

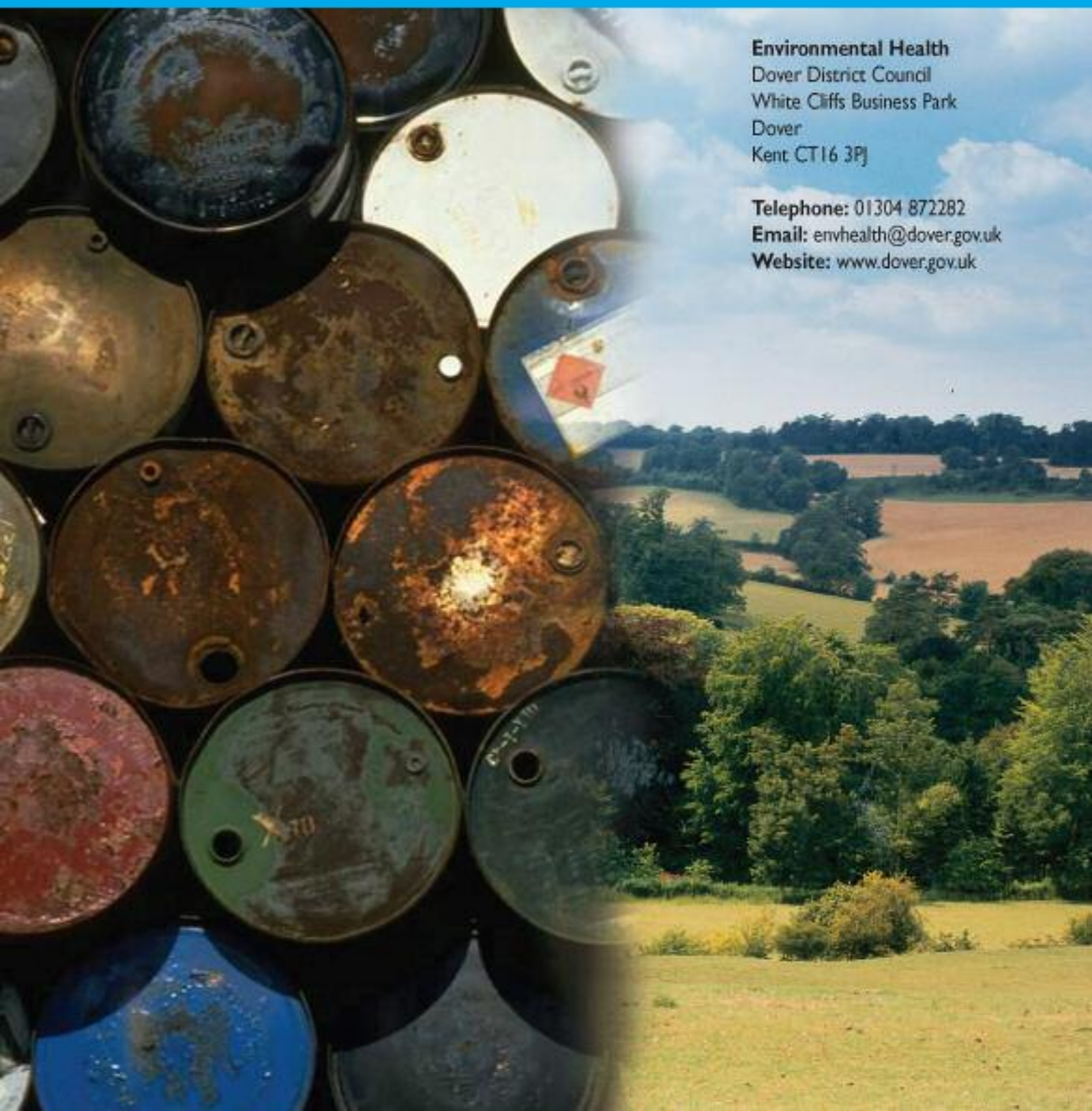


Contaminated Land Inspection Strategy

July 2001 (Revised December 2007)

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Executive Summary

Part IIA of the Environmental Protection Act (EPA) 1990 came into force in England in April 2000. The main objective is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current circumstances and use of the land.

Dover District Council is required under this legislation to prepare an inspection strategy setting out how the Authority intends to inspect its area for the purpose of identifying contaminated land.

This inspection strategy outlines Dover District Council priorities in relation to contaminated land. It also provides a description of the proposed methods and procedures intended to fulfil this requirement in a rational, ordered and efficient manner.

An initial desktop study of all information available will enable the Council to identify areas of land within its boundaries where both potential contaminants exist in the same geographical area as a potential receptor. A further investigation / inspection will then be necessary of all these sites, to determine if the criteria specified by the regulations are met, and hence the land is required to be formally designated as 'contaminated land'.

Sites will be investigated in a descending order of priority. Dover District Council has chosen the Geographical Information System (GIS) package 'Groundview' to assist in the prioritisation of sites. Ultimately, a prioritised list of sites will be produced according to the risk posed to receptors. This will enable the Council to deal with sites of greater concern first. However, it is recognised that some sites may be identified outside this general approach that will require urgent attention. These sites will be dealt with as they arise.

Dover District Council proposes an open approach to dealing with contaminated land. Whilst it is recognised that local authorities are the lead regulators on contaminated land, the Council will work in partnership with other organisations, particularly the Environment Agency, wherever necessary.

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1.0 Introduction

Contaminated land is the unwanted legacy of past industrial and waste disposal activity. Unrecognised or not dealt with it can prove damaging to health, water resources and the environment. Whether or not a particular source of contamination poses any risk depends on the current or planned use of the land. The last 10 years has seen important legislative change, giving the Council duties to inspect all land in the District to find contamination, assess the risks that may be present and to ensure that where risks are significant that the land is made safe. As a part of the Council's duties, it must formally prepare and adopt a written contaminated land inspection strategy. The main objectives of this strategy document are:-

- To meet the Council's legal duty under Part IIA of the Environmental Protection Act 1990 by developing a strategic approach to the inspection of land and to present this in a documentary form.
- To demonstrate how the Council will meet the requirements of the statutory guidance in ensuring a strategic approach.
- To inform all relevant stakeholders of the Council's intentions.
- To ensure that resources are concentrated on investigating new areas where the authority is likely to identify contaminated land.
- To ensure that the Council efficiently identifies requirements for the detailed inspection of particular areas of land.
- To provide information to the Environment Agency for its report on contaminated land.

1.1 Dover District Council Corporate Aims

The requirements relating to contaminated land as set out within Part IIA of the Environmental Protection Act 1990 (EPA) are consistent with Dover District Council's Corporate Aim. This aim states that:-

“By 2010 our district will be one in which everyone can have pride”

To achieve this, the District Council has pledged to work with other organisations and involve the public using the key themes of:-

- Community
- Regeneration
- Opportunity and Access
- Environment

Land contamination has impacts on both the environment and local economy. The Government is committed to maximising the re-use of previously developed land. Directing new development towards previously developed land will also help towards the Urban Task Force's vision of 'urban renaissance.' Further information regarding the 'Urban Task Force' is given in the glossary.

The Council aims to be at the forefront of good practice and provide a high standard of efficient and effective services. To achieve this aim it will be necessary to engage as many people in the community as possible. A Local Agenda 21 plan has been adopted confirming the Council's commitment to protecting natural systems from damage and pollution, and using resources carefully and sustainably. The council's Local Agenda 21 plan can be seen at <http://www.dover.gov.uk/la21/home.asp>.

1.2 Regulatory Context

Part IIA of the Environmental Protection Act (EPA) 1990 came into force in England in April 2000. The main objective of introducing Part IIA is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current circumstances and use of the land.

The Government's intention is that Part IIA will:-

- Improve transparency and focus of regulatory controls.
- Ensure regulators take a strategic approach to land contamination problems.
- Allow all contamination problems to be dealt with as part of the same process.
- Increase consistency in regulatory approaches.
- Provide a more tailored regulatory mechanism, including liability rules, that is better able to reflect the complexity and range of circumstances found on individual sites.

The Act is supported by statutory guidance, which contains much of the detailed advice to regulators and others on how Part IIA is to be implemented.

1.2.1 Regulatory Role of Local Authorities

The primary regulatory role under Part IIA rests with local authorities. This reflects their existing functions under the statutory nuisance regime, and will also complement their roles as planning authorities.

The key Local Authority Responsibilities are:-

- (1) **Prepare an inspection strategy** – setting out how the Authority intends to inspect its area for the purpose of identifying contaminated land.
- (2) **Determine whether any particular areas of land are “contaminated land”.**
- (3) **Decide whether “contaminated land” is also required to be designated as a special site.**

- (4) **Act as enforcing authority for all contaminated land which is not designated as a “special site” This will involve:-**
- Determining who may be liable/responsible for remediation.
 - Consulting with relevant parties on what remediation action is required.
 - Ensuring works are undertaken voluntarily or by serving Remediation Notices.
 - Monitoring the effectiveness of any remediation carried out.
- (5) **Maintain a public register** – containing details of regulatory action taken under Part IIA and through other means.
- (6) **Report progress under Part IIA to the Environment Agency (EA)** – to allow preparation of a National Report on Contaminated Land.

1.2.2 Regulatory Role of the Environment Agency

The Environment Agency has four principal roles under Part IIA. These are:-

- (1) Assisting LA with the identification of contaminated land, particularly in cases where water pollution is involved.
- (2) Providing site-specific guidance to LA on contaminated land.
- (3) Acting as enforcing authority for any land designated as a “Special Site”.
- (4) Publishing periodic National Reports on Contaminated Land.

1.2.3 Legal Definition of Contaminated Land for the Purposes of Part IIA of the Environmental Protection Act 1990

“Contaminated Land” is defined under Part IIA as:

Any land that appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that:-

- (a) *significant harm is being caused or there is a significant possibility of such harm being caused, or*
- (b) *pollution of controlled waters is being, or is likely to be, caused.*

This definition introduces a number of specific terms, some of which may differ from those commonly used outside of Part IIA. A glossary of terms used, as defined by the EPA, statutory guidance, the Regulations and other texts relevant to Part IIA are included in Appendix E.

1.2.4 Radioactively Contaminated Land

DEFRA Circular 01/2006 describes changes to the definition of contaminated land to include 'radioactively contaminated land' which came into force on the 4th August 2006.

The main features of the extension of the Part IIA regime to radioactivity are:-

(a) A modification of the definition of contaminated land where radioactive contamination is concerned. Section 78A(2), as modified, 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:-

(i) harm is being caused, or

(ii) there is a significant possibility of such harm being caused."

The definition of "harm" attributable to radioactivity in respect of human beings is based upon the wording of the Directive. "Harm" is defined as "lasting exposure to any person resulting from the after-effects of a radiological emergency, past practice or past work activity". "Harm" should be regarded as being caused where lasting exposure gives rise to radiation doses equal to or in excess of prescribed values set out in the statutory guidance at Annex 3. Lasting exposure is not defined in the Directive but the Government considers it to be exposure that could take place over a protracted period as a result of the nature of the contamination and the use to which land is put.

(b) The duty of a local authority to inspect its area will be restricted to circumstances where there are reasonable grounds for believing land may be contaminated by virtue of radioactivity.

(c) Any land determined as contaminated land by virtue of radioactivity will be a special site with the Environment Agency acting as the enforcing authority rather than the relevant local authority. Where there is a mixture of radioactive and non-radioactive contamination on a particular site, the Environment Agency will act as the enforcing authority for all the pollutant linkages.

(d) When considering what remediation is reasonable, where remediation includes an intervention, the enforcing authority must consider the cost and harm (including social cost) of any intervention; whether the benefit of the intervention justifies the adverse effects caused by the intervention; and how the intervention can be optimised so that the net benefit can be maximised.

(e) The Environment Agency as the enforcing authority must exercise its power to remediate in certain circumstances where it is necessary for the purposes of the Directive and where there is no other person liable for the remediation.

1.3 Principles of Pollutant Linkages and Risk Assessment

In order for 'Significant Harm' to be established, the concept of a 'Pollutant Linkage' must be introduced. A pollutant linkage consists of three parts:-

- (1) a **SOURCE** of contamination in, on or under the ground.
- (2) a **PATHWAY** by which the contaminant is causing significant harm (or which presents a significant possibility of such harm being caused).
- (3) a **RECEPTOR** (target) of a type specified in the regulations.

Land cannot be identified as "Contaminated Land", under Part IIA, unless all three elements of a pollution linkage have been established. It should be noted that there may be more than one pollutant linkage on any given piece of land.

In addition to pollutant linkages, the definition of contaminated land is also based upon the principles of risk assessment.

The LA must satisfy itself that:-

- (a) Significant harm is being caused to the receptor, or
- (b) There is a significant possibility of harm being caused to that receptor.
- (c) Pollution of controlled waters is being caused, or
- (d) Pollution of controlled waters is likely to be caused.

In order to determine whether a particular possibility is "significant", the RISK needs to be assessed and this is defined as the product of:-

- (a) The probability or frequency of an occurrence (ie. the likelihood of harm being caused), and
- (b) The magnitude including the seriousness of the consequence (ie. the likely nature and extent of the harm caused if the event occurred).

2.0 Development of the Strategy

2.1 Overall Approach - Statutory Guidance

Part IIA requires local authorities to take a strategic approach to inspecting their areas for contaminated land. This approach should:-

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

All local authorities must set out their approach in a written Inspection Strategy which should be published by July 2001. This strategy document must set out the practical steps the District Council proposes to take to implement its inspection duties. It must also demonstrate that the approach taken in developing its strategy was aimed to ensure that all those affected by, and involved in, inspection have the same clear understanding of the rationale for inspection, how this will be carried out and over what time scale.

2.2 Stages of Preparation - Dover District Council

Following research on the implications of the new contaminated land regime (Part IIA) a report was presented to the Management Team in spring 2000.

The Management Team approved the formation of a Contaminated Land Officer Group (CLOG), led by the Director of Health and Housing. The group which is chaired by an Environmental Health Officer, includes officers from the following disciplines:-

- Building Control
- Forward Planning
- Legal Service
- Finance

It is recognised that in developing the strategy the local authority has to consider a number of specific local factors. Local priorities are likely to be defined by specific local conditions. They may reflect the particular incidence or distribution of relevant receptors (e.g. homes, allotments, major aquifers, agricultural or ecologically valuable land) or the nature and location of particular past or current industrial activity. Therefore the CLOG was initially tasked with compiling information on the characteristics of the Dover District.

In autumn 2000 funds were released for the purchase of computerised data and evaluation software.

By Spring 2001, the draft Contaminated Land Strategy had been prepared and was circulated to the CLOG, Management team, the Cabinet Portfolio holder for Environment and Public Protection (Councillor Mrs Munt) and the Statutory Consultees for their comments.

As agreed by Policy and Services Committee, the final version of the strategy was placed before three Cabinet Portfolio Holders for adoption. Once adopted this was submitted to the Environment Agency who then forward it to the appropriate Government Department as part of their State of Contaminated Land report. The strategy was also made more widely available, for example to Parish Councils, major landowners and professionals working in land management, local business and members of the public.

3.0 Characteristics of the Dover District

A map of the Dover District Council Area is shown in Appendix A

3.1 Introduction

Dover is “the Gateway to England” and its location at the narrowest crossing point in the Channel has always given it great significance for both trade and military activities. The district is of national landscape, wildlife and historical importance, with a world-renowned port complex. It is part of a chalk coastline, where the North Downs meet the sea in spectacular vertical cliffs, their characteristic whiteness a result of constant erosion of the soft chalk. It takes about 100,000 years and many billions of microscopic marine animals to form 3 metres of rock. The deposits in the Dover district are between 200 and 350 metres thick.

The chalk aquifers of the North Downs have been highly developed for public water supply and abstraction. As the coastline proceeds North to Deal and Sandwich the low lying ground of the Stour Estuary is encountered based on younger rocks of brickearth and Thanet Beds. This includes the last valley fen in South England, with 280 kilometres of dykes and ditches. Coal deposits have been exploited here as part of the East Kent Coalfield (see below, Geological characteristics for further details).

The Dover District was formed in 1974 and covers 319 square kilometres, bounded by Shepway in the South, Canterbury to the West, Thanet to the North and France 34 kilometres to the East, with London being about 120 kilometres distant.

Two-thirds of the district’s estimated 106,800 (2006-estimate) residents live in the coastal towns of Dover and Deal, with the remainder living in Sandwich and other smaller settlements.

3.2 Current and Past Industrial and Military History

The beautifully preserved 3500 year old Bronze Age boat in Dover’s Museum and many local Roman, Saxon and Norman remains serve to remind us that the area has always been important for trade, military strategy and associated industries. Numerous ancient monuments and areas of archaeological importance have been recorded and significant new finds are still discovered during construction activities. Evidence of Napoleonic period fortifications may be seen along the coastline today. During the Second World War this whole corner of Kent earned the tag "Frontline Britain" in recognition of its unique defensive role. Less evident, but of greater significance in contaminated land terms, are the more recent military supply sites at Port Richborough (which operated during World War 1 as a major supply depot), the Royal Marine Barracks and ranges at Deal, together with exercise grounds over wide areas of the district.

Historically, clay, sand/gravel deposits and chalk have been quarried on a large scale within the district. Upon examination of historical maps, it becomes evident how widespread this activity was, with a veritable peppercorn of small quarries throughout the district. Quarrying itself, generally isn’t an

industry with contamination issues, however – following closure of activities at a site, the ‘pit’ would often be in-filled. Only very sparse records would be kept of the materials used to infill the pits (particularly those associated with activities prior to the 1974 Control of Pollution Act); it is these materials that have the potential for land contamination.

The London Clay has been used for bricks, pottery and was a major constituent of Roman cement. Lime was obtained from the Chalk (in addition to its use as a ship ballast) and Greensand formations and had many uses. Ironstone, found in the Wadhurst Clay, a subdivision of the Hastings beds (see geology, section 3.9), and calcareous ironstone in the Ashdown sand was mined as a source of iron.

Exploitation of the Kent Coalfield took place within the district from 1912 to 1989; this is discussed in greater detail in section 3.8.

Dover is a centre for port related activities and has historically had great military importance. Many of the former barracks in both Dover and Deal have now been redeveloped, or have plans for redevelopment. Dover Port, old town and harbour surrounds have been redeveloped many times by reason of changing industrial need and military action. Tailings from the construction of the Channel Tunnel were utilised for the creation of “new land” at Samphire Hoe.

Today the Pfizer pharmaceutical site at Sandwich is the largest of its type in Europe (Pfizer itself is the largest pharmaceutical company in the world) and a registered Part A IPPC (integrated pollution prevention and control) process under the Environmental Protection Act 1990. A former RAF site at Sandwich provides many starter type units for small businesses and is soon to be redeveloped.

Several former gasworks are present within the district, the largest being found in Dover and Deal. However, examples of smaller works are located in Ash, Sandwich and outside Eythorne.

Before the discovery of North Sea gas in the mid 1970’s, towns and cities relied on ‘town gas’ as their primary source of gas. Town gas was produced by the gasification of coal; whereby coal was heated in an oxygen free retort, the liberated gasses were quenched in water before being passed through iron oxide purifiers and ultimately stored in a gasometer. This process produced a whole host of substances with the potential to contaminate the subsurface (most notably Polycyclic Aromatic Hydrocarbons (PAHs), Heavy Metals, Phenols, Ammoniacal Liquor, Cyanides and Coal Tar Residues).

Recent years have seen the closure of Buckland Paper Mill, Dover Engineering Works and Richborough Power Station.

Richborough Power Station was built originally for the burning of local Kent coal and closed not long after the closure of the Kent collieries. The Power Station itself is primarily within the administrative area of Thanet District Council, however due to the proximity of the River Stour (the principal receptor in the area) which flows through the Dover District, the potential issue of contaminated land will be examined by both Councils.

Buckland paper mill has been bought by SEEDA, who plan to redevelop the site, details of this can be seen on their website at: [http://www.seeda.co.uk/Work_in_the_Region/Development & Infrastructure/Development/Sites/Kent & Medway/Buckland Mill/](http://www.seeda.co.uk/Work_in_the_Region/Development_&_Infrastructure/Development/Sites/Kent_&_Medway/Buckland_Mill/)

3.3 **Protected Landscapes**

The Council recognises that the countryside is a valuable natural resource of outstanding quality, international importance and protected by many designations. These areas can be seen on the website <http://extranet7.kent.gov.uk/klis/home.htm>. A Countryside Strategy has been adopted in the Local Plan (which is available on the Dover District Council website - <http://www.dover.gov.uk/local-plan/webhome.asp>), the main points of which are as follows:-

- Protect and enhance the character of the local landscape;
- Protect all ecosystems and maintain biodiversity;
- Create new sites for nature conservation;
- Maintain regenerative and productive capacity of the land;
- Restore areas which are degraded or polluted.

The Local Plan shows all protected locations, the most notable features are:

Landscape designations of local importance

- Ash Levels Area of Local Landscape Significance (ALLS)

Landscape Designation of Countywide / National Importance

- Special Landscape Areas (SLA's) North Downs and Sandwich Bay/Pegwell Bay and the Kent Downs Area of Outstanding Natural Beauty (AONB) which are of Countrywide importance.

Heritage Coasts

- South Foreland, Dover to Folkestone

3.4 **Nature Conservation**

Local Wildlife Sites (LWS)

- There are 40 LWS, but those may be added to at any time and the Council will consult the Kent Wildlife Trust when drawing up lists of land for investigation as to possible contaminants.

Nature Reserves

- Local - 1 site: Western Heights
- National - 2 sites: Sandwich and Pegwell Bay
Lydden and Temple Ewell

Sites of Special Scientific Interest (SSSI) - 6 sites

- Alkham, Lydden and Swingfield Woods, Dover to Kingsdown Cliffs, Folkestone Warren (Part), Lydden and Temple Ewell Downs, Preston Marshes (Part), Sandwich Bay and Hacklinge marshes

Candidate Special Areas of Conservation (SAC) - 3 sites

- Lydden and Temple Ewell, Sandwich Bay, Thanet Coast Marine SAC

Thanet Coast Marine SAC comprises the intertidal parts of the Sandwich Bay and Pegwell Bay Special Protection Area which are contiguous with the similarly protected area within Thanet.

Special Protection Area (SPA) - 1 site

- Sandwich Bay and Pegwell Bay

Ramsar Site - 1 site

- Thanet Coast and Sandwich Bay

3.5 Water Environment

The district has an extensive and varied water environment consisting of:-

- (1) Major chalk aquifers, which provide most of the district's water supply;
- (2) Lakes and ponds;
- (3) The River Dour and lower reaches of the River Stour, together with their tributaries;
- (4) A network of dykes and drainage ditches in the North of the district;
- (5) The English Channel, for a distance of 20 miles.

A groundwater vulnerability map is produced by the British Geological Society (BGS) - see section 3.9 for further details.

The River Dour is one, of the highest water quality (Class 1A) and supports an abundance of wildlife, including trout.

The quality of local bathing water is good to excellent due to the recent introduction of domestic sewage treatment works at Dover and Weatherlea, together with an industrial waste works at Richborough. Extensive re-sewering of the town areas and first time sewerage in the countryside has reduced pollution. In the rural areas, particularly the Ash Levels, private treatment and cesspools of varying quality are the norm.

3.6 Key Property Types

The quality of the District's historic environment is extremely high. The District has three major towns, Dover, Deal and Sandwich with the remainder of the population living in smaller settlements. Dover is dominated by Dover Castle, numerous historic buildings, archaeological sites and an extensive network of fortifications dating from the Napoleonic era onwards. Deal is a town of historic importance with some 466 listed buildings and is noted for its Tudor castles, Georgian and early Victorian buildings and the former Royal Marines School of Music. The Cinque Port of Sandwich, is one of the most complete medieval towns in England and has the highest ratio of listed buildings to householders in the country. In total there are 2,800 listed buildings and 57 conservation areas in the District. The District also has protected shipwreck sites along its coastline and offshore at Goodwin Sands.

3.7 Archaeology and Ancient Monuments

The district contains a wealth of archaeological remains and new discoveries continue. The commissioning of archaeological assessments prior to the development of sites is now common practice under Planning Policy Guidance Note 16 : Archaeology & Planning (PPG16). Where possible, finds will be preserved in situ and where this is not possible proper record taking and procedures must be followed.

3.8 Coal Mining

Both iron ore and coal were found at Shakespeare Cliff, Dover in 1890, but it took 16 years before commercial coal was raised to the surface. The delay was due to the depth of the coal seam and the water holding chalk and greensand, which was encountered in sinking the shaft and necessitated the introduction and operation of pumps and specialised shaft linings. Nine collieries worked an area of coal stretching two miles out to sea. Kent's biggest market became the steel industry when the local coal was blended with other coals for coking. The high cost of mining Kent coal and the decline of the steel industry destroyed established markets and the Kent Coalfield was closed down.

All of the former shafts have now been filled and capped and several of the former collieries have either been redeveloped (eg. Tilmanstone) or are awaiting development (e.g. Snowdown). Many of the buildings of the unsuccessful collieries still remain and have often been utilised by farms.

Details of the former collieries are given in the table below.

Colliery	Shaft Commenced	Coal Raised	Closed	Depth of Shaft/s ¹
Shakespeare	1896	1912	1914	-
Tilmanstone	1906	1913	1987	No.1 - 1,590ft No.2 - 3,168ft No.3 - 3,139ft
Snowdown	1907	1912	1987	No.1 - 262ft No.2 - 3,083ft No.3 - 2,994ft
Guildford	1906	-	1912	No.1 - 306ft No.2 - 1,272ft No.3 - 1,272ft
Wingham	1912	-	1912	East – 50ft West – 150ft
Stonehall (French owned)	1914	-	1914	East – 273ft West – 273ft North – 75ft
Chislet (Anglo Saxon)	1914	1918	1969	North – 1,470ft South – 1467ft
Betteshanger	1924	1928	1989	No.1 – 2,162ft No.2 – 2,426ft
Woodnesborough	1910	-	1911	-

¹ Source <http://www.kurg.org.uk/sites/coal.htm>

Only five collieries ever produced coal – Shakespeare, Tilmanstone, Snowdown, Chislet and Betteshanger. The exploitation of the coalfield lasted less than a century, with Betteshanger the last of the collieries closing in 1989.

3.8.1 The Origin of Coal

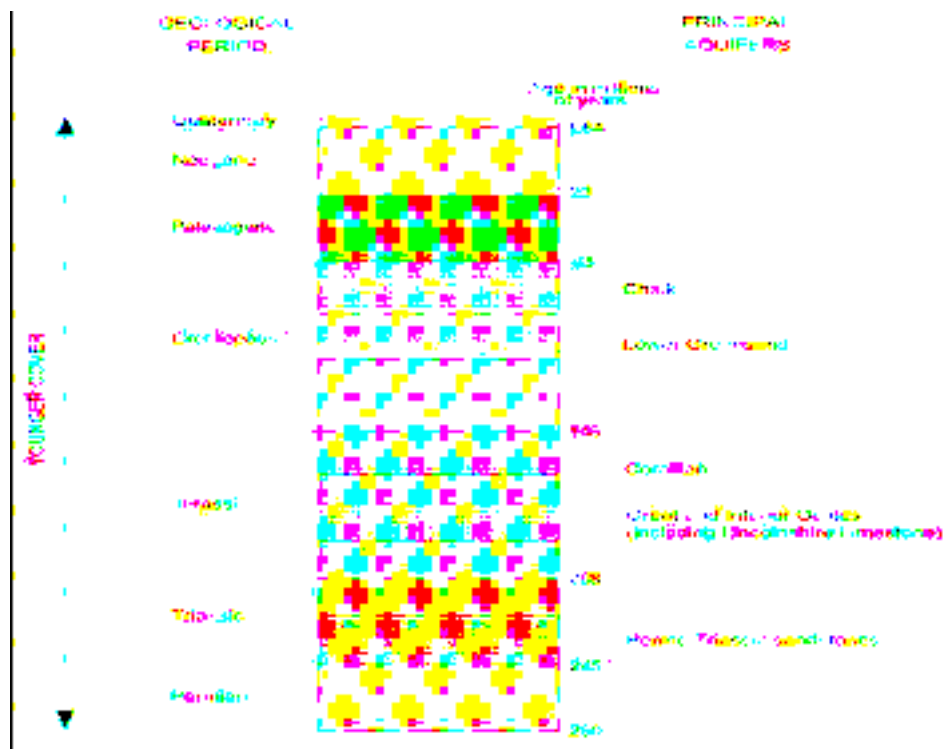
Following the prediction by Godwin Austen (1856) that coal would be found beneath the Mesozoic rocks of the Weald, the existence of coal was finally proved in 1890 in a borehole near Shakespeare Cliff (Wood et al – 2000). Coal is deposited in predictable units called cyclothem, where coal is observed within cyclically bedded sandstone, siltstone and shale units. The coal seams are thought to have been formed by the accumulation of vegetation, grown more or less in-situ, in forest swamps (Smart et al - 1966) during the Carboniferous period, between 300 and 360 million years ago.

3.9 Geological Characteristics

Steep dry chalk valleys of the Dover area descend to alluvium beds at Deal to meet the Thanet Beds. Brickearth is found in the middle of the district. Diagrams prepared by H G Dines from colliery shafts show Mesozoic and tertiary strata to 1,000 feet, upper or sandstone (with intermittent thin coal seams) to 750 feet, and coal seams, shale and Palaeozoic rocks which are older than the carboniferous.

The most dominant rock formation of Kent (and Southern England) is that of the Cretaceous Chalk. 70 million years ago, much of the UK was located at the bottom of a shallow sub-tropical sea; the sea floor was made up of a soft calcareous mud made of the shells of millions of tiny creatures called coccolithophores. Over time, the mud was compacted and eventually hardened to become the chalk we know today.

The chalk is inherently porous, but also highly fractured; these properties have lead to the viability of the rock as a major groundwater aquifer. It is from the chalk and underlying associated greensand deposits which Kent draws most of its potable water (The UK groundwater forum show Southern England to obtain 72% of its potable water from groundwater sources, with a total annual abstraction of 326 million cubic metres).

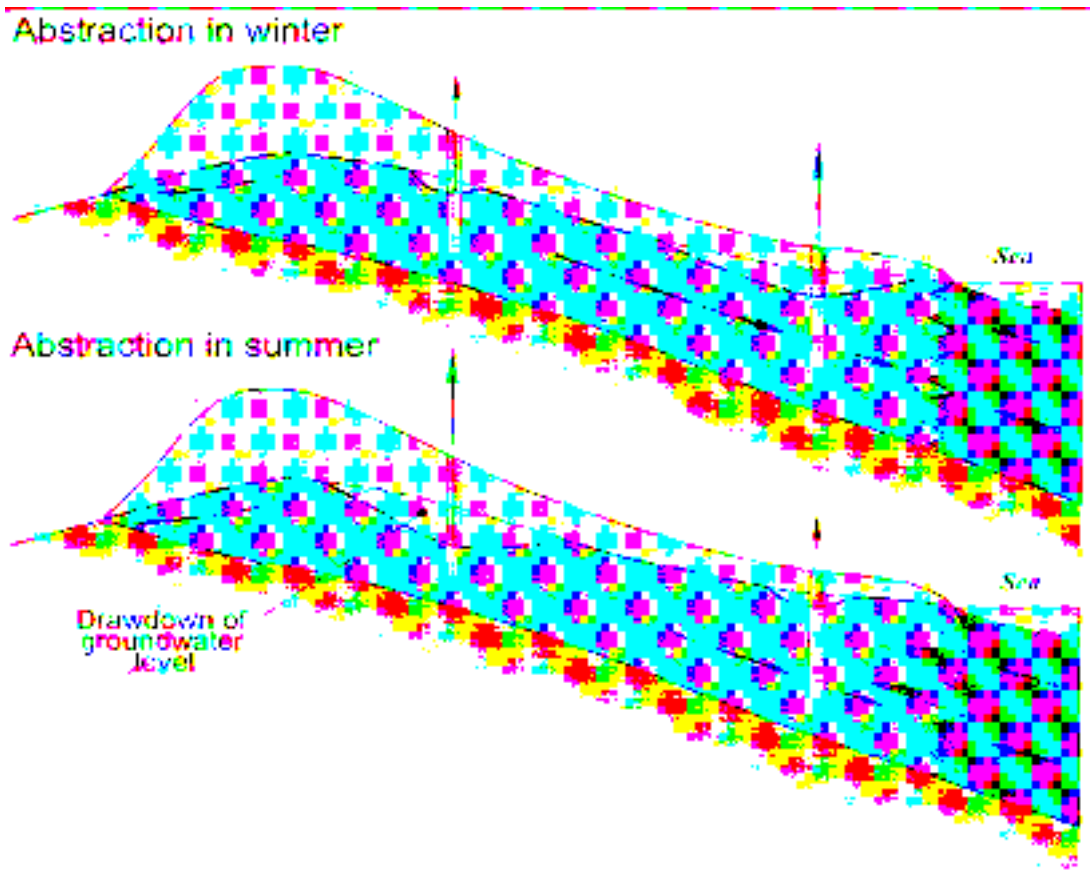


The diagram above shows the major water bearing rock units of the UK, from BGS (2004a).

3.9.1 Saline Intrusion

Saline intrusion is a problem associated with coastal aquifers, it is caused by the over abstraction of fresh water. This leads to saline water being drawn inland, with the ultimate effect of contaminating an aquifer rendering the water within it non-potable.

The figure below from BGS (2004b) illustrates the process of saline intrusion, in the top diagram, it can be seen how winter rainfall replenishes the aquifer and a steady flow of water to the sea prevents the ingress of saline water. The bottom diagram shows how a reduced rate of precipitation in the summer leads to greater draw down in the vicinity of abstraction wells and the reduced flow towards the sea leads to saline water being drawn inwards.



The existence of the aquifers presented a major problem during the construction and operation of the East Kent Coalfield. The hydrogeological nature of the chalk and greensand are such that there is a particularly high water pressure at the depths of the coal mines. If water yielding strata were breached, water could enter the shaft at rates of a million gallons per day (quite capable of filling a mine shaft within a few minutes) – reports indicate that many miners were tragically killed when this occurred.

3.9.2 Hydrogeological Characteristics of the Principal Formations within the District (from Day et al [1970])

The below details have been included because water yielding rock units are permeable/semi-permeable and as such have both the potential to transmit contaminants (potential pathway) and act as receptors (as all groundwater is regarded as controlled water). For further details regarding the geological and hydrogeological nature of the district, see BGS maps relevant to the district.

Alluvium

Much is commonly saturated, but groundwaters may be saline near the coast and polluted in developed areas.

Gravels

May yield limited amounts of water to shallow wells, but supplies are liable to pollution (or may have been polluted in developed areas) and may diminish during prolonged droughts.

Bagshot Beds (up to 40ft)

Comprise fine sands with a pebble bed, the beds may yield small quantities of groundwater to shallow wells.

Claygate Beds

They consist of fine sands, silts and clays unlikely to yield much groundwater.

London Clay

Comprises stiff, dark impermeable clays with layers of limestone concretions. Sandy layers may occur in the lower half, the clay may confine groundwater under pressure in lower strata.

Blackheath Beds

Loosely cemented sands and pebble beds locally may yield appreciable supplies of soft or slightly hard groundwater to screened wells.

Woolwich Beds

Where saturated, small yields may be obtainable.

Thanet Beds

Comprise permeable yellowish or greenish-grey poorly cemented sands which become silty downward, with a band of flint rubble at the base resting unconformably upon the chalk. Local clay bands give rise to the existence of perched groundwater. The Thanet beds are in hydraulic continuity with the chalk and where saturated, may yield moderate supplies of potable but hard or very hard groundwater.

Chalk

Chalk is the principle aquifer of the district: Upper Chalk, a soft whitish microporous fissured limestone with nodular and tabular flint is by far the greater part of the chalk outcrop and catchment giving rise to high ground (locally above 700ft above ordnance datum) particularly near its southern margin where much of it lies in the Vadose zone. The higher parts of the chalk outcrop are capped extensively by thin, semi permeable clay with flints and are dissected by predominantly northerly trending dry valleys forming part of a relict late-glacial drainage system bottomed by narrow gravelly Head deposits. Middle chalk resembles upper chalk but contains more marl and

less flint; it crops out mainly along the southern scarp and in many of the deeper valleys. The hard nodular Melbourne Rock at the base has, together with the immediately overlying beds, a high transmissivity and appears to be commonly well fissured. Lower chalk includes much marl which near the base may be semi permeable locally.

Chalk groundwaters are normally potable and of good chemical quality, but are hard or very hard.

Upper Greensand

The formation is commonly in hydraulic continuity with the overlying chalk, but is too thin to yield much groundwater.

Gault

Clay, thick and impermeable throughout the district, forms an important aquiclude between groundwaters of the chalk and the underlying aquifers of the lower greensand.

Folkestone Beds

Comprise coarse to very fine sands and sandstones with occasional clayey sands and sandy clays form a porous, non fissured aquifer. Groundwater is of good chemical quality, commonly with moderate hardness.

Sandgate Beds

Comprise silty clays with subordinate fine sands and sandstones. The formation as a whole acts as an aquiclude and separates groundwaters in the Folkestone Beds above from those in the Hythe Beds below.

Hythe Beds

Comprise limestones and sandy limestones, in which fissure flow predominates, interbedded with softer calcareous sands. Springs are common at the base of the formation and have been used for public supply; they also occur at the junction with the overlying Sandgate beds. The beds yield water of good chemical quality throughout the district, except towards Folkestone where saline intrusion has occurred.

Atherfield Clay

Forms an impermeable base to the Hythe Beds and consists of clays, locally silty and sandy.

3.9.3 Groundwater Vulnerability (from National Rivers Authority - 1994)

The majority of the soils within the District are classed as either Major Aquifer (Highly Permeable) H1 or Major Aquifer (Highly Permeable) I1 on the groundwater vulnerability map of East Kent (Sheet 47).

H1 soils are those which readily transmit liquid discharges because they are either shallow, or susceptible to rapid by-pass flow directly to rock, gravel or groundwater.

I2 soils are those which can possibly transmit non or weakly adsorbed pollutants and liquid discharges but are unlikely to transmit adsorbed pollutants.

The soils towards the North of the district (particularly within the vicinity of Sandwich and Ash) are classed as either Minor Aquifer (Variably Permeable) H2 or Minor Aquifer (Variably Permeable) I1.

H2 soils are deep, permeable and coarse textured; and readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.

I1 soils are described as those soils which can possibly transmit a wide range of pollutants.

3.9.4 Water Quality & Resources

Where the abstraction of water from an aquifer or spring takes place, the Environment Agency defines areas called source protection zones (SPZs). SPZs surround water abstraction boreholes, wells, and springs used for public drinking water supply. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which may occasionally apply to a groundwater source.

- The inner zone is defined by a 50 day travel time for groundwater to reach the source, or a minimum of 50m distance.
- The outer zone is defined by a 400 day travel time or 25% of the catchment zone.
- The total catchment is defined as the area required to support the abstraction or discharge from the aquifer.

Within the zones, activities with the potential to cause contamination are controlled.

Other defined areas include Nitrate Vulnerable Zones (NVZ). The Nitrates Directive (91/676/EC) requires all known areas of land which drain into polluted waters to be designated as NVZs. Polluted waters are defined as:-

- (a) Surface freshwaters which contain or could contain, if preventative action is not taken, nitrate concentrations greater than 50 milligram's per litre (mg/l).
- (b) Groundwaters which contain or could contain, if preventative action is not taken, nitrate concentrations greater than 50mg/l.
- (c) Natural freshwater lakes, or other freshwater bodies, estuaries, coastal waters and marine waters which are eutrophic or may become so in the near future if preventative action is not taken.

A map showing the location of NVZ's in the UK can be seen at <http://nvz.adasis.co.uk/maps/regional.html>

Water quality within the district is generally of an excellent standard, with bathing waters often exceeding the most stringent guideline values.

3.9.5 Stratigraphic Sequence

The complete Stratigraphic Sequence of the District (from the BGS Solid and Drift Geological Map – Sheet 290, 1977) is given below:

Drift Deposits

Pleistocene and Recent	Blown Sand, Present day
	Marine Beach Deposits and Tidal Flats
	Marine and Estuarine Alluvium Sand and Gravel Clay
	Gravel Beach Deposits
	Alluvium
	Dry Valley and Nailbourne Deposits
	Head
	Head Brickearth
	Head Gravel
	Clay-with-flints

Solid

Palaeocene and Eocene	Oldhaven beds (up to 1.5m)
	Woolwich beds (up to 9m)
	Thanet beds (31m)
	Bullhead Bed
	<i>Unconformity</i>
Cretaceous	Upper Chalk (up to c. 116m)
	Middle Chalk (c. 70m)
	Lower Chalk (c. 64m)
	Gault (30-48m)
	Lower Greensand (10-26m)
	Wealden (0.5 to 18m)
	<i>Unconformity</i>
Jurassic	Corallian (0-34m)
	Oxford Clay (0-41m)
	Kellaways Beds (0-16m)
	Cornbrash (0-8m)
	Forest Marble (0-6m)
	Great Oolite (0-31m)
	Lias (0-6m)
	<i>Unconformity</i>

Carboniferous	Upper Coal Measures (up to 732m)	Sandstone
		<i>Kent No. 1 Seam (Beresford)</i>
		Sandstone
		Kent No. 2 Seam
		Sandstone
		<i>Kent No.3 Seam (Snowdown Hard)</i>
		Sandstone
		<i>Kent No. 4 Seam</i>
		Sandstone
		<i>Kent No. 5 Seam</i>
		Sandstone
		<i>Kent No. 6 Seam (Millyard)</i>
		Sandstone
		<i>Upper Tilmanstone Marine Band</i>
	<i>Lower Tilmanstone Marine Band</i>	
	<i>Snowdown Marine Band</i>	
	Middle Coal Measures (110-152m)	Sandstone
		<i>Kent No. 7 Seam (Betteshanger 'H')</i>
		<i>Kent No. 8 Seam</i>
<i>Kent No. 9 Seam (Chislet No. 5)</i>		
<i>Kent No. 10 Seam</i>		
<i>Kent No. 11 Seam</i>		
Sandstone		
<i>Ripple Marine Band</i>		
Lower Coal Measures (110-152m)		<i>Kent No. 12 Seam</i>
		<i>Kent No. 13 Seam</i>
	Sandstone	
	<i>Kent No. 14 Seam</i>	
	Sandstone	
	<i>Unconformity</i>	
Carboniferous	Limestone (up to 48m)	

For further details on the geology of the district, see the BGS geological memoir for sheets 289, 305, 306 – Geology of the Country around Canterbury and Folkestone (1966).

4.0 The Local Authority Strategy – Aims, objectives and priorities

4.1 Aims

The aim of this Strategy is to outline how the Council intends to identify, prioritise and ensure remediation of land within its area where contamination is causing unacceptable risks to human health or the wider environment, assessed in the context of the current circumstances and use of the land.

4.2 Objectives

The key objectives of this strategy are to:-

Demonstrate how the Council intends to satisfy criteria contained in paragraphs B9, 10 & 15 of the Statutory Guidance (DEFRA Circular 01/2006):-

- ie:-
 - Paragraph B9 – taking a strategic approach to the identification of land that merits detailed individual inspection
 - Paragraph B10 – ensuring local circumstances are reflected when taking this strategic approach
 - Paragraph B15 – matters / items to be included in the contents of the strategy
- Establish a framework for undertaking this work in a manner that is regarded by all stakeholders as fair and impartial
- Provide robust information to the Environment Agency for its National Report on Contaminated Land.

4.3 Priorities

The local authority has to adopt a systematic approach to inspection that is efficient, proportionate to the risk, and focussed on those parts where contaminated land (and the most pressing problems) is most likely to be found.

Only a small proportion of the total area is likely to be contaminated land as defined by the legislation. Initially, the Council will broadly divide its area into **sub-areas** by determining where both a potential contaminant (source) exists in the same geographical area as a potential receptor.

Once this land has been identified, the most pressing sub-areas will be assigned a higher priority. Generally, prioritisation at this stage is likely to focus on the receptor at risk. As one of Dover District Council's key aims is to protect human health, areas where there is the potential for significant harm to human health will be assigned a high priority. This will also include cases where contaminated land affects controlled waters used for public water supply, or likely to be used for the same, as this is also potentially a human

health issue. **After** this the order of priority in relation to receptors will be as follows:-

- (1) Where there is the potential for the pollution of controlled waters in general
- (2) Where there is the potential for significant harm to other Part IIA receptors including protected ecological systems, crops and produce, livestock and domestic animals, wild animals and buildings.

More detailed reviews of sites within a sub-area will be carried out and additional information considered in order that **specific sites** can be prioritised for detailed inspection and investigation. Information to be considered may include, for example, characteristics of the area, previous uses of the land, the nature and timing of past redevelopment, the sensitivity of current land use, any previous remedial action taken, any proposed redevelopment of sites etc. Individual sites will be prioritised using GroundView (this is discussed further in section 5.2).

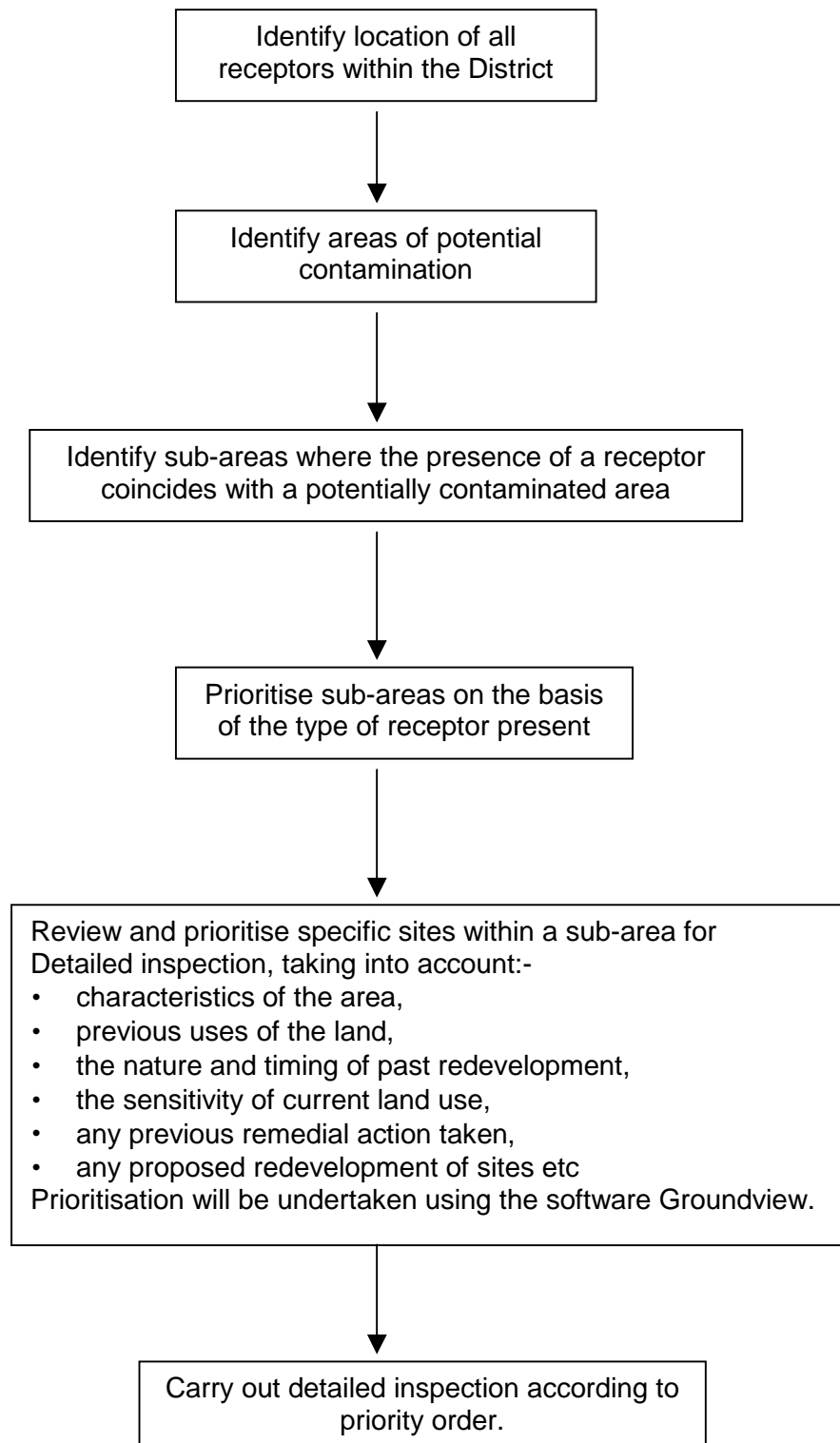
Prioritisation of specific sites (other than urgent sites) can only take place once all sites have been identified and so this will therefore occur at the end of the investigation stage.

It is recognised that some sites may need to be given a high priority for urgent investigation. For example this may include, land occupied by or relevant to any Part IIA receptor where **there is already evidence** of significant harm or pollution of controlled waters.

The strategy allows for a flexible approach to dealing with contaminated land. If necessary, urgent cases will be investigated immediately.

The process of identifying and prioritising sites is outlined in the flow chart on page 26 and further details are given in Chapter 5 ('Time scales for inspection').

Identifying Priority Areas for Detailed Inspection



5.0 Time scales for inspection

This strategy should ensure that all those affected by, and involved in, inspection have the same clear understanding of the rationale for inspection, how this will be carried out and over what time-scale.

This section outlines a series of milestones intended to ensure the main objectives of the strategy are achieved.

5.1 Production of the Inspection Strategy

Initial Draft Strategy Completion

The first version of the draft Inspection Strategy has been drawn up in accordance with DETR (now DEFRA) guidance. This first draft consultation document was presented to Dover District Councils Contaminated Land Officer Group. Officers were required to consider the draft in relation to their areas of expertise. Any necessary amendments were made and a draft drawn up for consultation outside of the Council.

Completed May 2001

Consultation

The draft strategy was then forwarded to all statutory consultees outlined in DETR guidance.

Consultation period 18th May – 15th June 2001

Final Strategy Publication

Consultation comments have been taken into account in the production of the final version of the strategy. As agreed by Policy and Services Committee, the final document was placed before three of the Councils Portfolio holders for adoption (Councillors Rees, Hood and Mrs Munt). Once adopted it was submitted to DEFRA and copied to the Environment Agency. The strategy has also been made more widely available, for example to:-

- Parish Councils
- Major Landowners
- Housing Associations
- Chamber of Commerce
- Professionals working in land management
- Local Agenda 21 groups
- Neighbouring LAs
- Developers
- National Farmers Union
- Members of the public via main libraries and the Councils website.

Presented to DDC Portfolio Holders on 27th July 2001.

The final Strategy was completed and in the public domain by September 2001.

5.2 Review Land in the District

- To commence by July 2001
- To be completed by January 2010

5.2.1 Identify Nature and Location of all Part IIA Receptors

A desk study will be carried out, using the information sources outlined in chapter 6, to identify the location and vulnerability of all Part IIA receptors.

Completed July 2007

5.2.2 Identify Sites which may Potentially be Contaminated

The desk study will also involve the identification of those sites where industrial or other activities have taken place in the past or are currently taking place.

Landmark digital map data was acquired showing historic land uses within the district in July 2003, identification of all sites of potential concern was completed in December 2006.

5.2.3 Initial Categorisation/Prioritisation of Land

It may be necessary to identify sub-areas within the district that appear to be priorities for more detailed work. This will enable the authority to direct resource allocation for further inspection of these priority areas. Therefore, the Council intends to initially divide its area broadly into sub-areas by determining where both a potential contaminant (source) exists in the same geographical area as a potential receptor. Once this land has been identified, the most pressing sub-areas will be assigned a higher priority. Generally, prioritisation at this stage is likely to focus on the receptor at risk. As one of Dover District Council's key aims is to protect human health, areas where there is the potential for significant harm to human health will be assigned a high priority. This will also include cases where contaminated land affects controlled waters used for public water supply, or likely to be used for the same, as this is also potentially a human health issue. After this the order of priority in relation to receptors will be as follows:-

- (1) Where there is the potential for the pollution of controlled waters.
- (2) Where there is the potential for significant harm to other Part IIA receptors including protected ecological systems, crops and produce, livestock and domestic animals, wild animals and buildings.

The initial prioritisation will be an on going process, with completion scheduled for April 2008.

A GIS has been chosen as the key means of allowing the Council to inspect its area in an ordered and efficient manner as required by statutory guidance. The use of a GIS linked to a database allows the storage and rapid analysis of large amounts of complex spatial and temporal information. The use of GIS-based information management systems and database technology contributes to the improvement of the decision and policy-making processes in contaminated land scenarios.

The general needs for database to store contaminated land information are:-

- To provide an auditable system for reviewing contaminated land work
- To provide a means of systematic data entry and storage
- To provide quality control for inputting information
- To provide a system that is able to store large volumes of data
- To be compatible with Dover District Council's corporate GIS package – MapInfo
- To assist with the prioritisation of potentially contaminated sites
- To provide secure storage and password access to potentially sensitive information
- To provide an updateable knowledge base so that if a key person leaves the Council, the information is left behind in the database
- To offer an accessible system for answering customer enquiries with a report writing facility
- To enable easy export and import of information to or from internal and external bodies; increasing the efficiency of information transfer.

The mapinfo tool 'Groundview' was chosen by the council to assist with prioritisation. Groundview is one of the leading contaminated land management software tools available. At time of writing over 40 local authorities in England, Scotland, and Wales had chosen the system (more users than any other commercially available solution). The software was specifically developed to help Local Authorities meet their obligations under Part IIA of the Environmental Protection Act 1990. The system offers huge benefits in terms of time saving and auditing.

An additional quality of Groundview is that as time moves on, after the task of prioritisation, managing the records for each site (for example, linking to reports, and notices from the GIS) increases in importance. The use of an Access based system means that it can automatically link to any other Microsoft application, word, excel etc.

Groundview operates on the principle that existence of a source, pathway and receptor is a requisite for land to be deemed contaminated.

Layers are entered into the database representative of individual sites and receptors each having been given a score to reflect either the potential risk posed (in the case of potential sources) or the potential vulnerability in the case of potential receptors.

A single default pathway score has been given for the district as a whole, and for other pathways such as rivers and areas liable to flooding.

Following this, based on the spatial nature of the individual layers (ie. whether source layers overlap receptor layers) a total score is calculated by Groundview. This score is used to define an additional layer created by Groundview, showing the total score of an area. This additional layer is coloured green through to red, indicating higher and lower priority sites.

Also capable of being generated at this time are reports showing information such as the potential risks associated with a site, potential pathways and potential receptors.

The following stages are to be undertaken during development of the Groundview database:-

- Stage 1 – District wide site prioritisation model (source, pathway) using GIS based data and digital mapping.
- Stage 2 – Preliminary screening (pathway identification) using digital mapping and graphical data sets. This will account for hydro-geological information, groundwater vulnerability, Geology (solid and drift), current land use and any other identified pathways.
- Stage 3 – A site visit will be carried out, and if appropriate, a detailed desk study of the site.
- Stage 4 – The final stage would be to commission an intrusive site investigation in order to gather factual information on the chemical, geological and hydro-geological regimes in order to determine whether the site meets the requirements specified in s78A, Part IIA EPA 1990. This information would likely be gathered from borehole logs, groundwater levels/pressures, and the chemical analysis of soil and water samples.

In effect, stages 2 & 3 described above remain a screening exercise following the initial GIS based site prioritisation model (stage 1), and facilitate further refinement of priority within the highest band of risk rated sites, as appropriate.

Only the highest priority sites from stage 2 would progress to stage 3 at this first screening exercise; and in turn only the sites with the greatest potential to cause significant harm would be put forward for an intrusive site investigation at stage 4. In any case, sites will only proceed to this final stage if sufficient information is available to make a designation from these preceding steps.

It is thought that the first stage following completion of the prioritisation model would be to produce a list of the top ten sites of high priority for further investigation.

Although the new contaminated land regime relates to the current uses of land, the findings from preliminary stages (1 & 2) will also be useful in the context of redevelopment of sites for new uses. The government has set a target that 60% of all new homes should be built on 'Brownfield' sites, to relieve the pressure on 'Greenfield' sites, so as to conserve the countryside.

5.2.4 Consideration of the Existence of Significant Pollutant Linkages

Following identification of sites based on existence of a source, pathway and receptor. The next step would be the undertaking of a detailed site investigation to further evaluate the potential risk associated with the site.

Where it is clear that no risk is posed by the site (ie. a significant pollutant linkage is absent), no further investigation will be necessary.

5.2.5 Urgent Cases

- Action on urgent cases will commence within 3 working days of notification.
- Detailed investigations will begin within 3 months.

Urgent cases may include pollution incidents such as heating oil spills, for which the council has specific guidance on dealing with. Where groundwater is the primary receptor the Environment Agency will be the main consulting body.

As previously indicated, it is recognised that some sites may need to be given a high priority for urgent investigation. For example, this may include land occupied by or relevant to any Part IIA receptor where there is already evidence of significant harm or pollution of controlled waters.

The strategy allows for a flexible approach to dealing with contaminated land. Land considered at any stage to be an urgent case will be investigated immediately to confirm whether or not there is a pathway between a potential contaminant and a receptor. In addition it may be necessary to proceed with detailed investigative work at these particular sites, irrespective of progress made on the development of a general prioritised programme of inspection work.

5.2.6 Refining Priorities for Detailed Inspection

A more detailed review of sites within a sub-area will be necessary before priorities can be further refined. Additional information to be considered will include for example:-

- The characteristics of the area.
- The previous uses of the land.
- The sensitivity of the current land use.
- The nature and timing of past redevelopment to determine whether and to what extent contamination may have been addressed already through past redevelopment activity.
- The extent to which remedial action has already taken place (or is planned to be taken) to address contamination, in order to determine whether Part IIA is likely to be the most appropriate legislation to achieve the necessary results.
- Any proposed redevelopment of sites.

Individual sites will then be prioritised for detailed inspection and investigation using the Groundview scoring system.

Prioritisation of specific sites (other than urgent sites) can only take place once all sites have been identified and so this will therefore occur at the end of the investigation stage.

5.2.7 Council Owned Land

Whilst identifying other sites, the Council will identify potentially contaminated land where the local authority itself may be the appropriate person. These sites will be evaluated and prioritised in the same way as any other potential site (see above).

5.3 Inspection of Land

Detailed inspection of areas of the district will be carried out in accordance with the results of the prioritisation assessment.

The Council is unable to provide a definitive timetable for the completion of the detailed inspections as it is highly dependent on the number and type of cases. However, at this stage, detailed inspections are scheduled to begin by April 2008 and will be on a rolling program with the intention of completion by January 2013.

5.4 Reports Submitted to the Council

5.4.1 Contaminated Land Exposure Assessment

The CLEA (Contaminated Land Exposure Assessment) package, consists of the main Contaminated Land Reports (CLRs) 7 - 11, the CLEA 2002 software (to be replaced by CLEA UK), and the Soil Guideline Values for individual substances (SGV). These are considered by the Government and Environment Agency to represent the key instruments for generic assessment of the human health risks from land contamination. The CLEA 'package' deals with the direct assessment of risks to human health from soil contamination. It is based on:-

- Toxicological criteria that establish a level of unacceptable human intake of a contaminant derived from soil (please note, the definition of 'unacceptable intake' is currently under review by DEFRA, pursuant to the CLAN briefing note 6/06 – Soil Guideline Values: The Way Forward. This document discusses the issue in detail).
- Estimates of human exposure to soil contamination based on generic land-use, which take into account the characteristics of adults and children, their activity patterns and the fate and transport of the contaminant in soil.

Soil Guideline Values for individual substances have been published covering a similar range of contaminants to those set out in ICRCL (Interdepartmental Committee for the Redevelopment of Contaminated Land) Note 59/83. They represent a cross-Government consensus on the technical approach to undertaking such assessments and are based on the latest scientific knowledge and thinking.

The following reports (available on the EA website) will be used for determining site-specific guideline criteria for risks to human health, as a part of the process of deciding whether land is contaminated:-

- CLR 7** – Assessment of risks to human health from land contamination.
- CLR 8** – Priority Contaminants for the Assessment of Land.
- CLR 9** – Contaminants in soils. Collation of Toxicological data and intake value for humans.
- CLR 10** – Contaminated Land Exposure Assessment Model (CLEA).
- CLR11** – Model Procedures for the management of land contamination.
- CLR10** – Describes the conceptual exposure models for each standard land use for which soil guideline values are derived. It sets out the technical basis for modelling exposure and provides comprehensive reference to all the default parameters and algorithms used. A computer model also accompanies the document.
- TOX Series** – 25 contaminants to date have been included in this series, detailing the derivation of tolerable daily soil intakes and index doses for each contaminant.
- SGV Series** – 10 contaminants to date have been included in this series, which sets out the derivation of Soil Guideline Values for which toxicological data has been collated.

5.4.2 Withdrawal of ICRCL Guidance Note 59/83 (2nd Edition)

On the advice of the Environment Agency, and in consultation with other Government Departments, DEFRA decided to withdraw the main DOE technical document previously used to assess land contamination. This was the ICRCL Guidance Note 59/83 (2nd edition), first published in 1983 and updated in 1987.

ICRCL 59/83 contained “trigger values” for a series of substances commonly found in contaminated land. The Government’s view is that the CLEA package, along with the SGV and Tox reports, supersede in respect of human health, the work published by the ICRCL. In particular, the trigger values set out in ICRCL 59/83 – are now considered to be technically out of date as their approach is not in line with Part IIA of the Environmental Protection Act 1990 and associated policy. In particular, ICRCL is not suitable for assessing the “significant possibility of significant harm” to human health that the regime calls for.

The new CLEA soil guideline values cover a broadly similar range of contaminants to the old ICRCL values, with more in preparation, and they form part of a wider package of technical material specifically designed for use with the current legislation. Local Authorities have therefore been

instructed not to run the two systems in parallel, and withdrawal of ICRL 59/83 should help avoid any misunderstandings about which guidance and approach should apply to decisions made under the contaminated land regime, or in planning and building control cases.

5.4.3 What about when there is no Soil Guideline Value available?

CLR7 indicates that where no SGV has been published, a risk assessment at the site using site-specific criteria should be considered, and refers to CLR 9 and 10 in this respect. This means an approach based on a conceptual site model. In this way, an appropriate level of site-specific risk assessment can be used to inform the decision-making process.

Consultants reports submitted to Dover DC must be undertaken in accordance with CLEA guidelines and risk assessment carried out using CLEA UK or other appropriate risk assessment methods (full justification for the use of which must be provided) for them to be accepted. Reports making reference to ICRL values with no site specific assessment, or inappropriate risk assessment will be rejected.

5.5 Periodic Reviews

The assumptions and inspection priorities will be reviewed at appropriate intervals, to include any new information received. In addition, reviews will also be carried out of:-

- The Strategy document
- Inspection procedures

This is discussed further in paragraph 6.10.

6.0 Procedures and arrangements for dealing with contaminated land issues.

6.1 Internal Management and Arrangements for Identification and Inspection

Within the District Council, the Environmental Health Department has responsibility for the implementation of Part IIA EPA 1990. As part of the Environmental Protection Team, the Contaminated Land Officer is the lead officer on Contaminated Land, reporting to the Environmental Protection Team Leader, the Environmental Health Manager and the Head of Development and Public Protection.

The Contaminated Land Officer will deal with the day-to-day implementation of the strategy. The Contaminated Land Officer will also be responsible for serving remediation notices, subject to consultation with the Environmental Protection Team Leader and the Councils' solicitor.

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

Under Section 108 (6) of the Environment Act 1995, the Council has been granted powers of entry to carry out investigation. Where possible, entry onto land will be by arrangement with the occupiers and/or owners of the land, unless, for example, there is the possibility of immediate risk. All Environmental Health Officers will be authorised by virtue of section 108 and will carry a certificate of authorisation with photograph. Action under the Act will be in accordance with the Councils enforcement concordat to ensure consistent, fair and transparent practice.

6.2 Considering Local Authority Interests in Land

Dover District Council itself currently owns, or has responsibility for, various areas of land. This land is often linked with potentially sensitive uses such as allotments, recreational grounds and public open spaces. The council has also inherited potentially problematic sites linked with past waste management or industrial activities. In addition, the authority recognises that it may have been the party responsible for an historical activity which has caused potential contamination, but are no longer the landowner. Investigation of all Council linked land will be carried out alongside the identification and inspection of all other sites within the district. The duties of the Council as regulator will be kept clearly separate from the responsibilities which arise as a landowner or polluter.

6.3 Cross Boundary Contamination

Any Local Authority can take action on contaminated land outside its area where the receptors are within its own area. In these circumstances Dover District Council will liaise with the relevant neighbouring authority and/or the Environment Agency (in the case of pollution of controlled waters) to agree an appropriate course of action. This will also be the case where the contaminated land lies across the local authority boundaries.

6.4 Information Collection

Many sources of information will be required to identify potential and/or actual sources of contamination and receptors. The information required may be available within the local authority itself, or from external sources. The statutory guidance directs local authorities to make specific arrangements for obtaining information relevant to the identification of contaminated land from other regulatory bodies. It is imperative that the advice and information held by other statutory bodies and other relevant parties, on the condition of land is taken into account when deciding priority areas of land.

Some of the resources that the Council hopes to access are outlined below:

6.4.1 Information on Receptors

Humans Receptors

- Residential properties with gardens
- Residential properties without gardens
- Allotments
- Schools and nurseries
- Recreational land
- Commercial/industrial premises

Source – Dover District Council - Planning and building control, economic development records.

Ecologically Sensitive Areas

- European sites (Candidate SACs, SPAs and Marine SACs)
- Ramsar sites
- National nature reserves
- SSSI's
- AONB's
- SLA's
- Ancient Woodlands
- ALLS
- Other designated Nature Reserves
- Local wildlife Sites (formerly Sites of Nature Conservation Interest (SNCIs))

Source – Natural England, Dover District Council planning and landuse records.

Property in the Form of Buildings

- Ancient monuments
- Listed Buildings
- Sites of archaeological importance
- Other buildings (E.g. affected by landfill gas migration)

Source – English Heritage, Dover District Council records and knowledge.

Other Forms of Property

- Crops including timber
- Produce grown domestically
- Livestock
- Other owned animals
- Wild animals subject to shooting and fishing rights

Source – Department of Environment, Food and Rural Affairs (DEFRA - Formally MAFF)

Controlled Waters

- Surface waters
- Groundwaters
- Water abstractions
- Source protection zones
- Nitrate vulnerable zones
- Surface and groundwater quality data

Sources for this type of information include maps produced by the BGS and EA in addition to DDC records on private water supplies.

6.4.2 Information on Actual or Possible Sources of Contamination

Historical Maps

Source – Dover District Council records, County/borough archives, Local studies centres, OS, British map library.

EPA 1990 Part A Industrial Processes

Source – EA

EPA 1990 Part B Industrial Processes

Source – Dover District Council

Location of Consents to Discharge

Source – EA

Closed and Current Landfill & Other Waste Management License Sites

Source – Dover District Council planning and archive records, EA, Kent landfill atlas, Landmark digital data.

Records of Incidents, Spills, Fires

Source – Dover District Council records, Local knowledge, HSE, EA

Location of 'Industrial Cases' and 'Defence Cases' for Special Sites

Source – Land use and planning records, trade directories

Mining activities

Source – The Coal Authority, BGS

6.4.3 Additional Relevant Information

Records Relating to Past Remediation/Reclamation Activities

Sources – Planning, building control, EA

Other Legislative Regimes that apply to Sites/Areas

Sources – Kent County Council, Dover District Council Environmental Health, HSE, EA

Areas of Proposed Development

Sources – Strategic plans and planning records

Geology

Sources – BGS, local museums

Hydrogeology

Sources – BGS, EA

Topography

Sources – OS maps, local knowledge, digital elevation models

Soil Geochemistry

Sources – EA, BGS

Flooding Information

Sources – EA

Location of Greenbelts

Sources – Local Authority Plans

6.4.4 Requests for Service and Voluntary Information Provision

Information relating to potentially contaminated land may also be received in the form of service requests and enquiries from members of the public, businesses or community groups. In addition, interested residents may voluntarily supply information relating to land contamination. Details of the procedures for dealing with these sources of information are described below:

(a) **Requests for Service**

A service request regarding possible contaminated land will be dealt with in the following manner:-

- A record of the information or request will be entered onto the Environmental Health complaints system
- The information or complaint will be referred to the appropriate officer(s). This officer may contact the complainant/informant to obtain further details if necessary.
- The officer will be responsible for undertaking any research necessary to respond to the information or complaint. The complainant will be kept informed of any progress made and a record of the content of any response will be maintained.
- Depending on the nature of the information or complaint it may be necessary to maintain a site-specific case file.

It is not possible to determine a time scale for completion although every effort will be made to resolve complaints quickly and efficiently. In some cases the information or complaint received may result in a requirement to undertake a further investigation of land in accordance with the investigation procedures described in paragraph 6.6.

(b) **Voluntary Provision of Information**

If a person or organisation provides information relating to contaminated land that is not directly affecting them, their family or their property, this will not be treated as a complaint. The information will be recorded and may be acted upon. There will, however, be no obligation for the Council to keep the person or organisation informed of the progress towards resolution.

All callers will be asked to supply their name and address. Every case is looked at individually but, in general, anonymous complaints will be given lower priority. The identity of any complainant will remain confidential. The only circumstance in which this information might be made public is where a remediation notice is appealed in a court of law and an adverse effect on the complainants' health was an important reason for the original contaminated land designation.

6.5 Information Evaluation

In the first instance, evaluation of information obtained will enable the Council to categorise land within the district to determine where contaminated land could exist. This information will then be used to prioritise areas for more detailed investigation. Ultimately, however, the aim of the Council is to verify and evaluate any information that may be used in support of a contaminated land designation. Where further information is required to enable a satisfactory evaluation the Council will take any action available under its statutory powers.

Although the main purpose of investigation and inspection is to identify land which may be contaminated, the information obtained will also be relevant to other local authority functions, such as land use planning and development control. Therefore, all information obtained and evaluated will be carefully maintained and documented.

6.5.1 Evaluation of Information on "Actual Harm"

The Council will evaluate information on "actual harm" using the criteria outlined below. In each case the Council will need to evaluate whether or not:-

- there is evidence that all 3 elements of the pollutant linkage are present
- the evidence was collected using reliable and scientifically defensible techniques and methods
- observed effects fall within one or more of the definitions of "significant harm" listed in the Statutory guidance and in Appendix C1
- existing scientific knowledge indicates that the observed effect is one that can be expected given the harmful properties of the contaminant, the characteristics of the pathway, and the nature and behaviour of the receptor
- the assessment has taken into account the requirements set out in the statutory guidance and in Appendix C1.

6.5.2 Evaluation of Information on "Pollution of Controlled Waters"

The Council will evaluate information on "pollution of controlled waters" using the criteria outlined below. In each case the Council will need to evaluate if:-

- there is evidence that all 3 elements of the pollutant linkage are present
- the evidence was collected using reliable and scientifically defensible techniques and methods
- the characteristics of the contaminant are such that it constitutes poisonous, noxious or polluting matter or solid waste matter
- there is evidence that the contaminant is entering controlled waters
- the assessment has taken into account the requirements set out in the statutory guidance and in Appendix C2

6.5.3 Evaluation of the Effectiveness of Previous Actions or Other Regimes in Preventing or Dealing with Contamination

The Council will need to consider what remedial action has already taken place to address land contamination. The remedial action may have been taken by an existing/former landowner or proactively by the Council or other third party.

The nature and timing of past redevelopment will be relevant, as it will influence the extent to which contamination was understood and addressed. This in turn will enable a view to be taken on the effectiveness of the remedial works that were undertaken.

Enquiries will also be made to determine whether any of the following regimes have applied to sites:-

- EPA 1990 Part A industrial processes
- Waste management licensing
- EPA 1990 Part B industrial processes
- Water Resources Act 1991 in relation to the prevention of pollution and the remediation of controlled waters
- Health and safety legislation.

The nature and timing of actions taken will again be relevant, as it will influence the extent to which contamination was understood and addressed.

6.6 Identification of Potentially Contaminated Land

6.6.1 Identification of any Key Geographical Areas

The Council will identify key geographical areas (sub-areas) during an initial review of the information obtained relating to nature and location of all Part IIA receptors and of sites/areas that are potentially contaminated (source). The geographical coincidence of these two elements of a potential pollutant linkage will enable the Council to focus upon establishing whether there is also a pathway present. Prior to this, areas will be prioritised based on the receptors at risk. In this case priority will be given to locations where human receptors coincide with areas of potential contamination.

6.6.2 Identification of Significant Pollutant Linkages

Based on the information collated relating to SOURCE and RECEPTORS, it may be possible to identify any PATHWAYS. This will assist in determining the extent to which the receptors may be exposed to contamination. Areas within the district will be broadly assessed for pathways, and hence pollutant linkages in accordance with the priority order determined in the previous stage.

In order to determine whether there is a pathway the nature of the contaminant and the characteristics of the land will be considered. To assist this process the following characteristics will be considered:-

- Geology - to determine the potential for sub-surface migration of liquids, gases and vapours. Sites located on clays for example will be of a lower priority than those located directly on chalk.
- Hydrogeology - to determine the potential for sub-surface migration of liquids, gases, vapours, and the distribution of contaminated material by other transport mechanisms such as flooding (from the sea, rivers or drainage network) or rising groundwater.
- Topography - to determine the direction of surface water runoff and possible direction of sub-surface flow.
- Current landuse including children's play areas, gardens, hard surfacing and allotments.

It is recognised that, in the majority of cases, insufficient information will be available at this stage to determine the presence of a pathway. This will be clarified during the detailed inspection stage of the process. However, should it be clear that a pathway does not exist, no further investigation will be necessary. Where a pathway is uncertain, an assumption will be made that one exists.

6.6.3 Identification of Individual Sites

Individual sites will normally be identified after the key geographical areas (sub areas) have been established and when all three elements of the pollutant linkage are known or assumed to be present.

A more detailed review of sites within a sub-area will be carried out before individual sites can be prioritised. Additional information to be considered will include for example:-

- The characteristics of the area;
- The previous uses of the land;
- The sensitivity of the current land use;
- The nature and timing of past redevelopment to determine whether and to what extent contamination may have been addressed already through past redevelopment activity;
- The extent to which remedial action has already taken place (or is planned to be taken) to address contamination, in order to determine whether Part IIA is likely to be the most appropriate legislation to achieve the necessary results;
- Any proposed redevelopment of sites.

Sites will then be prioritised for detailed inspection using Groundview, as outlined previously.

The boundaries of individual sites may be determined after considering the following factors:-

- The spatial distribution of the contaminants that form part of the pollutant linkage relevant to a particular area of a site;
- The nature and extent of the remedial works that may be required;
- The likely identity of the individuals who may be responsible for the remedial works.

6.6.4 Identification of Special Sites

At any point during the process of identifying contaminated land the Council becomes aware of a potential special site, advice will be obtained from the EA as to the best way to proceed. For further details relating to Special Sites see paragraph 6.7.4.

6.7 Detailed inspections

The local authority should carry out a detailed inspection of any area where a possible pollutant linkage exists. The purpose of the detailed inspection is to ensure that the LA has the information it needs to decide whether or not a

particular area of land is contaminated and, if so, whether the land is likely to be a special site.

The criteria for identifying key geographical areas and individual sites areas and the method for prioritising site inspections has been discussed in paragraph 6.6

The Council is unable to provide a definitive timetable for the completion of the detailed inspections as it is highly dependent on the number and type of cases. However, at this stage detailed inspections are scheduled to begin by April 2008 and will be on a rolling program with the intention of completion by January 2010.

Detailed inspections may involve a range of activities including:-

- a more detailed analysis of documentary records on the land and its setting;
- a review of any existing information on ground conditions;
- visual inspection of the land;
- intrusive investigation of the land.

6.7.1 Methods of Inspection

The arrangements for carrying out a detailed inspection are outlined below and encompass the requirements of the Statutory Guidance.

(a) **Desk based study**

During this stage Dover District Council will review all available documentary information from in house sources, agency sources and landowner/occupiers (see paragraph 6.3). A more detailed desk based review of the characteristics of the area of land will help in:-

- understanding whether and what pollutant linkages exist;
- defining boundaries of land;
- designing any necessary visual inspection and intrusive investigation so that all relevant information is obtained;
- ensuring that appropriate health and safety and environmental protection measures are taken;
- evaluating any information on the condition of the land that is provided by others such as the landowner or occupier.

This assessment may be sufficient for the Council to make a determination without having to carry out any more detailed work. However, if the information continues to indicate that one or more pollutant linkages exist but the information is not sufficient the Council may decide to carry out more detailed work.

(b) **Visual inspection/Site reconnaissance (possibly to include limited sampling)**

The aim of this action is to help refine the picture of the pollutant linkages that may be relevant to the site. Visual inspection may help to either corroborate or disprove any suspected pollutant linkages

identified during the desktop study. In addition the visual inspection may indicate whether an emergency situation exists.

(c) **Intrusive investigation**

Intrusive investigation will only proceed where the information from desk top study and visual inspection indicate that one or more potential pollutant linkages are present. In addition, this will only be carried out if the Council is unable to determine if the land is contaminated or obtain the necessary information in any other way.

In some cases it will be sufficient to collect only a small number of samples, whereas in other cases it may be necessary to take a greater quantity of samples to show that contaminated soil poses an unacceptable risk to human health.

6.7.2 Internal Procedures

The Council intends to develop/adapt internal procedures and technical specifications to be used by external contractors in accordance with technical guidance relating to investigations of this nature (egg. British Standard Code of Practice for investigation of potentially contaminated sites BS 10175:2001). In all investigations the Council will ensure that good technical practice will be followed in carrying out and recording detailed inspection work. The Council will also ensure that such work does not harm people (site workers, local residents and general public) or damage the wider environment.

Before carrying out any detailed inspections the following will be considered:-

- The type of additional information required at each stage of the inspection;
- The practical arrangements needed for visual inspection or intrusive investigations;
- How the information will be recorded and interpreted;
- Arrangements for public access to the information.

As in the case of the visual inspection, intrusive sampling will only be carried out by a "suitable person". This person will be appropriately qualified and experienced to carry out the necessary inspection and analysis. Suitable persons would include, for example, suitably experienced consultants or professionals (for example, those holding a relevant charter or SiLC status). Reports prepared by a suitable person should provide the Council with the information required to determine whether the site should be designated as contaminated land, and if so, what remediation is required to make the site suitable for its current or intended use.

A contractor will not be instructed to proceed with a visual site inspection or intrusive investigation until the following criteria have been satisfied:

- Written confirmation has been received from the owner and occupier of the site allowing the contractor to enter the land for the purposes of the site investigation (or alternatively when section 108 power of entry requirements have been met (see below):-

- All necessary planning consents and environmental licences have been obtained;
- Full details of existing site services have been received and considered in the design stage of the sampling strategy;
- All potential locations for exploratory boreholes and other intrusive works have been identified;
- The health and safety procedures will be implemented by the contractor;
- Suitable arrangements have been made for environmental protection.

If at any stage it is considered, on the basis of the information obtained from a detailed inspection, that there is no longer a reasonable possibility that particular pollutant linkage exists on the land, the authority will not carry out or instruct any further detailed inspection for that linkage.

The Council recognises that in some cases insufficient information will be available for determination purposes but additional data collection would not be possible or likely to help in deciding whether or not land is contaminated land. In this case the Council will determine the status of the land on the basis of the available information but will keep the decision under review in the event that additional information comes to light.

6.7.3 Powers of Entry

The LA has powers under Section 108 Environment Act 1995 to enter, or authorise others to enter premises to carry out investigations. However, Dover District Council will only carry out detailed inspections using these powers where there is a reasonable possibility that a pollution linkage exists, and (for intrusive work) it is likely that the contaminant is present and a receptor exists or is likely to exist given the current use. These powers will not be used for carrying out intrusive investigations if the information needed to make a determination is already available or someone (such as the landowner) has offered to make the information available. Seven days notice will be given for residential premises or where heavy equipment will be involved. If necessary the Council will obtain a magistrates warrant (under s108 Of Environment Act 1995) to gain access. The powers of entry may be used forthwith in an emergency. The legal department will be consulted in these situations.

In some circumstances, as outlined in schedule 18 of the Environment Act 1995, the LA may be liable to pay compensation for any disturbance caused by inspection carried out under s108 powers. Therefore, it is imperative that good technical practice is followed.

6.7.4 Special Sites

A desk study is likely to be the earliest stage at which the Council will become aware of a potential special site. At this stage advice will be obtained from the EA on the best way to proceed.

There are two potential scenarios:-

- (a) The Council notifies the EA of a potential special site.
- (b) The EA becomes aware of a potential special site and notifies the Council.

In both cases the EA may undertake a further investigation on behalf of the Council. When the EA has completed the investigation it will then be in a position to confirm whether or not the site is a special site in accordance with the Contaminated Land (England) Regulations 2006. If the site is a special site the Council will no longer have a role in its remediation (except where the Council has some interest in the site, for example if it is the land owner or original polluter). The Environment Agency will be the enforcing Authority for Special Sites. If the site is not a special site and is contaminated land then the Council will be responsible for dealing with it under Part IIA.

6.7.5 Site Specific Liaison

For each site the Council will contact the following (where appropriate):-

- The owner of the land for information about its condition and to obtain permission to enter the site;
- Any person who appears to be the occupier of all or part of the land for information about its condition and to obtain permission to enter the site;
- Each person who appears to be an “appropriate person” for information about its condition of the land;
- The EA for advice about the effect upon controlled waters and potential special site status;
- Natural England for effects upon ecological systems and when intrusive investigation is to be undertaken within a Site of Special Scientific Interest (SSI);
- English Heritage, when sensitive archaeological remains or buildings are likely to be present.

The Council will also contact the owner/occupier of adjacent land.

6.7.6 Health and Safety Procedures

The Council will ensure that the contractor undertaking the site investigation is aware of the health and safety procedures contained within the British Standard Code of Practice on the Investigation of Potentially Contaminated Sites (BS 10175:2001). The contractor will also have regard to the HSE document on protecting workers and the general public during the redevelopment of contaminated land. Certain site activities, for instance particular remediation methods may require particular risk assessment with regards to public safety.

6.7.7 Format of Information Resulting from Inspection

The information gathered during an inspection of the land will generally be in the following format:-

- A summary of the desk study, visual inspection and intrusive investigation (where appropriate);
- Analytical results of soil, gas, ground and surface water samples (if appropriate);
- A risk assessment (qualitative/semi-quantitative or quantitative);
- Identification of the significant pollutant linkage(s);
- An indication of how the significant pollutant linkage(s) may be addressed.

6.7.8 Periodic Review

A periodic review of all sites identified as contaminated land and land found to be in a contaminated state will be undertaken. This is to ensure that any changes that may occur either in, on or around any particular site may be noted. Changes in either pathways or receptors could lead to a change in classification. This is discussed further in paragraph 6.9. Periodic changes in legislation may also warrant the re-inspection of a particular site.

6.8 Liaison and Communication

Effective liaison and communication is an essential part of the Contaminated Land Regime. Much of the work proposed in this strategy will be collaborative and require effective liaison with other bodies. As part of its strategy the Council will/has established communication links with a variety of statutory and non-statutory consultees as well as other interested parties to ensure the efficient and effective transfer of information. It is important that all stakeholders are aware of the implications of potentially contaminated land as early as possible.

It is recognised that the complex nature of contaminated land issues does not lend itself to easy explanation. In particular it may appear somewhat complicated as the process under Part IIA relies upon a risk based approach to identifying contaminated land. The need for involvement of a complete spectrum of representatives from the community means that good risk communication skills and a sound communication plan is needed. This is briefly outlined below but it should be noted that resource and financial constraints may limit the actual form and extent of communication.

6.8.1 Statutory Consultees

Formal contact has already been made with the Environment Agency and an Area Contaminated Land Officer has been identified to act as the key point of contact for the Council.

Contact has also already been made with those statutory organisations that have a particular regulatory interest or expertise in relation to contaminated land. These organisations hold relevant information and can provide advice that will assist the Council to operate efficiently under Part IIA. These organisations are as follows:-

- Natural England
- English Heritage
- Department of Environment, Food and Rural Affairs (DEFRA - Formally MAFF)
- Food Standards Agency
- Kent County Council

Each organisation was invited to comment on the consultation draft of this strategy.

See Appendix D for statutory consultee contact list

6.8.2 Non Statutory Consultees

There is great scope for members of the public, businesses, external organisations and voluntary organisations to play an important role in identifying and dealing with contaminated land in the district. All stakeholders will be considered in the broadest possible extent and may include those with professional expertise and financial interests, alongside those with local knowledge or community status.

The strategy has therefore been made more widely available, for example to:-

- Parish Councils
- Major Landowners
- Housing Associations
- Chamber of Commerce
- Professionals working in land management
- Local Agenda 21 groups
- Neighbouring LA's
- Developers
- National Farmers Union
- Members of the public via main libraries and the Councils website.

The Council recognises the valuable contribution of these sectors and therefore effort will be made to encourage participation in the process of identifying and investigating contaminated land.

The need to keep up to date with current regulation and guidance is recognised by the council and regular conferences and training sessions are attended. In addition to this, the Council is a member of the Kent and Medway Contaminated Land forum whose members include representatives of the EA, Local Authorities and other relevant bodies. The council also subscribes to EHCNet whereby many local authorities throughout the country may be consulted for advice on specific issues.

6.8.3 Communication with Owners, Occupiers and Other Interested Parties in Relation to Specific Sites

The Councils approach to its regulatory duty under the contaminated land regime is to seek voluntary action before taking enforcement action. This should, in many cases, provide a more effective remediation process. It is recognised that this approach will require effective communication with owners, occupiers and other interested parties.

Once potential contamination and a Part IIA receptor has been identified for a site the Council will contact the appropriate stakeholders to seek their co-operation and assistance as early as possible. Stakeholders will be able to raise their concerns and their views will be carefully considered as part of an open two way communication process. Overall it is important to try and ensure that all stakeholders understand and support the risk assessment process, the results obtained and how they will affect decisions about any remedial works required.

The Council will keep all relevant parties informed at each stage of an investigation. Where a formal designation of contaminated land is required the LA will continue to try to work with all stakeholders to ensure all necessary remediation is carried out either voluntarily or following service of a remediation notice.

6.8.4 Communication with the General Public

The Council will treat any concerns raised by members of the public seriously and with respect, recognising the importance of the issue to the individual. In all instances the Council will recognise and try to overcome the critical barriers to effective communication:-

- **Familiarity** – increased concern about familiar issues;
- **Control** – increased concern if the individual is unable to exert any control over events;
- **Proximity in space** – increased concern about nearby events;
- **Proximity in time** – increased concern about immediate consequences rather than long term effects;
- **Scale** – particularly in terms of media coverage, where one large incident appears much worse than several small incidents;
- **“Dread Factor”** – lack of understanding can lead to stress and make further explanation more difficult.

The Contaminated Land Regulations grant only limited powers to LA's to deal with materials present in, on or under the ground. Many members of the public believe that any material that is not naturally present in the ground should be removed, especially if it is in the vicinity of their own home. It will be crucial to explain that this can only be done where there is a risk of significant harm, and it is to be expected that some members of the public will have difficulty accepting this.

Where further clarification is required concerning the risks posed by specific contaminants, the Kent Health Protection Unit (HPU) will be consulted. The HPU may then refer the enquiry on to other bodies such as the Primary Care Trust or the Chemical Hazards and Poisons Division.

6.9 Information Management

6.9.1 Information Storage

Under the requirements of Part IIA the Council is likely to obtain a great deal of information from a wide range of different sources. This information, which may be in the form of bound documents, reports, letters, maps or electronic records, will need to be collated and managed efficiently.

The Council's Geographical Information System (GIS) will be the primary tool used to store and manage contaminated land information. The system will manage the information arising from the initial review of "sources" and "receptors" which will assist with the subsequent identification of key sub areas within the district.

For individual sites it is hoped that the GIS will initially record the following information:-

- A unique reference number
- Name and address of the site
- Grid reference
- Date the site was identified
- Current land use
- Historical land use
- Details of any previous investigations, remedial action or any other action.
- Likely contaminants
- Pathways
- Part IIA receptors
- Geology and Hydrogeology of the site
- Hydrology of the site
- Prioritisation rating
- Proposed action.

6.9.2 Access to Information

Within the Council

The GIS system will allow certain designated users within the Council access to view the information stored within it. Any additional information related to the contaminated land regime will be available on request to the Environmental Protection section.

To the Environment Agency

The Environment Agency is required to prepare and publish a report on the state of contaminated land in England. The information required by EA from LA's to fulfil this function include:-

- A summary of local authority inspection strategies, including progress against the strategy and its effectiveness;
- The amount of contaminated land and the nature of the contamination;

- Measures taken to remediate the land.

A memorandum of understanding has been drawn up between the Environment Agency and the Local Government Association that describes how the information will be exchanged. The Council will provide information to the EA following the guidelines agreed through this national forum.

The Council must also provide information to the EA whenever a site is designated as contaminated land, and whenever a remediation notice, statement or declaration is issued or agreed. The EA has provided standard forms allowing this information to be provided in a consistent format and Dover District Council will adopt these to fulfil its reporting requirements.

External Requests for Information

From time to time the Council will receive requests to view the information held on a particular site that may not be included in the public register, or which relates to a non designated site. This may include documents provided by a third party and / or produced by the Council during the course of internal and external consultation. Each request will be considered on its merits and any information given would be done so as to be in line with the Environmental Information Regulations 1992 (as amended). All requests for information should preferably be made in writing to the Council and, where possible, the relevant information will be provided within 14 days.

The Council will undertake a search within a radius of a property to establish the former use of the site and that of the adjacent land. The search includes examination of the Council's historic map archive (as provided by Landmark digital data), IPPC authorisations and the Kent Landfill Atlas; in addition to a search of the council's corporate data management database.

There is a charge for this service; further details can be obtained from the council's online question and answers service or by contacting the Environmental Health Department.

Public Register

The Council is required under Part IIA of the Environment Act 1995 to keep a register detailing information regarding contaminated land. The Environmental Health Department located at the Council Offices on the White Cliffs Business Park in Dover will hold the register. This will be accessible on request by members of the public during office hours, Monday to Friday (please enquire for further details).

The particular details to be included in the register are prescribed in Schedule 3 of the Contaminated Land (England) Regulations 2000 regulations. In compliance with the Regulations, the register for Dover District will include:-

- Remediation Notices;
- Details of site reports obtained by the authority relating to Remediation Notices;

- Remediation declarations, remediation statements and notifications of claimed remediation;
- Designation of sites as "Special Sites";
- Any appeals lodged against Remediation and Charging Notices;
- Convictions.

The public register will not include details of historic land use or other records used during investigations of potentially contaminated land. These are classed as research documents and as such will not be available to the public.

Confidentiality

Section 78 of the Environment Act 1995 (Part IIA) specifies certain exclusions from registers of information. Therefore, before anything is entered on the register or disclosed to third parties, the Council will consider whether the information should be excluded on the basis that its inclusion or disclosure would be against the interests of national security or the information is commercially confidential. Certain grounds of commercial confidentiality are excluded from anonymity by the legislation. If the Council excludes any information then a note must be entered on the register stating that additional information is available but has been removed for specific reasons.

6.10 Review Mechanisms

The Council is recommended to build two aspects of review into this strategy to ensure the strategy itself and any assumptions and/or decisions resulting from it relating to individual sites are kept up to date.

(1) Reviewing Inspection Decisions

A review of the assumptions made and information held about the condition of individual sites will be undertaken periodically. It is difficult at this stage to determine the frequency of these reviews. In practice, it is likely that inspection will be a continuum, balancing a systematic approach to the inspection with available resources. However, the Council will endeavour to ensure the reviews are carried out at least every 3 years.

It is also recognised that, in addition to the routine review of inspection findings, there are likely to be situations (triggers) when changes in the condition or circumstances of the land or its surrounding environment prompt a review of the inspection findings. Examples of such circumstances or events include:-

- Proposed changes in the use of surrounding land;
- Unplanned changes in the use of the land;
- Unplanned events such as flooding, spillage's, fire etc;
- Reports of localised health effects which appear to relate to a particular area of land;

- Verifiable reports of unusual or abnormal site conditions being received;
- Change in legislation.

Any of these circumstances, or similar, will trigger an immediate review of the inspection findings outside the routine review cycle.

An earlier review will also take place in response to information received from:

- Statutory bodies such as Environment Agency, Health and Safety Executive, Department of Environment, Food and Rural Affairs (DEFRA - Formally MAFF).
- Owners or occupiers of land and other relevant stakeholders.

(2) Review of the Inspection Strategy

As part of the overall quality management of this work, it is important to consider the need to review the strategy from time to time. The strategy will be finalised following consultation and work will then begin on site inspection. It would be appropriate to review the time scales suggested in Chapter 5 in light of the progress after the first full year of operation. The next review will therefore take place during October 2008 and the findings will be reported to Cabinet and Policy and Services Committee. If there are significant changes to the strategy it is accepted that it may be appropriate to carry out further annual reviews in the following years.

If the strategy is found to be working satisfactorily, the next review date will be December 2009.

APPENDIX B

Glossary and Useful Abbreviations

ALLS - Area of Local landscape Significance

Alluvium – Defined as soil or sediment deposited by running water

AONB – Area of Outstanding Natural Beauty

Aquiclude – An layer of rock impermeable to water

Aquitard – A layer of rock with low hydraulic conductivity

Aquifer – Groundwater bearing rock formations sufficiently permeable to transmit and yield water in usable quantities. (See definition of groundwater below)

Brownfield Site – A site that has been generally abandoned or underused where redevelopment is complicated by actual or perceived environmental contamination. Only a small proportion of Brownfield sites will meet the definition of contaminated land.

BGS – British Geological Survey

BTEX – Benzene, Toluene, Ethylbenzene and Xylene

CCA – Chromated Copper Arsenate

CIEH – Chartered Institute of Environmental Health

CLEA – Contaminated Land Exposure Assessment, a tool for the assessment of risks to human health

COCs – Contaminants of concern

Contaminated Land [Legal Definition]: Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances, in, on or under the land that:-

- a) Significant harm is being caused or there is a significant possibility of such harm being caused; or
- b) Pollution of controlled waters is being, or is likely to be caused.

Controlled Waters: These include:-

- a) Inland waters (river, streams, underground streams, canals, lakes and reservoirs),
- b) Groundwaters (any water contained in underground strata, wells or boreholes),
- c) Territorial waters (the sea within three miles of a baseline).
- d) Coastal waters (the sea within the baseline up to the line of highest tide, and tidal waters up to the fresh water limit).

DCLG – Department for Communities and Local Government

DDC – Dover District Council

DEFRA – Department for the Environment, Farming and Rural Affairs

DETR – Department for the Environment, Transport and Regions

DNAPL – Dense Non-Aqueous Phase Liquid

DoE – Department of the Environment

Drinking water abstraction – The taking of water from a source (primarily an underground source within the Dover District) for drinking water

DRO – Diesel Range Organics

DWS – Drinking Water Standard

EA – Environment Agency

Eco-system – A biological system of interacting organisms and their physical environment

EH – Natural England

EPA – Environmental Protection Act (1990)

EPH – Extractible Petroleum Hydrocarbons

EQS – Environmental Quality Standard

FID – Flame-Ionising Detector (used to detect hydrocarbon vapours)

FSA – Food Standards Agency
GIS – Geographical Information System
GQA – General Quality Assessment
GRO – Gasoline Range Organics
Groundwater: Is that portion of the water beneath the surface of the earth that:-
 - Can be collected with wells, tunnels or drainage galleries,
 - or that flows naturally to the surface via seeps and springs.
 The legal definition from EC Groundwater Directive [80/68/EEC] is:- ‘All water which is below the surface of the ground in the saturated zone and in direct contact with the ground or subsoil’
Head – Defined as reworked deposits deposited during tundra conditions as a result of soil creep
HMSO – Her Majesties Stationary Office
HPA – Health Protection Agency
HSE – Health and Safety Executive
Hydraulic Conductivity – Describes the ease at which water is able to flow through a rock (ie. its permeability)
ICP – Inductively Coupled Plasma (method of soil analysis)
ICRCL - Interdepartmental Committee for the Redevelopment of Contaminated Land
IPC – Integrated Pollution Control
IPPC – Integrated Pollution Prevention Control
LGA – Local Government Association
LNAPL – Light Non-Aqueous Phase Liquid
LNR – Local Nature Reserve
MoD – Ministry of Defence
NMR - National Maritime Reserve
NOx – Oxides of Nitrogen
NRA – National Rivers Authority
NRPB – National Radiological Protection Board
NSA – Nitrate Sensitive Area
NVZ – Nitrate Vulnerable Zone
OS – Ordnance Survey
PAH – Polycyclic Aromatic Hydrocarbons
Pathway: One or more routes by which a receptor can be exposed to a contaminant.
PCB – Polychlorinated Biphenyls
PCE – Tetrachloroethylene (Other names include - Perchloroethylene/Perc)
PCP – Pentachlorophenol
PID – Photo-Ionisation Detector (instrument used to detect hydrocarbon vapours)
Pollutant Linkage: The relationship between a contaminant, a pathway and a receptor.
RAMSAR – A site protected under an international convention on protection of wetlands of international importance, especially as habitats for waterfowl, named after the city in Iran where the convention was signed in 1971.
Receptor: Sometimes referred to as a ‘target’ – the health of a person, waters, ecosystem or property type that could be affected by contamination.
Remediation: Generally accepted as being the carrying out of works to prevent or minimise effects of contamination. In the case of this legislation, the term also encompasses assessment of the condition of land and subsequent monitoring of the land.
Risk Assessment: The study of the following:-
 a) The probability, or frequency, of a hazard occurring; and
 b) The magnitude of the consequences.
SAC – Special Area of Conservation
SEPA – Scottish Environmental Protection Agency
SiLC – Specialist in Land Contamination

SINC – Site of Importance for Nature Conservation

SIS – Spatial Information System

SLA – Special Landscape Area

SNCI – Site of Nature Conservation Interest

SNIFFER – The Scotland and Northern Ireland Forum for Environmental Research

SoS – Secretary of State

SOx – Oxides of Sulphur

Source: A substance in, on or under the ground with the ability to cause harm.

SPA – Special Protection Area for birds

Special Sites: Defined in regulation 2 and 3 and Schedule 1 of the Contaminated Land [England] Regulations 2000, a summary is given below:-

- Any of the following activities have been carried out at any time: disposal of waste acid tars in a retention basin; purification of crude petroleum or oil; manufacture or processing of explosives; the manufacture, production or disposal of chemical weapons or biological agents or weapons.
- The land is currently used for naval, military or air force purposes, an atomic weapons establishment, within a nuclear licensed site, subject to section 30 of the Armed Forces Act 1996.
- The land appears to be contaminated as a result of the escape of substances from land meeting any of the above descriptions.
- Land which is affecting controlled waters that; are used as drinking water supply, and are likely to require treatment in order to be fit for human consumption, or; are not likely to meet the requirements for water quality specified in regulations made under the Water Resources Act 1991, or are contained within one or more defined aquifers and where pollution relates to one or more defined substances.

SPT – Source Pathway Target

SPZ – Source protection zone: Protection zones around certain sources of groundwater used for public water supply. Within these zones, certain activities and processes are prohibited or restricted.

SSSI – Site of Special Scientific Interest

TCE – Trichloroethylene (aka Trike) used as a dry-cleaning fluid

TNT – Trinitrotoluene (an explosive)

TPH – Total Petroleum Hydrocarbons

Urban Task Force, The - The Urban Task Force was set up in October 1998, with a remit:-

- to develop a framework for the future of the urban areas of England which is capable of being translated into locally defined solutions, in co-ordination with the development of Government policy;
- to identify ways of overcoming existing barriers drawing on available best practice, and to propose practical and realistic new measures for achieving quality urban development, with specific reference to housing, considering both new development and the potential for re-use of existing buildings;
- to act as a sounding board for the work on the assessment of previously developed land and to advise ministers accordingly; to work alongside, advise and help develop initiatives through English Partnerships, local authorities and others in identifying, targeting and promoting development on key demonstration sites throughout the country.

Vadose Zone - The portion of land between the land surface and the water table (i.e. the unsaturated zone)

VC – Vinyl Chloride

APPENDIX C

C1 Categories of significant harm

SEE TABLE OVERLEAF

The local authority should not regard harm to receptors of any type other than those mentioned in the table below as being significant harm for the purposes of Part IIA. For example, harm to ecological systems outside the descriptions in the second entry in the table should be disregarded. Similarly, the authority should not regard any other description of harm to receptors of the types mentioned in the table as being significant harm.

The authority should disregard any receptors which are not likely to be present, given the "current use" of the land which might be affected.

The "current use" means any use which is currently being made, or is likely to be made, of the land and which is consistent with any existing planning permission (or is otherwise lawful under the town and country planning legislation). This definition is subject to the following qualifications:

- (a) the current use should be taken to include any temporary use, permitted under town and country planning legislation, to which the land is, or is likely to be, put from time to time;
- (b) the current use includes future uses or developments which do not require a new, or amended, grant of planning permission;
- (c) the current use should, nevertheless, be taken to include any likely informal recreational use of the land, whether authorised by the owners or occupiers or not, (for example, children playing on the land); however in assessing the likelihood of any such informal use, the local authority should give due attention to measures taken to prevent or restrict access to the land; and
- (d) in the case of agricultural land, however, the current agricultural use should not be taken to extend beyond the growing of the crops or rearing of animals which are habitually grown or reared on the land.

	Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
1.	Human beings	<p>Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.</p> <p>For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.</p> <p>In this chapter, this description of significant harm is referred to as a “human health effect”.</p>
2.	<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"> • an area notified as an area of special scientific interest under section 28 of the Wildlife and Countryside Act 1981; • any land declared a national nature reserve under section 35 of that Act; • any area designated as a marine nature reserve under section 36 of that Act; • an area of special protection for birds, established under section 3 of that Act; • any European Site within the meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (i.e. Special Areas of Conservation and Special Protection Areas); • any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection; • any habitat or site afforded policy protection under paragraph 13 of Planning Policy Guidance Note 9 (PPS9: Biodiversity and Geological Conservation) on nature conservation (ie. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or • any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949. 	<p>For <u>any</u> protected location:</p> <ul style="list-style-type: none"> • harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or • harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. <p>In addition, in the case of a protected location which is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is compatible with the favourable conservation status of natural habitats at that location 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 (Natural Habitats etc) Regulations 1994.</p> <p>In this Chapter, this description of significant harm is referred to as an “ecological system effect”.</p>

	Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
3.	<p>Property in the form of:</p> <p>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>	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.</p> <p>In this Chapter, this description of significant harm is referred to as an "animal or crop effect".</p>
4.	<p>Property in the Form of Buildings</p> <p>For this purpose, "building" means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building.</p>	<p>Structural failure, substantial damage or substantial interference with any right of occupation.</p> <p>For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.</p> <p>Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.</p> <p>In this Chapter, this description of significant harm is referred to as a "building effect".</p>

C2 The Pollution of Controlled Waters.

Land should not be designated as contaminated land where:-

- (a) a substance is already present in controlled waters;
- (b) entry into controlled waters of that substance from land has ceased; and
- (c) it is not likely that further entry will take place

Substances should be regarded as having entered controlled waters where:-

- (a) they are dissolved or suspended in those waters; or
- (b) if they are immiscible with water, they have direct contact with those waters on or beneath the surface of the water.

APPENDIX D

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APPENDIX E

Bibliography and Relevant Documentation

GENERAL

- Communicating Understanding of Contaminated Land Risks**, SNIFFER (1999)
- Guidance on the use of digital environmental data**, British Geological Survey and the Environment Agency (March 2000)
- Local Environment Agency Plan (LEAP) Kent Area**, Environment Agency (September 1999)
- Local Environment Agency Plan (LEAP) Kentish Stour**, Environment Agency (March 2000)
- Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources**, Environment Agency R&D Publication 20 (2000).
- The Environmental Capital of the Chalk Coast of Kent**, Kent County Council (2000)
- The Stour Estuary - field surveys 1994 - 1996**, Christ Church College, Canterbury (1998)

LEGISLATION AND GUIDANCE

- BS 10175:2001**, British Standard code of practice for investigation of potentially contaminated sites 2001
- Building Regulations 2000**
- Construction (Design and Management) Regulations 1994**
- Contaminated Land Inspection Strategies, Technical Advice for Local Authorities**, DETR (Draft for comment April 2000).
- Contaminated Land**, HMSO (March 2000).
- Control of Pollution Act 1974**
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)**
- DETR Circular 02/2000**, Environmental Protection Act 1990:Part IIA
- DEFRA Circular 01/2006**, Environmental Protection Act 1990:Part IIA
- EC Directive 96/61/EC on Integrated Pollution Prevention and Control**
- EC Groundwater Directive 80/68/EC**
- EC Water Framework Directive (2000/60/EC)**
- EU Environmental Liability Directive (2004/35/EC)**
- Groundwater Regulations 1988**
- Guidelines for Environmental Risk Assessment and Management**, DETR (July 2000)
- Health and Safety at Work Act 1974**
- Local Authority Guide to the Application of Part IIA of the Environmental Protection Act 1990**, Environment Agency R&D Contract REG/CON-79 Working Draft 01 (2000)
- Planning and Compensation Act 1991**
- Planning and Compulsory Purchase Act 2004**
- Pollution Prevention and Control (England and Wales) Regulations 2000**
- Pollution Prevention and Control Act 1999**
- PPS 23 (formerly PPG 23) Planning and Pollution Control**, Office of the Deputy Prime Minister.
- PPS 23, Annex 2: Development on Land Affected by Contamination**, Office of the Deputy Prime Minister.
- Radioactive Substances Act 1993**

The Contaminated Land (England) Regulations 2000, No.227 HMSO (2000).
The Environment Act 1995, HMSO (1995).
The Environmental Protection Act 1990 HMSO (1990)
Town and Country Planning (Assessment of Environmental Effects) (England and Wales) Regulations 1999
Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2000
Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2001
Town and Country Planning Act 1990
Town and Country Planning General Development Procedure Order 1995
Town and Country Planning General Permitted Development Order 1995
Water Act 2003
Water Environment (Water Framework Directive) Regulations 2003
Water Industry Act 1991
Water Resources Act 1991

DOVER DISTRICT COUNCIL PUBLICATIONS

Dover District Local Plan (as amended) 1996
Our District, our future - A Plan for the District (2000).

REFERENCES USED FOR THE COMPLILATION OF THIS STRATEGY

BGS (2004a) The Aquifers of the UK, NERC, UK Groundwater Forum, accessible via: http://www.groundwateruk.org/archive/the_aquifers_of_the_uk.pdf

BGS (2004b) Sea-water Intrusion, NERC, UK Groundwater Forum, accessible via: http://www.groundwateruk.org/archive/sea_water_intrusion.pdf

J.B.W. Day, Mrs R. Moseley, Mrs B.A. Bruce and I.F. Mercer (1970) Hydrogeological Map of the Chalk and Lower Greensand of Kent, Sheet I Chalk, *Regional Hydrological Characteristics and Explanation Notes*, British Geological Survey

R. Godwin-Austen (1856) On the Possible Extension of the Coal Measures Beneath the South-Eastern Part of England. *Quart. J. Geol. Soc.*, 12, 38-73

C.S. Harris (2000) The Chalk of the White Cliffs of Dover; the latest stratigraphy with images. Of Cenomanian, Turonian, Coniacian, Santonian and Campanian age. Available via: <http://www.geologyshop.co.uk/chalk1.htm>

R. Mortimore (1997) The Chalk of Sussex and Kent, *G.A. Guide No. 57*

NRA (1994) Policy and Practice for the Protection of Groundwater, Groundwater Vulnerability of East Kent, *Sheet 47*, Cook, Hammond and Kell

J.G.O. Smart, G. Bisson and B.C. Worssam (1966) Geology of the Country around Canterbury and Folkestone, sheets 289, 305 & 306, *Institute of Geological Sciences*, Her Majesty's Stationary Office, pp 22

C. J. Wood, E. R. Shephard-Thorn and C. S. Harris (2000) Historical geology of Kent and the Boulonnais, available via: <http://www.geologyshop.co.uk/geolkb.htm#latepal>

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