CONTAMINATED SITES AND THE LANDUSE PLANNING PROCESS

Prepared by

Land and Water Quality Branch

Environmental Management Division

Department of Environment

DEPARTMENT OF ENVIRONMENT

CONTAMINATED SITES MANAGEMENT SERIES

FINAL VERSION

APRIL 2006

Acknowledgments

The Department of Environment wishes to thank the following organisations for their assistance in the preparation of this guideline:

- Cardno BSD
- City of Cockburn
- City of Gosnells
- City of Wanneroo
- Department for Planning and Infrastructure
- Western Australia Local Government Association

For more information contact:

Contaminated Sites Section
Environmental Management Division

Department of Environment
The Atrium, Level 4
168 St Georges Terrace
Perth WA 6000

Telephone
Facsimile

Recommended reference

The recommended reference for this publication is: Contaminated Sites and the Landuse Planning Process, Department of Environment, Government of Western Australia, Contaminated Sites Management Series, April 2006.

We welcome your feedback
A publication feedback form can be found at the back of this publication,
or online at <www.environment.wa.gov.au/public/feedback/>.

ISBN
ISSN

Printed on recycled stock.

April 2006

Important

Please note that the guidance in this document is based on the assumption that the *Contaminated Sites Act 2003* (the Act) has already commenced, although this document was written and published prior to the Act being proclaimed.

Notice

This document refers to sections within the *Contaminated Sites Act 2003*, the draft Contaminated Sites Regulations 2004. This guideline is not intended to provide information or advice that should be reasonably sought from or provided by a qualified legal practitioner. The guideline may be applicable to decision-making authorities, proponents, consultants and other interested parties involved in the planning, development and land use of actual and potentially contaminated land and water. The DoE should be consulted where guidance on policy issues is not covered in this guideline or where further clarification and explanation is required.

Limitations and disclaimer

The information presented in this Document is provided voluntarily as a public service. The information provided is made available in good faith and is believed accurate at the time of publication (or at the time of release on the Internet). However, this Document is intended to be a guide only and should not be seen as a substitute for obtaining appropriate advice or making prudent inquiries. The information is provided solely on the basis that readers will be responsible for making their own assessment of the matters discussed therein and that they should verify all relevant representations, statements and information. Changes in legislation, or other circumstances, after this Document has been published, may impact on the accuracy of any information or advice contained in the Document and readers should not rely on the accuracy of information presented in this Document.

Information presented in this Document does not constitute, and is not intended to be used as legal advice nor used as an interpretive instrument. In the event of any inconsistency between this Document and relevant legislation, provisions of the relevant legislation will prevail.

Neither the State of Western Australia (“State”), nor any employee or agent of the State or any agency or instrumentality of the State, nor any authors or contributors to this Document shall be liable for any loss, damage, personal injury or death however caused (whether caused by any negligent or other unlawful act or omission of, by or on the part of the State or otherwise) arising from the use of or reliance on any information, data or advice) expressed or implied in this Document.

Preface

This guideline forms part of a comprehensive statutory and policy framework for the identification, assessment and management of contaminated sites in Western Australia.

The Contaminated Site Management Series contains the following guidelines:

Technical

- Assessment Levels for Soil, Sediment and Water
- Bioremediation of Hydrocarbon-Contaminated Soils in Western Australia
- Community Consultation
- Development of Sampling and Analysis Programs
- Potentially Contaminating Activities, Industries and Landuses
- Reporting on Site Assessments
- Use of Monitored Natural Attenuation for Groundwater Remediation
- Use of Risk Assessment in Contaminated Site Management

Administrative

- Reporting of Known or Suspected Contaminated Sites
- Certificate of Contamination Audit Scheme
- Disclosure Statements
- Guidelines for the Proposed Contaminated Sites Auditor Accreditation Scheme
- Site Classification Scheme
- Contaminated Sites and the Landuse Planning Process

Copies of these guidelines are available from the Department of Environment library located at The Atrium, Level 4, 168 St Georges Terrace, Perth, or from the Department of Environment website <www.environment.wa.gov.au>. Copies of the *Contaminated Sites Act 2003* are available from the State Law Publisher.

Executive Summary

In a landuse planning context, contamination is an important issue particularly when a proposed scheme amendment, subdivision or development will result in a more sensitive landuse.

This guideline, in association with the other guidelines of the *Contaminated Sites Management Series*, aims to provide general assistance with how planning (decision making) authorities can manage their responsibilities under the *Contaminated Sites Act 2003*.

The primary aim of this guideline is to provide planning authorities with a level of general assistance for use in their determination as to whether:

a) Contamination is an issue at a site;

b) Sufficient information has been provided by applicant(s)/proponent(s);

c) Any further information/assessment is required prior to a planning decision being issued; or

d) Approval can be granted but further information/assessment is required as a condition of planning approval(s).

Prior to the *Contaminated Sites Act 2003*, conditions imposed on approvals under planning law and the *Environmental Protection Act 1986* (Part IV – Environmental Impact Assessment) were the only mechanisms available to require possible contamination to be investigated and remediated. If a scheme amendment or an approval to subdivide or develop land was not being sought, the State had no specific or very limited power to address contamination through the *Environmental Protection Act 1986*, even if there was a potential risk to human health and the environment.

While the *Contaminated Sites Act 2003* is the main mechanism for identifying and managing **known** and **suspected** contaminated sites, the landuse planning process remains the most effective mechanism for the identification and subsequent management of **unknown** contaminated sites. In essence, the landuse planning process operates in parallel to the *Contaminated Sites Act 2003*.

It is acknowledged that the level of consideration and detail paid to contamination issues varies depending on the level of planning at which the proposal is being assessed (e.g. strategic plans, structure plans, scheme amendments to subdivision and development). At the strategic level of planning, it is recommended that at the very least, sites with known or potential soil and/or groundwater contamination be identified, and assuming that contamination is not a "fatal flaw" issue, processes for dealing with the contamination at subsequent stages of the planning process be put into place (i.e. through setting appropriate planning conditions).

To determine if contamination is an issue when considering a planning proposal, the Department of Environment (DoE) suggests that planning authorities undertake an initial evaluation on readily available information. If, after carrying out an initial evaluation, there are indications that contamination is, or may be present, and the planning authority has insufficient site assessment information (**Section 6.2.4**) on which to make a decision, then the DoE advises that further information be sought by the planning authority from the applicant.

Planning authorities should be satisfied that adequate site assessment information has been provided in order to satisfy one or more of the following questions:

a) Is there actual contamination on the site or adjacent sites which may pose a risk to the subject site or proposed development?

b) Have the nature (type/s) and extent (vertically and laterally) of contamination been determined?

c) Is there the potential for contamination, and is further information required to determine whether actual contamination is present?

d) Does the proposal involve an increase in environmental and human health risk (noting that a different use within the same zone may present different risks)?

e) Is contamination manageable and, therefore, can the planning proposal be approved subject to appropriate planning conditions requiring investigation and if necessary, cleanup of contamination (**Appendix 2**)?

f) Is contamination a 'fatal flaw' issue to the extent that the site cannot be technically or economically remediated and therefore the change in landuse or new development may be inappropriate?

As a minimum to satisfy point e) it is suggested that the applicant prepare a desktop Preliminary Site Investigation for internal review by the relevant planning authority (in accordance with the DoE *Reporting on Site Assessments* guideline). The distinction between points d) and e) is largely a function of adequate information being provided by the applicant to demonstrate the nature and extent of contamination (potential or actual), that any remediation which may be required is technically practical, socially acceptable and economically viable and that the proposed landuse is therefore appropriate.

Prior to making a determination on a proposal, planning authorities may take into account that contamination in the majority of cases is a manageable issue and in the case of subdivision and development applications, can often be addressed by the application of appropriate conditions (**Appendix 2** provides an example condition for subdivision applications). Potential soil and/or groundwater contamination must, however, be identified and managed or remediated if necessary prior to any development activities.

If a planning authority requests further detailed information, then the applicant should follow the site investigation process outlined in the DoE's *Reporting on Site Assessments* guideline. Planning authorities can at any stage during the planning process seek advice from the DoE Contaminated Sites Section on technical contamination issues, the administration and operation of the *Contaminated Sites Act 2003* and the *Contaminated Sites Regulations* on policy and the acceptability of site assessment, remediation and validation reports. Additionally, the following persons have a duty to report known or suspected contaminated sites to the DoE under section 11 of the *Contaminated Sites Act 2003*:

a) an owner or occupier of the site;

b) a person who knows, or suspects, that he or she has caused, or contributed to, the contamination;

c) an auditor engaged to provide a report that is required for the purposes of the *Contaminated Sites Act 2003* in respect of the site.

Sites reported to the DoE will be assessed and classified by the DoE in terms of the risks contamination poses to the environment and human health under current and more sensitive landuses. When assessing subdivision, amalgamation or development applications, planning authorities should be aware of the implications of section 58 (6) of the *Contaminated Sites Act 2003*, which states:

> "If a memorial is registered under this section in respect of land referred to in subsection (1)(a)(i), then –
>
> a) the Western Australian Planning Commission is not to approve under Section 135 of the *Planning and Development Act 2005* the subdivision of that land, or the amalgamation of that land with any other land; and
>
> b) a responsible authority is not to grant approval under a scheme for any proposed development of that land, without seeking, and taking account, the advice of the CEO as to the suitability of the land for the subdivision, amalgamation or development."

Contents

Appendices

Figures

Tables

1 Aims and outcomes

This guideline has been prepared by the Department of Environment (DoE) to provide some general guidance to planning decision-making authorities[1] (referred to as planning authorities) in considering contamination when making planning decisions. More specifically, the guideline aims to provide;

General information on the respective roles of the *Contaminated Sites Act 2003, Environmental Protection Act 1986* and relevant planning legislation (including the *Town Planning and Development Act 1928*) in ensuring contamination is appropriately addressed in the planning process;

- Guidance for planning authorities to consider the issue of contamination before new development and changes in landuse occur;
- Suggestions on the level of information required when making a decision about approving a rezoning/subdivision/development proposal;
- Guidance to ensure potentially contaminated and known contaminated sites are appropriately investigated and/or remediated prior to development and landuse change;
- Information on the mechanisms that are present to ensure technical information is appropriate, acceptable and credible; and
- Guidance on when it may be appropriate to seek advice from the DoE during the planning approvals process.

The DoE recognises that the planning process has an important role in ensuring that contamination is satisfactorily considered prior to changes in landuse and development. It is important that contamination be considered prior to rezoning, subdivision or development approval. If the above aims are achieved, the following outcomes should be accomplished:

- Human health and the environment will be better protected;
- Overly conservative and unnecessary requirements may be avoided;
- Inappropriate restrictions on land use may be prevented; and
- Developments may proceed with more certainty.

[1] Including Minister for Planning and Infrastructure, Western Australian Planning Commission, Department for Planning and Infrastructure and 144 Local Government Authorities, as discussed in Section 4.1.

2 Guideline scope

Guidelines in the DoE Contaminated Sites Management Series provide information and requirements for the assessment, remediation and validation of on-site contamination. This guideline should be read in conjunction with other relevant guidelines in the *Contaminated Site Management Series* (see **Preface** or <www.environment.wa.gov.au>).

This guideline is principally designed for local government, the Department for Planning and Infrastructure and the Western Australian Planning Commission, although it will be of interest to a number of parties including environmental and planning consultants, development applicants, property insurers, property owners and valuers.

When followed, it is expected that planning authorities will be more able to assess whether:

1) Contamination is an issue at a site (**Section 6.2**);
2) Sufficient information has been provided by applicants (**Section 6.2.3**);
3) Any further information/assessment is required prior to making a planning decision (**Section 6.2.4**); or
4) Approval can be granted and further information/assessment is required as a condition of planning approval(s).

3 Identifying contaminated sites

Over the past decade, a growing population has resulted in parts of Western Australia undergoing an increased pressure for landuse change and (re)development. Soil and groundwater contamination related to historical landuses has been recognised as a serious issue for its potential to impact on public health, and on both the natural and the built environment.

In a landuse planning context, contamination is an important issue, particularly where proposals involve a change in land use from one that may have been potentially contaminating to one involving a more sensitive landuse, that is, a landuse where the risk and/or consequence to human health or the environment significantly increases. Examples of this would be a change from an industrial to residential zone or from service station to day care centre. In such circumstances, planning authorities may have a statutory responsibility to ensure contamination is appropriately addressed during the planning approvals process.

In discharging any statutory function relating to changes in landuse, planning authorities may be exposed to potential liabilities in relation to contamination, as was demonstrated in the court case *Alec Finlayson Pty Ltd v Armidale City Council [1997] 1517 FCA (31 December 1997)*[2], which resulted in the award of damages against a Local Government. In this case, it was held that planning legislation in New South Wales required the relevant council to consider the unsuitability of the land for development by reason of the land being subject to any risk, which in this case was contamination.

A planning authority failing to adequately identify and consider site contamination issues may experience any or all of the following consequences:

- Inappropriate land use decisions;
- Unacceptable risk to human health and the environment;
- Delays in development;
- Community concern; and
- Exposure to legal liability, legal costs, damages and compensation claims.

3.1 What is a contaminated site?

The *Contaminated Site Act 2003* defines *contaminated*: “in relation to land, water or a site, means having a substance present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value”.

However, the *Contaminated Sites Regulations 2006* lists the following land, water and sites as being exempted from the above definition:

[2] The Council attracted liability because their records contained information on pollution incidents and concerns related to a prior industrial landuse that the Council should have considered when determining rezoning and development applications; the court found the Council had failed in their duty of care.

1) Surface water that is affected by eutrophication is not contaminated only because of the eutrophication.
2) Land, water or a site is not contaminated where the only substance that is present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value –
    a) is part of a building or other structure (including sewerage system and septic tank); or
    b) is wholly contained within a building[3].
3) Land, water or a site is not contaminated where the only substance that is present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk or harm to human health, the environment or any environmental value is –
    a) sodium chloride;
    b) an explosive substance contained within an unexploded ordnance; or
    c) a substance that is present as a direct result of the correct application of a fertiliser, herbicide or pesticide to land.

It is important to note that exemption (3)(c) does not apply in circumstances where there has been a change of use to the land since the application of the fertiliser, herbicide or pesticide (e.g. a former market garden is proposed for residential redevelopment).

This guideline relates to the impacts of contamination to:

- Soil;
- Sediment;
- Groundwater; and,
- Surface Water.

3.1.1 Possible indicators of site contamination

Effects of contamination can be seen in a variety of different ways, both obvious and subtle. Some contaminants may have no observable effects in the immediate area. Some useful preliminary indicators of possible contamination include:

- Chemicals or wastes found on the ground surface or in the soil during site works (for example abnormal colouring or staining of the soil);
- Odours emanating from the soil;
- The presence of chemicals either in, or on, the groundwater or surface water at the site (for example, chemicals floating on the water, discolouration of the water, or odorous water);
- Evidence of off-site migration of contaminants into adjacent or nearby environments (for example migration of chemicals/staining/odours to creeks, rivers or wetlands);
- On-site losses/leakage of dangerous or hazardous goods (either catastrophic events or through inventory reconciliation);
- Nuisance or health related complaints from members of the local community;
- Vegetation death or impact, or areas where vegetation will not grow;

[3] The *Contaminated Sites Regulations 2006* definition of a "contaminated site" does not include items that remain intact and are part of a site's current infrastructure, including septic tanks, sewerage systems and asbestos building materials.

- Service corridors/trenches which may facilitate the transfer of contamination on or off-site;
- Historical liquid disposal to soak wells or ground; or
- Historical, illegal and/or uncontrolled landfills or disposed materials on-site.

Please note, that the absence of visual or other obvious contamination is not a guarantee that contamination is not present, as contamination may occur below the ground surface and is therefore difficult to detect.

In general, sites on which the industries/activities listed in the DoE *Potentially Contaminating Activities, Industries and Landuses* guideline are present or have historically been present should not automatically be considered to be contaminated by virtue of the listing alone. Being listed simply triggers the need to consider the quality of the site's soil and ground/surface water quality in more detail as the industries/activities have the potential to result in contamination. Contamination generally occurs as a consequence of poor housekeeping activities such as leaking drums, storage tanks, spills not properly attended to etc.

3.1.2 The DoEs assessment of contamination

Under the prescribed definition of a "contaminated site", simply having a concentration of a substance present in the environment may not be suffice to constitute "contamination". An important concept to the DoE's definition of contamination is that there needs to be a risk to human health or the environment that has either materialised (actual risk), or has the potential to materialise (potential risk).

The DoE has published a series of criteria in the guideline *Assessment Levels for Soil, Sediment and Water* (November 2003) for assessing contamination and determining the requirements for further investigation, or assessment of risk if any further action is required. The adopted assessment levels have been amalgamated from numerous Australian and internationally recognised guidelines.

The assessment levels published consider both human health and environmental considerations for soil, sediment and water (including both surface and groundwater). The application of the assessment levels is based upon the environmental value of the site and/or the current or potential landuse(s) of the site. The DoE *Health Investigation Levels* (HILs) for soil provide assessment levels for varying landuses such as residential, commercial and public open space. Refer to the *Assessment Levels for Soil, Sediment and Water* (November 2003) guideline for the full listing of assessment levels and further information on their application.

Known or suspected contaminated sites reported to the DoE, through either the provisions of the *Contaminated Sites Act 2003* or through planning requirements, will be assessed and classified as one of seven classifications (shown in **Appendix 3**) in terms of the risks the level of contamination poses to the environment and human health under current and more sensitive landuses.

Consistent with the DoE's definition of a contaminated site, if the applicable assessment levels are exceeded, the subject site is considered as being potentially contaminated (and is likely to be classified by the *Contaminated Sites Act 2003* as *possibly contaminated – investigation required*). For a site to be confirmed as "contaminated", generally a risk assessment is required to assess the actual risk of harm that is presented to people or the environment from contaminants on a site. The identification of three key elements is necessary: a source (e.g. contaminated soil), a pathway (e.g. exposed on the soil surface) and a receptor (e.g. children playing on the soil). Only once actual or potential risk is identified will a site be classified by the *Contaminated Sites Act 2003* as a confirmed contaminated site (and classified as either

contaminated – restricted use, remediated for restricted use or *contaminated – remediation required*: see **Appendix 3** for definitions of all seven classifications).

As contamination has the potential to migrate beyond cadastral boundaries, consideration must also be given to adjacent properties for their potential to have impacted the site subject to planning application.

3.2 Where is information on contaminated sites available?

Known or suspected contaminated sites are required to be reported to the Department of Environment (DoE) under the provisions of the *Contaminated Sites Act 2003*. Access to information on the sites reported to the DoE is available to planning authorities in the following ways:

- Through a search of the Contaminated Sites Database;

  Information on sites classified as *contaminated – restricted use, contaminated – remediation required* or *remediated for restricted use* is freely available to the public via the internet on the DoE's Contaminated Sites Database (available at <www.environment.wa.gov.au>).

- The information provided in the database includes a description of the location of each site and summarised information on the nature and extent of known contamination at the site, reasons for the site classification assigned by the DoE and any restrictions on the use of the land (including the soil and/or groundwater). The information provided relates to the current classification of the site only. This information is termed "Basic Summary of Records".

- Public authority in-house records;

- Following DoE classification of a known or suspected contaminated site, the DoE will advise, in writing, any relevant public authority. The DoE has interpreted "any relevant public authority" under s15(1)(c) of the *Contaminated Sites Act 2003* to include local government, the Western Australian Planning Commission and any relevant redevelopment authorities. It is the responsibility of the authorities to retain the notification from the DoE so that it may be retrieved and utilised in any relevant planning decisions. Note that retaining this information on file will negate the need for relevant public authorities to request a Basic Summary of Records from the DoE Register of Reported Sites (at a cost of $30).

- Through a Summary of Records from the Register of Reported Sites. A Summary of Records is available for any site that has been reported to the DoE under the *Contaminated Sites Act 2003*, including those sites identified on the Contaminated Sites Database. There are two different levels of information provided from this Register, a Basic Summary of Records and a Detailed Summary of Records.

  A Basic Summary of Records contains information on:

  – The classification allocated to the site and the reason for the classification with reference to any relevant guidelines and standards;

  – The restrictions on the use of the site if classified as *contaminated – restricted use* or *remediated for restricted use*; and

  – Any notice given under Part 4 of the *Contaminated Sites Act 2003* such as an investigation notice, clean-up notice or hazard abatement notice.

  A Detailed Summary of Records includes, in addition to the information in a Basic Summary of Records:

  – Any certificates of contamination audit given in respect of the land;

  – The author, date and title of any management plans and sampling and analysis programmes submitted to the CEO of the DoE.

Please note that the cost of a Basic Summary of Records is $30 and for a Detailed Summary of Records is $300. The form for requesting a summary of records is available from the DoE website at <www.environment.wa.gov.au>, or by calling the DoE on 6364 6500. By notification through the registration of a Memorial on the Certificate of Title of a property; Memorials provide a method of notification to people (including mortgagees) that the site has been classified under the *Contaminated Sites Act 2003*, as either:

- *possibly contaminated – investigation required;*
- *contaminated – restricted use;*
- *contaminated – remediation required; or*
- *remediated for restricted use;*

or whether a regulatory notice (an Investigation, Clean up, or Hazard Abatement Notice) has been issued by the DoE or a charge placed on the land (for sites requiring remediation).

The Memorial is registered by the Department of Land Information on the Certificates of Title of the properties that comprise the site. A site may comprise one or more properties, and all properties are assigned the same classification and register the same Memorial.

When a Memorial is lodged, the DoE will notify the following persons in writing of the lodgement:

- the owners of the land for which a Memorial has been registered following it's classification, the issue of a regulatory notice or the placement of a charge;
- the Western Australian Planning Commission (WAPC);
- the Department of Health;
- the relevant Local Government Authority; and
- the person who reported the site to the DoE.

- Through the written disclosure by site owners of the presence of known or suspected contamination to potential purchasers and lessees.

  The owner of a property which has been classified under the *Contaminated Sites Act 2003* as:

  - *contaminated – restricted use;*
  - *contaminated – remediation required; or*
  - *remediated for restricted use;*

  or where a regulatory notice has been issued, must provide written disclosure of the contamination to any potential new owner, mortgagee or lessee of the property at least 14 days prior to the completion of the relevant transaction.

Further information on the availability of information can be obtained from the site classification guideline, which forms part of this guideline series.

4 Statutory framework

Consultation undertaken during preparation and drafting of the *Contaminated Sites Act 2003* indicated that some planning authorities were unsure of their role and responsibilities with regards to contamination and the role and responsibilities of the DoE and the EPA. Additionally, there was a perception that the *Contaminated Site Act 2003* would address contamination to the extent that planning authorities would not need to consider this issue during the planning process. As mentioned in Section 3, it is essential to appreciate that, irrespective of the requirements of the *Contaminated Sites Act 2003* and *Environmental Protection Act 1986*, proponents and planning authorities still have an obligation to ensure contamination, like any other planning issue, is appropriately considered and addressed. This guideline and the other guidelines in the *Contaminated Sites Management Series* provide information which may assist planning authorities exercise any duties of care associated with site contamination. Where appropriate, planning authorities may also wish to obtain legal advice regarding their obligations.

The following sections provide a summary of the roles and responsibilities planning authorities have in relation to contamination as interpreted by the DoE.

4.1 Planning

In Western Australia, planning decisions are administered at three main levels: (1) by the Minister for Planning and Infrastructure, (2) by the Western Australian Planning Commission (WAPC) (through the Department for Planning and Infrastructure [DPI]) and (3) by 144 local governments. For the purposes of this guideline they, together with the State Administrative Tribunal and various redevelopment authorities, are broadly referred to as *planning (decision making) authorities*.

The Minister for Planning and Infrastructure is responsible for the final approval of statutory region schemes, local town planning schemes, and their amendments.

The WAPC, through the DPI, is responsible for the preparation and administration of region planning schemes, State planning policies (e.g. density codes), all subdivision decisions, some development applications (e.g. those of regional significance) and the administration of, and amendments to, region schemes. The WAPC makes recommendations to the Minister for Planning and Infrastructure on local government town planning schemes and their amendments.

Local governments make delegated planning decisions based on the provisions and controls incorporated into town planning schemes. Local governments are invited by the WAPC to comment on subdivision proposals and some development applications. Local governments initiate town planning scheme reviews and their amendments, which are generally referred to the EPA, pursuant to the relevant planning legislation. Planning authorities can seek advice from the DoE on contamination issues at any stage during the planning process (contact details in **Preface**).

The level of detail provided for a planning proposal will vary depending on its position on the scale of the planning framework (including strategic plans, structure plans, scheme amendments, subdivision and development). The relative detail is reflected in the roles and decision-making processes of the Minister for Planning and Infrastructure, WAPC and local governments, summarised in **Table 1**. As a result,

strategic issues are generally addressed at, or prior to, the rezoning stage, while design and management issues are usually addressed progressively at the subdivision, development and building stages.

Table 1: Summary of planning decision points

Level of Planning Decision	**Planning Authority Responsible for Decision**
Strategic Plans	Regional strategic planning initiatives of the State Government.
Structure Plans	Referred through local governments for advice by DPI and endorsed by WAPC.
Town or Region Planning Scheme amendment (i.e. rezoning and reservation)	Minister for Planning and Infrastructure on advice from WAPC, local government and other referral agencies (e.g. DoE). Schemes and their amendments must be referred to the EPA and may be subject to assessment and approval by the Minister for the Environment.
Subdivision Application	WAPC on advice from local government and other referral agencies (e.g. DoE).
Development Application	WAPC (for regionally significant proposals, on Metropolitan Region Scheme reserved land or Planning Control Areas) on advice of local government and other referral agencies (i.e. DoE). Local governments (other) on advice of other referral authorities (i.e. DoE).

4.1.1 Planning legislation

New legislation, known as the *Planning and Development Act 2005*, officially commenced operating on 9 April 2006. This Act is the principle planning legislation in Western Australia and consolidates the *Town Planning and Development Act 1928*, the *Metropolitan Region Town Planning Scheme Act 1959* and the *Western Australian Planning Commission Act 1985*. The new Act incorporates sustainable land use and development principles into state planning laws and provides for more streamlined planning approval process.

The *Planning and Development Act 2005* provides for the creation of district planning committees within the Perth Metropolitan Region, the operation of the Metropolitan Region Scheme; declaration of planning control areas, ensuring local government town planning schemes are consistent with the Metropolitan Region Scheme; and establishment and administration of the Metropolitan Region Improvement Fund.

This Act provides for the production of State Planning Policies, preparation of interim development orders outside the metropolitan region, town planning schemes and regulations governing the procedure for the making and review of such schemes, subdivision control, acquisition of land, compensation and betterment, appeals against planning decisions and enforcement of planning decisions.

4.2 Environmental

4.2.1 Contaminated Sites Act 2003

The *Contaminated Sites Act 2003* provides for the identification, recording, management and remediation of contaminated sites. Specifically, the *Contaminated Sites Act 2003* includes:

- Requirements for owners or occupiers of a site, or a person who knows or suspects that he or she has caused or contributed to, the contamination of a known or suspected contaminated site, to report the site to the DoE;
- A system for the DoE to classify sites reported to it based on the risk each site poses to the environment and human health;
- The creation of a free public database of confirmed contaminated sites;
- Requirements for owners of contaminated sites to inform purchasers and/or occupiers of land about any contamination present;
- New enforcement powers for the DoE, including Investigation, Cleanup and Hazard Abatement Notices; and
- Clear rules for assigning responsibility for remediation of contaminated sites.

4.2.1.1 Reporting of sites to the DoE

Section 11 of the *Contaminated Sites Act 2003* requires the following people to report known, or suspected, contaminated sites to the DoE:

a) an owner or occupier of the site;

b) a person who knows, or suspects, that he or she has caused, or contributed to, the contamination;

c) an auditor engaged to provide a report that is required for the purposes of *Contaminated Sites Act 2003* in respect of the site.

If any other person (i.e. someone other than the people listed above), becomes aware of known or suspected contamination they may report it, but are not obliged to do so.

It is important for planning authorities to note that a site relevant to a proposal may be subject to the provisions of the *Contaminated Sites Act 2003* involving classification, assessment, remediation and validation. Further information on the reporting of sites under the *Contaminated Sites Act 2003* is provided in the guideline *Reporting of Known or Suspected Contaminated Sites*.

4.2.1.2 Implications for planning authorities

Sites reported to the DoE will be assessed and classified by the DoE in terms of the risks contamination poses to the environment and human health under current or more sensitive landuses. If the site has been classified by the DoE, pursuant to the *Contaminated Sites Act 2003* as either:

- *contaminated – remediation required;*
- *contaminated – restricted use;*
- *remediated for restricted use; or*
- *possibly contaminated – investigation required;*

then a memorial will be present on the site's Certificate of Title.

In these cases, the relevant planning authority must seek and take into account advice provided by the DoE; specifically, section 58 (6) of the *Contaminated Sites Act 2003* states:

> "If a memorial is registered under this section in respect of land referred to in subsection (1)(a)(i), then-
>
> a) the Western Australian Planning Commission is not to approve under Section 135 of the *Planning and Development Act 2005* the subdivision of that land, or the amalgamation of that land with any other land; and
>
> b) a responsible authority is not to grant approval under a scheme for any proposed development of that land,
>
> without seeking, and taking account, the advice of the CEO[4] as to the suitability of the land for the subdivision, amalgamation or development."

Section 59 of the *Contaminated Sites Act 2003* states that "as soon as practicable after a memorial is registered or withdrawn under section 58 written notice that the memorial is registered or withdrawn, with a copy of the memorial or notice to withdraw the memorial attached, as is relevant, is to be given by the CEO to –

a) each owner of the relevant land;

b) the Western Australian Planning Commission;

c) the CEO of the Health Department;

d) each local government which has located within its district all, or part, of the relevant land; and

e) each responsible authority the scheme of which applies to all, or part, of the relevant land."

Further detail to the function of specific parts of the *Contaminated Sites Act 2003* and the *Contaminated Sites Regulations 2004* is found on the DoE website <www.environment.wa.gov.au>

4.2.1.3 Environmental Protection Act 1986

Part IV (Environmental Impact Assessment) of the *Environmental Protection Act 1986* prior to the introduction of the *Contaminated Sites Act 2003*, has been the major legislative mechanism to facilitate the investigation and remediation of contaminated sites. Formal assessment under Part IV of the *Environmental Protection Act 1986* is a public process, which results in legally binding environmental conditions imposed by the Minister for the Environment.

Proposals, including subdivision and development, likely to have a significant impact on the environment are required to be referred by planning authorities to the EPA pursuant to Section 38 of the *Environmental Protection Act 1986.* Region and town planning schemes and their amendments are required to be referred to the EPA for assessment pursuant to Division 3 of Part IV of the *Environmental Protection Act 1986.*

To minimise the likelihood of a formal environmental impact assessment by the EPA, it is essential that proponents provide sufficient information in their supporting documentation to demonstrate that their proposal can be managed by the planning approval process.

[4] Chief Executive Officer of the Department of Environment

Furthermore, Section 48C(1)(aa) of the *Environmental Protection Act 1986* (as amended by the *Contaminated Sites Act 2003*) states:

> "The EPA may, for the purpose of assessing under this Division a scheme referred to it under the relevant scheme Act, require the responsible authority, if it wishes that scheme to proceed, to provide to the EPA a contaminated site auditor's report on that scheme, which complies with any relevant regulations made under the *Contaminated Sites Act 2003*".

5 DoE reporting/advice mechanisms

5.1 General process

The two most common situations for when a contaminated site investigation and where necessary, remediation (clean-up) of a site may be required is when:

- A planning authority places a Condition on an application/licence approval stipulating that the subject investigation and (where necessary) remediation be undertaken, satisfying DoE requirements (an example subdivision condition is provided in **Appendix 2**); or
- A site is known or suspected of posing a risk to human health and/or the environment, and is required to be reported to the DoE under the provisions of the *Contaminated Sites Act 2003*.

In either case, the responsibility to complete a contaminated site investigation is that of the site owner, occupier, polluter (where applicable) or proponent.

The level of information required in a contaminated site investigation is detailed, and anyone requiring a site investigation should employ the services of suitably qualified professionals/consultants who have the appropriate experience in dealing with soil and groundwater contamination. The DoE requires that contaminated site investigations as a minimum meet the standards specified in the published *Contaminated Sites Management Series* of guidelines available from <www.environment.wa.gov.au>. A summary of the staged approach to investigating, managing and remediating contaminated sites is provided in **Appendix 1**.

Investigations that require assessment by the DoE, under the *Contaminated Sites Act 2003*, may also need to be reviewed by a DoE accredited Contaminated Site Auditor before they are submitted. Consultants may recommend particular Auditors for an investigation, but it remains the contractor's (or proponent's) responsibility to hire the Auditor directly, independent of the consultant. A list of all DoE accredited Auditors is available from the DoE website <www.environment.wa.gov.au>. To remain time and cost effective, the DoE recommends that the Auditor be involved at the outset of a project.

The first time a site is reported to the DoE under the *Contaminated Sites Act 2003*, the DoE is legally obliged to classify the site as one of seven classifications provided in **Appendix 3** according to the risk that the contamination at the site poses to human health, the environment or any environmental value. This will generally occur within 45 days. Within 10 days after the site has been classified, the DoE will notify the following people of the classification:

- The person who made the report;
- Owners and occupiers of the site;
- Any relevant public authorities (e.g. WAPC, local councils, redevelopment authorities etc); and
- Any other person who the DoE considers there is reason to notify.

The notification will be in writing, and will outline the implications of the classification and any appeal rights available.

It is important that the time periods required to conduct an investigation, compile and submit a report, followed by the time required by the DoE to review the report, are all factored by the proponent into the time required to clear the condition relating to contamination.

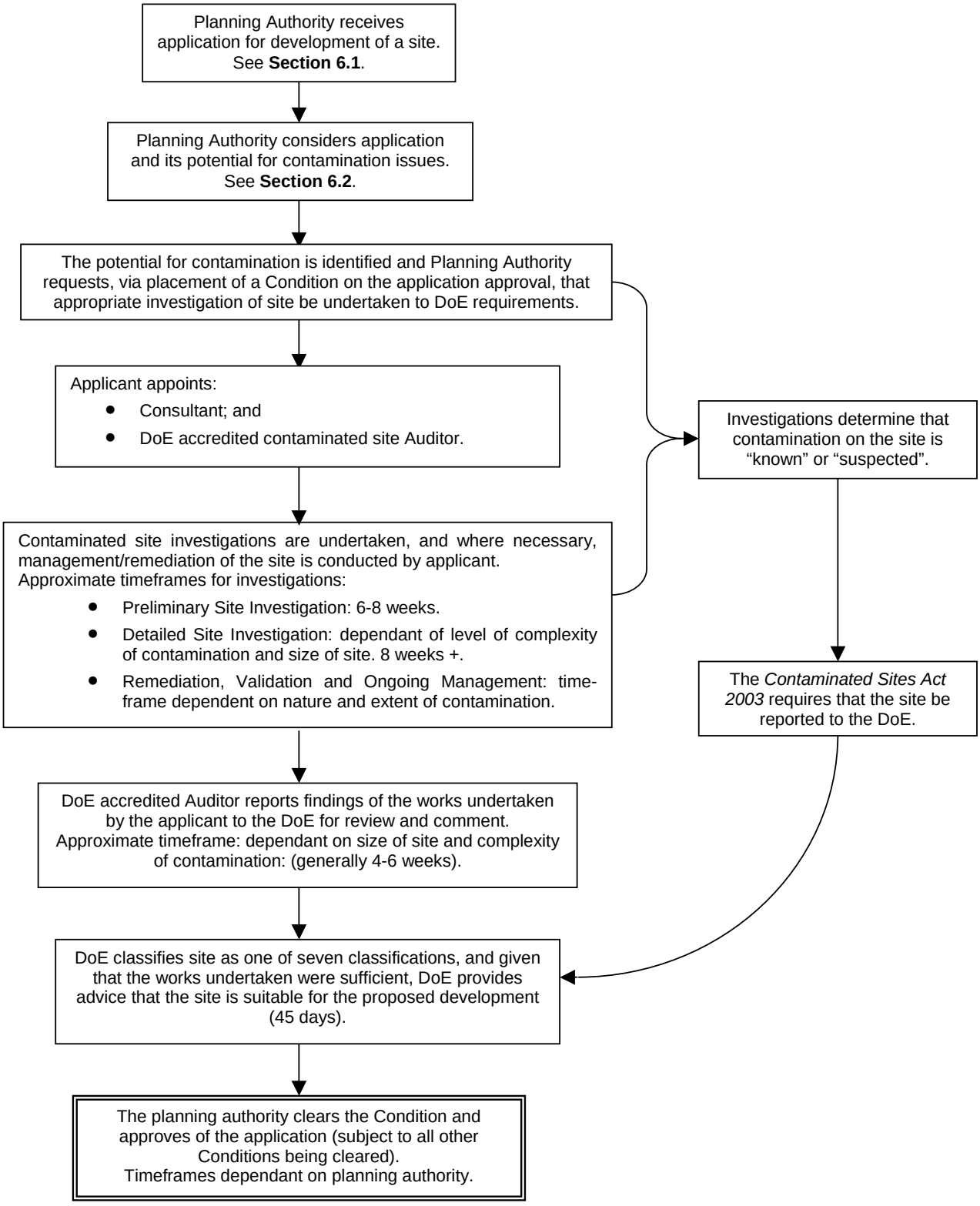
When the DoE advises that sufficient work has been done to make the site suitable for the proposed development/landuse, it is anticipated the planning authority will clear the Condition. A simplistic illustration of the contaminated site review/approval process most relevant to subdivision applications, development applications, and possibly building licence, applications is provided by **Figure 1**.

Further information regarding the approval/advice process can be sought from either the applicable planning authority or the DoE. Specific advice regarding contaminated sites legislation, policy, guidelines, and recorded information of reported sites should be sought from the DoE (contact details in **Preface**).

5.1.1 The landuse planning process and the *Contaminated Sites Act 2003*

While the *Contaminated Sites Act 2003* is the main mechanism for identifying and managing **known** and **suspected** contaminated sites, the landuse planning process remains the most effective mechanism for the identification of and subsequent management of **unknown** contaminated sites. Often, the redevelopment of a site, through implementation of appropriate approval conditions will trigger the investigation and management of sites previously not considered for potential contamination related issues. Where the landuse planning process ceases to guide the appropriate investigation and management of contaminated sites (e.g. the proponent does not follow through in obtaining approval of an application), the provisions of *Contaminated Sites Act 2003* should take over. In essence, the landuse planning process operates in parallel to the *Contaminated Sites Act 2003*.

Figure 1: The landuse planning/contaminated site review and approval process



6 Planning assessment: Considering contamination

6.1 Assessing contamination and risk

This chapter is intended to assist planning authorities understand the identification-investigative-referral process for addressing potential contamination related issues that may be associated with a proposal.

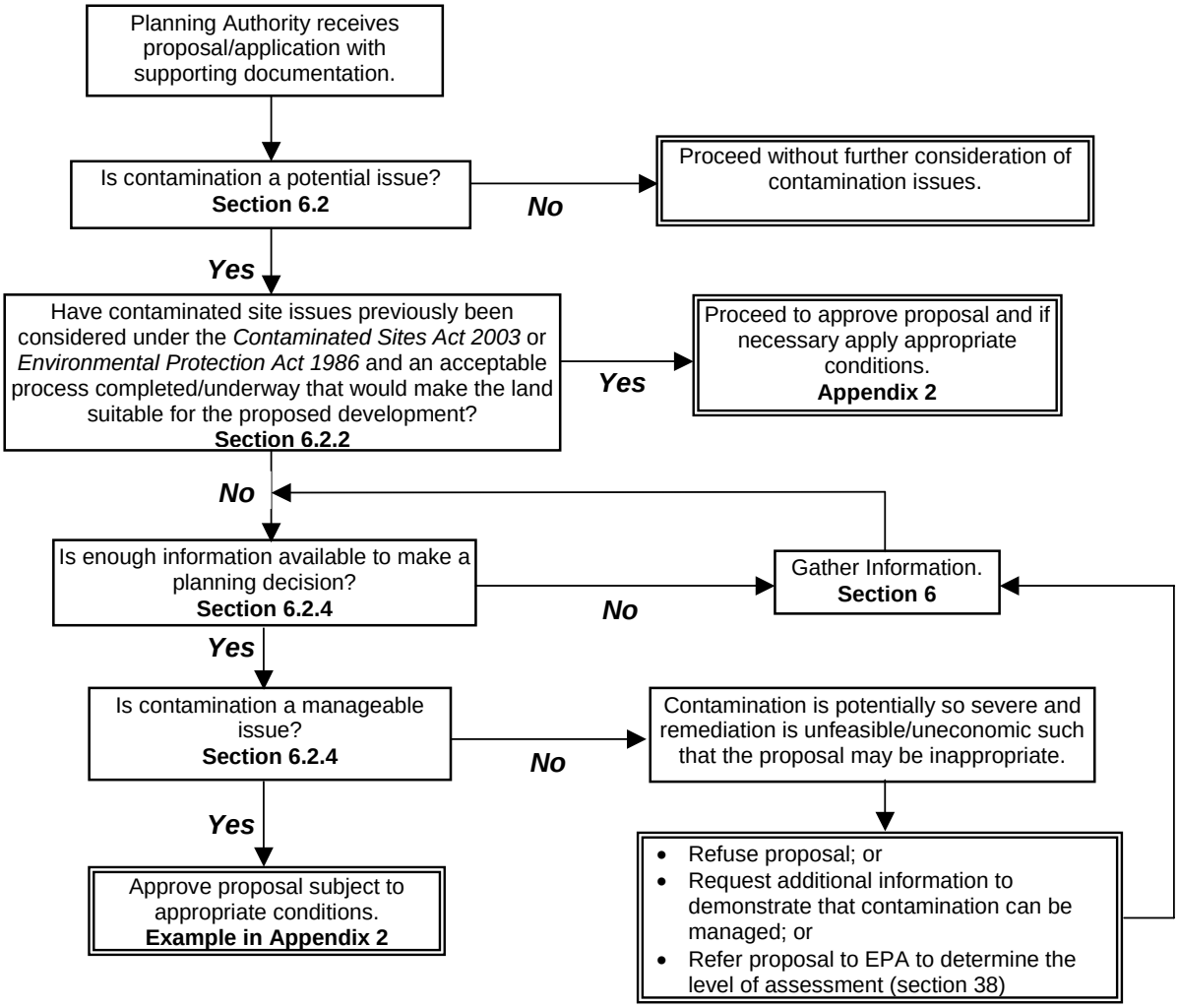
At each stage of the planning process, it is recommended that relevant planning authorities and applicants have regard for potential soil and groundwater contamination. It is also recommended that any contamination investigations and remediation occur (in accordance with the DoE's *Contaminated Sites Management Series*) to accommodate the proposed landuse and protect the environment, prior to any construction activities being undertaken. More specifically, before planning decisions can be made, it is suggested that officers at WAPC/DPI and local governments consider whether:

1) contamination issues at the site are relevant to the proposal and the decision to be made;
2) contamination has been adequately addressed at a previous stage of the landuse planning process;
3) sufficient and adequate contamination information has been provided by the applicant to make a decision; or
4) further information is required from the applicant to enable a decision to be made.

When assessing a subject site's potential for contamination, consideration should be made to the fact adjacent sites may be contaminated and possibly have impacted the subject site, through mechanisms such as migration of contaminated groundwater, the blowing of contaminated dusts, surface water runoff, and any significant remediation works which may be required on an adjacent site which may result in unacceptable dust, odours, vibration etc of the subject site.

Figure 2 outlines a simplistic view of a possible decision-making process when considering contamination issues relevant to a planning proposal (i.e. scheme amendment or subdivision/development application). The following sections discuss the decision points in **Figure 2**.

Figure 2: Generic planning decision making process for consideration of site contamination



6.2 Evaluating applications

Regardless of the planning stage of a proposal, it is recommended an initial evaluation based on readily available information be carried out to determine if contamination is an issue. As a general guide, contamination may potentially be an issue where the answer to any one of the following questions in **Table 2** is YES:

Table 2: Initial evaluation general guide

1.	Is the land listed on the public DoE Contaminated Sites Database (refer to *Site Classification Scheme* guideline and provisions of the *Contaminated Sites Act 2003*)? Please note that sites classified under the *Contaminated Sites Act 2003* as *possibly contaminated – investigation required* are not listed on the publicly available internet database, but are available on the Register of Reported Sites[5].
2.	Does the proposal occur on land listed in the DoE Register of Reported Sites? A request for a Summary of Records in respect of land may be made via Form 2 of the *Contaminated Sites Regulations 2004*.
3.	Has the land ever been used for an activity listed in the DoE's *Potentially Contaminating Activities, Industries, and Landuses* guideline?
4.	Could the above questions apply to land in the vicinity of a site that could have possibly caused soil or groundwater contamination on or beneath the subject land? (e.g. is there a known or suspected contaminated site in close proximity to the subject land?)
5.	Is there any reasonable suspicion that the land may be contaminated by legal or illegal disposal of unknown material, for example the importation of fill for levelling or reclamation activities?
6.	Does the proposal involve a more sensitive landuse (e.g. residential, childcare or school) that may increase the risk to human health and the environment (e.g. earthworks on historical landfill sites)?
7.	Is there a memorial on the site's Certificate of Title providing advice regarding contamination or restricting the use of the site to the extent that the planning proposal may not be appropriate?

In considering each of the above questions, the following are suggested sources of information:

- Knowledge of in-house planning, environmental and health staff;
- Information available from the DoE, such as location of premises licensed under the *Environmental Protection Act 1986*;
- Current zoning and permissible uses, and records from previous rezoning;
- Development applications and building licences for the site;
- Council property files, including Notification of Site Classification Letters (see **section 3.2**); and,
- Information provided by the applicant (Planning authorities could place the responsibility of gathering all relevant information regarding site contamination upon the applicant. E.g. title searches, historical aerial photographs, summary of site history etc).

[5] It should be noted that an absence of information on DoE records regarding a site's contamination (or lack of) in NO WAY suggests that a site is not potentially or actually contaminated. The DoE only holds records of sites reported to it, and its records are only as accurate as the information it receives and the inherent limitations that bind it.

6.2.1 Consideration of contamination as a planning issue

Contamination most often occurs because of poor practices undertaken on past or present industrial, commercial or agricultural land. Contamination of soil and/or groundwater may have resulted from leaking containers, a large spill, or improper waste disposal practises. Highly contaminated sites are often a result of long-term poor practices and may be contaminated by a number of substances.

It is DoE's experience that the best outcomes for proposals result from the identification of soil and/or groundwater contamination issues as early as possible in the planning process. While upfront early identification of possible contamination itself is important, experience in Western Australia to date suggests that contamination is rarely a 'fatal flaw' issue and in most circumstances can be appropriately addressed at the subdivision/development stages.

As previously stated, it is suggested that contamination be considered at all levels of planning, however, it is acknowledged that the level of consideration and detail paid to contamination issues vary depending on the level of planning (generally increasing from strategic plans, structure plans, scheme amendments to subdivision and development applications).

Consistent with *Environmental Guidance for Planning and Development* (EPA, Environmental Guidance Statement 33), the DoE suggests that the following level of consideration be given to potential contamination related issues.

6.2.1.1 Strategic planning

At the strategic stages of planing, it is recommended that:

- Known and suspected (potential) sites with soil and groundwater contamination, and sites that may be associated with contamination (e.g. uncontrolled fill), are at the very least identified. In particular, any major sites which may be associated with off-site impacts should be identified together with the possible area of influence. Any limitations on known information should be acknowledged;
- Any local issues relevant to the issue of soil and/or groundwater contamination are identified (e.g. proposed residential development on former market gardens);
- It may be advantageous to strategically designate areas of known or potential contamination as less sensitive landuses (e.g. Designate a known landfill as public open space rather than residential). Note that a comprehensive investigation (PSI and/or DSI) for the proponent to demonstrate landuse suitability will still be required; and,
- A process for dealing with the contamination issues at the subsequent stages of planning is identified (e.g. apply local planning policies, scheme provisions, and/or manage the known/possible contamination during the subdivision application determination processes). In particular, where residential and similarly sensitive developments are proposed (e.g. schools, child care centres etc), it is recommended that procedures are put in place to ensure that the potential for contamination onsite and on land surrounding the development has been considered.

6.2.1.2 Rezoning

At the rezoning stage, relevant considerations may include:

- Identification of known and suspected (potential) sites of soil and/or groundwater contamination, based on Preliminary Site Investigations (PSI) (see Appendix 1). For sites where Preliminary Site Investigations indicate the potential for contamination, further detailed information may be required at the rezoning stage (see Section 6.2.4). Any limitations on known information should be acknowledged for future consideration;

- Where sites are the subject of rezoning for a more "sensitive" use and are known to be, or potentially are, contaminated it is recommended stringent scheme provisions be emplaced to ensure subsequent development and environmental values are not adversely affected (e.g. preparation and implementation of a site investigation and management plan/remediation and validation report, prior to application for subdivision or development approval). Formal assessment by the EPA may be required; and
- It is recommended that the practicability of managing/remediating the possible type and extent of contamination be determined prior to approving the proposal- this may or may not require a Detailed Site Investigation (DSI) (see **Appendix 1**). Known or potential contamination may predetermine the particular zoning and/or reservation to be applied.

Town planning schemes are designed to separate incompatible land uses. From a human health and environmental perspective it should not be assumed that land uses permitted within the same zone present the same level of contamination risk. For example, a service station and day care may be permitted uses within a *Commercial* zone, however the latter is a significantly more sensitive landuse from a contamination perspective. Local governments may wish to examine their *Use Class Table* from this perspective and/or consider carefully the previous use(s) the proposed use and the relative contamination risk posed by each, even if the use is permitted and consistent with the existing zoning.

6.2.1.3 Subdivision and development applications

Prior to any site construction activities, any site that has the potential for soil and/or groundwater contamination must be identified, based on adequate information. The DoE expects that where development is proposed for a site with known or possible soil and/or groundwater contamination, that procedures will be followed to ensure appropriate investigation and remediation of the site to an acceptable standard that is compatible with the intended land use prior to the site being developed/redeveloped (**Appendix 1**).

If subdivision/development is to proceed, the DoE recommends:

- The placement of enforceable conditions to require appropriate site investigation and remediation, prior to any development construction works. The responsible authority should carefully consider wording of the relevant condition to allow early building works that facilitate remediation of the site. An example of a possible condition is contained in **Appendix 2**.

6.2.1.4 Building licence applications

Where potential contamination of a proposal has not been considered by other stages of the planning process, the DoE recommends that similar consideration be given to building licence applications as those given to subdivision and development applications. In most circumstances, an understanding of the site's historical landuse and surrounding landuses will be sufficient (ie. residential to residential redevelopment in an area predominantly occupied by residential landuse is not likely to pose any contamination issues).

In situations where building construction is part of the management of contamination, for example, raised or vented buildings to prevent methane or other vapour ingress, these requirements should be part of building licence approval.

6.2.2 Has contamination been previously identified as an issue?

Planning authorities may like to be aware, and have systems in place, to track land that may be potentially contaminated and land on which contamination may have already been identified, but not necessarily resolved.

6.2.2.1 Previously considered by the *Environmental Protection Act 1986*

The following scenarios may be relevant:

1. Contamination may have been considered, and possibly formally assessed or deferred as an environmental factor by the EPA, when a region/town planning scheme or amendment has been referred and assessed pursuant to Section 48A of the *Environmental Protection Act 1986.*
2. The planning proposal may relate to a contamination assessment and remediation proposal that was subject to a formal environmental assessment by the EPA, pursuant to Section 38 of the *Environmental Protection Act 1986* and subject to approval conditions imposed by the Minister for the Environment.

In the case of point one (1), if the land is affected by an assessed scheme, then the planning authority may need to examine the scheme to determine whether site contamination issues were considered as an environmental factor. If site contamination was not considered in the scheme assessment, then a judgement as to whether contamination is an issue, or the significance of the contamination may need to be made through the process of evaluating any documentation available in-house or provided by the applicant. If the assessment of the scheme did consider contaminated site issues, then a judgement may need to be made by the planning authority as to whether the proposal complies with any conditions imposed (by the Minister for the Environment) as part of the assessment (further information can be sought from the DoE EPA Service Unit). Additional information may be required from the applicant before a judgement as to whether appropriate conditions can be applied to manage contamination issues.

In regard to the second point (2), the planning authority may wish to consider the proposal assessed by the EPA, the proponent's commitments and the conditions imposed by the Minister for the Environment.

6.2.2.2 Previously reported under the *Contaminated Sites Act 2003*

It may be possible that the subject site has been reported to the DoE as a known or suspected contaminated site under the provisions of the *Contaminated Sites Act 2003*, and records relating to the site are on the Contaminated Sites Database or Register of Reported Sites (see **Section 3.2** for further details).

.As a result, in addition to the publicly available Contaminated Sites Database and the Register of Reported sites and Memorials on Certificate of Title, public authorities are able to refer to the notifications (of site classification and/or placement of Memorial on Certificate of Title) provided to them by the DoE to determine whether a site has been assessed by the DoE.

6.2.3 When no further information is required

If, after carrying out an initial evaluation, a planning authority determines that none of the information available suggests that the site might be potentially contaminated, then a decision as to whether the planning process can proceed in the normal way can be made.

An example of this could be where the information available includes a site classification (**Appendix 3**) and the attached information confirms the site is suitable for the proposed use and there has been no

subsequent potentially contaminating activity on or near the site. Another example could be for a residential subdivision, already zoned residential, and there is no evidence of a potentially contaminating activity ever being undertaken on or near the site.

Planning authorities are encouraged not to be overly conservative by placing unnecessary investigative conditions on planning applications. If, in reviewing a site's potential for contamination, all the factors in **Table 2** can be satisfied with a "No", then this should be sufficient to discount a site's potential for contamination. Planning authorities are advised, however, to ensure they have adequate historical information regarding a site and its surrounds to make an informed decision.

6.2.4 When may further information be required to make a planning decision?

If, after carrying out an initial evaluation, there are indications that contamination is, or may be, present and the planning authority decides that it has insufficient information on which to make a decision, it is recommended that further information be sought from the applicant, in the form of contamination investigations, as described in **Appendix 1**.

It is suggested that planning authorities obtain information from the applicant to satisfy the questions in **Table 3** below:

Table 3: Evaluation of the requirement for further information

Is there actual contamination on the site or adjacent sites which may pose a risk to the subject site or proposed development?
What is the DoE classification of the site, and does it preclude particular landuses?
Does the proposal involve an increase in environmental and human health risk (noting that a different use within the same zone may present different risks)?
Is contamination manageable and, therefore, can the planning proposal be approved subject to appropriate planning conditions requiring investigation and if necessary, cleanup of contamination (**Appendix 2**)?
Is contamination a 'fatal flaw' issue to the extent that the site cannot be technically or economically remediated and therefore the change in landuse or new development may be inappropriate?

As a minimum, to satisfy the points raised in Table 3, planning authorities may wish to consider requesting applicants to prepare a desktop PSI (in accordance with the DoE *Reporting on Site Assessments* guideline) for internal review by the relevant planning authority. The planning authority can consider the information provided in a PSI (**Appendix 1**) in its determination of whether it is appropriate to impose a planning condition requiring further investigations to determine the nature and extent of contamination and, if necessary, remediation. Where required, the DoE is available to provide advice on applicable contaminated sites legislation, guidance and what should be submitted for review and comment.

Where an applicant cannot demonstrate to the satisfaction of the planning authority that contamination and potential risk to human health and/or the environment has been adequately addressed, the planning authority could consider:

- Placement of a planning condition requiring investigation and if necessary, remediation (see **Appendix 2** for an example subdivision condition);
- Refusal of the application/proposal; or
- If a major project involves significant contamination, referral of the proposal to the EPA for assessment, pursuant to Section 38 of the *Environmental Protection Act 1986*.

6.2.4.1 Contaminated site assessment

Applicants may choose not to proceed with the proposal and terminate the site investigation process at any stage.

If an applicant decides to proceed with the proposal and provide the necessary information for consideration by the planning authority, any investigations submitted for review (to the planning authority or DoE) should be undertaken by suitably qualified contaminated site professionals, who are experienced in contaminated site assessment and management.

Appendix 1 provides guidance on what is recommended for planning authorities to request in the review of information for their determination of the subject application. Refer to the DoE's the *Reporting on Site Assessments* guideline for further information.

7 Glossary

TERM	DEFINITION
Applicant	The person or body seeking planning approval to develop or redevelop land.
Assessed Scheme	A scheme which has been referred to the EPA and assessed in accordance with section 48A(1)(a) & (b) of the *Environmental Protection Act* 1986.
Auditor	A person accredited as a contaminated sites Auditor under the *Contaminated Sites Act 2003*.
CEO	Chief Executive Officer of the Department of Environment.
Certificate of Contamination Audit	Certificate of Contamination Audit issued under the *Contaminated Sites Act 2003*.
Contaminant	A substance present at levels above background concentrations that presents or has the potential to present a risk of harm to human health, the environment or any environmental value, as defined in the *Contaminated Sites Act 2003*.
Contaminated	In relation to land, water or a site, means having a substance present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value (section 4 of *Contaminated Sites Act 2003*).
Contamination Assessment	Study of a site to determine possible and actual contaminants. May involve a desktop review of the site and may also include the collection of soil, groundwater or sediment samples. Also referred to as a *site investigation*.
Contaminated Sites Database	The DoE publicly available database of all known (and classified) contaminated sites, available through <www.environment.wa.gov.au>.
Detailed Site Investigation (DSI)	An investigation that confirms and delineates potential or actual contamination through a comprehensive sampling and analysis program. Further information is available in the DoE guideline *Reporting of Site Assessments* (Contaminated Sites Management Series).
DoE	Department of Environment.
DPI	Department for Planning and Infrastructure.
EPA	Environmental Protection Authority.
Planning Decision Making Authority	The various planning agencies involved in the decision making of different types of planning proposals.
Planning Proposals	Such as subdivision and amalgamation applications, development applications and Town Planning Scheme amendments and strategic and structure plans.

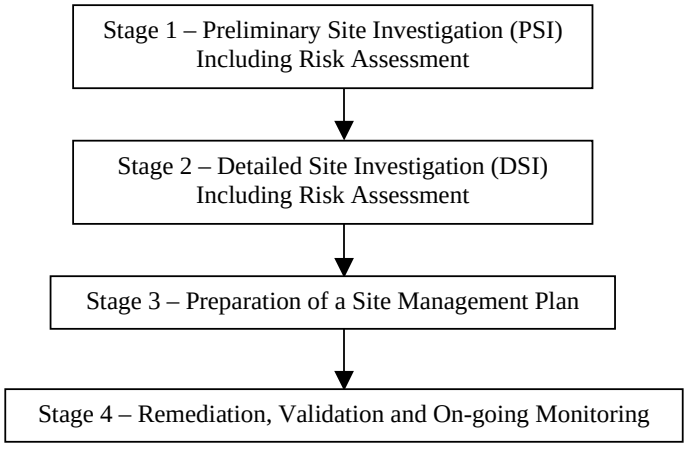
TERM	DEFINITION
Preliminary Site Investigation (PSI)	An investigation consisting of a desktop study, a detailed site inspection and where appropriate, limited sampling. The preliminary site investigation should be of such scope as to be sufficient to indicate whether contamination is present or likely to be present and to determine whether a detailed site investigation should be conducted. Also to provide information for designing a DSI. Further information is available in the DoE guideline *Reporting of Site Assessments* (Contaminated Sites Management Series).
Register of Reported Sites	The register of sites reported to the DoE, made available for specific sites at request accompanied by a fee. See DoE contact details in Preface for further information.
Remediation	In respect of a site that is contaminated includes- the attempted restoration of the site to the state it was in before the contamination occurred; the restriction, or prohibition, of access to, or use of, the site; the removal, destruction, reduction, containment or dispersal of the substance causing the contamination, reduction or mitigation of the effect of the substance; the protection of human health, the environment or any environmental value from the contamination (section 4 of *Contaminated Sites Act 2003*).
Risk Assessment	The process of estimating the potential impact of a chemical, physical, microbiological or psychosocial hazard on a specified human population or ecological system under a specific set of conditions and timeframe.
Schemes	The different types of town planning schemes (i.e. local town planning schemes, redevelopment schemes and region planning schemes).
Site	An area of land that includes – underground water under that land; and surface water on that land, as defined by the *Contaminated Sites Act 2003*.
WAPC	Western Australian Planning Commission

Appendix 1
Summary of staged approach to contaminated site investigations and management

Planning authorities may seek advice from the DoE (refer to contact details in **Preface**) at any time throughout the process regarding the adequacy of information presented to them. Applicants may also choose not to proceed with the proposal and terminate the site investigation process at any stage. If an applicant decides to proceed with the proposal and provide the necessary information for consideration by the planning authority, they should engage suitably qualified contaminated site professionals, who are experienced in contaminated site assessment and management, to undertake the investigation. The following sections provide further guidance on what can be considered in the review of information and the issues that could be considered at each stage of the site investigation process.

The process of site investigation and assessment of contaminated land and groundwater generally involves four main stages, as illustrated by **Figure A**:

Figure A: General Process for Investigation and Management of Contaminated Sites



A brief description of each stage is provided below. More detailed guidance on which each stage involves can be obtained from the DoE *Reporting on Site Assessments* guideline.

Under most circumstances for sites known to be contaminated, as a minimum, a PSI should have already been completed by a suitably qualified professional on behalf of the applicant.

Stage 1 – Preliminary Site Investigation (PSI)

PSIs primarily consist of a desktop study, a site inspection and, in some cases, limited sampling to determine the contamination status of a site and a screening of the risk posed by potential contaminants. A PSI takes in the order of 6 to 8 weeks to complete depending on the size and complexity of the site.

The objective of a PSI is to determine whether there have been any potentially contaminating landuses on the site, the probable contaminants and the possible location of any contamination. Where a PSI indicates further investigation is required, planning authorities may wish to consider imposing a planning condition requiring investigation and if necessary, remediation. Where the PSI provides reasons to suspect contamination at a site, then the planning authority may wish to consider requesting further information, through a DSI (and the site should be reported to the DoE under section 11 of the *Contaminated Sites Act 2003* by either:

a) an owner or occupier of the site;

b) a person who knows, or suspects, that he or she has caused, or contributed to, the contamination;

c) an auditor engaged to provide a report that is required for the purposes of the *Contaminated Sites Act 2003* in respect of the site).

Stage 2 – Detailed Site Investigation

A DSI involves the collection of comprehensive sampling data on issues identified in the PSI. DSIs are only necessary when a PSI indicates that there are reasons to suspect contamination, which has the potential to pose a risk to human health or the environment. A DSI will usually take at least eight weeks, depending on the size and complexity of the site.

The objectives of a DSI are to define the nature, extent and degree of contamination at the site. Where potential contamination has been identified on the site, a risk assessment is required to determine the site's impact upon human health or the environment. A risk assessment may vary from a simple screening risk assessment (common in PSIs) to complex quantitative risk assessments. The DoE's guideline titled *Use of Risk Assessment in Contaminated Site Management* further explains the concepts and process of Risk Assessment

The decision-making process involved in determining appropriate remedial and/or management strategies is dependent upon the data obtained during this stage of investigation. DSIs may be completed in a number of stages depending upon the complexity of contamination issues affecting the site.

Stage 3 – Site Management Plan

A Site Management Plan incorporates the findings from previous stages of investigation and documents the type and extent of remediation or management (such as ongoing monitoring) required to ensure that the site is suitable for its current or intended future use, and to protect the surrounding environment and landuses. The management plan details the remediation or monitoring techniques proposed to achieve the remediation/monitoring objectives and generally sets criteria against which remediation and monitoring can be assessed through the site validation process. Remediation of a site may take several days to several years depending on the size and the complexity of the site.

Stage 4 – Remediation, Validation and Ongoing Management

The remediation, validation and ongoing monitoring stage of a site assessment is the process of demonstrating that a contaminated site has been successfully remediated and that the objectives of the site management plan have been achieved. Site validation requires sampling to demonstrate that the remaining soil/sediment, the backfill material, the in-situ remediated material and/or any groundwater/surface water affected by site contamination no longer poses a risk to human health or the environment. In the case of groundwater impact, several years of monitoring may be required.

Appendix 2
Example of standard subdivision condition

	CONDITION	**COMMENT**
Investigation and remediation of site contamination	Prior to any other construction activities, investigation for soil and groundwater contamination and completion of any remediation, including validation of remediation, shall be carried out to the satisfaction of the Western Australian Planning Commission to ensure that the lots created can accommodate the proposed development (*DoE*). *Advice: The investigation, remediation and validation of remediation, shall be carried out in accordance with the guidelines adopted by the Department of Environment, as detailed in the Department's Contaminated Sites Management Series* <The Department of Environment is not satisfied with the level of site investigation previously undertaken. The Department of Environment advises that further studies are required to determine the extent and severity of {dieldrin and heptachlor (organochloride) contamination}in soil and/or groundwater>.	Not appropriate where major contamination suspected. Consider use of this condition where contamination, if it exists, is likely to be readily managed. Where land has previously been used for an industry or activity listed in the DoE's guideline *Potentially Contaminating Activities, Industries and Landuses* (2001) the possibility of contamination should be considered. In other cases of possible contamination, advice on the need for a site investigation and remediation report should be obtained from Land and Water Quality Branch before application is determined.

Appendix 3
Table of site classification (Schedule 1 of the *Contaminated Sites Act 2003*)

Classification	**Criterion**
Report not substantiated	A report under section 11 or 12 (of the *Contaminated Sites Act 2003*) provides no ground to indicate possible contamination of the site.
Possibly contaminated – investigation required	There are grounds to indicate possible contamination of the site.
Not contaminated – unrestricted use	After investigation, the site is found not to be contaminated.
Contaminated – restricted use	The site is contaminated but suitable for restricted use.
Remediated for restricted use	The site is contaminated but has been remediated so that it is suitable for restricted use.
Contaminated – remediation required	The site is contaminated and remediation is required.
Decontaminated	The site has been remediated and is suitable for all uses.

Publication feedback form

The Department of Environment welcomes feedback to help us improve the quality and effectiveness of our publications. Your assistance in completing this form would be greatly appreciated.

Please consider each question carefully and rate them on a 1 to 5 scale, where 1 is poor and 5 is excellent (please circle the appropriate number).

Publication title: CONTAMINATED SITES AND THE LANDUSE PLANNING PROCESS

How did you rate the quality of information?

1 2 3 4 5

How did you rate the design and presentation of this publication?

1 2 3 4 5

How can it be improved?

.....

How effective did you find the tables and figures in communicating the data?

1 2 3 4 5

How can they be improved?

.....

.....

.....

If you would like to see this publication in other formats, please specify. (e.g. CD)

.....

Please cut along the dotted line on the left and return your completed response to:

Publications Coordinator
Department of Environment
Level 4, The Atrium
168 St Georges Tce
Perth WA 6000