

Lismore City Council

**Regional Policy for the
Management of Contaminated Land**

June 2007

This Policy was adopted at the Ordinary Meeting of Council June 12, 2007.

Table of Content

1.0	Introduction.....	1
1.1	What is Contamination	1
1.2	Assessing the Risks of Contamination	1
2.0	Council’s decision making process	2
2.1	Initial Evaluation.....	2
2.2	Council Procedures for Rezoning Applications	3
2.3	Council Procedures for Subdivision and Development Applications	5
3.0	Council’s requirements for remediation work	9
3.1	Category 1 Remediation Work.....	9
3.2	Category 2 Remediation Work.....	10
4.0	Independent auditing.....	16
5.0	Council records and community information	18
5.1	How Council’s information is managed	18
5.2	Supply of Information and Notification of Restrictions	19
5.3	Planning Certificates - prescribed information.....	19
5.4	Planning Certificates - additional information	19
6.0	Reference material.....	21
6.1	Glossary of Terms/Abbreviations	21
6.2	References	22
Schedule 1:	Some potentially contaminating activities and main potential contaminants	24
Schedule 2:	Council’s requirements for consultants reporting on contaminated land.....	26
Schedule 3:	Sources of site history information for preliminary site investigations	27

List of Figures

Figure 1: Council Procedure for Considering Land Contamination Issues for Zoning & Rezoning Applications 7

Figure 2: Council Procedure for Considering Land Contamination Issues for Subdivision & Development Applications 9

Figure 3: Council Procedure for Considering Site Remediation Proposals..... 14

1.0 Introduction

This Policy is the ***Northern Rivers Regional Councils (Council)*** Policy for the Management of Contaminated Land.

This Policy was adopted by Lismore City Council at the Ordinary Meeting of Council June 12, 2007.

This policy forms the basis for the management of land contamination within the ***Northern Rivers Region*** being the local government areas of Ballina, Byron, Kyogle, Lismore, Richmond Valley & Tweed.

This policy is made under the "Managing Land Contamination: Planning Guidelines" (Contaminated Land Planning Guidelines) and State Environment Planning Policy No.55 - Remediation of Land (SEPP 55) in order to implement a contaminated land management framework within the planning and development process of Council.

It applies to all land in the local government areas of Ballina, Byron, Kyogle, Lismore, Richmond Valley & Tweed Council's.

The aims of this policy are to:

- ensure that the likelihood of land contamination is considered as early as possible in the planning and development process by Council, consultants, developers etc;
- ensure that changes in land use will not increase the risk to health or the environment;
- avoid inappropriate restrictions on land use arising from contamination;
- provide information to support decision making and to inform the community;
- ensure that site investigations and remediation works are carried out in a satisfactory manner, and where appropriate, are independently verified;
- ensure that the Council exercises its functions relating to the development of contaminated land with a reasonable standard of care and diligence; and
- to assist the development of technical notes to guide contaminated land assessment activities.

The Department of Environment and Conservation's (Environment Protection Authority (EPA)) intervention in relation to contaminated land is triggered when land contamination poses a significant risk of harm to public health or the environment (s.7 Contaminated Land Management (CLM) Act 1997). Generally, sites not posing a significant risk of harm will be dealt with by Council under the provisions of the Environmental Planning and Assessment Act 1979, in accordance with Managing Land Contamination Planning Guidelines, SEPP 55 and this policy.

Council's who act substantially in accordance with these guidelines when carrying out specific planning functions are taken to have acted in good faith and receive statutory protection under s.145B and s.145C of the Environmental Planning and Assessment Act. This means that before an authority can be found negligent of an act or omission related to a particular planning function, it must be shown that the authority did not substantially comply with the guidelines.

1.1 What is contamination

Contamination of land means the presence in, on or under the land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment (s.5(1) CLM Act).

1.2 Assessing the risks of contamination

SEPP 55 requires that a consent authority must not consent to the carrying out of any rezoning or development of a site unless it has considered whether the site is contaminated, and, if it is contaminated, whether the site is suitable in its contaminated state or whether remediation is necessary for the purpose of the proposed development.

The need to consider whether the site is contaminated and whether or not a proposal is suitable with regard to contamination risk is also a requirement under section 79C of the Environmental Planning & Assessment Act and Council's general environmental obligations under the Local Government Act.

It is recognised that many applications submitted to Council will have no contamination risks associated with them, however it must also be recognised that many sites in the Northern Rivers Region have the potential to be contaminated. Ultimately Council needs to be satisfied that a site is suitable for a proposed use, or can and will be made suitable by remediation.

2.0 Council's decision making process

In determining all rezoning, subdivision and development applications Council must consider the possibility of land contamination and the implications it has for any proposed or permissible future uses of the land.

A precautionary approach will be adopted to ensure that any land contamination issues are identified and dealt with early in the planning process.

2.1 Initial evaluation

Council will conduct an initial evaluation as part of the rezoning or development assessment process to determine whether contamination is an issue, and whether sufficient information is available for Council to carry out its planning functions in good faith. The initial evaluation will be based on readily available factual information **provided by the applicant** and information available to Council such as previous investigations about contamination on the land, previous zoning and uses of the subject land, and restrictions relating to possible contamination such as notices issued by the EPA.

The initial evaluation must be carried out **regardless of the nature of the proposed use or the current use**. The onus is on the proponent to ensure that the information included in any rezoning/development application is sufficient to enable Council to make a decision.

A brief checklist for conducting an initial evaluation is given below:

- Do Council records identify any previous investigations about contamination on the land?
- What were the results, including any previous initial evaluations?
- Do Council records identify an activity listed in **Schedule 1** as having occurred or having been approved on the subject land.
- Has the subject land ever been zoned for industrial, agricultural or defence purposes?
- Is the subject land currently used for an activity listed in **Schedule 1**?
- Do Council records show that the land was or is subject to regulation, through licensing or other mechanism, of an activity listed in **Schedule 1**?
- Are there any land use restrictions on the subject land relating to possible contamination such as notices issued by the EPA or other regulatory authorities?
- Do Council records identify contamination issues on the land adjacent to the subject land which could affect the subject land?
- Does a site inspection suggest that the site may have been associated with activities listed in **Schedule 1**?

If, after carrying out an initial evaluation, none of the enquiries suggest that the land might be contaminated or that further enquiry is warranted, the planning process should proceed in the normal way. If however there are indications that contamination is, or maybe present and Council has insufficient information on which to make a planning decision (gaps in historical information, insufficient records) then the applicant will be required to conduct further investigations as described below.

2.2 Council procedures for rezoning applications

SEPP 55 requires Council to consider contamination issues in rezoning proposals (including when Council is the proponent of the rezoning).

Council will not include land in a zone that would permit a change of use of the land from the existing use unless:

- (a) council has considered whether the land is contaminated, and
- (b) if the land is contaminated, Council is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all purposes for which land in the zone concerned is permitted to be used, and
- (c) if the land requires remediation to be made suitable for any purpose for which land in that zone is permitted to be used, Council is satisfied that the land will be so remediated before the land is used for that purpose.

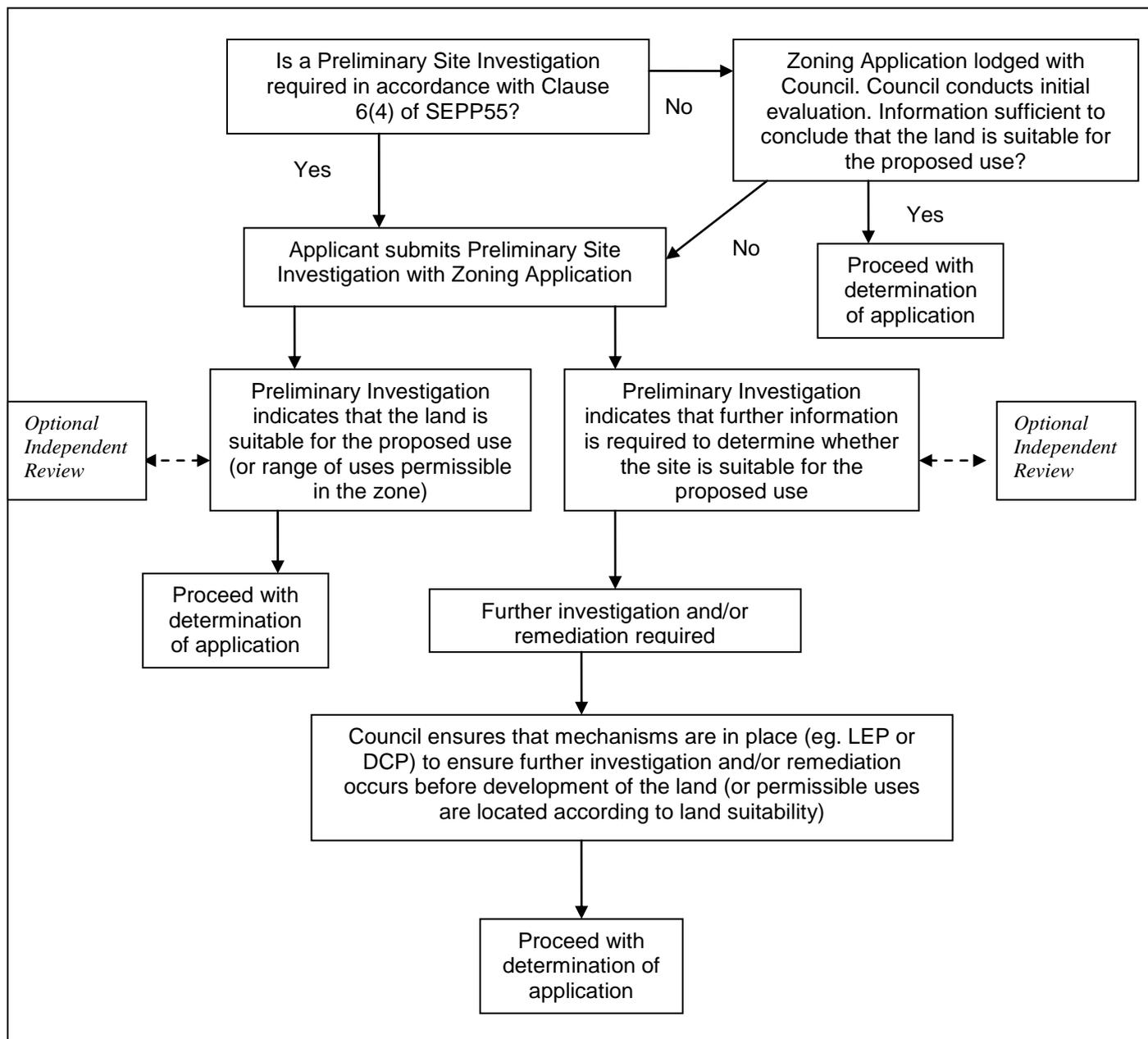
In accordance with Clause 6(4) of SEPP 55 Council will require a preliminary investigation to be submitted with rezoning applications where the land concerned is:

- (a) land that is within an investigation area,
- (b) land on which development for a purpose referred to in Table 1* to the contaminated land planning guidelines is being, or is known to have been, carried out,
- (c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital — land:
 - (i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1* to the contaminated land planning guidelines has been carried out, and
 - (ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

NOTE: Table 1 in the Managing Land Contamination Planning Guidelines 1998, Department of Urban Affairs and Planning & NSW Environment Protection Authority which is reproduced in Schedule 1.*

In addition to the requirements set out in SEPP 55, Council will also require a preliminary investigation to be submitted if Council has reasonable grounds to believe the land may be contaminated because of the lands history, condition or other information known to Council. Council's procedure for considering land contamination issues for rezoning applications is shown in **Figure 1**.

FIGURE 1: COUNCIL PROCEDURE FOR CONSIDERING LAND CONTAMINATION ISSUES FOR REZONING APPLICATIONS



Note: Record information within Council's property information system

2.2.2 Rezoning

When Council receives a rezoning application that covers more than one property it may be difficult for Council to be satisfied that every part of the land is suitable for the permissible use(s) at the rezoning stage. In these circumstances Council will consider the findings of the preliminary investigation, and may include provisions in a LEP or DCP to ensure that the potential for contamination and the suitability of the land for any proposed use is further addressed prior to the redevelopment of the land.

2.3 Council procedures for subdivision and development applications

From 1 July 1998 s.79C(1) of the Environmental Planning and Assessment Act 1979 requires Council to consider "...the suitability of the site for the development" when assessing development applications. The risk from contamination to health and the environment is included in this assessment.

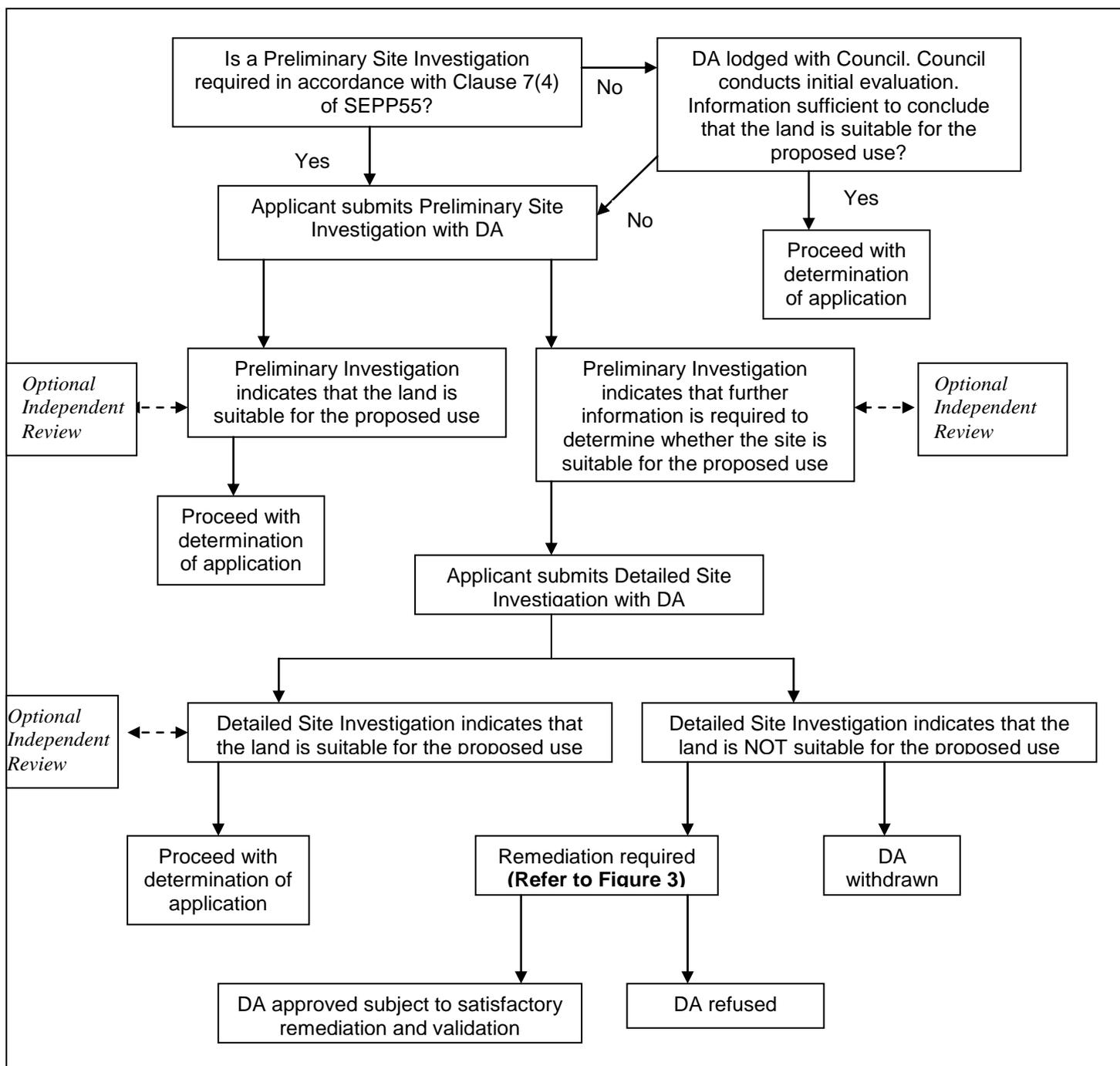
In accordance with clause 7(1) of SEPP 55, Council will not consent to the carrying out of any development on land unless:

- (a) it has considered whether the land is contaminated, and
- (b) if the land is contaminated, Council is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- (c) if the land requires remediation to be made suitable for any purpose for which the development is proposed to be carried out, it is satisfied that the land will be so remediated before the land is used for that purpose.

The following subsections outline when Council will require information relating to site contamination issues to be submitted with subdivision and development applications.

Council's procedure for considering land contamination issues for subdivision and development applications is shown in **Figure 2**.

FIGURE 2: COUNCIL PROCEDURE FOR CONSIDERING LAND CONTAMINATION ISSUES FOR SUBDIVISION AND DEVELOPMENT APPLICATIONS



Note: Record Information within Council's Property Information System

SOURCE: SSROC (1999) Model Policy on Contaminated Land

2.3.1 When does Council require a Preliminary Site Contamination Investigation (PSI or Stage 1)?

The objectives of a preliminary investigation are to:

- identify any past or present potentially contaminating activities,
- to provide a preliminary assessment of site contamination,
- identify potential contamination types, and
- assess the need for further detailed investigations.

Where contaminating activities (example – activities listed in Table 1 of the guidelines) are suspected to have or had the potential to impact upon the land, sampling and analysis is likely to be required to confirm and support any conclusion reached from the site history appraisal.

(Note: On a large rural holding it may be appropriate to assess only the area proposed for residential land use (i.e. the building envelope and curtilage). In these cases the area to be used for residential uses should be determined and an assessment of at least 2000m² should be undertaken using the minimum sampling densities specified in Table A of EPA (1995) Contaminated Sites: Sampling Design Guidelines, and other relevant guidance made or approved by the EPA.

On small parcels of $\leq 2000\text{m}^2$ the sampling strategy should address the total site area as the site would be dominated by a residential use).

In accordance with Clause 7(4) of SEPP 55 Council will require a preliminary investigation to be submitted with a subdivision or development application where the land concerned is:

- (a) land that is within an investigation area,
- (b) land on which development for a purpose referred to in Table 1* to the contaminated land planning guidelines is being, or is known to have been, carried out,
- (c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital — land:
 - (i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1* to the contaminated land planning guidelines has been carried out, and
 - (ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

NOTE: Table 1 in the Managing Land Contamination Planning Guidelines 1998, Department of Urban Affairs and Planning & NSW Environment Protection Authority which is reproduced in Schedule 1.*

In addition to the requirements outlined in clause 7(4) of SEPP 55, Council will also require a preliminary investigation to be submitted when:

- Council has reasonable grounds to believe the land is contaminated because of the land's history, condition, or other information known to Council;
- the site has been investigated and/or remediated but there is insufficient information available about the nature and extent of contamination and/or remediation, or the circumstances have changed;
- there are restrictions on, or conditions attached to, the use of the site by a regulatory or planning authority that are, or may be, related to contamination, but there is insufficient information available about the nature and extent of contamination;
- Council records have demonstrated that the site is associated with pollution incidents or illegal dumping of wastes;
- the site is adjoining land that has been associated with activities that may cause contamination listed in Schedule 1 and it is likely that this may have contaminated the subject premises; and
- the development works will disturb and/or expose soils (generally under slab) previously treated with organo-chlorines associated with termite management practices.

The preliminary site contamination investigation shall be carried out in accordance with the requirements of the relevant Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act (www.epa.nsw.gov.au/clm/guidelines). The proponent is responsible for engaging a suitably qualified consultant to undertake the preliminary site contamination investigation.

Reference should be made to **Schedule 2** for Council's requirements for Consultants reporting on contaminated land.

A list of information sources that may be useful in understanding the history of the site is included in **Schedule 3**. Applicants may also request Council to perform a search of its records to determine previous approved developments at the site.

If Council is satisfied that the preliminary site contamination investigation justifiably concludes that the site is suitable for the proposed use, then Council will not require any further investigations to be conducted.

2.3.2 When does Council require a Detailed Site Contamination Investigation (DSI or Stage 2)?

The objectives of a detailed site investigation are to:

- provide comprehensive information on the issues raised in the preliminary investigation;
- fully characterize the type(s) and level(s) of contamination and the lateral and vertical extent both on and off site;
- assess the potential risk posed by contaminants to human health and the environment; and
- obtain sufficient information for the development of a Remedial Action Plan if necessary.

Council will require a detailed site investigation to be undertaken when the results of the preliminary investigation demonstrate the potential for, or existence of contamination which may not be suitable for the proposed use of the land, or where Council is not satisfied with the content/completeness of the preliminary investigation. In some cases Stage 1 and Stage 2 investigations may be combined where the land is known to contain or have contained a potentially contaminating activity.

The detailed site contamination investigation shall be carried out in accordance with the requirements of the relevant Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act. The proponent is responsible for engaging a suitably qualified consultant to undertake the investigation, and for all costs borne in this engagement. Refer to Schedule 2 for Council's requirements for Consultants reporting on contaminated land.

The detailed site contamination investigation shall include a statement that describes whether the site is suitable for the proposed use, or if remediation is necessary to make the site suitable for the proposed use. If remediation is required, the report should list the feasible remediation options available to remediate the site.

2.3.3 When does Council require a Remedial Action Plan (RAP)?

The objectives of a remedial action plan (RAP) are to:

- set remediation objectives that ensure the site will be suitable for the proposed use and will pose no unacceptable risk to human health or the environment, both on and off the site;
- determine the most appropriate remedial strategy;
- document in detail all procedures and plans to be implemented to reduce risks to acceptable levels for the proposed site use;
- establish environmental and public health safeguards required to complete the remediation in an environmentally acceptable and safe manner; and
- identify necessary approvals that need to be obtained from regulatory authorities.

Council will require the submission of a RAP if the detailed investigation concludes that the land is not suitable for the proposed use in its present state. Prior to determining the subdivision or development application, Council must be satisfied that remedial measures have been, or will be undertaken in accordance with the submitted RAP to make the site suitable for its proposed use. The RAP should document the remedial works to be undertaken at the site and should be supported by a site environmental management plan and occupational health and safety plan.

The following link is provided to the NSW Construction Agency Coordination Committee (CACC) environmental and OH&S publications www.construction.nsw.gov.au.

2.3.4 When does Council require a validation and monitoring report?

The purpose of a validation and monitoring report is to:

- demonstrate that the objectives of the RAP have been achieved, any conditions of development consent have been complied with or whether any further remediation work or restrictions on land use are required;
- provide evidence confirming that all NSW EPA, WorkCover and other regulatory authorities licence conditions and approvals have been met;
- Identify the need for continued monitoring in situations where clean-up is not feasible or on-site containment of contamination has occurred; and
- the provision of a clear statement on the suitability of the proposed site use

Validation must confirm statistically that the remediated site complies with the clean-up criteria set for the site. Council will require a validation and monitoring report to be submitted after remediation works have been completed, and prior to the commencement of construction works. This will normally be achieved by Council placing a condition on any consent granted requiring the submission of a validation and monitoring report prior to the issuing of a construction certificate. Alternatively, Council may issue a deferred commencement consent for the proposed use, requiring that remediation and validation is undertaken prior to other work commencing. In considering a deferred commencement consent Council would need to be satisfied that the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose for which the development is proposed to be carried out.

Note: To ensure that all information gained through the investigation process is recorded appropriately and the property information system is updated, all land investigation records are to be forwarded to Councils Development & Governance Administration in accordance with Form 1(attached). This is to be done even if reporting concludes contamination matters are not restrictive to the proposed land use.

3.0 Council's requirements for remediation work

SEPP 55 specifies when consent is required, and when it is not required for remediation work.

Remediation work that requires development consent is known as category 1 work. All remediation work not requiring development consent is known as category 2 work. The following section defines category 1 and category 2 remediation work and outlines the site management provisions for category 2 remediation work.

In accordance with clause 9(f) of SEPP 55, remediation work that is not carried out in accordance with the site management provision contained in Section 3.2.1 of this policy is category 1 remediation work which requires Council consent.

Council's procedure for considering site remediation proposals is shown in **Figure 3**. Category 1 and category 2 remediation work must be:

- consistent with the Managing Land Contamination - Planning Guidelines; and
- carried out in accordance with Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act.

3.1 Category 1 remediation work

Category 1 remediation work, as defined in clause 9 of SEPP 55, is work that requires Council consent. Category 1 remediation work is advertised development unless the remediation work is designated development or State Significant Development. All category 1 remediation work must be advertised for 30 days pursuant to s.29A of the *Environmental Planning and Assessment Act*.

The exact definition of category 1 remediation work is complicated, and interested persons should refer to clauses 9 and 14 of SEPP 55. In general, category 1 remediation work comprises remediation work that is:

- designated development ;
- carried out on critical habitat declared under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994;
- likely to have a significant effect on critical habitat or a threatened species, population or ecological community declared under those Acts;
- carried out within any of the following zones under an Environmental planning instrument:
 - coastal protection,
 - conservation or heritage conservation,
 - habitat area, habitat protection area, habitat or wildlife corridor,
 - environment protection,
 - escarpment, escarpment protection or escarpment preservation,
 - floodway,
 - littoral rainforest,
 - nature reserve,
 - scenic area or scenic protection,
 - wetland;
- the subject of a remediation order under the Contaminated Land Management Act 1997, and required to be commenced before the expiry of the usual appeal period for such an order; or
- carried out in a manner that is not consistent with this Policy.

If remedial works constitute category 1 remediation work, the applicant may either amend a current application to include a remediation proposal (if applicable) or lodge a new and separate development application for remediation works.

3.2 Category 2 remediation work

Category 2 remediation work is all remediation work that is not category 1 remediation work.

In accordance with clause 16 of SEPP 55, prior notice of category 2 remediation work to Council is required at least 30 days before commencement of works.

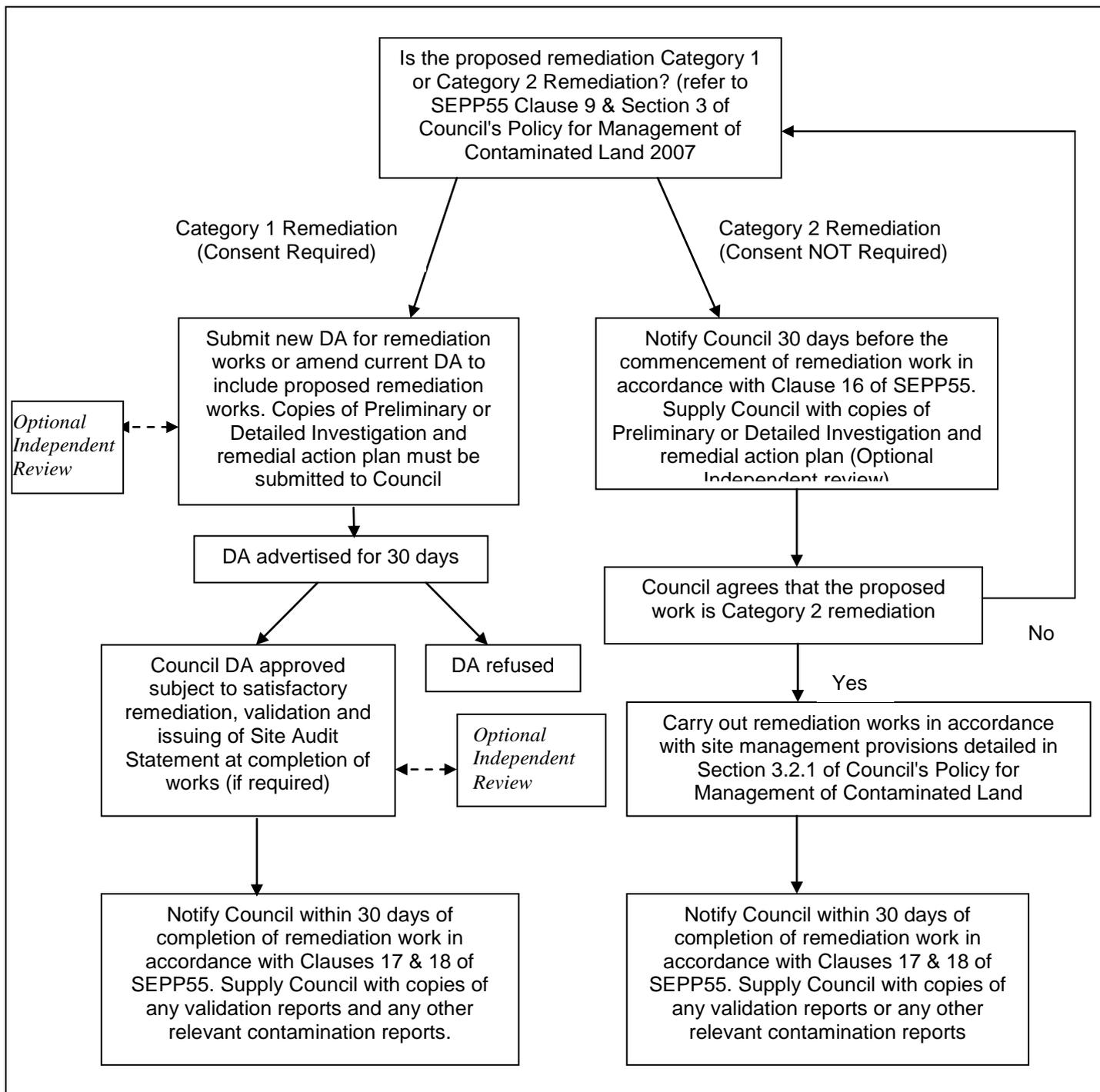
In **addition** to the information that must be submitted to Council in clause 16(3) of SEPP 55, Council will require the following information to be submitted at least 14 days prior to the commencement of category 2 remediation works for its records, information and category classification:

- copies of the Preliminary Investigation, Detailed Investigation and Remedial Action Plan for the subject site.
- a Soil and Water Management Plan where the site is affected by acid sulfate soils and/or flooding.
- contact details for the remediation contractor and party responsible for ensuring compliance of remediation work with all relevant regulatory requirements.

Remediation work that is not carried out in accordance with the site management provision contained in Section 3.2.1 of this policy is category 1 remediation work which requires Council consent.

Although consent is not generally required for category 2 remediation work, Council will need to be satisfied that the site is suitable for the proposed use when considering any subsequent development applications for the site. Hence it is recommended that comprehensive records are maintained during the remediation and validation works for all sites.

FIGURE 3: COUNCIL PROCEDURE FOR CONSIDERING SITE REMEDIATION PROPOSALS



SOURCE: SSROC (1999) Model Policy on Contaminated Land
 Note: Record information within Council's property information system

3.2.1 Additional requirements for Category 2 remediation works

Council has identified a number of site management provisions for the conduct of any category 2 remediation works to ensure these works do not adversely impact on the environment or public amenity. These provisions are to be incorporated into a site RAP.

All category 2 works shall be conducted in accordance with the provisions listed below unless otherwise approved by Council in writing. These provisions apply to the entire Council Local Government Area.

Development applications lodged for category 1 remediation works should identify any areas of non-compliance with these provisions and identify any alternative site management measures to be implemented.

NOTE: It is the responsibility of those remediating a site to ensure compliance with all relevant environmental legislation and regulations. Compliance with the site management provisions outlined below does not imply that all relevant environmental legislation and regulations have been complied with. Proponents shall at all times comply with the provisions of the Protection of the Environment Operations Act 1997.

(1) Hours of operation

All remediation work (including the delivery/removal of materials or equipment) shall be conducted within the following hours:

Monday - Friday	7am - 6pm
Saturday	8am - 1pm

No work permitted on Sundays or Public Holidays.

(2) Soil and water management

All remediation works shall be conducted in accordance with a site specific soil and water management plan. The plan should aim to segregate and management both contaminated and non-contaminated areas in a manner that minimizes the potential dispersal of contaminants and any cross-contamination of contaminated and non-contaminated materials. In most cases Councils standard erosion and sediment control requirements will be inadequate for managing contaminated soils and water. A copy of the RAP incorporating the soil and water management plan shall be kept on-site and made available to Council Officers on request.

All erosion and sediment control measures must be maintained in a functional condition throughout the remediation works.

A summary of the soil and water management measures for category 2 remediation work in relation to stockpiles, site access, excavation pump out, landscaping/rehabilitation and bunding are discussed below.

- **Acid sulfate soils**

Where remediation work involves the excavation of soil the proponent shall consult Council's Local Environmental Plan and provisions relating to acid sulfate soils and associated acid sulfate soils map to assess whether a preliminary assessment of the potential for acid sulfate soil is required.

If acid sulfate soils are present it should be noted that there is potential for compounding effects through acid leachate mobilising heavy metals that may be present in the contaminated material and this should be addressed within a site specific **Soil & Water Management Plan**. A copy of the plan shall be kept on-site and made available to Council Officers on request.

- ***Flooding***

Where remediation work involves the excavation of soil the proponent shall consult Council's flood mapping. Where works are proposed to be undertaken within an area identified by Council as having the potential to be impacted by flood waters (inundation) such works shall only be undertaken where a site specific **Soil & Water Management Plan** identifies the flooding risk and nominates responsive actions to such potential site inundation. A copy of the plan shall be kept on-site and made available to Council Officers on request.

- ***Stockpiles***

No stockpiles of soil or other materials shall be placed on footpaths or nature strips. All stockpiles of soil or other materials shall be placed away from drainage lines, gutters or stormwater pits or inlets. All stockpiles of soil or other materials likely to generate dust or odours shall be covered. All stockpiles of contaminated soil shall be stored in a secure area and be covered if remaining more than 24 hours. Stockpiling of contaminated materials requires special measures to manage the generation of leachate, runoff, vapours and air borne particulates (discussed below).

- ***Site access***

Vehicle access to the site shall be stabilised to prevent the tracking of sediment onto the roads and footpath. Soil, earth, mud or similar materials must be removed from the roadway by sweeping, shoveling, or a means other than washing, on a daily basis or as required. Soil washings from wheels shall be collected and disposed of in a manner that does not pollute waters. Measures for the collection, treatment and disposal of contaminated vehicle washdown waters are to be included in the site specific soil and water management plan.

- ***Excavation / groundwater pump-out***

Only clean and unpolluted waters are to be discharged to Council's stormwater system or any watercourse. Any discharge must satisfy the provisions of the Protection of the Environment Operations Act 1997.

All pump-out water must be analysed for suspended solid concentrations, pH and any contaminants of concern identified during the detailed site investigation. The analytical results must comply with the relevant NSW EPA and ANZECC standards for water quality for discharge to stormwater. If the water is contaminated it is not allowed to be discharged to stormwater. Other options for the disposal of excavation pump-out water include disposal to sewer with prior approval from Council, or off-site disposal by a licensed liquid waste transporter for treatment/disposal to an appropriate waste treatment/processing facility.

- ***Landscaping / rehabilitation***

All exposed areas shall be progressively stabilised and revegetated on the completion of remediation works.

- ***Bunding***

Any area used for the remediation of contaminated soils shall be banded to contain surface water runoff & runoff and designed and constructed as to prevent the leaching of contaminants into the subsurface/groundwater. All surface water discharges from the banded areas to Council's stormwater system shall not contain detectable levels of the contaminants of concern and must comply with the relevant NSW EPA and ANZECC standards for water quality. Any discharge must satisfy the provisions of the Protection of the Environment Operations Act 1997.

(3) Noise and vibration

Remediation works shall comply with the NSW EPA's Industrial Noise Policy.

All equipment and machinery shall be operated in an efficient manner to minimise the emission of noise on adjoining properties.

The use of any plant and/or machinery shall not cause vibrations in excess of the relevant NSW EPA guidelines and Australian Standards, on any premises.

(4) Air quality

• Dust control

Dust emissions shall be appropriately controlled. The following dust control procedures may be employed to comply with this requirement:

- The erection of dust screens around the perimeter of the site and any material handling areas
- Securely covering all loads entering or exiting the site
- Use of water sprays across the site to suppress dust
- Covering of all stockpiles of contaminated soil remaining more than 24 hours; and
- Keeping excavation surfaces & stockpiles moist.

• Odour / vapour control

Offensive odours shall be appropriately controlled. The following procedures may be employed to comply with this requirement:

- use of appropriate covering techniques such as the use of plastic sheeting to cover excavation faces or stockpiles
- use of fine mist sprays
- use of a hydrocarbon mitigating agent on the impacted areas/materials; and
- adequate maintenance of equipment and machinery to minimise exhaust emissions.

Volatile or semi-volatile compounds that could generate odours include monocyclic aromatic hydrocarbons (styrene, benzene, toluene, xylene, ethyl benzene butyl benzene), polycyclic aromatic hydrocarbons (PAH's), hydrogen sulphide, hydrogen cyanide, pesticides, PCB's, solvents, phenols and herbicides.

(5) Groundwater

Any contamination assessment, carried out in accordance with the requirements of the relevant Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act, shall address the potential for contamination of groundwater at the site.

Any work below the water table may require a licence from the Department of Natural Resources. These works include bores for water supply, testing and monitoring, and any extraction. If the groundwater at the site is found to be contaminated Council, the Department of Water & Energy and the Department of Environment and Climate Change are to be notified.

(6) Transport

All haulage routes for trucks transporting soil, materials, equipment or machinery to and from the site shall be selected to meet the following objectives:

- comply with all road rules,
- minimise noise, vibration and odour to adjacent premises; and
- utilise State Roads and minimise use of local roads.

Category 2 remediation work shall ensure that all site vehicles:

- Securely cover all loads to prevent dust or odour emissions during transport;
- Exit the site in a forward direction;
- Do not track soil, mud or sediment onto the road, and
- Conduct deliveries of soil, materials, equipment or machinery during the hours of remediation work identified above under *Hours of Operation*.

(7) Hazardous Materials

Hazardous and/or intractable wastes arising from the remediation work shall be removed and disposed of in accordance with the requirements of the NSW EPA and WorkCover Authority, together with the relevant regulations, namely:

- Occupational Health and Safety Act and Regulations;
- Contaminated Land Management Act and Regulations; and
- Environmentally Hazardous Chemicals Act and Regulations.

Under the Protection of the Environment Operations Act 1997 the transportation of Schedule 1 Hazardous Waste is a scheduled activity and must be carried out by a transporter licensed by the NSW Environment Protection Authority.

Note: Some contaminants may not obtain approval for off-site disposal.

(8) Disposal of contaminated soil

The disposal of contaminated soils shall have regard to the provision of the *Protection of the Environment Operations Act and Regulations* and any relevant NSW EPA guidelines such as the NSW EPA publication *Environmental Guidelines: Assessment, Classification and Management of Liquid & Non-Liquid Wastes (2004)*.

Applicants shall consult with Council's Manager of Waste Services to determine the capability of waste facilities to accept contaminated waste.

Note: If contaminated soil or other waste is transported to a site unlawfully, the owner of the waste, the transporter and the owner of the land receiving the waste are all guilty of an offence.

(9) Containment / capping of contaminated soil

No contaminated soil shall be encapsulated or capped on the site that contains concentrations of contaminants that are above the soil investigation levels for urban development sites in NSW for the range of landuses permissible on the subject site. The on-site containment of contaminated soil is a Category 1 activity under this policy and requires development consent of Council.

The soil investigation levels for urban redevelopment in NSW are contained in NSW EPA *Guidelines for the NSW Site Auditor Scheme (2nd edition) 2006*.

(10) Importation of fill

All fill imported to the site shall be validated to ensure the fill is suitable for the proposed land use from a contamination perspective and shall also be compatible with the existing soil characteristics for site drainage purposes.

Council may require details of the appropriate validation of imported fill material to be submitted with any application for future development of the site. Hence all fill imported onto the site should be validated by either one or both of the following methods during remediation works:

- imported fill should be accompanied by documentation from the supplier which certifies that the material is not contaminated based upon analyses of the material or the known past history of the site where the material is obtained; and/or
- sampling and analysis of the fill material should be conducted in accordance with the NSW EPA *Sampling Design Guidelines (1995)* to ensure that the material is not contaminated.

(11) Site signage and contact numbers

A sign legible from the adjoining public space displaying the contact details of the remediation contractor (and site manager if different to remediation contractor) shall be displayed on the site adjacent to the site access, for the duration of remediation works.

(12) Community consultation

Owners and/or occupants of premises immediately adjoining, and across the road from the site shall be notified by the proponent at least two days prior to the commencement of category 2 remediation works.

(13) Site security

The site shall be secured to ensure against unauthorised access using appropriate fencing.

(14) Occupational health and safety

It is the employer's responsibility to ensure that all site remediation works shall comply with all Occupational Health and Safety and Construction Safety Regulations of the NSW WorkCover Authority.

The following link is provided to the NSW Construction Agency Coordination Committee (CACC) environmental and OH&S publications www.construction.nsw.gov.au.

(15) Removal of underground petroleum storage tanks

The removal of underground storage tanks shall be in accordance with the Australian Institute of Petroleum's Code of Practice "*The Removal & Disposal of Underground Petroleum Storage Tanks (AIP CP22-1994)*" and NSW WorkCover requirements. In the event of conflict between the Code of Practice and NSW WorkCover requirements the latter shall prevail. The relevant Australian Standards shall also be complied with, including AS 2601 – 1991 "*Demolition of Structures*" and AS 1940 – 2004 "*Storage and Handling of Flammable and Combustible Liquids*".

Following the removal of underground storage tanks containing fuel, the site area, which includes bowser lines and fuel lines, shall be assessed, remediated if need be, and validated in accordance with the requirements of the relevant Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act (www.epa.nsw.gov.au/clm/guidelines).

4.0 Independent auditing

As a general principle, a site audit will only be necessary when Council:

- believes on reasonable grounds that the information provided by the proponent is incorrect or incomplete;
- wishes to verify whether the information provided by the proponent has adhered to appropriate standards, procedures and guidelines; or
- does not have the internal resources to conduct its own technical review.

Section 47(1) of the Contaminated Land Management Act, 1997 defines a site audit as: "an independent review:

- (a) that relates to investigation, or remediation, carried out (whether under this Act or otherwise) in respect of the actual or possible contamination of land, and

- (b) that is conducted for the purpose of determining any one or more of the following matters:
- (i) the nature and extent of any contamination of the land,
 - (ii) the nature and extent of the investigation or remediation,
 - (iii) what investigation or remediation remains necessary before the land is suitable for any specified use or range of uses,
 - (iv) the suitability and appropriateness of a plan of remediation, a long-term management plan, a voluntary investigation proposal or a remediation proposal”.

Appropriately qualified contaminated land consultants may provide an independent review of another consultants work only where the audit is **not** a **‘statutory site audit’**. A statutory site audit may only be carried out by a site auditor accredited under the provisions of the Contaminated Land Management Act. Section 47(2) of the Contaminated Land Management Act defines a statutory site audit as:

‘a reference to a **statutory site audit** is a reference to a site audit carried out in order to secure compliance with:

- (a) a requirement under this Act, or
- (a1) a voluntary investigation proposal that has been the subject of the EPA’s agreement under section 19 or a voluntary remediation proposal that has been the subject of the EPA’s agreement under section 26, or
- (b) a requirement imposed by *State Environmental Planning Policy No 55—Remediation of Land* or by any other environmental planning instrument made under the *Environmental Planning and Assessment Act 1979* or by any development consent given under that Act, or
- (c) any other requirement imposed by or under an Act, unless it is carried out only in order to secure compliance with a legal obligation arising from an agreement or arising in such other circumstances as the regulations may prescribe’.

The requirements that site auditors must follow in conducting site audits and preparing site audit statements and site audit reports are outlined in Department of Environment and Conservation guideline – *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd Edition) 2006*.

Note: A site audit carried out in order to secure compliance with ... a requirement” only refers to the situation where there is a specific requirement to have the site audit carried out, not where a site audit is used simply to demonstrate that there has been compliance with some other requirement.

The requirement will not have to use the precise words “statutory site audit” or “site audit” in order for it to trigger a statutory site audit, as long as the words used have essentially the same meaning as “site audit” does under the CLM Act.

For example, the requirement might state that “an independent review must be conducted to determine whether the site is suitable for residential use”. Provided the requirement was made by or under an Act or agreed voluntary investigation or remediation proposal, this would fall within the definition of a “statutory site audit”.

On the other hand, if the requirement simply says that “the site must be suitable for residential use”, then a site audit conducted to demonstrate that the site is in fact suitable for this use would not be a “statutory site audit”, because there was no direct obligation imposed for the conduct of a site audit.

It follows that it will only be a statutory site audit where there is an explicit instruction for a site audit to be carried out.

Independent reviews by non-accredited auditors are to be undertaken only by individuals who can **clearly demonstrate** that they satisfy the necessary requirements (as applicable to the works) of *Schedule 2 – Council’s Requirements for Consultants Reporting on Contaminated Land* for the nominated review activity.

The proponent will be informed through a statutory process or otherwise by Council if an independent review is required.

The proponent is responsible for engaging an appropriately qualified consultant for the independent review and the costs associated.

5.0 Council records and community information

Council has an important role in supplying the community with information regarding land use history, land contamination and remediation. Council also has a statutory responsibility under s.59 of the Contaminated Land Management Act 1997 to include information provided to Council by either the EPA or Accredited Auditors on certificates issued for the purposes of s.149 of the Environmental Planning and Assessment Act 1979.

5.1 How Council's information is managed

Part 5 of the Planning Guidelines emphasizes the importance of Local Government information systems in ensuring that adequate information is available to Council staff and the community in relation to actual and potential land contamination. Council's records regarding contamination issues are dynamic and will change over time as land is investigated, remediated and validated. Unfortunately a comprehensive knowledge of site contamination issues on all lands is impossible to have.

Against this background Council has developed an information system for contaminated and potentially contaminated lands, which will be used by Council in conjunction with this policy. The information system has been prepared to assist Council in addressing the issue of land contamination in land use planning and development matters and in providing information to the public, specifically through the provision of certificates under Section 149 of the EPA Act.

Council's information system should be accessed each time Council performs a planning function.

5.1.1 Basis for inclusion of properties in the Information System

The majority of the Information System includes land which has not been specifically assessed to determine the actual existence of contamination, but where further investigation is appropriate in connection with development proposals, as a result of information of which Council is aware in relation to current or former land uses. Properties where Council is not aware of any history of potentially contaminating land uses are not included in the Information System.

Development of the Information System has involved consideration of the schedule of "Activities that may cause Contamination" in Table 1 of the Planning Guidelines and consultation with current and former staff of the Council. Council has also consulted with Government Departments, including the Department of Health, the NSW Environment Protection Authority and Department of Primary Industries.

The list of sites in the Information System has been prepared in good faith in the interests of responsible planning and will be used as a first point of reference by Council. However, the Information System is not necessarily comprehensive or definitive and does not claim to deal thoroughly with the issue of contamination of properties listed or properties adjacent to those listed. It should therefore be viewed as one starting point for more detailed investigations and will necessarily evolve as more information comes to hand from third parties or from detailed investigations of particular sites - for example, in connection with a specific development application.

Likewise, inclusion of a property on the list does not necessarily imply the actual existence of contamination on the property. This can only be determined as a result of an investigation, sampling and analysis program carried out in accordance with requirements of the relevant Guidelines made or approved by NSW EPA in accordance with the Contaminated Land Management Act.

To assist Council in the management of land contamination issues and to satisfy the statutory responsibility under the Contaminated Land Management Act the following information (being available) will be recorded for individual parcels of land:

- Site contamination reports submitted to Council (i.e. Preliminary Investigation, Detailed Investigation, Remedial Action Plans, Validation and Monitoring Reports).
- Site Audit Statements received by Council.
- EPA declarations and orders issued under the CLM Act (including voluntary investigation & remediation proposals agreed by the EPA).
- prior notification of category 2 remediation works.
- notification of completion of category 1 and category 2 remediation work.
- information of which Council is aware in relation to current or former land uses.

5.2 Supply of information and notification of restrictions

Information about land contamination held within the Council's records/information system is to be supplied to the public only by the following means:

- by issuing Planning Certificates upon application and subject to payment of the prescribed fee.
- by making the following documents identified on the Planning Certificates and held by the Council available for inspection upon written request to Council and approval by Council's Public Officer (a prescribed fee may be nominated):
 - site investigation reports (including preliminary investigation reports, detailed investigation reports, remedial action plans, validation and site monitoring reports) or any other contamination assessment reports prepared by consultants.
 - site audit reports.
 - site audit statements.
- by providing access to documents in accordance to the Freedom of Information Act 1989.

5.3 Planning Certificates - prescribed information

This clause applies to the provision of information on planning certificates under section 149(2) of the EP&A Act, as prescribed by schedule 4 of the Environmental Planning and Assessment Regulation 2000 and section 59(2) of the Contaminated Land Management Act 1997.

Council is to provide the following prescribed information:

- a statement that Council has by resolution adopted a policy to restrict development of the land because of the likelihood of the land being contaminated - if it is considered to be contaminated or potentially contaminated.

NOTE: This disclosure relates to the matter "whether or not the council has adopted a policy to restrict the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulfate soils or any other risk" (Item 7 of Schedule 4, EP&A Regulation 2000)

- a statement that the land is:
 - within an investigation area/remediation site - at that date when the certificate is issued*
 - subject to an investigation or remediation order- at that date*
 - subject of a voluntary investigation/remediation proposal under agreement with the NSW EPA - at that date when the certificate is issued*

**NOTE: Information provided only to the extent that the Council has been informed by the NSW EPA.*

- a statement that the land is the subject of a site audit statement - if a copy of such a statement has been provided at any time to the Council.

5.4 Planning Certificates - additional information

This clause applies to the provision of additional information on planning certificates under section 149(5) of the EP&A Act. Where the applicant for a Planning Certificate has requested (and paid for) additional information under section 149(5), Council is to disclose the following information.

- Where Council is in possession of a site investigation report, site audit report, or any other contamination assessment report (including any notice of remediation work under *State Environmental Planning Policy No. 55*) relating to the land:
 - A statement that the site has been assessed and/or sampled and/or remediated.
 - A statement that any person relying on the certificate is advised to examine and consider the contents of each report and seek Council's advice regarding further development of the site.

NOTE: It is the aim of the Council to record all contaminated sites on the property information system and s149 certificates, however this is a very time consuming process which requires continual updating and review as land is subdivided and new potentially contaminating activities are commenced and discovered. Therefore, the lack of reference to contamination should not be taken as an assurance that the site is not contaminated.

6.0 Reference material

6.1 Glossary of Terms/Abbreviations

Contaminated land: Land in, on or under which any substance is present at a concentration above the naturally present in, on or under the land and that poses, or is likely to pose, an immediate or long term risk to human health or the environment.

Contaminated Land Planning Guidelines: Guidelines notified in accordance with section 145C of the Environmental Planning and Assessment Act 1979. (Department of Urban Affairs and Planning & NSW EPA 1998)

Council: Ballina, Byron, Kyogle, Lismore, Richmond Valley & Tweed Council's.

Detailed Site Investigation: An investigation to define the extent and degree of contamination, to assess potential risk posed by contaminants to health and the environment, and to obtain sufficient information for the development of a remedial action plan if required. Reporting requirements for a detailed site investigation are as outlined in NSW EPA (1997) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*, and refer also to Schedule 2.

DUAP: The NSW Department of Urban Affairs and Planning (operates now as the Department of Planning).

EP&A Act: The Environmental Planning and Assessment Act 1979.

Independent Review: A review of the work of a primary consultant for all types of contaminated sites by a person(s) who have demonstrated satisfying the requirements of Schedule 2.

Initial Evaluation: An assessment of readily available factual information to determine whether contamination is an issue requiring further investigation prior to the preparation of a local environmental plan, development control plan or plan of management for community land; or the determination of a development application or Council activity assessed under Part 5 of the EP&A Act.

NEPC: National Environment Protection Council (now part of the Environment Protection & Heritage Council).

NEPM: National Environment Protection (Assessment of Site Contamination) Measure 1999, as prepared by the NEPC (refer above).

NSW EPA: NSW Environment Protection Authority (operates as part of the NSW Department of Environment and Conservation).

Planning Certificate: A certificate issued under section 149 of the EP&A Act providing information about planning and other matters relating to a specific parcel of land. Planning Certificates are of two types:

- a 'basic certificate' contains matters prescribed under s.149(2) [that is matters referred to in Schedule 4 of the Environmental Planning and Assessment Regulation 1994 and Section 59(2) of the Contaminated Land Management Act 1997]
- a 'full certificate' containing additional information provided under section 149(5) as well as the matters referred to above.

Preliminary Site Investigation: An investigation to identify any past or present potentially contaminating activities and to provide a preliminary assessment of site contamination, and if required, provide a basis for a detailed investigation. Reporting requirements for a preliminary investigation as outlined in NSW EPA (1997) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*, refer also to Schedule 2.

Remedial Action Plan: A plan that sets out remediation goals and documents the process by which it is proposed to remediate a site. Reporting requirements for a preliminary investigation as outlined in NSW EPA (1997) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*, refer also to Schedule 2.

Remediation: Works carried out for the purposes of removing, dispersing, destroying, reducing, mitigating or containing the contamination of any land; or eliminating or reducing any hazard arising from the contamination of the land (including by preventing the entry of persons or animals on the land).

Site Audit (statutory): An independent review of any or all of the stages of the site investigation process undertaken by an accredited auditor in accordance with the Contaminated Land Management Act and NSW EPA (2006) *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition)*.

Soil & Water Management Plan: Plans or other documents that describe the measures to be undertaken at development sites that, if carried out, should mitigate soil erosion and control discharge of sediment, nutrients and other pollutants to lands and/or waters during works.

Validation: The process of determining whether the objectives for remediation and any conditions of development consent have been achieved. Reporting requirements for a preliminary investigation are as outlined in NSW EPA (1997) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*, and refer also to Schedule 2.

Virgin Excavated Natural Material (VENM): (eg clay, gravel, sand, soil and rock) that is not mixed with any other waste and which has been excavated from areas of land that are not contaminated with human-made chemicals as a result of industrial, commercial, mining or agricultural activities and which do not contain sulphidic ores or soils (acid sulfate soils).

6.2 References

- ANZECC/NHMRC (1992) *Australian and New Zealand Guidelines for the Management of Contaminated Sites*. Australian and New Zealand Environment Conservation Council/National Health Medical Research Council.
- Department of Urban Affairs and Planning & NSW EPA (1998) *Managing Land Contamination: Planning Guidelines SEPP 55-Remediation of Land*. DUAP, Sydney.
- National Environment Protection Council (NEPC) (1999) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)* (Available online: http://www.ephc.gov.au/nepms/cs/con_sites.html)
- NSW Environment Protection Authority (1995) *Contaminated Sites: Guidelines for the Vertical Mixing of Soil on Former Broad-Acre Agricultural Land*. NSW Environment Protection Authority.
- NSW Environment Protection Authority (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites*.
- NSW Environment Protection Authority (1998) *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme*.

- NSW Environment Protection Authority (1997) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.
- NSW Environment Protection Authority (1999) Guidelines on Significant Risk of Harm and the Duty to Report.
- NSW Environment Protection Authority (1999) Environmental Guidelines: Assessment, Classification and Management of Non-Liquid Wastes.
(NB: EPA Guidelines available by phone: 131555 or online: www.epa.nsw.gov.au/clm/index.htm)
- NSW Government (1998) *State Environmental Planning Policy No.55 - Remediation of Land*. NSW Government Gazette 126 of 28 August 1998.
- Southern Sydney Regional Organisation of Councils (1999) *Model Policy on Contaminated Land*.
- Department of Environment and Conservation June 2004 Environmental Noise Management *Noise Guide for Local Government*.
- In the development of this policy reference has been made to SSROC (1999) "Model Policy on Contaminated Land", Coffs Harbour City Council Draft Policy for the Management of Contaminated land 2004, Armidale Dumaresq Council Contaminated Land Policy and the City of Newcastle Technical Manual – Contaminated land management.

Schedule 1: Some potentially contaminating activities and main potential contaminants

Industry	Type of Chemical	Associated Chemicals
Agricultural/ Horticultural activities (including banana agric.)		See Fertiliser, Pesticides, Fungicides and Herbicides under 'Chemicals: manufacture and use'
Airports	Hydrocarbon Metals	Aviation fuels Particularly aluminium, magnesium, chromium
Asbestos production and disposal		Asbestos (in various forms)
Battery manufacture and recycling	Metals Acids	Lead, manganese, zinc, cadmium, nickel, cobalt, mercury, silver, antimony Sulfuric acid
Breweries/distilleries	Alcohol	Ethanol, methanol, esters
Chemicals: manufacture and use	Acid/alkali use and manufacture Adhesives/resins Dyes Explosives	Mercury (chlor/alkali), sulfuric, hydrochloric and nitric acids, sodium and calcium hydroxides Polyvinyl acetate, phenols, formaldehyde, acrylates, phthalates Chromium, titanium, cobalt, sulfur and nitrogen organic compounds, sulfates, solvents Acetone, nitric acid, ammonium nitrate, sodium hydroxide, pentachlorophenol, ammonia, sulfuric acid, nitroglycerine, calcium cyanamide, lead, ethylene glycol, methanol, copper, aluminium, bis(2-ethylhexyl) adipate, dibutyl phthalate, mercury, silver
	Fertiliser	Calcium phosphate, calcium sulfate, nitrates, ammonium sulfate, carbonates, potassium, copper, magnesium, molybdenum, boron, cadmium
	Flocculants	Aluminium
	Foam Production	Urethane, formaldehyde, styrene
	Fungicides	Carbamates, copper sulphate, copper chloride, sulfur, chromium, zinc
	Herbicides	Ammonium thiocyanate, carbamates, arsenic, organochlorines, organophosphates, mercury, triazines
	Paints -heavy metals -solvents	Arsenic, barium, cadmium, chromium, cobalt, lead, manganese, mercury, titanium, selenium, zinc Toluene oils either natural (eg. pine oil) or synthetic
	Pesticides -active ingredients -solvents	Arsenic, lead, organochlorines, organophosphates, sodium tetraborate, carbamates, sulfur, synthetic pyrethroids Xylene, kerosene, methyl isobutyl ketone, amyl acetate, chlorinated solvents
	Pharmaceutical -solvents	Acetone, cyclohexane, methylene, chloride, ethyl acetate, butyl acetate, methanol, ethanol, isopropanol, butanol, pyridine methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran
	Photography	Hydroquinone, sodium carbonate, sodium sulfite, potassium bromide, monomethyl para-aminophenol sulfate, ferricyanide compounds, silver, thiocyanate, ammonium compounds, sulphur compounds, phosphate, phenylene diamine, ethyl alcohol, thiosulfates, formaldehyde
	Plastics	Sulphates, carbonates, cadmium, solvents, acrylates, phthalates, styrene
	Rubber	Carbon black
	Soap/detergent -general -acids -oils	Potassium compounds, phosphates, ammonia, alcohols, esters, sodium hydroxide, surfactants (sodium lauryl sulfate) silicate compounds Sulfuric acid and stearic acid Palm, coconut, pine, teatree
	Solvents -general -hydrocarbons -chlorinated organics	Ammonia Eg. BTEX (benzene, toluene, ethylbenzene, xylenes) Eg. trichloroethane, carbon tetrachloride, methylene chloride
Defence works		See Explosives 'Chemical manufacture and use'; also 'Foundries', 'Engine works' and 'Service stations'
Drum reconditioning		See 'Chemical manufacture and use'
Dry cleaning		Trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, perchlorethylene
Electrical		PCBs (transformers & capacitors), solvents, tin, lead, copper, mercury

Industry	Type of Chemical	Associated Chemicals
Engine works	Hydrocarbons, Metals Solvents, Acids/alkalis Refrigerants Antifreeze	Chlorofluorocarbons, hydrochlorofluorocarbons, Hydrofluorocarbons Ethylene glycol, nitrates, phosphates, silicates
Foundries	Metals Acids	Aluminium, manganese, iron, copper, nickel, chromium, zinc, cadmium and lead and oxides, chlorides, fluorides, and sulphates of these metals Sulphuric and phosphoric, phenolics and amines coke/graphite dust
Gas works	Inorganics Organics	Ammonia, cyanide, nitrate, sulphide, thiocyanate, aluminium, antimony, arsenic, barium, cadmium, copper, chromium, iron, lead, manganese, mercury, nickel, selenium, silver, vanadium, zinc BTEX, phenolics, PAHs, coke
Iron and steel works		BTEX, phenolics, PAHs, metals, and oxides of iron, nickel, copper, chromium, magnesium, manganese, and graphite
Landfill sites		Alkanes and ammonia, sulphides, heavy metals, organic acids
Marinas	Antifouling paints	See 'Engine works' and Electroplating under 'Metal treatments' Copper, tributyltin (TBT)
Metal treatments	Electroplating -metals -acids -general Liquid carburizing baths	Nickel, chromium, zinc, aluminium, copper, lead, cadmium, tin Sulphuric, hydrochloric, nitric, phosphoric Sodium hydroxide, trichloroethane, toluene, cyanide compounds tetrachloroethylene, ethylene glycol, Sodium, cyanide, barium, chloride, sodium chloride, potassium chloride, sodium carbonate, sodium cyanate
Mining and extractive industries		Arsenic, mercury, cyanides and also Explosives under 'Chemicals manufacture and use' Aluminium, arsenic, copper, chromium, cobalt, lead, manganese, nickel, selenium, zinc and radionuclides. The list of heavy metals should be decided according to the composition of the deposit and known impurities
Power stations		Asbestos, PCBs, fly ash metals, water treatment chemicals
Printing shops		Acids, alkalis, solvents, chromium See also Photography 'Chemicals manufacture and use'
Railway yards		Hydrocarbons, arsenic, phenols (creosote), heavy metals, nitrates, ammonia
Scrap yards		Hydrocarbons, metals, solvents
Service stations & fuel storage facilities		Aliphatic hydrocarbons BTEX, PAHs, phenols, lead
Sheep and cattle dips		Arsenic, organochlorines, organophosphates, carbamates, synthetic pyrethroids
Smelting and refining	Metals	Fluorides, chlorides, and oxides of copper, tin, silver, gold, selenium, lead, and aluminium
Tanning and similar trades	Metals General	Chromium, manganese, aluminium Ammonium sulfate, ammonia, ammonium nitrate, arsenic, phenolics, formaldehyde, sulfide, tannic acid
Water and sewage treatment plants	Metals	Aluminium, arsenic, cadmium, chromium, cobalt, lead, nickel, fluoride, lime, zinc
Wood preservation	Metals	Chromium, copper, arsenic, naphthalene, ammonia, pentachlorophenol, dibenzofuran, anthracene, biphenyl, ammonium sulfate, quinoline, boron, creosote, organochlorine pesticides
Other activities/land uses that the Council consider to be a potentially contaminating activity.		

Note: It is not sufficient to rely solely on the contents of the above table to determine whether a site is likely to be contaminated or not. The table is only a guide. A conclusive status can only be determined after a review of the site history and, if necessary, sampling and analysis.

Source: Based on Appendix A - Department of Urban Affairs & Planning and Environmental Protection Authority (1998) Managing Land Contamination: Planning Guidelines, DUAP, Sydney 1998.

Schedule 2: Council's requirements for consultants reporting on contaminated land

Consultants undertaking any investigations and associated reporting on potentially-contaminated land shall be able to clearly demonstrate and provide the following, as an annexure to reports:

1. That they have relevant qualifications and demonstrated experience and expertise in the following:
 - Contaminated land assessment
 - Soil sampling, Design and methodology
 - Groundwater sampling, design and methodology
 - Interpretation of analytical data
 - Quality control/assurance procedures and
 - Assessment of contaminant exposure pathways and risks.
2. That they have a good understanding of the impact of contaminated land on the environment, public and worker health and safety.
3. That they have a good understanding of the NSW legislation relating to contaminated sites and environmental protection.
4. That they have a good understanding of NSW EPA and Department of Planning Guidelines regarding contaminated sites and this policy.
5. That they have access to expertise and resources in the following areas:
 - Geotechnical/ hydrogeology
 - Environmental chemistry
 - Soil science
 - Ecotoxicology
 - Contaminant transport and exposure assessment
 - Sampling and analysis
 - Risk evaluation, and
 - Remedial technologies and associated requirements
6. That they are able to conduct an investigation in a logical fashion and be able to critically review information and compile reports to a high scientific/engineering standard for contaminated land assessments.
7. Evidence of current insurance for professional indemnity and public liability.

Information shall be provided by consultants in accordance with the "Guidelines for Consultants Reporting on Contaminated Sites", NSW EPA (1995).

Schedule 3: Sources of site history information for preliminary site investigations

- Past aerial photographs
- Council records - planning, development and environmental services building applications, complaints, pollution incident reports
- Other State instrumentalities
- Previous site examinations
- Local historical publications and organisations
- Current and previous site owners
- Current and previous site workers
- Long-term residents
- Past and present telephone books
- Noxious Trades Act register of Noxious Trades
- NSW Environment Protection Authority Section 35 Notices, past and present scheduled premises, unhealthy building land
- Other Government Departments: Agriculture, Minerals and Resources, Land Titles etc.
- Council Trade Waste Agreements
- WorkCover Authority Dangerous Goods branch
- Country Energy sites containing present and past electrical substations.

Source: SSROC (1999) Model Policy on Contaminated Land

FORM 1: Amendment to Information System of Potentially Contaminated Land