60,755 (as of 2017).
- 3.2 Middlesbrough is the most highly urbanised of all of the districts of the Tees Valley. Its population density is also the highest. Only 20% of the total area of the Borough of Middlesbrough is used for agriculture.
- 3.3 Middlesbrough's history is inevitably intertwined with that of the industrial revolution and the fortunes of industry itself. The town owes its origins to the extension of the Stockton & Darlington Railway, in 1830, to the site which is now Middlesbrough.
- 3.4 Middlesbrough prospered as a port for the export of coal, mined in the Durham coalfields, in addition to the presence of numerous brine wells and brick production sites. In 1850, when ironstone was discovered in the Cleveland Hills, Middlesbrough underwent rapid expansion, becoming a world centre for the iron and steel industry. Shipbuilding and other heavy industries followed, and in the early years of the 20th century, chemical manufacture became a major activity within the town and its surroundings.
- 3.5 The decline of the heavy industrial base of the town began in the 1960s, and these industries were replaced gradually by the service sector and lighter, more general industry. At the same time a major programme of urban renewal was undertaken.

Basic geology, hydrogeology, and hydrology

- 3.6 Middlesbrough's solid geology is fairly uniform across the borough, consisting mainly of Triassic and some Jurassic age marine sediments, dipping approximately 2-3° towards east-south-east.
- 3.7 The majority of the borough is underlain by Triassic Mercia Mudstone (formerly known as the Keuper Marl), with Sherwood Sandstone (also known as the Bunter Sandstone) in the far west, and the Jurassic Redcar Mudstone Formation in the east, separated from the Mercia Mudstone by the Rhaetic Sea sediments of the Penarth Group.
- 3.8 The strata sequence underlying Middlesbrough is, therefore (youngest to oldest, or 'top-down'): Redcar Mudstone Formation; Penarth Group; Mercia Mudstone (which, along with the previous two formations, is not present across the whole of the borough); Sherwood Sandstone; Roxby Siltstone Formation (Upper Permian); Boulby Halite (only under the eastern half of the borough); Upper Magnesian Limestone (Seaham

Formation); Permian Middle Marls (Edlington Formation); Middle Magnesian Limestone (Ford Formation); Lower Magnesian Limestone (Raisby Formation); the Stainmore Group (also known as the Millstone Grit) of Upper Carboniferous Sands; and the Alston Group of Lower Carboniferous Limestones, occurring at approximately 500 metres below sea level in the west of the borough, to over a kilometre in depth in the east (the Permian formations lie unconformably on the Carboniferous, which dips in the same general direction, but at a much greater angle).

- 3.9 Other notable features of the borough's solid geology include two inactive faults forming a down-thrown block in the northwest of the borough, and outcrops of the Cleveland Dyke, a Tertiary doleritic igneous intrusive feature, which has been excavated in two areas of Middlesbrough in the past (both quarries are now closed). The borough has never had a history of deep mining.
- 3.10 In terms of drift geology, as with most of northern England glacial sediments dominate, with more recent alluvium in the vicinity of the River Tees and the major becks. Glacial Till covers most of the southern half of the borough, with occasional lacustrine clays and beach deposits.
- 3.11 Substantial areas of littoral sands occur in the centre of the borough, namely in Acklam, Easterside, Park End, and Ormesby. North of this line of post-glacial sediments outcrop older laminated clays, deriving from the Devensian glacial period.
- 3.12 The youngest sediments occur above these clays in the north of the borough, consisting mainly of estuarine and marine alluvium associated with the River Tees Estuary. Stainsby Beck, Marton West Beck, Ormesby Beck, Middle Beck, and Spencer Beck all also have limited alluvium deposits associated with their present and historical courses.
- 3.13 Made ground forms all of the south bank of the Tees, extending some way in-land due to the reclamation of estuarine marshes during the early development of the town, and the history of industry on the river bank. The precise depth and composition of the made ground will obviously be site specific.
- 3.14 The drift geology and made ground deposits vary in thickness across the borough, ranging from approximately 30-40 metres in the north-west, to around 10-20 metres thickness in the south-east.
- 3.15 Hydraulic conductivity in the ground beneath Middlesbrough will be locally towards the nearest non-culverted watercourse, but will generally be northwards towards the river. Locally this would need to be determined on a site-specific basis as part of a risk assessment.

- 3.16 Environment Agency 'groundwater vulnerability' data shows that almost all of the borough is underlain by strata classified as unproductive strata due to negligible permeability, and the blanket covering of glacial clays.
- 3.17 The Sherwood Sandstone Formation, which directly underlies the glacial deposits in the far west of the borough, is classified as a 'principal aquifer' (although there is only one abstraction from this stratum in the whole of Middlesbrough, which is currently disused). This formation is also one of the strata listed in Schedule 1(2) of The Contaminated Land (England) Regulations 2006, which would automatically require any contamination of the groundwater contained within it by prescribed pollutants to be treated as a 'special site' under those regulations.
- 3.18 The littoral sand lenses in central Middlesbrough are classified as 'minor aquifers', however these have impermeable strata beneath, and do not have any known abstractions from them.
- 3.19 There are no groundwater 'source protection zones' in the vicinity of Middlesbrough.
- 3.20 The Environment Agency have categorised the chemical and biological water quality of the River Tees and the becks in Middlesbrough as being "good" in their system of General Quality Assessment Grading's.
- 3.21 **'Background' and 'Normal' Levels of Contamination**

The Statutory Guidance states that normal levels of contaminants should not be considered to cause land to qualify as contaminated land, unless there is a particular reason to consider otherwise. 'Normal' levels of contaminants in soil may be a result of the natural presence of contaminants or the presence of contaminants caused by low level diffuse pollution, and common human activities other than past industrial uses.

Local Authority ownership of land

- 3.22 Details of land owned by Middlesbrough Council are held by the Valuation and Estates' Service. This information has been made available to the Environmental Protection Team.

Current land use characteristics

- 3.23 Use of land within Middlesbrough is dictated by the Local Plan, which was formally adopted in February 2008. The map accompanying the Plan shows the allocation of land according to present or intended use. Simply put, the major industrial areas of the town are located to the north, north-west and north-east of the town centre, while to the south of the town centre land use is predominantly residential.

Protected locations – habitats etc.

3.24 Natural England and other nature conservation agencies.

Ancient monuments etc.

3.25 A record of ancient monuments in the Town is held on a Geographical Information System (G.I.S.) database (ArcView format), supplied by:

Tees Archaeology (Sites and Monuments Record: Abridged Version for users of Contaminated Land Register, July 2000)

Sir William Gray House

Clarence Road

Hartlepool TS24 8BT

Middlesbrough Council recognises that potentially contaminated sites may be of significant historical and archaeological significance, and hence we will work in close liaison and consultation with Historic Englands Ancient Monuments Inspector, and Tees Archaeology, when carrying out site investigations.

Historic Land Use Register (H.L.R.)

3.26 In order to approach the problem of historic land contamination in a strategic way, in 1994 Middlesbrough Council began compiling a Historic Land Use Register.

3.27 This Register was compiled from a large number of documentary sources, including old maps, archive records, local histories and contemporary information. It forms a valuable record of baseline information on the past land use of the whole of Middlesbrough.

3.28 The Register takes the form of a series of base-maps, upon which are marked areas of land. The map of the whole of Middlesbrough is split into 261 base-maps, each given an 'M' prefix, from M1 onwards, and each base-map corresponds to an individual Ordnance Survey (O.S.) 500m x 500m 1:1250 scale map.

3.29 A complete index of all of the base-maps which form the Historic Land Use Register, and the corresponding O.S. maps

3.30 In order to have a working Register of Historic Land Use, a system of Land Use Categories has been devised, based in part on the 'D.o.E. Industry Profiles' documents produced by Central Government. These encompass a wide variety of industrial, commercial and other activities, the carrying on of which may result in contamination of land.

3.31 The current set of Land Use Categories used with the Historic Land Use Register is attached at APPENDIX 4 to this Strategy.

- 3.32 An entry onto the Historic Land Use Register is made whenever evidence of land use, past or present, corresponding to one of the listed Land Use Categories, comes to light.
- 3.33 The location of the land subject to that use is identified in as much detail and to as great a degree of precision as possible, and a polygon is constructed which is overlaid on the appropriate base-map. The polygon is then numbered with the appropriate base-map index number (e.g. M20), and with a second number to identify the number of that entry on the base-map. For example, the 5th polygon to be entered onto base-map 25 has the identification number M25 (5). Sites are not numbered on the base-map in any particular order, therefore a low or high number should not be taken to indicate any particular land condition.
- 3.34 The construction of the Register is such that the addition of new sites and new Land Use Categories is easily done, and a duplicate of all entries is held on both the Flare software system used by Environmental Protection Team, and the Cartology GIS system used Council-wide.
- 3.35 Since the last publication of the contaminated land strategy, dated June 2010, Middlesbrough Council purchased a dedicated contaminated land software system from STM Environmental, which is a single all - encompassing database, including a general system for managing technical environmental data (historic industrial activity, soil quality, ground water, surface waters, ecology etc.). The software also includes a risk based site prioritisation system. The initial prioritisation produced a Stage 1 risk assessment score and site prioritisation list based on cross referencing the current use of the site with the past industrial/historic use(s). At the time of writing this Strategy document there are in excess of 1077 sites on the database/register.

At the time of this review 1077 potentially contaminated land sites have been identified, however, a large percentage of these sites will require no more than a very limited desk based assessment to confirm their low prioritisation rank.

The existence of an entry on the database/register for a given site does not necessarily mean that the site is contaminated, nor does the absence of a site from the database/register necessarily denote the absence of a contaminant or contaminants from that site.

Specific local features in geological context – mineral deposits etc.

- 3.36 This information will be sought from the British Geological Survey on a site-by-site basis, as required. A listing of all BGS borehole sites has been obtained from that organisation, alongside a comprehensive geological map, in order to assess the accuracy of geological information for any particular part of the Borough.

Redevelopment history and controls

- 3.37 Middlesbrough is a product of the Industrial Revolution, its early growth and prosperity based on heavy industry, concentrated in the riverside area of the Ironmasters' District and the dock. Within the town, this employment base has almost disappeared, although some large steel fabrication work still remains on the riverside, producing modules and rig assemblies for the North Sea oil and gas field. Future change of use and consequent redevelopment of these sites is likely.
- 3.38 The environment of Middlesbrough has improved radically since the 1960s, as the heavy industry, upon which the early growth of the town was based, has been replaced by light & general industry, and service sector employment, the latter accounting for 85% of the workforce of the town in 1993. Much of this new development has occurred in the reclaimed old Ironmasters' District, now Riverside Park Industrial Estate. A major urban renewal programme has also been undertaken.

Action already taken to deal with land contamination

- 3.39 Prior to the enactment of the new statutory regime for dealing with contaminated land, Middlesbrough Council addressed the legacy of historic pollution through the use of conditions attached to planning permissions. Through the Council's internal and external consultation procedure, contamination aspects of planning applications were considered, and conditions recommended as appropriate, in order to ensure that the condition of the development site was subject to adequate assessment, and to effect remedial action where this was shown to be necessary.
- 3.40 This approach is exemplified by the planning permission granted for the reclamation of the old Middlesbrough Dock as part of the Middlehaven development, where a mixture of residential, commercial and leisure uses constitute one of the biggest urban redevelopment projects being undertaken in Britain.
- 3.41 As a dock serving a major industrial centre, the potential for the site to have become contaminated with a variety of mineral, chemical and other pollutants was considerable, and so conditions were attached to the permission for development requiring that the site be assessed and remediated to bring it up to a standard suitable for use.

3.42 In addition to the Middlehaven development, Middlesbrough Council, working with our key partners, has been involved in major regeneration projects on contaminated sites across the town, including:

- Middlehaven (former port and industrial area)
- St. Alphonsus' School, North Ormesby (former clay-pit)
- Riverside Park (former Iron Masters District)
- Teesside Park (former household and construction waste landfill)
- Stewart Park (former gas works)
- Urban Pioneer off Lower East Street (former gas works)
- Middlesbrough Gateway Land at Cargo Fleet Road
- The former Guide Dog Training Centre off Highfield Road (Residential development)
- Former Longlands Campus (Residential Development)
- Former Kirby Campus (Residential Development)
- Former Marton Campus (Residential Development)
- Former Clairville Stadium Site (Residential Development)
- Grey Towers Farm Nunthorpe (Residential Development)
- Former BP Garage Site Longlands Road

3.43 In carrying out works to remediate past contamination, Middlesbrough Council has helped to secure environmental improvements for the benefit of residents and business alike, ensuring that Middlesbrough has a thriving, and sustainable future.

Pollutants of Concern

Dioxins

- 3.44 Municipal Solid Waste incinerators have been identified as a principal source of chlorinated dioxins and furans, known collectively as 'dioxins'. These compounds may be formed in the incinerator as a result of complex chemical reactions, especially in the temperature range 600-800°C.
- 3.45 It has been shown that, in incinerators where the feedstock contains sources of chlorine (such as PVC) and of aromatic materials (like polystyrene), the ingredients are right for the formation of dioxins at around 600°C. This is a low temperature for incineration, and can result from a high content of vegetable matter in the waste feedstock.
- 3.46 Consequently, it has been found that the dioxin content of fly ash from municipal waste incinerators is much higher than that of the waste feedstock.
- 3.47 Dioxins are widespread in the environment, and there is great concern about their long-term health effects. They accumulate in fatty body tissue, and the main route for human exposure to dioxins is through food, accounting for around 95% of our total lifetime exposure. Tobacco smoke is also a major route for exposure to dioxins.
- 3.48 It has been suggested recently that dioxins may cause cancer, and therefore sites where levels of dioxins may be higher than normal as a result of processes carried out on that site, or from dioxins transported onto the site from elsewhere, will be investigated further.
- 3.49 Levels of dioxins have been measured in Middlesbrough since 1995 as part of the National Toxic Organic Micropollutant (TOMP) network, and they show that levels of dioxins in Middlesbrough compare favourably against other towns and cities. Nevertheless, the historic presence of a major point source of dioxins northwest of Middlesbrough (the old Portrack Municipal Waste Incinerator in Stockton-on-Tees) means that levels of dioxins within the town will be assessed as part of this Strategy.

PCBs

- 3.50 Polychlorinated biphenyls are a chemical group of related compounds which are similar to dioxins. Unlike dioxins, PCBs were for many years manufactured industrially, firstly for use in printing inks and paints, but subsequently for use in plastics and as insulators in electrical transformers.

- 3.51 Like dioxins, PCBs accumulate in fatty tissues in the body, and in high doses have led to serious skin diseases like chloracne. There is also evidence that PCB poisoning causes bodily stress, which may weaken immune systems, and possibly cause intestinal damage.
- 3.52 The manufacture and use of PCBs is now banned worldwide, but because of their long life in the environment, PCB pollution will remain a problem for many years to come.
- 3.53 Within Middlesbrough, on sites with a past history of use in the electricity and power industries, including electricity sub-stations, elevated concentrations of PCB may potentially be found.

PAHs

- 3.54 PAHs stands for polycyclic aromatic hydrocarbons. PAH is a large family of chemical compounds formed from the fusion of carbon rings. They are produced from the incomplete combustion of fossil fuels, and are characteristically black in colour. They are found in high concentrations in tars and soot, but other sources include heating and power production, incineration, production of coke, and road transport, especially from diesel engines.
- 3.55 PAHs are important pollutants because a number of them are strongly carcinogenic (cancer-causing). One of the PAH family, Benzo-[a]-pyrene, is thought to be the most carcinogenic. PAH have been implicated in cancers of the lung, skin, and bladder.
- 3.56 Within Middlesbrough, sites associated with the historic production or disposal of tar and related chemicals, areas of infill / 'made ground', and sites associated with petrol, diesel, or fuel oil use, have the potential to be contaminated with PAH.

Heavy metals

- 3.57 The term 'heavy metal' is commonly applied to metals associated with toxicity and environmental pollution, including arsenic, chromium, nickel, copper, zinc, tin, cadmium, mercury and lead.
- 3.58 These heavy metals occur naturally, and differ widely in their chemical properties, but they have become important in terms of land contamination as a result of their use in electronics and batteries, machines and other man-made applications, as well as their extraction from the ground in mining operations.
- 3.59 Some heavy metals, such as copper and zinc, are important for health in very small quantities ('trace metals') but in larger doses they may become toxic. The effects of heavy metal poisoning vary widely, and can include impairment of mental development, most famously in the cases of lead and mercury.

- 3.60 It is very difficult to make a simple list of heavy metals in order of toxicity, because there are great variations in toxicity towards different plants and animals. In addition, there are great differences in tolerance to heavy metals within the same species (including human beings).
- 3.61 Nevertheless, looking at a broad range of data, some heavy metals may be ranked in order of their toxicity to humans, with the most toxic first:

Cadmium >Mercury > Arsenic > Lead > Chromium > Nickel > Copper > Zinc

- 3.62 Given the history of metallurgical industries in Middlesbrough, there may be a significant number of sites which have the potential to be contaminated with heavy metals, particularly in the former industrial area to the northwest of the Town Centre (Riverside Park Industrial Estate).

Landfill gas and leachate

- 3.63 When wastes, especially wastes with a high organic content, are put in landfill sites, types of bacteria begin to feed on nutrients within the waste. These bacteria (aerobic bacteria) use up any oxygen present in the landfill. When there is no oxygen present, conditions are ideal for a new type of bacteria to take over. These are called 'anaerobic' bacteria, and they thrive without oxygen. When the landfill becomes anaerobic, landfill gas or methane is produced. Methane is highly inflammable in certain circumstances, and if it is allowed to build up it can become explosive. Organic-matter-rich soils, where such anaerobic bacteria also thrive, may also give-off gas with a similar composition, although in much reduced amounts.
- 3.64 As well as gas, landfills produce a liquid waste known as leachate, formed by the passage of rain or groundwater through the waste, gathering a wide variety of pollutants such as ammonia, nitrate, heavy metals and organic compounds as it goes.
- 3.65 Leachate can have a very severe polluting effect on water outside of the landfill, because it increases the 'biological and chemical oxygen demand'. This means that the pollutants in the leachate use up the oxygen in the water so that there is less left to support life. As a result of leachate pollution, streams and rivers may suffer serious damage to their wildlife.
- 3.66 There are a number of closed landfill sites within Middlesbrough, containing a variety of waste types. These sites may be investigated further at some point in the future.

Asbestos

- 3.67 Asbestos is a term used to describe a family of naturally occurring magnesium silicate minerals, which exist as fine fibres.
- 3.68 There are three common types:

Chrysolite (white asbestos) Amosite (brown asbestos) Crocidolite (blue asbestos)
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All three types of asbestos are hazardous to health, although in widely varying degrees, and can cause cancers of the lung and bowel, as well as non-cancerous lung diseases ('asbestosis').

- 3.69 Within Middlesbrough, the sites of old landfills for construction and industrial waste are the likely candidates for asbestos contamination, in addition to areas where industrial units are derelict or have been demolished and the land has yet to be redeveloped.

Radioactive Substances

- 3.70 Historical contamination of land by radionuclides from anthropogenic (**manmade**) activity has in many cases occurred due to a lack of understanding of hazards posed by radioactive materials at the time. Radioactive substances have been used for a wide variety of purposes since the start of the twentieth century, but most have only been subject to regulation since 1963, the year in which the 1960 Radioactive Substances Act came into force. Industrial activities have involved the use of materials containing radioactivity in a variety of different contexts:
- 3.71 **Historical Profiles of Land Uses Involving Radioactivity:**
- a. Where radioactive materials have been employed for their radioactive properties (for example, luminising works);
 - b. Where radioactive properties are incidental in materials that are used for their non-radioactive properties (for example, gas mantle production); and
 - c. Where radioactive materials have been inadvertently handled, or escaped accidentally (for example, lead mining).
- 3.72 It must always be borne in mind that the mere presence of any pollutant, including those described above, on a site does not necessarily mean that the land is contaminated and will pose a risk to health. This will depend on many factors, and may only be determined by a process of site-specific risk assessment.

- 3.73 Within Middlesbrough, sites of old landfills where very Low Level Radioactive Waste from hospitals and non-nuclear industry may have been disposed with ordinary refuse, prior to regulation under the 1960 Radioactive Substances Act came into force, are the likely candidates for radioactive contamination. Where there are reasonable grounds for believing a site to be contaminated by the virtue of radioactivity, the site will be assessed further.

Phenol

- 3.74 Historical contamination of land by phenol from anthropogenic (man made) activity is the main source of phenol in soil. It is released to the atmosphere during the production and use of phenolic resins, and is formed as a combustion by-product in emissions from vehicle exhausts, waste incinerators and coal-fired power stations.
- 3.75 It is released into waste water following industrial production and use, as a by-product from petroleum refining and paper pulp manufacturing facilities, and in human sewage.
- 3.76 The major releases to soil include the spreading of animal manures and sewage sludge, and the historical manufacture of coal gas and coke. Phenol is weakly bound by soil organic matter and therefore will leach readily from soil to ground and surface water.
- 3.77 Phenol has been shown to cause liver and kidney damage, neurotoxic effects and developmental toxicity in laboratory animals. The River Tees is currently failing Water Framework Directive (WFD) chemical status for phenol.

CHAPTER 4

How We Carry out Contaminated Land Inspections

In this section of the Strategy we:

- Set out the priorities we have set for inspecting land
- Set out how different Council services work together
- Set out how we work with outside organisations

CHAPTER 4 HOW WE CARRY OUT CONTAMINATED LAND INSPECTIONS

Middlesbrough's Contaminated Land Strategy

4.1 This Strategy outlines how Middlesbrough Council fulfils its statutory duties for identifying and dealing with contaminated land under Part IIA of the Environmental Protection Act 1990, having regard to its commitments to regeneration and sustainable development, and to delivering Best Value in all its services to the people of Middlesbrough.

Who has taken the lead in this process?

4.2 Responsibility for the implementation of the contaminated land duties within Middlesbrough rests with the Head of the Public Health and Public Protection Service.

4.3 Within the Community Protection Service, the Environmental Protection Team will be responsible for the implementation of the requirements of this Strategy.

4.4 The Environmental Protection Team chairs a Contaminated Land Group which can act as the Council's internal consultation body for the implementation of this Strategy. The Group includes representatives from services within the Council with a clear role to play in the identification and remediation of contaminated land.

4.5 Liaison with the Environment Agency will be maintained directly with the Newcastle Office Contaminated Land Team, and via the Contaminated Land Officers North East Region Group (CLANNERS).

Role of the planning process

4.6 In accordance with the statutory guidance, where new development is planned, site investigation, assessment and remediation will be secured through the use of planning conditions, as has been the case for many years.

4.7 Guidance relating to planning conditions and contaminated land was published in the National Planning Policy Framework (NPPF), requirements of the guidance have been incorporated into the procedures set out in this Strategy.

Setting priorities for inspecting land

4.8 The order in which we carry out inspection of sites depends on two very important factors;

- The past use of the site - This will indicate the nature of possible contamination
- The identity of the receptors on the site (e.g. residents) - This will indicate the potential for harm to be caused by any contaminants on the site.

Middlesbrough Council's priority actions

4.9 In setting priorities for inspection we have as our primary concern the health and well-being of the people of Middlesbrough and our local environment, as set out in the Core Strategy.

4.10 In implementing this Strategy, a high priority is given to the inspection of sites where the risks to human health is high and may include previously-used sites with a history of polluting activities. This provides potential for the re-use of such sites, particularly for regeneration purposes, within the land use requirements of the Local Plan.

4.11 The remediation of such sites, however, must be subject to the guidance issued by Central Government, which states that requirements for remediation are limited to the work necessary to prevent unacceptable risks to human health or the environment, or that which is appropriate when planning permission is sought for its redevelopment.

Inspection of land in Middlesbrough

4.12 Inspection of land in Middlesbrough is carried out according to the following priorities:

High priority sites:

A high priority has been given to sites where there is the greatest overlap between high contamination potential and presence of vulnerable receptors.

This includes sites on or adjacent to pollution sources, where the principal receptors are vulnerable, for example:

- Babies and young children
- Senior citizens
- People suffering from chronic diseases

A high priority has also been given to sites which are earmarked for housing/regeneration, subject to the constraints of the statutory guidance.

Lower priority sites:

- Lower priority has been given to sites where there is a lesser degree of overlap between contamination potential and the presence of receptors.
- Lower priority has been given to sites at greater distance from sources of pollution, e.g. sites not previously used for potentially contaminative uses.
- Lower priority has been given to sites where the likely receptors are of lower vulnerability.
- Lower priority has been given to sites earmarked for use as open space.

For all the sites we look at, we have to identify the important receptors

- Housing – residents
- Schools – students, teachers
- Hospitals – patients, staff
- Controlled waters – we will consult with the Environment Agency
- Recreational areas – children, animals
- Any area – “ground workers”, e.g. pipe layers, construction personnel, etc

How we find out who is responsible for a site?

- 4.13 We need to be able to trace the identity of site owners and occupiers in order to carry out our duties for dealing with contaminated land.
- 4.14 Land Registry searches, via an instant access computer link, are used in order to help in the identification of appropriate persons.

How we identify sites for inspection

- 4.15 **A categorisation and prioritisation** exercise will identify a list of sites that justify more detailed investigation according to the risk they pose. These site-specific investigations will enable the Environmental Protection Department to decide whether sufficient information is available to conclude that one or more **significant contaminant linkages** exist at a site. This will allow us to determine whether or not a particular site can be designated as contaminated land in accordance with the definition provided in Part IIA of the Environmental Protection Act 1990 or whether the land is likely to be a ‘special site’. The following sections detail the stages required to ensure sufficient evidence can be obtained to decide whether a site can or cannot be determined as **Contaminated Land**.

Inspection Process

4.16 Compliance with the statutory guidance – In developing the contaminated land database, areas of land will be identified where it is likely that pollutants exist. The statutory guidance requires that a more detailed inspection be carried out to obtain enough information to determine:

- Whether a site appears to be contaminated; and
- Whether such a site should be also a special site

The statutory guidance for making such a determination requires detailed inspection through:

- The collation and assessment of documentary information;
- A visit to the particular area for the purposes of visual inspection and, in some cases, limited sampling; and
- And / or intrusive investigations of the land.

4.17 Dealing with Contaminated Land – Actions to date

A great deal of information has been gathered on many potentially contaminated land sites in Middlesbrough, mostly through planning application submissions and desk based exercises. This information is stored and further utilised within the Contaminated Land database procured by the Council in 2015.

A database and prioritisation system was seen to be critical for managing Part 2A work as the Council moves forward. The installation of this database has enabled information on each potentially contaminated land site to be instantly recalled and assessed, improving accurate responses to requests for information and increasing the amount of confidence in planning and building control consultations. This information has also enabled the Council to prioritise sites for Part 2A activities as and when they can commence.

The process involved in determining land as being legally 'contaminated' and thereafter securing remediation, is shown as a flowchart attached at APPENDIX 6.

In carrying out this process, and the actions above, we liaise with relevant organisations, including the Environment Agency, Natural England, and other nature conservation agencies as appropriate, in accordance with the statutory guidance.

4.18 Middlesbrough's Priority Sites

The initial aim of the investigation of the Borough is the protection of human health. It is recognised however that there may arise times during the investigation and inspection process when urgent action is required in regard to lower priority aims, therefore the development of any prioritisation process must allow for such situations to be dealt with as they arise.

Using our GeoEnviron database of potentially contaminated land sites, prioritisation of sites within the Borough is made and can be changed as and when information is acquired on each site.

The STM prioritisation system uses the Source-Pathway-Receptor concept to assess risks. The assessment involves hazard-ranking sites based on their historical industrial uses and their proximity to sensitive receptors as well as any other information we may hold.

Information regarding land which the Council considers to be potentially contaminated due to its former use or activities is kept on a confidential GIS database, with factual information on individual sites from this database available via EIR requests. Details of which areas are on this list are not available to the public, as it remains a work in progress with information on each site changing frequently as further details are gathered and risk scores changed. Each of the sites on this list has been being prioritised for investigation by the Council using a risk scoring system.

Once resources allow, the sites on this prioritised list will be investigated to assess the risk present if at all and initiate remediation if required.

After the revision of the Statutory Guidance outlining the revised Category Screening levels 1 to 4 for sites, our prioritised sites have now also been assigned *likely* relevant categorisation using *potential* Category Screening levels, based on the information currently held, in the absence of investigative information in most cases.

CS1 - unacceptably high probability of SPOSH

CS2 – High possibility of SPOSH

CS3 – Unlikely to be SPOSH

CS4 - no risk of SPOSH or level of risk is low

Category 4 Screening levels have been released (March 2014) for some contaminants as a way of determining if that site is of any concern or can be removed from prioritisation lists.

As a result of the prioritisation exercise, sites which have the highest scoring, and represent the highest risk to human health, will be approached under Part 2A first.

Arrangements for carrying out detailed inspections

- 4.19 If the evidence from the prioritisation risk assessment shows there is a reasonable possibility that a significant pollutant linkage exists, an intrusive site inspection will be necessary before a determination be made that the land is contaminated according to the statutory definition.
- 4.20 An inspection log sheet to ensure compliance with the requirements of the statutory guidance is attached at APPENDIX 7 the inspection log is completed for all site inspections carried out in accordance with this Strategy.
- 4.21 Intrusive inspection techniques, e.g. Hand augering, allows examination of soil profile and collection of samples at pre-set depths; trial pits and trenches allow detailed examination of ground conditions (in three dimensions); cable percussion boreholes allow greater sampling depth and enables installation of permanent gas/goundwater monitoring wells, etc.

Evaluation of site inspection information

- 4.22 All information collected or received with respect to land contamination will be evaluated according to risk.
- 4.23 **A site-specific risk assessment-** will be undertaken in accordance with the principles outlined in the Contaminated Land Report (CLR) 11 'Model Procedures for the Management of Land Contamination' (Environment Agency and DEFRA 2004). The procedure involves a number of stages from preliminary risk assessments to qualitative and quantitative risk assessments and remedial options appraisal. Essentially it comprises the following general stages:
- 4.24 **Hazard Identification-** where a desk study and site reconnaissance is used together with information about previous contaminative uses, including physical and geological conditions, in order to gain a preliminary understanding of the potential risks associated with the identification of the contamination likely to be present on the site.
- 4.25 **Risk Estimation-** includes the design and execution of a detailed investigation and analysis to collect sufficient data to allow estimation of the risk that contaminants may pose to receptors.
- 4.26 **Risk Evaluation-** where all available risk based information is reviewed to decide whether the estimated risks are unacceptable, taking into account their nature and scale and any technical uncertainties, which may be associated with the risk estimation process. The estimation process includes the use of models and detailed guidance to assess the risks to human health and other receptors such as controlled waters, ecological systems etc.
- 4.27 **Generic screening criteria** - where identified contaminates pose a significant risk to human health results from site investigations will be

compared with generic guideline values. The EA and DEFRA have published a number of contaminated land guidance reports to provide generic assessment of human health risks from contaminated land. The reports include soil guideline values (SGV's derived from the CLEA (Contaminated Land Exposure Assessment model), a generic risk assessment screening tool. Following the introduction of the amended Statutory Guidance revised screening values for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead have been published.

- 4.28 SGV's are used to assess the risks posed to human health from exposure to soil contamination and also represent values, i.e. indicate that soil concentration exceedance's could pose an unacceptable risk
- 4.29 **Site-specific assessment** criteria will be carried out using the most current Contaminated Land Exposure Assessment or CLEA Model (DEFRA & EA). Alternative risk assessment models may also be used provided they are appropriate and robust and are configured to UK policy and guidance.
- 4.30 **Risk assessment for controlled waters-** where significant pollution of controlled waters is being caused, or where there is a significant possibility of such pollution being caused to controlled waters the Environment Agency will be notified and their advice sought on the risk assessment. It is anticipated that the risk assessment and remediation will be carried out in accordance with the Technical guidance issued by the Environment Agency's to support the April 2012 Statutory Guidance.
- 4.31 **Risk assessment for radioactivity-** the Radioactively Contaminated Land Exposure Assessment (RCLEA) Model will be used for radiation exposure assessments in connection with Part 2A. It is based on the Contaminated Land Exposure Assessment (CLEA) methodology for non- radioactive contaminated land. RCLEA will be used to carry out initial screening assessments as the sole modelling tool in determining land as radioactively contaminated provided all the conditions in the Statutory Guidance are met.
- 4.32 **Ecological Risk Assessments and Soil Screening values-** Assessments and decisions on whether land is deemed contaminated land, will be undertaken using the Ecological Risk Assessment framework (EA and DEFRA 2008). This is based on an iterative, tiered approach in line with CLR11 'Model Procedures for the Management of Land Contamination' (EA and DEFRA 2004) and provides a structured approach for assessing the risks to ecology from contamination in soils. Soil Screening Values (SSVs) are related to ecological protection and would be used as initial screening values to ascertain whether further investigation is required. We then proceed to carry out the physical inspection of the land if required.

What is required when we carry out a site inspection

- 4.33 When carrying out such inspections, Health & Safety procedures as set out in the Health and Safety Executive Guidance Note HSG66 – “Protection of Workers and the General Public During development of Contaminated Land” are used. The Council’s Health & Safety Unit will be consulted on matters relating to the protection of Council staff, contractors and residents during inspections and site investigations, and during remediation works.
- 4.34 In accordance with Part IIA of the Environmental Protection Act 1990, if any sites are identified which might be a ‘special site’; the Environment Agency will be notified via their standard notification document.
- 4.35 Arrangements for inspecting potential special sites will be made with the Environment Agency via liaison with the Newcastle Contaminated Land Office.
- 4.36 Where possible, inspections of potential special sites will be made jointly with the Environment Agency

Appointment of contractors

- 4.37 Contractors for carrying out site investigation and / or remediation works on behalf of the Council in relation to potentially contaminated sites will be appointed through the Procurement team in our partner organisation Kier, using the Council’s established procedures.

How different parts of the Council work together to deal with contaminated land?

- 4.38 Middlesbrough Council is a large organisation, carrying out many different functions. In order that we work effectively and efficiently, we may call on the services of a Contaminated Land Working Group. This Group represents the following services:
- **Environmental Health**
 - **Development Control**
 - **Forward Planning**
 - **County Archaeologist**
 - **Council’s own conservation staff**
 - **Building Control**
 - **Valuation & Estates**
 - **Engineers**
 - **Legal Services**
 - **Economic Regeneration**
 - **Public Relations**
- 4.39 The Contaminated Land Working Group may also provide a mechanism for the spread of information about contaminated land around the

authority. The membership of the Group will be kept under review, and may evolve in order to make best use of all available expertise.

How the Council work with outside organisations?

4.40 In dealing with contaminated land we work closely with external organisations to ensure that we fulfil our statutory duties. We do this in a timely, efficient manner, so as to ensure a free flow of information.

Links with the Environment Agency

4.41 Middlesbrough Council has a formal working arrangement with the Environment Agency through Newcastle Office Tactical Planning and Contaminated Land Officers. We also work closely with the Hydrology Team at the York office.

4.42 Access to information held by the Environment Agency is gained via existing Newcastle contacts.

4.43 Although Middlesbrough Council has sole responsibility to identify contaminated land, the Environment Agency has a vital role to play in supporting Middlesbrough Council in a variety of areas, such as:

- Site specific guidance, technical advice, and training
- Advice regarding other Agency duties and powers
- Advice on pollution of controlled waters
- Inspection of 'special sites'

4.44 Mechanisms for liaison and consultation with the Environment Agency are already well established.

Tees Valley Environmental Protection Group (TVEPG)

4.45 TVEPG is a joint Committee of the five Unitary Authorities of the Tees Valley area. These are the Councils of Middlesbrough, Darlington, Hartlepool, Redcar & Cleveland, and Stockton-on-Tees.

4.46 TVEPG's officer group consists of Officers from each Local Authority, with a representative from the Environment Agency's local office. There is also a joint elected Members' (Councillors') Committee, which provides direction to the Officer Group.

4.47 Contaminated Land is currently a standing item on the agenda at TVEPG meetings, and the Officers may discuss general matters relating to land contamination.

North East Contaminated Land Forum

- 4.48 Quarterly meetings are held at the Environment Agency's offices in Newcastle, giving the opportunity for Local Authorities and Agency staff to meet with academics and industry professionals. This provides for a wider discussion forum than TVEPG.

Links with Public Health England (PHE)

- 4.49 Public Health England (PHE) actively supports its partners in the NHS and local government authorities by providing health protection, epidemiology, emergency planning, surveillance, and microbiology services they require to safeguard the public. Local (PHE) services are supported by regional specialists, such as the Centre for Radiation, Chemical and Environmental Hazards (CRCE); which assists the local (PHE) services to provide advice on human health effects from chemicals in water, soil and waste, as well as on human health effects from chemicals in water, soil and waste, as well as information and support to the NHS and health professionals on toxicology. The (PHE) is alerted by the emergency services when an environmental or chemical incident is occurring that may have an impact upon public health, such as a chemical spillage or serious fire.

Links with Cleveland Fire Brigade

- 4.50 We have established a working link with the Quality Risk Management Unit of Cleveland Fire Brigade, and the incident alert system at the Cleveland Fire Brigade HQ. This provides for a rapid alert and information exchange in the event of chemical spillages and serious environmental incidents.

Links with Natural England and other nature conservation agencies

- 4.51 Middlesbrough Council liaise with Natural England and other relevant organisations where appropriate, regarding the effect of contaminated land on ecological systems in accordance with the statutory guidance, and also the effect of remediation in terms of changes to the local environment. We will have regard to their advice where it relates to such systems.

Links with other organisations

- 4.52 An extensive list of contacts is constantly maintained, and close working relationships have already been established with relevant external organisations and agencies, including the British Geological Survey, the Commission for New Towns, English Heritage, Tees Archaeology, the Food Standards Agency, etc. We work closely with these organisations as appropriate.

4.53 Liaison with owners, occupiers and other interested parties shall be carried out in accordance with the provisions of Part IIA of the Environmental Protection Act 1990.

Collection of information

4.54 The GeoEnviron Risk Assessment database is the central system for the storage and handling of geographical information relating to past land use and potential land contamination.

4.55 When information not included on the GeoEnviron Risk Assessment Database is received, a new entry for the site is made on the GeoEnviron database for the site, and a unique reference number assigned to that entry.

4.56 The Historic Land Use Register has been transferred from a paper map system to the GeoEnviron Risk Assessment Database system, to aid the rapid retrieval and dissemination of information.

4.57 The FLARE and the GeoEnviron Risk Assessment Database systems, are used for recording contaminated land complaints and actions.

General liaison and communication strategies

Risk communication strategy

4.58 The statutory regime for dealing with contaminated land is based on the risks that are posed to human health and the environment by land contamination. One of the central pillars of any communications strategy must, therefore, be the communication of risk.

4.59 In implementing this Strategy for dealing with contaminated land, Middlesbrough Council will adopt a communications strategy which:

- Identifies key stakeholders from all sectors who have an interest in the identification and remediation of contaminated land;
- Recognises the concerns and perceptions of all stakeholders concerning land contamination;
- Is open, transparent and impartial;
- Listens to the concerns of all stakeholders, and is responsive to those concerns;
- Is based on good robust scientific data;
- Avoids unnecessary jargon;
- Uses clear, concise language;
- Is, above all, proactive and managed to ensure that the correct balance is achieved between the aspirations of stakeholders and the requirements of the legal framework for dealing with contaminated land.

- Should any land be designated as contaminated, we will liaise with **Public Health England (PHE)** who specialise in risk communication related to public health at any stage in the contaminated land investigation process.

How we make sure that information is released to the public?

- 4.60 We disseminate information to the public, in accordance with existing Council policies, and in accordance with statutory requirements. Where practical we will issue information about the environment provided that there is no reason to prevent this.
- 4.61 We continue to respond to requests for information on historic land use in a spirit of openness, subject to legal requirements as set out in Part IIA of the Environmental Protection Act 1990 and the Environmental Information Regulations 2004. Such information provision may be subject to reasonable administration charge.
- 4.62 Middlesbrough Council keeps the public and the wider community informed about issues relating to land contamination through the established system of Community Councils, through the Council's news magazine 'Middlesbrough News', the Council's Information Office, and on the Authority's website. We shall also provide a free public information leaflet entitled 'Contaminated Land and Your Home' published by the Environmental Protection UK, subject to supplies.

Public access to information on contaminated land

- 4.63 The statutory regime requires Middlesbrough Council to maintain a public register of information on contaminated land. A copy of the Contaminated Land Register is held in Legal Services at the Town Hall, Russell Street, Middlesbrough, and will be used for public access in accordance with the requirements of Part IIA of the Environmental Protection Act 1990. A working copy of the Register is maintained in Vancouver House by the Community Protection Service, which are responsible for the update and maintenance of the Register and for answering technical queries.
- 4.64 Middlesbrough Council provides access to personal callers for inspection of the Contaminated Land Register free of charge during working hours. Callers are invited to make an appointment to view the Register by telephoning (01642) 728198. Copies of entries on the Register will be made upon request, and the cost of making such copies may be charged to the person requesting the copies in accordance with current Council policy.
- 4.65 The information contained within the statutory public register of contaminated land, maintained in accordance with Part IIA of the Environmental Protection Act 1990, complies with the requirements of this Act and with the Contaminated Land (England) Regulations 2006.

Complaints and requests for service

- 4.66 All complaints and requests for service in relation to contaminated land are logged using our 'FLARE' computerised recording system. All requests for service are processed against our service standards for both response and completion as set out in the Public Protection & Planning Service's Business Plan. Our aim is to respond to all requests for assistance within 21 working days. For complaints about contaminated land we respond within 2 days, or the same day for matters deemed urgent.
- 4.67 Information on individual sites are entered on to the GeoEnviron Risk Assessment Database of potentially contaminated land, this prioritisation system uses the Source-Pathway-Receptor concept to assess risks. The assessment involves hazard-ranking sites on their historical industrial uses and their proximity to sensitive receptors as well as any other information we may hold.
- 4.68 All information recorded/stored on the GeoEnviron Risk Assessment Database of potentially contaminated land is provided subject to the following caveat:

The information provided above relates to the records of historic land use available when this query was answered. It does not in any way constitute a definitive statement of the actual condition of the land. The information contained in our records has been gleaned from a variety of sources, including commercial publications and historical maps, and consequently while to the best of our knowledge we believe that the information given is accurate, this cannot be absolutely guaranteed. In order to determine the actual condition of the land a detailed site investigation, including risk assessment, will be required.

Information evaluation

- 4.69 New information relating to the condition of individual sites is entered onto the GeoEnviron Risk Assessment Database of potentially contaminated land.

Information on new sites

- 4.70 When information relating to sites previously not included on the GeoEnviron Risk Assessment Database is received, a new entry for the site is made on the GeoEnviron Risk Assessment database for the site, and a unique reference number assigned to that entry.

Dealing with gaps

- 4.71 Gaps in the information held in relation to contaminated land may occur in a number of places, and the system has been devised so as to allow flexibility and expansion.

New land use categories

- 4.72 As new land use categories, previously unconsidered, come to light, these may be added to the list.

Dealing with confidential information

- 4.73 All matters of commercial confidentiality of information relating to contaminated land are dealt with in accordance with the provisions of Section 78T(1) of the Environmental Protection Act 1990 and of paragraphs 17.10 to 17.19 inclusive of Defra Circular 01/2006, "Contaminated Land".

Review mechanisms

- 4.74 It is vital that we recognise that a programme of regular, detailed review of the procedures we use for the implementation of this Strategy will be necessary, so that we develop best practice and improve continuously.
- 4.75 Middlesbrough Council has adopted a constructive feedback approach to site inspection procedures, involving close liaison with the Environment Agency, Natural England and other interested organisations.
- 4.76 After completing each individual site inspection and assessment, the procedures used for the inspection of that site is reviewed, and the lessons learned, both positive and negative, are incorporated into future site assessments, so that we continue to improve all the time.
- 4.77 We ensure that the effect of the procedures we use on the wider natural environment are considered as part of any review process, having regard to our priorities for dealing with contaminated land, and to the statutory guidance.

CHAPTER 5

What has been achieved

In this section of the Strategy we set what has been achieved since the new statutory regime for dealing with contaminated land came into effect

CHAPTER 5 WHAT HAS BEEN ACHIEVED

- 5.1 The statutory regime for dealing with contaminated land came into force on April 1st 2000, which set the end of June 2001 as the deadline for publication of this Inspection Strategy.
- 5.2 Internal consultation within Middlesbrough Council proceeded according to the following timetable:
- Early February 2001: draft Strategy considered by the Council's Environmental Sustainability Officer Group (E.S.O.G.) and the Council's Contaminated Land Group
 - End February 2001: draft Strategy considered by the Council's Asset Management Group
 - End March 2001: draft Strategy considered by the Corporate Management Team
 - April 2001: draft circulated for external consultation
 - June 2001: Strategy and all comments from consultees considered by Council's Cabinet
 - Published Strategy June 2001 and commenced implementation
 - Strategy Revised July 2004
 - Strategy Revised June 2010
 - Strategy Revised July 2017
- 5.3 Since the last publication of the contaminated land strategy dated June 2010, new software was acquired (2014) to work along the existing GIS, enabling prioritisation of all identified potentially contaminated land sites into a scored list, which instantly updates site status as new information becomes available. At the time of this review 1077 potentially contaminated sites have been identified, however, a large percentage of the sites require no more than a very limited desk based assessment to confirm their low prioritisation rank. Using this prioritised list of sites, a programme for detailed inspections of higher priority sites has been developed, enabling progress of site inspections and investigations to be monitored.
- 5.4 To date, of the 1077 sites on new software database/ register, more than 350 sites have received planning permission for redevelopment, and where necessary have been remediated, outside of the Environmental Protection Act regulatory regime and at no cost to Middlesbrough Council. Examples include the Urban pioneer (former gas works site), Middlesbrough Gateway Land at Cargo Fleet Road (former industrial land), Stewart Park (former gas works).

Other Supporting Information

Contact points in Middlesbrough Council
Contact points outside the Authority

Community Protection Service

Principal contacts:

Paul Robertson

Environmental Protection Manager

Tel: 01642 - 728212

paul_robertson@middlesbrough.gov.uk

Linda Cummins

Principal Environmental Health Officer

Tel: 01642-728211

linda_cummins@middlesbrough.gov.uk

Joseph Bell

Environmental Protection Officer (Pollution Control)]

Tel: 01642-728198

jos_bell@middlesbrough.gov.uk

Fax number for above: 01642 728960

Contact points outside the Authority

Environment Agency

National Groundwater

Coverdale House

Aviator Court

Amy Johnson Way

Clifton Moor

York YO30 4UZ

Tel: 0190 4822608

Environment Agency

Newcastle Office (North – East Region)

Tyneside House

Skinnerburn Road

Newcastle upon Tyne

NE4 7AR

Tel: 0191 – 2034083

Natural England

North East Region

The Quadrant

Newburn Riverside

Newcastle upon Tyne

NE15 8NZ

Tel: 0300 060 2219

Email: notheast@naturalengland.org.uk

Defra (Department for Environment, Food And Rural Affairs)
defra.helpline@defra.gsi.gov.uk

Historic England
North East Region
Bessie Surtees House
41 – 44 Sandhill
Newcastle upon Tyne NE1 3JF
Tel: 0191 – 2691255

Tees Archaeology
Sir William Gray House
Clarence Road
Hartlepool TS24 8BT
Tel: 01429 523 455
Email: info@teesarchaeology.com
Or tees.archaeology@hartlepool.gov.uk

Food Standards Agency
Contaminants Division
7th Floor, Aviation House
125 Kingsway,
London WC2B 6NH

Cleveland Fire Brigade
Fire Brigade Headquarters
Endeavour House
Stockton Road
Hartlepool TS25 5TB
Tel: 01429 – 872311

Public Health England (PHE)
Floor 2, Citygate,
Gallowgate
Newcastle upon Tyne
NE1 4WH
Tel: 0300 303 8596

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GLOSSARY OF TERMS

Apportionment:	Any determination by the enforcing authority under section 78F(7) (that is, a division of the costs of carrying out any remediation action between two or more appropriate persons). Paragraph D.5(e)
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 anything which is to be done by way of remediation in any particular case.'
Class A person:	A person who is an appropriate person by virtue of section 78(2) (that is because he has caused or knowingly permitted a pollutant to be in, on or under the land).
Class A liability group:	A liability group consisting of one or more Class A persons. Paragraph D.5(c)
Class B person:	A person who is an appropriate person by virtue of section 78F(4) or (5) (that is, because he is the owner or occupier of the land in circumstances where no class A person can be found with respect to a particular remediation action).
Class B liability group:	A liability group consisting of one or more class B persons. Paragraph D.5(c)
Contaminant:	A substance which is in, on or under the land and which has the potential to cause significant harm or to cause pollution of controlled waters.
Contaminated Land:	Section 78A (2) defines contaminated land as: 'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that; a) Significant harm is being caused or there is a significant possibility of such harm being caused; or b) Significant pollution of controlled waters is being, or there is a significant possibility of such pollution being caused.' OR with respect to radioactive contamination defined in section 78A(2) (as modified) as; 32 'any land which appears to the local authority in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land, that; a) Harm is being caused; or b) There is a significant possibility of harm being caused.'
Controlled Waters:	Defined in section 78A(9) by reference to Part 3 (section 104) of the Water Resources Act 1991; this includes territorial and coastal waters, inland fresh waters and ground waters.

Enforcing Authority:	Defined in section 78(9) as: 'a) in relation to a 'special site', the Environment Agency; B)in relation to contaminated land other than a 'special site', the local authority in whose area the land is situated'.
Environment Agency:	An executive non-departmental public body who's principle aims are to protect and improve the environment, and to promote sustainable development.
Harm:	Defined in section 78A(4) as: '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.' OR with respect to radioactive contamination defined in section 78A(4) (as modified) as: 'lasting exposure to any person resulting from the after effects of a radiological emergency, past practice or past work activity.'
Hydrogeology:	A subdivision of hydrology specifically relating to the study of waters beneath the earth's surface.
Hydrology:	The science concerned with the occurrence, distribution, movement and properties of all waters on the earth and in its atmosphere.
Industrial, trade or business premises:	Defined in section 78M(6), for the purpose of determining the penalty for failure to comply with a remediation notice, as; "premises used for any industrial, trade or business purposes or premises not so used on which matter is burnt in connection with any industrial, trade or business process, and premises are used for industrial purposes where they are used for the purposes of any treatment or process as well as where they are used for the purpose of manufacturing."
Inspection using statutory powers of entry:	Any detailed inspection of land carried out through use of powers of entry given to an enforcing authority by section 108 of the Environmental Act 1995.
Intrusive Investigation:	An investigation of land (for example by exploratory excavations) which involves actions going beyond simple visual inspection of the land or assessment of documentary evidence. Also known as site investigation.
Local Authority:	Defined in section 78A(9) as meaning any unitary authority, district council etc.
Orphan Linkage:	A significant pollutant linkage for which no appropriate person can be found, or where those who would otherwise be liable are exempted by one of the relevant statutory provisions.

Owner:	Defined in Section 78A(9) as: 'a person (other than the mortgagee not in possession) who, whether in his own right or as trustee for any other person, is entitled to receive the rack rent of the land, or where the land is not let at a rack rent, would be so entitled if it were so let.'
Part 2A:	Part 2A of the Environmental Protection Act 1990.
Pathway:	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.
Public Register:	Register maintained by the enforcing authority under section 78R of particulars relating to contaminated land.
Pollutant:	A contaminant which forms part of a pollutant linkage.
Pollutant Linkage:	The relationship between a contaminant, a pathway and a receptor.
Pollution of controlled waters:	Defined in Section 78A(9) as: 'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter.'
Prioritisation:	The process of scoring sites based on the potential contaminant sources, pathways and receptors for a site and its surroundings. This creates a prioritised list of sites, which can then be inspected in priority order.
Radionuclide:	Also known as 'radioisotopes', they are atoms with an unstable nucleus which can undergo radioactive decay, emitting gamma rays and/or subatomic particles, which constitutes ionising radiation.
Receptor:	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 in chapter A as a type of receptor, and ii) is being, or could be, harmed, by a contaminant; or b) controlled waters which are being, or could be, polluted by a contaminant; or c) a person subjected to lasting exposure resulting from the after-effects of a radiological emergency, past practice or past work activity.
Remediation:	Defined in Section 78A(7) as: a) the doing of anything for the purpose of assessing the condition of – i) the contaminated land in question; ii) any controlled waters affected by that land; or iii) any land adjoining or adjacent to that land; b) the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land or waters

	<p>for the purposes -</p> <ul style="list-style-type: none"> i) of preventing or minimising, or remedying or mitigating the effects of any significant harm, or any pollution of controlled waters, by reason of which the contaminated land is such land; or ii) of restoring the land or waters to their former state; or c) the making of subsequent inspections from time to time for the purpose of keeping under review the condition of the land or waters.' <p>OR</p> <p>With respect to radioactive contamination defined in Section 78A(7) (as modified) as:</p> <p>'a) the doing of anything for the purpose of assessing the condition of –</p> <ul style="list-style-type: none"> i) the contaminated land in question; or ii) any land adjoining or adjacent to that land. <p>b) the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land for the purpose –</p> <ul style="list-style-type: none"> i) of preventing or minimising, or remedying or mitigating the effects of any harm by reason of which the contaminated land is such land' or ii) of restoring the land to its former state; or c) the making of subsequent inspections from time to time for the purpose of keeping under review the condition of the land.
Remediation Notice:	Defined in Section 78E(l) 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 so specified.
Remediation Statement:	Defined in Section 78H(7). It is a statement prepared and published by the responsible person detailing the remediation actions which are being, have been, or are expected to be, done as well as the periods within which these things are being done.

APPENDIX 1- SIGNIFICANT HARM AND SIGNIFICANT POLLUTION

Relevant types of receptor	Effects which should be considered to be significant harm
<p>Humans</p>	<p>Death; life threatening diseases (e.g. cancers); other diseases likely to have serious impacts on health; serious injury (e.g. physical injury from explosive gases, or burn injuries from chemical properties); birth defects; and impairment or reproductive functions.</p> <p>Other health effects which may be considered could include: gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; and effects on organs such as the liver or kidneys. For each case the council will consider the impact on the health, and quality of life, of any person suffering the harm, and the scale of the harm, when determining whether the harm is significant.</p>
<p>Any ecological system, or living organism forming part of such a system, within a location which is:</p> <ul style="list-style-type: none"> • A site of special scientific interest (under section 28 of the Wildlife and Countryside Act 1981); • A national nature reserve (under section 35 of the 1981 Act); • A marine nature reserve (under section 36 of the 1981 Act); • An area of special protection for birds (under section 3 of the 1981 Act); • A “European Site” within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010; • Any habitat or site afforded policy protection in the National Planning Policy Framework (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); <p>Or</p> <ul style="list-style-type: none"> • Any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949. 	<ul style="list-style-type: none"> • Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or • Harm which affects any species of special interest within that location and which endangers the long term maintenance of the population of that species at that location. <p>In the case of European sites, harm should also be considered to be significant harm if it endangers the favourable conservation status of natural habitats at such locations or species typically found there.</p> <p>In determining what constitutes such harm, the local authority should have regard to the advice of Natural England and to the requirements of the Conservation of Habitats and Species Regulations 2010.</p>

Relevant types of receptor	Effects which should be considered to be significant harm
<p>Property in the form of:</p> <ul style="list-style-type: none"> • Crops, including timber; • Produce grown domestically, or on allotments, for consumption; • Livestock • Other owned or domesticated animals • Wild animals which are the subject of shooting or fishing rights. 	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss on 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 caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.</p>
<p>Property in the form of buildings. For the 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, or buried services such as sewers, water pipes or electricity cables.</p>	<p>Structural failure, substantial damage or substantial interference with any right of occupation.</p> <p>For the purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.</p> <p>Additionally, in case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional archaeological interest by reason of which the monument was scheduled.</p>

APPENDIX 2- SPECIAL SITES

A 'special site' is a contaminated land site that is regulated by the Environment Agency instead of the local authority. The definition of a 'special site' is given in the Contaminated Land (England) Regulations 2006, and is reproduced in the extract text below for information only. For the full legal definition and further details, reference should be made to the full text of the legislation and statutory guidance.

- a) land affecting controlled waters in the circumstances specified in regulation 3;
- b) land which is contaminated land by reason of waste acid tars in, on or under land;
- c) land on which any of the following activities have been carried on at any time;
 - i) the purification (including refining) of crude petroleum or of oil extracted from petroleum, shale or any other bituminous substance except coal; or
 - ii) the manufacture or processing of explosives;
- d) land on which a prescribed process designated for central control has been or is being carried on under an authorisation, where the process does not solely consist of things being done which are required by way of remediation;
- e) land on which an activity has been or is being carried on in a Part A(I) installation or by means of Part A(I) mobile plant under a permit, where the activity does not solely consist of things being done which are required by way of remediation;
- f) land within a nuclear site;
- g) land owned or occupied by or on behalf of –
 - i) the Secretary of State for defence;
 - ii) the defence council,
 - iii) an international headquarters or defence organisation, or
 - iv) the service authority of visiting force, being land used for naval, military or air force purposes;

- h) land on which the manufacture, production or disposal of –
- i) chemical weapons
 - ii) any biological agent or toxin which falls within section 1(1)(a) of the Biological Weapons Act 1974 (restriction on development of biological agents and toxins), or
 - iii) any weapon, equipment or means of delivery which falls within section 1(1)(b) of that Act (restriction of development of biological weapons) has been carried on at any time;
- i) land comprising premises which are or were designated by the Secretary of State by an order made under section 1(1) of the Atomic Weapons Establishment Act 1991 (arrangements for development etc of nuclear devices);
- j) land to which section 30 of the Armed Forces Act 1996 (land held for the benefit of Greenwich hospital) applies;
- k) land which is contaminated land wholly or partly by virtue of any radioactivity possessed by any substance in, on or under that land; and
- L) land which –
- i) is adjoining or adjacent to land of a description specified in any of subparagraphs (b) to(k); and
 - ii) is contaminated land by virtue of substances which appear to have escaped from land of such a description.

APPENDIX 3 – RADIOACTIVITY

The definition of contaminated land where attributable to radioactivity is slightly different, and is based on the notion of 'harm' and the 'significant possibility' of such harm being caused. Harm in this context is defined in section 78A(4) (as modified) as:

“ lasting exposure to any person resulting from the after-effects of a radiological emergency, past practice or past work activity”

The extension of Part 2A to include radioactivity applies only in respect of harm to human health, and not in respect of other receptors or pollution of controlled waters.

The criteria for determining 'harm' in relation to radioactivity are based on levels of effective or equivalent doses of radiation, where it is appropriate to take action under Part 2A. the thresholds are any of the following:

- a) an effective dose exceeding 3 millisieverts per annum
- b) an equivalent dose to the lens of the eye exceeding 15 millisieverts per annum; or
- c) an equivalent dose to the skin exceeding 50 millisieverts per annum.

Exposures which are not certain to occur are known as potential exposures and are the situations covered by the term 'possibility of harm'. The decision on whether the possibility of harm caused is significant will be made on a case basis, and in accordance with statutory guidance

APPENDIX 4 – POSSIBLE SOURCES OF CONTAMINATION

USES OF LAND WHERE CONTAMINATION IS STRONGLY SUSPECTED

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

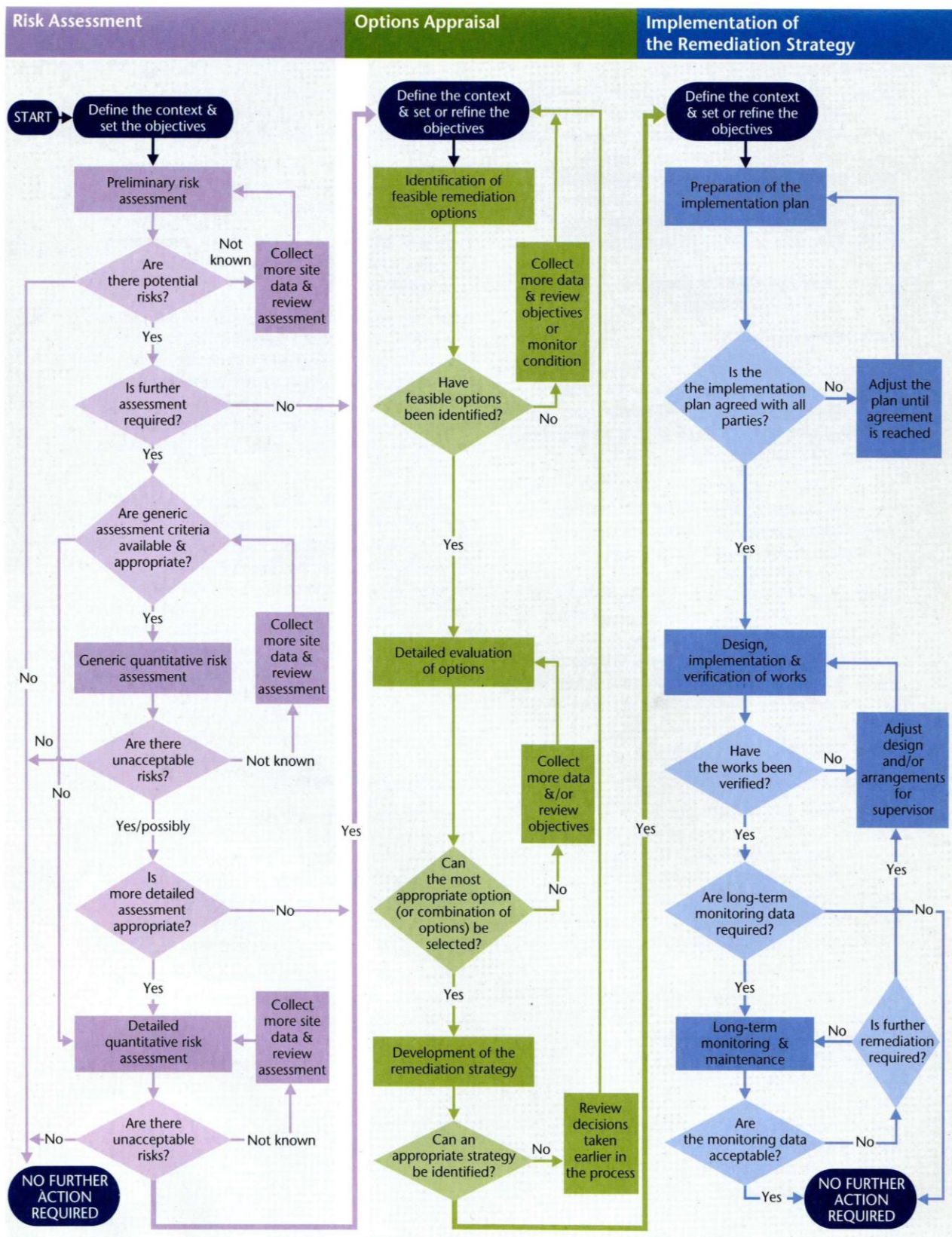
- Railway land
- Road vehicle fuelling, service and repair: garages and filling stations
- Road vehicle fuelling, service and repair: transport and haulage centres
- Sewage works and sewage farms
- Textile works and dye works
- Timber products manufacturing works
- Timber treatment works
- Waste recycling, treatment and disposal sites: drum and tank cleaning and recycling plants
- Waste recycling, treatment and disposal sites: hazardous waste treatment plants
- Waste recycling, treatment and disposal sites: landfills and other waste treatment or waste disposal sites
- Waste recycling, treatment and disposal sites: metal recycling sites
- Waste recycling, treatment and disposal sites: solvent recovery works
- Profile of miscellaneous industries, incorporating:
 - Charcoal works
 - Dry-cleaners
 - Fibreglass and fibreglass resins manufacturing works
 - Glass manufacturing works
 - Photographic processing industry
 - Printing and bookbinding works

APPENDIX 5 – PART 2A RECEPTORS

Receptor	Land use Type
Humans	Allotments Residential with gardens Residential without gardens Schools or nurseries Recreation, parks, playing fields Open space Commercial/industrial
Ecological systems or living organisms	Sites of Special Scientific interest National Nature Reserves Marine Nature Reserves Area of Special protection for Birds European Sites Special Areas of Conservation Special Protection Areas Ramsar Sites Nature Reserves
Property in the form of buildings	Ancient monuments Buildings
Property in other forms (crops, livestock, home-grown produce, domesticated animals, wild animals subject to shooting or fishing rights)	Agricultural land Allotments and gardens Forestry areas Other open spaces, rivers, lakes etc.
Controlled waters	Surface waters Drinking water abstractions Source protection zones Ground waters – private abstractions Ground waters – principal aquifers

APPENDIX 6 – Contaminated Land Inspection Flowchart

The Process of Managing Land Contamination



APPENDIX 7

Contaminated Land Inspection Log

1. Site Details

Name and address of site:	_____

[Attach site plan if available]

HLR ref. No:	Date inspection commenced: ____/____/____
O.S. Map:	Officer:

Present use / planning details:

Identity / location of receptor(s):

Ownership details:

Occupier:

Source of information / date of search etc.

2. Site Investigation

Desk study:

Previous uses, proximity of receptors, documentary evidence etc, Nature Conservation status
Continue on a separate sheet if necessary

Site visits (including visits using statutory powers of entry – S.108)

Continue on a separate sheet if necessary

Date: ___/___/___ Comments: (including any consultees e.g. English Nature)

Date: ___/___/___ Comments: (including any consultees e.g. English Nature)

Date: ___/___/___ Comments: (including any consultees e.g. English Nature)

Date: ___/___/___ Comments: (including any consultees e.g. English Nature)

Samples taken

Continue on a separate sheet if necessary

Dates	Comments and results (contractor / analyte / laboratory / sample type / sample no.)

Pollutants identified / concentrations etc.

Possible pollutant linkages:

Pollutant linkage established?

Pollutant linkage **significant?** (including reasons)

Land designated as Contaminated Land?

Consultation on designation as Contaminated Land

Entered on Contaminated Land Register

Date: ___/___/___

Comments:

Remediation Notice served :

yes

no

Date: ___/___/___

Notice ref. No. _____

Notice served on:

[Attach copy of Notice]

Works carried out in compliance with Notice / Date(s)