Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines

N J Cooper, G Bower, R Tyson, J J Flikweert, S Rayner and A Hallas of Royal Haskoning DHV
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Cooper, N J, Bower, G, Tyson, R, Flikweert, J J, Rayner, S, Hallas, A

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This guidance is intended for anyone involved in:

- management of sea flooding and coastal erosion risks
- land use or spatial planning at, or near, the coast
- owning, operating or regulating a landfill site or area of land contamination at, or near, the coast.

This includes (but is not restricted to) flood and coastal managers, land use planning and development control officers, contaminated land officers, waste regulators, site managers from local authorities, Environment Agency, Environment Agency Wales (until April 2013), Natural Resources Body for Wales (from April 2013), Scottish Environmental Protection Agency, Northern Ireland Environment Agency, Department for Environment, Food and Rural Affairs (Defra), Scottish Government, Welsh Government, Northern Ireland Assembly, Department of Agriculture and Rural Development (DARDNI), Marine Management Organisation (MMO), Marine Scotland, Natural England, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Single Environmental Body Wales (from April 2013), Scottish Natural Heritage (SNH), Northern Ireland Environment Agency, Landfill site operators, Landowners (eg The National Trust, Ministry of Defence, private individuals, Coal Authority, The Crown Estate).

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User Land owners, developers (commercial and residential), professional advisors/consultants (both engineering and environmental), builders and contractors, regulators (EA, SEPA, NIEA, local authority and building control) and other professional and non-specialist stakeholders

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Front cover photo: an historic landfill located at the coastal margin in north east England, where erosion results in the release of waste onto the foreshore. A scheme has since been completed to manage the risks from the coastal erosion (courtesy Nick Cooper, Royal Haskoning DHV)
Summary

This publication provides guidance on the management of landfill sites and areas of land contamination located on eroding or low-lying coastlines.

Over the years, processes of coastal erosion and sea flooding have resulted in waste from some sites being deposited on the foreshore or seeping into the coastal and marine environment, potentially resulting in a range of issues such as adverse effects on public health and safety or undesired physical, chemical and biological effects on the natural environment.

These are likely to be experienced more frequently as a consequence of the effects of climate change, especially sea level rise. This issue is likely to become a more common challenge to coastal managers and those responsible for coastal sites in the future.

This is an emerging issue and to date there has been limited experience of dealing with such problems from identification through to solution. This guide has been produced to help the increasing number of professionals who will come across such problems for the first time.
Introduction to the guide

This publication is aimed at the interface between the well-established industries of waste management, pollution prevention and control, and flood and coastal erosion risk management. Chapter 1 explains its relationship with existing guidance from those sectors and where this guidance addresses a unique area of overlap.

Part 1 Guidance framework

Part 1 of the guide presents the core guidance framework, which starts with a background context and then sets out the steps involved in identifying and managing the risks presented.

Chapter 2: background context provides an introduction to the main relevant legislative and regulatory instruments that may apply to sites covered in this guide. A route map is provided to help define roles and responsibilities of different stakeholders.

Chapter 3: identifying sites provides advice on how to determine whether known landfill sites or areas of land contamination are at risk of coastal erosion or sea flooding in the short- or long-term. Also, it provides advice on the steps to be taken should a formerly unidentified historic landfill or a previously unknown area of land contamination be identified by a third party.

Chapter 4: characterising site history and setting provides guidance on the desk studies and site visits that may be needed to understand a site's history, present-day characteristics and potential hazards and receptors.

Chapter 5: assessing the risk describes the process of risk assessment as a means of quantifying the hazards presented by the release of material from a site. This assessment process is based upon consideration of both the likelihood and the consequence(s) of a release occurring. The conceptual site model (CSM) is introduced, which identifies the source of a risk, receptors that could be affected if they come into contact with that source, and the pathways that may link the two. With a "source–pathway–receptor" CSM defined, quantification of the risk(s) can then be undertaken to inform the management approaches that need to be developed and delivered.

Chapter 6: appraising the options provides advice on the options that are available to manage the risks presented by erosion or sea flooding of sites and the approaches for assessing the relative technical, economic and environmental merits of each within the context of an "options appraisal".

Chapter 7: delivering the solution provides guidance on important aspects to consider during both the design and approvals stage and the construction stage of those options previously introduced in Chapter 6, which involve construction works. This includes consideration of health and safety, and material handling, reuse and disposal.

Chapter 8: evaluating performance provides advice on the development and delivery of a monitoring plan to enable the performance of a scheme to be evaluated and its potential wider scale effects (both positive and adverse) to be assessed. Should the monitoring reveal that the risks are not adequately being addressed by the scheme, then guidance is provided to enable residual risks to be assessed and fed back into the management process.

Part 2 Perspectives

Part 2 of the guide presents a suite of perspectives recognising that individuals or organisations
may have different standpoints and responsibilities in relation to the subject of this guide. Each chapter in Part 2 provides a specific topic identified by stakeholders during development of the guide. These cover:

**Chapter 9:** strategic coastal management planning.

**Chapter 10:** landfill site managers.

**Chapter 11:** very long-term erosion.

**Chapter 12:** future sites or site extensions.

**Chapter 13:** rivers.

**Part 3 Themes**

**Part 3** of the guidance addresses overarching themes which apply to several Chapters.

These themes could become outdated due to changes in statute, government policy etc. It is recommended that the reader obtains further advice from the appropriate government bodies at the relevant time. The themes cover the following topics:

**Chapter 14:** legislative and regulatory context.

**Chapter 15:** funding.

**Chapter 16:** approval mechanisms.

**Chapter 17:** stakeholders and their engagement.

**Part 4 Case studies**

**Part 4** of the guide presents the following three case studies that illustrate practical application of differing aspects of the guidance:

**Chapter 18:** Trow Quarry, Tyne & Wear, covering erosion of an historic landfill located directly at the coastal margin.

**Chapter 19:** Spittles Lane, West Dorset, describing how a major landslip caused large quantities of waste to be released down the cliff face from an historic landfill located on the cliff top.

**Chapter 20:** Shoreline Management Plan, Essex, identifying how the presence of landfill sites and areas of land contamination behind existing defences and the presence of waste materials within the core of defences has affected selection of strategic coastal management policy along areas of low-lying shoreline within Essex.

**Further reading**

A further reading section is provided at the end of the guide. This gives information sources in relation to relevant UK legislation and existing industry guidance in flood and coastal management, environmental protection, contaminated land, and waste management.

Throughout the guide, mini case studies and other boxes are used to highlight particular points.
Acknowledgements

Authors

Nick Cooper BEng (Hons) PhD CEng FICE
Nick is a chartered civil engineer with around 20 years’ experience in the management of coasts and estuaries. He has been involved with the development of Shoreline Management Plans, coastal strategies and coastal defence schemes around the UK.

Gary Bower BSc (Hons) MCIWM
Gary is a chartered waste manager with over 20 years’ experience and has detailed knowledge of European Directives and Regulations and UK waste legislation. He has worked on the implementation of domestic waste legislation, and has acted as expert witness and provided expert reports in waste management prosecutions.

Ruth Tyson BSc (Hons) FGS
Ruth is an environmental consultant, specialising in contaminated land assessment, including the development of conceptual site models and detailed quantitative risk assessment. She has a wealth of site investigation experience covering landfill sites and areas of land contamination, including sites affected by coastal erosion.

Jaap Flikweert MSc
Jaap is a civil engineer with around 20 years’ experience in flood and erosion risk management. He has worked with relevant authorities to develop Shoreline Management Plans for the low-lying East Anglian coast and is heavily involved in policy work and operational research and development on management of flood and coastal defence assets.

Steven Rayner BSc (Hons), AIEMA
Steven is an environmental consultant, specialising in Environmental Impact Assessment (EIA). He has working knowledge of the consents and permissions that are likely to be required to allow delivery of schemes, in addition to significant experience in contaminated land investigation and management at sites including historic landfills.

Alison Hallas MChem MRSC
Alison is an environmental consultant with experience in site investigation, appraisal and delivery of remedial options. She has completed landfill assessment and permitting projects including integrated pollution prevention and control (IPPC) permit applications, landfill gas modelling, nuisance risk assessments and landfill environmental monitoring.

Project steering group

Siobhan Browne       Natural England
Anne Jones            DEFRA
Mark Langabeer        Veolia Environmental Services (UK) plc
Andrew Nicholas       SITA
Pete Roberts          Environment Agency
John Shevelan         LLWR Ltd
Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines

INTRODUCTION

Robin Siddle
Owen Tarrant
Richard Thomas (chair)
Gary Thompson
Emma Thomson
Jim Wilkinson
Scarborough Borough Council
Environment Agency
Independent Consultant
The Crown Estate
Environment Agency

Corresponding members

Nick Dolan
Tony Flux
Jeanette Guy
Tony Hanson
Brendan McLean
Paul Robinson
Shaun Robinson
The National Trust
The National Trust
West Dorset District Council
South Tyneside Council
Belfast City Council
Environment Agency
Environment Agency

Other consultees

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Toni Archer
Richard Beaven
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Mark Blair
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Andrew Brown
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Gary Graveling
Carol Hall
Gavin Johnson
Kirsty Klepacz
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Darren Legge
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Environment Agency
Environment Agency
CH2M Hill
Sniffer
Environment Agency
Buro Happold
Environment Agency
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Havant Borough Council
Scottish Natural Heritage
Environment Agency
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A total of 119 individuals from a range of regulators, advisors, landowners, government departments, landfill operators, consultancies and academia provided responses to an online questionnaire throughout November and December 2011, during the scoping phase of this guide.

**CIRIA project managers**
Owen Jenkins, Gillian Wadams and Lee Kelly.

**Project funders**
Environment Agency
National decommissioning Authority (NDA)
CIRIA Core members
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2 It does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter that it comes into contact with in a way likely to cause environmental pollution or harm to human health.

3 Its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater.

Hold the line
Maintaining or changing the standard of protection to hold the existing defence line.

Land contamination
This term can cover a wide range of situations where land is in some way contaminated. Where certain criteria are met, a site may be determined as “contaminated land”, which has a specific legal definition under Part IIA of the EPA 1990.

Landfill Directive 1999
The aim of the directive is to prevent or reduce as far as possible negative effects on the environment. In particular the pollution of surface water, groundwater, soil and air, and on the global environment, as well as any risk to human health from the landfilling of waste, during the whole lifecycle of the landfill.

Landfill operator
The person who has control over the operation of the landfill.

Landfill regulator
The authority on whom functions are conferred by the Landfill Directive 1999.

Landfill tax
A tax on the disposal of waste at a landfill site that covered by a licence or permit under specific environmental legislation. It aims to encourage waste producers to produce less waste, recover more value from waste and to use more environmentally friendly methods of waste disposal.

Leachate
A solution, which is the result of the leaching process. The solution can contain soluble contaminants picked up when percolating or draining through waste.

Managed realignment
Allowing the shoreline to move backwards or forwards, with management to control or limit movement.

Monitoring plan
A plan designed to incorporate an appropriate suite of approaches that will specifically address issues that are pertinent to the nature of the site and the type of solution under consideration.

No active intervention
No investment in coastal defences or operations.

Non-hazardous waste
Waste that is considered to be not harmful. Non-hazardous waste is identified without an asterisk on the List of Wastes (known as the European Waste Catalogue).

Operational landfills
A landfill site that is accepting waste.

Orphaned linkage/orphaned site
An orphan linkage may arise where the significant contaminated linkage relates solely to the significant pollution of controlled waters (and not to significant harm) and no Class A appropriate person can be found, where no Class A or Class B appropriate person can be found, or where those who would otherwise be liable are exempted by one of the relevant statutory provisions.

Overtopping
A process of water overflowing or overspilling the crest of coastal defences, which could result in tidal flooding.

Part IIA
Part IIA of the Environmental Protection Act 1990 (as amended)
(England, Wales, Scotland) which establishes a legal framework for dealing with contaminated land.

**Part III**

Part III of the Waste and Contaminated Land (Northern Ireland) Order 1997 establishes a specific contaminated land power, including a definition of contaminated land and a procedure for securing remediation when such land is identified.

**Pathway**

With regard to this guidance, a route by which a receptor is, or might be, affected by the waste or contamination.

**Permitted landfill**

A landfill that is permitted to accept waste (operational landfill) or that is closed but has yet to surrender its permit.

**Pollutant pathway/linkage**

The linkage connecting a contaminant source with a receptor.

**Polluter**

The party responsible for causing pollution.

**Proportionality**

Ensuring at each stage that the processes adopted and levels of investigation or assessment undertaken and management options selected are proportionate to the best available understanding of the risks (or the residual risks) that are presented.

**Ramsar site**

Designated under the Ramsar Convention 1971. The objective of this designation is to prevent the progressive encroachment into, and the loss of, wetlands.

**Receptor**

With regard to this guidance, a receptor is something (i.e., humans, organisms, ecosystems, property, or controlled waters) that could be adversely affected by the waste or land contamination.

**Remediation strategy**

A document that details all relevant pollutant linkages, release scenarios and the strategy for delivery of any remedial work or monitoring that is required to demonstrate that any pollutant linkages previously identified are adequately addressed.

**Responsible person/body**

Person(s) legally responsible for the site or site activities (landowner, local authority, Nuclear Decommissioning Authority).

**Risk assessment**

The formal process of identifying, assessing, and evaluating the health and environmental risks that may be associated with a hazard.

**Sea defence**

Structure, either natural or man-made, which protects the land against flooding by the sea.

**Site of Special Scientific Interest**


**Site operator**

The operator of a landfill site.

**Source**

With regard to this guidance, a source is a substance that is in, on, or under the land, and that has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters (i.e., the solids, liquids or gases contained within the waste or resulting from the land contamination).

**Special Area of Conservation**

A designation aimed to protect habitats or species of European importance and can include marine areas. SAC designated sites are designated under the EU Habitats Directive (92/43EEC) and will form part of the Natura 2000 site network. All SAC sites are
also protected as Sites of Special Scientific Interest, except those in the marine environment below mean low water.

**Special Protection Area**
A statutory designation for internationally important sites, set up to establish a network of protected areas for birds. Special Protection Areas are designated under the EU Birds Directive (79/409/EEC). All SPAs are also protected as Sites of Special Scientific Interest.

**Special Site**
A special site is any contaminated land which has been designated as such by virtue of Section 78C(7) or Section 78D(6) of the EPA 1990, and whose designation as such has not been terminated by the appropriate Agency under Section 78Q(4) of the EPA 1990.

**Stakeholder**
A person, group or organisation who affects or can be affected by an organisation's actions.

**Stakeholder analysis**
The process of identifying the stakeholders that are likely to affect or be affected by a proposed action, and sorting them according to their effect on the action and the affect the action will have on them.

**Stakeholder engagement**
The process(es) that an organisation takes to involve stakeholders in dialogue to find out what social and environmental issues surrounding an action matter most to them so as to improve decision making and accountability.

**Storm surge**
A change in predicted tidal level due to meteorological effects, such as atmospheric pressure or wave set-up. In the context of this guide, positive storm surges during periods of low atmospheric pressure could lead to increased risk of sea flooding at sites.

**Surrendered landfills**
Where the environmental regulator has accepted that the closed landfill no longer forms a risk and as a consequence has accepted that the permit is formally surrendered.

**Tree Preservation Orders**
A Tree Preservation Order is made by a Local Planning Authority to protect specific trees, a particular area or woodland from deliberate damage and/or destruction.

**Waste acceptance criteria**
The criteria to be met before waste is accepted at a landfill site.

An EU Directive that provides a general framework for waste management requirements and sets the basic waste management definitions for the EU.

**Water Framework Directive 2000/60/EC**
A EU Directive that aims to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater. Its primary focus is preventing deterioration and improving chemical and ecological water quality.
### Abbreviations/acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AA</td>
<td>Appropriate assessment</td>
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<tr>
<td>ABD</td>
<td>Areas benefiting from defences</td>
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<td>AONB</td>
<td>Area of Outstanding Natural Beauty</td>
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<td>AQAP</td>
<td>Air quality action plan</td>
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<td>AQMA</td>
<td>Air quality management area</td>
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<td>ATL</td>
<td>Advance the line</td>
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<td>BAP</td>
<td>Biodiversity action plan</td>
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<td>BAT</td>
<td>Best available technique</td>
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<td>BCR</td>
<td>Benefit cost ratio</td>
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<td>BGS</td>
<td>British Geological Survey</td>
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<td>BS</td>
<td>British Standard</td>
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<tr>
<td>CAR</td>
<td>Controlled Activity Regulations (The Water Environment (Controlled Activities) (Scotland) Regulations 2011)</td>
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<td>CFMP</td>
<td>Catchment Flood Management Plan</td>
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<td>CDM</td>
<td>Construction design and management</td>
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<td>CLAIRE</td>
<td>Contaminated Land: Applications in Real Environments</td>
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<td>CLEA</td>
<td>Contaminated Land Exposure Assessment</td>
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<td>CoP</td>
<td>Code of practice</td>
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<td>COPA</td>
<td>Control of Pollution Act 1974</td>
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<td>COSHH</td>
<td>Control of Substances Hazardous to Health</td>
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<td>CQA</td>
<td>Construction quality assurance</td>
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<td>CSM</td>
<td>Conceptual site model</td>
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<td>DCC</td>
<td>Dorset County Council</td>
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<td>DCLG</td>
<td>Department for Communities and Local Government</td>
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<td>Defra</td>
<td>Department for Food, Environment and Rural Affairs</td>
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<td>DOE</td>
<td>Department of Environment</td>
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<td>DWS</td>
<td>Drinking Water Standards</td>
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<td>EA</td>
<td>Environment Agency</td>
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<td>ECoW</td>
<td>Environmental clerk of works</td>
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<td>EIA</td>
<td>Environmental impact assessment</td>
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<td>EMP</td>
<td>Environmental management plan</td>
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<td>EPA</td>
<td>Environmental Protection Act 1990</td>
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<td>EPS</td>
<td>European protected species</td>
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<td>EQO</td>
<td>Environmental quality objectives</td>
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<td>Environmental quality standards</td>
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<td>ER</td>
<td>Environment report</td>
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<td>ERA</td>
<td>Ecological risk assessment</td>
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<td>ES</td>
<td>Environmental statement</td>
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<td>ESC</td>
<td>Environmental safety case</td>
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<td>ESID</td>
<td>Environmental setting and installation design report</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>EWC</td>
<td>European Waste Catalogue</td>
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<td>FCERM</td>
<td>Flood and coastal erosion risk management</td>
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<td>FCM</td>
<td>Flood and coastal management</td>
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<td>FDGIA</td>
<td>Flood defence grant in aid</td>
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<td>GAC</td>
<td>Generic assessment criteria</td>
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<td>GI</td>
<td>Ground investigation</td>
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<td>GSI</td>
<td>Geographical information system</td>
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<td>HMSO</td>
<td>Her Majesty's Stationery Office</td>
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<td>HSE</td>
<td>Health and Safety Executive</td>
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<td>HTL</td>
<td>Hold the line</td>
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<td>LCF</td>
<td>Landfill Communities Fund</td>
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<td>LFD</td>
<td>Landfill Directive</td>
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<td>LLFA</td>
<td>Local lead flood authority</td>
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<td>LLWR</td>
<td>Low level waste repository</td>
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<td>LPA</td>
<td>Local planning authority</td>
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<td>LRTC</td>
<td>Lyme Regis Town Council</td>
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<td>LWM</td>
<td>Low water mark</td>
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<td>MAFF</td>
<td>Minister of Agriculture, Fisheries and Food</td>
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<td>MCAA</td>
<td>Marine and Coastal Access Act 2009</td>
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<td>MCU</td>
<td>Marine consents unit</td>
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<tr>
<td>MHW</td>
<td>Mean high water</td>
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<td>MHWS</td>
<td>Mean high water springs</td>
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<td>MLW</td>
<td>Mean low water</td>
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<tr>
<td>MLWM</td>
<td>Mean low water mark</td>
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<tr>
<td>MLWS</td>
<td>Mean low water spring</td>
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<td>MMO</td>
<td>Marine Management Organisation</td>
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<td>MoD</td>
<td>Ministry of Defence</td>
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<td>MR</td>
<td>Managed realignment</td>
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<tr>
<td>NAI</td>
<td>No active intervention</td>
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<tr>
<td>NDA</td>
<td>Nuclear Decommissioning Authority</td>
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<td>NIEA</td>
<td>Northern Ireland Environment Agency</td>
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<td>ODPM</td>
<td>Office of the Deputy Prime Minister</td>
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<td>PNEC</td>
<td>Predicted no effect concentrations</td>
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<td>PPC</td>
<td>Pollution prevention and control</td>
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<td>PPDO</td>
<td>Public path diversion order</td>
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<td>PPE</td>
<td>Personal protective equipment</td>
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<td>PPG</td>
<td>Planning Policy Guidance</td>
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<td>PPS</td>
<td>Planning Policy Statement</td>
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<td>PRoW</td>
<td>Public right of way</td>
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<td>QMUL</td>
<td>Queen Mary University of London</td>
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<td>RSPB</td>
<td>Royal Society for the Protection of Birds</td>
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<tr>
<td>rWFD</td>
<td>Revised Waste Framework Directive</td>
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<td>SAC</td>
<td>Special Area of Conservation</td>
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<td>SCAPE</td>
<td>Soft cliff and platform erosion</td>
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<td>SEA</td>
<td>Strategic environmental assessment</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>SEPA</td>
<td>Scottish Environmental Protection Agency</td>
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<td>SGV</td>
<td>Soil guideline value</td>
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<td>SI</td>
<td>Site investigation</td>
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<td>SMP</td>
<td>Shoreline Management Plan</td>
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<td>SNH</td>
<td>Scottish Natural Heritage</td>
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<td>SPA</td>
<td>Special Protection Area</td>
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<td>SRDP</td>
<td>Scottish Rural Development Programme</td>
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<td>SSSI</td>
<td>Site of Special Scientific Interest</td>
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<td>UKAEA</td>
<td>UK Atomic Energy Authority</td>
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<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organisation</td>
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<tr>
<td>UXO</td>
<td>Unexploded ordnance</td>
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<tr>
<td>VOC</td>
<td>Volatile organic compound</td>
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<td>WAC</td>
<td>Waste Acceptance Criteria</td>
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<td>WCA</td>
<td>Wildlife and Countryside Act 1981</td>
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<td>Water Environment and Water Services (Scotland) Act 2003</td>
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<td>WDDC</td>
<td>West Dorset District Council</td>
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<td>WFD</td>
<td>Water Framework Directive</td>
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<td>WPA</td>
<td>Waste planning authorities</td>
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</tbody>
</table>
1 Introduction

1.1 BACKGROUND

There are hundreds of known landfill, industrial and other waste sites around the coasts and estuaries of the UK. Many are disused, often re-landscaped and underlying land that is accessible to the public. Over the years, the effects of coastal erosion and sea flooding have resulted in waste from some of these sites being deposited on the foreshore (see Figures 1.1 and 1.2) and seeping into the coastal and marine environment.

The release of such waste and other contaminated material can result in a range of issues on public health and safety, and cause adverse physical, chemical and biological effects on the natural environment.

These releases are likely to become more frequent as a consequence of climate change, especially sea level rise, and this issue will become a more common management challenge in the future.

The adoption of strategic coastal management plans such as Shoreline Management Plans (SMPs) and coastal strategies around England, Wales and parts of Scotland and Northern Ireland has brought this issue into sharper focus in recent years. Also, it has identified further sites that are now at risk from erosion or sea flooding, or may become so in the future.

While such instances are expected to increase, there is limited experience to date of dealing with these problems from identification to solution in coastal and estuarine environments. This guide has been produced to help the increasing number of professionals who will come across such problems for the first time.

Development of this guidance involved industry-wide consultation through a questionnaire survey and a stakeholders’ workshop. This process emphasised several of points that have been reflected in the way the guide has been structured and written:

- the issue spans several disciplines – most notably waste management, pollution prevention and control, flood and coastal management, and spatial planning
- as well as having a technical focus, environmental, economic and social issues have an influence on the option adopted
- potentially, a wide range of stakeholders can be involved with differing regulatory, land ownership, environmental, commercial and other perspectives
- the process is not linear and often a local issue can be influenced by the broader regional objectives such as strategic coastal management plans and budget allocations. This can result in complex and iterative decision making
- the approaches taken to investigation, management or remediation should be proportionate to the risks that are presented.
1.2 Scope and Purpose of the Guidance

This guide provides good practice in addressing these issues in coastal, estuarine and harbour settings. Its intent is to inform coastal managers about issues associated with the release of waste from sites and to inform site managers about the risks posed by erosion and sea flooding.

The sites covered include:

◆ operational landfills – permitted sites that are accepting waste
◆ closed landfills – permitted sites that are closed to accepting waste, but are undergoing aftercare and monitoring as part of the permit surrender process
◆ surrendered landfills – formerly permitted sites where the environmental regulator has accepted that the closed landfill no longer forms a risk and as a consequence has accepted that the permit is formally surrendered
Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines

INTRODUCTION

1.3 RELATIONSHIP WITH EXISTING GUIDANCE

There already exists a considerable volume of guidance of direct relevance to the waste management and pollution prevention and control (PPC) sectors, covering both the management of waste sites and the management of areas of land contamination.

There is further considerable guidance available directly to the flood and coastal management (FCM) sector on the management of risks from sea flooding and coastal erosion, including the appraisal of scheme options and the development of strategic coastal management plans, such as SMPs and coastal strategies.

This publication focuses on the unique area of overlap between these sectors (Figure 1.4), signposting to existing guidance and other reference material as appropriate. Also it recognises the environmental, economic and stakeholder perspectives that need to be considered.
1.4 **CORE PRINCIPLES OF THIS GUIDANCE**

The core of this guide is a framework based on a cyclic management approach involving the main stages presented in Figure 1.5.

![Image](Figure 1.5 Cyclic management approach)

The framework is founded on the principles of risk management throughout. These principles are already well known to both the waste and contaminated land industries and to the flood and coastal management industry. Linking strongly to this risk based approach, the framework also incorporates principles of proportionality, which ensures at each stage that the processes adopted and levels of investigation or assessment undertaken are proportionate to the best available understanding of the risks (or the residual risks) that are presented.

1.5 **TARGET READERSHIP**

This guidance is primarily aimed at those people with responsibilities for managing risks from coastal erosion and sea flooding affecting landfill sites or areas of land contamination, including:

- coastal managers who deliver their functions in relation to the rules set out in the Coast Protection Act 1949 for management of the risks posed by erosion of land and encroachment by the sea
Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines

- landfill site operators and regulators who undertake or control the functions of operational and closed landfill sites in accordance with environmental permits
- contaminated land officers and environmental health officers who manage the risks presented by sites in accordance with their functions under various contaminated land regulations (covering solids, liquids, gases, and radioactive materials) and various pollution prevention and control legislation (covering water quality, air quality, noise and odour)
- scientific advisors to government who ensure compliance of activities and developments within the context of various environmental directives and regulations, especially those relating to nature conservation within the marine and coastal environment
- landowners who may have inherited historic or surrendered-license landfill sites or areas of legacy land contamination
- spatial planners responsible for development control and land use planning under the Town and County Planning Act 1990.

This guide is intended to provide practical advice to assist with the management of “on the ground” operational issues that may be faced now and in the future. It should be read alongside complementary advice on high-level and strategic planning of longer term issues addressed through strategic coastal management plans, such as SMPs and coastal strategies, waste management strategies and local development plans.

Given the unique nature of the problems covered in this guidance, it contains a wide range of different topics. Some readers may find it of value to read the entire guide, while others who already possess knowledge of a specific topic area may instead wish to refer to particular sections or subsections. For this reason the guidance has been structured to provide several different “entry points” depending on the needs of the user.

1.6 HOW TO USE THE GUIDANCE

The core of the guide is presented in Part 1. This describes the processes to be followed from identification of a problem, through characterising the site and assessing the risks, onto appraisal of options and delivery of a solution. It concludes with advice on the importance of evaluating performance and assessing residual risks on an ongoing basis.

In the specific case where erosion or sea flooding of a previously unknown or unidentified site is reported, the immediate steps to be taken by a coastal manager are provided in Section 3.3.

This core framework is supported by many other elements, which highlight potential “entry points” to the guidance. The way these inter-relate is shown in Figure 1.6.

Given the wide range of potential stakeholders, Part 2 presents a perspectives section, which recognises that individuals will experience the issue from differing viewpoints and responsibilities and provides specific guidance from these perspectives.

Part 3 provides a suite of themes, which collectively cover important cross-cutting issues that can have an overall influence on the approach taken or can significantly affect the success (or otherwise) of an outcome.

Part 4 presents three main case studies that illustrate practical application of some of the main elements of the guidance.

The guidance concludes with a further reading section of useful guidance documents, online guides and relevant existing legislation.
Boxes are used throughout the guide to illustrate practical application of various processes within the framework through reference to a series of mini case studies. In addition, boxes and references listed within each chapter are used to direct the reader towards other literature sources for relevant legislation, existing complementary (more detailed) guidance documents and other useful information.

Figure 1.6  Structure of the guidance